Site Investigation Report

Former Chemfab Facility
1030 Water Street
North Bennington, Vermont

Prepared for
Saint-Gobain Performance Plastics

June 2018

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Contents

Executive Summary 1

1.0 Introduction 4

1.1 Investigation Objective 4

1.2 Scope of Investigation Activities 4

1.3 Report Organization 5

2.0 Site Overview and History 6

2.1 Site Location and Description 6

2.2 Property History 7

2.3 Previous Environmental Investigations 7

2.3.1 Underground Storage Tank Closure Report (Appendix A.2) 7

2.3.2 Draft Shallow Soil Sampling Report (Appendix A.3) 7

3.0 Method of Investigation 9

3.1 Roles and Responsibilities 9

3.2 Deviations from the Work Plans 10

3.3 Sequence of Activities 10

3.4 Soil Sampling 11

3.5 Groundwater Sampling 12

3.6 Surface Water Sampling 12

3.7 Basement Floor Drain and Sewer Assessment 13

3.8 Sewer, Sump and Basement Drain Sampling 13

3.9 Sediment Sampling 13

3.10 Bulk Material, Residue, and Surface Wipe Sampling 13

3.11 Water-Level Monitoring 14

3.12 Sampling Quality Control 14

3.12.1 Source Materials and Field Quality Control 14

3.12.2 Laboratory Data Validation 14

3.13 Survey 15
3.14 Investigation Derived Waste 15
4.0 Investigation Findings 16
4.1 Historical File Review and Site Reconnaissance 16
4.2 Applicable State Criteria 16
4.2.1 PFOA 16
4.2.2 Other Constituents 17
4.3 Soil Borings 17
4.3.1 Site Geology 17
4.3.2 Soil Sampling Analytical Results 18
4.3.2.1 PFOA 18
4.3.2.2 Other Constituents 18
4.4 Groundwater Monitoring 19
4.4.1 Groundwater Flow 19
4.4.2 Groundwater Field Parameters 19
4.4.3 Groundwater Sampling Results 20
4.4.3.1 PFOA 20
4.4.3.2 TOP Assay Analysis 20
4.4.3.3 Other Constituents 21
4.5 Surface Water Sampling Results 22
4.6 Sediment Sampling Results 22
4.7 Basement Floor Drain and Sewer Assessment Results 23
4.7.1 Basement Floor Drains 23
4.7.2 Wastewater 23
4.7.3 Stormwater 24
4.8 Sewer Sludge and Solids Sampling 24
4.8.1 PFOA 24
4.8.2 Other Constituents 25
4.9 Bulk Material, Residue and Surface Wipe Sampling Results 25
4.9.1 Bulk Material Sample Results 25
4.9.2 Residue Sample Results 25
4.9.3 Wipe Sample Results 25
4.10 Sampling Quality Control Results 26
5.0 Discussion 28

5.1 Conceptual Site Model – Water Street 28
5.1.1 Land Use 28
5.1.2 Site Utilities 28
5.1.3 Geology 28
5.1.4 Hydrology 29
5.1.5 Site Constituents of Interest 29
5.1.5.1 Fate and Transport 29
5.2 Potential Receptors 30
5.2.1 Soil 30
5.2.2 Groundwater 30
5.2.3 Vapor Intrusion 31
5.2.4 Sewers 31
5.2.5 Surface Water 31
5.2.6 Sediment 31
5.2.7 Building Materials 31
6.0 Summary and Recommendations 32
7.0 References 33

List of Tables

Table 1	Analytical Parameters and Methods
Table 2	Soil Boring Summary
Table 3	Soil Sample Summary
Table 4	Monitoring Well Construction and Sampling Summary
Table 5	Surface Water Sample Summary
Table 6	Sewer, Sump, and Floor Drain Sample Summary
Table 7	Sediment Sample Summary (collected by VTDEC)
Table 8	Bulk Material and Wipe Sample Summary
Table 9	Analytical Soil Results
Table 10	Analytical Groundwater Results
Table 11	Analytical Surface Water Results
Table 12	Analytical Sewer, Sump, and Floor Drain Results
Table 13	Analytical Sediment Results (collected by VTDEC)
Table 14	Analytical Bulk Material Results
Table 15	Analytical Residue Sample Results
Table 16	Analytical Wipe Sample Results

List of Figures

Figure 1	Site Location
Figure 2	Site Layout
Figure 3	Investigation Locations
Figure 4	Groundwater Monitoring Results – March 2018
Figure 5	Groundwater Elevation – May 2018
Figure 6	Surface Water and Sediment Sample Results
Figure 7	Site Sewer Layout
Figure 8	Sump, Sanitary, and Sewer Sludge Sample Results
Figure 9	Bulk Material and Wipe Sample Locations
Figure 10	Soil Sample Results
Figure 11	Geologic Cross Section A-A’
Figure 12	Geologic Cross Section B-B’
Figure 13	Building Cross Section C-C’
Figure 14	Building Cross Section D-D’
Figure 15	Building Cross Section E-E’
Figure 16	Building Cross Section F-F’

List of Appendices

Appendix A	Previous Environmental Investigations
Appendix B	Field Documentation
Appendix C	Soil Boring Logs
Appendix D	Well Construction Logs
Appendix E	Quality Assurance and Quality Control Review
Appendix F	Analytical Lab Reports
Appendix G	Land Use Permit
Appendix H	TOP Assay Analysis
Appendix I	Sewer Inspection Report

Certifications

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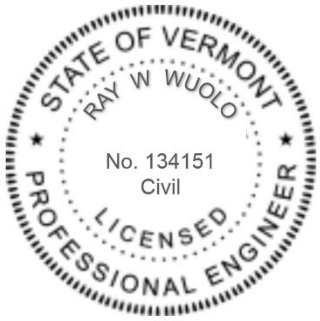
June 28, 2018
Date



Abbreviations

Abbreviation	Description
bgs	below ground surface
CSM	conceptual site model
ELLE	Eurofins Lancaster Laboratories Environmental, LLC
ES	Environmental Standards
FSP	Field Sampling Plan
IDW	investigation derived waste
ISCIWP	Initial Site Characterization Investigation Work Plan
MDL	method detection limit
NAD98/2011	North American Datum 1983/2011
NAVD88	North American Vertical Datum 1988
ng/g	nanograms per gram
NTU	nephelometric turbidity unit
NYLD	New York Lead Detection, Inc.
ORP	oxidation-reduction potential
PCB	polychlorinated biphenyl
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PID	photoionization detector
ppb	parts per billion
ppt	parts per trillion
PTFE	polytetrafluoroethylene
QA/QC	quality assurance and quality control
QAPP	Quality Assurance Project Plan
SI	site investigation
SMS	Site Management Section
SOP	standard operating procedure
SSIWP	Supplemental Site Investigation Work Plan
SVOC	semi-volatile organic compound
TAL	target analyte list
TCL	target compound list
TOC	total organic carbon
TOP	total oxidizable precursor
µg/l	micrograms per liter
UST	underground storage tank
VOC	volatile organic compound
VTANR	Vermont Agency of Natural Resources
VTDEC	Vermont Department of Environmental Conservation

VT67A	Vermont State Highway 67A
WWTP	Wastewater Treatment Plant

Executive Summary

A site investigation was performed at the former ChemFab facility located at 1030 Water Street (Site) in the Village of North Bennington, Vermont (Figure 1). The Site has been identified by the Vermont Department of Environmental Conservation (VTDEC) and Site Management Section (SMS) as Site #20164630. The investigation was completed in accordance with the requirements of the Consent Order between the State of Vermont Agency of Natural Resources (VTANR) and Saint-Gobain Performance Plastics (Saint-Gobain) dated October 2, 2017, and the VTDEC-approved work plans as amended by C.T. Male Associates Engineering, Surveying, Architecture, Landscape Architecture & Geology, D.P.C. (C.T. Male) and Barr Engineering Co. (Barr) (C.T. Male, 2016a; C.T. Male, 2016b; C.T. Male, 2018a; C.T. Male, 2018b).

The Site is nearly 5 acres and consists of northern and southern parcels separated by Vermont State Highway 67A; the northern parcel includes an approximately 46,000 square-foot former manufacturing building.

The primary objective of the investigation was to assess the distribution of per- and poly-fluoroalkyl substances (PFAS) in soil, groundwater, and other media at the Site. The secondary objective of the investigation was to assess metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, and polychlorinated biphenyls (PCBs). The objectives of this investigation were similar to the Conceptual Site Model Site Investigation that was completed in and near the Town of Bennington and the Village of North Bennington in 2017 and 2018 (Barr, 2018).

The investigation activities were completed in 2016 and 2018 in general accordance with the work plans. The scope of work included: reviewing historical reports and available drawings, performing site reconnaissance, an interior building survey, and a roof inspection. In addition, the investigation included the following activities:

- Collecting 104 soil samples from 19 locations inside and outside the building. Soil samples were analyzed for PFAS, total organic carbon (TOC), pH, and moisture content. Additionally, eight soil samples were analyzed for the target compound list (TCL) VOCs, TCL SVOCs, and target analyte list (TAL) metals and cations.
- Collecting groundwater samples from 18 monitoring wells installed inside and outside the building. A total of 42 groundwater samples were analyzed for PFAS, metals, VOC, and SVOC; five groundwater samples were analyzed for total oxidizable precursors (TOP); and 21 groundwater samples were analyzed for PCBs and pesticides.
- Collecting and analyzing one surface water sample for PFAS analysis.
- Performing video inspections of Site sewers and other drain lines.
- Collecting 13 sludge samples from Site sewers and catch basins for PFAS, TOC, metals, SVOC, and VOC analysis.

- Collecting 20 bulk material and 53 wipe samples from the interior of the building for PFAS analysis.

In addition to evaluating data collected as part of these activities, analytical data from five surface water samples and six sediment samples collected by VTDEC in 2016 were included in this evaluation.

Findings associated with the investigation objectives include the following:

- The distribution of PFAS compounds and other constituents in soil and groundwater at the Site have been characterized:
    - PFOA concentrations in the soil were below the performance standard, as identified in the Consent Order, in all samples with the exception of one sample collected below the former Chemfab building concrete floor. This PFOA concentration is limited laterally and vertically and is not in contact with the groundwater.
    - PFOA concentrations in groundwater at the Site are above the groundwater performance standard set forth in the Consent Order and are being addressed by Corrective Actions for Corrective Action Area I in accordance with the Consent Order.
    - There are no other constituents in the soil or groundwater requiring further investigation.
- The vapor intrusion screening pathway is incomplete based on the lack of VOCs detected in soil and groundwater samples. VOC concentrations in soil and groundwater samples were below the VTDEC vapor intrusion screening level with the exception of chloroform in five groundwater samples. However, there was no evidence of chloroform use at the Site, and it is likely that these detections were the result of laboratory contamination.
- PFOA was detected in sediment samples collected from Paran Creek and the Walloomsac River, but at concentrations below the direct contact soil exposure criteria for PFOA of 300 parts per billion (ppb).
- PFOA was detected in surface water samples collected from Paran Creek and the Walloomsac River. The State of Vermont has stated that "the PFOA concentrations found in the waters tested are much lower than concentrations that could be harmful to freshwater organisms, and are much lower than levels that would be a risk to people who swim there" (State of Vermont, 2016).
- PFOA was detected in sludge samples from the sumps, wastewater sewer, stormwater catch basins, and the basement floor drain discharge pipe. Based on the sewer inspection completed during this investigation, it was determined that the sumps discharge to the wastewater sewer which discharges to the wastewater treatment plant, representing an incomplete exposure pathway. Basement floor drains and stormwater sewers discharge to Paran Creek, but sediment and surface water concentrations in Paran Creek are not elevated and the sludge sample at the discharge to Paran Creek from the building is below the direct contact soil exposure criteria for PFOA (300 ppb).

- PFOA was detected in bulk material, residue, and wipe samples collected within the building. The building is currently unoccupied and secured (i.e., locked) to limit current potential exposure to building materials.

Based on the soil and groundwater results and the existing site conditions, no significant source areas for impacts to groundwater, as indicated by elevated groundwater concentrations representative of a direct release of PFOA, were identified. PFOA concentrations in the groundwater at the Site are consistent with impacts from air deposition.

Sufficient investigation data has been collected to proceed to the corrective action feasibility investigation as detailed in Appendix A, Section VI, Item 12c of the Consent Order (specific to Water Street). The feasibility investigation will include an evaluation of the following potential receptors:

- Sewer sludge within stormwater catch basins with potential exposure to utility workers and contribution to downgradient surface water bodies, and
- Building materials with potential exposure during future land use changes

It is recommended that three additional quarterly groundwater monitoring events be completed to further evaluate temporal variability, as proposed in the Supplemental Site Investigation Work Plan (C.T. Male, 2018a).

1.0 Introduction

This report presents investigation results for the former ChemFab facility located at 1030 Water Street (Site) in the Village of North Bennington, Vermont (Figure 1). The Site has been identified by the Vermont Department of Environmental Conservation (VTDEC) and Site Management Section (SMS) as Site #20164630, and work is being completed in accordance with the requirements of the Consent Order between the State of Vermont, Agency of Natural Resources (VTANR) and Saint-Gobain Performance Plastics Corporation (Saint-Gobain) dated October 2, 2017 (Consent Order).

Saint-Gobain retained C.T. Male Associates Engineering, Surveying, Architecture, Landscape Architecture & Geology, D.P.C. (C.T. Male) and Barr Engineering Co. (Barr) to conduct the investigation. Investigation activities were conducted as specified in two work plans:

- Initial Site Characterization Investigation Work Plan (ISCIWP) submitted to VTDEC on March 31, 2016 (C.T. Male, 2016a). VTDEC provided comments on the ISCIWP on April 15, 2016 (VTDEC, 2016). Based on these comments, the ISCIWP was revised on April 29, 2016 and resubmitted to VTDEC on May 9, 2016 (C.T. Male, 2016b).
- Supplemental Site Investigation Work Plan (SSIWP) submitted to VTDEC on November 30, 2017 (attachment to C.T. Male, 2017). VTDEC provided comments on the SSIWP on December 12, 2017 (VTDEC, 2017a). Based on these comments, the SSIWP was revised and resubmitted to VTDEC on January 11, 2018 (C.T. Male, 2018a). The SSIWP was conditionally approved on January 12, 2018 pending receipt of an acceptable timeline (VTDEC, 2018a). The supplemental investigation schedule was provided to VTDEC on January 19, 2018 (C.T. Male, 2018b) and the SSIWP was approved on January 19, 2018 (VTDEC, 2018b).

This report satisfies the requirements of Appendix A, Section VI, paragraph 12a of the Consent Order as related to Water Street.

1.1 Investigation Objective

The primary objective of the investigation was to assess the distribution of per- and poly-fluoroalkyl substances (PFAS) in soil, groundwater, and other media at the Site. The secondary objective of the investigation was to assess metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, and polychlorinated biphenyls (PCBs). The objectives of this investigation were similar to the Conceptual Site Model Site Investigation that was completed in and near the Town of Bennington and the Village of North Bennington in 2017 and 2018 (Barr, 2018).

1.2 Scope of Investigation Activities

The investigation scope included the following activities to characterize the distribution of PFAS at the Site:

- Reviewed historical reports and available drawings, from both VTDEC and Saint-Gobain archives, and performed a site reconnaissance, interior building survey, and a roof inspection to understand historical material handling practices and current Site conditions.
- Reviewed published geologic, hydrogeologic, and soil reports to establish the general Site geologic setting.
- Collected soil and groundwater samples inside and outside the building, surface water and sediment samples from Paran Creek, and sludge samples from Site sewers and catch basins for laboratory analysis.
- Collected bulk material, residue, and surface wipe samples from the interior of the building (including the roof stacks) for laboratory analysis.
- Performed video inspections of Site sewers and other drain lines to assess potential release or infiltration locations.

The investigation scope was completed according to the VTDEC-approved ISCIWP and SSIWP with the exception of minor deviations detailed in Section 3.0.

1.3 Report Organization

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

- **Section 2.0 Site Overview and History** – discussion of the Site location, description, history, and previous environmental investigations.
- **Section 3.0 Method of Investigation** - describes the roles and responsibilities, deviations from the work plans, investigation methods, and management of investigation derived waste (IDW).
- **Section 4.0 Investigation Findings** - summary of the applicable criteria, sampling results compared to criteria, and quality assurance and quality control (QA/QC) review.
- **Section 5.0 Discussion**- summary of the interpretation and analysis of the conceptual site model (CSM) and potential receptors.
- **Section 6.0 Summary and Recommendations** – summary of the findings as related to the objective of the investigation.

2.0 Site Overview and History

This section describes the Site location, and provides a summary of the property history and previous environmental investigations. In addition to historical document review completed during the Phase I Environmental Site Assessment, over 50,000 records on the VTDEC website (https://anrweb.vt.gov/DEC/ DEC/PFOADocs.aspx) were reviewed prior to completing this investigation. These records included historical documents related to the manufacturing process and material handling at the Site. This information was used in part to further refine investigation locations.

2.1 Site Location and Description

The Site is located at 1030 Water Street in the Village of North Bennington, Vermont (Figure 1) with latitude and longitude coordinates of 42.914286°N and 73.246135°W, respectively. The Site consists of northern (1.67-acre) and southern (3-acre) parcels separated by Vermont State Highway 67A (VT 67A). The approximate locations of Site features including roof vents (cupolas) and stacks, wastewater sewers, and, stormwater sewer are shown on Figure 2.

The approximately 1.67-acre northern parcel includes a 46,300-square foot warehouse with an outdoor parking lot and two loading dock areas. The former fabric treatment area was located in the central portion of the building. The Site building is contiguous with the building to the north, but was constructed more recently.

The building has an approximately 8-inch-thick concrete floor slab that is present throughout the building. The wall surface is concrete block and brick with a metal outer envelope and ceiling. A two-story office space is located at the southwest corner of the building and is constructed with sheetrock walls and acoustical ceiling tiles. Steel support columns are present along the exterior walls and in two north-south rows within the building. The roof was reportedly constructed with a metal and membrane roofing system, but the corrugated metal has been removed. All manufacturing equipment has been removed from the building, and it is currently unoccupied. Remnants of various stacks and air handling equipment are present on the roof structure. A basement is present in the adjoining building to the northwest (Figure 2).

The northern parcel is bounded by the adjoining buildings to the north, Paran Creek to the east, VT 67A (also referred to as North Bennington Road) to the south, and VT 67A (also referred to as Water Street) to the west. The adjoining buildings to the north are currently used for warehouse and business activities and, to a lesser extent, apartments. Commercial and residential properties are located on adjacent parcels.

The southern parcel is primarily wooded with a parking area and telephone/communication building on the northern portion. The floor slab of a former warehouse is present on this parcel, as well as several propane tank saddles. The southern parcel is bounded by VT 67A to the north, residential property to the east, woods, an electrical substation and the Walloomsac River to the south, and River Road to the west. Residential and agricultural properties are located on adjacent parcels.

2.2 Property History

Historically the southern parcel was largely undeveloped and used for fuel storage (i.e., heating oil, gasoline, propane, etc.) and parking (Appendix A.1). The land use at the northern parcel has been industrial since the early 1800s when it was used as a cotton mill. By the early 1900s, H.C. White Co. purchased the Site, and the northern parcel was used as a lumberyard and as a manufacturing facility that included the production of Kiddie Kars and school furniture (Appendix A.1). By 1941, the Site was purchased by Vermont Gravure and Lithographic Corp. and later Polygraphic Co. of America, Inc. (Appendix A.1). During that time, it appears that the Site was primarily used for employee parking and truck loading based on historical aerial photographs. The current Site building was constructed after Polygraphic.

In 1978, Chemical Fabrics Corporation (Chemfab) transferred their fabric treatment operations to the Site. It was purchased by Saint-Gobain in 2000 and operations continued until February 2002, when the plant closed. During operations, fiberglass fabric was pulled through a mixture of polytetrafluoroethylene (PTFE), surfactants, dispersants, coatings, and pigments before being drawn through vertical drying ovens where the coating was cured onto the fabric (Chemfab, 1986). The facility had up to 12 drying towers which vented through stacks in the roof (Alliance, 1987). Wastewater was collected in concrete tanks constructed on the plant floor; no underground holding tanks were used for wastewater storage (Chemfab, 1987). A chemical storage area was located in the basement of the adjacent building to the north and was serviced by a floor drain and sump that discharged east of the building into Paran Creek.

2.3 Previous Environmental Investigations

Three previous environmental investigations at the Site include: an underground storage tank (UST) investigation, a Phase I Environmental Site Assessment, and a shallow soil investigation. Copies of the referenced reports are provided in Appendix A.

2.3.1 Underground Storage Tank Closure Report (Appendix A.2)

The VTDEC bulk storage database identifies the Site (Facility ID No. 9999637) with a 2,000-gallon UST for #2 or #4 fuel oil. The former UST was located on the southern parcel near the existing concrete pad and is shown on Figure 2. The tank was closed on August 27, 1994, by Clean Harbors of Glenmont, New York.

After the tank was removed, discrete soil samples were collected from the tank basin sidewalls and bottom for headspace analysis, and the reported headspace readings were less than one part per million. In addition, two composite soil samples from the tank basin sidewalls and the bottom were then collected for laboratory analysis. Samples were analyzed for VOCs and total petroleum hydrocarbons and analytes were below the method detection limits (MDL).

2.3.2 Draft Shallow Soil Sampling Report (Appendix A.3)

A shallow soil investigation was completed in 2016 to evaluate the presence and distribution of PFAS, inclusive of perfluorooctanoic acid (PFOA), in shallow soil at the Site and at select off-site locations,

including topsoil stockpiles at a garden nursery and sludge from the Bennington Wastewater Treatment Plant (WWTP).

During this investigation, soil samples were collected and analyzed for PFAS compounds, including 20 soil samples from five locations at the Site (ChemFabVentW, ChemFabWSide, ChemFabBDEast, ChemFabRiver, and 180RiverSt). At each sampling location, four discrete samples were collected at the following depth intervals: 0-0.5', 0.5-1', 1-1.5', and 1.5-2'. The results for the 20 samples collected at the Site are discussed in this report, and the results of the samples collected at off-site locations are discussed in the CSM Site Investigation (SI) Report (Barr, 2018).

3.0 Method of Investigation

Investigation activities were conducted in accordance with the VTDEC-approved ISCIWP (C.T. Male, 2016b) and SSIWP (C.T. Male, 2018a) to characterize the distribution of PFAS at the Site. A desktop review of available reports, drawings, and historical data was completed in addition to the field activities.

The field activities included:

- performing surface soil sampling;
- advancing soil borings for soil sampling;
- installing monitoring wells for groundwater sampling;
- collecting surface water samples;
- performing sewer and drain line inspections and sampling;
- completing sediment sampling;
- collecting bulk material, residue, and surface wipe samples inside the building (including the roof stacks); and
- conducting a visual inspection of the building roof utilizing an unmanned aerial vehicle (drone) fitted with a camera.

Investigation activities were conducted in accordance with the Field Sampling Plan (FSP; C.T. Male and Barr, 2018a), included as Attachment 1 to the SSIWP (C.T. Male, 2018a). Standard operating procedures (SOPs) were provided in the Quality Assurance Project Plan (QAPP; C.T. Male and Barr, 2018b), included as Attachment 2 to the SSIWP. Field documentation including field notes, a summary of the IDW management, and a photographic log of select activities are provided in Appendix B. Quality-control samples were collected in accordance with the QAPP (C.T. Male and Barr, 2018b). The investigation locations are shown on Figure 3. Sampling parameters and methods are provided in Table 1.

3.1 Roles and Responsibilities

Site investigation roles and responsibilities included:

- Barr and C.T. Male collaborated to perform the Site investigation. C.T. Male generally conducted contractor oversight and sampling, with some field work completed by Barr.
- Cascade Drilling (Cascade) was the subcontractor for drilling the soil borings and installing the monitoring wells.
- New York Leak Detection, Inc. (NYLD), Clean Harbors, and EcoClean, LLC (EcoClean) were the sewer clearing and inspection contractors used for the sewer assessment.

- Eurofins Lancaster Laboratories Environmental, LLC (ELLE) was used for analysis of laboratory samples.
- Environmental Standards, Inc. (ES) was the third-party data validation subcontractor to conduct quality control reviews and validate the analytical data.

3.2 Deviations from the Work Plans

Investigation and sampling activities were conducted in general accordance with the Work Plan. Minor deviations and modifications from the Work Plan are summarized below:

- Drilling refusal prevented advancing monitoring well MW1806 to the desired depth. Two borings were advanced near the proposed location, and the deepest boring was completed as monitoring well MW1806. Groundwater is currently not present in monitoring well MW1806; therefore, groundwater samples have not been collected at this location.
- At the request of VTDEC, additional wipe and residue samples were collected inside the building. Wipe samples were collected within the former stacks at three locations and nine additional residue samples were collected from ceiling I-beams.
- A drone inspection of the roof was completed in lieu of a physical inspection due to concerns related to the integrity of the roof. The results of the drone inspection is summarized in Section 4.1.

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

3.3 Sequence of Activities

Investigation activities were completed over two years and in multiple mobilizations by C.T. Male and Barr (and their subcontractors), as well as by the VTDEC. A summary of the investigation activities is provided below (activities completed or overseen by C.T. Male and Barr, unless otherwise noted):

- Shallow soil sampling – March 2016
- Exterior monitoring well installation (MW01, MW02, MW03, MW03S, MW04, MW04S, MW05, MW06, MW06S, MW07, and MW07S) - June 13-20, 2016
- Interior monitoring well installation (MW1801, MW1802, MW1803, MW1804, MW1805, MW1806, and MW1807)– March 6-11, 2018
- Groundwater sampling
    - 1st event – July 13-15, 2016
    - 2nd event – December 16-20, 2016

    - 3rd event – March 19-21, 2018
    - 4th event (total oxidizable precursor [TOP] assay analysis only) – April 20-23, 2018
- Groundwater elevation monitoring – March 2018 and May 2018
- Surface water sampling
    - 1st event – March 10, 2016 (eight samples collected by VTDEC)
    - 2nd event – May 2018 (one sample)
- Sediment sampling - March 10, 2016 (six samples collected by VTDEC)
- Building sump sampling – August 17, 2016
- Visual roof inspection using a drone – October 20, 2017
- Bulk material and wipe sampling – March 29-30, 2018 and April 23, 2018
- Sewer line, sump, and basement floor drain sampling
    - 1st event – August 16-17, 2016
    - 2nd event – April 5, 2018
    - 3rd event – May 18, 2018
- Sewer and other buried pipe inspections
    - Camera inspections by NYLD – December 5 and 6, 2017
    - Sewer clearing and camera inspection by EcoClean and Clean Harbors – February 27, 2018
    - Camera inspection of pipe in retaining wall by NYLD - June 4, 2018

3.4 Soil Sampling

One hundred and four soil samples were collected from seven rotosonic, seven direct push, and five hand auger borings advanced in 2016 and 2018. The boring depths ranged from 2 to 37 feet below the ground surface (bgs). The soil samples were analyzed for PFAS and total organic compound (TOC). Additionally, eight soil samples were analyzed for the target compound list (TCL) VOCs, TCL SVOCs, and target analyte list (TAL) metals and cations. Soil samples were also analyzed for pH and moisture content.

The soil samples were classified in accordance with ASTM D2488 (visual-manual method), and the presence of organic vapors were evaluated with a photoionization detector (PID). In general, samples from borings were collected from the following intervals: uppermost 1 to 2 feet of soil; distinct lithological changes; the approximate depth of groundwater; and approximately 5 feet below the water table.

Samples (180_RIVER RD, CHEMFAB_BD_EAST, CHEMFAB_RIVER, CHEMFAB_VENT_W, and CHEFAB_WEST_SIDE) obtained from hand augers were collected from the uppermost 2 feet of soil only.

The soil boring locations are shown on Figure 3, and soil boring coordinates are provided in Table 2. The soil sample details, including sample interval, analytical parameters, and dates are summarized on Table 3. Field documentation including the PID screening results is provided in Appendix B.1. Soil boring logs are provided in Appendix C.

3.5 Groundwater Sampling

A total of 18 monitoring wells were installed at the Site. Eleven monitoring wells were installed outside the building in June 2016 (MW01, MW02, MW03, MW03S, MW04, MW04S, MW05, MW06, MW06S, MW07, and MW07S). Seven monitoring wells were installed inside the building in March 2018 (MW1801, MW1802, MW1803, MW1804, MW1805, MW1806, and MW1807). Four nested pairs of monitoring wells at MW03/03S, MW04/04S, MW06/06S, and MW07/07S were installed to evaluate vertical concentration variability and hydraulic gradients. The remainder of the monitoring wells were installed at the approximate depth of drilling refusal and spanning across the approximate elevation of the water table. Monitoring well locations are shown on Figure 4 and Figure 5; well construction logs are provided in Appendix D; and monitoring well construction details, surveyed elevations, and parameters collected are summarized in Table 4.

During four groundwater sampling events completed between July 2016 and April 2018, the following samples were collected for laboratory analysis using low flow groundwater sampling techniques in accordance with the SOPs provided in the FSP (C.T. Male and Barr, 2018a):

- 42 groundwater samples for PFAS, metals, VOCs, and SVOCs analysis
- 5 groundwater samples for TOP assay analysis. Samples were collected from monitoring wells MW02, MW04, and MW07 as described in the SSIWP (C.T. Male, 2018a) and from monitoring wells MW1802 and MW1805, selected as the two interior wells based on the highest PFOA concentration during the March 2018 sampling event.
- 21 groundwater samples for PCBs and pesticides analysis

3.6 Surface Water Sampling

Six surface water samples were collected from Paran Creek and the Walloomsac River near the Site by VTDEC in March 2016. The surface water sampling results were previously reported in the *Update on Surface Water Testing Results in Bennington* (State of Vermont, 2016).

One surface water sample (SW1801) was collected from Paran Creek adjacent to the Site in May 2018 by C.T. Male. This surface water sample was collected upgradient of the residual solids sample collected from the basement floor drain pipe outfall discharging below the water surface of Paran Creek.

The surface water sampling locations are shown on Figure 6. The surface water sampling coordinates and sample date are summarized in Table 5.

3.7 Basement Floor Drain and Sewer Assessment

The basement floor drain, and the wastewater and stormwater sewer assessment was completed using a combination of reconnaissance, traditional survey, and camera inspections. Site reconnaissance was conducted to identify sumps, existing piping, pipe penetrations, and potential access points for subsequent camera inspections. The location of the existing features were surveyed to provide spatial reference for the sewer locations and are shown on Figure 7.

A camera inspection was conducted by NYLD in December 2017 to assess the condition and route of the basement drain lines and sewer lines within the building. Based on the presence of obstructions, the sewers were cleared by EcoClean and Clean Harbors in February 2018. EcoClean completed a camera inspection following the line clearing. In May 2018, a third camera inspection was conducted by NYLD of a pipe observed in the retaining wall on the west bank of Paran Creek that had not been identified during earlier Site reconnaissance or sewer inspections.

3.8 Sewer, Sump and Basement Drain Sampling

Between March 2016 and April 2018, 12 wastewater and solids samples were collected from wastewater sumps, sewer and stormwater catch basins, and a drain line. The samples were analyzed for PFAS, TOC, metals, SVOCs, and VOCs. The sewer (sumps and manhole) sampling locations are shown on Figure 8.

One solids sample (Sludge1801) was collected from within the basement floor drain pipe outfall to Paran Creek by C.T. Male in May 2018. The solids sample was collected from approximately 3 feet inside the submerged pipe using a hand auger. The sample was analyzed for PFAS, TOC, metals, SVOCs, and VOCs.

The sampling locations are shown on Figure 8 and sampling locations, date, and matrix are summarized in Table 6.

3.9 Sediment Sampling

Three sediment samples were collected from Paran Creek near the Site and one sediment sample was collected from the Walloomsac River below Paran Creek by VTDEC in March 2016. The sediment sampling results were previously reported in the *Update on Surface Water Testing Results in Bennington* (State of Vermont, 2016).

The sediment sampling locations are shown on Figure 6 and summarized in Table 7.

3.10 Bulk Material, Residue, and Surface Wipe Sampling

In March and April 2018, ten bulk material, ten residue, and 53 surface wipe samples were collected for PFAS analysis from the interior of the building and from select stacks and ductwork that could be safely accessed. The locations of the bulk material, residue, and wipe samples are shown on Figure 9A and Figure 9B and summarized in Table 8.

The bulk material samples consisted of building material (i.e., wall and ceiling insulation). Residue samples consisted of residue that was scraped off the ceiling, floor or ductwork surfaces. The bulk material and wipe samples were collected from walls, I-beams, and within stacks at various elevations from 24 locations inside the building. These locations included the former fabric treatment area, the office, and chemical storage area in the basement of the adjoining building.

3.11 Water-Level Monitoring

Water levels were measured at monitoring wells and the gauging stations on Paran Creek to establish groundwater flow directions across the Site. Water levels in the monitoring wells were measured during each of the sampling events and once in May 2018 when gauging stations on Paran Creek were installed. Surface water levels at the Paran Creek gauging stations were measured during the May 2018 event. The monitoring well locations and groundwater elevations are shown on Figure 4 and Figure 5, and the Paran Creek gauging stations are shown on Figure 5.

3.12 Sampling Quality Control

The sampling quality control program included analysis of source materials, collection of field quality-control samples, and implementation of laboratory QA/QC procedures in accordance with the project Quality Assurance Project Plan (C.T. Male and Barr, 2018a). Individual validation reports and a QAQC overview authored by ES are included in Appendix E and laboratory reports are in Appendix F.

3.12.1 Source Materials and Field Quality Control

As a check on the potential for cross-contamination, quality-control samples were collected and analyzed for PFAS from source materials and field equipment used in the investigation. Equipment and source materials with PFAS detections that posed a risk of cross-contamination or of otherwise affecting sample results were not used.

Source materials sampled included water used by the drilling contractor for drilling and equipment decontamination, and water used as final decontamination rinse water. When possible, equipment/rinsate blanks were collected and analytical results reviewed prior to mobilization of the equipment to the Site.

Field quality-control samples included equipment blanks, field blanks, trip blanks, and duplicates. Quality-control samples were taken for each media type at a ratio of one set of quality-control samples per 20 media samples. Laboratory-prepared trip blanks were submitted with aqueous samples requiring analysis for TCL VOCs or PFAS. The types of field quality-control samples collected and the sampling method and rationale are detailed in the Work Plans (C.T. Male, 2016b; C.T. Male, 2018b). Quality-control samples for the TOP assay were limited to duplicates, equipment blanks, and trip blanks. Equipment blank and duplicate results are presented in Appendix E.

3.12.2 Laboratory Data Validation

The laboratory analytical data were evaluated by ES using SOPs based on guidance documents and/or method documentation. In the case of PFAS analyses, ES developed a document based on the raw data they received from ELLE.

Data were evaluated at different levels of review as part of the validation process. A Level IIA data review confirms that analytical methods, analytes, and reporting levels are consistent with project objectives and applicable state and federal regulations. Additionally, this level of review verifies that supporting QA/QC are of a level of quality necessary to support sample results. Level IV data validation consists of a full review and evaluation of the summaries and raw data associated with the data package, and ensures the highest level of defensibility.

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

- Soil samples - 90% Level IIA review, 10% Level IV validation;
- Groundwater samples from monitoring wells previously sampled - 100% Level IIA validation; and
- New investigative media (groundwater, surface water, sediment, bulk materials, wipes) - 100% Level IV validation.

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

3.13 Survey

A boundary and topographic survey of the Site was conducted to serve as a scaled base map for the investigations and related investigation report maps and figures. The topographic survey was completed using a Leica C-10 three-dimensional laser scanner (processed through Cyclone 9.1 software) and conventional field survey methods.

The investigation locations (i.e., soil borings, monitoring wells, etc.) and other Site features were surveyed using North American Vertical Datum 1988 (NAVD88) and Vermont State Plane Coordinate System, North American Datum 1983/2011 (NAD83/2011) epoch 2010.00 for vertical and horizontal location, respectively. The tops of the well casings were surveyed to within 0.01 of a foot and referenced NAVD88. In addition, two stream-level gauge stations were established on Paran Creek (Figure 5) both upstream and downstream of the Site and were surveyed to establish their elevation to 0.01 foot.

3.14 Investigation Derived Waste

IDW consisted of soil cuttings from boring activities and water from equipment decontamination and monitoring-well development and sampling. Handling and disposal of IDW was consistent with the approach described in the Work Plans (C.T. Male, 2016b; C.T. Male, 2017; C.T. Male 2018b). Additional description of IDW management and disposal is provided in Appendix B.6.

4.0 Investigation Findings

4.1 Historical File Review and Site Reconnaissance

The historical file review included a review of approximately 50,000 records from the VTDEC archive (https://anrweb.vt.gov/DEC/_DEC/PFOADocs.aspx) and Saint-Gobain files. The objective of the file review was to provide further insight into the manufacturing process to identify potential modes of release at the Site. The following pertinent records were identified during the file review: process diagrams and descriptions, building layout drawings, air permits, photographs of the Site during operation, and a land use permit (Appendix G).

The review did not identify additional physical details about the fabric treatment operations, with the exception of the land use permit (Appendix G). The land use permit was for the sump connection (SUMP01) from the manufacturing area in 1979, at the beginning of Chemfab operations at the Site. It also confirmed that piping associated with the wastewater handling was aboveground within the building.

A review of Site photographs during operation and Site reconnaissance of the roof using a drone indicate that the corrugated metal present as the outermost roof layer during Chemfab operations has been removed or covered. The drone inspection identified several locations where the roof decking was separated which prevented physical roof inspections due to health and safety considerations.

Site reconnaissance inside the building identified the general location of the former dryers, aboveground piping, tubs, sumps, and basement floor drains beneath the off-site building to the north. The concrete floor inside the building was observed to be intact, with only a few minor surficial cracks. The information gathered during Site reconnaissance identified the locations for access for the sewer inspections and informed the selection of investigation locations, as presented in the SSIWP (C.T. Male, 2018a).

4.2 Applicable State Criteria

Each media and potential exposure pathway was evaluated against performance standards for PFOA specified in the Consent Order and risk-based standards specified by VTDEC.

4.2.1 PFOA

The performance standards for PFOA are based on the following performance standards specified in the Consent Order:

- Soil – PFOA concentrations shall not exceed 300 parts per billion (ppb) as described in Appendix A, Section VI, paragraph 13 of the Consent Order.
- Groundwater – PFOA concentrations shall not exceed 20 parts per trillion (ppt) as described in Appendix A, Section III, paragraph 4h of the Consent Order.

There are no PFOA performance standards for surface water, sediment, sludge, and building materials. The building material results were evaluated for the presence or absence of PFAS constituents.

4.2.2 Other Constituents

Analytical results for other potential constituents of interest in soil and groundwater were compared to the criteria specified in the *Draft Investigation and Remediation of Contaminated Properties Rule* (VTDEC, 2017b), hereafter referred to as VTDEC Criteria.

- Soil – soil sample concentrations were compared against the direct contact standard and state background concentrations
    - Direct contact: USEPA Regional Screening Levels - Industrial (using target cancer risk [TR]=1E-06, Hazard Quotient [HQ]=1.0)
    - Background: VTDEC Background Soil Concentrations (Urban)
- Groundwater – groundwater sample concentrations were evaluated against the ingestion and vapor intrusion potential exposure pathways
    - Ingestion: VTDEC Groundwater Quality Standards: Enforcement Standards
    - Vapor Intrusion: Vapor Intrusion Screening Values - Groundwater

Samples of surface water, sediment, and building materials were not analyzed for other potential constituents of interest.

4.3 Soil Borings

Soil samples were collected for geologic characterization and laboratory analysis during the three separate investigation phases identified in Section 3.3. Soil sample locations and PFOA results are shown on Figure 10 and soil boring logs are provided in Appendix C.

4.3.1 Site Geology

The Site is located in the Northeastern Appalachians groundwater region which is characterized by rolling topography that primarily reflects the weathered bedrock surface with glacial and fluvial landforms mantling the bedrock (Randall et al., 1988). Near surface soil consists primarily of sand and gravel from glacial drift or alluvial deposits which is consistent with recent mapping in the area (DiSimone, 2017)

Three primary units were identified at the Site: fill, native (sand and gravel), and bedrock (limestone/dolomite). A north-south cross section parallel to Paran Creek and west-east cross section perpendicular to Paran Creek are shown as Figure 11 and Figure 12, respectively. The thickness of fill varies from approximately 8 to 17 feet beneath the building to less than 5 feet beneath the parking lot and in undeveloped areas. The fill consists of brown sand and gravel with minor amounts of anthropogenic materials (e.g., brick fragments).

The fill is underlain by native unconsolidated sand and gravel consisting primarily of fine- to coarse-grained sand and lesser amounts of gravel and silt. The native sand and gravel is underlain by the limestone/dolomite bedrock of the Clarendon Springs or Shelburne Formation. Bedrock is encountered

between approximately 10 and 22 feet bgs at the Site. The north–south trending valley containing Paran Creek in the area of the Site contains thicker unconsolidated material with greater depths to bedrock closer to Paran Creek.

4.3.2 Soil Sampling Analytical Results

Soil samples were analyzed for PFAS, TOC, pH, and moisture content to evaluate the distribution of PFAS. Soil samples were analyzed for TCL VOCs, TCL SVOCs, and TAL metals and cations at select locations adjacent to former manufacturing features identified as having the highest potential for historical releases. The analytical parameters and methods are presented in Table 1, and the analytical results for the soil samples are presented in Table 9. Soil sample concentrations greater than the PFOA performance standard or VTDEC Criteria are shown on Figure 10.

4.3.2.1 PFOA

A total of 102 soil samples were analyzed for PFAS. PFOA concentrations ranged from below the MDL to 380 nanograms per gram (ng/g or ppb). PFOA concentrations were generally higher in shallow soil samples compared to deeper soil samples. PFOA concentrations correlate with TOC concentrations as near-surface soil generally had higher organic content.

Only one sample had a PFOA concentration above the performance standard of 300 ppb: soil sample SB1807 from 0-1 feet bgs had a PFOA concentration of 380 ppb. This sample was collected from the uppermost foot of soil beneath the concrete slab adjacent to Sump 3 within the building. Figure 10 presents PFOA analytical results.

As noted in the CSM SI Report (Barr 2018), the frequency of PFOA detected in the soil samples and the relatively uniform concentrations across sampled depths for the samples collected outside of the building are consistent with aerial deposition of PFOA during historical operations at the facility.

4.3.2.2 Other Constituents

Eight soil samples were analyzed for TCL VOCs, TCL SVOCs, and TAL metals and cations from two borings, SB1802 and SB1807, located adjacent to the building sumps. No soil samples had VOC concentrations greater than the EPA's direct contact criteria or the VTDEC background concentrations.

TAL metals and cations were also below the EPA's direct contact criteria or the VTDEC background concentrations with the exception of arsenic and cobalt concentrations. Arsenic exceeded the EPA's direct contact criteria (3 mg/kg) in all eight samples and exceeded the VTDEC background concentration (16 mg/kg) in one of five samples collected from boring SB1802. Sample SB1802 at 9 feet bgs had an arsenic concentration of 33.8 mg/kg. This sample also slightly exceeded the EPA's direct contact criteria for cobalt (350 mg/kg) with a concentration of 362 mg/kg. Cobalt did not exceed the EPA criteria in the remaining samples and a VTDEC background concentration is not available for cobalt. Arsenic and cobalt were not used in the fabric treatment process, and the measured concentrations are interpreted to represent background concentrations.

4.4 Groundwater Monitoring

Groundwater monitoring consisted of measuring water elevations to evaluate groundwater flow direction and collecting groundwater samples for laboratory analysis.

4.4.1 Groundwater Flow

Groundwater at the Site flows to the south-southeast towards Paran Creek or the Walloomsac River. Groundwater flow contours for the March 2018 groundwater sampling monitoring event and May 2018 water level measurement event are shown on Figure 4 and Figure 5, respectively. The groundwater flow direction becomes more southerly with decreasing distance to the Walloomsac River.

The nested wells are screened within the unconsolidated fill and native sand/gravel units and the screened intervals between the nested wells are typically separated by approximately 2 to 8 vertical feet. Groundwater elevations are similar between the shallow and deeper nested wells, indicating that vertical hydraulic gradients are weak and are not consistently upward or downward. A slight upward vertical gradient has been measured at well nests MW03/03S and MW06/06S; whereas, a slight downward gradient has been measured at well nests MW04/04S and MW07/07S.

4.4.2 Groundwater Field Parameters

Field parameters were monitored and recorded during purging and field stabilization of the monitoring wells. The recorded field parameters include groundwater temperature, dissolved oxygen, electrical conductivity, pH, oxidation-reduction potential (ORP), and turbidity.

For the groundwater monitoring performed in July 2016, December 2016, and March 2018, the field parameters were recorded on the monitoring well low-flow purging logs, which are included in Appendix B.2. The field parameters were recorded during the initial purging and for low-flow well stabilization after the initial readings. The field parameters recorded during stabilization for the most recent full sampling event in ranged as follows.

- Temperature of the samples ranged from 5.2 to 10.2 degrees Celsius
- Dissolved oxygen ranged from 0.25 to 10.38 milligrams per liter
- Conductivity ranged from 257.3 to 2084 microSiemens per centimeter
- ORP ranged from -192.5 to 322.9 millivolts
- Turbidity ranged from 1.6 to 82.4 nephelometric turbidity units (NTU)

The monitoring wells were sampled after stabilization criteria were met. The turbidity of the groundwater was under 5 NTU before sampling, with the exception of groundwater samples collected from monitoring wells MW04 and MW07S, which were at 106 and 8.8 NTU, respectively.

Field parameters recorded during sample collection for TOP Assay analysis in April 2018 are also included in Appendix B.2. The measurements were similar to the field parameters recorded during the full round of groundwater sampling in March 2018.

4.4.3 Groundwater Sampling Results

Groundwater samples were collected from 17 monitoring wells installed at the Site. Samples were collected from monitoring wells MW01 through MW07 in July and December 2016. Following installation of the monitoring wells inside the building in March 2018, samples were collected from the Site monitoring network. In April 2018, samples were collected for TOP assay analysis from monitoring wells with the highest PFOA concentrations during the March 2018 sampling event (MW02, MW04, MW07S, MW1802, MW1805). Laboratory analytical results are summarized in Table 10, with the exception of TOP assay analysis. TOP assay analysis results are summarized in Appendix H.

4.4.3.1 PFOA

A total of 39 groundwater samples were analyzed for PFAS. PFOA concentrations ranged from 34 to 9,700 nanograms per liter or ppt. All of the groundwater samples collected had PFOA concentrations above the performance standard of 20 ppt. The monitoring well locations and the PFOA concentrations measured in March 2018 are shown on Figure 4.

The variability in PFOA concentrations in groundwater is consistent with the Site location in the downgradient portion of the regional groundwater flow system. The Site concentrations are the combined result of concentrations in upgradient groundwater and the spatial variability of PFOA mass entering the groundwater system via infiltration through the unsaturated zone upgradient and at the Site.

No significant source areas of PFOA impacts to groundwater were identified during this investigation. Groundwater concentrations were not indicative of a direct release of PFOA through means other than air emission (e.g., spill events, improper waste disposal). PFOA concentrations in samples collected from monitoring wells inside and outside the building are the same order of magnitude. These data support the conclusion that PFOA detections in groundwater at the Site are primarily the result of deposition of PFOA from air emissions.

The PFOA concentration in samples collected from well nests MW03/03S, MW04/04S, and MW06/06S are generally similar. These wells are screened near the water table in the unconsolidated units and are generally less than 21 feet in total depth. Monitoring well nest MW07/07S has a greater separation between the screen intervals than the other well nests. The PFOA concentrations in shallow well MW07S were approximately an order of magnitude higher than samples collected from deep monitoring well MW07. Both wells are completed in the unconsolidated units; however, monitoring well MW07S has a total depth of 19 feet, while monitoring well MW07 has a total depth of 37 feet.

4.4.3.2 TOP Assay Analysis

Five groundwater samples were collected in April 2018 for TOP assay analysis to identify potential PFAS precursors in groundwater at the Site. A data quality review of the TOP assay data indicated potential

contamination with some of the blanks associated with the project samples. However, even with the potential contamination from blanks, the results of the TOP assays show that the amounts of chemically-oxidizable precursors present in the samples from the Site are negligible since the pre- and post-oxidation samples showed similar results for each well. This indicates that additional concentrations of PFAS seen in the future would not likely be due to the presence of precursors. The TOP assay analysis results are presented and further discussed in Appendix H.

4.4.3.3 Other Constituents

All of the groundwater samples, with the exception of the samples collected for TOP assay analysis, were analyzed for TCL VOCs, TCL SVOCs, TAL metals, and cations.

Volatile Organic Compounds

VOCs were analyzed in samples collected from the monitoring wells during each monitoring event. No VOCs were detected in groundwater samples with the exception of chloroform which was detected below the Primary Groundwater Quality Standards, but above the Vapor Intrusion Screening criteria for groundwater in six samples. Chloroform is a common lab contaminant and there is no documented use of chloroform at the Site.

Semi-Volatile Organic Compounds

SVOCs were analyzed in samples collected from the monitoring wells during each monitoring event. There was one detection of phenanthrene in monitoring well MW05 collected during the December 2017 event with a qualified concentration of 0.12 micrograms per liter (µg/l). The typical MDL for phenanthrene is 0.1 µg/l. No other SVOCs were detected above the MDLs. There is no VTDEC Criteria for phenanthrene.

Pesticides

Pesticides were analyzed in samples collected from 11 monitoring wells during the groundwater sampling events in July and December 2016. All pesticide samples were below the VTDEC Criteria. Pesticides were detected below the MDL in all samples with the exception of aldrin, B-BHC, and d-BHC. Aldrin was detected in one sample (MW06 in July 2016) reported with qualified concentration of 0.0022 µg/l. B-BHC was detected in seven samples at concentrations ranging from 0.0049 to 0.019 µg/l. D-BHC was detected in two samples at reported qualified concentrations of 0.0030 µg/l and 0.0047 µg/l.

PCBs

PCBs were analyzed in samples collected from 11 monitoring wells during the groundwater sampling events in July and December 2016. No PCB analytes were reported by the laboratory as above the MDLs. All of the samples analyzed for PCBs were below the VTDEC Criteria.

Metals

Total metals were analyzed in samples collected from each well during each monitoring event. Metals were detected in samples collected from each monitoring well. Metals concentrations were below the VTDEC Criteria with the exception of arsenic and manganese in samples collected from monitoring well MW07S. Monitoring well MW07S is located approximately 150 feet from the Walloomsac River.

Based on soil samples collected at the Site, arsenic and manganese are present in native soil and rock. These metals have increased solubility in water under reducing conditions, which were observed at monitoring wells MW07S and MW07. ORP values measured in wells MW07S and MW07 were negative, indicating reducing conditions, whereas the other wells had positive ORP values. Arsenic and manganese were not detected at concentrations above the VTDEC Criteria in samples collected from wells located beneath the building and were not used in the fabric treatment process. Surface Water Sampling Results

Six surface water samples were collected by VTDEC in 2016 at locations on Paran Creek and the Walloomsac River, up and down gradient of the Site. In addition, one surface water sample was collected from Paran Creek adjacent to the Site in 2018 by C.T. Male. Surface water sampling locations and PFOA concentrations are shown on Figure 6. Samples collected by VTDEC in 2016 were analyzed for PFOA and the sample collected by CT Male was analyzed for PFAS compounds. Laboratory results are summarized in Table 11.

The PFOA concentrations ranged from 8.6 to 37.6 ppt. The surface water samples collected upgradient of and at the Site from Paran Creek had similar PFOA concentrations (16 to 28 ppt) to samples collected from Paran Creek (22.9 to 37.6 ppt) downgradient of the Site. The sample collected from the Walloomsac River upgradient of the confluence of Paran Creek had a similar concentration (8.9 ppt) to the sample collected downgradient of the confluence with Paran Creek (8.6 ppt).

4.5 Surface Water Sampling Results

Six surface water samples were collected by VTDEC in 2016 at locations on Paran Creek and the Walloomsac River, up and down gradient of the Site. In addition, one surface water sample was collected from Paran Creek adjacent to the Site in 2018 by C.T. Male (SW1801). Surface water sampling locations and PFOA concentrations are shown on Figure 6. Samples collected by VTDEC in 2016 were analyzed for PFOA only, and the sample collected by CT Male was analyzed for PFAS compounds. Laboratory results are summarized in Table 11.

The PFOA concentrations ranged from 8.6 to 37.6 ppt. The surface water samples collected upgradient of and at the Site from Paran Creek had similar PFOA concentrations (16 to 28 ppt) to samples collected from Paran Creek (22.9 to 37.6 ppt) downgradient of the Site. The sample collected from the Walloomsac River upgradient of the confluence of Paran Creek had a similar concentration (8.9 ppt) to the sample collected downgradient of the confluence with Paran Creek (8.6 ppt).

4.6 Sediment Sampling Results

Four surface water sediment samples were collected by VTDEC during the surface water and sediment assessment in March 2016 for laboratory analysis of PFOA only. The sediment sampling locations and results are shown on Figure 6, and the analytical results are also summarized in Table 13. The PFOA concentrations ranged from non-detect to 2.4 ng/g. PFOA was detected in the most upstream sample (Paran Creek Mill Pond C) at a concentration of 1.2 ng/g, and in the downstream sample (Walloomsac River below Paran Creek) at a concentration of 2.4 ng/g. The two samples collected closest to the facility (immediately upstream and adjacent) both had concentrations below the MDL for PFOA.

4.7 Basement Floor Drain and Sewer Assessment Results

The basement floor drain, wastewater sewer, and stormwater system assessment consisted of evaluating the location, flow paths, and condition of the piping through a combination of Site reconnaissance, and camera inspections. The ability to assess the condition of the pipe was limited by the presence of water in many sections in the basement floor drain, wastewater sewer, and stormwater systems.

The basement floor drains, wastewater sewers and sumps, and stormwater lines were the only underground pathways identified for process wastewater and stormwater handling. The location of these features, along with above grade piping associated with the former manufacturing process, are shown on Figure 7. The sewer video inspection report is included in Appendix I.

4.7.1 Basement Floor Drains

Basement floor drains are located in the basement of the off-site building north of the Site. Based on the video inspection, the following observations were made:

- The basement floor drains consolidate into a single pipe that discharges to Paran Creek (Figure 7).
- A 25-foot section of floor drain pipe has partially collapsed with large cracks observed in the top of the pipe. This section of pipe is located approximately 45 to 70 feet upstream of the outfall. A screenshot from the sewer video in the partially collapsed section of floor drain is shown in photo 10 of the photo log in Appendix B.7.
- The basement floor drains were not observed to be connected to the sumps in the former fabric treatment area. These sumps are discussed in the wastewater sewer inspection.

4.7.2 Wastewater

A wastewater sewer line is located along Water Street, in which wastewater flows from north to south and eventually discharges to the Town of Bennington's WWTP (Figure 12). At the Site, there are three wastewater sewer connections that run beneath the Site building and include:

- The restroom from the former office area that discharges to the sewer at manhole SMH-1.
- Sump 1 within the building which discharges to manhole SMH-5 and is the only wastewater sewer connection from the former manufacturing portion of the building. The construction details for the sump connection to manhole SMH-5 are provided in Appendix G.
- The wastewater sewer line which runs from the building north of the Site and connects with the trunk wastewater sewer line at manhole SMH-2.

The sewer video inspection shows that the wastewater sewers are generally in good conditions (Appendix I). Several longitudinal cracks and fractures were identified. Sewer manhole SMH-3 was inspected during this assessment and the east-southeast pipe connected at this manhole was observed to be either disconnected or damaged.

4.7.3 Stormwater

Stormwater catch basins are located along the western edge of the Site and stormwater flows from north to south along Water Street. The stormwater flows through the stormwater system and discharges to Paran Creek immediately south of the northern parcel. Precipitation on the roof discharges through a combination of sheet flow and dedicated roof drains. The rainwater from the western portion of the roof collects into the stormwater catch basins on the west side of the Site. Rainwater from the eastern portion of the roof is routed through a roof drain system that discharges into Paran Creek on the east side of the building.

Based on the video inspection, the stormwater system was generally in good condition. There was no observed connection between the basement floor drains, wastewater sewer, and the stormwater system. Several locations of infiltration or cracks in the stormwater pipe were identified.

4.8 Sewer Sludge and Solids Sampling

Sewer sludge and water samples were collected at the sump, manhole, catch basin and floor drain locations shown on Figure 12 and analytical results are provided in Table 12.

4.8.1 PFOA

The PFOA concentrations in the sewer sludge samples are described below.

- Three sludge samples were collected from the bottom of the building sumps (SUMP01, SUMP02, and SUMP03). PFOA concentrations ranged from 33,000 to 300,000 ppb.
- One sludge sample (SLUDGE1804) was collected at the Site from the wastewater sewer system manhole that had been cleared by EcoClean in April 2018. The PFOA concentration was 960 ppb.
- Two sludge samples were collected from the stormwater catch basins at the Site (SLUDGE1802 and SLUDGE1803). PFOA concentrations were 0.43 ppb and 5.2 ppb, respectively.
- One solids sample (SLUDGE1801) was collected by C.T. Male in May 2018 from the basement floor drain discharge pipe at the outfall into Paran Creek. The PFOA concentration was 1.4 ppb.

In addition, four water samples (BLDGOUTLET, UG-WATER-MH, DG-WATER-MH, and DG-RIVER-MH) were collected from the wastewater sewer system. PFOA concentrations ranged from <29 ppt to 400 ppt. The PFOA concentrations of samples collected from the upgradient location UG-WATER-MH was higher (400 ppt) than the concentrations of samples collected from downgradient locations DG-WATER-MH and DG-RIVER-MH (270 and <29 ppt, respectively). The highest PFOA concentration was detected in sample BLDGOUTLET collected downstream of Sump 1 (190,000 ppt), the only wastewater sewer connection from the manufacturing area at the Site.

4.8.2 Other Constituents

Metals, SVOCs, and VOCs were analyzed for the three solids samples collected from the wastewater manhole and stormwater catch basins at the Site (SLUDGE1802, SLUDGE1803, and SLUDGE1804). These results are provided in Table 12. Metals, SVOCs, and VOCs were detected in each sample collected.

4.9 Bulk Material, Residue and Surface Wipe Sampling Results

A total of ten bulk material, ten residue, and 53 surface wipe samples were collected for analysis of PFAS. Bulk samples included wall and ceiling insulation; residue samples consisted of residual materials found on the floor, ductwork, and beam surfaces; and wipe samples were collected from the floor, ceiling, wall, beams, and inside roof stacks. The sample locations are shown on Figure 9A and Figure 9B. The building cross sections on Figure 13, Figure 14, Figure 15, and Figure 16 show the building structural components, sample locations, and PFOA concentrations. The bulk sample analytical results are in Table 14, the residue samples are in Table 15, and the wipe sample analytical results are in Table 16 (reported by the laboratory in ng based on a 100 cm^2 surface area).

4.9.1 Bulk Material Sample Results

PFOA was detected in all ten bulk material samples and concentrations ranged from 3,300 to 240,000 ppb. The laboratory reported perfluorooctanesulfonic acid (PFOS) in nine of the ten samples analyzed and reported concentrations ranged from a qualified 3.5 ppb to 98 ppb. The highest PFOA and PFOS concentrations were detected in bulk ceiling insulation samples collected near the middle of the former fabric treatment area (BL10-B26.0, BL12-B28.0).

4.9.2 Residue Sample Results

PFOA was also detected in all ten residue samples and concentrations ranging from 71,000 to 810,000 ppb. The highest concentration was detected in a sample collected from a ceiling beam at a height of 24 feet. In general, samples collected from the southern portion of the building interior were greater than samples collected from the northern portion.

PFOS was detected above the MDL in eight of the ten samples and reported concentrations ranged from qualified 46 ppb (at two locations) to 1,500 ppb. The highest concentration was detected in a floor residue sample where the concrete was observed to be discolored. In general, PFOS concentrations were an order of magnitude greater on the western portion of the building interior.

4.9.3 Wipe Sample Results

PFOA was detected above the MDL in all samples with the exception of four samples collected from the basement (WP22-E, WP24-F3.0, WP25-E, WP26-F5.0). Detected concentrations ranged from 1,400 to 130,000 ng (based on a 100 cm^2 surface area). The highest concentrations were detected in wipe sample WP10-B35.0 collected near the ceiling of the cupola for Tower G and wipe sample WP08-STACK25.0 collected inside Tower G abater stack. PFOA was detected in the five samples collected from the front office area at concentrations ranging from 3,400 to 39,000 ng. The highest concentrations were detected

in wall wipe samples located on the first floor office area (WP20-D5.5, WP21-D5.5). PFOA was only detected in one sample collected from the basement (jWP23-F5.0) at a concentration of 1,400 ng.

PFOS was detected above the MDL in 27 of the 47 samples (six samples for PFOS were rejected, see Section 4.10 for additional details) and ranged from 4.6 to 140 ng. The highest PFOS concentrations were detected in samples on the western portion of the building. PFOS was not detected above the MDL in samples WP10-B35.0 and WP08-STACK25.0 where the highest PFOA concentrations were detected. In the office area, PFOS was detected above the MDL in two samples collected from the floor (WP19-D, WP20-D) and in one of the two samples in the basement (WP23-F5.0) collected from the wall.

4.10 Sampling Quality Control Results

Assessments of QA/QC results, including a description of potential impacts on the usability of project sample results, are provided in the individual data validation reports prepared by ES for each sample delivery group. Individual validation reports and a QAQC overview authored by ES are included in Appendix E. The most notable impacts to data quality and usability are discussed in this section.

For samples associated with this investigation, ELLE's instrumentation for TOC analysis was out of service, requiring that TOC analyses be subcontracted to ALS Laboratories for several samples to perform the analysis before hold times expired. This is outside the QAPP protocols; however, this decision to utilize a sub-contract laboratory should have no impact on the data quality as the subcontracted samples underwent Level IV validation.

ELLE had also modified their laboratory control sample and matrix spike control limits while this investigation was underway to a statistical range, rather than the fixed method range previously used. Individual reports were validated based on the ranges provided at the time of publication of each report and no historical data was evaluated against the statistical ranges determined in the later reports.

A series of data results (132 individual analyte results from 11 soil samples collected at borings MW05, MW06, and MW07) for PFAS analysis from June 14, 2016, were qualified by ES with "R" qualifiers, indicating that those values "*…are unusable. The sample results are rejected due to serious deficiencies in meeting the QC criteria. The analyte may or may not be present in the sample*." The problem appears to have occurred during either the sample extraction or when samples were loaded onto the instrument during a reanalysis of the samples. The original results and the re-extracted results were significantly different from each other, suggesting a potential analytical sequence or sample swapping issue. Because this was discovered after the samples had been discarded, there was no opportunity to reanalyze to determine the potential reason for the discrepancy. As there was no way to determine if the samples accurately represented the locations as reported, the data was rejected as unusable.

Specifically, the shallow (0 to 3.5 feet bgs) soil sample results from borings MW05 and MW06 and the midlevel (9.5 to 13 feet bgs) soil sample results from boring MW07 were rejected. These borings are located on the southern portion of the Site where there is no documented PFTE material handling. Based on the lack of PTFE material handling in these areas and the lack of PFAS concentrations above the soil performance standard at other locations on the Site where PTFE material handling was likely, the absence

of this data does not necessitate re-sampling and does not impact our ability to provide conclusions on the PFAS soil characterization at the Site.

In addition to the above, a smaller number of R-qualified data is included in the groundwater and wipe sample data as reported. Seven alkalinity results for groundwater collected on December 19 and 20, 2016, were R-qualified due to the hold time being exceeded by twice the recommended duration, and one nitrite result from March 21, 2018, was qualified for similar reasons. In addition, "R" qualifiers were applied to PFOS results associated with wipe samples collected on March 29 and 30, 2018 due to severe chromatographic interferences observed during the data validation process. Lastly, two results for hexachlorocyclopentadiene from sludge samples SLUDGE1801 and SLUDGE1803 were qualified as unusable due to excessively low matrix spike recoveries. Based on these minor data rejections on the groundwater, wipe, and sludge samples, this rejected data does not necessitate re-sampling and does not impact our ability to provide conclusions regarding these media.

Overall, the percentage of usable results was determined to be 97.16% with 2.84% unusable results. For PFASs, the percentage of usable results was determined to be 94.88% with 5.12% unusable results. The R-qualified values noted above were not used during data analysis and are not discussed further in this report.

5.0 Discussion

The objective of characterizing the distribution of PFAS and other constituents at the Site was achieved by the investigation activities. The data collected is acceptable, as qualified, to meet the data quality objectives of the investigation. The CSM, specific to the Water Street Site, presented below incorporates the findings from the investigation and is consistent with the findings described in the CSM SI Report (Barr, 2018) developed for the larger Bennington area.

5.1 Conceptual Site Model – Water Street

The CSM was developed based on investigation activities conducted at the Site. This CSM describes Site conditions and the potential for releases resulting from the fabric treatment process.

5.1.1 Land Use

The northern portion of the Site consists of a vacant warehouse with paved parking and open space. A two-floor office area is located in the southwest corner of the warehouse. An approximately 8-inch thick concrete floor is present beneath the former fabric manufacturing area. Steel support columns are present along the exterior walls and in two north-south rows within the building. An off-site basement located in the adjacent building to the north of the Site was used for chemical storage (Figure 7). The roof was reportedly constructed with a metal and membrane roofing system, but the corrugated metal has been removed from most of the building. The building is locked to prevent unauthorized access.

5.1.2 Site Utilities

Site utilities manage stormwater and wastewater on the northern parcel. Sheet flow and roof drains direct precipitation to the west and east of the building. The roof drains on the east side of the building discharge directly to Paran Creek, and the roof drains on the west side direct flow to a shallow ditch and stormwater catch basins adjacent to Water Street before discharging to Paran Creek (Figure 3).

There are no constructed stormwater or wastewater features on the southern parcel.

Sump pits and wash tubs located on the main floor of the building discharge to the wastewater sewer beneath Water Street. Basement floor drains discharge to Paran Creek.

5.1.3 Geology

The investigation area is located in the Northeastern Appalachians groundwater region which is characterized by rolling topography that primarily reflects the weathered bedrock surface with glacial and fluvial landforms mantling the bedrock (Randall et al., 1988). Near surface soil consists primarily of sand and gravel from glacial drift or alluvial deposits. Near surface soil consists primarily of sand and gravel from glacial drift or alluvial deposits which is consistent with recent mapping in the area (DiSimone, 2017). Fill and reworked native sand and gravel is present beneath the building.

The bedrock in the area consists of folded and faulted metamorphosed sedimentary rocks with low primary porosity due to the rock matrix. The uppermost bedrock unit is limestone/dolomite of the

Clarendon Springs or Shelburne Formation (Kim, 2017). Bedrock is encountered between 10 to 20 feet bgs at the Site, with the exception of bedrock in the vicinity of Paran Creek which is present at greater depth.

5.1.4 Hydrology

The Site is located within the north-south trending valley through which Paran Creek flows. The topography of the Site is generally flat and slopes gently to the south with the exception of the steep banks of Paran Creek. Paran Creek flows into the Walloomsac River south of the Site.

Groundwater is first encountered in the unconsolidated sand and gravel unit between approximately 5 and 15 feet bgs. Groundwater flow in the unconsolidated unit is to the east-southeast towards Paran Creek and the Walloomsac River.

5.1.5 Site Constituents of Interest

The primary constituents of interest at the Site are PFAS, based on their presence in dispersants used during fabric treatment. PFOA is generally detected at concentrations of one to four orders of magnitude higher in soil and groundwater than other individual PFAS compounds at the Site, including PFOS.

Fuel oil and smaller quantities of lubricants, solvents, paints, and electrical transformer oils were historically used at the Site. Based on this historical use, VOCs, SVOCs, metals, and PCBs were also considered potential constituents of interest based on their incidental usage. These parameters have not been detected in soil or groundwater samples above the performance criteria with the exception of naturally-occurring metals and chloroform, a suspected laboratory contaminant.

5.1.5.1 Fate and Transport

The PTFE liquid dispersant solution was handled in batches using drums, tubs, and above-ground piping during the fabric treatment process. The concrete floor within the building remains in good condition and there is no indication of preferential pathways for liquids to discharge to the environment, although operational releases and handling near the sumps or storage areas could have potentially contributed to localized impacts to the soil, groundwater, and surface water.

During drying and curing of fabrics, a portion of the PFOA driven off the fabric was emitted from the facility's stacks and transported by air dispersion and deposition processes. Further discussion of PFOA emissions, transport, and deposition is provided in the CSM SI Report (Barr, 2018) and briefly summarized below.

PFOA deposited on the surface and near-surface soil is transported into the subsurface by infiltrating precipitation. The presence of the building and pavement minimizes infiltration at the Site. The rate of PFOA transport in the subsurface has been shown to be controlled primarily by adsorption onto organic matter in the subsurface material, specifically organic carbon (Zareitalabad et al., 2013). While sorption onto organic matter will slow the transport of PFOA in subsurface media, PFOA is highly soluble and resistant to degradation resulting in persistence in subsurface media.

5.2 Potential Receptors

The emissions of PFOA during historical drying and curing operations deposited on surface soil and infiltrated to groundwater. Additional description of the air deposition is provided in the *Draft Conceptual Modeling of PFOA Fate and Transport: North Bennington* (Barr, 2017). There is no indication of a significant release of PFOA from material handling during the manufacturing process. There is no indication of a release of other constituents of interest at the Site.

5.2.1 Soil

Soil beneath the Site was characterized through analysis of 102 soil samples. Only one soil sample had a PFOA concentration greater than the performance standard. This sample (SB1807) was collected from the uppermost one foot beneath the approximately 8-inch thick concrete floor within the building. Additionally, the PFOA concentrations in the soil samples below this depth were an order of magnitude less than the performance standard. There is no current exposure pathway since the soil is beneath the intact concrete slab and not in contact with the groundwater table.

Arsenic concentrations were above EPA's direct contact criteria in all samples but below VTDEC background soil concentrations with the exception of sample SB1802 collected at 9 feet bgs (Table 9). Cobalt was also detected above EPA's direct contact criteria in this sample; a VTDEC background soil concentration is not available for cobalt. Neither arsenic nor cobalt were used during the manufacturing process.

5.2.2 Groundwater

Groundwater at the Site was characterized through analysis of 39 groundwater samples. In addition, five groundwater samples were collected for TOP assay analysis. PFOA concentrations were greater than the performance standard in all groundwater samples during each monitoring event. Further monitoring is recommended to assess temporal variability.

There is no current exposure pathway because groundwater is not used for potable water at the Site. Groundwater at the Site discharges to Paran Creek or the Walloomsac River. Detections of PFOA in certain private wells immediately east of Paran Creek may be due, in part, to air emissions and deposition of PFOA. Residences with private wells located east of Paran Creek with PFOA concentrations greater than the performance standard are being addressed as part of Corrective Action Area I in accordance with the Consent Order.

Arsenic and manganese were detected in groundwater samples from monitoring well MW07S above the VTDEC Groundwater Quality Standards (Table 10). The detections of arsenic and manganese appear to be related to changing redox conditions mobilizing metals within native soil and rock. Samples collected from Site monitoring wells typically have positive ORP with the exception of samples collected from monitoring wells MW07 and MW07S, which have negative ORPs. Arsenic and manganese were not used during the Chemfab manufacturing process.

5.2.3 Vapor Intrusion

Vapor intrusion was evaluated by reviewing the VOC analysis of soil and groundwater at the Site. Soil samples collected for analysis of VOCs did not have concentrations indicative of a release of VOCs. In groundwater, chloroform, a common lab contaminant, was detected above the VTDEC Vapor Intrusion Screening Level in five samples. Chloroform was not used during the manufacturing process. No other VOCs were detected in groundwater samples. Based on the lack of VOCs detected in soil and groundwater samples and chloroform representing a laboratory contaminant, the vapor intrusion screening pathway is incomplete.

5.2.4 Sewers

The wastewater sewer discharges to the WWTP and is an incomplete exposure pathway.

PFOA was detected in residual sludge present within the stormwater catch basins. Exposure to residual sludge at the catch basins is limited to utility workers. Minimal sludge was observed in the basement floor drains since much of the sewer is below the current elevation of Paran Creek and was filled with water during the investigation. Stormwater and basement floor drains discharge to Paran Creek. Potential exposure to discharges from the stormwater and basement floor drains is discussed in Section 5.2.5.

5.2.5 Surface Water

PFOA was detected in the surface water samples collected from Paran Creek and the Walloomsac River. This is consistent with the CSM of PFOA migrating from the soil, through the unsaturated zone, to groundwater, and discharging to the surface water. The State of Vermont has indicated that "the PFOA concentrations found in the waters tested are much lower than concentrations that could be harmful to freshwater organisms, and are much lower than levels that would be a risk to people who swim there" (State of Vermont, 2016).

5.2.6 Sediment

PFOA was detected in two sediment samples collected from Paran Creek and the Walloomsac River. However, PFOA concentrations were below the direct contact soil exposure criteria in these samples.

5.2.7 Building Materials

PFOA was detected in bulk material, residual, and wipe samples collected within the building. The building is vacant and locked, limiting exposure to building materials. This exposure pathway will be evaluated as part of the corrective action feasibility investigation.

6.0 Summary and Recommendations

The objective of characterizing the distribution of PFAS compounds and other constituents of interest at the Site was achieved by the investigation activities, with sufficient investigation data collected to proceed to the corrective action feasibility investigation as detailed in Appendix A, Section VI, Item 12c of the Consent Order (specific to Water Street).

PFOA concentrations in groundwater at the Site are above the groundwater performance standard. PFOA concentrations in soil at the Site are below the soil performance standard, with the exception of one location beneath a concrete floor. No additional soil and groundwater investigation is necessary to characterize the Site conditions. No other constituents in the soil or groundwater require further investigation.

The feasibility investigation will include an evaluation of the following potential receptors:

- Sewer sludge within stormwater catch basins with potential exposure to utility workers and contribution to downgradient surface water bodies
- Building materials with potential exposure during future land use changes

Groundwater with PFOA concentrations above the performance standard is being addressed by Corrective Actions for Corrective Action Area I in accordance with the Consent Order. Three additional rounds of quarterly groundwater sampling at the Site is recommended to further evaluate temporal variability, as proposed in the SSIWP (C.T. Male, 2018a).

7.0 References

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Tables

Table 1
Analytical Parameters and Methods
Site Investigation Report
Former Chemfab Facility - 1030 Water Street
Saint-Gobain Performance Plastics

Parameter	Method	Monitoring Wells	Surface Water	Investigation Derived Waste	TOP Assay	Soil, Sediment, and Sludge	Bulk Materials	Wipe Samples
PFAS Compounds								
6:2 fluorotelomersulfonate	EPA 537 Version 1.1 Modified	X	X	X	X			
8:2 fluorotelomersulfonate	EPA 537 Version 1.1 Modified	X	X	X	X			
NEtFOSAA	EPA 537 Version 1.1 Modified	X	X	X	X			
NMeFOSAA	EPA 537 Version 1.1 Modified	X	X	X	X			
Perfluorobutanesulfonate	EPA 537 Version 1.1 Modified	X	X	X	X	X	X	X
Perfluorobutanoic acid	EPA 537 Version 1.1 Modified	X	X	X	X	X	X	X
Perfluorodecanoic acid	EPA 537 Version 1.1 Modified	X	X	X	X	X	X	X
Perfluorododecanoic acid	EPA 537 Version 1.1 Modified	X	X	X	X	X	X	X
Perfluoroheptanoic acid	EPA 537 Version 1.1 Modified	X	X	X	X	X	X	X
Perfluorohexanesulfonate	EPA 537 Version 1.1 Modified	X	X	X	X	X	X	X
Perfluorohexanoic acid	EPA 537 Version 1.1 Modified	X	X	X	X	X	X	X
Perfluorononanoic acid	EPA 537 Version 1.1 Modified	X	X	X	X	X	X	X
Perfluorooctanesulfonamide	EPA 537 Version 1.1 Modified	X	X	X	X			
Perfluoro-octanesulfonate	EPA 537 Version 1.1 Modified	X	X	X	X	X	X	X
Perfluorooctanoic acid	EPA 537 Version 1.1 Modified	X	X	X	X	X	X	X
Perfluoropentanoic acid	EPA 537 Version 1.1 Modified	X	X	X	X	X	X	X
Perfluorotetradecanoic acid	EPA 537 Version 1.1 Modified	X	X	X	X	X	X	X
Perfluorotridecanoic acid	EPA 537 Version 1.1 Modified	X	X	X	X	X	X	X
Perfluoroundecanoic acid	EPA 537 Version 1.1 Modified	X	X	X	X	X	X	X
General Parameters								
Bicarbonate Alkalinity	SM 2320 B-2011	X						
Bromide	EPA 300.0	X						
Carbonate Alkalinity	SM 2320 B-2011	X						
Chloride	EPA 300.0	X						
Moisture	SM 2540 G-1997 %Moisture Calc					X		
Nitrate Nitrogen	EPA 300.0	X						
Nitrite Nitrogen	EPA 300.0	X						
pH	SW-846 9045D modified					X		
Sulfate	EPA 300.0	X						
TOC Solids/Sludges Combustion	SM 5310 B modified-2011					X		
Total Alkalinity to pH 4.5	SM 2320 B-2011	X						
Total Cyanide (water)	SW-846 9012A	X						
TAL Metals								
Aluminum	SW-846 6010C	X				X		
Calcium	SW-846 6010C	X				X		
Iron	SW-846 6010C	X				X		
Magnesium	SW-846 6010C	X				X		
Manganese	SW-846 6010C	X				X		
Potassium	SW-846 6010C	X				X		
Sodium	SW-846 6010C	X				X		
Zinc	SW-846 6010C	X				X		
Antimony	SW-846 6020A	X				X		
Arsenic	SW-846 6020A	X				X		
Barium	SW-846 6020A	X				X		
Beryllium	SW-846 6020A	X				X		
Cadmium	SW-846 6020A	X				X		
Chromium	SW-846 6020A	X				X		
Cobalt	SW-846 6020A	X				X		
Copper	SW-846 6020A	X				X		
Lead	SW-846 6020A	X				X		
Nickel	SW-846 6020A	X				X		
Selenium	SW-846 6020A	X				X		
Silver	SW-846 6020A	X				X		
Thallium	SW-846 6020A	X				X		
Vanadium	SW-846 6020A	X				X		
Mercury	SW-846 7471B	X				X		

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SOM 02.2 VOCs								
1,1,1-Trichloroethane	SW-846 8260C	X				X		
1,1,2,2-Tetrachloroethane	SW-846 8260C	X				X		
1,1,2-Trichloroethane	SW-846 8260C	X				X		
1,1-Dichloroethane	SW-846 8260C	X				X		
1,1-Dichloroethene	SW-846 8260C	X				X		
1,2,3-Trichlorobenzene	SW-846 8260C	X				X		
1,2,4-Trichlorobenzene	SW-846 8260C	X				X		
1,2-Dibromo-3-chloropropane	SW-846 8260C	X				X		
1,2-Dibromoethane	SW-846 8260C	X				X		
1,2-Dichlorobenzene	SW-846 8260C	X				X		
1,2-Dichloroethane	SW-846 8260C	X				X		
1,2-Dichloropropane	SW-846 8260C	X				X		
1,3-Dichlorobenzene	SW-846 8260C	X				X		
1,4-Dichlorobenzene	SW-846 8260C	X				X		
2-Butanone	SW-846 8260C	X				X		
2-Hexanone	SW-846 8260C	X				X		
4-Methyl-2-pentanone	SW-846 8260C	X				X		
Acetone	SW-846 8260C	X				X		
Benzene	SW-846 8260C	X				X		
Bromochloromethane	SW-846 8260C	X				X		
Bromodichloromethane	SW-846 8260C	X				X		
Bromoform	SW-846 8260C	X				X		
Bromomethane	SW-846 8260C	X				X		
Carbon Disulfide	SW-846 8260C	X				X		
Carbon Tetrachloride	SW-846 8260C	X				X		
Chlorobenzene	SW-846 8260C	X				X		
Chloroethane	SW-846 8260C	X				X		
Chloroform	SW-846 8260C	X				X		
Chloromethane	SW-846 8260C	X				X		
cis-1,2-Dichloroethene	SW-846 8260C	X				X		
cis-1,3-Dichloropropene	SW-846 8260C	X				X		
Cyclohexane	SW-846 8260C	X				X		
Dibromochloromethane	SW-846 8260C	X				X		
Dichlorodifluoromethane	SW-846 8260C	X				X		
Ethylbenzene	SW-846 8260C	X				X		
Freon 113	SW-846 8260C	X				X		
Isopropylbenzene	SW-846 8260C	X				X		
m+p-Xylene	SW-846 8260C	X				X		
Methyl Acetate	SW-846 8260C	X				X		
Methyl Tertiary Butyl Ether	SW-846 8260C	X				X		
Methylcyclohexane	SW-846 8260C	X				X		
Methylene Chloride	SW-846 8260C	X				X		
o-Xylene	SW-846 8260C	X				X		
Styrene	SW-846 8260C	X				X		
Tetrachloroethene	SW-846 8260C	X				X		
Toluene	SW-846 8260C	X				X		
trans-1,2-Dichloroethene	SW-846 8260C	X				X		
trans-1,3-Dichloropropene	SW-846 8260C	X				X		
Trichloroethene	SW-846 8260C	X				X		
Trichlorofluoromethane	SW-846 8260C	X				X		
Vinyl Chloride	SW-846 8260C	X				X		

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TCL SVOCs								
1,1'-Biphenyl	SW-846 8270D	X				X		
1,2,4,5-Tetrachlorobenzene	SW-846 8270D	X				X		
1,4-Dioxane	SW-846 8270D	X				X		
2,2'-oxybis(1-Chloropropane)	SW-846 8270D	X				X		
2,3,4,6-Tetrachlorophenol	SW-846 8270D	X				X		
2,4,5-Trichlorophenol	SW-846 8270D	X				X		
2,4,6-Trichlorophenol	SW-846 8270D	X				X		
2,4-Dichlorophenol	SW-846 8270D	X				X		
2,4-Dimethylphenol	SW-846 8270D	X				X		
2,4-Dinitrophenol	SW-846 8270D	X				X		
2,4-Dinitrotoluene	SW-846 8270D	X				X		
2,6-Dinitrotoluene	SW-846 8270D	X				X		
2-Chloronaphthalene	SW-846 8270D	X				X		
2-Chlorophenol	SW-846 8270D	X				X		
2-Methylnaphthalene	SW-846 8270D	X				X		
2-Methylphenol	SW-846 8270D	X				X		
2-Nitroaniline	SW-846 8270D	X				X		
2-Nitrophenol	SW-846 8270D	X				X		
3,3'-Dichlorobenzidine	SW-846 8270D	X				X		
3-Nitroaniline	SW-846 8270D	X				X		
4,6-Dinitro-2-methylphenol	SW-846 8270D	X				X		
4-Bromophenyl-phenylether	SW-846 8270D	X				X		
4-Chloro-3-methylphenol	SW-846 8270D	X				X		
4-Chloroaniline	SW-846 8270D	X				X		
4-Chlorophenyl-phenylether	SW-846 8270D	X				X		
4-Methylphenol	SW-846 8270D	X				X		
4-Nitroaniline	SW-846 8270D	X				X		
4-Nitrophenol	SW-846 8270D	X				X		
Acenaphthene	SW-846 8270D	X				X		
Acenaphthylene	SW-846 8270D	X				X		
Acetophenone	SW-846 8270D	X				X		
Anthracene	SW-846 8270D	X				X		
Atrazine	SW-846 8270D	X				X		
Benzaldehyde	SW-846 8270D	X				X		
Benzo(a)anthracene	SW-846 8270D	X				X		
Benzo(a)pyrene	SW-846 8270D	X				X		
Benzo(b)fluoranthene	SW-846 8270D	X				X		
Benzo(g,h,i)perylene	SW-846 8270D	X				X		
Benzo(k)fluoranthene	SW-846 8270D	X				X		
bis(2-Chloroethoxy)methane	SW-846 8270D	X				X		
bis(2-Chloroethyl)ether	SW-846 8270D	X				X		
bis(2-Ethylhexyl)phthalate	SW-846 8270D	X				X		
Butylbenzylphthalate	SW-846 8270D	X				X		
Caprolactam	SW-846 8270D	X				X		
Carbazole	SW-846 8270D	X				X		
Chrysene	SW-846 8270D	X				X		
Dibenz(a,h)anthracene	SW-846 8270D	X				X		
Dibenzofuran	SW-846 8270D	X				X		
Diethylphthalate	SW-846 8270D	X				X		
Dimethylphthalate	SW-846 8270D	X				X		
Di-n-butylphthalate	SW-846 8270D	X				X		
Di-n-octylphthalate	SW-846 8270D	X				X		
Fluoranthene	SW-846 8270D	X				X		
Fluorene	SW-846 8270D	X				X		
Hexachlorobenzene	SW-846 8270D	X				X		
Hexachlorobutadiene	SW-846 8270D	X				X		
Hexachlorocyclopentadiene	SW-846 8270D	X				X		
Hexachloroethane	SW-846 8270D	X				X		
Indeno(1,2,3-cd)pyrene	SW-846 8270D	X				X		

Table 1
Analytical Parameters and Methods
Site Investigation Report
Former Chemfab Facility - 1030 Water Street
Saint-Gobain Performance Plastics

Parameter	Method	Monitoring Wells	Surface Water	Investigation Derived Waste	TOP Assay	Soil, Sediment, and Sludge	Bulk Materials	Wipe Samples
Isophorone	SW-846 8270D	X				X		
Naphthalene	SW-846 8270D	X				X		
Nitrobenzene	SW-846 8270D	X				X		
N-Nitroso-di-n-propylamine	SW-846 8270D	X				X		
N-Nitrosodiphenylamine	SW-846 8270D	X				X		
Pentachlorophenol	SW-846 8270D	X				X		
Phenanthrene	SW-846 8270D	X				X		
Phenol	SW-846 8270D	X				X		
Pyrene	SW-846 8270D	X				X		
1,4-Dioxane								
1,4-Dioxane	SW-846 8270D SIM	X						

6/28/2018
\\barr.com\projects\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\WATER STREET\Investigation\Report\Tables\Table 1 - Parameters and Methods.xlsx

Data Footnotes and Qualifiers

Barr Standard Footnotes and Qualifiers

--	Not analyzed/Not available.
N	Sample Type: Normal
FD	Sample Type: Field Duplicate
ND	Not detected.
a	Estimated value, calculated using some or all values that are estimates.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analyte has been "tentatively identified" or considered "presumptively" present.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
UB	The analyte was not detected substantially above the level reported in the associated laboratory, equipment, field, or trip blank.
UJ	The analyte was analyzed for, but was not detected. The reported MDL and limit of quantiation (LOQ) are approximate and may be inaccurate or imprecise.

EPA Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0

*	Where:n SL<100X c SL.
**	Where:n SL<100X c SL.
c	cancer.
L	See user guide on lead.
m	Concentration may exceed ceiling limit (See User Guide).
n	noncancer.
R	RBA applied (See User Guide for Arsenic notice).
s	Concentration may exceed Csat (See User Guide).

Vermont DEC Commercial-Industrial Background Soil Concentrations

(3)	The VT DEC Background Soil Concentrations for Polynuclear Aromatic Hydrocarbons are expressed as the TEQ value for Benzo(a)pyrene.

Table 1 Primary Groundwater Quality Standards: Enforcement Standards

(1)	Contaminants of special concern to the Department of Environmental Conservation and the Department of Health. Contact the Department of Environmental Conservation if these contaminants are found in a drinking water source for additional information concerning resampling and risk notification.
(3)	For PFOA and PFOS, the standard of 0.02 ppb also applies to the sum of the two substances (e.g. if the PFOA concentration is 0.015 ppb and the PFOS concentration is 0.006 ppb then there is an exceedance of the standard).
(4)	Criteria is based on Xylenes, total.
(5)	Criteria is based on the sum of Trihalomethanes, total (Bromodichloromethane, Bromoform, Chloroform, and Dibromochloromethane).
(8)	New Interim Enforcement Standard.
(10)	See criteria for sum of trimethylbenzenes new interim value.

Vapor Intrusion Screening Values - Industrial Groundwater

NVT	Not sufficiently volatile and/or toxic to pose inhalation risk in selected exposure scenario for the indicated medium.

Table 2
Soil Boring Summary
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Location ID	Coordinates (UTM 18N, meters)[1]		Ground Elevation[2] (feet)	Start Date	Depth (feet bgs)
	Easting	Northing			
180RiverSt	643151.90	4752696.23	544.37	3/23/2016	2.0
ChemfabBDEast	643170.69	4752867.78	547.24	3/23/2016	2.0
ChemFabRiver	643171.49	4752780.92	548.21	3/23/2016	2.0
ChemfabVentW	643122.56	4752868.53	549.63	3/24/2016	2.0
ChemfabWSide	643126.12	4752801.47	549.10	3/23/2016	2.0
SB1801	643151.77	4752804.56	552.25	3/6/2018	22.0
SB1802	643133.49	4752827.76	552.38	3/6/2018	15.0
SB1803	643146.87	4752843.95	552.23	3/6/2018	17.0
SB1804	643146.24	4752868.47	552.26	3/7/2018	21.5
SB1805	643168.86	4752826.16	552.28	3/7/2018	22.5
SB1806	643165.42	4752854.88	552.37	3/9/2018	13.5
SB1807	643169.58	4752879.62	552.55	3/12/2018	18.0
MW01	643137.60	4752882.16	548.26	6/20/2016	15.0
MW02	643128.52	4752832.61	549.36	6/16/2016	13.0
MW03	643168.02	4752777.86	548.21	6/15/2016	21.0
MW03S	643168.20	4752779.15	548.23	6/16/2018	15.0
MW04	643141.83	4752770.48	547.62	6/16/2016	20.0
MW04S	643141.94	4752771.64	547.68	6/17/2018	12.0
MW05	643120.59	4752722.47	546.05	6/14/2016	15.0
MW06	643163.77	4752722.36	546.35	6/20/2016	20.0
MW06S	643164.01	4752723.38	546.48	6/21/2016	13.5
MW07	643129.08	4752596.41	544.01	6/13/2016	38.0
MW07S	643129.67	4752596.60	543.85	6/14/2016	19.0

Notes:
1 - Northing and easting in UTM Zone 18N NAD83, meters
2 - Elevations in NAVD88, feet
bgs - below ground surface

Table 3
Soil Sample Summary
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Sample ID	Sample Interval (ft bgs)	Sample Date	Sample Parameters					
			PFAS	TOC	pH	Metals	SVOCs	VOCs
180_RIVER_RD	0 - 0.5	3/23/2016	X	X				
	0.5 - 1	3/23/2016	X	X				
	1 - 1.5	3/23/2016	X	X				
	1.5 - 2	3/23/2016	X	X				
CHEMFAB_BD_EAST	0 - 0.5	3/23/2016	X	X				
	0.5 - 1	3/23/2016	X	X				
	1 - 1.5	3/23/2016	X	X				
	1.5 - 2	3/23/2016	X	X				
CHEMFAB_RIVER	0 - 0.5	3/23/2016	X	X				
	0.5 - 1	3/23/2016	X	X				
	1 - 1.5	3/23/2016	X	X				
	1.5 - 2	3/23/2016	X	X				
CHEMFAB_VENT_W	0 - 0.5	3/24/2016	X	X				
	0.5 - 1	3/24/2016	X	X				
	1 - 1.5	3/24/2016	X	X				
	1.5 - 2	3/24/2016	X	X				
CHEMFAB_WEST_SIDE	0 - 0.5	3/23/2016	X	X				
	0.5 - 1	3/23/2016	X	X				
	1 - 1.5	3/23/2016	X	X				
	1.5 - 2	3/23/2016	X	X				
MW01	0 - 0.5	6/20/2016	X	X				
	0.5 - 1	6/20/2016	X	X				
	1 - 1.5	6/20/2016	X	X				
	1.5 - 2	6/20/2016	X	X				
	3.5 - 4	6/20/2016	X	X				
	8 - 8.5	6/20/2016	X	X				
	13 - 13.5	6/20/2016	X	X				
MW02	0 - 0.5	6/16/2016	X	X				
	0.5 - 1	6/16/2016	X	X				
	1 - 1.5	6/16/2016	X	X				
	1.5 - 2	6/16/2016	X	X				
	5 - 5.5	6/17/2016	X	X				
	6 - 6.5	6/17/2016	X	X				
	8 - 8.5	6/17/2016	X	X				
	10 - 10.5	6/17/2016	X	X				
MW03	0 - 0.5	6/15/2016	X	X				
	0.5 - 1	6/15/2016	X	X				
	1 - 1.5	6/15/2016	X	X				
	1.5 - 2	6/15/2016	X	X				
	3.5 - 4	6/15/2016	X	X				
	6 - 7	6/15/2016	X	X				
	9.5 - 10	6/15/2016	X	X				
	11 - 12	6/16/2016	X	X				
	17 - 18	6/15/2016	X	X				
MW04	0 - 0.5	6/16/2016	X	X				
	0.5 - 1	6/16/2016	X	X				
	1 - 1.5	6/16/2016	X	X				
	1.5 - 2	6/16/2016	X	X				
	4.5 - 6	6/16/2016	X	X				
	8 - 9.5	6/16/2016	X	X				
	9.5 - 10	6/16/2016	X	X				
	12.5 - 13	6/16/2016	X	X				

Table 3
Soil Sample Summary
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Sample ID	Sample Interval (ft bgs)	Sample Date	Sample Parameters					
			PFAS	TOC	pH	Metals	SVOCs	VOCs
MW05	0 - 0.5	6/14/2016	X	X				
	0.5 - 1	6/14/2016	X	X				
	1 - 1.5	6/14/2016	X	X				
	1.5 - 2	6/14/2016	X	X				
	3 - 3.5	6/14/2016	X	X				
	5 - 5.5	6/15/2016	X	X				
	9 - 9.5	6/15/2016	X	X				
MW06	0 - 0.5	6/14/2016	X	X				
	0.5 - 1	6/14/2016	X	X				
	1 - 1.5	6/14/2016	X	X				
	1.5 - 2	6/14/2016	X	X				
	5 - 5.5	6/20/2016	X	X				
	10.5 - 11	6/20/2016	X	X				
	13.5 - 14	6/20/2016	X	X				
MW07	0 - 0.5	6/13/2016	X	X				
	0.5 - 1	6/13/2016	X	X				
	1 - 1.5	6/13/2016	X	X				
	1.5 - 2	6/13/2016	X	X				
	2.5 - 3	6/14/2016	X	X				
	9.5 - 10.5	6/14/2016	X	X				
	12 - 13	6/14/2016	X	X				
	22 - 23	6/14/2016	X	X				
SB1801	0 - 1	3/06/2018	X		X			
	8	3/06/2018	X		X			
	10 - 11	3/06/2018	X		X			
	15 - 20	3/06/2018	X		X			
	21	3/06/2018	X		X			
SB1802	0 - 1	3/06/2018	X		X	X	X	X
	6.5	3/06/2018	X		X	X	X	X
	9	3/06/2018	X		X	X	X	X
	10 - 11	3/06/2018	X		X	X	X	X
	15	3/06/2018	X		X	X	X	X
SB1803	0 - 1	3/06/2018	X		X			
	10 - 11	3/06/2018	X		X			
	13	3/06/2018	X		X			
	14	3/06/2018	X		X			
	15 - 17	3/06/2018	X		X			
SB1804	0 - 1	3/07/2018	X		X			
	8	3/07/2018	X		X			
	10 - 11	3/07/2018	X		X			
	15 - 20	3/07/2018	X		X			
SB1805	0 - 1	3/07/2018	X		X			
	10 - 11	3/07/2018	X		X			
	15 - 20	3/07/2018	X		X			
	22	3/07/2018	X		X			
SB1806	0 - 1	3/09/2018	X		X			
	10 - 11	3/09/2018	X		X			
SB1807	0 - 1	3/12/2018	X		X	X	X	X
	10 - 11	3/12/2018	X		X	X	X	X
	15 - 18	3/12/2018	X		X	X	X	X

Notes:
X - indicates sample collected
PFAS - per- and polyfluoroalkyl substances
TOC - total organic carbon
SVOCs - semi-volatile organic compounds
VOCs - volatile organic compounds

Table 4
Monitoring Well Construction and Sampling Summary
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Location ID	Coordinates (UTM 18N, meters)[1]		Ground Elevation (feet)[2]				Sample Date	Parameters						
	Easting	Northing	Ground Surface	Top of Riser	Top of Screen	Bottom of Screen		PFAS	Metals	SVOCs	VOCs	1,4-Dioxane	PCBs	Pesticides
MW01	643137.60	4752882.16	548.26	547.86	543.26	533.26	7/13/2016	X	X	X	X	X	X	X
							12/19/2016	X	X	X	X	X	X	X
							3/19/2018	X	X	X	X	X		
MW02	643128.52	4752832.61	549.36	548.72	544.36	536.36	7/13/2016	X	X	X	X	X	X	X
							12/20/2016	X	X	X	X	X	X	X
							3/19/2018	X	X	X	X	X		
MW03S	643168.20	4752779.15	548.23	547.70	543.23	535.23	7/13/2016	X	X	X	X	X	X	X
							12/16/2016	X	X	X	X	X	X	X
							3/19/2018	X	X	X	X	X		
MW03	643168.02	4752777.86	548.21	547.74	531.21	527.21	7/13/2016	X	X	X	X	X	X	X
							12/16/2016	X	X	X	X	X	X	X
							3/21/2018	X	X	X	X	X		
MW04S	643141.94	4752771.64	547.68	547.17	542.18	535.18	7/14/2016	X	X	X	X	X	X	X
							12/16/2016	X	X	X	X	X	X	X
							3/19/2018	X	X	X	X	X		
MW04	643141.83	4752770.48	547.61	547.10	532.61	527.61	7/14/2016	X	X	X	X	X	X	X
							12/16/2016	X	X	X	X	X	X	X
							3/21/2018	X	X	X	X	X		
MW05	643120.59	4752722.47	546.02	545.61	541.02	531.02	7/14/2016	X	X	X	X	X	X	X
							12/15/2016	X	X	X	X	X	X	X
							3/19/2018	X	X	X	X	X		
MW06S	643164.01	4752723.38	546.48	546.13	541.48	532.98	7/14/2016	X	X	X	X	X	X	X
							12/19/2016	X	X	X	X	X	X	X
							3/19/2018	X	X	X	X	X		
MW06	643163.77	4752722.36	546.35	545.99	529.35	526.35	7/14/2016	X	X	X	X	X	X	X
							12/19/2016	X	X	X	X	X	X	X
							3/21/2018	X	X	X	X	X		
MW07S	643129.67	4752596.60	545.12	548.04	536.12	526.12	7/15/2016	X	X	X	X	X	X	X
							12/20/2016	X	X	X	X	X	X	X
							3/20/2018	X	X	X	X	X		
MW07	643129.08	4752596.41	545.34	548.30	518.34	508.34	7/15/2016	X	X	X	X	X	X	X
							12/20/2016	X	X	X	X	X	X	X
							3/20/2018	X	X	X	X	X		
MW1801	643151.77	4752804.56	552.25	552.05	540.25	530.25	3/21/2018	X	X	X	X	X		
MW1802	643133.49	4752827.76	552.38	552.16	547.38	537.38	3/21/2018	X	X	X	X	X		
MW1803	643146.87	4752843.95	552.23	551.95	545.23	535.23	3/21/2018	X	X	X	X	X		
MW1804	643146.24	4752868.47	552.26	552.01	542.26	532.26	3/20/2018	X	X	X	X	X		
MW1805	643168.86	4752826.16	552.28	552.06	540.28	530.28	3/20/2018	X	X	X	X	X		
MW1806	643165.42	4752854.88	552.37	552.11	548.87	538.87	Well dry, no groundwater sample collected							
MW1807	643169.58	4752879.62	552.55	552.34	546.05	536.05	3/20/2018	X	X	X	X	X		

Notes:
1 - Northing and easting in UTM Zone 18N NAD83, meters
2 - Elevations in NAVD88, feet
X - indicates sample collected

Table 5
Surface Water Sample Summary
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Location ID	Coordinates (UTM 18N, meters)[1]		Sample Date[2]	Sample Collected By
	Easting	Northing		
Paran Creek Mill Pond A	643157.39	4753039.11	3/10/2016	VTDEC
Paran Creek Mill Pond C	643108.23	4753164.73	3/10/2016	VTDEC
Paran Creek Above 67A Bridge, High Flow	643183.00	4752750.78	3/10/2016	VTDEC
Paran Creek Above 67A Bridge, Low Flow	643183.00	4752750.78	3/10/2016	VTDEC
Walloomsac River Above Paran Creek	643172.69	4752579.48	3/10/2016	VTDEC
Walloomsac River Below Paran Creek	643162.87	4752580.38	3/10/2016	VTDEC
SW1801	643176.11	4752871.82	5/18/2018	C.T. Male

Notes:
1 - Northing and easting in UTM Zone 18N NAD83, meters
2 - All samples analyzed for perfluorooctanoic acid (PFOA)
VTDEC - Vermont Department of Environmental Conservation

Table 6
Sewer, Sump and Floor Drain Sample Summary
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Type	Location ID	Coordinates (UTM 18N, meters)[1]		Sample Date	Sample Matrix	Sample Parameters					
		Easting	Northing			PFAS	TOC	pH	Metals	SVOCs	VOCs
Sanitary Sewer	BLDGOUTLET	643128.50	4752829.15	8/16/2016	Liquid	X					
				8/17/2016	Solid	X	X				
	DG-RIVER-MH	642717.89	4752555.83	8/16/2016	Liquid	X					
	DG-WATER-MH	643128.40	4752781.60	8/16/2016	Liquid	X					
	SLUDGE1804	643117.70	4752873.93	4/5/2018	Solid	X	X	X	X	X	X
	UG-WATER-MH	643087.32	4753148.82	8/16/2016	Liquid	X					
Floor Drain Outlet	SLUDGE1801	643176.49	4752860.11	5/18/2018	Solid	X	X	X	X	X	X
Stormwater Sewer	SLUDGE1802	643135.69	4752768.36	4/5/2018	Solid	X	X	X	X	X	X
	SLUDGE1803	643131.19	4752882.13	4/5/2018	Solid	X	X	X	X	X	X
Sump	SUMP01	643131.70	4752829.11	8/17/2016	Solid	X	X				
	SUMP02	643171.97	4752879.34	8/17/2016	Solid	X	X				
	SUMP03	643169.09	4752886.73	8/17/2016	Solid	X	X				

Notes:
1 - Northing and easting in UTM Zone 18N NAD83, meters
X - indicates sample collected by C.T. Male

Table 7
Sediment Sample Summary (collected by VTDEC)
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Location ID	Coordinates (UTM 18N, meters)[1]		Sample Date[2]
	Easting	Northing	
Paran Creek Mill Pond A	643157.39	4753039.11	3/10/2016
Paran Creek Mill Pond B	643144.03	4753092.16	3/10/2016
Paran Creek Mill Pond C	643108.23	4753164.73	3/10/2016
Walloomsac River Below Paran Creek	643162.87	4752580.38	3/10/2016

Notes:
1 - Northing and easting in UTM Zone 18N NAD83, meters
2 - All samples analyzed for perfluorooctanoic acid (PFOA)
VTDEC - Vermont Department of Environmental Conservation

Table 8
Bulk Material, Residue, and Wipe Sample Summary
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Location ID	Coordinates (UTM 18N, meters)[1]		Sample ID[2]	Sample Location	Sample Height (feet above ffe)	Sample Date
	Easting	Northing				
Bulk Material Samples						
BL01	643132.75	4752812.89	BL01-A5.0	Wall Insulation	5.0	4/23/2018
BL02	643131.44	4752831.83	BL02-A5.0	Wall Insulation	5.0	4/23/2018
BL04	643130.02	4752855.42	BL04-A5.0	Wall Insulation	5.0	4/23/2018
BL05	643168.54	4752851.87	BL05-A5.0	Wall Insulation	5.0	4/23/2018
BL07	643169.69	4752833.61	BL07-A5.0	Wall Insulation	5.0	4/23/2018
BL09	643171.22	4752809.28	BL09-A5.0	Wall Insulation	5.0	4/23/2018
BL10	643159.57	4752815.31	BL10-B26.0	Ceiling Insulation	26.0	3/29/2018
BL11	643142.53	4752832.33	BL11-B25.0	Ceiling Insulation	25.0	3/30/2018
BL12	643150.72	4752862.12	BL12-B28.0	Ceiling Insulation	28.0	3/30/2018
BL14	643170.79	4752822.92	BL14-A5.5	Wall Insulation	5.5	3/30/2018
Residue Samples						
BL01	643132.75	4752812.89	BL01-A24	Ceiling I-Beam Residue	24.0	3/29/2018
BL02	643131.44	4752831.83	BL02-A22.5	Ceiling I-Beam Residue	22.5	3/29/2018
BL03	643132.25	4752850.63	BL03-STACK24.0	Duct Residue	24.0	3/29/2018
BL04	643130.02	4752855.42	BL04-A22.5	Ceiling I-Beam Residue	22.5	3/29/2018
BL05	643168.54	4752851.87	BL05-A22.5	Ceiling I-Beam Residue	22.5	3/29/2018
BL09	643171.22	4752809.28	BL09-A22.5	Ceiling I-Beam Residue	22.5	3/29/2018
BL10	643159.57	4752815.31	BL10-B29	Ceiling I-Beam Residue	29.0	3/29/2018
BL11	643142.53	4752832.33	BL11-B40.5	Ceiling I-Beam Residue	40.5	3/30/2018
BL12	643150.72	4752862.12	BL12-B42.5	Ceiling I-Beam Residue	42.5	3/30/2018
BL13	643137.03	4752828.12	BL13-C	Floor Residue	0.0	3/30/2018
Wipe Samples						
WP01	643132.75	4752812.89	WP01-A1.5	Wall	1.5	3/29/2018
			WP01-A8.0	I-Beam	8.0	3/29/2018
			WP01-A16.0	I-Beam	16.0	3/29/2018
			WP01-A23.0	I-Beam	23.0	3/29/2018
WP02	643131.44	4752831.83	WP02-A1.5	Wall	1.5	3/30/2018
			WP02-A8.0	I-Beam	8.0	3/29/2018
			WP02-A16.0	I-Beam	16.0	3/29/2018
			WP02-A23.0	I-Beam	23.0	3/29/2018
WP03	643132.25	4752850.63	WP03-STACK25.0	Duct	25.0	3/29/2018
WP04	643130.02	4752855.42	WP04-A1.5	Wall	1.5	3/30/2018
			WP04-A8.0	I-Beam	8.0	3/29/2018
			WP04-A16.0	I-Beam	16.0	3/29/2018
			WP04-A23.0	I-Beam	23.0	3/29/2018
WP05	643168.54	4752851.87	WP05-A1.5	Wall	1.5	3/30/2018
			WP05-A8.0	I-Beam	8.0	3/29/2018
			WP05-A16.0	I-Beam	16.0	3/29/2018
			WP05-A23.0	I-Beam	23.0	3/29/2018
WP06	643166.17	4752851.31	WP06-STACK25.0	Inside Stack L	25.0	3/29/2018
WP07	643169.69	4752833.61	WP07-A1.5	Wall	1.5	3/30/2018
			WP07-A8.0	I-Beam	8.0	3/29/2018
			WP07-A16.0	I-Beam	16.0	3/29/2018
			WP07-A23.0	I-Beam	23.0	3/29/2018
WP08	643167.18	4752825.34	WP08-STACK25.0	Inside Stack G	25.0	3/29/2018
WP09	643171.22	4752809.28	WP09-A1.5	Wall	1.5	3/30/2018
			WP09-A8.0	I-Beam	8.0	3/29/2018
			WP09-A16.0	I-Beam	16.0	3/29/2018
			WP09-A23.0	I-Beam	23.0	3/29/2018
WP10	643159.57	4752815.31	WP10-B11.0	I-Beam	11.0	3/29/2018
			WP10-B23.0	I-Beam	23.0	3/29/2018
			WP10-B33.0	I-Beam	33.0	3/29/2018
			WP10-B35.0	Ceiling	35.0	3/29/2018

Table 8
Bulk Material, Residue, and Wipe Sample Summary
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Location ID	Coordinates (UTM 18N, meters)[1]		Sample ID[2]	Sample Location	Sample Height (feet above ffe)	Sample Date
	Easting	Northing				
WP11	643142.53	4752832.33	WP11-B16.0	I-Beam	16.0	3/30/2018
			WP11-B24.0	I-Beam	24.0	3/30/2018
			WP11-B41.0	I-Beam	41.0	3/30/2018
			WP11-B42.0	Ceiling	42.0	3/30/2018
WP12	643150.72	4752862.12	WP12-B15.0	I-Beam	15.0	3/30/2018
			WP12-B30.0	I-Beam	30.0	3/30/2018
			WP12-B43.0	I-Beam	43.0	3/30/2018
			WP12-B44.5	Ceiling	44.5	3/30/2018
WP15	643149.83	4752805.03	WP15-E	Floor	0.0	3/30/2018
WP16	643144.49	4752845.73	WP16-E	Floor	0.0	3/30/2018
WP17	643147.95	4752870.89	WP17-E	Floor	0.0	3/30/2018
WP18	643172.02	4752880.15	WP18-E	Floor	0.0	3/30/2018
WP19	643137.57	4752788.63	WP19-D	Front Office Floor	0.0	3/30/2018
			WP19-D5.5	Front Office Wall	5.5	3/30/2018
WP20	643138.48	4752793.16	WP20-D	Front Office Floor	0.0	3/30/2018
			WP20-D5.5	Front Office Wall	5.5	3/30/2018
WP21	643141.63	4752791.29	WP21-D5.5	Front Office Wall	5.5	3/30/2018
WP22	643137.64	4752894.34	WP22-E	Basement Floor	0.0	3/30/2018
WP23	643133.95	4752888.99	WP23-F5.0	Basement Wall	5.0	3/30/2018
WP24	643128.45	4752904.73	WP24-F3.0	Basement Wall	3.0	3/30/2018
WP25	643134.25	4752917.37	WP25-E	Basement Floor	0.0	3/30/2018
WP26	643129.78	4752930.95	WP26-F5.0	Basement Wall	5.0	3/30/2018

Notes:
1 - Northing and easting in UTM Zone 18N NAD83, meters
2 - All samples analyzed for per- and polyfluoroalkyl substances (PFAS)
ffe - finished floor elevation

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

				Location	180_RIVER_RD	180_RIVER_RD	180_RIVER_RD	180_RIVER_RD	CHEMFAB_BD_EAST	CHEMFAB_BD_EAST	CHEMFAB_BD_EAST	CHEMFAB_BD_EAST	CHEMFAB_RIVER	CHEMFAB_RIVER	CHEMFAB_RIVER	CHEMFAB_RIVER
				Date	3/23/2016	3/23/2016	3/23/2016	3/23/2016	3/23/2016	3/23/2016	3/23/2016	3/23/2016	3/23/2016	3/23/2016	3/23/2016	3/23/2016
				Depth	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft
				Sample Type	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations												
Effective Date		7/26/2017	05/15/2018	07/27/2017												
Exceedance Key		Shade	**Bold**	Underline												
General Parameters																
Carbon, total organic	mg/kg				20500	8320	5400	14100	7090	793	974	3060	17500	5400	10100	3870
Moisture	%				18.1	6.5	6.7	9.7	14.3	12.4	10.6	11.6	11.4	8.2	10.9	8.8
pH	pH units				--	--	--	--	--	--	--	--	--	--	--	--
Metals																
Aluminum	mg/kg		1100000 nm		--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg		470 n		--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg		**3.0 cR**	16	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg		220000 nm		--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg		2300 n		--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg		980 n		--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg				--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg				--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg		**350 n**		--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg		47000 n		--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg		820000 nm		--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg		800 L	111	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg				--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg		26000 n		--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg		46 ns		--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg		22000 n		--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg				--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg		5800 n		--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg		5800 n		--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg				--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg		12 n		--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg		5800 n		--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg		350000 nm		--	--	--	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds																
1,2,4,5-Tetrachlorobenzene	ug/kg		350000 n		--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dioxane	ug/kg		24000 c		--	--	--	--	--	--	--	--	--	--	--	--
2,2'-oxybis (1-chloropropane)	ug/kg		47000000 ns		--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	ug/kg		25000000 n		--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/kg		82000000 n		--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	ug/kg		210000 c**		--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	ug/kg		2500000 n		--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/kg		16000000 n		--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/kg		1600000 n		--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/kg		7400 c		--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/kg		1500 c		--	--	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/kg		60000000 n		--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/kg		5800000 n		--	--	--	--	--	--	--	--	--	--	--	--
2-Methyl-4,6-dinitrophenol	ug/kg		66000 n		--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/kg		3000000 n		--	--	--	--	--	--	--	--	--	--	--	--
2-Methylphenol (o-cresol)	ug/kg		41000000 n		--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/kg		8000000 n		--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--
3,3`-Dichlorobenzidine	ug/kg		5100 c		--	--	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	ug/kg		82000000 n		--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/kg		11000 c		--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--
4-Methylphenol (p-cresol)	ug/kg		82000000 n		--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/kg		110000 c*		--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	ug/kg		45000000 n		--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--
Acetophenone	ug/kg		120000000 nms		--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	ug/kg		230000000 nm		--	--	--	--	--	--	--	--	--	--	--	--
Atrazine	ug/kg		10000 c		--	--	--	--	--	--	--	--	--	--	--	--
Benzaldehyde	ug/kg		820000 c		--	--	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--
Biphenyl	ug/kg		200000 n		--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	ug/kg		2500000 n		--	--	--	--	--	--	--	--	--	--	--	--

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

				Location	**180_RIVER_RD**	**180_RIVER_RD**	**180_RIVER_RD**	**180_RIVER_RD**	**CHEMFAB_BD_EAST**	**CHEMFAB_BD_EAST**	**CHEMFAB_BD_EAST**	**CHEMFAB_BD_EAST**	**CHEMFAB_RIVER**	**CHEMFAB_RIVER**	**CHEMFAB_RIVER**	**CHEMFAB_RIVER**
				Date	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**
				Depth	**0 - 0.5 ft**	**0.5 - 1 ft**	**1 - 1.5 ft**	**1.5 - 2 ft**	**0 - 0.5 ft**	**0.5 - 1 ft**	**1 - 1.5 ft**	**1.5 - 2 ft**	**0 - 0.5 ft**	**0.5 - 1 ft**	**1 - 1.5 ft**	**1.5 - 2 ft**
				Sample Type	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations												
Effective Date		7/26/2017	05/15/2018	07/27/2017												
Exceedance Key		Shade	**Bold**	Underline												
Bis(2-chloroethyl)ether	ug/kg		1000 c		--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	ug/kg		160000 c		--	--	--	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/kg		1200000 c		--	--	--	--	--	--	--	--	--	--	--	--
Caprolactam	ug/kg		400000000 nm		--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/kg		1000000 n		--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/kg		660000000 nm		--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	ug/kg		82000000 n		--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	ug/kg		8200000 n		--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	ug/kg		30000000 n		--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	ug/kg		30000000 n		--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	ug/kg		960 c		--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/kg		5300 c		--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/kg		7500 n		--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/kg		8000 c*		--	--	--	--	--	--	--	--	--	--	--	--
Isophorone	ug/kg		2400000 c*		--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	ug/kg		17000 c*		--	--	--	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/kg		22000 c*		--	--	--	--	--	--	--	--	--	--	--	--
n-Nitrosodi-n-propylamine	ug/kg		330 c		--	--	--	--	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	ug/kg		470000 c		--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/kg		4000 c		--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--
Phenol	ug/kg		250000000 nm		--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	ug/kg		23000000 n	(3)	--	--	--	--	--	--	--	--	--	--	--	--
Benz(a)anthracene	ug/kg		21000 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	ug/kg		21000 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	ug/kg		210000 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	ug/kg		2100 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	ug/kg		2100000 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	ug/kg		2100 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/kg		21000 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--
B(a)P Equivalent, non-detects at 1/2, 1999 TEQs (Barr Calculation)	ug/kg			580 (3)	--	--	--	--	--	--	--	--	--	--	--	--
Volatile Organic Compounds																
1,1,1-Trichloroethane	ug/kg		36000000 ns		--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/kg		2700 c		--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/kg		5000 c**		--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/kg		16000 c		--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethylene	ug/kg		1000000 n		--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	ug/kg		930000 n		--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	ug/kg		110000 c**		--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg		64 c		--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (EDB)	ug/kg		160 c		--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	ug/kg		9300000 ns		--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	ug/kg		2000 c*		--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethylene, cis	ug/kg		2300000 n		--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethylene, trans	ug/kg		23000000 ns		--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/kg		11000 c**		--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene, cis	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene, trans	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	ug/kg		11000 c		--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	ug/kg		1300000 n		--	--	--	--	--	--	--	--	--	--	--	--
Acetone	ug/kg		670000000 nms		--	--	--	--	--	--	--	--	--	--	--	--
Benzene	ug/kg		5100 c*		--	--	--	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/kg		630000 n		--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/kg		1300 c		--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	ug/kg		86000 c		--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane	ug/kg		30000 n		--	--	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	ug/kg		3500000 ns		--	--	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	ug/kg		2900 c		--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/kg		1300000 ns		--	--	--	--	--	--	--	--	--	--	--	--
Chlorodibromomethane	ug/kg		39000 c		--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	ug/kg		57000000 ns		--	--	--	--	--	--	--	--	--	--	--	--

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

				Location	**180_RIVER_RD**	**180_RIVER_RD**	**180_RIVER_RD**	**180_RIVER_RD**	**CHEMFAB_BD_EAST**	**CHEMFAB_BD_EAST**	**CHEMFAB_BD_EAST**	**CHEMFAB_BD_EAST**	**CHEMFAB_RIVER**	**CHEMFAB_RIVER**	**CHEMFAB_RIVER**	**CHEMFAB_RIVER**
				Date	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**	**3/23/2016**
				Depth	**0 - 0.5 ft**	**0.5 - 1 ft**	**1 - 1.5 ft**	**1.5 - 2 ft**	**0 - 0.5 ft**	**0.5 - 1 ft**	**1 - 1.5 ft**	**1.5 - 2 ft**	**0 - 0.5 ft**	**0.5 - 1 ft**	**1 - 1.5 ft**	**1.5 - 2 ft**
				Sample Type	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations												
Effective Date		7/26/2017	05/15/2018	07/27/2017												
Exceedance Key		Shade	**Bold**	Underline												
Chloroform	ug/kg		1400 c		--	--	--	--	--	--	--	--	--	--	--	--
Chloromethane	ug/kg		460000 n		--	--	--	--	--	--	--	--	--	--	--	--
Cumene (isopropyl benzene)	ug/kg		9900000 ns		--	--	--	--	--	--	--	--	--	--	--	--
Cyclohexane	ug/kg		27000000 ns		--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon-12)	ug/kg		370000 n		--	--	--	--	--	--	--	--	--	--	--	--
Ethyl benzene	ug/kg		25000 c		--	--	--	--	--	--	--	--	--	--	--	--
Methyl acetate	ug/kg		1200000000 nms		--	--	--	--	--	--	--	--	--	--	--	--
Methyl ethyl ketone (2-butanone)	ug/kg		190000000 nms		--	--	--	--	--	--	--	--	--	--	--	--
Methyl isobutyl ketone (MIBK)	ug/kg		140000000 nms		--	--	--	--	--	--	--	--	--	--	--	--
Methyl tertiary butyl ether (MTBE)	ug/kg		210000 c		--	--	--	--	--	--	--	--	--	--	--	--
Methylcyclohexane	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	ug/kg		1000000 c**		--	--	--	--	--	--	--	--	--	--	--	--
Styrene	ug/kg		35000000 ns		--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	ug/kg		100000 c**		--	--	--	--	--	--	--	--	--	--	--	--
Toluene	ug/kg		47000000 ns		--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene (TCE)	ug/kg		6000 c**		--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (Freon-11)	ug/kg		350000000 nms		--	--	--	--	--	--	--	--	--	--	--	--
Trichlorotrifluoroethane (Freon 113)	ug/kg		28000000 ns		--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	ug/kg		1700 c		--	--	--	--	--	--	--	--	--	--	--	--
Xylene, m & p	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--
Xylene, o	ug/kg		2800000 ns		--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																
Perfluorobutane sulfonate (PFBS)	ng/g		16000000 n		< 0.61 U	< 1.1 U	< 0.54 U	< 0.55 U	< 0.58 U	< 0.57 U	< 0.56 U	< 0.57 U	< 0.56 U	< 0.54 U	< 0.56 U	< 0.55 U
Perfluorobutanoic acid (PFBA)	ng/g				--	--	--	--	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	ng/g				0.73 J	< 0.43 U	< 0.21 U	0.41 J	1.3	0.41 J	0.27 J	0.54	1.9	2.1	4.5	3.6
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g				1.7	< 0.86 U	< 0.43 U	< 0.44 U	5.0	11	14	15	3.4 J	< 0.44 U	0.90	< 0.44 U
Perfluoroheptanoic acid (PFHpA)	ng/g				< 0.37 UJ	< 0.64 U	< 0.32 U	< 0.33 U	< 0.35 U	< 0.34 U	< 0.34 U	< 0.34 U	< 0.34 UJ	< 0.33 U	0.36 J	< 0.33 U
Perfluorohexane sulfonate (PFHxS)	ng/g				< 0.61 U	< 1.1 U	< 0.54 U	< 0.55 U	< 0.58 U	< 0.57 U	< 0.56 U	< 0.57 U	< 0.56 UJ	< 0.54 U	< 0.56 U	< 0.55 U
Perfluorohexanoic acid (PFHxA)	ng/g				< 0.24 UJ	< 0.43 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.23 UJ	< 0.22 U	< 0.22 U	< 0.22 U
Perfluorononanoic acid (PFNA)	ng/g				< 0.24 UJ	< 0.43 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.23 U	0.24 J	0.22 J	< 0.22 U	0.26 J
Perfluorooctanesulfonate (PFOS)	ng/g				1.9 J	< 1.5 U	< 0.75 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.78 U	< 0.79 U	< 0.79 U	< 0.76 U	1.2 J	1.3 J
Perfluorooctanoic acid (PFOA)	ng/g	300			1.7	0.66 J	< 0.32 U	< 0.33 U	20	6.1	4.8	13	9.1	2.7	4.2	4.9
Perfluoropentanoic acid (PFPeA)	ng/g				--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g				0.55 J	< 0.64 U	< 0.32 U	< 0.33 U	25	12	3.7	2.2 J	1.4 J	< 0.33 U	< 0.34 U	< 0.33 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g				1.6	< 1.3 U	< 0.64 U	< 0.66 U	15	15	15	6.4	1.5 J	< 0.65 U	< 0.67 U	< 0.66 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g				0.90	< 0.64 U	< 0.32 U	< 0.33 U	1.1	0.49 J	0.34 J	0.79	3.2	0.63 J	0.90	< 0.33 U

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations	Location	CHEMFAB_VENT_W	CHEMFAB_VENT_W	CHEMFAB_VENT_W	CHEMFAB_VENT_W	CHEMFAB_WEST_SIDE	CHEMFAB_WEST_SIDE	CHEMFAB_WEST_SIDE	CHEMFAB_WEST_SIDE	MW01	MW01	MW01	MW01
					Date	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/23/2016	3/23/2016	3/23/2016	3/23/2016	6/20/2016	6/20/2016	6/20/2016	6/20/2016
					Depth	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft
					Sample Type	N	N	N	N	N	N	N	N	N	N	N	N
Effective Date		7/26/2017	05/15/2018	07/27/2017													
Exceedance Key		Shade	**Bold**	Underline													
General Parameters																	
Carbon, total organic	mg/kg					10400 J	12100 J	14500 J	16400 J	13100	2010	2210	1990	3150	2180	1420	1930
Moisture	%					14.9	17.1	15.9	18.2	16.6	9.9	13.2	20.4	12.2	14.5	19.1	16.5
pH	pH units					--	--	--	--	--	--	--	--	--	--	--	--
Metals																	
Aluminum	mg/kg		1100000 nm			--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg		470 n			--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg		**3.0 cR**	16		--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg		220000 nm			--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg		2300 n			--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg		980 n			--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg					--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg					--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg		**350 n**			--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg		47000 n			--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg		820000 nm			--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg		800 L	111		--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg					--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg		26000 n			--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg		46 ns			--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg		22000 n			--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg					--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg		5800 n			--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg		5800 n			--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg					--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg		12 n			--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg		5800 n			--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg		350000 nm			--	--	--	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds																	
1,2,4,5-Tetrachlorobenzene	ug/kg		350000 n			--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dioxane	ug/kg		24000 c			--	--	--	--	--	--	--	--	--	--	--	--
2,2'-oxybis (1-chloropropane)	ug/kg		47000000 ns			--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	ug/kg		25000000 n			--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/kg		82000000 n			--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	ug/kg		210000 c**			--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	ug/kg		2500000 n			--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/kg		16000000 n			--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/kg		1600000 n			--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/kg		7400 c			--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/kg		1500 c			--	--	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/kg		60000000 n			--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/kg		5800000 n			--	--	--	--	--	--	--	--	--	--	--	--
2-Methyl-4,6-dinitrophenol	ug/kg		66000 n			--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/kg		3000000 n			--	--	--	--	--	--	--	--	--	--	--	--
2-Methylphenol (o-cresol)	ug/kg		41000000 n			--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/kg		8000000 n			--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--
3,3`-Dichlorobenzidine	ug/kg		5100 c			--	--	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	ug/kg		82000000 n			--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/kg		11000 c			--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--
4-Methylphenol (p-cresol)	ug/kg		82000000 n			--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/kg		110000 c*			--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	ug/kg		45000000 n			--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--
Acetophenone	ug/kg		120000000 nms			--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	ug/kg		230000000 nm			--	--	--	--	--	--	--	--	--	--	--	--
Atrazine	ug/kg		10000 c			--	--	--	--	--	--	--	--	--	--	--	--
Benzaldehyde	ug/kg		820000 c			--	--	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--
Biphenyl	ug/kg		200000 n			--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	ug/kg		2500000 n			--	--	--	--	--	--	--	--	--	--	--	--

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Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations	Location	CHEMFAB_VENT_W	CHEMFAB_VENT_W	CHEMFAB_VENT_W	CHEMFAB_VENT_W	CHEMFAB_WEST_SIDE	CHEMFAB_WEST_SIDE	CHEMFAB_WEST_SIDE	CHEMFAB_WEST_SIDE	MW01	MW01	MW01	MW01
					Date	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/23/2016	3/23/2016	3/23/2016	3/23/2016	6/20/2016	6/20/2016	6/20/2016	6/20/2016
					Depth	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft
					Sample Type	N	N	N	N	N	N	N	N	N	N	N	N
Effective Date		7/26/2017	05/15/2018	07/27/2017													
Exceedance Key		Shade	**Bold**	Underline													
Bis(2-chloroethyl)ether	ug/kg		1000 c			--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	ug/kg		160000 c			--	--	--	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/kg		1200000 c			--	--	--	--	--	--	--	--	--	--	--	--
Caprolactam	ug/kg		400000000 nm			--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/kg		1000000 n			--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/kg		660000000 nm			--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	ug/kg		82000000 n			--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	ug/kg		8200000 n			--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	ug/kg		30000000 n			--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	ug/kg		30000000 n			--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	ug/kg		960 c			--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/kg		5300 c			--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/kg		7500 n			--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/kg		8000 c*			--	--	--	--	--	--	--	--	--	--	--	--
Isophorone	ug/kg		2400000 c*			--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	ug/kg		17000 c*			--	--	--	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/kg		22000 c*			--	--	--	--	--	--	--	--	--	--	--	--
n-Nitrosodi-n-propylamine	ug/kg		330 c			--	--	--	--	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	ug/kg		470000 c			--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/kg		4000 c			--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--
Phenol	ug/kg		250000000 nm			--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	ug/kg		23000000 n	(3)		--	--	--	--	--	--	--	--	--	--	--	--
Benz(a)anthracene	ug/kg		21000 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	ug/kg		21000 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	ug/kg		210000 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	ug/kg		2100 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	ug/kg		2100000 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	ug/kg		2100 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/kg		21000 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--
B(a)P Equivalent, non-detects at 1/2, 1999 TEQs (Barr Calculation)	ug/kg			580 (3)		--	--	--	--	--	--	--	--	--	--	--	--
Volatile Organic Compounds																	
1,1,1-Trichloroethane	ug/kg		36000000 ns			--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/kg		2700 c			--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/kg		5000 c**			--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/kg		16000 c			--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethylene	ug/kg		1000000 n			--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	ug/kg		930000 n			--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	ug/kg		110000 c**			--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg		64 c			--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (EDB)	ug/kg		160 c			--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	ug/kg		9300000 ns			--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	ug/kg		2000 c*			--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethylene, cis	ug/kg		2300000 n			--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethylene, trans	ug/kg		23000000 ns			--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/kg		11000 c**			--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene, cis	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene, trans	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	ug/kg		11000 c			--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	ug/kg		1300000 n			--	--	--	--	--	--	--	--	--	--	--	--
Acetone	ug/kg		670000000 nms			--	--	--	--	--	--	--	--	--	--	--	--
Benzene	ug/kg		5100 c*			--	--	--	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/kg		630000 n			--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/kg		1300 c			--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	ug/kg		86000 c			--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane	ug/kg		30000 n			--	--	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	ug/kg		3500000 ns			--	--	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	ug/kg		2900 c			--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/kg		1300000 ns			--	--	--	--	--	--	--	--	--	--	--	--
Chlorodibromomethane	ug/kg		39000 c			--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	ug/kg		57000000 ns			--	--	--	--	--	--	--	--	--	--	--	--

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations	Location	CHEMFAB_VENT_W	CHEMFAB_VENT_W	CHEMFAB_VENT_W	CHEMFAB_VENT_W	CHEMFAB_WEST_SIDE	CHEMFAB_WEST_SIDE	CHEMFAB_WEST_SIDE	CHEMFAB_WEST_SIDE	MW01	MW01	MW01	MW01
					Date	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/23/2016	3/23/2016	3/23/2016	3/23/2016	6/20/2016	6/20/2016	6/20/2016	6/20/2016
					Depth	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft
					Sample Type	N	N	N	N	N	N	N	N	N	N	N	N
Effective Date		7/26/2017	05/15/2018	07/27/2017													
Exceedance Key		Shade	**Bold**	Underline													
Chloroform	ug/kg		1400 c			--	--	--	--	--	--	--	--	--	--	--	--
Chloromethane	ug/kg		460000 n			--	--	--	--	--	--	--	--	--	--	--	--
Cumene (isopropyl benzene)	ug/kg		9900000 ns			--	--	--	--	--	--	--	--	--	--	--	--
Cyclohexane	ug/kg		27000000 ns			--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon-12)	ug/kg		370000 n			--	--	--	--	--	--	--	--	--	--	--	--
Ethyl benzene	ug/kg		25000 c			--	--	--	--	--	--	--	--	--	--	--	--
Methyl acetate	ug/kg		1200000000 nms			--	--	--	--	--	--	--	--	--	--	--	--
Methyl ethyl ketone (2-butanone)	ug/kg		190000000 nms			--	--	--	--	--	--	--	--	--	--	--	--
Methyl isobutyl ketone (MIBK)	ug/kg		140000000 nms			--	--	--	--	--	--	--	--	--	--	--	--
Methyl tertiary butyl ether (MTBE)	ug/kg		210000 c			--	--	--	--	--	--	--	--	--	--	--	--
Methylcyclohexane	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	ug/kg		1000000 c**			--	--	--	--	--	--	--	--	--	--	--	--
Styrene	ug/kg		35000000 ns			--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	ug/kg		100000 c**			--	--	--	--	--	--	--	--	--	--	--	--
Toluene	ug/kg		47000000 ns			--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene (TCE)	ug/kg		6000 c**			--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (Freon-11)	ug/kg		350000000 nms			--	--	--	--	--	--	--	--	--	--	--	--
Trichlorotrifluoroethane (Freon 113)	ug/kg		28000000 ns			--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	ug/kg		1700 c			--	--	--	--	--	--	--	--	--	--	--	--
Xylene, m & p	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--
Xylene, o	ug/kg		2800000 ns			--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																	
Perfluorobutane sulfonate (PFBS)	ng/g		16000000 n			< 0.59 U	< 0.60 U	< 0.59 U	< 0.61 U	< 0.60 U	< 0.55 U	< 0.58 U	< 0.63 U	< 0.57 UJ	< 0.56 UJ	< 0.59 U	< 0.58 U
Perfluorobutanoic acid (PFBA)	ng/g					--	--	--	--	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	ng/g					0.89	1.1	1.3	1.0	0.45 J	0.24 J	< 0.23 U	< 0.25 U	0.27 J	0.69 J	1.7	1.8
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g					7.0	15	31	42	4.4	3.9	13	3.2	1.2 J	0.48 J	< 0.47 U	< 0.46 U
Perfluoroheptanoic acid (PFHpA)	ng/g					0.59 J	0.51 J	0.36 J	0.43 J	< 0.36 U	< 0.33 U	< 0.35 U	< 0.38 U	< 0.34 UJ	< 0.34 UJ	< 0.35 UJ	< 0.35 UJ
Perfluorohexane sulfonate (PFHxS)	ng/g					< 0.59 U	< 0.60 U	< 0.59 U	< 0.61 U	< 0.60 U	< 0.55 U	< 0.58 U	< 0.63 U	< 0.57 UJ	< 0.56 UJ	< 0.59 U	< 0.58 U
Perfluorohexanoic acid (PFHxA)	ng/g					0.32 J	0.26 J	< 0.24 U	< 0.24 U	< 0.24 U	< 0.22 U	< 0.23 U	< 0.25 U	< 0.23 UJ	< 0.23 UJ	< 0.23 U	< 0.23 U
Perfluorononanoic acid (PFNA)	ng/g					< 0.24 U	0.24 J	< 0.24 U	< 0.24 U	< 0.24 U	< 0.22 U	< 0.23 U	< 0.25 U	< 0.23 UJ	< 0.23 UJ	< 0.23 U	< 0.23 U
Perfluorooctanesulfonate (PFOS)	ng/g					< 0.82 U	< 0.84 U	< 0.83 U	< 0.86 U	< 0.84 U	< 0.78 U	< 0.81 U	< 0.88 U	< 0.80 UJ	< 0.79 UJ	< 0.82 U	< 0.81 U
Perfluorooctanoic acid (PFOA)	ng/g	300				20	11	10	12	11	3.6	3.1	4.1	1.0 J	0.49 J	1.2	1.1
Perfluoropentanoic acid (PFPeA)	ng/g					--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g					49 J	23	6.9	5.7	17	4.8 J	1.6	2.3 J	< 0.34 UJ	< 0.34 UJ	< 0.35 U	< 0.35 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g					8.2	7.1	5.7	5.0	7.4	7.3	4.2	2.7	< 0.68 UJ	< 0.68 UJ	< 0.70 U	< 0.69 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g					0.86 J	2.9 J	9.4 J	3.9 J	< 0.36 U	< 0.33 U	< 0.35 U	4.7	0.45 J	0.35 J	< 0.35 U	< 0.35 U

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

				Location	MW01	MW01	MW01	MW02	MW02	MW02	MW02	MW02		MW02	MW02	MW02	MW03	MW03	MW03		MW03	MW03	MW03	MW03	MW03
				Date	6/20/2016	6/20/2016	6/20/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/17/2016		6/17/2016	6/17/2016	6/17/2016	6/15/2016	6/15/2016	6/15/2016		6/15/2016	6/15/2016	6/15/2016	6/15/2016	6/16/2016
				Depth	3.5 - 4 ft	8 - 8.5 ft	13 - 13.5 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	5 - 5.5 ft	5 - 5.5 ft	6 - 6.5 ft	8 - 8.5 ft	10 - 10.5 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1 - 1.5 ft	1.5 - 2 ft	3.5 - 4 ft	6 - 7 ft	9.5 - 10 ft	11 - 12 ft
				Sample Type	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	FD	N	N	N	N	N
Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations																					
Effective Date		7/26/2017	05/15/2018	07/27/2017																					
Exceedance Key		Shade	**Bold**	Underline																					
General Parameters																									
Carbon, total organic	mg/kg				631	1650	445 J	1410	< 169 U	1610	8230	5370	--	5980	2970	1680	1800	1860	434 J	--	2380	6210	5050	10500	5740
Moisture	%				26.2	11.1	9.3	8.2	7.0	8.6	14.3	13.9 J	17.7 J	12.1 J	18.8 J	12.7 J	6.2	5.4	6.7	5.8	7.4	11.6	19.7	20.4	20.3
pH	pH units				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																									
Aluminum	mg/kg		1100000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg		470 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg		**3.0 cR**	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg		220000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg		2300 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg		980 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg		**350 n**		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg		47000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg		820000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg		800 L	111	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg		26000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg		46 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg		22000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg		5800 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg		5800 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg		12 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg		5800 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg		350000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds																									
1,2,4,5-Tetrachlorobenzene	ug/kg		350000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dioxane	ug/kg		24000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,2'-oxybis (1-chloropropane)	ug/kg		47000000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	ug/kg		25000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/kg		82000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	ug/kg		210000 c**		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	ug/kg		2500000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/kg		16000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/kg		1600000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/kg		7400 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/kg		1500 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/kg		60000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/kg		5800000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methyl-4,6-dinitrophenol	ug/kg		66000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/kg		3000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylphenol (o-cresol)	ug/kg		41000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/kg		8000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3`-Dichlorobenzidine	ug/kg		5100 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	ug/kg		82000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/kg		11000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methylphenol (p-cresol)	ug/kg		82000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/kg		110000 c*		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	ug/kg		45000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetophenone	ug/kg		120000000 nms		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	ug/kg		230000000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Atrazine	ug/kg		10000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzaldehyde	ug/kg		820000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Biphenyl	ug/kg		200000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	ug/kg		2500000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations	Location	Date	Depth	Sample Type
					MW01	6/20/2016	3.5 - 4 ft	N
					MW01	6/20/2016	8 - 8.5 ft	N
					MW01	6/20/2016	13 - 13.5 ft	N
					MW02	6/16/2016	0 - 0.5 ft	N
					MW02	6/16/2016	0.5 - 1 ft	N
					MW02	6/16/2016	1 - 1.5 ft	N
					MW02	6/16/2016	1.5 - 2 ft	N
					MW02	6/17/2016	5 - 5.5 ft	N
					MW02	6/17/2016	5 - 5.5 ft	FD
					MW02	6/17/2016	6 - 6.5 ft	N
					MW02	6/17/2016	8 - 8.5 ft	N
					MW02	6/17/2016	10 - 10.5 ft	N
					MW03	6/15/2016	0 - 0.5 ft	N
					MW03	6/15/2016	0.5 - 1 ft	N
					MW03	6/15/2016	1 - 1.5 ft	N
					MW03	6/15/2016	1 - 1.5 ft	FD
					MW03	6/15/2016	1.5 - 2 ft	N
					MW03	6/15/2016	3.5 - 4 ft	N
					MW03	6/15/2016	6 - 7 ft	N
					MW03	6/15/2016	9.5 - 10 ft	N
					MW03	6/16/2016	11 - 12 ft	N
Effective Date		7/26/2017	05/15/2018	07/27/2017				
Exceedance Key		Shade	**Bold**	Underline				
Bis(2-chloroethyl)ether	ug/kg		1000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	ug/kg		160000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/kg		1200000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Caprolactam	ug/kg		400000000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/kg		1000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/kg		660000000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	ug/kg		82000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	ug/kg		8200000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	ug/kg		30000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	ug/kg		30000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	ug/kg		960 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/kg		5300 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/kg		7500 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/kg		8000 c*		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Isophorone	ug/kg		2400000 c*		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	ug/kg		17000 c*		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/kg		22000 c*		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Nitrosodi-n-propylamine	ug/kg		330 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	ug/kg		470000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/kg		4000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol	ug/kg		250000000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	ug/kg		23000000 n	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benz(a)anthracene	ug/kg		21000 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	ug/kg		21000 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	ug/kg		210000 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	ug/kg		2100 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	ug/kg		2100000 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	ug/kg		2100 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/kg		21000 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B(a)P Equivalent, non-detects at 1/2, 1999 TEQs (Barr Calculation)	ug/kg			580 (3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Volatile Organic Compounds																									
1,1,1-Trichloroethane	ug/kg		36000000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/kg		2700 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/kg		5000 c**		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/kg		16000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethylene	ug/kg		1000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	ug/kg		930000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	ug/kg		110000 c**		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg		64 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (EDB)	ug/kg		160 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	ug/kg		9300000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	ug/kg		2000 c*		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethylene, cis	ug/kg		2300000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethylene, trans	ug/kg		23000000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/kg		11000 c**		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene, cis	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene, trans	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	ug/kg		11000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	ug/kg		1300000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	ug/kg		670000000 nms		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	ug/kg		5100 c*		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/kg		630000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/kg		1300 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	ug/kg		86000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane	ug/kg		30000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	ug/kg		3500000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	ug/kg		2900 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/kg		1300000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorodibromomethane	ug/kg		39000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	ug/kg		57000000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Location					MW01	MW01	MW01	MW02	MW02	MW02	MW02	MW02		MW02	MW02	MW02	MW03	MW03	MW03		MW03		MW03	MW03	MW03
Date					6/20/2016	6/20/2016	6/20/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/17/2016		6/17/2016	6/17/2016	6/17/2016	6/15/2016	6/15/2016	6/15/2016		6/15/2016		6/15/2016	6/15/2016	6/16/2016
Depth					3.5 - 4 ft	8 - 8.5 ft	13 - 13.5 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	5 - 5.5 ft	5 - 5.5 ft	6 - 6.5 ft	8 - 8.5 ft	10 - 10.5 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1 - 1.5 ft	1.5 - 2 ft	3.5 - 4 ft	6 - 7 ft	9.5 - 10 ft	11 - 12 ft
Sample Type					N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	FD	N	N	N	N	N
Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations																					
Effective Date		7/26/2017	05/15/2018	07/27/2017																					
Exceedance Key		Shade	**Bold**	Underline																					
Chloroform	ug/kg		1400 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloromethane	ug/kg		460000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cumene (isopropyl benzene)	ug/kg		9900000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyclohexane	ug/kg		27000000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon-12)	ug/kg		370000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethyl benzene	ug/kg		25000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl acetate	ug/kg		1200000000 nms		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl ethyl ketone (2-butanone)	ug/kg		190000000 nms		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl isobutyl ketone (MIBK)	ug/kg		140000000 nms		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tertiary butyl ether (MTBE)	ug/kg		210000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylcyclohexane	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	ug/kg		1000000 c**		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	ug/kg		35000000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	ug/kg		100000 c**		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	ug/kg		47000000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene (TCE)	ug/kg		6000 c**		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (Freon-11)	ug/kg		350000000 nms		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorotrifluoroethane (Freon 113)	ug/kg		28000000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	ug/kg		1700 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylene, m & p	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylene, o	ug/kg		2800000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																									
Perfluorobutane sulfonate (PFBS)	ng/g		16000000 n		< 0.66 UJ	< 0.56 U	< 0.54 U	< 0.54 U	< 0.54 U	< 0.55 U	< 0.58 U	< 0.54 U	< 0.57 U	< 0.54 U	< 0.56 U	< 0.54 U	< 0.53 U	< 0.53 U	< 0.54 U	< 0.53 UJ	< 0.54 UJ	< 0.57 UJ	< 0.62 U	< 0.63 U	< 0.63 U
Perfluorobutanoic acid (PFBA)	ng/g				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	ng/g				< 0.27 UJ	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	0.33 J	0.74	8.2 J	5.2 J	8.0 J	43 J	3.9 J	< 0.21 U	< 0.21 U	0.34 J	0.29 J	0.34 J	< 0.23 U	< 0.25 U	< 0.25 U	0.30 J
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g				< 0.53 UJ	< 0.45 U	< 0.44 U	1.3	1.6	10	16	9.0 J	26 J	6.3 J	1.8 J	2.5 J	< 0.43 U	< 0.42 U	< 0.43 U	< 0.42 U	< 0.43 U	< 0.45 U	< 0.50 U	< 0.50 U	< 0.50 U
Perfluoroheptanoic acid (PFHpA)	ng/g				< 0.40 UJ	< 0.34 UJ	< 0.33 UJ	< 0.33 U	< 0.32 U	< 0.33 U	< 0.35 UJ	0.53 J	0.54 J	0.62 J	0.43 J	0.33 J	< 0.32 U	< 0.32 U	< 0.32 U	< 0.32 UJ	< 0.32 U	< 0.34 U	< 0.37 U	< 0.38 U	< 0.38 U
Perfluorohexane sulfonate (PFHxS)	ng/g				< 0.66 UJ	< 0.56 U	< 0.54 U	< 0.54 U	< 0.54 U	< 0.55 U	< 0.58 U	< 0.54 U	< 0.57 U	< 0.54 U	< 0.56 U	< 0.54 U	< 0.53 U	< 0.53 U	< 0.54 U	< 0.53 UJ	< 0.54 UJ	< 0.57 UJ	< 0.62 U	< 0.63 U	< 0.63 U
Perfluorohexanoic acid (PFHxA)	ng/g				< 0.27 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	0.23 J	< 0.23 U	< 0.22 U	0.35 J	0.29 J	0.39 J	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 UJ	< 0.22 U	< 0.23 U	< 0.25 U	< 0.25 U	< 0.25 U
Perfluorononanoic acid (PFNA)	ng/g				< 0.27 UJ	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.23 U	0.47 J	0.39 J	0.40 J	0.57 J	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 UJ	< 0.22 U	0.44 J	0.26 J	< 0.25 U	< 0.25 U
Perfluorooctanesulfonate (PFOS)	ng/g				< 0.93 UJ	< 0.78 U	< 0.76 U	< 0.76 U	< 0.75 U	< 0.77 U	< 0.82 U	< 0.76 U	< 0.79 U	< 0.76 U	1.1 J	< 0.75 U	< 0.75 U	< 0.74 U	< 0.75 U	< 0.74 UJ	< 0.76 U	< 0.79 UJ	< 0.87 U	< 0.88 U	< 0.88 U
Perfluorooctanoic acid (PFOA)	ng/g	300			0.59 J	0.73	< 0.33 U	1.6	1.8	7.1	7.8	28 J	23 J	30 J	22 J	9.3 J	< 0.32 U	< 0.32 U	0.76	0.61 J	1.1	7.6	11	23	3.6
Perfluoropentanoic acid (PFPeA)	ng/g				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g				< 0.40 UJ	< 0.34 U	< 0.33 U	74 J	93 J	40 J	11 J	20 J	19 J	29 J	1.6 J	0.35 J	< 0.32 U	< 0.32 U	< 0.32 U	< 0.32 UJ	< 0.32 U	< 0.34 U	< 0.37 U	< 0.38 U	< 0.38 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g				< 0.80 UJ	< 0.67 U	< 0.65 U	6.6	15	15	6.5	6.2 J	6.6 J	10 J	< 0.68 U	< 0.65 U	< 0.64 U	< 0.63 U	< 0.64 U	< 0.64 U	< 0.65 U	< 0.68 U	< 0.75 U	< 0.75 U	< 0.75 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g				< 0.40 UJ	< 0.34 U	< 0.33 U	< 0.33 U	< 0.32 U	1.0 J	1.8	15 J	10 J	3.9 J	1.9 J	1.4 J	< 0.32 U	< 0.32 U	< 0.32 U	< 0.32 UJ	< 0.32 U	< 0.34 U	0.37 J	< 0.38 U	< 0.38 U

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations	Location	MW03	MW04	MW04	MW04	MW04	MW04	MW04	MW04	MW04	MW05	MW05	MW05	MW05	MW05	MW05	MW05	MW06	MW06	MW06	MW06	MW06
					Date	6/15/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/15/2016	6/15/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/20/2016
					Depth	17 - 18 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	4.5 - 6 ft	8 - 9.5 ft	9.5 - 10 ft	12.5 - 13 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	3 - 3.5 ft	5 - 5.5 ft	9 - 9.5 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	5 - 5.5 ft
					Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Effective Date		7/26/2017	05/15/2018	07/27/2017																						
Exceedance Key		Shade	**Bold**	Underline																						
General Parameters																										
Carbon, total organic	mg/kg					< 159 U	1480	4290	2770	2450	1000	1480	4210	< 124 U	3560 J	< 109 UJ	9040	97300	15500	5610	< 177 U	22100	6740	8030	9060	5780
Moisture	%					17.8	5.3	10.0	6.5	6.4	18.9	19.1	11.1	19.5	5.0	7.9	11.0	15.0	21.4	18.8	17.3	6.5	3.8	5.8	9.4	17.8
pH	pH units					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																										
Aluminum	mg/kg		1100000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg		470 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg		**3.0 cR**	16		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg		220000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg		2300 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg		980 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg		**350 n**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg		47000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg		820000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg		800 L	111		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg		26000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg		46 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg		22000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg		5800 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg		5800 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg		12 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg		5800 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg		350000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds																										
1,2,4,5-Tetrachlorobenzene	ug/kg		350000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dioxane	ug/kg		24000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,2'-oxybis (1-chloropropane)	ug/kg		47000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	ug/kg		25000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/kg		82000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	ug/kg		210000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	ug/kg		2500000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/kg		16000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/kg		1600000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/kg		7400 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/kg		1500 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/kg		60000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/kg		5800000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methyl-4,6-dinitrophenol	ug/kg		66000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/kg		3000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylphenol (o-cresol)	ug/kg		41000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/kg		8000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3`-Dichlorobenzidine	ug/kg		5100 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	ug/kg		82000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/kg		11000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methylphenol (p-cresol)	ug/kg		82000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/kg		110000 c*			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	ug/kg		45000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetophenone	ug/kg		120000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	ug/kg		230000000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Atrazine	ug/kg		10000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzaldehyde	ug/kg		820000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Biphenyl	ug/kg		200000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	ug/kg		2500000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations	Location	MW03	MW04	MW04	MW04	MW04	MW04	MW04	MW04	MW04	MW05	MW05	MW05	MW05	MW05	MW05	MW05	MW06	MW06	MW06	MW06	MW06
					Date	6/15/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/15/2016	6/15/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/20/2016
					Depth	17 - 18 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	4.5 - 6 ft	8 - 9.5 ft	9.5 - 10 ft	12.5 - 13 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	3 - 3.5 ft	5 - 5.5 ft	9 - 9.5 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	5 - 5.5 ft
					Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Effective Date		7/26/2017	05/15/2018	07/27/2017																						
Exceedance Key		Shade	**Bold**	Underline																						
Bis(2-chloroethyl)ether	ug/kg		1000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	ug/kg		160000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/kg		1200000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Caprolactam	ug/kg		400000000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/kg		1000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/kg		660000000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	ug/kg		82000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	ug/kg		8200000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	ug/kg		30000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	ug/kg		30000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	ug/kg		960 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/kg		5300 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/kg		7500 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/kg		8000 c*			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Isophorone	ug/kg		2400000 c*			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	ug/kg		17000 c*			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/kg		22000 c*			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Nitrosodi-n-propylamine	ug/kg		330 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	ug/kg		470000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/kg		4000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol	ug/kg		250000000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	ug/kg		23000000 n	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benz(a)anthracene	ug/kg		21000 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	ug/kg		21000 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	ug/kg		210000 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	ug/kg		2100 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	ug/kg		2100000 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	ug/kg		2100 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/kg		21000 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B(a)P Equivalent, non-detects at 1/2, 1999 TEQs (Barr Calculation)	ug/kg			580 (3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Volatile Organic Compounds																										
1,1,1-Trichloroethane	ug/kg		36000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/kg		2700 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/kg		5000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/kg		16000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethylene	ug/kg		1000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	ug/kg		930000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	ug/kg		110000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg		64 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (EDB)	ug/kg		160 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	ug/kg		9300000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	ug/kg		2000 c*			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethylene, cis	ug/kg		2300000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethylene, trans	ug/kg		23000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/kg		11000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene, cis	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene, trans	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	ug/kg		11000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	ug/kg		1300000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	ug/kg		670000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	ug/kg		5100 c*			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/kg		630000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/kg		1300 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	ug/kg		86000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane	ug/kg		30000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon disulfide	ug/kg		3500000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	ug/kg		2900 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/kg		1300000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorodibromomethane	ug/kg		39000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	ug/kg		57000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations	Location	MW03	MW04	MW04	MW04	MW04	MW04	MW04	MW04	MW04	MW05	MW05	MW05	MW05	MW05	MW05	MW05	MW06	MW06	MW06	MW06	MW06
					Date	6/15/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/15/2016	6/15/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/20/2016
					Depth	17 - 18 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	4.5 - 6 ft	8 - 9.5 ft	9.5 - 10 ft	12.5 - 13 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	3 - 3.5 ft	5 - 5.5 ft	9 - 9.5 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	5 - 5.5 ft
					Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Effective Date		7/26/2017	05/15/2018	07/27/2017																						
Exceedance Key		Shade	**Bold**	Underline																						
Chloroform	ug/kg		1400 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloromethane	ug/kg		460000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cumene (isopropyl benzene)	ug/kg		9900000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyclohexane	ug/kg		27000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon-12)	ug/kg		370000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethyl benzene	ug/kg		25000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl acetate	ug/kg		1200000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl ethyl ketone (2-butanone)	ug/kg		190000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl isobutyl ketone (MIBK)	ug/kg		140000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tertiary butyl ether (MTBE)	ug/kg		210000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylcyclohexane	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	ug/kg		1000000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	ug/kg		35000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	ug/kg		100000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	ug/kg		47000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene (TCE)	ug/kg		6000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (Freon-11)	ug/kg		350000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorotrifluoroethane (Freon 113)	ug/kg		28000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	ug/kg		1700 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylene, m & p	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylene, o	ug/kg		2800000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																										
Perfluorobutane sulfonate (PFBS)	ng/g		16000000 n			< 0.61 U	< 0.53 U	1.6 J	< 0.53 U	< 0.53 U	< 0.62 U	< 0.60 U	< 0.53 UJ	< 0.60 UJ	R	R	R	R	R	< 0.62 U	< 0.60 U	R	R	R	R	< 0.60 UJ
Perfluorobutanoic acid (PFBA)	ng/g					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	ng/g					< 0.24 U	< 0.21 U	0.92	< 0.21 U	< 0.21 U	< 0.25 U	< 0.24 U	< 0.21 UJ	< 0.24 UJ	R	R	R	R	R	< 0.25 U	< 0.24 U	R	R	R	R	< 0.24 UJ
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g					< 0.49 U	< 0.42 U	< 0.44 U	< 0.43 U	< 0.43 U	< 0.49 U	< 0.48 U	< 0.42 UJ	< 0.48 U	R	R	R	R	R	< 0.49 U	< 0.48 U	R	R	R	R	< 0.48 UJ
Perfluoroheptanoic acid (PFHpA)	ng/g					< 0.36 U	< 0.32 U	1.1 J	< 0.32 U	< 0.32 U	< 0.37 U	< 0.36 UJ	< 0.32 UJ	< 0.36 UJ	R	R	R	R	R	< 0.37 U	< 0.36 U	R	R	R	R	< 0.36 UJ
Perfluorohexane sulfonate (PFHxS)	ng/g					< 0.61 U	< 0.53 U	1.6 J	< 0.53 U	< 0.53 U	< 0.62 U	< 0.60 U	< 0.53 UJ	< 0.60 UJ	R	R	R	R	R	< 0.62 U	< 0.60 U	R	R	R	R	< 0.60 UJ
Perfluorohexanoic acid (PFHxA)	ng/g					< 0.24 U	< 0.21 U	1.4 J	< 0.21 U	< 0.21 U	< 0.25 U	< 0.24 U	< 0.21 UJ	< 0.24 UJ	R	R	R	R	R	< 0.25 U	< 0.24 U	R	R	R	R	< 0.24 UJ
Perfluorononanoic acid (PFNA)	ng/g					< 0.24 U	< 0.21 U	1.2	0.22 J	0.22 J	< 0.25 U	< 0.24 UJ	< 0.21 UJ	< 0.24 UJ	R	R	R	R	R	< 0.25 U	< 0.24 U	R	R	R	R	< 0.24 UJ
Perfluorooctanesulfonate (PFOS)	ng/g					< 0.85 U	< 0.74 U	0.85 J	< 0.75 U	< 0.75 U	< 0.86 U	< 0.84 U	< 0.74 UJ	< 0.83 UJ	R	R	R	R	R	< 0.86 U	< 0.85 U	R	R	R	R	< 0.84 UJ
Perfluorooctanoic acid (PFOA)	ng/g	300				1.0	2.0	3.8	4.0	3.2	2.8	7.2	2.8 J	0.80 J	R	R	R	R	R	2.4	< 0.36 U	R	R	R	R	5.4 J
Perfluoropentanoic acid (PFPeA)	ng/g					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g					< 0.36 U	< 0.32 U	< 0.33 U	< 0.32 U	< 0.32 U	< 0.37 U	< 0.36 U	< 0.32 UJ	< 0.36 U	R	R	R	R	R	< 0.37 U	< 0.36 U	R	R	R	R	< 0.36 UJ
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g					< 0.73 U	< 0.63 U	< 0.67 U	< 0.64 U	< 0.64 U	< 0.74 U	< 0.72 U	< 0.64 UJ	< 0.72 U	R	R	R	R	R	< 0.74 U	< 0.73 U	R	R	R	R	< 0.72 UJ
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g					< 0.36 U	< 0.32 U	0.61 J	< 0.32 U	< 0.32 U	< 0.37 U	< 0.36 U	< 0.32 UJ	< 0.36 UJ	R	R	R	R	R	< 0.37 U	< 0.36 U	R	R	R	R	< 0.36 UJ

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations	Location	MW06	MW06	MW07	MW07		MW07	MW07	MW07	MW07	MW07	MW07	SB1801	SB1801	SB1801	SB1801	SB1801	SB1802	SB1802	SB1802	SB1802	SB1802
					Date	6/20/2016	6/20/2016	6/13/2016	6/13/2016		6/13/2016	6/13/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018
					Depth	10.5 - 11 ft	13.5 - 14 ft	0 - 0.5 ft	0.5 - 1 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	2.5 - 3 ft	9.5 - 10.5 ft	12 - 13 ft	22 - 23 ft	0 - 1 ft	8 ft	10 - 11 ft	15 - 20 ft	21 ft	0 - 1 ft	6.5 ft	9 ft	10 - 11 ft	15 ft
					Sample Type	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Effective Date		7/26/2017	05/15/2018	07/27/2017																						
Exceedance Key		Shade	**Bold**	Underline																						
General Parameters																										
Carbon, total organic	mg/kg					1600	570 J	35000 J	18300 J	--	16700 J	14200 J	3980 J	1330	19500	15700	37200 J	8080 J	9480 J	37400 J	20800 J	8860 J	9830 J	5780 J	5580 J	23200 J
Moisture	%					15.4	9.5	26.5	23.0	19.9	18.3	16.2	18.5	5.5	10.4	14.7	5.2	17.6	18.4	18.7	19.3	4.3	11.2	24.7	13.1	9.4
pH	pH units					--	--	--	--	--	--	--	--	--	--	--	8.84	8.04	8.02	7.83	8.63	8.08	8.07	7.45	8.05	8.47
Metals																										
Aluminum	mg/kg		1100000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7160	10500	21500	13900	8460
Antimony	mg/kg		470 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.204 J	0.606 J	1.62 J	0.4 J	0.176 J
Arsenic	mg/kg		**3.0 cR**	16		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**5.38 J**	**11.3 J**	**33.8 J**	**10.3 J**	**8.74 J**
Barium	mg/kg		220000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	32.2 J	140 J	525 J	136 J	43 J
Beryllium	mg/kg		2300 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.221 J	0.883 J	4.29 J	1.06 J	0.315 J
Cadmium	mg/kg		980 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0744 J	1.3 J	7.61 J	1.07 J	0.12 J
Calcium	mg/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3380 J	38100 J	3280 J	14900 J	40900 J
Chromium	mg/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.41 J	11.9 J	12.1 J	16.1 J	10.5 J
Cobalt	mg/kg		**350 n**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.1 J	70.4 J	**362 J**	85.8 J	9.57 J
Copper	mg/kg		47000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17.9 J	55.5 J	131 J	48.4 J	13.3 J
Iron	mg/kg		820000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	19200 J	46000 J	171000 J	53200 J	23900 J
Lead	mg/kg		800 L	111		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.86 J	24.4 J	42.3 J	18.7 J	8.67 J
Magnesium	mg/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4290 J	14800 J	2760 J	9500 J	26100 J
Manganese	mg/kg		26000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	392 J	1860 J	12800 J	2500 J	735 J
Mercury	mg/kg		46 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.0104 U	0.041 J	2.73	0.0527 J	< 0.0103 U
Nickel	mg/kg		22000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.4 J	145 J	418 J	116 J	19 J
Potassium	mg/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	986 J	1010 J	1780 J	1440 J	1020 J
Selenium	mg/kg		5800 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.152 J	0.327 J	1.01	0.332 J	0.152 J
Silver	mg/kg		5800 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0279 J	0.395	2.88	0.258	0.039 J
Sodium	mg/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	30.5 J	57.6 J	< 106 U	92.1 J	80.3 J
Thallium	mg/kg		12 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0401 J	0.216 J	0.925 J	0.194 J	0.1 J
Vanadium	mg/kg		5800 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.02 J	11.9 J	15.4 J	15.3 J	10.7 J
Zinc	mg/kg		350000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	35.1 J	193 J	1070 J	201 J	47.6 J
Semivolatile Organic Compounds																										
1,2,4,5-Tetrachlorobenzene	ug/kg		350000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
1,4-Dioxane	ug/kg		24000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 100 U	< 110 U	< 130 U	< 110 U	< 110 U
2,2'-oxybis (1-chloropropane)	ug/kg		47000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
2,3,4,6-Tetrachlorophenol	ug/kg		25000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 75 U	< 88 U	< 76 UJ	< 73 U
2,4,5-Trichlorophenol	ug/kg		82000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
2,4,6-Trichlorophenol	ug/kg		210000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 UJ	< 18 U
2,4-Dichlorophenol	ug/kg		2500000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
2,4-Dimethylphenol	ug/kg		16000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 UJ	< 18 U
2,4-Dinitrophenol	ug/kg		1600000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 310 U	< 340 U	< 400 U	< 340 UJ	< 330 U
2,4-Dinitrotoluene	ug/kg		7400 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 75 U	< 88 U	< 76 U	< 73 U
2,6-Dinitrotoluene	ug/kg		1500 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
2-Chloronaphthalene	ug/kg		60000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 7 U	< 7 U	< 9 U	< 8 U	< 7 U
2-Chlorophenol	ug/kg		5800000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
2-Methyl-4,6-dinitrophenol	ug/kg		66000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 170 U	< 190 U	< 220 U	< 190 UJ	< 180 U
2-Methylnaphthalene	ug/kg		3000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12 J	24	< 4 U	< 4 U	< 4 U
2-Methylphenol (o-cresol)	ug/kg		41000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
2-Nitroaniline	ug/kg		8000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
2-Nitrophenol	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
3,3`-Dichlorobenzidine	ug/kg		5100 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 100 U	< 110 U	< 130 U	< 110 U	< 110 U
3-Nitroaniline	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 75 U	< 88 U	< 76 U	< 73 U
4-Bromophenyl phenyl ether	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
4-Chloro-3-methylphenol	ug/kg		82000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
4-Chloroaniline	ug/kg		11000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 35 U	< 37 U	< 44 U	< 38 U	< 36 U
4-Chlorophenyl phenyl ether	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
4-Methylphenol (p-cresol)	ug/kg		82000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
4-Nitroaniline	ug/kg		110000 c*			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 75 U	< 88 U	< 76 U	< 73 U
4-Nitrophenol	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 170 U	< 190 U	< 220 U	< 190 U	< 180 U
Acenaphthene	ug/kg		45000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 3 U	41	< 4 U	< 4 U	< 4 U
Acenaphthylene	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4 J	13 J	< 4 U	< 4 U	< 4 U
Acetophenone	ug/kg		120000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
Anthracene	ug/kg		230000000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9 J	110	5 J	5 J	< 4 U
Atrazine	ug/kg		10000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 35 U	< 37 U	< 44 U	< 38 U	< 36 U
Benzaldehyde	ug/kg		820000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 75 U	< 88 U	< 76 U	< 73 U
Benzo(g,h,i)perylene	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	23	210	18 J	15 J	< 4 U
Biphenyl	ug/kg		200000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
Bis(2-chloroethoxy)methane	ug/kg		2500000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations	Location	MW06	MW06	MW07	MW07		MW07	MW07	MW07	MW07	MW07	MW07	SB1801	SB1801	SB1801	SB1801	SB1801	SB1802	SB1802	SB1802	SB1802	SB1802
					Date	6/20/2016	6/20/2016	6/13/2016	6/13/2016		6/13/2016	6/13/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018
					Depth	10.5 - 11 ft	13.5 - 14 ft	0 - 0.5 ft	0.5 - 1 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	2.5 - 3 ft	9.5 - 10.5 ft	12 - 13 ft	22 - 23 ft	0 - 1 ft	8 ft	10 - 11 ft	15 - 20 ft	21 ft	0 - 1 ft	6.5 ft	9 ft	10 - 11 ft	15 ft
					Sample Type	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Effective Date		7/26/2017	05/15/2018	07/27/2017																						
Exceedance Key		Shade	**Bold**	Underline																						
Bis(2-chloroethyl)ether	ug/kg		1000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
Bis(2-ethylhexyl)phthalate	ug/kg		160000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 75 U	< 88 U	< 76 U	< 73 U
Butyl benzyl phthalate	ug/kg		1200000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 75 U	< 88 U	< 76 U	< 73 U
Caprolactam	ug/kg		400000000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 35 U	< 37 U	< 44 U	< 38 U	< 36 U
Carbazole	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	42	< 22 U	< 19 U	< 18 U
Dibenzofuran	ug/kg		1000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	28 J	< 22 U	< 19 U	< 18 U
Diethyl phthalate	ug/kg		660000000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 75 U	< 88 U	< 76 U	< 73 U
Dimethyl phthalate	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 75 U	< 88 U	< 76 U	< 73 U
Di-n-butyl phthalate	ug/kg		82000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 75 U	< 88 U	< 76 U	< 73 U
Di-n-octyl phthalate	ug/kg		8200000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 75 U	< 88 U	< 76 U	< 73 U
Fluoranthene	ug/kg		30000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	52	670	61	40 J	< 4 U
Fluorene	ug/kg		30000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3 J	39	< 4 U	< 4 U	< 4 U
Hexachlorobenzene	ug/kg		960 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 3 U	< 4 U	< 4 U	< 4 U	< 4 U
Hexachlorobutadiene	ug/kg		5300 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
Hexachlorocyclopentadiene	ug/kg		7500 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 170 U	< 190 U	< 220 U	< 190 U	< 180 U
Hexachloroethane	ug/kg		8000 c*			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 35 U	< 37 U	< 44 U	< 38 U	< 36 U
Isophorone	ug/kg		2400000 c*			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
Naphthalene	ug/kg		17000 c*			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9 J	25	6 J	6 J	4 J
Nitrobenzene	ug/kg		22000 c*			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
n-Nitrosodi-n-propylamine	ug/kg		330 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
n-Nitrosodiphenylamine	ug/kg		470000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
Pentachlorophenol	ug/kg		4000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 35 U	< 37 U	< 44 U	< 38 UJ	< 36 U
Phenanthrene	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	54	520	54	32 J	< 4 U
Phenol	ug/kg		250000000 nm			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 17 U	< 19 U	< 22 U	< 19 U	< 18 U
Pyrene	ug/kg		23000000 n	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	50	690	51	38 J	< 4 U
Benz(a)anthracene	ug/kg		21000 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	28	350	21 J	22	< 4 U
Benzo(b)fluoranthene	ug/kg		21000 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	42	440	39	25	< 4 U
Benzo(k)fluoranthene	ug/kg		210000 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17 J	160	15 J	13 J	< 4 U
Benzo(a)pyrene	ug/kg		2100 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	29	330	22 J	19 J	< 4 U
Chrysene	ug/kg		2100000 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	47	400	30	25	< 4 U
Dibenz(a,h)anthracene	ug/kg		2100 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7 J	64	5 J	7 J	< 4 U
Indeno(1,2,3-cd)pyrene	ug/kg		21000 c	(3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	19	170	16 J	13 J	< 4 U
B(a)P Equivalent, non-detects at 1/2, 1999 TEQs (Barr Calculation)	ug/kg			580 (3)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	45 a	490	35 a	32 a	4.6
Volatile Organic Compounds																										
1,1,1-Trichloroethane	ug/kg		36000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	ug/kg		2700 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2-Trichloroethane	ug/kg		5000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	ug/kg		16000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethylene	ug/kg		1000000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,3-Trichlorobenzene	ug/kg		930000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	ug/kg		110000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg		64 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
1,2-Dibromoethane (EDB)	ug/kg		160 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichlorobenzene	ug/kg		9300000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	ug/kg		2000 c*			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethylene, cis	ug/kg		2300000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethylene, trans	ug/kg		23000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloropropane	ug/kg		11000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichlorobenzene	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichloropropene, cis	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichloropropene, trans	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dichlorobenzene	ug/kg		11000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Hexanone	ug/kg		1300000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 3 U	< 3 U	< 3 U	< 4 U	< 3 U
Acetone	ug/kg		670000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	27	110	180	19 J	10 J
Benzene	ug/kg		5100 c*			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.5 U	< 0.5 U	< 0.6 U	< 0.6 U	< 0.6 U
Bromochloromethane	ug/kg		630000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	ug/kg		1300 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromoform	ug/kg		86000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromomethane	ug/kg		30000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Carbon disulfide	ug/kg		3500000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	1 J	< 1 U	7 J	4 J
Carbon tetrachloride	ug/kg		2900 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Chlorobenzene	ug/kg		1300000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Chlorodibromomethane	ug/kg		39000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroethane	ug/kg		57000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations	Location	MW06	MW06	MW07	MW07		MW07	MW07	MW07	MW07	MW07	MW07	SB1801	SB1801	SB1801	SB1801	SB1801	SB1802	SB1802	SB1802	SB1802	SB1802
					Date	6/20/2016	6/20/2016	6/13/2016	6/13/2016		6/13/2016	6/13/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018
					Depth	10.5 - 11 ft	13.5 - 14 ft	0 - 0.5 ft	0.5 - 1 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	2.5 - 3 ft	9.5 - 10.5 ft	12 - 13 ft	22 - 23 ft	0 - 1 ft	8 ft	10 - 11 ft	15 - 20 ft	21 ft	0 - 1 ft	6.5 ft	9 ft	10 - 11 ft	15 ft
					Sample Type	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Effective Date		7/26/2017	05/15/2018	07/27/2017																						
Exceedance Key		Shade	**Bold**	Underline																						
Chloroform	ug/kg		1400 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloromethane	ug/kg		460000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Cumene (isopropyl benzene)	ug/kg		9900000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Cyclohexane	ug/kg		27000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Dichlorodifluoromethane (Freon-12)	ug/kg		370000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Ethyl benzene	ug/kg		25000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Methyl acetate	ug/kg		1200000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Methyl ethyl ketone (2-butanone)	ug/kg		190000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 4 U	< 4 U	< 4 U	< 5 U	< 4 U
Methyl isobutyl ketone (MIBK)	ug/kg		140000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 3 U	< 3 U	< 3 U	< 4 U	< 3 U
Methyl tertiary butyl ether (MTBE)	ug/kg		210000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.5 U	< 0.5 U	< 0.6 U	< 0.6 U	< 0.6 U
Methylcyclohexane	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Methylene chloride	ug/kg		1000000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Styrene	ug/kg		35000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 UJ	< 1 U
Tetrachloroethylene	ug/kg		100000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Toluene	ug/kg		47000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Trichloroethylene (TCE)	ug/kg		6000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Trichlorofluoromethane (Freon-11)	ug/kg		350000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Trichlorotrifluoroethane (Freon 113)	ug/kg		28000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Vinyl chloride	ug/kg		1700 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Xylene, m & p	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Xylene, o	ug/kg		2800000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 1 U	< 1 U	< 1 U
Per- and Polyfluoroalkyl Substances																										
Perfluorobutane sulfonate (PFBS)	ng/g		16000000 n			< 0.57 UJ	< 0.55 U	< 0.64 U	< 0.64 U	< 0.60 U	< 0.57 UJ	< 0.60 U	< 0.62 U	R	R	< 0.59 U	< 0.21 U	< 0.24 U	< 0.18 U	< 0.25 U	< 0.24 U	< 0.19 U	< 0.22 U	< 0.22 U	0.49 J	< 0.21 U
Perfluorobutanoic acid (PFBA)	ng/g					--	--	--	--	--	--	--	--	--	--	--	0.33 J	0.43 J	< 0.18 U	0.38 J	0.34 J	1	0.22 J	0.36 J	0.88	0.32 J
Perfluorodecanoic acid (PFDA)	ng/g					< 0.23 UJ	< 0.22 U	2.0 J	< 0.25 U	< 0.24 U	< 0.23 UJ	< 0.24 U	< 0.25 U	R	R	< 0.23 U	< 0.21 U	< 0.24 U	< 0.18 U	< 0.25 U	< 0.24 U	< 0.19 U	< 0.22 U	< 0.22 U	1.1 J	0.72
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g					< 0.46 UJ	< 0.44 U	0.68 J	< 0.51 U	< 0.48 U	< 0.46 U	< 0.48 U	< 0.50 U	R	R	< 0.47 U	< 0.21 U	< 0.24 U	< 0.18 U	< 0.25 U	< 0.24 U	< 0.19 U	< 0.22 U	< 0.22 U	0.57	0.61 J
Perfluoroheptanoic acid (PFHpA)	ng/g					< 0.34 UJ	< 0.33 UJ	< 0.39 U	< 0.38 U	< 0.36 UJ	< 0.34 U	< 0.36 U	< 0.37 U	R	R	< 0.35 U	0.38 J	< 0.24 U	< 0.18 U	< 0.25 U	< 0.24 U	1.7	< 0.22 U	0.94	0.75	< 0.21 U
Perfluorohexane sulfonate (PFHxS)	ng/g					< 0.57 UJ	< 0.55 U	< 0.64 U	< 0.64 U	< 0.60 U	< 0.57 UJ	< 0.60 U	< 0.62 U	R	R	< 0.59 U	< 0.21 U	< 0.24 U	< 0.18 U	< 0.25 U	< 0.24 U	< 0.19 U	< 0.22 U	< 0.22 U	0.53	< 0.21 U
Perfluorohexanoic acid (PFHxA)	ng/g					< 0.23 UJ	< 0.22 U	0.30 J	0.26 J	0.31 J	0.55 J	< 0.24 U	< 0.25 U	R	R	< 0.23 U	0.21 J	< 0.24 U	< 0.18 U	< 0.25 U	< 0.24 U	5.2	1.6	0.62 J	0.67	< 0.21 U
Perfluorononanoic acid (PFNA)	ng/g					< 0.23 UJ	< 0.22 U	1.3	0.65	0.61	0.23 J	< 0.24 U	< 0.25 U	R	R	< 0.23 U	< 0.21 U	< 0.24 U	< 0.18 U	< 0.25 U	< 0.24 U	< 0.19 U	< 0.22 U	< 0.22 U	0.84 J	< 0.21 U
Perfluorooctanesulfonate (PFOS)	ng/g					< 0.80 UJ	< 0.76 U	1.1 J	< 0.89 U	< 0.83 U	< 0.80 U	< 0.83 U	< 0.87 U	R	R	< 0.82 U	< 0.31 U	< 0.36 U	< 0.27 U	< 0.37 U	< 0.35 U	< 0.29 U	< 0.33 U	< 0.33 U	0.65 J	< 0.32 U
Perfluorooctanoic acid (PFOA)	ng/g	300				3.0 J	2.6	4.1	5.3	5.0	6.9 J	8.5	6.9	R	R	< 0.35 U	33	< 0.24 U	0.77	3.1	1.4	27	< 0.22 U	12	14 J	3.6
Perfluoropentanoic acid (PFPeA)	ng/g					--	--	--	--	--	--	--	--	--	--	--	< 0.21 UJ	< 0.24 UJ	< 0.18 UJ	< 0.25 UJ	< 0.24 UJ	2.9 J	0.65 J	0.3 J	0.62 J	< 0.21 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g					< 0.34 UJ	< 0.33 U	0.44 J	< 0.38 U	< 0.36 U	< 0.34 U	< 0.36 U	< 0.37 U	R	R	< 0.35 U	< 0.21 U	< 0.24 U	< 0.18 U	< 0.25 U	< 0.24 U	< 0.19 U	< 0.22 U	< 0.22 U	0.48 J	< 0.21 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g					< 0.69 UJ	< 0.66 U	< 0.77 U	< 0.76 U	< 0.71 U	< 0.69 U	< 0.71 U	< 0.75 U	R	R	< 0.70 U	< 0.21 U	< 0.24 U	< 0.18 U	< 0.25 U	< 0.24 U	< 0.19 U	< 0.22 U	< 0.22 U	0.54	< 0.21 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g					< 0.34 UJ	< 0.33 U	0.83 J	< 0.38 U	< 0.36 U	< 0.34 U	< 0.36 U	< 0.37 U	R	R	< 0.35 U	< 0.21 U	< 0.24 U	< 0.18 U	< 0.25 U	< 0.24 U	< 0.19 U	< 0.22 U	< 0.22 U	0.52	0.79

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

				Location	SB1803	SB1803	SB1803	SB1803	SB1803	SB1804		SB1804	SB1804	SB1804	SB1805	SB1805	SB1805	SB1805	SB1806	SB1806	SB1807	SB1807	SB1807
				Date	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/07/2018		3/07/2018	3/07/2018	3/07/2018	3/07/2018	3/07/2018	3/07/2018	3/07/2018	3/09/2018	3/09/2018	3/12/2018	3/12/2018	3/12/2018
				Depth	0 - 1 ft	10 - 11 ft	13 ft	14 ft	15 - 17 ft	0 - 1 ft	0 - 1 ft	8 ft	10 - 11 ft	15 - 20 ft	0 - 1 ft	10 - 11 ft	15 - 20 ft	22 ft	0 - 1 ft	10 - 11 ft	0 - 1 ft	10 - 11 ft	15 - 18 ft
				Sample Type	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	FD
Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations																			
Effective Date		7/26/2017	05/15/2018	07/27/2017																			
Exceedance Key		Shade	**Bold**	Underline																			
General Parameters																							
Carbon, total organic	mg/kg				36900 J	43400 J	16000 J	47400 J	11800 J	2030 J	1700 J	13400 J	--	5050 J	4640 J	2200 J	10500 J	27400 J	2970 J	25300 J	4720	11800	14100	12200
Moisture	%				5	4.2	23.6	26.6	14	5.4	4.9	21.4	--	18.5	5.8	6.2	9.2	24.4	6.3	3.7	6.1	8.6	10.1	13.5
pH	pH units				8.88	11.3	7.73	7.8	8.57	7.94	8.04	7.61	--	8.1	8.49	8.15	8.44	8.55	8.39	8.43	8.28	8.24	7.75	8.02
Metals																							
Aluminum	mg/kg		1100000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12400	9430	7970	7930
Antimony	mg/kg		470 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.0892 UB	< 0.0836 UJ	< 0.125 UB	< 0.0776 UB
Arsenic	mg/kg		**3.0 cR**	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**9.4**	**5.78**	**10 J**	**6.55 J**
Barium	mg/kg		220000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	39.7 J	38 J	62.9 J	60.4 J
Beryllium	mg/kg		2300 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.396	0.302	0.325	0.335
Cadmium	mg/kg		980 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.172 J	0.149 J	0.277	0.233
Calcium	mg/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14200 J	57600 J	24200 J	34800 J
Chromium	mg/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13.4	15.9	11.9	11
Cobalt	mg/kg		**350 n**		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14.1	8.48	11.7	10.7
Copper	mg/kg		47000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	29.2	19.6	20.8	17
Iron	mg/kg		820000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	32000	21100	21000	20900
Lead	mg/kg		800 L	111	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13.7	12.8	54.4 J	30.6 J
Magnesium	mg/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10800	34100	14900	19200
Manganese	mg/kg		26000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	643 J	681 J	837 J	810 J
Mercury	mg/kg		46 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0151 J	0.129	0.347 J	0.63 J
Nickel	mg/kg		22000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	28.6 J	17.9 J	19.9 J	19.5 J
Potassium	mg/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1660 J	1240 J	577 J	632 J
Selenium	mg/kg		5800 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.233 J	0.171 J	0.389 J	0.24 J
Silver	mg/kg		5800 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0563 J	0.0518 J	0.173	0.162
Sodium	mg/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	109 J	81.8 J	50.9 J	55.8 J
Thallium	mg/kg		12 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0573 J	0.0698 J	0.115 J	0.0941 J
Vanadium	mg/kg		5800 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13.8 J	11.7 J	9.9 J	9.63 J
Zinc	mg/kg		350000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	69.6	62.3	88.3	79.5
Semivolatile Organic Compounds																							
1,2,4,5-Tetrachlorobenzene	ug/kg		350000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
1,4-Dioxane	ug/kg		24000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 110 U	< 110 U	< 110 U	< 110 U
2,2'-oxybis (1-chloropropane)	ug/kg		47000000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
2,3,4,6-Tetrachlorophenol	ug/kg		25000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 72 U	< 74 U	< 76 U
2,4,5-Trichlorophenol	ug/kg		82000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
2,4,6-Trichlorophenol	ug/kg		210000 c**		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
2,4-Dichlorophenol	ug/kg		2500000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
2,4-Dimethylphenol	ug/kg		16000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
2,4-Dinitrophenol	ug/kg		1600000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 320 U	< 330 U	< 330 U	< 340 U
2,4-Dinitrotoluene	ug/kg		7400 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 72 U	< 74 U	< 76 U
2,6-Dinitrotoluene	ug/kg		1500 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
2-Chloronaphthalene	ug/kg		60000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 7 U	< 7 U	< 7 U	< 8 U
2-Chlorophenol	ug/kg		5800000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
2-Methyl-4,6-dinitrophenol	ug/kg		66000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 180 U	< 180 U	< 180 U	< 190 U
2-Methylnaphthalene	ug/kg		3000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5 J	< 4 U	3100 J	7 J
2-Methylphenol (o-cresol)	ug/kg		41000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
2-Nitroaniline	ug/kg		8000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
2-Nitrophenol	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
3,3`-Dichlorobenzidine	ug/kg		5100 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 110 U	< 110 U	< 110 U	< 110 U
3-Nitroaniline	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 72 U	< 74 U	< 76 U
4-Bromophenyl phenyl ether	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
4-Chloro-3-methylphenol	ug/kg		82000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
4-Chloroaniline	ug/kg		11000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 35 U	< 36 U	< 37 U	< 38 U
4-Chlorophenyl phenyl ether	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
4-Methylphenol (p-cresol)	ug/kg		82000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
4-Nitroaniline	ug/kg		110000 c*		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 72 U	< 74 U	< 76 U
4-Nitrophenol	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 180 U	< 180 U	< 180 U	< 190 U
Acenaphthene	ug/kg		45000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 4 U	4 J	< 4 U	< 4 U
Acenaphthylene	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 4 U	< 4 U	< 4 U	< 4 U
Acetophenone	ug/kg		120000000 nms		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
Anthracene	ug/kg		230000000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 4 U	18 J	6 J	4 J
Atrazine	ug/kg		10000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 35 U	< 36 U	< 37 U	< 38 U
Benzaldehyde	ug/kg		820000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 72 U	1100 J	< 76 UJ
Benzo(g,h,i)perylene	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4 J	35	11 J	5 J
Biphenyl	ug/kg		200000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	93	< 19 U
Bis(2-chloroethoxy)methane	ug/kg		2500000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations	Location	SB1803	SB1803	SB1803	SB1803	SB1803	SB1804		SB1804	SB1804	SB1804	SB1805	SB1805	SB1805	SB1805	SB1806	SB1806	SB1807	SB1807	SB1807	
					Date	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/07/2018		3/07/2018	3/07/2018	3/07/2018	3/07/2018	3/07/2018	3/07/2018	3/07/2018	3/09/2018	3/09/2018	3/12/2018	3/12/2018	3/12/2018	
					Depth	0 - 1 ft	10 - 11 ft	13 ft	14 ft	15 - 17 ft	0 - 1 ft	0 - 1 ft	8 ft	10 - 11 ft	15 - 20 ft	0 - 1 ft	10 - 11 ft	15 - 20 ft	22 ft	0 - 1 ft	10 - 11 ft	0 - 1 ft	10 - 11 ft	15 - 18 ft	15 - 18 ft
					Sample Type	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	FD
Effective Date		7/26/2017	05/15/2018	07/27/2017																					
Exceedance Key		Shade	**Bold**	Underline																					
Bis(2-chloroethyl)ether	ug/kg		1000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
Bis(2-ethylhexyl)phthalate	ug/kg		160000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 72 U	< 74 U	< 76 U
Butyl benzyl phthalate	ug/kg		1200000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 72 U	< 74 U	< 76 U
Caprolactam	ug/kg		400000000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 35 U	< 36 U	< 37 U	< 38 U
Carbazole	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
Dibenzofuran	ug/kg		1000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
Diethyl phthalate	ug/kg		660000000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 72 U	< 74 U	< 76 U
Dimethyl phthalate	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 72 U	< 74 U	< 76 U
Di-n-butyl phthalate	ug/kg		82000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 72 U	< 74 U	< 76 U
Di-n-octyl phthalate	ug/kg		8200000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 70 U	< 72 U	< 74 U	< 76 U
Fluoranthene	ug/kg		30000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7 J	120	16 J	11 J
Fluorene	ug/kg		30000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 4 U	4 J	41	< 4 U
Hexachlorobenzene	ug/kg		960 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 4 U	< 4 U	< 4 U	< 4 U
Hexachlorobutadiene	ug/kg		5300 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
Hexachlorocyclopentadiene	ug/kg		7500 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 180 U	< 180 U	< 180 U	< 190 U
Hexachloroethane	ug/kg		8000 c*		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 35 U	< 36 U	< 37 U	< 38 U
Isophorone	ug/kg		2400000 c*		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
Naphthalene	ug/kg		17000 c*		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 4 U	6 J	760 J	23 J
Nitrobenzene	ug/kg		22000 c*		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
n-Nitrosodi-n-propylamine	ug/kg		330 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
n-Nitrosodiphenylamine	ug/kg		470000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
Pentachlorophenol	ug/kg		4000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 35 U	< 36 U	< 37 U	< 38 U
Phenanthrene	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 4 U	110	12 J	13 J
Phenol	ug/kg		250000000 nm		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 18 U	< 18 U	< 18 U	< 19 U
Pyrene	ug/kg		23000000 n	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8 J	110	15 J	11 J
Benz(a)anthracene	ug/kg		21000 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4 J	45	8 J	4 J
Benzo(b)fluoranthene	ug/kg		21000 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7 J	63	11 J	7 J
Benzo(k)fluoranthene	ug/kg		210000 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4 J	32	5 J	< 4 U
Benzo(a)pyrene	ug/kg		2100 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5 J	48	9 J	5 J
Chrysene	ug/kg		2100000 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5 J	55	10 J	6 J
Dibenz(a,h)anthracene	ug/kg		2100 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 4 U	8 J	< 4 U	< 4 U
Indeno(1,2,3-cd)pyrene	ug/kg		21000 c	(3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 4 U	28	7 J	< 4 U
B(a)P Equivalent, non-detects at 1/2, 1999 TEQs (Barr Calculation)	ug/kg			580 (3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.3 a	70 a	14 a	8.3 a
Volatile Organic Compounds																									
1,1,1-Trichloroethane	ug/kg		36000000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
1,1,2,2-Tetrachloroethane	ug/kg		2700 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 UJ	< 0.9 UJ	< 1 UJ
1,1,2-Trichloroethane	ug/kg		5000 c**		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
1,1-Dichloroethane	ug/kg		16000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
1,1-Dichloroethylene	ug/kg		1000000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
1,2,3-Trichlorobenzene	ug/kg		930000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 UJ	< 0.9 UJ	< 1 UJ
1,2,4-Trichlorobenzene	ug/kg		110000 c**		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 UJ	< 0.9 UJ	< 1 UJ
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg		64 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 UJ	< 2 UJ	< 2 UJ
1,2-Dibromoethane (EDB)	ug/kg		160 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
1,2-Dichlorobenzene	ug/kg		9300000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 UJ	< 0.9 UJ	< 1 UJ
1,2-Dichloroethane	ug/kg		2000 c*		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
1,2-Dichloroethylene, cis	ug/kg		2300000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
1,2-Dichloroethylene, trans	ug/kg		23000000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
1,2-Dichloropropane	ug/kg		11000 c**		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
1,3-Dichlorobenzene	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 UJ	< 0.9 UJ	< 1 UJ
1,3-Dichloropropene, cis	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
1,3-Dichloropropene, trans	ug/kg				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
1,4-Dichlorobenzene	ug/kg		11000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 UJ	< 0.9 UJ	< 1 UJ
2-Hexanone	ug/kg		1300000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 3 U	< 3 U	< 3 U	< 3 U
Acetone	ug/kg		670000000 nms		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	33	21	21	61
Benzene	ug/kg		5100 c*		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.4 U	0.7 J	< 0.4 U	< 0.5 U
Bromochloromethane	ug/kg		630000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Bromodichloromethane	ug/kg		1300 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Bromoform	ug/kg		86000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Bromomethane	ug/kg		30000 n		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U
Carbon disulfide	ug/kg		3500000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	3 J	3 J
Carbon tetrachloride	ug/kg		2900 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Chlorobenzene	ug/kg		1300000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Chlorodibromomethane	ug/kg		39000 c		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Chloroethane	ug/kg		57000000 ns		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U

Table 9
Analytical Soil Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Parameter	Units	Consent Order Specific Cleanup Value	EPA Industrial Carcinogenic and Non-Carcinogenic RSL TR=1E-06 or THQ=1.0	Vermont DEC Commercial-Urban Background Soil Concentrations	Location	SB1803	SB1803	SB1803	SB1803	SB1803	SB1804		SB1804	SB1804	SB1804	SB1805	SB1805	SB1805	SB1805	SB1806	SB1806	SB1807	SB1807	SB1807	
					Date	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/06/2018	3/07/2018		3/07/2018	3/07/2018	3/07/2018	3/07/2018	3/07/2018	3/07/2018	3/07/2018	3/09/2018	3/09/2018	3/12/2018	3/12/2018	3/12/2018	
					Depth	0 - 1 ft	10 - 11 ft	13 ft	14 ft	15 - 17 ft	0 - 1 ft	0 - 1 ft	8 ft	10 - 11 ft	15 - 20 ft	0 - 1 ft	10 - 11 ft	15 - 20 ft	22 ft	0 - 1 ft	10 - 11 ft	0 - 1 ft	10 - 11 ft	15 - 18 ft	15 - 18 ft
					Sample Type	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	FD
Effective Date		7/26/2017	05/15/2018	07/27/2017																					
Exceedance Key		Shade	**Bold**	Underline																					
Chloroform	ug/kg		1400 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Chloromethane	ug/kg		460000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U
Cumene (isopropyl benzene)	ug/kg		9900000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Cyclohexane	ug/kg		27000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Dichlorodifluoromethane (Freon-12)	ug/kg		370000 n			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U
Ethyl benzene	ug/kg		25000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Methyl acetate	ug/kg		1200000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U
Methyl ethyl ketone (2-butanone)	ug/kg		190000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4 J	< 4 U	< 3 U	9 J
Methyl isobutyl ketone (MIBK)	ug/kg		140000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 3 U	< 3 U	< 3 U	< 3 U
Methyl tertiary butyl ether (MTBE)	ug/kg		210000 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.4 U	< 0.5 U	< 0.4 U	< 0.5 U
Methylcyclohexane	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Methylene chloride	ug/kg		1000000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U
Styrene	ug/kg		35000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Tetrachloroethylene	ug/kg		100000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Toluene	ug/kg		47000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	1 J	1 J
Trichloroethylene (TCE)	ug/kg		6000 c**			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Trichlorofluoromethane (Freon-11)	ug/kg		350000000 nms			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U
Trichlorotrifluoroethane (Freon 113)	ug/kg		28000000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U
Vinyl chloride	ug/kg		1700 c			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Xylene, m & p	ug/kg					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Xylene, o	ug/kg		2800000 ns			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 1 U
Per- and Polyfluoroalkyl Substances																									
Perfluorobutane sulfonate (PFBS)	ng/g		16000000 n			< 0.14 U	< 0.18 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.23 U	< 0.22 U	< 0.17 U	< 0.16 U	< 0.15 U	< 0.16 U	< 0.24 U	< 0.21 U	< 0.14 U	< 0.17 U	< 0.17 U	< 0.18 U	< 0.17 U
Perfluorobutanoic acid (PFBA)	ng/g					0.3 J	0.26 J	0.27 J	< 0.25 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.23 U	0.46 J	0.22 J	0.26 J	< 0.15 U	0.17 J	< 0.24 U	0.23 J	< 0.14 U	4.1	1.1	0.26 J	0.27 J
Perfluorodecanoic acid (PFDA)	ng/g					< 0.14 U	< 0.18 U	< 0.21 U	< 0.25 U	0.83	< 0.19 U	< 0.16 U	< 0.23 U	< 0.22 U	< 0.17 U	0.19 J	< 0.15 U	0.32 J	< 0.24 U	< 0.21 U	< 0.14 U	< 0.17 U	0.27 J	< 0.18 U	< 0.17 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g					< 0.14 U	< 0.18 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.23 U	< 0.22 U	< 0.17 U	< 0.16 U	< 0.15 U	0.38 J	< 0.24 U	< 0.21 U	< 0.14 U	< 0.17 U	< 0.17 U	< 0.18 U	< 0.17 U
Perfluoroheptanoic acid (PFHpA)	ng/g					2	< 0.18 U	0.21 J	0.64 J	< 0.22 U	< 0.19 U	< 0.16 U	< 0.23 U	< 0.22 U	< 0.17 U	1.4	0.74	0.7	< 0.24 U	< 0.21 U	< 0.14 U	12	3.6	0.54	0.49 J
Perfluorohexane sulfonate (PFHxS)	ng/g					< 0.14 U	< 0.18 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.23 U	< 0.22 U	< 0.17 U	< 0.16 U	< 0.15 U	< 0.16 U	< 0.24 U	< 0.21 U	< 0.14 U	< 0.17 U	< 0.17 U	< 0.18 U	< 0.17 U
Perfluorohexanoic acid (PFHxA)	ng/g					1.5	< 0.18 U	< 0.21 U	0.35 J	< 0.22 U	< 0.19 U	< 0.16 U	< 0.23 U	< 0.22 U	< 0.17 U	0.45 J	0.31 J	< 0.16 U	< 0.24 U	< 0.21 U	< 0.14 U	17	6.9	1	0.69
Perfluorononanoic acid (PFNA)	ng/g					< 0.14 U	< 0.18 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.23 U	< 0.22 U	< 0.17 U	0.17 J	< 0.15 U	0.16 J	< 0.24 U	< 0.21 U	< 0.14 U	0.25 J	< 0.17 U	< 0.18 U	< 0.17 U
Perfluorooctanesulfonate (PFOS)	ng/g					< 0.21 U	< 0.27 U	< 0.31 U	< 0.37 U	< 0.32 U	< 0.29 U	< 0.24 U	< 0.34 U	< 0.33 U	< 0.25 U	< 0.24 U	< 0.22 U	< 0.24 U	< 0.35 U	< 0.31 U	< 0.21 U	< 0.25 U	< 0.26 U	< 0.27 U	< 0.26 U
Perfluorooctanoic acid (PFOA)	ng/g	300				84	5	3.8	8.2	4.3	0.35 J	0.55	< 0.23 U	0.56 J	1.3	80	42	43	1.1	5.2	0.59	380	83	29	30
Perfluoropentanoic acid (PFPeA)	ng/g					0.43	< 0.18 UJ	< 0.21 UJ	< 0.25 UJ	< 0.22 UJ	< 0.19 UJ	< 0.16 UJ	< 0.23 UJ	< 0.22 UJ	< 0.17 UJ	0.17 J	< 0.15 UJ	< 0.16 UJ	< 0.24 UJ	< 0.21 UJ	< 0.14 UJ	17 J	5.2 J	0.83 J	0.45 J
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g					< 0.14 U	< 0.18 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.23 U	< 0.22 U	< 0.17 U	< 0.16 U	< 0.15 U	< 0.16 U	< 0.24 U	< 0.21 U	< 0.14 U	< 0.17 U	< 0.17 U	< 0.18 U	< 0.17 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g					< 0.14 U	< 0.18 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.23 U	< 0.22 U	< 0.17 U	< 0.16 U	< 0.15 U	< 0.16 U	< 0.24 U	< 0.21 U	< 0.14 U	< 0.17 U	< 0.17 U	< 0.18 U	< 0.17 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g					< 0.14 U	< 0.18 U	< 0.21 U	< 0.25 U	1.4	< 0.19 U	< 0.16 U	< 0.23 U	< 0.22 U	< 0.17 U	< 0.16 U	< 0.15 U	0.27 J	< 0.24 U	< 0.21 U	< 0.14 U	< 0.17 U	< 0.17 U	< 0.18 U	< 0.17 U

Table 10
Analytical Groundwater Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

						Location	MW01	MW01	MW01	MW02		MW02	MW02	MW03	MW03	MW03	MW03S	MW03S	MW03S	MW04	MW04
						Date	7/13/2016	12/19/2016	3/19/2018	7/13/2016		12/20/2016	3/19/2018	7/13/2016	12/16/2016	3/21/2018	7/13/2016	12/16/2016	3/19/2018	7/14/2016	12/16/2016
						Sample Type	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location	Units	Table 1 Primary Groundwater Quality Standards: Enforcement Standards	Vapor Intrusion Screening Values - Industrial Groundwater																
Effective Date				12/16/2016	07/27/2017																
Exceedance Key				**Bold**	Underline																
General Parameters																					
Alkalinity, bicarbonate, as CaCO3	NA	Lab	mg/l			139 J	183 J	225	286 J	286 J	299 J	283	278 J	280	280	259 J	270	269	284 J	310
Alkalinity, carbonate, as CaCO3	NA	Lab	mg/l			< 1.7 UJ	R	< 1.7 U	< 1.7 UJ	< 1.7 UJ	R	< 1.7 U	< 1.7 UJ	< 1.7 U	< 1.7 U	< 1.7 UJ	< 1.7 U	< 1.7 U	< 1.7 UJ	< 1.7 U
Alkalinity, total, as CaCO3	NA	Lab	mg/l			139 J	183 J	225	286 J	286 J	299 J	283	278 J	280	280	259 J	270	269	284 J	310
Bromide	NA	Lab	mg/l			--	--	< 1.3 U	--	--	--	< 1.3 U	--	--	< 1.3 U	--	--	< 1.3 U	--	--
Chloride	NA	Lab	mg/l			21.7	55.8	92.6	112	114	152	431	46.9	37.0	113	26.7	39.3	74.1	113	409
Cyanide	NA	Lab	mg/l	0.2000	0.0035	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	0.0053 J	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U
Nitrogen, nitrate, as N	NA	Lab	mg/l	10.0000		--	--	2	--	--	--	3.5	--	--	1.7	--	--	2.3	--	--
Nitrogen, nitrite, as N	NA	Lab	mg/l	**1.0000**		--	--	< 0.25 U	--	--	--	< 0.25 U	--	--	< 0.25 U	--	--	< 0.25 U	--	--
Sulfate, as SO4	NA	Lab	mg/l			12.5	17.9 J	18.3	19.5	19.8	20.6 J	25.4	16.4	19.0	23.3	16.0	19.2	20.1	21.9	24.5
Metals																				
Aluminum	Total	Lab	mg/l			< 0.0868 U	< 0.0941 UB	< 0.0894 U	< 0.0868 U	< 0.0868 U	< 0.0868 U	0.199 J	< 0.0868 U	< 0.0868 U	< 0.0894 U	0.140 J	< 0.0868 U	< 0.0894 U	< 0.0868 U	< 0.0916 UB
Antimony	Total	Lab	mg/l	0.0060		< 0.00048 U	< 0.00048 U	< 0.00045 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00045 U	< 0.00048 U	< 0.00048 U	< 0.00045 U	< 0.00048 U	< 0.00048 U	< 0.00045 U	< 0.00048 U	< 0.00048 U
Arsenic	Total	Lab	mg/l	**0.0100**		< 0.00068 U	< 0.00068 U	< 0.00072 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00072 U	< 0.00068 U	< 0.00068 U	< 0.00072 U	< 0.00068 U	< 0.00068 U	< 0.00072 U	< 0.00068 U	< 0.00068 U
Barium	Total	Lab	mg/l	2.0000		0.0087	0.0110	0.0179	0.0210	0.0207	0.0246	0.0407	0.0296	0.0281	0.0393	0.0338	0.0353	0.0407	0.0387	0.0461
Beryllium	Total	Lab	mg/l	0.0040		< 0.00011 U	< 0.00011 U	< 0.000071 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.000071 U	< 0.00011 U	< 0.00011 U	< 0.000071 U	< 0.00011 U	< 0.00011 U	< 0.000071 U	< 0.00011 U	< 0.00011 U
Cadmium	Total	Lab	mg/l	0.0050		< 0.00019 U	< 0.00019 U	< 0.00015 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00015 U	< 0.00019 U	< 0.00019 U	< 0.00015 U	< 0.00019 U	< 0.00019 U	< 0.00015 U	< 0.00019 U	< 0.00019 U
Calcium	Total	Lab	mg/l			42.0	53.6	71	99.0	97.0	89.8	114	81.0	73.0	82.2	78.1	75.5	86.3	88.5	89.7
Chromium	Total	Lab	mg/l	0.1000		< 0.00059 U	< 0.00059 U	< 0.00087 U	< 0.00075 UB	< 0.00083 UB	0.00070 J	0.0011 J	< 0.00059 U	< 0.00059 U	< 0.00087 U	< 0.00064 UB	< 0.00059 U	< 0.00087 U	< 0.00059 U	0.00086 J
Cobalt	Total	Lab	mg/l			< 0.00020 U	0.00021 J	< 0.00016 U	< 0.00020 U	< 0.00020 U	< 0.00020 U	0.0012	< 0.00020 U	< 0.00020 U	< 0.00016 U	0.00024 J	< 0.00020 U	< 0.00016 U	0.0015	0.0018
Copper	Total	Lab	mg/l	1.3000		< 0.00052 U	< 0.00052 U	< 0.00054 U	< 0.00059 UB	< 0.00052 U	< 0.00052 U	0.00086 J	< 0.00052 U	< 0.00052 U	< 0.00054 U	< 0.00052 U	< 0.00052 U	< 0.00054 U	< 0.00052 U	< 0.00052 U
Iron	Total	Lab	mg/l			< 0.0747 U	0.109 J	< 0.0805 U	< 0.0747 U	< 0.0747 U	< 0.0747 U	0.704	< 0.0747 U	< 0.0747 U	< 0.0805 U	0.363 J	< 0.0747 U	< 0.0805 U	< 0.0747 U	0.0963 J
Lead	Total	Lab	mg/l	0.0150		< 0.000090 U	0.00014 J	< 0.00011 U	0.00017 J	< 0.000090 U	< 0.000090 U	0.00036 J	< 0.000090 U	< 0.000090 U	0.00033 J	0.00052 J	< 0.000090 U	< 0.00011 U	< 0.000090 U	0.00015 J
Magnesium	Total	Lab	mg/l			12.1	16.7	21.1	28.0	27.4	24.2	27.2	28.5	27.5	32	23.8	23.3	27.8	28.7	29.4
Manganese	Total	Lab	mg/l	**0.3000 (8)**		0.0029 J	0.0141	0.003 J	0.0014 J	0.0016 J	0.0017 J	0.0488	0.0133	< 0.00088 U	0.0042 J	0.0527	0.0063	< 0.0016 U	0.0044	0.0123
Mercury	Total	Lab	mg/l	0.0020	0.0086	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U
Nickel	Total	Lab	mg/l	0.1000		< 0.00085 U	< 0.00085 U	< 0.0010 U	< 0.00085 U	< 0.00085 U	< 0.00085 U	0.0017 J	< 0.00085 U	< 0.00085 U	< 0.0010 U	< 0.00085 U	< 0.00085 U	< 0.0010 U	< 0.00085 U	< 0.00085 U
Potassium	Total	Lab	mg/l			0.730 J	1.12	0.921 J	1.46	1.42	1.42	2.33	1.24	1.24	1.36	1.22	1.20	1.42	1.27	1.55
Selenium	Total	Lab	mg/l	0.0500		< 0.00044 U	0.00072 J	0.0009 J	0.0012 J	0.0011 J	0.0020 J	0.0016 J	< 0.00044 U	< 0.00044 U	< 0.00050 U	0.00044 J	0.00084 J	0.00062 J	< 0.00044 U	0.00058 J
Silver	Total	Lab	mg/l			< 0.00012 U	< 0.00012 U	< 0.00015 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00015 U	< 0.00012 U	< 0.00012 U	< 0.00015 U	< 0.00012 U	< 0.00012 U	< 0.00015 U	< 0.00012 U	< 0.00012 U
Sodium	Total	Lab	mg/l			16.3	35.1	58.6	72.5	71.0	105	247	25.0	18.7	57.2	20.9	20.7	38	74.7	96.3
Thallium	Total	Lab	mg/l	0.0020		< 0.00016 U	< 0.00016 U	< 0.00012 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00012 U	< 0.00016 U	< 0.00016 U	< 0.00012 U	< 0.00016 U	< 0.00016 U	< 0.00012 U	< 0.00016 U	< 0.00016 U
Vanadium	Total	Lab	mg/l			< 0.00020 U	< 0.00020 U	< 0.00021 U	< 0.00020 U	< 0.00020 U	< 0.00020 U	0.00046 J	< 0.00020 U	< 0.00020 U	< 0.00021 U	< 0.00026 UB	< 0.00020 U	< 0.00021 U	< 0.00020 U	0.00022 J
Zinc	Total	Lab	mg/l			< 0.0054 U	< 0.0054 U	< 0.0065 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0065 U	< 0.0054 U	< 0.0054 U	< 0.0065 U	< 0.0054 U	< 0.0054 U	< 0.0065 U	< 0.0054 U	< 0.0054 U
Semivolatile Organic Compounds																				
1,2,4,5-Tetrachlorobenzene	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
1,4-Dioxane	NA	Lab	ug/l	3.0 (8)	22000	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U
1,4-Dioxane (SIM)	NA	Lab	ug/l	3.0 (8)	22000	--	--	< 0.08 UB	--	--	--	< 0.07 UB	--	--	< 0.08 UB	--	--	< 0.07 UB	--	--
2,2'-oxybis (1-chloropropane)	NA	Lab	ug/l	300.0		< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
2,3,4,6-Tetrachlorophenol	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
2,4,5-Trichlorophenol	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
2,4,6-Trichlorophenol	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
2,4-Dichlorophenol	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
2,4-Dimethylphenol	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
2,4-Dinitrophenol	NA	Lab	ug/l			< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2,4-Dinitrotoluene	NA	Lab	ug/l			< 1 U	< 1.0 U	< 1 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U
2,6-Dinitrotoluene	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
2-Chloronaphthalene	NA	Lab	ug/l			< 0.4 U	< 0.40 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.41 U	< 0.4 U	< 0.4 U	< 0.40 U	< 0.4 U	< 0.4 U	< 0.41 U	< 0.4 U	< 0.4 U	< 0.40 U
2-Chlorophenol	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
2-Methyl-4,6-dinitrophenol	NA	Lab	ug/l			< 5 U	< 5.0 U	< 5 U	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5 U	< 5.0 U	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5 U	< 5.0 U
2-Methylnaphthalene	NA	Lab	ug/l			< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
2-Methylphenol (o-cresol)	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
2-Nitroaniline	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
2-Nitrophenol	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
3,3`-Dichlorobenzidine	NA	Lab	ug/l			< 2 U	< 2.0 U	< 2 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U
3-Nitroaniline	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
4-Bromophenyl phenyl ether	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
4-Chloro-3-methylphenol	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
4-Chloroaniline	NA	Lab	ug/l			< 2 U	< 2.0 U	< 2 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U
4-Chlorophenyl phenyl ether	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
4-Methylphenol (p-cresol)	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
4-Nitroaniline	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
4-Nitrophenol	NA	Lab	ug/l			< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Acenaphthene	NA	Lab	ug/l			< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Acenaphthylene	NA	Lab	ug/l			< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Acetophenone	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U

Table 10
Analytical Groundwater Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

					Location	**MW01**	**MW01**	**MW01**	**MW02**		**MW02**	**MW02**	**MW03**	**MW03**	**MW03**	**MW03S**	**MW03S**	**MW03S**	**MW04**	**MW04**
					Date	**7/13/2016**	**12/19/2016**	**3/19/2018**	**7/13/2016**		**12/20/2016**	**3/19/2018**	**7/13/2016**	**12/16/2016**	**3/21/2018**	**7/13/2016**	**12/16/2016**	**3/19/2018**	**7/14/2016**	**12/16/2016**
					Sample Type	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Parameter	Total or Dissolved	Analysis Location	Units	Table 1 Primary Groundwater Quality Standards: Enforcement Standards	Vapor Intrusion Screening Values - Industrial Groundwater															
Effective Date				12/16/2016	07/27/2017															
Exceedance Key				**Bold**	Underline															
Anthracene	NA	Lab	ug/l	2100.0		< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Atrazine	NA	Lab	ug/l	3.0		< 2 U	< 2.0 U	< 2 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U
Benz(a)anthracene	NA	Lab	ug/l		NVT	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Benzaldehyde	NA	Lab	ug/l			< 1 U	< 1.0 U	< 1 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U
Benzo(a)pyrene	NA	Lab	ug/l	0.2		< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Benzo(b)fluoranthene	NA	Lab	ug/l			< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Benzo(g,h,i)perylene	NA	Lab	ug/l			< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Benzo(k)fluoranthene	NA	Lab	ug/l			< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Biphenyl	NA	Lab	ug/l		320	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
Bis(2-chloroethoxy)methane	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
Bis(2-chloroethyl)ether	NA	Lab	ug/l		120	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
Bis(2-ethylhexyl)phthalate	NA	Lab	ug/l	6.0		< 2 U	< 2.0 U	< 2 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U
Butyl benzyl phthalate	NA	Lab	ug/l			< 2 U	< 2.0 U	< 2 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U
Caprolactam	NA	Lab	ug/l			< 5 U	< 5.0 U	< 5 U	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5 U	< 5.0 U	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5 U	< 5.0 U
Carbazole	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
Chrysene	NA	Lab	ug/l			< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Dibenz(a,h)anthracene	NA	Lab	ug/l			< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Dibenzofuran	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
Diethyl phthalate	NA	Lab	ug/l			< 2 U	< 2.0 U	< 2 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U
Dimethyl phthalate	NA	Lab	ug/l			< 2 U	< 2.0 U	< 2 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U
Di-n-butyl phthalate	NA	Lab	ug/l			< 2 U	< 2.0 U	< 2 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U
Di-n-octyl phthalate	NA	Lab	ug/l			< 2 U	< 2.0 U	< 2 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U
Fluoranthene	NA	Lab	ug/l	280.0		< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Fluorene	NA	Lab	ug/l	280.0		< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Hexachlorobenzene	NA	Lab	ug/l	1.0 (1)(8)	0.94	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Hexachlorobutadiene	NA	Lab	ug/l	1.0	2.8	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
Hexachlorocyclopentadiene	NA	Lab	ug/l	50.0	19	< 5 U	< 5.0 U	< 5 U	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5 U	< 5.0 U	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5 U	< 5.0 U
Hexachloroethane	NA	Lab	ug/l		16	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U
Indeno(1,2,3-cd)pyrene	NA	Lab	ug/l			< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Isophorone	NA	Lab	ug/l	100.0		< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
Naphthalene	NA	Lab	ug/l	20.0	28	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Nitrobenzene	NA	Lab	ug/l		680	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
n-Nitrosodi-n-propylamine	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
n-Nitrosodiphenylamine	NA	Lab	ug/l			< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
Pentachlorophenol	NA	Lab	ug/l	1.0		< 1 U	< 1.0 U	< 1 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U
Phenanthrene	NA	Lab	ug/l			< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Phenol	NA	Lab	ug/l	2100.0		< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U
Pyrene	NA	Lab	ug/l			< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U
Volatile Organic Compounds																				
1,1,1-Trichloroethane	NA	Lab	ug/l	200.0	49000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane	NA	Lab	ug/l		26	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2-Trichloroethane	NA	Lab	ug/l	5.0	40	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethane	NA	Lab	ug/l	70.0	51	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethylene	NA	Lab	ug/l	7.0	1200	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2,3-Trichlorobenzene	NA	Lab	ug/l			< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	NA	Lab	ug/l	70.0	330	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trimethylbenzene	NA	Lab	ug/l	5.0 (10)	240	< 1 U	--	--	< 1 U	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--
1,2-Dibromo-3-chloropropane (DBCP)	NA	Lab	ug/l	0.2 (1)	0.70	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
1,2-Dibromoethane (EDB)	NA	Lab	ug/l	0.05	1.4	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene	NA	Lab	ug/l	600.0	22000	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	NA	Lab	ug/l	5.0	16	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, cis	NA	Lab	ug/l	70.0		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, trans	NA	Lab	ug/l	100.0		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloropropane	NA	Lab	ug/l	5.0 (1)	18	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3,5-Trimethylbenzene	NA	Lab	ug/l	4.0 (10)		< 1 U	--	--	< 1 U	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--
1,3-Dichlorobenzene	NA	Lab	ug/l	600.0		< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichloropropene, cis	NA	Lab	ug/l			< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3-Dichloropropene, trans	NA	Lab	ug/l			< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,4-Dichlorobenzene	NA	Lab	ug/l	75.0	22	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Hexanone	NA	Lab	ug/l		63000	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Acetone	NA	Lab	ug/l	700.0	150000000	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U
Benzene	NA	Lab	ug/l		7.4	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromochloromethane	NA	Lab	ug/l	90.0	4700	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	NA	Lab	ug/l	80.0 (5)	6.3	0.5 J	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromoform	NA	Lab	ug/l	80.0 (5)	990	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromomethane	NA	Lab	ug/l	10.0	100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U

Table 10
Analytical Groundwater Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Parameter	Total or Dissolved	Analysis Location	Units	Table 1 Primary Groundwater Quality Standards: Enforcement Standards	Vapor Intrusion Screening Values - Industrial Groundwater	MW01 7/13/2016 N	MW01 12/19/2016 N	MW01 3/19/2018 N	MW02 7/13/2016 N	MW02 7/13/2016 FD	MW02 12/20/2016 N	MW02 3/19/2018 N	MW03 7/13/2016 N	MW03 12/16/2016 N	MW03 3/21/2018 N	MW03S 7/13/2016 N	MW03S 12/16/2016 N	MW03S 3/19/2018 N	MW04 7/14/2016 N	MW04 12/16/2016 N
Effective Date				12/16/2016	07/27/2017															
Exceedance Key				**Bold**	Underline															
Butylbenzene	NA	Lab	ug/l			< 1 U	--	--	< 1 U	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--
Butylbenzene, sec	NA	Lab	ug/l			< 1 U	--	--	< 1 U	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--
Butylbenzene, tert	NA	Lab	ug/l			< 1 U	--	--	< 1 U	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--
Carbon disulfide	NA	Lab	ug/l		7700	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Carbon tetrachloride	NA	Lab	ug/l	5.0 (1)	2.9	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorobenzene	NA	Lab	ug/l	100.0	3100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorodibromomethane	NA	Lab	ug/l	80.0 (5)		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroethane	NA	Lab	ug/l		140000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroform	NA	Lab	ug/l	80.0 (5)	5.5	17	10	5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	1	1	< 0.5 U	5	3	0.8 J	< 0.5 U	< 0.5 U
Chloromethane	NA	Lab	ug/l	30.0	1400	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Cumene (isopropyl benzene)	NA	Lab	ug/l		7800	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Cyclohexane	NA	Lab	ug/l		6800	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Cymene p- (toluene isopropyl p-)	NA	Lab	ug/l			< 1 U	--	--	< 1 U	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--
Dichlorodifluoromethane (Freon-12)	NA	Lab	ug/l	1000.0	51	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Ethyl benzene	NA	Lab	ug/l	700.0	28	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methyl acetate	NA	Lab	ug/l			< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methyl ethyl ketone (2-butanone)	NA	Lab	ug/l	4200.0	15000000	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl isobutyl ketone (MIBK)	NA	Lab	ug/l	560.0	4100000	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl tertiary butyl ether (MTBE)	NA	Lab	ug/l	40.0	3000	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methylcyclohexane	NA	Lab	ug/l			< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methylene chloride	NA	Lab	ug/l	5.0	14000	< 2 U	< 2 U	< 0.5 U	< 2 U	< 2 U	< 2 U	< 0.5 U	< 2 U	< 2 U	< 0.5 U	< 2 U	< 2 U	< 0.5 U	< 2 U	< 2 U
Propylbenzene	NA	Lab	ug/l		20000	< 1 U	--	--	< 1 U	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--
Styrene	NA	Lab	ug/l	100.0	72000	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethylene	NA	Lab	ug/l	5.0 (1)	12	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Toluene	NA	Lab	ug/l	1000.0	14000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichloroethylene (TCE)	NA	Lab	ug/l	5.0	2.9	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorofluoromethane (Freon-11)	NA	Lab	ug/l	2100.0		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorotrifluoroethane (Freon 113)	NA	Lab	ug/l		9200	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Vinyl chloride	NA	Lab	ug/l	2.0 (1)	2.2	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, m & p	NA	Lab	ug/l	10000.0 (4)		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, o	NA	Lab	ug/l	10000.0 (4)		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, total	NA	Lab	ug/l	10000.0	2900	--	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Xylene, total	NA	Calc	ug/l	10000.0	2900	ND	ND		ND	ND	ND		ND	ND		ND	ND		ND	ND
Pesticides																				
4,4'-DDD	NA	Lab	ug/l			< 0.0040 U	< 0.0041 UJ	--	< 0.0040 U	< 0.0040 U	< 0.0041 U	--	< 0.0040 U	< 0.0041 U	--	< 0.0041 U	< 0.0041 U	--	< 0.0041 U	< 0.0041 U
4,4'-DDE	NA	Lab	ug/l		NVT	< 0.0040 U	< 0.0041 UJ	--	< 0.0040 U	< 0.0040 U	< 0.0041 U	--	< 0.0040 U	< 0.0041 U	--	< 0.0041 U	< 0.0041 U	--	< 0.0041 U	< 0.0041 U
4,4'-DDT	NA	Lab	ug/l			< 0.0042 U	< 0.0042 UJ	--	< 0.0042 U	< 0.0042 U	< 0.0043 U	--	< 0.0042 U	< 0.0042 U	--	< 0.0043 U	< 0.0043 U	--	< 0.0043 U	< 0.0042 U
a-BHC	NA	Lab	ug/l			< 0.0024 U	< 0.0024 UJ	--	< 0.0024 U	< 0.0024 U	< 0.0025 U	--	< 0.0024 U	< 0.0024 U	--	< 0.0025 U	< 0.0025 U	--	< 0.0025 U	< 0.0024 U
Aldrin	NA	Lab	ug/l	0.05	4.0	< 0.0016 U	< 0.0016 UJ	--	< 0.0016 U	< 0.0016 U	< 0.0016 U	--	< 0.0016 U	< 0.0016 U	--	< 0.0016 U	< 0.0016 U	--	< 0.0017 U	< 0.0016 U
b-BHC	NA	Lab	ug/l			< 0.0051 U	< 0.0047 UB	--	0.0061 J	< 0.0027 U	< 0.0045 U	--	< 0.0027 U	< 0.0035 U	--	0.0049 J	< 0.0028 U	--	< 0.0028 U	< 0.0028 U
Chlordane, cis (alpha)	NA	Lab	ug/l			< 0.0024 U	< 0.0024 UJ	--	< 0.0024 U	< 0.0024 U	< 0.0025 U	--	< 0.0024 U	< 0.0024 U	--	< 0.0025 U	< 0.0025 U	--	< 0.0025 U	< 0.0024 U
Chlordane, trans (gamma)	NA	Lab	ug/l			< 0.0056 U	< 0.0057 UJ	--	< 0.0056 U	< 0.0056 U	< 0.0058 U	--	< 0.0056 U	< 0.012 U	--	< 0.0058 U	< 0.0058 U	--	< 0.0058 U	< 0.0057 U
d-BHC	NA	Lab	ug/l			< 0.0027 U	< 0.0028 UJ	--	< 0.0027 U	< 0.0027 U	< 0.0028 U	--	< 0.0027 U	< 0.0028 U	--	0.0030 J	< 0.0028 U	--	0.0047 J	< 0.0028 U
Dieldrin	NA	Lab	ug/l	0.02		< 0.0043 U	< 0.0043 UJ	--	< 0.0043 U	< 0.0043 U	< 0.0044 U	--	< 0.0043 U	< 0.0043 U	--	< 0.0044 U	< 0.0044 U	--	< 0.0044 U	< 0.0043 U
Endosulfan I	NA	Lab	ug/l			< 0.0035 U	< 0.0035 UJ	--	< 0.0035 U	< 0.0035 U	< 0.0035 U	--	< 0.0035 U	< 0.0035 U	--	< 0.0035 U	< 0.0035 U	--	< 0.0036 U	< 0.0035 U
Endosulfan II	NA	Lab	ug/l			< 0.012 U	< 0.012 UJ	--	< 0.012 U	< 0.012 U	< 0.012 U	--	< 0.012 U	< 0.012 U	--	< 0.012 U	< 0.012 U	--	< 0.012 U	< 0.012 U
Endosulfan sulfate	NA	Lab	ug/l			< 0.0047 U	< 0.0047 UJ	--	< 0.0047 U	< 0.0047 U	< 0.0048 U	--	< 0.0047 U	< 0.0047 U	--	< 0.0048 U	< 0.0048 U	--	< 0.0048 U	< 0.0047 U
Endrin	NA	Lab	ug/l	2.0		< 0.0065 U	< 0.0066 UJ	--	< 0.0065 U	< 0.0065 U	< 0.0067 U	--	< 0.0065 U	< 0.0066 U	--	< 0.0067 U	< 0.0067 U	--	< 0.0067 U	< 0.0066 U
Endrin aldehyde	NA	Lab	ug/l			< 0.016 U	< 0.016 UJ	--	< 0.016 U	< 0.016 U	< 0.016 U	--	< 0.016 U	< 0.016 U	--	< 0.016 U	< 0.016 U	--	< 0.017 U	< 0.016 U
Endrin ketone	NA	Lab	ug/l			< 0.0040 U	< 0.0041 UJ	--	< 0.0040 U	< 0.0040 U	< 0.0041 U	--	< 0.0040 U	< 0.0041 U	--	< 0.0041 U	< 0.0041 U	--	< 0.0041 U	< 0.0041 U
g-BHC (Lindane)	NA	Lab	ug/l	0.2		< 0.0016 U	< 0.0016 UJ	--	< 0.0016 U	< 0.0016 U	< 0.0016 U	--	< 0.0016 U	< 0.0016 U	--	< 0.0016 U	< 0.0016 U	--	< 0.0017 U	< 0.0016 U
Heptachlor	NA	Lab	ug/l	0.4	2.1	< 0.0016 U	< 0.0016 UJ	--	< 0.0016 U	< 0.0016 U	< 0.0016 U	--	< 0.0016 U	< 0.0016 U	--	< 0.0016 U	< 0.0016 U	--	< 0.0017 U	< 0.0016 U
Heptachlor epoxide	NA	Lab	ug/l	0.2	19	< 0.0019 U	< 0.0019 UJ	--	< 0.0018 U	< 0.0019 U	< 0.0019 U	--	< 0.0019 U	< 0.0019 U	--	< 0.0019 U	< 0.0019 U	--	< 0.0019 U	< 0.0019 U
Methoxychlor	NA	Lab	ug/l	40.0		< 0.024 U	< 0.024 UJ	--	< 0.024 U	< 0.024 U	< 0.025 U	--	< 0.024 U	< 0.024 U	--	< 0.025 U	< 0.025 U	--	< 0.025 U	< 0.024 U
Toxaphene	NA	Lab	ug/l	3.0		< 0.24 U	< 0.24 UJ	--	< 0.24 U	< 0.24 U	< 0.25 U	--	< 0.24 U	< 0.24 U	--	< 0.25 U	< 0.25 U	--	< 0.25 U	< 0.24 U
Polychlorinated Biphenyls																				
Aroclor 1016	NA	Lab	ug/l		75	< 0.081 U	< 0.082 U	--	< 0.080 U	< 0.081 U	< 0.041 U	--	< 0.081 U	< 0.081 U	--	< 0.082 U	< 0.081 U	--	< 0.083 U	< 0.082 U
Aroclor 1221	NA	Lab	ug/l		2.3	< 0.081 U	< 0.082 U	--	< 0.080 U	< 0.081 U	< 0.041 U	--	< 0.081 U	< 0.081 U	--	< 0.082 U	< 0.081 U	--	< 0.083 U	< 0.082 U
Aroclor 1232	NA	Lab	ug/l		0.72	< 0.16 U	< 0.16 U	--	< 0.16 U	< 0.16 U	< 0.082 U	--	< 0.16 U	< 0.16 U	--	< 0.16 U	< 0.16 U	--	< 0.17 U	< 0.16 U
Aroclor 1242	NA	Lab	ug/l		1.5	< 0.081 U	< 0.082 U	--	< 0.080 U	< 0.081 U	< 0.041 U	--	< 0.081 U	< 0.081 U	--	< 0.082 U	< 0.081 U	--	< 0.083 U	< 0.082 U
Aroclor 1248	NA	Lab	ug/l		1.2	< 0.081 U	< 0.082 U	--	< 0.080 U	< 0.081 U	< 0.041 U	--	< 0.081 U	< 0.081 U	--	< 0.082 U	< 0.081 U	--	< 0.083 U	< 0.082 U
Aroclor 1254	NA	Lab	ug/l		1.9	< 0.081 U	< 0.082 U	--	< 0.080 U	< 0.081 U	< 0.041 U	--	< 0.081 U	< 0.081 U	--	< 0.082 U	< 0.081 U	--	< 0.083 U	< 0.082 U
Aroclor 1260	NA	Lab	ug/l		1.6	< 0.12 U	< 0.12 U	--	< 0.12 U	< 0.12 U	< 0.062 U	--	< 0.12 U	< 0.12 U	--	< 0.12 U	< 0.12 U	--	< 0.12 U	< 0.12 U
Aroclor 1262	NA	Lab	ug/l			< 0.16 U	< 0.16 U	--	< 0.16 U	< 0.16 U	< 0.082 U	--	< 0.16 U	< 0.16 U	--	< 0.16 U	< 0.16 U	--	< 0.17 U	< 0.16 U
Aroclor 1268	NA	Lab	ug/l			< 0.13 U	< 0.13 U	--	< 0.13 U	< 0.13 U	< 0.066 U	--	< 0.13 U	< 0.13 U	--	< 0.13 U	< 0.13 U	--	< 0.13 U	< 0.13 U
Polychlorinated Biphenyls	NA	Calc	ug/l	0.5		ND	ND	--	ND	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND

Table 10
Analytical Groundwater Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

					Location	MW01	MW01	MW01	MW02		MW02	MW02	MW03	MW03	MW03	MW03S	MW03S	MW03S	MW04	MW04
					Date	7/13/2016	12/19/2016	3/19/2018	7/13/2016		12/20/2016	3/19/2018	7/13/2016	12/16/2016	3/21/2018	7/13/2016	12/16/2016	3/19/2018	7/14/2016	12/16/2016
					Sample Type	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location	Units	Table 1 Primary Groundwater Quality Standards: Enforcement Standards	Vapor Intrusion Screening Values - Industrial Groundwater															
Effective Date				12/16/2016	07/27/2017															
Exceedance Key				**Bold**	Underline															
Per- and Polyfluoroalkyl Substances																				
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	Lab	ng/l			--	--	< 27 U	--	--	--	< 27 U	--	--	< 3 U	--	--	< 28 U	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	NA	Lab	ng/l			--	--	< 18 U	--	--	--	< 18 U	--	--	< 2 U	--	--	< 18 U	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	NA	Lab	ng/l			--	--	< 9 UJ	--	--	--	< 9 UJ	--	--	< 0.9 U	--	--	< 9 UJ	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	NA	Lab	ng/l			--	--	< 9 U	--	--	--	< 9 U	--	--	< 0.9 U	--	--	< 9 U	--	--
Perfluorobutane sulfonate (PFBS)	NA	Lab	ng/l			< 90 U	2 J	3 J	< 90 U	< 90 U	3 J	< 3 U	< 90 U	0.8 J	1	< 90 U	1 J	< 3 U	< 90 U	2 J
Perfluorobutanoic acid (PFBA)	NA	Lab	ng/l			--	--	21 J	--	--	--	< 18 U	--	--	6	--	--	< 18 U	--	--
Perfluorodecanoic acid (PFDA)	NA	Lab	ng/l			--	< 0.5 UJ	29	--	--	63 J	< 9 U	--	4	5	--	6	< 9 U	--	3
Perfluorododecanoic acid (PFDoA / PFDoDA)	NA	Lab	ng/l			--	< 0.5 U	< 3 U	--	--	4	< 3 U	--	< 0.5 UJ	< 0.3 U	--	< 0.5 UJ	< 3 U	--	< 0.5 U
Perfluoroheptanoic acid (PFHpA)	NA	Lab	ng/l			10	15	79 J	120 J	120 J	110	25	76 J	74	79 J	73 J	71	27	120 J	97
Perfluorohexane sulfonate (PFHxS)	NA	Lab	ng/l			< 30 U	< 1 U	< 4 UJ	< 30 U	< 30 U	2 J	< 4 U	< 30 U	< 1 U	0.7 J	< 30 U	< 1 U	< 4 U	< 30 U	2 J
Perfluorohexanoic acid (PFHxA)	NA	Lab	ng/l			--	6	52 J	--	--	77	17 J	--	31	32 J	--	32	17 J	--	42
Perfluorononanoic acid (PFNA)	NA	Lab	ng/l			< 20 U	1 J	12 J	< 20 U	< 20 U	21 J	< 4 U	< 20 U	4	2	< 20 U	6	< 4 U	< 20 U	3
Perfluorooctanesulfonamide (PFOSA / FOSA)	NA	Lab	ng/l			--	--	< 9 U	--	--	--	< 9 U	--	--	< 0.9 UJ	--	--	< 9 U	--	--
Perfluorooctanesulfonate (PFOS)	NA	Lab	ng/l	20 (3)		< 40 U	< 2 UJ	6 J	< 40 U	< 40 U	14	< 4 U	< 40 U	< 2 UJ	2 J	< 40 U	2 J	11 J	< 40 U	3 J
Perfluorooctanoic acid (PFOA)	NA	Lab	ng/l	**20 (3)(8)**		**510**	**640 J**	**6000**	**4900 J**	**5600 J**	**4800**	**1200**	**2200 J**	**1600**	**2200**	**2400 J**	**2300**	**1100**	**3700 J**	**2300**
Perfluoropentanoic acid (PFPeA)	NA	Lab	ng/l			--	--	36 J	--	--	--	< 18 U	--	--	9	--	--	< 18 U	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	NA	Lab	ng/l			--	< 0.5 U	< 3 U	--	--	< 0.5 U	< 3 U	--	< 0.5 UJ	< 0.3 U	--	< 0.5 UJ	< 3 U	--	< 0.5 UJ
Perfluorotridecanoic acid (PFTrDA / PFTriA)	NA	Lab	ng/l			--	< 0.5 U	< 3 U	--	--	< 0.5 U	< 3 U	--	< 0.5 UJ	< 0.3 U	--	< 0.5 UJ	< 3 U	--	< 0.5 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	NA	Lab	ng/l			--	< 1 U	10 J	--	--	18	< 4 U	--	< 1 U	< 0.4 U	--	< 1 UJ	< 4 U	--	< 1 U

Table 10
Analytical Groundwater Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

					Location	MW04	MW04S	MW04S	MW04S	MW05	MW05	MW05	MW06	MW06		MW06	MW06S	MW06S	MW06S	MW07
					Date	3/21/2018	7/14/2016	12/16/2016	3/19/2018	7/14/2016	12/15/2016	3/19/2018	7/14/2016	12/19/2016		3/21/2018	7/14/2016	12/19/2016	3/19/2018	7/15/2016
					Sample Type	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location	Units	Table 1 Primary Groundwater Quality Standards: Enforcement Standards	Vapor Intrusion Screening Values - Industrial Groundwater															
Effective Date				12/16/2016	07/27/2017															
Exceedance Key				**Bold**	Underline															
General Parameters																				
Alkalinity, bicarbonate, as CaCO3	NA	Lab	mg/l			282	295 J	346	294	457 J	589	401	308 J	305 J	304 J	284	402 J	417 J	396	170 J
Alkalinity, carbonate, as CaCO3	NA	Lab	mg/l			< 1.7 U	< 1.7 UJ	< 1.7 U	< 1.7 U	< 1.7 UJ	< 1.7 U	< 1.7 U	< 1.7 UJ	R	R	< 1.7 U	< 1.7 UJ	R	< 1.7 U	< 1.7 UJ
Alkalinity, total, as CaCO3	NA	Lab	mg/l			282	295 J	346	294	457 J	589	401	308 J	305 J	304 J	284	402 J	417 J	396	170 J
Bromide	NA	Lab	mg/l			< 1.3 U	--	--	< 1.3 U	--	--	< 1.3 U	--	--	--	< 1.3 U	--	--	< 1.3 U	--
Chloride	NA	Lab	mg/l			135	119	332	210	541	526	592	262	356	327	191	366	399	306	4.8
Cyanide	NA	Lab	mg/l	0.2000	0.0035	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U
Nitrogen, nitrate, as N	NA	Lab	mg/l	10.0000		2.1	--	--	4.1 J	--	--	4.3	--	--	--	2	--	--	3.4	--
Nitrogen, nitrite, as N	NA	Lab	mg/l	**1.0000**		< 0.25 U	--	--	< 0.25 UJ	--	--	< 0.25 U	--	--	--	< 0.25 U	--	--	< 0.25 U	--
Sulfate, as SO4	NA	Lab	mg/l			22.7	21.6	24.4	23.6	22.9	30.8	19.5	22.8	30.0 J	27.6 J	26.2	19.4	21.8 J	22.9	15.4
Metals																				
Aluminum	Total	Lab	mg/l			0.211 J	< 0.0868 U	< 0.0868 U	< 0.0894 U	< 0.0868 U	< 0.0868 U	< 0.0894 U	< 0.0868 U	< 0.0868 U	< 0.0868 U	0.155 J	< 0.0868 U	< 0.176 UB	< 0.0894 U	< 0.0868 U
Antimony	Total	Lab	mg/l	0.0060		< 0.00045 U	< 0.00048 U	< 0.00048 U	< 0.00045 U	< 0.00048 U	< 0.00048 U	< 0.00045 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00045 U	< 0.00048 U	< 0.00048 U	< 0.00045 U	< 0.00048 U
Arsenic	Total	Lab	mg/l	**0.0100**		< 0.00072 U	< 0.00068 U	< 0.00068 U	< 0.00072 U	< 0.00068 U	< 0.00068 U	< 0.00072 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00072 U	< 0.00068 U	< 0.00068 U	< 0.00072 U	< 0.00068 U
Barium	Total	Lab	mg/l	2.0000		0.0375	0.0391	0.0498	0.0344	0.0635	0.0667	0.0557	0.0866	0.0882	0.0844	0.07	0.0843	0.0708	0.059	0.0270
Beryllium	Total	Lab	mg/l	0.0040		< 0.000071 U	< 0.00011 U	< 0.00011 U	< 0.000071 U	< 0.00011 U	< 0.00011 U	< 0.000071 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.000071 U	< 0.00011 U	< 0.00011 U	< 0.000071 U	< 0.00011 U
Cadmium	Total	Lab	mg/l	0.0050		0.00026 J	< 0.00019 U	< 0.00019 U	< 0.00015 U	< 0.00019 U	< 0.00019 U	< 0.00015 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00015 U	< 0.00019 U	< 0.00019 U	< 0.00015 U	< 0.00019 U
Calcium	Total	Lab	mg/l			88.8	93.8	117	105	139	141	139	118	104	102	83.5	162	128	124	41.6
Chromium	Total	Lab	mg/l	0.1000		< 0.00087 U	< 0.00081 UB	0.00078 J	0.00087 J	< 0.00059 U	< 0.00059 U	< 0.00087 U	< 0.00059 U	< 0.00059 U	< 0.00059 U	< 0.00087 U	< 0.00059 U	0.00061 J	< 0.00087 U	< 0.00059 U
Cobalt	Total	Lab	mg/l			0.00074 J	< 0.00020 U	0.00079 J	0.00026 J	0.0024	0.00092 J	0.00052 J	0.00024 J	< 0.00020 U	< 0.00020 U	< 0.00016 U	< 0.00020 U	0.00026 J	< 0.00016 U	0.00023 J
Copper	Total	Lab	mg/l	1.3000		< 0.00074 UB	< 0.00052 U	< 0.00052 U	< 0.00054 U	< 0.00052 U	0.00084 J	0.00056 J	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00054 U	< 0.00052 U	< 0.00052 U	< 0.00054 U	< 0.00052 U
Iron	Total	Lab	mg/l			0.334 J	< 0.0747 U	< 0.0747 U	< 0.106 UB	< 0.0747 U	< 0.0747 U	< 0.0805 U	< 0.0747 U	< 0.0747 U	< 0.0747 U	0.0842 J	< 0.0747 U	0.0854 J	< 0.147 UB	< 0.0747 U
Lead	Total	Lab	mg/l	0.0150		0.00027 J	< 0.000090 U	< 0.000090 U	0.00011 J	< 0.000090 U	0.00013 J	< 0.00011 U	< 0.000090 U	< 0.000090 U	< 0.000090 U	0.00012 J	< 0.000090 U	0.00025 J	< 0.00011 U	< 0.000090 U
Magnesium	Total	Lab	mg/l			32.3	27.0	36.0	31.7	29.3	30.7	31.1	40.0	36.2	35.7	35.3	41.0	33.6	31.5	21.9
Manganese	Total	Lab	mg/l	**0.3000 (8)**		0.0148	0.0035 J	0.0047	0.0087 J	0.0460	0.0207	< 0.0016 U	0.0179	0.0023 J	0.0014 J	0.0044 J	0.0192	0.0117	0.0213	0.0299
Mercury	Total	Lab	mg/l	0.0020	0.0086	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U
Nickel	Total	Lab	mg/l	0.1000		< 0.0010 U	< 0.00085 U	< 0.00085 U	< 0.0010 U	0.0012 J	0.00093 J	< 0.0010 U	< 0.00085 U	< 0.00085 U	< 0.00085 U	< 0.0010 U	< 0.00085 U	< 0.00085 U	< 0.0010 U	< 0.00085 U
Potassium	Total	Lab	mg/l			1.21	1.57	1.84	1.37	1.90	2.01	1.73	1.33	1.40	1.37	1.26	1.28	1.22	0.995 J	1.61
Selenium	Total	Lab	mg/l	0.0500		< 0.00050 U	0.00048 J	0.00099 J	0.00062 J	< 0.00044 U	< 0.00044 U	< 0.00050 U	0.00089 J	0.00076 J	0.00071 J	0.00056 J	0.0012 J	0.0010 J	0.0016 J	< 0.00044 U
Silver	Total	Lab	mg/l			< 0.00015 U	< 0.00012 U	< 0.00012 U	< 0.00015 U	< 0.00012 U	< 0.00012 U	< 0.00015 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00015 U	< 0.00012 U	< 0.00012 U	< 0.00015 U	< 0.00012 U
Sodium	Total	Lab	mg/l			69.4	80.8	155	112	372	366	399	135	121	118	100	200	179	185	6.24
Thallium	Total	Lab	mg/l	0.0020		< 0.00012 U	< 0.00016 U	< 0.00016 U	< 0.00012 U	< 0.00016 U	< 0.00016 U	< 0.00012 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00012 U	< 0.00016 U	< 0.00016 U	< 0.00012 U	< 0.00016 U
Vanadium	Total	Lab	mg/l			0.00025 J	< 0.00038 UB	0.00030 J	< 0.00021 U	< 0.00025 UB	0.00036 J	< 0.00021 U	< 0.00020 U	< 0.00020 U	0.00023 J	< 0.00021 U	< 0.00029 UB	0.00032 J	< 0.00021 U	< 0.00020 U
Zinc	Total	Lab	mg/l			0.0197 J	< 0.0054 U	< 0.0054 U	< 0.0065 U	< 0.0054 U	< 0.0054 U	< 0.0065 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0065 U	< 0.0054 U	< 0.0054 U	< 0.0065 U	< 0.0054 U
Semivolatile Organic Compounds																				
1,2,4,5-Tetrachlorobenzene	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
1,4-Dioxane	NA	Lab	ug/l	3.0 (8)	22000	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U
1,4-Dioxane (SIM)	NA	Lab	ug/l	3.0 (8)	22000	< 0.08 UB	--	--	< 0.08 UB	--	--	< 0.09 UB	--	--	--	< 0.1 UB	--	--	< 0.09 UB	--
2,2'-oxybis (1-chloropropane)	NA	Lab	ug/l	300.0		< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
2,3,4,6-Tetrachlorophenol	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
2,4,5-Trichlorophenol	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
2,4,6-Trichlorophenol	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
2,4-Dichlorophenol	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
2,4-Dimethylphenol	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
2,4-Dinitrophenol	NA	Lab	ug/l			< 10 U	< 10 U	< 10 U	< 11 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2,4-Dinitrotoluene	NA	Lab	ug/l			< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U
2,6-Dinitrotoluene	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
2-Chloronaphthalene	NA	Lab	ug/l			< 0.4 U	< 0.4 U	< 0.40 U	< 0.4 U	< 0.4 U	< 0.41 U	< 0.4 U	< 0.4 U	< 0.40 U	< 0.41 U	< 0.4 U	< 0.4 U	< 0.41 U	< 0.4 U	< 0.4 U
2-Chlorophenol	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
2-Methyl-4,6-dinitrophenol	NA	Lab	ug/l			< 5 U	< 5 U	< 5.1 U	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5 U	< 5.0 U	< 5.1 U	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5 U
2-Methylnaphthalene	NA	Lab	ug/l			< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
2-Methylphenol (o-cresol)	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
2-Nitroaniline	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
2-Nitrophenol	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
3,3`-Dichlorobenzidine	NA	Lab	ug/l			< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U
3-Nitroaniline	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
4-Bromophenyl phenyl ether	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
4-Chloro-3-methylphenol	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
4-Chloroaniline	NA	Lab	ug/l			< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U
4-Chlorophenyl phenyl ether	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
4-Methylphenol (p-cresol)	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
4-Nitroaniline	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
4-Nitrophenol	NA	Lab	ug/l			< 10 U	< 10 U	< 10 U	< 11 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Acenaphthene	NA	Lab	ug/l			< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Acenaphthylene	NA	Lab	ug/l			< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Acetophenone	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U

Table 10
Analytical Groundwater Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

					Location	MW04	MW04S	MW04S	MW04S	MW05	MW05	MW05	MW06	MW06		MW06	MW06S	MW06S	MW06S	MW07
					Date	3/21/2018	7/14/2016	12/16/2016	3/19/2018	7/14/2016	12/15/2016	3/19/2018	7/14/2016	12/19/2016		3/21/2018	7/14/2016	12/19/2016	3/19/2018	7/15/2016
					Sample Type	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location	Units	Table 1 Primary Groundwater Quality Standards: Enforcement Standards	Vapor Intrusion Screening Values - Industrial Groundwater															
Effective Date				12/16/2016	07/27/2017															
Exceedance Key				**Bold**	Underline															
Anthracene	NA	Lab	ug/l	2100.0		< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Atrazine	NA	Lab	ug/l	3.0		< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U
Benz(a)anthracene	NA	Lab	ug/l		NVT	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Benzaldehyde	NA	Lab	ug/l			< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U
Benzo(a)pyrene	NA	Lab	ug/l	0.2		< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Benzo(b)fluoranthene	NA	Lab	ug/l			< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Benzo(g,h,i)perylene	NA	Lab	ug/l			< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Benzo(k)fluoranthene	NA	Lab	ug/l			< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Biphenyl	NA	Lab	ug/l		320	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
Bis(2-chloroethoxy)methane	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
Bis(2-chloroethyl)ether	NA	Lab	ug/l		120	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
Bis(2-ethylhexyl)phthalate	NA	Lab	ug/l	6.0		< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U
Butyl benzyl phthalate	NA	Lab	ug/l			< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U
Caprolactam	NA	Lab	ug/l			< 5 U	< 5 U	< 5.1 U	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5 U	< 5.0 U	< 5.1 U	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5 U
Carbazole	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
Chrysene	NA	Lab	ug/l			< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Dibenz(a,h)anthracene	NA	Lab	ug/l			< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Dibenzofuran	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
Diethyl phthalate	NA	Lab	ug/l			< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U
Dimethyl phthalate	NA	Lab	ug/l			< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U
Di-n-butyl phthalate	NA	Lab	ug/l			< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U
Di-n-octyl phthalate	NA	Lab	ug/l			< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2.0 U	< 2 U	< 2 U	< 2.0 U	< 2 U	< 2 U
Fluoranthene	NA	Lab	ug/l	280.0		< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Fluorene	NA	Lab	ug/l	280.0		< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Hexachlorobenzene	NA	Lab	ug/l	1.0 (1)(8)	0.94	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Hexachlorobutadiene	NA	Lab	ug/l	1.0	2.8	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
Hexachlorocyclopentadiene	NA	Lab	ug/l	50.0	19	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5 U	< 5.0 U	< 5.1 U	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5 U
Hexachloroethane	NA	Lab	ug/l		16	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U
Indeno(1,2,3-cd)pyrene	NA	Lab	ug/l			< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Isophorone	NA	Lab	ug/l	100.0		< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
Naphthalene	NA	Lab	ug/l	20.0	28	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Nitrobenzene	NA	Lab	ug/l		680	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
n-Nitrosodi-n-propylamine	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
n-Nitrosodiphenylamine	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
Pentachlorophenol	NA	Lab	ug/l	1.0		< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U
Phenanthrene	NA	Lab	ug/l			< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	0.12 J	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Phenol	NA	Lab	ug/l	2100.0		< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.51 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.5 U
Pyrene	NA	Lab	ug/l			< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U
Volatile Organic Compounds																				
1,1,1-Trichloroethane	NA	Lab	ug/l	200.0	49000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane	NA	Lab	ug/l		26	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2-Trichloroethane	NA	Lab	ug/l	5.0	40	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethane	NA	Lab	ug/l	70.0	51	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethylene	NA	Lab	ug/l	7.0	1200	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2,3-Trichlorobenzene	NA	Lab	ug/l			< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	NA	Lab	ug/l	70.0	330	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trimethylbenzene	NA	Lab	ug/l	5.0 (10)	240	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	NA	Lab	ug/l	0.2 (1)	0.70	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
1,2-Dibromoethane (EDB)	NA	Lab	ug/l	0.05	1.4	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene	NA	Lab	ug/l	600.0	22000	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	NA	Lab	ug/l	5.0	16	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, cis	NA	Lab	ug/l	70.0		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, trans	NA	Lab	ug/l	100.0		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloropropane	NA	Lab	ug/l	5.0 (1)	18	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3,5-Trimethylbenzene	NA	Lab	ug/l	4.0 (10)		--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U
1,3-Dichlorobenzene	NA	Lab	ug/l	600.0		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichloropropene, cis	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3-Dichloropropene, trans	NA	Lab	ug/l			< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,4-Dichlorobenzene	NA	Lab	ug/l	75.0	22	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Hexanone	NA	Lab	ug/l		63000	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Acetone	NA	Lab	ug/l	700.0	150000000	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U
Benzene	NA	Lab	ug/l		7.4	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromochloromethane	NA	Lab	ug/l	90.0	4700	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	NA	Lab	ug/l	80.0 (5)	6.3	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromoform	NA	Lab	ug/l	80.0 (5)	990	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromomethane	NA	Lab	ug/l	10.0	100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U

Table 10
Analytical Groundwater Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

					Location	MW04	MW04S	MW04S	MW04S	MW05	MW05	MW05	MW06	MW06		MW06	MW06S	MW06S	MW06S	MW07
					Date	3/21/2018	7/14/2016	12/16/2016	3/19/2018	7/14/2016	12/15/2016	3/19/2018	7/14/2016	12/19/2016		3/21/2018	7/14/2016	12/19/2016	3/19/2018	7/15/2016
					Sample Type	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location	Units	Table 1 Primary Groundwater Quality Standards: Enforcement Standards	Vapor Intrusion Screening Values - Industrial Groundwater															
Effective Date				12/16/2016	07/27/2017															
Exceedance Key				**Bold**	Underline															
Butylbenzene	NA	Lab	ug/l			--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U
Butylbenzene, sec	NA	Lab	ug/l			--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U
Butylbenzene, tert	NA	Lab	ug/l			--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U
Carbon disulfide	NA	Lab	ug/l		7700	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Carbon tetrachloride	NA	Lab	ug/l	5.0 (1)	2.9	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorobenzene	NA	Lab	ug/l	100.0	3100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorodibromomethane	NA	Lab	ug/l	80.0 (5)		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroethane	NA	Lab	ug/l		140000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroform	NA	Lab	ug/l	80.0 (5)	5.5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	0.5 J	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloromethane	NA	Lab	ug/l	30.0	1400	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Cumene (isopropyl benzene)	NA	Lab	ug/l		7800	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Cyclohexane	NA	Lab	ug/l		6800	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Cymene p- (toluene isopropyl p-)	NA	Lab	ug/l			--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U
Dichlorodifluoromethane (Freon-12)	NA	Lab	ug/l	1000.0	51	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Ethyl benzene	NA	Lab	ug/l	700.0	28	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methyl acetate	NA	Lab	ug/l			< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methyl ethyl ketone (2-butanone)	NA	Lab	ug/l	4200.0	15000000	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl isobutyl ketone (MIBK)	NA	Lab	ug/l	560.0	4100000	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl tertiary butyl ether (MTBE)	NA	Lab	ug/l	40.0	3000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methylcyclohexane	NA	Lab	ug/l			< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methylene chloride	NA	Lab	ug/l	5.0	14000	< 0.5 U	< 2 U	< 2 U	< 0.5 U	< 2 U	< 2 U	< 0.5 U	< 2 U	< 2 U	< 2 U	< 0.5 U	< 2 U	< 2 U	< 0.5 U	< 2 U
Propylbenzene	NA	Lab	ug/l		20000	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U
Styrene	NA	Lab	ug/l	100.0	72000	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethylene	NA	Lab	ug/l	5.0 (1)	12	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Toluene	NA	Lab	ug/l	1000.0	14000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichloroethylene (TCE)	NA	Lab	ug/l	5.0	2.9	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorofluoromethane (Freon-11)	NA	Lab	ug/l	2100.0		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorotrifluoroethane (Freon 113)	NA	Lab	ug/l		9200	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Vinyl chloride	NA	Lab	ug/l	2.0 (1)	2.2	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, m & p	NA	Lab	ug/l	10000.0 (4)		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, o	NA	Lab	ug/l	10000.0 (4)		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, total	NA	Lab	ug/l	10000.0	2900	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--
Xylene, total	NA	Calc	ug/l	10000.0	2900		ND	ND		ND	ND		ND	ND	ND		ND	ND		ND
Pesticides																				
4,4'-DDD	NA	Lab	ug/l			--	< 0.0041 U	< 0.0041 U	--	< 0.0041 U	< 0.0041 U	--	< 0.0041 U	< 0.0040 U	< 0.0040 U	--	< 0.0041 U	< 0.0040 U	--	< 0.0041 U
4,4'-DDE	NA	Lab	ug/l		NVT	--	< 0.0041 U	< 0.0041 U	--	< 0.0041 U	< 0.0041 U	--	< 0.0041 U	< 0.0040 U	< 0.0040 U	--	< 0.0041 U	< 0.0040 U	--	< 0.0041 U
4,4'-DDT	NA	Lab	ug/l			--	< 0.0043 U	< 0.0042 U	--	< 0.0043 U	< 0.0043 U	--	< 0.0042 U	< 0.0042 U	< 0.0041 U	--	< 0.0042 U	< 0.0042 U	--	< 0.0042 U
a-BHC	NA	Lab	ug/l			--	< 0.0025 U	< 0.0024 U	--	< 0.0025 U	< 0.0025 U	--	< 0.0024 U	< 0.0024 U	< 0.0024 U	--	< 0.0024 U	< 0.0024 U	--	< 0.0024 U
Aldrin	NA	Lab	ug/l	0.05	4.0	--	< 0.0016 U	< 0.0016 U	--	< 0.0017 U	< 0.0017 U	--	0.0022 J	< 0.0016 U	< 0.0016 U	--	< 0.0016 U	< 0.0016 U	--	< 0.0016 U
b-BHC	NA	Lab	ug/l			--	< 0.0028 U	< 0.0028 U	--	0.0080 J	< 0.0028 U	--	0.0053 J	< 0.0027 U	< 0.0027 U	--	< 0.0028 U	< 0.0050 U	--	0.0054 J
Chlordane, cis (alpha)	NA	Lab	ug/l			--	< 0.0025 U	< 0.0024 U	--	< 0.0025 U	< 0.0025 U	--	< 0.0024 U	< 0.0024 U	< 0.0024 U	--	< 0.0024 U	< 0.0024 U	--	< 0.0024 U
Chlordane, trans (gamma)	NA	Lab	ug/l			--	< 0.0058 U	< 0.0057 U	--	< 0.0058 U	< 0.0058 U	--	< 0.0057 U	< 0.0056 U	< 0.0056 U	--	< 0.0057 U	< 0.0056 U	--	< 0.0057 U
d-BHC	NA	Lab	ug/l			--	< 0.0028 U	< 0.0028 U	--	< 0.0028 U	< 0.0028 U	--	< 0.0028 U	< 0.0027 U	< 0.0027 U	--	< 0.0028 U	< 0.0027 U	--	< 0.0028 U
Dieldrin	NA	Lab	ug/l	0.02		--	< 0.0044 U	< 0.0043 U	--	< 0.0044 U	< 0.0044 U	--	< 0.0043 U	< 0.0043 U	< 0.0042 U	--	< 0.0043 U	< 0.0042 U	--	< 0.0043 U
Endosulfan I	NA	Lab	ug/l			--	< 0.0035 U	< 0.0035 U	--	< 0.0036 U	< 0.0036 U	--	< 0.0035 U	< 0.0035 U	< 0.0034 U	--	< 0.0035 U	< 0.0034 U	--	< 0.0035 U
Endosulfan II	NA	Lab	ug/l			--	< 0.012 U	< 0.012 U	--	< 0.012 U	< 0.012 U	--	< 0.012 U	< 0.012 U	< 0.012 U	--	< 0.012 U	< 0.012 U	--	< 0.012 U
Endosulfan sulfate	NA	Lab	ug/l			--	< 0.0048 U	< 0.0047 U	--	< 0.0048 U	< 0.0048 U	--	< 0.0047 U	< 0.0047 U	< 0.0046 U	--	< 0.0047 U	< 0.0046 U	--	< 0.0047 U
Endrin	NA	Lab	ug/l	2.0		--	< 0.0067 U	< 0.0066 U	--	< 0.0067 U	< 0.0067 U	--	< 0.0066 U	< 0.0065 U	< 0.0065 U	--	< 0.0066 U	< 0.0065 U	--	< 0.0066 U
Endrin aldehyde	NA	Lab	ug/l			--	< 0.016 U	< 0.016 U	--	< 0.017 U	< 0.017 U	--	< 0.016 U	< 0.016 U	< 0.016 U	--	< 0.016 U	< 0.016 U	--	< 0.016 U
Endrin ketone	NA	Lab	ug/l			--	< 0.0041 U	< 0.0041 U	--	< 0.0041 U	< 0.0041 U	--	< 0.0041 U	< 0.0040 U	< 0.0040 U	--	< 0.0041 U	< 0.0040 U	--	< 0.0041 U
g-BHC (Lindane)	NA	Lab	ug/l	0.2		--	< 0.0016 U	< 0.0016 U	--	< 0.0017 U	< 0.0017 U	--	< 0.0016 U	< 0.0016 U	< 0.0016 U	--	< 0.0016 U	< 0.0016 U	--	< 0.0016 U
Heptachlor	NA	Lab	ug/l	0.4	2.1	--	< 0.0016 U	< 0.0016 U	--	< 0.0017 U	< 0.0017 U	--	< 0.0016 U	< 0.0016 U	< 0.0016 U	--	< 0.0016 U	< 0.0016 U	--	< 0.0016 U
Heptachlor epoxide	NA	Lab	ug/l	0.2	19	--	< 0.0019 U	< 0.0019 U	--	< 0.0019 U	< 0.0019 U	--	< 0.0019 U	< 0.0018 U	< 0.0018 U	--	< 0.0019 U	< 0.0018 U	--	< 0.0019 U
Methoxychlor	NA	Lab	ug/l	40.0		--	< 0.025 U	< 0.024 U	--	< 0.025 U	< 0.025 U	--	< 0.024 U	< 0.024 U	< 0.024 U	--	< 0.024 U	< 0.024 U	--	< 0.024 U
Toxaphene	NA	Lab	ug/l	3.0		--	< 0.25 U	< 0.24 U	--	< 0.25 U	< 0.25 U	--	< 0.24 U	< 0.24 U	< 0.24 U	--	< 0.24 U	< 0.24 U	--	< 0.24 U
Polychlorinated Biphenyls																				
Aroclor 1016	NA	Lab	ug/l		75	--	< 0.082 U	< 0.082 U	--	< 0.083 U	< 0.081 U	--	< 0.081 U	< 0.040 U	< 0.040 U	--	< 0.081 U	< 0.040 U	--	< 0.081 U
Aroclor 1221	NA	Lab	ug/l		2.3	--	< 0.082 U	< 0.082 U	--	< 0.083 U	< 0.081 U	--	< 0.081 U	< 0.040 U	< 0.040 U	--	< 0.081 U	< 0.040 U	--	< 0.081 U
Aroclor 1232	NA	Lab	ug/l		0.72	--	< 0.16 U	< 0.16 U	--	< 0.17 U	< 0.16 U	--	< 0.16 U	< 0.080 U	< 0.080 U	--	< 0.16 U	< 0.080 U	--	< 0.16 U
Aroclor 1242	NA	Lab	ug/l		1.5	--	< 0.082 U	< 0.082 U	--	< 0.083 U	< 0.081 U	--	< 0.081 U	< 0.040 U	< 0.040 U	--	< 0.081 U	< 0.040 U	--	< 0.081 U
Aroclor 1248	NA	Lab	ug/l		1.2	--	< 0.082 U	< 0.082 U	--	< 0.083 U	< 0.081 U	--	< 0.081 U	< 0.040 U	< 0.040 U	--	< 0.081 U	< 0.040 U	--	< 0.081 U
Aroclor 1254	NA	Lab	ug/l		1.9	--	< 0.082 U	< 0.082 U	--	< 0.083 U	< 0.081 U	--	< 0.081 U	< 0.040 U	< 0.040 U	--	< 0.081 U	< 0.040 U	--	< 0.081 U
Aroclor 1260	NA	Lab	ug/l		1.6	--	< 0.12 U	< 0.12 U	--	< 0.12 U	< 0.12 U	--	< 0.12 U	< 0.060 U	< 0.060 U	--	< 0.12 U	< 0.060 U	--	< 0.12 U
Aroclor 1262	NA	Lab	ug/l			--	< 0.16 U	< 0.16 U	--	< 0.17 U	< 0.16 U	--	< 0.16 U	< 0.080 U	< 0.080 U	--	< 0.16 U	< 0.080 U	--	< 0.16 U
Aroclor 1268	NA	Lab	ug/l			--	< 0.13 U	< 0.13 U	--	< 0.13 U	< 0.13 U	--	< 0.13 U	< 0.064 U	< 0.064 U	--	< 0.13 U	< 0.064 U	--	< 0.13 U
Polychlorinated Biphenyls	NA	Calc	ug/l	0.5		--	ND	ND	--	ND	ND	--	ND	ND	ND	--	ND	ND	--	ND

Table 10
Analytical Groundwater Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

					Location	MW04	MW04S	MW04S	MW04S	MW05	MW05	MW05	MW06	MW06		MW06	MW06S	MW06S	MW06S	MW07
					Date	3/21/2018	7/14/2016	12/16/2016	3/19/2018	7/14/2016	12/15/2016	3/19/2018	7/14/2016	12/19/2016		3/21/2018	7/14/2016	12/19/2016	3/19/2018	7/15/2016
					Sample Type	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location	Units	Table 1 Primary Groundwater Quality Standards: Enforcement Standards	Vapor Intrusion Screening Values - Industrial Groundwater															
Effective Date				12/16/2016	07/27/2017															
Exceedance Key				**Bold**	Underline															
Per- and Polyfluoroalkyl Substances																				
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	Lab	ng/l			< 3 U	--	--	< 27 U	--	--	< 28 U	--	--	--	< 3 U	--	--	< 27 U	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	NA	Lab	ng/l			< 2 U	--	--	< 18 U	--	--	< 18 U	--	--	--	< 2 U	--	--	< 18 U	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	NA	Lab	ng/l			< 0.9 U	--	--	< 9 UJ	--	--	< 9 UJ	--	--	--	< 0.9 U	--	--	< 9 UJ	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	NA	Lab	ng/l			< 0.9 U	--	--	< 9 U	--	--	< 9 UJ	--	--	--	< 0.9 U	--	--	< 9 UJ	--
Perfluorobutane sulfonate (PFBS)	NA	Lab	ng/l			1	< 90 U	2 J	< 3 U	< 90 U	3	< 3 U	< 90 U	2 J	1 J	1	< 90 U	2	< 3 U	< 90 U
Perfluorobutanoic acid (PFBA)	NA	Lab	ng/l			6	--	--	< 18 U	--	--	< 18 U	--	--	--	5 J	--	--	< 18 U	--
Perfluorodecanoic acid (PFDA)	NA	Lab	ng/l			< 0.9 U	--	0.7 J	< 9 U	--	9	< 9 UJ	--	< 0.5 U	< 0.5 UJ	< 0.9 U	--	< 0.5 U	< 9 UJ	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	NA	Lab	ng/l			< 0.3 U	--	< 0.5 UJ	< 3 U	--	< 0.5 UJ	< 3 U	--	< 0.5 U	< 0.5 U	< 0.3 U	--	< 0.5 U	< 3 U	--
Perfluoroheptanoic acid (PFHpA)	NA	Lab	ng/l			77 J	110 J	110	34	26	29	75 J	73	55	70	55 J	51	47	53	< 10 U
Perfluorohexane sulfonate (PFHxS)	NA	Lab	ng/l			0.7 J	< 30 U	2 J	< 4 U	< 30 U	1 J	< 4 UJ	< 30 U	< 1 U	< 1 U	0.4 J	< 30 U	< 1 U	< 4 U	< 30 U
Perfluorohexanoic acid (PFHxA)	NA	Lab	ng/l			31 J	--	40	15 J	--	22	39 J	--	31	28	23 J	--	24	25	--
Perfluorononanoic acid (PFNA)	NA	Lab	ng/l			2	< 20 U	3	< 4 U	< 20 U	4	6 J	< 20 U	< 0.6 UJ	< 0.6 U	0.6 J	< 20 U	2	< 4 U	< 20 U
Perfluorooctanesulfonamide (PFOSA / FOSA)	NA	Lab	ng/l			< 0.9 UJ	--	--	< 9 U	--	--	< 9 U	--	--	--	< 0.9 UJ	--	--	< 9 U	--
Perfluorooctanesulfonate (PFOS)	NA	Lab	ng/l	20 (3)		1 J	< 40 U	2 J	< 4 U	< 40 U	17	< 4 U	< 40 U	< 2 UJ	< 2 U	0.8 J	< 40 U	3 J	< 4 U	< 40 U
Perfluorooctanoic acid (PFOA)	NA	Lab	ng/l	**20 (3)(8)**		**2200**	**2900 J**	**2200**	**1600**	**890**	**740 J**	**2900**	**1600**	**1400**	**1300**	**1300**	**1800**	**2200**	**2000**	**34**
Perfluoropentanoic acid (PFPeA)	NA	Lab	ng/l			9	--	--	< 18 U	--	--	22 J	--	--	--	8	--	--	< 18 U	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	NA	Lab	ng/l			< 0.3 U	--	< 0.5 UJ	< 3 U	--	< 0.5 UJ	< 3 U	--	< 0.5 U	< 0.5 UJ	< 0.3 U	--	< 0.5 U	< 3 U	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	NA	Lab	ng/l			< 0.3 U	--	< 0.5 UJ	< 3 U	--	< 0.5 UJ	< 3 U	--	< 0.5 U	< 0.5 U	< 0.3 U	--	< 0.5 U	< 3 U	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	NA	Lab	ng/l			< 0.4 U	--	< 1 UJ	< 4 U	--	< 1 U	< 4 U	--	< 1 U	< 1 UJ	< 0.4 U	--	< 1 U	< 4 U	--

Table 10
Analytical Groundwater Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

						Location	MW07	MW07	MW07S	MW07S	MW07S		MW1801	MW1802	MW1803	MW1804	MW1805	MW1807
						Date	12/20/2016	3/20/2018	7/15/2016	12/20/2016	3/20/2018		3/21/2018	3/21/2018	3/21/2018	3/20/2018	3/20/2018	3/20/2018
						Sample Type	N	N	N	N	N	FD	N	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location	Units	Table 1 Primary Groundwater Quality Standards: Enforcement Standards	Vapor Intrusion Screening Values - Industrial Groundwater													
Effective Date				12/16/2016	07/27/2017													
Exceedance Key				**Bold**	Underline													
General Parameters																		
Alkalinity, bicarbonate, as CaCO3	NA	Lab	mg/l				168 J	169	349 J	324 J	314	310	277	239	279	239	264 J	236
Alkalinity, carbonate, as CaCO3	NA	Lab	mg/l				R	< 1.7 U	< 1.7 UJ	R	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 UJ	< 1.7 U
Alkalinity, total, as CaCO3	NA	Lab	mg/l				168 J	169	349 J	324 J	314	310	277	239	279	239	264 J	236
Bromide	NA	Lab	mg/l				--	< 1.3 U	--	--	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U
Chloride	NA	Lab	mg/l				5.8	5.9	53.2	76.8	81.3	82.7	58.1	344	93.1	106	60.4	88.3
Cyanide	NA	Lab	mg/l	0.2000	0.0035		< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U
Nitrogen, nitrate, as N	NA	Lab	mg/l	10.0000			--	< 0.25 U	--	--	< 0.25 U	< 0.25 U	2.2	1.2	2.1	1.8	2	2.8
Nitrogen, nitrite, as N	NA	Lab	mg/l	**1.0000**			--	< 0.25 U	--	--	< 0.25 UJ	< 0.25 U	< 0.25 U	R	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 UJ
Sulfate, as SO4	NA	Lab	mg/l				17.3 J	17.2	13.0	14.3 J	44.6 J	66.4 J	19.4	12.7	22.2	27.6	20.3 J	42.4 J
Metals																		
Aluminum	Total	Lab	mg/l				< 0.0885 UB	0.461	< 0.0868 U	< 0.115 UB	0.145 J	< 0.0894 U	< 0.0894 U	0.199 J	< 0.0894 U	< 0.0894 U	< 0.0894 U	< 0.0894 U
Antimony	Total	Lab	mg/l	0.0060			< 0.00048 U	< 0.00045 U	< 0.00048 U	< 0.00048 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U
Arsenic	Total	Lab	mg/l	**0.0100**			< 0.00068 U	0.0016 J	0.0045	0.0069	**0.0197 J**	**0.0109 J**	< 0.00072 U	< 0.00072 U	< 0.00072 U	< 0.00072 U	< 0.00072 U	< 0.00072 U
Barium	Total	Lab	mg/l	2.0000			0.0273	0.0418	0.268	0.267	0.223	0.217	0.0539	0.0503	0.0256	0.0267	0.0257	0.026
Beryllium	Total	Lab	mg/l	0.0040			< 0.00011 U	0.000084 J	< 0.00011 U	< 0.00011 U	< 0.000071 U	< 0.000071 U	< 0.000071 U	< 0.000071 U	< 0.000071 U	< 0.000071 U	< 0.000071 U	< 0.000071 U
Cadmium	Total	Lab	mg/l	0.0050			< 0.00019 U	< 0.00015 U	< 0.00019 U	< 0.00019 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U
Calcium	Total	Lab	mg/l				38.7	63.4	100	101	99	97.7	77.1	99	81.4	72.5	83.9	73.3
Chromium	Total	Lab	mg/l	0.1000			< 0.00059 U	0.0022 J	< 0.00059 U	< 0.00059 U	< 0.00087 U	< 0.00087 U	< 0.00087 U	0.0016 J	< 0.00087 U	< 0.00087 U	< 0.00087 U	< 0.00087 U
Cobalt	Total	Lab	mg/l				< 0.00020 U	0.002	0.0025	0.0033	0.0038	0.0032	0.0019	0.00055 J	< 0.00016 U	< 0.00016 U	0.00017 J	< 0.00016 U
Copper	Total	Lab	mg/l	1.3000			< 0.00052 U	0.0037 J	< 0.00052 U	< 0.00067 UB	0.00056 J	< 0.00054 U	< 0.00054 U	< 0.00068 UB	< 0.00054 U	< 0.00054 U	< 0.00054 U	< 0.00054 U
Iron	Total	Lab	mg/l				< 0.0747 U	1.5	2.68	3.49	9.33 J	5.33 J	1.37	0.337 J	< 0.0805 U	< 0.0805 U	< 0.0805 U	< 0.0805 U
Lead	Total	Lab	mg/l	0.0150			< 0.000090 U	0.0032	< 0.000090 U	0.00042 J	0.00027 J	0.00017 J	0.0003 J	0.00045 J	0.00018 J	< 0.00011 U	< 0.00011 U	< 0.00011 U
Magnesium	Total	Lab	mg/l				21.1	38.6	26.0	26.3	28.2	27.9	28.9	22.1	29.8	26	27	29.3
Manganese	Total	Lab	mg/l	**0.3000 (8)**			0.0026 J	0.135	**0.704**	**0.809**	**0.758**	**0.69**	0.134	0.0331	0.0122	0.0043 J	0.0143	0.0153
Mercury	Total	Lab	mg/l	0.0020	0.0086		< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U
Nickel	Total	Lab	mg/l	0.1000			< 0.00085 U	0.0016 J	0.0024 J	0.0034 J	0.0037 J	0.0032 J	0.0022 J	< 0.0010 U	< 0.0010 U	< 0.0010 U	< 0.0010 U	< 0.0010 U
Potassium	Total	Lab	mg/l				1.56	1.77	1.46	1.51	1.24	1.32	1.35	2.22	1.11	1.07	1.28	1.23
Selenium	Total	Lab	mg/l	0.0500			< 0.00044 U	< 0.00050 U	< 0.00044 U	< 0.00044 U	< 0.00050 U	< 0.00050 U	0.00057 J	0.0014 J	0.00088 J	0.00082 J	0.00066 J	0.00068 J
Silver	Total	Lab	mg/l				< 0.00012 U	< 0.00015 U	< 0.00012 U	< 0.00012 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U
Sodium	Total	Lab	mg/l				6.11	6.38	47.4	39.6	39.7	39.1	31.3	149	40	60.2	29	35.3
Thallium	Total	Lab	mg/l	0.0020			< 0.00016 U	< 0.00012 U	< 0.00016 U	< 0.00016 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U
Vanadium	Total	Lab	mg/l				0.00034 J	0.0015	< 0.00020 U	0.00048 J	0.0005 J	0.00028 J	< 0.00021 U	0.00064 J	< 0.00021 U	< 0.00021 U	< 0.00021 U	< 0.00021 U
Zinc	Total	Lab	mg/l				< 0.0054 U	< 0.0065 U	< 0.0054 U	< 0.0054 U	< 0.0065 U	< 0.0065 U	0.009 J	< 0.0065 U	< 0.0065 U	< 0.0065 U	< 0.0065 U	< 0.0065 U
Semivolatile Organic Compounds																		
1,2,4,5-Tetrachlorobenzene	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,4-Dioxane	NA	Lab	ug/l	3.0 (8)	22000		< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dioxane (SIM)	NA	Lab	ug/l	3.0 (8)	22000		--	< 0.08 UB	--	--	< 0.06 UB	< 0.1 UB	< 0.07 UB	< 0.09 UB	< 0.08 UB	< 0.08 UB	< 0.08 UB	< 0.1 UB
2,2'-oxybis (1-chloropropane)	NA	Lab	ug/l	300.0			< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2,3,4,6-Tetrachlorophenol	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2,4,5-Trichlorophenol	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2,4,6-Trichlorophenol	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2,4-Dichlorophenol	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2,4-Dimethylphenol	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2,4-Dinitrophenol	NA	Lab	ug/l				< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2,4-Dinitrotoluene	NA	Lab	ug/l				< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2,6-Dinitrotoluene	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-Chloronaphthalene	NA	Lab	ug/l				< 0.40 U	< 0.4 U	< 0.4 U	< 0.41 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
2-Chlorophenol	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-Methyl-4,6-dinitrophenol	NA	Lab	ug/l				< 5.0 U	< 5 U	< 5 U	< 5.2 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
2-Methylnaphthalene	NA	Lab	ug/l				< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
2-Methylphenol (o-cresol)	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-Nitroaniline	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-Nitrophenol	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
3,3`-Dichlorobenzidine	NA	Lab	ug/l				< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
3-Nitroaniline	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
4-Bromophenyl phenyl ether	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
4-Chloro-3-methylphenol	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
4-Chloroaniline	NA	Lab	ug/l				< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
4-Chlorophenyl phenyl ether	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
4-Methylphenol (p-cresol)	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
4-Nitroaniline	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
4-Nitrophenol	NA	Lab	ug/l				< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Acenaphthene	NA	Lab	ug/l				< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Acenaphthylene	NA	Lab	ug/l				< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Acetophenone	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U

Table 10
Analytical Groundwater Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Parameter	Total or Dissolved	Analysis Location	Units	Table 1 Primary Groundwater Quality Standards: Enforcement Standards	Vapor Intrusion Screening Values - Industrial Groundwater	Location	MW07	MW07	MW07S	MW07S	MW07S		MW1801	MW1802	MW1803	MW1804	MW1805	MW1807
						Date	12/20/2016	3/20/2018	7/15/2016	12/20/2016	3/20/2018		3/21/2018	3/21/2018	3/21/2018	3/20/2018	3/20/2018	3/20/2018
						Sample Type	N	N	N	N	N	FD	N	N	N	N	N	N
Effective Date				12/16/2016	07/27/2017													
Exceedance Key				**Bold**	Underline													
Anthracene	NA	Lab	ug/l	2100.0			< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Atrazine	NA	Lab	ug/l	3.0			< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Benz(a)anthracene	NA	Lab	ug/l		NVT		< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Benzaldehyde	NA	Lab	ug/l				< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Benzo(a)pyrene	NA	Lab	ug/l	0.2			< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Benzo(b)fluoranthene	NA	Lab	ug/l				< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Benzo(g,h,i)perylene	NA	Lab	ug/l				< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Benzo(k)fluoranthene	NA	Lab	ug/l				< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Biphenyl	NA	Lab	ug/l		320		< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bis(2-chloroethoxy)methane	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bis(2-chloroethyl)ether	NA	Lab	ug/l		120		< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bis(2-ethylhexyl)phthalate	NA	Lab	ug/l	6.0			< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Butyl benzyl phthalate	NA	Lab	ug/l				< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Caprolactam	NA	Lab	ug/l				< 5.0 U	< 5 U	< 5 U	< 5.2 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Carbazole	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chrysene	NA	Lab	ug/l				< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Dibenz(a,h)anthracene	NA	Lab	ug/l				< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Dibenzofuran	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Diethyl phthalate	NA	Lab	ug/l				< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Dimethyl phthalate	NA	Lab	ug/l				< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Di-n-butyl phthalate	NA	Lab	ug/l				< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Di-n-octyl phthalate	NA	Lab	ug/l				< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 UJ	< 2 UJ
Fluoranthene	NA	Lab	ug/l	280.0			< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Fluorene	NA	Lab	ug/l	280.0			< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Hexachlorobenzene	NA	Lab	ug/l	1.0 (1)(8)	0.94		< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Hexachlorobutadiene	NA	Lab	ug/l	1.0	2.8		< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Hexachlorocyclopentadiene	NA	Lab	ug/l	50.0	19		< 5.0 U	< 5 U	< 5 U	< 5.2 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Hexachloroethane	NA	Lab	ug/l		16		< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Indeno(1,2,3-cd)pyrene	NA	Lab	ug/l				< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 UJ	< 0.1 UJ	< 0.1 UJ
Isophorone	NA	Lab	ug/l	100.0			< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Naphthalene	NA	Lab	ug/l	20.0	28		< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Nitrobenzene	NA	Lab	ug/l		680		< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
n-Nitrosodi-n-propylamine	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
n-Nitrosodiphenylamine	NA	Lab	ug/l				< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Pentachlorophenol	NA	Lab	ug/l	1.0			< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Phenanthrene	NA	Lab	ug/l				< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Phenol	NA	Lab	ug/l	2100.0			< 0.50 U	< 0.5 U	< 0.5 U	< 0.52 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Pyrene	NA	Lab	ug/l				< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Volatile Organic Compounds																		
1,1,1-Trichloroethane	NA	Lab	ug/l	200.0	49000		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane	NA	Lab	ug/l		26		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2-Trichloroethane	NA	Lab	ug/l	5.0	40		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethane	NA	Lab	ug/l	70.0	51		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethylene	NA	Lab	ug/l	7.0	1200		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2,3-Trichlorobenzene	NA	Lab	ug/l				< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	NA	Lab	ug/l	70.0	330		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trimethylbenzene	NA	Lab	ug/l	5.0 (10)	240		--	--	< 1 U	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane (DBCP)	NA	Lab	ug/l	0.2 (1)	0.70		< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
1,2-Dibromoethane (EDB)	NA	Lab	ug/l	0.05	1.4		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene	NA	Lab	ug/l	600.0	22000		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	NA	Lab	ug/l	5.0	16		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, cis	NA	Lab	ug/l	70.0			< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, trans	NA	Lab	ug/l	100.0			< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloropropane	NA	Lab	ug/l	5.0 (1)	18		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3,5-Trimethylbenzene	NA	Lab	ug/l	4.0 (10)			--	--	< 1 U	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	NA	Lab	ug/l	600.0			< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichloropropene, cis	NA	Lab	ug/l				< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3-Dichloropropene, trans	NA	Lab	ug/l				< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,4-Dichlorobenzene	NA	Lab	ug/l	75.0	22		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Hexanone	NA	Lab	ug/l		63000		< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Acetone	NA	Lab	ug/l	700.0	150000000		< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U
Benzene	NA	Lab	ug/l		7.4		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromochloromethane	NA	Lab	ug/l	90.0	4700		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	NA	Lab	ug/l	80.0 (5)	6.3		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromoform	NA	Lab	ug/l	80.0 (5)	990		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromomethane	NA	Lab	ug/l	10.0	100		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ

Table 10
Analytical Groundwater Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

					Location	MW07	MW07	MW07S	MW07S	MW07S		MW1801	MW1802	MW1803	MW1804	MW1805	MW1807
					Date	12/20/2016	3/20/2018	7/15/2016	12/20/2016	3/20/2018		3/21/2018	3/21/2018	3/21/2018	3/20/2018	3/20/2018	3/20/2018
					Sample Type	N	N	N	N	N	FD	N	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location	Units	Table 1 Primary Groundwater Quality Standards: Enforcement Standards	Vapor Intrusion Screening Values - Industrial Groundwater												
Effective Date				12/16/2016	07/27/2017												
Exceedance Key				**Bold**	Underline												
Butylbenzene	NA	Lab	ug/l			--	--	< 1 U	--	--	--	--	--	--	--	--	--
Butylbenzene, sec	NA	Lab	ug/l			--	--	< 1 U	--	--	--	--	--	--	--	--	--
Butylbenzene, tert	NA	Lab	ug/l			--	--	< 1 U	--	--	--	--	--	--	--	--	--
Carbon disulfide	NA	Lab	ug/l		7700	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Carbon tetrachloride	NA	Lab	ug/l	5.0 (1)	2.9	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorobenzene	NA	Lab	ug/l	100.0	3100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorodibromomethane	NA	Lab	ug/l	80.0 (5)		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroethane	NA	Lab	ug/l		140000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroform	NA	Lab	ug/l	80.0 (5)	5.5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	0.6 J	< 0.5 U	< 0.5 U	2	0.6 J	3
Chloromethane	NA	Lab	ug/l	30.0	1400	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Cumene (isopropyl benzene)	NA	Lab	ug/l		7800	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Cyclohexane	NA	Lab	ug/l		6800	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Cymene p- (toluene isopropyl p-)	NA	Lab	ug/l			--	--	< 1 U	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (Freon-12)	NA	Lab	ug/l	1000.0	51	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ
Ethyl benzene	NA	Lab	ug/l	700.0	28	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methyl acetate	NA	Lab	ug/l			< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methyl ethyl ketone (2-butanone)	NA	Lab	ug/l	4200.0	15000000	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl isobutyl ketone (MIBK)	NA	Lab	ug/l	560.0	4100000	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl tertiary butyl ether (MTBE)	NA	Lab	ug/l	40.0	3000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methylcyclohexane	NA	Lab	ug/l			< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methylene chloride	NA	Lab	ug/l	5.0	14000	< 2 U	< 0.5 U	< 2 U	< 2 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Propylbenzene	NA	Lab	ug/l		20000	--	--	< 1 U	--	--	--	--	--	--	--	--	--
Styrene	NA	Lab	ug/l	100.0	72000	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethylene	NA	Lab	ug/l	5.0 (1)	12	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Toluene	NA	Lab	ug/l	1000.0	14000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichloroethylene (TCE)	NA	Lab	ug/l	5.0	2.9	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorofluoromethane (Freon-11)	NA	Lab	ug/l	2100.0		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ
Trichlorotrifluoroethane (Freon 113)	NA	Lab	ug/l		9200	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Vinyl chloride	NA	Lab	ug/l	2.0 (1)	2.2	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ
Xylene, m & p	NA	Lab	ug/l	10000.0 (4)		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, o	NA	Lab	ug/l	10000.0 (4)		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, total	NA	Lab	ug/l	10000.0	2900	--	< 0.5 U	--	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, total	NA	Calc	ug/l	10000.0	2900	ND		ND	ND								
Pesticides																	
4,4'-DDD	NA	Lab	ug/l			< 0.0040 U	--	< 0.0041 U	< 0.0041 U	--	--	--	--	--	--	--	--
4,4'-DDE	NA	Lab	ug/l		NVT	< 0.0040 U	--	< 0.0041 U	< 0.0041 U	--	--	--	--	--	--	--	--
4,4'-DDT	NA	Lab	ug/l			< 0.0042 U	--	< 0.0042 U	< 0.0042 U	--	--	--	--	--	--	--	--
a-BHC	NA	Lab	ug/l			< 0.0024 U	--	< 0.0024 U	< 0.0024 U	--	--	--	--	--	--	--	--
Aldrin	NA	Lab	ug/l	0.05	4.0	< 0.0016 U	--	< 0.0016 U	< 0.0016 U	--	--	--	--	--	--	--	--
b-BHC	NA	Lab	ug/l			< 0.0037 U	--	0.0060 J	0.019 J	--	--	--	--	--	--	--	--
Chlordane, cis (alpha)	NA	Lab	ug/l			< 0.0024 U	--	< 0.0024 U	< 0.0024 U	--	--	--	--	--	--	--	--
Chlordane, trans (gamma)	NA	Lab	ug/l			< 0.0057 U	--	< 0.0057 U	< 0.013 U	--	--	--	--	--	--	--	--
d-BHC	NA	Lab	ug/l			< 0.0028 U	--	< 0.0028 U	< 0.0028 U	--	--	--	--	--	--	--	--
Dieldrin	NA	Lab	ug/l	0.02		< 0.0043 U	--	< 0.0043 U	< 0.0043 U	--	--	--	--	--	--	--	--
Endosulfan I	NA	Lab	ug/l			< 0.0035 U	--	< 0.0035 U	< 0.0035 U	--	--	--	--	--	--	--	--
Endosulfan II	NA	Lab	ug/l			< 0.012 U	--	< 0.012 U	< 0.012 U	--	--	--	--	--	--	--	--
Endosulfan sulfate	NA	Lab	ug/l			< 0.0047 U	--	< 0.0047 U	< 0.0047 U	--	--	--	--	--	--	--	--
Endrin	NA	Lab	ug/l	2.0		< 0.0066 U	--	< 0.0066 U	< 0.0066 U	--	--	--	--	--	--	--	--
Endrin aldehyde	NA	Lab	ug/l			< 0.016 U	--	< 0.016 U	< 0.016 U	--	--	--	--	--	--	--	--
Endrin ketone	NA	Lab	ug/l			< 0.0040 U	--	< 0.0041 U	< 0.0041 U	--	--	--	--	--	--	--	--
g-BHC (Lindane)	NA	Lab	ug/l	0.2		< 0.0016 U	--	< 0.0016 U	< 0.0016 U	--	--	--	--	--	--	--	--
Heptachlor	NA	Lab	ug/l	0.4	2.1	< 0.0016 U	--	< 0.0016 U	< 0.0016 U	--	--	--	--	--	--	--	--
Heptachlor epoxide	NA	Lab	ug/l	0.2	19	< 0.0019 U	--	< 0.0019 U	< 0.0019 U	--	--	--	--	--	--	--	--
Methoxychlor	NA	Lab	ug/l	40.0		< 0.024 U	--	< 0.024 U	< 0.024 U	--	--	--	--	--	--	--	--
Toxaphene	NA	Lab	ug/l	3.0		< 0.24 U	--	< 0.24 U	< 0.24 U	--	--	--	--	--	--	--	--
Polychlorinated Biphenyls																	
Aroclor 1016	NA	Lab	ug/l		75	< 0.040 U	--	< 0.082 U	< 0.041 U	--	--	--	--	--	--	--	--
Aroclor 1221	NA	Lab	ug/l		2.3	< 0.040 U	--	< 0.082 U	< 0.041 U	--	--	--	--	--	--	--	--
Aroclor 1232	NA	Lab	ug/l		0.72	< 0.081 U	--	< 0.16 U	< 0.082 U	--	--	--	--	--	--	--	--
Aroclor 1242	NA	Lab	ug/l		1.5	< 0.040 U	--	< 0.082 U	< 0.041 U	--	--	--	--	--	--	--	--
Aroclor 1248	NA	Lab	ug/l		1.2	< 0.040 U	--	< 0.082 U	< 0.041 U	--	--	--	--	--	--	--	--
Aroclor 1254	NA	Lab	ug/l		1.9	< 0.040 U	--	< 0.082 U	< 0.041 U	--	--	--	--	--	--	--	--
Aroclor 1260	NA	Lab	ug/l		1.6	< 0.061 U	--	< 0.12 U	< 0.061 U	--	--	--	--	--	--	--	--
Aroclor 1262	NA	Lab	ug/l			< 0.081 U	--	< 0.16 U	< 0.082 U	--	--	--	--	--	--	--	--
Aroclor 1268	NA	Lab	ug/l			< 0.065 U	--	< 0.13 U	< 0.065 U	--	--	--	--	--	--	--	--
Polychlorinated Biphenyls	NA	Calc	ug/l	0.5		ND	--	ND	ND	--	--	--	--	--	--	--	--

Table 10
Analytical Groundwater Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

					Location	MW07	MW07	MW07S	MW07S	MW07S		MW1801	MW1802	MW1803	MW1804	MW1805	MW1807
					Date	12/20/2016	3/20/2018	7/15/2016	12/20/2016	3/20/2018		3/21/2018	3/21/2018	3/21/2018	3/20/2018	3/20/2018	3/20/2018
					Sample Type	N	N	N	N	N	FD	N	N	N	N	N	N
Parameter	Total or Dissolved	Analysis Location	Units	Table 1 Primary Groundwater Quality Standards: Enforcement Standards	Vapor Intrusion Screening Values - Industrial Groundwater												
Effective Date				12/16/2016	07/27/2017												
Exceedance Key				**Bold**	Underline												
Per- and Polyfluoroalkyl Substances																	
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	Lab	ng/l			--	< 7 U	--	--	< 15 U	< 15 U	< 5 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	NA	Lab	ng/l			--	< 5 U	--	--	< 10 U	< 10 U	< 3 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	NA	Lab	ng/l			--	< 2 U	--	--	< 5 U	< 5 U	< 2 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	NA	Lab	ng/l			--	< 2 U	--	--	< 5 U	< 5 U	< 2 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U
Perfluorobutane sulfonate (PFBS)	NA	Lab	ng/l			< 0.7 UJ	< 0.7 U	< 90 U	0.7 J	< 1 U	< 1 U	2	3	2	1	2	3
Perfluorobutanoic acid (PFBA)	NA	Lab	ng/l			--	< 5 U	--	--	< 10 U	< 10 U	9 J	41	15	13	19	13
Perfluorodecanoic acid (PFDA)	NA	Lab	ng/l			< 0.5 U	< 2 U	--	< 0.5 UJ	< 5 U	< 5 U	3	88	23	6	55	< 0.9 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	NA	Lab	ng/l			< 0.5 U	< 0.7 U	--	< 0.5 UJ	< 1 U	< 1 U	< 0.5 U	0.8 J	< 0.3 U	< 0.3 U	2	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	NA	Lab	ng/l			2	2 J	13	17	20	21	66 J	190 J	100 J	93 J	130 J	44 J
Perfluorohexane sulfonate (PFHxS)	NA	Lab	ng/l			< 1 U	< 1 U	< 30 U	< 1 U	< 2 U	< 2 U	1 J	0.6 J	0.7 J	0.4 J	0.6 J	< 0.4 UJ
Perfluorohexanoic acid (PFHxA)	NA	Lab	ng/l			1 J	1 J	--	12	15	15	33 J	130 J	48 J	46 J	75 J	48
Perfluorononanoic acid (PFNA)	NA	Lab	ng/l			< 0.6 U	< 1 U	< 20 U	0.9 J	< 2 U	< 2 U	3 J	37	9	4	12	2
Perfluorooctanesulfonamide (PFOSA / FOSA)	NA	Lab	ng/l			--	< 2 U	--	--	< 5 U	< 5 U	< 2 UJ	< 0.9 UJ	< 0.9 UJ	< 0.9 U	< 0.9 U	< 0.9 U
Perfluorooctanesulfonate (PFOS)	NA	Lab	ng/l	20 (3)		< 2 U	< 1 U	< 40 U	< 2 U	< 2 U	3 J	2 J	10	4	1 J	5	2 J
Perfluorooctanoic acid (PFOA)	NA	Lab	ng/l	**20 (3)(8)**		**59 J**	**71**	**580**	**650 J**	**920**	**920**	**2300**	**9700**	**5200**	**4400**	**6300**	**1400**
Perfluoropentanoic acid (PFPeA)	NA	Lab	ng/l			--	< 5 U	--	--	< 10 U	< 10 U	15	92	30	19	38	26
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	NA	Lab	ng/l			< 0.5 U	< 0.7 U	--	< 0.5 UJ	< 1 U	< 1 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	NA	Lab	ng/l			< 0.5 U	< 0.7 U	--	< 0.5 UJ	< 1 U	< 1 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	NA	Lab	ng/l			< 1 U	< 1 U	--	< 1 UJ	< 2 U	< 2 U	< 0.7 U	10	5	< 0.4 U	14 J	< 0.4 U

Table 11
Analytical Surface Water Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Location		Paran Creek Mill Pond A	Paran Creek Mill Pond C	Paran Creek Above 67A Bridge, High Flow	Paran Creek Above 67A Bridge, Low Flow	SW1801	Walloomsac River Above Paran Creek	Walloomsac River Below Paran Creek
Source		VT DEC	VT DEC	VT DEC	VT DEC	CT Male	VT DEC	VT DEC
Date		3/10/2016	3/10/2016	3/10/2016	3/10/2016	5/18/2018	3/10/2016	3/10/2016
Data Status		Secondary	Secondary	Secondary	Secondary	Validated	Secondary	Secondary
Parameter	Units							
Per- and Polyfluoroalkyl Substances								
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	--	--	--	--	< 0.95 U	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	--	--	--	--	< 1.9 U	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	--	--	--	--	< 0.95 U	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	--	--	--	--	< 0.95 U	--	--
Perfluorobutane sulfonate (PFBS)	ng/l	--	--	--	--	**0.49 J**	--	--
Perfluorobutanoic acid (PFBA)	ng/l	--	--	--	--	< 1.9 U	--	--
Perfluorodecanoic acid (PFDA)	ng/l	--	--	--	--	< 0.95 U	--	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	--	--	--	--	< 0.29 U	--	--
Perfluoroheptanoic acid (PFHpA)	ng/l	--	--	--	--	**1.1**	--	--
Perfluorohexane sulfonate (PFHxS)	ng/l	--	--	--	--	< 0.38 U	--	--
Perfluorohexanoic acid (PFHxA)	ng/l	--	--	--	--	**0.73 J**	--	--
Perfluorononanoic acid (PFNA)	ng/l	--	--	--	--	< 0.38 U	--	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	--	--	--	--	< 0.95 U	--	--
Perfluorooctanesulfonate (PFOS)	ng/l	--	--	--	--	**0.92 J**	--	--
Perfluorooctanoic acid (PFOA)	ng/l	**16**	**18.1**	**22.9**	**37.6**	**28**	**8.9**	**8.6**
Perfluoropentanoic acid (PFPeA)	ng/l	--	--	--	--	< 1.9 U	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	--	--	--	--	< 0.29 U	--	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	--	--	--	--	< 0.29 U	--	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	--	--	--	--	< 0.38 U	--	--

Table 12
Analytical Sediment Results (collected by VTDEC)
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Location		Paran Creek Mill Pond A	Paran Creek Mill Pond B	Paran Creek Mill Pond C	Walloomsac River below Paran Creek
Source		VTDEC	VTDEC	VT DEC	VTDEC
Date		3/10/2016	3/10/2016	3/10/2016	3/10/2016
Parameter	Units				
Per- and Polyfluoroalkyl Substances					
Perfluorooctanoic acid (PFOA)	ng/g	ND	ND	**1.2**	**2.4**

Table 13
Analytical Sewer, Sump, and Floor Drain Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

	Type	Wastewater							Sump				Floor Drain Outlet	Surface Water		
	Location	BLDGOUTLET	BLDGOUTLET	DG-RIVER-MH	DG-WATER-MH		SLUDGE1804	UG-WATER-MH	SUMP01	SUMP02	SUMP03		SLUDGE1801	SLUDGE1802		SLUDGE1803
	Date	8/16/2016	8/17/2016	8/16/2016	8/16/2016		4/05/2018	8/16/2016	8/17/2016	8/17/2016	8/17/2016		5/18/2018	4/05/2018		4/05/2018
	Sample Medium	Liquid	Solid	Liquid	Liquid		Solid	Liquid	Solid	Solid	Solid		Solid	Solid		Solid
	Sample Type	N	N	N	N	FD	N	N	N	N	N	FD	N	N	FD	N
Parameter	Units															
General Parameters																
Carbon, total organic	mg/kg	--	--	--	--	--	**19800 J**	--	--	--	--	--	**14800**	**50200 J**	**65800 J**	**35600 J**
Moisture	%	--	**49.4**	--	--	--	**24.4**	--	**5.3**	**3.6**	**3.7**	**3.7**	**19.7**	**5.1 J**	**2.3 J**	**14.2**
pH	pH units	--	--	--	--	--	**7.53**	--	--	--	--	--	**7.81**	**8.9**	**9.18**	**7.92**
Metals																
Aluminum	mg/kg	--	--	--	--	--	**8140 J**	--	--	--	--	--	**5890 J**	**3870 J**	**2890 J**	**1400 J**
Antimony	mg/kg	--	--	--	--	--	**0.615**	--	--	--	--	--	**0.306 J**	< 0.0847 U	< 0.0917 U	< 0.158 UB
Arsenic	mg/kg	--	--	--	--	--	**9.08 J**	--	--	--	--	--	**6.50 J**	**1.28 J**	**1.99 J**	**3.28 J**
Barium	mg/kg	--	--	--	--	--	**173 J**	--	--	--	--	--	**99.9 J**	**7.5 J**	**9.98 J**	**21.3 J**
Beryllium	mg/kg	--	--	--	--	--	**0.785**	--	--	--	--	--	**0.372**	**0.0931 J**	**0.1 J**	< 0.109 UB
Cadmium	mg/kg	--	--	--	--	--	**2.67**	--	--	--	--	--	**0.474**	**0.0692 J**	**0.0967 J**	**0.232**
Calcium	mg/kg	--	--	--	--	--	**31900 J**	--	--	--	--	--	**91100**	**65700 J**	**142000 J**	**154000 J**
Chromium	mg/kg	--	--	--	--	--	**117**	--	--	--	--	--	**13.6**	**4.3**	**3.66**	**6.3**
Cobalt	mg/kg	--	--	--	--	--	**62**	--	--	--	--	--	**13.2**	**2.33**	**2.82**	**4.58**
Copper	mg/kg	--	--	--	--	--	**212 J**	--	--	--	--	--	**66.0 J**	**4.82 J**	**3.89 J**	**9.53 J**
Iron	mg/kg	--	--	--	--	--	**43600 J**	--	--	--	--	--	**18800 J**	**8460 J**	**6960 J**	**7200 J**
Lead	mg/kg	--	--	--	--	--	**83.3 J**	--	--	--	--	--	**50.2**	**3.76 J**	**4.64 J**	**12.2 J**
Magnesium	mg/kg	--	--	--	--	--	**9730 J**	--	--	--	--	--	**43100 J**	**27400 J**	**41000 J**	**55600 J**
Manganese	mg/kg	--	--	--	--	--	**1960**	--	--	--	--	--	**958 J**	**149**	**155**	**234**
Mercury	mg/kg	--	--	--	--	--	**0.191**	--	--	--	--	--	**0.280 J**	< 0.0104 U	< 0.0099 U	< 0.0113 U
Nickel	mg/kg	--	--	--	--	--	**114**	--	--	--	--	--	**28.7 J**	**5.65**	**4.7**	**6.36**
Potassium	mg/kg	--	--	--	--	--	**979 J**	--	--	--	--	--	**612**	**459 J**	**552 J**	**449 J**
Selenium	mg/kg	--	--	--	--	--	**0.754 J**	--	--	--	--	--	**0.156 J**	< 0.0908 U	< 0.0984 U	< 0.0948 U
Silver	mg/kg	--	--	--	--	--	**6.29**	--	--	--	--	--	**0.585 J**	< 0.0265 U	< 0.0287 U	**0.0628 J**
Sodium	mg/kg	--	--	--	--	--	**173 J**	--	--	--	--	--	**105 J**	**44.4 J**	**46.3 J**	**64.1 J**
Thallium	mg/kg	--	--	--	--	--	**0.133 J**	--	--	--	--	--	**0.0704 J**	< 0.0227 U	< 0.0246 U	< 0.0352 UB
Vanadium	mg/kg	--	--	--	--	--	**21.6**	--	--	--	--	--	**17.6 J**	**4.77**	**5.91**	**5.79**
Zinc	mg/kg	--	--	--	--	--	**1030 J**	--	--	--	--	--	**133 J**	**22.9 J**	**28.3 J**	**68.9 J**
Semivolatile Organic Compounds																
1,2,4,5-Tetrachlorobenzene	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 21 U	< 87 U	< 85 U	< 96 U
1,4-Dioxane	ug/kg	--	--	--	--	--	< 660 U	--	--	--	--	--	< 120 U	< 520 U	< 510 U	< 570 U
2,2'-oxybis (1-chloropropane)	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 21 U	< 87 U	< 85 U	< 96 U
2,3,4,6-Tetrachlorophenol	ug/kg	--	--	--	--	--	< 440 U	--	--	--	--	--	< 82 UJ	< 350 U	< 340 U	< 380 UJ
2,4,5-Trichlorophenol	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 25 UJ	< 87 U	< 85 U	< 96 U
2,4,6-Trichlorophenol	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 25 UJ	< 87 U	< 85 U	< 96 U
2,4-Dichlorophenol	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 21 UJ	< 87 U	< 85 U	< 96 U
2,4-Dimethylphenol	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 21 UJ	< 87 U	< 85 U	< 96 U
2,4-Dinitrophenol	ug/kg	--	--	--	--	--	< 2000 U	--	--	--	--	--	< 450 UJ	< 1600 U	< 1500 U	< 1700 UJ
2,4-Dinitrotoluene	ug/kg	--	--	--	--	--	< 440 U	--	--	--	--	--	< 82 U	< 350 U	< 340 U	< 380 U
2,6-Dinitrotoluene	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 25 U	< 87 U	< 85 U	< 96 U
2-Chloronaphthalene	ug/kg	--	--	--	--	--	< 44 U	--	--	--	--	--	< 8 U	< 35 U	< 34 U	< 38 U
2-Chlorophenol	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 21 UJ	< 87 U	< 85 U	< 96 U
2-Methyl-4,6-dinitrophenol	ug/kg	--	--	--	--	--	< 1100 U	--	--	--	--	--	< 210 UJ	< 870 U	< 850 U	< 960 U
2-Methylnaphthalene	ug/kg	--	--	--	--	--	**360**	--	--	--	--	--	**66**	< 17 U	< 17 U	< 19 U
2-Methylphenol (o-cresol)	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 33 UJ	< 87 U	< 85 U	< 96 U
2-Nitroaniline	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 25 U	< 87 U	< 85 U	< 96 U
2-Nitrophenol	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 21 UJ	< 87 U	< 85 U	< 96 U
3,3`-Dichlorobenzidine	ug/kg	--	--	--	--	--	< 660 U	--	--	--	--	--	< 120 U	< 520 U	< 510 U	< 570 U
3-Nitroaniline	ug/kg	--	--	--	--	--	< 440 U	--	--	--	--	--	< 82 UJ	< 350 U	< 340 U	< 380 U
4-Bromophenyl phenyl ether	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 25 U	< 87 U	< 85 U	< 96 U
4-Chloro-3-methylphenol	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 21 UJ	< 87 U	< 85 U	< 96 U
4-Chloroaniline	ug/kg	--	--	--	--	--	< 220 U	--	--	--	--	--	< 41 U	< 170 U	< 170 U	< 190 U
4-Chlorophenyl phenyl ether	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 21 U	< 87 U	< 85 U	< 96 U
4-Methylphenol (p-cresol)	ug/kg	--	--	--	--	--	**160 J**	--	--	--	--	--	**31 J**	< 87 U	< 85 U	< 96 U
4-Nitroaniline	ug/kg	--	--	--	--	--	< 440 U	--	--	--	--	--	< 82 U	< 350 U	< 340 U	< 380 U
4-Nitrophenol	ug/kg	--	--	--	--	--	< 1100 U	--	--	--	--	--	< 210 UJ	< 870 U	< 850 U	< 960 U
Acenaphthene	ug/kg	--	--	--	--	--	**68 J**	--	--	--	--	--	**160**	< 17 U	< 17 U	< 19 U
Acenaphthylene	ug/kg	--	--	--	--	--	**110**	--	--	--	--	--	**95**	< 17 U	< 17 U	< 19 U
Acetophenone	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	**50 J**	< 87 U	< 85 U	< 96 U
Anthracene	ug/kg	--	--	--	--	--	**220**	--	--	--	--	--	**510 J**	< 17 U	< 17 U	**33 J**
Atrazine	ug/kg	--	--	--	--	--	< 220 U	--	--	--	--	--	< 41 U	< 170 U	< 170 U	< 190 U
Benz(a)anthracene	ug/kg	--	--	--	--	--	**750**	--	--	--	--	--	**1100 J**	< 17 U	< 17 U	**120**
Benzaldehyde	ug/kg	--	--	--	--	--	**750 J**	--	--	--	--	--	**170 J**	< 350 U	< 340 U	< 380 U
Benzo(a)pyrene	ug/kg	--	--	--	--	--	**720**	--	--	--	--	--	**970 J**	**28 J**	**37 J**	**160**

Table 13
Analytical Sewer, Sump, and Floor Drain Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

	Type	Wastewater							Sump				Floor Drain Outlet	Surface Water		
	Location	BLDGOUTLET	BLDGOUTLET	DG-RIVER-MH	DG-WATER-MH		SLUDGE1804	UG-WATER-MH	SUMP01	SUMP02	SUMP03		SLUDGE1801	SLUDGE1802		SLUDGE1803
	Date	8/16/2016	8/17/2016	8/16/2016	8/16/2016		4/05/2018	8/16/2016	8/17/2016	8/17/2016	8/17/2016		5/18/2018	4/05/2018		4/05/2018
	Sample Medium	Liquid	Solid	Liquid	Liquid		Solid	Liquid	Solid	Solid	Solid		Solid	Solid		Solid
	Sample Type	N	N	N	N	FD	N	N	N	N	N	FD	N	N	FD	N
Parameter	Units															
Benzo(b)fluoranthene	ug/kg	--	--	--	--	--	**1000**	--	--	--	--	--	**1200 J**	**30 J**	**50 J**	**240**
Benzo(g,h,i)perylene	ug/kg	--	--	--	--	--	**480**	--	--	--	--	--	**580**	**43 J**	**48 J**	**140**
Benzo(k)fluoranthene	ug/kg	--	--	--	--	--	**450**	--	--	--	--	--	**630 J**	**21 J**	**25 J**	**80 J**
Biphenyl	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	**23 J**	< 87 U	< 85 U	< 96 U
Bis(2-chloroethoxy)methane	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 21 U	< 87 U	< 85 U	< 96 U
Bis(2-chloroethyl)ether	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 29 U	< 87 U	< 85 U	< 96 U
Bis(2-ethylhexyl)phthalate	ug/kg	--	--	--	--	--	**740 J**	--	--	--	--	--	< 82 U	< 350 U	< 340 U	< 380 U
Butyl benzyl phthalate	ug/kg	--	--	--	--	--	< 440 U	--	--	--	--	--	< 82 U	< 350 U	< 340 U	< 380 U
Caprolactam	ug/kg	--	--	--	--	--	< 220 U	--	--	--	--	--	< 41 U	< 170 U	< 170 U	< 190 U
Carbazole	ug/kg	--	--	--	--	--	**110 J**	--	--	--	--	--	**260**	< 87 U	< 85 U	< 96 U
Chrysene	ug/kg	--	--	--	--	--	**750**	--	--	--	--	--	**1100 J**	**30 J**	**41 J**	**150**
Dibenz(a,h)anthracene	ug/kg	--	--	--	--	--	**160**	--	--	--	--	--	**180**	< 17 U	**20 J**	**46 J**
Dibenzofuran	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	**140**	< 87 U	< 85 U	< 96 U
Diethyl phthalate	ug/kg	--	--	--	--	--	< 440 U	--	--	--	--	--	< 82 U	< 350 U	< 340 U	< 380 U
Dimethyl phthalate	ug/kg	--	--	--	--	--	< 440 U	--	--	--	--	--	< 82 U	< 350 U	< 340 U	< 380 U
Di-n-butyl phthalate	ug/kg	--	--	--	--	--	**550 J**	--	--	--	--	--	< 82 U	< 350 U	< 340 U	< 380 U
Di-n-octyl phthalate	ug/kg	--	--	--	--	--	< 440 U	--	--	--	--	--	< 82 U	< 350 U	< 340 U	< 380 U
Fluoranthene	ug/kg	--	--	--	--	--	**1300**	--	--	--	--	--	**2300 J**	**19 J**	**35 J**	**310**
Fluorene	ug/kg	--	--	--	--	--	**79 J**	--	--	--	--	--	**170**	< 17 U	< 17 U	< 19 U
Hexachlorobenzene	ug/kg	--	--	--	--	--	< 22 U	--	--	--	--	--	< 4 U	< 17 U	< 17 U	< 19 U
Hexachlorobutadiene	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 25 U	< 87 U	< 85 U	< 96 U
Hexachlorocyclopentadiene	ug/kg	--	--	--	--	--	< 1100 U	--	--	--	--	--	R	< 870 U	< 850 U	R
Hexachloroethane	ug/kg	--	--	--	--	--	< 220 U	--	--	--	--	--	< 41 UJ	< 170 U	< 170 U	< 190 U
Indeno(1,2,3-cd)pyrene	ug/kg	--	--	--	--	--	**440**	--	--	--	--	--	**590**	< 17 U	**34 J**	**110**
Isophorone	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 21 U	< 87 U	< 85 U	< 96 U
Naphthalene	ug/kg	--	--	--	--	--	**170**	--	--	--	--	--	**140**	< 17 U	< 17 U	< 19 U
Nitrobenzene	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 33 U	< 87 U	< 85 U	< 96 U
n-Nitrosodi-n-propylamine	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 25 U	< 87 U	< 85 U	< 96 U
n-Nitrosodiphenylamine	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 21 U	< 87 U	< 85 U	< 96 U
Pentachlorophenol	ug/kg	--	--	--	--	--	< 220 U	--	--	--	--	--	< 45 UJ	< 170 U	< 170 U	< 190 UJ
Phenanthrene	ug/kg	--	--	--	--	--	**650**	--	--	--	--	--	**2000 J**	**21 J**	< 17 U	**160**
Phenol	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 29 UJ	< 87 U	< 85 U	< 96 U
Pyrene	ug/kg	--	--	--	--	--	**1200**	--	--	--	--	--	**2000 J**	**25 J**	**37 J**	**270**
Volatile Organic Compounds																
1,1,1-Trichloroethane	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
1,1,2,2-Tetrachloroethane	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 UJ
1,1,2-Trichloroethane	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
1,1-Dichloroethane	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
1,1-Dichloroethylene	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
1,2,3-Trichlorobenzene	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 UJ
1,2,4-Trichlorobenzene	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 UJ
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 UJ
1,2-Dibromoethane (EDB)	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
1,2-Dichlorobenzene	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 UJ
1,2-Dichloroethane	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
1,2-Dichloroethylene, cis	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
1,2-Dichloroethylene, trans	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
1,2-Dichloropropane	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
1,3-Dichlorobenzene	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 UJ
1,3-Dichloropropene, cis	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
1,3-Dichloropropene, trans	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
1,4-Dichlorobenzene	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 UJ
2-Hexanone	ug/kg	--	--	--	--	--	< 160 U	--	--	--	--	--	< 3 U	< 3 U	< 3 U	< 3 U
Acetone	ug/kg	--	--	--	--	--	< 370 U	--	--	--	--	--	**23**	**22**	**29**	**92 J**
Benzene	ug/kg	--	--	--	--	--	< 27 U	--	--	--	--	--	< 0.4 U	< 0.5 U	< 0.4 U	< 0.5 U
Bromochloromethane	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Bromodichloromethane	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Bromoform	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Bromomethane	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U
Carbon disulfide	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	**1 J**
Carbon tetrachloride	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Chlorobenzene	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Chlorodibromomethane	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Chloroethane	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U

Table 13
Analytical Sewer, Sump, and Floor Drain Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Type		Wastewater							Sump				Floor Drain Outlet	Surface Water		
Location		BLDGOUTLET	BLDGOUTLET	DG-RIVER-MH	DG-WATER-MH		SLUDGE1804	UG-WATER-MH	SUMP01	SUMP02	SUMP03		SLUDGE1801	SLUDGE1802		SLUDGE1803
Date		8/16/2016	8/17/2016	8/16/2016	8/16/2016		4/05/2018	8/16/2016	8/17/2016	8/17/2016	8/17/2016		5/18/2018	4/05/2018		4/05/2018
Sample Medium		Liquid	Solid	Liquid	Liquid		Solid	Liquid	Solid	Solid	Solid		Solid	Solid		Solid
Sample Type		N	N	N	N	FD	N	N	N	N	N	FD	N	N	FD	N
Parameter	Units															
Chloroform	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Chloromethane	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U
Cumene (isopropyl benzene)	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Cyclohexane	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Dichlorodifluoromethane (Freon-12)	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U
Ethyl benzene	ug/kg	--	--	--	--	--	**58 J**	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Methyl acetate	ug/kg	--	--	--	--	--	**170 J**	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U
Methyl ethyl ketone (2-butanone)	ug/kg	--	--	--	--	--	< 210 U	--	--	--	--	--	**4 J**	< 4 U	**4 J**	**12 J**
Methyl isobutyl ketone (MIBK)	ug/kg	--	--	--	--	--	< 160 U	--	--	--	--	--	< 3 U	< 3 U	< 3 U	< 3 U
Methyl tertiary butyl ether (MTBE)	ug/kg	--	--	--	--	--	< 27 U	--	--	--	--	--	< 0.4 U	< 0.5 U	< 0.4 U	< 0.5 U
Methylcyclohexane	ug/kg	--	--	--	--	--	**340**	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 UJ
Methylene chloride	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U
Styrene	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Tetrachloroethylene	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Toluene	ug/kg	--	--	--	--	--	**970**	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Trichloroethylene (TCE)	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Trichlorofluoromethane (Freon-11)	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U
Trichlorotrifluoroethane (Freon 113)	ug/kg	--	--	--	--	--	< 110 U	--	--	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U
Vinyl chloride	ug/kg	--	--	--	--	--	< 53 U	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Xylene, m & p	ug/kg	--	--	--	--	--	**250 J**	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Xylene, o	ug/kg	--	--	--	--	--	**62 J**	--	--	--	--	--	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U
Per- and Polyfluoroalkyl Substances																
Perfluorobutane sulfonate (PFBS)	ng/g	--	< 0.94 U	--	--	--	< 0.25 U	--	**3.1**	**5.3 J**	**10 J**	**7.8 J**	< 0.25 U	< 0.19 U	< 0.16 U	< 0.20 U
Perfluorobutanoic acid (PFBA)	ng/g	--	--	--	--	--	**1.2**	--	--	--	--	--	< 0.25 U	< 0.19 U	< 0.16 U	< 0.20 U
Perfluorodecanoic acid (PFDA)	ng/g	--	**630**	--	--	--	**6**	--	**36**	**140**	**170 J**	**170 J**	< 0.25 U	< 0.19 U	< 0.16 U	< 0.20 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	--	**110**	--	--	--	**2.7**	--	**24 J**	**6.1 J**	**16 J**	**11 J**	< 0.25 U	< 0.19 U	< 0.16 U	**0.49 J**
Perfluoroheptanoic acid (PFHpA)	ng/g	--	**170 J**	--	--	--	**8.8**	--	**140 J**	**1300 J**	**1600**	**1200**	< 0.25 U	< 0.19 U	< 0.16 U	< 0.20 U
Perfluorohexane sulfonate (PFHxS)	ng/g	--	< 0.94 U	--	--	--	< 0.25 U	--	< 0.51 U	**3.0 J**	**9.3 J**	**8.4 J**	< 0.25 U	< 0.19 U	< 0.16 U	< 0.20 U
Perfluorohexanoic acid (PFHxA)	ng/g	--	**130**	--	--	--	**21**	--	**380**	**330**	**4200 J**	**2700 J**	< 0.25 U	< 0.19 U	< 0.16 U	< 0.20 U
Perfluorononanoic acid (PFNA)	ng/g	--	**1500**	--	--	--	**4.5 J**	--	**42**	**87 J**	**140 J**	**100 J**	< 0.25 U	< 0.19 U	< 0.16 U	< 0.20 U
Perfluorooctanesulfonate (PFOS)	ng/g	--	**64 J**	--	--	--	**4.8**	--	**7.0**	**32 J**	**350 J**	**350 J**	< 0.37 U	< 0.29 U	< 0.24 U	< 0.31 U
Perfluorooctanoic acid (PFOA)	ng/g	--	**14000**	--	--	--	**960**	--	**33000**	**300000 J**	**190000 J**	**120000 J**	**1.4**	**0.43 J**	**0.49**	**5.2 J**
Perfluoropentanoic acid (PFPeA)	ng/g	--	--	--	--	--	**6.5**	--	--	--	--	--	< 0.25 U	< 0.19 U	< 0.16 U	< 0.20 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	--	**9.3**	--	--	--	**1.2**	--	**24 J**	**2.2 J**	**6.7 J**	**8.2 J**	< 0.25 U	< 0.19 U	< 0.16 U	**0.55 J**
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	--	**37 J**	--	--	--	**0.72 J**	--	**9.6 J**	**3.8 J**	**7.0 J**	**6.8 J**	< 0.25 U	< 0.19 U	< 0.16 U	**0.28 J**
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	--	**84 J**	--	--	--	**1.6**	--	**13**	**9.8 J**	**14 J**	**12 J**	< 0.25 U	< 0.19 U	< 0.16 U	< 0.20 U
Perfluorobutane sulfonate (PFBS)	ng/l	**21 J**	--	< 4 U	< 4 U	< 4 U	--	< 4 U	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	ng/l	**380**	--	< 1 U	< 1 UJ	< 1 UJ	--	< 1 UJ	--	--	--	--	--	--	--	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	**17**	--	< 3 UJ	< 3 UJ	< 3 UJ	--	< 3 UJ	--	--	--	--	--	--	--	--
Perfluoroheptanoic acid (PFHpA)	ng/l	**3900**	--	**2**	**6**	**5**	--	**9 J**	--	--	--	--	--	--	--	--
Perfluorohexane sulfonate (PFHxS)	ng/l	< 4 UJ	--	< 4 U	< 4 U	< 4 U	--	< 4 U	--	--	--	--	--	--	--	--
Perfluorohexanoic acid (PFHxA)	ng/l	**6900**	--	**6**	**13 J**	**10 J**	--	**10 J**	--	--	--	--	--	--	--	--
Perfluorononanoic acid (PFNA)	ng/l	**640**	--	**4**	**2 J**	**2 J**	--	**1 J**	--	--	--	--	--	--	--	--
Perfluorooctanesulfonate (PFOS)	ng/l	**16**	--	< 5 U	< 5 U	**14**	--	< 5 U	--	--	--	--	--	--	--	--
Perfluorooctanoic acid (PFOA)	ng/l	**190000**	--	< 29 UB	**270 J**	**240**	--	**400 J**	--	--	--	--	--	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 3 U	--	< 3 UJ	< 3 UJ	< 3 UJ	--	< 3 UJ	--	--	--	--	--	--	--	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	**4**	--	< 2 UJ	< 2 UJ	< 2 UJ	--	< 2 UJ	--	--	--	--	--	--	--	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	**28**	--	< 2 U	< 2 UJ	< 2 UJ	--	< 2 UJ	--	--	--	--	--	--	--	--

Table 14
Analytical Bulk Material Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Location		BL01-A5.0	BL02-A5.0	BL04-A5.0	BL05-A5.0	BL07-A5.0	BL09-A5.0	BL10-B26.0	BL11-B25.0	BL12-B28.0	BL14-A5.5
Date		4/23/2018	4/23/2018	4/23/2018	4/23/2018	4/23/2018	4/23/2018	3/29/2018	3/30/2018	3/30/2018	3/30/2018
Sample Type		N	N	N	N	N	N	N	N	N	N
Parameter	Units										
Per- and Polyfluoroalkyl Substances											
Perfluorobutane sulfonate (PFBS)	ng/g	**4.8 J**	**13**	**9.6**	< 1.9 U	**2.9 J**	**5.7**	**60 J**	**56**	< 20 U	**3.2 J**
Perfluorobutanoic acid (PFBA)	ng/g	**34 J**	**8.2 J**	**21 J**	**83 J**	**5.9 J**	**21 J**	**110 J**	**6.9**	**30 J**	**73**
Perfluorodecanoic acid (PFDA)	ng/g	**44**	**9.5**	**42**	**80**	**12**	**41**	**110 J**	**29**	**420**	**21**
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	**41**	**16**	**48**	**68**	**21**	**33**	**70 J**	**26**	**690**	**29**
Perfluoroheptanoic acid (PFHpA)	ng/g	**210**	**49**	**180 J**	**840 J**	**56**	**200 J**	**2300**	**91**	**740**	**640 J**
Perfluorohexane sulfonate (PFHxS)	ng/g	< 1.9 U	< 1.9 U	< 1.8 UJ	< 1.9 UJ	< 1.9 U	< 1.9 UJ	< 38 U	< 1.9 U	< 20 U	< 2.0 UJ
Perfluorohexanoic acid (PFHxA)	ng/g	**120**	**32**	**89 J**	**480 J**	**37**	**130 J**	**1400**	**41**	**300**	**580 J**
Perfluorononanoic acid (PFNA)	ng/g	**25**	**5 J**	**23 J**	**49 J**	**6.5 J**	**24**	**120**	**13**	**160**	**12 J**
Perfluorooctanesulfonate (PFOS)	ng/g	**5.2 J**	**7.2 J**	**12**	< 2.8 U	**3.5 J**	**5.8 J**	**78 J**	**10**	**98**	**5.5 J**
Perfluorooctanoic acid (PFOA)	ng/g	**10000**	**3600**	**15000**	**33000**	**3300**	**16000**	**240000**	**8800**	**100000**	**18000**
Perfluoropentanoic acid (PFPeA)	ng/g	**46**	**10**	**23**	**110**	**9.9**	**27**	**170**	**8.1**	**54 J**	**120**
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	**31**	**52**	**120**	**36**	**40**	**36**	**46 J**	**33**	**1100**	**48**
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	**11**	**12**	**26**	**17**	**11**	**11**	< 38 U	**13**	**400**	**15**
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	**12**	**4.5 J**	**14**	**25**	**4.6 J**	**11**	< 38 U	**10**	**260**	**8.4**

Table 15
Analytical Residue Material Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Location		BL01-A24.0	BL02-A22.5	BL03-STACK24.0	BL04-A22.5	BL05-A22.5	BL09-A22.5	BL10-B29.0	BL11-B40.5	BL12-B42.5		BL13-C
Date		3/29/2018	3/29/2018	3/29/2018	3/29/2018	3/29/2018	3/29/2018	3/29/2018	3/30/2018	3/30/2018		3/30/2018
Sample Type		N	N	N	N	N	N	N	N	N	FD	N
Parameter	Units											
Per- and Polyfluoroalkyl Substances												
Perfluorobutane sulfonate (PFBS)	ng/g	**590**	**510**	**520**	**110 J**	< 19 U	**62**	**110**	**140**	< 18 U	< 19 U	**300 J**
Perfluorobutanoic acid (PFBA)	ng/g	**240**	**450**	**250**	**170**	**61**	**180**	**310**	**240**	**58**	**48 J**	**580**
Perfluorodecanoic acid (PFDA)	ng/g	**1200**	**930**	**880**	**520**	**700**	**530**	**160**	**130**	**750**	**650**	**910**
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	**1600**	**760**	**660**	**420**	**450**	**530**	**85**	**89**	**640**	**550**	**620**
Perfluoroheptanoic acid (PFHpA)	ng/g	**7300 J**	**3700 J**	**3900**	**2600 J**	**1100**	**4500**	**1900**	**910**	**1900**	**1600**	**3500**
Perfluorohexane sulfonate (PFHxS)	ng/g	**33 J**	**40 J**	**46 J**	< 43 U	< 19 U	< 20 U	< 20 U	< 20 U	< 18 U	< 19 U	**82 J**
Perfluorohexanoic acid (PFHxA)	ng/g	**2400 J**	**2300**	**1800**	**1400 J**	**360**	**1900 J**	**1500**	**650**	**590**	**520**	**2800**
Perfluorononanoic acid (PFNA)	ng/g	**690**	**350**	**470**	**320**	**240**	**320**	**120**	**82**	**300**	**280**	**430 J**
Perfluorooctanesulfonate (PFOS)	ng/g	**790**	**800**	**370**	**260**	< 29 U	**46 J**	**52 J**	**46 J**	< 27 U	< 29 U	**1500**
Perfluorooctanoic acid (PFOA)	ng/g	**810000**	**380000**	**340000**	**240000 J**	**100000**	**270000**	**170000**	**81000**	**71000**	**60000**	**270000**
Perfluoropentanoic acid (PFPeA)	ng/g	**350**	**520 J**	**330**	**210**	**75**	**260**	**220**	**170 J**	**88**	**71**	**580 J**
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	**2900**	**1000**	**510**	**360**	**350**	**540**	**52 J**	**63**	**580**	**520**	**550**
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	**1000**	**410**	**220**	**180**	**190**	**250**	**25 J**	**34 J**	**250**	**230**	**250 J**
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	**590**	**240**	**290**	**200**	**270**	**260**	**35 J**	**46 J**	**280**	**250**	**240 J**

Table 16
Analytical Wipe Sample Results
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Location		WP01-A1.5	WP01-A8.0	WP01-A16.0	WP01-A23.0	WP02-A1.5	WP02-A8.0	WP02-A16.0	WP02-A23.0	WP03-STACK25.0	WP04-A1.5	WP04-A8.0
Date		3/29/2018	3/29/2018	3/29/2018	3/29/2018	3/30/2018	3/29/2018	3/29/2018	3/29/2018	3/29/2018	3/30/2018	3/29/2018
Sample Type		N	N	N	N	N	N	N	N	N	N	N
Parameter	Units											
Per- and Polyfluoroalkyl Substances												
Perfluorobutane sulfonate (PFBS)	ng	**0.86**	**3.9**	**5.8**	**66**	< 2.0 U	**0.85**	**5.7**	**28 J**	< 0.20 U	< 2.0 U	**13**
Perfluorobutanoic acid (PFBA)	ng	**5.5**	**2.7**	**2**	**15**	< 6.4 UB	**1.5**	**1.8**	**18**	**16**	**15**	**9.7**
Perfluorodecanoic acid (PFDA)	ng	**16**	**82**	**12**	**110**	**49**	**12**	**9.5**	**44**	**86**	**160**	**83**
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng	**18**	**94**	**23**	**120**	**200**	**33**	**16**	**61**	**52**	**440**	**88**
Perfluoroheptanoic acid (PFHpA)	ng	**70 J**	**86 J**	**33 J**	**310 J**	**84 J**	**25 J**	**30 J**	**140**	**250 J**	**230 J**	**170 J**
Perfluorohexane sulfonate (PFHxS)	ng	< 0.20 UJ	**0.47 J**	**0.82 J**	**5.8**	< 2.0 UJ	< 0.20 U	**0.38 J**	**1.8 J**	< 0.20 UJ	< 2.0 UJ	**0.99 J**
Perfluorohexanoic acid (PFHxA)	ng	**37 J**	**28 J**	**13 J**	**140**	**41 J**	**12**	**13 J**	**66**	**170 J**	**100 J**	**85**
Perfluorononanoic acid (PFNA)	ng	**8**	**29**	**4.7**	**48**	**18**	**4.2**	**3.9**	**17**	**36**	**67**	**34**
Perfluorooctanesulfonate (PFOS)	ng	**R**	**26 J**	**28**	**140**	**9.4 JN**	**11 JN**	**28 J**	**48**	**12 JN**	**15 JN**	**33 J**
Perfluorooctanoic acid (PFOA)	ng	**4700**	**9300**	**3200**	**32000**	**10000**	**2200**	**2400**	**14000**	**19000**	**27000**	**17000**
Perfluoropentanoic acid (PFPeA)	ng	**6.3 J**	**3.6**	**3 J**	**20 J**	**6.8**	**1.7 J**	**2.4 J**	**8.6 J**	**25**	**16**	**12 J**
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng	**32**	**63**	**45**	**160**	**450**	**88**	**22**	**140**	**30**	**900**	**180**
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng	**12**	**48**	**18**	**84**	**110**	**27**	**11**	**58**	**17**	**220**	**65**
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng	**6.3**	**44**	**5.8**	**45**	**47**	**6.9**	**4.5**	**17**	**20**	**130**	**30**

Figures

Barr Footer: ArcGIS 10.6, 2018-06-27 15:18 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\Water Street Site Investigation Report\Figure 01 Site Location.mxd User: sal2

Site Boundary

Former Fabric Treatment Area

N

0 75 150

Feet

Map Area

SITE LOCATION
Site Investigation Report
1030 Water Street
North Bennington, VT
Saint-Gobain

FIGURE 1

Barr Footer: ArcGIS 10.6, 2018-06-27 15:58 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\Water Street Site Investigation Report\Figure 02 Site Layout.mxd User: sal2

Barr Footer: ArcGIS 10.6, 2018-06-28 11:01 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\Water Street Site Investigation Report\Figure 03 Investigation Locations.mxd User: sal2

WP26
Off Site Basement Area
WP25
WP24
WP22
WP23
Basement Floor Drain Outfall
SLUDGE1801
Water Street
Former Fabric Treatment Area
Paran Creek
VT 67A
Off Site Basement Samples
CB-6
SLUDGE1803
CB-4
MW01
SMH-3
CB-5
SLUDGE1804
SMH-2
ChemfabVentW
WP17
MW1804
SB1804
BL12
WP12
BL04
WP04
BL03
WP03
WP16
SB1803
MW1803
MW02
CB-3
BL02
WP02
SMH-5
SUMP01
BLDGOUTLET
BL13
SB1802
MW1802
BL11
WP11
BL01
WP01
ChemfabWSide
VT 67A
WP20
WP21
WP19
Offices
CB-2
DG-WATER-MH
SMH-1
MW04S
MW04
CB-1
SLUDGE1802
SMH
SUMP03
SB1807
MW1807
WP18
SUMP02
SW1801
ChemfabBDEast
SB1806
MW1806
SLUDGE1801
WP06
BL05
WP05
BL07
WP07
SB1805
MW1805
WP08
BL14
BL10
WP10
BL09
WP09
WP15
SB1801
MW1801
MW03S
MW03
ChemFabRiver
Scarey Lane
Paran Creek
Paran Creek Above 67A Bridge, High Flow
Paran Creek Above 67A Bridge, Low Flow
Stormwater Outfall
North Bennington Road
Downstream 1
MW05
MW06S
MW06
Imagery: Saint-Gobain 2017
NAIP 2014
Paran Creek Mill Pond C
UG-WATER-MH
Lever Road
Morris Lane
Paran Creek Mill Pond B
Sweet Road
Paran Creek Mill Pond A
Upstream 1
CB-7
Map Area
Hillside Street
Rich Lane
180RiverSt
River Road
DG-River-MH
MW07
MW07S
Walloomsac River Below Paran Creek
Walloomsac River
Walloomsac River Above Paran Creek

Soil Boring/Monitoring Well
Residue, Bulk, or Wipe Sample
Hand Auger
Sump
Gauging Station
Surface Water Sample (CT Male 2018)
Surface Water Sample (VTDEC 2016)
Sediment Sample (VTDEC 2016)
Basement Floor Drain Outfall *
Wastewater Manhole *
Stormwater Catch Basin *
* Locations where sample was collected highlighted with yellow outline
Basement Floor Drain
Wastewater
Stormwater
Former Fabric Treatment Area
Off Site Basement Area
Offices
N
0 25 50
Feet

BARR

INVESTIGATION LOCATIONS
Site Investigation Report
1030 Water Street
North Bennington, VT
Saint-Gobain

FIGURE 3

MW01
3/19/2018
540.00
6,000

MW1804
3/20/2018
539.64
4,400

MW02
3/19/2018
541.40
1,200

MW1802
3/21/2018
540.97
9,700

MW04S
3/19/2018
539.79
1,600

MW04
3/21/2018
539.78
2,200

MW05
3/19/2018
539.88
2,900

MW07
3/20/2018
535.11
71

MW07S
3/20/2018
535.06
920

MW1807
3/20/2018
539.14
1,400

MW1806
Dry - Not Sampled

MW1803
3/21/2018
539.33
5,200

MW1805
3/20/2018
538.75
6,300

MW1801
3/21/2018
538.95
2,300

MW03S
3/19/2018
538.75
1,100

MW03
3/21/2018
538.86
2,200

MW06S
3/19/2018
537.97
2,000

MW06
3/21/2018
538.42 *
1,300

Water Street
Hillside Street
River Road
Scarey Lane
North Bennington Road
VT 67A
Paran Creek
Walloomsac River

541
540.5
540
539.5
539
538.5
538
537.5
537
536.5
536
535.5
535

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

PFOA Concentration (ng/l or ppt)
- > 2000
- 200 - 2000
- 20 - 200
- < 20

Former Fabric Treatment Area

Groundwater Elevation, ft (NAVD88)

Well ID
Sample Date
Groundwater Elevation, ft (NAVD88)
PFOA Concentration (ng/l or ppt)

* Data not used for contouring.

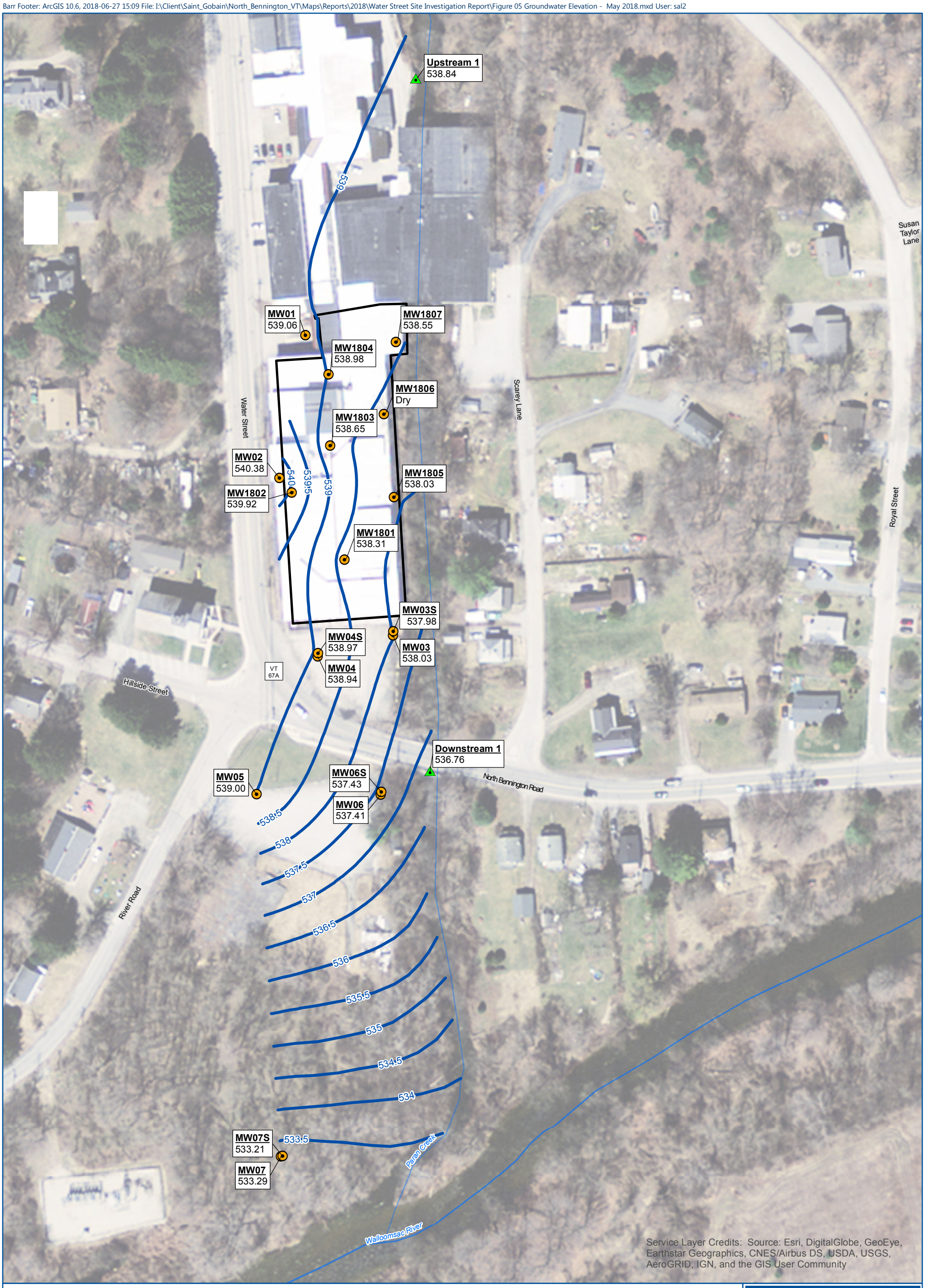
PFOA performance standard is 20 ppt.

N
0 40 80
Feet

BARR

GROUNDWATER MONITORING RESULTS - MARCH 2018
Site Investigation Report
1030 Water Street
North Bennington, VT
Saint-Gobain

FIGURE 4



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Gauging Station

Monitoring Well

Groundwater Elevation, ft (NAVD88)

Former Fabric Treatment Area

Well ID
Groundwater Elevation, ft (NAVD88)

0 50 100
Feet

BARR

GROUNDWATER ELEVATION - MAY 2018

Site Investigation Report
1030 Water Street
North Bennington, VT
Saint-Gobain

FIGURE 5

Barr Footer: ArcGIS 10.6, 2018-06-27 15:29 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\Water Street Site Investigation Report\Figure 06 Surface Water and Sediment Sample Results.mxd User: sal2

Paran Creek Mill Pond C
Solid, 3/10/2016: 1.2 ng/g
Liquid, 3/10/2016: 18.1 ng/l

Paran Creek Mill Pond B
Soild, 3/10/2016: ND

Paran Creek Mill Pond A
Soild, 3/10/2016: ND
Liquid, 3/10/2016: 16 ng/l

SW1801
Liquid, 5/18/2018: 28 ng/l

Paran Creek Above 67A Bridge, High Flow
Liquid, 3/10/2016: 22.9 ng/l

Paran Creek Above 67A Bridge, Low Flow
Liquid, 3/10/2016: 37.6 ng/l

Walloomsac River Below Paran Creek
Solid, 3/10/2016: 2.4 ng/g
Liquid, 3/10/2016: 8.6 ng/l

Walloomsac River Above Paran Creek
Liquid, 3/10/2016: 8.9 ng/l

Park Street
Lever Road
Morris Lane
Sweet Road
Water Street
Paran Creek
Scarey Lane
Asa Way
Susan Taylor Lane
Royal Street
VT 67A
Hillside Street
Rich Lane
North Bennington Road
River Road
Walloomsac River

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BARR

- Surface Water Sample (CT Male 2018)
- Sediment Sample (VTDEC 2016)
- Surface Water Sample (VTDEC 2016)
- Former Fabric Treatment Area

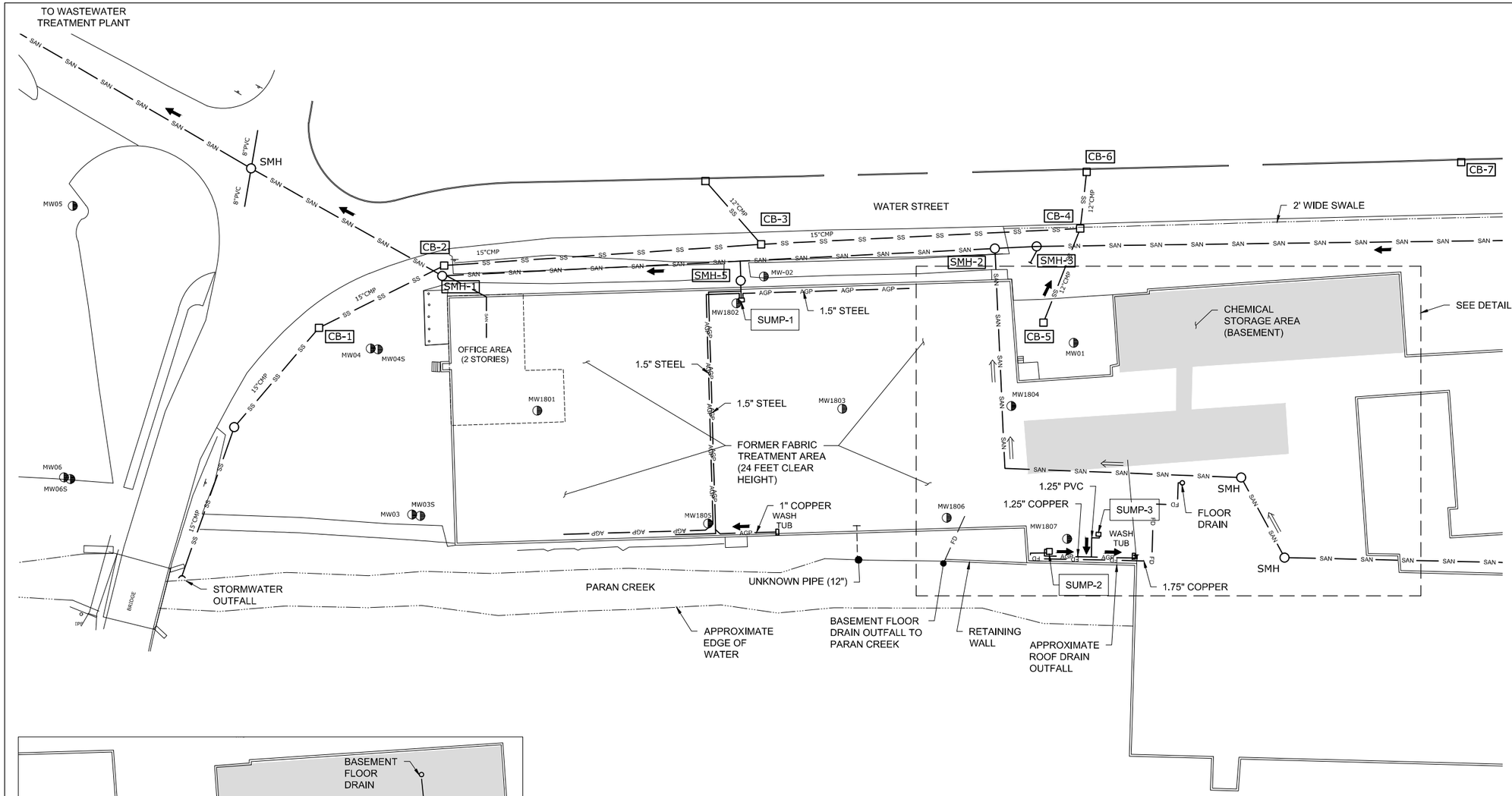
Location ID
Medium, Date: PFOA Concentration in Sediment (ng/g or ppb)
Medium, Date: PFOA Concentration in Surface Water (ng/l or ppt)

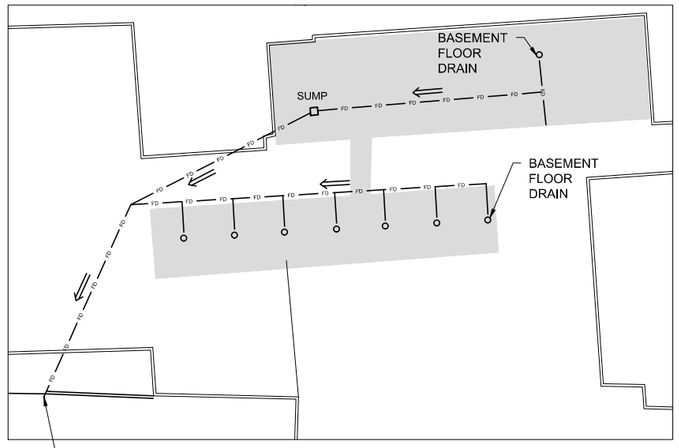
N

0 75 150
Feet

SURFACE WATER AND SEDIMENT SAMPLE PFOA RESULTS
Site Investigation Report
1030 Water Street
North Bennington, VT
Saint-Gobain

FIGURE 6





DETAIL A

OFFSITE BASEMENT LAYOUT

SCALE: 1" = 30'

LEGEND

- WASTEWATER
- STORMWATER
- BASEMENT FLOOR DRAIN
- ABOVE GROUND PIPE
- CBR — CATCH BASIN ROUND
- CBS — CATCH BASIN SQUARE
- SMH — WASTEWATER MANHOLE
- WATER FLOW DIRECTION
- MONITORING WELL

N

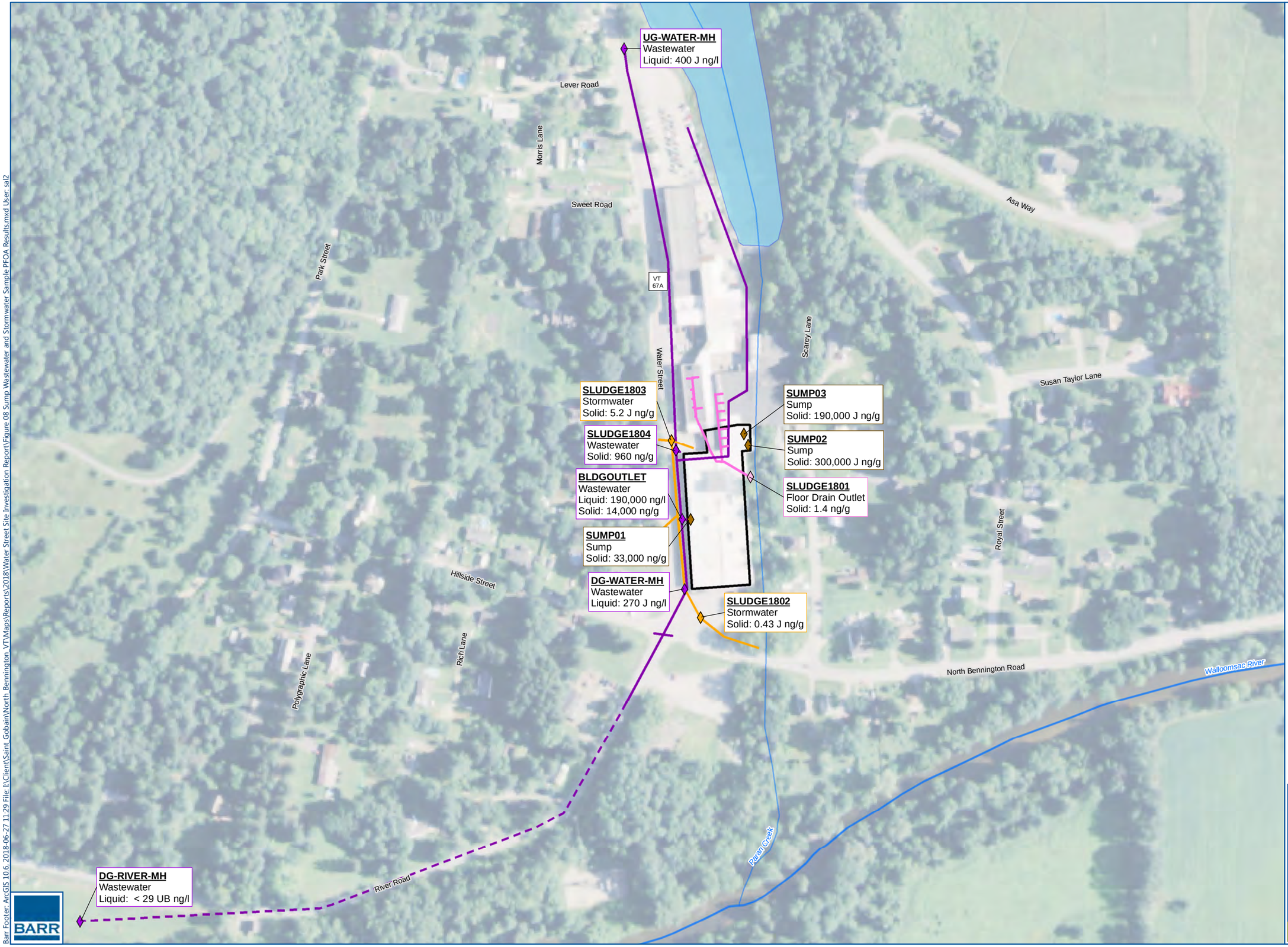
0 30 60

SCALE IN FEET

Figure 7

SITE SEWER LAYOUT
1030 WATER STREET
NORTH BENNINGTON, VT
SAINT - GOBAIN

CADD USER: Anne Graves FILE: P:\MPLS\45 VT\0245021004 SGPP BENNINGTON\WORK\FILES\WATER STREET\INVESTIGATION\CAD FILES\FIGURE 7 LMW 4502210401_FIGURE 7.DWG PLOT SCALE: 1:2 PLOT DATE: 6/28/2018 12:52 PM



Stormwater Sample

Wastewater Sample

Sump Sample

Floor Drain Outlet Sample

Basement Floor Drain

Wastewater
(dashed where inferred)

Stormwater

Former Fabric Treatment Area

Location ID
Sample Type
Liquid: PFOA Concentration (ng/l or ppt)
Solid: PFOA Concentration (ng/g or ppb)

N

0 200
Feet

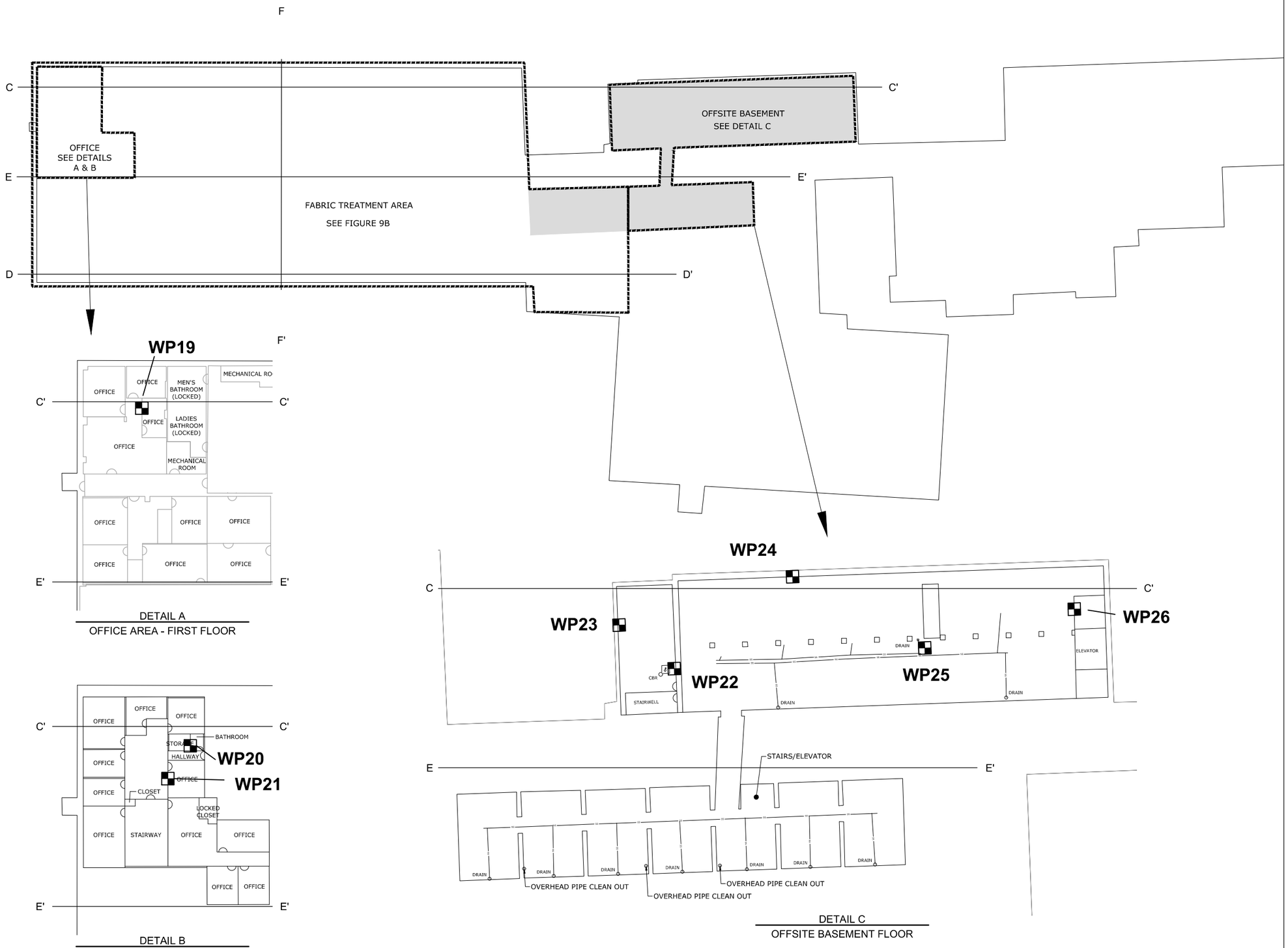
SUMP, WASTEWATER, AND STORMWATER SAMPLE PFOA RESULTS

Site Investigation Report
1030 Water Street
North Bennington, VT
Saint-Gobain

FIGURE 8

BARR

Barr Footer: ArcGIS 10.6, 2018-06-27 11:29 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\Water Street Site Investigation Report\Figure 08 Sump Wastewater and Stormwater Sample PFOA Results.mxd User: sal2



LEGEND

- WIPE, RESIDUE AND/OR BULK SAMPLE LOCATION (WP/BL)
- C ——— C' CROSS SECTION LOCATION (C-C', D-D', E-E', AND F-F')
- EXTENT OF OFFSITE BASEMENT

MAP NOTES:

1. INFORMATION SHOWN HEREON WAS COMPILED FROM FIELD SURVEY CONDUCTED IN FEBRUARY 2018 BY C.T. MALE.
2. NORTH ORIENTATION IS GRID NORTH AND IS BASED ON THE VERMONT STATE PLANE COORDINATE SYSTEM, NAD 83/2011 EPOCH 2010.00.
3. TOPOGRAPHIC INFORMATION SHOWN HEREON WAS COMPILED FROM DATA OBTAINED FROM LEICA C-10 3D LASER SCANNER, PROCESSED THROUGH CYCLONE 9.1 AND CONVENTIONAL FIELD SURVEY TECHNIQUES CONDUCTED IN FEBRUARY 2018 BY C.T. MALE.
4. THE LOCATION OF UNDERGROUND IMPROVEMENTS OR ENCROACHMENTS, IF ANY EXIST, OR AS SHOWN HEREON, ARE NOT CERTIFIED. THERE MAY BE UNDERGROUND UTILITIES, THE EXISTENCE OF WHICH ARE NOT KNOWN. SIZE AND LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES MUST BE VERIFIED BY THE APPROPRIATE AUTHORITIES. 811 DIG SAFE VERMONT MUST BE NOTIFIED PRIOR TO CONDUCTING TEST BORINGS, EXCAVATION AND CONSTRUCTION.

MAP REFERENCE:

1. "BOUNDARY SURVEY LANDS NOW OR FORMERLY OF 1030 WATER STREET ASSOCIATES, LLC" PREPARED BY C.T. MALE ASSOCIATES, ENGINEERING, SURVEYING,, AGRICULTURE AND LANDSCAPE ARCHITECTURE, D.P.C. DATED APRIL 12, 2017. C.T. MALE PROJECT NO. 16.6131, DWG. NO. 17-274.

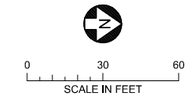
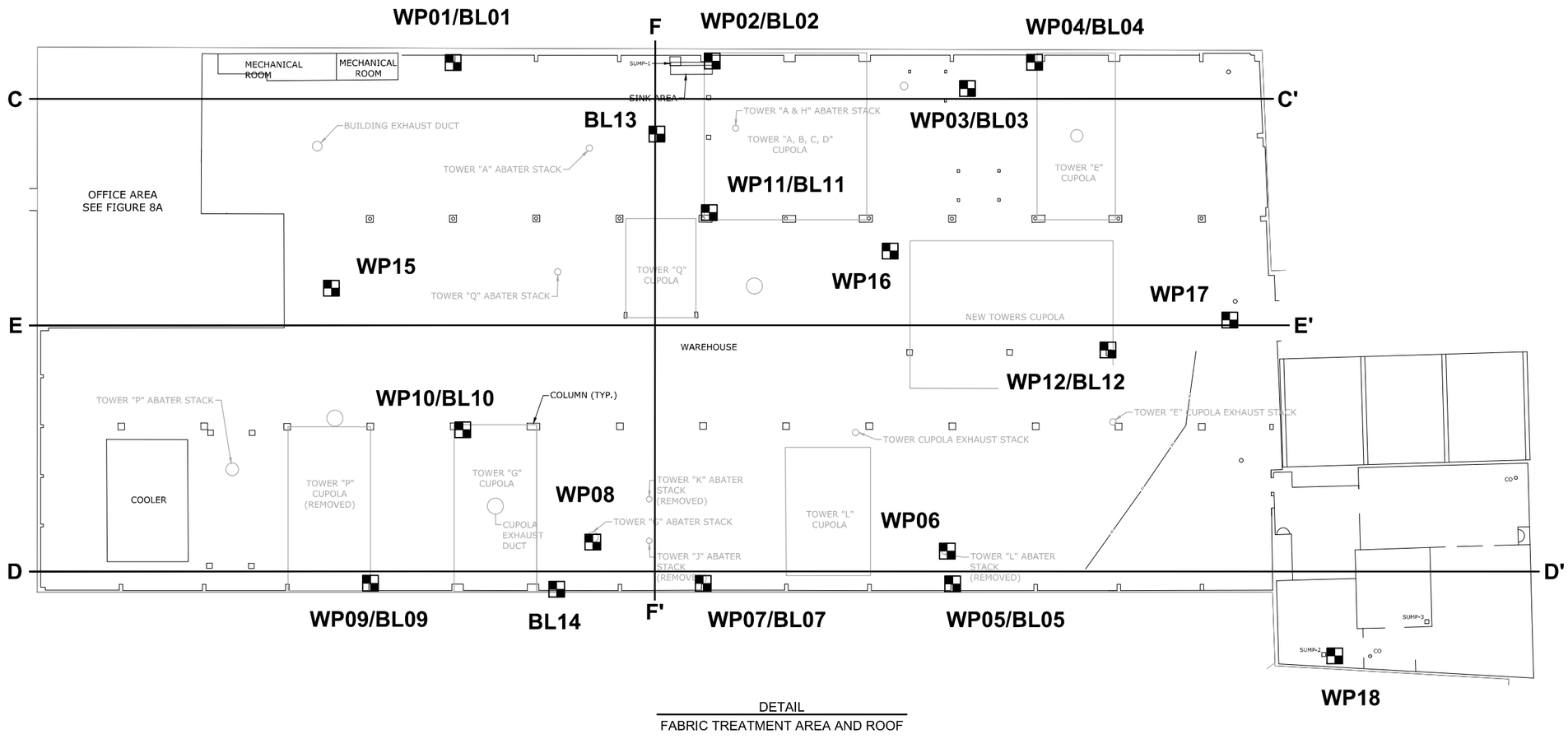


Figure 9A
BULK, RESIDUE, AND WIPE
SAMPLE LOCATIONS
OFFICE & OFFSITE BASEMENT
1030 WATER STREET
NORTH BENNINGTON, VT
SAINT - GOBAIN

CADD USER: Anne Graves FILE: P:\MPLS\45 VT\02\45021004 SGPP BENNINGTON\WORK\FILES\WATER STREET\INVESTIGATION\CAD FILES\FIGURE 9A CDEF X SECTIONS.DWG PLOT SCALE: 1:2 PLOT DATE: 6/28/2018
10:58 AM



DETAIL
FABRIC TREATMENT AREA AND ROOF

LEGEND

- WIPE, RESIDUE AND/OR BULK SAMPLE LOCATION (WP/BL)
- C —— C' CROSS SECTION LOCATION (C-C', D-D', E-E', AND F-F')

0 15 30
SCALE IN FEET

Figure 9B
BULK, RESIDUE, AND WIPE SAMPLE LOCATIONS
FABRIC TREATMENT AREA & ROOF
1030 WATER STREET
NORTH BENNINGTON, VT
SAINT - GOBAIN

CADD USER: Anne Graves FILE: P:\MPLS\45 VT\02\45021004 SGPP BENNINGTON\WORK\FILES\WATER STREET\INVESTIGATION\CAD FILES\FIGURE 9B CDEF X SECTION.DWG PLOT SCALE: 1:2 PLOT DATE: 6/28/2018 11:00 AM

SB1807	
Depth	PFOA
0 - 1 ft	380 ng/g

MW01
SB1804
CHEMFAB_VENT_W
CHEMFAB_BD_EAST
SB1806
Water Street
SB1803
MW02
SB1805
SB1802
Scarey Lane
SB1801
CHEMFAB_WEST_SIDE
CHEMFAB_RIVER
MW04
MW03
Hillside Street
VT 67A
MW05
MW06
North Bennington Road
180_RIVER_RD
River Road
MW07
Paran Creek
Walloomsac River

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

PFOA (ng/g or ppb)
- > 300
- 50 - 300
- 30 - 50
- 10 - 30
- < 10
- Non Detect

Sample Depth Interval
- 0 - 0.5 ft
- 0.5 - 1 ft
- 1 - 1.5 ft
- 1.5 - 2 ft
- 2.5 - 10 ft *
- > 10 ft *

* Sample collected from a portion of the sampling interval. Where multiple samples occur within interval, highest concentration is shown. For samples collected across multiple intervals, PFOA concentration is shown in deepest interval.

Former Fabric Treatment Area

N

0 40 80
Feet

Location ID	
Depth	Parameter
	Concentration

Note: Soil sample concentrations greater than the PFOA performance standard identified in table.

Sample depth inside building is measured from bottom of slab.

Sample depth outside building is measured from ground surface.

BARR

SOIL SAMPLE PFOA RESULTS
Site Investigation Report
1030 Water Street
North Bennington, VT
Saint-Gobain

FIGURE 10

A
NORTH

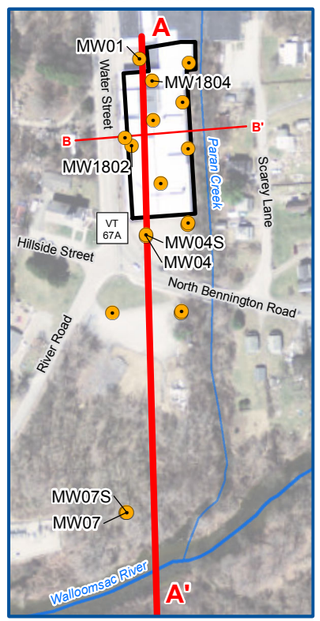
A'
SOUTH

Elevation, Feet (NAVD88)

555
550
545
540
535
530
525
520
515
510

Loading Dock
MW01
Building floor elev. 552' MSL
MW1804 (Projected)
MW1802 (Projected)
SB1804
MW1804
MW1803
SB1803
MW02
MW1802
SB1802
SB1806
MW1806
SB1805
MW1805
MW01
FILL
MW1807
SB1807
SB1801
MW1801
Parking Lot
MW03S
MW03
Parking Lot
MW04S
MW04
North Bennington Road / VT67A
FILL
Parking Lot
MW06S
MW06
MW05
Parking Lot
MW07S (Projected)
MW07 (Projected)
A'
MW07S
MW07
Walloomsac River
NATIVE UNCONSOLIDATED
NATIVE UNCONSOLIDATED
BEDROCK
BEDROCK

LOCATION MAP



200

Geologic Contact
Inferred Geologic Contact
Groundwater Elevation (3/19/2018-3/21/2018)
Soil Boring/Monitoring Well
Monitoring Well Screen

0 50 100
Approximate Horizontal Scale in Feet

20X Vertical Exaggeration

GEOLOGIC CROSS SECTION A-A'
WATER STREET
SITE INVESTIGATION
North Bennington, VT
Saint-Gobain

FIGURE 11

BARR

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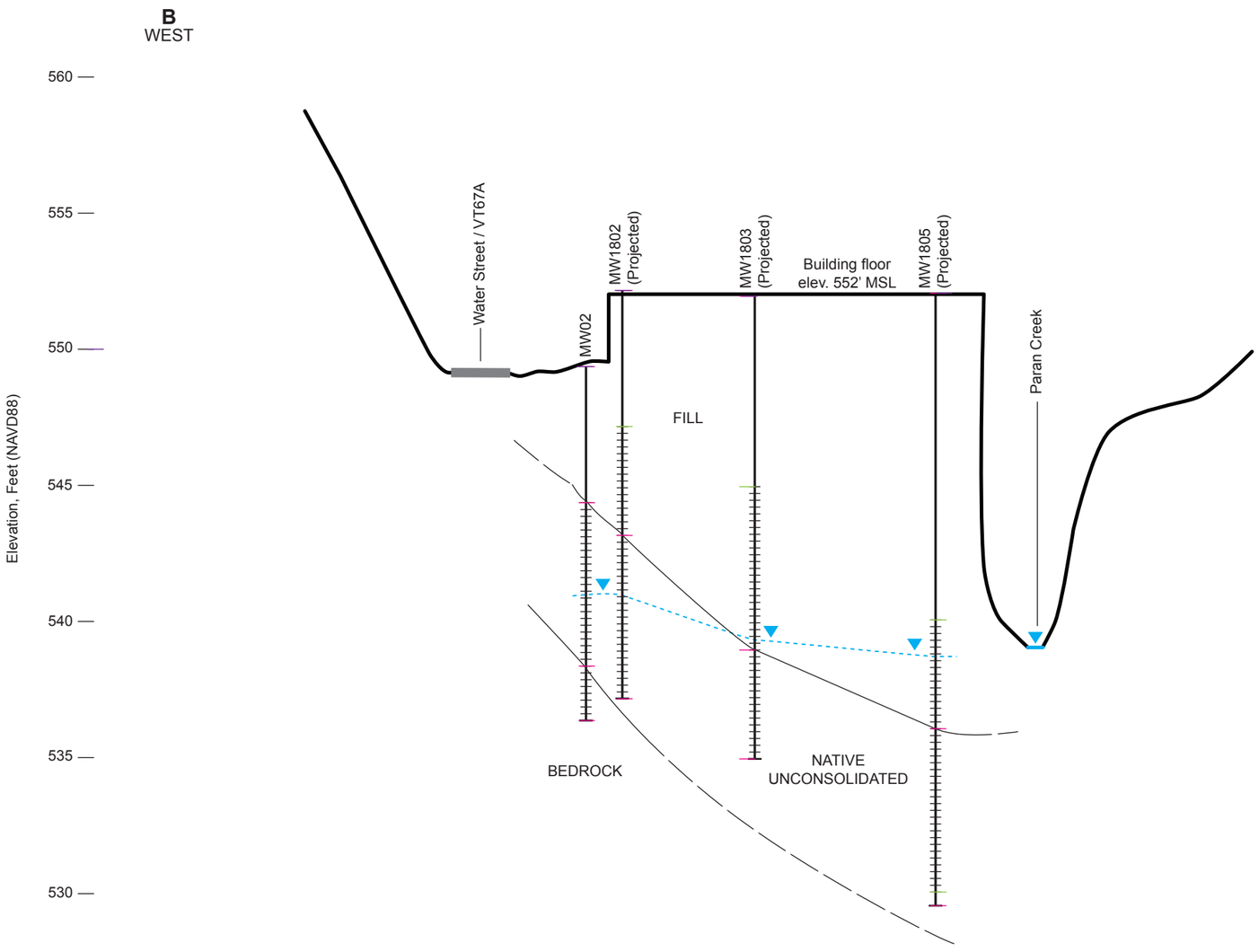
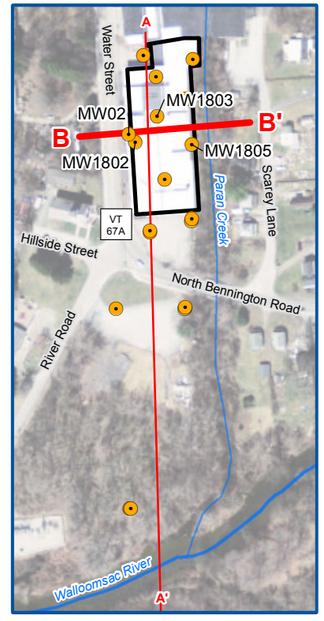


INSET MAP



Geologic Contact

Inferred Geologic Contact

Groundwater Elevation (3/19/2018-3/212018)

Soil Boring/Monitoring Well

Monitoring Well Screen

0 25 50

Approximate Horizontal Scale in Feet

10X Vertical Exaggeration

GEOLOGIC CROSS SECTION B-B'
WATER STREET
SITE INVESTIGATION
North Bennington, VT
Saint-Gobain

FIGURE 12

BARR

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C
SOUTH

C'
NORTH

ELEVATION, FEET (NAVD88)

620
610
600
590
580
570
560
550
540
530
520

BEAM

OFFICE

TOWER "A, B, C, D" CUPOLA

TOWER "E" CUPOLA

DUCT (APPROXIMATE)

OFFSITE BASEMENT

WP11-B42.0
PFOA: 11,000 J ng

WP11-B41.0
PFOA: 7,900 J ng

BL11-B40.5
PFOA: 81,000 ng/g

BL11-B25,0
PFOA: 8,800 ng/g

WP11-B24.0
PFOA: 63,000 J ng

VP03-STACK25.0
PFOA: 19,000 ng

BL03-STACK24,0
PFOA: 340,000 ng/g

BL01-A24.0
PFOA: 810,000 ng/g

WP01-A23,0
PFOA: 32,000 ng

WP01-A16.0
PFOA: 3,200 ng

WP01-A8,0
PFOA: 9,300 ng

BL01-A5,0
PFOA: 10,000 ng/g

WP01-A1.5
PFOA: 4,700 ng

WP11-B16.0
PFOA: 36,000 J ng

BL13-C
PFOA: 270,000 ng

WP04-A23,0
PFOA: 25,000 ng

BL04-A22,5
PFOA: 240,000 J ng/g

WP04-A16.0
PFOA: 3,000 ng

WP04-A8,0
PFOA: 17,000 ng

BL04-A5,0
PFOA: 15,000 ng/g

WP04-A1.5
PFOA: 27,000 ng

WP20-D5,5
PFOA:39,000 ng

WP21-D5.5
PFOA: 30,000 ng

WP20-D
PFOA: 9,200 ng

WP19-D5.5
PFOA: 3,400 ng

WP19-D
PFOA: 4,000 ng

WP23-F5,0
PFOA: 1,400 ng

WP22-E
PFOA: <88 UB ng

WP24-F3,0
PFOA: <110 UB ng

WP25-E
PFOA: <180 UB ng

WP26-F5,0
PFOA: <56 UB ng

NOTE: WIPE SAMPLES COLLECTED FROM AN AREA OF 100 cm^2.

LEGEND

- WIPE SAMPLE LOCATION (WP)
- BULK MATERIAL SAMPLE LOCATION (BL)
- RESIDUE MATERIAL SAMPLE LOCATION (BL)

Figure 13

BUILDING CROSS SECTION C-C'
1030 WATER STREET
NORTH BENNINGTON, VT
SAINT - GOBAIN

CADD USER: Anne Greaves FILE: P:\MPLS\45 \VT\024502\1004 SGPP BENNINGTON\WORKFILES\WATER STREET\INVESTIGATION\CAD FILES\SECTION CC.DWG PLOT SCALE: 1:2 PLOT DATE: 6/28/2018 12:47 PM

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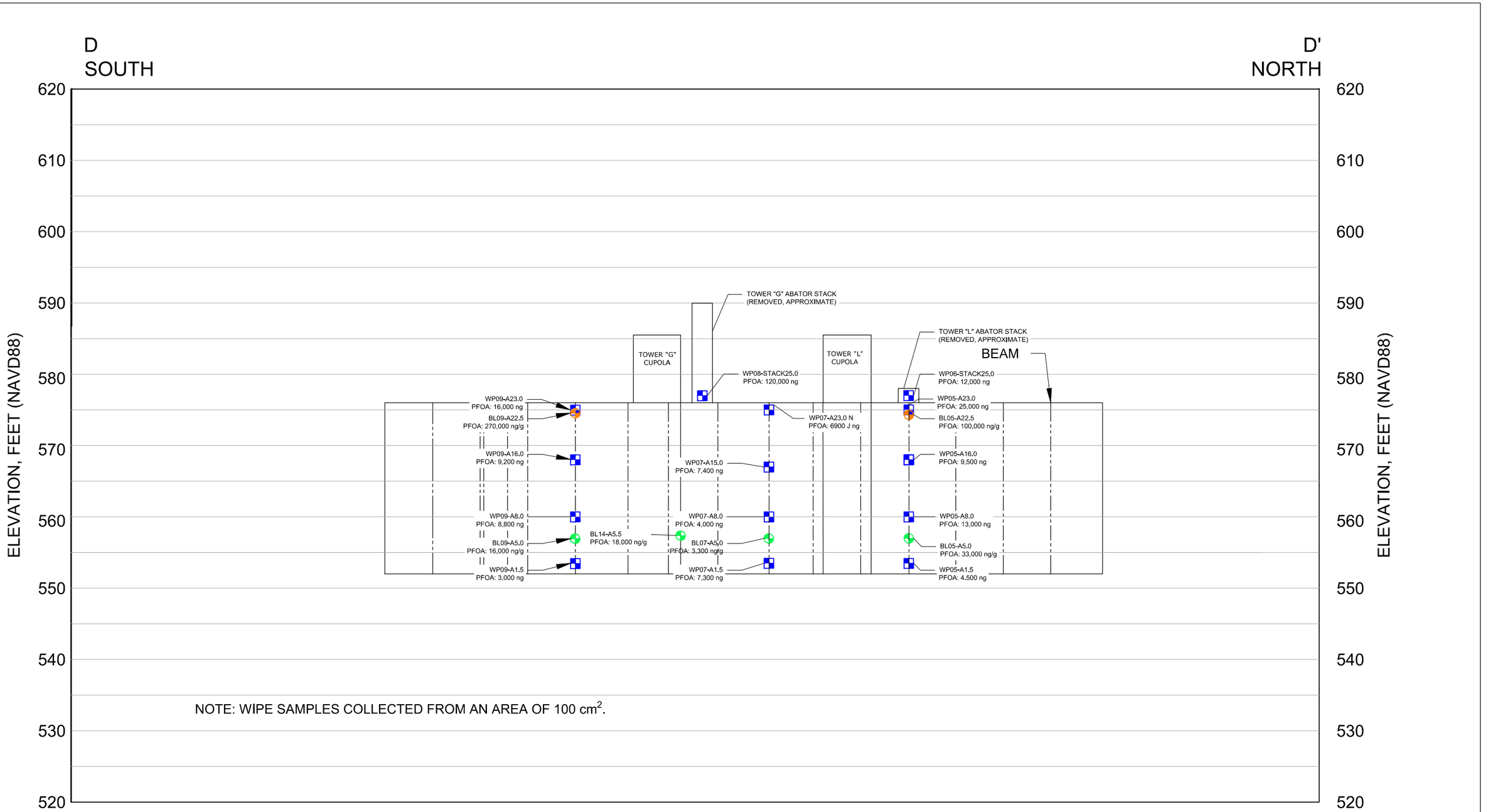


NOTE: WIPE SAMPLES COLLECTED FROM AN AREA OF 100 cm^2.

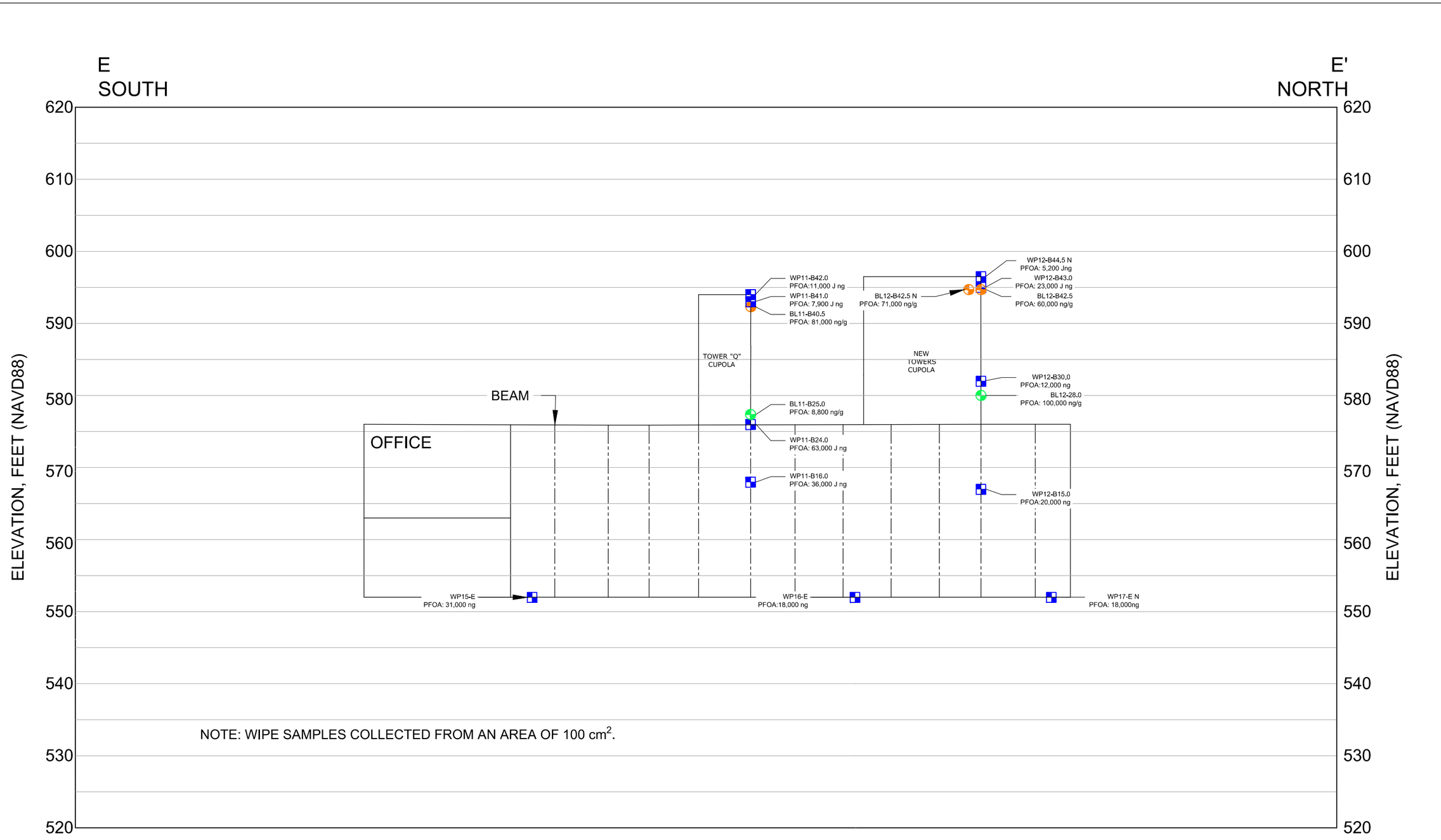
LEGEND

- WIPE SAMPLE LOCATION (WP)
- BULK MATERIAL SAMPLE LOCATION (BL)
- RESIDUE MATERIAL SAMPLE LOCATION (BL)

Figure 14

BUILDING CROSS SECTION D-D'
1030 WATER STREET
NORTH BENNINGTON, VT
SAINT - GOBAIN

CADD USER: Anne Graves FILE: P:\MPLS\45 VT\0245021004 SGPP BENNINGTON\WORK\FILES\WATER STREET\INVESTIGATION\CAD FILES\SECTION EE.DWG PLOT SCALE: 1:2 PLOT DATE: 6/28/2016 12:47 PM



NOTE: WIPE SAMPLES COLLECTED FROM AN AREA OF 100 cm^2.

LEGEND

- WIPE SAMPLE LOCATION (WP)
- BULK MATERIAL SAMPLE LOCATION (BL)
- RESIDUE MATERIAL SAMPLE LOCATION (BL)

Figure 15

BUILDING CROSS SECTION E-E'
1030 WATER STREET
NORTH BENNINGTON, VT
SAINT - GOBAIN

CADD USER: Anne Graves FILE: P:\MPLS\45 VT\0245021004 SGPP BENNINGTON\WORKFILES\WATER STREET\INVESTIGATION\CAD FILES\SECTION FF' DWG PLOT SCALE: 1:2 PLOT DATE: 6/28/2018 12:48 PM

F
SOUTH

F'
NORTH

ELEVATION, FEET (NAVD88)

620
610
600
590
580
570
560
550
540
530
520

TOWER "Q" CUPOLA

WP11-B42.0
PFOA:11,000 J ng
WP11-B41.0
PFOA: 7,900 J ng
BL11-B40.5
PFOA: 81,000 ng/g
BL11-25.0
PFOA: 8,800 ng/g
WP11-B24.0
PFOA: 63,000 J ng
WP11-B16.0
PFOA: 36,000 J ng
WP02-A23.0
PFOA:14,000 ng
BL02-A22.5
PFOA: 380,000 ng/g
WP02-A16.0
PFOA:2,400 ng
WP02-8.0
PFOA: 2,200 ng
BL02-A5.0
PFOA: 10,000 ng/g
WP02-A1.5
PFOA: 4,700 ng
BL13-C
PFOA: 270,000 ng/g
WP07-A23.0 N
PFOA:6,900 J ng
BEAM
WP07-A15.0
PFOA: 7,400 ng
WP07-A8.0
PFOA: 4,000 ng
BL14-A5.5
PFOA: 18,000 ng/g
BL07-A5.0
PFOA: 3,300 ng/g

NOTE: WIPE SAMPLES COLLECTED FROM AN AREA OF 100 cm^2.

LEGEND

- WIPE SAMPLE LOCATION (WP)
- BULK MATERIAL SAMPLE LOCATION (BL)
- RESIDUE MATERIAL SAMPLE LOCATION (BL)

Figure 16

BUILDING CROSS SECTION F-F'
1030 WATER STREET
NORTH BENNINGTON, VT
SAINT - GOBAIN

Appendices

Appendix A

Previous Environmental Investigations

A.1 Underground Storage Tank (UST) Closure and Site Assessment Report

A.2 Phase I Environmental Site Assessment of Saint-Gobain Performance Plastics Corporation Site

A.3 Draft Shallow Soil Sampling Report, Former Chem Fab Site & Surrounding Areas

Appendix A.1

Underground Storage Tank (UST) Closure and Site Assessment Report

June 4, 2001

Phase I Environmental Site Assessment Saint-Gobain Performance Plastics Corporation Site 1030 Water Street Village of North Bennington Bennington County, Vermont

Prepared for:

Mr. Edward J. Canning
SAINT-GOBAIN PERFORMANCE PLASTICS CORPORATION
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C.T. Male Project No: 01.7390

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PHASE I
ENVIRONMENTAL SITE ASSESSMENT REPORT
SAINT-GOBAIN PERFORMANCE PLASTICS CORPORATION SITE

TABLE OF CONTENTS

Page

1.0 INTRODUCTION 1

2.0 SITE DESCRIPTION 2

2.1 Site Location 2
2.2 Property/Business Owner 2
2.3 Current Site Uses 2
2.4 Former/Historic Site Uses 3
2.5 Total Site Area and Topographic Description 3
2.6 Site Geology 3
2.7 Nearby Surface Water Bodies and Water Supply Wells 3
2.8 Site Buildings and Structures 4
2.9 Roadways or Driveways on or Adjoining the Site 4
2.10 Rights-of-Way and/or Easements (On-Site and Adjacent) 4
2.11 Surrounding Land Uses 4

3.0 SITE AND SURROUNDING AREA HISTORIC AND RECORDS REVIEW 6

3.1 Ownership Information 6
3.2 Sanborn Fire Insurance Maps 6
3.3 Aerial Photographs 7
3.4 Information From the Local Historian 8
3.5 Information From Health Department Official(s) 8
3.6 Information From Other Local Official(s) 8
3.7 Information From Current or Former Property Owner(s) 9
3.8 Summary of Previous Environmental Assessments 9
3.9 ASTM Federal and State Database Review 9

PHASE I
ENVIRONMENTAL SITE ASSESSMENT REPORT
SAINT-GOBAIN PERFORMANCE PLASTICS CORPORATION SITE

TABLE OF CONTENTS

Page

4.0 SITE VISIT 12

4.1 Conditions of the Visit 12
4.2 Uses of Site Buildings and Structures 13
4.3 Site Utilities 13
4.4 Polychlorinated Biphenyls (PCBs) 13
4.5 Asbestos Containing Materials (ACM) 14
4.6 Site Surface Water Bodies/ Areas 14
4.7 Site Drainage 15
4.8 Site Waste Profile 15
4.9 Underground (UG) and/or Above Ground (AG) Storage Tanks 18
4.10 Observed Evidence of Potential or Known Site Contamination 19

5.0 FINDINGS, OPINION AND CONCLUSIONS 20

5.1 Findings 20
5.2 Opinion 21
5.3 Conclusions 21

APPENDICES

APPENDIX A: Figures/Maps

APPENDIX B: Photographs

APPENDIX C: References and Records of Communication

APPENDIX D: Underground Storage Tank Closure and Site Assessment Report

APPENDIX E: Environmental Database Report

1.0 INTRODUCTION

This report presents the findings of a Phase I Environmental Site Assessment conducted at the Saint-Gobain Performance Plastics Corporation (SGPPL) Site (formerly Chemfab Corporation), which is located in the Village of North Bennington, Bennington County, Vermont.

The purpose of this site assessment was to reasonably identify recognized environmental conditions. A recognized environmental condition is defined as the presence or likely presence of hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release. The finding of no recognized environmental conditions is not a warranty or guarantee that the site remains free from contamination. This environmental site assessment is designed to reduce, but not eliminate, uncertainty within reasonable limits of time and cost.

The site assessment included a site visit/observation, a review of existing documents and environmental lists, and background research on the previous uses and practices at the subject site as reported and documented by site contacts and Local, State and County officials known to be responsible for regulating and enforcing site area environmental conditions. This site assessment has been performed in general conformance with the scope and limitations as outlined in ASTM E 1527-00, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

This site assessment did not include a review of non-scope issues as identified by ASTM E 1527 with the exception of asbestos containing materials.

This site assessment was conducted by C.T. Male Associates, P.C. (C.T. Male) as requested by Mr. Edward Canning of SGPPL of Granville, New York. The site contact for the assessment was Mr. Robert Prohaska, Manager of Safety Technology & Quality for the SGPPL North Bennington facility.

2.0 SITE DESCRIPTION

2.1 Site Location

The SGPPL facility is located at 1030 Water Street (listed as 101 Water Street on Town of Bennington assessment records) in the Village of North Bennington, Bennington County, Vermont. The subject site was identified on the Town of Bennington tax maps as being within the parcels with section 21, block 51 and lots 1, 30 and 31. The subject site is composed of the entire area contained within lots 30 and 31, and a portion of the southern area of lot 1, which is leased from the Bennington County Industrial Corporation. A site location map is included in Appendix A as Figure 1. Maps showing the site property boundaries and building details are included in Appendix A as Figures 2, 7, 9 and 10.

2.2 Property/Business Owner

According to Town of Bennington assessment records, lot 1 is owned by the Bennington County Industrial Corporation, while lots 30 and 31 are owned by Chemical Fabrics, Inc. d/b/a Chemfab.

2.3 Current Site Uses

Lot 31 is currently used by SGPPL for employee parking, and for the storage of propane utilized at the facility in two 30,000 gallon above ground tanks. No buildings are currently present on lot 31, however, a concrete slab occupies a portion of the lot where a building utilized for unspecified purposes formerly stood. The southern portion of the lot is a heavily wooded area which is not reportedly used by SGPPL.

Lot 30 is currently used primarily by SGPPL for manufacturing purposes, with some areas utilized for parking and product loading/unloading. Town of Bennington assessment records indicate there is 46,300 square feet of manufacturing and office space located within the building on lot 30, which is interconnected with the building on lot 1.

The Bennington County Industrial Corporation operates a small business incubator center on lot 1, with SGPPL leasing various areas within the first floor and basement

of the building at the southern end of the lot. Operations within the leased portion of the site include a machine shop, a maintenance area, drum storage, record storage, and a fabrication area.

2.4 Former/Historic Site Uses

Based on information gathered from various sources, the site was a cotton mill in the early 1800's. The site was occupied in the early 1900's by H.C. White Co. as a lumber yard and a manufacturing facility (woodworking in the production of Kiddie Kars and school furniture). The site was later occupied by the Vermont Gravure and Lithographic Corp. and later Polygraphic Co. of America Inc. for use as a color lithography facility, with garages on the southern portion of lot 30. Chemfab reportedly began operations at the site in the mid-to-late 1970's (the SGPPL-owned portion of the building was constructed circa 1967).

2.5 Total Site Area and Topographic Description

The lots upon which the subject site sits occupy an aggregate of approximately 18.27 acres of fairly level land (SGPPL estimates that less than 1 acre of lot 1 is occupied by the leased areas). According to the United States Geological Survey (USGS) Topographic Map, the subject site lies at approximately 570 feet above Mean Sea Level.

2.6 Site Geology

Soils are mapped by the Natural Resources Conservation Service as Groton gravelly fine sandy loam (a copy of the Soil Survey information is included within Appendix A as Figure 8). The Groton series consists of very deep, excessively drained soils on terraces and kames which formed in stratified sand and gravel deposits derived from limestone, gneiss and schist. Surficial geology is mapped as very stony with silt loam. Bedrock is mapped as Whitehall Formation and is generally greater than 60 inches from ground surface. Depth to groundwater is generally more than six feet.

2.7 Nearby Surface Water Bodies and Water Supply Wells

The Paran Creek runs near the eastern boundary of the subject site from north to south, and flows into the Walloomsac River, which runs from west to east along the

southern boundary of lot 31. No water supply wells were reported to exist in the vicinity of the subject site property, as municipal water supply is available from the Village of North Bennington.

2.8 Site Buildings and Structures

The owned portion of the site building is a 130' by 300' metal and concrete block building constructed on a concrete slab foundation, without basement. The leased sections of the building consist of brick and concrete block buildings, some of which have full basements with concrete flooring. Interior portions of the site building owned or occupied by SGPPL have sheetrock and/or concrete block and brick walls, sheetrock ceilings, metal ceilings, or lay-in acoustical ceiling tiles. Concrete flooring is present in all areas except for the office space within the building, where carpeted flooring is present. The owned portion of the building reportedly has a combination metal and membrane roof, with installation of the membrane occurring in 1999, according to the site contact.

2.9 Roadways or Driveways on or Adjoining the Site

Lot 31 is adjoined to the northwest by River Road (Town Highway 120), and to the north by the intersection of North Bennington Road (Route 67A), Hillside Street (Town Highway 114), and Water Street (Route 67A). Lots 1 is adjoined to the west by Water Street, and to the east by Scarey Lane. Lot 30 is adjoined to the west by Water Street, and to the south by North Bennington Road.

2.10 Rights-of-Way and/or Easements (On-Site and Adjacent)

With the exception of utility easements (including a small Verizon telephone shed on lot 31), no easements or rights-of-way are reported to exist for the subject site properties (note: a formal survey map was not made available to C.T. Male for review).

2.11 Surrounding Land Uses

The surrounding land uses, as identified during the site visit, are described as follows:

North - The remaining lands of the Bennington County Industrial Corporation are situated to the north of the SGPPL-occupied areas of lot 1.

West - An apparently abandoned Baptist Church, Country Corner Day Care, and several residential properties are located to the west/southwest of the subject site properties.

East - Residential properties are located on the east side of the Paran Creek along Scarey Lane, as well as to the south of North Bennington Road, east of the Paran Creek.

South - The Walloomsac River lies to the south of lot 31.

3.0 SITE AND SURROUNDING AREA HISTORIC AND RECORDS REVIEW

3.1 Ownership Information

According to Town of Bennington assessment records, lots 30 and 31 are owned by Chemical Fabrics, Inc. d/b/a Chemfab, and lot 1 is owned by the Bennington County Industrial Corporation (note: SGPPL purchased Chemfab in 2000). Property assessment cards indicated the following dates of ownership for each parcel:

Lot 1	Dates	Lots 30 and 31	Dates
Bennington County Industrial Corporation	5/1/78 - present	Chemical Fabrics, Inc. d/b/a Chemfab	5/1/78 - present
Vermont Industrial Development Agency	8/9/76 - 5/1/78	Vermont Industrial Development Agency	Unknown - 5/1/78
Garrison Printing Division, Inc.	Unknown - 8/9/76	Not Available	

3.2 Sanborn Fire Insurance Maps

Sanborn Fire Insurance Maps were reviewed for the years 1921, 1928, 1941 and 1959. In 1921, H.C. White Company occupies lots 1 and 30. Lumber yards and four small buildings for storage and a lumber shed are present on lot 30. This same company also had four large and four small buildings on lot 1, including the southern end of the parcel which SGPPL currently leases. An underground gasoline tank is depicted to the north of the "Dry House" building located in the central portion of the facility. These buildings were used for building school furniture and Kiddie Kars, a type of tricycle for children. A transformer is depicted on Lot 31 at the intersection of River Road and Route 67A. The 1921 Sanborn Map is presented as Figure 3 in Appendix A.

The 1928 map depicts one additional storage building on lot 30, and three additions are shown to the previously existing buildings on lot 1. The gasoline tank on lot 1 and the transformer on lot 31 depicted on the 1921 map are again depicted in the same locations. The 1928 Sanborn Map is presented as Figure 4 in Appendix A.

In 1941, Vermont Gravure and Lithographic Corporation, a Division of Polygraphic Company of America and creator of color lithography appears to occupy both lots 1 and 30. The lumber yards are no longer depicted, however, a new store house building is depicted in the location of the former lumber piles on the western portion of lot 30. The gasoline tank on lot 1 is depicted in the same location, however, the transformer on lot 31 depicted on the previous maps is no longer shown to be present. The 1941 Sanborn Map is presented as Figure 5 in Appendix A.

In 1959, three small buildings exist on lot 30, which are depicted as "Truck Garage", "Bus Garage" and "Oil House" from north to south. A gasoline tank is depicted to the west of the truck garage building, in the area where the owned building is currently located. Several additions were made to the building on lot 1 since the 1941 map, including the additional of a section of building spanning the Paran Creek on lot 1. The gasoline tank previously depicted on the earlier maps on lot 1 is no longer shown to be present, as building expansion occurred approximately in the former tank location. The 1959 Sanborn Map is presented as Figure 6 in Appendix A.

3.3 Aerial Photographs

Aerial photographs were reviewed for the years 1942, 1962, 1968, 1977, 1980, 1986, 1990 and 1993 at the Natural Resources Conservation Service (NRCS) office in Bennington, Vermont. Copies of the aerial photographs reviewed at the NRCS are included within Appendix B.1. The photographs depict parcels 1 and 30 with varying levels of site development throughout the duration of the years reviewed, with four free standing buildings located on lot 1 and two free standing buildings located on lot 30 on the 1942 photograph. The 1962 photograph depicts interconnection of the buildings on parcel 1, along with the addition of a building which spans the Paran Creek. The previously depicted buildings on lot 30 are no longer present, however, two new buildings are shown in the east/southeast portion of lot 30. The 1968 photo depicts additional development, with the current SGPPL-owned building depicted on lot 30, and more additions made to the building on lot 1, including interconnection with the SGPPL-owned building. The 1977-1993 photographs depict lots 1 and 30 similar to conditions observed during the site visit, with one large, irregularly-shaped building covering the central portion of the lots, with a portion of the building extending over Paran Creek.

Lot 31 is depicted as an undeveloped parcel in the 1942 photograph, however, subsequent photographs depict development (i.e., parking areas, a path to the River, a building, and the propane tanks) in various stages. The 1962 photo is the only photo that shows a path from the current parking lot on the northern end of lot 31 south toward the River. Each of the remaining photographs depict partially to heavily wooded growth over this portion of the lot. The building on lot 31 is clearly present on all photographs spanning from 1962 to 1980 (it is unclear if the building is present in the 1986 photograph due to the scale of the photo). A pad appears present in the former building location in the 1990 and 1993 photographs.

3.4 Information From the Local Historian

No historian is reported to exist for the Village of North Bennington. Local officials at the Bennington Town Hall recommended obtaining information regarding subject site history from the Bennington Museum. According to Mr. Tyler Resch, Librarian at the Bennington Museum, a cotton mill existed on the site in the early 1800's. In the early to mid 1900's, a furniture maker and a lithograph maker existed consecutively on the SGPPL and Bennington County Industrial Corporation sites. No information was available regarding historical usage between the early 1800's and mid 1900's from Mr. Resch.

3.5 Information From Health Department Official(s)

A FOIL request was submitted to the Town of Bennington Health Officer to determine if records concerning soil or groundwater contamination for the subject site are available. The Health Officer responded that no files relating to the requested information are available for the Chemfab/SGPPL facility.

3.6 Information From Other Local Official(s)

A FOIL request was submitted to the Village of North Bennington Fire Department to determine if the Fire Department has records concerning spills, major fires, underground or above ground storage tanks, or hazardous materials for the subject site. At the time of this report, a response had not been received from the Fire Department. If pertinent information is received, it will be forwarded upon receipt.

Property assessment cards were reviewed at the Town of Bennington Assessment Office. Information from the assessment cards is included in the appropriate sections of this report.

3.7 Information From Current or Former Property Owner(s)

Mr. Robert Prohaska, Manager of Safety Technology and Quality was the site contact, and acted as the owner's representative. Information obtained from Mr. Prohaska is included throughout various sections of this report.

3.8 Summary of Previous Environmental Assessments

No previous Phase I Environmental Site Assessments have been performed for the subject site parcel, according to the site contact. An Underground Storage Tank Closure and Site Assessment Report prepared by GZA GeoEnvironmental, Inc. was supplied by the client for review by C.T. Male (a copy is included in Appendix D).

3.9 ASTM Federal and State Database Review

Federal and state environmental databases were reviewed in accordance with ASTM E-1527 Standards to determine if the site or nearby surrounding properties are listed on these databases. The databases were searched for the areas within the ASTM recommended search distance, unless otherwise noted. Reviewed databases are listed below.

3.9.1 Federal National Priorities List (NPL) Facilities

The subject site was not identified as a NPL hazardous waste facility. No NPL facilities were identified within one mile of the subject site.

3.9.2 Federal CERCLA Hazardous Waste Facility List

The subject site was not identified as a CERCLA hazardous waste facility. No CERCLA hazardous waste facilities were identified within ½ mile of the subject site.

3.9.3 Federal Resource Conservation and Recovery Act (RCRA) Treatment, Storage and Disposal (TSD) Facilities List

The subject site was not identified as a RCRA TSD facility. No TSD facilities were identified within ½ mile of the subject site.

3.9.4 Federal RCRA Generators List and Corrective Action List

The subject site was identified on the RCRA generator list as a small quantity generator of hazardous waste under the name Chemfab Corp. (Facility ID: VTR000011247). No immediately adjoining properties were identified as RCRA generator facilities.

The subject site was not identified as a RCRA corrective action facility. No RCRA corrective action facilities were identified within one mile of the subject site.

3.9.5 Federal Emergency Response Notification System (ERNS) List

The subject site was not identified on the ERNS list.

3.9.6 Toxic Release Inventory List

The subject site was identified on the Toxic Release Inventory List. No additional information is provided in the database.

3.9.7 State Hazardous Waste Facility List

The subject site was not identified as a State hazardous waste facility. No State hazardous waste facilities were identified within one mile of the subject site.

3.9.8 State Solid Waste Facility List

The subject site was not identified on the State solid waste facility list. No State listed solid waste facilities were identified within ½ mile of the subject site.

3.9.9 State Underground Storage Tank (UST) Facilities

Lot 30 and lot 1 were identified on the State UST facilities list under the names Chemfab and Bennington County Industrial Corp., respectively. The Chemfab

listing is reported as having a 2,000 gallon UST for No. 2/No. 4 fuel oil, but no information is provided pertaining to the removal of the UST, with the exception of the note "Pull Tank". The details of the UST listing for the Bennington County Industrial Corporation indicate two 7,500 gallon fuel oil tanks, each having the note "Pull Tank" (it is assumed based on information obtained from the site contact that the UST listing for lot 1 is unrelated to the SGPPL activities).

3.9.10 State Leaking Storage Tanks List

The site was not identified on the State Leaking Storage Tank List. Incident #951896 was reported under the name Bennington County Industrial Corp. on Water Street. Details obtained through the Vermont Department of Environmental Conservation Spill Investigator, Mr. Bruce Linton, confirm the release as an ongoing leaking No. 6 fuel oil storage tank. According to Mr. Linton, the contamination has migrated toward the Paran Creek, with no contamination observed in monitoring wells situated between the spill area and the SGPPL-owned and occupied areas. A pump and treat system is currently operating at the spill area, according to Mr. Linton.

A list of the documents reviewed and persons contacted is preparation of this report is included in Appendix C. A copy of the environmental database report is included in Appendix E.

4.0 SITE VISIT

4.1 Conditions of the Visit

4.1.1 Site Contact(s)

Mr. Robert Prohaska, Manager of Safety Technology & Quality of the SGPPL North Bennington facility was the site contact and was present during the site visit.

4.1.2 Date of Visit

The site visit was conducted on Wednesday, May 23, 2001 by Mr. Joseph Farron of C.T. Male Associates, P.C. During the site visit the weather was approximately 60°F with a light rain falling.

4.1.3 Ground Cover

The portion of lot 1 leased by SGPPL consists of interior space within several sections of the Bennington County Industrial Corporation building. The remainder of lot 1 is covered with buildings, grassy areas, asphalt paved parking and unloading areas, and undeveloped, partially wooded areas.

Lot 30 is covered primarily by the site building and paved asphalt parking and unloading areas. A grass-lined concrete sidewalk is located along the west side of the parcel, and a grassy and partially tree-lined area is located along the east side of the parcel.

Lot 31 is primarily a densely-wooded lot, with an asphalt paved parking area and a concrete pad present on the northern portion of the lot.

4.1.4 Areas Observed

The site and surrounding areas were observed from Route 67A, River Road, Hillside Street, Scarey Lane and the approximate site boundaries. The interior areas of the site building owned and/or occupied by SGPPL were entered and observed. The undeveloped areas of the lots were traversed to the extent practicable (lot 31 is

densely wooded over the central and southern portions of the property). Photographs taken during the site visit are included in Appendix B.2.

4.2 Uses of Site Buildings and Structures

SGPPL's operations at the facility involve the coating of fabrics for various applications. SGPPL utilizes approximately 90 percent of the owned portion of the building as production area in the coating process, with the remaining space used for offices. Additional SGPPL operations at the site include a maintenance shop, machine shop/welding room, raw material storage, waste material storage, a fabrication area, and equipment storage in the leased portion of the building.

4.3 Site Utilities

Municipal water and sewer service are provided to the site by the Village of North Bennington and Town of Bennington, respectively. Electric service is provided to the site by Central Vermont Public Service, according to the site contact. According to Mr. Jerry Elwell of the Village of North Bennington Water Department, the SGPPL-owned building was connected to the sanitary sewer system at the time of construction of the building by Polygraphic Company of America. Mr. Elwell was not aware of the actual connection date to the sanitary sewer for lot 1.

4.4 Polychlorinated Biphenyls (PCBs)

4.4.1 Transformers/Capacitors (Liquid Filled Only)

Two pad-mounted transformers were observed outside the southwest corner of the SGPPL-owned building, and are reportedly owned by SGPPL. According to the site contact, the oil contained within the transformers has been sampled historically for the presence of PCBs, and does not contain PCBs, however, no analytical results were supplied to C.T. Male for review. According to the site contact, the fins on the westernmost transformer have historically incurred damage which resulted in a minor amount of leakage onto the concrete pad beneath the transformer. The transformer was subsequently enclosed within a fence, and the fins were repaired. No evidence of leakage or staining was observed in the vicinity of the transformers, nor were indications of stressed vegetation observed. One floor-mounted dry-type

transformer was observed next to the north end material storage rack in the owned portion of the building, and is reportedly owned by SGPPL.

Three floor-mounted dry-type transformers were observed in the leased portion of the building, and are not reportedly owned by SGPPL. Three pole-mounted transformers were observed outside the western portion of the site building, and are reportedly owned by the utility company. No indication of leakage or staining were observed in the vicinity of the transformers (which are labeled Non-PCB) at the time of the site visit.

4.4.2 Fluorescent Light Fixtures

Fluorescent lighting fixtures were observed throughout the site building at the time of the site visit. Fluorescent light ballasts have the potential to contain PCBs, and as such, should be managed in accordance with all applicable state and federal regulations upon disposal.

4.5 Asbestos Containing Materials (ACM)

Suspect asbestos containing materials, in the form of pipe insulation on the former steam piping (which are no longer used) were observed throughout the site building at the time of the site visit. According to the site contact, the pipe insulation was installed prior to Chemfab purchasing the property, and has tested positive for asbestos historically (analytical results were not made available to C.T. Male for review). As the various components of the site building were constructed prior to 1980, other building materials may contain asbestos. An asbestos survey was not completed as a function of this assessment.

4.6 Site Surface Water Bodies/Areas

The Paran Creek traverses the eastern portion of lots 1 and 30, and forms the eastern boundary of lot 31, while the Walloomsac River forms the southern boundary of lot 31.

4.7 Site Drainage

4.7.1 Site Catch Basins and Discharge Location(s)

Catch basins were observed throughout portions of lots 1 and 30, and reportedly discharge to the Paran Creek. The site contact could not confirm the discharge location of a catch basin in the loading dock area at the northwest corner of lot 30, although it is believed to discharge to the Paran Creek.

4.7.2 Building Floor Drains and Discharge Location(s)

No floor drains were observed or are reported to exist for the subject site building.

4.7.3 Dry Wells and Sumps

No dry wells were observed or are reported to exist for the subject site parcels. Three sumps were observed in the owned portion of the site building (in the Creaming Room, in the Formulation Room, and along the west wall near Tower N), and are used for settling pits (i.e., liquids rise to the top of the pits and flow to the sanitary sewer, or are pumped out to the sanitary sewer, while solids collect in the bottom of the pits).

4.8 Site Waste Profile

4.8.1 Solid Wastes/General Trash (Generation/Storage/Disposal)

SGPPL places solid waste generated at the site into a dumpster located in the loading dock area at the northwest property corner. SGPPL contracts with a private waste hauler to dispose of the solid waste. Empty chemical storage totes are stored inside the building after use, prior to being sent off-site for recycling (eleven empty ±300 gallon totes were observed at the time of the site visit).

4.8.2 Sludges (Generation/Storage/Disposal)

Sludges consisting of Polytetrafluoroethylene (PTFE or teflon®) solids and occasional pigments and/or fillers (i.e., glass beads and talc) are generated in the facility's

processing areas. As sludges are generated, the solids are allowed to settle out, and the liquid is pumped to the sanitary sewer.

4.8.3 Liquids (Generation/Storage/Disposal)

Liquid waste generated at the facility is discharged to the municipal sanitary sewer system. The site contact reported that during the production of one product, the sumps are plugged, and all liquids and wash water is collected and drummed to be disposed of off-site (i.e., the constituents of the waste liquids exceed limits in the local wastewater regulations). C.T. Male was not provided results of any waste liquid testing performed at the facility.

Four ±100 gallon caustic and acetic acid cleaning/neutralization tanks (2 tanks each) are located in the maintenance shop. According to the site contact, prior to discharge to the sanitary sewer system, the liquids from the tanks are combined, and the pH is tested to make sure it meets discharge requirements.

4.8.4 Waste Water Discharge(s)

Waste water generated at the site building is pumped to the sanitary sewer system via a series of settling pits which allow residual solids to settle out of sludge byproducts produced at the facility.

4.8.5 Waste Lagoons or Disposal Pits (Current and Historic)

No waste lagoons or disposal pits are known or are reported to exist for the subject site properties.

4.8.6 On-site Septic Systems

No on-site septic systems are known or are reported to exist for the subject site properties.

4.8.7 Waste Drums/Containers

Four 55 gallon drums of waste oil were observed stored on a spill containment pallet in the machine shop within the leased portion of the site building (Area 17 on Figure

10A in Appendix A). According to the site contact, this is SGPPL's only manifested hazardous waste.

Approximately twenty 30 and 55 gallon drums of solids which settled out of the process sludge, and/or containing old formulations were observed in the recovery room in the leased portion of the building (Area 6 on Figure 10A). The materials are reportedly handled by SGPPL as an industrial waste.

Each of these drums appeared to be in good condition at the time of the site visit, with no indications of leakage or staining apparent in the vicinity of the drums. Wastes generated at the site are reportedly disposed of offsite by a contracted waste hauler.

4.8.8 Raw Product Drums/Containers

Raw product drums and containers were observed in several areas within the leased portion of the building. Area 4 on Figure 10A is utilized by SGPPL for the storage of ±150 poly drums (30 gal. each) of PTFE, two ±300 gallon totes of silicone emulsion, two ±300 gallon totes of coloring agents (CF-1318, CF-1319), three ±300 gallon totes of PTFE, and one ±300 gallon tote of Fluon AD 1H. Various 5 gallon drums of pigments and surfactants (±200 gallons total) are also stored within this area.

In a separate room (known as the Inventory Room) at the north end of Area 4 on Figure 10A, additional storage of materials, ±50 drums of PTFE/surfactant, seven ±300 gallon totes of PTFE, and eight 55 gallon drums of flammable silicone emulsion are stored prior to being released to production.

Fifty-five gallon drums of hydraulic oil and propylene glycol, as well as a 16 gallon drum of hydraulic oil and two 5 gallon drums of lubricants were observed in the machine shop (Area 17 of Figure 10A) within the leased portion of the building. Flammable material storage cabinets were observed in the maintenance shop area (Area 17 of Figure 10A) of the leased portion of the building, and contain cleaning products, deodorizers, disinfectants, paints and aerosol products. One and two gallon safety containers of acetone were also observed in the maintenance shop area. Two 55 gallon drums of cleaner "Formula 24L", a 55 gallon drum of glacial acetic acid, and five ±5 gallon hydraulic oil containers were observed outside the maintenance shop area.

Two 55 gallon drums of surfactants, three 30 gallon drums of blackening agent, and three 55 gallon drums of blackening agent were observed in the recovery room in the leased portion of the building (Area 6 on Figure 10A). Flammable and corrosive material storage cabinets were also observed within the recovery room, and contain a total of ±60 gallons of battery acid, glacial acetic acid, muriatic acid, surfactants, degreasers, xylene, toluene, methanol and propanol.

Four ±15 gallon containers of foam resin were observed in the fabrication area in the leased portion of the building (Area 14 on Figure 10A).

Eight ±300 gallon raw product totes are staged in the central portion of the coating area within the owned portion of the building. Materials are dispensed from these totes into 55 gallon drums for use in the coating area.

Each of the raw product drums and containers at the facility appeared to be in good condition, with no evidence of leakage or spillage observed at the time of the site visit. Sorbent booms are located in close proximity to the major drum storage locations.

4.9 Underground (UG) and/or Above Ground (AG) Storage Tanks

Two 30,000 gallon above ground propane tanks were observed on the northeast portion of lot 31 at the time of the site visit. Propane is used at the facility primarily to supply dryers in the manufacturing area, and to a small extent to supply heat sources.

A 2,000 gallon fuel oil underground storage tank was removed from the northern portion of lot 31 in August 1994 by Clean Harbors of Glenmont, New York. An Underground Storage Tank Closure and Site Assessment Report was prepared by GZA GeoEnvironmental, Inc. on August 30, 1994 summarizing the tank closure activities (a copy of the report is included in Appendix D). According to the GZA report, no visual or olfactory indications of the presence of hydrocarbons were encountered during the tank closure activities. Soil samples were taken from the bottom and sidewalls of the excavation for laboratory analysis for volatile organic compounds (VOCs) and total petroleum hydrocarbons, with no contamination detected in the samples.

The SGPPL owned and leased portions of the property do not reportedly utilize underground or above ground tanks, with the exception of the aforementioned above ground propane tanks. At least three tanks are reported by the site contact to exist on lot 1, which are used for operations independent of SGPPL's activities at the facility (the tank locations are depicted on Figure 7). The Bennington County Industrial Corporation facility has a large industrial boiler which supplies steam at the facility (the SGPPL-owned building is no longer connected to the boiler), and operates via fuel oil stored in tanks immediately north of the SGPPL operations at the facility in above ground tanks and an underground tank. According to the site contact and the VTDEC Spill Investigator, the underground No. 6 fuel oil tank on lot 1 has failed, and is actively being remediated with a pump and treat system.

4.10 Observed Evidence of Potential or Known Site Contamination

4.10.1 Evidence of Soil Contamination/Liquid Discharges

No evidence of soil contamination was observed on the site at the time of the site visit. A small amount of oil associated with a freight elevator motor was observed on the concrete flooring in the basement of the SGPPL-leased portion of the building. A small amount of oil was observed on the floor near cutting equipment in the machine shop of the leased portion of the building, within Area 17 on Figure 10A. In each instance, the spills appear to be contained to the concrete flooring and do not appear to be affecting subject site soils or groundwater.

4.10.2 Soil or Surface Disturbances

No soil or surface disturbances were noted at the time of the site visit.

4.10.3 Evidence of Waste Deposits (Piles/Pits/Landfills/Lagoons)

Various piles of general debris, including discarded metal cans and metal banding were observed on various portions of lot 31. Several pieces of general debris, including metal pipe were observed along the bank of the Paran Creek along the east side of the owned portion of the site building.

5.0 FINDINGS, OPINION AND CONCLUSIONS

5.1 Findings

The property has been used for industrial purposes for almost two centuries. Historical operations at the property have included a lumber yard, a wood product manufacturing facility, and lithography operations prior to the current usage as a fabric coating facility. Current activities on the property include the storage of several thousand gallons of miscellaneous substances within the site building.

An underground fuel oil storage tank (2,000 gallon capacity) was reported to have been removed from the property in 1994. Documentation provided for the tank closure did not indicate VOC or total petroleum hydrocarbon contamination in soil samples taken at the site. No indications of petroleum staining or photoionization detector (PID) readings were reported during screening of the excavated soils, according to the GZA report. Two additional gasoline tanks were historically depicted on Sanborn maps within the property owned by SGPPL, however, it appears that these tanks historically sat beneath the area where the current site building is located.

Fluorescent light fixtures were observed throughout the site building. Fluorescent light ballasts have the potential to contain PCB's, and fluorescent lamps have the potential to be regulated as a hazardous waste. If the fluorescent light fixtures are to be removed from the site building, they must be managed in accordance with applicable federal and state regulations.

The site building was constructed prior to 1980, thus the presence of asbestos containing materials is suspected. Suspect asbestos containing materials, in the form of pipe insulation on the former steam piping (which are no longer used) were observed throughout the site building at the time of the site visit. These materials appeared to be in good condition at the time of the site visit, although only a limited observation was performed from ground level. If asbestos containing materials are present at the site, they must be managed in accordance with applicable State and Federal OSHA and EPA laws and regulations. An asbestos survey was not conducted as a function of this investigation.

According to the site contact and the VTDEC Spill Investigator, a No. 6 fuel oil tank on the Bennington County Industrial Corporation property has failed, and is actively being remediated with a pump and treat system. According to the VTDEC contact, contamination is confined to a retaining wall along the Paran Creek, and monitoring wells located between the spill area and the SGPPL-owned and occupied areas have not shown the presence of contamination.

5.2 Opinion

It is our opinion that the information and data collected during this Phase I ESA indicates the potential for petroleum products within the site under conditions which indicate an existing release. Based on information obtained through the VTDEC Spill Investigator regarding the remediation efforts at the Bennington County Industrial Corporation site, impacts to the SGPPL owned property have not occurred.

5.3 Conclusions

C.T. Male has completed a Phase I Environmental Site Assessment for the North Bennington, Vermont Saint-Gobain Performance Plastics Corporation Site in general conformance with the scope and limitations of ASTM Practice E 1527. This assessment has revealed no evidence of recognized environmental conditions in connection with the property except for the following:

The presence of asbestos containing materials, in the form of pipe insulation on the former steam piping (which are no longer used) is suspected in the SGPPL owned and SGPPL occupied portions of the site building.

A No. 6 fuel oil tank on the Bennington County Industrial Corporation property has reportedly failed, and is actively being remediated. Based on conversations with the VTDEC Spill Investigator, the contamination has not migrated to the SGPPL-owned parcel as evidenced by monitoring wells located between the spill area and the SGPPL-owned property.

The information presented in this report is limited to the investigation conducted as described in the referenced ASTM guidelines for conducting environmental site assessments, and is not necessarily all inclusive of conditions present at the subject site. Due to inherent limits of time and cost, uncertainty about site conditions remains. If you have any questions regarding this report, please contact this office at (518) 786-7400.

Respectfully submitted,

C.T. MALE ASSOCIATES, P.C.

Joseph A. Farron, Jr.
Environmental Engineer

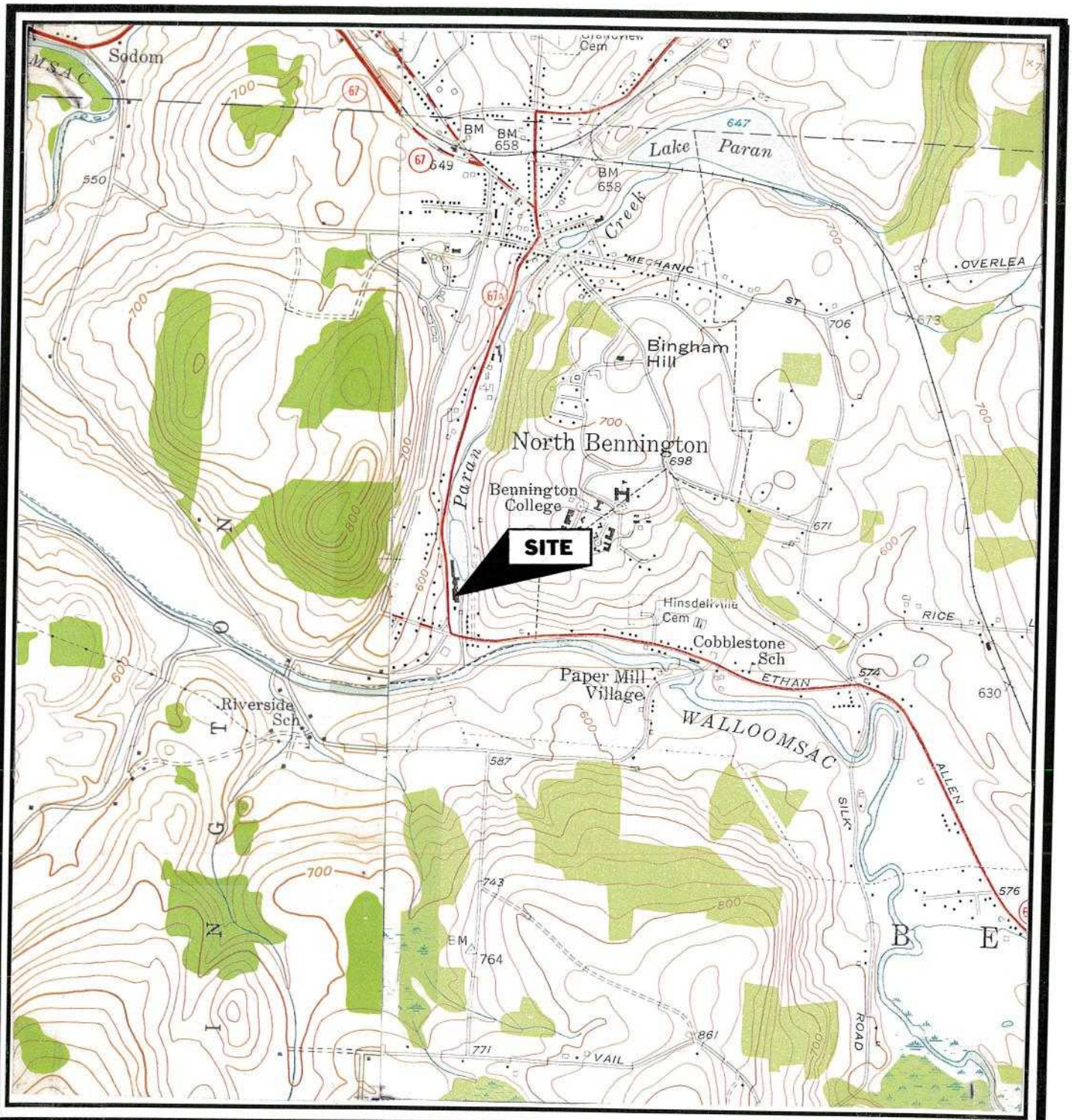
Reviewed and approved by:

Elizabeth W. Rovers, P.E.
Managing Engineer

jaf
CTMA Project No. 01.7390
June 4, 2001

APPENDIX A

Figures/Maps



MAP REFERENCE

United States Geologic Survey
7.5 minute Series Topographic Map
Quadrangle: Hoosick Falls NY, 1943 and
Bennington, VT, 1954

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50 CENTURY HILL DRIVE, PO BOX 727, LATHAM, NY 12110

FIGURE ONE - SITE LOCATION MAP

SAINT-GOBAIN PERFORMANCE PLASTICS
1030 WATER STREET

VILLAGE OF NORTH BENNINGTON	BENNINGTON COUNTY, VT
SCALE: 1":2,000'	
DRAFTER: DAD	
PROJECT No. 01.7390	

FIGURE 2

Town of Bennington Tax Map 21

TOWN OF BENNINGTON TAX MAP 21

50

BLOCK 51

PARK STREET
WATER STREET
SCAREY LANE
ROYAL STREET
MORRIS HEIGHTS
LEVER ROAD
SWEET ROAD
TOWN HIGHWAY 114
HILLSIDE STREET
POLYGRAPHIC LANE
HWY 120
ROUTE 67A
NORTH BENNINGTON ROAD
TOWN ROAD
RIVER
FABAN CREEK

1 12.6 AcC
2 0.77AcC
3 1.7 AcC
1 1.08Ac
2 0.85 A(C)
11 0.60 AcC
13 0.39 AcC
15 0.64 A(C)
22 0.21 AcC
23 0.35 AcC
24 0.13 AcC
21 0.18 AcC
25 0.13 AcC
16 0.10 AcC
20 0.12 AcC
26 0.12 AcC
17 0.01 AcC
18 1.0AcC
19 0.16 AcC
27 0.47 AcC
28 2.6 AcC
37 3.5 AcC
38 0.49 AcC
29 2.0 AcC
39 0.62 AcC
36 2.1 AcC
30 1.6 AcC
35 0.32 AcC
34 0.29AcC
33 0.37 AcC
32 0.42 AcC
EXEMPT INDEPENDENT BAPTIST CHURCH
31 0.37 AcC
40 0.19 AcC
47 0.22 AcC
41 0.28 AcC
42 0.52 AcC
42 0.27 AcC
38 0.43 AcC
48 0.52 A
43 0.32 A(C)
43 0.44 AcC
44 0.58 AcC
39 0.40 AcC
37 0.40AcC
36 0.38 AcC
33 0.24 AcC
32 0.45AcC
44 1.76 A
40.1 1.2 A(C)
40.2 0.38 A(C)
50 1.94 A
45 1.06 A(C)
35 2.2 AcC
45 1.0 AcC
41 0.57 AcC
34.1 1.7 A
34.2 0.70 A
46 0.49 AcC
31 4.2 AcC
30 1.47 AcC
25 0.39 AcC
26 0.11 AcC
27 0.12 AcC
28 0.16 AcC
EXEMPT INDEPENDENT BAPTIST CHURCH
11.12 9.0 A
24 1.2 AcC
23 0.39 AcC
11.11 0.606 A
11.9 0.538 A
11.8 0.535 A
22 1.2 AcC
21 0.5A
20.1 0.49A(C)
20.2 0.46 A
29 0.72 AcC
19 0.56 AcC
18 0.22 AcC
17 1.01 Ac
5 0.49 AcC
11.1 0.463 A
11.2 0.466 A
11.3 0.461 A
11.4 0.474 A
11.7 0.484 A
11.6 0.617 A
11.5 1.006 A
10 0.22 AcC
9 0.18 AcC
8 0.28 AcC
7 0.24 AcC
6 0.24 AcC
12 0.37AcC
14 0.20AcC
15 0.19 AcC
16 0.25AcC
4 2.0 AcC
3 0.93 AcC

BENNINGTON TOWN

PART OF 22-50-4

1866 PART OF 22-50-30

- OWNED BY SGPPL
- LEASED BY SGPPL (PORTION OF SHADED)

SEE MAP 4

FIGURE 3

1921 Sanborn Map

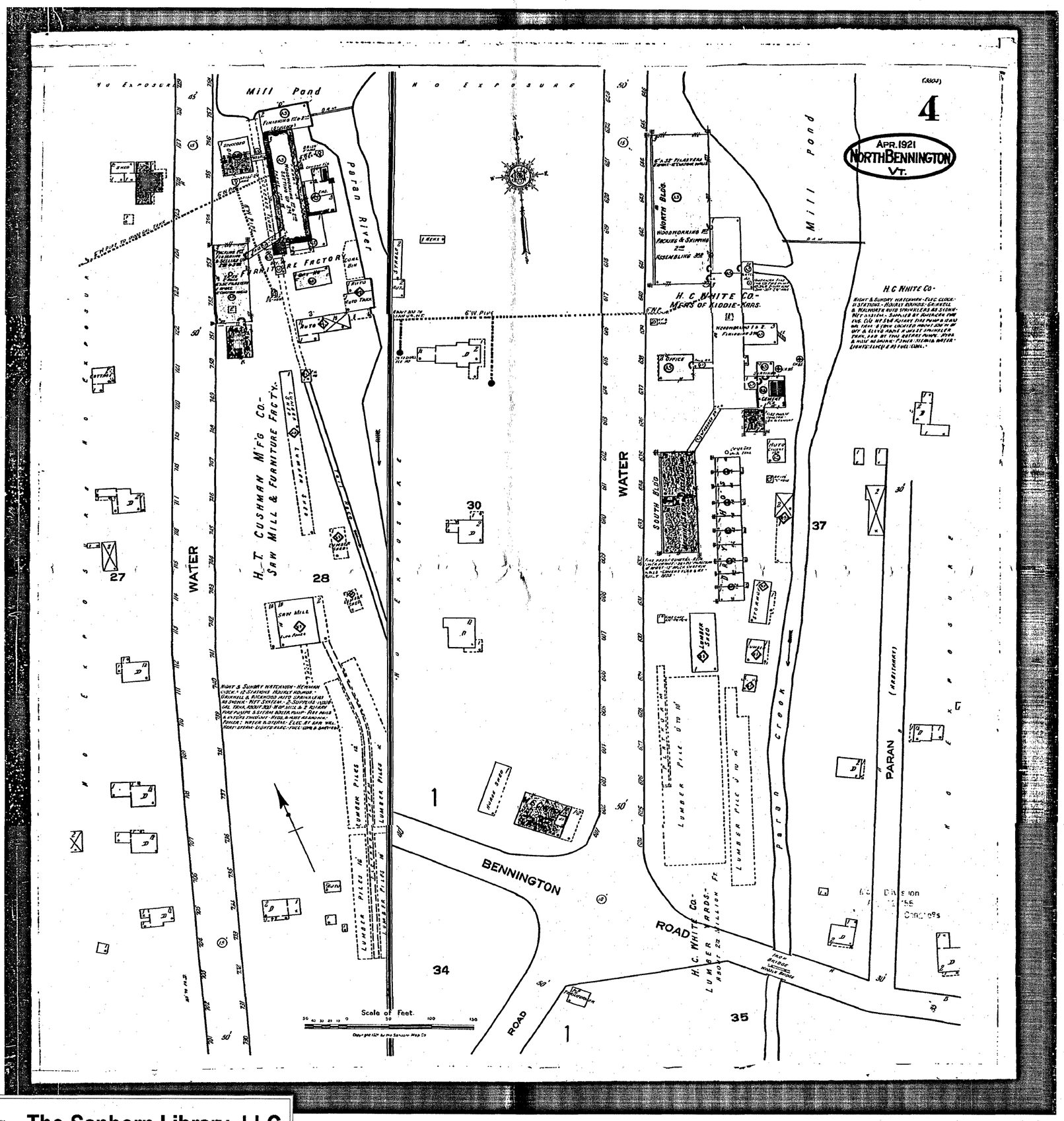

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FIGURE 4

1928 Sanborn Map

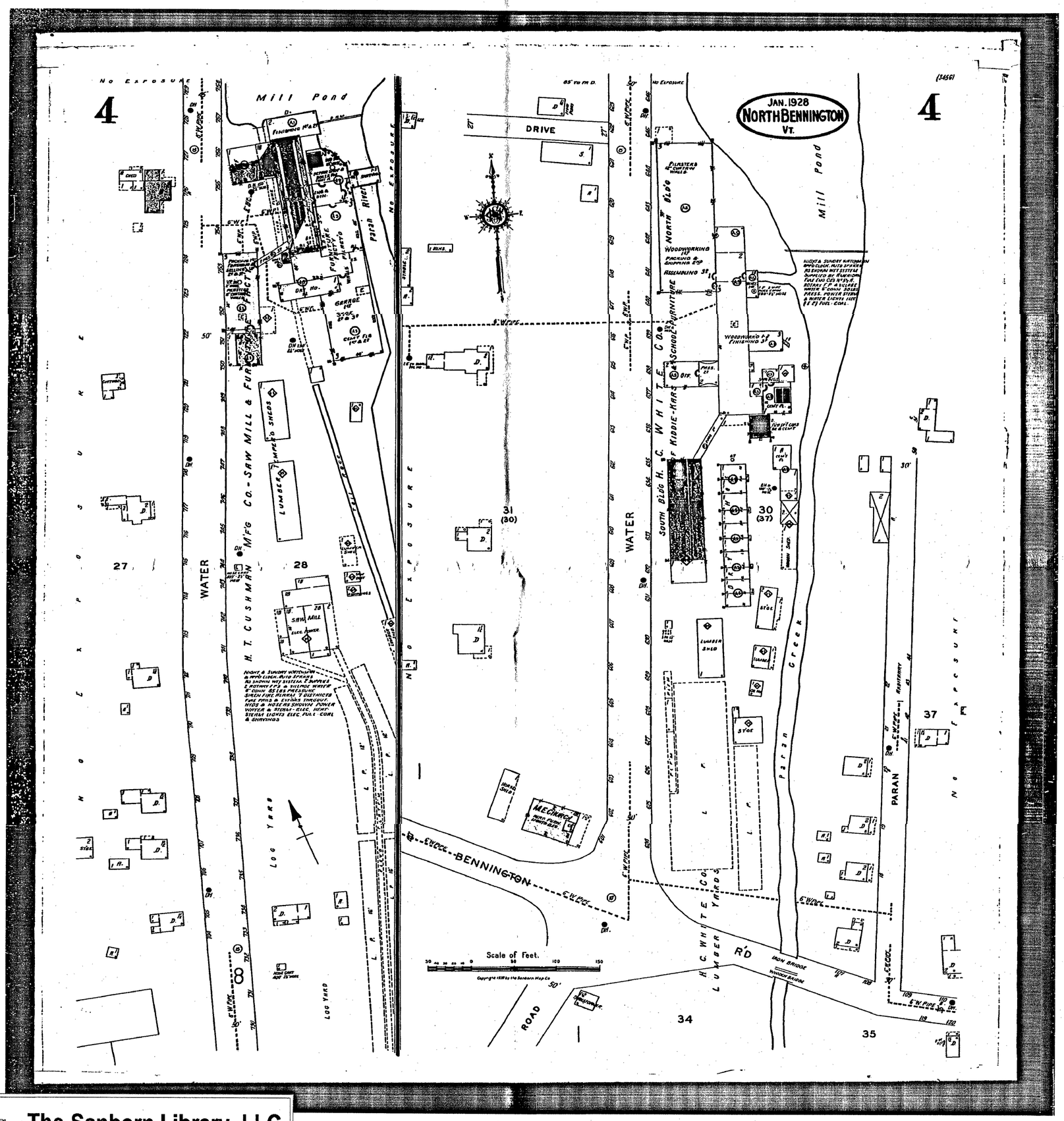

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FIGURE 5

1941 Sanborn Map

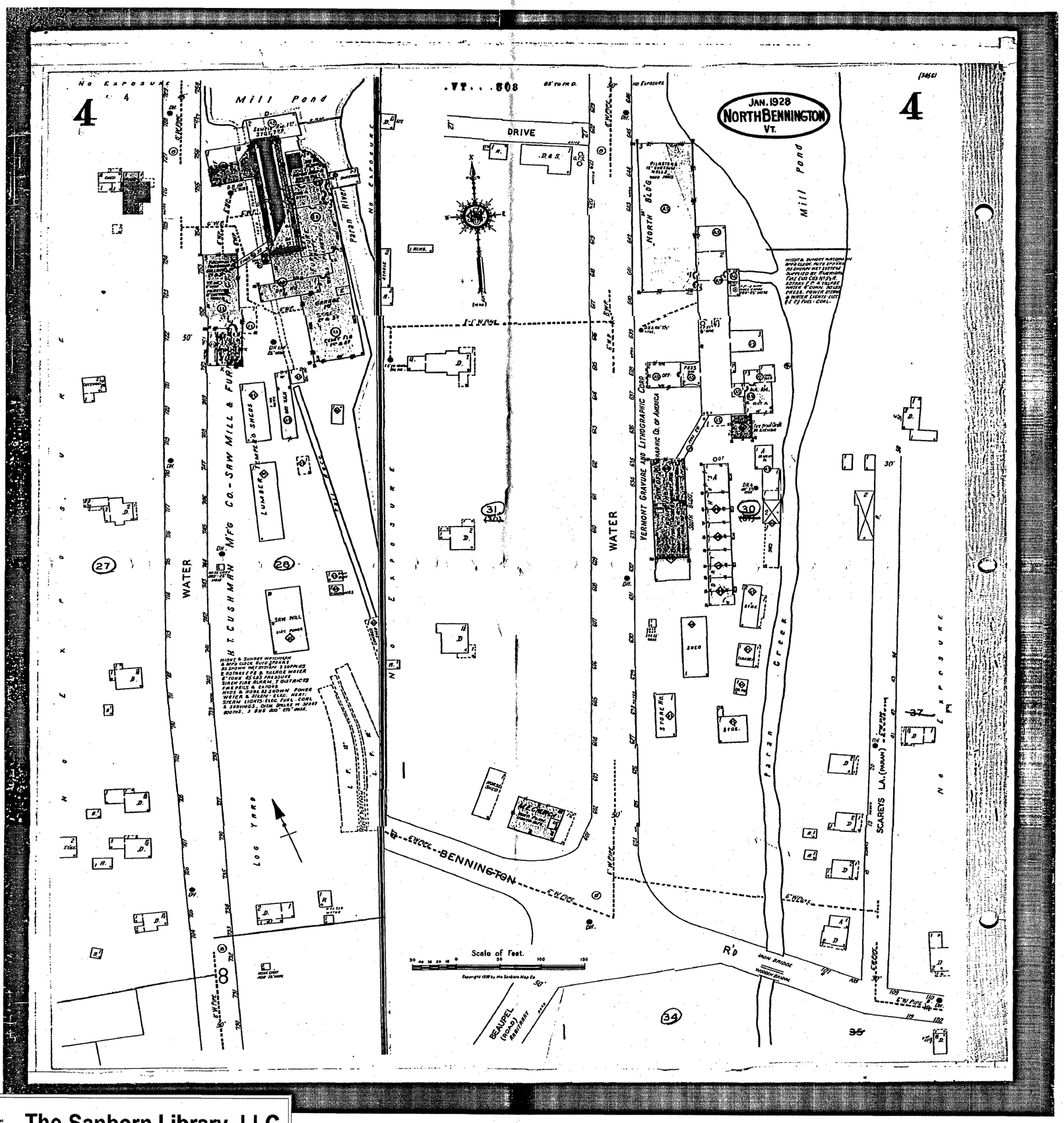

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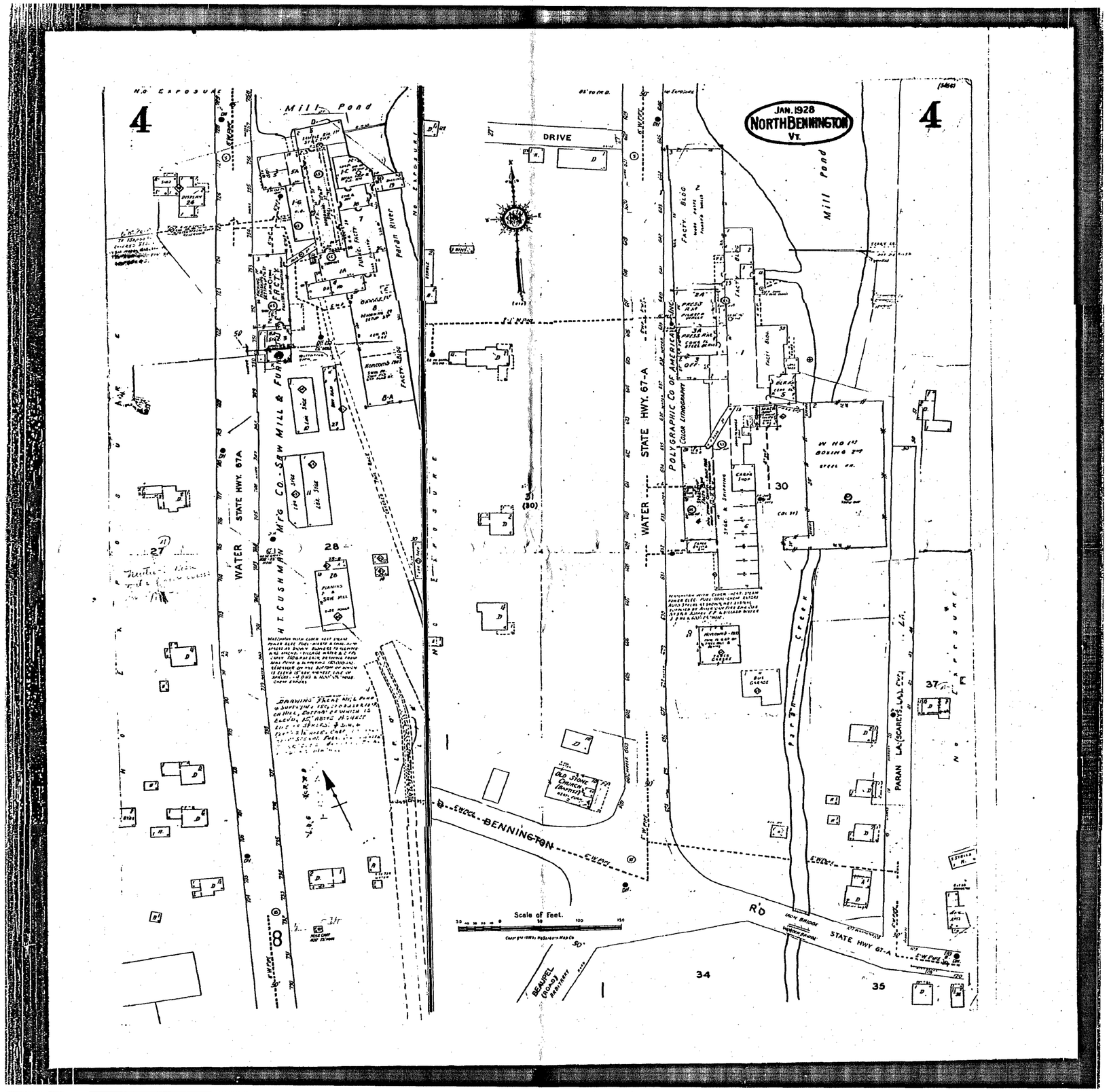
FIGURE 6

1959 Sanborn Map



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1959 CAG

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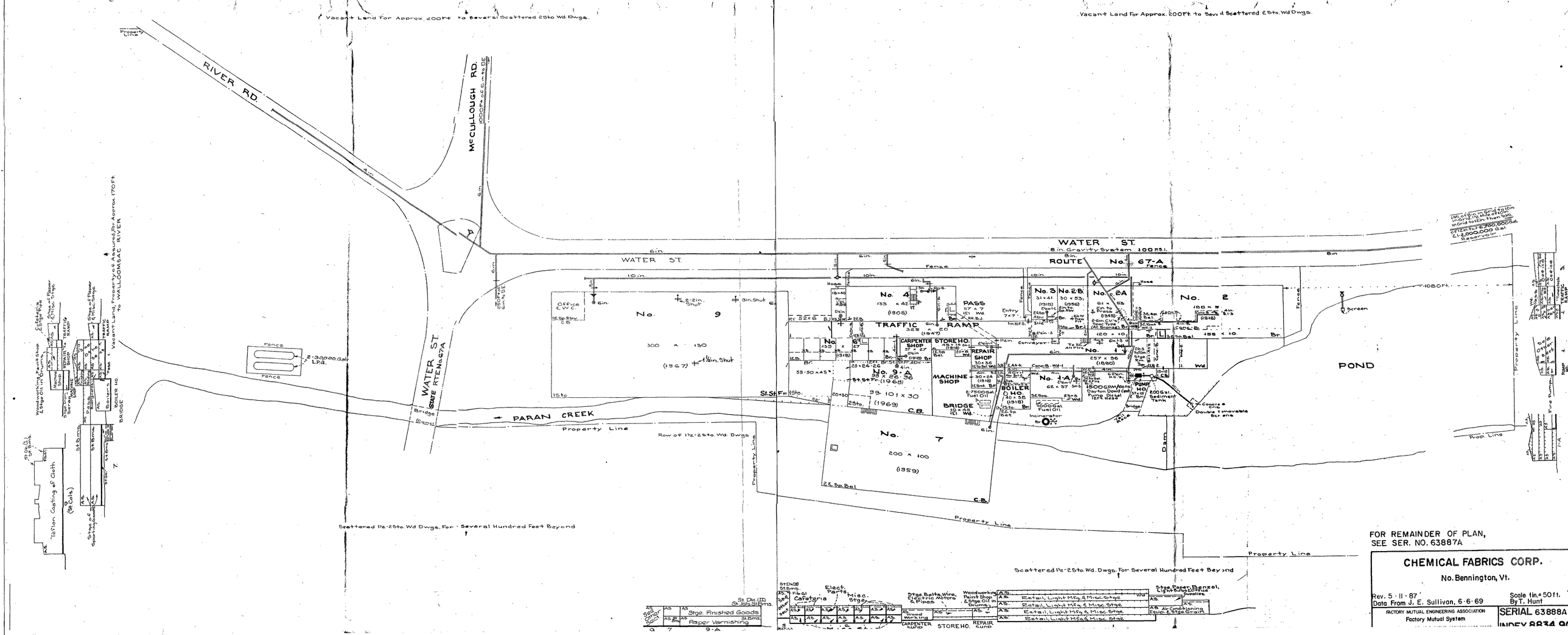
FIGURE 7

Factory Mutual System Map, Last Revised May 1987



FOR REMAINDER OF PLAN, SEE SER. NO. 63887A

CHEMICAL FABRICS CORP.

No. Bennington, Vt.

Rev. 5-11-87
Data From J. E. Sullivan, 6-6-69

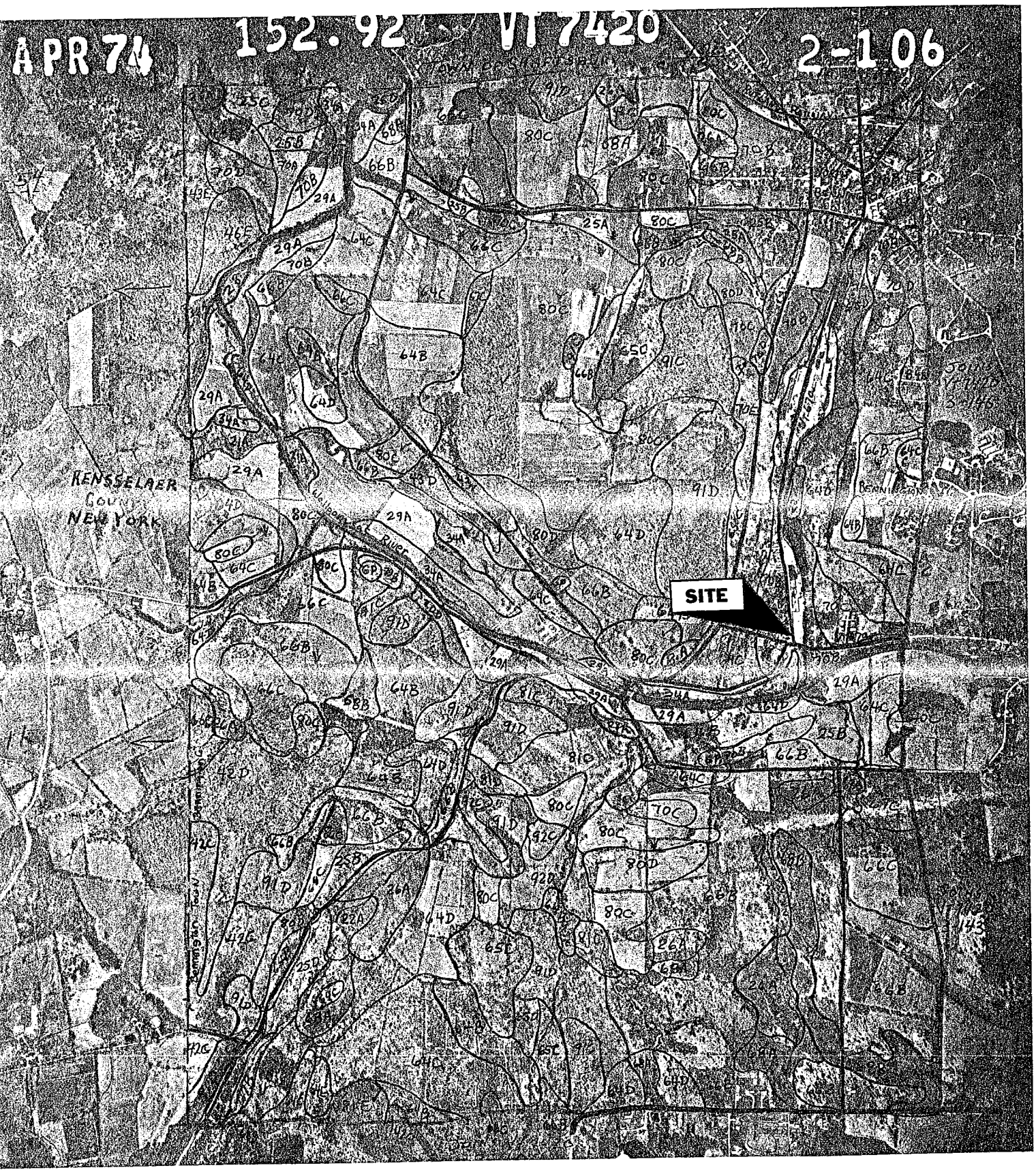
Scale tin. = 50 ft.
By T. Hunt

FACTORY MUTUAL ENGINEERING ASSOCIATION
Factory Mutual System

SERIAL 63888A
INDEX 8834 90

FIGURE 8

Soil Survey Map, 1992



RTMENT OF AGRICULTURE
NSERVATION SERVICE
OOPERATING WITH
LTURAL EXPERIMENT STATION

APPROX. SCALE 1" = 1667'

USDA-SCS-FORT WORTH, TEXAS

SOIL SURVEY FIELD SHEET
BENNINGTON COUNTY, VERMONT
ADVANCE COPY - SUBJECT TO CHANGE

SURVEY HAS NOT BEEN COMPILED NOR CORRELATED. NAMES MAY BE CHANGED AND AREAS MAY BE COMBINED.

CT0046

SOIL INTERPRETATIONS RECORD

MLRA(S): 101, 142, 144A
REV. RAS,EHS, 1-86
TYPIC EUTROCHREPTS, SANDY-SKELETAL, MIXED, MESIC

GROTON SERIES

THE GROTON SERIES CONSISTS OF VERY DEEP, EXCESSIVELY DRAINED SOILS ON TERRACES AND KAMES. THEY FORMED IN STRATIFIED SAND AND GRAVEL DEPOSITS DERIVED FROM LIMESTONE, GNEISS AND SCHIST. TYPICALLY, THESE SOILS HAVE A BROWN GRAVELLY SANDY LOAM SURFACE LAYER 8 INCHES THICK. THE SUBSOIL FROM 8 TO 18 INCHES IS DARK YELLOWISH BROWN VERY GRAVELLY SAND LOAM AND FROM 18 TO 30 INCHES IS LIGHT OLIVE BROWN AND OLIVE BROWN VERY GRAVELLY LOAMY SAND. THE SUBSTRATUM FROM 30 TO 72 INCHES IS LIGHT OLIVE GRAY AND PALE OLIVE EXTREMELY GRAVELLY AND GRAVELLY SAND. SLOPES RANGE FROM 0 TO 60 PERCENT.

ESTIMATED SOIL PROPERTIES (A)

DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	FRACT >3 IN (PCT)	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO.				LIQUID LIMIT	PLASTICITY INDEX
					4	10	40	200		
0-8	GR-SL, GR-FSL, GR-L	SM, GM	A-2, A-4	0-10	55-85	45-70	30-60	15-50	-	NP
0-8	GRV-SL,GRV-FSL,GRV-L	SM, GM, GP-GM	A-1, A-2	0-10	40-70	30-50	20-45	10-35	-	NP
8-18	GR-SL, GR-FSL, GRV-SL	GM, GP-GM, SP-SM	A-1, A-2	0-20	55-85	30-70	20-50	10-30	-	NP
18-30	GRV-SL, GRV-LS, GR-LS	GM, GP-GM, SM, SP-SM	A-1	0-20	40-80	30-70	15-45	5-25	-	NP
30-72	SR-GR-LFS-GRX-COS	SP, GP, GP-GM	A-1	0-25	35-70	20-65	10-35	0-15	-	NP

DEPTH (IN.)	CLAY (PCT)	MOIST BULK DENSITY (G/CM3)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	EROSION FACTORS K	EROSION FACTORS T	WIND ERGD. GROUP	ORGANIC MATTER (PCT)	CORROSIVITY STEEL	CORROSIVITY CONCRETE
0-8	2-8	1.00-1.30	2.0-20	0.07-0.15	5.6-7.3	-	LOW	.17	3	-	1-4	LOW	LOW
8-18	2-8	1.00-1.30	2.0-20	0.04-0.12	5.6-7.3	-	LOW	.17	3	-	1-4		
18-30	2-8	1.25-1.50	2.0-20	0.04-0.12	5.6-7.3	-	LOW	.17					
30-72	2-5	1.30-1.60	>20	0.02-0.10	5.6-7.8	-	LOW	.17					
	0-2	1.40-1.70	>20	0.01-0.08	5.6-8.4	-	LOW	.10					

FLOODING			HIGH WATER TABLE			CEMENTED PAN		BEDROCK		SUBSIDENCE		HYD GRP	POTENT'L FROST ACTION
FREQUENCY	DURATION	MONTHS	DEPTH (FT)	KIND	MONTHS	DEPTH (IN)	HARDNESS	DEPTH (IN)	HARDNESS	INIT. (IN)	TOTAL (IN)		
NONE			>6.0			-		>60		-		A	LOW

SANITARY FACILITIES (B)

SEPTIC TANK ABSORPTION FIELDS	0-15%: SEVERE-POOR FILTER 15+%: SEVERE-POOR FILTER,SLOPE
SEWAGE LAGOON AREAS	0-7%: SEVERE-SEEPAGE 7+%: SEVERE-SEEPAGE,SLOPE
SANITARY LANDFILL (TRENCH)	0-15%: SEVERE-SEEPAGE,TOO SANDY 15+%: SEVERE-SLOPE,SEEPAGE,TOO SANDY
SANITARY LANDFILL (AREA)	0-15%: SEVERE-SEEPAGE 15+%: SEVERE-SEEPAGE,SLOPE
DAILY COVER FOR LANDFILL	0-15%: POOR-SEEPAGE,TOO SANDY,SMALL STONES 15+%: POOR-SEEPAGE,TOO SANDY,SLOPE

BUILDING SITE DEVELOPMENT (B)

SHALLOW EXCAVATIONS	0-15%: SEVERE-CUTBANKS CAVE 15+%: SEVERE-CUTBANKS CAVE,SLOPE
DWELLINGS WITHOUT BASEMENTS	0-8%: SLIGHT 8-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE
DWELLINGS WITH BASEMENTS	0-8%: SLIGHT 8-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE
SMALL COMMERCIAL BUILDINGS	0-4%: SLIGHT 4-8%: MODERATE-SLOPE 8+%: SEVERE-SLOPE
LOCAL ROADS AND STREETS	0-8%: SLIGHT 8-15%: MODERATE-SLOPE 15+%: SEVERE-SLOPE
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	0-8% GR: MODERATE-SMALL STONES,DROUGHTY 8-15%GR:MODERATE-SMALL STONES,DROUGHTY,SLOPE 15+% GR: SEVERE-SLOPE 0-15% GRV: SEVERE-SMALL STONES 15+% GRV: SEVERE-SMALL STONES,SLOPE

REGIONAL INTERPRETATIONS

CONSTRUCTION MATERIAL (B)

ROADFILL	0-15%: GOOD 15-25%: FAIR-SLOPE 25+%: POOR-SLOPE
SAND	PROBABLE
GRAVEL	PROBABLE
TOPSOIL	0-15%: POOR-SMALL STONES,AREA RECLAIM 15+%: POOR-SMALL STONES,AREA RECLAIM,SLOPE

WATER MANAGEMENT (B)

POND RESERVOIR AREA	0-8%: SEVERE-SEEPAGE 8+%: SEVERE-SEEPAGE,SLOPE
EMBANKMENTS DIKES AND LEVEES	SEVERE-SEEPAGE
EXCAVATED PONDS AQUIFER FED	SEVERE-NO WATER
DRAINAGE	DEEP TO WATER
IRRIGATION	0-3%: DROUGHTY 3+%: SLOPE,DROUGHTY
TERRACES AND DIVERSIONS	0-8%: TOO SANDY 8+%: SLOPE,TOO SANDY
GRASSED WATERWAYS	0-8%: DROUGHTY 8+%: SLOPE,DROUGHTY

RECREATIONAL DEVELOPMENT (B)

CAMP AREAS	0-8% GR: MODERATE-SMALL STONES 8-15% GR: MODERATE-SLOPE,SMALL STONES 15+% GR: SEVERE-SLOPE 0-15% GRV: SEVERE-SMALL STONES 15+% GRV: SEVERE-SLOPE,SMALL STONES	PLAYGROUNDS	0-6%: SEVERE-SMALL STONES 6+%: SEVERE-SLOPE,SMALL STONES
PICNIC AREAS	0-8% GR: MODERATE-SMALL STONES 8-15% GR: MODERATE-SLOPE,SMALL STONES 15+% GR: SEVERE-SLOPE 0-15% GRV: SEVERE-SMALL STONES 15+% GRV: SEVERE-SLOPE,SMALL STONES	PATHS AND TRAILS	0-15%: SLIGHT 15-25%: MODERATE-SLOPE 25+%: SEVERE-SLOPE

CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

CLASS-DETERMINING PHASE	CAPA-BILITY		CORN SILAGE (TONS)		ALFALFA HAY (TONS)		GRASS-LEGUME HAY (TONS)		GRASS HAY (TONS)		GRASS-CLOVER (AUM)					
	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR
0-8%	3S		16		4.5		3.0		3.5		5.5					
8-15%	4S		14		4.5		3.0		3.5		5.5					
15-25%	6S		-		-		-		-		5.0					
25+%	7S		-		-		-		-		-					

WOODLAND SUITABILITY (C)

CLASS-DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS					POTENTIAL PRODUCTIVITY			TREES TO PLANT
		EROS'N HAZARD	EQUIP. LIMIT.	SEEDL. MORT'Y	WINDTH HAZARD	PLANT COMPET	COMMON TREES	SITE INDX	PROD CLAS	
0-15%	3S	SLIGHT	SLIGHT	SEVERE	SLIGHT	SLIGHT	NORTHERN RED OAK	55	3	EASTERN WHITE PINE
15-35%	3S	MODER.	MODER.	SEVERE	SLIGHT	SLIGHT	EASTERN WHITE PINE	60	7	EUROPEAN LARCH
35+%	3R	SEVERE	SEVERE	SEVERE	SLIGHT	SLIGHT	RED PINE	60	6	
							SUGAR MAPLE	55	3	

WINDBREAKS

CLASS-DETERMIN'G PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
	NONE							

WILDLIFE HABITAT SUITABILITY (D)

CLASS-DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS								POTENTIAL AS HABITAT FOR:			
	GRAIN & SEED	GRASS & LEGUME	WILD HERB	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	OPENLD WILDLF	WOODLD WILDLF	WETLAND WILDLF	RANGELD WILDLF
0-25%	POOR	POOR	FAIR	POOR	POOR		V. POOR	V. POOR	POOR	POOR	V. POOR	-
25+%	V. POOR	POOR	FAIR	POOR	POOR		V. POOR	V. POOR	POOR	POOR	V. POOR	-

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

COMMON PLANT NAME	PLANT SYMBOL (NLSPM)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE				
CHRISTMAS FERN	POAC4					
WITCHHAZEL	HAVI4					
BEDSTRAW	GALIU					
MAPLELEAF VIBURNUM	VIAC					
POISON IVY	TORA2					
BLACKBERRY	RUBUS					
POTENTIAL PRODUCTION (LBS./AC. DRY WT):						
FAVORABLE YEARS						
NORMAL YEARS						
UNFAVORABLE YEARS						

FOOTNOTES

A ESTIMATES OF ENGINEERING PROPERTIES BASED ON TEST DATA FROM SIMILAR SOILS.
B RATINGS BASED ON NATIONAL SOILS HANDBOOK, PART 603, JULY 1983.
C RATINGS BASED ON NATIONAL FORESTRY MANUAL, SEPT. 1980.
D RATINGS BASED ON SOILS MEMORANDUM 74, JAN. 1972.

BENNINGTON COUNTY FIELD MAPPING LEGEND

Symbol	Map Unit Name
2B	combined with 95B in Manchester & Dorset; combined with 3B or 18B in other towns
2C	combined with 95C in Manchester & Dorset; combined with 3C or 18C in other towns
2D	combined with 95D in Manchester & Dorset; combined with 3D or 18D in other towns
2E	combined with 95E in Manchester & Dorset; combined with 3E or 18E in other towns
3A	Copake gravelly fine sandy loam, 0-3% slopes
3B	Copake gravelly fine sandy loam, 3-8% slopes
3C	Copake gravelly fine sandy loam, 8-15% slopes
3D	Copake gravelly fine sandy loam, 15-25% slopes
3E	Copake gravelly fine sandy loam, 25-60% slopes
9	Dumps-pits complex
10C	combined with 10D
10D	Enchanted-Statton-Londonderry complex, very rocky 15-25% slopes
10E	Enchanted-Statton-Londonderry complex, very rocky 25-60% slopes
11C	combined with 43C
11D	combined with 43D
11E	combined with 11F
11F	Taconic-Hubbardton-Rock outcrop complex, very stony, 25-70% slopes
13A	combined with 3A
13B	combined with 3B
13C	combined with 3C
13D	combined with 3D
13E	combined with 3E
18A	combined with 18B
18B	Windsor loamy fine sand, 0-8% slopes
18C	Windsor loamy fine sand, 8-15% slopes
18D	combined with 18E
18E	Windsor loamy fine sand, 15-60% slopes
19, 19A	combined with 29A
20, 20A	combined with 34A
21, 21A	Limerick silt loam, 0-3% slopes
22, 22A	combined with 23A
23, 23A	Adrian and Saco soils, 0-2% slopes
24, 24A	Carlisle mucky peat, 0-2% slopes
25A	combined with 25B
25B	Belgrade silt loam, 0-8% slopes
25C	combined with 25B
25D	combined with 25B
26A	Raynham silt loam, 0-3% slopes
26B	combined with 26A
27, 27B	Udisamments & Udorthents, gently sloping (manmade land, disturbed land)
28, 28A	Udifluvents, loamy-skeletal (river land)
29, 29A	Occum fine sandy loam, 0-3% slopes
30A	combined with 30B
30B	Danforth gravelly fine sandy loam, stony, 3-8% slopes
30C	combined with 117C
30D	combined with 117D
31A	combined with 31B
31B	Danforth gravelly fine sandy loam, very stony, 3-8% slopes
31C	Danforth gravelly fine sandy loam, very stony, 8-15% slopes
31D	Danforth gravelly fine sandy loam, very stony. 15-25% slopes
31E	Danforth gravelly fine sandy loam, very stony, 25-60% slopes
32A	combined with 30B
32B	combined with 30B
33A	combined with 31B
33B	combined with 31B
34, 34A	Pootatuck fine sandy loam, 0-3% slopes
35A	combined with 35B
35B	Hartland silt loam, 0-5% slopes
35C	combined with 35B
35D	combined with 35B
36C	combined with 35B
36D	combined with 35B
40B	Galway-Nellis-Farmington omplex, rocky, 3-8% slopes
40C	Galway-Nellis-Farmington complex, rocky, 8-15% slopes
40D	Galway-Nellis-Farmingon complex, rocky, 15-25% slopes
40E	combined with 41E
41B	combined with 41C
41C	Galway-Farmington complex, very rocky, 8-15% slopes
41D	Galway-Farmington complex, very rocky, 15-25% slopes
41E	Galway-Farmington complex, very rocky, 25-50% slopes
42B	combined with 42C
42C	Macomber-Taconic complex, rocky, 8-15% slopes
42D	Macomber-Taconic complex, rocky, 15-25% slopes
42E	Macomber-Taconic complex, rocky, 25-60% slopes
43C	Taconic-Macomber complex, very rocky, 8-15% slopes
43D	Taconic-Macomber complex, very rocky, 15-25% slopes
43E	Taconic-Macomber complex, very rocky, 25-60% slopes
44B	Dummerston channery loam, stony, 3-8% slopes
44C	Dummerston channery loam, stony, 8-15% slopes
44D	Dummerston channery loam, stony, 15-25% slopes
45B	combined with 48B
45C	combined with 48C
45D	combined with 48D
46B	combined with 49C
46C	combined with 49C
46D	combined with 49D
46E	combined with 47E
47B	combined with 47C
47C	Dummerston Channery loam, very stony, 8-15% slopes
47D	Dummerston Channery loam, very stony, 15-25% slopes
47E	Dummerston Channery loam, very stony, 25-60% slopes
48B	Fullam loam, stony, 3-8% slopes
48C	Fullam loam, stony, 8-15% slopes
48D	Fullam loam, stony, 15-25% slopes
48E	combined with 47E
49A	combined with 49C
49B	combined with 49C
49C	Fullam loam, very stony, 8-15% slopes

49D	Fullam loam, very stony, 15-25% slopes
49E	combined with 47E
50A	combined with 50B
50B	Brayton loam, stony, 0-5% slopes
51A	combined with 51B
51B	Brayton loam, very stony, 0-5% slopes
51C	combined with 51B
52A	Mansfield mucky silt loam, very stony, 0-3% slopes
52B	combined with 52A
63A	combined with 26A
64B	Stockbridge silt loam, stony, 2-8% slopes
64C	Stockbridge silt loam, stony, 8-15% slopes
64D	Stockbridge silt loam, stony, 15-25% slopes
64E	combined with 64D
65B	combined with 65C
65C	Stockbridge silt loam, very stony, 8-15% slopes
65D	Stockbridge silt loam, very stony, 15-25% slopes
65E	combined with 65D
66A	Georgia loam, stony, 0-3% slopes
66B	Georgia loam, stony, 3-8% slopes
66C	Georgia loam, stony, 8-15% slopes
66D	Georgia loam, stony, 15-25% slopes
67A	combined with 67B
67B	Georgia loam, very stony, 3-8% slopes
67C	Georgia loam, very stony, 8-15% slopes
67D	combined with 67C
68A	Massena silt loam, stony, 0-3% slopes
68B	Massena silt loam, stony, 3-8% slopes
69A	Massena silt loam, very stony, 0-3% slopes
69B	Massena silt loam, very stony, 3-8% slopes
69C	combined with 69B
70A	Groton gravelly fine sandy loam, 0-3% slopes (combined with 3A in Dorset)
70B	Groton gravelly fine sandy loam, 3-8% slopes (combined with 3B in Dorset)
70C	Groton gravelly fine sandy loam, 8-15% slopes (combined with 3C in Dorset)
70D	Groton gravelly fine sandy loam, 15-25% slopes (combined with 3D in Dorset)
70E	Groton gravelly fine sandy loam, 25-60% slopes (combined with 3E in Dorset)
71A	Hero gravelly fine sandy loam, 0-3% slopes
71B	Hero gravelly fine sandy loam, 3-8% slopes
71C	combined with 71B
72A	Fredon fine sandy loam, 0-3% slopes
73, 73A	combined with 72A
80B	combined with 42C
80C	combined with 42C
80D	combined with 42D
81C	combined with 42C
81D	combined with 42D
81E	combined with 42E
84A	combined with 84B
84B	Nellis silt loam, stony, 3-8% slopes
84C	Nellis silt loam, stony, 8-15% slopes
84D	Nellis silt loam, stony, 15-25% slopes
84E	combined with 85E
85B	Nellis silt loam, very stony, 3-8% slopes
85C	Nellis silt loam, very stony, 8-15% slopes
85D	Nellis silt loam, very stony, 15-25% slopes
85E	Nellis silt loam, very stony, 25-50% slopes
86A	Amenia silt loam, stony, 3-8% slopes
86B	Amenia silt loam, stony, 8-15% slopes
86C	Amenia silt loam, stony, 15-25% slopes
86D	combined with 86C
87A	combined with 87B
87B	Amenia silt loam, very stony, 3-8% slopes
87C	Amenia silt loam, very stony, 8-15% slopes
87D	combined with 87C
88A	combined with 68A
88B	combined with 68B
89A	combined with 69A
89B	combined with 69B
89C	combined with 69B
90B	combined with 90C
90C	Berkshire fine sandy loam, extremely stony, 8-15% slopes
90D	combined with 90C
90E	Berkshire fine sandy loam, extremely stony, 15-50% slopes
91C	combined with 41C
91D	combined with 41D
91E	combined with 41E
92B	combined with 40B
92C	combined with 40C
92D	combined with 40D
92E	combined with 41E
93B	Pittsfield fine sandy loam, stony, 3-8% slopes
93C	Pittsfield fine sandy loam, stony, 8-15% slopes
93D	Pittsfield fine sandy loam, stony, 15-25% slopes
93E	combined with 94E
94B	Pittsfield fine sandy loam, very stony, 3-8% slopes
94C	Pittsfield fine sandy loam, very stony, 8-15% slopes
94D	Pittsfield fine sandy loam, very stony, 15-25% slopes
94E	Pittsfield fine sandy loam, very stony, 25-50% slopes
95C	Houghtonville fine sandy loam, very stony, 8-15% slopes
95D	Houghtonville fine sandy loam, very stony, 15-25% slopes
95E	Houghtonville fine sandy loam, very stony, 25-60% slopes
96C	combined with 96D
96D	Hogback-Rawsonville-Rock outcrop complex, very stony, 15-25% slopes
96E	combined with 96F
96F	Hogback-Rawsonvill-Rock outcrop complex, very stony, 25-70% slopes
97B	combined with 30B
97C	combined with 117C
98C	combined with 111C
98D	combined with 111D
98E	combined with 111E
99D	combined with 95D
99E	combined with 95E
100B	Wilmington fine sandy loam, very stony, 0-8% slopes

102B Mundal fine sandy loam, stony, 3-8% slopes
102C Mundal fine sandy loam, stony, 8-15% slopes
102D combined with 102C
103A combined with 3A
103B combined with 3B
103C combined with 3C
103D combined with 3D
103E combined with 3E
104B Colton gravelly loamy sand, extremely stony, 3-8% slopes
104C Colton gravelly loamy sand, extremely stony, 8-15% slopes
104D combined with 104E
104E Colton gravelly loamy sand, extremely stony, 15-50% slopes
105B combined with 105C
105C Monadnock fine sandy loam, very stony 8-15% slopes
105D Monadnock fine sandy loam, very stony, 15-25% slopes
105E Monadnock fine sandy loam, very stony, 25-50% slopes
106B Berkshire fine sandy loam, very stony, 3-8% slopes
106C Berkshire fine sandy loam, very stony, 8-15% slopes
106D Berkshire fine sandy loam, very stony, 15-25% slopes
106E Berkshire fine sandy loam, very stony, 25-50% slopes
107B combined with 108B
107C combined with 108C
107D combined with 108D
108B Peru fine sandy loam, very stony, 3-8% slopes
108C Peru fine sandy loam, very stony, 8-15% slopes
108D Peru fine sandy loam, very stony, 15-25% slopes
109B combined with 109C
109C Tunbridge-Berkshire complex, rocky, 8-15% slopes
109D Tunbridge-Berkshire complex, rocky, 15-25% slopes
109E Tunbridge-Berkshire complex, rocky, 25-50% slopes
111B combined with 111C
111C Rawsonville-Houghtonville complex, rocky, 8-15% slopes
111D Rawsonville-Houghonville complex, rocky, 15-25% slopes
111E Rawsonville-Houghtonville complex, rocky, 25-60% slopes
112C Rawsonville-Hogback complex, very rocky, 8-15% slopes
112D Rawsonville-Hogback complex, very rocky, 15-25% slopes
112E Rawsonville-Hogback complex, very rocky, 25-60% slopes
113B Cabot silt loam, very stony, 3-8% slopes
113C combined with 113B
113D combined with 113B
114B Mundal fine sandy loam, very stony, 3-8% slopes
114C Mundal fine sandy loam, very stony, 8-15% slopes
114D Mundal fine sandy loam, very stony, 15-25% slopes
115B Peru fine sandy loam, stony, 3-8% slopes
115C Peru fine sandy loam, stony, 8-15% slopes
115D Peru fine sandy loam, stony, 15-25% slopes
116C combined with 116D
116D Lyman-Tunbridge-Rock outcrop complex,very stony, 15-25% slopes
116E combined with 116F
116F Lyman-Tunbridge-Rock outcrop complex, very stony, 25-70% slopes
117B combined with 117C
117C Berkshire fine sandy loam, stony, 8-15% slopes
117D Berkshire fine sandy loam, stony, 15-25% slopes
118C Tunbridge-Lyman complex, very rocky, 8-15% slopes
118D Tunbridge-Lyman complex, very rocky, 15-25% slopes
118E Tunbridge-Lyman complex, very rocky, 25-60% slopes
119D combined with 10D
119E combined with 10E
120C combined with 95C
120D combined with 95D
120E combined with 95E
121B combined with 114B
121C combined with 114C
121D combined with 114D

NOTE: Those map units which are "complexes" are usually soils with ledge. If there are two soil types in the complex they will appear in a ratio of 60% - 40%. If there are three soil types in the complex they will appear in a ratio of 50% - 30% - 20%.

FIGURE 9

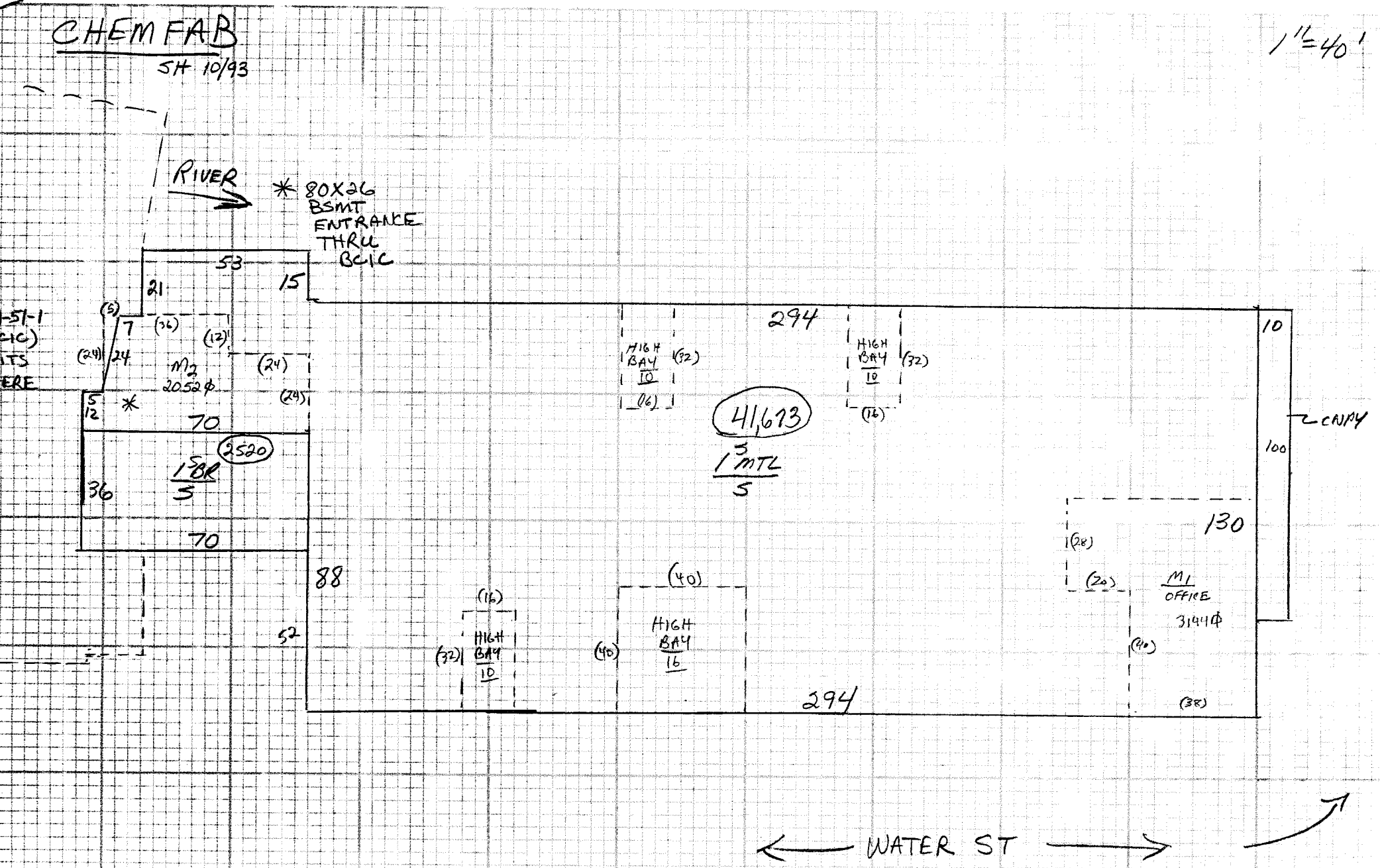
Lot 30 Building Plan from Assessment File

01-51-30

CHEMFAB

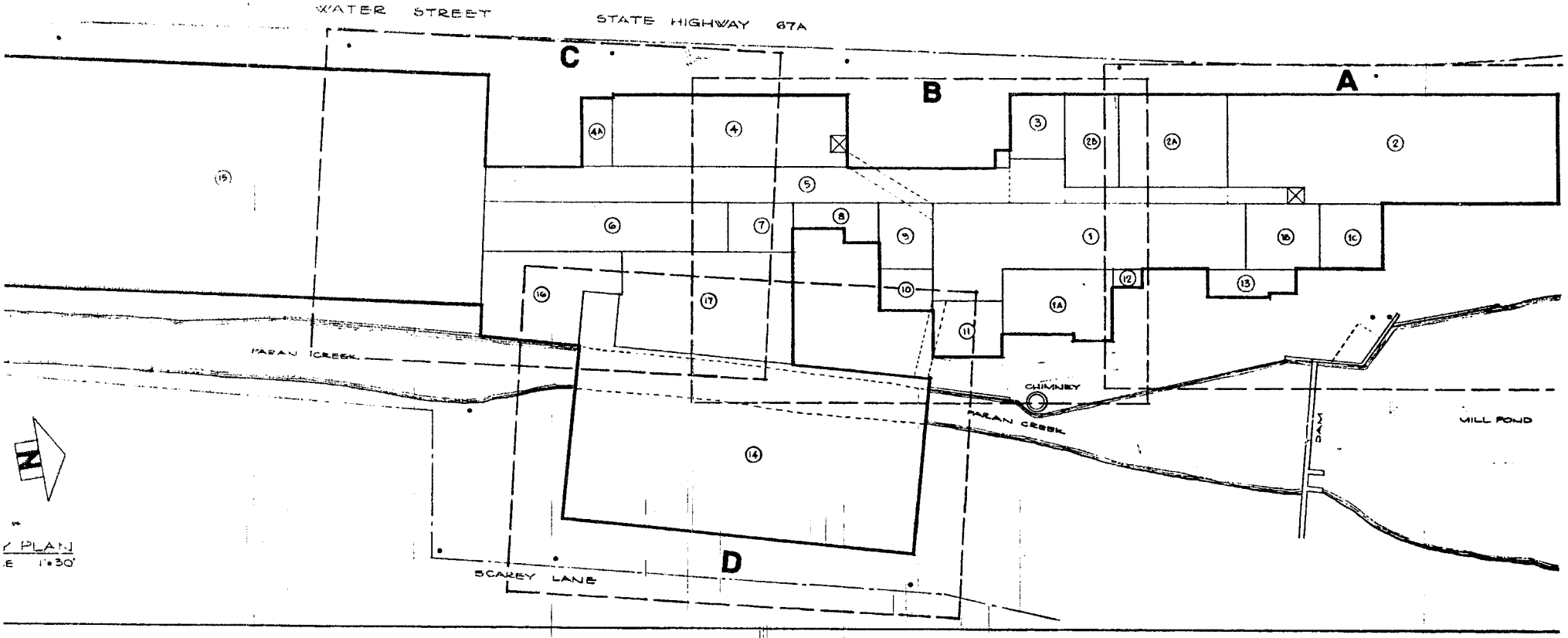
SH 10/93

1" = 40'

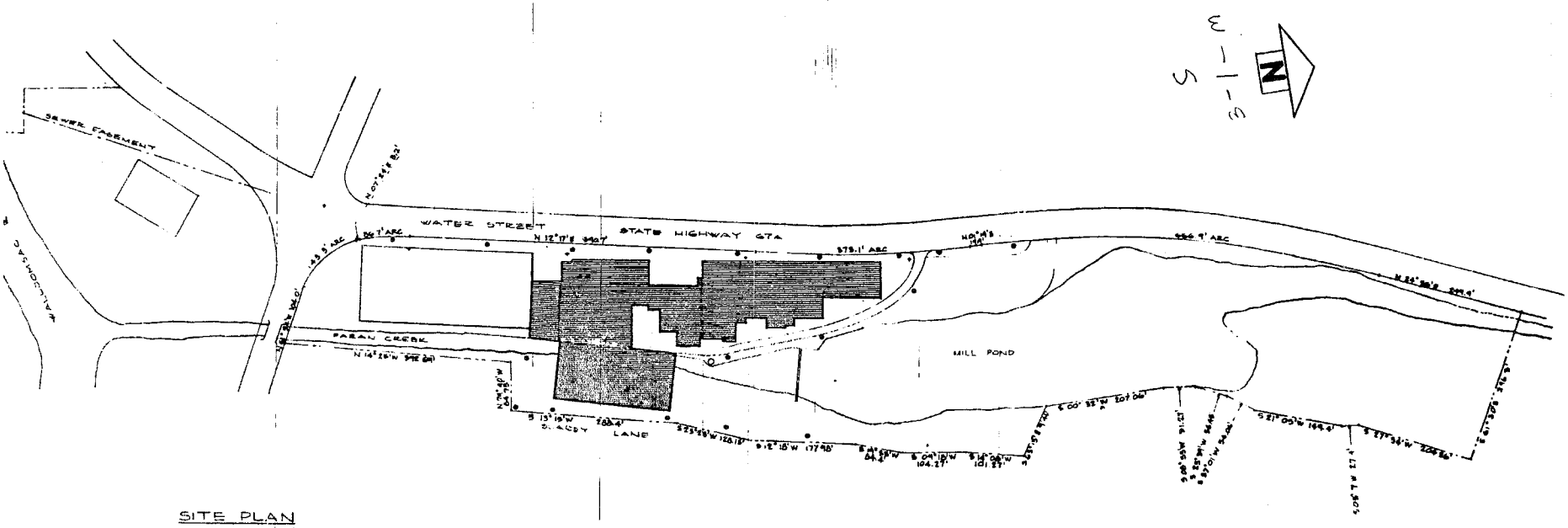


FIGURES 10 A,B

Lot 1 Building Plans from Assessment File



PLAN
E 1"=30'



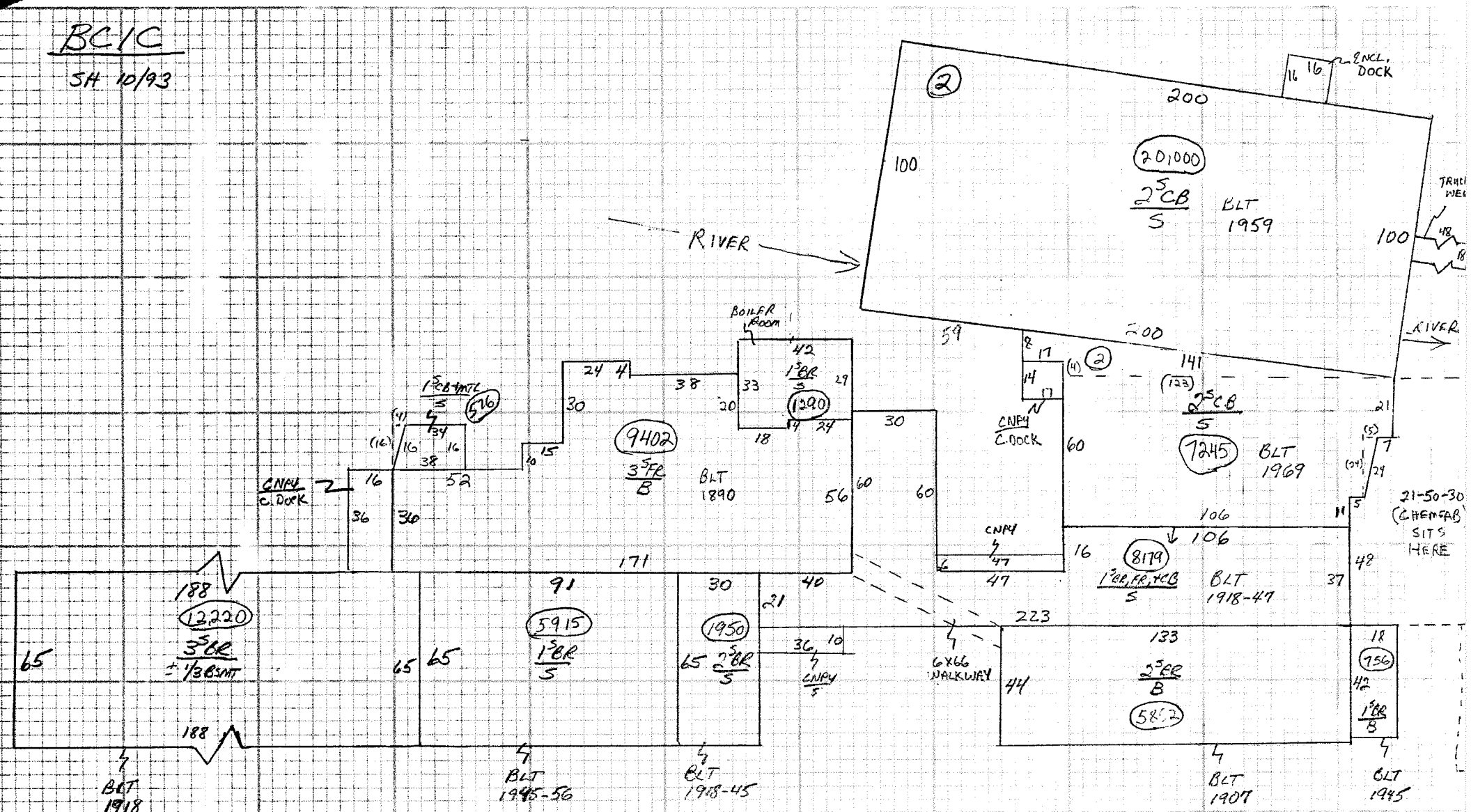
SITE PLAN
SCALE 1"=100'

AF-033

21-51-1

BCIC

SH 10/93



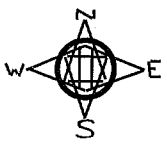
APPENDIX B

Photographs

APPENDIX B.1

Aerial Photographs

1942 Aerial Photograph



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SURVEYING
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FAX (518) 786-7299

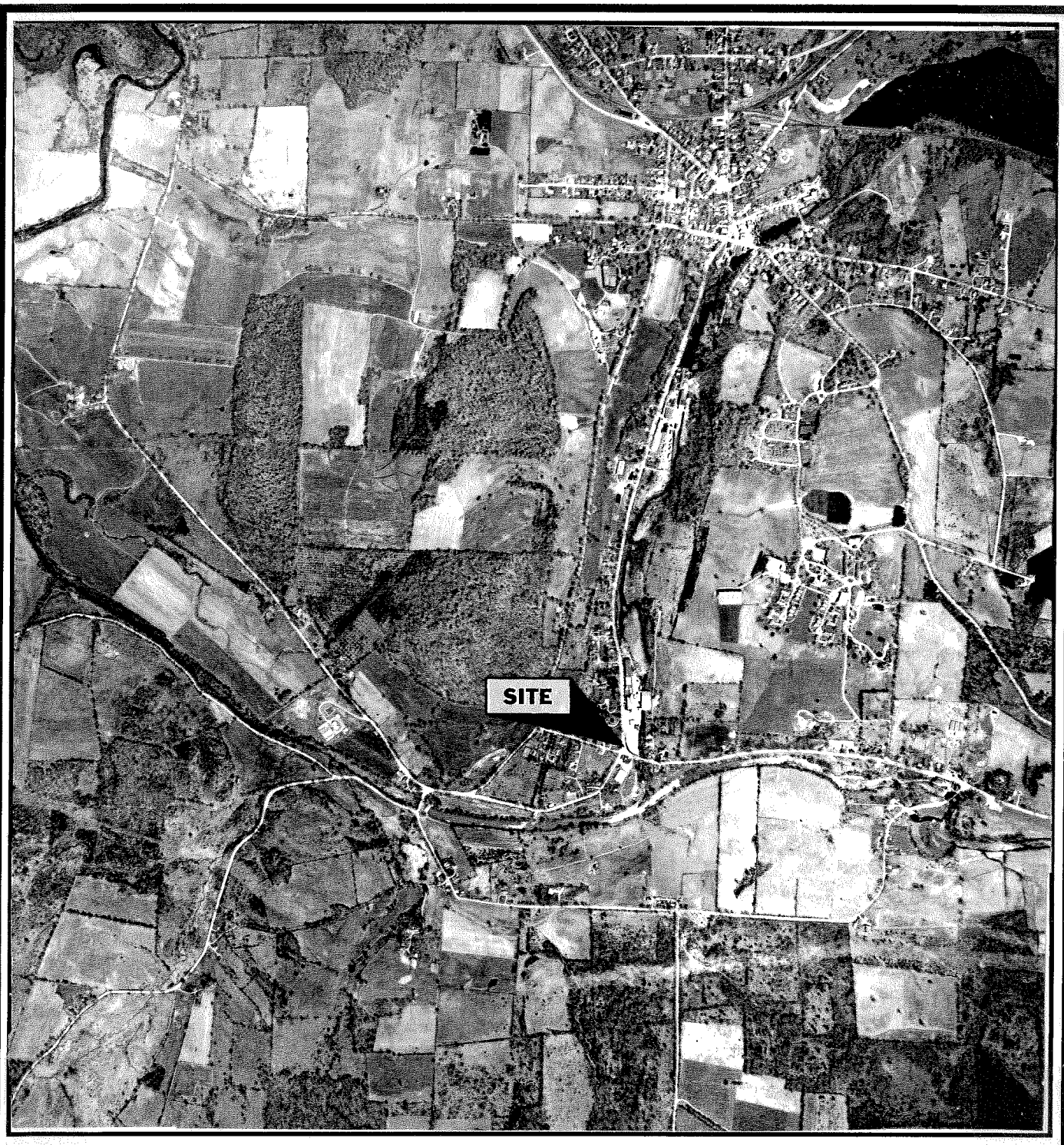
C.T.MALE ASSOCIATES, P.C.
50 CENTURY HILL DRIVE, PO BOX 727, LATHAM, NY 12110

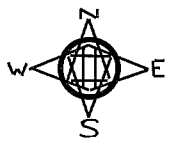
1942 AERIAL PHOTOGRAPH

SAINT-GOBAIN PERFORMANCE PLASTICS CORP. SITE

VILLAGE OF NORTH BENNINGTON	BENNINGTON COUNTY, VT
NOT TO SCALE	AERIAL PHOTOGRAPH COURTESY OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE BENNINGTON, VERMONT OFFICE.
DRAFTER: JAF	
PROJECT No.: 01.7390	

1962 Aerial Photograph





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1962 AERIAL PHOTOGRAPH

SAINT-GOBAIN PERFORMANCE PLASTICS CORP. SITE

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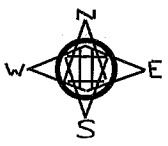
DRAFTER: JAF	
PROJECT No.: 01.7390	

1968 Aerial Photograph



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1968 AERIAL PHOTOGRAPH

SAINT-GOBAIN PERFORMANCE PLASTICS CORP. SITE

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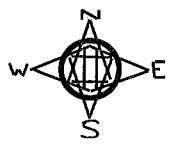
NOT TO SCALE	AERIAL PHOTOGRAPH COURTESY OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE BENNINGTON, VERMONT OFFICE.
DRAFTER: JAF	
PROJECT No.: 01.7390	

1977 Aerial Photograph



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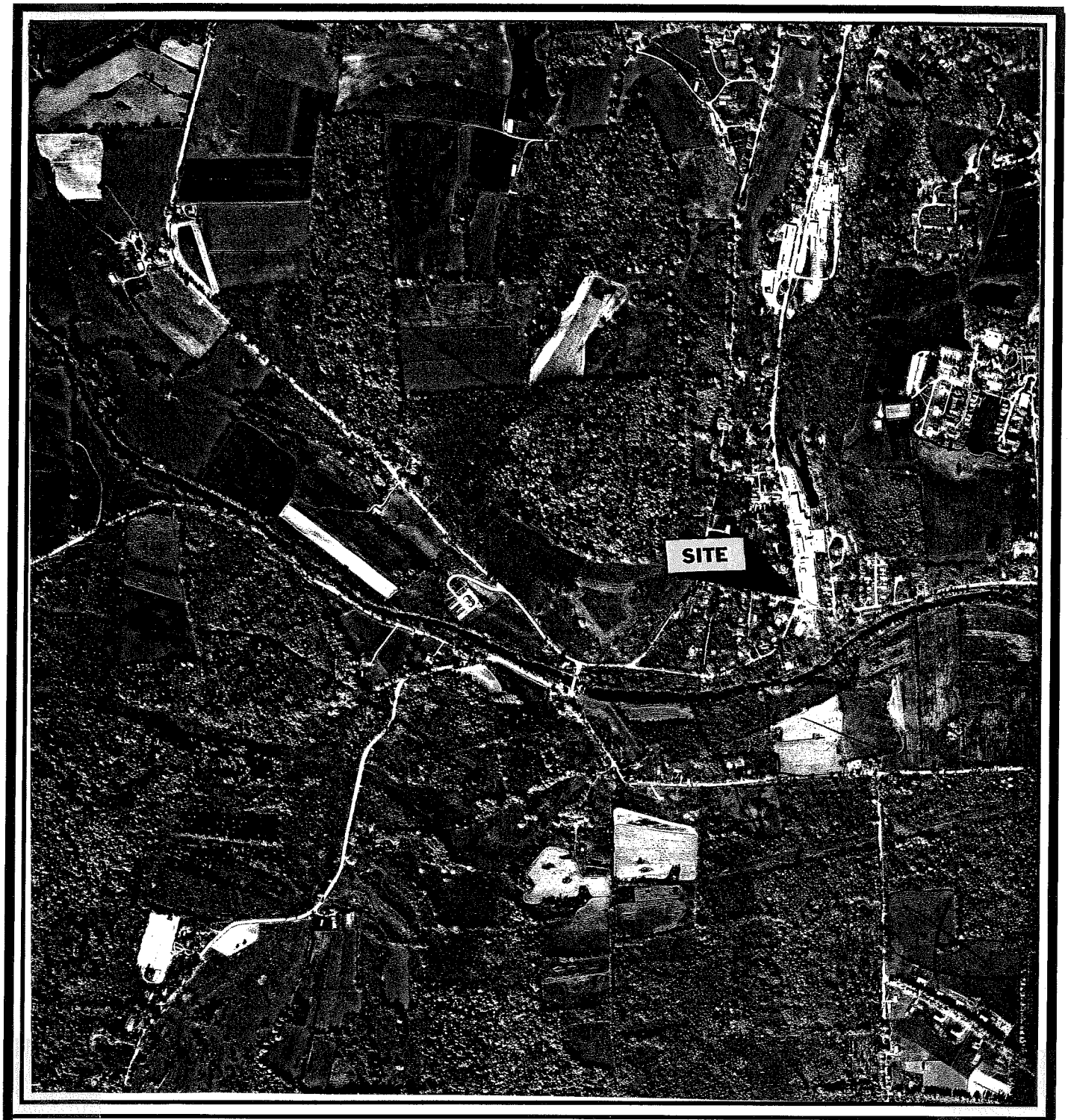
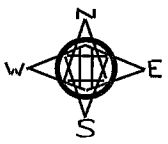
1977 AERIAL PHOTOGRAPH

SAINT-GOBAIN PERFORMANCE PLASTICS CORP. SITE

VILLAGE OF NORTH BENNINGTON	BENNINGTON COUNTY, VT
NOT TO SCALE	AERIAL PHOTOGRAPH COURTESY OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE BENNINGTON, VERMONT OFFICE.
DRAFTER: JAF	
PROJECT No.: 01.7390	

1980 Aerial Photograph





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1980 AERIAL PHOTOGRAPH

SAINT-GOBAIN PERFORMANCE PLASTICS CORP. SITE

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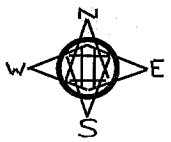
NOT TO SCALE	AERIAL PHOTOGRAPH COURTESY OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE BENNINGTON, VERMONT OFFICE.
DRAFTER: JAF	
PROJECT No.: 01.7390	

1986 Aerial Photograph



1986 AERIAL PHOTOGRAPH

SAINT-GOBAIN PERFORMANCE PLASTICS CORP. SITE

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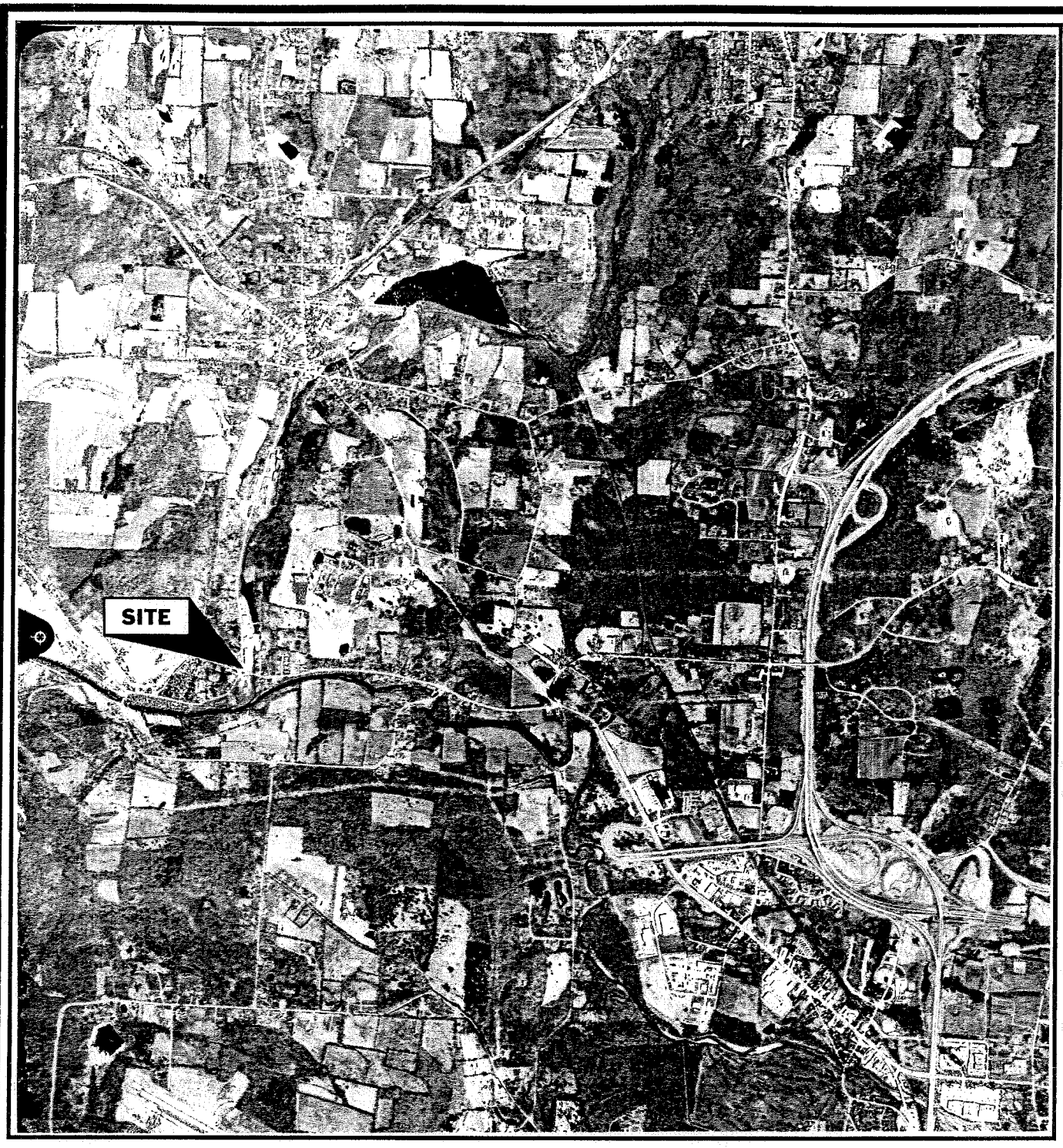
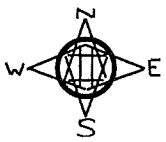
NOT TO SCALE	AERIAL PHOTOGRAPH COURTESY OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE BENNINGTON, VERMONT OFFICE.
DRAFTER: JAF	
PROJECT No.: 01.7390	

1990 Aerial Photograph





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SAINT-GOBAIN PERFORMANCE PLASTICS CORP. SITE

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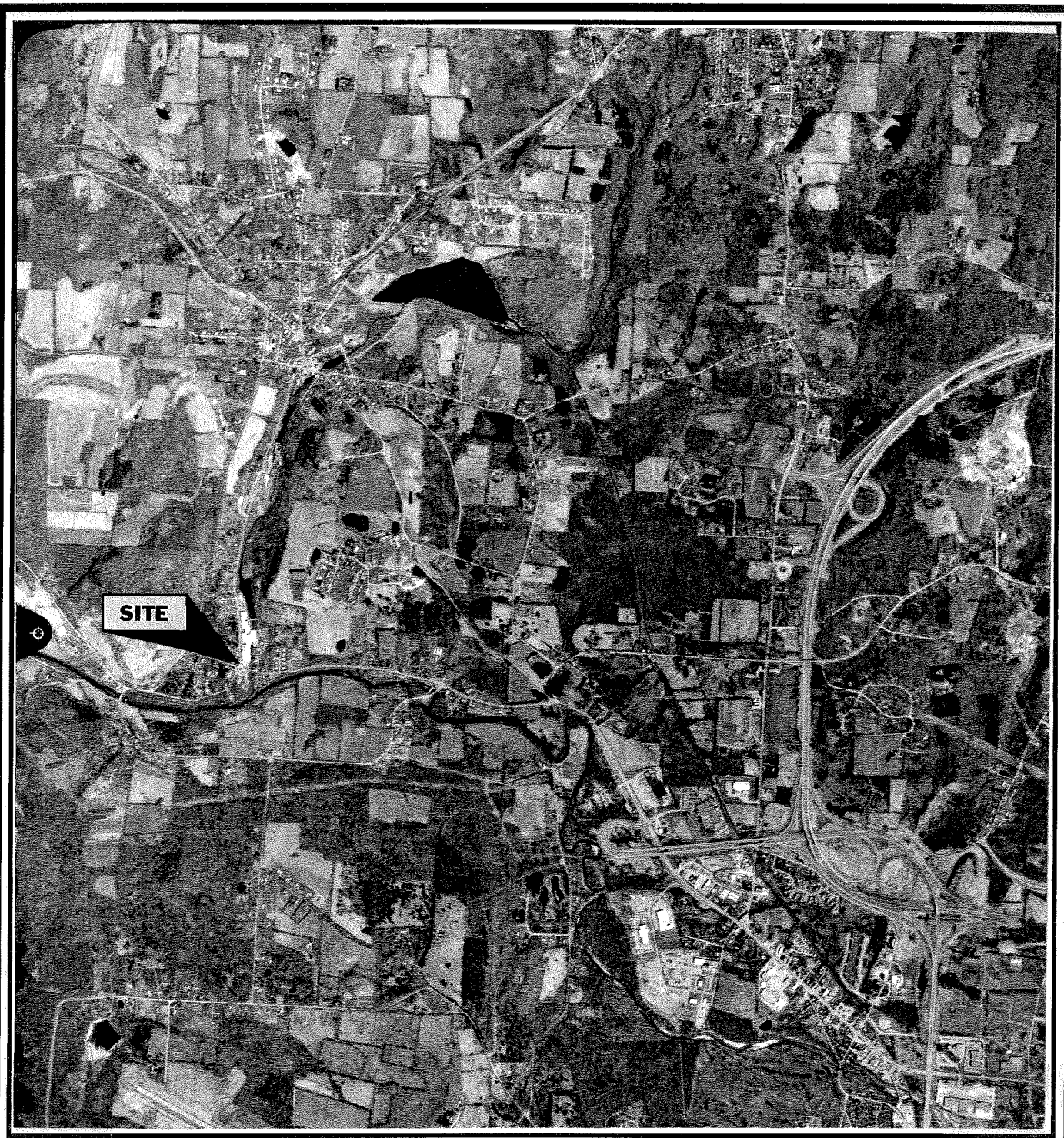
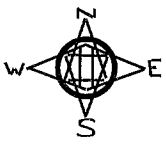
DRAFTER: JAF	
PROJECT No.: 01.7390	





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SAINT-GOBAIN PERFORMANCE PLASTICS CORP. SITE

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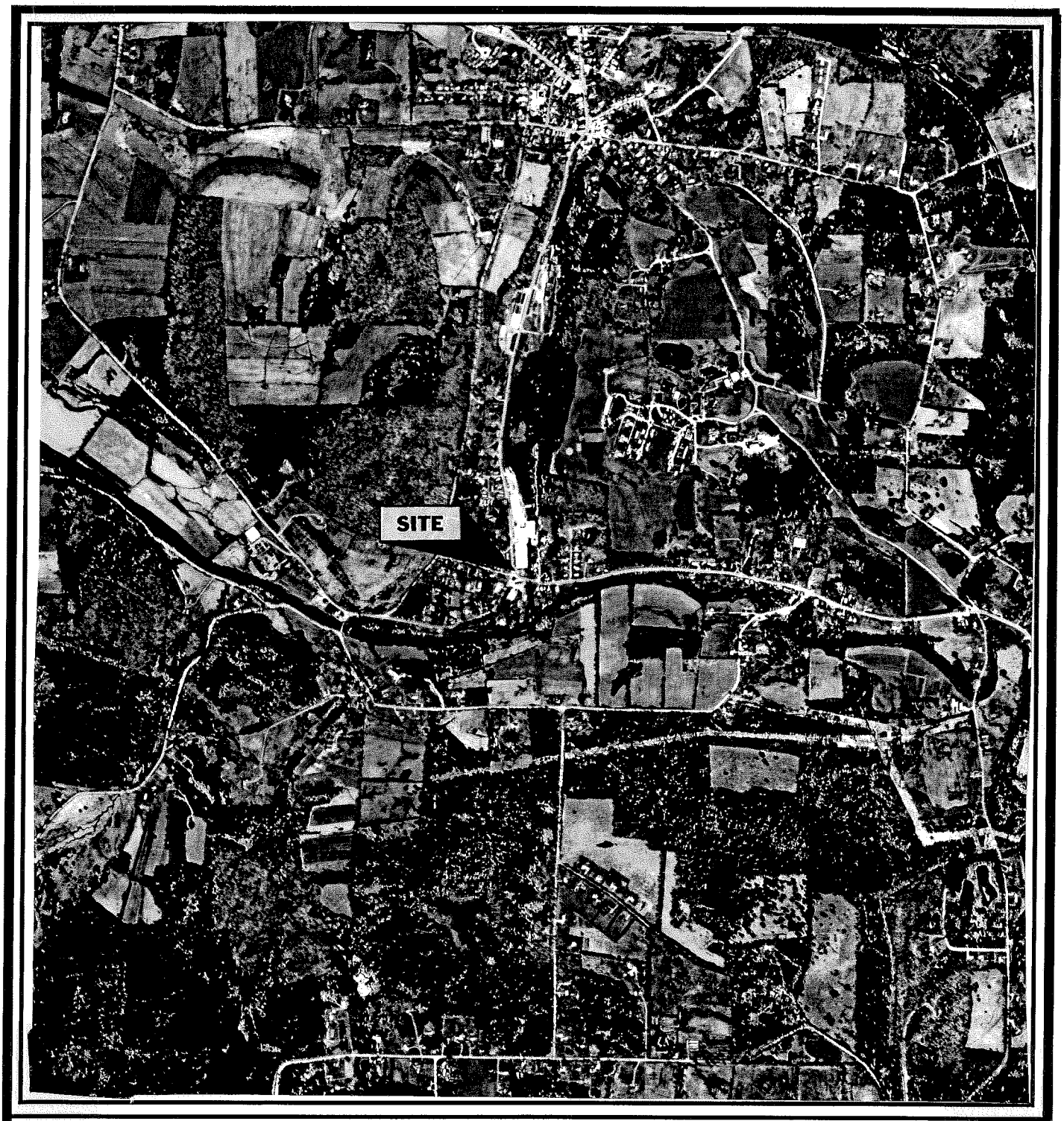
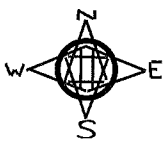
DRAFTER: JAF	
PROJECT No.: 01.7390	

1993 Aerial Photograph





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1993 AERIAL PHOTOGRAPH

SAINT-GOBAIN PERFORMANCE PLASTICS CORP. SITE

VILLAGE OF NORTH BENNINGTON	BENNINGTON COUNTY, VT
NOT TO SCALE	AERIAL PHOTOGRAPH COURTESY OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE BENNINGTON, VERMONT OFFICE.
DRAFTER: JAF	
PROJECT No.: 01.7390	

APPENDIX B.2

Site Visit Photographs

1

2

3

4

5

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7

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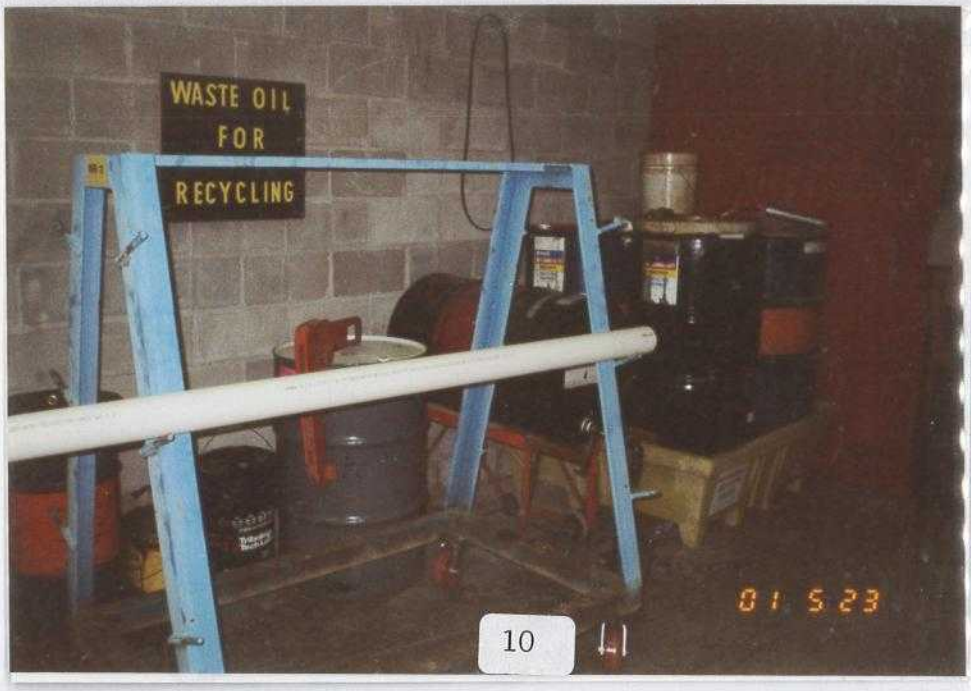
01 5 23

9


WASTE OIL
FOR
RECYCLING
01 5 23

10

FLAMMABLE
KEEP FIRE AWAY
FLAMMABLE
KEEP FIRE AWAY
NO
SMOKING
01 5 23

11

01 5 23

12

13

14

15

16

PHASE I
ENVIRONMENTAL SITE ASSESSMENT REPORT
SAINT-GOBAIN PERFORMANCE PLASTICS CORPORATION SITE

PHOTO LOG

NUMBER	DESCRIPTION
1.	View of the SGPPL-owned building from lot 31
2.	View of the west side of the leased and owned portions of the site building
3.	East side of SGPPL-owned building along Paran Creek
4.	Dumpster and loading dock area along leased/owned property line
5.	Typical operations within fabrication area
6.	Concrete pad on lot 31 at former building location
7.	Verizon shed located on lot 31
8.	Propane tanks on lot 31
9.	Drum storage within leased portion of building on lot 1
10.	Waste oil storage located within leased portion of building on lot 1
11.	Flammable materials storage cabinets in leased portion of building on lot 1
12.	Caustic and acetic acid cleaning/neutralization tanks
13.	View of spilled oil on floor of machine shop
14.	View of sump prior to discharge to sanitary sewer (west side of building)
15.	Pad mounted transformers near southwest corner of building on lot 30
16.	View of oil storage facilities on lot 1 (north of SGPPL-leased property)

APPENDIX C

References and Records of Communication

- Documents Reviewed
- List of People and Agencies Contacted

PHASE I
ENVIRONMENTAL SITE ASSESSMENT REPORT
SAINT-GOBAIN PERFORMANCE PLASTICS CORPORATION SITE

DOCUMENTS REVIEWED

1. Aerial Photographs of the site for the years: 1942, 1962, 1968, 1977, 1980, 1986, 1990 and 1993. Courtesy of the Natural Resource Conservation Service.

2. EPA's Comprehensive Environmental Response Compensation and Liability Information System, March 16, 2001.

3. EPA's Emergency Response Notification System, August 8, 2000.

4. EPA's National Priority List, January 23, 2001.

5. EPA's Resource Conservation and Recovery Information System, June 21, 2000.

6. EPA's Resource Conservation and Recovery Information System, Listing of Transportation, Storage and Disposal Facilities, June 21, 2000.

7. Toxic Release Inventory, December 31, 1997.

8. Fire Insurance Maps from the Sanborn Map Company Archives. Late 19th Century to 1990: New York University Publications of America. Bethesda, Maryland.

9. Vermont Department of Environmental Conservation, Solid Waste Facilities/Landfill Sites, March 1, 1999.

10. Vermont Department of Environmental Conservation, State Hazardous Waste Sites, January 24, 2001.

11. Vermont Department of Environmental Conservation, State of Vermont Underground Storage Tank Database, April, 24, 2001.

12. Vermont Department of Environmental Conservation, Leaking Underground Storage Tank Incident Reports, January, 24, 2001.

13. Site Plan of Chemical Fabrics Corp., prepared by Factory Mutual Engineering Association, dated June 6, 1969, revised May 11, 1987.

14. Soil Conservation Service Mapping for Bennington County, Vermont. Obtained through the Natural Resources Conservation Service.

15. Town of Bennigton Tax Map 21, prepared by Cartographic Associates, Inc., 1987.

PHASE I
ENVIRONMENTAL SITE ASSESSMENT REPORT
SAINT-GOBAIN PERFORMANCE PLASTICS CORPORATION SITE

16. Underground Storage Tank Closure and Site Assessment Report, prepared by GZA GeoEnvironmental, Inc., dated August 30, 1994.

17. United States Geological Survey Topographic Map of the Bennington, VT Quadrangle, 1954, and Hoosick Falls, NY, 1943, 7.5 Minute Series.

PHASE I
ENVIRONMENTAL SITE ASSESSMENT REPORT
SAINT-GOBAIN PERFORMANCE PLASTICS CORPORATION SITE

LIST OF PEOPLE AND AGENCIES CONTACTED

1. Mr. Robert Prohaska, Manager of Safety Technology and Quality of the Saint-Gobain Performance Plastics Corporation North Bennington facility.
2. Natural Resources Conservation Service Bennington Office, Ms. Jenny Kimberly (District Conservationist).
3. Mr. Larry McLeod, Town of Bennington Health Officer.
4. Mr. Tyler Resch, Bennington Museum Librarian.
5. Town of Bennington Assessor's Office.
6. Town of Bennington Building/Planning/Zoning Office.
7. Town of Bennigton Public Works Department – Wastewater.
8. Vermont Department of Environmental Conservation, Mr. Bruce Linton.
9. Village of North Bennington Fire Department.
10. Village of North Bennington Water Department, Mr. Jerry Elwell.
11. Bennington Free Library.

Records of Communication

CTM 12000-35

Project Number: 01.7390

SGPPL
Project/Client

PHONE CALL REPORT

I called [X] Party called [ ]

I returned call [ ] Party returned call [X]

TIME 2:55 ___AM PM

S M [X] W T F S

Date: 5-29-01

The following was discussed between

Joe Farron

of C.T. Male Associates regarding

and Jerry Elwell

Title: ~~Village~~ of N. Bennington Water Dept.

Address:

Zip Code:

Phone: (802) 442-3883 Ext.:

<LEFT MESSAGE ON VOICE MAIL>

Hi Joe, I'm calling regarding your question on the Chemfab site. That building was connected to the sanitary sewer system in 1968-69 upon construction. The building was owned at that time by Polygraphic Company of America. I don't have info about when BCIC building was connected, although it would have been connected by that time (±1968-69).

Copy to:

Signed: Joe Farron

CTM 12000-35

Project Number: 01.7390

SGPPL
Project/Client

PHONE CALL REPORT

I called ☐ Party called ☐

I returned call ☐ Party returned call ☒

11:30 AM / PM TIME

S M T W X F S

Date: 5-31-01

The following was discussed between

Joe Farron
of C.T. Male Associates regarding

and Bruce Linton
Title:
of VT DEC
Address:
Zip Code:
Phone: (802) 241-3872 Ext.:

I have the details you were looking for regarding 951896 - Bennington County Industrial Corp. - I was the DEC spill investigator. That spill has been particularly difficult to clean up, as it is #6 oil near Paran Creek, behind the BCIC building. Some material has migrated into the creek, however most is contained along the Creek retaining wall. There is a pump & treat system operating at the spill site, and wells to the south of the spill (north of owned and leased sections) do not indicate product migration. I don't see any way the contamination has affected the SGPPL property - based on our info, only migration has been into Creek.

Thanks for your help.

You're welcome.

Copy to:

Signed: Joe Farron

TOWN OF BENNINGTON

May 22, 2001

RECEIVED
MAY 24 2001
C.T. Male Associates, P.C.

Ms. Deborah Del Sole
C.T. Male Associates, P.C.
50 Century Hill Drive
P.O. Box 727
Latham, NY 12110-0727

Re: Chemfab/Saint-Gobain Performance Plastic Corporation Site

Dear Ms. Del Sole:

This office does not have any records on file regarding any ground water, soil and/or surface water contamination for the Chemfab/Saint-Gobain site located at 1030 Water Street nor any immediate surrounding parcels. It is also advised to check with the State of Vermont, Agency of Natural Resources to inquire about any records they may have. If you have any questions or require additional information, please let me know.

Sincerely,

Larry McLeod
Health Officer

LM/am

K:\Building & Zoning\Larry\Misc. Letters\2001\DD05-22-01.wpd

205 SOUTH STREET P.O. BOX 469 BENNINGTON, VERMONT 05201
802-442-1037 FAX (802) 442-1068

C.T. MALE ASSOCIATES, P.C.

50 Century Hill Drive, P. O. Box 727, Latham, New York 12110-0727
518.786.7400 FAX 518.786.7299 www.ctmale.com

May 21, 2001

Mr. Larry McCloud
Vermont Health Officer
205 South Street
Bennington, Vermont 05201

Re: FOIL Request
Chemfab/Saint-Gobain Performance Plastics Corporation Site
CTMA Project No.: 01.7390

Dear Mr. McCloud:

Our office is completing a Phase I Environmental Site Assessment at the above referenced site which is located at 1030 Water Street in the Village of North Bennington, Bennington County. Enclosed please find a site location map.

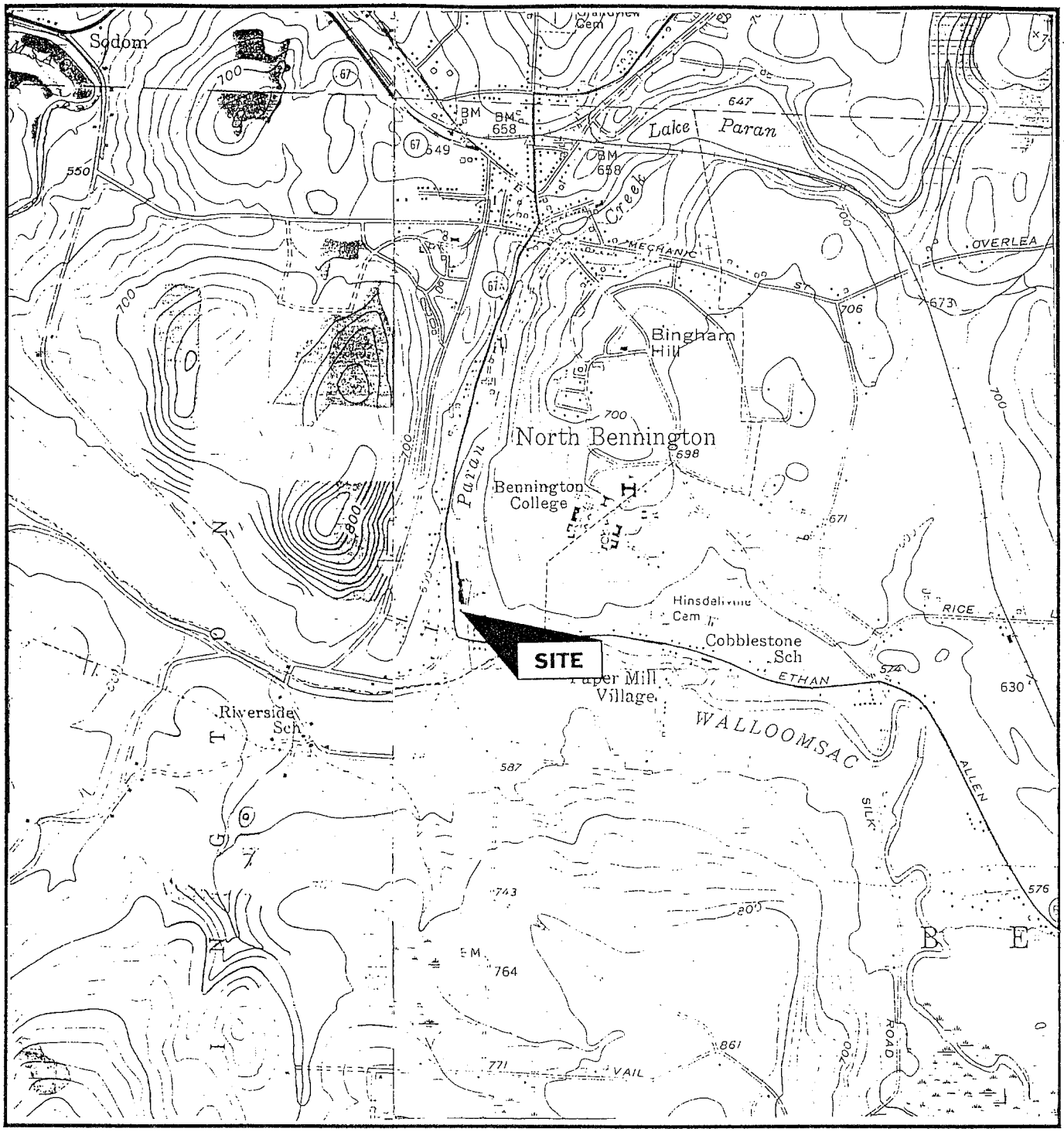
Pursuant to the Freedom of Information Law (FOIL), please indicate any County Health Department records for groundwater, soil and/or surface water contamination at the subject site or immediate surrounding parcels.

If you have any questions or comments regarding this request, or need additional information, please feel free to contact our office at (518) 786-7400. Your assistance is greatly appreciated.

Sincerely,
C.T. MALE ASSOCIATES, P.C.

Deborah DelSole
Environmental Scientist

K:\Projects\017390\Admin\FOILDOH.doc



MAP REFERENCE

United States Geologic Survey
7.5 minute Series Topographic Map
Quadrangle: Hoosick Falls NY, 1943 and
Bennington, VT, 1954

N
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E

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SURVEYING
PHONE (518)786-7400
FAX (518) 786-7299

C.T.MALE ASSOCIATES, P.C.
50 CENTURY HILL DRIVE, PO BOX 727, LATHAM, NY 12110

FIGURE ONE - SITE LOCATION MAP

1030 WATER STREET

VILLAGE OF NORTH BENNINGTON	BENNINGTON COUNTY, VT
SCALE: 1":2,000'	
DRAFTER: DAD	
PROJECT No. 01.7390	

C.T. MALE ASSOCIATES, P.C.

50 Century Hill Drive, P. O. Box 727, Latham, New York 12110-0727
518.786.7400 FAX 518.786.7299 www.ctmale.com

May 21, 2001

FOIL Officer
North Bennington Fire Department
Prospect Street
North Bennington, Vermont 05257

Re: FOIL Request
Chemfab/Saint-Gobain Performance Plastics Corporation Site
CTMA Project No.: 01.7390

To Whom It May Concern:

Our office is completing a Phase I Environmental Site Assessment at the above referenced site which is located at 1030 Water Street in the Village of North Bennington, Bennington County. Enclosed please find a site location map.

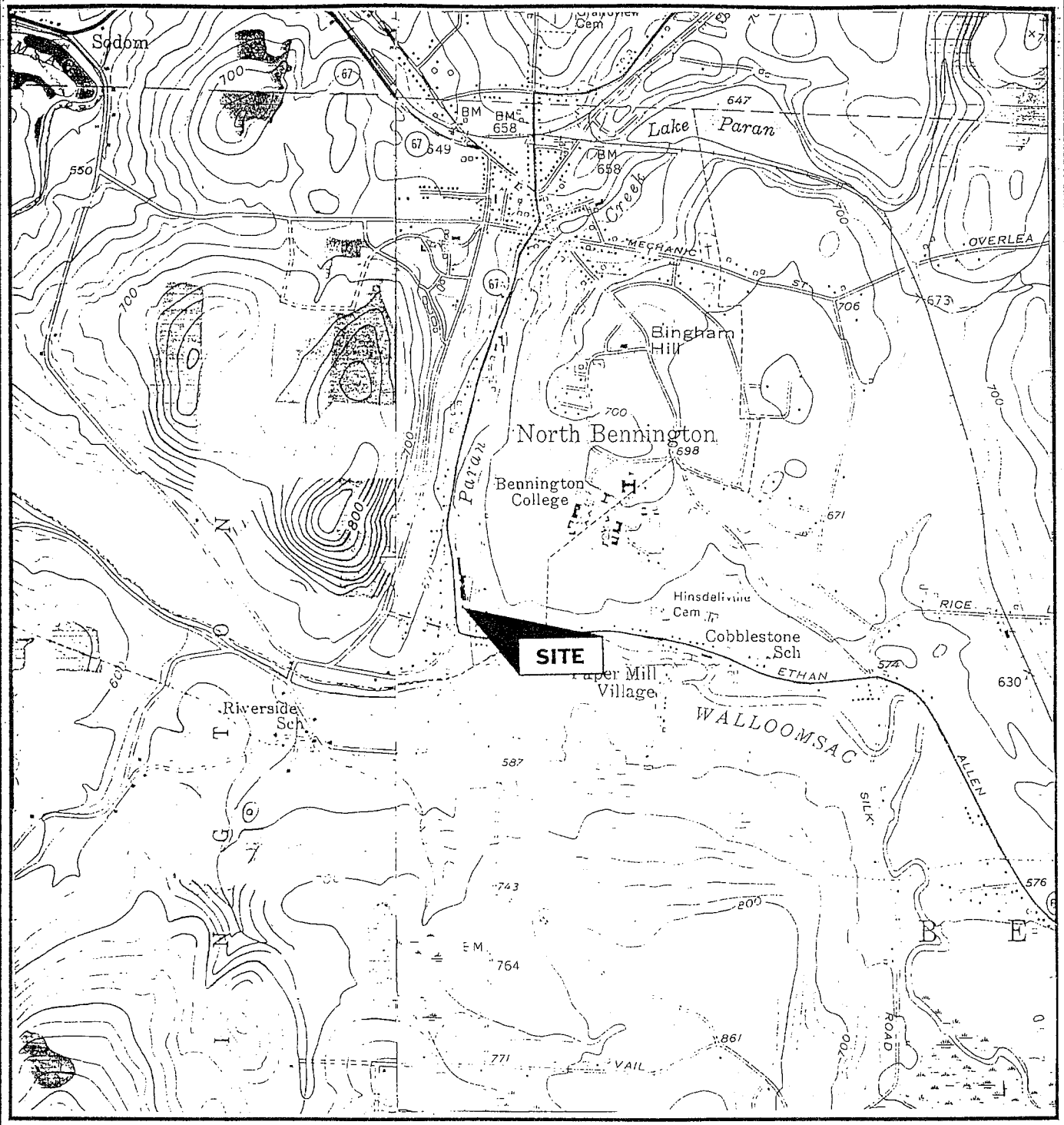
Pursuant to the Freedom of Information Law (FOIL), please indicate any responses to releases of hazardous materials, releases from underground or above ground storage tanks, or major fires at this site or any immediately adjoining property.

If you have any questions or comments regarding this request, or need additional information, please feel free to contact our office at (518) 786-7400. Your assistance is greatly appreciated.

Sincerely,
C.T. MALE ASSOCIATES, P.C.

Deborah DelSole
Environmental Scientist

K:\Projects\017390\Admin\FOILFD.doc



MAP REFERENCE
United States Geologic Survey
7.5 minute Series Topographic Map
Quadrangle: Hoosick Falls NY, 1943 and
Bennington, VT, 1954

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SURVEYING
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C.T.MALE ASSOCIATES, P.C.
50 CENTURY HILL DRIVE, PO BOX 727, LATHAM, NY 12110

FIGURE ONE - SITE LOCATION MAP

1030 WATER STREET

VILLAGE OF NORTH BENNINGTON	BENNINGTON COUNTY, VT
SCALE: 1":2,000'	
DRAFTER: DAD	
PROJECT No. 01.7390	

C.T. MALE ASSOCIATES, P.C.

PHONE CALL REPORT

Project Number: 01.7390.1

Day: Thursday Date: 5/24/01

I called X Party called _____ AM 10:30

I returned call _____ Party returned call _____ PM _____

The following was discussed between:

Deb DelSole and Tyler Resch

of C.T. Male Associates regarding: Chemfab (SGPPL) Bennington of Bennington Museum

Phone # 802-447-1571

Early 1800's the site was a cotton mill.
- most likely in the building Chemfab leases

Early 1900's - H C White Co. - they created stereographs & photographs for all over the world
- they also made the Kiddie Car - a pre-tricycle 3 wheeled bike for kids

He did not know what existed in between these two companies.

He could not think of any other environmental concerns on the property from past uses.

He did not know what the building was that existed across Rt 67A next to the Walloomsac River.

c:

APPENDIX D

Underground Storage Tank Closure and Site Assessment Report

GZA
GeoEnvironmental, Inc.

Engineers and Scientists

August 30, 1994
File No. 21295 C

Mr. Ted Unkles, Supervisor
Vermont Department of Environmental Conservation
Hazardous Materials Management Division
Underground Storage Tank Program
103 South Main Street/West Office
Waterbury, Vermont 05671-0404

Re: Underground Storage Tank (UST) Closure and Site Assessment Report
Chemfab Corporation Site
Water Street
North Bennington, Vermont
(Facility ID No. 9999637)

380 Harvey Road
Manchester
New Hampshire 03103
603-623-3600
FAX 603-624-9463

Dear Mr. Unkles:

On behalf of Chemfab Corporation (Chemfab), GZA GeoEnvironmental, Inc. (GZA) is pleased to submit to the Vermont Department of Environmental Conservation (DEC), Hazardous Materials Management Division (HMMD), Underground Storage Tank Program (USTP) the attached letter in support of a UST closure performed on August 27, 1994 at the above-referenced site. GZA observed and monitored the UST closure in accordance with DEC, HMMD's draft UST Closure and Site Assessment Requirements dated May 11, 1994. A Site Assessment was required per DEC regulations, because the UST was a 2,000-gallon fuel oil tank. Copies of the relevant USTP Closure Forms are attached.

The following sections of the UST Closure and Site Assessment Report correspond with Chapter III of HMMD's May 11, 1994 draft requirements.

A Subsidiary of GZA GeoEnvironmental Technologies, Inc.

GENERAL SITE INFORMATION

GZA observed and monitored the closure of a 2,000 gallon Fuel Oil No. 2 UST at the site on August 27, 1994 by Clean Harbors of Glenmont, New York. Soils excavated during closure were screened for evidence of petroleum contamination using photoionization headspace screening, as well as visual/olfactory inspection. No evidence of petroleum contamination was observed in surficial soils around the fill pipe, soil removed from the excavation, sidewall soils, or soils at the bottom of the excavation. After the UST was removed from the excavation, GZA collected grab samples from each of the four sidewalls, as well as from the bottom of the excavation. Headspace screening of these samples did not detect the presence of volatile organic compounds (VOCs) above the instrument detection limit of 0.0 parts per million (ppm), with the exception that 0.8 ppm total VOCs were detected in a single grab sample collected from native soil at the bottom of the

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An Equal Opportunity Employer M/F/V/H

excavation. Please refer to the attached USTP Closure Forms for additional information.

An attached Site Plan was prepared in accordance with the requirements of Chapter III, Item A of HMMD's May 11, 1994 draft requirements. As shown on the plan, sensitive environmental areas were not detected with an approximate 500-foot radius of the site. Also shown on the plan is Paran Creek, located approximately 250 feet to the east of the UST excavation. The plan also depicts abutter locations. Land usage in the site vicinity is primarily mixed residential/light industrial.

During the site visit, GZA did not note the presence of unusual conditions other than what might be expected in similar settings.

SITE CHARACTERISTICS AND CONTAMINANT INVESTIGATION RESULTS

GZA notes that the majority of the information requested in this section is provided on the attached USTP Closure Forms. Information requested in Chapter III, Item B but not contained on the Closure Forms or previously discussed is provided in bullet form below:

- Subsurface materials in the vicinity of the tank excavation included about 7 feet of moist, brown to reddish brown loamy, gravelly sand which was underlain by moist, light brown fine sand to the bottom of the excavation. Groundwater was not observed in the excavation to a depth of about 8 feet;

- Based on the relatively coarse granular soils encountered by the excavation, GZA anticipates the soil to have relatively moderate to high hydraulic conductivity;

- Topography in the site vicinity slopes gently to the east to southeast towards Paran Creek, which flows to the south towards the Walloomsac River. Based on the proximity of the creek, its direction of flow, and surficial topography, GZA anticipates that overburden groundwater flows towards the east to southeast; and

- Bedrock was not encountered during UST closure, but is anticipated to consist of high grade meta-sedimentary and/or meta-igneous rock, and to exist at a depth of about 50 to 100 feet.

ANALYTICAL METHODS AND RESULTS

In addition to photoionization screening and olfactory/visual inspection of excavation soils, GZA collected two composite soil samples designated "Sidewalls" and "Bottom Excavation" for analytical laboratory testing for VOCs in accordance with United States Environmental Protection Agency (EPA) Method 8020 and for Total Petroleum Hydrocarbons in accordance with American Society of Testing and Materials (ASTM)

Method D-3328-78. The two composite soil samples were collected as follows:

- Sidewalls - composite of 24 grab samples collected from the sidewalls of the excavation; and
- Bottom Excavation - composite of 6 grab samples collected from the bottom the excavation.

GZA will copy the results of these analyses to DEC, HMMD, USTP when they become available. Please refer to the attached Chain-of-Custody Record and Analysis Request for additional information.

CONCLUSIONS AND RECOMMENDATIONS

Because no evidence of a release was noted during the closure, GZA recommends that no further action be taken with respect to the site.

GZA appreciates the opportunity to work with the DEC, HMMD, USTP on this project. Should you have any questions, please call us.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

I. Richard Schaffner, Jr.
Hydrogeologist

For Ron A. Breton, P.E.
Associate Principal

Attachments: Completed DEC, HMMD, USTP Closure Forms
Site Plan
Chain-of-Custody Record and Analysis Request

cc: Mr. Edward W. Frechette, Chemfab Corporation

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
UNDERGROUND STORAGE TANK PROGRAM
103 SOUTH MAIN STREET
WATERBURY, VERMONT 05671-0404
(802) 241-3888

Chemfab
Mon 8-29-94

Date of Removal: 08/27/94 Date of Assessment: 08/27/94

Person & Company Doing Assessment:
I. Richard Schaffner, Jr.
GZA GeoEnvironmental, Inc.
Telephone Number: (603) 623-3600

Business Name Where Tank(s) Located: Chemfab Corporation
Number of Employees: 105
Street Address & Town/City: Water Street, P.O. Box 476
North Bennington, Vermont 05257

Owner of Tank(s): Chemfab Corporation
Address: Water Street, P.O. 476 Contact Person: Mr. Edward Frechette CPE
Town/City: North Bennington, VT 05257 Phone Number: (603) 424-9000 ext. 373

UST Facility ID Number:

Tank #	Product	Size	Condition
1	No. 2 Fuel Oil	2,000 gallon	Good, some pitting
2			
3			
4			

Reason for Tank Removal (check one): ☒ abandoned ☐ routine replacement ☐ tank or piping leaking ☐ liability

Replacement Tank(s)? ☐ yes ☒ no Number of Replacement Tanks: _____
DEC UST Permit(s) Obtained? ☒ yes ☐ no

DEC-Permitted Tank(s) Still On-Site? ☐ yes ☒ no Number of Tanks: _____
Out of Service Tank(s) On-Site? ☐ yes ☒ no Number of Tanks: _____
Heating Oil Tank(s) On-Site? ☐ yes ☒ no No. of Tanks: _____ Size(s): _____

Any Waste Pumpage? ☒ yes ☐ no Estimated Volume: 122 gallon
Transported By: Clean Harbors

Size of Excavation (ft²): 210 Depth: 8 feet Soil Type: Sand to Sand and Gravel
Concentrations Detected with PID: Peak = 0.8 ppm Average = 0.0
Type of PID: TEI OVM Model 580B
Number of Readings (please put locations on attached drawing): 30
Calibration Info. (date, time, type of gas): 8/27/94, 0645, isobutylene
Free Phase Product Encountered? ☐ yes ☒ no Approx. Amount: _____
Cont. Soils Stockpiled? ☐ yes ☒ no Amount (yd³): _____
Cont. Soils Backfilled? ☐ yes ☒ no Amount (yd³): _____

Groundwater Encountered? ☐ yes ☒ no Depth to Groundwater: greater than 8 feet
Monitoring Wells Installed? ☐ yes ☒ no Number: _____ Screen Depth: _____

On-Site Drinking Well? ☐ yes ☒ no (if yes: ☐ rock ☐ gravel ☐ spring)
Public Water Supply Well(s) Within ½ Mile? ☐ yes ☒ no
Distance to nearest: Town uses reservoir
Private Water Supply Well(s) Within ½ Mile? ☐ yes ☒ no How Many? _____

Samples Collected for Laboratory Analysis? ☒ yes ☐ no How Many? 2
(check all that apply: ☒ soil ☐ groundwater ☐ drinking water)

Receptors Affected (check all that apply):
☐ soil ☐ residential; # of houses/people: _____
☐ groundwater ☐ surface water; name/type of water body: _____

Signature of Owner or Authorized Representative: _____
Date: 8/29/94

Signature of Person Performing Site Assessment: I. Richard Schaffner, Jr.
Date: 8/27/94

*** ATTACH OBSERVATIONS, CONCLUSIONS, AND DRAWING ON A SEPARATE PAGE ***

White - DEC File Copy Yellow - DEC File Copy Pink - Owner Copy

GZA GeoEnvironmental, Inc.
Engineers and Scientists
Air Park Business Center
380 Harvey Road
MANCHESTER, NH 03103
(603) 623-3600
FAX (603) 624-9463

LETTER OF TRANSMITTAL

DATE 9/15/94	JOB NO. 21295 C
ATTENTION Mr. Ted Unkles, Supervisor	
RE Chemfab Corporation Site North Bennington, Vermont	

TO Vermont Department of Environmental Conservation
Hazardous Materials Management Division
Underground Storage Tank Program
103 South Main Street/West Office
Waterbury, Vermont 05671-0404

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items.

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of Letter ☐ Change Order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1	8/94		Analytical Laboratory Results
			Chemfab Corporation Site
			Water Street
			North Bennington, Vermont
			(Facility ID No. 9999637)

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☒ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Please find attached one (1) copy each of petroleum hydrocarbon (PHC) and volatile organic compound (VOC) analytical laboratory results for two composite soil samples collected during the August 27, 1994 underground storage tank closure at the above-referenced site. Laboratory analyses for PHCs and VOCs were performed in accordance with United States Environmental Protection Agency Methods 8100 and 8020, respectively. Should you have any questions, please call.

COPY TO Mr. Edward W. Frechette, Chemfab Corporation SIGNED I. Richard Schaffner, Jr.

If enclosures are not as noted, kindly notify us at once.

GZA GEOENVIRONMENTAL, INC.
ENVIRONMENTAL CHEMISTRY LABORATORY
320 NEEDHAM STREET
NEWTON UPPER FALLS, MA 02164
MASSACHUSETTS LABORATORY ID# MA092

HYDROCARBON FINGERPRINTING
MODIFIED ASTM METHOD D3328 / EPA METHOD 8100
CONCENTRATION (PPM-ug/g-Solid)

PROJECT: UST CLOSING ACTIVITIES CHEMFAB – N. BENNINGTON, VT
FILE NO.: 21295
PROJECT MGR: E. HAWKINS
DATE SAMPLED: 8/27/94
DATE EXTRACTED: 9/2/94
DATE TESTED: 9/2/94

SAMPLE ID GZA LAB NO.	METHOD BLANK 090294-QC	SIDEWALLS COMP. R3758-PHC
1. HYDROCARBON CONTENT	<10	<10
2. PERCENT SOLID CONTENT	N/A	95%
3. MATRIX	N/A	SOIL
4. DETECTION LIMIT (TOTAL PRODUCT)	10	10
5. DETECTION LIMIT (INDIVIDUAL HYDROCARBONS)	0.5	0.5
6. SURROGATE RECOVERY (P-TERPHENYL)	89%	62%

QUALITATIVE IDENTIFICATION: N/A

ANALYZED BY: REVIEWED BY:

GZA GEOENVIRONMENTAL, INC.
ENVIRONMENTAL CHEMISTRY LABORATORY
320 NEEDHAM STREET
NEWTON UPPER FALLS, MA 02164
MASSACHUSETTS LABORATORY ID# MA092

HYDROCARBON FINGERPRINTING
MODIFIED ASTM METHOD D3328 / EPA METHOD 8100
CONCENTRATION (PPM-ug/g-Solid)

PROJECT: UST CLOSING ACTIVITIES CHEMFAB – N. BENNINGTON, VT
FILE NO.: 21295
PROJECT MGR: E. HAWKINS
DATE SAMPLED: 8/27/94
DATE EXTRACTED: 9/2/94
DATE TESTED: 9/2/94

SAMPLE ID GZA LAB NO.	METHOD BLANK 090294-QC	BOTTOM EXCAVATION COMP. R3759-PHC
1. HYDROCARBON CONTENT	<10	<10
2. PERCENT SOLID CONTENT	N/A	86%
3. MATRIX	N/A	SOIL
4. DETECTION LIMIT (TOTAL PRODUCT)	10	10
5. DETECTION LIMIT (INDIVIDUAL HYDROCARBONS)	0.5	0.5
6. SURROGATE RECOVERY (P-TERPHENYL)	89%	66%

QUALITATIVE IDENTIFICATION: N/A

ANALYZED BY: REVIEWED BY:

GZA GEOENVIRONMENTAL, INC.
ENVIRONMENTAL CHEMISTRY LABORATORY
320 NEEDHAM STREET, NEWTON UPPER FALLS, MA 02164
MASSACHUSETTS LABORATORY I.D. NO. MA092

EPA METHOD 8020 ANALYSIS - PURGEABLE AROMATICS

PROJECT:	UST CLOSURE ACTIVITIES - CHEMFAB - N. BENNINGTON, VT		
FILE NO.:	21295	PROJECT MGR.:	E. HAWKINS
SAMPLE ID:	SIDEWALLS COMPOSITE	DATE SAMPLED:	8/27/94
MATRIX:	SOLID	DATE TESTED:	9/8/94
LABORATORY #:	P7640	DILUTION FACTOR:	10

8020 COMPOUNDS	CONCENTRATION ug/kg (PPB)	QUANTITATION LIMIT ug/kg (PPB)
METHYL TERT-BUTYL ETHER (MTBE)	ND	10
BENZENE	ND	2.0
TOLUENE	ND	2.0
ETHYL BENZENE	ND	2.0
m & p-XYLENES	ND	2.0
o-XYLENE	ND	2.0
CHLOROBENZENE	ND	2.0
1,3-DICHLOROBENZENE	ND	2.0
1,4-DICHLOROBENZENE	ND	2.0
1,2-DICHLOROBENZENE	ND	2.0

SURROGATE	RECOVERY %	ACCEPTANCE LIMITS %
TOLUENE-D8	101	70-121
4-BROMOFLUOROBENZENE	106	74-121

COMMENTS: The above sample was analyzed by GC/MS incorporating dilution factors to yield EPA Method 8020 detection limits.

ANALYZED BY: Hong

REVIEWED BY: Walsh

GZA GEOENVIRONMENTAL, INC.
ENVIRONMENTAL CHEMISTRY LABORATORY
320 NEEDHAM STREET, NEWTON UPPER FALLS, MA 02164
MASSACHUSETTS LABORATORY I.D. NO. MA092

EPA METHOD 8020 ANALYSIS - PURGEABLE AROMATICS

PROJECT:	UST CLOSURE ACTIVITIES - CHEMFAB - N. BENNINGTON, VT		
FILE NO.:	21295	PROJECT MGR.:	E. HAWKINS
SAMPLE ID:	BOTTOM EXCAVATION COMPOSITE	DATE SAMPLED:	8/27/94
MATRIX:	SOLID	DATE TESTED:	9/9/94
LABORATORY #:	P7645	DILUTION FACTOR:	10

8020 COMPOUNDS	CONCENTRATION ug/kg (PPB)	QUANTITATION LIMIT ug/kg (PPB)
METHYL TERT-BUTYL ETHER (MTBE)	ND	10
BENZENE	ND	2.0
TOLUENE	ND	2.0
ETHYL BENZENE	ND	2.0
m & p-XYLENES	ND	2.0
o-XYLENE	ND	2.0
CHLOROBENZENE	ND	2.0
1,3-DICHLOROBENZENE	ND	2.0
1,4-DICHLOROBENZENE	ND	2.0
1,2-DICHLOROBENZENE	ND	2.0

SURROGATE	RECOVERY %	ACCEPTANCE LIMITS %
TOLUENE-D8	103	70-121
4-BROMOFLUOROBENZENE	109	74-121

COMMENTS: The above sample was analyzed by GC/MS incorporating dilution factors to yield EPA Method 8020 detection limits.

ANALYZED BY: W Hong

REVIEWED BY: Kirkwood

GZA GEOENVIRONMENTAL, INC.
ENVIRONMENTAL CHEMISTRY LABORATORY
320 NEEDHAM STREET, NEWTON UPPER FALLS, MA 02164
MASSACHUSETTS LABORATORY I.D. NO. MA092

EPA METHOD 8240/8260 ANALYSIS
PURGEABLES IN AQUEOUS AND/OR SOLID MATRIX

QUALITY CONTROL

DATE: 9/8/94 - SEYMOUR

AQUEOUS

COMPOUND	MATRIX SPIKE RECOVERY (%)	ACCEPTANCE LIMITS (%)	DUPLICATE SPIKE DIFFERENCE (%)	ACCEPTANCE LIMITS (%)
1,1-DICHLOROETHENE	92.5	60-120	10.2	20
TRICHLORETHENE	112	70-130	1.77	20
TOLUENE	82.0	70-125	7.06	20

SOLID

COMPOUND	MATRIX SPIKE RECOVERY (%)	ACCEPTANCE LIMITS (%)	DUPLICATE SPIKE DIFFERENCE (%)	ACCEPTANCE LIMITS (%)
1,1-DICHLOROETHENE	87.0	60-120	3.61	35
TRICHLORETHENE	107	65-130	32.7	35
TOLUENE	93.9	65-125	3.66	35

METHOD BLANK

LABORATORY NO.: P7620

TOTAL COMPOUNDS DETECTED	ND

SURROGATES	RECOVERY (%)	ACCEPTANCE LIMITS (%)
1,2-DICHLOROETHANE-D4	104	76-114
TOLUENE-D8	102	88-110
4-BROMOFLUOROBENZENE	107	86-115

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS
380 HARVEY ROAD
MANCHESTER, NEW HAMPSHIRE
(603) 623-3600

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

CUSTODY RECORD

GZA FILE NO. 21295 P.O. NO. N/A

PROJECT UST Closure Activities – Chem Fab

LOCATION North Bennington, Vermont

PROJECT MANAGER EF Hawkins

COLLECTOR(S) IR Schaffner

DATE(S) OF COLLECTION 8/27/94 SHEET 1 OF 1

ANALYTICAL LABORATORY: Environmental Chemistry Laboratory

PHONE (617)[illegible] LAB CONTACT: Ted Pistorino

ANALYSES REQUESTED: ☐ 8240 ☐ 624; ☐ 8010 ☐ 601; ☒ 8020 ☐ 602; ☐ 8015 ☒ 8015 Modified; ☐ GC SCREEN; ☐ TPH-FINGERPRINT ☐ TPH-IR; ☐ DISSOLVED METALS ☐ TOTAL METALS; ☐ CHLORIDE ☐ FLUORIDE; ☐ NITRATE ☐ NITRITE; ☐ SULFATE ☐ SULFITE ☐ SULFIDE; ☐ BOD ☐ COD ☐ TOC ☐ TKN; ☐ PHENOLS ☐ TDS; ☐ ABNs ☐ BNs ☐ ACIDS; ☐ AMMONIA ☐ PHOSPHORUS; ☐ TOTAL CYANIDE ☐ AMENABLE CYANIDE; ☐ PCBs-

OTHER: TPH - GC

Sample ID	Date	Time (24 hr.)	# Containers	Matrix: Water	Soil	Sludge	Air	Preservative: HCl	HNO3	H2SO4	8020	TPH - GC
Sidewalls		1215-1230	12		X						X	X
Bottom Excavation		1235	3		X						X	X

NOTE:

NOTES: 8/29/94 1035 AM – Told Richard Schaffner that VOAs should not be composited. He wants it done anyway. [initials]

1. Composite all twelve grab samples from Side Walls (i.e. North, South, East, and West) into "Sidewalls" and perform analysis on this sample.
2. Composite all three grab samples from Bottom of Excavation into "Bottom Excavation" and perform analysis on this sample.

RELINQUISHED BY	RECEIVED BY	TIME	DATE
RELINQUISHED BY SAMPLER: [signature]	RECEIVED BY: [signature]	[illegible]	8/29/94
RELINQUISHED BY: [signature]	RECEIVED BY: S. McCarthy	8:30am	8/30/94
RELINQUISHED BY:	RECEIVED BY:		
RELINQUISHED BY:	RECEIVED BY:		

802-447-1130 CHEM FAB NBVT 250 P07 MAY 25 '01 10:54

FILE INFO: S:\CAD\21295\FIGA

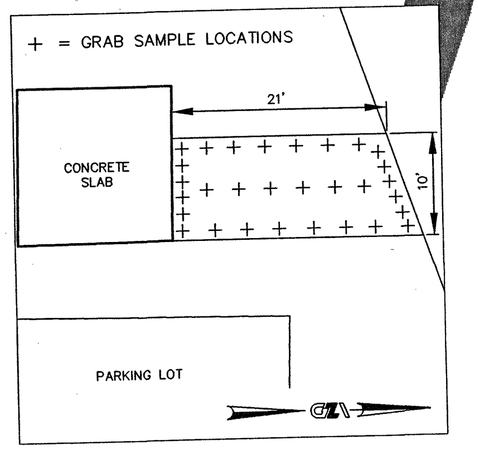
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
UNDERGROUND STORAGE TANK PROGRAM
TANK PULL FORM

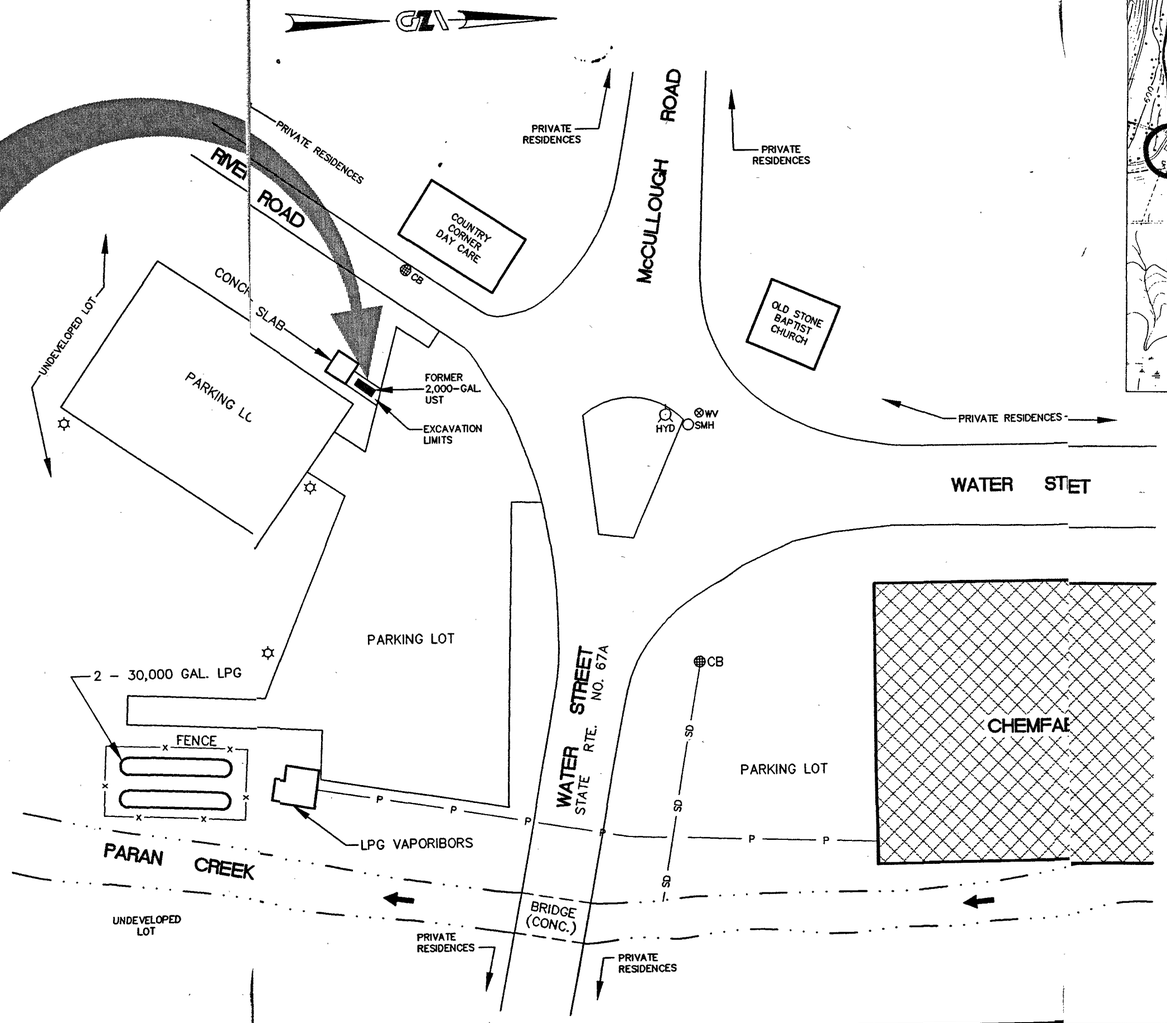
TODAY'S DATE: 8/29/94 INSPECTOR: I. R. SCHAFFNER

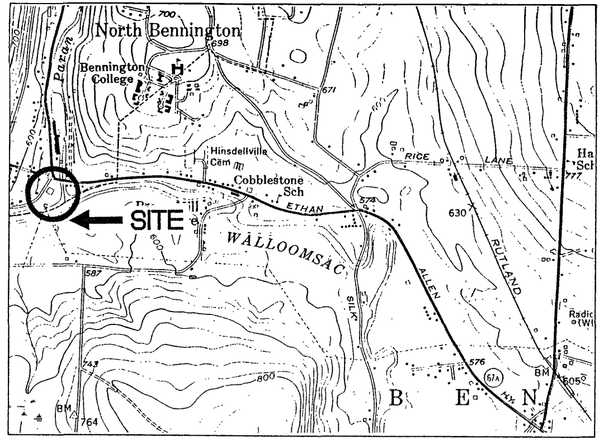
DATE OF REMOVAL: 8/27/94 BUSINESS NAME: CHEMFAB CORPORATION

SITE DIAGRAM

SHOW LOCATION OF ALL TANKS AND DISTANCES TO PERMANENT STRUCTURES, SAMPLE POINTS, AREAS OF CONTAMINATION AND ANY PERTINENT SITE INFORMATION. INDICATE NORTH ARROW AND MAJOR STREET NAMES OR ROUTE NUMBER.







LOCUS PLAN

NOTES:

1) THE PLAN WAS DEVELOPED FROM AN UNTITLED SITE PLAN PROVIDED BY CHEMFAB CORPORATION OF MERRIMACK, NH. THE PLAN SHOULD BE CONSIDERED APPROXIMATE.

LEGEND:

- CB CATCH BASIN
- LIGHT POLE
- SMH MANHOLE COVER
- WV WATER LINE VALVE
- HYD FIRE HYDRANT
- DIRECTION OF STREAM FLOW
- SD STORM DRAIN
- P PROPANE LINE

GZA GeoEnvironmental, Inc.
Engineers and Scientists
380 HARVEY ROAD MANCHESTER, NEW HAMPSHIRE 03103
(603) 623-3600

GRAPHIC SCALE 0' 50' 100'

DES'D BY	I.R.S.
CHK'D BY	I.R.S.
APP'D BY	M.D.B.
DRAWN BY	D.K.T.
SCALE	1"=50'
DATE	AUG. 1994

SITE ASSESSMENT
CHEMFAB CORPORATION
NORTH BENNINGTON, VERMONT

SITE PLAN

PROJECT No.: 21295
FIGURE No.: 1

© 1994 GZA GeoEnvironmental, Inc.

APPENDIX E

Environmental Database Report

The EDR Radius Map
with GeoCheck®

Saint-Gobain (Formerly Chemfab Corp)
1030 Water Street
North Bennington, VT 05257

Inquiry Number: 0634565.1r

May 22, 2001

Environmental Data Resources, Inc.

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

FORM-DAS

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	5
Orphan Summary	6
Zip Scan Report	ZIP-1
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-6
Physical Setting Source Map Findings	A-7
Physical Setting Source Records Searched	A-8

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-00. Search distances are per ASTM standard or custom distances requested by the user.

TARGET PROPERTY INFORMATION

ADDRESS

1030 WATER STREET
NORTH BENNINGTON, VT 05257

COORDINATES

Latitude (North):	42.914500 - 42° 54' 52.2"
Longitude (West):	73.246200 - 73° 14' 46.3"
Universal Tranverse Mercator:	Zone 18
UTM X (Meters):	643153.1
UTM Y (Meters):	4752597.5

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	2442073-H2 BENNINGTON, VT
Source:	USGS 7.5 min quad index

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following government records. For more information on this property see page 5 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
CHEMFAB CORPORATION WATER STREET BENNINGTON, VT 05257	UST	N/A
CHEMFAB CORP. 101 WATER ST. NORTH BENNINGTON, VT 05257	FINDS	VTD988369989
CHEMFAB CORP. 101 WATER ST. NORTH BENNINGTON, VT 05257	TRIS	NA

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the ASTM E 1527-00 search radius around the target property for the following databases:

FEDERAL ASTM STANDARD

NPL---------- National Priority List
Proposed NPL---------- Proposed National Priority List Sites
CERCLIS---------- Comprehensive Environmental Response, Compensation, and Liability Information System

EXECUTIVE SUMMARY

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned
CORRACTS..... Corrective Action Report
RCRIS-TSD..... Resource Conservation and Recovery Information System
RCRIS-LQG..... Resource Conservation and Recovery Information System
RCRIS-SQG..... Resource Conservation and Recovery Information System
ERNS..... Emergency Response Notification System

STATE ASTM STANDARD

SHWS..... Sites Database
SWF/LF..... Landfills and Transfer Stations
LUST..... Sites Database

FEDERAL ASTM SUPPLEMENTAL

CONSENT..... Superfund (CERCLA) Consent Decrees
ROD..... Records Of Decision
Delisted NPL..... National Priority List Deletions
HMIRS..... Hazardous Materials Information Reporting System
MLTS..... Material Licensing Tracking System
MINES..... Mines Master Index File
NPL Liens..... Federal Superfund Liens
PADS..... PCB Activity Database System
RAATS..... RCRA Administrative Action Tracking System
TSCA..... Toxic Substances Control Act
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

STATE OR LOCAL ASTM SUPPLEMENTAL

LAST..... Sites Database
SPILLS..... Sites Database

EDR PROPRIETARY DATABASES

Coal Gas..... Former Manufactured Gas (Coal Gas) Sites

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Elevations have been determined from the USGS 1 degree Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. EDR's definition of a site with an elevation equal to the target property includes a tolerance of +/- 10 feet. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property (by more than 10 feet). Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

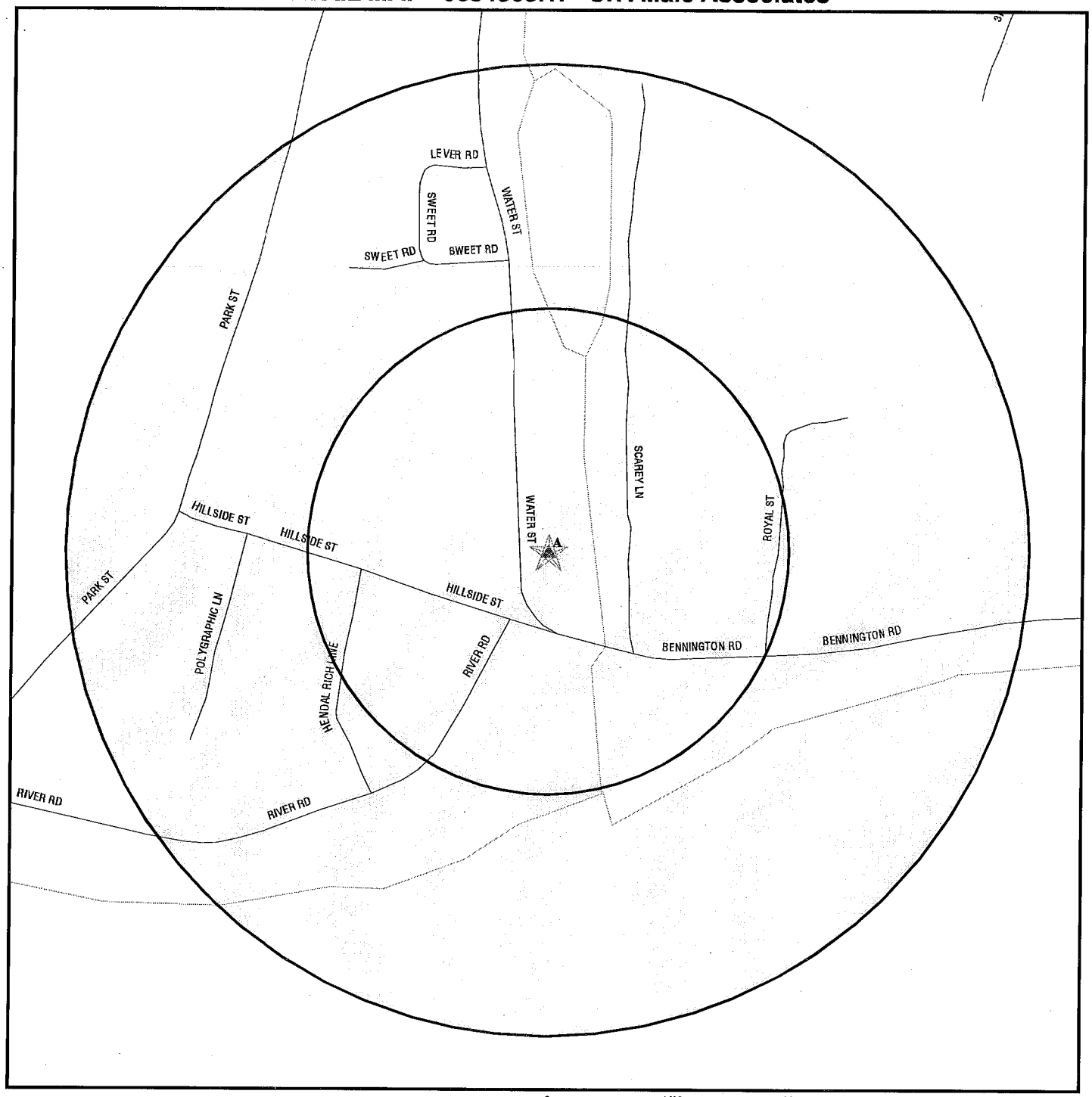
Site Name	Database(s)
BENNINGTON IRON WORKS INC	RCRIS-SQG, FINDS, UST, SHWS, LUST
JARD COMPANY	CERCLIS, FINDS, RCRIS-LQG
MT PROSPECT	LUST
BENNINGTON POWER EQUIPMENT COMPANY	UST
BENNINGTON COUNTY INDUSTRIAL CORP	UST
THE PROSPECT CENTER	UST
WATER ST ACCROSS FROM CHEMFAB CO	ERNS

OVERVIEW MAP - 0634565.1r - C.T. Male Associates

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Coal Gasification Sites (if requested)
- National Priority List Sites
- Landfill Sites
- Power transmission lines
- Oil & Gas pipelines

TARGET PROPERTY:	Saint-Gobain (Formerly Chemfab Corp)	CUSTOMER:	C.T. Male Associates
ADDRESS:	1030 Water Street	CONTACT:	Joe Farron
CITY/STATE/ZIP:	North Bennington VT 05257	INQUIRY #:	0634565.1r
LAT/LONG:	42.9145 / 73.2462	DATE:	May 22, 2001 11:09 am

DETAIL MAP - 0634565.1r - C.T. Male Associates



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Coal Gasification Sites (if requested)
- Sensitive Receptors
- National Priority List Sites
- Landfill Sites

0 1/16 1/8 1/4 Miles

- Power transmission lines
- Oil & Gas pipelines

TARGET PROPERTY:	Saint-Gobain (Formerly Chemfab Corp)	CUSTOMER:	C.T. Male Associates
ADDRESS:	1030 Water Street	CONTACT:	Joe Farron
CITY/STATE/ZIP:	North Bennington VT 05257	INQUIRY #:	0634565.1r
LAT/LONG:	42.9145 / 73.2462	DATE:	May 22, 2001 11:09 am

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL ASTM STANDARD								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.250	0	0	NR	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRIS-TSD		0.500	0	0	0	NR	NR	0
RCRIS Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.250	0	0	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
STATE ASTM STANDARD								
State Haz. Waste		1.000	0	0	0	0	NR	0
State Landfill		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	0	NR	NR	0
UST	X	0.250	0	0	NR	NR	NR	0
FEDERAL ASTM SUPPLEMENTAL								
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
FINDS	X	TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
TRIS	X	TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
STATE OR LOCAL ASTM SUPPLEMENTAL								
LAST		TP	NR	NR	NR	NR	NR	0
SPILLS		0.500	0	0	0	NR	NR	0
EDR PROPRIETARY DATABASES								
Coal Gas		1.000	0	0	0	0	NR	0

AQUIFLOW - see EDR Physical Setting Source Addendum

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

A1 **CHEMFAB CORPORATION** **UST** **U003517281**
Target **WATER STREET** **N/A**
Property **BENNINGTON, VT 05257**

Site 1 of 3 in cluster A

UST:

Facility ID:	9999637.00	Tank ID:	-1-1
Capacity (Gal):	2000.00	Substance:	#2&4 Fuel Oil
Year Removed:	Not reported	Out of Service:	Not reported
Tank Protect:	Unprotected		
Release Monitor:	Not reported		
Overfill/Spill:	Not reported		
Category One:	No		
Pipe Comments:	Not reported		
Pipe Protect:	Not reported		
Pipe Monitor:	Not reported		
Pumping System:	Not reported		
Pipe Installed:	Not reported		
CP Test:	Not reported		
Condition:	Not reported		
Date Reference:	Not reported		
CP Pipe Test:	Not reported		
Test Date:	Not reported		
Vapor:	Not reported		
Vapor 2:	Not reported		
Flag:	PULL TANK		

A2 **CHEMFAB CORP.** **FINDS** **1003033925**
Target **101 WATER ST.** **VTD988369989**
Property **NORTH BENNINGTON, VT 05257**

Site 2 of 3 in cluster A

A3 **CHEMFAB CORP.** **TRIS** **1001477622**
Target **101 WATER ST.** **NA**
Property **NORTH BENNINGTON, VT 05257**

Site 3 of 3 in cluster A

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)	Facility ID
BENNINGTON	U003544980	BENNINGTON POWER EQUIPMENT COMPANY	ROUTE 67A	05257	UST	4428611.00
BENNINGTON	1000182849	JARD COMPANY	BOWEN ROAD	05201	CERCLIS, FINDS, RCRIS-LQG	
BENNINGTON	U003517369	BENNINGTON COUNTY INDUSTRIAL CORP	P.O. BOX 257 WATER STREET	05257	UST	9999747.00
BENNINGTON	1000315900	BENNINGTON IRON WORKS INC	HARMON RD	05201	RCRIS-SQG, FINDS, UST, SHWS, LUST	4423145.00
BENNINGTON	U003544989	THE PROSPECT CENTER	PARK & WEST STREETS	05257	UST	2000.00
NORTH BENNINGTON	89447684	WATER ST ACCROSS FROM CHEMFAB CO	WATER ST ACCROSS FROM CHEMFAB CO	05257	ERNS	
WOODFORD	S103725349	MT PROSPECT	RT 9	05201	LUST	890438.00

EDR ZIP Code Scan Report

ZIP	EDR-ID	Facility ID	Name	Address	Map/Dir/Dist	City	State	Databases
** - Indicates location may or may not be in requested radius. Site has not been assigned a latitude/longitude coordinate. Further review recommended.								
05201	U003545254	146.00	PAUL'S MOBIL	ROUTE 11 AND 30	**	MANCHESTER	VT	UST
05201	1000976119		BENNINGTON COLLEGE	ROUTE 67 A		BENNINGTON	VT	MLTS
05201	1000301639	VTD059373316	VERMONT TISSUE	ROUTE 67A	**	BENNINGTON	VT	CERCLIS-NFRAP
05201	1001398665	4425401.00	BENNINGTON COLLEGE	ROUTE 67A	**	BENNINGTON	VT	UST
05201	1003033593	VT0001223742	BENNINGTON COLLEGE	ROUTE 67A	**	BENNINGTON	VT	FINDS
05201	U003545627	452.00	JOHNSON CONTROLS	ROUTE 67A	**	BENNINGTON	VT	SPILLS, UST
05201	1000315901	VTD981886765	BENNINGTON COLLEGE CORP	RTE 67A		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	U003546023	9999669.00	NEW COUNTRY BENNINGTON AUTO PARI	ROUTE 7	**	BENNINGTON	VT	UST
05201	U003544976	4428547.00	CLIFFSIDE MOTOR INN INC	ROUTE 7 SOUTH	**	BENNINGTON	VT	UST
05201	U003072691	645.00	MORSE BLOCK INC	116 ROUTE 7A		BENNINGTON	VT	UST
05201	U003604461	2702.00	BENNINGTON TEXACO SHORT STOP	ROUTE 7A	**	BENNINGTON	VT	UST
05201	U003517261	9999606.00	MONUMENT PLAZA/WESTERN AUTO	ROUTE 7A NORTHSHIRE DRIVE	**	BENNINGTON	VT	UST
05201	U003516011	982.00	BENNINGTON HOUSE OF TILE	RT 7A	**	BENNINGTON	VT	UST
05201	1000347068	VTD981203433	GRAPHIC TEK OF VERMONT	RTE 7A	**	BENNINGTON	VT	RCRIS/SQG, FINDS
05201	1000582921	VTD988367447	UNITED MCGILL CORP	RTE 7A HARWOOD HILL	**	BENNINGTON	VT	RCRIS/SQG, FINDS
05201	U000908183	717.00	TRUE'S GENERAL STORE	ROUTE 9	**	WOODFORD	VT	UST
05201	U003545584	804.00	BENNINGTON WATER FILTRATION PLANT	ROUTE 9 EAST	**	WOODFORD	VT	UST
05201	U000907685	4477149.00	WHISPERING PINES MOTEL	RT 9	**	WOODFORD	VT	UST
05201	1000234214	VTD003965415	BURGESS BROTHERS LANDFILL	RTE 9		WOODFORD	VT	CERCLIS, NPL, ROD
05201	1003033710	VTD003965415	BURGESS BROTHERS LANDFILL	RTE 9	**	WOODFORD	VT	FINDS
05201	U003517282	9999638.00	KELLY FUELS	RTE 9	**	BENNINGTON	VT	UST
05201	U003516067	1181.00	PROSPECT MOUNTAIN SKI AREA	ROUTE 9, WOODFORD CITY	**	WOODFORD	VT	UST
05201	U000906931	1856.00	WILLIAM MORSE AIRPORT	ACCESS ROAD		BENNINGTON	VT	UST
05201	U000907684	4477090.00	EARL'S SERVICE STATION	NORTH AND COUNTY STREET		BENNINGTON	VT	UST
05201	U003516086	1260.00	BEECH STREET SCHOOL	BEECH STREET	**	BENNINGTON	VT	UST
05201	1000117297	VTD066811100	ONE HOUR MARTINIZING	256 BEN MONT AVE		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	1000124490	VTD002207504	BEN MONT CORP	BEN MONT AVE		BENNINGTON	VT	FINDS, RCRIS/LQG
05201	U002080306	158.00	BEN-MONT AVENUE STOP-N-SHOP	261 BEN-MONT AVENUE		BENNINGTON	VT	UST
05201	1001226088	VTD988375580	MACE SECURITY	160 BENMONT AVE		BENNINGTON	VT	RCRIS/SQG, FINDS, SHWS, LUST
05201	U003516494	4425777.00	OLD MILL	160 BENMONT AVENUE		BENNINGTON	VT	UST
05201	U003517163	9991020.00	MACE SECURTIY INTERNATIONAL	160-200 BENMONT AVE		BENNINGTON	VT	UST
05201	U003517317	9999683.00	HAYNES & KANE, INC.	215 BENMONT AVENUE		BENNINGTON	VT	UST
05201	U003516239	2106.00	PAUL J. MARTIN, INC.	219 BENMONT AVENUE		BENNINGTON	VT	UST
05201	1003045659		BEN MONT CORP	236 BENMONT AVE		BENNINGTON	VT	FTTS
05201	1001031464	VT5000001743	IDEAL FUELS INC	259 BENMONT AVE		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	1000149939	VTD057019796	HOLDEN LEONARD MILL (CATAMOUNT D'	290 BENMONT AVENUE		BENNINGTON	VT	CERCLIS-NFRAP
05201	1003033723	VTD057019796	CATAMOUNT DYERS	290 BENMONT AVENUE		BENNINGTON	VT	FINDS
05201	U003757357	4426331.00	BEN-MONT BUILDING	BENMONT AVENUE	**	BENNINGTON	VT	UST
05201	1001962224	VTR000015230	DUBOUR TOURS	BENMORT AVE	**	BENNINGTON	VT	RCRIS/SQG, FINDS
05201	U003515952	781.00	FORMER TRUCKING TERMINAL	319 NORTH BENNINGTON ROAD	**	BENNINGTON	VT	UST
05201	1001967141	VTW100000017	BENNINGTON LANDFILL - LTS	BENNINGTON LANDFILL LEACHATE TEAT	**	BENNINGTON	VT	PADS
05201	1000320301	VTD001780725	JOHNSON CONTROLS BATTERY GROUP I	N BENNINGTON RD	**	BENNINGTON	VT	FINDS, RCRIS/LQG, CERCLIS-NFRAP
05201	U003515917	672.00	FORMER DANIEL FAGER'S FACILITY	NORTH BENNINGTON ROAD	**	BENNINGTON	VT	UST
05201	1000162238		GLOBE-UNION, INC.	NORTH BENNINGTON ROAD	**	BENNINGTON	VT	TSCA
05201	1000133181	VTD082275959	U S TSUBAKI	119 BOWEN RD		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	1000152392	VTD047718820	TRIANGLE WIRE & CABLE INC	127 BOWEN RD		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	1000878225	VTD988367587	SPAN AMERICA	127 BOWEN ROAD		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	1000182849	VTD048141741	JARD COMPANY	BOWEN ROAD	**	BENNINGTON	VT	CERCLIS, FINDS, RCRIS/LQG
05201	U003544982	243.00	VAOT BENNINGTON GARAGE	BOWEN ROAD	**	BENNINGTON	VT	UST
05201	U003545819	4425455.00	VERMONT CONTAINER CORPORATION	BOWEN ROAD	**	BENNINGTON	VT	UST
05201	1000134803	VTD000791137	G T TRUCKING INC	BOX 1228	**	BENNINGTON	VT	RCRIS/SQG, FINDS
05201	1001208565		JOHNSON CONTROLS, INC.	P.O. BOX 509	**	BENNINGTON	VT	MLTS
05201	1001208100		HELENE W. TOOLAN INSTITUTE FOR	P.O. BOX 620	**	BENNINGTON	VT	MLTS
05201	1001490165	VTR000013128	GREENE ROBERT INC	399 N BRANCH ST		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	92290931		399 NORTH BRANCH ST	399 NORTH BRANCH ST		BENNINGTON	VT	ERNS
05201	98469011		399 NORTH BRANCH ST	399 NORTH BRANCH ST		BENNINGTON	VT	ERNS
05201	U003072600	4422705.00	ROBERT GREENE INC	399 NORTH BRANCH STREET		BENNINGTON	VT	UST
05201	1000171099	VTD045646494	HUTCHS SALVAGE YARD DIV OF MORRIS	N BRANCH ST	**	BENNINGTON	VT	RCRIS/SQG, FINDS
05201	U003072365	1616.00	BURGESS BROTHERS INC	BURGESS ROAD	**	BENNINGTON	VT	UST
05201	1000878254	VTD988375416	CARROLLS OFFSET	CHAPEL RD WEST	**	BENNINGTON	VT	RCRIS/SQG, FINDS
05201	1000159407	VTD059373589	CREATIVE TOOLS	309 COUNTY ST		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	U003517367	9999744.00	CATAMOUNT GLASSWARE	309 COUNTY STREET		BENNINGTON	VT	UST
05201	1003033612	VT0001410034	BENNINGTON HIGHWAY GARAGE	DEPOT ST	**	BENNINGTON	VT	FINDS
05201	U003516499	4426634.00	BENNINGTON DEPOT STREET GARAGE	DEPOT STREET	**	BENNINGTON	VT	UST
05201	U003517175	9991033.00	SOUTHERN VT CHIROPRACTIC CENTER	316 DEWEY ST		BENNINGTON	VT	UST
05201	U003732600	2743.00	US POSTAL SERVICE MAIN OFFICE	108-112 ELM STREET		BENNINGTON	VT	UST
05201	U001392191	2114.00	MOORE'S APARTMENT HOUSE	133 ELM STREET		BENNINGTON	VT	UST
05201	U003105456	2598.00	O'DELL RESIDENCE	355 ELM STREET		BENNINGTON	VT	UST

EDR ZIP Code Scan Report

ZIP	EDR-ID	Facility ID	Name	Address	Map/Dir/Dist	City	State	Databases
05201	U000907654	4424894.00	MUNDT RESIDENCE	4 FAIRVIEW STREET		BENNINGTON	VT	UST
05201	U003745411	2001008.00	MARTIN RESIDENCE	133 FINLAY DRIVE	**	BENNINGTON	VT	UST
05201	1001207605		EVEREADY BATTERY CO., INC.	401 GAGE STREET		BENNINGTON	VT	MLTS
05201	1000355207	VTD002065597	EVEREADY BATTERY CO., INC.	401 GAGE STREET		BENNINGTON	VT	FINDS, RCRIS/LQG, TRIS, MLTS, CERCLIS-NFRAP
05201	U003072296	1261.00	CORA B WHITNEY HOUSING LP	814 GAGE STREET		BENNINGTON	VT	UST
05201	U003515944	768.00	MERRILL TRANSPORT COMPANY	HARDWOOD HILL ROUTE 7A	**	BENNINGTON	VT	UST
05201	1000315900	VTD043791532	BENNINGTON IRON WORKS	HARMON RD.	**	BENNINGTON	VT	RCRIS/SQG, FINDS, SHWS, LUST, UST
05201	1003033594	VT0001223775	BENNINGTON SLUDGE COMPOSTING FAC	HARRINGTON ROAD	**	BENNINGTON	VT	FINDS
05201	U003516492	4424544.00	WASTEWATER TREATMENT FACILITY	HARRINGTON ROAD	**	BENNINGTON	VT	UST
05201	1000445423	VTD988366910	PIONEER ELECTRIC MOTORS INC	HARWOOD HILL RTE 7A	**	BENNINGTON	VT	RCRIS/SQG, FINDS
05201	U003516211	1906.00	AGWAY PETROLEUM CORPORATION	126 HICKS AVENUE		BENNINGTON	VT	UST
05201	99650918		126 HICKS AVENUE TANK 6	126 HICKS AVENUE TANK 6	**	BENNINGTON	VT	ERNS
05201	U001624576	2291.00	RESIDENCE	HILL SHADOW ROAD	**	BENNINGTON	VT	UST
05201	U001624519	2212.00	SECOND CONGREGATIONAL CHURCH	HILLSIDE STREET	**	BENNINGTON	VT	UST
05201	U000907097	2031.00	WBTN & WHGC-FM RADIO	US HISTORIC 7A NORTH	**	BENNINGTON	VT	UST
05201	1000490734	4426361.00	SOUTHWESTERN VERMONT MEDICAL CE	100 HOSPITAL DRIVE EAST		BENNINGTON	VT	MLTS, UST
05201	1001964087		SOUTHWESTERN VERMONT MEDICAL CE	100 HOSPITAL DRIVE EAST		BENNINGTON	VT	MLTS
05201	1003033528	VT0000704692	SOUTHWESTERN VERMONT MEDICAL CE	100 HOSPITAL DRIVE EAST		BENNINGTON	VT	FINDS
05201	1001490126	VTR000012138	BENNINGTON TOWN OF LEACHATE TRMT	HOUGHTON LN	**	BENNINGTON	VT	RCRIS/SQG, FINDS
05201	1003033583	VT0001057314	HI TECH AUTO	100 HUNT ST		BENNINGTON	VT	FINDS
05201	U003516038	1074.00	RAY HALTMAN'S GARAGE	100 HUNT STREET		BENNINGTON	VT	UST
05201	1000481523	VTD988368510	ROUTE 7 CONTAMINATION	HUNT & DEPOT STREETS		BENNINGTON	VT	CERCLIS-NFRAP
05201	U003544985	174.00	HUNT STREET EXXON	HUNT STREET	**	BENNINGTON	VT	UST
05201	U003545822	4429070.00	WASSICK'S TIRE INC.	HUNT STREET	**	BENNINGTON	VT	UST
05201	U003516497	4426305.00	K-MART #9536	19 KOCHER DRIVE, BENNINGTON SQUAR		BENNINGTON	VT	UST
05201	1000426684	VTD019092766	BIJUR LUBRICATING CORP	50 KOCHER DR		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	1000362787	VTD981069800	MORRISON ENTERPRISES INC	KOCHER DR		BENNINGTON	VT	RCRIS/SQG, FINDS, SHWS, LUST
05201	U003544996	2712.00	GRACE CHRISTIAN SCHOOL	KOCHER DRIVE	**	BENNINGTON	VT	UST
05201	U003545692	1557.00	MORRISON SALES AND SERVICES INC	KOCHER DRIVE	**	BENNINGTON	VT	UST
05201	U003545730	2225.00	J.C. PENNEY CO., INC.	KOCHER DRIVE	**	BENNINGTON	VT	UST
05201	1000240520	VTD982542797	KOCHER DRIVE DUMP	KOCHER DRIVE	**	BENNINGTON	VT	CERCLIS-NFRAP
05201	1000127166	VTD980510242	CENTRAL VT PUBLIC SVC	LINCOLN ST	**	BENNINGTON	VT	RCRIS/SQG, FINDS
05201	U003515922	692.00	CVPS BENNINGTON SERVICE CENTER	LINCOLN STREET	**	BENNINGTON	VT	UST
05201	1000878273	VTD988375606	AARON & SONS INC	LONGTRAIL RD BEN-MONT AVE	**	BENNINGTON	VT	RCRIS/SQG, FINDS
05201	U003516092	1280.00	COLONIAL GARDEN APARTMENTS	100 MAIN STREET		BENNINGTON	VT	UST
05201	U003544990	2239.00	PARADISE RESTAURANT	141 WEST MAIN STREET		BENNINGTON	VT	UST
05201	U000907670	4429705.00	WESTSIDE CITGO	165 WEST MAIN ST		BENNINGTON	VT	LUST, UST
05201	U003072605	4424518.00	ST FRANCIS DE SALES CHURCH/CENTER	207 WEST MAIN STREET		BENNINGTON	VT	UST
05201	1003033611	VT0001410026	HEMMINGS SUNOCO	216 W MAIN ST		BENNINGTON	VT	FINDS
05201	1001190073	972195.00	HEMMINGS SUNOCO	216 WEST MAIN ST		BENNINGTON	VT	LUST
05201	U003544988	463.00	HEMMINGS MOTOR NEWS SUNOCO	216 WEST MAIN STREET		BENNINGTON	VT	UST
05201	U000907688	4477596.00	KIRKSIDE MOTOR LODGE	250 WEST MAIN STREET		BENNINGTON	VT	UST
05201	1001405409	VTR000012120	SARGENTS SHORT STOP	300 MAIN ST		BENNINGTON	VT	RCRIS/SQG, FINDS, LUST
05201	U000907682	4471011.00	SARGENT'S SHORT STOP	300 MAIN STREET		BENNINGTON	VT	UST
05201	U000907671	4429825.00	MARTIN'S MINI MART	301 MAIN STREET		BENNINGTON	VT	UST
05201	U003516493	4425496.00	FORMER BENNINGTON GARAGE CORP.	324 MAIN STREET		BENNINGTON	VT	UST
05201	U000907656	4425400.00	FIDDLEHEAD OFFICE AND RESIDENCE	338 MAIN STREET		BENNINGTON	VT	UST
05201	U001392209	2133.00	VERMONT FEDERAL BANK	338 MAIN STREET		BENNINGTON	VT	UST
05201	U000906187	1070.00	CONE REALTY CORPORATION	439 MAIN STREET		BENNINGTON	VT	UST
05201	1000696764	VTD000791202	SHERWIN WILLIAMS CO	485 MAIN ST		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	U003516504	4477533.00	FIRST VERMONT BANK AND TRUST COMI	500 MAIN STREET		BENNINGTON	VT	UST
05201	U000907641	4422105.00	FIRST BAPTIST CHURCH	601 EAST MAIN STREET		BENNINGTON	VT	UST
05201	U000907650	4423994.00	GETTY SERVICE STATION #761120	636 MAIN STREET		BENNINGTON	VT	UST
05201	1003059802		MOUNT ANTHONY MIDDLE SCHOOL	640 MAIN ST		BENNINGTON	VT	FTTS
05201	U000906849	1770.00	STEWART'S SHOP #195	731 MAIN STREET		BENNINGTON	VT	UST
05201	U002080312	184.00	THE CORNER PANTRY	733 MAIN STREET		BENNINGTON	VT	UST
05201	U003544984	147.00	MINCER'S MINI-MART	735 EAST MAIN STREET		BENNINGTON	VT	UST
05201	U003516500	4426742.00	HADDAD MOTOR SALES	945 EAST MAIN STREET		BENNINGTON	VT	UST
05201	U000906514	1412.00	PUTNAM SQUARE BUILDING	MAIN AND SOUTH STREET		BENNINGTON	VT	UST
05201	1003033890	VTD988369492	MT. ANTHONY JR. HIGH SCHOOL	MAIN ST.	**	BENNINGTON	VT	FINDS
05201	U003544995	2307.00	MOUNT ANTHONY MIDDLE SCHOOL	MAIN STREET	**	BENNINGTON	VT	UST
05201	U003545757	1110671.00	MORRISON CHEV CADILLAC	MAIN STREET	**	BENNINGTON	VT	UST
05201	U003546018	9999616.00	VERMONT HOSPITAL ASSOC.	MAIN STREET	**	MONTPELIER	VT	UST
05201	U000906364	1262.00	MONUMENT SCHOOL	WEST MAIN STREET		BENNINGTON	VT	UST
05201	G000000031		BENNINGTON GAS LIGHT CO.	211 MILL ST.		BENNINGTON	VT	COAL GAS
05201	1000178975	VTD981885635	VT COLOR PHOTOLAB	43 MONUMENT AVE		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	U003544992	2238.00	SOUTHERN VERMONT COLLEGE	MONUMENT AVENUE	**	BENNINGTON	VT	UST
05201	U003545818	4423810.00	APARTMENT HOUSE	MONUMENT AVENUE	**	BENNINGTON	VT	UST

EDR ZIP Code Scan Report

ZIP	EDR-ID	Facility ID	Name	Address	Map/Dir/Dist	City	State	Databases
05201	U000907878	4923157.00	COLVIN RESIDENCE	MOUNT ANTHONY ROAD	**	BENNINGTON	VT	UST
05201	U003544977	4429873.00	CUMBERLAND FARMS #4006	107 NORTHSIDE DRIVE		BENNINGTON	VT	LUST, UST
05201	1001405430	VTR000012682	BENNINGTON MOTOR CAR	108 NORTHSIDE DR		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	U003516337	2369.00	CAMPBELL MOTORS	108 NORTHSIDE DRIVE		BENNINGTON	VT	UST
05201	U003757336	1002369.00	CAMPBELL MOTORS	108 NORTHSIDE DRIVE		BENNINGTON	VT	UST
05201	U003516498	4426608.00	AUTO CITY, INC.	114 NORTHSIDE DRIVE		BENNINGTON	VT	UST
05201	U002080314	234.00	BENNINGTON CAR WASH	124 NORTHSIDE DRIVE		BENNINGTON	VT	UST
05201	U003516495	4425917.00	DAVEY OIL	147 NORTHSIDE DRIVE		BENNINGTON	VT	LUST, UST
05201	U000906226	1106.00	CHARLIE'S MOBIL	216 NORTHSIDE DRIVE		BENNINGTON	VT	UST
05201	U000907689	4477942.00	THE AMERICAN LEGION POST 13	225 NORTHSIDE DRIVE		BENNINGTON	VT	UST
05201	1000169169	VTD988366589	PERCEY PROPERTY	306 NORTHSIDE DRIVE		BENNINGTON	VT	CERCLIS, SHWS
05201	1003033787	VTD988366589	PERCEY PROPERTY	306 NORTHSIDE DRIVE		BENNINGTON	VT	FINDS
05201	1000240795	VTD980731244	FOTHERGIL COMPOSITES	317 NORTHSIDE DR		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	U003072607	4428187.00	MONUMENT INDUSTRIES INC	317 NORTHSIDE DRIVE		BENNINGTON	VT	UST
05201	1000138857		OAK-FOTHERGILL INC	317 NORTHSIDE DRIVE		BENNINGTON	VT	TSCA
05201	U003105495	655.00	W H MORSE CONSTRUCTION CO INC	327 NORTHSIDE DRIVE		BENNINGTON	VT	UST
05201	U003201943	2675.00	AMES STORE #373	363 NORTHSIDE DRIVE		BENNINGTON	VT	UST
05201	U003194485	1606.00	APOLLO FUELS BENNINGTON STATION	99 NORTHSIDE DRIVE		BENNINGTON	VT	UST
05201	1003033479	VT0000295287	BENNINGTON IND SCHOOL DISTRICT	P O BOX 3600	**	BENNINGTON	VT	FINDS, FTTS
05201	1003045679		BENNINGTON IND SCHOOL DISTRICT	P O BOX 3600	**	BENNINGTON	VT	FTTS
05201	1000315904	VTD981064223	BENNINGTON MUNICIPAL SANITARY LANI	OFF HOUGHTON LANE		BENNINGTON	VT	CERCLIS, NPL, ROD
05201	1003033765	VTD981064223	BENNINGTON MUNICIPAL SANITARY LANI	OFF HOUGHTON LANE	**	BENNINGTON	VT	FINDS
05201	U003544987	1265.00	BENNINGTON ELEMENTARY SCHOOL	128 PARK STREET		BENNINGTON	VT	UST
05201	U003544994	2308.00	MOUNT ANTHONY UNION HIGH SCHOOL	301 PARK STREET		BENNINGTON	VT	UST
05201	U003516315	2602.00	PARK-MCCULLOUGH HOUSE	PARK AND WEST STREETS	**	BENNINGTON	VT	UST
05201	1003033889	VTD988369484	MT. ANTHONY UNION HIGH SCHOOL	PARK ST.	**	BENNINGTON	VT	FINDS
05201	1000112399	VTD980510309	NYNEX CTRL OFF	126 PLEASANT ST		BENNINGTON	VT	FINDS, RCRIS/LQG
05201	U003072603	4422911.00	ST PETER'S EPISCOPAL CHURCH	200 PLEASANT STREET		BENNINGTON	VT	UST
05201	U003515997	940.00	NET C.O. (4722-06)	PLEASANT STREET	**	BENNINGTON	VT	UST
05201	1000582838	931544.00	FAIRDALE FARMS	WEST RD		BENNINGTON	VT	LUST
05201	U000906242	1124.00	JONES RESIDENCE	40 WEST ROAD		BENNINGTON	VT	UST
05201	U003545820	4425473.00	TRANSITOR ELECTRONICS, INC.	WEST ROAD		BENNINGTON	VT	UST
05201	U003544978	4426391.00	FAIRDALE FARMS, INC.	WEST ROAD (ROUTE 9 WEST)	**	BENNINGTON	VT	UST
05201	1000361931	VTD000509430	MERRILL TRANSPORT CO	113 US RTE 7	**	BENNINGTON	VT	FINDS, RCRIS/LQG
05201	1001207394		DONELA, DPM, RICHARD	213 SCHOOL STREET		BENNINGTON	VT	MLTS
05201	U000906388	1284.00	SACRED HEART PARISH	307 SCHOOL STREET		BENNINGTON	VT	UST
05201	1003033488	VT0000296996	CATAMOUNT ELEMENTARY SCHOOL	SCHOOL STREET	**	BENNINGTON	VT	FINDS, FTTS
05201	U001392190	2113.00	NORTH BENNINGTON GRADED SCHOOL	SCHOOL STREET	**	BENNINGTON	VT	UST
05201	1000973737	1263.00	CATAMOUNT ELEMENTARY SCHOOL	SCHOOL STREET	**	BENNINGTON	VT	UST
05201	1000397999	VTD019528900	NASTECH	1 SHIELDS DR		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	1000443726	VTD988367017	SCHMELZER CORP PROPERTY (FORMER	1 SHIELDS DRIVE		BENNINGTON	VT	CERCLIS-NFRAP
05201	1000370278	VTD988366464	VT COMPOSITES INC	6 SHIELDS DR		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	U000907680	4470032.00	BENNINGTON FREE LIBRARY	101 SILVER STREET		BENNINGTON	VT	UST
05201	1000878235	VTD988375226	SCOT SPORT MOTORS INC	200 NORTH ST		BENNINGTON	VT	RCRIS/SQG, FINDS
05201	U000906454	1349.00	STATE FISH HATCHERY	SOUTH STREAM ROAD	**	BENNINGTON	VT	UST
05201	U003072392	1742.00	CB SPORTS INC	190 NORTH STREET		BENNINGTON	VT	UST
05201	U000906194	1078.00	SCOT MAZDA	200 NORTH STREET		BENNINGTON	VT	UST
05201	U000907683	4471171.00	TOWN OFFICE BUILDING	205 SOUTH STREET		BENNINGTON	VT	UST
05201	U003516178	1743.00	CB SPORTS INC	210 SOUTH STREET		BENNINGTON	VT	UST
05201	U000907658	4425464.00	BENNINGTON POLICE DEPARTMENT	215 SOUTH STREET		BENNINGTON	VT	UST
05201	U003544991	1779.00	FLEMING OIL TEXACO STATION	305 SOUTH STREET		BENNINGTON	VT	UST
05201	U003544983	1034.00	BROOKSIDE PUBLIC HOUSING	323 SOUTH STREET		BENNINGTON	VT	UST
05201	1003033541	VT0000705079	VERMONT VETERANS HOME	325 NORTH STREET		BENNINGTON	VT	FINDS
05201	U000906691	1601.00	VERMONT VETERANS HOME	325 NORTH STREET		BENNINGTON	VT	UST
05201	U002080323	2483.00	CATAMOUNT HOTEL	500 SOUTH STREET		BENNINGTON	VT	UST
05201	U003105380	1582.00	MAGUIRE'S MARKET	510 SOUTH STREET		BENNINGTON	VT	UST
05201	U000906146	1029.00	THE SALVATION ARMY THRIFT STORE	511-513 SOUTH STREET		BENNINGTON	VT	UST
05201	U000908222	741.00	BENNINGTON ARMORY	SOUTH STREET	**	BENNINGTON	VT	UST
05201	U003544997	2015.00	US FEDERAL BUILDING	SOUTH STREET	**	BENNINGTON	VT	UST
05201	1003033571	VT0001025261	USARMY BENNINGTON/ARMORY	SOUTH STREET	**	BENNINGTON	VT	FINDS
05201	U000907642	4422441.00	MARTY-MOORE GREENHOUSES	SOUTH STREET	**	BENNINGTON	VT	UST
05201	U001624608	2328.00	THE HILAND HALL SCHOOL	VERMONT ROUTE 7A	**	BENNINGTON	VT	UST
05201	U003544993	437.00	STATE OFFICE BUILDING	1 VETERANS DRIVE	**	BENNINGTON	VT	UST
05201	U003757275	2047.00	STATE OFFICE BUILDING	1 VETERANS DRIVE	**	BENNINGTON	VT	UST
05201	U000907646	4422736.00	BENNINGTON ELKS LODGE #567	125 WASHINGTON AVENUE		BENNINGTON	VT	UST
05201	U003757274	4428000.00	WILLOWBROOK APARTMENTS	10 WILLOW ROAD		BENNINGTON	VT	UST
05201	1003033848	VTD988369013	MOLLY STARK SCHOOL SOUTHWEST	WILLOW RD	**	BENNINGTON	VT	FINDS, FTTS
05201	1003059514		MOLLY STARK SCHOOL	WILLOW RD	**	BENNINGTON	VT	FTTS
05201	U003545655	805.00	BENNINGTON TOWN HIGHWAY GARAGE	WILLOW ROAD	**	BENNINGTON	VT	UST
05201	U003544986	1264.00	MOLLY STARK SCHOOL	WILLOW ROAD	**	BENNINGTON	VT	UST
05201	U000906701	1610.00	PAVEL VACATION HOME	WOODFORD LAKE ESTATES LOTS 107-11	**	WOODFORD	VT	UST

EDR ZIP Code Scan Report

ZIP	EDR-ID	Facility ID	Name	Address	Map/Dir/Dist	City	State	Databases
05257	953006950				**	NORTH BENNINGTON	VT	ERNS
05257	953006951				**	NORTH BENNINGTON	VT	ERNS
05257	1003033411	VT0000218644	HILAND HALL SCHOOL	RR 1 BOX 500	**	NO. BENNINGTON	VT	FINDS, FTTS
05257	U003544980	4428611.00	BENNINGTON POWER EQUIPMENT COMF	ROUTE 67A	**	BENNINGTON	VT	UST
05257	1003066819		SOUTHSHIRE COMMUNITY SCHOOL	11 BANK STREET		NORTH BENNINGTO	VT	FTTS
05257	U000906851	1772.00	ROBERT CALE RESIDENCE	BANK STREET EXTENSION	**	SHAFTSBURY	VT	UST
05257	U003517369	9999747.00	BENNINGTON COUNTY INDUSTRIAL CORI	P.O. BOX 257 WATER STREET	**	BENNINGTON	VT	UST
05257	U003516503	4477504.00	ST JOHN THE BAPTIST CHURCH	HOUGHTON STREET	**	BENNINGTON	VT	UST
05257	U000907655	4425144.00	NORTH VILLAGE LAUNDRY	MAIN AND BANK STREETS		BENNINGTON	VT	UST
05257	U003545824	4470520.00	REDEEMED REPAIR	MAIN STREET	**	BENNINGTON	VT	UST
05257	1003033373	VT0000183848	SOUTHSHIRE COMMUNITY SCHOOL	P. O. BOX 634	**	NORTH BENNINGTON	VT	FINDS
05257	U003544989	2000.00	THE PROSPECT CENTER	PARK & WEST STREETS	**	BENNINGTON	VT	UST
05257	1003033392	VT0000217232	PROSPECT SCHOOL	PARK AND WEST STREETS	**	NORTH BENNINGTON	VT	FINDS
05257	U003517352	9999725.00	NILES PROPERTY	325 SCHOOL STREET		BENNINGTON	VT	UST
05257	1003033925	VTD988369989	CHEMFAB CORP.	101 WATER ST.	A, North, 0 - 1/8	NORTH BENNINGTON	VT	FINDS
05257	1001477622	NA	CHEMFAB CORP.	101 WATER ST.	A, North, 0 - 1/8	NORTH BENNINGTON	VT	TRIS
05257	1001226232	VTR000011247	CHEMFAB CORP	13 WATER ST		NORTH BENNINGTON	VT	RCRIS/SQG, FINDS
05257	89447684		WATER ST ACCROSS FROM CHEMFAB C(	WATER ST ACCROSS FROM CHEMFAB C(	**	NORTH BENNINGTON	VT	ERNS
05257	U003517281	9999637.00	CHEMFAB CORPORATION	WATER STREET	A, North, 0 - 1/8	BENNINGTON	VT	UST
05257	1001969438	VTR000015420	BROWNELLS AUTO WRECKING	818 WHITE CREEK RD	**	NORTH BENNINGTON	VT	RCRIS/SQG, FINDS
05257	94366318		WHITE CREEK RD BOX 387	WHITE CREEK RD BOX 387	**	SHAFTSBURY	VT	ERNS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Elapsed ASTM days: Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

FEDERAL ASTM STANDARD RECORDS

NPL: National Priority List
Source: EPA
Telephone: N/A
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC).

Date of Government Version: 01/23/01
Date Made Active at EDR: 02/16/01
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 02/05/01
Elapsed ASTM days: 11
Date of Last EDR Contact: 02/05/01

Proposed NPL: Proposed National Priority List Sites
Source: EPA
Telephone: N/A

Date of Government Version: 01/23/01
Date Made Active at EDR: 02/16/01
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 02/05/01
Elapsed ASTM days: 11
Date of Last EDR Contact: 02/05/01

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA
Telephone: 703-413-0223
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 03/16/01
Date Made Active at EDR: 04/30/01
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 03/26/01
Elapsed ASTM days: 35
Date of Last EDR Contact: 03/26/01

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned
Source: EPA
Telephone: 703-413-0223
As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

Date of Government Version: 03/16/01
Date Made Active at EDR: 04/30/01
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 03/26/01
Elapsed ASTM days: 35
Date of Last EDR Contact: 03/26/01

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 800-424-9346
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 04/20/00
Date Made Active at EDR: 08/01/00
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 06/12/00
Elapsed ASTM days: 50
Date of Last EDR Contact: 03/14/01

RCRIS: Resource Conservation and Recovery Information System
Source: EPA/NTIS
Telephone: 800-424-9346
Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Date of Government Version: 06/21/00
Date Made Active at EDR: 07/31/00
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 07/10/00
Elapsed ASTM days: 21
Date of Last EDR Contact: 01/30/01

ERNS: Emergency Response Notification System
Source: EPA/NTIS
Telephone: 202-260-2342
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 08/08/00
Date Made Active at EDR: 09/06/00
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 08/11/00
Elapsed ASTM days: 26
Date of Last EDR Contact: 04/19/01

FEDERAL ASTM SUPPLEMENTAL RECORDS

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/97
Database Release Frequency: Biennially

Date of Last EDR Contact: 03/19/01
Date of Next Scheduled EDR Contact: 06/18/01

CONSENT: Superfund (CERCLA) Consent Decrees
Source: EPA Regional Offices
Telephone: Varies
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: N/A
Database Release Frequency: Varies

Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

ROD: Records Of Decision
Source: NTIS
Telephone: 703-416-0223
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 09/30/99
Database Release Frequency: Annually

Date of Last EDR Contact: 04/10/01
Date of Next Scheduled EDR Contact: 07/09/01

DELISTED NPL: National Priority List Deletions
Source: EPA
Telephone: N/A
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 01/23/01
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 02/05/01
Date of Next Scheduled EDR Contact: 05/07/01

FINDS: Facility Index System/Facility Identification Initiative Program Summary Report
Source: EPA
Telephone: N/A
Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/07/00
Database Release Frequency: Quarterly

Date of Last EDR Contact: 04/09/01
Date of Next Scheduled EDR Contact: 07/09/01

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4526
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 05/31/00
Database Release Frequency: Annually

Date of Last EDR Contact: 04/24/01
Date of Next Scheduled EDR Contact: 07/23/01

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 01/30/01
Database Release Frequency: Quarterly

Date of Last EDR Contact: 04/09/01
Date of Next Scheduled EDR Contact: 07/09/01

MINES: Mines Master Index File
Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959

Date of Government Version: 08/01/98
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 04/02/01
Date of Next Scheduled EDR Contact: 07/02/01

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 205-564-4267
Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/91
Database Release Frequency: No Update Planned

Date of Last EDR Contact: 02/20/01
Date of Next Scheduled EDR Contact: 05/21/01

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-260-3936
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 12/11/00
Database Release Frequency: Annually

Date of Last EDR Contact: 02/12/01
Date of Next Scheduled EDR Contact: 05/14/01

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/95
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 03/13/01
Date of Next Scheduled EDR Contact: 06/11/01

TRIS: Toxic Chemical Release Inventory System
Source: EPA
Telephone: 202-260-1531
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/97
Database Release Frequency: Annually
Date of Last EDR Contact: 03/26/01
Date of Next Scheduled EDR Contact: 06/25/01

TSCA: Toxic Substances Control Act
Source: EPA
Telephone: 202-260-1444
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/98
Database Release Frequency: Every 4 Years
Date of Last EDR Contact: 03/30/01
Date of Next Scheduled EDR Contact: 06/12/01

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-564-2501
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/00
Database Release Frequency: Quarterly
Date of Last EDR Contact: 03/26/01
Date of Next Scheduled EDR Contact: 06/25/01

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA
Telephone: 202-564-2501

Date of Government Version: 08/10/00
Database Release Frequency: Quarterly
Date of Last EDR Contact: 03/26/01
Date of Next Scheduled EDR Contact: 06/25/01

STATE OF VERMONT ASTM STANDARD RECORDS

SHWS: Sites Database
Source: Department of Environmental Conservation
Telephone: 802-241-3888
State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 01/24/01
Date Made Active at EDR: 02/15/01
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 01/29/01
Elapsed ASTM days: 17
Date of Last EDR Contact: 03/27/01

SWF/LF: Landfills and Transfer Stations
Source: Department of Environmental Conservation
Telephone: 802-241-3444
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 03/01/99
Date Made Active at EDR: 02/15/00
Database Release Frequency: Annually

Date of Data Arrival at EDR: 01/20/00
Elapsed ASTM days: 26
Date of Last EDR Contact: 04/17/01

LUST: Sites Database
Source: Department of Environmental Conservation
Telephone: 802-241-3888
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. Source Type: Underground Storage Tank.

Date of Government Version: 01/24/01
Date Made Active at EDR: 02/15/01
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 01/29/01
Elapsed ASTM days: 17
Date of Last EDR Contact: 03/27/01

UST: State of Vermont Underground Storage Tank Database
Source: Department of Environmental Conservation
Telephone: 802-241-3888
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 04/24/01
Date Made Active at EDR: 05/16/01
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 04/26/01
Elapsed ASTM days: 20
Date of Last EDR Contact: 03/27/01

STATE OF VERMONT ASTM SUPPLEMENTAL RECORDS

LAST: Sites Database
Source: Department of Environmental Conservation
Telephone: 802-241-3443

Date of Government Version: 01/24/01
Database Release Frequency: Quarterly

Date of Last EDR Contact: 03/27/01
Date of Next Scheduled EDR Contact: 06/25/01

SPILLS: Sites Database
Source: Department of Environmental Conservation
Telephone: 802-241-3443

Date of Government Version: 01/24/01
Database Release Frequency: Quarterly

Date of Last EDR Contact: 03/27/01
Date of Next Scheduled EDR Contact: 06/25/01

EDR PROPRIETARY DATABASES

Former Manufactured Gas (Coal Gas) Sites: The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. ©Copyright 1993 Real Property Scan, Inc. For a technical description of the types of hazards which may be found at such sites, contact your EDR customer service representative.

Disclaimer Provided by Real Property Scan, Inc.

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GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HISTORICAL AND OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines/Electrical Transmission Lines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines and electrical transmission lines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 1999 from the U.S. Fish and Wildlife Service.

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

SAINT-GOBAIN (FORMERLY CHEMFAB CORP)
1030 WATER STREET
NORTH BENNINGTON, VT 05257

TARGET PROPERTY COORDINATES

Latitude (North):	42.914501 - 42° 54' 52.2"
Longitude (West):	73.246201 - 73° 14' 46.3"
Universal Tranverse Mercator:	Zone 18
UTM X (Meters):	643153.1
UTM Y (Meters):	4752597.5

EDR's GeoCheck Physical Setting Source Addendum has been developed to assist the environmental professional with the collection of physical setting source information in accordance with ASTM 1527-00, Section 7.2.3. Section 7.2.3 requires that a current USGS 7.5 Minute Topographic Map (or equivalent, such as the USGS Digital Elevation Model) be reviewed. It also requires that one or more additional physical setting sources be sought when (1) conditions have been identified in which hazardous substances or petroleum products are likely to migrate to or from the property, and (2) more information than is provided in the current USGS 7.5 Minute Topographic Map (or equivalent) is generally obtained, pursuant to local good commercial or customary practice, to assess the impact of migration of recognized environmental conditions in connection with the property. Such additional physical setting sources generally include information about the topographic, hydrologic, hydrogeologic, and geologic characteristics of a site, and wells in the area.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata. EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

USGS TOPOGRAPHIC MAP ASSOCIATED WITH THIS SITE

Target Property: 2442073-H2 BENNINGTON, VT
Source: USGS 7.5 min quad index

GENERAL TOPOGRAPHIC GRADIENT AT TARGET PROPERTY

Target Property: General SE

Source: General Topographic Gradient has been determined from the USGS 1 Degree Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Q3 Flood Data Electronic Coverage
BENNINGTON, VT	NO

Flood Plain Panel at Target Property: Not Reported
Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Coverage
BENNINGTON	NO

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

AQUIFLOW®

Search Radius: 2.000 Miles.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

GEOLOGIC AGE IDENTIFICATION

Geologic Code:	OC
Era:	Paleozoic
System:	Ordovicias
Series:	Lower Ordovician and Cambrian carbonate rocks

ROCK STRATIGRAPHIC UNIT

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	NELLIS
Soil Surface Texture:	very stony - silt loam
Hydrologic Group:	Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.
Soil Drainage Class:	Well drained. Soils have intermediate water holding capacity. Depth to water table is more than 6 feet.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: LOW

Depth to Bedrock Min: > 60 inches

Depth to Bedrock Max: > 60 inches

Soil Layer Information

	Boundary			Classification			
Layer	**Upper**	**Lower**	**Soil Texture Class**	**AASHTO Group**	**Unified Soil**	**Permeability Rate (in/hr)**	**Soil Reaction (pH)**
1	0 inches	7 inches	very stony - silt loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 2.00 Min: 0.60	Max: 7.30 Min: 5.60
2	7 inches	17 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 2.00 Min: 0.60	Max: 7.30 Min: 5.60
3	17 inches	23 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 2.00 Min: 0.60	Max: 7.80 Min: 5.60
4	23 inches	72 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	GM-GC	Max: 2.00 Min: 0.20	Max: 8.40 Min: 6.60

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: silt loam
very stony - loam
fine sandy loam
loam
very stony - fine sandy loam

Surficial Soil Types: silt loam
very stony - loam
fine sandy loam

loam
very stony - fine sandy loam

Shallow Soil Types: No Other Soil Types

Deeper Soil Types: gravelly - loam
gravelly - fine sandy loam
loam
unweathered bedrock
fine sandy loam
silt loam

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

According to ASTM E 1527-00, Section 7.2.2, "one or more additional state or local sources of environmental records may be checked, in the discretion of the environmental professional, to enhance and supplement federal and state sources... Factors to consider in determining which local or additional state records, if any, should be checked include (1) whether they are reasonably ascertainable, (2) whether they are sufficiently useful, accurate, and complete in light of the objective of the records review (see 7.1.1), and (3) whether they are obtained, pursuant to local, good commercial or customary practice." One of the record sources listed in Section 7.2.2 is water well information. Water well information can be used to assist the environmental professional in assessing sources that may impact groundwater flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

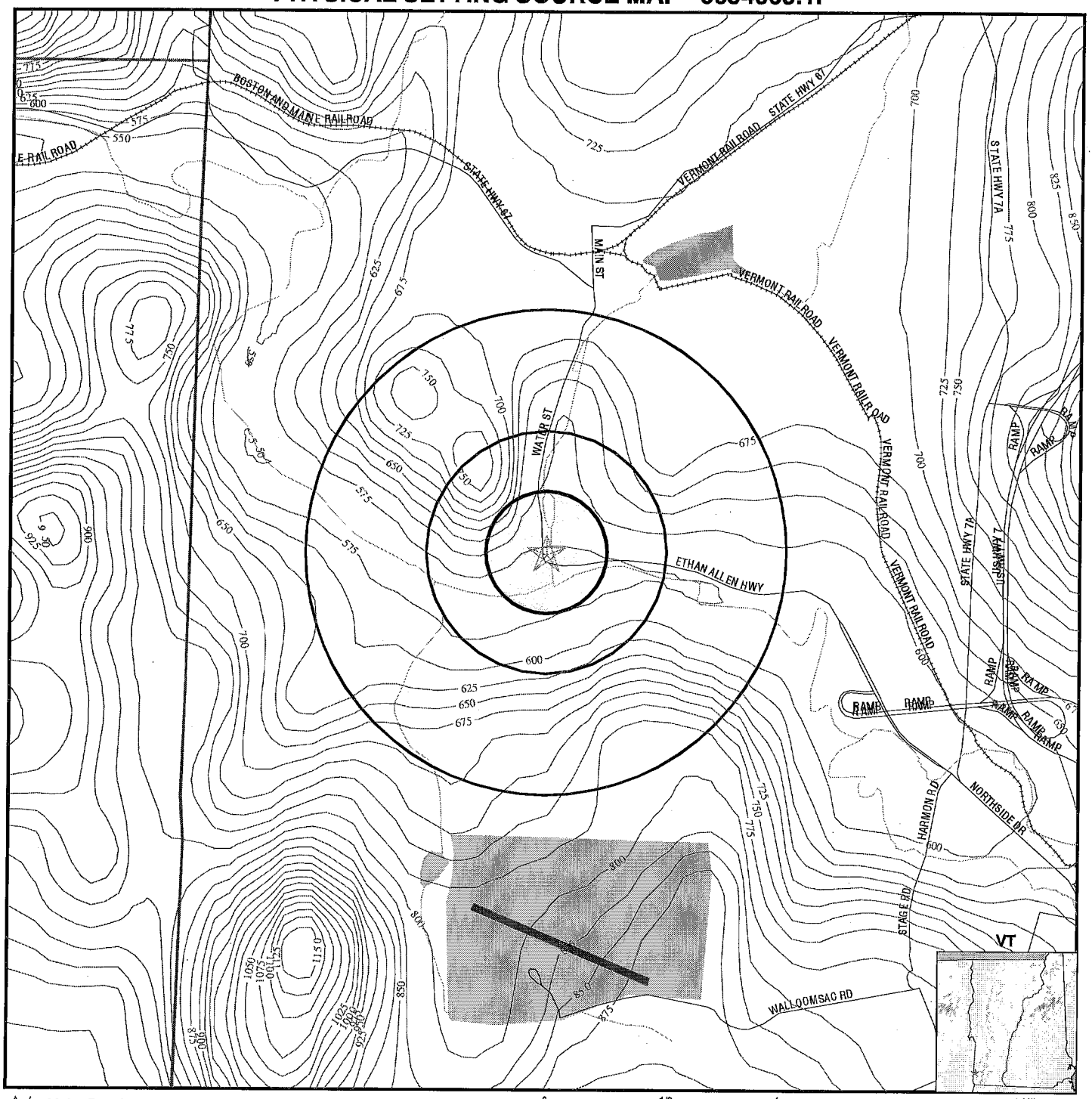
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 0634565.1r



- Major Roads
- Contour Lines
- Airports
- Water Wells
- Public Water Supply Wells
- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Cluster of Multiple Icons
- Earthquake epicenter, Richter 5 or greater

TARGET PROPERTY:	Saint-Gobain (Formerly Chemfab Corp)	CUSTOMER:	C.T. Male Associates
ADDRESS:	1030 Water Street	CONTACT:	Joe Farron
CITY/STATE/ZIP:	North Bennington VT 05257	INQUIRY #:	0634565.1r
LAT/LONG:	42.9145 / 73.2462	DATE:	May 22, 2001 11:10 am

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for BENNINGTON County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Zip Code: 05257

Number of sites tested: 2

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	Not Reported	Not Reported	Not Reported	Not Reported
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	7.450 pCi/L	50%	50%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 1999 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the national Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-260-2805

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-260-2805

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: In November 1971 the United States Geological Survey (USGS) implemented a national water resource information tracking system. This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on more than 900,000 wells, springs, and other sources of groundwater.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STATE RECORDS

Vermont Public Drinking Water Sources
Source: Vermont Center for Geographic Information
Telephone: 802-241-3406

RADON

Area Radon Information: The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones: Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

EDR Site Report™

BENNINGTON POWER EQUIPMENT COMPA
ROUTE 67A
BENNINGTON, VT 05257

Inquiry Number:

May 29, 2001

Environmental Data Resources, Inc.

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

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Section 1: Facility Summary ..... **Page 3**

Summary of facility filings including a review of the following areas: waste management, waste disposal, multi-media issues, and Superfund liability.

Section 2: Facility Detail Reports ..... **Page 4**

All available detailed information from databases where sites are identified.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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SECTION 1: FACILITY SUMMARY

FACILITY AREA	FACILITY 1 **BENNINGTON POWER EQUIPMENT COMPANY** ROUTE 67A BENNINGTON, VT 05257 EDR ID #U003544980
WASTE MANAGEMENT Facility generates hazardous waste (RCRIS)	NO
Facility treats, stores, or disposes of hazardous waste on-site (RCRIS/TSDF)	NO
Facility has received Notices of Violations (RCRIS/VIOL)	NO
Facility has been subject to RCRA administrative actions (RAATS)	NO
Facility has been subject to corrective actions (CORRACTS)	NO
Facility handles PCBs (PADS)	NO
Facility uses radioactive materials (MLTS)	NO
Facility manages registered aboveground storage tanks (AST)	NO
Facility manages registered underground storage tanks (UST)	**YES - p4**
Facility has reported leaking underground storage tank incidents (LUST)	NO
Facility has reported emergency releases to the soil (ERNS)	NO
Facility has reported hazardous material incidents to DOT (HMIRS)	NO
WASTE DISPOSAL Facility is a Superfund Site (NPL)	NO
Facility is not a Superfund Site but has a known or suspect abandoned, inactive or uncontrolled hazardous waste site (CERCLIS)	NO
Facility has a reported Superfund Lien on it (LIENS)	NO
Facility is listed as a state hazardous waste site (SHWS)	NO
Facility has disposed of solid waste on-site (SWF/LF)	NO
MULTIMEDIA Facility uses toxic chemicals and has notified EPA under SARA Title III, Section 313 (TRIS)	NO
Facility manufactures or imports toxic chemicals on the TSCA list (TSCA)	NO
Facility has inspections under FIFRA, TSCA or EPCRA (FTTS)	NO
Facility is listed in EPA's index system (FINDS)	NO
Facility is listed in a county/local unique database (LOCAL)	NO
POTENTIAL SUPERFUND LIABILITY Facility has a list of potentially responsible parties PRP	NO
TOTAL (YES)	1

SECTION 2: FACILITY DETAIL REPORTS

WASTE MANAGEMENT

Facility manages registered underground storage tanks

DATABASE: Petroleum Storage Tank Database (UST)

BENNINGTON POWER EQUIPMENT COMPANY
ROUTE 67A
BENNINGTON, VT 05257
EDR ID #U003544980

UST:

Facility ID:	4428611.00	Tank ID:	1962-2-R
Capacity (Gal):	1000.00	Substance:	Gasoline
Year Removed:	1986	Out of Service:	Not reported
Tank Protect:	Not reported		
Release Monitor:	Not reported		
Overfill/Spill:	Not reported		
Category One:	Yes		
Pipe Comments:	Not reported		
Pipe Protect:	Not reported		
Pipe Monitor:	Not reported		
Pumping System:	Not reported		
Pipe Installed:	Not reported		
CP Test:	Not reported		
Condition:	-1		
Date Reference:	Not reported		
CP Pipe Test:	Not reported		
Test Date:	Not reported		
Vapor:	Not reported		
Vapor 2:	Not reported		
Flag:	TANKINFO		

Facility ID:	4428611.00	Tank ID:	1970-3-R
Capacity (Gal):	2000.00	Substance:	Gasoline
Year Removed:	1986	Out of Service:	Not reported
Tank Protect:	Not reported		
Release Monitor:	Not reported		
Overfill/Spill:	Not reported		
Category One:	Yes		
Pipe Comments:	Not reported		
Pipe Protect:	Not reported		
Pipe Monitor:	Not reported		
Pumping System:	Not reported		
Pipe Installed:	Not reported		
CP Test:	Not reported		
Condition:	-1		
Date Reference:	Not reported		
CP Pipe Test:	Not reported		
Test Date:	Not reported		
Vapor:	Not reported		
Vapor 2:	Not reported		
Flag:	TANKINFO		

Facility ID:	4428611.00	Tank ID:	1983-1-R
Capacity (Gal):	6000.00	Substance:	Gasoline
Year Removed:	1995	Out of Service:	Not reported
Tank Protect:	Not reported		
Release Monitor:	Not reported		
Overfill/Spill:	Not reported		
Category One:	Yes		
Pipe Comments:	Not reported		
Pipe Protect:	Not reported		
Pipe Monitor:	Not reported		
Pumping System:	Not reported		
Pipe Installed:	Not reported		
CP Test:	Not reported		
Condition:	GOOD		
Date Reference:	Not reported		
CP Pipe Test:	Not reported		
Test Date:	Not reported		
Vapor:	Not reported		
Vapor 2:	Not reported		
Flag:	TANKINFO		

Facility ID:	4428611.00	Tank ID:	1995-1-2
Capacity (Gal):	15000.00	Substance:	Gasoline
Year Removed:	Not reported	Out of Service:	Not reported
Tank Protect:	Polyethylene/Clad Steel		
Release Monitor:	Interstitial		
Overfill/Spill:	Yes		

SECTION 2: FACILITY DETAIL REPORTS

...Continued...

Category One:	Yes
Pipe Comments:	Not reported
Pipe Protect:	PFRP
Pipe Monitor:	Vertical
Pumping System:	Suction
Pipe Installed:	1995
CP Test:	Not reported
Condition:	Not reported
Date Reference:	Not reported
CP Pipe Test:	Not reported
Test Date:	Not reported
Vapor:	Not reported
Vapor 2:	95
Flag:	TANKINFO

EDR Site Report™

JARD COMPANY
BOWEN ROAD
BENNINGTON, VT 05201

Inquiry Number:

May 29, 2001

Environmental Data Resources, Inc.

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

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SECTION 1: FACILITY SUMMARY

FACILITY AREA	FACILITY 1 **JARD COMPANY** BOWEN ROAD BENNINGTON, VT 05201 EDR ID #1000182849 EPA #VTD048141741
WASTE MANAGEMENT Facility generates hazardous waste (RCRIS)	**YES - p4**
Facility treats, stores, or disposes of hazardous waste on-site (RCRIS/TSDF)	NO
Facility has received Notices of Violations (RCRIS/VIOL)	**YES - p5**
Facility has been subject to RCRA administrative actions (RAATS)	NO
Facility has been subject to corrective actions (CORRACTS)	NO
Facility handles PCBs (PADS)	NO
Facility uses radioactive materials (MLTS)	NO
Facility manages registered aboveground storage tanks (AST)	NO
Facility manages registered underground storage tanks (UST)	NO
Facility has reported leaking underground storage tank incidents (LUST)	NO
Facility has reported emergency releases to the soil (ERNS)	NO
Facility has reported hazardous material incidents to DOT (HMIRS)	NO
WASTE DISPOSAL Facility is a Superfund Site (NPL)	NO
Facility is not a Superfund Site but has a known or suspect abandoned, inactive or uncontrolled hazardous waste site (CERCLIS)	**YES - p6**
Facility has a reported Superfund Lien on it (LIENS)	NO
Facility is listed as a state hazardous waste site (SHWS)	NO
Facility has disposed of solid waste on-site (SWF/LF)	NO
MULTIMEDIA Facility uses toxic chemicals and has notified EPA under SARA Title III, Section 313 (TRIS)	NO
Facility manufactures or imports toxic chemicals on the TSCA list (TSCA)	NO
Facility has inspections under FIFRA, TSCA or EPCRA (FTTS)	NO
Facility is listed in EPA's index system (FINDS)	**YES - p11**
Facility is listed in a county/local unique database (LOCAL)	NO
POTENTIAL SUPERFUND LIABILITY Facility has a list of potentially responsible parties PRP	NO
TOTAL (YES)	4

SECTION 2: FACILITY DETAIL REPORTS

WASTE MANAGEMENT

Facility generates hazardous waste

DATABASE: Resource Conservation and Recovery Information System (RCRIS)

JARD COMPANY
BOWEN ROAD
BENNINGTON, VT 05201
EDR ID #1000182849

Facility Name:	JARD CO INC BOWEN RD BENNINGTON, VT 05201
Contact:	THOMAS PAQUIN PO BOX 650 BENNINGTON, VT 05201 (802) 442-3173
EPA-ID:	VTD048141741
Record Date:	07/27/1981
Classification:	Large Quantity Generator
Description:	Handler: - generates 1,000 kg or more of hazardous waste during any calendar month; or - generates more than 1 kg of acutely hazardous waste during any calendar month; or - generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or - generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or - generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time
Legal Status:	Private
Mailing Address:	PO BOX 650 BENNINGTON, VT 05201
Owner:	Not reported OWNERSTREET OWNERCITY, VT 99999 (802) 555-1212
Operator:	ARSENAULT PAQUIN ROLLINS OPERSTREET OPERCITY, VT 99999 (802) 555-1212

WASTE MANAGEMENT

Facility Has Received Notices of Violations

DATABASE: Resource Conservation and Recovery Information System (RCRIS)

JARD COMPANY
BOWEN ROAD
BENNINGTON, VT 05201
EDR ID #1000182849

Violation information:

Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	10/30/1986
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	12/19/1986
Actual Date Achieved Compliance:	12/22/1986
Enforcement Action:	Written Informal
Enforcement Action Date:	11/17/1986
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported

Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	10/30/1986
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	12/19/1986
Actual Date Achieved Compliance:	12/22/1986
Enforcement Action:	Written Informal
Enforcement Action Date:	11/17/1986
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported

Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	09/20/1989
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	Not reported
Actual Date Achieved Compliance:	Not reported

Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	09/20/1989
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	Not reported
Actual Date Achieved Compliance:	Not reported

COMPLIANCE AND ENFORCEMENT SUMMARY

Responsible Agency:	State
COMPLIANCE EVALUATION INSPECTION (CEI)	Evaluation Date: 09/20/1989
COMPLIANCE SCHEDULE EVALUATION (CSE)	Evaluation Date: 12/22/1986
COMPLIANCE EVALUATION INSPECTION (CEI)	Evaluation Date: 10/30/1986

WASTE DISPOSAL

Facility is not a Superfund Site but has a known or suspect abandoned, inactive, or uncontrolled hazardous waste site

DATABASE: Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)

JARD COMPANY
BOWEN ROAD
BENNINGTON, VT 05201
EDR ID #1000182849

CERCLIS Name:	JARD COMPANY BOWEN ROAD BENNINGTON, 00 05201 BENNINGTON County		
Congressional Dist:	003	RCRA Facility:	Not reported
IFMS ID:	Not reported	SMSA Num:	1L20
USGS Hydro Unit:	Not reported	Federal Facility:	Not reported
NPL Update Num:	Not Reported	Federal Register Date:	Not Reported
Fed Haz Waste:	No	Site Incident:	Not reported
EPA-ID:	VTD048141741		
Latlong:	PR01VT / N NNO		
EPA Region:	Not reported Not reported		
Region IP Address:	Not reported	Region URL:	Not reported
NPL Status:	Not reported	Ownership Status:	Not reported
Classification: Site Description:	Not Reported Not Reported		

ENFORCEMENT ACTIVITY

Action Type:	REMOVAL ASSESSMENT
Action Anomaly:	Not reported
Planning Status:	Primary
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Urgency:	Not reported
Actual Start Date:	19910319
Actual Complete Date:	19910319
Primary Responsibility:	EPA Fund-Financed

Transaction ID:	0001
Transaction Type:	Actual Obligation
Transaction Date:	19981218
Transaction Amount:	$ 241.00

Transaction ID:	0002
Transaction Type:	Actual Obligation
Transaction Date:	19990212
Transaction Amount:	$ 1,331.00

Transaction ID:	0001
Transaction Type:	Deobligation
Transaction Date:	19981218
Transaction Amount:	$ 241.00

Transaction ID:	0002
Transaction Type:	Deobligation
Transaction Date:	19990212
Transaction Amount:	$ 1,331.00

Transaction ID:	0001
Transaction Type:	Extramural Outlay (Payment)
Transaction Date:	19981218
Transaction Amount:	$ 241.00

Transaction ID: 0002
Transaction Type: Extramural Outlay (Payment)
Transaction Date: 19990212
Transaction Amount: $ 1,331.00

Action Type: DISCOVERY
Action Anomaly: Not reported
Planning Status: Not reported
Priority Level: Not reported
Operable Unit: SITEWIDE
Urgency: Not reported
Actual Start Date: Not reported
Actual Complete Date: 19910429
Primary Responsibility: State, Fund Financed

Action Type: PRELIMINARY ASSESSMENT
Action Anomaly: Not reported
Planning Status: Not reported
Priority Level: High
Operable Unit: SITEWIDE
Urgency: Not reported
Actual Start Date: Not reported
Actual Complete Date: 19910718
Primary Responsibility: State, Fund Financed

Action Type: SECTION 104(E) REF LITIGATION
Action Anomaly: Not reported
Planning Status: Not reported
Priority Level: Not reported
Operable Unit: SITEWIDE
Urgency: Not reported
Actual Start Date: 19920108
Actual Complete Date: 19920114
Primary Responsibility: Federal Enforcement

Action Type: SITE INSPECTION
Action Anomaly: Not reported
Planning Status: Not reported
Priority Level: High
Operable Unit: SITEWIDE
Urgency: Not reported
Actual Start Date: Not reported
Actual Complete Date: 19930518
Primary Responsibility: EPA Fund-Financed

Action Type: REMOVAL
Action Anomaly: Not reported
Planning Status: Primary
Priority Level: Cleaned up
Operable Unit: SITEWIDE
Urgency: Time Critical
Actual Start Date: 19911223
Actual Complete Date: 19941229
Primary Responsibility: EPA Fund-Financed

Transaction ID: 0002
Transaction Type: Actual Obligation
Transaction Date: 19910909
Transaction Amount: $ 250,000.00

Transaction ID: 0003
Transaction Type: Actual Obligation
Transaction Date: 19920317
Transaction Amount: $ 250,000.00

Transaction ID: 0004
Transaction Type: Actual Obligation
Transaction Date: 19920615
Transaction Amount: $ 550,000.00

Transaction ID: 0001
Transaction Type: Commitment
Transaction Date: 19910826
Transaction Amount: $ 250,000.00

Transaction ID: 0003
Transaction Type: Decommitment
Transaction Date: 19920615
Transaction Amount: $ 550,000.00

Transaction ID: 0001
Transaction Type: Decommitment
Transaction Date: 19910826
Transaction Amount: $ 250,000.00

Transaction ID: 0002
Transaction Type: Decommitment
Transaction Date: 19920317
Transaction Amount: $ 250,000.00

Action Type: NON-NPL PRP SEARCH
Action Anomaly: Not reported
Planning Status: Not reported
Priority Level: Search Complete, No Viable PRPs
Operable Unit: SITEWIDE
Urgency: Not reported
Actual Start Date: 19910801
Actual Complete Date: 19960926
Primary Responsibility: Federal Enforcement

Action Type: REMOVAL
Action Anomaly: Not reported
Planning Status: Primary
Priority Level: Cleaned up
Operable Unit: SITEWIDE
Urgency: Time Critical
Actual Start Date: 19980921
Actual Complete Date: 19990921
Primary Responsibility: EPA Fund-Financed

Transaction ID: 0005
Transaction Type: Actual Obligation
Transaction Date: 19981221
Transaction Amount: $ 2,562.00

Transaction ID: 0006
Transaction Type: Actual Obligation
Transaction Date: 19990112
Transaction Amount: $ 420.00

Transaction ID: 0004
Transaction Type: Actual Obligation
Transaction Date: 19981218
Transaction Amount: $ 2,106.00

Transaction ID: 0003
Transaction Type: Actual Obligation
Transaction Date: 19990219
Transaction Amount: $ 379.00

Transaction ID: 0002
Transaction Type: Actual Obligation
Transaction Date: 19990909
Transaction Amount: $ 25,000.00

Transaction ID: 0001
Transaction Type: Actual Obligation
Transaction Date: 19980807
Transaction Amount: $ 250,000.00

Transaction ID: 0002
Transaction Type: Commitment
Transaction Date: 19990907
Transaction Amount: $ 25,000.00

Transaction ID: 0001
Transaction Type: Commitment
Transaction Date: 19980609
Transaction Amount: $ 250,000.00

Transaction ID: 0007
Transaction Type: Deobligation
Transaction Date: 19981221
Transaction Amount: $ 2,562.00

Transaction ID: 0008
Transaction Type: Deobligation
Transaction Date: 20000225
Transaction Amount: $ 154.00

Transaction ID: 0012
Transaction Type: Deobligation
Transaction Date: 20000608
Transaction Amount: $ 4.00

Transaction ID: 0011
Transaction Type: Deobligation
Transaction Date: 20000503
Transaction Amount: $ 18,000.00

SECTION 2: FACILITY DETAIL REPORTS

...Continued...

Transaction ID: 0010
Transaction Type: Deobligation
Transaction Date: 20000322
Transaction Amount: $ 462.00

Transaction ID: 0005
Transaction Type: Deobligation
Transaction Date: 19981218
Transaction Amount: $ 2,106.00

Transaction ID: 0004
Transaction Type: Deobligation
Transaction Date: 19990219
Transaction Amount: $ 379.00

Transaction ID: 0003
Transaction Type: Deobligation
Transaction Date: 19991123
Transaction Amount: $ 5,242.00

Transaction ID: 0002
Transaction Type: Deobligation
Transaction Date: 19990430
Transaction Amount: $ 145,000.00

Transaction ID: 0001
Transaction Type: Deobligation
Transaction Date: 19990225
Transaction Amount: $ 17,405.00

Transaction ID: 0006
Transaction Type: Deobligation
Transaction Date: 19990112
Transaction Amount: $ 420.00

Transaction ID: 0009
Transaction Type: Deobligation
Transaction Date: 20000321
Transaction Amount: $ 83,091.00

Transaction ID: 0001
Transaction Type: Decommitment
Transaction Date: 19980807
Transaction Amount: $ 250,000.00

Transaction ID: 0002
Transaction Type: Decommitment
Transaction Date: 19990909
Transaction Amount: $ 25,000.00

Transaction ID: 0001
Transaction Type: Extramural Outlay (Payment)
Transaction Date: 19990225
Transaction Amount: $ 17,405.00

Transaction ID: 0009
Transaction Type: Extramural Outlay (Payment)
Transaction Date: 20000322
Transaction Amount: $ 462.00

Transaction ID: 0008
Transaction Type: Extramural Outlay (Payment)
Transaction Date: 20000321
Transaction Amount: $ 83,091.00

Transaction ID: 0007
Transaction Type: Extramural Outlay (Payment)
Transaction Date: 20000225
Transaction Amount: $ 154.00

Transaction ID: 0006
Transaction Type: Extramural Outlay (Payment)
Transaction Date: 19990112
Transaction Amount: $ 420.00

Transaction ID: 0005
Transaction Type: Extramural Outlay (Payment)
Transaction Date: 19981221
Transaction Amount: $ 2,562.00

Transaction ID: 0004
Transaction Type: Extramural Outlay (Payment)
Transaction Date: 19981218
Transaction Amount: $ 2,106.00

SECTION 2: FACILITY DETAIL REPORTS

...Continued...

Transaction ID: 0002
Transaction Type: Extramural Outlay (Payment)
Transaction Date: 19991123
Transaction Amount: $ 5,242.00

Transaction ID: 0010
Transaction Type: Extramural Outlay (Payment)
Transaction Date: 20000608
Transaction Amount: $ 4.00

Transaction ID: 0003
Transaction Type: Extramural Outlay (Payment)
Transaction Date: 19990219
Transaction Amount: $ 379.00

MULTIMEDIA

Facility is listed in EPA's index system

DATABASE: Facility Index System (FINDS)

JARD COMPANY
BOWEN ROAD
BENNINGTON, VT 05201
EDR ID #1000182849

This site is listed in the Federal FINDS database. The FINDS database may contain references to records from government databases included elsewhere in the report. Please note: the FINDS database may also contain references to out of date records formerly associated with the site.

EPA-ID:	VTD048141741
EPA Records Indicate Facility Is Listed In:	Comperhensive Environmental Response, Compensation and Liability Information System
System ID:	0102282
Facility Name:	JARD COMPANY
Facility Address:	BOWEN ROAD BENNINGTON, VT 05201
Local Facility Name:	Not reported
Date Reported to Government:	199903161237

EPA-ID:	VTD048141741
EPA Records Indicate Facility Is Listed In:	Resource Conservation Recovery Act Information System
System ID:	VTD048141741
Facility Name:	JARD CO INC
Facility Address:	BOWEN RD BENNINGTON, VT 05201
Local Facility Name:	Not reported
Date Reported to Government:	199809081408

EPA-ID:	VTD048141741
EPA Records Indicate Facility Is Listed In:	Toxic Chemical Release Inventory System
System ID:	05201JRDCNBOWEN
Facility Name:	JARD CO. INC.
Facility Address:	BOWEN RD. BENNINGTON, VT 05201
Local Facility Name:	JARD CO. INC.
Date Reported to Government:	199909031534

EDR Site Report™

BENNINGTON COUNTY INDUSTRIAL COR
P.O. BOX 257 WATER STREET
BENNINGTON, VT 05257

Inquiry Number:

May 29, 2001

Environmental Data Resources, Inc.

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

The EDR-Site Report™ is a comprehensive presentation of government filings on a facility identified in a search of over 4 million government records from more than 600 federal, state and local environmental databases. The report is divided into three sections:

Section 1: Facility Summary ..... **Page 3**

Summary of facility filings including a review of the following areas: waste management, waste disposal, multi-media issues, and Superfund liability.

Section 2: Facility Detail Reports ..... **Page 4**

All available detailed information from databases where sites are identified.

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SECTION 1: FACILITY SUMMARY

FACILITY AREA	FACILITY 1 **BENNINGTON COUNTY INDUSTRIAL CORP** P.O. BOX 257 WATER STREET BENNINGTON, VT 05257 EDR ID #U003517369
WASTE MANAGEMENT Facility generates hazardous waste (RCRIS)	NO
Facility treats, stores, or disposes of hazardous waste on-site (RCRIS/TSDF)	NO
Facility has received Notices of Violations (RCRIS/VIOL)	NO
Facility has been subject to RCRA administrative actions (RAATS)	NO
Facility has been subject to corrective actions (CORRACTS)	NO
Facility handles PCBs (PADS)	NO
Facility uses radioactive materials (MLTS)	NO
Facility manages registered aboveground storage tanks (AST)	NO
Facility manages registered underground storage tanks (UST)	**YES - p4**
Facility has reported leaking underground storage tank incidents (LUST)	NO
Facility has reported emergency releases to the soil (ERNS)	NO
Facility has reported hazardous material incidents to DOT (HMIRS)	NO
WASTE DISPOSAL Facility is a Superfund Site (NPL)	NO
Facility is not a Superfund Site but has a known or suspect abandoned, inactive or uncontrolled hazardous waste site (CERCLIS)	NO
Facility has a reported Superfund Lien on it (LIENS)	NO
Facility is listed as a state hazardous waste site (SHWS)	NO
Facility has disposed of solid waste on-site (SWF/LF)	NO
MULTIMEDIA Facility uses toxic chemicals and has notified EPA under SARA Title III, Section 313 (TRIS)	NO
Facility manufactures or imports toxic chemicals on the TSCA list (TSCA)	NO
Facility has inspections under FIFRA, TSCA or EPCRA (FTTS)	NO
Facility is listed in EPA's index system (FINDS)	NO
Facility is listed in a county/local unique database (LOCAL)	NO
POTENTIAL SUPERFUND LIABILITY Facility has a list of potentially responsible parties PRP	NO
TOTAL (YES)	1

SECTION 2: FACILITY DETAIL REPORTS

WASTE MANAGEMENT

Facility manages registered underground storage tanks

DATABASE: Petroleum Storage Tank Database (UST)

BENNINGTON COUNTY INDUSTRIAL CORP
P.O. BOX 257 WATER STREET
BENNINGTON, VT 05257
EDR ID #U003517369

UST:

Facility ID:	9999747.00	Tank ID:	1953-1
Capacity (Gal):	7500.00	Substance:	#5&6 Fuel Oil
Year Removed:	Not reported	Out of Service:	Not reported
Tank Protect:	Unprotected		
Release Monitor:	Not reported		
Overfill/Spill:	Not reported		
Category One:	No		
Pipe Comments:	Not reported		
Pipe Protect:	Not reported		
Pipe Monitor:	Not reported		
Pumping System:	Not reported		
Pipe Installed:	Not reported		
CP Test:	Not reported		
Condition:	FAIR		
Date Reference:	Not reported		
CP Pipe Test:	Not reported		
Test Date:	Not reported		
Vapor:	Not reported		
Vapor 2:	Not reported		
Flag:	PULL TANK		

Facility ID:	9999747.00	Tank ID:	1953-2
Capacity (Gal):	7500.00	Substance:	#5&6 Fuel Oil
Year Removed:	Not reported	Out of Service:	Not reported
Tank Protect:	Unprotected		
Release Monitor:	Not reported		
Overfill/Spill:	Not reported		
Category One:	No		
Pipe Comments:	Not reported		
Pipe Protect:	Not reported		
Pipe Monitor:	Not reported		
Pumping System:	Not reported		
Pipe Installed:	Not reported		
CP Test:	Not reported		
Condition:	FAIR		
Date Reference:	Not reported		
CP Pipe Test:	Not reported		
Test Date:	Not reported		
Vapor:	Not reported		
Vapor 2:	Not reported		
Flag:	PULL TANK		

EDR Site Report™

BENNINGTON IRON WORKS
HARMON RD.
BENNINGTON, VT 05201

Inquiry Number:

May 29, 2001

Environmental Data Resources, Inc.

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
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All available detailed information from databases where sites are identified.

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SECTION 1: FACILITY SUMMARY

FACILITY AREA	FACILITY 1 **BENNINGTON IRON WORKS** HARMON RD. BENNINGTON, VT 05201 EDR ID #1000315900 EPA #VTD043791532
WASTE MANAGEMENT Facility generates hazardous waste (RCRIS)	**YES - p4**
Facility treats, stores, or disposes of hazardous waste on-site (RCRIS/TSDF)	NO
Facility has received Notices of Violations (RCRIS/VIOL)	**YES - p5**
Facility has been subject to RCRA administrative actions (RAATS)	NO
Facility has been subject to corrective actions (CORRACTS)	NO
Facility handles PCBs (PADS)	NO
Facility uses radioactive materials (MLTS)	NO
Facility manages registered aboveground storage tanks (AST)	NO
Facility manages registered underground storage tanks (UST)	**YES - p6**
Facility has reported leaking underground storage tank incidents (LUST)	**YES - p8**
Facility has reported emergency releases to the soil (ERNS)	NO
Facility has reported hazardous material incidents to DOT (HMIRS)	NO
WASTE DISPOSAL Facility is a Superfund Site (NPL)	NO
Facility is not a Superfund Site but has a known or suspect abandoned, inactive or uncontrolled hazardous waste site (CERCLIS)	NO
Facility has a reported Superfund Lien on it (LIENS)	NO
Facility is listed as a state hazardous waste site (SHWS)	**YES - p9**
Facility has disposed of solid waste on-site (SWF/LF)	NO
MULTIMEDIA Facility uses toxic chemicals and has notified EPA under SARA Title III, Section 313 (TRIS)	NO
Facility manufactures or imports toxic chemicals on the TSCA list (TSCA)	NO
Facility has inspections under FIFRA, TSCA or EPCRA (FTTS)	NO
Facility is listed in EPA's index system (FINDS)	**YES - p10**
Facility is listed in a county/local unique database (LOCAL)	NO
POTENTIAL SUPERFUND LIABILITY Facility has a list of potentially responsible parties PRP	NO
TOTAL (YES)	6

SECTION 2: FACILITY DETAIL REPORTS

WASTE MANAGEMENT

Facility generates hazardous waste

DATABASE: Resource Conservation and Recovery Information System (RCRIS)

BENNINGTON IRON WORKS
HARMON RD.
BENNINGTON, VT 05201
EDR ID #1000315900

Facility Name:	BENNINGTON IRON WORKS INC HARMON RD BENNINGTON, VT 05201
Contact:	CURTIS-L MORIN, PRES PO BOX 798 BENNINGTON, VT 05201 (802) 442-3145
EPA-ID:	VTD043791532
Record Date:	10/12/1989
Classification:	Conditionally Exempt Small Quantity Generator

Description:	Handler:
	- generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or
	- generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time:
	  - 1 kg or less of acutely hazardous waste; or
	  - 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or
	- generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time:
	  - 1 kg or less of acutely hazardous waste; or
	  - 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Legal Status:	Private
Mailing Address:	PO BOX 798 BENNINGTON, VT 05201
Owner:	CURTIS MORIN RR1 BOX 330 SHAFTSBURY, VT 05262 (802) 442-6140
Used Oil Recycling:	used oil recycling activities

WASTE MANAGEMENT

Facility Has Received Notices of Violations

DATABASE: Resource Conservation and Recovery Information System (RCRIS)

BENNINGTON IRON WORKS
HARMON RD.
BENNINGTON, VT 05201
EDR ID #1000315900

Violation information:

Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	03/27/1998
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	05/29/1998
Actual Date Achieved Compliance:	08/25/1998

Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	03/27/1998
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	05/29/1998
Actual Date Achieved Compliance:	08/25/1998

WASTE MANAGEMENT

Facility manages registered underground storage tanks

DATABASE: Petroleum Storage Tank Database (UST)

BENNINGTON IRON WORKS
HARMON RD.
BENNINGTON, VT 05201
EDR ID #1000315900

Database Address:
BENNINGTON IRON WORKS
HARMON ROAD
BENNINGTON, VT 05201

UST:

Facility ID:	4423145.00	Tank ID:	1976-1-R
Capacity (Gal):	11000.00	Substance:	#2&4 Fuel Oil
Year Removed:	1987	Out of Service:	Not reported
Tank Protect:	Not reported		
Release Monitor:	Not reported		
Overfill/Spill:	Not reported		
Category One:	No		
Pipe Comments:	Not reported		
Pipe Protect:	Not reported		
Pipe Monitor:	Not reported		
Pumping System:	Not reported		
Pipe Installed:	Not reported		
CP Test:	Not reported		
Condition:	GOOD		
Date Reference:	Not reported		
CP Pipe Test:	Not reported		
Test Date:	Not reported		
Vapor:	Not reported		
Vapor 2:	Not reported		
Flag:	TANKINFO		

Facility ID:	4423145.00	Tank ID:	1979-2-R
Capacity (Gal):	4000.00	Substance:	Diesel
Year Removed:	1998	Out of Service:	Not reported
Tank Protect:	Not reported		
Release Monitor:	Not reported		
Overfill/Spill:	Not reported		
Category One:	Yes		
Pipe Comments:	Not reported		
Pipe Protect:	Not reported		
Pipe Monitor:	Not reported		
Pumping System:	Not reported		
Pipe Installed:	Not reported		
CP Test:	Not reported		
Condition:	FAIR		
Date Reference:	9/25/98		
CP Pipe Test:	Not reported		
Test Date:	Not reported		
Vapor:	Not reported		
Vapor 2:	Not reported		
Flag:	TANKINFO		

Facility ID:	4423145.00	Tank ID:	1979-3-R
Capacity (Gal):	4000.00	Substance:	Diesel
Year Removed:	1998	Out of Service:	Not reported
Tank Protect:	Not reported		
Release Monitor:	Not reported		
Overfill/Spill:	Not reported		
Category One:	Yes		
Pipe Comments:	Not reported		
Pipe Protect:	Not reported		
Pipe Monitor:	Not reported		
Pumping System:	Not reported		
Pipe Installed:	Not reported		
CP Test:	Not reported		
Condition:	FAIR		
Date Reference:	9/25/98		
CP Pipe Test:	Not reported		
Test Date:	Not reported		
Vapor:	Not reported		
Vapor 2:	Not reported		
Flag:	TANKINFO		

Facility ID:	4423145.00	Tank ID:	1979-4-R

SECTION 2: FACILITY DETAIL REPORTS

...Continued...

Capacity (Gal):	4000.00	Substance:	Gasoline
Year Removed:	1998	Out of Service:	Not reported
Tank Protect:	Not reported		
Release Monitor:	Not reported		
Overfill/Spill:	Not reported		
Category One:	Yes		
Pipe Comments:	Not reported		
Pipe Protect:	Not reported		
Pipe Monitor:	Not reported		
Pumping System:	Not reported		
Pipe Installed:	Not reported		
CP Test:	Not reported		
Condition:	FAIR		
Date Reference:	9/25/98		
CP Pipe Test:	Not reported		
Test Date:	Not reported		
Vapor:	Not reported		
Vapor 2:	Not reported		
Flag:	TANKINFO		

Facility ID:	4423145.00	Tank ID:	1998-1-3
Capacity (Gal):	15000.00	Substance:	GD
Year Removed:	Not reported	Out of Service:	Not reported
Tank Protect:	Protected/Fiberglass/Clad Steel		
Release Monitor:	Interstitial		
Overfill/Spill:	Yes		
Category One:	Yes		
Pipe Comments:	3LINES		
Pipe Protect:	Protected Flexible		
Pipe Monitor:	Interstitial, Vertical		
Pumping System:	Suction		
Pipe Installed:	1998		
CP Test:	Not reported		
Condition:	Not reported		
Date Reference:	Not reported		
CP Pipe Test:	Not reported		
Test Date:	Not reported		
Vapor:	YR		
Vapor 2:	Not reported		
Flag:	TANKINFO		

WASTE MANAGEMENT

Facility has reported leaking underground storage tank incidents

DATABASE: Leaking Petroleum Storage Tank Database (LUST)

BENNINGTON IRON WORKS
HARMON RD.
BENNINGTON, VT 05201
EDR ID #1000315900

LUST:

Facility ID:	982482.00
Discovery Date:	9/24/1998 0:00:00
Closure Date:	Not reported
Project Status:	Free Product discovered during UST removal. Investigation pending and FP recovery commencing. PCE also found on site and in nearby wells.
Priority	Directly Impacted Sensitive Receptor (VSPS>60)
Source Type:	UST, Spill
Owner:	Bennington Iron Works
Flag:	ACTIVE
Owner Address:	Harmon Road Bennington, VT 05201

Facility ID:	982482.00
Discovery Date:	9/24/1998 0:00:00
Closure Date:	Not reported
Project Status:	Free Product discovered during UST removal. Investigation pending and FP recovery commencing. PCE also found on site and in nearby wells.
Priority	Directly Impacted Sensitive Receptor (VSPS>60)
Source Type:	UST, Spill, Gasoline
Owner:	Bennington Iron Works
Flag:	ACTIVE
Owner Address:	Harmon Road Bennington, VT 05201

WASTE DISPOSAL

Facility is listed as a state hazardous waste site

DATABASE: State Hazardous Waste Sites (SHWS)

BENNINGTON IRON WORKS
HARMON RD.
BENNINGTON, VT 05201
EDR ID #1000315900

SHWS:

Facility ID:	982482.00
Flag:	ACTIVE
Discovery Date:	9/24/1998 0:00:00
Closure Date:	Not reported
Project Status:	Free Product discovered during UST removal. Investigation pending and FP recovery commencing. PCE also found on site and in nearby wells.
Priority	Directly Impacted Sensitive Receptor (VSPS>60)
Source Type:	UST
Owner Address:	Harmon Road Bennington, VT 05201
Staff:	Richard Spiese

MULTIMEDIA

Facility is listed in EPA's index system

DATABASE: Facility Index System (FINDS)

BENNINGTON IRON WORKS
HARMON RD.
BENNINGTON, VT 05201
EDR ID #1000315900

This site is listed in the Federal FINDS database. The FINDS database may contain references to records from government databases included elsewhere in the report. Please note: the FINDS database may also contain references to out of date records formerly associated with the site.

EPA-ID:	000006847030
EPA Records Indicate Facility Is Listed In:	AIRS Facility System
System ID:	VT0964917
Facility Name:	BENNINGTON IRON WORKS INC.
Facility Address:	HARMON ROAD BENNINGTON, VT 05201
Local Facility Name:	BENNINGTON IRON WORKS INC.
Date Reported to Government:	199812041229

EPA-ID:	000006847030
EPA Records Indicate Facility Is Listed In:	Resource Conservation Recovery Act Information System
System ID:	VTD043791532
Facility Name:	BENNINGTON IRON WORKS INC
Facility Address:	HARMON RD BENNINGTON, VT 05201
Local Facility Name:	Not reported
Date Reported to Government:	199809211909

EDR Site Report™

THE PROSPECT CENTER
PARK & WEST STREETS
BENNINGTON, VT 05257

Inquiry Number:

May 29, 2001

Environmental Data Resources, Inc.

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

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Section 2: Facility Detail Reports ..... **Page 4**

All available detailed information from databases where sites are identified.

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SECTION 1: FACILITY SUMMARY

FACILITY AREA	FACILITY 1 **THE PROSPECT CENTER** PARK & WEST STREETS BENNINGTON, VT 05257 EDR ID #U003544989
WASTE MANAGEMENT Facility generates hazardous waste (RCRIS)	NO
Facility treats, stores, or disposes of hazardous waste on-site (RCRIS/TSDF)	NO
Facility has received Notices of Violations (RCRIS/VIOL)	NO
Facility has been subject to RCRA administrative actions (RAATS)	NO
Facility has been subject to corrective actions (CORRACTS)	NO
Facility handles PCBs (PADS)	NO
Facility uses radioactive materials (MLTS)	NO
Facility manages registered aboveground storage tanks (AST)	NO
Facility manages registered underground storage tanks (UST)	**YES - p4**
Facility has reported leaking underground storage tank incidents (LUST)	NO
Facility has reported emergency releases to the soil (ERNS)	NO
Facility has reported hazardous material incidents to DOT (HMIRS)	NO
WASTE DISPOSAL Facility is a Superfund Site (NPL)	NO
Facility is not a Superfund Site but has a known or suspect abandoned, inactive or uncontrolled hazardous waste site (CERCLIS)	NO
Facility has a reported Superfund Lien on it (LIENS)	NO
Facility is listed as a state hazardous waste site (SHWS)	NO
Facility has disposed of solid waste on-site (SWF/LF)	NO
MULTIMEDIA Facility uses toxic chemicals and has notified EPA under SARA Title III, Section 313 (TRIS)	NO
Facility manufactures or imports toxic chemicals on the TSCA list (TSCA)	NO
Facility has inspections under FIFRA, TSCA or EPCRA (FTTS)	NO
Facility is listed in EPA's index system (FINDS)	NO
Facility is listed in a county/local unique database (LOCAL)	NO
POTENTIAL SUPERFUND LIABILITY Facility has a list of potentially responsible parties PRP	NO
TOTAL (YES)	1

SECTION 2: FACILITY DETAIL REPORTS

WASTE MANAGEMENT

Facility manages registered underground storage tanks

DATABASE: Petroleum Storage Tank Database (UST)

THE PROSPECT CENTER
PARK & WEST STREETS
BENNINGTON, VT 05257
EDR ID #U003544989

UST:

Facility ID:	2000.00	Tank ID:	-1-1
Capacity (Gal):	2500.00	Substance:	#2&4 Fuel Oil
Year Removed:	Not reported	Out of Service:	Not reported
Tank Protect:	Unprotected		
Release Monitor:	Not reported		
Overfill/Spill:	Not reported		
Category One:	No		
Pipe Comments:	Not reported		
Pipe Protect:	Unprotected		
Pipe Monitor:	Not reported		
Pumping System:	Not reported		
Pipe Installed:	-1		
CP Test:	Not reported		
Condition:	Not reported		
Date Reference:	Not reported		
CP Pipe Test:	Not reported		
Test Date:	Not reported		
Vapor:	Not reported		
Vapor 2:	Not reported		
Flag:	TANKINFO		

EDR Site Report™

WATER ST ACCROSS FROM CHEMFAB CO
WATER ST ACCROSS FROM CHEMFAB CO
NORTH BENNINGTON, VT 05257

Inquiry Number:

May 29, 2001

Environmental Data Resources, Inc.

***The* Source For Environmental Risk Management Data**

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
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TABLE OF CONTENTS

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SECTION 1: FACILITY SUMMARY

FACILITY AREA	FACILITY 1 **WATER ST ACCROSS FROM CHEMFAB CO** WATER ST ACCROSS FROM CHEMFAB CO NORTH BENNINGTON, VT 05257 EDR ID #89447684
WASTE MANAGEMENT Facility generates hazardous waste (RCRIS)	NO
Facility treats, stores, or disposes of hazardous waste on-site (RCRIS/TSDF)	NO
Facility has received Notices of Violations (RCRIS/VIOL)	NO
Facility has been subject to RCRA administrative actions (RAATS)	NO
Facility has been subject to corrective actions (CORRACTS)	NO
Facility handles PCBs (PADS)	NO
Facility uses radioactive materials (MLTS)	NO
Facility manages registered aboveground storage tanks (AST)	NO
Facility manages registered underground storage tanks (UST)	NO
Facility has reported leaking underground storage tank incidents (LUST)	NO
Facility has reported emergency releases to the soil (ERNS)	**YES - p4**
Facility has reported hazardous material incidents to DOT (HMIRS)	NO
WASTE DISPOSAL Facility is a Superfund Site (NPL)	NO
Facility is not a Superfund Site but has a known or suspect abandoned, inactive or uncontrolled hazardous waste site (CERCLIS)	NO
Facility has a reported Superfund Lien on it (LIENS)	NO
Facility is listed as a state hazardous waste site (SHWS)	NO
Facility has disposed of solid waste on-site (SWF/LF)	NO
MULTIMEDIA Facility uses toxic chemicals and has notified EPA under SARA Title III, Section 313 (TRIS)	NO
Facility manufactures or imports toxic chemicals on the TSCA list (TSCA)	NO
Facility has inspections under FIFRA, TSCA or EPCRA (FTTS)	NO
Facility is listed in EPA's Index system (FINDS)	NO
Facility is listed in a county/local unique database (LOCAL)	NO
POTENTIAL SUPERFUND LIABILITY Facility has a list of potentially responsible parties PRP	NO
TOTAL (YES)	1

SECTION 2: FACILITY DETAIL REPORTS

WASTE MANAGEMENT

Facility has reported emergency releases to the soil

DATABASE: Emergency Response Notification System (ERNS)

WATER ST ACCROSS FROM CHEMFAB CO
WATER ST ACCROSS FROM CHEMFAB CO
NORTH BENNINGTON, VT 05257
EDR ID #89447684

Site ID:	89447684		
Site Location:	WATER ST ACCROSS FROM CHEMFAB CO NORTH BENNINGTON, VT 05257 BENNINGTON County		
Report No:	300695	EPA Region:	01
Spill Date:	09/20/1989	Spill Time:	07:00
Medium Desc:		Damage/Amt:	Yes / $0.00
Evacuation:	Yes	Injured:	None
Fatalities:	None	Notes:	WALLOOMSAC RIVER
Disch Org:	PRIVATE CITIZEN		
Disch Add:	WATER ST		
Disch City:	NORTH BENNINGTON		
Disch ST:	VT		
Disch Zip:	05257		
Disch County:	BENNINGTON		
C.G. Unit:	Not reported		
Cause:	Not reported		

Spilled Material	Total Qty	In Water	Undot	Cas	Qty
UNKNOWN OIL	1.00 UNK	0.00 UNK	Not reported	80741174	0.00 lbs.

Description:	RP DUMPING AND BURNING. RP IS DUMPING AND BURNING LARGE AMMOUNTS OF MATERIALS
Location:	WATER ST ACCROSS FROM CHEMFAB CO
Action:	NONE
Comments:	ALSO DUMPS PERSONAL GARBAGE/TIRES/ROOFING MATERIALS. 1422 VERDONE CALLED VT DEC AND GAVE REPORT TO GARY URICH. THEY WILL INVESTIGATE.

EDR Site Report™

MT PROSPECT
RT 9
WOODFORD, VT

Inquiry Number:

May 29, 2001

Environmental Data Resources, Inc.

The Source For Environmental Risk Management Data

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Southport, Connecticut 06490

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TABLE OF CONTENTS

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SECTION 1: FACILITY SUMMARY

FACILITY AREA	FACILITY 1 **MT PROSPECT** RT 9 WOODFORD, VT EDR ID #S103725349
WASTE MANAGEMENT Facility generates hazardous waste (RCRIS)	NO
Facility treats, stores, or disposes of hazardous waste on-site (RCRIS/TSDF)	NO
Facility has received Notices of Violations (RCRIS/VIOL)	NO
Facility has been subject to RCRA administrative actions (RAATS)	NO
Facility has been subject to corrective actions (CORRACTS)	NO
Facility handles PCBs (PADS)	NO
Facility uses radioactive materials (MLTS)	NO
Facility manages registered aboveground storage tanks (AST)	NO
Facility manages registered underground storage tanks (UST)	NO
Facility has reported leaking underground storage tank incidents (LUST)	**YES - p4**
Facility has reported emergency releases to the soil (ERNS)	NO
Facility has reported hazardous material incidents to DOT (HMIRS)	NO
WASTE DISPOSAL Facility is a Superfund Site (NPL)	NO
Facility is not a Superfund Site but has a known or suspect abandoned, inactive or uncontrolled hazardous waste site (CERCLIS)	NO
Facility has a reported Superfund Lien on it (LIENS)	NO
Facility is listed as a state hazardous waste site (SHWS)	NO
Facility has disposed of solid waste on-site (SWF/LF)	NO
MULTIMEDIA Facility uses toxic chemicals and has notified EPA under SARA Title III, Section 313 (TRIS)	NO
Facility manufactures or imports toxic chemicals on the TSCA list (TSCA)	NO
Facility has inspections under FIFRA, TSCA or EPCRA (FTTS)	NO
Facility is listed in EPA's index system (FINDS)	NO
Facility is listed in a county/local unique database (LOCAL)	NO
POTENTIAL SUPERFUND LIABILITY Facility has a list of potentially responsible parties PRP	NO
TOTAL (YES)	1

SECTION 2: FACILITY DETAIL REPORTS

WASTE MANAGEMENT

Facility has reported leaking underground storage tank incidents

DATABASE: Leaking Petroleum Storage Tank Database (LUST)

MT PROSPECT
RT 9
WOODFORD, VT
EDR ID #S103725349

LUST:

Facility ID:	890438.00
Discovery Date:	Not reported
Closure Date:	Not reported
Project Status:	Site Closed
Priority	No Further Action Planned
Source Type:	UST, Spill, Gasoline
Owner:	Not reported
Flag:	CLOSED
Owner Address:	Not reported

Appendix A.2

Phase I Environmental Site Assessment of Saint-Gobain Performance Plastics Corporation Site

GZA
GeoEnvironmental, Inc.

Engineers and Scientists

August 30, 1994
File No. 21295 C

Mr. Ted Unkles, Supervisor
Vermont Department of Environmental Conservation
Hazardous Materials Management Division
Underground Storage Tank Program
103 South Main Street/West Office
Waterbury, Vermont 05671-0404

Re: Underground Storage Tank (UST) Closure and Site Assessment Report
Chemfab Corporation Site
Water Street
North Bennington, Vermont
(Facility ID No. 9999637)

380 Harvey Road
Manchester
New Hampshire 03103
603-623-3600
FAX 603-624-9463

Dear Mr. Unkles:

On behalf of Chemfab Corporation (Chemfab), GZA GeoEnvironmental, Inc. (GZA) is pleased to submit to the Vermont Department of Environmental Conservation (DEC), Hazardous Materials Management Division (HMMD), Underground Storage Tank Program (USTP) the attached letter in support of a UST closure performed on August 27, 1994 at the above-referenced site. GZA observed and monitored the UST closure in accordance with DEC, HMMD's draft UST Closure and Site Assessment Requirements dated May 11, 1994. A Site Assessment was required per DEC regulations, because the UST was a 2,000-gallon fuel oil tank. Copies of the relevant USTP Closure Forms are attached.

The following sections of the UST Closure and Site Assessment Report correspond with Chapter III of HMMD's May 11, 1994 draft requirements.

A Subsidiary of GZA GeoEnvironmental Technologies, Inc.

GENERAL SITE INFORMATION

GZA observed and monitored the closure of a 2,000 gallon Fuel Oil No. 2 UST at the site on August 27, 1994 by Clean Harbors of Glenmont, New York. Soils excavated during closure were screened for evidence of petroleum contamination using photoionization headspace screening, as well as visual/olfactory inspection. No evidence of petroleum contamination was observed in surficial soils around the fill pipe, soil removed from the excavation, sidewall soils, or soils at the bottom of the excavation. After the UST was removed from the excavation, GZA collected grab samples from each of the four sidewalls, as well as from the bottom of the excavation. Headspace screening of these samples did not detect the presence of volatile organic compounds (VOCs) above the instrument detection limit of 0.0 parts per million (ppm), with the exception that 0.8 ppm total VOCs were detected in a single grab sample collected from native soil at the bottom of the

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excavation. Please refer to the attached USTP Closure Forms for additional information.

An attached Site Plan was prepared in accordance with the requirements of Chapter III, Item A of HMMD's May 11, 1994 draft requirements. As shown on the plan, sensitive environmental areas were not detected with an approximate 500-foot radius of the site. Also shown on the plan is Paran Creek, located approximately 250 feet to the east of the UST excavation. The plan also depicts abutter locations. Land usage in the site vicinity is primarily mixed residential/light industrial.

During the site visit, GZA did not note the presence of unusual conditions other than what might be expected in similar settings.

SITE CHARACTERISTICS AND CONTAMINANT INVESTIGATION RESULTS

GZA notes that the majority of the information requested in this section is provided on the attached USTP Closure Forms. Information requested in Chapter III, Item B but not contained on the Closure Forms or previously discussed is provided in bullet form below:

- Subsurface materials in the vicinity of the tank excavation included about 7 feet of moist, brown to reddish brown loamy, gravelly sand which was underlain by moist, light brown fine sand to the bottom of the excavation. Groundwater was not observed in the excavation to a depth of about 8 feet;

- Based on the relatively coarse granular soils encountered by the excavation, GZA anticipates the soil to have relatively moderate to high hydraulic conductivity;

- Topography in the site vicinity slopes gently to the east to southeast towards Paran Creek, which flows to the south towards the Walloomsac River. Based on the proximity of the creek, its direction of flow, and surficial topography, GZA anticipates that overburden groundwater flows towards the east to southeast; and

- Bedrock was not encountered during UST closure, but is anticipated to consist of high grade meta-sedimentary and/or meta-igneous rock, and to exist at a depth of about 50 to 100 feet.

ANALYTICAL METHODS AND RESULTS

In addition to photoionization screening and olfactory/visual inspection of excavation soils, GZA collected two composite soil samples designated "Sidewalls" and "Bottom Excavation" for analytical laboratory testing for VOCs in accordance with United States Environmental Protection Agency (EPA) Method 8020 and for Total Petroleum Hydrocarbons in accordance with American Society of Testing and Materials (ASTM)

Method D-3328-78. The two composite soil samples were collected as follows:

- Sidewalls - composite of 24 grab samples collected from the sidewalls of the excavation; and
- Bottom Excavation - composite of 6 grab samples collected from the bottom the excavation.

GZA will copy the results of these analyses to DEC, HMMD, USTP when they become available. Please refer to the attached Chain-of-Custody Record and Analysis Request for additional information.

CONCLUSIONS AND RECOMMENDATIONS

Because no evidence of a release was noted during the closure, GZA recommends that no further action be taken with respect to the site.

GZA appreciates the opportunity to work with the DEC, HMMD, USTP on this project. Should you have any questions, please call us.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

I. Richard Schaffner, Jr.
Hydrogeologist

For Ron A. Breton, P.E.
Associate Principal

Attachments: Completed DEC, HMMD, USTP Closure Forms
Site Plan
Chain-of-Custody Record and Analysis Request

cc: Mr. Edward W. Frechette, Chemfab Corporation

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
UNDERGROUND STORAGE TANK PROGRAM
103 SOUTH MAIN STREET
WATERBURY, VERMONT 05671-0404
(802) 241-3888

Chemfab
Mon 8-29-94

Date of Removal: 08/27/94 Date of Assessment: 08/27/94

Person & Company Doing Assessment:
I. Richard Schaffner, Jr.
GZA GeoEnvironmental, Inc.
Telephone Number: (603) 623-3600

Business Name Where Tank(s) Located: Chemfab Corporation
Number of Employees: 105
Street Address & Town/City: Water Street, P.O. Box 476
North Bennington, Vermont 05257

Owner of Tank(s): Chemfab Corporation
Address: Water Street, P.O. 476 Contact Person: Mr. Edward Frechette CPE
Town/City: North Bennington, VT 05257 Phone Number: (603) 424-9000 ext. 373

UST Facility ID Number:

Tank #	Product	Size	Condition
1	No. 2 Fuel Oil	2,000 gallon	Good, some pitting
2			
3			
4			

Reason for Tank Removal (check one): ☒ abandoned ☐ routine replacement ☐ tank or piping leaking ☐ liability

Replacement Tank(s)? ☐ yes ☒ no Number of Replacement Tanks: _____
DEC UST Permit(s) Obtained? ☒ yes ☐ no

DEC-Permitted Tank(s) Still On-Site? ☐ yes ☒ no Number of Tanks: _____
Out of Service Tank(s) On-Site? ☐ yes ☒ no Number of Tanks: _____
Heating Oil Tank(s) On-Site? ☐ yes ☒ no No. of Tanks: _____ Size(s): _____

Any Waste Pumpage? ☒ yes ☐ no Estimated Volume: 122 gallon
Transported By: Clean Harbors

Size of Excavation (ft²): 210 Depth: 8 feet Soil Type: Sand to Sand and Gravel
Concentrations Detected with PID: Peak = 0.8 ppm Average = 0.0
Type of PID: TEI OVM Model 580B
Number of Readings (please put locations on attached drawing): 30
Calibration Info. (date, time, type of gas): 8/27/94, 0645, isobutylene
Free Phase Product Encountered? ☐ yes ☒ no Approx. Amount: _____
Cont. Soils Stockpiled? ☐ yes ☒ no Amount (yd³): _____
Cont. Soils Backfilled? ☐ yes ☒ no Amount (yd³): _____

Groundwater Encountered? ☐ yes ☒ no Depth to Groundwater: greater than 8 feet
Monitoring Wells Installed? ☐ yes ☒ no Number: _____ Screen Depth: _____

On-Site Drinking Well? ☐ yes ☒ no (if yes: ☐ rock ☐ gravel ☐ spring)
Public Water Supply Well(s) Within ½ Mile? ☐ yes ☒ no
Distance to nearest: Town uses reservoir
Private Water Supply Well(s) Within ½ Mile? ☐ yes ☒ no How Many? _____

Samples Collected for Laboratory Analysis? ☒ yes ☐ no How Many? 2
(check all that apply: ☒ soil ☐ groundwater ☐ drinking water)

Receptors Affected (check all that apply):
☐ soil ☐ residential; # of houses/people: _____
☐ groundwater ☐ surface water; name/type of water body: _____

Signature of Owner or Authorized Representative: _____
Date: 8/29/94

Signature of Person Performing Site Assessment: I. Richard Schaffner, Jr.
Date: 8/27/94

*** ATTACH OBSERVATIONS, CONCLUSIONS, AND DRAWING ON A SEPARATE PAGE ***

White - DEC File Copy Yellow - DEC File Copy Pink - Owner Copy

GZA GeoEnvironmental, Inc.
Engineers and Scientists
Air Park Business Center
380 Harvey Road
MANCHESTER, NH 03103
(603) 623-3600
FAX (603) 624-9463

LETTER OF TRANSMITTAL

DATE 9/15/94	JOB NO. 21295 C
ATTENTION Mr. Ted Unkles, Supervisor	
RE Chemfab Corporation Site North Bennington, Vermont	

TO Vermont Department of Environmental Conservation
Hazardous Materials Management Division
Underground Storage Tank Program
103 South Main Street/West Office
Waterbury, Vermont 05671-0404

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items.

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of Letter ☐ Change Order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1	8/94		Analytical Laboratory Results
			Chemfab Corporation Site
			Water Street
			North Bennington, Vermont
			(Facility ID No. 9999637)

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☒ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Please find attached one (1) copy each of petroleum hydrocarbon (PHC) and volatile organic compound (VOC) analytical laboratory results for two composite soil samples collected during the August 27, 1994 underground storage tank closure at the above-referenced site. Laboratory analyses for PHCs and VOCs were performed in accordance with United States Environmental Protection Agency Methods 8100 and 8020, respectively. Should you have any questions, please call.

COPY TO Mr. Edward W. Frechette, Chemfab Corporation SIGNED I. Richard Schaffner, Jr.

If enclosures are not as noted, kindly notify us at once.

GZA GEOENVIRONMENTAL, INC.
ENVIRONMENTAL CHEMISTRY LABORATORY
320 NEEDHAM STREET
NEWTON UPPER FALLS, MA 02164
MASSACHUSETTS LABORATORY ID# MA092

HYDROCARBON FINGERPRINTING
MODIFIED ASTM METHOD D3328 / EPA METHOD 8100
CONCENTRATION (PPM-ug/g-Solid)

PROJECT: UST CLOSING ACTIVITIES CHEMFAB – N. BENNINGTON, VT
FILE NO.: 21295
PROJECT MGR: E. HAWKINS
DATE SAMPLED: 8/27/94
DATE EXTRACTED: 9/2/94
DATE TESTED: 9/2/94

SAMPLE ID GZA LAB NO.	METHOD BLANK 090294-QC	SIDEWALLS COMP. R3758-PHC
1. HYDROCARBON CONTENT	<10	<10
2. PERCENT SOLID CONTENT	N/A	95%
3. MATRIX	N/A	SOIL
4. DETECTION LIMIT (TOTAL PRODUCT)	10	10
5. DETECTION LIMIT (INDIVIDUAL HYDROCARBONS)	0.5	0.5
6. SURROGATE RECOVERY (P-TERPHENYL)	89%	62%

QUALITATIVE IDENTIFICATION: N/A

ANALYZED BY: REVIEWED BY:

GZA GEOENVIRONMENTAL, INC.
ENVIRONMENTAL CHEMISTRY LABORATORY
320 NEEDHAM STREET
NEWTON UPPER FALLS, MA 02164
MASSACHUSETTS LABORATORY ID# MA092

HYDROCARBON FINGERPRINTING
MODIFIED ASTM METHOD D3328 / EPA METHOD 8100
CONCENTRATION (PPM-ug/g-Solid)

PROJECT: UST CLOSING ACTIVITIES CHEMFAB – N. BENNINGTON, VT
FILE NO.: 21295
PROJECT MGR: E. HAWKINS
DATE SAMPLED: 8/27/94
DATE EXTRACTED: 9/2/94
DATE TESTED: 9/2/94

SAMPLE ID GZA LAB NO.	METHOD BLANK 090294-QC	BOTTOM EXCAVATION COMP. R3759-PHC
1. HYDROCARBON CONTENT	<10	<10
2. PERCENT SOLID CONTENT	N/A	86%
3. MATRIX	N/A	SOIL
4. DETECTION LIMIT (TOTAL PRODUCT)	10	10
5. DETECTION LIMIT (INDIVIDUAL HYDROCARBONS)	0.5	0.5
6. SURROGATE RECOVERY (P-TERPHENYL)	89%	66%

QUALITATIVE IDENTIFICATION: N/A

ANALYZED BY: REVIEWED BY:

GZA GEOENVIRONMENTAL, INC.
ENVIRONMENTAL CHEMISTRY LABORATORY
320 NEEDHAM STREET, NEWTON UPPER FALLS, MA 02164
MASSACHUSETTS LABORATORY I.D. NO. MA092

EPA METHOD 8020 ANALYSIS - PURGEABLE AROMATICS

PROJECT:	UST CLOSURE ACTIVITIES - CHEMFAB - N. BENNINGTON, VT		
FILE NO.:	21295	PROJECT MGR.:	E. HAWKINS
SAMPLE ID:	SIDEWALLS COMPOSITE	DATE SAMPLED:	8/27/94
MATRIX:	SOLID	DATE TESTED:	9/8/94
LABORATORY #:	P7640	DILUTION FACTOR:	10

8020 COMPOUNDS	CONCENTRATION ug/kg (PPB)	QUANTITATION LIMIT ug/kg (PPB)
METHYL TERT-BUTYL ETHER (MTBE)	ND	10
BENZENE	ND	2.0
TOLUENE	ND	2.0
ETHYL BENZENE	ND	2.0
m & p-XYLENES	ND	2.0
o-XYLENE	ND	2.0
CHLOROBENZENE	ND	2.0
1,3-DICHLOROBENZENE	ND	2.0
1,4-DICHLOROBENZENE	ND	2.0
1,2-DICHLOROBENZENE	ND	2.0

SURROGATE	RECOVERY %	ACCEPTANCE LIMITS %
TOLUENE-D8	101	70-121
4-BROMOFLUOROBENZENE	106	74-121

COMMENTS: The above sample was analyzed by GC/MS incorporating dilution factors to yield EPA Method 8020 detection limits.

ANALYZED BY: Hong

REVIEWED BY: Walsh

GZA GEOENVIRONMENTAL, INC.
ENVIRONMENTAL CHEMISTRY LABORATORY
320 NEEDHAM STREET, NEWTON UPPER FALLS, MA 02164
MASSACHUSETTS LABORATORY I.D. NO. MA092

EPA METHOD 8020 ANALYSIS - PURGEABLE AROMATICS

PROJECT:	UST CLOSURE ACTIVITIES - CHEMFAB - N. BENNINGTON, VT		
FILE NO.:	21295	PROJECT MGR.:	E. HAWKINS
SAMPLE ID:	BOTTOM EXCAVATION COMPOSITE	DATE SAMPLED:	8/27/94
MATRIX:	SOLID	DATE TESTED:	9/9/94
LABORATORY #:	P7645	DILUTION FACTOR:	10

8020 COMPOUNDS	CONCENTRATION ug/kg (PPB)	QUANTITATION LIMIT ug/kg (PPB)
METHYL TERT-BUTYL ETHER (MTBE)	ND	10
BENZENE	ND	2.0
TOLUENE	ND	2.0
ETHYL BENZENE	ND	2.0
m & p-XYLENES	ND	2.0
o-XYLENE	ND	2.0
CHLOROBENZENE	ND	2.0
1,3-DICHLOROBENZENE	ND	2.0
1,4-DICHLOROBENZENE	ND	2.0
1,2-DICHLOROBENZENE	ND	2.0

SURROGATE	RECOVERY %	ACCEPTANCE LIMITS %
TOLUENE-D8	103	70-121
4-BROMOFLUOROBENZENE	109	74-121

COMMENTS: The above sample was analyzed by GC/MS incorporating dilution factors to yield EPA Method 8020 detection limits.

ANALYZED BY: W Hong

REVIEWED BY: Kirkwood

GZA GEOENVIRONMENTAL, INC.
ENVIRONMENTAL CHEMISTRY LABORATORY
320 NEEDHAM STREET, NEWTON UPPER FALLS, MA 02164
MASSACHUSETTS LABORATORY I.D. NO. MA092

EPA METHOD 8240/8260 ANALYSIS
PURGEABLES IN AQUEOUS AND/OR SOLID MATRIX

QUALITY CONTROL

DATE: 9/8/94 - SEYMOUR

AQUEOUS

COMPOUND	MATRIX SPIKE RECOVERY (%)	ACCEPTANCE LIMITS (%)	DUPLICATE SPIKE DIFFERENCE (%)	ACCEPTANCE LIMITS (%)
1,1-DICHLOROETHENE	92.5	60-120	10.2	20
TRICHLORETHENE	112	70-130	1.77	20
TOLUENE	82.0	70-125	7.06	20

SOLID

COMPOUND	MATRIX SPIKE RECOVERY (%)	ACCEPTANCE LIMITS (%)	DUPLICATE SPIKE DIFFERENCE (%)	ACCEPTANCE LIMITS (%)
1,1-DICHLOROETHENE	87.0	60-120	3.61	35
TRICHLORETHENE	107	65-130	32.7	35
TOLUENE	93.9	65-125	3.66	35

METHOD BLANK

LABORATORY NO.: P7620

TOTAL COMPOUNDS DETECTED	ND

SURROGATES	RECOVERY (%)	ACCEPTANCE LIMITS (%)
1,2-DICHLOROETHANE-D4	104	76-114
TOLUENE-D8	102	88-110
4-BROMOFLUOROBENZENE	107	86-115

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS
380 HARVEY ROAD
MANCHESTER, NEW HAMPSHIRE
(603) 623-3600

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

CUSTODY RECORD

GZA FILE NO. 21295 P.O. NO. N/A
PROJECT UST Closure Activities - Chem Fab
LOCATION North Bennington, Vermont
PROJECT MANAGER EF Hawkins
COLLECTOR(S) IR Schaffner
DATE(S) OF COLLECTION 8/27/94 SHEET 1 OF 1
ANALYTICAL LABORATORY: Environmental Chemistry Laboratory
PHONE (617)[illegible] LAB CONTACT: Ted Pistocy

ANALYSES REQUESTED: ☐ 8240 ☐ 624; ☐ 8010 ☐ 601; ☒ 8020 ☐ 602; ☐ 8015 ☒ 8015 Modified; ☐ GC SCREEN; ☐ TPH-FINGERPRINT ☐ TPH-IR; ☐ DISSOLVED METALS ☐ TOTAL METALS; ☐ CHLORIDE ☐ FLUORIDE; ☐ NITRATE ☐ NITRITE; ☐ SULFATE ☐ SULFITE ☐ SULFIDE; ☐ BOD ☐ COD ☐ TOC ☐ TKN; ☐ PHENOLS ☐ TDS; ☐ ABNs ☐ BNs ☐ ACIDS; ☐ AMMONIA ☐ PHOSPHORUS; ☐ TOTAL CYANIDE ☐ AMENABLE CYANIDE; ☐ PCBs-

OTHER: TPH - GC

Sample ID	Date	Time (24 hr.)	# Containers	Matrix: Water	Soil	Sludge	Air	Preservative: HCl	HNO_3	H_2SO_4	8020	TPH - GC
Sidewalls		1215-1230	12		X						X	X
Bottom Excavation		1235	3		X						X	X

Relinquished by sampler	Received by	Time	Date
[signature]	K. Giaccone	Kiaccone [illegible]	8/29/94
K. Giaccone	G. McCarthy	8:30am	8/30/94
	[signature]		

NOTE: NOTES: 8/29/94 1035 AM - Told Richard Schaffner that VOAs should not be composited. He wants it done anyway. KMA
1. Composite all twelve grab samples from Side Walls (i.e. North, South, East, and West) into "Sidewalls" and perform analysis on this sample.
2. Composite all three grab samples from Bottom of Excavation into "Bottom Excavation" and perform analysis on this sample.

802-447-1130 CHEM FAB NBVT 250 P07 MAY 25 '01 10:54

FILE INFO: S:\CAD\21295\FIGA

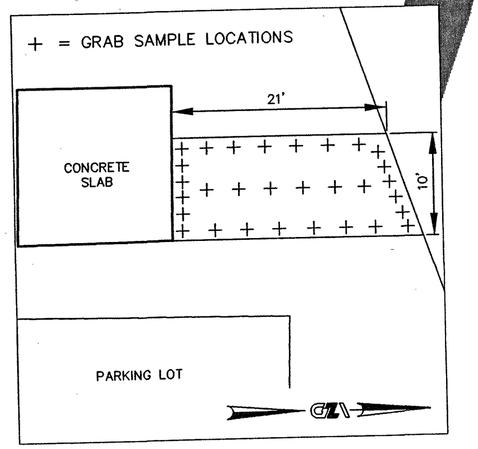
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
UNDERGROUND STORAGE TANK PROGRAM
TANK PULL FORM

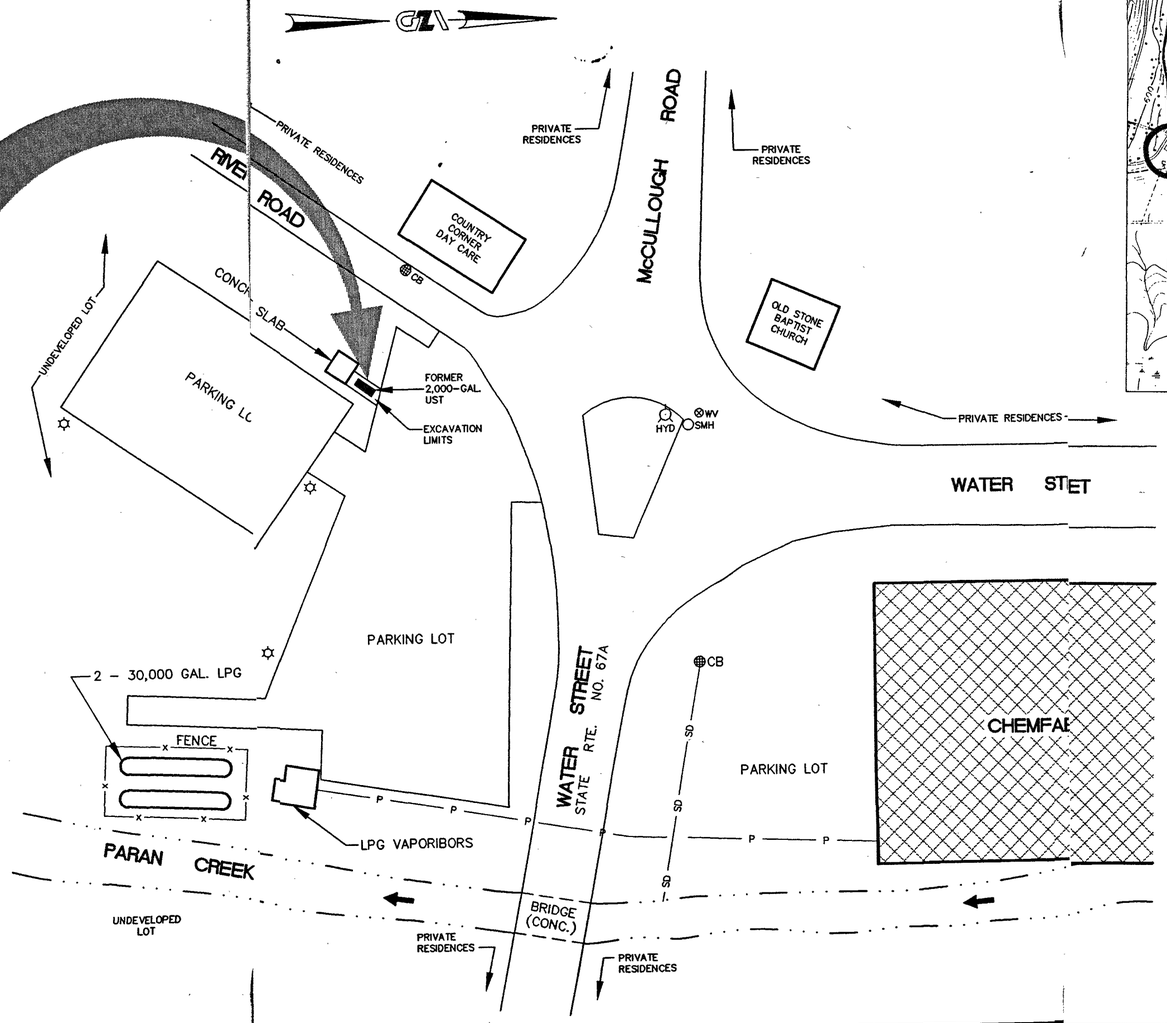
TODAY'S DATE: 8/29/94 INSPECTOR: I. R. SCHAFFNER

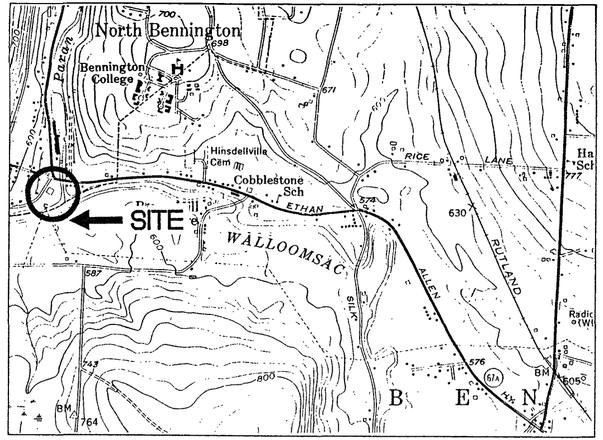
DATE OF REMOVAL: 8/27/94 BUSINESS NAME: CHEMFAB CORPORATION

SITE DIAGRAM

SHOW LOCATION OF ALL TANKS AND DISTANCES TO PERMANENT STRUCTURES, SAMPLE POINTS, AREAS OF CONTAMINATION AND ANY PERTINENT SITE INFORMATION. INDICATE NORTH ARROW AND MAJOR STREET NAMES OR ROUTE NUMBER.







LOCUS PLAN

NOTES:

1) THE PLAN WAS DEVELOPED FROM AN UNTITLED SITE PLAN PROVIDED BY CHEMFAB CORPORATION OF MERRIMACK, NH. THE PLAN SHOULD BE CONSIDERED APPROXIMATE.

LEGEND:

- CB CATCH BASIN
- LIGHT POLE
- SMH MANHOLE COVER
- WV WATER LINE VALVE
- HYD FIRE HYDRANT
- DIRECTION OF STREAM FLOW
- SD STORM DRAIN
- P PROPANE LINE

GZA GeoEnvironmental, Inc.
Engineers and Scientists
380 HARVEY ROAD MANCHESTER, NEW HAMPSHIRE 03103
(603) 623-3600

GRAPHIC SCALE 0' 50' 100'

DES'D BY	I.R.S.
CHK'D BY	I.R.S.
APP'D BY	M.D.B.
DRAWN BY	D.K.T.
SCALE	1"=50'
DATE	AUG. 1994

SITE ASSESSMENT
CHEMFAB CORPORATION
NORTH BENNINGTON, VERMONT

SITE PLAN

PROJECT No.: 21295
FIGURE No.: 1

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Appendix A.3

Draft Shallow Soil Sampling Report, Former Chem Fab Site & Surrounding Areas

July 20, 2016

Draft Shallow Soil Sampling Report
Former Chem Fab Site & Surrounding Areas
1030 Water Street
Village of North Bennington
Bennington County, Vermont
VTDEC SMS Site #20164630

Prepared for:

Mr. Edward J. Canning
Director of Health, Safety & Environment
SAINT-GOBAIN PERFORMANCE PLASTICS CORP.
14 McCaffrey Street
Hoosick Falls, New York 12090

Prepared by:

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, New York 12110
(518) 786-7400
FAX (518) 786-7299

C.T. Male Associates Project No: 16.6131

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C.T. MALE ASSOCIATES ENGINEERING, SURVEYING, ARCHITECTURE & LANDSCAPE ARCHITECTURE, D.P.C.

SHALLOW SOIL SAMPLING REPORT
FORMER CHEM FAB SITE & SURROUNDING AREAS
1030 WATER STREET
VILLAGE OF NORTH BENNINGTON
BENNINGTON COUNTY, VERMONT

TABLE OF CONTENTS

Page

1.0 INTRODUCTION 1

2.0 METHOD OF INVESTIGATION 2
- 2.1 Laboratory Services 2
- 2.2 Data Validation 3
- 2.3 Sampling Method 3
  - 2.3.1 Shallow Soil Sampling 3
  - 2.3.2 Topsoil Stockpile Sampling 4
  - 2.3.3 Municipal Sewer Sludge Sampling 4
- 2.4 Sampling Deviations 4
- 2.5 Quality Control 5
- 2.6 Decontamination Procedures 6
- 2.7 Investigation Derived Wastes 6

3.0 FINDINGS 7
- 3.1 Analytical Results 7
  - 3.1.1 Average Total PFC & PFOA Concentrations vs. Sample Interval Depth 8
  - 3.1.2 Average Total PFC & PFOA Concentrations vs. Distance From Site Building 8

4.0 DISCUSSION OF FINDINGS 9

APPENDICES

APPENDIX A FIGURES

FIGURE 1 SITE LOCATION MAP

FIGURE 2 SAMPLING LOCATIONS

FIGURE 3 SAMPLING LOCATIONS AND PFOA CONCENTRATIONS

APPENDIX B TABLES

TABLE 1 SUMMARY OF LABORATOY RESULTS - PFOA

TABLE 2 SHALLOW SOIL SAMPLE ANALYTICAL RESULTS

APPENDIX C FULL ANALYTICAL RESULTS

1.0 INTRODUCTION

This report presents the findings for the shallow soil sampling investigation conducted at and surrounding the former Chem Fab Site addressed as 1030 Water Street in the Village of North Bennington, Bennington County, Vermont. The Site has been identified by the Vermont Department of Environmental Conservation (VTDEC) Site Management Section (SMS) as Site #20164630. A Site Location Map is presented in Appendix A.

The purpose of the investigation was to evaluate the presence and distribution of Perfluorinated Compounds (PFCs), inclusive of Perfluorooctanoic acid (PFOA), in shallow soil at locations within the Site boundaries and at select off-site locations. In addition to sampling shallow soils, samples were collected from topsoil stockpiles at a garden nursery, and of sludge from the Bennington Wastewater Treatment Facility (WWTF).

The sampling locations were selected in consultation with the VTDEC.

This report provides a summary of the following:

- Identification and location of all sampling points;
- Field sampling methods, laboratory analytical methods, sampling deviations, decontamination procedures, and quality control;
- Analytical result tables and, analytical laboratory reports as prepared by the laboratory of record;
- Data validation (pending);
- Comparison of PFOA analytical results to the Vermont Soil Screening Value for PFOA in soils;
- Evaluation of PFCs and PFOA in terms of average concentration and depth, total concentration and depth, and average concentration and distance from the Site; and
- Discussion of Findings.

2.0 METHOD OF INVESTIGATION

A total of 145 shallow soil samples from 40 sampling locations, 2 topsoil stockpile samples from 2 sampling locations, and 1 municipal sewer sludge sample were collected at the sampling locations as depicted in Figure 2, Appendix A. The latitude and longitude coordinates for each of the sampling locations are presented in Sample Summary Tables in Appendix B. The topsoil stockpile and the majority of the shallow soil samples were collected from March 16 to 24, 2016. The municipal sewer sludge sample was collected on March 22, 2016. The final soil samples were collected on May 11, 2016.

2.1 Laboratory Services

For this investigation, Eurofins Lancaster Laboratories Environmental, LLC (ELLE) of Lancaster, PA was the laboratory of record and analyzed the project related media samples.

The soil samples were analyzed for the following parameters by the corresponding methods:

- Total Organic Carbon (TOC): Standard Method 5310B, modified 2000
- Moisture Content: Method: Standard Method G-1997
- PFCs: EPA Method 537 Rev. 1.1

The following PFCs were analyzed by ELLE per Method 537 Rev. 1.1.

Compound	CAS Number
• Perfluorobutanesulfonate (PFOS)	375-73-5
• Perfluorodecanoic acid	335-76-2
• Perfluorododecanoic acid	307-55-1
• Perfluoroheptanoic acid	375-85-9
• Perfluorohexanesulfonate	355-46-4
• Perfluorohexanoic acid	307-24-4
• Perfluorononanoic acid	375-95-1
• Perfluoro-octanesulfonate	1763-23-1
• Perfluorooctanoic acid (PFOA)	335-67-1
• Perfluorotetradecanoic acid	376-06-7
• Perfluorotridecanoic acid	72629-24-8
• Perfluoroundecanoic acid	2058-94-8

2.2 Data Validation

USEPA Level IV data delivery packages were generated by ELLE for the purpose of independent data validation.

The project generated analytical data will be independently validated by Environmental Standards of Valley Forge, PA.

The data deliverable packages generated by the laboratory for each Sample Delivery Group (SDG) are currently in the process of being validated. All results presented herein should be considered "**Unvalidated**" until the validation process has been completed and reported.

2.3 Sampling Method

2.3.1 Shallow Soil Sampling

The shallow soil samples were collected manually with decontaminated, 3-inch diameter stainless steel hand augers. At each sampling location, an approximate 5' by 5' section of 6 mil polyethylene plastic sheeting was laid on the ground surface over the sampling location. An approximate 1' by 1'square section of the sheeting was then cut away to expose the sampling location. Vegetation (i.e. grass, leaf litter, twigs, etc.) extending above the ground surface was removed and the shallow soil below was collected with the hand auger.

Shallow soil samples were collected from each sampling location at 0-6", 6"-12", 12"-18" and 18"-24" depth intervals. The hand auger was decontaminated between each sampling interval. C.T. Male field technicians donned a new pair of disposable powder-free nitrile gloves while handling each soil sampling interval. Each soil sample was placed in a decontaminated stainless steel bowl and homogenized with a decontaminated stainless steel spoon. An aliquot was then transferred into laboratory provided sampling containers and the containers were placed in a laboratory provided cooler containing ice. The samples were forwarded to ELLE under a Chain of Custody (COC) for analysis of PFC, Total Organic Carbon (TOC) and Moisture Content. The remaining soil from each sample interval was transferred into an XL Ziploc® bag and retained at C.T. Male for potential grain size distribution analysis by ASTM D-422. The

3″ diameter by 2′ deep auger hole was filled with bagged topsoil purchased from a national home improvement center.

2.3.2 Topsoil Stockpile Sampling

Samples were collected from 2 topsoil stockpiles produced by Pembroke Landscaping, located at 132 Harrington Road, North Bennington. At each stockpile location, 5 grab samples of topsoil were collected, by hand, by a technician wearing new disposable powder-free nitrile gloves. The samples were collected at approximate equidistant locations around the stockpile and were collected from the stockpile surface to a depth of approximately 6 inches. The grab samples were placed in a decontaminated stainless steel bowl and homogenized with a decontaminated stainless steel spoon to form a composite sample. An aliquot was then transferred into laboratory provided sampling containers and the containers were placed in a laboratory provided cooler containing ice. The samples were forwarded to ELLE under a COC for analysis of PFC, TOC, and Moisture Content. The remaining soil generated by each sample was transferred into an XL Ziploc® bag and retained at C.T. Male for possible grain size distribution analysis by ASTM D-422.

2.3.3 Municipal Sewer Sludge Sampling

One liquid sewer sludge sample was collected from the Bennington WWTF located at 244 Harrington Road, North Bennington, New York. The sample was collected from the treatment process prior to the material being pumped from the digester to the dewatering process. The sample was directly placed into laboratory provided sampling containers which were then placed in a laboratory provided cooler containing ice. The samples were forwarded under a COC to ELLE for PFC analysis.

2.4 Sampling Deviations

There was one deviation to the shallow soil sampling protocol. The approved sampling plan required the collection of individual shallow soil samples from the 0-6″, 6″-12″, 12″-18″ and 18″-24″ depth intervals. Due to the presence of cobbles and rocks, referred to as "refusal," the hand auger could not be advanced to the intended depth intervals at several sampling locations. Three attempts were made at each depth interval where refusal was encountered. When there was more than one attempt made at a location,

the subsequent attempts were made adjacent to previous attempts located on the same sheet of 5′ by 5′ polyethylene plastic sheeting. The sampling locations and depth intervals where samples were not collected due to refusal are referenced with "NS" in Table 1 of Appendix B, and with an "X" in the table below.

Sampling Location	12″-18″	18″-24″
22 Asa Way	X	X
2009 North Bennington Road		X
980 Park Street		X
15 Polygraphic Lane	X	X
59 River Road (Playground Slide)	X	X
15 Scarey Lane	X	X
26 Scarey Lane	X	X
9 School Street (Maple Tree)		X
9 School Street (Northeast Corner of Parking Lot)		X
37 Susan Taylor Lane		X

2.5 Quality Control

Quality Control (QC) samples were generated/collected during the sampling event and consisted of Duplicate Samples, Equipment Rinse Blanks, Matrix Spike/Matrix Spike Duplicates (MS/MSD), Field Trip Blanks and Laboratory Trip Blanks. The QC samples were analyzed for the list of PFCs in Section 2.1 above.

Duplicate Samples were collected by transferring equal amounts of the homogenized sample into the parent and duplicate sampling containers. One field duplicate sample was collected per 20 media samples collected.

Equipment Rinse Blanks were collected of the hand augers used to collect the shallow soil samples and the stainless steel bowls used to homogenize the soil and the topsoil stockpile samples. For the hand auger, laboratory supplied deionized water was poured over and through the decontaminated hand auger and captured in laboratory provided sampling containers. For the stainless steel bowls, laboratory supplied deionized water was poured into the decontaminated stainless steel bowl and transferred from the bowl into laboratory provided sampling containers. Equipment rinse blanks were collected per each 20 media samples collected.

The MS/MSD samples were collected by transferring equal amounts of the homogenized sample into the parent, MS and MSD sampling containers. One set of MS/MSD samples were collected per 20 media samples.

The Laboratory Trip Blank was prepared by the laboratory and remained in its designated sampling container cooler from the time it was prepared in the laboratory to the time that it was returned to the laboratory with the media samples.

The Field Trip Blanks were prepared in the field by pouring laboratory grade reagent water supplied by the laboratory into empty laboratory supplied sample containers and returning the samples to the laboratory with the media samples.

2.6 Decontamination Procedures

Sampling equipment that was decontaminated in the field included the hand augers used to collect shallow soil samples, and stainless steel bowls/spoons used to homogenize the shallow soil and topsoil samples. The tools used to decontaminate the equipment were: a scrub brush, non-phosphate detergent (Alconox® solution), and Poland Spring® 100% Natural Spring Water. One 5 gallon bucket was partially filled with Poland Spring® water and Alconox solution, while a second 5 gallon bucket was used to rinse the equipment with Poland Spring® water. The C.T. Male Field Technician donned new disposable powder-free nitrile gloves when decontaminating the equipment. Following decontamination, the equipment was laid out to dry on clean 6′ by 6′ polyethylene plastic sheeting. The two 5-gallon buckets containing cleaning reagent water were covered with a lid and stored for later accumulation in a 55 gallon steel drum. A new set of decontaminated 5 gallon pails were used at each soil sampling location.

2.7 Investigation Derived Wastes

Investigation derived wastes included the sampling equipment decontamination water, and solid materials including plastic sheeting, used gloves, empty water containers and waste paper. At the end of each sampling day, the 5 gallon buckets of decontamination water were transferred into a 55-gallon drum and staged pending off-site disposal at a permitted disposal facility. The solid materials were disposed of in the municipal trash dumpster at C.T. Male's Latham, NY office.

3.0 FINDINGS

3.1 Analytical Results

A summary of the analytical results for each soil, topsoil and sludge sample is presented in the individual tables in Appendix B. Table 1 in Appendix B provides a summary of PFOA detections only in the soil, topsoil and sludge samples. The full sets of analytical reports (unvalidated) are presented in Appendix C. A map showing sampling locations and PFOA concentrations in shallow soil, topsoil stockpiles and wastewater treatment facility sludge is presented in Figure 3 in Appendix A.

The analytical result for the sludge sample for the WWTP was analyzed as an aqueous sample as the liquid content of the sample was high. The analytical result for this sample indicates the detection of PFOA at 350 ng/L, or parts per trillion.

As indicated in individual summary tables for each of the soil sampling locations, individual PFCs were predominantly detected in soils at concentrations less than 10 ppb. A minority of samples detected individual PFCs at concentrations greater than 10 ppb to less than 100 ppb. These sample locations were primarily located within the former Chem Fab Site. At two sampling locations, the Small and Large Playgrounds at 9 School Street (The Village School), PFCs were not detected in the soil sample intervals collected.

In comparison to the Vermont Soil Screening Value (0.3 parts per million or 300 ppb), VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value, all PFOA concentrations were detected at concentrations well below the Soil Screening Value. The highest PFOA concentrations detected were 20 ppb in the 0 to 6" interval at sampling location 1030 Water Street- Vent W (western side of the Site building), and 45 ppb in the 12" to 18 " interval at 2009 North Bennington Road.

At all but two of the soil sampling locations (59 River Road Playground Roadside and 59 River Road Playground Slide), the vertical limit of PFCs and PFOA in soils was not defined. Similarly, the PFCs and PFOA horizontal limits were not defined within the sampling area. The laboratory data was further evaluated as presented in the following sections.

3.1.1 Average Total PFC & PFOA Concentrations vs. Sample Interval Depth

The average Total PFC and PFOA concentration per sampling depth was graphed (Chart 1) as follows.

The 0 to 6″ sample depth interval exhibited the highest average PFC concentration; 9.67 ppb verses a low of 6.0 ppb in the 6″ to 12″ interval.

The 12″ to 18″ sample depth interval exhibited the highest average PFOA concentration; 4.19 ppb verses a low of 2.59 ppb in the 6″ to 12″ sample interval.

There is no observable trend in the average PFC and average PFOA concentration data with increasing depth below surface.

3.1.2 Average Total PFC & PFOA Concentrations vs. Distance From Site Building

As shown in Chart 2 as follows, there appears to be a linear declining trend between highest average of total PFCs and PFOA, and the distance from the Site. The highest average of total PFCs concentration (17.23 ppb) was greatest closest to the Site and decreased to 1.5 ppb at 4,500 feet ± from the Site. The highest average PFOA concentrations (4.40 and 4.74 ppb) were greatest at 0 to 1,000 feet from the Site and similarly declined with increasing distance from the site.

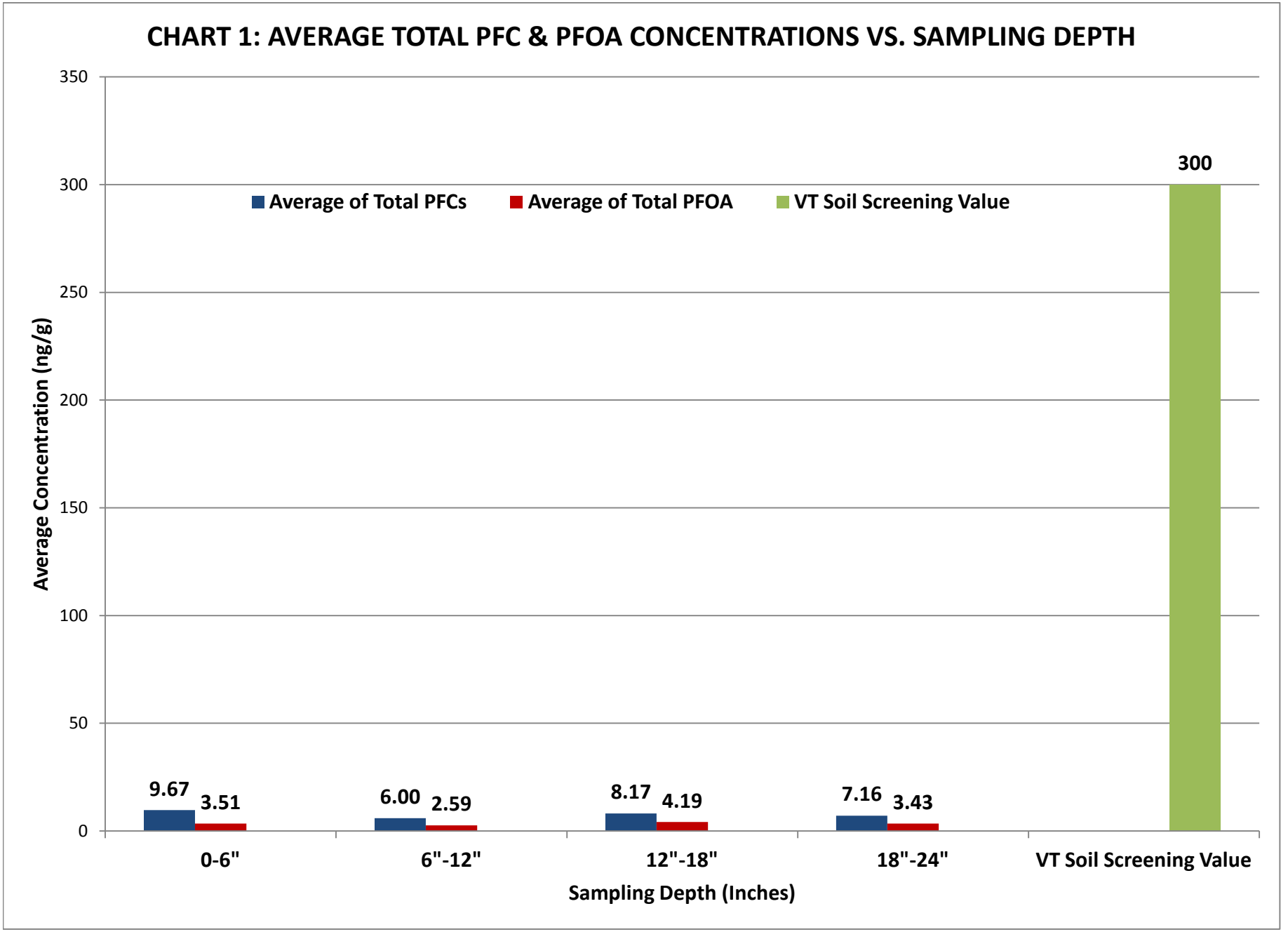


CHART 1: AVERAGE TOTAL PFC & PFOA CONCENTRATIONS VS. SAMPLING DEPTH
Average Concentration (ng/g)
350
300
250
200
150
100
50
0
Average of Total PFCs
Average of Total PFOA
VT Soil Screening Value
9.67
3.51
6.00
2.59
8.17
4.19
7.16
3.43
300
0-6"
6"-12"
12"-18"
18"-24"
VT Soil Screening Value
Sampling Depth (Inches)

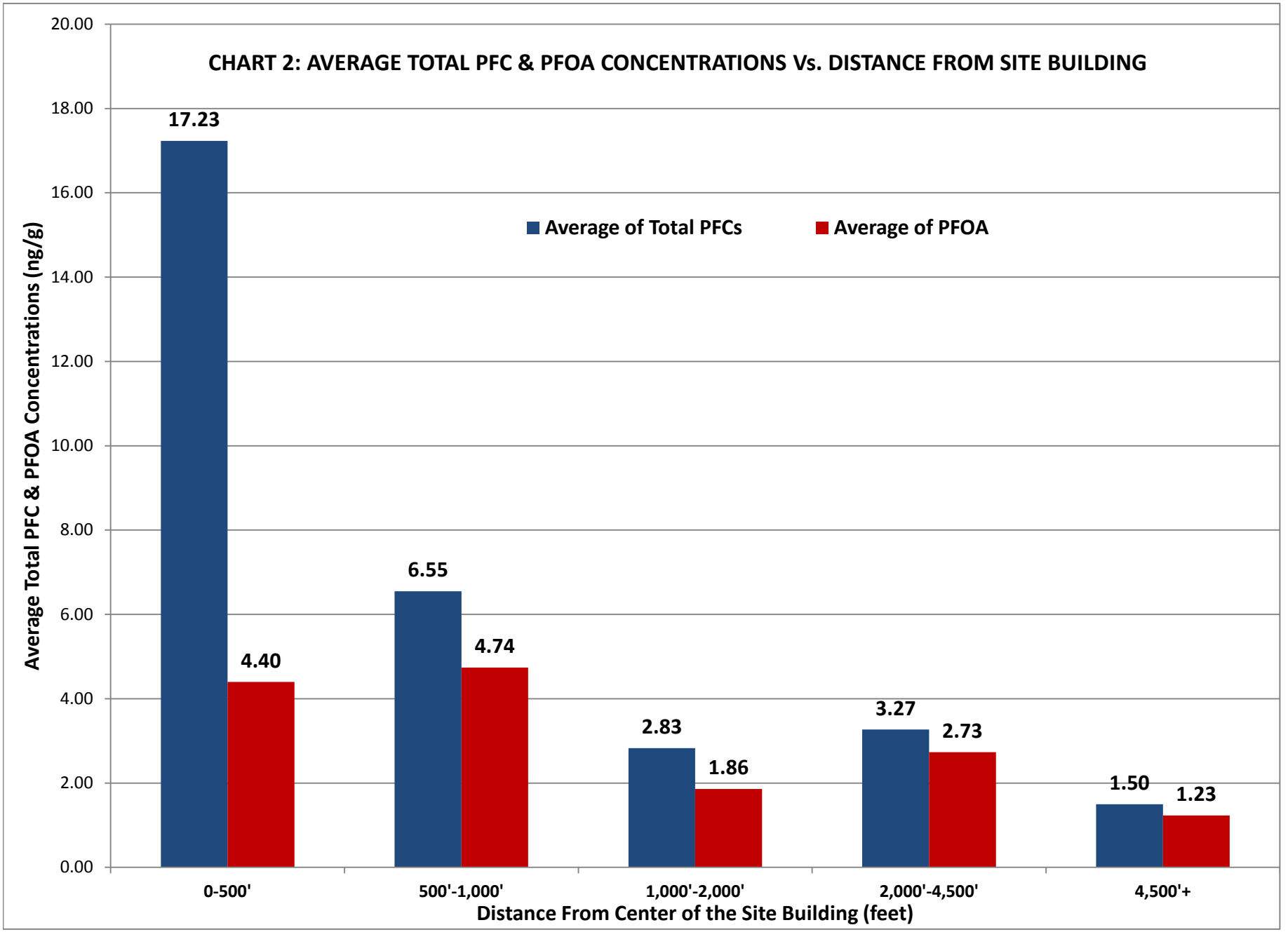


CHART 2: AVERAGE TOTAL PFC & PFOA CONCENTRATIONS Vs. DISTANCE FROM SITE BUILDING
Average Total PFC & PFOA Concentrations (ng/g)
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Average of Total PFCs
Average of PFOA
17.23
4.40
6.55
4.74
2.83
1.86
3.27
2.73
1.50
1.23
0-500'
500'-1,000'
1,000'-2,000'
2,000'-4,500'
4,500'+
Distance From Center of the Site Building (feet)

4.0 DISCUSSION OF FINDINGS

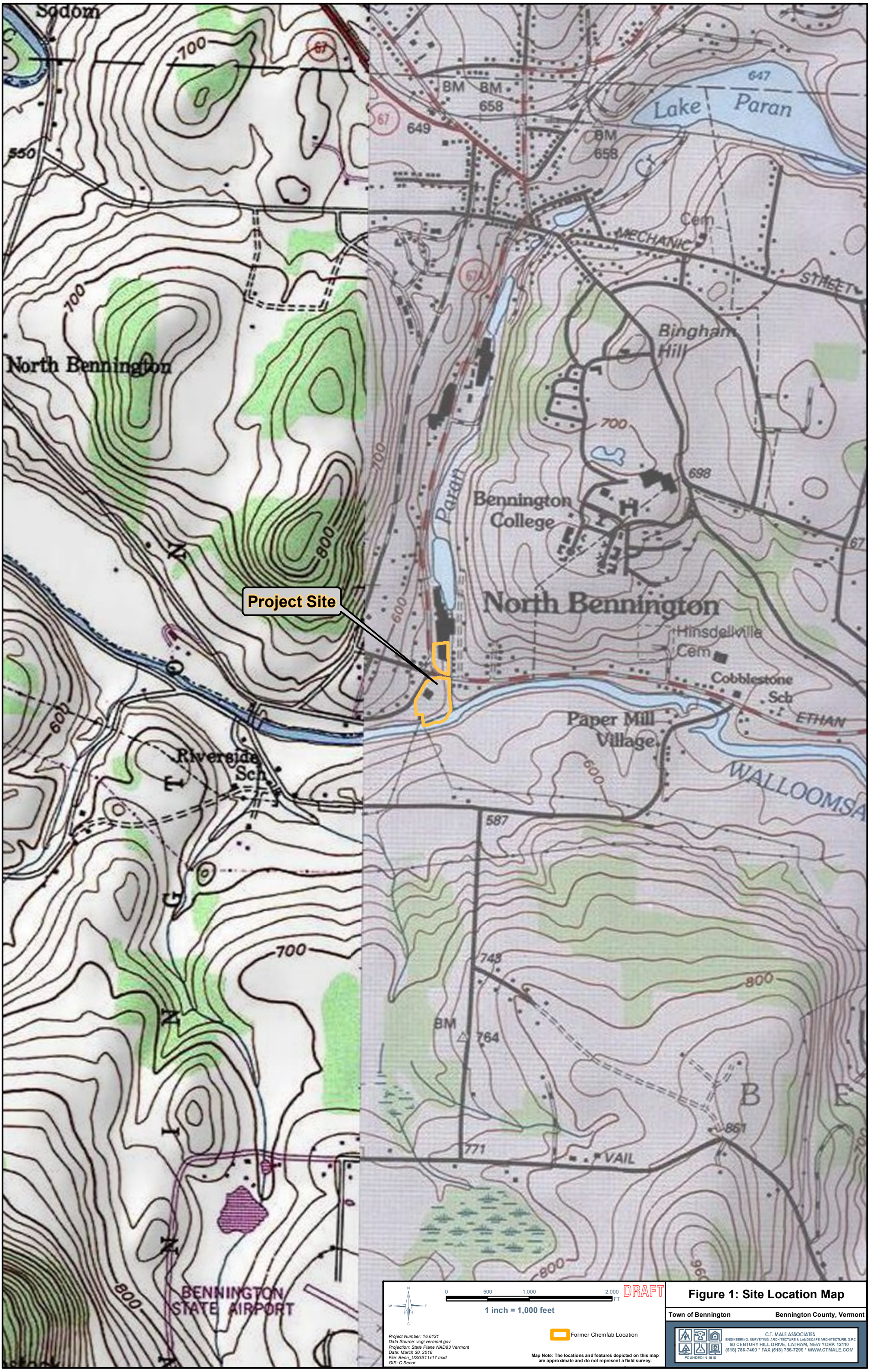
A total of 43, VTDEC preselected locations, were sampled within the study area for PFC analysis. Samples were collected from 4-six inch intervals to a total depth of 2 feet below existing grades. In a limited number of incidences, all 4 sampling depth intervals were not collected due to physical subsurface obstructions. Samples were able to be obtained at a minimum depth of 12 inches at these locations.

At all soil sampling locations, the concentration of PFOA in the soils were below the Vermont Soil Screening Value of 300 ppb. The majority of the PFOA concentrations in the soil samples were less than 10 ppb. Concentrations of PFOA greater than 10 ppb and less than 50 ppb were detected only within the Former Chem Fab property and at one sample interval at 2009 North Bennington Road.

The intent of this soil sampling event was to collect and analyze surface soils to a depth of 2 feet below surface. When comparing the average concentration of PFCs and PFOA at each depth across the site, the concentrations did not necessarily decrease with increasing depth below surface in all instances, but were relatively similar. Concentrations of PFCs and PFOA decreased with increasing distance from the site.

APPENDIX A
FIGURES

FIGURE 1



N

W E

S

0 500 1,000 2,000 FT

1 inch = 1,000 feet

DRAFT

Former Chemfab Location

Project Number: 16.6131
Data Source: vcgi.vermont.gov
Projection: State Plane NAD83 Vermont
Date: March 30, 2016
File: Benn_USGS11x17.mxd
GIS: C Secor

Map Note: The locations and features depicted on this map are approximate and do not represent a field survey.

Figure 1: Site Location Map

Town of Bennington **Bennington County, Vermont**

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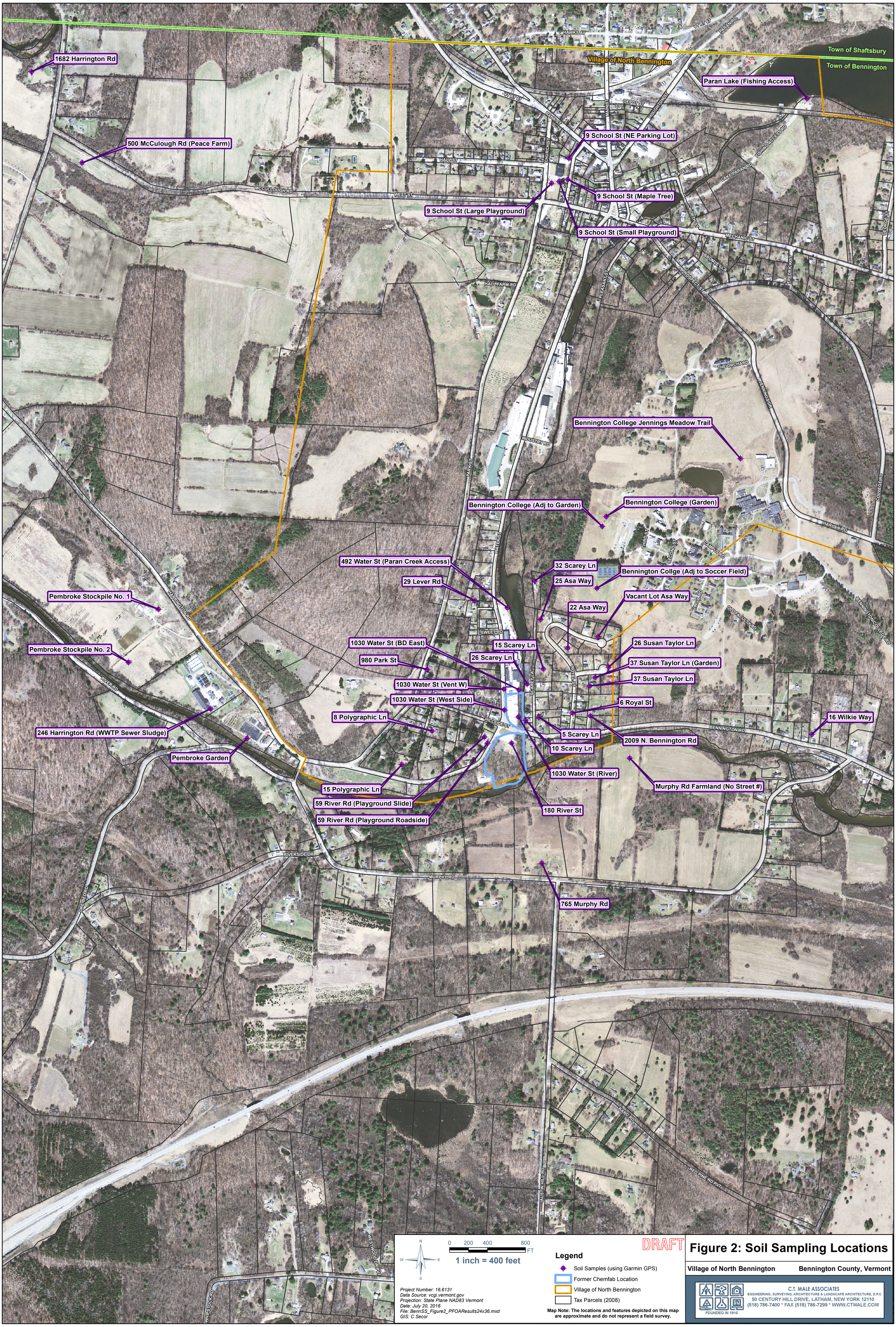
50 CENTURY HILL DRIVE, LATHAM, NEW YORK 12110
(518) 786-7400 * FAX (518) 786-7299 * WWW.CTMALE.COM
FOUNDED IN 1910

FIGURE 2



N
W E
S

0 200 400 800 FT

1 inch = 400 feet

DRAFT

Legend

- Soil Samples (using Garmin GPS)
- Former Chemfab Location
- Village of North Bennington
- Tax Parcels (2008)

Map Note: The locations and features depicted on this map are approximate and do not represent a field survey.

Project Number: 16.6131
Data Source: vcgi.vermont.gov
Projection: State Plane NAD83 Vermont
Date: July 20, 2016
File: BennSS_Figure2_PFOAResults24x36.mxd
GIS: C Secor

Figure 2: Soil Sampling Locations

Village of North Bennington — **Bennington County, Vermont**

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FIGURE 3

Sample Location: 1682 Harrington Rd.

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	2	300
6" - 12"	2.6	300
12" - 18"	2.3	300
18" - 24"	1.3	300

Sample Location: 9 School St. Small Playground

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	ND	300
6" - 12"	ND	300
12" - 18"	ND	300
18" - 24"	ND	300

Sample Location: 9 School St. NE Parking Lot

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	0.88	300
6" - 12"	ND	300
12" - 18"	0.75	300
18" - 24"	NS	300

Sample Location: Paran Lake - Fishing Access

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	2	300
6" - 12"	1.9	300
12" - 18"	4.1	300
18" - 24"	4.6	300

Sample Location: 500 McCulough Road - Peace Farm

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	3	300
6" - 12"	3.4	300
12" - 18"	5.1	300
18" - 24"	6.5	300

Sample Location: 9 School St. Large Playground

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	ND	300
6" - 12"	ND	300
12" - 18"	ND	300
18" - 24"	ND	300

Sample Location: 9 School St. Maple Tree

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	1.3	300
6" - 12"	3.1	300
12" - 18"	2.9	300
18" - 24"	NS	300

Sample Location: Bennington College Garden

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	1.1	300
6" - 12"	0.65J	300
12" - 18"	0.38J	300
18" - 24"	0.67J	300

Sample Location: 32 Scarey Ln.

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	1.3	300
6" - 12"	0.9	300
12" - 18"	0.35J	300
18" - 24"	0.85	300

Sample Location: Bennington College Adj to Garden

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	2.9	300
6" - 12"	4.9	300
12" - 18"	2.8	300
18" - 24"	1.8	300

Sample Location: Bennington College Jennings Meadow Trail

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	2.1	300
6" - 12"	2.8	300
12" - 18"	2.6	300
18" - 24"	2.3	300

Sample Location: 29 Lever Rd.

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	1.4	300
6" - 12"	1.1	300
12" - 18"	1.1	300
18" - 24"	2.5	300

Sample Location: 492 Water St. Paran Creek Access

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	ND	300
6" - 12"	1.3	300
12" - 18"	ND	300
18" - 24"	0.65J	300

Sample Location: 25 Asa Way

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	0.97	300
6" - 12"	1.2	300
12" - 18"	8.2	300
18" - 24"	7.7	300

Sample Location: Bennington College Adj to Soccer Field

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	3.6	300
6" - 12"	3.6	300
12" - 18"	3	300
18" - 24"	1.7	300

Sample Location: 26 Scarey Ln.

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	1.1	300
6" - 12"	0.33J	300
12" - 18"	NS	300
18" - 24"	NS	300

Sample Location: Vacant Lot Asa Way

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	2.9	300
6" - 12"	4.1	300
12" - 18"	2	300
18" - 24"	1.2	300

Sample Location: Pembroke Stockpile No. 1

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	5.6	300
6" - 12"	NS	300
12" - 18"	NS	300
18" - 24"	NS	300

Sample Location: 980 Park St.

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	2.7	300
6" - 12"	1.5	300
12" - 18"	1.5	300
18" - 24"	NS	300

Sample Location: 1030 Water St. - BD East

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	20	300
6" - 12"	6.1	300
12" - 18"	4.8	300
18" - 24"	13	300

Sample Location: 22 Asa Way

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	0.82	300
6" - 12"	0.39J	300
12" - 18"	NS	300
18" - 24"	NS	300

Sample Location: Pembroke Stockpile No. 2

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	1.5	300
6" - 12"	NS	300
12" - 18"	NS	300
18" - 24"	NS	300

Sample Location: 1030 Water St. - Vent W

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	20	300
6" - 12"	11	300
12" - 18"	10	300
18" - 24"	12	300

Sample Location: 26 Susan Taylor Ln

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	0.63J	300
6" - 12"	0.86	300
12" - 18"	1.5	300
18" - 24"	1.6	300

Sample Location: 1030 Water St. - West Side

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	11	300
6" - 12"	3.6	300
12" - 18"	3.1	300
18" - 24"	4.1	300

Sample Location: 16 Wilkie Way

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	2.9	300
6" - 12"	3.3	300
12" - 18"	4.6	300
18" - 24"	5.7	300

Sample Location: 246 Harrington Rd. WWTP Sewer Sludge

Sample Depth	PFOA (ng/l)	VT Soil Screening Value (ng/l)
0" - 6"	350	
6" - 12"	NS	
12" - 18"	NS	
18" - 24"	NS	

Sample Location: 37 Susan Taylor Ln Garden

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	8.2	300
6" - 12"	7.3	300
12" - 18"	5.2	300
18" - 24"	2.9	300

Sample Location: 8 Polygraphic Ln

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	4.2	300
6" - 12"	1.9	300
12" - 18"	2.1	300
18" - 24"	2.4	300

Sample Location: Pembroke Garden

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	0.75	300
6" - 12"	1.8	300
12" - 18"	1.9	300
18" - 24"	2	300

Sample Location: 15 Polygraphic Ln

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	0.84	300
6" - 12"	1.1	300
12" - 18"	NS	300
18" - 24"	NS	300

Sample Location: 10 Scarey Ln.

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	4.1	300
6" - 12"	1.4	300
12" - 18"	2.3	300
18" - 24"	3.6	300

Sample Location: 37 Susan Taylor Ln

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	5.8	300
6" - 12"	3.5	300
12" - 18"	2.5	300
18" - 24"	NS	300

Sample Location: 59 River Rd. Playground Slide

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	ND	300
6" - 12"	ND	300
12" - 18"	NS	300
18" - 24"	NS	300

Sample Location: 59 River Rd. Playground Roadside

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	0.74J	300
6" - 12"	0.86	300
12" - 18"	0.66J	300
18" - 24"	ND	300

Sample Location: 1030 Water St. - River

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	9.1	300
6" - 12"	2.7	300
12" - 18"	4.2	300
18" - 24"	4.9	300

Sample Location: 180 River St.

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	2	300
6" - 12"	0.66J	300
12" - 18"	ND	300
18" - 24"	ND	300

Sample Location: 5 Scarey Ln.

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	6.2	300
6" - 12"	5.9	300
12" - 18"	7.1	300
18" - 24"	8.2	300

Sample Location: 2009 N. Bennington Rd.

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	4.2	300
6" - 12"	4.9	300
12" - 18"	45	300
18" - 24"	NS	300

Sample Location: 15 Scarey Ln.

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	1.5	300
6" - 12"	1.2	300
12" - 18"	NS	300
18" - 24"	NS	300

Sample Location: 765 Murphy Rd.

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	6.4	300
6" - 12"	6.3	300
12" - 18"	2.6	300
18" - 24"	1.6	300

Sample Location: 6 Royal St.

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	0.82	300
6" - 12"	ND	300
12" - 18"	ND	300
18" - 24"	0.55J	300

Sample Location: Murphy Rd. Farmland (no street #)

Sample Depth	PFOA (ng/g)	VT Soil Screening Value (ng/g)
0" - 6"	0.68	300
6" - 12"	3.9	300
12" - 18"	12	300
18" - 24"	8.7	300

Village of North Bennington

Town of Shaftsbury

Town of Bennington

N 0 250 500 1,000 FT W E S

1 inch = 500 feet

DRAFT

Project Number: 16.6131
Data Source: vcgi.vermont.gov
Projection: State Plane NAD83 Vermont
Date: July 20, 2016
File: BennSS_Figure3_PFOAResults24x36.mxd
GIS: C Secor

Legend

- Soil Samples (using Garmin GPS)
- Former Chemfab Location
- Village of North Bennington
- Tax Parcels (2008)

Map Note: The locations and features depicted on this map are approximate and do not represent a field survey.

Figure 3:PFOA Sample Results

Village of North Bennington — **Bennington County, Vermont**

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APPENDIX B
TABLES

TABLE 1
Summary of Laboratory Results - PFOA

TABLE 1: Summary of Laboratory Results
Surface Soil Sampling - PFOA Detections
North Bennington, VT
March and May 2016

Sample Location	Sample Date	0 - 6" bgs (ng/g)	6" - 12" bgs (ng/g)	12" - 18" bgs (ng/g)	18" - 24" bgs (ng/g)	VT PFOA Soil Screening Value* (ng/g)
22 Asa Way	3/17/2016	0.82	0.39J	NS	NS	300
25 Asa Way	3/16/2016	0.97	1.2	8.2	7.7	300
Vacant Lot Asa Way	3/21/2016	2.9	4.1	2	1.2	300
1 College Drive: Bennington College						
Bennington College Garden	3/18/2016	1.1	0.65J	0.38J	0.67J	300
Bennington College Adjacent to Garden	3/18/2016	2.9	4.9	2.8	1.8	300
Bennington College Adjacent to Soccer Field	3/18/2016	3.6	3.6	3	1.7	300
Bennington College Jennings Meadow Trail	3/18/2016	2.1	2.8	2.6	2.3	300
132 Harrington Road: Pembroke Nursery						
Stockpile 1 - Topsoil Composite	3/22/2016	5.6	NS	NS	NS	300
Stockpile 2 - Topsoil Composite	3/22/2016	1.5	NS	NS	NS	300
Garden	3/22/2016	0.75	1.8	1.9	2	300
246/248 Harrington Road WWTP Sewer Sludge	3/22/2016	350 ng/L	NS	NS	NS	
1682 Harrington Road	5/11/2016	2	2.6	2.3	1.3	300
29 Lever Road	3/22/2016	1.4	1.1	1.1	2.5	300
500 McCulough Rd. - Peace Farm	5/11/2016	3	3.4	5.1	6.5	300
765 Murphy Road	3/17/2016	6.4	6.3	2.6	1.6	300
Murphy Road Farmland (No Street Address)	5/11/2016	0.68	3.9	12	8.7	300
2009 N. Bennington Road	3/22/2016	4.2	4.9	45	NS	300
Paran Lake - Fishing Access Area	3/23/2016	2	1.9	4.1	4.6	300
980 Park Street	3/21/2016	2.7	1.5	1.5	NS	300
8 Polygraphic Lane	3/21/2016	4.2	1.9	2.1	2.4	300
15 Polygraphic Lane	3/21/2016	0.84	1.1	NS	NS	300
59 River Road Playground Roadside	3/16/2016	0.74J	0.86	0.66J	ND	300
59 River Road Playground Slide	3/16/2016	ND	ND	NS	NS	300
180 River Street	3/23/2016	2	0.66J	ND	ND	300
6 Royal Street	3/17/2016	0.82	ND	ND	0.55J	300
5 Scarey Lane	3/17/2016	6.2	5.9	7.1	8.2	300
10 Scarey Lane	3/21/2016	4.1	1.4	2.3	3.6	300
15 Scarey Lane	3/17/2016	1.5	1.2	NS	NS	300
26 Scarey Lane	3/21/2016	1.1	0.33J	NS	NS	300
32 Scarey Lane	3/17/2016	1.3	0.9	0.35J	0.85	300
9 School Street: Village School						
Small Playground	3/18/2016	ND	ND	ND	ND	300
Large Playground	3/18/2016	ND	ND	ND	ND	300
Maple Tree	3/22/2016	1.3	3.1	2.9	NS	300
Northeast Parking Lot	3/22/2016	0.88	ND	0.75	NS	300
26 Susan Taylor Lane	3/21/2016	0.63J	0.86	1.5	1.6	300
37 Susan Taylor Lane	3/16/2016	5.8	3.5	2.5	NS	300
37 Susan Taylor Lane Garden	3/16/2016	8.2	7.3	5.2	2.9	300
492 Water Street - Paran Creek Access	3/24/2016	ND	1.3	ND	0.65J	300
1030 Water Street - Former Chemfab						
Riverside	3/23/2016	9.1	2.7	4.2	4.9	300
West Side	3/23/2016	11	3.6	3.1	4.1	300
BD East	3/23/2016	20	6.1	4.8	13	300
Vent W	3/24/2016	20	11	10	12	300
16 Wilkie Way	3/23/2016	2.9	3.3	4.6	5.7	300

PFOA - Perfluorooctanoic acid
units - ng/g - nanograms per gram or parts per billion
ng/L - nanograms per Liter or parts per trillion
ND - denotes Not Detected
NS - denotes Not Sampled due to auger refusal at 3 locations (2nd and 3rd attempts made adjacent to intial auger hole)
J - denotes Estimated Value
bgs - denotes below ground surface
* VT PFOA Soil Screening Value = 0.3 mg/kg = 300 ng/g

TABLE 2
Shallow Soil Sample Analytical Results

C.T. Male Associates

SHALLOW SOIL SAMPLING
Vacant Lot, Asa Way, North Bennington, VT 05257
Date Sampled: March 21, 2016

Parameter	Sample ID: Asa Way Vac Lot LAB Sample ID: 8297354 Sample Depth: 0 - 6"		Sample ID: Asa Way Vac Lot LAB Sample ID: 8297355 Sample Depth: 6" - 12"		Sample ID: Asa Way Vac Lot LAB Sample ID: 8297356 Sample Depth: 12" - 18"		Sample ID: Asa Way Vac Lot LAB Sample ID: 8297357 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	1.20	J	0.85	U	0.81	U	0.83	U	NV
Perfluorobutanesulfonate (ng/g)	0.67	U	0.61	U	0.58	U	0.59	U	NV
Perfluorodecanoic acid (ng/g)	1.00		0.24	U	0.23	U	0.24	U	NV
Perfluorododecanoic acid (ng/g)	0.54	U	0.48	U	0.47	U	0.47	U	NV
Perfluoroheptanoic acid (ng/g)	0.66	J	0.59	J	0.35	U	0.35	U	NV
Perfluorohexanesulfonate (ng/g)	0.67	U	0.61	U	0.58	U	0.59	U	NV
Perfluorohexanoic acid (ng/g)	0.63		0.94		0.65		0.24	U	NV
Perfluorononanoic acid (ng/g)	0.63		0.24	U	0.23	U	0.24	U	NV
Perfluorooctanoic acid (ng/g)	2.90		4.1		2		1.2		300
Perfluorotetradecanoic acid (ng/g)	0.40	U	0.36	U	0.35	U	0.35	U	NV
Perfluorotridecanoic acid (ng/g)	0.80	U	0.73	U	0.7	U	0.71	U	NV
Perfluoroundecanoic acid (ng/g)	0.44	J	0.36	U	0.35	U	0.35	U	NV
TOC (mg/kg)	6,880		4,850		2,040		819		NV
Moisture Content (%)	25.3		17.5		14.1		15.2		NV
Number of PFCs Detected	7		3		2		1		
Total PFCs (includes PFOA)	5.6		5.63		2.65		1.2		
Total PFOA	2.9		4.1		2		1.2		
AsaWayVacLot	42.91655039		-73.24282550						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B-Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
22 Asa Way, North Bennington, VT 05257
Date Sampled: March 17, 2016

Parameter	Sample ID: 22 Asa Way LAB Sample ID: 8294113 Sample Depth: 0 - 6"		Sample ID: 22 Asa Way LAB Sample ID: 8294114 Sample Depth: 6" - 12"		Sample ID: LAB Sample ID: Sample Depth: 12" - 18"		Sample ID: LAB Sample ID: Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.89	U	0.78	U	NS		NS		NV
Perfluorobutanesulfonate (ng/g)	0.64	U	0.55	U	NS		NS		NV
Perfluorodecanoic acid (ng/g)	0.6		0.22	U	NS		NS		NV
Perfluorododecanoic acid (ng/g)	0.51	U	0.44	U	NS		NS		NV
Perfluoroheptanoic acid (ng/g)	0.38	U	0.33	U	NS		NS		NV
Perfluorohexanesulfonate (ng/g)	0.64	U	0.55	U	NS		NS		NV
Perfluorohexanoic acid (ng/g)	0.25	U	0.22	U	NS		NS		NV
Perfluorononanoic acid (ng/g)	0.25	U	0.22	U	NS		NS		NV
Perfluorooctanoic acid (ng/g)	0.82		0.39	J	NS		NS		300
Perfluorotetradecanoic acid (ng/g)	0.38	U	0.33	U	NS		NS		NV
Perfluorotridecanoic acid (ng/g)	0.76	U	0.67	U	NS		NS		NV
Perfluoroundecanoic acid (ng/g)	0.38	U	0.33	U	NS		NS		NV
TOC (mg/kg)	15,100		2,520		NS		NS		NV
Moisture Content (%)	21.4		9.8		NS		NS		NV
Number of PFCs Detected	2		1		NS		NS		
Total PFCs (includes PFOA)	1.4		0.39		NS		NS		
Total PFOA	0.8		0.39		NS		NS		

22AsaWay 42.91621939 -73.24400986

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B-Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
25 Asa Way, North Bennington, VT 05257
Date Sampled: March 16, 2016

Parameter	Sample ID: 25 Asa Way LAB Sample ID: 8291924 Sample Depth: 0 - 6"		Sample ID: 25 Asa Way LAB Sample ID: 8291925 Sample Depth: 6" - 12"		Sample ID: 25 Asa Way LAB Sample ID: 8291926 Sample Depth: 12" - 18"		Sample ID: 25 Asa Way LAB Sample ID: 8291927 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.93	U	0.86	U	1.1	J	0.84	U	NV
Perfluorobutanesulfonate (ng/g)	0.66	U	0.62	U	0.64	U	0.6	U	NV
Perfluorodecanoic acid (ng/g)	0.53	J	0.25	U	1.3		0.61		NV
Perfluorododecanoic acid (ng/g)	0.66	U	0.62	U	0.65	J	0.6	U	NV
Perfluoroheptanoic acid (ng/g)	0.4	U	0.37	U	0.38	U	0.6	J	NV
Perfluorohexanesulfonate (ng/g)	0.66	U	0.62	U	0.64	U	0.6	U	NV
Perfluorohexanoic acid (ng/g)	0.27	U	0.25	U	0.45	J	0.24	U	NV
Perfluorononanoic acid (ng/g)	0.27	U	0.25	U	0.63		0.65		NV
Perfluorooctanoic acid (ng/g)	0.97		1.2		8.2		7.7		300
Perfluorotetradecanoic acid (ng/g)	0.53	U	0.49	U	0.51	U	0.48	U	NV
Perfluorotridecanoic acid (ng/g)	0.8	U	0.74	U	0.76	U	0.72	U	NV
Perfluoroundecanoic acid (ng/g)	0.4	U	0.37	U	0.53	J	0.36	U	NV
TOC (mg/kg)	13,700		8,380		24,600		8,870		NV
Moisture Content (%)	24.8		18.7		21.3		17.0		NV
Number of PFCs Detected	2		1		7		4		
Total PFCs (includes PFOA)	1.5		1.2		11.76		8.96		
Total PFOA	0.97		1.2		8.2		7.7		

25 Asa Way 42.91703076 -73.24509415

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B-Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Adjacent to Garden, Bennington College, 1 College Drive, Bennington, VT 05201
Date Sampled: March 18, 2016

Parameter	Sample ID: B. College Adj to Garden LAB Sample ID: 8294178 Sample Depth: 0 - 6"		Sample ID: B. College Adj to Garden LAB Sample ID: 8294179 Sample Depth: 6" - 12"		Sample ID: B. College Adj to Garden LAB Sample ID: 8294181 Sample Depth: 12" - 18"		Sample ID: B. College Adj to Garden LAB Sample ID: 8294185 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	2.8		0.89	U	0.84	U	0.83	U	NV
Perfluorobutanesulfonate (ng/g)	2.3		0.63	U	0.6	U	0.59	U	NV
Perfluorodecanoic acid (ng/g)	0.32	J	0.25	U	0.24	U	0.24	U	NV
Perfluorododecanoic acid (ng/g)	0.55	U	0.51	U	0.48	U	0.48	U	NV
Perfluoroheptanoic acid (ng/g)	0.41	U	0.38	U	0.36	U	0.36	U	NV
Perfluorohexanesulfonate (ng/g)	0.68	U	0.63	U	0.6	U	0.59	U	NV
Perfluorohexanoic acid (ng/g)	0.27	U	0.25	U	0.24	U	0.24	U	NV
Perfluorononanoic acid (ng/g)	0.27	U	0.25	U	0.24	U	0.24	U	NV
Perfluorooctanoic acid (ng/g)	2.9		4.9		2.8		1.8		300
Perfluorotetradecanoic acid (ng/g)	0.41	U	0.38	U	0.36	U	0.36	U	NV
Perfluorotridecanoic acid (ng/g)	0.82	U	0.76	U	0.72	U	0.71	U	NV
Perfluoroundecanoic acid (ng/g)	0.41	U	0.38	U	0.36	U	0.36	U	NV
TOC (mg/kg)	19,000		15,400		5,750		2,690		NV
Moisture Content (%)	26.7		21.1		16.7		15.8		NV
Number of PFCs Detected	4		1		1		1		
Total PFCs (includes PFOA)	8.32		4.9		2.8		1.8		
Total PFOA	2.9		4.9		2.8		1.8		
BennColAdjGar	42.91973501		-73.24270765						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B-Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Adjacent to Soccer Field, Bennington College, 1 College Drive, Bennington, VT 05201
Date Sampled: March 18, 2016

Parameter	Sample ID: B. College Adj to Soccer Field LAB Sample ID: 8294186 Sample Depth: 0 - 6"		Sample ID: B. College Adj to Soccer Field LAB Sample ID: 8294187 Sample Depth: 6" - 12"		Sample ID: B. College Adj to Soccer Field LAB Sample ID: 8294188 Sample Depth: 12" - 18"		Sample ID: B. College Adj to Soccer Field LAB Sample ID: 8294189 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.89	U	0.85	U	0.83	U	0.81	U	NV
Perfluorobutanesulfonate (ng/g)	0.64	U	0.6	U	0.59	U	0.58	U	NV
Perfluorodecanoic acid (ng/g)	0.35	J	0.24	U	0.24	U	0.23	U	NV
Perfluorododecanoic acid (ng/g)	0.51	U	0.48	U	0.47	U	0.46	U	NV
Perfluoroheptanoic acid (ng/g)	0.38	U	0.36	U	0.35	U	0.35	U	NV
Perfluorohexanesulfonate (ng/g)	0.64	U	0.6	U	0.59	U	0.58	U	NV
Perfluorohexanoic acid (ng/g)	0.25	U	0.52		0.42	J	0.23	U	NV
Perfluorononanoic acid (ng/g)	0.25	U	0.24	U	0.24	U	0.23	U	NV
Perfluorooctanoic acid (ng/g)	3.6		3.6		3.0		1.7		300
Perfluorotetradecanoic acid (ng/g)	0.38	U	0.36	U	0.35	U	0.35	U	NV
Perfluorotridecanoic acid (ng/g)	0.76	U	0.72	U	0.71	U	0.69	U	NV
Perfluoroundecanoic acid (ng/g)	0.38	U	0.36	U	0.35	U	0.35	U	NV
TOC (mg/kg)	24,700		8,520		6,520		2,270		NV
Moisture Content (%)	21.5		17.2		15.2		13.6		NV
Number of PFCs Detected	2		2		2		1		
Total PFCs (includes PFOA)	3.95		4.12		3.42		1.7		
Total PFOA	3.6		3.6		3.0		1.7		
BenColAdjSoccF	42.91794891		-73.24289524						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B-Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Garden, Bennington College, 1 College Drive, Bennington, VT 05201
Date Sampled: March 18, 2016

Parameter	Sample ID: Bennington College Garden LAB Sample ID: 8294171 Sample Depth: 0 - 6"		Sample ID: Bennington College Garden LAB Sample ID: 8294172 Sample Depth: 6" - 12"		Sample ID: Bennington College Garden LAB Sample ID: 8294173 Sample Depth: 12" - 18"		Sample ID: Bennington College Garden LAB Sample ID: 8294174 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.89	U	0.83	U	0.81	U	0.84	U	NV
Perfluorobutanesulfonate (ng/g)	2.0	J	0.59	U	0.58	U	0.6	U	NV
Perfluorodecanoic acid (ng/g)	0.32	J	0.24	U	0.23	U	0.24	U	NV
Perfluorododecanoic acid (ng/g)	0.51	U	0.47	U	0.46	U	0.48	U	NV
Perfluoroheptanoic acid (ng/g)	0.38	U	0.36	U	0.35	U	0.36	U	NV
Perfluorohexanesulfonate (ng/g)	0.63	U	0.59	U	0.58	U	0.6	U	NV
Perfluorohexanoic acid (ng/g)	0.25	U	0.24	U	0.23	U	0.24	U	NV
Perfluorononanoic acid (ng/g)	0.25	U	0.24	U	0.23	U	0.24	U	NV
Perfluorooctanoic acid (ng/g)	1.1		0.65	J	0.38	J	0.67	J	300
Perfluorotetradecanoic acid (ng/g)	0.38	U	0.36	U	0.35	U	0.36	U	NV
Perfluorotridecanoic acid (ng/g)	0.76	U	0.71	U	0.7	U	0.72	U	NV
Perfluoroundecanoic acid (ng/g)	0.38	U	0.36	U	0.35	U	0.36	U	NV
TOC (mg/kg)	12,900		7,660		2,490		7,630		NV
Moisture Content (%)	21.0		15.6		13.9		16.3		NV
Number of PFCs Detected	3		1		1		1		
Total PFCs (includes PFOA)	3.42		0.65		0.38		0.67		
Total PFOA	1.1		0.65		0.38		0.67		
BenncollegeGar	42.92002360		-73.24254764						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B-Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Jennings Meadow Trail, Bennington College, 1 College Drive, Bennington, VT 05201
Date Sampled: March 18, 2016

Parameter	Sample ID: Jennings Meadow Trail LAB Sample ID: 8294190 Sample Depth: 0 - 6"		Sample ID: Jennings Meadow Trail LAB Sample ID: 8294191 Sample Depth: 6" - 12"		Sample ID: Jennings Meadow Trail LAB Sample ID: 8294192 Sample Depth: 12" - 18"		Sample ID: Jennings Meadow Trail LAB Sample ID: 8294193 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.96	U	0.89	U	0.86	U	0.87	U	NV
Perfluorobutanesulfonate (ng/g)	0.68	U	0.64	U	0.62	U	0.62	U	NV
Perfluorodecanoic acid (ng/g)	0.27	U	0.25	U	0.25	U	0.25	U	NV
Perfluorododecanoic acid (ng/g)	0.55	U	0.51	U	0.49	U	0.5	U	NV
Perfluoroheptanoic acid (ng/g)	0.41	U	0.38	U	0.37	U	0.37	U	NV
Perfluorohexanesulfonate (ng/g)	0.68	U	0.64	U	0.62	U	0.62	U	NV
Perfluorohexanoic acid (ng/g)	0.27	U	0.25	U	0.25	U	0.37	J	NV
Perfluorononanoic acid (ng/g)	0.27	U	0.25	U	0.25	U	0.25	U	NV
Perfluorooctanoic acid (ng/g)	2.1		2.8		2.6		2.3		300
Perfluorotetradecanoic acid (ng/g)	0.41	U	0.38	U	0.37	U	0.37	U	NV
Perfluorotridecanoic acid (ng/g)	0.82	U	0.76	U	0.74	U	0.75	U	NV
Perfluoroundecanoic acid (ng/g)	0.41	U	0.38	U	0.37	U	0.37	U	NV
TOC (mg/kg)	17,300		10,700		6,030		4,290		NV
Moisture Content (%)	26.8		21.3		18.9		19.6		NV
Number of PFCs Detected	1		1		1		2		
Total PFCs (includes PFOA)	2.1		2.8		2.6		2.67		
Total PFOA	2.1		2.8		2.6		2.3		
JennMdwTrail	42.92173359		-73.23730057						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B-Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Along River, Former ChemFab, 1030 Water Street, North Bennington, VT 05257
Date Sampled: March 23, 2016

Parameter	Sample ID: Chemfab Along River LAB Sample ID: 8301016 Sample Depth: 0 - 6"		Sample ID: Chemfab Along River LAB Sample ID: 8301017 Sample Depth: 6" - 12"		Sample ID: Chemfab Along River LAB Sample ID: 8301018 Sample Depth: 12" - 18"		Sample ID: Chemfab Along River LAB Sample ID: 8301019 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.79	U	1 (1.7U)	JB	1.2 (1.8U)	JB	1.3 (1.8U)	JB	NV
Perfluorobutanesulfonate (ng/g)	0.56	U	0.54	U	0.56	U	0.55	U	NV
Perfluorodecanoic acid (ng/g)	1.9		2.1		4.5		3.6		NV
Perfluorododecanoic acid (ng/g)	3.4		0.74	J	0.9		0.51	J	NV
Perfluoroheptanoic acid (ng/g)	0.34	U	0.33	U	0.36	J	0.33	U	NV
Perfluorohexanesulfonate (ng/g)	0.56	U	0.54	U	0.56	U	0.55	U	NV
Perfluorohexanoic acid (ng/g)	0.23	U	0.22	U	0.22	U	0.22	U	NV
Perfluorononanoic acid (ng/g)	0.24	J	0.22	U	0.22	U	0.26	J	NV
Perfluorooctanoic acid (ng/g)	9.1		2.7		4.2		4.9		300
Perfluorotetradecanoic acid (ng/g)	1.4		0.33	U	0.34	U	0.33	U	NV
Perfluorotridecanoic acid (ng/g)	1.5		0.65	U	0.67	U	0.66	U	NV
Perfluoroundecanoic acid (ng/g)	3.2		0.63	J	0.9		0.33	U	NV
TOC (mg/kg)	17,500		5,400		10,100		3,870		NV
Moisture Content (%)	11.4		8.2		10.9		8.8		NV
Number of PFCs Detected	7		4		5		4		
Total PFCs (includes PFOA)	20.74		6.17		10.86		9.27		
Total PFOA	9.1		2.7		4.2		4.9		
ChemFabRiver	42.91421377		-73.24593334						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Blowdown East, Former ChemFab, 1030 Water Street, North Bennington, VT 05257
Date Sampled: March 23, 2016

Parameter	Sample ID: Chemfab Blowdown East LAB Sample ID: 8301039 Sample Depth: 0 - 6"		Sample ID: Chemfab Blowdown East LAB Sample ID: 8301040 Sample Depth: 6" - 12"		Sample ID: Chemfab Blowdown East LAB Sample ID: 8301041 Sample Depth: 12" - 18"		Sample ID: Chemfab Blowdown East LAB Sample ID: 8301042 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.82	U	0.8	U	0.78	U	0.79	U	NV
Perfluorobutanesulfonate (ng/g)	0.58	U	0.57	U	0.56	U	0.57	U	NV
Perfluorodecanoic acid (ng/g)	1.3		0.41	J	0.27	J	0.54		NV
Perfluorododecanoic acid (ng/g)	5		11		14		15		NV
Perfluoroheptanoic acid (ng/g)	0.35	U	0.34	U	0.34	U	0.34	U	NV
Perfluorohexanesulfonate (ng/g)	0.58	U	0.57	U	0.56	U	0.57	U	NV
Perfluorohexanoic acid (ng/g)	0.23	U	0.23	U	0.22	U	0.23	U	NV
Perfluorononanoic acid (ng/g)	0.23	U	0.23	U	0.22	U	0.23	U	NV
Perfluorooctanoic acid (ng/g)	20		6.1		4.8		13		300
Perfluorotetradecanoic acid (ng/g)	25		12		3.7		2.2		NV
Perfluorotridecanoic acid (ng/g)	15		15		15		6.4		NV
Perfluoroundecanoic acid (ng/g)	1.1		0.49	J	0.34	U	0.79		NV
TOC (mg/kg)	7,090		793		974		3,060		NV
Moisture Content (%)	14.3		12.4		10.6		11.6		NV
Number of PFCs Detected	6		6		5		6		
Total PFCs (includes PFOA)	67.4		45.0		37.77		37.93		
Total PFOA	20.0		6.1		4.8		13.0		
ChemfabBDEast	42.91499706		-73.24572128						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Western Vent, Former ChemFab, 1030 Water Street, North Bennington, VT 05257
Date Sampled: March 24, 2016

Parameter	Sample ID: Chemfab Vent W LAB Sample ID: 8303038 Sample Depth: 0 - 6"		Sample ID: Chemfab Vent W LAB Sample ID: 8303039 Sample Depth: 6" - 12"		Sample ID: Chemfab Vent W LAB Sample ID: 8303040 Sample Depth: 12" - 18"		Sample ID: Chemfab Vent W LAB Sample ID: 8303041 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.82	U	0.84	U	0.83	U	0.86	U	NV
Perfluorobutanesulfonate (ng/g)	0.59	U	0.6	U	0.59	U	0.61	U	NV
Perfluorodecanoic acid (ng/g)	0.89		1.1		1.3		1		NV
Perfluorododecanoic acid (ng/g)	7		15		31		42		NV
Perfluoroheptanoic acid (ng/g)	0.59	J	0.51	J	0.36	J	0.43	J	NV
Perfluorohexanesulfonate (ng/g)	0.59	U	0.6	U	0.59	U	0.61	U	NV
Perfluorohexanoic acid (ng/g)	0.32	J	0.26	J	0.24	U	0.24	U	NV
Perfluorononanoic acid (ng/g)	0.24	U	0.24	J	0.24	U	0.24	U	NV
Perfluorooctanoic acid (ng/g)	20		11		10		12		300
Perfluorotetradecanoic acid (ng/g)	49		23		6.9		5.7		NV
Perfluorotridecanoic acid (ng/g)	8.2		7.1		5.7		5		NV
Perfluoroundecanoic acid (ng/g)	0.86		2.9		9.4		3.9		NV
TOC (mg/kg)	10,400		12,100		14,500		16,400		NV
Moisture Content (%)	14.9		17.1		15.9		18.2		NV
Number of PFCs Detected	8		9		7		7		
Total PFCs (includes PFOA)	86		61.11		64.66		70.03		
Total PFOA	20		11		10		12		
ChemfabVentW	42.91504249		-73.24642762						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
West Side, Former ChemFab, 1030 Water Street, North Bennington, VT 05257
Date Sampled: March 23, 2016

Parameter	Sample ID: Chemfab W Side LAB Sample ID: 8301020 Sample Depth: 0 - 6"		Sample ID: Chemfab W Side LAB Sample ID: 8301021 Sample Depth: 6" - 12"		Sample ID: Chemfab W Side LAB Sample ID: 8301022 Sample Depth: 12" - 18"		Sample ID: Chemfab W Side LAB Sample ID: 8301023 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.84	U	0.78	U	0.81	U	0.88	U	NV
Perfluorobutanesulfonate (ng/g)	0.6	U	0.55	U	0.58	U	0.63	U	NV
Perfluorodecanoic acid (ng/g)	0.45	J	0.24	J	0.23	U	0.25	U	NV
Perfluorododecanoic acid (ng/g)	4.4		3.9		13		3.2		NV
Perfluoroheptanoic acid (ng/g)	0.36	U	0.33	U	0.35	U	0.38	U	NV
Perfluorohexanesulfonate (ng/g)	0.6	U	0.55	U	0.58	U	0.63	U	NV
Perfluorohexanoic acid (ng/g)	0.24	U	0.22	U	0.23	U	0.25	U	NV
Perfluorononanoic acid (ng/g)	0.24	U	0.22	U	0.23	U	0.25	U	NV
Perfluorooctanoic acid (ng/g)	11		3.6		3.1		4.1		300
Perfluorotetradecanoic acid (ng/g)	17		4.8		1.6		2.3		NV
Perfluorotridecanoic acid (ng/g)	7.4		7.3		4.2		2.7		NV
Perfluoroundecanoic acid (ng/g)	0.36	U	0.33	U	0.35	U	4.7		NV
TOC (mg/kg)	13,100		2,010		2,210		1,990		NV
Moisture Content (%)	16.6		9.9		13.2		20.4		NV
Number of PFCs Detected	5		5		4		5		
Total PFCs (includes PFOA)	40.25		19.84		21.9		17		
Total PFOA	11		4		3		4		
ChemfabWSide	42.91437588		-73.24661546						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

SHALLOW SOIL SAMPLING
1682 Harrington Road, Bennington, VT 05257
Date Sampled: May 11, 2016

Parameter	Sample ID: 1682 Harrington Rd LAB Sample ID: 8377455 Sample Depth: 0 - 6"		Sample ID: 1682 Harrington Rd LAB Sample ID: 8377456 Sample Depth: 6" - 12"		Sample ID: 1682 Harrington Rd LAB Sample ID: 8377457 Sample Depth: 12" - 18"		Sample ID: 1682 Harrington Rd LAB Sample ID: 8377460 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.92	U	0.88	U	0.86	U	0.85	U	NV
Perfluorobutanesulfonate (ng/g)	0.66	U	0.63	U	0.62	U	0.61	U	NV
Perfluorodecanoic acid (ng/g)	0.26	U	0.25	U	0.25	U	0.24	U	NV
Perfluorododecanoic acid (ng/g)	0.53	U	0.5	U	0.49	U	0.49	U	NV
Perfluoroheptanoic acid (ng/g)	0.4	U	0.38	U	0.37	U	0.36	U	NV
Perfluorohexanesulfonate (ng/g)	0.66	U	0.63	U	0.62	U	0.61	U	NV
Perfluorohexanoic acid (ng/g)	0.26	U	0.25	U	0.25	U	0.24	U	NV
Perfluorononanoic acid (ng/g)	0.26	U	0.25	U	0.25	U	0.24	U	NV
Perfluorooctanoic acid (ng/g)	2		2.6		2.3		1.3		300
Perfluorotetradecanoic acid (ng/g)	0.4	U	0.38	U	0.37	U	0.36	U	NV
Perfluorotridecanoic acid (ng/g)	0.79	U	0.76	U	0.74	U	0.73	U	NV
Perfluoroundecanoic acid (ng/g)	0.4	U	0.38	U	0.37	U	0.36	U	NV
TOC (mg/kg)	14,600		8,240		3,630		1,420		NV
Moisture Content (%)	24.2		20.6		18.8		17.7		NV
Number of PFCs Detected	1		1		1		1		
Total PFCs (includes PFOA)	2.00		2.60		2.3		1.30		
Total PFOA	2.00		2.60		2.30		1.30		

1682 Harrington Road 42.93275800 -73.26442

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Fishing Access Area, Lake Paran, North Bennington, VT 05257
Date Sampled: March 23, 2016

Parameter	Sample ID: Lake Paran LAB Sample ID: 8301024 Sample Depth: 0 - 6"		Sample ID: Lake Paran LAB Sample ID: 8301025 Sample Depth: 6" - 12"		Sample ID: Lake Paran LAB Sample ID: 8301026 Sample Depth: 12" - 18"		Sample ID: Lake Paran LAB Sample ID: 8301027 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	1.7 (2.2U)	JB	1.3 (2.1U)	JB	1.3 (2.1U)	JB	0.84	U	NV
Perfluorobutanesulfonate (ng/g)	0.69	U	0.65	U	0.67	U	0.6	U	NV
Perfluorodecanoic acid (ng/g)	0.28	U	0.26	U	0.27	U	0.24	U	NV
Perfluorododecanoic acid (ng/g)	0.62	J	0.52	U	0.53	U	0.48	U	NV
Perfluoroheptanoic acid (ng/g)	0.41	U	0.51	J	0.4	U	0.36	U	NV
Perfluorohexanesulfonate (ng/g)	0.69	U	0.65	U	0.67	U	0.6	U	NV
Perfluorohexanoic acid (ng/g)	0.28	U	0.54		0.29	J	0.24	U	NV
Perfluorononanoic acid (ng/g)	0.28	U	0.26	U	0.27	U	0.24	U	NV
Perfluorooctanoic acid (ng/g)	2		1.9		4.1		4.6		300
Perfluorotetradecanoic acid (ng/g)	0.41	U	0.39	U	0.4	U	0.36	U	NV
Perfluorotridecanoic acid (ng/g)	0.83	U	0.78	U	0.8	U	0.72	U	NV
Perfluoroundecanoic acid (ng/g)	0.41	U	0.39	U	0.4	U	0.36	U	NV
TOC (mg/kg)	38,900		15,100		17,900		14,500		NV
Moisture Content (%)	27.7		22.9		25.1		16.7		NV
Number of PFCs Detected	2		3		2		1		
Total PFCs (includes PFOA)	2.62		2.95		4.39		4.6		
Total PFOA	2		1.9		4.1		4.6		
LakeParan	42.93215314		-73.23480536						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
29 Lever Road, North Bennington, VT 05257
Date Sampled: March 22, 2016

Parameter	Sample ID: 29 Lever St LAB Sample ID: 8298602 Sample Depth: 0 - 6"		Sample ID: 29 Lever St LAB Sample ID: 8298603 Sample Depth: 6" - 12"		Sample ID: 29 Lever St LAB Sample ID: 8298604 Sample Depth: 12" - 18"		Sample ID: 29 Lever St LAB Sample ID: 8298605 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	1	J	0.89	U	0.89	U	0.88	U	NV
Perfluorobutanesulfonate (ng/g)	0.64	U	0.63	U	0.64	U	0.63	U	NV
Perfluorodecanoic acid (ng/g)	0.57		0.25	U	0.25	U	0.25	U	NV
Perfluorododecanoic acid (ng/g)	0.51	U	0.51	U	0.51	U	0.5	U	NV
Perfluoroheptanoic acid (ng/g)	0.38	U	0.38	U	0.38	U	0.38	U	NV
Perfluorohexanesulfonate (ng/g)	0.64	U	0.63	U	0.64	U	0.63	U	NV
Perfluorohexanoic acid (ng/g)	0.26	U	0.25	U	0.25	U	0.25	U	NV
Perfluorononanoic acid (ng/g)	0.61		0.42	J	0.25	U	0.25	U	NV
Perfluorooctanoic acid (ng/g)	1.4		1.1		1.1		2.5		300
Perfluorotetradecanoic acid (ng/g)	0.39	J	0.38	U	0.38	U	0.38	U	NV
Perfluorotridecanoic acid (ng/g)	0.77	U	0.76	U	0.76	U	0.75	U	NV
Perfluoroundecanoic acid (ng/g)	0.38	U	0.38	U	0.38	U	0.38	U	NV
TOC (mg/kg)	14,600		8,230		6,460		4,480		NV
Moisture Content (%)	21.7		21.1		21.5		20.5		NV
Number of PFCs Detected	5		2		1		1		
Total PFCs (includes PFOA)	3.97		1.52		1.1		2.5		
Total PFOA	1.4		1.52		1.1		2.5		
29LeverRd	42.91770877		-73.24762372						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

SHALLOW SOIL SAMPLING
500 McCullough Road (Peace Farm), Bennington, VT 05257
Date Sampled: May 11, 2016

Parameter	Sample ID: Peace Farm LAB Sample ID: 8377465 Sample Depth: 0 - 6"		Sample ID: Peace Farm LAB Sample ID: 8377466 Sample Depth: 6" - 12"		Sample ID: Peace Farm LAB Sample ID: 8377467 Sample Depth: 12" - 18"		Sample ID: Peace Farm LAB Sample ID: 8377468 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.99	U	0.90	U	0.99	U	0.98	U	NV
Perfluorobutanesulfonate (ng/g)	0.71	U	0.64	U	0.71	U	0.70	U	NV
Perfluorodecanoic acid (ng/g)	0.28	U	0.26	U	0.28	U	0.28	U	NV
Perfluorododecanoic acid (ng/g)	0.57	U	0.51	U	0.56	U	0.56	U	NV
Perfluoroheptanoic acid (ng/g)	0.42	U	0.38	U	0.42	U	0.42	U	NV
Perfluorohexanesulfonate (ng/g)	0.71	U	0.64	U	0.71	U	0.70	U	NV
Perfluorohexanoic acid (ng/g)	0.28	U	0.26	U	0.28	U	0.28	U	NV
Perfluorononanoic acid (ng/g)	0.28	U	0.26	U	0.28	U	0.28	U	NV
Perfluorooctanoic acid (ng/g)	3.0		3.4		5.1		6.5		300
Perfluorotetradecanoic acid (ng/g)	0.42	U	0.38	U	0.42	U	0.42	U	NV
Perfluorotridecanoic acid (ng/g)	0.85	U	0.77	U	0.85	U	0.84	U	NV
Perfluoroundecanoic acid (ng/g)	0.42	U	0.38	U	0.42	U	0.42	U	NV
TOC (mg/kg)	26,000		20,900		23,700		15,300		NV
Moisture Content (%)	29.3		21.8		29.2		28.7		NV
Number of PFCs Detected	1		1		1		1		
Total PFCs (includes PFOA)	3.00		3.4		5.1		6.5		
Total PFOA	3.00		3.4		5.1		6.5		

500 McCollough Road Peace Farm 42.93013700 -73.263328

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

SHALLOW SOIL SAMPLING
Murphy Rd Farmland, North Bennington, VT 05257
Date Sampled: May 11, 2016

Parameter	Sample ID: Murphy Rd Farmland LAB Sample ID: 8377451 Sample Depth: 0 - 6"		Sample ID: Murphy Rd Farmland LAB Sample ID: 8377452 Sample Depth: 6" - 12"		Sample ID: Murphy Rd Farmland LAB Sample ID: 8377453 Sample Depth: 12" - 18"		Sample ID: Murphy Rd Farmland LAB Sample ID: 8377454 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.92	U	0.90	U	0.91	U	0.91	U	NV
Perfluorobutanesulfonate (ng/g)	0.69	JB	0.67	JB	0.69	JB	0.69	JB	NV
Perfluorodecanoic acid (ng/g)	0.69		0.26	U	0.26	U	0.26	U	NV
Perfluorododecanoic acid (ng/g)	0.52	U	0.52	U	0.52	U	0.52	U	NV
Perfluoroheptanoic acid (ng/g)	0.39	U	0.39	U	0.40	J	0.39	U	NV
Perfluorohexanesulfonate (ng/g)	0.66	U	0.64	U	0.65	U	0.65	U	NV
Perfluorohexanoic acid (ng/g)	0.26	U	0.26	U	0.89	U	0.38	J	NV
Perfluorononanoic acid (ng/g)	0.26	U	0.39	JB	0.26	U	0.26	U	NV
Perfluorooctanoic acid (ng/g)	0.68	J	3.9		12		8.7		300
Perfluorotetradecanoic acid (ng/g)	0.39	U	0.39	U	0.39	U	0.39	U	NV
Perfluorotridecanoic acid (ng/g)	0.79	U	0.77	U	0.78	U	0.78	U	NV
Perfluoroundecanoic acid (ng/g)	0.53	J	0.39	U	0.39	U	0.39	U	NV
TOC (mg/kg)	14,300		12,700		14,000		8,030		NV
Moisture Content (%)	23.8		22.4		23.3		23.0		NV
Number of PFCs Detected	4		3		3		3		
Total PFCs (includes PFOA)	2.59		5.0		13.1		9.8		
Total PFOA	0.68		3.9		12.0		8.7		
Murphy Rd Farmland	42.91302800		-73.241542						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
765 Murphy Road, North Bennington, VT 05257
Date Sampled: March 17, 2016

Parameter	Sample ID: 765 Murphy Rd LAB Sample ID: 8294131 Sample Depth: 0 - 6"		Sample ID: 765 Murphy Rd LAB Sample ID: 8294132 Sample Depth: 6" - 12"		Sample ID: 765 Murphy Rd LAB Sample ID: 8294133 Sample Depth: 12" - 18"		Sample ID: 765 Murphy Rd LAB Sample ID: 8294134 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	1.3	J	1.1	U	0.94	U	0.88	U	NV
Perfluorobutanesulfonate (ng/g)	0.71	U	0.76	U	0.67	U	0.63	U	NV
Perfluorodecanoic acid (ng/g)	0.29	U	0.3	U	0.27	U	0.25	U	NV
Perfluorododecanoic acid (ng/g)	0.57	U	0.61	U	0.53	U	0.5	U	NV
Perfluoroheptanoic acid (ng/g)	0.43	U	0.46	U	0.4	U	0.38	U	NV
Perfluorohexanesulfonate (ng/g)	0.71	U	0.76	U	0.67	U	0.63	U	NV
Perfluorohexanoic acid (ng/g)	0.29	U	0.3	U	0.27	U	0.25	U	NV
Perfluorononanoic acid (ng/g)	0.34	J	0.3	U	0.27	U	0.25	U	NV
Perfluorooctanoic acid (ng/g)	6.4		6.3		2.6		1.6		300
Perfluorotetradecanoic acid (ng/g)	0.43	U	0.46	U	0.4	U	0.38	U	NV
Perfluorotridecanoic acid (ng/g)	0.86	U	0.91	U	0.8	U	0.76	U	NV
Perfluoroundecanoic acid (ng/g)	0.43	U	0.46	U	0.4	U	0.38	U	NV
TOC (mg/kg)	20,400		13,200		6,220		3,440		NV
Moisture Content (%)	30.0		34.2		25.2		20.6		NV
Number of PFCs Detected	3		1		1		1		
Total PFCs (includes PFOA)	8.04		6.3		2.6		1.6		
Total PFOA	6.4		6.3		2.6		1.6		

765MurphyRd 42.91011460 -73.24500396

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
2009 North Bennington Road, North Bennington, VT 05257
Date Sampled: March 22, 2016

Parameter	Sample ID: 2009 N Bennington LAB Sample ID: 8298606 Sample Depth: 0 - 6"		Sample ID: 2009 N Bennington LAB Sample ID: 8298607 Sample Depth: 6" - 12"		Sample ID: 2009 N Bennington LAB Sample ID: 8298608 Sample Depth: 12" - 18"		Sample ID: LAB Sample ID: Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	2.3		0.86	U	0.89	U	NS		NV
Perfluorobutanesulfonate (ng/g)	0.62	U	0.62	U	0.64	U	NS		NV
Perfluorodecanoic acid (ng/g)	4.3		0.6		0.26	U	NS		NV
Perfluorododecanoic acid (ng/g)	2.4		0.49	U	0.51	U	NS		NV
Perfluoroheptanoic acid (ng/g)	0.37	U	0.37	U	0.38	U	NS		NV
Perfluorohexanesulfonate (ng/g)	0.62	U	0.62	U	0.64	U	NS		NV
Perfluorohexanoic acid (ng/g)	0.51		0.25	U	0.26	U	NS		NV
Perfluorononanoic acid (ng/g)	1.1		1.3		0.36	J	NS		NV
Perfluorooctanoic acid (ng/g)	4.2		4.9		45		NS		300
Perfluorotetradecanoic acid (ng/g)	1.3		0.37	U	0.38	U	NS		NV
Perfluorotridecanoic acid (ng/g)	2.2		0.74	U	0.77	U	NS		NV
Perfluoroundecanoic acid (ng/g)	2.5		0.37	U	0.38	U	NS		NV
TOC (mg/kg)	21,800		5,970		14,400		NS		NV
Moisture Content (%)	19.7		19.0		21.6		NS		NV
Number of PFCs Detected	9		3		2		NS		
Total PFCs (includes PFOA)	20.81		6.8		45.36		NS		
Total PFOA	4.2		4.9		45		NS		

2009NBennRd 42.91425845 -73.24310688

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Paran Creek Access Point, 492 Water Street, North Bennington, VT 05257
Date Sampled: March 24, 2016

Parameter	Sample ID: Pkng Lot W Paran Creek LAB Sample ID: 8303042 Sample Depth: 0 - 6"		Sample ID: Pkng Lot W Paran Creek LAB Sample ID: 8303043 Sample Depth: 6" - 12"		Sample ID: Pkng Lot W Paran Creek LAB Sample ID: 8303044 Sample Depth: 12" - 18"		Sample ID: Pkng Lot W Paran Creek LAB Sample ID: 8303045 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	1.2	J	1.2	J	0.8	U	0.86	U	NV
Perfluorobutanesulfonate (ng/g)	0.62	U	0.64	U	0.57	U	0.61	U	NV
Perfluorodecanoic acid (ng/g)	0.59		0.77		0.23	U	0.25	U	NV
Perfluorododecanoic acid (ng/g)	0.49	U	0.51	U	0.46	U	0.49	U	NV
Perfluoroheptanoic acid (ng/g)	0.37	U	0.38	U	0.34	U	0.37	U	NV
Perfluorohexanesulfonate (ng/g)	0.62	U	0.64	U	0.57	U	0.61	U	NV
Perfluorohexanoic acid (ng/g)	0.25	U	0.25	U	0.23	U	0.25	U	NV
Perfluorononanoic acid (ng/g)	0.27	J	0.26	J	0.23	U	0.25	U	NV
Perfluorooctanoic acid (ng/g)	0.37	U	1.3		0.34	U	0.6	J	300
Perfluorotetradecanoic acid (ng/g)	0.48	J	0.44	J	0.34	U	0.37	U	NV
Perfluorotridecanoic acid (ng/g)	0.74	U	0.76	U	0.68	U	0.74	U	NV
Perfluoroundecanoic acid (ng/g)	0.58	J	0.46	J	0.34	U	0.37	U	NV
TOC (mg/kg)	15,900		13,200		3,380		7,820		NV
Moisture Content (%)	18.7		21.5		12.2		18.5		NV
Number of PFCs Detected	5		6		0		1		
Total PFCs (includes PFOA)	3.12		4.43		U		0.6		
Total PFOA	0.37		1.3		U		0.6		
PkngLotWParanC	42.91736579		-73.24640717						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
980 Park Street, North Bennington, VT 05257
Date Sampled: March 21, 2016

Parameter	Sample ID: 980 Park St LAB Sample ID: 8297422 Sample Depth: 0 - 6"		Sample ID: 980 Park St LAB Sample ID: 8297423 Sample Depth: 6" - 12"		Sample ID: 980 Park St LAB Sample ID: 8297424 Sample Depth: 12" - 18"		Sample ID: LAB Sample ID: Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	2.1	J	1.4	J	0.84	U	NS		NV
Perfluorobutanesulfonate (ng/g)	0.66	U	0.59	U	0.6	U	NS		NV
Perfluorodecanoic acid (ng/g)	0.69		0.24	U	0.24	J	NS		NV
Perfluorododecanoic acid (ng/g)	0.53	U	0.47	U	0.48	U	NS		NV
Perfluoroheptanoic acid (ng/g)	0.4	U	0.36	U	0.36	U	NS		NV
Perfluorohexanesulfonate (ng/g)	0.66	U	0.59	U	0.6	U	NS		NV
Perfluorohexanoic acid (ng/g)	0.26	U	0.24	U	0.24	U	NS		NV
Perfluorononanoic acid (ng/g)	0.5	J	0.24	U	0.24	J	NS		NV
Perfluorooctanoic acid (ng/g)	2.7		1.5		1.5		NS		300
Perfluorotetradecanoic acid (ng/g)	0.4	U	0.36	U	0.36	U	NS		NV
Perfluorotridecanoic acid (ng/g)	0.79	U	0.71	U	0.72	U	NS		NV
Perfluoroundecanoic acid (ng/g)	0.4	U	0.36	U	0.36	U	NS		NV
TOC (mg/kg)	17,400		16,800		8,980		NS		NV
Moisture Content (%)	24.3		15.7		16.2		NS		NV
Number of PFCs Detected	4		2		3		NS		
Total PFCs (includes PFOA)	5.99		2.9		1.98		NS		
Total PFOA	2.7		1.5		1.5		NS		

980ParkSt 42.91556217 -73.24958249

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Garden, Pembroke Nursery, 132 Harrington Road, North Bennington, VT 05257
Date Sampled: March 22, 2016

Parameter	Sample ID: Pembroke Garden LAB Sample ID: 8298620 Sample Depth: Composite		Sample ID: Pembroke Garden LAB Sample ID: 8298624 Sample Depth: 6" - 12"		Sample ID: Pembroke Garden LAB Sample ID: 8298625 Sample Depth: 12" - 18"		Sample ID: Pembroke Garden LAB Sample ID: 8298626 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.85	U	0.83	U	0.83	U	0.82	U	NV
Perfluorobutanesulfonate (ng/g)	0.61	U	0.6	U	0.59	U	0.59	U	NV
Perfluorodecanoic acid (ng/g)	0.24	U	0.24	U	0.24	U	0.23	U	NV
Perfluorododecanoic acid (ng/g)	0.48	U	0.48	U	0.47	U	0.47	U	NV
Perfluoroheptanoic acid (ng/g)	0.36	U	0.36	U	0.35	U	0.35	U	NV
Perfluorohexanesulfonate (ng/g)	0.61	U	0.6	U	0.59	U	0.59	U	NV
Perfluorohexanoic acid (ng/g)	0.24	U	0.24	U	0.24	U	0.23	U	NV
Perfluorononanoic acid (ng/g)	0.35	J	0.24	U	0.24	U	0.23	U	NV
Perfluorooctanoic acid (ng/g)	0.75		1.8		1.9		2		300
Perfluorotetradecanoic acid (ng/g)	0.36	U	0.36	U	0.37	J	0.35	U	NV
Perfluorotridecanoic acid (ng/g)	0.73	U	0.71	U	0.71	U	0.7	U	NV
Perfluoroundecanoic acid (ng/g)	0.36	U	0.36	U	0.35	U	0.35	U	NV
TOC (mg/kg)	10,900		7,040		4,540		3,480		NV
Moisture Content (%)	17.4		16		15.2		14.7		NV
Number of PFCs Detected	2		1		1		1		
Total PFCs (includes PFOA)	1.1		1.8		1.9		2		
Total PFOA	0.75		1.8		1.9		2		
PembrokeGarden	42.91352436		-73.25658993						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Stockpile 1, Pembroke Nursery, 132 Harrington Road, North Bennington, VT 05257
Date Sampled: March 22, 2016

Parameter	Sample ID: Pembroke Stockpile 1 LAB Sample ID: 8298601 Sample Depth: Composite[1]		Sample ID: LAB Sample ID: Sample Depth: 6" - 12"		Sample ID: LAB Sample ID: Sample Depth: 12" - 18"		Sample ID: LAB Sample ID: Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.95	U	NS		NS		NS		NV
Perfluorobutanesulfonate (ng/g)	0.68	U	NS		NS		NS		NV
Perfluorodecanoic acid (ng/g)	0.27	U	NS		NS		NS		NV
Perfluorododecanoic acid (ng/g)	0.55	U	NS		NS		NS		NV
Perfluoroheptanoic acid (ng/g)	0.41	U	NS		NS		NS		NV
Perfluorohexanesulfonate (ng/g)	0.68	U	NS		NS		NS		NV
Perfluorohexanoic acid (ng/g)	0.27	U	NS		NS		NS		NV
Perfluorononanoic acid (ng/g)	0.43	J	NS		NS		NS		NV
Perfluorooctanoic acid (ng/g)	5.6		NS		NS		NS		300
Perfluorotetradecanoic acid (ng/g)	0.41	U	NS		NS		NS		NV
Perfluorotridecanoic acid (ng/g)	0.82	U	NS		NS		NS		NV
Perfluoroundecanoic acid (ng/g)	0.41	U	NS		NS		NS		NV
TOC (mg/kg)	41,700		NS		NS		NS		NV
Moisture Content (%)	26.7		NS		NS		NS		NV
Number of PFCs Detected	2		NS		NS		NS		
Total PFCs (includes PFOA)	6.03		NS		NS		NS		
Total PFOA	5.60		NS		NS		NS		

PembrokeStocP1 42.91722849 -73.26011854

Notes:
(1) Composite sample consisted of five (5) individual grab samples collected from throughout the stockpile.
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Stockpile 2, Pembroke Nursery, 132 Harrington Road, North Bennington, VT 05257
Date Sampled: March 22, 2016

Parameter	Sample ID: Pembroke Stockpile 2 LAB Sample ID: 8298627 Sample Depth: Composite[(1)]		Sample ID: LAB Sample ID: Sample Depth: 6" - 12"		Sample ID: LAB Sample ID: Sample Depth: 12" - 18"		Sample ID: LAB Sample ID: Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.9	U	NS		NS		NS		NV
Perfluorobutanesulfonate (ng/g)	0.64	U	NS		NS		NS		NV
Perfluorodecanoic acid (ng/g)	0.26	U	NS		NS		NS		NV
Perfluorododecanoic acid (ng/g)	0.51	U	NS		NS		NS		NV
Perfluoroheptanoic acid (ng/g)	0.39	U	NS		NS		NS		NV
Perfluorohexanesulfonate (ng/g)	0.64	U	NS		NS		NS		NV
Perfluorohexanoic acid (ng/g)	0.26	U	NS		NS		NS		NV
Perfluorononanoic acid (ng/g)	0.26	U	NS		NS		NS		NV
Perfluorooctanoic acid (ng/g)	1.5		NS		NS		NS		300
Perfluorotetradecanoic acid (ng/g)	0.39	U	NS		NS		NS		NV
Perfluorotridecanoic acid (ng/g)	0.77	U	NS		NS		NS		NV
Perfluoroundecanoic acid (ng/g)	0.39	U	NS		NS		NS		NV
TOC (mg/kg)	12,300		NS		NS		NS		NV
Moisture Content (%)	22.2		NS		NS		NS		NV
Number of PFCs Detected	1		NS		NS		NS		
Total PFCs (includes PFOA)	1.5		NS		NS		NS		
Total PFOA	1.5		NS		NS		NS		

PembrokeSP2 42.91569075 -73.26127868

Notes:
(1) Composite sample consisted of five (5) individual grab samples collected from throughout the stockpile.
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
8 Polygraphic Lane, North Bennington, VT 05257
Date Sampled: March 21, 2016

Parameter	Sample ID: 8 Polygraphic Ln LAB Sample ID: 8297375 Sample Depth: 0 - 6"		Sample ID: 8 Polygraphic Ln LAB Sample ID: 8297411 Sample Depth: 6" - 12"		Sample ID: 8 Polygraphic Ln LAB Sample ID: 8297415 Sample Depth: 12" - 18"		Sample ID: 8 Polygraphic Ln LAB Sample ID: 8297417 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	1.4	J	0.79	U	0.85	U	0.84	U	NV
Perfluorobutanesulfonate (ng/g)	0.62	U	0.56	U	0.6	U	0.6	U	NV
Perfluorodecanoic acid (ng/g)	0.82		0.23	U	0.24	U	0.32	J	NV
Perfluorododecanoic acid (ng/g)	0.49	U	0.45	U	0.48	U	0.48	U	NV
Perfluoroheptanoic acid (ng/g)	0.37	U	0.34	U	0.36	U	0.36	U	NV
Perfluorohexanesulfonate (ng/g)	0.62	U	0.56	U	0.6	U	0.6	U	NV
Perfluorohexanoic acid (ng/g)	0.5		0.23	U	0.45	J	0.24	U	NV
Perfluorononanoic acid (ng/g)	0.48	J	0.23	U	0.24	U	0.36	J	NV
Perfluorooctanoic acid (ng/g)	4.2		1.9		2.1		2.4		300
Perfluorotetradecanoic acid (ng/g)	0.37	U	0.34	U	0.36	U	0.36	U	NV
Perfluorotridecanoic acid (ng/g)	0.74	U	0.68	U	0.73	U	0.72	U	NV
Perfluoroundecanoic acid (ng/g)	0.42	J	0.34	U	0.36	U	0.36	U	NV
TOC (mg/kg)	22,200		16,500		33,000		6,870		NV
Moisture Content (%)	18.7		11.4		17.3		16.4		NV
Number of PFCs Detected	6		1		2		3		
Total PFCs (includes PFOA)	7.82		1.9		2.55		3.08		
Total PFOA	4.2		1.9		2.1		2.4		
8PolygrahicLn	42.91378529		-73.24932382						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
15 Polygraphic Lane, North Bennington, VT 05257
Date Sampled: March 21, 2016

Parameter	Sample ID: 15 Polygraphic LAB Sample ID: 8297420 Sample Depth: 0 - 6"		Sample ID: 15 Polygraphic LAB Sample ID: 8297421 Sample Depth: 6" - 12"		Sample ID: LAB Sample ID: Sample Depth: 12" - 18"		Sample ID: LAB Sample ID: Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.9	U	0.84	U	NS		NS		NV
Perfluorobutanesulfonate (ng/g)	0.64	U	0.6	U	NS		NS		NV
Perfluorodecanoic acid (ng/g)	0.58		0.24	U	NS		NS		NV
Perfluorododecanoic acid (ng/g)	0.51	U	0.48	U	NS		NS		NV
Perfluoroheptanoic acid (ng/g)	0.39	U	0.36	U	NS		NS		NV
Perfluorohexanesulfonate (ng/g)	0.64	U	0.6	U	NS		NS		NV
Perfluorohexanoic acid (ng/g)	0.26	U	0.24	U	NS		NS		NV
Perfluorononanoic acid (ng/g)	0.42	J	0.24	U	NS		NS		NV
Perfluorooctanoic acid (ng/g)	0.84		1.1		NS		NS		300
Perfluorotetradecanoic acid (ng/g)	0.39	U	0.36	U	NS		NS		NV
Perfluorotridecanoic acid (ng/g)	0.77	U	0.72	U	NS		NS		NV
Perfluoroundecanoic acid (ng/g)	0.51	J	0.36	U	NS		NS		NV
TOC (mg/kg)	14,400		11,900		NS		NS		NV
Moisture Content (%)	22.1		16.9		NS		NS		NV
Number of PFCs Detected	4		1		NS		NS		
Total PFCs (includes PFOA)	2.35		1.1		NS		NS		
Total PFOA	0.84		1.1		NS		NS		

15PolygraphLn 42.91280251 -73.25050148

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Roadside Playground, 59 River Road, North Bennington, VT 05257
Date Sampled: March 16, 2016

Parameter	Sample ID: 59 River Rd Roadside Playgrnd LAB Sample ID: 8291928 Sample Depth: 0 - 6"		Sample ID: 59 River Rd Roadside Playgrnd LAB Sample ID: 8291929 Sample Depth: 6" - 12"		Sample ID: 59 River Rd Roadside Playgrnd LAB Sample ID: 8291930 Sample Depth: 12" - 18"		Sample ID: 59 River Rd Roadside Playgrnd LAB Sample ID: 8291931 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	2.8		1.3	J	1.2	J	0.78	U	NV
Perfluorobutanesulfonate (ng/g)	0.65	U	0.61	U	0.58	U	0.56	U	NV
Perfluorodecanoic acid (ng/g)	0.46	J	0.25	J	0.23	U	0.22	U	NV
Perfluorododecanoic acid (ng/g)	0.65	U	0.61	U	0.58	U	0.56	U	NV
Perfluoroheptanoic acid (ng/g)	0.39	U	0.36	U	0.35	U	0.34	U	NV
Perfluorohexanesulfonate (ng/g)	0.65	U	0.61	U	0.58	U	0.56	U	NV
Perfluorohexanoic acid (ng/g)	0.26	U	0.24	U	0.23	U	0.22	U	NV
Perfluorononanoic acid (ng/g)	0.26	U	0.31	J	0.23	U	0.22	U	NV
Perfluorooctanoic acid (ng/g)	0.74	J	0.86		0.66	J	0.34	U	300
Perfluorotetradecanoic acid (ng/g)	0.52	U	0.49	U	0.46	U	0.45	U	NV
Perfluorotridecanoic acid (ng/g)	0.78	U	0.73	U	0.69	U	0.67	U	NV
Perfluoroundecanoic acid (ng/g)	0.39	U	0.36	U	0.35	U	0.34	U	NV
TOC (mg/kg)	17,400		12,700		2,940		3,430		NV
Moisture Content (%)	23.4		17.8		13.4		10.5		NV
Number of PFCs Detected	3		4		2		0		
Total PFCs (includes PFOA)	4.0		2.72		1.86		U		
Total PFOA	0.74		0.86		0.66		U		

59 RiverRdROAD 42.91344255 -73.24717621

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Playground Slide, 59 River Road, North Bennington, VT 05257
Date Sampled: March 16, 2016

Parameter	Sample ID: 59 River Rd Slide LAB Sample ID: 8291932 Sample Depth: 0 - 6"		Sample ID: 59 River Rd Slide LAB Sample ID: 8291933 Sample Depth: 6" - 12"		Sample ID: LAB Sample ID: Sample Depth: 12" - 18"		Sample ID: LAB Sample ID: Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.82	U	1.0	J	NS		NS		NV
Perfluorobutanesulfonate (ng/g)	0.59	U	0.57	U	NS		NS		NV
Perfluorodecanoic acid (ng/g)	0.23	U	0.23	U	NS		NS		NV
Perfluorododecanoic acid (ng/g)	0.59	U	0.57	U	NS		NS		NV
Perfluoroheptanoic acid (ng/g)	0.35	U	0.34	U	NS		NS		NV
Perfluorohexanesulfonate (ng/g)	0.59	U	0.57	U	NS		NS		NV
Perfluorohexanoic acid (ng/g)	0.23	U	0.23	U	NS		NS		NV
Perfluorononanoic acid (ng/g)	0.23	U	0.23	U	NS		NS		NV
Perfluorooctanoic acid (ng/g)	0.35	U	0.34	U	NS		NS		300
Perfluorotetradecanoic acid (ng/g)	0.47	U	0.45	U	NS		NS		NV
Perfluorotridecanoic acid (ng/g)	0.7	U	0.68	U	NS		NS		NV
Perfluoroundecanoic acid (ng/g)	0.35	U	0.34	U	NS		NS		NV
TOC (mg/kg)	13,700		6,280		NS		NS		NV
Moisture Content (%)	14.8		11.6		NS		NS		NV
Number of PFCs Detected	0		1		NS		NS		
Total PFCs (includes PFOA)	U		1.0		NS		NS		
Total PFOA	U		1.0		NS		NS		
59RiverRDSlide	42.91361405		-73.24724528						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
180 River Road, North Bennington, VT 05257
Date Sampled: March 23, 2016

Parameter	Sample ID: 180 River Rd LAB Sample ID: 8301012 Sample Depth: 0 - 6"		Sample ID: 180 River Rd LAB Sample ID: 8301013 Sample Depth: 6" - 12"		Sample ID: 180 River Rd LAB Sample ID: 8301014 Sample Depth: 12" - 18"		Sample ID: 180 River Rd LAB Sample ID: 8301015 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	1.9 (2.0U)	JB	1.5	U	0.75	U	0.99 (1.8U)	JB	NV
Perfluorobutanesulfonate (ng/g)	0.61	U	1.1	U	0.54	U	0.55	U	NV
Perfluorodecanoic acid (ng/g)	0.73		0.43	U	0.21	U	0.41	J	NV
Perfluorododecanoic acid (ng/g)	1.7		1.4	J	0.63	J	0.54	J	NV
Perfluoroheptanoic acid (ng/g)	0.37	U	0.64	U	0.32	U	0.33	U	NV
Perfluorohexanesulfonate (ng/g)	0.61	U	1.1	U	0.54	U	0.55	U	NV
Perfluorohexanoic acid (ng/g)	0.24	U	0.43	U	0.21	U	0.22	U	NV
Perfluorononanoic acid (ng/g)	0.24	U	0.43	U	0.21	U	0.22	U	NV
Perfluorooctanoic acid (ng/g)	2		0.66	J	0.32	U	0.33	U	300
Perfluorotetradecanoic acid (ng/g)	0.37	U	0.64	U	0.32	U	0.33	U	NV
Perfluorotridecanoic acid (ng/g)	1.6		1.3	U	0.64	U	0.66	U	NV
Perfluoroundecanoic acid (ng/g)	0.9		0.64	U	0.32	U	0.33	U	NV
TOC (mg/kg)	NA		8,320		5,400		14,100		NV
Moisture Content (%)	NA		6.5		6.7		9.7		NV
Number of PFCs Detected	5		2		1		2		
Total PFCs (includes PFOA)	6.93		2.06		0.63		0.95		
Total PFOA	2		0.66		ND		ND		

180RiverSt 42.91345512 -73.24619486

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
6 Royal Street, North Bennington, VT 05257
Date Sampled: March 17, 2016

Parameter	Sample ID: 6 Royal St LAB Sample ID: 8294109 Sample Depth: 0 - 6"		Sample ID: 6 Royal St LAB Sample ID: 8294110 Sample Depth: 6" - 12"		Sample ID: 6 Royal St LAB Sample ID: 8294111 Sample Depth: 12" - 18"		Sample ID: 6 Royal St LAB Sample ID: 8294112 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.83	U	0.75	U	0.87	U	0.89	U	NV
Perfluorobutanesulfonate (ng/g)	0.59	U	0.53	U	0.62	U	0.63	U	NV
Perfluorodecanoic acid (ng/g)	0.24	J	0.21	U	0.76		1		NV
Perfluorododecanoic acid (ng/g)	0.49	J	0.43	U	0.49	U	0.51	U	NV
Perfluoroheptanoic acid (ng/g)	0.36	U	0.32	U	0.37	U	0.38	U	NV
Perfluorohexanesulfonate (ng/g)	0.59	U	0.53	U	0.62	U	0.63	U	NV
Perfluorohexanoic acid (ng/g)	0.24	U	0.21	U	0.25	U	0.25	U	NV
Perfluorononanoic acid (ng/g)	0.24	U	0.21	U	0.25	U	0.25	U	NV
Perfluorooctanoic acid (ng/g)	0.82		0.32	U	0.37	U	0.55	J	300
Perfluorotetradecanoic acid (ng/g)	0.36	U	0.32	U	0.37	U	0.38	U	NV
Perfluorotridecanoic acid (ng/g)	0.71	U	0.64	U	0.74	U	0.76	U	NV
Perfluoroundecanoic acid (ng/g)	0.54	J	0.32	U	0.37	U	0.38	U	NV
TOC (mg/kg)	8,860		1,230		2,490		7,860		NV
Moisture Content (%)	15.5		6.4		19.1		21.1		NV
Number of PFCs Detected	4		0		1		2		
Total PFCs (includes PFOA)	2.09		U		0.76		1.55		
Total PFOA	0.82		U		U		0.55		
6Royalst	42.91434285		-73.24380484						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
5 Scarey Lane, North Bennington, VT 05257
Date Sampled: March 17, 2016

Parameter	Sample ID: 5 Scarey Lane LAB Sample ID: 8294115 Sample Depth: 0 - 6"		Sample ID: 5 Scarey Lane LAB Sample ID: 8294116 Sample Depth: 6" - 12"		Sample ID: 5 Scarey Lane LAB Sample ID: 8294117 Sample Depth: 12" - 18"		Sample ID: 5 Scarey Lane LAB Sample ID: 8294118 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.91	U	0.88	U	0.86	U	1.5	J	NV
Perfluorobutanesulfonate (ng/g)	0.65	U	0.63	U	0.61	U	0.61	U	NV
Perfluorodecanoic acid (ng/g)	3.8		1.2		0.6		0.67		NV
Perfluorododecanoic acid (ng/g)	1.6		0.59	J	0.49	U	0.49	U	NV
Perfluoroheptanoic acid (ng/g)	0.39	U	0.38	U	0.37	U	0.37	U	NV
Perfluorohexanesulfonate (ng/g)	0.65	U	0.63	U	0.61	U	0.61	U	NV
Perfluorohexanoic acid (ng/g)	0.26	U	0.25	U	0.52		0.24	U	NV
Perfluorononanoic acid (ng/g)	1.3		1.1		1.1		0.82		NV
Perfluorooctanoic acid (ng/g)	6.2		5.9		7.1		8.2		300
Perfluorotetradecanoic acid (ng/g)	0.39	U	0.38	U	0.37	U	0.37	U	NV
Perfluorotridecanoic acid (ng/g)	0.78	U	0.75	U	0.74	U	0.73	U	NV
Perfluoroundecanoic acid (ng/g)	1.9		0.38	U	0.42	J	0.37	U	NV
TOC (mg/kg)	32,000		18,600		15,900		13,800		NV
Moisture Content (%)	22.9		20.1		18.5		18.3		NV
Number of PFCs Detected	5		4		5		4		
Total PFCs (includes PFOA)	14.8		8.8		9.7		10.3		
Total PFOA	6.2		5.9		7.1		8.2		

5ScareyLane 42.91421344 -73.24512885

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
10 Scarey Lane, North Bennington, VT 05257
Date Sampled: March 21, 2016

Parameter	Sample ID: 10 Scarey Ln LAB Sample ID: 8297369 Sample Depth: 0 - 6"		Sample ID: 10 Scarey Ln LAB Sample ID: 8297370 Sample Depth: 6" - 12"		Sample ID: 10 Scarey Ln LAB Sample ID: 8297371 Sample Depth: 12" - 18"		Sample ID: 10 Scarey Ln LAB Sample ID: 8297372 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.98	J	1.2	J	1.1	J	0.85	U	NV
Perfluorobutanesulfonate (ng/g)	0.64	U	0.57	U	0.55	U	0.61	U	NV
Perfluorodecanoic acid (ng/g)	3.8		0.68		1.1		0.59		NV
Perfluorododecanoic acid (ng/g)	1.9		0.5	J	0.52	J	0.48	U	NV
Perfluoroheptanoic acid (ng/g)	0.38	U	0.34	U	0.33	U	0.36	U	NV
Perfluorohexanesulfonate (ng/g)	0.64	U	0.57	U	0.55	U	0.61	U	NV
Perfluorohexanoic acid (ng/g)	0.26	U	0.23	U	0.22	U	0.24	U	NV
Perfluorononanoic acid (ng/g)	0.6		0.37	J	0.38	J	0.56		NV
Perfluorooctanoic acid (ng/g)	4.1		1.4		2.3		3.6		300
Perfluorotetradecanoic acid (ng/g)	0.79	J	0.34	U	0.33	U	0.36	U	NV
Perfluorotridecanoic acid (ng/g)	0.84	J	0.69	U	0.66	U	0.73	U	NV
Perfluoroundecanoic acid (ng/g)	2.8		0.41	J	0.51	J	0.36	U	NV
TOC (mg/kg)	22,600		7,340		8,410		9,150		NV
Moisture Content (%)	21.8		12.5		8.8		17.5		NV
Number of PFCs Detected	8		6		6		3		
Total PFCs (includes PFOA)	15.81		4.56		5.91		4.75		
Total PFOA	4.1		1.4		2.3		3.6		
10ScareyLane	42.91411662		-73.24564626						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
15 Scarey Lane, North Bennington, VT 05257
Date Sampled: March 17, 2016

Parameter	Sample ID: 15 Scarey Lane LAB Sample ID: 8294125 Sample Depth: 0 - 6"		Sample ID: 15 Scarey Lane LAB Sample ID: 8294129 Sample Depth: 6" - 12"		Sample ID: LAB Sample ID: Sample Depth: 12" - 18"		Sample ID: LAB Sample ID: Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.91	U	0.8	U	NS		NS		NV
Perfluorobutanesulfonate (ng/g)	0.65	U	0.57	U	NS		NS		NV
Perfluorodecanoic acid (ng/g)	2		1.2		NS		NS		NV
Perfluorododecanoic acid (ng/g)	1.1		0.55	J	NS		NS		NV
Perfluoroheptanoic acid (ng/g)	0.39	U	0.34	U	NS		NS		NV
Perfluorohexanesulfonate (ng/g)	0.65	U	0.57	U	NS		NS		NV
Perfluorohexanoic acid (ng/g)	0.38	J	0.3	J	NS		NS		NV
Perfluorononanoic acid (ng/g)	0.44	J	0.44	J	NS		NS		NV
Perfluorooctanoic acid (ng/g)	1.5		1.2		NS		NS		300
Perfluorotetradecanoic acid (ng/g)	0.39	U	0.34	U	NS		NS		NV
Perfluorotridecanoic acid (ng/g)	0.78	U	0.69	U	NS		NS		NV
Perfluoroundecanoic acid (ng/g)	1.3		0.52	J	NS		NS		NV
TOC (mg/kg)	22,300		7,220		NS		NS		NV
Moisture Content (%)	23.1		12.7		NS		NS		NV
Number of PFCs Detected	6		6		NS		NS		
Total PFCs (includes PFOA)	6.72		4.21		NS		NS		
Total PFOA	1.5		1.2		NS		NS		

15ScareyLane 42.91560458 -73.24500832

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
26 Scarey Lane, North Bennington, VT 05257
Date Sampled: March 21, 2016

Parameter	Sample ID: 26 Scarey Ln LAB Sample ID: 8297373 Sample Depth: 0 - 6"		Sample ID: 26 Scarey Ln LAB Sample ID: 8297374 Sample Depth: 6" - 12"		Sample ID: LAB Sample ID: Sample Depth: 12" - 18"		Sample ID: LAB Sample ID: Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.86	J	0.75	U	NS		NS		NV
Perfluorobutanesulfonate (ng/g)	0.57	U	0.54	U	NS		NS		NV
Perfluorodecanoic acid (ng/g)	0.3	J	0.26	J	NS		NS		NV
Perfluorododecanoic acid (ng/g)	1.9		1.1		NS		NS		NV
Perfluoroheptanoic acid (ng/g)	0.34	U	0.32	U	NS		NS		NV
Perfluorohexanesulfonate (ng/g)	0.57	U	0.54	U	NS		NS		NV
Perfluorohexanoic acid (ng/g)	0.23	U	0.21	U	NS		NS		NV
Perfluorononanoic acid (ng/g)	0.23	U	0.21	U	NS		NS		NV
Perfluorooctanoic acid (ng/g)	1.1		0.33	J	NS		NS		300
Perfluorotetradecanoic acid (ng/g)	1.9		1.1		NS		NS		NV
Perfluorotridecanoic acid (ng/g)	1.4		0.64	U	NS		NS		NV
Perfluoroundecanoic acid (ng/g)	1.2		0.78		NS		NS		NV
TOC (mg/kg)	11,500		2,320		NS		NS		NV
Moisture Content (%)	12.7		6.9		NS		NS		NV
Number of PFCs Detected	7		5		NS		NS		
Total PFCs (includes PFOA)	8.66		3.57		NS		NS		
Total PFOA	1.1		0.33		NS		NS		
26ScareyLaneWH	42.91512069		-73.24564559						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
32 Scarey Lane, North Bennington, VT 05257
Date Sampled: March 17, 2016

Parameter	Sample ID: 32 Scarey Lane LAB Sample ID: 8294121 Sample Depth: 0 - 6"		Sample ID: 32 Scarey Lane LAB Sample ID: 8294122 Sample Depth: 6" - 12"		Sample ID: 32 Scarey Lane LAB Sample ID: 8294123 Sample Depth: 12" - 18"		Sample ID: 32 Scarey Lane LAB Sample ID: 8294124 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.89	U	0.78	U	1.5	J	0.82	U	NV
Perfluorobutanesulfonate (ng/g)	0.63	U	0.55	U	0.54	U	0.59	U	NV
Perfluorodecanoic acid (ng/g)	0.69		0.23	J	0.22	U	0.23	U	NV
Perfluorododecanoic acid (ng/g)	0.51	U	0.44	U	0.43	U	0.47	U	NV
Perfluoroheptanoic acid (ng/g)	0.38	U	0.33	U	0.32	U	0.35	U	NV
Perfluorohexanesulfonate (ng/g)	0.63	U	0.55	U	0.54	U	0.59	U	NV
Perfluorohexanoic acid (ng/g)	0.25	U	0.22	U	0.22	U	0.23	U	NV
Perfluorononanoic acid (ng/g)	0.53		0.22	U	0.22	U	0.23	U	NV
Perfluorooctanoic acid (ng/g)	1.3		0.9		0.35	J	0.85		300
Perfluorotetradecanoic acid (ng/g)	0.38	U	0.33	U	0.32	U	0.35	U	NV
Perfluorotridecanoic acid (ng/g)	0.76	U	0.66	U	0.65	U	0.7	U	NV
Perfluoroundecanoic acid (ng/g)	0.43	J	0.33	U	0.32	U	0.35	U	NV
TOC (mg/kg)	19,800		6,520		1,430		6,950		NV
Moisture Content (%)	21.1		9.7		7.6		14.6		NV
Number of PFCs Detected	4		2		2		1		
Total PFCs (includes PFOA)	2.95		1.13		1.85		0.85		
Total PFOA	1.3		0.9		0.35		0.85		

32ScareyLane 42.91812510 -73.24537151

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Large Playground, 9 School Street, North Bennington, VT 05257
Date Sampled: March 18, 2016

Parameter	Sample ID: 9 School St LGPG LAB Sample ID: 8294198 Sample Depth: 0 - 6"		Sample ID: 9 School St LGPG LAB Sample ID: 8294199 Sample Depth: 6" - 12"		Sample ID: 9 School St LGPG LAB Sample ID: 8294200 Sample Depth: 12" - 18"		Sample ID: 9 School St LGPG LAB Sample ID: 8294201 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.74	U	0.74	U	0.78	U	0.8	U	NV
Perfluorobutanesulfonate (ng/g)	0.53	U	0.53	U	0.55	U	0.57	U	NV
Perfluorodecanoic acid (ng/g)	0.21	U	0.21	U	0.22	U	0.23	U	NV
Perfluorododecanoic acid (ng/g)	0.42	U	0.42	U	0.44	U	0.46	U	NV
Perfluoroheptanoic acid (ng/g)	0.32	U	0.32	U	0.33	U	0.34	U	NV
Perfluorohexanesulfonate (ng/g)	0.53	U	0.53	U	0.55	U	0.57	U	NV
Perfluorohexanoic acid (ng/g)	0.21	U	0.21	U	0.22	U	0.23	U	NV
Perfluorononanoic acid (ng/g)	0.21	U	0.21	U	0.22	U	0.23	U	NV
Perfluorooctanoic acid (ng/g)	0.32	U	0.32	U	0.33	U	0.34	U	300
Perfluorotetradecanoic acid (ng/g)	0.32	U	0.32	U	0.33	U	0.34	U	NV
Perfluorotridecanoic acid (ng/g)	0.64	U	0.64	U	0.67	U	0.68	U	NV
Perfluoroundecanoic acid (ng/g)	0.32	U	0.32	U	0.33	U	0.34	U	NV
TOC (mg/kg)	405	J	221	U	242	U	222	U	NV
Moisture Content (%)	5.7		5.8		9.9		12.1		NV
Number of PFCs Detected	0		0		0		0		
Total PFCs (includes PFOA)	U		U		U		U		
Total PFOA	U		U		U		U		

9SchoolStLgpg 42.92963346 -73.24481503

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Maple Tree, 9 School Street, North Bennington, VT 05257
Date Sampled: March 22, 2016

Parameter	Sample ID: 9 School St Maple Tree LAB Sample ID: 8298609 Sample Depth: 0 - 6"		Sample ID: 9 School St Maple Tree LAB Sample ID: 8298610 Sample Depth: 6" - 12"		Sample ID: 9 School St Maple Tree LAB Sample ID: 8298611 Sample Depth: 12" - 18"		Sample ID: LAB Sample ID: Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.84	U	0.87	U	0.85	U	NS		NV
Perfluorobutanesulfonate (ng/g)	0.6	U	0.62	U	0.61	U	NS		NV
Perfluorodecanoic acid (ng/g)	0.24	U	0.25	U	0.24	U	NS		NV
Perfluorododecanoic acid (ng/g)	0.48	U	0.5	U	0.49	U	NS		NV
Perfluoroheptanoic acid (ng/g)	0.36	U	0.37	U	0.36	U	NS		NV
Perfluorohexanesulfonate (ng/g)	0.6	U	0.62	U	0.61	U	NS		NV
Perfluorohexanoic acid (ng/g)	0.28	J	0.25	U	0.24	U	NS		NV
Perfluorononanoic acid (ng/g)	0.31	J	0.25	U	0.24	U	NS		NV
Perfluorooctanoic acid (ng/g)	1.3		3.1		2.9		NS		300
Perfluorotetradecanoic acid (ng/g)	0.36	U	0.37	U	0.36	U	NS		NV
Perfluorotridecanoic acid (ng/g)	0.72	U	0.75	U	0.73	U	NS		NV
Perfluoroundecanoic acid (ng/g)	0.36	U	0.37	U	0.36	U	NS		NV
TOC (mg/kg)	8,790		7,530		6,340		NS		NV
Moisture Content (%)	16.8		19.5		17.6		NS		NV
Number of PFCs Detected	3		1		1		NS		
Total PFCs (includes PFOA)	1.89		3.1		2.9		NS		
Total PFOA	1.3		3.1		2.9		NS		
9SchoolStMplTr	42.92974477		-73.24418060						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Northeast Corner of Parking Lot, 9 School Street, North Bennington, VT 05257
Date Sampled: March 22, 2016

Parameter	Sample ID: 9 School St NE Corner LAB Sample ID: 8298612 Sample Depth: 0 - 6"		Sample ID: 9 School St NE Corner LAB Sample ID: 8298613 Sample Depth: 6" - 12"		Sample ID: 9 School NE Corner LAB Sample ID: 8298614 Sample Depth: 12" - 18"		Sample ID: LAB Sample ID: Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	1.1	J	0.81	U	0.82	U	NS		NV
Perfluorobutanesulfonate (ng/g)	0.7	U	0.58	U	0.59	U	NS		NV
Perfluorodecanoic acid (ng/g)	0.28	U	0.23	U	0.24	U	NS		NV
Perfluorododecanoic acid (ng/g)	0.56	U	0.46	U	0.47	U	NS		NV
Perfluoroheptanoic acid (ng/g)	0.42	U	0.35	U	0.35	U	NS		NV
Perfluorohexanesulfonate (ng/g)	0.7	U	0.58	U	0.59	U	NS		NV
Perfluorohexanoic acid (ng/g)	0.28	U	0.23	U	0.24	U	NS		NV
Perfluorononanoic acid (ng/g)	0.28	U	0.23	U	0.24	U	NS		NV
Perfluorooctanoic acid (ng/g)	0.88		0.35	U	0.75		NS		300
Perfluorotetradecanoic acid (ng/g)	0.42	U	0.35	U	0.35	U	NS		NV
Perfluorotridecanoic acid (ng/g)	0.84	U	0.7	U	0.71	U	NS		NV
Perfluoroundecanoic acid (ng/g)	0.42	U	0.35	U	0.35	U	NS		NV
TOC (mg/kg)	26,400		11,400		5,900		NS		NV
Moisture Content (%)	28.4		13.9		15		NS		NV
Number of PFCs Detected	2		0		1		NS		
Total PFCs (includes PFOA)	1.98		U		0.75		NS		
Total PFOA	0.88		U		0.75		NS		

9SchoolStNEPL 42.93036486 -73.24414490

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Small Playground, 9 School Street, North Bennington, VT 05257
Date Sampled: March 18, 2016

Parameter	Sample ID: 9 School St SMPG LAB Sample ID: 8294194 Sample Depth: 0 - 6"		Sample ID: 9 School St SMPG LAB Sample ID: 8294195 Sample Depth: 6" - 12"		Sample ID: 9 School St SMPG LAB Sample ID: 8294196 Sample Depth: 12" - 18"		Sample ID: 9 School St SMPG LAB Sample ID: 8294197 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	2.1	U	0.83	U	1.3	J	0.74	U	NV
Perfluorobutanesulfonate (ng/g)	1.5	U	0.59	U	0.56	U	0.53	U	NV
Perfluorodecanoic acid (ng/g)	0.6	U	0.24	U	0.22	U	0.21	U	NV
Perfluorododecanoic acid (ng/g)	1.2	U	0.47	U	0.45	U	0.43	U	NV
Perfluoroheptanoic acid (ng/g)	0.89	U	0.35	U	0.34	U	0.32	U	NV
Perfluorohexanesulfonate (ng/g)	1.5	U	0.59	U	0.56	U	0.53	U	NV
Perfluorohexanoic acid (ng/g)	0.6	U	0.24	U	0.22	U	0.21	U	NV
Perfluorononanoic acid (ng/g)	0.6	U	0.24	U	0.22	U	0.21	U	NV
Perfluorooctanoic acid (ng/g)	0.89	U	0.35	U	0.34	U	0.32	U	300
Perfluorotetradecanoic acid (ng/g)	0.89	U	0.35	U	0.34	U	0.32	U	NV
Perfluorotridecanoic acid (ng/g)	1.8	U	0.71	U	0.67	U	0.64	U	NV
Perfluoroundecanoic acid (ng/g)	0.89	U	0.35	U	0.34	U	0.32	U	NV
TOC (mg/kg)	42,700		12,900		6,540		1,200		NV
Moisture Content (%)	66.4		15.2		11.1		6.0		NV
Number of PFCs Detected	0		0		1		0		
Total PFCs (includes PFOA)	U		U		1.3		U		
Total PFOA	U		U		U		U		
9SchoolStSmpg	42.92968869		-73.24451672						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
26 Susan Taylor Lane, North Bennington, VT 05257
Date Sampled: March 21, 2016

Parameter	Sample ID: 26 Susan Taylor LAB Sample ID: 8297361 Sample Depth: 0 - 6"		Sample ID: 26 Susan Taylor LAB Sample ID: 8297366 Sample Depth: 6" - 12"		Sample ID: 26 Susan Taylor LAB Sample ID: 8297367 Sample Depth: 12" - 18"		Sample ID: 26 Susan Taylor LAB Sample ID: 8297368 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	0.87	U	0.82	U	1.2	J	0.84	U	NV
Perfluorobutanesulfonate (ng/g)	0.62	U	0.59	U	0.62	U	0.6	U	NV
Perfluorodecanoic acid (ng/g)	0.58		0.25	J	1.8		0.54		NV
Perfluorododecanoic acid (ng/g)	0.5	U	0.47	U	1.3		0.48	U	NV
Perfluoroheptanoic acid (ng/g)	0.37	U	0.35	U	0.37	U	0.36	U	NV
Perfluorohexanesulfonate (ng/g)	0.62	U	0.59	U	0.62	U	0.6	U	NV
Perfluorohexanoic acid (ng/g)	0.25	U	0.24	U	0.41	J	0.24	U	NV
Perfluorononanoic acid (ng/g)	0.25	U	0.24	U	0.25	U	0.45	J	NV
Perfluorooctanoic acid (ng/g)	0.63	J	0.86		1.5		1.6		300
Perfluorotetradecanoic acid (ng/g)	0.37	U	0.35	U	0.51	J	0.36	U	NV
Perfluorotridecanoic acid (ng/g)	0.75	U	0.71	U	0.74	U	0.72	U	NV
Perfluoroundecanoic acid (ng/g)	0.39	J	0.35	U	0.9		0.36	U	NV
TOC (mg/kg)	6,850		1,600		14,200		6,590		NV
Moisture Content (%)	19.5		14.9		19.1		16.9		NV
Number of PFCs Detected	3		2		7		3		
Total PFCs (includes PFOA)	1.60		1.11		7.62		2.59		
Total PFOA	0.63		0.86		1.5		1.6		

26SusanTaylor 42.91567826 -73.24239107

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Lawn Area, 37 Susan Taylor Lane, North Bennington, VT 05257
Date Sampled: March 16, 2016

Parameter	Sample ID: 37 Susan Taylor LAB Sample ID: 8291949 Sample Depth: 0 - 6"		Sample ID: 37 Susan Taylor LAB Sample ID: 8291950 Sample Depth: 6" - 12"		Sample ID: 37 Susan Taylor LAB Sample ID: 8291951 Sample Depth: 12" - 18"		Sample ID: LAB Sample ID: Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	3.3		0.89	U	0.87	U	NS		NV
Perfluorobutanesulfonate (ng/g)	0.71	U	0.63	U	0.62	U	NS		NV
Perfluorodecanoic acid (ng/g)	2.2		0.25	U	0.29	J	NS		NV
Perfluorododecanoic acid (ng/g)	0.81	J	0.51	U	0.5	U	NS		NV
Perfluoroheptanoic acid (ng/g)	0.43	U	0.38	U	0.37	U	NS		NV
Perfluorohexanesulfonate (ng/g)	0.71	U	0.63	U	0.62	U	NS		NV
Perfluorohexanoic acid (ng/g)	0.29	U	0.25	U	0.25	U	NS		NV
Perfluorononanoic acid (ng/g)	0.81		0.28	J	0.25	U	NS		NV
Perfluorooctanoic acid (ng/g)	5.8		3.5		2.5		NS		300
Perfluorotetradecanoic acid (ng/g)	0.43	U	0.38	U	0.37	U	NS		NV
Perfluorotridecanoic acid (ng/g)	0.86	U	0.76	U	0.75	U	NS		NV
Perfluoroundecanoic acid (ng/g)	0.96		0.38	U	0.37	U	NS		NV
TOC (mg/kg)	34,700		5,930		6,100		NS		NV
Moisture Content (%)	30.0		21.1		19.7		NS		NV
Number of PFCs Detected	6		2		2		NS		
Total PFCs (includes PFOA)	13.88		3.78		2.79		NS		
Total PFOA	5.8		3.5		2.5		NS		

37 SusanTaLAWN 42.91510217 -73.24321635

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
Garden, 37 Susan Taylor Lane, North Bennington, VT 05257
Date Sampled: March 16, 2016

Parameter	Sample ID: 37 Susan Taylor Garden LAB Sample ID: 8291952 Sample Depth: 0 - 6"		Sample ID: 37 Susan Taylor Garden LAB Sample ID: 8291953 Sample Depth: 6" - 12"		Sample ID: 37 Susan Taylor Garden LAB Sample ID: 8291954 Sample Depth: 12" - 18"		Sample ID: 37 Susan Taylor Garden LAB Sample ID: 8291955 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	1.0	U	0.95	U	0.92	U	0.86	U	NV
Perfluorobutanesulfonate (ng/g)	0.73	U	0.68	U	0.65	U	0.62	U	NV
Perfluorodecanoic acid (ng/g)	0.29	U	0.27	U	0.26	U	0.25	U	NV
Perfluorododecanoic acid (ng/g)	0.59	U	0.55	U	0.52	U	0.49	U	NV
Perfluoroheptanoic acid (ng/g)	0.44	U	0.41	U	0.39	U	0.37	U	NV
Perfluorohexanesulfonate (ng/g)	0.73	U	0.68	U	0.65	U	0.62	U	NV
Perfluorohexanoic acid (ng/g)	0.29	U	0.27	U	0.26	U	0.25	U	NV
Perfluorononanoic acid (ng/g)	0.29	U	0.27	U	0.26	U	0.25	U	NV
Perfluorooctanoic acid (ng/g)	8.2		7.3		5.2		2.9		300
Perfluorotetradecanoic acid (ng/g)	0.44	U	0.41	U	0.39	U	0.37	U	NV
Perfluorotridecanoic acid (ng/g)	0.88	U	0.82	U	0.79	U	0.74	U	NV
Perfluoroundecanoic acid (ng/g)	0.44	U	0.41	U	0.39	U	0.37	U	NV
TOC (mg/kg)	48,600		31,900		26,800		12,600		NV
Moisture Content (%)	31.8		26.7		23.6		19.0		NV
Number of PFCs Detected	1		1		1		1		
Total PFCs (includes PFOA)	8.2		7.3		5.2		2.9		
Total PFOA	8.2		7.3		5.2		2.9		
37SusanTAYGAR	42.91536570		-73.24295878						

Notes:
Samples analyzed for PFC's via EPA Method 537 rev. 1.1.
Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.
Samples analyzed for moisture content via Method SM 2540 G - 1997.
VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value
U - Analyte was not detected at the value indicated
J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
B - Analyte detected in the blank
ng/g = nanograms per gram or parts per billion (ppb)
mg/kg = milligrams per kilogram or parts per million (ppm)
NV - denotes No Value
NA- denotes Not Analyzed

C.T. Male Associates

SHALLOW SOIL SAMPLING
16 Wilkie Way, North Bennington, VT 05257
Date Sampled: March 23, 2016

Parameter	Sample ID: 16 Wilkey Way LAB Sample ID: 8301031 Sample Depth: 0 - 6"		Sample ID: 16 Wilkey Way LAB Sample ID: 8301033 Sample Depth: 6" - 12"		Sample ID: 16 Wilkey Way LAB Sample ID: 8301037 Sample Depth: 12" - 18"		Sample ID: 16 Wilkey Way LAB Sample ID: 8301038 Sample Depth: 18" - 24"		VT Soil Screening Value (ng/g)
Perfluoro-octanesulfonate (ng/g)	2 (2.3U)	JB	0.92	U	1.2 (2.1U)	JB	1.4	J	NV
Perfluorobutanesulfonate (ng/g)	0.71	U	0.66	U	0.65	U	0.67	U	NV
Perfluorodecanoic acid (ng/g)	0.62		0.26	U	0.26	U	0.27	U	NV
Perfluorododecanoic acid (ng/g)	0.72	J	0.54	J	0.52	U	0.59	J	NV
Perfluoroheptanoic acid (ng/g)	0.42	U	0.4	U	0.39	U	0.4	U	NV
Perfluorohexanesulfonate (ng/g)	0.71	U	0.66	U	0.65	U	0.67	U	NV
Perfluorohexanoic acid (ng/g)	0.28	U	0.26	U	0.26	U	0.27	U	NV
Perfluorononanoic acid (ng/g)	0.28	U	0.33	J	0.26	U	0.27	U	NV
Perfluorooctanoic acid (ng/g)	2.9		3.3		4.6		5.7		300
Perfluorotetradecanoic acid (ng/g)	0.42	U	0.4	U	0.39	U	0.4	U	NV
Perfluorotridecanoic acid (ng/g)	0.95	J	0.79	U	0.78	U	0.8	U	NV
Perfluoroundecanoic acid (ng/g)	0.42	U	0.4	U	0.39	U	0.4	U	NV
TOC (mg/kg)	25,900		14,500		15,400		6,800		NV
Moisture Content (%)	29.2		24.1		22.9		25.3		NV
Number of PFCs Detected	4		3		1		3		
Total PFCs (includes PFOA)	5.19		4.17		4.6		7.69		
Total PFOA	2.9		3.3		4.6		5.7		

16WilkeyWay 42.91378411 -73.23439431

Notes:

Samples analyzed for PFC's via EPA Method 537 rev. 1.1.

Samples analyzed for Total Organic Compounds (TOC) via Method SM 5310 B modified - 2000.

Samples analyzed for moisture content via Method SM 2540 G - 1997.

VT Soil Screening Value from VTDEC Memorandum dated March 10, 2016, Subject: Perfluorooctanoic acid (PFOA) Soil Screening Value

U - Analyte was not detected at the value indicated

J - estimated value > or = the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)

B - Analyte detected in the blank

ng/g = nanograms per gram or parts per billion (ppb)

mg/kg = milligrams per kilogram or parts per million (ppm)

NV - denotes No Value

NA- denotes Not Analyzed

APPENDIX C
FULL ANALYTICAL RESULTS

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 29, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/19/2016
Group Number: 1642373
SDG: SGP05
PO Number: 16.6131
State of Sample Origin: VT

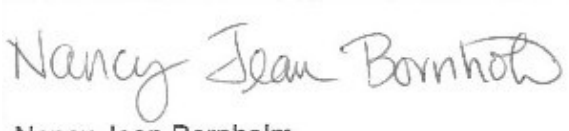
Client Sample Description	Lancaster Labs (LL) #
6 Royal St 0" to 6" Grab Soil	8294109
6 Royal St 6" to 12" Grab Soil	8294110
6 Royal St 12" to 18" Grab Soil	8294111
6 Royal St 18" to 24" Grab Soil	8294112
22 Asa Way 0" to 6" Grab Soil	8294113
22 Asa Way 6" to 12" Grab Soil	8294114
5 Scarey Lane 0" to 6" Grab Soil	8294115
5 Scarey Lane 6" to 12" Grab Soil	8294116
5 Scarey Lane 12" to 18" Grab Soil	8294117
5 Scarey Lane 18" to 24" Grab Soil	8294118
Auger Rinse #2 Grab Blank Water	8294119
Transport Blank Water	8294120
32 Scarey Lane 0" to 6" Grab Soil	8294121
32 Scarey Lane 6" to 12" Grab Soil	8294122
32 Scarey Lane 12" to 18" Grab Soil	8294123
32 Scarey Lane 18" to 24" Grab Soil	8294124
15 Scarey Lane 0" to 6" Grab Soil	8294125
15 Scarey Lane 0" to 6" MS Grab Soil	8294126
15 Scarey Lane 0" to 6" MSD Grab Soil	8294127
15 Scarey Lane 0" to 6" Dupl Grab Soil	8294128
15 Scarey Lane 6" to 12" Grab Soil	8294129
15 Scarey Lane Duplicate Grab Soil	8294130
765 Murphy Rd 0" to 6" Grab Soil	8294131
765 Murphy Rd 6" to 12" Grab Soil	8294132
765 Murphy Rd 12" to 18" Grab Soil	8294133
765 Murphy Rd 18" to 24" Grab Soil	8294134
Bowl Rinse #2 Grab Blank Water	8294135

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1642373

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8294119, 8294120, 8294135

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8294119-8294120, 8294135)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16083007 (Sample number(s): 8294129-8294134 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorohexanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorohexanesulfonate, Perfluoro-octanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16081049531A (Sample number(s): 8294109-8294118 UNSPK: 8294109 BKG: 8294109)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16081049531B (Sample number(s): 8294121-8294126, 8294128-8294129, 8294131-8294134 UNSPK: 8294125 BKG: 8294125)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16081820004B (Sample number(s): 8294122-8294133 BKG: 8294125)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: 22 Asa Way 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294113
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 10:50 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0505 SDG#: SGP05-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.60		0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.89	U	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	0.82		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.76	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	15,100		464	1,390	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/28/2016 12:02	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531A	03/21/2016 22:54	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004A	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 22 Asa Way 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294114
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 11:00 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0506 SDG#: SGP05-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.55	U	0.55	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.44	U	0.44	0.89	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.55	U	0.55	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.78	U	0.78	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.39	J	0.33	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.89	1
14027	Perfluorotridecanoic acid	72629-94-8	0.67	U	0.67	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.67	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	2,520		307	921	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	9.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/28/2016 12:16	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531A	03/21/2016 23:02	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004A	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
Batch number: 16083007	Sample number(s): 8294129-8294134			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8294119-8294120,8294135			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Batch number: 16081049531A	Sample number(s): 8294109-8294118			
TOC	100	U	100	300
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127								
Perfluorobutanesulfonate	20	19.13			96		70-130		
Perfluorodecanoic acid	20	20.15			101		70-130		
Perfluorododecanoic acid	20	21.22			106		70-130		
Perfluoroheptanoic acid	20	23.61			118		70-130		
Perfluorohexanesulfonate	20	16.81			84		70-130		
Perfluorohexanoic acid	20	18.65			93		70-130		
Perfluorononanoic acid	20	21.45			107		70-130		
Perfluoro-octanesulfonate	20	19.23			96		70-130		
Perfluorooctanoic acid	20	18.42			92		70-130		
Perfluorotetradecanoic acid	20	17.58			88		70-130		
Perfluorotridecanoic acid	20	19.08			95		70-130		
Perfluoroundecanoic acid	20	21.06			105		70-130		
Batch number: 16083007	Sample number(s): 8294129-8294134								
Perfluorobutanesulfonate	20	16.31			82		70-130		
Perfluorodecanoic acid	20	20.04			100		70-130		
Perfluorododecanoic acid	20	19.69			98		70-130		
Perfluoroheptanoic acid	20	23.65			118		70-130		
Perfluorohexanesulfonate	20	21.63			108		70-130		
Perfluorohexanoic acid	20	20.64			103		70-130		
Perfluorononanoic acid	20	17.96			90		70-130		
Perfluoro-octanesulfonate	20	19.76			99		70-130		
Perfluorooctanoic acid	20	19.43			97		70-130		
Perfluorotetradecanoic acid	20	20.15			101		70-130		
Perfluorotridecanoic acid	20	20.23			101		70-130		
Perfluoroundecanoic acid	20	20.17			101		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8294119-8294120,8294135								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16081049531A	Sample number(s): 8294109-8294118								
TOC	5430	5548.1			102		47-143		
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134								
TOC	5430	5548.1			102		47-143		
	%	%	%	%					
Batch number: 16081820003A	Sample number(s): 8294134								
Moisture	89.5	89.47			100		99-101		
Batch number: 16081820004A	Sample number(s): 8294109-8294118,8294121								
Moisture	89.5	89.53			100		99-101		
Batch number: 16081820004B	Sample number(s): 8294122-8294133								
Moisture	89.5	89.53			100		99-101		
Moisture	89.5	89.53			100		99-101		
Moisture Duplicate	89.5	89.53			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g	ng/g					
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127 UNSPK: 8294125									
Perfluorobutanesulfonate	0.50 U	20	16.77	20	17.21	84	86	70-130	3	30
Perfluorodecanoic acid	1.51	20	22.99	20	22.62	107	106	70-130	2	30
Perfluorododecanoic acid	0.826	20	21.78	20	22.23	105	107	70-130	2	30
Perfluoroheptanoic acid	0.30 U	20	23.26	20	20.21	116	101	70-130	14	30
Perfluorohexanesulfonate	0.50 U	20	19.99	20	18.07	100	90	70-130	10	30
Perfluorohexanoic acid	0.292	20	19.68	20	18.57	97	91	70-130	6	30
Perfluorononanoic acid	0.339	20	21.68	20	21.51	107	106	70-130	1	30
Perfluoro-octanesulfonate	0.70 U	20	14.5	20	15.09	72	75	70-130	4	30
Perfluorooctanoic acid	1.13	20	20.62	20	20.3	97	96	70-130	2	30
Perfluorotetradecanoic acid	0.30 U	20	18.21	20	20.02	91	100	70-130	9	30
Perfluorotridecanoic acid	0.60 U	20	20.28	20	19.02	101	95	70-130	6	30
Perfluoroundecanoic acid	1.03	20	19.61	20	21	93	100	70-130	7	30
Batch number: 16083007	Sample number(s): 8294129-8294134 UNSPK: 8294129									
Perfluorobutanesulfonate	0.50 U	20	20.49	20	15.85	102	79	70-130	26	30
Perfluorodecanoic acid	1.06	20	25.19	20	24.46	121	117	70-130	3	30
Perfluorododecanoic acid	0.478	20	21.26	20	24.16	104	118	70-130	13	30
Perfluoroheptanoic acid	0.30 U	20	23.28	20	25.27	116	126	70-130	8	30
Perfluorohexanesulfonate	0.50 U	20	17.34	20	12.17	87	61*	70-130	35*	30
Perfluorohexanoic acid	0.264	20	21.43	20	20.18	106	100	70-130	6	30
Perfluorononanoic acid	0.388	20	21.82	20	20.99	107	103	70-130	4	30
Perfluoro-octanesulfonate	0.70 U	20	15.84	20	24.76	79	124	70-130	44*	30
Perfluorooctanoic acid	1.06	20	23.61	20	21.75	113	103	70-130	8	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorotetradecanoic acid	0.30 U	20	20.41	20	24.03	102	120	70-130	16	30
Perfluorotridecanoic acid	0.60 U	20	17.55	20	22.39	88	112	70-130	24	30
Perfluoroundecanoic acid	0.457	20	21.24	20	22.78	104	112	70-130	7	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16081049531A	Sample number(s): 8294109-8294118 UNSPK: 8294109									
TOC	7485.57	41494	54951.59			114		47-143		
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134 UNSPK: 8294125									
TOC	17171.34	60852	89858.01			119		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16081049531A	Sample number(s): 8294109-8294118 BKG: 8294109			
TOC	7485.57	8675.88	15*	7
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134 BKG: 8294125			
TOC	17171.34	18766.82	9*	7
	%	%		
Batch number: 16081820003A	Sample number(s): 8294134 BKG: P293163			
Moisture	17.64	17.91	2	5
Batch number: 16081820004A	Sample number(s): 8294109-8294118,8294121 BKG: 8294121			
Moisture	21.05	20.45	3	5
Batch number: 16081820004B	Sample number(s): 8294122-8294133 BKG: 8294125, P294125			
Moisture	23.09	19.86	15*	5
Moisture	23.09	19.86	15*	5
Moisture Duplicate	23.09	19.86	15*	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1647373 Sample # 8794109-35

COC # 493356

Client Information

Client: CT Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC
6 Royal St 0" to 6"	3/17/16	0946	✓		3	X	X	X
6 Royal St 6" to 12"	3/17/16	0952	✓		3	X	X	X
6 Royal St 12" to 18"	3/17/16	1001	✓		3	X	X	X
6 Royal St 18" to 24"	3/17/16	1015	✓		3	X	X	X
22 Asa Way 0" to 6"	3/17/16	1050	✓		2	X	X	X
22 Asa Way 6" to 12"	3/17/16	1100	✓		2	X	X	X
RC ~~22 Asa Way 12" to 18"~~			✓					
LC ~~22 Asa Way 18" to 24"~~			✓					
5 Scarey Lane 0" to 6"	3/17/16	1148	✓		2	X	X	X
5 Scarey Lane 6" to 12"	3/17/16	1200	✓		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type III (Reduced non-CLP)

NYSDEC Category A or (B)

Type VI (Raw Data Only)

NJ DKQP

MA MCP

TX TRRP-13

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11		03/18/16	0711
	03/18/16	07:14			
			Received by	3/19/16	0950

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1647373 Sample # 8294109-35

COC # 493358

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ☐

Analysis Requested — Preservation Codes: O

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC	EPA 537	Remarks
5 Scarey Lane 12" to 18"	3/17/16	1208	X		2	X	X	X		
5 Scarey Lane 18" to 24"	3/17/16	1217	X		2	X	X	X		
Auger Rinse #2	3/17/16	1222	X		2	X		X	X	Lab DI Water
Transport Blank	3/11/16	—	X		1	X		X	X	Lab provided
32 Scarey Lane 0" to 6"	3/17/16	1328	X		2	X	X	X		
32 Scarey Lane 6" to 12"	3/17/16	1338	X		2	X	X	X		
32 Scarey Lane 12" to 18"	3/17/16	1343	X		2	X	X	X		
32 Scarey Lane 18" to 24"	3/17/16	1352	X		2	X	X	X		
15 Scarey Lane 0" to 6"	3/17/16	1445	X		4	X	X	X		MS/MSD here
15 Scarey Lane 6" to 12"	3/17/16	1500	X		2	X	X	X		

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11	[signature]	03/18/16	0711
[signature]	03/18/16	07:14			
			[signature]	3/19/16	0950

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1642373 Sample # 8294109-35

COC # 493359

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water ☐ Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes: 9

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC	EPA 537	Remarks
15 Searcy Lane Duplicate	3/17/16	1450	X		1	X				
765 Murphy Rd 0" to 6"	3/17/16	1550	X		2	X	X	X		
765 Murphy Rd 6" to 12"	3/17/16	1600	X		2	X	X	X		
765 Murphy Rd 12" to 18"	3/17/16	1612	X		2	X	X	X		
765 Murphy Rd 18" to 24"	3/17/16	1623	X		2	X	X	X		
Bowl Rinse #2	3/17/16	1840	X		2				X	Lab DI Water

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or (B) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11	[signature]	03/18/16	07:11
[signature]	03/18/16	07:14			
			Received by	3/19/16	0950

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140007

Group Number(s): 1642373

Client: CT Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/19/2016 9:50
Number of Packages:	4	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL Na2S2O3 Preserved Poly

Unpacked by Patrick Engle (3472) at 10:46 on 03/19/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	4.8	DT	Wet	Y	Bagged	N
2	DT121	4.5	DT	Wet	Y	Bagged	N
3	DT121	3.1	DT	Wet	Y	Bagged	N
4	DT121	4.2	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 25, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/18/2016
Group Number: 1641929
SDG: SGP03
PO Number: 16.6131
State of Sample Origin: VT

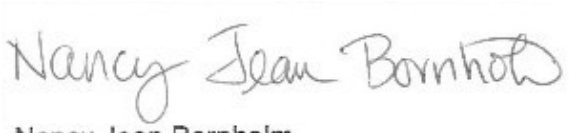
Client Sample Description	Lancaster Labs (LL) #
25 ASA WAY 0"-6" Grab Soil	8291924
25 ASA WAY 6"-12" Grab Soil	8291925
25 ASA WAY 12"-18" Grab Soil	8291926
25 ASA WAY 18"-24" Grab Soil	8291927
59 River Rd Roadside Playgrnd 0"-6" Grab Soil	8291928
59 River Rd Roadside Playgrnd 6"-12" Grab Soil	8291929
59 River Rd Roadside Playgrnd 12"-18" Grab Soil	8291930
59 River Rd Roadside Playgrnd18"-24" Grab Soil	8291931
59 River Rd Slide 0"-6" Grab Soil	8291932
59 River Rd Slide 6"-12" Grab Soil	8291933
59 River Rd Slide MS 6"-12" Grab Soil	8291934
59 River Rd Slide MSD 6"-12" Grab Soil	8291935
North Bennington Trip Blank Water	8291936
59 River Rd Slide Duplicate 6"-12" Grab Soil	8291937
Auger Rinse Blank 1 Water	8291938

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1641929

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8291936, 8291938

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16081001 (Sample number(s): 8291924-8291935, 8291937 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorobutanesulfonate

Batch #: 16081002 (Sample number(s): 8291936, 8291938)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorotridecanoic acid, Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorotridecanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample Description: 25 ASA WAY 0"-6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291924
LL Group # 1641929
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 12:20 by LC

Submitted: 03/18/2016 09:30
Reported: 03/25/2016 10:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ASA-1 SDG#: SGP03-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.66	U	0.66	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.53	J	0.27	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.66	U	0.66	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.40	U	0.40	0.80	1
14027	Perfluorohexanesulfonate	355-46-4	0.66	U	0.66	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.27	U	0.27	0.53	1
14027	Perfluorononanoic acid	375-95-1	0.27	U	0.27	0.53	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.93	U	0.93	2.1	1
14027	Perfluorooctanoic acid	335-67-1	0.97		0.40	0.80	1
14027	Perfluorotetradecanoic acid	376-06-7	0.53	U	0.53	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.80	U	0.80	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.40	U	0.40	0.80	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	13,700		961	2,880	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	24.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/23/2016 18:10	Meng Yu	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/24/2016 05:56	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531A	03/20/2016 21:54	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006B	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 25 ASA WAY 6"-12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291925
LL Group # 1641929
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 12:37 by LC

Submitted: 03/18/2016 09:30
Reported: 03/25/2016 10:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ASA-2 SDG#: SGP03-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.62	U	0.62	0.98	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.86	U	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	1.2		0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.49	U	0.49	0.98	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	8,380		421	1,260	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/23/2016 20:27	Meng Yu	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/24/2016 06:14	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531A	03/20/2016 22:02	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006B	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 25 ASA WAY 12"-18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291926
LL Group # 1641929
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 12:50 by LC

Submitted: 03/18/2016 09:30
Reported: 03/25/2016 10:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ASA-3 SDG#: SGP03-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.0	1
14027	Perfluorodecanoic acid	335-76-2	1.3		0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.65	J	0.64	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.45	J	0.25	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.63		0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.1	J	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	8.2		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.51	U	0.51	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.53	J	0.38	0.76	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	24,600		1,110	3,320	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/23/2016 21:02	Meng Yu	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/24/2016 06:48	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531A	03/20/2016 22:10	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006B	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 25 ASA WAY 18"-24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291927
LL Group # 1641929
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 13:00 by LC

Submitted: 03/18/2016 09:30
Reported: 03/25/2016 10:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ASA-4 SDG#: SGP03-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.61		0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.60	U	0.60	0.96	1
14027	Perfluoroheptanoic acid	375-85-9	0.60	J	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.65		0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	7.7		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.48	U	0.48	0.96	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	8,870		518	1,550	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	17.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/23/2016 21:19	Meng Yu	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/24/2016 07:05	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531A	03/20/2016 22:18	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006B	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/25/2016 10:13

Group Number: 1641929

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16081001	Sample number(s): 8291924-8291935,8291937			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16081002	Sample number(s): 8291936,8291938			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16080049531A	Sample number(s): 8291924-8291933			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16081001	Sample number(s): 8291924-8291935,8291937								
Perfluorobutanesulfonate	20	17.04			85		70-130		
Perfluorodecanoic acid	20	20.74			104		70-130		
Perfluorododecanoic acid	20	20.21			101		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/25/2016 10:13

Group Number: 1641929

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Perfluoroheptanoic acid	20	19.15			96		70-130		
Perfluorohexanesulfonate	20	18.24			91		70-130		
Perfluorohexanoic acid	20	19.55			98		70-130		
Perfluorononanoic acid	20	20.21			101		70-130		
Perfluoro-octanesulfonate	20	19.18			96		70-130		
Perfluorooctanoic acid	20	19.68			98		70-130		
Perfluorotetradecanoic acid	20	20.32			102		70-130		
Perfluorotridecanoic acid	20	19.76			99		70-130		
Perfluoroundecanoic acid	20	19.78			99		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16081002	Sample number(s): 8291936,8291938								
Perfluorooctanoic acid	200	141.82	200	161.69	71	81	70-130	13	30
Perfluorononanoic acid	200	141.05	200	175.73	71	88	70-130	22	30
Perfluorodecanoic acid	200	144.05	200	177.93	72	89	70-130	21	30
Perfluoroundecanoic acid	200	143.61	200	189.21	72	95	70-130	27	30
Perfluorododecanoic acid	200	145.69	200	190.83	73	95	70-130	27	30
Perfluorotridecanoic acid	200	136.9	200	189.14	68*	95	70-130	32*	30
Perfluorotetradecanoic acid	200	147.28	200	189.55	74	95	70-130	25	30
Perfluorohexanoic acid	200	175.57	200	191.92	88	96	70-130	9	30
Perfluoroheptanoic acid	200	151.38	200	188.2	76	94	70-130	22	30
Perfluorobutanesulfonate	200	126.54	200	168.03	63*	84	70-130	28	30
Perfluorohexanesulfonate	200	122.71	200	170.94	61*	85	70-130	33*	30
Perfluoro-octanesulfonate	200	129.69	200	180.89	65*	90	70-130	33*	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16080049531A	Sample number(s): 8291924-8291933								
TOC	5430	4492.52			83		47-143		
	%	%	%	%					
Batch number: 16078820006B	Sample number(s): 8291924-8291935,8291937								
Moisture	89.5	89.43			100		99-101		
Moisture	89.5	89.43			100		99-101		
Moisture Duplicate	89.5	89.43			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16081001	Sample number(s): 8291924-8291935,8291937 UNSPK: 8291933										
Perfluorobutanesulfonate	0.50	U	20	15.84	20	13.36	79	67*	70-130	17	30
Perfluorodecanoic acid	0.20	U	20	19.11	20	18.23	96	91	70-130	5	30
Perfluorododecanoic acid	0.40	U	20	20.47	20	19.07	102	95	70-130	7	30
Perfluoroheptanoic acid	0.30	U	20	18.55	20	18.77	93	94	70-130	1	30
Perfluorohexanesulfonate	0.50	U	20	20.38	20	15.02	102	75	70-130	30	30
Perfluorohexanoic acid	0.20	U	20	20.07	20	18.03	100	90	70-130	11	30
Perfluorononanoic acid	0.20	U	20	20.41	20	18.2	102	91	70-130	11	30
Perfluoro-octanesulfonate	0.70	U	20	20.52	20	18.35	103	92	70-130	11	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/25/2016 10:13

Group Number: 1641929

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorooctanoic acid	0.30 U	20	18.31	20	17.35	92	87	70-130	5	30
Perfluorotetradecanoic acid	0.30 U	20	20.49	20	21.08	102	105	70-130	3	30
Perfluorotridecanoic acid	0.60 U	20	16.43	20	19.29	82	96	70-130	16	30
Perfluoroundecanoic acid	0.30 U	20	18.68	20	20.18	93	101	70-130	8	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16080049531A	Sample number(s): 8291924-8291933 UNSPK: 8291933									
TOC	5548.25	55556	77462.96			129		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16080049531A	Sample number(s): 8291924-8291933 BKG: 8291933			
TOC	5548.25	5243.51	6 (1)	7
	%	%		
Batch number: 16078820006B	Sample number(s): 8291924-8291935,8291937 BKG: 8291933, P291933			
Moisture	11.63	11.86	2	5
Moisture	11.63	11.86	2	5
Moisture Duplicate	11.63	11.86	2	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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1 of 2

Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1641929 Sample # 8291924-38

COC # 493352

Client Information

Client: CT Male	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ☐

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture % and TOC	Remarks
25 ASA WAY 0"-6"	3/16/16	12:20	✓		2	1	1	
25 ASA WAY 6"-12"	3/16/16	12:37	✓		2	1	1	
25 ASA WAY 12"-18"	3/16/16	12:56	✓		2	1	1	
25 ASA WAY 18"-24"	3/16/16	13:00	✓		2	1	1	
59 River Rd Road Side playg 0"-6"	3/16/16	14:00	✓		2	1	1	Road side playgram
59 River Rd " 6"-12"	3/16/16	14:02	✓		2	1	1	"
59 River Rd " 12"-18"	3/16/16	14:10	✓		2	1	1	"
59 River Rd " 18-24"	3/16/16	14:13	✓		2	1	1	"
59 River Rd Next to Slide Lc 0"-6"	3/16/16	14:47	✓		2	1	1	Lc next to Slide
59 River Rd Slide Lc 6"-12"	3/16/16	14:55	✓		2	1	1	Lc next to Slide

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 Day

E-mail address: K.Moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or (B) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/17/16	07:33	Jeff Mapp	3/17/16	0733
			Received by	Date	Time
			Thomas Abel	3/18/16	0930

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx X Other ____

Temperature upon receipt 2.2 °C

Environmental Analysis Request/Chain of Custody

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2 of 2

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1641929 Sample # 8291924-38

COC # 493353

Client Information

Client: CT Male	Acct. #:
Project Name/#: N Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Camera	Quote #:
State where samples were collected:	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Water ☐ Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture % and TOC	Remarks
59 River Rd Next to Daycare 12"-18"	3/16/16		✓		2	1	1	LC
59 River Rd Next to Daycare 18"-24"								LC
59 River Rd Slide 12"-18"	3/16/16		✓		2	1	1	Slide LC
59 River Rd Slide 18"-24"	3/16/16		✓		2	1	1	Slide LC
59 River Rd Slide MSD 6"-12"	3/16/16	14:55	✓		1	1		
North Bennington Trip Blank	3/16/16							Lab Provided
59 River Rd Slide MS 6"-12"	3/16/16	14:55	✓		1	1		
59 River Rd Slide Duplicate Sample 6"-12"	3/16/16	14:55	✓		1	1		
Auger Rinse Blank 1	3/16/16	15:05			2	2		Lab Di

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 Day

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Camera	03/17/16	07:33	[signature] Map	03/17/16	0733
			[signature]	3/18/16	0930

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 2-2 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 139859

Group Number(s): 1641929

Client: CT Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/18/2016 9:30
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	NaS2O4
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 10:22 on 03/18/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.2	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 29, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/22/2016
Group Number: 1642988
SDG: SGP07
PO Number: 16.6131
State of Sample Origin: VT

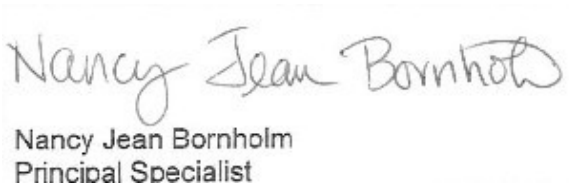
Client Sample Description	Lancaster Labs (LL) #
Asa Way Vac Lot 0" to 6" Grab Soil	8297354
Asa Way Vac Lot 6" to 12" Grab Soil	8297355
Asa Way Vac Lot 12" to 18" Grab Soil	8297356
Asa Way Vac Lot 18" to 24" Grab Soil	8297357
Auger Rinse #4 Grab Blank Water	8297358
Bowl Rinse #4 Grab Blank Water	8297359
Transport Blank 032116 Water	8297360
26 Susan Taylor 0" to 6" Grab Soil	8297361
26 Susan Taylor 0" to 6" MS Grab Soil	8297362
26 Susan Taylor 0" to 6" MSD Grab Soil	8297363
26 Susan Taylor 0" to 6" Dupl Grab Soil	8297364
26 Susan Taylor Duplicate Grab Soil	8297365
26 Susan Taylor 6" to 12" Grab Soil	8297366
26 Susan Taylor 12" to 18" Grab Soil	8297367
26 Susan Taylor 18" to 24" Grab Soil	8297368
10 Scarey Ln 0" to 6" Grab Soil	8297369
10 Scarey Ln 6" to 12" Grab Soil	8297370
10 Scarey Ln 12" to 18" Grab Soil	8297371
10 Scarey Ln 18" to 24" Grab Soil	8297372
26 Scarey Ln 0" to 6" Grab Soil	8297373
26 Scarey Ln 6" to 12" Grab Soil	8297374
8 Polygraphic Ln 0" to 6" Grab Soil	8297375

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1642988

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8297358, 8297359, 8297360
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8297358-8297360)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16084007 (Sample number(s): 8297354-8297357, 8297361-8297363, 8297365-8297375 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluoro-octanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16084949631A (Sample number(s): 8297355-8297357 UNSPK: P294196 BKG: P294196)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16084949631B (Sample number(s): 8297354, 8297361-8297362, 8297364, 8297366-8297372 UNSPK: 8297361 BKG: 8297361)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16083820002A (Sample number(s): 8297354-8297357 BKG: 8297355)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: Asa Way Vac Lot 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297354
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 09:07 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0701 SDG#: SGP07-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.67	U	0.67	2.1	1
14027	Perfluorodecanoic acid	335-76-2	1.0		0.27	0.54	1
14027	Perfluorododecanoic acid	307-55-1	0.54	U	0.54	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.66	J	0.40	0.80	1
14027	Perfluorohexanesulfonate	355-46-4	0.67	U	0.67	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.63		0.27	0.54	1
14027	Perfluorononanoic acid	375-95-1	0.63		0.27	0.54	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.2	J	0.94	2.1	1
14027	Perfluorooctanoic acid	335-67-1	2.9		0.40	0.80	1
14027	Perfluorotetradecanoic acid	376-06-7	0.40	U	0.40	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.80	U	0.80	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.44	J	0.40	0.80	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,880		564	1,690	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	25.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 07:00	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631B	03/24/2016 21:56	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820002A	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Asa Way Vac Lot 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297355
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 09:13 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0702 SDG#: SGP07-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.97	1
14027	Perfluoroheptanoic acid	375-85-9	0.59	J	0.36	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.94		0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.85	U	0.85	1.9	1
14027	Perfluorooctanoic acid	335-67-1	4.1		0.36	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	0.73	U	0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.73	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	4,850		228	684	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	17.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 07:14	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631A	03/24/2016 15:15	Fejoy Philip	1
00111	Moisture	SM 2540 G-1997	1	16083820002A	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Asa Way Vac Lot 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297356
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 09:25 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0703 SDG#: SGP07-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.58	U	0.58	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.93	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.58	U	0.58	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.65		0.23	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.81	U	0.81	1.9	1
14027	Perfluorooctanoic acid	335-67-1	2.0		0.35	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.93	1
14027	Perfluorotridecanoic acid	72629-94-8	0.70	U	0.70	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.70	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	2,040		226	678	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	14.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 07:28	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631A	03/24/2016 15:23	Fejoy Philip	1
00111	Moisture	SM 2540 G-1997	1	16083820002A	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Asa Way Vac Lot 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297357
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 09:31 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0704 SDG#: SGP07-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.83	U	0.83	1.9	1
14027	Perfluorooctanoic acid	335-67-1	1.2		0.35	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	819		236	708	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	15.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 07:42	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631A	03/24/2016 15:30	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820002A	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 11:29

Group Number: 1642988

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16084007	Sample number(s): 8297354-8297357,8297361-8297363,8297365-8297375			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8297358-8297360			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16084949631A	Sample number(s): 8297355-8297357			
TOC	100	U	100	300
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372			
TOC	100	U	100	300
Batch number: 16084949632A	Sample number(s): 8297373-8297375			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 11:29

Group Number: 1642988

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16084007	Sample number(s): 8297354-8297357,8297361-8297363,8297365-8297375								
Perfluorobutanesulfonate	20	17.26			86		70-130		
Perfluorodecanoic acid	20	19.11			96		70-130		
Perfluorododecanoic acid	20	18.17			91		70-130		
Perfluoroheptanoic acid	20	18.61			93		70-130		
Perfluorohexanesulfonate	20	14.91			75		70-130		
Perfluorohexanoic acid	20	16.77			84		70-130		
Perfluorononanoic acid	20	17.99			90		70-130		
Perfluoro-octanesulfonate	20	20.89			104		70-130		
Perfluorooctanoic acid	20	16.59			83		70-130		
Perfluorotetradecanoic acid	20	19.73			99		70-130		
Perfluorotridecanoic acid	20	15.69			78		70-130		
Perfluoroundecanoic acid	20	17.08			85		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8297358-8297360								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949631A	Sample number(s): 8297355-8297357								
TOC	5430	2743.93			51		47-143		
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372								
TOC	5430	2743.93			51		47-143		
Batch number: 16084949632A	Sample number(s): 8297373-8297375								
TOC	5430	4448.16			82		47-143		
	%	%	%	%					
Batch number: 16083820002A	Sample number(s): 8297354-8297357								
Moisture	89.5	89.47			100		99-101		
Batch number: 16083820002B	Sample number(s): 8297361-8297375								
Moisture	89.5	89.47			100		99-101		
Moisture	89.5	89.47			100		99-101		
Moisture Duplicate	89.5	89.47			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 11:29

Group Number: 1642988

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16084007	Sample number(s): 8297354-8297357,8297361-8297363,8297365-8297375 UNSPK: 8297361									
Perfluorobutanesulfonate	0.50 U	20	16.77	20	18.36	84	92	70-130	9	30
Perfluorodecanoic acid	0.468	20	20.97	20	19.73	103	96	70-130	6	30
Perfluorododecanoic acid	0.40 U	20	18.68	20	18.77	93	94	70-130	0	30
Perfluoroheptanoic acid	0.30 U	20	19.82	20	20.51	99	103	70-130	3	30
Perfluorohexanesulfonate	0.50 U	20	24.58	20	20.13	123	101	70-130	20	30
Perfluorohexanoic acid	0.20 U	20	16.91	20	16.34	85	82	70-130	3	30
Perfluorononanoic acid	0.20 U	20	17.45	20	18.3	87	91	70-130	5	30
Perfluoro-octanesulfonate	0.70 U	20	25.38	20	14.58	127	73	70-130	54*	30
Perfluorooctanoic acid	0.511	20	17.68	20	19.66	86	96	70-130	11	30
Perfluorotetradecanoic acid	0.30 U	20	20.6	20	16.83	103	84	70-130	20	30
Perfluorotridecanoic acid	0.60 U	20	16.16	20	14.25	81	71	70-130	13	30
Perfluoroundecanoic acid	0.312	20	18.17	20	17.26	89	85	70-130	5	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949631A	Sample number(s): 8297355-8297357 UNSPK: P294196									
TOC	5817.55	14790	19743.46			94		47-143		
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372 UNSPK: 8297361									
TOC	5512	10007	12605.07			71		47-143		
Batch number: 16084949632A	Sample number(s): 8297373-8297375 UNSPK: P297411									
TOC	14599.68	13593	24218.4			71		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16084949631A	Sample number(s): 8297355-8297357 BKG: P294196			
TOC	5817.55	3166.37	59*	7
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372 BKG: 8297361			
TOC	5512	6002.81	9*	7
Batch number: 16084949632A	Sample number(s): 8297373-8297375 BKG: P297411			
TOC	14599.68	15419.66	5	7
	%	%		
Batch number: 16083820002A	Sample number(s): 8297354-8297357 BKG: 8297355			
Moisture	17.48	16.51	6*	5
Batch number: 16083820002B	Sample number(s): 8297361-8297375 BKG: 8297361, P297361			
Moisture	19.48	18.8	4	5
Moisture	19.48	18.8	4	5
Moisture Duplicate	19.48	18.8	4	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 3719 Group # 1642788 Sample # 879354-75

COC # 493463

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ | Water: Ground ☐ Potable ☐ NPDES ☐ Surface ☐ | Other: ____

Analysis Requested

Preservation Codes: O

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	EPA 537	Remarks
Asa Way Vacant Lot 0" to 6"	3/21/16	0907	X		2	X	X	X		
Asa Way Vacant Lot 6" to 12"	3/21/16	0913	X		2	X	X	X		
Asa Way Vacant Lot 12" to 18"	3/21/16	0925	X		2	X	X	X		
Asa Way Vacant Lot 18" to 24"	3/21/16	0931	X		2	X	X	X		
~~Asa Way Vacant Lot~~										
Auger Rinse # 4	3/21/16	0938	X		2				X	Lab DI Water
Bowl Rinse # 4	3/21/16	0935	X		2				X	Lab DI Water
Transport Blank 032116	3/16/16	—	X		1				X	Lab Supplied
26 Susan Taylor 0" to 6"	3/21/16	1005	X		4	X	X	X		MS/MSD here
26 Susan Taylor Duplicate	3/21/16	1010	X		1	X				

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type III (Reduced non-CLP)

NYSDEC Category A or B

Type VI (Raw Data Only)

NJ DKQP

MA MCP

TX TRRP-13

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/21/16	1655			
			Kristal Abel	3/22/16	0945

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 4.5 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1642988 Sample # 8297354-75

COC # 493361

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16-6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested

Preservation Codes

Preservation Codes: H=HCl, T=Thiosulfate, N=HNO_3, B=NaOH, S=H_2SO_4, O=Other

For Lab Use Only: FSC: ____ SCR#: ____

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	Remarks
26 Susan Taylor 6" to 12"	3/21/16	1013	X		2	X	X	X	
26 Susan Taylor 12" to 18"	3/21/16	1026	X		2	X	X	X	
26 Susan Taylor 18" to 24"	3/21/16	1026	X		2	X	X	X	
10 Scarey Ln 0" to 6"	3/21/16	1055	X		2	X	X	X	
10 Scarey Ln 6" to 12"	3/21/16	1101	X		2	X	X	X	
10 Scarey Ln 12" to 18"	3/21/16	1114	X		2	X	X	X	
10 Scarey Ln 18" to 24"	3/21/16	1125	X		2	X	X	X	
26 Scarey Ln WH 0" to 6"	3/21/16	1231	X		2	X	X	X	
26 Scarey Ln WH 6" to 12"	3/21/16	1240	X		2	X	X	X	
8 Polygraphic Ln 0" to 6"	3/21/16	1333	X		2	X	X	X	

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: k.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/21/16	1655			
			Krista Abel	3/22/16	0945

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 4.5 / 5.4 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 140176

Group Number(s): 1642988

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/22/2016 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Na2S2O3
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:32 on 03/22/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	5.1	DT	Wet	Y	Bagged	N
2	DT146	4.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T : 717-656-2300
F : 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 28, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/19/2016
Group Number: 1642382
SDG: SGP06
PO Number: 16.6131
State of Sample Origin: VT

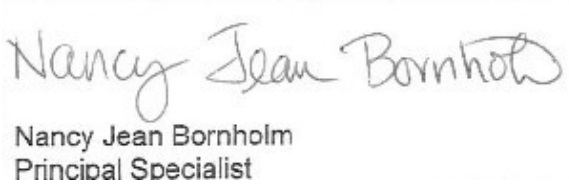
Client Sample Description	Lancaster Labs (LL) #
Bennington College Garden 0" to 6" Grab Soil	8294171
Bennington College Garden 6" to 12" Grab Soil	8294172
Bennington College Garden 12" to 18" Grab Soil	8294173
Bennington College Garden 18" to 24" Grab Soil	8294174
Auger Rinse #3 Grab Blank Water	8294175
Bowl Rinse #3 Grab Blank Water	8294176
Transport Blank 031816 Blank Water	8294177
B. College Adj to Garden 0" to 6" Grab Soil	8294178
B. College Adj to Garden 6" to 12" Grab Soil	8294179
B. College Adj to Garden Duplicate Grab Soil	8294180
B. College Adj to Garden 12" to 18" Grab Soil	8294181
B. College Adj to Garden 12" to 18" MS Grab Soil	8294182
B. College Adj to Garden 12" to 18" MSD Grab Soil	8294183
B. College Adj to Garden 12" to 18" Dupl Grab Soil	8294184
B. College Adj to Garden 18" to 24" Grab Soil	8294185
B. College Adj to Soccer Field 0" to 6" Grab Soil	8294186
B. College Adj to Soccer Field 6" to 12" Grab Soil	8294187
B. College Adj to Soccer Field 12" to 18" Grab	8294188
B. College Adj to Soccer Field 18" to 24" Grab	8294189
Jennings Meadow Trail 0" to 6" Grab Soil	8294190
Jennings Meadow Trail 6" to 12" Grab Soil	8294191
Jennings Meadow Trail 12" to 18" Grab Soil	8294192
Jennings Meadow Trail 18" to 24" Grab Soil	8294193
9 School St SMPG 0" to 6" Grab Soil	8294194
9 School St SMPG 6" to 12" Grab Soil	8294195
9 School St SMPG 12" to 18" Grab Soil	8294196
9 School St SMPG 18" to 24" Grab Soil	8294197
9 School St LGPG 0" to 6" Grab Soil	8294198
9 School St LGPG 6" to 12" Grab Soil	8294199
9 School St LGPG 12" to 18" Grab Soil	8294200
9 School St LGPG 18" to 24" Grab Soil	8294201

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1642382

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8294175, 8294176, 8294177
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8294175-8294177)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16084002 (Sample number(s): 8294171-8294174, 8294178-8294183, 8294185-8294196 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluoro-octanesulfonate

Batch #: 16084003 (Sample number(s): 8294197-8294201 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorohexanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 8294198, 8294199, 8294200, 8294201
Reporting limits were raised due to interference from the sample matrix.

Batch #: 16083949631A (Sample number(s): 8294171-8294174, 8294178-8294179, 8294181-8294182, 8294184-8294187 UNSPK: 8294182 BKG: 8294182)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
TOC Solids/Sludges Combustion

Batch #: 16083949631B (Sample number(s): 8294188-8294195 UNSPK: 8294188 BKG: 8294188)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
TOC Solids/Sludges Combustion

Batch #: 16084949631A (Sample number(s): 8294196-8294201 UNSPK: 8294196 BKG: 8294196)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16081820005B (Sample number(s): 8294185-8294196 BKG: 8294189)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
Moisture

Batch #: 16081820006B (Sample number(s): 8294197-8294201 BKG: P294812)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
Moisture

Sample Description: Bennington College Garden 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294171
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 09:15 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-601 SDG#: SGP06-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	2.0	J	0.63	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.32	J	0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.63	U	0.63	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.89	U	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	1.1		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.76	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	12,900		252	756	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 03:56	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/23/2016 21:30	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Bennington College Garden 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294172
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 09:24 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-602 SDG#: SGP06-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.95	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.83	U	0.83	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.65	J	0.36	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.95	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	7,660		246	739	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	15.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 04:10	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/23/2016 21:43	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Bennington College Garden 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294173
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 09:33 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-603 SDG#: SGP06-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.58	U	0.58	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.46	U	0.46	0.93	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.58	U	0.58	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.81	U	0.81	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.38	J	0.35	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.93	1
14027	Perfluorotridecanoic acid	72629-94-8	0.70	U	0.70	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.70	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	2,490		210	631	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	13.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 04:24	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/23/2016 22:01	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Bennington College Garden 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294174
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 09:44 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-604 SDG#: SGP06-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.96	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.67	J	0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.96	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	7,630		246	738	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	16.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 04:38	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/23/2016 22:10	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B. College Adj to Garden 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294178
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 10:15 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-608 SDG#: SGP06-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	2.3		0.68	2.2	1
14027	Perfluorodecanoic acid	335-76-2	0.32	J	0.27	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.55	U	0.55	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.41	U	0.41	0.82	1
14027	Perfluorohexanesulfonate	355-46-4	0.68	U	0.68	2.2	1
14027	Perfluorohexanoic acid	307-24-4	0.27	U	0.27	0.55	1
14027	Perfluorononanoic acid	375-95-1	0.27	U	0.27	0.55	1
14027	Perfluoro-octanesulfonate	1763-23-1	2.8		0.95	2.2	1
14027	Perfluorooctanoic acid	335-67-1	2.9		0.41	0.82	1
14027	Perfluorotetradecanoic acid	376-06-7	0.41	U	0.41	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.82	U	0.82	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.41	U	0.41	0.82	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	19,000		457	1,370	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	26.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 04:53	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/24/2016 02:33	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B. College Adj to Garden 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294179
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 10:27 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-609 SDG#: SGP06-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.63	U	0.63	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.63	U	0.63	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.89	U	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	4.9		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.76	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	15,400		460	1,380	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 05:07	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/24/2016 02:41	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B. College Adj to Garden Duplicate Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294180
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 10:20 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-610 SDG#: SGP06-10FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.52	U	0.52	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.39	U	0.39	0.77	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.40	J	0.26	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.26	U	0.26	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.90	U	0.90	2.1	1
14027	Perfluorooctanoic acid	335-67-1	4.8		0.39	0.77	1
14027	Perfluorotetradecanoic acid	376-06-7	0.39	U	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.77	U	0.77	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.39	U	0.39	0.77	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	22.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 05:21	Jason W Knight	1
00111	Moisture	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B. College Adj to Garden 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294181
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 10:41 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-611 SDG#: SGP06-11BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.96	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	2.8		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.96	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	5,750		236	709	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	16.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 02:58	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/23/2016 22:42	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B. College Adj to Garden 12" to 18" MS Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294182
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 10:41 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-611 SDG#: SGP06-11MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	19	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	25	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	23	0.48	0.96	1
14027	Perfluoroheptanoic acid	375-85-9	23	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	23	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	24	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	22	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	28	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	24	0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	22	0.36	0.96	1
14027	Perfluorotridecanoic acid	72629-94-8	19	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	23	0.36	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	10,000	204	612	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	16.7	0.50	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 03:13	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/23/2016 22:57	James S Mathiot	1
00118	Moisture	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B. College Adj to Garden 12" to 18" MSD Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294183
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 10:41 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-611 SDG#: SGP06-11MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	19	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	23	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	23	0.48	0.96	1
14027	Perfluoroheptanoic acid	375-85-9	23	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	22	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	22	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	24	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	19	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	25	0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	22	0.36	0.96	1
14027	Perfluorotridecanoic acid	72629-94-8	20	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	22	0.36	0.72	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	Moisture	n.a.	16.7	0.50	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 03:27	Jason W Knight	1
00118	Moisture	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B. College Adj to Garden 12" to 18" Dupl Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294184
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 10:41 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-611 SDG#: SGP06-11DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	4,210	236	709	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	16.7	0.50	0.50	1
00121	Moisture Duplicate	n.a.	17.3	0.50	0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/23/2016 23:32	James S Mathiot	1
00118	Moisture	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B. College Adj to Garden 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294185
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 10:51 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-612 SDG#: SGP06-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.95	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.83	U	0.83	1.9	1
14027	Perfluorooctanoic acid	335-67-1	1.8		0.36	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.95	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	2,690		207	620	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	15.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 05:35	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/23/2016 23:40	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005B	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B. College Adj to Soccer Field 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294186
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 11:27 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-613 SDG#: SGP06-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.35	J	0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.89	U	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	3.6		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.76	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	24,700		546	1,640	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 05:50	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/24/2016 03:00	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005B	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B. College Adj to Soccer Field 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294187
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 11:35 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-614 SDG#: SGP06-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.97	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.52		0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.85	U	0.85	1.9	1
14027	Perfluorooctanoic acid	335-67-1	3.6		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	8,520		240	721	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	17.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 06:18	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/24/2016 00:02	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005B	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B. College Adj to Soccer Field 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294188
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 11:45 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-615 SDG#: SGP06-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.42	J	0.24	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.83	U	0.83	1.9	1
14027	Perfluorooctanoic acid	335-67-1	3.0		0.35	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,520		232	697	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	15.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 06:32	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631B	03/24/2016 00:11	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005B	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B. College Adj to Soccer Field 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294189
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 11:56 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-616 SDG#: SGP06-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.58	U	0.58	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.46	U	0.46	0.93	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.58	U	0.58	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.81	U	0.81	1.9	1
14027	Perfluorooctanoic acid	335-67-1	1.7		0.35	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.93	1
14027	Perfluorotridecanoic acid	72629-94-8	0.69	U	0.69	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.69	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	2,270		227	681	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	13.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 06:46	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631B	03/24/2016 00:47	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005B	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Jennings Meadow Trail 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294190
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 12:37 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-617 SDG#: SGP06-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.68	U	0.68	2.2	1
14027	Perfluorodecanoic acid	335-76-2	0.27	U	0.27	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.55	U	0.55	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.41	U	0.41	0.82	1
14027	Perfluorohexanesulfonate	355-46-4	0.68	U	0.68	2.2	1
14027	Perfluorohexanoic acid	307-24-4	0.27	U	0.27	0.55	1
14027	Perfluorononanoic acid	375-95-1	0.27	U	0.27	0.55	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.96	U	0.96	2.2	1
14027	Perfluorooctanoic acid	335-67-1	2.1		0.41	0.82	1
14027	Perfluorotetradecanoic acid	376-06-7	0.41	U	0.41	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.82	U	0.82	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.41	U	0.41	0.82	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	17,300		624	1,870	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	26.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 07:01	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631B	03/24/2016 03:08	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005B	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Jennings Meadow Trail 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294191
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 12:45 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-618 SDG#: SGP06-18

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.89	U	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	2.8		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.76	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	10,700		254	762	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 07:15	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631B	03/24/2016 01:10	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005B	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Jennings Meadow Trail 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294192
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 12:57 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-619 SDG#: SGP06-19

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.86	U	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	2.6		0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,030		256	769	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 07:29	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631B	03/24/2016 01:41	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005B	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Jennings Meadow Trail 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294193
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 13:05 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-620 SDG#: SGP06-20

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.50	U	0.50	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.37	J	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.87	U	0.87	2.0	1
14027	Perfluorooctanoic acid	335-67-1	2.3		0.37	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.75	U	0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.75	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	4,290		233	698	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	19.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 07:43	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631B	03/24/2016 01:50	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005B	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1642382
Reported: 03/28/2016 14:03

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16084002	Sample number(s): 8294171-8294174,8294178-8294183,8294185-8294196			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
Batch number: 16084003	Sample number(s): 8294197-8294201			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8294175-8294177			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/28/2016 14:03

Group Number: 1642382

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Batch number: 16083949631A	Sample number(s): 8294171-8294174,8294178-8294179,8294181-8294182,8294184-8294187			
TOC	100	U	100	300
Batch number: 16083949631B	Sample number(s): 8294188-8294195			
TOC	100	U	100	300
Batch number: 16084949631A	Sample number(s): 8294196-8294201			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 16084002	Sample number(s): 8294171-8294174,8294178-8294183,8294185-8294196								
Perfluorobutanesulfonate	20	16.8			84		70-130		
Perfluorodecanoic acid	20	19.03			95		70-130		
Perfluorododecanoic acid	20	16.65			83		70-130		
Perfluoroheptanoic acid	20	19.14			96		70-130		
Perfluorohexanesulfonate	20	18.53			93		70-130		
Perfluorohexanoic acid	20	17.33			87		70-130		
Perfluorononanoic acid	20	19.25			96		70-130		
Perfluoro-octanesulfonate	20	17.19			86		70-130		
Perfluorooctanoic acid	20	17.42			87		70-130		
Perfluorotetradecanoic acid	20	18.98			95		70-130		
Perfluorotridecanoic acid	20	17.94			90		70-130		
Perfluoroundecanoic acid	20	18.53			93		70-130		
Batch number: 16084003	Sample number(s): 8294197-8294201								
Perfluorobutanesulfonate	20	22.5			112		70-130		
Perfluorodecanoic acid	20	19.36			97		70-130		
Perfluorododecanoic acid	20	17.06			85		70-130		
Perfluoroheptanoic acid	20	19.41			97		70-130		
Perfluorohexanesulfonate	20	15.36			77		70-130		
Perfluorohexanoic acid	20	18.81			94		70-130		
Perfluorononanoic acid	20	17.44			87		70-130		
Perfluoro-octanesulfonate	20	20.08			100		70-130		
Perfluorooctanoic acid	20	17.81			89		70-130		
Perfluorotetradecanoic acid	20	19.71			99		70-130		
Perfluorotridecanoic acid	20	15.77			79		70-130		
Perfluoroundecanoic acid	20	18.32			92		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8294175-8294177								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/28/2016 14:03

Group Number: 1642382

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16083949631A	Sample number(s): 8294171-8294174,8294178-8294179,8294181-8294182,8294184-8294187								
TOC	5430	5104.76			94		47-143		
Batch number: 16083949631B	Sample number(s): 8294188-8294195								
TOC	5430	5104.76			94		47-143		
Batch number: 16084949631A	Sample number(s): 8294196-8294201								
TOC	5430	2743.93			51		47-143		
	%	%	%	%					
Batch number: 16081820005A	Sample number(s): 8294171-8294174,8294178-8294184								
Moisture	89.5	89.47			100		99-101		
Moisture	89.5	89.47			100		99-101		
Moisture Duplicate	89.5	89.47			100		99-101		
Batch number: 16081820005B	Sample number(s): 8294185-8294196								
Moisture	89.5	89.47			100		99-101		
Batch number: 16081820006B	Sample number(s): 8294197-8294201								
Moisture	89.5	89.42			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16084002	Sample number(s): 8294171-8294174,8294178-8294183,8294185-8294196 UNSPK: 8294181										
Perfluorobutanesulfonate	0.50	U	20	16.03	20	19.51	80	98	70-130	20	30
Perfluorodecanoic acid	0.20	U	20	20.49	20	19.51	102	98	70-130	5	30
Perfluorododecanoic acid	0.40	U	20	19.07	20	19.29	95	96	70-130	1	30
Perfluoroheptanoic acid	0.30	U	20	19.43	20	19.19	97	96	70-130	1	30
Perfluorohexanesulfonate	0.50	U	20	19.15	20	18.08	96	90	70-130	6	30
Perfluorohexanoic acid	0.20	U	20	19.71	20	18.6	99	93	70-130	6	30
Perfluorononanoic acid	0.20	U	20	18	20	19.67	90	98	70-130	9	30
Perfluoro-octanesulfonate	0.70	U	20	23.26	20	15.7	116	78	70-130	39*	30
Perfluorooctanoic acid	2.31		20	19.69	20	20.69	87	92	70-130	5	30
Perfluorotetradecanoic acid	0.30	U	20	18.7	20	18.25	94	91	70-130	2	30
Perfluorotridecanoic acid	0.60	U	20	16.19	20	16.46	81	82	70-130	2	30
Perfluoroundecanoic acid	0.30	U	20	19.32	20	17.93	97	90	70-130	7	30
Batch number: 16084003	Sample number(s): 8294197-8294201 UNSPK: 8294197										
Perfluorobutanesulfonate	0.50	U	20	16.61	20	16.42	83	82	70-130	1	30
Perfluorodecanoic acid	0.20	U	20	20.32	20	17.91	102	90	70-130	13	30
Perfluorododecanoic acid	0.40	U	20	18.77	20	17.88	94	89	70-130	5	30
Perfluoroheptanoic acid	0.30	U	20	18.49	20	20.91	92	105	70-130	12	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/28/2016 14:03

Group Number: 1642382

Analysis Name	Unspiked Conc ng/g		MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorohexanesulfonate	0.50	U	20	16.29	20	23	81	115	70-130	34*	30
Perfluorohexanoic acid	0.20	U	20	17.42	20	19.44	87	97	70-130	11	30
Perfluorononanoic acid	0.20	U	20	19.28	20	19.01	96	95	70-130	1	30
Perfluoro-octanesulfonate	0.70	U	20	17.23	20	15.74	86	79	70-130	9	30
Perfluorooctanoic acid	0.30	U	20	18.63	20	17.23	93	86	70-130	8	30
Perfluorotetradecanoic acid	0.30	U	20	17.4	20	16.98	87	85	70-130	2	30
Perfluorotridecanoic acid	0.60	U	20	17.77	20	15.47	89	77	70-130	14	30
Perfluoroundecanoic acid	0.30	U	20	18	20	21.5	90	107	70-130	18	30
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16083949631A	Sample number(s): 8294171-8294174,8294178-8294179,8294181-8294182,8294184-8294187 UNSPK: 8294182										
TOC	4792.9		5110	8332.48			69		47-143		
Batch number: 16083949631B	Sample number(s): 8294188-8294195 UNSPK: 8294188										
TOC	5525.38		6059	11585.54			100		47-143		
Batch number: 16084949631A	Sample number(s): 8294196-8294201 UNSPK: 8294196										
TOC	5817.55		14790	19743.46			94		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 16083949631A	Sample number(s): 8294171-8294174,8294178-8294179,8294181-8294182,8294184-8294187 BKG: 8294182			
TOC	4792.9	3503.05	31*	7
Batch number: 16083949631B	Sample number(s): 8294188-8294195 BKG: 8294188			
TOC	5525.38	3961.36	33*	7
Batch number: 16084949631A	Sample number(s): 8294196-8294201 BKG: 8294196			
TOC	5817.55	3166.37	59*	7
	%	%		
Batch number: 16081820005A	Sample number(s): 8294171-8294174,8294178-8294184 BKG: 8294181, P294181			
Moisture	16.7	17.3	4	5
Moisture	16.7	17.3	4	5
Moisture Duplicate	16.7	17.3	4	5
Batch number: 16081820005B	Sample number(s): 8294185-8294196 BKG: 8294189			
Moisture	13.64	11.48	17*	5
Batch number: 16081820006B	Sample number(s): 8294197-8294201 BKG: P294812			
Moisture	47.63	56.5	17*	5

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1642382 Sample # 8294171-201

COC # 492485

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested — Preservation Codes: O

For Lab Use Only
FSC: ____
SCR#: ____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	EPA 537	Remarks
Bennington College Garden 0" to 6"	3/18/16	0915	X		2	X	X	X		
Bennington College Garden 6" to 12"		0924	X		2	X	X	X		
Bennington College Garden 12" to 18"		0933	X		2	X	X	X		
Bennington College Garden 18" to 24"		0944	X		2	X	X	X		
Auger Rinse #3		0950	X		2				X	Lab Provided DI water
Bowl Rinse #3		0955	X		2				X	Lab Provided DI water
Transport Blank 031616	3/16/16	—	X		1				X	Lab Supplied
B. College Adj. to Garden 0" to 6"	3/18/16	1015	X		2	X	X	X		
B. College Adj. to Garden 6" to 12"	3/18/16	1027	X		2	X	X	X		
B. College Adj. to Garden Duplicate	3/18/16	1020	X		1	X				

Turnaround Time (TAT) Requested (please circle)
Standard (Rush)
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP)
Type VI (Raw Data Only)
Type III (Reduced non-CLP)
NJ DKQP
TX TRRP-13
NYSDEC Category A or (B)
MA MCP
CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/18/16	1650			
				3/19/16	0950

EDD Required? (Yes) No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 647382 Sample # 8294171-201

COC # 492486

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Soil ☒ Sediment ☐ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested — Preservation Codes

For Lab Use Only
FSC: ____
SCR#: ____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	Remarks
B. College Adj to Garden 12" to 18"	3/18/16	1041	X		4	X	X	X	MS/MSD here
B. College Adj to Garden 18" to 24"	3/18/16	1051	X		2	X	X	X	
B College Adj to Soccer field 0" to 6"	3/18/16	1127	X		2	X	X	X	
B College Adj to Soccer Field 6" to 12"	3/18/16	1135	X		2	X	X	X	
B College Adj to Soccer Field 12" to 18"	3/18/16	1145	X		2	X	X	X	
B College Adj to Soccer Field 18" to 24"	3/18/16	1156	X		2	X	X	X	
Jennings Meadow Trail 0" to 6"	3/18/16	1237	X		2	X	X	X	
Jennings Meadow Trail 6" to 12"	3/18/16	1245	X		2	X	X	X	
Jennings Meadow Trail 12" to 18"	3/18/16	1257	X		2	X	X	X	
Jennings Meadow Trail 18" to 24"	3/18/16	1305	X		2	X	X	X	

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP)
Type III (Reduced non-CLP)
NYSDEC Category A or B
Type VI (Raw Data Only)
NJ DKQP
MA MCP
TX TRRP-13
CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	1650			
				3/19/16	0950

EDD Required? Yes No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1642382 Sample # 8294171-201

COC # 493461

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EfA 537	TOC	Moisture
q School St SMPG 0" to 6"	3/18/16	1355	X		2	X	X	X
q School St SMPG 6" to 12"	3/18/16	1405	X		2	X	X	X
q School St SMPG 12" to 18"	3/18/16	1413	X		2	X	X	X
q School St SMPG 18" to 24"	3/18/16	1422	X		2	X	X	X
q School St LGPG 0" to 6"	3/18/16	1450	X		2	X	X	X
q School St LGPG 6" to 12"	3/18/16	1459	X		2	X	X	X
q School St LGPG 12" to 18"	3/18/16	1506	X		2	X	X	X
q School St LGPG 18" to 24"	3/18/16	1520	X		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type III (Reduced non-CLP)

NYSDEC Category A or (B)

Type VI (Raw Data Only)

NJ DKQP

MA MCP

TX TRRP-13

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/18/16	1650			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	3/19/16	0950

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140007

Group Number(s): 1647382

Client: CT Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/19/2016 9:50
Number of Packages:	4	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	No
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL Na2S2O3 Preserved Poly

Unpacked by Patrick Engle (3472) at 10:46 on 03/19/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	4.8	DT	Wet	Y	Bagged	N
2	DT121	4.5	DT	Wet	Y	Bagged	N
3	DT121	3.1	DT	Wet	Y	Bagged	N
4	DT121	4.2	DT	Wet	Y	Bagged	N

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
Bennington College Garden 6" to 12"	3/18/2016 09:24	No Date on COC
Bennington College Garden 12" to 18"	3/18/2016 09:33	No Date on COC
Bennington College Garden 18" to 24"	3/18/2016 09:44	No Date on COC
Auger Rinse #3	3/18/2016 09:50	No Date on COC
Bowl Rinse #3	3/18/2016 09:55	No Date on COC
9 School st SMPG 18" to 24"	3/18/2016 14:26	Time = 1422 on COC

2425 New Holland Pike
Lancaster, PA 17605-2425
T 717-656-2300
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www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: April 01, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/23/2016
Group Number: 1643263
SDG: SGP09
PO Number: 16.6131
State of Sample Origin: VT

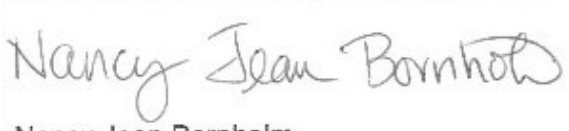
Client Sample Description	Lancaster Labs (LL) #
Pembroke Stockpile 1 Grab Soil	8298601
29 Lever St 0" to 6" Grab Soil	8298602
29 Lever St 6" to 12" Grab Soil	8298603
29 Lever St 12" to 18" Grab Soil	8298604
29 Lever St 18" to 24" Grab Soil	8298605
2009 N Bennington Rd 0" to 6" Grab Soil	8298606
2009 N Bennington Rd 6" to 12" Grab Soil	8298607
2009 N Bennington Rd 12" to 18" Grab Soil	8298608
9 School St Maple Tree 0" to 6" Grab Soil	8298609
9 School St Maple Tree 6" to 12" Grab Soil	8298610
9 School St Maple Tree 12" to 18" Grab Soil	8298611
9 School St NE Corner PL 0" to 6" Grab Soil	8298612
9 School St NE Corner PL 6" to 12" Grab Soil	8298613
9 School St NE Corner PL 12" to 18" Grab Soil	8298614
9 School St NE Corner PL Duplicate Grab Soil	8298615
Auger Rinse #6 Grab Blank Water	8298616
Bowl Rinse #6 Grab Blank Water	8298617
Transport Blank 032216 Water	8298618
WWTP Liquid Grab Sludge	8298619
Pembroke Garden 0" to 6" Grab Soil	8298620
Pembroke Garden 0" to 6" MS Grab Soil	8298621
Pembroke Garden 0" to 6" MSD Grab Soil	8298622
Pembroke Garden 0" to 6" Dupl Grab Soil	8298623
Pembroke Garden 6" to 12" Grab Soil	8298624
Pembroke Garden 12" to 18" Grab Soil	8298625
Pembroke Garden 18" to 24" Grab Soil	8298626
Pembroke Stockpile 2 Grab Soil	8298627

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1643263

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Batch #: 16085004 (Sample number(s): 8298616-8298619 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorohexanesulfonate

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluorooctanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Batch #: 16085005 (Sample number(s): 8298601-8298615, 8298620-8298622, 8298624-8298627 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorohexanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16085049531A (Sample number(s): 8298601-8298609 UNSPK: 8298609 BKG: 8298609)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16085949631A (Sample number(s): 8298620-8298621, 8298623-8298627 UNSPK: 8298620 BKG: 8298620)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16085949631B (Sample number(s): 8298610-8298612 UNSPK: 8298611 BKG: 8298611)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16085949632A (Sample number(s): 8298613-8298614 UNSPK: 8298613 BKG: 8298613)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Sample Description: Pembroke Stockpile 1 Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298601
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 09:25 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.68	U	0.68	2.2	1
14027	Perfluorodecanoic acid	335-76-2	0.27	U	0.27	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.55	U	0.55	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.41	U	0.41	0.82	1
14027	Perfluorohexanesulfonate	355-46-4	0.68	U	0.68	2.2	1
14027	Perfluorohexanoic acid	307-24-4	0.27	U	0.27	0.55	1
14027	Perfluorononanoic acid	375-95-1	0.43	J	0.27	0.55	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.95	U	0.95	2.2	1
14027	Perfluorooctanoic acid	335-67-1	5.6		0.41	0.82	1
14027	Perfluorotetradecanoic acid	376-06-7	0.41	U	0.41	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.82	U	0.82	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.41	U	0.41	0.82	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	41,700		1,160	3,470	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	26.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/28/2016 23:21	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085049531A	03/25/2016 11:47	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Pembroke Garden 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298620
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 15:00 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-20BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.97	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.35	J	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.85	U	0.85	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.75		0.36	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	0.73	U	0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.73	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	10,900		490	1,470	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	17.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/28/2016 22:38	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085949631A	03/25/2016 14:45	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Pembroke Garden 0" to 6" MS Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298621
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 15:00 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-20MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	24	0.61	1.9	1
14027	Perfluorodecanoic acid	335-76-2	23	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	24	0.48	0.97	1
14027	Perfluoroheptanoic acid	375-85-9	21	0.36	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	19	0.61	1.9	1
14027	Perfluorohexanoic acid	307-24-4	25	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	21	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	27	0.85	1.9	1
14027	Perfluorooctanoic acid	335-67-1	24	0.36	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	23	0.36	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	24	0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	23	0.36	0.73	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	25,300	639	1,920	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	17.4	0.50	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/28/2016 22:52	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085949631A	03/25/2016 14:52	Clinton M Wilson	1
00118	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Pembroke Garden 0" to 6" MSD Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298622
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 15:00 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-20MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	21	0.61	1.9	1
14027	Perfluorodecanoic acid	335-76-2	25	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	25	0.48	0.97	1
14027	Perfluoroheptanoic acid	375-85-9	23	0.36	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	27	0.61	1.9	1
14027	Perfluorohexanoic acid	307-24-4	24	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	23	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	25	0.85	1.9	1
14027	Perfluorooctanoic acid	335-67-1	26	0.36	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	28	0.36	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	22	0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	25	0.36	0.73	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	Moisture	n.a.	17.4	0.50	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/28/2016 23:06	Meng Yu	1
00118	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Pembroke Garden 0" to 6" Dupl Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298623
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 15:00 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-20DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	9,240	489	1,470	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	17.4	0.50	0.50	1
00121	Moisture Duplicate	n.a.	17.0	0.50	0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	16085949631A	03/26/2016 00:33	Clinton M Wilson	1
00118	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Pembroke Garden 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298624
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 15:06 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-21

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.95	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.83	U	0.83	1.9	1
14027	Perfluorooctanoic acid	335-67-1	1.8		0.36	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.95	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	7,040		548	1,640	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	16.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 03:52	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085949631A	03/25/2016 15:13	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820007B	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Pembroke Garden 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298625
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 15:12 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-22

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.83	U	0.83	1.9	1
14027	Perfluorooctanoic acid	335-67-1	1.9		0.35	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	J	0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	4,540		703	2,110	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	15.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 04:06	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085949631A	03/25/2016 23:23	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820007B	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Pembroke Garden 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298626
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 15:20 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-23

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.82	U	0.82	1.9	1
14027	Perfluorooctanoic acid	335-67-1	2.0		0.35	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.70	U	0.70	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.70	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	3,480		562	1,680	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	14.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 04:20	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085949631A	03/25/2016 23:30	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820007B	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Pembroke Stockpile 2 Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298627
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 15:38 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-24

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.39	U	0.39	0.77	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.26	U	0.26	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.90	U	0.90	2.1	1
14027	Perfluorooctanoic acid	335-67-1	1.5		0.39	0.77	1
14027	Perfluorotetradecanoic acid	376-06-7	0.39	U	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.77	U	0.77	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.39	U	0.39	0.77	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	12,300		754	2,260	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	22.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 04:34	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085949631A	03/25/2016 23:39	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820007B	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/01/2016 12:05

Group Number: 1643263

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16085005	Sample number(s): 8298601-8298615,8298620-8298622,8298624-8298627			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16085004	Sample number(s): 8298616-8298619			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16085049531A	Sample number(s): 8298601-8298609			
TOC	100	U	100	300
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627			
TOC	100	U	100	300
Batch number: 16085949631B	Sample number(s): 8298610-8298612			
TOC	100	U	100	300
Batch number: 16085949632A	Sample number(s): 8298613-8298614			
TOC	100	U	100	300

LCS/LCSD

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/01/2016 12:05

Group Number: 1643263

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16085005	Sample number(s): 8298601-8298615,8298620-8298622,8298624-8298627								
Perfluorobutanesulfonate	20	15.48			77		70-130		
Perfluorodecanoic acid	20	18.64			93		70-130		
Perfluorododecanoic acid	20	18.1			91		70-130		
Perfluoroheptanoic acid	20	14.93			75		70-130		
Perfluorohexanesulfonate	20	17.86			89		70-130		
Perfluorohexanoic acid	20	16.82			84		70-130		
Perfluorononanoic acid	20	16.54			83		70-130		
Perfluoro-octanesulfonate	20	16.03			80		70-130		
Perfluorooctanoic acid	20	16.71			84		70-130		
Perfluorotetradecanoic acid	20	19.16			96		70-130		
Perfluorotridecanoic acid	20	17.51			88		70-130		
Perfluoroundecanoic acid	20	18.55			93		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8298616-8298619								
Perfluorooctanoic acid	200	187.69	200	208.39	94	104	70-130	10	30
Perfluorononanoic acid	200	180.81	200	225.92	90	113	70-130	22	30
Perfluorodecanoic acid	200	216.97	200	234.99	108	117	70-130	8	30
Perfluoroundecanoic acid	200	199.88	200	208.01	100	104	70-130	4	30
Perfluorododecanoic acid	200	216.91	200	236.94	108	118	70-130	9	30
Perfluorotridecanoic acid	200	209.67	200	257.49	105	129	70-130	20	30
Perfluorotetradecanoic acid	200	194.48	200	228.2	97	114	70-130	16	30
Perfluorohexanoic acid	200	179.57	200	206.29	90	103	70-130	14	30
Perfluoroheptanoic acid	200	193.13	200	221.2	97	111	70-130	14	30
Perfluorobutanesulfonate	200	143.28	200	144.13	72	72	70-130	1	30
Perfluorohexanesulfonate	200	179.57	200	248.43	90	124	70-130	32*	30
Perfluoro-octanesulfonate	200	152.32	200	187.87	76	94	70-130	21	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16085049531A	Sample number(s): 8298601-8298609								
TOC	5430	4355.58			80		47-143		
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627								
TOC	5430	5303.03			98		47-143		
Batch number: 16085949631B	Sample number(s): 8298610-8298612								
TOC	5430	5303.03			98		47-143		
Batch number: 16085949632A	Sample number(s): 8298613-8298614								
TOC	5430	5633.66			104		47-143		
	%	%	%	%					
Batch number: 16083820007A	Sample number(s): 8298601-8298615,8298620-8298623								
Moisture	89.5	89.47			100		99-101		
Moisture	89.5	89.47			100		99-101		
Moisture Duplicate	89.5	89.47			100		99-101		
Batch number: 16083820007B	Sample number(s): 8298624-8298627								
Moisture	89.5	89.47			100		99-101		

MS/MSD

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/01/2016 12:05

Group Number: 1643263

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16085005	Sample number(s): 8298601-8298615,8298620-8298622,8298624-8298627 UNSPK: 8298620										
Perfluorobutanesulfonate	0.50	U	20	19.77	20	17.06	99	85	70-130	15	30
Perfluorodecanoic acid	0.20	U	20	19.35	20	20.85	97	104	70-130	7	30
Perfluorododecanoic acid	0.40	U	20	19.96	20	20.51	100	103	70-130	3	30
Perfluoroheptanoic acid	0.30	U	20	17.45	20	19.01	87	95	70-130	9	30
Perfluorohexanesulfonate	0.50	U	20	16.01	20	22.29	80	111	70-130	33*	30
Perfluorohexanoic acid	0.20	U	20	20.75	20	19.87	104	99	70-130	4	30
Perfluorononanoic acid	0.285		20	17.53	20	18.76	86	92	70-130	7	30
Perfluoro-octanesulfonate	0.70	U	20	22.25	20	20.85	111	104	70-130	7	30
Perfluorooctanoic acid	0.621		20	20.15	20	21.78	98	106	70-130	8	30
Perfluorotetradecanoic acid	0.30	U	20	18.9	20	22.87	95	114	70-130	19	30
Perfluorotridecanoic acid	0.60	U	20	20.16	20	18.01	101	90	70-130	11	30
Perfluoroundecanoic acid	0.30	U	20	19.31	20	21.05	97	105	70-130	9	30
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8298616-8298619 UNSPK: 8298619										
Perfluorooctanoic acid	353.46		200	264.76			-43*		70-130		
Perfluorononanoic acid	11.77		200	212.06			100		70-130		
Perfluorodecanoic acid	4	U	200	202.02			101		70-130		
Perfluoroundecanoic acid	7.24		200	217.48			105		70-130		
Perfluorododecanoic acid	10	U	200	196.94			98		70-130		
Perfluorotridecanoic acid	8	U	200	175.4			88		70-130		
Perfluorotetradecanoic acid	10	U	200	124.3			62*		70-130		
Perfluorohexanoic acid	4	U	200	283.38			142*		70-130		
Perfluoroheptanoic acid	32.94		200	220.71			94		70-130		
Perfluorobutanesulfonate	20	U	200	142.26			71		70-130		
Perfluorohexanesulfonate	20	U	200	402			201*		70-130		
Perfluoro-octanesulfonate	20	U	200	277.75			139*		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16085049531A	Sample number(s): 8298601-8298609 UNSPK: 8298609										
TOC	7316.27		36330	38474.58			86		47-143		
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627 UNSPK: 8298620										
TOC	9011.75		15840	20898.05			75		47-143		
Batch number: 16085949631B	Sample number(s): 8298610-8298612 UNSPK: 8298611										
TOC	5226.63		40053	55767.69			126		47-143		
Batch number: 16085949632A	Sample number(s): 8298613-8298614 UNSPK: 8298613										
TOC	9810.05		17104	26157.35			96		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16085049531A	Sample number(s): 8298601-8298609 BKG: 8298609			

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1643263
Reported: 04/01/2016 12:05

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
TOC	7316.27	3693.5	66* (1)	7
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627 BKG: 8298620			
TOC	9011.75	7631.15	17*	7
Batch number: 16085949631B	Sample number(s): 8298610-8298612 BKG: 8298611			
TOC	5226.63	4793.28	9* (1)	7
Batch number: 16085949632A	Sample number(s): 8298613-8298614 BKG: 8298613			
TOC	9810.05	9008.73	9*	7
	%	%		
Batch number: 16083820007A	Sample number(s): 8298601-8298615,8298620-8298623 BKG: 8298620, P298620			
Moisture	17.39	17.01	2	5
Moisture	17.39	17.01	2	5
Moisture Duplicate	17.39	17.01	2	5
Batch number: 16083820007B	Sample number(s): 8298624-8298627 BKG: 8298626			
Moisture	14.71	14.87	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643263 Sample # 8298601-27

COC # 493490

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested — Preservation Codes

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EDA S37	TOC	Moisture
Pembroke Stockpile 1	3/22/16	0925		X	2	X	X	X
29 Lever St 0" to 6"	3/22/16	1030	X		2	X	X	X
29 Lever St 6" to 12"	3/22/16	1040	X		2	X	X	X
29 Lever St 12" to 18"	3/22/16	1050	X		2	X	X	X
29 Lever St 18" to 24"	3/22/16	1100	X		2	X	X	X
2009 N. Bennington Rd 0"to6"	3/22/16	1131	X		2	X	X	X
2009 N. Bennington Rd 6"to 12"	3/22/16	1137	X		2	X	X	X
2009 N. Bennington Rd 12"to 18"	3/22/16	1153	X		2	X	X	X
9 School St Maple Tree 0"to6"	3/22/16	1254	X		2	X	X	X
9 School St Mple Tree 6"to12"	3/22/16	1301	X		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/22/16	17:00			
			[signature]	3/23/16	1000

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx X Other ____

Temperature upon receipt 2.9 / 3.9 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643763 Sample # 8298601-27

COC # 493362

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Sol Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Lorene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ | Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ | Other: Liquid Sludge

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Sediment	Soil	Ground Water	Potable Water	Surface Water	NPDES Water	Other: Liquid Sludge	Total # of Containers	EPA 537	TOC	Moisture	EPA 537	Remarks
9 School St Maple Tree 12" to 18"	3/22/16	1313	X			X						2	X	X	X		
9 School St NE Corner PL 0" to 6"	3/22/16	1333	X			X						2	X	X	X		
9 School St NE Corner PL 6" to 12"	3/22/16	1340	X			X						2	X	X	X		
9 School St NE Corner PL 12" to 18"	3/22/16	1357	X			X						2	X	X	X		
9 School St NE Corner PL Duplicate	3/22/16	1400	X			X						1	X				
Auger Rinse #6	3/22/16	1410	X					X				2				X	Lab DI Water
Bowl Rinse #6	3/22/16	1412	X					X				2				X	Lab DI Water
Transport Blank 032216	3/18/16	—	X					X				1				X	Lab supplied
WWTF Liquid Sludge	3/22/16	1435	X								X	2				X	
Pembroke Garden 0" to 6"	3/22/16	1500	X			X						4	X	X	X		MS/MSD Here

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 Day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type VI (Raw Data Only)

Type III (Reduced non-CLP)

NJ DKQP

TX TRRP-13

NYSDEC Category A or (B)

MA MCP

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Lorene Cameron	3/22/16	17:00			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
			[illegible]	3/23/16	1000

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 2.9 / 3.9 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643763 Sample # 8298601-27

COC # 493363

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected:	For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil	Sediment	Water: Ground	Potable	NPDES	Surface	Other:	Total # of Containers	Analysis Requested: EPA 537	TOC	Moisture
Pembroke Garden 6" to 12"	3/22/16	1506	X		X							2	X	X	X
Pembroke Garden 12" to 18"	3/22/16	1512	X		X							2	X	X	X
Pembroke Garden 18" to 24"	3/22/16	1520	X		X							2	X	X	X
Pembroke Stockpile 2	3/22/16	1538	X		X							2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/24/16	17:00			
			Kristen Abel	3/25/16	1005

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx X Other

Temperature upon receipt 2.9 / 3.9 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140307

Group Number(s): 1643263

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/23/2016 10:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	1
Samples Intact:	No	Trip Blank Type:	Na2S2O3
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:00 on 03/23/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.9	DT	Wet	Y	Bagged	N
2	DT146	3.9	DT	Wet	Y	Bagged	N

Samples Not Intact Details

Sample ID on Label	Bottle Code	Bottle Quantity	Container Salvageable?	Comments
2009 N. Bennington Rd 6" to 12	125 ml wide mouth glass - None	1	N	subsampled for TOC/moist.

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
F 717-656-2681
www.LancasterLabs.cor

eurofins | Lancaster Laboratories Environmental

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: April 01, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/23/2016
Group Number: 1643263
SDG: SGP09
PO Number: 16.6131
State of Sample Origin: VT

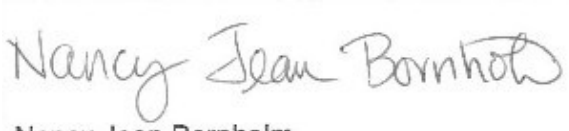
Client Sample Description	Lancaster Labs (LL) #
Pembroke Stockpile 1 Grab Soil	8298601
29 Lever St 0" to 6" Grab Soil	8298602
29 Lever St 6" to 12" Grab Soil	8298603
29 Lever St 12" to 18" Grab Soil	8298604
29 Lever St 18" to 24" Grab Soil	8298605
2009 N Bennington Rd 0" to 6" Grab Soil	8298606
2009 N Bennington Rd 6" to 12" Grab Soil	8298607
2009 N Bennington Rd 12" to 18" Grab Soil	8298608
9 School St Maple Tree 0" to 6" Grab Soil	8298609
9 School St Maple Tree 6" to 12" Grab Soil	8298610
9 School St Maple Tree 12" to 18" Grab Soil	8298611
9 School St NE Corner PL 0" to 6" Grab Soil	8298612
9 School St NE Corner PL 6" to 12" Grab Soil	8298613
9 School St NE Corner PL 12" to 18" Grab Soil	8298614
9 School St NE Corner PL Duplicate Grab Soil	8298615
Auger Rinse #6 Grab Blank Water	8298616
Bowl Rinse #6 Grab Blank Water	8298617
Transport Blank 032216 Water	8298618
WWTP Liquid Grab Sludge	8298619
Pembroke Garden 0" to 6" Grab Soil	8298620
Pembroke Garden 0" to 6" MS Grab Soil	8298621
Pembroke Garden 0" to 6" MSD Grab Soil	8298622
Pembroke Garden 0" to 6" Dupl Grab Soil	8298623
Pembroke Garden 6" to 12" Grab Soil	8298624
Pembroke Garden 12" to 18" Grab Soil	8298625
Pembroke Garden 18" to 24" Grab Soil	8298626
Pembroke Stockpile 2 Grab Soil	8298627

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1643263

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Batch #: 16085004 (Sample number(s): 8298616-8298619 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorohexanesulfonate

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluorooctanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Batch #: 16085005 (Sample number(s): 8298601-8298615, 8298620-8298622, 8298624-8298627 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorohexanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16085049531A (Sample number(s): 8298601-8298609 UNSPK: 8298609 BKG: 8298609)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16085949631A (Sample number(s): 8298620-8298621, 8298623-8298627 UNSPK: 8298620 BKG: 8298620)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16085949631B (Sample number(s): 8298610-8298612 UNSPK: 8298611 BKG: 8298611)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16085949632A (Sample number(s): 8298613-8298614 UNSPK: 8298613 BKG: 8298613)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Sample Description: WWTP Liquid Grab Sludge
N. Bennington Soil Sampling

LL Sample # WW 8298619
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 14:35 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-19

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	350		4	8	4
10954	Perfluorononanoic acid	375-95-1	12		4	8	4
10954	Perfluorodecanoic acid	335-76-2	4	U	4	8	4
10954	Perfluoroundecanoic acid	2058-94-8	8	U	8	20	4
10954	Perfluorododecanoic acid	307-55-1	10	U	10	20	4
10954	Perfluorotridecanoic acid	72629-94-8	8	U	8	20	4
10954	Perfluorotetradecanoic acid	376-06-7	10	U	10	20	4
10954	Perfluorohexanoic acid	307-24-4	4	U	4	8	4
10954	Perfluoroheptanoic acid	375-85-9	33		4	8	4
10954	Perfluorobutanesulfonate	375-73-5	20	U	20	40	4
10954	Perfluorohexanesulfonate	355-46-4	20	U	20	40	4
10954	Perfluoro-octanesulfonate	1763-23-1	20	U	20	40	4

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085004	03/29/2016 18:10	Jason W Knight	4

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/01/2016 12:05

Group Number: 1643263

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16085005	Sample number(s): 8298601-8298615,8298620-8298622,8298624-8298627			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16085004	Sample number(s): 8298616-8298619			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16085049531A	Sample number(s): 8298601-8298609			
TOC	100	U	100	300
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627			
TOC	100	U	100	300
Batch number: 16085949631B	Sample number(s): 8298610-8298612			
TOC	100	U	100	300
Batch number: 16085949632A	Sample number(s): 8298613-8298614			
TOC	100	U	100	300

LCS/LCSD

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/01/2016 12:05

Group Number: 1643263

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16085005	Sample number(s): 8298601-8298615,8298620-8298622,8298624-8298627								
Perfluorobutanesulfonate	20	15.48			77		70-130		
Perfluorodecanoic acid	20	18.64			93		70-130		
Perfluorododecanoic acid	20	18.1			91		70-130		
Perfluoroheptanoic acid	20	14.93			75		70-130		
Perfluorohexanesulfonate	20	17.86			89		70-130		
Perfluorohexanoic acid	20	16.82			84		70-130		
Perfluorononanoic acid	20	16.54			83		70-130		
Perfluoro-octanesulfonate	20	16.03			80		70-130		
Perfluorooctanoic acid	20	16.71			84		70-130		
Perfluorotetradecanoic acid	20	19.16			96		70-130		
Perfluorotridecanoic acid	20	17.51			88		70-130		
Perfluoroundecanoic acid	20	18.55			93		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8298616-8298619								
Perfluorooctanoic acid	200	187.69	200	208.39	94	104	70-130	10	30
Perfluorononanoic acid	200	180.81	200	225.92	90	113	70-130	22	30
Perfluorodecanoic acid	200	216.97	200	234.99	108	117	70-130	8	30
Perfluoroundecanoic acid	200	199.88	200	208.01	100	104	70-130	4	30
Perfluorododecanoic acid	200	216.91	200	236.94	108	118	70-130	9	30
Perfluorotridecanoic acid	200	209.67	200	257.49	105	129	70-130	20	30
Perfluorotetradecanoic acid	200	194.48	200	228.2	97	114	70-130	16	30
Perfluorohexanoic acid	200	179.57	200	206.29	90	103	70-130	14	30
Perfluoroheptanoic acid	200	193.13	200	221.2	97	111	70-130	14	30
Perfluorobutanesulfonate	200	143.28	200	144.13	72	72	70-130	1	30
Perfluorohexanesulfonate	200	179.57	200	248.43	90	124	70-130	32*	30
Perfluoro-octanesulfonate	200	152.32	200	187.87	76	94	70-130	21	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16085049531A	Sample number(s): 8298601-8298609								
TOC	5430	4355.58			80		47-143		
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627								
TOC	5430	5303.03			98		47-143		
Batch number: 16085949631B	Sample number(s): 8298610-8298612								
TOC	5430	5303.03			98		47-143		
Batch number: 16085949632A	Sample number(s): 8298613-8298614								
TOC	5430	5633.66			104		47-143		
	%	%	%	%					
Batch number: 16083820007A	Sample number(s): 8298601-8298615,8298620-8298623								
Moisture	89.5	89.47			100		99-101		
Moisture	89.5	89.47			100		99-101		
Moisture Duplicate	89.5	89.47			100		99-101		
Batch number: 16083820007B	Sample number(s): 8298624-8298627								
Moisture	89.5	89.47			100		99-101		

MS/MSD

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/01/2016 12:05

Group Number: 1643263

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16085005	Sample number(s): 8298601-8298615,8298620-8298622,8298624-8298627 UNSPK: 8298620										
Perfluorobutanesulfonate	0.50	U	20	19.77	20	17.06	99	85	70-130	15	30
Perfluorodecanoic acid	0.20	U	20	19.35	20	20.85	97	104	70-130	7	30
Perfluorododecanoic acid	0.40	U	20	19.96	20	20.51	100	103	70-130	3	30
Perfluoroheptanoic acid	0.30	U	20	17.45	20	19.01	87	95	70-130	9	30
Perfluorohexanesulfonate	0.50	U	20	16.01	20	22.29	80	111	70-130	33*	30
Perfluorohexanoic acid	0.20	U	20	20.75	20	19.87	104	99	70-130	4	30
Perfluorononanoic acid	0.285		20	17.53	20	18.76	86	92	70-130	7	30
Perfluoro-octanesulfonate	0.70	U	20	22.25	20	20.85	111	104	70-130	7	30
Perfluorooctanoic acid	0.621		20	20.15	20	21.78	98	106	70-130	8	30
Perfluorotetradecanoic acid	0.30	U	20	18.9	20	22.87	95	114	70-130	19	30
Perfluorotridecanoic acid	0.60	U	20	20.16	20	18.01	101	90	70-130	11	30
Perfluoroundecanoic acid	0.30	U	20	19.31	20	21.05	97	105	70-130	9	30
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8298616-8298619 UNSPK: 8298619										
Perfluorooctanoic acid	353.46		200	264.76			-43*		70-130		
Perfluorononanoic acid	11.77		200	212.06			100		70-130		
Perfluorodecanoic acid	4	U	200	202.02			101		70-130		
Perfluoroundecanoic acid	7.24		200	217.48			105		70-130		
Perfluorododecanoic acid	10	U	200	196.94			98		70-130		
Perfluorotridecanoic acid	8	U	200	175.4			88		70-130		
Perfluorotetradecanoic acid	10	U	200	124.3			62*		70-130		
Perfluorohexanoic acid	4	U	200	283.38			142*		70-130		
Perfluoroheptanoic acid	32.94		200	220.71			94		70-130		
Perfluorobutanesulfonate	20	U	200	142.26			71		70-130		
Perfluorohexanesulfonate	20	U	200	402			201*		70-130		
Perfluoro-octanesulfonate	20	U	200	277.75			139*		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16085049531A	Sample number(s): 8298601-8298609 UNSPK: 8298609										
TOC	7316.27		36330	38474.58			86		47-143		
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627 UNSPK: 8298620										
TOC	9011.75		15840	20898.05			75		47-143		
Batch number: 16085949631B	Sample number(s): 8298610-8298612 UNSPK: 8298611										
TOC	5226.63		40053	55767.69			126		47-143		
Batch number: 16085949632A	Sample number(s): 8298613-8298614 UNSPK: 8298613										
TOC	9810.05		17104	26157.35			96		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16085049531A	Sample number(s): 8298601-8298609 BKG: 8298609			

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1643263
Reported: 04/01/2016 12:05

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
TOC	7316.27	3693.5	66* (1)	7
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627 BKG: 8298620			
TOC	9011.75	7631.15	17*	7
Batch number: 16085949631B	Sample number(s): 8298610-8298612 BKG: 8298611			
TOC	5226.63	4793.28	9* (1)	7
Batch number: 16085949632A	Sample number(s): 8298613-8298614 BKG: 8298613			
TOC	9810.05	9008.73	9*	7
	%	%		
Batch number: 16083820007A	Sample number(s): 8298601-8298615,8298620-8298623 BKG: 8298620, P298620			
Moisture	17.39	17.01	2	5
Moisture	17.39	17.01	2	5
Moisture Duplicate	17.39	17.01	2	5
Batch number: 16083820007B	Sample number(s): 8298624-8298627 BKG: 8298626			
Moisture	14.71	14.87	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643263 Sample # 8298601-27

COC # 493490

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested — Preservation Codes

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EDA S37	TOC	Moisture
Pembroke Stockpile 1	3/22/16	0925		X	2	X	X	X
29 Lever St 0" to 6"	3/22/16	1030	X		2	X	X	X
29 Lever St 6" to 12"	3/22/16	1040	X		2	X	X	X
29 Lever St 12" to 18"	3/22/16	1050	X		2	X	X	X
29 Lever St 18" to 24"	3/22/16	1100	X		2	X	X	X
2009 N. Bennington Rd 0"to6"	3/22/16	1131	X		2	X	X	X
2009 N. Bennington Rd 6"to 12"	3/22/16	1137	X		2	X	X	X
2009 N. Bennington Rd 12"to 18"	3/22/16	1153	X		2	X	X	X
9 School St Maple Tree 0"to6"	3/22/16	1254	X		2	X	X	X
9 School St Mple Tree 6"to12"	3/22/16	1301	X		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/22/16	17:00			
			[signature]	3/23/16	1000

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx X Other ____

Temperature upon receipt 2.9 / 3.9 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643763 Sample # 8298601-27

COC # 493362

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Sol Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Lorene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ | Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ | Other: Liquid Sludge

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Sediment	Soil	Ground Water	Potable Water	Surface Water	NPDES Water	Other: Liquid Sludge	Total # of Containers	EPA 537	TOC	Moisture	EPA 537	Remarks
9 School St Maple Tree 12" to 18"	3/22/16	1313	X			X						2	X	X	X		
9 School St NE Corner PL 0" to 6"	3/22/16	1333	X			X						2	X	X	X		
9 School St NE Corner PL 6" to 12"	3/22/16	1340	X			X						2	X	X	X		
9 School St NE Corner PL 12" to 18"	3/22/16	1357	X			X						2	X	X	X		
9 School St NE Corner PL Duplicate	3/22/16	1400	X			X						1	X				
Auger Rinse #6	3/22/16	1410	X					X				2				X	Lab DI Water
Bowl Rinse #6	3/22/16	1412	X					X				2				X	Lab DI Water
Transport Blank 032216	3/18/16	—	X					X				1				X	Lab supplied
WWTF Liquid Sludge	3/22/16	1435	X								X	2				X	
Pembroke Garden 0" to 6"	3/22/16	1500	X			X						4	X	X	X		MS/MSD Here

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 Day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type VI (Raw Data Only)

Type III (Reduced non-CLP)

NJ DKQP

TX TRRP-13

NYSDEC Category A or (B)

MA MCP

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Lorene Cameron	3/22/16	17:00			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
			[illegible]	3/23/16	1000

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 2.9 / 3.9 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643763 Sample # 8298601-27

COC # 493363

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected:	For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil	Sediment	Water: Ground	Potable	NPDES	Surface	Other:	Total # of Containers	Analysis Requested: EPA 537	TOC	Moisture
Pembroke Garden 6" to 12"	3/22/16	1506	X		X							2	X	X	X
Pembroke Garden 12" to 18"	3/22/16	1512	X		X							2	X	X	X
Pembroke Garden 18" to 24"	3/22/16	1520	X		X							2	X	X	X
Pembroke Stockpile 2	3/22/16	1538	X		X							2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/24/16	17:00			
			Kristen Abel	3/25/16	1005

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx X Other

Temperature upon receipt 2.9 / 3.9 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140307

Group Number(s): 1643263

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/23/2016 10:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	1
Samples Intact:	No	Trip Blank Type:	Na2S2O3
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:00 on 03/23/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.9	DT	Wet	Y	Bagged	N
2	DT146	3.9	DT	Wet	Y	Bagged	N

Samples Not Intact Details

Sample ID on Label	Bottle Code	Bottle Quantity	Container Salvageable?	Comments
2009 N. Bennington Rd 6" to 12	125 ml wide mouth glass - None	1	N	subsampled for TOC/moist.

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
F 717-656-2681
www.LancasterLabs.cor

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: July 08, 2016

Project: SGPP - Bennington

Submittal Date: 05/12/2016
Group Number: 1660038
SDG: SGP75
PO Number: 16.6131
State of Sample Origin: VT

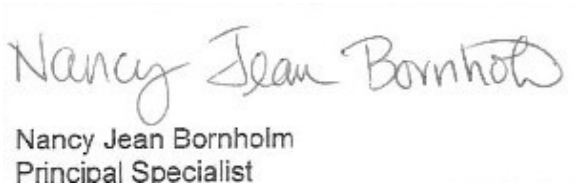
Client Sample Description	Lancaster Labs (LL) #
1682 Harrington Rd 0"to6" Grab Soil	8377455
1682 Harrington Rd 6"to12" Grab Soil	8377456
1682 Harrington Rd 12"to18" Grab Soil	8377457
1682 Harrington Rd 12"to18" MS Grab Soil	8377458
1682 Harrington Rd 12"to18" MSD Grab Soil	8377459
1682 Harrington Rd 18"to24" Grab Soil	8377460
1682 Harrington Rd Field Duplicate Grab Soil	8377461
Auger Rinse Grab Blank Water	8377462
Bowl Rinse Grab Blank Water	8377463
Trip Blank #1031628 Water	8377464

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: SGPP - Bennington
LL Group #: 1660038

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8377455, 8377456, 8377457, 8377458, 8377459, 8377460, 8377461

The recovery for a target analyte (PFTeDA) in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.
The recovery for perfluorododecanoic acid in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. The LCS was re-injected outside the extract holding time and recovery was within specifications. All data is included in data package.

Batch #: 16139002 (Sample number(s): 8377462-8377464 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorobutanesulfonate

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluorodecanoic acid, Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluoroheptanoic acid, Perfluorohexanesulfonate

Batch #: 16153005 (Sample number(s): 8377455-8377461 UNSPK: 8377457)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorotetradecanoic acid

The recovery(ies) for the following analyte(s) in the LCS were below the acceptance window: Perfluorododecanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorododecanoic acid, Perfluorotridecanoic acid

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorotridecanoic acid

Sample Description: 1682 Harrington Rd 0"to6" Grab Soil
1682 Harrington Road

LL Sample # SW 8377455
LL Group # 1660038
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 12:15 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HAR-1 SDG#: SGP75-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.66	U	0.66	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.53	U	0.53	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.40	U	0.40	0.79	1
14027	Perfluorohexanesulfonate	355-46-4	0.66	U	0.66	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.53	1
14027	Perfluorononanoic acid	375-95-1	0.26	U	0.26	0.53	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.92	U	0.92	2.1	1
14027	Perfluorooctanoic acid	335-67-1	2.0		0.40	0.79	1
14027	Perfluorotetradecanoic acid	376-06-7	0.40	U	0.40	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.79	U	0.79	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.40	U	0.40	0.79	1

The recovery for a target analyte (PFTeDA) in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for perfluorododecanoic acid in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. The LCS was re-injected outside the extract holding time and recovery was within specifications. All data is included in data package.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	14,600		554	1,660	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	24.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16153005	06/24/2016 13:17	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16153005	06/02/2016 13:30	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: 1682 Harrington Rd 0"to6" Grab Soil
1682 Harrington Road

LL Sample # SW 8377455
LL Group # 1660038
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 12:15 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HAR-1 SDG#: SGP75-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	16139049531A	05/18/2016 23:22	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16137820001A	05/17/2016 00:06	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 1682 Harrington Rd 6"to12" Grab Soil
1682 Harrington Road

LL Sample # SW 8377456
LL Group # 1660038
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 12:20 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HAR-2 SDG#: SGP75-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.63	U	0.63	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.50	U	0.50	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.63	U	0.63	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.88	U	0.88	2.0	1
14027	Perfluorooctanoic acid	335-67-1	2.6		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.76	1

The recovery for a target analyte (PFTeDA) in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for perfluorododecanoic acid in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. The LCS was re-injected outside the extract holding time and recovery was within specifications. All data is included in data package.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	8,240		282	846	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	20.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16153005	06/24/2016 13:37	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16153005	06/02/2016 13:30	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: 1682 Harrington Rd 6"to12" Grab Soil
1682 Harrington Road

LL Sample # SW 8377456
LL Group # 1660038
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 12:20 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HAR-2 SDG#: SGP75-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	16139049531A	05/18/2016 23:40	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16137820001A	05/17/2016 00:06	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 1682 Harrington Rd 12"to18" Grab Soil
1682 Harrington Road

LL Sample # SW 8377457
LL Group # 1660038
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 12:38 by LC
through 05/11/2016 12:41
Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HAR-3 SDG#: SGP75-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.86	U	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	2.3		0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.74	1

The recovery for a target analyte (PFTeDA) in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for perfluorododecanoic acid in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. The LCS was re-injected outside the extract holding time and recovery was within specifications. All data is included in data package.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	3,630		186	558	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16153005	06/24/2016 12:20	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16153005	06/02/2016 13:30	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: 1682 Harrington Rd 12"to18" Grab Soil
1682 Harrington Road

LL Sample # SW 8377457
LL Group # 1660038
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 12:38 by LC
through 05/11/2016 12:41
Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HAR-3 SDG#: SGP75-03BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	16139049531A	05/18/2016 23:58	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16137820001A	05/17/2016 00:06	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 1682 Harrington Rd 12"to18" MS Grab Soil
1682 Harrington Road

LL Sample # SW 8377458
LL Group # 1660038
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 12:38 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HAR-3 SDG#: SGP75-03MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	20	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	24	0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	12	0.49	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	23	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	25	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	24	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	27	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	25	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	28	0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	25	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	14	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	25	0.37	0.74	1

The recovery for a target analyte (PFTeDA) in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for perfluorododecanoic acid in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. The LCS was re-injected outside the extract holding time and recovery was within specifications. All data is included in data package.

Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	18.8	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16153005	06/24/2016 12:39	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16153005	06/02/2016 13:30	Jason W Knight	1
00118	Moisture	SM 2540 G-1997	1	16137820001A	05/17/2016 00:06	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 1682 Harrington Rd 12"to18" MSD Grab Soil
1682 Harrington Road

LL Sample # SW 8377459
LL Group # 1660038
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 12:38 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HAR-3 SDG#: SGP75-03MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	22	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	28	0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	12	0.49	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	25	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	25	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	24	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	25	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	27	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	29	0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	30	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	9.8	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	30	0.37	0.74	1

The recovery for a target analyte (PFTeDA) in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for perfluorododecanoic acid in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. The LCS was re-injected outside the extract holding time and recovery was within specifications. All data is included in data package.

Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	18.8	0.50	0.50	1
00121	Moisture Duplicate	n.a.	18.5	0.50	0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16153005	06/24/2016 12:58	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16153005	06/02/2016 13:30	Jason W Knight	1
00118	Moisture	SM 2540 G-1997	1	16137820001A	05/17/2016 00:06	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997	1	16137820001A	05/17/2016 00:06	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 1682 Harrington Rd 18"to24" Grab Soil
1682 Harrington Road

LL Sample # SW 8377460
LL Group # 1660038
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 12:47 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HAR-4 SDG#: SGP75-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.97	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.85	U	0.85	1.9	1
14027	Perfluorooctanoic acid	335-67-1	1.3		0.36	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	0.73	U	0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.73	1

The recovery for a target analyte (PFTeDA) in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for perfluorododecanoic acid in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. The LCS was re-injected outside the extract holding time and recovery was within specifications. All data is included in data package.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	1,420		183	550	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	17.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16153005	06/24/2016 13:56	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16153005	06/02/2016 13:30	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: 1682 Harrington Rd 18"to24" Grab Soil
1682 Harrington Road

LL Sample # SW 8377460
LL Group # 1660038
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 12:47 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HAR-4 SDG#: SGP75-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	16139049531A	05/19/2016 00:30	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16137820001A	05/17/2016 00:06	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 1682 Harrington Rd Field Duplicate Grab Soil
1682 Harrington Road

LL Sample # SW 8377461
LL Group # 1660038
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 12:22 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HARFD SDG#: SGP75-05FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.89	U	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	2.4		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.76	1

The recovery for a target analyte (PFTeDA) in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for perfluorododecanoic acid in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. The LCS was re-injected outside the extract holding time and recovery was within specifications. All data is included in data package.

Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16153005	06/24/2016 14:15	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16153005	06/02/2016 13:30	Jason W Knight	1
00111	Moisture	SM 2540 G-1997	1	16137820001A	05/17/2016 00:06	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Auger Rinse Grab Blank Water
1682 Harrington Road

LL Sample # WW 8377462
LL Group # 1660038
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 12:54 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HARAR SDG#: SGP75-06RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16139002	05/22/2016 23:49	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: Bowl Rinse Grab Blank Water
1682 Harrington Road

LL Sample # WW 8377463
LL Group # 1660038
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 12:57 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HARBR SDG#: SGP75-07RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	2	J	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16139002	05/23/2016 00:07	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank #1031628 Water
1682 Harrington Road

LL Sample # WW 8377464
LL Group # 1660038
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/06/2016

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HARTB SDG#: SGP75-08TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16139002	05/23/2016 00:25	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 07/08/2016 15:00

Group Number: 1660038

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16153005	Sample number(s): 8377455-8377461			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16139002	Sample number(s): 8377462-8377464			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16139049531A	Sample number(s): 8377455-8377457,8377460			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16153005	Sample number(s): 8377455-8377461								
Perfluorobutanesulfonate	17.68	17.9			101		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 07/08/2016 15:00

Group Number: 1660038

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorodecanoic acid	20	20.2			101		70-130		
Perfluorododecanoic acid	20	5.02			25*		70-130		
Perfluoroheptanoic acid	20	19			95		70-130		
Perfluorohexanesulfonate	18.92	19.9			105		70-130		
Perfluorohexanoic acid	20	20			100		70-130		
Perfluorononanoic acid	20	19.4			97		70-130		
Perfluoro-octanesulfonate	19.12	20			105		70-130		
Perfluorooctanoic acid	20	20.5			103		70-130		
Perfluorotetradecanoic acid	20	40.9			205*		70-130		
Perfluorotridecanoic acid	20	19.6			98		70-130		
Perfluoroundecanoic acid	20	18.6			93		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 16139002	Sample number(s): 8377462-8377464								
Perfluorooctanoic acid	200	220.44	200	199.5	110	100	70-130	10	30
Perfluorononanoic acid	200	180.4	200	192.15	90	96	70-130	6	30
Perfluorodecanoic acid	200	180.54	200	182.44	90	91	70-130	1	30
Perfluoroundecanoic acid	200	186.01	200	210.71	93	105	70-130	12	30
Perfluorododecanoic acid	200	174.05	200	209.07	87	105	70-130	18	30
Perfluorotridecanoic acid	200	174.4	200	201.25	87	101	70-130	14	30
Perfluorotetradecanoic acid	200	158.35	200	195.93	79	98	70-130	21	30
Perfluorohexanoic acid	200	192.8	200	189.88	96	95	70-130	2	30
Perfluoroheptanoic acid	200	176.49	200	227.28	88	114	70-130	25	30
Perfluorobutanesulfonate	176.8	203.16	176.8	140.18	115	79	70-130	37*	30
Perfluorohexanesulfonate	189.2	166.54	189.2	173.04	88	91	70-130	4	30
Perfluoro-octanesulfonate	191.2	202.93	191.2	187.04	106	98	70-130	8	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 16139049531A	Sample number(s): 8377455-8377457,8377460								
TOC	5430	5141.64			95		47-143		
	%	**%**	**%**	**%**					
Batch number: 16137820001A	Sample number(s): 8377455-8377461								
Moisture	89.5	89.46			100		99-101		
Moisture	89.5	89.46			100		99-101		
Moisture Duplicate	89.5	89.46			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16153005	Sample number(s): 8377455-8377461 UNSPK: 8377457									
Perfluorobutanesulfonate	0.50 U	17.68	16.5	17.68	17.7	93	100	70-130	7	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 07/08/2016 15:00

Group Number: 1660038

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Perfluorodecanoic acid	0.20	U	20	19.3	20	23.1	97	116	70-130	18	30
Perfluorododecanoic acid	0.40	U	20	10.1	20	9.90	51*	50*	70-130	2	30
Perfluoroheptanoic acid	0.30	U	20	19	20	19.9	95	100	70-130	5	30
Perfluorohexanesulfonate	0.50	U	18.92	20.5	18.92	20.7	108	109	70-130	1	30
Perfluorohexanoic acid	0.20	U	20	19.3	20	19.8	97	99	70-130	3	30
Perfluorononanoic acid	0.20	U	20	22.3	20	20.2	112	101	70-130	10	30
Perfluoro-octanesulfonate	0.70	U	19.12	20.2	19.12	21.9	106	115	70-130	8	30
Perfluorooctanoic acid	1.84		20	23.1	20	23.2	106	107	70-130	0	30
Perfluorotetradecanoic acid	0.30	U	20	20.2	20	24.5	101	123	70-130	19	30
Perfluorotridecanoic acid	0.60	U	20	11.1	20	7.94	56*	40*	70-130	33*	30
Perfluoroundecanoic acid	0.30	U	20	20.1	20	24.7	101	124	70-130	21	30
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 16139002	Sample number(s): 8377462-8377464 UNSPK: 8365689										
Perfluorooctanoic acid	1	U	200	147.53			74		70-130		
Perfluorononanoic acid	1	U	200	147.68			74		70-130		
Perfluorodecanoic acid	2.30		200	137.92			68*		70-130		
Perfluoroundecanoic acid	2	U	200	171.84			86		70-130		
Perfluorododecanoic acid	3	U	200	168.24			84		70-130		
Perfluorotridecanoic acid	2.55		200	131.51			64*		70-130		
Perfluorotetradecanoic acid	3.25		200	122.01			59*		70-130		
Perfluorohexanoic acid	1	U	200	155.27			78		70-130		
Perfluoroheptanoic acid	1	U	200	85.04			43*		70-130		
Perfluorobutanesulfonate	4	U	176.8	140.91			80		70-130		
Perfluorohexanesulfonate	4	U	189.2	127.59			67*		70-130		
Perfluoro-octanesulfonate	5	U	191.2	134.71			70		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16139049531A	Sample number(s): 8377455-8377457,8377460 UNSPK: 8377457										
TOC	2950.03		27298	31428.57			104		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16139049531A	Sample number(s): 8377455-8377457,8377460 BKG: 8377457			
TOC	2950.03	3144.27	6	7
	%	%		
Batch number: 16137820001A	Sample number(s): 8377455-8377461 BKG: 8377457, P377457			
Moisture	18.76	18.51	1	5
Moisture	18.76	18.51	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1660038
Reported: 07/08/2016 15:00

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Moisture Duplicate	18.76	18.51	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1660038 Sample #: 8377455-64 COC#: 14597

Client: **C.T. Male Associates**

Project Name/#: 16.6131 Site ID: 1682 Harrington Road

Project Manager: Kirk Moline P.O. #:

Sampler: Larene Cameron

Phone #: 518-786-7502 Quote #: 214135

State where sample(s) were collected: VT

For Lab Use Only
SF#: 271284
SCR#: 188162

Preservation Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 P = H_3PO_4
O = Other

Matrix: ☐ Sediment ☒ Soil; Water: ☐ Ground ☐ Surface ☐ Potable ☐ NPDES; Other:

Analyses Requested / **Preservation Codes**

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	PFCs (EPA 537 mod.)	Remarks
1682 Harrington Rd 0" to 6"	5-11-16	1215	X		X			1	X	
1682 Harrington Rd 6" to 12"	5-11-16	1220	X		X			1	X	
1682 Harrington Rd 12" to 18"	5-11-16	1238	X		X			3	X	MS and MSD Here
1682 Harrington Rd 18" to 24"	5-11-16	1247	X		X			1	X	
1682 Harrington Rd Field Duplicate	5-11-16	1222	X		X			1	X	
Auger Rinse	5-11-16	1254	X			X		2	X	LAB DI Water
Bowl Rinse	5-11-16	1257	X			X		2	X	LAB DI Water
Trip Blank #1031628	5-6-16	—	—			X		1	X	LAB Supplied

Turnaround Time Requested (TAT) (please check): Standard ☑ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results:

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
Larene Cameron	5-11-16	1710			
			[signature]	5-12-16	920

Airbill No:
Relinquished by Commercial Carrier:
UPS ____ FedEx X Other ____

Temperature upon receipt 1.6 °C

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1660038 Sample #: 8377455-64 COC#: 14598

Client: C.T. Male Associates	
Project Name/#: 16.6131	Site ID: 1682 Harrington Road
Project Manager: Kirk Moline	P.O. #:
Sampler: Larene Cameron	
Phone #: 518-786-7502	Quote #: 214135
State where sample(s) were collected: VT	

Matrix: Soil ☒ Sediment ☐; Water: Ground ☐ Surface ☐ Potable ☐ NPDES ☐; Other:

For Lab Use Only: SF#: 266803; SCR#: 188458

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	SM 5310 B (mod. 2000)	Moisture (2540 G)	Remarks
1682 Harrington Rd 0" to 6"	5-11-16	1215	X		X			1	X	X	
1682 Harrington Rd 6" to 12"	5-11-16	1220	X		X			1	X	X	
1682 Harrington Rd 12" to 18"	5-11-16	1241	X		X			1	X	X	
1682 Harrington Rd 18" to 24"	5-11-16	1247	X		X			1	X	X	

Turnaround Time Requested (TAT) (please check): Standard ☑ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results:

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☑		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	5-11-16	1710			
			[signature]	5-12-16	930

Airbill No.:
Relinquished by Commercial Carrier.
UPS ____ FedEx X Other ____

Temperature upon receipt 1.6 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 146340

Group Number(s): 1660038

Client: C.T. Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	05/12/2016 9:30
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Na2S203
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 16:48 on 05/12/2016

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.6	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: April 01, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/23/2016
Group Number: 1643263
SDG: SGP09
PO Number: 16.6131
State of Sample Origin: VT

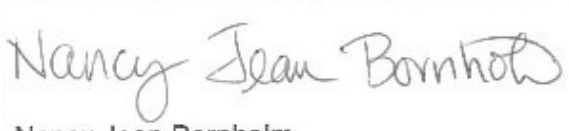
Client Sample Description	Lancaster Labs (LL) #
Pembroke Stockpile 1 Grab Soil	8298601
29 Lever St 0" to 6" Grab Soil	8298602
29 Lever St 6" to 12" Grab Soil	8298603
29 Lever St 12" to 18" Grab Soil	8298604
29 Lever St 18" to 24" Grab Soil	8298605
2009 N Bennington Rd 0" to 6" Grab Soil	8298606
2009 N Bennington Rd 6" to 12" Grab Soil	8298607
2009 N Bennington Rd 12" to 18" Grab Soil	8298608
9 School St Maple Tree 0" to 6" Grab Soil	8298609
9 School St Maple Tree 6" to 12" Grab Soil	8298610
9 School St Maple Tree 12" to 18" Grab Soil	8298611
9 School St NE Corner PL 0" to 6" Grab Soil	8298612
9 School St NE Corner PL 6" to 12" Grab Soil	8298613
9 School St NE Corner PL 12" to 18" Grab Soil	8298614
9 School St NE Corner PL Duplicate Grab Soil	8298615
Auger Rinse #6 Grab Blank Water	8298616
Bowl Rinse #6 Grab Blank Water	8298617
Transport Blank 032216 Water	8298618
WWTP Liquid Grab Sludge	8298619
Pembroke Garden 0" to 6" Grab Soil	8298620
Pembroke Garden 0" to 6" MS Grab Soil	8298621
Pembroke Garden 0" to 6" MSD Grab Soil	8298622
Pembroke Garden 0" to 6" Dupl Grab Soil	8298623
Pembroke Garden 6" to 12" Grab Soil	8298624
Pembroke Garden 12" to 18" Grab Soil	8298625
Pembroke Garden 18" to 24" Grab Soil	8298626
Pembroke Stockpile 2 Grab Soil	8298627

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1643263

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Batch #: 16085004 (Sample number(s): 8298616-8298619 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorohexanesulfonate

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluorooctanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Batch #: 16085005 (Sample number(s): 8298601-8298615, 8298620-8298622, 8298624-8298627 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorohexanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16085049531A (Sample number(s): 8298601-8298609 UNSPK: 8298609 BKG: 8298609)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16085949631A (Sample number(s): 8298620-8298621, 8298623-8298627 UNSPK: 8298620 BKG: 8298620)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16085949631B (Sample number(s): 8298610-8298612 UNSPK: 8298611 BKG: 8298611)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16085949632A (Sample number(s): 8298613-8298614 UNSPK: 8298613 BKG: 8298613)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Sample Description: 29 Lever St 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298602
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 10:30 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.57		0.26	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.77	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.61		0.26	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.0	J	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	1.4		0.38	0.77	1
14027	Perfluorotetradecanoic acid	376-06-7	0.39	J	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.77	U	0.77	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.77	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	14,600		1,010	3,020	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/28/2016 23:35	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085049531A	03/25/2016 11:56	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 29 Lever St 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298603
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 10:40 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.63	U	0.63	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.63	U	0.63	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.42	J	0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.89	U	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	1.1		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.76	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	8,230		821	2,460	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/28/2016 23:49	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085049531A	03/25/2016 12:03	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 29 Lever St 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298604
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 10:50 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.89	U	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	1.1		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.76	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,460		482	1,440	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 00:32	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085049531A	03/25/2016 12:36	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 29 Lever St 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298605
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 11:00 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.63	U	0.63	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.50	U	0.50	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.63	U	0.63	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.88	U	0.88	2.0	1
14027	Perfluorooctanoic acid	335-67-1	2.5		0.38	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.75	U	0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.75	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	4,480		848	2,540	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	20.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 00:46	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085049531A	03/25/2016 12:52	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/01/2016 12:05

Group Number: 1643263

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16085005	Sample number(s): 8298601-8298615,8298620-8298622,8298624-8298627			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16085004	Sample number(s): 8298616-8298619			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16085049531A	Sample number(s): 8298601-8298609			
TOC	100	U	100	300
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627			
TOC	100	U	100	300
Batch number: 16085949631B	Sample number(s): 8298610-8298612			
TOC	100	U	100	300
Batch number: 16085949632A	Sample number(s): 8298613-8298614			
TOC	100	U	100	300

LCS/LCSD

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/01/2016 12:05

Group Number: 1643263

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16085005	Sample number(s): 8298601-8298615,8298620-8298622,8298624-8298627								
Perfluorobutanesulfonate	20	15.48			77		70-130		
Perfluorodecanoic acid	20	18.64			93		70-130		
Perfluorododecanoic acid	20	18.1			91		70-130		
Perfluoroheptanoic acid	20	14.93			75		70-130		
Perfluorohexanesulfonate	20	17.86			89		70-130		
Perfluorohexanoic acid	20	16.82			84		70-130		
Perfluorononanoic acid	20	16.54			83		70-130		
Perfluoro-octanesulfonate	20	16.03			80		70-130		
Perfluorooctanoic acid	20	16.71			84		70-130		
Perfluorotetradecanoic acid	20	19.16			96		70-130		
Perfluorotridecanoic acid	20	17.51			88		70-130		
Perfluoroundecanoic acid	20	18.55			93		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8298616-8298619								
Perfluorooctanoic acid	200	187.69	200	208.39	94	104	70-130	10	30
Perfluorononanoic acid	200	180.81	200	225.92	90	113	70-130	22	30
Perfluorodecanoic acid	200	216.97	200	234.99	108	117	70-130	8	30
Perfluoroundecanoic acid	200	199.88	200	208.01	100	104	70-130	4	30
Perfluorododecanoic acid	200	216.91	200	236.94	108	118	70-130	9	30
Perfluorotridecanoic acid	200	209.67	200	257.49	105	129	70-130	20	30
Perfluorotetradecanoic acid	200	194.48	200	228.2	97	114	70-130	16	30
Perfluorohexanoic acid	200	179.57	200	206.29	90	103	70-130	14	30
Perfluoroheptanoic acid	200	193.13	200	221.2	97	111	70-130	14	30
Perfluorobutanesulfonate	200	143.28	200	144.13	72	72	70-130	1	30
Perfluorohexanesulfonate	200	179.57	200	248.43	90	124	70-130	32*	30
Perfluoro-octanesulfonate	200	152.32	200	187.87	76	94	70-130	21	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16085049531A	Sample number(s): 8298601-8298609								
TOC	5430	4355.58			80		47-143		
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627								
TOC	5430	5303.03			98		47-143		
Batch number: 16085949631B	Sample number(s): 8298610-8298612								
TOC	5430	5303.03			98		47-143		
Batch number: 16085949632A	Sample number(s): 8298613-8298614								
TOC	5430	5633.66			104		47-143		
	%	%	%	%					
Batch number: 16083820007A	Sample number(s): 8298601-8298615,8298620-8298623								
Moisture	89.5	89.47			100		99-101		
Moisture	89.5	89.47			100		99-101		
Moisture Duplicate	89.5	89.47			100		99-101		
Batch number: 16083820007B	Sample number(s): 8298624-8298627								
Moisture	89.5	89.47			100		99-101		

MS/MSD

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/01/2016 12:05

Group Number: 1643263

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16085005	Sample number(s): 8298601-8298615,8298620-8298622,8298624-8298627 UNSPK: 8298620										
Perfluorobutanesulfonate	0.50	U	20	19.77	20	17.06	99	85	70-130	15	30
Perfluorodecanoic acid	0.20	U	20	19.35	20	20.85	97	104	70-130	7	30
Perfluorododecanoic acid	0.40	U	20	19.96	20	20.51	100	103	70-130	3	30
Perfluoroheptanoic acid	0.30	U	20	17.45	20	19.01	87	95	70-130	9	30
Perfluorohexanesulfonate	0.50	U	20	16.01	20	22.29	80	111	70-130	33*	30
Perfluorohexanoic acid	0.20	U	20	20.75	20	19.87	104	99	70-130	4	30
Perfluorononanoic acid	0.285		20	17.53	20	18.76	86	92	70-130	7	30
Perfluoro-octanesulfonate	0.70	U	20	22.25	20	20.85	111	104	70-130	7	30
Perfluorooctanoic acid	0.621		20	20.15	20	21.78	98	106	70-130	8	30
Perfluorotetradecanoic acid	0.30	U	20	18.9	20	22.87	95	114	70-130	19	30
Perfluorotridecanoic acid	0.60	U	20	20.16	20	18.01	101	90	70-130	11	30
Perfluoroundecanoic acid	0.30	U	20	19.31	20	21.05	97	105	70-130	9	30
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8298616-8298619 UNSPK: 8298619										
Perfluorooctanoic acid	353.46		200	264.76			-43*		70-130		
Perfluorononanoic acid	11.77		200	212.06			100		70-130		
Perfluorodecanoic acid	4	U	200	202.02			101		70-130		
Perfluoroundecanoic acid	7.24		200	217.48			105		70-130		
Perfluorododecanoic acid	10	U	200	196.94			98		70-130		
Perfluorotridecanoic acid	8	U	200	175.4			88		70-130		
Perfluorotetradecanoic acid	10	U	200	124.3			62*		70-130		
Perfluorohexanoic acid	4	U	200	283.38			142*		70-130		
Perfluoroheptanoic acid	32.94		200	220.71			94		70-130		
Perfluorobutanesulfonate	20	U	200	142.26			71		70-130		
Perfluorohexanesulfonate	20	U	200	402			201*		70-130		
Perfluoro-octanesulfonate	20	U	200	277.75			139*		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16085049531A	Sample number(s): 8298601-8298609 UNSPK: 8298609										
TOC	7316.27		36330	38474.58			86		47-143		
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627 UNSPK: 8298620										
TOC	9011.75		15840	20898.05			75		47-143		
Batch number: 16085949631B	Sample number(s): 8298610-8298612 UNSPK: 8298611										
TOC	5226.63		40053	55767.69			126		47-143		
Batch number: 16085949632A	Sample number(s): 8298613-8298614 UNSPK: 8298613										
TOC	9810.05		17104	26157.35			96		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16085049531A	Sample number(s): 8298601-8298609 BKG: 8298609			

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1643263
Reported: 04/01/2016 12:05

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
TOC	7316.27	3693.5	66* (1)	7
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627 BKG: 8298620			
TOC	9011.75	7631.15	17*	7
Batch number: 16085949631B	Sample number(s): 8298610-8298612 BKG: 8298611			
TOC	5226.63	4793.28	9* (1)	7
Batch number: 16085949632A	Sample number(s): 8298613-8298614 BKG: 8298613			
TOC	9810.05	9008.73	9*	7
	%	%		
Batch number: 16083820007A	Sample number(s): 8298601-8298615,8298620-8298623 BKG: 8298620, P298620			
Moisture	17.39	17.01	2	5
Moisture	17.39	17.01	2	5
Moisture Duplicate	17.39	17.01	2	5
Batch number: 16083820007B	Sample number(s): 8298624-8298627 BKG: 8298626			
Moisture	14.71	14.87	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643263 Sample # 8298601-27

COC # 493490

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested — Preservation Codes

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EDA S37	TOC	Moisture
Pembroke Stockpile 1	3/22/16	0925		X	2	X	X	X
29 Lever St 0" to 6"	3/22/16	1030	X		2	X	X	X
29 Lever St 6" to 12"	3/22/16	1040	X		2	X	X	X
29 Lever St 12" to 18"	3/22/16	1050	X		2	X	X	X
29 Lever St 18" to 24"	3/22/16	1100	X		2	X	X	X
2009 N. Bennington Rd 0"to6"	3/22/16	1131	X		2	X	X	X
2009 N. Bennington Rd 6"to 12"	3/22/16	1137	X		2	X	X	X
2009 N. Bennington Rd 12"to 18"	3/22/16	1153	X		2	X	X	X
9 School St Maple Tree 0"to6"	3/22/16	1254	X		2	X	X	X
9 School St Mple Tree 6"to12"	3/22/16	1301	X		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/22/16	17:00			
			[signature]	3/23/16	1000

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx X Other ____

Temperature upon receipt 2.9 / 3.9 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643763 Sample # 8298601-27

COC # 493362

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Sol Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Lorene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ | Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ | Other: Liquid Sludge

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Sediment	Soil	Ground Water	Potable Water	Surface Water	NPDES Water	Other: Liquid Sludge	Total # of Containers	EPA 537	TOC	Moisture	EPA 537	Remarks
9 School St Maple Tree 12" to 18"	3/22/16	1313	X			X						2	X	X	X		
9 School St NE Corner PL 0" to 6"	3/22/16	1333	X			X						2	X	X	X		
9 School St NE Corner PL 6" to 12"	3/22/16	1340	X			X						2	X	X	X		
9 School St NE Corner PL 12" to 18"	3/22/16	1357	X			X						2	X	X	X		
9 School St NE Corner PL Duplicate	3/22/16	1400	X			X						1	X				
Auger Rinse #6	3/22/16	1410	X					X				2				X	Lab DI Water
Bowl Rinse #6	3/22/16	1412	X					X				2				X	Lab DI Water
Transport Blank 032216	3/18/16	—	X					X				1				X	Lab supplied
WWTF Liquid Sludge	3/22/16	1435	X								X	2				X	
Pembroke Garden 0" to 6"	3/22/16	1500	X			X						4	X	X	X		MS/MSD Here

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 Day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type VI (Raw Data Only)

Type III (Reduced non-CLP)

NJ DKQP

TX TRRP-13

NYSDEC Category A or (B)

MA MCP

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Lorene Cameron	3/22/16	17:00			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
			[illegible]	3/23/16	1000

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 2.9 / 3.9 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643763 Sample # 8298601-27

COC # 493363

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected:	For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil	Sediment	Water: Ground	Potable	NPDES	Surface	Other:	Total # of Containers	Analysis Requested: EPA 537	TOC	Moisture
Pembroke Garden 6" to 12"	3/22/16	1506	X		X							2	X	X	X
Pembroke Garden 12" to 18"	3/22/16	1512	X		X							2	X	X	X
Pembroke Garden 18" to 24"	3/22/16	1520	X		X							2	X	X	X
Pembroke Stockpile 2	3/22/16	1538	X		X							2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/24/16	17:00			
			Kristen Abel	3/25/16	1005

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx X Other

Temperature upon receipt 2.9 / 3.9 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140307

Group Number(s): 1643263

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/23/2016 10:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	1
Samples Intact:	No	Trip Blank Type:	Na2S2O3
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:00 on 03/23/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.9	DT	Wet	Y	Bagged	N
2	DT146	3.9	DT	Wet	Y	Bagged	N

Samples Not Intact Details

Sample ID on Label	Bottle Code	Bottle Quantity	Container Salvageable?	Comments
2009 N. Bennington Rd 6" to 12	125 ml wide mouth glass - None	1	N	subsampled for TOC/moist.

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
F 717-656-2681
www.LancasterLabs.cor

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: July 08, 2016

Project: SGPP - Bennington

Submittal Date: 05/12/2016
Group Number: 1660039
SDG: SGP76
PO Number: 16.6131
State of Sample Origin: VT

Client Sample Description	Lancaster Labs (LL) #
Peace Farm 0"to6" Grab Soil	8377465
Peace Farm 6"to12" Grab Soil	8377466
Peace Farm 12"to18" Grab Soil	8377467
Peace Farm 18"to24" Grab Soil	8377468

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: SGPP - Bennington
LL Group #: 1660039

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8377465, 8377466, 8377467, 8377468

The recovery for a target analyte (PFTeDA) in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.
The recovery for perfluorododecanoic acid in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. The LCS was re-injected outside the extract holding time and recovery was within specifications.
All data is included in data package.

Batch #: 16153005 (Sample number(s): 8377465-8377468 UNSPK: 8377457)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorotetradecanoic acid

The recovery(ies) for the following analyte(s) in the LCS were below the acceptance window: Perfluorododecanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorododecanoic acid, Perfluorotridecanoic acid

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorotridecanoic acid

Sample Description: Peace Farm 0"to6" Grab Soil
500 McCulough Road

LL Sample # SW 8377465
LL Group # 1660039
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 14:10 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:02

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

PF-01 SDG#: SGP76-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.71	U	0.71	2.3	1
14027	Perfluorodecanoic acid	335-76-2	0.28	U	0.28	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.57	U	0.57	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.42	U	0.42	0.85	1
14027	Perfluorohexanesulfonate	355-46-4	0.71	U	0.71	2.3	1
14027	Perfluorohexanoic acid	307-24-4	0.28	U	0.28	0.57	1
14027	Perfluorononanoic acid	375-95-1	0.28	U	0.28	0.57	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.99	U	0.99	2.3	1
14027	Perfluorooctanoic acid	335-67-1	3.0		0.42	0.85	1
14027	Perfluorotetradecanoic acid	376-06-7	0.42	U	0.42	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.85	U	0.85	1.7	1
14027	Perfluoroundecanoic acid	2058-94-8	0.42	U	0.42	0.85	1

The recovery for a target analyte (PFTeDA) in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for perfluorododecanoic acid in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. The LCS was re-injected outside the extract holding time and recovery was within specifications. All data is included in data package.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	26,000		516	1,550	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	29.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16153005	06/24/2016 14:34	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16153005	06/02/2016 13:30	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: Peace Farm 0"to6" Grab Soil
500 McCulough Road

LL Sample # SW 8377465
LL Group # 1660039
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 14:10 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:02

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

PF-01 SDG#: SGP76-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	16139049531A	05/19/2016 00:39	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16137820003A	05/16/2016 22:56	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Peace Farm 6"to12" Grab Soil
500 McCulough Road

LL Sample # SW 8377466
LL Group # 1660039
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 14:15 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:02

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

PF-02 SDG#: SGP76-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.77	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.26	U	0.26	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.90	U	0.90	2.0	1
14027	Perfluorooctanoic acid	335-67-1	3.4		0.38	0.77	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.77	U	0.77	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.77	1

The recovery for a target analyte (PFTeDA) in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for perfluorododecanoic acid in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. The LCS was re-injected outside the extract holding time and recovery was within specifications. All data is included in data package.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	20,900		766	2,300	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16153005	06/24/2016 15:13	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16153005	06/02/2016 13:30	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: Peace Farm 6"to12" Grab Soil
500 McCulough Road

LL Sample # SW 8377466
LL Group # 1660039
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 14:15 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:02

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

PF-02 SDG#: SGP76-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	16139049531A	05/19/2016 01:02	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16137820003A	05/16/2016 22:56	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Peace Farm 12"to18" Grab Soil
500 McCulough Road

LL Sample # SW 8377467
LL Group # 1660039
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 14:30 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:02

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

PF-03 SDG#: SGP76-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.71	U	0.71	2.3	1
14027	Perfluorodecanoic acid	335-76-2	0.28	U	0.28	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.56	U	0.56	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.42	U	0.42	0.85	1
14027	Perfluorohexanesulfonate	355-46-4	0.71	U	0.71	2.3	1
14027	Perfluorohexanoic acid	307-24-4	0.28	U	0.28	0.56	1
14027	Perfluorononanoic acid	375-95-1	0.28	U	0.28	0.56	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.99	U	0.99	2.3	1
14027	Perfluorooctanoic acid	335-67-1	5.1		0.42	0.85	1
14027	Perfluorotetradecanoic acid	376-06-7	0.42	U	0.42	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.85	U	0.85	1.7	1
14027	Perfluoroundecanoic acid	2058-94-8	0.42	U	0.42	0.85	1

The recovery for a target analyte (PFTeDA) in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for perfluorododecanoic acid in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. The LCS was re-injected outside the extract holding time and recovery was within specifications. All data is included in data package.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	23,700		1,070	3,200	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	29.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16153005	06/24/2016 15:33	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16153005	06/02/2016 13:30	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: Peace Farm 12"to18" Grab Soil
500 McCulough Road

LL Sample # SW 8377467
LL Group # 1660039
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 14:30 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:02

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

PF-03 SDG#: SGP76-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	16139049531A	05/19/2016 01:46	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16137820003A	05/16/2016 22:56	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Peace Farm 18"to24" Grab Soil
500 McCulough Road

LL Sample # SW 8377468
LL Group # 1660039
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 14:40 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:02

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

PF-04 SDG#: SGP76-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.70	U	0.70	2.2	1
14027	Perfluorodecanoic acid	335-76-2	0.28	U	0.28	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.56	U	0.56	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.42	U	0.42	0.84	1
14027	Perfluorohexanesulfonate	355-46-4	0.70	U	0.70	2.2	1
14027	Perfluorohexanoic acid	307-24-4	0.28	U	0.28	0.56	1
14027	Perfluorononanoic acid	375-95-1	0.28	U	0.28	0.56	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.98	U	0.98	2.2	1
14027	Perfluorooctanoic acid	335-67-1	6.5		0.42	0.84	1
14027	Perfluorotetradecanoic acid	376-06-7	0.42	U	0.42	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.84	U	0.84	1.7	1
14027	Perfluoroundecanoic acid	2058-94-8	0.42	U	0.42	0.84	1

The recovery for a target analyte (PFTeDA) in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for perfluorododecanoic acid in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. The LCS was re-injected outside the extract holding time and recovery was within specifications. All data is included in data package.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	15,300		819	2,460	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	28.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16153005	06/24/2016 15:52	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16153005	06/02/2016 13:30	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: Peace Farm 18"to24" Grab Soil
500 McCulough Road

LL Sample # SW 8377468
LL Group # 1660039
Account # 37191

Project Name: SGPP - Bennington

Collected: 05/11/2016 14:40 by LC

Submitted: 05/12/2016 09:30
Reported: 07/08/2016 15:02

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

PF-04 SDG#: SGP76-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	16139049531A	05/19/2016 02:18	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16137820003A	05/16/2016 22:56	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 07/08/2016 15:02

Group Number: 1660039

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16153005	Sample number(s): 8377465-8377468			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	mg/kg		mg/kg	mg/kg
Batch number: 16139049531A	Sample number(s): 8377465-8377468			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16153005	Sample number(s): 8377465-8377468								
Perfluorobutanesulfonate	17.68	17.9			101		70-130		
Perfluorodecanoic acid	20	20.2			101		70-130		
Perfluorododecanoic acid	20	5.02			25*		70-130		
Perfluoroheptanoic acid	20	19			95		70-130		
Perfluorohexanesulfonate	18.92	19.9			105		70-130		
Perfluorohexanoic acid	20	20			100		70-130		
Perfluorononanoic acid	20	19.4			97		70-130		
Perfluoro-octanesulfonate	19.12	20			105		70-130		
Perfluorooctanoic acid	20	20.5			103		70-130		
Perfluorotetradecanoic acid	20	40.9			205*		70-130		
Perfluorotridecanoic acid	20	19.6			98		70-130		
Perfluoroundecanoic acid	20	18.6			93		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16139049531A	Sample number(s): 8377465-8377468								
TOC	5430	5141.64			95		47-143		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 07/08/2016 15:02

Group Number: 1660039

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	%	%	%	%					
Batch number: 16137820003A	Sample number(s): 8377465-8377468								
Moisture	89.5	89.48			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g		MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16153005	Sample number(s): 8377465-8377468 UNSPK: 8377457										
Perfluorobutanesulfonate	0.50	U	17.68	16.5	17.68	17.7	93	100	70-130	7	30
Perfluorodecanoic acid	0.20	U	20	19.3	20	23.1	97	116	70-130	18	30
Perfluorododecanoic acid	0.40	U	20	10.1	20	9.90	51*	50*	70-130	2	30
Perfluoroheptanoic acid	0.30	U	20	19	20	19.9	95	100	70-130	5	30
Perfluorohexanesulfonate	0.50	U	18.92	20.5	18.92	20.7	108	109	70-130	1	30
Perfluorohexanoic acid	0.20	U	20	19.3	20	19.8	97	99	70-130	3	30
Perfluorononanoic acid	0.20	U	20	22.3	20	20.2	112	101	70-130	10	30
Perfluoro-octanesulfonate	0.70	U	19.12	20.2	19.12	21.9	106	115	70-130	8	30
Perfluorooctanoic acid	1.84		20	23.1	20	23.2	106	107	70-130	0	30
Perfluorotetradecanoic acid	0.30	U	20	20.2	20	24.5	101	123	70-130	19	30
Perfluorotridecanoic acid	0.60	U	20	11.1	20	7.94	56*	40*	70-130	33*	30
Perfluoroundecanoic acid	0.30	U	20	20.1	20	24.7	101	124	70-130	21	30
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16139049531A	Sample number(s): 8377465-8377468 UNSPK: P377457										
TOC	2950.03		27298	31428.57			104		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 16139049531A	Sample number(s): 8377465-8377468 BKG: P377457			
TOC	2950.03	3144.27	6	7
	%	%		
Batch number: 16137820003A	Sample number(s): 8377465-8377468 BKG: P377917			
Moisture	6.18	6.30	2	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1660039
Reported: 07/08/2016 15:02

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

eurofins Lancaster Laboratories

Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1660039 Sample #: 8377465-68 COC#: 14597

Client: **C.T. Male Associates**	
Project Name/#: 16.6131	Site ID: 500 McCullough Road
Project Manager: Kirk Moline	P.O. #:
Sampler: Larene Cameron	
Phone #: 518-786-7502	Quote #: 214135
State where sample(s) were collected: VT	

For Lab Use Only
SF#: 271284
SCR#: 188162

Preservation Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 P = H_3PO_4
O = Other

Matrix: Sediment ☐ Ground ☐ Surface ☐ Soil ☒ Potable ☐ NPDES ☐

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other:	Total # of Containers	PFCs (EPA 537 mod.)											Remarks
PEACE FARM 0" to 6"	5-11-16	1410	X		X			1	X											
PEACE FARM 6" to 12"	5-11-16	1415	X		X			1	X											
PEACE FARM 12" to 18"	5-11-16	1430	X		X			1	X											
PEACE FARM 18" to 24"	5-11-16	1440	X		X			1	X											

Turnaround Time Requested (TAT) (please check): Standard ☑ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results:

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☑		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
Edwin Hernandez	5/6/16	1145	Larene Cameron	5/6/16	1145
Larene Cameron	5/11/16	1710			
			[illegible]	5-12-16	930

Airbill No.:
Relinquished by Commercial Carrier:
UPS ____ FedEx X ____ Other ____

Temperature upon receipt 1.6 °C

eurofins Lancaster Laboratories

Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1660039 Sample #: 8377465-68 COC#: 14598

Client: C.T. Male Associates

Project Name/#: 16.6131 Site ID: 580 McCullough Road

Project Manager: Kirk Moline P.O. #:

Sampler: Larene Carran

Phone #: 518-786-7502 Quote #: 214135

State where sample(s) were collected: VT

For Lab Use Only
SF#: 266803
SCR#: 188458

Preservation Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 P = H_3PO_4
O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Matrix: Water	Matrix: Other	Total # of Containers	SM 5310 B (mod. 2000)	Moisture (2540 G)	Remarks
PEACE FARM 0" to 6"	5-11-16	1410	X		X			1	X	X	
PEACE FARM 6" to 12"	5-11-16	1415	X		X			1	X	X	
PEACE FARM 12" to 18"	5-11-16	1430	X		X			1	X	X	
PEACE FARM 18" TO 24"	5-11-16	1440	X		X			1	X	X	

Matrix: Sediment ☐ Soil ☒; Water: Ground ☐ Surface ☐ Potable ☐ NPDES ☐

Turnaround Time Requested (TAT) (please check): Standard ☑ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results:

Data Package Options (please check if required)
Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☑
EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
Larene Cameron	5-11-16	1710			
			[signature]	5-12-16	930

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx X Other ______

Temperature upon receipt 1.6 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 146340

Group Number(s): 166039

Client: C.T. Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	05/12/2016 9:30
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Na2S203
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 16:48 on 05/12/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.6	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 29, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/19/2016
Group Number: 1642373
SDG: SGP05
PO Number: 16.6131
State of Sample Origin: VT

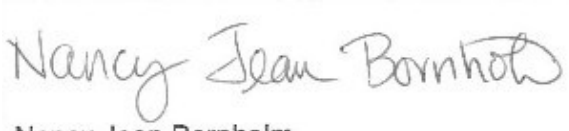
Client Sample Description	Lancaster Labs (LL) #
6 Royal St 0" to 6" Grab Soil	8294109
6 Royal St 6" to 12" Grab Soil	8294110
6 Royal St 12" to 18" Grab Soil	8294111
6 Royal St 18" to 24" Grab Soil	8294112
22 Asa Way 0" to 6" Grab Soil	8294113
22 Asa Way 6" to 12" Grab Soil	8294114
5 Scarey Lane 0" to 6" Grab Soil	8294115
5 Scarey Lane 6" to 12" Grab Soil	8294116
5 Scarey Lane 12" to 18" Grab Soil	8294117
5 Scarey Lane 18" to 24" Grab Soil	8294118
Auger Rinse #2 Grab Blank Water	8294119
Transport Blank Water	8294120
32 Scarey Lane 0" to 6" Grab Soil	8294121
32 Scarey Lane 6" to 12" Grab Soil	8294122
32 Scarey Lane 12" to 18" Grab Soil	8294123
32 Scarey Lane 18" to 24" Grab Soil	8294124
15 Scarey Lane 0" to 6" Grab Soil	8294125
15 Scarey Lane 0" to 6" MS Grab Soil	8294126
15 Scarey Lane 0" to 6" MSD Grab Soil	8294127
15 Scarey Lane 0" to 6" Dupl Grab Soil	8294128
15 Scarey Lane 6" to 12" Grab Soil	8294129
15 Scarey Lane Duplicate Grab Soil	8294130
765 Murphy Rd 0" to 6" Grab Soil	8294131
765 Murphy Rd 6" to 12" Grab Soil	8294132
765 Murphy Rd 12" to 18" Grab Soil	8294133
765 Murphy Rd 18" to 24" Grab Soil	8294134
Bowl Rinse #2 Grab Blank Water	8294135

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1642373

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8294119, 8294120, 8294135

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8294119-8294120, 8294135)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16083007 (Sample number(s): 8294129-8294134 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorohexanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorohexanesulfonate, Perfluoro-octanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16081049531A (Sample number(s): 8294109-8294118 UNSPK: 8294109 BKG: 8294109)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16081049531B (Sample number(s): 8294121-8294126, 8294128-8294129, 8294131-8294134 UNSPK: 8294125 BKG: 8294125)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16081820004B (Sample number(s): 8294122-8294133 BKG: 8294125)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: 765 Murphy Rd 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294131
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 15:50 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0520 SDG#: SGP05-20

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.71	U	0.71	2.3	1
14027	Perfluorodecanoic acid	335-76-2	0.29	U	0.29	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.57	U	0.57	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.43	U	0.43	0.86	1
14027	Perfluorohexanesulfonate	355-46-4	0.71	U	0.71	2.3	1
14027	Perfluorohexanoic acid	307-24-4	0.29	U	0.29	0.57	1
14027	Perfluorononanoic acid	375-95-1	0.34	J	0.29	0.57	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.3	J	1.0	2.3	1
14027	Perfluorooctanoic acid	335-67-1	6.4		0.43	0.86	1
14027	Perfluorotetradecanoic acid	376-06-7	0.43	U	0.43	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.86	U	0.86	1.7	1
14027	Perfluoroundecanoic acid	2058-94-8	0.43	U	0.43	0.86	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	20,400		536	1,610	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	30.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083007	03/26/2016 22:14	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531B	03/22/2016 01:53	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004B	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 765 Murphy Rd 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294132
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 16:00 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0521 SDG#: SGP05-21

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.76	U	0.76	2.4	1
14027	Perfluorodecanoic acid	335-76-2	0.30	U	0.30	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.61	U	0.61	1.2	1
14027	Perfluoroheptanoic acid	375-85-9	0.46	U	0.46	0.91	1
14027	Perfluorohexanesulfonate	355-46-4	0.76	U	0.76	2.4	1
14027	Perfluorohexanoic acid	307-24-4	0.30	U	0.30	0.61	1
14027	Perfluorononanoic acid	375-95-1	0.30	U	0.30	0.61	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.1	U	1.1	2.4	1
14027	Perfluorooctanoic acid	335-67-1	6.3		0.46	0.91	1
14027	Perfluorotetradecanoic acid	376-06-7	0.46	U	0.46	1.2	1
14027	Perfluorotridecanoic acid	72629-94-8	0.91	U	0.91	1.8	1
14027	Perfluoroundecanoic acid	2058-94-8	0.46	U	0.46	0.91	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	13,200		459	1,380	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	34.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083007	03/26/2016 22:28	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531B	03/22/2016 02:36	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004B	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 765 Murphy Rd 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294133
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 16:12 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0522 SDG#: SGP05-22

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.67	U	0.67	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.27	U	0.27	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.53	U	0.53	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.40	U	0.40	0.80	1
14027	Perfluorohexanesulfonate	355-46-4	0.67	U	0.67	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.27	U	0.27	0.53	1
14027	Perfluorononanoic acid	375-95-1	0.27	U	0.27	0.53	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.94	U	0.94	2.1	1
14027	Perfluorooctanoic acid	335-67-1	2.6		0.40	0.80	1
14027	Perfluorotetradecanoic acid	376-06-7	0.40	U	0.40	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.80	U	0.80	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.40	U	0.40	0.80	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,220		222	666	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	25.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083007	03/26/2016 22:42	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531B	03/22/2016 02:19	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004B	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 765 Murphy Rd 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294134
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 16:23 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0523 SDG#: SGP05-23

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.63	U	0.63	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.50	U	0.50	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.63	U	0.63	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.88	U	0.88	2.0	1
14027	Perfluorooctanoic acid	335-67-1	1.6		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.76	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	3,440		210	631	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	20.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083007	03/26/2016 22:56	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531B	03/22/2016 02:27	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820003A	03/21/2016 14:11	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
Batch number: 16083007	Sample number(s): 8294129-8294134			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8294119-8294120,8294135			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Batch number: 16081049531A	Sample number(s): 8294109-8294118			
TOC	100	U	100	300
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127								
Perfluorobutanesulfonate	20	19.13			96		70-130		
Perfluorodecanoic acid	20	20.15			101		70-130		
Perfluorododecanoic acid	20	21.22			106		70-130		
Perfluoroheptanoic acid	20	23.61			118		70-130		
Perfluorohexanesulfonate	20	16.81			84		70-130		
Perfluorohexanoic acid	20	18.65			93		70-130		
Perfluorononanoic acid	20	21.45			107		70-130		
Perfluoro-octanesulfonate	20	19.23			96		70-130		
Perfluorooctanoic acid	20	18.42			92		70-130		
Perfluorotetradecanoic acid	20	17.58			88		70-130		
Perfluorotridecanoic acid	20	19.08			95		70-130		
Perfluoroundecanoic acid	20	21.06			105		70-130		
Batch number: 16083007	Sample number(s): 8294129-8294134								
Perfluorobutanesulfonate	20	16.31			82		70-130		
Perfluorodecanoic acid	20	20.04			100		70-130		
Perfluorododecanoic acid	20	19.69			98		70-130		
Perfluoroheptanoic acid	20	23.65			118		70-130		
Perfluorohexanesulfonate	20	21.63			108		70-130		
Perfluorohexanoic acid	20	20.64			103		70-130		
Perfluorononanoic acid	20	17.96			90		70-130		
Perfluoro-octanesulfonate	20	19.76			99		70-130		
Perfluorooctanoic acid	20	19.43			97		70-130		
Perfluorotetradecanoic acid	20	20.15			101		70-130		
Perfluorotridecanoic acid	20	20.23			101		70-130		
Perfluoroundecanoic acid	20	20.17			101		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8294119-8294120,8294135								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16081049531A	Sample number(s): 8294109-8294118								
TOC	5430	5548.1			102		47-143		
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134								
TOC	5430	5548.1			102		47-143		
	%	%	%	%					
Batch number: 16081820003A	Sample number(s): 8294134								
Moisture	89.5	89.47			100		99-101		
Batch number: 16081820004A	Sample number(s): 8294109-8294118,8294121								
Moisture	89.5	89.53			100		99-101		
Batch number: 16081820004B	Sample number(s): 8294122-8294133								
Moisture	89.5	89.53			100		99-101		
Moisture	89.5	89.53			100		99-101		
Moisture Duplicate	89.5	89.53			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g	ng/g					
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127 UNSPK: 8294125									
Perfluorobutanesulfonate	0.50 U	20	16.77	20	17.21	84	86	70-130	3	30
Perfluorodecanoic acid	1.51	20	22.99	20	22.62	107	106	70-130	2	30
Perfluorododecanoic acid	0.826	20	21.78	20	22.23	105	107	70-130	2	30
Perfluoroheptanoic acid	0.30 U	20	23.26	20	20.21	116	101	70-130	14	30
Perfluorohexanesulfonate	0.50 U	20	19.99	20	18.07	100	90	70-130	10	30
Perfluorohexanoic acid	0.292	20	19.68	20	18.57	97	91	70-130	6	30
Perfluorononanoic acid	0.339	20	21.68	20	21.51	107	106	70-130	1	30
Perfluoro-octanesulfonate	0.70 U	20	14.5	20	15.09	72	75	70-130	4	30
Perfluorooctanoic acid	1.13	20	20.62	20	20.3	97	96	70-130	2	30
Perfluorotetradecanoic acid	0.30 U	20	18.21	20	20.02	91	100	70-130	9	30
Perfluorotridecanoic acid	0.60 U	20	20.28	20	19.02	101	95	70-130	6	30
Perfluoroundecanoic acid	1.03	20	19.61	20	21	93	100	70-130	7	30
Batch number: 16083007	Sample number(s): 8294129-8294134 UNSPK: 8294129									
Perfluorobutanesulfonate	0.50 U	20	20.49	20	15.85	102	79	70-130	26	30
Perfluorodecanoic acid	1.06	20	25.19	20	24.46	121	117	70-130	3	30
Perfluorododecanoic acid	0.478	20	21.26	20	24.16	104	118	70-130	13	30
Perfluoroheptanoic acid	0.30 U	20	23.28	20	25.27	116	126	70-130	8	30
Perfluorohexanesulfonate	0.50 U	20	17.34	20	12.17	87	61*	70-130	35*	30
Perfluorohexanoic acid	0.264	20	21.43	20	20.18	106	100	70-130	6	30
Perfluorononanoic acid	0.388	20	21.82	20	20.99	107	103	70-130	4	30
Perfluoro-octanesulfonate	0.70 U	20	15.84	20	24.76	79	124	70-130	44*	30
Perfluorooctanoic acid	1.06	20	23.61	20	21.75	113	103	70-130	8	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorotetradecanoic acid	0.30 U	20	20.41	20	24.03	102	120	70-130	16	30
Perfluorotridecanoic acid	0.60 U	20	17.55	20	22.39	88	112	70-130	24	30
Perfluoroundecanoic acid	0.457	20	21.24	20	22.78	104	112	70-130	7	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16081049531A	Sample number(s): 8294109-8294118 UNSPK: 8294109									
TOC	7485.57	41494	54951.59			114		47-143		
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134 UNSPK: 8294125									
TOC	17171.34	60852	89858.01			119		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16081049531A	Sample number(s): 8294109-8294118 BKG: 8294109			
TOC	7485.57	8675.88	15*	7
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134 BKG: 8294125			
TOC	17171.34	18766.82	9*	7
	%	%		
Batch number: 16081820003A	Sample number(s): 8294134 BKG: P293163			
Moisture	17.64	17.91	2	5
Batch number: 16081820004A	Sample number(s): 8294109-8294118,8294121 BKG: 8294121			
Moisture	21.05	20.45	3	5
Batch number: 16081820004B	Sample number(s): 8294122-8294133 BKG: 8294125, P294125			
Moisture	23.09	19.86	15*	5
Moisture	23.09	19.86	15*	5
Moisture Duplicate	23.09	19.86	15*	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1647373 Sample # 8794109-35

COC # 493356

Client Information

Client: CT Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC
6 Royal St 0" to 6"	3/17/16	0946	✓		3	X	X	X
6 Royal St 6" to 12"	3/17/16	0952	✓		3	X	X	X
6 Royal St 12" to 18"	3/17/16	1001	✓		3	X	X	X
6 Royal St 18" to 24"	3/17/16	1015	✓		3	X	X	X
22 Asa Way 0" to 6"	3/17/16	1050	✓		2	X	X	X
22 Asa Way 6" to 12"	3/17/16	1100	✓		2	X	X	X
RC ~~22 Asa Way 12" to 18"~~			✓					
LC ~~22 Asa Way 18" to 24"~~			✓					
5 Scarey Lane 0" to 6"	3/17/16	1148	✓		2	X	X	X
5 Scarey Lane 6" to 12"	3/17/16	1200	✓		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type III (Reduced non-CLP)

NYSDEC Category A or (B)

Type VI (Raw Data Only)

NJ DKQP

MA MCP

TX TRRP-13

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11		03/18/16	0711
	03/18/16	07:14			
			Received by	3/19/16	0950

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1647373 Sample # 8294109-35

COC # 493358

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ☐

Analysis Requested — Preservation Codes: O

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC	EPA 537	Remarks
5 Scarey Lane 12" to 18"	3/17/16	1208	X		2	X	X	X		
5 Scarey Lane 18" to 24"	3/17/16	1217	X		2	X	X	X		
Auger Rinse #2	3/17/16	1222	X		2	X		X	X	Lab DI Water
Transport Blank	3/11/16	—	X		1	X		X	X	Lab provided
32 Scarey Lane 0" to 6"	3/17/16	1328	X		2	X	X	X		
32 Scarey Lane 6" to 12"	3/17/16	1338	X		2	X	X	X		
32 Scarey Lane 12" to 18"	3/17/16	1343	X		2	X	X	X		
32 Scarey Lane 18" to 24"	3/17/16	1352	X		2	X	X	X		
15 Scarey Lane 0" to 6"	3/17/16	1445	X		4	X	X	X		MS/MSD here
15 Scarey Lane 6" to 12"	3/17/16	1500	X		2	X	X	X		

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11	[signature]	03/18/16	0711
[signature]	03/18/16	07:14			
			[signature]	3/19/16	0950

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1642373 Sample # 8294109-35

COC # 493359

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water ☐ Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes: 9

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC	EPA 537	Remarks
15 Searcy Lane Duplicate	3/17/16	1450	X		1	X				
765 Murphy Rd 0" to 6"	3/17/16	1550	X		2	X	X	X		
765 Murphy Rd 6" to 12"	3/17/16	1600	X		2	X	X	X		
765 Murphy Rd 12" to 18"	3/17/16	1612	X		2	X	X	X		
765 Murphy Rd 18" to 24"	3/17/16	1623	X		2	X	X	X		
Bowl Rinse #2	3/17/16	1840	X		2				X	Lab DI Water

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or (B) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11	[signature]	03/18/16	07:11
[signature]	03/18/16	07:14			
			Received by	3/19/16	0950

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 140007

Group Number(s): 1642373

Client: CT Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/19/2016 9:50
Number of Packages:	4	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL Na2S2O3 Preserved Poly

Unpacked by Patrick Engle (3472) at 10:46 on 03/19/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	4.8	DT	Wet	Y	Bagged	N
2	DT121	4.5	DT	Wet	Y	Bagged	N
3	DT121	3.1	DT	Wet	Y	Bagged	N
4	DT121	4.2	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: June 23, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 05/12/2016
Group Number: 1660037
SDG: SGP74
PO Number: 16.6131
State of Sample Origin: VT

Client Sample Description	Lancaster Labs (LL) #
Murphy Rd. Farmland 0"to6" Grab Soil	8377451
Murphy Rd. Farmland 6"to12" Grab Soil	8377452
Murphy Rd. Farmland 12"to18" Grab Soil	8377453
Murphy Rd. Farmland 18"to24" Grab Soil	8377454

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1660037

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16138049531B (Sample number(s): 8377451-8377454 UNSPK: 8377454 BKG: 8377454)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: TOC Solids/Sludges Combustion

Sample Description: Murphy Rd. Farmland 0"to6" Grab Soil
Murphy Rd Agricultural Land

LL Sample # SW 8377451
LL Group # 1660037
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 05/11/2016 10:35 by LC

Submitted: 05/12/2016 09:30
Reported: 06/23/2016 10:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

MRF-1 SDG#: SGP74-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.69	JB	0.66	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.69		0.26	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.52	U	0.52	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.39	U	0.39	0.79	1
14027	Perfluorohexanesulfonate	355-46-4	0.66	U	0.66	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.26	U	0.26	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.92	U	0.92	2.1	1
14027	Perfluorooctanoic acid	335-67-1	0.68	J	0.39	0.79	1
14027	Perfluorotetradecanoic acid	376-06-7	0.39	U	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.79	U	0.79	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.53	J	0.39	0.79	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	14,300		781	2,340	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	23.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16152008	06/17/2016 06:26	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16152008	06/02/2016 13:15	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16138049531B	05/18/2016 02:22	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16137820002B	05/17/2016 00:18	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Murphy Rd. Farmland 6"to12" Grab Soil
Murphy Rd Agricultural Land

LL Sample # SW 8377452
LL Group # 1660037
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 05/11/2016 10:44 by LC

Submitted: 05/12/2016 09:30
Reported: 06/23/2016 10:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

MRF-2 SDG#: SGP74-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.67	JB	0.64	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.52	U	0.52	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.39	U	0.39	0.77	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.39	J	0.26	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.90	U	0.90	2.1	1
14027	Perfluorooctanoic acid	335-67-1	3.9		0.39	0.77	1
14027	Perfluorotetradecanoic acid	376-06-7	0.39	U	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.77	U	0.77	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.39	U	0.39	0.77	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	12,700		689	2,070	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	22.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16152008	06/17/2016 06:45	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16152008	06/02/2016 13:15	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16138049531B	05/18/2016 02:38	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16137820002B	05/17/2016 00:18	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Murphy Rd. Farmland 12"to18" Grab Soil
Murphy Rd Agricultural Land

LL Sample # SW 8377453
LL Group # 1660037
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 05/11/2016 11:15 by LC

Submitted: 05/12/2016 09:30
Reported: 06/23/2016 10:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

MRF-3 SDG#: SGP74-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.69	JB	0.65	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.52	U	0.52	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.40	J	0.39	0.78	1
14027	Perfluorohexanesulfonate	355-46-4	0.65	U	0.65	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.89		0.26	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.26	U	0.26	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.91	U	0.91	2.1	1
14027	Perfluorooctanoic acid	335-67-1	12		0.39	0.78	1
14027	Perfluorotetradecanoic acid	376-06-7	0.39	U	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.78	U	0.78	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.39	U	0.39	0.78	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	14,000		623	1,870	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	23.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16152008	06/17/2016 07:04	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16152008	06/02/2016 13:15	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16138049531B	05/18/2016 02:56	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16137820002B	05/17/2016 00:18	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Murphy Rd. Farmland 18"to24" Grab Soil
Murphy Rd Agricultural Land

LL Sample # SW 8377454
LL Group # 1660037
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 05/11/2016 11:20 by LC

Submitted: 05/12/2016 09:30
Reported: 06/23/2016 10:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

MRF-4 SDG#: SGP74-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.69	JB	0.65	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.52	U	0.52	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.39	U	0.39	0.78	1
14027	Perfluorohexanesulfonate	355-46-4	0.65	U	0.65	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.38	J	0.26	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.26	U	0.26	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.91	U	0.91	2.1	1
14027	Perfluorooctanoic acid	335-67-1	8.7		0.39	0.78	1
14027	Perfluorotetradecanoic acid	376-06-7	0.39	U	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.78	U	0.78	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.39	U	0.39	0.78	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	8,030		377	1,130	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	23.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16152008	06/17/2016 07:24	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16152008	06/02/2016 13:15	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16138049531B	05/18/2016 03:12	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16137820002B	05/17/2016 00:18	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/23/2016 10:24

Group Number: 1660037

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16152008	Sample number(s): 8377451-8377454			
Perfluorobutanesulfonate	0.53	J	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	mg/kg		mg/kg	mg/kg
Batch number: 16138049531B	Sample number(s): 8377451-8377454			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16152008	Sample number(s): 8377451-8377454								
Perfluorobutanesulfonate	17.8	16.3			92		70-130		
Perfluorodecanoic acid	20	20.1			101		70-130		
Perfluorododecanoic acid	20	21.7			109		70-130		
Perfluoroheptanoic acid	20	18.5			93		70-130		
Perfluorohexanesulfonate	18.92	19.2			101		70-130		
Perfluorohexanoic acid	20	16.3			82		70-130		
Perfluorononanoic acid	20	18.2			91		70-130		
Perfluoro-octanesulfonate	19.12	20.9			109		70-130		
Perfluorooctanoic acid	20	19.2			96		70-130		
Perfluorotetradecanoic acid	20	19.1			96		70-130		
Perfluorotridecanoic acid	20	18.4			92		70-130		
Perfluoroundecanoic acid	20	23			115		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16138049531B	Sample number(s): 8377451-8377454								
TOC	5430	7343.66	5430	4831.89	135	89	47-143	41*	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/23/2016 10:24

Group Number: 1660037

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	%	%	%	%					
Batch number: 16137820002B	Sample number(s): 8377451-8377454								
Moisture	89.5	89.53			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16152008	Sample number(s): 8377451-8377454 UNSPK: 8369048									
Perfluorobutanesulfonate	0.527	17.8	15.8	17.8	15.8	86	86	70-130	0	30
Perfluorodecanoic acid	0.20 U	20	19.8	20	22.4	99	112	70-130	12	30
Perfluorododecanoic acid	0.40 U	20	17.6	20	19	88	95	70-130	8	30
Perfluoroheptanoic acid	0.30 U	20	16.6	20	18.3	83	92	70-130	10	30
Perfluorohexanesulfonate	0.50 U	18.92	19.6	18.92	18.2	104	96	70-130	7	30
Perfluorohexanoic acid	0.20 U	20	17.3	20	20.7	87	104	70-130	18	30
Perfluorononanoic acid	0.368	20	22.5	20	21.1	111	104	70-130	6	30
Perfluoro-octanesulfonate	2.72	19.12	23.5	19.12	22.6	109	104	70-130	4	30
Perfluorooctanoic acid	0.365	20	19.8	20	20.3	97	100	70-130	2	30
Perfluorotetradecanoic acid	0.30 U	20	16.2	20	18.6	81	93	70-130	14	30
Perfluorotridecanoic acid	0.60 U	20	16	20	18.1	80	91	70-130	12	30
Perfluoroundecanoic acid	0.30 U	20	21.2	20	20.6	106	103	70-130	3	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16138049531B	Sample number(s): 8377451-8377454 UNSPK: 8377454									
TOC	6182.61	39526	46693.02			102		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 16138049531B	Sample number(s): 8377451-8377454 BKG: 8377454			
TOC	6182.61	5822.75	6	7
	%	%		
Batch number: 16137820002B	Sample number(s): 8377451-8377454 BKG: P377402			
Moisture	18.91	18.6	2	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1660037
Reported: 06/23/2016 10:24

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1660037 Sample #: 8377451-54 COC#: 14597

Client: **C.T. Male Associates**

Project Name/#: 16.6131 Site ID: Murphy Rd Agricultural Land

Project Manager: Kirk Moline P.O. #:

Sampler: Larene Cameron

Phone #: 518-786-7502 Quote #: 214135

State where sample(s) were collected: VT

For Lab Use Only

SF#: 271284

SCR#: 188162

Preservation Codes

H = HCl T = Thiosulfate

N = HNO_3 B = NaOH

S = H_2SO_4 P = H_3PO_4

O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Sediment	Soil	Ground Water	Potable Water	Surface Water	NPDES	Other:	Total # of Containers	Analyses Requested: PFCs (EPA 537 mod.)	Remarks
Murphy Rd Farmland 0"to6"	5-11-16	1035	X			X						1	X	
Murphy Rd Farmland 6"to12"	5-11-16	1044	X			X						1	X	
Murphy Rd Farmland 12"to18"	5-11-16	1115	X			X						1	X	
Murphy Rd. Farmland 18"to24"	5-11-16	1120	X			X						1	X	

Turnaround Time Requested (TAT) (please check): Standard ☑ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results:

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐

Type III (Reduced non-CLP) ☐ CT RCP ☐

Type IV (CLP SOW) ☐ ASP Type A ☐

Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
Larene Cameron	5-11-16	1710			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	5.12.16	930

Airbill No.:

Relinquished by Commercial Carrier:

UPS ____ FedEx ____ X ____ Other ____

Temperature upon receipt 1.6 °C

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1660037 Sample #: 8377451-54 COC#: 14598

Client: C.T. Male Associates	
Project Name/#: 16.6131	Site ID: Murphy Rd Agricultural Land
Project Manager: Kirk Moline	P.O. #:
Sampler: Larene Cameron	
Phone #: 518-786-7502	Quote #: 214135
State where sample(s) were collected: VT	

Matrix: Soil ☒ Sediment ☐; Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐; Other:

Analyses Requested / Preservation Codes

For Lab Use Only
SF#: 266803
SCR#: 186458

Preservation Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 P = H_3PO_4
O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	SM 5310 B (mod. 2000)	Moisture (2540 G)	Remarks
Murphy Rd. Farmland 0" to 6"	5-11-16	1035	X		X			1	X	X	
Murphy Rd. Farmland 6" to 12"	5-11-16	1044	X		X			1	X	X	
Murphy Rd. Farmland 12" to 18"	5-11-16	1115	X		X			1	X	X	
Murphy Rd. Farmland 18" to 24"	5-11-16	1120	X		X			1	X	X	

Turnaround Time Requested (TAT) (please check): Standard ☑ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results:

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☑		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by	Date	Time	Received by	Date	Time
Edwin Hernandez	5/6	11:10	Larene Cameron	5/6	11:10
Larene Cameron	5/11/16	1710			
			[signature]	5-12-16	930

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx __X__ Other ______
Temperature upon receipt 1.6 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 146340

Group Number(s): 166037

Client: C.T. Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	05/12/2016 9:30
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Na2S203
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 16:48 on 05/12/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.6	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
F 717-656-2681
www.LancasterLabs.cor

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: April 01, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/23/2016
Group Number: 1643263
SDG: SGP09
PO Number: 16.6131
State of Sample Origin: VT

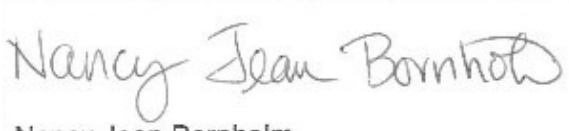
Client Sample Description	Lancaster Labs (LL) #
Pembroke Stockpile 1 Grab Soil	8298601
29 Lever St 0" to 6" Grab Soil	8298602
29 Lever St 6" to 12" Grab Soil	8298603
29 Lever St 12" to 18" Grab Soil	8298604
29 Lever St 18" to 24" Grab Soil	8298605
2009 N Bennington Rd 0" to 6" Grab Soil	8298606
2009 N Bennington Rd 6" to 12" Grab Soil	8298607
2009 N Bennington Rd 12" to 18" Grab Soil	8298608
9 School St Maple Tree 0" to 6" Grab Soil	8298609
9 School St Maple Tree 6" to 12" Grab Soil	8298610
9 School St Maple Tree 12" to 18" Grab Soil	8298611
9 School St NE Corner PL 0" to 6" Grab Soil	8298612
9 School St NE Corner PL 6" to 12" Grab Soil	8298613
9 School St NE Corner PL 12" to 18" Grab Soil	8298614
9 School St NE Corner PL Duplicate Grab Soil	8298615
Auger Rinse #6 Grab Blank Water	8298616
Bowl Rinse #6 Grab Blank Water	8298617
Transport Blank 032216 Water	8298618
WWTP Liquid Grab Sludge	8298619
Pembroke Garden 0" to 6" Grab Soil	8298620
Pembroke Garden 0" to 6" MS Grab Soil	8298621
Pembroke Garden 0" to 6" MSD Grab Soil	8298622
Pembroke Garden 0" to 6" Dupl Grab Soil	8298623
Pembroke Garden 6" to 12" Grab Soil	8298624
Pembroke Garden 12" to 18" Grab Soil	8298625
Pembroke Garden 18" to 24" Grab Soil	8298626
Pembroke Stockpile 2 Grab Soil	8298627

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1643263

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Batch #: 16085004 (Sample number(s): 8298616-8298619 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorohexanesulfonate

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluorooctanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Batch #: 16085005 (Sample number(s): 8298601-8298615, 8298620-8298622, 8298624-8298627 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorohexanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16085049531A (Sample number(s): 8298601-8298609 UNSPK: 8298609 BKG: 8298609)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16085949631A (Sample number(s): 8298620-8298621, 8298623-8298627 UNSPK: 8298620 BKG: 8298620)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16085949631B (Sample number(s): 8298610-8298612 UNSPK: 8298611 BKG: 8298611)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16085949632A (Sample number(s): 8298613-8298614 UNSPK: 8298613 BKG: 8298613)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Sample Description: 2009 N Bennington Rd 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298606
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 11:31 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	4.3		0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	2.4		0.50	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.51		0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	1.1		0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	2.3		0.87	2.0	1
14027	Perfluorooctanoic acid	335-67-1	4.2		0.37	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	1.3		0.37	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	2.2		0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	2.5		0.37	0.75	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	21,800		1,520	4,570	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	19.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 01:00	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085049531A	03/25/2016 13:04	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 2009 N Bennington Rd 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298607
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 11:37 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.60		0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	1.3		0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.86	U	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	4.9		0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	5,970		237	711	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	19.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 01:15	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085049531A	03/26/2016 00:16	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 2009 N Bennington Rd 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298608
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 11:52 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.77	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.36	J	0.26	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.89	U	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	45		0.38	0.77	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.77	U	0.77	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.77	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	14,400		995	2,980	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 01:29	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085049531A	03/25/2016 13:42	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/01/2016 12:05

Group Number: 1643263

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16085005	Sample number(s): 8298601-8298615,8298620-8298622,8298624-8298627			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16085004	Sample number(s): 8298616-8298619			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16085049531A	Sample number(s): 8298601-8298609			
TOC	100	U	100	300
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627			
TOC	100	U	100	300
Batch number: 16085949631B	Sample number(s): 8298610-8298612			
TOC	100	U	100	300
Batch number: 16085949632A	Sample number(s): 8298613-8298614			
TOC	100	U	100	300

LCS/LCSD

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/01/2016 12:05

Group Number: 1643263

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16085005	Sample number(s): 8298601-8298615,8298620-8298622,8298624-8298627								
Perfluorobutanesulfonate	20	15.48			77		70-130		
Perfluorodecanoic acid	20	18.64			93		70-130		
Perfluorododecanoic acid	20	18.1			91		70-130		
Perfluoroheptanoic acid	20	14.93			75		70-130		
Perfluorohexanesulfonate	20	17.86			89		70-130		
Perfluorohexanoic acid	20	16.82			84		70-130		
Perfluorononanoic acid	20	16.54			83		70-130		
Perfluoro-octanesulfonate	20	16.03			80		70-130		
Perfluorooctanoic acid	20	16.71			84		70-130		
Perfluorotetradecanoic acid	20	19.16			96		70-130		
Perfluorotridecanoic acid	20	17.51			88		70-130		
Perfluoroundecanoic acid	20	18.55			93		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8298616-8298619								
Perfluorooctanoic acid	200	187.69	200	208.39	94	104	70-130	10	30
Perfluorononanoic acid	200	180.81	200	225.92	90	113	70-130	22	30
Perfluorodecanoic acid	200	216.97	200	234.99	108	117	70-130	8	30
Perfluoroundecanoic acid	200	199.88	200	208.01	100	104	70-130	4	30
Perfluorododecanoic acid	200	216.91	200	236.94	108	118	70-130	9	30
Perfluorotridecanoic acid	200	209.67	200	257.49	105	129	70-130	20	30
Perfluorotetradecanoic acid	200	194.48	200	228.2	97	114	70-130	16	30
Perfluorohexanoic acid	200	179.57	200	206.29	90	103	70-130	14	30
Perfluoroheptanoic acid	200	193.13	200	221.2	97	111	70-130	14	30
Perfluorobutanesulfonate	200	143.28	200	144.13	72	72	70-130	1	30
Perfluorohexanesulfonate	200	179.57	200	248.43	90	124	70-130	32*	30
Perfluoro-octanesulfonate	200	152.32	200	187.87	76	94	70-130	21	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16085049531A	Sample number(s): 8298601-8298609								
TOC	5430	4355.58			80		47-143		
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627								
TOC	5430	5303.03			98		47-143		
Batch number: 16085949631B	Sample number(s): 8298610-8298612								
TOC	5430	5303.03			98		47-143		
Batch number: 16085949632A	Sample number(s): 8298613-8298614								
TOC	5430	5633.66			104		47-143		
	%	%	%	%					
Batch number: 16083820007A	Sample number(s): 8298601-8298615,8298620-8298623								
Moisture	89.5	89.47			100		99-101		
Moisture	89.5	89.47			100		99-101		
Moisture Duplicate	89.5	89.47			100		99-101		
Batch number: 16083820007B	Sample number(s): 8298624-8298627								
Moisture	89.5	89.47			100		99-101		

MS/MSD

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/01/2016 12:05

Group Number: 1643263

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16085005	Sample number(s): 8298601-8298615,8298620-8298622,8298624-8298627 UNSPK: 8298620										
Perfluorobutanesulfonate	0.50	U	20	19.77	20	17.06	99	85	70-130	15	30
Perfluorodecanoic acid	0.20	U	20	19.35	20	20.85	97	104	70-130	7	30
Perfluorododecanoic acid	0.40	U	20	19.96	20	20.51	100	103	70-130	3	30
Perfluoroheptanoic acid	0.30	U	20	17.45	20	19.01	87	95	70-130	9	30
Perfluorohexanesulfonate	0.50	U	20	16.01	20	22.29	80	111	70-130	33*	30
Perfluorohexanoic acid	0.20	U	20	20.75	20	19.87	104	99	70-130	4	30
Perfluorononanoic acid	0.285		20	17.53	20	18.76	86	92	70-130	7	30
Perfluoro-octanesulfonate	0.70	U	20	22.25	20	20.85	111	104	70-130	7	30
Perfluorooctanoic acid	0.621		20	20.15	20	21.78	98	106	70-130	8	30
Perfluorotetradecanoic acid	0.30	U	20	18.9	20	22.87	95	114	70-130	19	30
Perfluorotridecanoic acid	0.60	U	20	20.16	20	18.01	101	90	70-130	11	30
Perfluoroundecanoic acid	0.30	U	20	19.31	20	21.05	97	105	70-130	9	30
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8298616-8298619 UNSPK: 8298619										
Perfluorooctanoic acid	353.46		200	264.76			-43*		70-130		
Perfluorononanoic acid	11.77		200	212.06			100		70-130		
Perfluorodecanoic acid	4	U	200	202.02			101		70-130		
Perfluoroundecanoic acid	7.24		200	217.48			105		70-130		
Perfluorododecanoic acid	10	U	200	196.94			98		70-130		
Perfluorotridecanoic acid	8	U	200	175.4			88		70-130		
Perfluorotetradecanoic acid	10	U	200	124.3			62*		70-130		
Perfluorohexanoic acid	4	U	200	283.38			142*		70-130		
Perfluoroheptanoic acid	32.94		200	220.71			94		70-130		
Perfluorobutanesulfonate	20	U	200	142.26			71		70-130		
Perfluorohexanesulfonate	20	U	200	402			201*		70-130		
Perfluoro-octanesulfonate	20	U	200	277.75			139*		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16085049531A	Sample number(s): 8298601-8298609 UNSPK: 8298609										
TOC	7316.27		36330	38474.58			86		47-143		
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627 UNSPK: 8298620										
TOC	9011.75		15840	20898.05			75		47-143		
Batch number: 16085949631B	Sample number(s): 8298610-8298612 UNSPK: 8298611										
TOC	5226.63		40053	55767.69			126		47-143		
Batch number: 16085949632A	Sample number(s): 8298613-8298614 UNSPK: 8298613										
TOC	9810.05		17104	26157.35			96		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16085049531A	Sample number(s): 8298601-8298609 BKG: 8298609			

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1643263
Reported: 04/01/2016 12:05

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
TOC	7316.27	3693.5	66* (1)	7
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627 BKG: 8298620			
TOC	9011.75	7631.15	17*	7
Batch number: 16085949631B	Sample number(s): 8298610-8298612 BKG: 8298611			
TOC	5226.63	4793.28	9* (1)	7
Batch number: 16085949632A	Sample number(s): 8298613-8298614 BKG: 8298613			
TOC	9810.05	9008.73	9*	7
	%	%		
Batch number: 16083820007A	Sample number(s): 8298601-8298615,8298620-8298623 BKG: 8298620, P298620			
Moisture	17.39	17.01	2	5
Moisture	17.39	17.01	2	5
Moisture Duplicate	17.39	17.01	2	5
Batch number: 16083820007B	Sample number(s): 8298624-8298627 BKG: 8298626			
Moisture	14.71	14.87	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643263 Sample # 8298601-27

COC # 493490

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested — Preservation Codes

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EDA S37	TOC	Moisture
Pembroke Stockpile 1	3/22/16	0925		X	2	X	X	X
29 Lever St 0" to 6"	3/22/16	1030	X		2	X	X	X
29 Lever St 6" to 12"	3/22/16	1040	X		2	X	X	X
29 Lever St 12" to 18"	3/22/16	1050	X		2	X	X	X
29 Lever St 18" to 24"	3/22/16	1100	X		2	X	X	X
2009 N. Bennington Rd 0"to6"	3/22/16	1131	X		2	X	X	X
2009 N. Bennington Rd 6"to 12"	3/22/16	1137	X		2	X	X	X
2009 N. Bennington Rd 12"to 18"	3/22/16	1153	X		2	X	X	X
9 School St Maple Tree 0"to6"	3/22/16	1254	X		2	X	X	X
9 School St Mple Tree 6"to12"	3/22/16	1301	X		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/22/16	17:00			
			[signature]	3/23/16	1000

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx X Other ____

Temperature upon receipt 2.9 / 3.9 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643763 Sample # 8298601-27

COC # 493362

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Sol Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Lorene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ | Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ | Other: Liquid Sludge

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Sediment	Soil	Ground Water	Potable Water	Surface Water	NPDES Water	Other: Liquid Sludge	Total # of Containers	EPA 537	TOC	Moisture	EPA 537	Remarks
9 School St Maple Tree 12" to 18"	3/22/16	1313	X			X						2	X	X	X		
9 School St NE Corner PL 0" to 6"	3/22/16	1333	X			X						2	X	X	X		
9 School St NE Corner PL 6" to 12"	3/22/16	1340	X			X						2	X	X	X		
9 School St NE Corner PL 12" to 18"	3/22/16	1357	X			X						2	X	X	X		
9 School St NE Corner PL Duplicate	3/22/16	1400	X			X						1	X				
Auger Rinse #6	3/22/16	1410	X					X				2				X	Lab DI Water
Bowl Rinse #6	3/22/16	1412	X					X				2				X	Lab DI Water
Transport Blank 032216	3/18/16	—	X					X				1				X	Lab supplied
WWTF Liquid Sludge	3/22/16	1435	X								X	2				X	
Pembroke Garden 0" to 6"	3/22/16	1500	X			X						4	X	X	X		MS/MSD Here

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 Day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type VI (Raw Data Only)

Type III (Reduced non-CLP)

NJ DKQP

TX TRRP-13

NYSDEC Category A or (B)

MA MCP

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Lorene Cameron	3/22/16	17:00			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
			[illegible]	3/23/16	1000

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 2.9 / 3.9 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643763 Sample # 8298601-27

COC # 493363

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected:	For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil	Sediment	Water: Ground	Potable	NPDES	Surface	Other:	Total # of Containers	Analysis Requested: EPA 537	TOC	Moisture
Pembroke Garden 6" to 12"	3/22/16	1506	X		X							2	X	X	X
Pembroke Garden 12" to 18"	3/22/16	1512	X		X							2	X	X	X
Pembroke Garden 18" to 24"	3/22/16	1520	X		X							2	X	X	X
Pembroke Stockpile 2	3/22/16	1538	X		X							2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/24/16	17:00			
			Kristen Abel	3/25/16	1005

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx X Other

Temperature upon receipt 2.9 / 3.9 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140307

Group Number(s): 1643263

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/23/2016 10:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	1
Samples Intact:	No	Trip Blank Type:	Na2S2O3
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:00 on 03/23/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.9	DT	Wet	Y	Bagged	N
2	DT146	3.9	DT	Wet	Y	Bagged	N

Samples Not Intact Details

Sample ID on Label	Bottle Code	Bottle Quantity	Container Salvageable?	Comments
2009 N. Bennington Rd 6" to 12	125 ml wide mouth glass - None	1	N	subsampled for TOC/moist.

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
F 717-656-2681
www.LancasterLabs.cor

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

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2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: April 14, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/24/2016
Group Number: 1643769
SDG: SGP10
PO Number: 16.6131
State of Sample Origin: VT

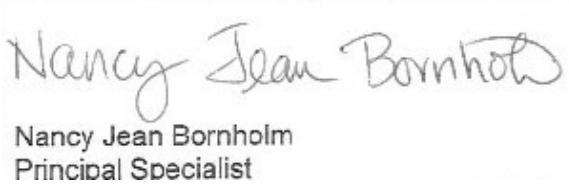
Client Sample Description	Lancaster Labs (LL) #
180 River Rd 0" to 6" Grab Soil	8301012
180 River Rd 6" to 12" Grab Soil	8301013
180 River Rd 12" to 18" Grab Soil	8301014
180 River Rd 18" to 24" Grab Soil	8301015
Chemfab Along River 0" to 6" Grab Soil	8301016
Chemfab Along River 6" to 12" Grab Soil	8301017
Chemfab Along River 12" to 18" Grab Soil	8301018
Chemfab Along River 18" to 24" Grab Soil	8301019
Chemfab W Side 0" to 6" Grab Soil	8301020
Chemfab W Side 6" to 12" Grab Soil	8301021
Chemfab W Side 12" to 18" Grab Soil	8301022
Chemfab W Side 18" to 24" Grab Soil	8301023
Lake Paran 0" to 6" Grab Soil	8301024
Lake Paran 6" to 12" Grab Soil	8301025
Lake Paran 12" to 18" Grab Soil	8301026
Lake Paran 18" to 24" Grab Soil	8301027
Auger Rinse #7 Grab Blank Water	8301028
Bowl Rinse #7 Grab Blank Water	8301029
Transport Blank 032316 Blank Water	8301030
16 Wilkey Way 0" to 6" Grab Soil	8301031
16 Wilkey Way Duplicate Grab Soil	8301032
16 Wilkey Way 6" to 12" Grab Soil	8301033
16 Wilkey Way 6" to 12" MS Grab Soil	8301034
16 Wilkey Way 6" to 12" MSD Grab Soil	8301035
16 Wilkey Way 6" to 12" Dupl Grab Soil	8301036
16 Wilkey Way 12" to 18" Grab Soil	8301037
16 Wilkey Way 18" to 24" Grab Soil	8301038
Chemfab Blowdown East 0" to 6" Grab Soil	8301039
Chemfab Blowdown East 6" to 12" Grab Soil	8301040
Chemfab Blowdown East 12" to 18" Grab Soil	8301041
Chemfab Blowdown East 18" to 24" Grab Soil	8301042

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1643769

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Batch #: 16085004 (Sample number(s): 8301028-8301030 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorohexanesulfonate

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluorooctanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Batch #: 16098007 (Sample number(s): 8301012-8301027, 8301031-8301035, 8301037 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorotridecanoic acid

Batch #: 16098008 (Sample number(s): 8301038-8301042 UNSPK: 8301038)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorohexanesulfonate, Perfluoro-octanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluoro-octanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16089049531A (Sample number(s): 8301018-8301027 UNSPK: 8301018 BKG: 8301018)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16089049531B (Sample number(s): 8301031, 8301041-8301042 UNSPK: 8301042 BKG: 8301042)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Sample Description: Lake Paran 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301024
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 11:47 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1013 SDG#: SGP10-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.69	U	0.69	2.2	1
14027	Perfluorodecanoic acid	335-76-2	0.28	U	0.28	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.62	J	0.55	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.41	U	0.41	0.83	1
14027	Perfluorohexanesulfonate	355-46-4	0.69	U	0.69	2.2	1
14027	Perfluorohexanoic acid	307-24-4	0.28	U	0.28	0.55	1
14027	Perfluorononanoic acid	375-95-1	0.28	U	0.28	0.55	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.7	JB	0.97	2.2	1
14027	Perfluorooctanoic acid	335-67-1	2.0		0.41	0.83	1
14027	Perfluorotetradecanoic acid	376-06-7	0.41	U	0.41	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.83	U	0.83	1.7	1
14027	Perfluoroundecanoic acid	2058-94-8	0.41	U	0.41	0.83	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	38,900		1,430	4,290	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	27.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 14:27	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16089049531A	03/29/2016 12:41	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16084820009B	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Lake Paran 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301025
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 12:02 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1014 SDG#: SGP10-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.65	U	0.65	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.52	U	0.52	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.51	J	0.39	0.78	1
14027	Perfluorohexanesulfonate	355-46-4	0.65	U	0.65	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.54		0.26	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.26	U	0.26	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.3	JB	0.91	2.1	1
14027	Perfluorooctanoic acid	335-67-1	1.9		0.39	0.78	1
14027	Perfluorotetradecanoic acid	376-06-7	0.39	U	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.78	U	0.78	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.39	U	0.39	0.78	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	15,100		1,290	3,870	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	22.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 15:02	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16089049531A	03/29/2016 13:01	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16084820009B	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Lake Paran 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301026
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 12:12 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

10-15 SDG#: SGP10-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.67	U	0.67	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.27	U	0.27	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.53	U	0.53	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.40	U	0.40	0.80	1
14027	Perfluorohexanesulfonate	355-46-4	0.67	U	0.67	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.29	J	0.27	0.53	1
14027	Perfluorononanoic acid	375-95-1	0.27	U	0.27	0.53	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.3	JB	0.93	2.1	1
14027	Perfluorooctanoic acid	335-67-1	4.1		0.40	0.80	1
14027	Perfluorotetradecanoic acid	376-06-7	0.40	U	0.40	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.80	U	0.80	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.40	U	0.40	0.80	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	17,900		534	1,600	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	25.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 15:20	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16089049531A	03/29/2016 13:13	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16084820009B	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Lake Paran 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301027
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 12:18 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

10-16 SDG#: SGP10-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.96	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	4.6		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.96	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	14,500		810	2,430	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	16.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 15:38	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16089049531A	03/29/2016 13:28	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16084820009B	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1643769
Reported: 04/14/2016 10:50

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16098007	Sample number(s): 8301012-8301027,8301031-8301035,8301037			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.94	J	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
Batch number: 16098008	Sample number(s): 8301038-8301042			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16085004	Sample number(s): 8301028-8301030			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/14/2016 10:50

Group Number: 1643769

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040			
TOC	100	U	100	300
Batch number: 16088949631B	Sample number(s): 8301012-8301017			
TOC	100	U	100	300
Batch number: 16089049531A	Sample number(s): 8301018-8301027			
TOC	100	U	100	300
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16098007	Sample number(s): 8301012-8301027,8301031-8301035,8301037								
Perfluorobutanesulfonate	20	19.73			99		70-130		
Perfluorodecanoic acid	20	17.73			89		70-130		
Perfluorododecanoic acid	20	20.72			104		70-130		
Perfluoroheptanoic acid	20	19.02			95		70-130		
Perfluorohexanesulfonate	20	16.59			83		70-130		
Perfluorohexanoic acid	20	19.41			97		70-130		
Perfluorononanoic acid	20	19.6			98		70-130		
Perfluoro-octanesulfonate	20	20.09			100		70-130		
Perfluorooctanoic acid	20	21.8			109		70-130		
Perfluorotetradecanoic acid	20	18.88			94		70-130		
Perfluorotridecanoic acid	20	20.53			103		70-130		
Perfluoroundecanoic acid	20	17.63			88		70-130		
Batch number: 16098008	Sample number(s): 8301038-8301042								
Perfluorobutanesulfonate	20	21.89			109		70-130		
Perfluorodecanoic acid	20	17.53			88		70-130		
Perfluorododecanoic acid	20	14.26			71		70-130		
Perfluoroheptanoic acid	20	21.3			106		70-130		
Perfluorohexanesulfonate	20	16.16			81		70-130		
Perfluorohexanoic acid	20	21.67			108		70-130		
Perfluorononanoic acid	20	18.8			94		70-130		
Perfluoro-octanesulfonate	20	15.23			76		70-130		
Perfluorooctanoic acid	20	19.52			98		70-130		
Perfluorotetradecanoic acid	20	18.99			95		70-130		
Perfluorotridecanoic acid	20	18.63			93		70-130		
Perfluoroundecanoic acid	20	21.2			106		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8301028-8301030								
Perfluorooctanoic acid	200	187.69	200	208.39	94	104	70-130	10	30
Perfluorononanoic acid	200	180.81	200	225.92	90	113	70-130	22	30
Perfluorodecanoic acid	200	216.97	200	234.99	108	117	70-130	8	30
Perfluoroundecanoic acid	200	199.88	200	208.01	100	104	70-130	4	30
Perfluorododecanoic acid	200	216.91	200	236.94	108	118	70-130	9	30
Perfluorotridecanoic acid	200	209.67	200	257.49	105	129	70-130	20	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/14/2016 10:50

Group Number: 1643769

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluorotetradecanoic acid	200	194.48	200	228.2	97	114	70-130	16	30
Perfluorohexanoic acid	200	179.57	200	206.29	90	103	70-130	14	30
Perfluoroheptanoic acid	200	193.13	200	221.2	97	111	70-130	14	30
Perfluorobutanesulfonate	200	143.28	200	144.13	72	72	70-130	1	30
Perfluorohexanesulfonate	200	179.57	200	248.43	90	124	70-130	32*	30
Perfluoro-octanesulfonate	200	152.32	200	187.87	76	94	70-130	21	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040								
TOC	5430	5025.76			93		47-143		
Batch number: 16088949631B	Sample number(s): 8301012-8301017								
TOC	5430	5025.76			93		47-143		
Batch number: 16089049531A	Sample number(s): 8301018-8301027								
TOC	5430	4071.68			75		47-143		
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042								
TOC	5430	4071.68			75		47-143		
	%	%	%	%					
Batch number: 16084820009A	Sample number(s): 8301012-8301019,8301032								
Moisture	89.5	89.44			100		99-101		
Batch number: 16084820009B	Sample number(s): 8301020-8301027,8301031,8301033-8301037								
Moisture	89.5	89.44			100		99-101		
Moisture	89.5	89.44			100		99-101		
Moisture Duplicate	89.5	89.44			100		99-101		
Batch number: 16084820010B	Sample number(s): 8301038-8301042								
Moisture	89.5	89.45			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16098007	Sample number(s): 8301012-8301027,8301031-8301035,8301037 UNSPK: 8301033										
Perfluorobutanesulfonate	0.50	U	20	18.05	20	18.91	90	95	70-130	5	30
Perfluorodecanoic acid	0.20	U	20	18.02	20	15.8	90	79	70-130	13	30
Perfluorododecanoic acid	0.411		20	15.04	20	14.72	73	72	70-130	2	30
Perfluoroheptanoic acid	0.30	U	20	22.81	20	17.5	114	88	70-130	26	30
Perfluorohexanesulfonate	0.50	U	20	14.26	20	15.43	71	77	70-130	8	30
Perfluorohexanoic acid	0.20	U	20	17.29	20	20.88	86	104	70-130	19	30
Perfluorononanoic acid	0.250		20	21.42	20	19.28	106	95	70-130	11	30
Perfluoro-octanesulfonate	0.70	U	20	16.91	20	16.34	85	82	70-130	3	30
Perfluorooctanoic acid	2.50		20	24.37	20	21.12	109	93	70-130	14	30
Perfluorotetradecanoic acid	0.30	U	20	21.78	20	16.63	109	83	70-130	27	30
Perfluorotridecanoic acid	0.60	U	20	13.3	20	16.41	67*	82	70-130	21	30
Perfluoroundecanoic acid	0.30	U	20	14.66	20	17.47	73	87	70-130	17	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1643769
Reported: 04/14/2016 10:50

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16098008	Sample number(s): 8301038-8301042 UNSPK: 8301038									
Perfluorobutanesulfonate	0.50 U	20	21.39	20	18.19	107	91	70-130	16	30
Perfluorodecanoic acid	0.20 U	20	17.75	20	19.06	89	95	70-130	7	30
Perfluorododecanoic acid	0.444	20	14.56	20	15.26	71	74	70-130	5	30
Perfluoroheptanoic acid	0.30 U	20	19.67	20	16.94	98	85	70-130	15	30
Perfluorohexanesulfonate	0.50 U	20	13.07	20	15.84	65*	79	70-130	19	30
Perfluorohexanoic acid	0.20 U	20	18.53	20	18.57	93	93	70-130	0	30
Perfluorononanoic acid	0.20 U	20	18.28	20	18.37	91	92	70-130	0	30
Perfluoro-octanesulfonate	1.07	20	13.95	20	19.52	64*	92	70-130	33*	30
Perfluorooctanoic acid	4.23	20	22.25	20	24.77	90	103	70-130	11	30
Perfluorotetradecanoic acid	0.30 U	20	17.28	20	16.62	86	83	70-130	4	30
Perfluorotridecanoic acid	0.60 U	20	15.13	20	15.72	76	79	70-130	4	30
Perfluoroundecanoic acid	0.30 U	20	15.46	20	17.98	77	90	70-130	15	30
	ng/l	ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8301028-8301030 UNSPK: 8298619									
Perfluorooctanoic acid	353.46	200	264.76			-43*		70-130		
Perfluorononanoic acid	11.77	200	212.06			100		70-130		
Perfluorodecanoic acid	4 U	200	202.02			101		70-130		
Perfluoroundecanoic acid	7.24	200	217.48			105		70-130		
Perfluorododecanoic acid	10 U	200	196.94			98		70-130		
Perfluorotridecanoic acid	8 U	200	175.4			88		70-130		
Perfluorotetradecanoic acid	10 U	200	124.3			62*		70-130		
Perfluorohexanoic acid	4 U	200	283.38			142*		70-130		
Perfluoroheptanoic acid	32.94	200	220.71			94		70-130		
Perfluorobutanesulfonate	20 U	200	142.26			71		70-130		
Perfluorohexanesulfonate	20 U	200	402			201*		70-130		
Perfluoro-octanesulfonate	20 U	200	277.75			139*		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040 UNSPK: 8301033									
TOC	11042.87	22108	34443.63			106		47-143		
Batch number: 16088949631B	Sample number(s): 8301012-8301017 UNSPK: 8301017									
TOC	4953.35	43605	55174.42			115		47-143		
Batch number: 16089049531A	Sample number(s): 8301018-8301027 UNSPK: 8301018									
TOC	9041.43	60241	70863.45			103		47-143		
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042 UNSPK: 8301042									
TOC	2707.3	29098	24548.98			75		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040 BKG: 8301033			
TOC	11042.87	10354.22	6	7

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1643769
Reported: 04/14/2016 10:50

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16088949631B	Sample number(s): 8301012-8301017 BKG: 8301017			
TOC	4953.35	4680.57	6 (1)	7
Batch number: 16089049531A	Sample number(s): 8301018-8301027 BKG: 8301018			
TOC	9041.43	5388.51	51* (1)	7
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042 BKG: 8301042			
TOC	2707.3	2318.34	15* (1)	7
	%	%		
Batch number: 16084820009A	Sample number(s): 8301012-8301019,8301032 BKG: 8301032			
Moisture	28.78	28.39	1	5
Batch number: 16084820009B	Sample number(s): 8301020-8301027,8301031,8301033-8301037 BKG: 8301033, P301033			
Moisture	24.1	24.34	1	5
Moisture	24.1	24.34	1	5
Moisture Duplicate	24.1	24.34	1	5
Batch number: 16084820010B	Sample number(s): 8301038-8301042 BKG: 8301038			
Moisture	25.26	25.54	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643769 Sample # 8301012-42

COC # 493364

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ☐

Analysis Requested — Preservation Codes

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture
180 River Rd 0" to 6"	3/23/16	0904	X		2	X	X	X
180 River Rd 6" to 12"	3/23/16	0915	X		2	X	X	X
180 River Rd 12" to 18"	3/23/16	0923	X		2	X	X	X
180 River Rd 18" to 24"	3/23/16	0933	X		2	X	X	X
Chemfab Along River 0" to 6"	3/23/16	0955	X		2	X	X	X
Chemfab Along River 6" to 12"	3/23/16	1003	X		2	X	X	X
Chemfab Along River 12" to 18"	3/23/16	1011	X		2	X	X	X
Chemfab Along River 18" to 24"	3/23/16	1019	X		2	X	X	X
Chemfab W. Side 0" to 6"	3/23/16	1044	X		2	X	X	X
Chemfab W. Side 6" to 12"	3/23/16	1053	X		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/23/16	1648			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	3.24.16	945

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx X Other _____

Temperature upon receipt 2.6-3.4 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643769 Sample # 8301012-42

COC # 493466

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O.#: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Sediment	Soil	Water: Potable	Ground	NPDES	Surface	Other:	Total # of Containers	Analysis Requested: EPA 537	TOC	Moisture	EPA 537	Remarks
Chemfab W Side 12" to 18"	3/23/16	1102	X			X						2	X	X	X		
Chemfab W Side 18" to 24"	3/23/16	1111	X			X						2	X	X	X		
Lake Paran 0" to 6"	3/23/16	1147	X			X						2	X	X	X		
Lake Paran 6" to 12"	3/23/16	1202	X			X						2	X	X	X		
Lake Paran 12" to 18"	3/23/16	1212	X			X						2	X	X	X		
Lake Paran 18" to 24"	3/23/16	1218	X			X						2	X	X	X		
Auger Rinse #7	3/23/16	1220	X				X					2				X	Lab DI Water
Bowl Rinse #7	3/23/16	1222	X				X					2				X	Lab DI Water
Transport Blank 032316	3/16/16	—	X				X					1				X	Lab supplied
16 Wilkey Way 0" to 6"	3/23/16	1344	X			X						2	X	X	X		

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)
Date results are needed: 3 day verbal
E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/23/16	1648			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	3.24.16	945

EDD Required? Yes No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx X Other

Temperature upon receipt 2.6 - 7.9 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643669 Sample # 83 01012-42

COC # 493460

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested

Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture
16 Wilkey Way Duplicate	3/23/16	1348	X		1	X	X	
16 Wilkey Way 6" to 12"	3/23/16	1351	X		4	X	X	X
16 Wilkey Way 12" to 18"	3/23/16	1357	X		2	X	X	X
16 Wilkey Way 18" to 24"	3/23/16	1405	X		2	X	X	X
Chemfab Blowdown East 0" to 6"	3/23/16	1500	X		2	X	X	X
Chemfab Blowdown East 6" to 12"	3/23/16	1508	X		2	X	X	X
Chemfab Blowdown East 12" to 18"	3/23/16	1515	X		2	X	X	X
Chemfab Blowdown East 18" to 24"	3/23/16	1520	X		2	X	X	X

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

MS/MSD here

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/23/16	1618			
				3.24.16	945

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx X Other _____

Temperature upon receipt 2.6-2.9 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140454

Group Number(s): 1643769

Client: C.T. Male Assoc.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/24/2016 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Na2S2O3
Samples Intact:	No	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 11:23 on 03/24/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	3.9	DT	Wet	Y	Bagged	N
2	DT131	2.6	DT	Wet	Y	Bagged	N

Samples Not Intact Details

Sample ID on Label	Bottle Code	Bottle Quantity	Container Salvageable?	Comments
180 River Rd 6" to 12"	4.5 oz.plastic cup w/screw lid - None	1	N	Jar broken.

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 29, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/22/2016
Group Number: 1643001
SDG: SGP08
PO Number: 16.6131
State of Sample Origin: VT

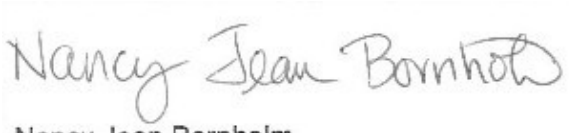
Client Sample Description	Lancaster Labs (LL) #
8 Polygraphic Ln 6" to 12" Grab Soil	8297411
8 Polygraphic Ln 6" to 12" MS Grab Soil	8297412
8 Polygraphic Ln 6" to 12" MSD Grab Soil	8297413
8 Polygraphic Ln 6" to 12" Dupl Grab Soil	8297414
8 Polygraphic Ln 12" to 18" Grab Soil	8297415
8 Polygraphic Ln Duplicate Grab Soil	8297416
8 Polygraphic Ln 18" to 24" Grab Soil	8297417
Auger Rinse #5 Grab Blank Water	8297418
Bowl Rinse #5 Grab Blank Water	8297419
15 Polygraphic 0" to 6" Grab Soil	8297420
15 Polygraphic 6" to 12" Grab Soil	8297421
980 Park St 0" to 6" Grab Soil	8297422
980 Park St 6" to 12" Grab Soil	8297423
980 Park St 12" to 18" Grab Soil	8297424

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1643001

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8297418, 8297419

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8297418-8297419)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16084008 (Sample number(s): 8297411-8297413, 8297415-8297417, 8297420-8297424 UNSPK: 8297411)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorotridecanoic acid

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16085049531A (Sample number(s): 8297424 UNSPK: P298609 BKG: P298609)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16083820001B (Sample number(s): 8297411-8297417, 8297420-8297424 BKG: 8297411)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: 980 Park St 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297422
LL Group # 1643001
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 15:10 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 17:42

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0809 SDG#: SGP08-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.66	U	0.66	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.69		0.26	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.53	U	0.53	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.40	U	0.40	0.79	1
14027	Perfluorohexanesulfonate	355-46-4	0.66	U	0.66	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.53	1
14027	Perfluorononanoic acid	375-95-1	0.50	J	0.26	0.53	1
14027	Perfluoro-octanesulfonate	1763-23-1	2.1	J	0.92	2.1	1
14027	Perfluorooctanoic acid	335-67-1	2.7		0.40	0.79	1
14027	Perfluorotetradecanoic acid	376-06-7	0.40	U	0.40	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.79	U	0.79	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.40	U	0.40	0.79	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	17,400		635	1,910	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	24.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084008	03/28/2016 04:37	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949632A	03/25/2016 02:52	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820001B	03/23/2016 09:51	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 980 Park St 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297423
LL Group # 1643001
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 15:16 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 17:42

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0810 SDG#: SGP08-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.95	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.4	J	0.83	1.9	1
14027	Perfluorooctanoic acid	335-67-1	1.5		0.36	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.95	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	16,800		457	1,370	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	15.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084008	03/28/2016 04:52	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949632A	03/25/2016 03:07	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820001B	03/23/2016 09:51	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 980 Park St 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297424
LL Group # 1643001
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 15:33 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 17:42

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0811 SDG#: SGP08-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	J	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.95	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	J	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	1.5		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.95	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	8,980		706	2,120	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	16.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084008	03/28/2016 05:06	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16085049531A	03/25/2016 11:38	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820001B	03/23/2016 09:51	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:42

Group Number: 1643001

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16084008	Sample number(s): 8297411-8297413,8297415-8297417,8297420-8297424			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8297418-8297419			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16084949632A	Sample number(s): 8297411-8297412,8297414-8297415,8297417,8297420-8297423			
TOC	100	U	100	300
Batch number: 16085049531A	Sample number(s): 8297424			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16084008	Sample number(s): 8297411-8297413,8297415-8297417,8297420-8297424								

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:42

Group Number: 1643001

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Perfluorobutanesulfonate	20	19.99			100		70-130		
Perfluorodecanoic acid	20	20.95			105		70-130		
Perfluorododecanoic acid	20	18.97			95		70-130		
Perfluoroheptanoic acid	20	17.78			89		70-130		
Perfluorohexanesulfonate	20	23.71			119		70-130		
Perfluorohexanoic acid	20	15.95			80		70-130		
Perfluorononanoic acid	20	15.75			79		70-130		
Perfluoro-octanesulfonate	20	23.73			119		70-130		
Perfluorooctanoic acid	20	16.92			85		70-130		
Perfluorotetradecanoic acid	20	19.7			99		70-130		
Perfluorotridecanoic acid	20	17.74			89		70-130		
Perfluoroundecanoic acid	20	20.94			105		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8297418-8297419								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949632A	Sample number(s): 8297411-8297412,8297414-8297415,8297417,8297420-8297423								
TOC	5430	4448.16			82		47-143		
Batch number: 16085049531A	Sample number(s): 8297424								
TOC	5430	4355.58			80		47-143		
	%	%	%	%					
Batch number: 16083820001B	Sample number(s): 8297411-8297417,8297420-8297424								
Moisture	89.5	89.44			100		99-101		
Moisture	89.5	89.44			100		99-101		
Moisture Duplicate	89.5	89.44			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16084008	Sample number(s): 8297411-8297413,8297415-8297417,8297420-8297424 UNSPK: 8297411										
Perfluorobutanesulfonate	0.50	U	20	16.66	20	20.13	83	101	70-130	19	30
Perfluorodecanoic acid	0.20	U	20	18.94	20	18.79	95	94	70-130	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:42

Group Number: 1643001

Analysis Name	Unspiked Conc ng/g		MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorododecanoic acid	0.40	U	20	18.87	20	18.55	94	93	70-130	2	30
Perfluoroheptanoic acid	0.30	U	20	19.56	20	22.07	98	110	70-130	12	30
Perfluorohexanesulfonate	0.50	U	20	17.18	20	14.3	86	71	70-130	18	30
Perfluorohexanoic acid	0.20	U	20	16.1	20	16.15	80	81	70-130	0	30
Perfluorononanoic acid	0.20	U	20	18.83	20	18.09	94	90	70-130	4	30
Perfluoro-octanesulfonate	0.70	U	20	14.21	20	17.52	71	88	70-130	21	30
Perfluorooctanoic acid	1.65		20	18.81	20	19.58	86	90	70-130	4	30
Perfluorotetradecanoic acid	0.30	U	20	18.41	20	24.2	92	121	70-130	27	30
Perfluorotridecanoic acid	0.60	U	20	13.76	20	15.36	69*	77	70-130	11	30
Perfluoroundecanoic acid	0.30	U	20	19.14	20	20.42	96	102	70-130	6	30
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949632A	Sample number(s): 8297411-8297412,8297414-8297415,8297417,8297420-8297423 UNSPK: 8297411										
TOC	14599.68		13593	24218.4			71		47-143		
Batch number: 16085049531A	Sample number(s): 8297424 UNSPK: P298609										
TOC	7316.27		36330	38474.58			86		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16084949632A	Sample number(s): 8297411-8297412,8297414-8297415,8297417,8297420-8297423 BKG: 8297411			
TOC	14599.68	15419.66	5	7
Batch number: 16085049531A	Sample number(s): 8297424 BKG: P298609			
TOC	7316.27	3693.5	66* (1)	7
	%	%		
Batch number: 16083820001B	Sample number(s): 8297411-8297417,8297420-8297424 BKG: 8297411, P297411			
Moisture	11.38	10.39	9*	5
Moisture	11.38	10.39	9*	5
Moisture Duplicate	11.38	10.39	9*	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643001 Sample # 8297411-24

COC # 493546

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#: 185943

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil	Water	Sediment	Ground	Potable	NPDES	Surface	Other:	Total # of Containers	Analysis Requested: EPA 537	TOC	Moisture	Preservation Codes: O	EPA 537	Remarks
8 Polygraphic Ln 6" to 12"	3/21/16	1340	X		X								4	X	X	X			MS/MSD here
8 Polygraphic Ln 12" to 18"	3/21/16	1355	X		X								2	X	X	X			
8 Polygraphic Ln Duplicate	3/21/16	1357	X		X								1						
8 Polygraphic Ln 18" to 24"	3/21/16	1359	X		X								2	X	X	X			
Auger Rinse #5	3/21/16	1403	X			X							2				X		
Bowl Rinse #5	3/21/16	1405	X			X							2				X		
15 Polygraphic Ln 0" to 6"	3/21/16	1427	X		X								2	X	X	X			
15 Polygraphic Ln 6" to 12"	3/21/16	1441	X		X								2	X	X	X			
480 Park St 0" to 6"	3/21/16	1510	X		X								2	X	X	X			
480 Park St 6" to 12"	3/21/16	1516	X		X								2	X	X	X			

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3-17-16	1335	Larene Cameron	3/17/16	1335
Larene Cameron	3/21/16	1655			
			[signature]	3/22/16	0945

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx X Other

Temperature upon receipt 4.8 °C 5.1

Environmental Analysis Request/Chain of Custody

eurofins

Lancaster Laboratories Environmental

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Acct. # 37191 Group # 1643001 Sample # 829741-24

COC # 493547

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: W. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected:

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ☐

Total # of Containers

Analysis Requested

Preservation Codes

EPA 537 | TOC | Moisture

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Total # of Containers	EPA 537	TOC	Moisture
980 Park St 12" to 18"	3/21/16	1533	X		X	2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/21/16	16:55			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by Khadija Abdi	Date 3/22/16	Time 0945

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS FedEx ✓ Other

Temperature upon receipt 4.8 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140176

Group Number(s): 1643001

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/22/2016 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Na2S2O3
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:32 on 03/22/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	5.1	DT	Wet	Y	Bagged	N
2	DT146	4.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T 717-656-2300
F 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 29, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/22/2016
Group Number: 1642988
SDG: SGP07
PO Number: 16.6131
State of Sample Origin: VT

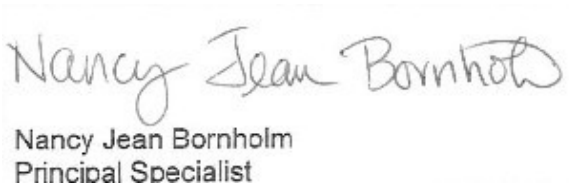
Client Sample Description	Lancaster Labs (LL) #
Asa Way Vac Lot 0" to 6" Grab Soil	8297354
Asa Way Vac Lot 6" to 12" Grab Soil	8297355
Asa Way Vac Lot 12" to 18" Grab Soil	8297356
Asa Way Vac Lot 18" to 24" Grab Soil	8297357
Auger Rinse #4 Grab Blank Water	8297358
Bowl Rinse #4 Grab Blank Water	8297359
Transport Blank 032116 Water	8297360
26 Susan Taylor 0" to 6" Grab Soil	8297361
26 Susan Taylor 0" to 6" MS Grab Soil	8297362
26 Susan Taylor 0" to 6" MSD Grab Soil	8297363
26 Susan Taylor 0" to 6" Dupl Grab Soil	8297364
26 Susan Taylor Duplicate Grab Soil	8297365
26 Susan Taylor 6" to 12" Grab Soil	8297366
26 Susan Taylor 12" to 18" Grab Soil	8297367
26 Susan Taylor 18" to 24" Grab Soil	8297368
10 Scarey Ln 0" to 6" Grab Soil	8297369
10 Scarey Ln 6" to 12" Grab Soil	8297370
10 Scarey Ln 12" to 18" Grab Soil	8297371
10 Scarey Ln 18" to 24" Grab Soil	8297372
26 Scarey Ln 0" to 6" Grab Soil	8297373
26 Scarey Ln 6" to 12" Grab Soil	8297374
8 Polygraphic Ln 0" to 6" Grab Soil	8297375

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1642988

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8297358, 8297359, 8297360
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8297358-8297360)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16084007 (Sample number(s): 8297354-8297357, 8297361-8297363, 8297365-8297375 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluoro-octanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16084949631A (Sample number(s): 8297355-8297357 UNSPK: P294196 BKG: P294196)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16084949631B (Sample number(s): 8297354, 8297361-8297362, 8297364, 8297366-8297372 UNSPK: 8297361 BKG: 8297361)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16083820002A (Sample number(s): 8297354-8297357 BKG: 8297355)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: 8 Polygraphic Ln 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297375
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 13:33 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0719 SDG#: SGP07-19

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.82		0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.98	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.50		0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.48	J	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.4	J	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	4.2		0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.98	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.42	J	0.37	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	22,200		561	1,680	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 10:33	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949632A	03/25/2016 00:56	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 11:29

Group Number: 1642988

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16084007	Sample number(s): 8297354-8297357,8297361-8297363,8297365-8297375			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8297358-8297360			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16084949631A	Sample number(s): 8297355-8297357			
TOC	100	U	100	300
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372			
TOC	100	U	100	300
Batch number: 16084949632A	Sample number(s): 8297373-8297375			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 11:29

Group Number: 1642988

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16084007	Sample number(s): 8297354-8297357,8297361-8297363,8297365-8297375								
Perfluorobutanesulfonate	20	17.26			86		70-130		
Perfluorodecanoic acid	20	19.11			96		70-130		
Perfluorododecanoic acid	20	18.17			91		70-130		
Perfluoroheptanoic acid	20	18.61			93		70-130		
Perfluorohexanesulfonate	20	14.91			75		70-130		
Perfluorohexanoic acid	20	16.77			84		70-130		
Perfluorononanoic acid	20	17.99			90		70-130		
Perfluoro-octanesulfonate	20	20.89			104		70-130		
Perfluorooctanoic acid	20	16.59			83		70-130		
Perfluorotetradecanoic acid	20	19.73			99		70-130		
Perfluorotridecanoic acid	20	15.69			78		70-130		
Perfluoroundecanoic acid	20	17.08			85		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8297358-8297360								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949631A	Sample number(s): 8297355-8297357								
TOC	5430	2743.93			51		47-143		
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372								
TOC	5430	2743.93			51		47-143		
Batch number: 16084949632A	Sample number(s): 8297373-8297375								
TOC	5430	4448.16			82		47-143		
	%	%	%	%					
Batch number: 16083820002A	Sample number(s): 8297354-8297357								
Moisture	89.5	89.47			100		99-101		
Batch number: 16083820002B	Sample number(s): 8297361-8297375								
Moisture	89.5	89.47			100		99-101		
Moisture	89.5	89.47			100		99-101		
Moisture Duplicate	89.5	89.47			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 11:29

Group Number: 1642988

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16084007	Sample number(s): 8297354-8297357,8297361-8297363,8297365-8297375 UNSPK: 8297361									
Perfluorobutanesulfonate	0.50 U	20	16.77	20	18.36	84	92	70-130	9	30
Perfluorodecanoic acid	0.468	20	20.97	20	19.73	103	96	70-130	6	30
Perfluorododecanoic acid	0.40 U	20	18.68	20	18.77	93	94	70-130	0	30
Perfluoroheptanoic acid	0.30 U	20	19.82	20	20.51	99	103	70-130	3	30
Perfluorohexanesulfonate	0.50 U	20	24.58	20	20.13	123	101	70-130	20	30
Perfluorohexanoic acid	0.20 U	20	16.91	20	16.34	85	82	70-130	3	30
Perfluorononanoic acid	0.20 U	20	17.45	20	18.3	87	91	70-130	5	30
Perfluoro-octanesulfonate	0.70 U	20	25.38	20	14.58	127	73	70-130	54*	30
Perfluorooctanoic acid	0.511	20	17.68	20	19.66	86	96	70-130	11	30
Perfluorotetradecanoic acid	0.30 U	20	20.6	20	16.83	103	84	70-130	20	30
Perfluorotridecanoic acid	0.60 U	20	16.16	20	14.25	81	71	70-130	13	30
Perfluoroundecanoic acid	0.312	20	18.17	20	17.26	89	85	70-130	5	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949631A	Sample number(s): 8297355-8297357 UNSPK: P294196									
TOC	5817.55	14790	19743.46			94		47-143		
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372 UNSPK: 8297361									
TOC	5512	10007	12605.07			71		47-143		
Batch number: 16084949632A	Sample number(s): 8297373-8297375 UNSPK: P297411									
TOC	14599.68	13593	24218.4			71		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16084949631A	Sample number(s): 8297355-8297357 BKG: P294196			
TOC	5817.55	3166.37	59*	7
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372 BKG: 8297361			
TOC	5512	6002.81	9*	7
Batch number: 16084949632A	Sample number(s): 8297373-8297375 BKG: P297411			
TOC	14599.68	15419.66	5	7
	%	%		
Batch number: 16083820002A	Sample number(s): 8297354-8297357 BKG: 8297355			
Moisture	17.48	16.51	6*	5
Batch number: 16083820002B	Sample number(s): 8297361-8297375 BKG: 8297361, P297361			
Moisture	19.48	18.8	4	5
Moisture	19.48	18.8	4	5
Moisture Duplicate	19.48	18.8	4	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 3719 Group # 1642788 Sample # 879354-75

COC # 493463

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ | Water: Ground ☐ Potable ☐ NPDES ☐ Surface ☐ | Other: ____

Analysis Requested

Preservation Codes: O

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	EPA 537	Remarks
Asa Way Vacant Lot 0" to 6"	3/21/16	0907	X		2	X	X	X		
Asa Way Vacant Lot 6" to 12"	3/21/16	0913	X		2	X	X	X		
Asa Way Vacant Lot 12" to 18"	3/21/16	0925	X		2	X	X	X		
Asa Way Vacant Lot 18" to 24"	3/21/16	0931	X		2	X	X	X		
~~Asa Way Vacant Lot~~										
Auger Rinse # 4	3/21/16	0938	X		2				X	Lab DI Water
Bowl Rinse # 4	3/21/16	0935	X		2				X	Lab DI Water
Transport Blank 032116	3/16/16	—	X		1				X	Lab Supplied
26 Susan Taylor 0" to 6"	3/21/16	1005	X		4	X	X	X		MS/MSD here
26 Susan Taylor Duplicate	3/21/16	1010	X		1	X				

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type III (Reduced non-CLP)

NYSDEC Category A or B

Type VI (Raw Data Only)

NJ DKQP

MA MCP

TX TRRP-13

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/21/16	1655			
			Kristal Abel	3/22/16	0945

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 4.5 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1642988 Sample # 8297354-75

COC # 493361

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16-6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested

Preservation Codes

Preservation Codes: H=HCl, T=Thiosulfate, N=HNO_3, B=NaOH, S=H_2SO_4, O=Other

For Lab Use Only: FSC: ____ SCR#: ____

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	Remarks
26 Susan Taylor 6" to 12"	3/21/16	1013	X		2	X	X	X	
26 Susan Taylor 12" to 18"	3/21/16	1026	X		2	X	X	X	
26 Susan Taylor 18" to 24"	3/21/16	1026	X		2	X	X	X	
10 Scarey Ln 0" to 6"	3/21/16	1055	X		2	X	X	X	
10 Scarey Ln 6" to 12"	3/21/16	1101	X		2	X	X	X	
10 Scarey Ln 12" to 18"	3/21/16	1114	X		2	X	X	X	
10 Scarey Ln 18" to 24"	3/21/16	1125	X		2	X	X	X	
26 Scarey Ln WH 0" to 6"	3/21/16	1231	X		2	X	X	X	
26 Scarey Ln WH 6" to 12"	3/21/16	1240	X		2	X	X	X	
8 Polygraphic Ln 0" to 6"	3/21/16	1333	X		2	X	X	X	

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: k.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/21/16	1655			
			Krista Abel	3/22/16	0945

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 4.5 / 5.4 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 140176

Group Number(s): 1642988

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/22/2016 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Na2S2O3
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:32 on 03/22/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	5.1	DT	Wet	Y	Bagged	N
2	DT146	4.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T : 717-656-2300
F : 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 29, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/22/2016
Group Number: 1643001
SDG: SGP08
PO Number: 16.6131
State of Sample Origin: VT

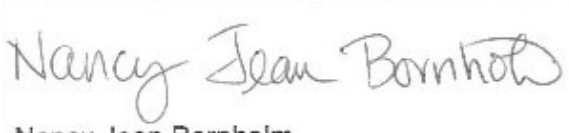
Client Sample Description	Lancaster Labs (LL) #
8 Polygraphic Ln 6" to 12" Grab Soil	8297411
8 Polygraphic Ln 6" to 12" MS Grab Soil	8297412
8 Polygraphic Ln 6" to 12" MSD Grab Soil	8297413
8 Polygraphic Ln 6" to 12" Dupl Grab Soil	8297414
8 Polygraphic Ln 12" to 18" Grab Soil	8297415
8 Polygraphic Ln Duplicate Grab Soil	8297416
8 Polygraphic Ln 18" to 24" Grab Soil	8297417
Auger Rinse #5 Grab Blank Water	8297418
Bowl Rinse #5 Grab Blank Water	8297419
15 Polygraphic 0" to 6" Grab Soil	8297420
15 Polygraphic 6" to 12" Grab Soil	8297421
980 Park St 0" to 6" Grab Soil	8297422
980 Park St 6" to 12" Grab Soil	8297423
980 Park St 12" to 18" Grab Soil	8297424

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1643001

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8297418, 8297419

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8297418-8297419)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16084008 (Sample number(s): 8297411-8297413, 8297415-8297417, 8297420-8297424 UNSPK: 8297411)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorotridecanoic acid

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16085049531A (Sample number(s): 8297424 UNSPK: P298609 BKG: P298609)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16083820001B (Sample number(s): 8297411-8297417, 8297420-8297424 BKG: 8297411)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: 8 Polygraphic Ln 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297411
LL Group # 1643001
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 13:40 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 17:42

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0801 SDG#: SGP08-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.56	U	0.56	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.45	1
14027	Perfluorododecanoic acid	307-55-1	0.45	U	0.45	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.56	U	0.56	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.79	U	0.79	1.8	1
14027	Perfluorooctanoic acid	335-67-1	1.9		0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	0.68	U	0.68	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	16,500		451	1,350	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	11.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084008	03/28/2016 15:42	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949632A	03/25/2016 01:08	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820001B	03/23/2016 09:51	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 8 Polygraphic Ln 6" to 12" MS Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297412
LL Group # 1643001
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 13:40 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 17:42

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0801 SDG#: SGP08-01MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	19	0.56	1.8	1
14027	Perfluorodecanoic acid	335-76-2	21	0.23	0.45	1
14027	Perfluorododecanoic acid	307-55-1	21	0.45	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	22	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	19	0.56	1.8	1
14027	Perfluorohexanoic acid	307-24-4	18	0.23	0.45	1
14027	Perfluorononanoic acid	375-95-1	21	0.23	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	16	0.79	1.8	1
14027	Perfluorooctanoic acid	335-67-1	21	0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	21	0.34	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	16	0.68	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	22	0.34	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	27,300	511	1,530	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	11.4	0.50	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084008	03/28/2016 15:56	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949632A	03/25/2016 01:23	James S Mathiot	1
00118	Moisture	SM 2540 G-1997	1	16083820001B	03/23/2016 09:51	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 8 Polygraphic Ln 6" to 12" MSD Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297413
LL Group # 1643001
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 13:40 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 17:42

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0801 SDG#: SGP08-01MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	23	0.56	1.8	1
14027	Perfluorodecanoic acid	335-76-2	21	0.23	0.45	1
14027	Perfluorododecanoic acid	307-55-1	21	0.45	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	25	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	16	0.56	1.8	1
14027	Perfluorohexanoic acid	307-24-4	18	0.23	0.45	1
14027	Perfluorononanoic acid	375-95-1	20	0.23	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	20	0.79	1.8	1
14027	Perfluorooctanoic acid	335-67-1	22	0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	27	0.34	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	17	0.68	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	23	0.34	0.68	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	Moisture	n.a.	11.4	0.50	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084008	03/28/2016 16:10	Jason W Knight	1
00118	Moisture	SM 2540 G-1997	1	16083820001B	03/23/2016 09:51	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 8 Polygraphic Ln 6" to 12" Dupl Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297414
LL Group # 1643001
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 13:40 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 17:42

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0801 SDG#: SGP08-01DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	17,400	542	1,630	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	11.4	0.50	0.50	1
00121	Moisture Duplicate	n.a.	10.4	0.50	0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	16084949632A	03/25/2016 03:21	James S Mathiot	1
00118	Moisture	SM 2540 G-1997	1	16083820001B	03/23/2016 09:51	William C Schwebel	1
00121	Moisture Duplicate	SM 2540 G-1997	1	16083820001B	03/23/2016 09:51	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 8 Polygraphic Ln 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297415
LL Group # 1643001
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 13:55 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 17:42

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0802 SDG#: SGP08-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.97	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.45	J	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.85	U	0.85	1.9	1
14027	Perfluorooctanoic acid	335-67-1	2.1		0.36	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	0.73	U	0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.73	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	33,000		577	1,730	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	17.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084008	03/28/2016 03:26	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949632A	03/25/2016 01:47	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820001B	03/23/2016 09:51	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 8 Polygraphic Ln Duplicate Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297416
LL Group # 1643001
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 13:57 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 17:42

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0803 SDG#: SGP08-03FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.58	U	0.58	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.33	J	0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.46	U	0.46	0.93	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.58	U	0.58	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.32	J	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.5	J	0.81	1.9	1
14027	Perfluorooctanoic acid	335-67-1	2.1		0.35	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.93	1
14027	Perfluorotridecanoic acid	72629-94-8	0.69	U	0.69	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.69	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	13.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084008	03/28/2016 03:40	Jason W Knight	1
00111	Moisture	SM 2540 G-1997	1	16083820001B	03/23/2016 09:51	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 8 Polygraphic Ln 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297417
LL Group # 1643001
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 13:59 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 17:42

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0804 SDG#: SGP08-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.32	J	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.96	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.36	J	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	2.4		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.96	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,870		287	861	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	16.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084008	03/28/2016 03:54	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949632A	03/25/2016 02:01	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820001B	03/23/2016 09:51	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:42

Group Number: 1643001

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16084008	Sample number(s): 8297411-8297413,8297415-8297417,8297420-8297424			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8297418-8297419			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16084949632A	Sample number(s): 8297411-8297412,8297414-8297415,8297417,8297420-8297423			
TOC	100	U	100	300
Batch number: 16085049531A	Sample number(s): 8297424			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16084008	Sample number(s): 8297411-8297413,8297415-8297417,8297420-8297424								

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:42

Group Number: 1643001

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Perfluorobutanesulfonate	20	19.99			100		70-130		
Perfluorodecanoic acid	20	20.95			105		70-130		
Perfluorododecanoic acid	20	18.97			95		70-130		
Perfluoroheptanoic acid	20	17.78			89		70-130		
Perfluorohexanesulfonate	20	23.71			119		70-130		
Perfluorohexanoic acid	20	15.95			80		70-130		
Perfluorononanoic acid	20	15.75			79		70-130		
Perfluoro-octanesulfonate	20	23.73			119		70-130		
Perfluorooctanoic acid	20	16.92			85		70-130		
Perfluorotetradecanoic acid	20	19.7			99		70-130		
Perfluorotridecanoic acid	20	17.74			89		70-130		
Perfluoroundecanoic acid	20	20.94			105		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8297418-8297419								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949632A	Sample number(s): 8297411-8297412,8297414-8297415,8297417,8297420-8297423								
TOC	5430	4448.16			82		47-143		
Batch number: 16085049531A	Sample number(s): 8297424								
TOC	5430	4355.58			80		47-143		
	%	%	%	%					
Batch number: 16083820001B	Sample number(s): 8297411-8297417,8297420-8297424								
Moisture	89.5	89.44			100		99-101		
Moisture	89.5	89.44			100		99-101		
Moisture Duplicate	89.5	89.44			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16084008	Sample number(s): 8297411-8297413,8297415-8297417,8297420-8297424 UNSPK: 8297411										
Perfluorobutanesulfonate	0.50	U	20	16.66	20	20.13	83	101	70-130	19	30
Perfluorodecanoic acid	0.20	U	20	18.94	20	18.79	95	94	70-130	1	30

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:42

Group Number: 1643001

Analysis Name	Unspiked Conc ng/g		MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorododecanoic acid	0.40	U	20	18.87	20	18.55	94	93	70-130	2	30
Perfluoroheptanoic acid	0.30	U	20	19.56	20	22.07	98	110	70-130	12	30
Perfluorohexanesulfonate	0.50	U	20	17.18	20	14.3	86	71	70-130	18	30
Perfluorohexanoic acid	0.20	U	20	16.1	20	16.15	80	81	70-130	0	30
Perfluorononanoic acid	0.20	U	20	18.83	20	18.09	94	90	70-130	4	30
Perfluoro-octanesulfonate	0.70	U	20	14.21	20	17.52	71	88	70-130	21	30
Perfluorooctanoic acid	1.65		20	18.81	20	19.58	86	90	70-130	4	30
Perfluorotetradecanoic acid	0.30	U	20	18.41	20	24.2	92	121	70-130	27	30
Perfluorotridecanoic acid	0.60	U	20	13.76	20	15.36	69*	77	70-130	11	30
Perfluoroundecanoic acid	0.30	U	20	19.14	20	20.42	96	102	70-130	6	30
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949632A	Sample number(s): 8297411-8297412,8297414-8297415,8297417,8297420-8297423 UNSPK: 8297411										
TOC	14599.68		13593	24218.4			71		47-143		
Batch number: 16085049531A	Sample number(s): 8297424 UNSPK: P298609										
TOC	7316.27		36330	38474.58			86		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16084949632A	Sample number(s): 8297411-8297412,8297414-8297415,8297417,8297420-8297423 BKG: 8297411			
TOC	14599.68	15419.66	5	7
Batch number: 16085049531A	Sample number(s): 8297424 BKG: P298609			
TOC	7316.27	3693.5	66* (1)	7
	%	%		
Batch number: 16083820001B	Sample number(s): 8297411-8297417,8297420-8297424 BKG: 8297411, P297411			
Moisture	11.38	10.39	9*	5
Moisture	11.38	10.39	9*	5
Moisture Duplicate	11.38	10.39	9*	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643001 Sample # 8297411-24

COC # 493546

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#: 185943

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil	Water	Sediment	Ground	Potable	NPDES	Surface	Other:	Total # of Containers	Analysis Requested: EPA 537	TOC	Moisture	Preservation Codes: O	EPA 537	Remarks
8 Polygraphic Ln 6" to 12"	3/21/16	1340	X		X								4	X	X	X			MS/MSD here
8 Polygraphic Ln 12" to 18"	3/21/16	1355	X		X								2	X	X	X			
8 Polygraphic Ln Duplicate	3/21/16	1357	X		X								1						
8 Polygraphic Ln 18" to 24"	3/21/16	1359	X		X								2	X	X	X			
Auger Rinse #5	3/21/16	1403	X			X							2				X		
Bowl Rinse #5	3/21/16	1405	X			X							2				X		
15 Polygraphic Ln 0" to 6"	3/21/16	1427	X		X								2	X	X	X			
15 Polygraphic Ln 6" to 12"	3/21/16	1441	X		X								2	X	X	X			
480 Park St 0" to 6"	3/21/16	1510	X		X								2	X	X	X			
480 Park St 6" to 12"	3/21/16	1516	X		X								2	X	X	X			

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3-17-16	1335	Larene Cameron	3/17/16	1335
Larene Cameron	3/21/16	1655			
			[signature]	3/22/16	0945

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx X Other

Temperature upon receipt 4.8 °C 5.1

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643001 Sample # 829741-24

COC # 493547

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: W. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected:

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ☐

Total # of Containers

Analysis Requested

Preservation Codes

EPA 537 | TOC | Moisture

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Total # of Containers	EPA 537	TOC	Moisture
980 Park St 12" to 18"	3/21/16	1533	X		X	2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/21/16	16:55			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by Khadija Abdi	Date 3/22/16	Time 0945

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS FedEx ✓ Other

Temperature upon receipt 4.8 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140176

Group Number(s): 1643001

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/22/2016 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Na2S2O3
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:32 on 03/22/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	5.1	DT	Wet	Y	Bagged	N
2	DT146	4.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 29, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/22/2016
Group Number: 1643001
SDG: SGP08
PO Number: 16.6131
State of Sample Origin: VT

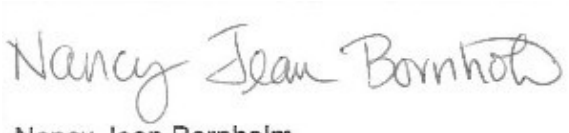
Client Sample Description	Lancaster Labs (LL) #
8 Polygraphic Ln 6" to 12" Grab Soil	8297411
8 Polygraphic Ln 6" to 12" MS Grab Soil	8297412
8 Polygraphic Ln 6" to 12" MSD Grab Soil	8297413
8 Polygraphic Ln 6" to 12" Dupl Grab Soil	8297414
8 Polygraphic Ln 12" to 18" Grab Soil	8297415
8 Polygraphic Ln Duplicate Grab Soil	8297416
8 Polygraphic Ln 18" to 24" Grab Soil	8297417
Auger Rinse #5 Grab Blank Water	8297418
Bowl Rinse #5 Grab Blank Water	8297419
15 Polygraphic 0" to 6" Grab Soil	8297420
15 Polygraphic 6" to 12" Grab Soil	8297421
980 Park St 0" to 6" Grab Soil	8297422
980 Park St 6" to 12" Grab Soil	8297423
980 Park St 12" to 18" Grab Soil	8297424

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1643001

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8297418, 8297419

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8297418-8297419)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16084008 (Sample number(s): 8297411-8297413, 8297415-8297417, 8297420-8297424 UNSPK: 8297411)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorotridecanoic acid

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16085049531A (Sample number(s): 8297424 UNSPK: P298609 BKG: P298609)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16083820001B (Sample number(s): 8297411-8297417, 8297420-8297424 BKG: 8297411)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: 15 Polygraphic 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297420
LL Group # 1643001
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 14:27 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 17:42

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0807 SDG#: SGP08-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.58		0.26	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.39	U	0.39	0.77	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.42	J	0.26	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.90	U	0.90	2.1	1
14027	Perfluorooctanoic acid	335-67-1	0.84		0.39	0.77	1
14027	Perfluorotetradecanoic acid	376-06-7	0.39	U	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.77	U	0.77	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.51	J	0.39	0.77	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	14,400		619	1,860	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	22.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084008	03/28/2016 04:09	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949632A	03/25/2016 02:32	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820001B	03/23/2016 09:51	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 15 Polygraphic 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297421
LL Group # 1643001
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 14:41 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 17:42

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0808 SDG#: SGP08-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.96	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	1.1		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.96	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	11,900		434	1,300	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	16.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084008	03/28/2016 04:23	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949632A	03/25/2016 02:44	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820001B	03/23/2016 09:51	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:42

Group Number: 1643001

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16084008	Sample number(s): 8297411-8297413,8297415-8297417,8297420-8297424			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8297418-8297419			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16084949632A	Sample number(s): 8297411-8297412,8297414-8297415,8297417,8297420-8297423			
TOC	100	U	100	300
Batch number: 16085049531A	Sample number(s): 8297424			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16084008	Sample number(s): 8297411-8297413,8297415-8297417,8297420-8297424								

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:42

Group Number: 1643001

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Perfluorobutanesulfonate	20	19.99			100		70-130		
Perfluorodecanoic acid	20	20.95			105		70-130		
Perfluorododecanoic acid	20	18.97			95		70-130		
Perfluoroheptanoic acid	20	17.78			89		70-130		
Perfluorohexanesulfonate	20	23.71			119		70-130		
Perfluorohexanoic acid	20	15.95			80		70-130		
Perfluorononanoic acid	20	15.75			79		70-130		
Perfluoro-octanesulfonate	20	23.73			119		70-130		
Perfluorooctanoic acid	20	16.92			85		70-130		
Perfluorotetradecanoic acid	20	19.7			99		70-130		
Perfluorotridecanoic acid	20	17.74			89		70-130		
Perfluoroundecanoic acid	20	20.94			105		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8297418-8297419								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949632A	Sample number(s): 8297411-8297412,8297414-8297415,8297417,8297420-8297423								
TOC	5430	4448.16			82		47-143		
Batch number: 16085049531A	Sample number(s): 8297424								
TOC	5430	4355.58			80		47-143		
	%	%	%	%					
Batch number: 16083820001B	Sample number(s): 8297411-8297417,8297420-8297424								
Moisture	89.5	89.44			100		99-101		
Moisture	89.5	89.44			100		99-101		
Moisture Duplicate	89.5	89.44			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16084008	Sample number(s): 8297411-8297413,8297415-8297417,8297420-8297424 UNSPK: 8297411										
Perfluorobutanesulfonate	0.50	U	20	16.66	20	20.13	83	101	70-130	19	30
Perfluorodecanoic acid	0.20	U	20	18.94	20	18.79	95	94	70-130	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:42

Group Number: 1643001

Analysis Name	Unspiked Conc ng/g		MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorododecanoic acid	0.40	U	20	18.87	20	18.55	94	93	70-130	2	30
Perfluoroheptanoic acid	0.30	U	20	19.56	20	22.07	98	110	70-130	12	30
Perfluorohexanesulfonate	0.50	U	20	17.18	20	14.3	86	71	70-130	18	30
Perfluorohexanoic acid	0.20	U	20	16.1	20	16.15	80	81	70-130	0	30
Perfluorononanoic acid	0.20	U	20	18.83	20	18.09	94	90	70-130	4	30
Perfluoro-octanesulfonate	0.70	U	20	14.21	20	17.52	71	88	70-130	21	30
Perfluorooctanoic acid	1.65		20	18.81	20	19.58	86	90	70-130	4	30
Perfluorotetradecanoic acid	0.30	U	20	18.41	20	24.2	92	121	70-130	27	30
Perfluorotridecanoic acid	0.60	U	20	13.76	20	15.36	69*	77	70-130	11	30
Perfluoroundecanoic acid	0.30	U	20	19.14	20	20.42	96	102	70-130	6	30
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949632A	Sample number(s): 8297411-8297412,8297414-8297415,8297417,8297420-8297423 UNSPK: 8297411										
TOC	14599.68		13593	24218.4			71		47-143		
Batch number: 16085049531A	Sample number(s): 8297424 UNSPK: P298609										
TOC	7316.27		36330	38474.58			86		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16084949632A	Sample number(s): 8297411-8297412,8297414-8297415,8297417,8297420-8297423 BKG: 8297411			
TOC	14599.68	15419.66	5	7
Batch number: 16085049531A	Sample number(s): 8297424 BKG: P298609			
TOC	7316.27	3693.5	66* (1)	7
	%	%		
Batch number: 16083820001B	Sample number(s): 8297411-8297417,8297420-8297424 BKG: 8297411, P297411			
Moisture	11.38	10.39	9*	5
Moisture	11.38	10.39	9*	5
Moisture Duplicate	11.38	10.39	9*	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643001 Sample # 8297411-24

COC # 493546

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#: 185943

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil	Water	Sediment	Ground	Potable	NPDES	Surface	Other:	Total # of Containers	Analysis Requested: EPA 537	TOC	Moisture	Preservation Codes: O	EPA 537	Remarks
8 Polygraphic Ln 6" to 12"	3/21/16	1340	X		X								4	X	X	X			MS/MSD here
8 Polygraphic Ln 12" to 18"	3/21/16	1355	X		X								2	X	X	X			
8 Polygraphic Ln Duplicate	3/21/16	1357	X		X								1						
8 Polygraphic Ln 18" to 24"	3/21/16	1359	X		X								2	X	X	X			
Auger Rinse #5	3/21/16	1403	X			X							2				X		
Bowl Rinse #5	3/21/16	1405	X			X							2				X		
15 Polygraphic Ln 0" to 6"	3/21/16	1427	X		X								2	X	X	X			
15 Polygraphic Ln 6" to 12"	3/21/16	1441	X		X								2	X	X	X			
480 Park St 0" to 6"	3/21/16	1510	X		X								2	X	X	X			
480 Park St 6" to 12"	3/21/16	1516	X		X								2	X	X	X			

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3-17-16	1335	Larene Cameron	3/17/16	1335
Larene Cameron	3/21/16	1655			
			[signature]	3/22/16	0945

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx X Other

Temperature upon receipt 4.8 °C 5.1

Environmental Analysis Request/Chain of Custody

eurofins

Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1643001 Sample # 829741-24

COC # 493547

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: W. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected:

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ☐

Total # of Containers

Analysis Requested

Preservation Codes

EPA 537 | TOC | Moisture

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Total # of Containers	EPA 537	TOC	Moisture
980 Park St 12" to 18"	3/21/16	1533	X		X	2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/21/16	16:55			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by Khadija Abdi	Date 3/22/16	Time 0945

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS FedEx ✓ Other

Temperature upon receipt 4.8 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 140176

Group Number(s): 1643001

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/22/2016 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Na2S2O3
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:32 on 03/22/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	5.1	DT	Wet	Y	Bagged	N
2	DT146	4.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 25, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/18/2016
Group Number: 1641929
SDG: SGP03
PO Number: 16.6131
State of Sample Origin: VT

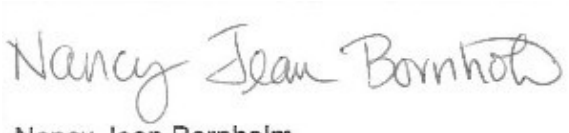
Client Sample Description	Lancaster Labs (LL) #
25 ASA WAY 0"-6" Grab Soil	8291924
25 ASA WAY 6"-12" Grab Soil	8291925
25 ASA WAY 12"-18" Grab Soil	8291926
25 ASA WAY 18"-24" Grab Soil	8291927
59 River Rd Roadside Playgrnd 0"-6" Grab Soil	8291928
59 River Rd Roadside Playgrnd 6"-12" Grab Soil	8291929
59 River Rd Roadside Playgrnd 12"-18" Grab Soil	8291930
59 River Rd Roadside Playgrnd18"-24" Grab Soil	8291931
59 River Rd Slide 0"-6" Grab Soil	8291932
59 River Rd Slide 6"-12" Grab Soil	8291933
59 River Rd Slide MS 6"-12" Grab Soil	8291934
59 River Rd Slide MSD 6"-12" Grab Soil	8291935
North Bennington Trip Blank Water	8291936
59 River Rd Slide Duplicate 6"-12" Grab Soil	8291937
Auger Rinse Blank 1 Water	8291938

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1641929

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8291936, 8291938

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16081001 (Sample number(s): 8291924-8291935, 8291937 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorobutanesulfonate

Batch #: 16081002 (Sample number(s): 8291936, 8291938)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorotridecanoic acid, Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorotridecanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample Description: 59 River Rd Roadside Playgrnd 0"-6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291928
LL Group # 1641929
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 14:00 by LC

Submitted: 03/18/2016 09:30
Reported: 03/25/2016 10:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

59R-1 SDG#: SGP03-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.65	U	0.65	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.46	J	0.26	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.65	U	0.65	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.39	U	0.39	0.78	1
14027	Perfluorohexanesulfonate	355-46-4	0.65	U	0.65	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.26	U	0.26	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	2.8		0.91	2.1	1
14027	Perfluorooctanoic acid	335-67-1	0.74	J	0.39	0.78	1
14027	Perfluorotetradecanoic acid	376-06-7	0.52	U	0.52	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.78	U	0.78	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.39	U	0.39	0.78	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	17,400		894	2,680	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	23.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/23/2016 21:36	Meng Yu	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/24/2016 07:23	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531A	03/20/2016 22:29	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006B	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 59 River Rd Roadside Playgrnd 6"-12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291929
LL Group # 1641929
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 14:02 by LC

Submitted: 03/18/2016 09:30
Reported: 03/25/2016 10:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

59R-2 SDG#: SGP03-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.25	J	0.24	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.61	U	0.61	0.97	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.31	J	0.24	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.3	J	0.85	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.86		0.36	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.49	U	0.49	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	0.73	U	0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.73	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	12,700		808	2,420	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	17.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/23/2016 21:53	Meng Yu	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/24/2016 07:40	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531A	03/20/2016 22:36	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006B	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 59 River Rd Roadside Playgrnd 12"-18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291930
LL Group # 1641929
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 14:10 by LC

Submitted: 03/18/2016 09:30
Reported: 03/25/2016 10:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

59R-3 SDG#: SGP03-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.58	U	0.58	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.58	U	0.58	0.92	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.58	U	0.58	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.2	J	0.81	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.66	J	0.35	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.46	U	0.46	0.92	1
14027	Perfluorotridecanoic acid	72629-94-8	0.69	U	0.69	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.69	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	2,940		925	2,770	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	13.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/23/2016 22:11	Meng Yu	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/24/2016 07:57	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531A	03/20/2016 22:44	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006B	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 59 River Rd Roadside Playgrnd18"-24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291931
LL Group # 1641929
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 14:13 by LC

Submitted: 03/18/2016 09:30
Reported: 03/25/2016 10:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

59R-4 SDG#: SGP03-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.56	U	0.56	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.45	1
14027	Perfluorododecanoic acid	307-55-1	0.56	U	0.56	0.89	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.56	U	0.56	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.78	U	0.78	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.34	U	0.34	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.45	U	0.45	0.89	1
14027	Perfluorotridecanoic acid	72629-94-8	0.67	U	0.67	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.67	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	3,430		810	2,430	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	10.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/23/2016 22:28	Meng Yu	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/24/2016 08:14	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531A	03/20/2016 22:53	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006B	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 59 River Rd Slide 0"-6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291932
LL Group # 1641929
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 14:47 by LC

Submitted: 03/18/2016 09:30
Reported: 03/25/2016 10:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

59RS1 SDG#: SGP03-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.59	U	0.59	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.82	U	0.82	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.35	U	0.35	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.47	U	0.47	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.70	U	0.70	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.70	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	13,700		541	1,620	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	14.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/23/2016 22:45	Meng Yu	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/24/2016 08:32	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531A	03/20/2016 23:25	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006B	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 59 River Rd Slide 6"-12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291933
LL Group # 1641929
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 14:55 by LC

Submitted: 03/18/2016 09:30
Reported: 03/25/2016 10:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

59RS2 SDG#: SGP03-10BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.45	1
14027	Perfluorododecanoic acid	307-55-1	0.57	U	0.57	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.0	J	0.79	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.34	U	0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.45	U	0.45	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	0.68	U	0.68	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,280		497	1,490	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	11.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/23/2016 19:18	Meng Yu	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/24/2016 05:04	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531A	03/20/2016 23:40	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006B	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 59 River Rd Slide MS 6"-12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291934
LL Group # 1641929
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 14:55 by LC

Submitted: 03/18/2016 09:30
Reported: 03/25/2016 10:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

59RS2 SDG#: SGP03-10MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	18	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	22	0.23	0.45	1
14027	Perfluorododecanoic acid	307-55-1	23	0.57	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	21	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	23	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	23	0.23	0.45	1
14027	Perfluorononanoic acid	375-95-1	23	0.23	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	23	0.79	1.8	1
14027	Perfluorooctanoic acid	335-67-1	21	0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	23	0.45	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	19	0.68	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	21	0.34	0.68	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	Moisture	n.a.	11.6	0.50	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/23/2016 19:35	Meng Yu	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/24/2016 05:22	Meng Yu	1
00118	Moisture	SM 2540 G-1997	1	16078820006B	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 59 River Rd Slide MSD 6"-12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291935
LL Group # 1641929
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 14:55 by LC

Submitted: 03/18/2016 09:30
Reported: 03/25/2016 10:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

59RS2 SDG#: SGP03-10MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	15	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	21	0.23	0.45	1
14027	Perfluorododecanoic acid	307-55-1	22	0.57	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	21	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	17	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	20	0.23	0.45	1
14027	Perfluorononanoic acid	375-95-1	21	0.23	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	21	0.79	1.8	1
14027	Perfluorooctanoic acid	335-67-1	20	0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	24	0.45	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	22	0.68	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	23	0.34	0.68	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	Moisture	n.a.	11.6	0.50	0.50	1
00121	Moisture Duplicate	n.a.	11.9	0.50	0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/23/2016 19:52	Meng Yu	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/24/2016 05:39	Meng Yu	1
00118	Moisture	SM 2540 G-1997	1	16078820006B	03/18/2016 17:15	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997	1	16078820006B	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 59 River Rd Slide Duplicate 6"-12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291937
LL Group # 1641929
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 14:55 by LC

Submitted: 03/18/2016 09:30
Reported: 03/25/2016 10:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

59RSD SDG#: SGP03-12FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.45	1
14027	Perfluorododecanoic acid	307-55-1	0.57	U	0.57	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.0	J	0.79	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.34	U	0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.45	U	0.45	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	0.68	U	0.68	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.68	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	11.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/23/2016 23:02	Meng Yu	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16081001	03/24/2016 08:49	Meng Yu	1
00111	Moisture	SM 2540 G-1997	1	16078820006B	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/25/2016 10:13

Group Number: 1641929

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16081001	Sample number(s): 8291924-8291935,8291937			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16081002	Sample number(s): 8291936,8291938			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16080049531A	Sample number(s): 8291924-8291933			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16081001	Sample number(s): 8291924-8291935,8291937								
Perfluorobutanesulfonate	20	17.04			85		70-130		
Perfluorodecanoic acid	20	20.74			104		70-130		
Perfluorododecanoic acid	20	20.21			101		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/25/2016 10:13

Group Number: 1641929

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Perfluoroheptanoic acid	20	19.15			96		70-130		
Perfluorohexanesulfonate	20	18.24			91		70-130		
Perfluorohexanoic acid	20	19.55			98		70-130		
Perfluorononanoic acid	20	20.21			101		70-130		
Perfluoro-octanesulfonate	20	19.18			96		70-130		
Perfluorooctanoic acid	20	19.68			98		70-130		
Perfluorotetradecanoic acid	20	20.32			102		70-130		
Perfluorotridecanoic acid	20	19.76			99		70-130		
Perfluoroundecanoic acid	20	19.78			99		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16081002	Sample number(s): 8291936,8291938								
Perfluorooctanoic acid	200	141.82	200	161.69	71	81	70-130	13	30
Perfluorononanoic acid	200	141.05	200	175.73	71	88	70-130	22	30
Perfluorodecanoic acid	200	144.05	200	177.93	72	89	70-130	21	30
Perfluoroundecanoic acid	200	143.61	200	189.21	72	95	70-130	27	30
Perfluorododecanoic acid	200	145.69	200	190.83	73	95	70-130	27	30
Perfluorotridecanoic acid	200	136.9	200	189.14	68*	95	70-130	32*	30
Perfluorotetradecanoic acid	200	147.28	200	189.55	74	95	70-130	25	30
Perfluorohexanoic acid	200	175.57	200	191.92	88	96	70-130	9	30
Perfluoroheptanoic acid	200	151.38	200	188.2	76	94	70-130	22	30
Perfluorobutanesulfonate	200	126.54	200	168.03	63*	84	70-130	28	30
Perfluorohexanesulfonate	200	122.71	200	170.94	61*	85	70-130	33*	30
Perfluoro-octanesulfonate	200	129.69	200	180.89	65*	90	70-130	33*	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16080049531A	Sample number(s): 8291924-8291933								
TOC	5430	4492.52			83		47-143		
	%	%	%	%					
Batch number: 16078820006B	Sample number(s): 8291924-8291935,8291937								
Moisture	89.5	89.43			100		99-101		
Moisture	89.5	89.43			100		99-101		
Moisture Duplicate	89.5	89.43			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16081001	Sample number(s): 8291924-8291935,8291937 UNSPK: 8291933										
Perfluorobutanesulfonate	0.50	U	20	15.84	20	13.36	79	67*	70-130	17	30
Perfluorodecanoic acid	0.20	U	20	19.11	20	18.23	96	91	70-130	5	30
Perfluorododecanoic acid	0.40	U	20	20.47	20	19.07	102	95	70-130	7	30
Perfluoroheptanoic acid	0.30	U	20	18.55	20	18.77	93	94	70-130	1	30
Perfluorohexanesulfonate	0.50	U	20	20.38	20	15.02	102	75	70-130	30	30
Perfluorohexanoic acid	0.20	U	20	20.07	20	18.03	100	90	70-130	11	30
Perfluorononanoic acid	0.20	U	20	20.41	20	18.2	102	91	70-130	11	30
Perfluoro-octanesulfonate	0.70	U	20	20.52	20	18.35	103	92	70-130	11	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/25/2016 10:13

Group Number: 1641929

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorooctanoic acid	0.30 U	20	18.31	20	17.35	92	87	70-130	5	30
Perfluorotetradecanoic acid	0.30 U	20	20.49	20	21.08	102	105	70-130	3	30
Perfluorotridecanoic acid	0.60 U	20	16.43	20	19.29	82	96	70-130	16	30
Perfluoroundecanoic acid	0.30 U	20	18.68	20	20.18	93	101	70-130	8	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16080049531A	Sample number(s): 8291924-8291933 UNSPK: 8291933									
TOC	5548.25	55556	77462.96			129		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16080049531A	Sample number(s): 8291924-8291933 BKG: 8291933			
TOC	5548.25	5243.51	6 (1)	7
	%	%		
Batch number: 16078820006B	Sample number(s): 8291924-8291935,8291937 BKG: 8291933, P291933			
Moisture	11.63	11.86	2	5
Moisture	11.63	11.86	2	5
Moisture Duplicate	11.63	11.86	2	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

eurofins

1 of 2

Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1641929 Sample # 8291924-38

COC # 493352

Client Information

Client: CT Male	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ☐

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture % and TOC	Remarks
25 ASA WAY 0"-6"	3/16/16	12:20	✓		2	1	1	
25 ASA WAY 6"-12"	3/16/16	12:37	✓		2	1	1	
25 ASA WAY 12"-18"	3/16/16	12:56	✓		2	1	1	
25 ASA WAY 18"-24"	3/16/16	13:00	✓		2	1	1	
59 River Rd Road Side playg 0"-6"	3/16/16	14:00	✓		2	1	1	Road side playgram
59 River Rd " 6"-12"	3/16/16	14:02	✓		2	1	1	"
59 River Rd " 12"-18"	3/16/16	14:10	✓		2	1	1	"
59 River Rd " 18-24"	3/16/16	14:13	✓		2	1	1	"
59 River Rd Next to Slide Lc 0"-6"	3/16/16	14:47	✓		2	1	1	Lc next to Slide
59 River Rd Slide Lc 6"-12"	3/16/16	14:55	✓		2	1	1	Lc next to Slide

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 Day

E-mail address: K.Moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or (B) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/17/16	07:33	Jeff Mapp	3/17/16	0733
			Received by	Date	Time
			Thomas Abel	3/18/16	0930

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx X Other ____

Temperature upon receipt 2.2 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

2 of 2

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1641929 Sample # 8291924-38

COC # 493353

Client Information

Client: CT Male	Acct. #:
Project Name/#: N Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Camera	Quote #:
State where samples were collected:	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Water ☐ Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture % and TOC	Remarks
59 River Rd Next to Daycare 12"-18"	3/16/16		✓		2	1	1	LC
59 River Rd Next to Daycare 18"-24"								LC
59 River Rd Slide 12"-18"	3/16/16		✓		2	1	1	Slide LC
59 River Rd Slide 18"-24"	3/16/16		✓		2	1	1	Slide LC
59 River Rd Slide MSD 6"-12"	3/16/16	14:55	✓		1	1		
North Bennington Trip Blank	3/16/16							Lab Provided
59 River Rd Slide MS 6"-12"	3/16/16	14:55	✓		1	1		
59 River Rd Slide Duplicate Sample 6"-12"	3/16/16	14:55	✓		1	1		
Auger Rinse Blank 1	3/16/16	15:05			2	2		Lab Di

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 Day

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Camera	03/17/16	07:33	[signature] Map	03/17/16	0733
			[signature]	3/18/16	0930

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 2-2 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 139859

Group Number(s): 1641929

Client: CT Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/18/2016 9:30
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	NaS2O4
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 10:22 on 03/18/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.2	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: April 14, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/24/2016
Group Number: 1643769
SDG: SGP10
PO Number: 16.6131
State of Sample Origin: VT

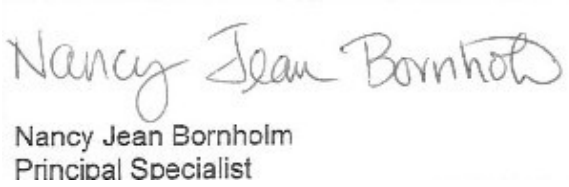
Client Sample Description	Lancaster Labs (LL) #
180 River Rd 0" to 6" Grab Soil	8301012
180 River Rd 6" to 12" Grab Soil	8301013
180 River Rd 12" to 18" Grab Soil	8301014
180 River Rd 18" to 24" Grab Soil	8301015
Chemfab Along River 0" to 6" Grab Soil	8301016
Chemfab Along River 6" to 12" Grab Soil	8301017
Chemfab Along River 12" to 18" Grab Soil	8301018
Chemfab Along River 18" to 24" Grab Soil	8301019
Chemfab W Side 0" to 6" Grab Soil	8301020
Chemfab W Side 6" to 12" Grab Soil	8301021
Chemfab W Side 12" to 18" Grab Soil	8301022
Chemfab W Side 18" to 24" Grab Soil	8301023
Lake Paran 0" to 6" Grab Soil	8301024
Lake Paran 6" to 12" Grab Soil	8301025
Lake Paran 12" to 18" Grab Soil	8301026
Lake Paran 18" to 24" Grab Soil	8301027
Auger Rinse #7 Grab Blank Water	8301028
Bowl Rinse #7 Grab Blank Water	8301029
Transport Blank 032316 Blank Water	8301030
16 Wilkey Way 0" to 6" Grab Soil	8301031
16 Wilkey Way Duplicate Grab Soil	8301032
16 Wilkey Way 6" to 12" Grab Soil	8301033
16 Wilkey Way 6" to 12" MS Grab Soil	8301034
16 Wilkey Way 6" to 12" MSD Grab Soil	8301035
16 Wilkey Way 6" to 12" Dupl Grab Soil	8301036
16 Wilkey Way 12" to 18" Grab Soil	8301037
16 Wilkey Way 18" to 24" Grab Soil	8301038
Chemfab Blowdown East 0" to 6" Grab Soil	8301039
Chemfab Blowdown East 6" to 12" Grab Soil	8301040
Chemfab Blowdown East 12" to 18" Grab Soil	8301041
Chemfab Blowdown East 18" to 24" Grab Soil	8301042

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1643769

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Batch #: 16085004 (Sample number(s): 8301028-8301030 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorohexanesulfonate

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluorooctanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Batch #: 16098007 (Sample number(s): 8301012-8301027, 8301031-8301035, 8301037 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorotridecanoic acid

Batch #: 16098008 (Sample number(s): 8301038-8301042 UNSPK: 8301038)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorohexanesulfonate, Perfluoro-octanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluoro-octanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16089049531A (Sample number(s): 8301018-8301027 UNSPK: 8301018 BKG: 8301018)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16089049531B (Sample number(s): 8301031, 8301041-8301042 UNSPK: 8301042 BKG: 8301042)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Sample Description: 180 River Rd 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301012
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 09:04 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1001 SDG#: SGP10-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.73		0.24	0.49	1
14027	Perfluorododecanoic acid	307-55-1	1.7		0.49	0.98	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.9	JB	0.85	2.0	1
14027	Perfluorooctanoic acid	335-67-1	2.0		0.37	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.98	1
14027	Perfluorotridecanoic acid	72629-94-8	1.6		0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.90		0.37	0.73	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	20,500		667	2,000	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 10:36	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16088949631B	03/29/2016 01:00	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820009A	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 180 River Rd 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301013
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 09:15 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1002 SDG#: SGP10-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	1.1	U	1.1	3.4	2
14027	Perfluorodecanoic acid	335-76-2	0.43	U	0.43	0.86	2
14027	Perfluorododecanoic acid	307-55-1	1.4	J	0.86	1.7	2
14027	Perfluoroheptanoic acid	375-85-9	0.64	U	0.64	1.3	2
14027	Perfluorohexanesulfonate	355-46-4	1.1	U	1.1	3.4	2
14027	Perfluorohexanoic acid	307-24-4	0.43	U	0.43	0.86	2
14027	Perfluorononanoic acid	375-95-1	0.43	U	0.43	0.43	2
14027	Perfluoro-octanesulfonate	1763-23-1	1.5	U	1.5	3.4	2
14027	Perfluorooctanoic acid	335-67-1	0.66	J	0.64	1.3	2
14027	Perfluorotetradecanoic acid	376-06-7	0.64	U	0.64	1.7	2
14027	Perfluorotridecanoic acid	72629-94-8	1.3	U	1.3	2.6	2
14027	Perfluoroundecanoic acid	2058-94-8	0.64	U	0.64	1.3	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	8,320		439	1,320	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	6.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 10:54	Jason W Knight	2
02079	TOC	SM 5310 B modified-2000	1	16088949631B	03/29/2016 01:14	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820009A	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 180 River Rd 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301014
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 09:23 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1003 SDG#: SGP10-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.54	U	0.54	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.43	1
14027	Perfluorododecanoic acid	307-55-1	0.63	J	0.43	0.86	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.54	U	0.54	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.75	U	0.75	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.32	U	0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.86	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	5,400		294	881	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	6.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 11:11	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16088949631B	03/29/2016 01:26	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820009A	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 180 River Rd 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301015
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 09:33 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1004 SDG#: SGP10-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.55	U	0.55	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.41	J	0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.54	J	0.44	0.89	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.55	U	0.55	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.99	JB	0.78	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.33	U	0.33	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.89	1
14027	Perfluorotridecanoic acid	72629-94-8	0.66	U	0.66	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.66	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	14,100		382	1,150	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	9.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 11:47	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16088949631B	03/29/2016 01:40	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820009A	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1643769
Reported: 04/14/2016 10:50

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16098007	Sample number(s): 8301012-8301027,8301031-8301035,8301037			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.94	J	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
Batch number: 16098008	Sample number(s): 8301038-8301042			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16085004	Sample number(s): 8301028-8301030			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/14/2016 10:50

Group Number: 1643769

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040			
TOC	100	U	100	300
Batch number: 16088949631B	Sample number(s): 8301012-8301017			
TOC	100	U	100	300
Batch number: 16089049531A	Sample number(s): 8301018-8301027			
TOC	100	U	100	300
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16098007	Sample number(s): 8301012-8301027,8301031-8301035,8301037								
Perfluorobutanesulfonate	20	19.73			99		70-130		
Perfluorodecanoic acid	20	17.73			89		70-130		
Perfluorododecanoic acid	20	20.72			104		70-130		
Perfluoroheptanoic acid	20	19.02			95		70-130		
Perfluorohexanesulfonate	20	16.59			83		70-130		
Perfluorohexanoic acid	20	19.41			97		70-130		
Perfluorononanoic acid	20	19.6			98		70-130		
Perfluoro-octanesulfonate	20	20.09			100		70-130		
Perfluorooctanoic acid	20	21.8			109		70-130		
Perfluorotetradecanoic acid	20	18.88			94		70-130		
Perfluorotridecanoic acid	20	20.53			103		70-130		
Perfluoroundecanoic acid	20	17.63			88		70-130		
Batch number: 16098008	Sample number(s): 8301038-8301042								
Perfluorobutanesulfonate	20	21.89			109		70-130		
Perfluorodecanoic acid	20	17.53			88		70-130		
Perfluorododecanoic acid	20	14.26			71		70-130		
Perfluoroheptanoic acid	20	21.3			106		70-130		
Perfluorohexanesulfonate	20	16.16			81		70-130		
Perfluorohexanoic acid	20	21.67			108		70-130		
Perfluorononanoic acid	20	18.8			94		70-130		
Perfluoro-octanesulfonate	20	15.23			76		70-130		
Perfluorooctanoic acid	20	19.52			98		70-130		
Perfluorotetradecanoic acid	20	18.99			95		70-130		
Perfluorotridecanoic acid	20	18.63			93		70-130		
Perfluoroundecanoic acid	20	21.2			106		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8301028-8301030								
Perfluorooctanoic acid	200	187.69	200	208.39	94	104	70-130	10	30
Perfluorononanoic acid	200	180.81	200	225.92	90	113	70-130	22	30
Perfluorodecanoic acid	200	216.97	200	234.99	108	117	70-130	8	30
Perfluoroundecanoic acid	200	199.88	200	208.01	100	104	70-130	4	30
Perfluorododecanoic acid	200	216.91	200	236.94	108	118	70-130	9	30
Perfluorotridecanoic acid	200	209.67	200	257.49	105	129	70-130	20	30

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/14/2016 10:50

Group Number: 1643769

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluorotetradecanoic acid	200	194.48	200	228.2	97	114	70-130	16	30
Perfluorohexanoic acid	200	179.57	200	206.29	90	103	70-130	14	30
Perfluoroheptanoic acid	200	193.13	200	221.2	97	111	70-130	14	30
Perfluorobutanesulfonate	200	143.28	200	144.13	72	72	70-130	1	30
Perfluorohexanesulfonate	200	179.57	200	248.43	90	124	70-130	32*	30
Perfluoro-octanesulfonate	200	152.32	200	187.87	76	94	70-130	21	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040								
TOC	5430	5025.76			93		47-143		
Batch number: 16088949631B	Sample number(s): 8301012-8301017								
TOC	5430	5025.76			93		47-143		
Batch number: 16089049531A	Sample number(s): 8301018-8301027								
TOC	5430	4071.68			75		47-143		
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042								
TOC	5430	4071.68			75		47-143		
	%	%	%	%					
Batch number: 16084820009A	Sample number(s): 8301012-8301019,8301032								
Moisture	89.5	89.44			100		99-101		
Batch number: 16084820009B	Sample number(s): 8301020-8301027,8301031,8301033-8301037								
Moisture	89.5	89.44			100		99-101		
Moisture	89.5	89.44			100		99-101		
Moisture Duplicate	89.5	89.44			100		99-101		
Batch number: 16084820010B	Sample number(s): 8301038-8301042								
Moisture	89.5	89.45			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16098007	Sample number(s): 8301012-8301027,8301031-8301035,8301037 UNSPK: 8301033										
Perfluorobutanesulfonate	0.50	U	20	18.05	20	18.91	90	95	70-130	5	30
Perfluorodecanoic acid	0.20	U	20	18.02	20	15.8	90	79	70-130	13	30
Perfluorododecanoic acid	0.411		20	15.04	20	14.72	73	72	70-130	2	30
Perfluoroheptanoic acid	0.30	U	20	22.81	20	17.5	114	88	70-130	26	30
Perfluorohexanesulfonate	0.50	U	20	14.26	20	15.43	71	77	70-130	8	30
Perfluorohexanoic acid	0.20	U	20	17.29	20	20.88	86	104	70-130	19	30
Perfluorononanoic acid	0.250		20	21.42	20	19.28	106	95	70-130	11	30
Perfluoro-octanesulfonate	0.70	U	20	16.91	20	16.34	85	82	70-130	3	30
Perfluorooctanoic acid	2.50		20	24.37	20	21.12	109	93	70-130	14	30
Perfluorotetradecanoic acid	0.30	U	20	21.78	20	16.63	109	83	70-130	27	30
Perfluorotridecanoic acid	0.60	U	20	13.3	20	16.41	67*	82	70-130	21	30
Perfluoroundecanoic acid	0.30	U	20	14.66	20	17.47	73	87	70-130	17	30

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1643769
Reported: 04/14/2016 10:50

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16098008	Sample number(s): 8301038-8301042 UNSPK: 8301038									
Perfluorobutanesulfonate	0.50 U	20	21.39	20	18.19	107	91	70-130	16	30
Perfluorodecanoic acid	0.20 U	20	17.75	20	19.06	89	95	70-130	7	30
Perfluorododecanoic acid	0.444	20	14.56	20	15.26	71	74	70-130	5	30
Perfluoroheptanoic acid	0.30 U	20	19.67	20	16.94	98	85	70-130	15	30
Perfluorohexanesulfonate	0.50 U	20	13.07	20	15.84	65*	79	70-130	19	30
Perfluorohexanoic acid	0.20 U	20	18.53	20	18.57	93	93	70-130	0	30
Perfluorononanoic acid	0.20 U	20	18.28	20	18.37	91	92	70-130	0	30
Perfluoro-octanesulfonate	1.07	20	13.95	20	19.52	64*	92	70-130	33*	30
Perfluorooctanoic acid	4.23	20	22.25	20	24.77	90	103	70-130	11	30
Perfluorotetradecanoic acid	0.30 U	20	17.28	20	16.62	86	83	70-130	4	30
Perfluorotridecanoic acid	0.60 U	20	15.13	20	15.72	76	79	70-130	4	30
Perfluoroundecanoic acid	0.30 U	20	15.46	20	17.98	77	90	70-130	15	30
	ng/l	ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8301028-8301030 UNSPK: 8298619									
Perfluorooctanoic acid	353.46	200	264.76			-43*		70-130		
Perfluorononanoic acid	11.77	200	212.06			100		70-130		
Perfluorodecanoic acid	4 U	200	202.02			101		70-130		
Perfluoroundecanoic acid	7.24	200	217.48			105		70-130		
Perfluorododecanoic acid	10 U	200	196.94			98		70-130		
Perfluorotridecanoic acid	8 U	200	175.4			88		70-130		
Perfluorotetradecanoic acid	10 U	200	124.3			62*		70-130		
Perfluorohexanoic acid	4 U	200	283.38			142*		70-130		
Perfluoroheptanoic acid	32.94	200	220.71			94		70-130		
Perfluorobutanesulfonate	20 U	200	142.26			71		70-130		
Perfluorohexanesulfonate	20 U	200	402			201*		70-130		
Perfluoro-octanesulfonate	20 U	200	277.75			139*		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040 UNSPK: 8301033									
TOC	11042.87	22108	34443.63			106		47-143		
Batch number: 16088949631B	Sample number(s): 8301012-8301017 UNSPK: 8301017									
TOC	4953.35	43605	55174.42			115		47-143		
Batch number: 16089049531A	Sample number(s): 8301018-8301027 UNSPK: 8301018									
TOC	9041.43	60241	70863.45			103		47-143		
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042 UNSPK: 8301042									
TOC	2707.3	29098	24548.98			75		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040 BKG: 8301033			
TOC	11042.87	10354.22	6	7

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1643769
Reported: 04/14/2016 10:50

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16088949631B	Sample number(s): 8301012-8301017 BKG: 8301017			
TOC	4953.35	4680.57	6 (1)	7
Batch number: 16089049531A	Sample number(s): 8301018-8301027 BKG: 8301018			
TOC	9041.43	5388.51	51* (1)	7
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042 BKG: 8301042			
TOC	2707.3	2318.34	15* (1)	7
	%	%		
Batch number: 16084820009A	Sample number(s): 8301012-8301019,8301032 BKG: 8301032			
Moisture	28.78	28.39	1	5
Batch number: 16084820009B	Sample number(s): 8301020-8301027,8301031,8301033-8301037 BKG: 8301033, P301033			
Moisture	24.1	24.34	1	5
Moisture	24.1	24.34	1	5
Moisture Duplicate	24.1	24.34	1	5
Batch number: 16084820010B	Sample number(s): 8301038-8301042 BKG: 8301038			
Moisture	25.26	25.54	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1643769 Sample # 8301012-42

COC # 493364

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ☐

Analysis Requested — Preservation Codes

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture
180 River Rd 0" to 6"	3/23/16	0904	X		2	X	X	X
180 River Rd 6" to 12"	3/23/16	0915	X		2	X	X	X
180 River Rd 12" to 18"	3/23/16	0923	X		2	X	X	X
180 River Rd 18" to 24"	3/23/16	0933	X		2	X	X	X
Chemfab Along River 0" to 6"	3/23/16	0955	X		2	X	X	X
Chemfab Along River 6" to 12"	3/23/16	1003	X		2	X	X	X
Chemfab Along River 12" to 18"	3/23/16	1011	X		2	X	X	X
Chemfab Along River 18" to 24"	3/23/16	1019	X		2	X	X	X
Chemfab W. Side 0" to 6"	3/23/16	1044	X		2	X	X	X
Chemfab W. Side 6" to 12"	3/23/16	1053	X		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/23/16	1648			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	3.24.16	945

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx X Other _____

Temperature upon receipt 2.6-3.4 °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1643769 Sample # 8301012-42

COC # 493466

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O.#: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Sediment	Soil	Water: Potable	Ground	NPDES	Surface	Other:	Total # of Containers	Analysis Requested: EPA 537	TOC	Moisture	EPA 537	Remarks
Chemfab W Side 12" to 18"	3/23/16	1102	X			X						2	X	X	X		
Chemfab W Side 18" to 24"	3/23/16	1111	X			X						2	X	X	X		
Lake Paran 0" to 6"	3/23/16	1147	X			X						2	X	X	X		
Lake Paran 6" to 12"	3/23/16	1202	X			X						2	X	X	X		
Lake Paran 12" to 18"	3/23/16	1212	X			X						2	X	X	X		
Lake Paran 18" to 24"	3/23/16	1218	X			X						2	X	X	X		
Auger Rinse #7	3/23/16	1220	X				X					2				X	Lab DI Water
Bowl Rinse #7	3/23/16	1222	X				X					2				X	Lab DI Water
Transport Blank 032316	3/16/16	—	X				X					1				X	Lab supplied
16 Wilkey Way 0" to 6"	3/23/16	1344	X			X						2	X	X	X		

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)
Date results are needed: 3 day verbal
E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/23/16	1648			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	3.24.16	945

EDD Required? Yes No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx X Other

Temperature upon receipt 2.6 - 7.9 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1643669 Sample # 83 01012-42

COC # 493460

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested

Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture
16 Wilkey Way Duplicate	3/23/16	1348	X		1	X	X	
16 Wilkey Way 6" to 12"	3/23/16	1351	X		4	X	X	X
16 Wilkey Way 12" to 18"	3/23/16	1357	X		2	X	X	X
16 Wilkey Way 18" to 24"	3/23/16	1405	X		2	X	X	X
Chemfab Blowdown East 0" to 6"	3/23/16	1500	X		2	X	X	X
Chemfab Blowdown East 6" to 12"	3/23/16	1508	X		2	X	X	X
Chemfab Blowdown East 12" to 18"	3/23/16	1515	X		2	X	X	X
Chemfab Blowdown East 18" to 24"	3/23/16	1520	X		2	X	X	X

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

MS/MSD here

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/23/16	1618			
				3.24.16	945

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx X Other _____

Temperature upon receipt 2.6-2.9 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 140454

Group Number(s): 1643769

Client: C.T. Male Assoc.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/24/2016 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Na2S2O3
Samples Intact:	No	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 11:23 on 03/24/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	3.9	DT	Wet	Y	Bagged	N
2	DT131	2.6	DT	Wet	Y	Bagged	N

Samples Not Intact Details

Sample ID on Label	Bottle Code	Bottle Quantity	Container Salvageable?	Comments
180 River Rd 6" to 12"	4.5 oz.plastic cup w/screw lid - None	1	N	Jar broken.

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

eurofins | Lancaster Laboratories Environmental

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 29, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/19/2016
Group Number: 1642373
SDG: SGP05
PO Number: 16.6131
State of Sample Origin: VT

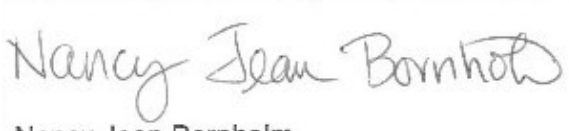
Client Sample Description	Lancaster Labs (LL) #
6 Royal St 0" to 6" Grab Soil	8294109
6 Royal St 6" to 12" Grab Soil	8294110
6 Royal St 12" to 18" Grab Soil	8294111
6 Royal St 18" to 24" Grab Soil	8294112
22 Asa Way 0" to 6" Grab Soil	8294113
22 Asa Way 6" to 12" Grab Soil	8294114
5 Scarey Lane 0" to 6" Grab Soil	8294115
5 Scarey Lane 6" to 12" Grab Soil	8294116
5 Scarey Lane 12" to 18" Grab Soil	8294117
5 Scarey Lane 18" to 24" Grab Soil	8294118
Auger Rinse #2 Grab Blank Water	8294119
Transport Blank Water	8294120
32 Scarey Lane 0" to 6" Grab Soil	8294121
32 Scarey Lane 6" to 12" Grab Soil	8294122
32 Scarey Lane 12" to 18" Grab Soil	8294123
32 Scarey Lane 18" to 24" Grab Soil	8294124
15 Scarey Lane 0" to 6" Grab Soil	8294125
15 Scarey Lane 0" to 6" MS Grab Soil	8294126
15 Scarey Lane 0" to 6" MSD Grab Soil	8294127
15 Scarey Lane 0" to 6" Dupl Grab Soil	8294128
15 Scarey Lane 6" to 12" Grab Soil	8294129
15 Scarey Lane Duplicate Grab Soil	8294130
765 Murphy Rd 0" to 6" Grab Soil	8294131
765 Murphy Rd 6" to 12" Grab Soil	8294132
765 Murphy Rd 12" to 18" Grab Soil	8294133
765 Murphy Rd 18" to 24" Grab Soil	8294134
Bowl Rinse #2 Grab Blank Water	8294135

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1642373

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8294119, 8294120, 8294135

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8294119-8294120, 8294135)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16083007 (Sample number(s): 8294129-8294134 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorohexanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorohexanesulfonate, Perfluoro-octanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16081049531A (Sample number(s): 8294109-8294118 UNSPK: 8294109 BKG: 8294109)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16081049531B (Sample number(s): 8294121-8294126, 8294128-8294129, 8294131-8294134 UNSPK: 8294125 BKG: 8294125)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16081820004B (Sample number(s): 8294122-8294133 BKG: 8294125)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: 6 Royal St 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294109
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 09:46 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0501 SDG#: SGP05-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	J	0.24	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.49	J	0.47	0.95	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.83	U	0.83	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.82		0.36	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.95	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.54	J	0.36	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	8,860		380	1,140	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	15.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/27/2016 22:12	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531A	03/21/2016 21:43	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004A	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 6 Royal St 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294110
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 09:52 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0502 SDG#: SGP05-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.43	1
14027	Perfluorododecanoic acid	307-55-1	0.43	U	0.43	0.85	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.75	U	0.75	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.32	U	0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.85	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	1,230		107	321	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	6.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/27/2016 22:26	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531A	03/21/2016 22:12	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004A	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 6 Royal St 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294111
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 10:01 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0503 SDG#: SGP05-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.76		0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.87	U	0.87	2.0	1
14027	Perfluorooctanoic acid	335-67-1	0.37	U	0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	2,490		222	667	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	19.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/27/2016 22:41	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531A	03/21/2016 22:23	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004A	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 6 Royal St 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294112
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 10:15 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0504 SDG#: SGP05-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.63	U	0.63	2.0	1
14027	Perfluorodecanoic acid	335-76-2	1.0		0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.63	U	0.63	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.89	U	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	0.55	J	0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.76	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	7,860		350	1,050	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/27/2016 22:55	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531A	03/21/2016 22:33	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004A	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
Batch number: 16083007	Sample number(s): 8294129-8294134			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8294119-8294120,8294135			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Batch number: 16081049531A	Sample number(s): 8294109-8294118			
TOC	100	U	100	300
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127								
Perfluorobutanesulfonate	20	19.13			96		70-130		
Perfluorodecanoic acid	20	20.15			101		70-130		
Perfluorododecanoic acid	20	21.22			106		70-130		
Perfluoroheptanoic acid	20	23.61			118		70-130		
Perfluorohexanesulfonate	20	16.81			84		70-130		
Perfluorohexanoic acid	20	18.65			93		70-130		
Perfluorononanoic acid	20	21.45			107		70-130		
Perfluoro-octanesulfonate	20	19.23			96		70-130		
Perfluorooctanoic acid	20	18.42			92		70-130		
Perfluorotetradecanoic acid	20	17.58			88		70-130		
Perfluorotridecanoic acid	20	19.08			95		70-130		
Perfluoroundecanoic acid	20	21.06			105		70-130		
Batch number: 16083007	Sample number(s): 8294129-8294134								
Perfluorobutanesulfonate	20	16.31			82		70-130		
Perfluorodecanoic acid	20	20.04			100		70-130		
Perfluorododecanoic acid	20	19.69			98		70-130		
Perfluoroheptanoic acid	20	23.65			118		70-130		
Perfluorohexanesulfonate	20	21.63			108		70-130		
Perfluorohexanoic acid	20	20.64			103		70-130		
Perfluorononanoic acid	20	17.96			90		70-130		
Perfluoro-octanesulfonate	20	19.76			99		70-130		
Perfluorooctanoic acid	20	19.43			97		70-130		
Perfluorotetradecanoic acid	20	20.15			101		70-130		
Perfluorotridecanoic acid	20	20.23			101		70-130		
Perfluoroundecanoic acid	20	20.17			101		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8294119-8294120,8294135								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16081049531A	Sample number(s): 8294109-8294118								
TOC	5430	5548.1			102		47-143		
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134								
TOC	5430	5548.1			102		47-143		
	%	%	%	%					
Batch number: 16081820003A	Sample number(s): 8294134								
Moisture	89.5	89.47			100		99-101		
Batch number: 16081820004A	Sample number(s): 8294109-8294118,8294121								
Moisture	89.5	89.53			100		99-101		
Batch number: 16081820004B	Sample number(s): 8294122-8294133								
Moisture	89.5	89.53			100		99-101		
Moisture	89.5	89.53			100		99-101		
Moisture Duplicate	89.5	89.53			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g	ng/g					
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127 UNSPK: 8294125									
Perfluorobutanesulfonate	0.50 U	20	16.77	20	17.21	84	86	70-130	3	30
Perfluorodecanoic acid	1.51	20	22.99	20	22.62	107	106	70-130	2	30
Perfluorododecanoic acid	0.826	20	21.78	20	22.23	105	107	70-130	2	30
Perfluoroheptanoic acid	0.30 U	20	23.26	20	20.21	116	101	70-130	14	30
Perfluorohexanesulfonate	0.50 U	20	19.99	20	18.07	100	90	70-130	10	30
Perfluorohexanoic acid	0.292	20	19.68	20	18.57	97	91	70-130	6	30
Perfluorononanoic acid	0.339	20	21.68	20	21.51	107	106	70-130	1	30
Perfluoro-octanesulfonate	0.70 U	20	14.5	20	15.09	72	75	70-130	4	30
Perfluorooctanoic acid	1.13	20	20.62	20	20.3	97	96	70-130	2	30
Perfluorotetradecanoic acid	0.30 U	20	18.21	20	20.02	91	100	70-130	9	30
Perfluorotridecanoic acid	0.60 U	20	20.28	20	19.02	101	95	70-130	6	30
Perfluoroundecanoic acid	1.03	20	19.61	20	21	93	100	70-130	7	30
Batch number: 16083007	Sample number(s): 8294129-8294134 UNSPK: 8294129									
Perfluorobutanesulfonate	0.50 U	20	20.49	20	15.85	102	79	70-130	26	30
Perfluorodecanoic acid	1.06	20	25.19	20	24.46	121	117	70-130	3	30
Perfluorododecanoic acid	0.478	20	21.26	20	24.16	104	118	70-130	13	30
Perfluoroheptanoic acid	0.30 U	20	23.28	20	25.27	116	126	70-130	8	30
Perfluorohexanesulfonate	0.50 U	20	17.34	20	12.17	87	61*	70-130	35*	30
Perfluorohexanoic acid	0.264	20	21.43	20	20.18	106	100	70-130	6	30
Perfluorononanoic acid	0.388	20	21.82	20	20.99	107	103	70-130	4	30
Perfluoro-octanesulfonate	0.70 U	20	15.84	20	24.76	79	124	70-130	44*	30
Perfluorooctanoic acid	1.06	20	23.61	20	21.75	113	103	70-130	8	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorotetradecanoic acid	0.30 U	20	20.41	20	24.03	102	120	70-130	16	30
Perfluorotridecanoic acid	0.60 U	20	17.55	20	22.39	88	112	70-130	24	30
Perfluoroundecanoic acid	0.457	20	21.24	20	22.78	104	112	70-130	7	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16081049531A	Sample number(s): 8294109-8294118 UNSPK: 8294109									
TOC	7485.57	41494	54951.59			114		47-143		
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134 UNSPK: 8294125									
TOC	17171.34	60852	89858.01			119		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16081049531A	Sample number(s): 8294109-8294118 BKG: 8294109			
TOC	7485.57	8675.88	15*	7
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134 BKG: 8294125			
TOC	17171.34	18766.82	9*	7
	%	%		
Batch number: 16081820003A	Sample number(s): 8294134 BKG: P293163			
Moisture	17.64	17.91	2	5
Batch number: 16081820004A	Sample number(s): 8294109-8294118,8294121 BKG: 8294121			
Moisture	21.05	20.45	3	5
Batch number: 16081820004B	Sample number(s): 8294122-8294133 BKG: 8294125, P294125			
Moisture	23.09	19.86	15*	5
Moisture	23.09	19.86	15*	5
Moisture Duplicate	23.09	19.86	15*	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1647373 Sample # 8794109-35

COC # 493356

Client Information

Client: CT Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC
6 Royal St 0" to 6"	3/17/16	0946	✓		3	X	X	X
6 Royal St 6" to 12"	3/17/16	0952	✓		3	X	X	X
6 Royal St 12" to 18"	3/17/16	1001	✓		3	X	X	X
6 Royal St 18" to 24"	3/17/16	1015	✓		3	X	X	X
22 Asa Way 0" to 6"	3/17/16	1050	✓		2	X	X	X
22 Asa Way 6" to 12"	3/17/16	1100	✓		2	X	X	X
RC ~~22 Asa Way 12" to 18"~~			✓					
LC ~~22 Asa Way 18" to 24"~~			✓					
5 Scarey Lane 0" to 6"	3/17/16	1148	✓		2	X	X	X
5 Scarey Lane 6" to 12"	3/17/16	1200	✓		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type III (Reduced non-CLP)

NYSDEC Category A or (B)

Type VI (Raw Data Only)

NJ DKQP

MA MCP

TX TRRP-13

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11		03/18/16	0711
	03/18/16	07:14			
			Received by	3/19/16	0950

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1647373 Sample # 8294109-35

COC # 493358

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ☐

Analysis Requested — Preservation Codes: O

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC	EPA 537	Remarks
5 Scarey Lane 12" to 18"	3/17/16	1208	X		2	X	X	X		
5 Scarey Lane 18" to 24"	3/17/16	1217	X		2	X	X	X		
Auger Rinse #2	3/17/16	1222	X		2	X		X	X	Lab DI Water
Transport Blank	3/11/16	—	X		1	X		X	X	Lab provided
32 Scarey Lane 0" to 6"	3/17/16	1328	X		2	X	X	X		
32 Scarey Lane 6" to 12"	3/17/16	1338	X		2	X	X	X		
32 Scarey Lane 12" to 18"	3/17/16	1343	X		2	X	X	X		
32 Scarey Lane 18" to 24"	3/17/16	1352	X		2	X	X	X		
15 Scarey Lane 0" to 6"	3/17/16	1445	X		4	X	X	X		MS/MSD here
15 Scarey Lane 6" to 12"	3/17/16	1500	X		2	X	X	X		

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11	[signature]	03/18/16	0711
[signature]	03/18/16	07:14			
			[signature]	3/19/16	0950

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1642373 Sample # 8294109-35

COC # 493359

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water ☐ Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes: 9

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC	EPA 537	Remarks
15 Searcy Lane Duplicate	3/17/16	1450	X		1	X				
765 Murphy Rd 0" to 6"	3/17/16	1550	X		2	X	X	X		
765 Murphy Rd 6" to 12"	3/17/16	1600	X		2	X	X	X		
765 Murphy Rd 12" to 18"	3/17/16	1612	X		2	X	X	X		
765 Murphy Rd 18" to 24"	3/17/16	1623	X		2	X	X	X		
Bowl Rinse #2	3/17/16	1840	X		2				X	Lab DI Water

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or (B) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11	[signature]	03/18/16	07:11
[signature]	03/18/16	07:14			
			Received by	3/19/16	0950

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140007

Group Number(s): 1642373

Client: CT Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/19/2016 9:50
Number of Packages:	4	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL Na2S2O3 Preserved Poly

Unpacked by Patrick Engle (3472) at 10:46 on 03/19/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	4.8	DT	Wet	Y	Bagged	N
2	DT121	4.5	DT	Wet	Y	Bagged	N
3	DT121	3.1	DT	Wet	Y	Bagged	N
4	DT121	4.2	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 29, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/19/2016
Group Number: 1642373
SDG: SGP05
PO Number: 16.6131
State of Sample Origin: VT

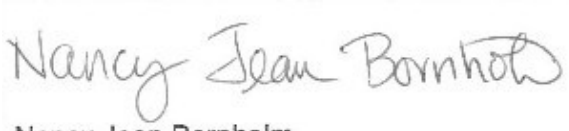
Client Sample Description	Lancaster Labs (LL) #
6 Royal St 0" to 6" Grab Soil	8294109
6 Royal St 6" to 12" Grab Soil	8294110
6 Royal St 12" to 18" Grab Soil	8294111
6 Royal St 18" to 24" Grab Soil	8294112
22 Asa Way 0" to 6" Grab Soil	8294113
22 Asa Way 6" to 12" Grab Soil	8294114
5 Scarey Lane 0" to 6" Grab Soil	8294115
5 Scarey Lane 6" to 12" Grab Soil	8294116
5 Scarey Lane 12" to 18" Grab Soil	8294117
5 Scarey Lane 18" to 24" Grab Soil	8294118
Auger Rinse #2 Grab Blank Water	8294119
Transport Blank Water	8294120
32 Scarey Lane 0" to 6" Grab Soil	8294121
32 Scarey Lane 6" to 12" Grab Soil	8294122
32 Scarey Lane 12" to 18" Grab Soil	8294123
32 Scarey Lane 18" to 24" Grab Soil	8294124
15 Scarey Lane 0" to 6" Grab Soil	8294125
15 Scarey Lane 0" to 6" MS Grab Soil	8294126
15 Scarey Lane 0" to 6" MSD Grab Soil	8294127
15 Scarey Lane 0" to 6" Dupl Grab Soil	8294128
15 Scarey Lane 6" to 12" Grab Soil	8294129
15 Scarey Lane Duplicate Grab Soil	8294130
765 Murphy Rd 0" to 6" Grab Soil	8294131
765 Murphy Rd 6" to 12" Grab Soil	8294132
765 Murphy Rd 12" to 18" Grab Soil	8294133
765 Murphy Rd 18" to 24" Grab Soil	8294134
Bowl Rinse #2 Grab Blank Water	8294135

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1642373

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8294119, 8294120, 8294135

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8294119-8294120, 8294135)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16083007 (Sample number(s): 8294129-8294134 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorohexanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorohexanesulfonate, Perfluoro-octanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16081049531A (Sample number(s): 8294109-8294118 UNSPK: 8294109 BKG: 8294109)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16081049531B (Sample number(s): 8294121-8294126, 8294128-8294129, 8294131-8294134 UNSPK: 8294125 BKG: 8294125)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16081820004B (Sample number(s): 8294122-8294133 BKG: 8294125)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: 5 Scarey Lane 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294115
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 11:48 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0507 SDG#: SGP05-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.65	U	0.65	2.1	1
14027	Perfluorodecanoic acid	335-76-2	3.8		0.26	0.52	1
14027	Perfluorododecanoic acid	307-55-1	1.6		0.52	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.39	U	0.39	0.78	1
14027	Perfluorohexanesulfonate	355-46-4	0.65	U	0.65	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.52	1
14027	Perfluorononanoic acid	375-95-1	1.3		0.26	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.91	U	0.91	2.1	1
14027	Perfluorooctanoic acid	335-67-1	6.2		0.39	0.78	1
14027	Perfluorotetradecanoic acid	376-06-7	0.39	U	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.78	U	0.78	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	1.9		0.39	0.78	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	32,000		960	2,880	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	22.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/28/2016 12:30	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531A	03/21/2016 23:26	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004A	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 5 Scarey Lane 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294116
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 12:00 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0508 SDG#: SGP05-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.63	U	0.63	2.0	1
14027	Perfluorodecanoic acid	335-76-2	1.2		0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.59	J	0.50	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.63	U	0.63	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	1.1		0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.88	U	0.88	2.0	1
14027	Perfluorooctanoic acid	335-67-1	5.9		0.38	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.75	U	0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.75	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	18,600		881	2,640	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	20.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/28/2016 12:44	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531A	03/21/2016 23:34	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004A	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 5 Scarey Lane 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294117
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 12:08 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0509 SDG#: SGP05-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.60		0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.98	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.52		0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	1.1		0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.86	U	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	7.1		0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.98	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.42	J	0.37	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	15,900		1,400	4,200	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/28/2016 12:58	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531A	03/21/2016 23:50	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004A	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 5 Scarey Lane 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294118
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 12:17 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0510 SDG#: SGP05-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.67		0.24	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.98	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.82		0.24	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.5	J	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	8.2		0.37	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.98	1
14027	Perfluorotridecanoic acid	72629-94-8	0.73	U	0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.73	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	13,800		638	1,910	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/28/2016 13:13	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531A	03/21/2016 23:58	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004A	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
Batch number: 16083007	Sample number(s): 8294129-8294134			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8294119-8294120,8294135			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Batch number: 16081049531A	Sample number(s): 8294109-8294118			
TOC	100	U	100	300
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127								
Perfluorobutanesulfonate	20	19.13			96		70-130		
Perfluorodecanoic acid	20	20.15			101		70-130		
Perfluorododecanoic acid	20	21.22			106		70-130		
Perfluoroheptanoic acid	20	23.61			118		70-130		
Perfluorohexanesulfonate	20	16.81			84		70-130		
Perfluorohexanoic acid	20	18.65			93		70-130		
Perfluorononanoic acid	20	21.45			107		70-130		
Perfluoro-octanesulfonate	20	19.23			96		70-130		
Perfluorooctanoic acid	20	18.42			92		70-130		
Perfluorotetradecanoic acid	20	17.58			88		70-130		
Perfluorotridecanoic acid	20	19.08			95		70-130		
Perfluoroundecanoic acid	20	21.06			105		70-130		
Batch number: 16083007	Sample number(s): 8294129-8294134								
Perfluorobutanesulfonate	20	16.31			82		70-130		
Perfluorodecanoic acid	20	20.04			100		70-130		
Perfluorododecanoic acid	20	19.69			98		70-130		
Perfluoroheptanoic acid	20	23.65			118		70-130		
Perfluorohexanesulfonate	20	21.63			108		70-130		
Perfluorohexanoic acid	20	20.64			103		70-130		
Perfluorononanoic acid	20	17.96			90		70-130		
Perfluoro-octanesulfonate	20	19.76			99		70-130		
Perfluorooctanoic acid	20	19.43			97		70-130		
Perfluorotetradecanoic acid	20	20.15			101		70-130		
Perfluorotridecanoic acid	20	20.23			101		70-130		
Perfluoroundecanoic acid	20	20.17			101		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8294119-8294120,8294135								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16081049531A	Sample number(s): 8294109-8294118								
TOC	5430	5548.1			102		47-143		
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134								
TOC	5430	5548.1			102		47-143		
	%	%	%	%					
Batch number: 16081820003A	Sample number(s): 8294134								
Moisture	89.5	89.47			100		99-101		
Batch number: 16081820004A	Sample number(s): 8294109-8294118,8294121								
Moisture	89.5	89.53			100		99-101		
Batch number: 16081820004B	Sample number(s): 8294122-8294133								
Moisture	89.5	89.53			100		99-101		
Moisture	89.5	89.53			100		99-101		
Moisture Duplicate	89.5	89.53			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g	ng/g					
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127 UNSPK: 8294125									
Perfluorobutanesulfonate	0.50 U	20	16.77	20	17.21	84	86	70-130	3	30
Perfluorodecanoic acid	1.51	20	22.99	20	22.62	107	106	70-130	2	30
Perfluorododecanoic acid	0.826	20	21.78	20	22.23	105	107	70-130	2	30
Perfluoroheptanoic acid	0.30 U	20	23.26	20	20.21	116	101	70-130	14	30
Perfluorohexanesulfonate	0.50 U	20	19.99	20	18.07	100	90	70-130	10	30
Perfluorohexanoic acid	0.292	20	19.68	20	18.57	97	91	70-130	6	30
Perfluorononanoic acid	0.339	20	21.68	20	21.51	107	106	70-130	1	30
Perfluoro-octanesulfonate	0.70 U	20	14.5	20	15.09	72	75	70-130	4	30
Perfluorooctanoic acid	1.13	20	20.62	20	20.3	97	96	70-130	2	30
Perfluorotetradecanoic acid	0.30 U	20	18.21	20	20.02	91	100	70-130	9	30
Perfluorotridecanoic acid	0.60 U	20	20.28	20	19.02	101	95	70-130	6	30
Perfluoroundecanoic acid	1.03	20	19.61	20	21	93	100	70-130	7	30
Batch number: 16083007	Sample number(s): 8294129-8294134 UNSPK: 8294129									
Perfluorobutanesulfonate	0.50 U	20	20.49	20	15.85	102	79	70-130	26	30
Perfluorodecanoic acid	1.06	20	25.19	20	24.46	121	117	70-130	3	30
Perfluorododecanoic acid	0.478	20	21.26	20	24.16	104	118	70-130	13	30
Perfluoroheptanoic acid	0.30 U	20	23.28	20	25.27	116	126	70-130	8	30
Perfluorohexanesulfonate	0.50 U	20	17.34	20	12.17	87	61*	70-130	35*	30
Perfluorohexanoic acid	0.264	20	21.43	20	20.18	106	100	70-130	6	30
Perfluorononanoic acid	0.388	20	21.82	20	20.99	107	103	70-130	4	30
Perfluoro-octanesulfonate	0.70 U	20	15.84	20	24.76	79	124	70-130	44*	30
Perfluorooctanoic acid	1.06	20	23.61	20	21.75	113	103	70-130	8	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorotetradecanoic acid	0.30 U	20	20.41	20	24.03	102	120	70-130	16	30
Perfluorotridecanoic acid	0.60 U	20	17.55	20	22.39	88	112	70-130	24	30
Perfluoroundecanoic acid	0.457	20	21.24	20	22.78	104	112	70-130	7	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16081049531A	Sample number(s): 8294109-8294118 UNSPK: 8294109									
TOC	7485.57	41494	54951.59			114		47-143		
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134 UNSPK: 8294125									
TOC	17171.34	60852	89858.01			119		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16081049531A	Sample number(s): 8294109-8294118 BKG: 8294109			
TOC	7485.57	8675.88	15*	7
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134 BKG: 8294125			
TOC	17171.34	18766.82	9*	7
	%	%		
Batch number: 16081820003A	Sample number(s): 8294134 BKG: P293163			
Moisture	17.64	17.91	2	5
Batch number: 16081820004A	Sample number(s): 8294109-8294118,8294121 BKG: 8294121			
Moisture	21.05	20.45	3	5
Batch number: 16081820004B	Sample number(s): 8294122-8294133 BKG: 8294125, P294125			
Moisture	23.09	19.86	15*	5
Moisture	23.09	19.86	15*	5
Moisture Duplicate	23.09	19.86	15*	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1647373 Sample # 8794109-35

COC # 493356

Client Information

Client: CT Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC
6 Royal St 0" to 6"	3/17/16	0946	✓		3	X	X	X
6 Royal St 6" to 12"	3/17/16	0952	✓		3	X	X	X
6 Royal St 12" to 18"	3/17/16	1001	✓		3	X	X	X
6 Royal St 18" to 24"	3/17/16	1015	✓		3	X	X	X
22 Asa Way 0" to 6"	3/17/16	1050	✓		2	X	X	X
22 Asa Way 6" to 12"	3/17/16	1100	✓		2	X	X	X
RC ~~22 Asa Way 12" to 18"~~			✓					
LC ~~22 Asa Way 18" to 24"~~			✓					
5 Scarey Lane 0" to 6"	3/17/16	1148	✓		2	X	X	X
5 Scarey Lane 6" to 12"	3/17/16	1200	✓		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type III (Reduced non-CLP)

NYSDEC Category A or (B)

Type VI (Raw Data Only)

NJ DKQP

MA MCP

TX TRRP-13

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11		03/18/16	0711
	03/18/16	07:14			
			Received by	3/19/16	0950

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1647373 Sample # 8294109-35

COC # 493358

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ☐

Analysis Requested — Preservation Codes: O

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC	EPA 537	Remarks
5 Scarey Lane 12" to 18"	3/17/16	1208	X		2	X	X	X		
5 Scarey Lane 18" to 24"	3/17/16	1217	X		2	X	X	X		
Auger Rinse #2	3/17/16	1222	X		2	X		X	X	Lab DI Water
Transport Blank	3/11/16	—	X		1	X		X	X	Lab provided
32 Scarey Lane 0" to 6"	3/17/16	1328	X		2	X	X	X		
32 Scarey Lane 6" to 12"	3/17/16	1338	X		2	X	X	X		
32 Scarey Lane 12" to 18"	3/17/16	1343	X		2	X	X	X		
32 Scarey Lane 18" to 24"	3/17/16	1352	X		2	X	X	X		
15 Scarey Lane 0" to 6"	3/17/16	1445	X		4	X	X	X		MS/MSD here
15 Scarey Lane 6" to 12"	3/17/16	1500	X		2	X	X	X		

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11	[signature]	03/18/16	0711
[signature]	03/18/16	07:14			
			[signature]	3/19/16	0950

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1642373 Sample # 8294109-35

COC # 493359

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water ☐ Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes: 9

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC	EPA 537	Remarks
15 Searcy Lane Duplicate	3/17/16	1450	X		1	X				
765 Murphy Rd 0" to 6"	3/17/16	1550	X		2	X	X	X		
765 Murphy Rd 6" to 12"	3/17/16	1600	X		2	X	X	X		
765 Murphy Rd 12" to 18"	3/17/16	1612	X		2	X	X	X		
765 Murphy Rd 18" to 24"	3/17/16	1623	X		2	X	X	X		
Bowl Rinse #2	3/17/16	1840	X		2				X	Lab DI Water

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or (B) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11	[signature]	03/18/16	07:11
[signature]	03/18/16	07:14			
			Received by	3/19/16	0950

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140007

Group Number(s): 1642373

Client: CT Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/19/2016 9:50
Number of Packages:	4	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL Na2S2O3 Preserved Poly

Unpacked by Patrick Engle (3472) at 10:46 on 03/19/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	4.8	DT	Wet	Y	Bagged	N
2	DT121	4.5	DT	Wet	Y	Bagged	N
3	DT121	3.1	DT	Wet	Y	Bagged	N
4	DT121	4.2	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 29, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/22/2016
Group Number: 1642988
SDG: SGP07
PO Number: 16.6131
State of Sample Origin: VT

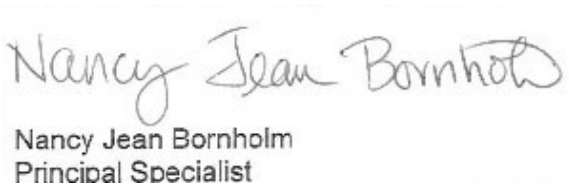
Client Sample Description	Lancaster Labs (LL) #
Asa Way Vac Lot 0" to 6" Grab Soil	8297354
Asa Way Vac Lot 6" to 12" Grab Soil	8297355
Asa Way Vac Lot 12" to 18" Grab Soil	8297356
Asa Way Vac Lot 18" to 24" Grab Soil	8297357
Auger Rinse #4 Grab Blank Water	8297358
Bowl Rinse #4 Grab Blank Water	8297359
Transport Blank 032116 Water	8297360
26 Susan Taylor 0" to 6" Grab Soil	8297361
26 Susan Taylor 0" to 6" MS Grab Soil	8297362
26 Susan Taylor 0" to 6" MSD Grab Soil	8297363
26 Susan Taylor 0" to 6" Dupl Grab Soil	8297364
26 Susan Taylor Duplicate Grab Soil	8297365
26 Susan Taylor 6" to 12" Grab Soil	8297366
26 Susan Taylor 12" to 18" Grab Soil	8297367
26 Susan Taylor 18" to 24" Grab Soil	8297368
10 Scarey Ln 0" to 6" Grab Soil	8297369
10 Scarey Ln 6" to 12" Grab Soil	8297370
10 Scarey Ln 12" to 18" Grab Soil	8297371
10 Scarey Ln 18" to 24" Grab Soil	8297372
26 Scarey Ln 0" to 6" Grab Soil	8297373
26 Scarey Ln 6" to 12" Grab Soil	8297374
8 Polygraphic Ln 0" to 6" Grab Soil	8297375

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1642988

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8297358, 8297359, 8297360
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8297358-8297360)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16084007 (Sample number(s): 8297354-8297357, 8297361-8297363, 8297365-8297375 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluoro-octanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16084949631A (Sample number(s): 8297355-8297357 UNSPK: P294196 BKG: P294196)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16084949631B (Sample number(s): 8297354, 8297361-8297362, 8297364, 8297366-8297372 UNSPK: 8297361 BKG: 8297361)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16083820002A (Sample number(s): 8297354-8297357 BKG: 8297355)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: 10 Scarey Ln 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297369
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 10:55 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0713 SDG#: SGP07-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.0	1
14027	Perfluorodecanoic acid	335-76-2	3.8		0.26	0.51	1
14027	Perfluorododecanoic acid	307-55-1	1.9		0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.77	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.60		0.26	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.98	J	0.90	2.0	1
14027	Perfluorooctanoic acid	335-67-1	4.1		0.38	0.77	1
14027	Perfluorotetradecanoic acid	376-06-7	0.79	J	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.84	J	0.77	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	2.8		0.38	0.77	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	22,600		1,080	3,250	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 09:08	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631B	03/24/2016 22:15	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 10 Scarey Ln 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297370
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 11:01 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0714 SDG#: SGP07-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.68		0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.50	J	0.46	0.91	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.37	J	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.2	J	0.80	1.8	1
14027	Perfluorooctanoic acid	335-67-1	1.4		0.34	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.91	1
14027	Perfluorotridecanoic acid	72629-94-8	0.69	U	0.69	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.41	J	0.34	0.69	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	7,340		235	706	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	12.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 09:22	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631B	03/24/2016 21:09	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 10 Scarey Ln 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297371
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 11:14 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0715 SDG#: SGP07-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.55	U	0.55	1.8	1
14027	Perfluorodecanoic acid	335-76-2	1.1		0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.52	J	0.44	0.88	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.55	U	0.55	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.38	J	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.1	J	0.77	1.8	1
14027	Perfluorooctanoic acid	335-67-1	2.3		0.33	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.88	1
14027	Perfluorotridecanoic acid	72629-94-8	0.66	U	0.66	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.51	J	0.33	0.66	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	8,410		641	1,920	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	8.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 09:36	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631B	03/24/2016 22:34	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 10 Scarey Ln 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297372
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 11:25 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0716 SDG#: SGP07-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.59		0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.97	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.56		0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.85	U	0.85	1.9	1
14027	Perfluorooctanoic acid	335-67-1	3.6		0.36	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	0.73	U	0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.73	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	9,150		244	731	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	17.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 09:50	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631B	03/24/2016 21:33	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 11:29

Group Number: 1642988

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16084007	Sample number(s): 8297354-8297357,8297361-8297363,8297365-8297375			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8297358-8297360			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16084949631A	Sample number(s): 8297355-8297357			
TOC	100	U	100	300
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372			
TOC	100	U	100	300
Batch number: 16084949632A	Sample number(s): 8297373-8297375			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 11:29

Group Number: 1642988

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16084007	Sample number(s): 8297354-8297357,8297361-8297363,8297365-8297375								
Perfluorobutanesulfonate	20	17.26			86		70-130		
Perfluorodecanoic acid	20	19.11			96		70-130		
Perfluorododecanoic acid	20	18.17			91		70-130		
Perfluoroheptanoic acid	20	18.61			93		70-130		
Perfluorohexanesulfonate	20	14.91			75		70-130		
Perfluorohexanoic acid	20	16.77			84		70-130		
Perfluorononanoic acid	20	17.99			90		70-130		
Perfluoro-octanesulfonate	20	20.89			104		70-130		
Perfluorooctanoic acid	20	16.59			83		70-130		
Perfluorotetradecanoic acid	20	19.73			99		70-130		
Perfluorotridecanoic acid	20	15.69			78		70-130		
Perfluoroundecanoic acid	20	17.08			85		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8297358-8297360								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949631A	Sample number(s): 8297355-8297357								
TOC	5430	2743.93			51		47-143		
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372								
TOC	5430	2743.93			51		47-143		
Batch number: 16084949632A	Sample number(s): 8297373-8297375								
TOC	5430	4448.16			82		47-143		
	%	%	%	%					
Batch number: 16083820002A	Sample number(s): 8297354-8297357								
Moisture	89.5	89.47			100		99-101		
Batch number: 16083820002B	Sample number(s): 8297361-8297375								
Moisture	89.5	89.47			100		99-101		
Moisture	89.5	89.47			100		99-101		
Moisture Duplicate	89.5	89.47			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 11:29

Group Number: 1642988

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16084007	Sample number(s): 8297354-8297357,8297361-8297363,8297365-8297375 UNSPK: 8297361									
Perfluorobutanesulfonate	0.50 U	20	16.77	20	18.36	84	92	70-130	9	30
Perfluorodecanoic acid	0.468	20	20.97	20	19.73	103	96	70-130	6	30
Perfluorododecanoic acid	0.40 U	20	18.68	20	18.77	93	94	70-130	0	30
Perfluoroheptanoic acid	0.30 U	20	19.82	20	20.51	99	103	70-130	3	30
Perfluorohexanesulfonate	0.50 U	20	24.58	20	20.13	123	101	70-130	20	30
Perfluorohexanoic acid	0.20 U	20	16.91	20	16.34	85	82	70-130	3	30
Perfluorononanoic acid	0.20 U	20	17.45	20	18.3	87	91	70-130	5	30
Perfluoro-octanesulfonate	0.70 U	20	25.38	20	14.58	127	73	70-130	54*	30
Perfluorooctanoic acid	0.511	20	17.68	20	19.66	86	96	70-130	11	30
Perfluorotetradecanoic acid	0.30 U	20	20.6	20	16.83	103	84	70-130	20	30
Perfluorotridecanoic acid	0.60 U	20	16.16	20	14.25	81	71	70-130	13	30
Perfluoroundecanoic acid	0.312	20	18.17	20	17.26	89	85	70-130	5	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949631A	Sample number(s): 8297355-8297357 UNSPK: P294196									
TOC	5817.55	14790	19743.46			94		47-143		
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372 UNSPK: 8297361									
TOC	5512	10007	12605.07			71		47-143		
Batch number: 16084949632A	Sample number(s): 8297373-8297375 UNSPK: P297411									
TOC	14599.68	13593	24218.4			71		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16084949631A	Sample number(s): 8297355-8297357 BKG: P294196			
TOC	5817.55	3166.37	59*	7
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372 BKG: 8297361			
TOC	5512	6002.81	9*	7
Batch number: 16084949632A	Sample number(s): 8297373-8297375 BKG: P297411			
TOC	14599.68	15419.66	5	7
	%	%		
Batch number: 16083820002A	Sample number(s): 8297354-8297357 BKG: 8297355			
Moisture	17.48	16.51	6*	5
Batch number: 16083820002B	Sample number(s): 8297361-8297375 BKG: 8297361, P297361			
Moisture	19.48	18.8	4	5
Moisture	19.48	18.8	4	5
Moisture Duplicate	19.48	18.8	4	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 3719 Group # 1642788 Sample # 879354-75

COC # 493463

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ | Water: Ground ☐ Potable ☐ NPDES ☐ Surface ☐ | Other: ____

Analysis Requested

Preservation Codes: O

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	EPA 537	Remarks
Asa Way Vacant Lot 0" to 6"	3/21/16	0907	X		2	X	X	X		
Asa Way Vacant Lot 6" to 12"	3/21/16	0913	X		2	X	X	X		
Asa Way Vacant Lot 12" to 18"	3/21/16	0925	X		2	X	X	X		
Asa Way Vacant Lot 18" to 24"	3/21/16	0931	X		2	X	X	X		
~~Asa Way Vacant Lot~~										
Auger Rinse # 4	3/21/16	0938	X		2				X	Lab DI Water
Bowl Rinse # 4	3/21/16	0935	X		2				X	Lab DI Water
Transport Blank 032116	3/16/16	—	X		1				X	Lab Supplied
26 Susan Taylor 0" to 6"	3/21/16	1005	X		4	X	X	X		MS/MSD here
26 Susan Taylor Duplicate	3/21/16	1010	X		1	X				

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type III (Reduced non-CLP)

NYSDEC Category A or B

Type VI (Raw Data Only)

NJ DKQP

MA MCP

TX TRRP-13

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/21/16	1655			
			Kristal Abel	3/22/16	0945

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 4.5 °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1642988 Sample # 8297354-75

COC # 493361

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16-6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested

Preservation Codes

Preservation Codes: H=HCl, T=Thiosulfate, N=HNO_3, B=NaOH, S=H_2SO_4, O=Other

For Lab Use Only: FSC: ____ SCR#: ____

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	Remarks
26 Susan Taylor 6" to 12"	3/21/16	1013	X		2	X	X	X	
26 Susan Taylor 12" to 18"	3/21/16	1026	X		2	X	X	X	
26 Susan Taylor 18" to 24"	3/21/16	1026	X		2	X	X	X	
10 Scarey Ln 0" to 6"	3/21/16	1055	X		2	X	X	X	
10 Scarey Ln 6" to 12"	3/21/16	1101	X		2	X	X	X	
10 Scarey Ln 12" to 18"	3/21/16	1114	X		2	X	X	X	
10 Scarey Ln 18" to 24"	3/21/16	1125	X		2	X	X	X	
26 Scarey Ln WH 0" to 6"	3/21/16	1231	X		2	X	X	X	
26 Scarey Ln WH 6" to 12"	3/21/16	1240	X		2	X	X	X	
8 Polygraphic Ln 0" to 6"	3/21/16	1333	X		2	X	X	X	

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: k.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/21/16	1655			
			Krista Abel	3/22/16	0945

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 4.5 / 5.4 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 140176

Group Number(s): 1642988

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/22/2016 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Na2S2O3
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:32 on 03/22/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	5.1	DT	Wet	Y	Bagged	N
2	DT146	4.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T : 717-656-2300
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 29, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/19/2016
Group Number: 1642373
SDG: SGP05
PO Number: 16.6131
State of Sample Origin: VT

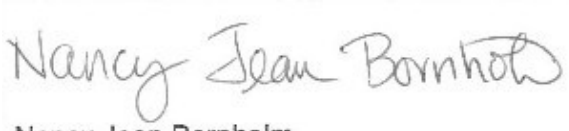
Client Sample Description	Lancaster Labs (LL) #
6 Royal St 0" to 6" Grab Soil	8294109
6 Royal St 6" to 12" Grab Soil	8294110
6 Royal St 12" to 18" Grab Soil	8294111
6 Royal St 18" to 24" Grab Soil	8294112
22 Asa Way 0" to 6" Grab Soil	8294113
22 Asa Way 6" to 12" Grab Soil	8294114
5 Scarey Lane 0" to 6" Grab Soil	8294115
5 Scarey Lane 6" to 12" Grab Soil	8294116
5 Scarey Lane 12" to 18" Grab Soil	8294117
5 Scarey Lane 18" to 24" Grab Soil	8294118
Auger Rinse #2 Grab Blank Water	8294119
Transport Blank Water	8294120
32 Scarey Lane 0" to 6" Grab Soil	8294121
32 Scarey Lane 6" to 12" Grab Soil	8294122
32 Scarey Lane 12" to 18" Grab Soil	8294123
32 Scarey Lane 18" to 24" Grab Soil	8294124
15 Scarey Lane 0" to 6" Grab Soil	8294125
15 Scarey Lane 0" to 6" MS Grab Soil	8294126
15 Scarey Lane 0" to 6" MSD Grab Soil	8294127
15 Scarey Lane 0" to 6" Dupl Grab Soil	8294128
15 Scarey Lane 6" to 12" Grab Soil	8294129
15 Scarey Lane Duplicate Grab Soil	8294130
765 Murphy Rd 0" to 6" Grab Soil	8294131
765 Murphy Rd 6" to 12" Grab Soil	8294132
765 Murphy Rd 12" to 18" Grab Soil	8294133
765 Murphy Rd 18" to 24" Grab Soil	8294134
Bowl Rinse #2 Grab Blank Water	8294135

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1642373

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8294119, 8294120, 8294135

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8294119-8294120, 8294135)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16083007 (Sample number(s): 8294129-8294134 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorohexanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorohexanesulfonate, Perfluoro-octanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16081049531A (Sample number(s): 8294109-8294118 UNSPK: 8294109 BKG: 8294109)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16081049531B (Sample number(s): 8294121-8294126, 8294128-8294129, 8294131-8294134 UNSPK: 8294125 BKG: 8294125)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16081820004B (Sample number(s): 8294122-8294133 BKG: 8294125)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: 15 Scarey Lane 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294125
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 14:45 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0517 SDG#: SGP05-17BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.65	U	0.65	2.1	1
14027	Perfluorodecanoic acid	335-76-2	2.0		0.26	0.52	1
14027	Perfluorododecanoic acid	307-55-1	1.1		0.52	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.39	U	0.39	0.78	1
14027	Perfluorohexanesulfonate	355-46-4	0.65	U	0.65	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.38	J	0.26	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.44	J	0.26	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.91	U	0.91	2.1	1
14027	Perfluorooctanoic acid	335-67-1	1.5		0.39	0.78	1
14027	Perfluorotetradecanoic acid	376-06-7	0.39	U	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.78	U	0.78	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	1.3		0.39	0.78	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	22,300		810	2,430	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	23.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/27/2016 21:30	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531B	03/22/2016 00:49	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004B	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 15 Scarey Lane 0" to 6" MS Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294126
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 14:45 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0517 SDG#: SGP05-17MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	22	0.65	2.1	1
14027	Perfluorodecanoic acid	335-76-2	30	0.26	0.52	1
14027	Perfluorododecanoic acid	307-55-1	28	0.52	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	30	0.39	0.78	1
14027	Perfluorohexanesulfonate	355-46-4	26	0.65	2.1	1
14027	Perfluorohexanoic acid	307-24-4	26	0.26	0.52	1
14027	Perfluorononanoic acid	375-95-1	28	0.26	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	19	0.91	2.1	1
14027	Perfluorooctanoic acid	335-67-1	27	0.39	0.78	1
14027	Perfluorotetradecanoic acid	376-06-7	24	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	26	0.78	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	25	0.39	0.78	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	117,000	2,640	7,910	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	23.1	0.50	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/27/2016 21:44	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531B	03/22/2016 01:01	James S Mathiot	1
00118	Moisture	SM 2540 G-1997	1	16081820004B	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 15 Scarey Lane 0" to 6" MSD Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294127
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 14:45 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0517 SDG#: SGP05-17MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	22	0.65	2.1	1
14027	Perfluorodecanoic acid	335-76-2	29	0.26	0.52	1
14027	Perfluorododecanoic acid	307-55-1	29	0.52	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	26	0.39	0.78	1
14027	Perfluorohexanesulfonate	355-46-4	24	0.65	2.1	1
14027	Perfluorohexanoic acid	307-24-4	24	0.26	0.52	1
14027	Perfluorononanoic acid	375-95-1	28	0.26	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	20	0.91	2.1	1
14027	Perfluorooctanoic acid	335-67-1	26	0.39	0.78	1
14027	Perfluorotetradecanoic acid	376-06-7	26	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	25	0.78	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	27	0.39	0.78	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	Moisture	n.a.	23.1	0.50	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/27/2016 21:58	Jason W Knight	1
00118	Moisture	SM 2540 G-1997	1	16081820004B	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 15 Scarey Lane 0" to 6" Dupl Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294128
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 14:45 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0517 SDG#: SGP05-17DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	24,400	730	2,190	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	23.1	0.50	0.50	1
00121	Moisture Duplicate	n.a.	19.9	0.50	0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	16081049531B	03/22/2016 01:28	James S Mathiot	1
00118	Moisture	SM 2540 G-1997	1	16081820004B	03/21/2016 22:22	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997	1	16081820004B	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 15 Scarey Lane 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294129
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 15:00 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0518 SDG#: SGP05-18

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	1.2		0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.55	J	0.46	0.92	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.30	J	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.44	J	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.80	U	0.80	1.8	1
14027	Perfluorooctanoic acid	335-67-1	1.2		0.34	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.92	1
14027	Perfluorotridecanoic acid	72629-94-8	0.69	U	0.69	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.52	J	0.34	0.69	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	7,220		283	849	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	12.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083007	03/26/2016 21:17	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531B	03/22/2016 01:37	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004B	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 15 Scarey Lane Duplicate Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294130
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 14:50 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0519 SDG#: SGP05-19FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	1.2		0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.62	J	0.46	0.92	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.29	J	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.80	U	0.80	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.99		0.34	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	J	0.34	0.92	1
14027	Perfluorotridecanoic acid	72629-94-8	0.69	U	0.69	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	J	0.34	0.69	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	12.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083007	03/26/2016 21:59	Jason W Knight	1
00111	Moisture	SM 2540 G-1997	1	16081820004B	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
Batch number: 16083007	Sample number(s): 8294129-8294134			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8294119-8294120,8294135			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Batch number: 16081049531A	Sample number(s): 8294109-8294118			
TOC	100	U	100	300
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127								
Perfluorobutanesulfonate	20	19.13			96		70-130		
Perfluorodecanoic acid	20	20.15			101		70-130		
Perfluorododecanoic acid	20	21.22			106		70-130		
Perfluoroheptanoic acid	20	23.61			118		70-130		
Perfluorohexanesulfonate	20	16.81			84		70-130		
Perfluorohexanoic acid	20	18.65			93		70-130		
Perfluorononanoic acid	20	21.45			107		70-130		
Perfluoro-octanesulfonate	20	19.23			96		70-130		
Perfluorooctanoic acid	20	18.42			92		70-130		
Perfluorotetradecanoic acid	20	17.58			88		70-130		
Perfluorotridecanoic acid	20	19.08			95		70-130		
Perfluoroundecanoic acid	20	21.06			105		70-130		
Batch number: 16083007	Sample number(s): 8294129-8294134								
Perfluorobutanesulfonate	20	16.31			82		70-130		
Perfluorodecanoic acid	20	20.04			100		70-130		
Perfluorododecanoic acid	20	19.69			98		70-130		
Perfluoroheptanoic acid	20	23.65			118		70-130		
Perfluorohexanesulfonate	20	21.63			108		70-130		
Perfluorohexanoic acid	20	20.64			103		70-130		
Perfluorononanoic acid	20	17.96			90		70-130		
Perfluoro-octanesulfonate	20	19.76			99		70-130		
Perfluorooctanoic acid	20	19.43			97		70-130		
Perfluorotetradecanoic acid	20	20.15			101		70-130		
Perfluorotridecanoic acid	20	20.23			101		70-130		
Perfluoroundecanoic acid	20	20.17			101		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8294119-8294120,8294135								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16081049531A	Sample number(s): 8294109-8294118								
TOC	5430	5548.1			102		47-143		
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134								
TOC	5430	5548.1			102		47-143		
	%	%	%	%					
Batch number: 16081820003A	Sample number(s): 8294134								
Moisture	89.5	89.47			100		99-101		
Batch number: 16081820004A	Sample number(s): 8294109-8294118,8294121								
Moisture	89.5	89.53			100		99-101		
Batch number: 16081820004B	Sample number(s): 8294122-8294133								
Moisture	89.5	89.53			100		99-101		
Moisture	89.5	89.53			100		99-101		
Moisture Duplicate	89.5	89.53			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g	ng/g					
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127 UNSPK: 8294125									
Perfluorobutanesulfonate	0.50 U	20	16.77	20	17.21	84	86	70-130	3	30
Perfluorodecanoic acid	1.51	20	22.99	20	22.62	107	106	70-130	2	30
Perfluorododecanoic acid	0.826	20	21.78	20	22.23	105	107	70-130	2	30
Perfluoroheptanoic acid	0.30 U	20	23.26	20	20.21	116	101	70-130	14	30
Perfluorohexanesulfonate	0.50 U	20	19.99	20	18.07	100	90	70-130	10	30
Perfluorohexanoic acid	0.292	20	19.68	20	18.57	97	91	70-130	6	30
Perfluorononanoic acid	0.339	20	21.68	20	21.51	107	106	70-130	1	30
Perfluoro-octanesulfonate	0.70 U	20	14.5	20	15.09	72	75	70-130	4	30
Perfluorooctanoic acid	1.13	20	20.62	20	20.3	97	96	70-130	2	30
Perfluorotetradecanoic acid	0.30 U	20	18.21	20	20.02	91	100	70-130	9	30
Perfluorotridecanoic acid	0.60 U	20	20.28	20	19.02	101	95	70-130	6	30
Perfluoroundecanoic acid	1.03	20	19.61	20	21	93	100	70-130	7	30
Batch number: 16083007	Sample number(s): 8294129-8294134 UNSPK: 8294129									
Perfluorobutanesulfonate	0.50 U	20	20.49	20	15.85	102	79	70-130	26	30
Perfluorodecanoic acid	1.06	20	25.19	20	24.46	121	117	70-130	3	30
Perfluorododecanoic acid	0.478	20	21.26	20	24.16	104	118	70-130	13	30
Perfluoroheptanoic acid	0.30 U	20	23.28	20	25.27	116	126	70-130	8	30
Perfluorohexanesulfonate	0.50 U	20	17.34	20	12.17	87	61*	70-130	35*	30
Perfluorohexanoic acid	0.264	20	21.43	20	20.18	106	100	70-130	6	30
Perfluorononanoic acid	0.388	20	21.82	20	20.99	107	103	70-130	4	30
Perfluoro-octanesulfonate	0.70 U	20	15.84	20	24.76	79	124	70-130	44*	30
Perfluorooctanoic acid	1.06	20	23.61	20	21.75	113	103	70-130	8	30

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorotetradecanoic acid	0.30 U	20	20.41	20	24.03	102	120	70-130	16	30
Perfluorotridecanoic acid	0.60 U	20	17.55	20	22.39	88	112	70-130	24	30
Perfluoroundecanoic acid	0.457	20	21.24	20	22.78	104	112	70-130	7	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16081049531A	Sample number(s): 8294109-8294118 UNSPK: 8294109									
TOC	7485.57	41494	54951.59			114		47-143		
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134 UNSPK: 8294125									
TOC	17171.34	60852	89858.01			119		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16081049531A	Sample number(s): 8294109-8294118 BKG: 8294109			
TOC	7485.57	8675.88	15*	7
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134 BKG: 8294125			
TOC	17171.34	18766.82	9*	7
	%	%		
Batch number: 16081820003A	Sample number(s): 8294134 BKG: P293163			
Moisture	17.64	17.91	2	5
Batch number: 16081820004A	Sample number(s): 8294109-8294118,8294121 BKG: 8294121			
Moisture	21.05	20.45	3	5
Batch number: 16081820004B	Sample number(s): 8294122-8294133 BKG: 8294125, P294125			
Moisture	23.09	19.86	15*	5
Moisture	23.09	19.86	15*	5
Moisture Duplicate	23.09	19.86	15*	5

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1647373 Sample # 8794109-35

COC # 493356

Client Information

Client: CT Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC
6 Royal St 0" to 6"	3/17/16	0946	✓		3	X	X	X
6 Royal St 6" to 12"	3/17/16	0952	✓		3	X	X	X
6 Royal St 12" to 18"	3/17/16	1001	✓		3	X	X	X
6 Royal St 18" to 24"	3/17/16	1015	✓		3	X	X	X
22 Asa Way 0" to 6"	3/17/16	1050	✓		2	X	X	X
22 Asa Way 6" to 12"	3/17/16	1100	✓		2	X	X	X
RC ~~22 Asa Way 12" to 18"~~			✓					
LC ~~22 Asa Way 18" to 24"~~			✓					
5 Scarey Lane 0" to 6"	3/17/16	1148	✓		2	X	X	X
5 Scarey Lane 6" to 12"	3/17/16	1200	✓		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type III (Reduced non-CLP)

NYSDEC Category A or (B)

Type VI (Raw Data Only)

NJ DKQP

MA MCP

TX TRRP-13

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11		03/18/16	0711
	03/18/16	07:14			
			Received by	3/19/16	0950

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1647373 Sample # 8294109-35

COC # 493358

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ☐

Analysis Requested — Preservation Codes: O

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC	EPA 537	Remarks
5 Scarey Lane 12" to 18"	3/17/16	1208	X		2	X	X	X		
5 Scarey Lane 18" to 24"	3/17/16	1217	X		2	X	X	X		
Auger Rinse #2	3/17/16	1222	X		2	X		X	X	Lab DI Water
Transport Blank	3/11/16	—	X		1	X		X	X	Lab provided
32 Scarey Lane 0" to 6"	3/17/16	1328	X		2	X	X	X		
32 Scarey Lane 6" to 12"	3/17/16	1338	X		2	X	X	X		
32 Scarey Lane 12" to 18"	3/17/16	1343	X		2	X	X	X		
32 Scarey Lane 18" to 24"	3/17/16	1352	X		2	X	X	X		
15 Scarey Lane 0" to 6"	3/17/16	1445	X		4	X	X	X		MS/MSD here
15 Scarey Lane 6" to 12"	3/17/16	1500	X		2	X	X	X		

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11	[signature]	03/18/16	0711
[signature]	03/18/16	07:14			
			[signature]	3/19/16	0950

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1642373 Sample # 8294109-35

COC # 493359

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water ☐ Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes: 9

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC	EPA 537	Remarks
15 Searcy Lane Duplicate	3/17/16	1450	X		1	X				
765 Murphy Rd 0" to 6"	3/17/16	1550	X		2	X	X	X		
765 Murphy Rd 6" to 12"	3/17/16	1600	X		2	X	X	X		
765 Murphy Rd 12" to 18"	3/17/16	1612	X		2	X	X	X		
765 Murphy Rd 18" to 24"	3/17/16	1623	X		2	X	X	X		
Bowl Rinse #2	3/17/16	1840	X		2				X	Lab DI Water

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or (B) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11	[signature]	03/18/16	07:11
[signature]	03/18/16	07:14			
			Received by	3/19/16	0950

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140007

Group Number(s): 1642373

Client: CT Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/19/2016 9:50
Number of Packages:	4	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL Na2S2O3 Preserved Poly

Unpacked by Patrick Engle (3472) at 10:46 on 03/19/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	4.8	DT	Wet	Y	Bagged	N
2	DT121	4.5	DT	Wet	Y	Bagged	N
3	DT121	3.1	DT	Wet	Y	Bagged	N
4	DT121	4.2	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 29, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/22/2016
Group Number: 1642988
SDG: SGP07
PO Number: 16.6131
State of Sample Origin: VT

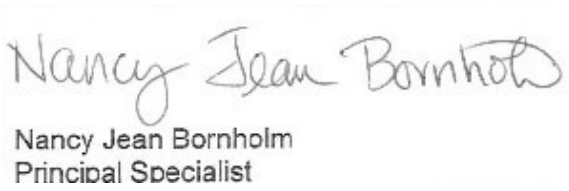
Client Sample Description	Lancaster Labs (LL) #
Asa Way Vac Lot 0" to 6" Grab Soil	8297354
Asa Way Vac Lot 6" to 12" Grab Soil	8297355
Asa Way Vac Lot 12" to 18" Grab Soil	8297356
Asa Way Vac Lot 18" to 24" Grab Soil	8297357
Auger Rinse #4 Grab Blank Water	8297358
Bowl Rinse #4 Grab Blank Water	8297359
Transport Blank 032116 Water	8297360
26 Susan Taylor 0" to 6" Grab Soil	8297361
26 Susan Taylor 0" to 6" MS Grab Soil	8297362
26 Susan Taylor 0" to 6" MSD Grab Soil	8297363
26 Susan Taylor 0" to 6" Dupl Grab Soil	8297364
26 Susan Taylor Duplicate Grab Soil	8297365
26 Susan Taylor 6" to 12" Grab Soil	8297366
26 Susan Taylor 12" to 18" Grab Soil	8297367
26 Susan Taylor 18" to 24" Grab Soil	8297368
10 Scarey Ln 0" to 6" Grab Soil	8297369
10 Scarey Ln 6" to 12" Grab Soil	8297370
10 Scarey Ln 12" to 18" Grab Soil	8297371
10 Scarey Ln 18" to 24" Grab Soil	8297372
26 Scarey Ln 0" to 6" Grab Soil	8297373
26 Scarey Ln 6" to 12" Grab Soil	8297374
8 Polygraphic Ln 0" to 6" Grab Soil	8297375

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1642988

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8297358, 8297359, 8297360
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8297358-8297360)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16084007 (Sample number(s): 8297354-8297357, 8297361-8297363, 8297365-8297375 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluoro-octanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16084949631A (Sample number(s): 8297355-8297357 UNSPK: P294196 BKG: P294196)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16084949631B (Sample number(s): 8297354, 8297361-8297362, 8297364, 8297366-8297372 UNSPK: 8297361 BKG: 8297361)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16083820002A (Sample number(s): 8297354-8297357 BKG: 8297355)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: 26 Scarey Ln 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297373
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 12:31 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0717 SDG#: SGP07-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.30	J	0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	1.9		0.46	0.92	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.86	J	0.80	1.8	1
14027	Perfluorooctanoic acid	335-67-1	1.1		0.34	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	1.9		0.34	0.92	1
14027	Perfluorotridecanoic acid	72629-94-8	1.4		0.69	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	1.2		0.34	0.69	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	11,500		467	1,400	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	12.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 10:05	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949632A	03/25/2016 00:28	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 26 Scarey Ln 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297374
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 12:40 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0718 SDG#: SGP07-18

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.54	U	0.54	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.26	J	0.21	0.43	1
14027	Perfluorododecanoic acid	307-55-1	1.1		0.43	0.86	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.54	U	0.54	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.75	U	0.75	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.33	J	0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	1.1		0.32	0.86	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.78		0.32	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	2,320		487	1,460	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	6.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 10:19	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949632A	03/25/2016 00:42	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 11:29

Group Number: 1642988

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16084007	Sample number(s): 8297354-8297357,8297361-8297363,8297365-8297375			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8297358-8297360			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16084949631A	Sample number(s): 8297355-8297357			
TOC	100	U	100	300
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372			
TOC	100	U	100	300
Batch number: 16084949632A	Sample number(s): 8297373-8297375			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 11:29

Group Number: 1642988

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16084007	Sample number(s): 8297354-8297357,8297361-8297363,8297365-8297375								
Perfluorobutanesulfonate	20	17.26			86		70-130		
Perfluorodecanoic acid	20	19.11			96		70-130		
Perfluorododecanoic acid	20	18.17			91		70-130		
Perfluoroheptanoic acid	20	18.61			93		70-130		
Perfluorohexanesulfonate	20	14.91			75		70-130		
Perfluorohexanoic acid	20	16.77			84		70-130		
Perfluorononanoic acid	20	17.99			90		70-130		
Perfluoro-octanesulfonate	20	20.89			104		70-130		
Perfluorooctanoic acid	20	16.59			83		70-130		
Perfluorotetradecanoic acid	20	19.73			99		70-130		
Perfluorotridecanoic acid	20	15.69			78		70-130		
Perfluoroundecanoic acid	20	17.08			85		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8297358-8297360								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949631A	Sample number(s): 8297355-8297357								
TOC	5430	2743.93			51		47-143		
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372								
TOC	5430	2743.93			51		47-143		
Batch number: 16084949632A	Sample number(s): 8297373-8297375								
TOC	5430	4448.16			82		47-143		
	%	%	%	%					
Batch number: 16083820002A	Sample number(s): 8297354-8297357								
Moisture	89.5	89.47			100		99-101		
Batch number: 16083820002B	Sample number(s): 8297361-8297375								
Moisture	89.5	89.47			100		99-101		
Moisture	89.5	89.47			100		99-101		
Moisture Duplicate	89.5	89.47			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 11:29

Group Number: 1642988

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16084007	Sample number(s): 8297354-8297357,8297361-8297363,8297365-8297375 UNSPK: 8297361									
Perfluorobutanesulfonate	0.50 U	20	16.77	20	18.36	84	92	70-130	9	30
Perfluorodecanoic acid	0.468	20	20.97	20	19.73	103	96	70-130	6	30
Perfluorododecanoic acid	0.40 U	20	18.68	20	18.77	93	94	70-130	0	30
Perfluoroheptanoic acid	0.30 U	20	19.82	20	20.51	99	103	70-130	3	30
Perfluorohexanesulfonate	0.50 U	20	24.58	20	20.13	123	101	70-130	20	30
Perfluorohexanoic acid	0.20 U	20	16.91	20	16.34	85	82	70-130	3	30
Perfluorononanoic acid	0.20 U	20	17.45	20	18.3	87	91	70-130	5	30
Perfluoro-octanesulfonate	0.70 U	20	25.38	20	14.58	127	73	70-130	54*	30
Perfluorooctanoic acid	0.511	20	17.68	20	19.66	86	96	70-130	11	30
Perfluorotetradecanoic acid	0.30 U	20	20.6	20	16.83	103	84	70-130	20	30
Perfluorotridecanoic acid	0.60 U	20	16.16	20	14.25	81	71	70-130	13	30
Perfluoroundecanoic acid	0.312	20	18.17	20	17.26	89	85	70-130	5	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949631A	Sample number(s): 8297355-8297357 UNSPK: P294196									
TOC	5817.55	14790	19743.46			94		47-143		
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372 UNSPK: 8297361									
TOC	5512	10007	12605.07			71		47-143		
Batch number: 16084949632A	Sample number(s): 8297373-8297375 UNSPK: P297411									
TOC	14599.68	13593	24218.4			71		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16084949631A	Sample number(s): 8297355-8297357 BKG: P294196			
TOC	5817.55	3166.37	59*	7
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372 BKG: 8297361			
TOC	5512	6002.81	9*	7
Batch number: 16084949632A	Sample number(s): 8297373-8297375 BKG: P297411			
TOC	14599.68	15419.66	5	7
	%	%		
Batch number: 16083820002A	Sample number(s): 8297354-8297357 BKG: 8297355			
Moisture	17.48	16.51	6*	5
Batch number: 16083820002B	Sample number(s): 8297361-8297375 BKG: 8297361, P297361			
Moisture	19.48	18.8	4	5
Moisture	19.48	18.8	4	5
Moisture Duplicate	19.48	18.8	4	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 3719 Group # 1642788 Sample # 879354-75

COC # 493463

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ | Water: Ground ☐ Potable ☐ NPDES ☐ Surface ☐ | Other: ____

Analysis Requested

Preservation Codes: O

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	EPA 537	Remarks
Asa Way Vacant Lot 0" to 6"	3/21/16	0907	X		2	X	X	X		
Asa Way Vacant Lot 6" to 12"	3/21/16	0913	X		2	X	X	X		
Asa Way Vacant Lot 12" to 18"	3/21/16	0925	X		2	X	X	X		
Asa Way Vacant Lot 18" to 24"	3/21/16	0931	X		2	X	X	X		
~~Asa Way Vacant Lot~~										
Auger Rinse # 4	3/21/16	0938	X		2				X	Lab DI Water
Bowl Rinse # 4	3/21/16	0935	X		2				X	Lab DI Water
Transport Blank 032116	3/16/16	—	X		1				X	Lab Supplied
26 Susan Taylor 0" to 6"	3/21/16	1005	X		4	X	X	X		MS/MSD here
26 Susan Taylor Duplicate	3/21/16	1010	X		1	X				

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type III (Reduced non-CLP)

NYSDEC Category A or B

Type VI (Raw Data Only)

NJ DKQP

MA MCP

TX TRRP-13

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/21/16	1655			
			Kristal Abel	3/22/16	0945

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 4.5 °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1642988 Sample # 8297354-75

COC # 493361

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16-6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested

Preservation Codes

Preservation Codes: H=HCl, T=Thiosulfate, N=HNO_3, B=NaOH, S=H_2SO_4, O=Other

For Lab Use Only: FSC: ____ SCR#: ____

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	Remarks
26 Susan Taylor 6" to 12"	3/21/16	1013	X		2	X	X	X	
26 Susan Taylor 12" to 18"	3/21/16	1026	X		2	X	X	X	
26 Susan Taylor 18" to 24"	3/21/16	1026	X		2	X	X	X	
10 Scarey Ln 0" to 6"	3/21/16	1055	X		2	X	X	X	
10 Scarey Ln 6" to 12"	3/21/16	1101	X		2	X	X	X	
10 Scarey Ln 12" to 18"	3/21/16	1114	X		2	X	X	X	
10 Scarey Ln 18" to 24"	3/21/16	1125	X		2	X	X	X	
26 Scarey Ln WH 0" to 6"	3/21/16	1231	X		2	X	X	X	
26 Scarey Ln WH 6" to 12"	3/21/16	1240	X		2	X	X	X	
8 Polygraphic Ln 0" to 6"	3/21/16	1333	X		2	X	X	X	

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: k.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/21/16	1655			
			Krista Abel	3/22/16	0945

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 4.5 / 5.4 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 140176

Group Number(s): 1642988

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/22/2016 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Na2S2O3
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:32 on 03/22/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	5.1	DT	Wet	Y	Bagged	N
2	DT146	4.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T : 717-656-2300
F : 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 29, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/19/2016
Group Number: 1642373
SDG: SGP05
PO Number: 16.6131
State of Sample Origin: VT

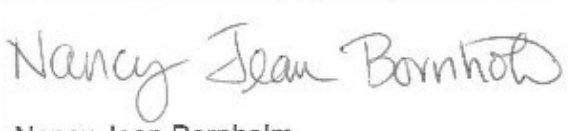
Client Sample Description	Lancaster Labs (LL) #
6 Royal St 0" to 6" Grab Soil	8294109
6 Royal St 6" to 12" Grab Soil	8294110
6 Royal St 12" to 18" Grab Soil	8294111
6 Royal St 18" to 24" Grab Soil	8294112
22 Asa Way 0" to 6" Grab Soil	8294113
22 Asa Way 6" to 12" Grab Soil	8294114
5 Scarey Lane 0" to 6" Grab Soil	8294115
5 Scarey Lane 6" to 12" Grab Soil	8294116
5 Scarey Lane 12" to 18" Grab Soil	8294117
5 Scarey Lane 18" to 24" Grab Soil	8294118
Auger Rinse #2 Grab Blank Water	8294119
Transport Blank Water	8294120
32 Scarey Lane 0" to 6" Grab Soil	8294121
32 Scarey Lane 6" to 12" Grab Soil	8294122
32 Scarey Lane 12" to 18" Grab Soil	8294123
32 Scarey Lane 18" to 24" Grab Soil	8294124
15 Scarey Lane 0" to 6" Grab Soil	8294125
15 Scarey Lane 0" to 6" MS Grab Soil	8294126
15 Scarey Lane 0" to 6" MSD Grab Soil	8294127
15 Scarey Lane 0" to 6" Dupl Grab Soil	8294128
15 Scarey Lane 6" to 12" Grab Soil	8294129
15 Scarey Lane Duplicate Grab Soil	8294130
765 Murphy Rd 0" to 6" Grab Soil	8294131
765 Murphy Rd 6" to 12" Grab Soil	8294132
765 Murphy Rd 12" to 18" Grab Soil	8294133
765 Murphy Rd 18" to 24" Grab Soil	8294134
Bowl Rinse #2 Grab Blank Water	8294135

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1642373

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8294119, 8294120, 8294135

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8294119-8294120, 8294135)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16083007 (Sample number(s): 8294129-8294134 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorohexanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorohexanesulfonate, Perfluoro-octanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16081049531A (Sample number(s): 8294109-8294118 UNSPK: 8294109 BKG: 8294109)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16081049531B (Sample number(s): 8294121-8294126, 8294128-8294129, 8294131-8294134 UNSPK: 8294125 BKG: 8294125)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16081820004B (Sample number(s): 8294122-8294133 BKG: 8294125)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: 32 Scarey Lane 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294121
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 13:28 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0513 SDG#: SGP05-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.63	U	0.63	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.69		0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.63	U	0.63	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.53		0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.89	U	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	1.3		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.43	J	0.38	0.76	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	19,800		900	2,700	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/28/2016 13:27	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531B	03/22/2016 00:07	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004A	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 32 Scarey Lane 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294122
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 13:38 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0514 SDG#: SGP05-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.55	U	0.55	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.23	J	0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.44	U	0.44	0.89	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.55	U	0.55	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.78	U	0.78	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.90		0.33	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.89	1
14027	Perfluorotridecanoic acid	72629-94-8	0.66	U	0.66	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.66	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,520		280	841	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	9.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/28/2016 13:41	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531B	03/22/2016 00:15	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004B	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 32 Scarey Lane 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294123
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 13:43 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0515 SDG#: SGP05-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.54	U	0.54	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.43	1
14027	Perfluorododecanoic acid	307-55-1	0.43	U	0.43	0.87	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.54	U	0.54	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.5	J	0.76	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.35	J	0.32	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.87	1
14027	Perfluorotridecanoic acid	72629-94-8	0.65	U	0.65	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.65	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	1,430		143	429	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	7.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/28/2016 13:56	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531B	03/22/2016 00:27	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004B	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 32 Scarey Lane 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294124
LL Group # 1642373
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/17/2016 13:52 by LC

Submitted: 03/19/2016 09:50
Reported: 03/29/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0516 SDG#: SGP05-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.82	U	0.82	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.85		0.35	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.70	U	0.70	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.70	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,950		248	745	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	14.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083006	03/28/2016 14:10	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16081049531B	03/22/2016 00:38	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820004B	03/21/2016 22:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
Batch number: 16083007	Sample number(s): 8294129-8294134			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8294119-8294120,8294135			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Batch number: 16081049531A	Sample number(s): 8294109-8294118			
TOC	100	U	100	300
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127								
Perfluorobutanesulfonate	20	19.13			96		70-130		
Perfluorodecanoic acid	20	20.15			101		70-130		
Perfluorododecanoic acid	20	21.22			106		70-130		
Perfluoroheptanoic acid	20	23.61			118		70-130		
Perfluorohexanesulfonate	20	16.81			84		70-130		
Perfluorohexanoic acid	20	18.65			93		70-130		
Perfluorononanoic acid	20	21.45			107		70-130		
Perfluoro-octanesulfonate	20	19.23			96		70-130		
Perfluorooctanoic acid	20	18.42			92		70-130		
Perfluorotetradecanoic acid	20	17.58			88		70-130		
Perfluorotridecanoic acid	20	19.08			95		70-130		
Perfluoroundecanoic acid	20	21.06			105		70-130		
Batch number: 16083007	Sample number(s): 8294129-8294134								
Perfluorobutanesulfonate	20	16.31			82		70-130		
Perfluorodecanoic acid	20	20.04			100		70-130		
Perfluorododecanoic acid	20	19.69			98		70-130		
Perfluoroheptanoic acid	20	23.65			118		70-130		
Perfluorohexanesulfonate	20	21.63			108		70-130		
Perfluorohexanoic acid	20	20.64			103		70-130		
Perfluorononanoic acid	20	17.96			90		70-130		
Perfluoro-octanesulfonate	20	19.76			99		70-130		
Perfluorooctanoic acid	20	19.43			97		70-130		
Perfluorotetradecanoic acid	20	20.15			101		70-130		
Perfluorotridecanoic acid	20	20.23			101		70-130		
Perfluoroundecanoic acid	20	20.17			101		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8294119-8294120,8294135								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16081049531A	Sample number(s): 8294109-8294118								
TOC	5430	5548.1			102		47-143		
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134								
TOC	5430	5548.1			102		47-143		
	%	%	%	%					
Batch number: 16081820003A	Sample number(s): 8294134								
Moisture	89.5	89.47			100		99-101		
Batch number: 16081820004A	Sample number(s): 8294109-8294118,8294121								
Moisture	89.5	89.53			100		99-101		
Batch number: 16081820004B	Sample number(s): 8294122-8294133								
Moisture	89.5	89.53			100		99-101		
Moisture	89.5	89.53			100		99-101		
Moisture Duplicate	89.5	89.53			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g	ng/g					
Batch number: 16083006	Sample number(s): 8294109-8294118,8294121-8294127 UNSPK: 8294125									
Perfluorobutanesulfonate	0.50 U	20	16.77	20	17.21	84	86	70-130	3	30
Perfluorodecanoic acid	1.51	20	22.99	20	22.62	107	106	70-130	2	30
Perfluorododecanoic acid	0.826	20	21.78	20	22.23	105	107	70-130	2	30
Perfluoroheptanoic acid	0.30 U	20	23.26	20	20.21	116	101	70-130	14	30
Perfluorohexanesulfonate	0.50 U	20	19.99	20	18.07	100	90	70-130	10	30
Perfluorohexanoic acid	0.292	20	19.68	20	18.57	97	91	70-130	6	30
Perfluorononanoic acid	0.339	20	21.68	20	21.51	107	106	70-130	1	30
Perfluoro-octanesulfonate	0.70 U	20	14.5	20	15.09	72	75	70-130	4	30
Perfluorooctanoic acid	1.13	20	20.62	20	20.3	97	96	70-130	2	30
Perfluorotetradecanoic acid	0.30 U	20	18.21	20	20.02	91	100	70-130	9	30
Perfluorotridecanoic acid	0.60 U	20	20.28	20	19.02	101	95	70-130	6	30
Perfluoroundecanoic acid	1.03	20	19.61	20	21	93	100	70-130	7	30
Batch number: 16083007	Sample number(s): 8294129-8294134 UNSPK: 8294129									
Perfluorobutanesulfonate	0.50 U	20	20.49	20	15.85	102	79	70-130	26	30
Perfluorodecanoic acid	1.06	20	25.19	20	24.46	121	117	70-130	3	30
Perfluorododecanoic acid	0.478	20	21.26	20	24.16	104	118	70-130	13	30
Perfluoroheptanoic acid	0.30 U	20	23.28	20	25.27	116	126	70-130	8	30
Perfluorohexanesulfonate	0.50 U	20	17.34	20	12.17	87	61*	70-130	35*	30
Perfluorohexanoic acid	0.264	20	21.43	20	20.18	106	100	70-130	6	30
Perfluorononanoic acid	0.388	20	21.82	20	20.99	107	103	70-130	4	30
Perfluoro-octanesulfonate	0.70 U	20	15.84	20	24.76	79	124	70-130	44*	30
Perfluorooctanoic acid	1.06	20	23.61	20	21.75	113	103	70-130	8	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 17:54

Group Number: 1642373

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorotetradecanoic acid	0.30 U	20	20.41	20	24.03	102	120	70-130	16	30
Perfluorotridecanoic acid	0.60 U	20	17.55	20	22.39	88	112	70-130	24	30
Perfluoroundecanoic acid	0.457	20	21.24	20	22.78	104	112	70-130	7	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16081049531A	Sample number(s): 8294109-8294118 UNSPK: 8294109									
TOC	7485.57	41494	54951.59			114		47-143		
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134 UNSPK: 8294125									
TOC	17171.34	60852	89858.01			119		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16081049531A	Sample number(s): 8294109-8294118 BKG: 8294109			
TOC	7485.57	8675.88	15*	7
Batch number: 16081049531B	Sample number(s): 8294121-8294126,8294128-8294129,8294131-8294134 BKG: 8294125			
TOC	17171.34	18766.82	9*	7
	%	%		
Batch number: 16081820003A	Sample number(s): 8294134 BKG: P293163			
Moisture	17.64	17.91	2	5
Batch number: 16081820004A	Sample number(s): 8294109-8294118,8294121 BKG: 8294121			
Moisture	21.05	20.45	3	5
Batch number: 16081820004B	Sample number(s): 8294122-8294133 BKG: 8294125, P294125			
Moisture	23.09	19.86	15*	5
Moisture	23.09	19.86	15*	5
Moisture Duplicate	23.09	19.86	15*	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1647373 Sample # 8794109-35

COC # 493356

Client Information

Client: CT Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC
6 Royal St 0" to 6"	3/17/16	0946	✓		3	X	X	X
6 Royal St 6" to 12"	3/17/16	0952	✓		3	X	X	X
6 Royal St 12" to 18"	3/17/16	1001	✓		3	X	X	X
6 Royal St 18" to 24"	3/17/16	1015	✓		3	X	X	X
22 Asa Way 0" to 6"	3/17/16	1050	✓		2	X	X	X
22 Asa Way 6" to 12"	3/17/16	1100	✓		2	X	X	X
RC ~~22 Asa Way 12" to 18"~~			✓					
LC ~~22 Asa Way 18" to 24"~~			✓					
5 Scarey Lane 0" to 6"	3/17/16	1148	✓		2	X	X	X
5 Scarey Lane 6" to 12"	3/17/16	1200	✓		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type III (Reduced non-CLP)

NYSDEC Category A or (B)

Type VI (Raw Data Only)

NJ DKQP

MA MCP

TX TRRP-13

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11		03/18/16	0711
	03/18/16	07:14			
			Received by	3/19/16	0950

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1647373 Sample # 8294109-35

COC # 493358

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ☐

Analysis Requested — Preservation Codes: O

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC	EPA 537	Remarks
5 Scarey Lane 12" to 18"	3/17/16	1208	X		2	X	X	X		
5 Scarey Lane 18" to 24"	3/17/16	1217	X		2	X	X	X		
Auger Rinse #2	3/17/16	1222	X		2	X		X	X	Lab DI Water
Transport Blank	3/11/16	—	X		1	X		X	X	Lab provided
32 Scarey Lane 0" to 6"	3/17/16	1328	X		2	X	X	X		
32 Scarey Lane 6" to 12"	3/17/16	1338	X		2	X	X	X		
32 Scarey Lane 12" to 18"	3/17/16	1343	X		2	X	X	X		
32 Scarey Lane 18" to 24"	3/17/16	1352	X		2	X	X	X		
15 Scarey Lane 0" to 6"	3/17/16	1445	X		4	X	X	X		MS/MSD here
15 Scarey Lane 6" to 12"	3/17/16	1500	X		2	X	X	X		

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11	[signature]	03/18/16	0711
[signature]	03/18/16	07:14			
			[signature]	3/19/16	0950

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1642373 Sample # 8294109-35

COC # 493359

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water ☐ Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes: 9

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture	TOC	EPA 537	Remarks
15 Searcy Lane Duplicate	3/17/16	1450	X		1	X				
765 Murphy Rd 0" to 6"	3/17/16	1550	X		2	X	X	X		
765 Murphy Rd 6" to 12"	3/17/16	1600	X		2	X	X	X		
765 Murphy Rd 12" to 18"	3/17/16	1612	X		2	X	X	X		
765 Murphy Rd 18" to 24"	3/17/16	1623	X		2	X	X	X		
Bowl Rinse #2	3/17/16	1840	X		2				X	Lab DI Water

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or (B) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	07:11	[signature]	03/18/16	07:11
[signature]	03/18/16	07:14			
			Received by	3/19/16	0950

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140007

Group Number(s): 1642373

Client: CT Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/19/2016 9:50
Number of Packages:	4	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL Na2S2O3 Preserved Poly

Unpacked by Patrick Engle (3472) at 10:46 on 03/19/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	4.8	DT	Wet	Y	Bagged	N
2	DT121	4.5	DT	Wet	Y	Bagged	N
3	DT121	3.1	DT	Wet	Y	Bagged	N
4	DT121	4.2	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 28, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/19/2016
Group Number: 1642382
SDG: SGP06
PO Number: 16.6131
State of Sample Origin: VT

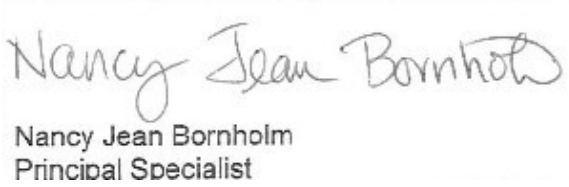
Client Sample Description	Lancaster Labs (LL) #
Bennington College Garden 0" to 6" Grab Soil	8294171
Bennington College Garden 6" to 12" Grab Soil	8294172
Bennington College Garden 12" to 18" Grab Soil	8294173
Bennington College Garden 18" to 24" Grab Soil	8294174
Auger Rinse #3 Grab Blank Water	8294175
Bowl Rinse #3 Grab Blank Water	8294176
Transport Blank 031816 Blank Water	8294177
B. College Adj to Garden 0" to 6" Grab Soil	8294178
B. College Adj to Garden 6" to 12" Grab Soil	8294179
B. College Adj to Garden Duplicate Grab Soil	8294180
B. College Adj to Garden 12" to 18" Grab Soil	8294181
B. College Adj to Garden 12" to 18" MS Grab Soil	8294182
B. College Adj to Garden 12" to 18" MSD Grab Soil	8294183
B. College Adj to Garden 12" to 18" Dupl Grab Soil	8294184
B. College Adj to Garden 18" to 24" Grab Soil	8294185
B. College Adj to Soccer Field 0" to 6" Grab Soil	8294186
B. College Adj to Soccer Field 6" to 12" Grab Soil	8294187
B. College Adj to Soccer Field 12" to 18" Grab	8294188
B. College Adj to Soccer Field 18" to 24" Grab	8294189
Jennings Meadow Trail 0" to 6" Grab Soil	8294190
Jennings Meadow Trail 6" to 12" Grab Soil	8294191
Jennings Meadow Trail 12" to 18" Grab Soil	8294192
Jennings Meadow Trail 18" to 24" Grab Soil	8294193
9 School St SMPG 0" to 6" Grab Soil	8294194
9 School St SMPG 6" to 12" Grab Soil	8294195
9 School St SMPG 12" to 18" Grab Soil	8294196
9 School St SMPG 18" to 24" Grab Soil	8294197
9 School St LGPG 0" to 6" Grab Soil	8294198
9 School St LGPG 6" to 12" Grab Soil	8294199
9 School St LGPG 12" to 18" Grab Soil	8294200
9 School St LGPG 18" to 24" Grab Soil	8294201

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1642382

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8294175, 8294176, 8294177
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8294175-8294177)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16084002 (Sample number(s): 8294171-8294174, 8294178-8294183, 8294185-8294196 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluoro-octanesulfonate

Batch #: 16084003 (Sample number(s): 8294197-8294201 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorohexanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 8294198, 8294199, 8294200, 8294201
Reporting limits were raised due to interference from the sample matrix.

Batch #: 16083949631A (Sample number(s): 8294171-8294174, 8294178-8294179, 8294181-8294182, 8294184-8294187 UNSPK: 8294182 BKG: 8294182)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
TOC Solids/Sludges Combustion

Batch #: 16083949631B (Sample number(s): 8294188-8294195 UNSPK: 8294188 BKG: 8294188)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
TOC Solids/Sludges Combustion

Batch #: 16084949631A (Sample number(s): 8294196-8294201 UNSPK: 8294196 BKG: 8294196)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16081820005B (Sample number(s): 8294185-8294196 BKG: 8294189)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
Moisture

Batch #: 16081820006B (Sample number(s): 8294197-8294201 BKG: P294812)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
Moisture

Sample Description: Bennington College Garden 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294171
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 09:15 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-601 SDG#: SGP06-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	2.0	J	0.63	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.32	J	0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.63	U	0.63	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.89	U	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	1.1		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.76	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	12,900		252	756	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 03:56	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/23/2016 21:30	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Bennington College Garden 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294172
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 09:24 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-602 SDG#: SGP06-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.95	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.83	U	0.83	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.65	J	0.36	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.95	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	7,660		246	739	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	15.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 04:10	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/23/2016 21:43	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Bennington College Garden 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294173
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 09:33 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-603 SDG#: SGP06-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.58	U	0.58	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.46	U	0.46	0.93	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.58	U	0.58	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.81	U	0.81	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.38	J	0.35	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.93	1
14027	Perfluorotridecanoic acid	72629-94-8	0.70	U	0.70	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.70	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	2,490		210	631	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	13.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 04:24	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/23/2016 22:01	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Bennington College Garden 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294174
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 09:44 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-604 SDG#: SGP06-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.96	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.67	J	0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.96	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	7,630		246	738	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	16.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 04:38	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631A	03/23/2016 22:10	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005A	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 9 School St SMPG 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294194
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 13:55 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-621 SDG#: SGP06-21

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	1.5	U	1.5	4.8	1
14027	Perfluorodecanoic acid	335-76-2	0.60	U	0.60	1.2	1
14027	Perfluorododecanoic acid	307-55-1	1.2	U	1.2	2.4	1
14027	Perfluoroheptanoic acid	375-85-9	0.89	U	0.89	1.8	1
14027	Perfluorohexanesulfonate	355-46-4	1.5	U	1.5	4.8	1
14027	Perfluorohexanoic acid	307-24-4	0.60	U	0.60	1.2	1
14027	Perfluorononanoic acid	375-95-1	0.60	U	0.60	1.2	1
14027	Perfluoro-octanesulfonate	1763-23-1	2.1	U	2.1	4.8	1
14027	Perfluorooctanoic acid	335-67-1	0.89	U	0.89	1.8	1
14027	Perfluorotetradecanoic acid	376-06-7	0.89	U	0.89	2.4	1
14027	Perfluorotridecanoic acid	72629-94-8	1.8	U	1.8	3.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.89	U	0.89	1.8	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	42,700		753	2,260	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	66.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 07:58	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631B	03/24/2016 01:58	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005B	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 9 School St SMPG 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294195
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 14:05 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-622 SDG#: SGP06-22

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.83	U	0.83	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.35	U	0.35	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	12,900		248	743	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	15.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 08:12	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16083949631B	03/24/2016 02:15	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16081820005B	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 9 School St SMPG 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294196
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 14:13 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-623 SDG#: SGP06-23

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.56	U	0.56	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.45	1
14027	Perfluorododecanoic acid	307-55-1	0.45	U	0.45	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.56	U	0.56	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.3	J	0.79	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.34	U	0.34	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	0.67	U	0.67	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.67	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,540		229	688	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	11.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084002	03/27/2016 08:26	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631A	03/24/2016 12:34	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16081820005B	03/21/2016 21:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 9 School St SMPG 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294197
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 14:22 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-624 SDG#: SGP06-24

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.43	1
14027	Perfluorododecanoic acid	307-55-1	0.43	U	0.43	0.85	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.74	U	0.74	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.32	U	0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.85	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	1,200		215	645	2.02
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	6.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084003	03/27/2016 11:46	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631A	03/24/2016 13:00	Clinton M Wilson	2.02
00111	Moisture	SM 2540 G-1997	1	16081820006B	03/21/2016 23:05	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 9 School St LGPG 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294198
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 14:50 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-625 SDG#: SGP06-25

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.42	1
14027	Perfluorododecanoic acid	307-55-1	0.42	U	0.42	0.85	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.74	U	0.74	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.32	U	0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.85	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	405	J	201	604	1.9
	Reporting limits were raised due to interference from the sample matrix.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	5.7		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084003	03/27/2016 12:28	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631A	03/24/2016 13:08	Clinton M Wilson	1.9
00111	Moisture	SM 2540 G-1997	1	16081820006B	03/21/2016 23:05	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 9 School St LGPG 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294199
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 14:59 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-626 SDG#: SGP06-26

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.42	1
14027	Perfluorododecanoic acid	307-55-1	0.42	U	0.42	0.85	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.74	U	0.74	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.32	U	0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.85	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	221	U	221	662	2.08
	Reporting limits were raised due to interference from the sample matrix.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	5.8		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084003	03/27/2016 12:42	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631A	03/24/2016 13:15	Clinton M Wilson	2.08
00111	Moisture	SM 2540 G-1997	1	16081820006B	03/21/2016 23:05	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 9 School St LGPG 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294200
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 15:06 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-627 SDG#: SGP06-27

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.55	U	0.55	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.44	U	0.44	0.89	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.55	U	0.55	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.78	U	0.78	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.33	U	0.33	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.89	1
14027	Perfluorotridecanoic acid	72629-94-8	0.67	U	0.67	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.67	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	242	U	242	726	2.18
	Reporting limits were raised due to interference from the sample matrix.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	9.9		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084003	03/27/2016 12:57	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631A	03/24/2016 13:23	Clinton M Wilson	2.18
00111	Moisture	SM 2540 G-1997	1	16081820006B	03/21/2016 23:05	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 9 School St LGPG 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8294201
LL Group # 1642382
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/18/2016 15:20 by LC

Submitted: 03/19/2016 09:50
Reported: 03/28/2016 14:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P-628 SDG#: SGP06-28

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.46	U	0.46	0.91	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.80	U	0.80	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.34	U	0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.91	1
14027	Perfluorotridecanoic acid	72629-94-8	0.68	U	0.68	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	222	U	222	666	1.95
	Reporting limits were raised due to interference from the sample matrix.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	12.1		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084003	03/27/2016 13:11	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631A	03/24/2016 13:30	Clinton M Wilson	1.95
00111	Moisture	SM 2540 G-1997	1	16081820006B	03/21/2016 23:05	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1642382
Reported: 03/28/2016 14:03

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16084002	Sample number(s): 8294171-8294174,8294178-8294183,8294185-8294196			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
Batch number: 16084003	Sample number(s): 8294197-8294201			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8294175-8294177			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/28/2016 14:03

Group Number: 1642382

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Batch number: 16083949631A	Sample number(s): 8294171-8294174,8294178-8294179,8294181-8294182,8294184-8294187			
TOC	100	U	100	300
Batch number: 16083949631B	Sample number(s): 8294188-8294195			
TOC	100	U	100	300
Batch number: 16084949631A	Sample number(s): 8294196-8294201			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 16084002	Sample number(s): 8294171-8294174,8294178-8294183,8294185-8294196								
Perfluorobutanesulfonate	20	16.8			84		70-130		
Perfluorodecanoic acid	20	19.03			95		70-130		
Perfluorododecanoic acid	20	16.65			83		70-130		
Perfluoroheptanoic acid	20	19.14			96		70-130		
Perfluorohexanesulfonate	20	18.53			93		70-130		
Perfluorohexanoic acid	20	17.33			87		70-130		
Perfluorononanoic acid	20	19.25			96		70-130		
Perfluoro-octanesulfonate	20	17.19			86		70-130		
Perfluorooctanoic acid	20	17.42			87		70-130		
Perfluorotetradecanoic acid	20	18.98			95		70-130		
Perfluorotridecanoic acid	20	17.94			90		70-130		
Perfluoroundecanoic acid	20	18.53			93		70-130		
Batch number: 16084003	Sample number(s): 8294197-8294201								
Perfluorobutanesulfonate	20	22.5			112		70-130		
Perfluorodecanoic acid	20	19.36			97		70-130		
Perfluorododecanoic acid	20	17.06			85		70-130		
Perfluoroheptanoic acid	20	19.41			97		70-130		
Perfluorohexanesulfonate	20	15.36			77		70-130		
Perfluorohexanoic acid	20	18.81			94		70-130		
Perfluorononanoic acid	20	17.44			87		70-130		
Perfluoro-octanesulfonate	20	20.08			100		70-130		
Perfluorooctanoic acid	20	17.81			89		70-130		
Perfluorotetradecanoic acid	20	19.71			99		70-130		
Perfluorotridecanoic acid	20	15.77			79		70-130		
Perfluoroundecanoic acid	20	18.32			92		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8294175-8294177								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/28/2016 14:03

Group Number: 1642382

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16083949631A	Sample number(s): 8294171-8294174,8294178-8294179,8294181-8294182,8294184-8294187								
TOC	5430	5104.76			94		47-143		
Batch number: 16083949631B	Sample number(s): 8294188-8294195								
TOC	5430	5104.76			94		47-143		
Batch number: 16084949631A	Sample number(s): 8294196-8294201								
TOC	5430	2743.93			51		47-143		
	%	%	%	%					
Batch number: 16081820005A	Sample number(s): 8294171-8294174,8294178-8294184								
Moisture	89.5	89.47			100		99-101		
Moisture	89.5	89.47			100		99-101		
Moisture Duplicate	89.5	89.47			100		99-101		
Batch number: 16081820005B	Sample number(s): 8294185-8294196								
Moisture	89.5	89.47			100		99-101		
Batch number: 16081820006B	Sample number(s): 8294197-8294201								
Moisture	89.5	89.42			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16084002	Sample number(s): 8294171-8294174,8294178-8294183,8294185-8294196 UNSPK: 8294181										
Perfluorobutanesulfonate	0.50	U	20	16.03	20	19.51	80	98	70-130	20	30
Perfluorodecanoic acid	0.20	U	20	20.49	20	19.51	102	98	70-130	5	30
Perfluorododecanoic acid	0.40	U	20	19.07	20	19.29	95	96	70-130	1	30
Perfluoroheptanoic acid	0.30	U	20	19.43	20	19.19	97	96	70-130	1	30
Perfluorohexanesulfonate	0.50	U	20	19.15	20	18.08	96	90	70-130	6	30
Perfluorohexanoic acid	0.20	U	20	19.71	20	18.6	99	93	70-130	6	30
Perfluorononanoic acid	0.20	U	20	18	20	19.67	90	98	70-130	9	30
Perfluoro-octanesulfonate	0.70	U	20	23.26	20	15.7	116	78	70-130	39*	30
Perfluorooctanoic acid	2.31		20	19.69	20	20.69	87	92	70-130	5	30
Perfluorotetradecanoic acid	0.30	U	20	18.7	20	18.25	94	91	70-130	2	30
Perfluorotridecanoic acid	0.60	U	20	16.19	20	16.46	81	82	70-130	2	30
Perfluoroundecanoic acid	0.30	U	20	19.32	20	17.93	97	90	70-130	7	30
Batch number: 16084003	Sample number(s): 8294197-8294201 UNSPK: 8294197										
Perfluorobutanesulfonate	0.50	U	20	16.61	20	16.42	83	82	70-130	1	30
Perfluorodecanoic acid	0.20	U	20	20.32	20	17.91	102	90	70-130	13	30
Perfluorododecanoic acid	0.40	U	20	18.77	20	17.88	94	89	70-130	5	30
Perfluoroheptanoic acid	0.30	U	20	18.49	20	20.91	92	105	70-130	12	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/28/2016 14:03

Group Number: 1642382

Analysis Name	Unspiked Conc ng/g		MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorohexanesulfonate	0.50	U	20	16.29	20	23	81	115	70-130	34*	30
Perfluorohexanoic acid	0.20	U	20	17.42	20	19.44	87	97	70-130	11	30
Perfluorononanoic acid	0.20	U	20	19.28	20	19.01	96	95	70-130	1	30
Perfluoro-octanesulfonate	0.70	U	20	17.23	20	15.74	86	79	70-130	9	30
Perfluorooctanoic acid	0.30	U	20	18.63	20	17.23	93	86	70-130	8	30
Perfluorotetradecanoic acid	0.30	U	20	17.4	20	16.98	87	85	70-130	2	30
Perfluorotridecanoic acid	0.60	U	20	17.77	20	15.47	89	77	70-130	14	30
Perfluoroundecanoic acid	0.30	U	20	18	20	21.5	90	107	70-130	18	30
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16083949631A	Sample number(s): 8294171-8294174,8294178-8294179,8294181-8294182,8294184-8294187 UNSPK: 8294182										
TOC	4792.9		5110	8332.48			69		47-143		
Batch number: 16083949631B	Sample number(s): 8294188-8294195 UNSPK: 8294188										
TOC	5525.38		6059	11585.54			100		47-143		
Batch number: 16084949631A	Sample number(s): 8294196-8294201 UNSPK: 8294196										
TOC	5817.55		14790	19743.46			94		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 16083949631A	Sample number(s): 8294171-8294174,8294178-8294179,8294181-8294182,8294184-8294187 BKG: 8294182			
TOC	4792.9	3503.05	31*	7
Batch number: 16083949631B	Sample number(s): 8294188-8294195 BKG: 8294188			
TOC	5525.38	3961.36	33*	7
Batch number: 16084949631A	Sample number(s): 8294196-8294201 BKG: 8294196			
TOC	5817.55	3166.37	59*	7
	%	%		
Batch number: 16081820005A	Sample number(s): 8294171-8294174,8294178-8294184 BKG: 8294181, P294181			
Moisture	16.7	17.3	4	5
Moisture	16.7	17.3	4	5
Moisture Duplicate	16.7	17.3	4	5
Batch number: 16081820005B	Sample number(s): 8294185-8294196 BKG: 8294189			
Moisture	13.64	11.48	17*	5
Batch number: 16081820006B	Sample number(s): 8294197-8294201 BKG: P294812			
Moisture	47.63	56.5	17*	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1642382 Sample # 8294171-201

COC # 492485

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested — Preservation Codes: O

For Lab Use Only
FSC: ____
SCR#: ____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	EPA 537	Remarks
Bennington College Garden 0" to 6"	3/18/16	0915	X		2	X	X	X		
Bennington College Garden 6" to 12"		0924	X		2	X	X	X		
Bennington College Garden 12" to 18"		0933	X		2	X	X	X		
Bennington College Garden 18" to 24"		0944	X		2	X	X	X		
Auger Rinse #3		0950	X		2				X	Lab Provided DI water
Bowl Rinse #3		0955	X		2				X	Lab Provided DI water
Transport Blank 031616	3/16/16	—	X		1				X	Lab Supplied
B. College Adj. to Garden 0" to 6"	3/18/16	1015	X		2	X	X	X		
B. College Adj. to Garden 6" to 12"	3/18/16	1027	X		2	X	X	X		
B. College Adj. to Garden Duplicate	3/18/16	1020	X		1	X				

Turnaround Time (TAT) Requested (please circle)
Standard (Rush)
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP)
Type VI (Raw Data Only)
Type III (Reduced non-CLP)
NJ DKQP
TX TRRP-13
NYSDEC Category A or (B)
MA MCP
CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/18/16	1650			
				3/19/16	0950

EDD Required? (Yes) No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 647382 Sample # 8294171-201

COC # 492486

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Soil ☒ Sediment ☐ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested — Preservation Codes

For Lab Use Only
FSC: ____
SCR#: ____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	Remarks
B. College Adj to Garden 12" to 18"	3/18/16	1041	X		4	X	X	X	MS/MSD here
B. College Adj to Garden 18" to 24"	3/18/16	1051	X		2	X	X	X	
B College Adj to Soccer field 0" to 6"	3/18/16	1127	X		2	X	X	X	
B College Adj to Soccer Field 6" to 12"	3/18/16	1135	X		2	X	X	X	
B College Adj to Soccer Field 12" to 18"	3/18/16	1145	X		2	X	X	X	
B College Adj to Soccer Field 18" to 24"	3/18/16	1156	X		2	X	X	X	
Jennings Meadow Trail 0" to 6"	3/18/16	1237	X		2	X	X	X	
Jennings Meadow Trail 6" to 12"	3/18/16	1245	X		2	X	X	X	
Jennings Meadow Trail 12" to 18"	3/18/16	1257	X		2	X	X	X	
Jennings Meadow Trail 18" to 24"	3/18/16	1305	X		2	X	X	X	

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP)
Type III (Reduced non-CLP)
NYSDEC Category A or B
Type VI (Raw Data Only)
NJ DKQP
MA MCP
TX TRRP-13
CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	03/18/16	1650			
				3/19/16	0950

EDD Required? Yes No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1642382 Sample # 8294171-201

COC # 493461

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EfA 537	TOC	Moisture
q School St SMPG 0" to 6"	3/18/16	1355	X		2	X	X	X
q School St SMPG 6" to 12"	3/18/16	1405	X		2	X	X	X
q School St SMPG 12" to 18"	3/18/16	1413	X		2	X	X	X
q School St SMPG 18" to 24"	3/18/16	1422	X		2	X	X	X
q School St LGPG 0" to 6"	3/18/16	1450	X		2	X	X	X
q School St LGPG 6" to 12"	3/18/16	1459	X		2	X	X	X
q School St LGPG 12" to 18"	3/18/16	1506	X		2	X	X	X
q School St LGPG 18" to 24"	3/18/16	1520	X		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type III (Reduced non-CLP)

NYSDEC Category A or (B)

Type VI (Raw Data Only)

NJ DKQP

MA MCP

TX TRRP-13

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/18/16	1650			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	3/19/16	0950

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.8 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140007

Group Number(s): 1647382

Client: CT Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/19/2016 9:50
Number of Packages:	4	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	No
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL Na2S2O3 Preserved Poly

Unpacked by Patrick Engle (3472) at 10:46 on 03/19/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	4.8	DT	Wet	Y	Bagged	N
2	DT121	4.5	DT	Wet	Y	Bagged	N
3	DT121	3.1	DT	Wet	Y	Bagged	N
4	DT121	4.2	DT	Wet	Y	Bagged	N

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
Bennington College Garden 6" to 12"	3/18/2016 09:24	No Date on COC
Bennington College Garden 12" to 18"	3/18/2016 09:33	No Date on COC
Bennington College Garden 18" to 24"	3/18/2016 09:44	No Date on COC
Auger Rinse #3	3/18/2016 09:50	No Date on COC
Bowl Rinse #3	3/18/2016 09:55	No Date on COC
9 School st SMPG 18" to 24"	3/18/2016 14:26	Time = 1422 on COC

2425 New Holland Pike
Lancaster, PA 17605-2425
T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: April 01, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/23/2016
Group Number: 1643263
SDG: SGP09
PO Number: 16.6131
State of Sample Origin: VT

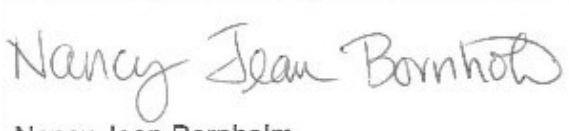
Client Sample Description	Lancaster Labs (LL) #
Pembroke Stockpile 1 Grab Soil	8298601
29 Lever St 0" to 6" Grab Soil	8298602
29 Lever St 6" to 12" Grab Soil	8298603
29 Lever St 12" to 18" Grab Soil	8298604
29 Lever St 18" to 24" Grab Soil	8298605
2009 N Bennington Rd 0" to 6" Grab Soil	8298606
2009 N Bennington Rd 6" to 12" Grab Soil	8298607
2009 N Bennington Rd 12" to 18" Grab Soil	8298608
9 School St Maple Tree 0" to 6" Grab Soil	8298609
9 School St Maple Tree 6" to 12" Grab Soil	8298610
9 School St Maple Tree 12" to 18" Grab Soil	8298611
9 School St NE Corner PL 0" to 6" Grab Soil	8298612
9 School St NE Corner PL 6" to 12" Grab Soil	8298613
9 School St NE Corner PL 12" to 18" Grab Soil	8298614
9 School St NE Corner PL Duplicate Grab Soil	8298615
Auger Rinse #6 Grab Blank Water	8298616
Bowl Rinse #6 Grab Blank Water	8298617
Transport Blank 032216 Water	8298618
WWTP Liquid Grab Sludge	8298619
Pembroke Garden 0" to 6" Grab Soil	8298620
Pembroke Garden 0" to 6" MS Grab Soil	8298621
Pembroke Garden 0" to 6" MSD Grab Soil	8298622
Pembroke Garden 0" to 6" Dupl Grab Soil	8298623
Pembroke Garden 6" to 12" Grab Soil	8298624
Pembroke Garden 12" to 18" Grab Soil	8298625
Pembroke Garden 18" to 24" Grab Soil	8298626
Pembroke Stockpile 2 Grab Soil	8298627

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1643263

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Batch #: 16085004 (Sample number(s): 8298616-8298619 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorohexanesulfonate

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluorooctanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Batch #: 16085005 (Sample number(s): 8298601-8298615, 8298620-8298622, 8298624-8298627 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorohexanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16085049531A (Sample number(s): 8298601-8298609 UNSPK: 8298609 BKG: 8298609)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16085949631A (Sample number(s): 8298620-8298621, 8298623-8298627 UNSPK: 8298620 BKG: 8298620)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16085949631B (Sample number(s): 8298610-8298612 UNSPK: 8298611 BKG: 8298611)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16085949632A (Sample number(s): 8298613-8298614 UNSPK: 8298613 BKG: 8298613)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Sample Description: 9 School St Maple Tree 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298609
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 12:54 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.96	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.28	J	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.31	J	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	1.3		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.96	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	8,790		788	2,370	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	16.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 01:43	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085049531A	03/25/2016 13:50	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 9 School St Maple Tree 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298610
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 13:01 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.50	U	0.50	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.87	U	0.87	2.0	1
14027	Perfluorooctanoic acid	335-67-1	3.1		0.37	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.75	U	0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.75	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	7,530		747	2,240	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	19.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 01:57	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085949631B	03/25/2016 23:46	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 9 School St Maple Tree 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298611
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 13:13 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.97	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.85	U	0.85	1.9	1
14027	Perfluorooctanoic acid	335-67-1	2.9		0.36	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	0.73	U	0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.73	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,340		487	1,460	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	17.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 02:12	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085949631B	03/25/2016 23:54	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 9 School St NE Corner PL 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298612
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 13:33 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.70	U	0.70	2.2	1
14027	Perfluorodecanoic acid	335-76-2	0.28	U	0.28	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.56	U	0.56	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.42	U	0.42	0.84	1
14027	Perfluorohexanesulfonate	355-46-4	0.70	U	0.70	2.2	1
14027	Perfluorohexanoic acid	307-24-4	0.28	U	0.28	0.56	1
14027	Perfluorononanoic acid	375-95-1	0.28	U	0.28	0.56	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.1	J	0.98	2.2	1
14027	Perfluorooctanoic acid	335-67-1	0.88		0.42	0.84	1
14027	Perfluorotetradecanoic acid	376-06-7	0.42	U	0.42	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.84	U	0.84	1.7	1
14027	Perfluoroundecanoic acid	2058-94-8	0.42	U	0.42	0.84	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	26,400		824	2,470	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	28.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 02:54	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085949631B	03/26/2016 00:02	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 9 School St NE Corner PL 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298613
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 13:40 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.58	U	0.58	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.46	U	0.46	0.93	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.58	U	0.58	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.81	U	0.81	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.35	U	0.35	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.93	1
14027	Perfluorotridecanoic acid	72629-94-8	0.70	U	0.70	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.70	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	11,400		460	1,380	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	13.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 03:09	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085949632A	03/27/2016 00:30	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 9 School St NE Corner PL 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298614
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 13:57 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.82	U	0.82	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.75		0.35	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	5,900		322	967	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	15.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 03:23	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16085949632A	03/26/2016 22:20	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 9 School St NE Corner PL Duplicate Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8298615
LL Group # 1643263
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/22/2016 14:00 by LC

Submitted: 03/23/2016 10:00
Reported: 04/01/2016 12:05

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0901 SDG#: SGP09-15FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.91	J	0.83	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.89		0.35	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.71	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	15.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16085005	03/29/2016 03:37	Meng Yu	1
00111	Moisture	SM 2540 G-1997	1	16083820007A	03/23/2016 17:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/01/2016 12:05

Group Number: 1643263

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16085005	Sample number(s): 8298601-8298615,8298620-8298622,8298624-8298627			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16085004	Sample number(s): 8298616-8298619			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16085049531A	Sample number(s): 8298601-8298609			
TOC	100	U	100	300
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627			
TOC	100	U	100	300
Batch number: 16085949631B	Sample number(s): 8298610-8298612			
TOC	100	U	100	300
Batch number: 16085949632A	Sample number(s): 8298613-8298614			
TOC	100	U	100	300

LCS/LCSD

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/01/2016 12:05

Group Number: 1643263

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16085005	Sample number(s): 8298601-8298615,8298620-8298622,8298624-8298627								
Perfluorobutanesulfonate	20	15.48			77		70-130		
Perfluorodecanoic acid	20	18.64			93		70-130		
Perfluorododecanoic acid	20	18.1			91		70-130		
Perfluoroheptanoic acid	20	14.93			75		70-130		
Perfluorohexanesulfonate	20	17.86			89		70-130		
Perfluorohexanoic acid	20	16.82			84		70-130		
Perfluorononanoic acid	20	16.54			83		70-130		
Perfluoro-octanesulfonate	20	16.03			80		70-130		
Perfluorooctanoic acid	20	16.71			84		70-130		
Perfluorotetradecanoic acid	20	19.16			96		70-130		
Perfluorotridecanoic acid	20	17.51			88		70-130		
Perfluoroundecanoic acid	20	18.55			93		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8298616-8298619								
Perfluorooctanoic acid	200	187.69	200	208.39	94	104	70-130	10	30
Perfluorononanoic acid	200	180.81	200	225.92	90	113	70-130	22	30
Perfluorodecanoic acid	200	216.97	200	234.99	108	117	70-130	8	30
Perfluoroundecanoic acid	200	199.88	200	208.01	100	104	70-130	4	30
Perfluorododecanoic acid	200	216.91	200	236.94	108	118	70-130	9	30
Perfluorotridecanoic acid	200	209.67	200	257.49	105	129	70-130	20	30
Perfluorotetradecanoic acid	200	194.48	200	228.2	97	114	70-130	16	30
Perfluorohexanoic acid	200	179.57	200	206.29	90	103	70-130	14	30
Perfluoroheptanoic acid	200	193.13	200	221.2	97	111	70-130	14	30
Perfluorobutanesulfonate	200	143.28	200	144.13	72	72	70-130	1	30
Perfluorohexanesulfonate	200	179.57	200	248.43	90	124	70-130	32*	30
Perfluoro-octanesulfonate	200	152.32	200	187.87	76	94	70-130	21	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16085049531A	Sample number(s): 8298601-8298609								
TOC	5430	4355.58			80		47-143		
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627								
TOC	5430	5303.03			98		47-143		
Batch number: 16085949631B	Sample number(s): 8298610-8298612								
TOC	5430	5303.03			98		47-143		
Batch number: 16085949632A	Sample number(s): 8298613-8298614								
TOC	5430	5633.66			104		47-143		
	%	%	%	%					
Batch number: 16083820007A	Sample number(s): 8298601-8298615,8298620-8298623								
Moisture	89.5	89.47			100		99-101		
Moisture	89.5	89.47			100		99-101		
Moisture Duplicate	89.5	89.47			100		99-101		
Batch number: 16083820007B	Sample number(s): 8298624-8298627								
Moisture	89.5	89.47			100		99-101		

MS/MSD

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/01/2016 12:05

Group Number: 1643263

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16085005	Sample number(s): 8298601-8298615,8298620-8298622,8298624-8298627 UNSPK: 8298620										
Perfluorobutanesulfonate	0.50	U	20	19.77	20	17.06	99	85	70-130	15	30
Perfluorodecanoic acid	0.20	U	20	19.35	20	20.85	97	104	70-130	7	30
Perfluorododecanoic acid	0.40	U	20	19.96	20	20.51	100	103	70-130	3	30
Perfluoroheptanoic acid	0.30	U	20	17.45	20	19.01	87	95	70-130	9	30
Perfluorohexanesulfonate	0.50	U	20	16.01	20	22.29	80	111	70-130	33*	30
Perfluorohexanoic acid	0.20	U	20	20.75	20	19.87	104	99	70-130	4	30
Perfluorononanoic acid	0.285		20	17.53	20	18.76	86	92	70-130	7	30
Perfluoro-octanesulfonate	0.70	U	20	22.25	20	20.85	111	104	70-130	7	30
Perfluorooctanoic acid	0.621		20	20.15	20	21.78	98	106	70-130	8	30
Perfluorotetradecanoic acid	0.30	U	20	18.9	20	22.87	95	114	70-130	19	30
Perfluorotridecanoic acid	0.60	U	20	20.16	20	18.01	101	90	70-130	11	30
Perfluoroundecanoic acid	0.30	U	20	19.31	20	21.05	97	105	70-130	9	30
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8298616-8298619 UNSPK: 8298619										
Perfluorooctanoic acid	353.46		200	264.76			-43*		70-130		
Perfluorononanoic acid	11.77		200	212.06			100		70-130		
Perfluorodecanoic acid	4	U	200	202.02			101		70-130		
Perfluoroundecanoic acid	7.24		200	217.48			105		70-130		
Perfluorododecanoic acid	10	U	200	196.94			98		70-130		
Perfluorotridecanoic acid	8	U	200	175.4			88		70-130		
Perfluorotetradecanoic acid	10	U	200	124.3			62*		70-130		
Perfluorohexanoic acid	4	U	200	283.38			142*		70-130		
Perfluoroheptanoic acid	32.94		200	220.71			94		70-130		
Perfluorobutanesulfonate	20	U	200	142.26			71		70-130		
Perfluorohexanesulfonate	20	U	200	402			201*		70-130		
Perfluoro-octanesulfonate	20	U	200	277.75			139*		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16085049531A	Sample number(s): 8298601-8298609 UNSPK: 8298609										
TOC	7316.27		36330	38474.58			86		47-143		
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627 UNSPK: 8298620										
TOC	9011.75		15840	20898.05			75		47-143		
Batch number: 16085949631B	Sample number(s): 8298610-8298612 UNSPK: 8298611										
TOC	5226.63		40053	55767.69			126		47-143		
Batch number: 16085949632A	Sample number(s): 8298613-8298614 UNSPK: 8298613										
TOC	9810.05		17104	26157.35			96		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16085049531A	Sample number(s): 8298601-8298609 BKG: 8298609			

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1643263
Reported: 04/01/2016 12:05

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
TOC	7316.27	3693.5	66* (1)	7
Batch number: 16085949631A	Sample number(s): 8298620-8298621,8298623-8298627 BKG: 8298620			
TOC	9011.75	7631.15	17*	7
Batch number: 16085949631B	Sample number(s): 8298610-8298612 BKG: 8298611			
TOC	5226.63	4793.28	9* (1)	7
Batch number: 16085949632A	Sample number(s): 8298613-8298614 BKG: 8298613			
TOC	9810.05	9008.73	9*	7
	%	%		
Batch number: 16083820007A	Sample number(s): 8298601-8298615,8298620-8298623 BKG: 8298620, P298620			
Moisture	17.39	17.01	2	5
Moisture	17.39	17.01	2	5
Moisture Duplicate	17.39	17.01	2	5
Batch number: 16083820007B	Sample number(s): 8298624-8298627 BKG: 8298626			
Moisture	14.71	14.87	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1643263 Sample # 8298601-27

COC # 493490

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested — Preservation Codes

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EDA S37	TOC	Moisture
Pembroke Stockpile 1	3/22/16	0925		X	2	X	X	X
29 Lever St 0" to 6"	3/22/16	1030	X		2	X	X	X
29 Lever St 6" to 12"	3/22/16	1040	X		2	X	X	X
29 Lever St 12" to 18"	3/22/16	1050	X		2	X	X	X
29 Lever St 18" to 24"	3/22/16	1100	X		2	X	X	X
2009 N. Bennington Rd 0"to6"	3/22/16	1131	X		2	X	X	X
2009 N. Bennington Rd 6"to 12"	3/22/16	1137	X		2	X	X	X
2009 N. Bennington Rd 12"to 18"	3/22/16	1153	X		2	X	X	X
9 School St Maple Tree 0"to6"	3/22/16	1254	X		2	X	X	X
9 School St Mple Tree 6"to12"	3/22/16	1301	X		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/22/16	17:00			
			[signature]	3/23/16	1000

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx X Other ____

Temperature upon receipt 2.9 / 3.9 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643763 Sample # 8298601-27

COC # 493362

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Sol Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Lorene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ | Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ | Other: Liquid Sludge

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Sediment	Soil	Ground Water	Potable Water	Surface Water	NPDES Water	Other: Liquid Sludge	Total # of Containers	EPA 537	TOC	Moisture	EPA 537	Remarks
9 School St Maple Tree 12" to 18"	3/22/16	1313	X			X						2	X	X	X		
9 School St NE Corner PL 0" to 6"	3/22/16	1333	X			X						2	X	X	X		
9 School St NE Corner PL 6" to 12"	3/22/16	1340	X			X						2	X	X	X		
9 School St NE Corner PL 12" to 18"	3/22/16	1357	X			X						2	X	X	X		
9 School St NE Corner PL Duplicate	3/22/16	1400	X			X						1	X				
Auger Rinse #6	3/22/16	1410	X					X				2				X	Lab DI Water
Bowl Rinse #6	3/22/16	1412	X					X				2				X	Lab DI Water
Transport Blank 032216	3/18/16	—	X					X				1				X	Lab supplied
WWTF Liquid Sludge	3/22/16	1435	X								X	2				X	
Pembroke Garden 0" to 6"	3/22/16	1500	X			X						4	X	X	X		MS/MSD Here

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 Day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type VI (Raw Data Only)

Type III (Reduced non-CLP)

NJ DKQP

TX TRRP-13

NYSDEC Category A or (B)

MA MCP

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Lorene Cameron	3/22/16	17:00			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
			[illegible]	3/23/16	1000

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 2.9 / 3.9 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1643763 Sample # 8298601-27

COC # 493363

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected:	For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil	Sediment	Water: Ground	Potable	NPDES	Surface	Other:	Total # of Containers	Analysis Requested: EPA 537	TOC	Moisture
Pembroke Garden 6" to 12"	3/22/16	1506	X		X							2	X	X	X
Pembroke Garden 12" to 18"	3/22/16	1512	X		X							2	X	X	X
Pembroke Garden 18" to 24"	3/22/16	1520	X		X							2	X	X	X
Pembroke Stockpile 2	3/22/16	1538	X		X							2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/24/16	17:00			
			Kristen Abel	3/25/16	1005

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx X Other

Temperature upon receipt 2.9 / 3.9 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 140307

Group Number(s): 1643263

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/23/2016 10:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	1
Samples Intact:	No	Trip Blank Type:	Na2S2O3
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:00 on 03/23/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.9	DT	Wet	Y	Bagged	N
2	DT146	3.9	DT	Wet	Y	Bagged	N

Samples Not Intact Details

Sample ID on Label	Bottle Code	Bottle Quantity	Container Salvageable?	Comments
2009 N. Bennington Rd 6" to 12	125 ml wide mouth glass - None	1	N	subsampled for TOC/moist.

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
F 717-656-2681
www.LancasterLabs.cor

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 29, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/22/2016
Group Number: 1642988
SDG: SGP07
PO Number: 16.6131
State of Sample Origin: VT

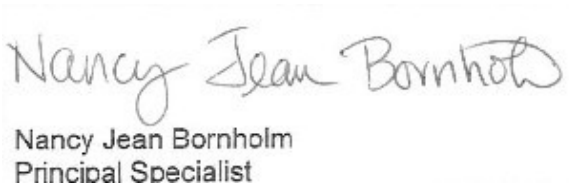
Client Sample Description	Lancaster Labs (LL) #
Asa Way Vac Lot 0" to 6" Grab Soil	8297354
Asa Way Vac Lot 6" to 12" Grab Soil	8297355
Asa Way Vac Lot 12" to 18" Grab Soil	8297356
Asa Way Vac Lot 18" to 24" Grab Soil	8297357
Auger Rinse #4 Grab Blank Water	8297358
Bowl Rinse #4 Grab Blank Water	8297359
Transport Blank 032116 Water	8297360
26 Susan Taylor 0" to 6" Grab Soil	8297361
26 Susan Taylor 0" to 6" MS Grab Soil	8297362
26 Susan Taylor 0" to 6" MSD Grab Soil	8297363
26 Susan Taylor 0" to 6" Dupl Grab Soil	8297364
26 Susan Taylor Duplicate Grab Soil	8297365
26 Susan Taylor 6" to 12" Grab Soil	8297366
26 Susan Taylor 12" to 18" Grab Soil	8297367
26 Susan Taylor 18" to 24" Grab Soil	8297368
10 Scarey Ln 0" to 6" Grab Soil	8297369
10 Scarey Ln 6" to 12" Grab Soil	8297370
10 Scarey Ln 12" to 18" Grab Soil	8297371
10 Scarey Ln 18" to 24" Grab Soil	8297372
26 Scarey Ln 0" to 6" Grab Soil	8297373
26 Scarey Ln 6" to 12" Grab Soil	8297374
8 Polygraphic Ln 0" to 6" Grab Soil	8297375

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1642988

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8297358, 8297359, 8297360
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083003 (Sample number(s): 8297358-8297360)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

Batch #: 16084007 (Sample number(s): 8297354-8297357, 8297361-8297363, 8297365-8297375 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluoro-octanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16084949631A (Sample number(s): 8297355-8297357 UNSPK: P294196 BKG: P294196)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16084949631B (Sample number(s): 8297354, 8297361-8297362, 8297364, 8297366-8297372 UNSPK: 8297361 BKG: 8297361)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16083820002A (Sample number(s): 8297354-8297357 BKG: 8297355)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: 26 Susan Taylor 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297361
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 10:05 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0708 SDG#: SGP07-08BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.58		0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.50	U	0.50	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.87	U	0.87	2.0	1
14027	Perfluorooctanoic acid	335-67-1	0.63	J	0.37	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.75	U	0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.39	J	0.37	0.75	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,850		248	745	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	19.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 06:17	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631B	03/24/2016 15:37	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 26 Susan Taylor 0" to 6" MS Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297362
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 10:05 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0708 SDG#: SGP07-08MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	21	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	26	0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	23	0.50	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	25	0.37	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	31	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	21	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	22	0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	32	0.87	2.0	1
14027	Perfluorooctanoic acid	335-67-1	22	0.37	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	26	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	20	0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	23	0.37	0.75	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	15,700	415	1,240	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	19.5	0.50	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 06:31	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631B	03/24/2016 22:04	James S Mathiot	1
00118	Moisture	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 26 Susan Taylor 0" to 6" MSD Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297363
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 10:05 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0708 SDG#: SGP07-08MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	23	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	25	0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	23	0.50	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	25	0.37	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	25	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	20	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	23	0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	18	0.87	2.0	1
14027	Perfluorooctanoic acid	335-67-1	24	0.37	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	21	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	18	0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	21	0.37	0.75	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	Moisture	n.a.	19.5	0.50	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 06:45	Jason W Knight	1
00118	Moisture	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 26 Susan Taylor 0" to 6" Dupl Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297364
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 10:05 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0708 SDG#: SGP07-08DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	7,460	219	656	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	19.5	0.50	0.50	1
00121	Moisture Duplicate	n.a.	18.8	0.50	0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	16084949631B	03/24/2016 15:53	Clinton M Wilson	1
00118	Moisture	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1
00121	Moisture Duplicate	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 26 Susan Taylor Duplicate Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297365
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 10:10 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0709 SDG#: SGP07-09FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.58	U	0.58	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.46	U	0.46	0.92	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.58	U	0.58	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.81	U	0.81	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.71		0.35	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.92	1
14027	Perfluorotridecanoic acid	72629-94-8	0.69	U	0.69	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.69	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	13.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 07:57	Jason W Knight	1
00111	Moisture	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 26 Susan Taylor 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297366
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 10:13 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0710 SDG#: SGP07-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.25	J	0.24	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.82	U	0.82	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.86		0.35	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	1,600		233	698	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	14.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 08:25	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631B	03/24/2016 16:02	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 26 Susan Taylor 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297367
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 10:20 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0711 SDG#: SGP07-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	1.8		0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	1.3		0.49	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.41	J	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.2	J	0.87	2.0	1
14027	Perfluorooctanoic acid	335-67-1	1.5		0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.51	J	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.90		0.37	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	14,200		288	864	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	19.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 08:39	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631B	03/24/2016 16:09	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 26 Susan Taylor 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8297368
LL Group # 1642988
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/21/2016 10:26 by LC

Submitted: 03/22/2016 09:45
Reported: 03/29/2016 11:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P0712 SDG#: SGP07-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.54		0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.96	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.45	J	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	1.6		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.96	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,590		253	758	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	16.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16084007	03/28/2016 08:54	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16084949631B	03/24/2016 16:16	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16083820002B	03/23/2016 10:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 11:29

Group Number: 1642988

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16084007	Sample number(s): 8297354-8297357,8297361-8297363,8297365-8297375			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8297358-8297360			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16084949631A	Sample number(s): 8297355-8297357			
TOC	100	U	100	300
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372			
TOC	100	U	100	300
Batch number: 16084949632A	Sample number(s): 8297373-8297375			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 11:29

Group Number: 1642988

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16084007	Sample number(s): 8297354-8297357,8297361-8297363,8297365-8297375								
Perfluorobutanesulfonate	20	17.26			86		70-130		
Perfluorodecanoic acid	20	19.11			96		70-130		
Perfluorododecanoic acid	20	18.17			91		70-130		
Perfluoroheptanoic acid	20	18.61			93		70-130		
Perfluorohexanesulfonate	20	14.91			75		70-130		
Perfluorohexanoic acid	20	16.77			84		70-130		
Perfluorononanoic acid	20	17.99			90		70-130		
Perfluoro-octanesulfonate	20	20.89			104		70-130		
Perfluorooctanoic acid	20	16.59			83		70-130		
Perfluorotetradecanoic acid	20	19.73			99		70-130		
Perfluorotridecanoic acid	20	15.69			78		70-130		
Perfluoroundecanoic acid	20	17.08			85		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16083003	Sample number(s): 8297358-8297360								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949631A	Sample number(s): 8297355-8297357								
TOC	5430	2743.93			51		47-143		
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372								
TOC	5430	2743.93			51		47-143		
Batch number: 16084949632A	Sample number(s): 8297373-8297375								
TOC	5430	4448.16			82		47-143		
	%	%	%	%					
Batch number: 16083820002A	Sample number(s): 8297354-8297357								
Moisture	89.5	89.47			100		99-101		
Batch number: 16083820002B	Sample number(s): 8297361-8297375								
Moisture	89.5	89.47			100		99-101		
Moisture	89.5	89.47			100		99-101		
Moisture Duplicate	89.5	89.47			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/29/2016 11:29

Group Number: 1642988

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16084007	Sample number(s): 8297354-8297357,8297361-8297363,8297365-8297375 UNSPK: 8297361									
Perfluorobutanesulfonate	0.50 U	20	16.77	20	18.36	84	92	70-130	9	30
Perfluorodecanoic acid	0.468	20	20.97	20	19.73	103	96	70-130	6	30
Perfluorododecanoic acid	0.40 U	20	18.68	20	18.77	93	94	70-130	0	30
Perfluoroheptanoic acid	0.30 U	20	19.82	20	20.51	99	103	70-130	3	30
Perfluorohexanesulfonate	0.50 U	20	24.58	20	20.13	123	101	70-130	20	30
Perfluorohexanoic acid	0.20 U	20	16.91	20	16.34	85	82	70-130	3	30
Perfluorononanoic acid	0.20 U	20	17.45	20	18.3	87	91	70-130	5	30
Perfluoro-octanesulfonate	0.70 U	20	25.38	20	14.58	127	73	70-130	54*	30
Perfluorooctanoic acid	0.511	20	17.68	20	19.66	86	96	70-130	11	30
Perfluorotetradecanoic acid	0.30 U	20	20.6	20	16.83	103	84	70-130	20	30
Perfluorotridecanoic acid	0.60 U	20	16.16	20	14.25	81	71	70-130	13	30
Perfluoroundecanoic acid	0.312	20	18.17	20	17.26	89	85	70-130	5	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16084949631A	Sample number(s): 8297355-8297357 UNSPK: P294196									
TOC	5817.55	14790	19743.46			94		47-143		
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372 UNSPK: 8297361									
TOC	5512	10007	12605.07			71		47-143		
Batch number: 16084949632A	Sample number(s): 8297373-8297375 UNSPK: P297411									
TOC	14599.68	13593	24218.4			71		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16084949631A	Sample number(s): 8297355-8297357 BKG: P294196			
TOC	5817.55	3166.37	59*	7
Batch number: 16084949631B	Sample number(s): 8297354,8297361-8297362,8297364,8297366-8297372 BKG: 8297361			
TOC	5512	6002.81	9*	7
Batch number: 16084949632A	Sample number(s): 8297373-8297375 BKG: P297411			
TOC	14599.68	15419.66	5	7
	%	%		
Batch number: 16083820002A	Sample number(s): 8297354-8297357 BKG: 8297355			
Moisture	17.48	16.51	6*	5
Batch number: 16083820002B	Sample number(s): 8297361-8297375 BKG: 8297361, P297361			
Moisture	19.48	18.8	4	5
Moisture	19.48	18.8	4	5
Moisture Duplicate	19.48	18.8	4	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 3719 Group # 1642788 Sample # 879354-75

COC # 493463

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ | Water: Ground ☐ Potable ☐ NPDES ☐ Surface ☐ | Other: ____

Analysis Requested

Preservation Codes: O

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	EPA 537	Remarks
Asa Way Vacant Lot 0" to 6"	3/21/16	0907	X		2	X	X	X		
Asa Way Vacant Lot 6" to 12"	3/21/16	0913	X		2	X	X	X		
Asa Way Vacant Lot 12" to 18"	3/21/16	0925	X		2	X	X	X		
Asa Way Vacant Lot 18" to 24"	3/21/16	0931	X		2	X	X	X		
~~Asa Way Vacant Lot~~										
Auger Rinse # 4	3/21/16	0938	X		2				X	Lab DI Water
Bowl Rinse # 4	3/21/16	0935	X		2				X	Lab DI Water
Transport Blank 032116	3/16/16	—	X		1				X	Lab Supplied
26 Susan Taylor 0" to 6"	3/21/16	1005	X		4	X	X	X		MS/MSD here
26 Susan Taylor Duplicate	3/21/16	1010	X		1	X				

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type III (Reduced non-CLP)

NYSDEC Category A or B

Type VI (Raw Data Only)

NJ DKQP

MA MCP

TX TRRP-13

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/21/16	1655			
			Kristal Abel	3/22/16	0945

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 4.5 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1642988 Sample # 8297354-75

COC # 493361

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16-6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested

Preservation Codes

Preservation Codes: H=HCl, T=Thiosulfate, N=HNO_3, B=NaOH, S=H_2SO_4, O=Other

For Lab Use Only: FSC: ____ SCR#: ____

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	Remarks
26 Susan Taylor 6" to 12"	3/21/16	1013	X		2	X	X	X	
26 Susan Taylor 12" to 18"	3/21/16	1026	X		2	X	X	X	
26 Susan Taylor 18" to 24"	3/21/16	1026	X		2	X	X	X	
10 Scarey Ln 0" to 6"	3/21/16	1055	X		2	X	X	X	
10 Scarey Ln 6" to 12"	3/21/16	1101	X		2	X	X	X	
10 Scarey Ln 12" to 18"	3/21/16	1114	X		2	X	X	X	
10 Scarey Ln 18" to 24"	3/21/16	1125	X		2	X	X	X	
26 Scarey Ln WH 0" to 6"	3/21/16	1231	X		2	X	X	X	
26 Scarey Ln WH 6" to 12"	3/21/16	1240	X		2	X	X	X	
8 Polygraphic Ln 0" to 6"	3/21/16	1333	X		2	X	X	X	

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: k.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/21/16	1655			
			Krista Abel	3/22/16	0945

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 4.5 / 5.4 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 140176

Group Number(s): 1642988

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/22/2016 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Na2S2O3
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:32 on 03/22/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	5.1	DT	Wet	Y	Bagged	N
2	DT146	4.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T : 717-656-2300
F : 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: March 28, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/18/2016
Group Number: 1641935
SDG: SGP04
PO Number: 16.6131
State of Sample Origin: VT

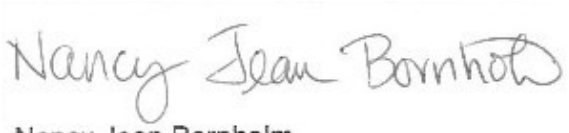
Client Sample Description	Lancaster Labs (LL) #
37 Susan Taylor 0-6" Grab Soil	8291949
37 Susan Taylor 6"-12" Grab Soil	8291950
37 Susan Taylor 12"-18" Grab Soil	8291951
37 Susan Taylor Garden 0-6" Grab Soil	8291952
37 Susan Taylor Garden 6"-12" Grab Soil	8291953
37 Susan Taylor Garden 12"-18" Grab Soil	8291954
37 Susan Taylor Garden 18"-24" Grab Soil	8291955
Bowl Rinse Blank #1 Water	8291956

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1641935

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8291956

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16083002 (Sample number(s): 8291949-8291955 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorobutanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluoro-octanesulfonate

Batch #: 16083003 (Sample number(s): 8291956)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluorotetradecanoic acid

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16080049531B (Sample number(s): 8291949-8291955 UNSPK: 8291955 BKG: 8291955)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Sample Description: 37 Susan Taylor 0-6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291949
LL Group # 1641935
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 10:30 by LC

Submitted: 03/18/2016 09:30
Reported: 03/28/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

37S-1 SDG#: SGP04-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.71	U	0.71	2.3	1
14027	Perfluorodecanoic acid	335-76-2	2.2		0.29	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.81	J	0.57	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.43	U	0.43	0.86	1
14027	Perfluorohexanesulfonate	355-46-4	0.71	U	0.71	2.3	1
14027	Perfluorohexanoic acid	307-24-4	0.29	U	0.29	0.57	1
14027	Perfluorononanoic acid	375-95-1	0.81		0.29	0.57	1
14027	Perfluoro-octanesulfonate	1763-23-1	3.3		1.0	2.3	1
14027	Perfluorooctanoic acid	335-67-1	5.8		0.43	0.86	1
14027	Perfluorotetradecanoic acid	376-06-7	0.43	U	0.43	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.86	U	0.86	1.7	1
14027	Perfluoroundecanoic acid	2058-94-8	0.96		0.43	0.86	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	34,700		1,510	4,530	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	30.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083002	03/27/2016 15:07	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531B	03/21/2016 00:03	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006A	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 37 Susan Taylor 6"-12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291950
LL Group # 1641935
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 10:45 by LC

Submitted: 03/18/2016 09:30
Reported: 03/28/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

37S-2 SDG#: SGP04-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.63	U	0.63	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.63	U	0.63	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.28	J	0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.89	U	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	3.5		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.76	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	5,930		518	1,560	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083002	03/27/2016 16:04	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531B	03/21/2016 00:11	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006A	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 37 Susan Taylor 12"-18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291951
LL Group # 1641935
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 10:55 by LC

Submitted: 03/18/2016 09:30
Reported: 03/28/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

37S-3 SDG#: SGP04-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.29	J	0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.50	U	0.50	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.87	U	0.87	2.0	1
14027	Perfluorooctanoic acid	335-67-1	2.5		0.37	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.75	U	0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.75	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,100		547	1,640	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	19.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083002	03/27/2016 16:18	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531B	03/21/2016 00:24	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006A	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 37 Susan Taylor Garden 0-6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291952
LL Group # 1641935
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 11:15 by LC

Submitted: 03/18/2016 09:30
Reported: 03/28/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

37SG1 SDG#: SGP04-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.73	U	0.73	2.3	1
14027	Perfluorodecanoic acid	335-76-2	0.29	U	0.29	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.59	U	0.59	1.2	1
14027	Perfluoroheptanoic acid	375-85-9	0.44	U	0.44	0.88	1
14027	Perfluorohexanesulfonate	355-46-4	0.73	U	0.73	2.3	1
14027	Perfluorohexanoic acid	307-24-4	0.29	U	0.29	0.59	1
14027	Perfluorononanoic acid	375-95-1	0.29	U	0.29	0.59	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.0	U	1.0	2.3	1
14027	Perfluorooctanoic acid	335-67-1	8.2		0.44	0.88	1
14027	Perfluorotetradecanoic acid	376-06-7	0.44	U	0.44	1.2	1
14027	Perfluorotridecanoic acid	72629-94-8	0.88	U	0.88	1.8	1
14027	Perfluoroundecanoic acid	2058-94-8	0.44	U	0.44	0.88	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	48,600		1,560	4,680	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	31.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083002	03/27/2016 16:32	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531B	03/21/2016 00:32	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006A	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 37 Susan Taylor Garden 6"-12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291953
LL Group # 1641935
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 11:20 by LC

Submitted: 03/18/2016 09:30
Reported: 03/28/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

37SG2 SDG#: SGP04-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.68	U	0.68	2.2	1
14027	Perfluorodecanoic acid	335-76-2	0.27	U	0.27	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.55	U	0.55	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.41	U	0.41	0.82	1
14027	Perfluorohexanesulfonate	355-46-4	0.68	U	0.68	2.2	1
14027	Perfluorohexanoic acid	307-24-4	0.27	U	0.27	0.55	1
14027	Perfluorononanoic acid	375-95-1	0.27	U	0.27	0.55	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.95	U	0.95	2.2	1
14027	Perfluorooctanoic acid	335-67-1	7.3		0.41	0.82	1
14027	Perfluorotetradecanoic acid	376-06-7	0.41	U	0.41	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.82	U	0.82	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.41	U	0.41	0.82	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	31,900		1,550	4,640	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	26.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083002	03/27/2016 16:46	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531B	03/21/2016 00:49	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006A	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 37 Susan Taylor Garden 12"-18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291954
LL Group # 1641935
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 11:25 by LC

Submitted: 03/18/2016 09:30
Reported: 03/28/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

37SG3 SDG#: SGP04-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.65	U	0.65	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.52	U	0.52	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.39	U	0.39	0.79	1
14027	Perfluorohexanesulfonate	355-46-4	0.65	U	0.65	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.26	U	0.26	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.92	U	0.92	2.1	1
14027	Perfluorooctanoic acid	335-67-1	5.2		0.39	0.79	1
14027	Perfluorotetradecanoic acid	376-06-7	0.39	U	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.79	U	0.79	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.39	U	0.39	0.79	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	26,800		1,480	4,450	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	23.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083002	03/27/2016 17:01	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531B	03/21/2016 01:02	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006A	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: 37 Susan Taylor Garden 18"-24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8291955
LL Group # 1641935
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/16/2016 11:35 by LC

Submitted: 03/18/2016 09:30
Reported: 03/28/2016 17:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

37SG4 SDG#: SGP04-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.86	U	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	2.9		0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	12,600		873	2,620	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	19.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16083002	03/27/2016 17:15	Meng Yu	1
02079	TOC	SM 5310 B modified-2000	1	16080049531B	03/21/2016 01:40	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16078820006A	03/18/2016 17:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1641935
Reported: 03/28/2016 17:54

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16083002	Sample number(s): 8291949-8291955			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16083003	Sample number(s): 8291956			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16080049531B	Sample number(s): 8291949-8291955			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16083002	Sample number(s): 8291949-8291955								
Perfluorobutanesulfonate	20	17.83			89		70-130		
Perfluorodecanoic acid	20	20			100		70-130		
Perfluorododecanoic acid	20	18.89			94		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/28/2016 17:54

Group Number: 1641935

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoroheptanoic acid	20	21.57			108		70-130		
Perfluorohexanesulfonate	20	14.52			73		70-130		
Perfluorohexanoic acid	20	18.9			95		70-130		
Perfluorononanoic acid	20	18.73			94		70-130		
Perfluoro-octanesulfonate	20	15.06			75		70-130		
Perfluorooctanoic acid	20	18.66			93		70-130		
Perfluorotetradecanoic acid	20	22.83			114		70-130		
Perfluorotridecanoic acid	20	15.49			77		70-130		
Perfluoroundecanoic acid	20	17.32			87		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 16083003	Sample number(s): 8291956								
Perfluorooctanoic acid	200	158.79	200	164.69	79	82	70-130	4	30
Perfluorononanoic acid	200	175.54	200	177.17	88	89	70-130	1	30
Perfluorodecanoic acid	200	166.19	200	185.55	83	93	70-130	11	30
Perfluoroundecanoic acid	200	154.44	200	177.82	77	89	70-130	14	30
Perfluorododecanoic acid	200	155.97	200	162.82	78	81	70-130	4	30
Perfluorotridecanoic acid	200	153.94	200	174.17	77	87	70-130	12	30
Perfluorotetradecanoic acid	200	135.77	200	161.76	68*	81	70-130	17	30
Perfluorohexanoic acid	200	167.01	200	192.63	84	96	70-130	14	30
Perfluoroheptanoic acid	200	163.32	200	174.98	82	87	70-130	7	30
Perfluorobutanesulfonate	200	154.06	200	134.09	77	67*	70-130	14	30
Perfluorohexanesulfonate	200	175.69	200	134.65	88	67*	70-130	26	30
Perfluoro-octanesulfonate	200	157.8	200	202.55	79	101	70-130	25	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 16080049531B	Sample number(s): 8291949-8291955								
TOC	5430	4492.52			83		47-143		
	%	**%**	**%**	**%**					
Batch number: 16078820006A	Sample number(s): 8291949-8291955								
Moisture	89.5	89.43			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16083002	Sample number(s): 8291949-8291955 UNSPK: 8291949									
Perfluorobutanesulfonate	0.50 U	20	15.7	20	13.18	79	66*	70-130	17	30
Perfluorodecanoic acid	1.56	20	23.08	20	20.53	108	95	70-130	12	30
Perfluorododecanoic acid	0.569	20	20.94	20	20.78	102	101	70-130	1	30
Perfluoroheptanoic acid	0.30 U	20	24.61	20	23.65	123	118	70-130	4	30
Perfluorohexanesulfonate	0.50 U	20	23.25	20	19.66	116	98	70-130	17	30
Perfluorohexanoic acid	0.20 U	20	21.01	20	18.82	105	94	70-130	11	30
Perfluorononanoic acid	0.565	20	22.63	20	22.78	110	111	70-130	1	30
Perfluoro-octanesulfonate	2.28	20	18.69	20	25.51	82	116	70-130	31*	30
Perfluorooctanoic acid	4.03	20	22.63	20	25.71	93	108	70-130	13	30
Perfluorotetradecanoic acid	0.30 U	20	23.95	20	25.01	120	125	70-130	4	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/28/2016 17:54

Group Number: 1641935

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	0.60 U	20	22	20	21.93	110	110	70-130	0	30
Perfluoroundecanoic acid	0.674	20	19.92	20	22.61	96	110	70-130	13	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 16080049531B	Sample number(s): 8291949-8291955 UNSPK: 8291955									
TOC	10190.95	63025	73004.2			100		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	**mg/kg**		
Batch number: 16080049531B	Sample number(s): 8291949-8291955 BKG: 8291955			
TOC	10190.95	8322.98	20* (1)	7
	%	**%**		
Batch number: 16078820006A	Sample number(s): 8291949-8291955 BKG: P291314			
Moisture	15.16	15	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1641935 Sample # 8291949-56

COC # 493351

Client Information

Client: CT Male

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☐ Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Water ☐ Other: ____

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#: 185723

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	Moisture % & TDC	Remarks
37 Susan Taylor 0-6"	3/16/16	10:30	✓		2	1	1	Lawn Area
6"-12"	3/16/16	10:45	✓		2	1	1	" "
12"-18"	3/16/16	10:55	✓		2	1	1	" "
~~LC 18"-24"~~	~~3/16/16~~		✓		~~2~~	~~1~~	~~1~~	
37 Susan Taylor Garden 0-6"	3/16/16	~~11:10~~ 11:15	✓		2	1	1	Garden
6"-12"	3/16/16	11:20	✓		2	1	1	" ~~LC~~
12"-18"	3/16/16	11:29	✓		2	1	1	"
18"-24"	3/16/16	11:35	✓		2	1	1	"
Bowl Rinse Blank #1	3/16/16	17:44			2	2		Lab Di

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 Day

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or (B) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Kirk Moline	3-11-16	1405	Larene Cameron	3-11-16	1405
Larene Cameron	3/17/16	07:33	Jeff Map	3/17/16	0733
			Kristie Abel	3/18/16	0830

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 2.2 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 139859

Group Number(s): 1641935

Client: CT Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/18/2016 9:30
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	NaS2O4
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 10:22 on 03/18/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.2	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: April 12, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/25/2016
Group Number: 1644163
SDG: SGP11
PO Number: 16.6131
State of Sample Origin: VT

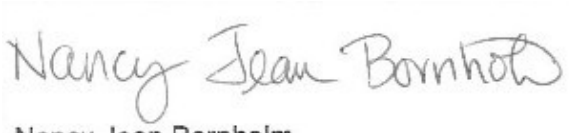
Client Sample Description	Lancaster Labs (LL) #
ChemFab Vent W 0" to 6" Grab Soil	8303038
ChemFab Vent W 6" to 12" Grab Soil	8303039
ChemFab Vent W 12" to 18" Grab Soil	8303040
ChemFab Vent W 18" to 24" Grab Soil	8303041
Pkng Lot W Paran Creek 0" to 6" Grab Soil	8303042
Pkng Lot W Paran Creek 6" to 12" Grab Soil	8303043
Pkng Lot W Paran Creek 12" to 18" Grab Soil	8303044
Pkng Lot W Paran Creek 18" to 24" Grab Soil	8303045
Transport Blank 334008 Blank Water	8303046

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1644163

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Batch #: 16085004 (Sample number(s): 8303046 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorohexanesulfonate

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluorooctanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Batch #: 16089004 (Sample number(s): 8303038-8303045 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorotetradecanoic acid, Perfluoroheptanoic acid

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16090049531A (Sample number(s): 8303038-8303045 UNSPK: 8303039 BKG: 8303039)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Sample Description: Pkng Lot W Paran Creek 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8303042
LL Group # 1644163
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/24/2016 10:12 by LC

Submitted: 03/25/2016 09:35
Reported: 04/12/2016 11:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1205 SDG#: SGP11-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.59		0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.98	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.27	J	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.2	J	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	0.37	U	0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.48	J	0.37	0.98	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.58	J	0.37	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	15,900		573	1,720	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16089004	04/10/2016 05:49	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16090049531A	03/30/2016 13:49	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16085820003A	03/25/2016 19:28	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Pkng Lot W Paran Creek 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8303043
LL Group # 1644163
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/24/2016 10:26 by LC

Submitted: 03/25/2016 09:35
Reported: 04/12/2016 11:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1206 SDG#: SGP11-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.77		0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.26	J	0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.2	J	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	1.3		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.44	J	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.46	J	0.38	0.76	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	13,200		618	1,850	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16089004	04/10/2016 06:07	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16090049531A	03/30/2016 14:05	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16085820003A	03/25/2016 19:28	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Pkng Lot W Paran Creek 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8303044
LL Group # 1644163
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/24/2016 10:38 by LC

Submitted: 03/25/2016 09:35
Reported: 04/12/2016 11:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1207 SDG#: SGP11-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.46	U	0.46	0.91	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.80	U	0.80	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.34	U	0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.91	1
14027	Perfluorotridecanoic acid	72629-94-8	0.68	U	0.68	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	3,380		280	841	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	12.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16089004	04/10/2016 06:25	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16090049531A	03/30/2016 14:20	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16085820003A	03/25/2016 19:28	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Pkng Lot W Paran Creek 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8303045
LL Group # 1644163
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/24/2016 10:50 by LC

Submitted: 03/25/2016 09:35
Reported: 04/12/2016 11:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1208 SDG#: SGP11-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.98	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.86	U	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	0.60	J	0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.98	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	7,820		410	1,230	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16089004	04/10/2016 07:00	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16090049531A	03/30/2016 14:36	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16085820003A	03/25/2016 19:28	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/12/2016 11:54

Group Number: 1644163

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16089004	Sample number(s): 8303038-8303045			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16085004	Sample number(s): 8303046			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16090049531A	Sample number(s): 8303038-8303045			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16089004	Sample number(s): 8303038-8303045								
Perfluorobutanesulfonate	20	23.85			119		70-130		
Perfluorodecanoic acid	20	17.41			87		70-130		
Perfluorododecanoic acid	20	18.41			92		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/12/2016 11:54

Group Number: 1644163

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoroheptanoic acid	20	15.88			79		70-130		
Perfluorohexanesulfonate	20	17.52			88		70-130		
Perfluorohexanoic acid	20	17.65			88		70-130		
Perfluorononanoic acid	20	15.78			79		70-130		
Perfluoro-octanesulfonate	20	18.43			92		70-130		
Perfluorooctanoic acid	20	16.98			85		70-130		
Perfluorotetradecanoic acid	20	18.97			95		70-130		
Perfluorotridecanoic acid	20	15.04			75		70-130		
Perfluoroundecanoic acid	20	19.2			96		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 16085004	Sample number(s): 8303046								
Perfluorooctanoic acid	200	187.69	200	208.39	94	104	70-130	10	30
Perfluorononanoic acid	200	180.81	200	225.92	90	113	70-130	22	30
Perfluorodecanoic acid	200	216.97	200	234.99	108	117	70-130	8	30
Perfluoroundecanoic acid	200	199.88	200	208.01	100	104	70-130	4	30
Perfluorododecanoic acid	200	216.91	200	236.94	108	118	70-130	9	30
Perfluorotridecanoic acid	200	209.67	200	257.49	105	129	70-130	20	30
Perfluorotetradecanoic acid	200	194.48	200	228.2	97	114	70-130	16	30
Perfluorohexanoic acid	200	179.57	200	206.29	90	103	70-130	14	30
Perfluoroheptanoic acid	200	193.13	200	221.2	97	111	70-130	14	30
Perfluorobutanesulfonate	200	143.28	200	144.13	72	72	70-130	1	30
Perfluorohexanesulfonate	200	179.57	200	248.43	90	124	70-130	32*	30
Perfluoro-octanesulfonate	200	152.32	200	187.87	76	94	70-130	21	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 16090049531A	Sample number(s): 8303038-8303045								
TOC	5430	4176.44			77		47-143		
	%	**%**	**%**	**%**					
Batch number: 16085820003A	Sample number(s): 8303038-8303045								
Moisture	89.5	89.44			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16089004	Sample number(s): 8303038-8303045 UNSPK: 8303038									
Perfluorobutanesulfonate	0.50 U	20	19.81	20	18.18	99	91	70-130	9	30
Perfluorodecanoic acid	0.760	20	18.27	20	16.97	88	81	70-130	7	30
Perfluorododecanoic acid	5.96	20	25.95	20	21.54	100	78	70-130	19	30
Perfluoroheptanoic acid	0.500	20	14.35	20	17.2	69*	84	70-130	18	30
Perfluorohexanesulfonate	0.50 U	20	18.14	20	18.44	91	92	70-130	2	30
Perfluorohexanoic acid	0.272	20	14.55	20	16.26	71	80	70-130	11	30
Perfluorononanoic acid	0.20 U	20	15.43	20	14.85	77	74	70-130	4	30
Perfluoro-octanesulfonate	0.70 U	20	17.92	20	19.06	90	95	70-130	6	30
Perfluorooctanoic acid	16.66	20	41.11	20	32.9	122	81	70-130	22	30
Perfluorotetradecanoic acid	41.32	20	51.88	20	66.14	53*	124	70-130	24	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/12/2016 11:54

Group Number: 1644163

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g	ng/g					
Perfluorotridecanoic acid	6.97	20	23.26	20	24.68	81	89	70-130	6	30
Perfluoroundecanoic acid	0.736	20	18.04	20	18.8	87	90	70-130	4	30
	ng/l	ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8303046 UNSPK: 8298619									
Perfluorooctanoic acid	353.46	200	264.76			-43*		70-130		
Perfluorononanoic acid	11.77	200	212.06			100		70-130		
Perfluorodecanoic acid	4 U	200	202.02			101		70-130		
Perfluoroundecanoic acid	7.24	200	217.48			105		70-130		
Perfluorododecanoic acid	10 U	200	196.94			98		70-130		
Perfluorotridecanoic acid	8 U	200	175.4			88		70-130		
Perfluorotetradecanoic acid	10 U	200	124.3			62*		70-130		
Perfluorohexanoic acid	4 U	200	283.38			142*		70-130		
Perfluoroheptanoic acid	32.94	200	220.71			94		70-130		
Perfluorobutanesulfonate	20 U	200	142.26			71		70-130		
Perfluorohexanesulfonate	20 U	200	402			201*		70-130		
Perfluoro-octanesulfonate	20 U	200	277.75			139*		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16090049531A	Sample number(s): 8303038-8303045 UNSPK: 8303039									
TOC	10067.95	20450	26066.8			78		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16090049531A	Sample number(s): 8303038-8303045 BKG: 8303039			
TOC	10067.95	8830.18	13*	7
	%	%		
Batch number: 16085820003A	Sample number(s): 8303038-8303045 BKG: P294540			
Moisture	15.87	15.52	2	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1644163 Sample # 8303038-46

COC # 493357

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: N. Bennington Soil Sampling

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Larene Cameron

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water ☐ Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	EPA 537
ChemFab Vent W 0"to 6"	3/24/16	855	X		2	X	X	X	
ChemFab Vent W 6"to 12"	3/24/16	906	X		2	X	X	X	
ChemFab Vent W 12"to 18"	3/24/16	916	X		2	X	X	X	
ChemFab Vent W 18"to 24"	3/24/16	928	X		2	X	X	X	
PKng Lot W Paran Creek 0"to 6"	3/24/16	1012	X		2	X	X	X	
PKng Lot W Paran Creek 6"to 12"	3/24/16	1026	X		2	X	X	X	
PKng Lot W Paran Creek 12"to 18"	3/24/16	1038	X		2	X	X	X	
PKng Lot W Paran Creek 18"to 24"	3/24/16	1050	X		2	X	X	X	
Transport Blank 334008	3/18/16	—	X		1				X

Remarks: Lab Provided

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or (B) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/24/16	1746			
			Jan Huber	3/25/16	935

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.0 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140608

Group Number(s): 164463

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/25/2016 9:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Sodium Thiosulfate

Unpacked by Joseph Huber (7831) at 11:09 on 03/25/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	3.1	DT	Wet	Y	Bagged	N
2	DT121	4.0	DT	Wet	Y	Bagged	N

General Comments: All samples arrived frozen.

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: April 14, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/24/2016
Group Number: 1643769
SDG: SGP10
PO Number: 16.6131
State of Sample Origin: VT

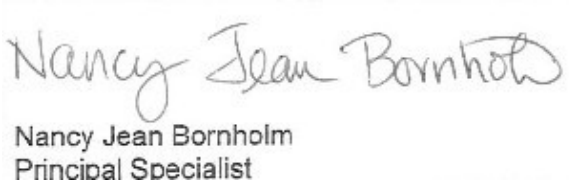
Client Sample Description	Lancaster Labs (LL) #
180 River Rd 0" to 6" Grab Soil	8301012
180 River Rd 6" to 12" Grab Soil	8301013
180 River Rd 12" to 18" Grab Soil	8301014
180 River Rd 18" to 24" Grab Soil	8301015
Chemfab Along River 0" to 6" Grab Soil	8301016
Chemfab Along River 6" to 12" Grab Soil	8301017
Chemfab Along River 12" to 18" Grab Soil	8301018
Chemfab Along River 18" to 24" Grab Soil	8301019
Chemfab W Side 0" to 6" Grab Soil	8301020
Chemfab W Side 6" to 12" Grab Soil	8301021
Chemfab W Side 12" to 18" Grab Soil	8301022
Chemfab W Side 18" to 24" Grab Soil	8301023
Lake Paran 0" to 6" Grab Soil	8301024
Lake Paran 6" to 12" Grab Soil	8301025
Lake Paran 12" to 18" Grab Soil	8301026
Lake Paran 18" to 24" Grab Soil	8301027
Auger Rinse #7 Grab Blank Water	8301028
Bowl Rinse #7 Grab Blank Water	8301029
Transport Blank 032316 Blank Water	8301030
16 Wilkey Way 0" to 6" Grab Soil	8301031
16 Wilkey Way Duplicate Grab Soil	8301032
16 Wilkey Way 6" to 12" Grab Soil	8301033
16 Wilkey Way 6" to 12" MS Grab Soil	8301034
16 Wilkey Way 6" to 12" MSD Grab Soil	8301035
16 Wilkey Way 6" to 12" Dupl Grab Soil	8301036
16 Wilkey Way 12" to 18" Grab Soil	8301037
16 Wilkey Way 18" to 24" Grab Soil	8301038
Chemfab Blowdown East 0" to 6" Grab Soil	8301039
Chemfab Blowdown East 6" to 12" Grab Soil	8301040
Chemfab Blowdown East 12" to 18" Grab Soil	8301041
Chemfab Blowdown East 18" to 24" Grab Soil	8301042

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1643769

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Batch #: 16085004 (Sample number(s): 8301028-8301030 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorohexanesulfonate

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluorooctanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Batch #: 16098007 (Sample number(s): 8301012-8301027, 8301031-8301035, 8301037 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorotridecanoic acid

Batch #: 16098008 (Sample number(s): 8301038-8301042 UNSPK: 8301038)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorohexanesulfonate, Perfluoro-octanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluoro-octanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16089049531A (Sample number(s): 8301018-8301027 UNSPK: 8301018 BKG: 8301018)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16089049531B (Sample number(s): 8301031, 8301041-8301042 UNSPK: 8301042 BKG: 8301042)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Sample Description: Chemfab Along River 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301016
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 09:55 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1005 SDG#: SGP10-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.56	U	0.56	1.8	1
14027	Perfluorodecanoic acid	335-76-2	1.9		0.23	0.45	1
14027	Perfluorododecanoic acid	307-55-1	3.4		0.45	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.56	U	0.56	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.24	J	0.23	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.79	U	0.79	1.8	1
14027	Perfluorooctanoic acid	335-67-1	9.1		0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	1.4		0.34	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	1.5		0.68	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	3.2		0.34	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	17,500		801	2,400	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	11.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 12:05	Jason W Knight	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/10/2016 10:19	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16088949631B	03/29/2016 01:53	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820009A	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Chemfab Along River 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301017
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 10:03 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1006 SDG#: SGP10-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.54	U	0.54	1.7	1
14027	Perfluorodecanoic acid	335-76-2	2.1		0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.74	J	0.44	0.87	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.54	U	0.54	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.0	JB	0.76	1.7	1
14027	Perfluorooctanoic acid	335-67-1	2.7		0.33	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.87	1
14027	Perfluorotridecanoic acid	72629-94-8	0.65	U	0.65	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.63	J	0.33	0.65	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	5,400		462	1,390	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	8.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 12:22	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16088949631B	03/29/2016 02:02	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820009A	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Chemfab Along River 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301018
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 10:11 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1007 SDG#: SGP10-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.56	U	0.56	1.8	1
14027	Perfluorodecanoic acid	335-76-2	4.5		0.22	0.45	1
14027	Perfluorododecanoic acid	307-55-1	0.90		0.45	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	J	0.34	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.56	U	0.56	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.2	JB	0.79	1.8	1
14027	Perfluorooctanoic acid	335-67-1	4.2		0.34	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	0.67	U	0.67	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.90		0.34	0.67	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	10,100		911	2,730	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	10.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 12:40	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16089049531A	03/29/2016 04:07	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820009A	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Chemfab Along River 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301019
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 10:19 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1008 SDG#: SGP10-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.55	U	0.55	1.8	1
14027	Perfluorodecanoic acid	335-76-2	3.6		0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.51	J	0.44	0.88	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.55	U	0.55	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.26	J	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.3	JB	0.77	1.8	1
14027	Perfluorooctanoic acid	335-67-1	4.9		0.33	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.88	1
14027	Perfluorotridecanoic acid	72629-94-8	0.66	U	0.66	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.66	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	3,870		521	1,560	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	8.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 12:58	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16089049531A	03/29/2016 10:53	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820009A	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Chemfab W Side 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301020
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 10:44 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1009 SDG#: SGP10-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.45	J	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	4.4		0.48	0.96	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	11		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	17		0.36	0.96	1
14027	Perfluorotridecanoic acid	72629-94-8	7.4		0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	13,100		782	2,350	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	16.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 13:16	Jason W Knight	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/10/2016 10:37	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16089049531A	03/29/2016 11:13	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820009B	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Chemfab W Side 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301021
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 10:53 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1010 SDG#: SGP10-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.55	U	0.55	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.24	J	0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	3.9		0.44	0.89	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.55	U	0.55	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.78	U	0.78	1.8	1
14027	Perfluorooctanoic acid	335-67-1	3.6		0.33	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	4.8		0.33	0.89	1
14027	Perfluorotridecanoic acid	72629-94-8	7.3		0.67	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.67	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	2,010		666	2,000	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	9.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 13:33	Jason W Knight	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/10/2016 10:54	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16089049531A	03/29/2016 11:28	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820009B	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Chemfab W Side 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301022
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 11:02 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1011 SDG#: SGP10-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.58	U	0.58	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	13		0.46	0.92	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.58	U	0.58	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.81	U	0.81	1.8	1
14027	Perfluorooctanoic acid	335-67-1	3.1		0.35	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	1.6		0.35	0.92	1
14027	Perfluorotridecanoic acid	72629-94-8	4.2		0.69	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.69	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	2,210		251	753	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	13.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 13:51	Jason W Knight	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/10/2016 11:12	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16089049531A	03/29/2016 11:44	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16084820009B	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Chemfab W Side 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301023
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 11:11 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1012 SDG#: SGP10-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.63	U	0.63	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	3.2		0.50	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.63	U	0.63	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.88	U	0.88	2.0	1
14027	Perfluorooctanoic acid	335-67-1	4.1		0.38	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	2.3		0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	2.7		0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	4.7		0.38	0.75	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	1,990		226	678	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	20.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 14:09	Jason W Knight	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/10/2016 11:30	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16089049531A	03/29/2016 12:24	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16084820009B	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Chemfab Blowdown East 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301039
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 15:00 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

1025- SDG#: SGP10-25

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.58	U	0.58	1.9	1
14027	Perfluorodecanoic acid	335-76-2	1.3		0.23	0.47	1
14027	Perfluorododecanoic acid	307-55-1	5.0		0.47	0.93	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.58	U	0.58	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.82	U	0.82	1.9	1
14027	Perfluorooctanoic acid	335-67-1	20		0.35	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	25		0.35	0.93	1
14027	Perfluorotridecanoic acid	72629-94-8	15		0.70	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	1.1		0.35	0.70	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	7,090		468	1,400	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	14.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098008	04/09/2016 18:53	Jason W Knight	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098008	04/10/2016 13:16	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16088949631A	03/28/2016 22:21	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820010B	03/25/2016 09:18	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Chemfab Blowdown East 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301040
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 15:08 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

1026- SDG#: SGP10-26

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.41	J	0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	11		0.46	0.91	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.80	U	0.80	1.8	1
14027	Perfluorooctanoic acid	335-67-1	6.1		0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	12		0.34	0.91	1
14027	Perfluorotridecanoic acid	72629-94-8	15		0.68	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.49	J	0.34	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	793		151	452	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	12.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098008	04/09/2016 19:10	Jason W Knight	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098008	04/10/2016 13:34	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16088949631A	03/28/2016 23:17	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820010B	03/25/2016 09:18	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Chemfab Blowdown East 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301041
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 15:15 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

1027- SDG#: SGP10-27

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.56	U	0.56	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.27	J	0.22	0.45	1
14027	Perfluorododecanoic acid	307-55-1	14		0.45	0.89	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.56	U	0.56	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.78	U	0.78	1.8	1
14027	Perfluorooctanoic acid	335-67-1	4.8		0.34	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	3.7		0.34	0.89	1
14027	Perfluorotridecanoic acid	72629-94-8	15		0.67	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.67	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	974		196	587	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	10.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098008	04/09/2016 19:28	Jason W Knight	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098008	04/10/2016 13:52	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16089049531B	03/29/2016 21:11	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820010B	03/25/2016 09:18	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Chemfab Blowdown East 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301042
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 15:20 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

1028- SDG#: SGP10-28

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.54		0.23	0.45	1
14027	Perfluorododecanoic acid	307-55-1	15		0.45	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.79	U	0.79	1.8	1
14027	Perfluorooctanoic acid	335-67-1	13		0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	2.2		0.34	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	6.4		0.68	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.79		0.34	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	3,060		621	1,860	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	11.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098008	04/09/2016 19:49	Jason W Knight	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098008	04/10/2016 14:10	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16089049531B	03/29/2016 21:43	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820010B	03/25/2016 09:18	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1643769
Reported: 04/14/2016 10:50

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16098007	Sample number(s): 8301012-8301027,8301031-8301035,8301037			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.94	J	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
Batch number: 16098008	Sample number(s): 8301038-8301042			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16085004	Sample number(s): 8301028-8301030			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/14/2016 10:50

Group Number: 1643769

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040			
TOC	100	U	100	300
Batch number: 16088949631B	Sample number(s): 8301012-8301017			
TOC	100	U	100	300
Batch number: 16089049531A	Sample number(s): 8301018-8301027			
TOC	100	U	100	300
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16098007	Sample number(s): 8301012-8301027,8301031-8301035,8301037								
Perfluorobutanesulfonate	20	19.73			99		70-130		
Perfluorodecanoic acid	20	17.73			89		70-130		
Perfluorododecanoic acid	20	20.72			104		70-130		
Perfluoroheptanoic acid	20	19.02			95		70-130		
Perfluorohexanesulfonate	20	16.59			83		70-130		
Perfluorohexanoic acid	20	19.41			97		70-130		
Perfluorononanoic acid	20	19.6			98		70-130		
Perfluoro-octanesulfonate	20	20.09			100		70-130		
Perfluorooctanoic acid	20	21.8			109		70-130		
Perfluorotetradecanoic acid	20	18.88			94		70-130		
Perfluorotridecanoic acid	20	20.53			103		70-130		
Perfluoroundecanoic acid	20	17.63			88		70-130		
Batch number: 16098008	Sample number(s): 8301038-8301042								
Perfluorobutanesulfonate	20	21.89			109		70-130		
Perfluorodecanoic acid	20	17.53			88		70-130		
Perfluorododecanoic acid	20	14.26			71		70-130		
Perfluoroheptanoic acid	20	21.3			106		70-130		
Perfluorohexanesulfonate	20	16.16			81		70-130		
Perfluorohexanoic acid	20	21.67			108		70-130		
Perfluorononanoic acid	20	18.8			94		70-130		
Perfluoro-octanesulfonate	20	15.23			76		70-130		
Perfluorooctanoic acid	20	19.52			98		70-130		
Perfluorotetradecanoic acid	20	18.99			95		70-130		
Perfluorotridecanoic acid	20	18.63			93		70-130		
Perfluoroundecanoic acid	20	21.2			106		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8301028-8301030								
Perfluorooctanoic acid	200	187.69	200	208.39	94	104	70-130	10	30
Perfluorononanoic acid	200	180.81	200	225.92	90	113	70-130	22	30
Perfluorodecanoic acid	200	216.97	200	234.99	108	117	70-130	8	30
Perfluoroundecanoic acid	200	199.88	200	208.01	100	104	70-130	4	30
Perfluorododecanoic acid	200	216.91	200	236.94	108	118	70-130	9	30
Perfluorotridecanoic acid	200	209.67	200	257.49	105	129	70-130	20	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/14/2016 10:50

Group Number: 1643769

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluorotetradecanoic acid	200	194.48	200	228.2	97	114	70-130	16	30
Perfluorohexanoic acid	200	179.57	200	206.29	90	103	70-130	14	30
Perfluoroheptanoic acid	200	193.13	200	221.2	97	111	70-130	14	30
Perfluorobutanesulfonate	200	143.28	200	144.13	72	72	70-130	1	30
Perfluorohexanesulfonate	200	179.57	200	248.43	90	124	70-130	32*	30
Perfluoro-octanesulfonate	200	152.32	200	187.87	76	94	70-130	21	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040								
TOC	5430	5025.76			93		47-143		
Batch number: 16088949631B	Sample number(s): 8301012-8301017								
TOC	5430	5025.76			93		47-143		
Batch number: 16089049531A	Sample number(s): 8301018-8301027								
TOC	5430	4071.68			75		47-143		
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042								
TOC	5430	4071.68			75		47-143		
	%	%	%	%					
Batch number: 16084820009A	Sample number(s): 8301012-8301019,8301032								
Moisture	89.5	89.44			100		99-101		
Batch number: 16084820009B	Sample number(s): 8301020-8301027,8301031,8301033-8301037								
Moisture	89.5	89.44			100		99-101		
Moisture	89.5	89.44			100		99-101		
Moisture Duplicate	89.5	89.44			100		99-101		
Batch number: 16084820010B	Sample number(s): 8301038-8301042								
Moisture	89.5	89.45			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16098007	Sample number(s): 8301012-8301027,8301031-8301035,8301037 UNSPK: 8301033										
Perfluorobutanesulfonate	0.50	U	20	18.05	20	18.91	90	95	70-130	5	30
Perfluorodecanoic acid	0.20	U	20	18.02	20	15.8	90	79	70-130	13	30
Perfluorododecanoic acid	0.411		20	15.04	20	14.72	73	72	70-130	2	30
Perfluoroheptanoic acid	0.30	U	20	22.81	20	17.5	114	88	70-130	26	30
Perfluorohexanesulfonate	0.50	U	20	14.26	20	15.43	71	77	70-130	8	30
Perfluorohexanoic acid	0.20	U	20	17.29	20	20.88	86	104	70-130	19	30
Perfluorononanoic acid	0.250		20	21.42	20	19.28	106	95	70-130	11	30
Perfluoro-octanesulfonate	0.70	U	20	16.91	20	16.34	85	82	70-130	3	30
Perfluorooctanoic acid	2.50		20	24.37	20	21.12	109	93	70-130	14	30
Perfluorotetradecanoic acid	0.30	U	20	21.78	20	16.63	109	83	70-130	27	30
Perfluorotridecanoic acid	0.60	U	20	13.3	20	16.41	67*	82	70-130	21	30
Perfluoroundecanoic acid	0.30	U	20	14.66	20	17.47	73	87	70-130	17	30

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1643769
Reported: 04/14/2016 10:50

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16098008	Sample number(s): 8301038-8301042 UNSPK: 8301038									
Perfluorobutanesulfonate	0.50 U	20	21.39	20	18.19	107	91	70-130	16	30
Perfluorodecanoic acid	0.20 U	20	17.75	20	19.06	89	95	70-130	7	30
Perfluorododecanoic acid	0.444	20	14.56	20	15.26	71	74	70-130	5	30
Perfluoroheptanoic acid	0.30 U	20	19.67	20	16.94	98	85	70-130	15	30
Perfluorohexanesulfonate	0.50 U	20	13.07	20	15.84	65*	79	70-130	19	30
Perfluorohexanoic acid	0.20 U	20	18.53	20	18.57	93	93	70-130	0	30
Perfluorononanoic acid	0.20 U	20	18.28	20	18.37	91	92	70-130	0	30
Perfluoro-octanesulfonate	1.07	20	13.95	20	19.52	64*	92	70-130	33*	30
Perfluorooctanoic acid	4.23	20	22.25	20	24.77	90	103	70-130	11	30
Perfluorotetradecanoic acid	0.30 U	20	17.28	20	16.62	86	83	70-130	4	30
Perfluorotridecanoic acid	0.60 U	20	15.13	20	15.72	76	79	70-130	4	30
Perfluoroundecanoic acid	0.30 U	20	15.46	20	17.98	77	90	70-130	15	30
	ng/l	ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8301028-8301030 UNSPK: 8298619									
Perfluorooctanoic acid	353.46	200	264.76			-43*		70-130		
Perfluorononanoic acid	11.77	200	212.06			100		70-130		
Perfluorodecanoic acid	4 U	200	202.02			101		70-130		
Perfluoroundecanoic acid	7.24	200	217.48			105		70-130		
Perfluorododecanoic acid	10 U	200	196.94			98		70-130		
Perfluorotridecanoic acid	8 U	200	175.4			88		70-130		
Perfluorotetradecanoic acid	10 U	200	124.3			62*		70-130		
Perfluorohexanoic acid	4 U	200	283.38			142*		70-130		
Perfluoroheptanoic acid	32.94	200	220.71			94		70-130		
Perfluorobutanesulfonate	20 U	200	142.26			71		70-130		
Perfluorohexanesulfonate	20 U	200	402			201*		70-130		
Perfluoro-octanesulfonate	20 U	200	277.75			139*		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040 UNSPK: 8301033									
TOC	11042.87	22108	34443.63			106		47-143		
Batch number: 16088949631B	Sample number(s): 8301012-8301017 UNSPK: 8301017									
TOC	4953.35	43605	55174.42			115		47-143		
Batch number: 16089049531A	Sample number(s): 8301018-8301027 UNSPK: 8301018									
TOC	9041.43	60241	70863.45			103		47-143		
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042 UNSPK: 8301042									
TOC	2707.3	29098	24548.98			75		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040 BKG: 8301033			
TOC	11042.87	10354.22	6	7

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1643769
Reported: 04/14/2016 10:50

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16088949631B	Sample number(s): 8301012-8301017 BKG: 8301017			
TOC	4953.35	4680.57	6 (1)	7
Batch number: 16089049531A	Sample number(s): 8301018-8301027 BKG: 8301018			
TOC	9041.43	5388.51	51* (1)	7
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042 BKG: 8301042			
TOC	2707.3	2318.34	15* (1)	7
	%	%		
Batch number: 16084820009A	Sample number(s): 8301012-8301019,8301032 BKG: 8301032			
Moisture	28.78	28.39	1	5
Batch number: 16084820009B	Sample number(s): 8301020-8301027,8301031,8301033-8301037 BKG: 8301033, P301033			
Moisture	24.1	24.34	1	5
Moisture	24.1	24.34	1	5
Moisture Duplicate	24.1	24.34	1	5
Batch number: 16084820010B	Sample number(s): 8301038-8301042 BKG: 8301038			
Moisture	25.26	25.54	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643769 Sample # 8301012-42

COC # 493364

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ☐

Analysis Requested — Preservation Codes

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture
180 River Rd 0" to 6"	3/23/16	0904	X		2	X	X	X
180 River Rd 6" to 12"	3/23/16	0915	X		2	X	X	X
180 River Rd 12" to 18"	3/23/16	0923	X		2	X	X	X
180 River Rd 18" to 24"	3/23/16	0933	X		2	X	X	X
Chemfab Along River 0" to 6"	3/23/16	0955	X		2	X	X	X
Chemfab Along River 6" to 12"	3/23/16	1003	X		2	X	X	X
Chemfab Along River 12" to 18"	3/23/16	1011	X		2	X	X	X
Chemfab Along River 18" to 24"	3/23/16	1019	X		2	X	X	X
Chemfab W. Side 0" to 6"	3/23/16	1044	X		2	X	X	X
Chemfab W. Side 6" to 12"	3/23/16	1053	X		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/23/16	1648			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	3.24.16	945

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx X Other _____

Temperature upon receipt 2.6-3.4 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643769 Sample # 8301012-42

COC # 493466

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O.#: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Sediment	Soil	Water: Potable	Ground	NPDES	Surface	Other:	Total # of Containers	Analysis Requested: EPA 537	TOC	Moisture	EPA 537	Remarks
Chemfab W Side 12" to 18"	3/23/16	1102	X			X						2	X	X	X		
Chemfab W Side 18" to 24"	3/23/16	1111	X			X						2	X	X	X		
Lake Paran 0" to 6"	3/23/16	1147	X			X						2	X	X	X		
Lake Paran 6" to 12"	3/23/16	1202	X			X						2	X	X	X		
Lake Paran 12" to 18"	3/23/16	1212	X			X						2	X	X	X		
Lake Paran 18" to 24"	3/23/16	1218	X			X						2	X	X	X		
Auger Rinse #7	3/23/16	1220	X				X					2				X	Lab DI Water
Bowl Rinse #7	3/23/16	1222	X				X					2				X	Lab DI Water
Transport Blank 032316	3/16/16	—	X				X					1				X	Lab supplied
16 Wilkey Way 0" to 6"	3/23/16	1344	X			X						2	X	X	X		

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)
Date results are needed: 3 day verbal
E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/23/16	1648			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	3.24.16	945

EDD Required? Yes No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx X Other

Temperature upon receipt 2.6 - 7.9 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643669 Sample # 83 01012-42

COC # 493460

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested

Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture
16 Wilkey Way Duplicate	3/23/16	1348	X		1	X	X	
16 Wilkey Way 6" to 12"	3/23/16	1351	X		4	X	X	X
16 Wilkey Way 12" to 18"	3/23/16	1357	X		2	X	X	X
16 Wilkey Way 18" to 24"	3/23/16	1405	X		2	X	X	X
Chemfab Blowdown East 0" to 6"	3/23/16	1500	X		2	X	X	X
Chemfab Blowdown East 6" to 12"	3/23/16	1508	X		2	X	X	X
Chemfab Blowdown East 12" to 18"	3/23/16	1515	X		2	X	X	X
Chemfab Blowdown East 18" to 24"	3/23/16	1520	X		2	X	X	X

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

MS/MSD here

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/23/16	1618			
				3.24.16	945

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx X Other _____

Temperature upon receipt 2.6-2.9 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140454

Group Number(s): 1643769

Client: C.T. Male Assoc.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/24/2016 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Na2S2O3
Samples Intact:	No	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 11:23 on 03/24/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	3.9	DT	Wet	Y	Bagged	N
2	DT131	2.6	DT	Wet	Y	Bagged	N

Samples Not Intact Details

Sample ID on Label	Bottle Code	Bottle Quantity	Container Salvageable?	Comments
180 River Rd 6" to 12"	4.5 oz.plastic cup w/screw lid - None	1	N	Jar broken.

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
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eurofins | Lancaster Laboratories Environmental

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: April 12, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/25/2016
Group Number: 1644163
SDG: SGP11
PO Number: 16.6131
State of Sample Origin: VT

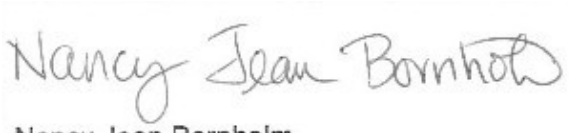
Client Sample Description	Lancaster Labs (LL) #
ChemFab Vent W 0" to 6" Grab Soil	8303038
ChemFab Vent W 6" to 12" Grab Soil	8303039
ChemFab Vent W 12" to 18" Grab Soil	8303040
ChemFab Vent W 18" to 24" Grab Soil	8303041
Pkng Lot W Paran Creek 0" to 6" Grab Soil	8303042
Pkng Lot W Paran Creek 6" to 12" Grab Soil	8303043
Pkng Lot W Paran Creek 12" to 18" Grab Soil	8303044
Pkng Lot W Paran Creek 18" to 24" Grab Soil	8303045
Transport Blank 334008 Blank Water	8303046

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1644163

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Batch #: 16085004 (Sample number(s): 8303046 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorohexanesulfonate

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluorooctanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Batch #: 16089004 (Sample number(s): 8303038-8303045 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorotetradecanoic acid, Perfluoroheptanoic acid

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16090049531A (Sample number(s): 8303038-8303045 UNSPK: 8303039 BKG: 8303039)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Sample Description: ChemFab Vent W 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8303038
LL Group # 1644163
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/24/2016 08:55 by LC

Submitted: 03/25/2016 09:35
Reported: 04/12/2016 11:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1201 SDG#: SGP11-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.89		0.24	0.47	1
14027	Perfluorododecanoic acid	307-55-1	7.0		0.47	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.59	J	0.35	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.32	J	0.24	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.82	U	0.82	1.9	1
14027	Perfluorooctanoic acid	335-67-1	20		0.35	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	49		0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	8.2		0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.86		0.35	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	10,400		462	1,390	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	14.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16089004	04/10/2016 04:03	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16090049531A	03/30/2016 11:07	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16085820003A	03/25/2016 19:28	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: ChemFab Vent W 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8303039
LL Group # 1644163
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/24/2016 09:06 by LC

Submitted: 03/25/2016 09:35
Reported: 04/12/2016 11:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1202 SDG#: SGP11-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	1.1		0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	15		0.48	0.97	1
14027	Perfluoroheptanoic acid	375-85-9	0.51	J	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.26	J	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	J	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	11		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	23		0.36	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	7.1		0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	2.9		0.36	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	12,100		228	684	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	17.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16089004	04/10/2016 04:56	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16090049531A	03/30/2016 15:22	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16085820003A	03/25/2016 19:28	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: ChemFab Vent W 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8303040
LL Group # 1644163
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/24/2016 09:16 by LC

Submitted: 03/25/2016 09:35
Reported: 04/12/2016 11:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1203 SDG#: SGP11-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	1.3		0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	31		0.48	0.95	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	J	0.36	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.83	U	0.83	1.9	1
14027	Perfluorooctanoic acid	335-67-1	10		0.36	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	6.9		0.36	0.95	1
14027	Perfluorotridecanoic acid	72629-94-8	5.7		0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	9.4		0.36	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	14,500		543	1,630	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	15.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16089004	04/10/2016 05:14	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16090049531A	03/30/2016 12:46	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16085820003A	03/25/2016 19:28	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: ChemFab Vent W 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8303041
LL Group # 1644163
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/24/2016 09:28 by LC

Submitted: 03/25/2016 09:35
Reported: 04/12/2016 11:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

P1204 SDG#: SGP11-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	2.0	1
14027	Perfluorodecanoic acid	335-76-2	1.0		0.24	0.49	1
14027	Perfluorododecanoic acid	307-55-1	42		0.49	0.98	1
14027	Perfluoroheptanoic acid	375-85-9	0.43	J	0.37	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.86	U	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	12		0.37	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	5.7		0.37	0.98	1
14027	Perfluorotridecanoic acid	72629-94-8	5.0		0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	3.9		0.37	0.73	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	16,400		411	1,230	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16089004	04/10/2016 05:31	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16090049531A	03/30/2016 13:03	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16085820003A	03/25/2016 19:28	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/12/2016 11:54

Group Number: 1644163

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16089004	Sample number(s): 8303038-8303045			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16085004	Sample number(s): 8303046			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16090049531A	Sample number(s): 8303038-8303045			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16089004	Sample number(s): 8303038-8303045								
Perfluorobutanesulfonate	20	23.85			119		70-130		
Perfluorodecanoic acid	20	17.41			87		70-130		
Perfluorododecanoic acid	20	18.41			92		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/12/2016 11:54

Group Number: 1644163

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoroheptanoic acid	20	15.88			79		70-130		
Perfluorohexanesulfonate	20	17.52			88		70-130		
Perfluorohexanoic acid	20	17.65			88		70-130		
Perfluorononanoic acid	20	15.78			79		70-130		
Perfluoro-octanesulfonate	20	18.43			92		70-130		
Perfluorooctanoic acid	20	16.98			85		70-130		
Perfluorotetradecanoic acid	20	18.97			95		70-130		
Perfluorotridecanoic acid	20	15.04			75		70-130		
Perfluoroundecanoic acid	20	19.2			96		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 16085004	Sample number(s): 8303046								
Perfluorooctanoic acid	200	187.69	200	208.39	94	104	70-130	10	30
Perfluorononanoic acid	200	180.81	200	225.92	90	113	70-130	22	30
Perfluorodecanoic acid	200	216.97	200	234.99	108	117	70-130	8	30
Perfluoroundecanoic acid	200	199.88	200	208.01	100	104	70-130	4	30
Perfluorododecanoic acid	200	216.91	200	236.94	108	118	70-130	9	30
Perfluorotridecanoic acid	200	209.67	200	257.49	105	129	70-130	20	30
Perfluorotetradecanoic acid	200	194.48	200	228.2	97	114	70-130	16	30
Perfluorohexanoic acid	200	179.57	200	206.29	90	103	70-130	14	30
Perfluoroheptanoic acid	200	193.13	200	221.2	97	111	70-130	14	30
Perfluorobutanesulfonate	200	143.28	200	144.13	72	72	70-130	1	30
Perfluorohexanesulfonate	200	179.57	200	248.43	90	124	70-130	32*	30
Perfluoro-octanesulfonate	200	152.32	200	187.87	76	94	70-130	21	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 16090049531A	Sample number(s): 8303038-8303045								
TOC	5430	4176.44			77		47-143		
	%	**%**	**%**	**%**					
Batch number: 16085820003A	Sample number(s): 8303038-8303045								
Moisture	89.5	89.44			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16089004	Sample number(s): 8303038-8303045 UNSPK: 8303038									
Perfluorobutanesulfonate	0.50 U	20	19.81	20	18.18	99	91	70-130	9	30
Perfluorodecanoic acid	0.760	20	18.27	20	16.97	88	81	70-130	7	30
Perfluorododecanoic acid	5.96	20	25.95	20	21.54	100	78	70-130	19	30
Perfluoroheptanoic acid	0.500	20	14.35	20	17.2	69*	84	70-130	18	30
Perfluorohexanesulfonate	0.50 U	20	18.14	20	18.44	91	92	70-130	2	30
Perfluorohexanoic acid	0.272	20	14.55	20	16.26	71	80	70-130	11	30
Perfluorononanoic acid	0.20 U	20	15.43	20	14.85	77	74	70-130	4	30
Perfluoro-octanesulfonate	0.70 U	20	17.92	20	19.06	90	95	70-130	6	30
Perfluorooctanoic acid	16.66	20	41.11	20	32.9	122	81	70-130	22	30
Perfluorotetradecanoic acid	41.32	20	51.88	20	66.14	53*	124	70-130	24	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/12/2016 11:54

Group Number: 1644163

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g	ng/g					
Perfluorotridecanoic acid	6.97	20	23.26	20	24.68	81	89	70-130	6	30
Perfluoroundecanoic acid	0.736	20	18.04	20	18.8	87	90	70-130	4	30
	ng/l	ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8303046 UNSPK: 8298619									
Perfluorooctanoic acid	353.46	200	264.76			-43*		70-130		
Perfluorononanoic acid	11.77	200	212.06			100		70-130		
Perfluorodecanoic acid	4 U	200	202.02			101		70-130		
Perfluoroundecanoic acid	7.24	200	217.48			105		70-130		
Perfluorododecanoic acid	10 U	200	196.94			98		70-130		
Perfluorotridecanoic acid	8 U	200	175.4			88		70-130		
Perfluorotetradecanoic acid	10 U	200	124.3			62*		70-130		
Perfluorohexanoic acid	4 U	200	283.38			142*		70-130		
Perfluoroheptanoic acid	32.94	200	220.71			94		70-130		
Perfluorobutanesulfonate	20 U	200	142.26			71		70-130		
Perfluorohexanesulfonate	20 U	200	402			201*		70-130		
Perfluoro-octanesulfonate	20 U	200	277.75			139*		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16090049531A	Sample number(s): 8303038-8303045 UNSPK: 8303039									
TOC	10067.95	20450	26066.8			78		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16090049531A	Sample number(s): 8303038-8303045 BKG: 8303039			
TOC	10067.95	8830.18	13*	7
	%	%		
Batch number: 16085820003A	Sample number(s): 8303038-8303045 BKG: P294540			
Moisture	15.87	15.52	2	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1644163 Sample # 8303038-46

COC # 493357

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Soil ☒ Sediment ☐ Water ☐ Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested — Preservation Codes

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture	EPA 537	Remarks
ChemFab Vent W 0"to 6"	3/24/16	855	X		2	X	X	X		
ChemFab Vent W 6"to 12"	3/24/16	906	X		2	X	X	X		
ChemFab Vent W 12"to 18"	3/24/16	916	X		2	X	X	X		
ChemFab Vent W 18"to 24"	3/24/16	928	X		2	X	X	X		
PKng Lot W Paran Creek 0"to 6"	3/24/16	1012	X		2	X	X	X		
PKng Lot W Paran Creek 6"to 12"	3/24/16	1026	X		2	X	X	X		
PKng Lot W Paran Creek 12"to 18"	3/24/16	1038	X		2	X	X	X		
PKng Lot W Paran Creek 18"to 24"	3/24/16	1050	X		2	X	X	X		
Transport Blank 334008	3/18/16	—	X		1				X	Lab Provided

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or (B) | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/24/16	1746			
			Jan Huber	3/25/16	935

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.1-4.0 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140608

Group Number(s): 164463

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/25/2016 9:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Sodium Thiosulfate

Unpacked by Joseph Huber (7831) at 11:09 on 03/25/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	3.1	DT	Wet	Y	Bagged	N
2	DT121	4.0	DT	Wet	Y	Bagged	N

General Comments: All samples arrived frozen.

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: April 14, 2016

Project: N. Bennington Soil Sampling

Submittal Date: 03/24/2016
Group Number: 1643769
SDG: SGP10
PO Number: 16.6131
State of Sample Origin: VT

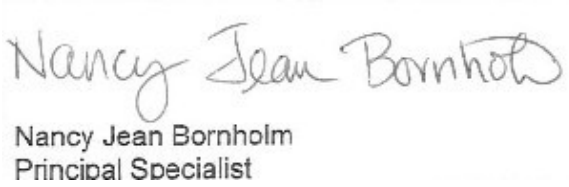
Client Sample Description	Lancaster Labs (LL) #
180 River Rd 0" to 6" Grab Soil	8301012
180 River Rd 6" to 12" Grab Soil	8301013
180 River Rd 12" to 18" Grab Soil	8301014
180 River Rd 18" to 24" Grab Soil	8301015
Chemfab Along River 0" to 6" Grab Soil	8301016
Chemfab Along River 6" to 12" Grab Soil	8301017
Chemfab Along River 12" to 18" Grab Soil	8301018
Chemfab Along River 18" to 24" Grab Soil	8301019
Chemfab W Side 0" to 6" Grab Soil	8301020
Chemfab W Side 6" to 12" Grab Soil	8301021
Chemfab W Side 12" to 18" Grab Soil	8301022
Chemfab W Side 18" to 24" Grab Soil	8301023
Lake Paran 0" to 6" Grab Soil	8301024
Lake Paran 6" to 12" Grab Soil	8301025
Lake Paran 12" to 18" Grab Soil	8301026
Lake Paran 18" to 24" Grab Soil	8301027
Auger Rinse #7 Grab Blank Water	8301028
Bowl Rinse #7 Grab Blank Water	8301029
Transport Blank 032316 Blank Water	8301030
16 Wilkey Way 0" to 6" Grab Soil	8301031
16 Wilkey Way Duplicate Grab Soil	8301032
16 Wilkey Way 6" to 12" Grab Soil	8301033
16 Wilkey Way 6" to 12" MS Grab Soil	8301034
16 Wilkey Way 6" to 12" MSD Grab Soil	8301035
16 Wilkey Way 6" to 12" Dupl Grab Soil	8301036
16 Wilkey Way 12" to 18" Grab Soil	8301037
16 Wilkey Way 18" to 24" Grab Soil	8301038
Chemfab Blowdown East 0" to 6" Grab Soil	8301039
Chemfab Blowdown East 6" to 12" Grab Soil	8301040
Chemfab Blowdown East 12" to 18" Grab Soil	8301041
Chemfab Blowdown East 18" to 24" Grab Soil	8301042

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: N. Bennington Soil Sampling
LL Group #: 1643769

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Batch #: 16085004 (Sample number(s): 8301028-8301030 UNSPK: MS)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorohexanesulfonate

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluorooctanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Batch #: 16098007 (Sample number(s): 8301012-8301027, 8301031-8301035, 8301037 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorotridecanoic acid

Batch #: 16098008 (Sample number(s): 8301038-8301042 UNSPK: 8301038)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorohexanesulfonate, Perfluoro-octanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluoro-octanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16089049531A (Sample number(s): 8301018-8301027 UNSPK: 8301018 BKG: 8301018)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16089049531B (Sample number(s): 8301031, 8301041-8301042 UNSPK: 8301042 BKG: 8301042)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Sample Description: 16 Wilkey Way 0" to 6" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301031
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 13:44 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

1020- SDG#: SGP10-20

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.71	U	0.71	2.3	1
14027	Perfluorodecanoic acid	335-76-2	0.62		0.28	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.72	J	0.56	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.42	U	0.42	0.85	1
14027	Perfluorohexanesulfonate	355-46-4	0.71	U	0.71	2.3	1
14027	Perfluorohexanoic acid	307-24-4	0.28	U	0.28	0.56	1
14027	Perfluorononanoic acid	375-95-1	0.28	U	0.28	0.56	1
14027	Perfluoro-octanesulfonate	1763-23-1	2.0	JB	0.99	2.3	1
14027	Perfluorooctanoic acid	335-67-1	2.9		0.42	0.85	1
14027	Perfluorotetradecanoic acid	376-06-7	0.42	U	0.42	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.95	J	0.85	1.7	1
14027	Perfluoroundecanoic acid	2058-94-8	0.42	U	0.42	0.85	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	25,900		1,380	4,140	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	29.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 15:56	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16089049531B	03/29/2016 13:45	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16084820009B	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 16 Wilkey Way Duplicate Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301032
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 13:48 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

1021D SDG#: SGP10-21FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.70	U	0.70	2.2	1
14027	Perfluorodecanoic acid	335-76-2	0.68		0.28	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.74	J	0.56	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.42	U	0.42	0.84	1
14027	Perfluorohexanesulfonate	355-46-4	0.70	U	0.70	2.2	1
14027	Perfluorohexanoic acid	307-24-4	0.28	U	0.28	0.56	1
14027	Perfluorononanoic acid	375-95-1	0.32	J	0.28	0.56	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.5	JB	0.98	2.2	1
14027	Perfluorooctanoic acid	335-67-1	3.1		0.42	0.84	1
14027	Perfluorotetradecanoic acid	376-06-7	0.42	U	0.42	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.84	U	0.84	1.7	1
14027	Perfluoroundecanoic acid	2058-94-8	0.42	U	0.42	0.84	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	28.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 16:31	Jason W Knight	1
00111	Moisture	SM 2540 G-1997	1	16084820009A	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 16 Wilkey Way 6" to 12" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301033
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 13:51 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

1022Q SDG#: SGP10-22BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.66	U	0.66	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.54	J	0.53	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.40	U	0.40	0.79	1
14027	Perfluorohexanesulfonate	355-46-4	0.66	U	0.66	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.53	1
14027	Perfluorononanoic acid	375-95-1	0.33	J	0.26	0.53	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.92	U	0.92	2.1	1
14027	Perfluorooctanoic acid	335-67-1	3.3		0.40	0.79	1
14027	Perfluorotetradecanoic acid	376-06-7	0.40	U	0.40	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.79	U	0.79	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.40	U	0.40	0.79	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	14,500		401	1,200	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	24.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 09:43	Jason W Knight	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/10/2016 09:26	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16088949631A	03/28/2016 21:20	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820009B	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 16 Wilkey Way 6" to 12" MS Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301034
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 13:51 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

1022Q SDG#: SGP10-22MS

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	24		0.66	2.1	1
14027	Perfluorodecanoic acid	335-76-2	24		0.26	0.53	1
14027	Perfluorododecanoic acid	307-55-1	20		0.53	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	30		0.40	0.79	1
14027	Perfluorohexanesulfonate	355-46-4	19		0.66	2.1	1
14027	Perfluorohexanoic acid	307-24-4	23		0.26	0.53	1
14027	Perfluorononanoic acid	375-95-1	28		0.26	0.53	1
14027	Perfluoro-octanesulfonate	1763-23-1	22	B	0.92	2.1	1
14027	Perfluorooctanoic acid	335-67-1	32		0.40	0.79	1
14027	Perfluorotetradecanoic acid	376-06-7	29		0.40	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	18		0.79	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	19		0.40	0.79	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	45,400		971	2,910	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00118	Moisture	n.a.	24.1		0.50	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 10:01	Jason W Knight	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/10/2016 09:43	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16088949631A	03/28/2016 21:34	James S Mathiot	1
00118	Moisture	SM 2540 G-1997	1	16084820009B	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 16 Wilkey Way 6" to 12" MSD Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301035
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 13:51 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

1022Q SDG#: SGP10-22MSD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	25		0.66	2.1	1
14027	Perfluorodecanoic acid	335-76-2	21		0.26	0.53	1
14027	Perfluorododecanoic acid	307-55-1	19		0.53	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	23		0.40	0.79	1
14027	Perfluorohexanesulfonate	355-46-4	20		0.66	2.1	1
14027	Perfluorohexanoic acid	307-24-4	28		0.26	0.53	1
14027	Perfluorononanoic acid	375-95-1	25		0.26	0.53	1
14027	Perfluoro-octanesulfonate	1763-23-1	22	B	0.92	2.1	1
14027	Perfluorooctanoic acid	335-67-1	28		0.40	0.79	1
14027	Perfluorotetradecanoic acid	376-06-7	22		0.40	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	22		0.79	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	23		0.40	0.79	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00118	Moisture	n.a.	24.1		0.50	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 10:18	Jason W Knight	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/10/2016 10:01	Jason W Knight	1
00118	Moisture	SM 2540 G-1997	1	16084820009B	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 16 Wilkey Way 6" to 12" Dupl Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301036
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 13:51 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

1022Q SDG#: SGP10-22DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	13,600	386	1,160	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	24.1	0.50	0.50	1
00121	Moisture Duplicate	n.a.	24.3	0.50	0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	16088949631A	03/28/2016 21:46	James S Mathiot	1
00118	Moisture	SM 2540 G-1997	1	16084820009B	03/25/2016 09:48	William C Schwebel	1
00121	Moisture Duplicate	SM 2540 G-1997	1	16084820009B	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 16 Wilkey Way 12" to 18" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301037
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 13:57 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

1023- SDG#: SGP10-23

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.65	U	0.65	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.52	U	0.52	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.39	U	0.39	0.78	1
14027	Perfluorohexanesulfonate	355-46-4	0.65	U	0.65	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.26	U	0.26	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.2	JB	0.91	2.1	1
14027	Perfluorooctanoic acid	335-67-1	4.6		0.39	0.78	1
14027	Perfluorotetradecanoic acid	376-06-7	0.39	U	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.78	U	0.78	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.39	U	0.39	0.78	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	15,400		543	1,630	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	22.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098007	04/09/2016 16:49	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16088949631A	03/28/2016 21:58	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820009B	03/25/2016 09:48	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: 16 Wilkey Way 18" to 24" Grab Soil
N. Bennington Soil Sampling

LL Sample # SW 8301038
LL Group # 1643769
Account # 37191

Project Name: N. Bennington Soil Sampling

Collected: 03/23/2016 14:05 by LC

Submitted: 03/24/2016 09:45
Reported: 04/14/2016 10:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

1024- SDG#: SGP10-24

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.67	U	0.67	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.27	U	0.27	0.54	1
14027	Perfluorododecanoic acid	307-55-1	0.59	J	0.54	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.40	U	0.40	0.80	1
14027	Perfluorohexanesulfonate	355-46-4	0.67	U	0.67	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.27	U	0.27	0.54	1
14027	Perfluorononanoic acid	375-95-1	0.27	U	0.27	0.54	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.4	J	0.94	2.1	1
14027	Perfluorooctanoic acid	335-67-1	5.7		0.40	0.80	1
14027	Perfluorotetradecanoic acid	376-06-7	0.40	U	0.40	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.80	U	0.80	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.40	U	0.40	0.80	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,800		455	1,370	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	25.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098008	04/09/2016 18:00	Jason W Knight	1
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16098008	04/10/2016 12:23	Jason W Knight	1
02079	TOC	SM 5310 B modified-2000	1	16088949631A	03/28/2016 22:10	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16084820010B	03/25/2016 09:18	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1643769
Reported: 04/14/2016 10:50

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16098007	Sample number(s): 8301012-8301027,8301031-8301035,8301037			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.94	J	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
Batch number: 16098008	Sample number(s): 8301038-8301042			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16085004	Sample number(s): 8301028-8301030			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/14/2016 10:50

Group Number: 1643769

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040			
TOC	100	U	100	300
Batch number: 16088949631B	Sample number(s): 8301012-8301017			
TOC	100	U	100	300
Batch number: 16089049531A	Sample number(s): 8301018-8301027			
TOC	100	U	100	300
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16098007	Sample number(s): 8301012-8301027,8301031-8301035,8301037								
Perfluorobutanesulfonate	20	19.73			99		70-130		
Perfluorodecanoic acid	20	17.73			89		70-130		
Perfluorododecanoic acid	20	20.72			104		70-130		
Perfluoroheptanoic acid	20	19.02			95		70-130		
Perfluorohexanesulfonate	20	16.59			83		70-130		
Perfluorohexanoic acid	20	19.41			97		70-130		
Perfluorononanoic acid	20	19.6			98		70-130		
Perfluoro-octanesulfonate	20	20.09			100		70-130		
Perfluorooctanoic acid	20	21.8			109		70-130		
Perfluorotetradecanoic acid	20	18.88			94		70-130		
Perfluorotridecanoic acid	20	20.53			103		70-130		
Perfluoroundecanoic acid	20	17.63			88		70-130		
Batch number: 16098008	Sample number(s): 8301038-8301042								
Perfluorobutanesulfonate	20	21.89			109		70-130		
Perfluorodecanoic acid	20	17.53			88		70-130		
Perfluorododecanoic acid	20	14.26			71		70-130		
Perfluoroheptanoic acid	20	21.3			106		70-130		
Perfluorohexanesulfonate	20	16.16			81		70-130		
Perfluorohexanoic acid	20	21.67			108		70-130		
Perfluorononanoic acid	20	18.8			94		70-130		
Perfluoro-octanesulfonate	20	15.23			76		70-130		
Perfluorooctanoic acid	20	19.52			98		70-130		
Perfluorotetradecanoic acid	20	18.99			95		70-130		
Perfluorotridecanoic acid	20	18.63			93		70-130		
Perfluoroundecanoic acid	20	21.2			106		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8301028-8301030								
Perfluorooctanoic acid	200	187.69	200	208.39	94	104	70-130	10	30
Perfluorononanoic acid	200	180.81	200	225.92	90	113	70-130	22	30
Perfluorodecanoic acid	200	216.97	200	234.99	108	117	70-130	8	30
Perfluoroundecanoic acid	200	199.88	200	208.01	100	104	70-130	4	30
Perfluorododecanoic acid	200	216.91	200	236.94	108	118	70-130	9	30
Perfluorotridecanoic acid	200	209.67	200	257.49	105	129	70-130	20	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/14/2016 10:50

Group Number: 1643769

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluorotetradecanoic acid	200	194.48	200	228.2	97	114	70-130	16	30
Perfluorohexanoic acid	200	179.57	200	206.29	90	103	70-130	14	30
Perfluoroheptanoic acid	200	193.13	200	221.2	97	111	70-130	14	30
Perfluorobutanesulfonate	200	143.28	200	144.13	72	72	70-130	1	30
Perfluorohexanesulfonate	200	179.57	200	248.43	90	124	70-130	32*	30
Perfluoro-octanesulfonate	200	152.32	200	187.87	76	94	70-130	21	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040								
TOC	5430	5025.76			93		47-143		
Batch number: 16088949631B	Sample number(s): 8301012-8301017								
TOC	5430	5025.76			93		47-143		
Batch number: 16089049531A	Sample number(s): 8301018-8301027								
TOC	5430	4071.68			75		47-143		
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042								
TOC	5430	4071.68			75		47-143		
	%	%	%	%					
Batch number: 16084820009A	Sample number(s): 8301012-8301019,8301032								
Moisture	89.5	89.44			100		99-101		
Batch number: 16084820009B	Sample number(s): 8301020-8301027,8301031,8301033-8301037								
Moisture	89.5	89.44			100		99-101		
Moisture	89.5	89.44			100		99-101		
Moisture Duplicate	89.5	89.44			100		99-101		
Batch number: 16084820010B	Sample number(s): 8301038-8301042								
Moisture	89.5	89.45			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16098007	Sample number(s): 8301012-8301027,8301031-8301035,8301037 UNSPK: 8301033										
Perfluorobutanesulfonate	0.50	U	20	18.05	20	18.91	90	95	70-130	5	30
Perfluorodecanoic acid	0.20	U	20	18.02	20	15.8	90	79	70-130	13	30
Perfluorododecanoic acid	0.411		20	15.04	20	14.72	73	72	70-130	2	30
Perfluoroheptanoic acid	0.30	U	20	22.81	20	17.5	114	88	70-130	26	30
Perfluorohexanesulfonate	0.50	U	20	14.26	20	15.43	71	77	70-130	8	30
Perfluorohexanoic acid	0.20	U	20	17.29	20	20.88	86	104	70-130	19	30
Perfluorononanoic acid	0.250		20	21.42	20	19.28	106	95	70-130	11	30
Perfluoro-octanesulfonate	0.70	U	20	16.91	20	16.34	85	82	70-130	3	30
Perfluorooctanoic acid	2.50		20	24.37	20	21.12	109	93	70-130	14	30
Perfluorotetradecanoic acid	0.30	U	20	21.78	20	16.63	109	83	70-130	27	30
Perfluorotridecanoic acid	0.60	U	20	13.3	20	16.41	67*	82	70-130	21	30
Perfluoroundecanoic acid	0.30	U	20	14.66	20	17.47	73	87	70-130	17	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1643769
Reported: 04/14/2016 10:50

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16098008	Sample number(s): 8301038-8301042 UNSPK: 8301038									
Perfluorobutanesulfonate	0.50 U	20	21.39	20	18.19	107	91	70-130	16	30
Perfluorodecanoic acid	0.20 U	20	17.75	20	19.06	89	95	70-130	7	30
Perfluorododecanoic acid	0.444	20	14.56	20	15.26	71	74	70-130	5	30
Perfluoroheptanoic acid	0.30 U	20	19.67	20	16.94	98	85	70-130	15	30
Perfluorohexanesulfonate	0.50 U	20	13.07	20	15.84	65*	79	70-130	19	30
Perfluorohexanoic acid	0.20 U	20	18.53	20	18.57	93	93	70-130	0	30
Perfluorononanoic acid	0.20 U	20	18.28	20	18.37	91	92	70-130	0	30
Perfluoro-octanesulfonate	1.07	20	13.95	20	19.52	64*	92	70-130	33*	30
Perfluorooctanoic acid	4.23	20	22.25	20	24.77	90	103	70-130	11	30
Perfluorotetradecanoic acid	0.30 U	20	17.28	20	16.62	86	83	70-130	4	30
Perfluorotridecanoic acid	0.60 U	20	15.13	20	15.72	76	79	70-130	4	30
Perfluoroundecanoic acid	0.30 U	20	15.46	20	17.98	77	90	70-130	15	30
	ng/l	ng/l	ng/l	ng/l	ng/l					
Batch number: 16085004	Sample number(s): 8301028-8301030 UNSPK: 8298619									
Perfluorooctanoic acid	353.46	200	264.76			-43*		70-130		
Perfluorononanoic acid	11.77	200	212.06			100		70-130		
Perfluorodecanoic acid	4 U	200	202.02			101		70-130		
Perfluoroundecanoic acid	7.24	200	217.48			105		70-130		
Perfluorododecanoic acid	10 U	200	196.94			98		70-130		
Perfluorotridecanoic acid	8 U	200	175.4			88		70-130		
Perfluorotetradecanoic acid	10 U	200	124.3			62*		70-130		
Perfluorohexanoic acid	4 U	200	283.38			142*		70-130		
Perfluoroheptanoic acid	32.94	200	220.71			94		70-130		
Perfluorobutanesulfonate	20 U	200	142.26			71		70-130		
Perfluorohexanesulfonate	20 U	200	402			201*		70-130		
Perfluoro-octanesulfonate	20 U	200	277.75			139*		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040 UNSPK: 8301033									
TOC	11042.87	22108	34443.63			106		47-143		
Batch number: 16088949631B	Sample number(s): 8301012-8301017 UNSPK: 8301017									
TOC	4953.35	43605	55174.42			115		47-143		
Batch number: 16089049531A	Sample number(s): 8301018-8301027 UNSPK: 8301018									
TOC	9041.43	60241	70863.45			103		47-143		
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042 UNSPK: 8301042									
TOC	2707.3	29098	24548.98			75		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 16088949631A	Sample number(s): 8301033-8301034,8301036-8301040 BKG: 8301033			
TOC	11042.87	10354.22	6	7

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1643769
Reported: 04/14/2016 10:50

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16088949631B	Sample number(s): 8301012-8301017 BKG: 8301017			
TOC	4953.35	4680.57	6 (1)	7
Batch number: 16089049531A	Sample number(s): 8301018-8301027 BKG: 8301018			
TOC	9041.43	5388.51	51* (1)	7
Batch number: 16089049531B	Sample number(s): 8301031,8301041-8301042 BKG: 8301042			
TOC	2707.3	2318.34	15* (1)	7
	%	%		
Batch number: 16084820009A	Sample number(s): 8301012-8301019,8301032 BKG: 8301032			
Moisture	28.78	28.39	1	5
Batch number: 16084820009B	Sample number(s): 8301020-8301027,8301031,8301033-8301037 BKG: 8301033, P301033			
Moisture	24.1	24.34	1	5
Moisture	24.1	24.34	1	5
Moisture Duplicate	24.1	24.34	1	5
Batch number: 16084820010B	Sample number(s): 8301038-8301042 BKG: 8301038			
Moisture	25.26	25.54	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643769 Sample # 8301012-42

COC # 493364

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ☐

Analysis Requested — Preservation Codes

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture
180 River Rd 0" to 6"	3/23/16	0904	X		2	X	X	X
180 River Rd 6" to 12"	3/23/16	0915	X		2	X	X	X
180 River Rd 12" to 18"	3/23/16	0923	X		2	X	X	X
180 River Rd 18" to 24"	3/23/16	0933	X		2	X	X	X
Chemfab Along River 0" to 6"	3/23/16	0955	X		2	X	X	X
Chemfab Along River 6" to 12"	3/23/16	1003	X		2	X	X	X
Chemfab Along River 12" to 18"	3/23/16	1011	X		2	X	X	X
Chemfab Along River 18" to 24"	3/23/16	1019	X		2	X	X	X
Chemfab W. Side 0" to 6"	3/23/16	1044	X		2	X	X	X
Chemfab W. Side 6" to 12"	3/23/16	1053	X		2	X	X	X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/23/16	1648			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	3.24.16	945

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx X Other _____

Temperature upon receipt 2.6-3.4 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1643769 Sample # 8301012-42

COC # 493466

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O.#: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Sediment	Soil	Water: Potable	Ground	NPDES	Surface	Other:	Total # of Containers	Analysis Requested: EPA 537	TOC	Moisture	EPA 537	Remarks
Chemfab W Side 12" to 18"	3/23/16	1102	X			X						2	X	X	X		
Chemfab W Side 18" to 24"	3/23/16	1111	X			X						2	X	X	X		
Lake Paran 0" to 6"	3/23/16	1147	X			X						2	X	X	X		
Lake Paran 6" to 12"	3/23/16	1202	X			X						2	X	X	X		
Lake Paran 12" to 18"	3/23/16	1212	X			X						2	X	X	X		
Lake Paran 18" to 24"	3/23/16	1218	X			X						2	X	X	X		
Auger Rinse #7	3/23/16	1220	X				X					2				X	Lab DI Water
Bowl Rinse #7	3/23/16	1222	X				X					2				X	Lab DI Water
Transport Blank 032316	3/16/16	—	X				X					1				X	Lab supplied
16 Wilkey Way 0" to 6"	3/23/16	1344	X			X						2	X	X	X		

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)
Date results are needed: 3 day verbal
E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/23/16	1648			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	3.24.16	945

EDD Required? Yes No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx X Other

Temperature upon receipt 2.6 - 7.9 °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1643669 Sample # 83 01012-42

COC # 493460

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: N. Bennington Soil Sampling	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested

Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537	TOC	Moisture
16 Wilkey Way Duplicate	3/23/16	1348	X		1	X	X	
16 Wilkey Way 6" to 12"	3/23/16	1351	X		4	X	X	X
16 Wilkey Way 12" to 18"	3/23/16	1357	X		2	X	X	X
16 Wilkey Way 18" to 24"	3/23/16	1405	X		2	X	X	X
Chemfab Blowdown East 0" to 6"	3/23/16	1500	X		2	X	X	X
Chemfab Blowdown East 6" to 12"	3/23/16	1508	X		2	X	X	X
Chemfab Blowdown East 12" to 18"	3/23/16	1515	X		2	X	X	X
Chemfab Blowdown East 18" to 24"	3/23/16	1520	X		2	X	X	X

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

MS/MSD here

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 day verbal

E-mail address: K.Moline@CTMale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	3/23/16	1618			
				3.24.16	945

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx X Other _____

Temperature upon receipt 2.6-2.9 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 140454

Group Number(s): 1643769

Client: C.T. Male Assoc.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/24/2016 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Na2S2O3
Samples Intact:	No	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 11:23 on 03/24/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	3.9	DT	Wet	Y	Bagged	N
2	DT131	2.6	DT	Wet	Y	Bagged	N

Samples Not Intact Details

Sample ID on Label	Bottle Code	Bottle Quantity	Container Salvageable?	Comments
180 River Rd 6" to 12"	4.5 oz.plastic cup w/screw lid - None	1	N	Jar broken.

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Appendix B

Field Documentation

B.1 Monitoring Well Installation
B.2 Groundwater Sampling
B.3 Water Level Measurements
B.4 Sewer Inspections and Sampling
B.5 Bulk Material and Wipe Sampling
B.6 Investigation Derived Waste
B.7 Photograph Log

Appendix B.1

Monitoring Well Installation

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 6/13/16 Time On-Site: 0930 Time Off-Site: 1700

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Initial Site Characterization – Soil Borings Field Report No:

Weather Conditions: Partly Sunny, 70°F

Present at Site: Jonathan Dippert, Cascade Drilling, VTDEC (Richard S.), Kirk Moline, Sewer Dept, Water Dept.

Observations:

0930 – on-site
- Richard S. of VTDEC on-site, update on plan for day.

~1000 – Cascade tractor trailer on-site; Richard S. off-site
- spoke to driver, going to head over to Bennington Water Dept to fill up totes and will be back

~1015 – K. Moline on-site to meet with VTDEC
- walk locations with K. Moline
  → noted issues with MW-6 (no mark outs), MW-4 (moved for water main but no paint), MW-2 (hydrants not marked, possible issue with sewer), and MW-7 (sewer)
- Sewer Dept on-site
  → cleared MW-07 location, south of sewer main
  → not able to clear MW-02, will return with tracer.
- Water Dept on-site. Explained there is main running exactly underneath MW-04 running underneath creek. Hydrants by MW-2 are part of fire suppression for the building and not connected to town water. Water main is in street along white line (edge of road)
- Cascade Driller (with support rack truck) on-site, starts to unload.
- Locator service for Green Mountain Power & Verizon on-site.
  → cleared new location for MW-04
  → Cleared + marked MW-06, Verizon line is at asphalt.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Date 6/13/16

Environmental Services Field Log
(continued)

Project Name: SGPP - Bennington Project No.: 16.6131

Observations:

~1215 – Richard S on-site and met with K Moline
– Cascade tractor trailer on-site
→ start unloading drill rig
→ driller starts clearing path to MW-07 with skid-steer
– Sewer Dept tracing line
→ at proposed location, sewer main is underneath guard/guide rail, Sewer Dept employee said we are clear where marked.
→ K. Moline said hand clear to ±5' and should be good for 10" water/fire suppression line as well.
~1300 – K Moline + VT DEC off-site
– set up for sampling, Cascade unload, + mobilize drill rig out to location
– collect surface + near surface soil samples
– Cascade hand clear down to 5'
– MS/MSD collected at SG3-MW07-00.0
– field duplicate collected at SG3-MW07-00.5
→ homogenized in decontaminated stainless steel bowls
– pack up equipment

1700 – off-site

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 6/14/16 Time On-Site: 0650 Time Off-Site: 1630

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Initial Site Characterization – Soil Borings Field Report No:

Weather Conditions: Sunny, 70°F

Present at Site: Jonathan Dippert, Cascade Drilling, State of Vermont / Middlebury College,

Observations: Dean Ackley

0650 – on-site, met with Cascade. They are not able to decon core barrel & casing, still no steam pressure washer, on the way from shop. Will get here ± 10 am

– hand clear and saw cut asphalt at boring locations while waiting for steam pressure washer

– collect surface and near surface soil samples

→ collect rinse blank samples using lab provided water

SG3-RB02-20160614 – nitrile gloves

SG3-RB02-20160614 – stainless steel bowl

± 0800 – State of Vermont Geologist on-site. Gave him update for ~~on~~ anticipated start time for drilling

→ Associate from Middlebury College & State Intern accompanied

± 1000 – Cascade on-site with steam pressure washer

→ start decon'ing casing & core barrel

1100 – finish decon; collect rinse blank sample off core barrel

SG3-RB03-20160614

1130 – start drilling & sampling at MW-07

– encountered bedrock @ ± 32', drilled to 38' to confirm

– communicated with K. Moline. Set well @ 37' bgs, 10' screen

– during well construction, Cascade realized they forgot #00 choke sand. Communicated with K. Moline. Proceed without choke (#00)

Items to Verify:

List of Attachments: Subsurface Logs, OV Logs, Well Construction Logs, COC

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Date 6/14/16

Environmental Services Field Log
(continued)

Project Name: SGPP - Bennington Project No.: 16.6131

Observations: but will construct well the same.

- brought core boxes out to parking area for State of VT to review.
- finish install of deep well and offset ±5' and burn casing into the ground to ±15', let sit overnight to get water level in the morning

±1600 - VT State off-site

- breakdown and pack samples.

1630 - off-site.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.: MW-07
ELEVATION: DATUM:
LATITUDE: LONGITUDE:
START DATE: 6/13/16 FINISH DATE: 6/14/16
SHEET 1 OF 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: North Bennington, VT CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
									Vegetation @ surface	
		1						5.0	Dark Brown to Black f-med SAND, Some f Gravel to Cobble, little cinders, ash, brick, plastic & metal, trace silt	moist ±2.5' Hand clear to ±5' on 6/13/16
5									Brown f SAND, little silt	
		2						4.0		
10									±9.5'	
		3						1.7	Brown med-coarse SAND, Some Cobble ±10'	very moist @ ±10'
									Orange Brown f-SAND, f-c GRAVEL and COBBLE	
15									±15'	wet @ ±13'
		4						5.0	Light Gray f-med SAND, COBBLE, trace silt grades to f-med SAND, trace silt	
									±18'	
20									Light Gray Med-c SAND, trace silt, little Cobble	
		5						4.5	±22'	4" seam of coarse SAND @ ±21.75'
									Brown f SAND	
25										
		6						5.0		
									±29.0'	
30									Gray f SAND, ~~f GRAVEL~~ Some f-med Gravel	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: core barrel

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.: MW-07
ELEVATION: DATUM:
LATITUDE: LONGITUDE:
START DATE: 6/13/16 FINISH DATE: 6/14/16
SHEET 1 OF 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: North Bennington, VT CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		7						3.0	Gray & Brown f SAND (seams), WEATHERED Rock ±32'	wet
		8						4.3	BED ROCK Gray LIMESTONE ±38'	
35										
40									Boring Terminated @ ±38' bgs	
45										
50 (20)										
55 (25)										
60 (30)										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling
DRILL RIG TYPE: mini sonic
METHOD OF INVESTIGATION: core barrel

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

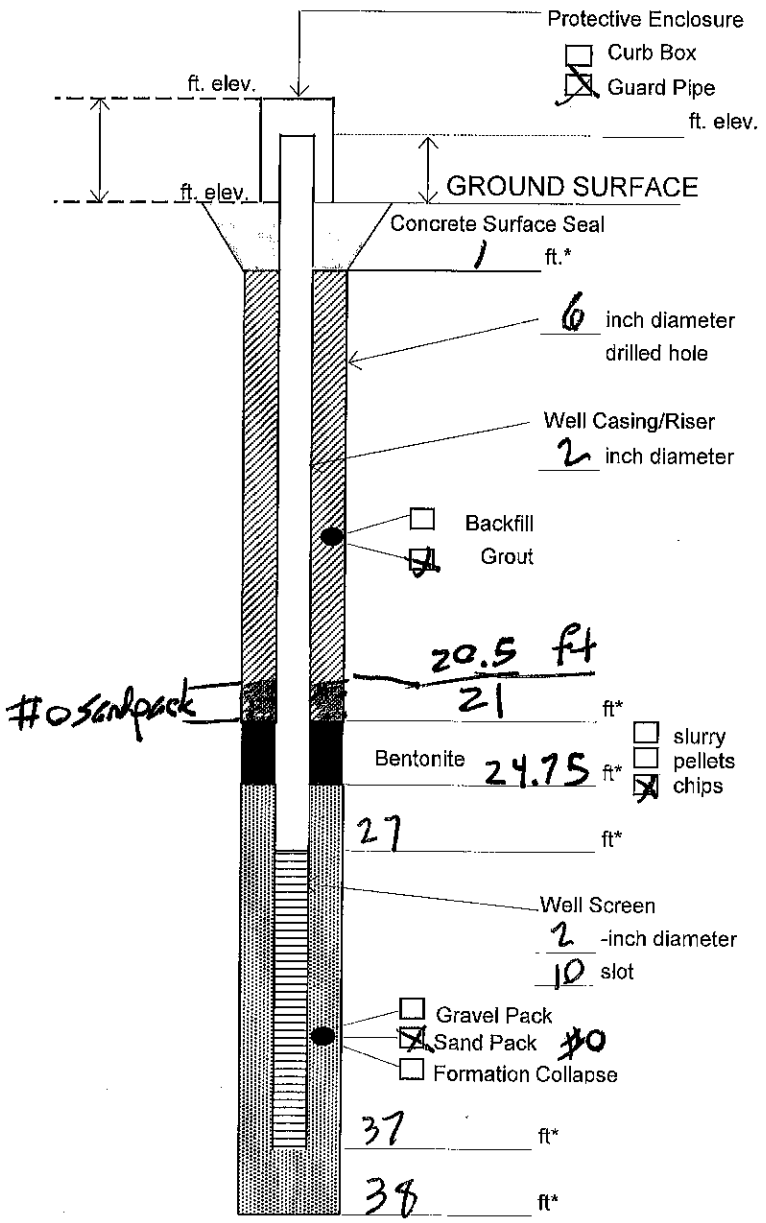
SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

Well No. MW07

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW-07 Boring No.: SG3-MW07

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/14/16

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

4.25 Bags of Sand (50 lb. bags)
Sand Size: #0 Brand: Tilpe
1 Bags of Bentonite (50 lb. bags)
Brand: Cetco Medium Chips
10 ft. of 10 slot PVC (SCH 40) well screen
30 ft. of PVC (SCH 40) well riser
2½ 4 Bags of Cement/Concrete (80 lb. bags)
0.3 / 0.25 Brand: Quikrete Portland Cement
Bags Cetco Grout Bentonite (Powder) 50 lb bags

Grout Mixture:

4½ Bags of Cement (94 lb. bags)
~~40~~ 12 Lbs. of Bentonite
25 ± 18 Gallons of Water
2 Grout Batches

Notes:

Ok

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT:	SGPP - Bennington	PROJECT #: 16.6131	PAGE 1 OF 2
CLIENT:	Saint-Gobain		DATE COLLECTED: 6/13/16 6/14/16
LOCATION:	North Bennington, VT		
INSTRUMENT USED:	Mini-Rae 3000	LAMP 10.6 eV	DATE ANALYZED: 6/14/16
DATE INSTRUMENT CALIBRATED:	6/14/16	BY: JD	
TEMPERATURE OF SOIL:	ambient		ANALYST: JD

	EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
1	SG3-MW07		0-0.5	Soil	0.0	0.0	NONS
2			0.5-1.0		0.0	0.0	NONS
3			1.0-1.5		0.0	0.0	NONS
4			1.5-2.0		0.0	0.0	NONS
5	SG3-MW05		0-0.5		0.1	0.0	NONS
6			0.5-1.0		0.5	0.0	NONS
7			1.0-1.5		0.1	0.0	NONS
8			1.5-2.0		0.2	0.0	NONS
9	SG3-MW07		2.5-3.0		0.0	0.0	NONS
10	SG3-MW05		3.0-3.5		0.1	0.0	NONS
11	SG3-MW06		0-0.5		0.6	0.0	NONS
12			0.5-1.0		0.2	0.0	NONS
13			1.0-1.5		0.1	0.0	NONS
14			1.5-2.0		0.0	0.0	NONS
15	SG3-MW07		1.5-10.0		0.3	0.0	NONS
			2-4'		0.7	0.0	NONS
			4-6'		0.4	0.0	NONS
			6-8'		0.3	0.0	NONS
			8-10'		0.1	0.0	NONS
			10-12.5		0.6	0.0	NONS
			12.5-15		0.4	0.0	NONS

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
***FT represents depth of sample collected feet below ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT:	SGPP - Bennington	PROJECT #: 16.6131	PAGE 1 OF 2
CLIENT:	Saint-Gobain		DATE COLLECTED: 6/14/16
LOCATION:	North Bennington, VT		
INSTRUMENT USED:	Mini-Rae 3000 LAMP 10.6 eV		DATE ANALYZED: 6/19/16
DATE INSTRUMENT CALIBRATED:	6/14/16 BY: JD		ANALYST: JD
TEMPERATURE OF SOIL:	ambient		

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SGB-MW07		15-17		0.7	0.0	NONS
		17-19		0.9	0.0	NONS
		19-20		0.8	0.0	NONS
		20-22		0.7	0.0	NONS
16		22-225		0.4	0.0	NONS
		22-25		1.0	0.0	NONS
17		12.0-12.5		0.6	0.0	NONS
		~~22-22.5~~ 25-28		0.4	0.0	NONS
		28-30		0.4	0.0	NONS
		30-32		0.2	0.0	NONS

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
***FT represents depth of sample collected feet below ground surface

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #:

COC#: 14770

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Jonathan Dippert	
Phone #: 518-786-7400	Quote #: 214135
State where sample(s) were collected: VT	

For Lab Use Only
SF#: 271157
SCR#: 189860

Preservation Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 P = H_3PO_4
O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Matrix: Sediment	Matrix: Water (Potable / Ground / NPDES / Surface)	Matrix: Other: Blank Water	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-LTB-20160613	6/13/16	—						X	1		X		
SG3-FTB-20160613	6/13/16	1510	X					X	1		X		
SG3-MW07-00.0	"	1430	X		X				3		X		MS/MSD
SG3-MW07-00.5	"	1440	X		X				1		X		
SG3-MW07-01.0	"	1450	X		X				1		X		
SG3-MW07-01.5	"	1455	X		X				1		X		
SG3-FD01-20160613	6/13/16	—	X		X				1		X		
SG3-MW07-02.5	6/14/16	0800	X		X				1		X		
SG3-MW05-00.0	"	0830	X		X				1		X		
SG3-MW05-00.5	"	0833	X		X				1		X		

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	[ ]	MA MCP	[ ]	TX TRRP - 13	[ ]
Type III (Reduced non-CLP)	[ ]	CT RCP	[ ]		
Type IV (CLP SOW)	[ ]	ASP Type A	[ ]		
Type VI (Raw Data Only)	[ ]	ASP Type B	[x]		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

	Date	Time	Received by:	Date	Time
Relinquished by:	6/14/16	1200			
Relinquished by:					
Relinquished by:					
Relinquished by:					
Relinquished by:					

Airbill No.:
Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #: COC#: 14770

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: 16.6131

Sampler: Jonathan Dinoet

Phone #: 518 786 1400 Quote #: 214135

State where sample(s) were collected: VT

For Lab Use Only

SF#: 271157

SCR#: 189860

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Matrix: Sediment	Matrix: Water (Ground / Potable / Surface / NPDES)	Matrix: Other: Blank Water	Total # of Containers	Analyses Requested: Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW05-01.0	6/14/16	0841	X		X				1		X		
SG3-MW05-01.5		0846	X		X				1		X		
SG3-MW05-03.0		0903	X		X				1		X		
SG3-RB01-20160614		1000	X		X		X	X	1		X		
SG3-RB02-20160614		1005	X				X	X	1		X		
SG3-MW06-00.0		1017	X		X				1		X		
SG3-MW06-00.5		1022	X		X				1		X		
SG3-MW06-01.0		1030	X		X				1		X		
SG3-MW06-01.5		1050	X		X				1		X		
SG3-RB03-20160614	↓	1100	X					X	1		X		

Preservation Codes: O

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐

Type III (Reduced non-CLP) ☐ CT RCP ☐

Type IV (CLP SOW) ☐ ASP Type A ☐

Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
	6/14/16	1800			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time

Airbill No.:

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #: COC#: 14770

Client: **C.T. Male Associates**

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: 16.6131

Sampler: Jonathan Dimont

Phone #: 518 786 1400 Quote #: 214135

State where sample(s) were collected: VT

For Lab Use Only

SF#: 271157

SCR#: 189860

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Water: Sediment	Water: Ground	Water: Potable	Water: Surface	Water: NPDES	Other: Blank Water	Total # of Containers	Analyses Requested: Preservation Codes: O	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW07-09.5	6/14/16	1220	X		X										X		
SG3-MW07-12.0	"	1223	X		X										X		
SG3-MW07-22.0	↓	1230	X		X										X		

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: k.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐

Type III (Reduced non-CLP) ☐ CT RCP ☐

Type IV (CLP SOW) ☐ ASP Type A ☐

Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

	Relinquished by:	Date	Time	Received by:	Date	Time
1		6/14/16	1800			
2						
3						
4						
5						

Airbill No.:

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #:

COC#: 14770

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington | Site ID:

Project Manager: Kirk Moline | P.O. #: 16.6131

Sampler: Jonathan Dysart

Phone #: 518-786-7400 | Quote #: 214135

State where sample(s) were collected: VT

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Sediment	Water: Potable	Ground	NPDES	Surface	Other:	Total # of Containers	Analyses Requested: Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)
SG3-MW07-00.0	6/13/16	1430	X		X							1	X		X
SG3-MW07-00.5	"	1440	X		X							1	X		X
SG3-MW07-01.0	↓	1450	X		X							1	X		X
SG3-MW07-01.5	6/13/16	1455	X		X							1	X		X
SG3-MW07-02.5	6/14/16	0800	X		X							1	X		X
SG3-MW05-00.0	"	0830	X		X							1	X		X
SG3-MW05-00.5	"	0833	X		X							1	X		X
SG3-MW05-01.0	"	0841	X		X							1	X		X
SG3-MW05-01.5	↓	0846	X		X							1	X		X
SG3-MW05-03.0	6/14/16	0903	X		X							1	X		X

Analyses Requested / Preservation Codes

For Lab Use Only

SF#: 271157

SCR#: 189860

Preservation Codes

H = HCl | T = Thiosulfate

N = HNO_3 | B = NaOH

S = H_2SO_4 | P = H_3PO_4

O = Other

Remarks

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) [ ] MA MCP [ ] TX TRRP - 13 [ ]

Type III (Reduced non-CLP) [ ] CT RCP [ ]

Type IV (CLP SOW) [ ] ASP Type A [ ]

Type VI (Raw Data Only) [ ] ASP Type B [✓]

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	6/8/16	1421	[signature]	6/13/16	0730
[signature]	6/14/16	1800			

Airbill No.:

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

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Environmental Services Analysis Request/Chain of Custody

Page 2 of 2

Acct. #: 37191 Group #: Sample #:

COC#: 14770

For Lab Use Only

SF#: 271157

SCR#: 189860

Client: **C.T. Male Associates**

Project Name/#: SGPP - Bennington | Site ID:

Project Manager: Kirk Moline | P.O. #: 16.6131

Sampler: Jonathan Dippert

Phone #: 518 786 7400 | Quote #: 214135

State where sample(s) were collected: VT

Matrix: Sediment ☐ Ground ☐ Surface ☐ Potable ☐ NPDES ☐ Soil ☒

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other:	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW06-00.0	6/14/16	1017	X		X			1	X		X	
SG3-MW06-00.5	↓	1022	X		X			1	X		X	
SG3-MW06-01.0	↓	1030	X		X			1	X		X	
SG3-MW06-01.5	↓	1050						1	X		X	
SG3-MW07-09.5	↓	1220	X		X			1	X		X	
SG3-MW07-12.0	↓	1223	X		X			1	X		X	
SG3-MW07-22.0	↓	1230	X		X			1	X		X	

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐

Type III (Reduced non-CLP) ☐ CT RCP ☐

Type IV (CLP SOW) ☐ ASP Type A ☐

Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	6/14/16	1800			

Airbill No.:

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 6/15/16 Time On-Site: 0700 Time Off-Site: 1645

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Initial Site Characterization – Soil Borings Field Report No:

Weather Conditions: Sunny, 80F

Present at Site: Jonathan Dippert, Cascade Drilling, Don Ackyl, VTDEC

Observations:

0700 - onsite, check in with Cascade
→ water level in casing at MW-07S is ±13', casing at ±13'.
- Cascade install MW @ ±19', 10' screen.
- spoke to K. Moline. SGPP McCaffrey is not ready yet for core boxes, call later in afternoon to check.
- DA observe well installation, JD prep for sampling.

0830 - finish well installation, mobilize out to next location
- Cascade does not need to decon. They have 4 core barrels + enough casing and rods.
→ collect rinse blank off core barrel going to be used at this location. SG3-RB01-20160615
→ Cascade ended up deconing (had to decon cutting shoe, cleaned casing + rods + core barrel from MW07), ±0.5

0930 - VTDEC (Mike Smith) stopped by looking for Jon Kim

1015 - encountered bedrock @ ±10'. Drilled to ±15' to confirm. Spoke to K. Moline, set well @ ±15' with 10' screen

1030 - Cascade driller drive to water dept to fill water tank, helper stays back and cleans up

1110 - Start hand clearing + collecting samples at MW-03
→ Collect rinse blank off hand augers between ±12-18" and 18"-24" sample. SG3-RB02-20160615 @ 1125

Items to Verify:

List of Attachments: Subsurface Logs, OV Logs, Well Completion Log

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Date 6/15/16 Page 2 of 2

Environmental Services Field Log
(continued)

Project Name: SGPP - Bennington Project No.: 16.6131

Observations:

- collect QA/QC
  - → MS/MSD @ SG3-MW03-00.5
  - → field duplicate SG3-FD01-20160615 @ SG3-MW03-01.0

1130 - Cascade driller return with water
- start well installation
- DA monitor MW install, JJ observe hand clearing to 5' @ MW 03
- Town Sewer stopped by to check progress & utilities

±1230 - State of Vermont (Jim Kim) with intern on-site to review cores
  - → off-site @ ±1315
- complete well installation, mobilize drill rig & equipment across street

±1400 - Start drilling at MW-03
  - → collect rinse blank of core barrel SG3-RB03-20160615
- encounter bedrock @ ±19', finish of run to 20' (driller went to 21' to capture rock
- spoke to K. Malone. Set well @ 21' with 4' screen, offset and install shallow well 13-5' screen interval
- Driller purchased cap/plug for PVC @ Home Depot, decon'd cap before placing in well
- install well up to top choke sand, will grout in AM.
- pack up equipment

1645 - off-site

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.: MW-03
ELEVATION: DATUM:
LATITUDE: LONGITUDE:
START DATE: 6/15/16 FINISH DATE: 6/15/16
SHEET 1 OF 1

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: North Bennington, VT CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
0		1						5.0	Asphalt ±0.25' Brown med-c SAND, A-c GRAVEL & COBBLE ±3.5'	Moist Hand Cleared to ±5' with hand auger
5		2						3.5	Dark Brown f SAND, Some SILT, Some FILL (cinders, coal ash, ash & brick), Little f-md gravel ±6.0'	
10		3						0.0	Orange Brown SILT, Little clay, Little f-md gravel Brown f SAND & SILT, GRAVEL & COBBLE	Very moist @ ±8' Wet @ ±10.0'
15		4						3.3	Brown f-med SAND, Little f-md gravel ±17' Brown GRAVEL & COBBLE, Some Brown A-c Sand ±19.0'	
20		5						1.5	Bedrock Gray Limestone ±21'	
25									Boring Terminated @ ±21.0' bgs	
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: core barrel, 4"

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME
6/15	10.5'	15'	5 min

SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.: MW-05
ELEVATION: DATUM:
LATITUDE: LONGITUDE:
START DATE: 6/14/16 FINISH DATE: 6/15/16
SHEET 1 OF 1

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: North Bennington, VT CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
0		1						5.0	Asphalt ±0.3' Brown SAND & GRAVEL ±1.5' Dark Brown to Black f SAND, CINDERS, SLAG, little ash & brick ±3.6'	moist Hand clear with hand auger to 5' on 6/14/16
5		2						3.6	Brown f SAND, Some Silt, little f-c gravel grades to Brown f-med SAND, Some f-c Gravel, trace coarse sand ±9.5'	gray and dark gray parting @ ±6-6.5' wet @ ±8'
10		3						3.5	Bedrock Gray Limestone ±15'	
15									Boring Terminated @ ±15' bgs	
20										
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling
DRILL RIG TYPE: mini sonic
METHOD OF INVESTIGATION: core barrel 4"

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME
6/15	8'	8'	1 min

SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.: MW-07S
ELEVATION: DATUM:
LATITUDE: LONGITUDE:
START DATE: 6/14/15 FINISH DATE: 6/15/15
SHEET 1 OF 1

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: North Bennington, VT CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
0									Refer to MW-07 for soil classification	
5										
10										
15										
19'										
20									Boring Terminated @ 19' bgs	
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: core barrel 4"

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME
6/15	13.2'	13'	15 hrs

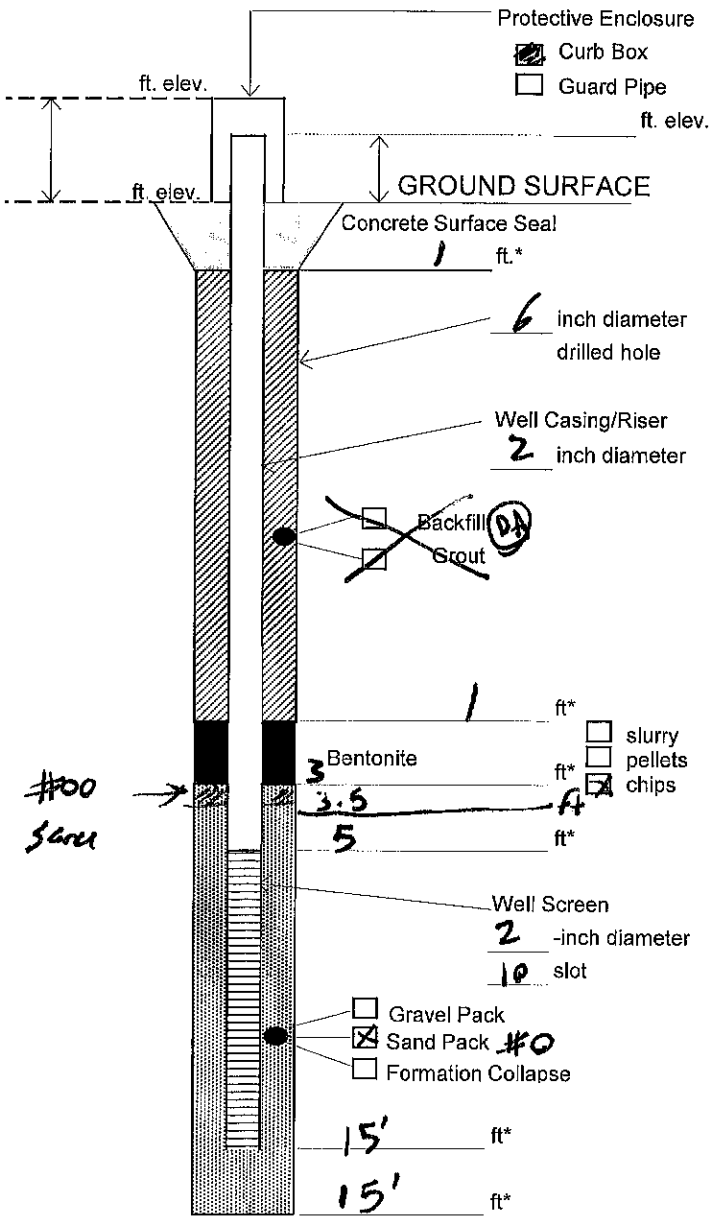
SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

Well No. MW-05

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW-05 Boring No.: MW-05

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/15/16

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

4.5 / 0.25 Bags of Sand (50 lb. bags)
Sand Size: #0 / #00 Brand: Filter
0.75 Bags of Bentonite (50 lb. bags)
Brand: Cetco Pureguild Medium Chips
10 ft. of sch 40 PVC 10 slot well screen
5 ft. of sch 40 PVC well riser
2 1/2 Bags of Cement/Concrete (80 lb. bags)
Brand: Quikrete

Grout Mixture:

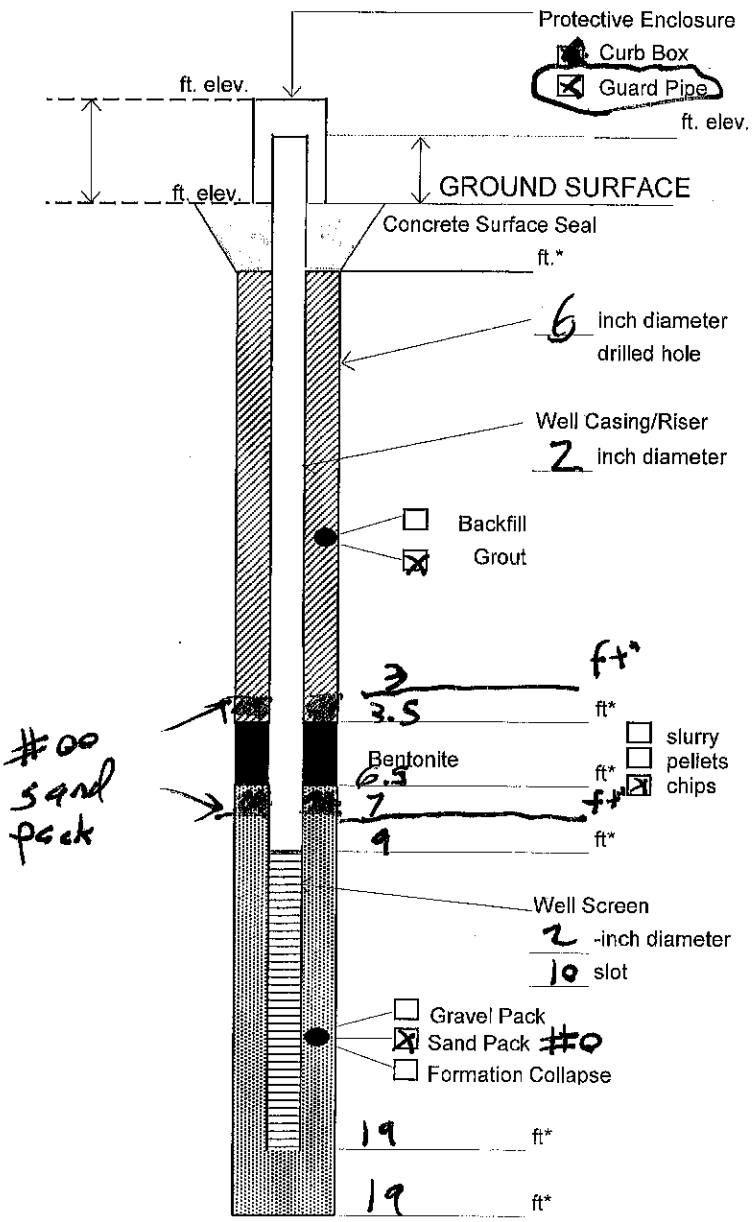
Bags of Cement (____ lb. bags)
Lbs. of Bentonite
DA Gallons of Water
Grout Batches

Notes:
Only 1 well, no casing

C.T. MALE ASSOCIATES

Well No. SG3-MW07S

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: SG3-MW07S Boring No.: SG3-MW07S

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/15/16

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

4.1/.75 Bags of Sand (50 lb. bags)
Sand Size: #0/#00 Brand: F.J.Pro
1.1 Bags of Bentonite (50 lb. bags)
Brand: Cetco Pureguld Medium Chips
10 ft. of Sch 40 PVC 10slot well screen
12 ft. of Sch 40 PVC well riser
3 2½ Bags of ~~Cement~~/Concrete (80 lb. bags)
Brand: Quikrete Portland Type I/II
Bags Cetco powder Bentonite (50 lb bags)

Grout Mixture:

43 Bags of Cement (94 lb. bags)
1¼ Lbs. of Bentonite
14 Gallons of Water
1 Grout Batches

Notes:

Shallow well of couplet

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP - Bennington	PROJECT #: 16.6131	PAGE 1 OF 1	
CLIENT: Saint-Gobain		DATE COLLECTED: 6/15/16	
LOCATION: North Bennington, VT			
INSTRUMENT USED: Mini-Rae 3000	LAMP 10.6 eV	DATE ANALYZED: 6/15/16	
DATE INSTRUMENT CALIBRATED: 6/15/16	BY: JD		
TEMPERATURE OF SOIL: ambient		ANALYST: JD	

	EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS	
	SG3-MW#5		3-5	Soil	1.2	0.0	NONS	
18			5.0-5.5		0.4	0.0	NONS	
			5.5-7.5		0.6	0.0	NONS	
			7.5-10		0.1	0.0	NONS	
19			9.0-9.5		0.3	0.0	NONS	
20	SG3-MW03		0-0.5		0.3	0.0	NONS	
21			0.5-1.0		0.3	0.0	NONS	MS/MSD
22			1.0-1.5		0.2	0.0	NONS	FD01
23			1.5-2.0		0.4	0.0	NONS	
24			03.5-4.0		0.7	0.0	NONS	
25			6.0-6.5		0.1	0.0	NONS	
26			9.5-10.0		0.4	0.0	NONS	
27			17-17.5		0.3	0.0	NONS	
			2-4		0.6	0.0	NONS	
			4-6		0.7	0.0	NONS	
			6-8		0.3	0.0	NONS	
			8-10		0.9	0.0	NONS	
			15-17		0.4	0.0	NONS	
			17-19		0.4	0.0	NONS	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
***FT represents depth of sample collected feet below ground surface

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 6/16/16 Time On-Site: 0720 Time Off-Site: 1615

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Initial Site Characterization – Soil Borings Field Report No:

Weather Conditions: Mostly Sunny, 85°F

Present at Site: Jonathan Dippert, Cascade Drilling, Dan Ashley, State of VT, RPI (Yuri)

Observations:

0720 - on-site (Dropped core boxes at McCaffrey St)
- check-in Cascade
→ grouted MW-03, setting up to offset for MW-03S
- Cascade saw cut and hand clear to 5' @ MW-03S
- CTM hand clear / collect samples at MW-04
±0815 - VT Geologist and Intern on-site
→ Logged MW-03 core boxes
±0930 - VT Geologist and Intern off-site. Start drilling at MW-03S.
→ Cascade advanced to ±15 to get recovery for poor recovery when drilled MW-03
- Install MW-03 at ±13' with 8' screen
±1100 - continue hand clearing to 5' @ MW-04
±1200 - set up drill rig at MW-04
→ collect rinse blank off core barrel (4") before start of drilling SG3-RB01-20160616
1230 - Start drilling.
1300 - encountered rock @ ±19', finished run to 20', used ±25'.
- spoke to K. Moline about well installation
→ install well complete. Drop well to have 5'

Items to Verify:

List of Attachments: Subsurface Log, Well Completion Report, COC, QV Log

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Date 6/16/16

Environmental Services Field Log
(continued)

Project Name: SGPP - Bennington Project No.: 16.6131

Observations: screen, 20'-15', with 1' sand pack to 14', then seal + grout. Shallow well to have bottom of screen interval at 12' with 6' screen (12'-6'), and typical construction.

1315 – State of VT and Intern return on-site, accompanied by RPI Professor (Yuri)
→ review cores of MW-03 and MW-04

– Cascade start well installation
→ driller install well, helper started to hand clear MW-02

± 1430 – State of VT and RPI off-site

– observe well installations and hand clearing.

± 1500 – Cascade finish well installation, set up to offset to install shallow well
– pack up samples for shipment

1615 – off-site to ship samples; Cascade continue working.

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT:	SGPP - Bennington	PROJECT #:	16.6131	PAGE 1 OF 1
CLIENT:	Saint-Gobain			DATE COLLECTED: 6/16/16
LOCATION:	North Bennington, VT			
INSTRUMENT USED:	Mini-Rae 3000	LAMP	10.6 eV	DATE ANALYZED: 6/16/16
DATE INSTRUMENT CALIBRATED:	6/16/16	BY:	JD	
TEMPERATURE OF SOIL:	ambient			ANALYST: JD

	EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
28	SG3-MW04		0-0.5	So.l	0.2	0.0	NONS
29			0.5-1.0		0.8	0.0	NONS
30			1.0-1.5		0.6	0.0	NONS
31			1.5-2.0		0.7	0.0	NONS
32	SG3-MW03		11-11.5		0.2	0.0	NONS
33	SG3-MW04		4.5-5.0		0.5	0.0	NONS
34	SG3-MW02		0-0.5		0.7	0.0	NONS
35			0.5-1		0.8	0.0	NONS
36			1-1.5		1.0	0.0	NONS
37			1.5-2		1.0	0.0	NONS
38	SG3-MW04		8-9.5		0.6	0.0	NONS
39			9.5-10		1.1	0.0	NONS
40			12.5-13		0.9	0.0	NONS
			2-4		1.4	0.0	NONS
			4-6		1.8	0.0	NONS
			6-8		1.9	0.0	NONS
			8-10		1.0	0.0	NONS
			10-12		1.7	0.0	NONS
			12-14		1.4	0.0	NONS
			14-16		1.5	0.0	NONS
			16-19		1.3	0.0	NONS
	SG3-MW03		10-12		1.3	0.0	NONS
			12-15		0.9	0.0	NONS

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
***FT represents depth of sample collected feet below ground surface

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.: MW-03S
ELEVATION: DATUM:
LATITUDE: LONGITUDE:
START DATE: 6/16/16 FINISH DATE: 6/16/16
SHEET 1 OF 1

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: North Bennington, VT CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
									Refer to MW-03 Subsurface Log for soil classification	
10		1						4.3	Brown f SANDY SILT, GRAVEL & COBBLE ±11	very moist @ ±10' wet @ 11' ±12.75'
									Dark Brown med-c SAND, GRAVEL ±11.5	
									D. Gray fine SAND, some c Gravel, trace organics	
									Brown f-c SAND, f-c GRAVEL ±14'	
15									Brown f SAND, little silt, trace med sand ±15' (wet)	
									Boring Terminated @ ±15' bgs	
20										
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: core barrel, 4"

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.: MW-04
ELEVATION: DATUM:
LATITUDE: LONGITUDE:
START DATE: 6/16/16 FINISH DATE: 6/16/16
SHEET 1 OF

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: North Bennington, VT CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
0		1						5.0	Asphalt 0.2'	moist Hand cleared with hand auger to 5' bgs.
									Brown med-c SAND, GRAVEL & COBBLE, trace cinders/slag and ash ±4.5'	
5									Brown SILT, little clay ±8.0'	very moist
		2						4.0	Brown f-c SAND, GRAVEL, some Cobble grades to gray @ ±9.5' grades back to brown @ ±10' ±12.5'	wet @ ±9.5'
10										
		3						3.9	Light Gray Brown f SAND and SILT, f-c GRAVEL ±14.0'	
15										
		4						5.0	Brown med-c SAND, GRAVEL, trace f sand grades to f-med SAND, GRAVEL, trace c sand ±18'	
									GRAVEL to COBBLE, ~~some sand~~ (SS) ±19'	Possibly weathered Rock
20									BEDROCK (Gray LIMESTONE) ±20'	
									Boring Terminated @ ±20' bgs	
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: core barrel

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY: Dippert

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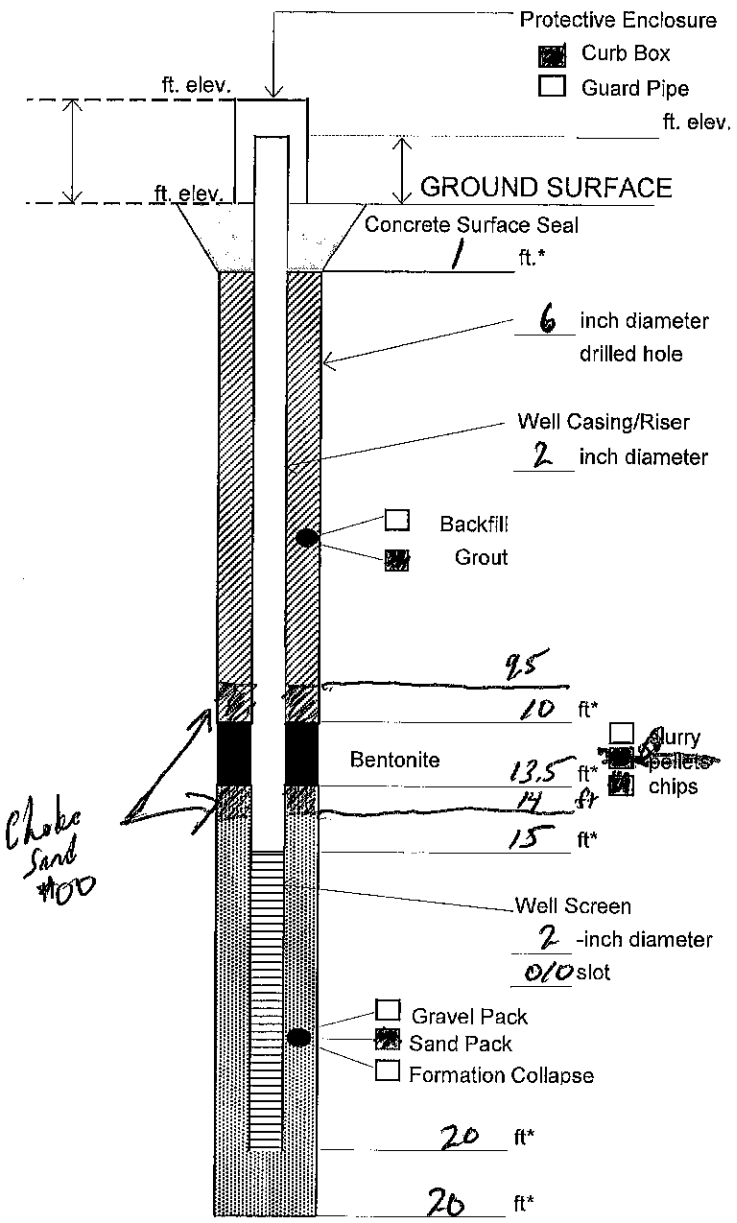
C.T. MALE ASSOCIATES

Well No. MW-04

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW-04 Boring No.: MW-04

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/16/16

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

- 3 1/4 Bags of Sand (50 lb. bags)
  Sand Size: #0 Brand: Filpro
- 3/4 Bags of Bentonite (50 lb. bags)
  Brand: Cetco Medium Chips
- 5 ft. of Schedule 40 PVC well screen
- 15 ft. of Schedule 40 PVC well riser
- 2 1/2 Bags of Cement/Concrete (80 lb. bags)
  Brand: Quikrete

Grout Mixture:

- 3 Bags of Cement (94 lb. bags)
- 10 Lbs. of Bentonite
- 20 Gallons of Water
- 1 Grout Batches

Quikrete Portland Cement

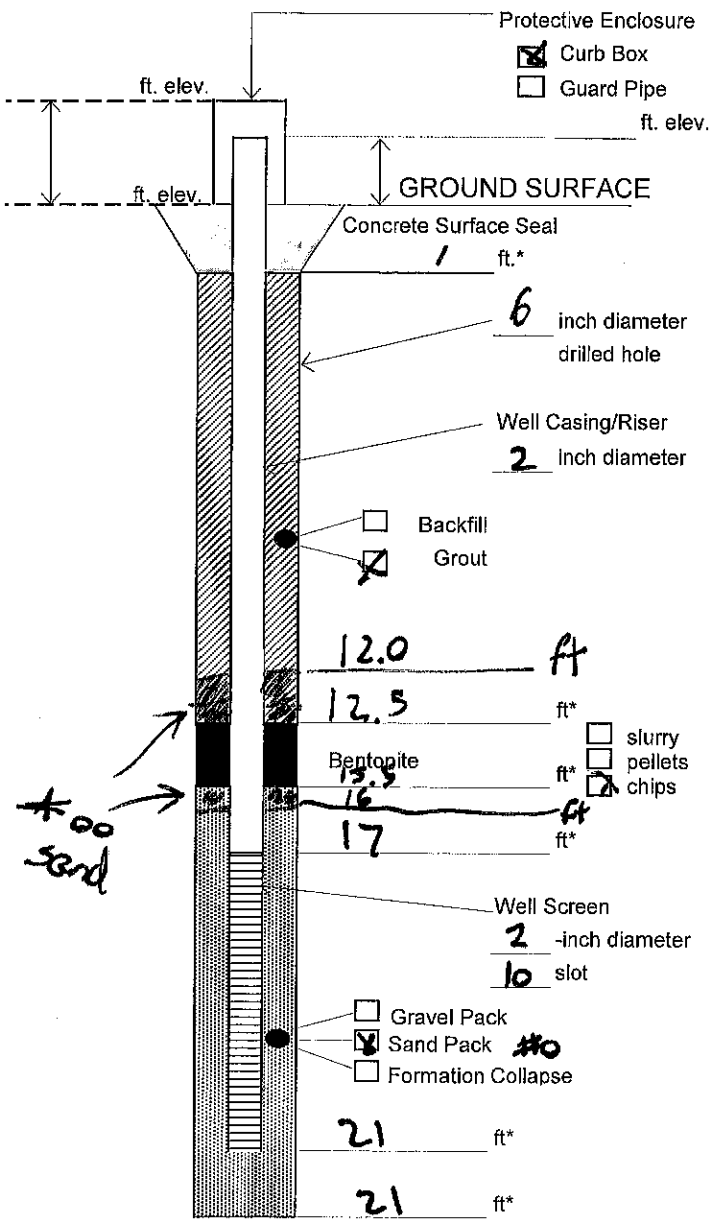
Notes:

1/4 Bag #00 Filpro - 50 lb bag

C.T. MALE ASSOCIATES

Well No. MW03

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW03 Boring No.: SG3-MW03

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/15/16 - 6/16/16

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: 9.95 ft 6/17/16 Date

C.T. Male Observer: J.Dippert

Materials Used:

1.5/0.25 Bags of Sand (50 lb. bags)
Sand Size: #0/#00 Brand: Fibro
0.9 Bags of Bentonite (50 lb. bags)
Brand: Cetco Pure gold Medium chips
4 ft. of Sch 40 PVC 10 slot well screen
17 ft. of Sch 40 PVC well riser
2 1/4 3 Bags of Cement/Concrete (80 lb. bags)
Brand: Quikrete Portland ~~Type~~
0.25 Cetco Bentonite Powder (50 lb bags)

Grout Mixture:

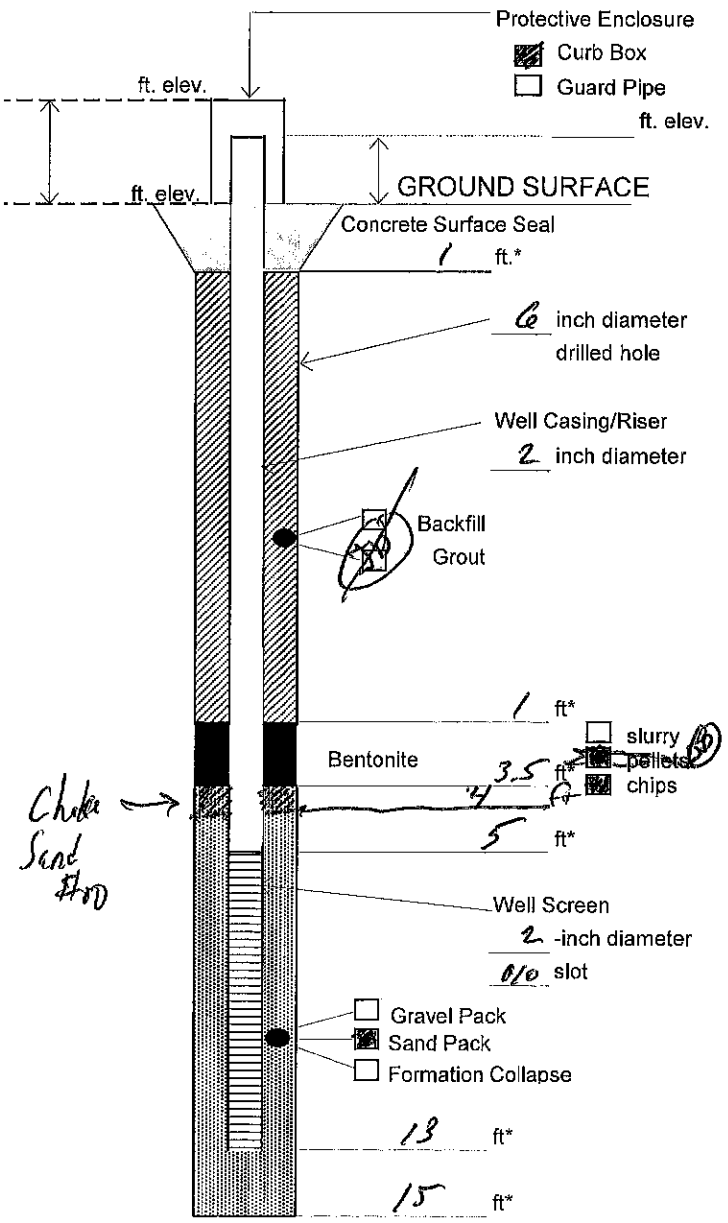
3 Bags of Cement (94 lb. bags)
14 Lbs. of Bentonite
18 Gallons of Water
1 Grout Batches

Notes:
Sand + bentonite installed 6/15/16
Grout installed 6/16/16

C.T. MALE ASSOCIATES

Well No. MW-03S

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW-03S Boring No.: MW-03S

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/16/16

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: 9.98 ft 6/17/16 Date

C.T. Male Observer: J.Dippert

Materials Used:

- 1/4 Bags of Sand (50 lb. bags)
  Sand Size: 0 Brand: Fil-Pro
- 3/4 Bags of Bentonite (50 lb. bags)
  Brand: Cetco Medium Chips
- 5 ft. of Sch. 40 PVC well screen
- 8 ft. of Sch. 40 PVC well riser
- 2 1/2 Bags of Cement/Concrete (80 lb. bags)
  Brand: Quikrete

Grout Mixture:

- Bags of Cement (lb. bags)
- Lbs. of Bentonite
- Gallons of Water
- Grout Batches

Notes:

1/4 Bag #80 Fil-Pro - 50 lbs bag

eurofins | Lancaster Laboratories

Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #:

COC#: 14770

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Jonathan Dippert	
Phone #: 518-786-7400	Quote #: 214135
State where sample(s) were collected: VT	

For Lab Use Only
SF#: 271157
SCR#: 189860

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil (Sediment ☒)	Water (Ground/Surface/Potable/NPDES)	Other: Blank Water	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.) (O)	TOC (5310 B)	Remarks
SG3-TB01-20160615	6/15/16	—					X	1		X		
SG3-RB01-20160615	6/15/16	0905	X				X	1		X		
SG3-MW05-050	|	1005	X		X			1		X		
~~SG3-MW05-09.0~~	|	~~1025~~	~~X~~		~~X~~			~~1~~		~~X~~		
SG3-MW05-09.0	|	1025	X		X			1		X		
SG3-MW03-00.0	|	1120	X		X			1		X		
SG3-MW03-00.5	|	1122	X		X			3		X		MS/MSD here
SG3-MW03-01.0	|	1130	X		X			1		X		
SG3-FD01-20160615	|	1128	X		X			1		X		
SG3-MW03-01.5	↓	1137	X		X			1		X		

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results: K.Moline@ctmale.com

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	6/16/16	1730			

Data Package Options (please check if required)

- Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐
- Type III (Reduced non-CLP) ☐ CT RCP ☐
- Type IV (CLP SOW) ☐ ASP Type A ☐
- Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ______ Other ______

Temperature upon receipt ______ °C

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #: COC#: 14785

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: ~~16.6126~~ 16.6131

Sampler: Jonathan Dimont

Phone #: 518 756 1400 Quote #: 214135

State where sample(s) were collected: VT

For Lab Use Only

SF#: 271157

SCR#: 190029

Preservation Codes

H = HCl T = Thiosulfate

N = HNO_3 B = NaOH

S = H_2SO_4 P = H_3PO_4

O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Water: Ground	Water: Potable	Water: NPDES	Water: Surface	Other: Blank Water	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
												Preservation Codes:	0		
SG3-RB02-20160615	6/15/16	1125	X							X	1		X		
~~SG3-TB01-20160615~~	~~6/15/16~~		X							X	1		X	(2)	
SG3-FTB01-20160615	6/15/16	1210	X							X	1		X		
SG3-MW03-03.5	6/15/16	1305	X		X						1		X		
SG3-RB03-20160615	6/15/16	1465	X							X	1		X		
~~SG3-RB03~~															
SG3-MW03-06.0	6/15/16	1930	X		X						1		X		
SG3-MW03-09.5	6/15/16	1445	X		X						1		X		
SG3-MW04-00.0	6/16/16	0855	X		X						1		X		
SG3-MW04-00.5	6/16/16	0900	X		X						1		X		

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐

Type III (Reduced non-CLP) ☐ CT RCP ☐

Type IV (CLP SOW) ☐ ASP Type A ☐

Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
	6-13-16	1245		6/16/16	0730
	6/16/16	1730			

Airbill No.:

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

eurofins | Lancaster Laboratories

Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #: COC#: 14785

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington | Site ID: NA

Project Manager: Kirk Moline | P.O. #: ~~16.6126~~ 16.6131

Sampler: Jonathan Dinoci

Phone #: 518 786 7400 | Quote #: 214135

State where sample(s) were collected: VT

Matrix: Sediment ☐ Soil ☒ Water: Ground ☐ Surface ☐ Potable ☐ NPDES ☐ Other: Blank Water

For Lab Use Only: SF#: 271157 SCR#: 190029

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
Preservation Codes										O		
SG3-MW03-17.0	6/15/16	1510	X		X			1		X		
SG3-MW04-01.0	6/16/16	0905	X		X			1		X		
SG3-MW04-01.5	↓	0910	X		X			1		X		
SG3-MW03-11.0	↓	1040	X		X			1		X		
SG3-MW04-4.5	↓	1205	X		X			1		X		
SG3-RB01-20160616	↓	1220	X		X			1		X		
SG3-MW02-00.0	↓	307	X		X			1		X		
SG3-MW02-00.5	↓	305	X		X			1		X		
SG3-MW02-01.0	↓	310	X		X			1		X		
SG3-MW02-01.5	↓	313	X		X			1		X		

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Relinquished by	Date	Time	Received by	Date	Time
[signature]	6/16/16	1730			

Data Package Options (please check if required)

- Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐
- Type III (Reduced non-CLP) ☐ CT RCP ☐
- Type IV (CLP SOW) ☐ ASP Type A ☐
- Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Airbill No.:

Relinquished by Commercial Carrier: UPS ___ FedEx ___ Other ___

Temperature upon receipt ___ °C

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #: COC#: 14785

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: ~~16.6126~~ 16.6131

Sampler: Jonathan Dippert

Phone #: 518 786 7400 Quote #: 214135

State where sample(s) were collected: VT

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Matrix: Sediment	Matrix: Water (Potable / Ground / NPDES / Surface)	Matrix: Other:	Total # of Containers	Analyses Requested: Preservation Codes: Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW04-08.0	6/6/16	1345	X		X						X		
SG3-MW04-09.5	"	1350	X		X						X		
SG3-MW04-12.5	"	1355	X		X						X		

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

For Lab Use Only

SF#: 271157

SCR#: 190029

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) [ ] MA MCP [ ] TX TRRP - 13 [ ]

Type III (Reduced non-CLP) [ ] CT RCP [ ]

Type IV (CLP SOW) [ ] ASP Type A [ ]

Type VI (Raw Data Only) [ ] ASP Type B [✓]

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
	6/16/16	1730			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time

Airbill No.:

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 6/17/16 Time On-Site: 0715 Time Off-Site: 1445

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Initial Site Characterization – Soil Borings Field Report No:

Weather Conditions: Sunny, 80°F

Present at Site: Jonathan Dippert, Cascade Drilling, Dan Mabry/

Observations:

0715 - on-site. Dropped core boxes at McCaffrey St complex.
- Cascade set up on MW-04S
  → start hand clearing to 5' (helper), driller decon drilling equip
- Cascade finish hand clearing to ±6' at MW-02 late yesterday.
  → confirm depth, then backfilled
- set up for day of sampling
- collect rinse blank samples
  → SG3-RB02-20160617 - nitrile glove
  SG3-RB02-20160617 — stainless steel bowl used for ~~6"~~ 5.0' interval @ MW-02

0930 - finish installation of MW-04S
- mobilize to MW-02

1000 - set up and start drilling
  → collect rinse blank off of core barrel
  SG3-RB03-20160617
- while drilling, helper install curb boxes at installed MW locations
- collect subsurface soil samples
  → MS/MSD collected SG3-MW02-08.0
  → field duplicate collected @ SG3-MW02-05.0
  (SG3-FD01-20160617)
- encounter bedrock @ ±11' bgs, drilled to 13'.

Items to Verify:

List of Attachments: Subsurface Log, OV Log, MW Construction Log, COC

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Date 6/17/16 Page 2 of 2

Environmental Services Field Log
(continued)

Project Name: SGPP - Bennington Project No.: 16.6131

Observations:

- spoke to K. Malone about well construction
  → install well screen 13-5', only one well.

1045 - start well installation

1130 - finish well installation, Cascade clean up location
  → drive to Home Depot for concrete for well pads - ~~pads all prepped~~ (30)
  pads in North parcel parking lot prepped
- install pads and clean up site for weekend.
  → park drill rig over MW-02

1445 - off-site; Cascade remain on-site and packing up.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.: MW-02
ELEVATION: DATUM:
LATITUDE: LONGITUDE:
START DATE: 6/16/16 FINISH DATE: 6/17/16
SHEET 1 OF 1

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: North Bennington, VT CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
0		1						1.8	ASPHALT ±0.2	moist Hand cleared to 6' with hand auger on 6/16/16
									Brown f-med + C SAND, GRAVEL & COBBLE, trace slag/cinders, trace f sand + silt	
5									±5.0	
		2						2.5	Brown f SAND, Some Silt, Some f-med Gravel and Cobble, little c Sand ±6	
									Light Brown f SAND, Some Silt, little f-med gravel ±8'	5' very moist @ 8'
10									Brown f SAND, ~~Some~~ f-c GRAVEL, ~~Some Silt~~, little Silt, little cobble ±11'	wet @ 10'
		3						3.0	Bedrock Gray Limestone ±13'	
15									Boring Terminated @ ±13' bgs	
20										
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: core barrel, 4"

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.: MW-04S
ELEVATION: DATUM:
LATITUDE: LONGITUDE:
START DATE: 6/17/16 FINISH DATE: 6/17/16
SHEET 1 OF 1

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: North Bennington, VT CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
0									Refer to MW-04 Subsurface Log for soil classification	
5										
10									±12'	
									Boring Terminated @ ±12' bgs	
15										
20										
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: core barrel, 4"

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

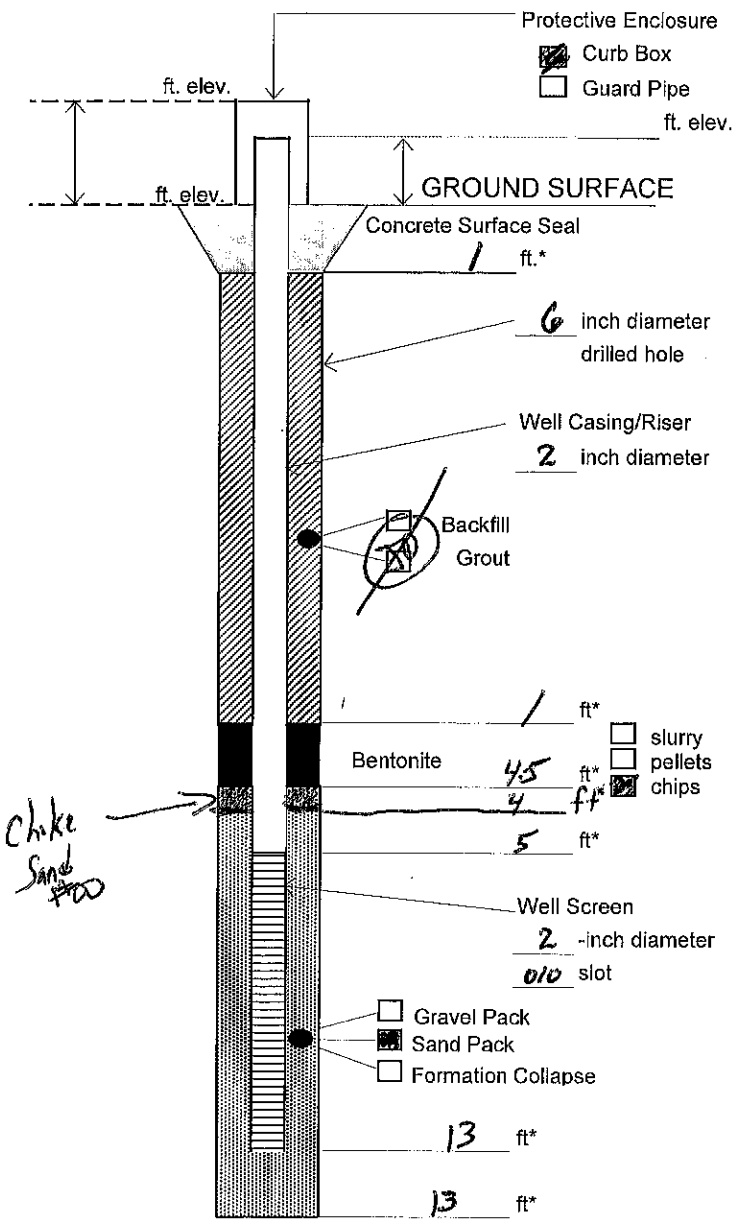
SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

Well No. MW02

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW-02 Boring No.: MW-02

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/17/16

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

- 2 3/4 Bags of Sand (50 lb. bags) Sand Size: #0 Brand: FilPro
- 1 Bags of Bentonite (50 lb. bags) Brand: Certo Medium Chips
- 5 ft. of Sch 40 PVC well screen
- 8 ft. of Sch 40 PVC well riser
- 2 1/2 Bags of Cement/Concrete (90 lb. bags) Brand: Quikrete

Grout Mixture:

- ____ Bags of Cement (____ lb. bags)
- ____ Lbs. of Bentonite
- ____ Gallons of Water
- ____ Grout Batches

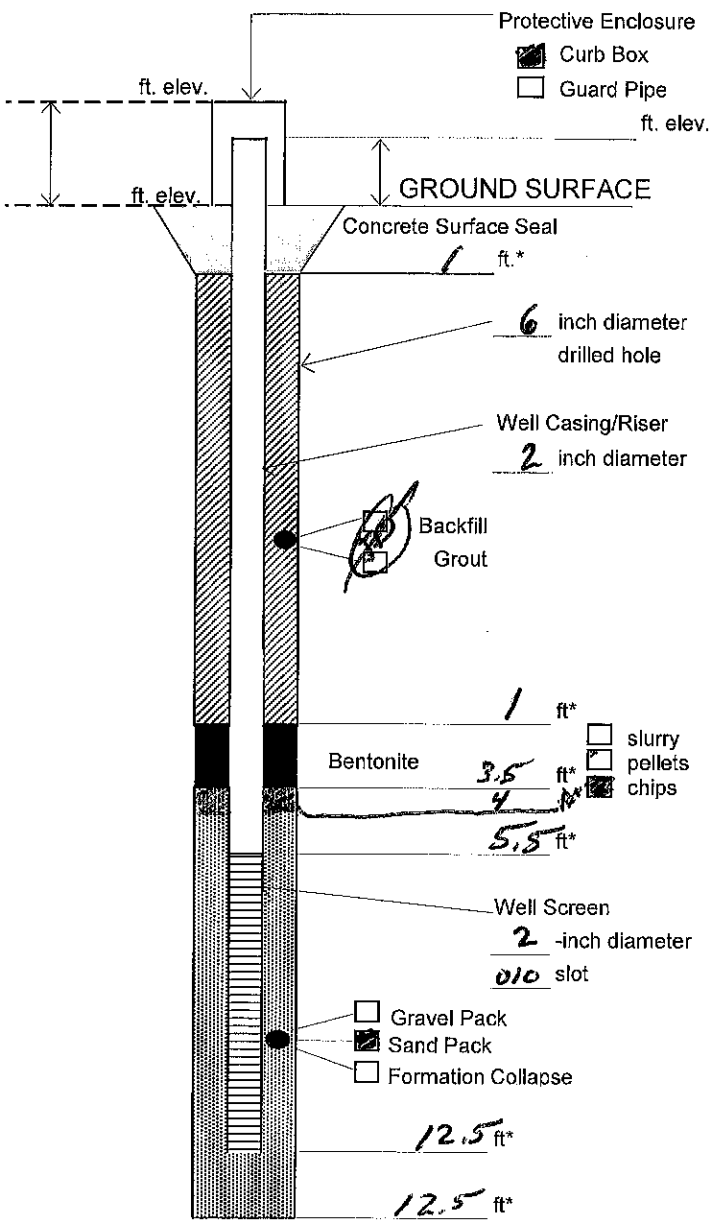
Notes:

1/4 bag #00 Sand - FilPro - 50# bag

C.T. MALE ASSOCIATES

Well No. MW-04S

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW-04S Boring No.: MW-04S

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/17/16

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

4 Bags of Sand (50 lb. bags)
Sand Size: ____ Brand: Filpro
3/4 Bags of Bentonite (50 lb. bags)
Brand: Cetco Medium Chips
7 ft. of Sch 40 PVC well screen
5 ft. of Sch. 40 PVC well riser
2 1/2 Bags of Cement/Concrete (80 lb. bags)
Brand: Quikrete Concrete

Grout Mixture:

____ Bags of Cement (____ lb. bags)
____ Lbs. of Bentonite
____ Gallons of Water
____ Grout Batches

Notes:

1/4 - bag #00 Sand - Filpro - 50lb bag

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT:	SGPP - Bennington	**PROJECT #:** 16.6131	**PAGE 1 OF 1**
CLIENT:	Saint-Gobain		**DATE COLLECTED:** 6/17/16
LOCATION:	North Bennington, VT		
INSTRUMENT USED:	Mini-Rae 3000	**LAMP** 10.6 **eV**	**DATE ANALYZED:** 6/17/16
DATE INSTRUMENT CALIBRATED:	6/17/16	**BY:** JD	
TEMPERATURE OF SOIL:	ambient		**ANALYST:** JD

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
41 SG3-MW02		5-5.5	Soil	0.3	0.0	NONS
42		8-8.5		0.2	0.0	NONS
43		10-10.5		0.2	0.0	NONS
		2-4		0.3	0.0	NONS
		4-6		0.2	0.0	NONS
		6-6		0.1	0.0	NONS
		8-10		0.1	0.0	NONS
44		6-6.5		0.2	0.0	NONS

FD01 MS/MSD

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
***FT represents depth of sample collected feet below ground surface

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Environmental Services Analysis Request/Chain of Custody

COC#: 14770

Acct. #: 37191 Group #: Sample #:

For Lab Use Only
SF#: 271157
SCR#: 189860

Client: C.T. Male Associates Site ID:

Project Manager: Kirk Moline P.O. #: 16.6131

Sampler: Jonathan Dipoert

Phone #: 518-786-7400 Quote #: 214135

State where sample(s) were collected: VT

Matrix: Sediment, Soil, Ground Water, Potable Water, Surface Water, NPDES, Other: Blank Water

Analyses Requested / Preservation Codes

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Ground Water	Other: Blank Water	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod)	TOC (5310 B)	Remarks
SG3-LTB-20160617	6/8/16	—	X				X	1		X		
SG3-FTB-20160617	6/17/16	0755	X				X	1		X		
SG3-RB01-20160617	"	0805	X				X	1		X		
SG3-RB02-20160617	"	0810	X				X	1		X		
SG3-RB03-20160617	"	1005	X				X	1		X		
SG3-MW02-05.0	"	1050	X		X		X	1		X		MS/MSD
SG3-MW02-08.0	"	1110	X		X		X	3		X		
SG3-MW02-10.0	"	1115	X		X		X	1		X		
SG3-MW02-06.0	↓	1320	X		X		X	1		X		

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐

Type III (Reduced non-CLP) ☐ CT RCP ☐

Type IV (CLP SOW) ☐ ASP Type A ☐

Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
	6/17/16	1600			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time

Airbill No.:
Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

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Environmental Services Analysis Request/Chain of Custody

COC#: 14785

Acct. #: 37191 Group #: Sample #:

For Lab Use Only
SF#: 271157
SCR#: 190029

Client: C.T. Male Associates

Site ID: NA

Project Manager: Kirk Moline
P.O. #: [redacted]

Sampler: Jonathon Dippon

Phone #: 518 786 1400

Quote #: 214135

State where sample(s) were collected: VT

Matrix: Soil ☑ | Sediment ☐ | Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ | Other: ☐

Analyses Requested / Preservation Codes

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW04-08.0	6/16/16	1345	X		1	X		X	
SG3-MW04-09.5	"	1350	X		1	X		X	
SG3-MW04-12.5	"	1355	X		1	X		X	
SG3-MW02-05.0	6/17/16	1050	X		1	X		X	
SG3-MW02-08.0	"	1110	X	X	1	X		X	
SG3-MW02-10.0	"	1115	X		1	X		X	
SG3-MW02-06.0	"	1320	X		1	X		X	

Turnaround Time Requested (TAT) (please check): Standard ☐ RUSH ☑
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐
Type IV (CLP SOW)	☐	ASP Type A	☐
Type VI (Raw Data Only)	☐	ASP Type B	☑
TX TRRP - 13	☐		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

	Relinquished by:	Date	Time	Received by:	Date	Time
1	[signature]	6/17/16	1600			
2						
3						
4						
5						

Airbill No.:
Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

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Environmental Services Analysis Request/Chain of Custody

COC#: 14785

Acct. #: 37191 Group #: Sample #:

For Lab Use Only
SF#: 271157
SCR#: 190029

Client: C.T. Male Associates — Site ID: GM

Sampler: Jonathan Dicard
Phone #: 518 786 1400
Quote #: 214135
State where sample(s) were collected: VT

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Water	Other:	Total # of Containers	Analyses Requested: Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW04-00.5	6/16/16	0900	X		X			1	X		X	
SG3-MW03-17.0	6/15/16	1510	X		X			1	X		X	
SG3-MW04-01.0	6/16/16	0905	X		X			1	X		X	
SG3-MW04-01.5	"	0910	X		X			1	X		X	
SG3-MW03-11.0	"	1040	X		X			1	X		X	
SG3-MW04-04.5	"	1205	X		X			1	X		X	
SG3-MW02-00.0	"	1302	X		X			1	X		X	
SG3-MW02-00.5	"	1305	X		X			1	X		X	
SG3-MW02-01.0	"	1310	X		X			1	X		X	
SG3-MW02-01.5	↓	1313	X		X			1	X		X	

Preservation Codes
H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)
Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
	6/17/16	1600			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time

Airbill No.:
Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

Environmental Services Analysis Request/Chain of Custody

Eurofins | Lancaster Laboratories

COC#: 14770

Acct. #: 37191 Group #: Sample #:

For Lab Use Only
SF#: 271157
SCR#: 189860

Client: C.T. Male Associates — Site ID: — Bennington

Sampler: Jonathan Dippert
Phone #: 518-786-7400
Quote #: 214135
State where sample(s) were collected: VT

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Water	Other:	Total # of Containers	Analyses Requested: Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW05-05.0	6/9/16	1005	X		X			1	X		X	
SG3-MW05-09.0	"	1025	X		X			1	X		X	
SG3-MW03-00.0	"	1120	X		X			1	X		X	
SG3-MW03-00.5	"	1122	X		X			1	X		X	
SG3-MW03-01.0	"	1130	X		X			1	X		X	
SG3-MW03-01.5	"	1137	X		X			1	X		X	
SG3-MW03-03.5	"	1305	X		X			1	X		X	
SG3-MW03-06.0	"	1930	X		X			1	X		X	
SG3-MW03-09.5	↓	1445	X		X			1	X		X	
SG3-MW04-00.0	6/10/16	0855	X		X			1	X		X	

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) [ ] MA MCP [ ] TX TRRP - 13 [ ]
Type III (Reduced non-CLP) [ ] CT RCP [ ]
Type IV (CLP SOW) [ ] ASP Type A [ ]
Type VI (Raw Data Only) [ ] ASP Type B [✓]

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
	6/17/16	1600			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time

Airbill No.:
Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 6/20/16 Time On-Site: 0710 Time Off-Site: 1615

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Initial Site Characterization – Soil Borings Field Report No:

Weather Conditions: Sunny, 90°F

Present at Site: Jonathan Dippert, Cascade Drilling, Lorene Cameron, Amy LeRel

Observations:

0710 - on-site, Cascade on-site

- Driller took support truck to get water, helper cut curb box at MW-05 and open up concrete at MW-01

- set up coolers and review sampling

0800 - driller return to site with water

- move drill rig over to MW-01 location and bust up concrete. Helper continue popping pads for concrete

0830 - start hand clearing and sampling at MW-01

- reach ±5.0' below bottom of concrete, set up for drilling + start

→ collect rinse blank sample off of core barrel

SGS-RB01-20160620

- encounter bedrock at ±14', bottom of boring at 15'.

→ spoke to K Moline about screen placement. Install one well screen interval of 15-5'.

- install well, collect soil samples at soil / lithological changes

1200 - mobilize to next location (Cascade helper hand clearing while install MW)

- hand cleared down to ±4', cobble in bottom of hole.

→ used drill to break it up, then attempted to hand clear but could not get past cobble.

Items to Verify:

List of Attachments: Subsurface Log, MW Construction Log, OVM Log

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Date 6/20/16

Environmental Services Field Log
(continued)

Project Name: SGPP - Bennington Project No.: 16.6131

Observations:

- start drilling and sampling → collect rinse blank SGS-RB02-20160620
- tough drilling at ±11-12', punched through cobble. Tough drilling continued (short runs to confirm ~~refusal~~ refusal in rock).

1500 - encounter bedrock @ ±18.5'. Drilled to 20'.
→ drillers breakdown for the day + clean up
- breakdown equipment + log soil and complete logs

1615 - off-site

- spoke to K. Mehne afterhours, set 3' screen with interval 20'-17' with 1' sand to 16' and seal. Place bottom of shallow well @ ±13.5' bgs.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.: MW-06
ELEVATION: DATUM:
LATITUDE: LONGITUDE:
START DATE: 6/20/16 FINISH DATE: 6/20/16
SHEET 1 OF

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: North Bennington, VT CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
0		1						3.2	ASPHALT ±0.25 Brown med-c SAND, GRAVEL & COBBLE	moist hand cleared to ±4' with hand auger
5									±5'	
		2						0.7	Brown f SAND, little silt, trace organics, trace f gravel, trace orange brown and gray laminated	very moist @ ±5' wet @ ±10.5'
10									±10.5'	
		3						2.9	Brown f SAND, GRAVEL & COBBLE ±12'	2.9 recovery in 2' core due to sample above falling down.
		4						2.0	Gray f-med SAND, Gravel & COBBLE, ±13' little c Sand	
15									Gray Brown f SAND, f-c GRAVEL, trace silt	very moist (TILL)
		5						1.9	seam of f-med sand @ ±17'	wet @ ±16.5'
									±18.5'	
20		6						1.2	Bedrock (Gray Limestone) ±20'	
									Boring Terminated @ ±20' bgs	
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: core barrel, 4"

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.: MW-01
ELEVATION: DATUM:
LATITUDE: LONGITUDE:
START DATE: 6/20/16 FINISH DATE: 6/20/16
SHEET 1 OF 1

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: North Bennington, VT CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		1						3.0	CONCRETE ±0.75'	moist hand cleared
									Brown f-med SAND & GRAVEL, little silt, trace cinders, brick ±3.5'	to ±5' with
5									Orange Brown f SAND, Some Silt, trace f-med gravel	very moist hand auger
		2						2.8	grades to Brown f SAND, Some f-med Gravel, trace silt ±8'	
10									Brown med-c SAND, GRAVEL, trace fine sand + silt	Wet @ ±9'
								2.8	±13'	
									Brown f-med SAND, GRAVEL to COBBLE ±14'	
15									BEDROCK (Gray Limestone) ±15'	
									Boring Terminated @ ± 15' bgs	
20										
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: core barrel, 4"

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT:	SGPP - Bennington	**PROJECT #:** 16.6131	**PAGE 1 OF** 1
CLIENT:	Saint-Gobain		**DATE COLLECTED:** 6/20/16
LOCATION:	North Bennington, VT		
INSTRUMENT USED:	Mini-Rae 3000 **LAMP** 10.6 eV		**DATE ANALYZED:** 6/20/16
DATE INSTRUMENT CALIBRATED:	6/20/16 **BY:** JD		
TEMPERATURE OF SOIL:	ambient		**ANALYST:** JD

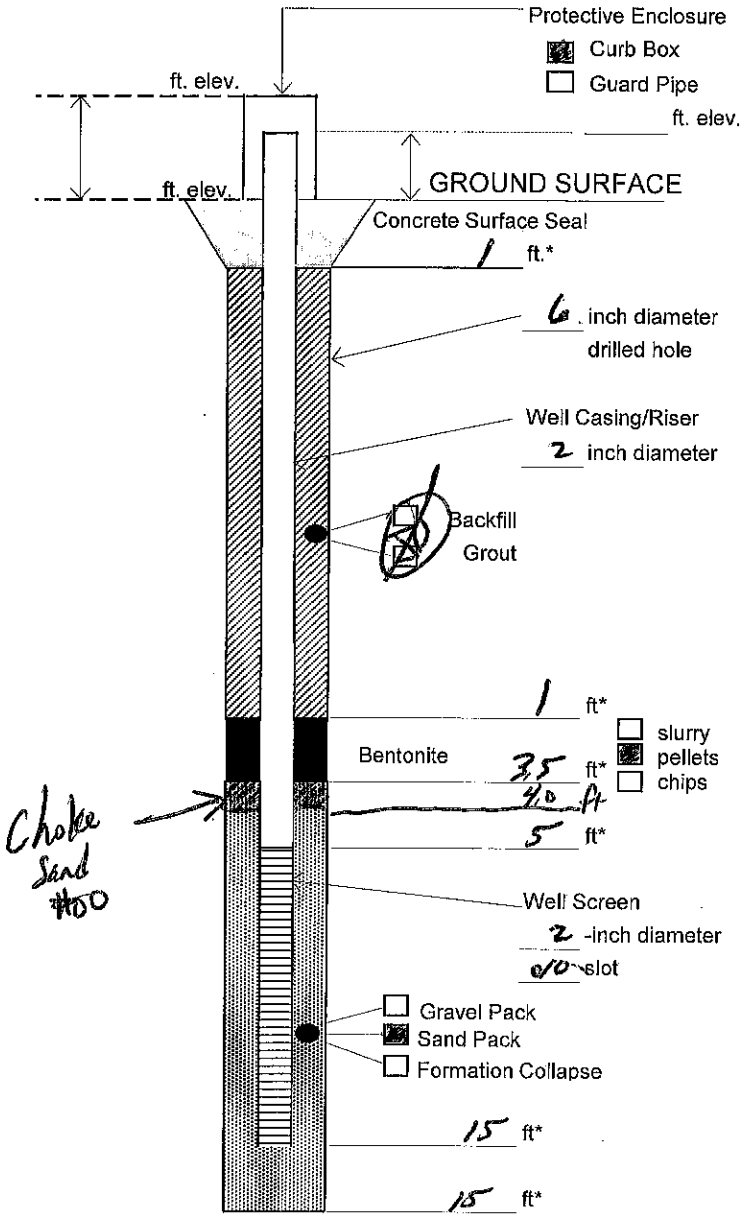
EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
MW-01		0-0.5	Soil	0.0	0.0	NONS
		0.5-1.0		0.2	0.0	NONS
		1.0-1.5		0.2	0.0	NONS
		1.5-2.0		0.0	0.0	NONS
		3.0-3.5		0.1	0.0	NONS
		08.00		0.0	0.00	NONS
		13.00		0.1	0.0	NONS
		2-4		~~0.5~~	~~+5~~ 0.1	NONS
		4-6		0.4	0.2	NONS
		6-8		1.0	0.2	NONS
		8-10		3.0	0.2	NONS
		10-12		1.1	0.2	NONS
		12-14		2.4	0.2	NONS
MW-06		~~05.0~~ 0-0.5		1.2	0.2	NONS
		10.5		1.1	0.1	NONS
		13.5		0.0	0.0	NONS
		2'-4'		2.0	0.0	NONS
		5-10		0.5	0.0	NONS
		10-12		2.1	0.0	NONS
		12-15		0.3	0.1	NONS
		15-18	↓	0.5	0.1	NONS

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
***FT represents depth of sample collected feet below ground surface

C.T. MALE ASSOCIATES

Well No. MW-01

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW-01 Boring No.: MW-01

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/20/16

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

- 4 1/2 Bags of Sand (50 lb. bags) Sand Size: #0 Brand: Fill Pro
- 1 Bags of Bentonite (50 lb. bags) Brand: Cetco medium Chips
- 10 ft. of Sch 40 PVC well screen
- 5 ft. of Sch 40 PVC well riser
- 3.5 Bags of Cement/Concrete (80 lb. bags) Brand: Quikrete Concrete mix

Grout Mixture:

- Bags of Cement (____ lb. bags)
- Lbs. of Bentonite
- Gallons of Water
- Grout Batches

Notes:

1/4 bag of #80 Sand - Fill Pro - 50 lb bag

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 6/21/16 Time On-Site: 0730 Time Off-Site: 1500

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Initial Site Characterization – Soil Borings Field Report No:

Weather Conditions: Sunny, 80°F

Present at Site: Jonathan Dippert, Cascade Drilling, Carrie Cameron, Amy LaBel

Observations:

0730 - on-site. (attempted to drop core boxes at McCarthy but no one answered)
- checked in with Cascade (returning from Home Depot with concrete for curb boxes). Ready to install monitoring well.
→ prep curb boxes while CTM runs to Home Depot for well development equipment

~0815 - start MW-06 well installation
- label used drums @ & with non-hazardous waste labels
- Cascade helper prep road boxes and install pads while driller installed monitoring well

0935 - finish well installation & set up for development @ MW-03 well cluster
→ review procedure with L.C. and A.L.
- L.C. and A.L. set up and collect rinse blank samples of equipment to be used during well development

1230 - start MW-06S well installation
- L.C. and A.L. start well development at MW-03S

1400 - complete well installation - Cascade complete protective enclosures for all MWs & cut PVC.
- Cascade prepare for demobilization, move all drums to concrete pad on southern parcel.
- assist L.C. & A.L with development

Items to Verify:

List of Attachments: MW Construction Log, Subsurface Log, Well Development Log, COC

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Date 6/21/16

Environmental Services Field Log

(continued)

Project Name: SGPP - Bennington Project No.: 16.6131

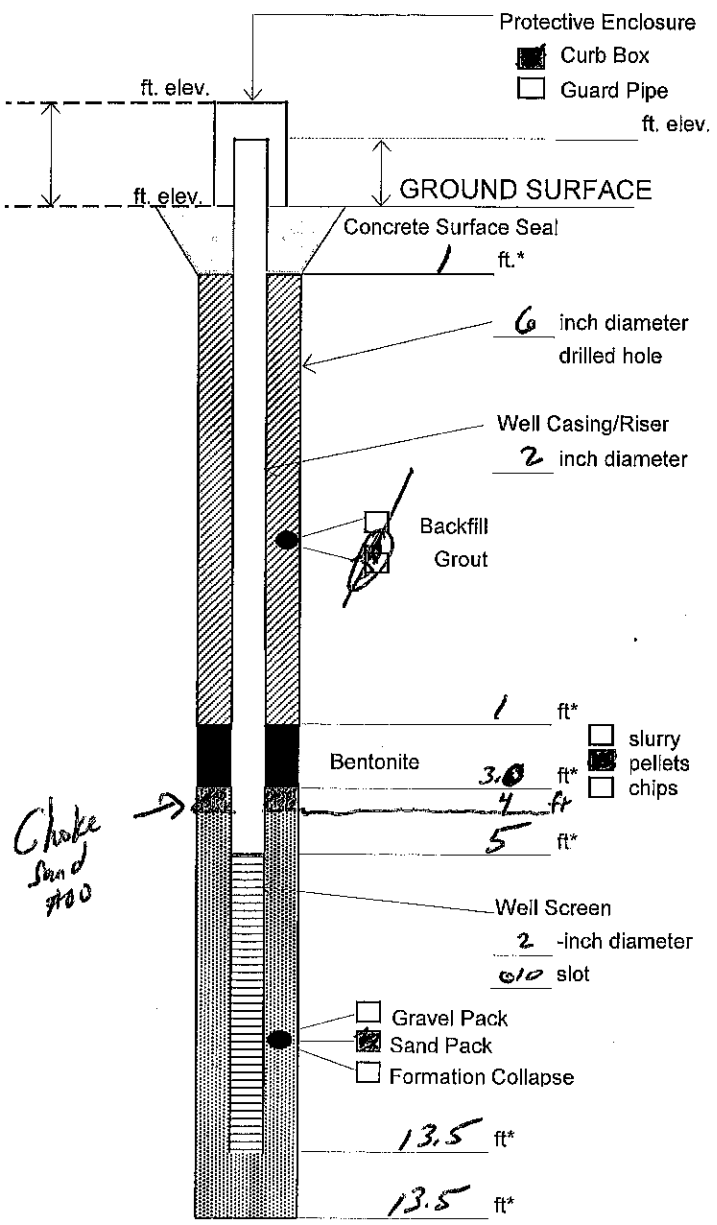
Observations:

1445 – CTM pack up equipment and samples for shipment
– Cascade demobilizing today, will remain on-site till finished.
1510 – CTM off-site.

C.T. MALE ASSOCIATES

Well No. MW-06S

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW-06S Boring No.: MW-06S

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/21/16

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

- 4¼ Bags of Sand (50 lb. bags) Sand Size: #0 Brand: Fi/Pro
- 3/4 Bags of Bentonite (50 lb. bags) Brand: Cetco medium chips
- 8.5 ft. of Sch 40 PVC well screen
- 8.5 ft. of Sch 40 PVC well riser
- 2.5 Bags of Cement/Concrete (80 lb. bags) Brand: Quikrete Concrete mix

Grout Mixture:

- ____ Bags of Cement (____ lb. bags)
- ____ Lbs. of Bentonite
- ____ Gallons of Water
- ____ Grout Batches

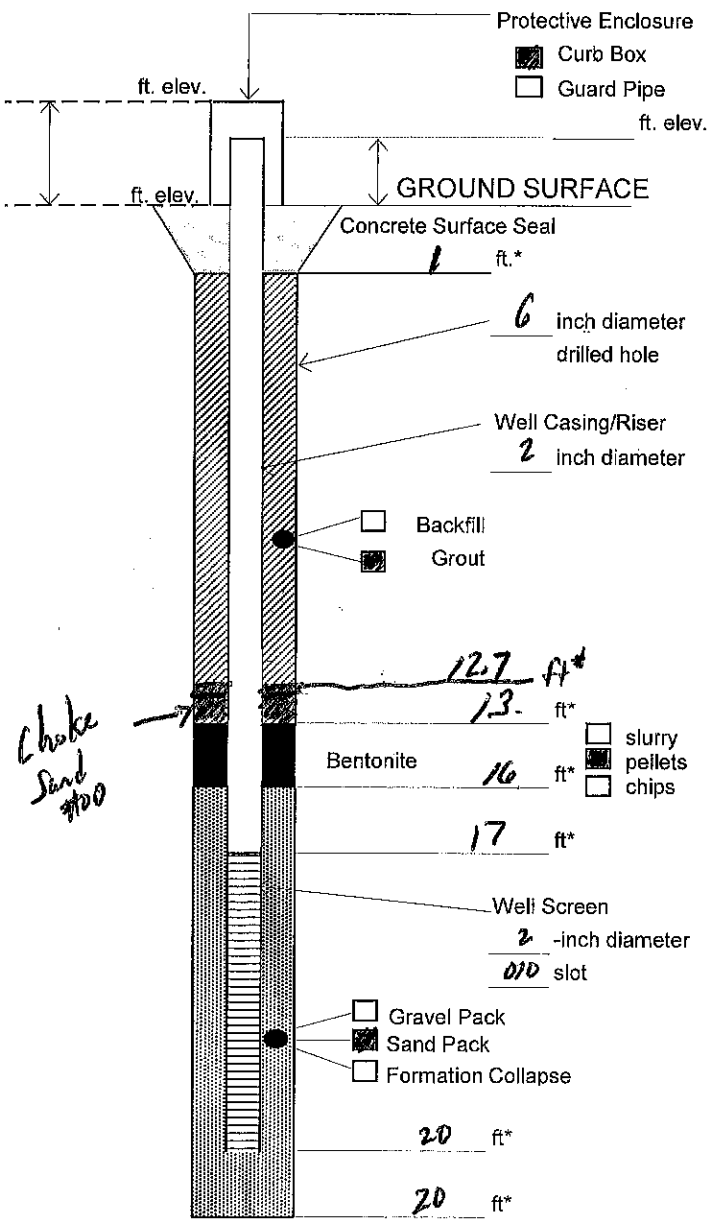
Notes:

¼ bag of #00 Sand - Fi/Pro - 50 lb bag

C.T. MALE ASSOCIATES

Well No. MW-06

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW-06 Boring No.: MW-06

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/21/16

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

- 1½ Bags of Sand (50 lb. bags)
  Sand Size: #0 Brand: Filpro
- ¾ Bags of Bentonite (50 lb. bags)
  Brand: Cetco medium chips
- 3 ft. of Sch 40 PVC well screen
- 17 ft. of Sch 40 PVC well riser
- 2.5 Bags of Cement/Concrete (80 lb. bags)
  Brand: Quikrete concrete mix

Grout Mixture:

- 3 Bags of Cement (94 lb. bags)
- 7 Lbs. of Bentonite
- 20 Gallons of Water
- 1 Grout Batches

Notes:

1/8 bag #80 Sand - Filpro - 50 lb bag

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.: MW-06S
ELEVATION: DATUM:
LATITUDE: LONGITUDE:
START DATE: 6/21/16 FINISH DATE: 6/21/16
SHEET 1 OF 1

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: North Bennington, VT CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
0									Refer to MW-06 Subsurface Log for soil classification	
5										
10										
									±13.5'	
15									Boring Terminated @ ±13.5' bgs	
20										
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: core barrel, 4"

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

WELL DEVEOPMENT LOG

Project Name: SGPP-Bennington

Project Number: 16.6131

Date Started: 6/21/16

Date Finished: 6/21/16

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1 3	2 6	3 9	4 12	5 15	6 20	7 22	8 24	9 26	10 28
pH	8.1	7.9	7.9	8.0	7.9	7.9	7.7	7.8	7.9	7.6	7.7
Conductivity	595	688	630	654	647	656	650	654	652	648	652
~~EH~~	—	—	—	—	—	—	—	—	—	—	—
Temperature (C)	13.8	13.0	13.9	12.0	12.3	13.0	13.5	13.0	12.5	13.2	12.8
Turbidity	39.7	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR

Monitoring Well: MW-038

Water Level: 9.98

Total Depth: ~~9.16~~ (AI) 12.68

Water Column: 2.7

One Well Volume: 0.43

Notes: at 16 well volumes, switched to peristaltic pump

x 0.16 =

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
pH											
Conductivity											
~~EH~~											
Temperature (C)											
Turbidity											

Monitoring Well: ~~MW-03~~

Water Level: ~~6.24~~

Total Depth: ~~20.81~~

Water Column: ~~14.6~~

One Well Volume: ~~2.33~~

Notes:

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
pH											
Conductivity											
EH											
Temperature (C)											
Turbidity											

Monitoring Well:

Water Level:

Total Depth:

Water Column:

One Well Volume:

Notes:

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
pH											
Conductivity											
EH											
Temperature (C)											
Turbidity											

Monitoring Well:

Water Level:

Total Depth:

Water Column:

One Well Volume:

Notes:

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #: COC#: 14770

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: 16.6131

Sampler: Jonathan Dippert

Phone #: 518-786-7400 Quote #: 214135

State where sample(s) were collected: VT

For Lab Use Only

SF#: 271157

SCR#: 189860

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Matrix: Sediment ☐, Soil ☒; Water: Ground ☐, Surface ☐, Potable ☐, NPDES ☐; Other: Blank Water

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other: Blank Water	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW01-00.0	6/20/16	854	X		X			1		X		
SG3-MW01-00.5	6/20/16	902	X		X			1		X		
SG3-MW01-01.0	6/20/16	908	X		X			1		X		
SG3-MW01-01.5	6/20/16	913	X		X			1		X		
SG3-LTB01-20160620	6/8/2016	—	—			~~X~~	X	1		X		
SG3-FTB01-20160620	6/20/16	844	X				X	1		X		
SG3-MW01-03.5	6/20/16	1000	X		X			1		X		
SG3-RB01-20160620	6/20/16	1020	X				X	1		X		
SG3-MW01-08.0	6/20/16	1038	X		X			1		X		
SG3-MW01-13.0	6/20/16	1118	X		X			1		X		

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☑		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	6/21/16	1615			
[signature]					

Airbill No.:

Relinquished by Commercial Carrier: UPS ____ FedEx ____ Other ____

Temperature upon receipt ____ °C

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #:

COC#: 14770

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: 16.6131

Sampler: Jonathan Dippert

Phone #: 518-788-7400 Quote #: 214135

State where sample(s) were collected: VT

For Lab Use Only
SF#: 271157
SCR#: 189860

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Sediment / Soil	Matrix: Water (Ground/Surface/Potable/NPDES)	Matrix: Other: Blank Water	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-~~RB06~~ RB02 20160620	6-20-16	1310	X				X	1		X		
SG3-MW06-05.0	6-20-16	1410	X		X			1		X		
SG3-MW06-10.5	6-20-16	1410	X		X			1		X		
SG3-MW06-13.5	6-20-16	1434	X		X			1		X		

Matrix checkbox: Soil ☒

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐	MA MCP ☐	TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐	CT RCP ☐	
Type IV (CLP SOW) ☐	ASP Type A ☐	
Type VI (Raw Data Only) ☐	ASP Type B ☑	

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	6/21/16	1615			
Relinquished by:			Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received by:		

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ______ Other ______

Temperature upon receipt ______ °C

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Environmental Services Analysis Request/Chain of Custody

Page 1 of 1

Acct. #: 37191 Group #: Sample #:

COC#: 14770

Client: C.T. Male Associates		For Lab Use Only
Project Name/#: SGPP - Bennington	Site ID:	SF#: 271157
Project Manager: Kirk Moline	P.O. #: 16.6131	SCR#: 189860
Sampler: Jonathan Dippert		
Phone #: 518-786-7400	Quote #: 214135	
State where sample(s) were collected: VT		

Matrix: Sediment ☒ / Soil; Water: Ground ☐ Surface ☐ Potable ☐ NPDES ☐; Other

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other:	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW01-00.0	6/20/16	856	X		X			1	X		X	
SG3-MW01-00.5	6/20/16	904	X		X			1	X		X	
SG3-MW01-01.0	6/20/16	910	X		X			1	X		X	
SG3-MW01-01.5	6/20/16	915	X		X			1	X		X	
SG3-MW01-03.5	6/20/16	1003	X		X			1	X		X	
SG3-MW01-08.0	6/20/16	1040	X		X			1	X		X	
SG3-MW01-13.0	6/20/16	1120	X		X			1	X		X	
SG3-MW06-05.00	6/20/16	1412	X		X			1	X		X	
SG3-MW06-10.5	6/20/16	1412	X		X			1	X		X	
SG3-MW06-13.5	6/20/16	1432	X		X			1	X		X	

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☑		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	6/21/16	1615			

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ______ Other ______

Temperature upon receipt ______ °C

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Issued by Dept. 40 Management

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 6/22/16 Time On-Site: 0710 Time Off-Site: 1445

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Initial Site Characterization ~~-Soil Borings-~~ Well Development Field Report No:

Weather Conditions: Mostly Sunny, 75°F, AM Rain

Present at Site: Jonathan Dippert, Cascade Drilling, Lorene Cameron

Observations:

0715 - on-site, met with Cascade

- set up to collect blank samples of well construction materials

- Cetco® Grout | High-solids powdered Bentonite Grout. 50 lbs Made in the USA 451477-01-04-15. Batch # 1848-18-781 ??

- Cetco® PureGold Medium Chips Hole Abandonment Material. 50 lbs Made in the USA. batch # L0301167C

- Commercial grade Quikrete Portland Cement Type I/II. Complies with current ASTM C-150 and federal specifications ~~No 11~~ NO 1124 per Portland Cement. 94 lbs.

~0800 - off-site to McCaffrey St to drop off core boxes

0900 - return on-site

- set up and collect remaining rinse blank samples

0945 - set up and continue well development

- Develop monitoring wells using disposable bailers and string (new bailer and string per well) to surge well screen interval and purge and using peristaltic pump to purge sediment accumulated at bottom of well (new tubing at each well). Dispose of purged ground water in drums on-site.

- Develop MW-03, MW-02 and MW-01

1445 - end development for day, clean up site, pack up equipment

1445 - off-site

Items to Verify:

List of Attachments: Well Development Log, Rinse Blank Log, COC (2)

Field Log Prepared by:

Copies to:

WELL DEVEOPMENT LOG

Project Name: SGPP- Bennington

Project Number: 16.6131

Date Started: 6/22/16

Date Finished: 6/22/16

Field Parameters	Well Volumes and Corresponding Field Parameters Value										
	Intitial	1	2	3	4	5	6	7	9 ~~8~~	9	10
pH	11.7	8.3	8.1	8.0	8.1	8.0	8.1	7.9	8.1		7.9
Conductivity	348	712	731	743	741	743	735	740	737		744
~~EH~~											
Temperature (C)	132	11.1	11.2	11.2	11.0	11.1	11.5	11.3	11.4	91	11.5
Turbidity	7.17	OR	OR	OR	OR	OR	OR	OR	691		492

Monitoring Well: MW-03
Water Level: 8.98
Total Depth: 20.81
Water Column: 10.83
One Well Volume: 1.73

Notes: Obaque white appearance @ 2 gallons which may be due to limestone
Parasaitic pump introduced after 10 gallons ~~from~~ drawn by bailers.

Field Parameters	Well Volumes and Corresponding Field Parameters Value										
	Intitial	2 ~~0~~ 1	2 2	2 3	2 4	2 5	2 6	2 7	8	9	10
pH	7.8	8.0	8.0	7.9	7.8	7.8	7.8	7.7			
Conductivity	835	988	999	1005	989	990	998	1005			
~~EH~~											
Temperature (C)	12.0	11.6	12.7	12.6	12.6	12.7	12.4	12.2			
Turbidity	OR	OR	OR	5010	268	84.5	82.7	267			

Monitoring Well: MW-02
Water Level: 8.92
Total Depth: ~~20.84~~ 12.35
Water Column: 3.43
One Well Volume: 0.55

Notes: Parasaitic pump introduced after 10 gallons drawn by bailers

Field Parameters	Well Volumes and Corresponding Field Parameters Value										
	Intitial	1	2	3	4	5	6	7 ~~8~~	8	9	10
pH	8.8	8.4	8.4	8.3	8.2	8.2	8.5	8.2	8.3	8.1	8.4
Conductivity	485	409	425	409	423	418	401	407	404	407	404
~~EH~~											
Temperature (C)	14.0	13.1	13.3	13.9	13.8	13.2	13.8	13.5	13.9	14.0	13.8
Turbidity	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR

Monitoring Well: MW-01
Water Level: 8.79
Total Depth: 14.63
Water Column: 5.84
One Well Volume: 0.93

Notes:

Field Parameters	Well Volumes and Corresponding Field Parameters Value										
	Intitial	11	12	13	14 ~~15~~	~~16~~ 17	18 ~~19~~	19 ~~20~~	20 ~~21~~	9	10
pH		8.2	8.6	8.2	8.5	8.3	8.3	8.2	8.2		
Conductivity		410	408	406	409	418	419	416	417		
~~EH~~											
Temperature (C)		13.3	13.3	13.6	13.2	13.3	12.9	13.0	13.2		
Turbidity		OR	OR	OR	OR	OR	OR	362	123		

Monitoring Well: MW-01
Water Level: } Same as above.
Total Depth:
Water Column:
One Well Volume:

Notes:

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

JOB 16 6131
SHEET NO. 1 OF 1
CALCULATED BY: DATE: 6/22/16
CHECKED BY: DATE:
SCALE

Rinse Blanks

ITEM	SAMPLE ID	TIME	DATE
Stainless Steel Bailer	SG3-RB01-20160621	1057	6/21/16
Nitrile Gloves	SG3-RB02-20160621	1110	
	SG3-FD01-20160621	1136	
Disposable Bailer	SG3-RB03-20160621 MS/MSD	1120	
Disposable Bailer String	SG3-RB04-20160622	0922	6/22/16
SS Bailer String	SG3-RB05-20160622	0925	
Peristaltic Pump Tubing	SG3-RB06-20160622	0930	
WL Meter	SG3-RB07-20160622	0940	
	SG3-LTB01-20160621	—	—
	SG3-FTB01-20160621		6/21/16

Used Laboratory Supplied DI water (Lancaster)

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #: COC#: 14770

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Jonathan Dippert	
Phone #: 518-786-7400	Quote #: 214135
State where sample(s) were collected: VT	

For Lab Use Only
SF#: 271157
SCR#: 189860

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Sediment	Water: Potable	Ground	Surface	NPDES	Other: Blank Water	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
Bentonite Grout	6/22/16	743	X									1		X		
Bentonite Chips	6/22/16	748	X									1		X		
Cement Grout	6/22/16	755	X									1		X		
TB06222016	6/22/2016	—	—								X	1				

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP)	☐	CT RCP	☐
Type IV (CLP SOW)	☐	ASP Type A	☐
Type VI (Raw Data Only)	☐	ASP Type B	☑

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
	6/22/16	1600			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time

Airbill No.:
Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

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South Bend, IN 46617
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Order # 299065

Batch # _____

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Shaded area for EEA use only

CHAIN OF CUSTODY RECORD

Page 1 of 1

REPORT TO: Kirk Moline
CT Male Associates
50 century Hill Dr.
Latham, NY. 12110

SAMPLER (Signature): Larene Camera

PWS ID #:

STATE (sample origin): VT

PROJECT NAME: 16.6131

PO#:

BILL TO: Same

COMPLIANCE MONITORING: Yes / No

POPULATION SERVED:

SOURCE WATER:

LAB Number	COLLECTION DATE	TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	CHLORINATED NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1	6/21/16	1057	X		SG3-RB01-20160621	EPA 537			X	2	RW	SW
2	6/21/16	1110	X		SG3-RB02-20160621	EPA 537			X	2		
3	6/21/16	1120	X		SG3-RB03-20160621	EPA 537	MS/MSD		X	6		
4	~~6/21/16~~	~~1130~~	~~X~~		~~Matrix Spike~~ (SD)							
5	6/22/16	922	X		SG3-RB04-20160622	EPA 537			X	2		
6	6/22/16	925	X		SG3-RB05-20160622	EPA 537			X	2		
7	6/22/16	930	X		SG3-RB06-20160622	EPA 537			X	2		
8	6/22/16	940	X		SG3-RB07-20160622	EPA 537			X	2		
9	6/21/16	1136	X		SG3-FD01-20160621	EPA 537			X	2		
10	~~6/21/16~~	~~1112~~	~~X~~		~~SG3-FTB01-20160621~~	~~EPA 537~~	~~Lab Supplied~~		~~X~~	~~1~~		
11	6/21/16	1112	X		SG3-FTB01-20160621	EPA 537			X	1		
12	6/18/16	—	—		SG3-LTB01-20160621		Lab Supplied		X	1		
13												
14												

RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME
Larene Camera	6/22/16	1600 AM PM			AM PM
RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME
		AM PM			AM PM
RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED FOR LABORATORY BY:	DATE	TIME
		AM PM			AM PM

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS:

CONDITIONS UPON RECEIPT (check one):

___ Iced: Wet/Blue ___ Ambient ___ °C Upon Receipt ___ N/A

MATRIX CODES:

DW-DRINKING WATER
RW-REAGENT WATER
GW-GROUND WATER
EW-EXPOSURE WATER
SW-SURFACE WATER
PW-POOL WATER
WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

SW = Standard Written: (15 working days) 0%
RV* = Rush Verbal: (5 working days) 50%
RW* = Rush Written: (5 working days) 75%
IV* = Immediate Verbal: (3 working days) 100%
IW* = Immediate Written: (3 working days) 125%
SP* = Weekend, Holiday CALL
STAT* = Less than 48 hours CALL

* Please call, expedited service not available for all testing

Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges.

Sample analysis will be provided according to the standard EEA/Water Services Terms, which are available upon request. Any other terms proposed by Customer are deemed material alterations and are rejected unless expressly agree to in writing by EEA.

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 6/23/16 Time On-Site: 0815 Time Off-Site: 1645

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Initial Site Characterization ~~-Soil Borings-~~ Well Development Field Report No:

Weather Conditions: Sunny, 80°F

Present at Site: Jonathan Dippert, ~~Cascade Drilling~~ SD

Observations:

0815 - on-site
- set up on MW-04 well cluster
- review and complete paperwork from earlier in week
- start well development
→ use same procedure equipment as yesterday and follow FSP

~~1445~~ 1615 - finish up well development, pack up equipment
- dispose of all purged gw throughout day into drums
→ all drums with media have label
7 drums, 2 empty with 1 more bag of development remaining

1645 - off-site

Items to Verify:

List of Attachments: Well Development Log

Field Log Prepared by:

Copies to:

WELL DEVEOPMENT LOG

Project Name: SGAA- Bennington

Project Number: 16.6131

Date Started: 6/23/16

Date Finished: 6/23/16

Field Parameters	Well Volumes and Corresponding Field Parameters Value										
	Intitial	#4	#8	#12	#16	#20	6	7	8	9	10
pH SU	8.1	8.0	7.6	7.8	7.7	7.7					
Conductivity µS	507	714	788	838	907	938					
~~EH~~											
Temperature (C)	15.6	14.9	14.2	15.0	14.9	14.3					
Turbidity NTU	OR	OR	OR	OR	503	16.9					

Monitoring Well: MW-04S
Water Level: 8.76
Total Depth: 12.00
Water Column: 3.24
One Well Volume: 0.52

Notes: Stopped surging with bailer after 12 gallons

Field Parameters	Well Volumes and Corresponding Field Parameters Value										
	Intitial	#5	#9	#10	#11	#12	#13	#14	8	9	10
pH	7.8	8.1	7.8	8.0	7.7	7.8	7.8	7.8			
Conductivity	975	955	965	978	973	983	978	978			
~~EH~~											
Temperature (C)	12.6	12.6	12.5	12.7	13.5	12.9	12.7	12.8			
Turbidity NTU	OR	OR	OR	OR	OR	OR	OR	OR			

Monitoring Well: MW-04
Water Level: 8.72
Total Depth: 19.80
Water Column: 11.08
One Well Volume: 1.77

Notes: Stopped surging with bailer after ± 15 gallons
Used stainless steel bailer

Field Parameters	Well Volumes and Corresponding Field Parameters Value										
	Intitial	#10	#20	#25	#30	5	6	7	8	9	10
pH	8.4	7.8	7.6	7.5	7.6						
Conductivity	418	1165	1605	1688	1738						
~~EH~~											
Temperature (C)	13.8	13.3	13.5	13.4	13.1						
Turbidity	OR	OR	OR	168	33.6						

Monitoring Well: MW-06S
Water Level: 9.12
Total Depth: 12.90
Water Column: 3.78
One Well Volume: 0.60

Notes: Purged well dry after 3.5 gallons, let recover, surged, then resumed purged with no issues.

Field Parameters	Well Volumes and Corresponding Field Parameters Value										
	Intitial	#3	#6	#9	#10	#11	#13	#14	8	9	10
pH	7.8	8.0	7.7	7.7	7.8	7.7	7.8	7.8			
Conductivity	1468	1317	1452	1446	1442	1450	1452	1446			
~~EH~~											
Temperature (C)	12.1	12.7	12.0	12.6	12.2	12.3	12.1	12.2			
Turbidity	OR	OR	OR	OR	OR	OR	OR	OR			

Monitoring Well: MW-06
Water Level: 9.02
Total Depth: 20.16
Water Column: 11.14
One Well Volume: 1.78

Notes:
- Stopped surging with bailer after ± 10 gallons
- Used stainless steel bailer

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 6/24/16 Time On-Site: 0745 Time Off-Site: 1530

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Initial Site Characterization ~~- Soil Borings -~~ Well Development Field Report No:

Weather Conditions: Sunny, 80°F

Present at Site: Jonathan Dippert, ~~Cascade Drilling~~, CTM Survey

Observations:

0745 - on-site
- set up for well development
→ use same procedure as previous days and follow FSP

0815 - start well development
→ MW-05, MW-07, and MW-07S

1100 - CTM Survey on-site
→ set up + start elevation survey
→ gave site sketch of well locations (E. Dempsey is familiar with site)

5/1400 - CTM Survey off-site

1445 - finish well development. Dispose of all decon and purged groundwater into 55 gallon drums.
→ close and lock all wells

1530 - off-site

Items to Verify:

List of Attachments: Well Development Log

Field Log Prepared by:

Copies to:

WELL DEVEOPMENT LOG

Project Name: SGPP - Bennington

Project Number: 16.6131

Date Started: 6/24/16

Date Finished: 6/24/16

Field Parameters	Well Volumes and Corresponding Field Parameters Value										
	Intitial	#2	#5	#10	#13	15	#19	#20	8	9	10
pH	7.6	7.4	7.9	7.4	7.6	7.4	7.4	7.4			
Conductivity mS	1.98	2.35	2.34	2.40	2.46	2.47	2.53	2.52			
~~EH~~ Water Level	—	—	—	—	7.40	7.38	7.40	7.40			
Temperature (C)	13.7	13.7	12.8	13.8	13.8	13.8	13.9	14.1			
Turbidity	OR	OR	OR	OR	OR	OR	52.4	10.4			

Monitoring Well: MW-05 Notes: Stopped bailing after 13 well volumes (±16 gallons)

Water Level: 7.27'

Total Depth: 14.58'

Water Column: 7.31'

One Well Volume: 1.17 gal

Field Parameters	Well Volumes and Corresponding Field Parameters Value										
	Intitial	#2	#18	#19	#20	#21	#22	7	8	9	10
pH	8.2	7.9	7.9	7.6	7.8	7.7	7.6				
Conductivity	824	871	865	853	848	847	861				
~~EH~~											
Temperature (C)	12.2	11.0	10.3	10.0	10.1	10.3	10.4				
Turbidity	OR	OR	OR	OR	840	422	173				

Monitoring Well: MW-07S Notes: Stopped bailing after 17 well volumes (±20 gallons)

Water Level: 15.31'

Total Depth: 22.58'

Water Column: 7.27

One Well Volume: 1.16 gal

Field Parameters	Well Volumes and Corresponding Field Parameters Value										
	Intitial	#3	#6	#7	#8	5	6	7	8	9	10
pH	10.1	9.0	8.6	8.4	8.4						
Conductivity	202	355	370	370	371						
~~EH~~											
Temperature (C)	12.3	11.4	11.6	11.8	12.6						
Turbidity	OR	OR	OR	OR	390						

Monitoring Well: MW-07 Notes: Stopped bailing after 7 well volumes (± 28 gallons)

Water Level: 15.42'

Total Depth: 40.43'

Water Column: 25.01'

One Well Volume: 4.0 gal

Field Parameters	Well Volumes and Corresponding Field Parameters Value										
	Intitial	1	2	3	4	5	6	7	8	9	10
pH											
Conductivity											
EH											
Temperature (C)											
Turbidity											

Monitoring Well: Notes:

Water Level:

Total Depth:

Water Column:

One Well Volume:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 3/5/18 Time On-Site: 0830 Time Off-Site: 1615

Project Name: SGPP – Bennington Project No.: 16.6131

Purpose: Supplemental Inv. - Interior Field Report No:

Weather Conditions: Mostly Cloudy, 35°F - Interior Work

Present at Site: J. Dippert, C. Bondi, Cascade Tech. Services (2)

Observations:

0830 - on-site, met with Cascade
- site walk of interior, open up overhead door
- CTM set up, calibrate PID (100.0 ppm - isobutylene)
- Cascade set up, construct decon pad, decon equipment
- set up for rinse blank samples
- collect field trip blanks

0930 - 10° - flat bed on-site & moved drill rig ~~inside~~ inside.
- set up lights inside

1015 - Cascade steam generator is broken
→ drive to Manchester to pick-up new one
- JD & CB handle EH&S issue @ Liberty St (cover drums)

1230 - Cascade returned with steam pressure washer
- Decon equipment with steam pressure washer
- collect rinse blanks off drilling equipment

~1330 - start coring concrete
→ attempted to remove top 2", no success. Concrete is competent/intact.
→ finish coring @ SB18-01. Concrete is 8" thick, 2 sets of 3/4" rebar.
- collect rinse blank off concrete cuttings/dust after decon and before coring SB18-02

Items to Verify:

List of Attachments: Rinse Blank List

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Date 3/5/18 Page 2 of 2

Environmental Services Field Log
(continued)

Project Name: SGPP- Bennington Project No.: 16.631

Observations:

1445 – coring @ SB18-02. Stopped ±4" down, use hammer drill to put holes in concrete then chisel to break up ±2" off top. Method was effective but time consuming ±20-25 min. Spoke to K. Maher, stated purpose was to prevent water running over top ±2" of concrete and into soil, due to very competent + supported (rebar) concrete, best practice of limiting water contacting the soil should be used. Cascade will vacuum out core-drill hole @ ±6-7", removing all water, then advance remaining concrete using limited water. Cascade will bring chisel bit with hammer drill tomorrow to re-attempt.

1530 – collect rinse blank off core barrel + start coring SB18-03

1600 – finish coring SB18-03 (8" thick)

– pack up equipment, lock up buildings.

1620 – off-site

16-6131 3/5/18 (5)

Rinse Blanks

RB01	—	concrete core barrel	before SB18-01
RB02	—	geoprobe cutting shoe	
RB03	—	geoprobe acetate liner	
RB04	—	geoprobe macrocore barrel	
RB05	—	geoprobe 3" casing	
RB06	—	concrete core barrel	before SB18-02
RB07	—	concrete core barrel	before SB18-03

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 3/6/18 Time On-Site: 7:40 Time Off-Site: 17:30

Project Name: SGPP - Bennington + McCaffrey Project No.: 16.6131, 14,4756

Purpose: Supplemental Inv. - Interior Field Report No:

Hoosick Falls transducers

Weather Conditions: ~~Clear~~ Fair, ~40°F

Present at Site: Dan King

Observations:

7:40 - Onsite @ McCaffrey. Preparing transducer equipment.
10:00 - Pulled transducers + downloaded data from:
MW-10, PZ-08, MW-34
Over to Bennington.
10:30 - Onsite @ Bennington to meet CB for drilling.
11:30 - Concrete corer broken, did not core location of SG3a-SB18-07. Moving to drilling ~~in~~ until equipment can be replaced. Began drilling @ SG3a-SB18-01. Kevin M. (Bars) onsite.
16:00 - CB offsite w/ samples to ship from office.
16:50 - Completed borings SG3a-SB18-01
SG3a-SB18-02
SG3a-SB18-03
+ installed MW's (see attachments for details).
Collected soil samples @ 0-1', 10-11', + 15-20' as instructed, plus lithologic changes outside those inverals.
Offsite to get ice to hold non-VOC samples.
17:30 - Iced samples. Finished necessary paperwork. Offsite.

See attachment for transducer related measurements.

Items to ~~Verify~~: See CB's notes for more drilling timestamps

List of Attachments: PFAS Checklist (1), Cal. log (1), Boring log (3), Well const. log (3), Vapor log (1), COC (3)
(CB's notes (1))

Field Log Prepared by: Dan King

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 3/6/18 Time On-Site: 0800 Time Off-Site: 1630

Project Name: SGPP – Bennington Project No.: 16.6131

Purpose: Supplemental Inv. - Interior Field Report No:

Weather Conditions: Clear, Sunny, High 43°F

Present at Site: Cliff Bard, Dan King, Kevin Mcgill

Observations: 0800 Arrived onsite, Cascade drilling already onsite
CB unlocked doors and drillers + CB began setting up
0845 drillers finished decoring core barrel and CB collected 5' ice blank
Sample before beginning drilling ~~at~~ SB18-04
0850 Began drilling SB18-04
↳ Drillers used electric JackHammer to chip away top 2-3 inches
of concrete before continuing/finishing core. All chips/core were saved in 5gl buckets
0930 Repeat Process on SB18-05
1000 Repeat Process for SB18-06
1050 As drilling was finishing and core was being removed, the Core drilling
motor blew and was broken, SB18-06 is complete with regards to
concrete core but cannot start SB18-07 until tomorrow
1115 drillers setting up equipment at ~~SB~~ SB18-01 to begin drilling
Soil boring
Refer to DK's notes for details on rest of day

Items to Verify:

List of Attachments:

Field Log Prepared by: Cliff Bard

Copies to:

PFCs Sampling Checklist

Date: 3/6/18

Weather (*temp./precipitation*): Clear & Sunny, ~40°F Site Name: SGPP-Bennington

Field Clothing and PPE:

- [x] No clothing or boots containing Gore-Tex™
- [x] All safety boots made from polyurethane and PVC
- [x] No materials containing Tyvek®
- [x] Field crew has not used fabric softener on clothing
- [x] Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- [x] Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- [x] No Teflon® or LDPE containing materials on-site
- [x] All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- [x] No waterproof field books on-site
- [x] No plastic clipboards, binders, or spiral hard cover notebooks on-site
- [x] No adhesives (Post-It Notes) on-site
- [x] Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- [x] All sample containers made of HDPE or polypropylene
- [x] Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- [x] Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- [x] "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- [x] Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- [x] No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Dan King

Field Lead Signature: Dan King Time: 12:00

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - ~~McCaffrey St~~ Bennington

LOCATION: ~~Hoosick Falls, NY~~

CTM PROJECT NO.: ~~14-4756~~ 16.6131

DATE: 3/6/18

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
MiniRAE 3000 PID	10:30	100ppm	~~3~~ 100.0ppm	Cal.	CB
" "	17:00	100ppm	~~4~~ 102.1ppm	bump	~~DA~~

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG - DRAFT

BORING NO.: SG3a-SB18-01
ELEV.:
DATUM:
START DATE: 3/6/18
FINISH DATE: 3/6/18
SHEET 1 of 2

PROJECT: SGPP - Bennington
CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT
CTM OBSERVER: D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2		1	3.5	Brown M-C SAND, some F Gravel, trace F sand + M-C gravel, loose, p. sorted	(moist) Fill ↓
4					
6				(same)	(moist)
8		2	3.5	8.0'	
10				Dark brown F SAND + F-M GRAVEL, some C Gravel, trace silt, brick fragments, cinder, firm, p. sorted	(wet) Fill ↓
12		3	4.0	(same)	(wet)
14					
16		4	3.0	(same) 16.0'	(wet)

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG - DRAFT

BORING NO.: SG3a-SB18-01
ELEV.: DATUM:
START DATE: 3/6/18 FINISH DATE: 3/6/18
SHEET 2 of 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18		4	3.0	Dark gray F SAND, loose, w. sorted 16.5'	(saturated) Native (saturated)
				Brown F-M GRAVEL, some C Gravel, loose, P. sorted @17.5 grades to Light brown C SAND, some F Gravel, trace F Sand, Firm, w. sorted	
20				(same) 21.0'	
		5	2.0	Light brown F SAND+SILT, compact, w. sorted (dense) 22.0'	(saturated)
22				Refusal on F SAND+SILT @ 22.0' bgs	Rock possible, but no visual
				End of Boring @ 22.0' bgs.	
24					MW installed to 22' bgs w/ 10' screen
26					
28					
30					
32					

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY: DK, CB

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG - DRAFT

BORING NO.: SG3-SB18-02
ELEV.: DATUM:
START DATE: 3/6/18 FINISH DATE: 3/6/18
SHEET 1 of 1

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2		1	3.0	Brown F-M SAND, some F Gravel, trace F sand + M-C gravel, loose, p. sorted	(moist) Fill ↓
4					
6				(same)	
				6.5'	
8		2	5.0	Dark brown F SAND + F-M GRAVEL, some C Gravel, trace silt, brick fragments, firm, p. sorted	(moist) Fill ↓
				9.0'	
10				Red-brown F SAND + SILT, some M Sand, firm, w. sorted	(wet) Native ↓
				10.5'	
				~~Gray C SAND, loose, w. sorted~~ 11.0'	
12		3	2.5	Brown F-M SAND, some F-M Gravel + Silt, firm, p. sorted	(wet)
14				@14.5 grades to -	
				Brown F-M GRAVEL, trace F-M Sand, loose, w. sorted 15.0'	Rock possible, no visual
16				Refusal @ 15.0' bgs on Gravel End of Boring @ 15.0' bgs	MW installed to 15' bgs w/ 10' screen

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG - DRAFT

BORING NO.: SG3a-SB18-03
ELEV.: DATUM:
START DATE: 3/6/18 FINISH DATE: 3/6/18
SHEET 1 of 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2		1	3.5	Brown F-M SAND, some F Gravel, trace F sand + M-C gravel, loose, p.sorted brick fragments,	(moist) Fill ↓
4					
6				(same)	(moist)
8		2	3.0		
10				(same)	(moist)
12		3	3.0		
14				13.0' Red-brown F SAND + SILT, some M Sand, firm, p.sorted 14.0' Dark gray F SAND + SILT, some M Sand, Firm, p.sorted 15.0'	(moist) Native ↓ (wet)
16		4	2.5	Brown F-M SAND, some F-M Gravel + Silt, firm, p.sorted	(wet)

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG - DRAFT

BORING NO.: SG3a-SB18-03
ELEV.: DATUM:
START DATE: 3/6/18 FINISH DATE: 3/6/18
SHEET 2 of 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18	1	4	2.5	@16.5 grades to Brown F-M GRAVEL, trace F-M sand, loose, w, sorted 17.0'	(saturated @16.0') possible rock, no visual
				Refusal @ 17.0' bgs on Gravel	
				End of Boring @ 17.0' bgs	MW installed to 17' bgs w/ 10' screen
20					
22					
24					
26					
28					
30					
32					

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

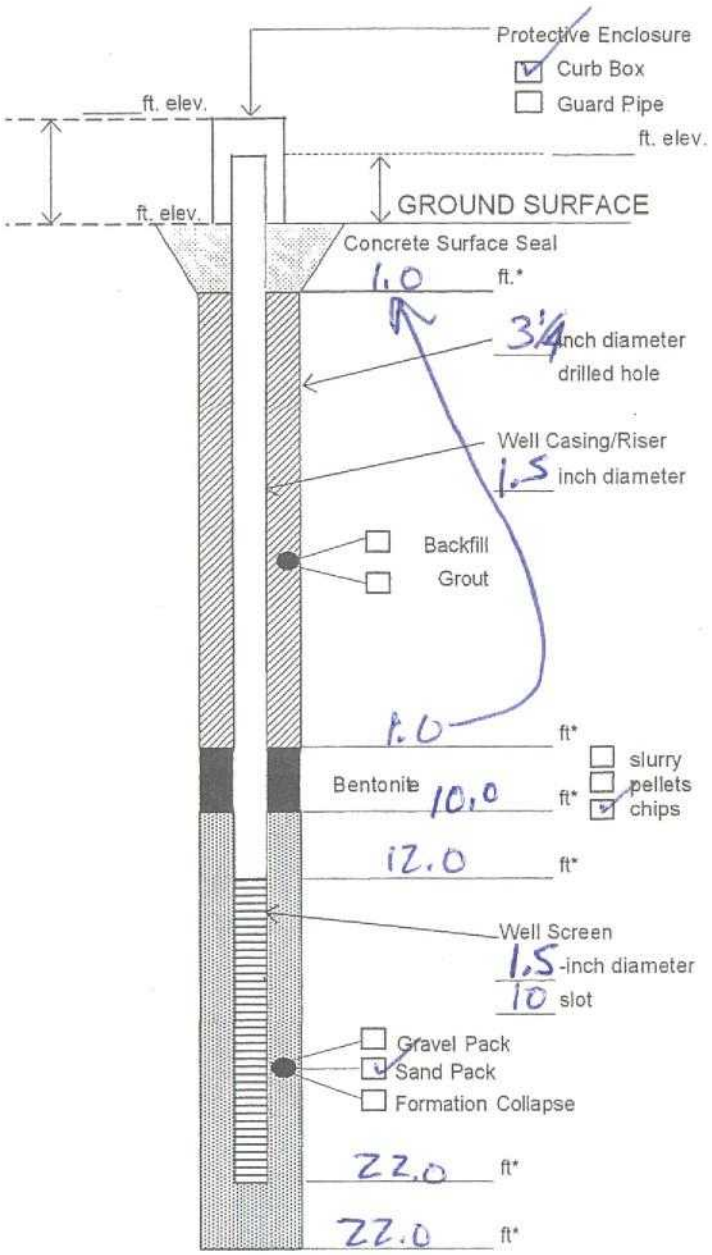
SAMPLE CLASSIFICATION BY: DK, CB

Well No. MW18-01

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES

DRAFT



* Depth below ground surface.

Project Name: SGPP - ~~McCaffrey St~~ Bennington

Project Number: ~~14.4756~~ 16.6131

Well No.: MW18-01 Boring No.: SG3a-SB18-01

Town/City: Hoosick Falls

County: Rensselaer State: New York

Installation Date(s): 3/6/18

Drilling Contractor: Cascade Technical Serivces

Drilling Method: Geoprobe

Water Depth From Top of Riser: ~13.6 ft 3/6/18 Date

C.T. Male Observer: D. King

Materials Used:

- 1 Bags of Sand (50 lb. bags) Sand Size: #0 Brand: Filpro
- 1 Bags of Bentonite (50 lb. bags) Brand: Cetco
- 10 ft. of ~~10~~ PVC Sch 40 well screen
- 12 ft. of ~~12~~ PVC Sch 40 well riser
- 1.0 Bags of Cement/Concrete (80 lb. bags) Brand: Quikrete

Grout Mixture:

- ____ Bags of Cement (____ lb. bags)
- ____ Lbs. of Bentonite
- ____ Gallons of Water
- 0 Grout Batches

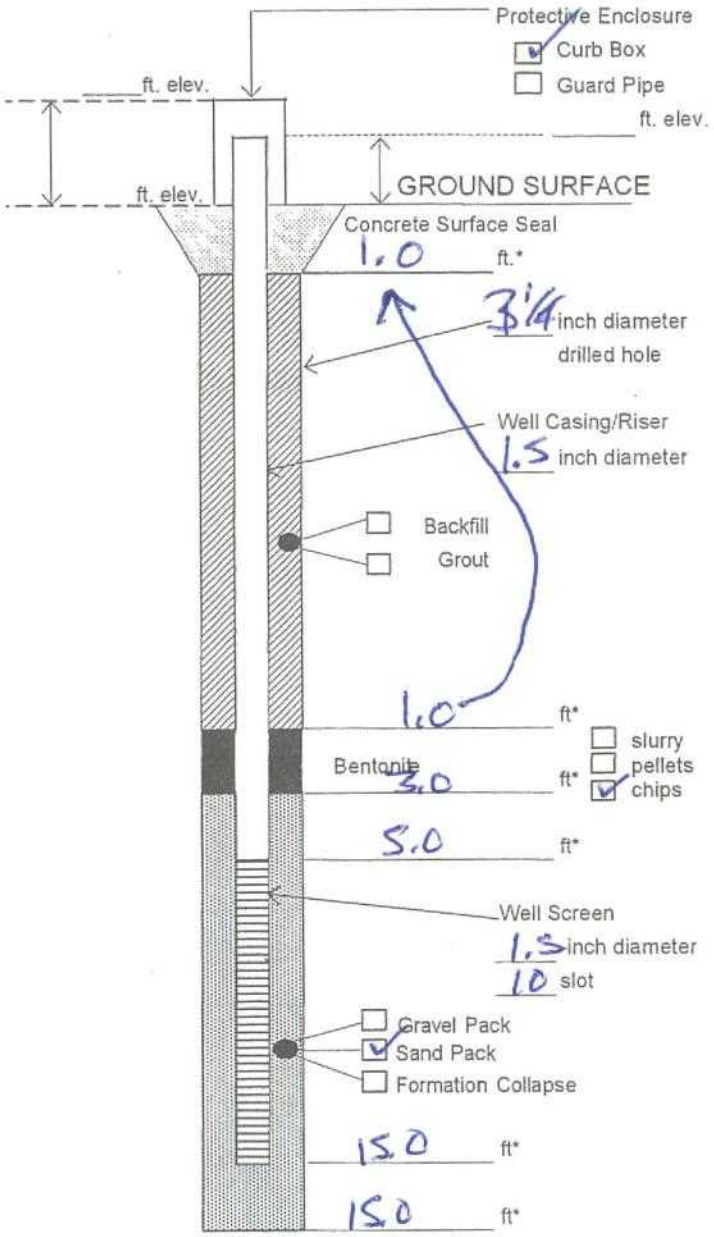
Notes:

Well No. MW18-01

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES

DRAFT



* Depth below ground surface.

Project Name: SGPP - ~~McCaffrey St~~ Bennington

Project Number: ~~14.4756~~ 16,6131

Well No.: MW18-01 Boring No.: ~~SG3a~~-SB18-02

Town/City: Hoosick Falls

County: Rensselaer State: New York

Installation Date(s): 3/6/18

Drilling Contractor: Cascade Technical Serivces

Drilling Method: Geoprobe

Water Depth From Top of Riser: 11.7 ft 3/6/18 Date

C.T. Male Observer: D. King

Materials Used:

- 3/4 Bags of Sand (50 lb. bags)
- Sand Size: #0 Brand Filpro
- 3/4 Bags of Bentonite (50 lb. bags)
- Brand: Cetco
- 10 ft. of PVC Sch 40 well screen
- 5 ft. of PVC Sch 40 well riser
- 1.0 Bags of Cement/Concrete (80 lb. bags)
- Brand: Quikrete

Grout Mixture:

- ____ Bags of Cement (____ lb. bags)
- ____ Lbs. of Bentonite
- ____ Gallons of Water
- 0 Grout Batches

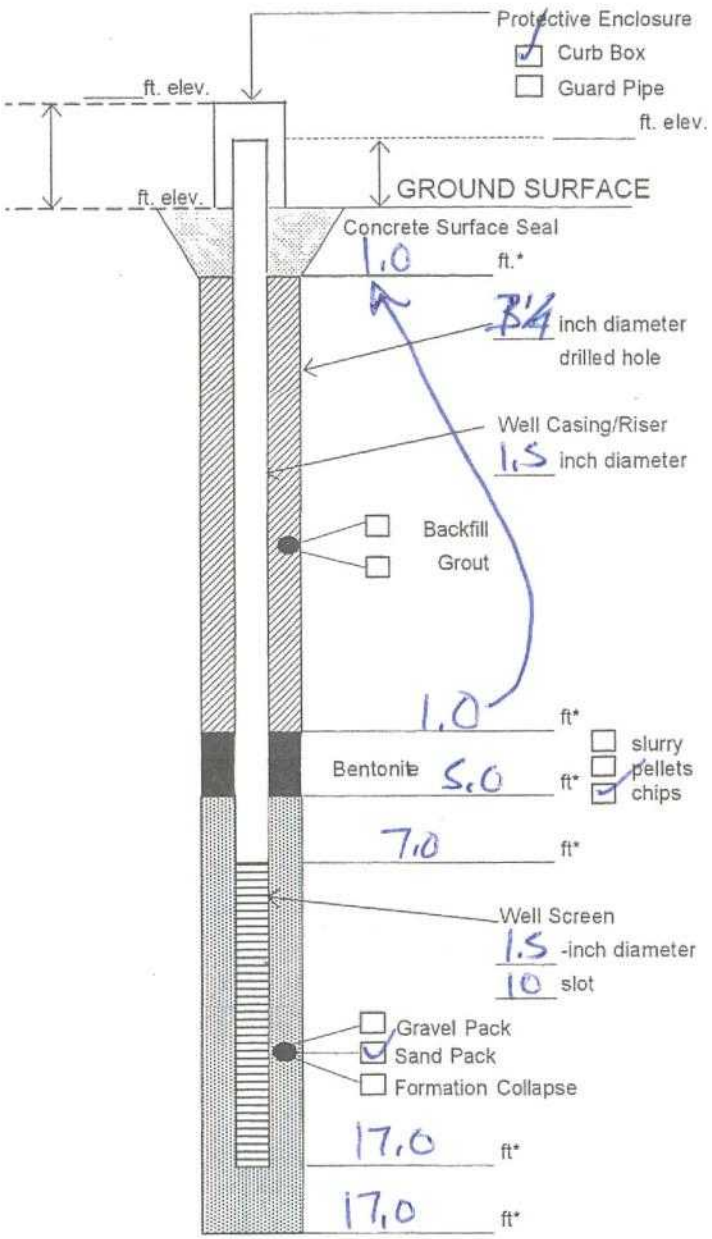
Notes:

Well No. MW18-01

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES

DRAFT



* Depth below ground surface.

Project Name: ~~SGPP - McGaffrey St~~ Bennington

Project Number: ~~14.4756~~ 16.6131

Well No.: MW18-01 Boring No.: ~~SG3a~~ SB18-03

Town/City: Hoosick Falls

County: Rensselaer State: New York

Installation Date(s): [redacted] 3/6/18

Drilling Contractor: Cascade Technical Serivces

Drilling Method: Geoprobe

Water Depth From Top of Riser: 13.3 ft 3/6/18 (Date)

C.T. Male Observer: D. King

Materials Used:

- 1 Bags of Sand (50 lb. bags)
  Sand Size: #0 Brand: Filpro
- 1 Bags of Bentonite (50 lb. bags)
  Brand: Cetco
- 10 ft. of PVC Sch 40 well screen
- 7 ft. of PVC Sch 40 well riser
- 1.0 Bags of Cement/Concrete (80 lb. bags)
  Brand: Quikrete

Grout Mixture:

- ____ Bags of Cement (____ lb. bags)
- ____ Lbs. of Bentonite
- ____ Gallons of Water
- 0 Grout Batches

Notes:

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

DRAFT

PROJECT:	SGPP - Bennington	PROJECT #: 16.6131	PAGE 1 OF 2
CLIENT:	SGPP		DATE COLLECTED: 3/6/18
LOCATION:	1030 Water St, N. Bennington, VT		
INSTRUMENT USED:	MiniRae 3000 LAMP 10.6 eV		DATE ANALYZED: 3/6/18
DATE INSTRUMENT CALIBRATED:	C. Bandi BY: 3/6/18		ANALYST: D. King
TEMPERATURE OF SOIL:	ambient		

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SG3a-SB18-01	1	0-2	Soil	0.0	0.0	NO/NS
	2	2-4		0.0	0.0	
	3	4-6		0.0	0.0	
	4	6-8		0.0	0.0	
	5	8-10		0.0	0.0	
	6	10-12		0.0	0.0	
	7	12-14		0.0	0.0	
	8	14-16		0.0	0.0	
	9	16-18		0.0	0.0	
	10	18-20		0.0	0.0	
	11	20-22		0.0	0.0	
SG3a-SB18-02	1	0-2		0.0	0.0	
	2	2-4		0.0	0.0	
	3	4-6		0.0	0.0	
	4	6-8		0.0	0.0	
	5	8-10		0.0	0.0	
	6	10-12		0.0	0.0	
	7	12-15		0.0	0.0	
SG3a-SB18-03	1	0-2		0.0	0.0	
	2	2-4		0.0	0.0	
	3	4-6		0.0	0.0	
	4	6-8		0.0	0.0	
	5	8-10		0.0	0.0	
	6	10-12		0.0	0.0	
	7	12-14		0.1	0.0	
	8	14-17		0.0	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____ Group # _____ Sample # _____

COC # 545875

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: SGPP-Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: JD, CB, DK	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ | Other: Rinse water

Analysis Requested

Preservation Codes

14 PFAS

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Sediment	Tissue	Potable	Ground	NPDES	Surface	Other: Rinse water	Total # of Containers	14 PFAS	Remarks
SG3a - LTB01 - 180305	3/5/18	—										X	2	X	
SG3a - FTB01 - 180305	3/5/18	0925	X									X	2	X	
SG3a - RB01 - 180305		1255	X									X	2	X	Concrete core barrel
SG3a - RB02 - 180305		1300	X									X	2	X	geoprobe cutting shoe
SG3a - RB03 - 180305		1305	X									X	2	X	geoprobe acetate liner
SG3a - RB04 - 180305		1310	X									X	2	X	macrocore barrel
SG3a - RB05 - 180305		1315	X									X	2	X	geoprobe 3" casing
SG3a - RB06 - 180305	↓	1420	X									X	2	X	concrete core barrel - SBR-02
SG3a - RB07 - 180305	3/5/18	1530	X									X	2	X	concrete core barrel - SBR-03
SG3a - RB01 - 180306	3/6/18	0845	X									X	2	X	Concrete core barrel - SBR-04

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3/6/18	1730			

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____ Group # _____ Sample # _____

COC # 545876

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP - Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: JD, CB, DK	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

For Lab Use Only
FSC: _____
SCR#: _____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
* 4th H. Hold for VOCs

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil/Sediment	Water: Potable	Water: Ground	Water: Surface	Water: NPDES	Other: Rinsate Water	Total # of Containers	Analysis Requested: 14 PFAS	TOC	pH	Moisture						Preservation Codes / Remarks
~~SG3a-SB18~~ SG3a-RB02-180306	3/6/18	0925	X							X	2	X									Concrete Core barrel - SB18-01
SG3a-RB03-180306	3/6/18	1000	X							X	2	X									Concrete core barrel - SB18-02
SG3a-RB04-180306	3/6/18	1135	X							X	2	X									Ziploc Bag CB 3/6/18
SG3a-RB05-180306	3/6/18	1345	X							X	2	X									~~Macro-Barrel~~
SG3a-SB18-01-0.0-1.0	3/6/18	1230	X		X					X	2	X	X	X	X						Macro-Barrel (after 2)
SG3a-SB18-01-10.0-11.0	3/6/18	1235	X		X					X	2	X	X	X	X						
SG3a-SB18-01-15.0-20.0	3/6/18	1240	X		X					X	2	X	X	X	X						
SG3a-SB18-01-5.0	3/6/18	1245	X		X					X	2	X	X	X	X						
SG3a-SB18-01-21.0	3/6/18	1250	X		X					X	2	X	X	X	X						
SG3a-RB06-180306	3/6/18	1510	X							X	2	X									Macro-Barrel (after 2)

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Cliff Burch	3/6/18	1730			

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____ Group # _____ Sample # _____

COC # 545877

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP - Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: JD, CB, DK	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Soil ☒ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☐ Surface ☐ NPDES ☐ | Other: Rinse Water

Analysis Requested — Preservation Codes

For Lab Use Only
FSC: _____
SCR#: _____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Sediment	Tissue	Potable	Ground	Surface	NPDES	Other	Total # of Containers	14 PFAS	TOC	pH	Moisture	TAL metals	SVOCs	VOCs	Remarks
SG3a-SB18-02-0.0-1.0	3/6/18	1435	X		X								6	X	X	X	X	X	X	X	
SG3a-SB18-02-10.0-11.0		1440	X		X								18	X	X	X	X	X	X	X	MS/MSD
SG3a-SB18-02-15.0		1445	X		X								6	X	X	X	X	X	X	X	
SG3a-SB18-02-6.5		1450	X		X								6	X	X	X	X	X	X	X	
SG3a-SB18-02-9.0		1455	X		X								6	X	X	X	X	X	X	X	
SG3a-RB07-180306	↓	1525	X									X	2	X							Nitrile Glove

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3/6/18	1730			

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 3/7/18 Time On-Site: 8:00 Time Off-Site: 12:45

Project Name: SGPP - ~~McCaffrey~~ Bannister Street Project No.: ~~14.4756~~ 16.6131

Purpose: Interior Soil borings Field Report No:

Weather Conditions: Cloudy, snowing, ~30°F

Present at Site: Dan King, Cliff Bondi, Kevin M. (Bart), Zac + Jared (Cascade)

Observations:

8:00 - Onsite. Kevin, CB, + Cascade onsite.

8:30 - Set up equipment. Calibrated PID. Began drilling SG3a-SB18-04.

9:40 - Completed boring. Casing refusal @ 4' bgs. will wait to install well.

10:45 - Completed boring SG3a-SB18-05 + installed MW.

Field duplicate collected on SG3a-SB18-04-0.0-0.1

Collected RB's off macro core prior to all borings after each decon.. Collected samples at instructed intervals plus lithologic changes.

11:15 - Refusal @ 4.0' bgs in SG3a-SB18-06. Offset + will core concrete after collecting RB from concrete core barrel.

12:10 - Finished coring concrete. Begin packing samples + loading equipment due to weather (Half-day). Holding all samples (no VOC's). Bump checked PID.

12:45 - All offsite. See attachments for additional details.

Items to Verify:

List of Attachments: PFAS Checklist (1), Cal. log (1), Boring log (2), Well const. log (1), Vapor log (1)

Field Log Prepared by: Dan King

Copies to:

PFCs Sampling Checklist

Date: 3/7/18

Weather (*temp./precipitation*): Cloudy, snowing, ~30°F Site Name: SGPP-Bennington

Field Clothing and PPE:

- ☑ No clothing or boots containing Gore-Tex™
- ☑ All safety boots made from polyurethane and PVC
- ☑ No materials containing Tyvek®
- ☑ Field crew has not used fabric softener on clothing
- ☑ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☑ Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- ☑ No Teflon® or LDPE containing materials on-site
- ☑ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☑ No waterproof field books on-site
- ☐ No plastic clipboards, binders, or spiral hard cover notebooks on-site
- ☑ No adhesives (Post-It Notes) on-site
- ☑ Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- ☑ All sample containers made of HDPE or polypropylene
- ☑ Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- ☑ Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- ☑ "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- ☑ Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- ☑ No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Dan King

Field Lead Signature: [signature] Time: 8:10

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131

LOCATION: DATE: 3/7/18

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
MiniRAE 3000 PID	8:10	100 ppm	100.1 ppm	Cal.	DK
" "	12:10	100 ppm	100.9 ppm	bump	DK

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG - DRAFT

BORING NO.: SG3a-SB18-04
ELEV.: DATUM:
START DATE: 3/7/18 FINISH DATE: 3/7/18
SHEET 1 of 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: C. Bondi

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2		1	3.0	Brown F-M SAND, Some F Gravel and C Sand, trace M gravel, Poorly Sorted	(Moist) Fill
4					
6					(Moist)
8		2	5.0	5.0'	
				Brown F Sand and Silt	Native
10				~~9.5'~~ ~~Gray F Sand + Silt, grades to F-M Sand~~ CB 3/7/18	(Moist)
12		3	2.5		
14				14.5	(Wet)
				Gray F Sand + Silt loose, grades to F-M Sand 14.75	
16		4		Gray/Brown M-C Sand grading to F-M gravel	(Saturated) @ 14.75'

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG - DRAFT

BORING NO.: SG3a-SB18-04
ELEV.: DATUM:
START DATE: 3/7/18 FINISH DATE: 3/7/18
SHEET 2 of 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: C. Bondi

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18		4	5.0	(same)	(Saturated)
20				[20.5]	
		5	2.5	Brown F Gravel, Some F-M Sand, trace silt	(Saturated)
22				[21.5]	
				End of Boring @ 21.5' bgs	~~Installed MW to 20' bgs w/ 10' screen~~ Installed MW to 20' bgs, 10' screen
24					
26					
28					
30					
32					

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG - DRAFT

BORING NO.: SG3a-SB18-05
ELEV.: DATUM:
START DATE: 3/7/18 FINISH DATE: 3/7/18
SHEET 1 of 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: C. Bondi

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2		1	2.0	Brown M-C SAND, Some F Gravel + F Sand, trace C gravel, P. Sorting, loose grains	(Moist) F:11
4					
6				(same)	(moist)
8		2	2.0		
10					(moist)
12		3	2.0	(same)	
14					
16		4	2.5	(same)	(wet)

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG - DRAFT

BORING NO.: SG3a-SB18-05
ELEV.: DATUM:
START DATE: 3/7/18 FINISH DATE: 3/7/18
SHEET 2 of 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: C. Bendi

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18		4	2.5	Brown ~~SAND~~ M-C SAND + M-C GRAVEL, Some F Sand, trace Cobbles (Saturated) @ 16.0' Native	
				@ 17.0' lense of Black F-M Sand ~4" Poorly Sorted	
20					
				22.0	
22				Brown SILT + F-M SAND, trace C Sand 22.5	Installed MW to 22.0' bgs, 10' screen
				End of Boring @ 22.5' bgs	
24					
26					
28					
30					
32					

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

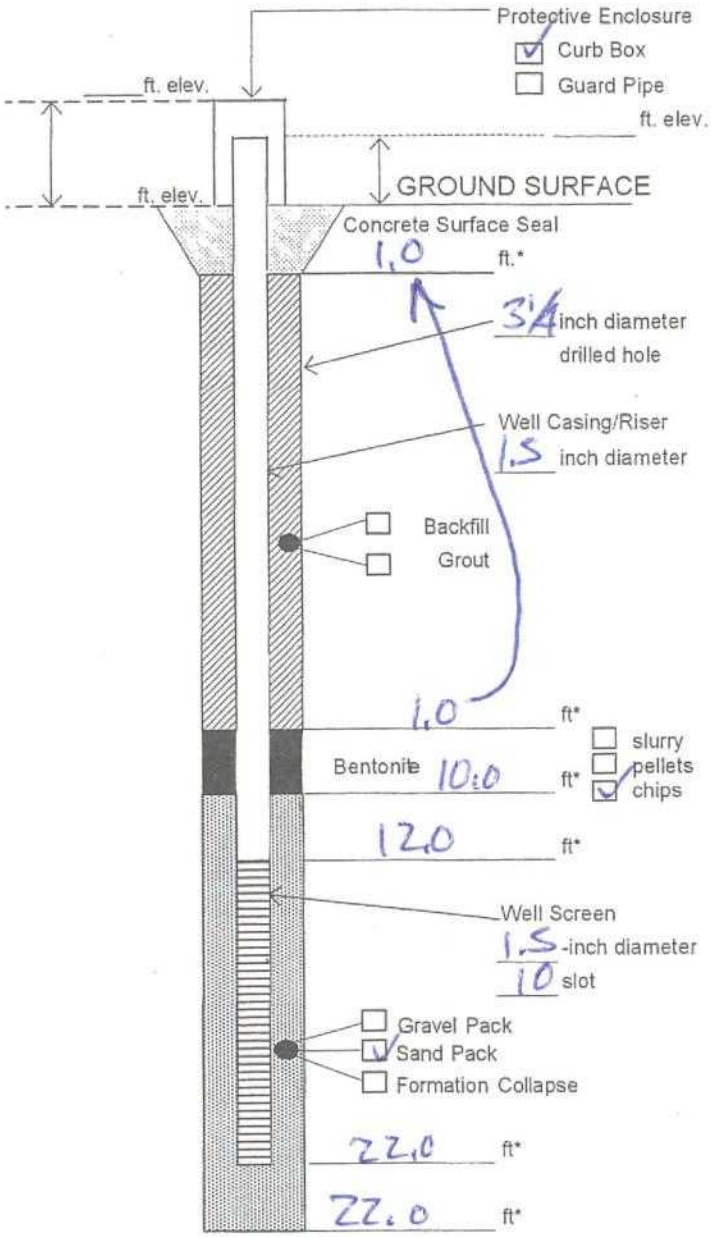
SAMPLE CLASSIFICATION BY: DK, CB

Well No. MW18-05

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES

DRAFT



* Depth below ground surface.

Project Name: SGPP - ~~McCaffrey St~~ Barrington

Project Number: ~~14.4756~~ T-16.6131

Well No.: MW18-05 Boring No.: SGPP-SB18-05

Town/City: Hoosick Falls

County: Rensselaer State: New York

Installation Date(s): 3/7/18

Drilling Contractor: Cascade Technical Serivces

Drilling Method: Geoprobe

Water Depth From Top of Riser: 14.0 ft 3/7/18 Date.

C.T. Male Observer: D. King, C. Bondi

Materials Used:

- 1.0 Bags of Sand (50 lb. bags) Sand Size: #0 Brand Filpro
- 1.0 Bags of Bentonite (50 lb. bags) Brand: Bensea
- 10 ft. of PVC Sch 40 well screen
- 12 ft. of PVC Sch 40 well riser
- 1.0 Bags of Cement/Concrete (80 lb. bags) Brand: Quikrete

Grout Mixture:

- ____ Bags of Cement (____ lb. bags)
- ____ Lbs. of Bentonite
- ____ Gallons of Water
- 0 Grout Batches

Notes:

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

DRAFT

PROJECT:	SGPP - Bennington	**PROJECT #:** 16.6131	**PAGE 1 OF** 1
CLIENT:	SGPP		**DATE COLLECTED:** 3/7/18
LOCATION:	1030 Water St, N. Bennington, VT		
INSTRUMENT USED:	MiniRae 3000 **LAMP** 10.6 **eV**		**DATE ANALYZED:** 3/7/18
DATE INSTRUMENT CALIBRATED:	3/7/18 **BY:** DK		**ANALYST:** D. King
TEMPERATURE OF SOIL:	ambient		

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SG3a-SB18-04	0-2	1	Soil	0.0	0.0	NO/NS
	2-4	2		0.0	0.0	
	4-6	3		0.0	0.0	
	6-8	4		0.0	0.0	
	8-10	5		0.0	0.0	
	10-12	6		0.0	0.0	
	12-14	7		0.0	0.0	
	14-16	8		0.1	0.0	
	16-18	9		0.1	0.0	
	18-20	10		0.0	0.0	
	20-21.5	11		0.0	0.0	
SG3a-SB18-05	0-2	1		0.0	0.0	
	2-4	2		0.0	0.0	
	4-6	3		0.0	0.0	
	6-8	4		0.0	0.0	
	8-10	5		0.0	0.0	
	10-12	6		0.0	0.0	
	12-14	7		0.0	0.0	
	14-16	8		0.0	0.0	
	16-18	9		0.1	0.0	
	18-20	10		0.0	0.0	
	20-22.5	11		0.0	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 3/9/18 Time On-Site: 8:05 Time Off-Site: 15:45

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Supplemental Inv. - Interior Field Report No:

Weather Conditions: Cloudy, snowing, ~30°F

Present at Site: Dan King, Cliff Bondi, Cascade Drilling (Zac, Jared)

Observations:

8:05 - Onsite. Cascade onsite.

9:00 - Completed boring ~~SB~~ SG3a-SB18-06. Collected samples @ ~~int~~ selected inverals + lithologic changes.

10:00 - Installed MW @ SG3a-SB18-06 location. Installed MW @ SG3a-SB18-04 location (skipped on 3/7/18 due to casing refusal @ 4.0'). Broke through point of refusal to install well.

10:30 - Drillers unable to fit rig through doorway to location of SG3a-SB18-07. Began installing road boxes while discussing w/ Jon. Then drillers offsite to return rental pressure washer.

11:55 - Drillers return to site.

13:30 - Collected RB off of concrete core barrel. Cored location of SG3a-SB18-07. Drillers begin moving/packing equipment. Smaller rig coming next week.

14:30 - Cascade offsite. Over to McCaffrey.

15:45 - Collected equipment blanks for QA/QC. EB01 off nitrile glove. EB02 off ziploc bag. Loaded equipment + samples. Offsite.

~~Items to Verify:~~

List of Attachments: PFAS Checklist(1), Cal. log(1), Boring log(1), Well const. log(2), Vapor log(1), COC(3), Driller daily(3)

Field Log Prepared by: Dan King

Copies to:

PFCs Sampling Checklist

Date: 3/9/18

Weather (*temp./precipitation*): Cloudy, snowing, ~30°F Site Name: SGPP-Bennington

Field Clothing and PPE:

- ☑ No clothing or boots containing Gore-Tex™
- ☑ All safety boots made from polyurethane and PVC
- ☑ No materials containing Tyvek®
- ☑ Field crew has not used fabric softener on clothing
- ☑ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☑ Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- ☑ No Teflon® or LDPE containing materials on-site
- ☑ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☑ No waterproof field books on-site
- ☑ No plastic clipboards, binders, or spiral hard cover notebooks on-site
- ☑ No adhesives (Post-It Notes) on-site
- ☑ Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- ☑ All sample containers made of HDPE or polypropylene
- ☑ Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- ☑ Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- ☑ "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- ☑ Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- ☑ No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Dan King

Field Lead Signature: _____ Time: 8:15

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - ~~McCaffrey St~~ Barrington

CTM PROJECT NO.: ~~14.4758~~ 16.6131

LOCATION: ~~Hoosick Falls, NY~~

DATE: 3/9/18

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
MiniRAE 3000 PID	8:30	100ppm	100.3ppm	Cal.	DK

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG - DRAFT

BORING NO.: SGa-SB18-06
ELEV.: DATUM:
START DATE: 3/9/18 FINISH DATE: 3/9/18
SHEET 1 of 1

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2		1	2.0	Brown M-C SAND + F-M GRAVEL, some F Sand, trace C gravel + crushed stone, loose, p. sorted	(moist) Fill →
4					
6				(same)	(moist)
8		2	1.5		
10				(same)	
12		3	1.5		(moist)
13.5'				Refusal @ 13.5' bgs on Sand + Gravel	Rock possible, no visual
14				End of Boring @ 13.5' bgs	MW installed to 13.5' bgs w/ 10' screen
16					

DRILLING CONTRACTOR: Cascade Technical Services ((No picture))
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY: DK, CB

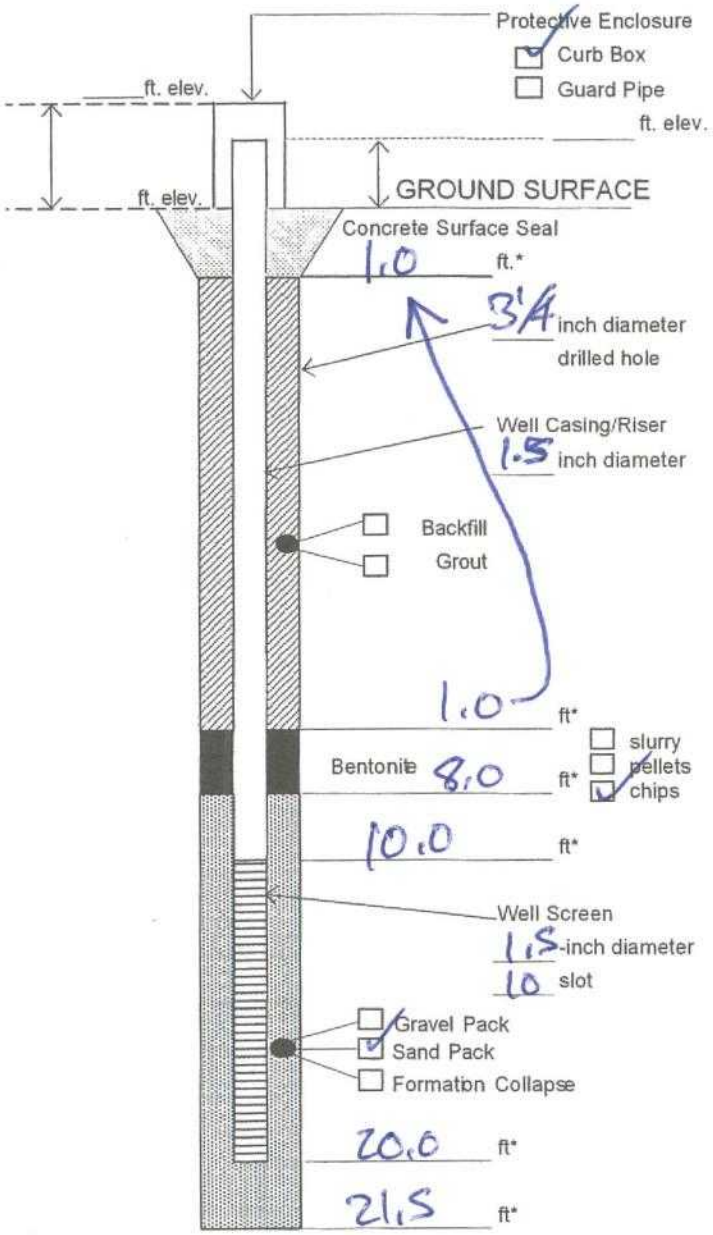
THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

Well No. MW18-04

MONITORING WELL CONSTRUCTION LOG

DRAFT



* Depth below ground surface.

Project Name: SGPP ~~Liberty St~~ Barrington

Project Number: 16.613[illegible]1

Well No.: MW18-04 Boring No.: SG39-SB18-04

Town/City: Hoosick Falls, NY

County: Rensselaer State: NY

Installation Date(s): 3/9/18

Drilling Contractor: Cascade Drilling

Drilling Method: Geoprobe

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: D. King

Materials Used:

- 1.0 Bags of Sand (50 lb. bags)
  Sand Size: #0 Brand: FilPro
- 1.0 Bags of Bentonite (50 lb. bags)
  Brand: Benseal
- 10 ft. of Schedule 40 PVC well screen
- 10 ft. of Schedule 40 PVC well riser
- 1.0 Bags of Concrete (80 lb. bags)
  Brand: Quikcrete
- 0 Bags of Sand (____ lb. bags)
  Sand Size: #00 Brand: FilPro

Grout Mixture:

- ____ Bags of Cement (____ lb. bags)
- ____ Lbs. of Bentonite
- ____ Gallons of Water
- 0 Grout Batches

Notes:

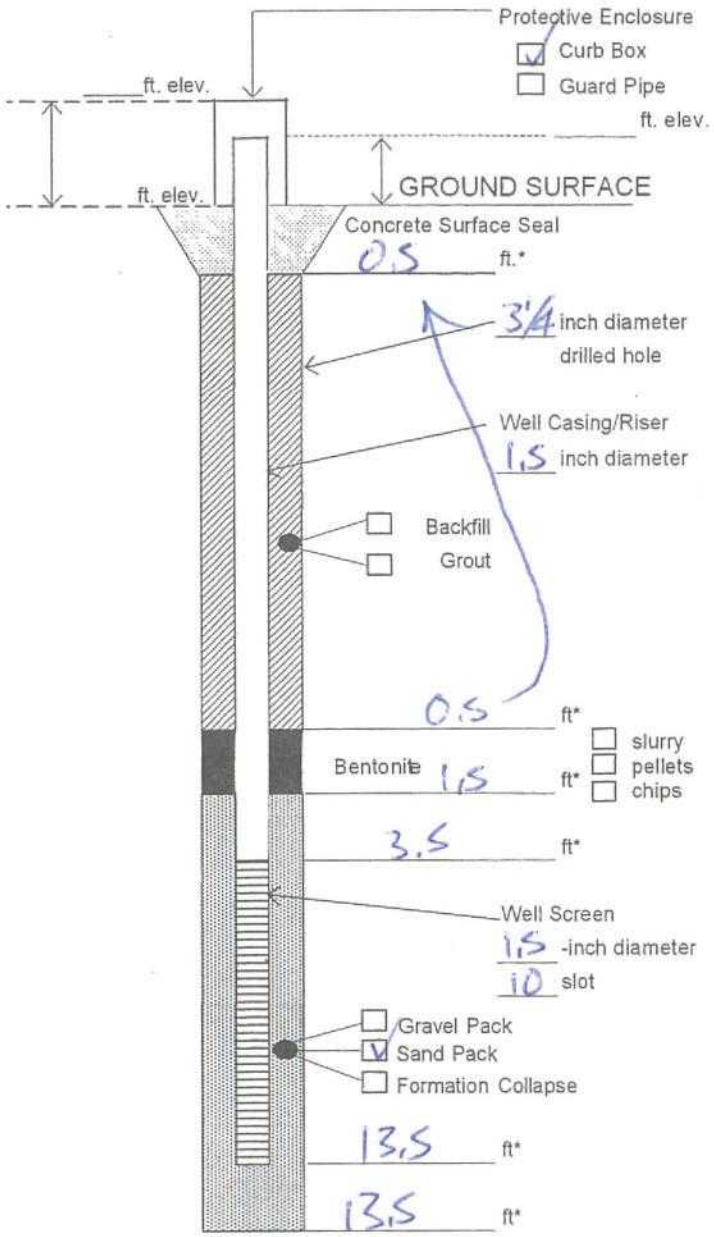
1

Well No. MW18-06

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES

DRAFT



* Depth below ground surface.

Project Name: ~~SGPP - McCaffrey St~~ Bennington

Project Number: ~~14.4756~~ 16.6131

Well No.: MW18-06 Boring No.: SG3A-SB18-06

Town/City: Hoosick Falls

County: Rensselaer State: New York

Installation Date(s): 3/9/18

Drilling Contractor: Cascade Technical Serivces

Drilling Method: Geoprobe

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: D. King

Materials Used:

- 0.5 Bags of Sand (50 lb. bags) Sand Size: #0 Brand Filpro
- 0.5 Bags of Bentonite (50 lb. bags) Brand: Bensea
- 10 ft. of PVC Sch. 40 well screen
- 3.5 ft. of PVC Sch. 40 well riser
- 1.0 Bags of Cement/Concrete (80 lb. bags) Brand: Quikrete

Grout Mixture:

- ____ Bags of Cement (____ lb. bags)
- ____ Lbs. of Bentonite
- ____ Gallons of Water
- 0 Grout Batches

Notes:

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

DRAFT

PROJECT:	SGPP - Bennington	**PROJECT #:** 16.6131	**PAGE 1 OF** 1
CLIENT:	SGPP		**DATE COLLECTED:** 3/9/18
LOCATION:	1030 Water St, N. Bennington, VT		
INSTRUMENT USED:	MiniRae 3000 **LAMP** 10.6 **eV**		**DATE ANALYZED:** 3/9/18
DATE INSTRUMENT CALIBRATED:	3/9/18 **BY:** D.King		**ANALYST:** D. King
TEMPERATURE OF SOIL:	ambient		

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SGPa-SB18-06	1	0-2	Soil	0.0	0.0	NO/NS
	2	2-4		0.0	0.0	
	3	4-6		0.0	0.0	
	4	6-8		0.0	0.0	
	5	8-10		0.0	0.0	
	6	10-12		0.0	0.0	
	7	12-13.5		0.0	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____ Group # _____ Sample # _____

COC # 545878

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: SGPP-Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: CB, DK, KM	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Soil ☒ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☐ Surface ☐ NPDES ☐ Other: Raw water

Analysis Requested — Preservation Codes

For Lab Use Only
FSC: _____
SCR#: _____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	14 PFAS	pH	Moisture	TOC	Remarks
SG3a-RB01-180307	3/7/18	0835	X		2	X				Macro Bucket (SB18-04)
SG3a-RB02-180307		0840	X		2	X				Macro Bucket (SB18-05)
SG3a-SB18-04-0.0-1.0		0925	X		2	X	X	X	X	
SG3a-SB18-04-10.0-11.0		0930	X		2	X	X	X	X	
SG3a-SB18-04-15.0-20.0		0935	X		2	X	X	X	X	
~~SG3a-SB18-04~~ CB 3/7/18			~~X~~							
SG3a-SB18-04-8.0		0940	X		2	X	X	X	X	
SG3a-FD01-180307		—	X		2	X	X	X	X	
SG3a-SB18-05-0.0-1.0		1015	X		2	X	X	X	X	
SG3a-SB18-05-10.0-11.0		1020	X		2	X	X	X	X	

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: k moline@ctmale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3/9/18	1730			

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____ Group # _____ Sample # _____

COC # 545879

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: SGPP-Berryton	PWSID #:
Project Manager: K. K Moline	P.O. #: 16.6131
Sampler: CB DK KM	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

For Lab Use Only
FSC: _____
SCR#: _____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil/Sediment	Tissue	Potable Water	Ground Water	NPDES	Surface Water	Other: Rinse water	Total # of Containers	Preservation Codes	14 PFAS	pH	Moisture	TOC	VOC	TAL Metals	SVOCs	Remarks
SG3a-SB18-05-15.0-20.0	3/7/18	1025	X		X							2		X	X	X	X				
SG3a-SB18-05-22.0		1030	X		X							2		X	X	X	X				
SG3a-RB04-180307		1135	X								X	2		X							Cement Barrel 06 (SB18-06)
SG3a-RB03-180307		1105	X								X	2		X							Metal Barrel (SB18-06)
SG3a-SB18-06-10.0-11.0	3/9/18	0900	X		X						X	2		X	X	X	X				
SG3a-SB18-06-0.0-1.0		0850	X		X						X	6		X	X	X	X				MS/MSD
SG3a-RB01-180309		1215	X								X	2		X							Cement Barrel 07
SG3a-FB01-180309		1505	X								X	10		X			X	X	X	X	Nitrile Glove
SG3a-FB02-180309		1530	X								X	4		X			X				Ziploc Bag
SG3a-LTB01-180309		—	X								X	1		X				X			

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3/9/18	1730			

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____ Group # _____ Sample # _____

COC # 532389

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPR - Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: CB, DK, KM	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Soil ☒ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ | Other: Rinse water

Analysis Requested

Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil/Sediment	Water	Other	Total # of Containers	14 PFAS	pH	Moisture	TOC
SG3a-FTB01-180301	3/9/18	1535	X				X	2	X			
SG3a-SB18-03-15.0-17.0	3/6/18	1610	X		X			2	X	X	X	X
SG3a-SB18-03-14.0		1620	X		X			2	X	X	X	X
SG3a-SB18-03-0.0-1.0		1600	X		X			2	X	X	X	X
SG3a-SB18-03-10.0-11.0		1605	X		X			2	X	X	X	X
SG3a-SB18-03-13.0		1615	X		X			2	X	X	X	X

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3/9/18	1730			

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

2846B Curry Road • Schenectady, NY 12303 P: (518)355-2201
F: (518)355-2236

CLIENT: Gt Nek	PROJECT #: 203.18.1045	DATE: 3/5/15	DAY: Monday
JOB LOCATION: N. Bennington VT	DIG ALERT #:		CASCADE#: 203

Well # / Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time	8W	430		8.50
		Travel to Site — Core drilled 3 locations				
		Travel to Shop				
		PM Shop Time				
Total Ft		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START _____ STOP _____ TOTAL _____

EQUIPMENT

DRILL RIG # Sch	7822	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #	61	CORE DRILL	✓
SUPPORT TRUCK #		PAVEMENT SAW	
TRAILER #	41	# OF SERVICE RUNS	
AUTO HAMMER		# OF SAW CUTS	
GROUT PUMP		Generator	✓
PERISTALTIC PUMP		Steam Cleaner	✓
		Decon Pad	✓

CASING

TYPE ___ SLOT ___				
20' SCREEN				
10' SCREEN				
5' SCREEN				
20' RISER				
10' RISER				
5' RISER				
5' PP SCREEN				
10' PP SCREEN				
SLIP CAP				
THREADED CAPS				
LOCKING CAPS				
DRIVE SHOE				
CENTRALIZERS				
LOCKS				

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 5"	
READYMIX		WELL COVER 8"	
QUICKSET		PROTECTIVE CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE GRANULAR		PLASTIC SHEETING	✓
SAMPLER TUBES		TRAFFIC CONTROL	
MACRO LINERS		PLYWOOD	
		SOIL SAMPLES	
		WATER SAMPLES	
		HYDROPUNCH SAMPLES	
		AUGER PLUGS	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
Forster				
Despres				

CREW WITH PER DIEM ____ CHARGEABLE EXTRA LABOR HRS ____

UTILITIES FOUND OR HIT

REMARKS

Client Signature _____ Operator Signature _____

CASCADE DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

2846B Curry Road • Schenectady, NY 12303 P: (518)355-2201
F: (518)355-2236

CLIENT: Ct Mele	PROJECT #: 203-18-1045	DATE: 3/5/18	DAY: Monday
JOB LOCATION: N. Bennington VT		DIG ALERT #:	CASCADE#: 203

Well # Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time	8:00	4:30		8.50
		Travel to Site core drilled 3 locations				
		Travel to Shop				
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START ___ STOP ___ TOTAL ___

EQUIPMENT			
DRILL RIG# Sch	7822	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #	61	CORE DRILL	✓
SUPPORT TRUCK #		PAVEMENT SAW	
TRAILER #	41	# OF SERVICE RUNS	
AUTO HAMMER		# OF SAW CUTS	
GROUT PUMP		Generator	✓
PERISTALTIC PUMP		Steam Cleaner	✓
		Drum Pad	✓

CASING				
TYPE___ SLOT___				
20' SCREEN				
10' SCREEN				
5' SCREEN				
20' RISER				
10' RISER				
5' RISER				
5' PP SCREEN				
10' PP SCREEN				
SLIP CAP				
THREADED CAPS				
LOCKING CAPS				
DRIVE SHOE				
CENTRALIZERS				
LOCKS				

MATERIALS ITEM	QTY	ITEM	QTY
SAND		WELL COVER 5"	
READYMIX		WELL COVER 8"	
QUICKSET		PROTECTIVE CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE GRANULAR		PLASTIC SHEETING	✓
SAMPLER TUBES		TRAFFIC CONTROL	
MACRO LINERS		PLYWOOD	
		SOIL SAMPLES	
		WATER SAMPLES	
		HYDROPUNCH SAMPLES	
		AUGER PLUGS	

LABOR NAME	SIGNATURE	SHOP		TOTAL HRS
Fordey				
Dg Yes				

CREW WITH PER DIEM ___ CHARGEABLE EXTRA LABOR HRS ___

UTILITIES FOUND OR HIT ___

REMARKS

Client Signature ___ Operator Signature ___

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

2846B Curry Road • Schenectady, NY 12303 P: (518)355-2201
F: (518)355-2236

CLIENT: CT male	PROJECT #: 203.18.1015	DATE: 3/6/18	DAY: TUESDAY
JOB LOCATION: Bennington VT	DIG ALERT #:		CASCADE#: 203

Well # / Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time	800	430		8.00
		Travel to Site - Cored (3) locations then the Core drill Broke.				
		- Took Soils at (3) locations and Installed (3) 1.5" wells.				
		(1) - 22' Bh w/ 10' screen.				
		(1) - 20' Bh w/ 10' screen				
		(1) - 15' Bh w/ 10' screen				
		Travel to Shop				
		PM Shop Time				
Total Ft:		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START _____ STOP _____ TOTAL _____

EQUIPMENT

DRILL RIG # Sch	7822	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #	61	CORE DRILL	✓
SUPPORT TRUCK #		PAVEMENT SAW	
TRAILER #	4	# OF SERVICE RUNS	
AUTO HAMMER		# OF SAW CUTS	
GROUT PUMP		Generator	
PERISTALTIC PUMP		Foam Lance	✓
		Decon pad	✓

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
Fordley				
Despres				

CREW WITH PER DIEM ____ CHARGEABLE EXTRA LABOR HRS ____

CASING

TYPE SLOT				
20' SCREEN				
10' SCREEN				
5' SCREEN				
20' RISER				
10' RISER				
5' RISER	1.5		7	
5' PP SCREEN	1.5		6	
10' PP SCREEN				
SLIP CAP				
THREADED CAPS	1.5		3	
LOCKING CAPS				
DRIVE SHOE				
CENTRALIZERS				
LOCKS				
Steps	1.5		3	

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND	4	WELL COVER 5"	
READYMIX		WELL COVER 8"	
QUICKSET		PROTECTIVE CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE GRANULAR	2	PLASTIC SHEETING	
SAMPLER TUBES		TRAFFIC CONTROL	
MACRO LINERS	13	PLYWOOD	
		SOIL SAMPLES	
macro sent caps		WATER SAMPLES	
	✓	HYDROPUNCH SAMPLES	
		AUGER PLUGS	

REMARKS

Broken core drill

Client Signature _____ Operator Signature _____

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

2846B Curry Road • Schenectady, NY 12303 P: (518)355-2201
F: (518)355-2236

CLIENT: CT mole	PROJECT #: 203.18 1045	DATE: 3/6/18	DAY: Tuesday
JOB LOCATION: Bennington VT		DIG ALERT #:	CASCADE#: 203

DESCRIPTION OF WORK

Please explain reasons for Down Time, Standby Time, and Shop Time

Well # Bore #	Depth Drilled	Description	Start	Stop	Total Hrs	Charge Hours
		AM Shop Time	800	430		8.00
		Travel to Site - Cored (3) locations then the core drill broke				
		Took soils at (3) locations and installed (3) 1.5 wells.				
		(1) - 22 3/4 w/ 10' screen				
		(1) - 20 3/4 w/ 10' screen				
		(1) - 15' 3/4 w/ 10' screen				
		Travel to Shop				
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START | STOP | TOTAL

EQUIPMENT

DRILL RIG#	7822	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #	6	CORE DRILL	✓
SUPPORT TRUCK #		PAVEMENT SAW	
TRAILER #		# OF SERVICE RUNS	
AUTO HAMMER		# OF SAW CUTS	
GROUT PUMP		Generator	
PERISTALTIC PUMP		[illegible]	✓
		[illegible]	✓

CASING

TYPE __ SLOT			
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' RISER			
10' RISER			
5' RISER	1.5		7
5' PP SCREEN	1.5		6
10' PP SCREEN			
SLIP CAP			
THREADED CAPS	1.5		3
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			
Sticks	1.5		3

MATERIALS

ITEM	QTY	ITEM	QTY
SAND	4	WELL COVER 5"	
READYMIX		WELL COVER 8"	
QUICKSET		PROTECTIVE CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE GRANULAR	2	PLASTIC SHEETING	
SAMPLER TUBES		TRAFFIC CONTROL	
MACRO LINERS	13	PLYWOOD	
		SOIL SAMPLES	
micro seal		WATER SAMPLES	
cap	✓	HYDROPUNCH SAMPLES	
		AUGER PLUGS	

LABOR

NAME	SIGNATURE	SHOP	TOTAL HRS
[illegible]			
[illegible]			

CREW WITH PER DIEM | CHARGEABLE EXTRA LABOR HRS | UTILITIES FOUND OR HIT

REMARKS

Broken core drill

Client Signature ____

Operator Signature ____

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

2846B Curry Road • Schenectady, NY 12303 P: (518)355-2201
F: (518)355-2236

CLIENT: Atnek	PROJECT #: 203.18.1045	DATE: 3/7/18	DAY: Wednesday
JOB LOCATION: Bennington VT	DIG ALERT #:		CASCADE#: 763

Well # / Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time	800	1245		4.75
		Travel to Site				
		- Took Soil Ct (2) locations to 22' blk.				
		- Tried to install 1.5" well w/ 3.25 casing ct 1st location refusal hit @ 4'				
		- Installed (1) 1.5" well to 22' blk ct 2nd location				
		- moved to 3rd location Hit refusal ct 4' blk. moved over 5' and cored a new hole				
		- Client had us leave early due to leak				
		Travel to Shop				
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START ____ STOP ____ TOTAL ____

EQUIPMENT

DRILL RIG #	5ch 7822	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #	61	CORE DRILL	✓
SUPPORT TRUCK #		PAVEMENT SAW	
TRAILER #	41	# OF SERVICE RUNS	
AUTO HAMMER		# OF SAW CUTS	
GROUT PUMP		Generic	✓
PERISTALTIC PUMP		Steam Unit	✓
		Decon pad	✓

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
Timothy Dugas				

CREW WITH PER DIEM ____ CHARGEABLE EXTRA LABOR HRS ____

CASING

TYPE ___ SLOT ___				
20' SCREEN				
10' SCREEN				
5' SCREEN				
20' RISER				
10' RISER				
5' RISER	1.5"			3
5' PP SCREEN	1.5"			2
10' PP SCREEN				
SLIP CAP				
THREADED CAPS	1.5"			1
LOCKING CAPS				
DRIVE SHOE				
CENTRALIZERS				
LOCKS				
5' Plugs	1.5"			1

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND	1	WELL COVER 5"	
READYMIX		WELL COVER 8"	
QUICKSET		PROTECTIVE CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE GRANULAR	1	PLASTIC SHEETING	
SAMPLER TUBES		TRAFFIC CONTROL	
MACRO LINERS	11	PLYWOOD	
		SOIL SAMPLES	
Macro Cap	✓	WATER SAMPLES	
		HYDROPUNCH SAMPLES	
		AUGER PLUGS	

REMARKS

Client Signature _____ Operator Signature _____

CASCADE DAILY WORK REPORT

CASCADE DRILLING | TECHNICAL SERVICES
2846B Curry Road • Schenectady, NY 12303 P: (518)355-2201
F: (518)355-2236

CLIENT: Clmek	PROJECT #: 703 12 [illegible]	DATE: 3/7/18	DAY: wednesday
JOB LOCATION: [illegible] UT		DIG ALERT #:	CASCADE#: 703

DESCRIPTION OF WORK

Please explain reasons for Down Time, Standby Time, and Shop Time

Well # Bore #	Depth Drilled	Description	Start	Stop	Total Hrs	Charge Hours
		AM Shop Time	8:00	12:45		4.75
		Travel to Site				
		Took soils @ (2) locations				
		to 27' 3/4.				
		Tried to install 15' well w/				
		32' [illegible] on 1st location [illegible]				
		[illegible] [illegible] 4'				
		Installed (1) 15' well to 22' 3/4				
		@ 2nd location				
		- moved to 3rd location [illegible]				
		@ 4' 3/4 - moved over 5' and				
		[illegible] a new hole				
		- Client had us leave early due to [illegible]				
		Travel to Shop				
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START | STOP | TOTAL

EQUIPMENT

DRILL RIG# Sch	7322	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #	61	CORE DRILL	✓
SUPPORT TRUCK #		PAVEMENT SAW	
TRAILER #	41	# OF SERVICE RUNS	
AUTO HAMMER		# OF SAW CUTS	
GROUT PUMP		[illegible]	✓
PERISTALTIC PUMP		Steam unit	✓
		Decon pad	✓

CASING

TYPE SLOT		
20' SCREEN		
10' SCREEN		
5' SCREEN		
20' RISER		
10' RISER		
5' RISER	1.5"	3
5' PP SCREEN	1.5"	2
10' PP SCREEN		
SLIP CAP		
THREADED CAPS	1.5"	1
LOCKING CAPS		
DRIVE SHOE		
CENTRALIZERS		
LOCKS		
5' Plugs	1.5"	1

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND	1	WELL COVER 5"	
READYMIX		WELL COVER 8"	
QUICKSET		PROTECTIVE CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE GRANULAR	1	PLASTIC SHEETING	
SAMPLER TUBES		TRAFFIC CONTROL	
MACRO LINERS	11	PLYWOOD	
		SOIL SAMPLES	
Macro [illegible] Cap	✓	WATER SAMPLES	
		HYDROPUNCH SAMPLES	
		AUGER PLUGS	

LABOR

NAME	SIGNATURE	SHOP	TOTAL HRS
Tully			
Dyous			

CREW WITH PER DIEM | CHARGEABLE EXTRA LABOR HRS

REMARKS

Client Signature [signature]

Operator Signature [signature]

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

2846B Curry Road • Schenectady, NY 12303 P: (518)355-2201
F: (518)355-2236

CLIENT: C. role	PROJECT #: 203.13.1645	DATE: 3/9/13	DAY: Friday
JOB LOCATION: Bennington VT	DIG ALERT #:		CASCADE#: 203

Well # / Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time	800	2400		6.75
		Travel to Site				
		Cored (1) location				
		- set (1) 15' well w/ 10' screen				
		at 20' blw / 13' BLG				
		Cemented (6) well boxes				
		Travel to Shop				
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START _____ STOP _____ TOTAL _____

EQUIPMENT

DRILL RIG #	54	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #	61	CORE DRILL	✓
SUPPORT TRUCK #		PAVEMENT SAW	
TRAILER #	41	# OF SERVICE RUNS	
AUTO HAMMER		# OF SAW CUTS	
GROUT PUMP		Generator	✓
PERISTALTIC PUMP		Steam Cleaner	✓
		10' solid stem	✓
		24" casing	✓

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
Facility Degrees				

CREW WITH PER DIEM _____ CHARGEABLE EXTRA LABOR HRS _____

CASING

TYPE ___ SLOT ___				
20' SCREEN				
10' SCREEN				
5' SCREEN			✓	
20' RISER	✓			
10' RISER				
5' RISER	15		7	
5' PP SCREEN	15		4	
10' PP SCREEN				
SLIP CAP				
THREADED CAPS				
LOCKING CAPS	3			
DRIVE SHOE				
CENTRALIZERS				
LOCKS				
Splice	15		2	

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND	6	WELL COVER 5"	6
READYMIX		WELL COVER 8"	
QUICKSET		PROTECTIVE CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE GRANULAR	3	PLASTIC SHEETING	
SAMPLER TUBES		TRAFFIC CONTROL	
MACRO LINERS	3	PLYWOOD	
		SOIL SAMPLES	
		WATER SAMPLES	
		HYDROPUNCH SAMPLES	
		AUGER PLUGS	

REMARKS

Client Signature _____ Operator Signature _____

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

2846B Curry Road • Schenectady, NY 12303 P: (518)355-2201
F: (518)355-2236

CLIENT: C...	PROJECT #: 2015 13 - 1041	DATE: ?/9/18	DAY: Friday
JOB LOCATION: Bennington VT		DIG ALERT #:	CASCADE#: 263

Well # / Bore #	Depth Drilled	DESCRIPTION OF WORK — Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time	8:00	2:45		6.75
		Travel to Site				
		Cored (1) location				
		- Set (2) 1" PVC wells w/ 10' screen				
		at 20' BLG / 13' BLG				
		Cored (6) well boxes				
		Travel to Shop				
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START ___ STOP ___ TOTAL ___

EQUIPMENT

DRILL RIG # 54	7?2	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #	61	CORE DRILL	✓
SUPPORT TRUCK #		PAVEMENT SAW	
TRAILER #	41	# OF SERVICE RUNS	
AUTO HAMMER		# OF SAW CUTS	
GROUT PUMP		Generator	✓
PERISTALTIC PUMP		Steam Cleaner	✓
		W. Sediment Stirrer	✓
		2" Casing	✓

CASING

TYPE SLOT			
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' RISER			
10' RISER			
5' RISER	1.5		7
5' PP SCREEN	1.5		4
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			
Splice	1.5		2

MATERIALS

ITEM	QTY	ITEM	QTY
SAND	6	WELL COVER 5"	6
READYMIX		WELL COVER 8"	
QUICKSET		PROTECTIVE CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE GRANULAR	3	PLASTIC SHEETING	
SAMPLER TUBES		TRAFFIC CONTROL	
MACRO LINERS	3	PLYWOOD	
		SOIL SAMPLES	
		WATER SAMPLES	
		HYDROPUNCH SAMPLES	
		AUGER PLUGS	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
Fordley				
Despres				

CREW WITH PER DIEM ___ CHARGEABLE EXTRA LABOR HRS ___

UTILITIES FOUND OR HIT

REMARKS

Client Signature [signature] Operator Signature [signature]

BARR ENGINEERING CO.

NAME KAM
DATE 3/6/17
SHEET 1 of 2 IN SET
CHECKED BY _____ PAGE _____ IN FILE
DATE _____

45021004.01

11:20 KAM on site - Meet Dan King & Cliff B. (CT MALE)
Cascade has just started Drilling on (Zach Fordley; Jarod Despres)
at Loc'n SG3a - SB18 - 01
all loc'ns have been cored with the Exception of SG3a - SB18-02
because there core drill burned out. Cascade will have another
on site in the Morning.

first cores of SG3a - SB18-01 Look Like fill to 16' where
soil becomes wet. Ask Cascade to collect another core to 25'
obstruction encountered at 22' bgs. - (Solid Stop);

12:20 call GAR to Look at well Logs from previous site
investigation. Well completes 3 & 4 (Located on
South side of the building encountered Bedrock at 19'.
Bedrock was encountered at 15' bgs at MW-2 on
west side of building. Cascade off site for Lunch.

12:45 Cascade back on site for lunch. Rig: Geoprobe 7822 DT
Set temp well SG3a - SB18-01 1.5" Sch 40 pvc. Coreholes are
8" diameter & Cascade has 5" of Flush Road boxes for
the Surface completion DTW 17.20' BTOC; Stickup 3.55'
DTW = 13.65' Below Cement Floor. PVC Set through 3¼" Rods,
Screen = 12-22'; Sand pack (us Silica WG#0) Silica Sand
from 10-22'; granular bentonite 8"-10' bgs

Rinse Blank Macro Core Samplers

~ 13:45 Cascade begins on SG3a - SB18-02 - obstruct at 15' - appears
to be fill to 9'
Set pvc screen 5-15', Sand pack to 3'; granular bentonite 8"-3'
bgs. Measure thr 11.82' BTOC; Stickup = 0.15' = 11.67' BGS.

15:15 Rinse Blank Macro Core Sampler
Cascade begins at SG3a - SB18-03 - obstruct at 17' appears to be
fill to 13'
Set pvc screen 7-17', Sand pack to 5'; granular bentonite 8"-5' bgs
Measure thr 17.0' BTOC; Stickup = 3.75' = 13.25' BGS.

BARR ENGINEERING CO.

NAME KAM
DATE 3/6/17
SHEET 2 of 2 IN SET
PAGE _____ IN FILE

CHECKED BY _____
DATE _____

45021004.01

16:30 Cascade off site, Dan K. getting Ice for Samples.

16:45 KAM off site

KAM 3/6/17

BARR ENGINEERING CO.

NAME KAM
DATE 3/7/18
SHEET 1 of 1 IN SET
PAGE IN FILE

CHECKED BY
DATE

45021004.01

07:15 KAM on site, Cascade crew on site,

07:50 CT Male (Dan K., Chad B) on site

08:20 Collect Rinse Blanks of 2 macro Cores

08:30 Start Drilling at SG3a-SB18-04. Appears to have ~3' of fill (Silty to Clayey Sand w/gravel - Native clayey silt that is tan to dk yw-brn then clayey silt to ~13' then Sand with silt & gravel to obstruction at 21.5'; Appears wet below ~13'

Direct Cascade to set temp well Screen 10-20' - while driving the 3" Casing - they obstruct at 3.5'; - options are to get 3" Flight Augers out tomorrow to break up the Rocks/gravel in the upper 5'; or drive 2" Casing and set 1" PVC, Cascade will bring both options tomorrow.

09:40 Start on boring SG3a-SB18-05. Appears to be fill to ~16' bgs w/silt to Silty Sand. then Silty ~~Sand~~ Sand & gravel with some clay; Bottom 6" (22-22.5') Clayey Silt to Silty clay Obstruct at 22.5' - Measure the ext 14" bgs.

11:00 collect Rinse blank of Macro Core

11:10 Cascade Starts drilling on SG3a-SB18-06. Obstruct at 4' bgs. plan is to offset but will need to core cement again, Collect Rinse blank off the core barrel. Cascade begins coring

12:30 Cascade has core drilled out. CT Male calls off work for the Rest of the day due to impending Snow Storm.

12:45 Cascade & CT male off site

KAM to photograph Rock cores from CSM Env. and Look at wipe sample Loc's,

16:00 KAM off site.

BARR ENGINEERING CO.

NAME Kam
DATE 3/8/17
SHEET 1 of 1 IN SET
PAGE _____ IN FILE

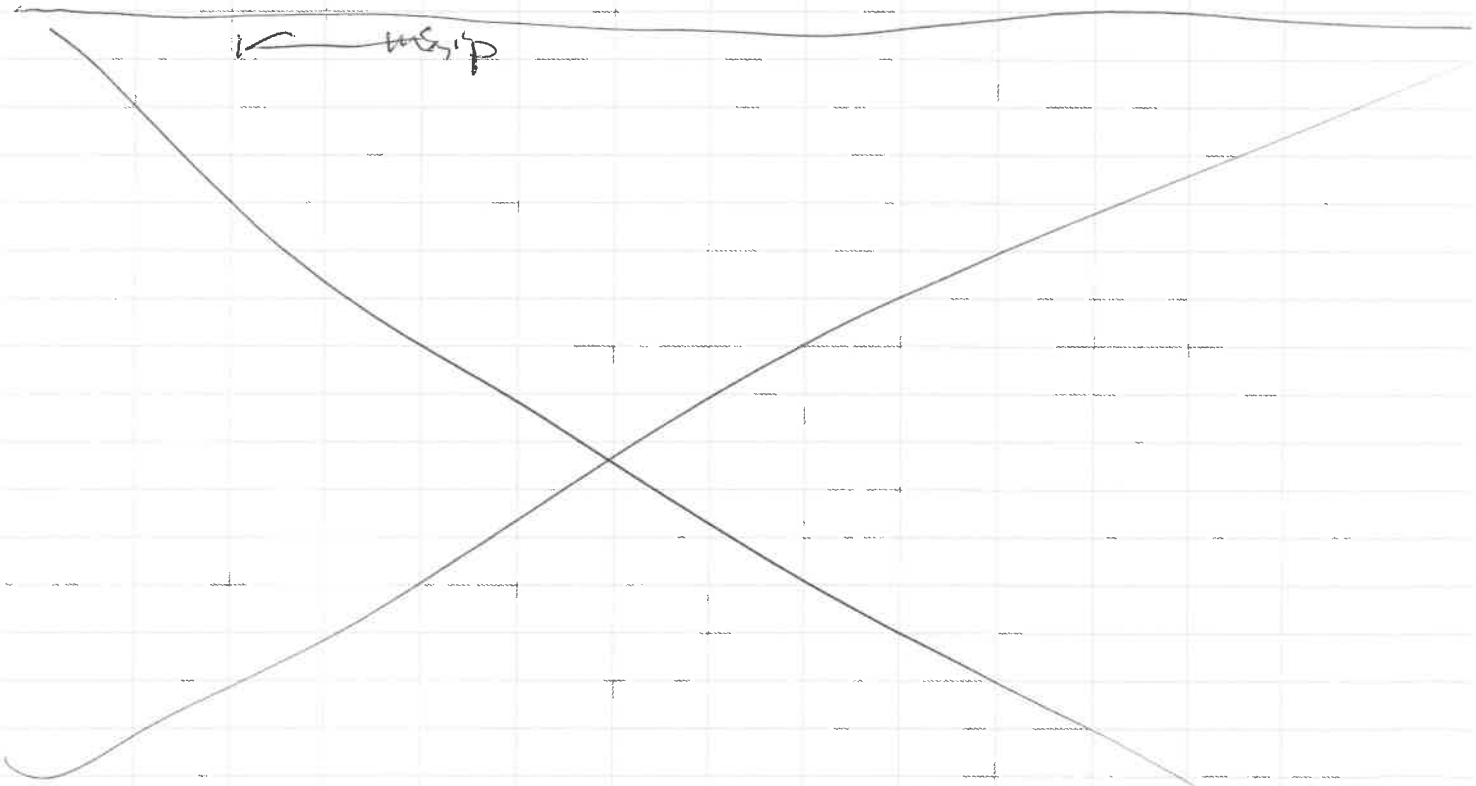
CHECKED BY _____
DATE _____

09:00 Kam on site, will meet with Jonathan Dippert (GMole) to Review Sample locing

09:25 Jon on site - Kam on phone w/ AMDZ.
Walk Down Sample Locns Wipes on Concrete, I-Beams Floor.

Questions:
- Office 2nd Floor is mostly Carpet. 2 Rooms have tile - 1) a "Server" Room which Likely Had the Doors closed most of the time 2.) a small bathroom on the East side near a door that opened to the plant.
(F) (E)
- Wall/Floor wipes on East side of building. - are they meant to be in the basement?

11:00 Complete walk Down; Return equipment (1st Aid Kit/pHASP) to the camp Box, and go check out of the Hotel.



C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 3/12/18 Time On-Site: 7:40 Time Off-Site:

Project Name: SGPP - ~~McCaffrey Street~~ Bennington Project No.: ~~14.4756~~ 16.6131

Purpose: Interior soil borings/MW Installations Field Report No:

Weather Conditions: Cloudy, calm, ~30°F

Present at Site: Dan King, Cliff Bondi, Cascade Drilling (Jared + Jason)

Observations:

7:40 - Onsite @ McCaffrey to prepare + load GW development equipment.

8:35 - Calibrated YSI's + turb. meters. Over to Bennington.

9:00 - onsite @ Bennington. Cascade onsite w/ smaller geoprobe (6620 DT) to finish 7th boring.

9:30 - Flatbed onsite to get rig inside. Collected RB off macro core. Set up soil sampling equipment.

10:50 - Completed boring SG3a-SB18-07 + installed MW. Collected samples @ instructed intervals + lithologic changes, plus FD on sample SG3a-SB18-07-15.0-18.0.

12:15 - Drillers loaded equipment + rig + offsite.

14:10 - DK develop MW18-01, CB develops MW18-02. Load equipment, over to McCaffrey.

15:15 - Loaded additional equipment for continued MW development @ McCaffrey. Offsite to ship samples.

~~Items to Verify:~~

List of Attachments: PFAS Checklist (1), Cal. log (1), Boring log (1), Well const. log (1), Vapor log (1), MW dev. log (2), COC (1), driller daily (1)

Field Log Prepared by: Dan King

Copies to:

PFCs Sampling Checklist

Date: 3/12/18

Weather (*temp./precipitation*): Cloudy, calm, ~30°F Site Name: SGPP-Barrington

Field Clothing and PPE:

- [x] No clothing or boots containing Gore-Tex™
- [x] All safety boots made from polyurethane and PVC
- [x] No materials containing Tyvek®
- [x] Field crew has not used fabric softener on clothing
- [x] Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- [x] Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- [x] No Teflon® or LDPE containing materials on-site
- [x] All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- [x] No waterproof field books on-site
- [x] No plastic clipboards, binders, or spiral hard cover notebooks on-site
- [x] No adhesives (Post-It Notes) on-site
- [x] Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- [x] All sample containers made of HDPE or polypropylene
- [x] Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- [x] Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- [x] "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- [x] Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- [x] No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Dan King

Field Lead Signature: [signature] Time: 9:00

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - ~~McCaffrey Street~~ Berrington

LOCATION: ~~Hoosick Falls, NY~~

CTM PROJECT NO.: ~~14.4756~~ 16.6131

DATE: 3/12/18

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI FA01461	8:15	pH 4.00/7.00/10.00	3.84/6.78/9.86	Cal.	DK
		Sp.C.7000 / ORP 242.5	6867/245.6		
YSI FA60977	8:15	pH 4.00/7.00/10.00	4.01/7.00/10.03	Cal.	DK
		Sp.C.7000 / ORP 242.9	6667/245.9		
~~YSI~~		pH 4.00/7.00/10.00			
		Sp.C.7000 / ORP			
~~YSI~~		pH 4.00/7.00/10.00			
		Sp.C.7000 / ORP			
Turb. Meter FA03027	8:30	10 NTU	10.67	Bump	DK
Turb. Meter FA01058	8:30	10 NTU	10.50	Bump	DK
~~Turb. Meter~~		10 NTU			
~~Turb. Meter~~		10 NTU			
MiniRAE3000 PID	10:00	100ppm	100.7ppm	Cal.	DK

Rev. 6/10/2011

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG - DRAFT

BORING NO.: SG3n-SB18-07
ELEV.: DATUM:
START DATE: 3/12/18 FINISH DATE: 3/12/18
SHEET 1 of 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2		1	2.5	Brown M-C SAND + F-M GRAVEL, some F Sand, trace C gravel; p. sorted, loose	(moist) Fill ↓
4					
6				(same)	(moist)
8		2	1.0		
10				(same)	(moist)
				11.0'	
12		3	2.0	Brown F SAND + F-M GRAVEL, some Silt, trace C gravel, Firm, p. sorted	(wet) Native ↓
14					
16		4	2.0	(same)	(wet)
				16.0'	

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG - DRAFT

BORING NO.: SG34-SB18-07
ELEV.: DATUM:
START DATE: 3/12/18 FINISH DATE: 3/12/18
SHEET 2 of 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18		4	2.0	Brown C SAND, some F-M Gravel, loose, p.sorted	(saturated @ 16.0' bgs)
				18.0	
				Refusal @ 18.0' on Sand + Gravel	Rock possible, no visual
20				End of Boring @ 18.0' bgs	MW installed to 16.5' bgs (casing refusal) w/ 10' screen
22					
24					
26					
28					
30					
32					

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

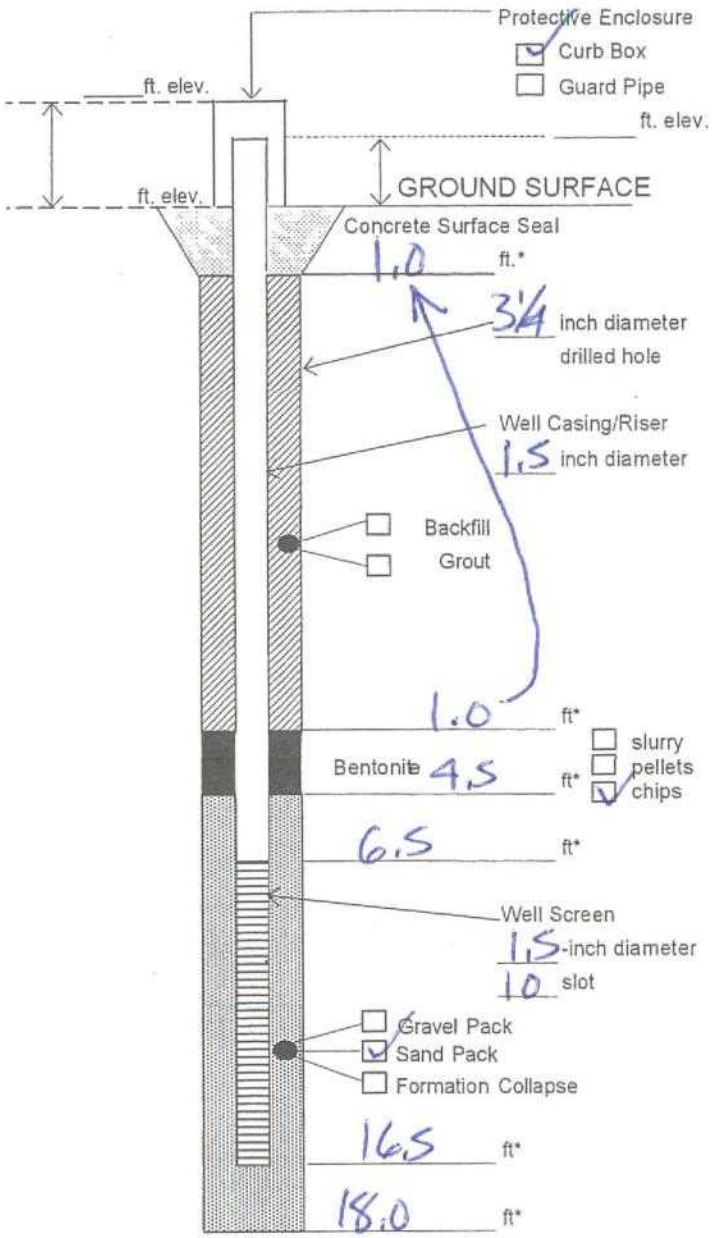
SAMPLE CLASSIFICATION BY: DK, CB

Well No. MW18-07

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES

DRAFT



* Depth below ground surface.

Project Name: SGPP ~~McCaffrey St~~ Bennington

Project Number: ~~14.4756~~ 16.6131

Well No.: MW18-07 Boring No.: SG3a-SB18-07

Town/City: Hoosick Falls

County: Rensselaer State: New York

Installation Date(s): 3/12/18

Drilling Contractor: Cascade Technical Serivces

Drilling Method: Geoprobe

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: D. King

Materials Used:

1.0 Bags of Sand (50 lb. bags)
Sand Size: #0 Brand: Filpro

1.0 Bags of Bentonite (50 lb. bags)
Brand: Baroid

10 ft. of PVC Sch. 40 well screen

6.5 ft. of PVC Sch. 40 well riser

1.0 Bags of Cement/Concrete (80 lb. bags)
Brand: Quikrete

Grout Mixture:

____ Bags of Cement (____ lb. bags)

____ Lbs. of Bentonite

____ Gallons of Water

0 Grout Batches

Notes:

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

DRAFT

PROJECT:	SGPP - Bennington		**PROJECT #:**	16.6131	**PAGE 1 OF** 1
CLIENT:	SGPP				**DATE COLLECTED:** 3/12/18
LOCATION:	1030 Water St, N. Bennington, VT				
INSTRUMENT USED:	MiniRae 3000	**LAMP**	10.6	**eV**	**DATE ANALYZED:** 3/12/18
DATE INSTRUMENT CALIBRATED:	3/12/18	**BY:**	D. King		**ANALYST:** D. King
TEMPERATURE OF SOIL:	ambient				

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SGPa-SB18-07	1	0-2	Soil	0.0	0.0	NO/NS
	2	2-4		0.0	0.0	
	3	4-6		0.0	0.0	
	4	6-8		0.0	0.0	
	5	8-10		0.0	0.0	
	6	10-12		0.0	0.0	
	7	12-14		0.0	0.0	
	8	14-16		0.0	0.0	
	9	16-18		0.0	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

WELL DEVEOPMENT LOG

0.092

Project Name: SGPP ~~Liberty Street~~ Bennington

Project Number: ~~16.0192~~ 16.6131

Date Started: 3/12/18

Date Finished: 3/12/18

Field Parameters		Well Volumes and Corresponding Field Parameters Value										11	12	13
	Intitial	1	2	3	4	5	6	7	8	9	10			
Water Level	13.43	13.43	13.43	13.43	13.43	13.43	13.43	13.43	13.43	13.43	13.43	13.43	13.43	13.4
pH	7.12	7.20	7.07	7.90	7.17	7.22	7.17	7.17	7.20	7.15	7.16	7.17	7.17	7.19
Conductivity (uS)	297.4	302.1	305.1	300.7	295.3	294.2	291.0	288.3	286.4	284.1	285.8	284.9	283.7	282.
ORP (mV)	209.6	200.9	197.6	184.9	167.3	142.1	145.6	134.1	128.8	121.2	110.7	106.0	105.0	102.
DO (mg/L)	2.20	3.90	2.92	4.01	3.76	2.99	3.80	4.24	3.12	3.89	4.26	4.01	3.56	3.9
Temperature (C)	8.1	8.4	8.5	8.6	8.4	8.4	8.5	8.5	8.7	8.9	8.6	8.6	8.5	8.4
Turbidity (NTU)	922AU	AU	AU	AU	AU	AU	AU	678AU	AU	AU	AU	AU	AU	872

Monitoring Well: ~~GP-01~~ MW18-01

Notes:

Total Depth: 21.16

Water Column: 7.73

One Well Volume: 6.71 gal.

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Notes:

Total Depth:

Water Column:

One Well Volume:

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Notes:

Total Depth:

Water Column:

One Well Volume:

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Notes:

Total Depth:

Water Column:

One Well Volume:

WELL DEVEOPMENT LOG

Project Name: SGPP- ~~Liberty Street~~ Bennington

Project Number: ~~16.6182~~ 16.6131

Date Started: 3/12/18

Date Finished: 3/12/18

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level	11.64	13.01	13.14	12.50	13.17	12.86	13.07				
pH	6.96	7.19	7.31	7.34	7.33	7.34	7.39				
Conductivity (uS)	920	657	1148	1145	1172	1142	853				
ORP (mV)	-190.3	56.0	128.7	143.0	114.7	140.1	99.6				
DO (mg/L)	5.05	9.00	9.45	10.40	8.64	10.41	8.51				
Temperature (C)	7.6	7.9	8.0	7.2	8.1	7.3	8.1				
Turbidity (NTU)	over	over	over	over	over	over	over				

Monitoring Well: ~~[illegible]~~ MW18-02

Notes: HDPE waterra Tubing + SS foot valve

Total Depth: 14.57

Water Column: 2.93

start @ 1300 stop @ 1330

One Well Volume: 0.27 x 10 = 2.7 gal

Purged dry repeatedly

Vol Purged: 1.75 gal

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Notes:

Total Depth:

Water Column:

One Well Volume:

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Notes:

Total Depth:

Water Column:

One Well Volume:

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Notes:

Total Depth:

Water Column:

One Well Volume:

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____ Group # _____ Sample # _____

COC # 555856

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP - Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: CB, DK	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Soil ☒ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☐ Surface ☐ NPDES ☐ | Other: Rain water

Analysis Requested — Preservation and Filtration Codes

For Lab Use Only
FSC: _____
SCR#: _____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks
* 48 Hr Hold time for Soil VOCs *

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	14 PFAS	pH	Moisture	TOC	TAL metals	VOCs	TCL SVOCs	Remarks
SG3a-RB01-180312	3/12/18	0920	X		2	X							Metro Barrel SB18-07
SG3a-FD01-180312		—	X		6	X	X	X	X	X	X	X	
SG3a-SB18-07-0.0-1.0		1030	X		6	X	X	X	X	X	X	X	
SG3a-SB18-07-10.0-11.0		1040	X		6	X	X	X	X	X	X	X	
SG3a-SB18-07-15.0-18.0		1050	X		6	X	X	X	X	X	X	X	
SG3a-FTB01-180312		1115	X		2	X							
SG3a-LTB01-180312		—	X		2	X							

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Cliff Bank	3/12/18	1630			

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

2846B Curry Road • Schenectady, NY 12303 P: (518)355-2201
F: (518)355-2236

CLIENT: CT MALE	PROJECT #: 203-18-1045	DATE: 3/12/18	DAY: 5
JOB LOCATION: N. Bennington VT	DIG ALERT #:		CASCADE#:

Well # / Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time	9:00am	12:15pm		
		Travel to Site				
		SB#7 -				
		• 30ft to 17'36 - Refusal				
		• set (1) 2" well @ 16.5' BG using 3.25" casings				
		- 10' of screen - 6.5' of Riser				
		- sand to 2' above the riser				
		- bentonite collar				
		- finished with 5" well box (concrete to grade)		1		
		Travel to Shop				
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START _____ STOP _____ TOTAL _____

EQUIPMENT

DRILL RIG #	CME	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #	Ford	CORE DRILL	
SUPPORT TRUCK #		PAVEMENT SAW	
TRAILER #	40	# OF SERVICE RUNS	
AUTO HAMMER		# OF SAW CUTS	
GROUT PUMP		Hotsy Pressure Washer	X
PERISTALTIC PUMP			
		Decon Pad	X

CASING

TYPE ___ SLOT ___				
20' SCREEN				
10' SCREEN				
5' SCREEN	2			
20' RISER				
10' RISER				
5' RISER	2			
5' PP SCREEN				
10' PP SCREEN				
SLIP CAP				
THREADED CAPS				
LOCKING CAPS	1			
DRIVE SHOE				
CENTRALIZERS				
LOCKS				

MATERIALS

ITEM	QTY	ITEM	QTY
SAND	1	WELL COVER 5"	1
READYMIX	1	WELL COVER 8"	
QUICKSET		PROTECTIVE CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE CHIPS		DECON DRUMS	1
BENTONITE GRANULAR	1	PLASTIC SHEETING	1
SAMPLER TUBES		TRAFFIC CONTROL	
MACRO LINERS	4	PLYWOOD	
Liner Caps	8	SOIL SAMPLES	1
		WATER SAMPLES	
Expro/DuPont	1	HYDROPUNCH SAMPLES	
		AUGER PLUGS	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
J. Kutsher III				
J. Dolros				

CREW WITH PER DIEM ____ CHARGEABLE EXTRA LABOR HRS ____ **UTILITIES FOUND OR HIT** ____

REMARKS

Client Signature _____ Operator Signature _____

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

2846B Curry Road • Schenectady, NY 12303 P: (518)355-2201
F: (518)355-2236

CLIENT: CT MALC	PROJECT #: 203-18-1045	DATE: 3/12/18	DAY: 5
JOB LOCATION: N. Bennington VT	DIG ALERT #:		CASCADE#:

Well # / Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time	9.00am	12:15pm		
		Travel to Site				
		SB#7-				
		• soils to 17'26 - Refusal				
		• set (1) 2" well @ 16.5' BG using 3.25" casings				
		- 10' of screen - 6.5' of Riser				
		- sand to 2' above the screen				
		- bentonite collar				
		- finished with 5" well box (concrete to grade)				
		Travel to Shop				
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START ____ STOP ____ TOTAL ____

EQUIPMENT

DRILL RIG #	CME	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #	Rig 1	CORE DRILL	
SUPPORT TRUCK #		PAVEMENT SAW	
TRAILER #	40	# OF SERVICE RUNS	
AUTO HAMMER		# OF SAW CUTS	
GROUT PUMP		Hoby Pressure Washer	X
PERISTALTIC PUMP			
		Decon Pad	X

CASING

TYPE ___ SLOT ___				
20' SCREEN				
10' SCREEN				
5' SCREEN	2			
20' RISER				
10' RISER				
5' RISER	2			
5' PP SCREEN				
10' PP SCREEN				
SLIP CAP				
THREADED CAPS				
LOCKING CAPS	1			
DRIVE SHOE				
CENTRALIZERS				
LOCKS				

MATERIALS

ITEM	QTY	ITEM	QTY
SAND	1	WELL COVER 5"	1
READYMIX	1	WELL COVER 8"	
QUICKSET		PROTECTIVE CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE CHIPS		DECON DRUMS	1
BENTONITE GRANULAR	1	PLASTIC SHEETING	1
SAMPLER TUBES		TRAFFIC CONTROL	
MACRO LINERS	4	PLYWOOD	
Liner Caps	8	SOIL SAMPLES	1
		WATER SAMPLES	
Expro Silica Sand	1	HYDROPUNCH SAMPLES	
		AUGER PLUGS	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
J Lockley III				
J Dilla				

CREW WITH PER DIEM ____ CHARGEABLE EXTRA LABOR HRS ____ UTILITIES FOUND OR HIT ____

REMARKS

Client Signature _____ Operator Signature _____

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 3/13/18 Time On-Site: 0815 Time Off-Site: 1400

Project Name: SLPP - Bennington Project No.: 16.6131

Purpose: Well Development Field Report No:

Weather Conditions: Snow, High 34°F

Present at Site: Cliff Bondi, Dan King

Observations: 0815 Arrived onsite @ Water Street facility and began setting up equipment to continue well development for newly constructed wells

CB + DK Split up to complete development

↳ CB completed GP-02, GP-04, GP-06 (Dry), and GP-07

↳ DK completed GP-03, GP-05, and assisted with GP-07

All wells were surged/purged with waterra tubing + SS foot valve, and peristaltic pumps

* See Development logs for more detail

1330 Dumping IDW water into frac tank and loading truck

1400 offsite → returning to office

* Equipment used was calibrated in Latham before leaving for site

Items to Verify:

List of Attachments: Well Development log x2, Calibration Log x1

Field Log Prepared by: Cliff Bondi

Copies to:

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - Bennington

LOCATION: Bennington, VT

CTM PROJECT NO.: 16.6131

DATE: 3/13/18

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI FA 00977	0715	pH 4.00/7.00/10.00	4.01/6.96/10.07	Cal.	CB
↓	↓	Sp.C.7000 / ORP 236.3	7618/224.6	↓	↓
YSI FA 01461		pH 4.00/7.00/10.00	4.13/6.99/9.99	Cal.	CB
↓	↓	Sp.C.7000 / ORP 230.2	7436/225.4	↓	↓
Turb. Meter FA0 3027	7:36	10 NTU	9.27	bump	DK
Turb. Meter FA0 1058	7:36	10 NTU	10.48	bump	DK

Rev. 6/10/2011

WELL DEVEOPMENT LOG

Project Name: SGPP- ~~Liberty Street~~ #Bennington

Project Number: ~~16.6132~~ 16.6131

Date Started: 3/13/18

Date Finished: 3/13/18

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level	11.55							11.55	12.41	13.29	13.29
pH								6.96	7.05	7.09	7.11
Conductivity (uS)								1031	1002	998	999
ORP (mV)			3/12/18					50.6	45.0	58.0	75.8
DO (mg/L)								9.99	9.64	9.45	9.27
Temperature (C)								7.0	7.2	7.6	7.6
Turbidity (NTU)								over	3160	3164	over

Monitoring Well: ~~GP-02~~ MW18-02 Notes: Continue development from 3/12

Total Depth: 14.57

Water Column: 3.82

One Well Volume: 0.27 gal x 4 = 1.1 gal

Start @ 0947 Stop @ 0957 Dry @ last reading

Yellowish brown

1.5 gal Purged

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level	12.72	12.73	12.76	12.75	12.74	12.76	12.76	12.74	12.76	12.76	12.76
pH	7.34	7.34	7.36	7.32	7.30	7.32	7.23	7.30	7.24	7.43	7.43
Conductivity (uS)	502	418.2	418.3	411.2	408.4	406.6	406.3	406.1	405.6	564	553
ORP (mV)	239.7	181.3	154.3	135.2	132.7	121.2	124.3	125.8	122.1	134.7	142.2
DO (mg/L)	7.76	7.30	7.26	7.33	7.38	7.38	7.39	7.38	7.29	7.76	7.73
Temperature (C)	8.3	8.2	8.3	8.1	8.0	8.1	8.1	8.1	8.1	8.5	8.6
Turbidity (NTU)	over	over	over	over	over	over	over	over	over	over	over

Monitoring Well: ~~GP-04~~ MW18-04 Notes: Start @ 1045 Stop @ 1102

Total Depth: 20.00

Water Column: 7.28

One Well Volume: 0.67 gal x 10 = 6.7 gal

Dark Brown

Vol Purged: 7.5 gal

↳ Peristaltic Continued for 10 mins

Material + Peristaltic

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level	12.91										
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well: ~~GP-06~~ MW18-06 Notes:

Total Depth: 12.91

Water Column: 0.0

One Well Volume: 0.0

* Dry * unable to develop

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level	13.62	14.00	13.98	14.07	14.63	14.12	14.09	14.13	13.97	13.90	13.85
pH	7.55	7.48	7.46	7.39	7.40	7.42	7.43	7.42	7.42	7.42	7.42
Conductivity (uS)	419.3	434.2	457.8	424.6	433.7	441.1	430.3	428.2	422.1	420.7	420.3
ORP (mV)	137.5	76.1	66.8	63.5	61.2	58.3	60.7	55.1	56.6	55.8	54.8
DO (mg/L)	4.74	4.29	4.65	4.73	4.62	4.18	4.38	4.46	4.29	4.30	4.34
Temperature (C)	7.2	7.8	7.8	7.9	7.9	8.0	8.0	8.0	7.9	7.9	7.9
Turbidity (NTU)	over	over	over	over	over	over	over	over	over	over	over

Monitoring Well: ~~15-70~~ ~~GP-07~~ MW18-07 Notes: Start @ 1240 Stop @ 1243 Material + Peristaltic

Total Depth: 15.70

Water Column: 2.08

One Well Volume: 0.2 x 10 = 2.0 gal

Dark brown

↓

Peristaltic Continued for ~10 mins Vol Purged: 2.5 gal

↓

Cleared up but still over range

WELL DEVEOPMENT LOG

Project Name: SGPP- Liberty Street

Project Number: 16.6132

Date Started: 3/13/18

Date Finished: 3/13/18

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level	12.98	12.98	12.98	12.98	12.98	12.98	12.98	12.98	12.98	12.98	12.98
pH	7.17	7.10	7.04	7.24	7.22	7.28	7.32	7.49	7.54	7.38	7.47
Conductivity (uS)	472.5	490.2	481.0	465.3	444.0	420.1	396.7	408.3	391.2	345.2	322.8
ORP (mV)	-164.1	-9.7	23.4	48.9	60.9	71.7	89.3	91.2	94.6	104.2	113.1
DO (mg/L)	3.44	4.27	5.63	2.68	4.92	3.98	5.04	5.54	4.95	6.01	6.27
Temperature (C)	8.2	8.1	8.3	8.6	8.2	8.2	7.9	8.3	8.4	8.6	8.6
Turbidity (NTU)	AU	AU	AU	AU	AU	AU	AU	AU	AU	AU	28.9

Monitoring Well: ~~MW18-03~~ MW18-03 Notes:
Total Depth: 16.01
Water Column: 3.03
One Well Volume: 0.28

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level	13.74	13.99	14.10	14.23	14.35	14.40	14.43	14.47	14.50	14.51	14.54
pH	7.62	7.60	7.54	7.46	7.37	7.40	7.37	7.33	7.32	7.38	7.41
Conductivity (uS)	197.1	220.3	231.9	246.6	255.8	269.0	279.3	283.2	290.1	289.3	292.3
ORP (mV)	-253.0	-105.0	-19.7	6.4	31.7	50.1	69.5	85.3	89.7	92.1	99.5
DO (mg/L)	6.30	6.72	5.81	5.32	5.64	5.11	4.90	5.06	5.47	5.98	5.35
Temperature (C)	8.0	8.3	8.6	8.5	8.9	8.7	8.2	8.9	8.9	9.0	9.6
Turbidity (NTU)	AU	AU	AU	AU	AU	AU	AU	AU	AU	AU	84

Monitoring Well: ~~MW18-05~~ MW18-05 Notes:
Total Depth: 21.53
Water Column: 7.27
One Well Volume: 0.667

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well: Notes:
Total Depth:
Water Column:
One Well Volume:

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well: Notes:
Total Depth:
Water Column:
One Well Volume:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 3/15/18 Time On-Site: 8:10 Time Off-Site: 10:30

Project Name: SGPP - ~~McCaffrey Street~~ Bennington Project No.: ~~14.4756~~ 16.6131

Purpose: Interior Mapping Field Report No:

Weather Conditions: Cloudy, Flurries, ~30°F

Present at Site: Dan King, Cliff Bondi

Observations:

8:10 – Onsite to measure dimensions of rooms north of main production floor (Water St. building interior).

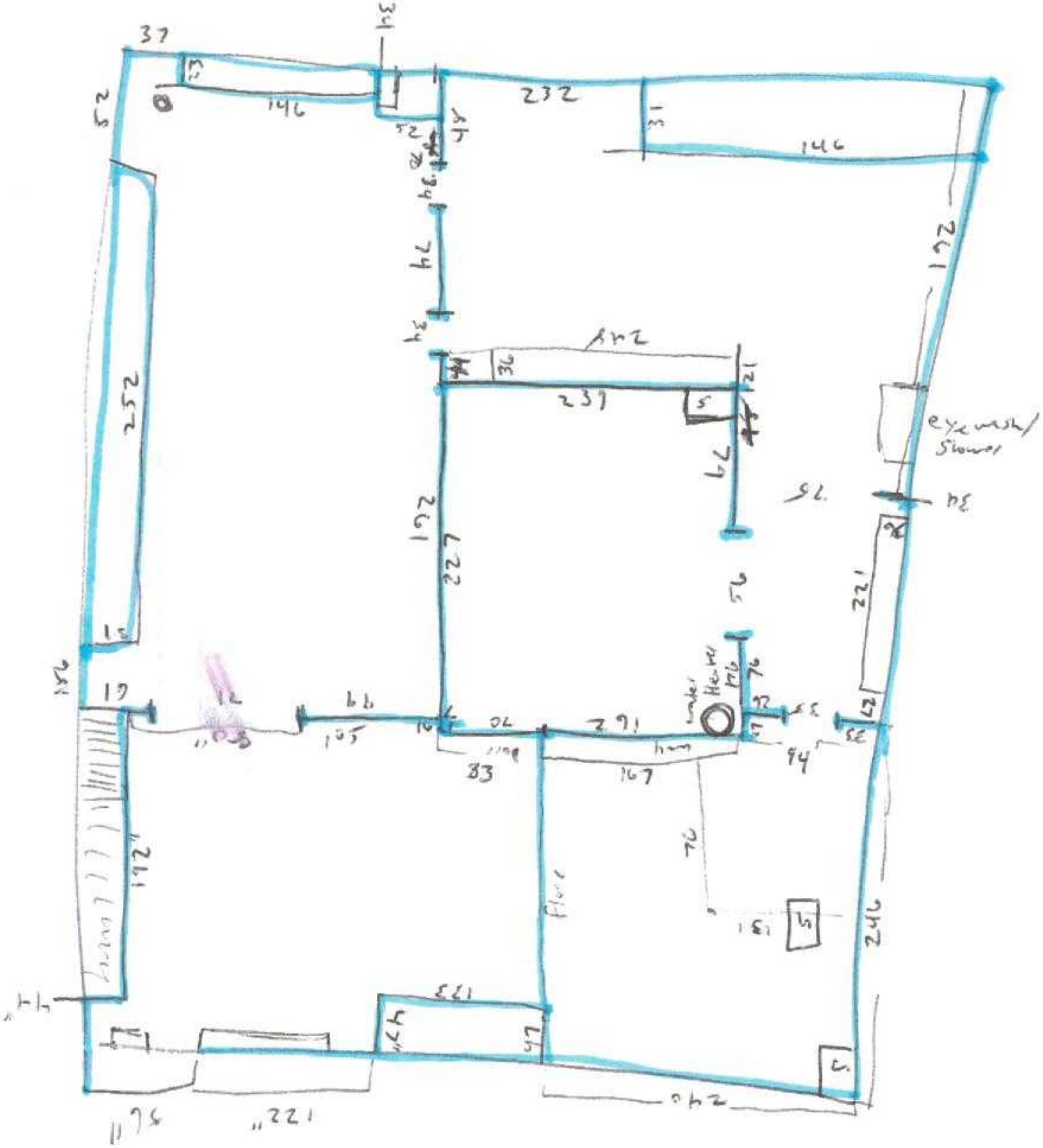
10:30 – Completed field sketch w/ all measurements of room dimensions plus object locations, floor drains, etc. Took extensive photographs. Offsite.

Items to Verify:

List of Attachments: Field Sketch + CAD draft (1)

Field Log Prepared by: Dan King

Copies to: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146
252
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239
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eye wash/
Shower
water
Heater
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246
221
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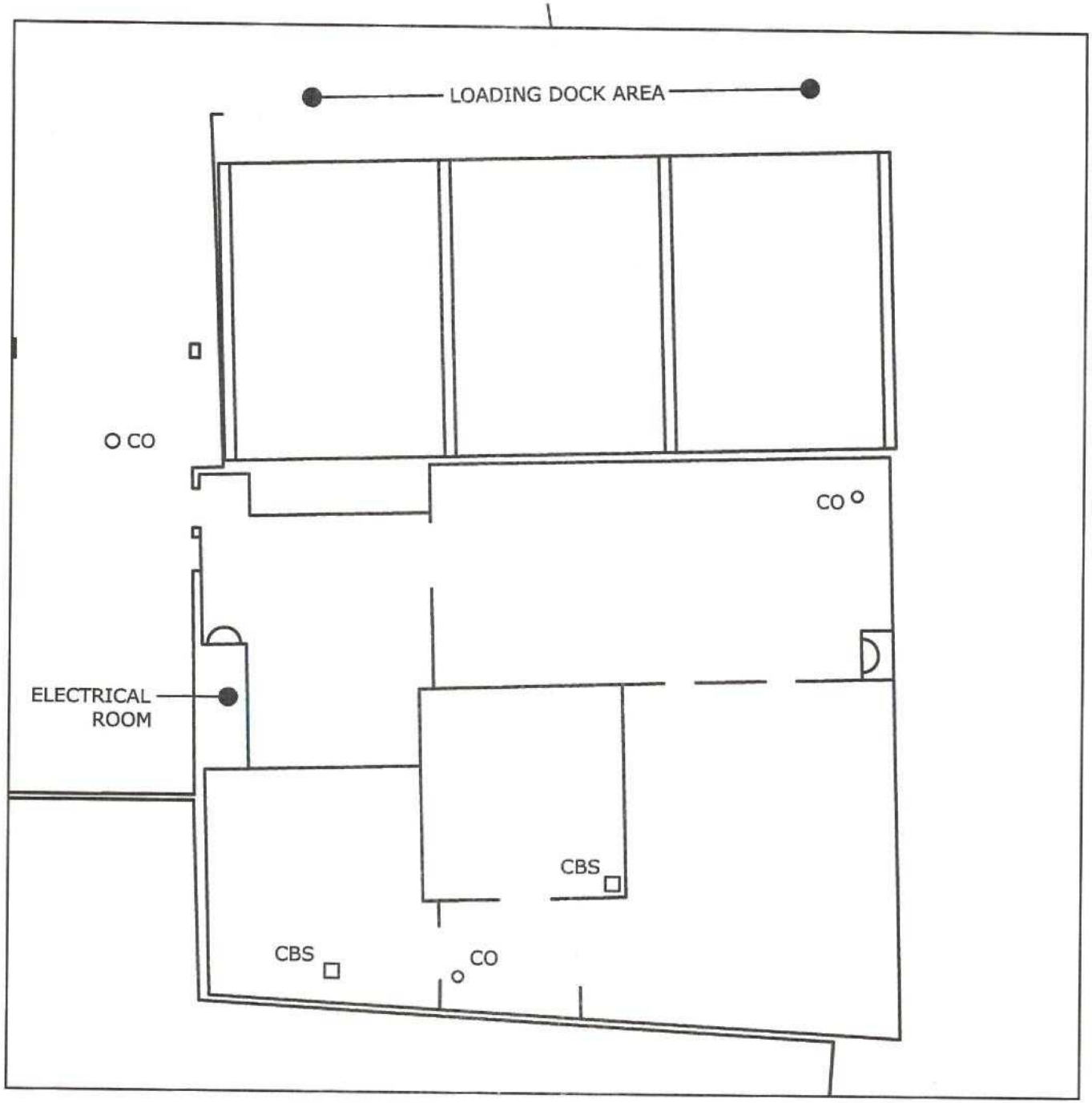

DETAIL D
FIRST FLOOR
SCALE: 1"=20'

Appendix B.2

Groundwater Sampling

G.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 7/13/16 Time On-Site: 0745 Time Off-Site: 1645

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Sunny, 90°F

Present at Site: Jonathan Dippert, Justin Campbell

Observations:

0745 - on-site, set up on MW02
- unload equipment
- open up all MWs, collect round of water levels
  → clean water level meter before and between each well

0900 - end round of water levels
- set up and start monitoring well sampling @ MW-01
- sample monitoring wells in accordance with USEPA Low Flow sampling procedure and CTM FSP.
- collected MS/MSD @ MW01
- collected field duplicate @ MW02, SG3-FD01-160713

1620 - end groundwater sampling for the day
- pack up equipment and samples (samples on ice)
- dispose of purged GW in 55 gal drum.

1645 - off-site

Items to Verify:

List of Attachments: WL Record, GW Purging Log, GW Services Logs

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

WATER LEVEL RECORD

Project Name SGPP - Bennington | Project Number 16.6131
Location North Bennington, VT | Measurement Taken By JD
Method or Reading | Datum

		Date 7/13/16			Date		
Well No.	Ref. Elev.	Depth To Water	Depth of Well	PID	Depth To Water	Depth of Well	PID
MW-01		8.86	14.63	0.5			
MW-02		9.13	12.35	0.3			
MW-03S		10.00	12.68	0.0			
MW-03		10.02	20.81	1.1			
MW-04S		8.88	12.00	0.0			
MW-04		8.86	19.80	0.2			
MW-05		7.46	14.58	0.1			
MW-06S		9.21	12.90	0.0			
MW-06		9.09	20.16	2.7			
MW-07S		15.29	22.58	0.0			
MW-07		15.45	40.43	0.0			

Measuring Point(s) Top of PVC

WELL PURGING LOG

Project Name: SGPP - North Bennington

Project Number: 16.6131

Date Started: 7/13/16

Date Finished: 7/13/16

Field Parameters	Intitial	Minutes of Purging and Corresponding Field Parameters Value									
Time (min)		5	10	15	20	25	30	35	40	45	50
pH	6.90	7.53	7.68	7.71	7.75	7.76	7.80				
Conductivity (µS)	432.3	390.5	377.1	376.2	373.4	371.5	370.8				
Temperature (C)	9.2	9.1	9.4	9.6	9.7	9.6	9.6				
Turbidity (NTU)	27.0	12.9	2.93	2.92	2.81	2.74	1.73				
Depth to Water (From TOC)	8.86	8.85	8.85	8.85	8.85	8.85	8.85				
~~Time~~ ORP (mV)	138	141	144	146	163	161	160				

Monitoring Well: MW-01

Notes:

Water Level: 8.86'

Total Depth: 14.63'

Water Column: 5.77'

One Well Volume: 0.92 gal

Field Parameters	Intitial	Minutes of Purging and Corresponding Field Parameters Value									
Time		5	10	15	20	25	30	35	40	45	50
pH	7.38	4.43	7.40	7.41	7.41	7.40	7.44	7.43			
Conductivity (µS)	988.0	988.0	983.2	985.1	987.4	991.5	987.0	987.2			
Temperature (C)	9.5	8.6	8.6	8.5	8.6	8.7	8.9	8.7			
Turbidity (NTU)	10.5	8.73	3.32	1.50	1.33	0.77	0.78	0.59			
Depth to Water (From TOC)	9.13	9.22	9.23	9.23	9.22	9.22	9.22	9.22			
~~Time~~ ORP (mV)	110	145	167	169	146	~~200~~ 196	198	196			

Monitoring Well: MW-02

Notes:

Water Level: 9.13

Total Depth: 12.35

Water Column: 3.22

One Well Volume: 0.52

Field Parameters	Intitial	Minutes of Purging and Corresponding Field Parameters Value									
Time		5	10	15	20	25	30	35	40	45	50
pH	7.59	7.58	7.55	7.54	7.56	7.66	7.50	7.55	7.50	7.50	7.47
Conductivity	680.3	696.1	702.1	703.8	703.0	700.4	706.0	706.3	708.1	711.0	710.7
Temperature (C)	10.6	8.3	7.8	8.0	8.0	8.1	7.7	7.6	7.3	7.3	7.3
Turbidity (NTU)	118	84.3	10.6	2.80	2.76	2.12	2.12	4.69	1.93	0.97	0.87
Depth to Water (From TOC)	10.02	10.09	10.09	10.09	10.09	10.09	10.09	10.09	10.09	10.09	10.09
~~Time~~ ORP	89	153	177	183	200	203	199	213	211	227	234

Monitoring Well: MW-03

Notes:

Water Level: 10.02

Total Depth: ~~12.35~~ 20.81

Water Column: ~~2.33~~ 10.79

One Well Volume: ~~0.16~~ 1.73

WELL PURGING LOG

Project Name: SGPP - North Bennington

Project Number: 16.6131

Date Started: 7/13/16

Date Finished: 7/13/16

Field Parameters		Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	55									
pH		7.47									
Conductivity		714.5									
Temperature (C)		7.2									
Turbidity (NTU)		0.97									
Depth to Water (From TOC)		10.09	10.14								
~~Time~~ ORP		230									

Monitoring Well: MW-03, continued Notes:
Water Level:
Total Depth:
Water Column:
One Well Volume:

Field Parameters		Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	5	10	15	20	25	30	35	40	45	50
pH	7.50	7.50	7.42	7.42	7.43	7.45	7.44	7.47			
Conductivity MS	613.4	612.5	621.1	628.1	626.0	630.8	630.4	628.7			
Temperature (C)	8.1	8.5	7.9	7.9	7.7	8.0	8.2	8.3			
Turbidity (NTU)	181	56.9	9.18	2.66	5.00	2.05	2.23	2.76			
Depth to Water (From TOC)	10.01	10.14	10.13	10.18	10.18	10.17	10.17	10.16			
~~Time~~ ORP mV	172	199	210	221	225	228	233	231			

Monitoring Well: MW-03S Notes:
Water Level: 10.01'
Total Depth: 12.68'
Water Column: 2.67'
One Well Volume: 0.43 gal

Field Parameters		Minutes of Purging and Corresponding Field Parameters Value									
	Intitial										
pH											
Conductivity											
Temperature (C)											
Turbidity (NTU)											
Depth to Water (From TOC)											
Time											

Monitoring Well: Notes:
Water Level:
Total Depth:
Water Column:
One Well Volume:

Groundwater Services Field Log

DATE: 7/13/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-01 NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 8.85 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 14.63 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 5.78 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

WELL VOLUME: 0.92 GALLONS 2" = 0.16 GALLONS 6" = 1.47 GALLONS

VOLUMES PURGED: 3.5 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 0940 ; TIME FINISHED: 1010

OBSERVATIONS: COLOR clear ; ODOR none

SHEEN none ; TURBIDITY 1.73 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.80 SU , TEMPERATURE 9.6 °C

CONDUCTIVITY 370.8 µS , OTHER ORP - 160 mV

SAMPLE COLLECTION TIME: 1010

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

MS/MSD Collected.

Groundwater Services Field Log

DATE: 7/13/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-02 NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 9.13 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 12.35 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 3.22 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

WELL VOLUME: 0.52 GALLONS 2" = 0.16 GALLONS 6" = 1.47 GALLONS

VOLUMES PURGED: 5.0 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 1210 ; TIME FINISHED: 1245

OBSERVATIONS: COLOR clear ; ODOR none

SHEEN none ; TURBIDITY 0.59 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.43 SU , TEMPERATURE 8.7 °C

CONDUCTIVITY 987.2 µS , OTHER ORP -196 mV

SAMPLE COLLECTION TIME: 1245

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

Field Duplicate collected (SG3-MW-FD01-160713)

Sheet 1 of __

Groundwater Services Field Log

DATE: 7/13/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-03 NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 10.02 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 20.81 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 10.79 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 1.73 GALLONS

VOLUMES PURGED: 8.4 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 1355 ; TIME FINISHED: 1450

OBSERVATIONS: COLOR Clear ; ODOR None

SHEEN None ; TURBIDITY 0.97 NTU

OTHER ~~ORP ; 230 mV~~ 30

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 4.47 SU , TEMPERATURE 7.2 °C

CONDUCTIVITY 714.5 µS , OTHER ORP: 230 mV

SAMPLE COLLECTION TIME: 14:50

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

Groundwater Services Field Log

DATE: 7/13/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-03S NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 10.01 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 12.68 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 2.67 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 0.43 GALLONS

VOLUMES PURGED: 4.0 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 1530 ; TIME FINISHED: ~~1405~~ SD 1605

OBSERVATIONS: COLOR clear ; ODOR none

SHEEN none ; TURBIDITY 2.75 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.47 SU , TEMPERATURE 8.3 °C

CONDUCTIVITY 628.7 µS , OTHER ORP- 231 mV

SAMPLE COLLECTION TIME: ~~1405~~ SD 1605

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 7/14/16 Time On-Site: 0715 Time Off-Site: 1550

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Rain Showers, 85°F

Present at Site: Jonathan Dippert, Justin Campbell

Observations:

0715 - on-site
- set up for groundwater sampling at MW-04 well cluster

0745 - start groundwater sampling
- use same procedure for sampling as stated on 7/13

0930 - collect equipment blank sample SG3-EB01-160714
→ pump lab supplied water through peristaltic tubing (new) into lab supplied containers while wearing nitrile gloves (new)
- received word from K. Malise that Justin Campbell will be personally delivering samples to Lancaster Lab, no shipping.

1220 - collect rinse blank / equipment blank off of water level meter. Decon water level meter, pour lab supplied water over probe into lab supplied containers.
SG3-EB02-160714 (Eaton Lab only - PFCs)

1515 - end sampling, pack up equipment and samples. Dispose purged groundwater in 55 gallon drum
- finish paperwork

1550 - off-site

Items to Verify:

List of Attachments: Well Purging Logs, GW Services Logs, COC (Eaton)

Field Log Prepared by:

Copies to:

WELL PURGING LOG

Project Name: SGPP - North Bennington

Date Started: 7/14/16

Project Number: 16.6131

Date Finished: 7/14/16

Field Parameters	7/14/16	Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	5	10	15	20	25	30	35	40	45	50
pH	7.50	7.57	7.48	7.45	7.61	7.51	7.50	7.50	7.41	7.47	7.50
Conductivity mS	980.6	985.1	987.9	989.1	991.0	988.0	989.7	992.6	992.6	989.9	991.0
Temperature (C)	8.4	8.7	8.7	8.9	8.3	8.6	8.4	8.4	8.4	8.7	8.5
Turbidity (NTU)	63.8	47.1	16.4	15.9	9.04	5.10	4.48	5.65	2.62	2.44	5.08
Depth to Water (From TOC)	8.88	8.94	8.94	8.94	8.94	8.94	8.94	8.94	8.94	8.94	8.94
~~Time~~ ORP mV	99	113	164	183	188	200	191	197	212	223	197

Monitoring Well: MW-04 Notes: Rained this morning

Water Level: 8.88

Total Depth: 19.80

Water Column: 10.92

One Well Volume: 1.75

3 well volumes: 5.25

Field Parameters		Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	55	60	65	20	25	30	35	40	45	50
pH		7.48	7.50	~~7.39~~ 50							
Conductivity mS		992.3	987.1								
Temperature (C)	50	8.7	8.9								
Turbidity (NTU)		3.06	1.83								
Depth to Water (From TOC)		8.94	8.94								
~~Time~~ ORP mV		189	188								

Monitoring Well: MW-04/50D Notes:

Water Level:

Total Depth:

Water Column:

One Well Volume:

2013

Field Parameters	7/12/16	Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	5	10	15	20	25	30	35	40	45	50
pH	7.47	7.39	7.39	7.36	7.35	7.35	7.38	7.32			
Conductivity mS	1001	1011	1015	1014	~~1007~~	1013	1015	1020			
Temperature (C)	11.1	11.0	10.8	10.7	10.7	10.7	10.8	10.7			
Turbidity (NTU)	5.33	7.53	4.05	2.86	3.21	2.76	3.22	2.27			
Depth to Water (From TOC)	8.93	9.13	9.17	9.18	9.18	9.19	9.20	9.21			
~~Time~~ ORP mV	190	218	225	228	217	211	214	219			

Monitoring Well: MW-04/S Notes:

Water Level: 8.93

Total Depth: 12.00

Water Column: 3.07

One Well Volume: 0.49

WELL PURGING LOG

Project Name: SGPP - North Bennington

Project Number: 16.6131

Date Started: 7/14/16

Date Finished: 7/14/16

Field Parameters	Minutes of Purging and Corresponding Field Parameters Value										
	Intitial	5	10	15	20	25	30	35	40	45	50
pH	7.1	7.13	7.21	7.13	7.16	7.13	7.14	7.12	7.16	7.15	7.15
Conductivity (µs)	1995	2022	2006	2013	2015	2032	2016	2017	2010	2016	2019
Temperature (C)	9.4	9.3	9.5	9.5	9.6	9.4	9.5	9.7	9.8	9.3	9.2
Turbidity (NTU)	124	64.1	6.96	3.35	1.69	1.32	0.72	1.07	1.07	0.48	0.51
Depth to Water (From TOC)	9.22	9.60	9.84	9.85	9.80	9.61	9.63	9.63	9.64	9.65	9.66
~~Time~~ ORP (mV)	167	215	207	218	222	223	233	236	218	200	216

Monitoring Well: MW-06S

Notes:

Water Level: 9.23

Total Depth: 12.90

Water Column: 3.67

One Well Volume: 0.589 = 0.59

3 volumes: 1.76

Field Parameters	~~Minutes of Purging and Corresponding Field Parameters Value~~										
	~~Intitial~~	60	10	~~15~~	~~20~~	~~25~~	~~30~~	~~35~~	~~40~~	~~45~~	~~50~~
pH	7.10	7.07	~~7.145~~								
Conductivity (µs)	2020	2009	~~1995~~								
Temperature (C)	9.4	9.4	~~9.7~~								
Turbidity (NTU)	0.57	0.56									
Depth to Water (From TOC)	9.67	9.67									
~~Time~~ ORP (mV)	222	219	~~233~~								

Monitoring Well:

Notes: ~~1~~ 2

Water Level:

Total Depth:

Water Column:

One Well Volume:

Field Parameters	Minutes of Purging and Corresponding Field Parameters Value										
	Intitial	5	10	15	20	25	30	35	40	45	50
pH	7.40	7.47	7.45	7.46	7.40	7.40	7.38	7.36	7.33	7.34	7.37
Conductivity (µs)	1368	1383	1395	1408	1429	1441	1460	1481	1485	1470	1491
Temperature (C)	9.2	9.1	9.1	8.7	8.6	8.5	8.3	8.1	8.0	8.0	8.2
Turbidity (NTU)	516.5	48.3	14.8	8.97	4.64	2.73	1.69	1.29	1.20	1.20	0.52
Depth to Water (From TOC)	9.14	9.21	9.21	9.21	9.21	9.21	9.21	9.21	9.21	9.21	9.21
~~Time~~ ORP (mV)	170	197	233	235	251	244	245	223	242	235	228

Monitoring Well: MW-06

Notes: 50 28 = 3 volumes

Water Level: 9.14

Total Depth: 20.16

Water Column: 11.02

One Well Volume: 1.76

WELL PURGING LOG

Project Name: SGPP - North Bennington

Project Number: 16.6131

Date Started: 7/14/16

Date Finished: 7/14/16

Field Parameters	Intitial	Minutes of Purging and Corresponding Field Parameters Value									
		5	10	15	20	25	30	35	40	45	50
pH	7.0	7.2	6.9	6.9	7.0	7.0	7.2	6.9	7.1	6.9	7.2
Conductivity mS	2.59	2.42	2.50	2.51	2.52	2.52	2.54	2.52	2.52	2.52	2.52
Temperature (C)	16.5	16.1	16.4	16.4	16.3	16.4	16.3	16.4	16.2	16.4	16.3
Turbidity (NTU)	4.32	2.97	3.67	4.21	0.94	0.54	0.58	0.31	0.46	0.36	0.44
Depth to Water (From TOC)	7.57	7.57	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56
Time ORP mV	67	60	50	52	55	62	65	72	77	74	68

Monitoring Well: MW-05
Water Level: 7.51
Total Depth: 14.58'
Water Column: 7.07
One Well Volume: 1.13

Notes:

Field Parameters	Intitial	Minutes of Purging and Corresponding Field Parameters Value									
		55	60	65							
pH		7.38	7.37	7.37							
Conductivity µS		1485	1506	1492							
Temperature (C)		8.3	8.2	8.0							
Turbidity (NTU)		1.09	0.97	1.46							
Depth to Water (From TOC)		9.21	9.21	9.21							
Time ORP mV		244	241	238							

Monitoring Well: MW-06 (continued)
Water Level:
Total Depth:
Water Column:
One Well Volume:

Notes:

Field Parameters	Intitial	Minutes of Purging and Corresponding Field Parameters Value									
pH											
Conductivity											
Temperature (C)											
Turbidity (NTU)											
Depth to Water (From TOC)											
Time											

Monitoring Well:
Water Level:
Total Depth:
Water Column:
One Well Volume:

Notes:

Groundwater Services Field Log

DATE: 7/14/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-04 NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 8.94 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 19.80 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 10.92 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 1.75 GALLONS

VOLUMES PURGED: 7 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 07:45 ; TIME FINISHED: ~~0905~~ 0850 0845

OBSERVATIONS: COLOR CLEAR ; ODOR NONE

SHEEN NONE ; TURBIDITY 1.83 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.50 SU , TEMPERATURE 8.9 °C

CONDUCTIVITY 987.1 µS , OTHER 178mV-ORP

SAMPLE COLLECTION TIME: 0845

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

Groundwater Services Field Log

DATE: 7/14/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-04S NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 8.93 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 12.00 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 3.07 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

WELL VOLUME: 0.49 GALLONS 2" = 0.16 GALLONS 6" = 1.47 GALLONS

VOLUMES PURGED: 3.5 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 09:25 ; TIME FINISHED: 10:00

OBSERVATIONS: COLOR clear ; ODOR None

SHEEN None ; TURBIDITY 2.27 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.32 SU , TEMPERATURE 10.7 °C

CONDUCTIVITY 1020 µS , OTHER ORP = 219 mV

SAMPLE COLLECTION TIME: 10:00

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

Groundwater Services Field Log

DATE: 7/14/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, V

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-05 NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 7.51 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 14.58 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 7.07 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 1.13 GALLONS

VOLUMES PURGED: 5.5 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 1405 ; TIME FINISHED: 14:55

OBSERVATIONS: COLOR clear ; ODOR None

SHEEN None ; TURBIDITY 0.44 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.2 SU , TEMPERATURE 16.3 °C

CONDUCTIVITY 2.52 ~~mS~~ µS , OTHER ORP = 68

SAMPLE COLLECTION TIME: 1455

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

Groundwater Services Field Log

DATE: 7/14/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-06 NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 9.14 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 20.16 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 11.02 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 1.76 GALLONS

VOLUMES PURGED: 5.5 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 1305 ; TIME FINISHED: 1415

OBSERVATIONS: COLOR Clear ; ODOR None

SHEEN None ; TURBIDITY 1.45 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.37 SU , TEMPERATURE 8.0 °C

CONDUCTIVITY 1492 µS , OTHER ORP = 238 mV

SAMPLE COLLECTION TIME: 14:15

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

Groundwater Services Field Log

DATE: 7/14/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-06S NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 9.23 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 12.90 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 3.67 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 0.59 GALLONS

VOLUMES PURGED: 5.5 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 11:25 ; TIME FINISHED: 12 25

OBSERVATIONS: COLOR Clear ; ODOR None

SHEEN None ; TURBIDITY 0.56 NTU

OTHER —

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.07 SU , TEMPERATURE 9.4 °C

CONDUCTIVITY 2009 µS , OTHER ORP= 219

SAMPLE COLLECTION TIME: 12:25

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

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CHAIN OF CUSTODY RECORD

Page 1 of 1

REPORT TO: Kirk Moline
CT Male Associates
50 Century Hill Dr
Latham, NY 12110

BILL TO: SAME AS REPORT

SAMPLER (Signature)

COMPLIANCE MONITORING: No

PWS ID #

STATE (sample origin): VT

POPULATION SERVED

SOURCE WATER

PROJECT NAME: SGPP-Bennington

PO#: 16.6131

LAB Number	COLLECTION DATE	COLLECTION TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	CHLORINATED NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1	7/8/16	—			SG3-LTB01-160713	PFCs EPA Method 537				1	RW	SW
2	7/13/16	1010	X		SG3-MW04-160713		MS/MSD		X	6	GW	
3	7/13/16	1245		X	SG3-MW02-160713				X	2	GW	
4	7/13/16	—			SG3-FD01-160713				X	2	GW	
5	7/13/16	1450		X	SG3-FTB01-160713					1	RW	
6	7/13/16	1450		X	SG3-MW03-160713				X	2	GW	
7	7/13/16	1605		X	SG3-MW03S-160713				X	2	GW	
8	7/14/16	0845	X		SG3-MW04-~~160713~~ 160714				X	2	GW	
9		0930	X		SG3-EB01-160714					2	RW	
10		1000	X		SG3-MW04S-160714				X	2	GW	
11		1220		X	SG3-EB02-160714					2	RW	
12		1225		X	SG3-MW06S-160714				X	2	GW	
13		1415		X	SG3-MW06-160714				X	2	GW	
14	7/14/16	1455		X	SG3-MW05-160714				X	2	GW	

RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME
	7/14/16	1730 AM / PM			AM PM
RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME
		AM PM			AM PM
RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED FOR LABORATORY BY:	DATE	TIME
		AM PM			AM PM

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS

CONDITIONS UPON RECEIPT: (check one)
_____ Iced: Wet/Blue _____ Ambient _____ °C Upon Receipt _____ N/A

MATRIX CODES:
DW-DRINKING WATER
RW-REAGENT WATER
GW-GROUND WATER
EW-EXPOSURE WATER
SW-SURFACE WATER
PW-POOL WATER
WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

SW = Standard Written: (15 working days) 0%
RV* = Rush Verbal: (5 working days) 50%
RW* = Rush Written: (5 working days) 75%
IV* = Immediate Verbal: (3 working days) 100%
IW* = Immediate Written: (3 working days) 125%
SP* = Weekend, Holiday CALL
STAT* = Less than 48 hours CALL

* Please call, expedited service not available for all testing

Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges.

Sample analysis will be provided according to the standard EEA/Water Services Terms, which are available upon request. Any other terms proposed by Customer are deemed material alterations and are rejected unless expressly agree to in writing by EEA.

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 7/15/16 Time On-Site: 0745 Time Off-Site: 1220

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Sunny, 85°F

Present at Site: Jonathan Dippert, Justin Campbell

Observations:

0715 - on-site

- Set up for groundwater sampling
  - → 2 monitoring wells remain - MW07 + MW07S

~0830 - JC start purging and sampling monitoring wells
  - → using same procedure/method as stated on 7/13

- JD set up to collect waste characterization sample of IDW
- collect waste characterization samples
  - → SG3-WASTECHARACTERIZATION-W : water sample, analyzed for Total Metals - RCRA8 list. Collected with new disposable bailer, homogenized in ziplock bag and transferred to lab container
  - → SG3-WASTECHARACTERIZATION-S : soil sample, analyzed for TCLP Metals - RCRA8 List. Collected with stainless steel spoon and new disposable baile (used as core), homogenized in ziplock bag and transferred to lab container
  - → 3 Soil drums, 6 water drums, 1 Decon pad/PPE drum

1145 - finish groundwater sampling. Pick up equipment and samples. Dispose of purged GW in drum and close drum. Complete paperwork

1220 - off-site

Items to Verify:

List of Attachments: GW Purging Log, GW Services Log, COCs

Field Log Prepared by:

Copies to:

Groundwater Services Field Log

DATE: 7/15/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, V

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-07 NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 15.47 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 40.43 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 24.96 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 3.99 GALLONS

VOLUMES PURGED: 13.0 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 08:20 ; TIME FINISHED: 10:10

OBSERVATIONS: COLOR clear ; ODOR none

SHEEN None ; TURBIDITY 2.80 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.96 SU , TEMPERATURE 5.8 °C

CONDUCTIVITY 386.7 µS , OTHER ORP= 127 mV

SAMPLE COLLECTION TIME: 10:10

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

Groundwater Services Field Log

DATE: 7/15/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, V

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-07S NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 15.3 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 22.58 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 15.28 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 1.17 GALLONS

VOLUMES PURGED: 5.0 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 1045 ; TIME FINISHED: 1125

OBSERVATIONS: COLOR orange-brown to clear ; ODOR NONE

SHEEN NONE ; TURBIDITY 1.41 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.34 SU , TEMPERATURE 5.7 °C

CONDUCTIVITY 884.6 µS , OTHER ORP = -80 mV

SAMPLE COLLECTION TIME: 11:25

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

WELL PURGING LOG

Project Name: SGPP - North Bennington

Date Started: 7/15/16

Project Number: 16.6131

Date Finished: 7/15/16

Field Parameters	0720	Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	10	20	30	40	50	60	65	70	75	80
pH	7.98	7.85	7.91	8.06	8.05	8.05	8.02	7.99	7.99	8.01	8.00
Conductivity (mS)	378.9	379.7	380.1	378.7	383.9	382.8	383.9	384.1	385.5	385.7	385.3
Temperature (C)	5.1	4.9	5.0	5.0	5.2	5.0	5.0	6.0	5.9	5.8	5.7
Turbidity (NTU)	231	*22.5	24.6	21.6	3.59	28.8	48.2	45.7	22.6	30.8	32.2
Depth to Water (From TOC)	15.47	16.57	16.55	16.56	16.56	16.57	16.06	15.91	15.92	15.92	15.91
~~Time~~ ORP (mV)	91	51	86	-69	98	131	93	91	77	112	94

Monitoring Well: MW-07

Water Level: 15.47

Total Depth: 40.43

Water Column: 24.96

One Well Volume: 3.99

Notes:

0945 10:00

Field Parameters		Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	85	90	95	100	105	110	115	120	125	130
pH		8.01	8.02	8.02	8.02	~~7.97~~	~~7.96~~	~~7.33~~			
Conductivity (mS)		386.4	385.5	385.9	385.6	385.9	386.7	~~879.5~~ 50			
Temperature (C)	JD	5.9	6.8	5.8	5.6	5.8	5.8	~~5.6~~			
Turbidity (NTU)		23.1	25.6	10.8	2.65	2.96	2.80	-			
Depth to Water (From TOC)		15.90	15.90	15.91	15.94	15.95	15.95	-			
Time ORP mV		107	111	115	124	132	127	-			

Monitoring Well: MW-07, continued

Water Level:

Total Depth:

Water Column:

One Well Volume:

Notes:

11:25

Field Parameters	10:45	Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	10	20	30	35	40					
pH	7.42	7.33	7.33	7.33	7.33	7.34					
Conductivity (mS)	873.2	889.7	883.4	879.5	883.2	884.6					
Temperature (C)	5.3	5.4	5.16	5.6	5.7	5.7					
Turbidity (NTU)	3.42	3.58	3.58	2.44	1.43	1.41					
Depth to Water (From TOC)	15.28	15.32	15.30	15.3	15.3	15.3					
Time ORP (mV)	-56	-64	-77	-78	-83	-80					

Monitoring Well: MW-07S

Water Level: 15.28

Total Depth: 22.58

Water Column: 07.30

One Well Volume: 1.17

Notes: 3.5 gal purge

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CHAIN OF CUSTODY RECORD

Page 1 of ____

REPORT TO: Kirk Moline
CT Male Associates
50 Century Hill Dr, Latham, NY 12110

BILL TO: SAME AS REPORT

SAMPLER (Signature)

COMPLIANCE MONITORING: Yes / No

PWS ID #

STATE (sample origin): VT

POPULATION SERVED

SOURCE WATER

PROJECT NAME: SGPP - Bennington

PO#: 16.6131

LAB Number	COLLECTION DATE	COLLECTION TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	CHLORINATED NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1	7/15/16	1010	X		SG3-MW07-160715	PFCs EPA Meth. 537			X	2	GW	SW
2	7/15/16	—			SG3-LTB01-160715	↓				1	RW	↓
3	7/15/16	1110	X		SG3-FTB01-160715					1	RW	
4	7/15/16	1125	X		SG3-MW08S-160715				X	2	GW	SW
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												

RELINQUISHED BY:(Signature)	DATE	TIME AM/PM	RECEIVED BY:(Signature)	DATE	TIME AM/PM
RELINQUISHED BY:(Signature)	DATE	TIME AM/PM	RECEIVED BY:(Signature)	DATE	TIME AM/PM
RELINQUISHED BY:(Signature)	DATE	TIME AM/PM	RECEIVED FOR LABORATORY BY:	DATE	TIME AM/PM

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS

CONDITIONS UPON RECEIPT (check one):

____ Iced: Wet/Blue ____ Ambient ____ °C Upon Receipt____ N/A

MATRIX CODES:

DW-DRINKING WATER
RW-REAGENT WATER
GW-GROUND WATER
EW-EXPOSURE WATER
SW-SURFACE WATER
PW-POOL WATER
WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

SW = Standard Written: (15 working days) 0%
RV* = Rush Verbal: (5 working days) 50%
RW* = Rush Written: (5 working days) 75%
IV* = Immediate Verbal: (3 working days) 100%
IW* = Immediate Written: (3 working days) 125%
SP* = Weekend, Holiday CALL
STAT* = Less than 48 hours CALL

* Please call, expedited service not available for all testing

Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges.

Sample analysis will be provided according to the standard EEA/Water Services Terms, which are available upon request. Any other terms proposed by Customer are deemed material alterations and are rejected unless expressly agree to in writing by EEA.

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #: COC#: 14977

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: 16.6126

Sampler: Jonathan Dippert / Justin Campbell

Phone #: 518-786-7400 Quote #: 214135

State where sample(s) were collected: VT

Matrix: Sediment ☐ Ground ☒ Surface ☐ Soil ☐ Potable ☐ NPDES ☐ Other: Blank water

For Lab Use Only
SF#: 271157
SCR#: 191430

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	TCL VOAs (8260C)	TAL Metals	Pesticides (8081B)	PCBs (8082A)	TCL SVs (8270D)	CN (9012A)	Cl-, SO4- (300.0)	Alk, Bicarb, Carb. (2320 B)	Remarks
SG3-MW01-160713	7/13/16	1010	X			X		36	X	X	X	X	X	X	X	X	MS/MSD
SG3-MW02-160713	7/13/16	1245	X			X		12	X	X	X	X	X	X	X	X	
SG3-FD01-160713	7/13/16	—	X			X		12	X	X	X	X	X	X	X	X	
SG3-TB01-160713	7/8/16	—					X	2	X								
SG3-MW03-160713	7/13/16	1450	X			X		12	X	X	X	X	X	X	X	X	
SG3-MW03S-160713	7/13/16	1605	X			X		12	X	X	X	X	X	X	X	X	
SG3-MW04-160714	7/14/16	0845	X			X		12	X	X	X	X	X	X	X	X	
SG3-EB01-160714	7/14/16	0930	X				X	11	X	X	X	X	X	X	X	X	
SG3-MW04S-160714	7/14/16	1000	X			X		12	X	X	X	X	X	X	X	X	
SG3-MW06S-160714	7/14/16	1225	X			X		11	X	X	X	X	X	X	X	X	

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: Kmoline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☑ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☐

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ______ Other ______

Temperature upon receipt ______ °C

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Environmental Services Analysis Request/Chain of Custody

Acct.# 37191 Group #: Sample #: COC#: 14977

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: 16.6126

Sampler: Jonathan Dippert / Justin Campbell

Phone #: 518-786-7480 Quote #: 214135

State where sample(s) were collected: VT

For Lab Use Only

SF#: 271157

SCR#: 191430

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Sediment	Water	Ground	Potable	Surface	NPDES	Other: Blank Water	Total # of Containers	TCL VOAs (8260C)	TAL Metals	Pesticides (8081B)	PCBs (8082A)	TCL SVs (8270D)	CN (9012A)	Cl-, SO4-- (300.0)	Alk, Bicarb, Carb. (2320 B)	Remarks
SG3-MW06-160714	7/14/16	1415	X				X						12	X	X	X	X	X	X	X	X	
SG3-MW05-160714	7/14/16	1455	X				X						11	X	X	X	X	X	X	X	X	
~~SG3-MW20~~																						
SG3-MW07-160715	7/15/16	1010	X				X						12	X	X	X	X	X	X	X	X	
SG3-MW07S-160715	7/15/16	1125	X				X						11	X	X	X	X	X	X	X	X	
SG3-~~MW~~TB01-160715	7/8/16	—										X	2	X								

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☑ MA MCP ☐ TX TRRP - 13 ☐

Type III (Reduced non-CLP) ☐ CT RCP ☐

Type IV (CLP SOW) ☐ ASP Type A ☐

Type VI (Raw Data Only) ☐ ASP Type B ☐

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time

Airbill No.:

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

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Environmental Services Analysis Request/Chain of Custody

Page 1 of 1

Acct. #: 37191 Group #: Sample #: COC#: 14977

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: 16.6126

Sampler: Jonathan Dippert

Phone #: 518-786-7400 Quote #: 214135

State where sample(s) were collected: VT

Matrix: Sediment ☒; Soil; Water: Ground ☐ Surface ☐ Potable ☐ NPDES ☐; Other:

Preservation Codes: N (Total Metals - RCRA 8)

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	TCL VOAs (8260C)	TAL Metals	Pesticides (8081B)	PCBs (8082A)	TCL SVs (8270D)	CN (9012A)	Cl-, SO4- (300.0)	Alk, Bicarb, Carb. (2320 B)	Total Metals - RCRA 8	TCLP Metals - RCRA 8			Remarks
SG3-WASTE CHARACTERIZATION-W	7/15/16	0910		X		X		1									X				
SG3-WASTE CHARACTERIZATION-S	7/15/16	0935		X	X			1										X			

For Lab Use Only

SF#: 271157

SCR#: 191430

Preservation Codes

H = HCl T = Thiosulfate

N = HNO_3 B = NaOH

S = H_2SO_4 P = H_3PO_4

O = Other

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: k.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☒ SD	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☒	ASP Type B	☐		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time

Airbill No.:

Relinquished by Commercial Carrier: UPS ______ FedEx ______ Other ______

Temperature upon receipt ______ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 12/15/16 Time On-Site: 09:30 Time Off-Site: 1530

Project Name: SGPP-Bennington Project No.: 16,6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Partly Cloudy / Scattered snow flurries

Present at Site: Ryan Hubbard, Chris Ormsby

Observations: 0930 Arrive on site, set up decon, unload equipment

1000 Well caps and locks frozen shut. Use propane torch to thaw. ~2 inches of snow covering wells. Collect water levels of all wells

1315 Completed round of water levels. Begin setting up MW-05 for sampling.

1435 Sample MW-05 for all parameters.

1500 Pack up equipment and put samples in corresponding coolers to return to the office.

1530 Leave site and return to CTMale to put samples on ice for overnight storage.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

WATER LEVEL RECORD

Project Name SGPP - Bennington | Project Number 16.6131
Location North Bennington, VT | Measurement Taken By
Method or Reading | Datum

		Date 12/15/16			Date		
Well No.	Ref. Elev.	Depth To Water	Depth of Well	PID	Depth To Water	Depth of Well	PID
MW-01		8.93	14.63				
MW-02		9.15	12.35				
MW-03S		9.85	12.63				
MW-03		9.87	20.31				
MW-04S		8.68	12.00				
MW-04		8.68	19.50				
MW-05		7.04	14.58				
MW-06S		8.90	12.90				
MW-06		8.33	20.16				
MW-07S		14.80	22.55				
MW-07		14.84	40.43				

Measuring Point(s) Top of PVC

Groundwater Services Field Log

DATE: 12/15/16 PROJECT NAME: SGPP-N.Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N.Bennington, VT

SAMPLING PERSONNEL: Chris Ormsby

MONITORING WELL ID#: MW-05 NOTES TAKEN BY:

DEPTH TO WATER: 7.04 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 14.58 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 7.54 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 1.2 GALLONS

VOLUMES PURGED: 2.5 GALLONS PURGE METHOD: Peristaltic

TIME STARTED: 1350 ; TIME FINISHED: 1435

OBSERVATIONS: COLOR Clear ; ODOR none

SHEEN none ; TURBIDITY 4.96 NTU

OTHER

WATER RECOVERY HEIGHT: ft ; RECOVERY TIME IN MINUTES: min

FIELD PARAMETERS: pH 6.80 SU , TEMPERATURE 9.4 °C

CONDUCTIVITY 1848 µS , OTHER DO 5.70 mg/L

SAMPLE COLLECTION TIME: 1435 ORP -57.9 mV

NOTES: Sampled for

WELL PURGING LOG

Project Name: SGPP-N.Bennington

Date Started: 12/15/16

Project Number: 16.6131

Date Finished:

Field Parameters		Time (minutes)									
	Intitial	10	20	30	25	40	45				
Water Level	7.04	7.06	7.07	7.08	7.09	7.09	7.09				
pH	6.88	6.82	6.83	6.81	6.83	6.87	6.80				
Conductivity (uS)	1771	1849	1785	1833	1837	1856	1848				
ORP (mV)	-8.9	-44.4	-52.8	-57.8	-56.2	-55	-57.9				
DO (mg/L)	34.6	7.8	5.3	5.6	5.7	5.8	5.7				
Temperature (C)	6.6	9.2	9.5	9.7	9.6	9.7	9.4				
Turbidity (NTU)	21.9	12.5	7.07	5.87	4.75	3.55	4.46				

Monitoring Well: MW5

Notes: Start: 1350

Total Depth:

Water Column:

Stop: 1435

Purged: 2.5 gallons

One Well Volume:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Notes:

Total Depth:

Water Column:

One Well Volume:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Notes:

Total Depth:

Water Column:

One Well Volume:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Notes:

Total Depth:

Water Column:

One Well Volume:

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP

LOCATION: Bennington, VT

CTM PROJECT NO.: 16.6131

DATE: 12/15/16

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
2020we LaMotte FA02902	0745	0.0, 1.0, 10.0	0.07, 1.03, 10.34	Calibrated	RH
" FA00997		0.0, 1.0, 10.0	0.10, 1.05, 10.41		RH
YSI Quatro FA00571		DO 100%	102.7		RH
		pH 4, 7, 10	3.96, 6.82, 9.90		RH
		Cond. 7.0 ms	6.96		RH
		ORP 220 mV	225.3		RH
YSI Quatro FA00572		DO 100%	100.0		RH
		pH 4, 7, 10	4.00, 6.96, 10.01		RH
		Cond 7.0	6.99		RH
		ORP 220 mV	220.1		RH

Rev. 6/10/2011

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 12/16/16 Time On-Site: 0900 Time Off-Site: 1600

Project Name: SGPP-Bennington Project No.: 16.6131

Purpose: GW Sampling Field Report No:

Weather Conditions: Partly Cloudy / Cold

Present at Site: Ryan Hubbard, Chris Ormsby

Observations: 0900 Arrive on site and begin to set up ice shelters around wells to be sampled.

1100 Begin running generator and set up equipment

1130 Begin Sampling GW wells MW-04 and MW-03 (MW-3 on COC), Low Flow Sampling.

1235 Collect Sample from MW-03

1245 Collect Sample from MW-04

1300 Set up equipment to collect Samples from MW-04S and MW-03S (MW-3S on COC)

1450 Collect sample from MW-04S, also collect Metals QC

1500 Collect sample from MW-03S

1515 End GW sampling for day. Pack up equipment and & Samples

1600 Leave site to ship samples from CTMale.

Items to Verify:

List of Attachments:

Field Log Prepared by: RH

Copies to:

Groundwater Services Field Log

DATE: 12/16/16 PROJECT NAME: SGPP-N.Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N.Bennington, VT

SAMPLING PERSONNEL: Ryan Hubbard

MONITORING WELL ID#: MW-04 NOTES TAKEN BY: RH

DEPTH TO WATER: 8.76 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 19.80 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 11.04 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 1.77 GALLONS

VOLUMES PURGED: 2.75 GALLONS PURGE METHOD: Peristaltic

TIME STARTED: ; TIME FINISHED:

OBSERVATIONS: COLOR Clear ; ODOR none

SHEEN none ; TURBIDITY 9.65 NTU

OTHER

WATER RECOVERY HEIGHT: ft ; RECOVERY TIME IN MINUTES: min

FIELD PARAMETERS: pH 7.19 SU , TEMPERATURE 13.9 °C

CONDUCTIVITY 950 µS , OTHER DO 3.89 mg/L

ORP 181.1 mV

SAMPLE COLLECTION TIME: 1245

NOTES: Sampled for TCL VOAs, TAL Metals, Pest., PCBs, TCL SVs, Cl-, SO_4^-, CN, Alk, Bicarb, Carb, PFCs

Groundwater Services Field Log

DATE: 12/16/16 PROJECT NAME: SGPP-N.Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N.Bennington, VT

SAMPLING PERSONNEL: Ryan Hubbard

MONITORING WELL ID#: MW-04S NOTES TAKEN BY: RH

DEPTH TO WATER: 8.77 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 12.00 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 3.23 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 0.5 GALLONS

VOLUMES PURGED: 2 GALLONS PURGE METHOD: Peristaltic

TIME STARTED: ; TIME FINISHED:

OBSERVATIONS: COLOR Clear ; ODOR none

SHEEN none ; TURBIDITY 1.69 NTU

OTHER

WATER RECOVERY HEIGHT: ft ; RECOVERY TIME IN MINUTES: min

FIELD PARAMETERS: pH 7.06 SU , TEMPERATURE 13.3 °C

CONDUCTIVITY 1315 µS , OTHER DO 3.72 mg/L

ORP 158.2 mV

SAMPLE COLLECTION TIME: 1450

NOTES: Sampled for TCL VOAs, TAL Metals, Pest., PCBs, TCL SVs, Cl-, SO4, CN, Alk, Bicarb, Carb, PFCs, Metals QC

Groundwater Services Field Log

DATE: 12/16/16 PROJECT NAME: SGPP-N.Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N.Bennington, VT

SAMPLING PERSONNEL: Chris Ormsby

MONITORING WELL ID#: MW-03 NOTES TAKEN BY:

DEPTH TO WATER: 7.98 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 20.81 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 12.83 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 2.05 GALLONS

VOLUMES PURGED: 2.75 GALLONS PURGE METHOD: Peristaltic

TIME STARTED: 1155 ; TIME FINISHED: 1235

OBSERVATIONS: COLOR Clear ; ODOR none

SHEEN none ; TURBIDITY 1.95 NTU

OTHER

WATER RECOVERY HEIGHT: ft ; RECOVERY TIME IN MINUTES: min

FIELD PARAMETERS: pH 7.26 SU , TEMPERATURE 11.8 °C

CONDUCTIVITY 510 µS , OTHER DO 41.8

ORP -60.9

SAMPLE COLLECTION TIME: 1235

NOTES: Sampled for

Groundwater Services Field Log

DATE: 12/16/16 PROJECT NAME: SGPP-N.Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N.Bennington, VT

SAMPLING PERSONNEL: Chris Ormsby

MONITORING WELL ID#: MW-03S NOTES TAKEN BY:

DEPTH TO WATER: 7.93 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 12.68 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 4.75 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 0.76 GALLONS

VOLUMES PURGED: 2.5 GALLONS PURGE METHOD: Peristaltic

TIME STARTED: 1420 ; TIME FINISHED: 1500

OBSERVATIONS: COLOR Clear ; ODOR none

SHEEN none ; TURBIDITY 2.00 NTU

OTHER

WATER RECOVERY HEIGHT: ft ; RECOVERY TIME IN MINUTES: min

FIELD PARAMETERS: pH 7.15 SU , TEMPERATURE 11.4 °C

CONDUCTIVITY 485.4 µS , OTHER DO 45.5

ORP -54.2

SAMPLE COLLECTION TIME: 1500

NOTES: Sampled for

WELL PURGING LOG

Project Name: SGPP-N.Bennington

Project Number: 16.6131

Date Started: 12/16/16

Date Finished:

Field Parameters		Time (minutes)										
	Intitial	10	20	30	35	40						
Water Level	7.98	7.98	7.98	7.98	7.98	7.98						
pH	7.35	7.30	7.28	7.26	7.26	7.26						
Conductivity (uS)	455.2	500	505	507	508	510						
ORP (mV)	-87.2	-63.6	-63.7	-61.9	-61.4	-60.9						
DO (mg/L)	51.4	43.0	41.2	41.6	41.5	41.8						
Temperature (C)	9.6	11.2	11.5	11.7	11.7	11.8						
Turbidity (NTU)	9.16	5.63	2.93	2.34	2.03	1.95						

Monitoring Well: MW3
Total Depth:
Water Column:
One Well Volume:

Notes: Start: 1155
Stop/Sampled: 1235
Purged: 2.75 gallons

Field Parameters		Time (minutes)										
	Intitial	10	20	30	35	40						
Water Level	7.93	7.98	7.98	7.99	8.00	8.01						
pH	7.24	7.15	7.14	7.14	7.15	7.15						
Conductivity (uS)	487.3	480.2	485.6	487.5	486.2	485.4						
ORP (mV)	-48.1	-49.7	-53.0	-51.4	-54.2	-54.2						
DO (mg/L)	51.5	47.4	46.1	45.3	45.4	45.5						
Temperature (C)	11.1	11.2	11.3	11.3	11.3	11.4						
Turbidity (NTU)	27.0	10.79	3.19	2.51	2.06	2.00						

Monitoring Well: MW35
Total Depth:
Water Column:
One Well Volume:

Notes: Start: 1420
Stop: 1500
Purged: 2.5 gallons

Field Parameters		Time (minutes)										
	Intitial											
Water Level												
pH												
Conductivity (uS)												
ORP (mV)												
DO (mg/L)												
Temperature (C)												
Turbidity (NTU)												

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

Field Parameters		Time (minutes)										
	Intitial											
Water Level												
pH												
Conductivity (uS)												
ORP (mV)												
DO (mg/L)												
Temperature (C)												
Turbidity (NTU)												

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

WELL PURGING LOG

Project Name: SGPP-N.Bennington

Date Started: 12/16/16

Project Number: 16.6131

Date Finished: _____

Field Parameters		Time (minutes)										
	Intitial	10	20	30	35	40	45	50	55			
Water Level	8.76	8.80	8.80	8.80	8.80	8.80	8.81	8.81	8.81			
pH	6.81	7.00	7.08	7.11	7.13	7.15	7.16	7.18	7.19			
Conductivity (uS)	892	936	942	945	947	947	948	949	950			
ORP (mV)	173.1	173.1	182.7	187.6	189.6	192.1	193.2	188.1	181.1			
DO (mg/L)	4.18	4.09	4.07	4.00	3.96	4.00	3.95	3.90	3.89			
Temperature (C)	11.0	13.6	13.7	13.8	13.8	13.8	13.9	13.9	13.9			
Turbidity (NTU)	33.1	30.8	10.72	10.54	7.47	8.06	10.43	9.95	9.65			

Monitoring Well: MW-04
Total Depth: 19.80'
Water Column: 11.04'
One Well Volume: 1.77 gallons

Notes: Start: 11:50
Stop: 12:45 and Sample
Purged: 2.75 gallons

Field Parameters		Time (minutes)										
	Intitial	10	20	30	35	40	45	50				
Water Level	8.77	8.85	8.85	8.85	8.86							
pH	7.30	7.09	7.05	7.05	7.06							
Conductivity (uS)	1237	1294	1297	1313	1315							
ORP (mV)	144.4	148.0	159.3	159.2	158.2							
DO (mg/L)	4.05	3.69	3.76	3.72	3.72							
Temperature (C)	12.2	13.0	13.1	13.4	13.3							
Turbidity (NTU)	5.16	8.13	2.73	1.52	1.69							

Monitoring Well: MW-04S
Total Depth: 12.00'
Water Column:
One Well Volume:

Notes: Start: 14:15 Purged: 2 gallons
Stop: 1450 and Sample - Metals QC

Field Parameters		Time (minutes)										
	Intitial											
Water Level												
pH												
Conductivity (uS)												
ORP (mV)												
DO (mg/L)												
Temperature (C)												
Turbidity (NTU)												

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

Field Parameters		Time (minutes)										
	Intitial											
Water Level												
pH												
Conductivity (uS)												
ORP (mV)												
DO (mg/L)												
Temperature (C)												
Turbidity (NTU)												

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

JOB
SHEET NO. OF
CALCULATED BY: [signature] DATE: 12/16/16
CHECKED BY: DATE:
SCALE

Calibration Log

Time	Equipment	Target solution	Reading	Cal/Brac
825				
"	YSI 4M quatro	DO% 100%	88.7%	Cal
"	Eq 00572	pH 4,7,10	4.17, 7.03, 10.05	Cal
"	"	Cond 7mS	6.59 mS	Cal
"	"	ORP 220mV	218.1 mV	Cal

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP

LOCATION: Bennington, VT

CTM PROJECT NO.: 16.6131

DATE: 12/16/16

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI Quatro FA00572	07:45	DO 100%	88.7%	Calibrated	CO
		pH 4, 7, 10	4.17, 7.03, 10.05		CO
		Cond 7.0	6.59		CO
		ORP 220 mV	218.1		CO
YSI Quatro FA00571		DO 100%	107.6		RH
		pH 4, 7, 10	3.94, 6.93, 10.00		RH
		Cond 7.0	6.79		RH
		ORP 220 mV	220.6		RH
2020we LaMotte FA00997		0, 1, 10 NTU	0.08, 1.14, 10.44		RH
" FA02902		0, 1, 10 NTU	0.11, 1.12, 10.37		RH

Rev. 6/10/2011

Eurofins | Lancaster Laboratories — Environmental Services Analysis Request/Chain of Custody

COC#: 16083

Acct. #: 37191 Group #: Sample #:

For Lab Use Only
SF#: 271157
SCR#: 198914

Client: C.T. Male Associates
Project Name/#: SGPP - North Bennington
Site ID:
P.O. #: 16.6131
Sampler: Ryan Hubbard, Chris Dimmick
Phone #: 518-786-7400
Quote #: 214135
State where sample(s) were collected: VT

Matrix: Soil ☐ Sediment ☐ Water ☒ Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: Blank Water

Analyses Requested / Preservation Codes

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Total # of Containers	TCL VOAs (8260C)	TAL Metals	Pesticides (8081B)	PCBs (8082A)	TCL SVs (8270D)	Cl-, SO4- (300.0)	CN (9012A)	Alk, Bicarb, Carb. (2320 B)	12 PFCs (EPA 537 mod.)	Remarks
SG3-MW05-161215	12/15/16	1435	X		15	X	X	X	X	X	X	X	X	X	
SG3-MW04-161216	12/16/16	1245	X		15	X	X	X	X	X	X	X	X	X	Metals QC
SG3-MW04S-161216	12/16/16	1450	X		16	X	X	X	X	X	X	X	X	X	
SG3-MW3-161216	12/16/16	1235	X		15	X	X	X	X	X	X	X	X	X	
SG3-MW35-161216	12/16/16	1500	X		15	X	X	X	X	X	X	X	X	X	
SG3-LTB01-161216	12/16/16	—			3	X								X	
SG3-FTB01-161216	12/16/16	1500	X		1									X	

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results: K.moline@ctmale.com

Data Package Options (please check if required)
Type I (Validation/non-CLP) ☑ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☐

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
Ryan Hubbard	12/9/16	1250	[illegible]	12/9/16	0700
[illegible]	12/16/16	1730			

Airbill No.:
Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 12/19/16 Time On-Site: 10:30 Time Off-Site: 1800
Project Name: SGPP- Bennington Project No.: 16.6131
Purpose: GW Sampling Field Report No:

Weather Conditions: Partly Cloudy, Cold
Present at Site: Ryan Hubbard
Observations: 10:30 Arrive on site, locate MW-01
10:45 Calibrate equipment and set up ice shelter for sampling.
11:50 Begin ~~so~~ running peristaltic pump, wait for stabilization.
12:30 Sample MW-01 after purging 2.5 gallons
13:00 Move equipment to MW-06 and MW-06S
14:30 Begin running peristaltic pump and wait for stabilization.
15:10 Collect sample from MW-06S after purging 2.5 gallons
16:05 Begin running peristaltic pump and wait for stabilization
16:45 Collect sample and field Duplicate at MW-06 after purging 2 gallons
17:20 Pack up equipment
18:00 Leave site and return to CTMale to put samples on ice for overnight storage.

Items to Verify:

List of Attachments:
Field Log Prepared by: Ryan Hubbard
Copies to:

Groundwater Services Field Log

DATE: 12/19/16 PROJECT NAME: SGPP-N.Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N.Bennington, VT

SAMPLING PERSONNEL: Ryan Hubbard

MONITORING WELL ID#: MW-01 NOTES TAKEN BY: RH

DEPTH TO WATER: 8.53 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 14.63 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 6.1 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 0.98 GALLONS

VOLUMES PURGED: 2.5 GALLONS PURGE METHOD: Peristaltic

TIME STARTED: 11:50 ; TIME FINISHED: 12:30

OBSERVATIONS: COLOR clear ; ODOR none

SHEEN none ; TURBIDITY 3.97 NTU

OTHER

WATER RECOVERY HEIGHT: ft ; RECOVERY TIME IN MINUTES: min

FIELD PARAMETERS: pH 7.61 SU , TEMPERATURE 12.2 °C

CONDUCTIVITY 437.7 µS , OTHER DO 4.09 mg/L

SAMPLE COLLECTION TIME: 12:30 ORP -46.3 mV

NOTES: Sampled for TCL VOAs, TAL Metals, Pest., PCBs, TCL SVs, Cl-, SO4-, CN, Alk, Bicarb, Carb, PFCs

Groundwater Services Field Log

DATE: 12/19/16 PROJECT NAME: SGPP-N.Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N.Bennington, VT

SAMPLING PERSONNEL: Ryan Hubbard

MONITORING WELL ID#: MW-06 NOTES TAKEN BY: RH

DEPTH TO WATER: 8.48 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 20.16 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 11.68 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 1.87 GALLONS

VOLUMES PURGED: 2 GALLONS PURGE METHOD: Peristaltic

TIME STARTED: 16:05 ; TIME FINISHED: 16:45

OBSERVATIONS: COLOR Clear ; ODOR None

SHEEN None ; TURBIDITY 1.41 NTU

OTHER

WATER RECOVERY HEIGHT: ft ; RECOVERY TIME IN MINUTES: min

FIELD PARAMETERS: pH 7.13 SU , TEMPERATURE 12.6 °C

CONDUCTIVITY 1067 µS , OTHER DO 2.27 mg/L

ORP -40.8 mV

SAMPLE COLLECTION TIME: 16:45

NOTES: Sampled for

Groundwater Services Field Log

DATE: 12/19/16 PROJECT NAME: SGPP-N.Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N.Bennington, VT

SAMPLING PERSONNEL: Ryan Hubbard

MONITORING WELL ID#: MW-065 NOTES TAKEN BY: RH

DEPTH TO WATER: 8.67 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 12.90 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 4.23 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 0.68 GALLONS

VOLUMES PURGED: 2.5 GALLONS PURGE METHOD: Peristaltic

TIME STARTED: 14:30 ; TIME FINISHED: 15:10

OBSERVATIONS: COLOR Clear ; ODOR none

SHEEN none ; TURBIDITY 4.43 NTU

OTHER

WATER RECOVERY HEIGHT: ft ; RECOVERY TIME IN MINUTES: min

FIELD PARAMETERS: pH 6.87 SU , TEMPERATURE 12.0 °C

CONDUCTIVITY 1355 µS , OTHER DO 2.14 mg/L

ORP -46.4 mV

SAMPLE COLLECTION TIME: 15:10

NOTES: Sampled for

WELL PURGING LOG

Project Name: SGPP-N.Bennington

Date Started: 12/19/16

Project Number: 16.6131

Date Finished: _____

Field Parameters		Time (minutes)									
	Intitial	10	20	30	35	40	45				
Water Level	8.53	8.54	8.54	8.54	8.54	8.54					
pH	7.56	7.59	7.61	7.61	7.61	7.61					
Conductivity (uS)	391.1	420.3	421.9	435.5	433.5	437.7					
ORP (mV)	-50.3	-53.3	-46.6	-45.3	-44.9	-46.3					
DO (mg/L)	4.14	3.87	3.84	4.10	4.05	4.09					
Temperature (C)	10.6	12.0	12.2	12.2	12.2	12.2					
Turbidity (NTU)	6.32	6.06	6.22	4.92	4.02	3.97					

Monitoring Well: MW-01
Total Depth: 14.63'
Water Column: 6.1'
One Well Volume: 0.98 gallons

Notes: Start: 11:50
Stop: 1230
Purged: 2.5 gallons

Clear, no smell/sheen

Field Parameters		Time (minutes)									
	Intitial	10	20	30	35	40	45				
Water Level	8.67	8.85	8.89	8.90	8.90	8.91					
pH	6.92	6.89	6.88	6.88	6.88	6.87					
Conductivity (uS)	1248	1343	1341	1340	1345	1355					
ORP (mV)	-58.3	-57.7	-58.2	-47.6	-47.3	-46.4					
DO (mg/L)	2.80	2.42	2.37	2.44	2.25	2.14					
Temperature (C)	10.6	11.9	11.8	12.0	12.0	12.0					
Turbidity (NTU)	10.10	7.53	3.11	4.78	4.68	4.43					

Monitoring Well: MW-06S
Total Depth: ~~14.63~~ 12.90'
Water Column: 4.23'
One Well Volume: 0.68 gallons

Notes: Start: 14:30
Stop: 15:10
Purged: 2.5 gallons

Clear, no smell/sheen

Field Parameters		Time (minutes)									
	Intitial	10	20	30	35	40	45				
Water Level	8.48	8.57	8.59	8.59	8.60	8.60					
pH	7.30	7.15	7.15	7.14	7.15	7.13					
Conductivity (uS)	962	1142	1033	1055	1066	1067					
ORP (mV)	-38.3	-43.3	-40.8	-38.9	-40.4	-40.8					
DO (mg/L)	3.45	2.38	2.27	2.25	2.29	2.27					
Temperature (C)	11.6	12.3	12.5	12.6	12.6	12.6					
Turbidity (NTU)	34.1	15.0	6.15	3.06	1.98	1.41					

Monitoring Well: MW-06
Total Depth: 20.16'
Water Column:
One Well Volume:

Notes: Start: 16:05
Stop: 1645
Purged: 2 gallons

FD

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP
LOCATION: Bennington, VT

CTM PROJECT NO.: 16.6131
DATE: 12/19/16

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
2020we LaMotte FH02902	1045	0.0, 1.0, 10.0 NTU	0.09, 1.18, 10.16	Calibrated	RH
YSI Quatro FH00572	↓	DO 100%	99.3%	↓	RH
↓		pH 4, 7, 10	4.07, 6.99, 10.05		RH
		Cond. 7.0	7.11		RH
		ORP 220 mV	218.7		RH

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 12/20/16 Time On-Site: 10:00 Time Off-Site:

Project Name: SGPP- Bennington Project No.: 16.6131

Purpose: GW Sampling Field Report No:

Weather Conditions: Partly Cloudy, Cold

Present at Site: Ryan Hubbard, Justin Campbell

Observations: 10:00 Arrive on site and begin setting up equipment around MW-07 and MW07S

10:30 Calibrate equipment, continue equipment set up.

1135 Begin running peristaltic pump on MW-07 and wait for calibration

1145 Justin begins running pump on MW-07S and waits for calibration.

1210 Ryan collects sample from MW-07 after purging 2 gallons

1245 Justin collects sample from MW-07S, including Metals QC, after purging 4 gallons.

1300 Pack up and move equipment to MW-02

1440 Begin running peristaltic pump and wait for stabilization.

1515 ~~Collect~~ Justin collects sample from MW-02, including MS/MSD, after purging 3 gallons. Pack up equipment.

1545 Leave site to return to CTMale and Ship Samples.

Items to Verify:

List of Attachments:

Field Log Prepared by: Ryan Hubbard

Copies to:

Groundwater Services Field Log

DATE: 12/20/16 PROJECT NAME: SGPP-N.Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N.Bennington, VT

SAMPLING PERSONNEL: Justin Campbell

MONITORING WELL ID#: MW-02 NOTES TAKEN BY:

DEPTH TO WATER: 8.85 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 12.35 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 3.5 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 0.56 GALLONS

VOLUMES PURGED: 3 GALLONS PURGE METHOD: Peristaltic

TIME STARTED: 1440 ; TIME FINISHED: 1515

OBSERVATIONS: COLOR Clear ; ODOR None

SHEEN none ; TURBIDITY 1.71 NTU

OTHER

WATER RECOVERY HEIGHT: ft ; RECOVERY TIME IN MINUTES: min

FIELD PARAMETERS: pH 7.27 SU , TEMPERATURE 10.5 °C

CONDUCTIVITY 1219 µS , OTHER DO 7.07 mg/L

ORP -53.5 mV

SAMPLE COLLECTION TIME: 1515

NOTES: Sampled for

Groundwater Services Field Log

DATE: 12/20/16 PROJECT NAME: SGPP-N.Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N.Bennington, VT

SAMPLING PERSONNEL: Ryan Hubbard

MONITORING WELL ID#: MW-07 NOTES TAKEN BY: RH

DEPTH TO WATER: 14.32 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 40.43 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 26.11 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 4.2 GALLONS

VOLUMES PURGED: 2 GALLONS PURGE METHOD: Peristaltic

TIME STARTED: 11:35 ; TIME FINISHED: 12:10

OBSERVATIONS: COLOR Clear ; ODOR none

SHEEN none ; TURBIDITY 2.92 NTU

OTHER

WATER RECOVERY HEIGHT: ft ; RECOVERY TIME IN MINUTES: min

FIELD PARAMETERS: pH 8.16 SU , TEMPERATURE 10.8 °C

CONDUCTIVITY 2840 µS , OTHER DO 0.65 mg/L

ORP 108.1 mV

SAMPLE COLLECTION TIME: 12:10

NOTES: Sampled for

Groundwater Services Field Log

DATE: 12/20/16 PROJECT NAME: SGPP-N.Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N.Bennington, VT

SAMPLING PERSONNEL: Justin Campbell

MONITORING WELL ID#: MW-07S NOTES TAKEN BY:

DEPTH TO WATER: 14.18 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 22.58 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 8.4 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 1.3 GALLONS

VOLUMES PURGED: 4 GALLONS PURGE METHOD: Peristaltic

TIME STARTED: 1145 ; TIME FINISHED: 1245

OBSERVATIONS: COLOR red/brown to clear ; ODOR none

SHEEN none ; TURBIDITY 10.21 NTU

OTHER

WATER RECOVERY HEIGHT: ft ; RECOVERY TIME IN MINUTES: min

FIELD PARAMETERS: pH 7.25 SU , TEMPERATURE 10.7 °C

CONDUCTIVITY 962 µS , OTHER DO 0.78 mg/L

ORP -69.1 mV

SAMPLE COLLECTION TIME: 1245

NOTES: Sampled for

WELL PURGING LOG

Project Name: SGPP-N.Bennington

Date Started: 12/20/16

Project Number: 16.6131

Date Finished:

Field Parameters		Time (minutes)									
	Intitial	10	20	30	35	40	45				
Water Level	14.32	14.61	14.64	14.60	14.60						
pH	8.60	8.31	8.18	8.16	8.16						
Conductivity (uS)	299.1	285.2	284.1	283.7	284.0						
ORP (mV)	144.3	130.0	120.7	113.2	108.1						
DO (mg/L)	1.04	0.75	0.69	0.66	0.65						
Temperature (C)	10.3	10.6	10.6	10.7	10.8						
Turbidity (NTU)	5.94	3.76	4.01	1.55	2.92						

Monitoring Well: MW-07
Total Depth: 40.43'
Water Column: 26.11'
One Well Volume: 4.2 gallons

Notes: Start: 11:35
Stop: 12:10
Purged: 2 gallons

Clear
no smell/sheen

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

WELL PURGING LOG

Project Name: SGPP-N.Bennington

Project Number: 16.6131

Date Started: 12-20-2016

Date Finished: 12-26-2016

Field Parameters	12:45	Time (minutes)	12:15		12:30				12:45		
	Intitial	10	20	30	35	40	45	50	55	60	65
Water Level	14.18	14.21	14.20	14.20	14.19	14.19	14.19	14.20	14.20	14.20	
pH	7.18	7.27	7.24	7.27	7.27	7.26	7.26	7.25	7.25	7.25	
Conductivity (uS)	976	955	942	945	949	953	958	959	964	962	
ORP (mV)	-56.6	-72.9	-72.5	-71.8	-70.4	-69.2	-70.0	-69.9	-69.7	-68.1	
DO (mg/L)	1.61	0.68	0.60	0.58	0.81	0.87	0.82	0.80	0.76	0.78	
Temperature (C)	10.3	10.5	10.6	10.7	10.7	10.7	10.8	10.8	10.7	10.7	
Turbidity (NTU)	695.4	87.2	49.7	20.7	15.0	12.4	10.9	09.56	09.78	10.21	

Monitoring Well: MW-75

Total Depth:

Water Column:

One Well Volume:

Notes: Color = red/brown to clear
No sheen
No odor
purged 4.0 gallons

Field Parameters	14:40	Time (minutes)									
	Intitial	10	20	30	35	40	45	50	55	60	
Water Level	8.85	8.91	8.92	8.91	8.91						
pH	7.47	7.28	7.27	7.27	7.27						
Conductivity (uS)	1159	1407	1233	1224	1219						
ORP (mV)	-57.5	-56.5	-57.0	-53.8	-53.5						
DO (mg/L)	6.74	6.97	7.07	7.06	7.07						
Temperature (C)	9.8	10.9	10.4	10.4	10.5						
Turbidity (NTU)	10.27	4.25	2.34	1.66	1.71						

Monitoring Well: MW-02

Total Depth:

Water Column:

One Well Volume:

Notes: Color = clear
No sheen, No odor
purged 3.0 gallons

MS/MSD

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Total Depth:

Water Column:

One Well Volume:

Notes:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Total Depth:

Water Column:

One Well Volume:

Notes:

Milton CAT
POWER SYSTEMS

Project: SG - Bennington

Subject:

Author: Justin Campbell Date 12-20-16 Sheet ___ of ___

Calibration Log

Date	Equipment	Parameter	Reading	Calibrate Bump
12-20-16	YSI Quatro FA00571	~~DO~~ 100%	99.6%	Calibrate
		pH 4, 7, 10	3.94, 7.05, 10.24	
		ORP 220.0	220.0	
		Cond 7.00	7.01	
	Turbidity 2020 WE LaMotte FA00997	Turbidity 0, 1, 10	-0.09, 1.07, 10.03	
	FA02902	0, 1, 10	0.07 1.09, 10.27	
	YSI FA00572	DO 100%	78.6%	
		pH 4, 7, 10	4.00, 6.99, 10.21	
		ORP 220		
		Cond 7.00	6.99	

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP

LOCATION: Bennington, VT

CTM PROJECT NO.: 16.6131

DATE: 12/20/16

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI Quatro FA00571	10:30	DO 100%	99.6	Calibrated	JC
		pH 4, 7, 10	3.99, 7.05, 10.26		JC
		ORP 220 mV	220.0		JC
		Cond 7.0	7.01		JC
YSI Quatro FA00572		DO 100%	98.6		JC
		pH 4, 7, 10	4.00, 6.99, 10.21		JC
		ORP 220 mV	218.6		JC
		Cond 7.0	6.99		JC
2020 We LaMotte FA00997		0.0, 1.0, 10.0 NTU	-0.00, 1.07, 10.03		JC
" FA02902		0.0, 1.0, 10.0 NTU	0.07, 1.09, 10.27		JC

Rev. 6/10/2011

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #: COC#: 16083

Client: C.T. Male Associates			
Project Name/#: SGPP - North Bennington	Site ID:		
Project Manager: Kirk Moline	P.O. #: 16.6131		
Sampler: Ryan Hubbard/Justin Campbell			
Phone #: 518-786-7400	Quote #: 214135		
State where sample(s) were collected: VT			

For Lab Use Only
SF#: 271157
SCR#: 198914

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Sediment	Water: Ground	Potable	Surface	NPDES	Other: Blank Water	Total # of Containers	Preservation Codes: H	N					B					Remarks
													TCL VOAs (8260C)	TAL Metals	Pesticides (8081B)	PCBs (8082A)	TCL SVs (8270D)	Cl-, SO4- (300.0)	CN (9012A)	Alk, Bicarb, Carb. (2320 B)	12 PFCs (EPA 537 mod.)			
SG3-MW01-161219	12/19/16	1230	X				X					15	X	X	X	X	X	X	X	X	X			
SG3-MW06S-161219	12/19/16	1510	X				X					15	X	X	X	X	X	X	X	X	X			
SG3-MW06-161219	12/19/16	1645	X				X					15	X	X	X	X	X	X	X	X	X			
SG3-MW07S-161220	12/20/16	1245	X				X					16	X	X	X	X	X	X	X	X	X			metals QC
SG3-MW07-161220	12/20/16	1210	X				X					15	X	X	X	X	X	X	X	X	X			
SG3-MW02-161220	12/20/16	1515	X				X					45	X	X	X	X	X	X	X	X	X			MS/MSD
SG3-FD01-161219	12/19/16	—	X				X					15	X	X	X	X	X	X	X	X	X			
SG3-EB01-161220	12/20/16	1800	X								X	12	X	X	X	X	X	X	X	X	X			
SG3-LTB01-161220	12/20/16	—									X	3	X								X			
SG3-FTB01-161220	12/20/16	1606	X								X	1									X			

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☑	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☐		

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
Ryan Hubbard	12/20/16	1900			

Airbill No.:
Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 3/19/18 Time On-Site: 0845 Time Off-Site: 1600

Project Name: SGPP – Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: mostly Sunny, High 30°F

Present at Site: Cliff Bandi, Dan King, Ryan Hubbard, John Scheetz, Nate Schafer (VT DEC)

Observations: 0845 Arrived onsite, unloading equipment and discussing plan to begin water sampling event

* Equipment calibrated at Latham office before leaving for site

CB + DK Collecting water level data from all wells onsite prior to beginning sampling event. RH + JS setting up equipment at MW-03S and MW-04S

1100 Nate Schafer from VT DEC arrived onsite to collect Split Samples (PFAS only) from several monitoring wells

JS purged/Sampled MW-04S + MW-05

RH purged/Sampled MW-03S + MW-06S

DK purged/Sampled MW-02

CB purged/Sampled MW-01

* See logs attached for more detail

1500 Packing up/breaking down equipment, prepping samples for shipment, dumping purged water

Split Samples collected at every well sampled today

1600 offsite back to Latham to Ship Samples

* Samplers all Collected Split Samples for VTDEC, bottles were filled halfway/alternated and filled to the top (true split sample)

Items to Verify:

List of Attachments: well low flow purging log x6, Daily Cal record x2, COC x1, WL data sheet

Field Log Prepared by: Cliff Bandi

Copies to:

PFCs Sampling Checklist

Date: 3/19/18

Weather (*temp./precipitation*): Sunny, clear, ~88°F Site Name: SGPP-Bennington

Field Clothing and PPE:

- [x] No clothing or boots containing Gore-Tex™
- [x] All safety boots made from polyurethane and PVC
- [x] No materials containing Tyvek®
- [x] Field crew has not used fabric softener on clothing
- [x] Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- [x] Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- [x] No Teflon® or LDPE containing materials on-site
- [x] All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- [x] No waterproof field books on-site
- [x] No plastic clipboards, binders, or spiral hard cover notebooks on-site
- [x] No adhesives (Post-It Notes) on-site
- [x] Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- [x] All sample containers made of HDPE or polypropylene
- [x] Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- [x] Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- [x] "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- [x] Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- [x] No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Dan King

Field Lead Signature: [signature] Time: 9:10

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - Bennington
CTM PROJECT NO.: 16.6131
LOCATION: Bennington, VT
DATE: 3/19/18

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI FA00977	7:00	pH 4.00/7.00/10.00	4.12/7.06/10.13	Cal.	DK
		Sp.C.7000 / ORP 235.9	4.31/7.2/10.17	~~Cal.~~	DK
YSI FA00777	7:00	pH 4.00/7.00/10.00	7.17/229.5	Cal.	
		Sp.C.7000 / ORP 235.6	7.30/231.0		
Turb. Meter FA03027	7:25	10 NTU	9.18	Bump	
Turb. Meter FA01856		10 NTU	9.92	Bump	
YSI FA01461		" "	4.06/6.99/10.01	Cal.	
		" " 235.6	6.73/234.7		
Turb. Meter FA01924		10 NTU	10.25	Bump	

Rev. 6/10/2011

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - ~~McCaffrey~~ Water Street

LOCATION: ~~Hoosick Falls, NY~~ Bennington, VT

CTM PROJECT NO.: ~~14.4756~~ 16.3161

DATE: 3/19/18

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI FA00747	0830	pH 4.00/7.00/10.00	4.06, 6.82, 9.71	Calibrated	JS
↓	↓	Sp.C.7000 / ORP 242.7	6616, 250.2	↓	↓
YSI		pH 4.00/7.00/10.00			
		Sp.C.7000 / ORP			
YSI		pH 4.00/7.00/10.00			
		Sp.C.7000 / ORP			
YSI		pH 4.00/7.00/10.00			
		Sp.C.7000 / ORP			
Turb. Meter FA01052	0830	10 NTU	10.16	Bump	JS
Turb. Meter		10 NTU			
Turb. Meter		10 NTU			
Turb. Meter		10 NTU			

WELL LOW-FLOW PURGING LOG

DATE: 03/19/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: R. Hubbard
NOTES TAKEN BY: RH

PROJECT NAME: SGPP - Bennington
PROJECT LOCATION: N. Bennington, VT

MONITORING WELL ID#: MW-06S
DEPTH TO WATER: 8.40 FROM: TPVC
DEPTH TO BOTTOM: 12.90 FROM: TPVC
WATER COLUMN HEIGHT: 4.50
WELL VOLUME: 0.72 GALLONS

WELL CASING DIAMETER: 2"

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL	3" = 0.38 GAL
1.25" = 0.064 GAL	4" = 0.66 GAL
2" = 0.16 GAL	6" = 1.47 GAL

Field Parameters		Time (minutes)									
Time (minutes)	Intitial	10	20								
Water Level	8.40	8.90	8.93								
Temperature (C)	7.7	7.6	7.9								
DO (mg/L)	4.90	4.67	5.02								
Conductivity (uS)	1097	1105	1127								
pH (SU)	6.85	6.89	6.95								
ORP (mV)	262.4	261.6	260.4								
Turbidity (NTU)	106.8	55.2	12.94								

Field Parameters	Time (minutes)										
Time (minutes)	Initial	10	20	30	35	40					
Water Level	8.42	8.71	8.71	8.73	8.73	8.73					
Temperature (C)	7.8	7.8	7.8	7.8	7.7	7.8					
DO (mg/L)	3.96	3.84	3.44	3.24	3.35	3.25					
Conductivity (uS)	1135	1129	1130	1136	1128	1134					
pH (SU)	7.08	6.95	6.95	6.95	6.94	6.95					
ORP (mV)	322.9	316.1	312.8	309.4	307.9	307.7					
Turbidity (NTU)	38.5	12.4	7.77	4.95	3.43	2.60					

VOLUMES PURGED: 2.5 / 2.5 GALLONS
AVG PURGE RATE: ~150 mL/min

TIME STARTED: 1350 / 1430
TIME FINISHED: 1417 / 1510

OBSERVATIONS:
COLOR: Clear
ODOR: none
SHEEN: none
OTHER: -

WATER RECOVERY HEIGHT: 8.42'
WATER LEVEL AT 80% RECOVERY: 8.50'

SAMPLE COLLECTION TIME: 1510
RECOVERY TIME IN MINUTES: 13

NOTES:

EQUIPMENT: PERISTALTIC PUMP; NEW DISPOSABLE BAILER; STAINLESS STEEL BAILER; BLADDER PUMP; SUBMERSIBLE PUMP; OTHER

SERIAL NOs: YSI - FA00777, 2020we - FA01058, Peri Pump - FA00616

Created On: 3/15/2018
Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 03/19/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: R. Hubbard
NOTES TAKEN BY: RH

PROJECT NAME: SGPP - Bennington
PROJECT LOCATION: N. Bennington, VT

MONITORING WELL ID#: MW-03S
DEPTH TO WATER: 9.51 FROM: TPVC
DEPTH TO BOTTOM: 12.68 FROM: TPVC
WATER COLUMN HEIGHT: 3.17'
WELL VOLUME: 0.5 GALLONS

WELL CASING DIAMETER: 2"

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL	3" = 0.38 GAL
1.25" = 0.064 GAL	4" = 0.66 GAL
2" = 0.16 GAL	6" = 1.47 GAL

Field Parameters		Time (minutes)									
Time (minutes)	Intitial	10									
Water Level	9.51	9.66									
Temperature (C)	8.6	9.0									
DO (mg/L)	7.77	6.13									
Conductivity (uS)	542	564									
pH (SU)	7.01	7.03									
ORP (mV)	275.8	303.5									
Turbidity (NTU)	10.87	4.80									

Field Parameters	Time (minutes)										
Time (minutes)	Initial	10	20	30	35	40					
Water Level	9.50	9.57	9.57	9.58	9.58	9.58					
Temperature (C)	8.4	8.5	8.7	8.9	9.0	9.0					
DO (mg/L)	6.26	5.89	5.60	5.80	5.74	5.68					
Conductivity (uS)	551	559	559	563	564	565					
pH (SU)	7.14	7.12	7.11	7.12	7.12	7.12					
ORP (mV)	294.9	292.4	288.3	287.6	285.2	286.3					
Turbidity (NTU)	32.8	7.72	3.57	4.40	1.77	2.42					

VOLUMES PURGED: 1.75/2 GALLONS
AVG PURGE RATE: ~150 ml/min

TIME STARTED: 1035 / 1130
TIME FINISHED: 1052 / 1210

OBSERVATIONS:
COLOR: clear
ODOR: none
SHEEN: none
OTHER: —

WATER RECOVERY HEIGHT: 9.50
WATER LEVEL AT 80% RECOVERY: 9.54

SAMPLE COLLECTION TIME: 1210
RECOVERY TIME IN MINUTES: 1

NOTES:

EQUIPMENT: PERISTALTIC PUMP; NEW DISPOSABLE BAILER; STAINLESS STEEL BAILER; BLADDER PUMP; SUBMERSIBLE PUMP; OTHER

SERIAL NOs: YSI-FA00777, 2020we-FA01058, Peri. Pump-FA00616

Created On: 3/15/2018
Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 03/19/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: JohnScheetz
NOTES TAKEN BY: JohnScheetz

PROJECT NAME: SGPP - Bennington
PROJECT LOCATION: N. Bennington, VT

MONITORING WELL ID#: mw-05
DEPTH TO WATER: 6.00 ft FROM: TPVC
DEPTH TO BOTTOM: 21.53 ft FROM: TPVC
WATER COLUMN HEIGHT: 15.53 ft
WELL VOLUME: 2.48 GALLONS

WELL CASING DIAMETER: 2"

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL	3" = 0.38 GAL
1.25" = 0.064 GAL	4" = 0.66 GAL
2" = 0.16 GAL	6" = 1.47 GAL

purge

Field Parameters		Time (minutes)									
Time (minutes)	Intitial	10	20	30	35						
Water Level (ft)	6.15	6.14	6.15	6.15	6.15						
Temperature (C)	9.0	8.5	8.5	8.5	8.6						
DO (mg/L)	5.52	3.89	3.95	4.05	4.04						
Conductivity (uS)	2306	2045	2092	2089	2076						
pH (SU)	7.03	6.93	6.94	6.94	6.95						
ORP (mV)	100.2	82.5	81.7	83.4	82.9						
Turbidity (NTU)	56.9	15.9	10.18	5.43	4.15						

low-flow

Field Parameters	Time (minutes)										
Time (minutes)	Initial	5	10	15	20	25	30				
Water Level (ft)	6.15	6.01	6.04	6.02	6.06	6.01	6.06				
Temperature (C)	8.3	8.2	8.2	8.2	8.2	8.4	8.0				
DO (mg/L)	3.67	3.64	3.61	3.63	3.69	3.68	3.70				
Conductivity (uS)	2063	2074	2079	2077	2081	2084	2062				
pH (SU)	6.98	6.95	6.95	6.95	6.95	6.96	6.95				
ORP (mV)	83.1	81.1	79.9	79.2	78.8	78.0	77.5				
Turbidity (NTU)	7.72	2.83	2.24	2.25	2.10	2.81	2.24				

VOLUMES PURGED: ~7.5 GALLONS AVG PURGE RATE: ~100 mL/min

TIME STARTED: 12:55 (in purge), ~2.0 gal in low-flow) TIME FINISHED: 13:30 (purge) 14:50 (sampling)

OBSERVATIONS: COLOR clear ODOR none
SHEEN none OTHER —

WATER RECOVERY HEIGHT: 6.15 ft WATER LEVEL AT 80% RECOVERY: N/A

SAMPLE COLLECTION TIME: 1425 RECOVERY TIME IN MINUTES: 0

NOTES: Samples collected for PFAS, VOC, SVOC, Alk, metals, CN, major Anions & Cations
-Split sample collected w/ VT DEC for PFAS

EQUIPMENT: PERISTALTIC PUMP NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI FA00747, Turb FA01058

Created On: 3/15/2018
Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 03/19/18 PROJECT NAME: SGPP - Bennington
PROJECT NO.: 16.6131 PROJECT LOCATION: N. Bennington, VT
SAMPLING PERSONNEL: JohnSchuetz
NOTES TAKEN BY: JohnSchuetz

MONITORING WELL ID#: MW-045 WELL CASING DIAMETER: 2"
DEPTH TO WATER: 7.75 ft FROM: TPVC
DEPTH TO BOTTOM: 12.00 ft FROM: TPVC
WATER COLUMN HEIGHT: 4.25 ft
WELL VOLUME: 0.68 GALLONS

CONVERSION FACTORS LINEAR FEET TO GALLONS
1" = 0.041 GAL 3" = 0.38 GAL
1.25" = 0.064 GAL 4" = 0.66 GAL
2" = 0.16 GAL 6" = 1.47 GAL

Purge

Field Parameters	Intitial	Time (minutes)									
Time (minutes)		10									
Water Level (ft)	7.75	8.05									
Temperature (C)	7.9	8.1									
DO (mg/L)	9.09	7.26									
Conductivity (uS)	1025	1012									
pH (SU)	7.40	7.15									
ORP (mV)	54.7	75.8									
Turbidity (NTU)	25.2	8.31									

low-flow

Field Parameters	Time (minutes)										
Time (minutes)	Initial	5	10	15	20	25	30				
Water Level (ft)	7.75	7.81	7.91	7.91	7.85	7.86	7.86				
Temperature (C)	7.7	7.8	7.5	7.7	7.4	7.4	7.4				
DO (mg/L)	6.74	6.93	6.94	6.85	6.78	6.79	6.76				
Conductivity (uS)	1003	1002	998	1001	998	996	997				
pH (SU)	7.11	7.10	7.11	7.10	7.11	7.10	7.10				
ORP (mV)	82.2	79.1	78.9	79.1	79.9	79.1	79.1				
Turbidity (NTU)	9.33	6.73	6.95	4.98	3.25	4.25	3.09				

VOLUMES PURGED: ~2 GALLONS (in purge), ~1.5 gal in low-flow AVG PURGE RATE: ~100 mL/min
TIME STARTED: 10:15 TIME FINISHED: 10:27 (purge), 1207 (sampling)

OBSERVATIONS: COLOR clear ODOR none
SHEEN none OTHER —

WATER RECOVERY HEIGHT: 7.75 ft WATER LEVEL AT 80% RECOVERY: N/A
SAMPLE COLLECTION TIME: 11:35 RECOVERY TIME IN MINUTES: 0

NOTES: Samples collected for PFAS, VOC, SVOC, AIR, Metals, CN, Major anions & cations
Split sample w/ VT DEC for PFAS

EQUIPMENT: PERISTALTIC PUMP NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs:

Created On: 3/15/2018
Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 3/19/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: Cliff Bandi
NOTES TAKEN BY: CB

PROJECT NAME: SGPP - Bennington
PROJECT LOCATION: N. Bennington, VT

MONITORING WELL ID#: MW-01
DEPTH TO WATER: 8.33 FROM: TPVC
DEPTH TO BOTTOM: 14.63 FROM: TPVC
WATER COLUMN HEIGHT: 6.30
WELL VOLUME: 1.01 GALLONS

WELL CASING DIAMETER: 2"

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL	3" = 0.38 GAL
1.25" = 0.064 GAL	4" = 0.66 GAL
2" = 0.16 GAL	6" = 1.47 GAL

3 well vol
Purge start @ 1226
Stop @ 1233
~1.5 gal purge

Field Parameters		Time (minutes)	Low flow →							
Time (minutes)	Intitial	~~7~~	Initial	5	10	15	20	25	30	35
Water Level	8.33	8.33	8.31	8.31	8.31	8.31	8.31	8.31	8.31	8.31
Temperature (C)	7.0	6.7	5.2	6.3	6.2	6.1	6.4	6.3	6.6	6.6
DO (mg/L)	~~5.81~~	6.12	6.31	5.48	5.09	5.24	5.08	5.28	4.89	4.70
Conductivity (uS)	499.5	508	487.1	494.3	498.7	500	503	503	501	500
pH (SU)	7.21	7.31	7.38	7.40	7.41	7.42	7.42	7.43	7.43	7.43
ORP (mV)	242.0	241.9	244.3	242.9	242.7	242.2	241.5	241.7	240.7	240.4
Turbidity (NTU)	3598 AW	42.6	64.2	24.5	11.8	8.05	60.2	7.45	4.46	1.60

Field Parameters	Time (minutes)										
Time (minutes)	40										
Water Level	8.31										
Temperature (C)	6.6										
DO (mg/L)	4.77										
Conductivity (uS)	501										
pH (SU)	7.43										
ORP (mV)	239.5										
Turbidity (NTU)	1.33										

VOLUMES PURGED: ~3.0 GALLONS
AVG PURGE RATE: ~100 mL/min

TIME STARTED: 1240
TIME FINISHED: 1320

OBSERVATIONS: COLOR Clear ODOR None
SHEEN None OTHER —

WATER RECOVERY HEIGHT: 8.31
WATER LEVEL AT 80% RECOVERY: N/A

SAMPLE COLLECTION TIME: 1320
RECOVERY TIME IN MINUTES: N/A

NOTES: Sample collected for: PFAS, VOC, SVOC, Alk, Metals, CN, Major Anions + Cations
* Split Sample collected with Nate from VT DEC for PFAS only *

EQUIPMENT: PERISTALTIC PUMP NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI: FA06977 Turb meter: FA01929

Created On: 3/15/2018
Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 3/19/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: D. King
NOTES TAKEN BY: D. King

PROJECT NAME: SGPP - Bennington
PROJECT LOCATION: N. Bennington, VT

MONITORING WELL ID#: MW-02
DEPTH TO WATER: 7.70 FROM: TPVC
DEPTH TO BOTTOM: 12.35 FROM: TPVC
WATER COLUMN HEIGHT: 4.64
WELL VOLUME: 0.74 GALLONS

WELL CASING DIAMETER: 2"

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL	3" = 0.38 GAL
1.25" = 0.064 GAL	4" = 0.66 GAL
2" = 0.16 GAL	6" = 1.47 GAL

Initial purge — Low-Flow

Field Parameters		Time (minutes)										
Time (minutes)	Intitial	10	12			0	5	10	15	20	25	30
Water Level	7.70	7.87	7.83			7.70	7.72	7.73	7.73	7.74	7.74	7.74
Temperature (C)	6.8	7.5				6.7	7.0	7.2	7.2	7.1	7.1	7.1
DO (mg/L)	7.43	9.14				8.51	8.55	8.63	8.48	8.56	8.52	8.56
Conductivity (uS)	1134	1254				1234	1253	1260	1264	1258	1255	1249
pH (SU)	7.42	7.34				7.44	7.32	7.17	7.16	7.19	7.19	7.20
ORP (mV)	240.9	242.7				241.0	255.7	270.9	276.5	279.7	282.0	286.1
Turbidity (NTU)	58.3	16.9				20.1	10.16	5.71	4.93	4.17	3.69	4.02

Field Parameters	Time (minutes)										
Time (minutes)											
Water Level											
Temperature (C)											
DO (mg/L)											
Conductivity (uS)											
pH (SU)											
ORP (mV)											
Turbidity (NTU)											

VOLUMES PURGED: ~2 GALLONS
AVG PURGE RATE: ~170 mL/min
TIME STARTED: 12:58
TIME FINISHED: 13:25

OBSERVATIONS: COLOR Clear ODOR None
SHEEN None OTHER

WATER RECOVERY HEIGHT: 7.70 ✓ WATER LEVEL AT 80% RECOVERY: 7.73
SAMPLE COLLECTION TIME: 13:40 RECOVERY TIME IN MINUTES: 1

NOTES: Started initial purge @ 12:32 | Started low-flow @ 12:58
Stopped @ 12:42 | Stable @ 13:28
purged ~2.5 gal. | Purged ~1.5 gal.

EQUIPMENT: (PERISTALTIC PUMP) NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI FA01461 Turb. FA03027

Created On: 3/15/2018
Revised On:

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

JOB
SHEET NO. OF
CALCULATED BY: DATE:
CHECKED BY: DATE:
SCALE

Water Level Record
SGPP-Bennington 16.6131

3/19/18

Started gauging MW network @9:00

Finished gauging MW network @12:00

Well ID	DTW	DTB	PID
MW-01	8.33	14.63	0.0
MW-02	7.71	12.35	0.0
MW-03S	9.51	12.68	0.0
MW-03	9.45	20.81	0.0
MW-04S	7.75	12.00	0.0
MW-04	7.75	19.80	0.0
MW-05	6.02	14.58	0.0
MW-06S	8.43	12.90	0.0
MW-06	8.20	20.16	0.0
MW-07S	14.28	22.58	0.0
MW-07	14.48	40.43	0.0
MW18-01	13.54	21.16	0.0
MW18-02	11.64	14.57	0.0
MW18-03	13.12	16.01	0.0
MW18-04	12.80	20.00	0.0
MW18-05	13.89	21.53	0.0
MW18-06	DRY	12.91	0.0
MW18-07	13.69	15.70	0.0

eurofins Lancaster Laboratories

Environmental Services Analysis Request/Chain of Custody

COC#: 18766

Acct. #: 37191 Group #: Sample #:

Client:	C.T. Male Associates
Project Name/#:	SGPP - Bennington
Site ID:	
Project Manager:	Kirk Moline
P.O. #:	~~16.6313~~ 16.6131
Sampler:	DK, CB, JS, RH
Phone #:	518-786-7400
Quote #:	214135
State where sample(s) were collected:	VT

Matrix: Sediment, Ground ☑, Surface, Soil, Potable, NPDES, Water, Other: Rinse Water

Analyses Requested / Preservation Codes

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other	Total # of Containers	TCL VOAs (8260C) (H)	TAL Metals (N)	TCL SVs (8270D)	1,4-Dioxane (8270 ISO DL SIM)	CN (9012A) (B)	Br-, Cl-, SO4, NO2, NO3 (300.0)	Alk, Bicarb, Carb. (2320 B)	19 PFAS (EPA 537 mod.)	Remarks
SG3-MW04S-180319	3/19/18	11:35	✓			✓		12	✓	✓	✓	✓	✓	✓	✓	✓	* NO2 + NO3 48h H.T.
SG3-MW03S-180319	↓	12:10	✓			✓		12	✓	✓	✓	✓	✓	✓	✓	✓	↓
SG3-MW01-180319	↓	13:20	✓			✓		12	✓	✓	✓	✓	✓	✓	✓	✓	↓
SG3-MW02-180319	↓	13:40	✓			✓		12	✓	✓	✓	✓	✓	✓	✓	✓	↓
SG3-MW05-180319	↓	14:25	✓			✓		12	✓	✓	✓	✓	✓	✓	✓	✓	↓
SG3-MW06S-180319	↓	15:10	✓			✓		12	✓	✓	✓	✓	✓	✓	✓	✓	↓
SG3-FTB01-180319	↓	12:45	✓				✓	2								✓	↓
SG3-LTB01-180319	↓	—	✓				✓	4	✓							✓	↓

For Lab Use Only
SF#: 304586
SCR#: 221589

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Turnaround Time Requested (TAT) (please check): Standard ☑ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results: K.moline@ctmale.com

Data Package Options (please check if required)
Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☑
EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	3/19/18	17:00			

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ______ Other ______

Temperature upon receipt ______ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 3/20/18 Time On-Site: 0830 Time Off-Site: 1605

Project Name: SGPP- Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Mostly Sunny, High 41°F

Present at Site: Cliff Bondi, Dan King, John Scheetz, Nate Schafer (VT DEC)

Observations: 0830 Arrived onsite, Gathering equipment and building Sample sets

* All equipment was calibrated at Latham office before leaving for site

Split Samples to be collected with VT DEC at MW-07S, MW18-07, and MW18-05

0906 JS Setting up equipment @ MW-07S, DK + CB Prepping labels

JS purged/Sampled MW-07S and MW-07

DK Purged/Sampled MW18-07 and MW18-04

↳ DK Purged (No low flow or sample) MW18-02

CB purged/Sampled MW18-05

SG3-FD01-180320 collected @ MW-07S by JS

CB Collected MS/MSD @ SG3a-MW1805-180320

(SG3 denotes existing outdoor monitoring wells, SG3a denotes new interior wells)

* Split Samples were Collected by VT DEC at MW-07S, MW18-07(FD), and MW18-05

Sample containers were filled by CT Male Samplers

1330 Nate offsite

1530 DK, CB, and JS Cleaning up equipment, dumping purged water in IDW tank, locking Building and Conex Box

1605 Offsite, returning to Latham to pack/ship Samples

Items to Verify:

List of Attachments: Daily Cal record X1, PFC Sampling Checklist, Low flow Purging log X5, COC X1

Field Log Prepared by: Cliff Bondi

Copies to:

PFCs Sampling Checklist

Date: 3/20/18

Weather (*temp./precipitation*): Clear/sunny ~30°F Site Name: SGPP-Bennington

Field Clothing and PPE:

- [x] No clothing or boots containing Gore-Tex™
- [x] All safety boots made from polyurethane and PVC
- [x] No materials containing Tyvek®
- [x] Field crew has not used fabric softener on clothing
- [x] Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- [x] Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- [x] No Teflon® or LDPE containing materials on-site
- [x] All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- [x] No waterproof field books on-site
- [x] No plastic clipboards, binders, or spiral hard cover notebooks on-site
- [x] No adhesives (Post-It Notes) on-site
- [x] Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- [x] All sample containers made of HDPE or polypropylene
- [x] Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- [x] Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- [x] "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- [x] Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- [x] No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Dan King

Field Lead Signature: [signature] Time: 9:20

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - Bennington
CTM PROJECT NO.: 16.6131
LOCATION: Bennington, VT
DATE: 3/20/18

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI FA00777	7:00	pH 4.00/7.00/10.00	4.11/6.97/9.97	Cal	DK
		Sp.C.7000 / ORP 1345	6841 / 233.1		
YSI FA00977	7:00	pH 4.00/7.00/10.00	4.04/6.97/10.03	Cal	DK
		Sp.C.7000 / ORP 234.3	6909 / 2335		
Turb. Meter FA01929	0700	10 NTU	9.06	Bump	JS
Turb. Meter FA01856	0700	10 NTU	9.99	Bump	JS
Turb meter FA01058	0700	10 NTU	9.98	Bump	JS
YSI FA01461	7:20	" "	4.07/6.98/10.02	Cal	DK
		" " 234.6	6770/233A		

Rev. 6/10/2011

WELL LOW-FLOW PURGING LOG

DATE: 3/20/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: D. King
NOTES TAKEN BY: D. King

PROJECT NAME: SGPP - Bennington
PROJECT LOCATION: N. Bennington, VT

MONITORING WELL ID#: MW18-04
DEPTH TO WATER: 12.81 FROM: TPVC
DEPTH TO BOTTOM: 20.00 FROM: TPVC
WATER COLUMN HEIGHT: 7.19
WELL VOLUME: 1.66 GALLONS

WELL CASING DIAMETER: 1.5"

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL	3" = 0.38 GAL
1.25" = 0.064 GAL	4" = 0.66 GAL
2" = 0.16 GAL	6" = 1.47 GAL

Initial purge — Low-Flow

Field Parameters	Time (minutes)										
Time (minutes)	Intitial	10	15		0	5	10	15	20	25	30
Water Level	12.81	12.84	12.85		12.81	12.82	12.82	12.82	12.82	12.82	12.82
Temperature (C)	8.8	8.3			7.6	8.2	8.3	8.3	8.4	8.4	8.4
DO (mg/L)	5.74	5.43			6.48	5.17	4.94	4.96	4.93	4.92	4.89
Conductivity (uS)	624	618			607	621	614	618	611	611	615
pH (SU)	7.36	7.45			7.48	7.31	7.30	7.30	7.30	7.30	7.29
ORP (mV)	235.6	240.7			258.5	259.1	250.9	250.1	245.6	246.0	250.9
Turbidity (NTU)	6.68	2.75			2.92	2.54	2.30	2.02	1.87	2.10	1.95

Field Parameters	Time (minutes)										
Time (minutes)											
Water Level											
Temperature (C)											
DO (mg/L)											
Conductivity (uS)											
pH (SU)											
ORP (mV)											
Turbidity (NTU)											

VOLUMES PURGED: ~1.5 GALLONS
AVG PURGE RATE: ~150mL/min.

TIME STARTED: 13:25
TIME FINISHED: 13:55

OBSERVATIONS: COLOR Clear ODOR None
SHEEN None OTHER

WATER RECOVERY HEIGHT: 12.81
WATER LEVEL AT 80% RECOVERY: 12.82

SAMPLE COLLECTION TIME: 14:10
RECOVERY TIME IN MINUTES: 1

NOTES: Started initial purge @ 13:06
Stopped @ 13:21
purged ~20 gal.

EQUIPMENT: PERISTALTIC PUMP NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI FA01461 Turb. FA01929

Created On: 3/15/2018
Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 3/20/18 PROJECT NAME: SGPP - Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N. Bennington, VT

SAMPLING PERSONNEL: D. King

NOTES TAKEN BY: D. King

MONITORING WELL ID#: MW18-07 WELL CASING DIAMETER: 1.5"

DEPTH TO WATER: 13.69 FROM: TPVC

DEPTH TO BOTTOM: 15.70 FROM: TPVC

WATER COLUMN HEIGHT: 2.01

WELL VOLUME: 0.18 GALLONS

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL	3" = 0.38 GAL
1.25" = 0.064 GAL	4" = 0.66 GAL
2" = 0.16 GAL	6" = 1.47 GAL

Initial purge Low-Flow

Field Parameters	Initial	Time (minutes)			0	5	10	15	20	25	30	
Time (minutes)	Intitial	1105										
Water Level	13.69	13.72			13.69	13.69	13.70	13.70	13.71	13.71	13.71	
Temperature (C)	7.8				7.3	7.6	7.7	7.7	7.7	7.8	7.8	✓
DO (mg/L)	4.94				4.63	4.61	4.65	4.69	4.76	4.81	4.86	✓
Conductivity (uS)	547				542	548	550	551	551	552	552	✓
pH (SU)	7.17				7.40	7.37	7.34	7.36	7.37	7.37	7.38	✓
ORP (mV)	210.4				193.3	196.7	206.7	208	210.3	213.3	211.1	✓
Turbidity (NTU)	21.1				9.25	7.11	6.01	3.96	3.18	3.02	2.23	✓

Field Parameters	Time (minutes)										
Time (minutes)											
Water Level											
Temperature (C)											
DO (mg/L)											
Conductivity (uS)											
pH (SU)											
ORP (mV)											
Turbidity (NTU)											

VOLUMES PURGED: ~1.5 GALLONS AVG PURGE RATE: ~150 mL/min

TIME STARTED: 11:27 TIME FINISHED: 11:57

OBSERVATIONS: COLOR Clear ODOR None

SHEEN None OTHER

WATER RECOVERY HEIGHT: 13.69 WATER LEVEL AT 80% RECOVERY: 13.70

SAMPLE COLLECTION TIME: 12:05 RECOVERY TIME IN MINUTES: 1 min

NOTES: Started initial purge @ 11:18
Stopped @ 11:23
Purged ~0.75 gal.

EQUIPMENT: (PERISTALTIC PUMP) NEW DISPOSABLE BAILER STAINLESS STEEL BAILER

BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI FA01461 Turb. FA01929

Created On: 3/15/2018
Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 03/20/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: John Scheetz
NOTES TAKEN BY: John Scheetz

PROJECT NAME: SGPP - Bennington
PROJECT LOCATION: N. Bennington, VT

MONITORING WELL ID#: MW-07S
DEPTH TO WATER: 14.35 ft FROM: TPVC
DEPTH TO BOTTOM: 22.58 ft FROM: TPVC
WATER COLUMN HEIGHT: 8.23 ft
WELL VOLUME: 1.32 GALLONS

WELL CASING DIAMETER: 2"

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL | 3" = 0.38 GAL
1.25" = 0.064 GAL | 4" = 0.66 GAL
(2" = 0.16 GAL) | 6" = 1.47 GAL

purge ←—→ low-flow

Field Parameters		Time (minutes)									
Time (minutes)	Intitial	10	20	30	40	50	55	60	65	70	75
Water Level (ft)	14.35	14.38	14.39	14.38	14.35	14.34	14.35	14.35	14.35	14.35	14.34
Temperature (C)	7.0	7.4	7.6	7.7	7.7	7.9	7.2	6.6	6.8	6.8	6.9
DO (mg/L)	6.07	0.62	0.33	0.25	0.08	0.05	0.32	0.32	0.30	0.31	0.28
Conductivity (uS)	576	593	599	600	602	608	605	586	586	587	589
pH (SU)	6.79	6.92	6.99	7.00	7.00	7.00	7.02	7.01	7.00	7.00	7.00
ORP (mV)	12.8	-44.7	-56.5	-47.7	-38.3	-119.3	-140.8	-146.1	-154.9	-164.1	-163.2
Turbidity (NTU)	over	over	1149 AU	931 AU	612 AU	124 NTU	103.3	626 AU	138 AU	58 NTU	113
water level (MW-07)	14.53	14.59	14.59	14.58	14.57	14.59	14.59				

Field Parameters	Time (minutes)										
Time (minutes)	80	85	90	95	100						
Water Level	14.35	14.33	14.35	14.35	14.35						
Temperature (C)	7.0	7.1	6.9	6.8	7.3						
DO (mg/L)	0.27	0.26	0.26	0.26	0.25						
Conductivity (uS)	591	593	591	584	593						
pH (SU)	6.99	7.00	7.01	7.02	7.02						
ORP (mV)	-165.9	-184.7	-183.6	-177.5	-192.5						
Turbidity (NTU)	25	43	712 AU	116 NTU	106.2						

VOLUMES PURGED: ~4 GALLONS (~1.5 gal low-flow)
AVG PURGE RATE: ~100 mL/min
TIME STARTED: 09:50 (purge), 10:50 (low-flow)
TIME FINISHED: 10:45 (purge) 12:25 (sampling)

OBSERVATIONS:
COLOR rust-brown (first ~90 min) ODOR none
SHEEN none OTHER —

WATER RECOVERY HEIGHT: 0
WATER LEVEL AT 80% RECOVERY: —
SAMPLE COLLECTION TIME: 11:45
RECOVERY TIME IN MINUTES: —

NOTES: Sampled for
Field duplicate (FD-1) @ this loc, split PFA samples w/ VT DEC rep
Recorded wl's in MW-07 as well to monitor effect of purging MW-07S

EQUIPMENT:
(PERISTALTIC PUMP) NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI: FA00777, Turb: FA01058, pump: FA00616, WL M+V: FA01456 (MW-07S) FA03319 (MW-07)

Created On: 3/15/2018
Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 03/20/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: John Schuetz
NOTES TAKEN BY: John Schuetz

PROJECT NAME: SGPP - Bennington
PROJECT LOCATION: N. Bennington, VT

MONITORING WELL ID#: MW-07
DEPTH TO WATER: 14.60 ft FROM: TPVC
DEPTH TO BOTTOM: 40.39 ft FROM: TPVC
WATER COLUMN HEIGHT: 26.79 ft
WELL VOLUME: 4.3 GALLONS
Purge ↔ Low flow

WELL CASING DIAMETER: 2"

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL	3" = 0.38 GAL
1.25" = 0.064 GAL	4" = 0.66 GAL
2" = 0.16 GAL	6" = 1.47 GAL

Field Parameters		Time (minutes)									
Time (minutes)	Intitial	10	35	40	45	50	55	60	65	70	
Water Level (ft)	14.60	15.85	14.85	14.82	14.73	14.77	14.76	14.77	14.80	14.80	
Temperature (C)	9.7	9.7	7.8	8.3	8.5	8.4	8.3	8.1	8.2	8.3	
DO (mg/L)	3.98	1.01	1.60	1.15	0.76	0.54	0.40	0.43	0.60	0.60	
Conductivity (uS)	272.3	272.4	257.3	261.1	263.3	263.3	262.8	262.2	261.8	261.7	
pH (SU)	7.92	7.76	7.61	7.57	7.55	7.55	7.54	7.55	7.55	7.54	
ORP (mV)	40.0	124.4	-66.5	-79.7	-65.4	-51.3	-38.2	-32.1	-46.8	-50.3	
Turbidity (NTU)	6004 AU	1423 AU	720 NTU	14 NTU	615 AU	63 NTU	72 NTU	32 NTU	20 NTU	5 NTU	

Field Parameters	Time (minutes)										
Time (minutes)											
Water Level											
Temperature (C)											
DO (mg/L)											
Conductivity (uS)											
pH (SU)											
ORP (mV)											
Turbidity (NTU)											

VOLUMES PURGED: ~13 GALLONS (~2 gal low-flow) AVG PURGE RATE: ~100 mL/min

TIME STARTED: 13:45 (purge), 14:20 (low-flow) TIME FINISHED: 1358 (purge) 1330 (sampling)

OBSERVATIONS: COLOR gray (during purge) ODOR none
SHEEN none OTHER —

WATER RECOVERY HEIGHT: 1.25 ft WATER LEVEL AT 80% RECOVERY: 14.85 ft

SAMPLE COLLECTION TIME: 1505 RECOVERY TIME IN MINUTES: 22 min

NOTES: Sampled for
NO PFA split w/ VT DEC, left site already

EQUIPMENT: (PERISTALTIC PUMP) NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP (OTHER) – Watterra tubing (purging)

SERIAL NOs: WL: FA00777, Turb: FA01058, Pump: FA00616, wtr lvl: FA03319

Created On: 3/15/2018
Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 3/20/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: C. & F. Bard
NOTES TAKEN BY: CB

PROJECT NAME: SGPP - Bennington
PROJECT LOCATION: N. Bennington, VT

MONITORING WELL ID#: MW18-05
DEPTH TO WATER: 13.86 FROM: TPVC
DEPTH TO BOTTOM: 21.53 FROM: TPVC
WATER COLUMN HEIGHT: 7.67
WELL VOLUME: 0.71 GALLONS

WELL CASING DIAMETER: 1.5"

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL	3" = 0.38 GAL
1.25" = 0.064 GAL	4" = 0.66 GAL
2" = 0.16 GAL	6" = 1.47 GAL

1.5" = 0.092 Gal

3 well vol purge
Start 1115
Stop 1129
~2.5 gal purged

Field Parameters		Time (minutes)	Low Flow →						
Time (minutes)	Intitial	10	Initial	5	10	15	20	25	30
Water Level	13.86	14.37	13.87	14.01	14.01	14.01	14.01	14.02	14.03
Temperature (C)	9.0	9.6	7.0	8.9	8.9	9.0	9.1	9.1	9.1
DO (mg/L)	5.68	5.49	5.82	4.37	4.44	4.69	4.73	4.64	4.54
Conductivity (uS)	455.8	497.8	468.2	495.6	504	512	518	521	528
pH (SU)	7.30	7.25	7.31	7.29	7.31	7.28	7.28	7.28	7.27
ORP (mV)	235.4	201.0	198.3	201.1	203.3	205.6	207.4	209.1	210.9
Turbidity (NTU)	740.4	7.09	23.9	11.3	8.49	8.98	3.12	2.49	2.18

Field Parameters	Time (minutes)										
Time (minutes)											
Water Level											
Temperature (C)											
DO (mg/L)											
Conductivity (uS)											
pH (SU)											
ORP (mV)											
Turbidity (NTU)											

VOLUMES PURGED: ~2.5 GALLONS
AVG PURGE RATE: ~100 mL/min

TIME STARTED: 1140
TIME FINISHED: 1210

OBSERVATIONS: COLOR clear ODOR none
SHEEN none OTHER —

WATER RECOVERY HEIGHT: 13.87
WATER LEVEL AT 80% RECOVERY:

SAMPLE COLLECTION TIME: 1220
RECOVERY TIME IN MINUTES: 0.5

NOTES: *MS/MSD Collected* Sample for: 19 PFAS, VOC, Alk, metals, TCL, Cl/SO4, CN
Split Sample collected with VT DEC for PFAS only

EQUIPMENT: (PERISTALTIC PUMP) NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI: FA00977 Turb: FA01856

Created On: 3/15/2018
Revised On:

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #: COC#: 18766

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: ~~16-6313~~ 16613

Sampler: CB, DK, JS

Phone #: (518) 786-7400 Quote #: 214135

State where sample(s) were collected: VT

For Lab Use Only

SF#: 304586

SCR#: 221589

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Sediment	Water: Potable	Ground	NPDES	Surface	Other: Rinse Water	Total # of Containers	TCL VOAs (8260C)	TAL Metals	TCL SVs (8270D)	1,4-Dioxane (8270 ISO DL SIM)	CN (9012A)	Br-, Cl-, SO4-, NO2, NO3 (300.0)	Alk, Bicarb, Carb. (2320 B)	19 PFAS (EPA 537 mod.)	Remarks
													Preservation Codes: H	N			B				
SG3-LTB01-180320	3/20/18	—	X								X	3	X							X	P-NO2+NO3 45d HT
SG3-FTB01-180320		15:10	X								X	2								X	
SG3-MW07S-180320		11:45	X				X					12	X	X	X	X	X	X	X	X	
SG3d-MW18D7-180320		12:05	X				X					12	X	X	X	X	X	X	X	X	
SG3d-MW18D5-180320		1220	X				X					36	X	X	X	X	X	X	X	X	MS/MSD
SG3d-MW18D4-180320		14:10	X				X					12	X	X	X	X	X	X	X	X	
~~FD~~ SG3-FD01-180320		—	X				X					12	X	X	X	X	X	X	X	X	
SG3-MW07-180320		15:05	X				X					12	X	X	X	X	X	X	X	X	

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) [X] MA MCP [ ] TX TRRP - 13 [ ]

Type III (Reduced non-CLP) [ ] CT RCP [ ]

Type IV (CLP SOW) [ ] ASP Type A [ ]

Type VI (Raw Data Only) [ ] ASP Type B [X]

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
Cliff Bal	3/20/18	1700			

Airbill No.:

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 3/21/18 Time On-Site: 0830 Time Off-Site: 1530

Project Name: SGPP- Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Cloudy, overcast, High 38°F

Present at Site: Cliff Bond, Dan King, Ryan Hubbard

Observations: 0830 Arrived onsite, Gathering equipment/Sample containers/labels for groundwater Sampling *All Equipment was calibrated in Latham office before leaving for site (See Daily calibratin log)

0845 Setting up equipment at monitoring wells

RH Purged/Sampled MW-03 and MW-06

DK Purged/Sampled MW18-02 and MW14-01

CB Purged/Sampled MW18-03 and MW-04

*See purging logs for more detail

1420 DK Collected EB01 from peristaltic pump

1445 Packing coolers and loading equipment into trucks/dumping purged water

1530 Offsite

Items to Verify:

List of Attachments: PFC Sampling Checklist, Daily Cal record, Low flow purging logs x6, COC x1

Field Log Prepared by: Cliff Bond

Copies to:

PFCs Sampling Checklist

Date: 3/21/18

Weather (*temp./precipitation*): Overcast, ~30°F Site Name: SGPP – Bennington

Field Clothing and PPE:

- ☑ No clothing or boots containing Gore-Tex™
- ☑ All safety boots made from polyurethane and PVC
- ☑ No materials containing Tyvek®
- ☑ Field crew has not used fabric softener on clothing
- ☑ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☑ Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- ☑ No Teflon® or LDPE containing materials on-site
- ☑ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☑ No waterproof field books on-site
- ☑ No plastic clipboards, binders, or spiral hard cover notebooks on-site
- ☑ No adhesives (Post-It Notes) on-site
- ☑ Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- ☑ All sample containers made of HDPE or polypropylene
- ☑ Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- ☑ Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- ☑ "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- ☑ Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- ☑ No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Dan King

Field Lead Signature: [signature] Time: 8:45

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - Bennington

CTM PROJECT NO.: 16.6131

LOCATION: Bennington, VT

DATE: 3/21/18

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI FA 01461	0700	pH 4.00/7.00/10.00	4.05/6.97/10.02	Cal	CB
↓	↓	Sp.C.7000 / ORP 234.7	6913/233.8	↓	↓
YSI FA 00977		pH 4.00/7.00/10.00	4.04/6.93/10.00		
↓		Sp.C.7000 / ORP 234.7	6755/233.3	↓	
Turb. Meter FA 01929		10 NTU	9.57	Bump	
Turb. Meter FA 01058		10 NTU	9.99	↓	
YSI FA 00777		pH 4.00/7.00/10.00	3.98/6.95/10.02	Cal	
↓		Sp. Cond 7000 / ORP 234.3	6906/232.6	↓	
Turb FA 01856	↓	10 NTU	9.37	Bump	↓

Rev. 6/10/2011

WELL LOW-FLOW PURGING LOG

DATE: 3/20/18 (initial purge), 3/21/18 (low-flow) PROJECT NAME: SGPP - Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N. Bennington, VT

SAMPLING PERSONNEL: D. King

NOTES TAKEN BY: D. King

MONITORING WELL ID#: MW18-02 WELL CASING DIAMETER: 1.5"

DEPTH TO WATER: 11.66 FROM: TPVC

DEPTH TO BOTTOM: 14.57 FROM: TPVC

WATER COLUMN HEIGHT: 2.91

WELL VOLUME: 0.27 GALLONS

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL 3" = 0.38 GAL

1.25" = 0.064 GAL 4" = 0.66 GAL

2" = 0.16 GAL 6" = 1.47 GAL

Initial purge / Low-flow

Field Parameters		Time (minutes)									
Time (minutes)	Intitial	10	20	0	5	10	15	20	25	30
Water Level	11.66	14.50	14.50	11.66	12.22	12.31	12.39	12.43	12.43	12.44
Temperature (C)	7.9	7.9	7.9	6.9	7.3	7.3	7.4	7.5	7.4	7.4
DO (mg/L)	10.93	11.50	11.65	10.38	9.53	9.35	9.16	8.95	9.03	8.96
Conductivity (uS)	980	987	1002	986	991	1008	1017	1022	1029	1033
pH (SU)	7.35	7.18	7.24	7.27	7.22	7.22	7.24	7.26	7.26	7.27
ORP (mV)	220.9	224.2	231.9	152.3	152.0	161.0	168.9	172.4	176.2	178.8
Turbidity (NTU)	AU	54	51.6	26.8	22.4	10.41	6.57	4.59	4.83	4.04

Field Parameters	Time (minutes)										
Time (minutes)											
Water Level											
Temperature (C)											
DO (mg/L)											
Conductivity (uS)											
pH (SU)											
ORP (mV)											
Turbidity (NTU)											

VOLUMES PURGED: ~1.0 GALLONS AVG PURGE RATE: ~160 mL/min.

TIME STARTED: 9:43 (3/21/18) TIME FINISHED: 10:13

OBSERVATIONS: COLOR Clear ODOR None

SHEEN None OTHER

WATER RECOVERY HEIGHT: 11.06 WATER LEVEL AT 80% RECOVERY: 12.27

SAMPLE COLLECTION TIME: 10:20 RECOVERY TIME IN MINUTES: ~20h

NOTES: Started initial purge @ 13:54 (3/20/18)
Stopped @ 14:14
Overnighted ~2.0 gal. to reduce turbidity

EQUIPMENT: PERISTALTIC PUMP NEW DISPOSABLE BAILER STAINLESS STEEL BAILER

BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: Initial: YSI FA0977 Turb. FA01856

Low-flow: YSI FA0977 Turb. FA01058

Created On: 3/15/2018

Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 3/21/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: D. King
NOTES TAKEN BY: D. King

PROJECT NAME: SGPP - Bennington
PROJECT LOCATION: N. Bennington, VT

MONITORING WELL ID#: MW18-01
DEPTH TO WATER: 13.53 FROM: TPVC
DEPTH TO BOTTOM: 21.16 FROM: TPVC
WATER COLUMN HEIGHT: 7.63
WELL VOLUME: 0.70 GALLONS

WELL CASING DIAMETER: 1.5"

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL	3" = 0.38 GAL
1.25" = 0.064 GAL	4" = 0.66 GAL
2" = 0.16 GAL	6" = 1.47 GAL

Field Parameters		Time (minutes)										
Time (minutes)	Intitial	10	12			0	5	10	15	20	25	30
Water Level	13.53	13.59	13.60			13.53	13.54	13.54	13.54	13.54	13.54	13.54
Temperature (C)	9.3	9.3				8.0	8.4	8.6	8.6	8.6	8.7	8.7
DO (mg/L)	4.02	5.94				9.85	9.31	9.84	9.73	9.61	9.49	9.29
Conductivity (uS)	559	566				580	539	534	555	557	559	561
pH (SU)	7.26	7.19				7.26	7.16	7.14	7.15	7.15	7.15	7.15
ORP (mV)	-140	-61.8				-71.4	-67.8	-54.8	-51.6	-50.1	-46.6	-47.1
Turbidity (NTU)	AV	7.73				46.1	25.8	5.86	4.45	4.63	3.82	3.49

Field Parameters	Time (minutes)										
Time (minutes)											
Water Level											
Temperature (C)											
DO (mg/L)											
Conductivity (uS)											
pH (SU)											
ORP (mV)											
Turbidity (NTU)											

VOLUMES PURGED: ~1.0 GALLONS
AVG PURGE RATE: ~150mL/min.
TIME STARTED: 11:39
TIME FINISHED: 12:09

OBSERVATIONS: COLOR Clear ODOR none
SHEEN none OTHER

WATER RECOVERY HEIGHT: 13.53
WATER LEVEL AT 80% RECOVERY: 13.54
SAMPLE COLLECTION TIME: 12:20
RECOVERY TIME IN MINUTES: 1

NOTES: Started initial purge @11:15
Stopped @ 11:27
purged ~2.5 gal.

EQUIPMENT: (PERISTALTIC PUMP) NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI-FA0977 Turb. FA01058

Created On: 3/15/2018
Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 3/21/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: Cliff Bond
NOTES TAKEN BY: CB

PROJECT NAME: SGPP - Bennington
PROJECT LOCATION: N. Bennington, VT

MONITORING WELL ID#: MW18-03
DEPTH TO WATER: 13.08 FROM: TPVC
DEPTH TO BOTTOM: 16.01 FROM: TPVC
WATER COLUMN HEIGHT: 2.93
WELL VOLUME: 0.27 x 3 = 0.81 GALLONS

WELL CASING DIAMETER: 1.5"

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL	3" = 0.38 GAL
1.25" = 0.064 GAL	4" = 0.66 GAL
2" = 0.16 GAL	6" = 1.47 GAL
1.5" = 0.092 GAL	

3 well vol purge
Start @ 1015
Stop @ 1027
~1.5 gal Purged

Field Parameters		Time (minutes) Low Flow →									
Time (minutes)	Intitial	7		Initial	5	10	15	20	25	30	
Water Level (ft)	~~13.08~~	13.35		13.08	13.12	13.12	13.13	13.13	13.13	13.13	
Temperature (C)	8.0	8.7		6.5	7.9	7.9	8.0	8.0	8.0	8.1	
DO (mg/L)	6.32	5.43		5.61	4.85	4.81	4.81	5.06	5.05	4.85	
Conductivity (uS)	597	617		584	603	601	602	602	602	603	
pH (SU)	6.53	6.99		7.12	7.08	7.09	7.09	7.10	7.11	7.12	
ORP (mV)	238.3	166.2		141.3	124.1	122.7	127.4	124.4	129.5	134.0	
Turbidity (NTU)	27.5	7.57		30.5	4.47	3.14	2.75	2.04	1.89	1.64	

Field Parameters	Time (minutes)										
Time (minutes)											
Water Level											
Temperature (C)											
DO (mg/L)											
Conductivity (uS)											
pH (SU)											
ORP (mV)											
Turbidity (NTU)											

VOLUMES PURGED: ~2.0 GALLONS
AVG PURGE RATE: ~100 mL/min

TIME STARTED: 1035
TIME FINISHED: 1105

OBSERVATIONS: COLOR Clear ODOR None
SHEEN None OTHER —

WATER RECOVERY HEIGHT: 13.08
WATER LEVEL AT 80% RECOVERY: 13.13'

SAMPLE COLLECTION TIME: 1105
RECOVERY TIME IN MINUTES: ~~30~~ ~0.5

NOTES: Samples for: 19 PFAS, VOC, Metals, CN, TCL, Alk, Cl/SO4

EQUIPMENT: (PERISTALTIC PUMP) NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI: FA01461 Turb: FA01929

Created On: 3/15/2018
Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 03/21/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: R. Hubbard
NOTES TAKEN BY: RH

PROJECT NAME: SGPP - Bennington
PROJECT LOCATION: N. Bennington, VT

MONITORING WELL ID#: MW-06
DEPTH TO WATER: 8.20 FROM: TPVC
DEPTH TO BOTTOM: 20.16 FROM: TPVC
WATER COLUMN HEIGHT: 11.96
WELL VOLUME: 1.9 GALLONS

WELL CASING DIAMETER: 2"

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL	3" = 0.38 GAL
1.25" = 0.064 GAL	4" = 0.66 GAL
2" = 0.16 GAL	6" = 1.47 GAL

Field Parameters		Time (minutes)									
Time (minutes)	Intitial	10	20	30	40						
Water Level	8.20	8.37	8.35	8.35	8.35						
Temperature (C)	10.1	10.1	10.2	10.2	10.2						
DO (mg/L)	3.66	2.82	2.99	3.15	3.12						
Conductivity (uS)	764	826	844	862	871						
pH (SU)	7.23	7.19	7.17	7.18	7.14						
ORP (mV)	250.5	254.1	259.5	263.5	266.0						
Turbidity (NTU)	81.5	6.97	4.28	3.06	2.10						

Field Parameters	Time (minutes)										
Time (minutes)	~~0820~~	10	20	30	35	40	45	50			
Water Level	8.20	8.22	8.24	8.24	8.23	8.23	8.23	8.23			
Temperature (C)	9.5	9.8	9.9	9.9	9.9	9.9	9.9	9.9			
DO (mg/L)	1.05	1.01	1.65	1.49	1.53	1.57	1.51	1.55			
Conductivity (uS)	816	845	844	850	861	857	859	863			
pH (SU)	7.26	7.18	7.17	7.17	7.18	7.17	7.17	7.17			
ORP (mV)	265.2	267.6	269.0	271.1	270.1	270.2	270.2	270.4			
Turbidity (NTU)	82.4	30.3	10.42	6.45	5.60	4.77	4.80	4.45			

VOLUMES PURGED: 6 / 3 GALLONS
AVG PURGE RATE: ~150 mL/min
TIME STARTED: 1245 / 1330
TIME FINISHED: 1325 / 1420

OBSERVATIONS:
COLOR: clear
ODOR: none
SHEEN: none
OTHER: –

WATER RECOVERY HEIGHT: 8.20
WATER LEVEL AT 80% RECOVERY: 8.23'
SAMPLE COLLECTION TIME: 1420
RECOVERY TIME IN MINUTES: 1

NOTES: Sampled for 19 PFAS, VOC, Tal Metals, CN, Cl^-, SO_4^-, Br^-, NO_2, NO_3, Alk, 1,4-Dioxane, SVs

EQUIPMENT: (PERISTALTIC PUMP) NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI - FA00777 ; 2020we - FA01856 ; WL - FA03319, Pump - FA00616

Created On: 3/15/2018
Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 3/21/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: Cliff Bond
NOTES TAKEN BY: CB

PROJECT NAME: SGPP - Bennington
PROJECT LOCATION: N. Bennington, VT

MONITORING WELL ID#: MW-04
DEPTH TO WATER: 7.80 FROM: TPVC
DEPTH TO BOTTOM: 19.80 FROM: TPVC
WATER COLUMN HEIGHT: 12.00
WELL VOLUME: 1.92 x 3 = 5.25 GALLONS

WELL CASING DIAMETER: 2"

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL	3" = 0.38 GAL
1.25" = 0.064 GAL	4" = 0.66 GAL
2" = 0.16 GAL	6" = 1.47 GAL

3 well vol Purge
Start @ 1220
Stop @ 1246
~6.0 gal purged

Field Parameters		Time (minutes)				Low Flow →					
Time (minutes)	Intitial	10	20	26		Initial	5	10	15	20	25
Water Level (ft)	7.80	7.95	7.95	7.95		7.80	7.82	7.82	7.83	7.83	7.83
Temperature (C)	10.6	10.7	10.6	10.7		9.7	9.9	10.2	10.1	10.1	10.2
DO (mg/L)	6.23	6.30	6.13	6.30		6.70	5.97	5.79	5.96	5.86	5.80
Conductivity (uS)	757	759	766	767		714	753	755	750	750	752
pH (SU)	6.96	7.26	7.23	7.22		7.52	7.28	7.21	7.19	7.20	7.20
ORP (mV)	248.9	254.8	262.2	263.7		257.6	260.5	261.5	267.8	266.3	266.7
Turbidity (NTU)	0-cl	74.1	25.8	27.0		30.8	18.5	11.7	11.92	8.87	8.18

Field Parameters	Time (minutes)										
Time (minutes)	30										
Water Level	7.83										
Temperature (C)	10.2										
DO (mg/L)	5.79										
Conductivity (uS)	748										
pH (SU)	7.20										
ORP (mV)	267.1										
Turbidity (NTU)	8.63										

VOLUMES PURGED: ~2.0 GALLONS
AVG PURGE RATE: ~100 mL/min

TIME STARTED: 1305
TIME FINISHED: 1335

OBSERVATIONS: COLOR Clear ODOR None
SHEEN None OTHER —

WATER RECOVERY HEIGHT: 7.80
WATER LEVEL AT 80% RECOVERY: 7.83

SAMPLE COLLECTION TIME: 1335
RECOVERY TIME IN MINUTES: ~1.0

NOTES: Sampled for: PFAS, VOC, TCL, Metals, Alk, Cl⁻/SO4⁻
Metals QC also collected

EQUIPMENT: (PERISTALTIC PUMP) NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI: FA01461 Turb: FA01929

Created On: 3/15/2018
Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 03/21/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: R. Hubbard
NOTES TAKEN BY: RH

PROJECT NAME: SGPP - Bennington
PROJECT LOCATION: N. Bennington, VT

MONITORING WELL ID#: MW-03
DEPTH TO WATER: 9.47 FROM: TPVC
DEPTH TO BOTTOM: 20.81 FROM: TPVC
WATER COLUMN HEIGHT: 11.34 ft
WELL VOLUME: 1.8 GALLONS

WELL CASING DIAMETER: 2"

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL	3" = 0.38 GAL	
1.25" = 0.064 GAL	4" = 0.66 GAL	
2" = 0.16 GAL	6" = 1.47 GAL	

Field Parameters		Time (minutes)									
Time (minutes)	Intitial	10	20	30	40						
Water Level	9.47	9.48	9.48	9.49	9.49						
Temperature (C)	10.1	10.4	10.4	10.5	10.5						
DO (mg/L)	6.44	5.60	6.01	7.15	6.12						
Conductivity (uS)	664	690	687	686	692						
pH (SU)	6.73	7.07	7.11	7.12	7.13						
ORP (mV)	236.6	235.1	247.3	253.4	259.9						
Turbidity (NTU)	646 AV	6.05	4.01	2.75	609 AV						

Field Parameters	Time (minutes)										
Time (minutes)	Initial	10	20	30	35	40	45				
Water Level	9.47	9.46	9.46	9.45	9.45	9.45	9.45				
Temperature (C)	9.4	10.0	10.0	10.0	10.0	10.1	10.1				
DO (mg/L)	7.59	5.10	5.09	5.03	5.13	5.09	5.06				
Conductivity (uS)	662	686	688	688	689	688	690				
pH (SU)	7.24	7.13	7.12	7.12	7.11	7.12	7.11				
ORP (mV)	256.3	263.5	268.4	272.3	273.4	274.3	275.3				
Turbidity (NTU)	35.3	14.8	9.32	6.16	4.70	4.36	4.69				

VOLUMES PURGED: 6 / 3 GALLONS
AVG PURGE RATE: ~150 mL/min

TIME STARTED: 0935 / 1025
TIME FINISHED: 1015 / 1110

OBSERVATIONS: COLOR clear ODOR none
SHEEN none OTHER —

WATER RECOVERY HEIGHT: 9.47
WATER LEVEL AT 80% RECOVERY: 9.47

SAMPLE COLLECTION TIME: 1110
RECOVERY TIME IN MINUTES: 1

NOTES: Metals QC here.

EQUIPMENT: PERISTALTIC PUMP NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI - FA00777, 2020we - FA01856, WL - FA03319, Pump - FA00616

Created On: 3/15/2018
Revised On:

eurofins Lancaster Laboratories

Environmental Services Analysis Request/Chain of Custody

1 of 1

Acct. #: 37191 Group #: Sample #: COC#: 18766

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: ~~16.6313~~ 16.631
Sampler: DK, CB, RH	
Phone #: 518-786-7400	Quote #: 214135
State where sample(s) were collected: VT	

For Lab Use Only
SF#: 304586
SCR#: 221589

Preservation Codes
H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Matrix: Sediment ☐; Soil ☐; Water: Ground ☑, Surface ☐, Potable ☐, NPDES ☐; Other: Rinse Water

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	TCL VOAs (8260C) (H)	TAL Metals (N)	TCL SVs (8270D)	1,4-Dioxane (8270 ISO DL SIM)	CN (9012A) (B)	Br-, Cl-, SO4-, NO2, NO3 (300.0)	Alk, Bicarb, Carb. (2320 B)	19 PFAS (EPA 537 mod.)	Remarks
SG3a-MW1802-180321	3/21/18	10:20	✓			✓		12	✓	✓	✓	✓	✓	✓	✓	✓	* NO2+NO3 <48h H.T.
SG3a-MW1803-180321		11:05	✓			✓		12	✓	✓	✓	✓	✓	✓	✓	✓	
SG3-MW03-180321		11:10	✓			✓		13	✓	✓	✓	✓	✓	✓	✓	✓	Metals QC
SG3a-MW1801-180321		12:20	✓			✓		12	✓	✓	✓	✓	✓	✓	✓	✓	
SG3-MW06-180321		14:20	✓			✓		12	✓	✓	✓	✓	✓	✓	✓	✓	
SG3-MW04-180321		13:35	✓			✓		13	✓	✓	✓	✓	✓	✓	✓	✓	Metals QC
SG3-FTB01-180321		11:55	✓				✓	2								✓	
SG3-LTB01-180321		—	✓				✓	4	✓							✓	
SG3-EB01-180321	3/21/18	14:20	✓				✓	12	✓	✓	✓	✓	✓	✓	✓	✓	

Turnaround Time Requested (TAT) (please check): Standard ☑ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results: k.moline@ctmale.com

Data Package Options (please check if required)
Type I (Validation/non-CLP) ☑ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	3/21/18	15:30			

Airbill No.:
Relinquished by Commercial Carrier:
UPS _______ FedEx _______ Other _______
Temperature upon receipt ________ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 4/20/18 Time On-Site: 0830 Time Off-Site: 1600

Project Name: SGPP- Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Cloudy, overcast 47°F

Present at Site: Cliff Bond, Ryan Hubbard

Observations: 0830 Arrived at McCaffrey St trailer to gather equipment and calibrate

0945 Arrived at SGPP- Bennington to begin groundwater Sampling

RH Purging/low flow/Sampling MW-02 and 04S

CB helping DA locate wipe sample locations inside building for survey

1205 CB began purge/low flow/Sampling at MW-1802 and MW-1805 in building

1445 CB collecting final sample → Packing up and loading truck

MS/MSD collected @ MW-18-05

Dumping purged water/packing Samples

1600 offsite

*See Sampling logs for details

Items to Verify:

List of Attachments: PFAS Sampling Checklist x1, Cal log x1, Purging log x4, COC x1

Field Log Prepared by: Cliff Bond

Copies to:

PFCs Sampling Checklist

Date: 4/20/18

Weather (*temp./precipitation*): _____ Site Name: SGPP- Bennington

Field Clothing and PPE:

- ☑ No clothing or boots containing Gore-Tex™
- ☑ All safety boots made from polyurethane and PVC
- ☑ No materials containing Tyvek®
- ☑ Field crew has not used fabric softener on clothing
- ☑ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☑ Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- ☑ No Teflon® or LDPE containing materials on-site
- ☑ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☑ No waterproof field books on-site
- ☑ No plastic clipboards, binders, or spiral hard cover notebooks on-site
- ☑ No adhesives (Post-It Notes) on-site
- ☑ Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- ☑ All sample containers made of HDPE or polypropylene
- ☑ Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- ☑ Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- ☑ "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- ☑ Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- ☑ No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

_____

_____

_____

Field Lead Name: Cliff Bond

Field Lead Signature: Cliff Bond Time: 0830

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - ~~McGaffrey Street~~ Bennington

LOCATION: ~~Hoosick Falls, NY~~ Bennington, VT

CTM PROJECT NO.: ~~14.4756~~ 16.6131

DATE: 04/20/18

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI FA00236	0830	pH 4.00/7.00/10.00	4.01/6.95/9.97	Calibrated	RH
"	"	Sp.C.7000 / ORP 243.4	6776/240.8	"	RH
YSI ~~FA0087~~ FA02111	"	pH 4.00/7.00/10.00	3.97/7.03/10.08	"	RH
"	"	Sp.C.7000 / ORP 243.3	6811/241.1	"	RH
YSI		pH 4.00/7.00/10.00			
		Sp.C.7000 / ORP			
YSI		pH 4.00/7.00/10.00			
		Sp.C.7000 / ORP			
Turb. Meter FA00438	0830	10 NTU	9.75	Bump Test	RH
Turb. Meter FA00107	"	10 NTU	9.97	"	RH
Turb. Meter		10 NTU			
Turb. Meter		10 NTU			

Rev. 6/10/2011

WELL LOW-FLOW PURGING LOG

DATE: 4/20/18 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: Bennington VT

SAMPLING PERSONNEL: CL:CE Band:

NOTES TAKEN BY: CB

MONITORING WELL ID#: MW-1805 WELL CASING DIAMETER: 1.50"

DEPTH TO WATER: 13.69 FROM: TPVC

DEPTH TO BOTTOM: 21.53 FROM: TPVC

WATER COLUMN HEIGHT: 7.84

WELL VOLUME: 0.72 GALLONS

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL 3" = 0.38 GAL

1.25" = 0.064 GAL 4" = 0.66 GAL

2" = 0.16 GAL 6" = 1.47 GAL

1.50 = 0.092

Field Parameters		Time (minutes)									
Time (minutes)	Intitial	10	15	—	Initial	5	10	15	20	25	30
Water Level	13.69	14.09	14.06	—	13.69	13.81	13.85	13.85	13.85	13.85	13.85
Temperature (C)	8.6	9.3	9.2	—	8.8	9.1	9.2	9.2	9.2	9.2	9.2
DO (mg/L)	7.70	6.80	6.63	—	5.56	5.05	5.02	5.07	5.03	5.08	5.07
Conductivity (uS)	390.3	540	550	—	517	574	577	579	577	580	581
pH (SU)	7.20	7.06	7.06	—	7.13	7.07	7.06	7.06	7.07	7.07	7.07
ORP (mV)	371.4	374.8	374.5	—	377.3	377.3	377.8	378.2	378.6	379.1	379.8
Turbidity (NTU)	48.3	22.8	11.00	—	29.1	9.89	6.41	4.83	4.64	3.77	3.35

Start @ 1350
Stop @ 1405
~2.5 gal purged

3 well vol purge = 2.16 gal

Field Parameters	Time (minutes)										
Time (minutes)											
Water Level											
Temperature (C)											
DO (mg/L)											
Conductivity (uS)											
pH (SU)											
ORP (mV)											
Turbidity (NTU)											

VOLUMES PURGED: ~1.5 GALLONS AVG PURGE RATE: ~100 mL/min

TIME STARTED: 1415 TIME FINISHED: 1445

OBSERVATIONS: COLOR Clear ODOR none

SHEEN None OTHER —

WATER RECOVERY HEIGHT: 13.69 WATER LEVEL AT 80% RECOVERY: 13.77

SAMPLE COLLECTION TIME: 1445 RECOVERY TIME IN MINUTES: ~0.5

NOTES: Sampled for: PFAS TOP Assay * MS/MSD Collected *

EQUIPMENT: PERISTALTIC PUMP NEW DISPOSABLE BAILER STAINLESS STEEL BAILER

BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI: FA02111 Turb: FA00438

Created On: 3/15/2018
Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 4/20/18 PROJECT NAME: SGPP- Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: Bennington VT

SAMPLING PERSONNEL: Cliff Bondi

NOTES TAKEN BY: CB

MONITORING WELL ID#: MW-1802 WELL CASING DIAMETER: 1.50"

DEPTH TO WATER: 11.64 FROM: TPVC

DEPTH TO BOTTOM: 14.71 FROM: TPVC

WATER COLUMN HEIGHT: 3.07

WELL VOLUME: 0.28 GALLONS

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL 3" = 0.38 GAL

1.25" = 0.064 GAL 4" = 0.66 GAL

= 0.16 GAL 6" = 1.47 GAL

1.50 = 0.092 gal

Field Parameters		Time (minutes)									
Time (minutes)	Intitial	10	—	Initial	5	10	15	20	25	30	35
Water Level	11.64	12.71	—	11.85	12.21	12.32	12.35	12.42	12.52	12.44	12.44
Temperature (C)	7.6	7.5	—	7.3	7.3	7.4	7.4	7.4	7.5	7.4	7.4
DO (mg/L)	4.24	8.18	—	8.12	8.07	8.02	7.84	8.06	7.91	7.88	7.78
Conductivity (uS)	939	731	—	622	811	805	790	796	777	810	810
pH (SU)	7.09	7.06	—	7.13	7.10	7.11	7.10	7.11	7.11	7.11	7.11
ORP (mV)	339.4	344.1	—	354.4	355.3	357.4	359.2	361.0	362.4	365.4	365.7
Turbidity (NTU)	625 AU	74.0	—	46.8	32.7	13.6	8.94	9.51	4.04	4.69	4.75

Strt @ 1145

Stop @ 1155

~1.0 gal purged

3 well vol Purge ≈ 1.0 gal

Field Parameters	Time (minutes)										
Time (minutes)											
Water Level											
Temperature (C)											
DO (mg/L)											
Conductivity (uS)											
pH (SU)											
ORP (mV)											
Turbidity (NTU)											

VOLUMES PURGED: ~1.5 GALLONS AVG PURGE RATE: ~100 mL/min

TIME STARTED: 1205 TIME FINISHED: 1240

OBSERVATIONS: COLOR Clear ODOR None

SHEEN None OTHER —

WATER RECOVERY HEIGHT: 11.85 WATER LEVEL AT 80% RECOVERY: 11.85'

SAMPLE COLLECTION TIME: 1240 RECOVERY TIME IN MINUTES: 10

NOTES: Sample for: PFAS TOP Assay

EQUIPMENT: PERISTALTIC PUMP NEW DISPOSABLE BAILER STAINLESS STEEL BAILER

BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI: FA02111 Turb: FA00438

Created On: 3/15/2018

Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 04/20/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: R. Hubbard
NOTES TAKEN BY: TC H

PROJECT NAME: SGPP-Bennington
PROJECT LOCATION: Bennington, VT

MONITORING WELL ID#: MW-04S
DEPTH TO WATER: 7.78 FROM: TPVC
DEPTH TO BOTTOM: 11.96 FROM: TPVC
WATER COLUMN HEIGHT: 4.18
WELL VOLUME: 0.67 GALLONS

WELL CASING DIAMETER:
CONVERSION FACTORS LINEAR FEET TO GALLONS
1" = 0.041 GAL
1.25" = 0.064 GAL
2" = 0.16 GAL
3" = 0.38 GAL
4" = 0.66 GAL
6" = 1.47 GAL

Field Parameters		Time (minutes)									
Time (minutes)	Intitial	10		Initial	10	20	30	35	40		
Water Level	7.78	8.10		7.78	7.93	7.94	7.94	7.95	7.95		
Temperature (C)	8.5	8.4		8.4	8.4	8.4	8.4	8.4	8.4		
DO (mg/L)	10.38	9.52		7.88	7.87	7.73	7.71	7.73	7.69		
Conductivity (uS)	942	941		948	948	946	947	948	947		
pH (SU)	7.31	7.15		7.31	7.17	7.18	7.18	7.18	7.19		
ORP (mV)	319.5	323.2		315.5	327.2	333.5	336.5	338.0	338.9		
Turbidity (NTU)	1853 AU	14.1		15.7	8.76	4.24	2.21	1.96	2.52		

3 Well Volume Purge

Field Parameters	Time (minutes)										
Time (minutes)											
Water Level											
Temperature (C)											
DO (mg/L)											
Conductivity (uS)											
pH (SU)											
ORP (mV)											
Turbidity (NTU)											

VOLUMES PURGED: 2 / 2.5 GALLONS
AVG PURGE RATE:

TIME STARTED: 1310 / 1330
TIME FINISHED: 1320 / 1410

OBSERVATIONS: COLOR clear ODOR none
SHEEN none OTHER

WATER RECOVERY HEIGHT:
WATER LEVEL AT 80% RECOVERY:

SAMPLE COLLECTION TIME: 1410
RECOVERY TIME IN MINUTES:

NOTES:

EQUIPMENT: PERISTALTIC PUMP NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI - FA00226 ; 2020we - FA00107

Created On: 3/15/2018
Revised On:

WELL LOW-FLOW PURGING LOG

DATE: 04/20/18
PROJECT NO.: 16.6131
SAMPLING PERSONNEL: R. Hubbard
NOTES TAKEN BY: RH

PROJECT NAME: SGPP-Bennington
PROJECT LOCATION: Bennington, VT

MONITORING WELL ID#: MW-02
DEPTH TO WATER: 7.80 FROM: TPVC
DEPTH TO BOTTOM: 12.57 FROM: TPVC
WATER COLUMN HEIGHT: 4.77
WELL VOLUME: 0.76 GALLONS

WELL CASING DIAMETER:
CONVERSION FACTORS LINEAR FEET TO GALLONS
1" = 0.041 GAL
1.25" = 0.064 GAL
2" = 0.16 GAL
3" = 0.38 GAL
4" = 0.66 GAL
6" = 1.47 GAL

Field Parameters		Time (minutes)									
Time (minutes)	Intitial	10		Initial	10	20	30	35	40		
Water Level	7.80	7.93		7.80	7.85	7.85	7.86	7.86	7.86		
Temperature (C)	7.2	7.1		7.2	7.2	7.2	7.2	7.2	7.2		
DO (mg/L)	9.64	9.74		8.55	8.22	8.15	8.20	8.13	8.33		
Conductivity (uS)	1131	1004		1041	1026	1019	1007	1004	1004		
pH (SU)	7.00	7.15		7.29	7.22	7.23	7.23	7.24	7.24		
ORP (mV)	351.1	341.5		332.4	337.6	339.5	340.7	341.6	342.0		
Turbidity (NTU)	OR	129		24.7	8.52	6.65	4.94	4.81	3.97		
	3 Well Volume Purge			Low-Flow							

Field Parameters	Time (minutes)										
Time (minutes)											
Water Level											
Temperature (C)											
DO (mg/L)											
Conductivity (uS)											
pH (SU)											
ORP (mV)											
Turbidity (NTU)											

VOLUMES PURGED: 2.5 / 2.25 GALLONS
AVG PURGE RATE:
TIME STARTED: 1105 / 1130
TIME FINISHED: 1117 / 1210

OBSERVATIONS:
COLOR: clear
ODOR: none
SHEEN: none
OTHER: –

WATER RECOVERY HEIGHT:
WATER LEVEL AT 80% RECOVERY:
SAMPLE COLLECTION TIME: 1210
RECOVERY TIME IN MINUTES:

NOTES:

EQUIPMENT: PERISTALTIC PUMP; NEW DISPOSABLE BAILER; STAINLESS STEEL BAILER; BLADDER PUMP; SUBMERSIBLE PUMP; OTHER

SERIAL NOs: YSI-FA00226 ; EA 2020we - FA00107

Created On: 3/15/2018
Revised On:

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Environmental Services Analysis Request/Chain of Custody

1 of 1

Acct. #: 37191 Group #: Sample #: COC#: 18936

Client: C.T. Male Associates

Project Name/#: SGPP - ~~McCaffrey~~ Bennington

Site ID:

Project Manager: Kirk Moline

P.O. #: ~~14.4750~~ 16.6131

Sampler: CB, RH

Phone #: (518) 786-7400

Quote #: 214135

State where sample(s) were collected: ~~NY~~ VT

Matrix: Sediment [ ], Ground [X], Surface [ ], Soil [ ], Potable [ ], NPDES [ ], Water, Other: Rinse water

Analyses Requested: ~~21 PFAS (EPA 537 mod)~~; PFAS TOP Assay

For Lab Use Only: SF#: 303217; SCR#: 223018

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other	Total # of Containers	~~21 PFAS (EPA 537 mod)~~	PFAS TOP Assay	Remarks
SG3-LTB01-180420	4/20/18	—	X				X	3		X	
SG3-FTB01-180420	↓	1430	X				X	3		X	
SG3-MW02-180420	↓	1210	X			X		4		X	
SG3-MW04-180420	↓	1410	X			X		4		X	
SG3a-MW1802-180420	↓	1240	X			X		4		X	
SG3a-MW1805-180420	↓	1445	X			X		12		X	MS/MSD

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: k.moline@ctmale.com

Relinquished by:	Date	Time	Received by:	Date	Time
Cliff Beal (signature)	4/20/18	1700			

Data Package Options (please check if required)

Type I (Validation/non-CLP) [ ] MA MCP [ ] TX TRRP - 13 [ ]

Type III (Reduced non-CLP) [ ] CT RCP [ ]

Type IV (CLP SOW) [ ] ASP Type A [ ]

Type VI (Raw Data Only) [ ] ASP Type B [X]

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Airbill No.:

Relinquished by Commercial Carrier:

UPS _______ FedEx _______ Other _________

Temperature upon receipt __________ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 4/23/18 Time On-Site: 0900 Time Off-Site: 1545

Project Name: SGPP- Bennington Project No.: 166131

Purpose: Groundwater Sampling / Bulk Sampling Field Report No:

Weather Conditions: Sunny, High 67°F

Present at Site: Cliff Bondi, Jon Dippert

Observations: 0900 Arrived onsite, Equipment calibrated at Latham office prior to departing for site, CB began setting up equipment/paperwork to collect Bulk Samples from wall insulation next to wipe Sampled beams CB used Stainless Steel Spatula w/knife edge for Sample Collection (decon'ed between each sample) Samples Collected @: BL01-A5.0, BL02-A5.0, BL04-A5.0, BL05-A5.0, BL07-A5.0, BL09-A5.0

1100 CB Completed Bulk Sample collection, cleaning up materials and beginning WL checks on interior wells

1130 Interior wells complete, JD arrived onsite and assisted CB in cleaning up and closing buildings, CB + JD discussed Priority of WL readings vs MW-07s Sample → decided Sample more important, CB Packs truck to move and begin purge/Sample of MW-07s

1305 - 1435 MW-07s Purged 3 volumes / low flowed / Sampled

1500 CB Packing up and dumping water into IDW tank

1515 offsite → Back to office to Ship Samples

Items to Verify:

List of Attachments: PFAS Sampling Checklist x1, Cal log x1, Purging/Sampling log x1, COC x1

Field Log Prepared by: Cliff Bondi

Copies to:

PFCs Sampling Checklist

Date: 4/23/18

Weather (*temp./precipitation*): Sunny, High 67°F Site Name: SGH - Bennington

Field Clothing and PPE:

- ☑ No clothing or boots containing Gore-Tex™
- ☑ All safety boots made from polyurethane and PVC
- ☑ No materials containing Tyvek®
- ☑ Field crew has not used fabric softener on clothing
- ☑ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☑ Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- ☑ No Teflon® or LDPE containing materials on-site
- ☑ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☑ No waterproof field books on-site
- ☑ No plastic clipboards, binders, or spiral hard cover notebooks on-site
- ☑ No adhesives (Post-It Notes) on-site
- ☑ Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- ☑ All sample containers made of HDPE or polypropylene
- ☑ Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- ☑ Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- ☑ "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- ☑ Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- ☑ No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Cliff Bondi

Field Lead Signature: Cliff Bondi Time: 0915

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - ~~Liberty St.~~ Bennington

LOCATION: ~~Hoosick Falls, NY~~ Bennington VT

CTM PROJECT NO.: ~~16.6132~~ 16.6131

DATE: 4/23/18

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI FA 02111	0715	pH 4.00 7.00 10.00	4.19/6.87/9.86	Cal	CB
↓	↓	Sp. Cond. 7000 | ORP 234.3	6.926/224.2	↓	↓
YSI FA		pH 4.00 7.00 10.00			
		Sp. Cond. 7000 | ORP			
YSI FA		pH 4.00 7.00 10.00			
		Sp. Cond. 7000 | ORP			
YSI FA		pH 4.00 7.00 10.00			
		Sp. Cond. 7000 | ORP			
Turb. Meter FA 00107	0735	10.00 NTU	9.83	Bump	CB
Turb. Meter FA		10.00 NTU			
Turb. Meter FA		10.00 NTU			
Turb. Meter FA		10.00 NTU			
PID #3 592-910612	1105	100 ppm	100.1 ppm	Cal	CB

WELL LOW-FLOW PURGING LOG

DATE: 4/23/18 PROJECT NAME: SGPP - Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: Bennington VT

SAMPLING PERSONNEL: Cliff Bondi

NOTES TAKEN BY: CB

MONITORING WELL ID#: MW-07S WELL CASING DIAMETER: 2"

DEPTH TO WATER: 13.95 FROM: TPVC

DEPTH TO BOTTOM: 22.54 FROM: TPVC

WATER COLUMN HEIGHT: 8.59

WELL VOLUME: 1.37 GALLONS

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL | 3" = 0.38 GAL

1.25" = 0.064 GAL | 4" = 0.66 GAL

2" = 0.16 GAL | 6" = 1.47 GAL

Field Parameters		Time (minutes)									
Time (minutes)	Intitial	10	20	30	—	Initial	5	10	15	20	25
Water Level	13.95	14.01	14.01	14.01	—	13.94	13.95	13.95	13.95	13.95	13.95
Temperature (C)	9.4	8.8	8.9	9.1	—	10.8	10.4	10.3	10.3	10.5	10.3
DO (mg/L)	0.35	0.26	0.28	0.25	—	2.06	0.40	0.24	0.26	0.24	0.23
Conductivity (uS)	680	673	672	668	—	705	694	688	689	691	689
pH (SU)	6.72	7.00	7.11	7.18	—	7.09	7.10	7.12	7.14	7.13	7.13
ORP (mV)	125.2	77.2	-7.2	-24.8	—	91.2	6.0	-25.1	-38.6	-42.3	-44.0
Turbidity (NTU)	over	632	85.3	33.9	—	107.8	83.1	86.3	67.3	62.9	53.3

Start @ 1305

Stop @ 1335

~4.5 gal purged

3 well vol purge = 4.11 gal

Field Parameters	Time (minutes)										
Time (minutes)	30	35	40	45	50	55	60				
Water Level	13.95	13.95	13.95	13.95							
Temperature (C)	10.2	9.8	10.0	9.9							
DO (mg/L)	0.22	0.21	0.20	0.18							
Conductivity (uS)	687	687	680	684							
pH (SU)	7.14	7.14	7.13	7.14							
ORP (mV)	-47.7	-50.0	-50.5	53.2							
Turbidity (NTU)	42.7	30.4	32.6	30.1							

VOLUMES PURGED: ~2.5 GALLONS AVG PURGE RATE: ~200 mL/min

TIME STARTED: 1350 TIME FINISHED: 1435

OBSERVATIONS: COLOR Clear ODOR none

SHEEN none OTHER —

WATER RECOVERY HEIGHT: 13.94 WATER LEVEL AT 80% RECOVERY: 13.96

SAMPLE COLLECTION TIME: 1435 RECOVERY TIME IN MINUTES: —

NOTES: Sample for: PFAS Top Assay *FD01*

EQUIPMENT: PERISTALTIC PUMP NEW DISPOSABLE BAILER STAINLESS STEEL BAILER

~~BLADDER PUMP~~ SUBMERSIBLE PUMP OTHER

SERIAL NOs: YSI: FA02111, Turb: FA00107

Created On: 3/15/2018

Revised On:

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____ Group # _____ Sample # _____

COC # 545248

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: SGPA Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: CB	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Soil ☒ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☒ NPDES ☐ Surface ☐ | Other: Rinse Water

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	PFAS TAT Assay	14 PFAS (EPA 537 mod.)	Remarks
SG3-LTB01-180423	4/23/18	—			3	X	X	
SG3-FTB01-180423		0930	X		3	X	X	
SG3a-BL01-A5.0		1020	X		1		X	Insulation
SG3a-BL02-A5.0		1025	X		1		X	
SG3a-BL04-A5.0		1030	X		1		X	
SG3a-BL05-A5.0		1035	X		1		X	
SG3a-BL07-A5.0		1040	X		1		X	
SG3a-BL09-A5.0		1045	X		1		X	Insulation
SG3MW07S-180423	↓	1435	X		4	X		
SG3-FD01-180423	4/23/18	—	X		4	X		

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	4/23/18	1645			

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

Appendix B.3

Water Level Measurements

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: ~~3/8~~ 3/11/11 Time On-Site: 915 Time Off-Site: 1305

Project Name: SGPP Bennington Project No.: 16.6131

Purpose: Collect water levels Field Report No:
from monitoring wells

Weather Conditions: Cloudy, light rain

Present at Site: Chris Ormsby

Observations:

915 Arrive on-site and start collecting water levels beginning with MW-03 and MW-03S. Water level meter was deconed between each well.

940 MW-04 and MW-04S

955 MW-01

1005 MW-02

1020 MW-07 and MW-07S

1035 MW-05

1045 MW-06 and MW-06S

1155 Measured water hight at downstream 1" monitoring pipe in Paran Creek. Water is 3.3" from top of pipe to water ~~[illegible]~~ Unable to get to upstream location.

1300 Deposited decon water in appropriate drum at SGPP McCarrery.

1305 off-site

Items to Verify:

List of Attachments: Water Level Record

Field Log Prepared by: [signature]

Copies to:

C.T. MALE ASSOCIATES, P.C.

WATER LEVEL RECORD

Project Name SGPP Bennington | Project Number 16.6131
Location N. Bennington | Measurement Taken By C.O.
Method or Reading | Datum

		Date 3/1/17			Date		
Well No.	Ref. Elev.	Depth To Water Ft	Depth of Well	Water Elevation	Depth To Water	Depth of Well	Water Elevation
MW-01		8.29					
MW-02		8.13					
MW-03		9.23					
MW-03S		9.30					
MW-04		7.62					
MW-04S		7.70					
MW-05		5.91					
MW-06		7.84					
MW-06S		8.23					
MW-07		13.45					
MW-07S		13.27					

Measuring Point(s) Top of PVC

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 5/1/18 Time On-Site: 0930 Time Off-Site: 1130

Project Name: SGPP Bennington Project No.: 16.6131

Purpose: Water Levels Field Report No:

Weather Conditions: Sunny, 70°F

Present at Site: Dan Athy

Observations:

Arrive on site, open all wells to allow them to vent, then begin round of water levels, using decon'ed WL meter, and decon'ing between each use. Cap + close wells after taking reading.

Downstream stream gauge has been damaged, no reading taken.

Upstream stream gauge inaccessible, no reading taken.

Items to Verify:

List of Attachments: WL Record

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

WATER LEVEL RECORD

Project Name SGPP - Bennington | Project Number 16.6131
Location North Bennington, VT | Measurement Taken By CA
Method or Reading | Datum

		Date 5/1/18			Date		
Well No.	Ref. Elev.	Depth To Water	Depth of Well	Time ~~PID~~	Depth To Water	Depth of Well	PID
MW-01		7.86'		1053			
MW-02		7.32'		1050			
MW-03S		8.45		1041			
MW-03		8.94		1040			
MW-04S		7.38'		1033			
MW-04		7.32'		1032			
MW-05		5.73'		1016			
MW-06S		8.16'		1022			
MW-06		7.57'		1023			
MW-07S		12.98'		1012			
MW-07		13.19'		1011			
MW18-01		13.10'		1101			
MW18-02		11.19'		1116			
MW18-03		12.62'		1115			
MW18-04		12.37'		1111			
MW18-05		13.31'		1104			
MW18-06		Dry 12.91		1106			
MW18-07		13.20'		1108			

Measuring Point(s) Top of PVC

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 5/30/18 Time On-Site: ~~8:20~~ 7:45 Time Off-Site: 12:00

Project Name: SGPP – ~~McCaffrey Street~~ Bennington Project No.: ~~14.4756~~ 16.6131

Purpose: Leak detection & GW MW water levels Field Report No:

Weather Conditions: Sunny, clear, ~70°F

Present at Site: Dan King, Jon Dippel

Observations:

7:45 - Onsite @ McCaffrey to pickup waders & equipment for GW gauging.

8:20 - Onsite @ Bennington. Leak detection canceled due to family emergency. Prepping decon water & equipment to collect full round of water levels from MW ~~10/4~~ network.

10:45 - Guaged MW network for DTW. Marked measurement locations for upstream-1 & downstream one and collected water level measurements from new locations.

11:00 - Notified water treatment facility of discharge to sanitary sewer scheduled for next week.

12:00 - Unloaded equipment @ McCaffrey. Offsite.

Items to Verify:

List of Attachments: Water Level Record (1)

Field Log Prepared by: Dan King

Copies to:

C.T. MALE ASSOCIATES, P.C.

WATER LEVEL RECORD

Project Name SGPP- Bennington
Project Number 16131
Location North Bennington, VT
Measurement Taken By JD/DK
Method or Reading
Datum NAVD 88

		Date 5/30/18			Date		
Well No.	Ref. Elev.	Depth To Water	Depth of Well	Water Elevation	Depth To Water	Depth of Well	Water Elevation
MW-01		8.80					
MW-02		8.34					
MW-03S		9.72					
MW-03		9.71					
MW-04S		8.20					
MW-04		8.16					
MW-05		6.61					
MW-06S		8.70					
MW-06		8.58					
MW-07S		14.83					
MW-07		15.01					
MW18-01		13.74					
MW18-02		12.24					
MW18-03		13.30					
MW18-04		13.03					
MW18-05		14.03					
MW18-06		12.91 (dry)					
MW18-07		13.79					
Upstream -1		9.09					
Downstream -1		15.00					

Measuring Point(s) Top of PVC

Appendix B.4

Sewer Inspections and Sampling

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 8/16/16 Time On-Site: 0830 Time Off-Site: 1545

Project Name: SGPA Bennington Project No.: 16.6131

Purpose: Sewage Sampling Field Report No:

Weather Conditions: Cloudy, 80°F

Present at Site: Jonathan Dippert, Chris Ormsby, Town Bennington

Observations:

0830 - on-site @ Sewer Dept, met with John
- reviewed drawing of of manholes
- spoke to K. Molina and reviewed sampling points

0900 - set up to collect upgradient point @ NGPA on Water St
→ collected MS/MSD
- moved to downgradient location of Water St
→ spoke to K. Molina, toss NGPA sample + move further upgradient of whole building. Downgradient on River Rd location is field is okay. Upgradient N. Bennington location is okay near Hannaford.
→ tossed NGPA sample.
- collected NB sample (field duplicate)
- collected N11 sample (upgradient), MS/MSD at this location

1215 - finished with Town's manholes, DPW off-site
- sample manhole on west side of building on sidewalk.
- finish up paperwork, complete equipment blank
- set up for slug tests.
- collect route blanks off slug test equipment, and review slug test procedure + WinSite software.

~~Items to Verify~~: - pack up equipment + samples

1545 - off-site

List of Attachments: Surface Water Log (Manholes)

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

STREAM WATER SAMPLING LOG

DATE: 8/16/16

PROJECT NO: 16.6131

SAMPLING PERSONNEL: Jon Dippert
Chris Ormsby

PROJECT NAME: SGPP- Bennington

PROJECT LOCATION: Bennington, VT

SAMPLING LOCATION: SG3 - DGWATERMH - 160816

SAMPLE COLLECTION TIME: 1010

DEPTH OF STREAM AT SAMPLING POINT: 2"

WIDTH OF STREAM: 1'

STREAM VELOCITY: fast

WATER LEVEL AT MEASURING POINT: 2"

OBSERVATIONS: COLOR cloudy, ODOR organic / sewage
SHEEN none, TURBIDITY 42.3 NTU
OTHER

FIELD PARAMETERS: pH 7.5
TEMPERATURE 23.0 °C
CONDUCTIVITY 552 µS
~~OTHER~~ ORP: 61 mV DO: 1.32 mg/L

NOTES: Downgradient of building manhole. Field Duplicate collected, SG3 - FD01 - 160816.
N8 manhole on sheet 2 of Town Drawings

C.T. MALE ASSOCIATES

STREAM WATER SAMPLING LOG

DATE: 8/16/16

PROJECT NO: 16 6131

SAMPLING PERSONNEL: Jon Dippert

Chris Ormsby

PROJECT NAME: SGPA Bennington

PROJECT LOCATION: Bennington, VT

SAMPLING LOCATION: SG3 - UG WATER MH - 160816

SAMPLE COLLECTION TIME: 1045

DEPTH OF STREAM AT SAMPLING POINT: @ 1" 2"

WIDTH OF STREAM: 12"

STREAM VELOCITY: fast

WATER LEVEL AT MEASURING POINT: @ 1" 2"

OBSERVATIONS: COLOR cloudy, ODOR organic / sewage

SHEEN none, TURBIDITY 65.7 NTU

OTHER

FIELD PARAMETERS: pH 7.4

TEMPERATURE 23.0 °C

CONDUCTIVITY 778 mS

OTHER ORP: 7 mV DO: 0.25 mg/L

NOTES: Upgradient manhole on Water St. NW on Town's drawing, Sheet 2. MS/MSD collected.

C.T. MALE ASSOCIATES

STREAM WATER SAMPLING LOG

DATE: 8/16/16

PROJECT NO: 16.6131

SAMPLING PERSONNEL: Jon Dippert

Chris Ormsby

PROJECT NAME: SGPP- Bennington

PROJECT LOCATION: Bennington, VT

SAMPLING LOCATION: SG3- UGNBENNMH-160816

SAMPLE COLLECTION TIME: 1125

DEPTH OF STREAM AT SAMPLING POINT: 6"

WIDTH OF STREAM: 30"

STREAM VELOCITY: fast

WATER LEVEL AT MEASURING POINT: 6"

OBSERVATIONS: COLOR cloudy, ODOR organic / sewage

SHEEN none, TURBIDITY 36.8 NTU

OTHER

FIELD PARAMETERS: pH 7.3

TEMPERATURE 22.0 °C

CONDUCTIVITY 528 µS

OTHER ORP: 56 mV DO: 1.76 mg/L

NOTES: Upgradient Manhole on North Bennington St, ± 0.1 mi SW West of Hampton Inn.

#38 on Sheet 4 of Town's drawings.

C.T. MALE ASSOCIATES

STREAM WATER SAMPLING LOG

DATE: 8/16/16

PROJECT NO: 16.6131

SAMPLING PERSONNEL: Jon Dippert

Chris Ormsby

PROJECT NAME: SGPP - Bennington

PROJECT LOCATION: Bennington, VT

SAMPLING LOCATION: SG3 - DG RIVER MH - 160816

SAMPLE COLLECTION TIME: 1200

DEPTH OF STREAM AT SAMPLING POINT: 6"

WIDTH OF STREAM: 36"

STREAM VELOCITY: fast

WATER LEVEL AT MEASURING POINT: 6"

OBSERVATIONS: COLOR cloudy, ODOR organic / sewage

SHEEN none, TURBIDITY 30.3 NTU

OTHER

FIELD PARAMETERS: pH 7.4

TEMPERATURE 22.6 °C

CONDUCTIVITY 554 mS

OTHER ORP: 123 mV DO: 1.20 mg/L

NOTES: Downgradient manhole on River Rd in grass/field park area.

2B manhole on Sheet 2 of Town's drawings

C.T. MALE ASSOCIATES

STREAM WATER SAMPLING LOG

DATE: 8/16/16

PROJECT NO: 16.6131

SAMPLING PERSONNEL: Jon Dippert
Chris Ormsby

PROJECT NAME: SGPP-Bennington

PROJECT LOCATION: Bennington, VT

SAMPLING LOCATION: SG3 - BLDG OUTLET - 160816

SAMPLE COLLECTION TIME: 1240

DEPTH OF STREAM AT SAMPLING POINT: 2"

WIDTH OF STREAM: 2' pool in manhole

STREAM VELOCITY: Stagnant

WATER LEVEL AT MEASURING POINT: 2"

OBSERVATIONS: COLOR clear, ODOR organic / sewage
SHEEN none, TURBIDITY 38.1 NTU
OTHER

FIELD PARAMETERS: pH 7.3
TEMPERATURE 21.7 °C
CONDUCTIVITY 239 µS
OTHER ORP: 133 mV DO: 0.63 mg/L

NOTES: Building Outlet Manhole located along Water St in sidewalk.

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 8/17/16 Time On-Site: 0800 Time Off-Site: 1620

Project Name: SGBP - Bennington Project No.: 16.6131

Purpose: Sample Flow Drains Field Report No:

Weather Conditions: Mostly Cloudy, 80°F

Present at Site: Jonathan Dippert, Chris Ormsby, Site management group

Observations:

0800 - on-site, met with Jim Lee (management group)
- walked Chem Fab building owned by Rod Williams
→ notes on drawings.

±0900 - spoke to K. Moline about walk through
→ encountered floor drain in basement, and floor drain in loading dock area. Instructed not to sample anything yet in adjacent property

- took notes and assessed sumps, removed grate if present.

1020 - Decon & rinse blank sample equipment.
→ SG3-RB01-160817 off of spade
SG3-RB02-160817 off of nitrite glove
SG3-RB03-160817 off of ziplock bag

1040 - start sampling.
Use following procedure: use hand spade to loosen sediment, homogenize sediment in sump using hand spade, then using hand spade transfer sediment to laboratory supplied container. Using hand spade, collect sediment into ziplock bag for headspace analysis. For MS/MSD and field duplicate, homogenize sample and transfer evenly across the lab supplied containers. in ziplock bag

Items to Verify:

List of Attachments: Sump Info, Sediment Sampling Log, Maps of Sumps and North End of Building, COCs

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Date 8/17/16

Environmental Services Field Log
(continued)

Project Name: SGP- Bennington Project No.: 16.6131

Observations: Procedure (cont'd) - Decon hand spade between each location and before and after work. New nitrile gloves worn for each location. For sediment in manhole, taped hand spade to broom stick as extension to lower ~~spt~~ spade in manhole without breaking the plane / entering. The sediment transfered to ziplock bag from spade to be homogenized, then placed in lab supplied containers.
All manholes and grates closed / recovered when done.

1245 - completed sediment sampling
⇒ collected equipment blank off hand spade with lab supplied DI water and easy through sampling SG3-EB01-160817
⇒ collected field duplicate @ Sump-03 SG3-FD01-160817
⇒ collected MS/MSD @ Sump-02

- go purchase ice for samples

1330 - set up and start slug tests
⇒ completed MW03 well cluster

1530 - investigate sump / floor drain in basement for more information.
- dispose decon water in drums on-site

1620 - off-site

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

JOB 16.6131
SHEET NO. 1 OF 1
CALCULATED BY: _____ DATE: 8/17/16
CHECKED BY: _____ DATE: _____
SCALE _____

Sumps

#1 - ~~45" h x~~ 20" l x 4.75" diameter pipe in sump
- 13.25" h x 24" l x 34.5" w
- ±3" of sediment in bottom, sediment is compact
- pipe in center sticks up 7.5" above bottom of sump
- 3 2"-pipes draining into it from across building and 1 2" pipe from sink adjacent to sump
- in main manufacturing floor

#2 - has sump pump (1.5" pipe) with float ball
- 1.5" of sediment,
- 36" x 36" x 20" h
- 1" pipe draining into it. Following 1" pipe, turns into 2" at wall, runs across ceiling to North into Belt Room
- in Formulation Room on east side room

#3 - has sump pump (1" copper before pump, 2in" PVC after pump)
- 25.5" x 30.5" x 19.5" h
- 3.5" of sediment
- located in NE corner of room North of Formulation Room.
- 1.5" PVC runs up wall through adjacent room to east along ceiling, T's into 2.5" copper pipe that runs North along wall, wraps around I beam, turns west at corner of wall, at 27" ± pipe runs down wall and appears to discharge into steel tub underneath sink

Basement Sump
- ±1' diameter floor drain, ±1.5' deep to top of sediment
- sump is ± 2' x 2' x 18" h, with ±6" and 4" pipe at bottom with bell shape opening. pipes running ~ North / South. ±1.5" of sediment in sump
- sediment in floor is greater than 6" deep.

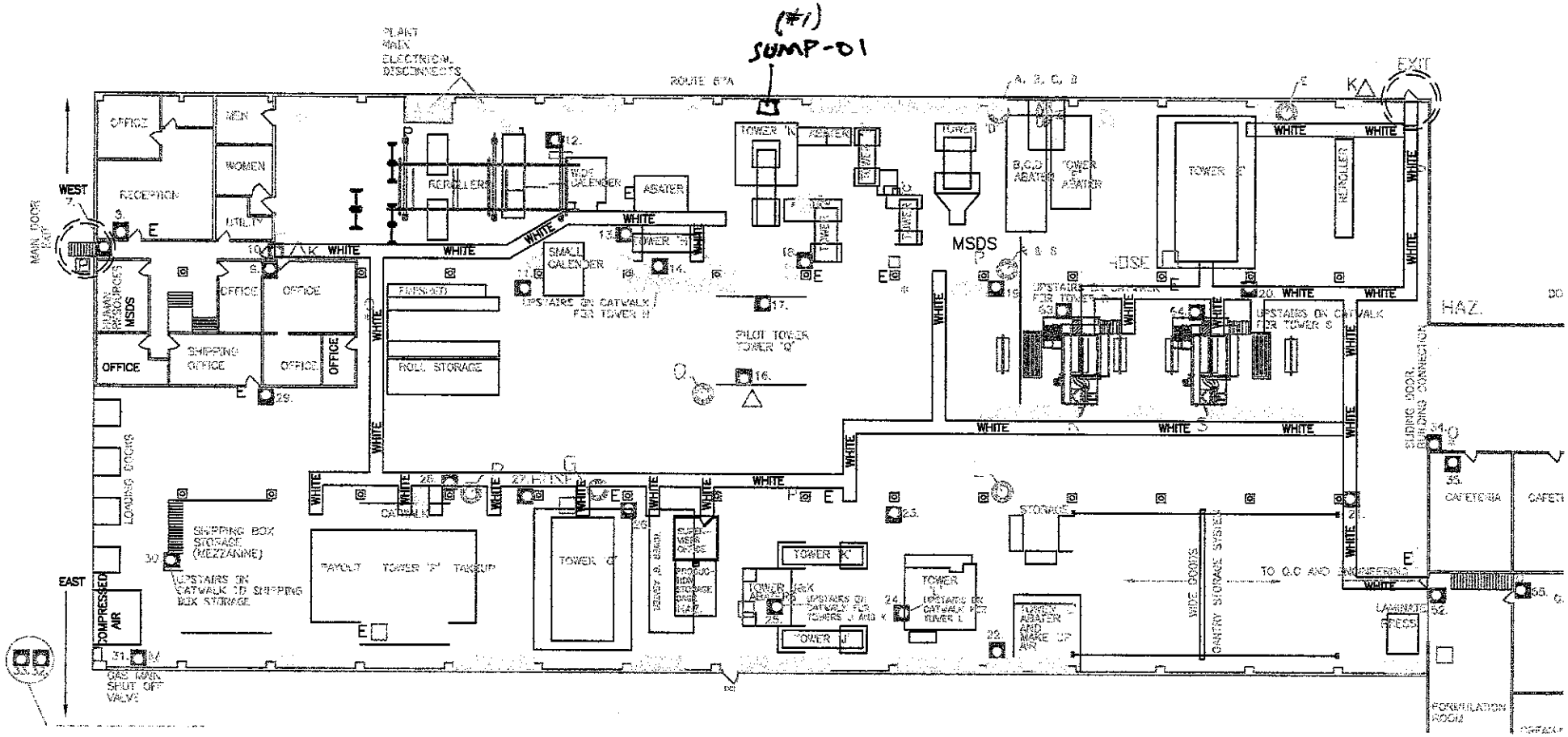
SURFACE SOIL SAMPLING LOG

PROJECT: SGPP- Bennington		PROJECT #: 16.6131	PAGE 1 OF 1
CLIENT: SGPP			DATE COLLECTED: 8/17/16
LOCATION: Bennington, VT			
INSTRUMENT USED: Mini Rae 3000	LAMP 10.6 eV		DATE ANALYZED: 8/17/16
DATE INSTRUMENT CALIBRATED: 8/17/16	BY: JD		
TEMPERATURE OF SOIL:			ANALYST:

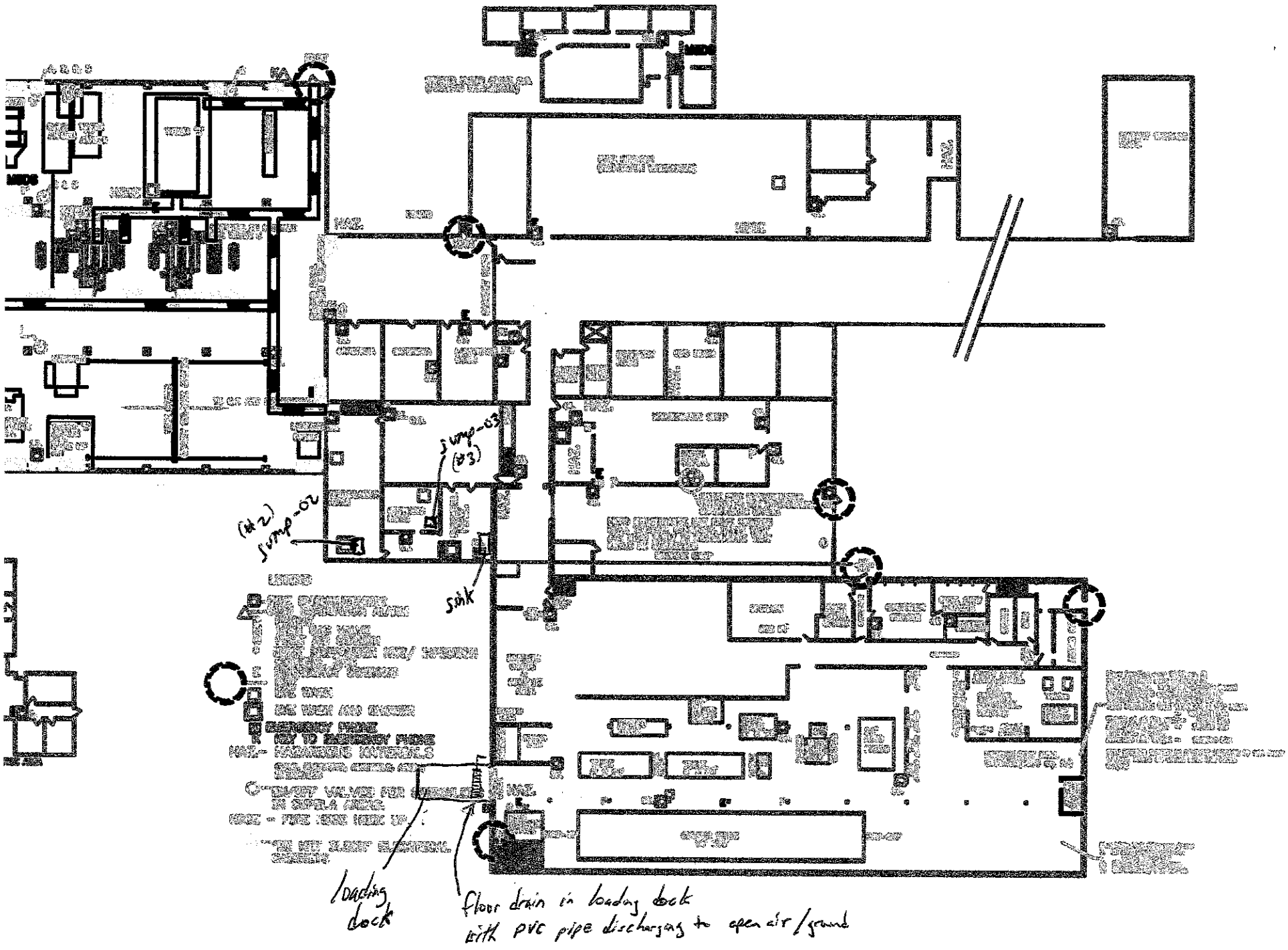
SAMPLE IDENTIFICATION	DEPTH (in.)***	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SUMP-01	0-3"	9.8	0.0	Sump located in main manufacturing area. Tan dry clay/powder, trace of gravel
SUMP-02 (MS/MSD)	0-1.5"	0.1	0.0	Sump located in Formulation Room. Thin powdery tan layer on top of very fine grained, very compact greenish gray layer.
SUMP-03 (FD)	0-3.5"	0.7	0.0	Sump located in room (unknown) next to Formulation Room. Gray and Green, rubbery clay like. little to some Reddish Brown, White, and yellow. White particles are ash-like
BLDG OUTLET	0-6"	4.8	0.0	Light Gray and White, silty clay size particles, trace red color, trace hair, Industrial odor.

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
***in. represents inches below vegetative cover.

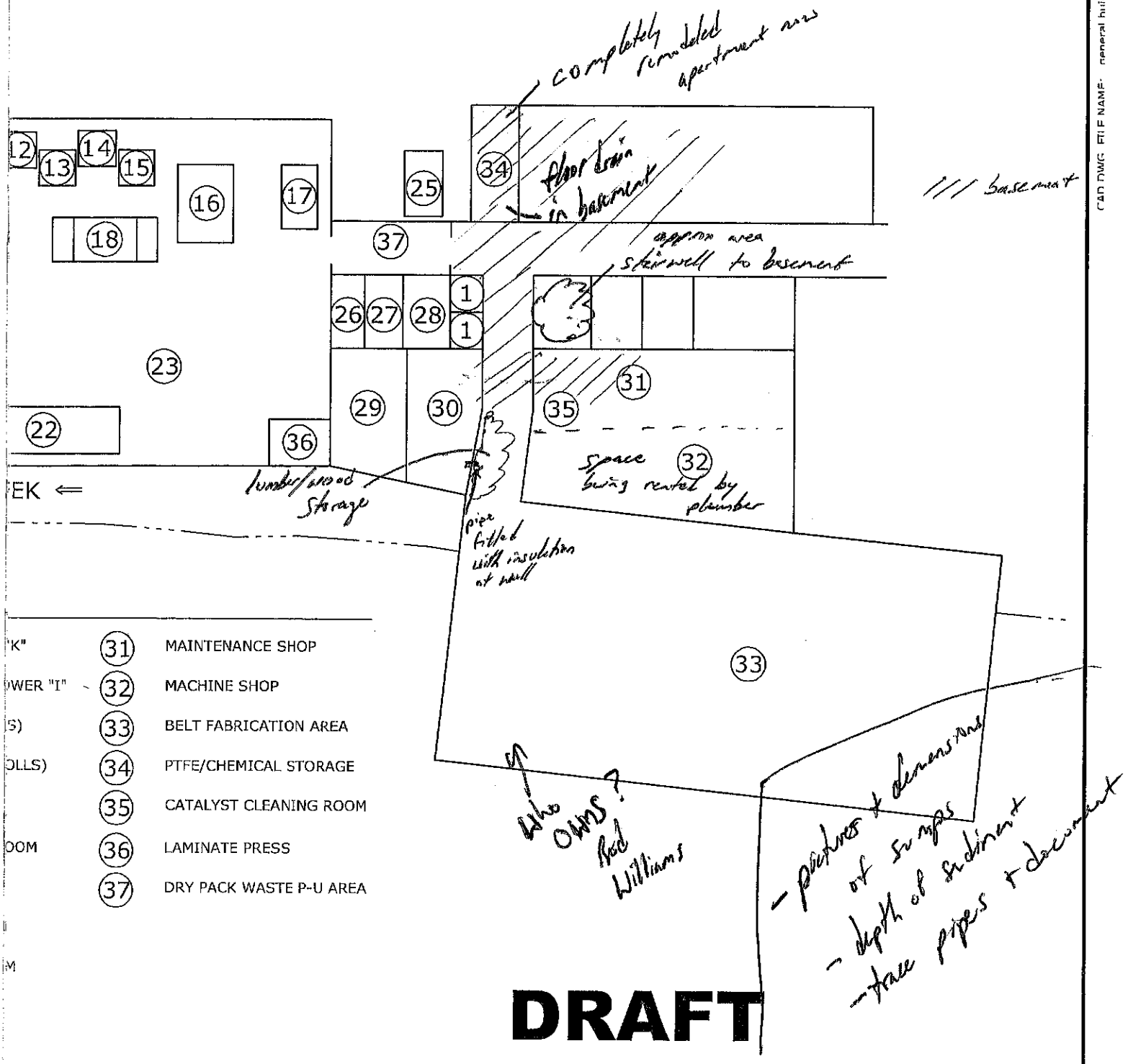
8/17/16


(#1)
SUMP-01
PLANT MAIN ELECTRICAL DISCONNECTS
ROUTE 67A
EXIT
OFFICE
MEN
WOMEN
RECEPTION
UTILITY
WEST
MAIN DOOR EXIT
RECEIVING
OFFICE
OFFICE
OFFICE
SHIPPING OFFICE
OFFICE
OFFICE
HUMAN RESOURCES
MSDS
RECOILER
WIDE CALENDER
ASHTER
SMALL CALENDER
UPSTAIRS ON CATWALK FOR TOWER 'H'
TOWER 'H'
TOWER 'K'
ASHTER
TOWER 'J'
ASHTER
B.C.D. HEATER
TOWER 'F' ASHTER
TOWER 'E'
RECOILER
MSDS
HOSE
FINISHED ROLL STORAGE
PILOT TOWER TOWER 'G'
UPSTAIRS ON CATWALK FOR TOWER 'E'
UPSTAIRS ON CATWALK FOR TOWER 'B'
WHITE
LOADING DOCKS
SHIPPING BOX STORAGE (MEZZANINE)
UPSTAIRS ON CATWALK TO SHIPPING BOX STORAGE
EAST
COMPRESSED AIR
GAS MAIN SHUT OFF VALVE
CATWALK
PAYOUT TOWER 'F' TAKEUP
TOWER 'G'
TOWER 'K'
TOWER 'J'
TOWER 'L'
UPSTAIRS ON CATWALK FOR TOWERS J AND K
UPSTAIRS ON CATWALK FOR TOWER L
TURBINE ASHTER AND MAKE UP AIR
STORAGE
GANTRY STORAGE SYSTEM
WIDE DOORS
TO Q.C AND ENGINEERING
LAMINATE PRESS
SLIDING DOOR, BUILDING CONNECTION
HAZ.
CAFETERIA
FORMULATION ROOM

8/17/16


sump-03 (#3)
(#2) sump-02
sink
loading dock
floor drain in loading dock with pvc pipe discharging to open air/ground

PROJECT NUMBER: 16.6131



'K"	31	MAINTENANCE SHOP
WER "I"	32	MACHINE SHOP
S)	33	BELT FABRICATION AREA
OLLS)	34	PTFE/CHEMICAL STORAGE
	35	CATALYST CLEANING ROOM
OOM	36	LAMINATE PRESS
	37	DRY PACK WASTE P-U AREA

M

DRAFT

GENERAL BUILDING LAYOUT
FORMER CHEM FAB

1030 WATER STREET

TOWN OF BENNINGTON — BENNINGTON COUNTY, VERMONT

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C.T. MALE ASSOCIATES

ESIGNED : K.MOLINE
RAFTED : S.WUNSCH
HECKED : K.MOLINE
ROJ. NO : 16.6131
CALE : NONE
ATE : MAY 3, 2016

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299

SHEET 1 OF 1
DWG. NO: 16-409

CAD DWG FILE NAME: general building l

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

JOB 16.6131
SHEET NO. 1 OF 1
CALCULATED BY: _____ DATE: 8/16/16
CHECKED BY: _____ DATE: _____
SCALE _____

Rinse Blanks (Hydraulic Conductivity)

Sample ID	ITEM	Time
SG3-RB01-160816	Pressure Transducer SN: 358925	1500
SG3-RB02-160816	Pressure Transducer SN: 358645	1505
SG3-RB03-160816	water level meter	1510
SG3-RB04-160816	rope	1515
SG3-RB05-160816	1' slug	1520
SG3-RB06-160816	3' slug	1525

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #:

COC#: 15173

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Jon Dipper / Chris Ormsby	
Phone #: 518-786-7400	Quote #: 214135
State where sample(s) were collected: VT	

For Lab Use Only

SF#: 271284

SCR#: 192912

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Sediment	Water	Ground	Potable	Surface	Other: Wash Water	Total # of Containers	Analyses Requested: PFCs (EPA 537 mod.)	Remarks
SG3-LTB01-160816	8/16/16	—					X					1	X	
SG3-FTB01-160816		1015					X						X	
SG3-FD01-160816		—	X								X		X	
SG3-DGWATERMH-160816		1010	X								X		X	
SG3-UGWATERMH-160816		1045	X								X	3	X	MS/MSD
SG3-UGNBENNMH-160816		1125	X								X	1	X	
SG3-DGRIVERMH-160816		1200	X								X	1	X	
SG3-BLDGOUTLET-160816	8/16/16	1240	X								X	1	X	
SG3-EB01-160816	8/16/16	1255	X				X					1	X	
SG3-RB01-160816	8/16/16	1500	X				X					1	X	

Preservation Codes

H = HCl T = Thiosulfate

N = HNO_3 B = NaOH

S = H_2SO_4 P = H_3PO_4

O = Other

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K Moline @ ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) [✓] MA MCP [ ] TX TRRP - 13 [ ]

Type III (Reduced non-CLP) [ ] CT RCP [ ]

Type IV (CLP SOW) [ ] ASP Type A [ ]

Type VI (Raw Data Only) [ ] ASP Type B [ ]

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

	Relinquished by:	Date	Time	Received by:	Date	Time
1		8/17/16	1730			
2						
3						
4						
5						

Airbill No.:

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

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Environmental Services Analysis Request/Chain of Custody

Page 2 of 3

Acct. #: 37191 Group #: Sample #:

COC#: 15175

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Jon Dippert / Chris Ormsby	
Phone #: 518-786-7400	Quote #: 214135
State where sample(s) were collected: VT	

Matrix: Sediment ☒ Soil ☐; Water: Ground ☐ Surface ☐ Potable ☐ NPDES ☐; Other: Blank Water

Analyses Requested / Preservation Codes

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other: Blank Water	Total # of Containers	PFCs (EPA 537 mod.)	Moisture	Remarks
SG3-RB02-160816	8/16/16	1505	X				X	1	X		
SG3-RB03-160816	↓	1510	X				X	1	X		
SG3-RB04-160816	↓	1515	X				X	1	X		
SG3-RB05-160816	↓	1520	X				X	1	X		
SG3-RB06-160816	8/16/16	1525	X				X	1	X		
SG3-RB01-160817	8/17/17	1025	X				X	1	X		
SG3-RB02-160817	↓	1030	X				X	1	X		
SG3-RB03-160817	↓	1035	X				X	1	X		
SG3-SUMP01-160817	↓	1045	X		X		~~X~~	~~1~~ 2	X	X	
SG3-SUMP02-160817	8/17/17	1110	X		X		~~X~~	~~3~~ 4	X	X	MS/MSD

For Lab Use Only

SF#: 271284

SCR#: 192914

Preservation Codes

H = HCl | T = Thiosulfate
N = HNO_3 | B = NaOH
S = H_2SO_4 | P = H_3PO_4
O = Other

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☑	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☐		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	8/17/16	1730			

Airbill No.:

Relinquished by Commercial Carrier:

UPS ______ FedEx ______ Other ______

Temperature upon receipt ______ °C

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Environmental Services Analysis Request/Chain of Custody

Page 3 of 3

Acct. #: 37191 Group #: Sample #:

COC#: 15174

For Lab Use Only
SF#: 271284
SCR#: 192913

Client: **C.T. Male Associates**

Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Jon Dyment / Chris Ormsby	
Phone #: 518-786-7400	Quote #: 214135
State where sample(s) were collected: VT	

Matrix: Sediment ☒ Soil ☐; Water: Ground ☐ Surface ☐ Potable ☐ NPDES ☐; Other: Blank Water

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other: Blank Water	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	Remarks
SG3-EB01-160817	8/17/16	1115	X				X	1		X	
SG3-SUMP03-160817	↓		X		X			2	X	X	
SG3-FD01-160817	↓	—	X		X			2	X	X	
SG3-BLDGOUTLET-160817	8/17/16	1225	X		X			2	X	X	

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results: K. Moline @ ctmale.com

Data Package Options (please check if required)
Type I (Validation/non-CLP) ☑ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☐
EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	8/17/16	1730			

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ______ Other ______

Temperature upon receipt ______ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 12/6/17 Time On-Site: 0820 Time Off-Site: 1630

Project Name: SCAP- Bennington Project No.: 16.6131

Purpose: Video Inspection of Piping Field Report No:

Weather Conditions: Partly Sunny, 35°F

Present at Site: Jonathan Dippert, NYLD (Steve K.)

Observations:

0820 - on-site, review plan of piping to be videoed

0840 - NYLD on-site, review building layout and plan for day

- made decision to start inside warehouse

0900 - Start investigation

- floor drain in south of warehouse has basket to catch debris. Basket is welded to frame. Will speak to K Moline about breaking to get access. (see sketch)
- sump along west wall of building has trap underneath. Checked access through manhole and will have to access from manhole. (see sketch)
- check sewer cleanouts for access. Best to record from manhole in northern property and all on one video.
- cleanout in NE corner of building (VIDEO 1). Goes to daylight and also leads back into building. Will attempt to trace from outside.
- Use locator rod to trace pipe back into building since pipe daylights over creek (photo). May attempt rigging piping across creek as camera cannot make bend back into building. Tried to go out through vent (remarked to create window), able to connect to pipe + insert camera but force of pushing camera knocked pipe loose.
- move outside to catch basin in parking lot on south end of facility
  - → locate + video
  - → VIDEO-2 - first 66' of storm water line

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Date 12/6/17

Environmental Services Field Log
(continued)

Project Name: SGH- Bennington Project No.: 16.6131

Observations:

→ located next catch basin (round). Video from CBR to Paran Creek (VIDEO-3). Took photos of outlet condition.

- spoke to Kirk Malone + described floor drain in manufacturing area, basket type sump is opening; gave permission to break to expose pipe / bottom of drain.
  - → broke welds on floor drain basket. Basket had slots on sides (covered up with debris). PVC draining into floor drain originates at boiler (inside plywood sump-out).
  - → 3" pipe at bottom, 90° bend at 23", after bend, not able to advance either camera or locator past bend (either a trap or blocked).

- move to manhole on west side of facility to video pipe from sump
  - → VIDEO-4
- move to catchbasin in/by north-end loading dock
  - → VIDEO-5
  - → debris blocking pipe to be able to break catch basin

- move to sewer line from building to North
  - → VIDEO-6
  - → reached ±70', black sludge preventing viewing. Will access from cleanout
- site walk through in basement
  - → VIDEO-7: discovered 4" pipe possibly connects to cleanout in lab area. Through video + locating overhead, determined pipe discharging out the side of facility is roof drain.

1630 - pack up + off-site

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 12/7/17 Time On-Site: 0810 Time Off-Site: 1630
Project Name: SGPP-Bennington Project No.: 16.6131
Purpose: Video Inspection - Piping Field Report No:

Weather Conditions: Cloudy, 35°F
Present at Site: Jonathan Dippert, NYLD (Steve K.)
Observations:

0810 - on-site, NYLD set up in basement
- NYLD arrived on-site little early + got started
- in Sump area in basement
  -> videoed large diameter pipe to N. West ±45' & encountered "T" - VIDEO-8
  -> video inspected small diameter pipe. Not able to get N. West South ±70' to point where pipe is filled with sediment and camera cannot advance
  -> video inspected large diameter pipe to South. Advanced ±160' into river/creek. VIDEO-10
    - pipe is damaged ±130'
    - @ ±73' small diameter (?) connects to it

- tracing floor drain in basement further N of sump in storage areas
  - only 1 line (2 drawn on floor), roof drains drain into pipe, @ ±74' discharges into larger diameter. In video, pipe also discharging on other side of "T" but unknown origins (tried to insert other tracing rod in pipes in sump with no success). Larger diameter is full of water.
  - VIDEO-11
- move to small E rooms with floor drains in center along E wall.

Items to Verify:

List of Attachments:
Field Log Prepared by:
Copies to:

C.T. MALE ASSOCIATES

Date 12/7/17

Environmental Services Field Log
(continued)

Project Name: SGPP Bennington Project No.: 16.6137

Observations:

→ VIDEO-12 : floor drain drops into larger pipe. Able to get camera to angle N. and video end of pipe, attempted to go South & got muck in camera. Pulled out & moved on.

→ VIDEO-13 : floor drain drops into larger pipe. Able to get camera to angle South. Advanced ±45' total.

→ VIDEO-14 & 15 : floor drains in basement
14 : ±50'
15 : ±14', dropped into pipe & covered lens with muck

- at sanitary manhole outside facility on East side.
→ VIDEO-16 : went reverse up sanitary under warehouse. Advanced camera ±108' up sanitary line. Turns 90° to N. Able to view camera light through cleanout in warehouse. Unable to go to next cleanout because cannot open (square-tool needed "□"). SD ~~and pipe~~

- second SMH, VIDEO-17. Blocked/Plugged at ±70'.

- pack up, close warehouse.

1630 - off-site.

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

JOB SGPP-Bennington
SHEET NO. Joe Dippert OF
CALCULATED BY: ~~Ryan Hubbard~~ DATE: ~~1/16/17~~ 60
CHECKED BY: DATE: 10/12/17
SCALE Not to Scale ✓

Figure A

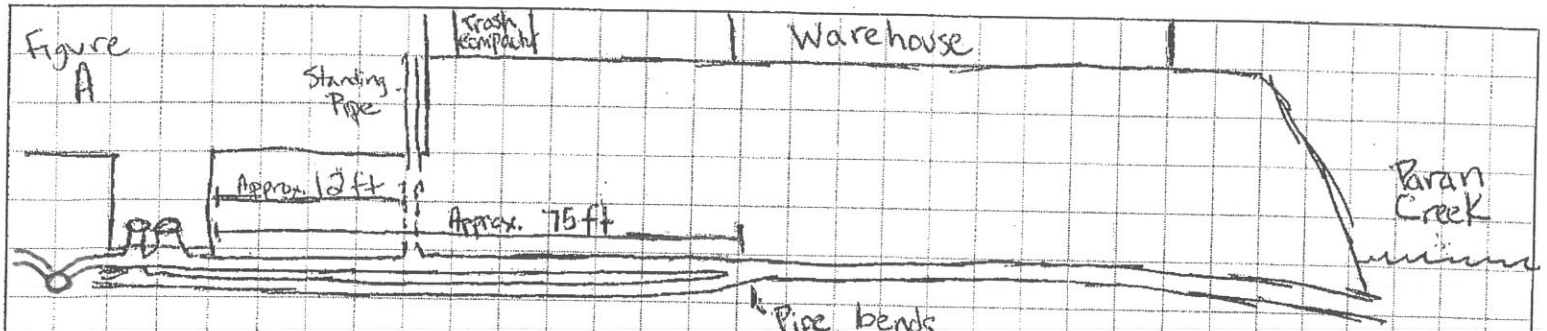
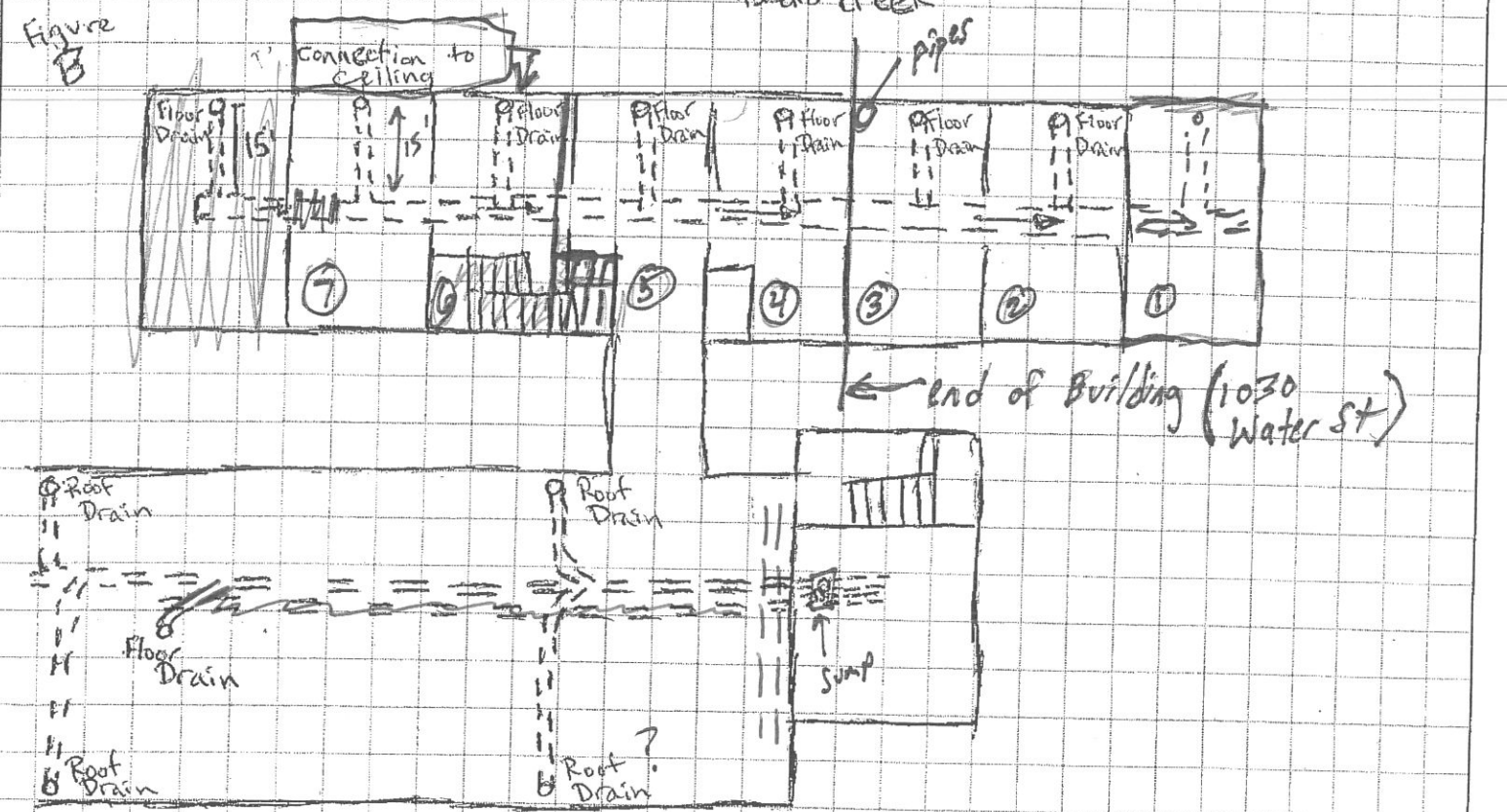


Figure B



XREFS: NONE

PROJECT NUMBER: 16.6131

NYLD VIDEO UTILITY DEC 6-7

DETAIL "A"
SCALE: 1"=40'

CBS
UMH
MW-02
SUMP
1.5" STEEL
VIDEO-4

UP VZ 151S
WV
8"PVC
SMH
MW-05
BLACKTOP
UP 40T 86 151
UP 152 7 50T
15"CMP
WSO
ST
CBS
PIV
BOL
FGPL
CBR
MW-04
MW-04S
VIDEO-2
MW-06
MW-06S
UP 82 140T
UP 1AA
VIDEO-3
MW-03
MW-03S
GMTR
ROW OF FUEL TANKS
2' WIDE HEADWALL
BRIDGE
RETAINING WALL
IPF
CHAIN LINK FENCE
1" MONITORING PIPE
2' WIDE HEADWALL
UP 82
SMH
8"VCP
IPF
SCAREY LANE a/k/a PARAN LANE
PARAN CREEK

WATER STREET
UP 153 88
12"CMP
VIDEO-16
VIDEO-17
VIDEO-5
RIV
SMH
HYD
2' WIDE SWALE
SEE DETAIL "A"
1.5" STEEL
ONE STORY BUILDING
MW-01
VIDEO-9
FLOOR DRAIN
SUMP
VIDEO-8
VIDEO-11 (backwards)
FLOOR DRAIN
VIDEO-12
VIDEO-13
NO ACCESS
4" PIPE
FLOOR DRAIN
±70'
VIDEO-10
Small camera light is clear out
1" COPPER
1.25" PVC
1.25" COPPER
TUB
SUMP
SEE DETAIL "B"
VIDEO-10A
RETAINING WALL
1.75" COPPER
VIDEO-1 & 7
pipe separated at inlet, too small for camera.
VIDEO 14
1" MONITORING PIPE

DETAIL "B"
SCALE: 1"=40'
1.25" PVC
1.25" COPPER
TUB
SUMP
SUMP
1.75" COPPER

CAD DWG. FILE NAME: K:\Projects\16613 1\Env\Drawings-Maps\exhibit-bennington.dwg

CAD DWG. FILE NAME: exhibit-bennington

DATE	REVISIONS RECORD/DESCRIPTION	DRAFTED	CHECK	APPR.
	1			
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	9			

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DESIGNED : J.DIPPERT
DRAFTED : S.WUNSCH
CHECKED : J.DIPPERT
PROJ. NO : 16.6131
SCALE : 1"=60'
DATE : JAN. 27, 2016

SHEET TITLE TOP
SHEET TITLE BOTTOM

1030 WATER STREET

TOWN OF BENNINGTON — BENNINGTON COUNTY, VERMONT

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299

SHEET 1 OF 1
DWG. NO: 14-____

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 2/27/18 Time On-Site: 0815 Time Off-Site: 1800

Project Name: SGPP - ~~McCaffrey Street~~ N. Bennington Project No.: ~~14.4756~~ 16.6131

Purpose: Video Inspection + Cleaning Field Report No:

Weather Conditions: Sunny, 45°F

Present at Site: J. Dippert, Clean Harbors (~~Todd~~ Pat Dugan, ~~Austin~~ Oscar Straw)

Observations: Eco-Clean (Greg Gowa, Matthew)

0815 - on-site, get prepped for work

0820 - Clean Harbors on-site, spoke to K Moline, Dan R + Scott (CH) will work on contract today but won't hold up work.

0830 - Baker Corp dropped off frac tank
→ inspected → clean; CH signed off on delivery

- checked access to manhole in carpentry shop → locked
→ Rod is in Africa; contacted woman named Dawn who unlocked door

0910 - Eco-Clean on-site
→ quick site walk
→ EC will start @ catch basins (waiting for Bennington to open manholes covers) + will work his way up the line

- second vac truck on-site

0930 - ECO-Clean second truck with jet on-site

0935 - Bennington Sewer on-site (Ron Bull); gave blessing to open + close manhole covers as needed.

0950 - start inspection

1215 - video up sewer line, have Clean Harbors go to next manhole + vac some of the flow (too much to head into)
→ looking for line coming out of facility
→ did not see pipe/inlet where assumed would be

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Date 2/27/18 Page 2 of 3

Environmental Services Field Log
(continued)

Project Name: SGPP ~~- McCaffery Street~~ N. Bennington Project No.: ~~14.4756~~ 16-6131

Observations:

→ inlet @ ~~±150~~ from ±175' from manhole (±150 in video)

1300 – set up to get sanitary line going into building
→ preliminary video, made it 5' into pipe

– 3 phases of jetting
→ remove obstruction
→ use head that spins
→ flush
– cleaned ±200' into pipe (NYLS video to elbow was ±115')
– CH capturing ~100% of liquids generated during cleaning

1420 – pipe needs further cleaning, video revealed pieces of concrete (poss. b/o) in bottom of pipe → ~~from~~ determined pieces were ~~cut~~ cemented/calcified gray grit, trace pink/purple/blue coloring
→ ask K. Molina if wanted to sample for PFAS, said to hold in bag. Stored in office at warehouse.
→ E.C. said pipe ~~has~~ is encrusted with that material all along bottom 20-30%
– E.C. needs more water → frac tanks are frozen solid
– J.D. @ HWTP to ask for source of water
→ Run + Gail arranged for N. Bennington Fire Dept. (2" hose)
→ water is spring sourced from Shaftsbury Water Dept.
– fill tank + jet line again.
– E.C. video'ed from manhole, determined (per K. Molina) pipe needs cleaning.
– E.C. video'ed again from manhole going into building → good information
→ see video + report

* 1500 – E.C. video'ed lines in basement in sump. Concluded that both lines have a trap, not an unknown pipe.

C.T. MALE ASSOCIATES

Date 2/27/18 Page 3 of 3

Environmental Services Field Log
(continued)

Project Name: SGPP – ~~McCaffery Street~~ Project No.: ~~14.4756~~ 16.6.31

Observations:

- Clean Harbors unload material into frac tank & breakdown for day on both trucks
- Eco-Clean topped off water tank @ fire station
- Smith Well Drilling on-site for residential supply work
  - → coordinated with Smith to have ECO-Clean stage their trailer in Smith shop overnight
  - → Smith can supply water truck to us for Eco-Clean (E.C. has to wind up hose each time getting water).
    - ⇒ approved w/ Kirk Malone after hours
- close buildings & manhole covers

1800 – off-site

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 2/28/18 Time On-Site: 0710 Time Off-Site: 1630

Project Name: SGPP – ~~McCaffrey Street~~ N. Bennington Project No.: ~~14.4756~~ 16.6131

Purpose: Video Inspection + Cleaning Field Report No:

Weather Conditions: Sunny, 45°F

Present at Site: J. Dippert, Clean Harbors (Pat, Oscar), Eco-Clean (Greg G., Matthew), Smith Well Drilling (Jeff S., Ernie G)

Observations:

0710 - on-site
- CH on-site
- E-C on-site
- open up building, will start jetting from clean outs in warehouse + working way up pipe.

0745 - set up + start
→ sanitary line going into warehouse is main focus today + last remaining item in scope of work.

0945 - Smith Well Drilling on-site
→ drove Jeff + Ernie up to firehouse; E.C. was getting load of water; reviewed plan w/ Smith Well Drilling.

1000 - back @ site continue cleaning + video.
- cleaned / ~~jetted~~ jetted 8" sanitary sewer line.
- for final video, had Clean Harbors have a vac-truck on both ends of line to remove as much liquids as possible

±1530 - CH off load + clean-out vac-trucks into frac-tank
→ ±15,100 gal liquid in frac tank, ±6" sediment but could increase as settles.
→ C.H off-site
- received videos from E.C.

~~Items to Verify:~~

1630 - off-site

List of Attachments: site sketch

Field Log Prepared by:

Copies to:

XREFS: NONE

PROJECT NUMBER: 16.6131

Needs to be Cleaned and Videoed

Does Not Need to be Cleaned - Has Been Videoed

Needs To Be Videoed and possibly cleaned

DETAIL "A"
SCALE: 1"=40'

SG3a-SB18-02

WATER STREET

PARAN CREEK

12"

15"

4"

8"

Connection?

Unknown Pipe

crushed

SEE DETAIL "A"

SEE DETAIL "B"

CHEMICAL STORAGE AREA (BASEMENT)

APPROXIMATE BUILDING LEASE LINE

APPROXIMATE LIMITS OF BASEMENT AREA

NO ACCESS 4" PIPE

FABRICATION AREA

OFFICE AREA 2-FLOORS

ONE STORY BUILDING

ROW OF FUEL TANKS

RETAINING WALL

CHAIN LINK FENCE

2' WIDE HEADWALL

2' WIDE SWALE

1" STREAM GAUGE

BLACKTOP

BRIDGE

DETAIL "B"
SCALE: 1"=40'

Privileged and Confidential

LEGEND

BOL	Bollard	MW	Monitoring Well
CBR	Catch Basin Round	PIV	Post Indicator Valve
CBS	Catch Basin Square	SMH	Sanitary Manhole
FGPL	Flag Pole	UMH	Unknown Manhole
GMTR	Gas Meter	UP	Utility Pole
GP	Gate Post	WSO	Water Shut Off
HYD	Hydrant	WV	Water Valve
IPF	Iron Pipe Found	→	Water Flow Direction

Building Wipe and Material Sampling Summary

A - CONCRETE WALL WIPE SAMPLE (1), I-BEAM WIPE SAMPLES (3), WALL INSULATION SAMPLE (1)
B - I-BEAM WIPE SAMPLES (3), CEILING INSULATION SAMPLE (1)
C - BULK SAMPLE FROM FLOOR (1; WHERE RESIDUE IS PRESENT)
D - WALL AND FLOOR WIPE SAMPLES FROM FIRST AND SECOND FLOOR
E - FLOOR WIPE SAMPLE (1)
F - WALL WIPE SAMPLE (1)

Sewer and Stormwater Catch Basin Sludge Samples

Geoprobe Boring Monitoring Well Location

PROGRESS PRINT

DATE	REVISIONS RECORD/DESCRIPTION	DRAFTED	CHECK	APPR.
	1			
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DESIGNED : J.DIPPERT
DRAFTED : S.WUNSCH
CHECKED : J.DIPPERT
PROJ. NO : 16.6131
SCALE : 1"=60'
DATE : NOV. 15, 2017

FIGURE 1
SUPPLEMENTAL SITE INVESTIGATION WORK PLAN

1030 WATER STREET

TOWN OF BENNINGTON — BENNINGTON COUNTY, VERMONT

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299

SHEET 1 OF 1
DWG. NO: 17-XXX

CAD DWG. FILE NAME: K:\Projects\166131\Env\Drawings-Maps\figure 1 - sup charc work plan.dwg

CleanHarbors ENVIRONMENTAL SERVICES®

Site Services Multi-Task Worksheet

1188669

Day & Date: Wednesday Feb 28, 2018

Sales Order #:

Job Complete: Yes / No (Circle One)

Job Description/Comments: Day(2) Continue Providing VAC TRUCK ASSISTANCE for Pumping While Jetting Lines as directed by ECO, off Load Waters Sediment to STAGED FRAC TANK, For disposal later

Customer: C.T. male ASSOCIATES,

Billing Address: 50 CENTURY HILL DRIVE

LATHAM NY 12110

Contact: Jon Dilbert

Job Location: 1030 water Street

N. Bennington VT

PO # / COD Amount

Per Diem: Yes / No (Circle One) If yes, how many?

Change Order Initiated: Yes / No (Circle One)

Component Type	Task # / Description: 1			Task # / Description			Task # / Description		
	Task Complete: Yes / No (Circle One)			Task Complete: Yes / No (Circle One)			Task Complete: Yes / No (Circle One)		
Labor									
Name / Title / ID #	ST	OT	DT	ST	OT	DT	ST	OT	DT
Pat DUGAN E/O 9847	8								
Oscar STRAW E/O 098629	8								
onsite STAGED FRAC TANK.	15,000 Gallons Water & Sediment								
Disposal / Write Description/Destination	Manifest #		Amount	Manifest #		Amount	Manifest #		Amount
LIQUID: Bulk / Drum									
SOLID: Bulk / Drum									
Equipment Type	Quantity	Fleet #	# of Hr/Day	Quantity	Fleet #	# of Hr/Day	Quantity	Fleet #	# of Hr/Day
Pickup / Van / Car / Crew Cab (Circle One)									
Vacuum Trailer									
Tractor									
Vacuum Truck, Straight									
Box Truck									
Cusco / Guzzler / Vactor (Circle One) PressVAC	1	498/40073							
Air Compressor, 175 CFM									
Backhoe Loader, 1 Yd bucket									
Bobcat Loader - Mini Excavator									
Rack Truck									
Rolloff Truck, Straight									
Pressure Washer (PSI:) Hot / Cold (Circle One)									
Meter Type:									

Equipment Type	Quantity	Size	Quantity	Size	Quantity	Size
Drum Type:						
Drum Type:						
Rope Type:						
Degreaser Type:						
Speedi Dry						
Polycoated Rain Gear, 22mil						
Poly Sheet, 6mil, 20ft x 100ft						
Poly Bag, 6mil, per roll						
Absorbent Pad (101 Grade) 100/bale						
Absorbent Boom Each						
Absorbent Boom Bale						
Duct Tape/Roll						
Safety Plan						
Rolloff Poly Liner						
5 Gal / 20 Litre Poly Drum 1H2						

Container Management	Size	Fleet #	Size	Fleet #	Size	Fleet #
Rolloff / Intermodal / Frac Tank / Tanker (circle one)	20,000 GAL	EV2 #454 LM				
Rolloff / Intermodal / Frac Tank / Tanker (circle one)						

PPE Sets	Task 1	Task 2	Task 3
# of Complete Sets of PPE Used:			
# of People in PPE:			

PPED1=Level D w/(Tyvek, boots, gloves) PPEC2=Level C w/(CPF1,2 or Poly Tyek suit)
PPEC3=Level C w/(CPF3 or Saranex suit) PPEC4=Level C w/(CPF4 or Barricade suit)
PPEB2=Level B w/(CPF2 or Poly Tyvek suit) PPEB3=Level B w/(CPF3 or Saranex suit)
PPEB4=Level B w/(CPF4 or Barricade suit) PPEA5=Level A w/(Responder suit)

Task 1 Type	Qty	Type	Qty	Task 2 Type	Qty	Type	Qty	Task 3 Type	Qty	Type	Qty
PPED1		PPEB2		PPED1		PPEB2		PPED1		PPEB2	
PPEC2		PPEB3		PPEC2		PPEB3		PPEC2		PPEB3	
PPEC3		PPEB4		PPEC3		PPEB4		PPEC3		PPEB4	
PPEC4		PPEA5		PPEC4		PPEA5		PPEC4		PPEA5	

PPE Items Used in Addition to Sets Above	Quantity	Type	Quantity	Type	Quantity	Type
Cartridge						
Respirator						
Suit						
Inner Gloves						
Outer Gloves						
Breathing Air Bottle						

Analytical - Analysis Description	# of Tests	Lab Name	# of Tests	Lab Name	# of Tests	Lab Name
Subcontractor Name	Description of Service		Description of Service		Description of Service	

CHES Rep (Print) Pat DUGAN CHES Rep (Sign) Date: Feb 28, 2018

Customer (Print) Timothy Dilbert Customer (Sign) Date: 2/28/18

CHI 225-SS (9/07) IMPORTANT - PAYMENT TERMS ON BACK CUSTOMER COPY

CleanHarbors ENVIRONMENTAL SERVICES

Site Services Multi-Task Worksheet

1188670

Day & Date: Tuesday, FEB. 27 2018

Sales Order #:

Job Complete: Yes / No (Circle One)

Job Description/Comments: Set up trucks TRAVEL to site: met w/ Contact. Jon Dippert
using Procsvac & Cusco pumped Sanitary Water While Jetting Lines.
off load to staged Frac tank. Went to Hotel to return Next Day

Customer: ECO / CT. MALE Associates

Billing Address: 50 Century Hill Dr
Latham NY. 12110

Contact: Jon Dippert.

Job Location: 1030 Water Street
North Bennington VT.

PO # / COD Amount

Per Diem: Yes / No (Circle One) 2 If yes, how many?

Change Order Initiated: Yes / No (Circle One)

Component Type	Task # / Description			Task # / Description			Task # / Description		
	1								
	Task Complete: Yes / No (Circle One)			Task Complete: Yes / No (Circle One)			Task Complete: Yes / No (Circle One)		
Labor									
Name / Title / ID #	ST	OT	DT	ST	OT	DT	ST	OT	DT
Pat Dugan / E/O / 9847	8	6							
	8	8							
Oscar Straw / E/O / 1896227	8	5							
Disposal / Write Description/Destination	Manifest #		Amount	Manifest #		Amount	Manifest #		Amount
LIQUID: Bulk / Drum									
SOLID: Bulk / Drum									
Equipment Type	Quantity	Fleet #	# of Hr/Day	Quantity	Fleet #	# of Hr/Day	Quantity	Fleet #	# of Hr/Day
Pickup / Van / Car / Crew Cab (Circle One)									
Vacuum Trailer									
Tractor									
Vacuum Truck, Straight									
Box Truck									
Cusco / Guzzler / Vactor (Circle One) Procsvac	(2)	4970 / 40972	(14)						
Air Compressor, 175 CFM									
Backhoe Loader, 1 Yd bucket									
Bobcat Loader - Mini Excavator									
Rack Truck									
Rolloff Truck, Straight									
Pressure Washer (PSI: _____) Hot / Cold (Circle One)									
Meter Type:									
Equipment Type	Quantity	Size		Quantity	Size		Quantity	Size	
Drum Type:									
Drum Type:									
Rope Type:									
Degreaser Type:									
Speedi Dry									
Polycoated Rain Gear, 22mil									
Poly Sheet, 6mil, 20ft x 100ft									
Poly Bag, 6mil, per roll									
Absorbent Pad (101 Grade) 100/bale									
Absorbent Boom Each									
Absorbent Boom Bale									
Duct Tape/Roll									
Safety Plan									
Rolloff Poly Liner									
5 Gal / 20 Litre Poly Drum 1H2									
Baker Rental/Frac Tank									
Container Management	Size	Fleet #		Size	Fleet #		Size	Fleet #	
Rolloff / Intermodal / Frac Tank / Tanker (circle one)	20,000	CV277454 LM.							
Rolloff / Intermodal / Frac Tank / Tanker (circle one)									

PPE Sets	Task 1	Task 2	Task 3
# of Complete Sets of PPE Used:			
# of People in PPE:			

PPED1=Level D w/(Tyvek, boots, gloves) PPEC2=Level C w/(CPF1,2 or Poly Tyek suit)
PPEC3=Level C w/(CPF3 or Saranex suit) PPEC4=Level C w/(CPF4 or Barricade suit)
PPEB2=Level B w/(CPF2 or Poly Tyvek suit) PPEB3=Level B w/(CPF3 or Saranex suit)
PPEB4=Level B w/(CPF4 or Barricade suit) PPEA5=Level A w/(Responder suit)

	Type	Qty	Type	Qty	Type	Qty	Type	Qty	Type	Qty	Type	Qty
	PPED1		PPEB2		PPED1		PPEB2		PPED1		PPEB2	
	PPEC2		PPEB3		PPEC2		PPEB3		PPEC2		PPEB3	
	PPEC3		PPEB4		PPEC3		PPEB4		PPEC3		PPEB4	
	PPEC4		PPEA5		PPEC4		PPEA5		PPEC4		PPEA5	

PPE Items Used in Addition to Sets Above	Quantity	Type	Quantity	Type	Quantity	Type
Cartridge						
Respirator						
Suit						
Inner Gloves						
Outer Gloves						
Breathing Air Bottle						

Analytical - Analysis Description	# of Tests	Lab Name	# of Tests	Lab Name	# of Tests	Lab Name
Subcontractor Name	Description of Service		Description of Service		Description of Service	

CHES Rep (Print) Jonathan Dippert

CHES Rep (Sign)

Date: FEB. 27 2018

Customer (Print) Pat Dugan

Customer (Sign)

Date: 2/27/18

CHI 225-SS (9/07)

IMPORTANT - PAYMENT TERMS ON BACK

CUSTOMER COPY

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 4/5/18 Time On-Site: 11.00 Time Off-Site: 1430

Project Name: SGPP Bennington Project No.: 16.6101

Purpose: Catch basin sediment sampling Field Report No:

Weather Conditions: Sunny, windy, 30's

Present at Site: Chris Ormsby, Dan Athyl

Observations:

1100 - Arrive at Water street building, calibrate PID

1200 - Collected sediment from SC2a-Sludge18-02 and screened with PID. Result: 0.1 out of Oil background.

- Field duplicate collected at SG3-Sludge18-02

-1245 - Collected at SG3a-Sludge18-03

PID reading of 0.3 background of 0.1

MS/MSD collected

-1330 - Collected sample from SG3a-Sludge18-04

PID 1.4, background 0.1

-1400- Equipment blank EB01 collected from hand trowel

-1410- FTB01 collected

-1430 -Off Site

Items to Verify:

List of Attachments: COC, Calibration log, Map

Field Log Prepared by: Christopher Ormsby

Copies to:

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP 3 CTM PROJECT NO.: 16.1131

LOCATION: Bennington, VT DATE: 4/5/18

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
Mini RAE 3000 SN: 592-920641	1100	Isobutylene 100ppm	101.2	Cal	CO

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #:

COC#: 18874

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: CO DA	
Phone #:	Quote #: 219169
State where sample(s) were collected: VT	

Matrix: Sediment ☒ / Soil ☐; Water: Ground ☐ Surface ☐ Potable ☐ NPDES ☐; Other: DI Water

For Lab Use Only
SF#: 271284
SCR#: 222397

Preservation Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 P = H_3PO_4
O = Other

Analyses Requested / Preservation Codes

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other:	Total # of Containers	TCL VOAs (8260C)	TAL Metals	TCL SVs (8270D)	TOC (5310 B)	pH (9045D)	14 PFAS (EPA 537 mod.)	Moisture (2540 G)						Remarks
SG3a-Sludge18-02-180405	4/5/18	1200	X		X			6	X	X	X	X	X	X	X						
SG3a-Sludge18-03-180405	4/5/18	1245	X		X			18	X	X	X	X	X	X	X						MS/MSD
SG3a-Sludge18-04-180405	4/5/18	1330	X		X			6	X	X	X	X	X	X	X						
SG3a-FD01-180405	4/5/18	—	X		X			6	X	X	X	X	X	X	X						
SG3a-EB01-180405	4/5/18	1400	X				X	10	X	X	X	X	X	X							
SG3a-FTB01-180405	4/5/18	1410	X				X	2						X							
SG3a-LTB01-180405 -	4/5/18	—					X	4	X					X							

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results:

Data Package Options (please check if required)
Type I (Validation/non-CLP) ☑ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☐

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

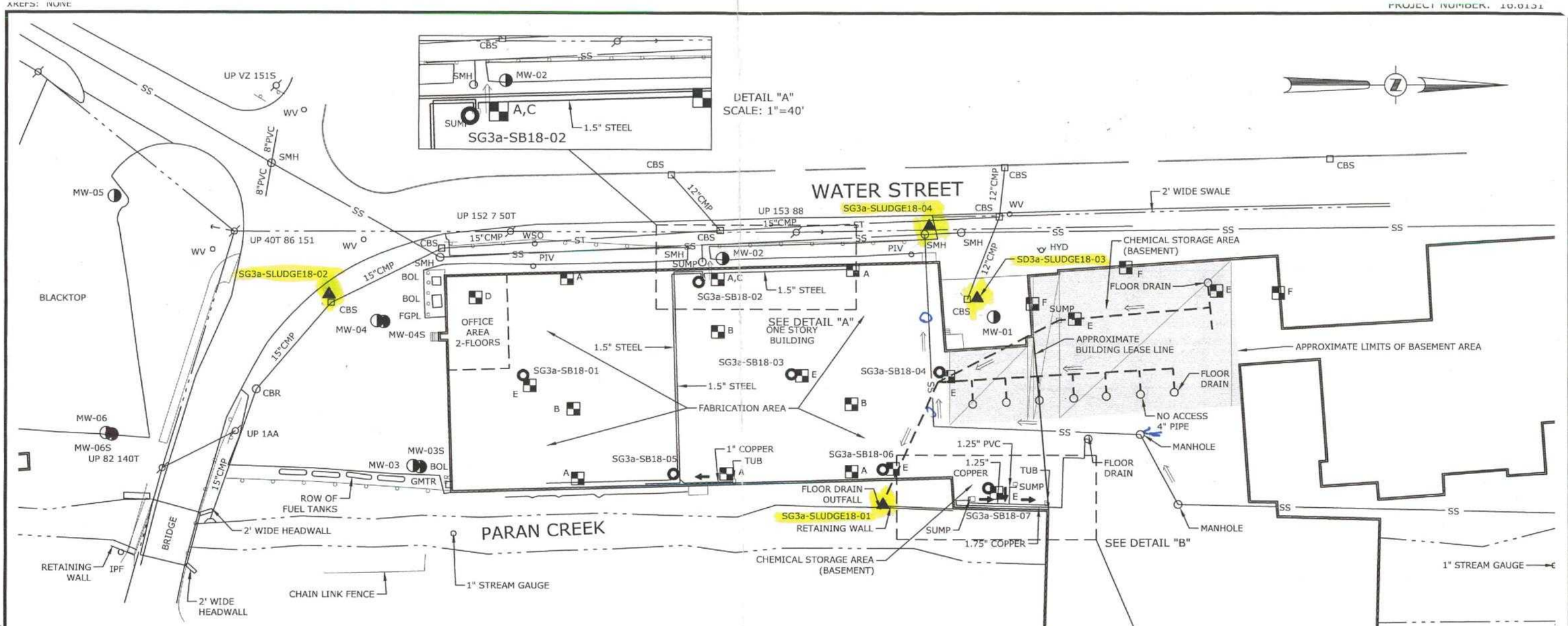
Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	4/5/18	1545			

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ______ Other ______

Temperature upon receipt ______ °C

AKEPS: NONE

PROJECT NUMBER: 16.6131



LEGEND

BOL	Bollard	MW	Monitoring Well	■	Building Wipe and Material Sampling Summary
CBR	Catch Basin Round	PIV	Post Indicator Valve		A - CONCRETE WALL WIPE SAMPLE (1), I-BEAM WIPE SAMPLES (3), WALL INSULATION SAMPLE (1)
CBS	Catch Basin Square	SMH	Sanitary Manhole		B - I-BEAM WIPE SAMPLES (3), CEILING INSULATION SAMPLE (1)
FGPL	Flag Pole	UMH	Unknown Manhole		C - BULK SAMPLE FROM FLOOR (1; WHERE RESIDUE IS PRESENT)
GMTR	Gas Meter	UP	Utility Pole		D - WALL AND FLOOR WIPE SAMPLES FROM FIRST AND SECOND FLOOR
GP	Gate Post	WSO	Water Shut Off		E - FLOOR WIPE SAMPLE (1)
HYD	Hydrant	WV	Water Valve		F - WALL WIPE SAMPLE (1)
IPF	Iron Pipe Found	→	Water Flow Direction	▲	Sewer and Stormwater Catch Basin Sludge Samples
				●	Geoprobe Boring Monitoring Well Location

PROGRESS PRINT

* PFAS

14-List

DATE		REVISIONS RECORD/DESCRIPTION	DRAFTED	CHECK	APPR.
	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				

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DESIGNED : J.DIPPERT
DRAFTED : S.WUNSCH
CHECKED : J.DIPPERT
PROJ. NO : 16.6131
SCALE : 1"=60'
DATE : NOV. 15, 2017

FIGURE 1
SUPPLEMENTAL SITE INVESTIGATION WORK PLAN

1030 WATER STREET

TOWN OF BENNINGTON — BENNINGTON COUNTY, VERMONT

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299

SHEET 1 OF 1
DWG. NO: 17-XXX

CAD DWG. FILE NAME: K:\Projects\166131\Env\Drawings-Maps\figure 1 - sup charc work plan.dwg

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 5/18/18 Time On-Site: 0730 Time Off-Site: 1025

Project Name: SGPP - Remington (1030 Water St) Project No.: 16.6131

Purpose: Sediment Sampling Field Report No:

Weather Conditions: Sunny, 55°F

Present at Site: Jonathan Dippert, Bob Koslosky

Observations:

0730 - on-site, send out email to Barr w/ field notes
- @ connex box, prep for sampling
- clean hand auger, don waders, prep sample containers, etc.

- collect sediment sample @ outfall of pipe with hand auger; located pipe with tank prope (rebar piece sticking out into the water) and mark on facility wall made when located with NYLS. Collected in 1 gal ziplock bag.
- collected surface water sample upstream of sediment sample location. Collected at east drain outfall pipe at N end of 1030 water street facility (collected in middle of Peru Creek), 0-6" below surface of water.
  → no parameters collected, intent to compare with saturated sediment results
- calibrated PID. 100.0 ppm reading
  → separate bag for headspace reading
- screen soil + jar sample, collect field trip blank, + complete paperwork. Dispose of clean water in the tank @ (clean hand auger before dumping water).

1025 - off-site

Items to Verify:

List of Attachments: OV Log, COC

Field Log Prepared by:

Copies to:

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGLP - Bennington		PROJECT #: 16.6131	PAGE 1 OF 1
CLIENT: SGLP			DATE COLLECTED: 5/14/18
LOCATION: North Bennington, VT			
INSTRUMENT USED: Mini-Rae 3000	LAMP 10.6 eV		DATE ANALYZED: 5/18/18
DATE INSTRUMENT CALIBRATED: 5/18/18	BY: JD		ANALYST: JD
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SLUDGE	01	0-6"	sediment	0.5	0.1	slight sheen, no odor

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
***FT represents depth of sample collected feet below ground surface

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #: COC#: 18741

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: 16.6131

Sampler: JD, BK Quote #: 219169

Phone #: 518-786-7400

State where sample(s) were collected: VT

For Lab Use Only

SF#: 271157

SCR#: 221048

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Water: Sediment	Water: Ground	Water: Surface	Water: Potable	Water: NPDES	Other: Rinse Water	Total # of Containers	TCL VOAs (8260C)	TAL Metals + Hg	TCL SVs (8270D)	TOC (5310 B)	pH (9045D)	19 PFAS (EPA 537 mod.)	Moisture (2540 G)	14 PFAS (EPA 537 mod)	Remarks
SG3a - FTB01 - 180518	5/18/18	0925	X								X	2						X			
SG3a - LTBK - 180518	5/18/18	—									X	2						X			
SG3a - SLUDGE18-01	5/18/18	0915	X		X							7	X	X	X	X	X		X	X	SEDIMENT
SG3a - SW18-01 - 180518	5/18/18	0845	X			X						2						X			

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) [X] MA MCP [ ] TX TRRP - 13 [ ]

Type III (Reduced non-CLP) [ ] CT RCP [ ]

Type IV (CLP SOW) [ ] ASP Type A [ ]

Type VI (Raw Data Only) [ ] ASP Type B [ ]

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
	5/18/18	1545			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time

Airbill No.:

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

Preservation Codes

H = HCl T = Thiosulfate

N = HNO_3 B = NaOH

S = H_2SO_4 P = H_3PO_4

O = Other

NYLD **Infrastructure**

NEW YORK LEAK DETECTION, INC.
PO Box 269 Jamesville, NY 13078
315-469-4601 info@nyld.com

Field Report – Utility Location

Date(s) on site: 6-4-18

Technician: Steve Carney **Other Technicians on site:**

Customer: C.T. Male Associates Engineering,

Site Address: 1030 Water St. North Bennington, VT

Contact Person: Jon Dippert **Phone:** 518-469-1183

Scope of Work: Video Inspection & Utility Location Services on outfall of a pipe in stream, want to trace it out and perform Video inspection.

Type of Service: *mark all that apply*

☐ *Leak Detection*	☐ Comprehensive *Leak Survey*	☐ *Pressurized Pipe Inspection*
☐ *Infrastructure Assessment*	☒ *Utility Location/GPR*	☐ *Utility Mapping/AutoCAD*
☐ *EM Survey*	☒ *Video Inspection*	☐ *Valve Exercising*

Type of Equipment Used: *mark all that apply*

☐ *Profiler EMP 400*	☒ *RD8000 Pipe & Cable Locator*	☐ MetroTech vLocPro2
☐ *LC2500 Leak Correlator*	☐ *Noggin 250* mHz	☐ PosiTector UTG G3
☐ *S-30 Surveyor*	☐ Noggin 500 mHz	☒ *Video Inspection Camera*
☐ *Sonde / Locatable Rodder*	☐ Conquest 1000 mHz	☐ *Helium #* *Bottles*
☐ *Leica Robotic Total Station*	☐ *Leica RTK GPS*	☐ *JD7 Investigator*
☐ *Valve Maintenance Trailer*	☐ *Thermal Imaging Camera*	☐ *ZCorr Data Loggers*

Marking Used: *mark all that apply*

☐ *Paint*	☐ *Flags*	☐ *Chalk/Marker*
☐ *Tape*	☐ *Updated Onsite Mapping*	☐ *Other* _____

Site Access/Safety Training: n/a **Expiration Date:** n/a

Ground Cover/Weather Conditions: Rain / 60's - Stream

NYLD **Infrastructure**

NEW YORK LEAK DETECTION, INC.
PO Box 269 Jamesville, NY 13078
315-469-4601 info@nyld.com

Field Report – Utility Location

Instructions from Onsite Contact: Same as above

Information Transfer:

☒ *Information relayed on site to:*

Jon

In addition to this field report, mark all that apply:

☐ *Hand drawn sketch*
☐ *Maps updated onsite*
☐ *Photographs*
☐ *Surveyed by others*
☐ *Surveyed and AutoCAD Mapping by NYLD*

Notes/Testing Results:

On initial visual of pipe to be inspected it was noted that the pipe was not open to air but was under the water of flowing creek. This gave some indication that debris would most likely be a problem as far as how far the camera would be able to be pushed. Camera was inserted in to +/- 18" pipe and was able to be pushed approx. 20 feet before it became buried deep in fine sediment. There were also large rocks and pieces of timber at the entrance to the pipe. Visibility was zero due to the sediment that was disturbed with the camera.

The sonde of the camera head was not locatable, possibly due to depth of pipe below concrete floor. A direct connect method was also attempted as the pipe was corrugated galvanized from what was visible. This too was not successful. Pipe may change material (Clay).

A suggestion is to possibly have the pipe jetted before another camera insertion takes place. Or possibly some type of roaming camera that can navigate heavy debris on the bottom of pipe.

This report is back up to information relayed and marked on site at time of service. It is for informational purposes only.

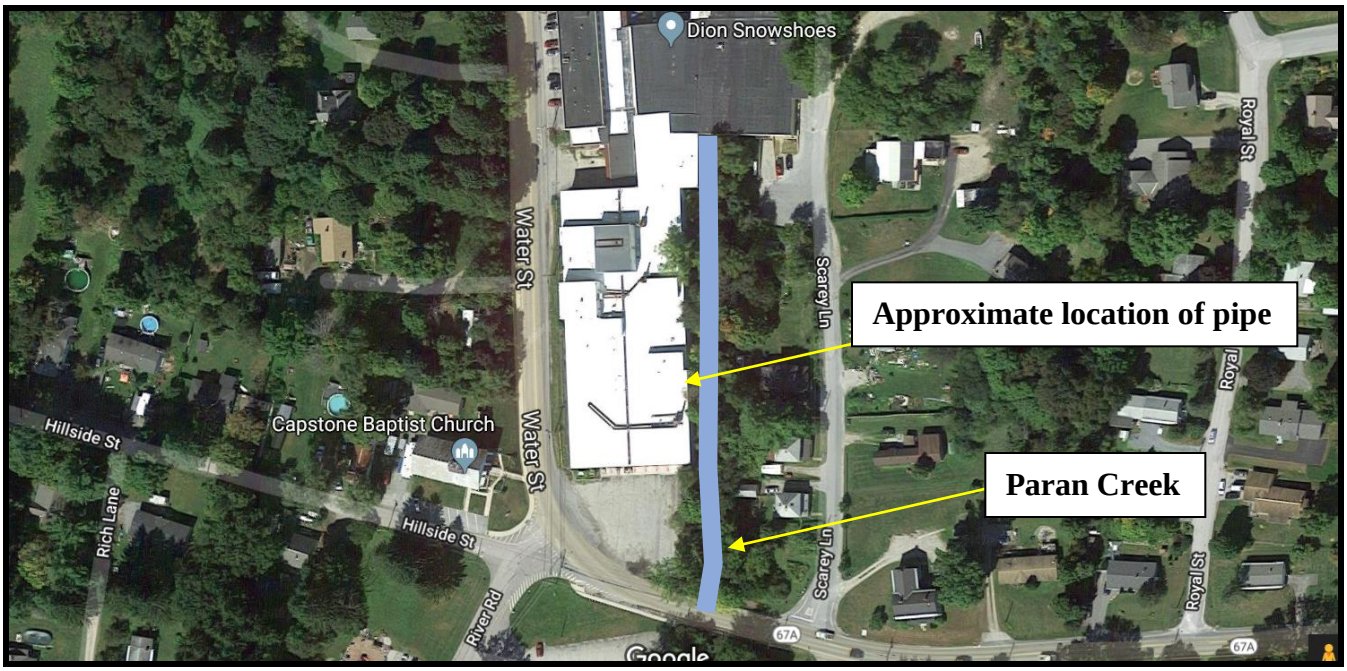
Key

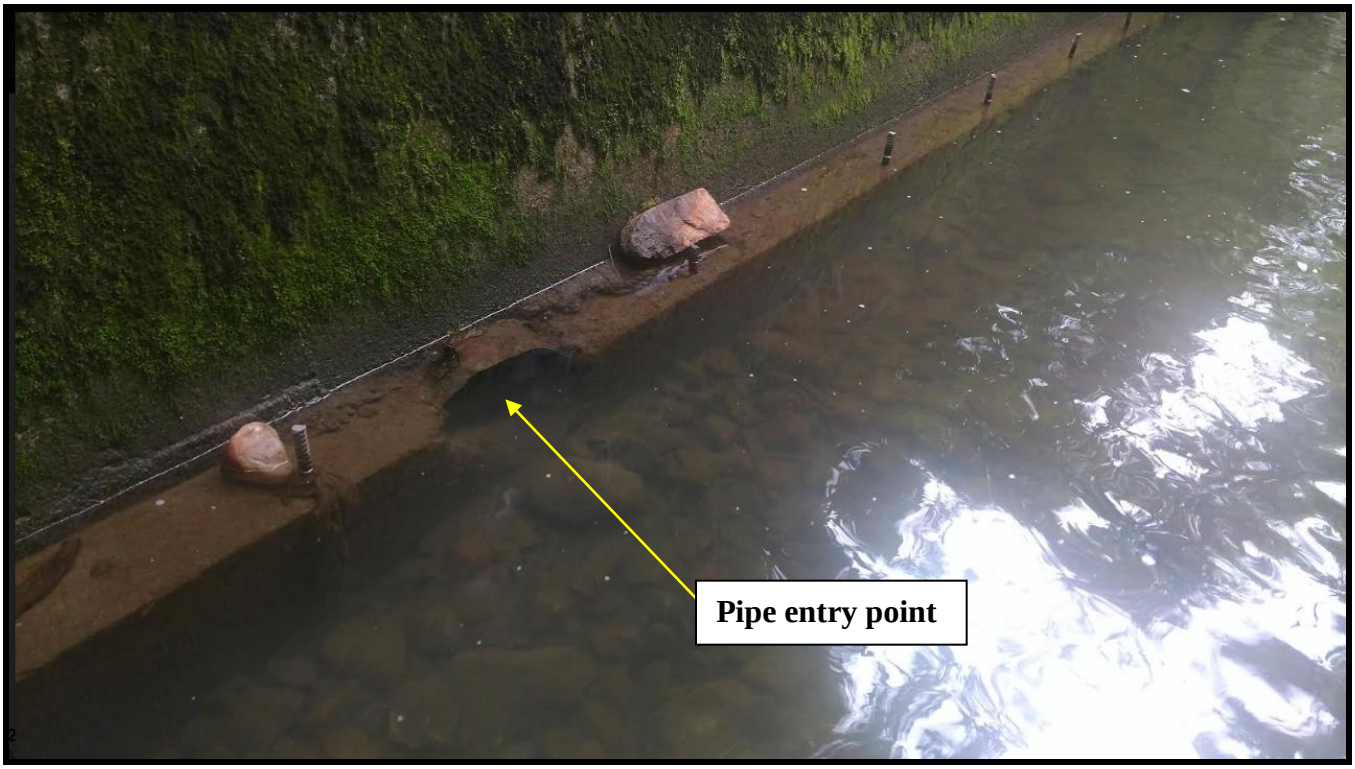
Blue	Water
Red	Power
Orange	Communications
Yellow	Gas/Flammable Fuel
White	Unknown
Green	Storm/Sanitary

NYLD **Infrastructure**

NEW YORK LEAK DETECTION, INC.
PO Box 269 Jamesville, NY 13078
315-469-4601 info@nyld.com

Field Report – Utility Location





NYLD **Infrastructure**

NEW YORK LEAK DETECTION, INC.
PO Box 269 Jamesville, NY 13078
315-469-4601 info@nyld.com

Field Report – Utility Location

Subsurface Limitations

Utility locating is the art and science of using non-intrusive methods to search for, find and mark out buried, unseen conduits or other objects. There are innumerable variables involved in locating underground utilities, such as topography, size and complexity of job site, depth and proximity of buried utilities, above ground obstructions, short turnaround schedules, changes in the scope of work, lack of (or outdated) blueprints and adverse weather conditions.

New York Leak Detection, Inc. (NYLD) has made a substantial financial investment in crossover technologies and training to meet our clients' needs when locating and mapping utilities. However, due to unpredictable factors that may affect the results, NYLD makes no guarantee, expressed or implied, with respect to the completeness or accuracy of the information provided. Any use or reliance on the information or opinion is at the risk of the user and NYLD shall not be liable for any damage or injury arising out of the use or misuse of the information provided.

NYLD strives to provide the highest quality utility location services possible with the technical expertise of our field specialists and state-of-the-art equipment used. Every effort is made to provide our clients with the most accurate information possible without adverse consequences.

NYLD makes no guarantee that all subsurface utilities and obstructions will be detected. GPR signal penetration might not be sufficient to detect all utilities. NYLD is not responsible for detecting subsurface utilities and obstructions that normally cannot be detected by the methods employed or that cannot be detected because of site conditions. NYLD is not responsible for maintaining mark-outs after leaving the work area. Mark-outs made in inclement weather and in high traffic areas may not last. Surveyor assumes responsibility of picking up data on site.

Appendix B.5

Bulk Material and Wipe Sampling

2

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 3/29/18 Time On-Site: 0730 Time Off-Site: 16:00

Project Name: SGPP- Bennington Project No.: 16.0131

Purpose: Wipe/Bulk Sample Collection Field Report No:

Weather Conditions: Cloudy, overcast High 52°F

Present at Site: Cliff Bondi, Dan King, Jon Bissett, Chris Ormsby, Terry (DACollins)

Observations: 0720 CB + DK Arrived onsite, JB + DACollins already onsite waiting for Scissor Lift to arrive

0730 - 0800 Tailgate Safety meeting and review of work/sampling procedures

0800 Preparing Sample containers and gathering equipment

0815 Guy's Garage arrived onsite with Lift, unloading and bringing to building

10:30 - Collected 4x wipe sample From beam WP01(A) (@1.5', 8.0', 16.0', 23.0'). Collected ceiling bulk scrape sample (@24.0'). Lower ceiling height measured to be 24.0'.

11:00 - Collected 3x wipe sample from beam WP02(A) (@8.0', 16.0', 23.0'). Collected ~~ceiling~~ bulk scrape sample (@~~24.0'~~ 22.5').

11:45 - Collected wipe sample from stack E (WP03) near beam WP04(A). (@25.0' - within stack). Collected ceiling bulk scrape sample @sample location (@24.0').

12:20 - Collected 3x wipe sample from beam WP04(A) (@8.0', 16.0', 23.0'). Collected ~~ceiling~~ bulk scrape sample (@~~24.0'~~ 22.5'). J. Schmelz (VT DEC) onsite.

12:50 - Collected 3x wipe sample from beam WP05(A) (@8.0', 16.0', 23.0'). Collected ~~ceiling~~ bulk scrape sample (@~~24.0'~~ 22.5'). VT DEC onsite, CO onsite.

13:00 - Collected wipe sample From stack L (WP06) near beam WP05(A). (@25.0' - within stack).

13:45 - Collected 3x wipe sample from beam WP07(A) (@8.0', 16.0', 23.0').

Items to Verify: ~~Collected ceiling bulk scrape sample (@24.0').~~ Collected Field Duplicate @WP07-A23.0. Chris A. (St. Gobain) onsite.

List of Attachments: ~~CO~~ PFAS Checklist(1), COC(4)

Field Log Prepared by: Cliff Bondi + Dan King

Copies to:

C.T. MALE ASSOCIATES

Date 3/29/18 Page 2 of 2

Environmental Services Field Log
(continued)

~~Blank/Blank ceiling~~ 35, 33, 23, 11 29?

Project Name: SGPP-Bennington Project No.: 16.613

Observations:

14:00 - Collected wipe sample from Stack G (WP08) near WP07(A) (@25.0' - within stack).

14:50 - Collected 3x wipe sample from beam WP09(A) (@8.0', 16.0', 23.0'). Collected ~~ceiling~~ bulk scrape sample (@22.5'). Collected EB → Wipe sample blank w/ preservative. Collected RBs → RB01 off paint scraper. → RB02 off - gauze wipe. → RB03 off nitrile glove.

~~Chris~~ Chris A. (St. Gobain) offsite.

15:10 - Finished sample paperwork. CO offsite to ship samples.

16:00 - Collected 4x wipe sample from beam WP10(B) (@11.0', 23.0', 33.0', 35.0' - ceiling). Ceiling measured @35.0'. Collected bulk scrape samples (~~@26.0'~~, 29.0'). Bulk installation sample @26.0'.

16:30 - Loaded equipment, offsite.

PFCs Sampling Checklist

Date: 3/29/18

Weather (*temp./precipitation*): Overcast, ~45°F Site Name: SGPP-Bennington

Field Clothing and PPE:

- ☑ No clothing or boots containing Gore-Tex™
- ☑ All safety boots made from polyurethane and PVC
- ☑ No materials containing Tyvek®
- ☑ Field crew has not used fabric softener on clothing
- ☑ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☑ Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- ☑ No Teflon® or LDPE containing materials on-site
- ☑ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☑ No waterproof field books on-site
- ☑ No plastic clipboards, binders, or spiral hard cover notebooks on-site
- ☑ No adhesives (Post-It Notes) on-site
- ☑ Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- ☑ All sample containers made of HDPE or polypropylene
- ☑ Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- ☑ Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- ☑ "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- ☑ Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- ☑ No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Dan King

Field Lead Signature: [signature] Time: 9:00

Eurofins Lancaster Laboratories

Environmental Services Analysis Request/Chain of Custody

1 of 4

Acct. #: 37191 Group #: Sample #: COC#: 18821

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: 16.6131

Sampler: JD, DK, CB, CO

Phone #: 518-786-7400 Quote #: 214135

State where sample(s) were collected: VT

Matrix: Sediment; Ground; Surface; ~~Soil~~ Wipe (checked); ~~Potable~~ BULK (checked); NPDES; ~~Water~~; Other: Rinse Blank

Analyses Requested: 14 PFAS (EPA 537 mod.)

For Lab Use Only: SF#: 271284 SCR#: 222240

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Date	Time	Grab	Composite	Sediment / Wipe	Bulk / Water	Other	Total # of Containers	14 PFAS (EPA 537 mod.)	Remarks
SG3a-LTB01-180329	3/29/18	—	✓				✓	2	✓	
SG3a-FTB01-180329	↓	8:40	✓				✓	2	✓	
SG3a-WP01-A1.5		9:10	✓		✓			1	✓	
SG3a-WP01-A8.0		10:00	✓		✓			1	✓	
SG3a-WP01-A16.0		10:05	✓		✓			1	✓	
SG3a-WP01-A23.0		10:25	✓		✓			1	✓	
SG3a-BL01-A24.0		10:30	✓			✓		1	✓	
SG3a-WP02-A8.0		10:45	✓		✓			1	✓	
SG3a-WP02-A16.0		10:55	✓		✓			1	✓	
SG3a-WP02-A23.0	↓	11:00	✓		✓			1	✓	

Turnaround Time Requested (TAT) (please check): Standard ☑ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moline@ctmale.com

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	3/29/18	15:00	[signature]	3/29/18	1500
[signature]	3/29/18	1645			

Data Package Options (please check if required)

- Type I (Validation/non-CLP) ☑
- Type III (Reduced non-CLP) ☐
- Type IV (CLP SOW) ☐
- Type VI (Raw Data Only) ☐
- MA MCP ☐
- CT RCP ☐
- ASP Type A ☐
- ASP Type B ☑
- TX TRRP - 13 ☐

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ______ Other ______

Temperature upon receipt ______ °C

Eurofins Lancaster Laboratories

Environmental Services Analysis Request/Chain of Custody

2 of 4

Acct. #: 37191 Group #: Sample #: COC#: 18821

Client:	C.T. Male Associates
Project Name/#:	SGPP - Bennington
Site ID:	
Project Manager:	Kirk Moline
P.O. #:	16.6131
Sampler:	JD, DK, CB, CO
Phone #:	518-786-7400
Quote #:	214135
State where sample(s) were collected:	VT

For Lab Use Only: SF#: 271284 SCR#: 222240

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Matrix: Sediment; Ground; Surface; Potable; NPDES; Soil (WIPE); Water (BULK); Other: Rinse Water

Analyses Requested: 14 PFAS (EPA 537 mod.)

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil/Wipe	Water/Bulk	Other	Total # of Containers	14 PFAS (EPA 537 mod.)	Remarks
SG3a-BL02 A22.5	3/29/18	11:05	✓			✓		1	✓	
SG3a-WP03-STACK25.0	↓	11:40	✓		✓			1	✓	Tower E
SG3a-BL03-STACK24.0	↓	11:50	✓			✓		1	✓	Tower E
SG3a-WP04-A8.0	↓	11:55	✓		✓			1	✓	
SG3a-WP04-A16.0	↓	12:00	✓		✓			1	✓	
SG3a-WP04-A23.0	↓	12:10	✓		✓			1	✓	
SG3a-BL04 A22.5	↓	12:15	✓			✓		1	✓	
SG3a-WP05-A8.0	↓	12:40	✓		✓			1	✓	
SG3a-WP05-A16.0	↓	12:45	✓		✓			1	✓	
SG3a-WP05-A23.0	↓	12:50	✓		✓			1	✓	

Turnaround Time Requested (TAT) (please check): Standard ☑ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@ctmale.com

Data Package Options (please check if required)

- Type I (Validation/non-CLP) ☑
- Type III (Reduced non-CLP) ☐
- Type IV (CLP SOW) ☐
- Type VI (Raw Data Only) ☐
- MA MCP ☐
- CT RCP ☐
- ASP Type A ☐
- ASP Type B ☑
- TX TRRP - 13 ☐

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	3/29/18	15:00	[signature]	3/29/18	1500
[signature]	3/29/18	1645			

Airbill No.:

Relinquished by Commercial Carrier:

UPS _______ FedEx _______ Other _________

Temperature upon receipt __________ °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # _____ Sample # _____

COC # 558203

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: SGPP-Bennington

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16,6131

Sampler: JD, DK, CB, CO

Quote #: 214135

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC: _____

SCR#: _____

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil/Sediment	Matrix: Tissue	Matrix: Potable Water	Matrix: Ground Water	Matrix: NPDES	Matrix: Surface Water	Matrix: Other:	Total # of Containers	Analysis Requested: 14 PCAS (EPA537mod)	Remarks
SG3a-WP06-STACK25.0	3/9/18	13:00	✓		✓							1	✓	Tower L
SG3a-BLOS-AQA25		12:55	✓					✓				1	✓	
SG3a-WP07-A8.0		13:20	✓		✓							1	✓	
SG3a-WP07-A16.0		13:25	✓		✓							1	✓	
SG3a-WP07-A23.0		13:35	✓		✓							1	✓	
SG3a-EB01-180329		13:45	✓		✓							1	✓	Wipe Blank
SG3a-FD01-180329		—	✓		✓							1	✓	
SG3a-WP08-STACK25.0		13:50	✓		✓							1	✓	Tower G
SG3a-RB01-180329		14:15	✓								✓	2	✓	Scraper
SG3a-RB02-180329		14:20	✓								✓	2	✓	Wipe

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

3 of 4

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	3/9/18	15:00		3/2/18	1:30
Chris Amsley	3/29/18	1645			

EDD Required? Yes No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # _____ Sample # _____

COC # 539219

Client Information

Client: C.T. Male Associates | Acct. #:

Project Name/#: SGPP-Bennington | PWSID #:

Project Manager: Kirk Moline | P.O. #: 16.6131

Sampler: JD, DK, CB, CO | Quote #: 214135

State where samples were collected: VT | For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ Potable ☐ Ground ☐ Surface ☐ NPDES ☐ Other: Rinse Water

Analysis Requested

Preservation Codes

14 PFAS (EPA 537 mod)

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

4 of 4

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	Remarks
SG3a-BB03-180329	3/29/18	14:25	✓		2	Nitrile Glove
SG3a-WP09-A8.0		14:05	✓		1	
SG3a-WP09-A16.0		14:10	✓		1	
SG3a-WP09-A23.0		14:15	✓		1	
SG3a-BL09-~~A24.0~~ A22.5		14:20	✓		1	

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: Kmoline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	3/29/18	15:00		3/29/18	1500
	3/29/18	1645			

EDD Required? Yes No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 3/30/18 Time On-Site: 7:30 Time Off-Site: 14:20

Project Name: SGPP – ~~McCaffrey Street~~ Bennington Project No.: ~~14.4756~~ 16.6131

Purpose: Wipe/bulk sample collection Field Report No: ~~14726~~

Weather Conditions: Cloudy w/ fog, light rain, ~50°F

Present at Site: Dan King, Jon Dippot, Cliff Bondi, Chris Ormsby, Tory Collins (QA)

Observations:

7:30 – Onsite. Preparing wipe samples w/ preservative + moving equipment inside facility.

9:00 – Ceiling height @ WP11(B) beam location = 42.0'. Collected 4x wipe sample from beam WP11(B) (@16.0', 24.0', 41.0', 42.0'-ceiling wipe). Collected bulk scrape sample @ 40.5' + insulation bulk @25.0'.

9:35 – Collected RB off wipe sample paper template. Collected EB01 off chisel for bulk sample QA/QC.

10:00 – Collected EB02 for wipe QA/QC (blank sample). Collected 4x wipe sample from beam WP12(B) (@15.0', 30.0', 43.0' w/FD01 44.5'-ceiling wipe). Collected bulk sample w/FD02 @ 42.5' + insulation bulk @28.0'.

10:10 – Collected floor scrape sample @ BL13 (no wipe sample) w/ MS/MSD.

11:00 – JD offsite.

12:00 – Collected 1x wipe sample from each of the following:

WP02(A)@1.5'
WP04(A)@1.5'
WP05(A)@1.5'
WP07(A)@1.5'
WP09(A)@1.5'

~~Items to Verify~~: Collected bulk insulation from wall @ BL14(A) – 5.5'

List of Attachments: PFAS Checklist(1), Maps+diagrams, COC(5)

Field Log Prepared by: Dan King

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 3/30/18 Time On-Site: _____ Time Off-Site: _____

Project Name: _____ Project No.: 16.6131

Purpose: _____ Field Report No: _____

Weather Conditions: _____

Present at Site: _____

Observations:

12:30 - Collected 1x wipe samples from the Floor @ the following locations:

WP15(E), WP16(E), WP17(E), WP18(E) → w/ FD03

Collected EB03 For wipe QA/QC (blank sample),

Collected additional wall sample @ WP18(E) - 4.0' wipe.

13:00 - Collected wipe samples @ following locations in Front offices:

WP19(D) @ Floor, 5.5'

WP20(D) @ Floor, 5.5'

WP21(D) @ 5.5'

13:45 - Collected wipe samples @ following basement locations:

WP22(E) @ Floor

WP23(F) @ 5.0'

WP24(F) @ 3.0'

WP25(E) @ floor

WP26(F) @ 5.0'

See maps For location details. Began packing equipment + Finishing paperwork.

14:20 - Loaded equipment + samples, offsite, Terry to lock building after lift pick-up per permission of JD + KM.

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: [redacted]

Copies to:

PFCs Sampling Checklist

Date: 3/30/18

Weather (*temp./precipitation*): Cloudy/Fog, light rain ~50°F Site Name: SGPP - Bennington

Field Clothing and PPE:

- ☑ No clothing or boots containing Gore-Tex™
- ☑ All safety boots made from polyurethane and PVC
- ☑ No materials containing Tyvek®
- ☑ Field crew has not used fabric softener on clothing
- ☑ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☑ Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- ☑ No Teflon® or LDPE containing materials on-site
- ☑ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☑ No waterproof field books on-site
- ☑ No plastic clipboards, binders, or spiral hard cover notebooks on-site
- ☑ No adhesives (Post-It Notes) on-site
- ☑ Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- ☑ All sample containers made of HDPE or polypropylene
- ☑ Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- ☑ Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- ☑ "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- ☑ Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- ☑ No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Dan King

Field Lead Signature: Dan King Time: 7:40

XREFS: NONE

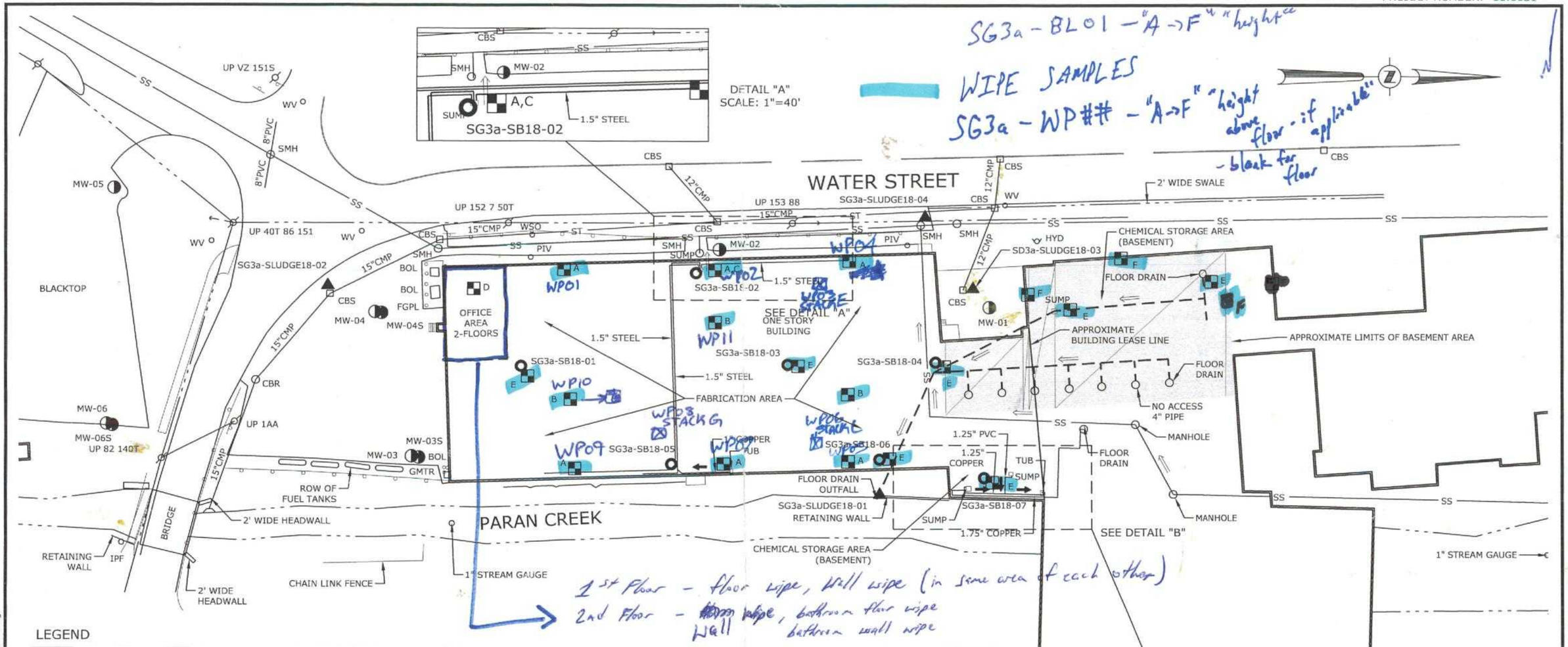
PROJECT NUMBER: 16.6131

SG3a - BL01 - "A → F" "height"

WIPE SAMPLES

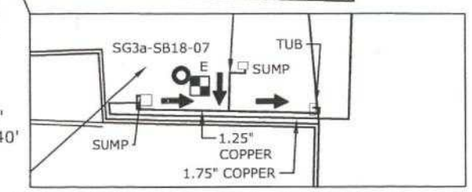
SG3a - WP## - "A → F" "height above floor - if applicable" - blank for floor

DETAIL "A"
SCALE: 1"=40'



1st Floor - floor wipe, wall wipe (in some area of each other)

2nd Floor - ~~Bedroom~~ wall wipe, bathroom floor wipe, bathroom wall wipe



DETAIL "B"
SCALE: 1"=40'

LEGEND

BOL ○	Bollard	MW ◑	Monitoring Well
CBR ○	Catch Basin Round	PIV ○	Post Indicator Valve
CBS □	Catch Basin Square	SMH ○	Sanitary Manhole
FGPL ○	Flag Pole	UMH ○	Unknown Manhole
GMTR □	Gas Meter	UP ⌀	Utility Pole
GP ○	Gate Post	WSO ○	Water Shut Off
HYD ⌀	Hydrant	WV ○	Water Valve
IPF ○	Iron Pipe Found	→	Water Flow Direction

■ Building Wipe and Material Sampling Summary
A - CONCRETE WALL WIPE SAMPLE (1), I-BEAM WIPE SAMPLES (3), WALL INSULATION SAMPLE (1)
B - I-BEAM WIPE SAMPLES (3), CEILING INSULATION SAMPLE (1)
C - BULK SAMPLE FROM FLOOR (1; WHERE RESIDUE IS PRESENT)
D - WALL AND FLOOR WIPE SAMPLES FROM FIRST AND SECOND FLOOR
E - FLOOR WIPE SAMPLE (1)
F - WALL WIPE SAMPLE (1)

▲ Sewer and Stormwater Catch Basin Sludge Samples
O Geoprobe Boring Monitoring Well Location

PROGRESS PRINT

* PFAS 14-List

DATE		REVISIONS RECORD/DESCRIPTION	DRAFTED	CHECK	APPR.
	1				
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	3				
	4				
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	8				
	9				

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DESIGNED : J.DIPPERT
DRAFTED : S.WUNSCH
CHECKED : J.DIPPERT
PROJ. NO : 16.6131
SCALE : 1"=60'
DATE : NOV. 15, 2017

FIGURE 1
SUPPLEMENTAL SITE INVESTIGATION WORK PLAN

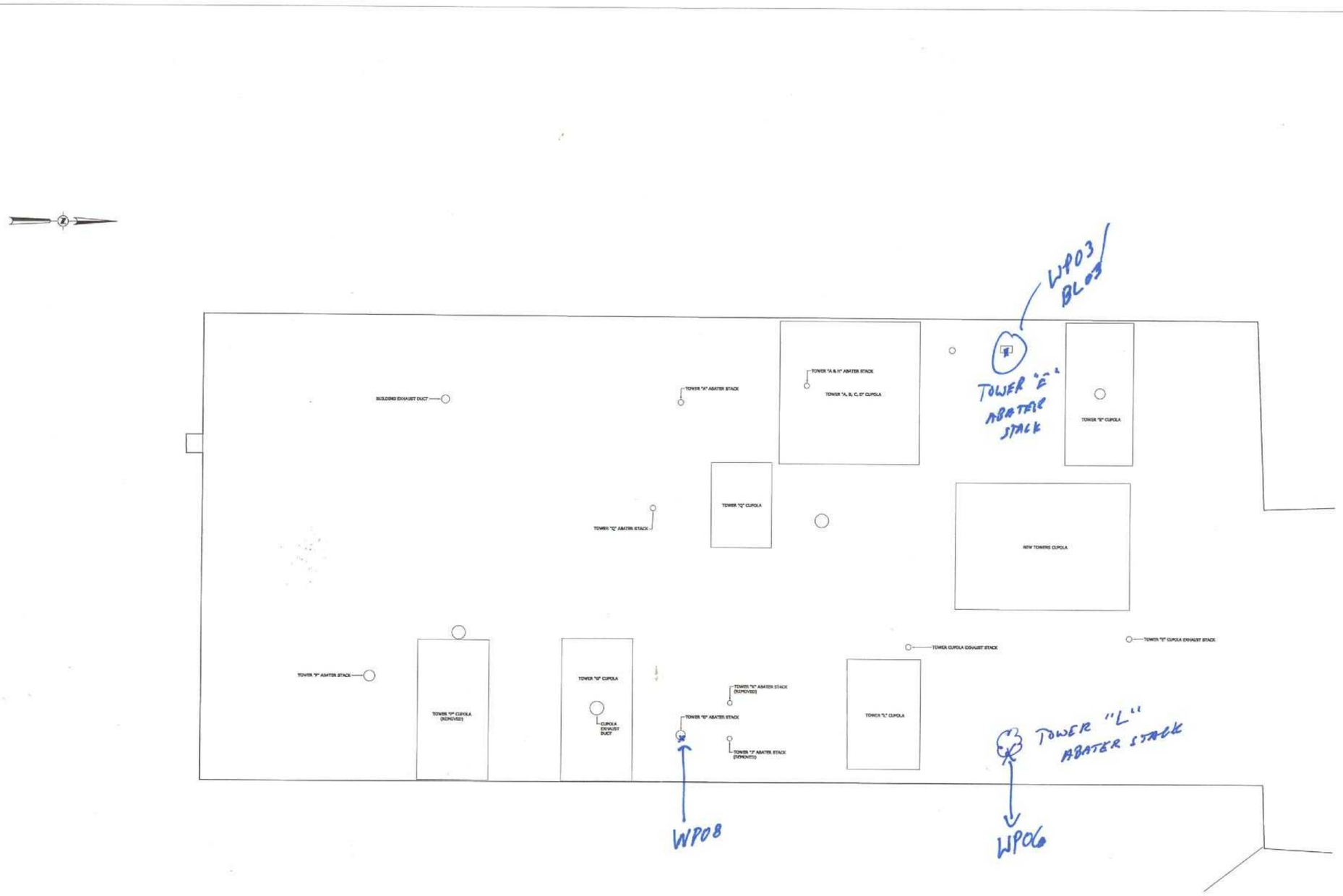
1030 WATER STREET

TOWN OF BENNINGTON — BENNINGTON COUNTY, VERMONT

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299

SHEET 1 OF 1
DWG. NO: 17-XXX

CAD DWG. FILE NAME: K:\Projects\166131\Env\Drawings-Maps\figure 1 - sup charc work plan.dwg



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DATE	REVISIONS RECORD/DESCRIPTION	DRAFTER	CHECK	APPR.

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APPROVED: ---
DRAFTED : SMW
CHECKED : MN
PROJ. NO : 16.8131
SCALE : 1"=20'
DATE : FEB. 14, 2018

FORMER CHEMFAB FACILITY
INTERIOR ROOF LAYOUT
1630 WATER STREET

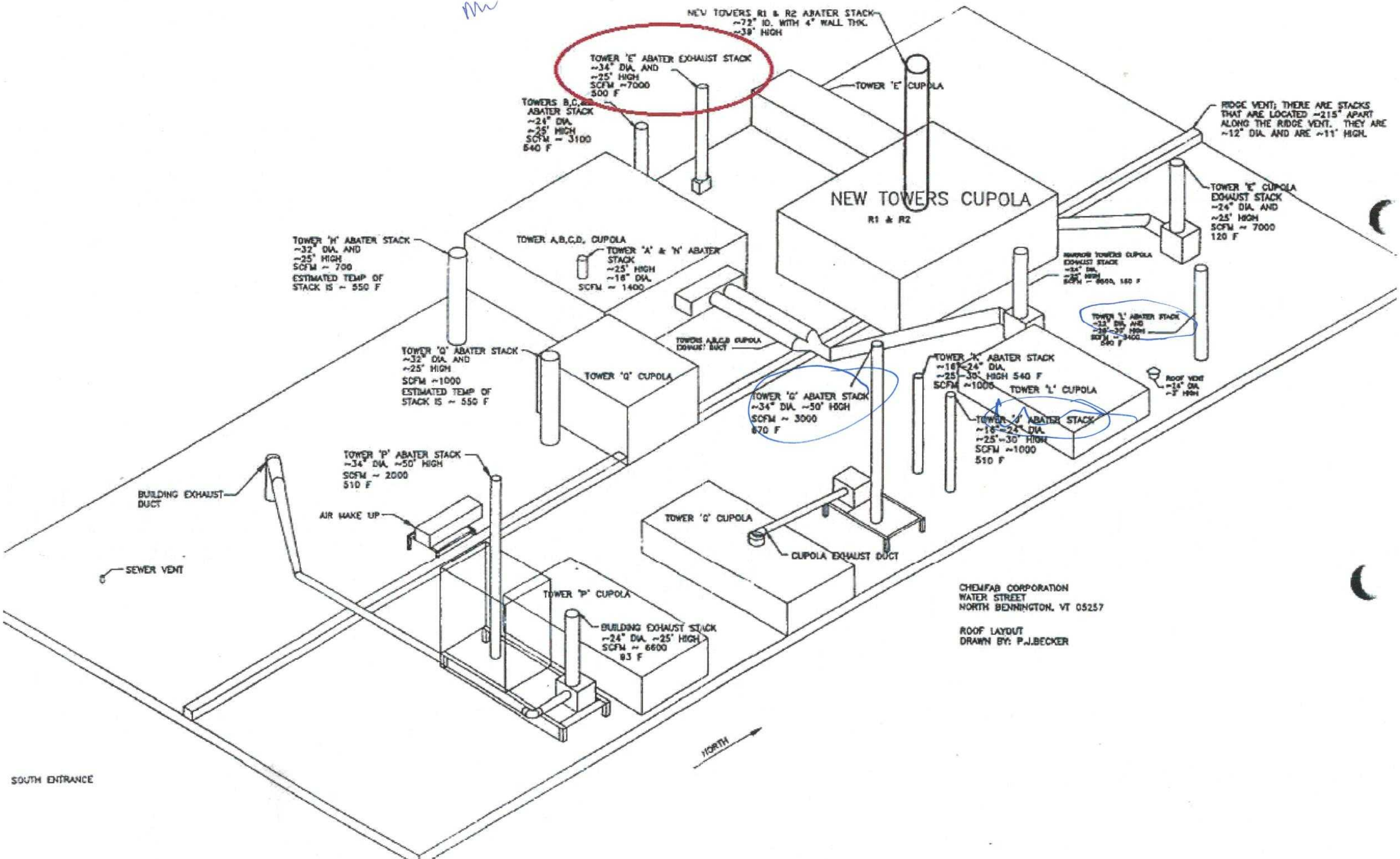
VILLAGE OF NORTH BENNINGTON — BENNINGTON COUNTY, NEW YORK

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299

SHEET 2 OF 3
DWG. NO: 18-192

BAR SCALE
0 5 10 20
1 inch = 20 ft.

"ONLY COPIES OF THIS MAP STAMPED IN RED INK AND EMBOSSED WITH THE SEAL OF AN OFFICER OF C.T. MALE ASSOCIATES OR A DESIGNATED REPRESENTATIVE SHALL BE CONSIDERED TO BE A VALID TRUE COPY".


NEW TOWERS R1 & R2 ABATER STACK
~72" ID. WITH 4" WALL THK.
~39' HIGH
TOWER 'E' ABATER EXHAUST STACK
~34" DIA. AND
~25' HIGH
SCFM ~7000
500 F
TOWERS B,C,D ABATER STACK
~24" DIA.
~25' HIGH
SCFM ~ 3100
540 F
TOWER 'E' CUPOLA
RIDGE VENT; THERE ARE STACKS THAT ARE LOCATED ~215" APART ALONG THE RIDGE VENT. THEY ARE ~12" DIA. AND ARE ~11' HIGH.
NEW TOWERS CUPOLA
R1 & R2
TOWER 'E' CUPOLA EXHAUST STACK
~24" DIA. AND
~25' HIGH
SCFM ~ 7000
120 F
TOWER 'H' ABATER STACK
~32" DIA. AND
~25' HIGH
SCFM ~ 700
ESTIMATED TEMP OF STACK IS ~ 550 F
TOWER A,B,C,D, CUPOLA
TOWER 'A' & 'H' ABATER STACK
~25' HIGH
~16" DIA.
SCFM ~ 1400
TOWER 'Q' ABATER STACK
~32" DIA. AND
~25' HIGH
SCFM ~1000
ESTIMATED TEMP OF STACK IS ~ 550 F
TOWER 'Q' CUPOLA
TOWERS A,B,C,D CUPOLA EXHAUST DUCT
TOWER 'G' ABATER STACK
~34" DIA. ~50' HIGH
SCFM ~ 3000
670 F
TOWER 'K' ABATER STACK
~16"-24" DIA.
~25'-30' HIGH 540 F
SCFM ~1000
TOWER 'L' CUPOLA
TOWER 'J' ABATER STACK
~16"-24" DIA.
~25'-30' HIGH
SCFM ~1000
510 F
ROOF VENT
~14" DIA.
~3' HIGH
TOWER 'P' ABATER STACK
~34" DIA. ~50' HIGH
SCFM ~ 2000
510 F
BUILDING EXHAUST DUCT
AIR MAKE UP
SEWER VENT
TOWER 'G' CUPOLA
CUPOLA EXHAUST DUCT
TOWER 'P' CUPOLA
BUILDING EXHAUST STACK
~24" DIA. ~25' HIGH
SCFM ~ 6600
93 F
NORTH
SOUTH ENTRANCE
CHEMFAB CORPORATION
WATER STREET
NORTH BENNINGTON, VT 05257
ROOF LAYOUT
DRAWN BY: P.J.BECKER

MAP NOTES:

1. Information shown hereon was compiled from an actual field survey conducted during the month of February 2018.
2. North orientation is Grid North and is based on the Vermont State Plane Coordinate System, NAD 83/2011 epoch 2010.00.
3. Topographic information shown hereon was compiled from a combination of data obtained from Leica C-10 3D Laser Scanner, processed through Cyclone 8.1 and conventional field survey techniques conducted during the month of February 2018.
4. The location of underground improvements or encroachments, if any exist, or as shown hereon, are not certified. There may be underground utilities, the existence of which are not known to the undersigned. Size and location of all underground utilities and structures must be verified by the appropriate authorities. ALL Dig Safe Vermont must be notified prior to conducting test borings, excavation and construction.

MAP REFERENCE:

1. "Boundary Survey Lands Now or Formerly of 1030 Water Street Associates, LLC" prepared by C.T. Male Associates, Engineering, Surveying, Architecture and Landscape Architecture, D.P.C. dated April 12, 2017. C.T. Male Project No. 16.6131, Dwg. No. 17-274.

PROGRESS PRINT

DATE	REVISIONS RECORD/DESCRIPTION	DRAFTER	CHECK	APPR.
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APPROVED:
DRAFTED : SMW
CHECKED : MPN
PROJ. NO : 16.6131
SCALE : 1"=20'
DATE : FEB. 14, 2018

FORMER CHEMFAB FACILITY
INTERIOR BUILDING LAYOUT
1030 WATER STREET

VILLAGE OF NORTH BENNINGTON — BENNINGTON COUNTY, NEW YORK

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299

SHEET 1 OF 2
DWG. NO: 18-192

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____ Group # _____ Sample # _____

COC # 558201

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP-Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: JD, DK, CB, CO	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ | Water ☐ Potable ☐ Ground ☐ NPDES ☐ Surface ☐ | Other: Rinse Water

Analysis Requested

Preservation and Filtration Codes

14 PFAS (EPA 537 mod)

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

1 of 5

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Water	Other	Total # of Containers	14 PFAS (EPA 537 mod)	Remarks
SG3a-WP10-B35.0	3/29/18	15:20	✓		✓		✓	1	✓	
SG3a-WP10-B33.0		15:30	✓		✓			1	✓	
SG3a-BL10-B26.0		15:35	✓			✓		1	✓	
SG3a-WP10-B23.0		15:40	✓		✓			1	✓	
SG3a-WP10-B11.0		15:45	✓		✓			1	✓	
SG3a-BL10-B29.0	3/29/18	15:25	✓			✓		1	✓	
SG3a-FTB01-180330	3/30/18	8:25	✓				✓	2	✓	
SG3a-LTB01-180330		—	✓				✓	2	✓	
SG3a-RB01-180330		8:35	✓				✓	2	✓	Wipe Template
SG3a-WP11-B42.0		8:20	✓		✓			1	✓	

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	3/30/18	15:40			

EDD Required? Yes No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

Environmental Analysis Request/Chain of Custody

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Acct. # _____ Group # _____ Sample # _____

COC # 558202

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP-Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16,6131
Sampler: JD, DK, CB, CO	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Soil ☐ Sediment ☐ Tissue ☐ Water: Potable ☐ Ground ☐ Surface ☐ NPDES ☐ Other: Rinse Water

Analysis Requested — Preservation and Filtration Codes: 14 PFAS (EPA537 mod)

For Lab Use Only
FSC: _____
SCR#: _____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Sediment	Water	Other	Total # of Containers	14 PFAS (EPA537 mod)	Remarks
SG3a-WP11-B41.0	3/30/18	8:25	✓		✓				1	✓	
SG3a-BL11-B40.5		4:30	✓				✓		1	✓	
SG3a-BL11-B25.6		8:40	✓				✓		1	✓	installation
SG3a-WP11-B24.0		8:45	✓		✓				1	✓	
SG3a-WP11-B16.0		8:50	✓		✓				1	✓	
SG3a-EB01-180330		9:35	✓					✓	2	✓	Chisel
SG3a-EB02-180330		10:00	✓		✓				1	✓	
SG3a-BL13-C		10:05	✓				✓		3	✓	MS/MSD here
SG3a-WP12-B44.5		9:25	✓		✓				1	✓	
SG3a-WP12-B43.0		9:30	✓		✓				1	✓	

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3/30/18	15:40			

EDD Required? Yes No
If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

Environmental Analysis Request/Chain of Custody

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Acct. # _____ Group # _____ Sample # _____

COC # 558206

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP-Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: JD, DK, CB, CO	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Soil ☑ Sediment ☐ Tissue ☐ Water ☑ Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: Rinse Water

Analysis Requested — Preservation and Filtration Codes

For Lab Use Only
FSC: _____
SCR#: _____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks
3 of 5

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Water	Other	Total # of Containers	14 PFAS (EPA 537 mod.)	Remarks
SG3a-BL12-B42.5	3/30/18	9:35	✓			✓		1	✓	
SG3a-WP12-B30.0		9:40	✓		✓			1	✓	
SG3a-WP12-B15.0		9:50	✓		✓			1	✓	
SG3a-BL12-B28.0		9:45	✓			✓		1	✓	insulation
SG3a-FD01-180330		—	✓		✓			1	✓	
SG3a-FD02-180330		—	✓			✓		1	✓	
SG3a-FTB02-180330		10:30	✓				✓	2	✓	
SG3a-LTB02-180330		—	✓				✓	2	✓	
SG3a-WP02-A1.5		11:25	✓		✓			1	✓	
SG3a-WP04-A1.5	↓	11:30	✓		✓			1	✓	

Turnaround Time (TAT) Requested (please circle)
(Standard) Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: k.moline@ctmale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP)
Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
(NYSDEC Category A or B) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	3/31/18	15:40			

EDD Required? Yes No
If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

Environmental Analysis Request/Chain of Custody

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Acct. # _____ Group # _____ Sample # _____

COC # 544577

Client Information

Client: CT. Male Associates	Acct. #:
Project Name/#: SkPP-Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: JD, DK, CB, CO	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ | Water ☐ Ground ☐ Potable ☐ Surface ☐ NPDES ☐ | Other: Rinse Water

Analysis Requested

Preservation Codes

4 PFAS (EPA 537 mod.)

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

4 of 5

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	4 PFAS	Remarks
SG3a-WP05-A1.5	3/30/18	11:35	✓		1	✓	
SG3a-WP07-A1.5		11:40	✓		1	✓	
SG3a-WP09-A1.5		11:45	✓		1	✓	
SG3a-BL14-A5.5		12:00	✓		1	✓	insulation
SG3a-WP15-E		12:05	✓		1	✓	
SG3a-WP16-E		12:10	✓		1	✓	
SG3a-WP17-E		12:15	✓		1	✓	
SG3a-WP18-E		12:20	✓		1	✓	
SG3a-EB03-180330		12:15	✓		1	✓	
SG3a-FD03-180330		—	✓		1	✓	

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: k.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3/30/18	15:40			

EDD Required? Yes No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

Environmental Analysis Request/Chain of Custody

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Acct. # _____ Group # _____ Sample # _____

COC # 541141

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP-Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: JD, DK, CB, CO	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Soil ☑ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☑ Surface ☐ NPDES ☐ Other: Rinse Water, Soil

Analysis Requested — Preservation Codes

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

5 of 5 FES

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	14 PFAS (EPA 533 Mod)
SG3a-WP19-D	3/30/18	12:35	✓		1	✓
SG3a-WP19-D5.5		12:40	✓		1	✓
SG3a-WP20-D		12:45	✓		1	✓
SG3a-WP20-D5.5		12:50	✓		1	✓
SG3a-WP21-D5.5		12:55	✓		1	✓
SG3a-WP22-E		13:15	✓		1	✓
SG3a-WP23-E5.0		13:20	✓		1	✓
SG3a-WP24-E3.0		13:25	✓		1	✓
SG3a-WP25-E		13:35	✓		1	✓
SG3a-WP26-E5.0	↓	12:40	✓		1	✓

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: k.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3/30/18	15:40			

EDD Required? Yes No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 4/23/18 Time On-Site: 0900 Time Off-Site: 1545

Project Name: SGPP- Bennington Project No.: 166131

Purpose: Groundwater Sampling / Bulk Sampling Field Report No:

Weather Conditions: Sunny, High 67°F

Present at Site: Cliff Bondi, Jon Dippert

Observations: 0900 Arrived onsite, Equipment calibrated at Latham office prior to departing for site, CB began setting up equipment/paperwork to collect Bulk Samples from wall insulation next to wipe Sampled beams CB used Stainless Steel Spatula w/knife edge for Sample Collection (decon'ed between each sample) Samples Collected @: BL01-A5.0, BL02-A5.0, BL04-A5.0, BL05-A5.0, BL07-A5.0, BL09-A5.0

1100 CB Completed Bulk Sample collection, cleaning up materials and beginning WL checks on interior wells

1130 Interior wells complete, JD arrived onsite and assisted CB in cleaning up and closing buildings, CB + JD discussed Priority of WL readings vs MW-07s Sample → decided Sample more important, CB Packs truck to move and begin purge/Sample of MW-07s

1305 - 1435 MW-07s Purged 3 volumes / low flowed / Sampled

1500 CB Packing up and dumping water into IDW tank

1515 offsite → Back to office to Ship Samples

Items to Verify:

List of Attachments: PFAS Sampling Checklist x1, Cal log x1, Purging/Sampling log x1, COC x1

Field Log Prepared by: Cliff Bondi

Copies to:

Environmental Analysis Request/Chain of Custody

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Acct. # _____ Group # _____ Sample # _____

COC # 545248

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: SGPA Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: CB	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Soil ☒ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☒ NPDES ☐ Surface ☐ | Other: Rinse Water

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	PFAS TAT Assay	14 PFAS (EPA 537 mod.)	Remarks
SG3-LTB01-180423	4/23/18	—			3	X	X	
SG3-FTB01-180423		0930	X		3	X	X	
SG3a-BL01-A5.0		1020	X		1		X	Insulation
SG3a-BL02-A5.0		1025	X		1		X	
SG3a-BL04-A5.0		1030	X		1		X	
SG3a-BL05-A5.0		1035	X		1		X	
SG3a-BL07-A5.0		1040	X		1		X	
SG3a-BL09-A5.0		1045	X		1		X	Insulation
SG3MW07S-180423	↓	1435	X		4	X		
SG3-FD01-180423	4/23/18	—	X		4	X		

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	4/23/18	1645			

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

Appendix B.6

Investigation Derived Waste

resourceful. naturally.
engineering and environmental consultants

BARR

Memorandum

To: 45021004 Saint-Gobain Performance Plastics Water Street Site Investigation Report
Subject: Investigation Derived Waste Management and Disposal, Former Chemfab Facility, Site Investigation Report
Date: June 2018
Project: 45021003

Investigation derived waste (IDW) was generated during the site investigations at the former Chemfab facility (Site) and managed in accordance with the approved Work Plans (C.T. Male, 2016; C.T. Male 2017) and applicable rules and regulations. IDW water included water generated from equipment decontamination, well development and sampling, sewer clearing, and investigation work. IDW solids included soil cuttings from borings and personal protective equipment. Waste characterization sample results are provided in Table B.6-1 and field notes are included in Attachment B.6-1. A summary of the management and disposal of IDW during this investigation is provided below.

During the 2016 investigation, soil cuttings generated during the monitoring well installation were containerized. Sample WASTE_CHARACTER was collected on July 15, 2016 from the containerized soil. Water produced during the 2016 monitoring well development, and sampling and equipment decontamination was containerized in drums and sample WASTE_CHARACTER was collected on July 15, 2016 for waste characterization. The water and soil IDW was disposed at Covanta Environmental Solutions in Niagara Falls, NY, on October 18, 2016.

Water produced during the 2018 monitoring well development and sampling, and equipment decontamination was added to the steel closed-top tanks utilized for the IDW water generated during the Conceptual Site Model Site Investigation field activities (Barr, 2018). The IDW water was pumped through a portable granular activated carbon filtration unit and sampled for PFAS analysis for every 10,000 gallons filtered (IDW-TRTD-1, IDW-TRTD-2, IDW-TRTD-3). The filtered IDW water was stored in another steel closed-top tank until the sample results were available. After approval by the Town of Bennington waste water treatment plant, the treated water was discharged on June 5 and 6, 2018, to the wastewater sewer. During the discharge, samples were collected of the discharge water (FRAC-TRTD-1 collected on June 5, 2018, and FRAC-TRTD-1 collected on June 6, 2018).

Water and sediment produced during the 2018 sewer clearing work was containerized in a steel closed-top tank staged at the Site. Waste characterization sample WASTE_CHAR-CH-FRAC was collected of the water, and the waste profile for disposal has been submitted to the Lambton Landfill Facility in Sarnia, Canada, and is currently under review. The solids remaining in the steel closed-top tanks after the treatment of the IDW water and sewer clearing work will be consolidated into a roll-off container.

Soil cuttings generated during the 2018 installation of monitoring wells were placed in a steel roll-off container. The steel closed-top tanks used for the IDW water and sewer clearing IDW will be cleaned and remaining solids will be consolidated into the roll-off container. The soil will be sampled for future offsite disposal.

References:

Barr Engineering Co. 2018. Conceptual Site Model Site Investigation: Bennington, Vermont. Prepared for Saint-Gobain Performance Plastics. March 2018. Minneapolis.

C.T. Male Associates, 2016. Initial Site Characterization, Investigation Work Plan, Saint-Gobain Performance Plastics Site, 1030 Water Street, Village of North Bennington, Bennington County, Vermont, VTDEC SM S Site #20164630. Revised April 29, 2016.

C.T. Male Associates, 2017. Letter to Mr. John Schmeltzer from Kirk Moline and Daniel Reilly Re: Supplemental Site Investigation Work Plan-Draft, Former Chemfab Facility, 1030 Water Street, North Bennington, Vermont, Site #20164630 dated November 30, 2017.

C.T. Male Associates, 2018. Letter to Mr. John Schmeltzer from Kirk Moline and Daniel Reilly Re: Supplemental Site Investigation Work Plan-Draft Rev. 1, Former Chemfab Facility, 1030 Water Street, North Bennington, Vermont, Site #20164630 dated January 11, 2018.

Attachments:

Table B.6-1 – Analytical Results Investigation Derived Waste
Attachment B.6-1 – Field Notes

Table

Table B.6-1
Analytical Results Investigation Derived Waste
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

			Location	FRAC-TRTD-1	FRAC-TRTD-1	IDW-TRTD-1	IDW-TRTD-2	IDW-TRTD-3	WASTE_ CHARACTER	WASTE_ CHARACTER	WASTE_CHAR-CH-FRAC
			Date	6/05/2018	6/06/2018	5/02/2018	5/03/2018	5/03/2018	7/15/2016	7/15/2016	4/25/2018
			Depth			0 ft	0 ft	0 ft			
Parameter	Total or Dissolved	Units									
Metals											
Arsenic	Total	mg/l		--	--	--	--	--	< 0.0097 U	--	< 0.0096 U
Barium	Total	mg/l		--	--	--	--	--	**0.189**	--	**0.0351**
Cadmium	Total	mg/l		--	--	--	--	--	**0.00059 J**	--	< 0.0018 U
Chromium	Total	mg/l		--	--	--	--	--	< 0.0018 U	--	< 0.0033 U
Lead	Total	mg/l		--	--	--	--	--	< 0.0062 U	--	< 0.0060 U
Mercury	Total	mg/l		--	--	--	--	--	< 0.000050 U	--	< 0.000050 U
Selenium	Total	mg/l		--	--	--	--	--	< 0.0097 U	--	< 0.0093 U
Silver	Total	mg/l		--	--	--	--	--	< 0.0019 U	--	< 0.0024 U
TCLP Metals											
Arsenic	NA	mg/l		--	--	--	--	--	--	< 0.0097 U	--
Barium	NA	mg/l		--	--	--	--	--	--	**0.396**	--
Cadmium	NA	mg/l		--	--	--	--	--	--	**0.0019 J**	--
Chromium	NA	mg/l		--	--	--	--	--	--	**0.0042 J**	--
Lead	NA	mg/l		--	--	--	--	--	--	**0.0262 J**	--
Mercury	NA	mg/l		--	--	--	--	--	--	< 0.000050 U	--
Selenium	NA	mg/l		--	--	--	--	--	--	< 0.0097 U	--
Silver	NA	mg/l		--	--	--	--	--	--	< 0.0019 U	--
Per- and Polyfluoroalkyl Substances											
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	ng/l		< 0.96 U	< 0.94 U	< 0.90 U	< 0.94 U	< 0.88 U	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	NA	ng/l		< 1.9 U	< 1.9 U	< 1.8 U	< 1.9 U	< 1.8 U	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	NA	ng/l		< 0.96 U	< 0.94 U	< 0.90 U	< 0.94 U	< 0.88 U	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	NA	ng/l		< 0.96 U	< 0.94 U	< 0.90 U	< 0.94 U	< 0.88 U	--	--	--
Perfluorobutane sulfonate (PFBS)	NA	ng/l		< 0.29 U	< 0.28 U	< 0.27 U	< 0.28 U	< 0.26 U	--	--	--
Perfluorobutanoic acid (PFBA)	NA	ng/l		< 1.9 U	< 1.9 U	< 1.8 U	< 1.9 U	< 1.8 U	--	--	--
Perfluorodecanoic acid (PFDA)	NA	ng/l		< 0.96 U	< 0.94 U	< 0.90 U	< 0.94 U	< 0.88 U	--	--	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	NA	ng/l		< 0.29 U	< 0.28 U	< 0.27 U	< 0.28 U	< 0.26 U	--	--	--
Perfluoroheptanoic acid (PFHpA)	NA	ng/l		< 0.29 U	< 0.28 U	< 0.27 U	< 0.28 U	< 0.26 U	--	--	--
Perfluorohexane sulfonate (PFHxS)	NA	ng/l		< 0.38 U	< 0.38 U	< 0.36 U	< 0.37 U	< 0.35 U	--	--	--
Perfluorohexanoic acid (PFHxA)	NA	ng/l		< 0.38 U	< 0.38 U	< 0.36 U	< 0.37 U	< 0.35 U	--	--	--
Perfluorononanoic acid (PFNA)	NA	ng/l		< 0.38 U	< 0.38 U	< 0.36 U	< 0.37 U	< 0.35 U	--	--	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	NA	ng/l		< 0.96 U	< 0.94 U	< 0.90 U	< 0.94 U	< 0.88 U	--	--	--
Perfluorooctanesulfonate (PFOS)	NA	ng/l		< 0.38 U	**0.39 J**	< 0.36 U	< 0.37 U	< 0.35 U	--	--	--
Perfluorooctanoic acid (PFOA)	NA	ng/l		**0.61 J**	< 0.28 U	< 0.27 U	< 0.28 U	< 0.26 U	--	--	--
Perfluoropentanoic acid (PFPeA)	NA	ng/l		< 1.9 U	< 1.9 U	< 1.8 U	< 1.9 U	< 1.8 U	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	NA	ng/l		< 0.29 U	< 0.28 U	< 0.27 U	< 0.28 U	< 0.26 U	--	--	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	NA	ng/l		< 0.29 U	< 0.28 U	< 0.27 U	< 0.28 U	< 0.26 U	--	--	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	NA	ng/l		< 0.38 U	< 0.38 U	< 0.36 U	< 0.37 U	< 0.35 U	--	--	--

Attachment B.6-1

Field Notes

B.6-1a July 13, 2016 Groundwater Sampling
B.6-1b May 1, 2018 Water Treatment
B.6-1c June 5 and June 6, 2018 Treated Water Discharge

Attachment B.6-1a

July 13, 2016 Groundwater Sampling

G.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 7/13/16 Time On-Site: 0745 Time Off-Site: 1645

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Sunny, 90°F

Present at Site: Jonathan Dippert, Justin Campbell

Observations:

0745 - on-site, set up on MW02
- unload equipment
- open up all MWs, collect round of water levels
  → clean water level meter before and between each well

0900 - end round of water levels
- set up and start monitoring well sampling @ MW-01
- sample monitoring wells in accordance with USEPA Low Flow sampling procedure and CTM FSP.
- collected MS/MSD @ MW01
- collected field duplicate @ MW02, SG3-FD01-160713

1620 - end groundwater sampling for the day
- pack up equipment and samples (samples on ice)
- dispose of purged GW in 55 gal drum.

1645 - off-site

Items to Verify:

List of Attachments: WL Record, GW Purging Log, GW Services Logs

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

WATER LEVEL RECORD

Project Name SGPP - Bennington | Project Number 16.6131
Location North Bennington, VT | Measurement Taken By JD
Method or Reading | Datum

		Date 7/13/16			Date		
Well No.	Ref. Elev.	Depth To Water	Depth of Well	PID	Depth To Water	Depth of Well	PID
MW-01		8.86	14.63	0.5			
MW-02		9.13	12.35	0.3			
MW-03S		10.00	12.68	0.0			
MW-03		10.02	20.81	1.1			
MW-04S		8.88	12.00	0.0			
MW-04		8.86	19.80	0.2			
MW-05		7.46	14.58	0.1			
MW-06S		9.21	12.90	0.0			
MW-06		9.09	20.16	2.7			
MW-07S		15.29	22.58	0.0			
MW-07		15.45	40.43	0.0			

Measuring Point(s) Top of PVC

WELL PURGING LOG

Project Name: SGPP - North Bennington

Project Number: 16.6131

Date Started: 7/13/16

Date Finished: 7/13/16

Field Parameters	Intitial	Minutes of Purging and Corresponding Field Parameters Value									
Time (min)		5	10	15	20	25	30	35	40	45	50
pH	6.90	7.53	7.68	7.71	7.75	7.76	7.80				
Conductivity (µS)	432.3	390.5	377.1	376.2	373.4	371.5	370.8				
Temperature (C)	9.2	9.1	9.4	9.6	9.7	9.6	9.6				
Turbidity (NTU)	27.0	12.9	2.93	2.92	2.81	2.74	1.73				
Depth to Water (From TOC)	8.86	8.85	8.85	8.85	8.85	8.85	8.85				
~~Time~~ ORP (mV)	138	141	144	146	163	161	160				

Monitoring Well: MW-01

Notes:

Water Level: 8.86'

Total Depth: 14.63'

Water Column: 5.77'

One Well Volume: 0.92 gal

Field Parameters	Intitial	Minutes of Purging and Corresponding Field Parameters Value									
Time		5	10	15	20	25	30	35	40	45	50
pH	7.38	4.43	7.40	7.41	7.41	7.40	7.44	7.43			
Conductivity (µS)	988.0	988.0	983.2	985.1	987.4	991.5	987.0	987.2			
Temperature (C)	9.5	8.6	8.6	8.5	8.6	8.7	8.9	8.7			
Turbidity (NTU)	10.5	8.73	3.32	1.50	1.33	0.77	0.78	0.59			
Depth to Water (From TOC)	9.13	9.22	9.23	9.23	9.22	9.22	9.22	9.22			
~~Time~~ ORP (mV)	110	145	167	169	146	~~200~~ 196	198	196			

Monitoring Well: MW-02

Notes:

Water Level: 9.13

Total Depth: 12.35

Water Column: 3.22

One Well Volume: 0.52

Field Parameters	Intitial	Minutes of Purging and Corresponding Field Parameters Value									
Time		5	10	15	20	25	30	35	40	45	50
pH	7.59	7.58	7.55	7.54	7.56	7.66	7.50	7.55	7.50	7.50	7.47
Conductivity	680.3	696.1	702.1	703.8	703.0	700.4	706.0	706.3	708.1	711.0	710.7
Temperature (C)	10.6	8.3	7.8	8.0	8.0	8.1	7.7	7.6	7.3	7.3	7.3
Turbidity (NTU)	118	84.3	10.6	2.80	2.76	2.12	2.12	4.69	1.93	0.97	0.87
Depth to Water (From TOC)	10.02	10.09	10.09	10.09	10.09	10.09	10.09	10.09	10.09	10.09	10.09
~~Time~~ ORP	89	153	177	183	200	203	199	213	211	227	234

Monitoring Well: MW-03

Notes:

Water Level: 10.02

Total Depth: ~~12.35~~ 20.81

Water Column: ~~2.33~~ 10.79

One Well Volume: ~~0.16~~ 1.73

WELL PURGING LOG

Project Name: SGPP - North Bennington

Project Number: 16.6131

Date Started: 7/13/16

Date Finished: 7/13/16

Field Parameters		Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	55									
pH		7.47									
Conductivity		714.5									
Temperature (C)		7.2									
Turbidity (NTU)		0.97									
Depth to Water (From TOC)		10.09	10.14								
~~Time~~ ORP		230									

Monitoring Well: MW-03, continued Notes:
Water Level:
Total Depth:
Water Column:
One Well Volume:

Field Parameters		Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	5	10	15	20	25	30	35	40	45	50
pH	7.50	7.50	7.42	7.42	7.43	7.45	7.44	7.47			
Conductivity MS	613.4	612.5	621.1	628.1	626.0	630.8	630.4	628.7			
Temperature (C)	8.1	8.5	7.9	7.9	7.7	8.0	8.2	8.3			
Turbidity (NTU)	181	56.9	9.18	2.66	5.00	2.05	2.23	2.76			
Depth to Water (From TOC)	10.01	10.14	10.13	10.18	10.18	10.17	10.17	10.16			
~~Time~~ ORP mV	172	199	210	221	225	228	233	231			

Monitoring Well: MW-03S Notes:
Water Level: 10.01'
Total Depth: 12.68'
Water Column: 2.67'
One Well Volume: 0.43 gal

Field Parameters		Minutes of Purging and Corresponding Field Parameters Value									
	Intitial										
pH											
Conductivity											
Temperature (C)											
Turbidity (NTU)											
Depth to Water (From TOC)											
Time											

Monitoring Well: Notes:
Water Level:
Total Depth:
Water Column:
One Well Volume:

Groundwater Services Field Log

DATE: 7/13/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-01 NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 8.85 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 14.63 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 5.78 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

WELL VOLUME: 0.92 GALLONS 2" = 0.16 GALLONS 6" = 1.47 GALLONS

VOLUMES PURGED: 3.5 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 0940 ; TIME FINISHED: 1010

OBSERVATIONS: COLOR clear ; ODOR none

SHEEN none ; TURBIDITY 1.73 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.80 SU , TEMPERATURE 9.6 °C

CONDUCTIVITY 370.8 µS , OTHER ORP - 160 mV

SAMPLE COLLECTION TIME: 1010

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

MS/MSD Collected.

Groundwater Services Field Log

DATE: 7/13/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-02 NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 9.13 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 12.35 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 3.22 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

WELL VOLUME: 0.52 GALLONS 2" = 0.16 GALLONS 6" = 1.47 GALLONS

VOLUMES PURGED: 5.0 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 1210 ; TIME FINISHED: 1245

OBSERVATIONS: COLOR clear ; ODOR none

SHEEN none ; TURBIDITY 0.59 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.43 SU , TEMPERATURE 8.7 °C

CONDUCTIVITY 987.2 µS , OTHER ORP -196 mV

SAMPLE COLLECTION TIME: 1245

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

Field Duplicate collected (SG3-MW-FD01-160713)

Sheet 1 of __

Groundwater Services Field Log

DATE: 7/13/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-03 NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 10.02 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 20.81 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 10.79 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 1.73 GALLONS

VOLUMES PURGED: 8.4 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 1355 ; TIME FINISHED: 1450

OBSERVATIONS: COLOR Clear ; ODOR None

SHEEN None ; TURBIDITY 0.97 NTU

OTHER ~~ORP ; 230 mV~~ 30

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 4.47 SU , TEMPERATURE 7.2 °C

CONDUCTIVITY 714.5 µS , OTHER ORP: 230 mV

SAMPLE COLLECTION TIME: 14:50

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

Groundwater Services Field Log

DATE: 7/13/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-03S NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 10.01 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 12.68 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 2.67 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 0.43 GALLONS

VOLUMES PURGED: 4.0 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 1530 ; TIME FINISHED: ~~1405~~ SD 1605

OBSERVATIONS: COLOR clear ; ODOR none

SHEEN none ; TURBIDITY 2.75 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.47 SU , TEMPERATURE 8.3 °C

CONDUCTIVITY 628.7 µS , OTHER ORP- 231 mV

SAMPLE COLLECTION TIME: ~~1405~~ SD 1605

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 7/14/16 Time On-Site: 0715 Time Off-Site: 1550

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Rain Showers, 85°F

Present at Site: Jonathan Dippert, Justin Campbell

Observations:

0715 - on-site
- set up for groundwater sampling at MW-04 well cluster

0745 - start groundwater sampling
- use same procedure for sampling as stated on 7/13

0930 - collect equipment blank sample SG3-EB01-160714
→ pump lab supplied water through peristaltic tubing (new) into lab supplied containers while wearing nitrile gloves (new)
- received word from K. Malise that Justin Campbell will be personally delivering samples to Lancaster Lab, no shipping.

1220 - collect rinse blank / equipment blank off of water level meter. Decon water level meter, pour lab supplied water over probe into lab supplied containers.
SG3-EB02-160714 (Eaton Lab only - PFCs)

1515 - end sampling, pack up equipment and samples. Dispose purged groundwater in 55 gallon drum
- finish paperwork

1550 - off-site

Items to Verify:

List of Attachments: Well Purging Logs, GW Services Logs, COC (Eaton)

Field Log Prepared by:

Copies to:

WELL PURGING LOG

Project Name: SGPP - North Bennington

Date Started: 7/14/16

Project Number: 16.6131

Date Finished: 7/14/16

Field Parameters	7/14/16	Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	5	10	15	20	25	30	35	40	45	50
pH	7.50	7.57	7.48	7.45	7.61	7.51	7.50	7.50	7.41	7.47	7.50
Conductivity mS	980.6	985.1	987.9	989.1	991.0	988.0	989.7	992.6	992.6	989.9	991.0
Temperature (C)	8.4	8.7	8.7	8.9	8.3	8.6	8.4	8.4	8.4	8.7	8.5
Turbidity (NTU)	63.8	47.1	16.4	15.9	9.04	5.10	4.48	5.65	2.62	2.44	5.08
Depth to Water (From TOC)	8.88	8.94	8.94	8.94	8.94	8.94	8.94	8.94	8.94	8.94	8.94
~~Time~~ ORP mV	99	113	164	183	188	200	191	197	212	223	197

Monitoring Well: MW-04 Notes: Rained this morning

Water Level: 8.88

Total Depth: 19.80

Water Column: 10.92

One Well Volume: 1.75

3 well volumes: 5.25

Field Parameters		Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	55	60	65	20	25	30	35	40	45	50
pH		7.48	7.50	~~7.39~~ 50							
Conductivity mS		992.3	987.1								
Temperature (C)	50	8.7	8.9								
Turbidity (NTU)		3.06	1.83								
Depth to Water (From TOC)		8.94	8.94								
~~Time~~ ORP mV		189	188								

Monitoring Well: MW-04/50D Notes:

Water Level:

Total Depth:

Water Column:

One Well Volume:

2013

Field Parameters	7/12/16	Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	5	10	15	20	25	30	35	40	45	50
pH	7.47	7.39	7.39	7.36	7.35	7.35	7.38	7.32			
Conductivity mS	1001	1011	1015	1014	~~1007~~	1013	1015	1020			
Temperature (C)	11.1	11.0	10.8	10.7	10.7	10.7	10.8	10.7			
Turbidity (NTU)	5.33	7.53	4.05	2.86	3.21	2.76	3.22	2.27			
Depth to Water (From TOC)	8.93	9.13	9.17	9.18	9.18	9.19	9.20	9.21			
~~Time~~ ORP mV	190	218	225	228	217	211	214	219			

Monitoring Well: MW-04/S Notes:

Water Level: 8.93

Total Depth: 12.00

Water Column: 3.07

One Well Volume: 0.49

WELL PURGING LOG

Project Name: SGPP - North Bennington

Project Number: 16.6131

Date Started: 7/14/16

Date Finished: 7/14/16

Field Parameters	Minutes of Purging and Corresponding Field Parameters Value										
	Intitial	5	10	15	20	25	30	35	40	45	50
pH	7.1	7.13	7.21	7.13	7.16	7.13	7.14	7.12	7.16	7.15	7.15
Conductivity (µs)	1995	2022	2006	2013	2015	2032	2016	2017	2010	2016	2019
Temperature (C)	9.4	9.3	9.5	9.5	9.6	9.4	9.5	9.7	9.8	9.3	9.2
Turbidity (NTU)	124	64.1	6.96	3.35	1.69	1.32	0.72	1.07	1.07	0.48	0.51
Depth to Water (From TOC)	9.22	9.60	9.84	9.85	9.80	9.61	9.63	9.63	9.64	9.65	9.66
~~Time~~ ORP (mV)	167	215	207	218	222	223	233	236	218	200	216

Monitoring Well: MW-06S

Notes:

Water Level: 9.23

Total Depth: 12.90

Water Column: 3.67

One Well Volume: 0.589 = 0.59

3 volumes: 1.76

Field Parameters	~~Minutes of Purging and Corresponding Field Parameters Value~~										
	~~Intitial~~	60	10	~~15~~	~~20~~	~~25~~	~~30~~	~~35~~	~~40~~	~~45~~	~~50~~
pH	7.10	7.07	~~7.145~~								
Conductivity (µs)	2020	2009	~~1995~~								
Temperature (C)	9.4	9.4	~~9.7~~								
Turbidity (NTU)	0.57	0.56									
Depth to Water (From TOC)	9.67	9.67									
~~Time~~ ORP (mV)	222	219	~~233~~								

Monitoring Well:

Notes: ~~1~~ 2

Water Level:

Total Depth:

Water Column:

One Well Volume:

Field Parameters	Minutes of Purging and Corresponding Field Parameters Value										
	Intitial	5	10	15	20	25	30	35	40	45	50
pH	7.40	7.47	7.45	7.46	7.40	7.40	7.38	7.36	7.33	7.34	7.37
Conductivity (µs)	1368	1383	1395	1408	1429	1441	1460	1481	1485	1470	1491
Temperature (C)	9.2	9.1	9.1	8.7	8.6	8.5	8.3	8.1	8.0	8.0	8.2
Turbidity (NTU)	516.5	48.3	14.8	8.97	4.64	2.73	1.69	1.29	1.20	1.20	0.52
Depth to Water (From TOC)	9.14	9.21	9.21	9.21	9.21	9.21	9.21	9.21	9.21	9.21	9.21
~~Time~~ ORP (mV)	170	197	233	235	251	244	245	223	242	235	228

Monitoring Well: MW-06

Notes: 50 28 = 3 volumes

Water Level: 9.14

Total Depth: 20.16

Water Column: 11.02

One Well Volume: 1.76

WELL PURGING LOG

Project Name: SGPP - North Bennington

Project Number: 16.6131

Date Started: 7/14/16

Date Finished: 7/14/16

Field Parameters	Intitial	Minutes of Purging and Corresponding Field Parameters Value									
		5	10	15	20	25	30	35	40	45	50
pH	7.0	7.2	6.9	6.9	7.0	7.0	7.2	6.9	7.1	6.9	7.2
Conductivity mS	2.59	2.42	2.50	2.51	2.52	2.52	2.54	2.52	2.52	2.52	2.52
Temperature (C)	16.5	16.1	16.4	16.4	16.3	16.4	16.3	16.4	16.2	16.4	16.3
Turbidity (NTU)	4.32	2.97	3.67	4.21	0.94	0.54	0.58	0.31	0.46	0.36	0.44
Depth to Water (From TOC)	7.57	7.57	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56
Time ORP mV	67	60	50	52	55	62	65	72	77	74	68

Monitoring Well: MW-05
Water Level: 7.51
Total Depth: 14.58'
Water Column: 7.07
One Well Volume: 1.13

Notes:

Field Parameters	Intitial	Minutes of Purging and Corresponding Field Parameters Value									
		55	60	65							
pH		7.38	7.37	7.37							
Conductivity µS		1485	1506	1492							
Temperature (C)		8.3	8.2	8.0							
Turbidity (NTU)		1.09	0.97	1.46							
Depth to Water (From TOC)		9.21	9.21	9.21							
Time ORP mV		244	241	238							

Monitoring Well: MW-06 (continued)
Water Level:
Total Depth:
Water Column:
One Well Volume:

Notes:

Field Parameters	Intitial	Minutes of Purging and Corresponding Field Parameters Value									
pH											
Conductivity											
Temperature (C)											
Turbidity (NTU)											
Depth to Water (From TOC)											
Time											

Monitoring Well:
Water Level:
Total Depth:
Water Column:
One Well Volume:

Notes:

Groundwater Services Field Log

DATE: 7/14/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-04 NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 8.94 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 19.80 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 10.92 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 1.75 GALLONS

VOLUMES PURGED: 7 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 07:45 ; TIME FINISHED: ~~0905~~ 0850 0845

OBSERVATIONS: COLOR CLEAR ; ODOR NONE

SHEEN NONE ; TURBIDITY 1.83 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.50 SU , TEMPERATURE 8.9 °C

CONDUCTIVITY 987.1 µS , OTHER 178mV-ORP

SAMPLE COLLECTION TIME: 0845

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

Groundwater Services Field Log

DATE: 7/14/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-04S NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 8.93 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 12.00 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 3.07 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

WELL VOLUME: 0.49 GALLONS 2" = 0.16 GALLONS 6" = 1.47 GALLONS

VOLUMES PURGED: 3.5 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 09:25 ; TIME FINISHED: 10:00

OBSERVATIONS: COLOR clear ; ODOR None

SHEEN None ; TURBIDITY 2.27 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.32 SU , TEMPERATURE 10.7 °C

CONDUCTIVITY 1020 µS , OTHER ORP = 219 mV

SAMPLE COLLECTION TIME: 10:00

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

Groundwater Services Field Log

DATE: 7/14/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, V

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-05 NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 7.51 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 14.58 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 7.07 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 1.13 GALLONS

VOLUMES PURGED: 5.5 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 1405 ; TIME FINISHED: 14:55

OBSERVATIONS: COLOR clear ; ODOR None

SHEEN None ; TURBIDITY 0.44 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.2 SU , TEMPERATURE 16.3 °C

CONDUCTIVITY 2.52 ~~mS~~ µS , OTHER ORP = 68

SAMPLE COLLECTION TIME: 1455

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

Groundwater Services Field Log

DATE: 7/14/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-06 NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 9.14 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 20.16 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 11.02 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 1.76 GALLONS

VOLUMES PURGED: 5.5 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 1305 ; TIME FINISHED: 1415

OBSERVATIONS: COLOR Clear ; ODOR None

SHEEN None ; TURBIDITY 1.45 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.37 SU , TEMPERATURE 8.0 °C

CONDUCTIVITY 1492 µS , OTHER ORP = 238 mV

SAMPLE COLLECTION TIME: 14:15

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

Groundwater Services Field Log

DATE: 7/14/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-06S NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 9.23 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 12.90 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 3.67 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 0.59 GALLONS

VOLUMES PURGED: 5.5 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 11:25 ; TIME FINISHED: 12 25

OBSERVATIONS: COLOR Clear ; ODOR None

SHEEN None ; TURBIDITY 0.56 NTU

OTHER —

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.07 SU , TEMPERATURE 9.4 °C

CONDUCTIVITY 2009 µS , OTHER ORP= 219

SAMPLE COLLECTION TIME: 12:25

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

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CHAIN OF CUSTODY RECORD

Page 1 of 1

REPORT TO: Kirk Moline
CT Male Associates
50 Century Hill Dr
Latham, NY 12110

BILL TO: SAME AS REPORT

SAMPLER (Signature)

COMPLIANCE MONITORING: No

PWS ID #

STATE (sample origin): VT

POPULATION SERVED

SOURCE WATER

PROJECT NAME: SGPP-Bennington

PO#: 16.6131

LAB Number	COLLECTION DATE	COLLECTION TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	CHLORINATED NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1	7/8/16	—			SG3-LTB01-160713	PFCs EPA Method 537				1	RW	SW
2	7/13/16	1010	X		SG3-MW04-160713		MS/MSD		X	6	GW	
3	7/13/16	1245		X	SG3-MW02-160713				X	2	GW	
4	7/13/16	—			SG3-FD01-160713				X	2	GW	
5	7/13/16	1450		X	SG3-FTB01-160713					1	RW	
6	7/13/16	1450		X	SG3-MW03-160713				X	2	GW	
7	7/13/16	1605		X	SG3-MW03S-160713				X	2	GW	
8	7/14/16	0845	X		SG3-MW04-~~160713~~ 160714				X	2	GW	
9		0930	X		SG3-EB01-160714					2	RW	
10		1000	X		SG3-MW04S-160714				X	2	GW	
11		1220		X	SG3-EB02-160714					2	RW	
12		1225		X	SG3-MW06S-160714				X	2	GW	
13		1415		X	SG3-MW06-160714				X	2	GW	
14	7/14/16	1455		X	SG3-MW05-160714				X	2	GW	

RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME
	7/14/16	1730 AM / PM			AM PM
RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED BY:(Signature)	DATE	TIME
		AM PM			AM PM
RELINQUISHED BY:(Signature)	DATE	TIME	RECEIVED FOR LABORATORY BY:	DATE	TIME
		AM PM			AM PM

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS

CONDITIONS UPON RECEIPT: (check one)
_____ Iced: Wet/Blue _____ Ambient _____ °C Upon Receipt _____ N/A

MATRIX CODES:
DW-DRINKING WATER
RW-REAGENT WATER
GW-GROUND WATER
EW-EXPOSURE WATER
SW-SURFACE WATER
PW-POOL WATER
WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

SW = Standard Written: (15 working days) 0%
RV* = Rush Verbal: (5 working days) 50%
RW* = Rush Written: (5 working days) 75%
IV* = Immediate Verbal: (3 working days) 100%
IW* = Immediate Written: (3 working days) 125%
SP* = Weekend, Holiday CALL
STAT* = Less than 48 hours CALL

* Please call, expedited service not available for all testing

Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges.

Sample analysis will be provided according to the standard EEA/Water Services Terms, which are available upon request. Any other terms proposed by Customer are deemed material alterations and are rejected unless expressly agree to in writing by EEA.

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 7/15/16 Time On-Site: 0745 Time Off-Site: 1220

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Sunny, 85°F

Present at Site: Jonathan Dippert, Justin Campbell

Observations:

0715 - on-site

- Set up for groundwater sampling
  - → 2 monitoring wells remain - MW07 + MW07S

~0830 - JC start purging and sampling monitoring wells
  - → using same procedure/method as stated on 7/13

- JD set up to collect waste characterization sample of IDW
- collect waste characterization samples
  - → SG3-WASTECHARACTERIZATION-W : water sample, analyzed for Total Metals - RCRA8 list. Collected with new disposable bailer, homogenized in ziplock bag and transferred to lab container
  - → SG3-WASTECHARACTERIZATION-S : soil sample, analyzed for TCLP Metals - RCRA8 List. Collected with stainless steel spoon and new disposable baile (used as core), homogenized in ziplock bag and transferred to lab container
  - → 3 Soil drums, 6 water drums, 1 Decon pad/PPE drum

1145 - finish groundwater sampling. Pick up equipment and samples. Dispose of purged GW in drum and close drum. Complete paperwork

1220 - off-site

Items to Verify:

List of Attachments: GW Purging Log, GW Services Log, COCs

Field Log Prepared by:

Copies to:

Groundwater Services Field Log

DATE: 7/15/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, V

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-07 NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 15.47 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 40.43 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 24.96 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 3.99 GALLONS

VOLUMES PURGED: 13.0 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 08:20 ; TIME FINISHED: 10:10

OBSERVATIONS: COLOR clear ; ODOR none

SHEEN None ; TURBIDITY 2.80 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.96 SU , TEMPERATURE 5.8 °C

CONDUCTIVITY 386.7 µS , OTHER ORP= 127 mV

SAMPLE COLLECTION TIME: 10:10

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

Groundwater Services Field Log

DATE: 7/15/16 PROJECT NAME: SGPP-Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: North Bennington, V

SAMPLING PERSONNEL: Jonathan Dippert, Justin Campbell

MONITORING WELL ID#: MW-07S NOTES TAKEN BY: JD, JC

DEPTH TO WATER: 15.3 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 22.58 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 15.28 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 1.17 GALLONS

VOLUMES PURGED: 5.0 GALLONS PURGE METHOD: Peristaltic Pump

TIME STARTED: 1045 ; TIME FINISHED: 1125

OBSERVATIONS: COLOR orange-brown to clear ; ODOR NONE

SHEEN NONE ; TURBIDITY 1.41 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.34 SU , TEMPERATURE 5.7 °C

CONDUCTIVITY 884.6 µS , OTHER ORP = -80 mV

SAMPLE COLLECTION TIME: 11:25

NOTES: Sampled for PFCs, TCL VOC, SVOC, Pest, PCBs, TAL Metals+Mercury+Cations and Anions, and Cyanide.

WELL PURGING LOG

Project Name: SGPP - North Bennington

Date Started: 7/15/16

Project Number: 16.6131

Date Finished: 7/15/16

Field Parameters	0720	Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	10	20	30	40	50	60	65	70	75	80
pH	7.98	7.85	7.91	8.06	8.05	8.05	8.02	7.99	7.99	8.01	8.00
Conductivity (mS)	378.9	379.7	380.1	378.7	383.9	382.8	383.9	384.1	385.5	385.7	385.3
Temperature (C)	5.1	4.9	5.0	5.0	5.2	5.0	5.0	6.0	5.9	5.8	5.7
Turbidity (NTU)	231	*22.5	24.6	21.6	3.59	28.8	48.2	45.7	22.6	30.8	32.2
Depth to Water (From TOC)	15.47	16.57	16.55	16.56	16.56	16.57	16.06	15.91	15.92	15.92	15.91
~~Time~~ ORP (mV)	91	51	86	-69	98	131	93	91	77	112	94

Monitoring Well: MW-07

Water Level: 15.47

Total Depth: 40.43

Water Column: 24.96

One Well Volume: 3.99

Notes:

0945 10:00

Field Parameters		Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	85	90	95	100	105	110	115	120	125	130
pH		8.01	8.02	8.02	8.02	~~7.97~~	~~7.96~~	~~7.33~~			
Conductivity (mS)		386.4	385.5	385.9	385.6	385.9	386.7	~~879.5~~ 50			
Temperature (C)	JD	5.9	6.8	5.8	5.6	5.8	5.8	~~5.6~~			
Turbidity (NTU)		23.1	25.6	10.8	2.65	2.96	2.80	-			
Depth to Water (From TOC)		15.90	15.90	15.91	15.94	15.95	15.95	-			
Time ORP mV		107	111	115	124	132	127	-			

Monitoring Well: MW-07, continued

Water Level:

Total Depth:

Water Column:

One Well Volume:

Notes:

11:25

Field Parameters	10:45	Minutes of Purging and Corresponding Field Parameters Value									
	Intitial	10	20	30	35	40					
pH	7.42	7.33	7.33	7.33	7.33	7.34					
Conductivity (mS)	873.2	889.7	883.4	879.5	883.2	884.6					
Temperature (C)	5.3	5.4	5.16	5.6	5.7	5.7					
Turbidity (NTU)	3.42	3.58	3.58	2.44	1.43	1.41					
Depth to Water (From TOC)	15.28	15.32	15.30	15.3	15.3	15.3					
Time ORP (mV)	-56	-64	-77	-78	-83	-80					

Monitoring Well: MW-07S

Water Level: 15.28

Total Depth: 22.58

Water Column: 07.30

One Well Volume: 1.17

Notes: 3.5 gal purge

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CHAIN OF CUSTODY RECORD

Page 1 of ____

REPORT TO: Kirk Moline
CT Male Associates
50 Century Hill Dr, Latham, NY 12110

BILL TO: SAME AS REPORT

SAMPLER (Signature)

COMPLIANCE MONITORING: Yes / No

PWS ID #

STATE (sample origin): VT

POPULATION SERVED

SOURCE WATER

PROJECT NAME: SGPP - Bennington

PO#: 16.6131

LAB Number	COLLECTION DATE	COLLECTION TIME	AM	PM	SAMPLING SITE	TEST NAME	SAMPLE REMARKS	CHLORINATED YES	CHLORINATED NO	# OF CONTAINERS	MATRIX CODE	TURNAROUND TIME
1	7/15/16	1010	X		SG3-MW07-160715	PFCs EPA Meth. 537			X	2	GW	SW
2	7/15/16	—			SG3-LTB01-160715	↓				1	RW	↓
3	7/15/16	1110	X		SG3-FTB01-160715					1	RW	
4	7/15/16	1125	X		SG3-MW08S-160715				X	2	GW	SW
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												

RELINQUISHED BY:(Signature)	DATE	TIME AM/PM	RECEIVED BY:(Signature)	DATE	TIME AM/PM
RELINQUISHED BY:(Signature)	DATE	TIME AM/PM	RECEIVED BY:(Signature)	DATE	TIME AM/PM
RELINQUISHED BY:(Signature)	DATE	TIME AM/PM	RECEIVED FOR LABORATORY BY:	DATE	TIME AM/PM

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS

CONDITIONS UPON RECEIPT (check one):

____ Iced: Wet/Blue ____ Ambient ____ °C Upon Receipt____ N/A

MATRIX CODES:

DW-DRINKING WATER
RW-REAGENT WATER
GW-GROUND WATER
EW-EXPOSURE WATER
SW-SURFACE WATER
PW-POOL WATER
WW-WASTE WATER

TURN-AROUND TIME (TAT) - SURCHARGES

SW = Standard Written: (15 working days) 0%
RV* = Rush Verbal: (5 working days) 50%
RW* = Rush Written: (5 working days) 75%
IV* = Immediate Verbal: (3 working days) 100%
IW* = Immediate Written: (3 working days) 125%
SP* = Weekend, Holiday CALL
STAT* = Less than 48 hours CALL

* Please call, expedited service not available for all testing

Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges.

Sample analysis will be provided according to the standard EEA/Water Services Terms, which are available upon request. Any other terms proposed by Customer are deemed material alterations and are rejected unless expressly agree to in writing by EEA.

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Environmental Services Analysis Request/Chain of Custody

Page 1 of 2

Acct. #: 37191 Group #: Sample #:

COC#: 14977

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: 16.6126

Sampler: Jonathan Dippert / Justin Campbell

Phone #: 518-786-7400 Quote #: 214135

State where sample(s) were collected: VT

Matrix: Sediment ☐ Ground ☒ Surface ☐ Soil ☐ Potable ☐ NPDES ☐

For Lab Use Only: SF#: 271157 SCR#: 191430

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other: Blank water	Total # of Containers	TCL VOAs (8260C)	TAL Metals	Pesticides (8081B)	PCBs (8082A)	TCL SVs (8270D)	CN (9012A)	Cl-, SO4- (300.0)	Alk, Bicarb, Carb. (2320 B)	Remarks
SG3-MW01-160713	7/13/16	1010	X			X		36	X	X	X	X	X	X	X	X	MS/MSD
SG3-MW02-160713	7/13/16	1245	X			X		12	X	X	X	X	X	X	X	X	
SG3-FD01-160713	7/13/16	—	X			X		12	X	X	X	X	X	X	X	X	
SG3-TB01-160713	7/8/16	—					X	2	X								
SG3-MW03-160713	7/13/16	1450	X			X		12	X	X	X	X	X	X	X	X	
SG3-MW03S-160713	7/13/16	1605	X			X		12	X	X	X	X	X	X	X	X	
SG3-MW04-160714	7/14/16	0845	X			X		12	X	X	X	X	X	X	X	X	
SG3-EB01-160714	7/14/16	0930	X				X	11	X	X	X	X	X	X	X	X	
SG3-MW04S-160714	7/14/16	1000	X			X		12	X	X	X	X	X	X	X	X	
SG3-MW06S-160714	7/14/16	1225	X			X		11	X	X	X	X	X	X	X	X	

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: Kmoline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☑	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☐		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ______ Other ______

Temperature upon receipt ______ °C

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Environmental Services Analysis Request/Chain of Custody

Acct.# 37191 Group #: Sample #: COC#: 14977

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: 16.6126

Sampler: Jonathan Dippert / Justin Campbell

Phone #: 518-786-7480 Quote #: 214135

State where sample(s) were collected: VT

For Lab Use Only

SF#: 271157

SCR#: 191430

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Sediment	Water	Ground	Potable	Surface	NPDES	Other: Blank Water	Total # of Containers	TCL VOAs (8260C)	TAL Metals	Pesticides (8081B)	PCBs (8082A)	TCL SVs (8270D)	CN (9012A)	Cl-, SO4-- (300.0)	Alk, Bicarb, Carb. (2320 B)	Remarks
SG3-MW06-160714	7/14/16	1415	X				X						12	X	X	X	X	X	X	X	X	
SG3-MW05-160714	7/14/16	1455	X				X						11	X	X	X	X	X	X	X	X	
~~SG3-MW20~~																						
SG3-MW07-160715	7/15/16	1010	X				X						12	X	X	X	X	X	X	X	X	
SG3-MW07S-160715	7/15/16	1125	X				X						11	X	X	X	X	X	X	X	X	
SG3-~~MW~~TB01-160715	7/8/16	—										X	2	X								

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☑ MA MCP ☐ TX TRRP - 13 ☐

Type III (Reduced non-CLP) ☐ CT RCP ☐

Type IV (CLP SOW) ☐ ASP Type A ☐

Type VI (Raw Data Only) ☐ ASP Type B ☐

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time

Airbill No.:

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

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Environmental Services Analysis Request/Chain of Custody

Page 1 of 1

Acct. #: 37191 Group #: Sample #: COC#: 14977

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: 16.6126
Sampler: Jonathan Dippert	
Phone #: 518-786-7400	Quote #: 214135
State where sample(s) were collected: VT	

For Lab Use Only
SF#: 271157
SCR#: 191430

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil (Sediment ☒)	Water	Other:	Total # of Containers	TCL VOAs (8260C)	TAL Metals	Pesticides (8081B)	PCBs (8082A)	TCL SVs (8270D)	CN (9012A)	Cl-, SO4- (300.0)	Alk, Bicarb, Carb. (2320 B)	Total Metals - RCRA 8 (N)	TCLP Metals - RCRA 8			Remarks
SG3-WASTE CHARACTERIZATION-W	7/15/16	0910		X		X		1									X				
SG3-WASTE CHARACTERIZATION-S	7/15/16	0935		X	X			1										X			

Matrix options: Sediment ☒, Ground ☐, Surface ☐, Potable ☐, NPDES ☐

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results: k.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☒ SD	MA MCP ☐	TX TRRP - 13 ☐
Type III (Reduced non-CLP)	☐	CT RCP ☐	
Type IV (CLP SOW)	☐	ASP Type A ☐	
Type VI (Raw Data Only)	☒	ASP Type B ☐	

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ______ Other ______

Temperature upon receipt ______ °C

Attachment B.6-1b

May 1, 2018 Water Treatment

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

JOB SCPP Bennington
SHEET NO. 1 OF 1
CALCULATED BY: DA DATE: 5/1/15
CHECKED BY: DATE:
SCALE

SCPP Bennington 16.6131

On site

1430 On site with Dave. Discuss plan to move filtered water from 3 tanks (E, B, D) into single city water Tank. City water tank has ±31.5" (5,200) gal in it currently.
Dave sets up to pump from D into city water tank. Decons pump first by pumping chlorox-water through it, emptied into IDW tank C.

1500 Start pumping. Use flow gauge at start. 13767 x 10. gal ÷ 60 GPM
Check Blue Rain for Rent tank. 13"

1630 Tank D empty (±2" on bottom that pump can't get at) Flow meter at 143,570 Start pumping from tank B. Use small pump with suction attachment to remove water from Tank D, pumped into tank B.

1715 Stop pumping for day. 146,125 gal on meter. Cleanup for the day

1730 Offsite

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 5/2/18 Time On-Site: 0800 Time Off-Site: 1730

Project Name: SCPP Bennington Project No.: 16.6131

Purpose: Field Report No:

Weather Conditions: Sunny 20-30°C

Present at Site: Dan Achtyl - CTM / Dave

Observations:

0800 Arrive on site at ~~Liberty~~ McCaffrey St. Treatment system being loaded onto truck. Calibrate field parameter equipment.

0900 Leave for Bennington. Set up pump to transfer filtered water.

0930 Start transferring water from B into city water tank, and removing remainder in Tank D into tank B with small pump. 146,125 at start

1015 Second truck with Cull on site. Tank D empty. Tank B nearly empty, moving pump to hatch at rear of tank, to get remainder. 148,410.

1030 Tank B empty, except for small amount to be removed with little pump 148,565. Begin pumping out of Tank E.

1100 Tank E empty. 149,450 All Treated water moved, except small amounts in E, B, to be moved with small pump. Treatment system being set up starting with Tank C.

1130 Start Filtering after flushing system out for ±2 minutes (flushed into large raw tank.

1145 Start Filtering, Running at ±45 GPM

1150 Turbidity 1.35 NTU

1245 Turbidity 0.53 NTU, totalizer 152,430

1330 Tanks E, B + D empty. Close up tank E, will be filled with treated water once 22K tank is full. 1345 Turbidity 0.51, totalizer 155,410

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

JOB SGPP Bennington
SHEET NO. 2 OF 2
CALCULATED BY: DA DATE: 5/2/18
CHECKED BY: DATE:
SCALE

1400 Measure 8'1" in City Water Tank
1430 Tank C empty. Totalizer at 156,640. Remaing small amount left into Tank A with small Pump. At rear hatch, no measurable sediment in tank C, just a thin coating
1455 Start pumping from Tank A, Turbidity 0.58. 158,000 Gal
1525 Sample 01 collected, totalizer at 159,450, pumping from Tank A
1600 Tank A empty, except for few inches in bottom pump cant get. Use puddle pump to transfer into large IDW tank 161,335 on totalizer
1645 Turbidity 0.52. Totalizer 163,280
1715 Shut off pump for day 164,625. ~2,000 gallons of space remains in large blue tank
1730 Off site.

Summary: Treatment start 149,450
End of Day 164,625
15,175 Total Treated

1 sample collected for 1st 150,000 gallons

Groundwater Services Field Log

DATE: 5/2/18

PROJECT NAME: SGPP – ~~McCaffrey St~~ Bennington

PROJECT NO.: ~~14.4756~~ 16.6131

PROJECT LOCATION: ~~Hoosick Falls, NY~~ Bennington, VT

SAMPLING PERSONNEL: DA

MONITORING WELL ID#: –

NOTES TAKEN BY: DA

DEPTH TO WATER: – ft FROM: TPVC

BAILER ID: N/A

DEPTH TO BOTTOM: – ft FROM: TPVC

BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: – ft

BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 159,450 GALLONS

VOLUMES PURGED: 10,000 GALLONS

PURGE METHOD: Carbon Filter

TIME STARTED: 1145 ; TIME FINISHED: 1525

OBSERVATIONS: COLOR clear ; ODOR none

SHEEN none ; TURBIDITY 0.53 NTU

OTHER

WATER RECOVERY HEIGHT: – ft ; RECOVERY TIME IN MINUTES: – min

FIELD PARAMETERS: pH 7.59 SU , TEMPERATURE 16.5 °C

CONDUCTIVITY 251.5 µS , OXIDATION REDUCT. POTENTIAL -12.0 mV

SAMPLE COLLECTION TIME: 1525 DISOLVED OXYGEN 8.50 mg/L

NOTES: Sampled for 21 PFAS

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - ~~McCaffrey Street~~ CTM PROJECT NO.: ~~14.4750~~

LOCATION: ~~Hoosick Falls, NY~~ DATE: 5/2/18

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI 2020	800	pH 4.00/7.00/10.00	4.18/7.03/9.93	Cal	DA
	↓	Sp.C.7000 / ORP 234.3	6196 / 237.7	↓	DA
YSI 2020	1600	pH 4.00/7.00/10.00	4.11/7.06/9.89	Bump	DA
	↓	Sp.C.7000 / ORP 235.1	6110 / 236.4	↓	DA
YSI		pH 4.00/7.00/10.00			
		Sp.C.7000 / ORP			
YSI		pH 4.00/7.00/10.00			
		Sp.C.7000 / ORP			
Turb. Meter 2023	800	10 NTU	9.08	Bump	DA
Turb. Meter 2023	1600	10 NTU	9.13	Bump	DA
Turb. Meter		10 NTU			
Turb. Meter		10 NTU			

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 5/3/18 Time On-Site: 0715 Time Off-Site: 1530

Project Name: SCPP Bennington Project No.: 16.6131

Purpose: Field Report No:

Weather Conditions: Sunny, 20°C to

Present at Site: Dan Achtyl-CTM / Dave

Observations:

0715 Arrive on site. Dave on site, starts treatment system 164,625 gallons on meter. ±45 gpm. Cal field parameter equipment

0750 Blue rain for rest tank full. Switch to filling Tank E, 166,920.

0815 Turbidity 0.3 NTU, 167,740 gal.

0855 Collect 20,000 gallon sample

0945 Turbidity 0.55,

1000 Place new signage on all tanks

1045 Turbidity 0.15 NTU, 173,980, ±45 GPM

1115 Tank E nearly full. Remove hose, begin filling Tank B 175,215.

Front hatch opened on IDW tank, significant amount of sediment present in tank

1145 Turbidity 0.17, 176,280 ±45 GPM

Hearing total amount able to be treated above sediment

1200 Collect sample 3, 177,100 gallons. Pump starting to suck air, and sitting on top of sediment. Up to ±2' of sediment present in tank

1202 Stop treatment at 177,120.

Begin draining bag filters, pumping water back into IDW tank

1230 Bag filter assembly empty, begin draining carbon vessels

1430 Carbon vessels drained, lines emptied. Begin loading up equipment.

Items to Verify: 1530 Off site

List of Attachments:

Field Log Prepared by:

Copies to:

Groundwater Services Field Log

DATE: 5/3/2018

PROJECT NAME: SGPP – ~~McCaffrey St~~ Bennington

PROJECT NO.: ~~14.4756~~ 16.6131

PROJECT LOCATION: ~~Hoosick Falls, NY~~ Bennington, VT

SAMPLING PERSONNEL: DA

MONITORING WELL ID#: SG-3-IDW-TRTD-02

NOTES TAKEN BY: DA

DEPTH TO WATER: — ft FROM: TPVC

BAILER ID: N/A

DEPTH TO BOTTOM: — ft FROM: TPVC

BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: — ft

BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 169,450 GALLONS

VOLUMES PURGED: 20,000 GALLONS

PURGE METHOD: Carbon filter

TIME STARTED: ; TIME FINISHED: 0855

OBSERVATIONS: COLOR clear ; ODOR none

SHEEN none ; TURBIDITY 0.35 NTU

OTHER

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

FIELD PARAMETERS: pH 7.03 SU , TEMPERATURE 15.5 °C

CONDUCTIVITY 307.6 µS , OXIDATION REDUCT. POTENTIAL 20.8 mV

SAMPLE COLLECTION TIME: 0855 DISOLVED OXYGEN 3.73 mg/L

NOTES: Sampled for 21 PFAS

Groundwater Services Field Log

DATE: 5/3/2018

PROJECT NAME: SGPP – ~~McCaffrey St~~ Bennington

PROJECT NO.: ~~14.4756~~ 16.6131

PROJECT LOCATION: ~~Hoosick Falls, NY~~ Bennington, VT DA

SAMPLING PERSONNEL: DA

MONITORING WELL ID#: SG3-IDW-TRTD-03

NOTES TAKEN BY:

DEPTH TO WATER: – ft FROM: TPVC

BAILER ID: N/A

DEPTH TO BOTTOM: – ft FROM: TPVC

BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: – ft

BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL CASING DIAMETER /

WELL VOLUME: 177,100 GALLONS

VOLUMES PURGED: 23,650 GALLONS

PURGE METHOD: Carbon filter

TIME STARTED: – ; TIME FINISHED: 1200

OBSERVATIONS: COLOR clear ; ODOR clear

SHEEN none ; TURBIDITY 0.35 NTU

OTHER

WATER RECOVERY HEIGHT: – ft ; RECOVERY TIME IN MINUTES: – min

FIELD PARAMETERS: pH 7.23 SU , TEMPERATURE 15.7 °C

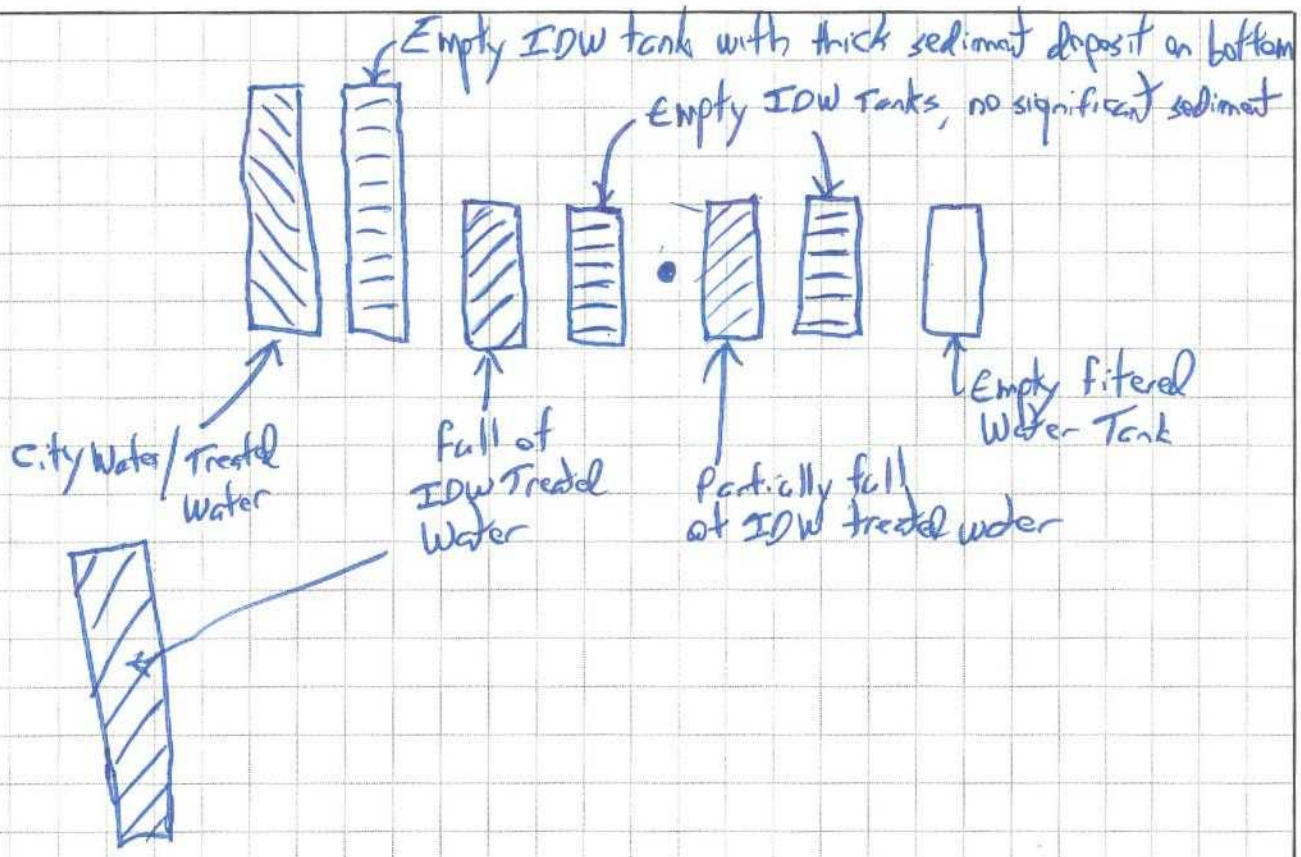
CONDUCTIVITY 286 µS , OXIDATION REDUCT. POTENTIAL -54.7 mV

SAMPLE COLLECTION TIME: 1200 DISOLVED OXYGEN 1.90 mg/L

NOTES: Sampled for 21 PFAS

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

JOB SGPP Bennington 16.6131
SHEET NO. 3 OF 2
CALCULATED BY: DA DATE: 5/3/16
CHECKED BY: DATE:
SCALE



C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - ~~McCaffrey Street~~ CTM PROJECT NO.: ~~14.4750~~

LOCATION: ~~Hoosick Falls, NY~~ DATE:

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI 2020	0800	pH 4.00/7.00/10.00	4.12/7.15/10.22	CJ	DA
↓	↓	Sp.C.7000 / ORP 2360	x*/241.2	CJ	DA
YSI 2020	1230	pH 4.00/7.00/10.00	4.15/7.02/10.11	Bump	DA
	↓	Sp.C.7000 / ORP 237.1	x*/240.2	↓	DA
YSI		pH 4.00/7.00/10.00			
		Sp.C.7000 / ORP			
YSI		pH 4.00/7.00/10.00			
		Sp.C.7000 / ORP			
Turb. Meter 2023	0800	10 NTU	9.77	Bump	DA
Turb. Meter 2023	1230	10 NTU	7.33	Bump	DA
Turb. Meter		10 NTU			
Turb. Meter		10 NTU			

* spc calibration solution inaccurate

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: Sample #: COC#: 18952

Client:	C.T. Male Associates
Project Name/#:	SGPP - ~~Liberty Street~~ Bennington
Site ID:	
Project Manager:	Kirk Moline
P.O. #:	~~16.6132~~ 16.6131
Sampler:	DA
Phone #:	518-786-7400
Quote #:	214135
State where sample(s) were collected:	~~NY~~ VT

For Lab Use Only: SF#: 305108; SCR#: 223123

Matrix: Sediment, Soil, Ground, Surface, Potable, NPDES, Water, Other: IDW

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Analyses Requested (Preservation Codes): TCL VOAs (8260C) + TICs (H); TAL Metals (N); TCL Pesticides (8081B); PCBs (8082A); TCL SVs (8270D) + TICs; Cl-, SO4- (300.0); TOC (5310 C) (P); CN (9012A) (B); Alk, Bicarb, Carb. (2320 B); 21 PFAS (EPA 537 mod.)

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other: IDW	Total # of Containers	21 PFAS (EPA 537 mod.)	Remarks
SG3-LTB01-180502	5/2/2018	—	X			X		2	X	
SG3-FTB01-180502	5/2/2018	1505	X			X		2	X	
SG3-IDW-TRTD-01-180502	5/2/2018	1525	X				X	2	X	10,000 Gallon
SG3-IDW-TRTD-02-180503	5/3/2018	0855	X				X	2	X	20,000 Gallon
SG3-IDW-TRTD-03-180503	5/3/2018	1200	X				X	2	X	27,650 Gallon

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moline@ctmale.com

Relinquished by	Date	Time	Received by	Date	Time
[signature]	5/3/2018	1320	[signature]	5/3/18	1320
[signature]	5/3/18	1600			

Data Package Options (please check if required)

- Type I (Validation/non-CLP) ☒
- Type III (Reduced non-CLP) ☐
- Type IV (CLP SOW) ☐
- Type VI (Raw Data Only) ☐
- MA MCP ☐
- CT RCP ☐
- ASP Type A ☐
- ASP Type B ~~☒~~
- TX TRRP - 13 ☐

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ______ Other ______

Temperature upon receipt ______ °C

Attachment B.6-1c

June 5 and June 6, 2018 Treated Water Discharge

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 6/5/18 Time On-Site: 7:45 Time Off-Site: 1730

Project Name: SGPP Bennington Project No.: 16.6131

Purpose: ~~Pumping~~ From Tanks into Sewer Discharging Field Report No:

Weather Conditions: cool, cloudy

Present at Site: Julian Leal, John Dippert, Frank + Brian (MCES), Town of Bennington

Observations: 7:50 am Bennington opens manhole 1

8:00 am located + opened manhole 2 in the woods, use this for drainage

8:10 Brian weedwacks to manhole + Frank sets up hose

8:25 path is clear, Brian + Frank continue to set up

8:50 ~~Pumping~~ Drainage starts from Rain for Rent tank, gravity fed

1306 loss of water pressure, hose starting to fail, stopped ~~pump~~ discharging waited for replacement section of hose and hooked up pump to help to assist

1345 resume pumping

1445 SG3-FTB01-180605 taken (2 bottles) > for PFAS

1455 SG3-FRAC-TRTD-1-180605 taken (2 bottles)

1610 end pumping Rain for Rent Tank (virtually empty)

1625 begin drainage of A164 tank, gravity fed

1730 stop drainage of A164, MECS left hose attached but closed valve all personnel left site

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

JOB 16.6131
SHEET NO. 1 OF 1
CALCULATED BY: JL DATE: 6/15/18
CHECKED BY: DATE:
SCALE

Julian Leal
6/5/2018

from bottom lip to water level

Time	Water level	Gallons pumped
9:30 am	8 in	21,000 - 19,320 = 1,680
10:30 am	21 in	21,000 - 16590 = 4,410
11:30 am	33 in	21,000 - 14,070 = 6,930
12:30 am	44 in	21,000 - 11,760 = 9,240
1330	51 in	21,000 - 10290 = 10,710
1430	66 in	21,000 - 7,203 = 13,797
1530	80 in	21,000 - 4536 = 16,464

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 6/6/18 Time On-Site: 7:30 Time Off-Site: 1620

Project Name: SGPP Bennington Project No.: 16.6011

Purpose: Discharging Frac Tanks into Sewer Field Report No:
Cleaning Frac Tank

Weather Conditions: Cool, Cloudy

Present at Site: Julian Leal, John Dippert, Frank + Brian (MCES)

Observations: 7:40 CTM opens manhole, MCES setting up pumps to discharge + clean tanks

7:45 discharging of A169 starts

Water is being drawn from A1308 (clean water) to supply the power washer, then the water after used for washing is pumped from either A032 or A031 to A4721 (IDW tanks)

830 Brian gates A032 to power wash, power washer not supplying enough/consistent pressure
moved generator closer to avoid voltage drop

845 Power washing of A032 begins

900 A032 is finished being washed, albeit very rusty, MCES sets up hoses to clean A031

915 A031 cleaning begins

950 A031 done Cleaning, hooking pump up to A169 to speed up draining

1030 A169 done draining, hooking up hose to A109

1100 A109 start draining w/ pump
SG3-FRAC-TRTD-1-180608 taken (2 bottles, PFAS)

1120 A109 done draining

1220 Begin cleaning of A109

1300 A109 done

1320 Begin cleaning of A169

Items to Verify: 1400 A169 done cleaning done

1420 Begin cleaning of Rainbow Rent Tank

List of Attachments: 1505 Pump issues, not drawing enough water, switch to a larger pump

Field Log Prepared by: Julian Leal

Copies to: —

1540 resume cleaning

1600 finish cleaning/pumping of Rainbow Rent

1620 all personnel off site

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____ Group # _____ Sample # _____

COC # 547388

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: SGPP - North Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Julian Leal	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☐ Surface ☐ NPDES ☒ | Other: I Dur Rinse

Analysis Requested

Preservation Codes

PFAS (List of 19)

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers
SG3-LTB01-180605	6/5/18	—			2
SG3-FTB01-180608	6/6/18	1445	X		2
SG3-FRAC-TRTD-1-180605	6/5/18	1455	X		2
SG3-FRAC-TRTD-1-180606	6/6/18	1100	X		2

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)
Type VI (Raw Data Only)
Type III (Reduced non-CLP)
NJ DKQP
TX TRRP-13
NYSDEC Category A or B
MA MCP
CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	6/6/18	5:30pm			

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

Appendix B.7

Photograph Log

Appendix B
Photograph Log
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Photo	Comments
1	Historic photo of the Site building roof identified during VTDEC website review
2	Rotasonic drill rig used to install soil borings and monitoring wells in 2016
3	Fill with debris (cinders, coal ash, brick) encountered at boring MW03 at approximately 3-4 feet bgs
4	Unconsolidated material from boring MW03. Sand and silt with fine to coarse gravel and cobbles from approximately 12-13 feet bgs (top) and gravel and cobbles with some brown fine to coarse sand (bottom)
5	Limestone bedrock encountered in boring MW03 from approximately 19-21
6	Concrete core of floor slab in former fabrication area at boring SB1801
7	Soil cores from boring SB1801
8	Sewer video inspection camera
9	Basement floor drain in the former chemical storage area
10	Partial pipe collapse of basement floor drain near the outfall to Paran Creek
11	Sump located in the former fabric treatment area (sample SUMP01). Dark discolored residue visible.
12	Sewer inspection at interior wastewater manhole. Arrow indicates the direction of sewer flow.
13	Sewer inspection of stormwater pipe and catch basin
14	Stormwater pipe at discharge to Paran Creek
15	Manlift used for interior sampling
16	Bulk insulation sample
17	Residue sample location
18	Duplicate wipe location
19	Roof drain discharge to Paran Creek
20	Wastewater sewer jetting and video logging

Photo 1: Historic photo of the Site building roof identified during VTDEC website review

Photo 2: Rotasonic drill rig used to install soil borings and monitoring wells in 2016

Photo 3: Fill with debris (cinders, coal ash, brick) encountered at boring MW03 at approximately 3-4 feet bgs

Photo 4: Unconsolidated material from boring MW03. Sand and silt with fine to coarse gravel and cobbles from approximately 12-13 feet bgs (top) and gravel and cobbles with some brown fine to coarse sand (bottom)

Photo 5: Limestone bedrock encountered in boring MW03 from approximately 19-21 feet bgs

Photo 6: Concrete core of floor slab in former fabrication area at boring SB1801

Photo 7: Soil cores from boring SB1801

Photo 8: Sewer video inspection camera

Photo 9: Basement floor drain in the former chemical storage area

Photo 10: Partial pipe collapse of basement floor drain near the outfall to Paran Creek

Photo 11: Sump located in the former fabric treatment area (sample SUMP01). Dark discolored residue visible.

Photo 12: Sewer inspection at interior wastewater manhole. Arrow indicates the direction of sewer flow.

Photo 13: Sewer inspection of stormwater pipe and catch basin

Photo 14: Stormwater pipe at discharge to Paran Creek

Photo 15: Manlift used for interior sampling

Photo 16: Bulk insulation sample

Photo 17: Residue sample location

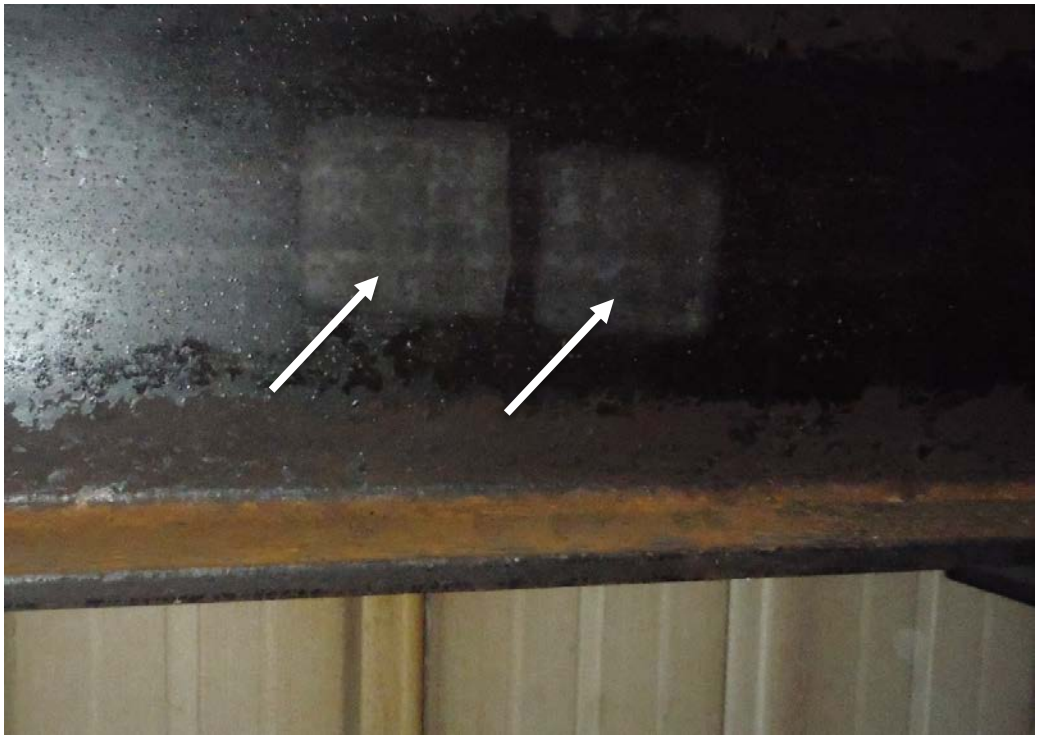


Photo 18: Duplicate wipe location

Photo 19: Roof drain discharge to Paran Creek

Photo 20: Wastewater sewer jetting and video logging

Appendix C

Soil Boring Logs

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.:	**MW01**		
ELEVATION:	**548.26**	**DATUM:**	**NAVD88**
LATITUDE:	**42.915131**	**LONGITUDE:**	**73.246322**
START DATE:	**6/20/2016**	**FINISH DATE:**	**6/20/2016**
SHEET 1 OF 1			

PROJECT: SGPP - Bennington — CTM PROJECT NO.: 16.6131

LOCATION: North Bennington, VT — CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		1						3.0	CONCRETE ±0.75'	moist — Hand cleared to ±5' bgs with hand auger
									Brown fine and medium SAND and GRAVEL, little silt, trace cinders and brick ±3.5'	
5									Orange Brown fine SAND, Some Silt, trace fine and medium gravel	very moist
		2						2.8	grades to Brown fine SAND, Some fine and medium Gravel, trace silt ±8.0'	
10									Brown medium and coarse SAND, fine to coarse GRAVEL, trace fine sand and silt	wet at ±9' bgs
		3						2.8	±13.0'	
15									Brown fine and medium SAND, GRAVEL and COBBLE ±14.0'	
									Gray LIMESTONE (Bedrock) ±15.0'	
									Boring Terminated at ±15.0' bgs	
20										
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: 4-inch core barrel

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.:	**MW02**		
ELEVATION:	**549.36**	**DATUM:**	**NAVD88**
LATITUDE:	**42.914686**	**LONGITUDE:**	**73.246447**
START DATE:	**6/16/2016**	**FINISH DATE:**	**6/17/2016**
SHEET 1 OF 1			

PROJECT: SGPP - Bennington — CTM PROJECT NO.: 16.6131

LOCATION: North Bennington, VT — CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		1						1.8	ASPHALT ±0.25'	moist — Hand cleared to ±6' bgs with hand auger
									Brown medium and coarse SAND, fine to coarse GRAVEL and COBBLE, trace slag/cinders, trace fine sand and silt	
5									±5.0'	
		2						2.5	Brown fine SAND, Some Silt, Some fine and medium Gravel and Cobble, little coarse sand ±6.0'	
									Light Brown fine SAND, Some Silt, little fine and medium gravel ±7.5'	very moist at ±8' bgs
10									Brown fine SAND, fine to coarse GRAVEL, little silt, little cobble ±11.0'	wet at ±10' bgs
		3						3.0	Gray LIMESTONE (Bedrock)	
									±13.0'	
									Boring Terminated at ±13.0' bgs	
15										
20										
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: 4-inch core barrel

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.:	**MW03**		
ELEVATION:	**548.21**	**DATUM:**	**NAVD88**
LATITUDE:	**42.914186**	**LONGITUDE:**	**73.245978**
START DATE:	**6/15/2016**	**FINISH DATE:**	**6/15/2016**
SHEET 1 OF 1			

PROJECT: SGPP - Bennington — CTM PROJECT NO.: 16.6131

LOCATION: North Bennington, VT — CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
0								5	ASPHALT ±0.25'	moist — Hand cleared to ±5' bgs with hand auger
									Brown medium and coarse SAND, fine to coarse GRAVEL and COBBLE ±3.5'	
5									Dark Brown fine SAND, Some Silt, Some Urban Fill (cinders, coal ash, and brick), little fine and medium gravel ±6.0'	
								3.5	Orange Brown SILT, little clay, little fine and medium gravel ±8.0'	
10									Brown fine SAND and SILT, fine to coarse GRAVEL and COBBLE	very moist at ±8' bgs
								0.0		wet at ±10' bgs
15										
								3.3	Brown fine and medium SAND, little fine and medium gravel ±17.0'	
									GRAVEL to COBBLE, Some Brown fine to coarse Sand ±19.0'	
20								1.5	Gray LIMESTONE (Bedrock) ±21.0'	
									Boring Terminated at ±21.0' bgs	
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: 4-inch core barrel

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME
6/15	10.5	15'	5 min

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: Dippert

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.:	**MW03S**		
ELEVATION:	**548.23**	**DATUM:**	**NAVD88**
LATITUDE:	**42.914197**	**LONGITUDE:**	**73.245975**
START DATE:	**6/16/2016**	**FINISH DATE:**	**6/16/2016**
SHEET 1 OF 1			

PROJECT: SGPP - Bennington — CTM PROJECT NO.: 16.6131

LOCATION: North Bennington, VT — CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
0									Reference MW-03 Subsurface Log for soil classification.	
10									±10.0'	
		1						4.3	Brown fine SAND and SILT, GRAVEL and COBBLE	±11.0' very moist at ±10'
									Dark Brown medium and coarse SAND, GRAVEL	±11.5' wet at ±11'
									Dark Gray fine SAND, Some coarse Gravel, trace organics ±11.75'	
15									Brown fine to coarse SAND and GRAVEL ±14.0'	
									Brown fine SAND, little silt, trace medium sand parting	±15.0'
									Boring Terminated at ±15.0' bgs	
20										
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: 4-inch core barrel

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.:	**MW04**		
ELEVATION:	**547.62**	**DATUM:**	**NAVD88**
LATITUDE:	**42.914125**	**LONGITUDE:**	**73.2463**
START DATE:	**6/16/2016**	**FINISH DATE:**	**6/16/2016**
SHEET 1 OF 1			

PROJECT: SGPP - Bennington — CTM PROJECT NO.: 16.6131

LOCATION: North Bennington, VT — CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
0		1						5.0	ASPHALT ±0.2'	moist — Hand cleared to ±5' bgs with hand auger
									Brown medium and coarse SAND, GRAVEL and COBBLE, trace cinders and ash	
									±4.5'	
5										very moist
		2						4.0	Brown SILT, little clay	
									±8.0'	
									Brown fine to coarse SAND, GRAVEL, Some Cobble	
10									grades to gray at ±9.5'	wet at ±9.5' bgs
		3						3.9	grades to brown at ±10.0'	
									±12.5'	
									Light Gray Brown fine SAND and SILT, fine to coarse GRAVEL ±14.0'	
15									Brown medium and coarse SAND, fine to coarse GRAVEL, trace fine sand,	
		4						5.0	grades to fine and medium SAND, GRAVEL, trace coarse sand ±18.0'	
									GRAVEL and COBBLE ±19.0'	Possibly weathered rock
20									Gray LIMESTONE (Bedrock) ±20.0'	
									Boring Terminated at ±20.0' bgs	
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: 4-inch core barrel

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.:	**MW04S**		
ELEVATION:	**547.68**	**DATUM:**	
LATITUDE:	**42.914136**	**LONGITUDE:**	**73.246297**
START DATE:	**6/17/2016**	**FINISH DATE:**	**6/17/2016**
SHEET 1 OF 1			

PROJECT: SGPP - Bennington — CTM PROJECT NO.: 16.6131

LOCATION: North Bennington, VT — CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
0									Reference MW-04 Subsurface Log for soil classification.	
10									±12.0'	
									Boring Terminated at ±12.0' bgs	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: 4-inch core barrel

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: Dippert

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.:	**MW05**		
ELEVATION:	**546.02**	**DATUM:**	**NAVD88**
LATITUDE:	**42.913697**	**LONGITUDE:**	**73.246575**
START DATE:	**6/14/2016**	**FINISH DATE:**	**6/15/2016**
SHEET 1 OF 1			

PROJECT: SGPP - Bennington — CTM PROJECT NO.: 16.6131

LOCATION: North Bennington, VT — CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		1						5.0	ASPHALT ±0.3'	moist
									Brown fine to coarse SAND and GRAVEL ±1.5'	Hand cleared to ±5' bgs with hand auger on 6/14/16
									Dark Brown to Black fine SAND, CINDERS/SLAG, little ash and brick ±3.0'	
5									Brown fine SAND, Some Silt, little fine to coarse gravel	
		2						3.6		gray and dark gray parting at ±6-6.5' bgs
									grades to Brown fine and medium SAND, Some fine to coarse Gravel, trace coarse sand ±9.75'	wet at ±8' bgs
10										
		3						3.5	Gray LIMESTONE (Bedrock)	
15									±15.0'	
									Boring Terminated at ±15.0' bgs	
20										
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: 4-inch core barrel

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME
6/15	8	8	1 min

SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.:	**MW06**		
ELEVATION:	**546.35**	**DATUM:**	**NAVD88**
LATITUDE:	**42.913689**	**LONGITUDE:**	**73.246042**
START DATE:	**6/20/2016**	**FINISH DATE:**	**6/20/2016**
SHEET 1 OF 1			

PROJECT: SGPP - Bennington — CTM PROJECT NO.: 16.6131

LOCATION: North Bennington, VT — CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		1						3.2	ASPHALT ±0.25'	moist — Hand cleared to ±4' bgs with hand auger
									Brown medium and coarse SAND, fine to coarse GRAVEL and COBBLE	
5									±5.0'	
		2						0.7	Brown fine SAND, little silt, trace organics, trace fine gravel, trace laminated orange brown and gray	very moist at ±5' bgs
10										
		3						2.9		wet at ±10.5' bgs
									Brown fine SAND, GRAVEL and COBBLE	2.9' recovery in 2' run due to sample above falling out of barrel.
		4						2	Gray fine and medium SAND, GRAVEL and COBBLE, little coarse sand ±13.5'	
15									Gray Brown fine SAND, fine to coarse GRAVEL, trace silt	very moist (TILL)
		5						1.9		
									seam of fine and medium SAND at ±17' ±18.5'	wet at ±16.5' bgs
		6						1.2		
20									Gray LIMESTONE (Bedrock) ±20.0'	
									Boring Terminated at ±20.0' bgs	
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: 4-inch core barrel

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: Dippert

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.:	**MW06S**		
ELEVATION:	**546.48**	**DATUM:**	
LATITUDE:	**42.913697**	**LONGITUDE:**	**73.246039**
START DATE:	**6/21/2016**	**FINISH DATE:**	**6/21/2016**
SHEET 1 OF 1			

PROJECT: SGPP - Bennington — CTM PROJECT NO.: 16.6131

LOCATION: North Bennington, VT — CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
0									Reference MW-06 Subsurface Log for soil classification.	
5										
10									±13.5'	
15									Boring Terminated at ±13.5' bgs	
20										
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: 4-inch core barrel

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.:	**MW07**		
ELEVATION:	**545.34**	**DATUM:**	**NAVD88**
LATITUDE:	**42.912561**	**LONGITUDE:**	**73.2465**
START DATE:	**6/13/2016**	**FINISH DATE:**	**6/14/2016**
SHEET 1 OF 2			

PROJECT: SGPP - Bennington — CTM PROJECT NO.: 16.6131

LOCATION: North Bennington, VT — CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
									Vegetation on ground surface	
		1						5.0	Dark Brown to Black fine and medium SAND, Some fine Gravel, little cinders, ash, brick, plastic, and metal, trace silt ±2.5'	moist — Hand cleared to ±5' bgs with hand auger on 6/13/16
5		2						4.0	Brown fine SAND, little silt ±9.5'	
10		3						1.7	Brown medium and coarse SAND, Some Cobble	±10.0' very moist at ±10' bgs
15		4						5.0	Orange Brown fine SAND, fine to coarse GRAVEL and COBBLE ±15.0'	wet at ±13' bgs
20		5						4.5	Light Gray fine and medium SAND, COBBLE, trace silt grades to fine and medium SAND, trace silt ±18.0' Light Gray medium and coarse SAND, little cobble, trace silt ±22.0'	±0.25' Seam of coarse SAND at ±21.75' bgs
25		6						5.0	Brown fine SAND ±29.0'	
30									Gray fine SAND, Some fine and medium Gravel	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: 4-inch core barrel

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY: Dippert

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.:	**MW07**		
ELEVATION:	**545.34**	**DATUM:**	**NAVD88**
LATITUDE:	**42.912561**	**LONGITUDE:**	**73.2465**
START DATE:	**6/13/2016**	**FINISH DATE:**	**6/14/2016**
SHEET 2 OF 2			

PROJECT: SGPP - Bennington — CTM PROJECT NO.: 16.6131

LOCATION: North Bennington, VT — CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
		7						3.0	Gray and Brown fine SAND (seams),	wet
									WEATHERED ROCK ±32.0'	
									Gray LIMESTONE (Bedrock)	
		8						4.3		
35										
									±38.0'	
									Boring Terminated at ±38.0' bgs	
40										
45										
50										
55										
60										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: 4-inch core barrel

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: Dippert

C.T. MALE ASSOCIATES

SUBSURFACE EXPLORATION LOG

BORING NO.:	**MW07S**		
ELEVATION:	**545.12**	**DATUM:**	
LATITUDE:	**42.912564**	**LONGITUDE:**	**73.246492**
START DATE:	**6/14/2016**	**FINISH DATE:**	**6/15/2016**
SHEET 1 OF 1			

PROJECT: SGPP - Bennington — CTM PROJECT NO.: 16.6131

LOCATION: North Bennington, VT — CTM OBSERVER: J.Dippert

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
0									Reference MW-07 Subsurface Log for soil classification.	
5										
10										
15										
									±19.0'	
20									Boring Terminated at ±19.0' bgs	
25										
30										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade Drilling

DRILL RIG TYPE: mini sonic

METHOD OF INVESTIGATION: 4-inch core barrel

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME
6/15	13.2	13	15 hrs

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE DESIGN PURPOSES. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: Dippert

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SB1801
ELEV.: 552.25 **DATUM:**
START DATE: 3/6/2018 **FINISH DATE:** 3/6/2018
SHEET 1 **of** 2

PROJECT: SGPP - Bennington
LOCATION: 1030 Water St, North Bennington, VT
CTM PROJECT NO.: 16.6131
CTM OBSERVER: D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2		1	3.5	FILL: Brown medium and coarse SAND, Some fine Gravel, trace fine sand, trace coarse gravel, loose, poorly sorted	Moist
4					
6		2	3.5		Moist
8				±8.0'	
10				FILL: Dark Brown fine SAND and fine GRAVEL, Some coarse Gravel, trace silt, brick fragments, cinders, firm, poorly sorted	Wet
12		3	4.0		Wet
14					
16		4	3.0	±16.0'	Wet

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SB1801
ELEV.: 552.25 **DATUM:**
START DATE: 3/6/2018 **FINISH DATE:** 3/6/2018
SHEET 2 **of** 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Dark Gray fine SAND, loose, well sorted ±16.5'	Saturated
18		4	3.0	Brown fine GRAVEL, Some coarse Gravel, loose, poorly sorted - grades Light Brown coarse SAND, Some fine Gravel, trace fine sand, firm, well sorted	Saturated
20					
		5	2.0	±21.0'	
22				Light Brown fine SAND and SILT, compact, well sorted ±22.0'	Saturated
				End of Boring at 22.0' bgs (Refusal)	Refusal on possible bedrock MW installed to 22' bgs, with 10' screen
24					
26					
28					
30					
32					

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SB1802
ELEV.: 552.38 **DATUM:**
START DATE: 3/6/2018 **FINISH DATE:** 3/6/2018
SHEET 1 **of** 1

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2		1	3.0	FILL: Brown fine and medium SAND, Some fine Gravel, trace fine sand, trace coarse gravel, loose, poorly sorted	Moist
4					
6				±6.5'	
8		2	5.0	FILL: Dark Brown fine SAND and fine GRAVEL, Some coarse Gravel, trace silt, brick fragments, firm, poorly sorted	Moist
				±9.0'	
10				Red Brown fine SAND and SILT, Some medium Sand, firm, well sorted	Wet
				±10.5'	
12		3	2.5	Brown fine and medium SAND, Some fine and coarse Gravel, Some Silt, firm, poorly sorted	Wet
14				- grades Brown fine and coarse GRAVEL, trace fine and medium Sand, loose, well sorted ±15.0'	Refusal on possible bedrock
16				End of Boring at 15.0' bgs (Refusal)	MW installed to 15' bgs, with 10' screen

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.:	**SB1803**		
ELEV.:	**552.23**	**DATUM:**	
START DATE:	**3/6/2018**	**FINISH DATE:**	**3/6/2018**
SHEET	**1 of 2**		

PROJECT:	SGPP - Bennington	CTM PROJECT NO.:	16.6131
LOCATION:	1030 Water St, North Bennington, VT	CTM OBSERVER:	D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2		1	3.5	FILL: Brown fine and medium SAND, Some fine Gravel, trace fine sand, trace coarse gravel, trace brick fragments, loose, poorly sorted	Moist
4					
6		2	3.0		Moist
8					
10					
12		3	3.0		Moist
				±13.0'	
14				Red Brown fine SAND and SILT, Some medium Sand, firm, poorly sorted ±14.0'	Moist
				Dark Gray fine SAND and SILT, Some medium Sand, firm, poorly sorted ±15.0'	Wet
16		4	2.5	Brown fine and medium SAND, Some Silt, Some fine and coarse Gravel, firm, poorly sorted	Wet

DRILLING CONTRACTOR:	Cascade Technical Services
DIRECT-PUSH TYPE:	Geoprobe
METHOD OF SAMPLING:	macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY:
DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SB1803
ELEV.: 552.23 **DATUM:**
START DATE: 3/6/2018 **FINISH DATE:** 3/6/2018
SHEET 2 **of** 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
		4	2.5	- grades Brown fine and coarse GRAVEL, trace fine and medium sand, loose, well sorted ±17.0'	Saturated at 16.0'
18				End of Boring at 17.0' bgs (Refusal)	Refusal on possible bedrock MW installed to 17' bgs, with 10' screen
20					
22					
24					
26					
28					
30					
32					

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SB1804
ELEV.: 552.26 **DATUM:**
START DATE: 3/7/2018 **FINISH DATE:** 3/7/2018
SHEET 1 **of** 2

PROJECT: SGPP - Bennington
LOCATION: 1030 Water St, North Bennington, VT
CTM PROJECT NO.: 16.6131
CTM OBSERVER: C. Bondi

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2		1	3.0	FILL: Brown fine and medium SAND, Some fine Gravel, Some coarse Sand, trace coarse gravel, poorly sorted	Moist
4					
6		2	5.0		Moist
8				±8.0'	
10				Brown fine SAND and SILT	Moist
12		3	2.5		
14				±14.5'	
				Gray fine SAND and SILT, grades fine and medium SAND ±14.75'	Wet
16		4	5.0	Gray Brown medium and coarse SAND - grades fine and coarse gravel	Saturated at 14.75'

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY:
DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SB1804
ELEV.: 552.26 **DATUM:**
START DATE: 3/7/2018 **FINISH DATE:** 3/7/2018
SHEET 2 **of** 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18		4	5.0	Gray Brown fine and coarse GRAVEL	Wet/Saturated
20				±20.5'	
		5	2.5	Brown fine GRAVEL, Some fine and medium Sand, trace silt ±21.5'	Wet/Saturated
22				End of Boring at 21.5' bgs	Installed MW to 20' bgs, with 10' screen
24					
26					
28					
30					
32					

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SB1805
ELEV.: 552.28 **DATUM:**
START DATE: 3/7/2018 **FINISH DATE:** 3/7/2018
SHEET 1 **of** 2

PROJECT: SGPP - Bennington
LOCATION: 1030 Water St, North Bennington, VT
CTM PROJECT NO.: 16.6131
CTM OBSERVER: C. Bondi

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2		1	2.0	FILL: Brown medium and coarse SAND, Some fine Sand and fine Gravel, trace coarse gravel, poorly sorted, loose	Moist
4					
6		2	2.0		Moist
8					
10					
12		3	2.0		Moist
14					
16		4	2.5		Wet

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SB1805
ELEV.: 552.28 **DATUM:**
START DATE: 3/7/2018 **FINISH DATE:** 3/7/2018
SHEET 2 **of** 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: C. Bondi

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18		4	2.5	Brown medium and coarse SAND and fine and coarse GRAVEL, Some fine Sand, occasional cobbles, poorly sorted - Black fine and medium Sand seam at 17.0-17.33'	Wet/Saturated at 16.0'
20					
		5	2.5		
22				±22.0' Brown fine and medium SAND and SILT, trace coarse sand ±22.5'	Installed MW to 22' bgs, with 10' screen
24				End of Boring at 22.5' bgs	
26					
28					
30					
32					

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SB1806
ELEV.: 552.37 **DATUM:**
START DATE: 3/9/2018 **FINISH DATE:** 3/9/2018
SHEET 1 **of** 1

PROJECT: SGPP - Bennington
LOCATION: 1030 Water St, North Bennington, VT
CTM PROJECT NO.: 16.6131
CTM OBSERVER: D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2		1	2.0	FILL: Brown medium and coarse SAND and fine GRAVEL, Some fine Sand, trace coarse gravel and crushed stone, loose, poorly sorted	Moist
4					
6		2	1.5		Moist
8					
10		3	1.5		Moist
12					
14				±13.5' End of Boring at 13.5' bgs (Refusal)	MW installed to 13.5' bgs, with 10' screen.
16					

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.:	**SB1807**		
ELEV.:	**552.55**	**DATUM:**	
START DATE:	**3/12/2018**	**FINISH DATE:**	**3/12/2018**
SHEET	**1 of 2**		

PROJECT:	SGPP - Bennington	CTM PROJECT NO.:	16.6131
LOCATION:	1030 Water St, North Bennington, VT	CTM OBSERVER:	D. King

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2		1	2.5	FILL: Brown medium and coarse SAND and fine GRAVEL, Some fine Sand, trace coarse gravel, poorly sorted, loose	Moist
4					
6		2	1.0		Moist
8					
10					
				±11.0'	Moist
12		3	2.0	Brown fine SAND and fine GRAVEL, Some Silt, trace coarse gravel, poorly sorted, firm	Wet
14					
16		4	2.0		Wet

DRILLING CONTRACTOR:	Cascade Technical Services
DIRECT-PUSH TYPE:	Geoprobe
METHOD OF SAMPLING:	macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SB1807
ELEV.: 552.55 **DATUM:**
START DATE: 3/12/2018 **FINISH DATE:** 3/12/2018
SHEET 2 **of** 2

PROJECT: SGPP - Bennington CTM PROJECT NO.: 16.6131
LOCATION: 1030 Water St, North Bennington, VT CTM OBSERVER: C. Bondi

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18		4	2.0	Brown coarse SAND, Some fine and coarse Gravel, poorly sorted, loose ±18.0'	Saturated
20				End of Boring at 18.0' bgs (Refusal)	Refusal on possible bedrock MW installed to 16.5' bgs (casing refusal), with 10' screen.
22					
24					
26					
28					
30					
32					

DRILLING CONTRACTOR: Cascade Technical Services
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: macrocore sampler with acetate liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: DK, CB

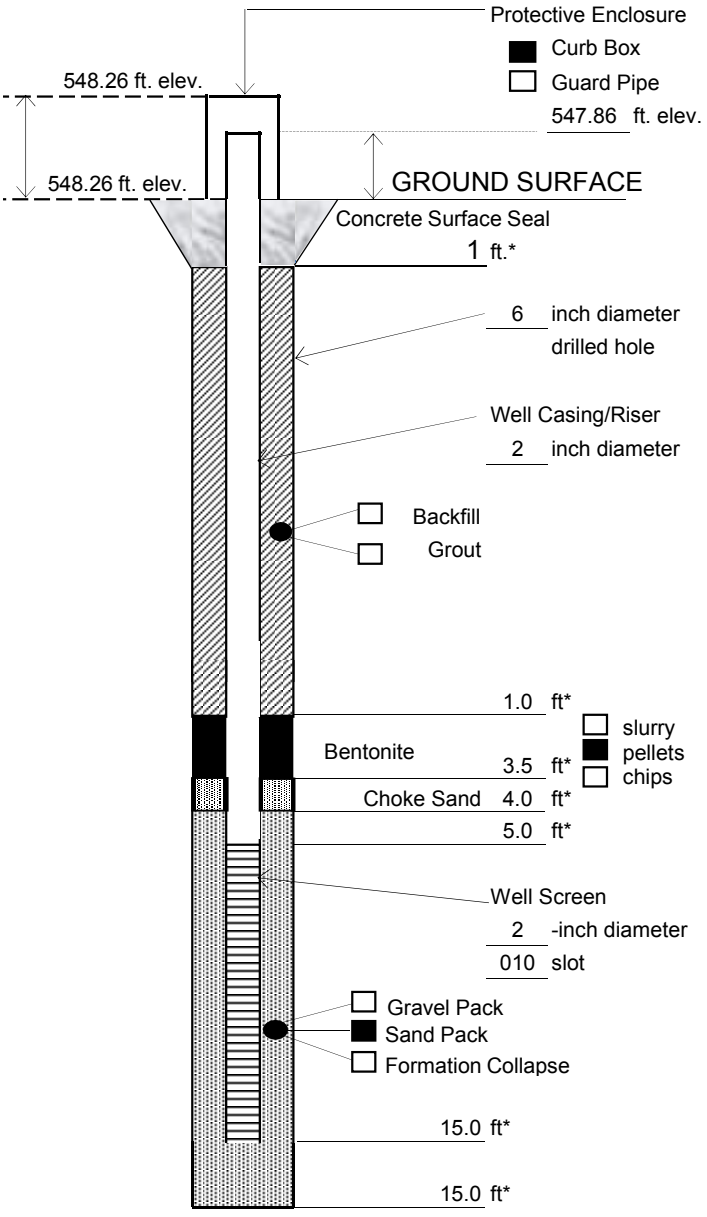
Appendix D

Well Construction Logs

C.T. MALE ASSOCIATES

Well No. MW01

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW01 Boring No.: MW01

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/20/2016

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

- 4.5 Bags of Sand (50 lb. bags)
  Sand Size: #0 Brand: FilPro
- 1 Bags of Bentonite (50 lb. bags)
  Brand: Cetco Pure Gold Medium Chips
- 10 ft. of Schedule 40 PVC well screen
- 5 ft. of Schedule 40 PVC well riser
- 3.5 Bags of Cement/Concrete (80 lb. bags)
  Brand: Quikrete Concrete Mix

Grout Mixture:

- \- Bags of Cement (____ lb. bags)
- \- Lbs. of Bentonite
- \- Gallons of Water
- \- Grout Batches

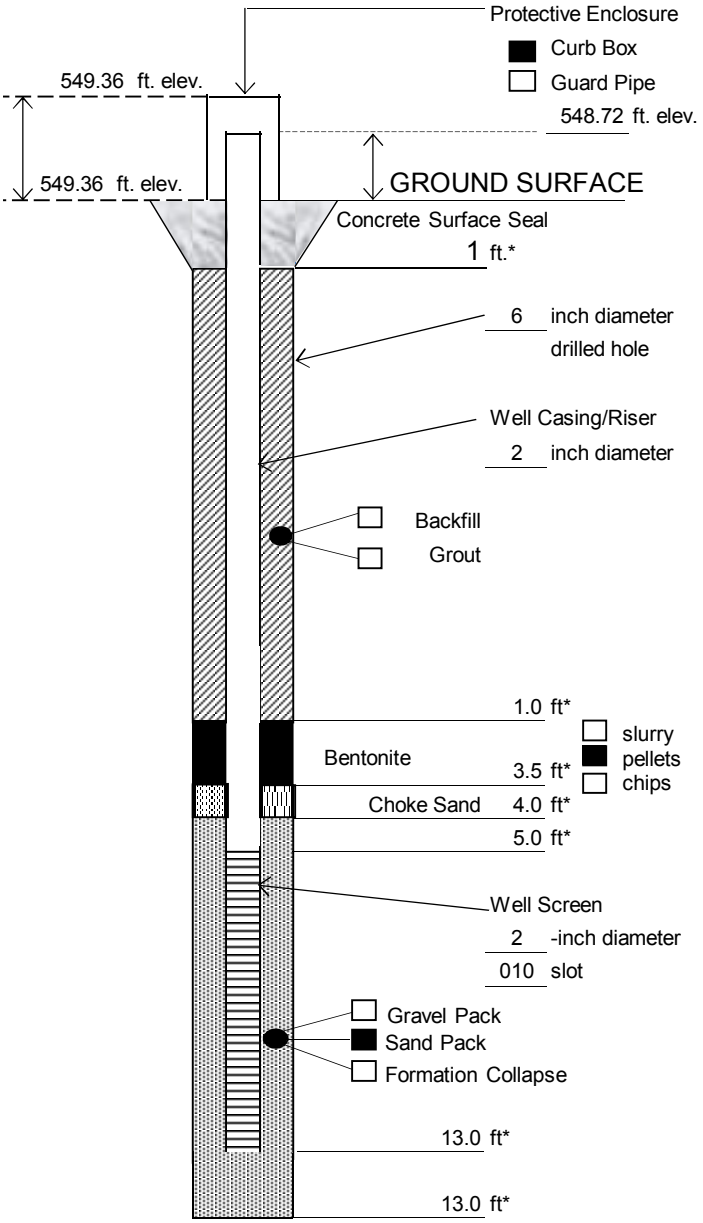
Notes:

0.25 bag of #00 Sand - FilPro - 50 lb bag

C.T. MALE ASSOCIATES

Well No. MW02

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW02 Boring No.: MW02

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/17/2016

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

2.75	Bags of Sand	(50	lb. bags)
	Sand Size: #0	Brand:	FilPro
1	Bags of Bentonite	(50	lb. bags)
	Brand: Cetco Pure Gold Medium Chips		
5	ft. of Schedule 40 PVC		well screen
8	ft. of Schedule 40 PVC		well riser
2.5	Bags of Cement/Concrete	(80	lb. bags)
	Brand: Quikrete Concrete Mix		

Grout Mixture:

-	Bags of Cement	(____ lb. bags)
-	Lbs. of Bentonite	
-	Gallons of Water	
-	Grout Batches	

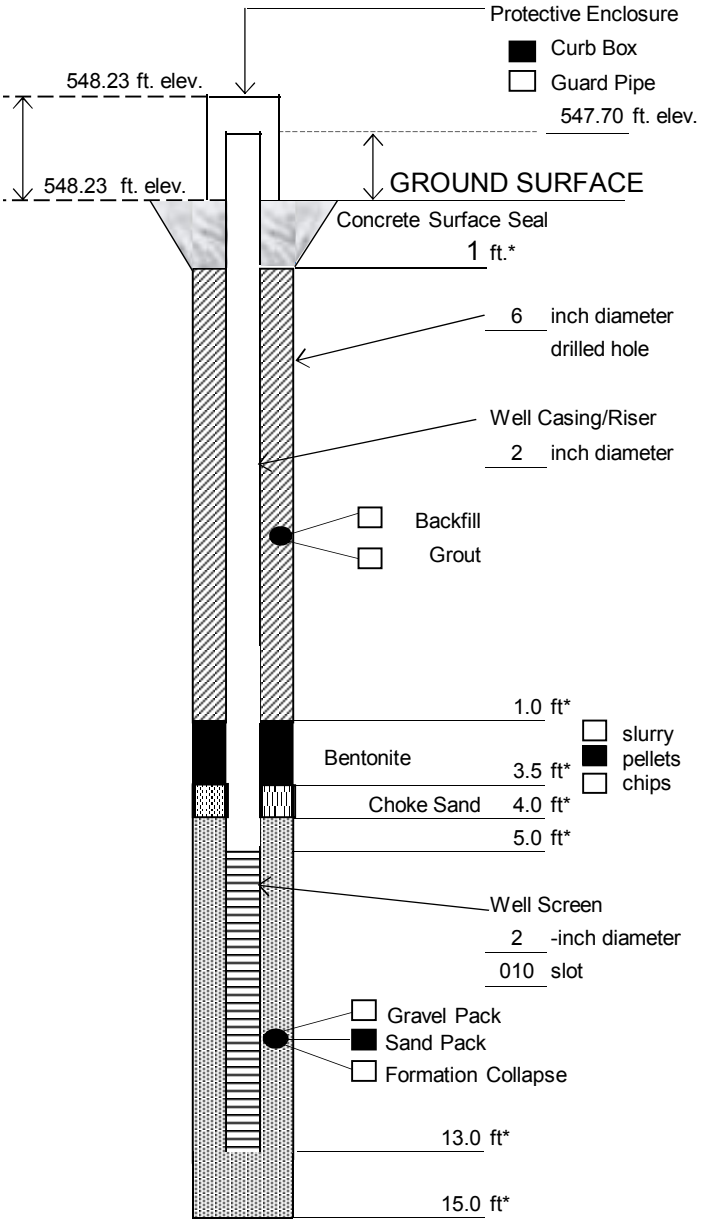
Notes:

0.25 bag of #00 Sand - FilPro - 50 lb bag

C.T. MALE ASSOCIATES

Well No. MW03S

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW03S Boring No.: MW03S

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/16/2016

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: 9.93 ft 6/17/16 (Date)

C.T. Male Observer: J.Dippert

Materials Used:

- 4 Bags of Sand (50 lb. bags)
  Sand Size: #0 Brand: FilPro
- 0.75 Bags of Bentonite (50 lb. bags)
  Brand: Cetco Pure Gold Medium Chips
- 5 ft. of Schedule 40 PVC well screen
- 8 ft. of Schedule 40 PVC well riser
- 2.5 Bags of Cement/Concrete (80 lb. bags)
  Brand: Quikrete Concrete Mix

Grout Mixture:

- \- Bags of Cement (lb. bags)
- \- Lbs. of Bentonite
- \- Gallons of Water
- \- Grout Batches

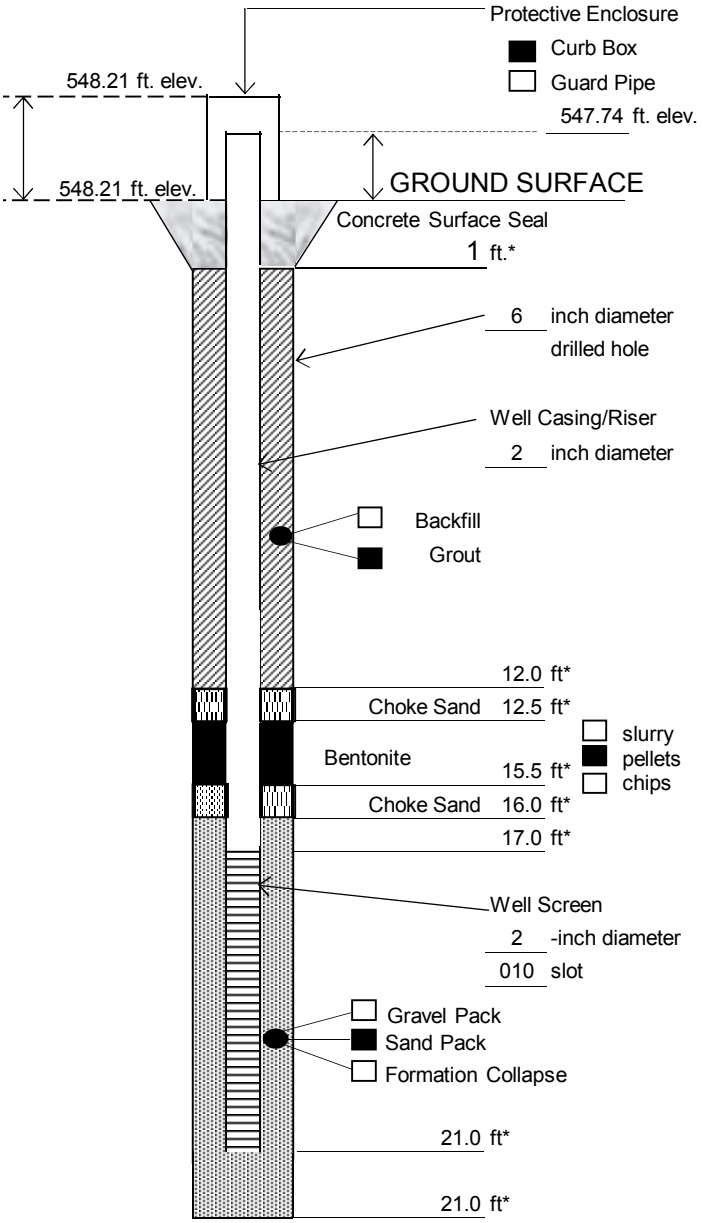
Notes:

0.25 bag of #00 Sand - FilPro - 50 lb bag

C.T. MALE ASSOCIATES

Well No. MW03

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW03 Boring No.: MW03

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/15-16/2016

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: 9.95 ft 6/17/16 (Date)

C.T. Male Observer: J.Dippert

Materials Used:

1.5	Bags of Sand	(50	lb. bags)
	Sand Size: #0	Brand:	FilPro
0.9	Bags of Bentonite	(50	lb. bags)
	Brand:	Cetco Pure Gold Medium Chips	
4	ft. of	Schedule 40 PVC	well screen
17	ft. of	Schedule 40 PVC	well riser
2.5	Bags of Cement/Concrete	(80	lb. bags)
	Brand:	Quikrete Concrete Mix	

Grout Mixture:

3	Bags of Cement	(94	lb. bags)
14	Lbs. of Bentonite		
18	Gallons of Water		
1	Grout Batches		

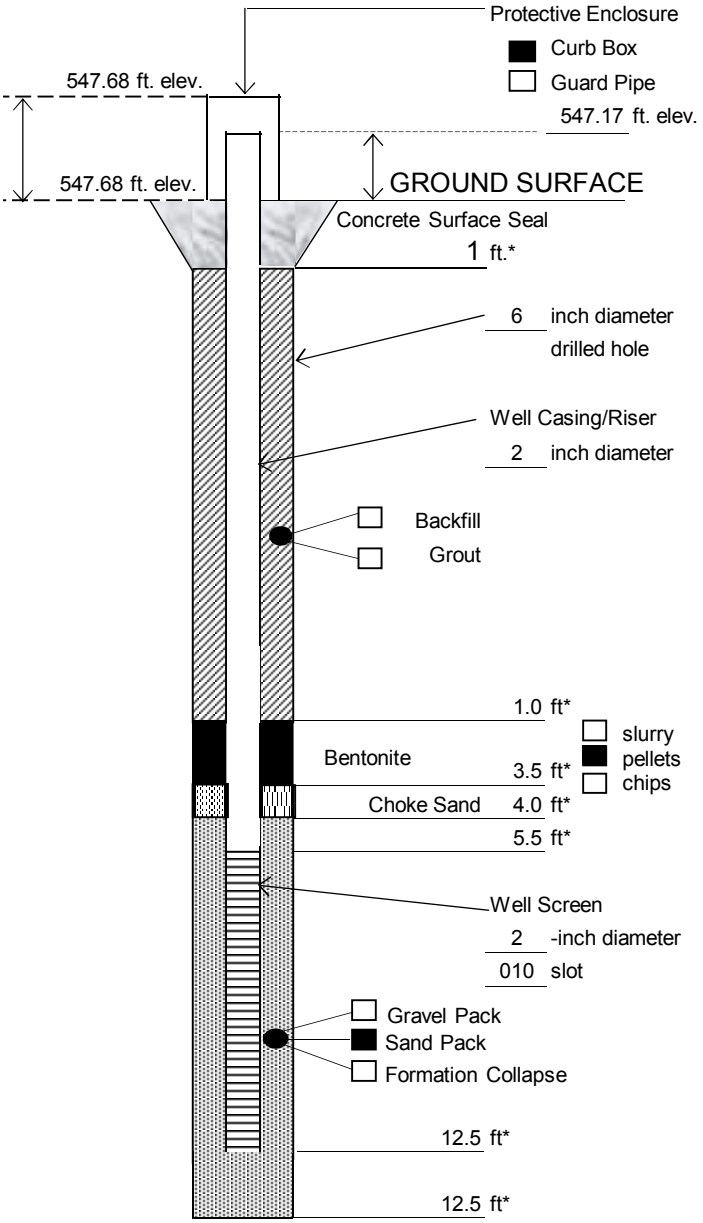
Notes:

0.25 bag of #00 Sand - FilPro - 50 lb bag
Sand pack and bentonite installed on 6/15/16
Grout installed on 6/16/16
Cement - Quikrete Portland Type I/II
Bentonite - Cetco Bentonite Powder - 50 lb bag

C.T. MALE ASSOCIATES

Well No. MW04S

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW04S Boring No.: MW04S

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/17/2016

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

4	Bags of Sand	(50	lb. bags)
	Sand Size: #0	Brand:	FilPro
0.75	Bags of Bentonite	(50	lb. bags)
	Brand: Cetco Pure Gold Medium Chips		
7	ft. of Schedule 40 PVC		well screen
5	ft. of Schedule 40 PVC		well riser
2.5	Bags of Cement/Concrete	(80	lb. bags)
	Brand: Quikrete Concrete Mix		

Grout Mixture:

-	Bags of Cement	(____ lb. bags)
-	Lbs. of Bentonite	
-	Gallons of Water	
-	Grout Batches	

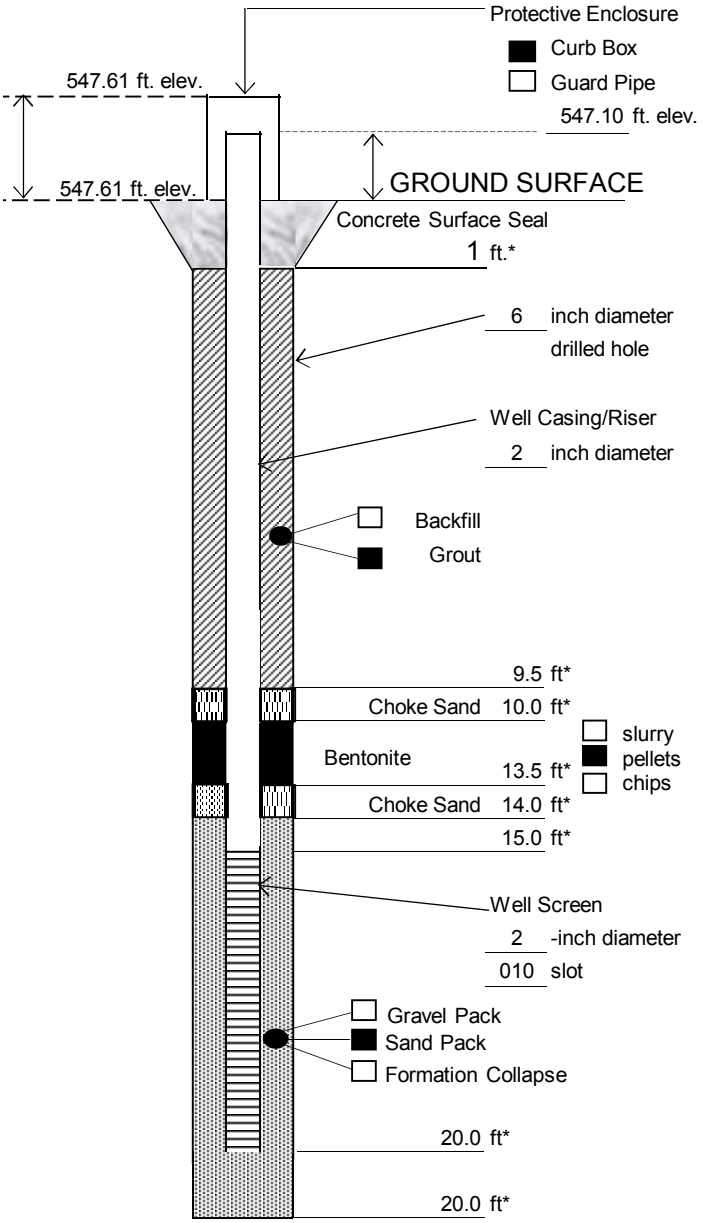
Notes:

0.25 bag of #00 Sand - FilPro - 50 lb bag

C.T. MALE ASSOCIATES

Well No. MW04

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW04 Boring No.: MW04

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/16/2016

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

3.25	Bags of Sand	(50 lb. bags)
	Sand Size: #0	Brand: FilPro
0.75	Bags of Bentonite	(50 lb. bags)
	Brand: Cetco Pure Gold Medium Chips	
5	ft. of Schedule 40 PVC	well screen
15	ft. of Schedule 40 PVC	well riser
2.5	Bags of Cement/Concrete	(80 lb. bags)
	Brand: Quikrete Concrete Mix	

Grout Mixture:

3	Bags of Cement (94 lb. bags)
10	Lbs. of Bentonite
20	Gallons of Water
1	Grout Batches

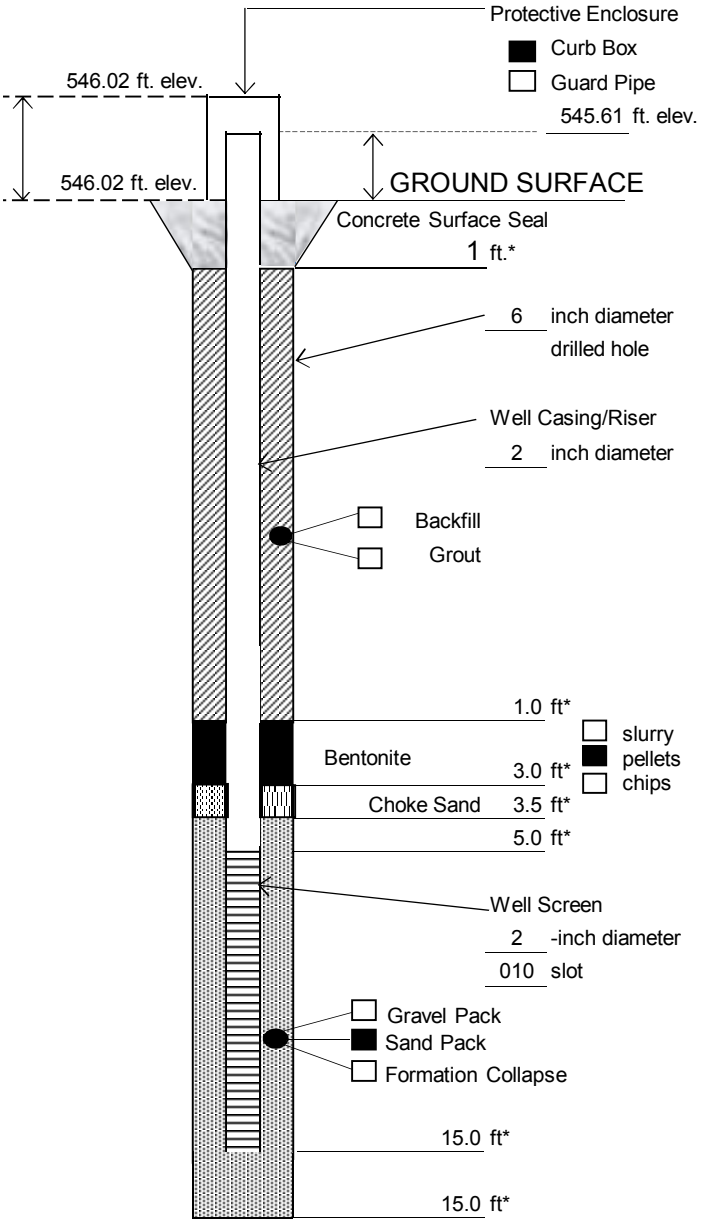
Notes:

0.25 bag of #00 Sand - FilPro - 50 lb bag
Cement - Quikrete Portland Type I/II
Bentonite - Cetco Bentonite Powder - 50 lb bag

C.T. MALE ASSOCIATES

Well No. MW05

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW05 Boring No.: MW05

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/15/2016

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

- 4.5 Bags of Sand (50 lb. bags)
  Sand Size: #0 Brand: FilPro
- 0.75 Bags of Bentonite (50 lb. bags)
  Brand: Cetco Pure Gold Medium Chips
- 10 ft. of Schedule 40 PVC well screen
- 5 ft. of Schedule 40 PVC well riser
- 2.5 Bags of Cement/Concrete (80 lb. bags)
  Brand: Quikrete Concrete Mix

Grout Mixture:

- \- Bags of Cement (____ lb. bags)
- \- Lbs. of Bentonite
- \- Gallons of Water
- \- Grout Batches

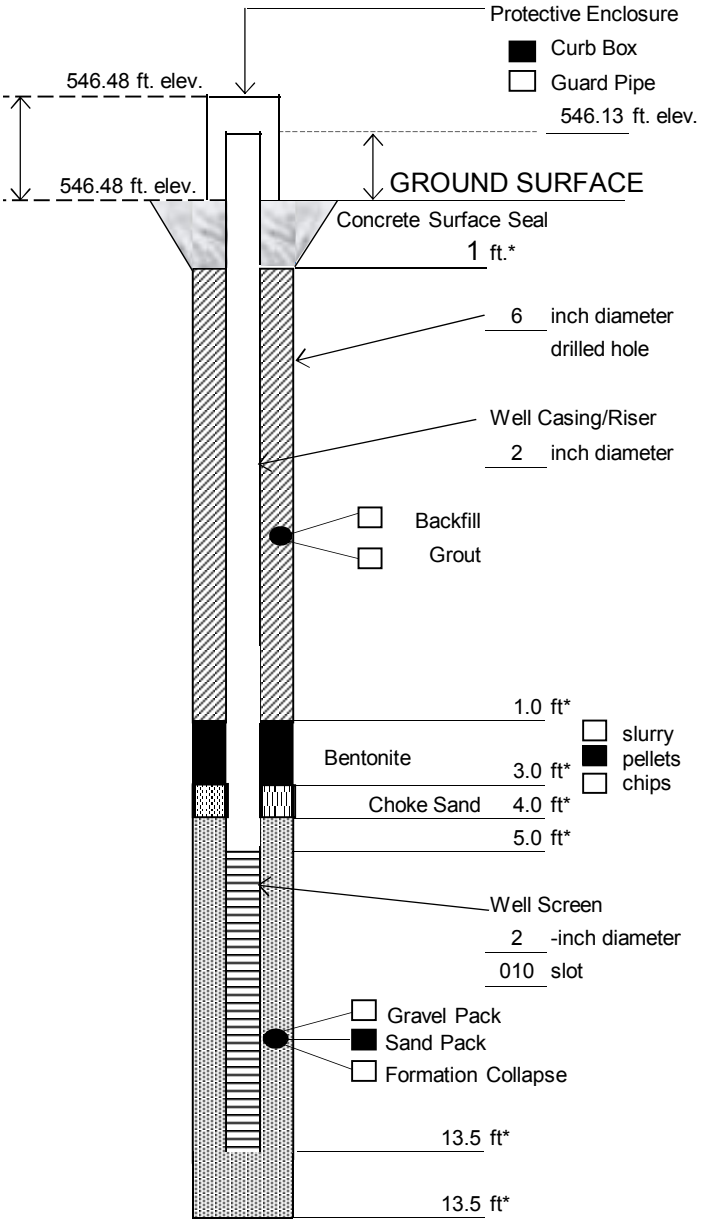
Notes:

0.25 bag of #00 Sand - FilPro - 50 lb bag

C.T. MALE ASSOCIATES

Well No. MW06S

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW06S Boring No.: MW06S

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/21/2016

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

4.25	Bags of Sand	(50	lb. bags)
	Sand Size: #0	Brand:	FilPro
0.75	Bags of Bentonite	(50	lb. bags)
	Brand: Cetco Pure Gold Medium Chips		
8.5	ft. of Schedule 40 PVC	well screen	
5	ft. of Schedule 40 PVC	well riser	
2.5	Bags of Cement/Concrete	(80	lb. bags)
	Brand: Quikrete Concrete Mix		

Grout Mixture:

-	Bags of Cement	(____ lb. bags)
-	Lbs. of Bentonite	
-	Gallons of Water	
-	Grout Batches	

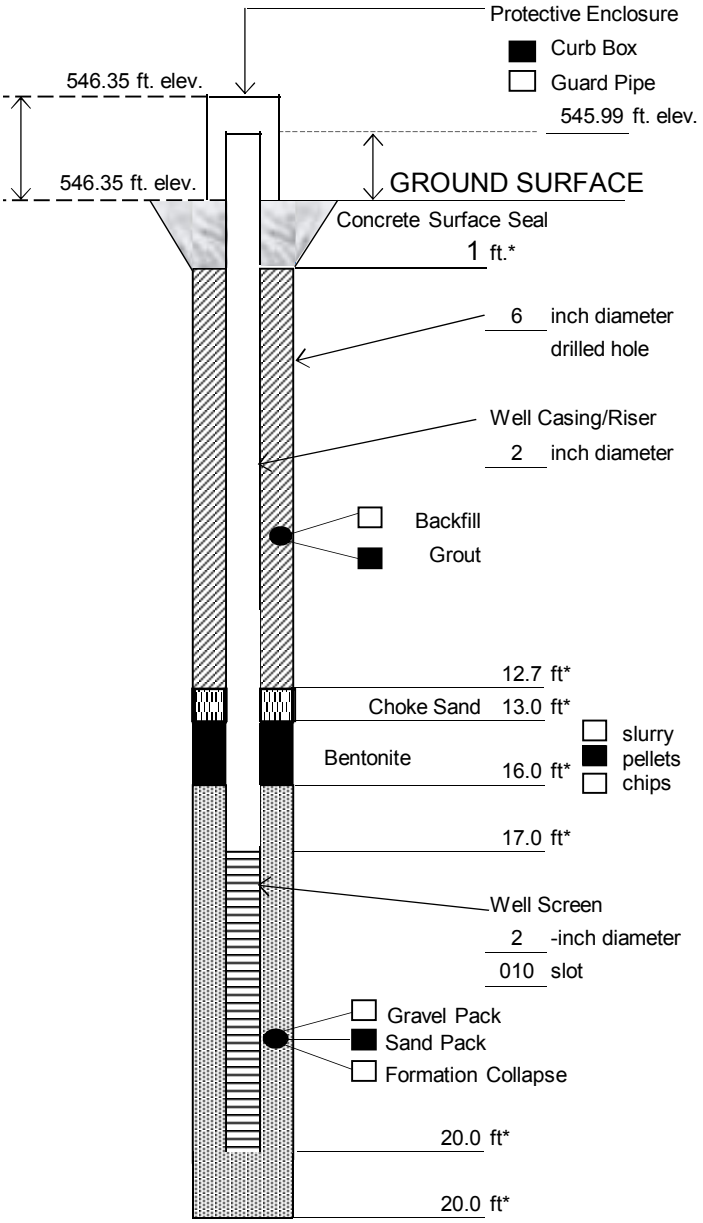
Notes:

0.25 bag of #00 Sand - FilPro - 50 lb bag

C.T. MALE ASSOCIATES

Well No. MW06

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW06 Boring No.: MW06

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/21/2016

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

1.5	Bags of Sand	(50	lb. bags)
	Sand Size: #0	Brand:	FilPro
0.75	Bags of Bentonite	(50	lb. bags)
	Brand: Cetco Pure Gold Medium Chips		
3	ft. of Schedule 40 PVC		well screen
17	ft. of Schedule 40 PVC		well riser
2.5	Bags of Cement/Concrete	(80	lb. bags)
	Brand: Quikrete Concrete Mix		

Grout Mixture:

3	Bags of Cement	(94 lb. bags)
7	Lbs. of Bentonite	
20	Gallons of Water	
1	Grout Batches	

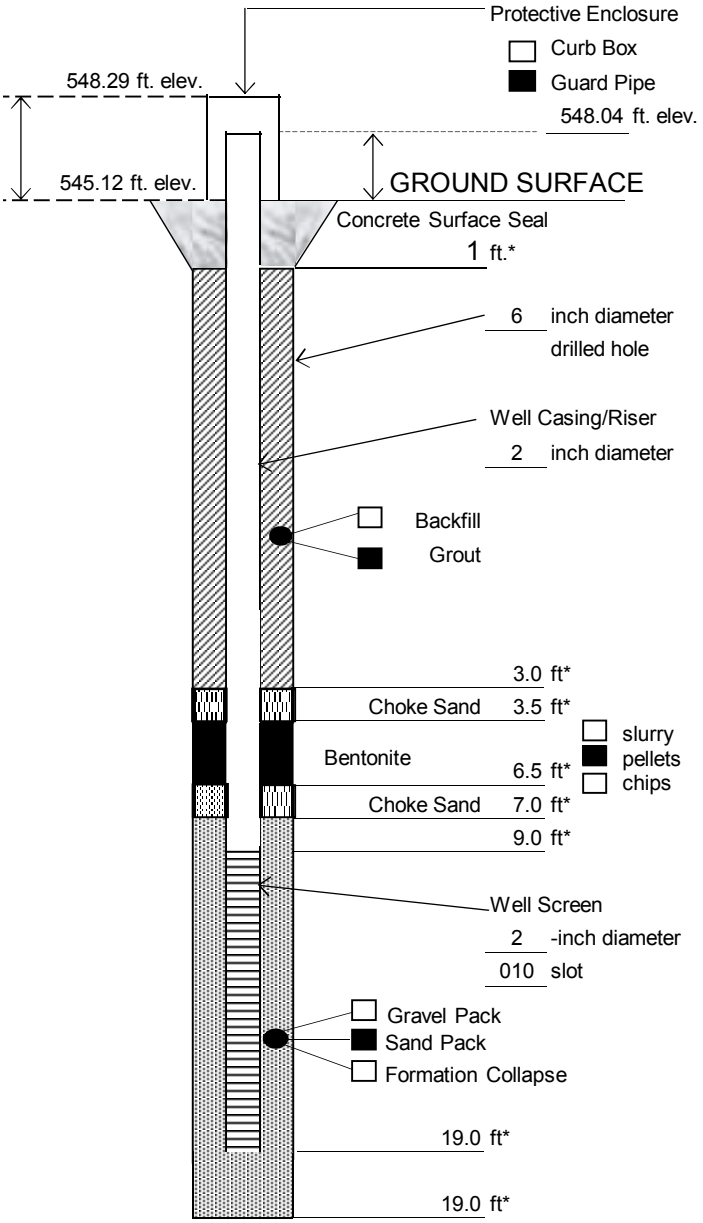
Notes:

0.125 bag of #00 Sand - FilPro - 50 lb bag
Cement - Quikrete Portland Type I/II
Bentonite - Cetco Bentonite Powder - 50 lb bag

C.T. MALE ASSOCIATES

Well No. MW07S

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW07S Boring No.: MW07S

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/15/2016

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

4.1	Bags of Sand	(50 lb. bags)
	Sand Size: #0	Brand: FilPro
1.1	Bags of Bentonite	(50 lb. bags)
	Brand: Cetco Pure Gold Medium Chips	
10	ft. of Schedule 40 PVC	well screen
12	ft. of Schedule 40 PVC	well riser
2.5	Bags of Cement/Concrete	(80 lb. bags)
	Brand: Quikrete Concrete Mix	

Grout Mixture:

3	Bags of Cement	(94 lb. bags)
14	Lbs. of Bentonite	
18	Gallons of Water	
1	Grout Batches	

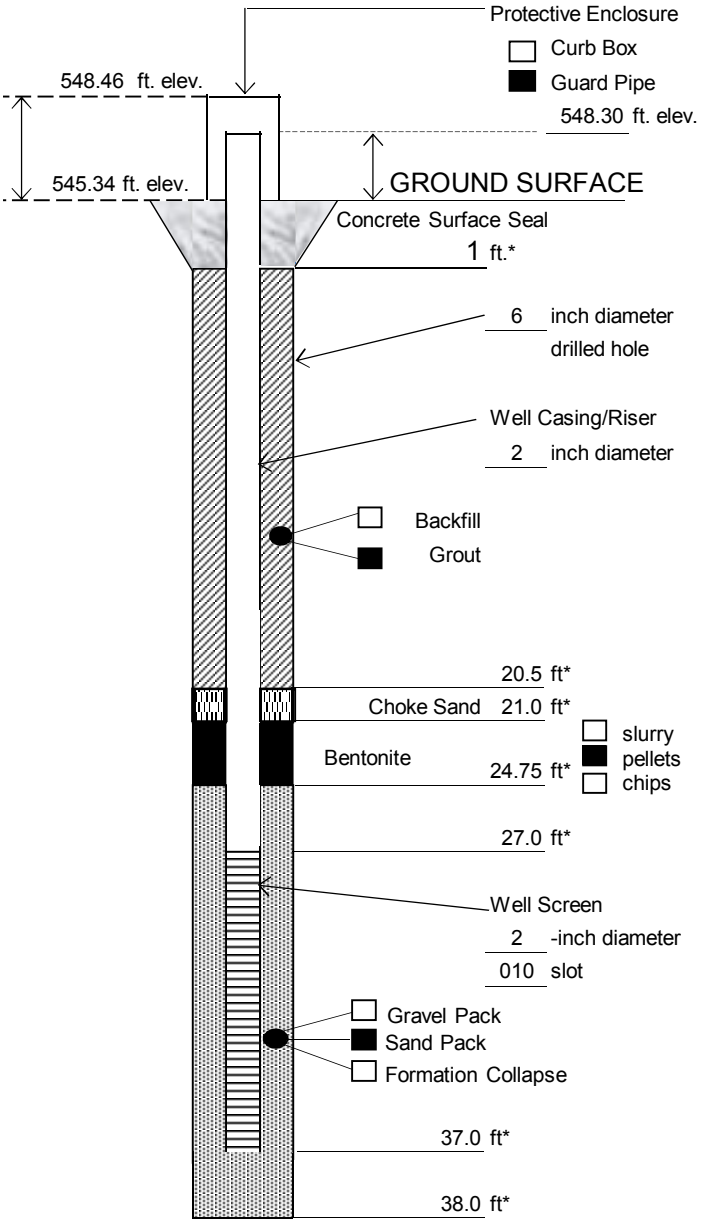
Notes:

0.75 bag of #00 Sand - FilPro - 50 lb bag
Cement - Quikrete Portland Type I/II
Bentonite - Cetco Bentonite Powder - 50 lb bag

C.T. MALE ASSOCIATES

Well No. MW07

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW07 Boring No.: MW07

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 6/14/2016

Drilling Contractor: Cascade Drilling

Drilling Method: Roto-Sonic

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: J.Dippert

Materials Used:

4.25	Bags of Sand	(50 lb. bags)
	Sand Size: #0	Brand: FilPro
1	Bags of Bentonite	(50 lb. bags)
	Brand: Cetco Pure Gold Medium Chips	
10	ft. of Schedule 40 PVC	well screen
30	ft. of Schedule 40 PVC	well riser
2.5	Bags of Cement/Concrete	(80 lb. bags)
	Brand: Quikrete Concrete Mix	

Grout Mixture:

4/3	Bags of Cement	(94 lb. bags)
18/12	Lbs. of Bentonite	
25/18	Gallons of Water	
2	Grout Batches	

Notes:

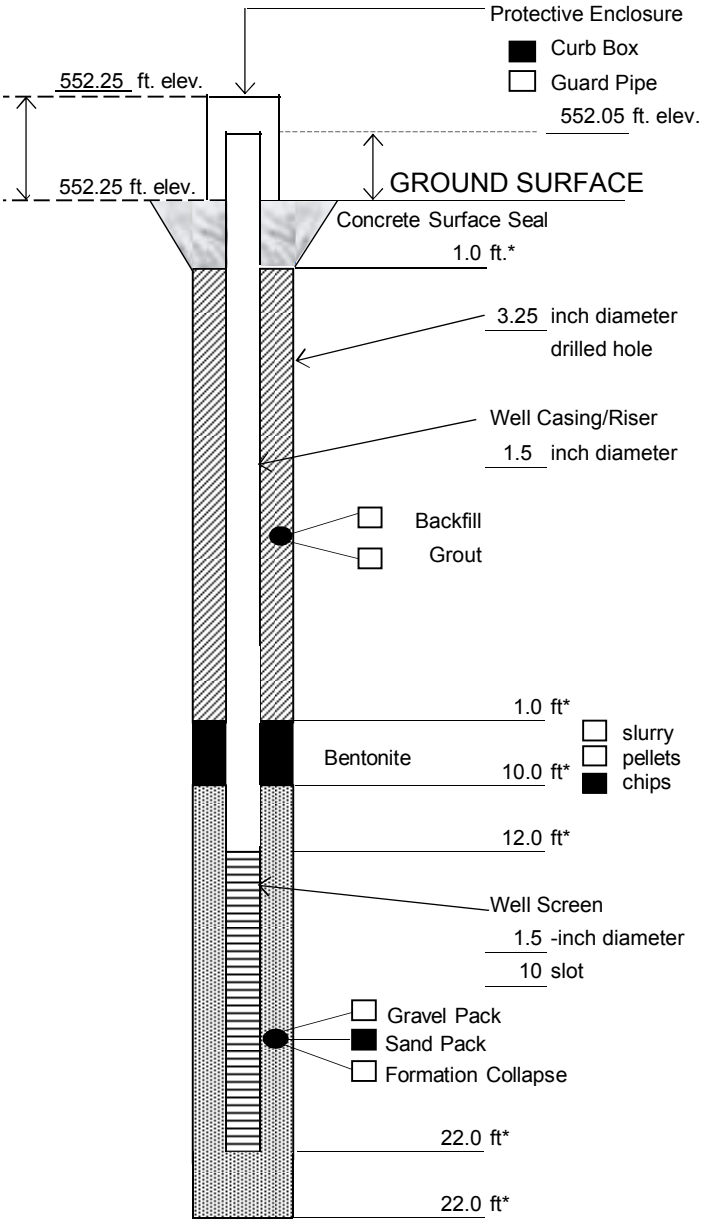
Cement - Quikrete Portland Type I/II

Bentonite - Cetco Bentonite Powder - 50 lb bag

Well No. **MW1801**

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW1801 Boring No.: SB1801

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 3/6/2018

Drilling Contractor: Cascade Technical Services

Drilling Method: Direct-Push

Water Depth From Top of Riser: 13.6 ft 3/6/18 (Date)

C.T. Male Observer: D. King

Materials Used:

1.0	Bags of Sand	(50	lb. bags)
	Sand Size: #0	Brand:	Filpro
1.0	Bags of Bentonite	(50	lb. bags)
	Brand:	Cetco	
10.0	ft. of	Sch 40 PVC	well screen
12.0	ft. of	Sch 40 PVC	well riser
1.0	Bags of Cement/Concrete	(80	lb. bags)
	Brand:	Quikrete	

Grout Mixture:

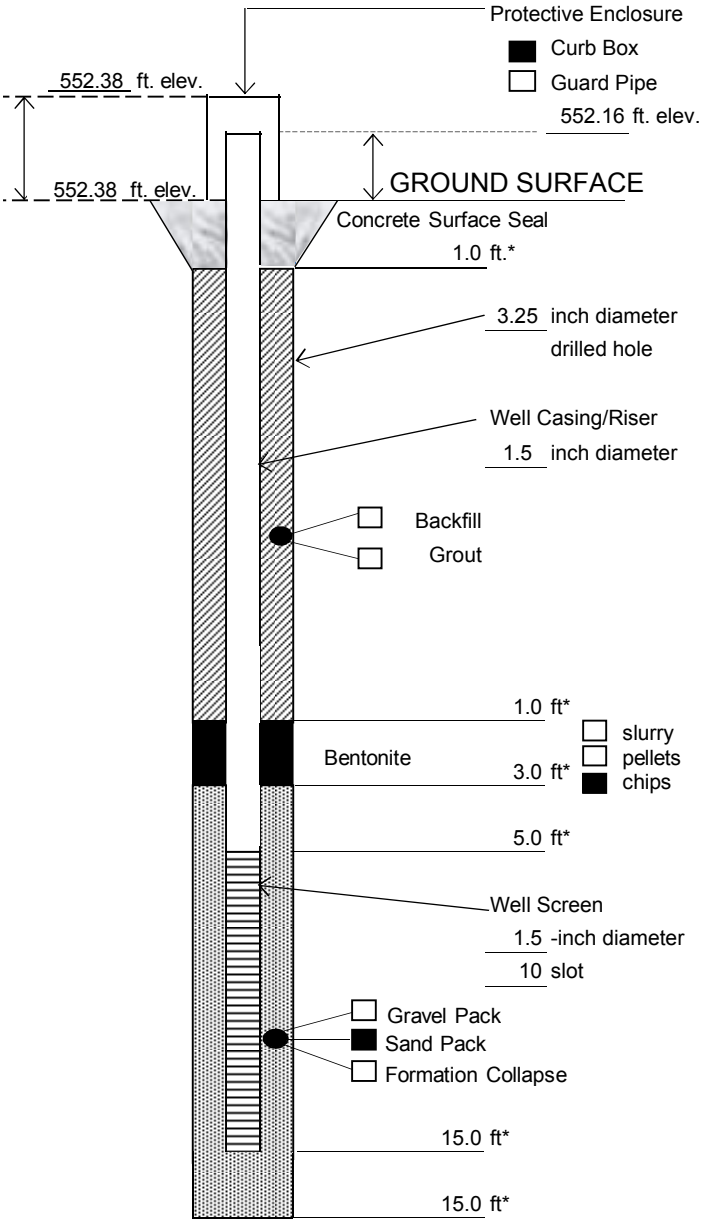
-	Bags of Cement	(lb. bags)
-	Lbs. of Bentonite	
-	Gallons of Water	
-	Grout Batches	

Notes:

Well No. **MW1802**

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW1802 Boring No.: SB1802

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 3/6/2018

Drilling Contractor: Cascade Technical Services

Drilling Method: Direct-Push

Water Depth From Top of Riser: 11.7 ft 3/6/18 (Date)

C.T. Male Observer: D. King

Materials Used:

0.75	Bags of Sand	(50	lb. bags)
	Sand Size: #0	Brand:	Filpro
0.75	Bags of Bentonite	(50	lb. bags)
	Brand:	Cetco	
10.0	ft. of	Sch 40 PVC	well screen
5.0	ft. of	Sch 40 PVC	well riser
1.0	Bags of Cement/Concrete	(80	lb. bags)
	Brand:	Quikrete	

Grout Mixture:

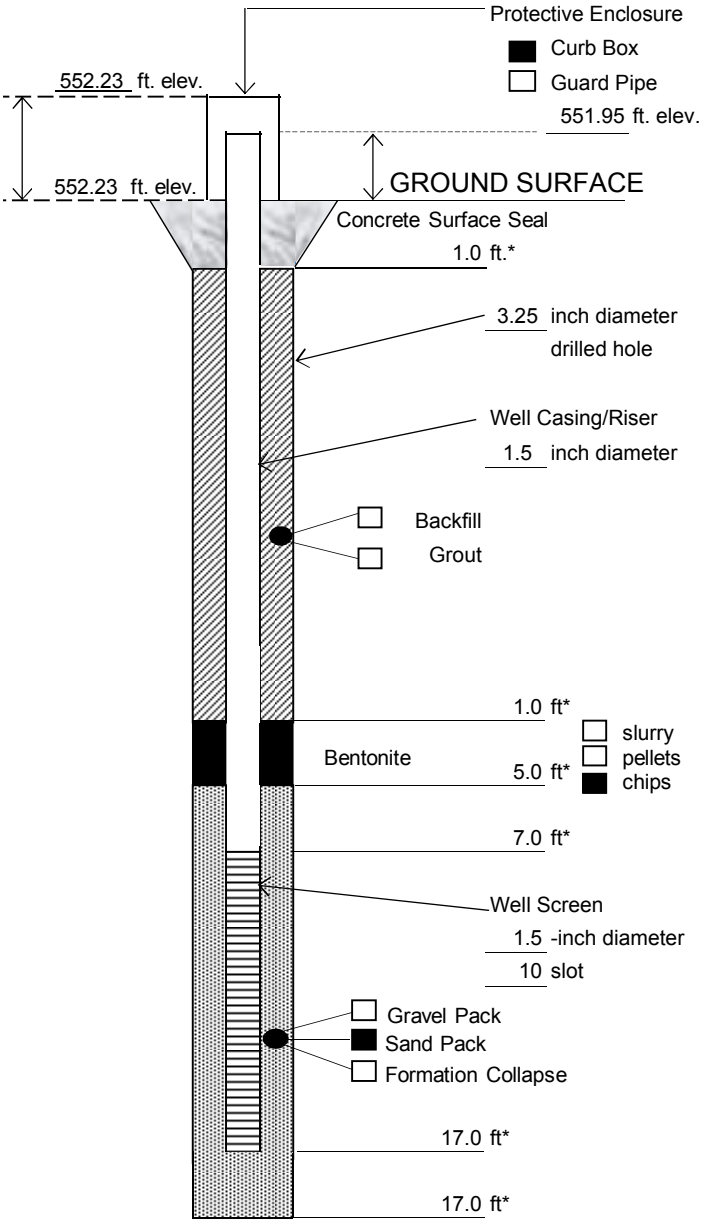
-	Bags of Cement	(lb. bags)
-	Lbs. of Bentonite	
-	Gallons of Water	
-	Grout Batches	

Notes:

Well No. **MW1803**

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW1803 Boring No.: SB1803

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 3/6/2018

Drilling Contractor: Cascade Technical Services

Drilling Method: Direct-Push

Water Depth From Top of Riser: 13.3 ft 3/6/18 (Date)

C.T. Male Observer: D. King

Materials Used:

1.0	Bags of Sand	(50	lb. bags)
	Sand Size: #0	Brand:	Filpro
1.0	Bags of Bentonite	(50	lb. bags)
	Brand:	Cetco	
10.0	ft. of	Sch 40 PVC	well screen
7.0	ft. of	Sch 40 PVC	well riser
1.0	Bags of Cement/Concrete	(80	lb. bags)
	Brand:	Quikrete	

Grout Mixture:

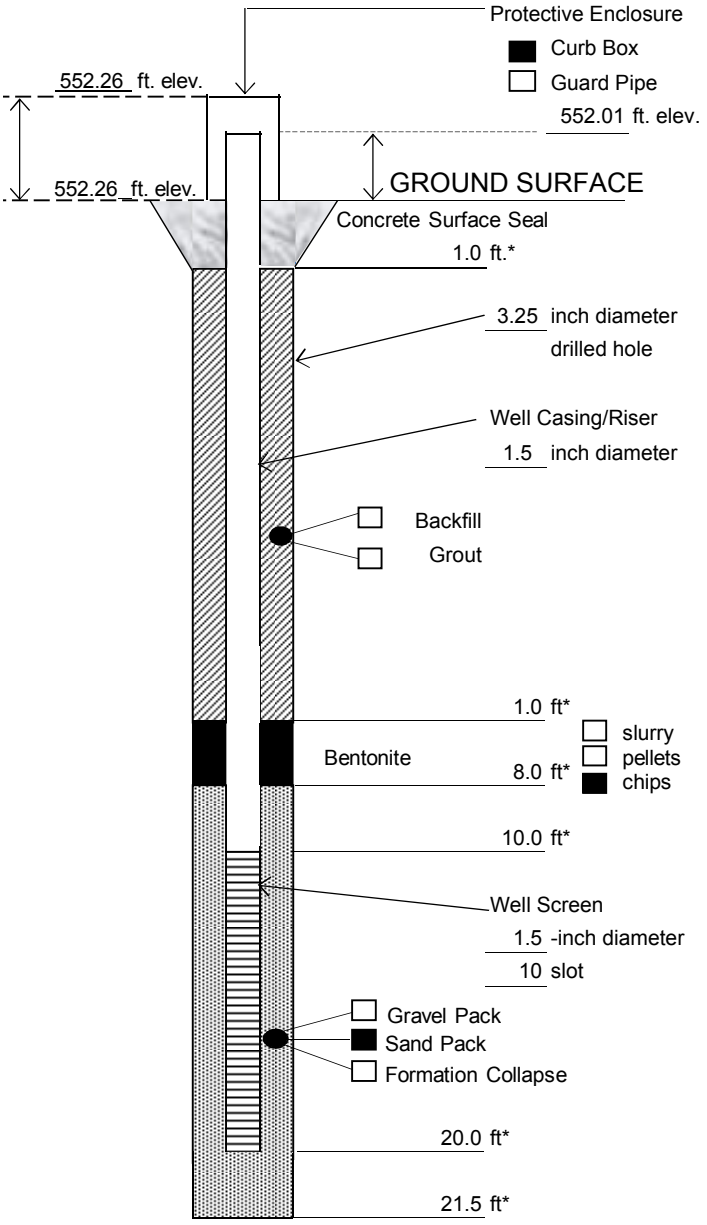
-	Bags of Cement	(lb. bags)
-	Lbs. of Bentonite	
-	Gallons of Water	
-	Grout Batches	

Notes:

Well No. **MW1804**

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW1804 Boring No.: SB1804

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 3/9/2018

Drilling Contractor: Cascade Technical Services

Drilling Method: Direct-Push

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: D. King

Materials Used:

1.0	Bags of Sand	(50	lb. bags)
	Sand Size: #0	Brand:	Filpro
1.0	Bags of Bentonite	(50	lb. bags)
	Brand:	Benseal	
10.0	ft. of	Sch 40 PVC	well screen
10.0	ft. of	Sch 40 PVC	well riser
1.0	Bags of Cement/Concrete	(80	lb. bags)
	Brand:	Quikrete	

Grout Mixture:

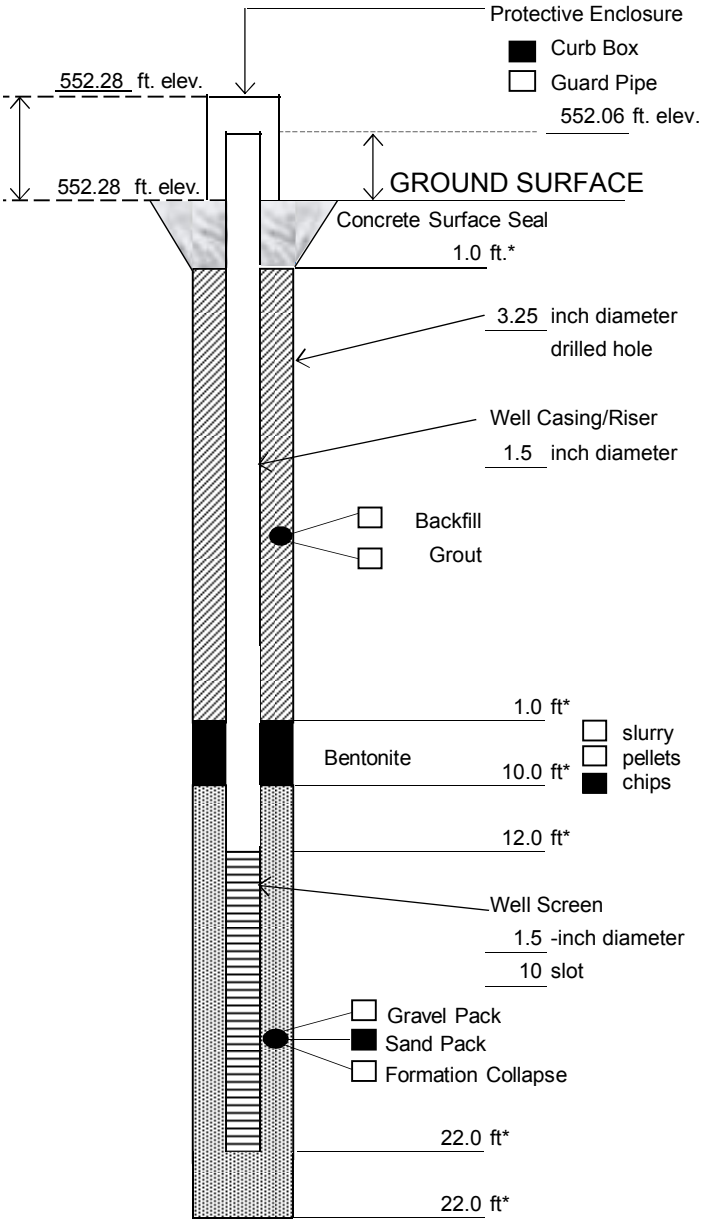
-	Bags of Cement	(____ lb. bags)
-	Lbs. of Bentonite	
-	Gallons of Water	
-	Grout Batches	

Notes:

Well No. **MW1805**

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW1805 Boring No.: SB1805

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 3/7/2018

Drilling Contractor: Cascade Technical Services

Drilling Method: Direct-Push

Water Depth From Top of Riser: 14.0 ft 3/7/18 (Date)

C.T. Male Observer: D. King

Materials Used:

1.0	Bags of Sand	(50	lb. bags)
	Sand Size: #0	Brand:	Filpro
1.0	Bags of Bentonite	(50	lb. bags)
	Brand:	Benseal	
10.0	ft. of	Sch 40 PVC	well screen
12.0	ft. of	Sch 40 PVC	well riser
1.0	Bags of Cement/Concrete	(80	lb. bags)
	Brand:	Quikrete	

Grout Mixture:

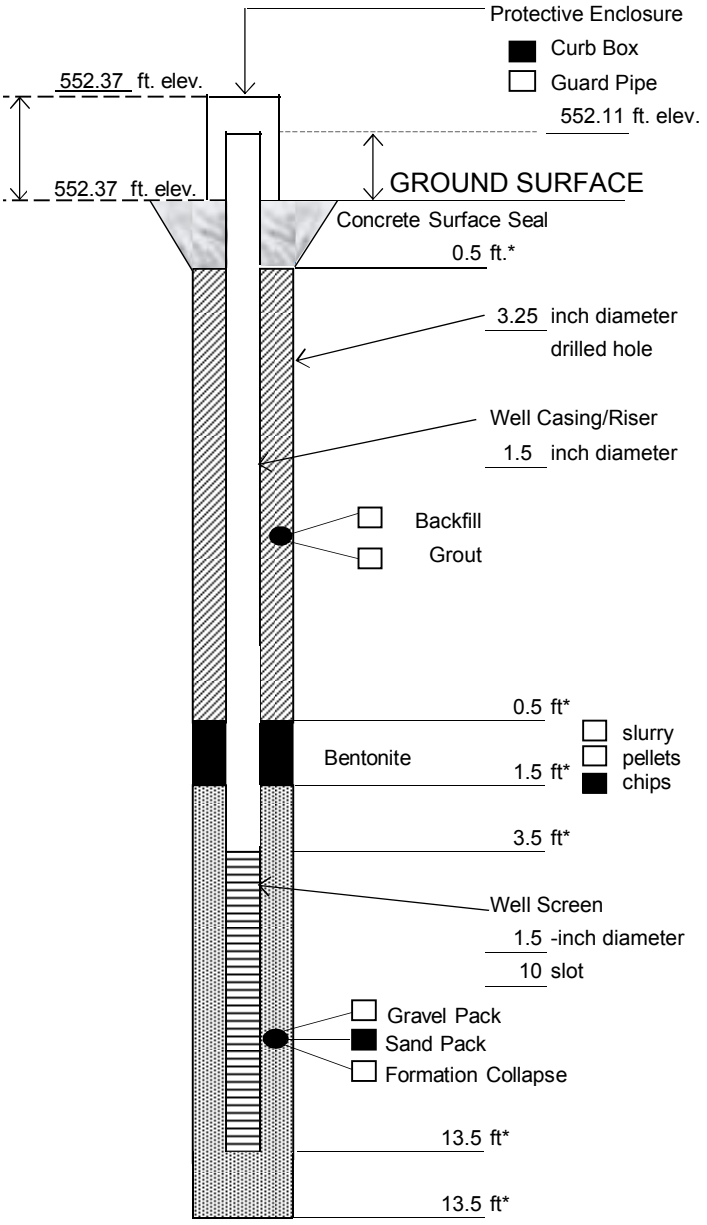
-	Bags of Cement	(lb. bags)
-	Lbs. of Bentonite	
-	Gallons of Water	
-	Grout Batches	

Notes:

Well No. **MW1806**

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW1806 Boring No.: SB1806

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 3/9/2018

Drilling Contractor: Cascade Technical Services

Drilling Method: Direct-Push

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: D. King

Materials Used:

0.5	Bags of Sand	(50	lb. bags)
	Sand Size: #0	Brand:	Filpro
0.5	Bags of Bentonite	(50	lb. bags)
	Brand:	Benseal	
10.0	ft. of	Sch 40 PVC	well screen
3.5	ft. of	Sch 40 PVC	well riser
1.0	Bags of Cement/Concrete	(80	lb. bags)
	Brand:	Quikrete	

Grout Mixture:

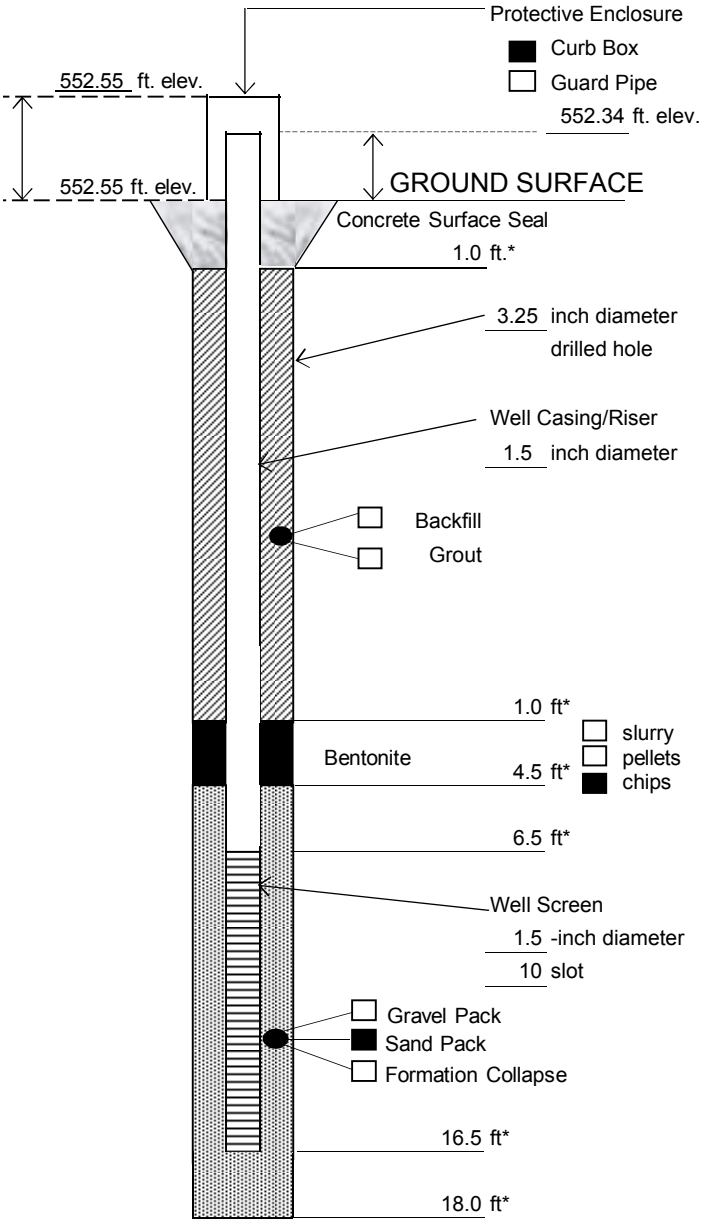
-	Bags of Cement	(____ lb. bags)
-	Lbs. of Bentonite	
-	Gallons of Water	
-	Grout Batches	

Notes:

Well No. **MW1807**

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MW1807 Boring No.: SB1807

Town/City: North Bennington

County: Bennington State: VT

Installation Date(s): 3/12/2018

Drilling Contractor: Cascade Technical Services

Drilling Method: Direct-Push

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: D. King

Materials Used:

1.0	Bags of Sand	(50	lb. bags)
	Sand Size: #0	Brand:	Filpro
1.0	Bags of Bentonite	(50	lb. bags)
	Brand:	Benseal	
10.0	ft. of	Sch 40 PVC	well screen
6.5	ft. of	Sch 40 PVC	well riser
1.0	Bags of Cement/Concrete	(80	lb. bags)
	Brand:	Quikrete	

Grout Mixture:

-	Bags of Cement	(____ lb. bags)
-	Lbs. of Bentonite	
-	Gallons of Water	
-	Grout Batches	

Notes:

Appendix E

Quality Assurance and Quality Control Review

ENVIRONMENTAL® STANDARDS

Setting the Standards for Innovative Environmental Solutions

Background

For the Village of North Bennington Vermont Site, C.T. Male and Barr collectively submitted 22 sample delivery groups (SDGs) for samples of various matrices to Eurofins Lancaster Laboratories Environmental, LLC. (ELLE), for analyses. Table 1 summarized the SDG identifications included in this summary. The 22 SDGs encompassed a total of 195 samples including 87 soil samples, 56 swab or wipe samples, 22 miscellaneous solid material samples, six ground water samples, five sediment samples, five investigative derived waste samples, five sludge samples, five surface water samples, three waste water samples, and one analytical water sample. Of the total 195 samples, 192 samples were analyzed for perfluorinated and polyfluorinated alkyl substances (PFASs).

Table 1: Sample Delivery Group Identifiers

SBN08	SBN15	SGP93	SNB96
SBN09	SBN16	SGP94	SNB98
SBN10	SBN17	SGP96	SPP02
SBN11	SBN18	SGP97	SPP17
SBN12	SBN19	SNB54	
SBN13	SBN20	SNB95	

ELLE provided an electronic data deliverable (EDD), a limited data package (equivalent to a New York State Department of Environmental Conservation [NYSDEC] Analytical Services Protocol [ASP] Category A deliverable), and a full data package (equivalent to a NYSDEC ASP Category B deliverable) for each SDG. These data were received by Environmental Standards, Inc. (Environmental Standards), for management of the project database and data quality assessment activities.

Collectively, for analyses included in the project, the full data validation, labeled as Category B in the database, includes the rigorous review of all tabulated QC summary forms and raw data associated with the following QC measures.

Table 2: Category B Data Validation Elements

- Preparation and analysis holding times
- Blank analysis results
- Second-source initial calibration verification (ICV) recoveries
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Surrogate compound recoveries
- Sample condition upon laboratory receipt
- Initial calibrations
- Continuing calibration verification (CCV) recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Mass spectrometer tuning injections

Table 2: Category B Data Validation Elements

- Field duplicate precision
- Labeled pre-extraction internal standard recoveries
- Qualitative identification
- Detection limit standard results
- Serial dilution results
- Inductively coupled plasma-mass spectrometry (ICP-MS) internal standard results
- Analytical sequence
- Pre-injection internal standard responses
- Quantitation of results
- Calibration check standard recoveries
- Interference check sample results
- Post-digestion spike results

Collectively, for analyses included in the project, the limited data validation, labeled as DUSR in the database, includes the review of all tabulated QC summary forms associated with the following QC measures; however, raw data was not evaluated.

Table 3: DUSR Data Validation Elements

- Preparation and analysis holding times
- Blank analysis results
- Second-source ICV recoveries
- LCS/LCSD results
- Surrogate compound recoveries
- Labeled pre-extraction internal standard recoveries
- Field duplicate precision
- Detection limit standard results
- Serial dilution results
- ICP-MS internal standard results
- Sample condition upon laboratory receipt
- Initial calibrations
- CCV recoveries
- MS/MSD results
- Mass spectrometer tuning injections
- Pre-injection internal standard responses
- Calibration check standard recoveries
- Interference check sample results
- Post-digestion spike results
- Analytical sequence

Collectively, for analyses included in the project, the limited data validation, labeled as Category A in the database, includes the review of the tabulated QC summary forms associated with the following QC measures; however, raw data was not evaluated.

Table 4: Category A Data Validation Elements

- Preparation and analysis holding times
- Blank analysis results
- LCS/LCSD results
- Surrogate recoveries
- Sample condition upon laboratory receipt
- MS/MSD results
- Labeled pre-extraction internal standard recoveries

A summary of the data validation performed for the investigative samples and associated field duplicate samples is presented in Table 4. The percent Category B is determined by the following equation.

Percent Category B Calculation

$$= \frac{\text{Number of Results Category B}}{\text{Total Number of Results}} \text{x} 100$$

Method Code	Method Definition	Soil %	Sediment %	Sludge %	Miscellaneous Solid Material %	IDW %	Surface Water %	Waste Water %	Swab/ Wipe %	Water Analytical %	Groundwater %
E537M	PFAS	67	100	98	100	0	100	100	100	--	100
E537MTOP	PFAS-TOP	--	--	--	--	--	--	--	--	--	100
SM 2540G	Percent Moisture	4	0	20	--	--	--	--	--	--	--
SM5310B	Total Organic Carbon	7	--	20	--	--	--	--	--	--	--
SW9060M	Total Organic Carbon	0	--	--	--	--	--	--	--	--	--
SW6010C	ICP Metals	44	--	24	0	--	--	0	--	0	--
SW6020A	ICP-MS Metals	44	--	25	--	--	--	--	--	--	--
SW7470A	Mercury	--	--	--	0	--	--	0	--	0	--
SW7471B	Mercury	44	--	20	--	--	--	--	--	--	--
SW8260C	VOC	44	--	25	--	--	--	--	--	--	--
SW8270D	SVOC	44	--	25	--	--	--	--	--	--	--
SW9045	pH	13	--	20	--	--	--	--	--	--	--

-- Indicates that no analyses were performed for this method and matrix combination or Category B Validation was not performed for this method and matrix combination.

Overall Data Usability and Qualification

The 195 samples collected and analyzed generated a total of 4,944 results and, specifically, 2,693 PFAS results. Based on the data validation performed, 140 of the results were qualified as "unusable" ("R"). The following list details the conditions in which these results were qualified.

- 132 of the PFAS results were qualified as "unusable" due to sample misidentification (e.g., possible sample switch during extraction of analysis).
- 6 of the PFAS results were qualified as "unusable" due to severe chromatographic interferences.
- 2 of the hexachlorocyclopentadiene results were qualified as "unusable" due to very low matrix spike recoveries.

Overall, the percentage of usable results was determined to be 97.16% with 2.84% unusable results. *For PFASs, the percentage of usable results was determined to be 94.88% with 5.12% unusable results.*

Based on the data validation performed overall, 1,365 results were qualified (*e.g.*, "J," "JN," "R," "UB," or "UJ) due reason identified in the validation reports. The percentage of unqualified results was 72.35% with 27.65% qualified results. A total of 46 results were qualified due to method, preparation, or equipment blank contamination.

Based on the data validation performed for PFASs, 905 results were qualified (*e.g.*, "J," "JN," "R," "UB," or "UJ) due reason identified in the validation reports. The percentage of unqualified PFAS results was 66.54% with 33.46% qualified results. A total of 138 results were qualified due to method, preparation, or equipment blank contamination.

$$\%\ \text{Usable Calculation}$$

$$= \frac{\text{Number of Usable Results (Results not Rejected)}}{\text{Total Number of Results}} \text{x} 100$$

Summary of Data Qualifier Reasons

As a result of the data validation performed on the Bennington samples, Table 6 provides a summary of the reasons for qualification were observed by Environmental Standards. The top five qualifications applied to the analytical data were 1) reported positive results between the reporting limit and method detection limit, 2) out-of-criteria internal standard recoveries, 3) professional judgement, 4) laboratory duplicate imprecision, and 5) low recovery of LCS/LCSD.

Table 6: Reasons for Qualification and Percent Qualified		
Reason Code	Definition	Percent of Qualification
CI	Chromatographic Interference	1.881
CVH	CCV evaluation criteria not met, potential high bias	0.176
CVL	CCV evaluation criteria not met, potential low bias	0.059
EB	Equipment blank contamination	1.47
FB	Field blank contamination	0.764
FD	Field duplicate imprecision, potential bias indeterminate	2.822
HAL	Holding time – preparation to analysis, potential low bias	0.176
IB	Instrument (including initial calibration or continuing calibration) blank contamination	0.353
IS	Internal standard evaluation criteria not met, potential bias indeterminate	24.633
LAH	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential high bias	6.232
LAL	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential low bias	1.176
LD	Laboratory duplicate precision criteria not met, potential bias indeterminate	6.349
MA	MS and/or MSD recovery criteria not met, potential bias indeterminate	0.412
MAH	MS and/or MSD recovery criteria not met, potential high bias	3.762
MAL	MA and/or MSD recovery criteria not met, potential low bias	5.467
MB	Method blank or preparation blank contamination	0.764
MP	MS/MSD precision criteria not met, potential bias indeterminate	5.056
PJ	Professional judgement, potential bias indeterminate	9.700
RL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the quantitation or reporting limit, potential bias indeterminate	26.808

Table 6: Reasons for Qualification and Percent Qualified		
Reason Code	Definition	Percent of Qualification
SD	Serial Dilution results did not meet evaluation criteria, potential bias indeterminate	0.235
SRL	Surrogate recovery outside acceptance range, potential low bias	0.880
TB	Trip blank contamination	0.823

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DATA USABILITY SUMMARY REPORT

ANALYSIS OF PERFLUORINATED AND POLYFLUORINATED ALKYL SUBSTANCES IN WIPE, SOLID, AND AQUEOUS BLANK SAMPLES

1030 WATER STREET, VILLAGE OF NORTH BENNINGTON, BENNINGTON COUNTY, VERMONT, VTDEC SMS SITE # 20164630

SAMPLE DELIVERY GROUPS: SBN08 AND SBN09

May 24, 2018

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TABLE OF CONTENTS

Introduction

Section 1 Quality Assurance Review

A. Organic Data Review

B. Conclusions

Section 2 Validated Data Summary Tables

A. SDG SBN08

B. SDG SBN09

Section 3 Laboratory Calibration and Quality Control Acceptance Criteria

Section 4 Environmental Standards, Inc., Standard Operating Procedure

Section 5 Organic Data Support Documentation

A. SDG SBN08

B. SDG SBN09

Section 6 Laboratory Case Narratives and Project Chain-of-Custody Records

Section 7 Project Correspondence

Introduction

This Data Usability Summary Report (DUSR) was based upon an examination of the data generated from samples that were collected on March 29, 2018, as part of the 1030 Water Street, Village of North Bennington, Vermont project based on the "Initial Site Characterization Investigation Work Plan Saint-Gobain Performance Plastics Site 1030 Water Street, Village of North Bennington, Bennington County, Vermont" (Work Plan, April 2016). The analyses of the samples (and associated quality control [QC] samples) listed on the table below were performed by Eurofins Lancaster Laboratories Environmental (ELLE) of Lancaster, Pennsylvania. Solid and wipe samples were analyzed for perfluorinated and polyfluorinated alkyl substances (PFASs) according to ELLE's internal standard operating procedure (SOP) "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3). Aqueous samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI14355, Version 3). The Analytical Services Protocol (ASP) Category B data deliverables were prepared by the laboratory and were reviewed by Environmental Standards, Inc. (Environmental Standards). The samples that have undergone a Full quality assurance (QA) review are listed on Table 1. Table 1 also presents the laboratory sample number, laboratory Sample Delivery Group (SDG), matrix, collection date, and parameter analyzed and reviewed for the samples.

The reported analytical results are presented on the validated data summary tables included in Section 2. These validated data summary tables were generated from electronic data deliverables (EDDs) provided by the laboratory and have been edited by the data reviewer to include all final data validation qualifiers and results. The "Lab Result," "Lab MDL" (*i.e.*, the method detection limit [MDL]), "Lab LOQ" (*i.e.*, the limit of quantitation [LOQ]), "Lab Qualifier," and "Lab Detect Flag" fields presented on the validated data summary tables were derived directly from the laboratory-provided EDD. Errors in the "Lab Result," "Lab MDL," "Lab LOQ," and "Lab Detect Flag" fields noted during validation have been corrected, and the corrections are reflected in the "Final Result," "Final MDL," "Final LOQ," and "Final Detect Flag" fields, respectively, on the validated data summary tables. Validation qualifier codes have been placed in the "Final Qualifier" fields on the data tables to enable the data user to quickly assess the qualitative and/or quantitative reliability of a result based on the criteria evaluated during this QA review. Finally, the "Validation Reason Code" field has been populated with codes that indicate the reason for the validation qualifiers. Definitions of the validation qualifiers and reason codes are presented with the validated data summary tables.

This QA review has been performed with guidance from the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016), and the "National Functional Guidelines for High Resolution Superfund Methods Data Review" (US EPA, April 2016); however, these validation guidance documents specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocol performed by the

laboratory for these samples. Environmental Standards used professional judgment to determine the usability of the analytical results and compliance relative to the requirements specified in the Work Plan and ELLE's internal SOPs for PFAS analysis. US EPA Method 537 is written strictly for drinking water samples, and no approved US EPA method currently exists for other sample matrices. Although ELLE's internal SOPs reference US EPA Method 537 for PFAS analysis, the procedures are really "in-house" procedures that are also considered "Confidential Information"; therefore, a summary of the Calibration and QC Requirements used by ELLE for PFAS analysis has been included in Section 3. In addition, the SOP used by Environmental Standards to validate data generated under the ELLE PFAS SOPs is provided in Section 4. Details of this QA review are presented in Section 1 of this DUSR.

This DUSR identifies data quality issues for specific samples and specific evaluation criteria. The data qualifications allow the data end-user to best understand the usability of the analysis results. Data not qualified in this report should be considered valid based on the QC criteria that have been reviewed.

Section 5 of the report presents the Organic Data Support Documentation for this DUSR. Laboratory Case Narratives and Project Chain-of-Custody Records are presented in Section 6. Project Correspondence is presented in Section 7.

TABLE 1 – SUMMARY OF SAMPLES REVIEWED

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter Examined
SG3a-LTB01-180329 (Trip Blank)	9535292	SBN08	Aq	3/29/18	F	PFAS
SG3a-FTB01-180329 (Field Blank)	9535293	SBN08	Aq	3/29/18	F	PFAS
SG3a-WP01-A1.5	9535294	SBN08	Wipe	3/29/18	F	PFAS
SG3a-WP01-A8.0	9535295	SBN08	Wipe	3/29/18	F	PFAS
SG3a-WP01-A16.0	9535296	SBN08	Wipe	3/29/18	F	PFAS
SG3a-WP01-A23.0	9535297	SBN08	Wipe	3/29/18	F	PFAS
SG3a-BL01-A24.0	9535298	SBN08	Solid	3/29/18	F	PFAS
SG3a-WP02-A8.0	9535299	SBN08	Wipe	3/29/18	F	PFAS
SG3a-WP02-A16.0	9535300	SBN08	Wipe	3/29/18	F	PFAS
SG3a-WP02-A23.0	9535301	SBN08	Wipe	3/29/18	F	PFAS
SG3a-BL02-A22.5	9535302	SBN08	Solid	3/29/18	F	PFAS
SG3a-WP03-STACK25.0	9535303	SBN08	Wipe	3/29/18	F	PFAS
SG3a-BL03-STACK24.0	9535304	SBN08	Solid	3/29/18	F	PFAS
SG3a-WP04-A8.0	9535305	SBN08	Wipe	3/29/18	F	PFAS
SG3a-WP04-A16.0	9535306	SBN08	Wipe	3/29/18	F	PFAS
SG3a-WP04-A23.0	9535307	SBN08	Wipe	3/29/18	F	PFAS
SG3a-BL04-A22.5	9535308	SBN08	Solid	3/29/18	F	PFAS
SG3a-WP05-A8.0	9535309	SBN08	Wipe	3/29/18	F	PFAS
SG3a-WP05-A16.0	9535310	SBN08	Wipe	3/29/18	F	PFAS
SG3a-WP05-A23.0	9535311	SBN08	Wipe	3/29/18	F	PFAS
SG3a-WP06-STACK25.0	9535312	SBN09	Wipe	3/29/18	F	PFAS
SG3a-BL05-A22.5	9535313	SBN09	Solid	3/29/18	F	PFAS
SG3a-WP07-A8.0	9535314	SBN09	Wipe	3/29/18	F	PFAS
SG3a-WP07-A16.0	9535315	SBN09	Wipe	3/29/18	F	PFAS
SG3a-WP07-A23.0	9535316	SBN09	Wipe	3/29/18	F	PFAS
SG3a-EB01-18329 (Equipment Blank)	9535317	SBN09	Wipe	3/29/18	F	PFAS
SG3a-FD01-180329 (Field Duplicate of SG3a-WP07-A23.0)	9535318	SBN09	Wipe	3/29/18	F	PFAS
SG3a-WP08-STACK25.0	9535319	SBN09	Wipe	3/29/18	F	PFAS
SG3a-RB01-180329 (Rinse Blank)	9535320	SBN09	Aq	3/29/18	F	PFAS
SG3a-RB02-180329 (Rinse Blank)	9535321	SBN09	Aq	3/29/18	F	PFAS
SG3a-RB03-180329 (Rinse Blank)	9535322	SBN09	Aq	3/29/18	F	PFAS

TABLE 1 (Cont.)

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter Examined
SG3a-WP09-A8.0	9535323	SBN09	Wipe	3/29/18	F	PFAS
SG3a-WP09-A16.0	9535324	SBN09	Wipe	3/29/18	F	PFAS
SG3a-WP09-A23.0	9535325	SBN09	Wipe	3/29/18	F	PFAS
SG3a-BL09-A22.5	9535326	SBN09	Solid	3/29/18	F	PFAS

NOTES:

PFAS - Perfluorinated and Polyfluorinated Alkyl substances (PFASs) according to ELLE's SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3) for solid and wipe samples and "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI14355, Version 3) for aqueous samples. (35 Full analyses)

F - Full QA Review (refer to Section 1).

Aq - Aqueous.

Section 1 Quality Assurance Review

A. Organic Data Review

The organic analyses of 35 samples collected on March 29, 2018, as part of the 1030 Water Street, Village of North Bennington, Vermont project were performed by ELLE. Solid and wipe samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3). Aqueous samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances in Aqueous Samples by Method 537 Revision 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI14355, Version 3). Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data reviewed were presented in an ASP Category B data deliverables.

The findings offered in this report for analyses that underwent a Full QA review were based upon a rigorous review of all tabulated QC summary forms and all raw data, including the following QC measures:

- Sample and extract holding times
- Blank analysis results
- Second-source initial calibration verification (ICV) recoveries
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Labeled pre-extraction internal standard recoveries
- Qualitative identification
- Field duplicate precision
- Sample condition upon laboratory receipt
- Initial calibrations
- Continuing calibration verification (CCV) recoveries
- Analytical sequence
- Pre-injection internal standard responses
- Quantitation of results

The analytical results for the organic target compounds are presented on the validated data summary tables in Section 2 of this DUSR. The validated data summary tables include the full names of the target analytes along with their associated acronyms, which are used throughout the text of this DUSR. A summary of ELLE's Calibration and QC Requirements has been included in Section 3. The SOP used by Environmental Standards to validate data generated under the ELLE SOPs is provided in Section 4. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, and other documentation needed to support the findings in this DUSR in the Organic Data Support Documentation provided in Section 5, Laboratory Case Narratives and Project Chain-of-Custody Records in Section 6, and Project Correspondence in Section 7. The data reviewer has also manually edited the laboratory-reported data and QC summary forms included in this section based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Usability issues are addressed in the subsequent Organic Data Qualifiers section. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the analytical methods performed and the ELLE internal SOPs.

Reporting Issues

1. In SDG SBN08, the initial weights for samples SG3a-WP05-A16.0 and SG3a-WP05-A23.0 were not documented on the extraction log. The samples are wipes and the laboratory used an initial weight of 1 wipe for all wipe samples as results were reported on a ng/wipe basis. Data were not qualified due to this issue.

2. In SDG SBN09, the slope for PFOA in the initial calibration performed on 4/3/18, on instrument LM24743, was incorrectly calculated. Upon request, the laboratory revised the data package to reflect the correct value. All sample and QC concentrations for PFOA associated with this initial calibration were calculated using the correct value; therefore, no revisions to the samples and QC were necessary (see Project Correspondence).

3. The results for PFHpA, PFHxA, PFOA, and/or PFTA in several samples were reported from dilution analyses; however, the laboratory only reported recoveries for the associated labeled pre-extraction internal standards from the undiluted or primary dilution analyses on the QC summary section of the Analysis Report. The data reviewer evaluated the pre-extraction internal standard recoveries using the Form 2As and raw data for the analysis from which each compound was reported.

Procedural Issues

1. US EPA Method 537 is listed as the reference method in the title of the ELLE SOP; however, US EPA Method 537 is written specifically for the analysis of drinking water samples. As a result, the laboratory has made modifications to the extraction procedure to accommodate preparation of non-aqueous samples (ultrasonic extraction for an hour with 1:1 acetonitrile/methanol mixture vs. solid-phase extraction). In addition, the laboratory has made other modifications, including, but not limited to, the following:

    - For aqueous samples, Agilent SampliQ Weak Anion Exchange (“WAX”) solid-phase extraction cartridges were used instead of polystyrenedivinylbenzene.
    - The laboratory utilized additional labeled analogs of the target PFASs, where available for use, as pre-extraction internal standards (all target PFASs except PFTriA), which generally should normalize any extraction inefficiency and provide greater accuracy in quantitation. For dilution analyses, the pre-extraction internal standards were refortified after extraction and prior to dilution. In addition, the laboratory spiked the extracts with yet additional labeled analogs of the target PFASs post extraction and used these labeled analogs as the internal standards for the pre-extraction internal standards.
    - As the labeled internal standards were added prior to extractions, additional labeled surrogate compounds were not used.

- A holding time of 28 days from collection to extraction was used for solid and wipe samples.
- The laboratory did not control the relative percent difference (RPD) between the high and low areas for each internal standard in the initial calibration (must be < 20% by US EPA Method 537, Version 1.1).
- The laboratory did not calculate the peak asymmetry factor.
- The laboratory did not rotate the concentration used for the LCS.
- The calibration standards only included the linear PFAS isomers; however, available branched/linear standards were analyzed for qualitative purposes.
- Alternate ion transitions were used for PFBS and $^{13}C_8$-PFOS (299→99 instead of 299→80 for PFBS and 503→99 instead of 503→80 for $^{13}C_8$-PFOS) - the fragment represented by *m/z* 80 is the sulfonate group; whereas, the fragment represented by *m/z* 99 is the fluorinated sulfonate group.

2. The laboratory analyzed a qualitative standard that included both branched and linear isomers for PFHxS, PFOA, and PFOS. Where transition ion peaks were observed and deemed by laboratory personnel to represent branched isomers in samples based on the analysis of this standard, the responses for such peaks were included in the response for the analyte and used to quantitate the results for PFHxS, PFOA, and PFOS in samples relative to the linear isomer calibration standards. The laboratory did not integrate peaks other than the peak representative of the linear isomer (based on calibration standards) for target analytes other than PFHxS, PFOA, and PFOS in samples.

3. The laboratory noted high (> 130%) recoveries for PFHpA and PFOA in the LCS associated with SDG SBN08 sample SG3a-BL04-A22.5; however, the laboratory did not re-extract the LCS and associated sample in accordance with the Laboratory Calibration and Quality Control Acceptance Criteria (Section 3). The laboratory noted in the Case Narrative that sufficient sample mass was not available for reanalysis. Qualification of the data due to the high LCS recoveries is addressed in the subsequent Organic Data Qualifiers section.

4. The laboratory noted high (> 130%) recoveries for PFBA and PFTriA in the LCS associated with SDG SBN09 samples SG3a-WP06-STACK25.0, SG3a-EB01-180329, SG3a-WP08-STACK25.0, and SG3a-WP09-A23.0; however, the laboratory did not re-extract the LCS and associated samples according to the Laboratory Calibration and Quality Control Acceptance Criteria (Section 3). These samples were wipes and additional material was not available for reanalyses. Qualification of the data due to the high LCS recoveries is addressed in the subsequent Organic Data Qualifiers section.

5. As stated in the Case Narratives, the MDLs and LOQs were raised due to the interference in the sample matrix for several samples. These samples were either extracted with lower sample mass (< 1 g) or analyzed at initial dilutions.

6. The laboratory extracted wipe samples according to its internal SOP T-PFAS-WI12031, which is for solid samples. The reported method blanks and LCS did not include a blank wipe matrix. Several positive results and interferences were observed in the equipment blank (SG3A-EB01-180329) that did include an unused wipe.

Data Evaluation

With respect to data usability, the principal areas of concern are high LCS recoveries, out-of-criteria pre-extraction internal standard recoveries, significant presence of branched isomers, chromatographic interference, field duplicate imprecision, and results reported between the MDL and the LOQ. Based on a review of the data provided, the following data qualifiers are offered. The following data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical method used for analysis. Accordingly, the following data usability issues should not be construed as an indication of laboratory performance.

Organic Data Qualifiers

- The reported positive results for PFOS in SDG SBN08 sample SG3a-WP01-A1.5 and SBN09 sample SG3a-EB01-180329 should be considered unusable and have been flagged “R” on the data tables. Significant chromatographic intereference, in the form of a series of unresolved peaks, was observed for the ion transition for PFOS in the chromatographic region where PFOS elutes. The laboratory integrated these peaks in order to qualitatively identify and quantitate PFOS in these samples. (Validation Reason Code: CI)

- The reported positive results for PFOS in SDG SBN08 samples SG3a-WP02-A8.0 and SG3a-WP03-STACK25.0 should be considered tentatively identified as well as estimated, and have been flagged “JN” on the data tables. Chromatographic interference was observed for the ion transition for PFOS in the chromatographic region where this compound elutes. The laboratory integrated area within the interference in order to qualitatively identify and quantitate PFOS in the aforementioned samples. (Validation Reason Code: CI)

- The MDL and LOQ for PFOS in SDG SNB09 sample SG3a-WP06-STACK25.0 may be higher than reported, and the “not-detected” result has been flagged “UJ” on the data tables. Chromatographic interference, in the form of a series of unresolved peaks, was observed for the ion transition for PFOS in the aforementioned sample at an intensity greater than the low-level calibration standard. (Validation Reason code: CI)

- The positive results for PFOS in SDG SNB08 samples SG3a-WP01-A8.0, SG3a-WP02-A16.0, SG3a-WP04-A8.0, SG3a-WP04-A16.0, SG3a-WP04-A23.0, SG3a-WP05-A8.0, SG3a-WP05-A16.0, and SG3a-WP05-A23.0 should be considered estimated and have been flagged “J” on the data tables. The integration of the PFOS peaks included contribution from an unresolved chromatographic interference. (Validation Reason Code: CI)

- The positive result for PFPeA in SDG SBN08 sample SG3a-WP02-A23.0 should be considered estimated and has been flagged “J” on the data tables. The PFPeA peak was not well resolved from an adjacent non-target peak and the integration should be considered estimated. (Validation reason Code: CI)

- The positive results for PFHxS in SDG SBN08 samples SG3a-BL03-STACK24.0, SG3a-WP04-A8.0, SG3a-WP05-A8.0, and SG3a-WP05-A16.0 should be considered estimated and have been flagged "J" on the data tables. In the chromatogram for the samples, the response for the potential branched isomer peaks that was included in the response for PFHxS was significant in size relative to the linear isomer peak that is the only isomer present in the calibration standards. (Validation Reason Code: PJ)

- The reported positive results for PFHpA and PFOA in SDG SBN08 sample SG3a-BL04-A22.5; for PFBA in SDG SBN09 samples SG3a-WP06-STACK25.0, SG3a-EB01-18329, and SG3a-WP08-STACK25.0; and for PFTriA in SDG SBN09 samples SG3a-WP06-STACK25.0, SG3a-WP08-STACK25.0, and SG3a-WP09-A23.0 should be considered estimated and have been flagged "J" on the data tables. High recoveries (%Rs > 130%) were observed for these compounds in the associated LCS analyses (see Procedural Issues No. 3 and 4). (Validation Reason Code: LAH)

- The MDLs and LOQs for the compounds listed on the table below may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. In addition, the reported positive results for the compounds listed on the table below should be considered estimated and have been flagged "J" on the data tables. High recoveries (> upper laboratory acceptance limits) were observed for the pre-extraction internal standards used to quantitate these compounds in the analyses of these samples. (Validation Reason Code: IS)

Sample(s)	SDG	Compound With Estimated MDLs and LOQs ("UJ")	Compound(s) With Estimated Results ("J")
SG3a-WP01-A1.5 and SG3a-WP03-STACK25.0	SBN08	PFHxS	PFHxA and PFHpA
SG3a-WP01-A8.0, SG3a-WP01-A16.0, SG3a-BL01-A24.0, SG3a-WP02-A16.0, SG3a-WP04-A23.0, and SG3a-WP05-A23.0	SBN08	–	PFHxA, PFHxS, and PFHpA
SG3a-WP01-A23.0, SG3a-WP02-A8.0, and SG3a-BL02-A22.5	SBN08	–	PFHpA
SG3a-WP02-A23.0	SBN08	–	PFBS and PFHxS
SG3a-WP04-A8.0, SG3a-WP04-A16.0, SG3a-WP05-A8.0, and SG3a-WP05-A16.0	SBN08	–	PFHxS and PFHpA
SG3a-BL04-A22.5	SBN08	–	PFHxA and PFHpA
SG3a-WP06-STACK25.0 and SG3a-WP08-STACK25.0	SBN09	PFHxS	PFHxA and PFHpA
SG3a-BL09-A22.5	SBN09	–	PFHxA

- The reported positive results for PFPeA in SDG SBN08 samples SG3a-WP01-A1.5, SG3a-WP01-A16.0, SG3a-WP01-A23.0, SG3a-WP02-A8.0, SG3a-WP02-A16.0, SG3a-WP02-A23.0, SG3a-BL02-A22.5, SG3a-WP04-A8.0, SG3a-WP04-A16.0, SG3a-WP05-A8.0, SG3a-WP05-A16.0, and SG3a-WP05-A23.0 should be considered

estimated and have been flagged “J” on the data tables. Low recoveries (%R < advisory level of 70%) were observed for $^{13}C_5$-PFPeA in the analyses of these samples. (Validation Reason Code: IS)

- The reported positive results for PFOA in SDG SBN09 samples SG3a-WP07-A23.0 and SG3a-FD01-180329 should be considered estimated and have been flagged “J” on the data tables. A large discrepancy (RPD > 30% when both results were ≥ 5× the LOQ) was observed between the results for PFOA in the field duplicate analyses. (Validation Reason Code: FD)

- All positive results reported with concentrations between the laboratory’s reported MDLs and LOQs were flagged “J” by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

B. Conclusions

The analytical data are acceptable for use as reported by the laboratory with the following exception and qualifications. Two organic results were qualified as unusable due to significant chromatographic interference. In addition, several organic results were qualified as estimated due to high LCS recoveries, out-of-criteria pre-extraction internal standard recoveries, significant presence of branched isomers, chromatographic interference, field duplicate imprecision, and results reported between the MDL and the LOQ. In order to use any of the data, the data user should understand the qualifications and limitations as specified in this DUSR.

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SECTION 2

VALIDATED DATA SUMMARY TABLES

Validation Qualifier and Reason Code Definitions

Table 1. Validation Qualifiers and Definitions

Validation Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analyte has been “tentatively identified” or considered “presumptively” present.
UJ	The analyte was analyzed for, but was not detected. The reported MDL and limit of quantitation (LOQ) are approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
UB	The Analyte was not detected substantially above the level reported in the associated laboratory, equipment, field, or trip blank.

Table 2. Validation Reason Codes and Descriptions

Validation Reason Code	Description
CI	Chromatographic interference
CR	Calculated result in which one or more of the components has been qualified, potential bias indeterminate
CRH	Calculated result in which one or more of the components has been qualified, potential high bias
CRL	Calculated result in which one or more of the components has been qualified potential low bias
CV	Continuing calibration verification evaluation criteria not met, potential bias indeterminate
CVH	Continuing calibration verification evaluation criteria not met, potential high bias
CVL	Continuing calibration verification evaluation criteria not met, potential low bias
DC	Reporting limit exceeds decision criteria (for non-detects)
DL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the detection limit.
DT	Dissolved metals concentration exceeded total metals concentration in the sample above the acceptance criteria
DV	Missing Deliverables
EB	Equipment blank contamination
EC	Result exceeds the calibration range, potential bias indeterminate
ECH	Result exceeds the calibration range, potential high bias
ECL	Result exceeds the calibration range, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
EP	Estimated Maximum Possible Concentration (EMPC)
FB	Field blank contamination
FD	Field duplicate imprecision, potential bias indeterminate
FP	Potential false positives
FR	Field replicate imprecision, potential bias indeterminate
HA	Holding time - preparation to analysis, potential bias indeterminate
HAH	Holding time - preparation to analysis, potential high bias
HAL	Holding time - preparation to analysis, potential low bias
HC	Holding time - collection to analysis, potential bias indeterminate
HCH	Holding time - collection to analysis, potential high bias
HCL	Holding time - collection to analysis, potential low bias
HP	Holding time - collection to preparation, potential bias indeterminate
HPH	Holding time - collection to preparation, potential high bias
HPL	Holding time - collection to preparation, potential low bias
HV	Headspace present in volatile vials, potential bias indeterminate
HVL	Headspace present in volatile vials, potential low bias
IB	Instrument (including initial calibration or continuing calibration) blank contamination
IC	Initial calibration evaluation criteria not met, potential bias indeterminate
ICH	Initial calibration evaluation criteria not met, potential high bias
ICL	Initial calibration evaluation criteria not met, potential low bias
ID	Target compound identification criteria not met
IN	Elevated detection limit due to interference (i.e., laboratory, chemical, and/or matrix)
IR	Interference check standard recovery criteria not met, potential bias indeterminate
IRH	Interference check standard recovery criteria not met, potential high bias
IRL	Interference check standard recovery criteria not met, potential low bias
IS	Internal standard evaluation criteria not met, potential bias indeterminate
ISH	Internal standard evaluation criteria not met, potential high bias
ISL	Internal standard evaluation criteria not met, potential low bias
LA	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential bias indeterminate
LAH	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential high bias
LAL	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
LD	Laboratory duplicate precision criteria not met, potential bias indeterminate
LM	The PFK lock mass SICPs indicate that ion suppression evident
LP	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential bias indeterminate
LPH	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential high bias
LPL	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential low bias
LR	Linear range exceeded, potential bias indeterminate
MA	Matrix spike (MS &/or MSD) recovery criteria not met, potential bias indeterminate
MAH	Matrix spike (MS &/or MSD) recovery criteria not met, potential high bias
MAL	Matrix spike (MS &/or MSD) recovery criteria not met, potential low bias
MB	Method blank or preparation blank contamination
MP	Matrix spike (MS/MSD) or laboratory duplicate precision criteria not met, potential bias indeterminate
NB	Elevated detection limit or estimated result due to instrument drift (i.e., negative ICB or CCB result with an absolute value > 2× the MDL)
PD	Post-digestion spike recovery outside acceptance range, potential bias indeterminate
PDH	Post-digestion spike recovery outside acceptance range, potential high bias
PDL	Post-digestion spike recovery outside acceptance range, potential low bias
PJ	Professional judgment, potential bias indeterminate
PJH	Professional judgment, potential high bias
PJL	Professional judgment, potential low bias
PM	Performance evaluation mixture criteria not met, potential bias indeterminate
PMH	Performance evaluation mixture criteria not met, potential high bias
PML	Performance evaluation mixture criteria not met, potential low bias
PR	Peak(s) not adequately resolved, potential bias indeterminate
PRH	Peak(s) not adequately resolved, potential high bias
PRL	Peak(s) not adequately resolved, potential low bias
PS	Low percent solids could affect accuracy, potential bias indeterminate
PT	Chromatographic pattern in sample does not match pattern of calibration standard
RA	Reference material recovery criteria not met, potential bias indeterminate

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
RAH	Reference material recovery criteria not met, potential high bias
RAL	Reference material recovery criteria not met, potential low bias
RB	Rinsate blank contamination
RL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the quantitation or reporting limit, potential bias indeterminate
SA	Method of standard additions correction coefficient <0.995, potential bias indeterminate
SC	RPD Between two columns exceeds criteria, potential bias indeterminate
SD	Serial dilution results did not meet evaluation criteria, potential bias indeterminate
SDH	Serial dilution results did not meet evaluation criteria, potential high bias
SDL	Serial dilution results did not meet evaluation criteria, potential low bias
SP	Sample Preservation / Cooler Temperature, potential bias indeterminate
SPH	Sample Preservation / Cooler Temperature, potential high bias
SPL	Sample Preservation / Cooler Temperature, potential low bias
SR	Surrogate recovery outside acceptance range, potential bias indeterminate
SRH	Surrogate recovery outside acceptance range, potential high bias
SRL	Surrogate recovery outside acceptance range, potential low bias
SS	Second source evaluation criteria not met, potential bias indeterminate
SSH	Second source evaluation criteria not met, potential high bias
SSL	Second source evaluation criteria not met, potential low bias
ST	Compound not quantitated against an authentic standard, potential bias indeterminate
TB	Trip blank contamination
TD	Result for dissolved constituent significantly exceeded result for total constituent, potential bias indeterminate
TIC	Tentative identification, quantified using an assumed calibration factor, potential bias indeterminate.
TIR	Tentative identification and was observed in an associated laboratory, equipment, field, or trip blank.
TN	Instrument performance (tuning) criteria not met
YH	Due to a high y-intercept in the calibration curve, the sample result quantitated to a value greater than the MDL. Since the response ratio in the sample was less than the response ratio in the associated MDL standard, the reported result was changed to not-detected.

A. SDG SBN08

Sample ID	SG3a-LTB01-180329
Sample Date	3/29/2018 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9535292
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	5	U	N		2	5	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	5	U	N		2	5	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-FTB01-180329
Sample Date	3/29/2018 8:40:00 AM
Sample Type	FB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9535293
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-WP01-A1.5
Sample Date	3/29/2018 9:10:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535294
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP01-A1.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1	0.86	0.20	0.60		Y	0.86	0.20	0.60		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	5.5	0.20	0.60	B	Y	5.5	0.20	0.60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	16	0.20	0.60		Y	16	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	18	0.20	0.60		Y	18	0.20	0.60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	70	0.20	0.60		Y	70	0.20	0.60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.20	0.60	U	N		0.20	0.60	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	37	0.20	0.60		Y	37	0.20	0.60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	8.0	0.20	0.60		Y	8.0	0.20	0.60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	12	0.30	0.90		Y	12	0.30	0.90	R	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	4700	20	60		Y	4700	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	6.3	0.20	0.60		Y	6.3	0.20	0.60	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	32	0.20	0.60		Y	32	0.20	0.60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	12	0.20	0.60		Y	12	0.20	0.60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	6.3	0.20	0.60		Y	6.3	0.20	0.60		Y		Yes

Sample ID	SG3a-WP01-A8.0
Sample Date	3/29/2018 10:00:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535295
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP01-A8.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1	3.9	0.20	0.60		Y	3.9	0.20	0.60		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	2.7	0.20	0.60	B	Y	2.7	0.20	0.60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	82	0.20	0.60		Y	82	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	94	0.20	0.60		Y	94	0.20	0.60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	86	0.20	0.60		Y	86	0.20	0.60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1	0.47	0.20	0.60	J	Y	0.47	0.20	0.60	J	Y	RL,IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	28	0.20	0.60		Y	28	0.20	0.60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	29	0.20	0.60		Y	29	0.20	0.60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	26	0.30	0.90		Y	26	0.30	0.90	J	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	9300	20	60		Y	9300	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	3.6	0.20	0.60		Y	3.6	0.20	0.60		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	63	0.20	0.60		Y	63	0.20	0.60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	48	0.20	0.60		Y	48	0.20	0.60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	44	0.20	0.60		Y	44	0.20	0.60		Y		Yes

Sample ID	SG3a-WP01-A16.0
Sample Date	3/29/2018 10:05:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535296
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP01-A16.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1	5.8	0.20	0.60		Y	5.8	0.20	0.60		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	2.0	0.20	0.60	B	Y	2.0	0.20	0.60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	12	0.20	0.60		Y	12	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	23	0.20	0.60		Y	23	0.20	0.60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	33	0.20	0.60		Y	33	0.20	0.60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1	0.82	0.20	0.60		Y	0.82	0.20	0.60	J	Y	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	13	0.20	0.60		Y	13	0.20	0.60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	4.7	0.20	0.60		Y	4.7	0.20	0.60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	28	0.30	0.90		Y	28	0.30	0.90		Y		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	3200	20	60		Y	3200	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	3.0	0.20	0.60		Y	3.0	0.20	0.60	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	45	0.20	0.60		Y	45	0.20	0.60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	18	0.20	0.60		Y	18	0.20	0.60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	5.8	0.20	0.60		Y	5.8	0.20	0.60		Y		Yes

Sample ID	SG3a-WP01-A23.0
Sample Date	3/29/2018 10:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535297
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP01-A23.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1	66	0.20	0.60		Y	66	0.20	0.60		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	15	0.20	0.60	B	Y	15	0.20	0.60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	110	0.20	0.60		Y	110	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	120	0.20	0.60		Y	120	0.20	0.60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	310	2.0	6.0		Y	310	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1	5.8	0.20	0.60		Y	5.8	0.20	0.60		Y		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	140	0.20	0.60		Y	140	0.20	0.60		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	48	0.20	0.60		Y	48	0.20	0.60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	140	0.30	0.90		Y	140	0.30	0.90		Y		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	32000	200	600		Y	32000	200	600		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	20	0.20	0.60		Y	20	0.20	0.60	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	160	0.20	0.60		Y	160	0.20	0.60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	84	0.20	0.60		Y	84	0.20	0.60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	45	0.20	0.60		Y	45	0.20	0.60		Y		Yes

Sample ID	SG3a-BL01-A24.0
Sample Date	3/29/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9535298
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL01-A24.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100	590	20	60		Y	590	20	60		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	240	20	60		Y	240	20	60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	1200	20	60		Y	1200	20	60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	1600	20	60		Y	1600	20	60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	7300	20	60		Y	7300	20	60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100	33	20	60	J	Y	33	20	60	J	Y	RL,IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	2400	20	60		Y	2400	20	60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	690	20	60		Y	690	20	60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100	790	30	90		Y	790	30	90		Y		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	5000	810000	1000	3000		Y	810000	1000	3000		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	350	20	60		Y	350	20	60		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	2900	20	60		Y	2900	20	60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	1000	20	60		Y	1000	20	60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	590	20	60		Y	590	20	60		Y		Yes

Sample ID	SG3a-WP02-A8.0
Sample Date	3/29/2018 10:45:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535299
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP02-A8.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1	0.85	0.20	0.60		Y	0.85	0.20	0.60		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	1.5	0.20	0.60	B	Y	1.5	0.20	0.60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	12	0.20	0.60		Y	12	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	33	0.20	0.60		Y	33	0.20	0.60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	25	0.20	0.60		Y	25	0.20	0.60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	12	0.20	0.60		Y	12	0.20	0.60		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	4.2	0.20	0.60		Y	4.2	0.20	0.60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	11	0.30	0.90		Y	11	0.30	0.90	JN	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	2200	20	60		Y	2200	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	1.7	0.20	0.60		Y	1.7	0.20	0.60	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	88	0.20	0.60		Y	88	0.20	0.60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	27	0.20	0.60		Y	27	0.20	0.60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	6.9	0.20	0.60		Y	6.9	0.20	0.60		Y		Yes

Sample ID	SG3a-WP02-A16.0
Sample Date	3/29/2018 10:55:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535300
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP02-A16.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1	5.7	0.20	0.60		Y	5.7	0.20	0.60		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	1.8	0.20	0.60	B	Y	1.8	0.20	0.60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	9.5	0.20	0.60		Y	9.5	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	16	0.20	0.60		Y	16	0.20	0.60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	30	0.20	0.60		Y	30	0.20	0.60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1	0.38	0.20	0.60	J	Y	0.38	0.20	0.60	J	Y	RL,IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	13	0.20	0.60		Y	13	0.20	0.60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	3.9	0.20	0.60		Y	3.9	0.20	0.60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	28	0.30	0.90		Y	28	0.30	0.90	J	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	2400	20	60		Y	2400	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	2.4	0.20	0.60		Y	2.4	0.20	0.60	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	22	0.20	0.60		Y	22	0.20	0.60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	11	0.20	0.60		Y	11	0.20	0.60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	4.5	0.20	0.60		Y	4.5	0.20	0.60		Y		Yes

Sample ID	SG3a-WP02-A23.0
Sample Date	3/29/2018 11:00:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535301
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP02-A23.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1	28	0.20	0.60		Y	28	0.20	0.60	J	Y	IS	Yes
	Perfluorobutanoic Acid	375-22-4	T	1	18	0.20	0.60	B	Y	18	0.20	0.60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	44	0.20	0.60		Y	44	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	61	0.20	0.60		Y	61	0.20	0.60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	140	0.20	0.60		Y	140	0.20	0.60		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1	1.8	0.20	0.60		Y	1.8	0.20	0.60	J	Y	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	66	0.20	0.60		Y	66	0.20	0.60		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	17	0.20	0.60		Y	17	0.20	0.60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	48	0.30	0.90		Y	48	0.30	0.90		Y		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	14000	20	60		Y	14000	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	8.6	0.20	0.60		Y	8.6	0.20	0.60	J	Y	IS,CI	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	140	2.0	6.0		Y	140	2.0	6.0		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	58	0.20	0.60		Y	58	0.20	0.60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	17	0.20	0.60		Y	17	0.20	0.60		Y		Yes

Sample ID	SG3a-BL02-A22.5
Sample Date	3/29/2018 11:05:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9535302
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL02-A22.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100	510	19	58		Y	510	19	58		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	450	19	58		Y	450	19	58		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	930	19	58		Y	930	19	58		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	760	19	58		Y	760	19	58		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	3700	19	58		Y	3700	19	58	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100	40	19	58	J	Y	40	19	58	J	Y	RL	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	2300	19	58		Y	2300	19	58		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	350	19	58		Y	350	19	58		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100	800	29	87		Y	800	29	87		Y		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	5000	380000	960	2900		Y	380000	960	2900		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	520	19	58		Y	520	19	58	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	1000	19	58		Y	1000	19	58		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	410	19	58		Y	410	19	58		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	240	19	58		Y	240	19	58		Y		Yes

Sample ID	SG3a-WP03-STACK25.0
Sample Date	3/29/2018 11:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535303
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP03-STACK25.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	16	0.20	0.60	B	Y	16	0.20	0.60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	86	0.20	0.60		Y	86	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	52	0.20	0.60		Y	52	0.20	0.60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	250	2.0	6.0		Y	250	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.20	0.60	U	N		0.20	0.60	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	170	0.20	0.60		Y	170	0.20	0.60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	36	0.20	0.60		Y	36	0.20	0.60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	12	0.30	0.90		Y	12	0.30	0.90	JN	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	19000	200	600		Y	19000	200	600		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	25	0.20	0.60		Y	25	0.20	0.60		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	30	0.20	0.60		Y	30	0.20	0.60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	17	0.20	0.60		Y	17	0.20	0.60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	20	0.20	0.60		Y	20	0.20	0.60		Y		Yes

Sample ID	SG3a-BL03-STACK24.0
Sample Date	3/29/2018 11:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9535304
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL03-STACK24.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100	520	37	110		Y	520	37	110		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	250	37	110		Y	250	37	110		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	880	37	110		Y	880	37	110		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	660	37	110		Y	660	37	110		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	3900	37	110		Y	3900	37	110		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100	46	37	110	J	Y	46	37	110	J	Y	RL,PJ	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	1800	37	110		Y	1800	37	110		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	470	37	110		Y	470	37	110		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100	370	56	170		Y	370	56	170		Y		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	340000	370	1100		Y	340000	370	1100		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	330	37	110		Y	330	37	110		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	510	37	110		Y	510	37	110		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	220	37	110		Y	220	37	110		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	290	37	110		Y	290	37	110		Y		Yes

Sample ID	SG3a-WP04-A8.0
Sample Date	3/29/2018 11:55:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535305
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP04-A8.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1	13	0.20	0.60		Y	13	0.20	0.60		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	9.7	0.20	0.60	B	Y	9.7	0.20	0.60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	83	0.20	0.60		Y	83	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	88	0.20	0.60		Y	88	0.20	0.60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	170	0.20	0.60		Y	170	0.20	0.60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1	0.99	0.20	0.60		Y	0.99	0.20	0.60	J	Y	IS,PJ	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	85	0.20	0.60		Y	85	0.20	0.60		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	34	0.20	0.60		Y	34	0.20	0.60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	33	0.30	0.90		Y	33	0.30	0.90	J	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	17000	20	60		Y	17000	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	12	0.20	0.60		Y	12	0.20	0.60	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	180	0.20	0.60		Y	180	0.20	0.60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	65	0.20	0.60		Y	65	0.20	0.60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	30	0.20	0.60		Y	30	0.20	0.60		Y		Yes

Sample ID	SG3a-WP04-A16.0
Sample Date	3/29/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535306
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP04-A16.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1	6.8	0.20	0.60		Y	6.8	0.20	0.60		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	2.6	0.20	0.60	B	Y	2.6	0.20	0.60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	12	0.20	0.60		Y	12	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	15	0.20	0.60		Y	15	0.20	0.60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	43	0.20	0.60		Y	43	0.20	0.60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1	0.65	0.20	0.60		Y	0.65	0.20	0.60	J	Y	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	21	0.20	0.60		Y	21	0.20	0.60		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	5.4	0.20	0.60		Y	5.4	0.20	0.60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	33	0.30	0.90		Y	33	0.30	0.90	J	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	3000	20	60		Y	3000	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	3.9	0.20	0.60		Y	3.9	0.20	0.60	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	28	0.20	0.60		Y	28	0.20	0.60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	10	0.20	0.60		Y	10	0.20	0.60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	4.6	0.20	0.60		Y	4.6	0.20	0.60		Y		Yes

Sample ID	SG3a-WP04-A23.0
Sample Date	3/29/2018 12:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535307
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP04-A23.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1	3.2	0.20	0.60		Y	3.2	0.20	0.60		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	34	0.20	0.60	B	Y	34	0.20	0.60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	120	0.20	0.60		Y	120	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	130	0.20	0.60		Y	130	0.20	0.60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	350	2.0	6.0		Y	350	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1	0.50	0.20	0.60	J	Y	0.50	0.20	0.60	J	Y	RL,IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	180	2.0	6.0		Y	180	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	56	0.20	0.60		Y	56	0.20	0.60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	22	0.30	0.90		Y	22	0.30	0.90	J	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	25000	200	600		Y	25000	200	600		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	47	0.20	0.60		Y	47	0.20	0.60		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	120	0.20	0.60		Y	120	0.20	0.60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	75	0.20	0.60		Y	75	0.20	0.60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	48	0.20	0.60		Y	48	0.20	0.60		Y		Yes

Sample ID	SG3a-BL04-A22.5
Sample Date	3/29/2018 12:15:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9535308
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL04-A22.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100	110	43	130	J	Y	110	43	130	J	Y	RL	Yes
	Perfluorobutanoic Acid	375-22-4	T	100	170	43	130		Y	170	43	130		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	520	43	130		Y	520	43	130		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	420	43	130		Y	420	43	130		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	2600	43	130		Y	2600	43	130	J	Y	LAH,IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		43	130	U	N		43	130	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	1400	43	130		Y	1400	43	130	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	320	43	130		Y	320	43	130		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100	260	64	190		Y	260	64	190		Y		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	240000	430	1300	B	Y	240000	430	1300	J	Y	LAH	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	210	43	130		Y	210	43	130		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	360	43	130		Y	360	43	130		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	180	43	130		Y	180	43	130		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	200	43	130		Y	200	43	130		Y		Yes

Sample ID	SG3a-WP05-A8.0
Sample Date	3/29/2018 12:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535309
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP05-A8.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1	7.8	0.20	0.60		Y	7.8	0.20	0.60		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	9.4	0.20	0.60	B	Y	9.4	0.20	0.60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	43	0.20	0.60		Y	43	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	43	0.20	0.60		Y	43	0.20	0.60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	150	0.20	0.60		Y	150	0.20	0.60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1	1.4	0.20	0.60		Y	1.4	0.20	0.60	J	Y	IS,PJ	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	74	0.20	0.60		Y	74	0.20	0.60		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	20	0.20	0.60		Y	20	0.20	0.60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	52	0.30	0.90		Y	52	0.30	0.90	J	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	13000	20	60		Y	13000	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	11	0.20	0.60		Y	11	0.20	0.60	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	44	0.20	0.60		Y	44	0.20	0.60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	25	0.20	0.60		Y	25	0.20	0.60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	14	0.20	0.60		Y	14	0.20	0.60		Y		Yes

Sample ID	SG3a-WP05-A16.0
Sample Date	3/29/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535310
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP05-A16.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1	3.7	0.20	0.60		Y	3.7	0.20	0.60		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	6.3	0.20	0.60	B	Y	6.3	0.20	0.60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	38	0.20	0.60		Y	38	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	49	0.20	0.60		Y	49	0.20	0.60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	120	0.20	0.60		Y	120	0.20	0.60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1	0.58	0.20	0.60	J	Y	0.58	0.20	0.60	J	Y	RL,IS,PJ	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	55	0.20	0.60		Y	55	0.20	0.60		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	15	0.20	0.60		Y	15	0.20	0.60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	39	0.30	0.90		Y	39	0.30	0.90	J	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	9500	20	60		Y	9500	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	9.3	0.20	0.60		Y	9.3	0.20	0.60	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	94	0.20	0.60		Y	94	0.20	0.60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	38	0.20	0.60		Y	38	0.20	0.60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	13	0.20	0.60		Y	13	0.20	0.60		Y		Yes

Sample ID	SG3a-WP05-A23.0
Sample Date	3/29/2018 12:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535311
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP05-A23.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1	8.6	0.20	0.60		Y	8.6	0.20	0.60		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	20	0.20	0.60	B	Y	20	0.20	0.60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	110	0.20	0.60		Y	110	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	86	0.20	0.60		Y	86	0.20	0.60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	380	2.0	6.0		Y	380	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1	0.64	0.20	0.60		Y	0.64	0.20	0.60	J	Y	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	170	0.20	0.60		Y	170	0.20	0.60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	52	0.20	0.60		Y	52	0.20	0.60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	35	0.30	0.90		Y	35	0.30	0.90	J	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	25000	200	600		Y	25000	200	600		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	28	0.20	0.60		Y	28	0.20	0.60	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	140	0.20	0.60		Y	140	0.20	0.60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	52	0.20	0.60		Y	52	0.20	0.60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	37	0.20	0.60		Y	37	0.20	0.60		Y		Yes

B. SDG SBN09

Sample ID	SG3a-WP06-STACK25.0
Sample Date	3/29/2018 1:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535312
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP06-STACK25.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	8.3	2.0	6.0	B	Y	8.3	2.0	6.0	J	Y	LAH	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	44	2.0	6.0		Y	44	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	26	2.0	6.0		Y	26	2.0	6.0		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	150	2.0	6.0		Y	150	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	86	2.0	6.0		Y	86	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	22	2.0	6.0		Y	22	2.0	6.0		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10		3.0	9.0	U	N		3.0	9.0	UJ	N	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	12000	20	60		Y	12000	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	12	2.0	6.0		Y	12	2.0	6.0		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	16	2.0	6.0		Y	16	2.0	6.0		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	8.6	2.0	6.0		Y	8.6	2.0	6.0	J	Y	LAH	Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	11	2.0	6.0		Y	11	2.0	6.0		Y		Yes

Sample ID	SG3a-BL05-A22.5
Sample Date	3/29/2018 12:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9535313
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL05-A22.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		19	57	U	N		19	57	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	61	19	57		Y	61	19	57		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	700	19	57		Y	700	19	57		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	450	19	57		Y	450	19	57		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	1100	19	57		Y	1100	19	57		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		19	57	U	N		19	57	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	360	19	57		Y	360	19	57		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	240	19	57		Y	240	19	57		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		29	86	U	N		29	86	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	100000	190	570		Y	100000	190	570		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	75	19	57		Y	75	19	57		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	350	19	57		Y	350	19	57		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	190	19	57		Y	190	19	57		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	270	19	57		Y	270	19	57		Y		Yes

Sample ID	SG3a-WP07-A8.0
Sample Date	3/29/2018 1:20:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535314
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP07-A8.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	36	20	60	J	Y	36	20	60	J	Y	RL	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	4000	20	60		Y	4000	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100		20	60	U	N		20	60	U	N		Yes

Sample ID	SG3a-WP07-A16.0
Sample Date	3/29/2018 1:25:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535315
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP07-A15.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	63	20	60		Y	63	20	60		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	27	20	60	J	Y	27	20	60	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	7400	20	60		Y	7400	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100		20	60	U	N		20	60	U	N		Yes

Sample ID	SG3a-WP07-A23.0
Sample Date	3/29/2018 1:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535316
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP07-A23.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	23	20	60	J	Y	23	20	60	J	Y	RL	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	21	20	60	J	Y	21	20	60	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	50	20	60	J	Y	50	20	60	J	Y	RL	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	24	20	60	J	Y	24	20	60	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	6900	20	60		Y	6900	20	60	J	Y	FD	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100		20	60	U	N		20	60	U	N		Yes

Sample ID	SG3a-EB01-180329
Sample Date	3/29/2018 1:45:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	SQ
Lab Sample ID	9535317
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.26	0.20	0.60	JB	Y	0.26	0.20	0.60	J	Y	RL,LAH	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	0.48	0.30	0.90	J	Y	0.48	0.30	0.90	R	Y	RL,CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	2.8	0.20	0.60		Y	2.8	0.20	0.60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes

Sample ID	SG3a-FD01-180329
Sample Date	3/29/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-WP07-A23.0_03/29/2018
Sample Matrix	SW
Lab Sample ID	9535318
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP07-A23.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1000		200	600	U	N		200	600	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1000		200	600	U	N		200	600	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1000	210	200	600	J	Y	210	200	600	J	Y	RL	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1000		200	600	U	N		200	600	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1000	500	200	600	J	Y	500	200	600	J	Y	RL	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1000		200	600	U	N		200	600	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1000	230	200	600	J	Y	230	200	600	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1000		200	600	U	N		200	600	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1000		300	900	U	N		300	900	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	70000	200	600		Y	70000	200	600	J	Y	FD	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1000		200	600	U	N		200	600	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1000		200	600	U	N		200	600	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1000		200	600	U	N		200	600	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1000		200	600	U	N		200	600	U	N		Yes

Sample ID	SG3a-WP08-STACK25.0
Sample Date	3/29/2018 1:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535319
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP08-STACK25.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	59	20	60	JB	Y	59	20	60	J	Y	LAH,RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	150	20	60		Y	150	20	60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	83	20	60		Y	83	20	60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	1100	20	60		Y	1100	20	60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	510	20	60		Y	510	20	60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	110	20	60		Y	110	20	60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	120000	200	600		Y	120000	200	600		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	82	20	60		Y	82	20	60		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	62	20	60		Y	62	20	60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	26	20	60	J	Y	26	20	60	J	Y	RL,LAH	Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	57	20	60	J	Y	57	20	60	J	Y	RL	Yes

Sample ID	SG3a-RB01-180329
Sample Date	3/29/2018 2:15:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9535320
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	5	U	N		2	5	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.7	0.3	0.9	J	Y	0.7	0.3	0.9	J	Y	RL	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	5	U	N		2	5	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-RB02-180329
Sample Date	3/29/2018 2:20:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9535321
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	5	U	N		2	5	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.6	0.3	0.9	J	Y	0.6	0.3	0.9	J	Y	RL	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	5	U	N		2	5	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-RB03-180329
Sample Date	3/29/2018 2:25:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9535322
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-WP09-A8.0
Sample Date	3/29/2018 2:05:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535323
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP09-A8.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	26	20	60	J	Y	26	20	60	J	Y	RL	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	29	20	60	J	Y	29	20	60	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	73	20	60		Y	73	20	60		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	29	20	60	J	Y	29	20	60	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	8800	20	60		Y	8800	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	29	20	60	J	Y	29	20	60	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100		20	60	U	N		20	60	U	N		Yes

Sample ID	SG3a-WP09-A16.0
Sample Date	3/29/2018 2:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535324
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP09-A16.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	23	20	60	J	Y	23	20	60	J	Y	RL	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	29	20	60	J	Y	29	20	60	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	75	20	60		Y	75	20	60		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	33	20	60	J	Y	33	20	60	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	9200	20	60		Y	9200	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	35	20	60	J	Y	35	20	60	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100		20	60	U	N		20	60	U	N		Yes

Sample ID	SG3a-WP09-A23.0
Sample Date	3/29/2018 2:15:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9535325
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP09-A23.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	46	20	60	J	Y	46	20	60	J	Y	RL	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	48	20	60	J	Y	48	20	60	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	160	20	60		Y	160	20	60		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	63	20	60		Y	63	20	60		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	25	20	60	J	Y	25	20	60	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	16000	20	60		Y	16000	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	46	20	60	J	Y	46	20	60	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	24	20	60	J	Y	24	20	60	J	Y	RL,LAH	Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	20	20	60	J	Y	20	20	60	J	Y	RL	Yes

Sample ID	SG3a-BL09-A22.5
Sample Date	3/29/2018 2:20:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9535326
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL09-A22.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100	62	20	59		Y	62	20	59		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	180	20	59		Y	180	20	59		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	530	20	59		Y	530	20	59		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	530	20	59		Y	530	20	59		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	4500	20	59		Y	4500	20	59		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	59	U	N		20	59	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	1900	20	59		Y	1900	20	59	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	320	20	59		Y	320	20	59		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100	46	30	89	J	Y	46	30	89	J	Y	RL	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	5000	270000	990	3000		Y	270000	990	3000		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	260	20	59		Y	260	20	59		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	540	20	59		Y	540	20	59		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	250	20	59		Y	250	20	59		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	260	20	59		Y	260	20	59		Y		Yes

SECTION 3

LABORATORY CALIBRATION AND QUALITY CONTROL ACCEPTANCE CRITERIA

Initial Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
1. Initial Calibration: Minimum of five calibration standards. 2. Analyze MDL standard to ensure all compounds detected at MDL level 3. Analyze a technical grade branched/linear chained standard for PFOA/PFOS/PFHxS.	1. Initially and the after continuing calibration fails. 2. Analyzed with each initial calibration. 3. Run with each initial calibration.	1. Back calculated concentration of each calibration point should be within ±30% (or 70-130%) of true. The level 1 calibration standard back calculated concentrations should be ±50% (or 50-150%) of true value. $R^2 \geq 0.99$ for each analyte. 2. All compounds detected. 3. Qualitative use only to assist chemists in the integration of these compounds.	1. If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the initial calibration can be used. In those cases, the data will be reported with a qualifying comment. 2. If compound not detected in MDL standard, the source of the problem should be determined and the system recalibrated.

Continuing Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Analyze every 10 samples and at the end of the analysis sequence. Concentrations alternate between low, mid, and high levels of the calibration curve. The CCV ran after ICAL must be at CAL3 level. Opening CCV for sequence **should** be at CAL1 level and must be within 50-150%.	Occurs every 10 samples and at the end of the analysis sequence.	Calculated amount for the native analytes should be within ±30% of the true value. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. The calculated amount for the isotopically labeled extraction standards should be within the advisory window of 70-130%	If criteria are not met, the source of the problem **should** be determined, corrected and the system recalibrated. Situations may exist where the continuing calibration can be used. In those cases, the data will be reported with a qualifying comment.

Initial Calibration Verification

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Second source standard analyzed at the end of each initial calibration.	Analyzed with each initial calibration	1. Calculated amount for each native analytes should be within 70-130% of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration.	1. If criteria are not met, the source of the problem should be determined and corrected. Situations may exist where the initial calibration verification can be used. In those cases, the data will be reported with a qualifying comment.

QC Acceptance Criteria

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Method Blanks	1 per 20 field samples	1. No positive detections above the MDL. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	1. Report if the analyte present in the method blank is not detected in the sample or the analyte detected in the sample at greater than 10x's the amount in the method blank. If analyte detected in blank and sample at approximately the sample concentration sample will be RX'd. 2. Blank will be reinjected. Blank data may be qualified and reported. 3. If extraction standards are outside the advisory window and there are positive detections in the blank, the blank may be reinjected. If after reinjection, extraction standards are still out data may be reported and qualified due to the advisory nature of the windows.
LCS	1 per 20 field samples	1. Advisory QC limits of 70-130%, RPD<30% 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	1. Reextract LCS and associated samples. Analytes that fail high and are ND in the samples can be reported. Due to the advisory nature of the acceptance limits, situations may exist where LCS can be used. In those cases, the data will be reported with a qualifying comment. 2. If all native recoveries are within QC limits, data can be reported. 3. If all native recoveries are within QC limits, data can be reported.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
MS/MSD	MS is routinely prepared with each extraction batch. If limited sample volume exists, an LCS/LCSD will be prepared.	1. Advisory QC limits of 70-130%, RPD<30%. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	Evaluate in conjunction with LCS.
Isotopically labeled internal standards	Per sample (including MS/MSD, LCS, and Blanks)	The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration.	Reinject samples as necessary. Report data with qualifying comment.
Isotopically labeled extraction standards	Per sample (including MS/MSD, LCS, and Blanks)	The percent difference for the isotopically labeled extraction standards should be within the advisory QC window of 70-130% or laboratory-generated control limits, if available.	Reinject samples as necessary. Report data with qualifying comment.

SECTION 4

ENVIRONMENTAL STANDARDS, INC., STANDARD OPERATING PROCEDURE

1.0 OBJECTIVES

This standard operating procedure (SOP) describes procedures that the Environmental Standards data reviewers will use to validate Perfluorinated and Polyfluorinated Alkyl Substance (PFAS) data for solid samples generated by Eurofins SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins Document Reference T-PFAS-WI12031, Version 2) and aqueous samples generated by Eurofins SOP "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Using LC/MS/MS" (Eurofins Document Reference T-PFAS-WI14355, Version 2) for various Saint-Gobain Performance Plastics Corporation (Saint-Gobain) sites. Validation will be performed to assess compliance of the sample data to these Eurofins SOPs and any applicable Work Plans and/or Quality Assurance Project Plans (QAPPs). In addition, the usability of the PFAS data provided by the analytical laboratory will be determined based on the general guidance provided in the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016) and "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016). It should be noted that the National Functional Guidelines apply strictly to data generated by the Contract Laboratory Program (CLP) protocol and are not directly applicable to validation of data generated by Modified EPA Method 537; therefore, this SOP presents the specific data qualification actions that will be used for validation.

The validation findings will be presented in a quality assurance review (QAR) that will be prepared for one or more sample delivery groups (SDGs). Copies of annotated analytical results summaries (Form I's), including any changes to the analytical results and data qualifier codes, or a data summary spreadsheet of the qualified analytical results, will be included in the support documentation of the QAR.

2.0 EVALUATION TOOLS

- field duplicate form (DVF_DUP_SG_ELLE.xlsm)

Chemistry Applications:

- Curve fitting software (DVF_CAL.xlsm)
- Methods Database

3.0 REFERENCE DOCUMENTS

- "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016)

- "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016).

- Eurofins Document Reference T-PFAS-WI12031.

- Eurofins Document Reference T-PFAS-WI14355.

- US EPA Method 537, Version 1.1 (September 2009).

- Guidance for Labelling Externally Validated Laboratory Analytical Data for Superfund Use (EPA 540-R-08-005, 2009).

4.0 PROCEDURE

4.1 EVALUATION OF METHOD COMPLIANCE

The data reviewer will assess the method compliance of the PFAS data based on an evaluation of information presented in the data package deliverables. Compliance to the aforementioned SOPs (and Work Plan and/or QAPP when applicable) will be evaluated as part of the assessment. In addition, the deliverables will be evaluated for reporting errors and inconsistencies. The findings of the compliance assessment will be described in terms of comments/deficiencies about the data/deliverables and presented in two subdivisions (*i.e.*, Reporting Issues and Procedural Issues) of the Organic Data Evaluation Section of the QAR. Each issue discussed in the QAR will indicate any subsequent impact on the usability of the data or will identify aspect(s) of the data that could not be evaluated due to the deficiency.

The data reviewer may contact the project laboratory to request the correction of deficiencies prior to submittal of the QAR (if feasible and sanctioned by Saint Gobain). At a minimum, corrections required to allow for a full evaluation of the usability of the data should be requested. Such correctable deficiencies may include sample result errors, missing data deliverables, or calculation errors that would require a significant amount of the data reviewer's time to correct. Any laboratory resubmittals as a result of such requests will be discussed in the Reporting Issue subdivision of the QAR and included as an attachment to the QAR.

4.2 DETERMINATION OF DATA USABILITY

The data reviewer will determine the usability of the PFAS data based on an evaluation of the information presented in the data package deliverables. The findings of the PFAS data usability assessment will be presented in terms of data qualifications that the project team should consider in order to best utilize the data; these qualifications will be presented in the Organic Data Qualifier subsection of the QAR. Each qualification discussed in the QAR will indicate that the affected sample result(s) has been flagged with a representative qualifier code(s) in the data tables to provide, at a glance, an indication of the quantitative and qualitative reliability of each analytical result. In general, the qualifier statements will be presented in the QAR in the following order: blank contamination (UB), unusable results (R/UR), estimated results (J/UJ), tentative identifications of target compound results (N), and a general qualifier for all results reported below the limit of quantitation (if applicable). In addition, a Validation Reason Code will be presented on the data tables to indicate the reason that a qualifier code has been applied.

The data reviewer's criteria for evaluating the usability of the PFAS data and the resultant qualifications and reason codes will be as stipulated on the attached Table for the Validation of PFAS Data Generated. Additional qualifications and reason codes will be assigned based on professional judgement. It should be noted that the project manager should be consulted when "professional judgement" use is indicated on the attached table.

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Temperature Upon Receipt	≤6°C	If temperature is <2°C, no action is required unless samples were frozen/broken and then professional judgment should be used. If temperature is >6°C but ≤20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SPL") If temperature is > 20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SPL") Note time of collection relative to receipt at laboratory. Professional judgement should be used if < 8 hours has elapsed from collection to receipt at the laboratory to determine if qualification due to elevated temperature applies.
Technical Holding Time	Solid samples should be extracted within 28 days of sample collection and aqueous samples should be extracted within 14 days of collection. All extracts should be analyzed within 28 days after extraction.	If a holding time is exceeded, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively) If a holding time is grossly exceeded (*i.e.*, > twice the holding time), qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively)

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Initial Calibration (See Note #1 for additional information.)	Back calculated concentration of each calibration point should be within 70-130% of true value. The level 1 (lowest) calibration standard back calculated concentrations should be within 50-150% of true value. $r^2 \geq 0.99$ for each analyte.	**When evaluating initial calibration, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS(s).** If the low point or consecutive points at the low end of the curve are below the lower recovery criteria, qualify positive results < lowest compliant point as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "ICL") If the low point or consecutive points at the low end of the curve are above the upper recovery criteria, qualify positive results < lowest compliant point as estimated ("J"). (Validation Reason Code "ICH") If a point in the middle of the curve or non-consecutive points (beside the low point) quantitate outside of criteria, qualify positive results as estimated ("J"). If the high point or consecutive points at the upper end of the curve quantitates outside of criteria, qualify positive results > highest compliant point as estimated ("J"). (Validation Reason Code "ICL," "ICH," or "IC," are to be used based on whether direction of bias can be determined in these situations) Professional judgement should be used to qualify "not-detected" results as estimated ("UJ") if low recoveries are observed for standards other than the lowest calibration point. (Validation Reason Code "ICL") If the $r^2 \geq 0.99$ for any analyte, qualify positive results as estimated ("J"). (Validation Reason Code "IC")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Second Source Initial Calibration Verification (ICV)	1. Calculated amount for each compound should be within 70-130% (±30%) of the true value. 2. The isotopically labeled injection and/or extraction standards should be within criteria.	**Qualification is for all samples associated with initial calibration being verified.** **When evaluating ICV, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS.** If target PFAS has %D>30% with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "SSH") If target PFAS has %D>30% but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SSL") If target PFAS has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SSL")
Continuing Calibration Verification (See Note #2 for additional information.)	Calculated amount should be within ±30% of the true value. The isotopically labeled injection and/or extraction standards should be within criteria. The CCV ran after ICAL must be at CAL3 level. Opening CCV for sequence **should** be at CAL1 level and must be within 50-150%.	**Qualification is for all samples on both sides of the out-of-criteria calibration verification standards**. **When evaluating calibration verification, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS.** If target PFAS has %D>30% (50% for CAL1 CCV) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "CVH") If target PFAS has %D>30% (50% for CAL1 CCV) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "CVL") If target PFAS has %D>90% with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "CVL")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Blanks (See Note #3 for additional information.)	Summarize all results greater than the method detection limit (MDL) present in the blanks. The highest positive result associated with a sample should be utilized for evaluation of contamination.	If a target PFAS is found in the blank but not in the associated sample(s), no action is required. If a sample result is ≤5× the blank result, qualify the positive result as "not detected" ("UB") and raise the method detection limit (MDL) and/or limit of quantitation (LOQ) (if lower than original reported positive result) to the value of the original result. (Validation Reason Code(s) "EB," FB," "IB," "MB," and or "TB," as appropriate). If a sample result is >5× blank result, qualification is not required. Professional judgement should be used to evaluate whether an aqueous blank should be used to qualify a solid sample.
Injection/Internal Standards (Labelled Analytes, spiked prior to injection and used as internal standards for extraction standards)	The response for each internal standard in the original sample must be within ±%50 of the average initial calibration response.	If an internal response is outside of criteria, use professional judgment to determine the potential impact on the quantitation of the extraction standard recoveries and whether qualification due to out-of-criteria extraction standard recoveries (see directly below) should be modified.
Extraction Standards (Labelled Analytes, spiked prior to extraction and used as internal standards for target compounds)	The response for each ES in the original sample must be within the advisory limits of 70-130% recovery or laboratory-generated control limits, if available.	If an ES response or recovery is outside of criteria but ≥10%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ") for PFASs quantitated using that ES. (Validation Reason Code "IS") If an ES response is < 10%, qualify positive results for the associated PFASs as estimated ("J") and qualify "not-detected" results for the associated PFASs as estimated ("UJ") or unusable ("R") using professional judgment (based on the approximate signal-to-noise ratio for the ES and the expected response for the target PFAS at the LOQ). (Validation Reason Code "IS")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Laboratory Control Samples (LCS)/ Laboratory Control Sample Duplicates (LCSD)	%R within 70-130%, RPD ≤ 30%.	**The LCS qualification will be applied to all samples in the preparation batch.** If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). (Validation Reason Code "LAL") If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "LAL") If the precision between recoveries exceeds the RPD criterion, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LP")
Matrix Spike/Matrix Spike Duplicate (MS/MSD) (If performed)	%R within 70-130%, RPD ≤ 30%.	**The MS/MSD qualification will be applied to the unspiked parent sample.** Data should not be qualified due to %Rs (or RPDs calculated on %Rs) that are outside of criteria if the original concentration of a PFAS is >4× the spiking level for that compound. In such cases, RPDs calculated using MS/MSD results can be used to evaluate precision. If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "MAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "MAL") If the precision between recoveries exceeds the RPD criterion, qualify the positive result in the native sample as estimated ("J") and do not qualify the "not-detected" result. (Validation Reason Code "MP")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Field/Laboratory Duplicate (See Note #4 for additional information)	The RPD should be ≤30% when both results are >5× the sample-specific LOQ (RL). The difference between results should be ≤ 1.5×LOQ when at least one result is ≤5× the LOQ.	**If both results are <LOQ, a quantitative assessment of duplicate precision is not performed.** If the criteria are not met, qualify positive results for the out-of-criteria PFASs in the original sample and its duplicate as estimated ("J"). (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate) Use the MDL as a numerical value for any "not-detected" result in the difference calculation. Qualify "not-detected" results as estimated ("UJ") if the difference between the results is outside of criteria. (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate)
Percent Solids	Solid samples with less than 30% solid content require qualification.	If a solid sample has a percent solid content <30%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code of "PS") Use professional judgment to qualified "not-detected" results as unusable ("R") if a solid sample has a percent solids content <10%. (Validation Reason Code of "PS")
Compound Quantitation and Qualitative Identification (See Notes #5 for additional information.)	Samples with results that exceed the instrument calibration range should be reanalyzed at a dilution or re-extracted with a lower volume.	If a target PFAS result exceeds the instrument calibration range, qualify positive result as estimated ("J"). (Validation Reason Code "EC") Use professional judgment to determine whether sample reanalyses and dilutions should be compared to the original analyses. If criteria (see field duplicate usability) between the original sample results and the reanalysis sample results are not met, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "LD") If a target PFAS is <LOQ but ≥MDL, qualify positive results as estimated ("J"). (Validation Reason Code "RL") Use professional judgment to determine whether quantitation and qualitative identifications are accurate and whether data qualification is necessary.
System Performance	Professional judgement should be used when assessing the degradation of system performance during analyses.	Use professional judgment to qualify the data if it is determined that system performance degraded during sample analyses.

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Overall Assessment of Data	Assess overall quality of the data. Review available materials to assess the quality, keeping in mind the additive nature of the analytical problems.	Use professional judgment to determine the need to qualify data not qualified based on the QC previously discussed. Write a brief narrative to give the user an indication of the analytical limitations of the data. If sufficient information on the intended use and required quality of the data is available, include the assessment of the usability of the data within the given context.

Validation Notes

1. Use professional judgment when evaluating the response intercept of a calibration curve. If the response intercept is positive, the samples should be evaluated for false positives. If the response intercept is negative, the sample should be evaluated for false negatives.

2. If instrument instability (*i.e.*, several calibration verification standards with PFASs exhibiting both increasing and decreasing sensitivity throughout an analytical sequence) is observed in the analysis of sequential calibration verification standards, "not-detected" results may be qualified as estimated ("UJ") due to instrument sensitivity of a continuing calibration standard response that is greater than the initial calibration standard response (increase in instrument sensitivity).

3. The frequency of equipment/rinse blanks is determined during the sampling event. The results of an equipment/rinse blank should be applied to all collected in the same day by the same techniques, unless only one blank was collected for a several-day sampling event. In instances where more than one blank is associated with a given sample, qualification should be based upon a comparison with the associated blank having the highest concentration of a contaminant. Professional judgement should be used to evaluate whether an aqueous blank should be used to directly qualify a solid sample.

   Method blank contamination should be applied to samples in the preparation batch.

   Instrument blank contamination should be applied to samples bracketing the contaminated instrument blank.

   Blanks should also be evaluated using professional judgment for non-target interference.

Validation Notes

4. Duplicate samples may be collected and analyzed as an indication of overall precision. Field duplicate analyses measure both field and laboratory precision; therefore, the results may have more variability than laboratory duplicates that measure only laboratory performance. Laboratory duplicate results and field duplicate results apply only to the original sample and the laboratory/field duplicate. Solid duplicate results are expected to have greater variance than aqueous duplicate results.

5. If a sample result exceeds the instrument calibration range (lower dilution analysis) or is less than the LOQ (secondary dilution), do not utilize this result when comparing an original analysis and a diluted reanalysis.

   Poor chromatographic performance may affect qualitative identification and/or quantitation. Indications of substandard performance include:

   - High background levels
   - Extraneous peaks
   - Loss of resolution

- Peak tailing or peak splitting that may result in inaccurate quantitation
- The laboratory analyzes a Cal3 level standard that contains linear and branch chained isomers of PFOA, PFOS, and PFHxS for analyses. The analysis of this standard is used to demonstrate where the branch chained isomers elute and is not included in the calibration curve. This will assist the chemist in the integration of branched isomers of these compounds in samples.

SECTION 5

ORGANIC DATA SUPPORT DOCUMENTATION

A. SDG SBN08

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: Saint Gobain Vermont
Sample Collection Dates: 3/29/18
Job Number: 20167391.NBEN
Project Manager: Meg Michell
Laboratory: ELLE

Reviewed by: BE 5/17/18
Approved by: THW
Completion Date: 5/2018

Applicable Sample No's (X) — Refer to Table 1 in the Quality Assurance Review

Deliverable:			Sample No.	Lab Control No.
	CLP (Full)	( )	SBN08	
	Level IV (Full)	(X)		
	Limited	( )		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail — Check (√) if Yes or Footnote Letter for Comments Below					Problems Identified — Check (√) if Yes or Footnote Letter for Comments Below					Support Documentation Attachments — Check (√) if Yes or Footnote Letter for Comments Below				
	PFAS					PFAS					PFAS				
Holding Times	X										X				
Blank Analysis: Target Cmpds	X										X				
Sys Montr Cmps/Surrogates															
Matrix Spike/Matrix Spike Duplicate															
Blank Spike	X					X					X				
Duplicate Analysis ( ) Field ( ) Lab															
Detection Limit/Sensitivity															
Qualitative Identification: Target Cmpds															
Qualitative Identification: TICs															
DFTPP & BFB Mass Tuning															
GC Instrument Performance															
Initial Calibrations	X										X				
Continuing Calibrations	X										X				
Quantitation of Results	X										X				
DDT/Endrin Breakdown															
Surrogate Retention Time Shifts															
Internal Standards Performance	X					X					X				
Resolution Check Standards															
Analytical Sequence	X										X				
Florisil Cartridge & GPC Calibration															
GC Column Agreement															
Condition Upon Receipt	X										X				
Percent Solids															
Others:															

Comments:

ENVIRONMENTAL STANDARDS

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample / batch ID	Contaminant	Concentration ug/L	Qualification limit	
						5×	10×
O	S	MB	18094018	PFOA	1.2	6.0	
O	S	MB	18093011	PFBA	0.2	1.0	
			All other SBN08 blanks	~~none~~			
O	Wipe	EB	SG3a-EB01-18329	PFBA	.26	1.3	
				PFOS	.48	2.4	
				~~PFOA~~ PFOS	2.8	14	

samples 75%

1 - V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: PFC

2 - MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; RB = Rinse Blank

Notes: _____

** Columns G and H contains formulas

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Sample Description: SG3a-LTB01-180329 Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018
SDG#: SBN08-01TB

C. T. Male Associates
ELLE Sample #: WW 9535292
ELLE Group #: 1926078
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18092009	04/05/2018 16:42	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18092009	04/03/2018 17:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR03MCAL **Result Table:** 18092009 4/7/2018 9:39:02 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

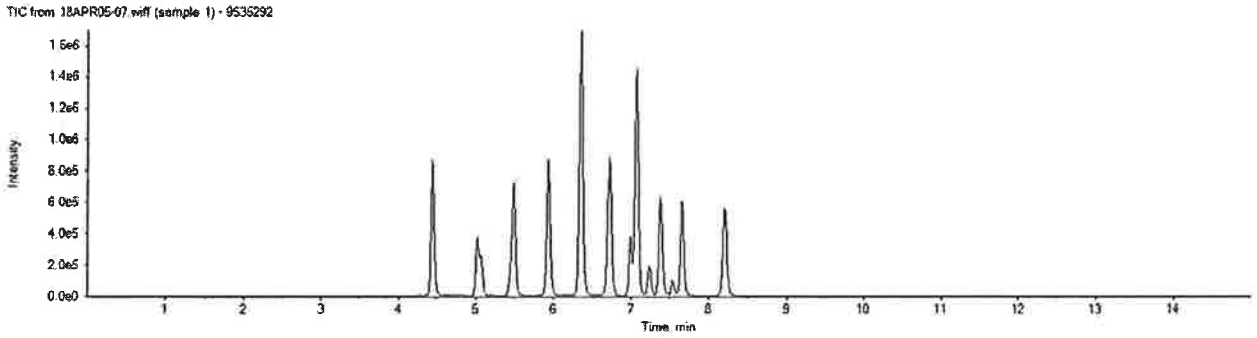
Analyte Quantitation Peak Table

Sample Name: 9535292 **Instrument Name:** LM24743 **File Name:** 18APR05-07.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.27431	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1299696.0	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	1083786.6	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	640191.6	N/A	
PFHxA	5.49	1.000	36792.7	M	13C5-PFHxA	5.49	2059304.3	0.018	0.353
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	602011.0	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.93	2087355.1	N/A	
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.35	2707800.5	N/A	
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.69	516170.3	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.72	2089813.5	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.06	2428770.9	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.37	1289949.9	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1863113.4	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1863113.4	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.22	2034943.2	N/A	

Total Ion Chromatogram



APPROVED
By MCD at 9:48 pm, 4/7/18

REVIEWED
By umar at 3:35 pm, 4/15/18

Sample Description: SG3a-FTB01-180329 Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 08:40
SDG#: SBN08-02FB

C. T. Male Associates
ELLE Sample #: WW 9535293
ELLE Group #: 1926078
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18092009	04/05/2018 16:57	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18092009	04/03/2018 17:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR03MCAL **Result Table:** 18092009 4/7/2018 9:39:02 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

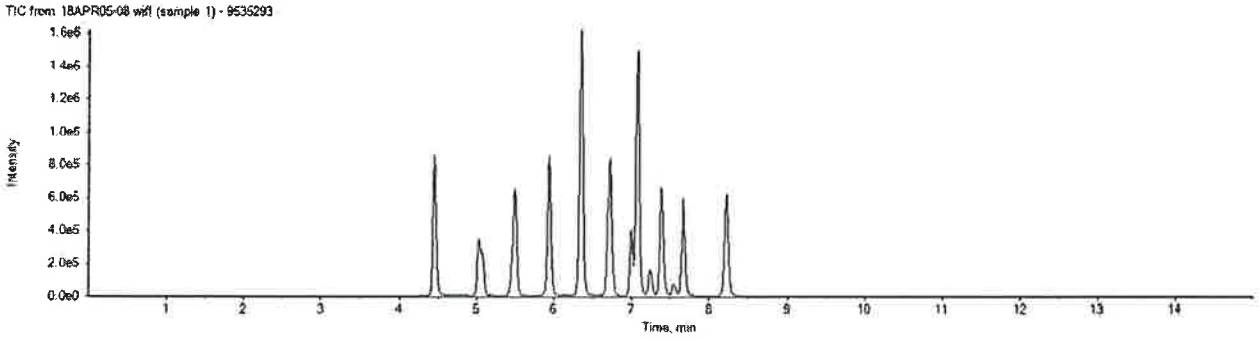
Analyte Quantitation Peak Table

Sample Name: 9535293 **Instrument Name:** LM24743 **File Name:** 18APR05-08.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.26886	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	1310462.7	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.03	1073864.1	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.08	645846.1	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.50	2042373.1	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	600378.5	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.94	2049937.2	N/A	
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.35	2688299.5	N/A	
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.70	533346.2	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	1963800.4	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.07	2536333.6	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.38	1344027.1	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	1663517.1	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	1663517.1	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.22	2136544.1	N/A	

Total Ion Chromatogram



APPROVED
By MCD at 9:48 pm, 4/7/18

REVIEWED
By umar at 3:35 pm, 4/15/18

Sample Description: SG3a-WP01-A1.5 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 09:10
SDG#: SBN08-03

C. T. Male Associates
ELLE Sample #: WP 9535294
ELLE Group #: 1926078
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**0.86**	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**5.5** B	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**16**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**18**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**70**	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**37**	0.20	0.60	1
14027	**Perfluorononanoic acid**	375-95-1	**8.0**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**12**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**4,700**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**6.3**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**32**	0.20	0.60	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**12**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**6.3**	0.20	0.60	1

Due to the sample matrix, the recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/05/2018 04:32	Marissa C Drexinger	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 10:32	Marissa C Drexinger	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093011	04/03/2018 09:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

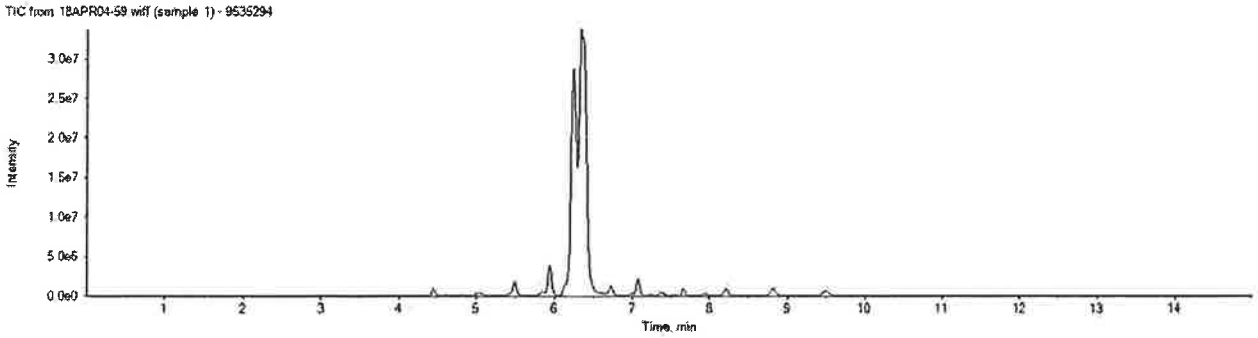
Analyte Quantitation Peak Table

Sample Name: 9535294 **Instrument Name:** LM24743 **File Name:** 18APR04-59.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	426261.3	M	13C4-PFBA	4.45	923305.2	0.462	5.494
PFPeA	5.03	1.000	450113.3	M	13C5-PFPeA	5.03	703402.8	0.640	6.259
PFBS	5.08	1.000	38022.3	M	13C3-PFBS	5.08	433364.2	0.088	0.860
PFHxA	5.49	1.000	4669278.8	A	13C5-PFHxA	5.50	1351826.5	3.454	37.424
PFHxS	5.93	1.000	6886.8	M	13C3-PFHxS	5.93	408408.9	0.017	0.160
PFHpA	5.94	1.000	11279023.5	M	13C4-PFHpA	5.94	1533188.1	7.357	69.835
PFOA	6.33	1.000	167693753.2	M	13C8-PFOA	6.36	559952.8	299.478	3233.851
PFOS	6.71	1.000	448918.8	M	13C8-PFOS	6.70	370956.0	1.210	11.909
PFNA	6.73	1.000	1321897.7	M	13C9-PFNA	6.73	1404999.2	0.941	8.038
PFDA	7.07	1.000	2517203.1	A	13C6-PFDA	7.07	1768995.3	1.423	16.298
PFUnDA	7.38	1.000	630813.8	A	13C7-PFUnDA	7.37	723801.6	0.872	6.299
PFDoDA	7.66	1.000	1546376.1	A	13C2-PFDoDA	7.66	886971.3	1.743	18.436
PFTrDA	7.94	1.040	938357.0	A	13C2-PFDoDA	7.66	886971.3	1.058	12.159
PFTeDA	8.22	1.000	2413174.0	A	13C2-PFTeDA	8.22	929168.3	2.597	32.174

Total Ion Chromatogram

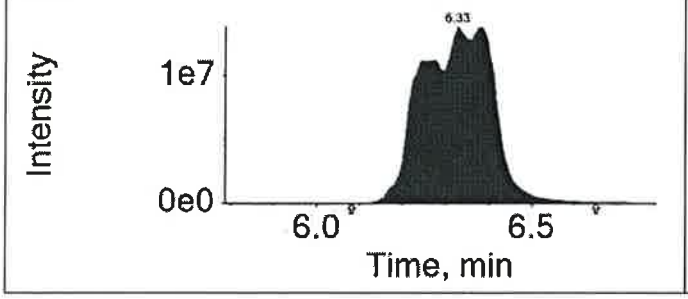


APPROVED
By JPT at 11:13 am, 4/23/18

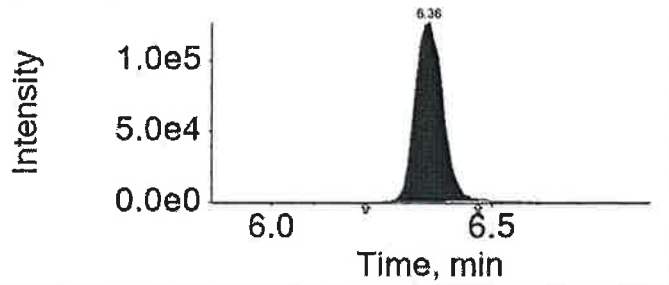
REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

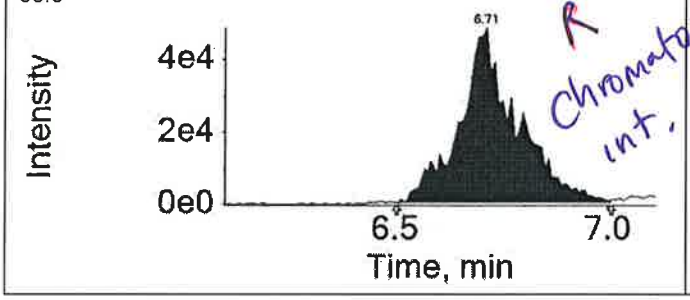
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

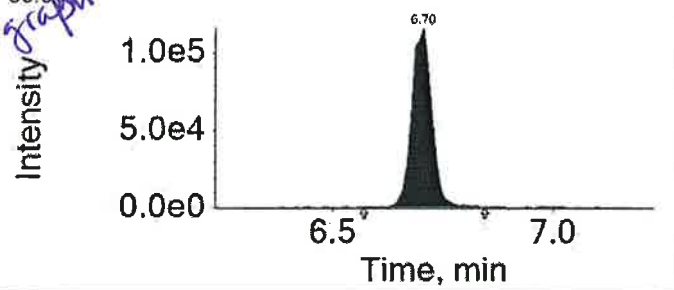


Analyte: PFOS
499.0 / 80.0

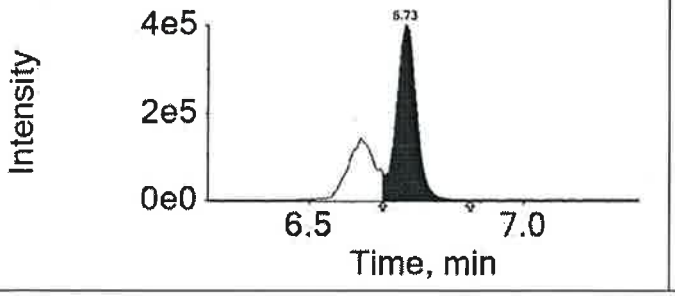


R Chromatographic int.

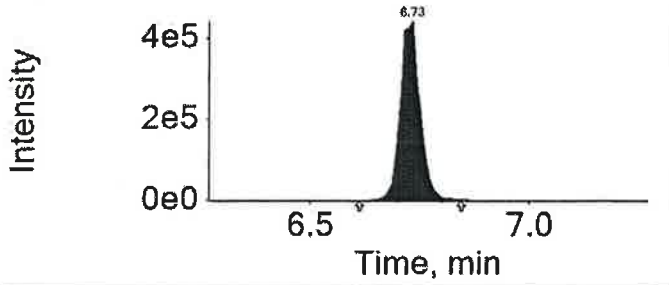
Extraction Standard: 13C8-PFOS
507.0 / 80.0



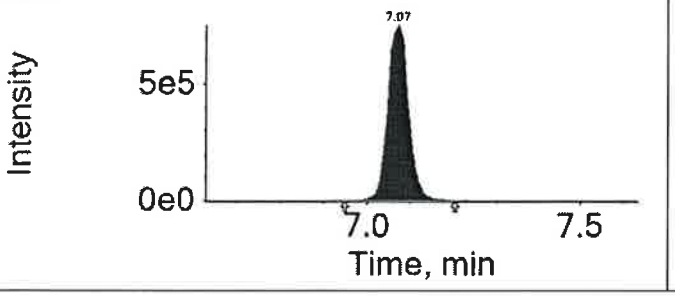
Analyte: PFNA
463.0 / 419.0



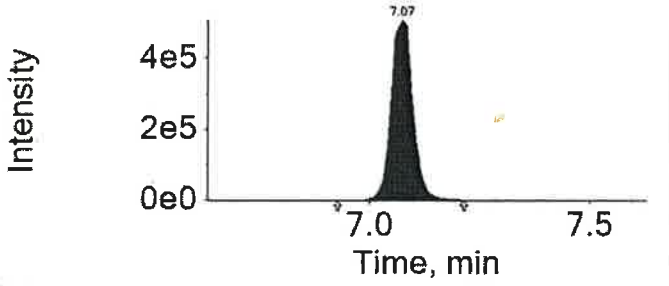
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

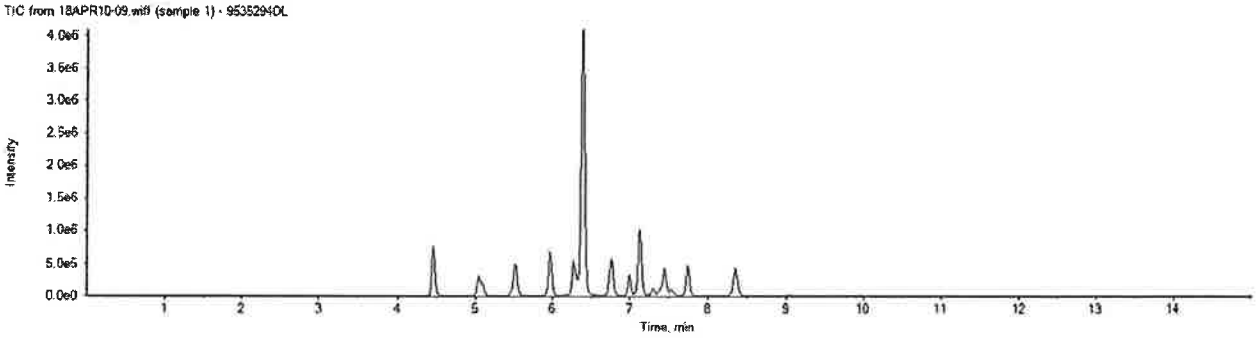
Analyte Quantitation Peak Table

Sample Name: 9535294DL **Instrument Name:** LM24743 **File Name:** 18APR10-09.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	1052593.8	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.04	904062.9	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.09	464418.5	N/A	
PFHxA	5.51	1.000	27991.7	M	13C5-PFHxA	5.52	1568785.3	0.018	19.786
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.96	460121.8	N/A	
PFHpA	5.97	1.000	78971.8	M	13C4-PFHpA	5.97	1568152.2	0.050	46.844
PFOA	6.39	1.000	7853093.5	M	13C8-PFOA	6.39	1813136.2	4.331	4716.682
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.74	374949.3	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.77	1341395.0	N/A	
PFDA	7.12	1.000	20126.2	M	13C6-PFDA	7.12	1715901.1	0.012	13.030
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.44	983525.4	N/A	
PFDoDA	7.74	1.000	17958.4	M	13C2-PFDoDA	7.75	1473356.4	0.012	12.955
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.75	1473356.4	N/A	
PFTeDA	8.35	1.000	30485.1	A	13C2-PFTeDA	8.36	1639689.9	0.019	22.401

Total Ion Chromatogram



APPROVED
By MCD at 9:57 pm, 4/10/18

REVIEWED
By uild at 11:01 am, 4/23/18

Sample Description: SG3a-WP01-A8.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 10:00
SDG#: SBN08-04

C. T. Male Associates
ELLE Sample #: WP 9535295
ELLE Group #: 1926078
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**3.9**	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**2.7 B**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**82**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**94**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**86**	0.20	0.60	1
14027	**Perfluorohexanesulfonate**	355-46-4	**0.47 J**	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**28**	0.20	0.60	1
14027	**Perfluorononanoic acid**	375-95-1	**29**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**26**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**9,300**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**3.6**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**63**	0.20	0.60	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**48**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**44**	0.20	0.60	1

Due to the sample matrix, the recovery for the sample injection internal standards(s) and the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/05/2018 04:48	Marissa C Drexinger	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 10:48	Marissa C Drexinger	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093011	04/03/2018 09:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

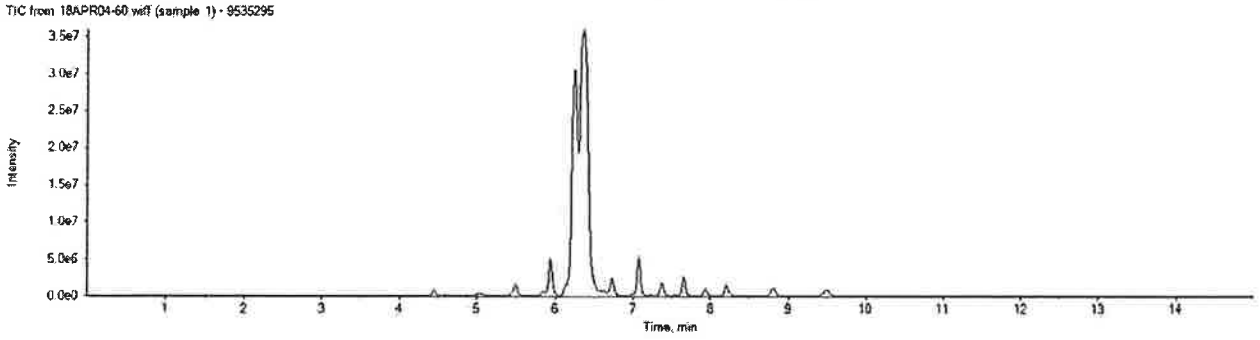
Analyte Quantitation Peak Table

Sample Name: 9535295 **Instrument Name:** LM24743 **File Name:** 18APR04-60.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	216272.8	M	13C4-PFBA	4.44	946459.2	0.229	2.719
PFPeA	5.02	1.000	280172.7	M	13C5-PFPeA	5.02	756821.0	0.370	3.621
PFBS	5.07	1.000	182257.4	A	13C3-PFBS	5.07	461066.9	0.395	3.876
PFHxA	5.49	1.000	3626528.2	A	13C5-PFHxA	5.49	1409053.5	2.574	27.886
PFHxS	5.93	1.000	21931.9	M	13C3-PFHxS	5.93	442501.4	0.050	0.470
PFHpA	5.94	1.000	14395944.2	M	13C4-PFHpA	5.94	1582000.7	9.100	86.383
PFOA	6.33	1.000	183102650.1	M	13C8-PFOA	6.35	411687.2	444.762	4802.659
PFOS	6.70	1.000	939476.6	M	13C8-PFOS	6.70	353097.4	2.661	26.182
PFNA	6.73	1.000	4725061.3	M	13C9-PFNA	6.72	1405561.2	3.362	28.721
PFDA	7.07	1.000	12647611.2	A	13C6-PFDA	7.07	1758920.7	7.191	82.359
PFUnDA	7.37	1.000	4471569.4	A	13C7-PFUnDA	7.37	731097.3	6.116	44.203
PFDoDA	7.65	1.000	6981833.7	A	13C2-PFDoDA	7.66	788186.6	8.858	93.669
PFTrDA	7.94	1.040	3276817.0	A	13C2-PFDoDA	7.66	788186.6	4.157	47.783
PFTeDA	8.21	1.000	4558439.2	A	13C2-PFTeDA	8.21	891037.7	5.116	63.377

Total Ion Chromatogram

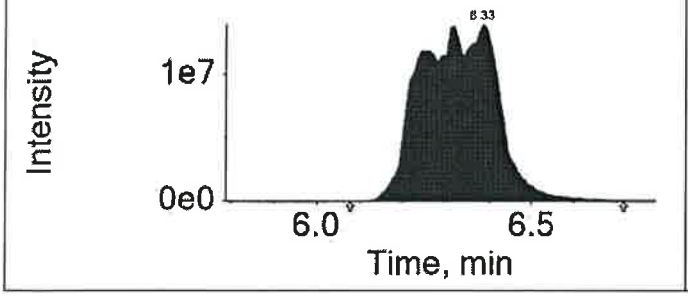


APPROVED
By JPT at 11:13 am, 4/23/18

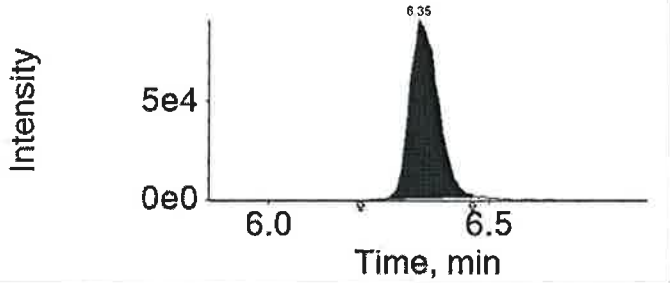
REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

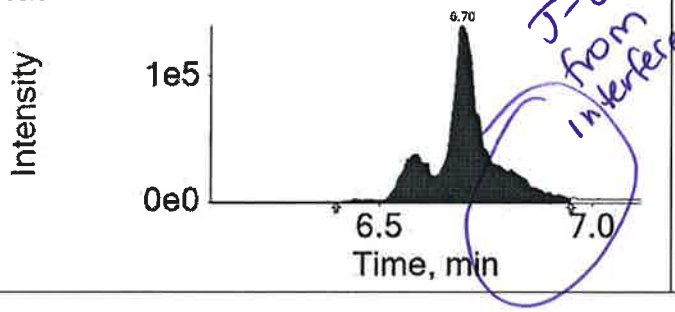
Analyte: PFOA
413.0 / 369.0



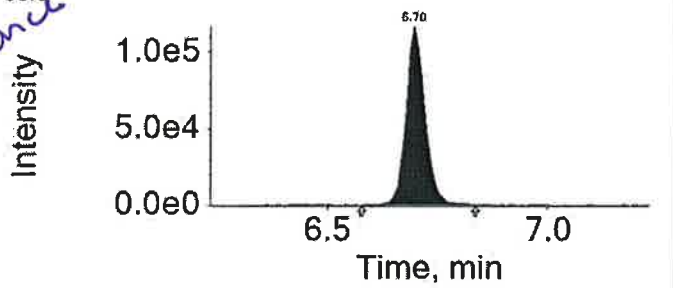
Extraction Standard: 13C8-PFOA
421.0 / 376.0



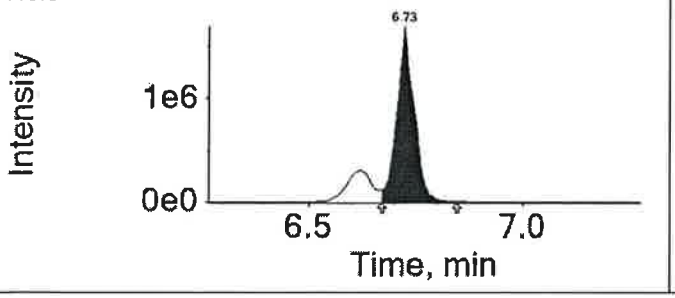
Analyte: PFOS
499.0 / 80.0



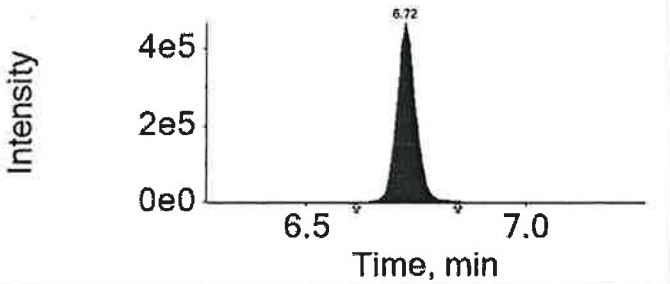
Extraction Standard: 13C8-PFOS
507.0 / 80.0



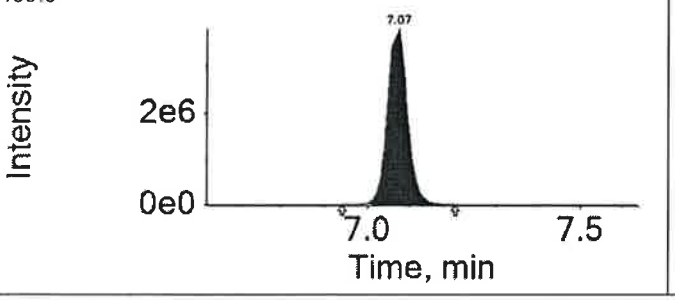
Analyte: PFNA
463.0 / 419.0



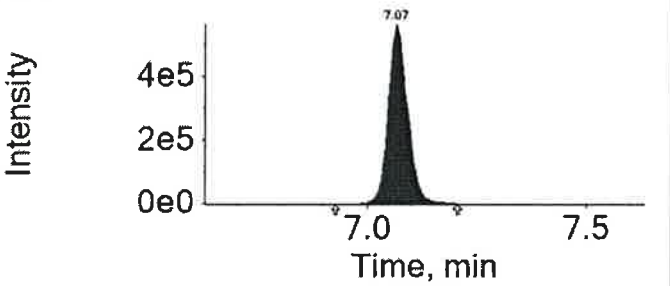
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED
By uild at 11:14 am, 4/23/18

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LC-MS/MS Analysis Report

Printed: 4/10/2018 9:42:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

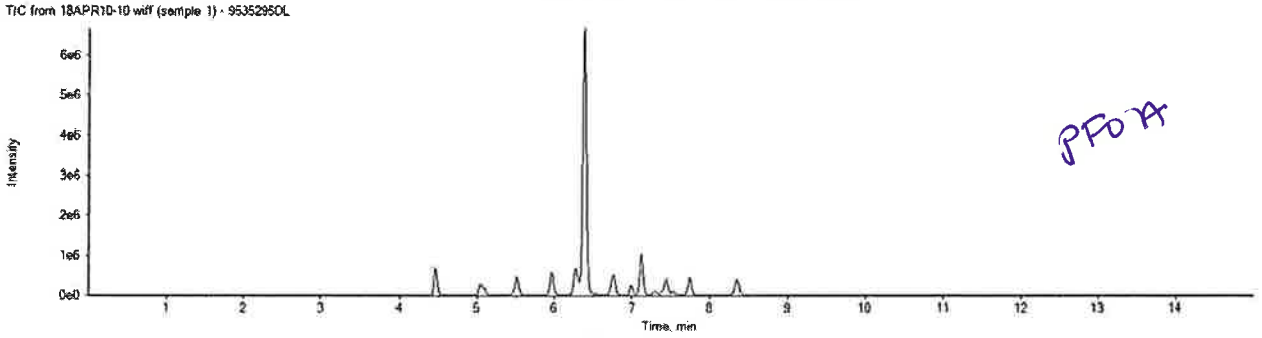
Analyte Quantitation Peak Table

Sample Name: 9535295DL **Instrument Name:** LM24743 **File Name:** 18APR10-10.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.46	959255.3	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.04	854586.2	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.09	411163.4	N/A	
PFHxA	5.52	1.000	24284.2	M	13C5-PFHxA	5.52	1459313.6	0.017	18.453
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.96	418004.7	N/A	
PFHpA	5.97	1.000	91521.1	M	13C4-PFHpA	5.97	1343471.3	0.068	63.366
PFOA	6.39	1.000	14101638.8	M	13C8-PFOA	6.39	1642810.7	8.584	9347.776
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.74	332466.1	N/A	
PFNA	6.77	1.000	32956.9	M	13C9-PFNA	6.77	1183641.5	0.028	24.643
PFDA	7.13	1.000	81291.3	M	13C6-PFDA	7.12	1647254.5	0.049	54.824
PFUnDA	7.44	1.000	51256.3	M	13C7-PFUnDA	7.44	938425.2	0.055	42.220
PFDoDA	7.75	1.000	80398.3	A	13C2-PFDoDA	7.74	1336006.7	0.060	63.959
PFTrDA	8.04	1.040	35228.4	A	13C2-PFDoDA	7.74	1336006.7	0.026	30.206
PFTeDA	8.35	1.000	54448.8	A	13C2-PFTeDA	8.35	1542209.7	0.035	42.539

Total Ion Chromatogram



PFOA

APPROVED
By MCD at 9:57 pm, 4/10/18

REVIEWED
By uild at 11:01 am, 4/23/18

Sample Description: SG3a-WP01-A16.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 10:05
SDG#: SBN08-05

C. T. Male Associates
ELLE Sample #: WP 9535296
ELLE Group #: 1926078
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**5.8**	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**2.0 B**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**12**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**23**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**33**	0.20	0.60	1
14027	**Perfluorohexanesulfonate**	355-46-4	**0.82**	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**13**	0.20	0.60	1
14027	**Perfluorononanoic acid**	375-95-1	**4.7**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**28**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**3,200**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**3.0**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**45**	0.20	0.60	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**18**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**5.8**	0.20	0.60	1

Due to the sample matrix, the recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/05/2018 05:03	Marissa C Drexinger	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 11:03	Marissa C Drexinger	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093011	04/03/2018 09:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/6/2018 5:06:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

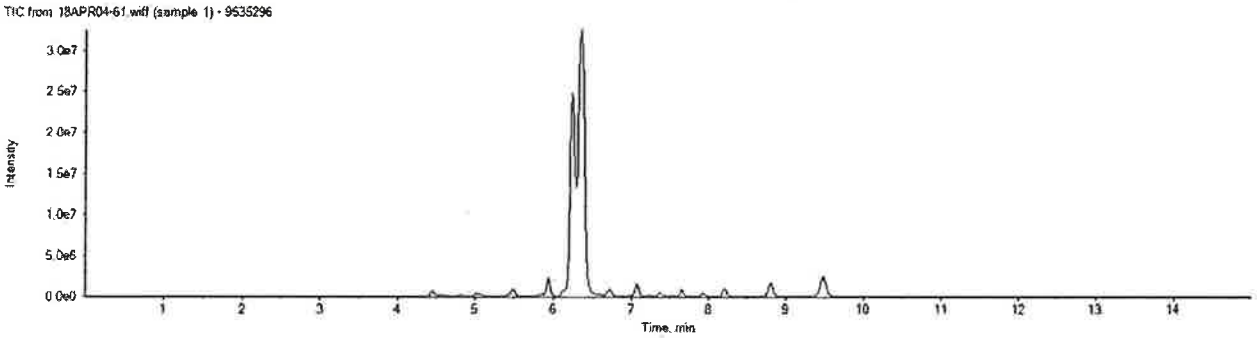
Analyte Quantitation Peak Table

Sample Name: 9535296 **Instrument Name:** LM24743 **File Name:** 18APR04-61.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	155877.5	M	13C4-PFBA	4.44	905905.7	0.172	2.048
PFPeA	5.02	1.000	206341.8	M	13C5-PFPeA	5.02	679578.2	0.304	2.970
PFBS	5.07	1.000	285367.4	A	13C3-PFBS	5.07	478708.5	0.596	5.845
PFHxA	5.49	1.000	1641076.5	A	13C5-PFHxA	5.49	1324347.0	1.239	13.426
PFHxS	5.93	1.000	38941.8	M	13C3-PFHxS	5.93	449771.9	0.087	0.822
PFHpA	5.94	1.000	5092227.6	M	13C4-PFHpA	5.93	1480294.2	3.440	32.656
PFOA	6.33	1.000	144772954.4	M	13C8-PFOA	6.35	707443.2	204.643	2209.787
PFOS	6.69	1.000	997190.3	M	13C8-PFOS	6.69	353383.5	2.822	27.768
PFNA	6.72	1.000	603660.8	M	13C9-PFNA	6.72	1106440.6	0.546	4.661
PFDA	7.07	1.000	1439644.6	A	13C6-PFDA	7.07	1419896.7	1.014	11.613
PFUnDA	7.37	1.000	614387.0	A	13C7-PFUnDA	7.37	771234.7	0.797	5.757
PFDoDA	7.66	1.000	1647244.7	A	13C2-PFDoDA	7.66	756735.5	2.177	23.018
PFTrDA	7.93	1.040	1192412.5	A	13C2-PFDoDA	7.66	756735.5	1.576	18.111
PFTeDA	8.21	1.000	2895783.8	A	13C2-PFTeDA	8.21	794948.9	3.643	45.127

Total Ion Chromatogram

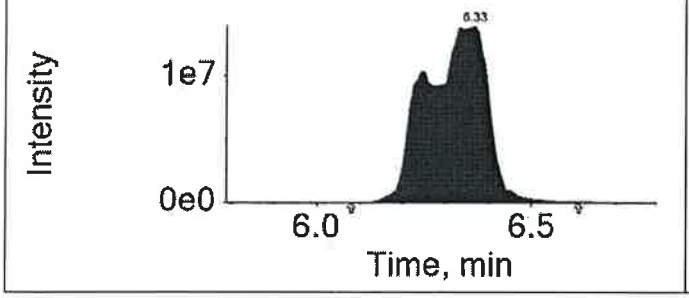


APPROVED
By JPT at 11:13 am, 4/23/18

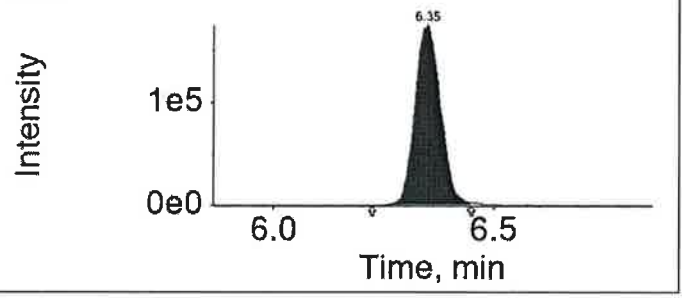
REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

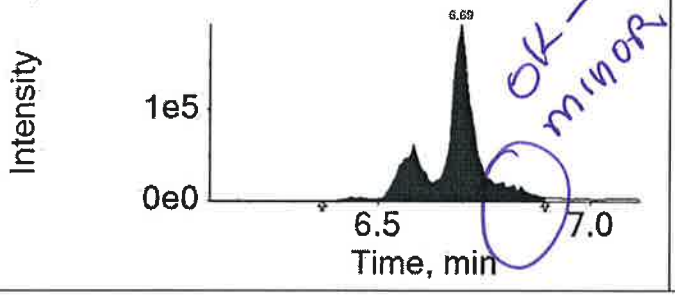
Analyte: PFOA
413.0 / 369.0



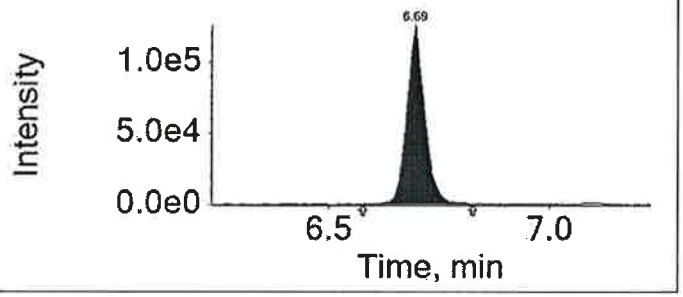
Extraction Standard: 13C8-PFOA
421.0 / 376.0



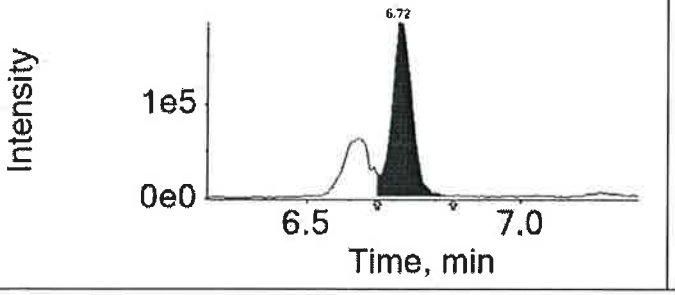
Analyte: PFOS
499.0 / 80.0



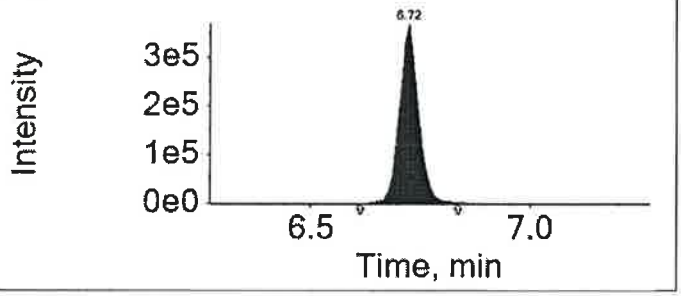
Extraction Standard: 13C8-PFOS
507.0 / 80.0



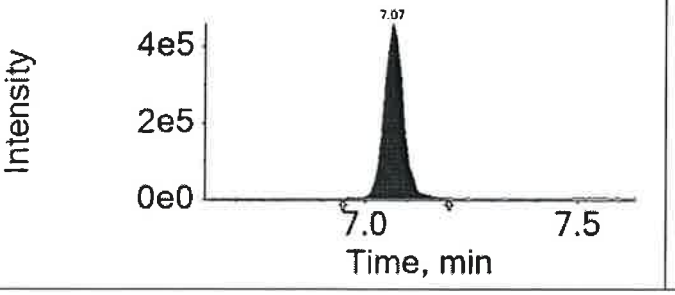
Analyte: PFNA
463.0 / 419.0



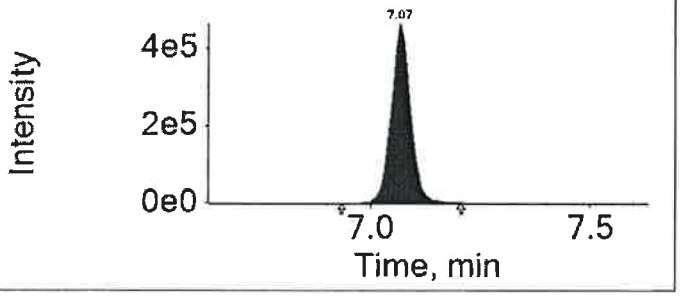
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

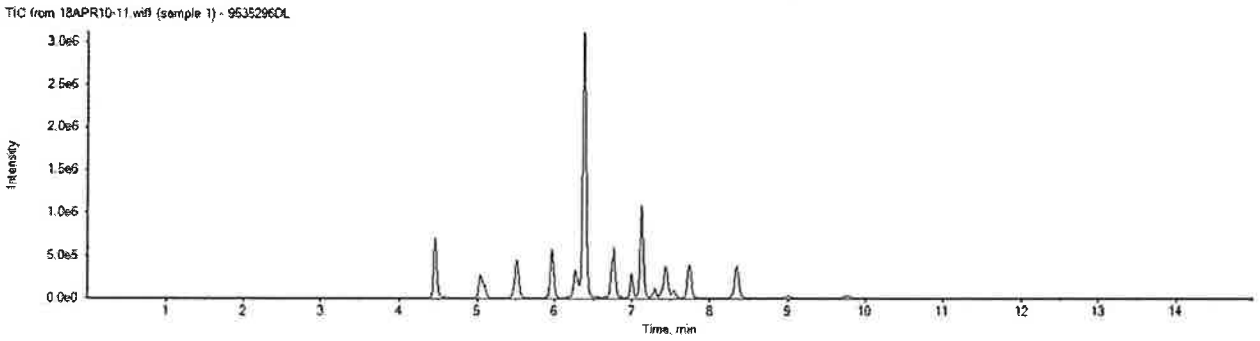
Analyte Quantitation Peak Table

Sample Name: 9535296DL **Instrument Name:** LM24743 **File Name:** 18APR10-11.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	944917.1	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.04	819231.4	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.09	416057.7	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.51	1439002.4	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.96	358516.8	N/A	
PFHpA	5.97	1.000	35929.3	M	13C4-PFHpA	5.97	1405886.3	0.026	23.772
PFOA	6.39	1.000	4800567.4	M	13C8-PFOA	6.39	1624555.6	2.955	3217.986
PFOS	6.75	1.000	5692.2	M	13C8-PFOS	6.74	341068.1	0.017	15.858
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.77	1181571.9	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.12	1683770.5	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.44	942425.4	N/A	
PFDoDA	7.74	1.000	21370.4	M	13C2-PFDoDA	7.74	1314498.9	0.016	17.279
PFTrDA	8.04	1.040	14063.7	M	13C2-PFDoDA	7.74	1314498.9	0.011	12.256
PFTeDA	8.34	1.000	39156.3	A	13C2-PFTeDA	8.35	1472323.8	0.027	32.044

Total Ion Chromatogram



APPROVED
By MCD at 9:57 pm, 4/10/18

REVIEWED
By uild at 11:01 am, 4/23/18

Sample Description: SG3a-WP01-A23.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 10:25
SDG#: SBN08-06

C. T. Male Associates
ELLE Sample #: WP 9535297
ELLE Group #: 1926078
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**66**	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**15 B**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**110**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**120**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**310**	2.0	6.0	10
14027	**Perfluorohexanesulfonate**	355-46-4	**5.8**	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**140**	0.20	0.60	1
14027	**Perfluorononanoic acid**	375-95-1	**48**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**140**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**32,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**20**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**160**	0.20	0.60	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**84**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**45**	0.20	0.60	1

Due to the sample matrix, the recovery for the sample injection internal standards(s) and the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/05/2018 05:19	Marissa C Drexinger	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 11:19	Marissa C Drexinger	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 22:42	Joshua P Trost	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093011	04/03/2018 09:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

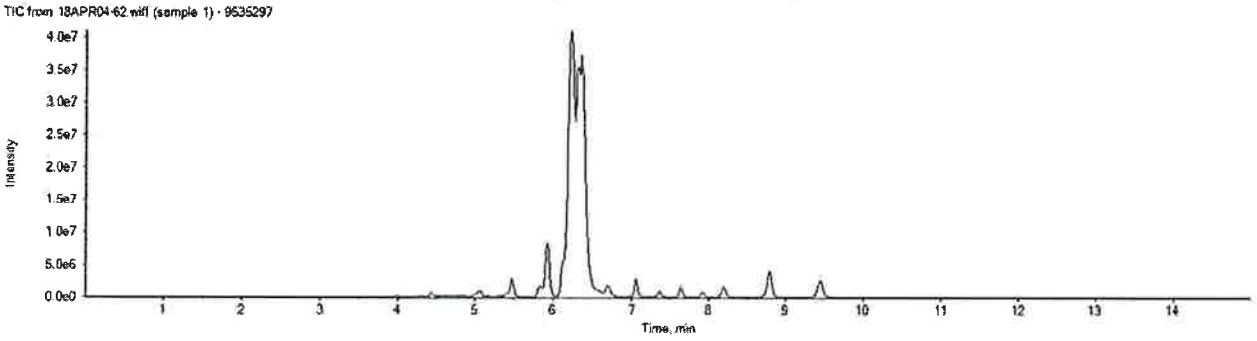
Analyte Quantitation Peak Table

Sample Name: 9535297 **Instrument Name:** LM24743 **File Name:** 18APR04-62.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	744988.8	M	13C4-PFBA	4.44	595887.3	1.250	14.878
PFPeA	5.02	1.000	872561.3	M	13C5-PFPeA	5.02	431098.3	2.024	19.798
PFBS	5.07	1.000	2310097.7	A	13C3-PFBS	5.07	341761.3	6.759	66.279
PFHxA	5.49	1.000	8940888.0	A	13C5-PFHxA	5.49	707288.7	12.641	136.963
PFHxS	5.92	1.000	185505.4	M	13C3-PFHxS	5.92	304957.7	0.608	5.772
PFHpA	5.93	1.000	30243762.7	M	13C4-PFHpA	5.93	800871.3	37.764	358.484
PFOA	6.24	0.990	115154539.8	A	13C8-PFOA	6.34	157134.9	732.839	7913.398
PFOS	6.68	1.000	3675663.2	M	13C8-PFOS	6.68	250107.9	14.696	144.619
PFNA	6.71	1.000	2796655.9	M	13C9-PFNA	6.71	496589.3	5.632	48.116
PFDA	7.05	1.000	6539453.0	A	13C6-PFDA	7.05	690760.3	9.467	108.434
PFUnDA	7.36	1.000	2397878.3	A	13C7-PFUnDA	7.36	384166.8	6.242	45.110
PFDoDA	7.64	1.000	4324420.9	A	13C2-PFDoDA	7.64	378370.9	11.429	120.856
PFTrDA	7.92	1.040	2760166.9	A	13C2-PFDoDA	7.64	378370.9	7.295	83.843
PFTeDA	8.20	1.000	5718181.1	A	13C2-PFTeDA	8.20	452624.2	12.633	156.506

Total Ion Chromatogram

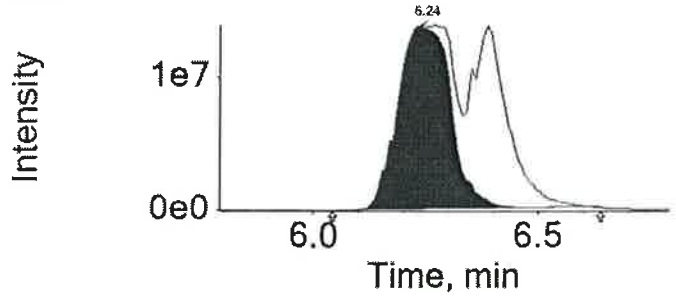


APPROVED
By JPT at 11:13 am, 4/23/18

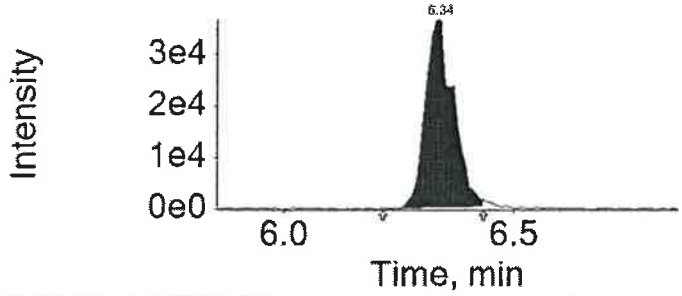
REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

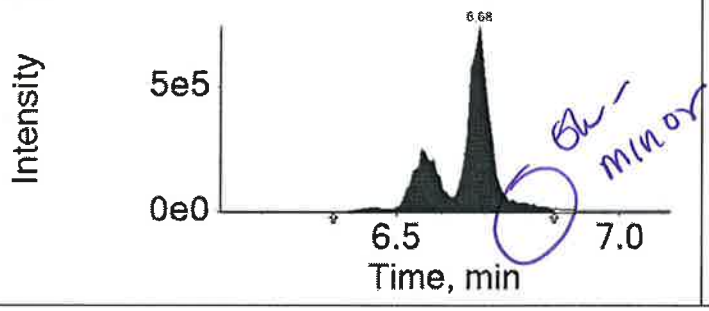
Analyte: PFOA
413.0 / 369.0



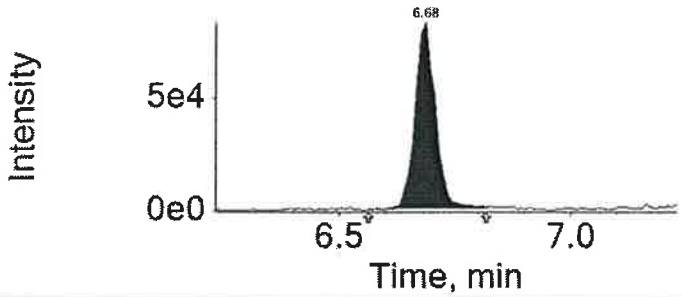
Extraction Standard: 13C8-PFOA
421.0 / 376.0



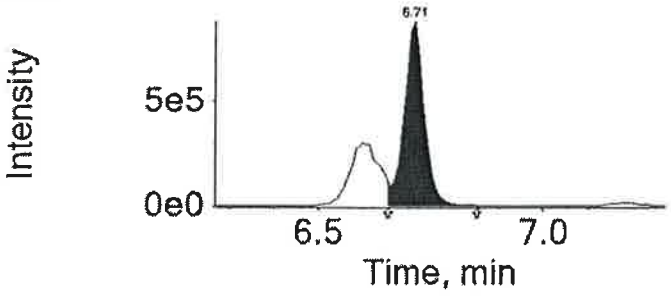
Analyte: PFOS
499.0 / 80.0



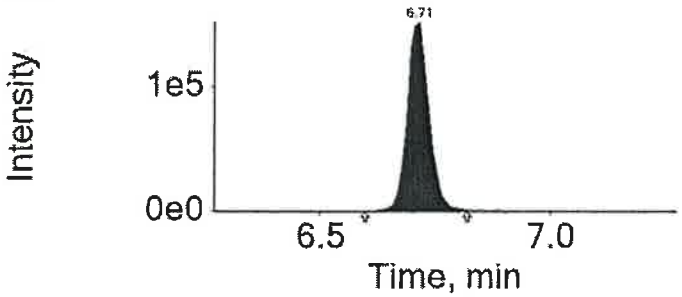
Extraction Standard: 13C8-PFOS
507.0 / 80.0



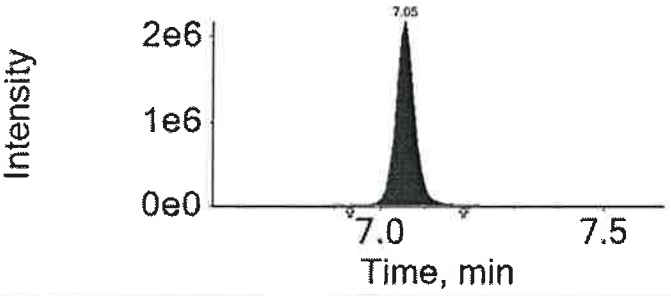
Analyte: PFNA
463.0 / 419.0



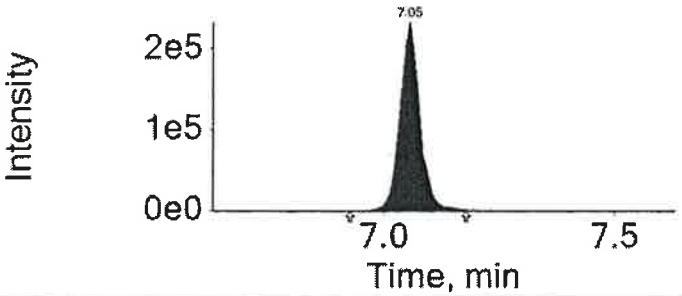
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED

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LC-MS/MS Analysis Report

Printed: 4/10/2018 9:43:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

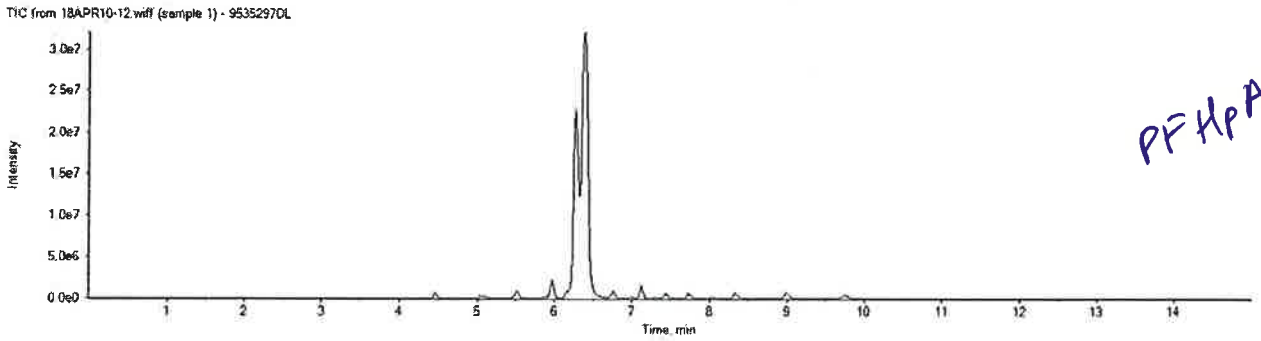
Analyte Quantitation Peak Table

Sample Name: 9535297DL **Instrument Name:** LM24743 **File Name:** 18APR10-12.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.45	1.000	80587.2	M	13C4-PFBA	4.45	933776.9	0.086	10.393
PFPeA	5.04	1.000	100790.3	M	13C5-PFPeA	5.04	757666.6	0.133	13.622
PFBS	5.09	1.000	212061.6	A	13C3-PFBS	5.09	430168.2	0.493	44.965
PFHxA	5.51	1.000	1308239.7	M	13C5-PFHxA	5.51	1492074.8	0.877	97.225
PFHxS	5.96	1.000	15353.6	M	13C3-PFHxS	5.96	399780.0	0.038	3.728
PFHpA	5.97	1.000	5083133.0	M	13C4-PFHpA	5.97	1538510.0	3.304	307.325
PFOA	6.36	1.000	142124395.3	M	13C8-PFOA	6.39	690828.8	205.730	22403.939
PFOS	6.74	1.000	338472.4	M	13C8-PFOS	6.74	334375.5	1.012	96.183
PFNA	6.77	1.000	593127.0	M	13C9-PFNA	6.77	1355519.7	0.438	38.727
PFDA	7.12	1.000	1118514.9	A	13C6-PFDA	7.12	1634152.3	0.684	76.039
PFUnDA	7.44	1.000	511761.2	A	13C7-PFUnDA	7.44	998986.1	0.512	39.598
PFDoDA	7.73	1.000	946878.7	A	13C2-PFDoDA	7.74	1198672.0	0.790	83.958
PFTrDA	8.03	1.040	561317.9	A	13C2-PFDoDA	7.74	1198672.0	0.468	53.644
PFTeDA	8.34	1.000	1292162.4	A	13C2-PFTeDA	8.34	1365928.5	0.946	113.982

Total Ion Chromatogram



PFHpA

APPROVED
By MCD at 9:57 pm, 4/10/18

REVIEWED
By uild at 11:01 am, 4/23/18

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL2 4/23/2018 11:07:35 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

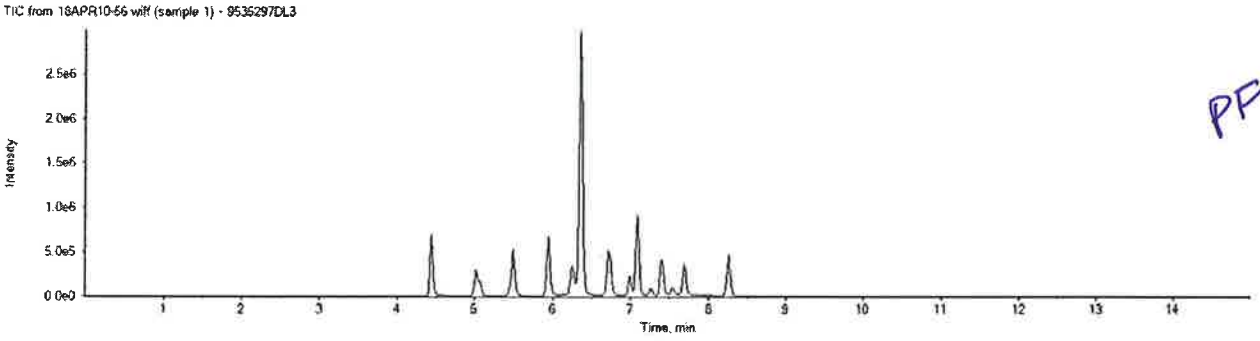
Analyte Quantitation Peak Table

Sample Name: 9535297DL2 **Instrument Name:** LM24743 **File Name:** 18APR10-56.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1000.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	985288.2	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	858401.7	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	417130.2	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	1442481.1	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	433559.3	N/A	
PFHpA	5.94	1.000	41793.6	M	13C4-PFHpA	5.94	1549659.3	0.027	250.865
PFOA	6.36	1.000	4996597.4	M	13C8-PFOA	6.36	1706121.3	2.929	31892.655
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.71	358790.4	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	1179798.7	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.09	1471636.6	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.39	853719.6	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.69	1120250.0	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.69	1120250.0	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.25	1447611.4	N/A	

Total Ion Chromatogram



PFOA

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Analysis Report

Sample Description: SG3a-BL01-A24.0 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 10:30
SDG#: SBN08-07

C. T. Male Associates
ELLE Sample #: SW 9535298
ELLE Group #: 1926078
Matrix: Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**590**	20	60	100
14027	**Perfluorobutanoic acid**	375-22-4	**240**	20	60	100
14027	**Perfluorodecanoic acid**	335-76-2	**1,200**	20	60	100
14027	**Perfluorododecanoic acid**	307-55-1	**1,600**	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**7,300**	20	60	100
14027	**Perfluorohexanesulfonate**	355-46-4	**33 J**	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**2,400**	20	60	100
14027	**Perfluorononanoic acid**	375-95-1	**690**	20	60	100
14027	**Perfluoro-octanesulfonate**	1763-23-1	**790**	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**810,000**	1,000	3,000	5000
14027	**Perfluoropentanoic acid**	2706-90-3	**350**	20	60	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**2,900**	20	60	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**1,000**	20	60	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**590**	20	60	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 11:17	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/19/2018 14:02	Joshua P Trost	5000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18102019	04/13/2018 10:30	Robert Brown	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

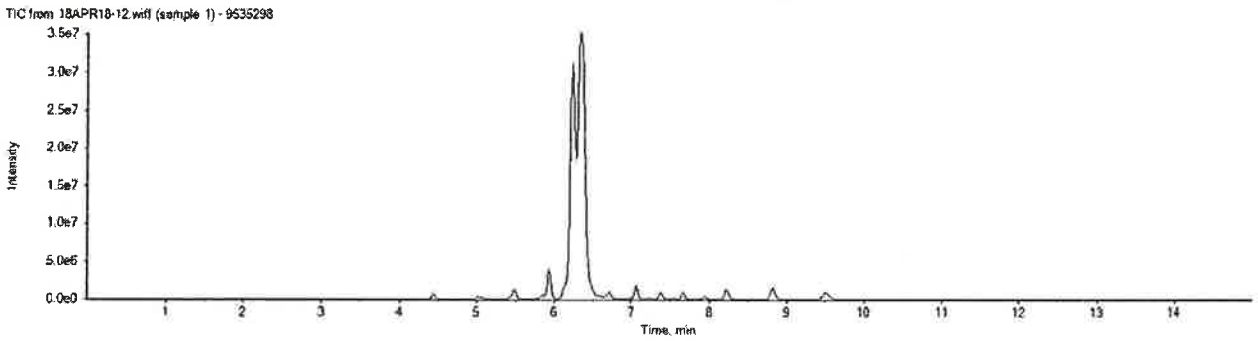
Analyte Quantitation Peak Table

Sample Name: 9535298 **Instrument Name:** LM24743 **File Name:** 18APR18-12.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (pg/g)
PFBA	4.44	1.000	186324.1	M	13C4-PFBA	4.44	930351.7	0.200	238.496
PFPeA	5.02	1.000	263774.2	M	13C5-PFPeA	5.02	730874.1	0.361	353.866
PFBS	5.07	1.000	251770.6	A	13C3-PFBS	5.07	400510.5	0.629	592.064
PFHxA	5.49	1.000	2929179.3	M	13C5-PFHxA	5.49	1342622.0	2.182	2382.494
PFHxS	5.93	1.000	12470.5	M	13C3-PFHxS	5.92	365035.0	0.034	33.280
PFHpA	5.93	1.000	10991205.2	A	13C4-PFHpA	5.93	1391686.4	7.898	7301.173
PFOA	6.32	1.000	179021888.6	M	13C8-PFOA	6.34	506369.5	353.540	384798.964
PFOS	6.69	1.000	249835.4	M	13C8-PFOS	6.69	304134.7	0.821	788.561
PFNA	6.72	1.000	935339.7	A	13C9-PFNA	6.72	1188842.1	0.787	685.018
PFDA	7.07	1.000	1737041.4	A	13C6-PFDA	7.07	1554457.8	1.117	1226.753
PFUnDA	7.37	1.000	938593.2	A	13C7-PFUnDA	7.37	1266407.5	0.741	585.733
PFDoDA	7.67	1.000	1770605.4	A	13C2-PFDoDA	7.66	1213495.2	1.459	1557.894
PFTrDA	7.94	1.040	1052348.1	A	13C2-PFDoDA	7.66	1213495.2	0.867	1004.354
PFTeDA	8.22	1.000	3432297.1	A	13C2-PFTeDA	8.22	1471543.8	2.332	2851.452

Total Ion Chromatogram

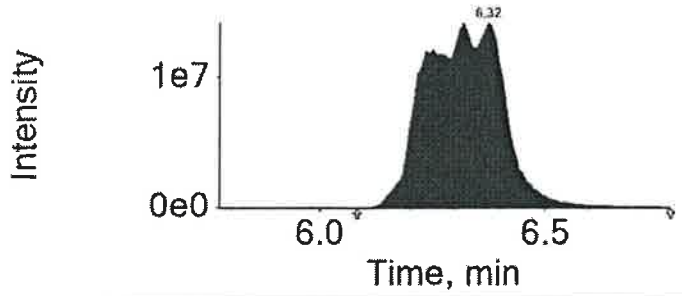


APPROVED
By JPT at 3:31 pm, 4/19/18

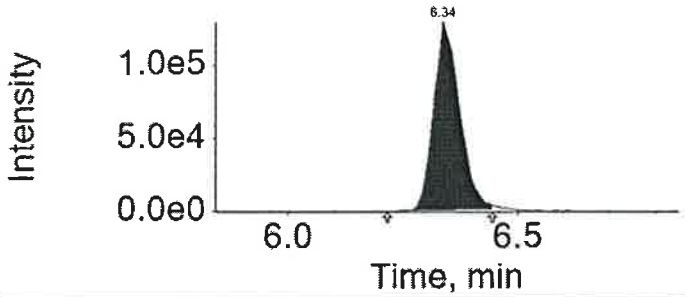
REVIEWED
By umar at 10:30 am, 4/23/18

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

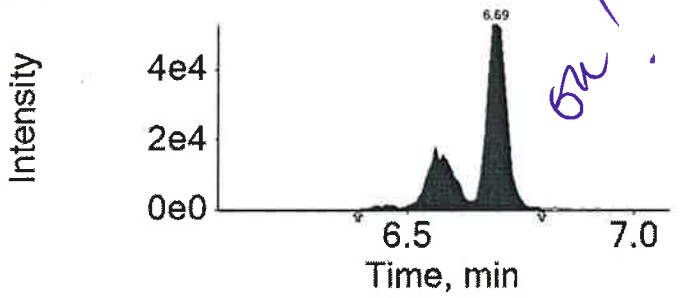
Analyte: PFOA
413.0 / 369.0



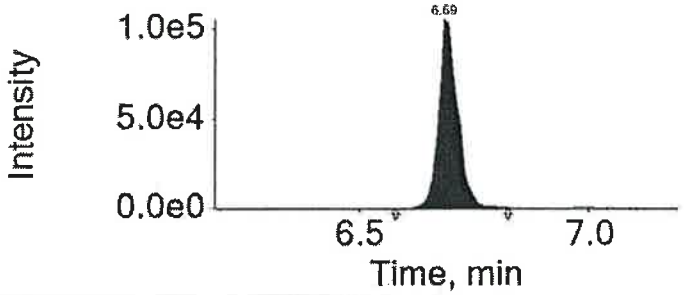
Extraction Standard: 13C8-PFOA
421.0 / 376.0



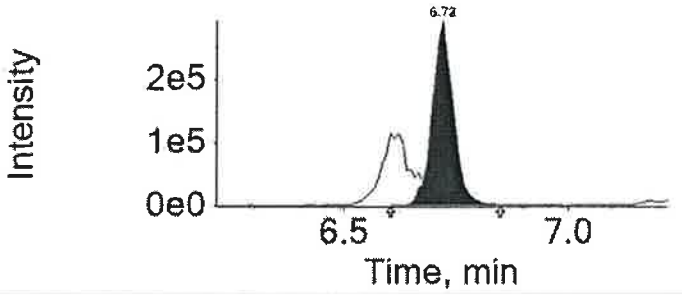
Analyte: PFOS
499.0 / 80.0



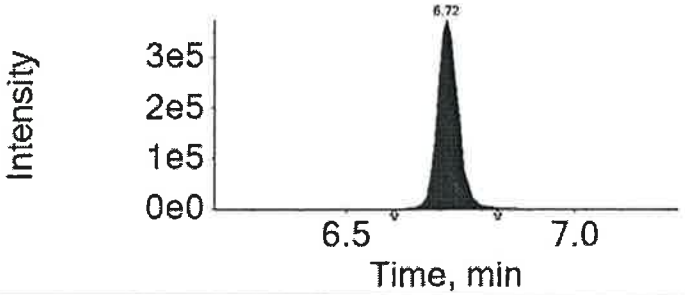
Extraction Standard: 13C8-PFOS
507.0 / 80.0



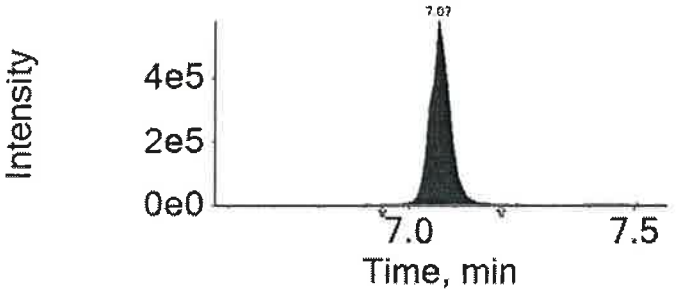
Analyte: PFNA
463.0 / 419.0



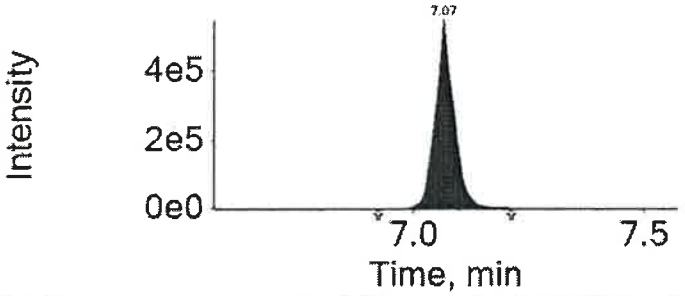
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 3:31 pm, 4/19/18

REVIEWED
By umar at 10:30 am, 4/23/18

ICAL Name: 18APR11MCAL **Result Table:** 18102019DL 4/19/2018 4:12:33 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

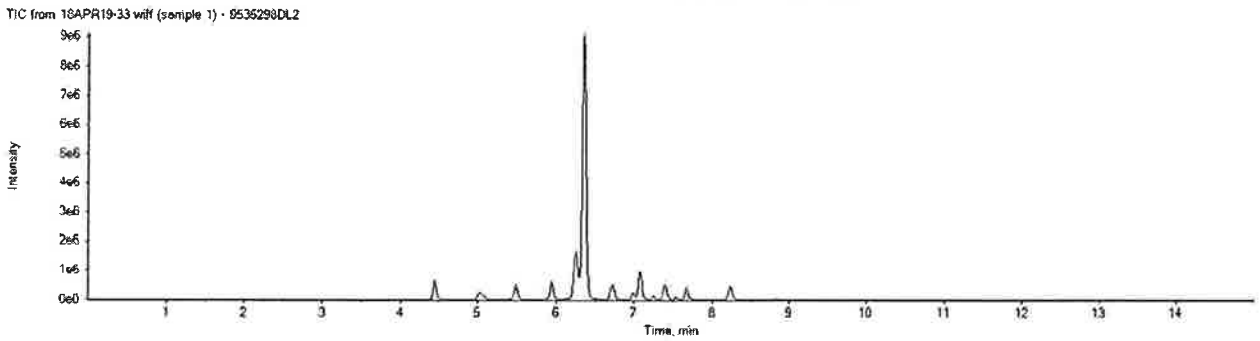
Analyte Quantitation Peak Table

Sample Name: 9535298DL **Instrument Name:** LM24743 **File Name:** 18APR19-33.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	5000.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	919892.8	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.03	796597.6	N/A	
PFBS	5.08	1.000	4407.4	M	13C3-PFBS	5.07	423582.7	0.010	490.000
PFHxA	5.50	1.000	51987.6	M	13C5-PFHxA	5.50	1365518.5	0.038	2078.796
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	359165.4	N/A	
PFHpA	5.94	1.000	193344.5	A	13C4-PFHpA	5.94	1272078.9	0.152	7025.486
PFOA	6.36	1.000	23379030.6	M	13C8-PFOA	6.36	1564222.8	14.946	813379.407
PFOS	6.70	1.000	5781.5	M	13C8-PFOS	6.71	328047.0	0.018	845.909
PFNA	6.73	1.000	19303.8	M	13C9-PFNA	6.73	1212255.1	0.016	693.229
PFDA	7.08	1.000	38087.9	M	13C6-PFDA	7.08	1621326.1	0.023	1289.475
PFUnDA	7.38	1.000	17439.1	M	13C7-PFUnDA	7.39	1007062.5	0.017	684.277
PFDoDA	7.68	1.000	39757.1	M	13C2-PFDoDA	7.68	1239626.0	0.032	1712.175
PFTrDA	7.95	1.040	21029.2	A	13C2-PFDoDA	7.68	1239626.0	0.017	982.352
PFTeDA	8.23	1.000	70061.9	A	13C2-PFTeDA	8.24	1597344.7	0.044	2681.069

Total Ion Chromatogram



APPROVED
By JPT at 4:22 pm, 4/19/18

REVIEWED
By umar at 11:16 am, 4/23/18

Sample Description: SG3a-WP02-A8.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 10:45
SDG#: SBN08-08

C. T. Male Associates
ELLE Sample #: WP 9535299
ELLE Group #: 1926078
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**0.85**	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.5 B**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**12**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**33**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**25**	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**12**	0.20	0.60	1
14027	**Perfluorononanoic acid**	375-95-1	**4.2**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**11**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**2,200**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**1.7**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**88**	0.20	0.60	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**27**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**6.9**	0.20	0.60	1

Due to the sample matrix, the recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. Sufficient sample was not available to repeat the analysis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/05/2018 06:05	Marissa C Drexinger	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 11:50	Marissa C Drexinger	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093011	04/03/2018 09:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

Printed: 4/6/2018 5:07:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

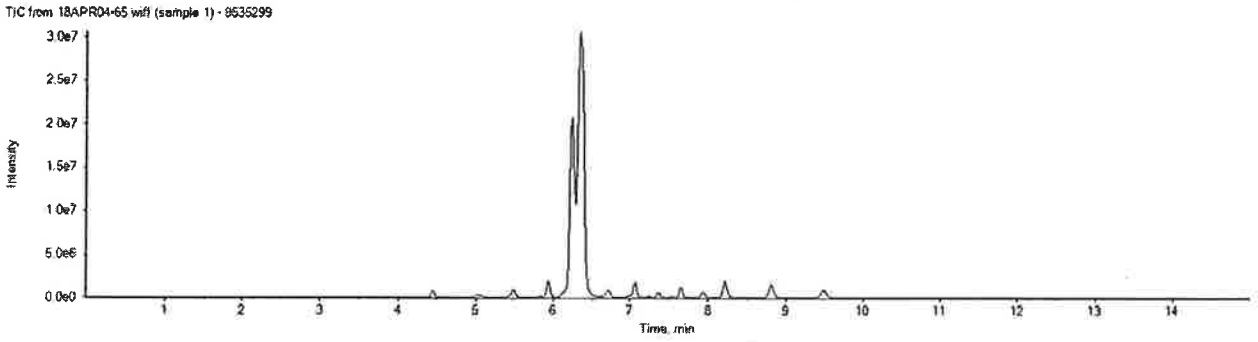
Analyte Quantitation Peak Table

Sample Name: 9535299 **Instrument Name:** LM24743 **File Name:** 18APR04-65.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	112758.7	M	13C4-PFBA	4.44	917634.9	0.123	1.462
PFPeA	5.02	1.000	122606.6	M	13C5-PFPeA	5.02	714957.5	0.171	1.677
PFBS	5.07	1.000	38061.6	M	13C3-PFBS	5.07	438203.3	0.087	0.852
PFHxA	5.49	1.000	1502752.4	M	13C5-PFHxA	5.49	1394028.1	1.078	11.680
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	424230.9	N/A	
PFHpA	5.94	1.000	4146548.0	M	13C4-PFHpA	5.94	1565683.8	2.648	25.141
PFOA	6.34	1.000	133889345.8	M	13C8-PFOA	6.35	779508.2	171.761	1854.726
PFOS	6.70	1.000	395287.1	M	13C8-PFOS	6.70	354067.5	1.116	10.986
PFNA	6.72	1.000	636829.9	M	13C9-PFNA	6.72	1304213.0	0.488	4.172
PFDA	7.07	1.000	1714584.5	A	13C6-PFDA	7.07	1676987.6	1.022	11.711
PFUnDA	7.37	1.000	753861.4	A	13C7-PFUnDA	7.37	792619.7	0.951	6.874
PFDoDA	7.66	1.000	2735934.1	A	13C2-PFDoDA	7.66	874065.8	3.130	33.099
PFTrDA	7.93	1.040	2078668.1	A	13C2-PFDoDA	7.66	874065.8	2.378	27.333
PFTeDA	8.21	1.000	6286942.2	A	13C2-PFTeDA	8.21	886897.2	7.089	87.817

Total Ion Chromatogram

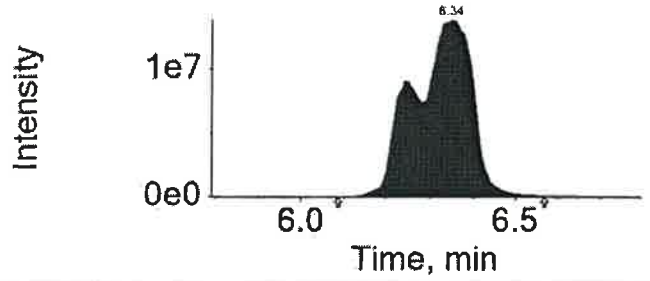


APPROVED
By JPT at 11:13 am, 4/23/18

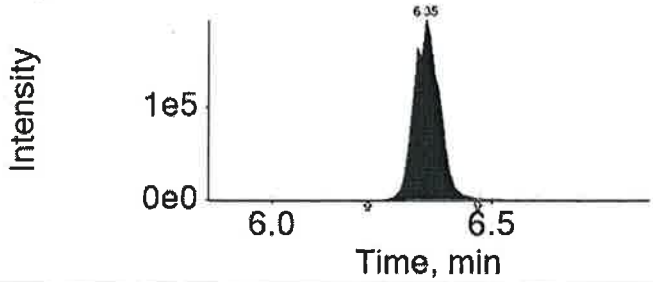
REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

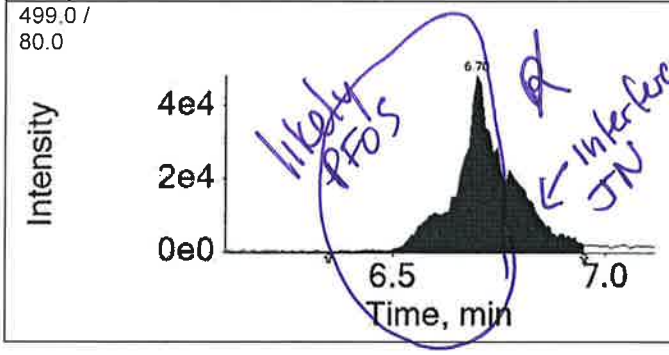
Analyte: PFOA
413.0 / 369.0



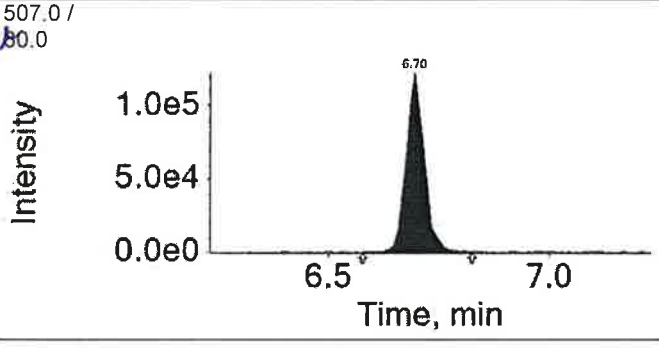
Extraction Standard: 13C8-PFOA
421.0 / 376.0



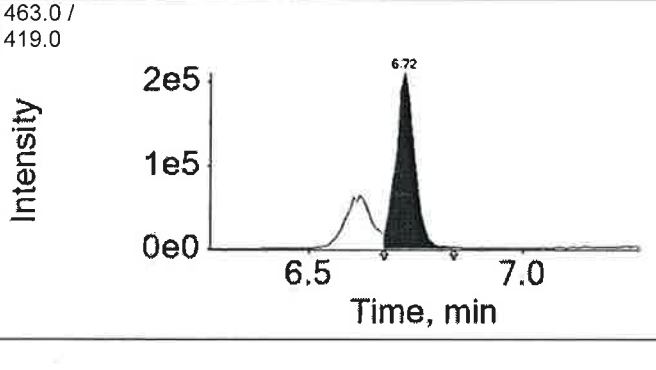
Analyte: PFOS
499.0 / 80.0



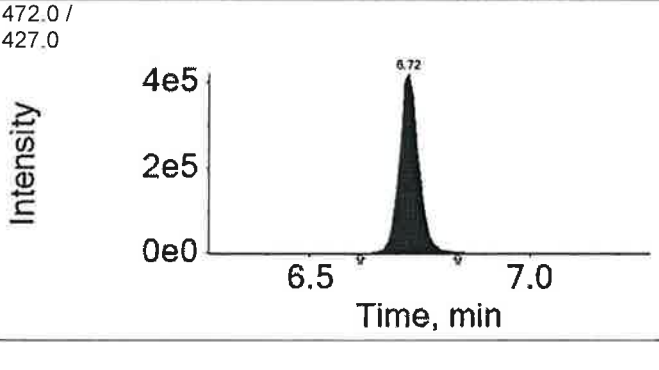
Extraction Standard: 13C8-PFOS
507.0 / 80.0



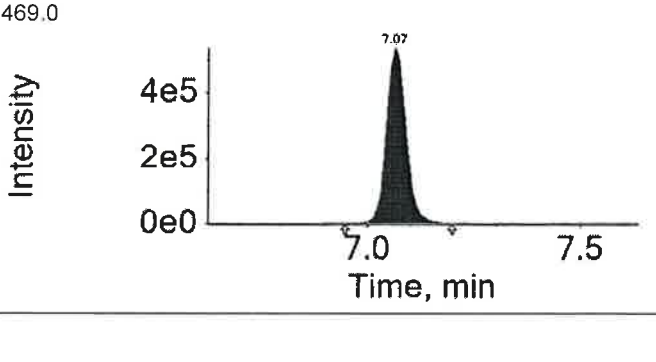
Analyte: PFNA
463.0 / 419.0



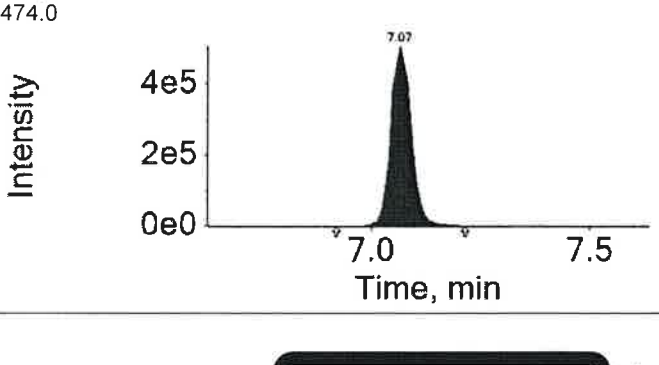
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

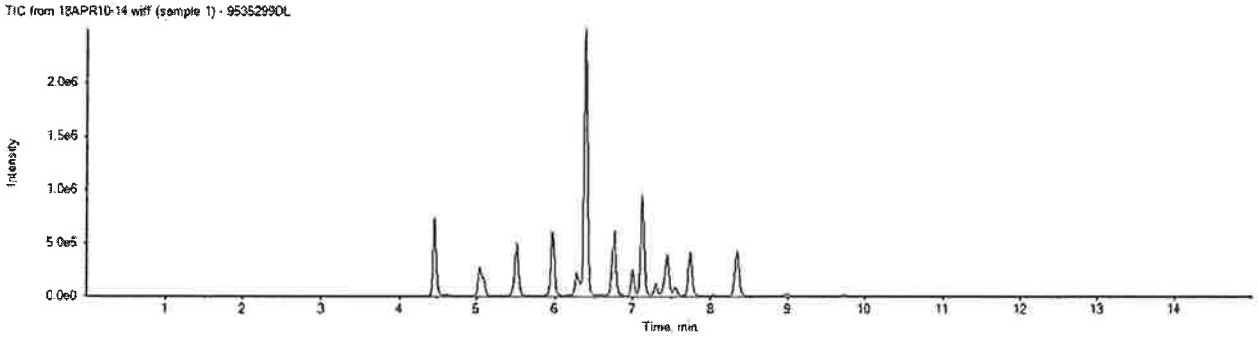
Analyte Quantitation Peak Table

Sample Name: 9535299DL **Instrument Name:** LM24743 **File Name:** 18APR10-14.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.46	974942.1	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.04	831157.4	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.09	415508.2	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.52	1496552.2	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.96	387578.9	N/A	
PFHpA	5.97	1.000	27002.9	M	13C4-PFHpA	5.97	1491849.6	0.018	16.836
PFOA	6.39	1.000	3400110.8	M	13C8-PFOA	6.39	1654780.6	2.055	2237.582
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.74	360897.1	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.77	1227935.9	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.12	1545395.2	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.44	922236.3	N/A	
PFDoDA	7.74	1.000	24849.8	M	13C2-PFDoDA	7.74	1318050.7	0.019	20.038
PFTrDA	8.03	1.040	20392.5	M	13C2-PFDoDA	7.74	1318050.7	0.015	17.724
PFTeDA	8.33	1.000	71399.0	A	13C2-PFTeDA	8.34	1576135.3	0.045	54.582

Total Ion Chromatogram



APPROVED
By MCD at 9:57 pm, 4/10/18

REVIEWED
By uild at 11:01 am, 4/23/18

Sample Description: SG3a-WP02-A16.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 10:55
SDG#: SBN08-09

C. T. Male Associates
ELLE Sample #: WP 9535300
ELLE Group #: 1926078
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**5.7**	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.8 B**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**9.5**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**16**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**30**	0.20	0.60	1
14027	**Perfluorohexanesulfonate**	355-46-4	**0.38 J**	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**13**	0.20	0.60	1
14027	**Perfluorononanoic acid**	375-95-1	**3.9**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**28**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**2,400**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**2.4**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**22**	0.20	0.60	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**11**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**4.5**	0.20	0.60	1

Due to the sample matrix, the recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. Sufficient sample was not available to repeat the analysis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/05/2018 06:21	Marissa C Drexinger	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 12:36	Marissa C Drexinger	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093011	04/03/2018 09:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

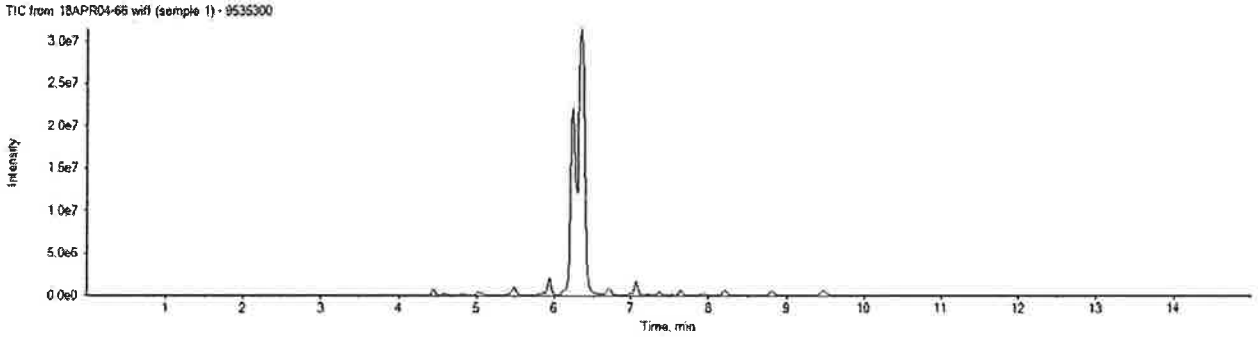
Analyte Quantitation Peak Table

Sample Name: 9535300 **Instrument Name:** LM24743 **File Name:** 18APR04-66.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	138207.6	M	13C4-PFBA	4.44	895769.2	0.154	1.836
PFPeA	5.02	1.000	168346.6	M	13C5-PFPeA	5.02	691447.5	0.243	2.382
PFBS	5.07	1.000	265194.2	A	13C3-PFBS	5.07	454003.8	0.584	5.728
PFHxA	5.49	1.000	1559748.4	M	13C5-PFHxA	5.49	1324903.2	1.177	12.755
PFHxS	5.92	1.000	17129.1	M	13C3-PFHxS	5.93	430036.3	0.040	0.378
PFHpA	5.94	1.000	4642178.8	M	13C4-PFHpA	5.94	1490450.7	3.115	29.567
PFOA	6.33	1.000	137931430.9	M	13C8-PFOA	6.35	773087.2	178.416	1926.590
PFOS	6.70	1.000	912447.8	M	13C8-PFOS	6.70	317919.1	2.870	28.243
PFNA	6.72	1.000	491624.1	M	13C9-PFNA	6.72	1078902.1	0.456	3.893
PFDA	7.06	1.000	1249695.9	A	13C6-PFDA	7.07	1504249.6	0.831	9.516
PFUnDA	7.37	1.000	398253.4	A	13C7-PFUnDA	7.37	640520.9	0.622	4.494
PFDoDA	7.65	1.000	963757.0	A	13C2-PFDoDA	7.65	656343.0	1.468	15.527
PFTrDA	7.93	1.040	606902.6	A	13C2-PFDoDA	7.65	656343.0	0.925	10.628
PFTeDA	8.21	1.000	1371107.6	A	13C2-PFTeDA	8.21	786385.8	1.744	21.600

Total Ion Chromatogram

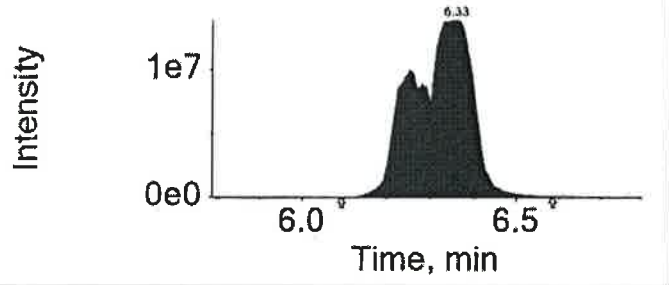


APPROVED
By JPT at 11:13 am, 4/23/18

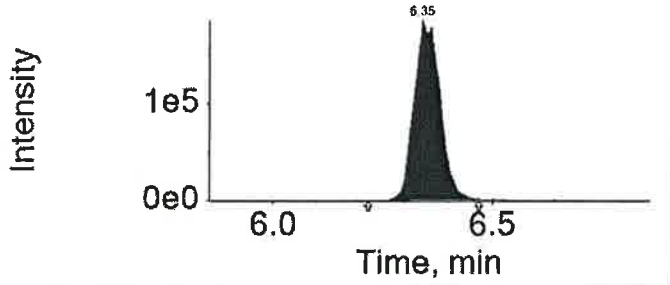
REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

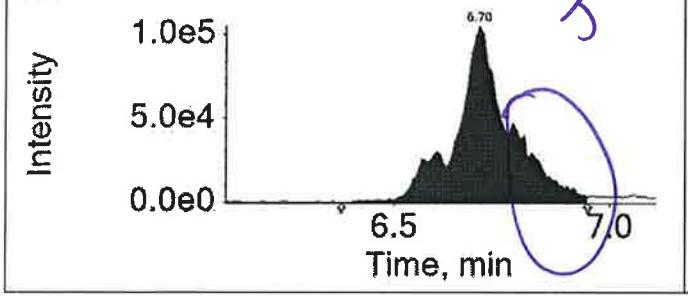
Analyte: PFOA
413.0 / 369.0



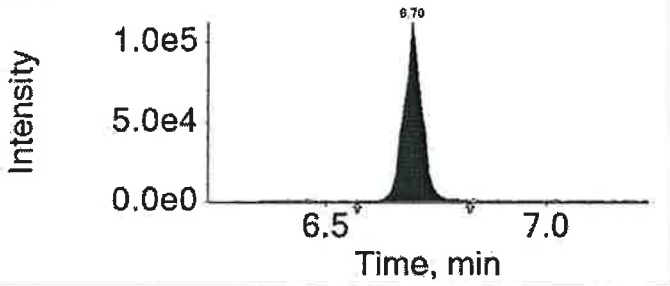
Extraction Standard: 13C8-PFOA
421.0 / 376.0



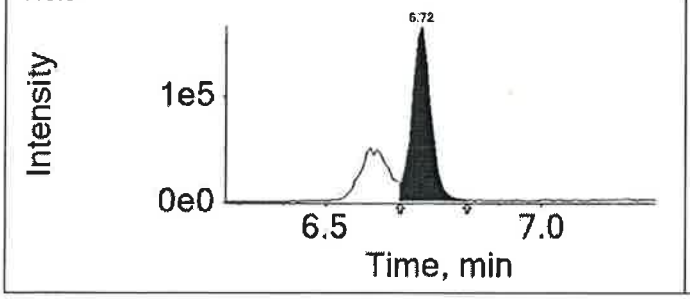
Analyte: PFOS
499.0 / 80.0



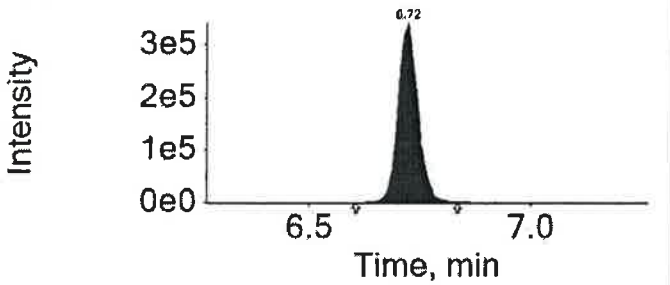
Extraction Standard: 13C8-PFOS
507.0 / 80.0



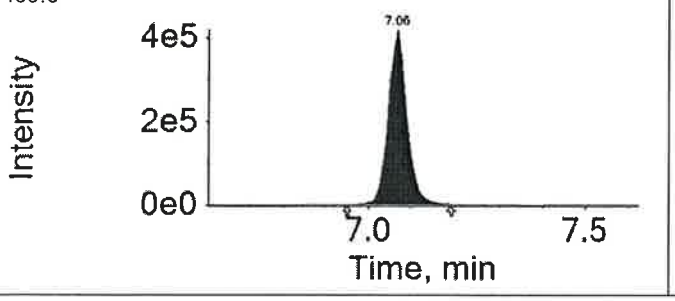
Analyte: PFNA
463.0 / 419.0



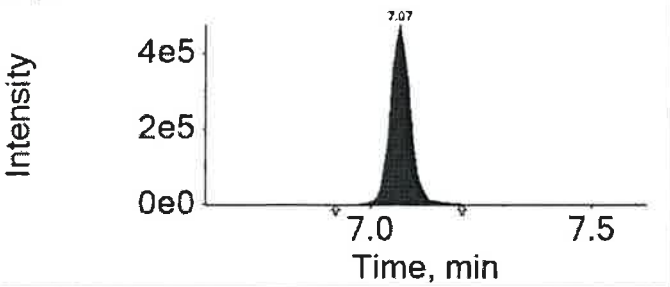
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED
By uild at 11:14 am, 4/23/18

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LC-MS/MS Analysis Report

Printed: 4/10/2018 9:43:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

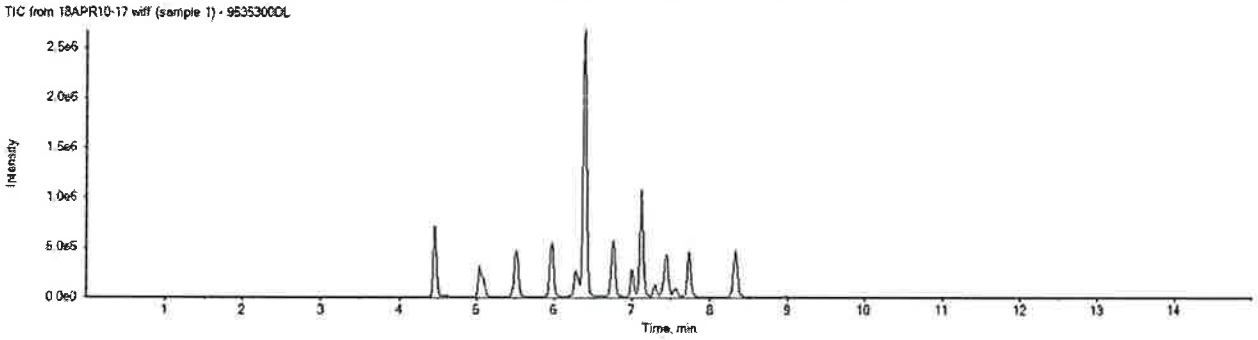
Analyte Quantitation Peak Table

Sample Name: 9535300DL **Instrument Name:** LM24743 **File Name:** 18APR10-17.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.46	1019417.0	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.04	900534.5	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.09	445672.3	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.52	1598103.4	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.96	411001.0	N/A	
PFHpA	5.97	1.000	34331.3	M	13C4-PFHpA	5.97	1465184.3	0.023	21.795
PFOA	6.39	1.000	4008607.0	M	13C8-PFOA	6.39	1843219.0	2.175	2368.333
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.74	353445.3	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.77	1315640.2	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.12	1728102.1	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.43	1002817.6	N/A	
PFDoDA	7.73	1.000	16553.1	M	13C2-PFDoDA	7.73	1416965.4	0.012	✓ 12.416
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.73	1416965.4	N/A	
PFTeDA	8.32	1.000	21489.9	A	13C2-PFTeDA	8.32	1682882.1	0.013	15.386

Total Ion Chromatogram



APPROVED
By MCD at 9:57 pm, 4/10/18

REVIEWED
By uild at 11:01 am, 4/23/18

Sample Description: SG3a-WP02-A23.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 11:00
SDG#: SBN08-10

C. T. Male Associates
ELLE Sample #: WP 9535301
ELLE Group #: 1926078
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**28**	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**18** B	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**44**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**61**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**140**	0.20	0.60	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.8**	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**66**	0.20	0.60	1
14027	**Perfluorononanoic acid**	375-95-1	**17**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**48**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**14,000**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**8.6**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**140**	2.0	6.0	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**58**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**17**	0.20	0.60	1

Due to the sample matrix, the recovery for the sample injection internal standards(s) and the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/05/2018 06:36	Marissa C Drexinger	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 12:52	Marissa C Drexinger	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 13:07	Marissa C Drexinger	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093011	04/03/2018 09:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

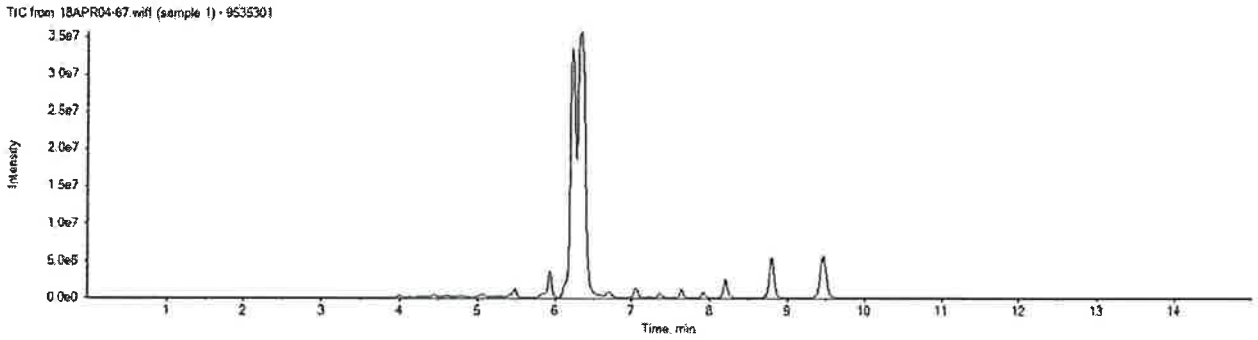
Analyte Quantitation Peak Table

Sample Name: 9535301 **Instrument Name:** LM24743 **File Name:** 18APR04-67.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.43	1.000	514900.4	M	13C4-PFBA	4.43	336176.2	1.532	18.227
PFPeA	5.02	1.000	213688.5	M	13C5-PFPeA	5.02	242282.3	0.882	8.627
PFBS	5.07	1.000	795747.8	A	13C3-PFBS	5.07	273991.5	2.904	28.478
PFHxA	5.48	1.000	3247978.9	M	13C5-PFHxA	5.48	529945.3	6.129	66.405
PFHxS	5.92	1.000	56326.5	M	13C3-PFHxS	5.92	301182.3	0.187	1.775
PFHpA	5.93	1.000	10349147.0	M	13C4-PFHpA	5.93	726528.0	14.245	135.222
PFOA	6.30	0.990	172392814.3	M	13C8-PFOA	6.34	271134.3	635.821	6865.768
PFOS	6.68	1.000	1070284.8	M	13C8-PFOS	6.68	220294.9	4.858	47.809
PFNA	6.71	1.000	975306.8	M	13C9-PFNA	6.71	500849.3	1.947	16.637
PFDA	7.06	1.000	2731136.1	A	13C6-PFDA	7.05	713882.5	3.826	43.820
PFUnDA	7.36	1.000	1195619.1	A	13C7-PFUnDA	7.36	501920.4	2.382	17.216
PFDoDA	7.65	1.000	2728309.6	A	13C2-PFDoDA	7.65	469247.6	5.814	61.482
PFTrDA	7.92	1.040	2367374.6	A	13C2-PFDoDA	7.65	469247.6	5.045	57.985
PFTeDA	8.20	1.000	8603213.1	A	13C2-PFTeDA	8.20	551518.7	15.599	193.246

Total Ion Chromatogram



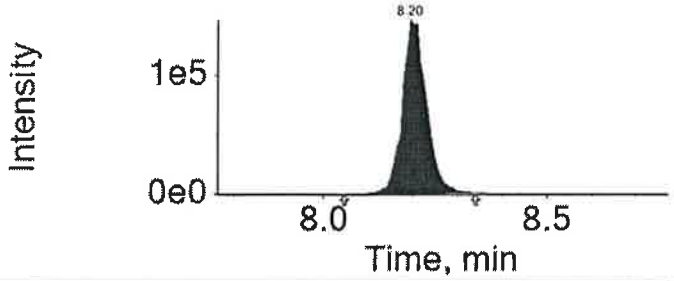
APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

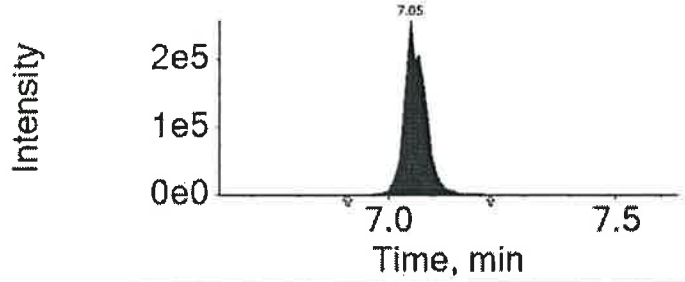
Extraction Standard: E13C2-PFTeDA

715.0 / 670.0



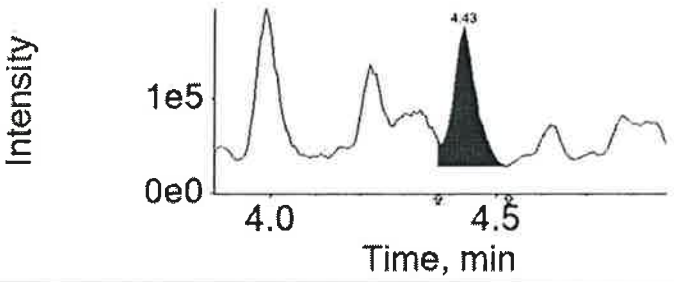
Injection Standard: 13C2-PFDA

515.0 / 470.0



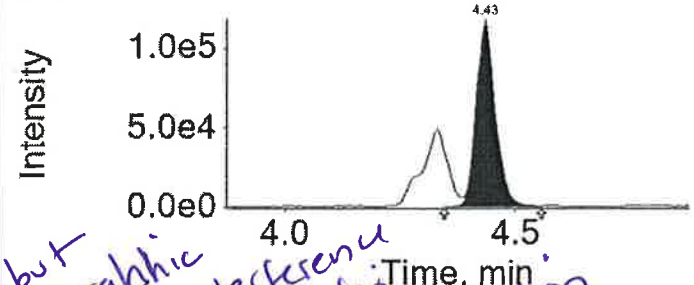
Analyte: PFBA

213.0 / 169.0



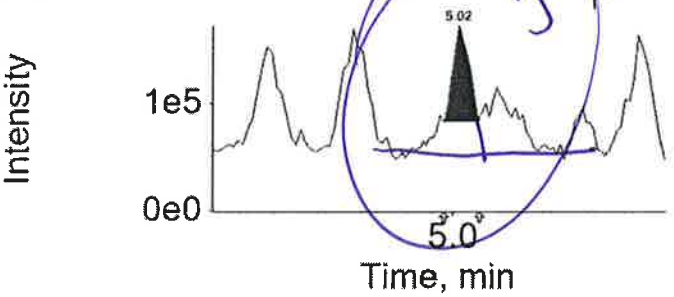
Extraction Standard: 13C4-PFBA

217.0 / 172.0



Analyte: PFPeA

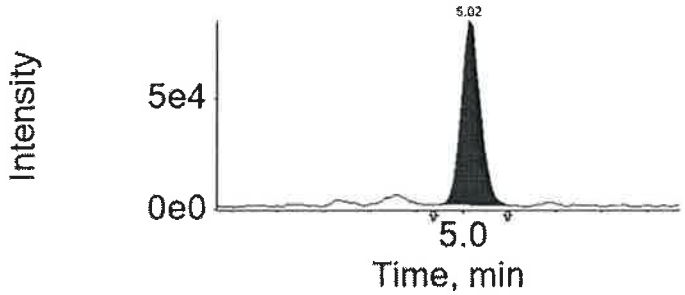
263.0 / 219.0



J RT good but chromatographic interference impacting integration

Extraction Standard: 13C5-PFPeA

268.0 / 223.0

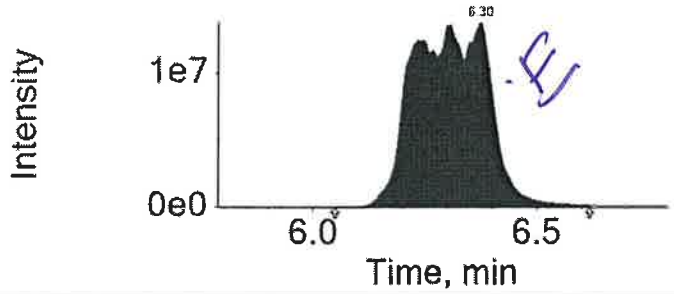


APPROVED
By JPT at 11:13 am. 4/23/18

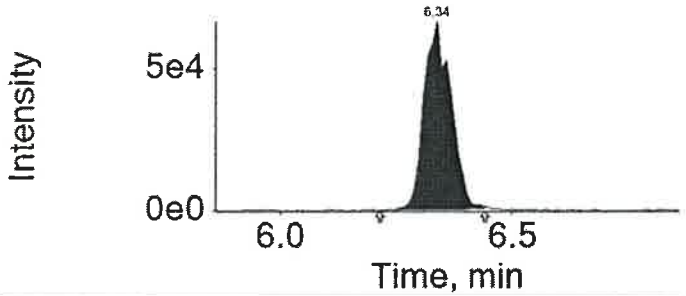
REVIEWED

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

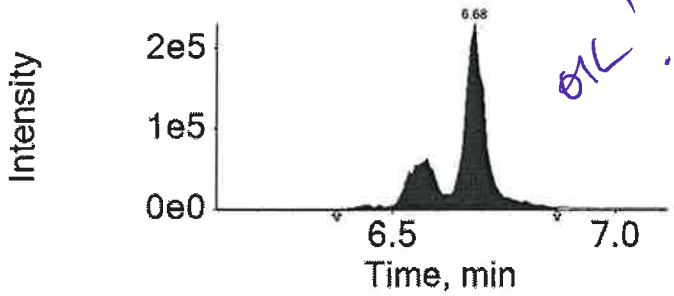
Analyte: PFOA
413.0 / 369.0



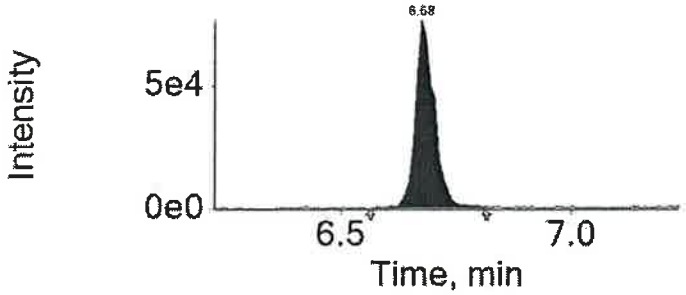
Extraction Standard: 13C8-PFOA
421.0 / 376.0



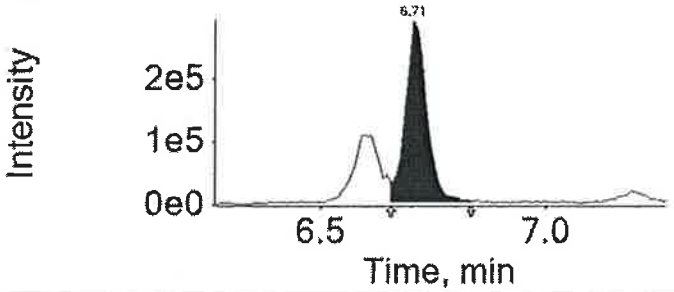
Analyte: PFOS
499.0 / 80.0



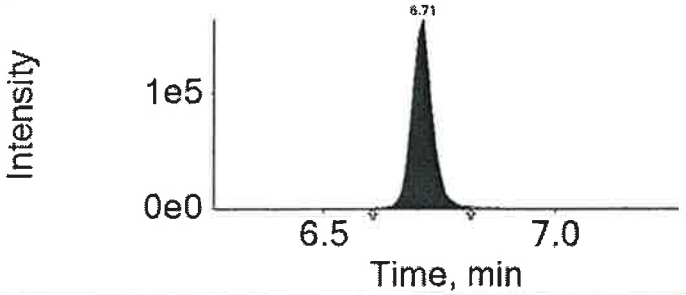
Extraction Standard: 13C8-PFOS
507.0 / 80.0



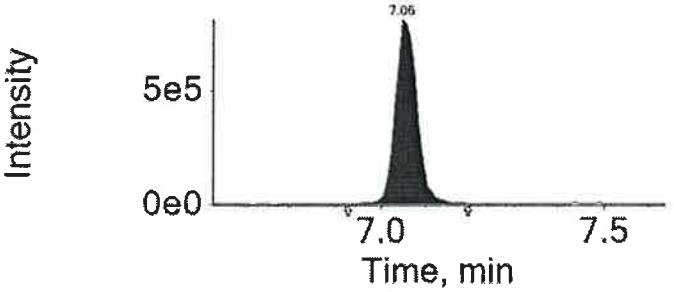
Analyte: PFNA
463.0 / 419.0



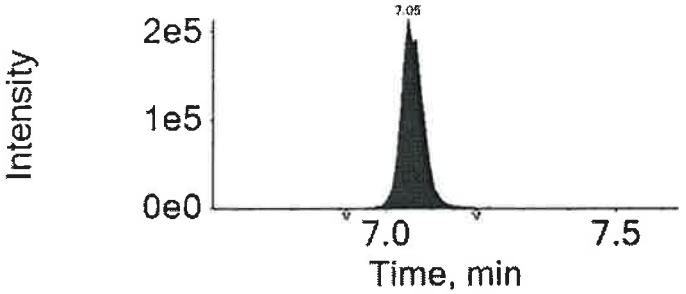
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

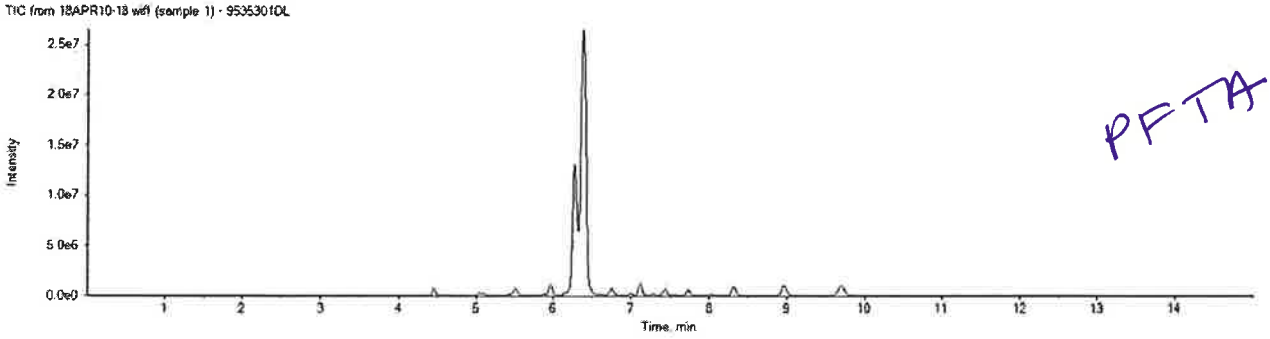
Analyte Quantitation Peak Table

Sample Name: 9535301DL **Instrument Name:** LM24743 **File Name:** 18APR10-18.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.45	1.000	78115.8	M	13C4-PFBA	4.46	924428.4	0.085	10.177
PFPeA	5.04	1.000	70252.7	M	13C5-PFPeA	5.04	742692.8	0.095	9.686
PFBS	5.09	1.000	86718.8	A	13C3-PFBS	5.09	421661.8	0.206	18.759
PFHxA	5.51	1.000	655471.1	M	13C5-PFHxA	5.52	1510426.6	0.434	48.121
PFHxS	5.96	1.000	5144.0	M	13C3-PFHxS	5.96	393671.7	0.013	1.268
PFHpA	5.97	1.000	1854342.0	M	13C4-PFHpA	5.97	1522232.4	1.218	113.312
PFOA	6.39	1.000	97899912.6	M	13C8-PFOA	6.38	1051544.4	93.101	10138.669
PFOS	6.74	1.000	111106.2	M	13C8-PFOS	6.73	332612.7	0.334	31.740
PFNA	6.76	1.000	216595.7	M	13C9-PFNA	6.76	1341095.8	0.162	14.294
PFDA	7.12	1.000	468715.1	A	13C6-PFDA	7.12	1653490.5	0.283	31.491
PFUnDA	7.43	1.000	244125.8	A	13C7-PFUnDA	7.43	1186258.0	0.206	15.907
PFDoDA	7.73	1.000	547779.1	A	13C2-PFDoDA	7.73	1278806.9	0.428	45.527
PFTrDA	8.02	1.040	446016.2	A	13C2-PFDoDA	7.73	1278806.9	0.349	39.954
PFTeDA	8.32	1.000	1741118.3	A	13C2-PFTeDA	8.32	1502150.8	1.159	139.657

Total Ion Chromatogram



PFTA

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LC-MS/MS Analysis Report

Printed: 4/10/2018 9:44:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

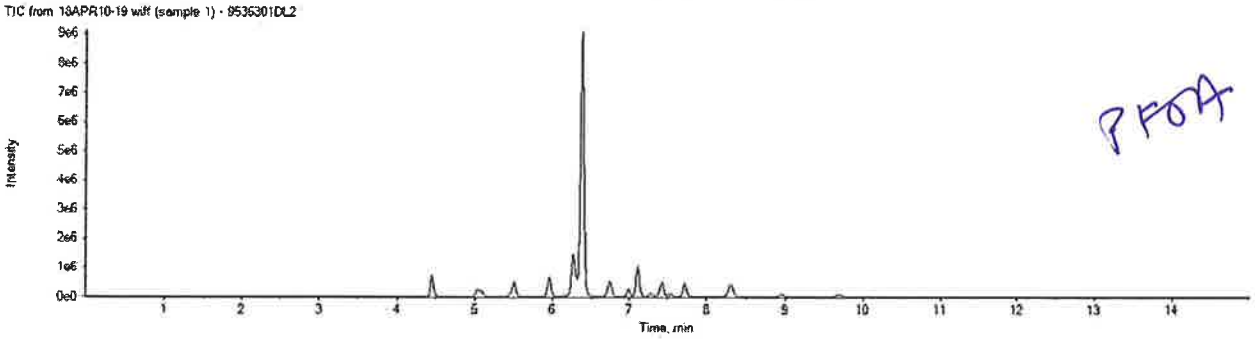
Analyte Quantitation Peak Table

Sample Name: 9535301DL2 **Instrument Name:** LM24743 **File Name:** 18APR10-19.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	11228.1	M	13C4-PFBA	4.45	964072.4	0.012	14.026
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.03	846546.4	N/A	
PFBS	5.08	1.000	8382.2	A	13C3-PFBS	5.08	437264.1	0.019	17.485
PFHxA	5.50	1.000	55511.2	M	13C5-PFHxA	5.51	1493161.6	0.037	41.225
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.95	407618.0	N/A	
PFHpA	5.96	1.000	151830.9	M	13C4-PFHpA	5.96	1543737.5	0.098	91.486
PFOA	6.38	1.000	19979698.5	M	13C8-PFOA	6.38	1588744.8	12.576	13694.967
PFOS	6.72	1.000	10540.0	M	13C8-PFOS	6.73	350714.9	0.030	28.556
PFNA	6.75	1.000	20743.1	M	13C9-PFNA	6.75	1263166.3	0.016	14.534
PFDA	7.10	1.000	43116.3	M	13C6-PFDA	7.11	1654549.7	0.026	28.950
PFUnDA	7.41	1.000	22031.1	M	13C7-PFUnDA	7.42	1061724.7	0.021	16.040
PFDoDA	7.71	1.000	52504.0	M	13C2-PFDoDA	7.72	1396193.2	0.038	39.968
PFTrDA	8.00	1.040	37480.4	A	13C2-PFDoDA	7.72	1396193.2	0.027	30.752
PFTeDA	8.31	1.000	156183.8	A	13C2-PFTeDA	8.31	1588912.5	0.098	118.436

Total Ion Chromatogram



PFOA

APPROVED
By MCD at 9:57 pm, 4/10/18

REVIEWED
By uild at 11:01 am, 4/23/18

Sample Description: SG3a-BL02-A22.5 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 11:05
SDG#: SBN08-11

C. T. Male Associates
ELLE Sample #: SW 9535302
ELLE Group #: 1926078
Matrix: Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**510**	19	58	100
14027	**Perfluorobutanoic acid**	375-22-4	**450**	19	58	100
14027	**Perfluorodecanoic acid**	335-76-2	**930**	19	58	100
14027	**Perfluorododecanoic acid**	307-55-1	**760**	19	58	100
14027	**Perfluoroheptanoic acid**	375-85-9	**3,700**	19	58	100
14027	**Perfluorohexanesulfonate**	355-46-4	**40 J**	19	58	100
14027	**Perfluorohexanoic acid**	307-24-4	**2,300**	19	58	100
14027	**Perfluorononanoic acid**	375-95-1	**350**	19	58	100
14027	**Perfluoro-octanesulfonate**	1763-23-1	**800**	29	87	100
14027	**Perfluorooctanoic acid**	335-67-1	**380,000**	960	2,900	5000
14027	**Perfluoropentanoic acid**	2706-90-3	**520**	19	58	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**1,000**	19	58	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**410**	19	58	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**240**	19	58	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 11:33	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/19/2018 14:18	Joshua P Trost	5000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18102019	04/13/2018 10:30	Robert Brown	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

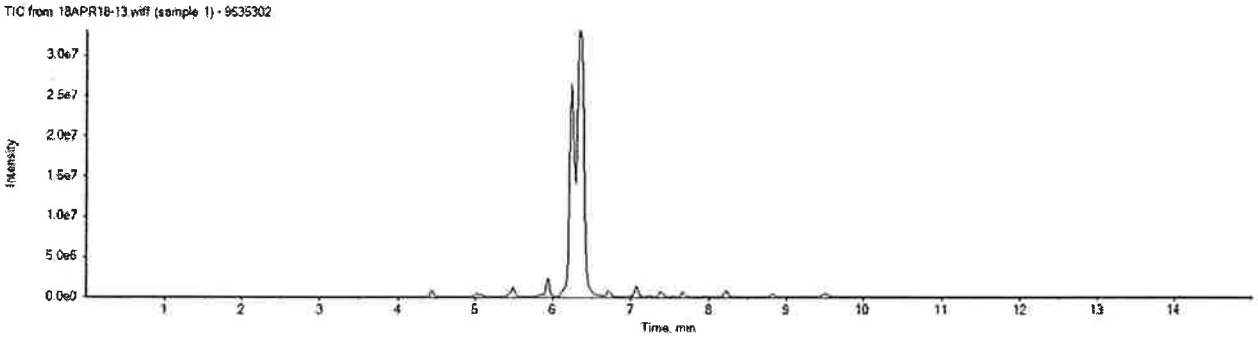
Analyte Quantitation Peak Table

Sample Name: 9535302 **Instrument Name:** LM24743 **File Name:** 18APR18-13.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.04000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	340481.5	M	13C4-PFBA	4.44	860247.2	0.396	453.207
PFPeA	5.02	1.000	346432.2	M	13C5-PFPeA	5.02	629205.0	0.551	519.089
PFBS	5.07	1.000	206828.3	A	13C3-PFBS	5.07	368337.4	0.562	508.520
PFHxA	5.49	1.000	2441387.7	M	13C5-PFHxA	5.49	1113149.9	2.193	2302.975
PFHxS	5.93	1.000	13949.3	M	13C3-PFHxS	5.93	328848.0	0.042	39.734
PFHpA	5.94	1.000	5585205.5	A	13C4-PFHpA	5.94	1331280.8	4.195	3729.279
PFOA	6.33	1.000	153430922.1	M	13C8-PFOA	6.35	664248.3	230.984	241737.718
PFOS	6.70	1.000	240974.9	M	13C8-PFOS	6.70	276319.6	0.872	804.960
PFNA	6.72	1.000	466960.6	A	13C9-PFNA	6.72	1110617.7	0.420	351.997
PFDA	7.07	1.000	1178879.8	A	13C6-PFDA	7.07	1340111.9	0.880	928.584
PFUnDA	7.38	1.000	354444.9	A	13C7-PFUnDA	7.38	1109920.2	0.319	242.672
PFDoDA	7.67	1.000	800524.6	A	13C2-PFDoDA	7.67	1085205.2	0.738	757.328
PFTrDA	7.94	1.040	398634.2	A	13C2-PFDoDA	7.67	1085205.2	0.367	409.068
PFTeDA	8.22	1.000	1221900.2	A	13C2-PFTeDA	8.22	1376155.8	0.888	1043.733

Total Ion Chromatogram

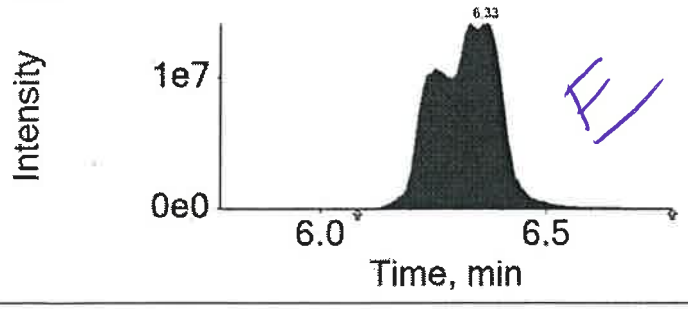


APPROVED
By JPT at 3:31 pm, 4/19/18

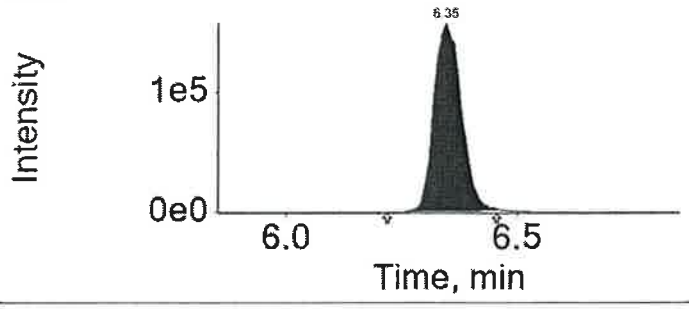
REVIEWED
By umar at 10:30 am, 4/23/18

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

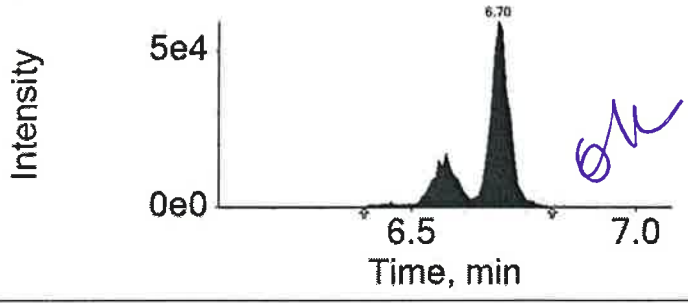
Analyte: PFOA
413.0 / 369.0



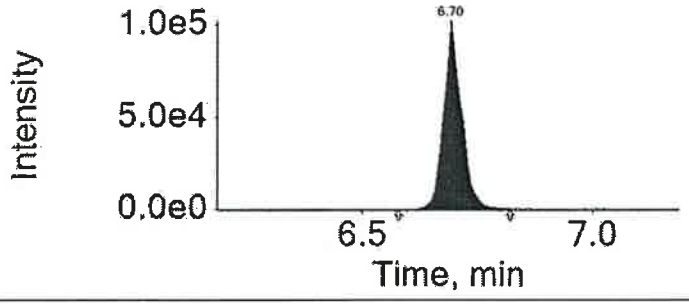
Extraction Standard: 13C8-PFOA
421.0 / 376.0



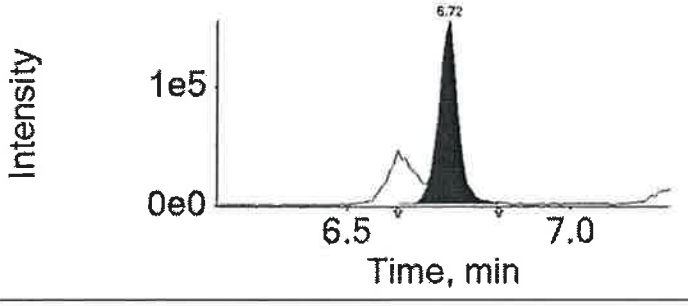
Analyte: PFOS
499.0 / 80.0



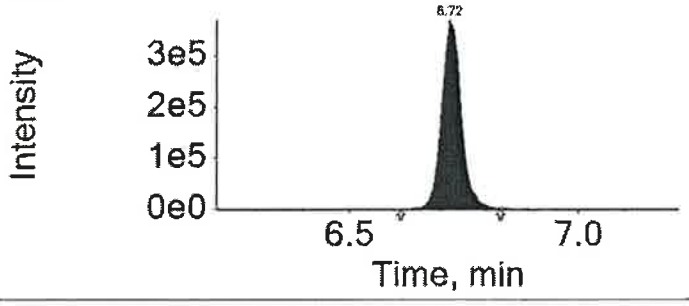
Extraction Standard: 13C8-PFOS
507.0 / 80.0



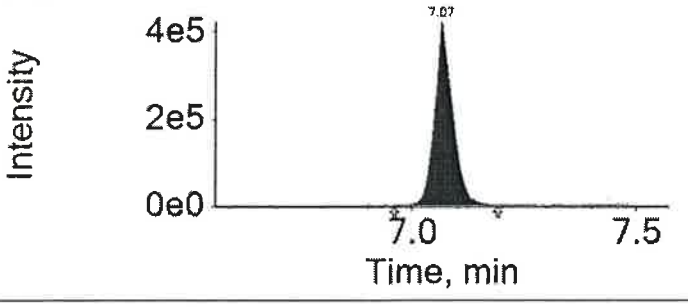
Analyte: PFNA
463.0 / 419.0



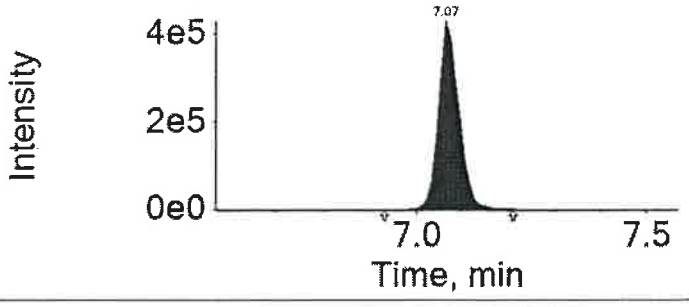
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 3:31 pm, 4/19/18

REVIEWED
By umar at 10:30 am, 4/23/18

ICAL Name: 18APR11MCAL **Result Table:** 18102019DL 4/19/2018 4:12:33 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

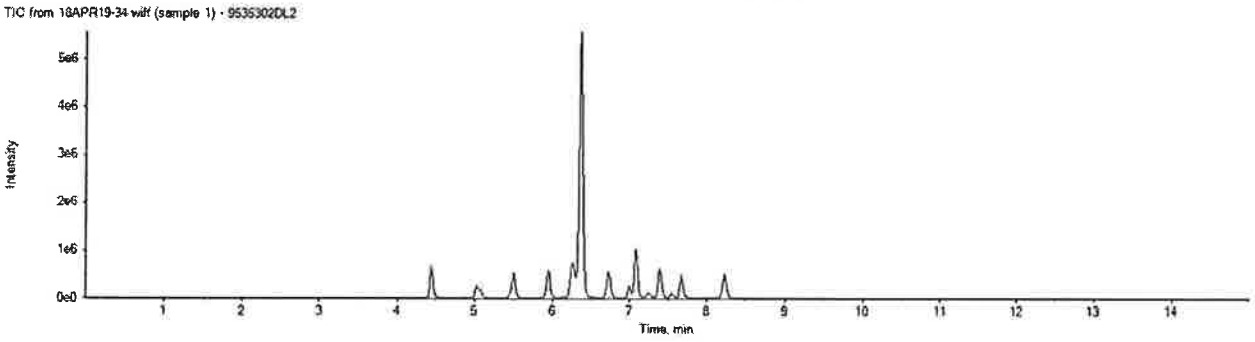
Analyte Quantitation Peak Table

Sample Name: 9535302DL **Instrument Name:** LM24743 **File Name:** 18APR19-34.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.04000	1.000	5000.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	10505.2	M	13C4-PFBA	4.44	955176.6	0.011	629.677
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.03	783703.7	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.08	417840.9	N/A	
PFHxA	5.50	1.000	47961.9	M	13C5-PFHxA	5.50	1477708.2	0.032	1704.055
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	382988.7	N/A	
PFHpA	5.95	1.000	95995.3	A	13C4-PFHpA	5.95	1395950.5	0.069	3056.365
PFOA	6.36	1.000	12254049.6	M	13C8-PFOA	6.36	1669425.6	7.340	384100.191
PFOS	6.70	1.000	5459.6	M	13C8-PFOS	6.71	335493.7	0.016	751.037
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	1220583.8	N/A	
PFDA	7.08	1.000	22834.0	M	13C6-PFDA	7.08	1678755.8	0.014	717.887
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.39	1158967.7	N/A	
PFDoDA	7.68	1.000	17501.3	M	13C2-PFDoDA	7.68	1429205.3	0.012	628.590
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	1429205.3	N/A	
PFTeDA	8.24	1.000	26221.2	A	13C2-PFTeDA	8.24	1715570.2	0.015	898.329

Total Ion Chromatogram



APPROVED
By JPT at 4:22 pm, 4/19/18

REVIEWED
By umar at 11:16 am, 4/23/18

Sample Description: SG3a-WP03-STACK25.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 11:40
SDG#: SBN08-12

C. T. Male Associates
ELLE Sample #: WP 9535303
ELLE Group #: 1926078
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**16 B**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**86**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**52**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**250**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**170**	0.20	0.60	1
14027	**Perfluorononanoic acid**	375-95-1	**36**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**12**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**19,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**25**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**30**	0.20	0.60	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**17**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**20**	0.20	0.60	1

Due to the sample matrix, the recovery for the sample injection internal standards(s) and the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/05/2018 06:52	Marissa C Drexinger	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 13:23	Marissa C Drexinger	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 22:57	Joshua P Trost	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093011	04/03/2018 09:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

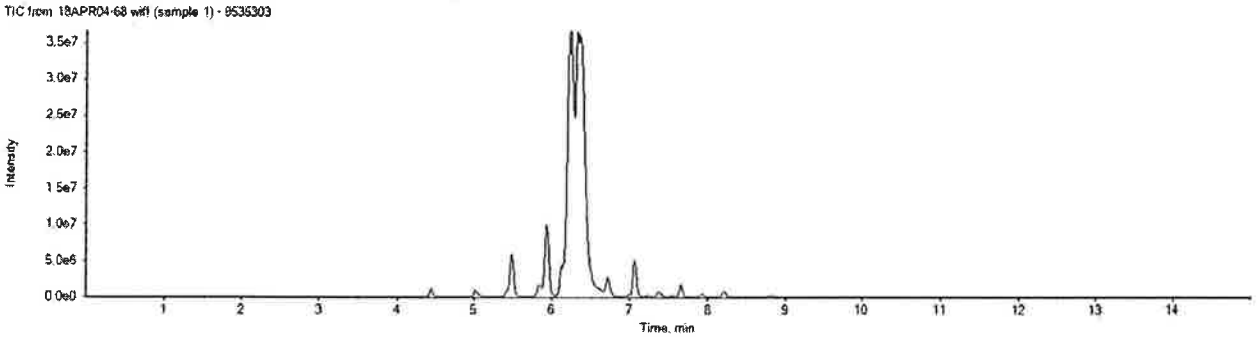
Analyte Quantitation Peak Table

Sample Name: 9535303 **Instrument Name:** LM24743 **File Name:** 18APR04-68.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	1309320.1	A	13C4-PFBA	4.44	947262.2	1.382	16.449
PFPeA	5.02	1.000	1939368.6	M	13C5-PFPeA	5.02	767252.2	2.528	24.725
PFBS	5.07	1.000	7501.7	M	13C3-PFBS	5.07	450414.9	0.017	0.163
PFHxA	5.49	1.000	20125748.6	A	13C5-PFHxA	5.49	1308816.7	15.377	166.607
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	391305.8	N/A	
PFHpA	5.94	1.000	37340031.8	M	13C4-PFHpA	5.94	1380513.2	27.048	256.762
PFOA	6.31	1.000	211845054.5	M	13C8-PFOA	6.34	236771.8	894.723	9661.462
PFOS	6.70	1.000	420278.7	M	13C8-PFOS	6.69	354353.2	1.186	11.671
PFNA	6.72	1.000	5691271.1	M	13C9-PFNA	6.72	1343648.1	4.236	36.189
PFDA	7.06	1.000	12546944.7	A	13C6-PFDA	7.06	1670801.8	7.510	86.013
PFUnDA	7.37	1.000	1730763.7	A	13C7-PFUnDA	7.37	619395.6	2.794	20.195
PFDoDA	7.65	1.000	4082180.4	A	13C2-PFDoDA	7.65	829354.4	4.922	52.049
PFTrDA	7.93	1.040	1245283.4	A	13C2-PFDoDA	7.65	829354.4	1.502	17.258
PFTeDA	8.21	1.000	2167679.8	A	13C2-PFTeDA	8.21	901658.8	2.404	29.783

Total Ion Chromatogram

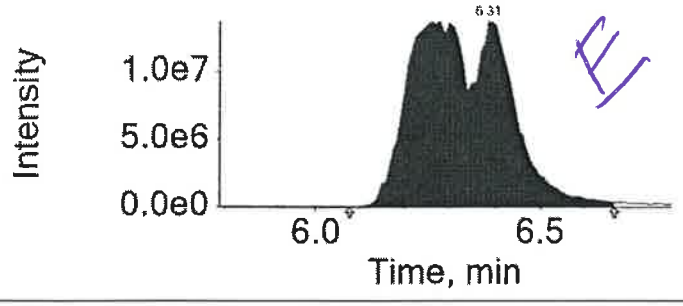


APPROVED
By JPT at 11:13 am, 4/23/18

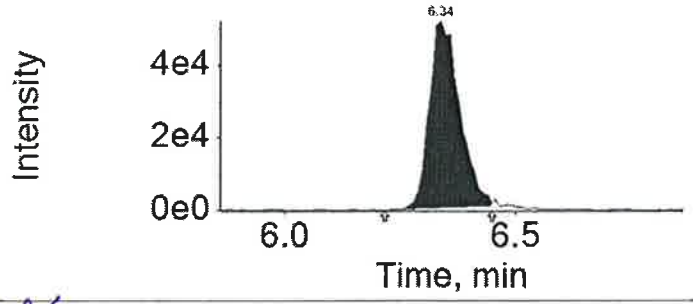
REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

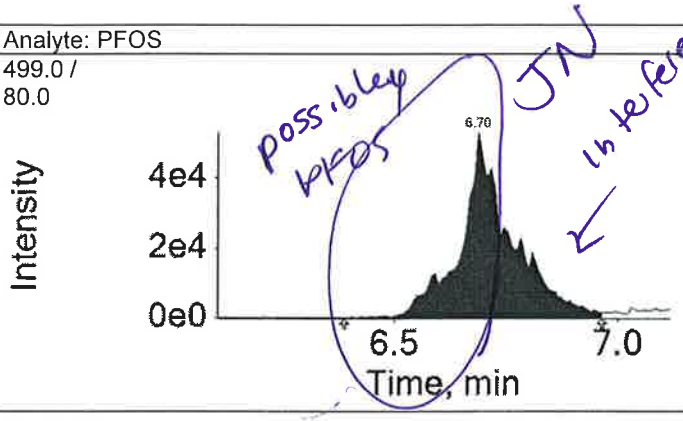
Analyte: PFOA
413.0 / 369.0



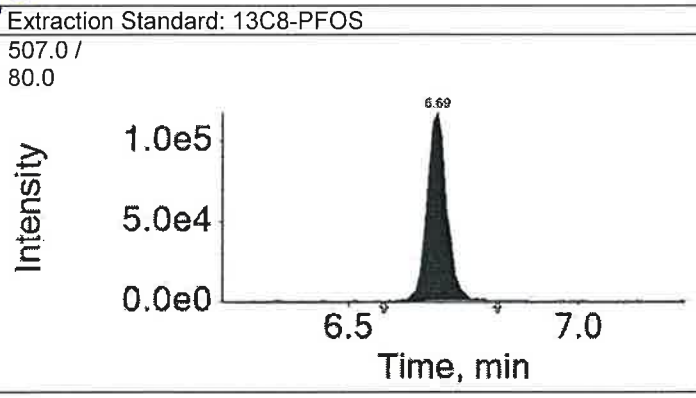
Extraction Standard: 13C8-PFOA
421.0 / 376.0



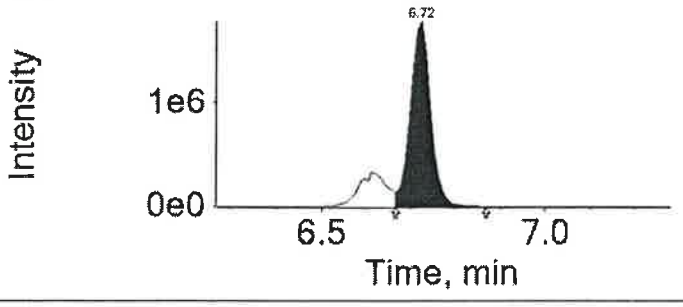
Analyte: PFOS
499.0 / 80.0



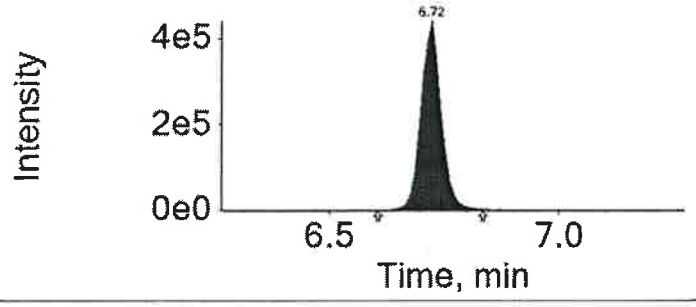
Extraction Standard: 13C8-PFOS
507.0 / 80.0



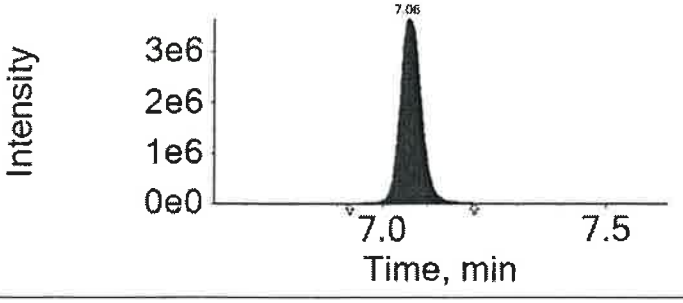
Analyte: PFNA
463.0 / 419.0



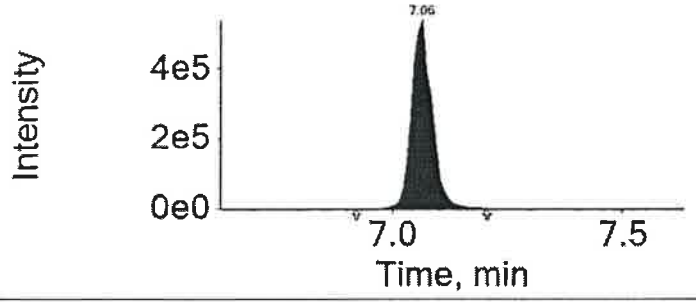
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

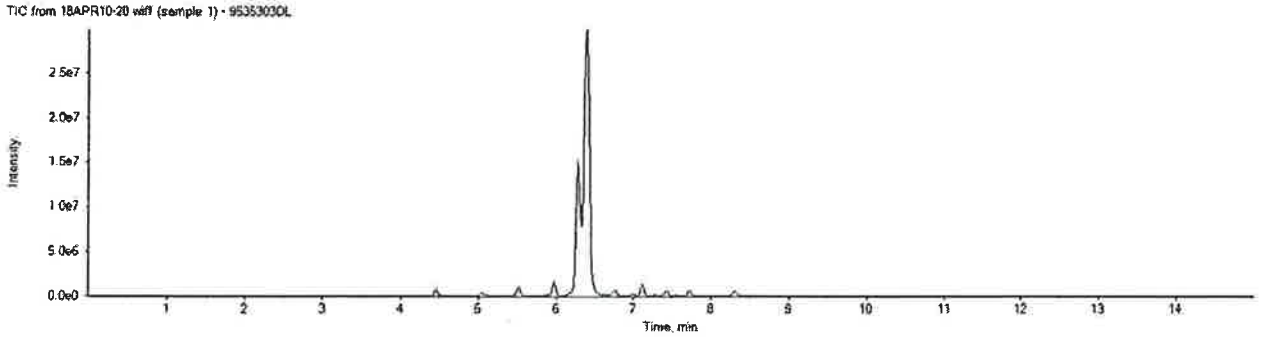
Analyte Quantitation Peak Table

Sample Name: 9535303DL **Instrument Name:** LM24743 **File Name:** 18APR10-20.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.45	1.000	100918.2	M	13C4-PFBA	4.46	959989.2	0.105	12.660
PFPeA	5.04	1.000	154212.4	M	13C5-PFPeA	5.04	852361.7	0.181	18.526
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.09	404203.7	N/A	
PFHxA	5.51	1.000	1646712.7	M	13C5-PFHxA	5.52	1508757.4	1.091	121.027
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.96	371332.1	N/A	
PFHpA	5.97	1.000	3486754.1	M	13C4-PFHpA	5.97	1308580.0	2.665	247.849
PFOA	6.39	1.000	112760063.8	M	13C8-PFOA	6.38	860938.9	130.973	14262.945
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.73	324499.3	N/A	
PFNA	6.76	1.000	460531.1	M	13C9-PFNA	6.76	1292026.7	0.356	31.547
PFDA	7.11	1.000	922457.5	A	13C6-PFDA	7.12	1741622.9	0.530	58.841
PFUnDA	7.43	1.000	246300.1	A	13C7-PFUnDA	7.43	1036446.4	0.238	18.369
PFDoDA	7.72	1.000	507223.5	A	13C2-PFDoDA	7.72	1383760.9	0.367	38.959
PFTrDA	8.01	1.040	147653.5	A	13C2-PFDoDA	7.72	1383760.9	0.107	12.224
PFTeDA	8.31	1.000	305778.1	A	13C2-PFTeDA	8.31	1602301.3	0.191	22.994

Total Ion Chromatogram



APPROVED
By MCD at 9:58 pm, 4/10/18

REVIEWED
By uild at 11:01 am, 4/23/18

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL2 4/23/2018 11:07:35 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

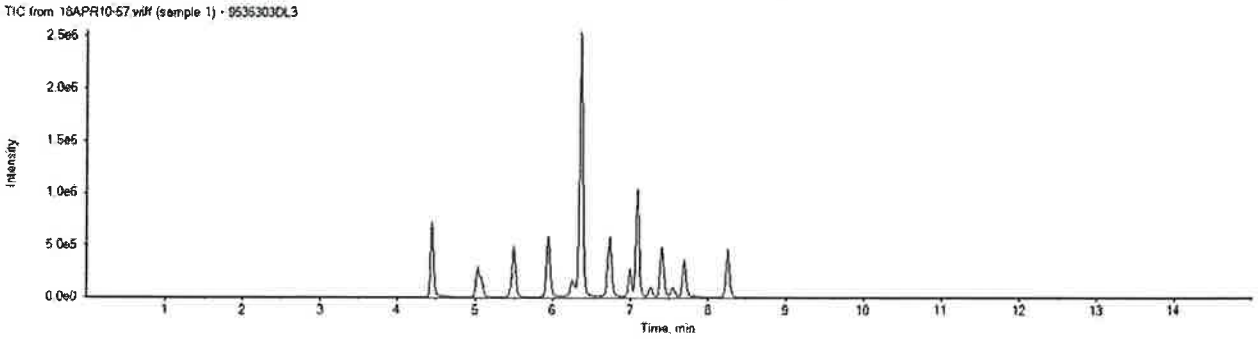
Analyte Quantitation Peak Table

Sample Name: 9535303DL2 **Instrument Name:** LM24743 **File Name:** 18APR10-57.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1000.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	1024470.7	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.03	885071.4	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.08	442568.5	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.50	1476335.4	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	402883.1	N/A	
PFHpA	5.94	1.000	29564.5	M	13C4-PFHpA	5.94	1500488.7	0.020	183.276
PFOA	6.36	1.000	3046288.2	M	13C8-PFOA	6.36	1750208.1	1.741	18954.290
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.71	369774.3	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.74	1265998.1	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.09	1677526.2	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.40	966793.2	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.69	1151644.7	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.69	1151644.7	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.26	1489096.3	N/A	

Total Ion Chromatogram



APPROVED
By JPT at 11:12 am, 4/23/18

REVIEWED
By uild at 11:15 am, 4/23/18

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Sample Description: SG3a-BL03-STACK24.0 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 11:50
SDG#: SBN08-13

C. T. Male Associates
ELLE Sample #: SW 9535304
ELLE Group #: 1926078
Matrix: Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**520**	37	110	100
14027	**Perfluorobutanoic acid**	375-22-4	**250**	37	110	100
14027	**Perfluorodecanoic acid**	335-76-2	**880**	37	110	100
14027	**Perfluorododecanoic acid**	307-55-1	**660**	37	110	100
14027	**Perfluoroheptanoic acid**	375-85-9	**3,900**	37	110	100
14027	**Perfluorohexanesulfonate**	355-46-4	**46 J**	37	110	100
14027	**Perfluorohexanoic acid**	307-24-4	**1,800**	37	110	100
14027	**Perfluorononanoic acid**	375-95-1	**470**	37	110	100
14027	**Perfluoro-octanesulfonate**	1763-23-1	**370**	56	170	100
14027	**Perfluorooctanoic acid**	335-67-1	**340,000**	370	1,100	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**330**	37	110	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**510**	37	110	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**220**	37	110	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**290**	37	110	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 11:48	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 16:59	Joshua P Trost	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18102019	04/13/2018 10:30	Robert Brown	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

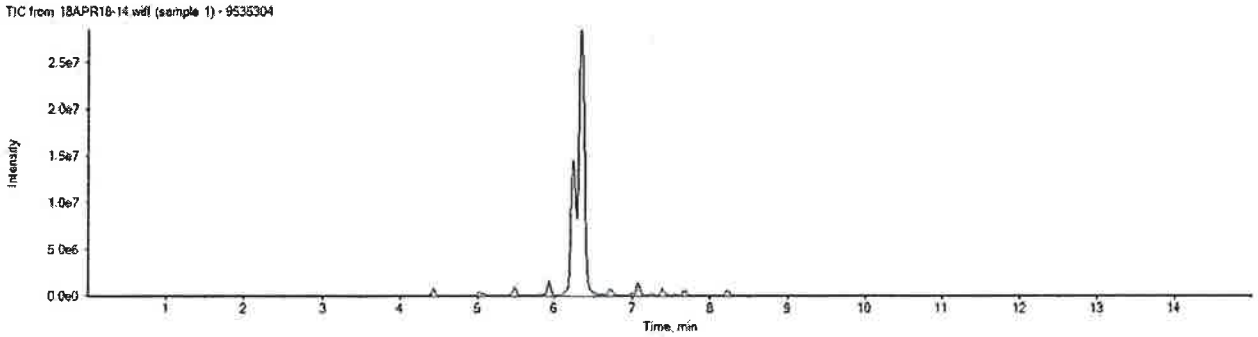
Analyte Quantitation Peak Table

Sample Name: 9535304 **Instrument Name:** LM24743 **File Name:** 18APR18-14.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.54000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	98149.3	M	13C4-PFBA	4.44	855318.6	0.115	253.061
PFPeA	5.02	1.000	132956.6	M	13C5-PFPeA	5.02	732616.2	0.181	329.526
PFBS	5.07	1.000	114377.6	M	13C3-PFBS	5.07	380052.0	0.301	524.906
PFHxA	5.49	1.000	1192589.1	M	13C5-PFHxA	5.49	1328411.4	0.898	1815.532
PFHxS	5.90	1.000	8901.2	M	13C3-PFHxS	5.93	352912.5	0.025	45.501
PFHpA	5.93	1.000	2992429.7	A	13C4-PFHpA	5.93	1326707.6	2.256	3861.390
PFOA	6.35	1.000	111346598.8	M	13C8-PFOA	6.35	915671.9	121.601	245097.330
PFOS	6.70	1.000	64453.2	M	13C8-PFOS	6.70	310408.4	0.208	369.118
PFNA	6.72	1.000	359996.6	A	13C9-PFNA	6.72	1226771.5	0.293	473.149
PFDA	7.07	1.000	674081.7	A	13C6-PFDA	7.07	1562644.7	0.431	876.970
PFUnDA	7.37	1.000	220286.0	A	13C7-PFUnDA	7.38	1120953.6	0.197	287.608
PFDoDA	7.66	1.000	437533.9	A	13C2-PFDoDA	7.67	1310881.3	0.334	659.947
PFTrDA	7.94	1.040	133312.6	A	13C2-PFDoDA	7.67	1310881.3	0.102	218.112
PFTeDA	8.22	1.000	343074.1	A	13C2-PFTeDA	8.22	1531426.0	0.224	507.169

Total Ion Chromatogram



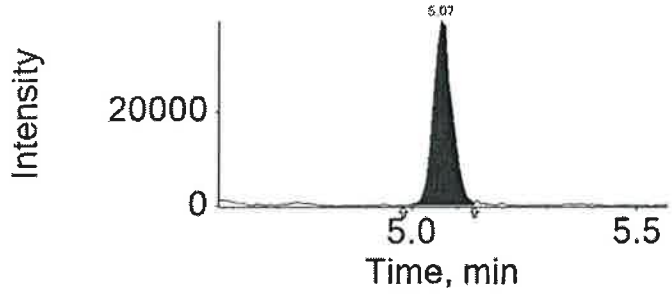
APPROVED
By JPT at 3:31 pm, 4/19/18

REVIEWED
By umar at 10:30 am, 4/23/18

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

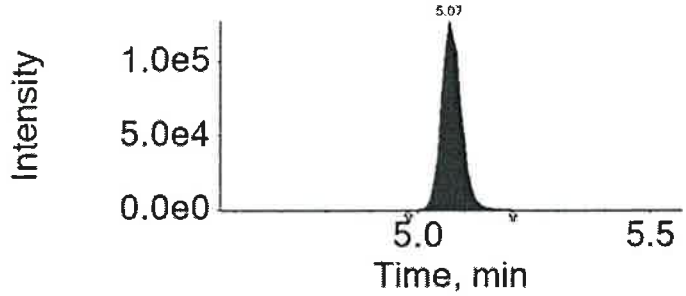
Analyte: PFBS

299.0 / 80.0



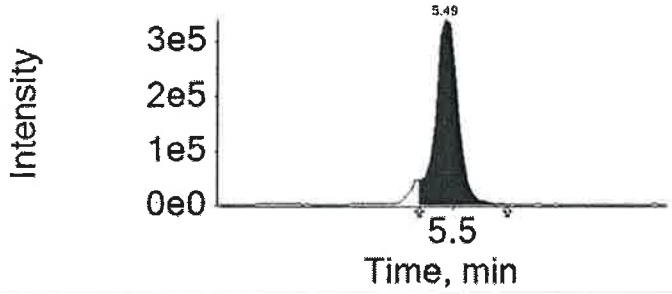
Extraction Standard: 13C3-PFBS

302.0 / 80.0



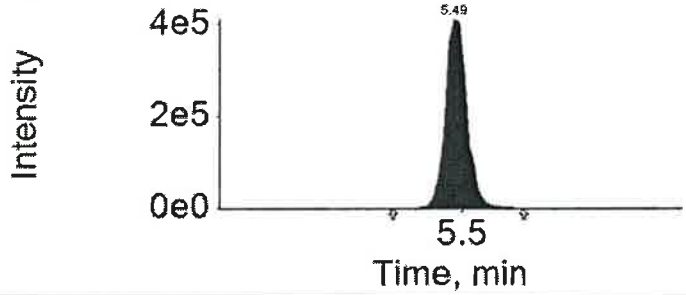
Analyte: PFHxA

313.0 / 269.0



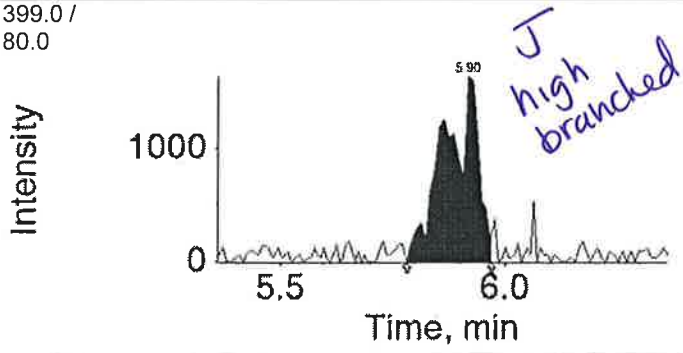
Extraction Standard: 13C5-PFHxA

318.0 / 273.0



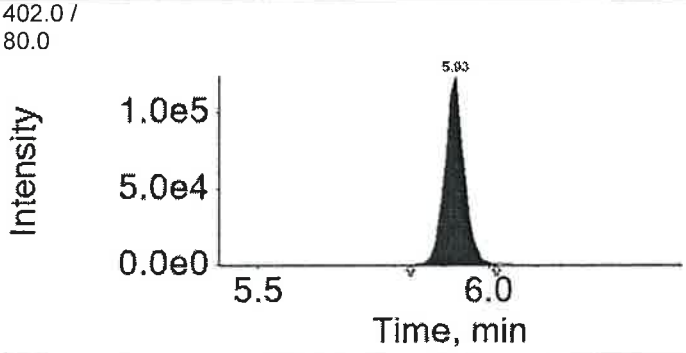
Analyte: PFHxS

399.0 / 80.0



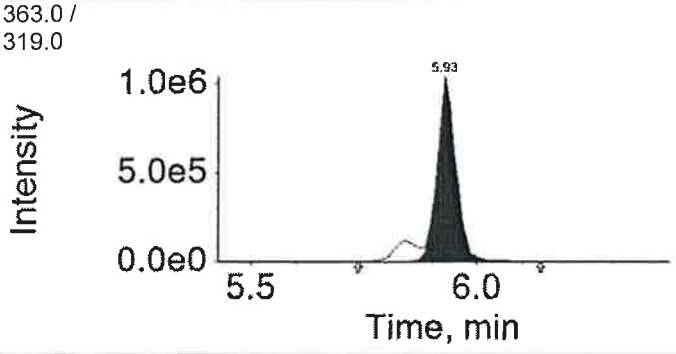
Extraction Standard: 13C3-PFHxS

402.0 / 80.0



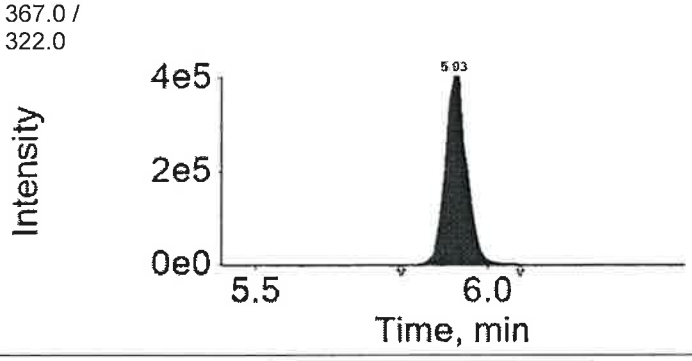
Analyte: PFHpA

363.0 / 319.0



Extraction Standard: 13C4-PFHpA

367.0 / 322.0

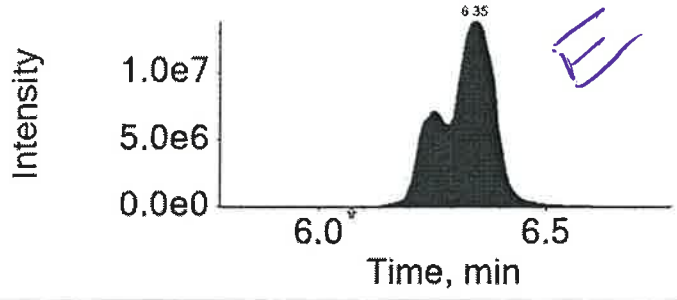


APPROVED
By JPT at 3:31 pm, 4/19/18

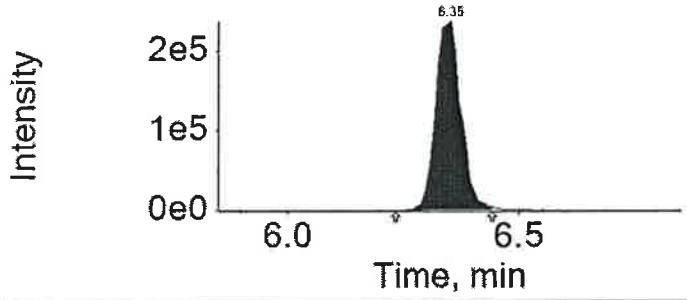
REVIEWED
By umar at 10:30 am, 4/23/18

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

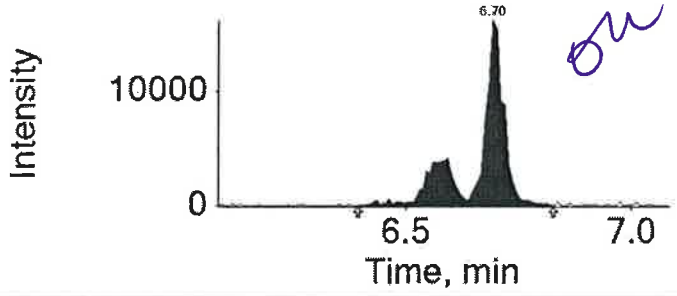
Analyte: PFOA
413.0 / 369.0



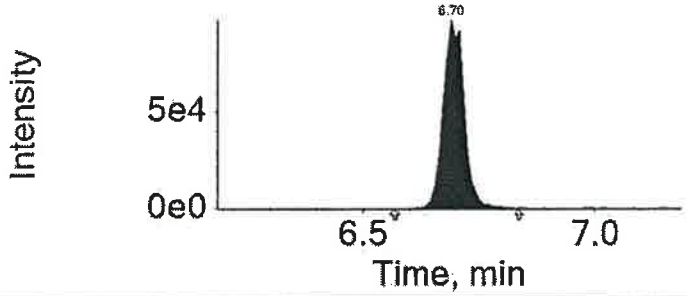
Extraction Standard: 13C8-PFOA
421.0 / 376.0



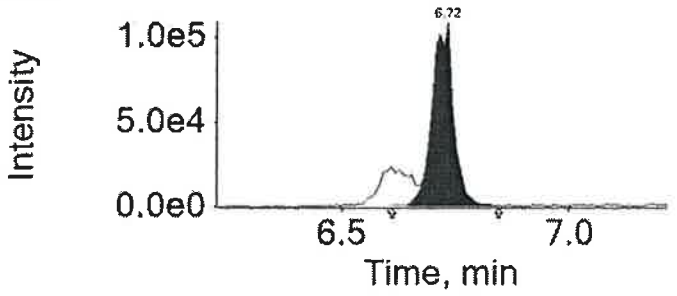
Analyte: PFOS
499.0 / 80.0



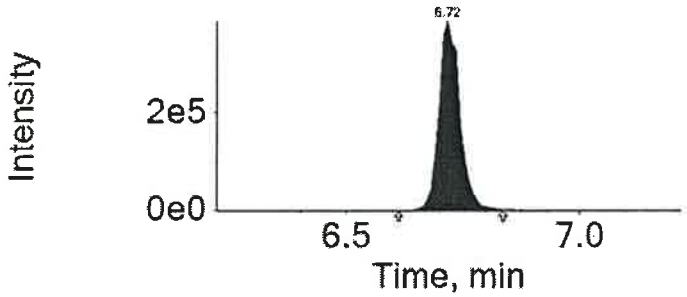
Extraction Standard: 13C8-PFOS
507.0 / 80.0



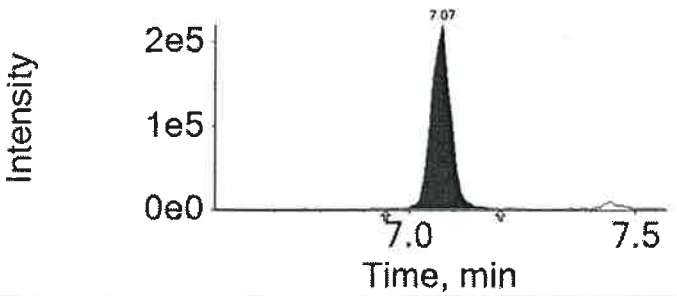
Analyte: PFNA
463.0 / 419.0



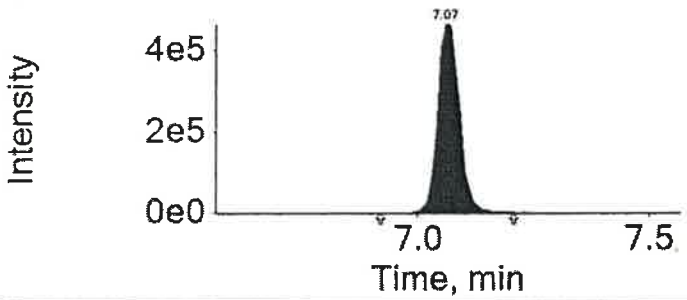
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 3:31 pm, 4/19/18

REVIEWED
By umar at 10:30 am, 4/23/18

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

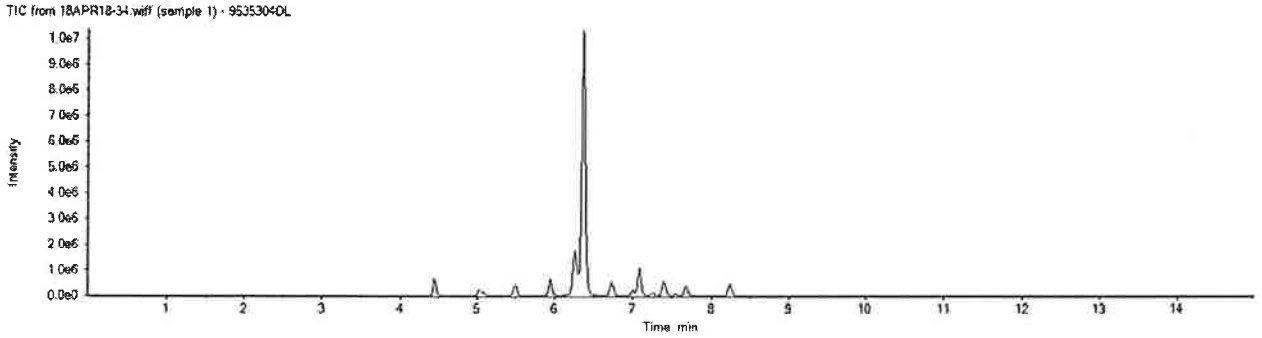
Analyte Quantitation Peak Table

Sample Name: 9535304DL **Instrument Name:** LM24743 **File Name:** 18APR18-34.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.54000	1.000	1000.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.45	1.000	13272.0	M	13C4-PFBA	4.45	874406.3	0.015	334.726
PFPeA	5.03	1.000	13426.2	M	13C5-PFPeA	5.03	739838.9	0.018	329.511
PFBS	5.08	1.000	10395.4	M	13C3-PFBS	5.08	372621.5	0.028	486.582
PFHxA	5.50	1.000	109844.5	M	13C5-PFHxA	5.50	1261216.5	0.087	1761.304
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	337224.7	N/A	
PFHpA	5.94	1.000	260655.2	A	13C4-PFHpA	5.95	1332143.5	0.196	3349.734
PFOA	6.36	1.000	24215760.6	M	13C8-PFOA	6.36	1419116.8	17.064	343939.056
PFOS	6.68	1.000	7451.0	M	13C8-PFOS	6.71	308127.6	0.024	429.872
PFNA	6.73	1.000	35237.5	M	13C9-PFNA	6.74	1151497.6	0.031	493.407
PFDA	7.08	1.000	58505.3	M	13C6-PFDA	7.08	1617201.3	0.036	735.468
PFUnDA	7.39	1.000	22617.7	M	13C7-PFUnDA	7.39	1091976.2	0.021	303.136
PFDoDA	7.68	1.000	40670.4	M	13C2-PFDoDA	7.68	1324731.0	0.031	607.031
PFTrDA	7.96	1.040	11799.1	M	13C2-PFDoDA	7.68	1324731.0	0.009	191.027
PFTeDA	8.24	1.000	34548.5	A	13C2-PFTeDA	8.24	1601964.3	0.022	488.244

Total Ion Chromatogram



APPROVED
By JPT at 3:31 pm, 4/19/18

REVIEWED
By umar at 10:30 am, 4/23/18

Sample Description: SG3a-WP04-A8.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 11:55
SDG#: SBN08-14

C. T. Male Associates
ELLE Sample #: WP 9535305
ELLE Group #: 1926078
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**13**	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**9.7 B**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**83**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**88**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**170**	0.20	0.60	1
14027	**Perfluorohexanesulfonate**	355-46-4	**0.99**	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**85**	0.20	0.60	1
14027	**Perfluorononanoic acid**	375-95-1	**34**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**33**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**17,000**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**12**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**180**	0.20	0.60	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**65**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**30**	0.20	0.60	1

Due to the sample matrix, the recovery for the sample injection internal standards(s) and the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/05/2018 07:07	Marissa C Drexinger	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 13:54	Marissa C Drexinger	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093011	04/03/2018 09:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

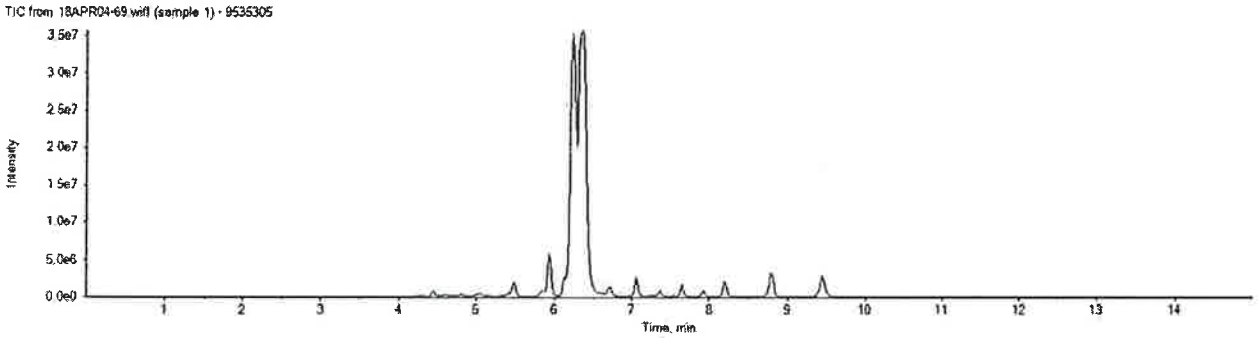
Analyte Quantitation Peak Table

Sample Name: 9535305 **Instrument Name:** LM24743 **File Name:** 18APR04-69.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	622109.4	M	13C4-PFBA	4.44	759731.4	0.819	9.745
PFPeA	5.02	1.000	633947.0	M	13C5-PFPeA	5.02	515731.7	1.229	12.024
PFBS	5.07	1.000	507212.7	M	13C3-PFBS	5.07	383292.7	1.323	12.976
PFHxA	5.49	1.000	5845319.7	M	13C5-PFHxA	5.49	749372.2	7.800	84.515
PFHxS	5.92	1.000	38236.1	M	13C3-PFHxS	5.92	365789.9	0.105	0.992
PFHpA	5.94	1.000	18618083.5	M	13C4-PFHpA	5.93	1019006.3	18.271	173.442
PFOA	6.31	0.990	183286707.8	M	13C8-PFOA	6.34	262258.5	698.878	7546.678
PFOS	6.69	1.000	964388.7	M	13C8-PFOS	6.69	291944.6	3.303	32.506
PFNA	6.72	1.000	2615907.6	M	13C9-PFNA	6.71	666231.9	3.926	33.546
PFDA	7.06	1.000	5656596.1	A	13C6-PFDA	7.06	783454.7	7.220	82.697
PFUnDA	7.36	1.000	1868301.7	A	13C7-PFUnDA	7.36	450392.2	4.148	29.980
PFDoDA	7.65	1.000	3707324.3	A	13C2-PFDoDA	7.65	446551.8	8.302	87.790
PFTrDA	7.92	1.040	2528980.1	A	13C2-PFDoDA	7.65	446551.8	5.663	65.092
PFTeDA	8.20	1.000	6910302.7	A	13C2-PFTeDA	8.20	477981.2	14.457	179.100

Total Ion Chromatogram

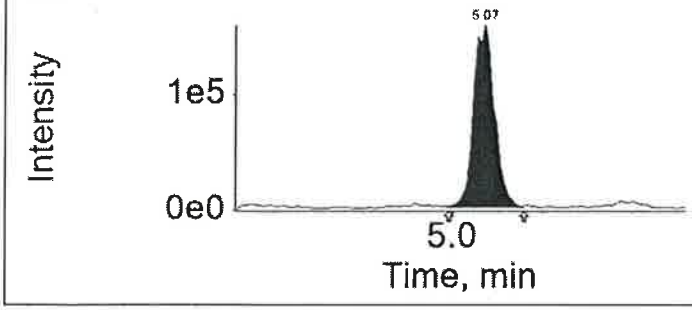


APPROVED
By JPT at 11:13 am, 4/23/18

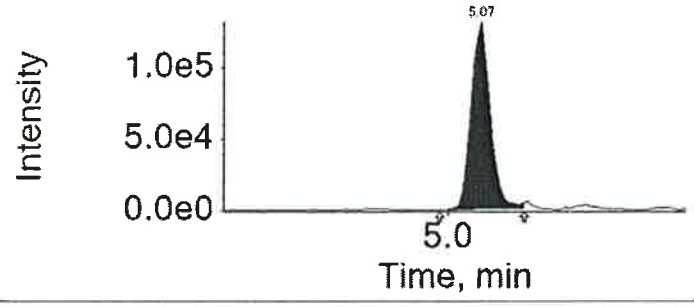
REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

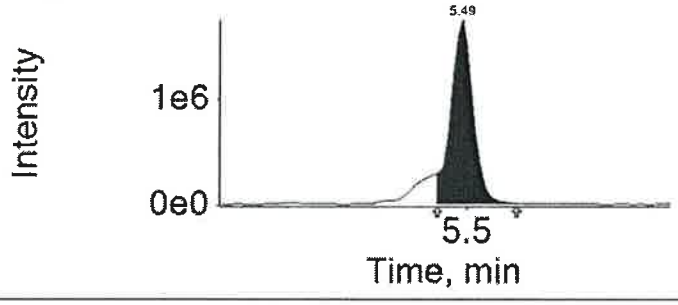
Analyte: PFBS
299.0 / 80.0



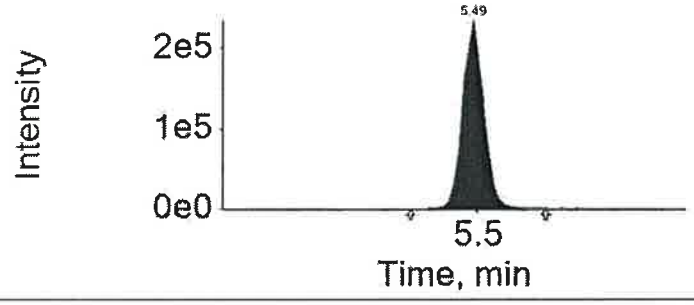
Extraction Standard: 13C3-PFBS
302.0 / 80.0



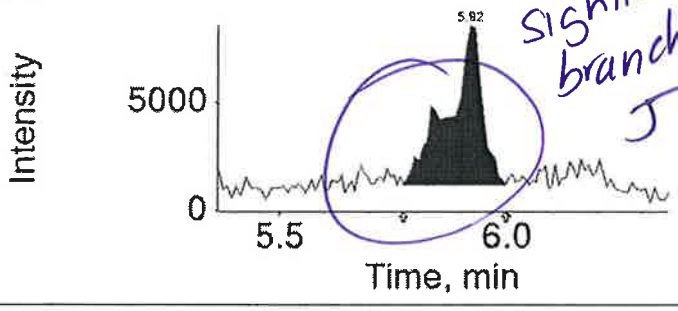
Analyte: PFHxA
313.0 / 269.0



Extraction Standard: 13C5-PFHxA
318.0 / 273.0

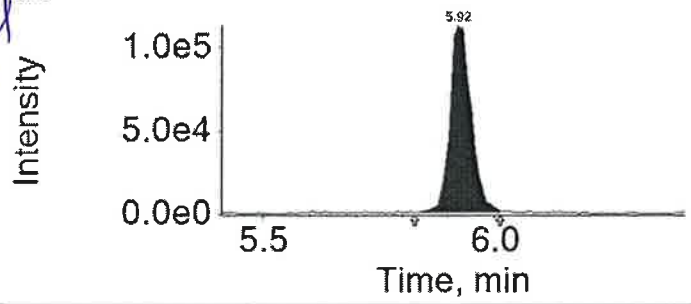


Analyte: PFHxS
399.0 / 80.0

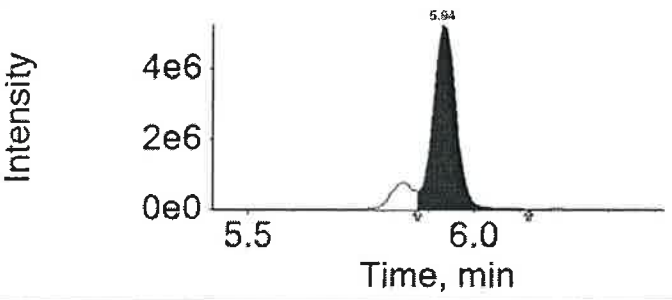


Significant branched

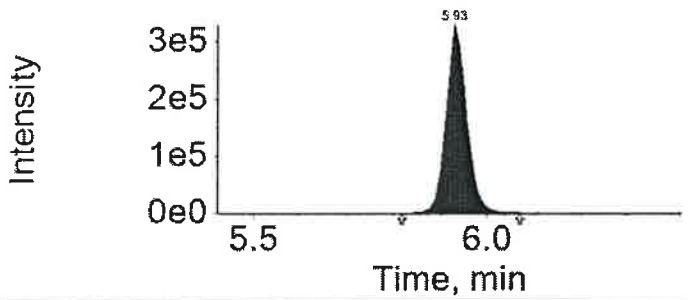
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0

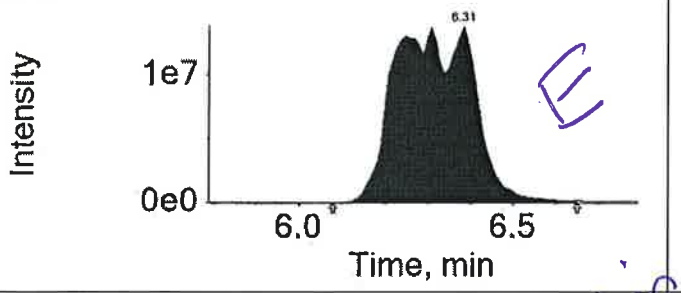


APPROVED
By JPT at 11:13 am, 4/23/18

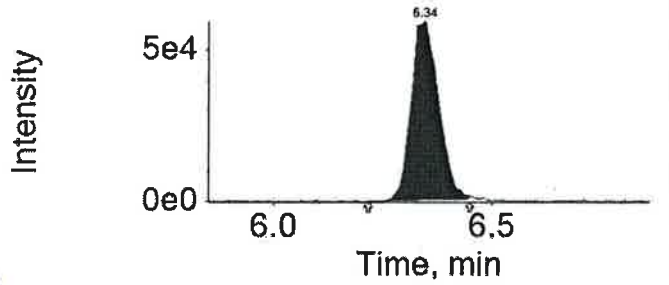
REVIEWED

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

Analyte: PFOA
413.0 / 369.0

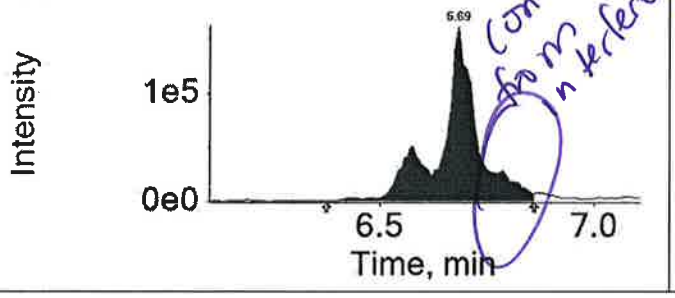


Extraction Standard: 13C8-PFOA
421.0 / 376.0



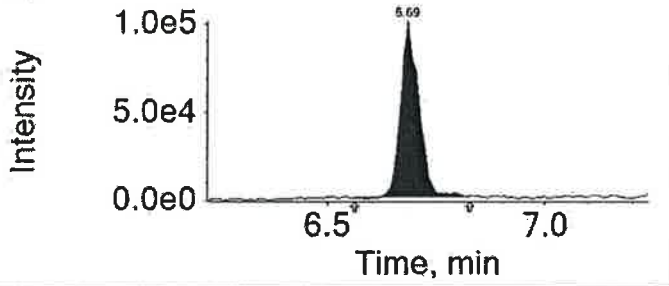
E

Analyte: PFOS
499.0 / 80.0

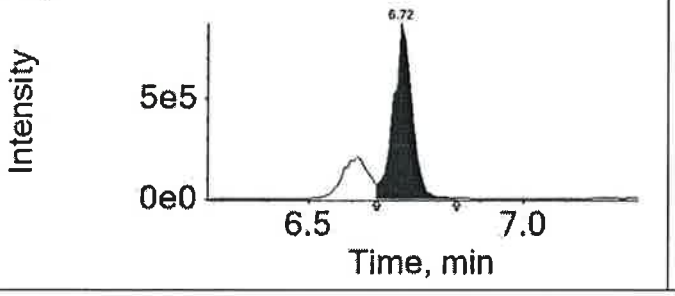


Contribution from interference

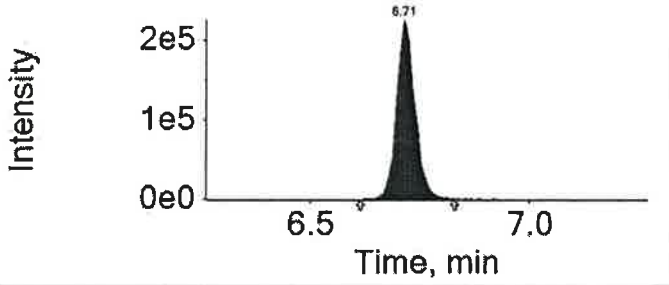
Extraction Standard: 13C8-PFOS
507.0 / 80.0



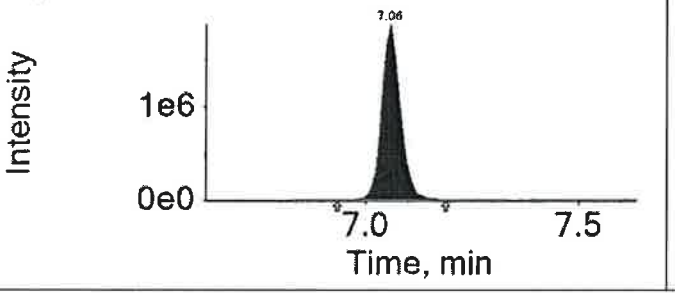
Analyte: PFNA
463.0 / 419.0



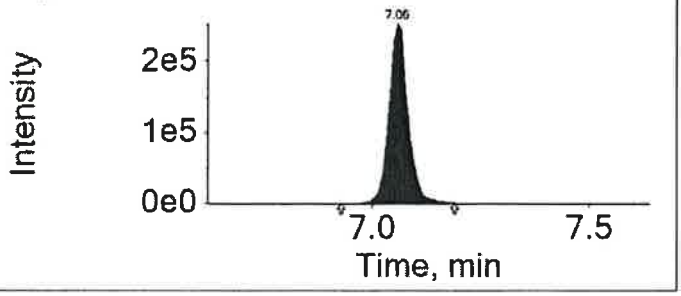
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

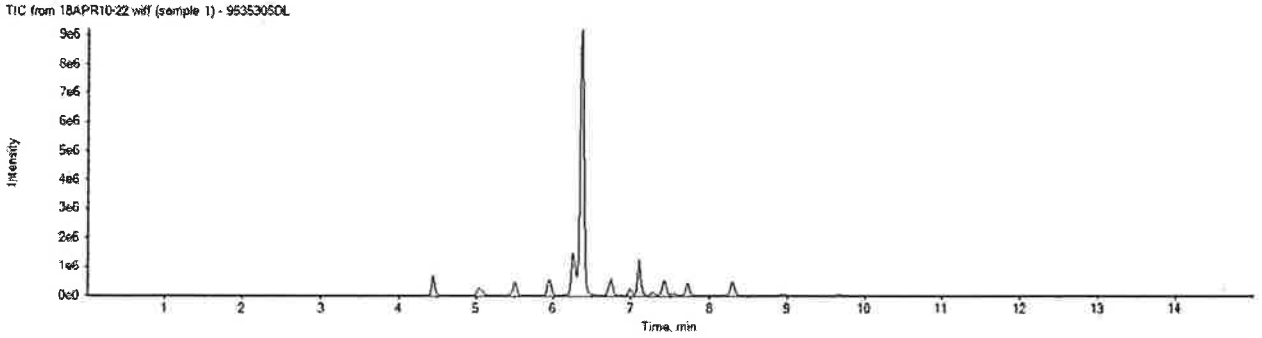
Analyte Quantitation Peak Table

Sample Name: 9535305DL **Instrument Name:** LM24743 **File Name:** 18APR10-22.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	933725.8	N/A	
PFPeA	5.03	1.000	9599.6	M	13C5-PFPeA	5.03	807751.4	0.012	12.170
PFBS	5.08	1.000	3864.3	M	13C3-PFBS	5.08	405408.9	0.010	8.694
PFHxA	5.50	1.000	69993.2	M	13C5-PFHxA	5.50	1427961.9	0.049	54.353
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	388893.9	N/A	
PFHpA	5.95	1.000	194735.2	M	13C4-PFHpA	5.95	1385146.0	0.141	130.772
PFOA	6.37	1.000	23133465.8	M	13C8-PFOA	6.37	1510856.0	15.311	16674.155
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.72	333795.7	N/A	
PFNA	6.75	1.000	43199.5	M	13C9-PFNA	6.75	1170443.7	0.037	32.666
PFDA	7.10	1.000	75823.7	A	13C6-PFDA	7.10	1699373.7	0.045	49.568
PFUnDA	7.42	1.000	38323.0	M	13C7-PFUnDA	7.42	1062309.2	0.036	27.885
PFDoDA	7.71	1.000	80033.9	A	13C2-PFDoDA	7.71	1259829.9	0.064	67.519
PFTrDA	8.00	1.040	48024.0	A	13C2-PFDoDA	7.71	1259829.9	0.038	43.668
PFTeDA	8.30	1.000	160060.5	A	13C2-PFTeDA	8.30	1605712.7	0.100	120.106

Total Ion Chromatogram



APPROVED
By MCD at 9:58 pm, 4/10/18

REVIEWED
By uild at 11:01 am, 4/23/18

Sample Description: SG3a-WP04-A16.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 12:00
SDG#: SBN08-15

C. T. Male Associates
ELLE Sample #: WP 9535306
ELLE Group #: 1926078
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**6.8**	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**2.6 B**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**12**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**15**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**43**	0.20	0.60	1
14027	**Perfluorohexanesulfonate**	355-46-4	**0.65**	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**21**	0.20	0.60	1
14027	**Perfluorononanoic acid**	375-95-1	**5.4**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**33**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**3,000**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**3.9**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**28**	0.20	0.60	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**10**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**4.6**	0.20	0.60	1

Due to the sample matrix, the recovery for the sample injection internal standards(s) and the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/05/2018 07:23	Marissa C Drexinger	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 14:10	Marissa C Drexinger	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093011	04/03/2018 09:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

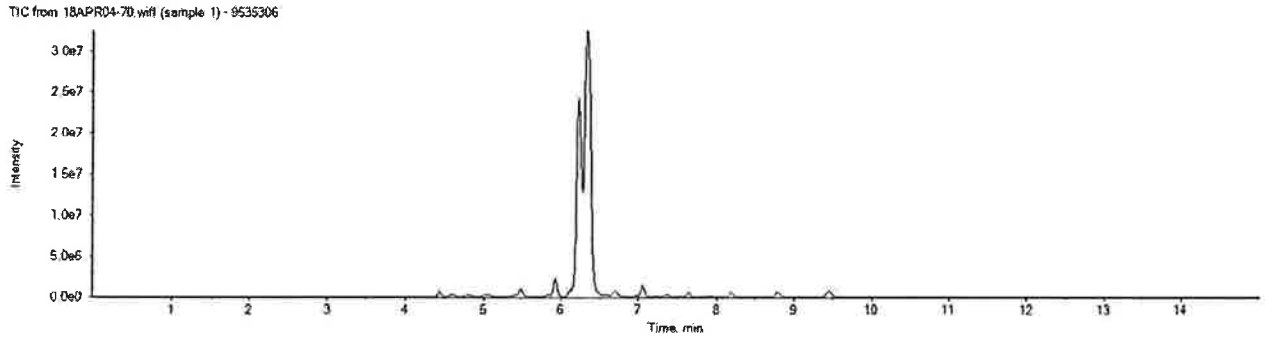
Analyte Quantitation Peak Table

Sample Name: 9535306 **Instrument Name:** LM24743 **File Name:** 18APR04-70.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	167930.9	M	13C4-PFBA	4.44	767158.5	0.219	2.605
PFPeA	5.01	1.000	238362.1	M	13C5-PFPeA	5.02	597382.2	0.399	3.903
PFBS	5.06	1.000	293129.5	A	13C3-PFBS	5.06	419811.0	0.698	6.847
PFHxA	5.48	1.000	2016895.3	M	13C5-PFHxA	5.48	1055893.2	1.910	20.696
PFHxS	5.92	1.000	27406.4	M	13C3-PFHxS	5.92	401216.1	0.068	0.648
PFHpA	5.93	1.000	5706211.3	M	13C4-PFHpA	5.93	1252916.3	4.554	43.234
PFOA	6.32	1.000	143720094.8	M	13C8-PFOA	6.34	635205.0	226.258	2443.195
PFOS	6.69	1.000	1022354.8	M	13C8-PFOS	6.68	304479.1	3.358	33.042
PFNA	6.71	1.000	571294.9	M	13C9-PFNA	6.71	903083.6	0.633	5.405
PFDA	7.05	1.000	1211766.4	A	13C6-PFDA	7.05	1198459.2	1.011	11.581
PFUnDA	7.36	1.000	333740.1	A	13C7-PFUnDA	7.35	523075.5	0.638	4.611
PFDoDA	7.64	1.000	845376.4	A	13C2-PFDoDA	7.64	581718.2	1.453	15.367
PFTrDA	7.92	1.040	526998.6	A	13C2-PFDoDA	7.64	581718.2	0.906	10.412
PFTeDA	8.19	1.000	1364645.3	A	13C2-PFTeDA	8.20	611349.6	2.232	27.653

Total Ion Chromatogram

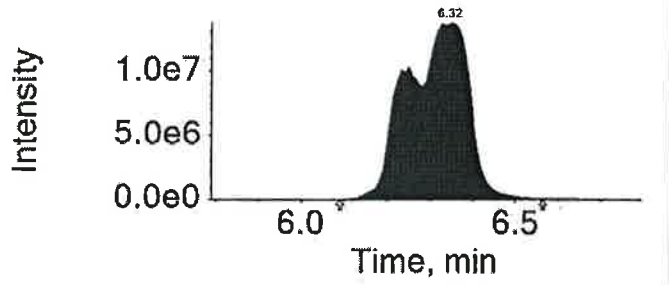


APPROVED
By JPT at 11:13 am, 4/23/18

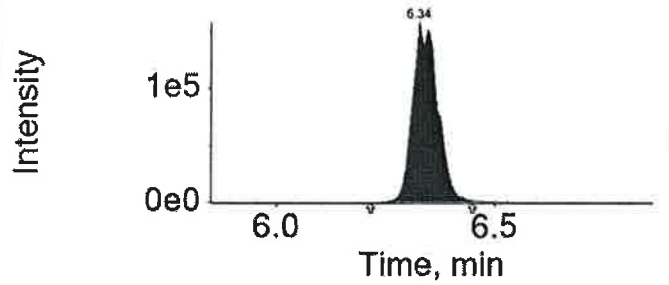
REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

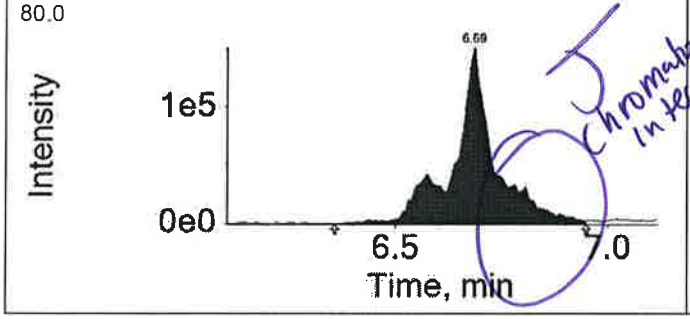
Analyte: PFOA
413.0 / 369.0



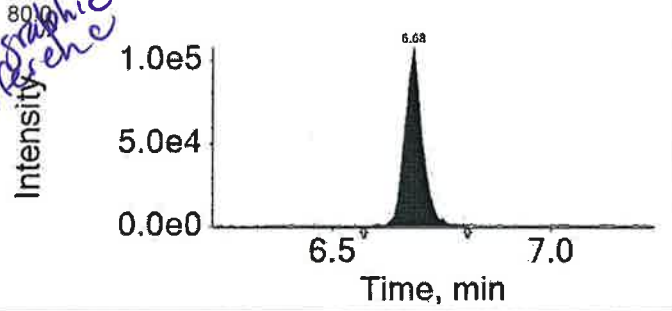
Extraction Standard: 13C8-PFOA
421.0 / 376.0



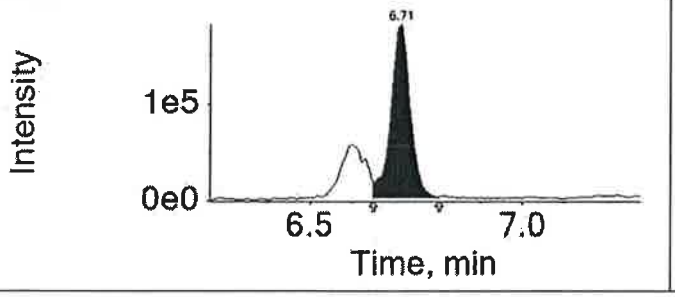
Analyte: PFOS
499.0 / 80.0



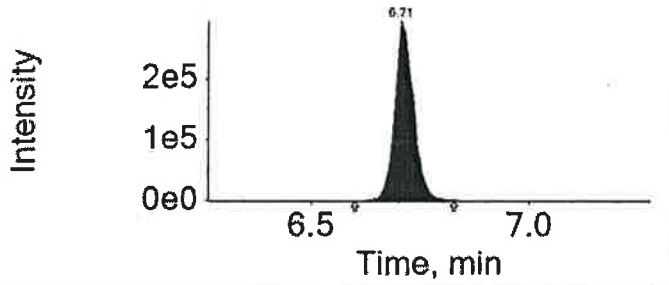
Extraction Standard: 13C8-PFOS
507.0 / 80.0



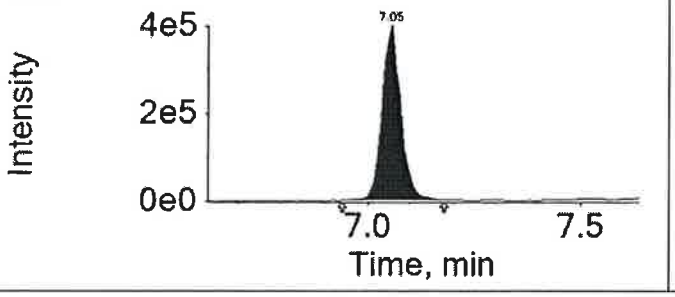
Analyte: PFNA
463.0 / 419.0



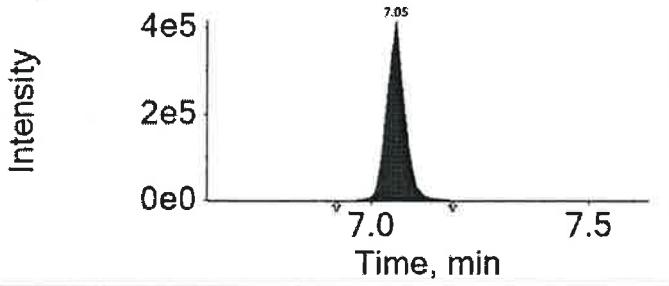
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

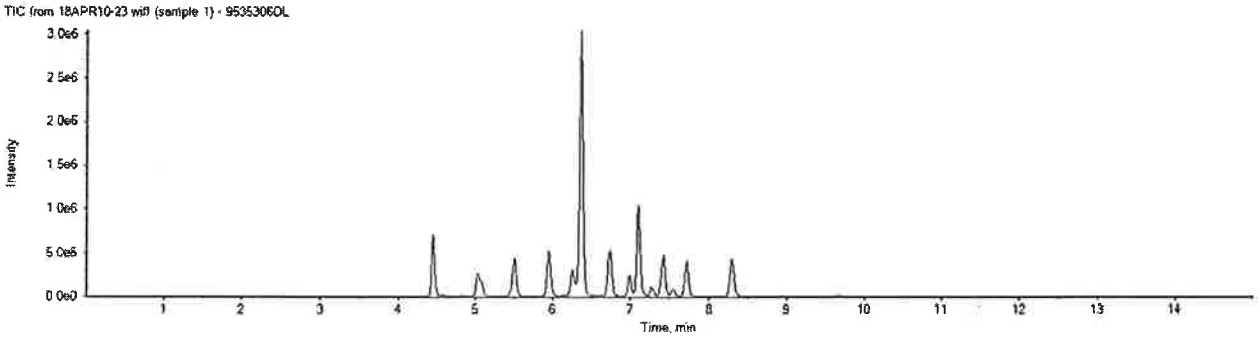
Analyte Quantitation Peak Table

Sample Name: 9535306DL **Instrument Name:** LM24743 **File Name:** 18APR10-23.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	950788.7	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.03	818287.0	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.08	421097.1	N/A	
PFHxA	5.50	1.000	14687.8	M	13C5-PFHxA	5.50	1411406.7	0.010	11.540
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	411147.6	N/A	
PFHpA	5.95	1.000	37358.1	M	13C4-PFHpA	5.95	1348679.0	0.028	25.766
PFOA	6.37	1.000	4739890.7	M	13C8-PFOA	6.37	1725520.3	2.747	2991.400
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.72	339090.4	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.74	1232307.5	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.10	1605231.0	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.41	1003533.5	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.71	1331622.9	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.71	1331622.9	N/A	
PFTeDA	8.29	1.000	22550.7	A	13C2-PFTeDA	8.30	1600115.9	0.014	16.981

Total Ion Chromatogram



APPROVED
By MCD at 9:58 pm, 4/10/18

REVIEWED
By uild at 11:01 am, 4/23/18

Sample Description: SG3a-WP04-A23.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 12:10
SDG#: SBN08-16

C. T. Male Associates
ELLE Sample #: WP 9535307
ELLE Group #: 1926078
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**3.2**	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**34 B**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**120**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**130**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**350**	2.0	6.0	10
14027	**Perfluorohexanesulfonate**	355-46-4	**0.50 J**	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**180**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**56**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**22**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**25,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**47**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**120**	0.20	0.60	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**75**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**48**	0.20	0.60	1

Due to the sample matrix, the recovery for the sample injection internal standards(s) and the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/05/2018 07:39	Marissa C Drexinger	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 14:25	Marissa C Drexinger	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 23:13	Joshua P Trost	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093011	04/03/2018 09:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

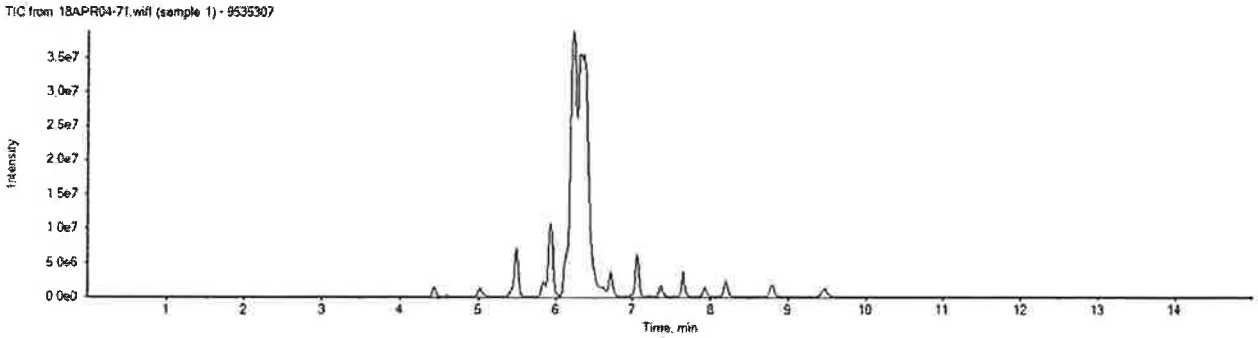
Analyte Quantitation Peak Table

Sample Name: 9535307 **Instrument Name:** LM24743 **File Name:** 18APR04-71.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	2524809.9	A	13C4-PFBA	4.44	873000.2	2.892	34.417
PFPeA	5.01	1.000	3310867.7	M	13C5-PFPeA	5.02	689998.4	4.798	46.936
PFBS	5.06	1.000	150914.6	A	13C3-PFBS	5.06	461230.2	0.327	3.208
PFHxA	5.49	1.000	25994881.7	A	13C5-PFHxA	5.49	1180244.9	22.025	238.636
PFHxS	5.92	1.000	20286.9	M	13C3-PFHxS	5.92	384968.9	0.053	0.500
PFHpA	5.93	1.000	43020698.4	M	13C4-PFHpA	5.93	1244775.6	34.561	328.083
PFOA	6.31	0.990	217851801.1	M	13C8-PFOA	6.34	217089.4	1003.512	10836.200
PFOS	6.69	1.000	806396.0	M	13C8-PFOS	6.69	364459.8	2.213	21.773
PFNA	6.72	1.000	8144693.9	M	13C9-PFNA	6.71	1232621.9	6.608	56.454
PFDA	7.06	1.000	16545632.5	A	13C6-PFDA	7.06	1524132.1	10.856	124.340
PFUnDA	7.36	1.000	4429788.8	A	13C7-PFUnDA	7.36	662193.9	6.690	48.347
PFDoDA	7.64	1.000	8664727.6	A	13C2-PFDoDA	7.64	715763.7	12.106	128.010
PFTrDA	7.92	1.040	4649431.6	A	13C2-PFDoDA	7.64	715763.7	6.496	74.659
PFTeDA	8.20	1.000	7687221.9	A	13C2-PFTeDA	8.20	794515.1	9.675	119.861

Total Ion Chromatogram

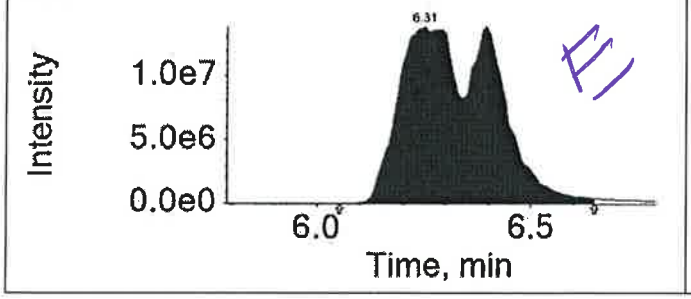


APPROVED
By JPT at 11:13 am, 4/23/18

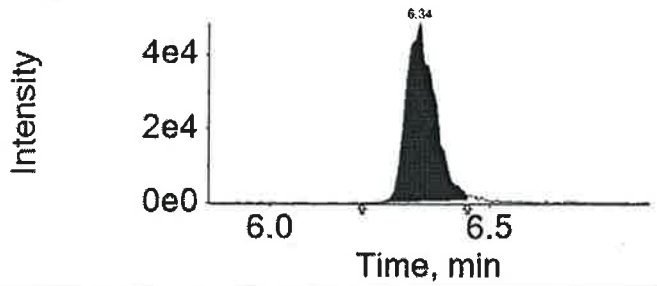
REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

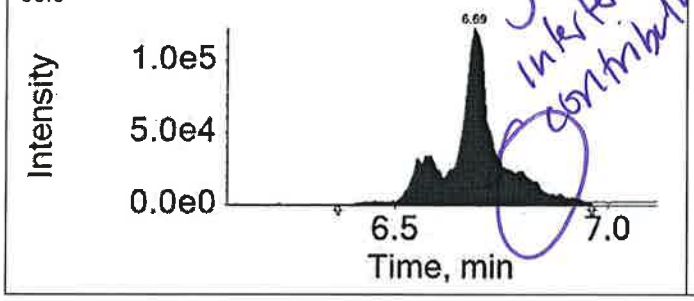
Analyte: PFOA
413.0 / 369.0



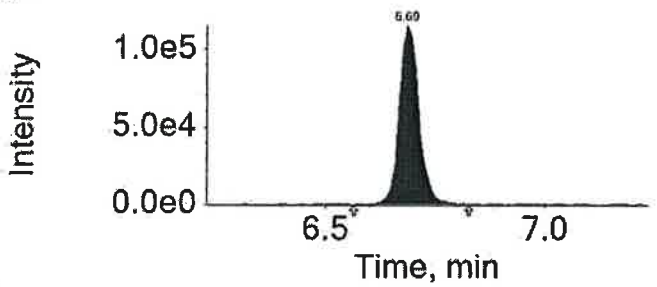
Extraction Standard: 13C8-PFOA
421.0 / 376.0



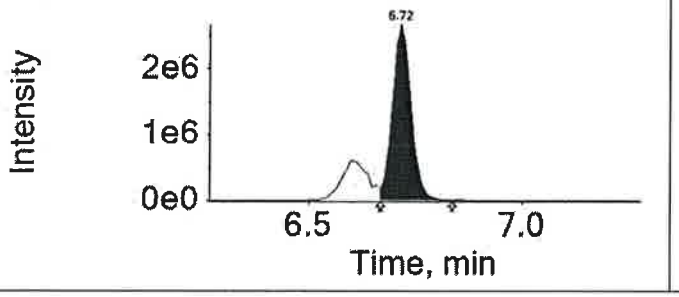
Analyte: PFOS
499.0 / 80.0



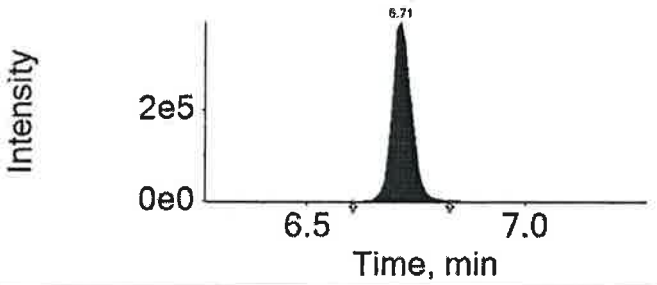
Extraction Standard: 13C8-PFOS
507.0 / 80.0



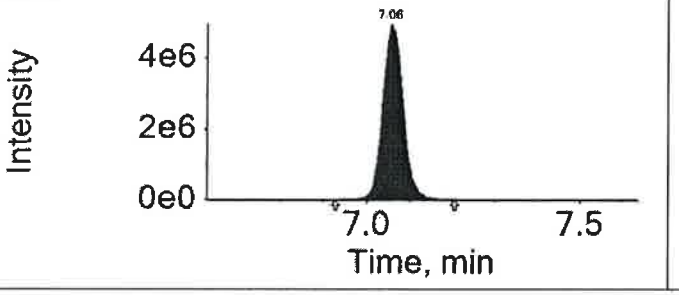
Analyte: PFNA
463.0 / 419.0



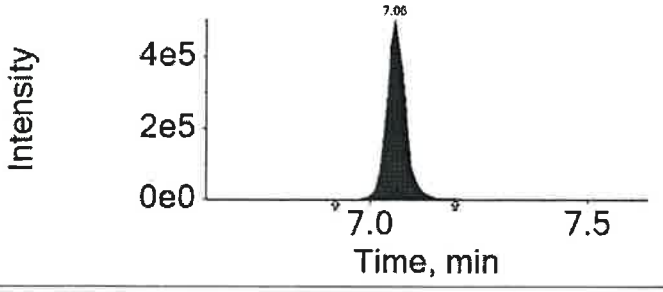
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED
By uild at 11:14 am, 4/23/18

eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

Printed: 4/10/2018 9:45:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

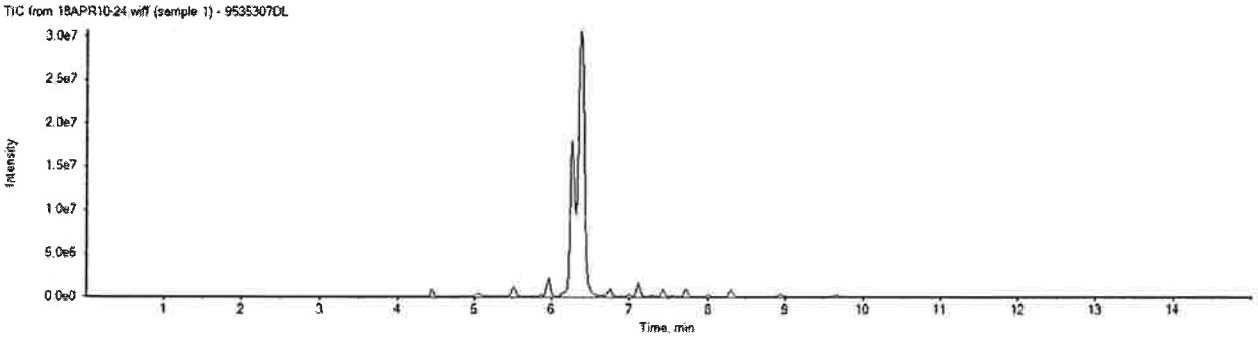
Analyte Quantitation Peak Table

Sample Name: 9535307DL **Instrument Name:** LM24743 **File Name:** 18APR10-24.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.45	1.000	214828.1	A	13C4-PFBA	4.45	983180.3	0.219	26.314
PFPeA	5.03	1.000	289749.5	M	13C5-PFPeA	5.03	838022.3	0.346	35.405
PFBS	5.08	1.000	10597.4	M	13C3-PFBS	5.08	411600.4	0.026	2.348
PFHxA	5.51	1.000	2377788.1	M	13C5-PFHxA	5.51	1495354.2	1.590	176.324
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.95	373121.6	N/A	
PFHpA	5.96	1.000	5326829.3	M	13C4-PFHpA	5.96	1402559.4	3.798	353.276
PFOA	6.37	1.000	124919591.0	M	13C8-PFOA	6.38	822056.9	151.960	16548.356
PFOS	6.73	1.000	45978.3	M	13C8-PFOS	6.73	318861.5	0.144	13.701
PFNA	6.76	1.000	801337.6	M	13C9-PFNA	6.76	1300356.4	0.616	54.541
PFDA	7.11	1.000	1468796.6	A	13C6-PFDA	7.11	1643375.7	0.894	99.291
PFUnDA	7.42	1.000	644302.3	A	13C7-PFUnDA	7.42	1094649.5	0.589	45.497
PFDoDA	7.72	1.000	1314408.0	A	13C2-PFDoDA	7.72	1391620.1	0.945	100.387
PFTrDA	8.00	1.040	670558.4	A	13C2-PFDoDA	7.72	1391620.1	0.482	55.199
PFTeDA	8.30	1.000	1172799.4	A	13C2-PFTeDA	8.30	1579713.7	0.742	89.453

Total Ion Chromatogram

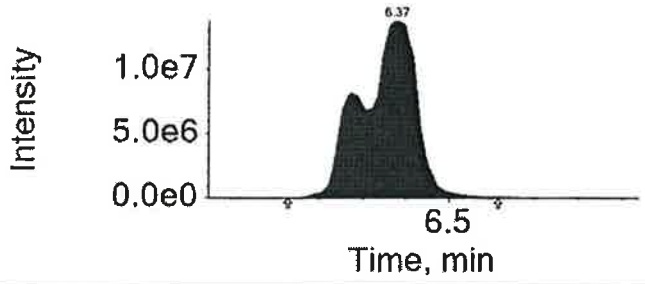


APPROVED
By MCD at 9:58 pm, 4/10/18

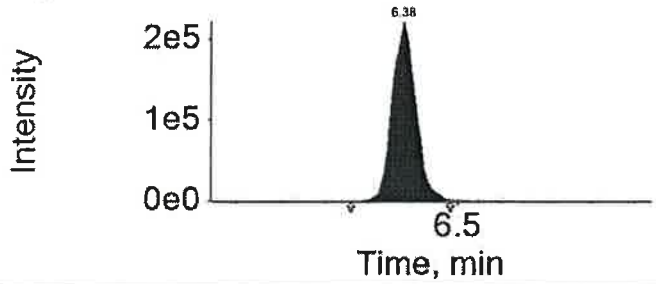
REVIEWED
By uild at 11:01 am, 4/23/18

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

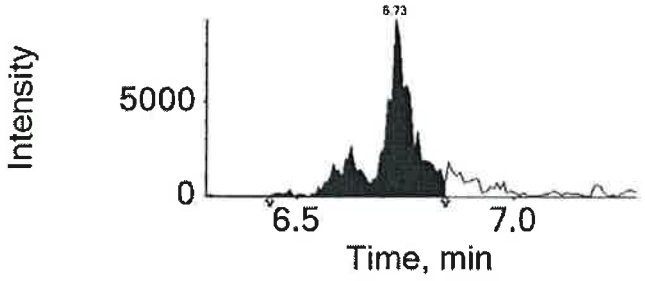
Analyte: PFOA
413.0 / 369.0



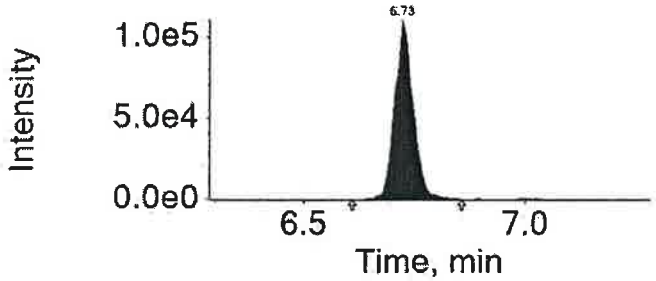
Extraction Standard: 13C8-PFOA
421.0 / 376.0



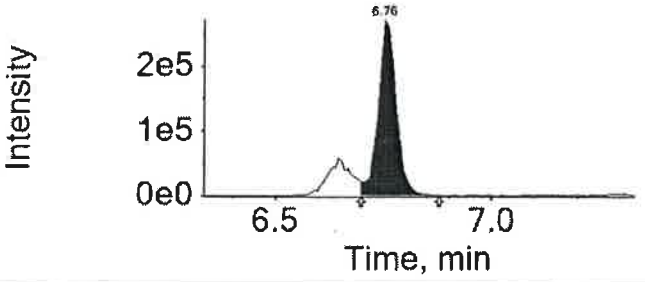
Analyte: PFOS
499.0 / 80.0



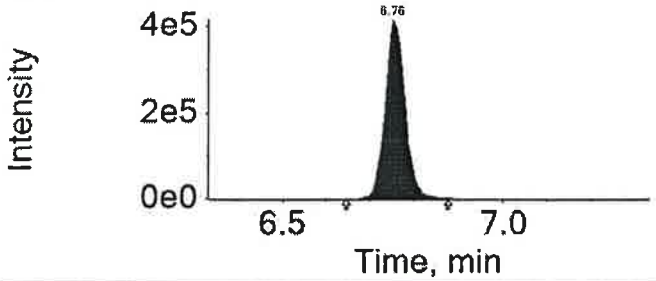
Extraction Standard: 13C8-PFOS
507.0 / 80.0



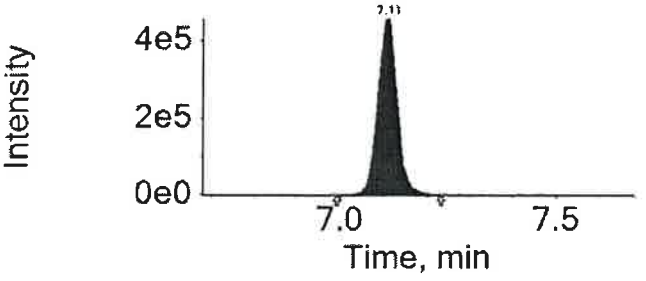
Analyte: PFNA
463.0 / 419.0



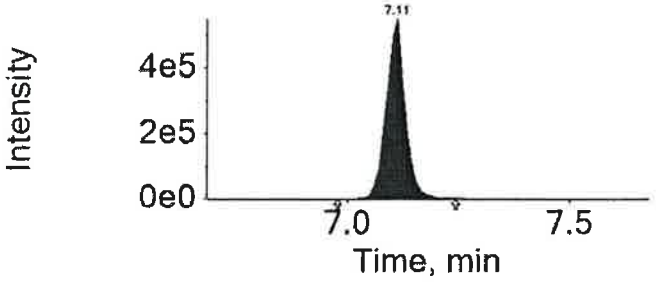
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By MCD at 9:58 pm, 4/10/18

REVIEWED
By uild at 11:01 am, 4/23/18

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL2 4/23/2018 11:07:35 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

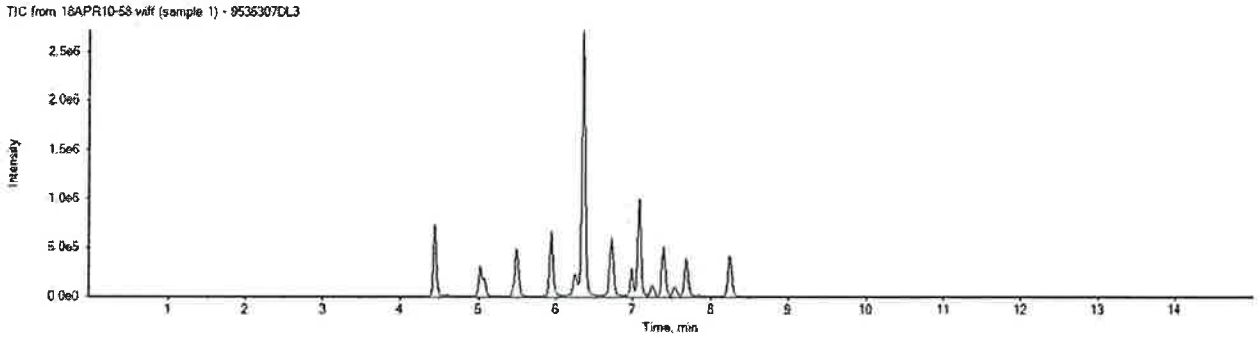
Analyte Quantitation Peak Table

Sample Name: 9535307DL2 **Instrument Name:** LM24743 **File Name:** 18APR10-58.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1000.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1021396.3	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	904341.1	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	443870.8	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	1500078.0	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	458026.3	N/A	
PFHpA	5.94	1.000	40744.9	M	13C4-PFHpA	5.94	1523699.8	0.027	248.737
PFOA	6.36	1.000	3775026.6	M	13C8-PFOA	6.35	1664925.8	2.267	24691.720
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.70	374564.5	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	1237258.2	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.08	1693306.1	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.39	965845.9	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	1299793.1	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	1299793.1	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.25	1507553.8	N/A	

Total Ion Chromatogram



APPROVED
By JPT at 11:12 am, 4/23/18

REVIEWED
By uild at 11:15 am, 4/23/18

Sample Description: SG3a-BL04-A22.5 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 12:15
SDG#: SBN08-17

C. T. Male Associates
ELLE Sample #: SW 9535308
ELLE Group #: 1926078
Matrix: Solid

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g		ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**110**	J	43	130	100
14027	**Perfluorobutanoic acid**	375-22-4	**170**		43	130	100
14027	**Perfluorodecanoic acid**	335-76-2	**520**		43	130	100
14027	**Perfluorododecanoic acid**	307-55-1	**420**		43	130	100
14027	**Perfluoroheptanoic acid**	375-85-9	**2,600**		43	130	100
14027	Perfluorohexanesulfonate	355-46-4	43	U	43	130	100
14027	**Perfluorohexanoic acid**	307-24-4	**1,400**		43	130	100
14027	**Perfluorononanoic acid**	375-95-1	**320**		43	130	100
14027	**Perfluoro-octanesulfonate**	1763-23-1	**260**		64	190	100
14027	**Perfluorooctanoic acid**	335-67-1	**240,000**	B	430	1,300	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**210**		43	130	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**360**		43	130	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**180**		43	130	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**200**		43	130	100

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for native compounds perfluroheptanoic acid (PFHpA) and perfluorooctanoic acid (PFOA) is outside of QC acceptance limits as noted on the QC Summary in the laboratory control spike sample (LCS). Sufficient sample was not available to repeat the analysis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094018	04/18/2018 22:56	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094018	04/19/2018 12:29	Joshua P Trost	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094018	04/05/2018 16:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR11MCAL **Result Table:** 18094018 4/25/2018 8:54:28 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

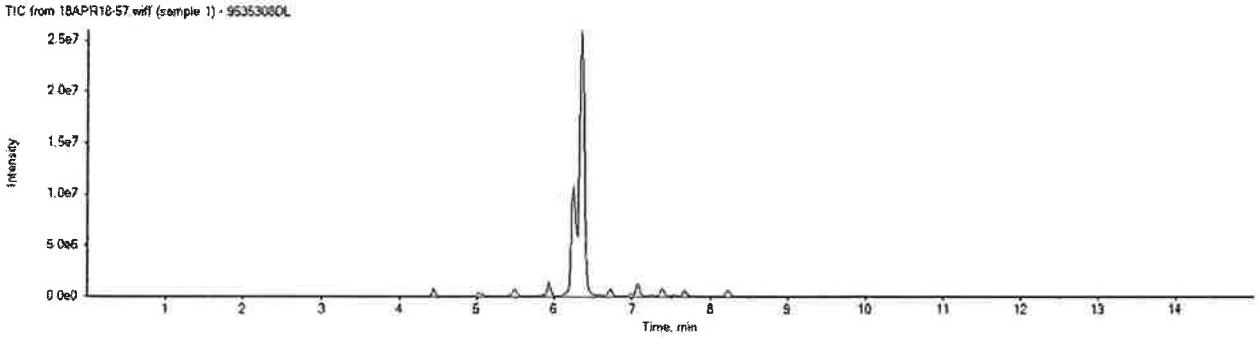
Analyte Quantitation Peak Table

Sample Name: 9535308 **Instrument Name:** LM24743 **File Name:** 18APR18-57.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.47000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	63753.9	M	13C4-PFBA	4.44	957933.7	0.067	168.629
PFPeA	5.02	1.000	81633.8	M	13C5-PFPeA	5.02	827678.0	0.099	205.760
PFBS	5.07	1.000	24408.9	A	13C3-PFBS	5.07	430928.0	0.057	113.507
PFHxA	5.49	1.000	852511.0	A	13C5-PFHxA	5.49	1466951.0	0.581	1350.287
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	405407.2	N/A	
PFHpA	5.94	1.000	2063643.7	M	13C4-PFHpA	5.94	1542002.0	1.338	2632.332
PFOA	6.35	1.000	90721457.7	M	13C8-PFOA	6.35	1145376.4	79.207	183425.298
PFOS	6.70	1.000	42294.8	M	13C8-PFOS	6.70	334260.5	0.127	258.435
PFNA	6.72	1.000	237481.1	M	13C9-PFNA	6.73	1380703.9	0.172	318.631
PFDA	7.07	1.000	404707.0	A	13C6-PFDA	7.07	1829339.0	0.221	516.743
PFUnDA	7.38	1.000	158834.5	A	13C7-PFUnDA	7.38	1304406.7	0.122	204.753
PFDoDA	7.67	1.000	273667.0	A	13C2-PFDoDA	7.67	1492915.7	0.183	416.431
PFTrDA	7.95	1.040	106256.5	A	13C2-PFDoDA	7.67	1492915.7	0.071	175.383
PFTeDA	8.23	1.000	247704.7	A	13C2-PFTeDA	8.23	1774550.8	0.140	363.080

Total Ion Chromatogram



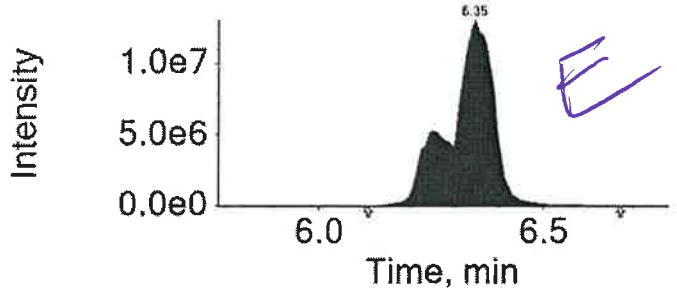
APPROVED
By JPT at 9:09 am, 4/25/18

REVIEWED
By umar at 10:15 am, 4/25/18

ICAL Name: 18APR11MCAL **Result Table:** 18094018 4/25/2018 8:54:28 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

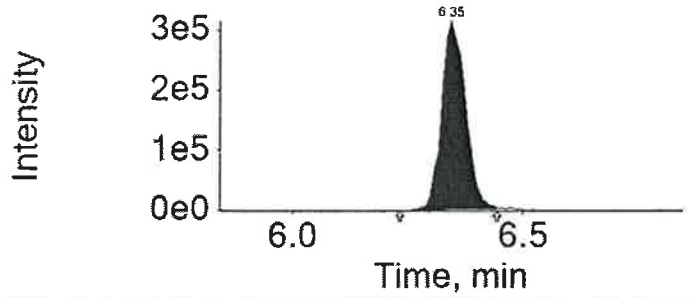
Analyte: PFOA

413.0 / 369.0



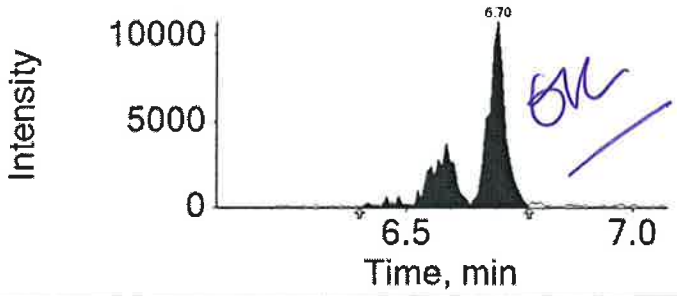
Extraction Standard: 13C8-PFOA

421.0 / 376.0



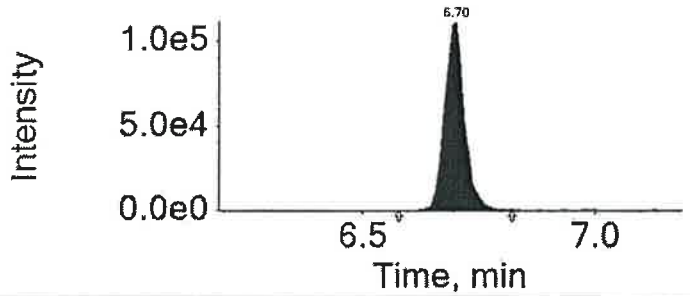
Analyte: PFOS

499.0 / 80.0



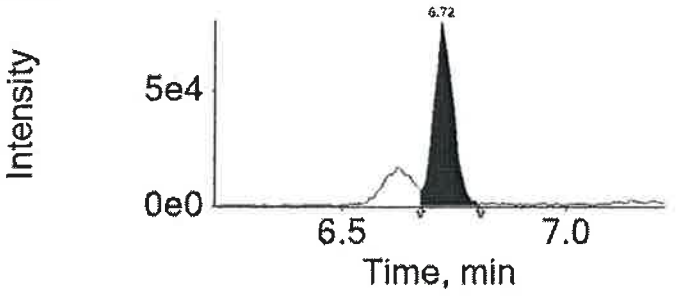
Extraction Standard: 13C8-PFOS

507.0 / 80.0



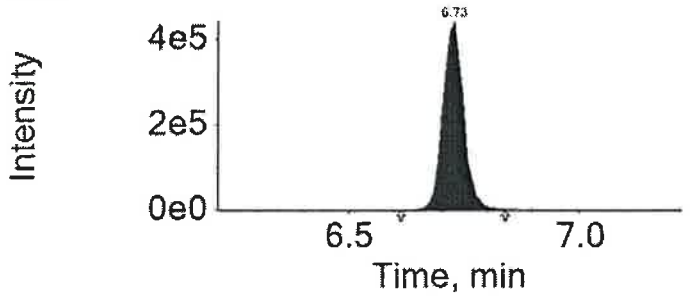
Analyte: PFNA

463.0 / 419.0



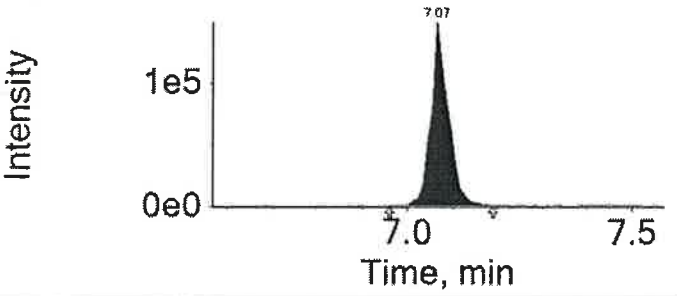
Extraction Standard: 13C9-PFNA

472.0 / 427.0



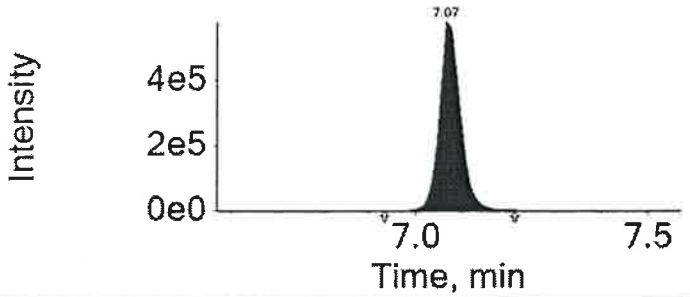
Analyte: PFDA

513.0 / 469.0



Extraction Standard: 13C6-PFDA

519.0 / 474.0



APPROVED
By JPT at 9:09 am, 4/25/18

REVIEWED
By umar at 10:15 am, 4/25/18

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LC-MS/MS Analysis Report

Printed: 4/25/2018 9:16:00 AM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR11MCAL **Result Table:** 18094018 4/25/2018 9:14:50 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

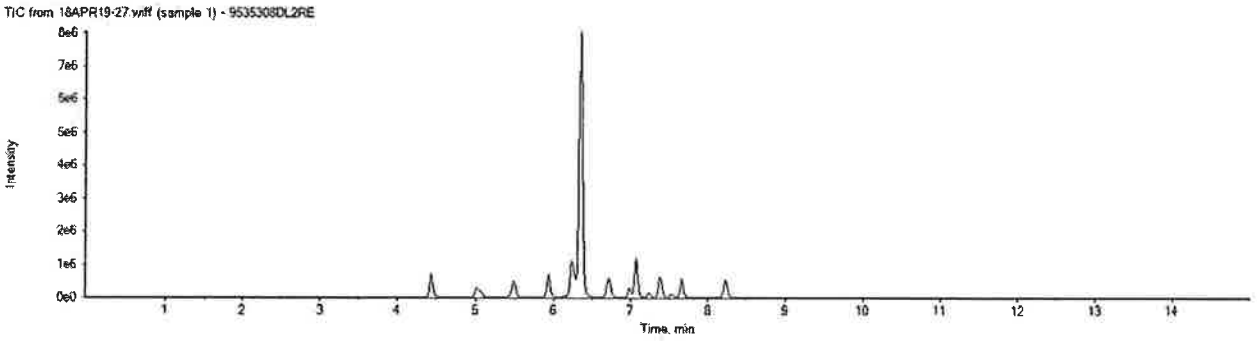
Analyte Quantitation Peak Table

Sample Name: 9535308DL **Instrument Name:** LM24743 **File Name:** 18APR19-27.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.47000	1.000	1000.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.43	1.000	13122.4	M	13C4-PFBA	4.43	997199.6	0.013	333.420
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.01	889931.7	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	462581.0	N/A	
PFHxA	5.49	1.000	71840.3	M	13C5-PFHxA	5.48	1512070.9	0.048	1103.920
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	407462.1	N/A	
PFHpA	5.93	1.000	178188.8	A	13C4-PFHpA	5.94	1520673.1	0.117	2304.812
PFOA	6.35	1.000	18403850.6	M	13C8-PFOA	6.35	1758056.9	10.468	242422.653
PFOS	6.67	1.000	5114.4	M	13C8-PFOS	6.70	373141.6	0.014	279.944
PFNA	6.73	1.000	20327.3	M	13C9-PFNA	6.72	1400888.7	0.015	268.804
PFDA	7.07	1.000	39397.5	M	13C6-PFDA	7.07	1874214.2	0.021	490.996
PFUnDA	7.38	1.000	13499.0	M	13C7-PFUnDA	7.38	1157028.8	0.012	196.180
PFDoDA	7.67	1.000	27521.6	M	13C2-PFDoDA	7.67	1560718.0	0.018	400.595
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	1560718.0	N/A	
PFTeDA	8.23	1.000	24651.3	A	13C2-PFTeDA	8.23	1864619.2	0.013	343.880

Total Ion Chromatogram



APPROVED
By JPT at 9:18 am, 4/25/18

REVIEWED
By umar at 10:17 am, 4/25/18

Sample Description: SG3a-WP05-A8.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 12:40
SDG#: SBN08-18

C. T. Male Associates
ELLE Sample #: WP 9535309
ELLE Group #: 1926078
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**7.8**	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**9.4 B**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**43**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**43**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**150**	0.20	0.60	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.4**	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**74**	0.20	0.60	1
14027	**Perfluorononanoic acid**	375-95-1	**20**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**52**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**13,000**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**11**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**44**	0.20	0.60	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**25**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**14**	0.20	0.60	1

Due to the sample matrix, the recovery for the sample injection internal standards(s) and the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/05/2018 07:54	Marissa C Drexinger	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 14:56	Marissa C Drexinger	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093011	04/03/2018 09:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/6/2018 5:08:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

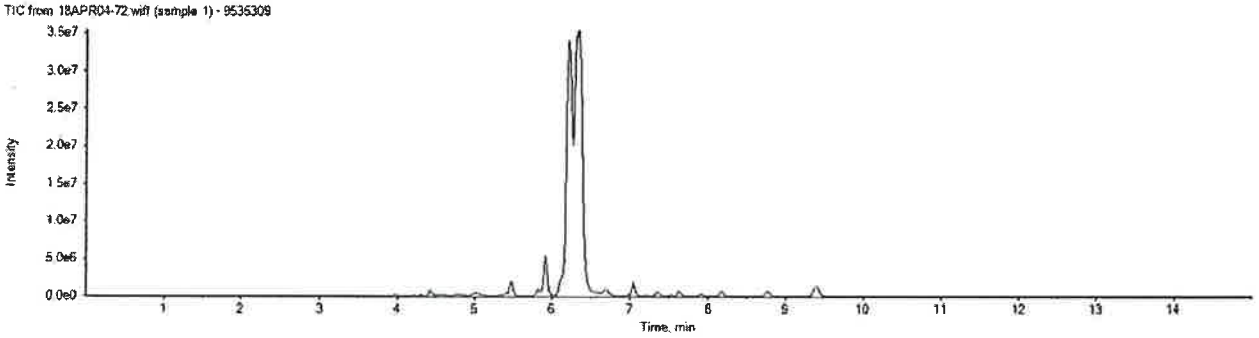
Analyte Quantitation Peak Table

Sample Name: 9535309 **Instrument Name:** LM24743 **File Name:** 18APR04-72.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.42	1.000	558831.2	M	13C4-PFBA	4.43	704303.4	0.793	9.442
PFPeA	5.00	1.000	592374.0	M	13C5-PFPeA	5.00	518716.1	1.142	11.171
PFBS	5.05	1.000	300691.9	A	13C3-PFBS	5.05	380312.6	0.791	7.753
PFHxA	5.47	1.000	5727183.2	M	13C5-PFHxA	5.47	837766.2	6.836	74.069
PFHxS	5.89	1.000	56948.9	M	13C3-PFHxS	5.91	377016.1	0.151	1.433
PFHpA	5.92	1.000	16088951.8	M	13C4-PFHpA	5.92	1037514.0	15.507	147.208
PFOA	6.29	0.990	178586048.0	M	13C8-PFOA	6.33	300125.4	595.038	6425.386
PFOS	6.67	1.000	1472227.1	M	13C8-PFOS	6.67	277195.1	5.311	52.264
PFNA	6.70	1.000	1446511.8	M	13C9-PFNA	6.70	627761.7	2.304	19.687
PFDA	7.04	1.000	3070929.2	A	13C6-PFDA	7.04	815598.0	3.765	43.127
PFUnDA	7.35	1.000	930978.9	A	13C7-PFUnDA	7.35	483847.4	1.924	13.906
PFDoDA	7.63	1.000	1677732.4	A	13C2-PFDoDA	7.62	411815.2	4.074	43.080
PFTrDA	7.90	1.040	913358.1	A	13C2-PFDoDA	7.62	411815.2	2.218	25.491
PFTeDA	8.18	1.000	1702562.7	A	13C2-PFTeDA	8.18	484731.6	3.512	43.512

Total Ion Chromatogram

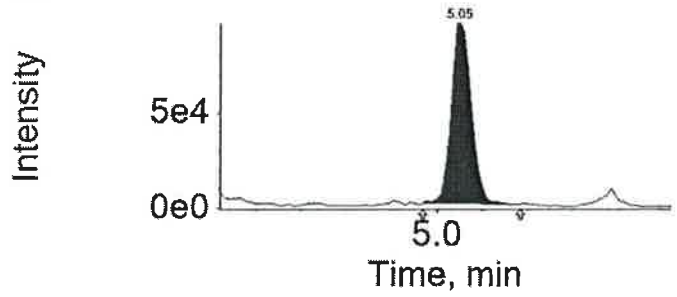


APPROVED
By JPT at 11:13 am, 4/23/18

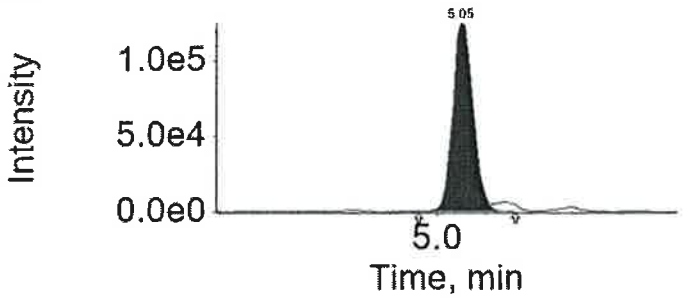
REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

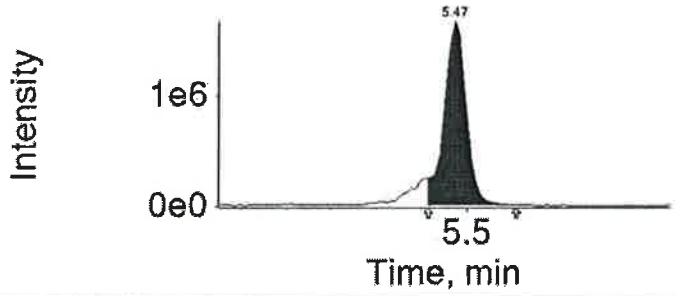
Analyte: PFBS
299.0 / 80.0



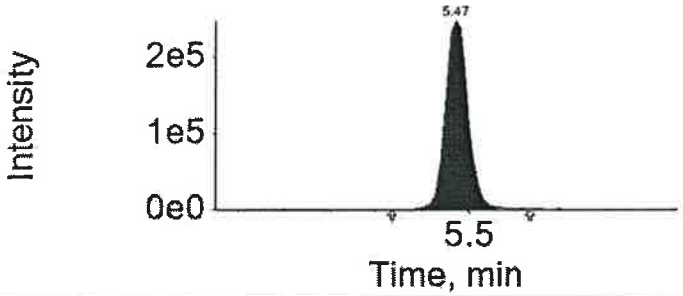
Extraction Standard: 13C3-PFBS
302.0 / 80.0



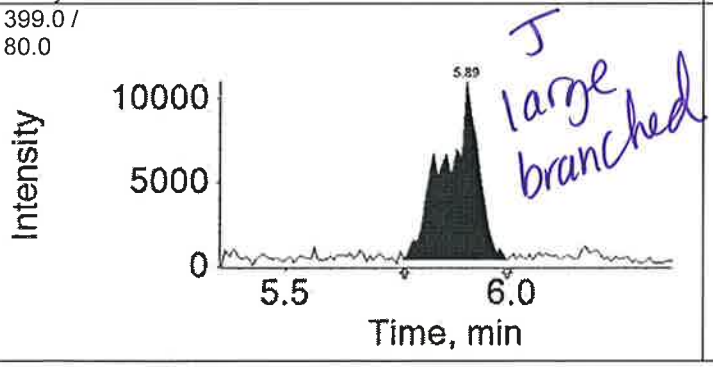
Analyte: PFHxA
313.0 / 269.0



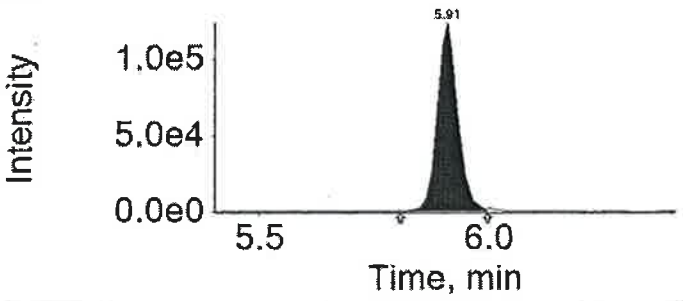
Extraction Standard: 13C5-PFHxA
318.0 / 273.0



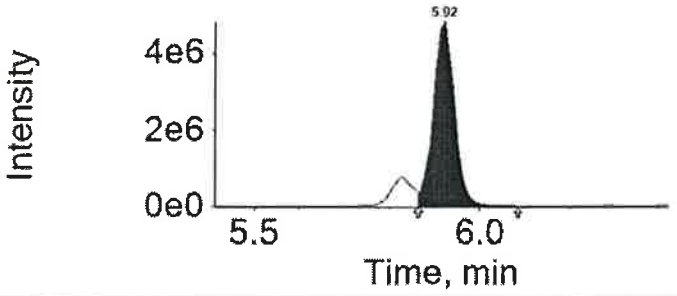
Analyte: PFHxS
399.0 / 80.0



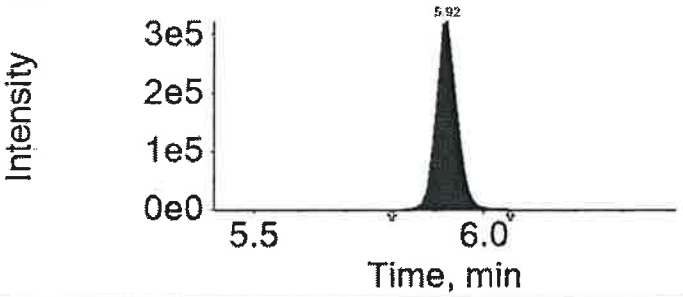
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0

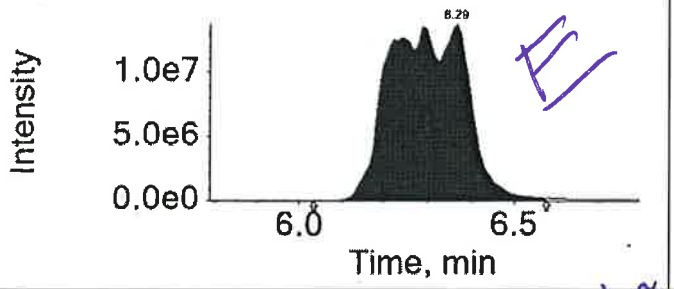


APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED

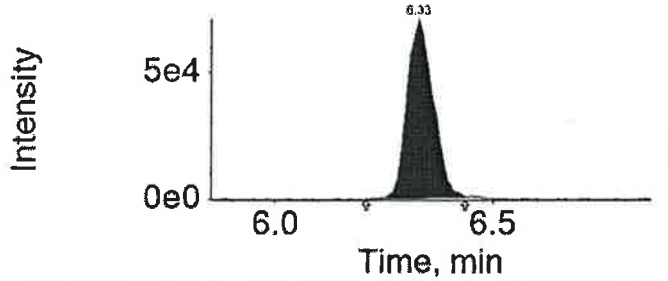
ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

Analyte: PFOA
413.0 / 369.0

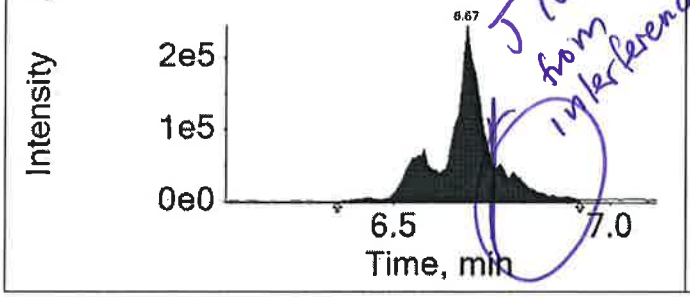


E

Extraction Standard: 13C8-PFOA
421.0 / 376.0

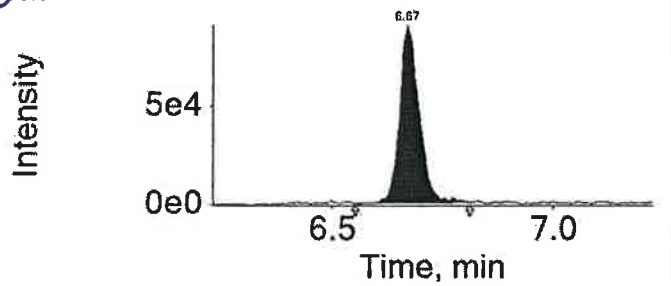


Analyte: PFOS
499.0 / 80.0

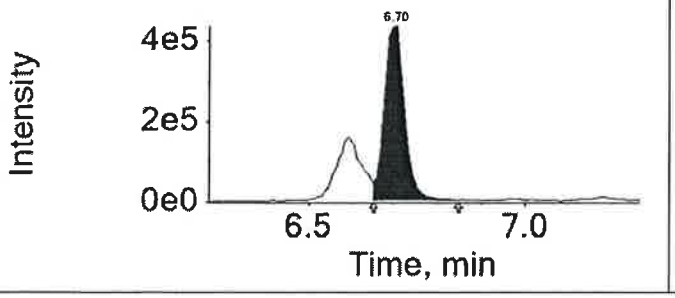


J contribution from interference

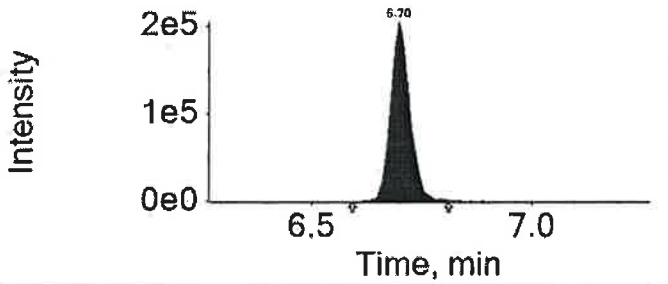
Extraction Standard: 13C8-PFOS
507.0 / 80.0



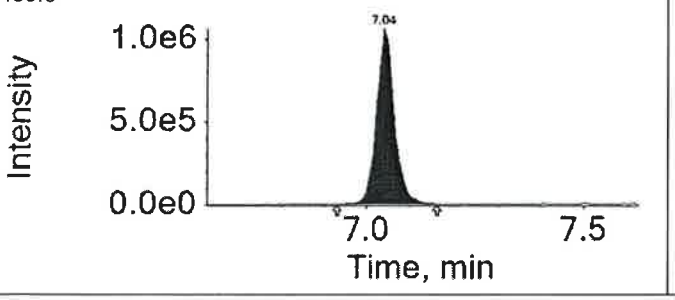
Analyte: PFNA
463.0 / 419.0



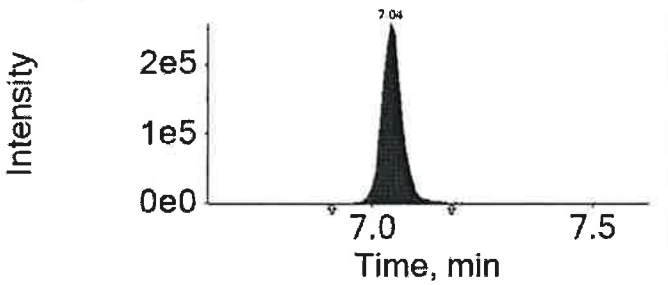
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

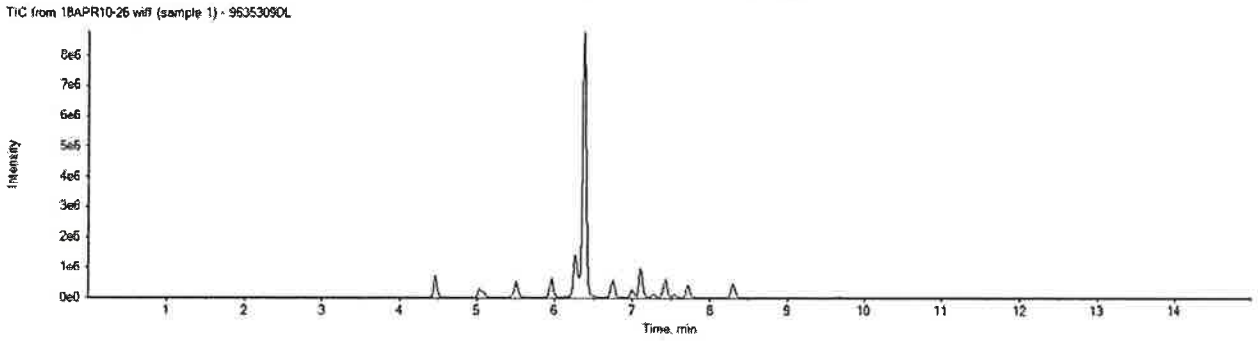
Analyte Quantitation Peak Table

Sample Name: 9535309DL **Instrument Name:** LM24743 **File Name:** 18APR10-26.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	971873.1	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.04	858925.2	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.09	430741.8	N/A	
PFHxA	5.51	1.000	70788.0	M	13C5-PFHxA	5.51	1501645.1	0.047	52.273
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.95	388792.2	N/A	
PFHpA	5.96	1.000	184351.4	M	13C4-PFHpA	5.96	1459165.5	0.126	117.519
PFOA	6.38	1.000	20207275.6	M	13C8-PFOA	6.38	1664407.3	12.141	13221.306
PFOS	6.72	1.000	10758.0	M	13C8-PFOS	6.73	349376.2	0.031	29.258
PFNA	6.75	1.000	26566.5	M	13C9-PFNA	6.75	1281980.6	0.021	18.341
PFDA	7.10	1.000	46337.8	M	13C6-PFDA	7.10	1654893.0	0.028	31.107
PFUnDA	7.42	1.000	20615.5	M	13C7-PFUnDA	7.42	1136323.7	0.018	14.024
PFDoDA	7.71	1.000	39547.8	M	13C2-PFDoDA	7.71	1358931.5	0.029	30.931
PFTrDA	8.00	1.040	19013.8	M	13C2-PFDoDA	7.71	1358931.5	0.014	16.028
PFTeDA	8.30	1.000	42554.3	A	13C2-PFTeDA	8.30	1636060.0	0.026	31.339

Total Ion Chromatogram



APPROVED
By MCD at 9:58 pm, 4/10/18

REVIEWED
By uild at 11:01 am, 4/23/18

Sample Description: SG3a-WP05-A16.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 12:45
SDG#: SBN08-19

C. T. Male Associates
ELLE Sample #: WP 9535310
ELLE Group #: 1926078
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**3.7**	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**6.3 B**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**38**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**49**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**120**	0.20	0.60	1
14027	**Perfluorohexanesulfonate**	355-46-4	**0.58 J**	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**55**	0.20	0.60	1
14027	**Perfluorononanoic acid**	375-95-1	**15**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**39**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**9,500**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**9.3**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**94**	0.20	0.60	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**38**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**13**	0.20	0.60	1

Due to the sample matrix, the recovery for the sample injection internal standards(s) and the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/05/2018 08:10	Marissa C Drexinger	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 15:43	Marissa C Drexinger	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093011	04/03/2018 09:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/6/2018 5:08:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

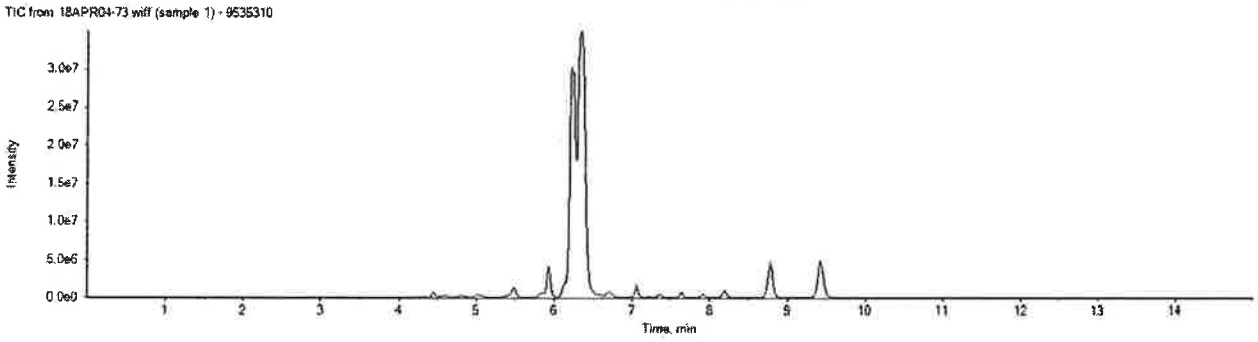
Analyte Quantitation Peak Table

Sample Name: 9535310 **Instrument Name:** LM24743 **File Name:** 18APR04-73.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	374722.7	M	13C4-PFBA	4.44	711193.6	0.527	6.270
PFPeA	5.01	1.000	473300.1	M	13C5-PFPeA	5.02	499745.4	0.947	9.264
PFBS	5.06	1.000	145287.3	A	13C3-PFBS	5.07	380204.5	0.382	3.747
PFHxA	5.48	1.000	3755314.4	M	13C5-PFHxA	5.48	738117.5	5.088	55.124
PFHxS	5.89	1.000	22068.1	M	13C3-PFHxS	5.92	358175.9	0.062	0.585
PFHpA	5.93	1.000	11911507.2	M	13C4-PFHpA	5.93	982017.0	12.130	115.145
PFOA	6.31	1.000	168466777.2	M	13C8-PFOA	6.34	328949.0	512.136	5530.192
PFOS	6.68	1.000	1045331.6	M	13C8-PFOS	6.68	264229.9	3.956	38.930
PFNA	6.71	1.000	1080575.3	M	13C9-PFNA	6.71	605108.7	1.786	15.257
PFDA	7.05	1.000	2412641.9	A	13C6-PFDA	7.05	720178.5	3.350	38.371
PFUnDA	7.35	1.000	782629.3	A	13C7-PFUnDA	7.35	419784.7	1.864	13.474
PFDoDA	7.64	1.000	1649695.7	A	13C2-PFDoDA	7.64	356650.9	4.626	48.912
PFTrDA	7.91	1.040	1180986.4	A	13C2-PFDoDA	7.64	356650.9	3.311	38.059
PFTeDA	8.19	1.000	3130946.8	A	13C2-PFTeDA	8.19	414770.8	7.549	93.514

Total Ion Chromatogram

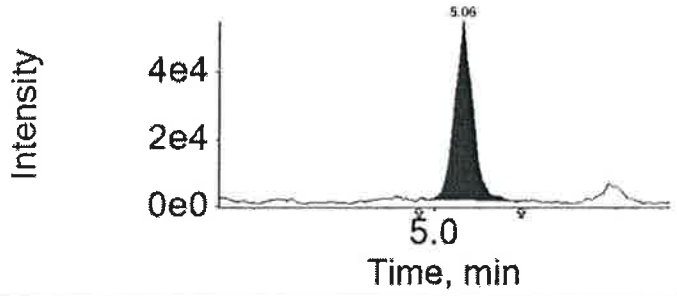


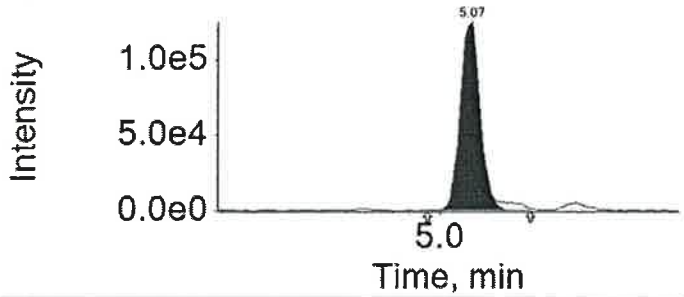
APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED
By uild at 11:14 am, 4/23/18

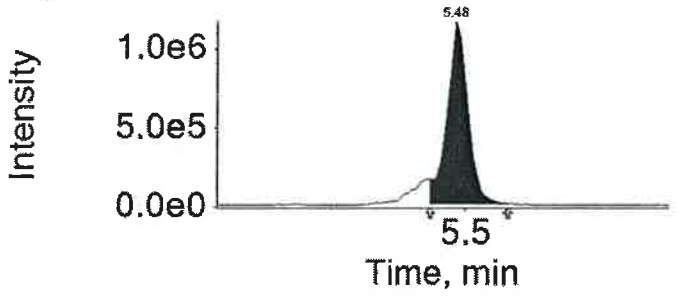
ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

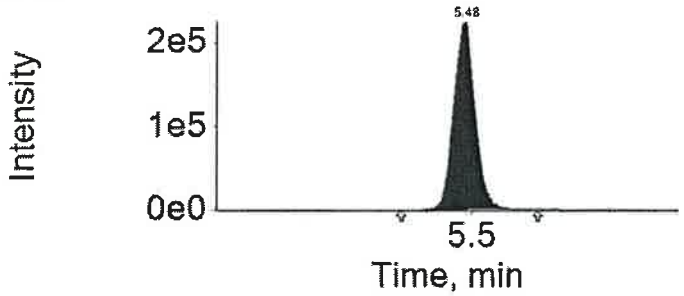
Analyte: PFBS	Extraction Standard: 13C3-PFBS
299.0 / 80.0	302.0 / 80.0





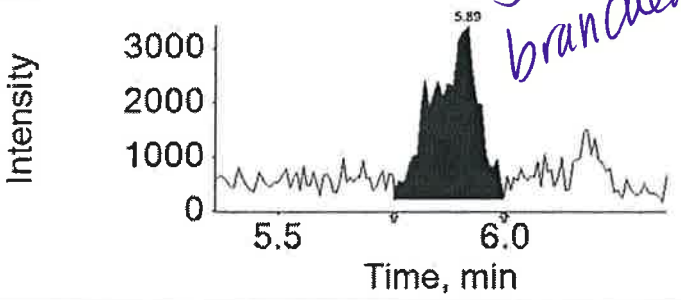
Analyte: PFHxA	Extraction Standard: 13C5-PFHxA
313.0 / 269.0	318.0 / 273.0

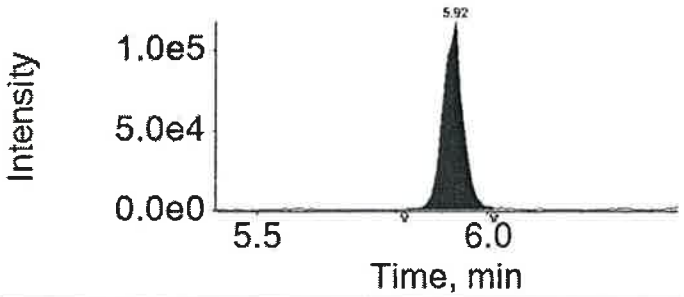




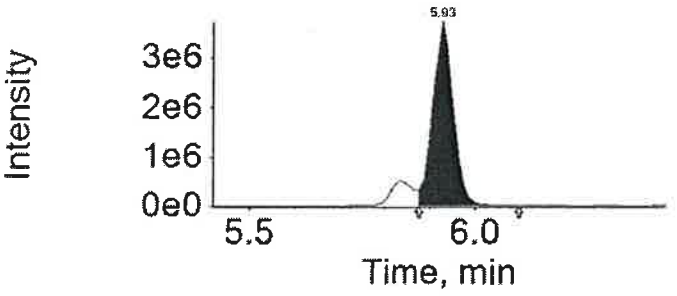
Analyte: PFHxS	Extraction Standard: 13C3-PFHxS
399.0 / 80.0	402.0 / 80.0

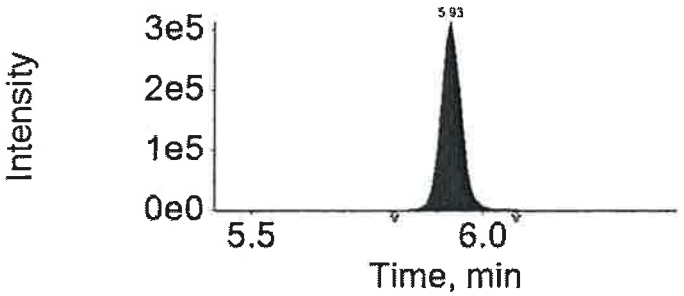
J large branched





Analyte: PFHpA	Extraction Standard: 13C4-PFHpA
363.0 / 319.0	367.0 / 322.0



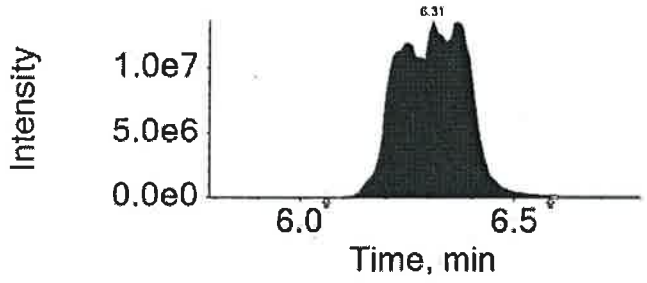


APPROVED
By JPT at 11:13 am, 4/23/18

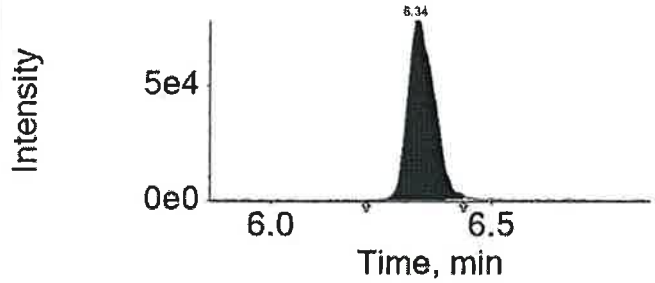
REVIEWED

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

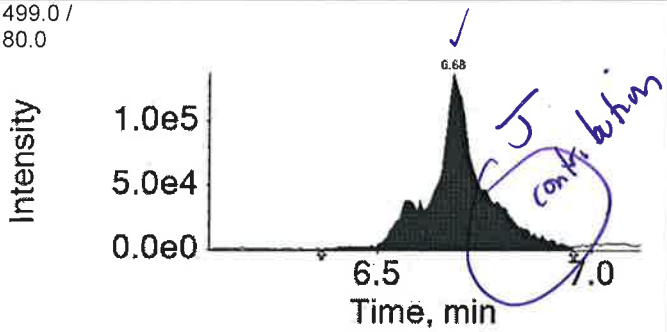
Analyte: PFOA
413.0 / 369.0



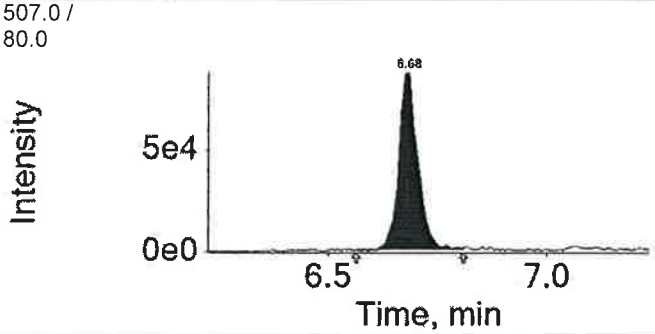
Extraction Standard: 13C8-PFOA
421.0 / 376.0



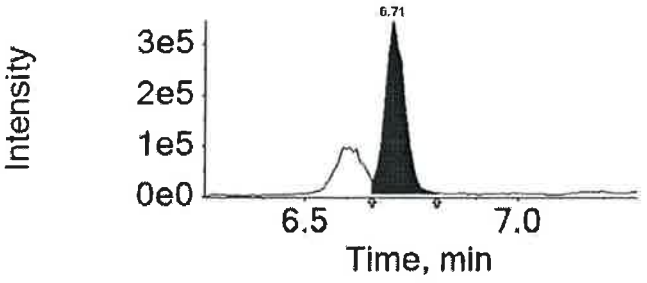
Analyte: PFOS
499.0 / 80.0



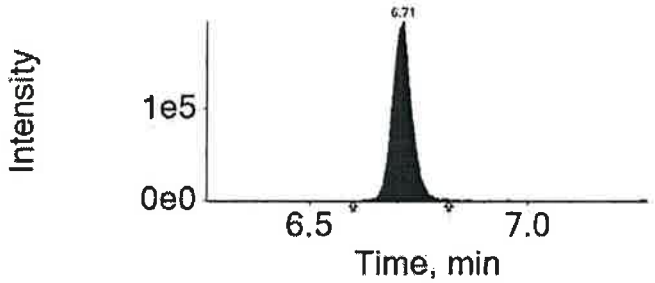
Extraction Standard: 13C8-PFOS
507.0 / 80.0



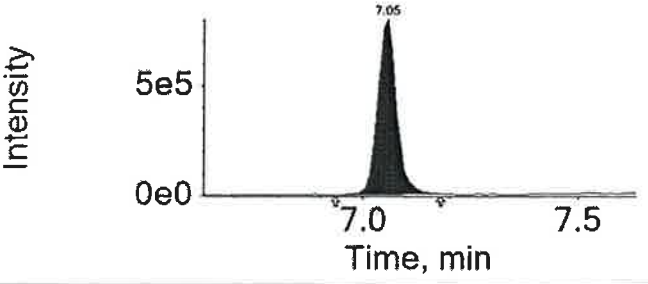
Analyte: PFNA
463.0 / 419.0



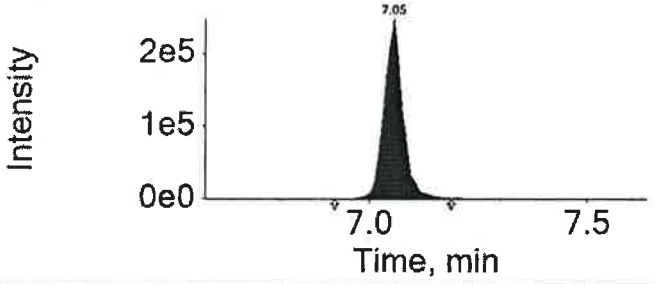
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED
By uild at 11:14 am, 4/23/18

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LC-MS/MS Analysis Report

Printed: 4/10/2018 9:46:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

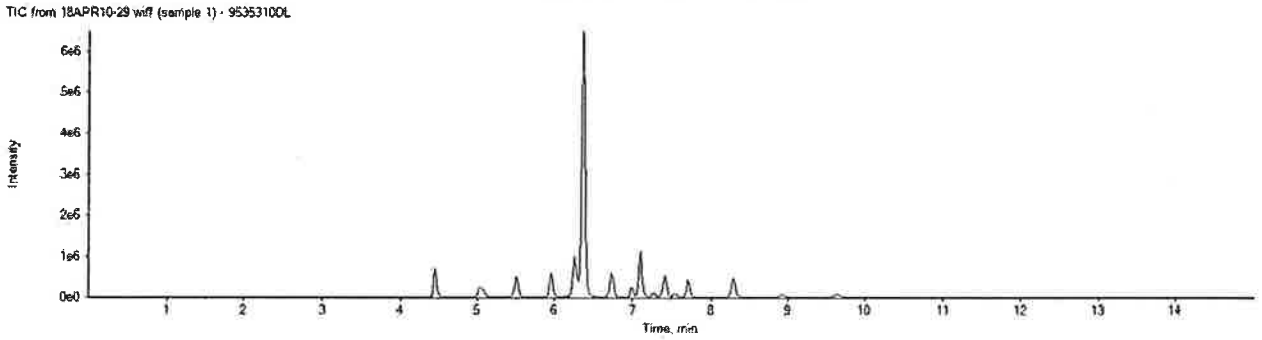
Analyte Quantitation Peak Table

Sample Name: 9535310DL **Instrument Name:** LM24743 **File Name:** 18APR10-29.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	969841.0	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.03	824132.6	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.09	415667.9	N/A	
PFHxA	5.51	1.000	41679.5	M	13C5-PFHxA	5.51	1519353.8	0.027	30.419
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.95	388909.4	N/A	
PFHpA	5.96	1.000	122910.6	M	13C4-PFHpA	5.96	1402398.6	0.088	81.524
PFOA	6.37	1.000	13978077.6	M	13C8-PFOA	6.37	1606630.6	8.700	9474.529
PFOS	6.73	1.000	5842.9	M	13C8-PFOS	6.73	330273.8	0.018	16.810
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.75	1292331.9	N/A	
PFDA	7.10	1.000	36663.4	M	13C6-PFDA	7.10	1725315.9	0.021	23.607
PFUnDA	7.42	1.000	18672.6	M	13C7-PFUnDA	7.41	1054150.3	0.018	13.692
PFDoDA	7.71	1.000	34018.2	M	13C2-PFDoDA	7.71	1312249.1	0.026	27.552
PFTrDA	7.99	1.040	24248.5	M	13C2-PFDoDA	7.71	1312249.1	0.018	21.168
PFTeDA	8.29	1.000	81512.5	A	13C2-PFTeDA	8.29	1626454.0	0.050	60.385

Total Ion Chromatogram



APPROVED
By MCD at 9:58 pm, 4/10/18

REVIEWED
By uild at 11:01 am, 4/23/18

Sample Description: SG3a-WP05-A23.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 12:50
SDG#: SBN08-20

C. T. Male Associates
ELLE Sample #: WP 9535311
ELLE Group #: 1926078
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**8.6**	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**20 B**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**110**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**86**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**380**	2.0	6.0	10
14027	**Perfluorohexanesulfonate**	355-46-4	**0.64**	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**170**	0.20	0.60	1
14027	**Perfluorononanoic acid**	375-95-1	**52**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**35**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**25,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**28**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**140**	0.20	0.60	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**52**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**37**	0.20	0.60	1

Due to the sample matrix, the recovery for the sample injection internal standards(s) and the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/05/2018 08:25	Marissa C Drexinger	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 15:58	Marissa C Drexinger	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093011	04/10/2018 23:29	Joshua P Trost	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093011	04/03/2018 09:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

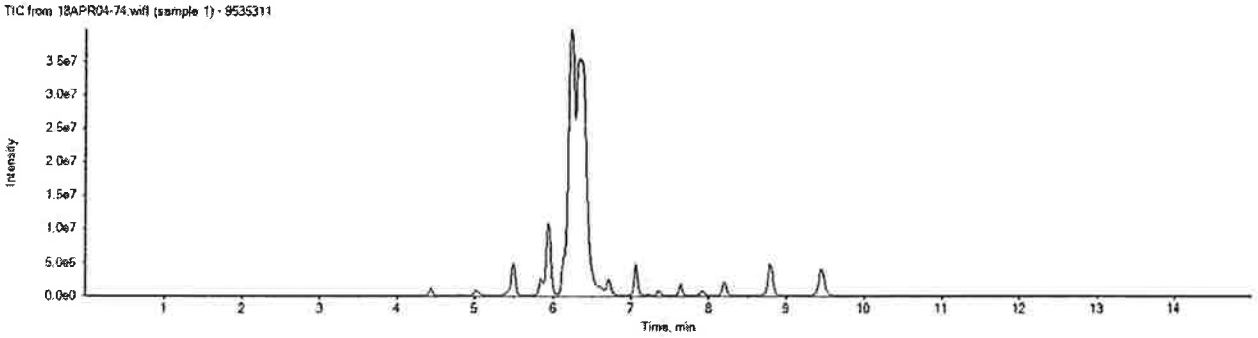
Analyte Quantitation Peak Table

Sample Name: 9535311 **Instrument Name:** LM24743 **File Name:** 18APR04-74.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	1421897.9	M	13C4-PFBA	4.44	839305.8	1.694	20.161
PFPeA	5.02	1.000	1799448.1	M	13C5-PFPeA	5.02	617756.9	2.913	28.493
PFBS	5.07	1.000	371327.6	A	13C3-PFBS	5.07	421913.0	0.880	8.630
PFHxA	5.49	1.000	16009602.1	M	13C5-PFHxA	5.49	1040352.2	15.389	166.733
PFHxS	5.92	1.000	22594.1	M	13C3-PFHxS	5.92	335555.0	0.067	0.639
PFHpA	5.93	1.000	43695051.2	M	13C4-PFHpA	5.93	1074535.1	40.664	386.019
PFOA	6.31	0.990	215804185.6	M	13C8-PFOA	6.34	198228.2	1088.665	11755.708
PFOS	6.69	1.000	1155731.4	M	13C8-PFOS	6.69	323853.8	3.569	35.118
PFNA	6.72	1.000	5163066.9	M	13C9-PFNA	6.72	851945.5	6.060	51.778
PFDA	7.06	1.000	11590758.3	A	13C6-PFDA	7.06	1182972.7	9.798	112.225
PFUnDA	7.36	1.000	2240442.6	A	13C7-PFUnDA	7.36	439381.7	5.099	36.852
PFDoDA	7.64	1.000	4374838.2	A	13C2-PFDoDA	7.64	538409.6	8.125	85.922
PFTrDA	7.92	1.040	2439208.7	A	13C2-PFDoDA	7.64	538409.6	4.530	52.070
PFTeDA	8.20	1.000	7133801.4	A	13C2-PFTeDA	8.20	634854.7	11.237	139.206

Total Ion Chromatogram

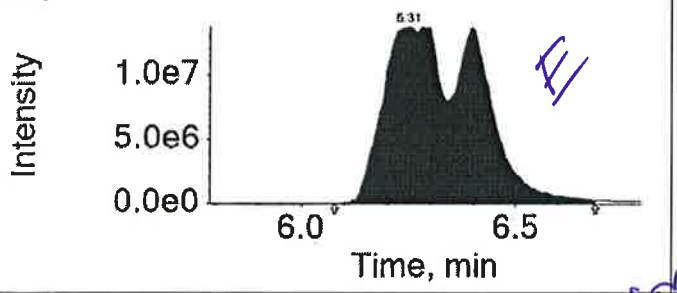


APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED
By uild at 11:14 am, 4/23/18

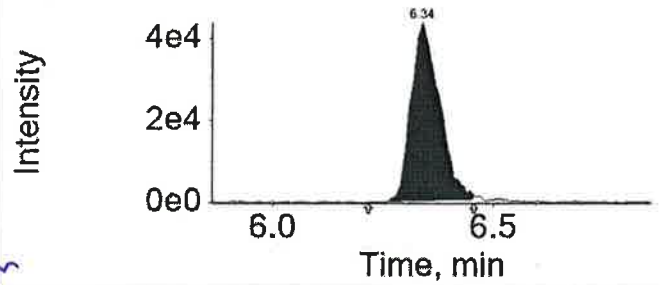
ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

Analyte: PFOA
413.0 / 369.0

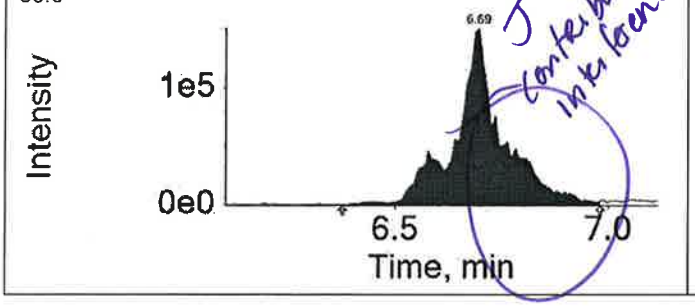


E

Extraction Standard: 13C8-PFOA
421.0 / 376.0

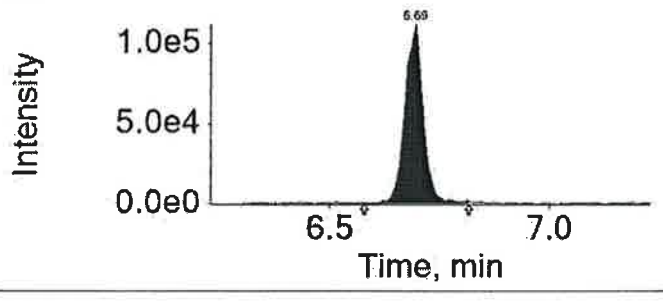


Analyte: PFOS
499.0 / 80.0

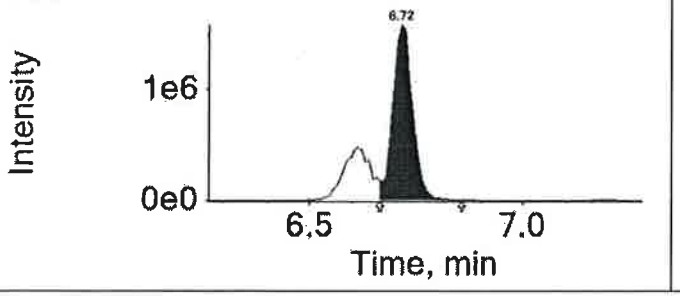


J - contribution from interference

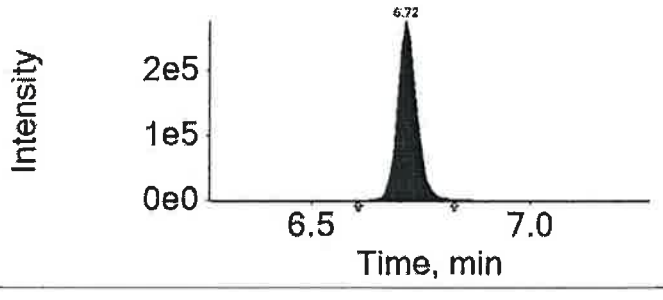
Extraction Standard: 13C8-PFOS
507.0 / 80.0



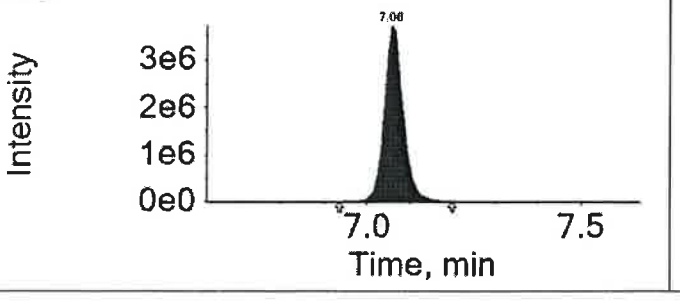
Analyte: PFNA
463.0 / 419.0



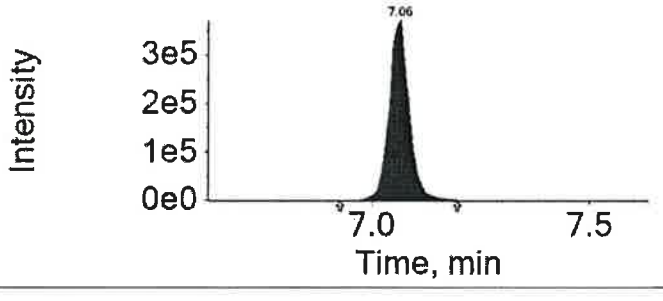
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 11:13 am, 4/23/18

REVIEWED
By uild at 11:14 am, 4/23/18

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

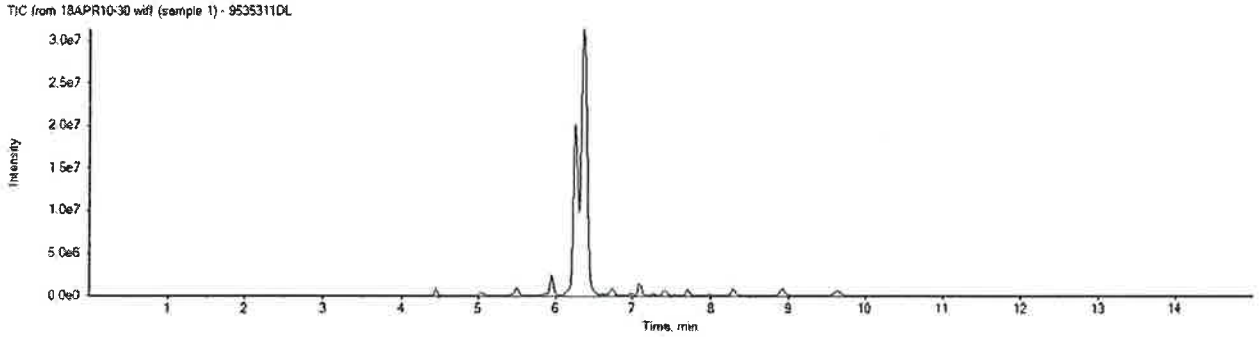
Analyte Quantitation Peak Table

Sample Name: 9535311DL **Instrument Name:** LM24743 **File Name:** 18APR10-30.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.45	1.000	121803.5	M	13C4-PFBA	4.45	927825.6	0.131	15.810
PFPeA	5.03	1.000	163631.6	M	13C5-PFPeA	5.03	804693.4	0.203	20.823
PFBS	5.08	1.000	27029.2	A	13C3-PFBS	5.08	414837.1	0.065	5.943
PFHxA	5.50	1.000	1639370.6	M	13C5-PFHxA	5.50	1426590.8	1.149	127.427
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	396820.8	N/A	
PFHpA	5.95	1.000	5879616.5	M	13C4-PFHpA	5.95	1447756.4	4.061	377.763
PFOA	6.35	1.000	131936056.2	M	13C8-PFOA	6.37	781372.4	168.852	18387.878
PFOS	6.72	1.000	63308.0	M	13C8-PFOS	6.71	324018.2	0.195	18.565
PFNA	6.74	1.000	710111.8	M	13C9-PFNA	6.75	1307502.6	0.543	48.068
PFDA	7.09	1.000	1144844.4	A	13C6-PFDA	7.09	1689344.4	0.678	75.286
PFUnDA	7.41	1.000	460298.9	A	13C7-PFUnDA	7.41	1051730.6	0.438	33.830
PFDoDA	7.70	1.000	841448.8	A	13C2-PFDoDA	7.70	1362443.3	0.618	65.641
PFTrDA	7.99	1.040	443661.4	A	13C2-PFDoDA	7.70	1362443.3	0.326	37.303
PFTeDA	8.28	1.000	1301664.4	A	13C2-PFTeDA	8.28	1498827.0	0.868	104.639

Total Ion Chromatogram

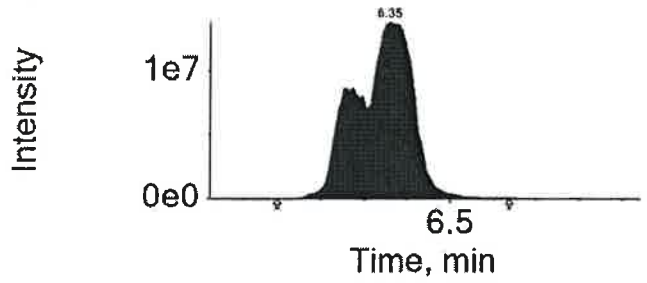


APPROVED
By MCD at 9:58 pm, 4/10/18

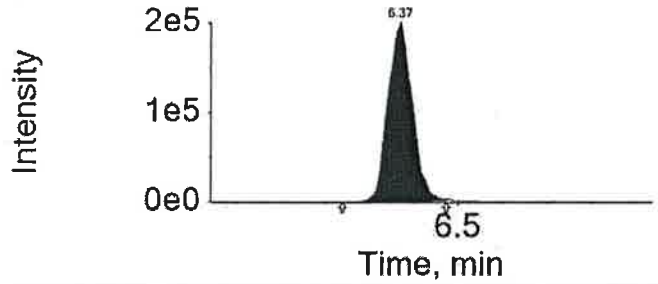
REVIEWED
By uild at 11:01 am, 4/23/18

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL 4/10/2018 9:42:00 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

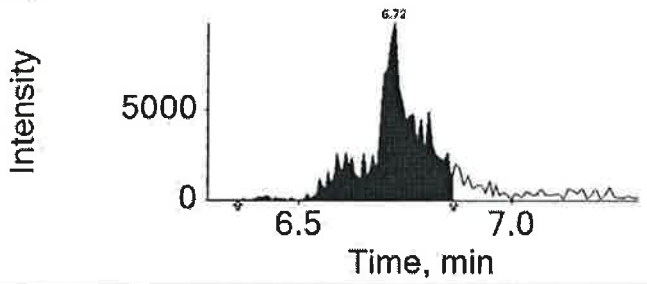
Analyte: PFOA
413.0 / 369.0



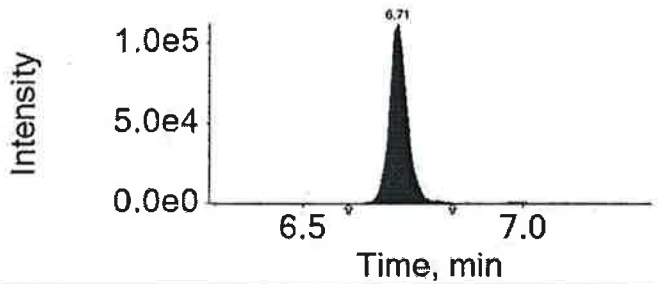
Extraction Standard: 13C8-PFOA
421.0 / 376.0



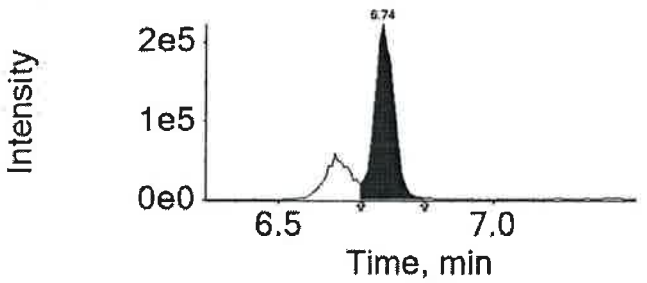
Analyte: PFOS
499.0 / 80.0



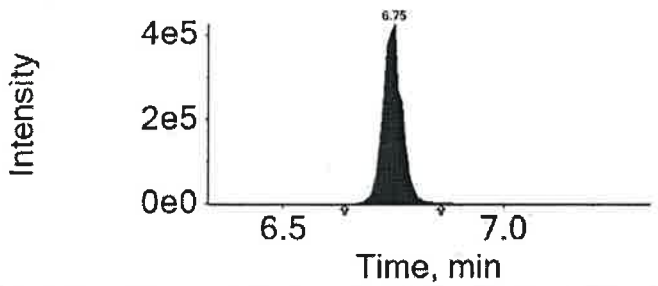
Extraction Standard: 13C8-PFOS
507.0 / 80.0



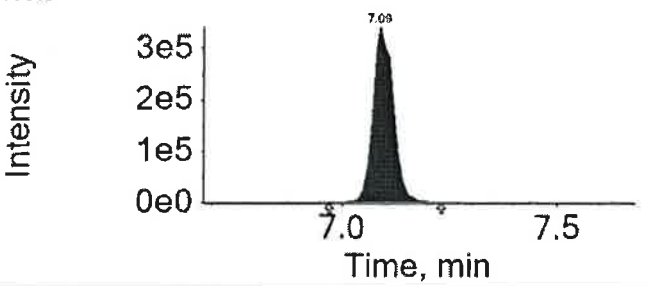
Analyte: PFNA
463.0 / 419.0



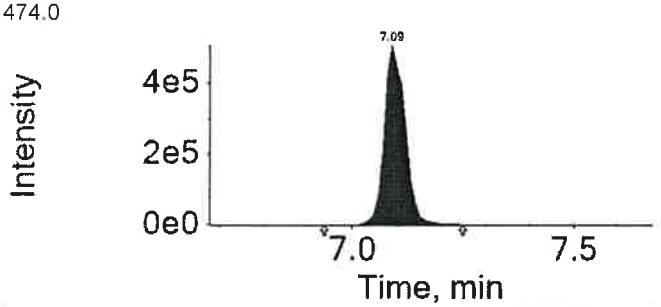
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By MCD at 9:58 pm, 4/10/18

REVIEWED
By uild at 11:01 am, 4/23/18

ICAL Name: 18APR09MCAL **Result Table:** 18093011DL2 4/23/2018 11:07:35 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

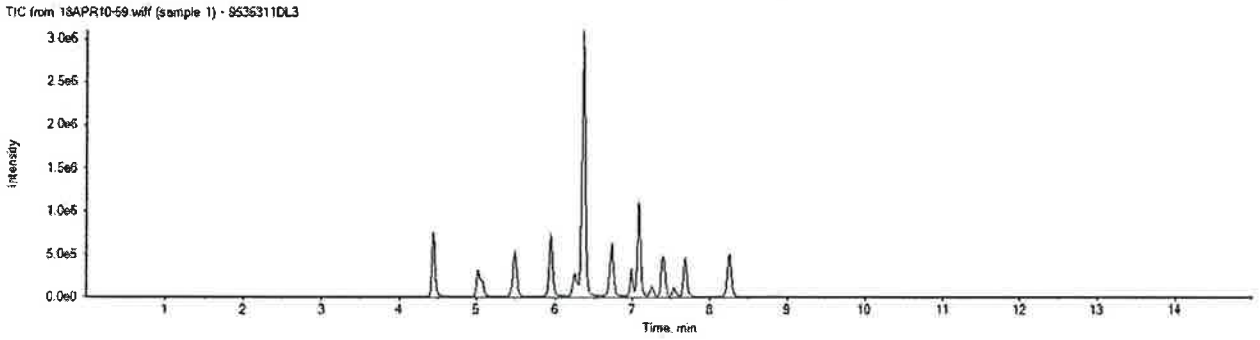
Analyte Quantitation Peak Table

Sample Name: 9535311DL2 **Instrument Name:** LM24743 **File Name:** 18APR10-59.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1000.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1101106.8	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	926552.7	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	474112.8	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	1620225.5	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	468151.5	N/A	
PFHpA	5.94	1.000	45626.0	M	13C4-PFHpA	5.94	1722129.0	0.026	246.441
PFOA	6.36	1.000	4316822.8	M	13C8-PFOA	6.36	1896964.2	2.276	24781.712
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.71	370677.5	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	1320020.5	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.08	1777218.5	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.39	989032.2	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	1466282.3	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	1466282.3	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.25	1777751.6	N/A	

Total Ion Chromatogram



APPROVED
By JPT at 11:12 am, 4/23/18

REVIEWED
By uild at 11:15 am, 4/23/18

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/25/2018 11:11

Group Number: 1926078

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFAS Compounds
Batch number: 18092009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9535292	99	100	95	99	98	98
9535293	101	100	97	100	99	98
Blank	92	89	79	91	89	90
LCS	102	101	91	108	105	110
LCSD	104	103	92	101	103	103
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9535292	101	94	106	102	107	106
9535293	102	106	109	105	110	93
Blank	91	89	93	98	100	98
LCS	101	104	108	102	106	109
LCSD	103	103	106	111	108	107
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9535292	102
9535293	105
Blank	98
LCS	103
LCSD	110
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 18093011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9535294	72	66* J	66	142* J	145* WJ	158* J
9535295	76	73	72	J 164*	J 174*	J 180*
9535296	74	66* J	76	126* J	145* J	139* J
9535297	71	J 62*	80	82	120	91
9535299	70	66* J	66	115	119	127* J
9535300	74	J 69*	73	J 120*	J 132*	J 133*
9535301	76	66* J	121* J	76	146* J	102
9535303	72	70	66	151* J	153* W	157* J
9535305	73	J 60*	72	98	J 161*	J 130
9535306	71	66* J	75	108	139* J	126* J
9535307	74	70	76	J 132*	J 146*	J 136*
9535309	78	69* J	82	112	171* J	136* J

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/25/2018 11:11

Group Number: 1926078

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18093011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9535310	69	58*	71	98	161*	128*
9535311	71	62*	69	120*	131*	121*
Blank	71	67*	58	71	72	75
LCS	77	72	64	77	78	77
LCSD	83	79	71	77	77	80
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9535294	46	72	77	62	50	42
9535295	37*	74	82	63	52	38
9535296	53	75	66	66	71	47
9535297	14*	70	39	57	63	42
9535299	50	70	72	62	58	44
9535300	55	73	69	66	56	39
9535301	30*	72	46	64	89	57
9535303	21*	71	76	61	45	41
9535305	27*	71	45	62	70	48
9535306	51	69	57	58	50	38
9535307	19*	74	69	61	52	39
9535309	31*	80	50	64	76	44
9535310	34*	70	45	55	64	37
9535311	18*	74	54	57	42	35
Blank	71	70	69	75	76	74
LCS	77	75	75	82	88	83
LCSD	83	80	95	82	84	78
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9535294	39
9535295	38
9535296	44
9535297	45
9535299	39
9535300	41
9535301	59
9535303	40
9535305	45
9535306	36
9535307	38
9535309	46

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/25/2018 11:11

Group Number: 1926078

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18093011

	13C2-PFTeDA
9535310	38
9535311	36
Blank	80
LCS	86
LCSD	74
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 18094018

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9535308	90	92	89	119* J	119	127* J
Blank	66	67*	66	64	67	68
LCS	78	80	76	87	88	88
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9535308	77	90	103	87	114	87
Blank	68	61	57	62	68	61
LCS	76	75	76	80	91	79
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9535308	84
Blank	62
LCS	81
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 18102019

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9535298	78	72	74	142* J	139* J	148* J
9535302	75	J 64*	71	102	109	J 124*
9535304	75	75	73	105	100	106
Blank	83	84	77	75	71	77
LCS	76	82	67	79	73	77
MS	75	72	77	101	98	117*
MSD	79	71	75	101	109	118*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/25/2018 11:11

Group Number: 1926078

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18102019

Limits:	37-107	70-130	34-118	43-115	32-125	45-114
	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9535298	44	81	88	67	100	64
9535302	50	79	88	64	97	63
9535304	59	76	83	61	80	63
Blank	75	91	114	75	78	71
LCS	79	81	90	70	74	70
MS	54	77	82	62	101	68
MSD	57	82	87	63	104	66
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9535298	63
9535302	65
9535304	59
Blank	67
LCS	67
MS	69
MSD	69
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Reference List
PFAS Group

CLIENT: C. T. Male Associates
SDG: SBN08

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
14 PFAS Compounds	18092009	BLK092009	04/05/2018 16:26:00
		LCS092009	04/05/2018 15:40:00
		LCSDA	04/05/2018 15:55:00
		9535292	04/05/2018 16:42:00
		9535293	04/05/2018 16:57:00
14 PFCs	18093011	BLKA093011	04/05/2018 04:01:00
		LCSA093011	04/05/2018 02:44:00
		LCSDA	04/05/2018 03:15:00
		9535294	04/05/2018 04:32:00
		9535294	04/10/2018 10:32:00
		9535295	04/05/2018 04:48:00
		9535295	04/10/2018 10:48:00
		9535296	04/05/2018 05:03:00
		9535296	04/10/2018 11:03:00
		9535297	04/05/2018 05:19:00
		9535297	04/10/2018 11:19:00
		9535297	04/10/2018 22:42:00
		9535299	04/05/2018 06:05:00
		9535299	04/10/2018 11:50:00
		9535300	04/05/2018 06:21:00
		9535300	04/10/2018 12:36:00
		9535301	04/05/2018 06:36:00
		9535301	04/10/2018 12:52:00
		9535301	04/10/2018 13:07:00
		9535303	04/05/2018 06:52:00
		9535303	04/10/2018 13:23:00
		9535303	04/10/2018 22:57:00
		9535305	04/05/2018 07:07:00
		9535305	04/10/2018 13:54:00
		9535306	04/05/2018 07:23:00
		9535306	04/10/2018 14:10:00
		9535307	04/05/2018 07:39:00
		9535307	04/10/2018 14:25:00
		9535307	04/10/2018 23:13:00
		9535309	04/05/2018 07:54:00
		9535309	04/10/2018 14:56:00
		9535310	04/05/2018 08:10:00
		9535310	04/10/2018 15:43:00
		9535311	04/05/2018 08:25:00
		9535311	04/10/2018 15:58:00
		9535311	04/10/2018 23:29:00
14 PFCs	18094018	BLK094018	04/10/2018 17:31:00
		LCS094018	04/10/2018 16:29:00
		9535308	04/18/2018 22:56:00
		9535308	04/19/2018 12:29:00

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Quality Control Reference List
PFAS Group

CLIENT: C. T. Male Associates
SDG: SBN08

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
14 PFCs	18102019	BLK102019	04/18/2018 11:02:00
		LCS102019	04/18/2018 09:59:00
		9535298 S	04/18/2018 11:17:00
		9535298	04/19/2018 14:02:00
		9535302	04/18/2018 11:33:00
		9535302	04/19/2018 14:18:00
		9535304	04/18/2018 11:48:00
		9535304	04/18/2018 16:59:00

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Quality Control Summary
Method Blank
PFAS Group
SDG: SBN08
Matrix: SOLID

Fraction: PFAS by LC/MS/MS

18093011 / BLKA093011 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	04/05/18	N.D.	ng/wipe	0.20	0.60
Perfluorononanoic acid	04/05/18	N.D.	ng/wipe	0.20	0.60
Perfluorodecanoic acid	04/05/18	N.D.	ng/wipe	0.20	0.60
Perfluoroundecanoic acid	04/05/18	N.D.	ng/wipe	0.20	0.60
Perfluorododecanoic acid	04/05/18	N.D.	ng/wipe	0.20	0.60
Perfluorotridecanoic acid	04/05/18	N.D.	ng/wipe	0.20	0.60
Perfluorotetradecanoic acid	04/05/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanoic acid	04/05/18	N.D.	ng/wipe	0.20	0.60
Perfluoroheptanoic acid	04/05/18	N.D.	ng/wipe	0.20	0.60
Perfluorobutanesulfonate	04/05/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanesulfonate	04/05/18	N.D.	ng/wipe	0.20	0.60
Perfluoro-octanesulfonate	04/05/18	N.D.	ng/wipe	0.30	0.90
Perfluorobutanoic acid	04/05/18	0.20 J	ng/wipe	0.20	0.60
Perfluoropentanoic acid	04/05/18	N.D.	ng/wipe	0.20	0.60

18094018 / BLK094018 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	04/10/18	1.2	ng/wipe	0.20	0.60
Perfluorononanoic acid	04/10/18	N.D.	ng/wipe	0.20	0.60
Perfluorodecanoic acid	04/10/18	N.D.	ng/wipe	0.20	0.60
Perfluoroundecanoic acid	04/10/18	N.D.	ng/wipe	0.20	0.60
Perfluorododecanoic acid	04/10/18	N.D.	ng/wipe	0.20	0.60
Perfluorotridecanoic acid	04/10/18	N.D.	ng/wipe	0.20	0.60
Perfluorotetradecanoic acid	04/10/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanoic acid	04/10/18	N.D.	ng/wipe	0.20	0.60
Perfluoroheptanoic acid	04/10/18	N.D.	ng/wipe	0.20	0.60
Perfluorobutanesulfonate	04/10/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanesulfonate	04/10/18	N.D.	ng/wipe	0.20	0.60
Perfluoro-octanesulfonate	04/10/18	N.D.	ng/wipe	0.30	0.90
Perfluorobutanoic acid	04/10/18	N.D.	ng/wipe	0.20	0.60
Perfluoropentanoic acid	04/10/18	N.D.	ng/wipe	0.20	0.60

9

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Quality Control Summary
Method Blank
PFAS Group
SDG: SBN08
Matrix: SOLID

Fraction: PFAS by LC/MS/MS

18102019 / BLK102019 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorononanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorodecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoroundecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorododecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorotridecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorotetradecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoroheptanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorobutanesulfonate	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanesulfonate	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoro-octanesulfonate	04/18/18	N.D.	ng/wipe	0.30	0.90
Perfluorobutanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoropentanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60

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Quality Control Summary
Method Blank
PFAS Group
SDG: SBN08
Matrix: LIQUID

Fraction: PFAS by LC/MS/MS

18092009 / BLK092009 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorononanoic acid	04/05/18	N.D.	ng/l	0.40	2.0
Perfluorodecanoic acid	04/05/18	N.D.	ng/l	1.0	2.0
Perfluoroundecanoic acid	04/05/18	N.D.	ng/l	0.40	2.0
Perfluorododecanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorotridecanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorotetradecanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorohexanoic acid	04/05/18	N.D.	ng/l	0.40	2.0
Perfluoroheptanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorobutanesulfonate	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorohexanesulfonate	04/05/18	N.D.	ng/l	0.40	2.0
Perfluoro-octanesulfonate	04/05/18	N.D.	ng/l	0.40	2.0
Perfluorobutanoic acid	04/05/18	N.D.	ng/l	2.0	6.0
Perfluoropentanoic acid	04/05/18	N.D.	ng/l	2.0	6.0

ICAL Name: 18APR03MCAL **Result Table:** 18093011 4/6/2018 5:04:21 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

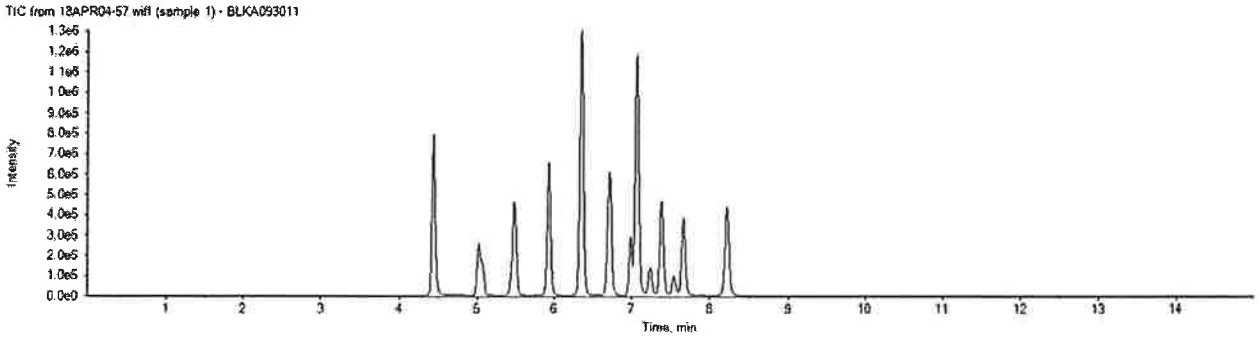
Analyte Quantitation Peak Table

Sample Name: BLKA093011 **Instrument Name:** LM24743 **File Name:** 18APR04-57.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	17156.8	M	13C4-PFBA	4.44	1010731.8	0.017	0.202
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	789971.8	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	421642.4	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.48	1448644.9	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.92	430243.0	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.93	1549715.4	N/A	
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.35	1852822.1	N/A	
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.69	387359.7	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.72	1372229.9	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.06	1758535.9	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.38	911163.0	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1282215.2	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1282215.2	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.22	1584558.7	N/A	

Total Ion Chromatogram



APPROVED
By MCD at 5:47 pm, 4/6/18

REVIEWED
By uild at 9:57 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18092009 4/7/2018 9:39:02 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

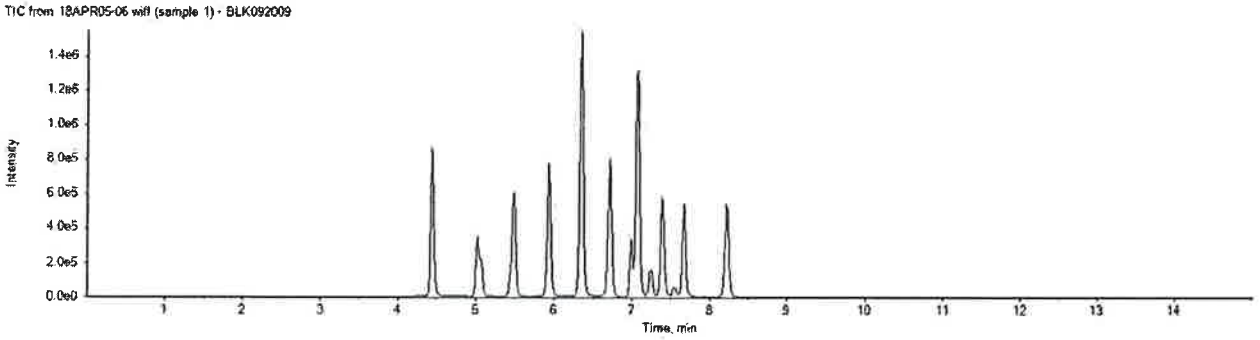
Analyte Quantitation Peak Table

Sample Name: BLK092009 **Instrument Name:** LM24743 **File Name:** 18APR05-06.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.25000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1264696.6	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	1019974.0	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	558930.1	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	1868429.0	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	540552.4	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.93	1882606.6	N/A	
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.35	2394003.5	N/A	
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.69	461822.1	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.72	1717176.0	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.07	2273749.5	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.38	1176131.7	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1687187.5	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1687187.5	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.23	1914679.4	N/A	

Total Ion Chromatogram



APPROVED
By MCD at 9:48 pm, 4/7/18

REVIEWED
By umar at 3:35 pm, 4/15/18

ICAL Name: 18APR09MCAL **Result Table:** 18094018 4/18/2018 11:19:17 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

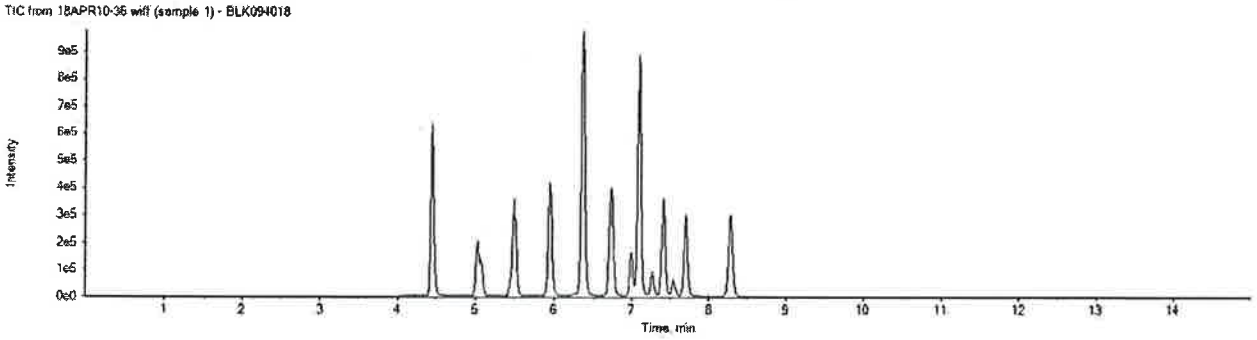
Analyte Quantitation Peak Table

Sample Name: BLK094018 **Instrument Name:** LM24743 **File Name:** 18APR10-36.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	10004.1	M	13C4-PFBA	4.45	716222.4	0.014	0.168
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.03	617347.6	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.08	307905.4	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.50	1057600.1	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	297660.0	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.95	1090327.9	N/A	
PFOA	6.36	1.000	142558.8	M	13C8-PFOA	6.36	1328246.3	0.107	1.169
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.72	243956.0	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.74	858320.0	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.09	1193219.1	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.41	696691.8	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.70	957141.0	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.70	957141.0	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.28	1124328.4	N/A	

Total Ion Chromatogram



APPROVED
By JPT at 4:23 pm, 4/19/18

REVIEWED
By umar at 10:22 am, 4/25/18

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

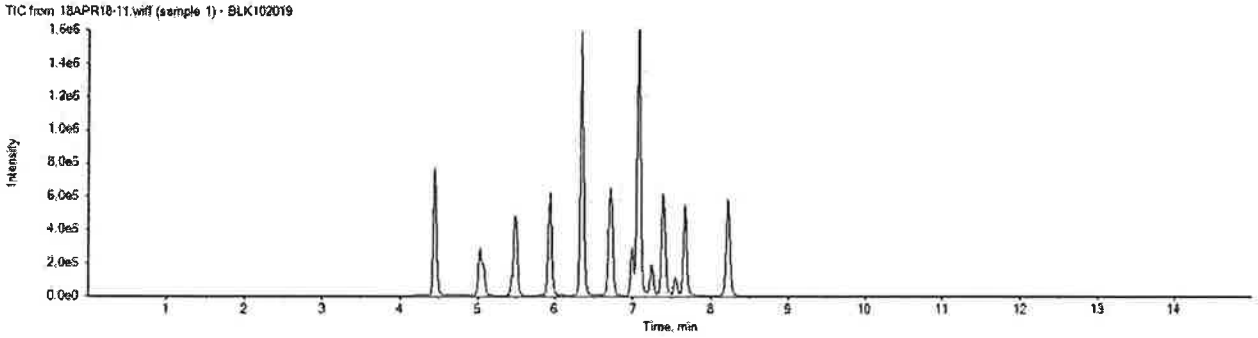
Analyte Quantitation Peak Table

Sample Name: BLK102019 **Instrument Name:** LM24743 **File Name:** 18APR18-11.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.43	1.000	7958.3	M	13C4-PFBA	4.44	1050315.8	0.008	0.090
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	899250.0	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	442303.5	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	1540654.4	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	401294.1	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.94	1554907.5	N/A	
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.35	1863387.9	N/A	
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.70	363114.2	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	1653059.8	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.07	2176026.1	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.38	1235903.6	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	1683009.0	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	1683009.0	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.22	1966062.9	N/A	

Total Ion Chromatogram



APPROVED
By JPT at 3:32 pm, 4/19/18

REVIEWED
By umar at 10:25 am, 4/23/18

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: WATER

18092009		13C2-PFDODA	13C2-PFTEDA	13C3-PFBS	13C3-PFHXS	13C4-PFBA
	Limits	28-127	26-119	26-148	34-126	33-123
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS092009	04/05/18 15:40	109	103	91	105	102
LCSDA	04/05/18 15:55	107	110	92	103	104
BLK092009	04/05/18 16:26	98	98	79	89	92
9535292	04/05/18 16:42	106	102	95	98	99
9535293	04/05/18 16:57	93	105	97	99	101

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: WATER

18093011		13C2-PFDODA	13C2-PFTEDA	13C3-PFBS	13C3-PFHXS	13C4-PFBA
	Limits	15-135	20-127	34-118	32-125	37-107
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCSA093011	04/05/18 02:44	83	86	64	78	77
LCSDA	04/05/18 03:15	78	74	71	77	83
BLKA093011	04/05/18 04:01	74	80	58	72	71
9535294	04/05/18 04:32	42	39	66	145 *	72
9535295	04/05/18 04:48	38	38	72	174 *	76
9535296	04/05/18 05:03	47	44	76	145 *	74
9535297	04/05/18 05:19	42	45	80	120	71
9535299	04/05/18 06:05	44	39	66	119	70
9535300	04/05/18 06:21	39	41	73	132 *	74
9535301	04/05/18 06:36	57	59	121 *	146 *	76
9535303	04/05/18 06:52	41	40	66	153 *	72
9535305	04/05/18 07:07	48	45	72	161 *	73
9535306	04/05/18 07:23	38	36	75	139 *	71
9535307	04/05/18 07:39	39	38	76	146 *	74
9535309	04/05/18 07:54	44	46	82	171 *	78
9535310	04/05/18 08:10	37	38	71	161 *	69
9535311	04/05/18 08:25	35	36	69	131 *	71

* Outside QC Limits

O - used IS for final analysis

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: WATER

18092009		13C4-PFHPA	13C5-PFHXA	13C5-PFPEA	13C6-PFDA	13C7-PFUNDA
	Limits	35-126	31-128	39-135	40-115	30-128
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS092009	04/05/18 15:40	110	108	101	102	106
LCSDA	04/05/18 15:55	103	101	103	111	108
BLK092009	04/05/18 16:26	90	91	89	98	100
9535292	04/05/18 16:42	98	99	100	102	107
9535293	04/05/18 16:57	98	100	100	105	110

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: WATER

18093011		13C4-PFHPA	13C5-PFHXA	13C5-PFPEA	13C6-PFDA	13C7-PFUNDA
	Limits	45-114	43-115	70-130	36-121	25-134
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCSA093011	04/05/18 02:44	77	77	72	82	88
LCSDA	04/05/18 03:15	80	77	79	82	84
BLKA093011	04/05/18 04:01	75	71	67 *	75	76
9535294	04/05/18 04:32	158 *	142 *	66 *	62	50
9535295	04/05/18 04:48	180 *	164 *	73	63	52
9535296	04/05/18 05:03	139 *	126 *	66 *	66	71
9535297	04/05/18 05:19	91	82	62 *	57	63
9535299	04/05/18 06:05	127 *	115	66 *	62	58
9535300	04/05/18 06:21	133 *	120 *	69 *	66	56
9535301	04/05/18 06:36	102	76	66 *	64	89
9535303	04/05/18 06:52	X 157 *	151 *	70	61	45
9535305	04/05/18 07:07	130 *	98	60 *	62	70
9535306	04/05/18 07:23	126 *	108	66 *	58	50
9535307	04/05/18 07:39	X 136 *	X 132 *	70	61	52
9535309	04/05/18 07:54	136 *	112	69 *	64	76
9535310	04/05/18 08:10	128 *	98	58 *	55	64
9535311	04/05/18 08:25	X 121 *	120 *	62 *	57	42

* Outside QC Limits

X - reported from other dilution

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: WATER

18092009		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	43-112	43-115	32-134
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery
LCS092009	04/05/18 15:40	101	104	108
LCSDA	04/05/18 15:55	103	103	106
BLK092009	04/05/18 16:26	91	89	93
9535292	04/05/18 16:42	101	94	106
9535293	04/05/18 16:57	102	106	109

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: WATER

18093011		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery
LCSA093011	04/05/18 02:44	77	75	75
LCSDA	04/05/18 03:15	83	80	95
BLKA093011	04/05/18 04:01	71	70	69
9535294	04/05/18 04:32	46	72	77
9535295	04/05/18 04:48	37 *	74	82
9535296	04/05/18 05:03	53	75	66
9535297	04/05/18 05:19	14 *	70	39
9535299	04/05/18 06:05	50	70	72
9535300	04/05/18 06:21	55	73	69
9535301	04/05/18 06:36	30 *	72	46
9535303	04/05/18 06:52	21 *	71	76
9535305	04/05/18 07:07	27 *	71	45
9535306	04/05/18 07:23	51	69	57
9535307	04/05/18 07:39	19 *	74	69
9535309	04/05/18 07:54	31 *	80	50
9535310	04/05/18 08:10	34 *	70	45
9535311	04/05/18 08:25	18 *	74	54

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18093011		13C2-PFDODA	13C2-PFTEDA	13C3-PFBS	13C3-PFHXS	13C4-PFBA
	Limits	15-135	20-127	34-118	32-125	37-107
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
9535294DL	04/10/18 10:32	94	91	91	103	89
9535295DL	04/10/18 10:48	88	88	85	94	85
9535296DL	04/10/18 11:03	84	81	85	82	83
9535297DL	04/10/18 11:19	70	69	95	X 155 *	89
9535299DL	04/10/18 11:50	90	93	83	87	84
9535300DL	04/10/18 12:36	94	96	94	92	92
9535301DL	04/10/18 12:52	72	74	94	116	89
9535301DL2	04/10/18 13:07	85	84	91	91	86
9535303DL	04/10/18 13:23	82	83	83	X 129 *	84
9535305DL	04/10/18 13:54	76	84	85	94	84
9535306DL	04/10/18 14:10	83	86	86	96	84
9535307DL	04/10/18 14:25	83	82	84	X 127 *	86
9535309DL	04/10/18 14:56	86	89	87	89	84
9535310DL	04/10/18 15:43	82	88	87	92	87
9535311DL	04/10/18 15:58	73	70	87	X 135 *	83
9535297DL2	04/10/18 22:42	80	90	92	109	93
9535303DL2	04/10/18 22:57	81	90	94	93	94
9535307DL2	04/10/18 23:13	93	93	94	111	93
9535311DL2	04/10/18 23:29	96	101	99	104	99

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18094018		13C2-PFDODA	13C2-PFTEDA	13C3-PFBS	13C3-PFHXS	13C4-PFBA
	Limits	15-135	20-127	34-118	32-125	37-107
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS094018	04/10/18 16:29	79	81	76	88	78
BLK094018	04/10/18 17:31	61	62	66	67	66

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18093011		13C4-PFHPA	13C5-PFHXA	13C5-PFPEA	13C6-PFDA	13C7-PFUNDA
	Limits	45-114	43-115	70-130	36-121	25-134
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
9535294DL	04/10/18 10:32	98	94	90	89	96
9535295DL	04/10/18 10:48	84	87	89	88	94
9535296DL	04/10/18 11:03	89	87	85	87	91
9535297DL	04/10/18 11:19	165 *	154 *	85	77	89
9535299DL	04/10/18 11:50	92	89	84	86	96
9535300DL	04/10/18 12:36	91	96	96	92	101
9535301DL	04/10/18 12:52	125 *	119 *	84	76	102
9535301DL2	04/10/18 13:07	96	89	89	82	99
9535303DL	04/10/18 13:23	126 *	139 *	88	84	94
9535305DL	04/10/18 13:54	93	92	85	83	98
9535306DL	04/10/18 14:10	87	88	85	81	95
9535307DL	04/10/18 14:25	132 *	135 *	86	80	100
9535309DL	04/10/18 14:56	93	92	88	84	109
9535310DL	04/10/18 15:43	92	95	87	87	100
9535311DL	04/10/18 15:58	136 *	129 *	85	74	86
9535297DL2	04/10/18 22:42	108	96	95	85	93
9535303DL2	04/10/18 22:57	96	91	95	95	103
9535307DL2	04/10/18 23:13	103	97	97	98	105
9535311DL2	04/10/18 23:29	106	96	98	94	98

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18094018		13C4-PFHPA	13C5-PFHXA	13C5-PFPEA	13C6-PFDA	13C7-PFUNDA
	Limits	45-114	43-115	70-130	36-121	25-134
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS094018	04/10/18 16:29	88	87	80	80	91
BLK094018	04/10/18 17:31	68	64	67 *	62	68

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18093011		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery
9535294DL	04/10/18 10:32	92	88	83
9535295DL	04/10/18 10:48	83	84	79
9535296DL	04/10/18 11:03	83	81	74
9535297DL	04/10/18 11:19	60	90	97
9535299DL	04/10/18 11:50	83	85	76
9535300DL	04/10/18 12:36	93	87	86
9535301DL	04/10/18 12:52	70	85	90
9535301DL2	04/10/18 13:07	80	92	87
9535303DL	04/10/18 13:23	67	83	88
9535305DL	04/10/18 13:54	83	81	75
9535306DL	04/10/18 14:10	91	83	79
9535307DL	04/10/18 14:25	63	83	89
9535309DL	04/10/18 14:56	86	82	79
9535310DL	04/10/18 15:43	85	86	88
9535311DL	04/10/18 15:58	60	83	89
9535297DL2	04/10/18 22:42	97	92	80
9535303DL2	04/10/18 22:57	91	92	83
9535307DL2	04/10/18 23:13	91	98	85
9535311DL2	04/10/18 23:29	95	100	94

✓

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18094018		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery
LCS094018	04/10/18 16:29	76	75	76
BLK094018	04/10/18 17:31	68	61	57

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18094018		13C2-PFDODA	13C2-PFTEDA	13C3-PFBS	13C3-PFHXS	13C4-PFBA
	Limits	15-135	20-127	34-118	32-125	37-107
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
9535308	04/18/18 22:56	87	84	89	119	90
9535308DL	04/19/18 12:29	90	87	89	90	87

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18102019		13C2-PFDODA	13C2-PFTEDA	13C3-PFBS	13C3-PFHXS	13C4-PFBA
	Limits	15-135	20-127	34-118	32-125	37-107
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS102019	04/18/18 09:59	70	67	67	73	76
BLK102019	04/18/18 11:02	71	67	77	71	83
9535298	04/18/18 11:17	64	63	74	139 *	78
9535302	04/18/18 11:33	63	65	71	109	75
9535304	04/18/18 11:48	63	59	73	100	75
9535304DL	04/18/18 16:59	77	75	69	73	73
9535298DL	04/19/18 14:02	77	80	83	84	82
9535302DL	04/19/18 14:18	92	89	81	86	84

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18094018		13C4-PFHPA	13C5-PFHXA	13C5-PFPEA	13C6-PFDA	13C7-PFUNDA
	Limits	45-114	43-115	70-130	36-121	25-134
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
9535308	04/18/18 22:56	127 *	119 *	92	87	114
9535308DL	04/19/18 12:29	94	93	91	89	100

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18102019		13C4-PFHPA	13C5-PFHXA	13C5-PFPEA	13C6-PFDA	13C7-PFUNDA
	Limits	45-114	43-115	70-130	36-121	25-134
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS102019	04/18/18 09:59	77	79	82	70	74
BLK102019	04/18/18 11:02	77	75	84	75	78
9535298	04/18/18 11:17	148 *	142 *	72	67	100
9535302	04/18/18 11:33	124 *	102	64 *	64	97
9535304	04/18/18 11:48	106	105	75	61	80
9535304DL	04/18/18 16:59	81	76	73	77	95
9535298DL	04/19/18 14:02	84	89	83	83	94
9535302DL	04/19/18 14:18	88	92	81	88	112

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18094018		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery
9535308	04/18/18 22:56	77	90	103
9535308DL	04/19/18 12:29	89	86	90

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18102019		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery
LCS102019	04/18/18 09:59	79	81	90
BLK102019	04/18/18 11:02	75	91	114
9535298	04/18/18 11:17	44	81	88
9535302	04/18/18 11:33	50	79	88
9535304	04/18/18 11:48	59	76	83
9535304DL	04/18/18 16:59	70	77	80
9535298DL	04/19/18 14:02	84	83	85
9535302DL	04/19/18 14:18	86	86	87

* Outside QC Limits

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SBN08
Matrix: SOLID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCSA093011 LCSD: LCSDA Analyte	Batch: **18093011** (Sample number(s): 9535294-9535297, 9535299-9535301, 9535303, 9535305-9535307, 9535309-9535311)							
	Spike Added ng/wipe	**LCS Conc ng/wipe**	**LCSD Conc ng/wipe**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	1.45	1.58	107	116	70-130	8	30
Perfluorononanoic acid	1.36	1.46	1.50	107	111	70-130	3	30
Perfluorodecanoic acid	1.36	1.58	1.54	116	113	70-130	2	30
Perfluoroundecanoic acid	1.36	1.44	1.44	106	106	70-130	0	30
Perfluorododecanoic acid	1.36	1.53	1.47	113	108	70-130	4	30
Perfluorotridecanoic acid	1.36	1.51	1.49	111	109	70-130	2	30
Perfluorotetradecanoic acid	1.36	1.45	1.49	107	110	70-130	3	30
Perfluorohexanoic acid	1.36	1.51	1.51	111	111	70-130	0	30
Perfluoroheptanoic acid	1.36	1.55	1.62	114	119	70-130	5	30
Perfluorobutanesulfonate	1.20	1.33	1.29	110	107	70-130	3	30
Perfluorohexanesulfonate	1.29	1.30	1.25	101	97	70-130	5	30
Perfluoro-octanesulfonate	1.30	1.29	1.45	99	111	70-130	12	30
Perfluorobutanoic acid	1.36	1.60	1.57	117	115	70-130	2	30
Perfluoropentanoic acid	1.36	1.44	1.43	106	105	70-130	1	30

LCS: LCS094018 Analyte	Batch: **18094018** (Sample number(s): 9535308)							
	Spike Added ng/wipe	**LCS Conc ng/wipe**	**LCSD Conc ng/wipe**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	149.58	NA	10998 *	NA	70-130	NA	NA
Perfluorononanoic acid	1.36	1.44	NA	106	NA	70-130	NA	NA
Perfluorodecanoic acid	1.36	1.48	NA	109	NA	70-130	NA	NA
Perfluoroundecanoic acid	1.36	1.47	NA	108	NA	70-130	NA	NA
Perfluorododecanoic acid	1.36	1.56	NA	114	NA	70-130	NA	NA
Perfluorotridecanoic acid	1.36	1.52	NA	112	NA	70-130	NA	NA
Perfluorotetradecanoic acid	1.36	1.61	NA	119	NA	70-130	NA	NA
Perfluorohexanoic acid	1.36	1.65	NA	121	NA	70-130	NA	NA
Perfluoroheptanoic acid	1.36	2.50	NA	184 *	NA	70-130	NA	NA
Perfluorobutanesulfonate	1.20	1.13	NA	94	NA	70-130	NA	NA
Perfluorohexanesulfonate	1.29	1.24	NA	97	NA	70-130	NA	NA
Perfluoro-octanesulfonate	1.30	1.31	NA	100	NA	70-130	NA	NA
Perfluorobutanoic acid	1.36	1.48	NA	109	NA	70-130	NA	NA
Perfluoropentanoic acid	1.36	1.39	NA	102	NA	70-130	NA	NA

Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SBN08
Matrix: SOLID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCS102019	Batch: **18102019** (Sample number(s): 9535298, 9535302, 9535304)							
Analyte	**Spike Added ng/wipe**	**LCS Conc ng/wipe**	**LCSD Conc ng/wipe**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	1.53	NA	112	NA	70-130	NA	NA
Perfluorononanoic acid	1.36	1.33	NA	98	NA	70-130	NA	NA
Perfluorodecanoic acid	1.36	1.44	NA	106	NA	70-130	NA	NA
Perfluoroundecanoic acid	1.36	1.38	NA	102	NA	70-130	NA	NA
Perfluorododecanoic acid	1.36	1.33	NA	98	NA	70-130	NA	NA
Perfluorotridecanoic acid	1.36	1.36	NA	100	NA	70-130	NA	NA
Perfluorotetradecanoic acid	1.36	1.38	NA	102	NA	70-130	NA	NA
Perfluorohexanoic acid	1.36	1.28	NA	94	NA	70-130	NA	NA
Perfluoroheptanoic acid	1.36	1.37	NA	101	NA	70-130	NA	NA
Perfluorobutanesulfonate	1.20	1.15	NA	96	NA	70-130	NA	NA
Perfluorohexanesulfonate	1.29	1.16	NA	90	NA	70-130	NA	NA
Perfluoro-octanesulfonate	1.30	1.14	NA	88	NA	70-130	NA	NA
Perfluorobutanoic acid	1.36	1.37	NA	101	NA	70-130	NA	NA
Perfluoropentanoic acid	1.36	1.21	NA	89	NA	70-130	NA	NA

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SBN08
Matrix: LIQUID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCS092009 LCSD: LCSDA Analyte	Batch: **18092009** (Sample number(s): 9535292-9535293) Spike Added ng/l	LCS Conc ng/l	LCSD Conc ng/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Perfluorooctanoic acid	5.44	5.16	5.25	95	96	70-130	2	30
Perfluorononanoic acid	5.44	4.79	5.03	88	93	70-130	5	30
Perfluorodecanoic acid	5.44	5.49	5.02	101	92	70-130	9	30
Perfluoroundecanoic acid	5.44	4.88	5.07	90	93	70-130	4	30
Perfluorododecanoic acid	5.44	4.95	5.20	91	96	70-130	5	30
Perfluorotridecanoic acid	5.44	4.61	5.37	85	99	70-130	15	30
Perfluorotetradecanoic acid	5.44	4.98	4.98	91	92	70-130	0	30
Perfluorohexanoic acid	5.44	5.55	5.11	102	94	70-130	8	30
Perfluoroheptanoic acid	5.44	5.25	5.41	97	99	70-130	3	30
Perfluorobutanesulfonate	4.81	4.36	4.34	91	90	70-130	0	30
Perfluorohexanesulfonate	5.14	4.28	4.34	83	84	70-130	1	30
Perfluoro-octanesulfonate	5.20	4.57	4.64	88	89	70-130	2	30
Perfluorobutanoic acid	5.44	4.91 J	5.14 J	90	94	70-130	5	30
Perfluoropentanoic acid	5.44	4.84 J	5.09 J	89	94	70-130	5	30

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18APR03MCAL-10.wiff	4/3/2018 5:45:46 PM	CALMOD11833A	CAL1
18APR03MCAL-11.wiff	4/3/2018 6:01:16 PM	CALMOD21833A	CAL2
18APR03MCAL-12.wiff	4/3/2018 6:16:46 PM	CALMOD31833A	CAL3
18APR03MCAL-13.wiff	4/3/2018 6:32:19 PM	CALMOD41833A	CAL4
18APR03MCAL-14.wiff	4/3/2018 6:47:49 PM	CALMOD51833A	CAL5
18APR03MCAL-15.wiff	4/3/2018 7:03:19 PM	CALMOD61833A	CAL6
18APR03MCAL-16.wiff	4/3/2018 7:18:49 PM	CALMOD71833A	CAL7

Validated in SBN09

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	1070927.1	1069641.9
CAL2	I13C3-PFBA	True	1126426.9	1069641.9
CAL3	I13C3-PFBA	True	1095390.6	1069641.9
CAL4	I13C3-PFBA	True	1102085.4	1069641.9
CAL5	I13C3-PFBA	True	1033749.3	1069641.9
CAL6	I13C3-PFBA	True	1107818.3	1069641.9
CAL7	I13C3-PFBA	True	951095.5	1069641.9
CAL1	I13C2-PFOA	True	1970005.5	1927063.1
CAL2	I13C2-PFOA	True	1999752.1	1927063.1
CAL3	I13C2-PFOA	True	1985935.1	1927063.1
CAL4	I13C2-PFOA	True	1971896.3	1927063.1
CAL5	I13C2-PFOA	True	1892151.4	1927063.1
CAL6	I13C2-PFOA	True	1981982.5	1927063.1
CAL7	I13C2-PFOA	True	1687719.0	1927063.1
CAL1	I13C4-PFOS	True	455687.7	472837.8
CAL2	I13C4-PFOS	True	477917.0	472837.8
CAL3	I13C4-PFOS	True	462822.9	472837.8
CAL4	I13C4-PFOS	True	479900.6	472837.8
CAL5	I13C4-PFOS	True	460308.6	472837.8
CAL6	I13C4-PFOS	True	512774.7	472837.8
CAL7	I13C4-PFOS	True	460453.3	472837.8
CAL1	I13C2-PFDA	True	1551629.8	1521482.1
CAL2	I13C2-PFDA	True	1685581.2	1521482.1
CAL3	I13C2-PFDA	True	1490238.0	1521482.1
CAL4	I13C2-PFDA	True	1610063.4	1521482.1
CAL5	I13C2-PFDA	True	1432482.7	1521482.1
CAL6	I13C2-PFDA	True	1525226.0	1521482.1
CAL7	I13C2-PFDA	True	1355153.9	1521482.1

APPROVED
By MCD at 6:37 pm, 4/19/18

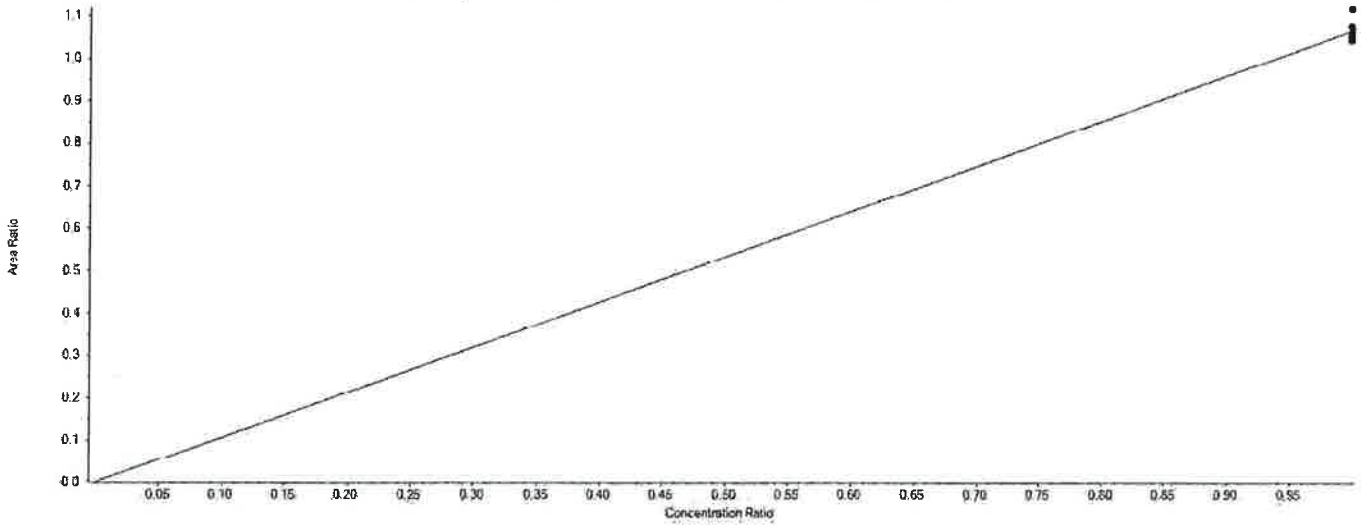
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFBA

y = 1.06568 x (std. dev. = 0.02477) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1117947.8	1070927.1	True	5.00	1.044	4.43	1.000	5.000	4.898	-2.0	50.0	
CAL2	1257830.7	1126426.9	True	5.00	1.117	4.43	1.000	5.000	5.239	4.8	30.0	
CAL3	1154404.8	1095390.6	True	5.00	1.054	4.44	1.000	5.000	4.945	-1.1	30.0	
CAL4	1164284.0	1102085.4	True	5.00	1.056	4.43	1.000	5.000	4.957	-0.9	30.0	
CAL5	1113524.3	1033749.3	True	5.00	1.077	4.44	1.000	5.000	5.054	1.1	30.0	
CAL6	1163702.8	1107818.3	True	5.00	1.050	4.43	1.000	5.000	4.929	-1.4	30.0	
CAL7	1009398.2	951095.5	True	5.00	1.061	4.43	1.000	5.000	4.979	-0.4	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

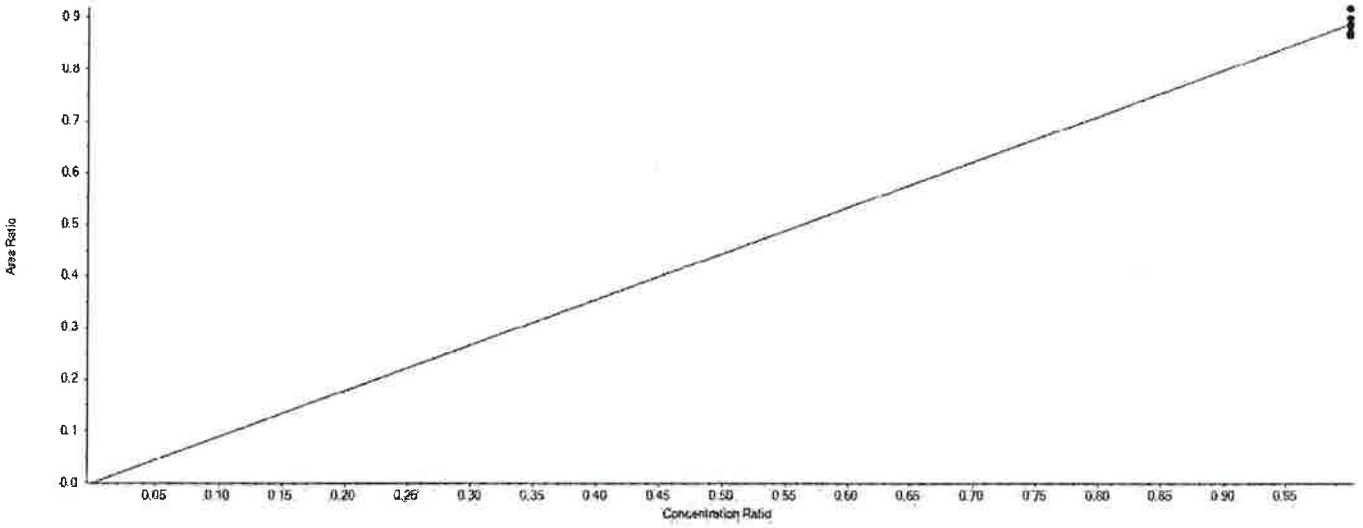
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFPeA

y = 0.88682 x (std. dev. = 0.01720) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	927299.9	1070927.1	True	5.00	0.866	5.01	1.130	5.000	4.882	-2.4	50.0	
CAL2	1033297.5	1126426.9	True	5.00	0.917	5.01	1.130	5.000	5.172	3.4	30.0	
CAL3	953673.8	1095390.6	True	5.00	0.871	5.01	1.130	5.000	4.909	-1.8	30.0	
CAL4	977038.3	1102085.4	True	5.00	0.887	5.01	1.130	5.000	4.998	0.0	30.0	
CAL5	915279.4	1033749.3	True	5.00	0.885	5.01	1.130	5.000	4.992	-0.2	30.0	
CAL6	978916.5	1107818.3	True	5.00	0.884	5.01	1.130	5.000	4.982	-0.4	30.0	
CAL7	854369.5	951095.5	True	5.00	0.898	5.01	1.130	5.000	5.065	1.3	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

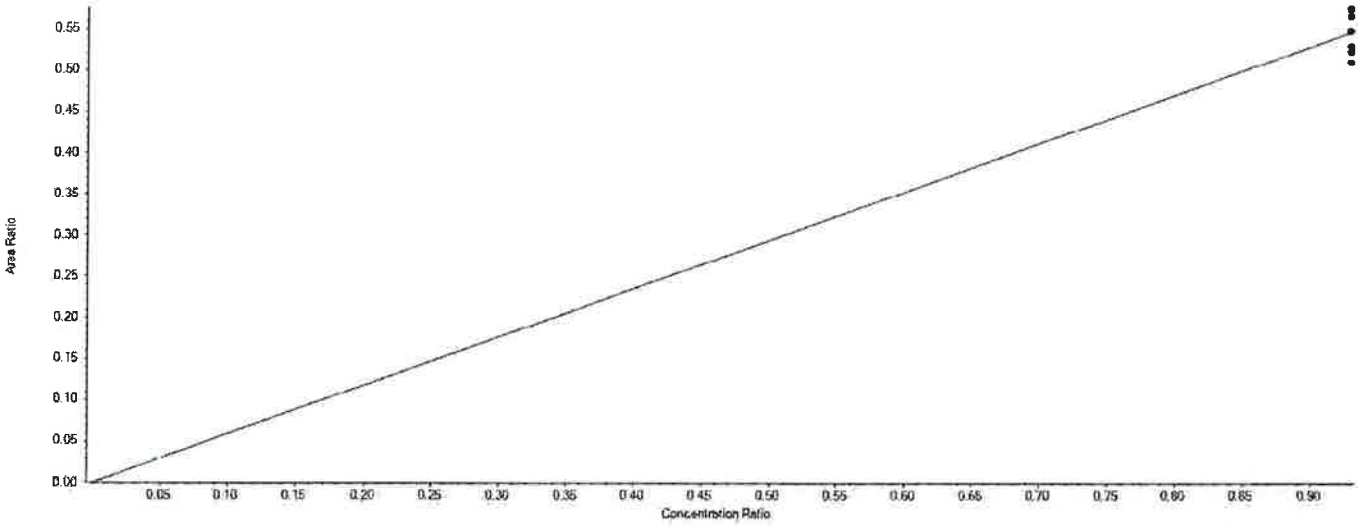
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFBS

y = 0.58770 x (std. dev. = 0.02796) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	546699.6	1070927.1	True	5.00	0.510	5.06	1.140	4.650	4.343	-6.6	50.0	
CAL2	617333.5	1126426.9	True	5.00	0.548	5.06	1.140	4.650	4.663	0.3	30.0	
CAL3	573261.0	1095390.6	True	5.00	0.523	5.06	1.140	4.650	4.452	-4.2	30.0	
CAL4	583555.1	1102085.4	True	5.00	0.530	5.06	1.140	4.650	4.505	-3.1	30.0	
CAL5	593273.0	1033749.3	True	5.00	0.574	5.06	1.140	4.650	4.883	5.0	30.0	
CAL6	626580.1	1107818.3	True	5.00	0.566	5.06	1.140	4.650	4.812	3.5	30.0	
CAL7	546947.7	951095.5	True	5.00	0.575	5.06	1.140	4.650	4.893	5.2	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

REVIEWED
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Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
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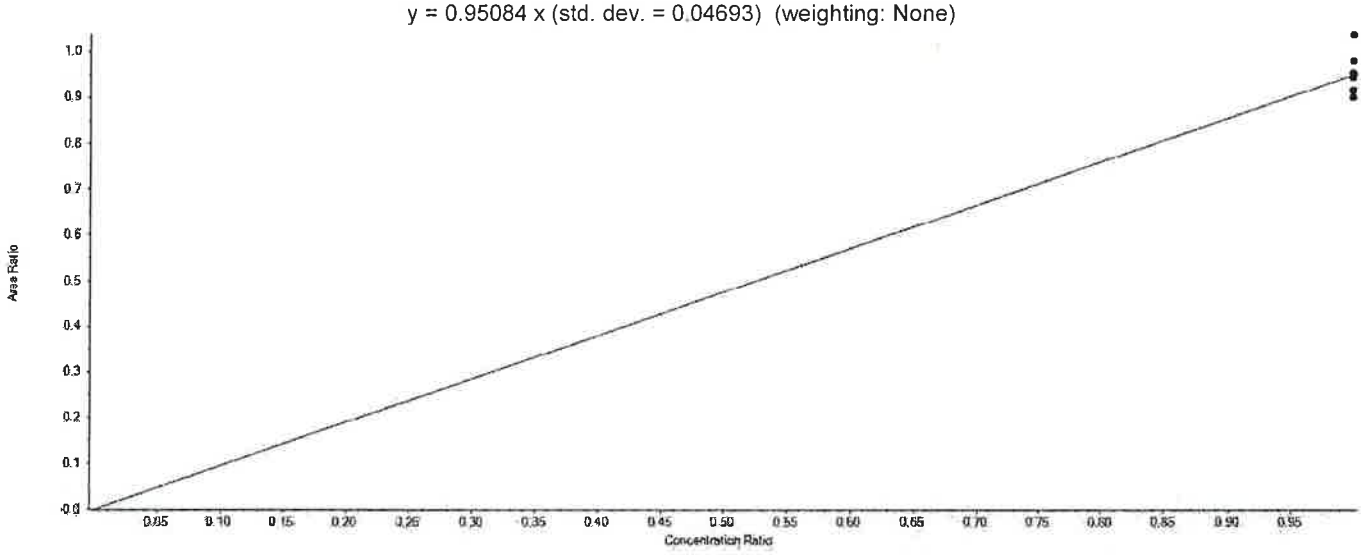
E13C5-PFHxA

y = 0.95084 x (std. dev. = 0.04693) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1862010.2	1970005.5	True	5.00	0.945	5.47	0.860	5.000	4.970	-0.6	50.0	
CAL2	2074362.3	1999752.1	True	5.00	1.037	5.48	0.860	5.000	5.455	9.1	30.0	
CAL3	1898264.9	1985935.1	True	5.00	0.956	5.48	0.860	5.000	5.026	0.5	30.0	
CAL4	1935951.9	1971896.3	True	5.00	0.982	5.48	0.860	5.000	5.163	3.3	30.0	
CAL5	1734006.8	1892151.4	True	5.00	0.916	5.48	0.860	5.000	4.819	-3.6	30.0	
CAL6	1785750.2	1981982.5	True	5.00	0.901	5.48	0.860	5.000	4.738	-5.2	30.0	
CAL7	1549939.6	1687719.0	True	5.00	0.918	5.47	0.860	5.000	4.829	-3.4	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
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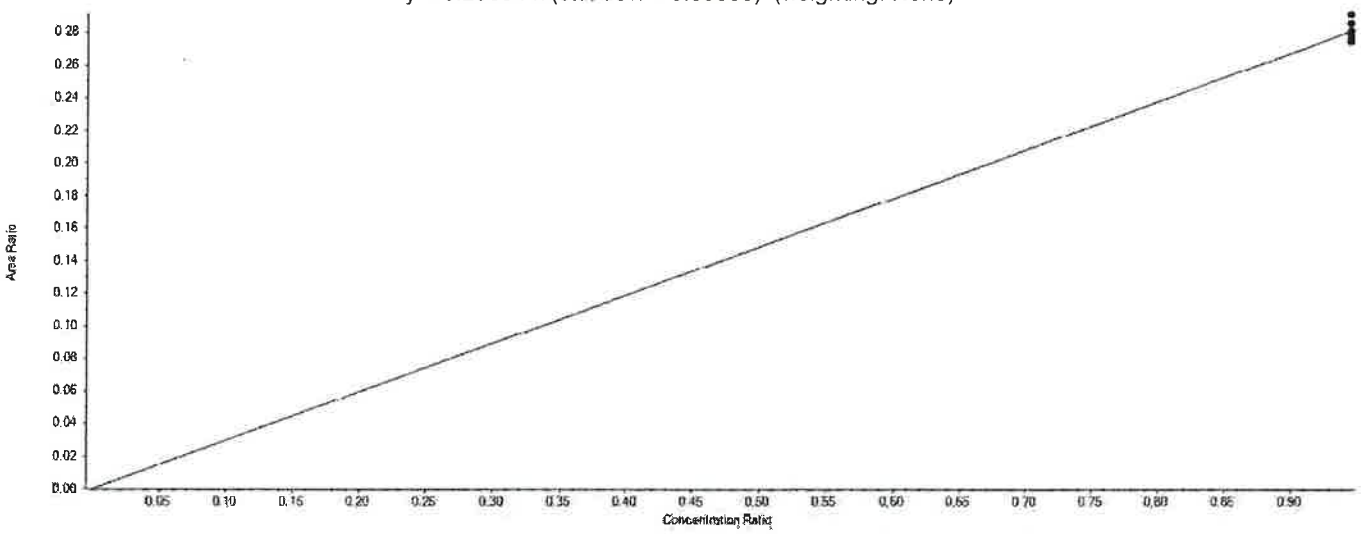
E13C3-PFHxS

y = 0.29684 x (std. dev. = 0.00606) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	541210.3	1970005.5	True	5.00	0.275	5.91	0.930	4.730	4.627	-2.2	50.0	
CAL2	571572.2	1999752.1	True	5.00	0.286	5.91	0.930	4.730	4.814	1.8	30.0	
CAL3	548482.6	1985935.1	True	5.00	0.276	5.92	0.930	4.730	4.652	-1.6	30.0	
CAL4	548133.1	1971896.3	True	5.00	0.278	5.91	0.930	4.730	4.682	-1.0	30.0	
CAL5	528221.7	1892151.4	True	5.00	0.279	5.92	0.930	4.730	4.702	-0.6	30.0	
CAL6	576693.9	1981982.5	True	5.00	0.291	5.91	0.930	4.730	4.901	3.6	30.0	
CAL7	474004.2	1687719.0	True	5.00	0.281	5.91	0.930	4.730	4.731	0.0	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
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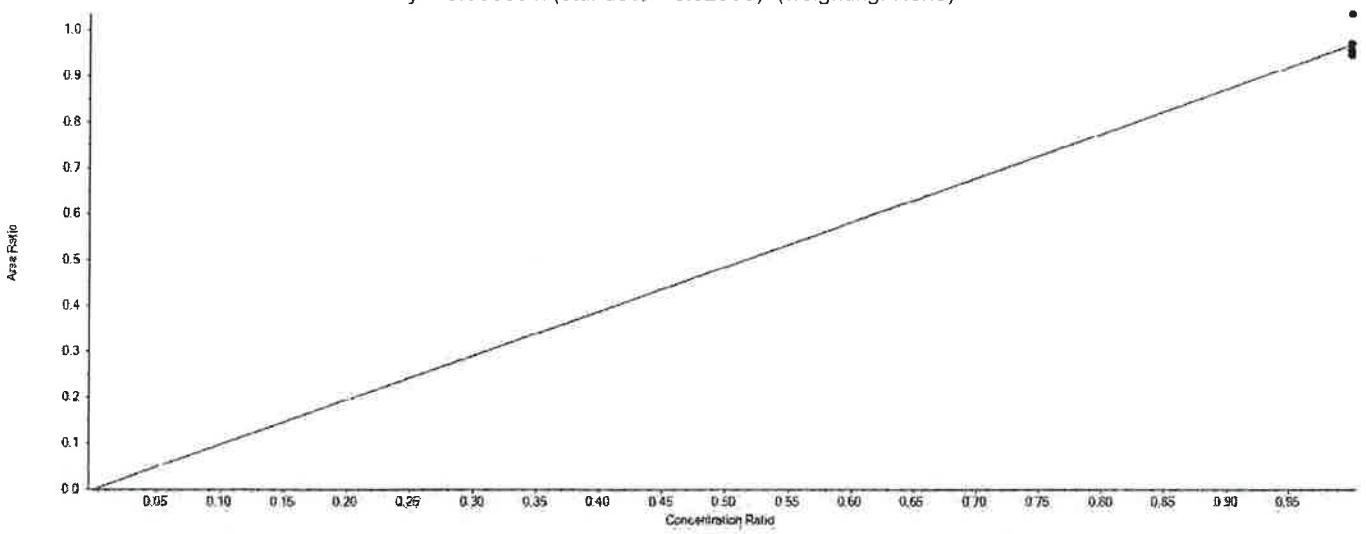
E13C4-PFHpA

y = 0.96865 x (std. dev. = 0.02996) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1865122.6	1970005.5	True	5.00	0.947	5.92	0.930	5.000	4.887	-2.3	50.0	
CAL2	2068451.2	1999752.1	True	5.00	1.034	5.92	0.940	5.000	5.339	6.8	30.0	
CAL3	1899015.5	1985935.1	True	5.00	0.956	5.93	0.940	5.000	4.936	-1.3	30.0	
CAL4	1917007.4	1971896.3	True	5.00	0.972	5.92	0.940	5.000	5.018	0.4	30.0	
CAL5	1811074.9	1892151.4	True	5.00	0.957	5.92	0.930	5.000	4.941	-1.2	30.0	
CAL6	1902587.0	1981982.5	True	5.00	0.960	5.92	0.930	5.000	4.955	-0.9	30.0	
CAL7	1609975.6	1687719.0	True	5.00	0.954	5.92	0.940	5.000	4.924	-1.5	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

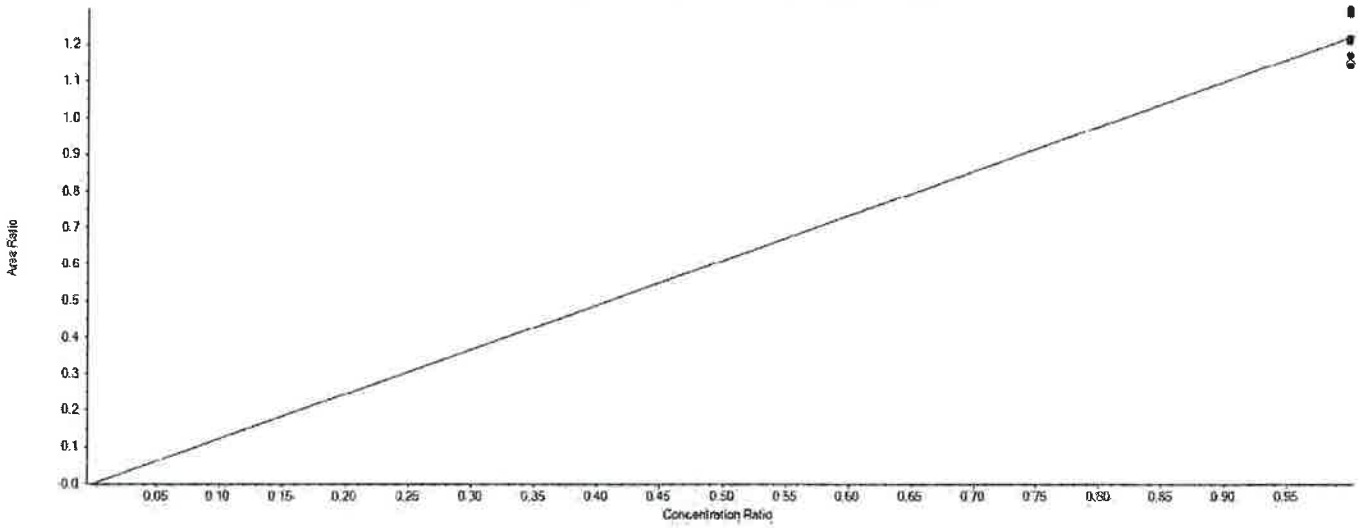
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOA

y = 1.22028 x (std. dev. = 0.06083) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	2304033.3	1970005.5	True	5.00	1.170	6.33	1.000	5.000	4.792	-4.2	50.0	
CAL2	2592220.3	1999752.1	True	5.00	1.296	6.33	1.000	5.000	5.311	6.2	30.0	
CAL3	2548782.1	1985935.1	True	5.00	1.283	6.34	1.000	5.000	5.259	5.2	30.0	
CAL4	2388447.3	1971896.3	True	5.00	1.211	6.33	1.000	5.000	4.963	-0.7	30.0	
CAL5	2306378.4	1892151.4	True	5.00	1.219	6.34	1.000	5.000	4.994	-0.1	30.0	
CAL6	2263958.6	1981982.5	True	5.00	1.142	6.34	1.000	5.000	4.680	-6.4	30.0	
CAL7	1940157.1	1687719.0	False	5.00	1.150	6.33	1.000	5.000	4.710	-5.8	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

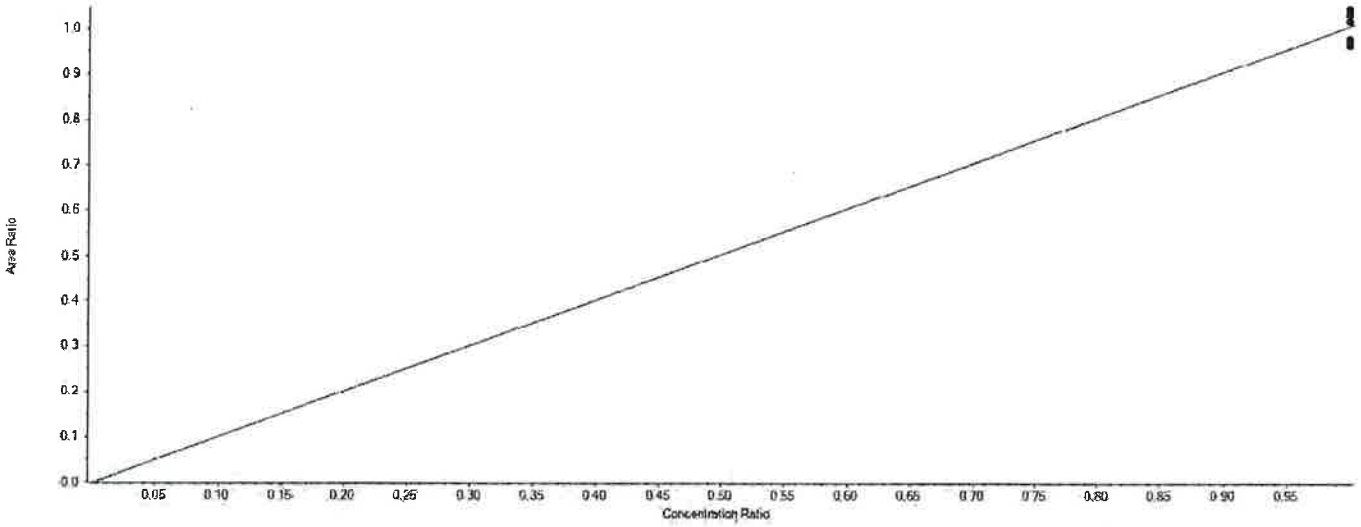
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOS

y = 1.00766 x (std. dev. = 0.03337) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	443411.4	455687.7	True	4.78	0.973	6.67	1.000	4.780	4.616	-3.4	50.0	
CAL2	496179.7	477917.0	True	4.78	1.038	6.67	1.000	4.780	4.925	3.0	30.0	
CAL3	484080.2	462822.9	True	4.78	1.046	6.68	1.000	4.780	4.962	3.8	30.0	
CAL4	488577.4	479900.6	True	4.78	1.018	6.68	1.000	4.780	4.829	1.0	30.0	
CAL5	474614.5	460308.6	True	4.78	1.031	6.68	1.000	4.780	4.891	2.3	30.0	
CAL6	503058.6	512774.7	True	4.78	0.981	6.68	1.000	4.780	4.654	-2.6	30.0	
CAL7	444882.0	460453.3	True	4.78	0.966	6.68	1.000	4.780	4.583	-4.1	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

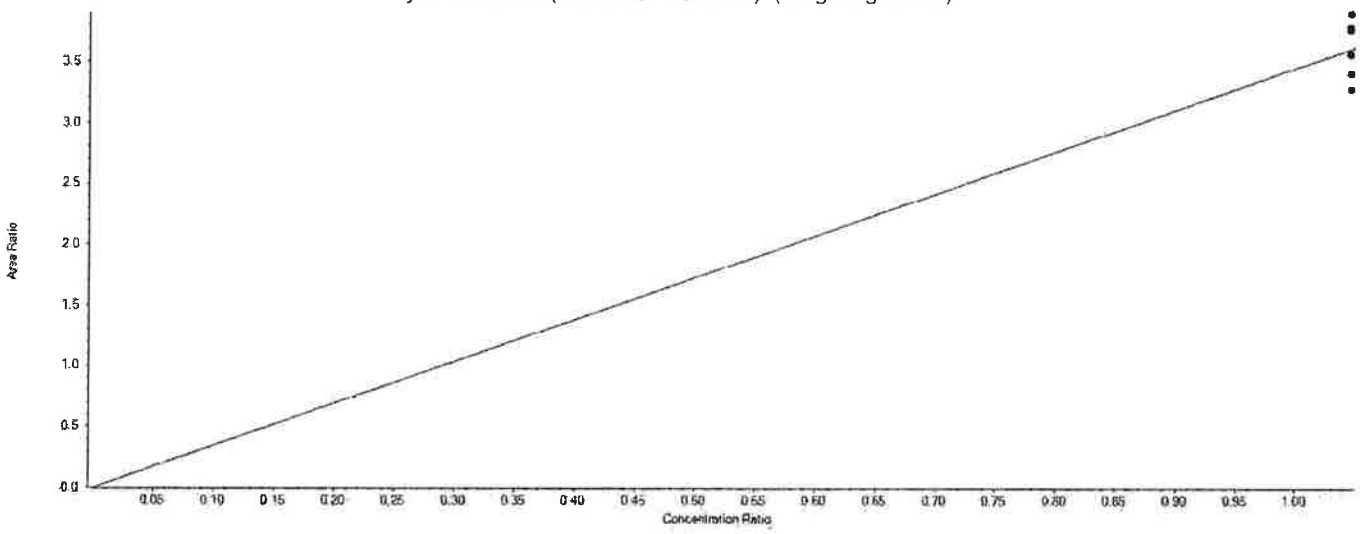
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C9-PFNA

y = 3.44849 x (std. dev. = 0.21241) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1626342.4	455687.7	True	4.78	3.569	6.70	1.000	5.000	4.947	-1.1	50.0	
CAL2	1861072.1	477917.0	True	4.78	3.894	6.70	1.000	5.000	5.398	8.0	30.0	
CAL3	1742212.3	462822.9	True	4.78	3.764	6.71	1.000	5.000	5.218	4.4	30.0	
CAL4	1817151.4	479900.6	True	4.78	3.787	6.70	1.000	5.000	5.249	5.0	30.0	
CAL5	1639175.4	460308.6	True	4.78	3.561	6.71	1.000	5.000	4.936	-1.3	30.0	
CAL6	1678669.6	512774.7	True	4.78	3.274	6.71	1.000	5.000	4.538	-9.2	30.0	
CAL7	1566344.3	460453.3	True	4.78	3.402	6.71	1.000	5.000	4.715	-5.7	30.0	

APPROVED
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REVIEWED
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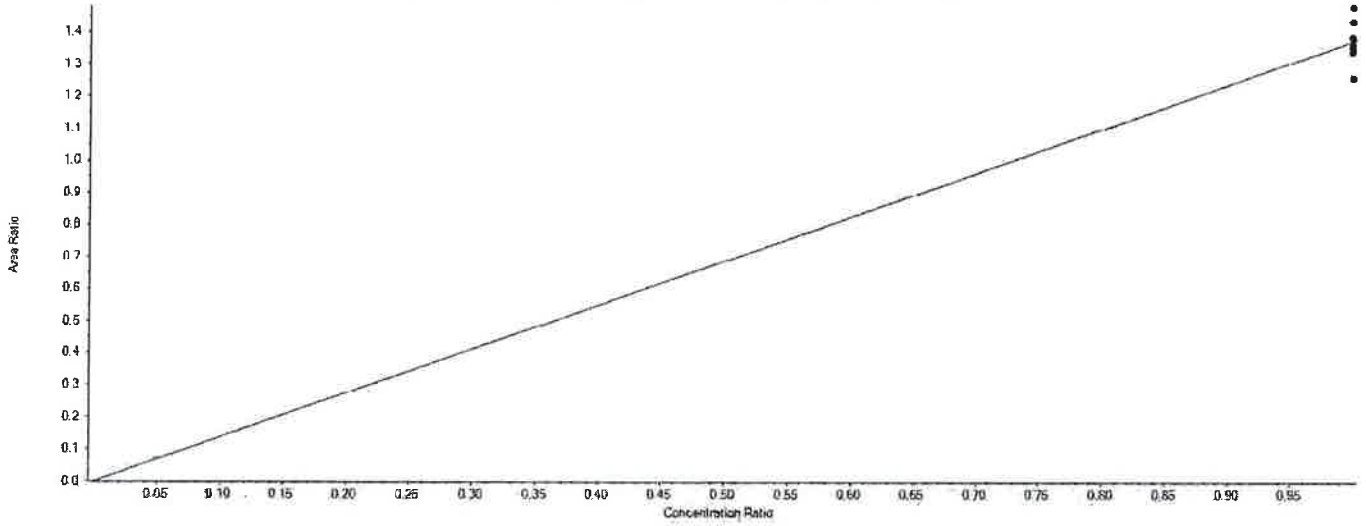
Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C6-PFDA

y = 1.37428 x (std. dev. = 0.06976) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	2080191.8	1551629.8	True	5.00	1.341	7.04	1.000	5.000	4.878	-2.4	50.0	
CAL2	2492323.6	1685581.2	True	5.00	1.479	7.05	1.000	5.000	5.380	7.6	30.0	
CAL3	2023224.6	1490238.0	True	5.00	1.358	7.05	1.000	5.000	4.940	-1.2	30.0	
CAL4	2231084.6	1610063.4	True	5.00	1.386	7.04	1.000	5.000	5.042	0.8	30.0	
CAL5	2053320.9	1432482.7	True	5.00	1.433	7.05	1.000	5.000	5.215	4.3	30.0	
CAL6	2081140.9	1525226.0	True	5.00	1.364	7.05	1.000	5.000	4.964	-0.7	30.0	
CAL7	1706736.6	1355153.9	True	5.00	1.259	7.05	1.000	5.000	4.582	-8.4	30.0	

APPROVED
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REVIEWED
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Initial Calibration Verification

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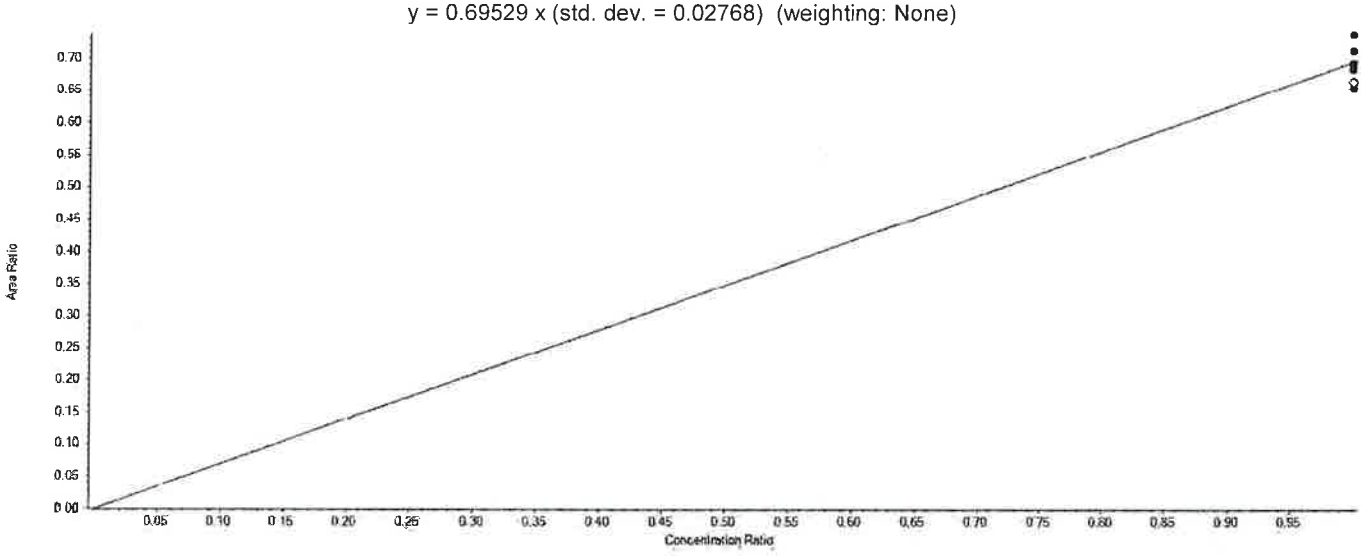
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C7-PFUnDA

y = 0.69529 x (std. dev. = 0.02768) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1015693.5	1551629.8	True	5.00	0.655	7.35	1.040	5.000	4.707	-5.9	50.0	
CAL2	1164506.3	1685581.2	True	5.00	0.691	7.35	1.040	5.000	4.968	-0.6	30.0	
CAL3	1098700.6	1490238.0	True	5.00	0.737	7.35	1.040	5.000	5.302	6.0	30.0	
CAL4	1145612.3	1610063.4	True	5.00	0.712	7.35	1.040	5.000	5.117	2.3	30.0	
CAL5	993380.7	1432482.7	True	5.00	0.693	7.35	1.040	5.000	4.987	-0.3	30.0	
CAL6	1043242.6	1525226.0	True	5.00	0.684	7.36	1.040	5.000	4.919	-1.6	30.0	
CAL7	900995.9	1355153.9	False	5.00	0.665	7.35	1.040	5.000	4.781	-4.4	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

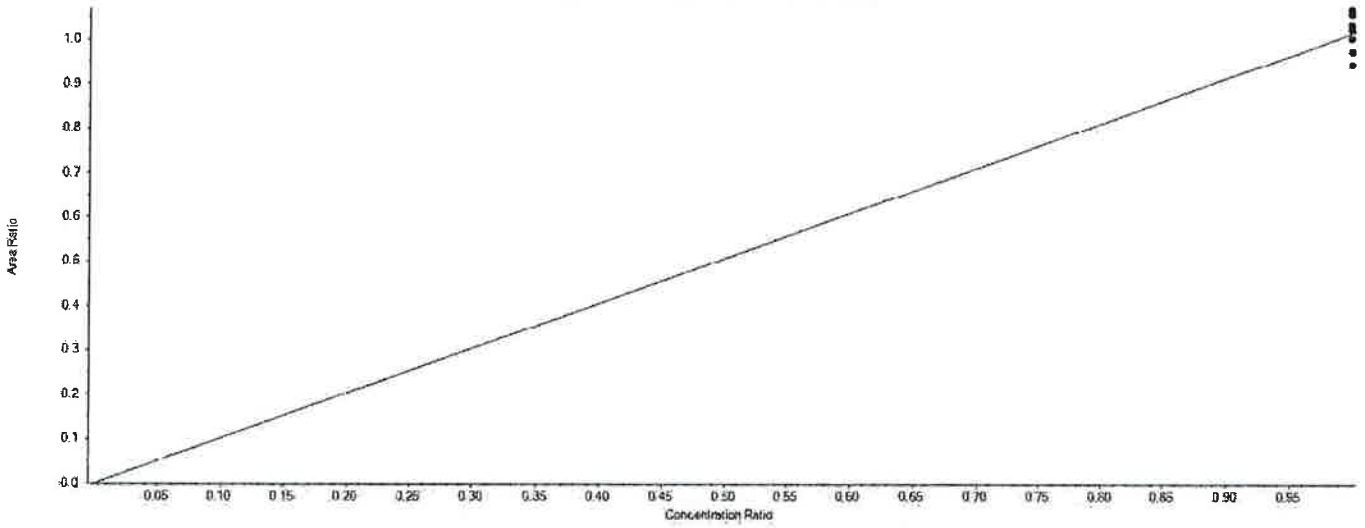
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFDoDA

y = 1.01485 x (std. dev. = 0.04453) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1464592.1	1551629.8	True	5.00	0.944	7.63	1.080	5.000	4.650	-7.0	50.0	
CAL2	1742039.0	1685581.2	True	5.00	1.033	7.63	1.080	5.000	5.092	1.8	30.0	
CAL3	1576303.1	1490238.0	True	5.00	1.058	7.64	1.080	5.000	5.211	4.2	30.0	
CAL4	1616114.9	1610063.4	True	5.00	1.004	7.63	1.080	5.000	4.945	-1.1	30.0	
CAL5	1530208.0	1432482.7	True	5.00	1.068	7.64	1.080	5.000	5.263	5.3	30.0	
CAL6	1559544.9	1525226.0	True	5.00	1.023	7.64	1.080	5.000	5.038	0.8	30.0	
CAL7	1320302.6	1355153.9	True	5.00	0.974	7.64	1.080	5.000	4.800	-4.0	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

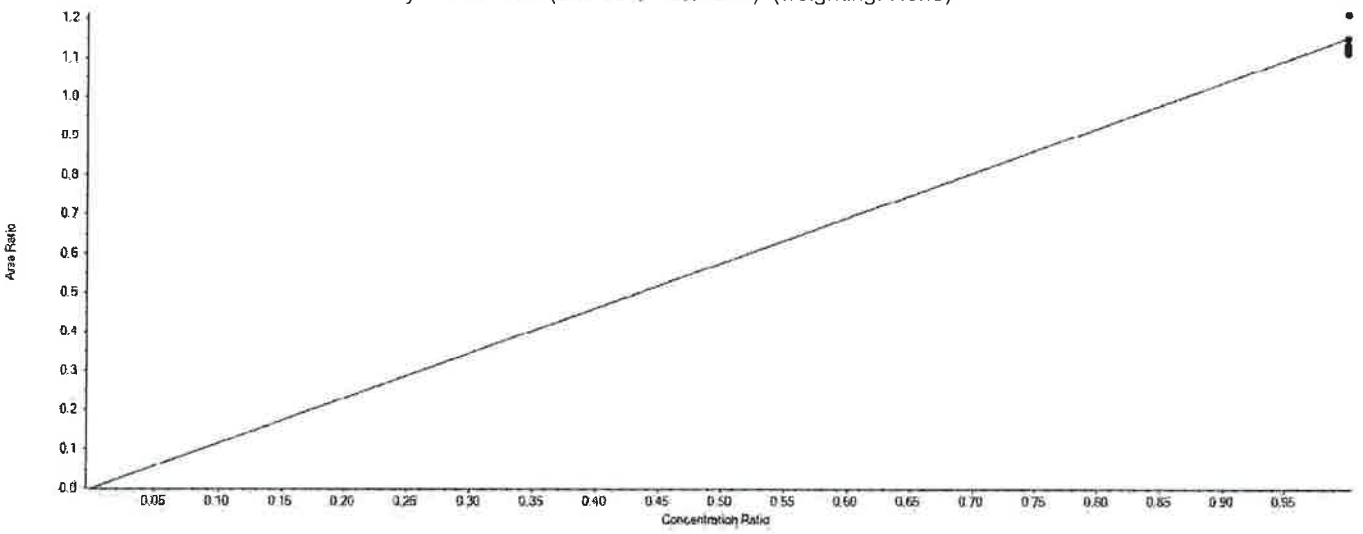
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFTeDA

y = 1.15175 x (std. dev. = 0.04214) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1727146.0	1551629.8	True	5.00	1.113	8.17	1.160	5.000	4.832	-3.4	50.0	
CAL2	1884917.7	1685581.2	True	5.00	1.118	8.17	1.160	5.000	4.855	-2.9	30.0	
CAL3	1804912.7	1490238.0	True	5.00	1.211	8.18	1.160	5.000	5.258	5.2	30.0	
CAL4	1811742.7	1610063.4	True	5.00	1.125	8.17	1.160	5.000	4.885	-2.3	30.0	
CAL5	1734299.9	1432482.7	True	5.00	1.211	8.18	1.160	5.000	5.256	5.1	30.0	
CAL6	1728825.0	1525226.0	True	5.00	1.133	8.18	1.160	5.000	4.921	-1.6	30.0	
CAL7	1558811.5	1355153.9	True	5.00	1.150	8.18	1.160	5.000	4.994	-0.1	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

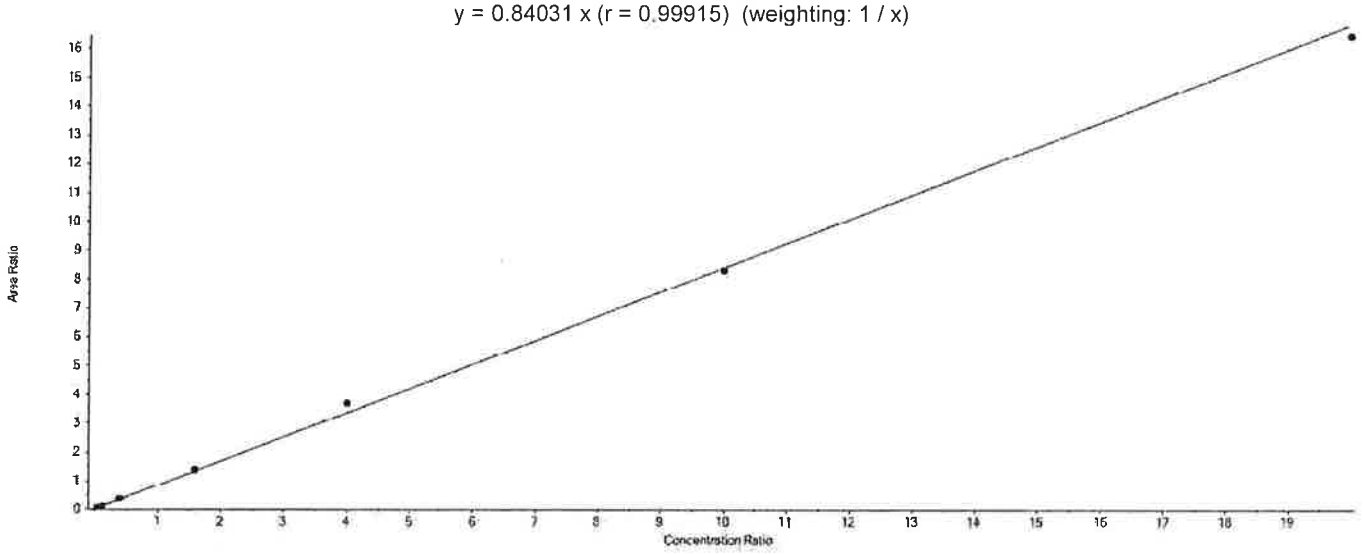
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBA

y = 0.84031 x (r = 0.99915) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	44357.9	1117947.8	True	5.00	0.040	4.43	1.000	0.200	0.236	18.0	50.0	
CAL2	131145.5	1257830.7	True	5.00	0.104	4.43	1.000	0.600	0.620	3.4	30.0	
CAL3	408767.9	1154404.8	True	5.00	0.354	4.44	1.000	2.000	2.107	5.3	30.0	
CAL4	1636608.6	1164284.0	True	5.00	1.406	4.43	1.000	8.000	8.364	4.6	30.0	
CAL5	4146003.6	1113524.3	True	5.00	3.723	4.43	1.000	20.000	22.155	10.8	30.0	
CAL6	9692379.4	1163702.8	True	5.00	8.329	4.43	1.000	50.000	49.559	-0.9	30.0	
CAL7	16583907.3	1009398.2	True	5.00	16.430	4.43	1.000	100.000	97.759	-2.2	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

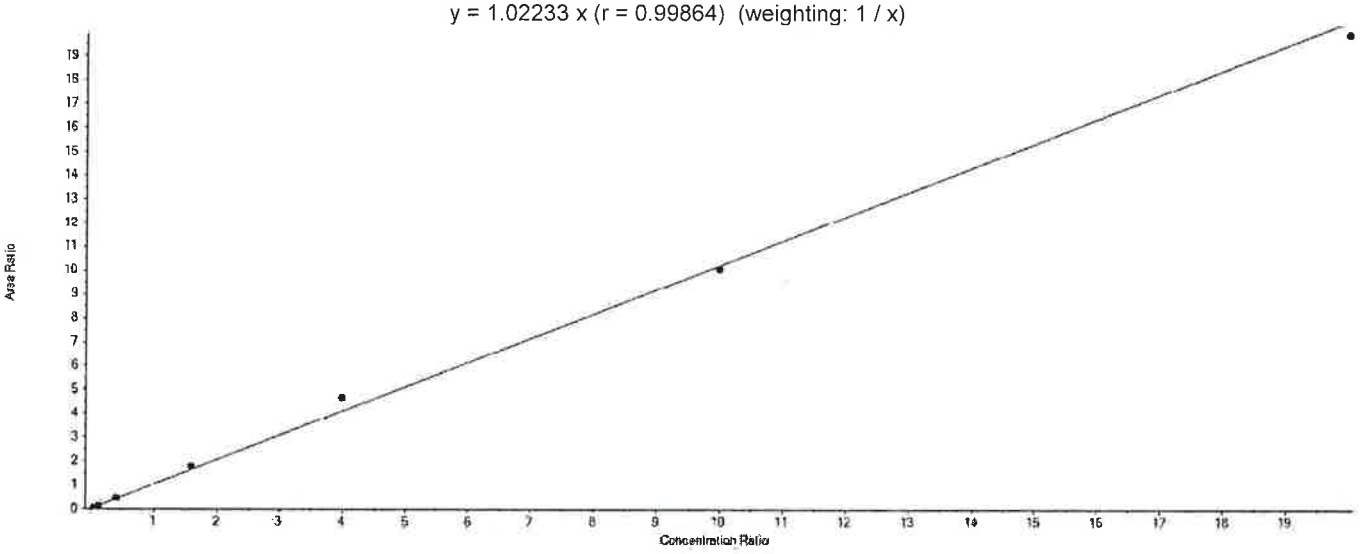
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFPeA

y = 1.02233 x (r = 0.99864) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	46166.0	927299.9	True	5.00	0.050	5.01	1.000	0.200	0.243	21.7	50.0	
CAL2	132108.5	1033297.5	True	5.00	0.128	5.01	1.000	0.600	0.625	4.2	30.0	
CAL3	404141.7	953673.8	True	5.00	0.424	5.01	1.000	2.000	2.073	3.6	30.0	
CAL4	1714749.5	977038.3	True	5.00	1.755	5.01	1.000	8.000	8.584	7.3	30.0	
CAL5	4247734.6	915279.4	True	5.00	4.641	5.01	1.000	20.000	22.698	13.5	30.0	
CAL6	9857542.2	978916.5	True	5.00	10.070	5.01	1.000	50.000	49.250	-1.5	30.0	
CAL7	17002017.3	854369.5	True	5.00	19.900	5.01	1.000	100.000	97.327	-2.7	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

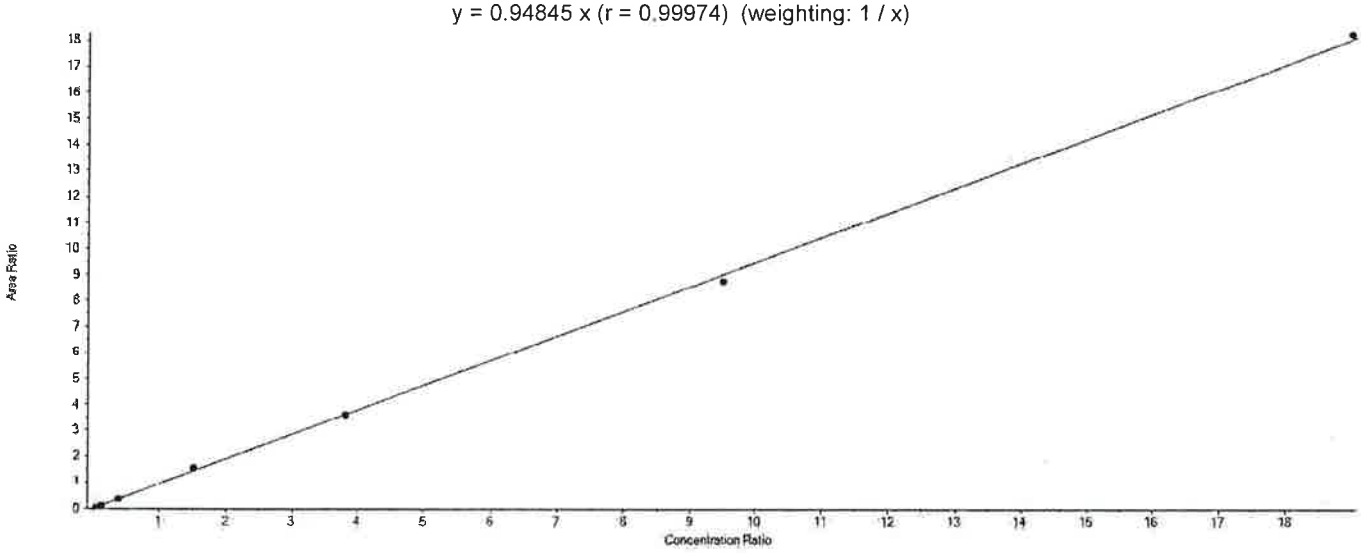
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBS

y = 0.94845 x (r = 0.99974) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	22305.5	546699.6	True	4.65	0.041	5.06	1.000	0.170	0.200	17.7	50.0	
CAL2	67204.6	617333.5	True	4.65	0.109	5.06	1.000	0.530	0.534	0.7	30.0	
CAL3	210725.2	573261.0	True	4.65	0.368	5.06	1.000	1.770	1.802	1.8	30.0	
CAL4	895197.7	583555.1	True	4.65	1.534	5.06	1.000	7.080	7.521	6.2	30.0	
CAL5	2128725.1	593273.0	True	4.65	3.588	5.06	1.000	17.690	17.592	-0.6	30.0	
CAL6	5474180.5	626580.1	True	4.65	8.737	5.06	1.000	44.220	42.833	-3.1	30.0	
CAL7	9976593.6	546947.7	True	4.65	18.240	5.06	1.000	88.450	89.428	1.1	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

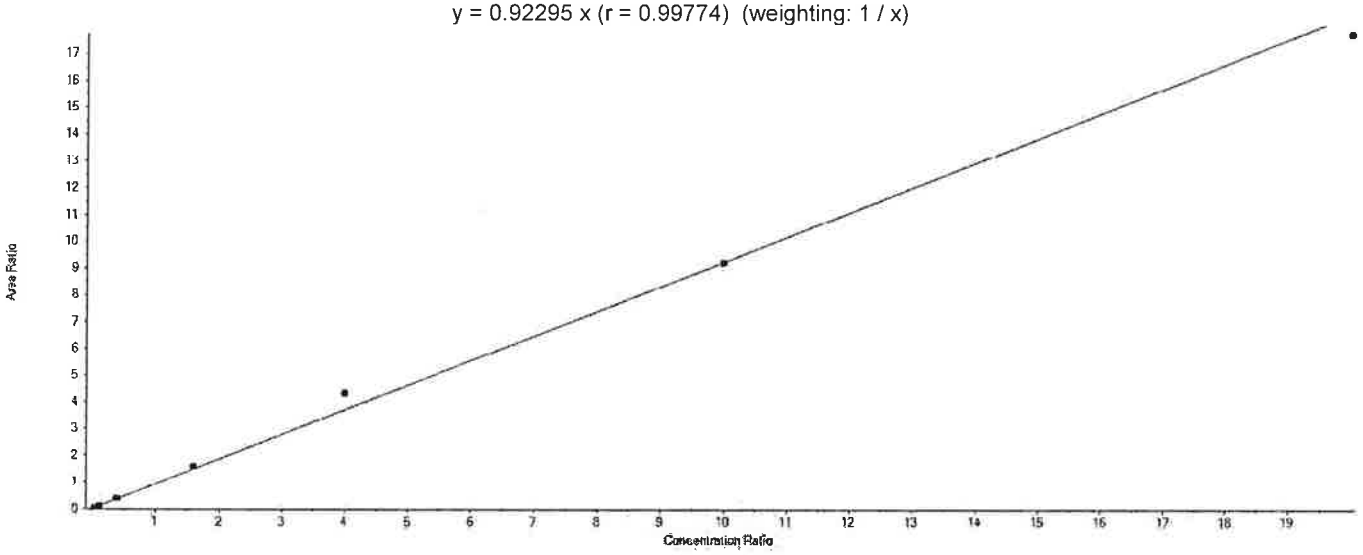
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxA

y = 0.92295 x (r = 0.99774) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	74412.0	1862010.2	True	5.00	0.040	5.47	1.000	0.200	0.216	8.2	50.0	
CAL2	233662.9	2074362.3	True	5.00	0.113	5.48	1.000	0.600	0.610	1.7	30.0	
CAL3	726946.0	1898264.9	True	5.00	0.383	5.48	1.000	2.000	2.075	3.7	30.0	
CAL4	3064026.7	1935951.9	True	5.00	1.583	5.48	1.000	8.000	8.574	7.2	30.0	
CAL5	7505176.4	1734006.8	True	5.00	4.328	5.48	1.000	20.000	23.448	17.2	30.0	
CAL6	16455995.7	1785750.2	True	5.00	9.215	5.48	1.000	50.000	49.922	-0.2	30.0	
CAL7	27452984.6	1549939.6	True	5.00	17.712	5.47	1.000	100.000	95.955	-4.0	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

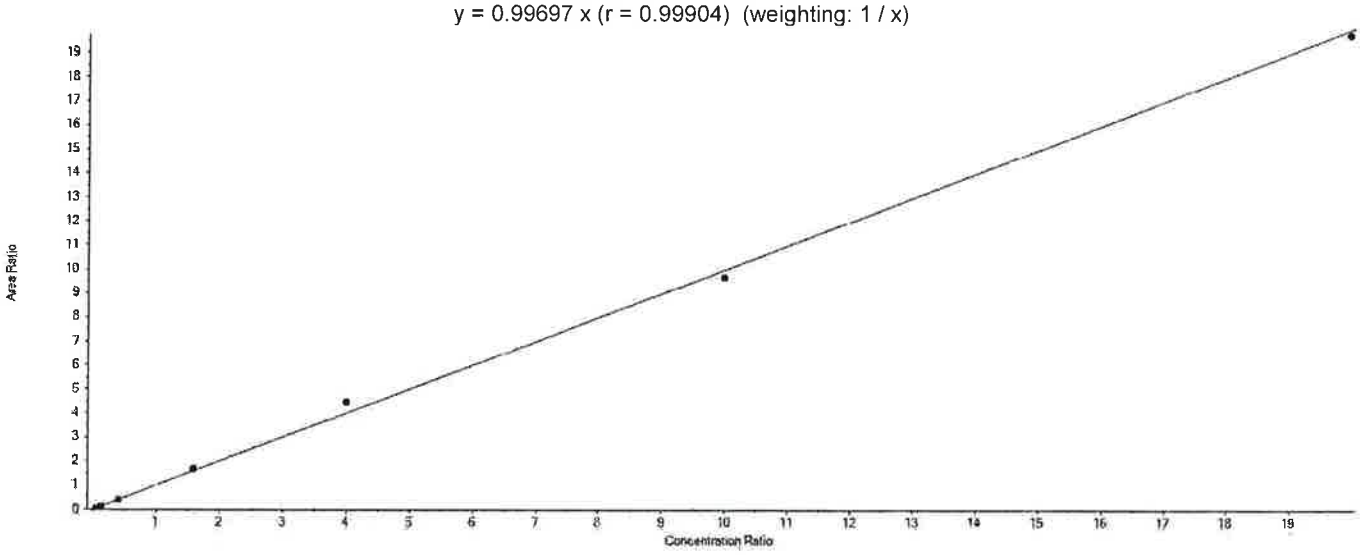
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxS

y = 0.99697 x (r = 0.99904) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	22052.7	541210.3	True	4.73	0.041	5.92	1.000	0.190	0.193	1.7	50.0	
CAL2	70492.5	571572.2	True	4.73	0.123	5.91	1.000	0.570	0.585	2.7	30.0	
CAL3	219704.5	548482.6	True	4.73	0.401	5.92	1.000	1.890	1.900	0.6	30.0	
CAL4	907280.1	548133.1	True	4.73	1.655	5.91	1.000	7.560	7.853	3.9	30.0	
CAL5	2346223.1	528221.7	True	4.73	4.442	5.92	1.000	18.910	21.073	11.4	30.0	
CAL6	5562707.2	576693.9	True	4.73	9.646	5.91	1.000	47.280	45.764	-3.2	30.0	
CAL7	9349590.8	474004.2	True	4.73	19.725	5.91	1.000	94.550	93.581	-1.0	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

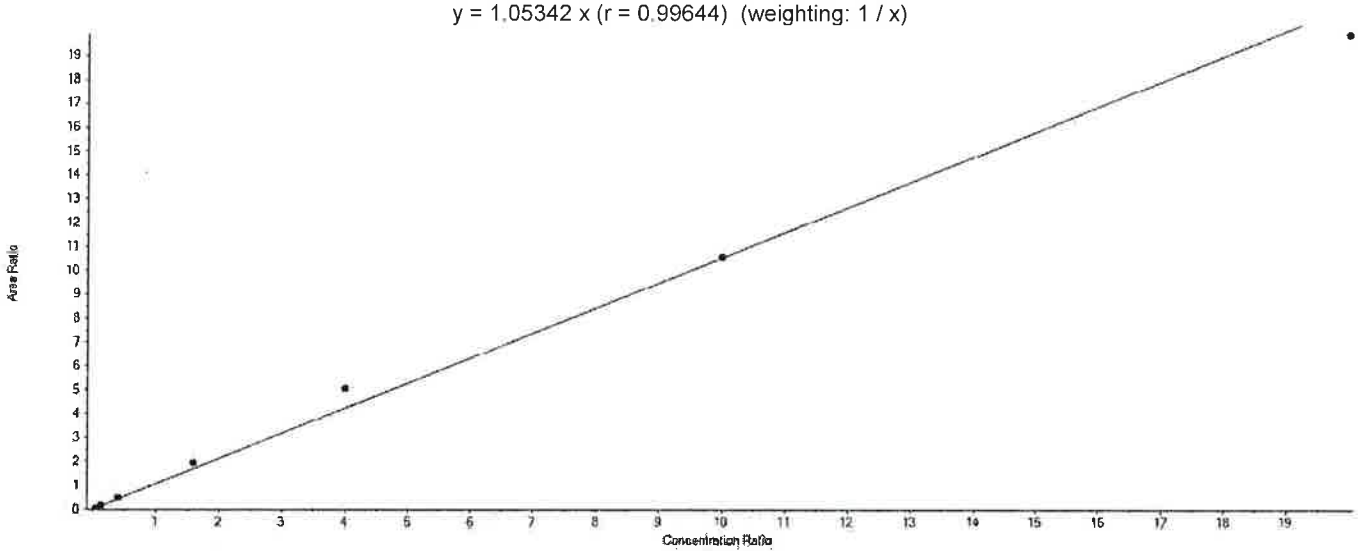
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHpA

y = 1.05342 x (r = 0.99644) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	94576.4	1865122.6	True	5.00	0.051	5.92	1.000	0.200	0.241	20.3	50.0	
CAL2	304138.4	2068451.2	True	5.00	0.147	5.92	1.000	0.600	0.698	16.3	30.0	
CAL3	934133.3	1899015.5	True	5.00	0.492	5.92	1.000	2.000	2.335	16.7	30.0	
CAL4	3654905.7	1917007.4	True	5.00	1.907	5.92	1.000	8.000	9.049	13.1	30.0	
CAL5	9141199.5	1811074.9	True	5.00	5.047	5.92	1.000	20.000	23.957	19.8	30.0	
CAL6	20132658.5	1902587.0	True	5.00	10.582	5.92	1.000	50.000	50.225	0.5	30.0	
CAL7	31984556.1	1609975.6	True	5.00	19.866	5.92	1.000	100.000	94.295	-5.7	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

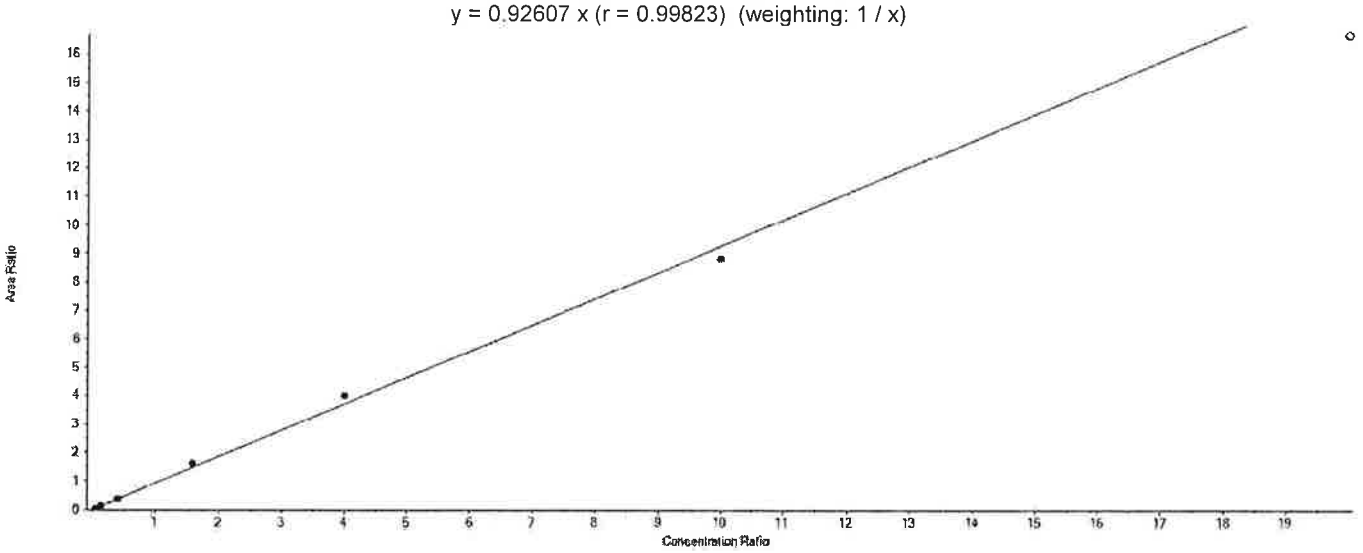
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOA

y = 0.92607 x (r = 0.99823) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	106701.5	2304033.3	True	5.00	0.046	6.33	1.000	0.200	0.250	25.0	50.0	
CAL2	316936.4	2592220.3	True	5.00	0.122	6.33	1.000	0.600	0.660	10.0	30.0	
CAL3	915319.1	2548782.1	True	5.00	0.359	6.34	1.000	2.000	1.939	-3.1	30.0	
CAL4	3822883.7	2388447.3	True	5.00	1.601	6.33	1.000	8.000	8.642	8.0	30.0	
CAL5	9207343.7	2306378.4	True	5.00	3.992	6.34	1.000	20.000	21.554	7.8	30.0	
CAL6	20024624.4	2263958.6	True	5.00	8.845	6.33	1.000	50.000	47.755	-4.5	30.0	
CAL7	32313532.1	1940157.1	False	5.00	16.655	6.33	1.000	100.000	89.923	-10.1	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

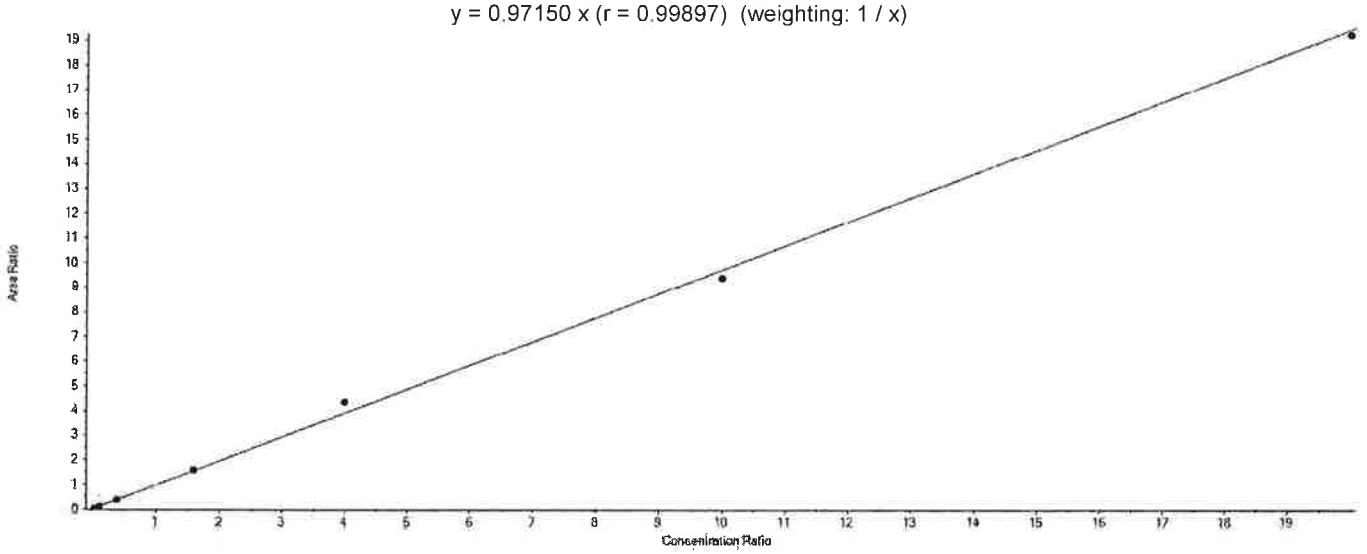
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOS

y = 0.97150 x (r = 0.99897) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	20403.5	443411.4	True	4.78	0.046	6.67	1.000	0.190	0.226	19.2	50.0	
CAL2	58822.7	496179.7	True	4.78	0.119	6.68	1.000	0.570	0.583	2.3	30.0	
CAL3	193744.0	484080.2	True	4.78	0.400	6.68	1.000	1.910	1.969	3.1	30.0	
CAL4	778409.3	488577.4	True	4.78	1.593	6.67	1.000	7.650	7.839	2.5	30.0	
CAL5	2067903.0	474614.5	True	4.78	4.357	6.68	1.000	19.120	21.438	12.1	30.0	
CAL6	4722005.0	503058.6	True	4.78	9.387	6.68	1.000	47.800	46.184	-3.4	30.0	
CAL7	8553645.9	444882.0	True	4.78	19.227	6.68	1.000	95.600	94.600	-1.0	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

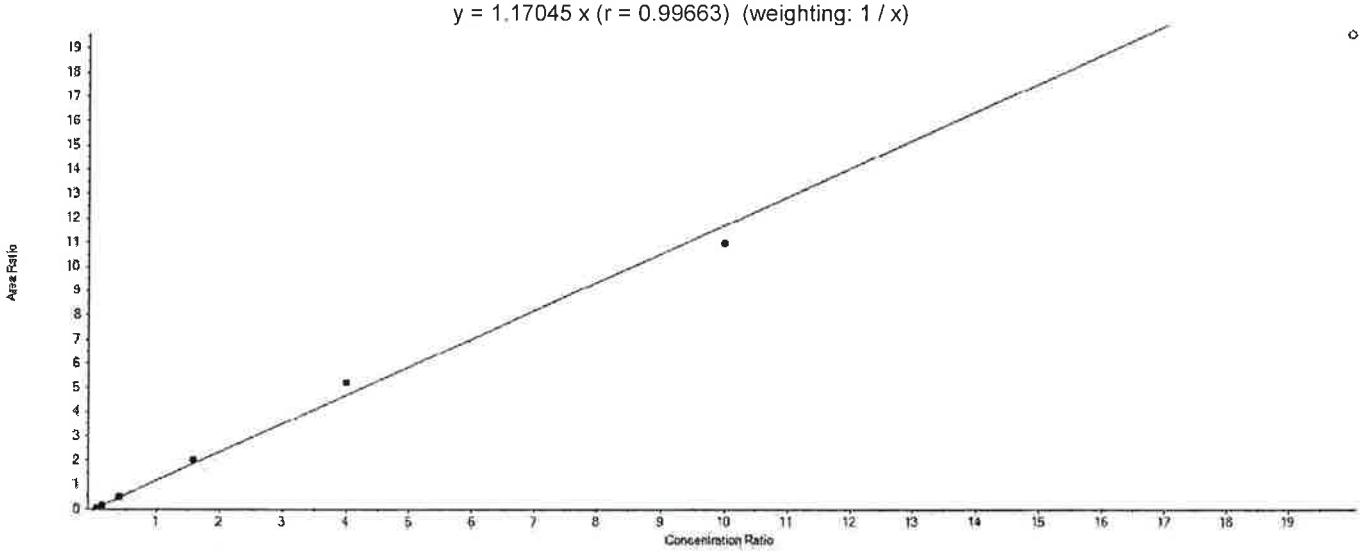
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFNA

y = 1.17045 x (r = 0.99663) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	88469.3	1626342.4	True	5.00	0.054	6.70	1.000	0.200	0.232	16.2	50.0	
CAL2	265497.7	1861072.1	True	5.00	0.143	6.71	1.000	0.600	0.609	1.6	30.0	
CAL3	877547.8	1742212.3	True	5.00	0.504	6.71	1.000	2.000	2.152	7.6	30.0	
CAL4	3683261.8	1817151.4	True	5.00	2.027	6.70	1.000	8.000	8.659	8.2	30.0	
CAL5	8554081.4	1639175.4	True	5.00	5.219	6.71	1.000	20.000	22.293	11.5	30.0	
CAL6	18412034.2	1678669.6	True	5.00	10.968	6.71	1.000	50.000	46.855	-6.3	30.0	
CAL7	30649358.3	1566344.3	False	5.00	19.567	6.71	1.000	100.000	83.589	-16.4	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

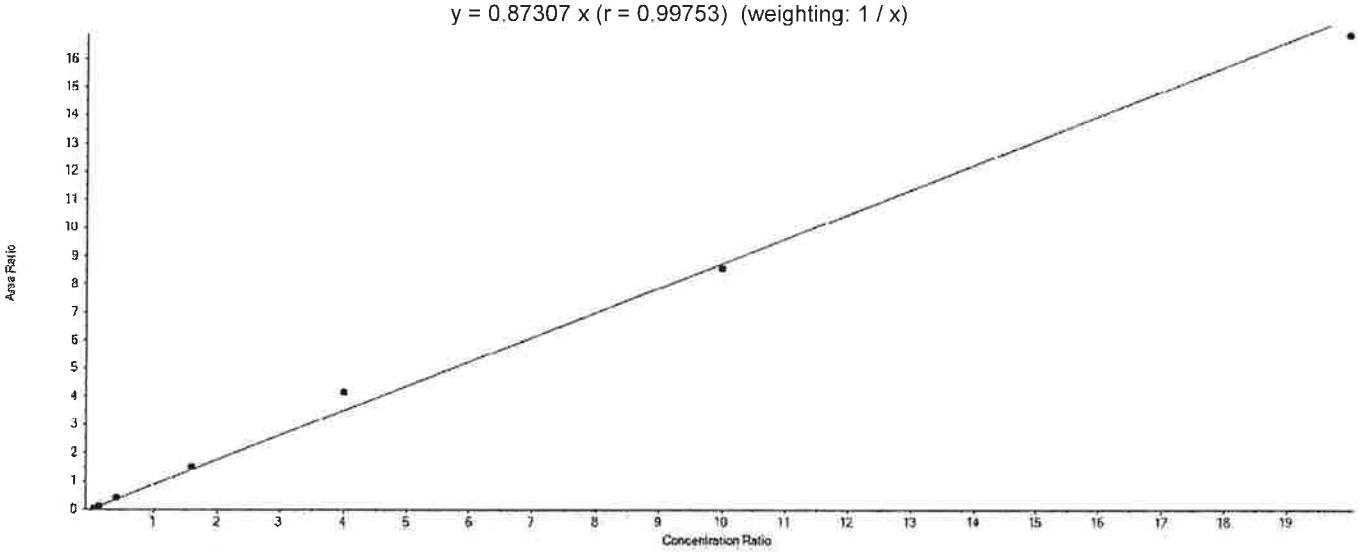
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDA

y = 0.87307 x (r = 0.99753) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	93904.0	2080191.8	True	5.00	0.045	7.04	1.000	0.200	0.259	29.3	50.0	
CAL2	268082.6	2492323.6	True	5.00	0.108	7.04	1.000	0.600	0.616	2.7	30.0	
CAL3	807379.8	2023224.6	True	5.00	0.399	7.05	1.000	2.000	2.285	14.3	30.0	
CAL4	3304575.3	2231084.6	True	5.00	1.481	7.04	1.000	8.000	8.482	6.0	30.0	
CAL5	8496468.6	2053320.9	True	5.00	4.138	7.05	1.000	20.000	23.698	18.5	30.0	
CAL6	17801760.4	2081140.9	True	5.00	8.554	7.05	1.000	50.000	48.987	-2.0	30.0	
CAL7	28750888.2	1706736.6	True	5.00	16.846	7.05	1.000	100.000	96.473	-3.5	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

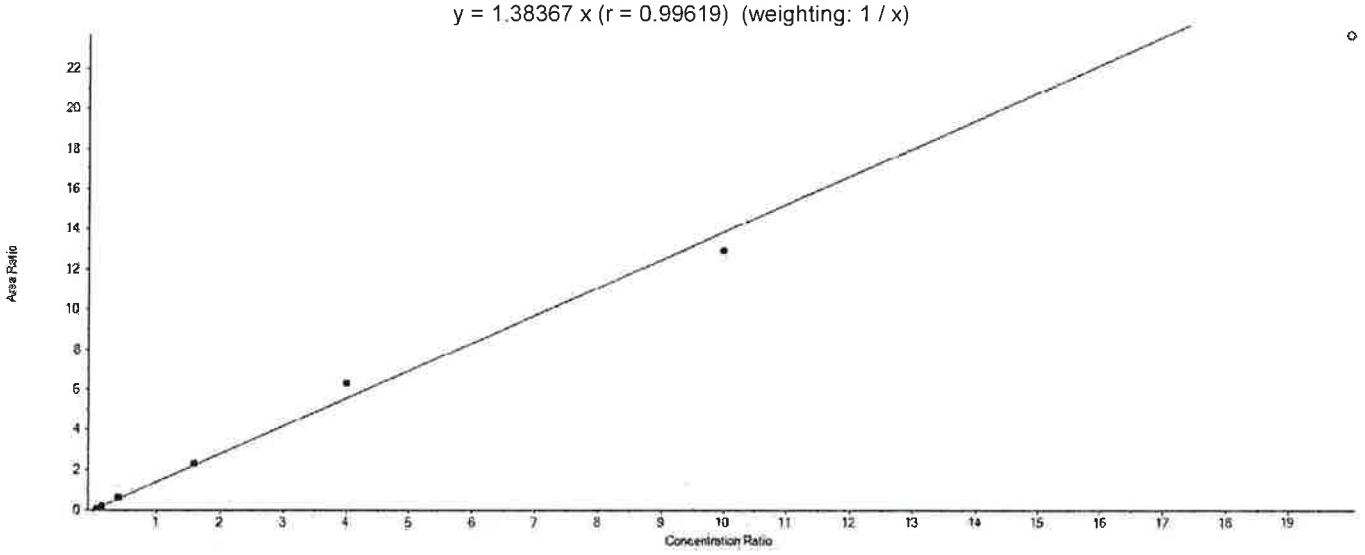
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFUnDA

y = 1.38367 x (r = 0.99619) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	68643.9	1015693.5	True	5.00	0.068	7.35	1.000	0.200	0.244	22.1	50.0	
CAL2	222945.9	1164506.3	True	5.00	0.191	7.35	1.000	0.600	0.692	15.3	30.0	
CAL3	664404.8	1098700.6	True	5.00	0.605	7.35	1.000	2.000	2.185	9.3	30.0	
CAL4	2631613.4	1145612.3	True	5.00	2.297	7.35	1.000	8.000	8.301	3.8	30.0	
CAL5	6229864.6	993380.7	True	5.00	6.271	7.35	1.000	20.000	22.662	13.3	30.0	
CAL6	13486806.0	1043242.6	True	5.00	12.928	7.35	1.000	50.000	46.716	-6.6	30.0	
CAL7	21285064.9	900995.9	False	5.00	23.624	7.35	1.000	100.000	85.367	-14.6	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

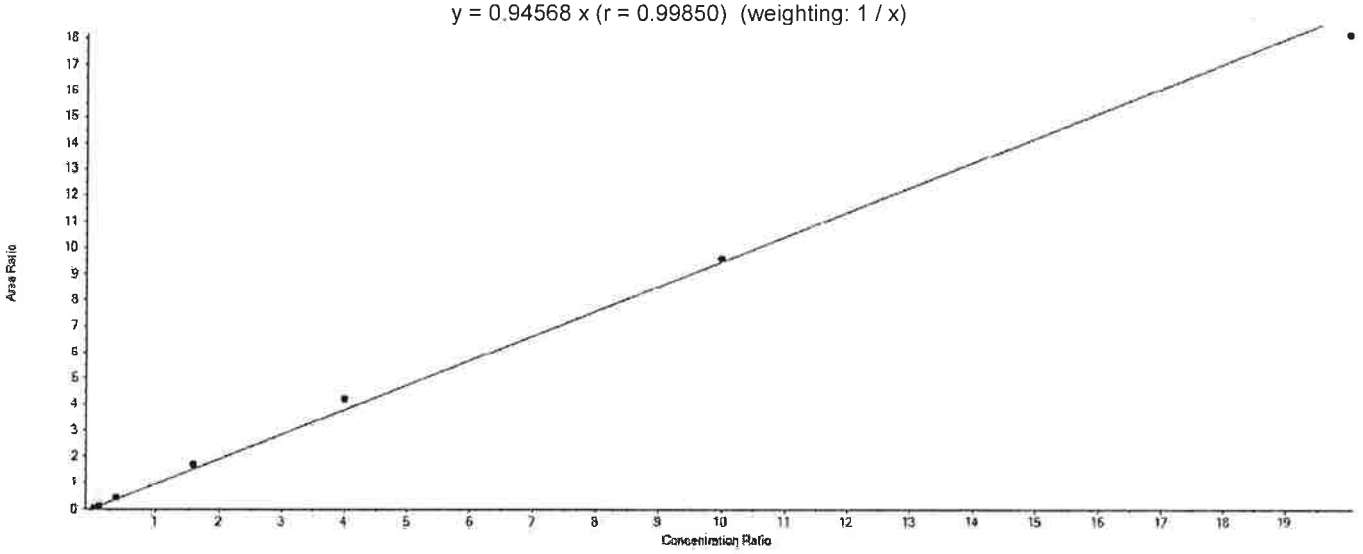
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDoDA

y = 0.94568 x (r = 0.99850) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	68135.4	1464592.1	True	5.00	0.047	7.63	1.000	0.200	0.246	23.0	50.0	
CAL2	201201.9	1742039.0	True	5.00	0.115	7.63	1.000	0.600	0.611	1.8	30.0	
CAL3	667345.7	1576303.1	True	5.00	0.423	7.64	1.000	2.000	2.238	11.9	30.0	
CAL4	2724298.9	1616114.9	True	5.00	1.686	7.63	1.000	8.000	8.913	11.4	30.0	
CAL5	6430562.7	1530208.0	True	5.00	4.202	7.64	1.000	20.000	22.219	11.1	30.0	
CAL6	14945174.7	1559544.9	True	5.00	9.583	7.64	1.000	50.000	50.668	1.3	30.0	
CAL7	23949160.3	1320302.6	True	5.00	18.139	7.63	1.000	100.000	95.906	-4.1	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

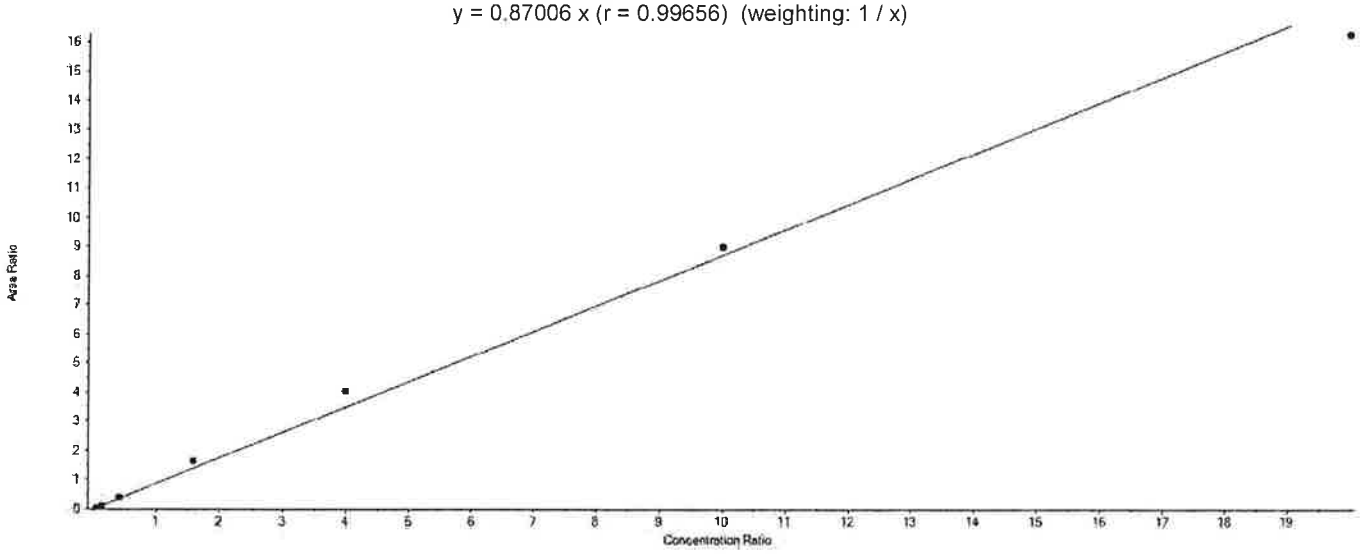
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTrDA

y = 0.87006 x (r = 0.99656) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65101.4	1464592.1	True	5.00	0.044	7.90	1.040	0.200	0.255	27.7	50.0	
CAL2	198994.6	1742039.0	True	5.00	0.114	7.90	1.040	0.600	0.656	9.4	30.0	
CAL3	604861.6	1576303.1	True	5.00	0.384	7.91	1.040	2.000	2.205	10.3	30.0	
CAL4	2649045.9	1616114.9	True	5.00	1.639	7.90	1.040	8.000	9.420	17.7	30.0	
CAL5	6168830.6	1530208.0	True	5.00	4.031	7.91	1.040	20.000	23.167	15.8	30.0	
CAL6	14016209.1	1559544.9	True	5.00	8.987	7.91	1.040	50.000	51.648	3.3	30.0	
CAL7	21469555.2	1320302.6	True	5.00	16.261	7.91	1.040	100.000	93.448	-6.6	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

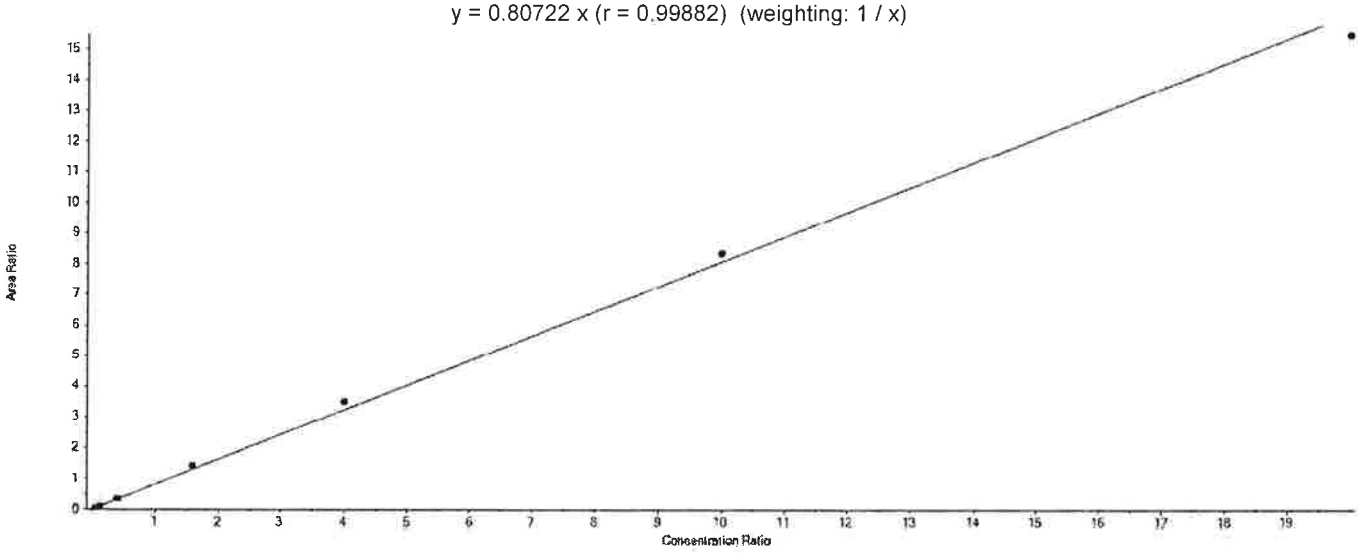
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTeDA

y = 0.80722 x (r = 0.99882) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	68731.5	1727146.0	True	5.00	0.040	8.17	1.000	0.200	0.246	23.2	50.0	
CAL2	192789.5	1884917.7	True	5.00	0.102	8.17	1.000	0.600	0.634	5.6	30.0	
CAL3	626767.4	1804912.7	True	5.00	0.347	8.17	1.000	2.000	2.151	7.5	30.0	
CAL4	2514172.5	1811742.7	True	5.00	1.388	8.17	1.000	8.000	8.596	7.4	30.0	
CAL5	6072449.2	1734299.9	True	5.00	3.501	8.17	1.000	20.000	21.688	8.4	30.0	
CAL6	14427637.3	1728825.0	True	5.00	8.345	8.17	1.000	50.000	51.692	3.4	30.0	
CAL7	24107266.8	1558811.5	True	5.00	15.465	8.17	1.000	100.000	95.793	-4.2	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

REVIEWED
By UMJS at 6:55 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL - 32 Compounds 4/19/2018 6:24:50 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

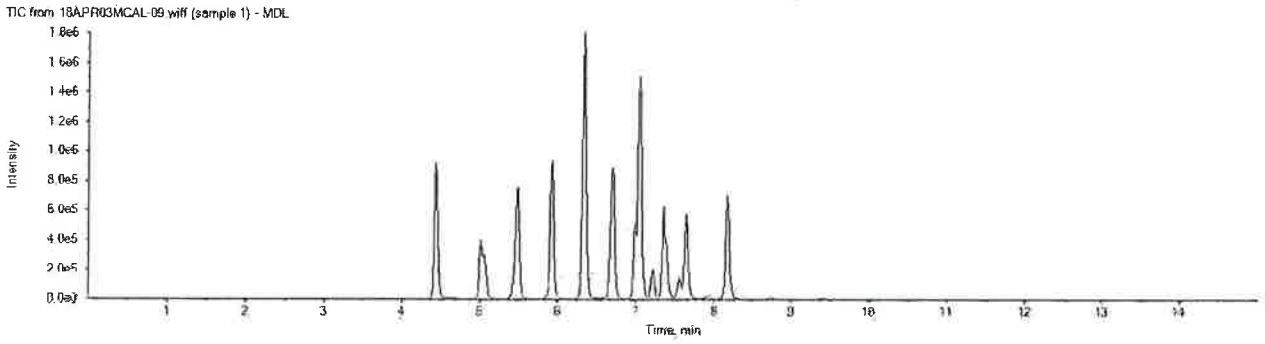
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24743 **File Name:** 18APR03MCAL-09.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.43	1.000	28844.2	M	13C4-PFBA	4.43	1411181.2	0.020	0.122
PFPeA	5.01	1.000	29967.7	M	13C5-PFPeA	5.01	1140849.6	0.026	0.128
PFBS	5.06	1.000	12632.8	M	13C3-PFBS	5.06	714447.5	0.018	0.087
4:2-FTS	5.44	1.000	38417.3	A	13C2-4:2-FTS	5.44	440246.2	0.087	0.493
PFHxA	5.48	1.000	47124.4	M	13C5-PFHxA	5.48	2250071.1	0.021	0.113
PFPeS	5.49	1.080	7053.7	A	13C3-PFBS	5.06	714447.5	0.010	0.101
PFHxS	5.91	1.000	13450.8	M	13C3-PFHxS	5.92	658183.7	0.020	0.097
PFHpA	5.92	1.000	58576.5	A	13C4-PFHpA	5.92	2299220.3	0.025	0.121
6:2-FTS	6.32	1.000	36266.5	M	13C2-6:2-FTS	6.32	384450.0	0.094	0.496
PFHpS	6.32	1.070	10521.5	M	13C3-PFHxS	5.92	658183.7	0.016	0.087
PFOA	6.33	1.000	61198.4	M	13C8-PFOA	6.33	2834097.1	0.022	0.117
PFOS	6.67	1.000	12517.4	M	13C8-PFOS	6.68	550741.0	0.023	0.112
PFNA	6.70	1.000	53952.9	M	13C9-PFNA	6.70	2087443.6	0.026	0.110
PFOSA	6.98	1.000	28892.2	M	13C8-PFOSA	6.98	1318259.1	0.022	0.115
PFNS	7.01	1.050	6702.9	M	13C8-PFOS	6.68	550741.0	0.012	0.087
PFDA	7.04	1.000	53424.3	M	13C6-PFDA	7.04	2582569.3	0.021	0.118
8:2-FTS	7.06	1.000	41707.9	M	13C2-8:2-FTS	7.06	450139.5	0.093	0.473
NMePFOSAE	7.40	1.000	5999.8	M	d7-NMePFOSAE	7.38	208213.1	0.029	0.124
NMePFOSA	7.40	1.000	4327.2	M	d3-NMePFOSA	7.41	199310.0	0.022	0.107
NMeFOSAA	7.22	1.000	15435.4	M	d3-NMeFOSAA	7.21	587315.5	0.026	0.123
NEtPFOSAE	7.55	1.000	7329.9	M	d9-NEtPFOSAE	7.54	274356.0	0.027	0.106
NEtPFOSA	7.57	1.000	3196.2	M	d5-NEtPFOSA	7.56	156398.4	0.020	0.098
PFDS	7.31	1.090	4789.4	M	13C8-PFOS	6.68	550741.0	0.009	0.082
PFUnDA	7.35	1.000	35781.0	M	13C7-PFUnDA	7.35	1294445.4	0.028	0.100
NEtFOSAA	7.38	1.000	13395.0	M	d5-NEtFOSAA	7.37	475333.5	0.028	0.132
PFDoDA	7.64	1.000	38696.5	M	13C2-PFDoDA	7.63	1816936.3	0.021	0.113
10:2-FTS	7.67	1.090	47104.4	M	13C2-8:2-FTS	7.06	450139.5	0.105	0.474
PFDoS	7.85	1.180	2128.6	M	13C8-PFOS	6.68	550741.0	0.004	0.085
PFTrDA	7.90	1.040	36799.2	M	13C2-PFDoDA	7.63	1816936.3	0.020	0.116
PFTeDA	8.17	1.000	40370.3	M	13C2-PFTeDA	8.17	2311587.8	0.017	0.108
PFHxDA	8.75	1.070	42368.9	A	13C2-PFTeDA	8.17	2311587.8	0.018	0.123
PFODA	9.40	1.150	34113.5	A	13C2-PFTeDA	8.17	2311587.8	0.015	0.095

Total Ion Chromatogram



APPROVED
By MCD at 6:38 pm, 4/19/18

REVIEWED
By UMJS at 6:55 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL - 32 Compounds 4/19/2018 6:24:50 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

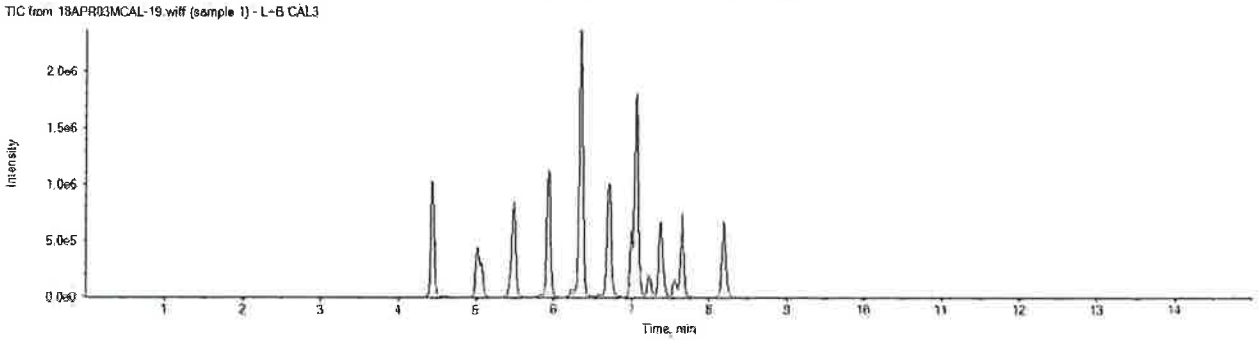
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM24743 **File Name:** 18APR03MCAL-19.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1630644.9	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	1325898.6	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	796416.8	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.44	456754.0	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	2635526.8	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.07	796416.8	N/A	
PFHxS	5.92	1.000	267269.0	M	13C3-PFHxS	5.92	732851.7	0.365	1.730
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.93	2674881.1	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.33	419395.0	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	5.92	732851.7	N/A	
PFOA	6.34	1.000	1114582.4	M	13C8-PFOA	6.34	3190026.3	0.349	1.886
PFOS	6.68	1.000	247664.6	M	13C8-PFOS	6.69	653590.8	0.379	1.864
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.71	2331967.2	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.99	1534178.2	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.69	653590.8	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.05	3116051.9	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.07	479655.5	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.39	224776.6	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.42	219217.9	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.22	640369.5	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.54	310435.4	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.57	184345.1	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.69	653590.8	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.36	1489992.5	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.38	575726.1	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.65	2024072.7	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.07	479655.5	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.69	653590.8	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.65	2024072.7	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	2322916.2	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	2322916.2	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	2322916.2	N/A	

Total Ion Chromatogram

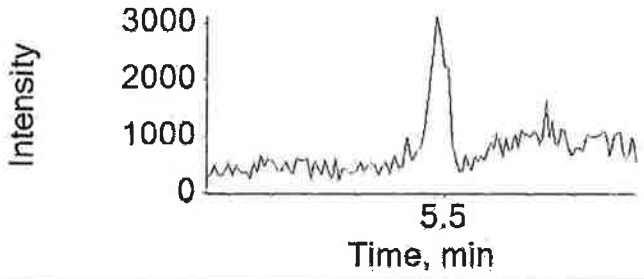


APPROVED
By MCD at 6:38 pm, 4/19/18

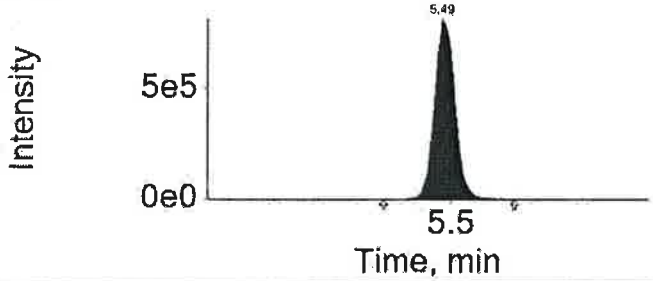
REVIEWED
By UMJS at 6:55 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL - 32 Compounds 4/19/2018 6:24:50 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

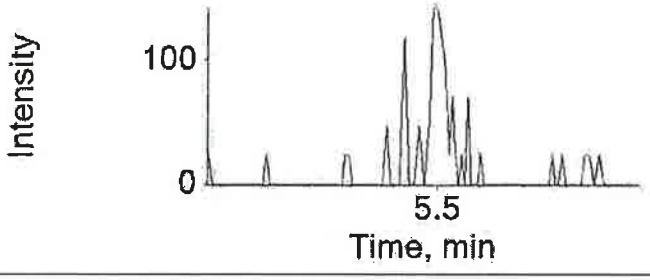
Analyte: PFHxA
313.0 / 269.0



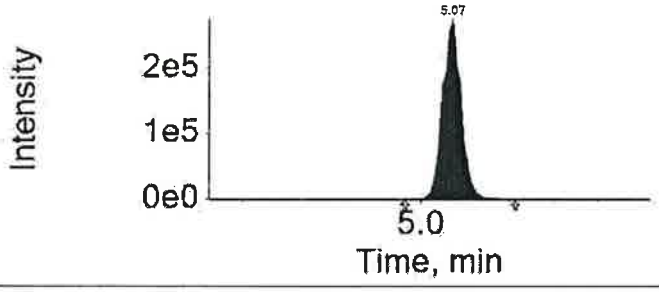
Extraction Standard: 13C5-PFHxA
318.0 / 273.0



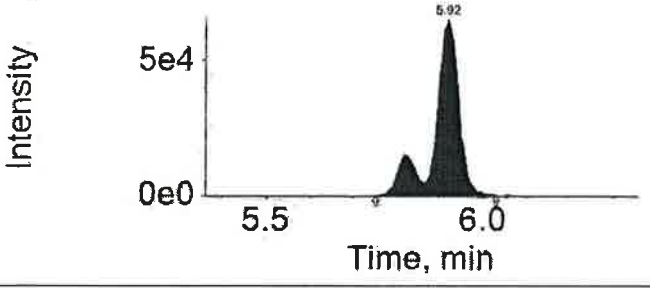
Analyte: PFPeS
349.0 / 80.0



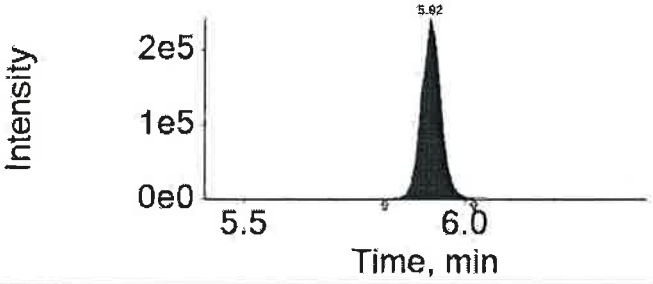
Extraction Standard: 13C3-PFBS
302.0 / 80.0



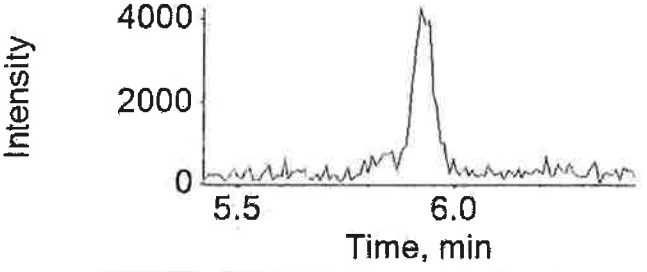
Analyte: PFHxS
399.0 / 80.0



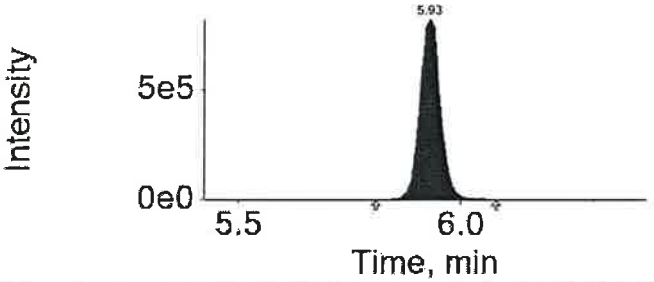
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0

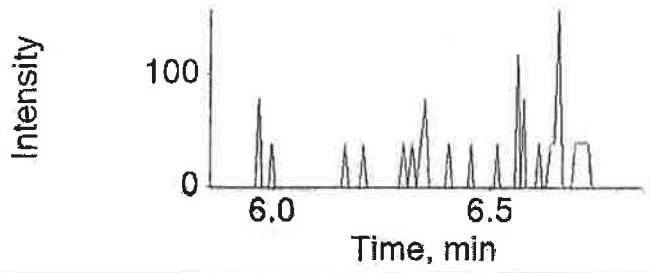


APPROVED
By MCD at 6:38 pm, 4/19/18

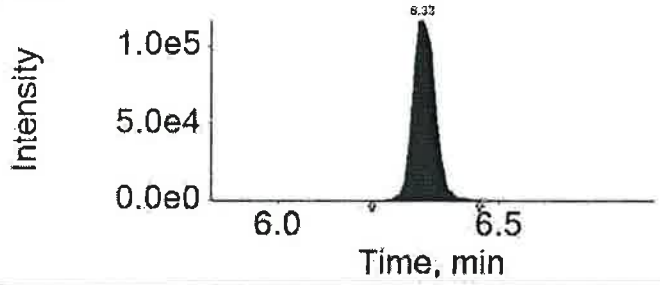
REVIEWED
By UMJS at 6:55 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL - 32 Compounds 4/19/2018 6:24:50 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

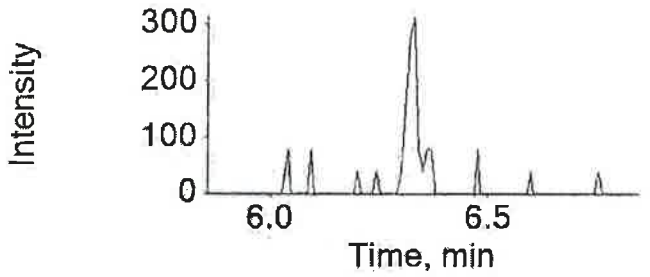
Analyte: 6:2-FTS
427.0 / 407.0



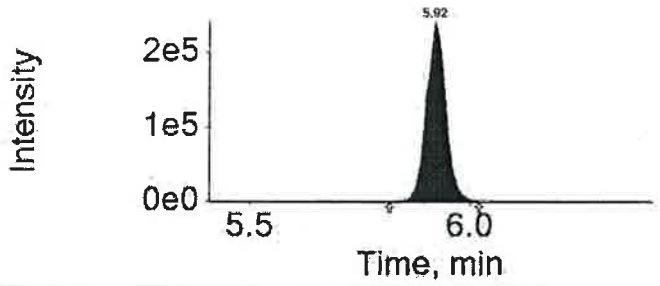
Extraction Standard: 13C2-6:2-FTS
429.0 / 409.0



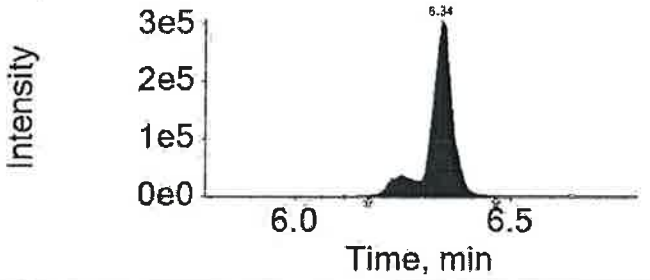
Analyte: PFHpS
449.0 / 80.0



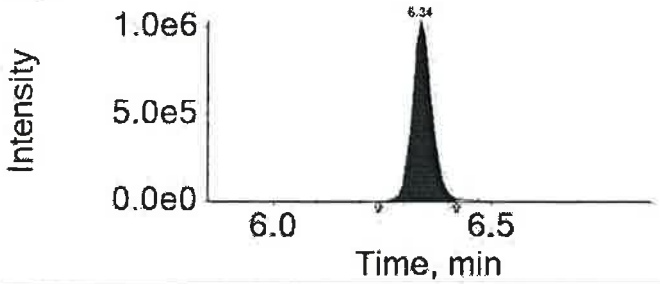
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



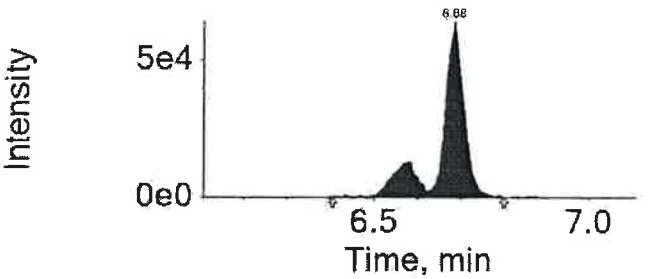
Analyte: PFOA
413.0 / 369.0



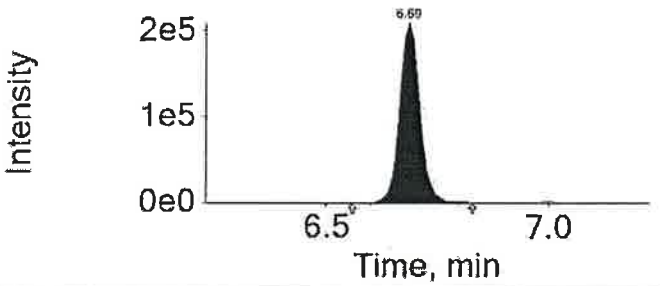
Extraction Standard: 13C8-PFOA
421.0 / 376.0



Analyte: PFOS
499.0 / 80.0



Extraction Standard: 13C8-PFOS
507.0 / 80.0



APPROVED
By MCD at 6:38 pm, 4/19/18

REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR03MCAL-18.wiff	4/3/2018 7:49:49 PM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	429254.1	13C4-PFBA	1312700.0	5.00	0.327	4.44	1.00	2.000	1.946	-2.7	30.0	
PFPeA	441876.5	13C5-PFPeA	1106378.3	5.00	0.399	5.01	1.00	2.000	1.953	-2.3	30.0	
PFBS	221662.2	13C3-PFBS	646282.1	4.65	0.343	5.06	1.00	1.770	1.682	-5.0	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	378478.7	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	809643.6	13C5-PFHxA	2076145.9	5.00	0.390	5.48	1.00	2.000	2.113	5.6	30.0	
PFPeS	N/A	13C3-PFBS	646282.1	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	227538.4	13C3-PFHxS	599720.9	4.73	0.379	5.92	1.00	1.890	1.800	-4.8	30.0	
PFHpA	947428.8	13C4-PFHpA	2048216.7	5.00	0.463	5.92	1.00	2.000	2.196	9.8	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	319317.4	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	196150.0	13C3-PFHxS	599720.9	4.73	0.327	6.32	1.07	1.900	1.790	-5.8	30.0	
PFOA	964693.9	13C8-PFOA	2645727.3	5.00	0.365	6.34	1.00	2.000	1.969	-1.6	30.0	
PFOS	192506.8	13C8-PFOS	499659.3	4.78	0.385	6.68	1.00	1.910	1.896	-0.8	30.0	
PFNA	862290.6	13C9-PFNA	1887154.0	5.00	0.457	6.71	1.00	2.000	1.952	-2.4	30.0	
PFOSA	N/A	13C8-PFOSA	1209014.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	499659.3	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	889781.6	13C6-PFDA	2434997.5	5.00	0.365	7.05	1.00	2.000	2.093	4.6	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	376908.8	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	202569.6	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	186432.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	214598.0	d3-NMeFOSAA	509789.8	5.00	0.421	7.22	1.00	2.000	1.974	-1.3	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	260857.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	148046.1	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	88852.0	13C8-PFOS	499659.3	4.78	0.178	7.32	1.09	1.930	1.671	-13.4	30.0	
PFUnDA	679215.9	13C7-PFUnDA	1179605.0	5.00	0.576	7.35	1.00	2.000	2.081	4.0	30.0	
NEtFOSAA	180122.2	d5-NEtFOSAA	420719.8	5.00	0.428	7.38	1.00	2.000	2.000	0.0	30.0	
PFDoDA	591580.2	13C2-PFDoDA	1713470.7	5.00	0.345	7.64	1.00	2.000	1.825	-8.7	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	376908.8	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	499659.3	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	646541.8	13C2-PFDoDA	1713470.7	5.00	0.377	7.91	1.04	2.000	2.168	8.4	30.0	
PFTeDA	621765.0	13C2-PFTeDA	1966699.0	5.00	0.316	8.18	1.00	2.000	1.958	-2.1	30.0	
PFHxDA	N/A	13C2-PFTeDA	1966699.0	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	1966699.0	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

REVIEWED
By UMJS at 6:55 am, 4/23/18

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL - 32 Compounds 4/19/2018 6:24:50 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

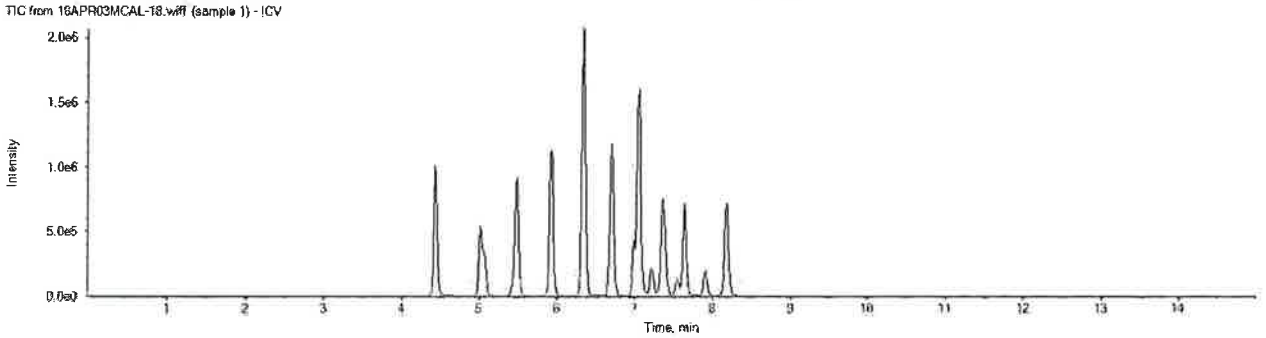
Analyte Quantitation Peak Table

Sample Name: ICV **Instrument Name:** LM24743 **File Name:** 18APR03MCAL-18.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	429254.1	A	13C4-PFBA	4.44	1312700.0	0.327	1.946
PFPeA	5.01	1.000	441876.5	A	13C5-PFPeA	5.02	1106378.3	0.399	1.953
PFBS	5.06	1.000	221662.2	A	13C3-PFBS	5.06	646282.1	0.343	1.682
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.44	378478.7	N/A	
PFHxA	5.48	1.000	809643.6	A	13C5-PFHxA	5.48	2076145.9	0.390	2.113
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.06	646282.1	N/A	
PFHxS	5.92	1.000	227538.4	A	13C3-PFHxS	5.92	599720.9	0.379	1.800
PFHpA	5.92	1.000	947428.8	A	13C4-PFHpA	5.93	2048216.7	0.463	2.196
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.33	319317.4	N/A	
PFHpS	6.32	1.070	196150.0	A	13C3-PFHxS	5.92	599720.9	0.327	1.790
PFOA	6.34	1.000	964693.9	A	13C8-PFOA	6.34	2645727.3	0.365	1.969
PFOS	6.68	1.000	192506.8	A	13C8-PFOS	6.68	499659.3	0.385	1.896
PFNA	6.71	1.000	862290.6	A	13C9-PFNA	6.71	1887154.0	0.457	1.952
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.98	1209014.9	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.68	499659.3	N/A	
PFDA	7.05	1.000	889781.6	A	13C6-PFDA	7.05	2434997.5	0.365	2.093
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.06	376908.8	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.39	202569.6	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.41	186432.4	N/A	
NMeFOSAA	7.22	1.000	214598.0	A	d3-NMeFOSAA	7.21	509789.8	0.421	1.974
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.54	260857.9	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.56	148046.1	N/A	
PFDS	7.32	1.090	88852.0	A	13C8-PFOS	6.68	499659.3	0.178	1.671
PFUnDA	7.35	1.000	679215.9	A	13C7-PFUnDA	7.36	1179605.0	0.576	2.081
NEtFOSAA	7.38	1.000	180122.2	A	d5-NEtFOSAA	7.37	420719.8	0.428	2.000
PFDoDA	7.64	1.000	591580.2	A	13C2-PFDoDA	7.64	1713470.7	0.345	1.825
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.06	376908.8	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.68	499659.3	N/A	
PFTrDA	7.91	1.040	646541.8	A	13C2-PFDoDA	7.64	1713470.7	0.377	2.168
PFTeDA	8.18	1.000	621765.0	A	13C2-PFTeDA	8.18	1966699.0	0.316	1.958
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.18	1966699.0	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.18	1966699.0	N/A	

Total Ion Chromatogram



APPROVED
By MCD at 6:38 pm, 4/19/18

REVIEWED
By UMJS at 6:55 am, 4/23/18

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.236	18.0	±50
CAL2	0.104	0.60	0.620	3.4	±30
CAL3	0.354	2.00	2.107	5.3	±30
CAL4	1.406	8.00	8.364	4.6	±30
CAL5	3.723	20.00	22.155	10.8	±30
CAL6	8.329	50.00	49.559	-0.9	±30
CAL7	16.430	100.00	97.759	-2.2	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.050	0.20	0.243	21.7	±50
CAL2	0.128	0.60	0.625	4.2	±30
CAL3	0.424	2.00	2.073	3.6	±30
CAL4	1.755	8.00	8.584	7.3	±30
CAL5	4.641	20.00	22.698	13.5	±30
CAL6	10.070	50.00	49.250	-1.5	±30
CAL7	19.900	100.00	97.327	-2.7	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.17	0.200	17.7	±50
CAL2	0.109	0.53	0.534	0.7	±30
CAL3	0.368	1.77	1.802	1.8	±30
CAL4	1.534	7.08	7.521	6.2	±30
CAL5	3.588	17.69	17.592	-0.6	±30
CAL6	8.737	44.22	42.833	-3.1	±30
CAL7	18.240	88.45	89.428	1.1	±30

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.216	8.2	±50
CAL2	0.113	0.60	0.610	1.7	±30
CAL3	0.383	2.00	2.075	3.7	±30
CAL4	1.583	8.00	8.574	7.2	±30
CAL5	4.328	20.00	23.448	17.2	±30
CAL6	9.215	50.00	49.922	-0.2	±30
CAL7	17.712	100.00	95.955	-4.0	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.19	0.193	1.7	±50
CAL2	0.123	0.57	0.585	2.7	±30
CAL3	0.401	1.89	1.900	0.6	±30
CAL4	1.655	7.56	7.853	3.9	±30
CAL5	4.442	18.91	21.073	11.4	±30
CAL6	9.646	47.28	45.764	-3.2	±30
CAL7	19.725	94.55	93.581	-1.0	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.241	20.3	±50
CAL2	0.147	0.60	0.698	16.3	±30
CAL3	0.492	2.00	2.335	16.7	±30
CAL4	1.907	8.00	9.049	13.1	±30
CAL5	5.047	20.00	23.957	19.8	±30
CAL6	10.582	50.00	50.225	0.5	±30
CAL7	19.866	100.00	94.295	-5.7	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.250	25.0	±50
CAL2	0.122	0.60	0.660	10.0	±30
CAL3	0.359	2.00	1.939	-3.1	±30
CAL4	1.601	8.00	8.642	8.0	±30
CAL5	3.992	20.00	21.554	7.8	±30
CAL6	8.845	50.00	47.755	-4.5	±30
CAL7	16.655	100.00	89.923	-10.1	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.19	0.226	19.2	±50
CAL2	0.119	0.57	0.583	2.3	±30
CAL3	0.400	1.91	1.969	3.1	±30
CAL4	1.593	7.65	7.839	2.5	±30
CAL5	4.357	19.12	21.438	12.1	±30
CAL6	9.387	47.80	46.184	-3.4	±30
CAL7	19.227	95.60	94.600	-1.0	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.054	0.20	0.232	16.2	±50
CAL2	0.143	0.60	0.609	1.6	±30
CAL3	0.504	2.00	2.152	7.6	±30
CAL4	2.027	8.00	8.659	8.2	±30
CAL5	5.219	20.00	22.293	11.5	±30
CAL6	10.968	50.00	46.855	-6.3	±30
CAL7	19.567	100.00	83.589	-16.4	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.20	0.259	29.3	±50
CAL2	0.108	0.60	0.616	2.7	±30
CAL3	0.399	2.00	2.285	14.3	±30
CAL4	1.481	8.00	8.482	6.0	±30
CAL5	4.138	20.00	23.698	18.5	±30
CAL6	8.554	50.00	48.987	-2.0	±30
CAL7	16.846	100.00	96.473	-3.5	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.068	0.20	0.244	22.1	±50
CAL2	0.191	0.60	0.692	15.3	±30
CAL3	0.605	2.00	2.185	9.3	±30
CAL4	2.297	8.00	8.301	3.8	±30
CAL5	6.271	20.00	22.662	13.3	±30
CAL6	12.928	50.00	46.716	-6.6	±30
CAL7	23.624	100.00	85.367	-14.6	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.047	0.20	0.246	23.0	±50
CAL2	0.115	0.60	0.611	1.8	±30
CAL3	0.423	2.00	2.238	11.9	±30
CAL4	1.686	8.00	8.913	11.4	±30
CAL5	4.202	20.00	22.219	11.1	±30
CAL6	9.583	50.00	50.668	1.3	±30
CAL7	18.139	100.00	95.906	-4.1	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.255	27.7	±50
CAL2	0.114	0.60	0.656	9.4	±30
CAL3	0.384	2.00	2.205	10.3	±30
CAL4	1.639	8.00	9.420	17.7	±30
CAL5	4.031	20.00	23.167	15.8	±30
CAL6	8.987	50.00	51.648	3.3	±30
CAL7	16.261	100.00	93.448	-6.6	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.246	23.2	±50
CAL2	0.102	0.60	0.634	5.6	±30
CAL3	0.347	2.00	2.151	7.5	±30
CAL4	1.388	8.00	8.596	7.4	±30
CAL5	3.501	20.00	21.688	8.4	±30
CAL6	8.345	50.00	51.692	3.4	±30
CAL7	15.465	100.00	95.793	-4.2	±30

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR03MCAL-20.WIFF

Date/Time Analyzed: 04/03/2018 20:20 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.11	5.73	±30
Perfluoropentanoic acid	2.00	2.02	1.20	±30
Perfluorobutanesulfonate	1.77	1.77	-0.16	±30
Perfluorohexanoic acid	2.00	2.12	6.07	±30
Perfluorohexanesulfonate	1.89	1.90	0.70	±30
Perfluoroheptanoic acid	2.00	2.40	20.22	±30
Perfluorooctanoic acid	2.00	2.10	5.06	±30
Perfluoro-octanesulfonate	1.91	1.97	3.21	±30
Perfluorononanoic acid	2.00	2.08	4.14	±30
Perfluorodecanoic acid	2.00	2.23	11.37	±30
Perfluoroundecanoic acid	2.00	2.08	4.13	±30
Perfluorododecanoic acid	2.00	2.08	3.87	±30
Perfluorotridecanoic acid	2.00	2.32	15.83	±30
Perfluorotetradecanoic acid	2.00	2.18	8.91	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR04-50.WIFF

Date/Time Analyzed: 04/05/2018 02:12 Lab Sample ID: CCV6_CAL5

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.23	11.13	±30
Perfluoropentanoic acid	20.00	22.60	12.98	±30
Perfluorobutanesulfonate	17.69	19.21	8.60	±30
Perfluorohexanoic acid	20.00	22.03	10.16	±30
Perfluorohexanesulfonate	18.91	20.01	5.84	±30
Perfluoroheptanoic acid	20.00	23.31	16.55	±30
Perfluorooctanoic acid	20.00	20.75	3.73	±30
Perfluoro-octanesulfonate	19.12	22.31	16.68	±30
Perfluorononanoic acid	20.00	21.79	8.96	±30
Perfluorodecanoic acid	20.00	23.14	15.69	±30
Perfluoroundecanoic acid	20.00	21.61	8.07	±30
Perfluorododecanoic acid	20.00	22.58	12.90	±30
Perfluorotridecanoic acid	20.00	24.11	20.54	±30
Perfluorotetradecanoic acid	20.00	22.77	13.83	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR04-63.WIFF

Date/Time Analyzed: 04/05/2018 05:34 Lab Sample ID: CCV7_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.02	0.88	±30
Perfluoropentanoic acid	2.00	2.00	0.04	±30
Perfluorobutanesulfonate	1.77	1.81	2.34	±30
Perfluorohexanoic acid	2.00	2.15	7.36	±30
Perfluorohexanesulfonate	1.89	1.88	-0.43	±30
Perfluoroheptanoic acid	2.00	2.25	12.52	±30
Perfluorooctanoic acid	2.00	2.25	12.44	±30
Perfluoro-octanesulfonate	1.91	1.91	-0.13	±30
Perfluorononanoic acid	2.00	1.89	-5.40	±30
Perfluorodecanoic acid	2.00	2.20	9.91	±30
Perfluoroundecanoic acid	2.00	1.99	-0.58	±30
Perfluorododecanoic acid	2.00	2.14	7.05	±30
Perfluorotridecanoic acid	2.00	2.18	9.21	±30
Perfluorotetradecanoic acid	2.00	2.11	5.59	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR04-75.WIFF

Date/Time Analyzed: 04/05/2018 08:41 Lab Sample ID: CCV8_CAL4

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.16	2.05	±30
Perfluoropentanoic acid	8.00	8.48	5.96	±30
Perfluorobutanesulfonate	7.08	7.09	0.09	±30
Perfluorohexanoic acid	8.00	8.45	5.64	±30
Perfluorohexanesulfonate	7.56	7.11	-5.91	±30
Perfluoroheptanoic acid	8.00	8.87	10.82	±30
Perfluorooctanoic acid	8.00	8.99	12.41	±30
Perfluoro-octanesulfonate	7.65	7.80	1.99	±30
Perfluorononanoic acid	8.00	8.08	1.04	±30
Perfluorodecanoic acid	8.00	9.02	12.72	±30
Perfluoroundecanoic acid	8.00	7.71	-3.62	±30
Perfluorododecanoic acid	8.00	8.84	10.55	±30
Perfluorotridecanoic acid	8.00	8.00	-0.03	±30
Perfluorotetradecanoic acid	8.00	8.74	9.26	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR05-01.WIFF

Date/Time Analyzed: 04/05/2018 09:58 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.07	3.60	±30
Perfluoropentanoic acid	2.00	2.13	6.68	±30
Perfluorobutanesulfonate	1.77	1.82	2.95	±30
Perfluorohexanoic acid	2.00	2.12	6.07	±30
Perfluorohexanesulfonate	1.89	1.91	1.20	±30
Perfluoroheptanoic acid	2.00	2.32	16.17	±30
Perfluorooctanoic acid	2.00	2.22	11.04	±30
Perfluoro-octanesulfonate	1.91	2.07	8.18	±30
Perfluorononanoic acid	2.00	2.12	5.80	±30
Perfluorodecanoic acid	2.00	2.23	11.49	±30
Perfluoroundecanoic acid	2.00	2.11	5.70	±30
Perfluorododecanoic acid	2.00	2.00	0.09	±30
Perfluorotridecanoic acid	2.00	2.01	0.67	±30
Perfluorotetradecanoic acid	2.00	2.21	10.46	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR05-14.WIFF

Date/Time Analyzed: 04/05/2018 18:31 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.33	4.13	±30
Perfluoropentanoic acid	8.00	8.51	6.40	±30
Perfluorobutanesulfonate	7.08	7.62	7.60	±30
Perfluorohexanoic acid	8.00	8.65	8.16	±30
Perfluorohexanesulfonate	7.56	7.81	3.37	±30
Perfluoroheptanoic acid	8.00	9.11	13.90	±30
Perfluorooctanoic acid	8.00	8.77	9.57	±30
Perfluoro-octanesulfonate	7.65	8.06	5.42	±30
Perfluorononanoic acid	8.00	8.41	5.08	±30
Perfluorodecanoic acid	8.00	8.79	9.84	±30
Perfluoroundecanoic acid	8.00	8.55	6.89	±30
Perfluorododecanoic acid	8.00	8.96	11.95	±30
Perfluorotridecanoic acid	8.00	8.57	7.13	±30
Perfluorotetradecanoic acid	8.00	8.50	6.19	±30

* Outside QC Limits.

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18APR09MCAL-07.wiff	4/9/2018 7:54:39 AM	CALMOD11833A	CAL1
18APR09MCAL-08.wiff	4/9/2018 8:10:12 AM	CALMOD21833A	CAL2
18APR09MCAL-09.wiff	4/9/2018 8:25:45 AM	CALMOD31833A	CAL3
18APR09MCAL-10.wiff	4/9/2018 8:41:15 AM	CALMOD41833A	CAL4
18APR09MCAL-11.wiff	4/9/2018 8:56:45 AM	CALMOD51833A	CAL5
18APR09MCAL-12.wiff	4/9/2018 9:12:15 AM	CALMOD61833A	CAL6
18APR09MCAL-13.wiff	4/9/2018 9:27:45 AM	CALMOD71833A	CAL7

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	1026010.5	966399.1
CAL2	I13C3-PFBA	True	1017302.4	966399.1
CAL3	I13C3-PFBA	True	949577.0	966399.1
CAL4	I13C3-PFBA	True	1054210.1	966399.1
CAL5	I13C3-PFBA	True	973850.5	966399.1
CAL6	I13C3-PFBA	True	922726.1	966399.1
CAL7	I13C3-PFBA	True	821117.1	966399.1
CAL1	I13C2-PFOA	True	1471033.2	1467689.5
CAL2	I13C2-PFOA	True	1500597.1	1467689.5
CAL3	I13C2-PFOA	True	1448589.2	1467689.5
CAL4	I13C2-PFOA	True	1597083.5	1467689.5
CAL5	I13C2-PFOA	True	1509692.0	1467689.5
CAL6	I13C2-PFOA	True	1461490.4	1467689.5
CAL7	I13C2-PFOA	True	1285341.3	1467689.5
CAL1	I13C4-PFOS	True	401464.0	375628.9
CAL2	I13C4-PFOS	True	375861.7	375628.9
CAL3	I13C4-PFOS	True	364338.3	375628.9
CAL4	I13C4-PFOS	True	416225.2	375628.9
CAL5	I13C4-PFOS	True	359543.9	375628.9
CAL6	I13C4-PFOS	True	362146.0	375628.9
CAL7	I13C4-PFOS	True	349823.1	375628.9
CAL1	I13C2-PFDA	True	1274282.8	1175142.0
CAL2	I13C2-PFDA	True	1214338.0	1175142.0
CAL3	I13C2-PFDA	True	1126035.4	1175142.0
CAL4	I13C2-PFDA	True	1243232.0	1175142.0
CAL5	I13C2-PFDA	True	1155544.6	1175142.0
CAL6	I13C2-PFDA	True	1140942.8	1175142.0
CAL7	I13C2-PFDA	True	1071618.4	1175142.0

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

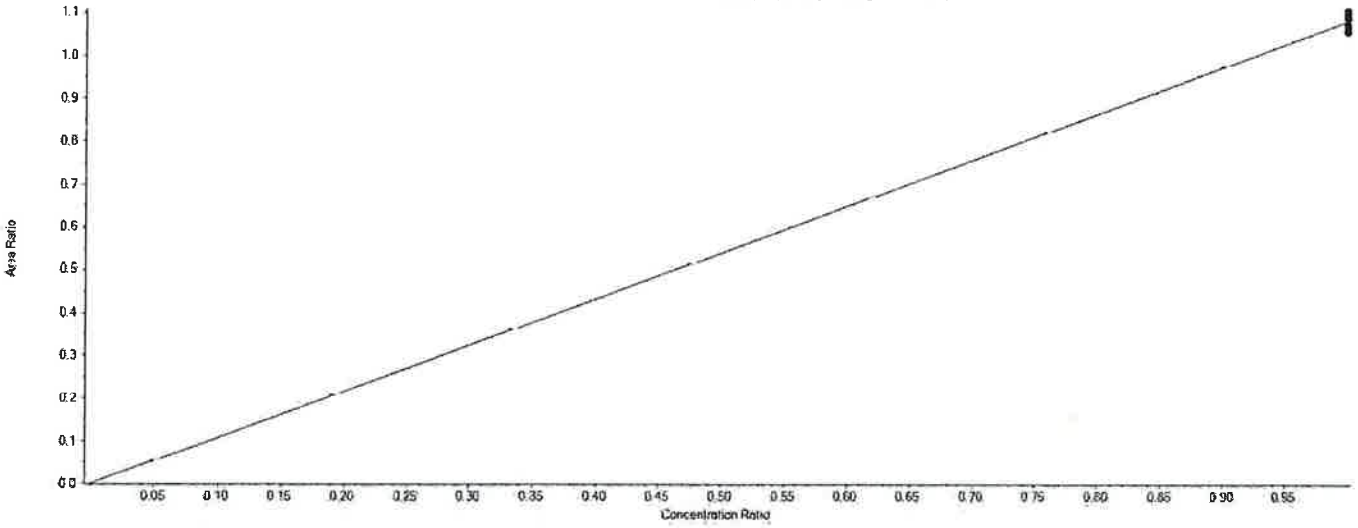
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFBA

y = 1.08085 x (std. dev. = 0.01823) (weighting: None)



Extraction Standard Calibration Verification

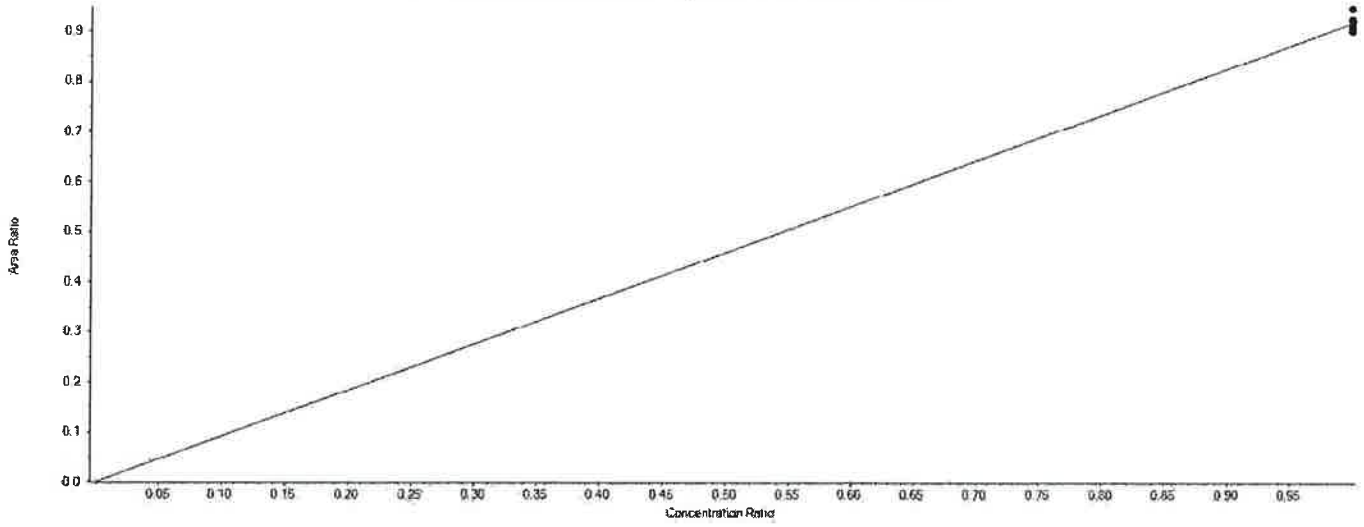
Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1100301.3	1026010.5	True	5.00	1.072	4.46	1.000	5.000	4.961	-0.8	50.0	
CAL2	1124843.5	1017302.4	True	5.00	1.106	4.46	1.000	5.000	5.115	2.3	30.0	
CAL3	1007557.7	949577.0	True	5.00	1.061	4.46	1.000	5.000	4.908	-1.8	30.0	
CAL4	1153786.2	1054210.1	True	5.00	1.094	4.46	1.000	5.000	5.063	1.3	30.0	
CAL5	1059428.9	973850.5	True	5.00	1.088	4.46	1.000	5.000	5.032	0.7	30.0	
CAL6	974357.1	922726.1	True	5.00	1.056	4.46	1.000	5.000	4.885	-2.3	30.0	
CAL7	893792.1	821117.1	True	5.00	1.089	4.45	1.000	5.000	5.035	0.7	30.0	

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFPeA

y = 0.91776 x (std. dev. = 0.01527) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	922892.5	1026010.5	True	5.00	0.899	5.04	1.130	5.000	4.900	-2.0	50.0	
CAL2	937569.1	1017302.4	True	5.00	0.922	5.04	1.130	5.000	5.021	0.4	30.0	
CAL3	869170.2	949577.0	True	5.00	0.915	5.04	1.130	5.000	4.987	-0.3	30.0	
CAL4	997388.3	1054210.1	True	5.00	0.946	5.05	1.130	5.000	5.154	3.1	30.0	
CAL5	887326.2	973850.5	True	5.00	0.911	5.05	1.130	5.000	4.964	-0.7	30.0	
CAL6	835698.7	922726.1	True	5.00	0.906	5.05	1.130	5.000	4.934	-1.3	30.0	
CAL7	759491.4	821117.1	True	5.00	0.925	5.04	1.130	5.000	5.039	0.8	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

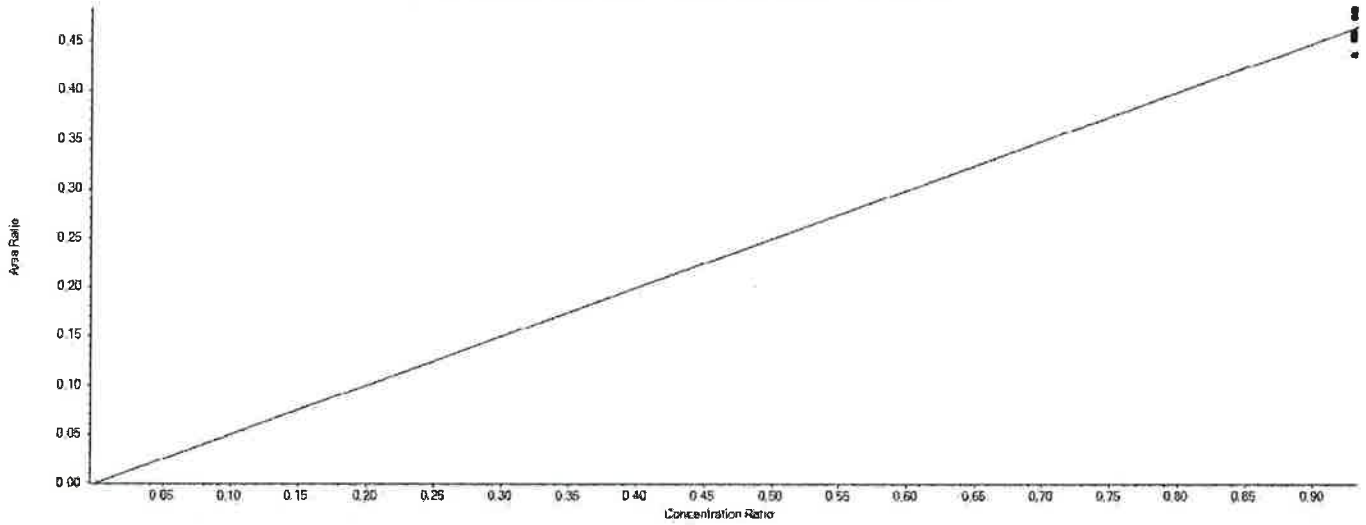
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFBS

y = 0.49823 x (std. dev. = 0.01790) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	447685.7	1026010.5	True	5.00	0.436	5.10	1.140	4.650	4.379	-5.8	50.0	
CAL2	461158.8	1017302.4	True	5.00	0.453	5.10	1.140	4.650	4.549	-2.2	30.0	
CAL3	436743.3	949577.0	True	5.00	0.460	5.10	1.140	4.650	4.616	-0.7	30.0	
CAL4	508529.1	1054210.1	True	5.00	0.482	5.10	1.140	4.650	4.841	4.1	30.0	
CAL5	467521.1	973850.5	True	5.00	0.480	5.10	1.140	4.650	4.818	3.6	30.0	
CAL6	421271.7	922726.1	True	5.00	0.457	5.10	1.140	4.650	4.582	-1.5	30.0	
CAL7	389922.8	821117.1	True	5.00	0.475	5.09	1.140	4.650	4.766	2.5	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

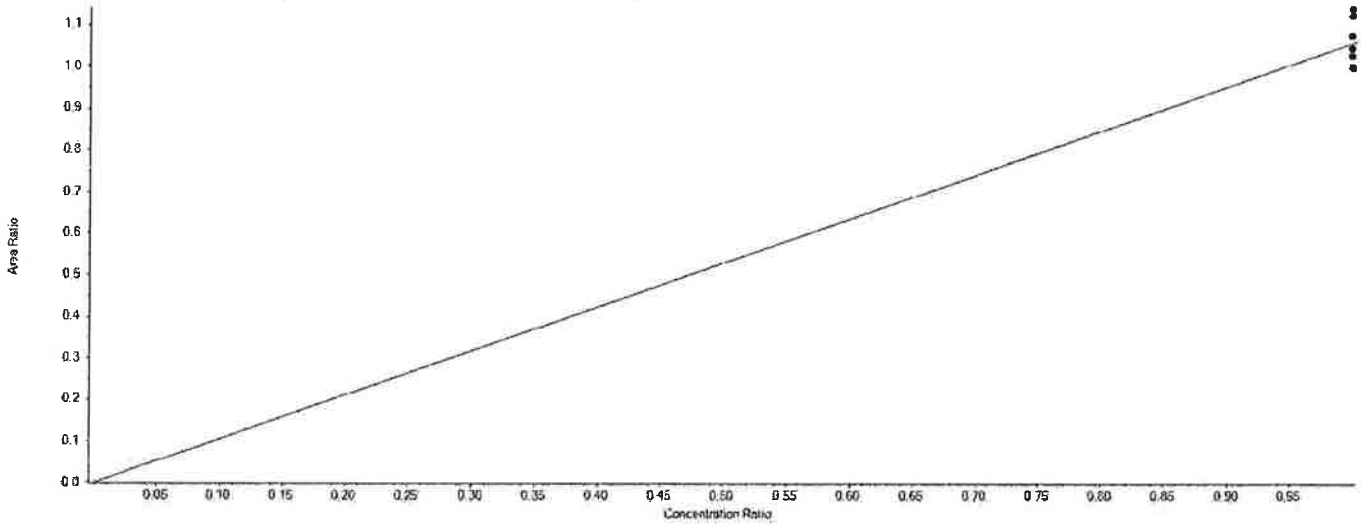
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFHxA

y = 1.05792 x (std. dev. = 0.05627) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1649110.1	1471033.2	True	5.00	1.121	5.52	0.860	5.000	5.298	6.0	50.0	
CAL2	1707665.0	1500597.1	True	5.00	1.138	5.52	0.860	5.000	5.378	7.6	30.0	
CAL3	1516166.2	1448589.2	True	5.00	1.047	5.52	0.860	5.000	4.947	-1.1	30.0	
CAL4	1718608.8	1597083.5	True	5.00	1.076	5.52	0.860	5.000	5.086	1.7	30.0	
CAL5	1552199.7	1509692.0	True	5.00	1.028	5.53	0.860	5.000	4.859	-2.8	30.0	
CAL6	1454150.4	1461490.4	True	5.00	0.995	5.52	0.860	5.000	4.703	-5.9	30.0	
CAL7	1285963.8	1285341.3	True	5.00	1.000	5.51	0.860	5.000	4.729	-5.4	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

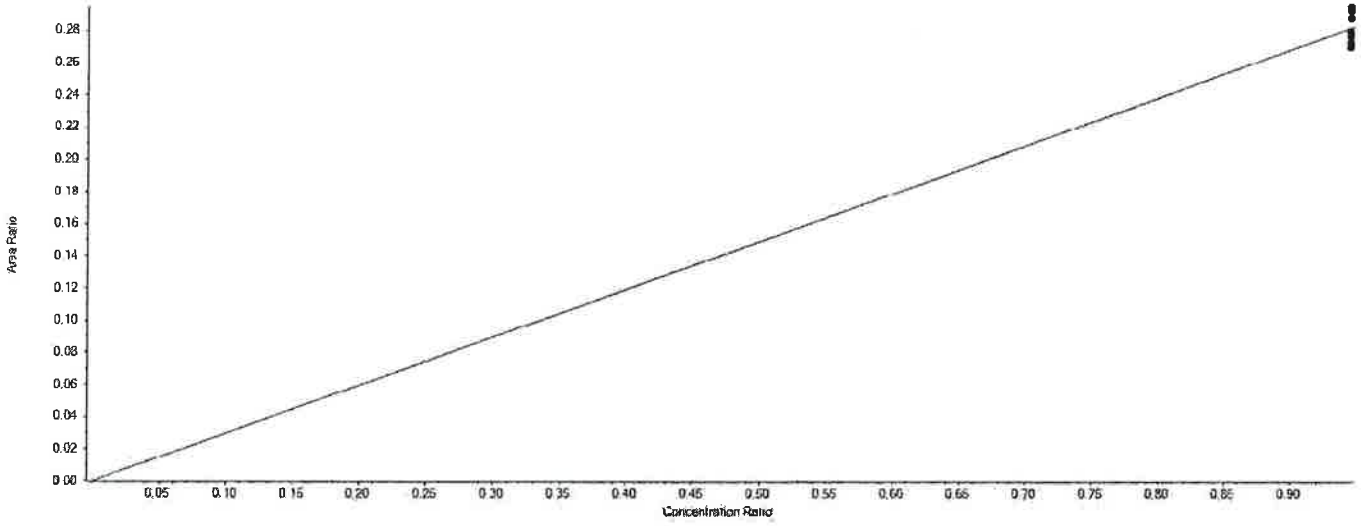
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFHxS

y = 0.29799 x (std. dev. = 0.00992) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	433366.1	1471033.2	True	5.00	0.295	5.97	0.930	4.730	4.943	4.5	50.0	
CAL2	431272.6	1500597.1	True	5.00	0.287	5.97	0.930	4.730	4.822	2.0	30.0	
CAL3	400535.2	1448589.2	True	5.00	0.277	5.97	0.930	4.730	4.639	-1.9	30.0	
CAL4	465533.6	1597083.5	True	5.00	0.291	5.97	0.930	4.730	4.891	3.4	30.0	
CAL5	422422.9	1509692.0	True	5.00	0.280	5.97	0.930	4.730	4.695	-0.7	30.0	
CAL6	399626.3	1461490.4	True	5.00	0.273	5.97	0.930	4.730	4.588	-3.0	30.0	
CAL7	347129.6	1285341.3	True	5.00	0.270	5.96	0.930	4.730	4.531	-4.2	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

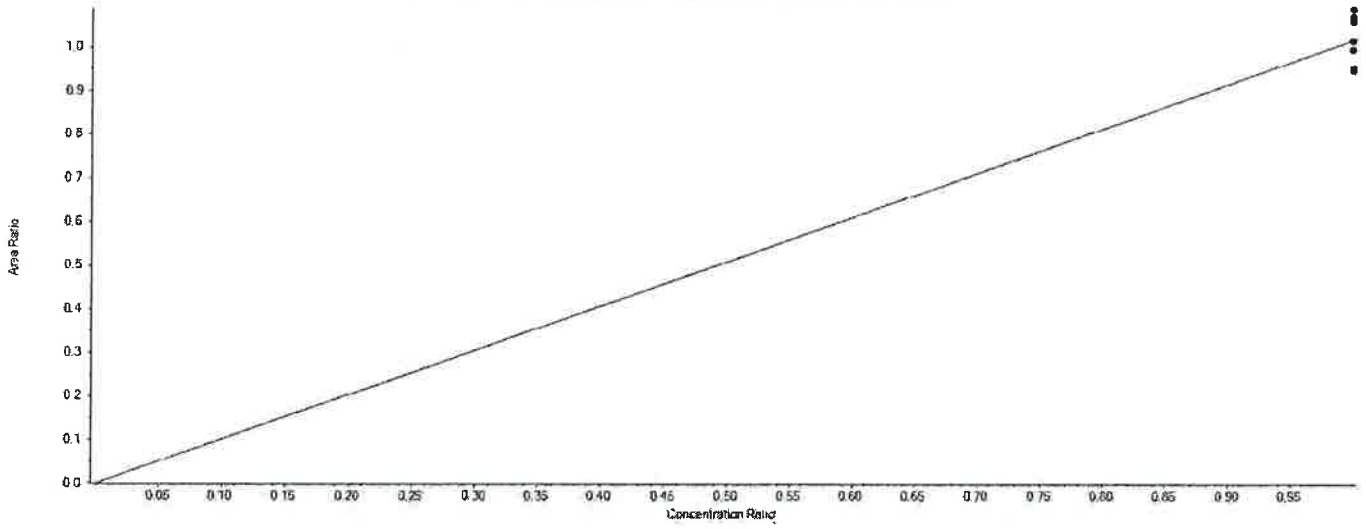
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFHpA

y = 1.01788 x (std. dev. = 0.05603) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1598484.7	1471033.2	True	5.00	1.087	5.98	0.930	5.000	5.338	6.8	50.0	
CAL2	1524141.8	1500597.1	True	5.00	1.016	5.98	0.930	5.000	4.989	-0.2	30.0	
CAL3	1531710.5	1448589.2	True	5.00	1.057	5.97	0.930	5.000	5.194	3.9	30.0	
CAL4	1708703.4	1597083.5	True	5.00	1.070	5.98	0.930	5.000	5.255	5.1	30.0	
CAL5	1428983.1	1509692.0	True	5.00	0.947	5.98	0.930	5.000	4.650	-7.0	30.0	
CAL6	1391767.4	1461490.4	True	5.00	0.952	5.98	0.930	5.000	4.678	-6.4	30.0	
CAL7	1281174.5	1285341.3	True	5.00	0.997	5.97	0.930	5.000	4.896	-2.1	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

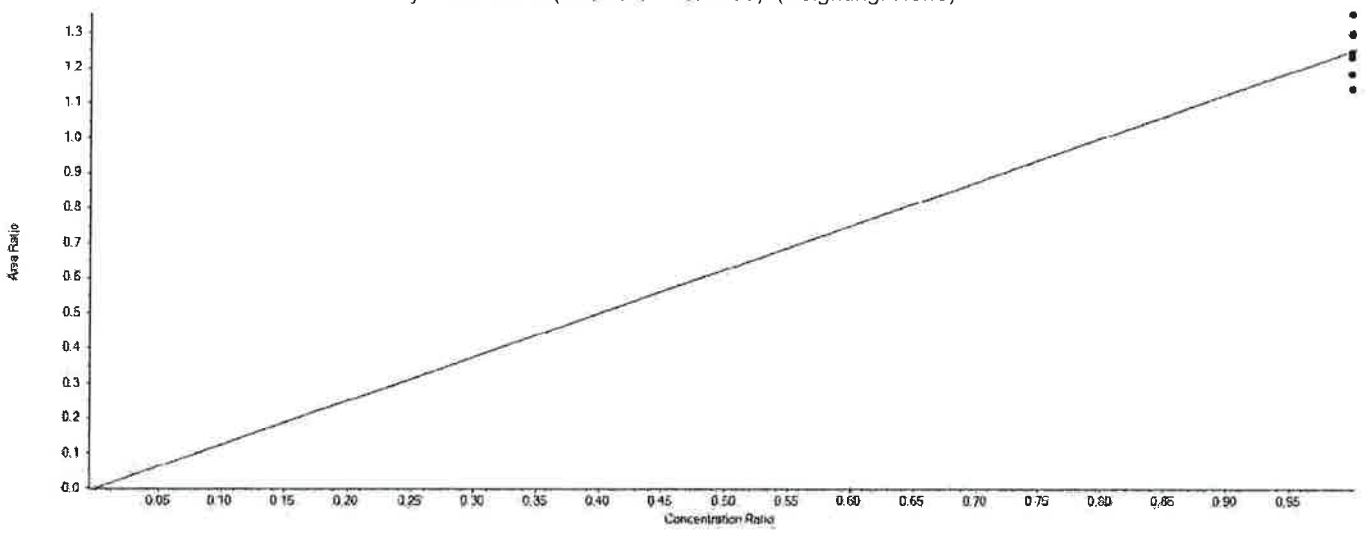
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOA

y = 1.24901 x (std. dev. = 0.07280) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1832017.4	1471033.2	True	5.00	1.245	6.40	1.000	5.000	4.986	-0.3	50.0	
CAL2	2028040.1	1500597.1	True	5.00	1.351	6.40	1.000	5.000	5.410	8.2	30.0	
CAL3	1878809.3	1448589.2	True	5.00	1.297	6.39	1.000	5.000	5.192	3.8	30.0	
CAL4	2068783.6	1597083.5	True	5.00	1.295	6.40	1.000	5.000	5.186	3.7	30.0	
CAL5	1860046.2	1509692.0	True	5.00	1.232	6.40	1.000	5.000	4.932	-1.4	30.0	
CAL6	1729538.1	1461490.4	True	5.00	1.183	6.39	1.000	5.000	4.737	-5.3	30.0	
CAL7	1463186.7	1285341.3	True	5.00	1.138	6.39	1.000	5.000	4.557	-8.9	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

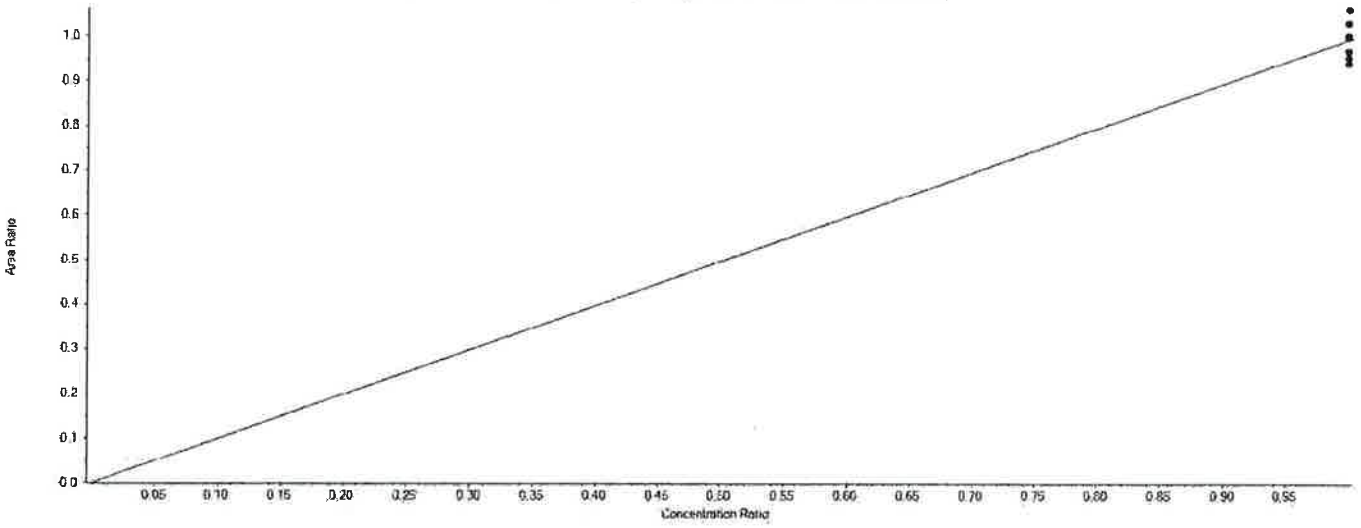
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOS

y = 0.99331 x (std. dev. = 0.04277) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	389010.0	401464.0	True	4.78	0.969	6.75	1.000	4.780	4.663	-2.4	50.0	
CAL2	398468.0	375861.7	True	4.78	1.060	6.75	1.000	4.780	5.102	6.7	30.0	
CAL3	342286.0	364338.3	True	4.78	0.939	6.75	1.000	4.780	4.521	-5.4	30.0	
CAL4	415901.6	416225.2	True	4.78	0.999	6.75	1.000	4.780	4.808	0.6	30.0	
CAL5	360079.2	359543.9	True	4.78	1.001	6.75	1.000	4.780	4.819	0.8	30.0	
CAL6	373037.4	362146.0	True	4.78	1.030	6.74	1.000	4.780	4.957	3.7	30.0	
CAL7	333655.4	349823.1	True	4.78	0.954	6.74	1.000	4.780	4.590	-4.0	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

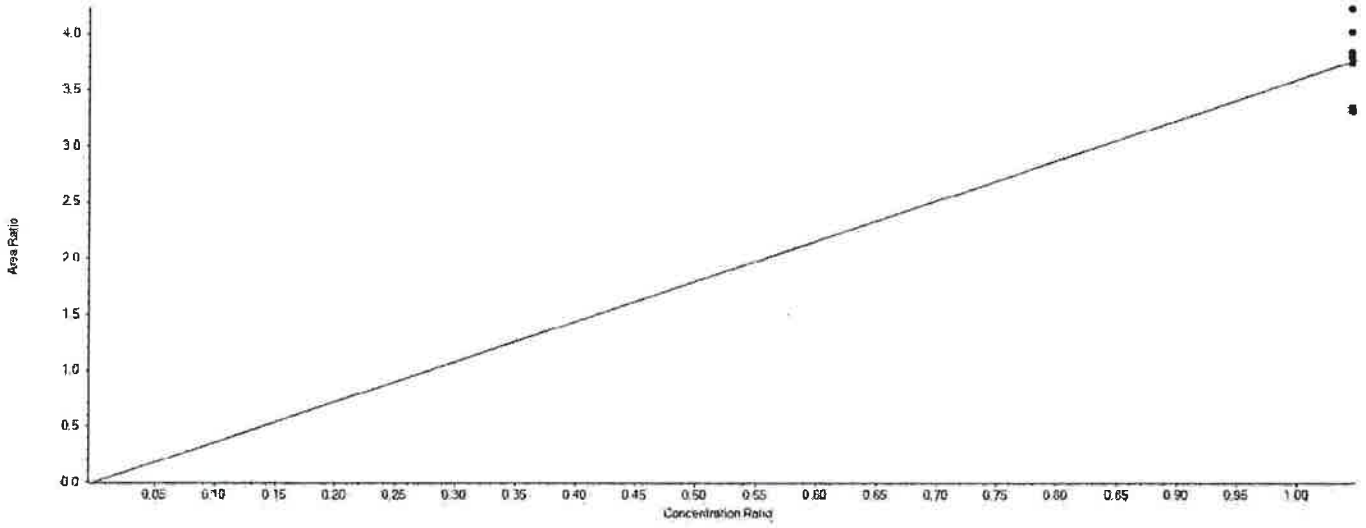
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C9-PFNA

y = 3.59212 x (std. dev. = 0.31815) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1503283.0	401464.0	True	4.78	3.745	6.78	1.000	5.000	4.983	-0.3	50.0	
CAL2	1511469.3	375861.7	True	4.78	4.021	6.78	1.000	5.000	5.351	7.0	30.0	
CAL3	1207952.4	364338.3	True	4.78	3.315	6.78	1.000	5.000	4.412	-11.8	30.0	
CAL4	1599600.2	416225.2	True	4.78	3.843	6.78	1.000	5.000	5.114	2.3	30.0	
CAL5	1519832.7	359543.9	True	4.78	4.227	6.78	1.000	5.000	5.625	12.5	30.0	
CAL6	1377790.0	362146.0	True	4.78	3.805	6.77	1.000	5.000	5.063	1.3	30.0	
CAL7	1170541.5	349823.1	True	4.78	3.346	6.77	1.000	5.000	4.453	-10.9	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

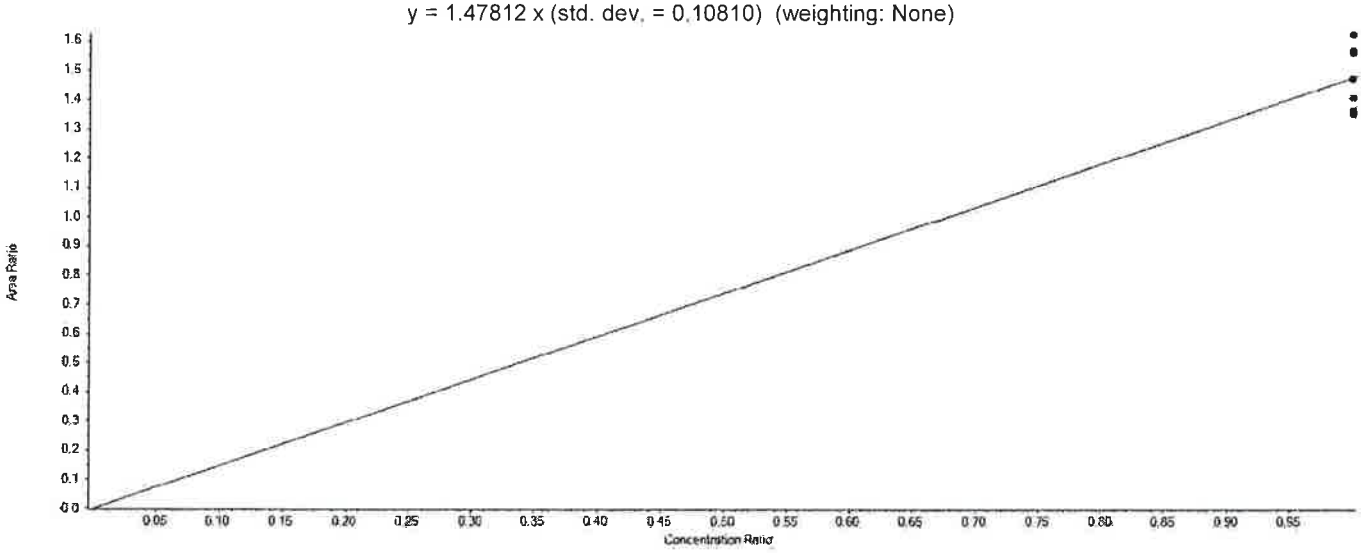
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C6-PFDA

y = 1.47812 x (std. dev. = 0.10810) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1792417.4	1274282.8	True	5.00	1.407	7.13	1.000	5.000	4.758	-4.8	50.0	
CAL2	1970232.8	1214338.0	True	5.00	1.622	7.13	1.000	5.000	5.488	9.8	30.0	
CAL3	1765389.2	1126035.4	True	5.00	1.568	7.13	1.000	5.000	5.303	6.1	30.0	
CAL4	1835125.6	1243232.0	True	5.00	1.476	7.13	1.000	5.000	4.993	-0.1	30.0	
CAL5	1802488.9	1155544.6	True	5.00	1.560	7.13	1.000	5.000	5.277	5.5	30.0	
CAL6	1540572.5	1140942.8	True	5.00	1.350	7.13	1.000	5.000	4.568	-8.7	30.0	
CAL7	1461398.7	1071618.4	True	5.00	1.364	7.12	1.000	5.000	4.613	-7.7	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

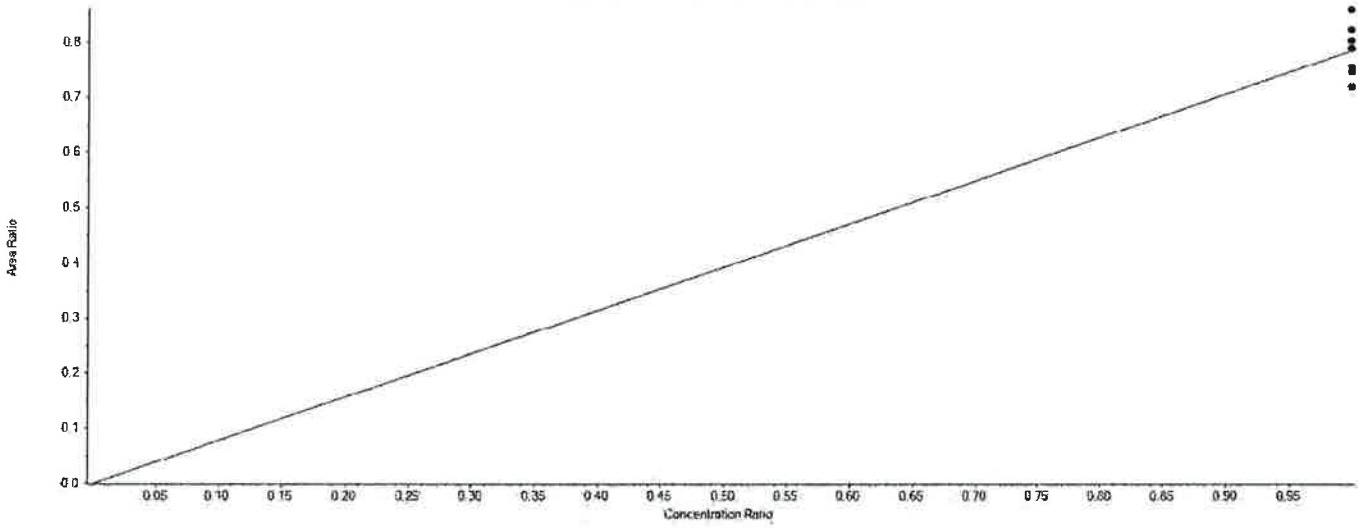
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C7-PFUnDA

y = 0.78497 x (std. dev. = 0.04842) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	950970.1	1274282.8	True	5.00	0.746	7.45	1.040	5.000	4.754	-4.9	50.0	
CAL2	999388.3	1214338.0	True	5.00	0.823	7.45	1.040	5.000	5.242	4.8	30.0	
CAL3	904707.8	1126035.4	True	5.00	0.803	7.44	1.040	5.000	5.118	2.4	30.0	
CAL4	982443.9	1243232.0	True	5.00	0.790	7.45	1.040	5.000	5.034	0.7	30.0	
CAL5	992215.6	1155544.6	True	5.00	0.859	7.45	1.040	5.000	5.469	9.4	30.0	
CAL6	860806.4	1140942.8	True	5.00	0.754	7.44	1.040	5.000	4.806	-3.9	30.0	
CAL7	770154.6	1071618.4	True	5.00	0.719	7.44	1.040	5.000	4.578	-8.4	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

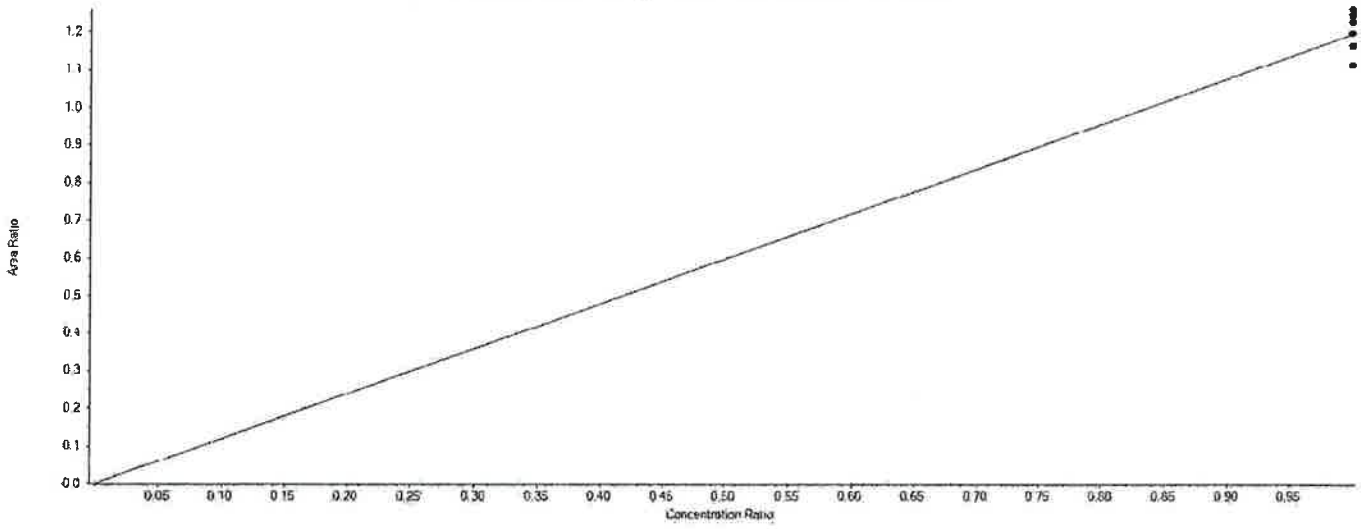
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFDoDA

y = 1.19539 x (std. dev. = 0.05178) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1482678.1	1274282.8	True	5.00	1.164	7.76	1.090	5.000	4.867	-2.7	50.0	
CAL2	1487808.0	1214338.0	True	5.00	1.225	7.76	1.090	5.000	5.125	2.5	30.0	
CAL3	1347696.3	1126035.4	True	5.00	1.197	7.75	1.090	5.000	5.006	0.1	30.0	
CAL4	1565136.6	1243232.0	True	5.00	1.259	7.75	1.090	5.000	5.266	5.3	30.0	
CAL5	1438524.8	1155544.6	True	5.00	1.245	7.75	1.090	5.000	5.207	4.1	30.0	
CAL6	1329571.9	1140942.8	True	5.00	1.165	7.74	1.090	5.000	4.874	-2.5	30.0	
CAL7	1192676.7	1071618.4	True	5.00	1.113	7.74	1.090	5.000	4.655	-6.9	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

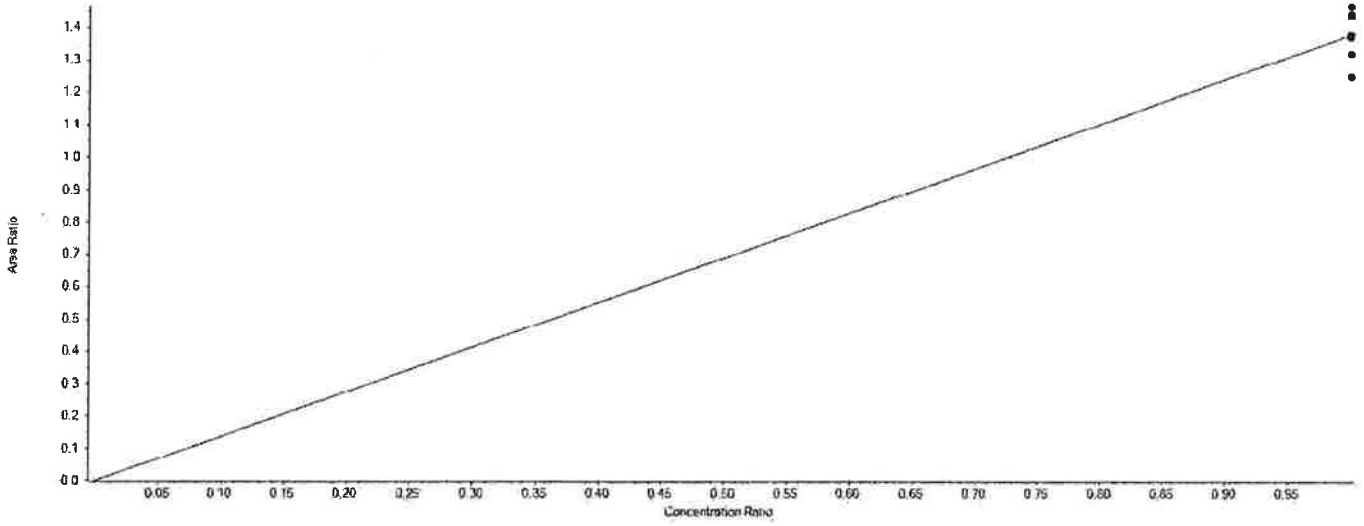
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFTeDA

y = 1.37994 x (std. dev. = 0.07624) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1681932.9	1274282.8	True	5.00	1.320	8.38	1.170	5.000	4.782	-4.4	50.0	
CAL2	1742146.2	1214338.0	True	5.00	1.435	8.37	1.170	5.000	5.198	4.0	30.0	
CAL3	1555919.4	1126035.4	True	5.00	1.382	8.36	1.170	5.000	5.007	0.1	30.0	
CAL4	1820167.4	1243232.0	True	5.00	1.464	8.36	1.170	5.000	5.305	6.1	30.0	
CAL5	1663936.2	1155544.6	True	5.00	1.440	8.36	1.170	5.000	5.217	4.3	30.0	
CAL6	1565062.0	1140942.8	True	5.00	1.372	8.35	1.170	5.000	4.970	-0.6	30.0	
CAL7	1336893.4	1071618.4	True	5.00	1.248	8.34	1.170	5.000	4.520	-9.6	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

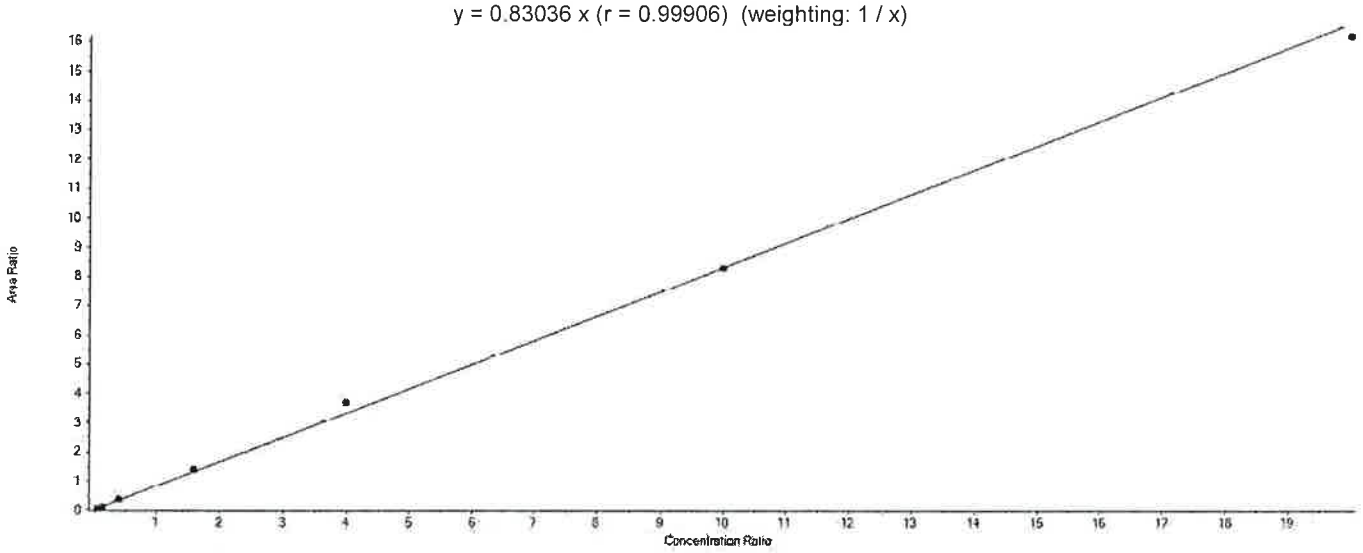
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBA

y = 0.83036 x (r = 0.99906) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	S/N	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	40721.9	81.2	1100301.3	True	5.00	0.037	4.45	1.000	0.200	0.223	11.4	50.0	
CAL2	112479.6	180.9	1124843.5	True	5.00	0.100	4.46	1.000	0.600	0.602	0.4	30.0	
CAL3	349154.6	607.4	1007557.7	True	5.00	0.347	4.46	1.000	2.000	2.087	4.3	30.0	
CAL4	1606821.6	2581.0	1153786.2	True	5.00	1.393	4.46	1.000	8.000	8.386	4.8	30.0	
CAL5	3907746.5	6404.7	1059428.9	True	5.00	3.689	4.46	1.000	20.000	22.211	11.1	30.0	
CAL6	8075168.2	11747.5	974357.1	True	5.00	8.288	4.46	1.000	50.000	49.904	-0.2	30.0	
CAL7	14455506.2	18386.2	893792.1	True	5.00	16.173	4.45	1.000	100.000	97.387	-2.6	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

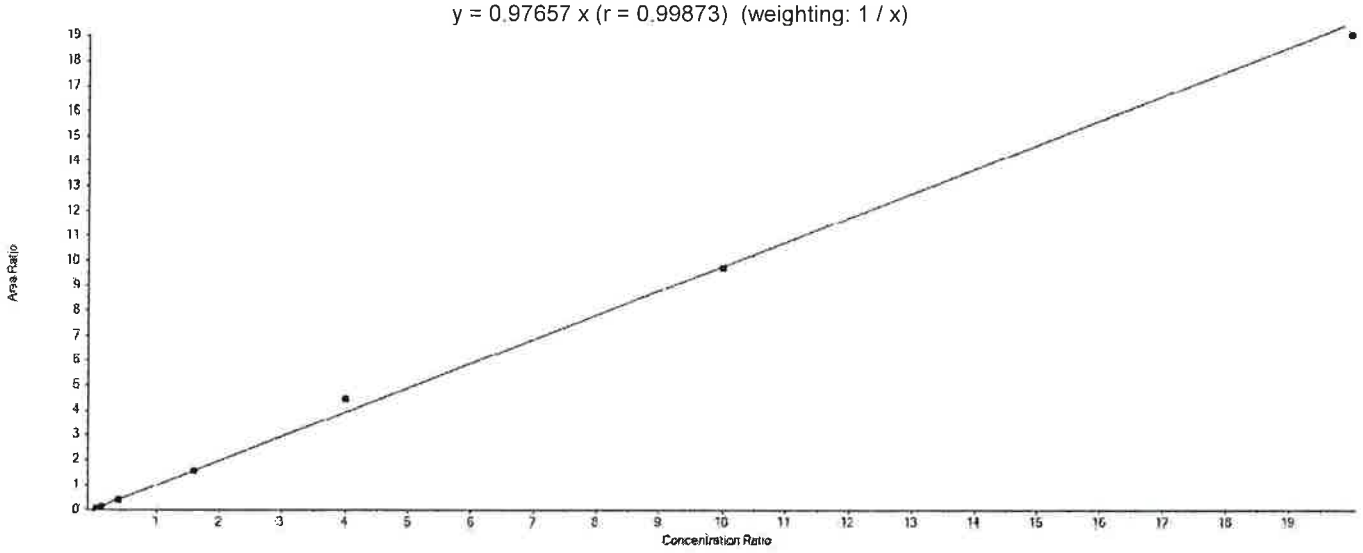
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFPeA

y = 0.97657 x (r = 0.99873) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	S/N	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	40200.6	80.2	922892.5	True	5.00	0.044	5.04	1.000	0.200	0.223	11.5	50.0	
CAL2	111236.7	228.8	937569.1	True	5.00	0.119	5.04	1.000	0.600	0.607	1.2	30.0	
CAL3	343546.5	777.0	869170.2	True	5.00	0.395	5.04	1.000	2.000	2.024	1.2	30.0	
CAL4	1571743.1	2650.8	997388.3	True	5.00	1.576	5.05	1.000	8.000	8.068	0.9	30.0	
CAL5	3943906.2	4641.4	887326.2	True	5.00	4.445	5.05	1.000	20.000	22.757	13.8	30.0	
CAL6	8112606.9	10079.7	835698.7	True	5.00	9.708	5.05	1.000	50.000	49.702	-0.6	30.0	
CAL7	14450930.5	13539.3	759491.4	True	5.00	19.027	5.04	1.000	100.000	97.418	-2.6	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

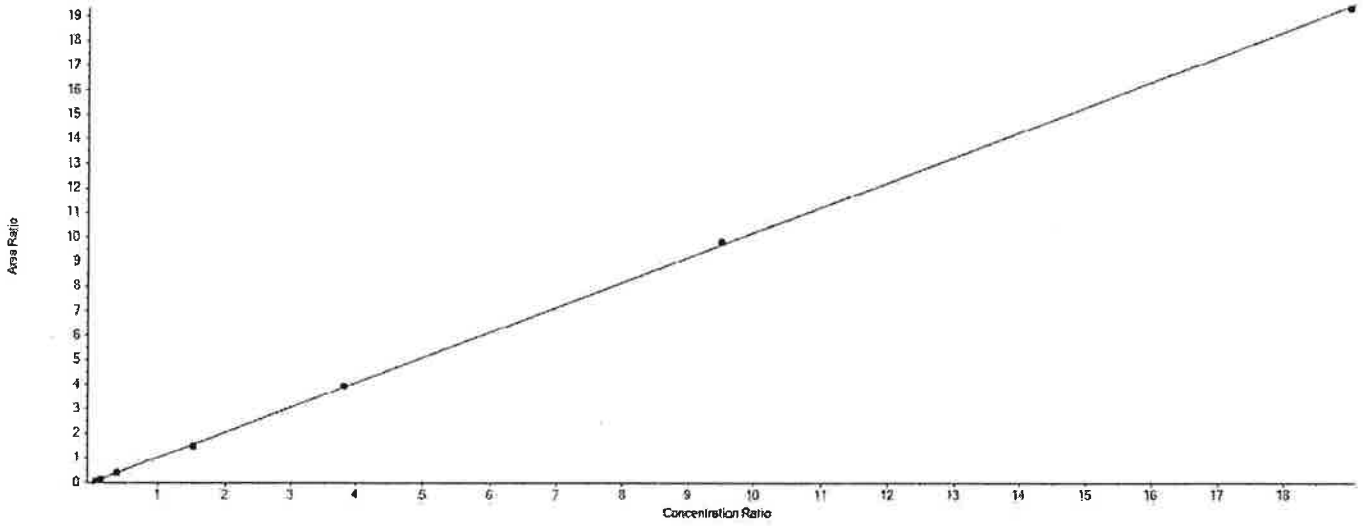
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBS

y = 1.01960 x (r = 0.99990) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	S/N	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	17293.2	200.8	447685.7	True	4.65	0.039	5.09	1.000	0.170	0.176	3.6	50.0	
CAL2	53951.8	646.8	461158.8	True	4.65	0.117	5.10	1.000	0.530	0.534	0.7	30.0	
CAL3	161754.5	1646.9	436743.3	True	4.65	0.370	5.10	1.000	1.770	1.689	-4.6	30.0	
CAL4	753349.4	5911.5	508529.1	True	4.65	1.481	5.10	1.000	7.080	6.756	-4.6	30.0	
CAL5	1844518.3	9059.5	467521.1	True	4.65	3.945	5.10	1.000	17.690	17.993	1.7	30.0	
CAL6	4127119.6	15176.7	421271.7	True	4.65	9.797	5.10	1.000	44.220	44.679	1.0	30.0	
CAL7	7530912.1	18605.0	389922.8	True	4.65	19.314	5.09	1.000	88.450	88.083	-0.4	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

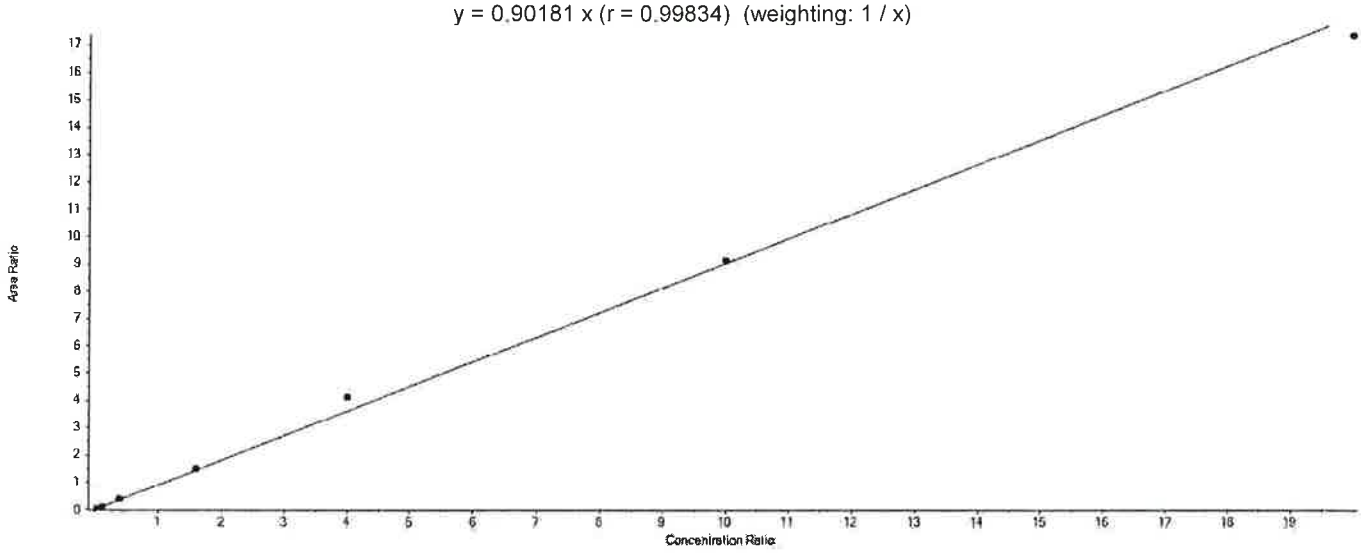
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxA

y = 0.90181 x (r = 0.99834) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	S/N	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65247.5	106.9	1649110.1	True	5.00	0.040	5.52	1.000	0.200	0.219	9.7	50.0	
CAL2	185361.2	256.2	1707665.0	True	5.00	0.109	5.52	1.000	0.600	0.602	0.3	30.0	
CAL3	568449.0	791.7	1516166.2	True	5.00	0.375	5.52	1.000	2.000	2.079	3.9	30.0	
CAL4	2555956.2	3460.3	1718608.8	True	5.00	1.487	5.52	1.000	8.000	8.246	3.1	30.0	
CAL5	6411206.8	7024.0	1552199.7	True	5.00	4.130	5.53	1.000	20.000	22.901	14.5	30.0	
CAL6	13277171.9	12676.0	1454150.4	True	5.00	9.131	5.52	1.000	50.000	50.623	1.2	30.0	
CAL7	22296572.4	14387.4	1285963.8	True	5.00	17.338	5.51	1.000	100.000	96.131	-3.9	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

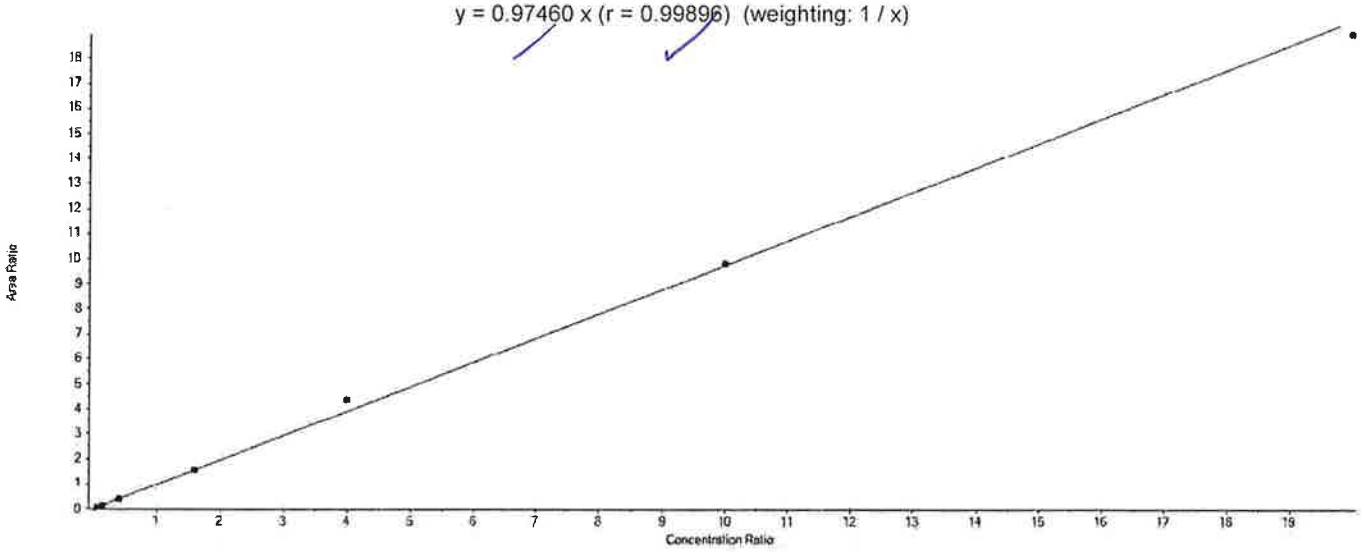
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxS

y = 0.97460 x (r = 0.99896) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	S/N	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	21092.1	156.1	433366.1	True	4.73	0.049	5.97	1.000	0.190	0.236	24.3	50.0	
CAL2	51528.0	461.8	431272.6	True	4.73	0.119	5.97	1.000	0.570	0.580	1.7	30.0	
CAL3	158234.5	774.4	400535.2	True	4.73	0.395	5.97	1.000	1.890	1.917	1.4	30.0	
CAL4	732631.0	1904.7	465533.6	True	4.73	1.574	5.97	1.000	7.560	7.638	1.0	30.0	
CAL5	1843205.4	4436.9	422422.9	True	4.73	4.363	5.98	1.000	18.910	21.177	12.0	30.0	
CAL6	3913499.7	6581.0	399626.3	True	4.73	9.793	5.97	1.000	47.280	47.527	0.5	30.0	
CAL7	6571357.4	7053.1	347129.6	True	4.73	18.931	5.96	1.000	94.550	91.875	-2.8	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

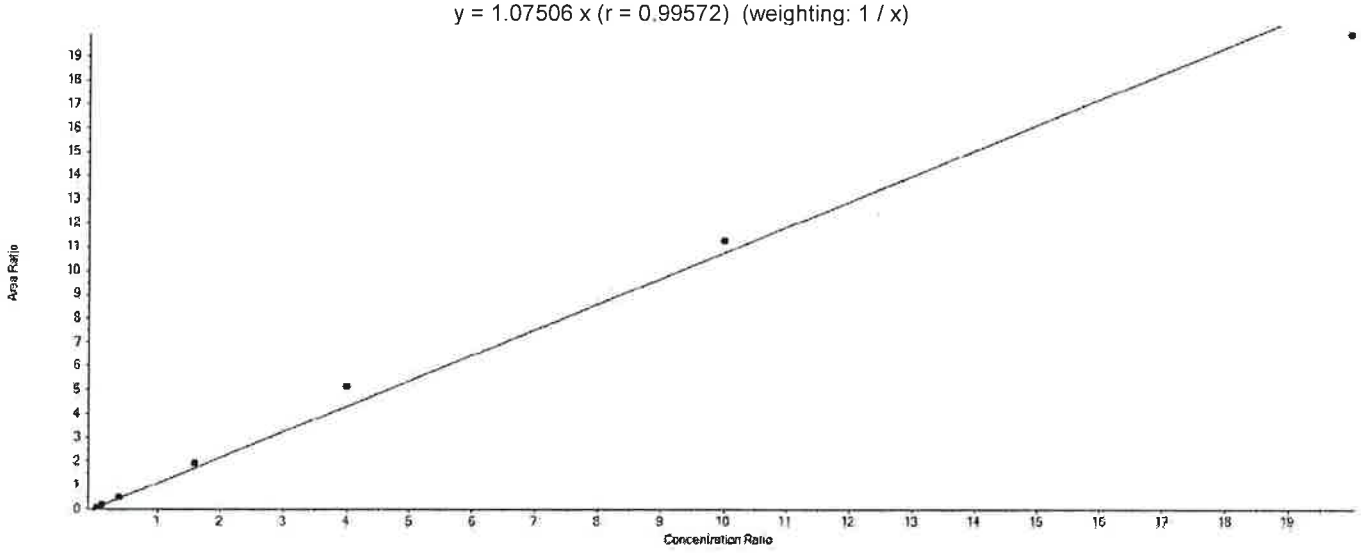
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHpA

y = 1.07506 x (r = 0.99572) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	S/N	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	89114.9	180.4	1598484.7	True	5.00	0.056	5.98	1.000	0.200	0.259	29.6	50.0	
CAL2	222501.8	514.4	1524141.8	True	5.00	0.146	5.98	1.000	0.600	0.679	13.2	30.0	
CAL3	719256.9	1433.5	1531710.5	True	5.00	0.470	5.98	1.000	2.000	2.184	9.2	30.0	
CAL4	3286348.3	6187.5	1708703.4	True	5.00	1.923	5.98	1.000	8.000	8.945	11.8	30.0	
CAL5	7329577.0	11065.8	1428983.1	True	5.00	5.129	5.98	1.000	20.000	23.855	19.3	30.0	
CAL6	15677728.6	19843.6	1391767.4	True	5.00	11.265	5.97	1.000	50.000	52.391	4.8	30.0	
CAL7	25477192.5	22738.6	1281174.5	True	5.00	19.886	5.97	1.000	100.000	92.487	-7.5	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

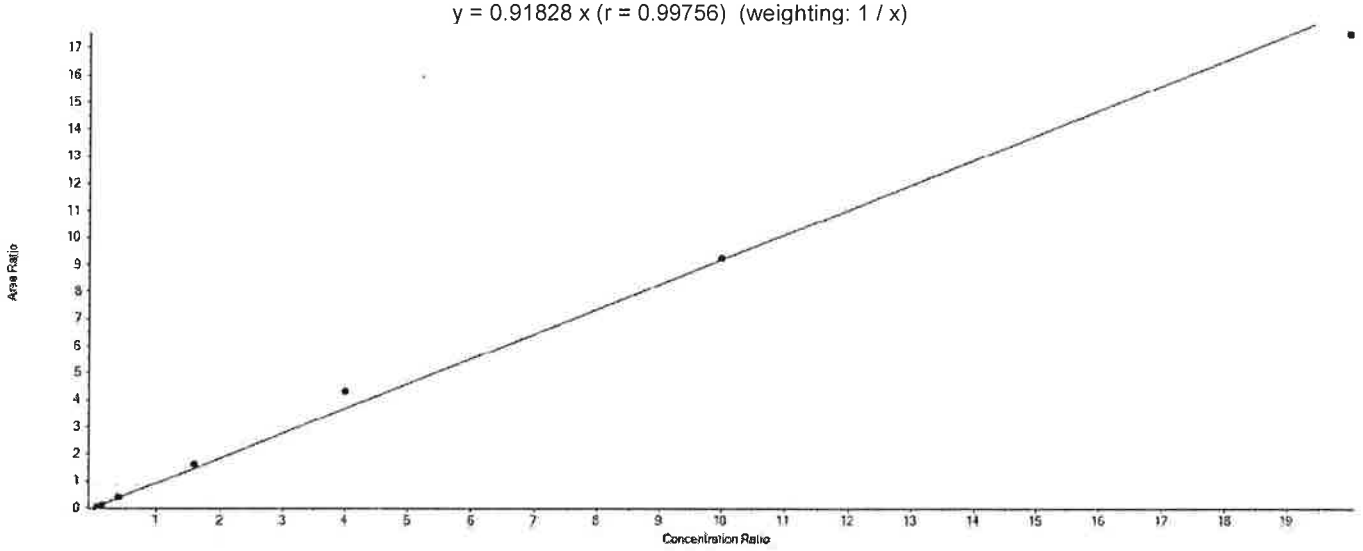
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOA

y = 0.91828 x (r = 0.99756) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	S/N	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	88949.1	80.0	1832017.4	True	5.00	0.049	6.40	1.000	0.200	0.264	32.2	50.0	
CAL2	241636.1	173.8	2028040.1	True	5.00	0.119	6.40	1.000	0.600	0.649	8.1	30.0	
CAL3	734881.7	714.9	1878809.3	True	5.00	0.391	6.39	1.000	2.000	2.130	6.5	30.0	
CAL4	3335635.4	2333.7	2068783.6	True	5.00	1.612	6.39	1.000	8.000	8.779	9.7	30.0	
CAL5	7998765.9	6522.9	1860046.2	True	5.00	4.300	6.40	1.000	20.000	23.415	17.1	30.0	
CAL6	15967403.0	9707.8	1729538.1	True	5.00	9.232	6.39	1.000	50.000	50.269	0.5	30.0	
CAL7	25607540.4	11659.8	1463186.7	True	5.00	17.501	6.39	1.000	100.000	95.294	-4.7	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

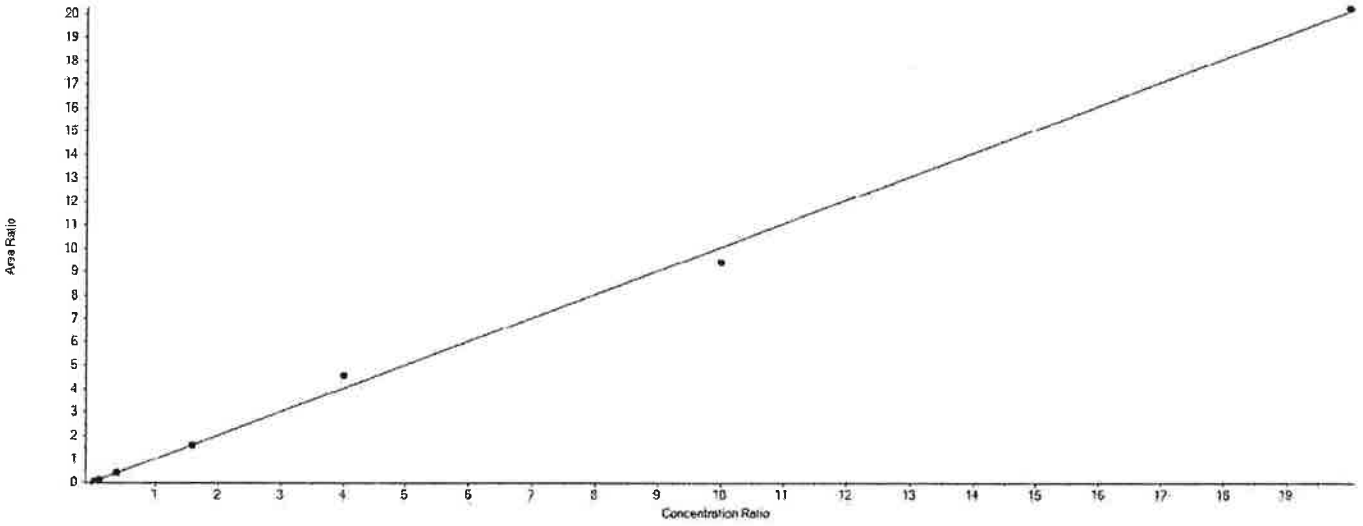
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOS

y = 1.00612 x (r = 0.99832) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	S/N	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	18753.7	101.2	389010.0	True	4.78	0.048	6.75	1.000	0.190	0.229	20.5	50.0	
CAL2	49822.0	212.8	398468.0	True	4.78	0.125	6.75	1.000	0.570	0.594	4.2	30.0	
CAL3	140140.2	374.2	342286.0	True	4.78	0.409	6.74	1.000	1.910	1.945	1.8	30.0	
CAL4	654534.7	1279.2	415901.6	True	4.78	1.574	6.75	1.000	7.650	7.477	-2.3	30.0	
CAL5	1646781.8	1762.5	360079.2	True	4.78	4.573	6.75	1.000	19.120	21.728	13.6	30.0	
CAL6	3510085.0	3230.8	373037.4	True	4.78	9.409	6.74	1.000	47.800	44.704	-6.5	30.0	
CAL7	6753530.0	4857.2	333655.4	True	4.78	20.241	6.74	1.000	95.600	96.164	0.6	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

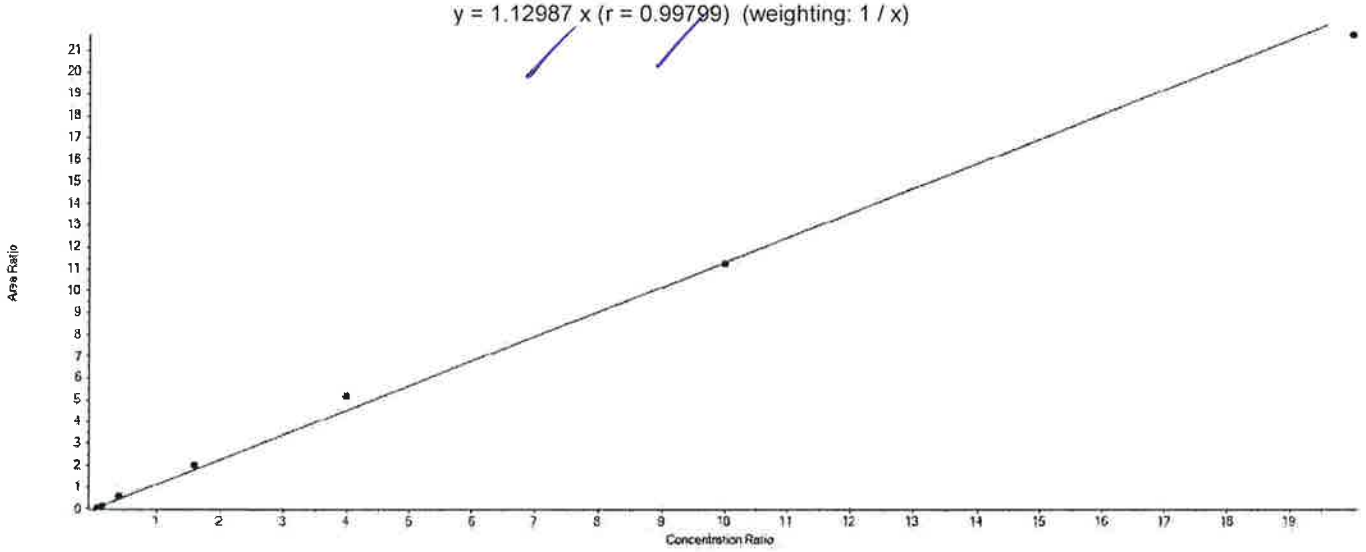
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFNA

y = 1.12987 x (r = 0.99799) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	S/N	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	79663.0	139.0	1503283.0	True	5.00	0.053	6.78	1.000	0.200	0.235	17.3	50.0	
CAL2	224488.4	306.4	1511469.3	True	5.00	0.149	6.78	1.000	0.600	0.657	9.5	30.0	
CAL3	660623.2	952.7	1207952.4	True	5.00	0.547	6.77	1.000	2.000	2.420	21.0	30.0	
CAL4	3208800.5	2916.9	1599600.2	True	5.00	2.006	6.78	1.000	8.000	8.877	11.0	30.0	
CAL5	7851317.1	5193.0	1519832.7	True	5.00	5.166	6.78	1.000	20.000	22.861	14.3	30.0	
CAL6	15482009.0	10298.8	1377790.0	True	5.00	11.237	6.77	1.000	50.000	49.726	-0.5	30.0	
CAL7	25399694.6	12193.2	1170541.5	True	5.00	21.699	6.77	1.000	100.000	96.024	-4.0	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

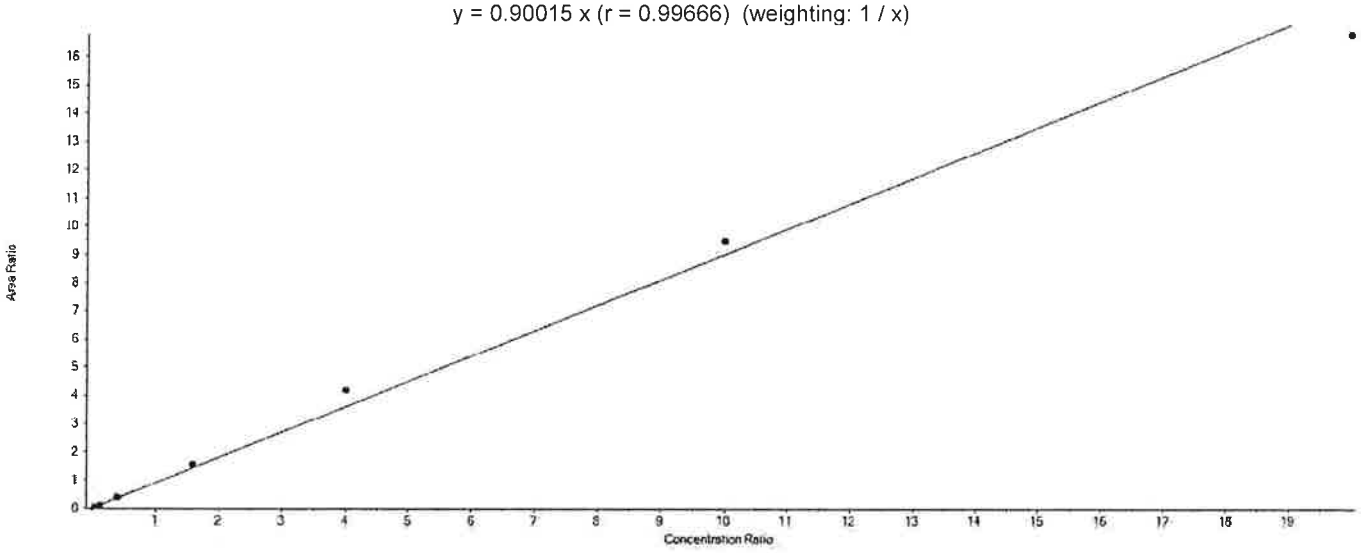
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDA

y = 0.90015 x (r = 0.99666) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	S/N	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	83321.2	144.1	1792417.4	True	5.00	0.046	7.13	1.000	0.200	0.258	29.1	50.0	
CAL2	227463.5	433.2	1970232.8	True	5.00	0.115	7.13	1.000	0.600	0.641	6.9	30.0	
CAL3	660584.9	809.4	1765389.2	True	5.00	0.374	7.13	1.000	2.000	2.078	3.9	30.0	
CAL4	2857795.7	2138.5	1835125.6	True	5.00	1.557	7.13	1.000	8.000	8.650	8.1	30.0	
CAL5	7556402.9	6825.0	1802488.9	True	5.00	4.192	7.13	1.000	20.000	23.286	16.4	30.0	
CAL6	14604582.3	7067.6	1540572.5	True	5.00	9.480	7.13	1.000	50.000	52.658	5.3	30.0	
CAL7	24527792.3	8275.1	1461398.7	True	5.00	16.784	7.12	1.000	100.000	93.228	-6.8	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

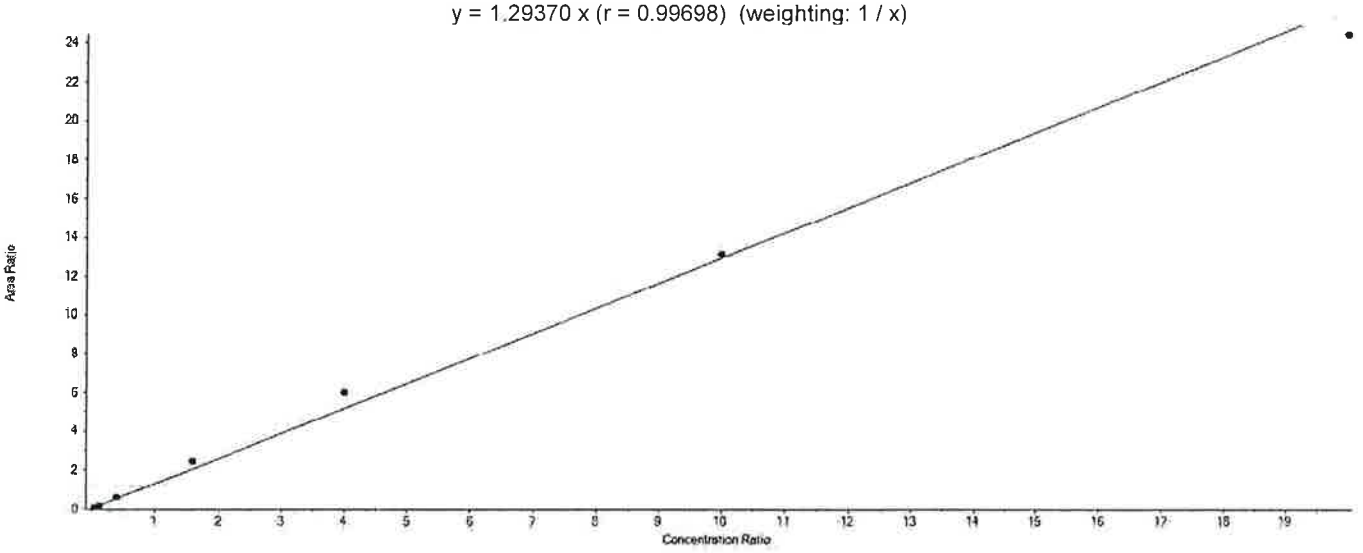
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFUnDA

y = 1.29370 x (r = 0.99698) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	S/N	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	61634.6	116.4	950970.1	True	5.00	0.065	7.45	1.000	0.200	0.250	25.2	50.0	
CAL2	169542.7	260.6	999388.3	True	5.00	0.170	7.45	1.000	0.600	0.656	9.3	30.0	
CAL3	517080.9	662.8	904707.8	True	5.00	0.572	7.45	1.000	2.000	2.209	10.4	30.0	
CAL4	2404299.0	2371.5	982443.9	True	5.00	2.447	7.45	1.000	8.000	9.458	18.2	30.0	
CAL5	5936773.5	3958.1	992215.6	True	5.00	5.983	7.45	1.000	20.000	23.125	15.6	30.0	
CAL6	11304603.3	5139.8	860806.4	True	5.00	13.133	7.44	1.000	50.000	50.756	1.5	30.0	
CAL7	18800181.6	5891.1	770154.6	True	5.00	24.411	7.44	1.000	100.000	94.346	-5.7	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

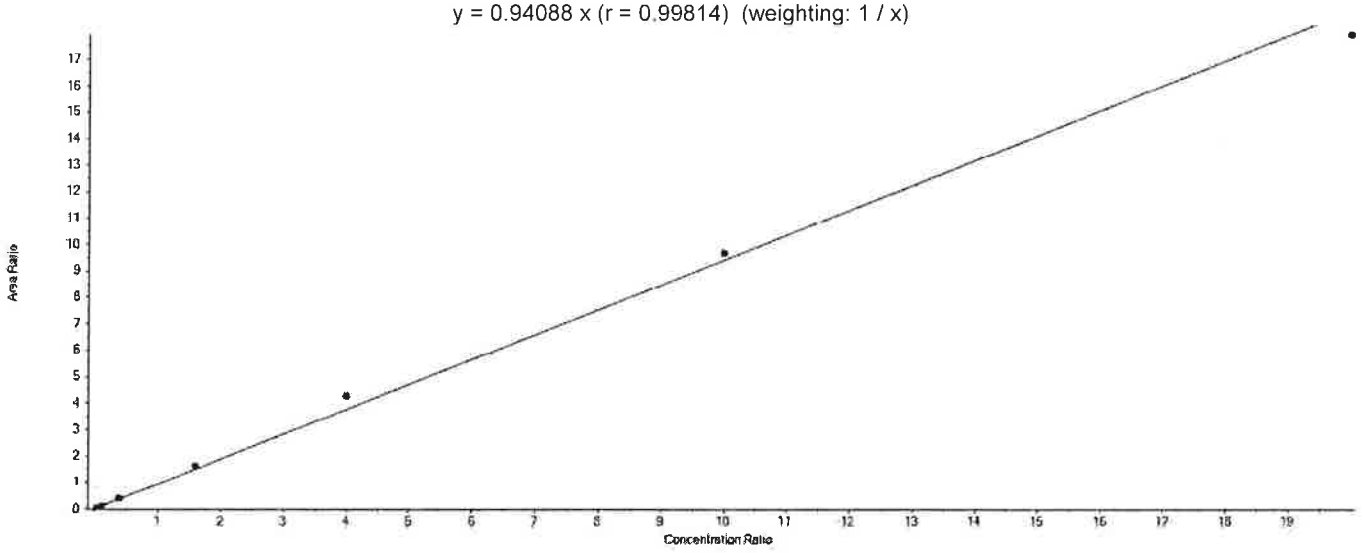
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDoDA

y = 0.94088 x (r = 0.99814) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	S/N	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65830.7	180.0	1482678.1	True	5.00	0.044	7.75	1.000	0.200	0.236	18.0	50.0	
CAL2	177393.9	455.6	1487808.0	True	5.00	0.119	7.75	1.000	0.600	0.634	5.6	30.0	
CAL3	536965.7	1399.8	1347696.3	True	5.00	0.398	7.75	1.000	2.000	2.117	5.9	30.0	
CAL4	2527324.5	1434.6	1565136.6	True	5.00	1.615	7.75	1.000	8.000	8.581	7.3	30.0	
CAL5	6129135.2	3847.3	1438524.8	True	5.00	4.261	7.75	1.000	20.000	22.642	13.2	30.0	
CAL6	12863914.1	15726.8	1329571.9	True	5.00	9.675	7.74	1.000	50.000	51.416	2.8	30.0	
CAL7	21360132.4	17879.5	1192676.7	True	5.00	17.909	7.74	1.000	100.000	95.174	-4.8	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

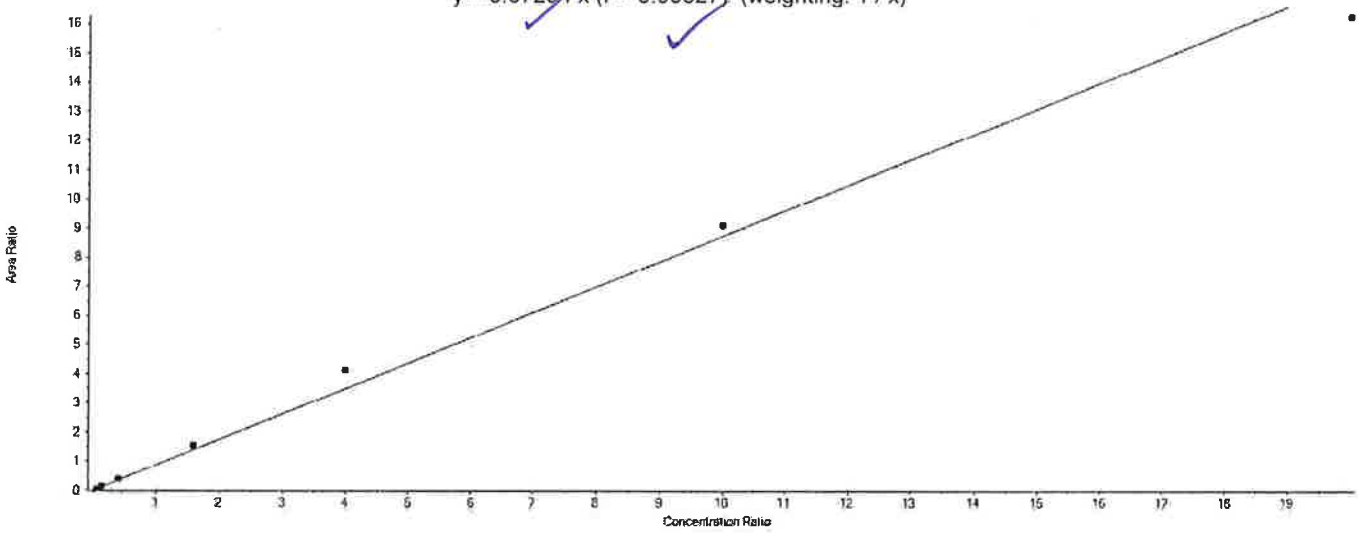
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTrDA

y = 0.87294 x (r = 0.99627) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	S/N	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	61622.4	261.5	1482678.1	True	5.00	0.042	8.06	1.040	0.200	0.238	19.0	50.0	
CAL2	173696.0	641.8	1487808.0	True	5.00	0.117	8.06	1.040	0.600	0.669	11.4	30.0	
CAL3	522619.8	1784.9	1347696.3	True	5.00	0.388	8.05	1.040	2.000	2.221	11.1	30.0	
CAL4	2386434.8	4637.6	1565136.6	True	5.00	1.525	8.05	1.040	8.000	8.733	9.2	30.0	
CAL5	5945009.8	8431.8	1438524.8	True	5.00	4.133	8.05	1.040	20.000	23.671	18.4	30.0	
CAL6	12116764.2	15078.8	1329571.9	True	5.00	9.113	8.05	1.040	50.000	52.199	4.4	30.0	
CAL7	19379447.0	13203.4	1192676.7	True	5.00	16.249	8.04	1.040	100.000	93.069	-6.9	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

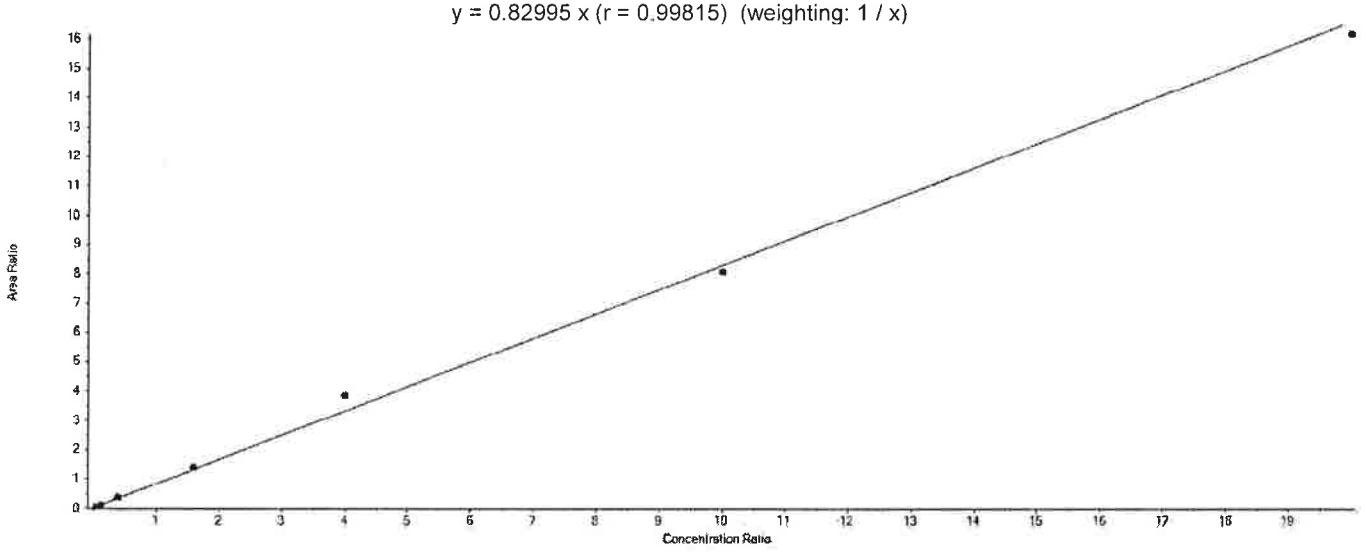
REVIEWED
By uild at 5:04 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTeDA

y = 0.82995 x (r = 0.99815) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	S/N	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	64961.3	292.9	1681932.9	True	5.00	0.039	8.37	1.000	0.200	0.233	16.3	50.0	
CAL2	185625.1	853.3	1742146.2	True	5.00	0.107	8.37	1.000	0.600	0.642	7.0	30.0	
CAL3	562051.8	1967.6	1555919.4	True	5.00	0.361	8.36	1.000	2.000	2.176	8.8	30.0	
CAL4	2532884.4	4575.0	1820167.4	True	5.00	1.392	8.36	1.000	8.000	8.383	4.8	30.0	
CAL5	6424162.6	9768.6	1663936.2	True	5.00	3.861	8.36	1.000	20.000	23.259	16.3	30.0	
CAL6	12663278.1	13840.9	1565062.0	True	5.00	8.091	8.35	1.000	50.000	48.745	-2.5	30.0	
CAL7	21605566.0	19722.6	1336893.4	True	5.00	16.161	8.34	1.000	100.000	97.361	-2.6	30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

REVIEWED
By uild at 5:04 pm, 4/19/18

eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

Printed: 4/9/2018 3:12:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR09MCAL **Result Table:** 18APR09MCAL 4/9/2018 3:01:43 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

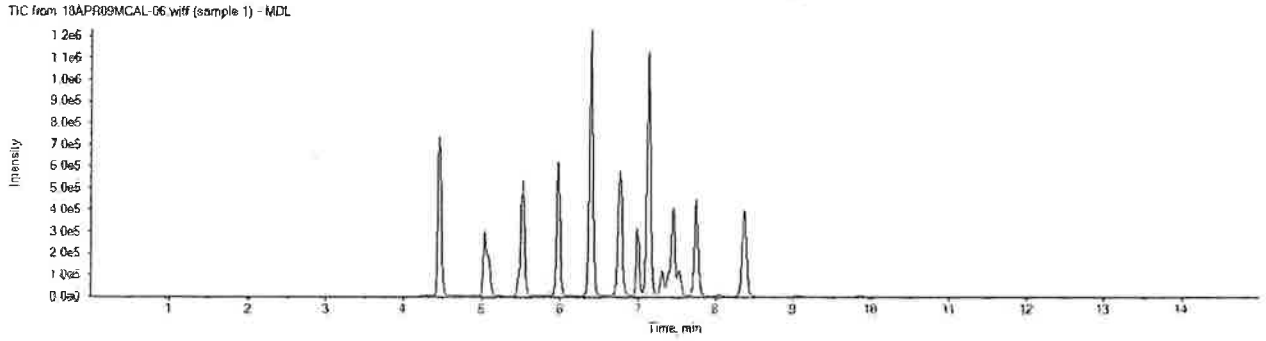
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24743 **File Name:** 18APR09MCAL-06.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.45	1.000	19777.8	M	13C4-PFBA	4.45	1069453.8	0.018	0.111
PFPeA	5.04	1.000	19749.0	M	13C5-PFPeA	5.04	873149.2	0.023	0.116
PFBS	5.09	1.000	8186.6	A	13C3-PFBS	5.09	449631.0	0.018	0.083
4:2-FTS	5.47	1.000	21569.3	A	13C2-4:2-FTS	5.47	227021.7	0.095	0.571
PFHxA	5.51	1.000	33706.8	M	13C5-PFHxA	5.51	1569896.9	0.021	0.119
PFPeS	5.53	1.090	4889.3	M	13C3-PFBS	5.09	449631.0	0.011	0.104
PFHxS	5.96	1.000	8734.4	A	13C3-PFHxS	5.96	423975.3	0.021	0.100
PFHpA	5.97	1.000	39974.2	M	13C4-PFHpA	5.97	1519896.3	0.026	0.122
6:2-FTS	6.38	1.000	20904.3	M	13C2-6:2-FTS	6.38	206121.0	0.101	0.512
PFHpS	6.37	1.070	6915.9	M	13C3-PFHxS	5.96	423975.3	0.016	0.088
PFOA	6.39	1.000	45794.0	M	13C8-PFOA	6.39	1913824.7	0.024	0.130
PFOS	6.74	1.000	6777.2	M	13C8-PFOS	6.74	371740.5	0.018	0.087
PFNA	6.77	1.000	36193.7	M	13C9-PFNA	6.77	1357328.4	0.027	0.118
PFOSA	6.99	1.000	17544.2	M	13C8-PFOSA	6.99	876856.0	0.020	0.100
PFNS	7.09	1.050	6370.1	M	13C8-PFOS	6.74	371740.5	0.017	0.115
PFDA	7.13	1.000	38114.1	M	13C6-PFDA	7.13	1872502.5	0.020	0.113
8:2-FTS	7.13	1.000	26449.3	M	13C2-8:2-FTS	7.14	251356.0	0.105	0.541
NMePFOSAE	7.38	1.000	5475.1	M	d7-NMePFOSAE	7.38	169511.0	0.032	0.151
NMePFOSA	7.40	1.000	3528.6	M	d3-NMePFOSA	7.40	148797.3	0.024	0.121
NMeFOSAA	7.31	1.000	11608.2	M	d3-NMeFOSAA	7.30	367118.9	0.032	0.149
NEtPFOSAE	7.53	1.000	6495.6	M	d9-NEtPFOSAE	7.52	229251.4	0.028	0.117
NEtPFOSA	7.55	1.000	2613.3	M	d5-NEtPFOSA	7.55	119102.6	0.022	0.106
PFDS	7.40	1.100	3683.8	A	13C8-PFOS	6.74	371740.5	0.010	0.094
PFUnDA	7.45	1.000	26536.3	M	13C7-PFUnDA	7.45	948190.7	0.028	0.108
NEtFOSAA	7.47	1.000	9210.3	M	d5-NEtFOSAA	7.46	366873.2	0.025	0.113
PFDoDA	7.75	1.000	29508.7	M	13C2-PFDoDA	7.75	1400917.9	0.021	0.112
10:2-FTS	7.79	1.090	33351.6	M	13C2-8:2-FTS	7.14	251356.0	0.133	0.540
PFDoS	7.99	1.190	1665.5	M	13C8-PFOS	6.74	371740.5	0.004	0.081
PFTrDA	8.06	1.040	28626.3	M	13C2-PFDoDA	7.75	1400917.9	0.020	0.117
PFTeDA	8.37	1.000	31107.4	M	13C2-PFTeDA	8.37	1587772.0	0.020	0.118
PFHxDA	9.05	1.080	27690.9	M	13C2-PFTeDA	8.37	1587772.0	0.017	0.127
PFODA	9.84	1.180	24650.1	M	13C2-PFTeDA	8.37	1587772.0	0.016	0.109

Total Ion Chromatogram



APPROVED
By JPT12262 at 3:44 pm, 4/9/18

REVIEWED
By uild at 5:09 pm, 4/19/18

ICAL Name: 18APR09MCAL **Result Table:** 18APR09MCAL 4/9/2018 3:01:43 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

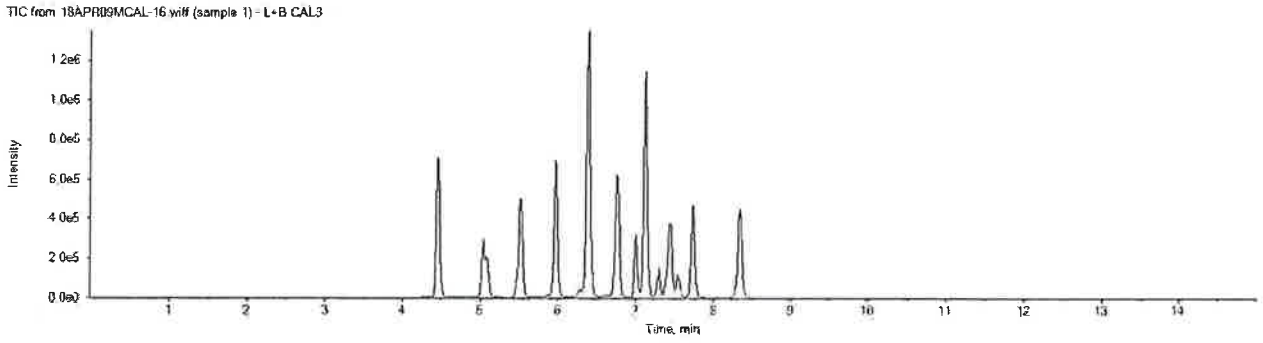
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM24743 **File Name:** 18APR09MCAL-16.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	1067080.8	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.04	872388.1	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.09	484695.9	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.47	223365.7	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.51	1637112.1	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.09	484695.9	N/A	
PFHxS	5.96	1.000	149607.6	M	13C3-PFHxS	5.96	417623.4	0.358	1.739
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.97	1530455.1	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.37	197211.1	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	5.96	417623.4	N/A	
PFOA	6.38	1.000	601882.0	M	13C8-PFOA	6.39	1945780.1	0.309	1.684
PFOS	6.74	1.000	150171.7	M	13C8-PFOS	6.74	386843.9	0.388	1.844
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.76	1383219.7	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.99	863419.3	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.74	386843.9	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.12	1844101.6	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.13	248709.0	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.38	161811.4	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.41	138690.8	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.29	389300.8	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.53	222684.1	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.56	122427.7	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.74	386843.9	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.44	927072.0	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.45	312548.9	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.73	1493466.2	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.13	248709.0	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.74	386843.9	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.73	1493466.2	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.34	1718803.0	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.34	1718803.0	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.34	1718803.0	N/A	

Total Ion Chromatogram

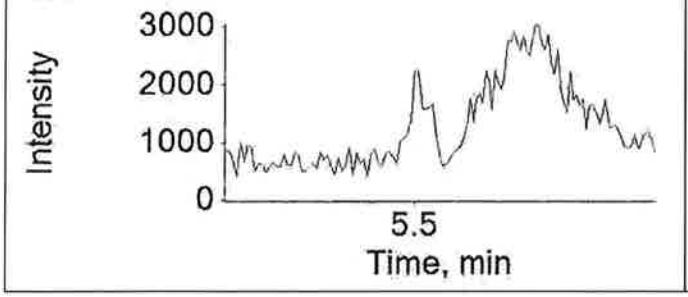


APPROVED
By JPT12262 at 3:44 pm, 4/9/18

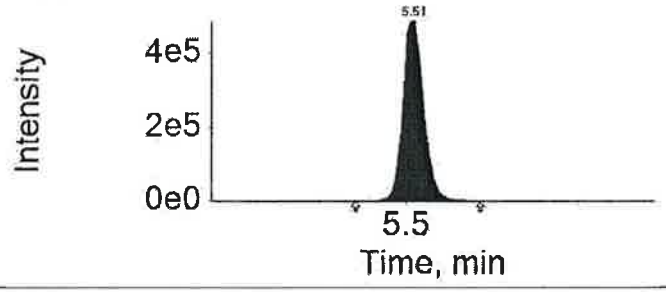
REVIEWED
By uild at 5:07 pm, 4/19/18

ICAL Name: 18APR09MCAL **Result Table:** 18APR09MCAL 4/9/2018 3:01:43 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

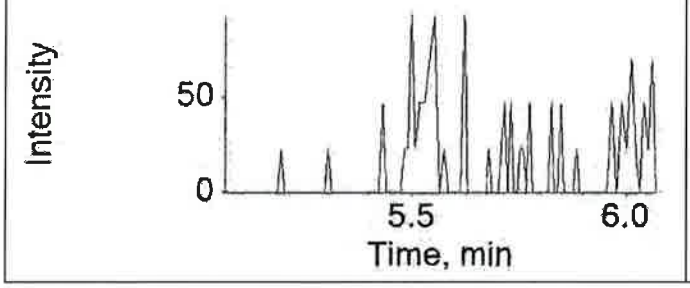
Analyte: PFHxA
313.0 / 269.0



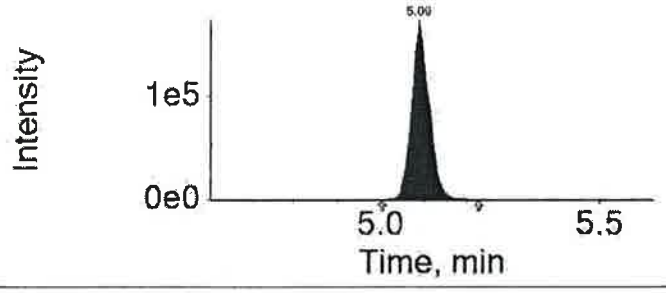
Extraction Standard: 13C5-PFHxA
318.0 / 273.0



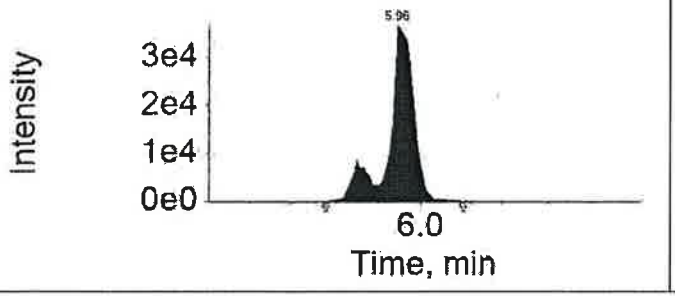
Analyte: PFPeS
349.0 / 80.0



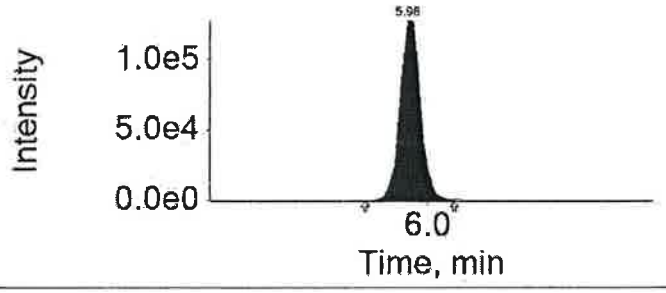
Extraction Standard: 13C3-PFBS
302.0 / 80.0



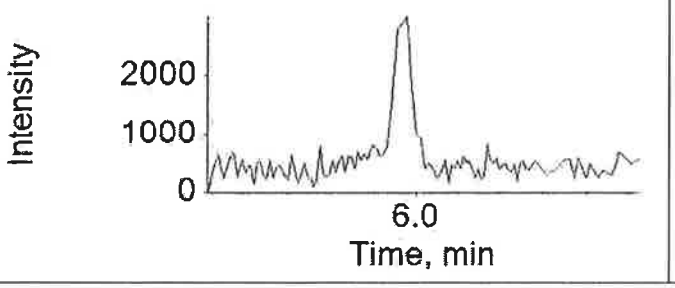
Analyte: PFHxS
399.0 / 80.0



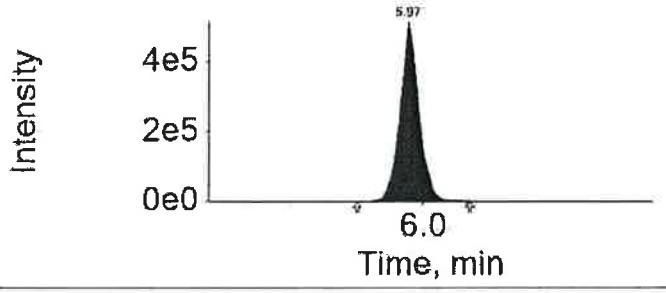
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0

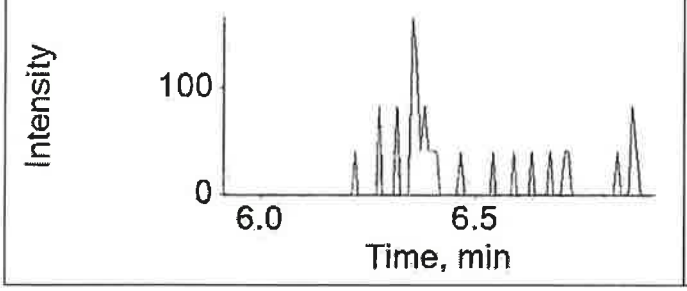


APPROVED
By JPT12262 at 3:44 pm, 4/9/18

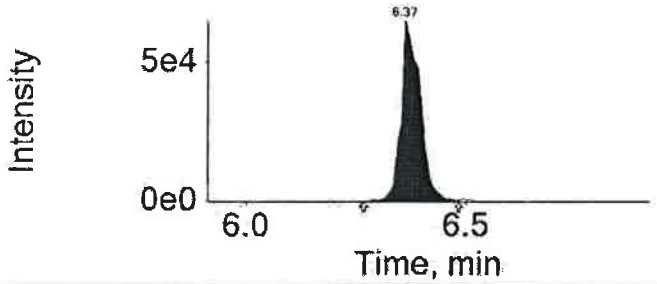
REVIEWED
By uild at 5:07 pm, 4/19/18

ICAL Name: 18APR09MCAL **Result Table:** 18APR09MCAL 4/9/2018 3:01:43 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

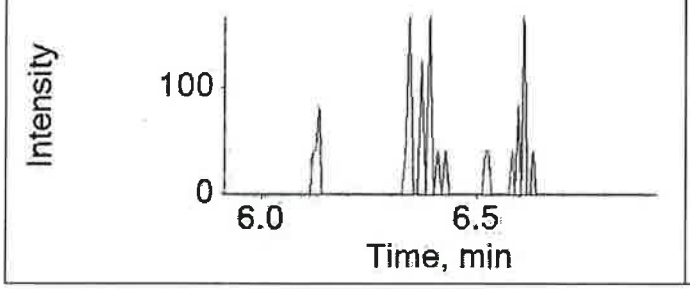
Analyte: 6:2-FTS
427.0 / 407.0



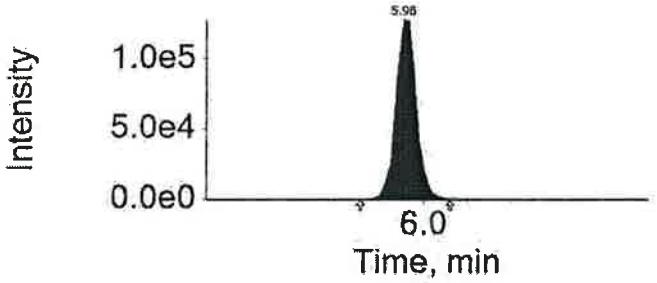
Extraction Standard: 13C2-6:2-FTS
429.0 / 409.0



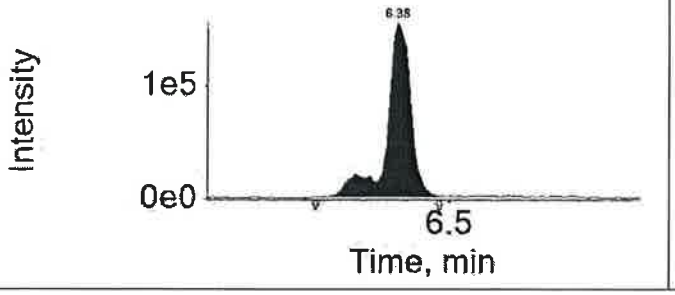
Analyte: PFHpS
449.0 / 80.0



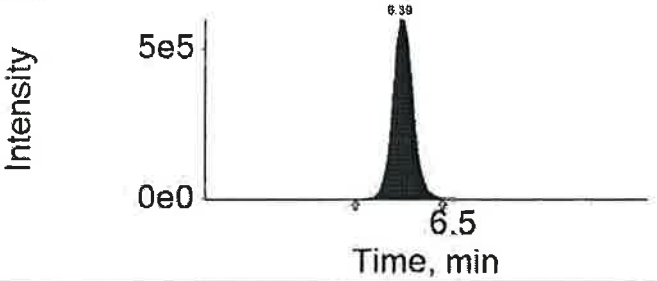
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



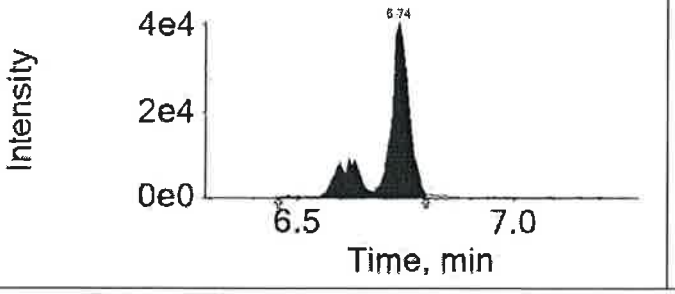
Analyte: PFOA
413.0 / 369.0



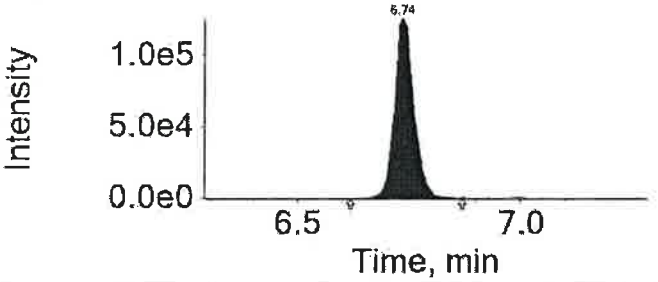
Extraction Standard: 13C8-PFOA
421.0 / 376.0



Analyte: PFOS
499.0 / 80.0



Extraction Standard: 13C8-PFOS
507.0 / 80.0



APPROVED
By JPT12262 at 3:44 pm, 4/9/18

REVIEWED
By uild at 5:07 pm, 4/19/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR09MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR09MCAL4/9/2018 3:01:43 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR09MCAL-15.wiff	4/9/2018 9:58:51 AM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	351668.3	13C4-PFBA	1107135.4	5.00	0.318	4.45	1.00	2.000	1.913	-4.4	30.0	
PFPeA	356391.2	13C5-PFPeA	921939.2	5.00	0.387	5.04	1.00	2.000	1.979	-1.0	30.0	
PFBS	164675.2	13C3-PFBS	469181.2	4.65	0.351	5.09	1.00	1.770	1.601	-9.6	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	246640.8	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	600204.2	13C5-PFHxA	1597073.8	5.00	0.376	5.51	1.00	2.000	2.084	4.2	30.0	
PFPeS	N/A	13C3-PFBS	469181.2	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	161544.8	13C3-PFHxS	456742.7	4.73	0.354	5.96	1.00	1.890	1.717	-9.2	30.0	
PFHpA	718552.4	13C4-PFHpA	1552578.3	5.00	0.463	5.97	1.00	2.000	2.152	7.6	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	198827.8	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	139569.0	13C3-PFHxS	456742.7	4.73	0.306	6.37	1.07	1.900	1.641	-13.6	30.0	
PFOA	722522.8	13C8-PFOA	2002161.3	5.00	0.361	6.38	1.00	2.000	1.965	-1.8	30.0	
PFOS	148618.7	13C8-PFOS	382917.0	4.78	0.388	6.74	1.00	1.910	1.844	-3.5	30.0	
PFNA	681587.8	13C9-PFNA	1467773.6	5.00	0.464	6.77	1.00	2.000	2.055	2.7	30.0	
PFOSA	N/A	13C8-PFOSA	914144.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	382917.0	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	639236.6	13C6-PFDA	1706068.9	5.00	0.375	7.12	1.00	2.000	2.081	4.1	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	243066.1	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	192208.8	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	136045.8	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	155568.9	d3-NMeFOSAA	339459.0	5.00	0.458	7.30	1.00	2.000	2.159	8.0	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	235841.8	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	117352.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	75551.7	13C8-PFOS	382917.0	4.78	0.197	7.39	1.10	1.930	1.868	-3.2	30.0	
PFUnDA	518548.3	13C7-PFUnDA	969213.2	5.00	0.535	7.44	1.00	2.000	2.068	3.4	30.0	
NEtFOSAA	146746.7	d5-NEtFOSAA	323409.9	5.00	0.454	7.46	1.00	2.000	2.039	2.0	30.0	
PFDoDA	566164.7	13C2-PFDoDA	1459037.4	5.00	0.388	7.74	1.00	2.000	2.062	3.1	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	243066.1	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	382917.0	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	551415.4	13C2-PFDoDA	1459037.4	5.00	0.378	8.03	1.04	2.000	2.165	8.2	30.0	
PFTeDA	596409.3	13C2-PFTeDA	1735515.8	5.00	0.344	8.34	1.00	2.000	2.070	3.5	30.0	
PFHxDA	N/A	13C2-PFTeDA	1735515.8	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	1735515.8	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By JPT12262 at 3:44 pm, 4/9/18

REVIEWED
By uild at 5:04 pm, 4/19/18

ICAL Name: 18APR09MCAL **Result Table:** 18APR09MCAL 4/9/2018 3:01:43 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

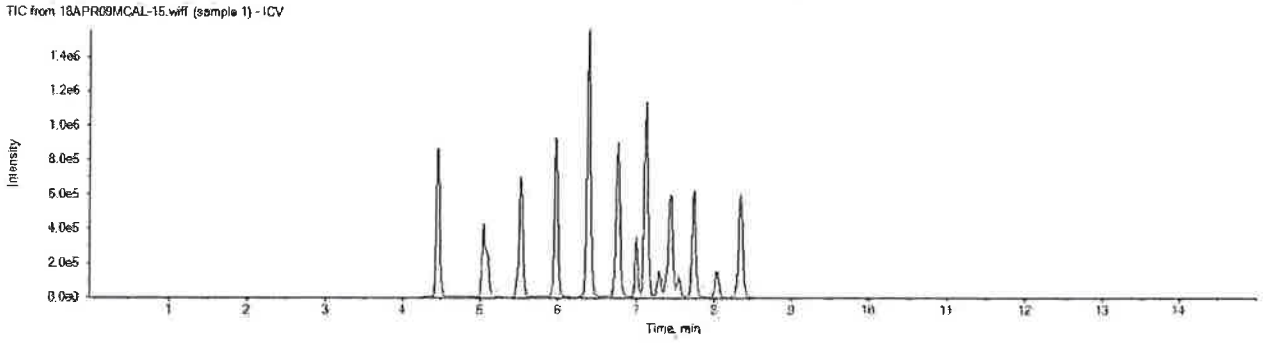
Analyte Quantitation Peak Table

Sample Name: ICV **Instrument Name:** LM24743 **File Name:** 18APR09MCAL-15.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.45	1.000	351668.3	A	13C4-PFBA	4.45	1107135.4	0.318	1.913
PFPeA	5.04	1.000	356391.2	A	13C5-PFPeA	5.04	921939.2	0.387	1.979
PFBS	5.09	1.000	164675.2	A	13C3-PFBS	5.09	469181.2	0.351	1.601
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.47	246640.8	N/A	
PFHxA	5.51	1.000	600204.2	A	13C5-PFHxA	5.51	1597073.8	0.376	2.084
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.09	469181.2	N/A	
PFHxS	5.96	1.000	161544.8	A	13C3-PFHxS	5.96	456742.7	0.354	1.717
PFHpA	5.97	1.000	718552.4	A	13C4-PFHpA	5.97	1552578.3	0.463	2.152
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.38	198827.8	N/A	
PFHpS	6.37	1.070	139569.0	A	13C3-PFHxS	5.96	456742.7	0.306	1.641
PFOA	6.38	1.000	722522.8	A	13C8-PFOA	6.39	2002161.3	0.361	1.965
PFOS	6.74	1.000	148618.7	A	13C8-PFOS	6.74	382917.0	0.388	1.844
PFNA	6.77	1.000	681587.8	A	13C9-PFNA	6.77	1467773.6	0.464	2.055
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.99	914144.7	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.74	382917.0	N/A	
PFDA	7.12	1.000	639236.6	A	13C6-PFDA	7.12	1706068.9	0.375	2.081
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.14	243066.1	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.38	192208.8	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.41	136045.8	N/A	
NMeFOSAA	7.30	1.000	155568.9	A	d3-NMeFOSAA	7.29	339459.0	0.458	2.159
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.53	235841.8	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.56	117352.4	N/A	
PFDS	7.39	1.100	75551.7	A	13C8-PFOS	6.74	382917.0	0.197	1.868
PFUnDA	7.44	1.000	518548.3	A	13C7-PFUnDA	7.44	969213.2	0.535	2.068
NEtFOSAA	7.46	1.000	146746.7	A	d5-NEtFOSAA	7.45	323409.9	0.454	2.039
PFDoDA	7.74	1.000	566164.7	A	13C2-PFDoDA	7.74	1459037.4	0.388	2.062
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.14	243066.1	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.74	382917.0	N/A	
PFTrDA	8.03	1.040	551415.4	A	13C2-PFDoDA	7.74	1459037.4	0.378	2.165
PFTeDA	8.34	1.000	596409.3	A	13C2-PFTeDA	8.34	1735515.8	0.344	2.070
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.34	1735515.8	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.34	1735515.8	N/A	

Total Ion Chromatogram



APPROVED
By JPT12262 at 3:44 pm, 4/9/18

REVIEWED
By uild at 5:06 pm, 4/19/18

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743

Init. Calib. Date/Times: 04/09/2018 07:54 04/09/2018 09:27

Lab File Names: CAL1= 18APR09MCAL-07.WIFF; CAL2= 18APR09MCAL-08.WIFF; CAL3= 18APR09MCAL-09.WIFF;
CAL4= 18APR09MCAL-10.WIFF; CAL5= 18APR09MCAL-11.WIFF; CAL6= 18APR09MCAL-12.WIFF;
CAL7= 18APR09MCAL-13.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.20	0.223	11.4	±50
CAL2	0.100	0.60	0.602	0.4	±30
CAL3	0.347	2.00	2.087	4.3	±30
CAL4	1.393	8.00	8.386	4.8	±30
CAL5	3.689	20.00	22.211	11.1	±30
CAL6	8.288	50.00	49.904	-0.2	±30
CAL7	16.173	100.00	97.387	-2.6	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.223	11.5	±50
CAL2	0.119	0.60	0.607	1.2	±30
CAL3	0.395	2.00	2.024	1.2	±30
CAL4	1.576	8.00	8.068	0.9	±30
CAL5	4.445	20.00	22.757	13.8	±30
CAL6	9.708	50.00	49.702	-0.6	±30
CAL7	19.027	100.00	97.418	-2.6	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.17	0.176	3.6	±50
CAL2	0.117	0.53	0.534	0.7	±30
CAL3	0.370	1.77	1.689	-4.6	±30
CAL4	1.481	7.08	6.756	-4.6	±30
CAL5	3.945	17.69	17.993	1.7	±30
CAL6	9.797	44.22	44.679	1.0	±30
CAL7	19.314	88.45	88.083	-0.4	±30

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.219	9.7	±50
CAL2	0.109	0.60	0.602	0.3	±30
CAL3	0.375	2.00	2.079	3.9	±30
CAL4	1.487	8.00	8.246	3.1	±30
CAL5	4.130	20.00	22.901	14.5	±30
CAL6	9.131	50.00	50.623	1.2	±30
CAL7	17.338	100.00	96.131	-3.9	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743

Init. Calib. Date/Times: 04/09/2018 07:54 04/09/2018 09:27

Lab File Names: CAL1= 18APR09MCAL-07.WIFF; CAL2= 18APR09MCAL-08.WIFF; CAL3= 18APR09MCAL-09.WIFF;
CAL4= 18APR09MCAL-10.WIFF; CAL5= 18APR09MCAL-11.WIFF; CAL6= 18APR09MCAL-12.WIFF;
CAL7= 18APR09MCAL-13.WIFF;

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.049	0.19	0.236	24.3	±50
CAL2	0.119	0.57	0.580	1.7	±30
CAL3	0.395	1.89	1.917	1.4	±30
CAL4	1.574	7.56	7.638	1.0	±30
CAL5	4.363	18.91	21.177	12.0	±30
CAL6	9.793	47.28	47.527	0.5	±30
CAL7	18.931	94.55	91.875	-2.8	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.056	0.20	0.259	29.6	±50
CAL2	0.146	0.60	0.679	13.2	±30
CAL3	0.470	2.00	2.184	9.2	±30
CAL4	1.923	8.00	8.945	11.8	±30
CAL5	5.129	20.00	23.855	19.3	±30
CAL6	11.265	50.00	52.391	4.8	±30
CAL7	19.886	100.00	92.487	-7.5	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.049	0.20	0.264	32.2	±50
CAL2	0.119	0.60	0.649	8.1	±30
CAL3	0.391	2.00	2.130	6.5	±30
CAL4	1.612	8.00	8.779	9.7	±30
CAL5	4.300	20.00	23.415	17.1	±30
CAL6	9.232	50.00	50.269	0.5	±30
CAL7	17.501	100.00	95.294	-4.7	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.048	0.19	0.229	20.5	±50
CAL2	0.125	0.57	0.594	4.2	±30
CAL3	0.409	1.91	1.945	1.8	±30
CAL4	1.574	7.65	7.477	-2.3	±30
CAL5	4.573	19.12	21.728	13.6	±30
CAL6	9.409	47.80	44.704	-6.5	±30
CAL7	20.241	95.60	96.164	0.6	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743

Init. Calib. Date/Times: 04/09/2018 07:54 04/09/2018 09:27

Lab File Names: CAL1= 18APR09MCAL-07.WIFF; CAL2= 18APR09MCAL-08.WIFF; CAL3= 18APR09MCAL-09.WIFF;
CAL4= 18APR09MCAL-10.WIFF; CAL5= 18APR09MCAL-11.WIFF; CAL6= 18APR09MCAL-12.WIFF;
CAL7= 18APR09MCAL-13.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.053	0.20	0.235	17.3	±50
CAL2	0.149	0.60	0.657	9.5	±30
CAL3	0.547	2.00	2.420	21.0	±30
CAL4	2.006	8.00	8.877	11.0	±30
CAL5	5.166	20.00	22.861	14.3	±30
CAL6	11.237	50.00	49.726	-0.5	±30
CAL7	21.699	100.00	96.024	-4.0	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.258	29.1	±50
CAL2	0.115	0.60	0.641	6.9	±30
CAL3	0.374	2.00	2.078	3.9	±30
CAL4	1.557	8.00	8.650	8.1	±30
CAL5	4.192	20.00	23.286	16.4	±30
CAL6	9.480	50.00	52.658	5.3	±30
CAL7	16.784	100.00	93.228	-6.8	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.065	0.20	0.250	25.2	±50
CAL2	0.170	0.60	0.656	9.3	±30
CAL3	0.572	2.00	2.209	10.4	±30
CAL4	2.447	8.00	9.458	18.2	±30
CAL5	5.983	20.00	23.125	15.6	±30
CAL6	13.133	50.00	50.756	1.5	±30
CAL7	24.411	100.00	94.346	-5.7	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.236	18.0	±50
CAL2	0.119	0.60	0.634	5.6	±30
CAL3	0.398	2.00	2.117	5.9	±30
CAL4	1.615	8.00	8.581	7.3	±30
CAL5	4.261	20.00	22.642	13.2	±30
CAL6	9.675	50.00	51.416	2.8	±30
CAL7	17.909	100.00	95.174	-4.8	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743

Init. Calib. Date/Times: 04/09/2018 07:54 04/09/2018 09:27

Lab File Names: CAL1= 18APR09MCAL-07.WIFF; CAL2= 18APR09MCAL-08.WIFF; CAL3= 18APR09MCAL-09.WIFF;
CAL4= 18APR09MCAL-10.WIFF; CAL5= 18APR09MCAL-11.WIFF; CAL6= 18APR09MCAL-12.WIFF;
CAL7= 18APR09MCAL-13.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.20	0.238	19.0	±50
CAL2	0.117	0.60	0.669	11.4	±30
CAL3	0.388	2.00	2.221	11.1	±30
CAL4	1.525	8.00	8.733	9.2	±30
CAL5	4.133	20.00	23.671	18.4	±30
CAL6	9.113	50.00	52.199	4.4	±30
CAL7	16.249	100.00	93.069	-6.9	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.233	16.3	±50
CAL2	0.107	0.60	0.642	7.0	±30
CAL3	0.361	2.00	2.176	8.8	±30
CAL4	1.392	8.00	8.383	4.8	±30
CAL5	3.861	20.00	23.259	16.3	±30
CAL6	8.091	50.00	48.745	-2.5	±30
CAL7	16.161	100.00	97.361	-2.6	±30

* Outside QC Limits

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR09MCAL-17.WIFF

Date/Time Analyzed: 04/09/2018 10:29 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/09/2018 07:54 04/09/2018 09:27

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.08	3.79	±30
Perfluoropentanoic acid	2.00	2.09	4.57	±30
Perfluorobutanesulfonate	1.77	1.79	1.22	±30
Perfluorohexanoic acid	2.00	2.05	2.53	±30
Perfluorohexanesulfonate	1.89	1.93	1.95	±30
Perfluoroheptanoic acid	2.00	2.23	11.26	±30
Perfluorooctanoic acid	2.00	2.13	6.43	±30
Perfluoro-octanesulfonate	1.91	1.90	-0.46	±30
Perfluorononanoic acid	2.00	2.42	20.99	±30
Perfluorodecanoic acid	2.00	2.03	1.69	±30
Perfluoroundecanoic acid	2.00	2.30	15.08	±30
Perfluorododecanoic acid	2.00	2.17	8.50	±30
Perfluorotridecanoic acid	2.00	2.30	15.03	±30
Perfluorotetradecanoic acid	2.00	2.12	5.84	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR10-03.WIFF

Date/Time Analyzed: 04/10/2018 08:59 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/09/2018 07:54 04/09/2018 09:27

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.06	2.80	±30
Perfluoropentanoic acid	2.00	2.07	3.50	±30
Perfluorobutanesulfonate	1.77	1.76	-0.33	±30
Perfluorohexanoic acid	2.00	2.13	6.29	±30
Perfluorohexanesulfonate	1.89	1.87	-0.88	±30
Perfluoroheptanoic acid	2.00	2.26	12.88	±30
Perfluorooctanoic acid	2.00	2.11	5.29	±30
Perfluoro-octanesulfonate	1.91	1.93	1.16	±30
Perfluorononanoic acid	2.00	2.57	28.72	±30
Perfluorodecanoic acid	2.00	2.14	7.22	±30
Perfluoroundecanoic acid	2.00	2.21	10.58	±30
Perfluorododecanoic acid	2.00	2.20	10.04	±30
Perfluorotridecanoic acid	2.00	2.18	8.84	±30
Perfluorotetradecanoic acid	2.00	2.10	4.84	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR10-15.WIFF

Date/Time Analyzed: 04/10/2018 12:05 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/09/2018 07:54 04/09/2018 09:27

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.20	2.55	±30
Perfluoropentanoic acid	8.00	8.34	4.21	±30
Perfluorobutanesulfonate	7.08	6.89	-2.70	±30
Perfluorohexanoic acid	8.00	8.02	0.29	±30
Perfluorohexanesulfonate	7.56	7.09	-6.27	±30
Perfluoroheptanoic acid	8.00	8.43	5.41	±30
Perfluorooctanoic acid	8.00	8.60	7.48	±30
Perfluoro-octanesulfonate	7.65	7.21	-5.72	±30
Perfluorononanoic acid	8.00	9.39	17.36	±30
Perfluorodecanoic acid	8.00	8.64	8.02	±30
Perfluoroundecanoic acid	8.00	9.03	12.89	±30
Perfluorododecanoic acid	8.00	8.61	7.67	±30
Perfluorotridecanoic acid	8.00	9.35	16.82	±30
Perfluorotetradecanoic acid	8.00	8.49	6.15	±30

* Outside QC Limits.

FORM 07 - EPA 537 Version 2.1 Modified

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR10-27.WIFF

Date/Time Analyzed: 04/10/2018 15:12 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/09/2018 07:54 04/09/2018 09:27

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.22	11.11	±30
Perfluoropentanoic acid	20.00	22.39	11.96	±30
Perfluorobutanesulfonate	17.69	17.88	1.07	±30
Perfluorohexanoic acid	20.00	22.93	14.66	±30
Perfluorohexanesulfonate	18.91	21.61	14.30	±30
Perfluoroheptanoic acid	20.00	22.99	14.95	±30
Perfluorooctanoic acid	20.00	22.73	13.64	±30
Perfluoro-octanesulfonate	19.12	20.54	7.41	±30
Perfluorononanoic acid	20.00	23.22	16.12	±30
Perfluorodecanoic acid	20.00	22.50	12.48	±30
Perfluoroundecanoic acid	20.00	22.96	14.81	±30
Perfluorododecanoic acid	20.00	22.72	13.58	±30
Perfluorotridecanoic acid	20.00	24.68	23.40	±30
Perfluorotetradecanoic acid	20.00	21.94	9.69	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR10-40.WIFF

Date/Time Analyzed: 04/10/2018 18:34 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/09/2018 07:54 04/09/2018 09:27

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.10	4.84	±30
Perfluoropentanoic acid	2.00	2.05	2.58	±30
Perfluorobutanesulfonate	1.77	1.79	1.00	±30
Perfluorohexanoic acid	2.00	2.02	1.01	±30
Perfluorohexanesulfonate	1.89	1.80	-4.76	±30
Perfluoroheptanoic acid	2.00	2.39	19.69	±30
Perfluorooctanoic acid	2.00	2.31	15.28	±30
Perfluoro-octanesulfonate	1.91	1.96	2.62	±30
Perfluorononanoic acid	2.00	2.36	18.19	±30
Perfluorodecanoic acid	2.00	2.11	5.30	±30
Perfluoroundecanoic acid	2.00	2.21	10.69	±30
Perfluorododecanoic acid	2.00	2.04	2.20	±30
Perfluorotridecanoic acid	2.00	2.22	11.13	±30
Perfluorotetradecanoic acid	2.00	2.11	5.29	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR10-52.WIFF

Date/Time Analyzed: 04/10/2018 21:40 Lab Sample ID: CCV5_CAL4

Init. Calib. Date/Times: 04/09/2018 07:54 04/09/2018 09:27

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.24	2.98	±30
Perfluoropentanoic acid	8.00	8.06	0.80	±30
Perfluorobutanesulfonate	7.08	6.97	-1.54	±30
Perfluorohexanoic acid	8.00	8.07	0.88	±30
Perfluorohexanesulfonate	7.56	7.58	0.30	±30
Perfluoroheptanoic acid	8.00	8.94	11.70	±30
Perfluorooctanoic acid	8.00	8.93	11.59	±30
Perfluoro-octanesulfonate	7.65	7.14	-6.61	±30
Perfluorononanoic acid	8.00	8.54	6.69	±30
Perfluorodecanoic acid	8.00	7.94	-0.78	±30
Perfluoroundecanoic acid	8.00	7.59	-5.15	±30
Perfluorododecanoic acid	8.00	8.41	5.13	±30
Perfluorotridecanoic acid	8.00	9.81	22.67	±30
Perfluorotetradecanoic acid	8.00	8.26	3.24	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR10-60.WIFF

Date/Time Analyzed: 04/10/2018 23:44 Lab Sample ID: CCV6_CAL5

Init. Calib. Date/Times: 04/09/2018 07:54 04/09/2018 09:27

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.20	11.00	±30
Perfluoropentanoic acid	20.00	22.21	11.04	±30
Perfluorobutanesulfonate	17.69	18.54	4.79	±30
Perfluorohexanoic acid	20.00	23.55	17.75	±30
Perfluorohexanesulfonate	18.91	20.38	7.78	±30
Perfluoroheptanoic acid	20.00	24.22	21.12	±30
Perfluorooctanoic acid	20.00	24.17	20.87	±30
Perfluoro-octanesulfonate	19.12	19.59	2.44	±30
Perfluorononanoic acid	20.00	23.17	15.84	±30
Perfluorodecanoic acid	20.00	22.75	13.77	±30
Perfluoroundecanoic acid	20.00	22.00	9.99	±30
Perfluorododecanoic acid	20.00	22.51	12.54	±30
Perfluorotridecanoic acid	20.00	23.70	18.49	±30
Perfluorotetradecanoic acid	20.00	21.97	9.84	±30

* Outside QC Limits.

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LC-MS/MS Analysis Report

Printed: 4/12/2018 12:16:00 PM
Template: MQ-ICAL-16NOV21.docx

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18APR11MCAL-16.wiff	4/11/2018 11:34:06 PM	CALMOD11833A	CAL1
18APR11MCAL-17.wiff	4/11/2018 11:49:39 PM	CALMOD21833A	CAL2
18APR11MCAL-18.wiff	4/12/2018 12:05:11 AM	CALMOD31833A	CAL3
18APR11MCAL-19.wiff	4/12/2018 12:20:42 AM	CALMOD41833A	CAL4
18APR11MCAL-20.wiff	4/12/2018 12:36:12 AM	CALMOD51833A	CAL5
18APR11MCAL-21.wiff	4/12/2018 12:51:42 AM	CALMOD61833A	CAL6
18APR11MCAL-22.wiff	4/12/2018 1:07:12 AM	CALMOD71833A	CAL7

Validated in SBN09

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	981637.7	926861.5
CAL2	I13C3-PFBA	True	988005.5	926861.5
CAL3	I13C3-PFBA	True	930730.7	926861.5
CAL4	I13C3-PFBA	True	1040816.4	926861.5
CAL5	I13C3-PFBA	True	906067.6	926861.5
CAL6	I13C3-PFBA	True	884773.3	926861.5
CAL7	I13C3-PFBA	True	755999.2	926861.5
CAL1	I13C2-PFOA	True	1517685.2	1442106.8
CAL2	I13C2-PFOA	True	1471766.5	1442106.8
CAL3	I13C2-PFOA	True	1408725.6	1442106.8
CAL4	I13C2-PFOA	True	1617189.6	1442106.8
CAL5	I13C2-PFOA	True	1449501.9	1442106.8
CAL6	I13C2-PFOA	True	1339081.9	1442106.8
CAL7	I13C2-PFOA	True	1290796.5	1442106.8
CAL1	I13C4-PFOS	True	371830.6	371819.0
CAL2	I13C4-PFOS	True	390170.7	371819.0
CAL3	I13C4-PFOS	True	368989.1	371819.0
CAL4	I13C4-PFOS	True	420653.5	371819.0
CAL5	I13C4-PFOS	True	376580.0	371819.0
CAL6	I13C4-PFOS	True	363644.2	371819.0
CAL7	I13C4-PFOS	True	310865.0	371819.0
CAL1	I13C2-PFDA	True	1235492.2	1163605.9
CAL2	I13C2-PFDA	True	1134641.4	1163605.9
CAL3	I13C2-PFDA	True	1174340.8	1163605.9
CAL4	I13C2-PFDA	True	1324769.0	1163605.9
CAL5	I13C2-PFDA	True	1127552.9	1163605.9
CAL6	I13C2-PFDA	True	1129666.7	1163605.9
CAL7	I13C2-PFDA	True	1018778.6	1163605.9

APPROVED
By JPT at 12:32 pm, 4/12/18

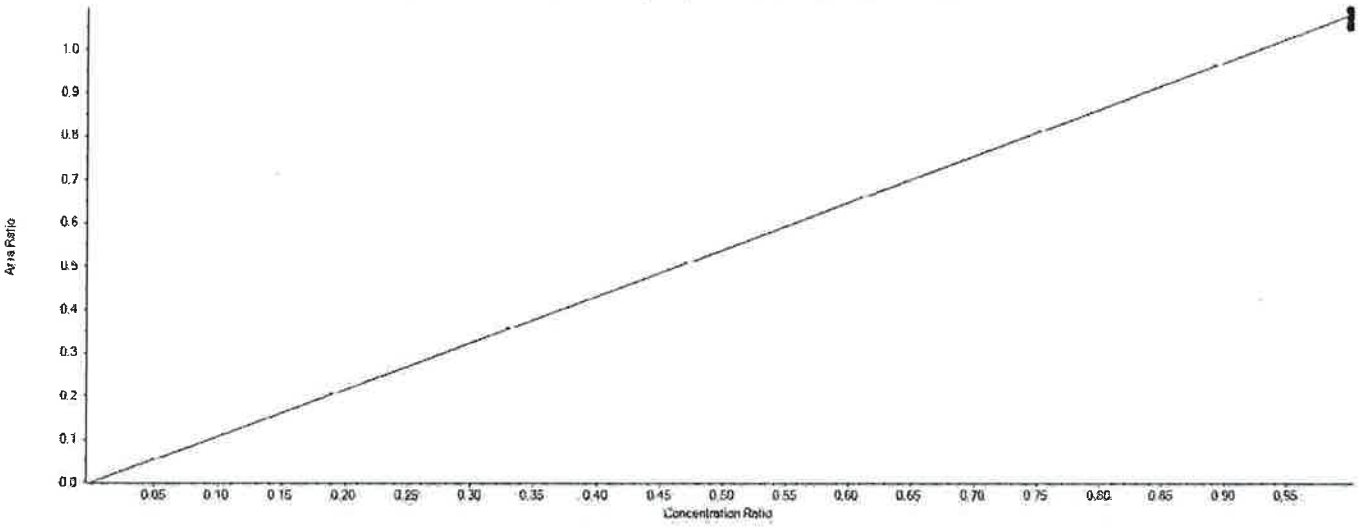
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFBA

y = 1.07794 x (std. dev. = 0.01707) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1039556.0	981637.7	True	5.00	1.059	4.44	1.000	5.000	4.912	-1.8	50.0	
CAL2	1077209.5	988005.5	True	5.00	1.090	4.44	1.000	5.000	5.057	1.1	30.0	
CAL3	1012510.8	930730.7	True	5.00	1.088	4.45	1.000	5.000	5.046	0.9	30.0	
CAL4	1117209.1	1040816.4	True	5.00	1.073	4.44	1.000	5.000	4.979	-0.4	30.0	
CAL5	989813.1	906067.6	True	5.00	1.092	4.44	1.000	5.000	5.067	1.3	30.0	
CAL6	929933.5	884773.3	True	5.00	1.051	4.44	1.000	5.000	4.875	-2.5	30.0	
CAL7	825195.3	755999.2	True	5.00	1.092	4.44	1.000	5.000	5.063	1.3	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

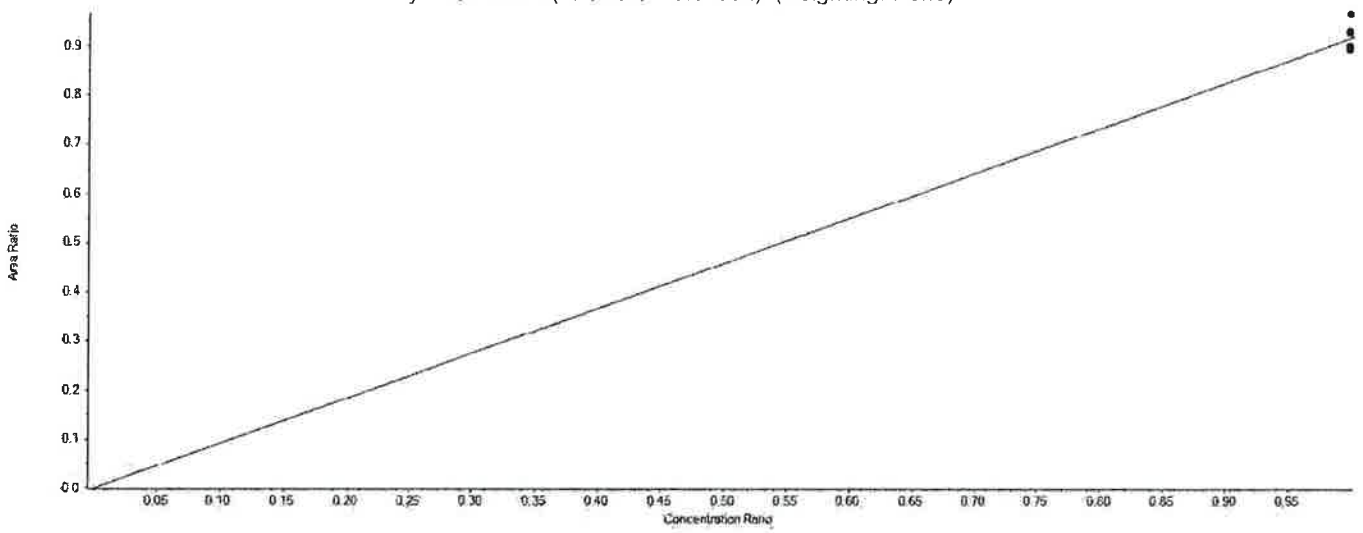
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFPeA

y = 0.91622 x (std. dev. = 0.02552) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	877803.9	981637.7	True	5.00	0.894	5.02	1.130	5.000	4.880	-2.4	50.0	
CAL2	885186.3	988005.5	True	5.00	0.896	5.02	1.130	5.000	4.889	-2.2	30.0	
CAL3	838933.5	930730.7	True	5.00	0.901	5.03	1.130	5.000	4.919	-1.6	30.0	
CAL4	1003319.3	1040816.4	True	5.00	0.964	5.02	1.130	5.000	5.261	5.2	30.0	
CAL5	842931.7	906067.6	True	5.00	0.930	5.02	1.130	5.000	5.077	1.5	30.0	
CAL6	797721.6	884773.3	True	5.00	0.902	5.02	1.130	5.000	4.920	-1.6	30.0	
CAL7	700132.2	755999.2	True	5.00	0.926	5.02	1.130	5.000	5.054	1.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

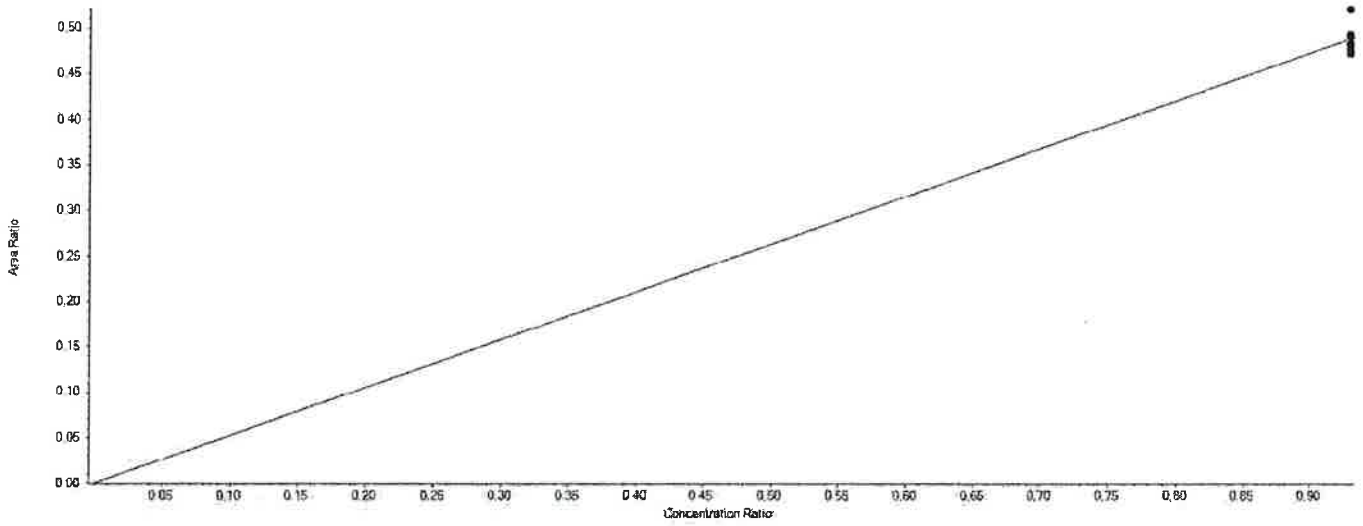
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFBS

y = 0.52578 x (std. dev. = 0.01691) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	469304.3	981637.7	True	5.00	0.478	5.07	1.140	4.650	4.546	-2.2	50.0	
CAL2	466889.8	988005.5	True	5.00	0.473	5.07	1.140	4.650	4.494	-3.4	30.0	
CAL3	450301.5	930730.7	True	5.00	0.484	5.08	1.140	4.650	4.601	-1.1	30.0	
CAL4	513505.4	1040816.4	True	5.00	0.493	5.07	1.140	4.650	4.692	0.9	30.0	
CAL5	471919.1	906067.6	True	5.00	0.521	5.07	1.140	4.650	4.953	6.5	30.0	
CAL6	434168.7	884773.3	True	5.00	0.491	5.07	1.140	4.650	4.667	0.4	30.0	
CAL7	365470.0	755999.2	True	5.00	0.483	5.07	1.140	4.650	4.597	-1.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

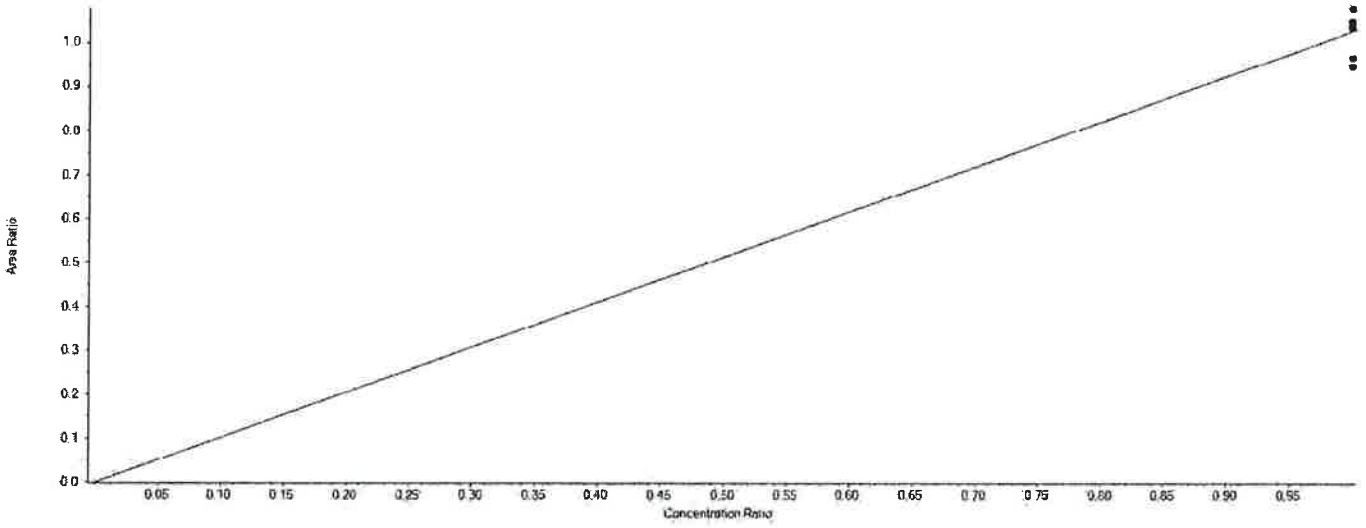
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFHxA

y = 1.02736 x (std. dev. = 0.05147) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1578041.0	1517685.2	True	5.00	1.040	5.49	0.860	5.000	5.060	1.2	50.0	
CAL2	1586428.0	1471766.5	True	5.00	1.078	5.49	0.860	5.000	5.246	4.9	30.0	
CAL3	1478796.2	1408725.6	True	5.00	1.050	5.50	0.860	5.000	5.109	2.2	30.0	
CAL4	1742134.0	1617189.6	True	5.00	1.077	5.49	0.860	5.000	5.243	4.9	30.0	
CAL5	1400228.9	1449501.9	True	5.00	0.966	5.49	0.860	5.000	4.701	-6.0	30.0	
CAL6	1383842.5	1339081.9	True	5.00	1.033	5.49	0.860	5.000	5.030	0.6	30.0	
CAL7	1222888.1	1290796.5	True	5.00	0.947	5.48	0.860	5.000	4.611	-7.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

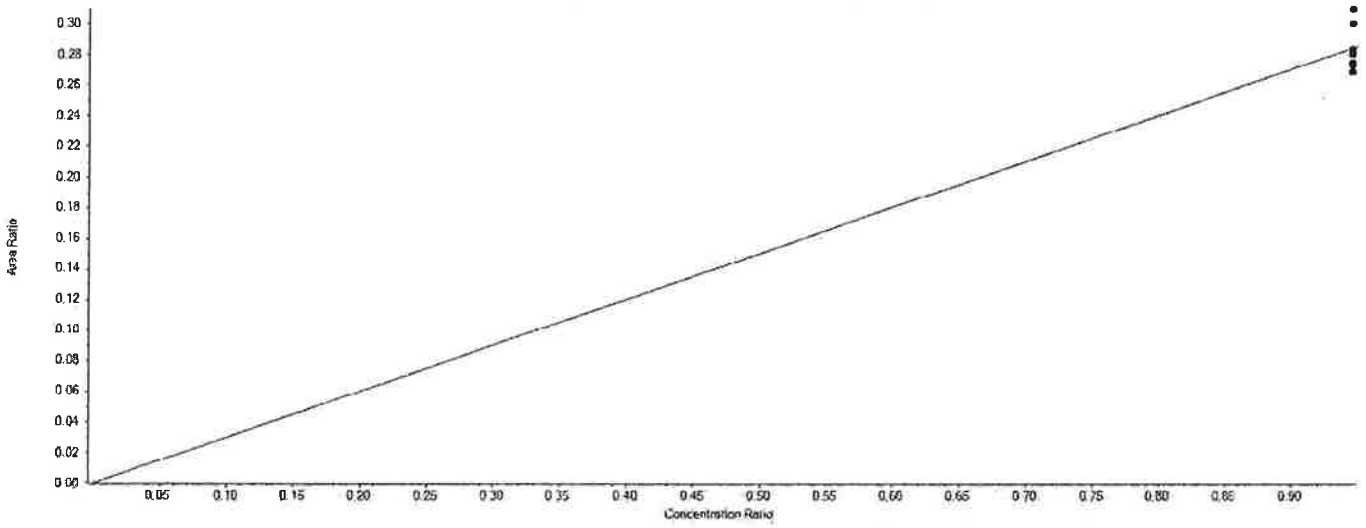
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFHxS

y = 0.30083 x (std. dev. = 0.01586) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	426034.3	1517685.2	True	5.00	0.281	5.93	0.930	4.730	4.666	-1.4	50.0	
CAL2	455593.9	1471766.5	True	5.00	0.310	5.93	0.930	4.730	5.145	8.8	30.0	
CAL3	399928.7	1408725.6	True	5.00	0.284	5.94	0.930	4.730	4.719	-0.2	30.0	
CAL4	441902.6	1617189.6	True	5.00	0.273	5.93	0.930	4.730	4.542	-4.0	30.0	
CAL5	398901.0	1449501.9	True	5.00	0.275	5.93	0.930	4.730	4.574	-3.3	30.0	
CAL6	402347.5	1339081.9	True	5.00	0.300	5.93	0.930	4.730	4.994	5.6	30.0	
CAL7	347206.8	1290796.5	True	5.00	0.269	5.93	0.930	4.730	4.471	-5.5	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

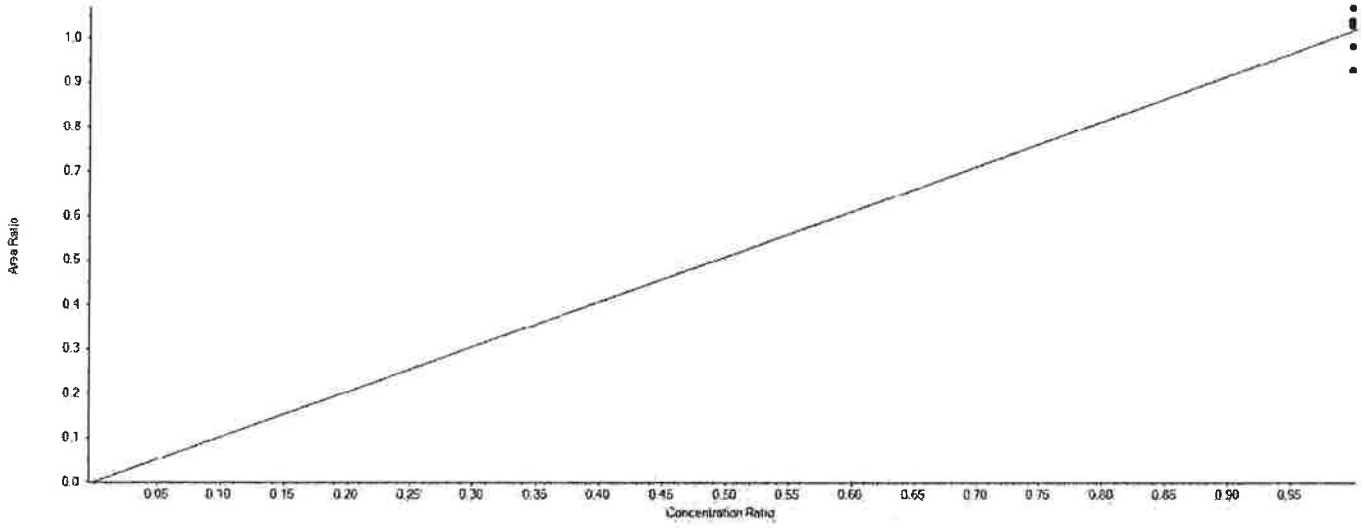
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFHpA

y = 1.01589 x (std. dev. = 0.04639) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1560780.0	1517685.2	True	5.00	1.028	5.94	0.930	5.000	5.062	1.2	50.0	
CAL2	1570376.7	1471766.5	True	5.00	1.067	5.94	0.930	5.000	5.252	5.0	30.0	
CAL3	1457586.2	1408725.6	True	5.00	1.035	5.94	0.930	5.000	5.092	1.9	30.0	
CAL4	1672856.6	1617189.6	True	5.00	1.034	5.93	0.930	5.000	5.091	1.8	30.0	
CAL5	1421056.3	1449501.9	True	5.00	0.980	5.94	0.930	5.000	4.825	-3.5	30.0	
CAL6	1390212.8	1339081.9	True	5.00	1.038	5.94	0.940	5.000	5.110	2.2	30.0	
CAL7	1198107.1	1290796.5	True	5.00	0.928	5.93	0.930	5.000	4.568	-8.6	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

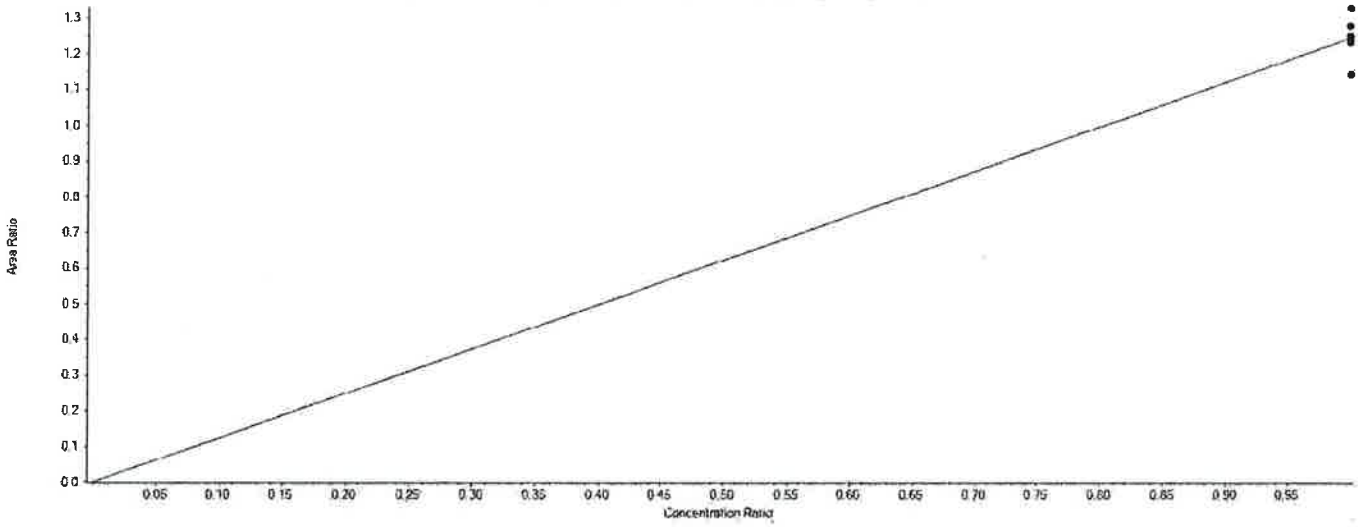
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOA

y = 1.24539 x (std. dev. = 0.05604) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1873019.4	1517685.2	True	5.00	1.234	6.35	1.000	5.000	4.955	-0.9	50.0	
CAL2	1952831.6	1471766.5	True	5.00	1.327	6.35	1.000	5.000	5.327	6.5	30.0	
CAL3	1801314.0	1408725.6	True	5.00	1.279	6.36	1.000	5.000	5.134	2.7	30.0	
CAL4	2011849.9	1617189.6	True	5.00	1.244	6.35	1.000	5.000	4.995	-0.1	30.0	
CAL5	1798992.1	1449501.9	True	5.00	1.241	6.36	1.000	5.000	4.983	-0.3	30.0	
CAL6	1676401.5	1339081.9	True	5.00	1.252	6.35	1.000	5.000	5.026	0.5	30.0	
CAL7	1472755.6	1290796.5	True	5.00	1.141	6.35	1.000	5.000	4.581	-8.4	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

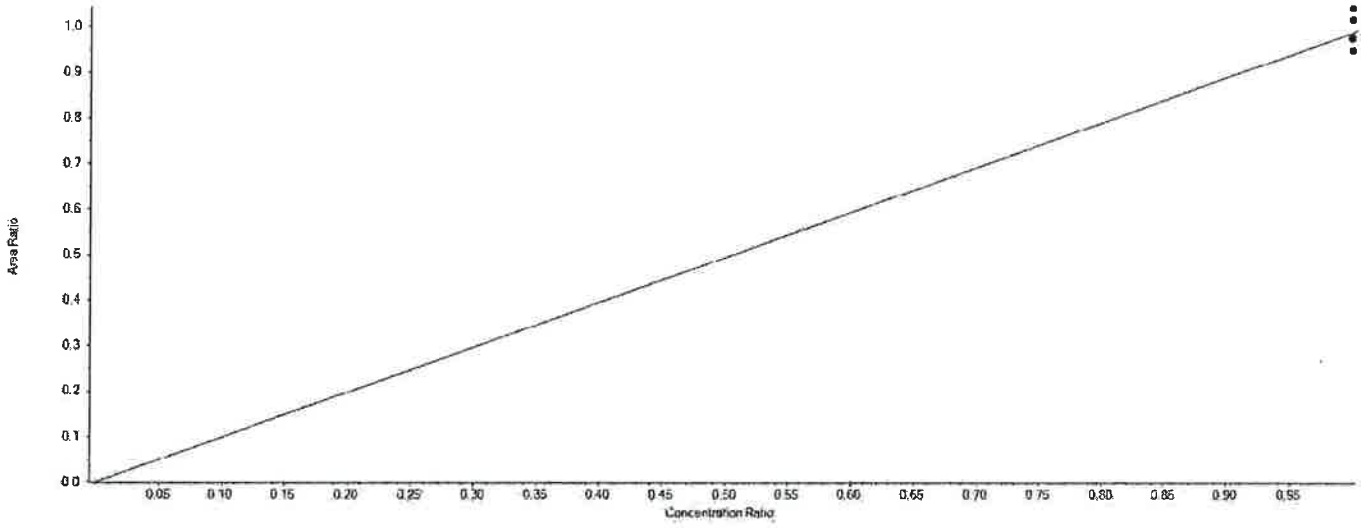
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOS

y = 0.98785 x (std. dev. = 0.03046) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	363441.3	371830.6	True	4.78	0.977	6.70	1.000	4.780	4.730	-1.1	50.0	
CAL2	396417.6	390170.7	True	4.78	1.016	6.70	1.000	4.780	4.916	2.9	30.0	
CAL3	384020.6	368989.1	True	4.78	1.041	6.71	1.000	4.780	5.036	5.4	30.0	
CAL4	411532.4	420653.5	True	4.78	0.978	6.70	1.000	4.780	4.734	-1.0	30.0	
CAL5	367609.6	376580.0	True	4.78	0.976	6.70	1.000	4.780	4.724	-1.2	30.0	
CAL6	344965.0	363644.2	True	4.78	0.949	6.70	1.000	4.780	4.590	-4.0	30.0	
CAL7	303903.7	310865.0	True	4.78	0.978	6.69	1.000	4.780	4.730	-1.0	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

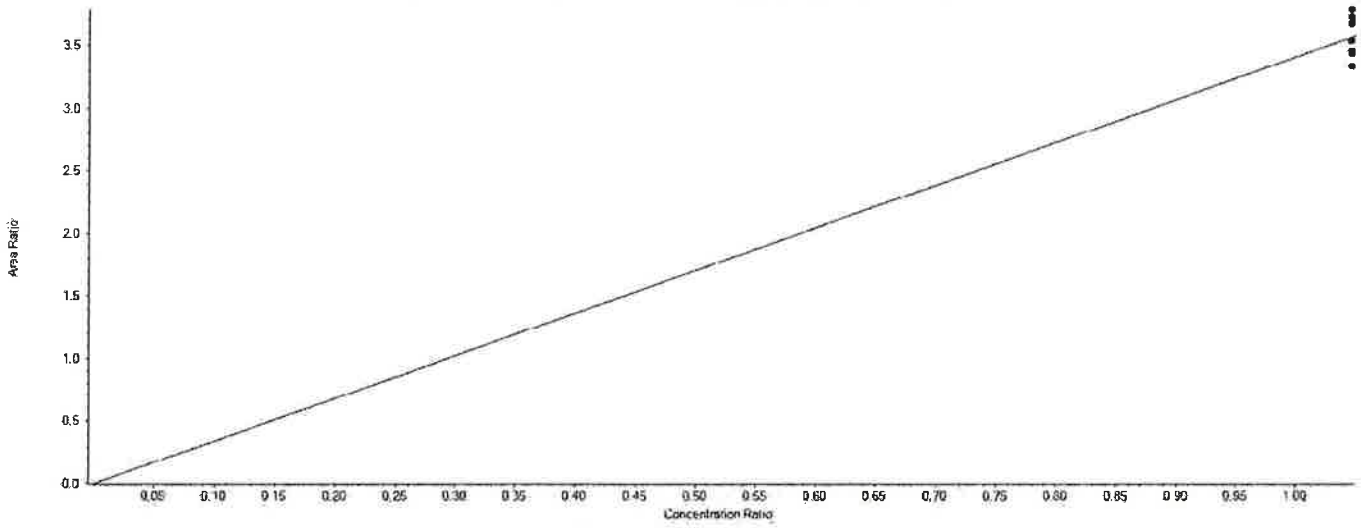
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C9-PFNA

y = 3.40869 x (std. dev. = 0.15980) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1384282.8	371830.6	True	4.78	3.723	6.73	1.000	5.000	5.221	4.4	50.0	
CAL2	1434808.2	390170.7	True	4.78	3.677	6.73	1.000	5.000	5.157	3.1	30.0	
CAL3	1269254.7	368989.1	True	4.78	3.440	6.74	1.000	5.000	4.824	-3.5	30.0	
CAL4	1455556.9	420653.5	True	4.78	3.460	6.73	1.000	5.000	4.852	-3.0	30.0	
CAL5	1254850.3	376580.0	True	4.78	3.332	6.73	1.000	5.000	4.673	-6.5	30.0	
CAL6	1287621.8	363644.2	True	4.78	3.541	6.73	1.000	5.000	4.965	-0.7	30.0	
CAL7	1176812.6	310865.0	True	4.78	3.786	6.72	1.000	5.000	5.309	6.2	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

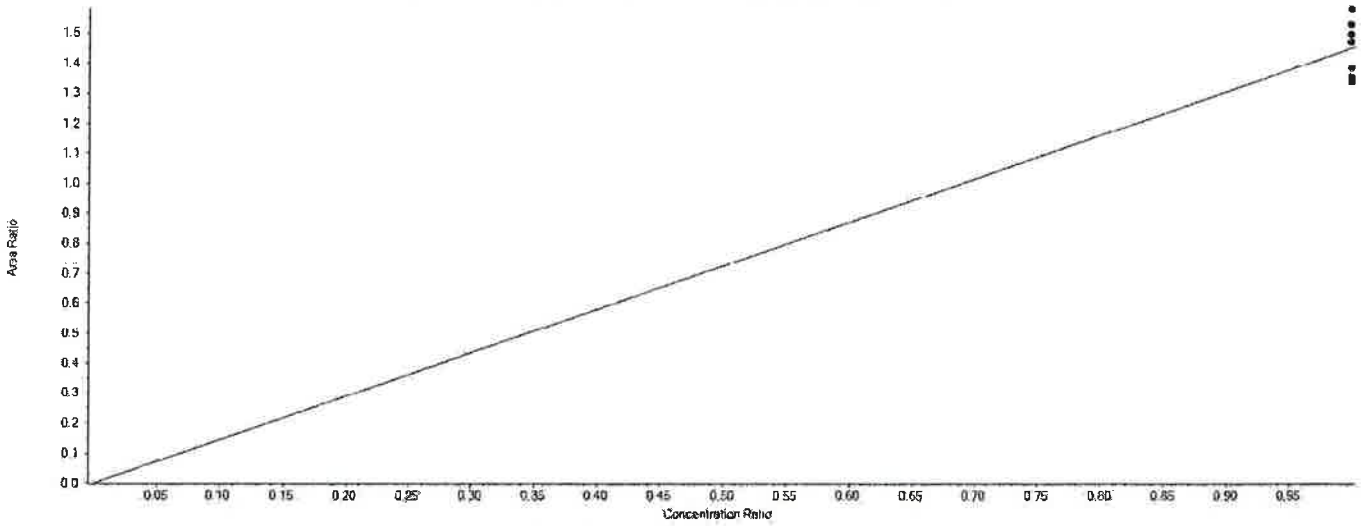
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C6-PFDA

y = 1.45014 x (std. dev. = 0.09225) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1711460.2	1235492.2	True	5.00	1.385	7.08	1.000	5.000	4.776	-4.5	50.0	
CAL2	1791292.2	1134641.4	True	5.00	1.579	7.07	1.000	5.000	5.443	8.9	30.0	
CAL3	1727707.8	1174340.8	True	5.00	1.471	7.08	1.000	5.000	5.073	1.5	30.0	
CAL4	1983112.7	1324769.0	True	5.00	1.497	7.07	1.000	5.000	5.161	3.2	30.0	
CAL5	1721524.0	1127552.9	True	5.00	1.527	7.08	1.000	5.000	5.264	5.3	30.0	
CAL6	1529554.5	1129666.7	True	5.00	1.354	7.08	1.000	5.000	4.668	-6.6	30.0	
CAL7	1363173.5	1018778.6	True	5.00	1.338	7.07	1.000	5.000	4.614	-7.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

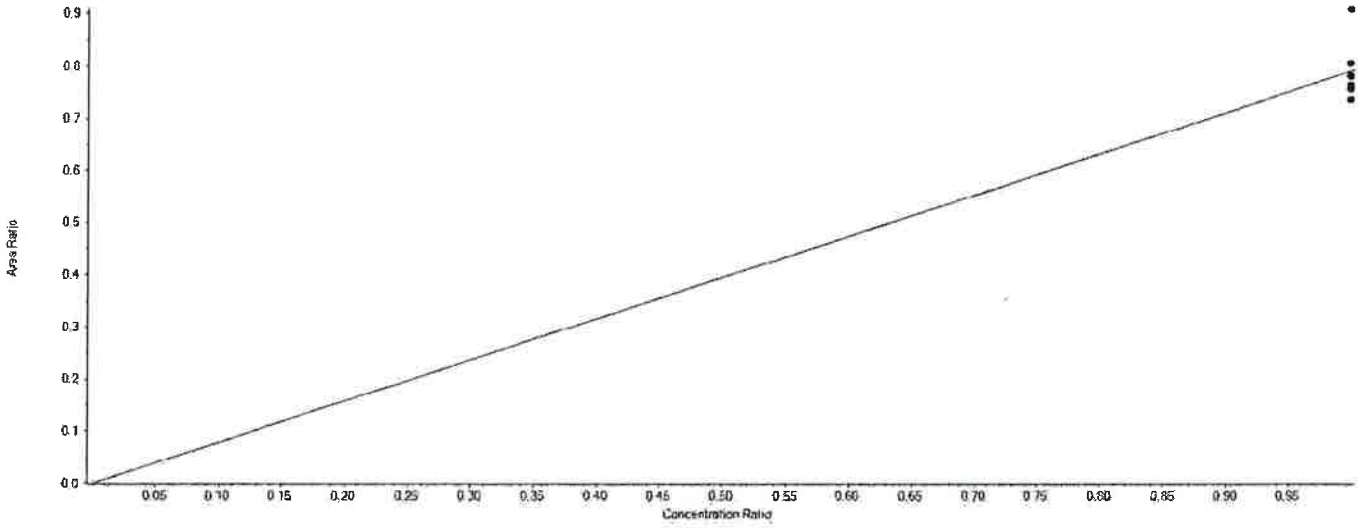
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C7-PFUnDA

y = 0.79009 x (std. dev. = 0.05639) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	995821.2	1235492.2	True	5.00	0.806	7.39	1.040	5.000	5.101	2.0	50.0	
CAL2	1030183.1	1134641.4	True	5.00	0.908	7.38	1.040	5.000	5.746	14.9	30.0	
CAL3	888871.0	1174340.8	True	5.00	0.757	7.39	1.040	5.000	4.790	-4.2	30.0	
CAL4	1010630.1	1324769.0	True	5.00	0.763	7.38	1.040	5.000	4.828	-3.4	30.0	
CAL5	881054.2	1127552.9	True	5.00	0.781	7.39	1.040	5.000	4.945	-1.1	30.0	
CAL6	880392.6	1129666.7	True	5.00	0.779	7.38	1.040	5.000	4.932	-1.4	30.0	
CAL7	749999.2	1018778.6	True	5.00	0.736	7.38	1.040	5.000	4.659	-6.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

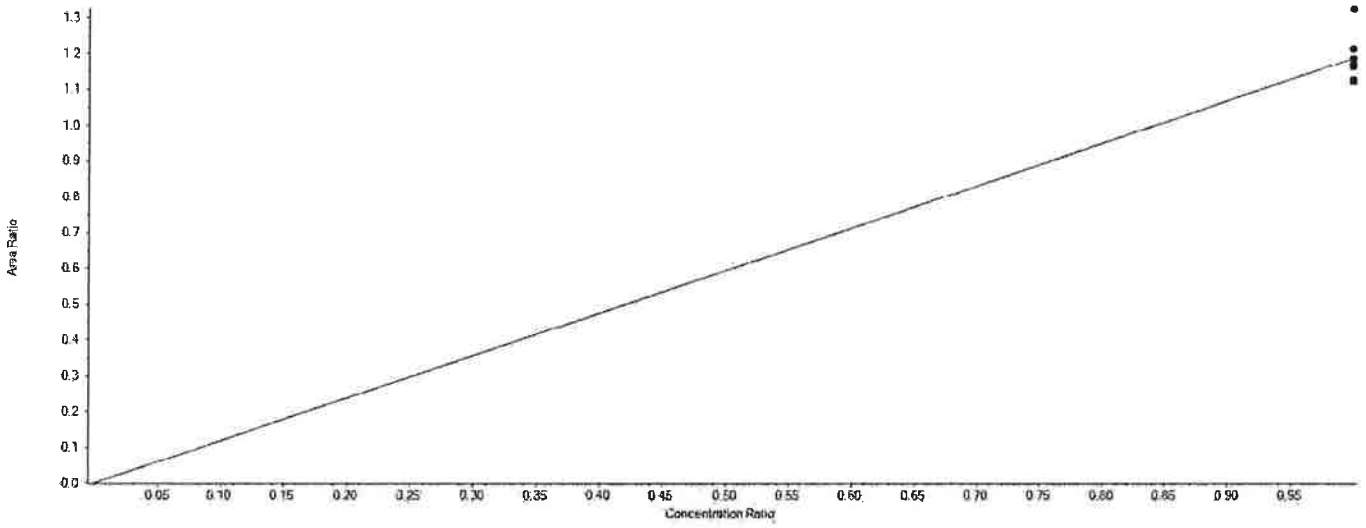
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFDoDA

y = 1.18705 x (std. dev. = 0.06826) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1448567.4	1235492.2	True	5.00	1.172	7.67	1.080	5.000	4.939	-1.2	50.0	
CAL2	1502007.0	1134641.4	True	5.00	1.324	7.67	1.080	5.000	5.576	11.5	30.0	
CAL3	1365297.0	1174340.8	True	5.00	1.163	7.68	1.080	5.000	4.897	-2.1	30.0	
CAL4	1486696.5	1324769.0	True	5.00	1.122	7.67	1.080	5.000	4.727	-5.5	30.0	
CAL5	1368417.8	1127552.9	True	5.00	1.214	7.67	1.080	5.000	5.112	2.2	30.0	
CAL6	1341062.3	1129666.7	True	5.00	1.187	7.67	1.080	5.000	5.000	0.0	30.0	
CAL7	1148686.5	1018778.6	True	5.00	1.128	7.67	1.080	5.000	4.749	-5.0	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

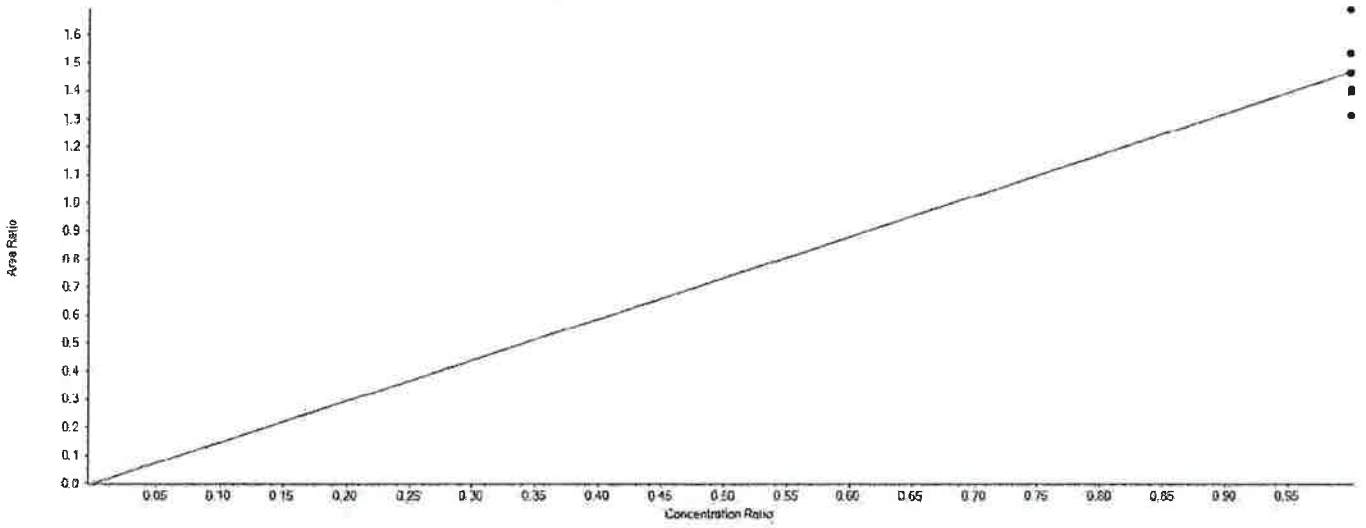
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFTeDA

y = 1.46582 x (std. dev. = 0.11968) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1802191.1	1235492.2	True	5.00	1.459	8.24	1.160	5.000	4.976	-0.5	50.0	
CAL2	1915714.8	1134641.4	True	5.00	1.688	8.23	1.160	5.000	5.759	15.2	30.0	
CAL3	1639034.8	1174340.8	True	5.00	1.396	8.24	1.160	5.000	4.761	-4.8	30.0	
CAL4	1938387.9	1324769.0	True	5.00	1.463	8.23	1.160	5.000	4.991	-0.2	30.0	
CAL5	1730502.5	1127552.9	True	5.00	1.535	8.23	1.160	5.000	5.235	4.7	30.0	
CAL6	1588690.1	1129666.7	True	5.00	1.406	8.23	1.160	5.000	4.797	-4.1	30.0	
CAL7	1338346.4	1018778.6	True	5.00	1.314	8.23	1.160	5.000	4.481	-10.4	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

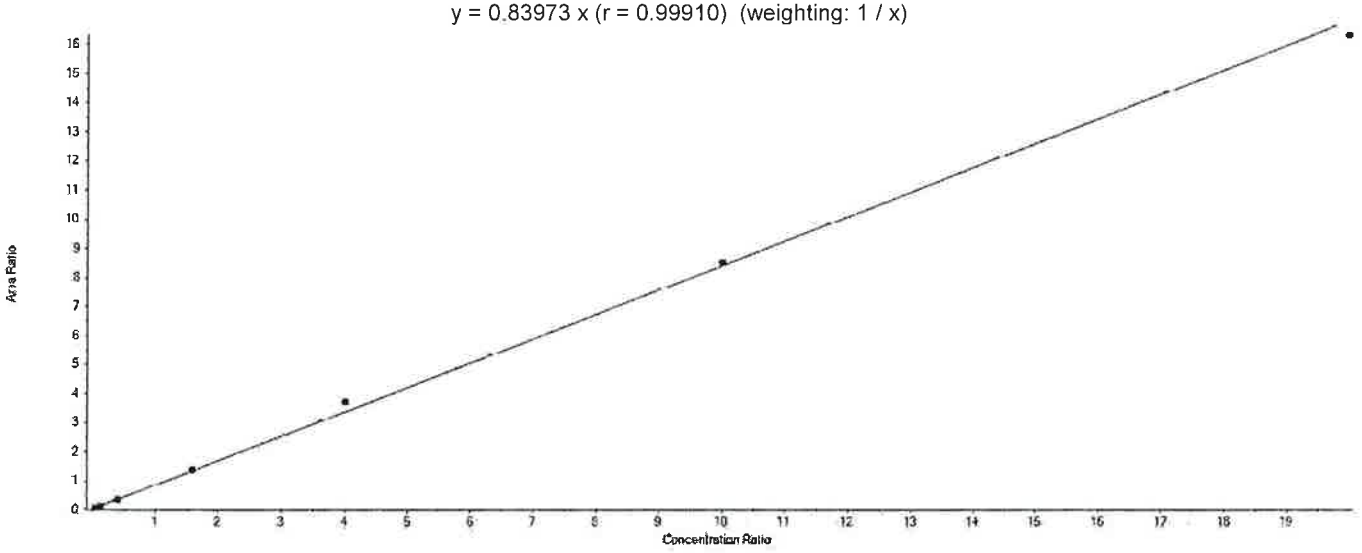
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBA

y = 0.83973 x (r = 0.99910) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	39178.0	1039556.0	True	5.00	0.038	4.44	1.000	0.200	0.224	12.2	50.0	
CAL2	106388.4	1077209.5	True	5.00	0.099	4.44	1.000	0.600	0.588	-2.0	30.0	
CAL3	338058.3	1012510.8	True	5.00	0.334	4.45	1.000	2.000	1.988	-0.6	30.0	
CAL4	1547540.4	1117209.1	True	5.00	1.385	4.44	1.000	8.000	8.248	3.1	30.0	
CAL5	3665408.7	989813.1	True	5.00	3.703	4.44	1.000	20.000	22.049	10.2	30.0	
CAL6	7913689.7	929933.5	True	5.00	8.510	4.44	1.000	50.000	50.671	1.3	30.0	
CAL7	13447476.8	825195.3	True	5.00	16.296	4.44	1.000	100.000	97.032	-3.0	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

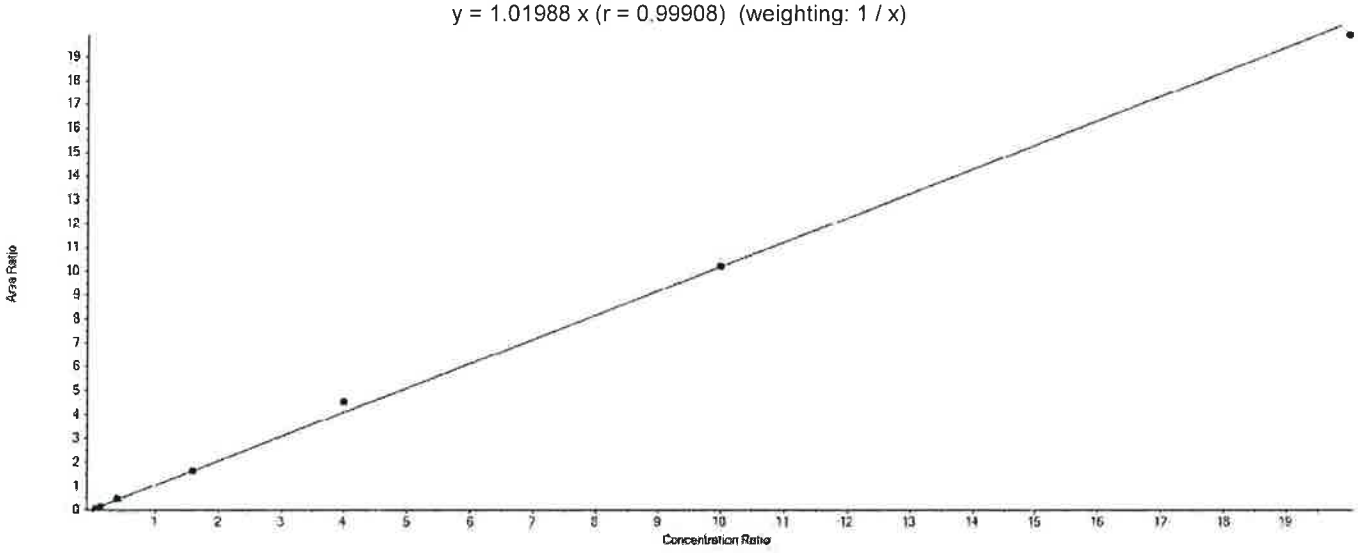
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFPeA

y = 1.01988 x (r = 0.99908) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	39036.7	877803.9	True	5.00	0.044	5.02	1.000	0.200	0.218	9.0	50.0	
CAL2	113014.6	885186.3	True	5.00	0.128	5.02	1.000	0.600	0.626	4.3	30.0	
CAL3	354432.4	838933.5	True	5.00	0.422	5.03	1.000	2.000	2.071	3.6	30.0	
CAL4	1657661.6	1003319.3	True	5.00	1.652	5.02	1.000	8.000	8.100	1.2	30.0	
CAL5	3830218.6	842931.7	True	5.00	4.544	5.02	1.000	20.000	22.277	11.4	30.0	
CAL6	8143498.5	797721.6	True	5.00	10.208	5.02	1.000	50.000	50.047	0.1	30.0	
CAL7	13918495.7	700132.2	True	5.00	19.880	5.02	1.000	100.000	97.461	-2.5	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

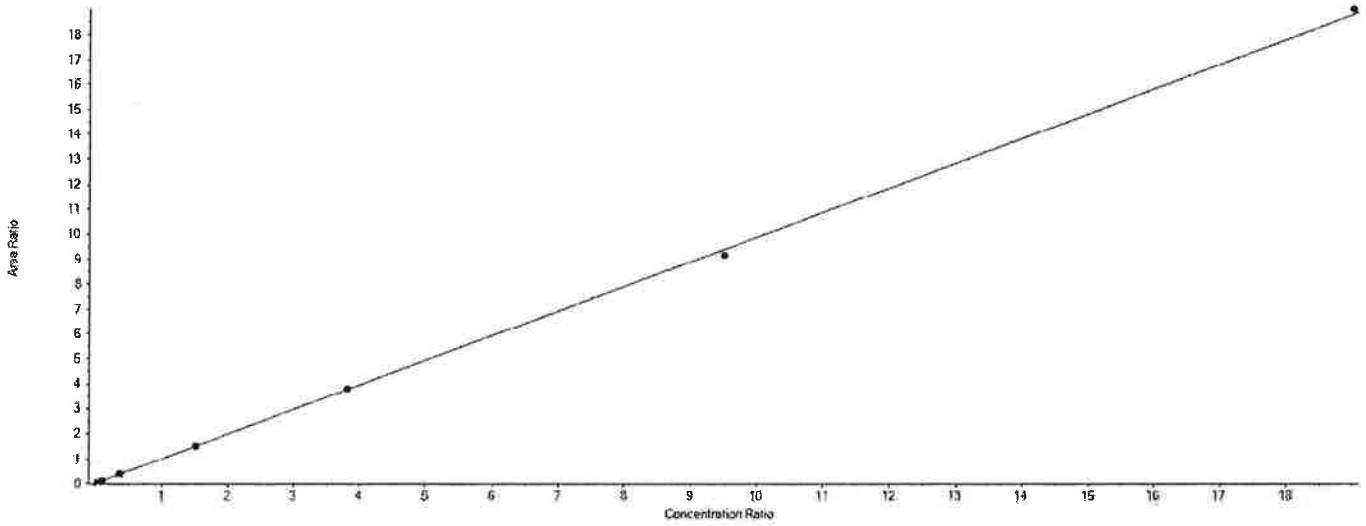
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBS

y = 0.98743 x (r = 0.99985) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	18164.8	469304.3	True	4.65	0.039	5.07	1.000	0.170	0.182	7.2	50.0	
CAL2	55595.4	466889.8	True	4.65	0.119	5.07	1.000	0.530	0.561	5.8	30.0	
CAL3	166170.8	450301.5	True	4.65	0.369	5.08	1.000	1.770	1.738	-1.8	30.0	
CAL4	762505.8	513505.4	True	4.65	1.485	5.07	1.000	7.080	6.993	-1.2	30.0	
CAL5	1795781.4	471919.1	True	4.65	3.805	5.07	1.000	17.690	17.920	1.3	30.0	
CAL6	3972190.1	434168.7	True	4.65	9.149	5.07	1.000	44.220	43.084	-2.6	30.0	
CAL7	6940632.1	365470.0	True	4.65	18.991	5.07	1.000	88.450	89.432	1.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

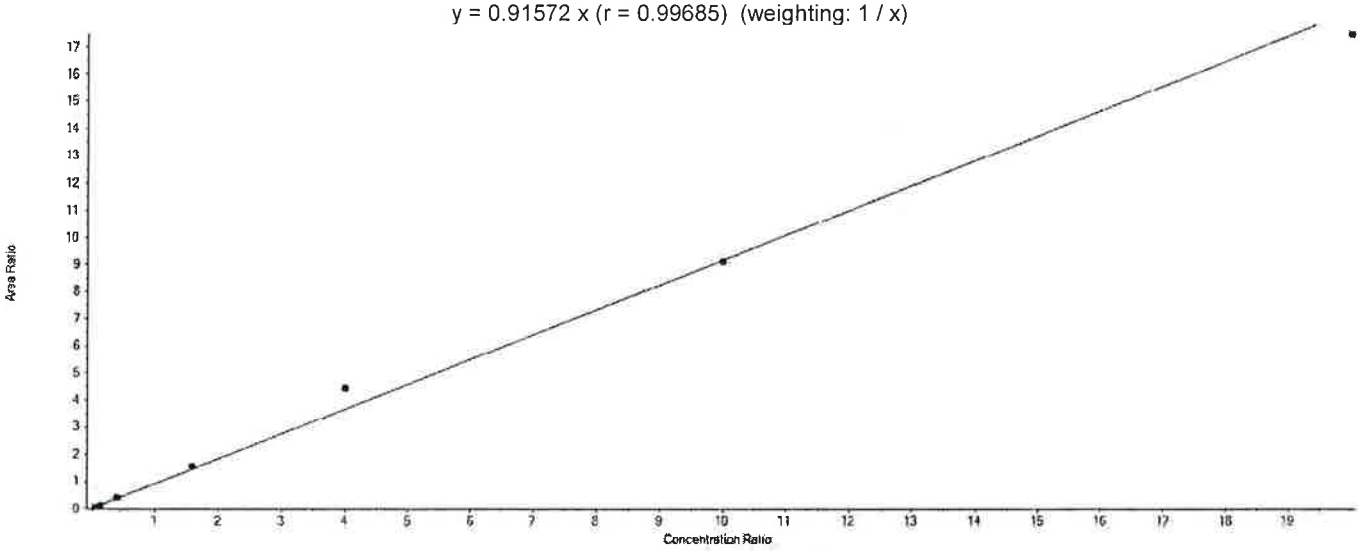
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxA

y = 0.91572 x (r = 0.99685) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	66951.6	1578041.0	True	5.00	0.042	5.49	1.000	0.200	0.232	15.8	50.0	
CAL2	179410.6	1586428.0	True	5.00	0.113	5.49	1.000	0.600	0.618	2.9	30.0	
CAL3	594164.8	1478796.2	True	5.00	0.402	5.50	1.000	2.000	2.194	9.7	30.0	
CAL4	2728366.2	1742134.0	True	5.00	1.566	5.49	1.000	8.000	8.551	6.9	30.0	
CAL5	6186430.9	1400228.9	True	5.00	4.418	5.49	1.000	20.000	24.124	20.6	30.0	
CAL6	12610653.6	1383842.5	True	5.00	9.113	5.49	1.000	50.000	49.758	-0.5	30.0	
CAL7	21349075.8	1222888.1	True	5.00	17.458	5.49	1.000	100.000	95.324	-4.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

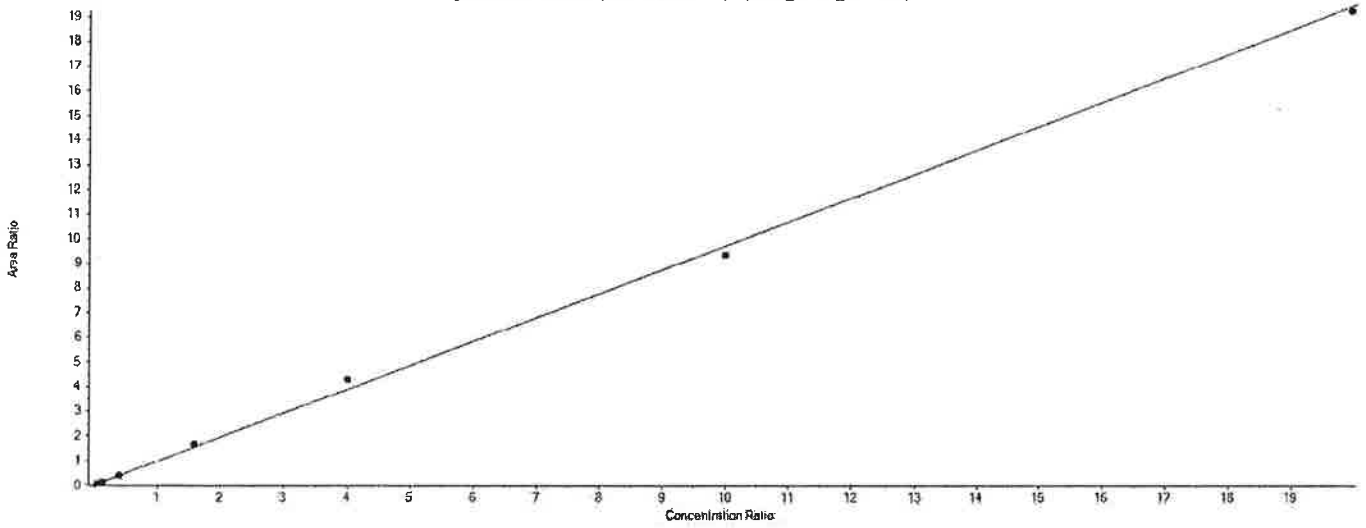
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxS

y = 0.97108 x (r = 0.99891) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	17208.4	426034.3	True	4.73	0.040	5.93	1.000	0.190	0.197	3.6	50.0	
CAL2	49603.0	455593.9	True	4.73	0.109	5.93	1.000	0.570	0.530	-7.0	30.0	
CAL3	155948.7	399928.7	True	4.73	0.390	5.94	1.000	1.890	1.899	0.5	30.0	
CAL4	737916.4	441902.6	True	4.73	1.670	5.93	1.000	7.560	8.134	7.6	30.0	
CAL5	1722622.3	398901.0	True	4.73	4.318	5.93	1.000	18.910	21.035	11.2	30.0	
CAL6	3758194.2	402347.5	True	4.73	9.341	5.93	1.000	47.280	45.497	-3.8	30.0	
CAL7	6676151.3	347206.8	True	4.73	19.228	5.92	1.000	94.550	93.658	-0.9	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

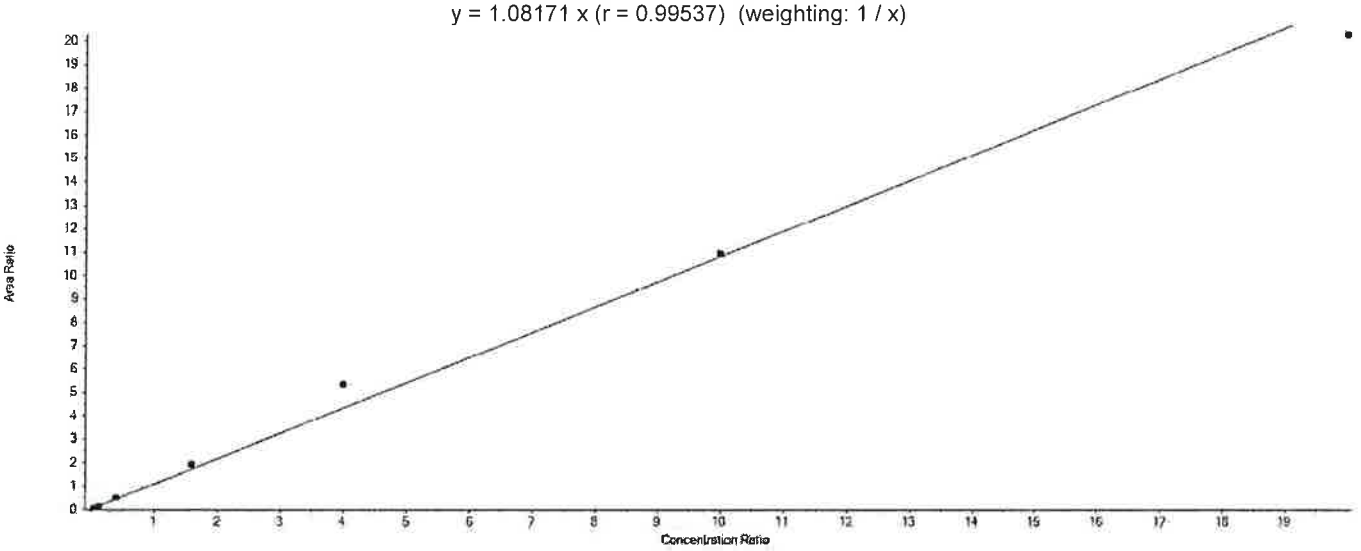
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHpA

y = 1.08171 x (r = 0.99537) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	79711.9	1560780.0	True	5.00	0.051	5.94	1.000	0.200	0.236	18.0	50.0	
CAL2	209694.5	1570376.7	True	5.00	0.134	5.94	1.000	0.600	0.617	2.9	30.0	
CAL3	705719.0	1457586.2	True	5.00	0.484	5.94	1.000	2.000	2.238	11.9	30.0	
CAL4	3178105.8	1672856.6	True	5.00	1.900	5.93	1.000	8.000	8.781	9.8	30.0	
CAL5	7618444.5	1421056.3	True	5.00	5.361	5.94	1.000	20.000	24.781	23.9	30.0	
CAL6	15192870.6	1390212.8	True	5.00	10.928	5.94	1.000	50.000	50.515	1.0	30.0	
CAL7	24269495.0	1198107.1	True	5.00	20.257	5.93	1.000	100.000	93.632	-6.4	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

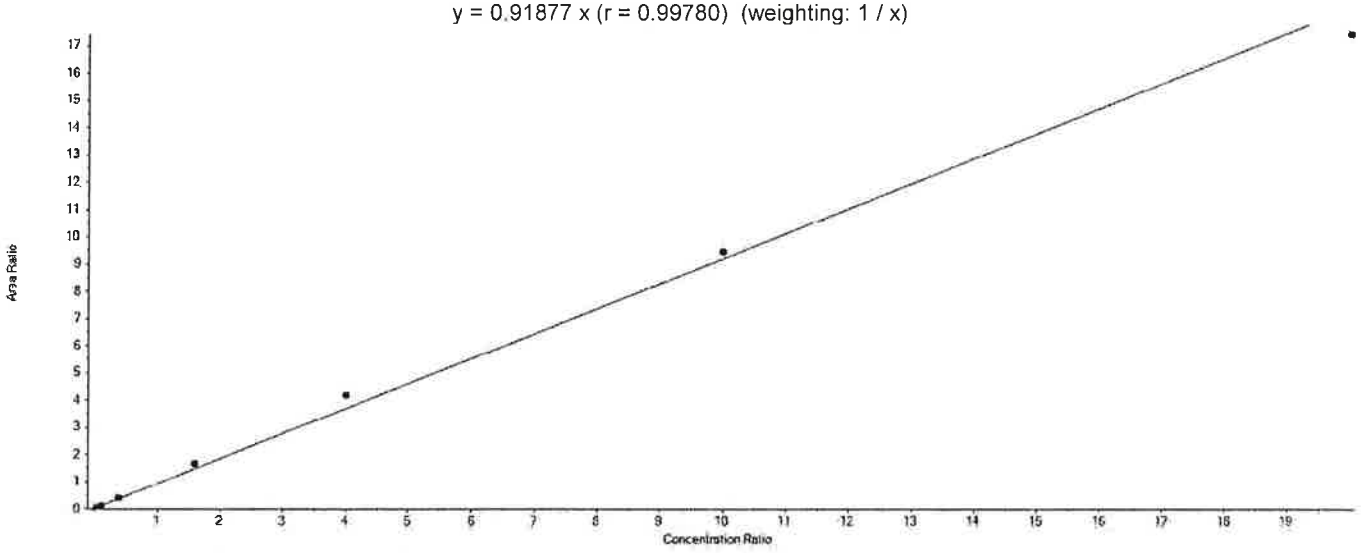
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOA

y = 0.91877 x (r = 0.99780) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	87710.9	1873019.4	True	5.00	0.047	6.35	1.000	0.200	0.255	27.4	50.0	
CAL2	227941.6	1952831.6	True	5.00	0.117	6.35	1.000	0.600	0.635	5.9	30.0	
CAL3	714469.8	1801314.0	True	5.00	0.397	6.36	1.000	2.000	2.159	7.9	30.0	
CAL4	3296055.7	2011849.9	True	5.00	1.638	6.35	1.000	8.000	8.916	11.4	30.0	
CAL5	7518281.9	1798992.1	True	5.00	4.179	6.35	1.000	20.000	22.743	13.7	30.0	
CAL6	15812025.5	1676401.5	True	5.00	9.432	6.35	1.000	50.000	51.330	2.7	30.0	
CAL7	25644747.4	1472755.6	True	5.00	17.413	6.35	1.000	100.000	94.762	-5.2	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

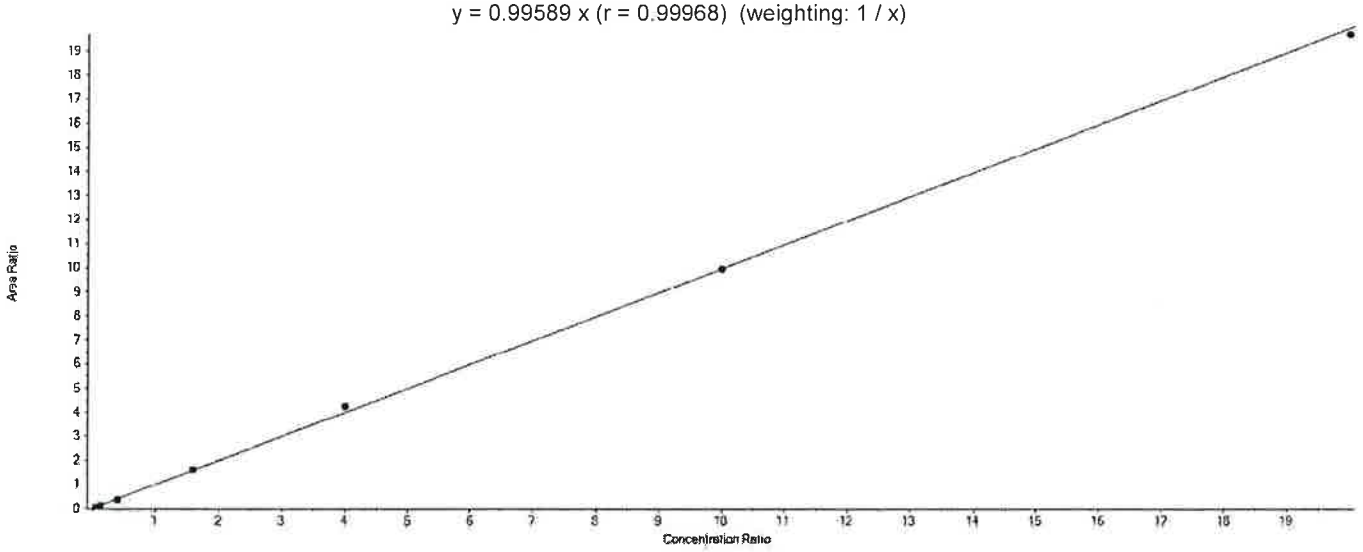
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOS

y = 0.99589 x (r = 0.99968) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	13971.6	363441.3	True	4.78	0.038	6.70	1.000	0.190	0.185	-2.9	50.0	
CAL2	44443.8	396417.6	True	4.78	0.112	6.70	1.000	0.570	0.538	-5.6	30.0	
CAL3	144086.6	384020.6	True	4.78	0.375	6.71	1.000	1.910	1.801	-5.7	30.0	
CAL4	665675.0	411532.4	True	4.78	1.618	6.70	1.000	7.650	7.764	1.5	30.0	
CAL5	1560715.5	367609.6	True	4.78	4.246	6.70	1.000	19.120	20.378	6.6	30.0	
CAL6	3432757.7	344965.0	True	4.78	9.951	6.70	1.000	47.800	47.762	-0.1	30.0	
CAL7	5977900.2	303903.7	True	4.78	19.670	6.70	1.000	95.600	94.413	-1.2	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

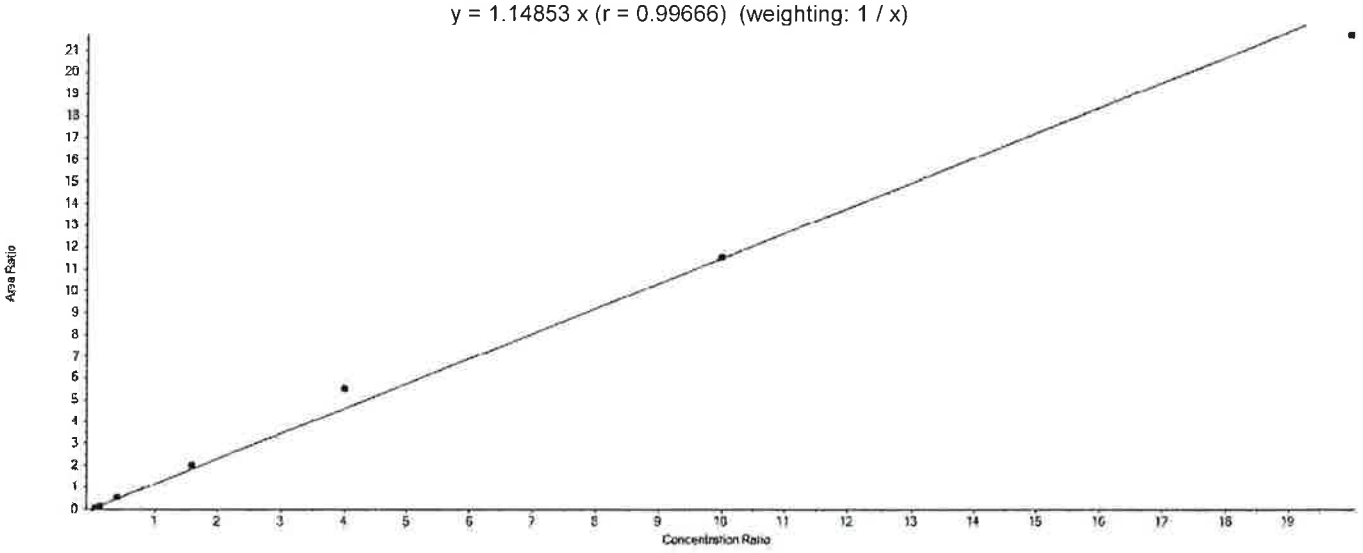
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFNA

y = 1.14853 x (r = 0.99666) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	78706.9	1384282.8	True	5.00	0.057	6.73	1.000	0.200	0.248	23.8	50.0	
CAL2	213525.8	1434808.2	True	5.00	0.149	6.73	1.000	0.600	0.648	8.0	30.0	
CAL3	681798.5	1269254.7	True	5.00	0.537	6.74	1.000	2.000	2.338	16.9	30.0	
CAL4	2953048.0	1455556.9	True	5.00	2.029	6.73	1.000	8.000	8.832	10.4	30.0	
CAL5	6896123.3	1254850.3	True	5.00	5.496	6.73	1.000	20.000	23.924	19.6	30.0	
CAL6	14891502.0	1287621.8	True	5.00	11.565	6.73	1.000	50.000	50.347	0.7	30.0	
CAL7	25535140.0	1176812.6	True	5.00	21.699	6.72	1.000	100.000	94.462	-5.5	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

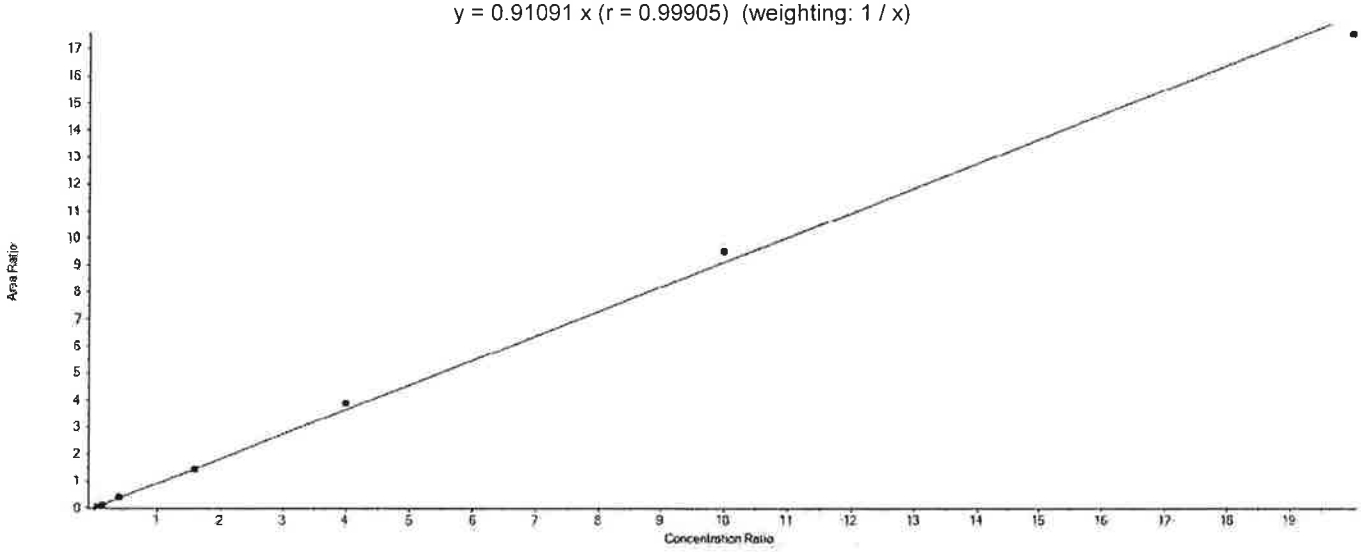
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDA

y = 0.91091 x (r = 0.99905) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65429.7	1711460.2	True	5.00	0.038	7.08	1.000	0.200	0.210	4.9	50.0	
CAL2	202762.4	1791292.2	True	5.00	0.113	7.07	1.000	0.600	0.621	3.6	30.0	
CAL3	651504.7	1727707.8	True	5.00	0.377	7.08	1.000	2.000	2.070	3.5	30.0	
CAL4	2867669.5	1983112.7	True	5.00	1.446	7.07	1.000	8.000	7.937	-0.8	30.0	
CAL5	6700356.8	1721524.0	True	5.00	3.892	7.08	1.000	20.000	21.364	6.8	30.0	
CAL6	14567251.2	1529554.5	True	5.00	9.524	7.08	1.000	50.000	52.277	4.6	30.0	
CAL7	23920790.4	1363173.5	True	5.00	17.548	7.07	1.000	100.000	96.321	-3.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

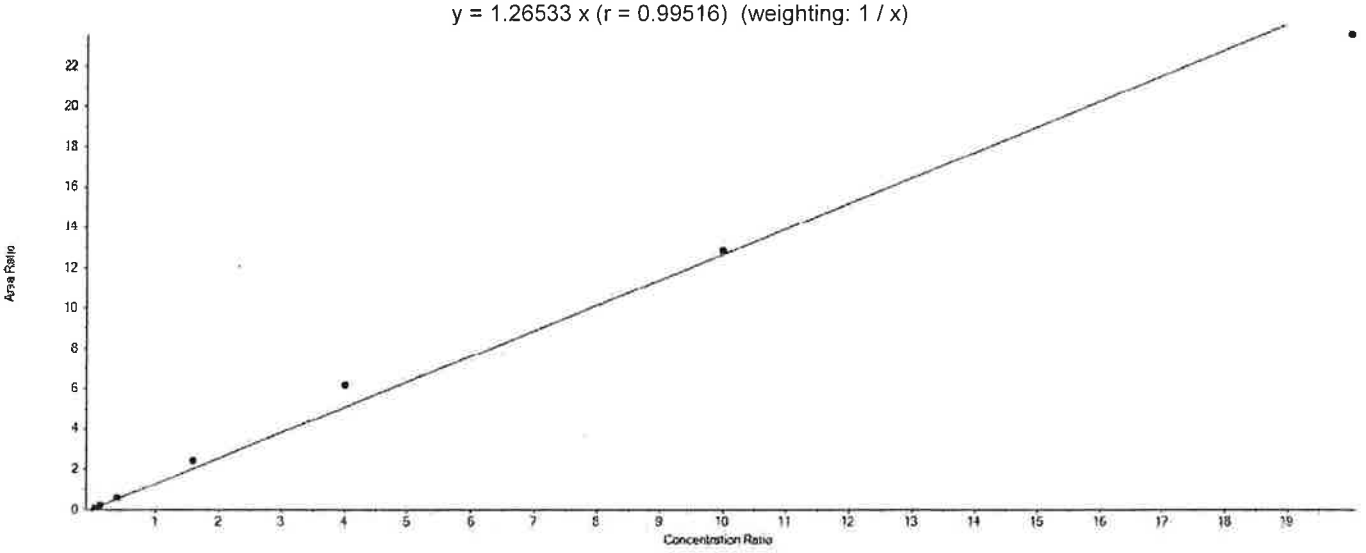
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFUnDA

y = 1.26533 x (r = 0.99516) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	60752.5	995821.2	True	5.00	0.061	7.38	1.000	0.200	0.241	20.5	50.0	
CAL2	179405.7	1030183.1	True	5.00	0.174	7.38	1.000	0.600	0.688	14.7	30.0	
CAL3	520270.4	888871.0	True	5.00	0.585	7.39	1.000	2.000	2.313	15.6	30.0	
CAL4	2424026.1	1010630.1	True	5.00	2.399	7.38	1.000	8.000	9.478	18.5	30.0	
CAL5	5418373.0	881054.2	True	5.00	6.150	7.39	1.000	20.000	24.301	21.5	30.0	
CAL6	11330823.0	880392.6	True	5.00	12.870	7.38	1.000	50.000	50.857	1.7	30.0	
CAL7	17636489.7	749999.2	True	5.00	23.515	7.38	1.000	100.000	92.922	-7.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

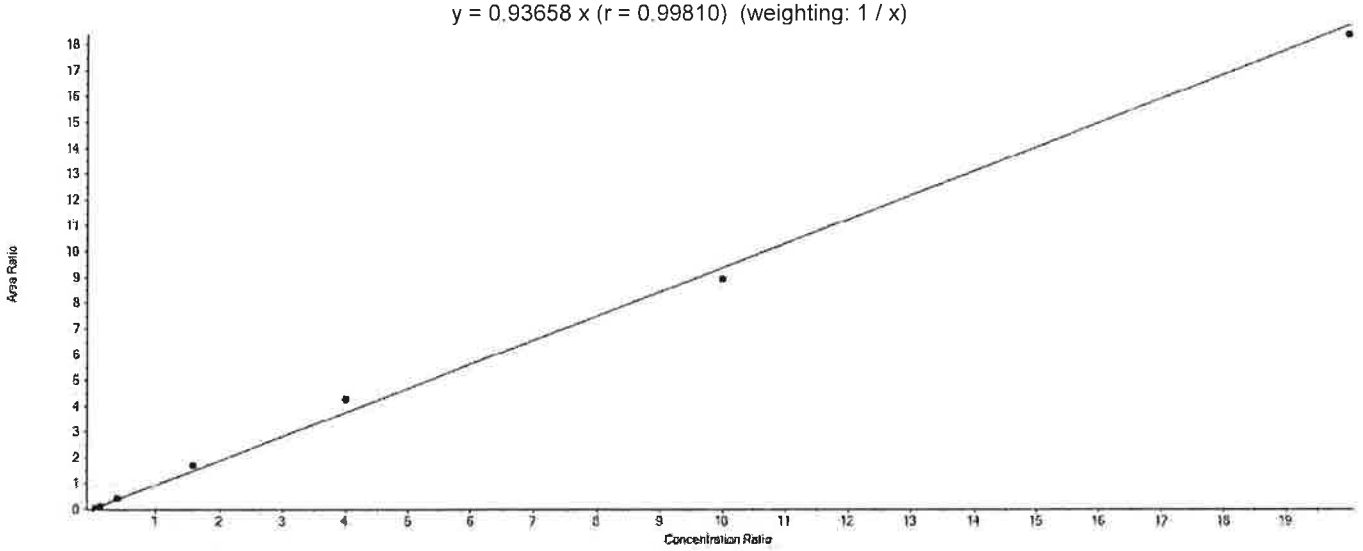
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDoDA

y = 0.93658 x (r = 0.99810) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	64094.9	1448567.4	True	5.00	0.044	7.67	1.000	0.200	0.236	18.1	50.0	
CAL2	184825.5	1502007.0	True	5.00	0.123	7.67	1.000	0.600	0.657	9.5	30.0	
CAL3	566845.7	1365297.0	True	5.00	0.415	7.68	1.000	2.000	2.216	10.8	30.0	
CAL4	2555860.6	1486696.5	True	5.00	1.719	7.67	1.000	8.000	9.178	14.7	30.0	
CAL5	5814088.5	1368417.8	True	5.00	4.249	7.67	1.000	20.000	22.682	13.4	30.0	
CAL6	11976721.9	1341062.3	True	5.00	8.931	7.67	1.000	50.000	47.677	-4.6	30.0	
CAL7	21119318.7	1148686.5	True	5.00	18.386	7.67	1.000	100.000	98.153	-1.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

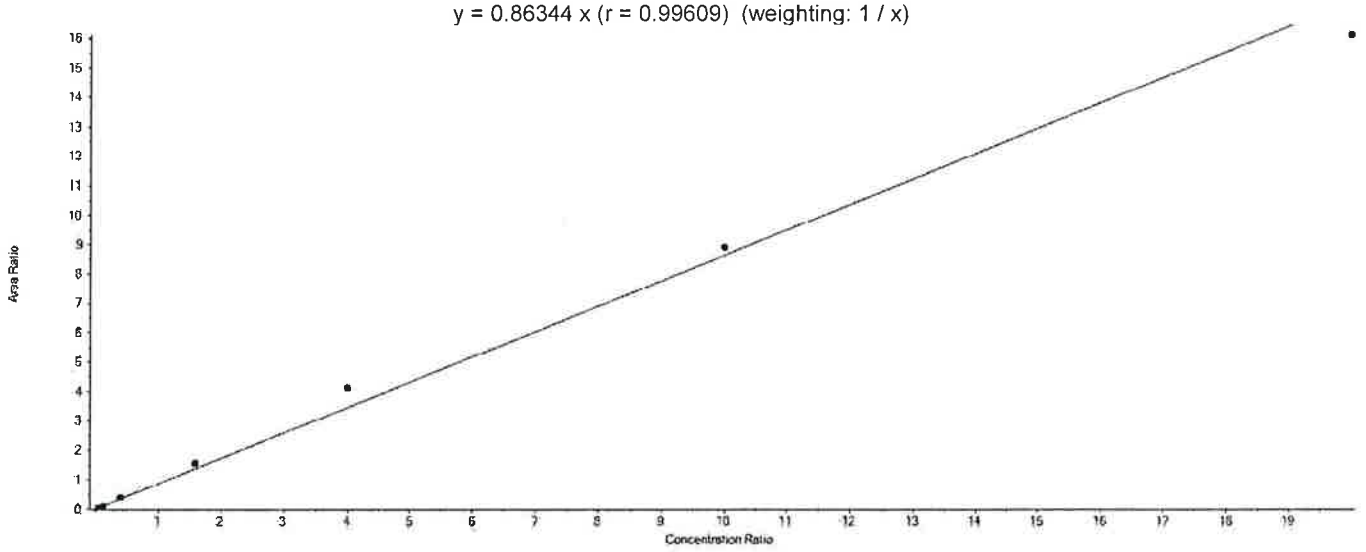
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTrDA

y = 0.86344 x (r = 0.99609) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	54019.6	1448567.4	True	5.00	0.037	7.95	1.040	0.200	0.216	8.0	50.0	
CAL2	161399.0	1502007.0	True	5.00	0.107	7.95	1.040	0.600	0.622	3.7	30.0	
CAL3	511966.6	1365297.0	True	5.00	0.375	7.96	1.040	2.000	2.171	8.6	30.0	
CAL4	2336426.8	1486696.5	True	5.00	1.572	7.95	1.040	8.000	9.101	13.8	30.0	
CAL5	5636683.2	1368417.8	True	5.00	4.119	7.95	1.040	20.000	23.853	19.3	30.0	
CAL6	11924146.0	1341062.3	True	5.00	8.892	7.95	1.040	50.000	51.489	3.0	30.0	
CAL7	18517016.1	1148686.5	True	5.00	16.120	7.95	1.040	100.000	93.348	-6.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

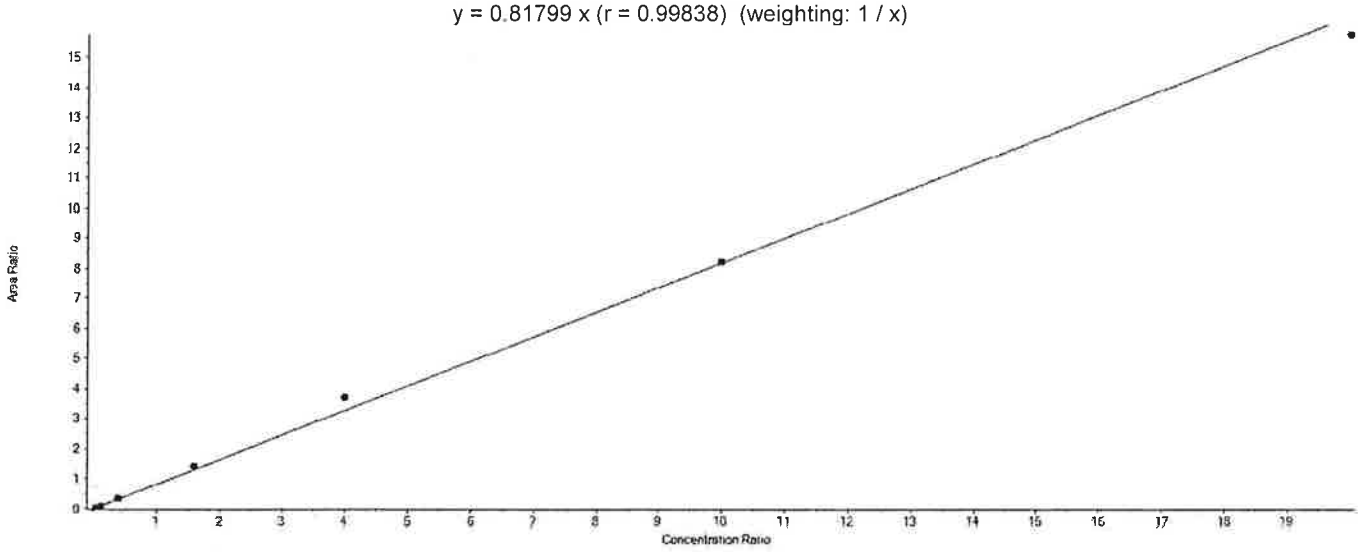
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTeDA

y = 0.81799 x (r = 0.99838) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	67538.8	1802191.1	True	5.00	0.037	8.23	1.000	0.200	0.229	14.5	50.0	
CAL2	198788.8	1915714.8	True	5.00	0.104	8.23	1.000	0.600	0.634	5.7	30.0	
CAL3	559418.0	1639034.8	True	5.00	0.341	8.24	1.000	2.000	2.086	4.3	30.0	
CAL4	2742002.8	1938387.9	True	5.00	1.415	8.23	1.000	8.000	8.647	8.1	30.0	
CAL5	6444723.9	1730502.5	True	5.00	3.724	8.23	1.000	20.000	22.764	13.8	30.0	
CAL6	13051195.0	1588690.1	True	5.00	8.215	8.23	1.000	50.000	50.215	0.4	30.0	
CAL7	21068198.2	1338346.4	True	5.00	15.742	8.23	1.000	100.000	96.224	-3.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

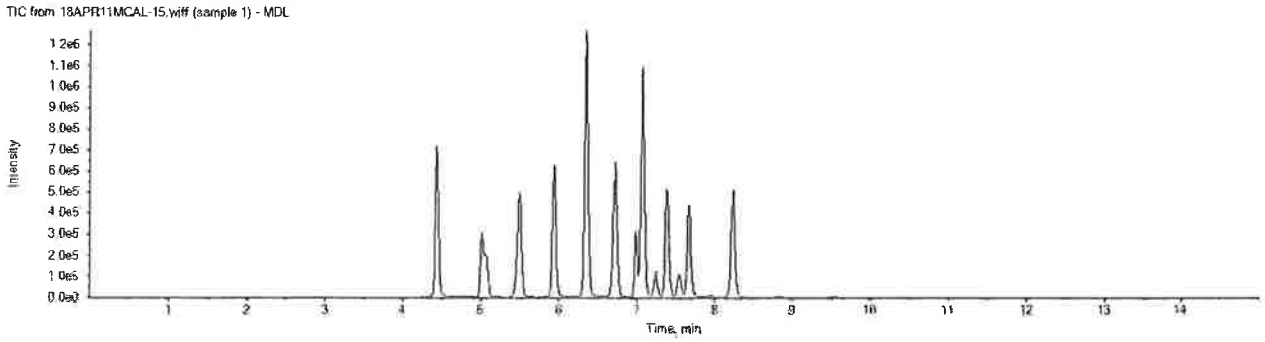
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24743 **File Name:** 18APR11MCAL-15.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	19901.2	M	13C4-PFBA	4.44	1027509.6	0.019	0.115
PFPeA	5.01	1.000	20427.5	M	13C5-PFPeA	5.01	854377.8	0.024	0.117
PFBS	5.07	1.000	8749.0	M	13C3-PFBS	5.07	482216.9	0.018	0.085
4:2-FTS	5.44	1.000	20380.3	A	13C2-4:2-FTS	5.44	215496.1	0.095	0.517
PFHxA	5.48	1.000	31766.2	M	13C5-PFHxA	5.49	1546286.6	0.021	0.112
PFPeS	5.50	1.080	4351.0	M	13C3-PFBS	5.07	482216.9	0.009	0.087
PFHxS	5.92	1.000	9103.7	M	13C3-PFHxS	5.92	437110.4	0.021	0.101
PFHpA	5.93	1.000	38729.7	M	13C4-PFHpA	5.93	1479720.2	0.026	0.121
6:2-FTS	6.34	1.000	16650.3	M	13C2-6:2-FTS	6.33	178830.5	0.093	0.478
PFHpS	6.33	1.070	6997.7	M	13C3-PFHxS	5.92	437110.4	0.016	0.091
PFOA	6.35	1.000	37479.6	M	13C8-PFOA	6.35	1903950.6	0.020	0.107
PFOS	6.70	1.000	8213.8	M	13C8-PFOS	6.70	360784.3	0.023	0.109
PFNA	6.72	1.000	38974.2	M	13C9-PFNA	6.72	1383683.1	0.028	0.123
PFOSA	6.98	1.000	20687.7	M	13C8-PFOSA	6.98	880213.0	0.024	0.123
PFNS	7.04	1.050	5166.8	M	13C8-PFOS	6.70	360784.3	0.014	0.097
PFDA	7.07	1.000	33377.4	M	13C6-PFDA	7.07	1777400.3	0.019	0.103
8:2-FTS	7.09	1.000	21207.1	M	13C2-8:2-FTS	7.09	228379.3	0.093	0.465
NMePFOSAE	7.38	1.000	5416.4	M	d7-NMePFOSAE	7.38	193143.7	0.028	0.122
NMePFOSA	7.41	1.000	3461.1	M	d3-NMePFOSA	7.40	147870.5	0.023	0.112
NMeFOSAA	7.24	1.000	9179.6	M	d3-NMeFOSAA	7.24	352181.2	0.026	0.127
NEtPFOSAE	7.54	1.000	6889.5	M	d9-NEtPFOSAE	7.53	223289.1	0.031	0.129
NEtPFOSA	7.56	1.000	2732.1	M	d5-NEtPFOSA	7.55	124912.8	0.022	0.105
PFDS	7.33	1.100	4563.1	M	13C8-PFOS	6.70	360784.3	0.013	0.119
PFUnDA	7.38	1.000	29497.1	M	13C7-PFUnDA	7.38	944369.5	0.031	0.123
NEtFOSAA	7.40	1.000	10943.9	M	d5-NEtFOSAA	7.40	389065.9	0.028	0.131
PFDoDA	7.67	1.000	29062.1	M	13C2-PFDoDA	7.67	1399603.8	0.021	0.111
10:2-FTS	7.71	1.090	28762.9	M	13C2-8:2-FTS	7.09	228379.3	0.126	0.487
PFDoS	7.90	1.180	1515.2	M	13C8-PFOS	6.70	360784.3	0.004	0.085
PFTrDA	7.95	1.040	26359.0	A	13C2-PFDoDA	7.67	1399603.8	0.019	0.109
PFTeDA	8.23	1.000	33911.9	M	13C2-PFTeDA	8.23	1746064.4	0.019	0.119
PFHxDA	8.83	1.070	29658.4	A	13C2-PFTeDA	8.23	1746064.4	0.017	0.128
PFODA	9.52	1.160	26313.3	A	13C2-PFTeDA	8.23	1746064.4	0.015	0.100

Total Ion Chromatogram



APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

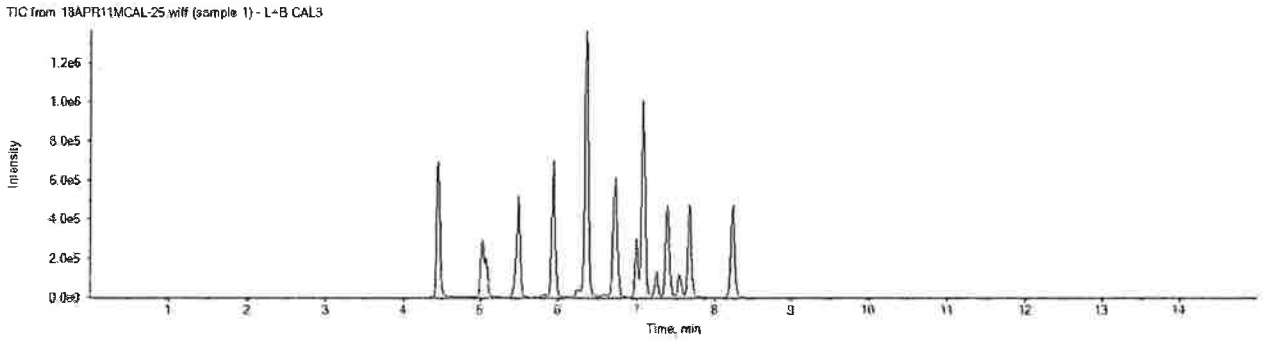
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM24743 **File Name:** 18APR11MCAL-25.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1025595.8	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	851380.9	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	461058.2	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.45	208218.8	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	1483774.0	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.07	461058.2	N/A	
PFHxS	5.93	1.000	147178.9	M	13C3-PFHxS	5.93	416726.5	0.353	1.720
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.94	1459285.4	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.34	175669.4	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	416726.5	N/A	
PFOA	6.35	1.000	618117.4	M	13C8-PFOA	6.35	1847576.1	0.335	1.821
PFOS	6.70	1.000	155868.0	M	13C8-PFOS	6.70	386857.3	0.403	1.934
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	1333305.3	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.99	825021.3	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.70	386857.3	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.08	1759691.0	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.09	206641.5	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.39	181846.2	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.41	138327.0	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.25	380006.4	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.54	243485.0	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.56	115523.0	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.70	386857.3	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.39	915750.2	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.41	367618.9	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	1448481.7	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.09	206641.5	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.70	386857.3	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	1448481.7	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.24	1649343.3	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.24	1649343.3	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.24	1649343.3	N/A	

Total Ion Chromatogram

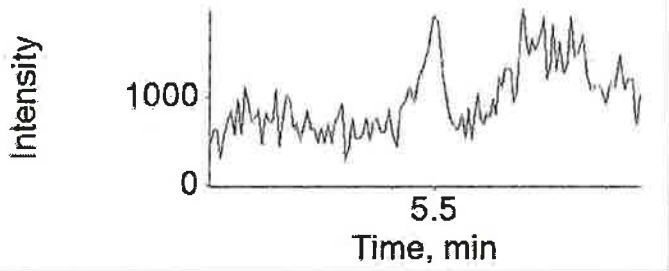


APPROVED
By JPT at 12:32 pm, 4/12/18

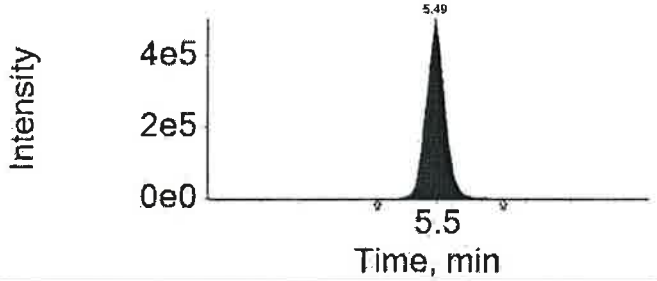
REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

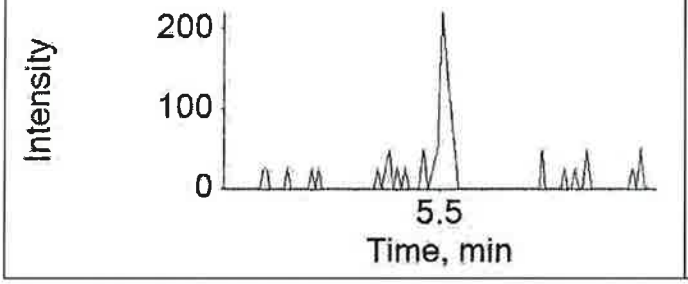
Analyte: PFHxA
313.0 / 269.0



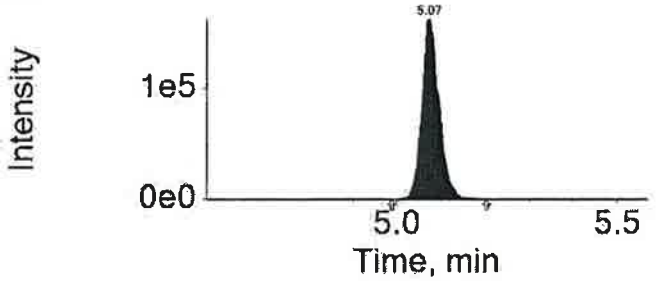
Extraction Standard: 13C5-PFHxA
318.0 / 273.0



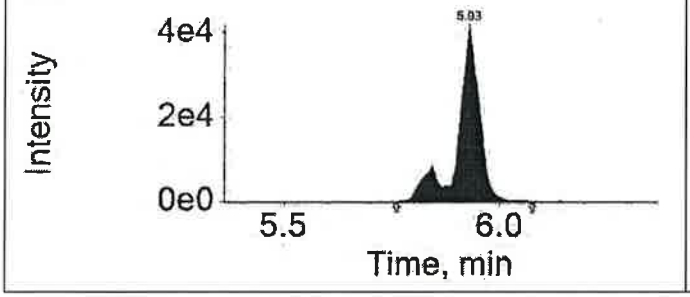
Analyte: PFPeS
349.0 / 80.0



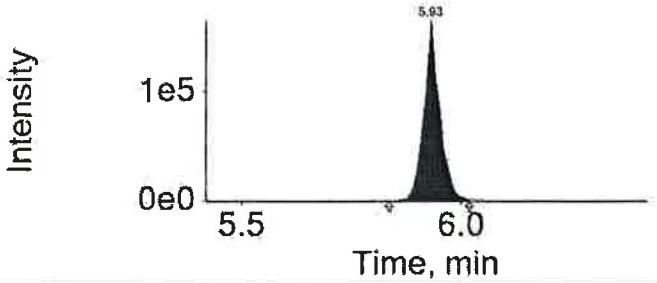
Extraction Standard: 13C3-PFBS
302.0 / 80.0



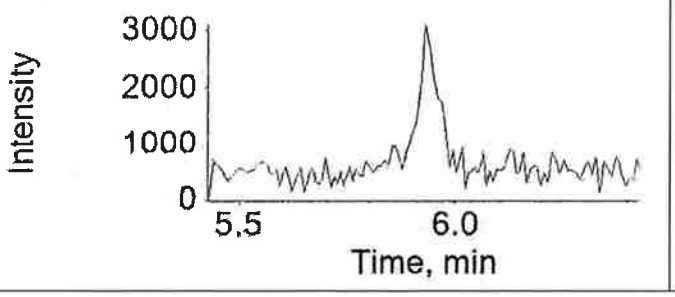
Analyte: PFHxS
399.0 / 80.0



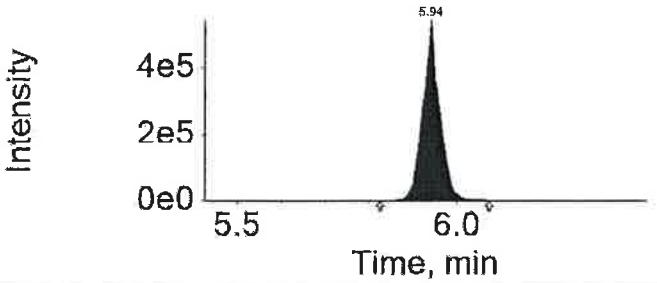
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0

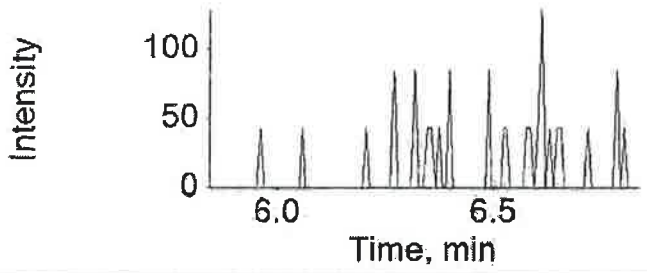


APPROVED
By JPT at 12:32 pm, 4/12/18

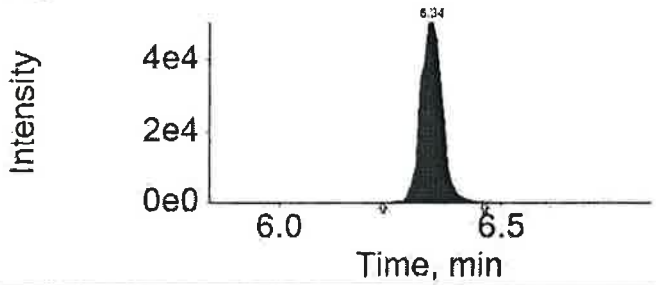
REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

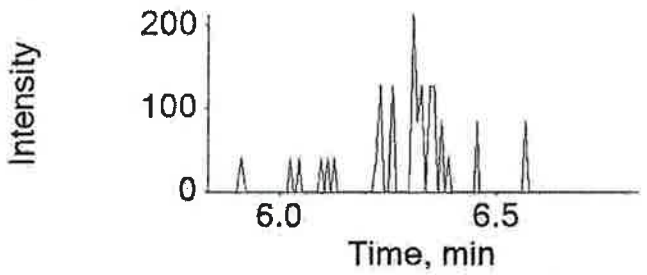
Analyte: 6:2-FTS
427.0 / 407.0



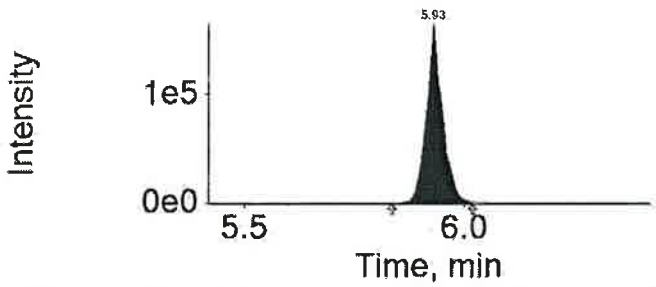
Extraction Standard: 13C2-6:2-FTS
429.0 / 409.0



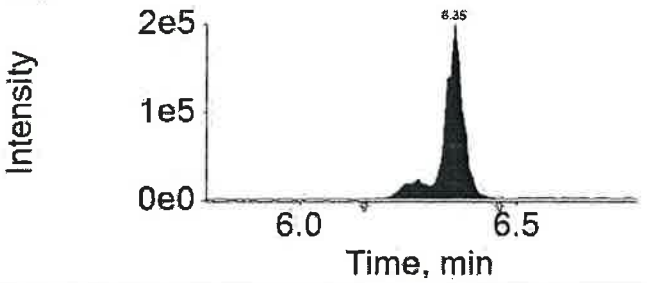
Analyte: PFHpS
449.0 / 80.0



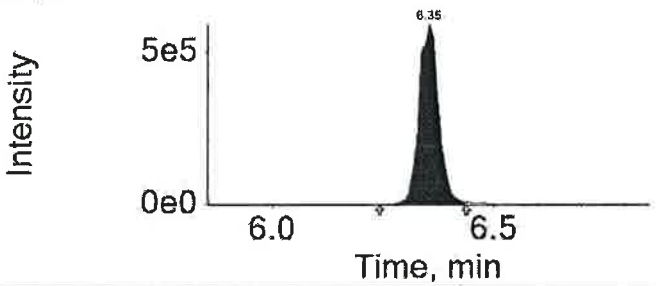
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



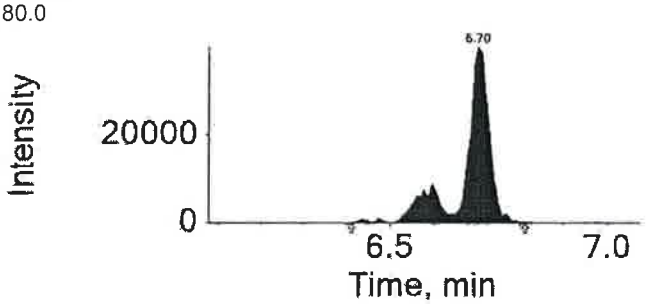
Analyte: PFOA
413.0 / 369.0



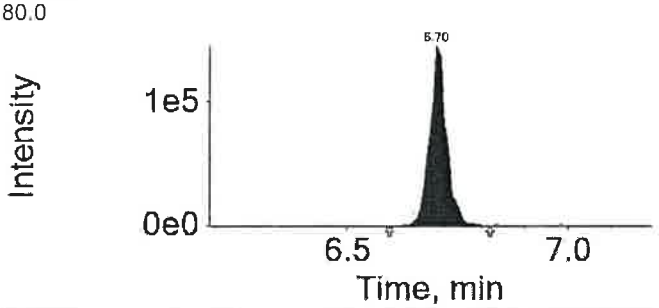
Extraction Standard: 13C8-PFOA
421.0 / 376.0



Analyte: PFOS
499.0 / 80.0



Extraction Standard: 13C8-PFOS
507.0 / 80.0



APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR11MCAL-24.wiff	4/12/2018 1:38:18 AM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	343494.8	13C4-PFBA	1035938.3	5.00	0.332	4.44	1.00	2.000	1.974	-1.3	30.0	
PFPeA	354319.7	13C5-PFPeA	920580.4	5.00	0.385	5.02	1.00	2.000	1.887	-5.7	30.0	
PFBS	171751.0	13C3-PFBS	482466.1	4.65	0.356	5.07	1.00	1.770	1.676	-5.3	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	235336.0	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	568942.0	13C5-PFHxA	1640212.3	5.00	0.347	5.49	1.00	2.000	1.894	-5.3	30.0	
PFPeS	N/A	13C3-PFBS	482466.1	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	157750.3	13C3-PFHxS	436995.1	4.73	0.361	5.93	1.00	1.890	1.758	-7.0	30.0	
PFHpA	684916.6	13C4-PFHpA	1571926.3	5.00	0.436	5.93	1.00	2.000	2.014	0.7	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	176186.7	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	136838.6	13C3-PFHxS	436995.1	4.73	0.313	6.33	1.07	1.900	1.780	-6.3	30.0	
PFOA	719520.7	13C8-PFOA	1921659.6	5.00	0.374	6.35	1.00	2.000	2.038	1.9	30.0	
PFOS	145864.6	13C8-PFOS	384128.1	4.78	0.380	6.70	1.00	1.910	1.823	-4.6	30.0	
PFNA	647472.8	13C9-PFNA	1422883.2	5.00	0.455	6.73	1.00	2.000	1.981	-1.0	30.0	
PFOSA	N/A	13C8-PFOSA	909534.1	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	384128.1	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	681309.0	13C6-PFDA	1843786.5	5.00	0.370	7.07	1.00	2.000	2.028	1.4	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	249297.5	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	191391.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	149190.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	165522.8	d3-NMeFOSAA	394274.7	5.00	0.420	7.25	1.00	2.000	2.046	2.3	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	227431.6	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	116674.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	74021.0	13C8-PFOS	384128.1	4.78	0.193	7.34	1.10	1.930	1.819	-5.7	30.0	
PFUnDA	545999.7	13C7-PFUnDA	994001.6	5.00	0.549	7.38	1.00	2.000	2.171	8.5	30.0	
NEtFOSAA	168058.5	d5-NEtFOSAA	388208.8	5.00	0.433	7.41	1.00	2.000	2.009	0.4	30.0	
PFDoDA	545827.4	13C2-PFDoDA	1440214.4	5.00	0.379	7.67	1.00	2.000	2.023	1.2	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	249297.5	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	384128.1	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	513279.1	13C2-PFDoDA	1440214.4	5.00	0.356	7.95	1.04	2.000	2.064	3.2	30.0	
PFTeDA	580792.8	13C2-PFTeDA	1773299.5	5.00	0.328	8.23	1.00	2.000	2.002	0.1	30.0	
PFHxDA	N/A	13C2-PFTeDA	1773299.5	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	1773299.5	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

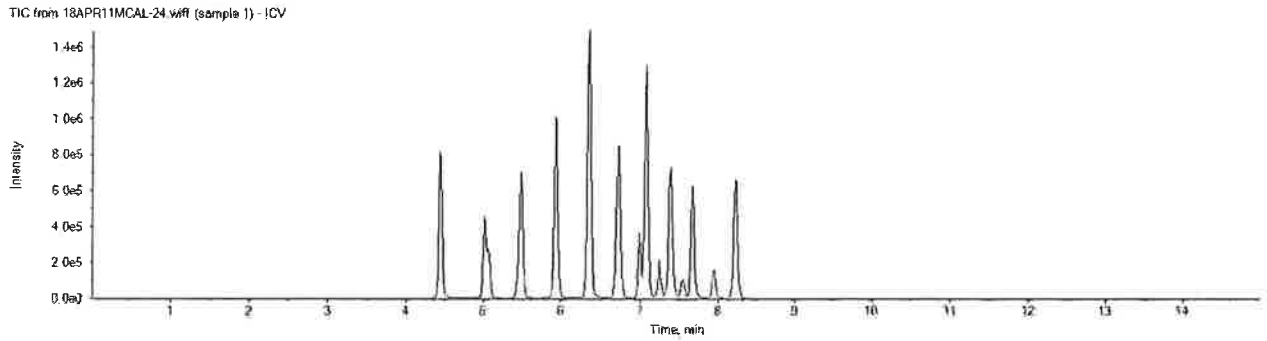
Analyte Quantitation Peak Table

Sample Name: ICV **Instrument Name:** LM24743 **File Name:** 18APR11MCAL-24.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	343494.8	A	13C4-PFBA	4.44	1035938.3	0.332	1.974
PFPeA	5.02	1.000	354319.7	A	13C5-PFPeA	5.02	920580.4	0.385	1.887
PFBS	5.07	1.000	171751.0	A	13C3-PFBS	5.07	482466.1	0.356	1.676
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.45	235336.0	N/A	
PFHxA	5.49	1.000	568942.0	A	13C5-PFHxA	5.49	1640212.3	0.347	1.894
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.07	482466.1	N/A	
PFHxS	5.93	1.000	157750.3	A	13C3-PFHxS	5.93	436995.1	0.361	1.758
PFHpA	5.93	1.000	684916.6	A	13C4-PFHpA	5.93	1571926.3	0.436	2.014
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.34	176186.7	N/A	
PFHpS	6.33	1.070	136838.6	A	13C3-PFHxS	5.93	436995.1	0.313	1.780
PFOA	6.35	1.000	719520.7	A	13C8-PFOA	6.35	1921659.6	0.374	2.038
PFOS	6.70	1.000	145864.6	A	13C8-PFOS	6.70	384128.1	0.380	1.823
PFNA	6.73	1.000	647472.8	A	13C9-PFNA	6.73	1422883.2	0.455	1.981
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.99	909534.1	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.70	384128.1	N/A	
PFDA	7.07	1.000	681309.0	A	13C6-PFDA	7.07	1843786.5	0.370	2.028
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.08	249297.5	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.38	191391.4	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.40	149190.7	N/A	
NMeFOSAA	7.25	1.000	165522.8	A	d3-NMeFOSAA	7.24	394274.7	0.420	2.046
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.53	227431.6	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.56	116674.4	N/A	
PFDS	7.34	1.100	74021.0	A	13C8-PFOS	6.70	384128.1	0.193	1.819
PFUnDA	7.38	1.000	545999.7	A	13C7-PFUnDA	7.38	994001.6	0.549	2.171
NEtFOSAA	7.41	1.000	168058.5	A	d5-NEtFOSAA	7.40	388208.8	0.433	2.009
PFDoDA	7.67	1.000	545827.4	A	13C2-PFDoDA	7.67	1440214.4	0.379	2.023
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.08	249297.5	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.70	384128.1	N/A	
PFTrDA	7.95	1.040	513279.1	A	13C2-PFDoDA	7.67	1440214.4	0.356	2.064
PFTeDA	8.23	1.000	580792.8	A	13C2-PFTeDA	8.23	1773299.5	0.328	2.002
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.23	1773299.5	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.23	1773299.5	N/A	

Total Ion Chromatogram



APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:54 am, 4/18/18

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.224	12.2	±50
CAL2	0.099	0.60	0.588	-2.0	±30
CAL3	0.334	2.00	1.988	-0.6	±30
CAL4	1.385	8.00	8.248	3.1	±30
CAL5	3.703	20.00	22.049	10.2	±30
CAL6	8.510	50.00	50.671	1.3	±30
CAL7	16.296	100.00	97.032	-3.0	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.218	9.0	±50
CAL2	0.128	0.60	0.626	4.3	±30
CAL3	0.422	2.00	2.071	3.6	±30
CAL4	1.652	8.00	8.100	1.2	±30
CAL5	4.544	20.00	22.277	11.4	±30
CAL6	10.208	50.00	50.047	0.1	±30
CAL7	19.880	100.00	97.461	-2.5	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.17	0.182	7.2	±50
CAL2	0.119	0.53	0.561	5.8	±30
CAL3	0.369	1.77	1.738	-1.8	±30
CAL4	1.485	7.08	6.993	-1.2	±30
CAL5	3.805	17.69	17.920	1.3	±30
CAL6	9.149	44.22	43.084	-2.6	±30
CAL7	18.991	88.45	89.432	1.1	±30

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.20	0.232	15.8	±50
CAL2	0.113	0.60	0.618	2.9	±30
CAL3	0.402	2.00	2.194	9.7	±30
CAL4	1.566	8.00	8.551	6.9	±30
CAL5	4.418	20.00	24.124	20.6	±30
CAL6	9.113	50.00	49.758	-0.5	±30
CAL7	17.458	100.00	95.324	-4.7	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.19	0.197	3.6	±50
CAL2	0.109	0.57	0.530	-7.0	±30
CAL3	0.390	1.89	1.899	0.5	±30
CAL4	1.670	7.56	8.134	7.6	±30
CAL5	4.318	18.91	21.035	11.2	±30
CAL6	9.341	47.28	45.497	-3.8	±30
CAL7	19.228	94.55	93.658	-0.9	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.236	18.0	±50
CAL2	0.134	0.60	0.617	2.9	±30
CAL3	0.484	2.00	2.238	11.9	±30
CAL4	1.900	8.00	8.781	9.8	±30
CAL5	5.361	20.00	24.781	23.9	±30
CAL6	10.928	50.00	50.515	1.0	±30
CAL7	20.257	100.00	93.632	-6.4	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.047	0.20	0.255	27.4	±50
CAL2	0.117	0.60	0.635	5.9	±30
CAL3	0.397	2.00	2.159	7.9	±30
CAL4	1.638	8.00	8.916	11.4	±30
CAL5	4.179	20.00	22.743	13.7	±30
CAL6	9.432	50.00	51.330	2.7	±30
CAL7	17.413	100.00	94.762	-5.2	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.19	0.185	-2.9	±50
CAL2	0.112	0.57	0.538	-5.6	±30
CAL3	0.375	1.91	1.801	-5.7	±30
CAL4	1.618	7.65	7.764	1.5	±30
CAL5	4.246	19.12	20.378	6.6	±30
CAL6	9.951	47.80	47.762	-0.1	±30
CAL7	19.670	95.60	94.413	-1.2	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.057	0.20	0.248	23.8	±50
CAL2	0.149	0.60	0.648	8.0	±30
CAL3	0.537	2.00	2.338	16.9	±30
CAL4	2.029	8.00	8.832	10.4	±30
CAL5	5.496	20.00	23.924	19.6	±30
CAL6	11.565	50.00	50.347	0.7	±30
CAL7	21.699	100.00	94.462	-5.5	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.210	4.9	±50
CAL2	0.113	0.60	0.621	3.6	±30
CAL3	0.377	2.00	2.070	3.5	±30
CAL4	1.446	8.00	7.937	-0.8	±30
CAL5	3.892	20.00	21.364	6.8	±30
CAL6	9.524	50.00	52.277	4.6	±30
CAL7	17.548	100.00	96.321	-3.7	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.061	0.20	0.241	20.5	±50
CAL2	0.174	0.60	0.688	14.7	±30
CAL3	0.585	2.00	2.313	15.6	±30
CAL4	2.399	8.00	9.478	18.5	±30
CAL5	6.150	20.00	24.301	21.5	±30
CAL6	12.870	50.00	50.857	1.7	±30
CAL7	23.515	100.00	92.922	-7.1	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.236	18.1	±50
CAL2	0.123	0.60	0.657	9.5	±30
CAL3	0.415	2.00	2.216	10.8	±30
CAL4	1.719	8.00	9.178	14.7	±30
CAL5	4.249	20.00	22.682	13.4	±30
CAL6	8.931	50.00	47.677	-4.6	±30
CAL7	18.386	100.00	98.153	-1.8	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.20	0.216	8.0	±50
CAL2	0.107	0.60	0.622	3.7	±30
CAL3	0.375	2.00	2.171	8.6	±30
CAL4	1.572	8.00	9.101	13.8	±30
CAL5	4.119	20.00	23.853	19.3	±30
CAL6	8.892	50.00	51.489	3.0	±30
CAL7	16.120	100.00	93.348	-6.7	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.20	0.229	14.5	±50
CAL2	0.104	0.60	0.634	5.7	±30
CAL3	0.341	2.00	2.086	4.3	±30
CAL4	1.415	8.00	8.647	8.1	±30
CAL5	3.724	20.00	22.764	13.8	±30
CAL6	8.215	50.00	50.215	0.4	±30
CAL7	15.742	100.00	96.224	-3.8	±30

* Outside QC Limits

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR11MCAL-26.WIFF

Date/Time Analyzed: 04/12/2018 02:09 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.06	2.84	±30
Perfluoropentanoic acid	2.00	1.96	-1.77	±30
Perfluorobutanesulfonate	1.77	1.81	2.25	±30
Perfluorohexanoic acid	2.00	2.12	5.96	±30
Perfluorohexanesulfonate	1.89	1.83	-2.93	±30
Perfluoroheptanoic acid	2.00	2.31	15.26	±30
Perfluorooctanoic acid	2.00	2.15	7.65	±30
Perfluoro-octanesulfonate	1.91	1.95	2.01	±30
Perfluorononanoic acid	2.00	2.24	12.02	±30
Perfluorodecanoic acid	2.00	2.14	6.93	±30
Perfluoroundecanoic acid	2.00	2.41	20.34	±30
Perfluorododecanoic acid	2.00	2.13	6.62	±30
Perfluorotridecanoic acid	2.00	2.15	7.65	±30
Perfluorotetradecanoic acid	2.00	2.16	7.93	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR18-05.WIFF

Date/Time Analyzed: 04/18/2018 09:28 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.05	2.68	±30
Perfluoropentanoic acid	2.00	2.12	5.96	±30
Perfluorobutanesulfonate	1.77	1.63	7.76	±30
Perfluorohexanoic acid	2.00	2.10	5.10	±30
Perfluorohexanesulfonate	1.89	2.01	6.09	±30
Perfluoroheptanoic acid	2.00	2.12	6.18	±30
Perfluorooctanoic acid	2.00	2.24	12.15	±30
Perfluoro-octanesulfonate	1.91	1.91	-0.25	±30
Perfluorononanoic acid	2.00	2.29	14.66	±30
Perfluorodecanoic acid	2.00	2.12	5.76	±30
Perfluoroundecanoic acid	2.00	2.30	15.19	±30
Perfluorododecanoic acid	2.00	2.07	3.64	±30
Perfluorotridecanoic acid	2.00	2.20	10.23	±30
Perfluorotetradecanoic acid	2.00	2.05	2.63	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR18-18.WIFF

Date/Time Analyzed: 04/18/2018 12:50 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.37	4.57	±30
Perfluoropentanoic acid	8.00	8.18	2.20	±30
Perfluorobutanesulfonate	7.08	7.64	7.93	±30
Perfluorohexanoic acid	8.00	8.39	4.89	±30
Perfluorohexanesulfonate	7.56	7.53	-0.42	±30
Perfluoroheptanoic acid	8.00	9.18	14.77	±30
Perfluorooctanoic acid	8.00	8.85	10.64	±30
Perfluoro-octanesulfonate	7.65	7.91	3.34	±30
Perfluorononanoic acid	8.00	8.91	11.33	±30
Perfluorodecanoic acid	8.00	8.14	1.73	±30
Perfluoroundecanoic acid	8.00	8.38	4.73	±30
Perfluorododecanoic acid	8.00	8.51	6.40	±30
Perfluorotridecanoic acid	8.00	8.72	8.99	±30
Perfluorotetradecanoic acid	8.00	8.68	8.46	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR18-30.WIFF

Date/Time Analyzed: 04/18/2018 15:56 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.28	11.42	±30
Perfluoropentanoic acid	20.00	22.61	13.06	±30
Perfluorobutanesulfonate	17.69	19.66	11.12	±30
Perfluorohexanoic acid	20.00	22.09	10.46	±30
Perfluorohexanesulfonate	18.91	20.67	9.29	±30
Perfluoroheptanoic acid	20.00	23.53	17.67	±30
Perfluorooctanoic acid	20.00	24.48	22.38	±30
Perfluoro-octanesulfonate	19.12	22.15	15.86	±30
Perfluorononanoic acid	20.00	23.79	18.97	±30
Perfluorodecanoic acid	20.00	22.44	12.22	±30
Perfluoroundecanoic acid	20.00	22.55	12.73	±30
Perfluorododecanoic acid	20.00	23.14	15.69	±30
Perfluorotridecanoic acid	20.00	22.27	11.36	±30
Perfluorotetradecanoic acid	20.00	22.36	11.81	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR18-42.WIFF

Date/Time Analyzed: 04/18/2018 19:03 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.05	2.34	±30
Perfluoropentanoic acid	2.00	2.02	1.09	±30
Perfluorobutanesulfonate	1.77	1.73	-2.54	±30
Perfluorohexanoic acid	2.00	2.15	7.71	±30
Perfluorohexanesulfonate	1.89	1.99	5.25	±30
Perfluoroheptanoic acid	2.00	2.35	17.49	±30
Perfluorooctanoic acid	2.00	2.09	4.71	±30
Perfluoro-octanesulfonate	1.91	1.83	-4.21	±30
Perfluorononanoic acid	2.00	2.18	8.84	±30
Perfluorodecanoic acid	2.00	2.09	4.60	±30
Perfluoroundecanoic acid	2.00	2.19	9.61	±30
Perfluorododecanoic acid	2.00	2.05	2.73	±30
Perfluorotridecanoic acid	2.00	2.07	3.35	±30
Perfluorotetradecanoic acid	2.00	2.09	4.46	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR18-50.WIFF

Date/Time Analyzed: 04/18/2018 21:07 Lab Sample ID: CCV5_CAL4

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.17	2.18	±30
Perfluoropentanoic acid	8.00	8.16	1.94	±30
Perfluorobutanesulfonate	7.08	7.02	-0.82	±30
Perfluorohexanoic acid	8.00	8.60	7.54	±30
Perfluorohexanesulfonate	7.56	7.76	2.71	±30
Perfluoroheptanoic acid	8.00	8.64	7.96	±30
Perfluorooctanoic acid	8.00	8.96	12.05	±30
Perfluoro-octanesulfonate	7.65	7.54	-1.48	±30
Perfluorononanoic acid	8.00	8.63	7.92	±30
Perfluorodecanoic acid	8.00	8.54	6.77	±30
Perfluoroundecanoic acid	8.00	9.29	16.14	±30
Perfluorododecanoic acid	8.00	8.65	8.15	±30
Perfluorotridecanoic acid	8.00	9.31	16.38	±30
Perfluorotetradecanoic acid	8.00	8.22	2.71	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR18-60.WIFF

Date/Time Analyzed: 04/18/2018 23:42 Lab Sample ID: CCV6_CAL5

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.22	11.08	±30
Perfluoropentanoic acid	20.00	21.71	8.54	±30
Perfluorobutanesulfonate	17.69	18.98	7.30	±30
Perfluorohexanoic acid	20.00	22.93	14.65	±30
Perfluorohexanesulfonate	18.91	21.54	13.91	±30
Perfluoroheptanoic acid	20.00	23.22	16.10	±30
Perfluorooctanoic acid	20.00	23.81	19.05	±30
Perfluoro-octanesulfonate	19.12	20.73	8.42	±30
Perfluorononanoic acid	20.00	22.84	14.22	±30
Perfluorodecanoic acid	20.00	22.04	10.18	±30
Perfluoroundecanoic acid	20.00	24.04	20.18	±30
Perfluorododecanoic acid	20.00	23.26	16.31	±30
Perfluorotridecanoic acid	20.00	25.18	25.88	±30
Perfluorotetradecanoic acid	20.00	22.78	13.92	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR19-18.WIFF

Date/Time Analyzed: 04/19/2018 10:19 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.38	4.77	±30
Perfluoropentanoic acid	8.00	8.54	6.70	±30
Perfluorobutanesulfonate	7.08	7.05	-0.44	±30
Perfluorohexanoic acid	8.00	8.50	6.29	±30
Perfluorohexanesulfonate	7.56	8.22	8.71	±30
Perfluoroheptanoic acid	8.00	8.51	6.40	±30
Perfluorooctanoic acid	8.00	9.04	12.99	±30
Perfluoro-octanesulfonate	7.65	7.65	0.01	±30
Perfluorononanoic acid	8.00	8.95	11.92	±30
Perfluorodecanoic acid	8.00	8.82	10.21	±30
Perfluoroundecanoic acid	8.00	9.36	17.05	±30
Perfluorododecanoic acid	8.00	8.66	8.23	±30
Perfluorotridecanoic acid	8.00	9.04	12.99	±30
Perfluorotetradecanoic acid	8.00	8.48	6.03	±30

* Outside QC Limits.

FORM 07 - EPA 537 Version 1.1 Modified

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR19-29.WIFF

Date/Time Analyzed: 04/19/2018 13:00 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	21.72	8.61	±30
Perfluoropentanoic acid	20.00	22.21	11.07	±30
Perfluorobutanesulfonate	17.69	19.04	7.65	±30
Perfluorohexanoic acid	20.00	23.59	17.94	±30
Perfluorohexanesulfonate	18.91	20.52	8.49	±30
Perfluoroheptanoic acid	20.00	23.39	16.96	±30
Perfluorooctanoic acid	20.00	23.73	18.65	±30
Perfluoro-octanesulfonate	19.12	20.02	4.72	±30
Perfluorononanoic acid	20.00	23.33	16.64	±30
Perfluorodecanoic acid	20.00	20.81	4.05	±30
Perfluoroundecanoic acid	20.00	23.13	15.63	±30
Perfluorododecanoic acid	20.00	23.14	15.69	±30
Perfluorotridecanoic acid	20.00	23.51	17.53	±30
Perfluorotetradecanoic acid	20.00	21.83	9.16	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN08

Instrument ID: 24743 Lab File ID: 18APR19-38.WIFF

Date/Time Analyzed: 04/19/2018 15:20 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.07	3.40	±30
Perfluoropentanoic acid	2.00	1.95	-2.41	±30
Perfluorobutanesulfonate	1.77	1.77	0.09	±30
Perfluorohexanoic acid	2.00	2.26	12.76	±30
Perfluorohexanesulfonate	1.89	1.95	3.18	±30
Perfluoroheptanoic acid	2.00	2.19	9.66	±30
Perfluorooctanoic acid	2.00	2.14	6.98	±30
Perfluoro-octanesulfonate	1.91	1.84	-3.64	±30
Perfluorononanoic acid	2.00	2.15	7.64	±30
Perfluorodecanoic acid	2.00	2.08	4.25	±30
Perfluoroundecanoic acid	2.00	2.18	8.78	±30
Perfluorododecanoic acid	2.00	2.23	11.30	±30
Perfluorotridecanoic acid	2.00	2.20	10.05	±30
Perfluorotetradecanoic acid	2.00	2.13	6.47	±30

* Outside QC Limits.

FORM 07 - EPA 537 Version 1.1 Modified

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN08
Matrix: WATER

18092009		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1521482	1927063	1069642	472838
UPPER LIMIT		2282223	2890595	1604463	709257
LOWER LIMIT		760741	963532	534821	236419
LAB SAMPLE ID	**DATE ANALYZED**				
LCS092009	04/05/18 15:40	1713328	2008816	1256748	516211
LCSDA	04/05/18 15:55	1719837	2165029	1269362	521502
BLK092009	04/05/18 16:26	1696202	2164507	1289355	512107
9535292	04/05/18 16:42	1726153	2198310	1228168	546539
9535293	04/05/18 16:57	1760951	2156533	1214898	500604

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN08
Matrix: WATER

18093011		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1521482	1927063	1069642	472838
UPPER LIMIT		2282223	2890595	1604463	709257
LOWER LIMIT		760741	963532	534821	236419
LAB SAMPLE ID	**DATE ANALYZED**				
LCSA093011	04/05/18 02:44	1642879	2178087	1325199	543154
LCSDA	04/05/18 03:15	2097385	2262498	1284659	516878
BLKA093011	04/05/18 04:01	1716773	2132455	1334076	552137
9535294	04/05/18 04:32	2070448	999896	1202722	508517
9535295	04/05/18 04:48	2028176	905812 *	1174253	473481
9535296	04/05/18 05:03	1570398	1102302	1156067	468020
9535297	04/05/18 05:19	879632	904123 *	783798	355599
9535299	04/05/18 06:05	1971122	1270109	1222354	499261
9535300	04/05/18 06:21	1653928	1156411	1133416	434838
9535301	04/05/18 06:36	813959	736067 *	412942 *	303088
9535303	04/05/18 06:52	1977152	910189 *	1240453	492918
9535305	04/05/18 07:07	923751	807032 *	977023	407067
9535306	04/05/18 07:23	1492081	1026969	1020804	437219
9535307	04/05/18 07:39	1829457	941862 *	1111440	491691
9535309	04/05/18 07:54	920537	784751 *	843510	345303
9535310	04/05/18 08:10	948702	793477 *	973660	374548
9535311	04/05/18 08:25	1517166	914483 *	1116717	436523

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18093011		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1175142	1467690	966399	375629
UPPER LIMIT		1762713	2201535	1449599	563444
LOWER LIMIT		587571	733845	483200	187815
LAB SAMPLE ID	**DATE ANALYZED**				
9535294DL	04/10/18 10:32	1310153	1579903	1096279	428516
9535295DL	04/10/18 10:48	1272019	1580524	1040849	399632
9535296DL	04/10/18 11:03	1315258	1559598	1051819	422382
9535297DL	04/10/18 11:19	1434549	916404	974935	372792
9535299DL	04/10/18 11:50	1221898	1587238	1078215	427684
9535300DL	04/10/18 12:36	1264346	1581265	1021977	407588
9535301DL	04/10/18 12:52	1480245	1200634	966406	394486
9535301DL2	04/10/18 13:07	1366712	1583599	1035975	384553
9535303DL	04/10/18 13:23	1404008	1022924	1052465	392608
9535305DL	04/10/18 13:54	1384604	1465104	1034391	413357
9535306DL	04/10/18 14:10	1345193	1520944	1050951	412593
9535307DL	04/10/18 14:25	1396915	1045041	1057832	387736
9535309DL	04/10/18 14:56	1326837	1547337	1068852	430319
9535310DL	04/10/18 15:43	1337839	1505172	1033590	388714
9535311DL	04/10/18 15:58	1552787	1044769	1031477	391529
9535297DL2	04/10/18 22:42	1168889	1413587	982862	392389
9535303DL2	04/10/18 22:57	1196125	1537465	1012232	406538
9535307DL2	04/10/18 23:13	1174673	1460266	1020684	386244
9535311DL2	04/10/18 23:29	1279969	1594336	1029936	373161

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18094018		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1175142	1467690	966399	375629
UPPER LIMIT		1762713	2201535	1449599	563444
LOWER LIMIT		587571	733845	483200	187815
LAB SAMPLE ID	**DATE ANALYZED**				
LCS094018	04/10/18 16:29	1292336	1432677	1033970	393103
BLK094018	04/10/18 17:31	1306359	1573938	1008127	401640

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18094018		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1163606	1442107	926861	371819
UPPER LIMIT		1745409	2163161	1390292	557729
LOWER LIMIT		581803	721054	463431	185910
LAB SAMPLE ID	**DATE ANALYZED**				
9535308	04/18/18 22:56	1444138	1199752	984928	375652
9535308DL	04/19/18 12:29	1457445	1584945	1065116	438552

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN08
Matrix: SOIL

18102019		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1163606	1442107	926861	371819
UPPER LIMIT		1745409	2163161	1390292	557729
LOWER LIMIT		581803	721054	463431	185910
LAB SAMPLE ID	**DATE ANALYZED**				
LCS102019	04/18/18 09:59	1811699 *	1769358	1085961	413141
BLK102019	04/18/18 11:02	2007040 *	1990356	1169307	405801
9535298	04/18/18 11:17	1595413	922994	1105401	378890
9535302	04/18/18 11:33	1453149	1058008	1066881	352466
9535304	04/18/18 11:48	1763875 *	1236809	1063903	413234
9535304DL	04/18/18 16:59	1457206	1623818	1108161	405706
9535298DL	04/19/18 14:02	1353891	1494680	1042274	397904
9535302DL	04/19/18 14:18	1315496	1563938	1055360	394248

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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LC-MS/MS Sample Run Log

Printed: 4/6/2018 5:55:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24743

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR03MCAL-09.wiff	MDL	N/A	4/3/2018 5:30:13 PM
18APR03MCAL-10.wiff	CAL1	N/A	4/3/2018 5:45:46 PM
18APR03MCAL-11.wiff	CAL2	N/A	4/3/2018 6:01:16 PM
18APR03MCAL-12.wiff	CAL3	N/A	4/3/2018 6:16:46 PM
18APR03MCAL-13.wiff	CAL4	N/A	4/3/2018 6:32:19 PM
18APR03MCAL-14.wiff	CAL5	N/A	4/3/2018 6:47:49 PM
18APR03MCAL-15.wiff	CAL6	N/A	4/3/2018 7:03:19 PM
18APR03MCAL-16.wiff	CAL7	N/A	4/3/2018 7:18:49 PM
18APR03MCAL-17.wiff	Instrument Blank	N/A	4/3/2018 7:34:19 PM
18APR03MCAL-18.wiff	ICV	N/A	4/3/2018 7:49:49 PM
18APR03MCAL-19.wiff	L+B CAL3	N/A	4/3/2018 8:05:22 PM
18APR03MCAL-20.wiff	CCV1_CAL3	N/A	4/3/2018 8:20:55 PM
18APR04-01.wiff	solvent	N/A	4/4/2018 1:23:06 PM
18APR04-02.wiff	solvent	N/A	4/4/2018 1:38:42 PM
18APR04-03.wiff	solvent	N/A	4/4/2018 1:54:15 PM
18APR04-04.wiff	CCV1_CAL3	NA	4/4/2018 2:09:51 PM
18APR04-05.wiff	Solvent	NA	4/4/2018 2:25:21 PM
18APR04-06.wiff	LCS092007	18092007	4/4/2018 2:40:51 PM
18APR04-07.wiff	LCSDA	18092007	4/4/2018 2:56:24 PM
18APR04-08.wiff	Solvent	NA	4/4/2018 3:11:57 PM
18APR04-09.wiff	BLK092007	18092007	4/4/2018 3:27:30 PM
18APR04-10.wiff	9535462	18092007	4/4/2018 3:43:03 PM
18APR04-11.wiff	9535463	18092007	4/4/2018 3:58:36 PM
18APR04-12.wiff	CCV2_CAL4	NA	4/4/2018 4:14:09 PM
18APR04-13.wiff	Solvent	NA	4/4/2018 4:29:42 PM
18APR04-14.wiff	LCS087001	18087001	4/4/2018 4:45:15 PM
18APR04-15.wiff	LCSDA	18087001	4/4/2018 5:00:48 PM
18APR04-16.wiff	Solvent	NA	4/4/2018 5:16:21 PM
18APR04-17.wiff	BLK087001	18087001	4/4/2018 5:31:54 PM
18APR04-18.wiff	9521833	18087001	4/4/2018 5:47:28 PM
18APR04-19.wiff	9521834	18087001	4/4/2018 6:03:01 PM
18APR04-20.wiff	9521835	18087001	4/4/2018 6:18:33 PM
18APR04-21.wiff	9521836	18087001	4/4/2018 6:34:03 PM
18APR04-22.wiff	9521837	18087001	4/4/2018 6:49:33 PM
18APR04-23.wiff	CCV3_CAL5	NA	4/4/2018 7:05:06 PM
18APR04-24.wiff	Solvent	NA	4/4/2018 7:20:36 PM
18APR04-25.wiff	9536027DL	18091001	4/4/2018 7:36:09 PM
18APR04-26.wiff	9536028DL2	18091001	4/4/2018 7:51:42 PM
18APR04-27.wiff	9536033RE	18091001	4/4/2018 8:07:16 PM
18APR04-28.wiff	9536034RE	18091001	4/4/2018 8:22:48 PM
18APR04-29.wiff	9520010DL	18092013	4/4/2018 8:38:22 PM
18APR04-30.wiff	CCV4_CAL3	N/A	4/4/2018 8:53:55 PM
18APR04-31.wiff	solvent	N/A	4/4/2018 9:09:28 PM
18APR04-32.wiff	LCS087010	18087010	4/4/2018 9:33:12 PM
18APR04-33.wiff	9525495MS	18087010	4/4/2018 9:48:46 PM
18APR04-34.wiff	9525496MSD	18087010	4/4/2018 10:04:19 PM
18APR04-35.wiff	solvent	N/A	4/4/2018 10:19:52 PM
18APR04-36.wiff	BLK087010	18087010	4/4/2018 10:35:25 PM
18APR04-37.wiff	9521906	18087010	4/4/2018 10:50:58 PM
18APR04-38.wiff	9521907	18087010	4/4/2018 11:06:31 PM
18APR04-39.wiff	9521908	18087010	4/4/2018 11:22:03 PM
18APR04-40.wiff	9521909	18087010	4/4/2018 11:37:33 PM
18APR04-41.wiff	9521910	18087010	4/4/2018 11:53:03 PM
18APR04-42.wiff	9521911	18087010	4/5/2018 12:08:33 AM
18APR04-43.wiff	CCV5_CAL4	N/A	4/5/2018 12:24:06 AM
18APR04-44.wiff	solvent	N/A	4/5/2018 12:39:39 AM
18APR04-45.wiff	9525490	18087010	4/5/2018 12:55:09 AM

APPROVED
By MCD at 5:55 pm, 4/6/18

REVIEWED
By uild at 4:00 pm, 4/19/18

Instrument Name: LM24743

18APR04-46.wiff	9525491	18087010	4/5/2018 1:10:39 AM
18APR04-47.wiff	9525492	18087010	4/5/2018 1:26:12 AM
18APR04-48.wiff	9525493	18087010	4/5/2018 1:41:45 AM
18APR04-49.wiff	9525494BKG	18087010	4/5/2018 1:57:18 AM
18APR04-50.wiff	CCV6_CAL5	N/A	4/5/2018 2:12:55 AM
18APR04-51.wiff	solvent	N/A	4/5/2018 2:28:28 AM
18APR04-52.wiff	LCSA093011	18093011	4/5/2018 2:44:01 AM
18APR04-53.wiff	LCSB093011	18093011	4/5/2018 2:59:34 AM
18APR04-54.wiff	LCSDA	18093011	4/5/2018 3:15:04 AM
18APR04-55.wiff	LCSDB	18093011	4/5/2018 3:30:34 AM
18APR04-56.wiff	solvent	N/A	4/5/2018 3:46:04 AM
18APR04-57.wiff	BLKA093011	18093011	4/5/2018 4:01:37 AM
18APR04-58.wiff	BLKB093011	18093011	4/5/2018 4:17:07 AM
18APR04-59.wiff	9535294	18093011	4/5/2018 4:32:37 AM
18APR04-60.wiff	9535295	18093011	4/5/2018 4:48:10 AM
18APR04-61.wiff	9535296	18093011	4/5/2018 5:03:43 AM
18APR04-62.wiff	9535297	18093011	4/5/2018 5:19:16 AM
18APR04-63.wiff	CCV7_CAL3	N/A	4/5/2018 5:34:46 AM
18APR04-64.wiff	solvent	N/A	4/5/2018 5:50:16 AM
18APR04-65.wiff	9535299	18093011	4/5/2018 6:05:46 AM
18APR04-66.wiff	9535300	18093011	4/5/2018 6:21:19 AM
18APR04-67.wiff	9535301	18093011	4/5/2018 6:36:52 AM
18APR04-68.wiff	9535303	18093011	4/5/2018 6:52:25 AM
18APR04-69.wiff	9535305	18093011	4/5/2018 7:07:58 AM
18APR04-70.wiff	9535306	18093011	4/5/2018 7:23:31 AM
18APR04-71.wiff	9535307	18093011	4/5/2018 7:39:04 AM
18APR04-72.wiff	9535309	18093011	4/5/2018 7:54:37 AM
18APR04-73.wiff	9535310	18093011	4/5/2018 8:10:10 AM
18APR04-74.wiff	9535311	18093011	4/5/2018 8:25:43 AM
18APR04-75.wiff	CCV8_CAL4	N/A	4/5/2018 8:41:13 AM
18APR04-76.wiff	solvent	N/A	4/5/2018 8:56:43 AM
18APR04-77.wiff	solvent	N/A	4/5/2018 9:12:14 AM
18APR04-78.wiff	solvent	N/A	4/5/2018 9:27:47 AM
18APR04-79.wiff	solvent	N/A	4/5/2018 9:43:17 AM

20 mM Ammonium Acetate in H2O: 782404051833A
Methanol: DT149-US

APPROVED
By MCD at 5:55 pm, 4/6/18

REVIEWED
By uild at 4:00 pm, 4/19/18

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LC-MS/MS Sample Run Log

Printed: 4/7/2018 10:59:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24743

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR03MCAL-09.wiff	MDL	N/A	4/3/2018 5:30:13 PM
18APR03MCAL-10.wiff	CAL1	N/A	4/3/2018 5:45:46 PM
18APR03MCAL-11.wiff	CAL2	N/A	4/3/2018 6:01:16 PM
18APR03MCAL-12.wiff	CAL3	N/A	4/3/2018 6:16:46 PM
18APR03MCAL-13.wiff	CAL4	N/A	4/3/2018 6:32:19 PM
18APR03MCAL-14.wiff	CAL5	N/A	4/3/2018 6:47:49 PM
18APR03MCAL-15.wiff	CAL6	N/A	4/3/2018 7:03:19 PM
18APR03MCAL-16.wiff	CAL7	N/A	4/3/2018 7:18:49 PM
18APR03MCAL-17.wiff	Instrument Blank	N/A	4/3/2018 7:34:19 PM
18APR03MCAL-18.wiff	ICV	N/A	4/3/2018 7:49:49 PM
18APR03MCAL-19.wiff	L+B CAL3	N/A	4/3/2018 8:05:22 PM
18APR03MCAL-20.wiff	CCV1_CAL3	N/A	4/3/2018 8:20:55 PM
18APR05-01.wiff	CCV1_CAL3	N/A	4/5/2018 9:58:50 AM
18APR05-02.wiff	Instrument Blank	N/A	4/5/2018 10:14:20 AM
18APR05-03.wiff	LCS092009	18092009	4/5/2018 3:40:20 PM
18APR05-04.wiff	LCSDA	18092009	4/5/2018 3:55:50 PM
18APR05-05.wiff	Solvent	NA	4/5/2018 4:11:20 PM
18APR05-06.wiff	BLK092009	18092009	4/5/2018 4:26:53 PM
18APR05-07.wiff	9535292	18092009	4/5/2018 4:42:26 PM
18APR05-08.wiff	9535293	18092009	4/5/2018 4:57:59 PM
18APR05-09.wiff	9535320	18092009	4/5/2018 5:13:29 PM
18APR05-10.wiff	9535321	18092009	4/5/2018 5:29:02 PM
18APR05-11.wiff	9535322	18092009	4/5/2018 5:44:32 PM
18APR05-12.wiff	9536665	18092009	4/5/2018 6:00:05 PM
18APR05-13.wiff	9536666	18092009	4/5/2018 6:15:38 PM
18APR05-14.wiff	CCV2_CAL4	NA	4/5/2018 6:31:08 PM
18APR05-15.wiff	Solvent	NA	4/5/2018 6:46:41 PM
18APR05-16.wiff	9536667	18092009	4/5/2018 7:02:11 PM
18APR05-17.wiff	9536674	18092009	4/5/2018 7:17:41 PM
18APR05-18.wiff	9536687	18092009	4/5/2018 7:33:11 PM
18APR05-19.wiff	9536688	18092009	4/5/2018 7:48:41 PM
18APR05-20.wiff	CCV3_CAL5	N/A	4/5/2018 8:04:11 PM
18APR05-21.wiff	solvent	N/A	4/5/2018 8:19:41 PM
18APR05-22.wiff	solvent	N/A	4/5/2018 8:35:14 PM
18APR05-23.wiff	solvent	N/A	4/5/2018 8:50:44 PM
18APR05-24.wiff	solvent	N/A	4/5/2018 9:06:14 PM
18APR05-25.wiff	CCV4_CAL1	N/A	4/5/2018 9:21:47 PM
18APR05-26.wiff	Instrument Blank	N/A	4/5/2018 9:37:21 PM
18APR05-27.wiff	LCS087009	18087009	4/5/2018 9:52:54 PM
18APR05-28.wiff	LCSDA	18087009	4/5/2018 10:08:27 PM
18APR05-29.wiff	9522075MS	18087009	4/5/2018 10:24:00 PM
18APR05-30.wiff	solvent	N/A	4/5/2018 10:39:33 PM
18APR05-31.wiff	BLK087009	18087009	4/5/2018 10:55:03 PM
18APR05-32.wiff	9522075BKG	18087009	4/5/2018 11:10:33 PM
18APR05-33.wiff	9522076	18087009	4/5/2018 11:26:06 PM
18APR05-34.wiff	9522077	18087009	4/5/2018 11:41:36 PM
18APR05-35.wiff	9522078	18087009	4/5/2018 11:57:06 PM
18APR05-36.wiff	9522079	18087009	4/6/2018 12:12:36 AM
18APR05-37.wiff	9522080	18087009	4/6/2018 12:28:06 AM
18APR05-38.wiff	CCV5_CAL2	N/A	4/6/2018 12:43:36 AM
18APR05-39.wiff	solvent	N/A	4/6/2018 12:59:09 AM
18APR05-40.wiff	9522081	18087009	4/6/2018 1:14:42 AM
18APR05-41.wiff	9522082	18087009	4/6/2018 1:30:15 AM
18APR05-42.wiff	9522083	18087009	4/6/2018 1:45:48 AM
18APR05-43.wiff	9522084	18087009	4/6/2018 2:01:21 AM
18APR05-44.wiff	9522085	18087009	4/6/2018 2:16:54 AM
18APR05-45.wiff	9522086	18087009	4/6/2018 2:32:27 AM

APPROVED
By MCD at 11:00 pm, 4/7/18

Instrument Name: LM24743

18APR05-46.wiff	9522087	18087009	4/6/2018 2:48:00 AM
18APR05-47.wiff	9522088	18087009	4/6/2018 3:03:33 AM
18APR05-48.wiff	9522089	18087009	4/6/2018 3:19:06 AM
18APR05-49.wiff	9522090	18087009	4/6/2018 3:34:36 AM
18APR05-50.wiff	CCV6_CAL3	N/A	4/6/2018 3:50:06 AM
18APR05-51.wiff	solvent	N/A	4/6/2018 4:05:39 AM
18APR05-52.wiff	9522091	18087009	4/6/2018 4:21:12 AM
18APR05-53.wiff	9522092	18087009	4/6/2018 4:36:42 AM
18APR05-54.wiff	9522093	18087009	4/6/2018 4:52:12 AM
18APR05-55.wiff	9522094	18087009	4/6/2018 5:07:42 AM
18APR05-56.wiff	CCV7_CAL1	N/A	4/6/2018 5:23:12 AM
18APR05-57.wiff	Instrument Blank	N/A	4/6/2018 5:38:42 AM
18APR05-58.wiff	MSMODX1833L	N/A	4/6/2018 5:54:15 AM
18APR05-59.wiff	solvent	N/A	4/6/2018 6:09:46 AM
18APR05-60.wiff	solvent	N/A	4/6/2018 6:25:18 AM
18APR05-61.wiff	solvent	N/A	4/6/2018 6:40:51 AM
18APR05-62.wiff	solvent	N/A	4/6/2018 6:56:24 AM
18APR05-63.wiff	solvent	N/A	4/6/2018 7:11:54 AM
18APR05-64.wiff	solvent	N/A	4/6/2018 7:27:24 AM
18APR05-65.wiff	solvent	N/A	4/6/2018 7:42:57 AM
18APR05-66.wiff	solvent	N/A	4/6/2018 7:58:30 AM

20 mM Ammonium Acetate in H2O: 782404051833A
Methanol: DT149-US

APPROVED
By MCD at 11:00 pm, 4/7/18

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LC-MS/MS Sample Run Log

Printed: 4/11/2018 4:52:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name:

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR10-01.wiff	solvent	N/A	4/10/2018 8:28:12 AM
18APR10-02.wiff	solvent	N/A	4/10/2018 8:43:50 AM
18APR10-03.wiff	CCV1_CAL3	N/A	4/10/2018 8:59:23 AM
18APR10-04.wiff	solvent	N/A	4/10/2018 9:14:53 AM
18APR10-05.wiff	9536666RE	18092009	4/10/2018 9:30:26 AM
18APR10-06.wiff	9536674RE	18092009	4/10/2018 9:45:59 AM
18APR10-07.wiff	9521907RE	18087010	4/10/2018 10:01:32 AM
18APR10-08.wiff	9525494DL	18087010	4/10/2018 10:17:02 AM
18APR10-09.wiff	9535294DL	18093011	4/10/2018 10:32:35 AM
18APR10-10.wiff	9535295DL	18093011	4/10/2018 10:48:08 AM
18APR10-11.wiff	9535296DL	18093011	4/10/2018 11:03:39 AM
18APR10-12.wiff	9535297DL	18093011	4/10/2018 11:19:12 AM
18APR10-13.wiff	9535297DL2	18093011	4/10/2018 11:34:41 AM
18APR10-14.wiff	9535299DL	18093011	4/10/2018 11:50:14 AM
18APR10-15.wiff	CCV2_CAL4	N/A	4/10/2018 12:05:45 PM
18APR10-16.wiff	solvent	N/A	4/10/2018 12:21:17 PM
18APR10-17.wiff	9535300DL	18093011	4/10/2018 12:36:51 PM
18APR10-18.wiff	9535301DL	18093011	4/10/2018 12:52:21 PM
18APR10-19.wiff	9535301DL2	18093011	4/10/2018 1:07:51 PM
18APR10-20.wiff	9535303DL	18093011	4/10/2018 1:23:24 PM
18APR10-21.wiff	9535303DL2	18093011	4/10/2018 1:38:57 PM
18APR10-22.wiff	9535305DL	18093011	4/10/2018 1:54:33 PM
18APR10-23.wiff	9535306DL	18093011	4/10/2018 2:10:06 PM
18APR10-24.wiff	9535307DL	18093011	4/10/2018 2:25:39 PM
18APR10-25.wiff	9535307DL2	18093011	4/10/2018 2:41:12 PM
18APR10-26.wiff	9535309DL	18093011	4/10/2018 2:56:45 PM
18APR10-27.wiff	CCV3_CAL5	N/A	4/10/2018 3:12:15 PM
18APR10-28.wiff	solvent	N/A	4/10/2018 3:27:45 PM
18APR10-29.wiff	9535310DL	18093011	4/10/2018 3:43:18 PM
18APR10-30.wiff	9535311DL	18093011	4/10/2018 3:58:48 PM
18APR10-31.wiff	9535311DL2	18093011	4/10/2018 4:14:18 PM
18APR10-32.wiff	LCS094018	18094018	4/10/2018 4:29:48 PM
18APR10-33.wiff	9536677MS	18094018	4/10/2018 4:45:21 PM
18APR10-34.wiff	9536678MSD	18094018	4/10/2018 5:00:55 PM
18APR10-35.wiff	solvent	N/A	4/10/2018 5:16:27 PM
18APR10-36.wiff	BLK094018	18094018	4/10/2018 5:31:57 PM
18APR10-37.wiff	9535298DL	18094018	4/10/2018 5:47:30 PM
18APR10-38.wiff	9535302DL	18094018	4/10/2018 6:03:03 PM
18APR10-39.wiff	9535304DL	18094018	4/10/2018 6:18:36 PM
18APR10-40.wiff	CCV4_CAL3	N/A	4/10/2018 6:34:09 PM
18APR10-41.wiff	solvent	N/A	4/10/2018 6:49:39 PM
18APR10-42.wiff	9535308	18094018	4/10/2018 7:05:09 PM
18APR10-43.wiff	9535313	18094018	4/10/2018 7:20:39 PM
18APR10-44.wiff	9535326	18094018	4/10/2018 7:36:09 PM
18APR10-45.wiff	9536661	18094018	4/10/2018 7:51:39 PM
18APR10-46.wiff	9536664	18094018	4/10/2018 8:07:09 PM
18APR10-47.wiff	9536670	18094018	4/10/2018 8:22:39 PM
18APR10-48.wiff	9536671	18094018	4/10/2018 8:38:09 PM
18APR10-49.wiff	9536676	18094018	4/10/2018 8:53:39 PM
18APR10-50.wiff	9536681	18094018	4/10/2018 9:09:12 PM
18APR10-51.wiff	9536684	18094018	4/10/2018 9:24:45 PM
18APR10-52.wiff	CCV5_CAL4	N/A	4/10/2018 9:40:18 PM
18APR10-53.wiff	solvent	N/A	4/10/2018 9:55:51 PM
18APR10-54.wiff	9536686	18094018	4/10/2018 10:11:25 PM
18APR10-55.wiff	9536694	18094018	4/10/2018 10:26:55 PM
18APR10-56.wiff	9535297DL3	18093011	4/10/2018 10:42:28 PM
18APR10-57.wiff	9535303DL3	18093011	4/10/2018 10:57:58 PM

APPROVED
By JPT at 4:54 pm, 4/11/18

REVIEWED
By uild at 5:13 pm, 4/19/18

Instrument Name:

18APR10-58.wiff	9535307DL3	18093011	4/10/2018 11:13:31 PM
18APR10-59.wiff	9535311DL3	18093011	4/10/2018 11:29:01 PM
18APR10-60.wiff	CCV6_CAL5	N/A	4/10/2018 11:44:34 PM

20mM Ammonium Acetate: 782404091833A
Methanol: Honeywell DT493-US

APPROVED
By JPT at 4:54 pm, 4/11/18

REVIEWED
By uild at 5:13 pm, 4/19/18

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LC-MS/MS Sample Run Log

Printed: 4/19/2018 11:19:00 AM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24743

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR18-01.wiff	solvent	N/A	4/18/2018 8:26:47 AM
18APR18-02.wiff	solvent	N/A	4/18/2018 8:42:20 AM
18APR18-03.wiff	solvent	N/A	4/18/2018 8:57:53 AM
18APR18-04.wiff	solvent	N/A	4/18/2018 9:13:26 AM
18APR18-05.wiff	CCV1_CAL3	N/A	4/18/2018 9:28:59 AM
18APR18-06.wiff	solvent	N/A	4/18/2018 9:44:29 AM
18APR18-07.wiff	LCS102019	18102019	4/18/2018 9:59:59 AM
18APR18-08.wiff	9536677MS	18102019	4/18/2018 10:15:29 AM
18APR18-09.wiff	9536678MSD	18102019	4/18/2018 10:30:59 AM
18APR18-10.wiff	solvent	N/A	4/18/2018 10:46:32 AM
18APR18-11.wiff	BLK102019	18102019	4/18/2018 11:02:05 AM
18APR18-12.wiff	9535298	18102019	4/18/2018 11:17:38 AM
18APR18-13.wiff	9535302	18102019	4/18/2018 11:33:08 AM
18APR18-14.wiff	9535304	18102019	4/18/2018 11:48:41 AM
18APR18-15.wiff	9535313	18102019	4/18/2018 12:04:11 PM
18APR18-16.wiff	9535326	18102019	4/18/2018 12:19:41 PM
18APR18-17.wiff	9536661	18102019	4/18/2018 12:35:11 PM
18APR18-18.wiff	CCV2_CAL4	N/A	4/18/2018 12:50:44 PM
18APR18-19.wiff	solvent	N/A	4/18/2018 1:06:14 PM
18APR18-20.wiff	9536664	18102019	4/18/2018 1:21:47 PM
18APR18-21.wiff	9536670	18102019	4/18/2018 1:37:20 PM
18APR18-22.wiff	9536671	18102019	4/18/2018 1:52:50 PM
18APR18-23.wiff	9536676	18102019	4/18/2018 2:08:20 PM
18APR18-24.wiff	9536681	18102019	4/18/2018 2:23:50 PM
18APR18-25.wiff	9536684	18102019	4/18/2018 2:39:20 PM
18APR18-26.wiff	9536686	18102019	4/18/2018 2:54:53 PM
18APR18-27.wiff	9536694	18102019	4/18/2018 3:10:23 PM
18APR18-28.wiff	9536677MSDL	18102019	4/18/2018 3:25:53 PM
18APR18-29.wiff	9536678MSDDL	18102019	4/18/2018 3:41:23 PM
18APR18-30.wiff	CCV3_CAL5	N/A	4/18/2018 3:56:53 PM
18APR18-31.wiff	solvent	N/A	4/18/2018 4:12:26 PM
18APR18-32.wiff	9535298DL	18102019	4/18/2018 4:27:56 PM
18APR18-33.wiff	9535302DL	18102019	4/18/2018 4:43:29 PM
18APR18-34.wiff	9535304DL	18102019	4/18/2018 4:59:02 PM
18APR18-35.wiff	9535313DL	18102019	4/18/2018 5:14:35 PM
18APR18-36.wiff	9535326DL	18102019	4/18/2018 5:30:05 PM
18APR18-37.wiff	9536661DL	18102019	4/18/2018 5:45:35 PM
18APR18-38.wiff	9536664DL	18102019	4/18/2018 6:01:05 PM
18APR18-39.wiff	9536670DL	18102019	4/18/2018 6:16:35 PM
18APR18-40.wiff	9536671DL	18102019	4/18/2018 6:32:05 PM
18APR18-41.wiff	9536676DL	18102019	4/18/2018 6:47:35 PM
18APR18-42.wiff	CCV4_CAL3	N/A	4/18/2018 7:03:08 PM
18APR18-43.wiff	solvent	N/A	4/18/2018 7:18:41 PM
18APR18-44.wiff	9536681DL	18102019	4/18/2018 7:34:14 PM
18APR18-45.wiff	9536684DL	18102019	4/18/2018 7:49:44 PM
18APR18-46.wiff	9536686DL	18102019	4/18/2018 8:05:17 PM
18APR18-47.wiff	9536694DL	18102019	4/18/2018 8:20:50 PM
18APR18-48.wiff	9536671DL2	18102019	4/18/2018 8:36:24 PM
18APR18-49.wiff	9536694DL	18102019	4/18/2018 8:51:57 PM
18APR18-50.wiff	CCV5_CAL4	N/A	4/18/2018 9:07:29 PM
18APR18-51.wiff	solvent	N/A	4/18/2018 9:23:00 PM
18APR18-52.wiff	LCS094018	18094018	4/18/2018 9:38:30 PM
18APR18-53.wiff	9536677MSDL	18094018	4/18/2018 9:54:00 PM
18APR18-54.wiff	9536678MSDDL	18094018	4/18/2018 10:09:29 PM
18APR18-55.wiff	solvent	N/A	4/18/2018 10:25:00 PM
18APR18-56.wiff	BLK094018	18094018	4/18/2018 10:40:33 PM
18APR18-57.wiff	9535308	18094018	4/18/2018 10:56:06 PM

APPROVED
By JPT at 11:21 am, 4/19/18

Instrument Name: LM24743

18APR18-58.wiff	9535308DL2	18094018	4/18/2018 11:11:36 PM
18APR18-59.wiff	9536676BKGDL	18094018	4/18/2018 11:27:06 PM
18APR18-60.wiff	CCV6_CAL5	N/A	4/18/2018 11:42:36 PM
18APR18-61.wiff	solvent	N/A	4/18/2018 11:58:06 PM
18APR18-62.wiff	9542917	18101008	4/19/2018 12:13:39 AM
18APR18-63.wiff	9542918	18101008	4/19/2018 12:29:12 AM
18APR18-64.wiff	9542919	18101008	4/19/2018 12:44:45 AM
18APR18-65.wiff	9542920	18101008	4/19/2018 1:00:18 AM
18APR18-66.wiff	9542921	18101008	4/19/2018 1:15:51 AM
18APR18-67.wiff	9542922	18101008	4/19/2018 1:31:24 AM
18APR18-68.wiff	9542923	18101008	4/19/2018 1:46:57 AM
18APR18-69.wiff	9542924	18101008	4/19/2018 2:02:27 AM
18APR18-70.wiff	9542925	18101008	4/19/2018 2:17:57 AM
18APR18-71.wiff	9542926	18101008	4/19/2018 2:33:27 AM
18APR18-72.wiff	CCV7_CAL3	N/A	4/19/2018 2:48:57 AM
18APR18-73.wiff	solvent	N/A	4/19/2018 3:04:30 AM
18APR18-74.wiff	9542927	18101008	4/19/2018 3:20:03 AM
18APR18-75.wiff	9542928	18101008	4/19/2018 3:35:33 AM
18APR18-76.wiff	9542929	18101008	4/19/2018 3:51:03 AM
18APR18-77.wiff	9542930	18101008	4/19/2018 4:06:36 AM
18APR18-78.wiff	9542931RE	18101008	4/19/2018 4:22:09 AM
18APR18-79.wiff	9542932RE	18101008	4/19/2018 4:37:42 AM
18APR18-80.wiff	9542933RE	18101008	4/19/2018 4:53:16 AM
18APR18-81.wiff	9542934RE	18101008	4/19/2018 5:08:48 AM
18APR18-82.wiff	CCV8_CAL4	N/A	4/19/2018 5:24:21 AM
18APR18-83.wiff	solvent	N/A	4/19/2018 5:39:51 AM

20mM Ammonium Acetate: 782404161833A
Methanol: Honeywell DT632-US

APPROVED
By JPT at 11:21 am, 4/19/18

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LC-MS/MS Sample Run Log

Printed: 4/19/2018 10:04:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24743

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR11MCAL-15.wiff	MDL	N/A	4/11/2018 11:18:32 PM
18APR11MCAL-16.wiff	CAL1	N/A	4/11/2018 11:34:06 PM
18APR11MCAL-17.wiff	CAL2	N/A	4/11/2018 11:49:39 PM
18APR11MCAL-18.wiff	CAL3	N/A	4/12/2018 12:05:11 AM
18APR11MCAL-19.wiff	CAL4	N/A	4/12/2018 12:20:42 AM
18APR11MCAL-20.wiff	CAL5	N/A	4/12/2018 12:36:12 AM
18APR11MCAL-21.wiff	CAL6	N/A	4/12/2018 12:51:42 AM
18APR11MCAL-22.wiff	CAL7	N/A	4/12/2018 1:07:12 AM
18APR11MCAL-23.wiff	Instrument Blank	N/A	4/12/2018 1:22:45 AM
18APR11MCAL-24.wiff	ICV	N/A	4/12/2018 1:38:18 AM
18APR11MCAL-25.wiff	L+B CAL3	N/A	4/12/2018 1:53:51 AM
18APR11MCAL-26.wiff	CCV1_CAL3	N/A	4/12/2018 2:09:24 AM
18APR19-01.wiff	solvent	N/A	4/19/2018 5:55:24 AM
18APR19-02.wiff	solvent	N/A	4/19/2018 6:10:57 AM
18APR19-03.wiff	solvent	N/A	4/19/2018 6:26:30 AM
18APR19-04.wiff	solvent	N/A	4/19/2018 6:42:03 AM
18APR19-05.wiff	CCV1_CAL3	N/A	4/19/2018 6:57:37 AM
18APR19-06.wiff	solvent	N/A	4/19/2018 7:13:09 AM
18APR19-07.wiff	LCS106004	18106004	4/19/2018 7:28:43 AM
18APR19-08.wiff	LCSDA	18106004	4/19/2018 7:44:15 AM
18APR19-09.wiff	LCS104002	18104002	4/19/2018 7:59:48 AM
18APR19-10.wiff	LCSDA	18104002	4/19/2018 8:15:19 AM
18APR19-11.wiff	solvent	N/A	4/19/2018 8:30:51 AM
18APR19-12.wiff	BLK106004	18106004	4/19/2018 8:46:21 AM
18APR19-13.wiff	BLK104002	18104002	4/19/2018 9:01:51 AM
18APR19-14.wiff	9557790	18106004	4/19/2018 9:17:21 AM
18APR19-15.wiff	9557791	18106004	4/19/2018 9:32:51 AM
18APR19-16.wiff	9551241	18104002	4/19/2018 9:48:21 AM
18APR19-17.wiff	9551242	18104002	4/19/2018 10:03:51 AM
18APR19-18.wiff	CCV2_CAL4	N/A	4/19/2018 10:19:22 AM
18APR19-19.wiff	solvent	N/A	4/19/2018 10:34:52 AM
18APR19-20.wiff	9535308DLRE	18094018	4/19/2018 10:50:25 AM
18APR19-21.wiff	9535308DL2RE	18094018	4/19/2018 11:05:58 AM
18APR19-23.wiff	solvent	N/A	4/19/2018 11:27:05 AM
18APR19-24.wiff	solvent	N/A	4/19/2018 11:42:39 AM
18APR19-25.wiff	solvent	N/A	4/19/2018 11:58:15 AM
18APR19-26.wiff	9535308RE	18094018	4/19/2018 12:13:48 PM
18APR19-27.wiff	9535308DL	18094018	4/19/2018 12:29:18 PM
18APR19-28.wiff	9536676BKGDL	18094018	4/19/2018 12:44:51 PM
18APR19-29.wiff	CCV3_CAL5	N/A	4/19/2018 1:00:24 PM
18APR19-30.wiff	solvent	N/A	4/19/2018 1:15:54 PM
18APR19-31.wiff	9536677MSDL2	18102019	4/19/2018 1:31:27 PM
18APR19-32.wiff	9536678MSDDL2	18102019	4/19/2018 1:47:00 PM
18APR19-33.wiff	9535298DL	18102019	4/19/2018 2:02:33 PM
18APR19-34.wiff	9535302DL	18102019	4/19/2018 2:18:06 PM
18APR19-35.wiff	9535326DL	18102019	4/19/2018 2:33:39 PM
18APR19-36.wiff	9536664DL	18102019	4/19/2018 2:49:09 PM
18APR19-37.wiff	9536676DL	18102019	4/19/2018 3:04:40 PM
18APR19-38.wiff	CCV4_CAL3	N/A	4/19/2018 3:20:09 PM
18APR19-39.wiff	solvent	N/A	4/19/2018 3:35:42 PM
18APR19-40.wiff	9542917RE	18101008	4/19/2018 3:51:16 PM
18APR19-41.wiff	9542918RE	18101008	4/19/2018 4:06:46 PM
18APR19-42.wiff	9542919RE	18101008	4/19/2018 4:22:18 PM
18APR19-43.wiff	9542920RE	18101008	4/19/2018 4:37:52 PM
18APR19-44.wiff	9542921RE	18101008	4/19/2018 4:53:25 PM
18APR19-45.wiff	9542922RE	18101008	4/19/2018 5:08:59 PM
18APR19-46.wiff	9542923RE	18101008	4/19/2018 5:24:34 PM

APPROVED
By MCD at 10:04 pm, 4/19/18

Instrument Name: LM24743

18APR19-47.wiff	9542924RE	18101008	4/19/2018 5:40:07 PM
18APR19-48.wiff	9542925RE	18101008	4/19/2018 5:55:40 PM
18APR19-49.wiff	9542927RE	18101008	4/19/2018 6:11:13 PM
18APR19-50.wiff	CCV5_CAL4	N/A	4/19/2018 6:26:46 PM
18APR19-51.wiff	solvent	N/A	4/19/2018 6:42:16 PM
18APR19-52.wiff	9542928RE	18101008	4/19/2018 6:57:46 PM
18APR19-53.wiff	9542929RE	18101008	4/19/2018 7:13:19 PM
18APR19-54.wiff	9542930RE	18101008	4/19/2018 7:28:49 PM
18APR19-55.wiff	CCV6_CAL5	N/A	4/19/2018 7:44:19 PM
18APR19-56.wiff	solvent	N/A	4/19/2018 7:59:49 PM

20 mM Ammonium Acetate in H2O: 782404181833A
Methanol: DT632-US

APPROVED
By MCD at 10:04 pm, 4/19/18

Organic Extraction Batchlog Assigned to: 9213 Pamela Rothharpt Reviewed by: MCD 7824 Start Date: 4/3/18 Start time: 9:30

18093011 Tech 1: PJR9213 Tech 2: _____

Analyses on Batch: PFAS in Soil by LC/MS/MS

Dept: 33 Prep Analysis: 14090 PFAS Solid Prep

Port #	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
	BLANKA	BLK093011	1.00	SSMODX1833W	.05			1ml.	20		
	BLANKB	BLK093011	1.00	SSMODX1833W	.05						wipe
	LCSA	LCS093011	1.00	SSMODX1833W	.05	MSMODX1833K	.04				
	LCSB	LCS093011	1.00	SSMODX1833W	.05	MSMODX1833K	.04				wipe
	LCSDA	LCSD093011	1.00	SSMODX1833W	.05	MSMODX1833K	.04				
	LCSDB	LCSD093011	1.00	SSMODX1833W	.05	MSMODX1833K	.04	↓	→		wipe

Spike Solutions: Witness: MSC426157 Instrument: LW24743

MSMODX1833K PFAS 537 Native Spike

SSMODX1833W PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18APR03M00/18APR04 & 18APR09M00/18APR10

Port#		Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
	1	9535294	81316	1.00	SSMODX1833W	.05	1ml.	20	1239	D100	14027	04/10/2018	S
	2	9535295	81317	1.00	SSMODX1833W	.05					14027	04/10/2018	S
	3	9535296	81318	1.00	SSMODX1833W	.05					14027	04/10/2018	S
	4	9535297	81319	1.00	SSMODX1833W	.05				D10 DF1000	14027	04/10/2018	S
	5	9535299	81321	1.00	SSMODX1833W	.05					14027	04/10/2018	S
	6	9535300	81322	1.00	SSMODX1833W	.05					14027	04/10/2018	S
	7	9535301	81323	1.00	SSMODX1833W	.05					14027	04/10/2018	S
	8	9535303	81325	1.00	SSMODX1833W	.05				D10	14027	04/10/2018	S
	9	9535305	81327	1.00	SSMODX1833W	.05				D10, DF1000	14027	04/10/2018	S
	10	9535306	81328	1.00	SSMODX1833W	.05					14027	04/10/2018	S
	11	9535307	81329	1.00	SSMODX1833W	.05				D10, DF1000	14027	04/10/2018	S
	12	9535309	81331	1.00	SSMODX1833W	.05	↓	→	↓	→	14027	04/10/2018	S

ACP26543 4/3/18

Balance #	R10297104122	Sonic Bath ID	5800	N-evap	29 C	SPE Manifold	—	18093011

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

	13	9535310	81332		SSMODX1833W	.05	1mL	20	1239	D100	14027	04/10/2018	S
	14	9535311	81333		SSMODX1833W	.05	↓	↓	↓	↓ D10, D1000	14027	04/10/2018	S

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
1:1 MeOH:ACN	92130-031833A
Auto-pipette (dilutions)	P1000-3, P100-1
Auto-pipette (extract vialin	P1000-3
Internal Standard	IS180 9333B
Methanol	———
Sand	———
Syringe (IS)	PFAS 4
Syringe (MS)	PFAS 10
Syringe (SS)	PFAS 15

D10 prepared using 877 µL methanol (DT149-US), 100 µL sample, and 22.5 µL surrogate (SSMODX1833X). 400 µL scm internal std up 20 µL IS180933B.

D100 prepared using 965 µL methanol (DT149-US), 10 µL sample and 25 µL surrogate (SSMODX1833X). 400 µL scm internal std up 20 µL IS180933B.

MCD 7814 7/9/18

D1000 prepared using 877 µL methanol (DT149-US), 100 µL D100 scm, and 22.5 µL surrogate (SSMODX1833X). 400 µL scm internal std up 20 µL IS180933C.

MCD 7814 9/19/18

SBN08 Page 2247 of 2256

Organic Extraction Batchlog Assigned to: 26543 Anthony Polaski Reviewed by: MCD 7824 Start Date: 4/3/18 Start time: 17:00

18092009 Tech 1: ACP26543 Tech 2:

Analyses on Batch: PFAS in Water by LC/MS/MS

Dept: 33 Prep Analysis: 14091 PFAS Water Prep

Port#	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS amt (uL)	BC	Comments
1	BLANKA	BLK092009	250.00	SSMODX1833V	.025		—	1mL	20	7	
2	LCSA	LCS092009	↓	SSMODX1833V	.025	MSMODX1833K	.04	↓	↓	↓	
3	LCSDA	LCSD092009	↓	SSMODX1833V	.025	MSMODX1833K	.04	↓	↓	↓	

Spike Solutions: Witness: DDM25478 Instrument: LM24743

MSMODX1833K PFAS 537 Native Spike

SSMODX1833V PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18APR03MOD/18APR05

Port#	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
4	1 9535292	TB 8131	274.31	SSMODX1833V	.025	1mL	20	173b		14473	04/10/2018	S
5	2 9535293	FB 8131	268.86	SSMODX1833V	.025	↓	↓	173b		14473	04/10/2018	S
6	3 9535320	RB 8149	276.87	SSMODX1833V	.025	↓	↓	173b		14473	04/10/2018	S
7	4 9535321	RB 8149	273.63	SSMODX1833V	.025	↓	↓	173b		14473	04/10/2018	S
8	5 9535322	RB 8150	270.06	SSMODX1833V	.025	↓	↓	173b		14473	04/10/2018	S
9	6 9536665	FB N10-1	269.80	SSMODX1833V	.025	↓	↓	173b		14473	04/11/2018	S
10	7 9536666	TB N10-1	272.30	SSMODX1833V	.025	↓	↓	173b		14473	04/11/2018	S
11	8 9536667	RB N10-1	274.78	SSMODX1833V	.025	↓	↓	173b		14473	04/11/2018	S
12	9 9536674	EB 10-16	274.68	SSMODX1833V	.025	↓	↓	173b		14473	04/11/2018	S
1	10 9536687	FB 11-07	271.79	SSMODX1833V	.025	↓	↓	173b		14473	04/11/2018	S
2	11 9536688	TB 11-08	273.58	SSMODX1833V	.025	↓	↓	173b		14473	04/11/2018	S

SBN08 Page 2248 of 2256

Balance #	B629764122	SPE Manifold	1, 2	N-evap	25 C

RJR9213 4/4/18

18092009

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
0.3% NH4OH:MeOH	92130402 1833 A
1:1 ACN:MeOH	92130403 1833 A
Auto-pipette (dilutions)	——
Auto-pipette (extract vialin	P1000-3
Internal Standard	IS1809333B
Methanol	DT652-US
Milli-Q H2O	Hawe A223
SPE Cartridge #1	6387380-09
Sodium Thiosulfate	——
Syringe (IS)	PFAS 4
Syringe (MS)	PFAS 10
Syringe (SS)	PFAS 9
Trizma	——

Organic Extraction Batchlog Assigned to: 26543 Anthony Polaski Reviewed by: SPT12262 Start Date: 4/5/18 Start time: 16:00

18094018 Tech 1: ACP26543 Tech 2:

Not Reported except 9535308.

Analyses on Batch: PFAS in Soil by LC/MS/MS

Dept: 33 Prep Analysis: 14090 PFAS Solid Prep

Port#	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS amt (uL)	BC	Comments
	9536677MS	10-18	1.08	~~SSMODX1833X~~ (8*)	.05	MSMODX1833K	.04	1mL	20		Soil w/ D100 blue chips D1000
	9536678MSD	10-18	1.06	SSMODX1833X	.05	MSMODX1833K	.04	↓	↓		soil w/ D100 chips D1000
	BLANKA	BLK094018	1.00	SSMODX1833X	(3) ~~.025~~						
	LCSA	LCS094018	1.00	~~SSMODX1833X~~	.05	MSMODX1833K	.04	↓	↓		

(8) .05 ~~mL~~ ml DDM25478 4/5/18 DDM25478 4/5/18

Spike Solutions: Witness: DDM25478 Instrument: LM24743

MSMODX1833K PFAS 537 Native Spike

~~SSMODX1833X~~ (8*) PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18APR09 MOD / 18APR10 ; 18APR11MOD / 18APR18 ; 18APR19

Port#	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
	1 9535298	8132(	1.30	~~SSMODX1833K~~ (8*)	.05	1mL	20	170a	black dust D5000	14027 4/13/18	~~04/10/2018~~	S (8)
	2 9535302	8132(	1.36	SSMODX1833X	.05			170a	string chips D2000	14027	04/10/2018	S
	3 ~~9535304~~	8132(	1.00	SSMODX1833X	.05			170a	fuzz D1000	14027	04/10/2018	S
	4 9535308	8133(	0.47	SSMODX1833X	.05			170a	dust, limited D100 sample D1000	14027	04/10/2018	S
	5 9535313	8149	1.29	SSMODX1833X	.05			170a	dirt and rocks D1000	14027	04/10/2018	S
	6 9535326	8150(	1.21	SSMODX1833X	.05			170a	fuzz D1000	14027	~~04/10/2018~~	S
	7 9536661	N10-(	~~1.00~~ (3)	SSMODX1833X	.05			170a	thin brittle siding D1000	14027 4/16/18	~~04/11/2018~~	S
	8 9536664	N10-(	1.00	SSMODX1833X	.05			170a	bark D1000	14027	04/11/2018	S
	9 9536670	10-12	1.26	SSMODX1833X	.05			170a	leaves D1000	14027	04/11/2018	S
	10 9536671	10-13	1.41	SSMODX1833X	.05			170a	leather D100	14027	04/11/2018	S
	11 9536676	BKG 10-18	1.30	SSMODX1833X	.05			170a	soil w/ D100 blue chips D1000	14027	04/11/2018	S
	12 9536681	11-01	1.06	SSMODX1833X	.05			170a	dark chips D1000	14027	04/11/2018	S
	13 9536684	11-04	1.12	~~SSMODX1833X~~	.05	↓	↓	170a	greasy siding/insulation D1000	14027	~~04/11/2018~~	S
	~~14 9536686~~ (8)	~~11-04~~										

SBN08 Page 2250 of 2256

(3) 1.23g for amt(g) ACP26543 4/5/18

ACP26543 4/6/18 NE Vap Sonic Bath - 5800

(8) Date change mja 4/10/18

Balance #	B629764122	SPE Manifold		N-evap	25 C

18094018

DF = Dilution Factor FV = Final Volume Documented temps are NIST corrected.

Page 1 of 3

(8) Unnecessary Entry ACP26543 4/5/18

(8*) SSMODX1833W DDM25478 4/5/18 was used

Reduced volume used.

	14	9536686	FD 11-06	1.16	SSMODX1833X	.05	1ml.	2c	170a	dark chips D1600	14027	04/11/2018	S
	15	9536694	1114-	1.22	SSMODX1833X	.05	↓	↓	170a	insulation D100	14027	04/11/2018	S

SBN08 Page 2251 of 2256

Balance #		SPE Manifold		N-evap	C

18094018

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
1:1 MeOH:ACN	26543 0404 1833A
Auto-pipette (dilutions)	P1000-3 P100-1
Auto-pipette (extract vialin	P1000-3
Internal Standard	IS1809633A IS1809633C
Methanol	DT652-US
Sand	MKBW7349V
Syringe (IS)	PFAS 4
Syringe (MS)	PFAS 10
Syringe (SS)	PFAS 13

D100: 965µL MeOH (DT149-US) combined w/ 10µL sample extract and 25µL surrogate (SSMODX1833X) and vortexed to mix.

D1000: 877µL MeOH (DT149-US) combined w/ 100µL of D100 dilution and 22.5µL surrogate (SSMODX1833X) and vortexed to mix

D2000: 926µL MeOH (DT149-US) combined w/ 50µL of D100 dilution and 23.7µL surrogate (SSMODX1833X) and vortexed to mix

D5000: 955µL MeOH (DT149-US) combined w/ 20µL of D100 dilution and 24.5µL surrogate (SSMODX1833X) and vortexed to mix

③ JPT 12262 4/11/18

Prior to injection, 400µL of diluted extract is combined with 20µL internal (IS1809633C) and vortexed to mix.

JPT 12262 4/11/18

SBN08 Page 2252 of 2256

Organic Extraction Batchlog Assigned to: 375 Robert Brown Reviewed by: SPT12222 Start Date: 4-13-18 Start time: 10:30

18102019 Tech 1: RGB/375 Tech 2:

repeat

Analyses on Batch: PFAS in Soil by LC/MS/MS

Dept: 33 Prep Analysis: 14090 PFAS Solid Prep

Port #	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
	9536677MS	10-18	1.00	SSMODX1833Y	0.05	~~MSMODX1833L~~ (8)	.04	1mL	20	170a	Paint chips / Peat D5000
	9536678MSD	10-18	1.03	SSMODX1833Y	0.05	~~MSMODX1833L~~ (8)	.04	"	"	170a	Paint chips / Peat D5000
	BLANKA	BLK102019	1.00	SSMODX1833Y	.05	—					
	LCSA	LCS102019	1.00	SSMODX1833Y	.05	~~MSMODX1833L~~ (8)	.04	"	"		

(8) MSMODX1833M. PJR9213 4/13/18

Spike Solutions: Witness: PJR9213 Instrument: LM2H743

(8) ~~MSMODX1833L~~ PFAS 537 Native Spike

SSMODX1833Y PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18APR1MOD/18APR18 ; 18APR19

(3) RGB/375 4-13-18

Port#		Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	(3) Comments	Analyses	Due Date	Prio
	1	9535298 R	81320	1.00	SSMODX1833Y	.05	1mL	20	170a	~~Paint~~ Gravel D5000	14027	04/13/2018	S
	2	9535302 R	81324	1.04	SSMODX1833Y	.05	"	"	170a	Coal-like Gravel D5000	14027	04/13/2018	S
	3	9535304 R	81326	0.54	SSMODX1833Y	.05	"	"	170a	Foamy Insulation	14027	04/13/2018	S
	~~4~~	~~9535308 R~~	81330		~~SSMODX1833Y~~				170a	No remaining sample	14027	04/13/2018	S
	5	9535313 R	81491	1.05	SSMODX1833Y	.05	1mL	20	170a	Dry dust/dirt	14027	04/13/2018	S
	6	9535326 R	81504	1.01	SSMODX1833Y	.05	"	"	170a	Soil / dirt D5000	14027	04/13/2018	S
	7	9536661 R	N10-3	0.52	SSMODX1833Y	.05	"	"	170a	Insulation back	14027	04/16/2018	S
	8	9536664 R	N10-6	1.00	SSMODX1833Y	.05	"	"	170a	Dried mud D5000	14027	04/16/2018	S
	9	9536670 R	10-12	1.02	SSMODX1833Y	.05	"	"	170a	Paper/cardboard	14027	04/16/2018	S
	10	9536671 R	10-13	1.05	SSMODX1833Y	.05	"	"	170a	Adhesive backing D10	14027	04/16/2018	S
	11	9536676 R	BKG 10-18	1.07	SSMODX1833Y	.05	"	"	170a	Paint Chips, Peat D5000	14027	04/16/2018	S
	12	9536681 R	11-01	1.10	SSMODX1833Y	.05	"	"	170a	Soil	14027	04/16/2018	S
	13	9536684 R	11-04	1.02	SSMODX1833Y	.05	"	"	170a	Insulation Backing	14027	04/16/2018	S
	14	9536686 R	FD 11-06	1.04	SSMODX1833Y	.05	"	"	170a	Soil	14027	04/16/2018	S

Balance #	B629764122	Sonic Bath ID	5800	N-evap	C	SPE Manifold	—	18102019

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Reduced volume used

	15	9536694 R	1114-	1.02	SSMODX1833Y	.05	1 mL	20 µL	170a	Insulation DIO Backing	14027	04/16/2018	S

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
1:1 MeOH:ACN	26543041/1833A
Auto-pipette (dilutions)	P1000-7 + P100-1
Auto-pipette (extract vialin	P1000-3
Internal Standard	IS1804333
Methanol	DT632-US
Sand	MKBW7349V
Syringe (IS)	PFAS4
Syringe (MS)	PFAS10
Syringe (SS)	PFAS13

ENVI-Carb 95303

all extracts treated with 25mg loose ENVI-Carb, vortexed & centrifuged. Supernatant filtered through acrodisc 13mm; 0.2 µm GHP filter.

RLB/375 4-16-18

All samples (including MS & MSD) ran at initial D100s + D1000s.

D100s prepared using 965 µL methanol (DT632-US), 10 µL sample, and 25 µL surrogate (SSMODX18332). 400 µL internalized w/ 20 µL IS1804333.

D1000s prepared using 877 µL methanol (DT632-US), 100 µL sample (D100 soln), and 22.5 µL surrogate (SSMODX 18332.) 400 µL internalized w/ 20 µL IS1804333.

MCD 789 4/17/18

D10: 877µL of MeOH (DT632-US) combined w/ 100 µL of sample extract and 22.5µL of surrogate (SSMODX 18332), vortexed to mix. 400 µL of this solution internalized w/ 20µL IS1810633A. JPT 12262 4/18/18

D5000: 780 µL of MeOH (DT632-US) combined w/ 200 µL D1000 solution and 20µL surrogate (SSMODX 1833AA), vortexed to mix. 400 µL of this solution internalized w/ 20µL IS1810633B. JPT 12262 4/18/18

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LOQ/MDL Summary
PFAS Group

SDG: SBN08

Fraction: PFAS by LC/MS/MS

14027: 14 PFCs Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.20	0.60	ng/wipe
Perfluorononanoic acid	0.20	0.60	ng/wipe
Perfluorodecanoic acid	0.20	0.60	ng/wipe
Perfluoroundecanoic acid	0.20	0.60	ng/wipe
Perfluorododecanoic acid	0.20	0.60	ng/wipe
Perfluorotridecanoic acid	0.20	0.60	ng/wipe
Perfluorotetradecanoic acid	0.20	0.60	ng/wipe
Perfluorohexanoic acid	0.20	0.60	ng/wipe
Perfluoroheptanoic acid	0.20	0.60	ng/wipe
Perfluorobutanesulfonate	0.20	0.60	ng/wipe
Perfluorohexanesulfonate	0.20	0.60	ng/wipe
Perfluoro-octanesulfonate	0.30	0.90	ng/wipe
Perfluorobutanoic acid	0.20	0.60	ng/wipe
Perfluoropentanoic acid	0.20	0.60	ng/wipe

14473: 14 PFAS Compounds Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.3	1	ng/l
Perfluorononanoic acid	0.4	2	ng/l
Perfluorodecanoic acid	1	2	ng/l
Perfluoroundecanoic acid	0.4	2	ng/l
Perfluorododecanoic acid	0.3	1	ng/l
Perfluorotridecanoic acid	0.3	1	ng/l
Perfluorotetradecanoic acid	0.3	1	ng/l
Perfluorohexanoic acid	0.4	2	ng/l
Perfluoroheptanoic acid	0.3	1	ng/l
Perfluorobutanesulfonate	0.3	1	ng/l
Perfluorohexanesulfonate	0.4	2	ng/l
Perfluoro-octanesulfonate	0.4	2	ng/l
Perfluorobutanoic acid	2	6	ng/l
Perfluoropentanoic acid	2	6	ng/l

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CLIENT: C. T. Male Associates
SDG: SBN08

MOISTURE

SAMPLE NUMBERS:

Sample #	Sample Code

COMMENTS:

Method defined actions are taken for any failed matrix QC.

Laboratory Compliance Quality Control

Analysis Name	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max

Batch number: Sample number(s):

Sample Matrix Quality Control

Analysis Name	BKG Conc	DUP Conc	RPD	RPD Max

Batch number: Sample number(s):

* - Outside of specification
(1) - The result for one or both determinations was less than five times the LOQ.

Moisture Data Report

Batch #:

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)

B. SDG SBN09

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	Saint Gobain Vermont	Reviewed by:	BE 5/17/18
Sample Collection Dates:	3/29/18	Approved by:	THW
Job Number:	20167391.NBEN	Completion Date:	5/2018
Project Manager:	Meg Michell		
Laboratory:	ELLE	Applicable Sample No's (X)	Refer to Table 1 in the Quality Assurance Review

			Sample No.	Lab Control No.
Deliverable:	CLP (Full)	( )	SBN09	
	Level IV (Full)	(X)		
	Limited	( )		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail Check (√) if Yes or Footnote Letter for Comments Below					Problems Identified Check (√) if Yes or Footnote Letter for Comments Below					Support Documentation Attachments Check (√) if Yes or Footnote Letter for Comments Below				
	PFAS					PFAS					PFAS				
Holding Times	X										X				
Blank Analysis: Target Cmpds	X										X				
Sys Montr Cmps/Surrogates															
Matrix Spike/Matrix Spike Duplicate															
Blank Spike	X					X					X				
Duplicate Analysis (X) Field ( ) Lab	X										X				
Detection Limit/Sensitivity															
Qualitative Identification: Target Cmpds															
Qualitative Identification: TICs															
DFTPP & BFB Mass Tuning															
GC Instrument Performance															
Initial Calibrations	X										X				
Continuing Calibrations	X										X				
Quantitation of Results	X										X				
DDT/Endrin Breakdown															
Surrogate Retention Time Shifts															
Internal Standards Performance	X					X					X				
Resolution Check Standards															
Analytical Sequence	X										X				
Florisil Cartridge & GPC Calibration															
GC Column Agreement															
Condition Upon Receipt	X										X				
Percent Solids															
Others:															

Comments: _____

ENVIRONMENTAL STANDARDS

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample / batch ID	Contaminant	Concentration ug/L	Qualification limit	
						5×	10×
O	S	MB	18093014	PFBA	0.23	1.15	
O	S	EB	SG3a-EB01-180329	PFBA	0.26	1.3	
				PFOS	0.48	2.4	
				PFOA	2.8	14	
O	Aq	RB	SG3a-RB01-180329	PFOA	0.7	3.5	
O	Aq	RB	SG3a-RB02-180329	PFOA	0.6	3	
			All other SBN09 blanks	none			

1 - V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: PFC

2 - MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; RB = Rinse Blank

Notes: _____

** Columns G and H contains formulas

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Matrix: ◉ Aqueous ○ Non-a
Reporting Level: ◉ MDL ○ QL
Units: ng/wipe

PRECISION OBJECTIVES:
If Both Results ≥ 5 × Their QL, RPD ≤: 30
If Either Result < 5 × Its QL, Dif. ≤: 1.5 **× Highest QL**

Sample ID: SG3a-WP07-A23.0 **Duplicate Sample ID:** SG3a-FD01-180329

Analyte	Sample Concentration	Qual	QL	MDL	Duplicate Concentration	Qual	QL	MDL	Difference	RPD	Flag
PFOA	6900		60	20	70000		600	200	NA	164%	J

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:
SNB62

Sample Description: SG3a-WP06-STACK25.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 13:00
SDG#: SBN09-01

C. T. Male Associates
ELLE Sample #: WP 9535312
ELLE Group #: 1926079
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**8.3 B**	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**44**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**26**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**150**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**86**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**22**	2.0	6.0	10
14027	Perfluoro-octanesulfonate	1763-23-1	3.0 U	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**12,000**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**12**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**16**	2.0	6.0	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**8.6**	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**11**	2.0	6.0	10

Reporting limits were raised due to interference from the sample matrix.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample internal standard(s) and extraction standard(s) were outside the QC acceptance limits due to the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093014	04/06/2018 07:58	Jason W Knight	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093014	04/06/2018 08:13	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093014	04/03/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/11/2018 12:23:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/11/2018 12:21:37 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

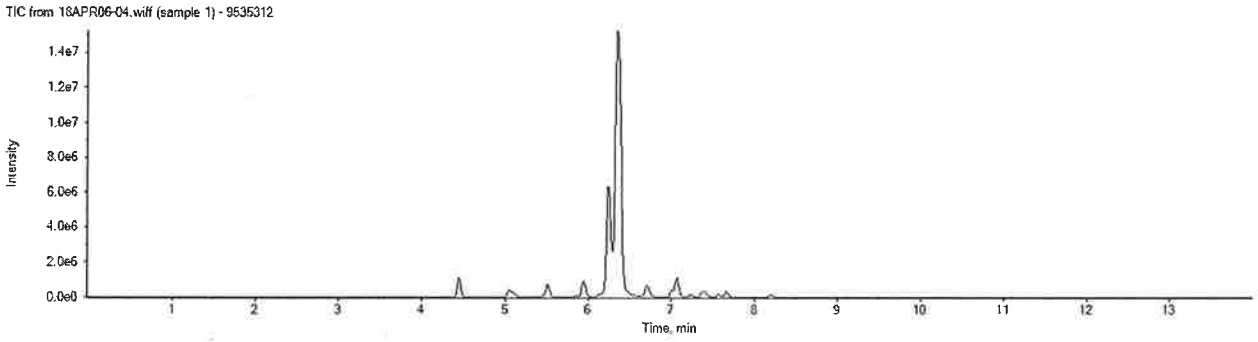
Analyte Quantitation Peak Table

Sample Name: 9535312 **Instrument Name:** LM24960 **File Name:** 18APR06-04.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	108521.1	A	13C4-PFBA	4.45	1530021.4	0.071	8.290
PFPeA	5.04	1.000	132905.5	M	13C5-PFPeA	5.04	1153483.1	0.115	11.897
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	686419.2	N/A	
PFHxA	5.51	1.000	955685.9	M	13C5-PFHxA	5.51	1255579.5	0.761	86.173
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	509656.5	N/A	
PFHpA	5.95	1.000	1507019.0	M	13C4-PFHpA	5.95	1000577.5	1.506	149.348
PFOA	6.36	1.000	44754476.7	M	13C8-PFOA	6.36	297438.7	150.466	14993.855
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.70	588107.8	N/A	
PFNA	6.73	1.000	214262.5	M	13C9-PFNA	6.73	853322.0	0.251	21.648
PFDA	7.07	1.000	528817.6	A	13C6-PFDA	7.07	1362506.0	0.388	43.816
PFUnDA	7.37	1.000	108957.8	A	13C7-PFUnDA	7.38	666468.5	0.163	11.342
PFDoDA	7.66	1.000	178252.9	A	13C2-PFDoDA	7.66	776144.7	0.230	25.710
PFTrDA	7.92	1.030	40882.3	A	13C2-PFDoDA	7.66	776144.7	0.053	8.552
PFTeDA	8.20	1.000	65302.1	M	13C2-PFTeDA	8.20	425310.1	0.154	16.058

Total Ion Chromatogram

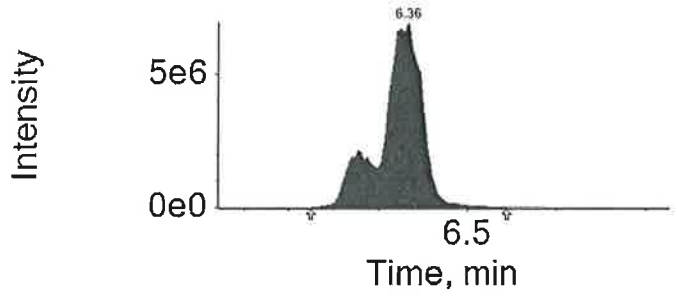


APPROVED
By JWK at 12:54 pm, 4/11/18

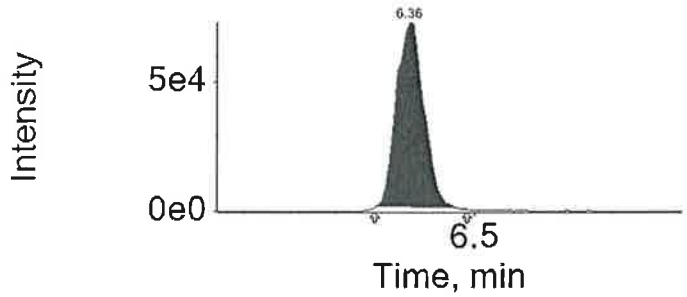
REVIEWED
By uild at 10:02 am, 4/12/18

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/11/2018 12:21:37 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

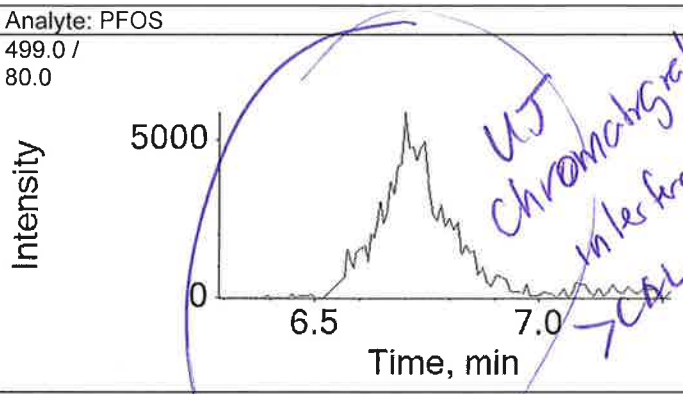
Analyte: PFOA
413.0 / 369.0



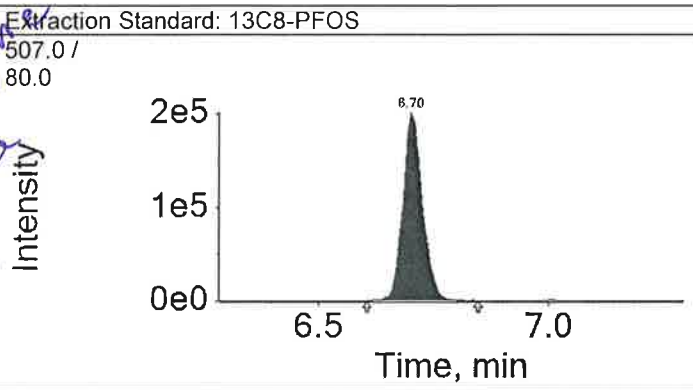
Extraction Standard: 13C8-PFOA
421.0 / 376.0



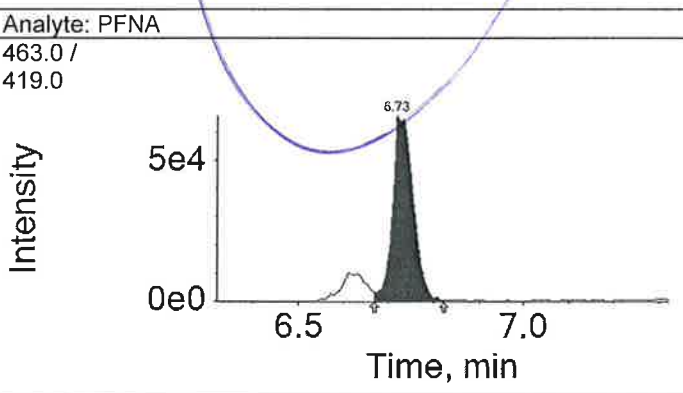
Analyte: PFOS
499.0 / 80.0



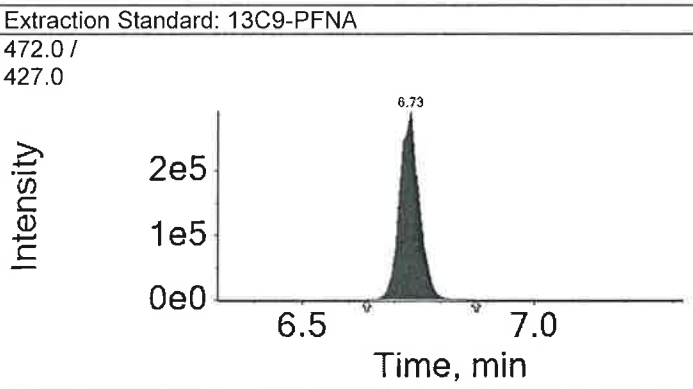
Extraction Standard: 13C8-PFOS
507.0 / 80.0



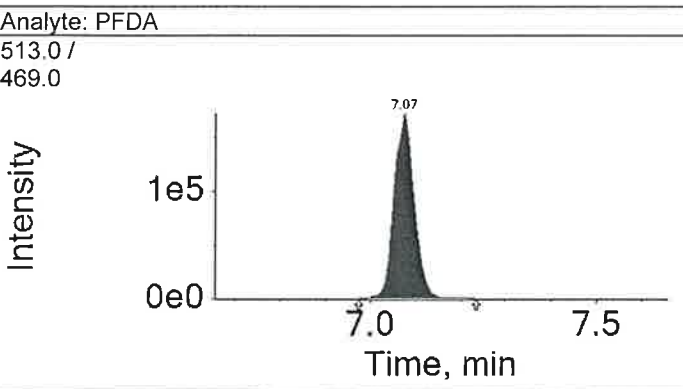
Analyte: PFNA
463.0 / 419.0



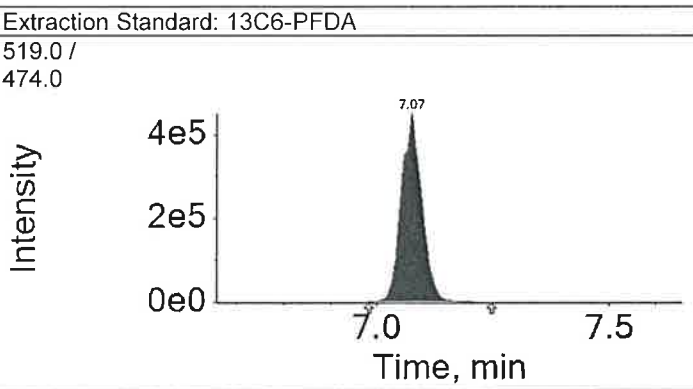
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



UT Chromatographer's interference - CAL!

APPROVED
By JWK at 12:54 pm, 4/11/18

REVIEWED

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LC-MS/MS Analysis Report

Printed: 4/11/2018 12:23:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/11/2018 12:21:37 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

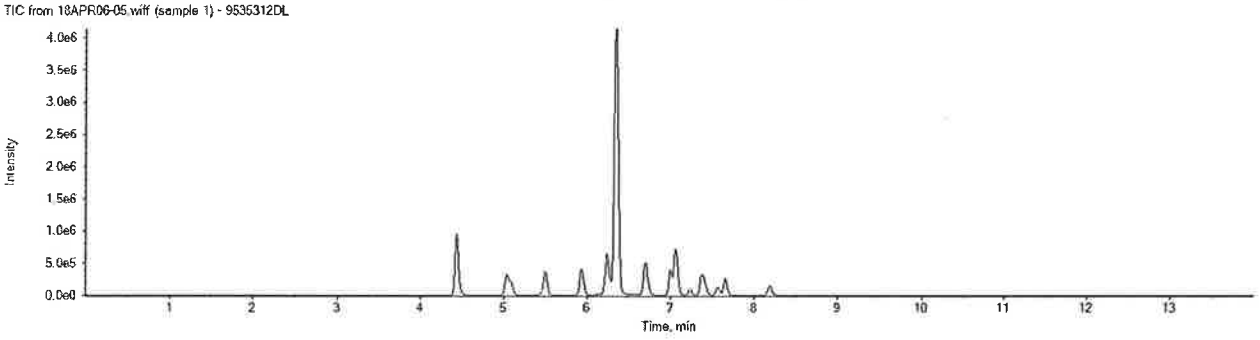
Analyte Quantitation Peak Table

Sample Name: 9535312DL **Instrument Name:** LM24960 **File Name:** 18APR06-05.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1313401.3	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.04	1000192.1	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.09	585627.2	N/A	
PFHxA	5.50	1.000	57891.4	M	13C5-PFHxA	5.50	1085012.3	0.053	60.406
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	454221.9	N/A	
PFHpA	5.94	1.000	99290.7	M	13C4-PFHpA	5.94	825972.5	0.120	119.199
PFOA	6.35	1.000	7738961.9	M	13C8-PFOA	6.35	645966.4	11.980	11938.425
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.70	517374.1	N/A	
PFNA	6.72	1.000	13985.3	M	13C9-PFNA	6.72	641549.7	0.022	18.794
PFDA	7.06	1.000	32262.0	M	13C6-PFDA	7.06	1127430.4	0.029	32.305
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.37	659081.7	N/A	
PFDoDA	7.65	1.000	15462.2	M	13C2-PFDoDA	7.65	790510.2	0.020	21.896
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.65	790510.2	N/A	
PFTeDA	8.19	1.000	6101.1	A	13C2-PFTeDA	8.19	494072.5	0.012	12.915

Total Ion Chromatogram



APPROVED
By JWK at 12:54 pm, 4/11/18

REVIEWED
By uild at 10:02 am, 4/12/18

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Analysis Report

Sample Description: SG3a-BL05-A22.5 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 12:55
SDG#: SBN09-02

C. T. Male Associates
ELLE Sample #: SW 9535313
ELLE Group #: 1926079
Matrix: Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	19 U	19	57	100
14027	**Perfluorobutanoic acid**	375-22-4	**61**	19	57	100
14027	**Perfluorodecanoic acid**	335-76-2	**700**	19	57	100
14027	**Perfluorododecanoic acid**	307-55-1	**450**	19	57	100
14027	**Perfluoroheptanoic acid**	375-85-9	**1,100**	19	57	100
14027	Perfluorohexanesulfonate	355-46-4	19 U	19	57	100
14027	**Perfluorohexanoic acid**	307-24-4	**360**	19	57	100
14027	**Perfluorononanoic acid**	375-95-1	**240**	19	57	100
14027	Perfluoro-octanesulfonate	1763-23-1	29 U	29	86	100
14027	**Perfluorooctanoic acid**	335-67-1	**100,000**	190	570	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**75**	19	57	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**350**	19	57	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**190**	19	57	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**270**	19	57	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 12:04	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 17:14	Joshua P Trost	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18102019	04/13/2018 10:30	Robert Brown	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

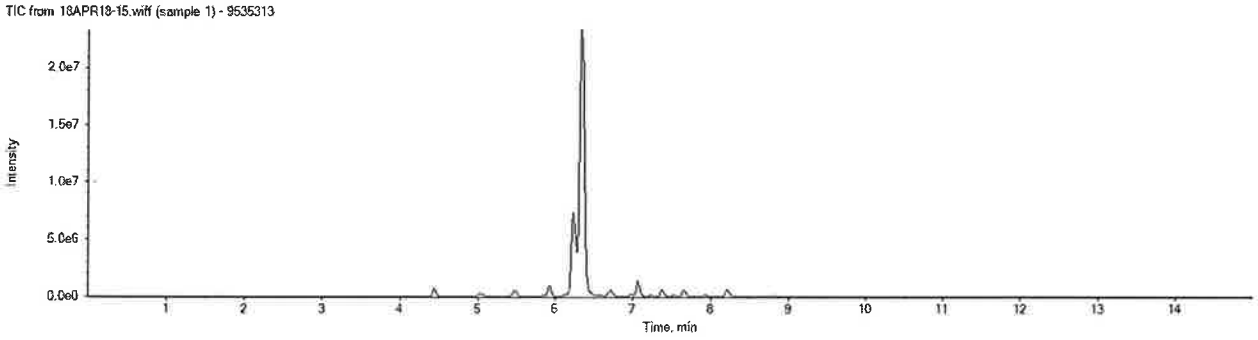
Analyte Quantitation Peak Table

Sample Name: 9535313 **Instrument Name:** LM24743 **File Name:** 18APR18-15.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.05000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.43	1.000	45953.8	M	13C4-PFBA	4.44	854548.6	0.054	60.989
PFPeA	5.02	1.000	58969.9	M	13C5-PFPeA	5.02	729443.4	0.081	75.492
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	355075.3	N/A	
PFHxA	5.48	1.000	436471.3	M	13C5-PFHxA	5.49	1272825.1	0.343	356.646
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.92	314239.1	N/A	
PFHpA	5.93	1.000	1520873.5	A	13C4-PFHpA	5.93	1248043.3	1.219	1072.909
PFOA	6.35	1.000	75518135.2	M	13C8-PFOA	6.34	1008191.1	74.905	77645.157
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.70	300466.6	N/A	
PFNA	6.72	1.000	317810.2	A	13C9-PFNA	6.72	1100817.6	0.289	239.398
PFDA	7.07	1.000	969287.3	A	13C6-PFDA	7.07	1442202.6	0.672	702.689
PFUnDA	7.37	1.000	336531.9	A	13C7-PFUnDA	7.37	942303.0	0.357	268.808
PFDoDA	7.66	1.000	584384.2	A	13C2-PFDoDA	7.66	1318311.7	0.443	450.760
PFTrDA	7.94	1.040	226644.4	A	13C2-PFDoDA	7.66	1318311.7	0.172	189.628
PFTeDA	8.22	1.000	494250.3	A	13C2-PFTeDA	8.22	1624230.1	0.304	354.295

Total Ion Chromatogram



APPROVED
By JPT at 3:31 pm, 4/19/18

REVIEWED
By umar at 10:39 am, 4/23/18

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

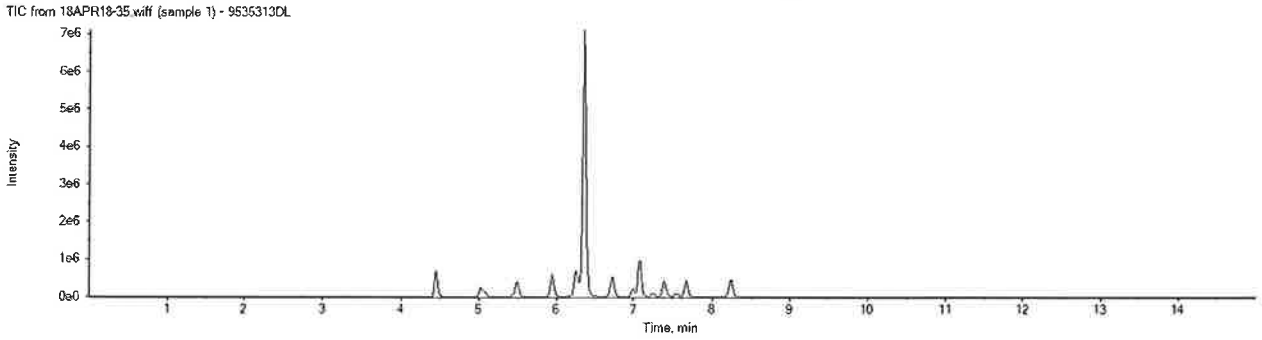
Analyte Quantitation Peak Table

Sample Name: 9535313DL **Instrument Name:** LM24743 **File Name:** 18APR18-35.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.05000	1.000	1000.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.45	1.000	7094.4	M	13C4-PFBA	4.45	882558.3	0.008	91.168
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.03	748753.3	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.08	379356.0	N/A	
PFHxA	5.50	1.000	46687.8	M	13C5-PFHxA	5.50	1241371.6	0.038	391.157
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	333697.4	N/A	
PFHpA	5.94	1.000	152175.2	M	13C4-PFHpA	5.95	1318631.5	0.115	1016.061
PFOA	6.36	1.000	14345504.6	M	13C8-PFOA	6.36	1481281.3	9.685	100388.576
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.71	304471.5	N/A	
PFNA	6.73	1.000	29558.4	M	13C9-PFNA	6.73	1118294.2	0.026	219.176
PFDA	7.08	1.000	82248.5	M	13C6-PFDA	7.08	1452329.3	0.057	592.106
PFUnDA	7.39	1.000	29216.0	M	13C7-PFUnDA	7.39	820495.0	0.036	268.010
PFDoDA	7.68	1.000	50641.4	M	13C2-PFDoDA	7.68	1264000.3	0.040	407.403
PFTrDA	7.96	1.040	19666.4	A	13C2-PFDoDA	7.68	1264000.3	0.016	171.615
PFTeDA	8.24	1.000	41705.3	A	13C2-PFTeDA	8.24	1547736.5	0.027	313.732

Total Ion Chromatogram



APPROVED
By JPT at 3:31 pm, 4/19/18

REVIEWED
By umar at 10:39 am, 4/23/18

Sample Description: SG3a-WP07-A8.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 13:20
SDG#: SBN09-03

C. T. Male Associates
ELLE Sample #: WP 9535314
ELLE Group #: 1926079
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	Perfluorobutanoic acid	375-22-4	20 U	20	60	100
14027	Perfluorodecanoic acid	335-76-2	20 U	20	60	100
14027	Perfluorododecanoic acid	307-55-1	20 U	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**36 J**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	Perfluorohexanoic acid	307-24-4	20 U	20	60	100
14027	Perfluorononanoic acid	375-95-1	20 U	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**4,000**	20	60	100
14027	Perfluoropentanoic acid	2706-90-3	20 U	20	60	100
14027	Perfluorotetradecanoic acid	376-06-7	20 U	20	60	100
14027	Perfluorotridecanoic acid	72629-94-8	20 U	20	60	100
14027	Perfluoroundecanoic acid	2058-94-8	20 U	20	60	100

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093014	04/06/2018 08:27	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093014	04/03/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/11/2018 12:24:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/11/2018 12:21:37 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

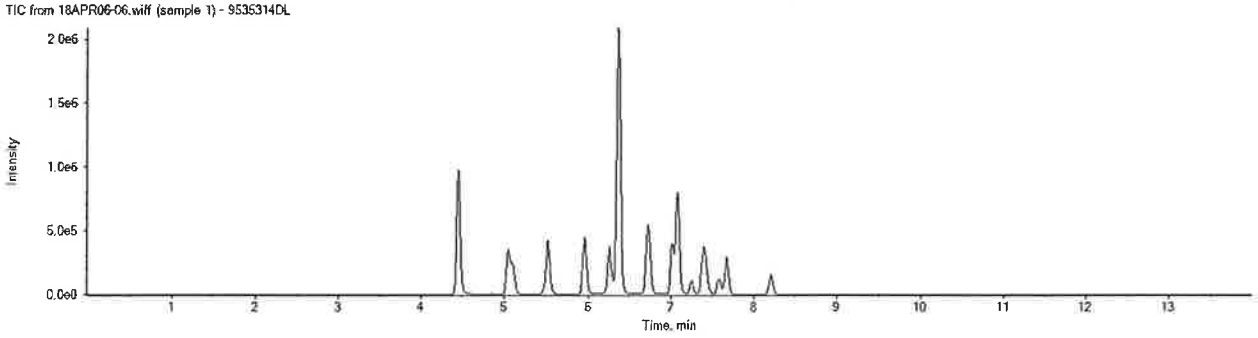
Analyte Quantitation Peak Table

Sample Name: 9535314 **Instrument Name:** LM24960 **File Name:** 18APR06-06.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	1434419.4	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.05	1115062.6	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	663354.8	N/A	
PFHxA	5.52	1.000	19103.2	M	13C5-PFHxA	5.52	1204676.6	0.016	17.953
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.95	474247.6	N/A	
PFHpA	5.95	1.000	32659.5	M	13C4-PFHpA	5.96	909125.2	0.036	35.622
PFOA	6.37	1.000	3222679.0	M	13C8-PFOA	6.36	809643.3	3.980	3966.410
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.71	585127.0	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.74	767841.0	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.08	1293255.5	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.39	749811.1	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	857499.1	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	857499.1	N/A	
PFTeDA	8.21	1.000	7350.7	M	13C2-PFTeDA	8.21	513586.6	0.014	14.969

Total Ion Chromatogram



APPROVED
By JWK at 12:54 pm, 4/11/18

REVIEWED
By uild at 10:02 am, 4/12/18

Sample Description: SG3a-WP07-A16.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 13:25
SDG#: SBN09-04

C. T. Male Associates
ELLE Sample #: WP 9535315
ELLE Group #: 1926079
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	Perfluorobutanoic acid	375-22-4	20 U	20	60	100
14027	Perfluorodecanoic acid	335-76-2	20 U	20	60	100
14027	Perfluorododecanoic acid	307-55-1	20 U	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**63**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**27 J**	20	60	100
14027	Perfluorononanoic acid	375-95-1	20 U	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**7,400**	20	60	100
14027	Perfluoropentanoic acid	2706-90-3	20 U	20	60	100
14027	Perfluorotetradecanoic acid	376-06-7	20 U	20	60	100
14027	Perfluorotridecanoic acid	72629-94-8	20 U	20	60	100
14027	Perfluoroundecanoic acid	2058-94-8	20 U	20	60	100

Reporting limits were raised due to interference from the sample matrix.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093014	04/06/2018 08:42	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093014	04/03/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/11/2018 12:24:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/11/2018 12:21:37 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

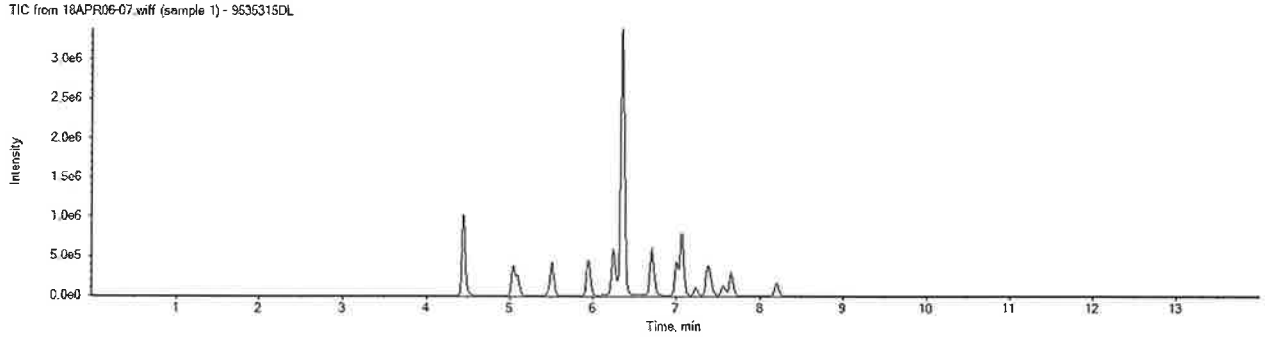
Analyte Quantitation Peak Table

Sample Name: 9535315 **Instrument Name:** LM24960 **File Name:** 18APR06-07.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1433983.9	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.04	1123891.3	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	687331.3	N/A	
PFHxA	5.51	1.000	29468.7	M	13C5-PFHxA	5.51	1226197.4	0.024	27.208
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	488549.8	N/A	
PFHpA	5.95	1.000	59309.6	M	13C4-PFHpA	5.95	928483.1	0.064	63.340
PFOA	6.36	1.000	5715438.1	M	13C8-PFOA	6.36	770194.1	7.421	7394.752
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.70	569851.5	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	770587.6	N/A	
PFDA	7.07	1.000	18445.9	M	13C6-PFDA	7.07	1217929.6	0.015	17.098
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.38	731290.6	N/A	
PFDoDA	7.66	1.000	14569.4	M	13C2-PFDoDA	7.66	864713.7	0.017	18.862
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	864713.7	N/A	
PFTeDA	8.20	1.000	10039.3	M	13C2-PFTeDA	8.20	538225.4	0.019	19.508

Total Ion Chromatogram



APPROVED
By JWK at 12:54 pm, 4/11/18

REVIEWED
By uild at 10:02 am, 4/12/18

Sample Description: SG3a-WP07-A23.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 13:35
SDG#: SBN09-05

C. T. Male Associates
ELLE Sample #: WP 9535316
ELLE Group #: 1926079
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	Perfluorobutanoic acid	375-22-4	20 U	20	60	100
14027	**Perfluorodecanoic acid**	335-76-2	**23 J**	20	60	100
14027	**Perfluorododecanoic acid**	307-55-1	**21 J**	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**50 J**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**24 J**	20	60	100
14027	Perfluorononanoic acid	375-95-1	20 U	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**6,900**	20	60	100
14027	Perfluoropentanoic acid	2706-90-3	20 U	20	60	100
14027	Perfluorotetradecanoic acid	376-06-7	20 U	20	60	100
14027	Perfluorotridecanoic acid	72629-94-8	20 U	20	60	100
14027	Perfluoroundecanoic acid	2058-94-8	20 U	20	60	100

Reporting limits were raised due to interference from the sample matrix.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093014	✓ 04/06/2018 08:56	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093014	✓ 04/03/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/11/2018 12:24:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/11/2018 12:21:37 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

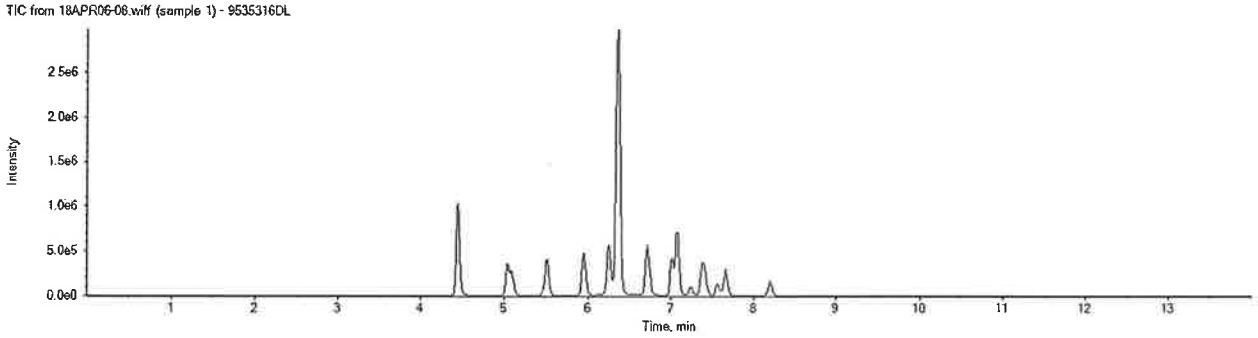
Analyte Quantitation Peak Table

Sample Name: 9535316 **Instrument Name:** LM24960 **File Name:** 18APR06-08.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	1451423.5	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.05	1098863.5	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	692401.7	N/A	
PFHxA	5.51	1.000	25742.7	M	13C5-PFHxA	5.51	1229893.1	0.021	23.697
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	529024.0	N/A	
PFHpA	5.95	1.000	48332.6	M	13C4-PFHpA	5.95	960519.3	0.050	49.896
PFOA	6.36	1.000	5487818.4	M	13C8-PFOA	6.36	795626.0	6.897	6873.296
PFOS	6.70	1.000	9563.3	M	13C8-PFOS	6.71	558573.8	0.017	16.579
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	728927.4	N/A	
PFDA	7.08	1.000	24597.1	M	13C6-PFDA	7.08	1193689.8	0.021	23.262
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.38	748131.2	N/A	
PFDoDA	7.66	1.000	15924.2	M	13C2-PFDoDA	7.66	865498.6	0.018	20.597
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	865498.6	N/A	
PFTeDA	8.20	1.000	9825.8	M	13C2-PFTeDA	8.20	520493.2	0.019	19.743

Total Ion Chromatogram



APPROVED
By JWK at 12:54 pm, 4/11/18

REVIEWED
By uild at 10:02 am, 4/12/18

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Analysis Report

Sample Description: SG3a-EB01-180329 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 13:45
SDG#: SBN09-06EB

C. T. Male Associates
ELLE Sample #: WP 9535317
ELLE Group #: 1926079
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.26 JB** 1.3	0.20 all >5x	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20 in SBN8+9	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.20 U	0.20	0.60	1
14027	Perfluorononanoic acid	375-95-1	0.20 U	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.48 J** 2.4	0.30 all >5x	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.8** 14.0	0.20 all >5x	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1

Reporting limits were raised due to interference from the sample matrix.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample internal standard(s) is outside the QC acceptance limits. The following corrective action was taken: the sample was reinjected and similar recoveries were observed for the internal standards.

Target analytes were detected in the method blank as noted on the QC summary.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093014	✓ 04/06/2018 04:35	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093014	✓ 04/03/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/6/2018 9:16:00 AM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/6/2018 8:53:49 AM
QMethod Name: SF-PFCMOD-17MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

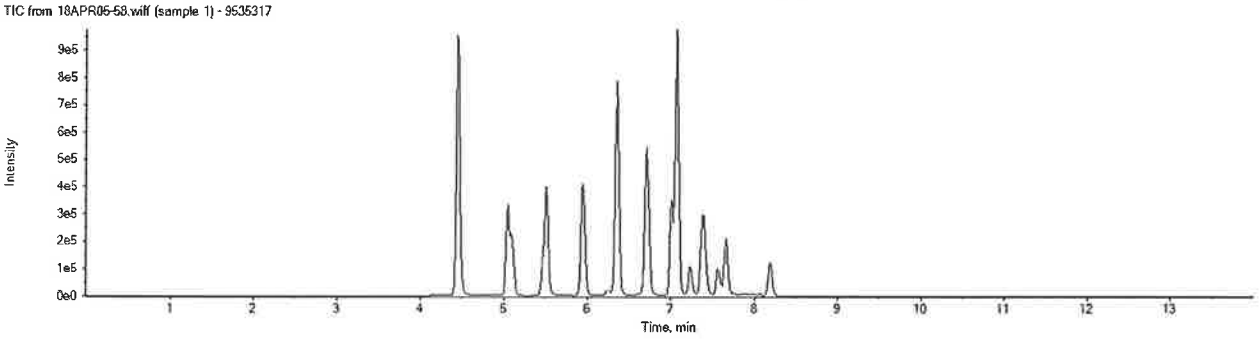
Analyte Quantitation Peak Table

Sample Name: 9535317 **Instrument Name:** LM24960 **File Name:** 18APR05-58.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	28598.2	M	13C4-PFBA	4.44	1286861.6	0.022	0.260
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.04	981381.7	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	594952.0	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.51	1117752.0	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	440259.4	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.95	910200.2	N/A	
PFOA	6.36	1.000	224081.9	M	13C8-PFOA	6.36	797280.9	0.281	2.801
PFOS	6.71	1.000	24803.6	M	13C8-PFOS	6.70	498712.0	0.050	0.482
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	800706.8	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.07	1165824.0	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.38	629594.1	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	645429.4	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	645429.4	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	399434.8	N/A	

Total Ion Chromatogram

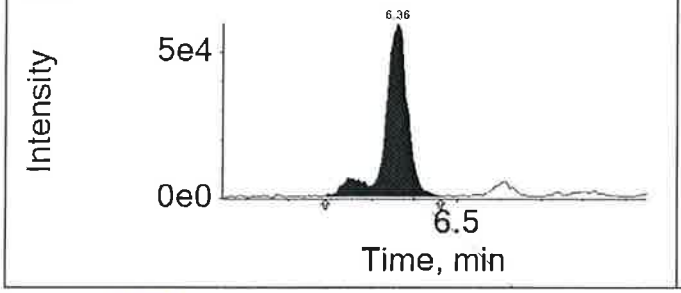


APPROVED
By JWK at 9:26 am, 4/6/18

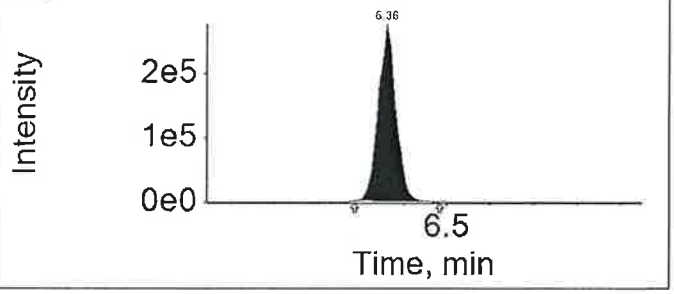
REVIEWED
By uild at 10:01 am, 4/12/18

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/6/2018 8:53:49 AM
QMethod Name: SF-PFCMOD-17MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

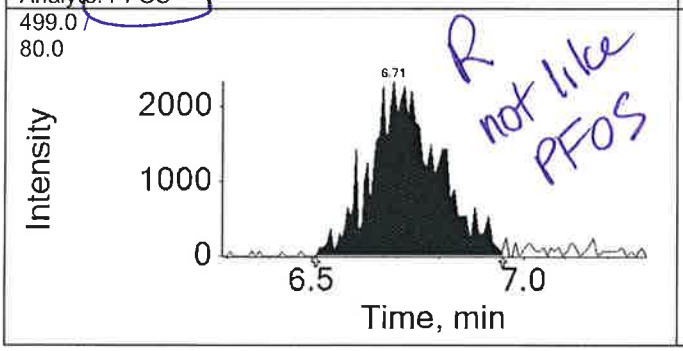
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

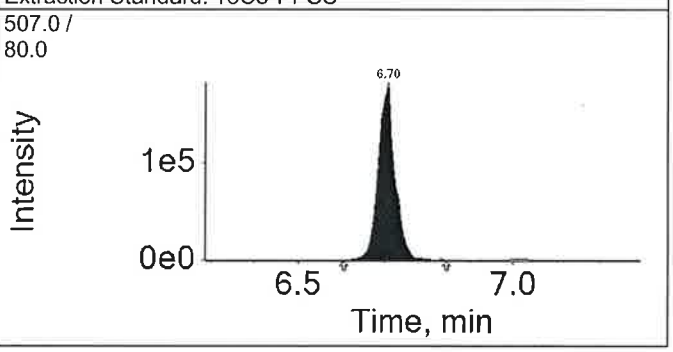


Analyte: PFOS
499.0 / 80.0

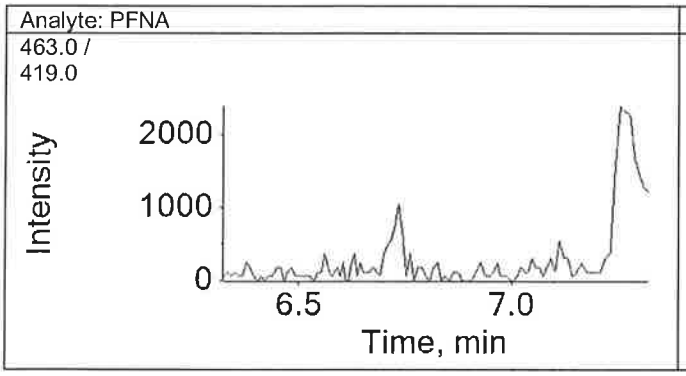


R not like PFOS

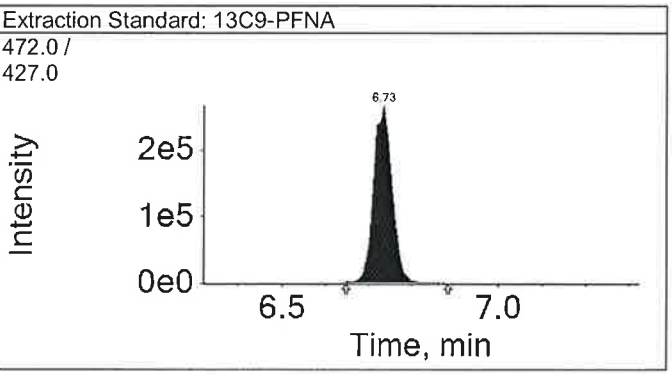
Extraction Standard: 13C8-PFOS
507.0 / 80.0



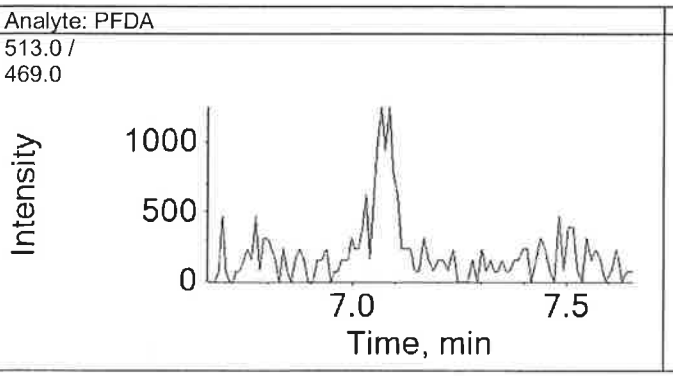
Analyte: PFNA
463.0 / 419.0



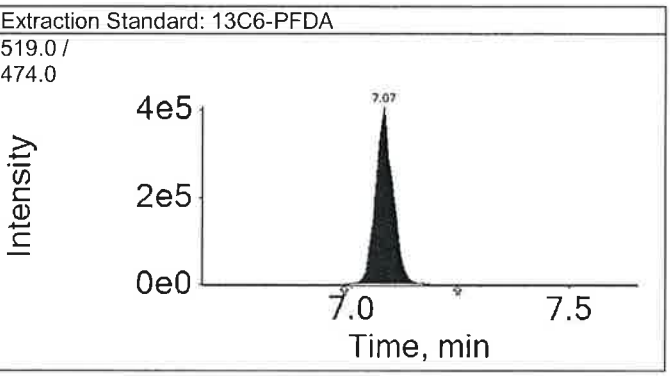
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JWK at 9:26 am, 4/6/18

REVIEWED
By uild at 10:01 am, 4/12/18

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LC-MS/MS Analysis Report

Printed: 4/11/2018 12:23:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/11/2018 12:21:37 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

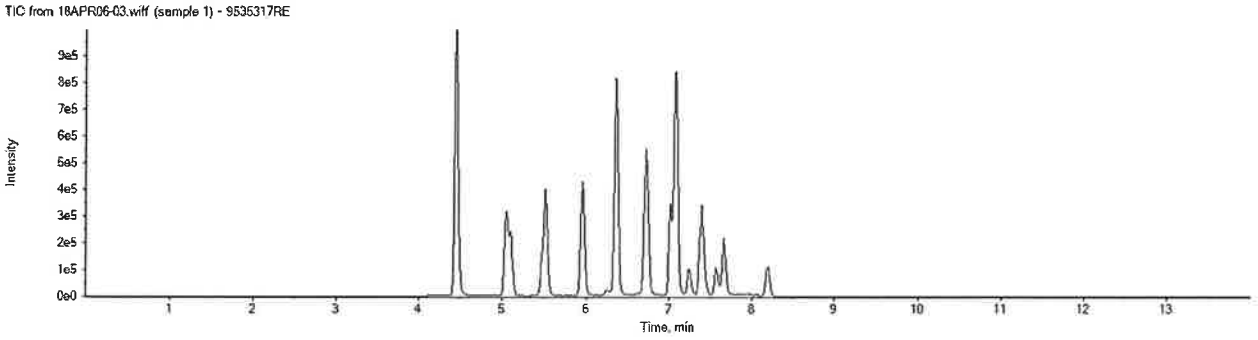
Analyte Quantitation Peak Table

Sample Name: 9535317RE **Instrument Name:** LM24960 **File Name:** 18APR06-03.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.45	1.000	32159.0	M	13C4-PFBA	4.45	1309308.3	0.025	0.287
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.05	1010882.8	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.11	629928.0	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.52	1137311.8	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.95	441274.3	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.96	909175.8	N/A	
PFOA	6.36	1.000	240019.6	M	13C8-PFOA	6.36	848465.8	0.283	2.819
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.71	483404.8	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.74	825357.4	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.08	1172579.3	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.38	649946.7	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	652995.1	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	652995.1	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	391403.3	N/A	

Total Ion Chromatogram



APPROVED
By JWK at 12:54 pm, 4/11/18

REVIEWED
By uild at 10:02 am, 4/12/18

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Analysis Report

Sample Description: SG3a-FD01-180329 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018
SDG#: SBN09-07FD

C. T. Male Associates
ELLE Sample #: WP 9535318
ELLE Group #: 1926079
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	200 U	200	600	1000
14027	Perfluorobutanoic acid	375-22-4	200 U	200	600	1000
14027	**Perfluorodecanoic acid**	335-76-2	**210 J**	200	600	1000
14027	Perfluorododecanoic acid	307-55-1	200 U	200	600	1000
14027	**Perfluoroheptanoic acid**	375-85-9	**500 J**	200	600	1000
14027	Perfluorohexanesulfonate	355-46-4	200 U	200	600	1000
14027	**Perfluorohexanoic acid**	307-24-4	**230 J**	200	600	1000
14027	Perfluorononanoic acid	375-95-1	200 U	200	600	1000
14027	Perfluoro-octanesulfonate	1763-23-1	300 U	300	900	1000
14027	**Perfluorooctanoic acid**	335-67-1	**70,000**	200	600	1000
14027	Perfluoropentanoic acid	2706-90-3	200 U	200	600	1000
14027	Perfluorotetradecanoic acid	376-06-7	200 U	200	600	1000
14027	Perfluorotridecanoic acid	72629-94-8	200 U	200	600	1000
14027	Perfluoroundecanoic acid	2058-94-8	200 U	200	600	1000

Reporting limits were raised due to interference from the sample matrix.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093014	04/06/2018 09:11	Jason W Knight	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093014	04/03/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/11/2018 12:24:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/11/2018 12:21:37 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

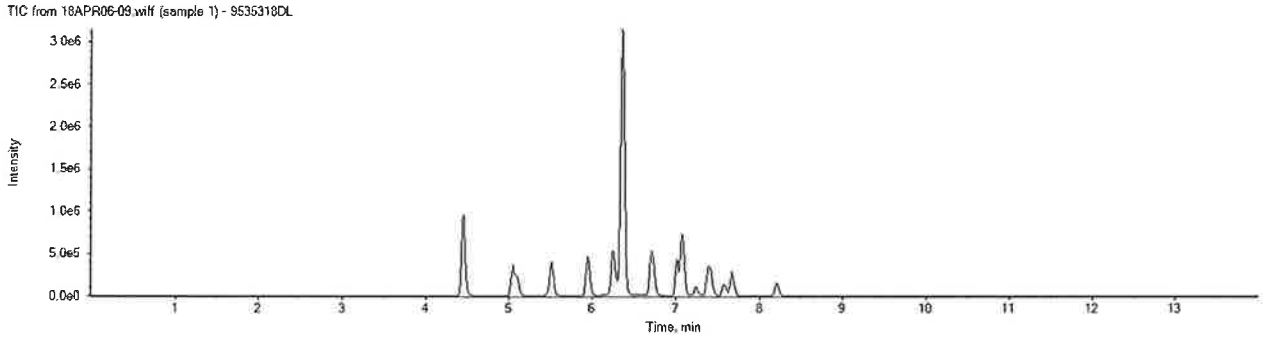
Analyte Quantitation Peak Table

Sample Name: 9535318 **Instrument Name:** LM24960 **File Name:** 18APR06-09.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1000.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	1382136.8	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.05	1073756.6	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	634566.0	N/A	
PFHxA	5.51	1.000	24846.7	M	13C5-PFHxA	5.51	1199936.2	0.021	234.429
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	490492.0	N/A	
PFHpA	5.95	1.000	48840.8	M	13C4-PFHpA	5.95	969466.8	0.050	499.552
PFOA	6.36	1.000	5410681.7	M	13C8-PFOA	6.36	770998.2	7.018	69931.507
PFOS	6.70	1.000	9083.9	M	13C8-PFOS	6.71	553953.9	0.016	158.792
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.74	718827.7	N/A	
PFDA	7.08	1.000	22462.8	M	13C6-PFDA	7.08	1182914.0	0.019	214.374
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.38	727967.0	N/A	
PFDoDA	7.66	1.000	14465.0	M	13C2-PFDoDA	7.67	810701.0	0.018	199.742
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	810701.0	N/A	
PFTeDA	8.20	1.000	9627.0	M	13C2-PFTeDA	8.21	509818.1	0.019	197.491

Total Ion Chromatogram



APPROVED
By JWK at 12:54 pm, 4/11/18

REVIEWED
By uild at 10:02 am, 4/12/18

Sample Description: SG3a-WP08-STACK25.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 13:50
SDG#: SBN09-08

C. T. Male Associates
ELLE Sample #: WP 9535319
ELLE Group #: 1926079
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	**Perfluorobutanoic acid**	375-22-4	**59 JB**	20	60	100
14027	**Perfluorodecanoic acid**	335-76-2	**150**	20	60	100
14027	**Perfluorododecanoic acid**	307-55-1	**83**	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**1,100**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**510**	20	60	100
14027	**Perfluorononanoic acid**	375-95-1	**110**	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**120,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**82**	20	60	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**62**	20	60	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**26 J**	20	60	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**57 J**	20	60	100

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample internal standard(s) and extraction standard(s) were outside the QC acceptance limits due to sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093014	04/06/2018 09:40	Jason W Knight	1000
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093014	✓ 04/09/2018 00:58	Devon M Whooley	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093014	✓ 04/03/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/9/2018 5:04:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR07MCAL **Result Table:** 18093014RE 4/9/2018 5:03:31 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

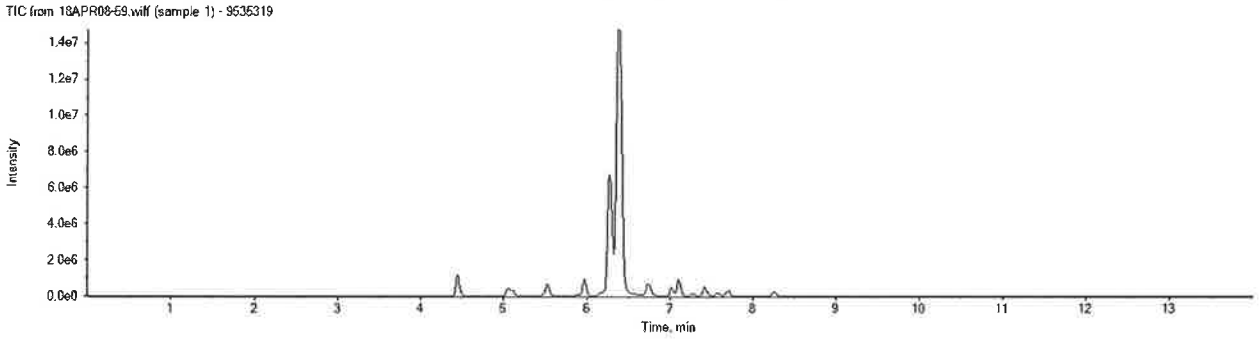
Analyte Quantitation Peak Table

Sample Name: 9535319 **Instrument Name:** LM24960 **File Name:** 18APR08-59.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.45	1.000	85393.3	A	13C4-PFBA	4.46	1648061.6	0.052	59.144
PFPeA	5.06	1.000	101502.1	M	13C5-PFPeA	5.06	1260056.2	0.081	81.853
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.12	828701.0	N/A	
PFHxA	5.53	1.000	640714.8	M	13C5-PFHxA	5.53	1367618.6	0.468	509.733
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.96	585760.9	N/A	
PFHpA	5.97	1.000	1158433.8	M	13C4-PFHpA	5.97	1056809.4	1.096	1061.890
PFOA	6.38	1.000	42791195.8	M	13C8-PFOA	6.38	384328.5	111.340	119598.775
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.73	658609.6	N/A	
PFNA	6.76	1.000	100855.7	M	13C9-PFNA	6.76	896810.8	0.112	105.019
PFDA	7.10	1.000	177374.6	A	13C6-PFDA	7.10	1406596.9	0.126	149.619
PFUnDA	7.41	1.000	53298.1	M	13C7-PFUnDA	7.41	848209.9	0.063	56.538
PFDoDA	7.70	1.000	66400.6	M	13C2-PFDoDA	7.70	887431.3	0.075	83.489
PFTrDA	7.98	1.040	20196.2	M	13C2-PFDoDA	7.70	887431.3	0.023	26.169
PFTeDA	8.25	1.000	34204.3	M	13C2-PFTeDA	8.26	614000.9	0.056	61.657

Total Ion Chromatogram



APPROVED
By DMW at 5:06 pm, 4/9/18

REVIEWED
By uild at 10:03 am, 4/12/18

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LC-MS/MS Analysis Report

Printed: 4/11/2018 12:25:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/11/2018 12:21:37 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

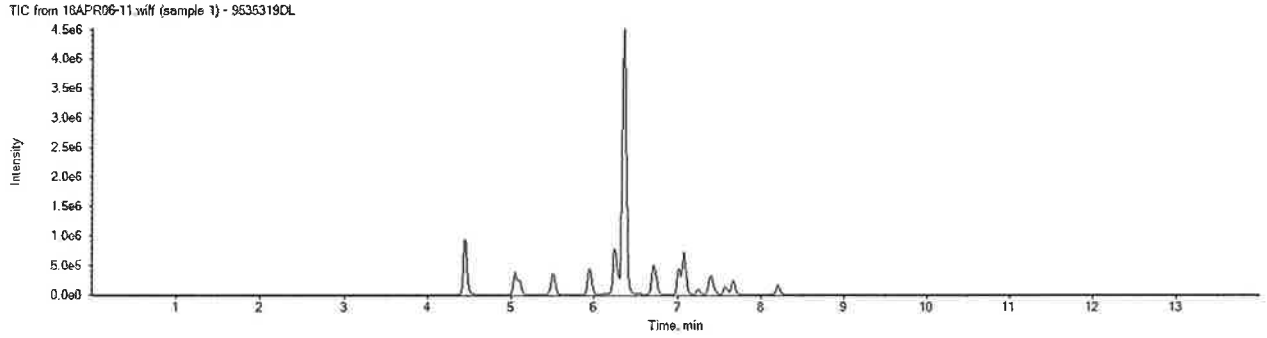
Analyte Quantitation Peak Table

Sample Name: 9535319DL **Instrument Name:** LM24960 **File Name:** 18APR06-11.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1000.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	1358257.8	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.05	1047319.7	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	669011.2	N/A	
PFHxA	5.51	1.000	50635.8	M	13C5-PFHxA	5.51	1105116.3	0.046	518.741
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	474928.6	N/A	
PFHpA	5.95	1.000	98428.3	M	13C4-PFHpA	5.95	896229.3	0.110	1089.008
PFOA	6.36	1.000	8412885.9	M	13C8-PFOA	6.36	698854.9	12.038	119958.844
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.71	550739.6	N/A	
PFNA	6.73	1.000	8710.5	M	13C9-PFNA	6.73	647141.8	0.013	116.044
PFDA	7.08	1.000	14248.2	M	13C6-PFDA	7.07	1110167.9	0.013	144.888
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.39	626921.4	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	775891.6	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	775891.6	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.21	483763.3	N/A	

Total Ion Chromatogram



APPROVED
By JWK at 12:54 pm, 4/11/18

REVIEWED
By uild at 10:02 am, 4/12/18

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Analysis Report

Sample Description: SG3a-RB01-180329 Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 14:15
SDG#: SBN09-09RB

C. T. Male Associates
ELLE Sample #: WW 9535320
ELLE Group #: 1926079
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.7 J** 3.5 all >5%	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18092009	✓ 04/05/2018 17:13	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18092009	✓ 04/03/2018 17:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR03MCAL **Result Table:** 18092009 4/7/2018 9:39:02 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

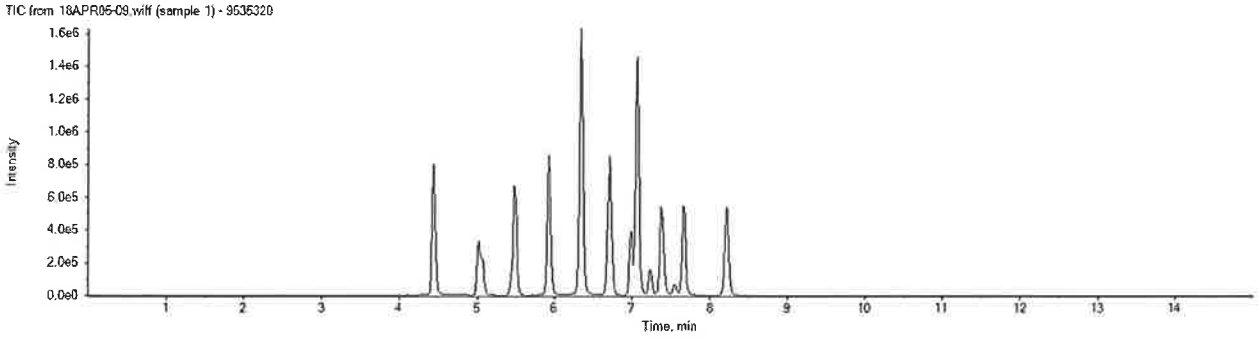
Analyte Quantitation Peak Table

Sample Name: 9535320 **Instrument Name:** LM24743 **File Name:** 18APR05-09.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.27687	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1225726.2	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	1000014.2	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	581726.7	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.48	1992640.0	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.92	577350.8	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.93	2000176.7	N/A	
PFOA	6.35	1.000	94212.6	M	13C8-PFOA	6.34	2525084.4	0.037	0.728
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.69	502252.8	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.72	1926489.0	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.06	2346033.6	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.37	1165500.0	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1742599.3	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1742599.3	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.21	2010004.2	N/A	

Total Ion Chromatogram



APPROVED
By MCD at 9:48 pm, 4/7/18

REVIEWED
By umar at 3:35 pm, 4/15/18

Sample Description: SG3a-RB02-180329 Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 14:20
SDG#: SBN09-10RB

C. T. Male Associates
ELLE Sample #: WW 9535321
ELLE Group #: 1926079
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.6** J J all >5%	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18092009	✓ 04/05/2018 17:29	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18092009	✓ 04/03/2018 17:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/7/2018 9:40:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR03MCAL **Result Table:** 18092009 4/7/2018 9:39:02 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

Analyte Quantitation Peak Table

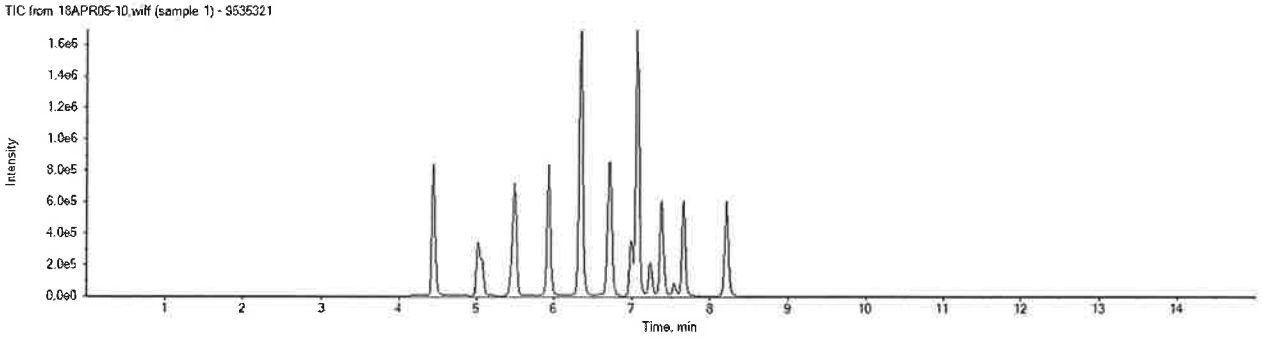
Sample Name: 9535321 **Instrument Name:** LM24743 **File Name:** 18APR05-10.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.27363	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1243546.5	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	1040884.4	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	587811.4	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	2088758.5	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.92	559326.8	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.93	2079906.5	N/A	
PFOA	6.35	1.000	80370.6	M	13C8-PFOA	6.35	2573749.3	0.031	0.616
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.69	507821.9	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.72	2190330.9	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.06	2570322.3	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.37	1288283.4	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1805225.9	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1805225.9	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.21	2055246.6	N/A	

,653

Total Ion Chromatogram



APPROVED
By MCD at 9:48 pm, 4/7/18

REVIEWED
By umar at 3:35 pm, 4/15/18

Sample Description: SG3a-RB03-180329 Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 14:25
SDG#: SBN09-11RB

C. T. Male Associates
ELLE Sample #: WW 9535322
ELLE Group #: 1926079
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18092009	04/05/2018 17:44	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18092009	04/03/2018 17:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR03MCAL **Result Table:** 18092009 4/7/2018 9:39:02 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

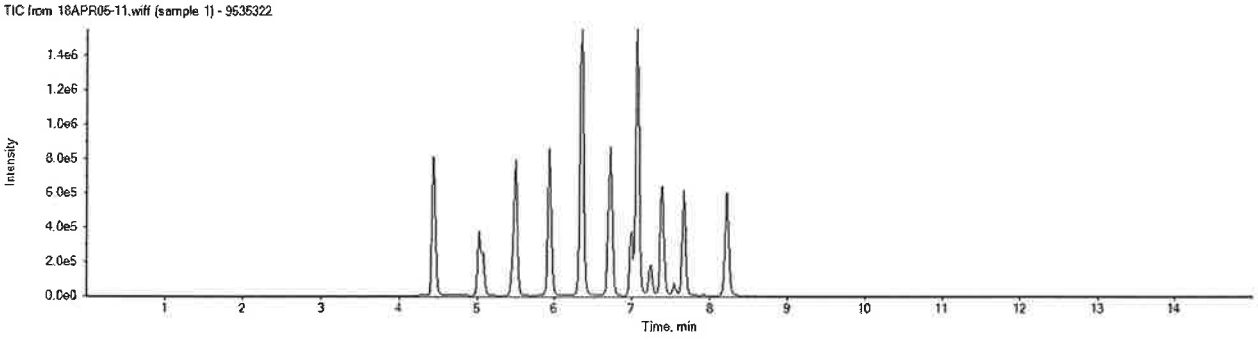
Analyte Quantitation Peak Table

Sample Name: 9535322 **Instrument Name:** LM24743 **File Name:** 18APR05-11.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.27006	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1316830.1	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	1062679.6	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	617405.4	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	2198344.8	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	607170.0	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.94	2101302.1	N/A	
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.35	2737646.4	N/A	
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.70	528757.0	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	2021588.2	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.07	2549490.7	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.38	1405434.9	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1784919.7	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1784919.7	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.22	2146885.3	N/A	

Total Ion Chromatogram



APPROVED
By MCD at 9:48 pm, 4/7/18

REVIEWED
By umar at 3:35 pm, 4/15/18

Sample Description: SG3a-WP09-A8.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 14:05
SDG#: SBN09-12

C. T. Male Associates
ELLE Sample #: WP 9535323
ELLE Group #: 1926079
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	Perfluorobutanoic acid	375-22-4	20 U	20	60	100
14027	**Perfluorodecanoic acid**	335-76-2	**26 J**	20	60	100
14027	**Perfluorododecanoic acid**	307-55-1	**29 J**	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**73**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**29 J**	20	60	100
14027	Perfluorononanoic acid	375-95-1	20 U	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**8,800**	20	60	100
14027	Perfluoropentanoic acid	2706-90-3	20 U	20	60	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**29 J**	20	60	100
14027	Perfluorotridecanoic acid	72629-94-8	20 U	20	60	100
14027	Perfluoroundecanoic acid	2058-94-8	20 U	20	60	100

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093014	04/06/2018 09:54	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093014	04/03/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/11/2018 12:25:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/11/2018 12:21:37 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

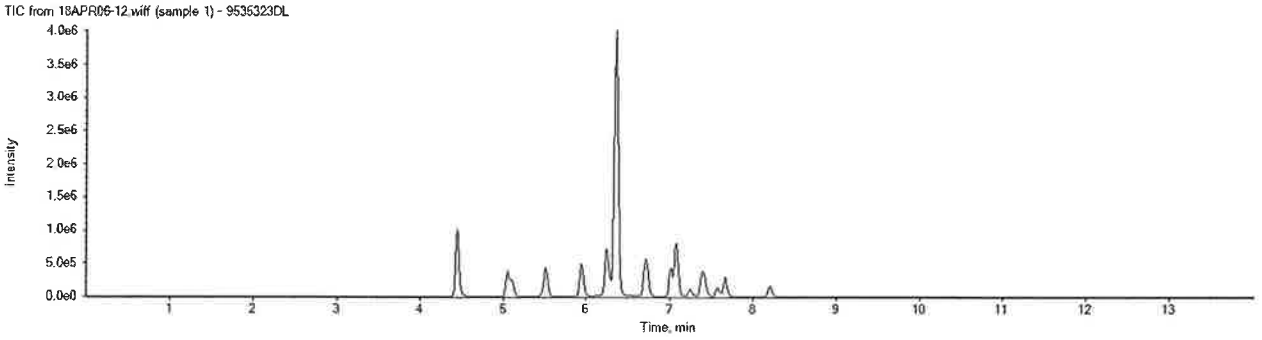
Analyte Quantitation Peak Table

Sample Name: 9535323 **Instrument Name:** LM24960 **File Name:** 18APR06-12.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	1443692.3	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.05	1112430.4	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	677999.5	N/A	
PFHxA	5.51	1.000	33057.1	M	13C5-PFHxA	5.51	1303011.8	0.025	28.722
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	510236.2	N/A	
PFHpA	5.95	1.000	74837.6	M	13C4-PFHpA	5.95	1012777.9	0.074	73.272
PFOA	6.36	1.000	7190398.3	M	13C8-PFOA	6.36	810980.0	8.866	8835.213
PFOS	6.70	1.000	14739.3	M	13C8-PFOS	6.71	586330.8	0.025	24.342
PFNA	6.74	1.000	13786.2	M	13C9-PFNA	6.74	809908.0	0.017	14.675
PFDA	7.08	1.000	30781.3	M	13C6-PFDA	7.08	1337569.9	0.023	25.980
PFUnDA	7.38	1.000	13567.1	M	13C7-PFUnDA	7.38	738851.3	0.018	12.739
PFDoDA	7.66	1.000	21502.4	M	13C2-PFDoDA	7.67	825635.3	0.026	29.155
PFTrDA	7.93	1.030	7986.3	M	13C2-PFDoDA	7.67	825635.3	0.010	15.704
PFTeDA	8.20	1.000	14418.3	M	13C2-PFTeDA	8.20	526940.8	0.027	28.617

Total Ion Chromatogram



APPROVED
By JWK at 12:54 pm, 4/11/18

REVIEWED
By uild at 10:02 am, 4/12/18

Sample Description: SG3a-WP09-A16.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 14:10
SDG#: SBN09-13

C. T. Male Associates
ELLE Sample #: WP 9535324
ELLE Group #: 1926079
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	Perfluorobutanoic acid	375-22-4	20 U	20	60	100
14027	**Perfluorodecanoic acid**	335-76-2	**23 J**	20	60	100
14027	**Perfluorododecanoic acid**	307-55-1	**29 J**	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**75**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**33 J**	20	60	100
14027	Perfluorononanoic acid	375-95-1	20 U	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**9,200**	20	60	100
14027	Perfluoropentanoic acid	2706-90-3	20 U	20	60	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**35 J**	20	60	100
14027	Perfluorotridecanoic acid	72629-94-8	20 U	20	60	100
14027	Perfluoroundecanoic acid	2058-94-8	20 U	20	60	100

Reporting limits were raised due to interference from the sample matrix.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093014	✓ 04/06/2018 10:38	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093014	✓ 04/03/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/11/2018 12:21:37 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

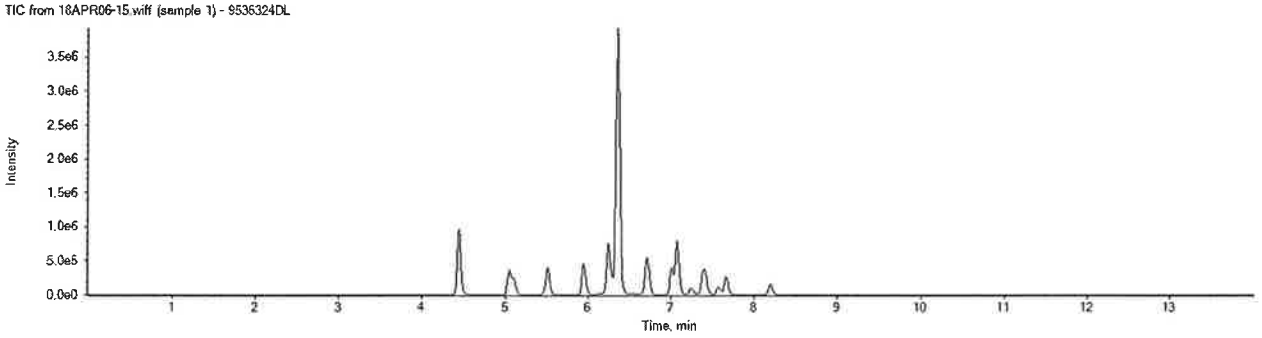
Analyte Quantitation Peak Table

Sample Name: 9535324 **Instrument Name:** LM24960 **File Name:** 18APR06-15.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.45	1.000	19761.4	M	13C4-PFBA	4.45	1388667.2	0.014	16.631
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.05	1098846.7	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	653519.3	N/A	
PFHxA	5.51	1.000	35770.0	M	13C5-PFHxA	5.51	1221375.3	0.029	33.157
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	478739.5	N/A	
PFHpA	5.95	1.000	72187.8	M	13C4-PFHpA	5.95	948784.2	0.076	75.444
PFOA	6.36	1.000	7117294.2	M	13C8-PFOA	6.36	772524.8	9.213	9180.720
PFOS	6.71	1.000	17087.0	M	13C8-PFOS	6.71	553966.3	0.031	29.869
PFNA	6.73	1.000	12526.3	M	13C9-PFNA	6.73	781171.1	0.016	13.825
PFDA	7.07	1.000	24862.1	M	13C6-PFDA	7.07	1216314.5	0.020	23.076
PFUnDA	7.38	1.000	14036.4	M	13C7-PFUnDA	7.38	767749.1	0.018	12.684
PFDoDA	7.67	1.000	21519.2	M	13C2-PFDoDA	7.67	837784.0	0.026	28.754
PFTrDA	7.93	1.030	8289.9	M	13C2-PFDoDA	7.67	837784.0	0.010	16.064
PFTeDA	8.20	1.000	16977.0	M	13C2-PFTeDA	8.20	503389.0	0.034	35.272

Total Ion Chromatogram

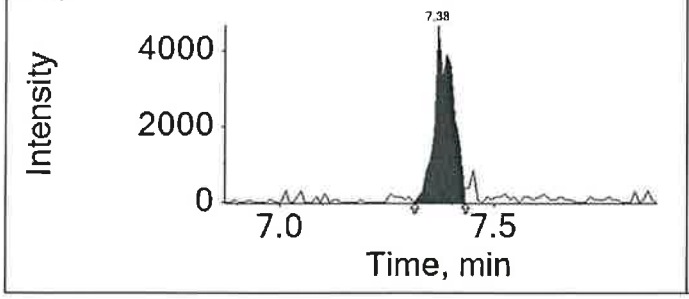


APPROVED
By JWK at 12:54 pm, 4/11/18

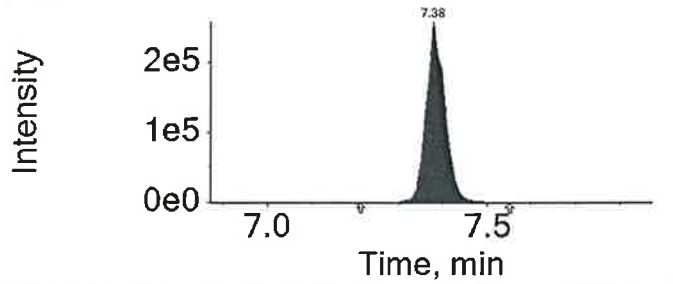
REVIEWED
By uild at 10:02 am, 4/12/18

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/11/2018 12:21:37 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

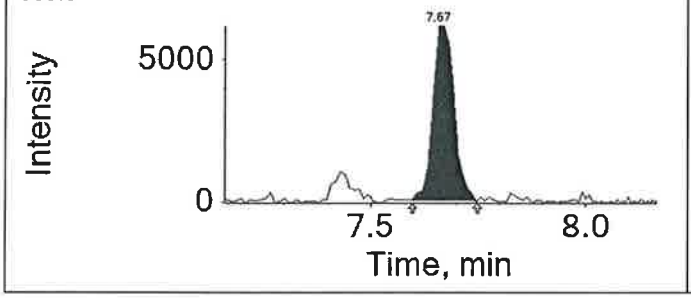
Analyte: PFUnDA
563.0 / 519.0



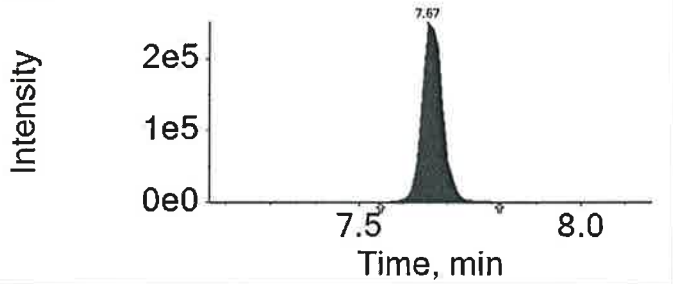
Extraction Standard: 13C7-PFUnDA
570.0 / 525.0



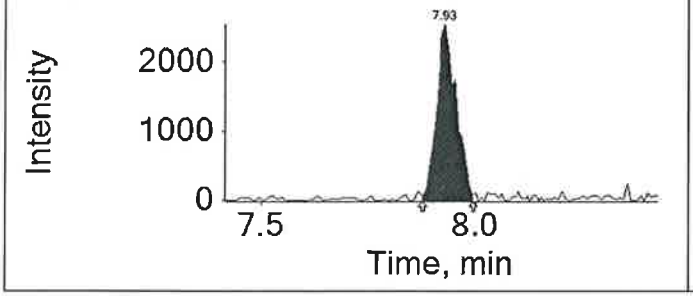
Analyte: PFDoDA
613.0 / 569.0



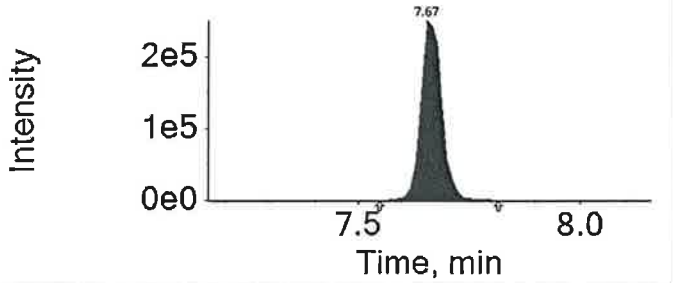
Extraction Standard: 13C2-PFDoDA
615.0 / 570.0



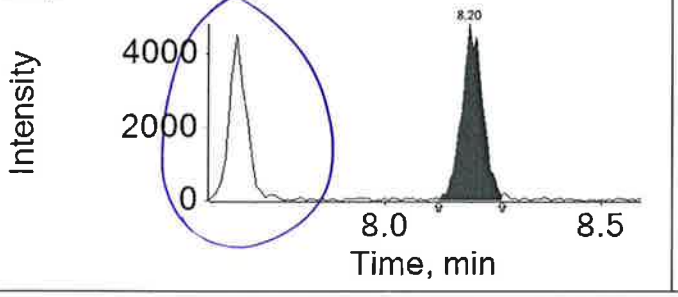
Analyte: PFTrDA
663.0 / 619.0



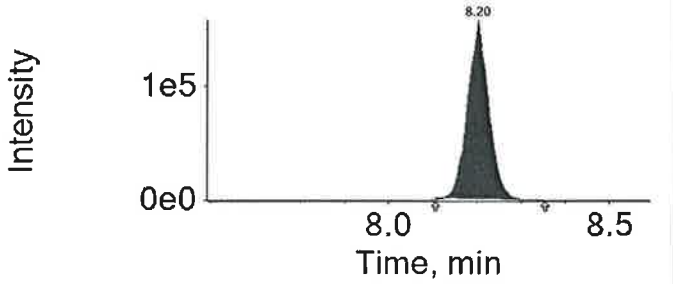
Extraction Standard: 13C2-PFDoDA
615.0 / 570.0



Analyte: PFTeDA
713.0 / 669.0



Extraction Standard: 13C2-PFTeDA
715.0 / 670.0



APPROVED
By JWK at 12:54 pm, 4/11/18

REVIEWED
By uild at 10:02 am, 4/12/18

Sample Description: SG3a-WP09-A23.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 14:15
SDG#: SBN09-14

C. T. Male Associates
ELLE Sample #: WP 9535325
ELLE Group #: 1926079
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	Perfluorobutanoic acid	375-22-4	20 U	20	60	100
14027	**Perfluorodecanoic acid**	335-76-2	**46 J**	20	60	100
14027	**Perfluorododecanoic acid**	307-55-1	**48 J**	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**160**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**63**	20	60	100
14027	**Perfluorononanoic acid**	375-95-1	**25 J**	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**16,000**	20	60	100
14027	Perfluoropentanoic acid	2706-90-3	20 U	20	60	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**46 J**	20	60	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**24 J**	20	60	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**20 J**	20	60	100

Reporting limits were raised due to interference from the sample matrix.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18093014	✓ 04/06/2018 10:53	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18093014	✓ 04/03/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/11/2018 12:25:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/11/2018 12:21:37 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

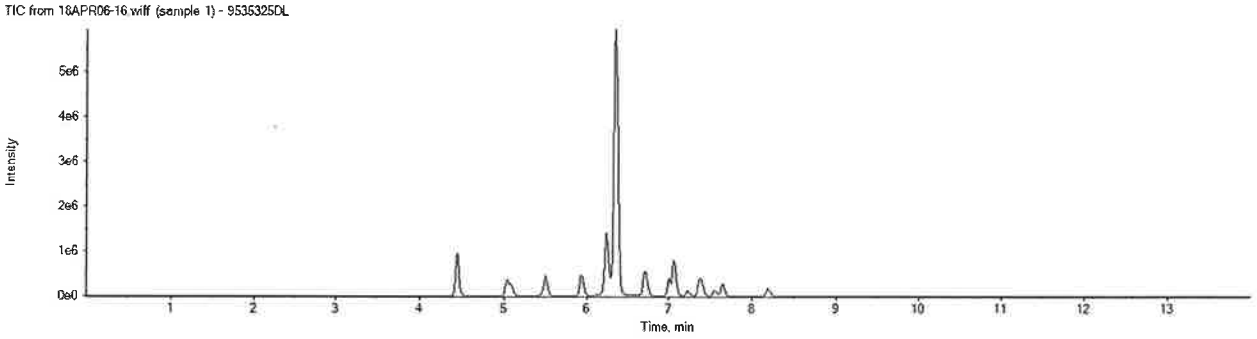
Analyte Quantitation Peak Table

Sample Name: 9535325 **Instrument Name:** LM24960 **File Name:** 18APR06-16.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1367165.6	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.04	1085350.1	N/A	
PFBS	5.09	1.000	7532.1	M	13C3-PFBS	5.09	662837.0	0.011	10.295
PFHxA	5.50	1.000	68041.8	M	13C5-PFHxA	5.50	1218046.4	0.056	63.243
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	481054.3	N/A	
PFHpA	5.94	1.000	153634.3	M	13C4-PFHpA	5.94	952512.1	0.161	159.937
PFOA	6.35	1.000	11922534.7	M	13C8-PFOA	6.35	722389.4	16.504	16446.424
PFOS	6.70	1.000	16762.5	M	13C8-PFOS	6.70	576271.1	0.029	28.167
PFNA	6.73	1.000	22858.5	M	13C9-PFNA	6.72	800808.2	0.029	24.609
PFDA	7.07	1.000	51735.6	M	13C6-PFDA	7.07	1262994.3	0.041	46.243
PFUnDA	7.37	1.000	22996.4	M	13C7-PFUnDA	7.37	785317.5	0.029	20.316
PFDoDA	7.65	1.000	35419.3	A	13C2-PFDoDA	7.65	831607.3	0.043	47.680
PFTrDA	7.92	1.030	12197.6	M	13C2-PFDoDA	7.65	831607.3	0.015	23.813
PFTeDA	8.19	1.000	23343.8	M	13C2-PFTeDA	8.19	534069.4	0.044	45.713

Total Ion Chromatogram



APPROVED
By JWK at 12:54 pm, 4/11/18

REVIEWED
By uild at 10:02 am, 4/12/18

Sample Description: SG3a-BL09-A22.5 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/30/2018 10:20
Collection Date/Time: 03/29/2018 14:20
SDG#: SBN09-15

C. T. Male Associates
ELLE Sample #: SW 9535326
ELLE Group #: 1926079
Matrix: Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**62**	20	59	100
14027	**Perfluorobutanoic acid**	375-22-4	**180**	20	59	100
14027	**Perfluorodecanoic acid**	335-76-2	**530**	20	59	100
14027	**Perfluorododecanoic acid**	307-55-1	**530**	20	59	100
14027	**Perfluoroheptanoic acid**	375-85-9	**4,500**	20	59	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	59	100
14027	**Perfluorohexanoic acid**	307-24-4	**1,900**	20	59	100
14027	**Perfluorononanoic acid**	375-95-1	**320**	20	59	100
14027	**Perfluoro-octanesulfonate**	1763-23-1	**46 J**	30	89	100
14027	**Perfluorooctanoic acid**	335-67-1	**270,000**	990	3,000	5000
14027	**Perfluoropentanoic acid**	2706-90-3	**260**	20	59	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**540**	20	59	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**250**	20	59	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**260**	20	59	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 12:19	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/19/2018 14:33	Joshua P Trost	5000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18102019	04/13/2018 10:30	Robert Brown	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

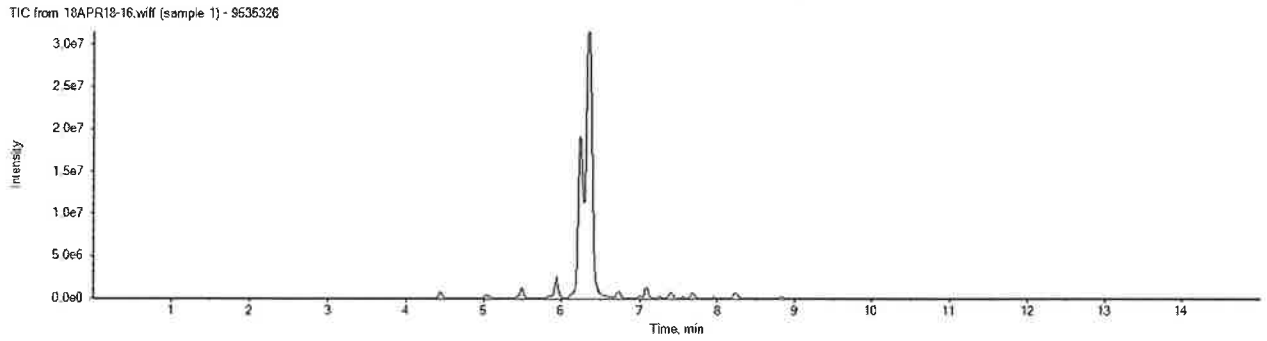
Analyte Quantitation Peak Table

Sample Name: 9535326 **Instrument Name:** LM24743 **File Name:** 18APR18-16.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.01000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	139016.2	M	13C4-PFBA	4.44	889386.7	0.156	184.295
PFPeA	5.02	1.000	198556.1	M	13C5-PFPeA	5.03	729424.2	0.272	264.260
PFBS	5.08	1.000	25185.9	M	13C3-PFBS	5.08	378235.0	0.067	62.094
PFHxA	5.49	1.000	2282733.2	M	13C5-PFHxA	5.50	1288696.4	1.771	1915.238
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	334365.2	N/A	
PFHpA	5.94	1.000	5945098.7	A	13C4-PFHpA	5.94	1217466.0	4.883	4469.609
PFOA	6.35	1.000	133325079.6	M	13C8-PFOA	6.36	743193.7	179.395	193323.103
PFOS	6.71	1.000	14663.7	M	13C8-PFOS	6.70	305955.7	0.048	45.552
PFNA	6.73	1.000	480778.7	A	13C9-PFNA	6.73	1291732.6	0.372	320.855
PFDA	7.08	1.000	763364.6	A	13C6-PFDA	7.08	1561748.1	0.489	531.283
PFUnDA	7.39	1.000	361544.2	A	13C7-PFUnDA	7.39	1107244.9	0.327	255.500
PFDoDA	7.68	1.000	669421.7	A	13C2-PFDoDA	7.68	1324542.3	0.505	534.277
PFTrDA	7.95	1.040	285876.6	A	13C2-PFDoDA	7.68	1324542.3	0.216	247.490
PFTeDA	8.23	1.000	708835.1	A	13C2-PFTeDA	8.24	1597632.2	0.444	537.034

Total Ion Chromatogram



APPROVED
By JPT at 3:31 pm, 4/19/18

REVIEWED
By umar at 10:40 am, 4/23/18

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LC-MS/MS Analysis Report

Printed: 4/19/2018 4:13:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR11MCAL **Result Table:** 18102019DL 4/19/2018 4:12:33 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

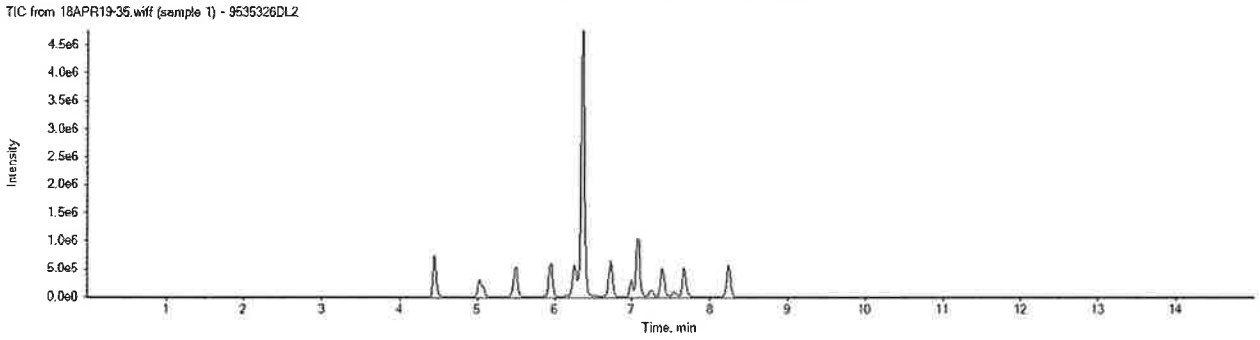
Analyte Quantitation Peak Table

Sample Name: 9535326DL **Instrument Name:** LM24743 **File Name:** 18APR19-35.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.01000	1.000	5000.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	1064075.9	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.03	923098.9	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.08	483839.0	N/A	
PFHxA	5.50	1.000	41578.6	M	13C5-PFHxA	5.50	1654346.3	0.025	1358.725
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	449118.4	N/A	
PFHpA	5.94	1.000	111618.2	A	13C4-PFHpA	5.95	1535469.9	0.073	3326.832
PFOA	6.36	1.000	9035756.5	M	13C8-PFOA	6.36	1816640.7	4.974	268002.839
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.70	378726.4	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	1349325.2	N/A	
PFDA	7.08	1.000	15908.1	M	13C6-PFDA	7.08	1833558.9	0.009	471.519
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.39	1064495.9	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	1605718.2	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	1605718.2	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.24	1956323.9	N/A	

Total Ion Chromatogram



APPROVED
By JPT at 4:22 pm, 4/19/18

REVIEWED
By umar at 11:16 am, 4/23/18

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 12:29

Group Number: 1926079

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoropentanoic acid	581.38	136	541.62	132.04	564.53	-28 (2)	-12 (2)	70-130	4	30
Perfluorotetradecanoic acid	552.51	136	571.76	132.04	564.99	14 (2)	9 (2)	70-130	1	30
Perfluorotridecanoic acid	248.38	136	234.91	132.04	256.96	-9*	6*	70-130	9	30
Perfluoroundecanoic acid	240	136	237.93	132.04	237.17	-1*	-1*	70-130	0	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFAS Compounds
Batch number: 18092009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9535320	97	95	89	98	96	96
9535321	96	96	88	95	86	93
9535322	103	100	94	110	103	104
Blank	92	89	79	91	89	90
LCS	102	101	91	108	105	110
LCSD	104	103	92	101	103	103
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9535320	96	95	102	97	95	97
9535321	91	97	116	96	95	92
9535322	107	100	107	105	114	99
Blank	91	89	93	98	100	98
LCS	101	104	108	102	106	109
LCSD	103	103	106	111	108	107
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9535320	99
9535321	92
9535322	105
Blank	98
LCS	103
LCSD	110

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 12:29

Group Number: 1926079

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFAS Compounds
Batch number: 18092009

Limits: 26-119

Analysis Name: 14 PFCs
Batch number: 18093014

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9535312	86	81	74	215* J	213* UJ	219* J
9535314	87	84	77	88	84	85
9535315	85	83	78	90	88	87
9535316	85	80	78	90	95	90
9535317	76	72	68	70	68	73
9535318	83	80	73	92	92	95
9535319	87	86	83	213* J	209* UJ	217* J
9535323	87	83	78	96	91	95
9535324	85	84	77	90	87	90
9535325	86	85	81	101	98	101
Blank	84	80	73	86	89	87
LCS	82	79	74	79	83	85
LCSD	88	85	81	88	87	91
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9535312	72	87	98	80	66	65
9535314	84	88	90	85	83	81
9535315	80	84	89	81	82	83
9535316	83	81	83	83	87	86
9535317	71	81	101	68	62	54
9535318	84	81	83	82	85	80
9535319	75	84	77	89	90	84
9535323	84	87	94	90	83	79
9535324	81	81	90	83	88	82
9535325	85	92	100	84	88	79
Blank	86	88	86	80	78	83
LCS	83	82	80	85	78	82
LCSD	90	90	90	86	84	81
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9535312	53
9535314	72
9535315	77
9535316	77

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 12:29

Group Number: 1926079

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18093014

	13C2-PFTeDA
9535317	50
9535318	75
9535319	72
9535323	76
9535324	73
9535325	76
Blank	83
LCS	75
LCSD	67
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 18102019

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9535313	71	72	65	99	88	98
9535326	74	71	69	117*	109	111
Blank	83	84	77	75	71	77
LCS	76	82	67	79	73	77
MS	75	72	77	101	98	117*
MSD	79	71	75	101	109	118*
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9535313	64	74	75	72	86	81
9535326	55	76	89	68	89	71
Blank	75	91	114	75	78	71
LCS	79	81	90	70	74	70
MS	54	77	82	62	101	68
MSD	57	82	87	63	104	66
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9535313	80
9535326	69
Blank	67
LCS	67
MS	69
MSD	69

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 12:29

Group Number: 1926079

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18102019

Limits: 20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Reference List
PFAS Group

CLIENT: C. T. Male Associates
SDG: SBN09

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
14 PFAS Compounds	18092009	BLK092009	04/05/2018 16:26:00
		LCS092009	04/05/2018 15:40:00
		LCSDA	04/05/2018 15:55:00
		9535320	04/05/2018 17:13:00
		9535321	04/05/2018 17:29:00
		9535322	04/05/2018 17:44:00
14 PFCs	18093014	BLKA093014	04/06/2018 02:38:00
		LCSA093014	04/06/2018 01:26:00
		LCSDA	04/06/2018 01:55:00
		9535312	04/06/2018 07:58:00
		9535312	04/06/2018 08:13:00
		9535314	04/06/2018 08:27:00
		9535315	04/06/2018 08:42:00
		9535316	04/06/2018 08:56:00
		9535317	04/06/2018 04:35:00
		9535317RE	04/06/2018 07:44:00
		9535318	04/06/2018 09:11:00
		9535319	04/06/2018 09:40:00
		9535319	04/09/2018 00:58:00
		9535323	04/06/2018 09:54:00
		9535324	04/06/2018 10:38:00
		9535325	04/06/2018 10:53:00
14 PFCs	18102019	BLK102019	04/18/2018 11:02:00
		LCS102019	04/18/2018 09:59:00
		9535313	04/18/2018 12:04:00
		9535313	04/18/2018 17:14:00
		9535326	04/18/2018 12:19:00
		9535326	04/19/2018 14:33:00

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Quality Control Summary
Method Blank
PFAS Group
SDG: SBN09
Matrix: SOLID

Fraction: PFAS by LC/MS/MS

18093014 / BLKA093014 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	04/06/18	N.D.	ng/wipe	0.20	0.60
Perfluorononanoic acid	04/06/18	N.D.	ng/wipe	0.20	0.60
Perfluorodecanoic acid	04/06/18	N.D.	ng/wipe	0.20	0.60
Perfluoroundecanoic acid	04/06/18	N.D.	ng/wipe	0.20	0.60
Perfluorododecanoic acid	04/06/18	N.D.	ng/wipe	0.20	0.60
Perfluorotridecanoic acid	04/06/18	N.D.	ng/wipe	0.20	0.60
Perfluorotetradecanoic acid	04/06/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanoic acid	04/06/18	N.D.	ng/wipe	0.20	0.60
Perfluoroheptanoic acid	04/06/18	N.D.	ng/wipe	0.20	0.60
Perfluorobutanesulfonate	04/06/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanesulfonate	04/06/18	N.D.	ng/wipe	0.20	0.60
Perfluoro-octanesulfonate	04/06/18	N.D.	ng/wipe	0.30	0.90
Perfluorobutanoic acid	04/06/18	0.23 J	ng/wipe	0.20	0.60
Perfluoropentanoic acid	04/06/18	N.D.	ng/wipe	0.20	0.60

18102019 / BLK102019 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorononanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorodecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoroundecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorododecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorotridecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorotetradecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoroheptanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorobutanesulfonate	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanesulfonate	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoro-octanesulfonate	04/18/18	N.D.	ng/wipe	0.30	0.90
Perfluorobutanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoropentanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60

9

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Quality Control Summary
Method Blank
PFAS Group
SDG: SBN09
Matrix: LIQUID

Fraction: PFAS by LC/MS/MS

18092009 / BLK092009 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorononanoic acid	04/05/18	N.D.	ng/l	0.40	2.0
Perfluorodecanoic acid	04/05/18	N.D.	ng/l	1.0	2.0
Perfluoroundecanoic acid	04/05/18	N.D.	ng/l	0.40	2.0
Perfluorododecanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorotridecanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorotetradecanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorohexanoic acid	04/05/18	N.D.	ng/l	0.40	2.0
Perfluoroheptanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorobutanesulfonate	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorohexanesulfonate	04/05/18	N.D.	ng/l	0.40	2.0
Perfluoro-octanesulfonate	04/05/18	N.D.	ng/l	0.40	2.0
Perfluorobutanoic acid	04/05/18	N.D.	ng/l	2.0	6.0
Perfluoropentanoic acid	04/05/18	N.D.	ng/l	2.0	6.0

ICAL Name: 18APR03MCAL **Result Table:** 18092009 4/7/2018 9:39:02 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

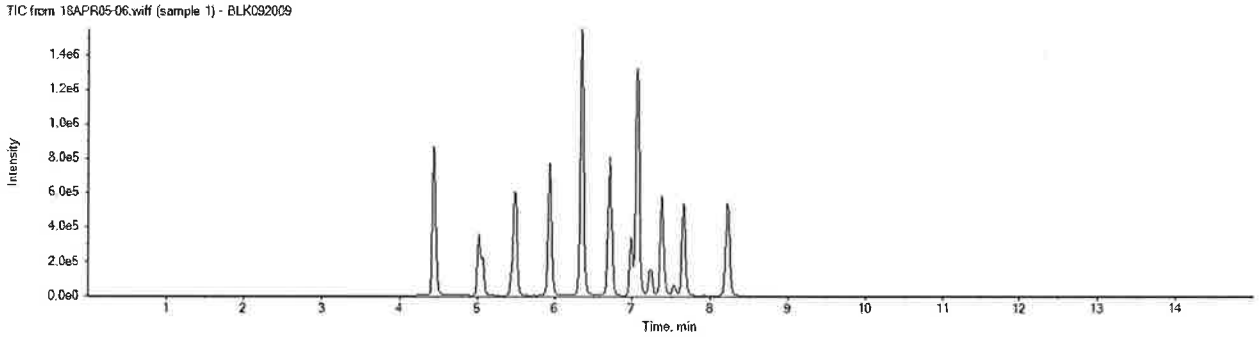
Analyte Quantitation Peak Table

Sample Name: BLK092009 **Instrument Name:** LM24743 **File Name:** 18APR05-06.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.25000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1264696.6	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	1019974.0	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	558930.1	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	1868429.0	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	540552.4	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.93	1882606.6	N/A	
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.35	2394003.5	N/A	
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.69	461822.1	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.72	1717176.0	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.07	2273749.5	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.38	1176131.7	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1687187.5	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1687187.5	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.23	1914679.4	N/A	

Total Ion Chromatogram



APPROVED
By MCD at 9:48 pm, 4/7/18

REVIEWED
By umar at 3:35 pm, 4/15/18

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LC-MS/MS Analysis Report

Printed: 4/6/2018 9:15:00 AM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR04MCAL **Result Table:** 18093014 4/6/2018 8:53:49 AM
QMethod Name: SF-PFCMOD-17MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

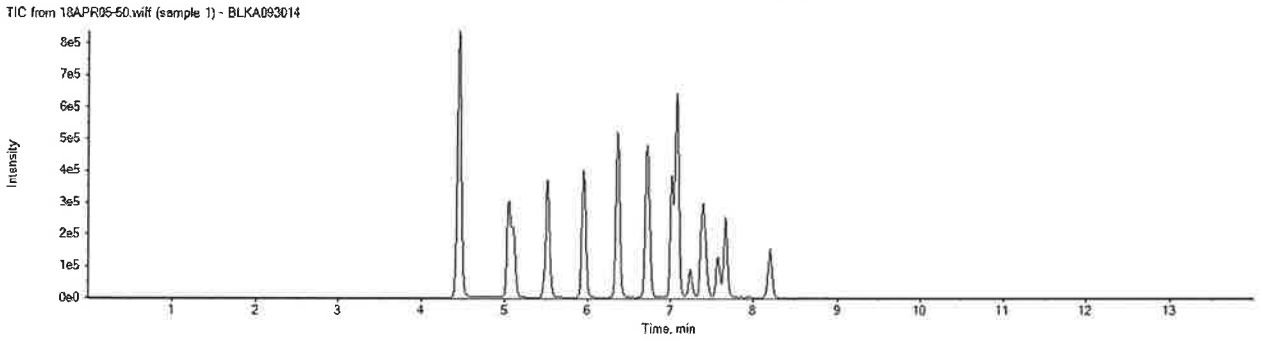
Analyte Quantitation Peak Table

Sample Name: BLKA093014 **Instrument Name:** LM24960 **File Name:** 18APR05-50.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.45	1.000	25817.1	M	13C4-PFBA	4.45	1310208.6	0.020	0.230
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.05	1011346.9	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.11	592998.7	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.51	1129348.4	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.95	475591.2	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.95	892817.6	N/A	
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.36	792040.5	N/A	
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.71	531818.5	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	656965.7	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.08	1033590.5	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.38	599978.0	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	744586.4	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	744586.4	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.21	497922.3	N/A	

Total Ion Chromatogram



APPROVED
By JWK at 9:26 am, 4/6/18

REVIEWED
By uild at 10:02 am, 4/12/18

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

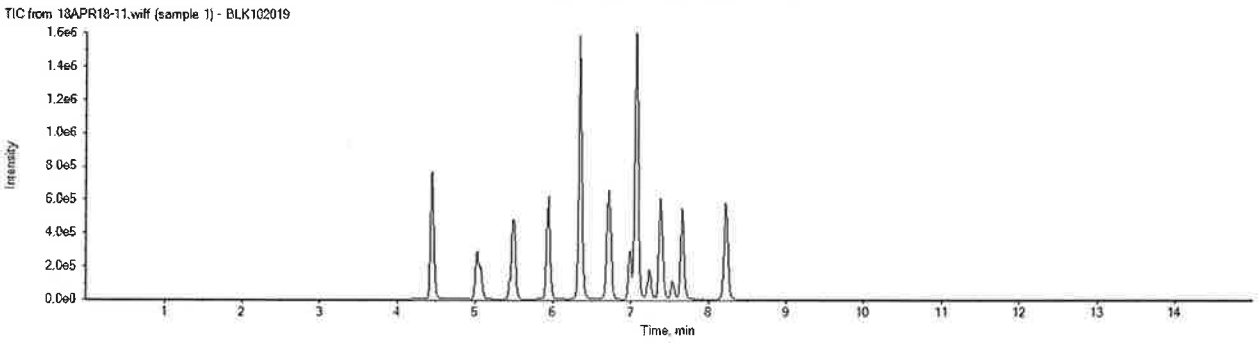
Analyte Quantitation Peak Table

Sample Name: BLK102019 **Instrument Name:** LM24743 **File Name:** 18APR18-11.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (pg/g)
PFBA	4.43	1.000	7958.3	M	13C4-PFBA	4.44	1050315.8	0.008	0.090
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	899250.0	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	442303.5	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	1540654.4	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	401294.1	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.94	1554907.5	N/A	
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.35	1863387.9	N/A	
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.70	363114.2	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	1653059.8	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.07	2176026.1	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.38	1235903.6	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	1683009.0	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	1683009.0	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.22	1966062.9	N/A	

Total Ion Chromatogram



APPROVED
By JPT at 3:32 pm, 4/19/18

REVIEWED
By umar at 10:25 am, 4/23/18

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN09
Matrix: WATER

18092009		13C2-PFDODA	13C2-PFTEDA	13C3-PFBS	13C3-PFHXS	13C4-PFBA
	Limits	28-127	26-119	26-148	34-126	33-123
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS092009	04/05/18 15:40	109	103	91	105	102
LCSDA	04/05/18 15:55	107	110	92	103	104
BLK092009	04/05/18 16:26	98	98	79	89	92
9535320	04/05/18 17:13	97	99	89	96	97
9535321	04/05/18 17:29	92	92	88	86	96
9535322	04/05/18 17:44	99	105	94	103	103

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN09
Matrix: WATER

18092009		13C4-PFHPA	13C5-PFHXA	13C5-PFPEA	13C6-PFDA	13C7-PFUNDA
	Limits	35-126	31-128	39-135	40-115	30-128
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS092009	04/05/18 15:40	110	108	101	102	106
LCSDA	04/05/18 15:55	103	101	103	111	108
BLK092009	04/05/18 16:26	90	91	89	98	100
9535320	04/05/18 17:13	96	98	95	97	95
9535321	04/05/18 17:29	93	95	96	96	95
9535322	04/05/18 17:44	104	110	100	105	114

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN09
Matrix: WATER

18092009		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	43-112	43-115	32-134
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery
LCS092009	04/05/18 15:40	101	104	108
LCSDA	04/05/18 15:55	103	103	106
BLK092009	04/05/18 16:26	91	89	93
9535320	04/05/18 17:13	96	95	102
9535321	04/05/18 17:29	91	97	116
9535322	04/05/18 17:44	107	100	107

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN09
Matrix: SOIL

18102019		13C2-PFDODA	13C2-PFTEDA	13C3-PFBS	13C3-PFHXS	13C4-PFBA
	Limits	15-135	20-127	34-118	32-125	37-107
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS102019	04/18/18 09:59	70	67	67	73	76
BLK102019	04/18/18 11:02	71	67	77	71	83
9535313	04/18/18 12:04	81	80	65	88	71
9535326	04/18/18 12:19	71	69	69	109	74
9535313DL	04/18/18 17:14	75	74	71	74	75
9535326DL	04/19/18 14:33	96	95	91	97	91

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN09
Matrix: SOIL

18102019		13C4-PFHPA	13C5-PFHXA	13C5-PFPEA	13C6-PFDA	13C7-PFUNDA
	Limits	45-114	43-115	70-130	36-121	25-134
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS102019	04/18/18 09:59	77	79	82	70	74
BLK102019	04/18/18 11:02	77	75	84	75	78
9535313	04/18/18 12:04	98	99	72	72	86
9535326	04/18/18 12:19	111	J 117 *	71	68	89
9535313DL	04/18/18 17:14	82	77	75	70	73
9535326DL	04/19/18 14:33	93	99	93	90	96

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN09
Matrix: SOIL

18102019		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery
LCS102019	04/18/18 09:59	79	81	90
BLK102019	04/18/18 11:02	75	91	114
9535313	04/18/18 12:04	64	74	75
9535326	04/18/18 12:19	55	76	89
9535313DL	04/18/18 17:14	76	75	76
9535326DL	04/19/18 14:33	90	90	89

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN09
Matrix: SOIL

18093014		13C2-PFDODA	13C2-PFTEDA	13C3-PFBS	13C3-PFHXS	13C4-PFBA
	Limits	15-135	20-127	34-118	32-125	37-107
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCSA093014	04/06/18 01:26	82	75	74	83	82
LCSDA	04/06/18 01:55	81	67	81	87	88
BLKA093014	04/06/18 02:38	83	83	73	89	84
9535317	04/06/18 04:35	54	50	68	68	76
9535317RE	04/06/18 07:44	53	47	70	64	75
9535312	04/06/18 07:58	65	53	74	213 *	86
9535312DL	04/06/18 08:13	79	73	66	85	77
9535314	04/06/18 08:27	81	72	77	84	87
9535315	04/06/18 08:42	83	77	78	88	85
9535316	04/06/18 08:56	86	77	78	95	85
9535318	04/06/18 09:11	80	75	73	92	83
9535319DL	04/06/18 09:40	85	79	77	89	81
9535323	04/06/18 09:54	79	76	78	91	87
9535324	04/06/18 10:38	82	73	77	87	85
9535325	04/06/18 10:53	79	76	81	98	86

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN09
Matrix: SOIL

18093014		13C4-PFHPA	13C5-PFHXA	13C5-PFPEA	13C6-PFDA	13C7-PFUNDA
	Limits	45-114	43-115	70-130	36-121	25-134
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCSA093014	04/06/18 01:26	85	79	79	85	78
LCSDA	04/06/18 01:55	91	88	85	86	84
BLKA093014	04/06/18 02:38	87	86	80	80	78
9535317	04/06/18 04:35	73	70	72	68	62
9535317RE	04/06/18 07:44	69	68	72	67	62
9535312	04/06/18 07:58	J 219 *	J 215 *	81	80	66
9535312DL	04/06/18 08:13	81	83	73	78	77
9535314	04/06/18 08:27	85	88	84	85	83
9535315	04/06/18 08:42	87	90	83	81	82
9535316	04/06/18 08:56	90	90	80	83	87
9535318	04/06/18 09:11	95	92	80	82	85
9535319DL	04/06/18 09:40	88	85	78	85	80
9535323	04/06/18 09:54	95	96	83	90	83
9535324	04/06/18 10:38	90	90	84	83	88
9535325	04/06/18 10:53	101	101	85	84	88

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN09
Matrix: SOIL

18093014		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery
LCSA093014	04/06/18 01:26	83	82	80
LCSDA	04/06/18 01:55	90	90	90
BLKA093014	04/06/18 02:38	86	88	86
9535317	04/06/18 04:35	71	81	101
9535317RE	04/06/18 07:44	72	72	97
9535312	04/06/18 07:58	72	87	98
9535312DL	04/06/18 08:13	70	73	71
9535314	04/06/18 08:27	84	88	90
9535315	04/06/18 08:42	80	84	89
9535316	04/06/18 08:56	83	81	83
9535318	04/06/18 09:11	84	81	83
9535319DL	04/06/18 09:40	76	80	74
9535323	04/06/18 09:54	84	87	94
9535324	04/06/18 10:38	81	81	90
9535325	04/06/18 10:53	85	92	100

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN09
Matrix: SOIL

18093014		13C2-PFDODA	13C2-PFTEDA	13C3-PFBS	13C3-PFHXS	13C4-PFBA
	Limits	15-135	20-127	34-118	32-125	37-107
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
9535319	04/09/18 00:58	84	72	83	UJ 209 *	87

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN09
Matrix: SOIL

18093014		13C4-PFHPA	13C5-PFHXA	13C5-PFPEA	13C6-PFDA	13C7-PFUNDA
	Limits	45-114	43-115	70-130	36-121	25-134
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
9535319	04/09/18 00:58	J 217 *	J 213 *	86	89	90

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN09
Matrix: SOIL

18093014		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery
9535319	04/09/18 00:58	75	84	77

* Outside QC Limits

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SBN09
Matrix: SOLID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCSA093014 LCSD: LCSDA Analyte	Batch: **18093014** (Sample number(s): 9535312, 9535314-9535319, 9535323-9535325)							
	Spike Added ng/wipe	**LCS Conc ng/wipe**	**LCSD Conc ng/wipe**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	1.48	1.52	109	112	70-130	2	30
Perfluorononanoic acid	1.36	1.66	1.51	122	111	70-130	9	30
Perfluorodecanoic acid	1.36	1.57	1.39	115	103	70-130	12	30
Perfluoroundecanoic acid	1.36	1.54	1.40	114	103	70-130	10	30
Perfluorododecanoic acid	1.36	1.64	1.43	120	105	70-130	14	30
Perfluorotridecanoic acid	1.36	1.86	1.57	136 *	115	70-130	17	30
Perfluorotetradecanoic acid	1.36	1.47	1.37	108	101	70-130	7	30
Perfluorohexanoic acid	1.36	1.55	1.52	114	112	70-130	2	30
Perfluoroheptanoic acid	1.36	1.54	1.52	113	112	70-130	2	30
Perfluorobutanesulfonate	1.20	1.28	1.23	106	102	70-130	4	30
Perfluorohexanesulfonate	1.29	1.36	1.36	106	106	70-130	0	30
Perfluoro-octanesulfonate	1.30	1.36	1.35	105	104	70-130	1	30
Perfluorobutanoic acid	1.36	1.78	1.63	131 *	120	70-130	9	30
Perfluoropentanoic acid	1.36	1.46	1.42	108	105	70-130	3	30

LCS: LCS102019 Analyte	Batch: **18102019** (Sample number(s): 9535313, 9535326)							
	Spike Added ng/wipe	**LCS Conc ng/wipe**	**LCSD Conc ng/wipe**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	1.53	NA	112	NA	70-130	NA	NA
Perfluorononanoic acid	1.36	1.33	NA	98	NA	70-130	NA	NA
Perfluorodecanoic acid	1.36	1.44	NA	106	NA	70-130	NA	NA
Perfluoroundecanoic acid	1.36	1.38	NA	102	NA	70-130	NA	NA
Perfluorododecanoic acid	1.36	1.33	NA	98	NA	70-130	NA	NA
Perfluorotridecanoic acid	1.36	1.36	NA	100	NA	70-130	NA	NA
Perfluorotetradecanoic acid	1.36	1.38	NA	102	NA	70-130	NA	NA
Perfluorohexanoic acid	1.36	1.28	NA	94	NA	70-130	NA	NA
Perfluoroheptanoic acid	1.36	1.37	NA	101	NA	70-130	NA	NA
Perfluorobutanesulfonate	1.20	1.15	NA	96	NA	70-130	NA	NA
Perfluorohexanesulfonate	1.29	1.16	NA	90	NA	70-130	NA	NA
Perfluoro-octanesulfonate	1.30	1.14	NA	88	NA	70-130	NA	NA
Perfluorobutanoic acid	1.36	1.37	NA	101	NA	70-130	NA	NA
Perfluoropentanoic acid	1.36	1.21	NA	89	NA	70-130	NA	NA

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SBN09
Matrix: LIQUID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCS092009 LCSD: LCSDA Analyte	Batch: **18092009** (Sample number(s): 9535320-9535322)							
	Spike Added ng/l	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	5.44	5.16	5.25	95	96	70-130	2	30
Perfluorononanoic acid	5.44	4.79	5.03	88	93	70-130	5	30
Perfluorodecanoic acid	5.44	5.49	5.02	101	92	70-130	9	30
Perfluoroundecanoic acid	5.44	4.88	5.07	90	93	70-130	4	30
Perfluorododecanoic acid	5.44	4.95	5.20	91	96	70-130	5	30
Perfluorotridecanoic acid	5.44	4.61	5.37	85	99	70-130	15	30
Perfluorotetradecanoic acid	5.44	4.98	4.98	91	92	70-130	0	30
Perfluorohexanoic acid	5.44	5.55	5.11	102	94	70-130	8	30
Perfluoroheptanoic acid	5.44	5.25	5.41	97	99	70-130	3	30
Perfluorobutanesulfonate	4.81	4.36	4.34	91	90	70-130	0	30
Perfluorohexanesulfonate	5.14	4.28	4.34	83	84	70-130	1	30
Perfluoro-octanesulfonate	5.20	4.57	4.64	88	89	70-130	2	30
Perfluorobutanoic acid	5.44	4.91 J	5.14 J	90	94	70-130	5	30
Perfluoropentanoic acid	5.44	4.84 J	5.09 J	89	94	70-130	5	30

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18APR03MCAL-10.wiff	4/3/2018 5:45:46 PM	CALMOD11833A	CAL1
18APR03MCAL-11.wiff	4/3/2018 6:01:16 PM	CALMOD21833A	CAL2
18APR03MCAL-12.wiff	4/3/2018 6:16:46 PM	CALMOD31833A	CAL3
18APR03MCAL-13.wiff	4/3/2018 6:32:19 PM	CALMOD41833A	CAL4
18APR03MCAL-14.wiff	4/3/2018 6:47:49 PM	CALMOD51833A	CAL5
18APR03MCAL-15.wiff	4/3/2018 7:03:19 PM	CALMOD61833A	CAL6
18APR03MCAL-16.wiff	4/3/2018 7:18:49 PM	CALMOD71833A	CAL7

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	1070927.1	1069641.9
CAL2	I13C3-PFBA	True	1126426.9	1069641.9
CAL3	I13C3-PFBA	True	1095390.6	1069641.9
CAL4	I13C3-PFBA	True	1102085.4	1069641.9
CAL5	I13C3-PFBA	True	1033749.3	1069641.9
CAL6	I13C3-PFBA	True	1107818.3	1069641.9
CAL7	I13C3-PFBA	True	951095.5	1069641.9
CAL1	I13C2-PFOA	True	1970005.5	1927063.1
CAL2	I13C2-PFOA	True	1999752.1	1927063.1
CAL3	I13C2-PFOA	True	1985935.1	1927063.1
CAL4	I13C2-PFOA	True	1971896.3	1927063.1
CAL5	I13C2-PFOA	True	1892151.4	1927063.1
CAL6	I13C2-PFOA	True	1981982.5	1927063.1
CAL7	I13C2-PFOA	True	1687719.0	1927063.1
CAL1	I13C4-PFOS	True	455687.7	472837.8
CAL2	I13C4-PFOS	True	477917.0	472837.8
CAL3	I13C4-PFOS	True	462822.9	472837.8
CAL4	I13C4-PFOS	True	479900.6	472837.8
CAL5	I13C4-PFOS	True	460308.6	472837.8
CAL6	I13C4-PFOS	True	512774.7	472837.8
CAL7	I13C4-PFOS	True	460453.3	472837.8
CAL1	I13C2-PFDA	True	1551629.8	1521482.1
CAL2	I13C2-PFDA	True	1685581.2	1521482.1
CAL3	I13C2-PFDA	True	1490238.0	1521482.1
CAL4	I13C2-PFDA	True	1610063.4	1521482.1
CAL5	I13C2-PFDA	True	1432482.7	1521482.1
CAL6	I13C2-PFDA	True	1525226.0	1521482.1
CAL7	I13C2-PFDA	True	1355153.9	1521482.1

APPROVED
By DMW at 9:32 pm, 4/3/18

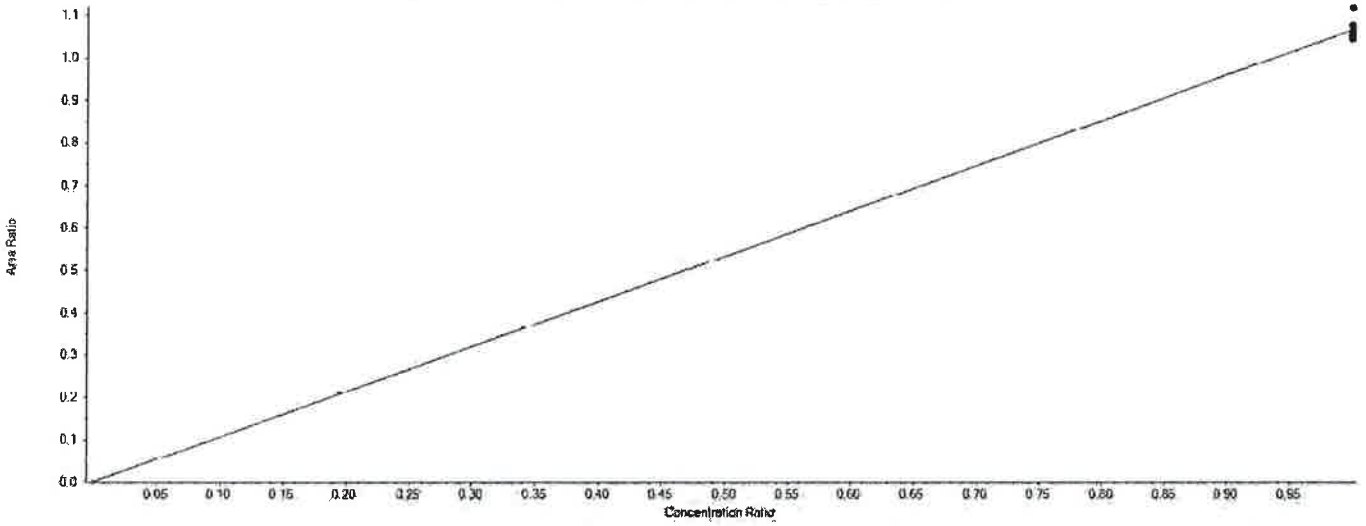
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFBA

y = 1.06568 x (std. dev. = 0.02477) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1117947.8	1070927.1	True	5.00	1.044	4.43	1.000	5.000	4.898	-2.0	50.0	
CAL2	1257830.7	1126426.9	True	5.00	1.117	4.43	1.000	5.000	5.239	4.8	30.0	
CAL3	1154404.8	1095390.6	True	5.00	1.054	4.44	1.000	5.000	4.945	-1.1	30.0	
CAL4	1164284.0	1102085.4	True	5.00	1.056	4.43	1.000	5.000	4.957	-0.9	30.0	
CAL5	1113524.3	1033749.3	True	5.00	1.077	4.44	1.000	5.000	5.054	1.1	30.0	
CAL6	1163702.8	1107818.3	True	5.00	1.050	4.43	1.000	5.000	4.929	-1.4	30.0	
CAL7	1009398.2	951095.5	True	5.00	1.061	4.43	1.000	5.000	4.979	-0.4	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

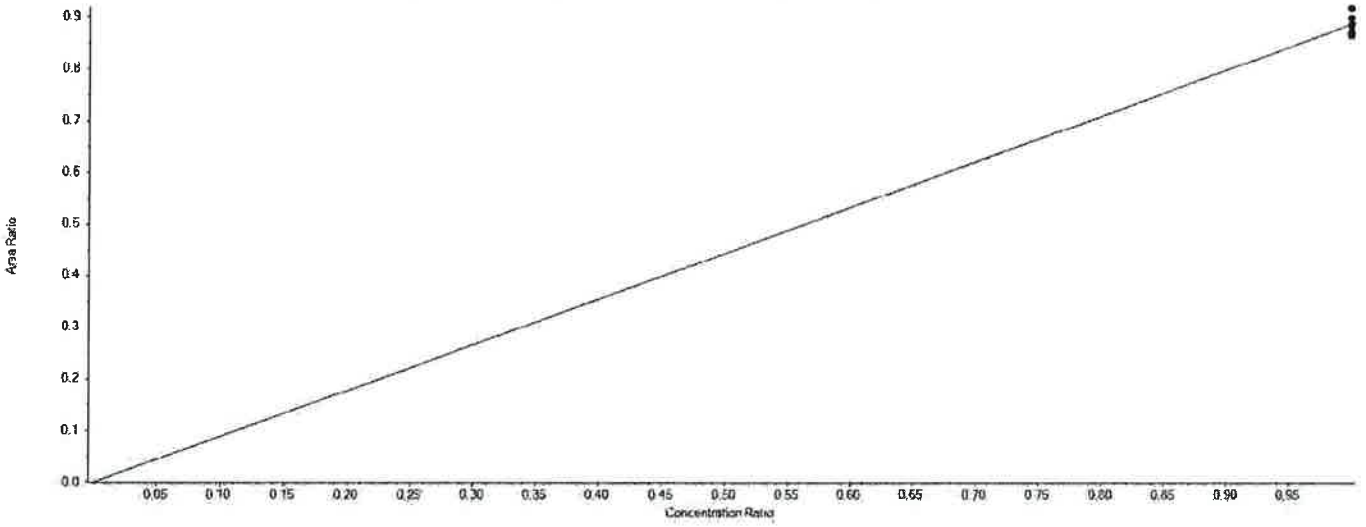
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFPeA

y = 0.88682 x (std. dev. = 0.01720) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	927299.9	1070927.1	True	5.00	0.866	5.01	1.130	5.000	4.882	-2.4	50.0	
CAL2	1033297.5	1126426.9	True	5.00	0.917	5.01	1.130	5.000	5.172	3.4	30.0	
CAL3	953673.8	1095390.6	True	5.00	0.871	5.01	1.130	5.000	4.909	-1.8	30.0	
CAL4	977038.3	1102085.4	True	5.00	0.887	5.01	1.130	5.000	4.998	0.0	30.0	
CAL5	915279.4	1033749.3	True	5.00	0.885	5.01	1.130	5.000	4.992	-0.2	30.0	
CAL6	978916.5	1107818.3	True	5.00	0.884	5.01	1.130	5.000	4.982	-0.4	30.0	
CAL7	854369.5	951095.5	True	5.00	0.898	5.01	1.130	5.000	5.065	1.3	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

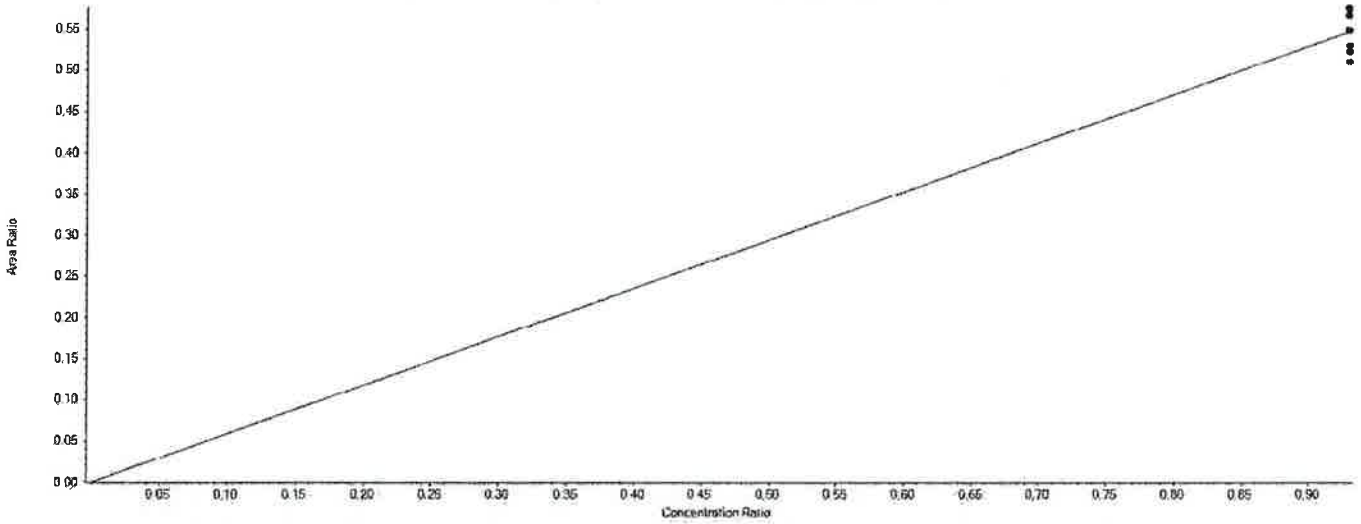
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFBS

y = 0.58770 x (std. dev. = 0.02796) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	546699.6	1070927.1	True	5.00	0.510	5.06	1.140	4.650	4.343	-6.6	50.0	
CAL2	617333.5	1126426.9	True	5.00	0.548	5.06	1.140	4.650	4.663	0.3	30.0	
CAL3	573261.0	1095390.6	True	5.00	0.523	5.06	1.140	4.650	4.452	-4.2	30.0	
CAL4	583555.1	1102085.4	True	5.00	0.530	5.06	1.140	4.650	4.505	-3.1	30.0	
CAL5	593273.0	1033749.3	True	5.00	0.574	5.06	1.140	4.650	4.883	5.0	30.0	
CAL6	626580.1	1107818.3	True	5.00	0.566	5.06	1.140	4.650	4.812	3.5	30.0	
CAL7	546947.7	951095.5	True	5.00	0.575	5.06	1.140	4.650	4.893	5.2	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

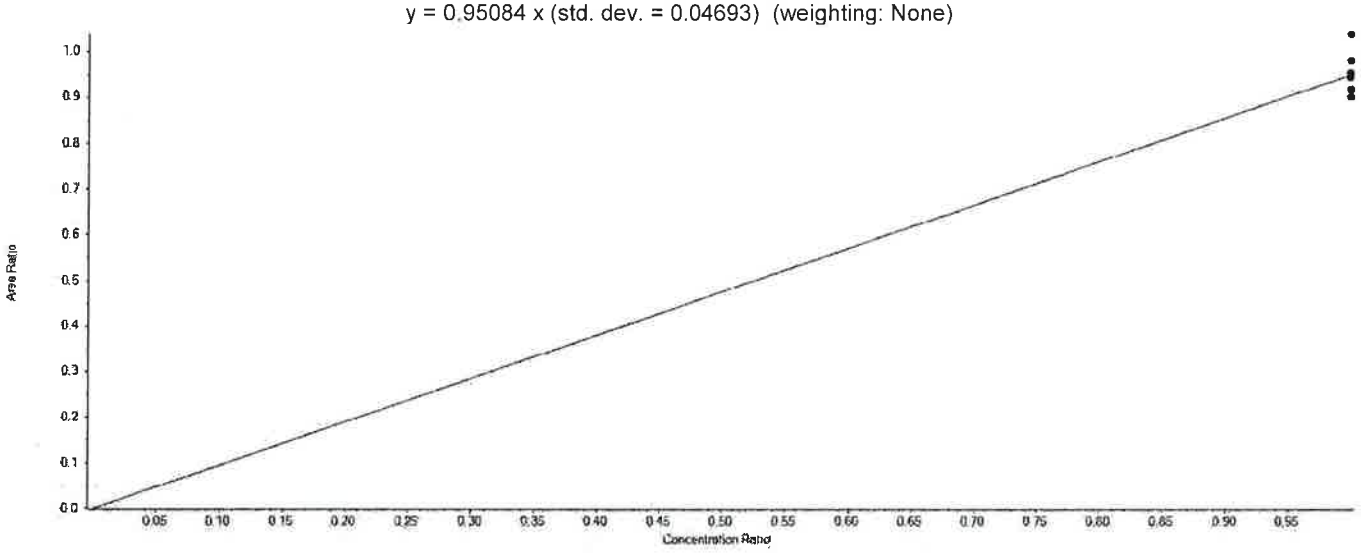
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFHxA

y = 0.95084 x (std. dev. = 0.04693) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1862010.2	1970005.5	True	5.00	0.945	5.47	0.860	5.000	4.970	-0.6	50.0	
CAL2	2074362.3	1999752.1	True	5.00	1.037	5.48	0.860	5.000	5.455	9.1	30.0	
CAL3	1898264.9	1985935.1	True	5.00	0.956	5.48	0.860	5.000	5.026	0.5	30.0	
CAL4	1935951.9	1971896.3	True	5.00	0.982	5.48	0.860	5.000	5.163	3.3	30.0	
CAL5	1734006.8	1892151.4	True	5.00	0.916	5.48	0.860	5.000	4.819	-3.6	30.0	
CAL6	1785750.2	1981982.5	True	5.00	0.901	5.48	0.860	5.000	4.738	-5.2	30.0	
CAL7	1549939.6	1687719.0	True	5.00	0.918	5.47	0.860	5.000	4.829	-3.4	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

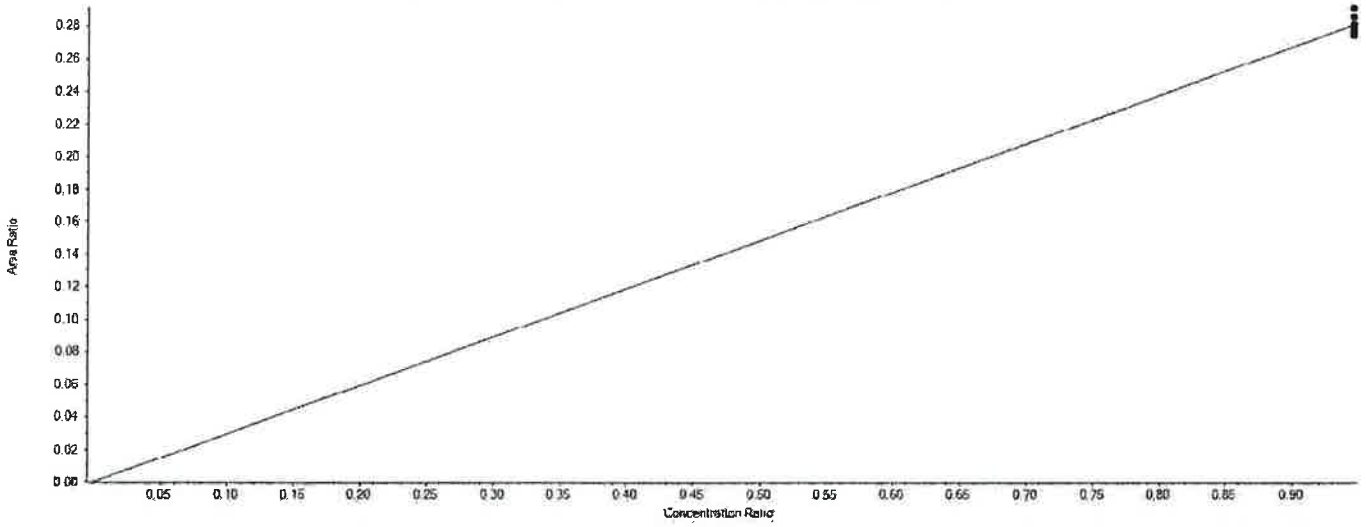
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFHxS

y = 0.29684 x (std. dev. = 0.00606) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	541210.3	1970005.5	True	5.00	0.275	5.91	0.930	4.730	4.627	-2.2	50.0	
CAL2	571572.2	1999752.1	True	5.00	0.286	5.91	0.930	4.730	4.814	1.8	30.0	
CAL3	548482.6	1985935.1	True	5.00	0.276	5.92	0.930	4.730	4.652	-1.6	30.0	
CAL4	548133.1	1971896.3	True	5.00	0.278	5.91	0.930	4.730	4.682	-1.0	30.0	
CAL5	528221.7	1892151.4	True	5.00	0.279	5.92	0.930	4.730	4.702	-0.6	30.0	
CAL6	576693.9	1981982.5	True	5.00	0.291	5.91	0.930	4.730	4.901	3.6	30.0	
CAL7	474004.2	1687719.0	True	5.00	0.281	5.91	0.930	4.730	4.731	0.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

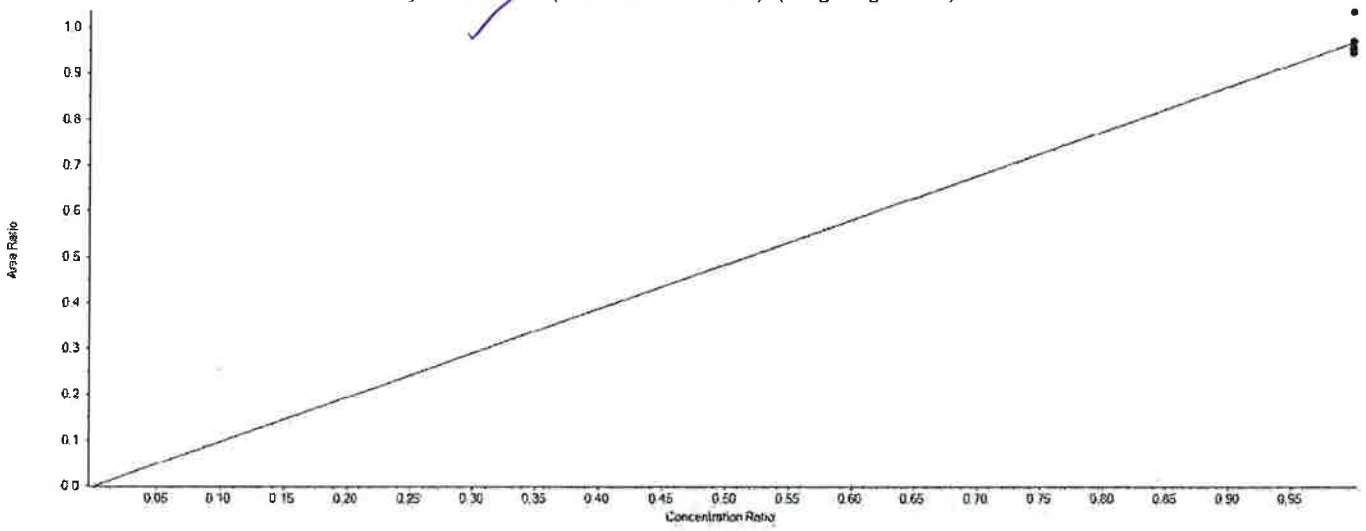
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFHpA

y = 0.96865 x (std. dev. = 0.02996) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1865122.6	1970005.5	True	5.00	0.947	5.92	0.930	5.000	4.887	-2.3	50.0	
CAL2	2068451.2	1999752.1	True	5.00	1.034	5.92	0.940	5.000	5.339	6.8	30.0	
CAL3	1899015.5	1985935.1	True	5.00	0.956	5.93	0.940	5.000	4.936	-1.3	30.0	
CAL4	1917007.4	1971896.3	True	5.00	0.972	5.92	0.940	5.000	5.018	0.4	30.0	
CAL5	1811074.9	1892151.4	True	5.00	0.957	5.92	0.930	5.000	4.941	-1.2	30.0	
CAL6	1902587.0	1981982.5	True	5.00	0.960	5.92	0.930	5.000	4.955	-0.9	30.0	
CAL7	1609975.6	1687719.0	True	5.00	0.954	5.92	0.940	5.000	4.924	-1.5	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

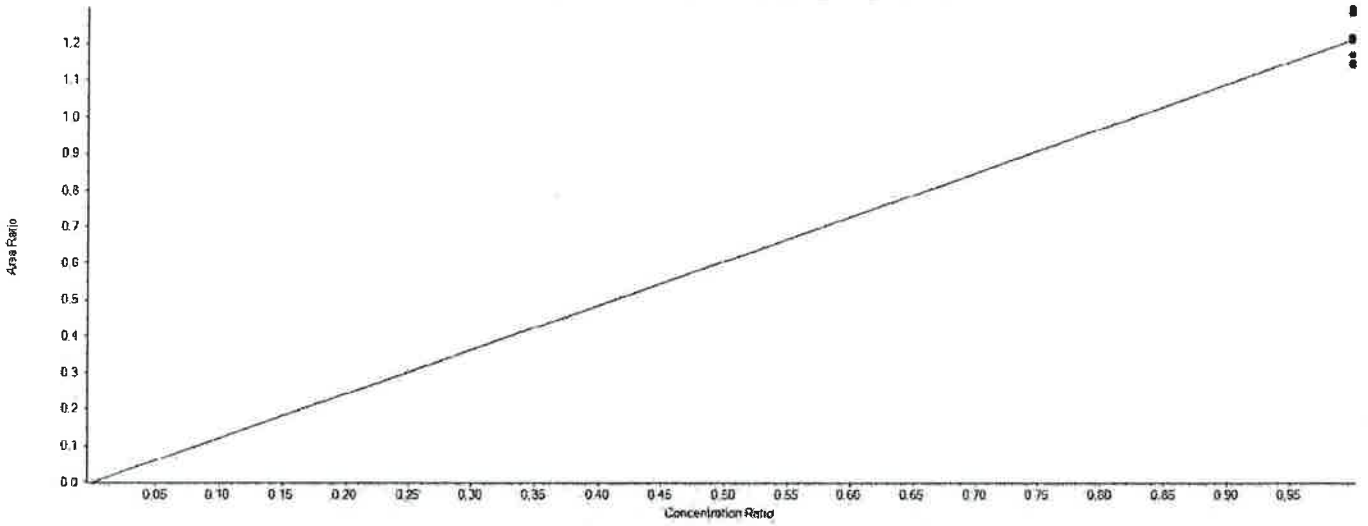
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOA

y = 1.21018 x (std. dev. = 0.06163) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	2304033.3	1970005.5	True	5.00	1.170	6.33	1.000	5.000	4.832	-3.4	50.0	
CAL2	2592220.3	1999752.1	True	5.00	1.296	6.33	1.000	5.000	5.356	7.1	30.0	
CAL3	2548782.1	1985935.1	True	5.00	1.283	6.34	1.000	5.000	5.303	6.1	30.0	
CAL4	2388447.3	1971896.3	True	5.00	1.211	6.33	1.000	5.000	5.004	0.1	30.0	
CAL5	2306378.4	1892151.4	True	5.00	1.219	6.34	1.000	5.000	5.036	0.7	30.0	
CAL6	2263958.6	1981982.5	True	5.00	1.142	6.34	1.000	5.000	4.719	-5.6	30.0	
CAL7	1940157.1	1687719.0	True	5.00	1.150	6.33	1.000	5.000	4.750	-5.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

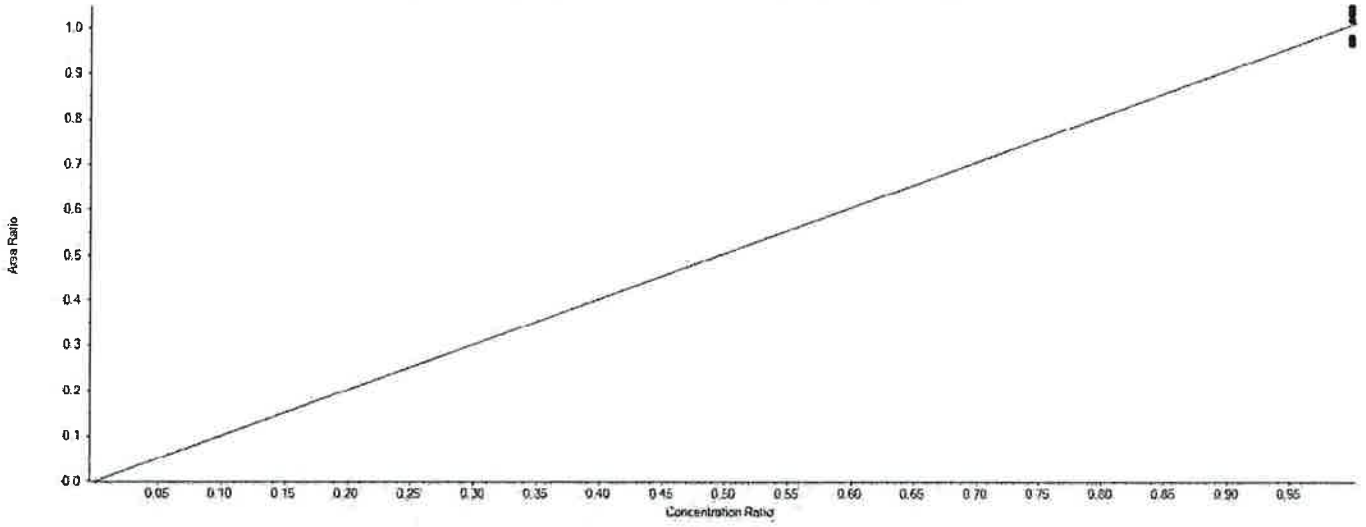
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOS

y = 1.00766 x (std. dev. = 0.03337) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	443411.4	455687.7	True	4.78	0.973	6.67	1.000	4.780	4.616	-3.4	50.0	
CAL2	496179.7	477917.0	True	4.78	1.038	6.67	1.000	4.780	4.925	3.0	30.0	
CAL3	484080.2	462822.9	True	4.78	1.046	6.68	1.000	4.780	4.962	3.8	30.0	
CAL4	488577.4	479900.6	True	4.78	1.018	6.68	1.000	4.780	4.829	1.0	30.0	
CAL5	474614.5	460308.6	True	4.78	1.031	6.68	1.000	4.780	4.891	2.3	30.0	
CAL6	503058.6	512774.7	True	4.78	0.981	6.68	1.000	4.780	4.654	-2.6	30.0	
CAL7	444882.0	460453.3	True	4.78	0.966	6.68	1.000	4.780	4.583	-4.1	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

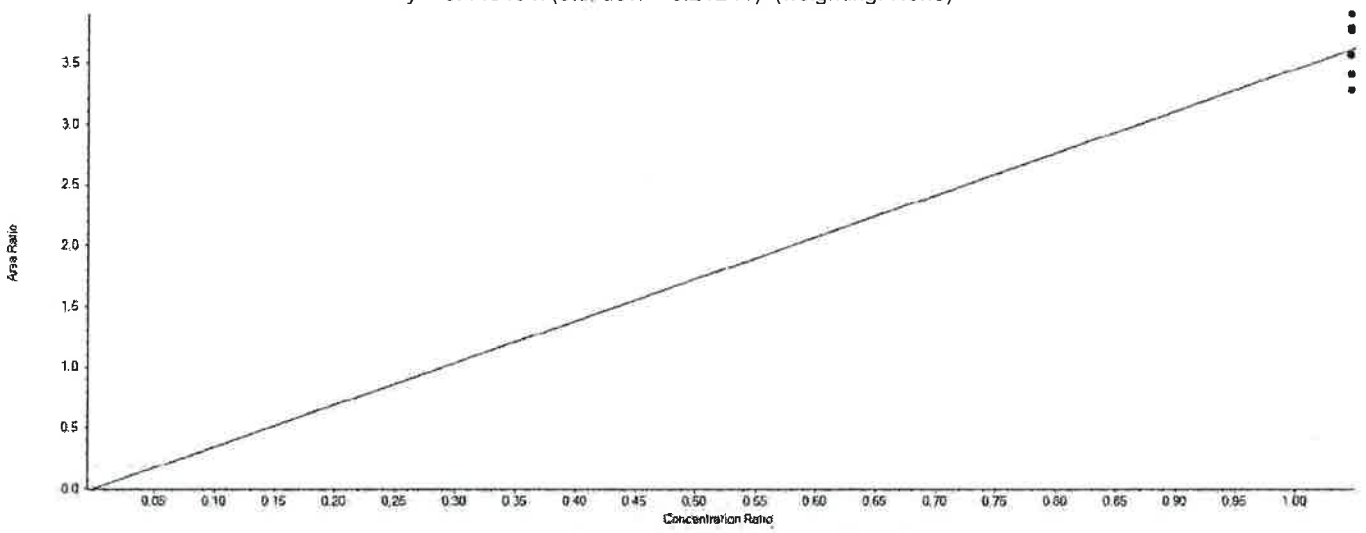
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C9-PFNA

y = 3.44849 x (std. dev. = 0.21241) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1626342.4	455687.7	True	4.78	3.569	6.70	1.000	5.000	4.947	-1.1	50.0	
CAL2	1861072.1	477917.0	True	4.78	3.894	6.70	1.000	5.000	5.398	8.0	30.0	
CAL3	1742212.3	462822.9	True	4.78	3.764	6.71	1.000	5.000	5.218	4.4	30.0	
CAL4	1817151.4	479900.6	True	4.78	3.787	6.70	1.000	5.000	5.249	5.0	30.0	
CAL5	1639175.4	460308.6	True	4.78	3.561	6.71	1.000	5.000	4.936	-1.3	30.0	
CAL6	1678669.6	512774.7	True	4.78	3.274	6.71	1.000	5.000	4.538	-9.2	30.0	
CAL7	1566344.3	460453.3	True	4.78	3.402	6.71	1.000	5.000	4.715	-5.7	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

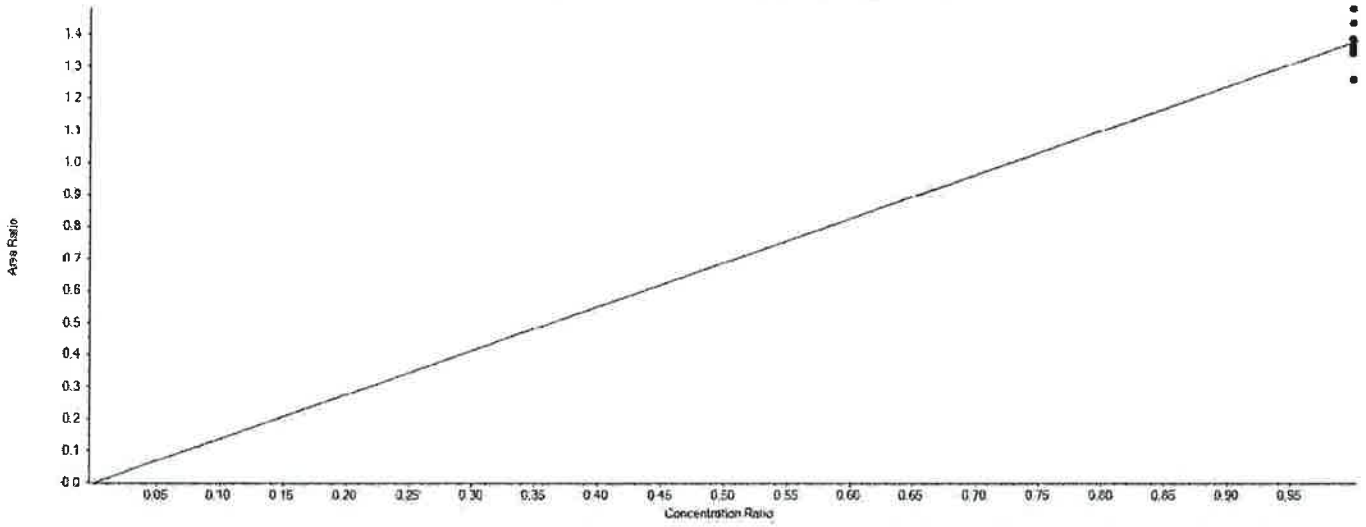
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C6-PFDA

y = 1.37428 x (std. dev. = 0.06976) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	2080191.8	1551629.8	True	5.00	1.341	7.04	1.000	5.000	4.878	-2.4	50.0	
CAL2	2492323.6	1685581.2	True	5.00	1.479	7.05	1.000	5.000	5.380	7.6	30.0	
CAL3	2023224.6	1490238.0	True	5.00	1.358	7.05	1.000	5.000	4.940	-1.2	30.0	
CAL4	2231084.6	1610063.4	True	5.00	1.386	7.04	1.000	5.000	5.042	0.8	30.0	
CAL5	2053320.9	1432482.7	True	5.00	1.433	7.05	1.000	5.000	5.215	4.3	30.0	
CAL6	2081140.9	1525226.0	True	5.00	1.364	7.05	1.000	5.000	4.964	-0.7	30.0	
CAL7	1706736.6	1355153.9	True	5.00	1.259	7.05	1.000	5.000	4.582	-8.4	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

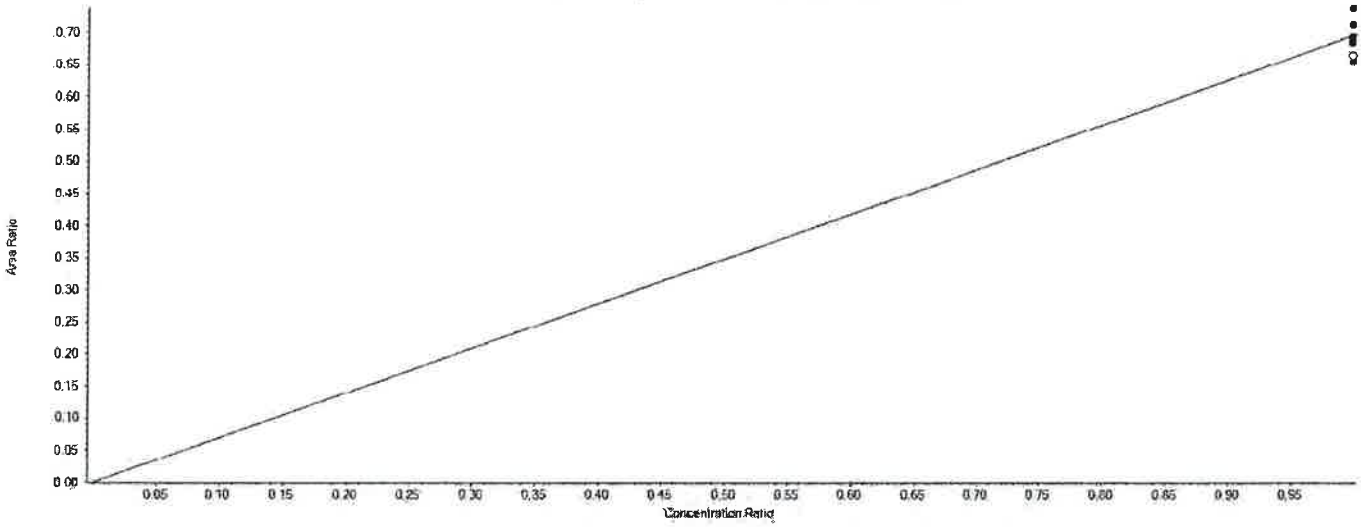
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C7-PFUnDA

y = 0.69529 x (std. dev. = 0.02768) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1015693.5	1551629.8	True	5.00	0.655	7.35	1.040	5.000	4.707	-5.9	50.0	
CAL2	1164506.3	1685581.2	True	5.00	0.691	7.35	1.040	5.000	4.968	-0.6	30.0	
CAL3	1098700.6	1490238.0	True	5.00	0.737	7.35	1.040	5.000	5.302	6.0	30.0	
CAL4	1145612.3	1610063.4	True	5.00	0.712	7.35	1.040	5.000	5.117	2.3	30.0	
CAL5	993380.7	1432482.7	True	5.00	0.693	7.35	1.040	5.000	4.987	-0.3	30.0	
CAL6	1043242.6	1525226.0	True	5.00	0.684	7.36	1.040	5.000	4.919	-1.6	30.0	
CAL7	900995.9	1355153.9	False	5.00	0.665	7.35	1.040	5.000	4.781	-4.4	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

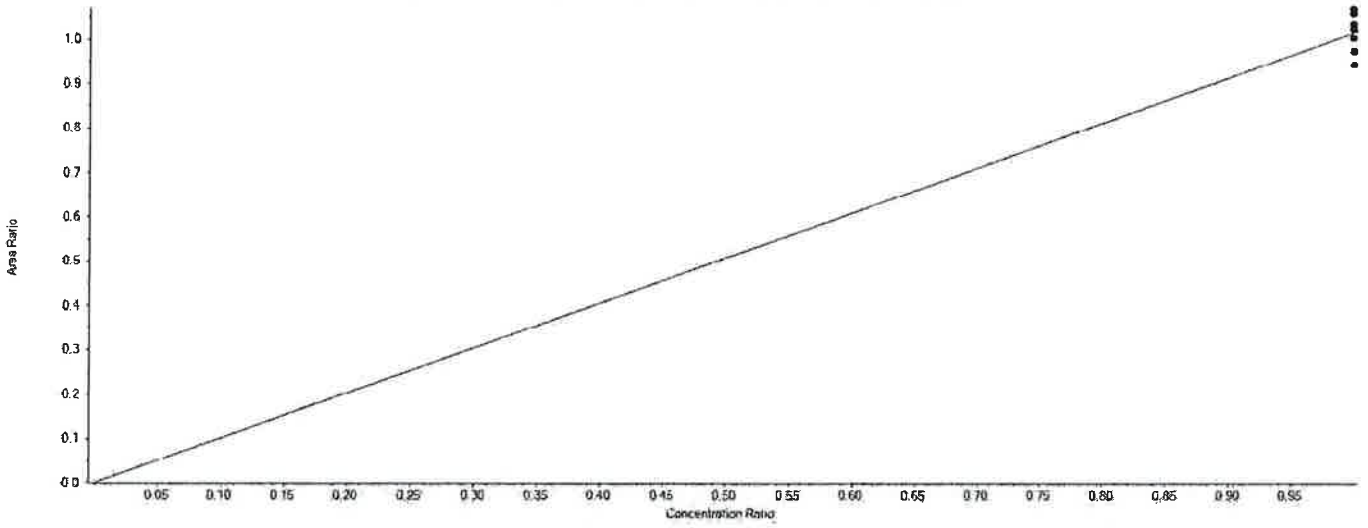
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFDoDA

y = 1.01485 x (std. dev. = 0.04453) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1464592.1	1551629.8	True	5.00	0.944	7.63	1.080	5.000	4.650	-7.0	50.0	
CAL2	1742039.0	1685581.2	True	5.00	1.033	7.63	1.080	5.000	5.092	1.8	30.0	
CAL3	1576303.1	1490238.0	True	5.00	1.058	7.64	1.080	5.000	5.211	4.2	30.0	
CAL4	1616114.9	1610063.4	True	5.00	1.004	7.63	1.080	5.000	4.945	-1.1	30.0	
CAL5	1530208.0	1432482.7	True	5.00	1.068	7.64	1.080	5.000	5.263	5.3	30.0	
CAL6	1559544.9	1525226.0	True	5.00	1.023	7.64	1.080	5.000	5.038	0.8	30.0	
CAL7	1320302.6	1355153.9	True	5.00	0.974	7.64	1.080	5.000	4.800	-4.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

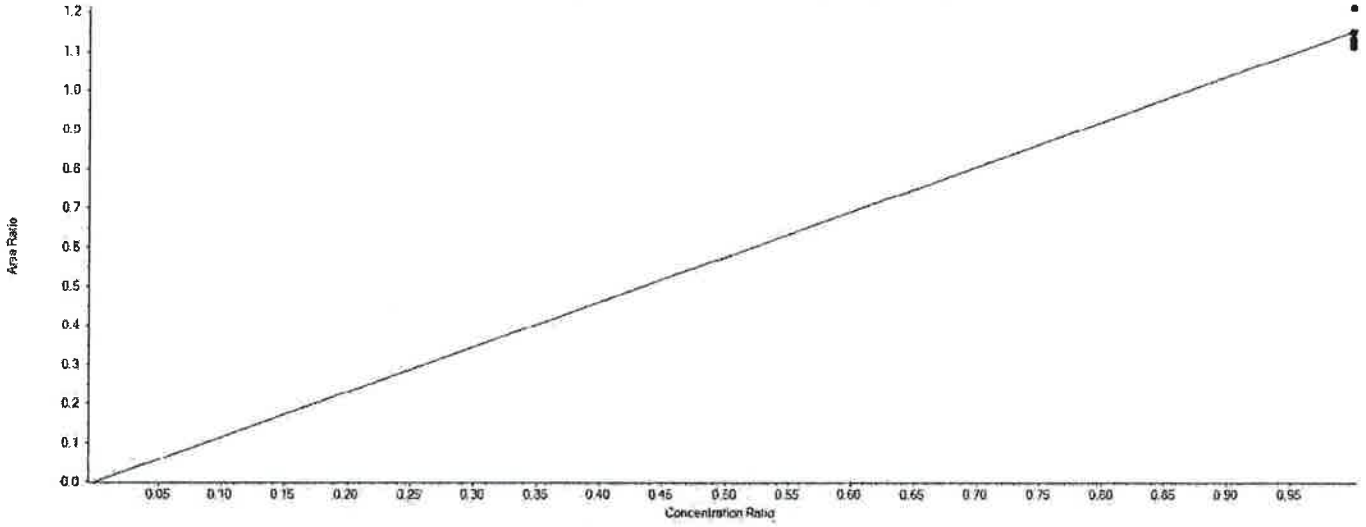
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFTeDA

y = 1.15175 x (std. dev. = 0.04214) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1727146.0	1551629.8	True	5.00	1.113	8.17	1.160	5.000	4.832	-3.4	50.0	
CAL2	1884917.7	1685581.2	True	5.00	1.118	8.17	1.160	5.000	4.855	-2.9	30.0	
CAL3	1804912.7	1490238.0	True	5.00	1.211	8.18	1.160	5.000	5.258	5.2	30.0	
CAL4	1811742.7	1610063.4	True	5.00	1.125	8.17	1.160	5.000	4.885	-2.3	30.0	
CAL5	1734299.9	1432482.7	True	5.00	1.211	8.18	1.160	5.000	5.256	5.1	30.0	
CAL6	1728825.0	1525226.0	True	5.00	1.133	8.18	1.160	5.000	4.921	-1.6	30.0	
CAL7	1558811.5	1355153.9	True	5.00	1.150	8.18	1.160	5.000	4.994	-0.1	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

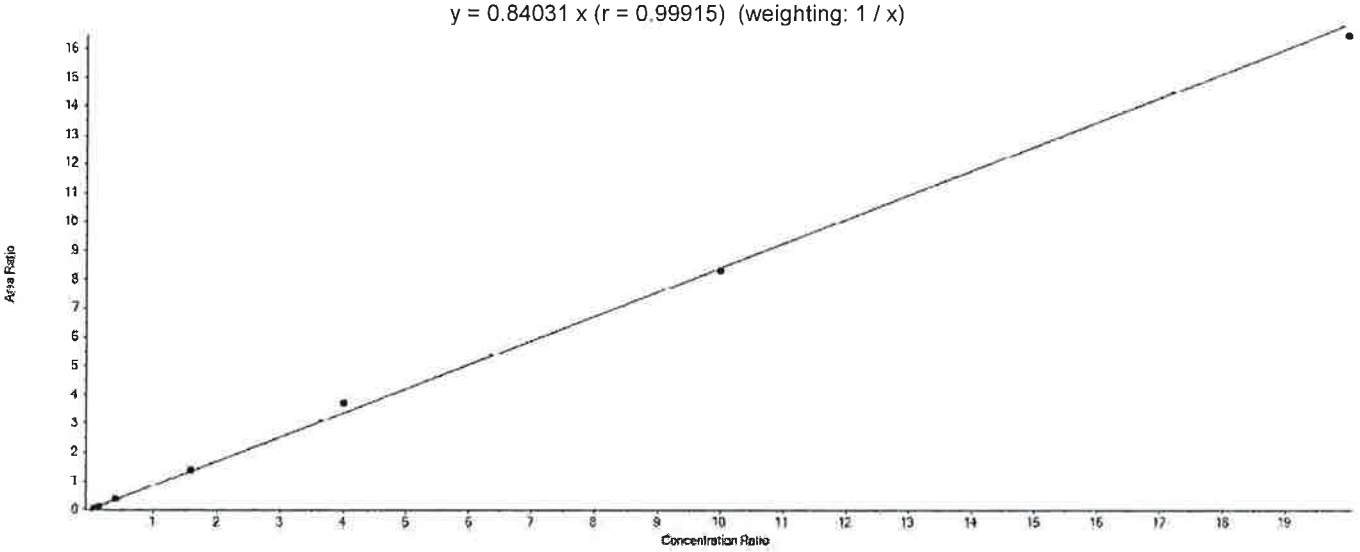
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBA

y = 0.84031 x (r = 0.99915) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	44357.9	1117947.8	True	5.00	0.040	4.43	1.000	0.200	0.236	18.0	50.0	
CAL2	131145.5	1257830.7	True	5.00	0.104	4.43	1.000	0.600	0.620	3.4	30.0	
CAL3	408767.9	1154404.8	True	5.00	0.354	4.44	1.000	2.000	2.107	5.3	30.0	
CAL4	1636608.6	1164284.0	True	5.00	1.406	4.43	1.000	8.000	8.364	4.6	30.0	
CAL5	4146003.6	1113524.3	True	5.00	3.723	4.43	1.000	20.000	22.155	10.8	30.0	
CAL6	9692379.4	1163702.8	True	5.00	8.329	4.43	1.000	50.000	49.559	-0.9	30.0	
CAL7	16583907.3	1009398.2	True	5.00	16.430	4.43	1.000	100.000	97.759	-2.2	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

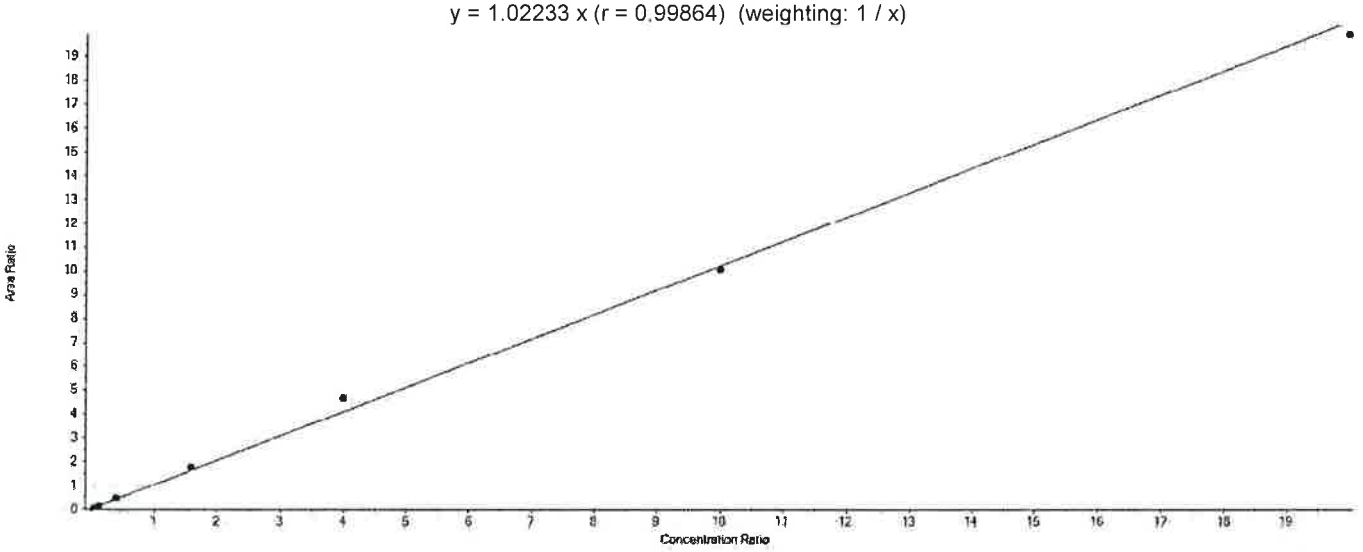
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFPeA

y = 1.02233 x (r = 0.99864) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	46166.0	927299.9	True	5.00	0.050	5.01	1.000	0.200	0.243	21.7	50.0	
CAL2	132108.5	1033297.5	True	5.00	0.128	5.01	1.000	0.600	0.625	4.2	30.0	
CAL3	404141.7	953673.8	True	5.00	0.424	5.01	1.000	2.000	2.073	3.6	30.0	
CAL4	1714749.5	977038.3	True	5.00	1.755	5.01	1.000	8.000	8.584	7.3	30.0	
CAL5	4247734.6	915279.4	True	5.00	4.641	5.01	1.000	20.000	22.698	13.5	30.0	
CAL6	9857542.2	978916.5	True	5.00	10.070	5.01	1.000	50.000	49.250	-1.5	30.0	
CAL7	17002017.3	854369.5	True	5.00	19.900	5.01	1.000	100.000	97.327	-2.7	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

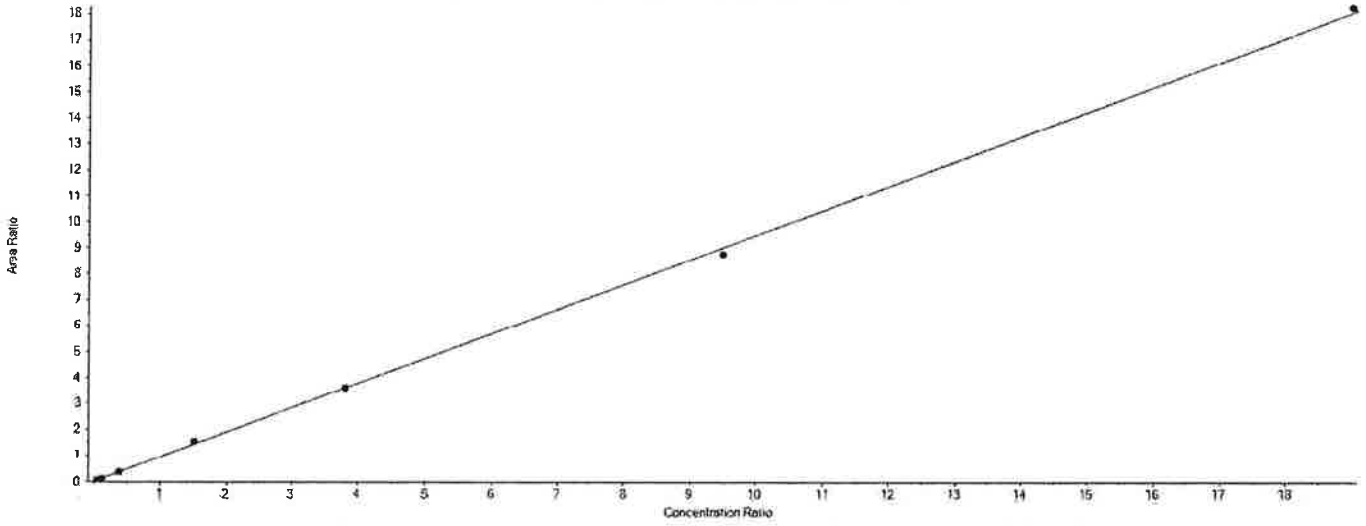
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBS

y = 0.94845 x (r = 0.99974) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	22305.5	546699.6	True	4.65	0.041	5.06	1.000	0.170	0.200	17.7	50.0	
CAL2	67204.6	617333.5	True	4.65	0.109	5.06	1.000	0.530	0.534	0.7	30.0	
CAL3	210725.2	573261.0	True	4.65	0.368	5.06	1.000	1.770	1.802	1.8	30.0	
CAL4	895197.7	583555.1	True	4.65	1.534	5.06	1.000	7.080	7.521	6.2	30.0	
CAL5	2128725.1	593273.0	True	4.65	3.588	5.06	1.000	17.690	17.592	-0.6	30.0	
CAL6	5474180.5	626580.1	True	4.65	8.737	5.06	1.000	44.220	42.833	-3.1	30.0	
CAL7	9976593.6	546947.7	True	4.65	18.240	5.06	1.000	88.450	89.428	1.1	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

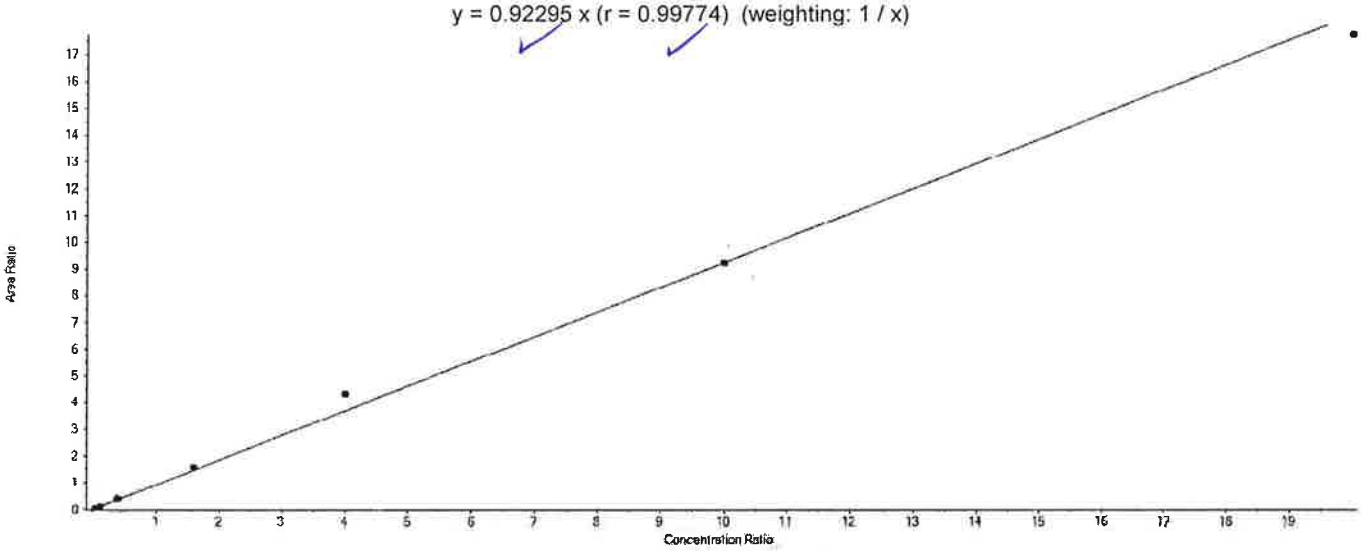
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxA

y = 0.92295 x (r = 0.99774) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	74412.0	1862010.2	True	5.00	0.040	5.47	1.000	0.200	0.216	8.2	50.0	
CAL2	233662.9	2074362.3	True	5.00	0.113	5.48	1.000	0.600	0.610	1.7	30.0	
CAL3	726946.0	1898264.9	True	5.00	0.383	5.48	1.000	2.000	2.075	3.7	30.0	
CAL4	3064026.7	1935951.9	True	5.00	1.583	5.48	1.000	8.000	8.574	7.2	30.0	
CAL5	7505176.4	1734006.8	True	5.00	4.328	5.48	1.000	20.000	23.448	17.2	30.0	
CAL6	16455995.7	1785750.2	True	5.00	9.215	5.48	1.000	50.000	49.922	-0.2	30.0	
CAL7	27452984.6	1549939.6	True	5.00	17.712	5.47	1.000	100.000	95.955	-4.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

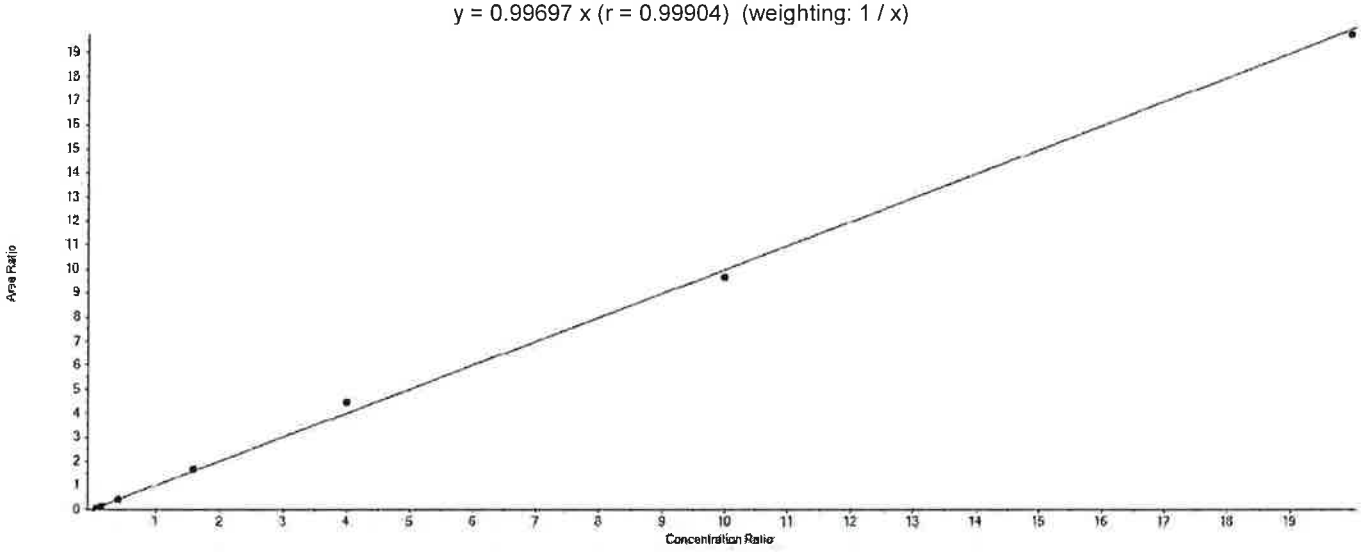
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxS

y = 0.99697 x (r = 0.99904) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	22052.7	541210.3	True	4.73	0.041	5.92	1.000	0.190	0.193	1.7	50.0	
CAL2	70492.5	571572.2	True	4.73	0.123	5.91	1.000	0.570	0.585	2.7	30.0	
CAL3	219704.5	548482.6	True	4.73	0.401	5.92	1.000	1.890	1.900	0.6	30.0	
CAL4	907280.1	548133.1	True	4.73	1.655	5.91	1.000	7.560	7.853	3.9	30.0	
CAL5	2346223.1	528221.7	True	4.73	4.442	5.92	1.000	18.910	21.073	11.4	30.0	
CAL6	5562707.2	576693.9	True	4.73	9.646	5.91	1.000	47.280	45.764	-3.2	30.0	
CAL7	9349590.8	474004.2	True	4.73	19.725	5.91	1.000	94.550	93.581	-1.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

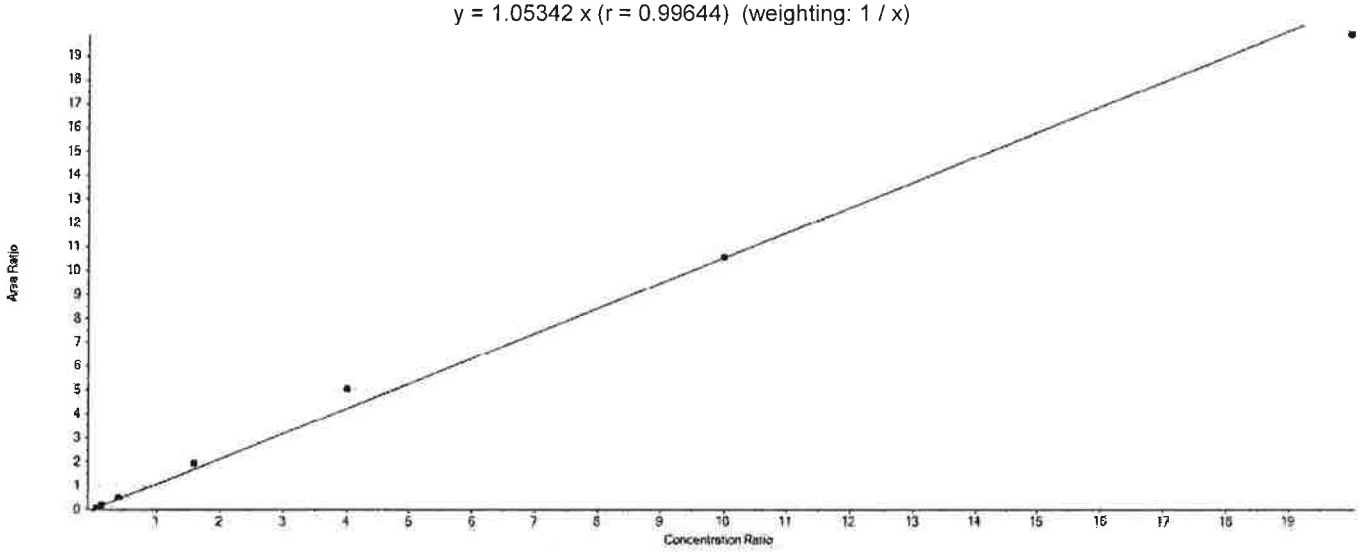
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHpA

y = 1.05342 x (r = 0.99644) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	94576.4	1865122.6	True	5.00	0.051	5.92	1.000	0.200	0.241	20.3	50.0	
CAL2	304138.4	2068451.2	True	5.00	0.147	5.92	1.000	0.600	0.698	16.3	30.0	
CAL3	934133.3	1899015.5	True	5.00	0.492	5.92	1.000	2.000	2.335	16.7	30.0	
CAL4	3654905.7	1917007.4	True	5.00	1.907	5.92	1.000	8.000	9.049	13.1	30.0	
CAL5	9141199.5	1811074.9	True	5.00	5.047	5.92	1.000	20.000	23.957	19.8	30.0	
CAL6	20132658.5	1902587.0	True	5.00	10.582	5.92	1.000	50.000	50.225	0.5	30.0	
CAL7	31984556.1	1609975.6	True	5.00	19.866	5.92	1.000	100.000	94.295	-5.7	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

REVIEWED
By UMJS at 10:41 am, 4/5/18

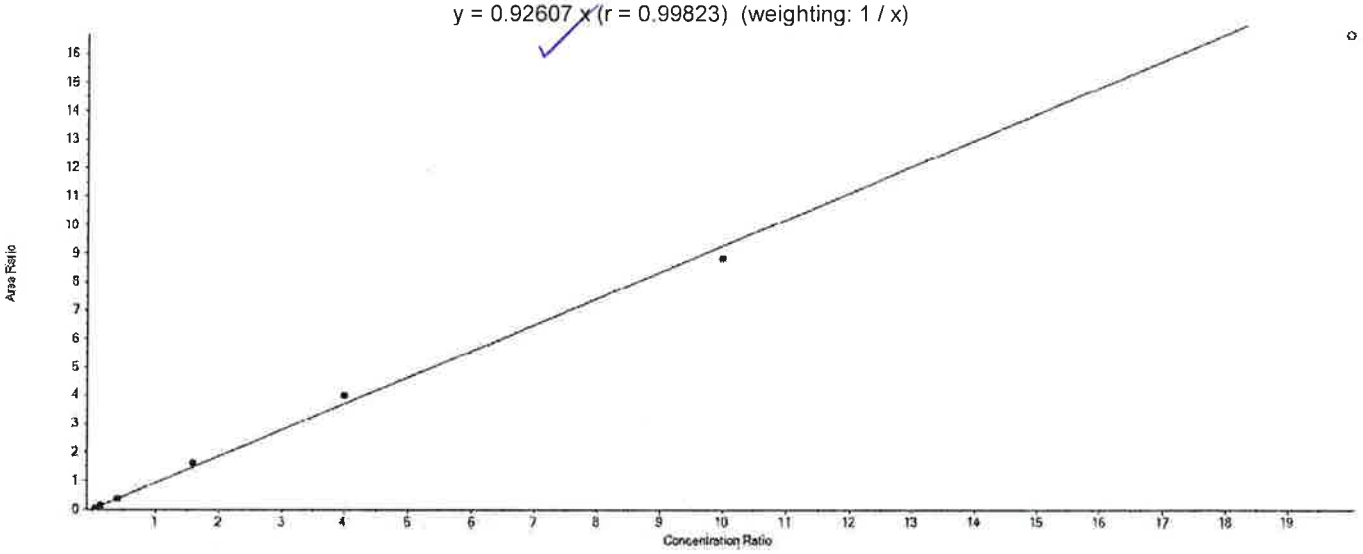
Revised

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOA

y = 0.92607 x (r = 0.99823) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	106701.5	2304033.3	True	5.00	0.046	6.33	1.000	0.200	0.250	25.0	50.0	
CAL2	316936.4	2592220.3	True	5.00	0.122	6.33	1.000	0.600	0.660	10.0	30.0	
CAL3	915319.1	2548782.1	True	5.00	0.359	6.34	1.000	2.000	1.939	-3.1	30.0	
CAL4	3822883.7	2388447.3	True	5.00	1.601	6.33	1.000	8.000	8.642	8.0	30.0	
CAL5	9207343.7	2306378.4	True	5.00	3.992	6.34	1.000	20.000	21.554	7.8	30.0	
CAL6	20024624.4	2263958.6	True	5.00	8.845	6.33	1.000	50.000	47.755	-4.5	30.0	
CAL7	32313532.1	1940157.1	False	5.00	16.655	6.33	1.000	100.000	89.923	-10.1	30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

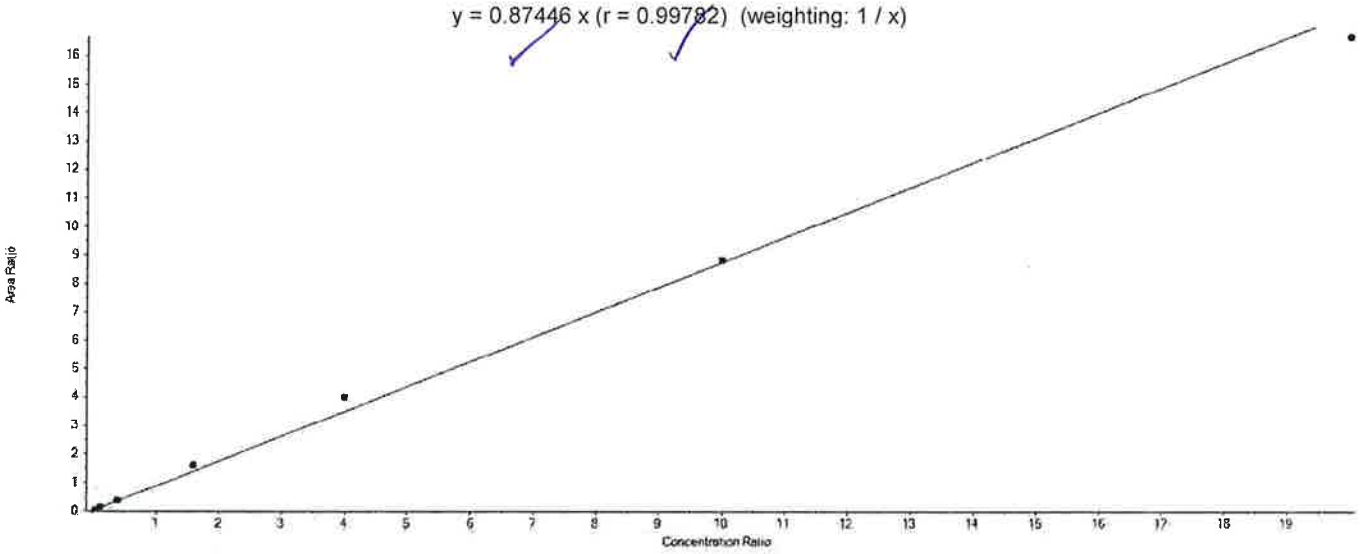
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOA

y = 0.87446 x (r = 0.99782) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	106701.5	2304033.3	True	5.00	0.046	6.33	1.000	0.200	0.265	32.4	50.0	
CAL2	316936.4	2592220.3	True	5.00	0.122	6.33	1.000	0.600	0.699	16.5	30.0	
CAL3	915319.1	2548782.1	True	5.00	0.359	6.34	1.000	2.000	2.053	2.7	30.0	
CAL4	3822883.7	2388447.3	True	5.00	1.601	6.33	1.000	8.000	9.152	14.4	30.0	
CAL5	9207343.7	2306378.4	True	5.00	3.992	6.34	1.000	20.000	22.826	14.1	30.0	
CAL6	20024624.4	2263958.6	True	5.00	8.845	6.33	1.000	50.000	50.574	1.1	30.0	
CAL7	32313532.1	1940157.1	True	5.00	16.655	6.33	1.000	100.000	95.231	-4.8	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

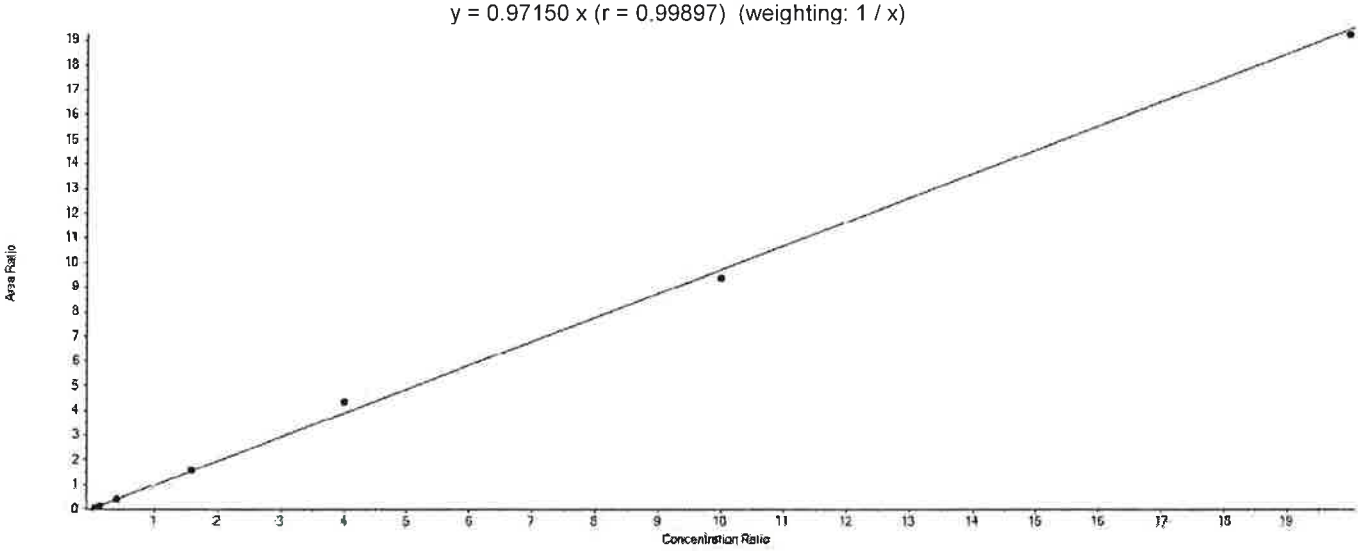
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOS

y = 0.97150 x (r = 0.99897) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	20403.5	443411.4	True	4.78	0.046	6.67	1.000	0.190	0.226	19.2	50.0	
CAL2	58822.7	496179.7	True	4.78	0.119	6.68	1.000	0.570	0.583	2.3	30.0	
CAL3	193744.0	484080.2	True	4.78	0.400	6.68	1.000	1.910	1.969	3.1	30.0	
CAL4	778409.3	488577.4	True	4.78	1.593	6.67	1.000	7.650	7.839	2.5	30.0	
CAL5	2067903.0	474614.5	True	4.78	4.357	6.68	1.000	19.120	21.438	12.1	30.0	
CAL6	4722005.0	503058.6	True	4.78	9.387	6.68	1.000	47.800	46.184	-3.4	30.0	
CAL7	8553645.9	444882.0	True	4.78	19.227	6.68	1.000	95.600	94.600	-1.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

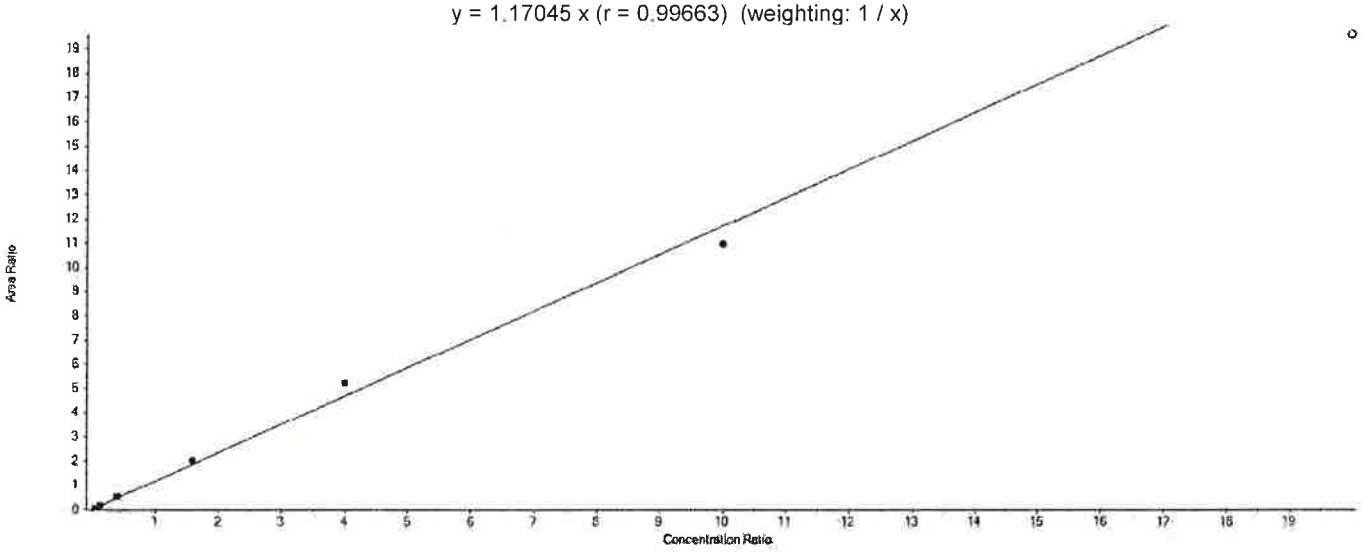
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFNA

y = 1.17045 x (r = 0.99663) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	88469.3	1626342.4	True	5.00	0.054	6.70	1.000	0.200	0.232	16.2	50.0	
CAL2	265497.7	1861072.1	True	5.00	0.143	6.71	1.000	0.600	0.609	1.6	30.0	
CAL3	877547.8	1742212.3	True	5.00	0.504	6.71	1.000	2.000	2.152	7.6	30.0	
CAL4	3683261.8	1817151.4	True	5.00	2.027	6.70	1.000	8.000	8.659	8.2	30.0	
CAL5	8554081.4	1639175.4	True	5.00	5.219	6.71	1.000	20.000	22.293	11.5	30.0	
CAL6	18412034.2	1678669.6	True	5.00	10.968	6.71	1.000	50.000	46.855	-6.3	30.0	
CAL7	30649358.3	1566344.3	False	5.00	19.567	6.71	1.000	100.000	83.589	-16.4	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

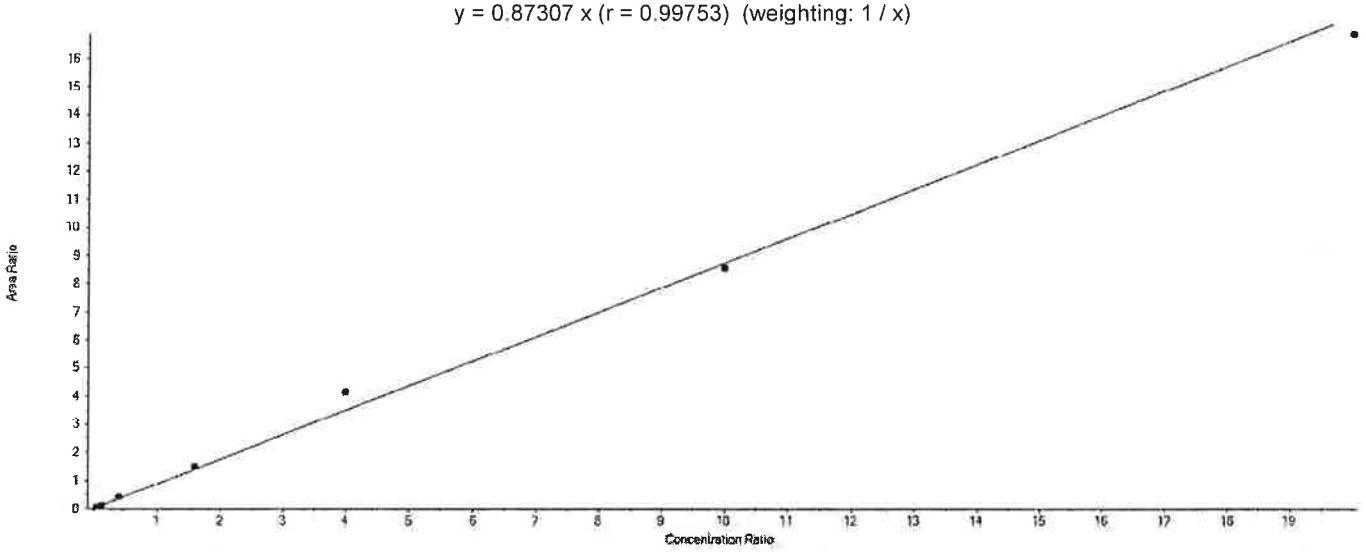
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDA

y = 0.87307 x (r = 0.99753) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	93904.0	2080191.8	True	5.00	0.045	7.04	1.000	0.200	0.259	29.3	50.0	
CAL2	268082.6	2492323.6	True	5.00	0.108	7.04	1.000	0.600	0.616	2.7	30.0	
CAL3	807379.8	2023224.6	True	5.00	0.399	7.05	1.000	2.000	2.285	14.3	30.0	
CAL4	3304575.3	2231084.6	True	5.00	1.481	7.04	1.000	8.000	8.482	6.0	30.0	
CAL5	8496468.6	2053320.9	True	5.00	4.138	7.05	1.000	20.000	23.698	18.5	30.0	
CAL6	17801760.4	2081140.9	True	5.00	8.554	7.05	1.000	50.000	48.987	-2.0	30.0	
CAL7	28750888.2	1706736.6	True	5.00	16.846	7.05	1.000	100.000	96.473	-3.5	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

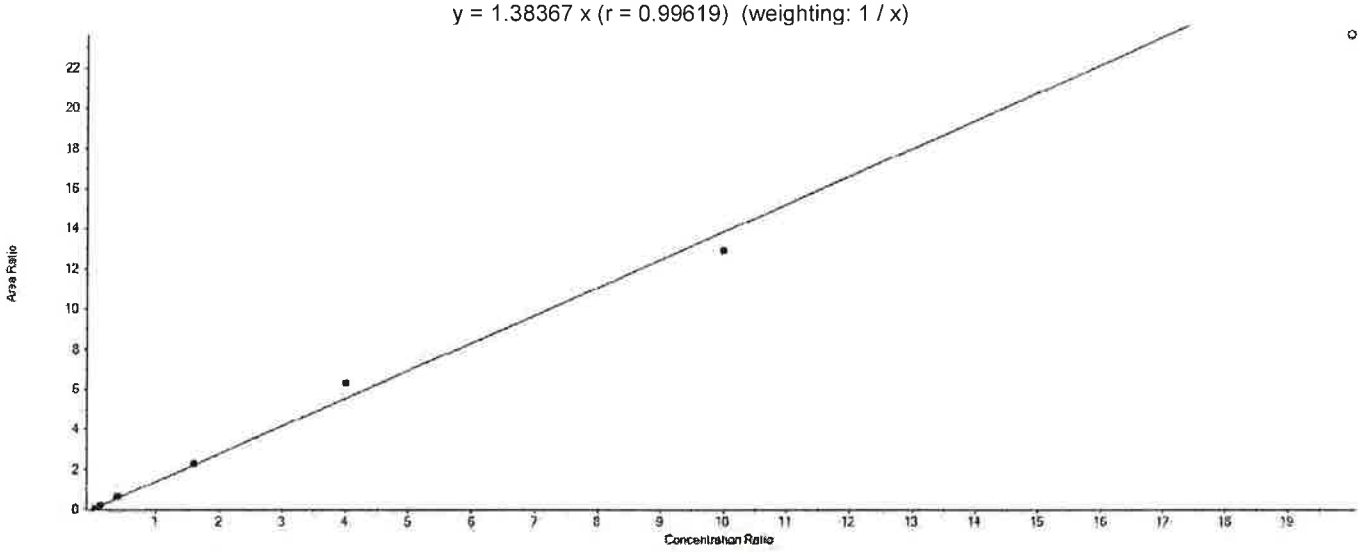
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFUnDA

y = 1.38367 x (r = 0.99619) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	68643.9	1015693.5	True	5.00	0.068	7.35	1.000	0.200	0.244	22.1	50.0	
CAL2	222945.9	1164506.3	True	5.00	0.191	7.35	1.000	0.600	0.692	15.3	30.0	
CAL3	664404.8	1098700.6	True	5.00	0.605	7.35	1.000	2.000	2.185	9.3	30.0	
CAL4	2631613.4	1145612.3	True	5.00	2.297	7.35	1.000	8.000	8.301	3.8	30.0	
CAL5	6229864.6	993380.7	True	5.00	6.271	7.35	1.000	20.000	22.662	13.3	30.0	
CAL6	13486806.0	1043242.6	True	5.00	12.928	7.35	1.000	50.000	46.716	-6.6	30.0	
CAL7	21285064.9	900995.9	False	5.00	23.624	7.35	1.000	100.000	85.367	-14.6	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

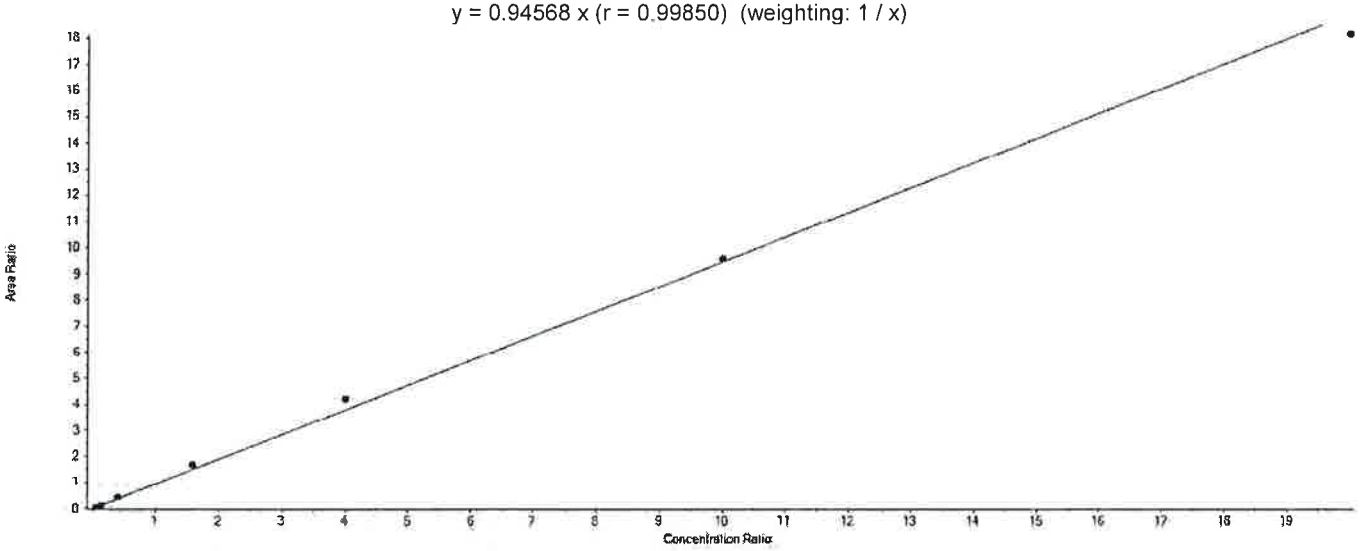
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDoDA

y = 0.94568 x (r = 0.99850) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	68135.4	1464592.1	True	5.00	0.047	7.63	1.000	0.200	0.246	23.0	50.0	
CAL2	201201.9	1742039.0	True	5.00	0.115	7.63	1.000	0.600	0.611	1.8	30.0	
CAL3	667345.7	1576303.1	True	5.00	0.423	7.64	1.000	2.000	2.238	11.9	30.0	
CAL4	2724298.9	1616114.9	True	5.00	1.686	7.63	1.000	8.000	8.913	11.4	30.0	
CAL5	6430562.7	1530208.0	True	5.00	4.202	7.64	1.000	20.000	22.219	11.1	30.0	
CAL6	14945174.7	1559544.9	True	5.00	9.583	7.64	1.000	50.000	50.668	1.3	30.0	
CAL7	23949160.3	1320302.6	True	5.00	18.139	7.63	1.000	100.000	95.906	-4.1	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

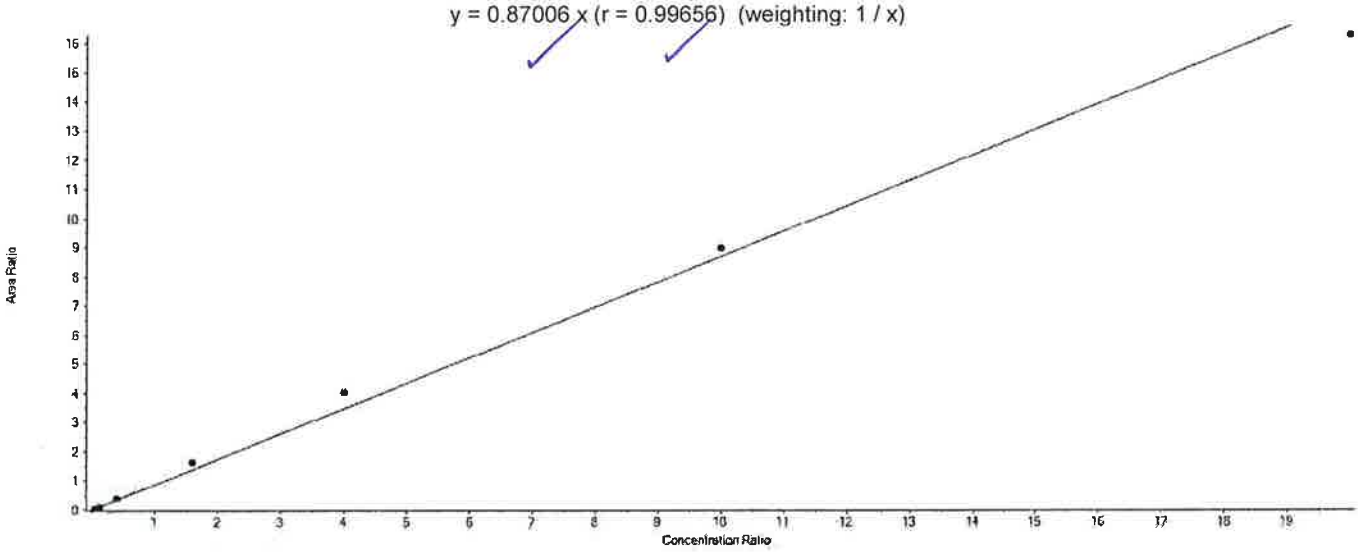
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTrDA

y = 0.87006 x (r = 0.99656) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65101.4	1464592.1	True	5.00	0.044	7.90	1.040	0.200	0.255	27.7	50.0	
CAL2	198994.6	1742039.0	True	5.00	0.114	7.90	1.040	0.600	0.656	9.4	30.0	
CAL3	604861.6	1576303.1	True	5.00	0.384	7.91	1.040	2.000	2.205	10.3	30.0	
CAL4	2649045.9	1616114.9	True	5.00	1.639	7.90	1.040	8.000	9.420	17.7	30.0	
CAL5	6168830.6	1530208.0	True	5.00	4.031	7.91	1.040	20.000	23.167	15.8	30.0	
CAL6	14016209.1	1559544.9	True	5.00	8.987	7.91	1.040	50.000	51.648	3.3	30.0	
CAL7	21469555.2	1320302.6	True	5.00	16.261	7.91	1.040	100.000	93.448	-6.6	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

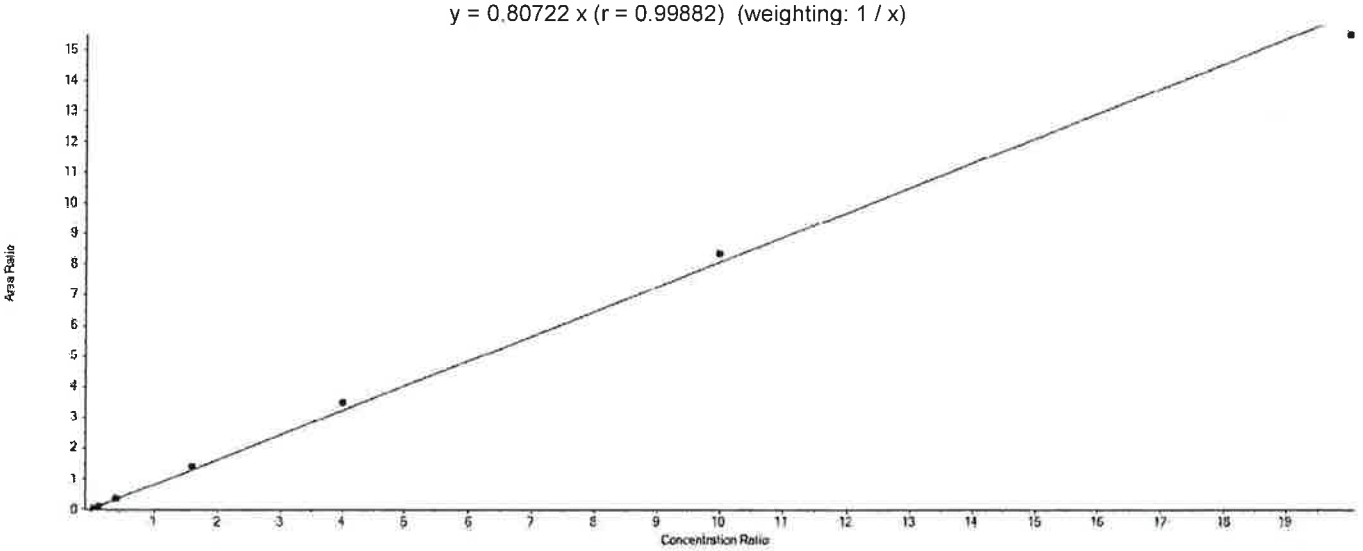
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTeDA

y = 0.80722 x (r = 0.99882) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	68731.5	1727146.0	True	5.00	0.040	8.17	1.000	0.200	0.246	23.2	50.0	
CAL2	192789.5	1884917.7	True	5.00	0.102	8.17	1.000	0.600	0.634	5.6	30.0	
CAL3	626767.4	1804912.7	True	5.00	0.347	8.17	1.000	2.000	2.151	7.5	30.0	
CAL4	2514172.5	1811742.7	True	5.00	1.388	8.17	1.000	8.000	8.596	7.4	30.0	
CAL5	6072449.2	1734299.9	True	5.00	3.501	8.17	1.000	20.000	21.688	8.4	30.0	
CAL6	14427637.3	1728825.0	True	5.00	8.345	8.17	1.000	50.000	51.692	3.4	30.0	
CAL7	24107266.8	1558811.5	True	5.00	15.465	8.17	1.000	100.000	95.793	-4.2	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

REVIEWED
By UMJS at 10:41 am, 4/5/18

eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

Printed: 4/19/2018 6:23:00 PM
Template: MQ-ICAL-16NOV21.docx
Revised

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR03MCAL-18.wiff	4/3/2018 7:49:49 PM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	429254.1	13C4-PFBA	1312700.0	5.00	0.327	4.44	1.00	2.000	1.946	-2.7	30.0	
PFPeA	441876.5	13C5-PFPeA	1106378.3	5.00	0.399	5.01	1.00	2.000	1.953	-2.3	30.0	
PFBS	221662.2	13C3-PFBS	646282.1	4.65	0.343	5.06	1.00	1.770	1.682	-5.0	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	378478.7	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	809643.6	13C5-PFHxA	2076145.9	5.00	0.390	5.48	1.00	2.000	2.113	5.6	30.0	
PFPeS	N/A	13C3-PFBS	646282.1	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	227538.4	13C3-PFHxS	599720.9	4.73	0.379	5.92	1.00	1.890	1.800	-4.8	30.0	
PFHpA	947428.8	13C4-PFHpA	2048216.7	5.00	0.463	5.92	1.00	2.000	2.196	9.8	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	319317.4	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	196150.0	13C3-PFHxS	599720.9	4.73	0.327	6.32	1.07	1.900	1.790	-5.8	30.0	
PFOA	964693.9	13C8-PFOA	2645727.3	5.00	0.365	6.34	1.00	2.000	1.969	-1.6	30.0	
PFOS	192506.8	13C8-PFOS	499659.3	4.78	0.385	6.68	1.00	1.910	1.896	-0.8	30.0	
PFNA	862290.6	13C9-PFNA	1887154.0	5.00	0.457	6.71	1.00	2.000	1.952	-2.4	30.0	
PFOSA	N/A	13C8-PFOSA	1209014.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	499659.3	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	889781.6	13C6-PFDA	2434997.5	5.00	0.365	7.05	1.00	2.000	2.093	4.6	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	376908.8	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	202569.6	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	186432.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	214598.0	d3-NMeFOSAA	509789.8	5.00	0.421	7.22	1.00	2.000	1.974	-1.3	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	260857.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	148046.1	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	88852.0	13C8-PFOS	499659.3	4.78	0.178	7.32	1.09	1.930	1.671	-13.4	30.0	
PFUnDA	679215.9	13C7-PFUnDA	1179605.0	5.00	0.576	7.35	1.00	2.000	2.081	4.0	30.0	
NEtFOSAA	180122.2	d5-NEtFOSAA	420719.8	5.00	0.428	7.38	1.00	2.000	2.000	0.0	30.0	
PFDoDA	591580.2	13C2-PFDoDA	1713470.7	5.00	0.345	7.64	1.00	2.000	1.825	-8.7	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	376908.8	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	499659.3	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	646541.8	13C2-PFDoDA	1713470.7	5.00	0.377	7.91	1.04	2.000	2.168	8.4	30.0	
PFTeDA	621765.0	13C2-PFTeDA	1966699.0	5.00	0.316	8.18	1.00	2.000	1.958	-2.1	30.0	
PFHxDA	N/A	13C2-PFTeDA	1966699.0	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	1966699.0	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By MCD at 6:37 pm, 4/19/18

REVIEWED
By UMJS at 6:55 am, 4/23/18

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LC-MS/MS Analysis Report

Printed: 4/19/2018 6:28:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL - 32 Compounds 4/19/2018 6:24:50 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

Revised

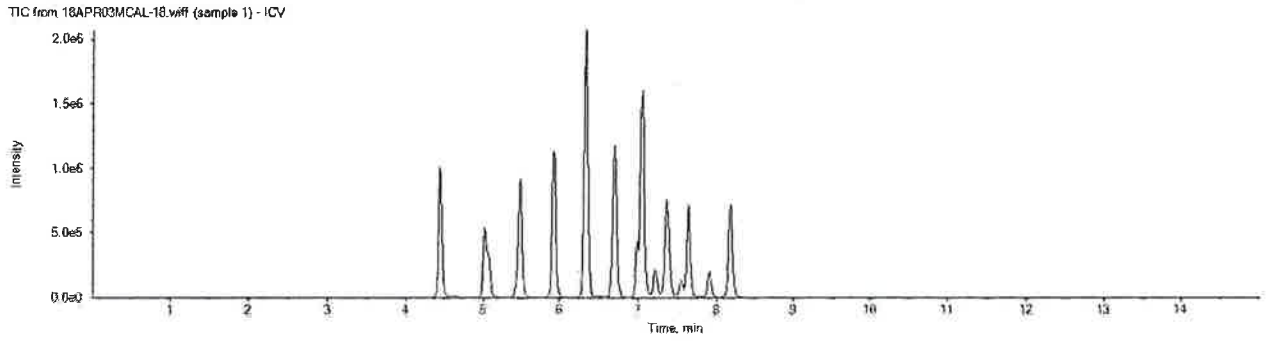
Analyte Quantitation Peak Table

Sample Name: ICV **Instrument Name:** LM24743 **File Name:** 18APR03MCAL-18.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	429254.1	A	13C4-PFBA	4.44	1312700.0	0.327	1.946
PFPeA	5.01	1.000	441876.5	A	13C5-PFPeA	5.02	1106378.3	0.399	1.953
PFBS	5.06	1.000	221662.2	A	13C3-PFBS	5.06	646282.1	0.343	1.682
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.44	378478.7	N/A	
PFHxA	5.48	1.000	809643.6	A	13C5-PFHxA	5.48	2076145.9	0.390	2.113
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.06	646282.1	N/A	
PFHxS	5.92	1.000	227538.4	A	13C3-PFHxS	5.92	599720.9	0.379	1.800
PFHpA	5.92	1.000	947428.8	A	13C4-PFHpA	5.93	2048216.7	0.463	2.196
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.33	319317.4	N/A	
PFHpS	6.32	1.070	196150.0	A	13C3-PFHxS	5.92	599720.9	0.327	1.790
PFOA	6.34	1.000	964693.9	A	13C8-PFOA	6.34	2645727.3	0.365	1.969
PFOS	6.68	1.000	192506.8	A	13C8-PFOS	6.68	499659.3	0.385	1.896
PFNA	6.71	1.000	862290.6	A	13C9-PFNA	6.71	1887154.0	0.457	1.952
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.98	1209014.9	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.68	499659.3	N/A	
PFDA	7.05	1.000	889781.6	A	13C6-PFDA	7.05	2434997.5	0.365	2.093
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.06	376908.8	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.39	202569.6	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.41	186432.4	N/A	
NMeFOSAA	7.22	1.000	214598.0	A	d3-NMeFOSAA	7.21	509789.8	0.421	1.974
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.54	260857.9	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.56	148046.1	N/A	
PFDS	7.32	1.090	88852.0	A	13C8-PFOS	6.68	499659.3	0.178	1.671
PFUnDA	7.35	1.000	679215.9	A	13C7-PFUnDA	7.36	1179605.0	0.576	2.081
NEtFOSAA	7.38	1.000	180122.2	A	d5-NEtFOSAA	7.37	420719.8	0.428	2.000
PFDoDA	7.64	1.000	591580.2	A	13C2-PFDoDA	7.64	1713470.7	0.345	1.825
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.06	376908.8	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.68	499659.3	N/A	
PFTrDA	7.91	1.040	646541.8	A	13C2-PFDoDA	7.64	1713470.7	0.377	2.168
PFTeDA	8.18	1.000	621765.0	A	13C2-PFTeDA	8.18	1966699.0	0.316	1.958
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.18	1966699.0	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.18	1966699.0	N/A	

Total Ion Chromatogram



APPROVED
By MCD at 6:38 pm, 4/19/18

REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR03MCAL-18.wiff	4/3/2018 7:49:49 PM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	429254.1	13C4-PFBA	1312700.0	5.00	0.327	4.44	1.00	2.000	1.946	-2.7	30.0	
PFPeA	441876.5	13C5-PFPeA	1106378.3	5.00	0.399	5.01	1.00	2.000	1.953	-2.3	30.0	
PFBS	221662.2	13C3-PFBS	646282.1	4.65	0.343	5.06	1.00	1.770	1.682	-5.0	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	378478.7	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	809643.6	13C5-PFHxA	2076145.9	5.00	0.390	5.48	1.00	2.000	2.113	5.6	30.0	
PFPeS	N/A	13C3-PFBS	646282.1	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	227538.4	13C3-PFHxS	599720.9	4.73	0.379	5.92	1.00	1.890	1.800	-4.8	30.0	
PFHpA	947428.8	13C4-PFHpA	2048216.7	5.00	0.463	5.92	1.00	2.000	2.196	9.8	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	319317.4	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	196150.0	13C3-PFHxS	599720.9	4.73	0.327	6.32	1.07	1.900	1.790	-5.8	30.0	
PFOA	964693.9	13C8-PFOA	2645727.3	5.00	0.365	6.34	1.00	2.000	2.085	4.2	30.0	
PFOS	192506.8	13C8-PFOS	499659.3	4.78	0.385	6.68	1.00	1.910	1.896	-0.8	30.0	
PFNA	862290.6	13C9-PFNA	1887154.0	5.00	0.457	6.71	1.00	2.000	1.952	-2.4	30.0	
PFOSA	N/A	13C8-PFOSA	1209014.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	499659.3	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	889781.6	13C6-PFDA	2434997.5	5.00	0.365	7.05	1.00	2.000	2.093	4.6	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	376908.8	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	202569.6	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	186432.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	214598.0	d3-NMeFOSAA	509789.8	5.00	0.421	7.22	1.00	2.000	1.974	-1.3	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	260857.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	148046.1	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	88852.0	13C8-PFOS	499659.3	4.78	0.178	7.32	1.09	1.930	1.671	-13.4	30.0	
PFUnDA	679215.9	13C7-PFUnDA	1179605.0	5.00	0.576	7.35	1.00	2.000	2.081	4.0	30.0	
NEtFOSAA	180122.2	d5-NEtFOSAA	420719.8	5.00	0.428	7.38	1.00	2.000	2.000	0.0	30.0	
PFDoDA	591580.2	13C2-PFDoDA	1713470.7	5.00	0.345	7.64	1.00	2.000	1.825	-8.7	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	376908.8	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	499659.3	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	646541.8	13C2-PFDoDA	1713470.7	5.00	0.377	7.91	1.04	2.000	2.168	8.4	30.0	
PFTeDA	621765.0	13C2-PFTeDA	1966699.0	5.00	0.316	8.18	1.00	2.000	1.958	-2.1	30.0	
PFHxDA	N/A	13C2-PFTeDA	1966699.0	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	1966699.0	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

REVIEWED
By UMJS at 10:41 am, 4/5/18

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LC-MS/MS Analysis Report

Printed: 4/3/2018 9:26:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL 4/3/2018 9:20:12 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

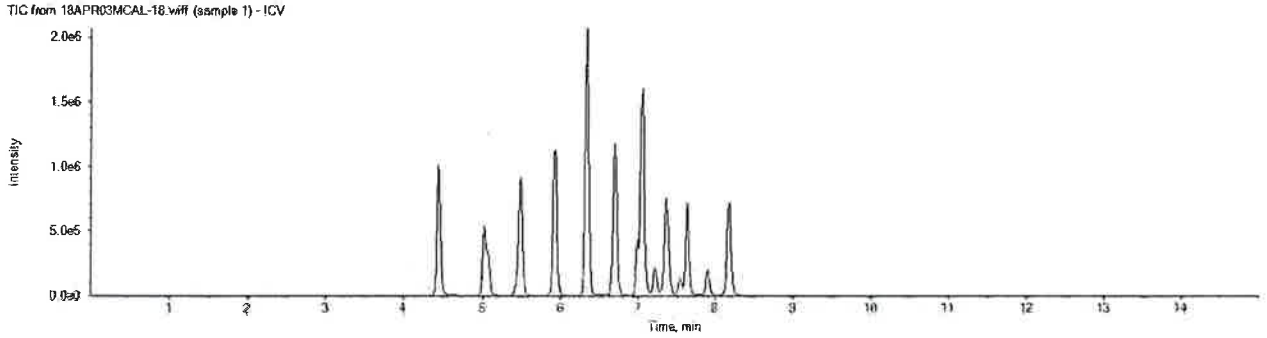
Analyte Quantitation Peak Table

Sample Name: ICV **Instrument Name:** LM24743 **File Name:** 18APR03MCAL-18.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (pg/L)
PFBA	4.44	1.000	429254.1	A	13C4-PFBA	4.44	1312700.0	0.327	1.946
PFPeA	5.01	1.000	441876.5	A	13C5-PFPeA	5.02	1106378.3	0.399	1.953
PFBS	5.06	1.000	221662.2	A	13C3-PFBS	5.06	646282.1	0.343	1.682
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.44	378478.7	N/A	
PFHxA	5.48	1.000	809643.6	A	13C5-PFHxA	5.48	2076145.9	0.390	2.113
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.06	646282.1	N/A	
PFHxS	5.92	1.000	227538.4	A	13C3-PFHxS	5.92	599720.9	0.379	1.800
PFHpA	5.92	1.000	947428.8	A	13C4-PFHpA	5.93	2048216.7	0.463	2.196
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.33	319317.4	N/A	
PFHpS	6.32	1.070	196150.0	A	13C3-PFHxS	5.92	599720.9	0.327	1.790
PFOA	6.34	1.000	964693.9	A	13C8-PFOA	6.34	2645727.3	0.365	2.085
PFOS	6.68	1.000	192506.8	A	13C8-PFOS	6.68	499659.3	0.385	1.896
PFNA	6.71	1.000	862290.6	A	13C9-PFNA	6.71	1887154.0	0.457	1.952
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.98	1209014.9	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.68	499659.3	N/A	
PFDA	7.05	1.000	889781.6	A	13C6-PFDA	7.05	2434997.5	0.365	2.093
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.06	376908.8	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.39	202569.6	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.41	186432.4	N/A	
NMeFOSAA	7.22	1.000	214598.0	A	d3-NMeFOSAA	7.21	509789.8	0.421	1.974
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.54	260857.9	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.56	148046.1	N/A	
PFDS	7.32	1.090	88852.0	A	13C8-PFOS	6.68	499659.3	0.178	1.671
PFUnDA	7.35	1.000	679215.9	A	13C7-PFUnDA	7.36	1179605.0	0.576	2.081
NEtFOSAA	7.38	1.000	180122.2	A	d5-NEtFOSAA	7.37	420719.8	0.428	2.000
PFDoDA	7.64	1.000	591580.2	A	13C2-PFDoDA	7.64	1713470.7	0.345	1.825
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.06	376908.8	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.68	499659.3	N/A	
PFTrDA	7.91	1.040	646541.8	A	13C2-PFDoDA	7.64	1713470.7	0.377	2.168
PFTeDA	8.18	1.000	621765.0	A	13C2-PFTeDA	8.18	1966699.0	0.316	1.958
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.18	1966699.0	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.18	1966699.0	N/A	

Total Ion Chromatogram



APPROVED
By DMW at 9:32 pm, 4/3/18

REVIEWED
By UMJS at 10:42 am, 4/5/18

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL 4/3/2018 9:20:12 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

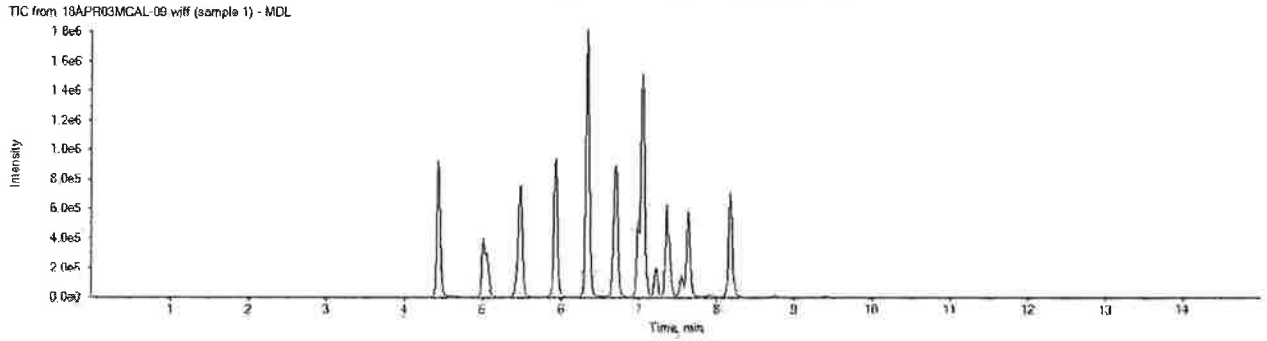
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24743 **File Name:** 18APR03MCAL-09.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	4.43	1.000	28844.2	M	13C4-PFBA	4.43	1411181.2	0.020	0.122
PFPeA	5.01	1.000	29967.7	M	13C5-PFPeA	5.01	1140849.6	0.026	0.128
PFBS	5.06	1.000	12632.8	M	13C3-PFBS	5.06	714447.5	0.018	0.087
4:2-FTS	5.44	1.000	38417.3	A	13C2-4:2-FTS	5.44	440246.2	0.087	0.493
PFHxA	5.48	1.000	47124.4	M	13C5-PFHxA	5.48	2250071.1	0.021	0.113
PFPeS	5.49	1.080	7053.7	A	13C3-PFBS	5.06	714447.5	0.010	0.101
PFHxS	5.91	1.000	13450.8	M	13C3-PFHxS	5.92	658183.7	0.020	0.097
PFHpA	5.92	1.000	58576.5	A	13C4-PFHpA	5.92	2299220.3	0.025	0.121
6:2-FTS	6.32	1.000	36266.5	M	13C2-6:2-FTS	6.32	384450.0	0.094	0.496
PFHpS	6.32	1.070	10521.5	M	13C3-PFHxS	5.92	658183.7	0.016	0.087
PFOA	6.33	1.000	61198.4	M	13C8-PFOA	6.33	2834097.1	0.022	0.123
PFOS	6.67	1.000	12517.4	M	13C8-PFOS	6.68	550741.0	0.023	0.112
PFNA	6.70	1.000	53952.9	M	13C9-PFNA	6.70	2087443.6	0.026	0.110
PFOSA	6.98	1.000	28892.2	M	13C8-PFOSA	6.98	1318259.1	0.022	0.115
PFNS	7.01	1.050	6702.9	M	13C8-PFOS	6.68	550741.0	0.012	0.087
PFDA	7.04	1.000	53424.3	M	13C6-PFDA	7.04	2582569.3	0.021	0.118
8:2-FTS	7.06	1.000	41707.9	M	13C2-8:2-FTS	7.06	450139.5	0.093	0.473
NMePFOSAE	7.40	1.000	5999.8	M	d7-NMePFOSAE	7.38	208213.1	0.029	0.124
NMePFOSA	7.40	1.000	4327.2	M	d3-NMePFOSA	7.41	199310.0	0.022	0.107
NMeFOSAA	7.22	1.000	15435.4	M	d3-NMeFOSAA	7.21	587315.5	0.026	0.123
NEtPFOSAE	7.55	1.000	7329.9	M	d9-NEtPFOSAE	7.54	274356.0	0.027	0.106
NEtPFOSA	7.57	1.000	3196.2	M	d5-NEtPFOSA	7.56	156398.4	0.020	0.098
PFDS	7.31	1.090	4789.4	M	13C8-PFOS	6.68	550741.0	0.009	0.082
PFUnDA	7.35	1.000	35781.0	M	13C7-PFUnDA	7.35	1294445.4	0.028	0.100
NEtFOSAA	7.38	1.000	13395.0	M	d5-NEtFOSAA	7.37	475333.5	0.028	0.132
PFDoDA	7.64	1.000	38696.5	M	13C2-PFDoDA	7.63	1816936.3	0.021	0.113
10:2-FTS	7.67	1.090	47104.4	M	13C2-8:2-FTS	7.06	450139.5	0.105	0.474
PFDoS	7.85	1.180	2128.6	M	13C8-PFOS	6.68	550741.0	0.004	0.085
PFTrDA	7.90	1.040	36799.2	M	13C2-PFDoDA	7.63	1816936.3	0.020	0.116
PFTeDA	8.17	1.000	40370.3	M	13C2-PFTeDA	8.17	2311587.8	0.017	0.108
PFHxDA	8.75	1.070	42368.9	A	13C2-PFTeDA	8.17	2311587.8	0.018	0.123
PFODA	9.40	1.150	34113.5	A	13C2-PFTeDA	8.17	2311587.8	0.015	0.095

Total Ion Chromatogram



APPROVED
By DMW at 9:32 pm, 4/3/18

REVIEWED
By UMJS at 10:42 am, 4/5/18

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LC-MS/MS Analysis Report

Printed: 4/3/2018 9:26:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL 4/3/2018 9:20:12 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

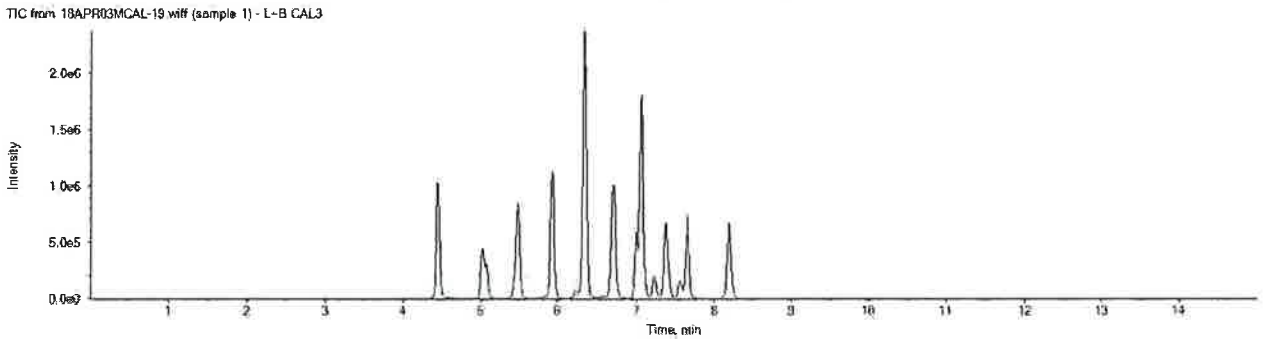
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM24743 **File Name:** 18APR03MCAL-19.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1630644.9	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	1325898.6	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	796416.8	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.44	456754.0	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	2635526.8	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.07	796416.8	N/A	
PFHxS	5.92	1.000	267269.0	M	13C3-PFHxS	5.92	732851.7	0.365	1.730
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.93	2674881.1	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.33	419395.0	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	5.92	732851.7	N/A	
PFOA	6.34	1.000	1114582.4	M	13C8-PFOA	6.34	3190026.3	0.349	1.998
PFOS	6.68	1.000	247664.6	M	13C8-PFOS	6.69	653590.8	0.379	1.864
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.71	2331967.2	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.99	1534178.2	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.69	653590.8	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.05	3116051.9	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.07	479655.5	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.39	224776.6	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.42	219217.9	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.22	640369.5	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.54	310435.4	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.57	184345.1	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.69	653590.8	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.36	1489992.5	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.38	575726.1	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.65	2024072.7	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.07	479655.5	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.69	653590.8	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.65	2024072.7	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	2322916.2	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	2322916.2	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	2322916.2	N/A	

Total Ion Chromatogram

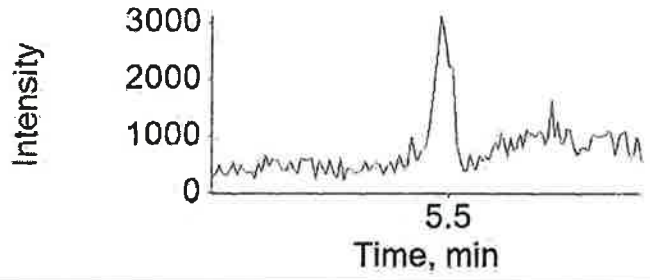


APPROVED
By DMW at 9:32 pm, 4/3/18

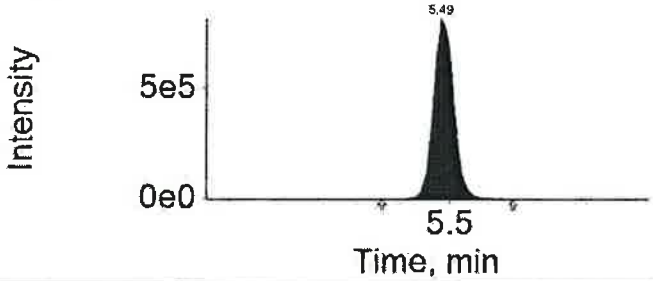
REVIEWED
By UMJS at 10:42 am, 4/5/18

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL 4/3/2018 9:20:12 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

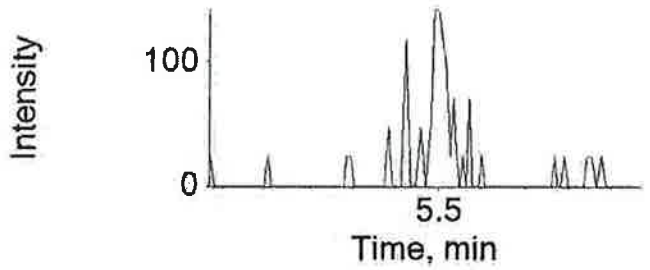
Analyte: PFHxA
313.0 / 269.0



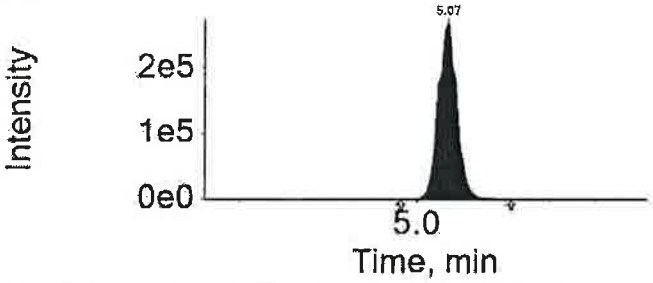
Extraction Standard: 13C5-PFHxA
318.0 / 273.0



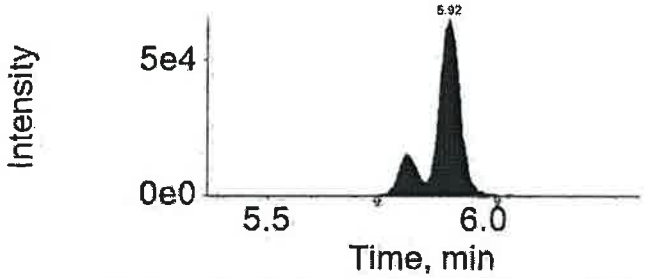
Analyte: PFPeS
349.0 / 80.0



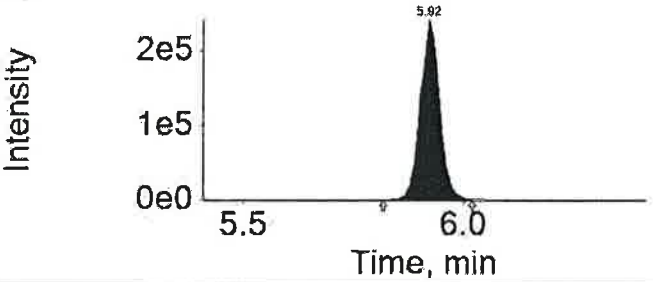
Extraction Standard: 13C3-PFBS
302.0 / 80.0



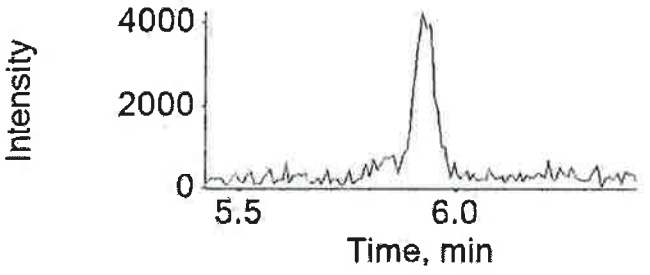
Analyte: PFHxS
399.0 / 80.0



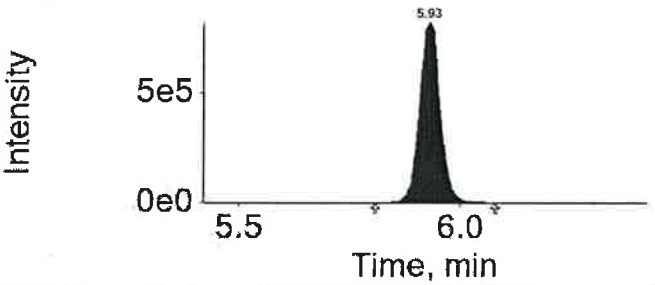
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0

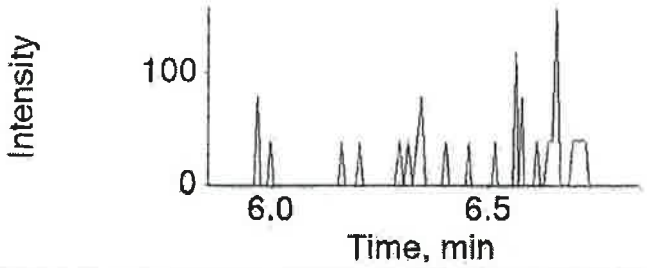


APPROVED
By DMW at 9:32 pm, 4/3/18

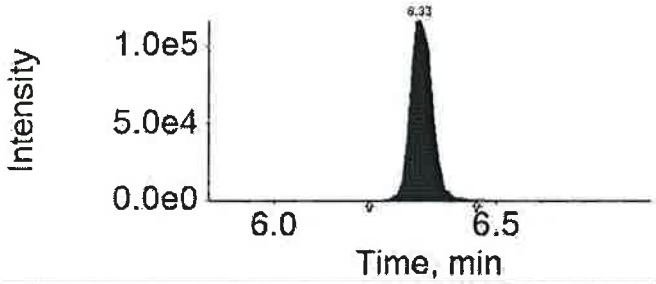
REVIEWED
By UMJS at 10:42 am, 4/5/18

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL 4/3/2018 9:20:12 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

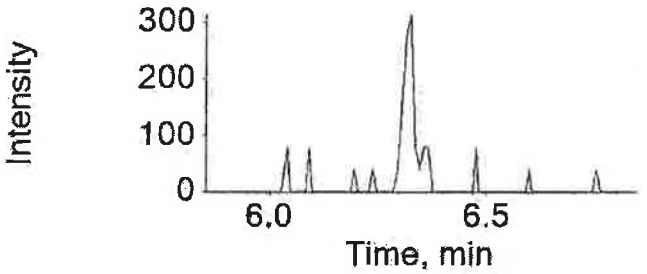
Analyte: 6:2-FTS
427.0 / 407.0



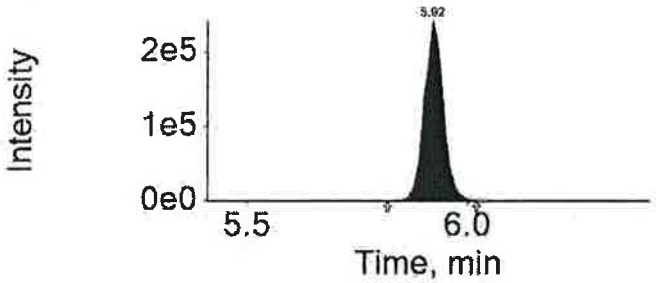
Extraction Standard: 13C2-6:2-FTS
429.0 / 409.0



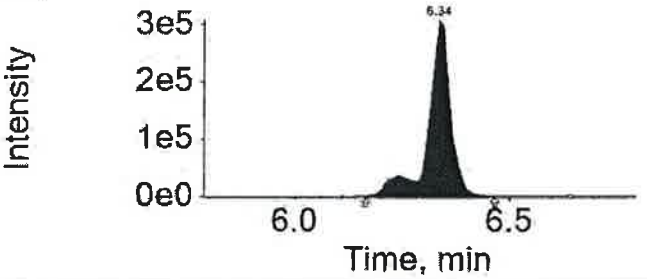
Analyte: PFHpS
449.0 / 80.0



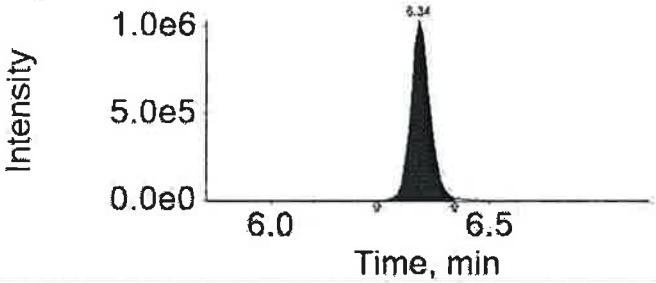
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



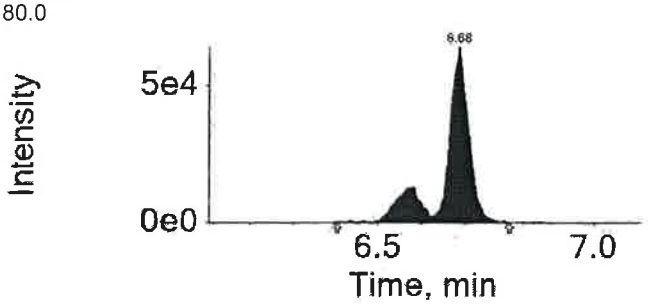
Analyte: PFOA
413.0 / 369.0



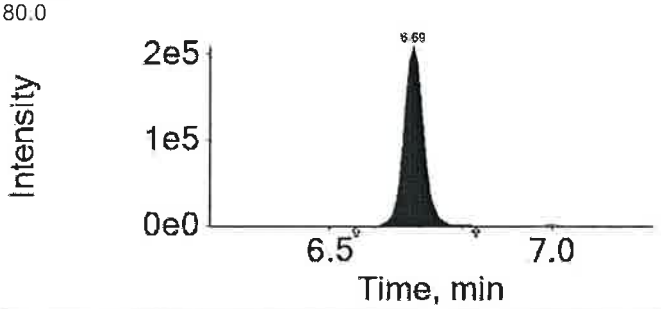
Extraction Standard: 13C8-PFOA
421.0 / 376.0



Analyte: PFOS
499.0 / 80.0



Extraction Standard: 13C8-PFOS
507.0 / 80.0



APPROVED
By DMW at 9:32 pm, 4/3/18

REVIEWED
By UMJS at 10:42 am, 4/5/18

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.236	18.0	±50
CAL2	0.104	0.60	0.620	3.4	±30
CAL3	0.354	2.00	2.107	5.3	±30
CAL4	1.406	8.00	8.364	4.6	±30
CAL5	3.723	20.00	22.155	10.8	±30
CAL6	8.329	50.00	49.559	-0.9	±30
CAL7	16.430	100.00	97.759	-2.2	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.050	0.20	0.243	21.7	±50
CAL2	0.128	0.60	0.625	4.2	±30
CAL3	0.424	2.00	2.073	3.6	±30
CAL4	1.755	8.00	8.584	7.3	±30
CAL5	4.641	20.00	22.698	13.5	±30
CAL6	10.070	50.00	49.250	-1.5	±30
CAL7	19.900	100.00	97.327	-2.7	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.17	0.200	17.7	±50
CAL2	0.109	0.53	0.534	0.7	±30
CAL3	0.368	1.77	1.802	1.8	±30
CAL4	1.534	7.08	7.521	6.2	±30
CAL5	3.588	17.69	17.592	-0.6	±30
CAL6	8.737	44.22	42.833	-3.1	±30
CAL7	18.240	88.45	89.428	1.1	±30

4:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.120	0.58	0.680	17.2	±50
CAL2	0.365	1.98	2.065	4.3	±30
CAL3	0.966	4.90	5.461	11.5	±30
CAL4	1.668	10.04	9.427	-6.1	±30
CAL5	2.187	12.49	12.358	-1.1	±30

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SDG No.: SBN09

Instrument ID: 24743

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CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.216	8.2	±50
CAL2	0.113	0.60	0.610	1.7	±30
CAL3	0.383	2.00	2.075	3.7	±30
CAL4	1.583	8.00	8.574	7.2	±30
CAL5	4.328	20.00	23.448	17.2	±30
CAL6	9.215	50.00	49.922	-0.2	±30
CAL7	17.712	100.00	95.955	-4.0	±30

Perfluoropentanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.023	0.19	0.237	24.7	±50
CAL2	0.053	0.56	0.543	-3.0	±30
CAL3	0.192	1.88	1.960	4.2	±30
CAL4	0.800	7.50	8.171	8.9	±30
CAL5	2.030	18.76	20.742	10.6	±30
CAL6	4.441	46.90	45.377	-3.2	±30
CAL7	9.060	93.80	92.560	-1.3	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.19	0.193	1.7	±50
CAL2	0.123	0.57	0.585	2.7	±30
CAL3	0.401	1.89	1.900	0.6	±30
CAL4	1.655	7.56	7.853	3.9	±30
CAL5	4.442	18.91	21.073	11.4	±30
CAL6	9.646	47.28	45.764	-3.2	±30
CAL7	19.725	94.55	93.581	-1.0	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.241	20.3	±50
CAL2	0.147	0.60	0.698	16.3	±30
CAL3	0.492	2.00	2.335	16.7	±30
CAL4	1.907	8.00	9.049	13.1	±30
CAL5	5.047	20.00	23.957	19.8	±30
CAL6	10.582	50.00	50.225	0.5	±30
CAL7	19.866	100.00	94.295	-5.7	±30

* Outside QC Limits

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FORM 06
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LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

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CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

6:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.261	1.30	1.372	5.5	±50
CAL2	0.443	2.09	2.331	11.5	±30
CAL3	1.071	5.21	5.632	8.1	±30
CAL4	1.990	10.43	10.465	0.3	±30
CAL5	2.334	13.04	12.270	-5.9	±30

Perfluoroheptanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.036	0.19	0.196	3.2	±50
CAL2	0.106	0.57	0.578	1.5	±30
CAL3	0.323	1.90	1.767	-7.0	±30
CAL4	1.428	7.61	7.811	2.6	±30
CAL5	3.721	19.03	20.357	7.0	±30
CAL6	8.244	47.58	45.107	-5.2	±30
CAL7	17.585	95.15	96.214	1.1	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.250	25.0	±50
CAL2	0.122	0.60	0.660	10.0	±30
CAL3	0.359	2.00	1.939	-3.1	±30
CAL4	1.601	8.00	8.642	8.0	±30
CAL5	3.992	20.00	21.554	7.8	±30
CAL6	8.845	50.00	47.755	-4.5	±30
CAL7	16.655	100.00	89.923	-10.1	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.19	0.226	19.2	±50
CAL2	0.119	0.57	0.583	2.3	±30
CAL3	0.400	1.91	1.969	3.1	±30
CAL4	1.593	7.65	7.839	2.5	±30
CAL5	4.357	19.12	21.438	12.1	±30
CAL6	9.387	47.80	46.184	-3.4	±30
CAL7	19.227	95.60	94.600	-1.0	±30

* Outside QC Limits

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SDG No.: SBN09

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

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CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.054	0.20	0.232	16.2	±50
CAL2	0.143	0.60	0.609	1.6	±30
CAL3	0.504	2.00	2.152	7.6	±30
CAL4	2.027	8.00	8.659	8.2	±30
CAL5	5.219	20.00	22.293	11.5	±30
CAL6	10.968	50.00	46.855	-6.3	±30
CAL7	19.567	100.00	83.589	-16.4	±30

Perfluorooctanesulfonamide	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.228	13.9	±50
CAL2	0.116	0.60	0.613	2.1	±30
CAL3	0.409	2.00	2.151	7.5	±30
CAL4	1.473	8.00	7.748	-3.1	±30
CAL5	1.870	10.00	9.834	-1.7	±30
CAL6	9.344	50.00	49.150	-1.7	±30
CAL7	19.215	100.00	101.076	1.1	±30

Perfluorononanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.032	0.19	0.232	22.1	±50
CAL2	0.082	0.58	0.586	1.0	±30
CAL3	0.267	1.92	1.911	-0.5	±30
CAL4	1.118	7.68	7.991	4.1	±30
CAL5	2.911	19.20	20.804	8.4	±30
CAL6	6.831	48.00	48.816	1.7	±30
CAL7	13.046	96.00	93.230	-2.9	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.20	0.259	29.3	±50
CAL2	0.108	0.60	0.616	2.7	±30
CAL3	0.399	2.00	2.285	14.3	±30
CAL4	1.481	8.00	8.482	6.0	±30
CAL5	4.138	20.00	23.698	18.5	±30
CAL6	8.554	50.00	48.987	-2.0	±30
CAL7	16.846	100.00	96.473	-3.5	±30

* Outside QC Limits

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SDG No.: SBN09

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

8:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.282	1.32	1.442	9.2	±50
CAL2	0.471	2.11	2.407	14.1	±30
CAL3	1.154	5.27	5.897	11.9	±30
CAL4	2.074	10.54	10.597	0.5	±30
CAL5	2.362	13.17	12.066	-8.4	±30

NMeFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.190	-5.2	±50
CAL2	0.133	0.60	0.623	3.9	±30
CAL3	0.490	2.00	2.298	14.9	±30
CAL4	1.718	8.00	8.059	0.7	±30
CAL5	2.113	10.00	9.912	-0.9	±30
CAL6	10.655	50.00	49.972	-0.1	±30
CAL7	21.269	100.00	99.747	-0.3	±30

Perfluorodecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.024	0.19	0.229	20.5	±50
CAL2	0.053	0.58	0.499	-14.0	±30
CAL3	0.191	1.93	1.792	-7.2	±30
CAL4	0.778	7.70	7.308	-5.1	±30
CAL5	2.111	19.26	19.833	3.0	±30
CAL6	4.685	48.15	44.027	-8.6	±30
CAL7	9.661	96.30	90.779	-5.7	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.068	0.20	0.244	22.1	±50
CAL2	0.191	0.60	0.692	15.3	±30
CAL3	0.605	2.00	2.185	9.3	±30
CAL4	2.297	8.00	8.301	3.8	±30
CAL5	6.271	20.00	22.662	13.3	±30
CAL6	12.928	50.00	46.716	-6.6	±30
CAL7	23.624	100.00	85.367	-14.6	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

NEtFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.214	6.8	±50
CAL2	0.122	0.60	0.569	-5.2	±30
CAL3	0.430	2.00	2.010	0.5	±30
CAL4	1.568	8.00	7.324	-8.5	±30
CAL5	2.097	10.00	9.795	-2.1	±30
CAL6	10.400	50.00	48.579	-2.8	±30
CAL7	21.903	100.00	102.309	2.3	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.047	0.20	0.246	23.0	±50
CAL2	0.115	0.60	0.611	1.8	±30
CAL3	0.423	2.00	2.238	11.9	±30
CAL4	1.686	8.00	8.913	11.4	±30
CAL5	4.202	20.00	22.219	11.1	±30
CAL6	9.583	50.00	50.668	1.3	±30
CAL7	18.139	100.00	95.906	-4.1	±30

10:2-fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.274	1.33	1.241	-6.7	±50
CAL2	0.490	2.12	2.222	4.8	±30
CAL3	1.237	5.30	5.609	5.8	±30
CAL4	2.522	10.60	11.435	7.9	±30
CAL5	2.669	13.26	12.104	-8.7	±30

Perfluorododecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.010	0.19	0.227	19.6	±50
CAL2	0.026	0.58	0.565	-2.7	±30
CAL3	0.086	1.94	1.896	-2.3	±30
CAL4	0.347	7.74	7.636	-1.3	±30
CAL5	0.938	19.36	20.615	6.5	±30
CAL6	2.194	48.40	48.233	-0.3	±30
CAL7	4.359	96.80	95.838	-1.0	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.255	27.7	±50
CAL2	0.114	0.60	0.656	9.4	±30
CAL3	0.384	2.00	2.205	10.3	±30
CAL4	1.639	8.00	9.420	17.7	±30
CAL5	4.031	20.00	23.167	15.8	±30
CAL6	8.987	50.00	51.648	3.3	±30
CAL7	16.261	100.00	93.448	-6.6	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.246	23.2	±50
CAL2	0.102	0.60	0.634	5.6	±30
CAL3	0.347	2.00	2.151	7.5	±30
CAL4	1.388	8.00	8.596	7.4	±30
CAL5	3.501	20.00	21.688	8.4	±30
CAL6	8.345	50.00	51.692	3.4	±30
CAL7	15.465	100.00	95.793	-4.2	±30

Perfluorohexadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.20	0.249	24.7	±50
CAL2	0.098	0.60	0.661	10.2	±30
CAL3	0.316	2.00	2.122	6.1	±30
CAL4	1.288	8.00	8.655	8.2	±30
CAL5	3.239	20.00	21.763	8.8	±30
CAL6	7.579	50.00	50.932	1.9	±30
CAL7	14.348	100.00	96.418	-3.6	±30

Perfluorooctadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.034	0.20	0.218	8.9	±50
CAL2	0.095	0.60	0.609	1.5	±30
CAL3	0.316	2.00	2.034	1.7	±30
CAL4	1.325	8.00	8.523	6.5	±30
CAL5	3.423	20.00	22.009	10.0	±30
CAL6	7.986	50.00	51.354	2.7	±30
CAL7	14.937	100.00	96.052	-3.9	±30

* Outside QC Limits

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR03MCAL-20.WIFF

Date/Time Analyzed: 04/03/2018 20:20 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.11	5.73	±30
Perfluoropentanoic acid	2.00	2.02	1.20	±30
Perfluorobutanesulfonate	1.77	1.77	-0.16	±30
4:2 fluorotelomersulfonate	4.90	5.02	2.49	±30
Perfluorohexanoic acid	2.00	2.12	6.07	±30
Perfluoropentanesulfonate	1.88	1.97	4.60	±30
Perfluorohexanesulfonate	1.89	1.90	0.70	±30
Perfluoroheptanoic acid	2.00	2.40	20.22	±30
6:2 fluorotelomersulfonate	5.21	5.82	11.78	±30
Perfluoroheptanesulfonate	1.90	1.86	-2.20	±30
Perfluorooctanoic acid	2.00	2.10	5.06	±30
Perfluoro-octanesulfonate	1.91	1.97	3.21	±30
Perfluorononanoic acid	2.00	2.08	4.14	±30
Perfluorooctanesulfonamide	2.00	2.24	11.78	±30
Perfluorononanesulfonate	1.92	1.95	1.47	±30
Perfluorodecanoic acid	2.00	2.23	11.37	±30
8:2 fluorotelomersulfonate	5.27	5.66	7.44	±30
NMeFOSAA	2.00	2.19	9.50	±30
Perfluorodecanesulfonate	1.93	1.88	-2.71	±30
Perfluoroundecanoic acid	2.00	2.08	4.13	±30

* Outside QC Limits.

SBN09 Page 89 of 2021

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR03MCAL-20.WIFF

Date/Time Analyzed: 04/03/2018 20:20 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.00	0.05	±30
Perfluorododecanoic acid	2.00	2.08	3.87	±30
10:2-fluorotelomersulfonate	5.30	5.05	-4.79	±30
Perfluorododecanesulfonate	1.94	2.03	4.83	±30
Perfluorotridecanoic acid	2.00	2.32	15.83	±30
Perfluorotetradecanoic acid	2.00	2.18	8.91	±30
Perfluorohexadecanoic acid	2.00	2.15	7.48	±30
Perfluorooctadecanoic acid	2.00	2.02	1.20	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR05-01.WIFF

Date/Time Analyzed: 04/05/2018 09:58 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.07	3.60	±30
Perfluoropentanoic acid	2.00	2.13	6.68	±30
Perfluorobutanesulfonate	1.77	1.82	2.95	±30
4:2 fluorotelomersulfonate	4.90	5.46	11.40	±30
Perfluorohexanoic acid	2.00	2.12	6.07	±30
Perfluoropentanesulfonate	1.88	1.96	4.12	±30
Perfluorohexanesulfonate	1.89	1.91	1.20	±30
Perfluoroheptanoic acid	2.00	2.32	16.17	±30
6:2 fluorotelomersulfonate	5.21	5.62	7.87	±30
Perfluoroheptanesulfonate	1.90	1.97	3.64	±30
Perfluorooctanoic acid	2.00	2.22	11.04	±30
Perfluoro-octanesulfonate	1.91	2.07	8.18	±30
Perfluorononanoic acid	2.00	2.12	5.80	±30
Perfluorooctanesulfonamide	2.00	2.21	10.32	±30
Perfluorononanesulfonate	1.92	2.06	7.19	±30
Perfluorodecanoic acid	2.00	2.23	11.49	±30
8:2 fluorotelomersulfonate	5.27	5.63	6.88	±30
NMePFOSAE	2.00	2.28	14.11	±30
NMePFOSA	2.00	2.34	16.77	±30
NMeFOSAA	2.00	2.22	11.20	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR05-01.WIFF

Date/Time Analyzed: 04/05/2018 09:58 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	2.00	1.95	-2.61	±30
NEtPFOSA	2.00	1.91	-4.64	±30
Perfluorodecanesulfonate	1.93	1.81	-6.43	±30
Perfluoroundecanoic acid	2.00	2.11	5.70	±30
NEtFOSAA	2.00	2.06	2.83	±30
Perfluorododecanoic acid	2.00	2.00	0.09	±30
10:2-fluorotelomersulfonate	5.30	6.38	20.29	±30
Perfluorododecanesulfonate	1.94	2.04	4.91	±30
Perfluorotridecanoic acid	2.00	2.01	0.67	±30
Perfluorotetradecanoic acid	2.00	2.21	10.46	±30
Perfluorohexadecanoic acid	2.00	2.00	0.04	±30
Perfluorooctadecanoic acid	2.00	2.07	3.64	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR05-14.WIFF

Date/Time Analyzed: 04/05/2018 18:31 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.33	4.13	±30
Perfluoropentanoic acid	8.00	8.51	6.40	±30
Perfluorobutanesulfonate	7.08	7.62	7.60	±30
4:2 fluorotelomersulfonate	10.04	10.39	3.48	±30
Perfluorohexanoic acid	8.00	8.65	8.16	±30
Perfluoropentanesulfonate	7.50	8.25	10.00	±30
Perfluorohexanesulfonate	7.56	7.81	3.37	±30
Perfluoroheptanoic acid	8.00	9.11	13.90	±30
6:2 fluorotelomersulfonate	10.43	10.73	2.85	±30
Perfluoroheptanesulfonate	7.61	7.60	-0.19	±30
Perfluorooctanoic acid	8.00	8.77	9.57	±30
Perfluoro-octanesulfonate	7.65	8.06	5.42	±30
Perfluorononanoic acid	8.00	8.41	5.08	±30
Perfluorooctanesulfonamide	8.00	8.41	5.11	±30
Perfluorononanesulfonate	7.68	7.94	3.35	±30
Perfluorodecanoic acid	8.00	8.79	9.84	±30
8:2 fluorotelomersulfonate	10.54	10.73	1.80	±30
NMePFOSAE	8.00	8.07	0.82	±30
NMePFOSA	8.00	8.13	1.63	±30
NMeFOSAA	8.00	7.79	-2.66	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR05-14.WIFF

Date/Time Analyzed: 04/05/2018 18:31 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	8.00	7.43	-7.08	±30
NEtPFOSA	8.00	7.77	-2.92	±30
Perfluorodecanesulfonate	7.70	7.78	1.04	±30
Perfluoroundecanoic acid	8.00	8.55	6.89	±30
NEtFOSAA	8.00	7.50	-6.20	±30
Perfluorododecanoic acid	8.00	8.96	11.95	±30
10:2-fluorotelomersulfonate	10.60	11.56	9.03	±30
Perfluorododecanesulfonate	7.74	8.15	5.24	±30
Perfluorotridecanoic acid	8.00	8.57	7.13	±30
Perfluorotetradecanoic acid	8.00	8.50	6.19	±30
Perfluorohexadecanoic acid	8.00	7.86	-1.79	±30
Perfluorooctadecanoic acid	8.00	8.28	3.49	±30

* Outside QC Limits.

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18APR11MCAL-16.wiff	4/11/2018 11:34:06 PM	CALMOD11833A	CAL1
18APR11MCAL-17.wiff	4/11/2018 11:49:39 PM	CALMOD21833A	CAL2
18APR11MCAL-18.wiff	4/12/2018 12:05:11 AM	CALMOD31833A	CAL3
18APR11MCAL-19.wiff	4/12/2018 12:20:42 AM	CALMOD41833A	CAL4
18APR11MCAL-20.wiff	4/12/2018 12:36:12 AM	CALMOD51833A	CAL5
18APR11MCAL-21.wiff	4/12/2018 12:51:42 AM	CALMOD61833A	CAL6
18APR11MCAL-22.wiff	4/12/2018 1:07:12 AM	CALMOD71833A	CAL7

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	981637.7	926861.5
CAL2	I13C3-PFBA	True	988005.5	926861.5
CAL3	I13C3-PFBA	True	930730.7	926861.5
CAL4	I13C3-PFBA	True	1040816.4	926861.5
CAL5	I13C3-PFBA	True	906067.6	926861.5
CAL6	I13C3-PFBA	True	884773.3	926861.5
CAL7	I13C3-PFBA	True	755999.2	926861.5
CAL1	I13C2-PFOA	True	1517685.2	1442106.8
CAL2	I13C2-PFOA	True	1471766.5	1442106.8
CAL3	I13C2-PFOA	True	1408725.6	1442106.8
CAL4	I13C2-PFOA	True	1617189.6	1442106.8
CAL5	I13C2-PFOA	True	1449501.9	1442106.8
CAL6	I13C2-PFOA	True	1339081.9	1442106.8
CAL7	I13C2-PFOA	True	1290796.5	1442106.8
CAL1	I13C4-PFOS	True	371830.6	371819.0
CAL2	I13C4-PFOS	True	390170.7	371819.0
CAL3	I13C4-PFOS	True	368989.1	371819.0
CAL4	I13C4-PFOS	True	420653.5	371819.0
CAL5	I13C4-PFOS	True	376580.0	371819.0
CAL6	I13C4-PFOS	True	363644.2	371819.0
CAL7	I13C4-PFOS	True	310865.0	371819.0
CAL1	I13C2-PFDA	True	1235492.2	1163605.9
CAL2	I13C2-PFDA	True	1134641.4	1163605.9
CAL3	I13C2-PFDA	True	1174340.8	1163605.9
CAL4	I13C2-PFDA	True	1324769.0	1163605.9
CAL5	I13C2-PFDA	True	1127552.9	1163605.9
CAL6	I13C2-PFDA	True	1129666.7	1163605.9
CAL7	I13C2-PFDA	True	1018778.6	1163605.9

APPROVED
By JPT at 12:32 pm, 4/12/18

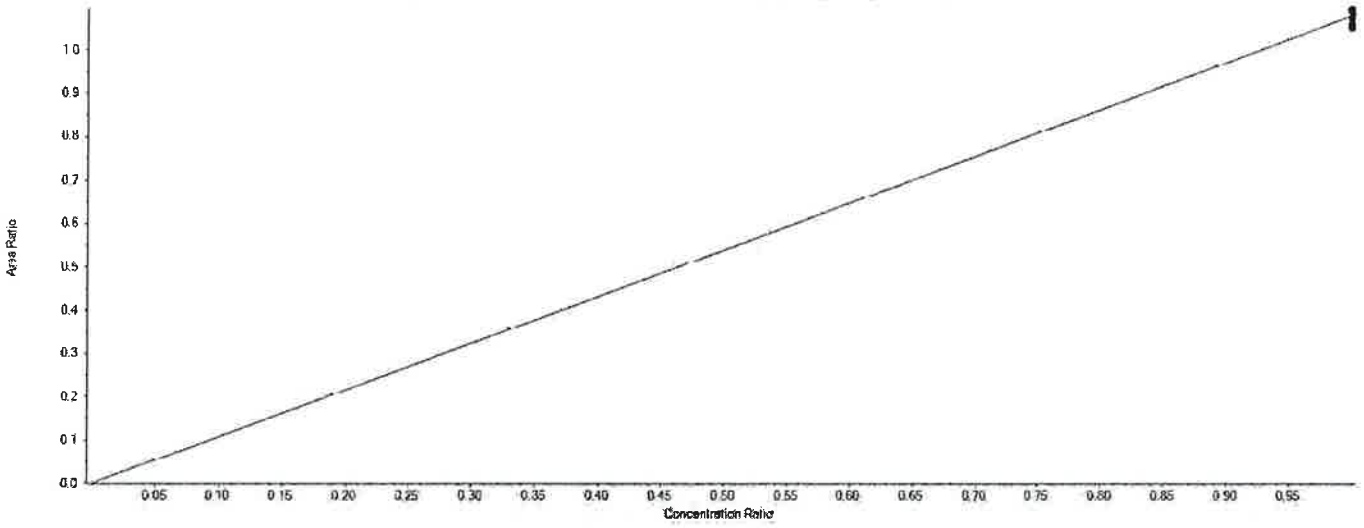
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFBA

y = 1.07794 x (std. dev. = 0.01707) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1039556.0	981637.7	True	5.00	1.059	4.44	1.000	5.000	4.912	-1.8	50.0	
CAL2	1077209.5	988005.5	True	5.00	1.090	4.44	1.000	5.000	5.057	1.1	30.0	
CAL3	1012510.8	930730.7	True	5.00	1.088	4.45	1.000	5.000	5.046	0.9	30.0	
CAL4	1117209.1	1040816.4	True	5.00	1.073	4.44	1.000	5.000	4.979	-0.4	30.0	
CAL5	989813.1	906067.6	True	5.00	1.092	4.44	1.000	5.000	5.067	1.3	30.0	
CAL6	929933.5	884773.3	True	5.00	1.051	4.44	1.000	5.000	4.875	-2.5	30.0	
CAL7	825195.3	755999.2	True	5.00	1.092	4.44	1.000	5.000	5.063	1.3	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

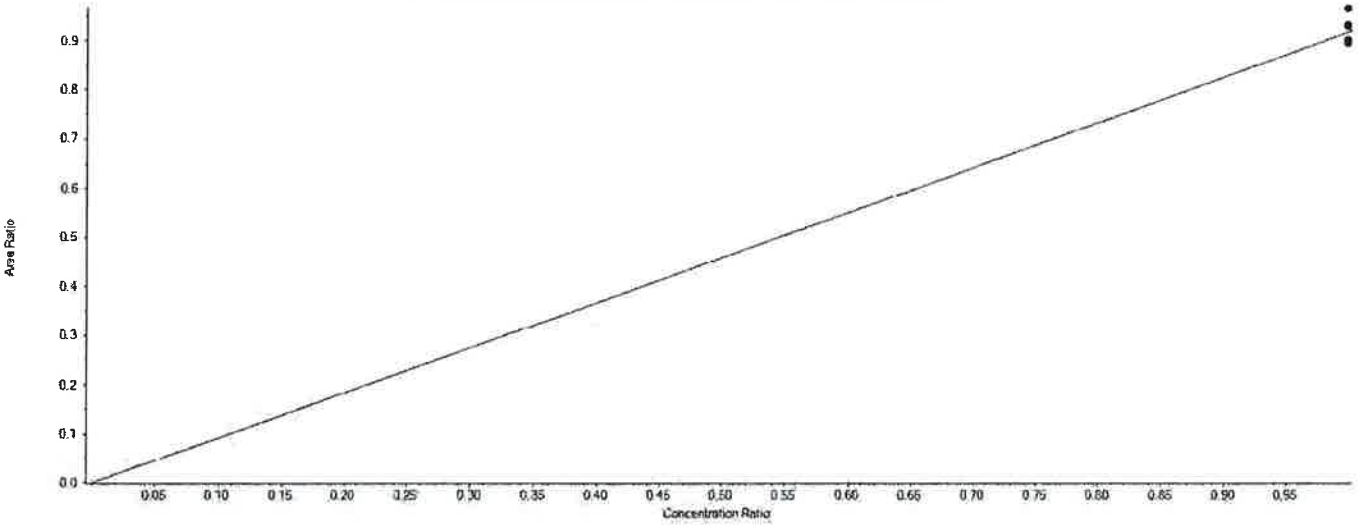
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFPeA

y = 0.91622 x (std. dev. = 0.02552) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	877803.9	981637.7	True	5.00	0.894	5.02	1.130	5.000	4.880	-2.4	50.0	
CAL2	885186.3	988005.5	True	5.00	0.896	5.02	1.130	5.000	4.889	-2.2	30.0	
CAL3	838933.5	930730.7	True	5.00	0.901	5.03	1.130	5.000	4.919	-1.6	30.0	
CAL4	1003319.3	1040816.4	True	5.00	0.964	5.02	1.130	5.000	5.261	5.2	30.0	
CAL5	842931.7	906067.6	True	5.00	0.930	5.02	1.130	5.000	5.077	1.5	30.0	
CAL6	797721.6	884773.3	True	5.00	0.902	5.02	1.130	5.000	4.920	-1.6	30.0	
CAL7	700132.2	755999.2	True	5.00	0.926	5.02	1.130	5.000	5.054	1.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

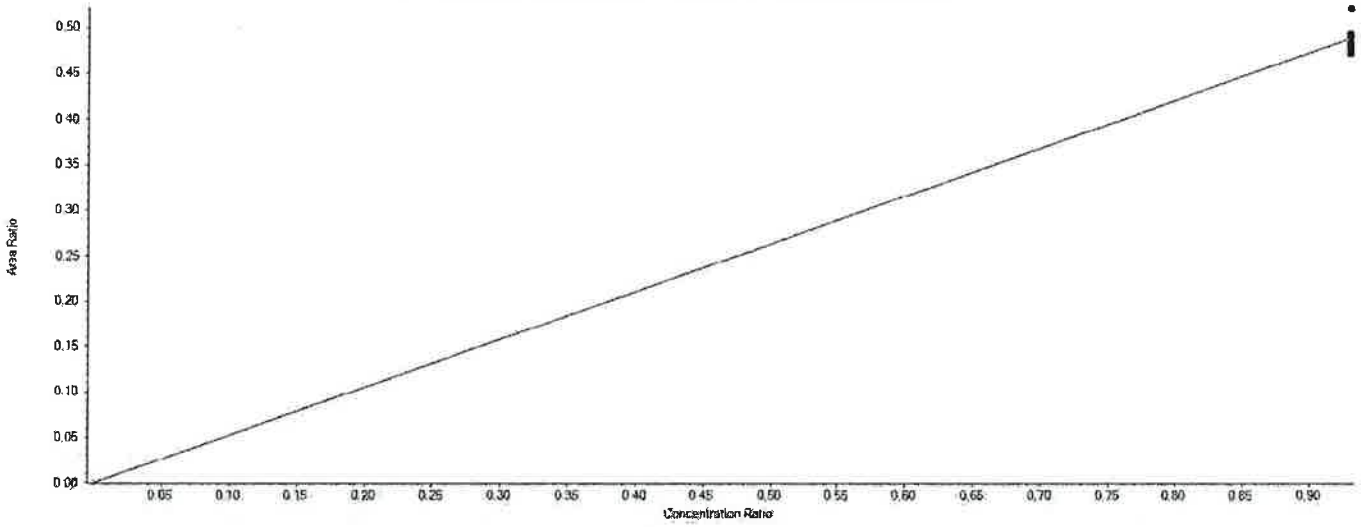
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFBS

y = 0.52578 x (std. dev. = 0.01691) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	469304.3	981637.7	True	5.00	0.478	5.07	1.140	4.650	4.546	-2.2	50.0	
CAL2	466889.8	988005.5	True	5.00	0.473	5.07	1.140	4.650	4.494	-3.4	30.0	
CAL3	450301.5	930730.7	True	5.00	0.484	5.08	1.140	4.650	4.601	-1.1	30.0	
CAL4	513505.4	1040816.4	True	5.00	0.493	5.07	1.140	4.650	4.692	0.9	30.0	
CAL5	471919.1	906067.6	True	5.00	0.521	5.07	1.140	4.650	4.953	6.5	30.0	
CAL6	434168.7	884773.3	True	5.00	0.491	5.07	1.140	4.650	4.667	0.4	30.0	
CAL7	365470.0	755999.2	True	5.00	0.483	5.07	1.140	4.650	4.597	-1.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

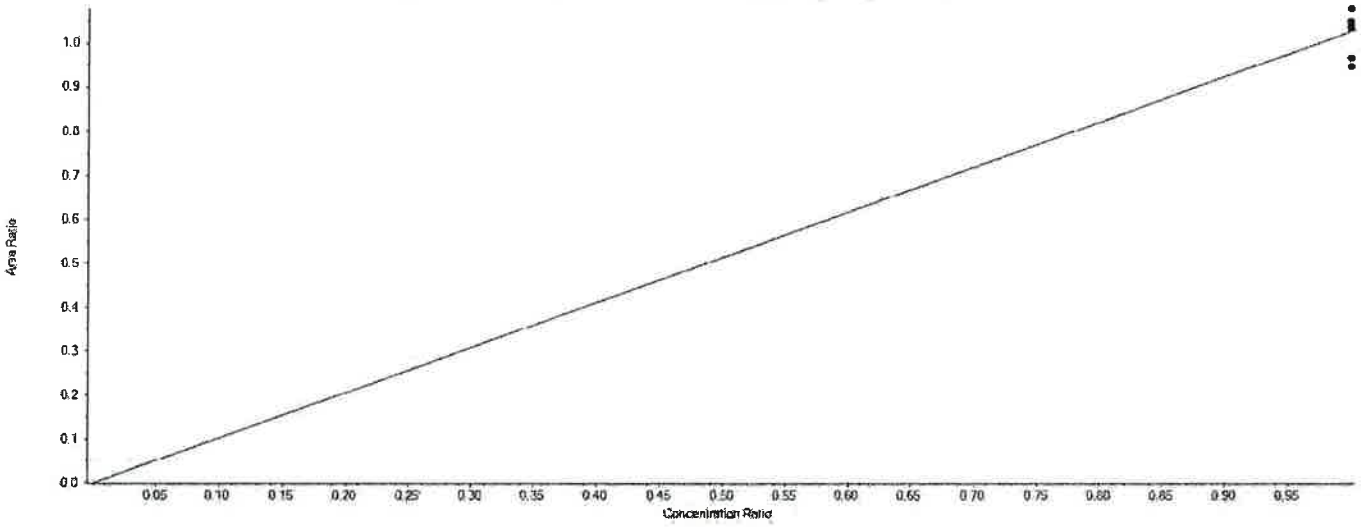
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFHxA

y = 1.02736 x (std. dev. = 0.05147) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1578041.0	1517685.2	True	5.00	1.040	5.49	0.860	5.000	5.060	1.2	50.0	
CAL2	1586428.0	1471766.5	True	5.00	1.078	5.49	0.860	5.000	5.246	4.9	30.0	
CAL3	1478796.2	1408725.6	True	5.00	1.050	5.50	0.860	5.000	5.109	2.2	30.0	
CAL4	1742134.0	1617189.6	True	5.00	1.077	5.49	0.860	5.000	5.243	4.9	30.0	
CAL5	1400228.9	1449501.9	True	5.00	0.966	5.49	0.860	5.000	4.701	-6.0	30.0	
CAL6	1383842.5	1339081.9	True	5.00	1.033	5.49	0.860	5.000	5.030	0.6	30.0	
CAL7	1222888.1	1290796.5	True	5.00	0.947	5.48	0.860	5.000	4.611	-7.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

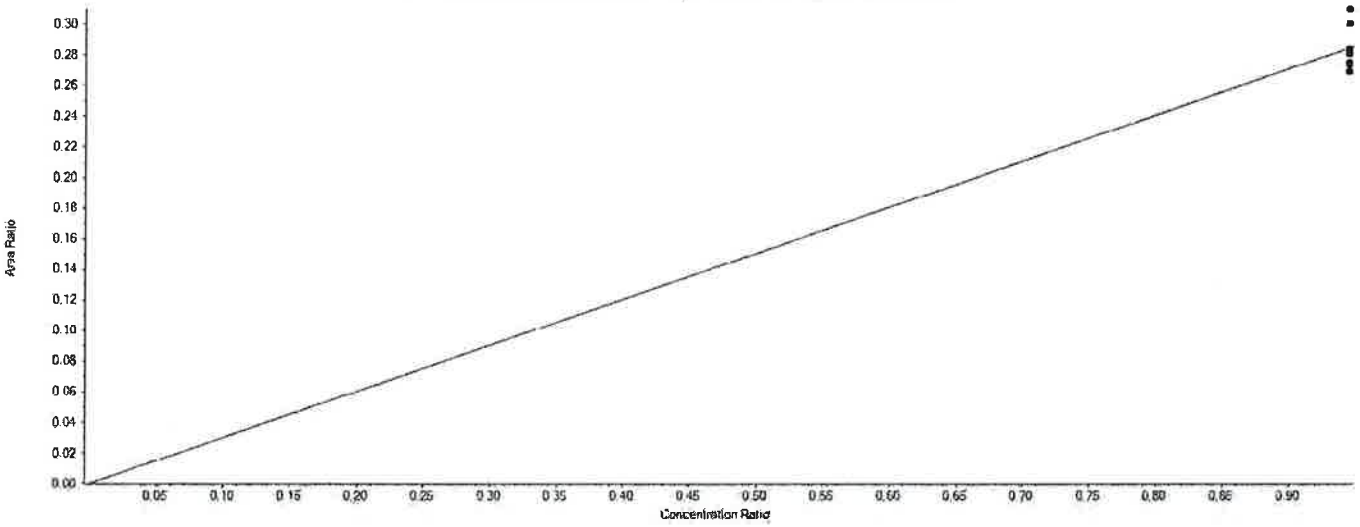
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFHxS

y = 0.30083 x (std. dev. = 0.01586) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	426034.3	1517685.2	True	5.00	0.281	5.93	0.930	4.730	4.666	-1.4	50.0	
CAL2	455593.9	1471766.5	True	5.00	0.310	5.93	0.930	4.730	5.145	8.8	30.0	
CAL3	399928.7	1408725.6	True	5.00	0.284	5.94	0.930	4.730	4.719	-0.2	30.0	
CAL4	441902.6	1617189.6	True	5.00	0.273	5.93	0.930	4.730	4.542	-4.0	30.0	
CAL5	398901.0	1449501.9	True	5.00	0.275	5.93	0.930	4.730	4.574	-3.3	30.0	
CAL6	402347.5	1339081.9	True	5.00	0.300	5.93	0.930	4.730	4.994	5.6	30.0	
CAL7	347206.8	1290796.5	True	5.00	0.269	5.93	0.930	4.730	4.471	-5.5	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

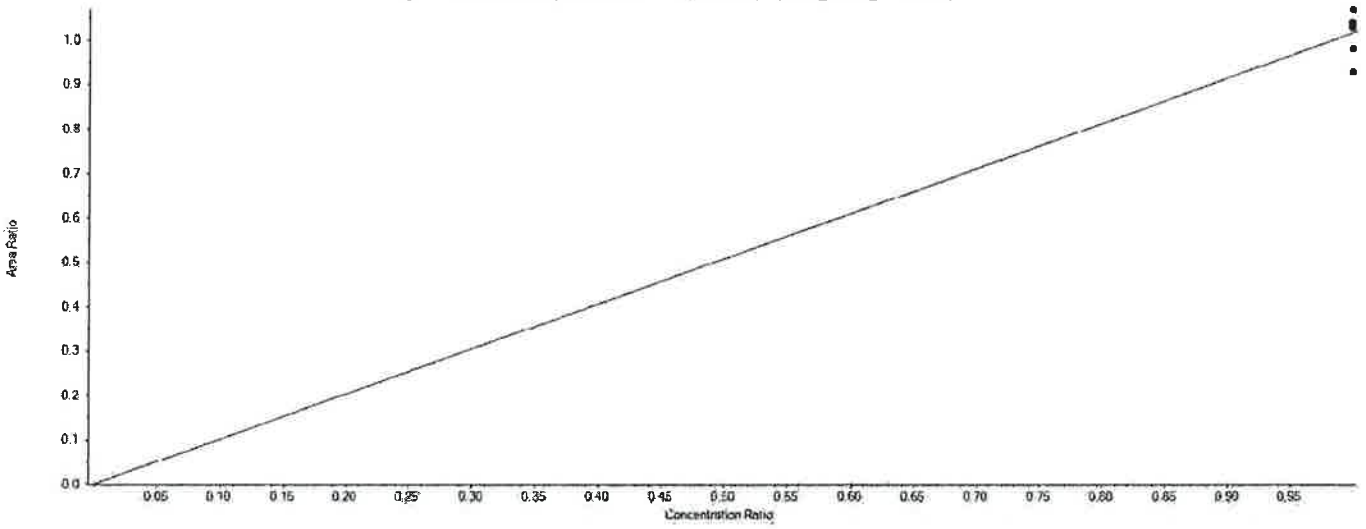
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFHpA

y = 1.01589 x (std. dev. = 0.04639) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1560780.0	1517685.2	True	5.00	1.028	5.94	0.930	5.000	5.062	1.2	50.0	
CAL2	1570376.7	1471766.5	True	5.00	1.067	5.94	0.930	5.000	5.252	5.0	30.0	
CAL3	1457586.2	1408725.6	True	5.00	1.035	5.94	0.930	5.000	5.092	1.9	30.0	
CAL4	1672856.6	1617189.6	True	5.00	1.034	5.93	0.930	5.000	5.091	1.8	30.0	
CAL5	1421056.3	1449501.9	True	5.00	0.980	5.94	0.930	5.000	4.825	-3.5	30.0	
CAL6	1390212.8	1339081.9	True	5.00	1.038	5.94	0.940	5.000	5.110	2.2	30.0	
CAL7	1198107.1	1290796.5	True	5.00	0.928	5.93	0.930	5.000	4.568	-8.6	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

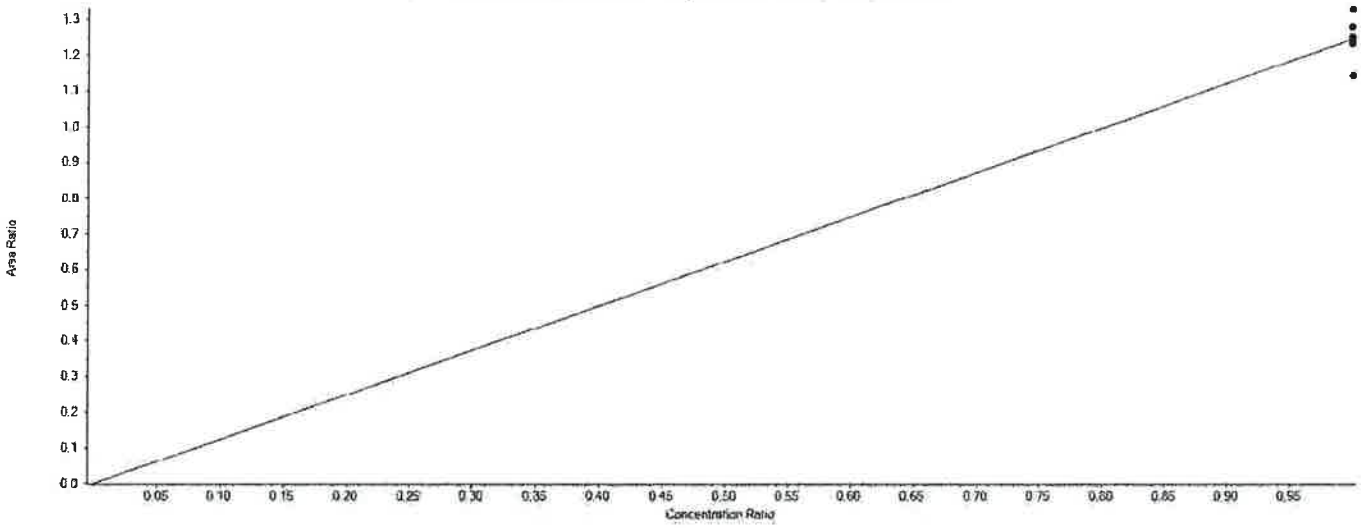
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOA

y = 1.24539 x (std. dev. = 0.05604) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1873019.4	1517685.2	True	5.00	1.234	6.35	1.000	5.000	4.955	-0.9	50.0	
CAL2	1952831.6	1471766.5	True	5.00	1.327	6.35	1.000	5.000	5.327	6.5	30.0	
CAL3	1801314.0	1408725.6	True	5.00	1.279	6.36	1.000	5.000	5.134	2.7	30.0	
CAL4	2011849.9	1617189.6	True	5.00	1.244	6.35	1.000	5.000	4.995	-0.1	30.0	
CAL5	1798992.1	1449501.9	True	5.00	1.241	6.36	1.000	5.000	4.983	-0.3	30.0	
CAL6	1676401.5	1339081.9	True	5.00	1.252	6.35	1.000	5.000	5.026	0.5	30.0	
CAL7	1472755.6	1290796.5	True	5.00	1.141	6.35	1.000	5.000	4.581	-8.4	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

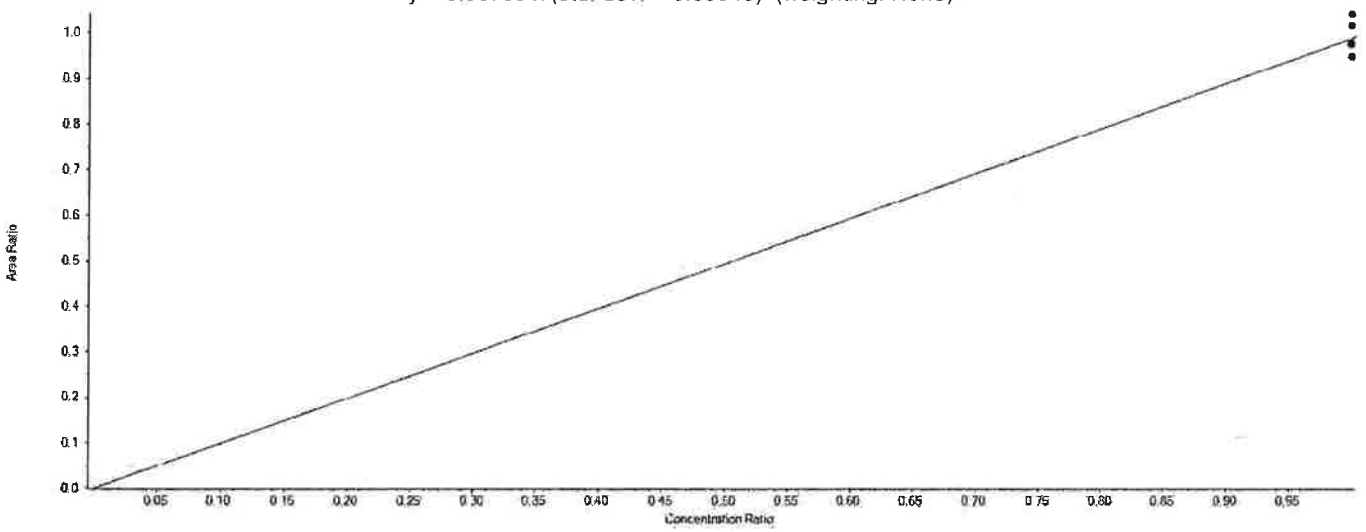
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOS

y = 0.98785 x (std. dev. = 0.03046) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	363441.3	371830.6	True	4.78	0.977	6.70	1.000	4.780	4.730	-1.1	50.0	
CAL2	396417.6	390170.7	True	4.78	1.016	6.70	1.000	4.780	4.916	2.9	30.0	
CAL3	384020.6	368989.1	True	4.78	1.041	6.71	1.000	4.780	5.036	5.4	30.0	
CAL4	411532.4	420653.5	True	4.78	0.978	6.70	1.000	4.780	4.734	-1.0	30.0	
CAL5	367609.6	376580.0	True	4.78	0.976	6.70	1.000	4.780	4.724	-1.2	30.0	
CAL6	344965.0	363644.2	True	4.78	0.949	6.70	1.000	4.780	4.590	-4.0	30.0	
CAL7	303903.7	310865.0	True	4.78	0.978	6.69	1.000	4.780	4.730	-1.0	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

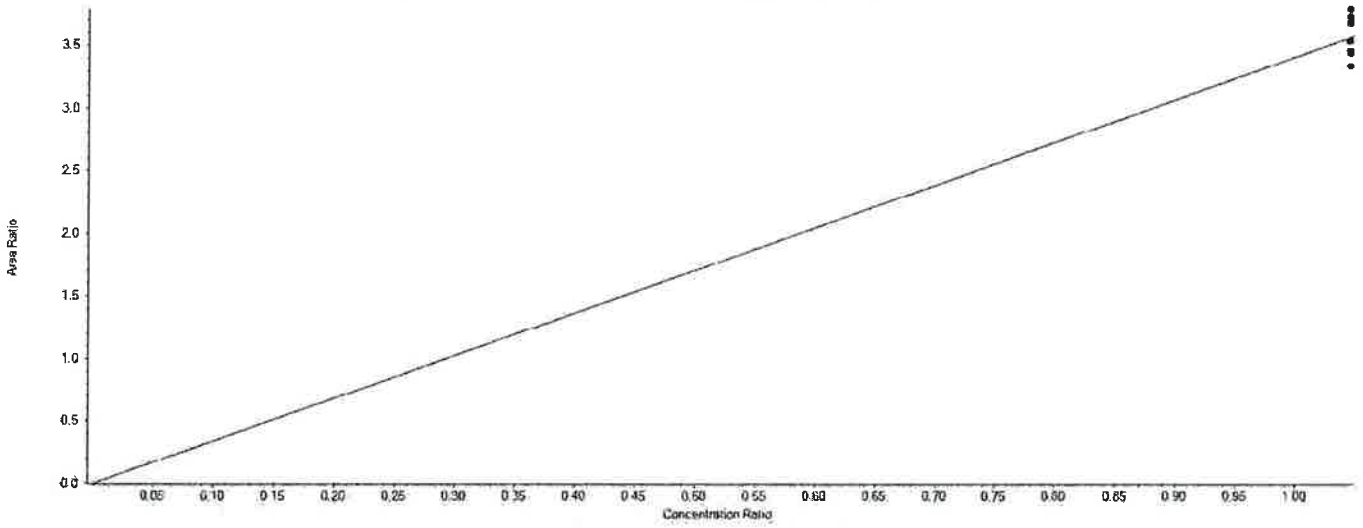
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C9-PFNA

y = 3.40869 x (std. dev. = 0.15980) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1384282.8	371830.6	True	4.78	3.723	6.73	1.000	5.000	5.221	4.4	50.0	
CAL2	1434808.2	390170.7	True	4.78	3.677	6.73	1.000	5.000	5.157	3.1	30.0	
CAL3	1269254.7	368989.1	True	4.78	3.440	6.74	1.000	5.000	4.824	-3.5	30.0	
CAL4	1455556.9	420653.5	True	4.78	3.460	6.73	1.000	5.000	4.852	-3.0	30.0	
CAL5	1254850.3	376580.0	True	4.78	3.332	6.73	1.000	5.000	4.673	-6.5	30.0	
CAL6	1287621.8	363644.2	True	4.78	3.541	6.73	1.000	5.000	4.965	-0.7	30.0	
CAL7	1176812.6	310865.0	True	4.78	3.786	6.72	1.000	5.000	5.309	6.2	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

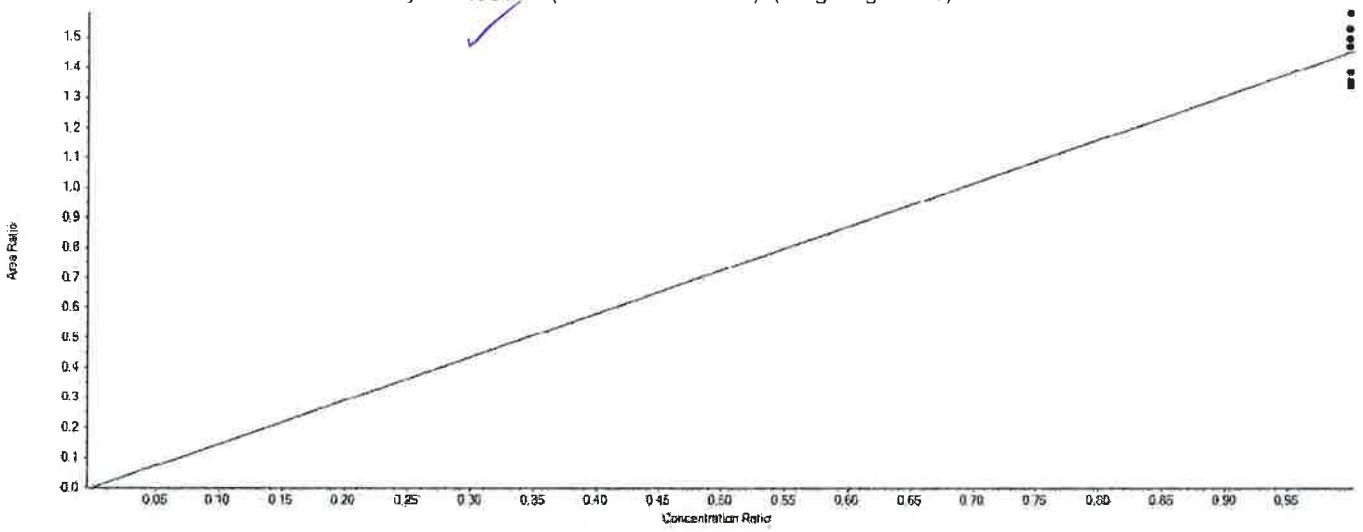
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C6-PFDA

y = 1.45014 x (std. dev. = 0.09225) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1711460.2	1235492.2	True	5.00	1.385	7.08	1.000	5.000	4.776	-4.5	50.0	
CAL2	1791292.2	1134641.4	True	5.00	1.579	7.07	1.000	5.000	5.443	8.9	30.0	
CAL3	1727707.8	1174340.8	True	5.00	1.471	7.08	1.000	5.000	5.073	1.5	30.0	
CAL4	1983112.7	1324769.0	True	5.00	1.497	7.07	1.000	5.000	5.161	3.2	30.0	
CAL5	1721524.0	1127552.9	True	5.00	1.527	7.08	1.000	5.000	5.264	5.3	30.0	
CAL6	1529554.5	1129666.7	True	5.00	1.354	7.08	1.000	5.000	4.668	-6.6	30.0	
CAL7	1363173.5	1018778.6	True	5.00	1.338	7.07	1.000	5.000	4.614	-7.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

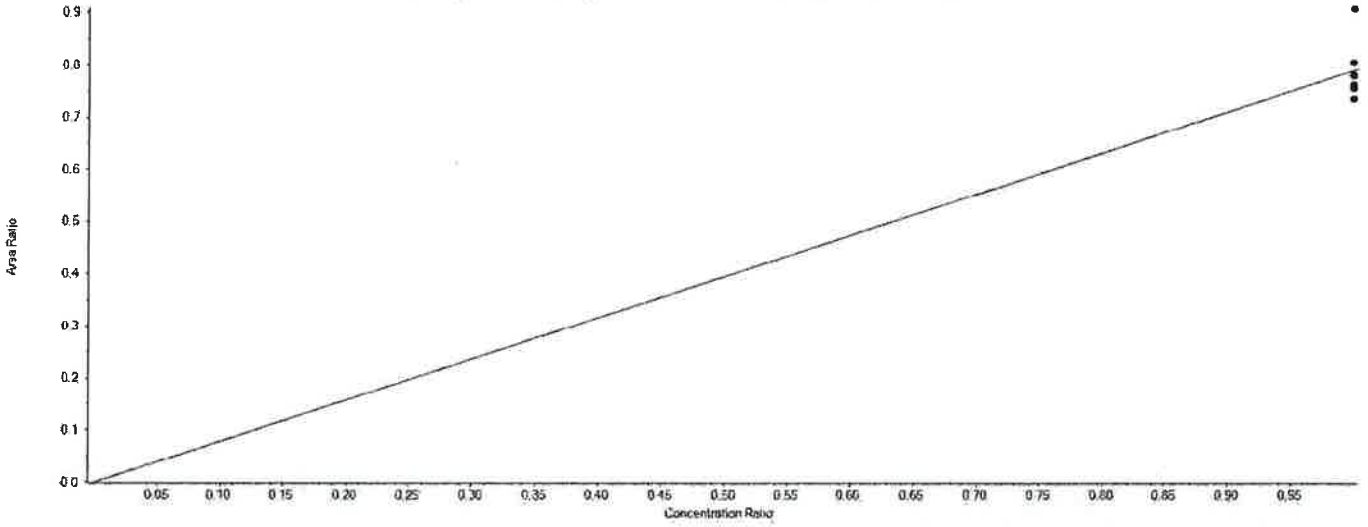
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C7-PFUnDA

y = 0.79009 x (std. dev. = 0.05639) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	995821.2	1235492.2	True	5.00	0.806	7.39	1.040	5.000	5.101	2.0	50.0	
CAL2	1030183.1	1134641.4	True	5.00	0.908	7.38	1.040	5.000	5.746	14.9	30.0	
CAL3	888871.0	1174340.8	True	5.00	0.757	7.39	1.040	5.000	4.790	-4.2	30.0	
CAL4	1010630.1	1324769.0	True	5.00	0.763	7.38	1.040	5.000	4.828	-3.4	30.0	
CAL5	881054.2	1127552.9	True	5.00	0.781	7.39	1.040	5.000	4.945	-1.1	30.0	
CAL6	880392.6	1129666.7	True	5.00	0.779	7.38	1.040	5.000	4.932	-1.4	30.0	
CAL7	749999.2	1018778.6	True	5.00	0.736	7.38	1.040	5.000	4.659	-6.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

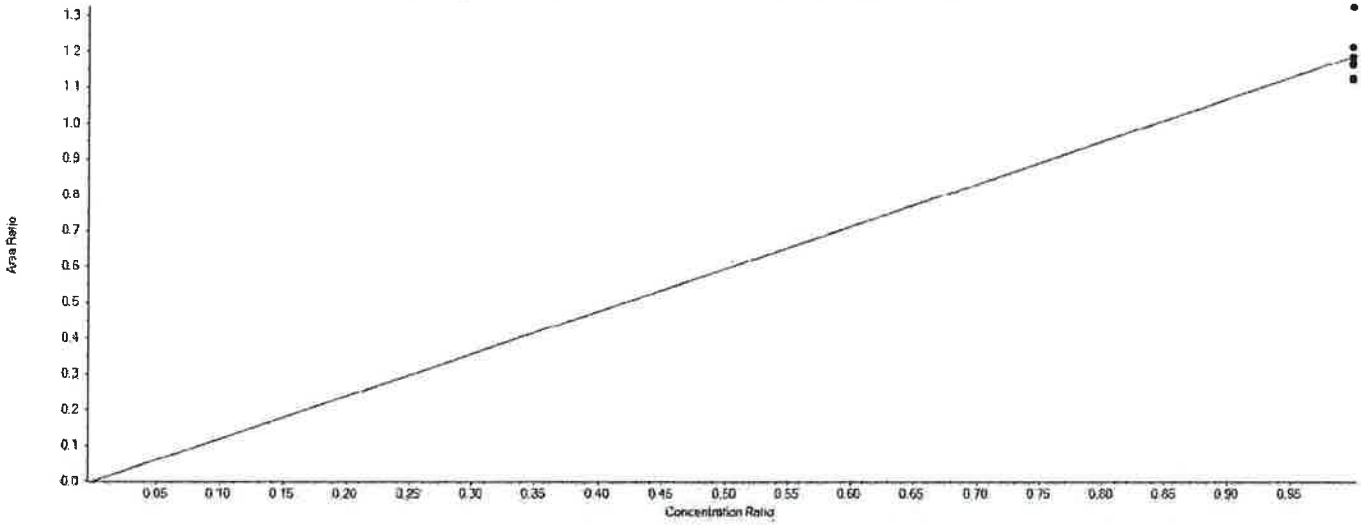
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFDoDA

y = 1.18705 x (std. dev. = 0.06826) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1448567.4	1235492.2	True	5.00	1.172	7.67	1.080	5.000	4.939	-1.2	50.0	
CAL2	1502007.0	1134641.4	True	5.00	1.324	7.67	1.080	5.000	5.576	11.5	30.0	
CAL3	1365297.0	1174340.8	True	5.00	1.163	7.68	1.080	5.000	4.897	-2.1	30.0	
CAL4	1486696.5	1324769.0	True	5.00	1.122	7.67	1.080	5.000	4.727	-5.5	30.0	
CAL5	1368417.8	1127552.9	True	5.00	1.214	7.67	1.080	5.000	5.112	2.2	30.0	
CAL6	1341062.3	1129666.7	True	5.00	1.187	7.67	1.080	5.000	5.000	0.0	30.0	
CAL7	1148686.5	1018778.6	True	5.00	1.128	7.67	1.080	5.000	4.749	-5.0	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

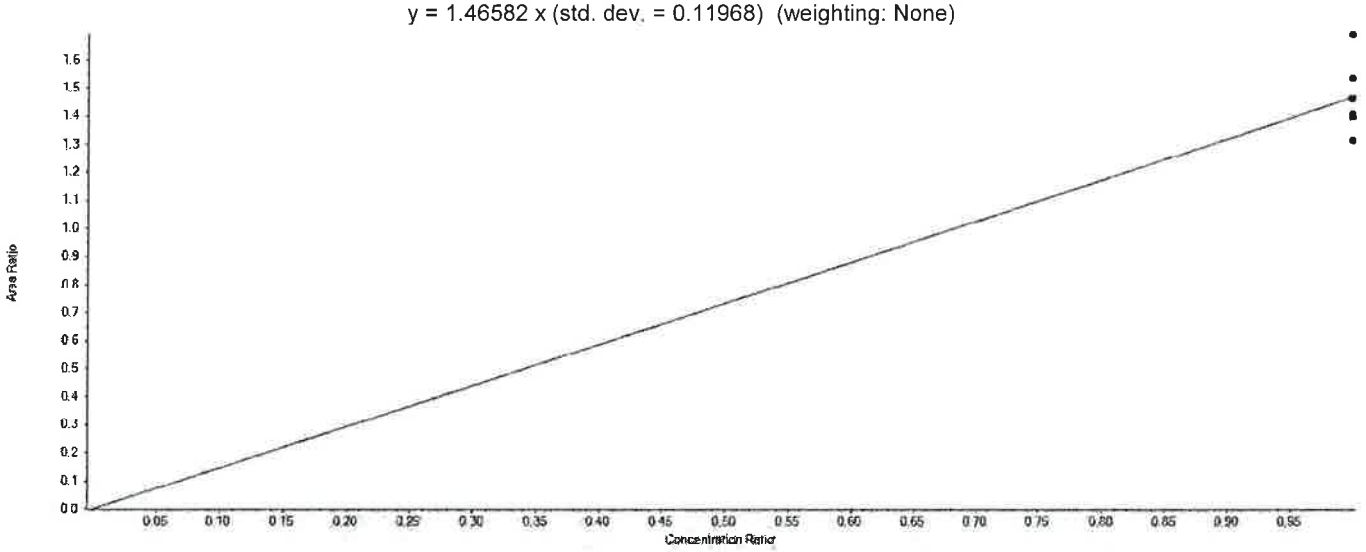
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFTeDA

y = 1.46582 x (std. dev. = 0.11968) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1802191.1	1235492.2	True	5.00	1.459	8.24	1.160	5.000	4.976	-0.5	50.0	
CAL2	1915714.8	1134641.4	True	5.00	1.688	8.23	1.160	5.000	5.759	15.2	30.0	
CAL3	1639034.8	1174340.8	True	5.00	1.396	8.24	1.160	5.000	4.761	-4.8	30.0	
CAL4	1938387.9	1324769.0	True	5.00	1.463	8.23	1.160	5.000	4.991	-0.2	30.0	
CAL5	1730502.5	1127552.9	True	5.00	1.535	8.23	1.160	5.000	5.235	4.7	30.0	
CAL6	1588690.1	1129666.7	True	5.00	1.406	8.23	1.160	5.000	4.797	-4.1	30.0	
CAL7	1338346.4	1018778.6	True	5.00	1.314	8.23	1.160	5.000	4.481	-10.4	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

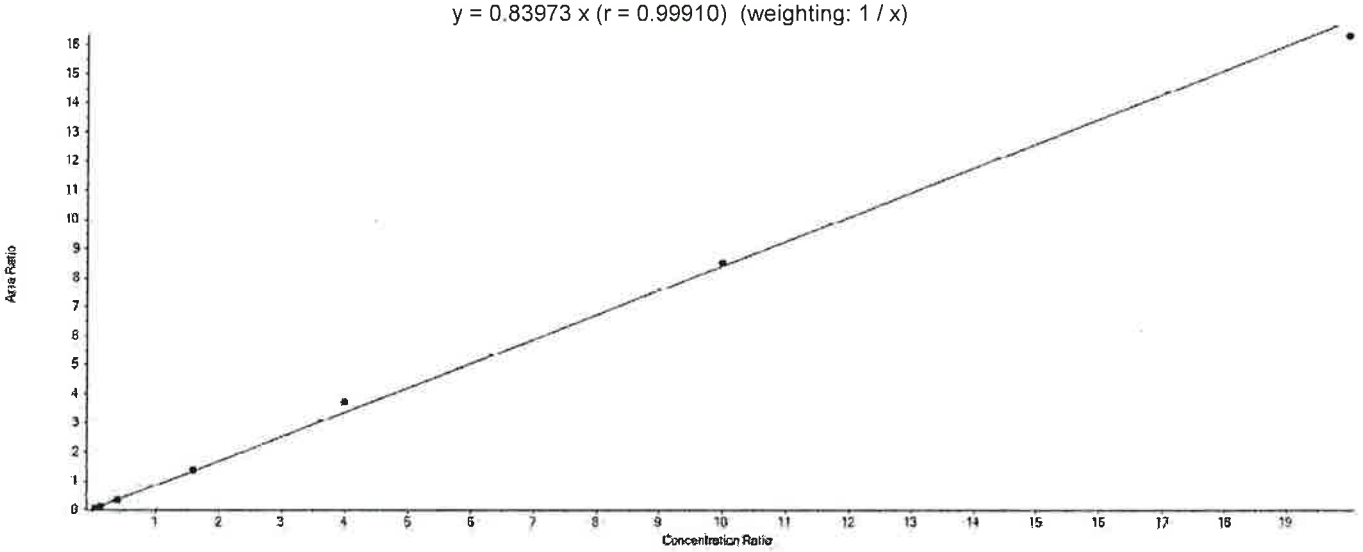
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBA

y = 0.83973 x (r = 0.99910) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	39178.0	1039556.0	True	5.00	0.038	4.44	1.000	0.200	0.224	12.2	50.0	
CAL2	106388.4	1077209.5	True	5.00	0.099	4.44	1.000	0.600	0.588	-2.0	30.0	
CAL3	338058.3	1012510.8	True	5.00	0.334	4.45	1.000	2.000	1.988	-0.6	30.0	
CAL4	1547540.4	1117209.1	True	5.00	1.385	4.44	1.000	8.000	8.248	3.1	30.0	
CAL5	3665408.7	989813.1	True	5.00	3.703	4.44	1.000	20.000	22.049	10.2	30.0	
CAL6	7913689.7	929933.5	True	5.00	8.510	4.44	1.000	50.000	50.671	1.3	30.0	
CAL7	13447476.8	825195.3	True	5.00	16.296	4.44	1.000	100.000	97.032	-3.0	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

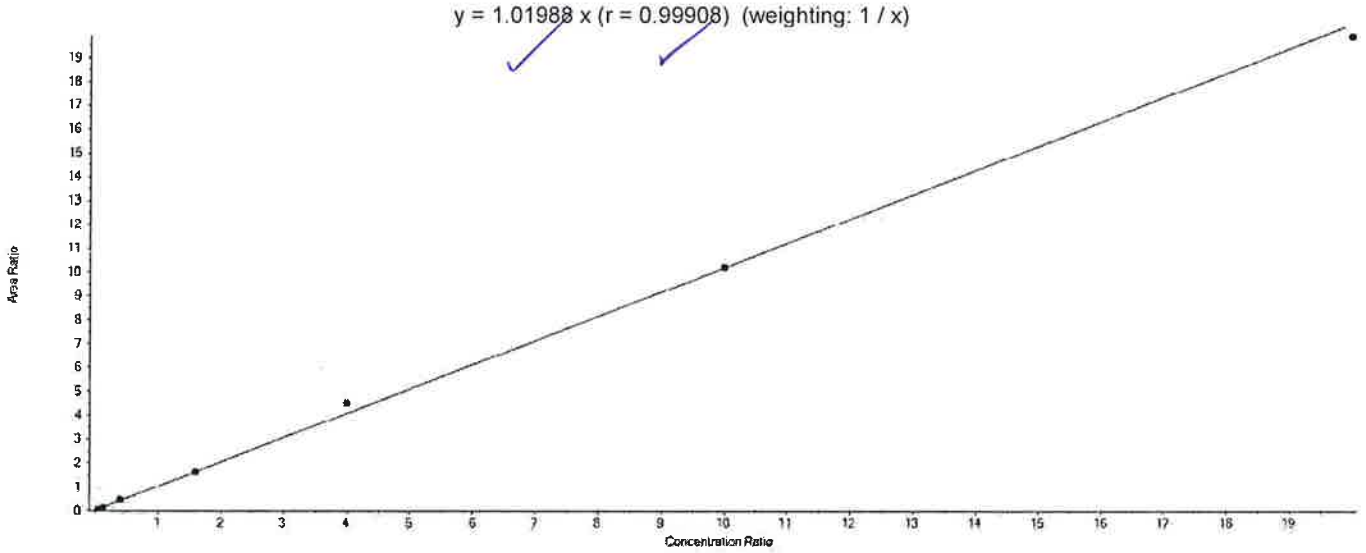
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFPeA

y = 1.01988 x (r = 0.99908) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	39036.7	877803.9	True	5.00	0.044	5.02	1.000	0.200	0.218	9.0	50.0	
CAL2	113014.6	885186.3	True	5.00	0.128	5.02	1.000	0.600	0.626	4.3	30.0	
CAL3	354432.4	838933.5	True	5.00	0.422	5.03	1.000	2.000	2.071	3.6	30.0	
CAL4	1657661.6	1003319.3	True	5.00	1.652	5.02	1.000	8.000	8.100	1.2	30.0	
CAL5	3830218.6	842931.7	True	5.00	4.544	5.02	1.000	20.000	22.277	11.4	30.0	
CAL6	8143498.5	797721.6	True	5.00	10.208	5.02	1.000	50.000	50.047	0.1	30.0	
CAL7	13918495.7	700132.2	True	5.00	19.880	5.02	1.000	100.000	97.461	-2.5	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

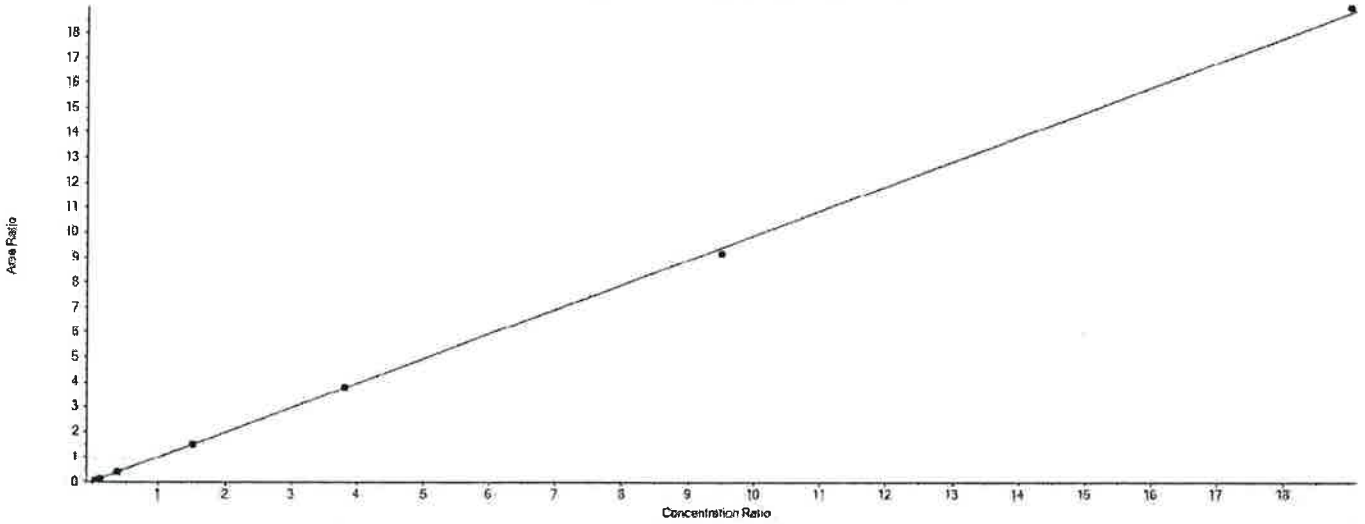
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBS

y = 0.98743 x (r = 0.99985) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	18164.8	469304.3	True	4.65	0.039	5.07	1.000	0.170	0.182	7.2	50.0	
CAL2	55595.4	466889.8	True	4.65	0.119	5.07	1.000	0.530	0.561	5.8	30.0	
CAL3	166170.8	450301.5	True	4.65	0.369	5.08	1.000	1.770	1.738	-1.8	30.0	
CAL4	762505.8	513505.4	True	4.65	1.485	5.07	1.000	7.080	6.993	-1.2	30.0	
CAL5	1795781.4	471919.1	True	4.65	3.805	5.07	1.000	17.690	17.920	1.3	30.0	
CAL6	3972190.1	434168.7	True	4.65	9.149	5.07	1.000	44.220	43.084	-2.6	30.0	
CAL7	6940632.1	365470.0	True	4.65	18.991	5.07	1.000	88.450	89.432	1.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

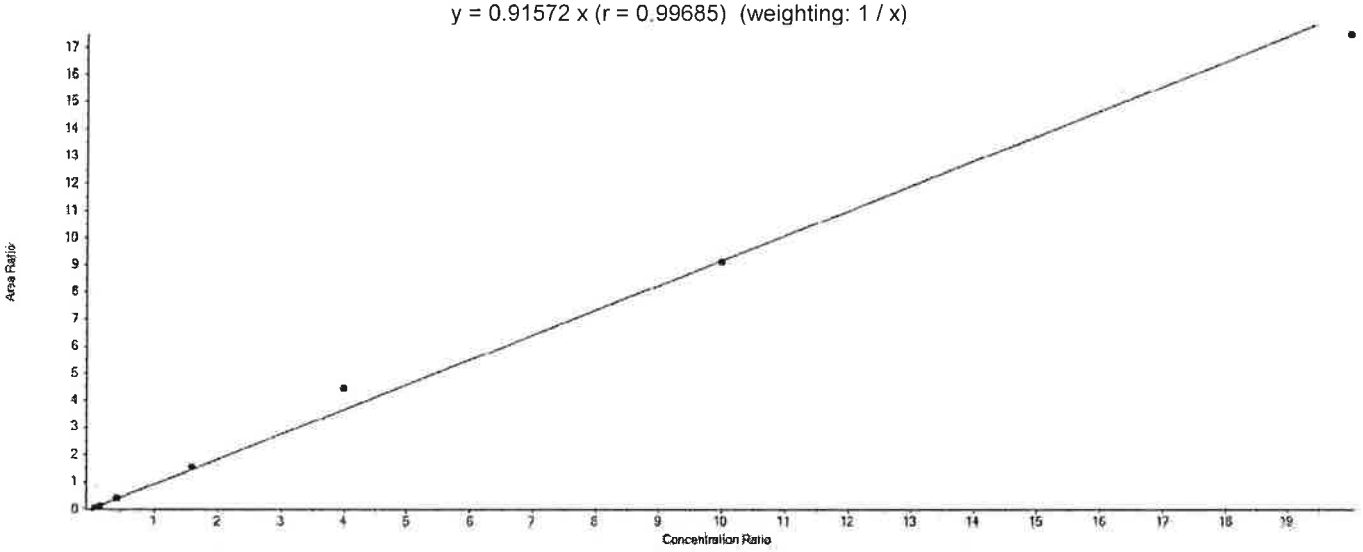
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxA

y = 0.91572 x (r = 0.99685) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	66951.6	1578041.0	True	5.00	0.042	5.49	1.000	0.200	0.232	15.8	50.0	
CAL2	179410.6	1586428.0	True	5.00	0.113	5.49	1.000	0.600	0.618	2.9	30.0	
CAL3	594164.8	1478796.2	True	5.00	0.402	5.50	1.000	2.000	2.194	9.7	30.0	
CAL4	2728366.2	1742134.0	True	5.00	1.566	5.49	1.000	8.000	8.551	6.9	30.0	
CAL5	6186430.9	1400228.9	True	5.00	4.418	5.49	1.000	20.000	24.124	20.6	30.0	
CAL6	12610653.6	1383842.5	True	5.00	9.113	5.49	1.000	50.000	49.758	-0.5	30.0	
CAL7	21349075.8	1222888.1	True	5.00	17.458	5.49	1.000	100.000	95.324	-4.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

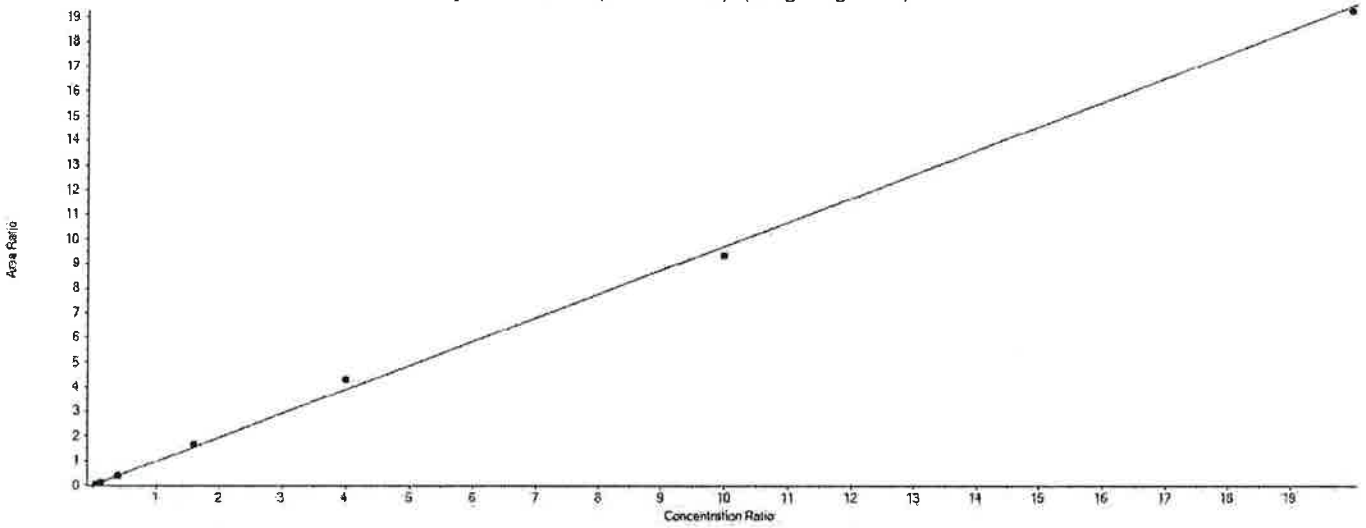
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxS

y = 0.97108 x (r = 0.99891) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	17208.4	426034.3	True	4.73	0.040	5.93	1.000	0.190	0.197	3.6	50.0	
CAL2	49603.0	455593.9	True	4.73	0.109	5.93	1.000	0.570	0.530	-7.0	30.0	
CAL3	155948.7	399928.7	True	4.73	0.390	5.94	1.000	1.890	1.899	0.5	30.0	
CAL4	737916.4	441902.6	True	4.73	1.670	5.93	1.000	7.560	8.134	7.6	30.0	
CAL5	1722622.3	398901.0	True	4.73	4.318	5.93	1.000	18.910	21.035	11.2	30.0	
CAL6	3758194.2	402347.5	True	4.73	9.341	5.93	1.000	47.280	45.497	-3.8	30.0	
CAL7	6676151.3	347206.8	True	4.73	19.228	5.92	1.000	94.550	93.658	-0.9	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

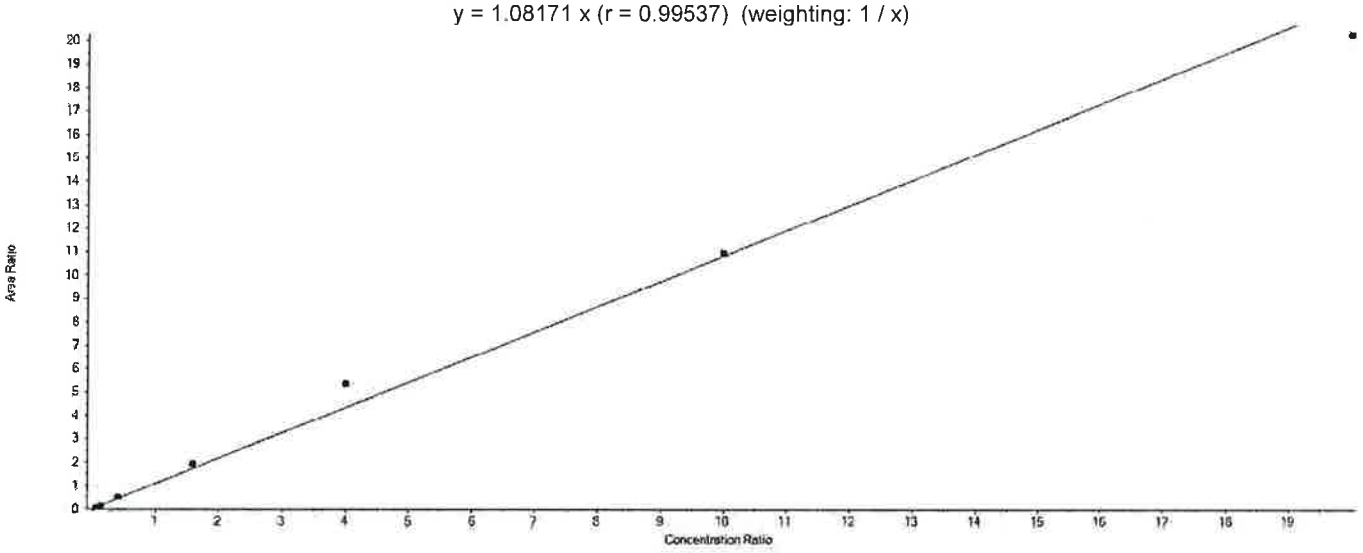
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHpA

y = 1.08171 x (r = 0.99537) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	79711.9	1560780.0	True	5.00	0.051	5.94	1.000	0.200	0.236	18.0	50.0	
CAL2	209694.5	1570376.7	True	5.00	0.134	5.94	1.000	0.600	0.617	2.9	30.0	
CAL3	705719.0	1457586.2	True	5.00	0.484	5.94	1.000	2.000	2.238	11.9	30.0	
CAL4	3178105.8	1672856.6	True	5.00	1.900	5.93	1.000	8.000	8.781	9.8	30.0	
CAL5	7618444.5	1421056.3	True	5.00	5.361	5.94	1.000	20.000	24.781	23.9	30.0	
CAL6	15192870.6	1390212.8	True	5.00	10.928	5.94	1.000	50.000	50.515	1.0	30.0	
CAL7	24269495.0	1198107.1	True	5.00	20.257	5.93	1.000	100.000	93.632	-6.4	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

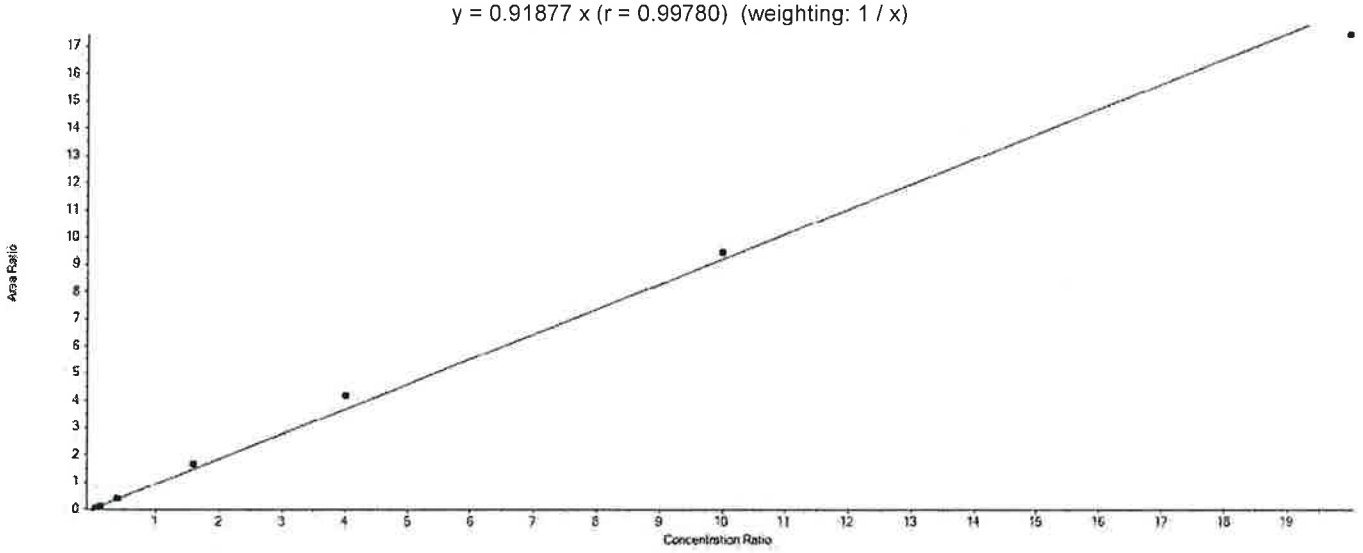
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOA

y = 0.91877 x (r = 0.99780) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	87710.9	1873019.4	True	5.00	0.047	6.35	1.000	0.200	0.255	27.4	50.0	
CAL2	227941.6	1952831.6	True	5.00	0.117	6.35	1.000	0.600	0.635	5.9	30.0	
CAL3	714469.8	1801314.0	True	5.00	0.397	6.36	1.000	2.000	2.159	7.9	30.0	
CAL4	3296055.7	2011849.9	True	5.00	1.638	6.35	1.000	8.000	8.916	11.4	30.0	
CAL5	7518281.9	1798992.1	True	5.00	4.179	6.35	1.000	20.000	22.743	13.7	30.0	
CAL6	15812025.5	1676401.5	True	5.00	9.432	6.35	1.000	50.000	51.330	2.7	30.0	
CAL7	25644747.4	1472755.6	True	5.00	17.413	6.35	1.000	100.000	94.762	-5.2	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

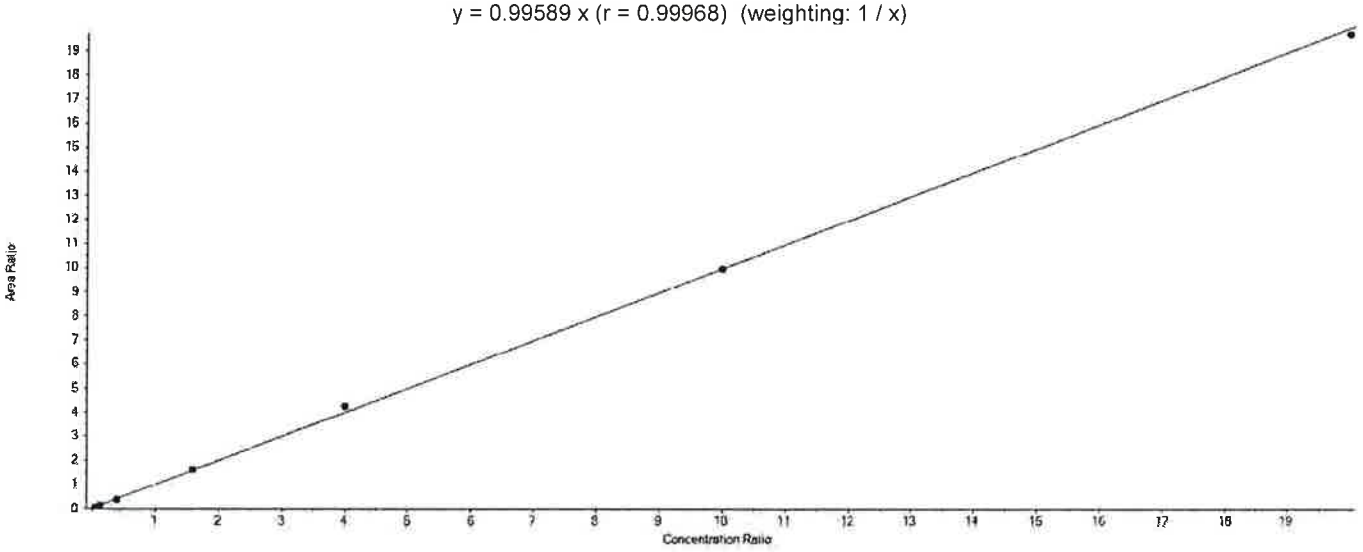
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOS

y = 0.99589 x (r = 0.99968) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	13971.6	363441.3	True	4.78	0.038	6.70	1.000	0.190	0.185	-2.9	50.0	
CAL2	44443.8	396417.6	True	4.78	0.112	6.70	1.000	0.570	0.538	-5.6	30.0	
CAL3	144086.6	384020.6	True	4.78	0.375	6.71	1.000	1.910	1.801	-5.7	30.0	
CAL4	665675.0	411532.4	True	4.78	1.618	6.70	1.000	7.650	7.764	1.5	30.0	
CAL5	1560715.5	367609.6	True	4.78	4.246	6.70	1.000	19.120	20.378	6.6	30.0	
CAL6	3432757.7	344965.0	True	4.78	9.951	6.70	1.000	47.800	47.762	-0.1	30.0	
CAL7	5977900.2	303903.7	True	4.78	19.670	6.70	1.000	95.600	94.413	-1.2	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

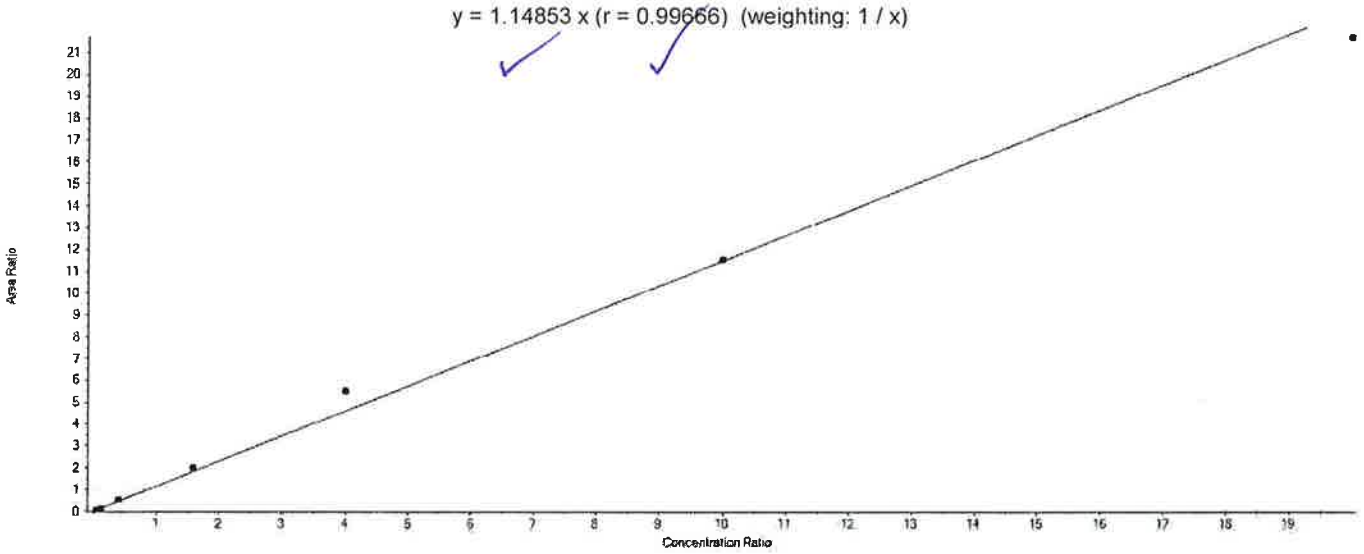
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFNA

y = 1.14853 x (r = 0.99666) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	78706.9	1384282.8	True	5.00	0.057	6.73	1.000	0.200	0.248	23.8	50.0	
CAL2	213525.8	1434808.2	True	5.00	0.149	6.73	1.000	0.600	0.648	8.0	30.0	
CAL3	681798.5	1269254.7	True	5.00	0.537	6.74	1.000	2.000	2.338	16.9	30.0	
CAL4	2953048.0	1455556.9	True	5.00	2.029	6.73	1.000	8.000	8.832	10.4	30.0	
CAL5	6896123.3	1254850.3	True	5.00	5.496	6.73	1.000	20.000	23.924	19.6	30.0	
CAL6	14891502.0	1287621.8	True	5.00	11.565	6.73	1.000	50.000	50.347	0.7	30.0	
CAL7	25535140.0	1176812.6	True	5.00	21.699	6.72	1.000	100.000	94.462	-5.5	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

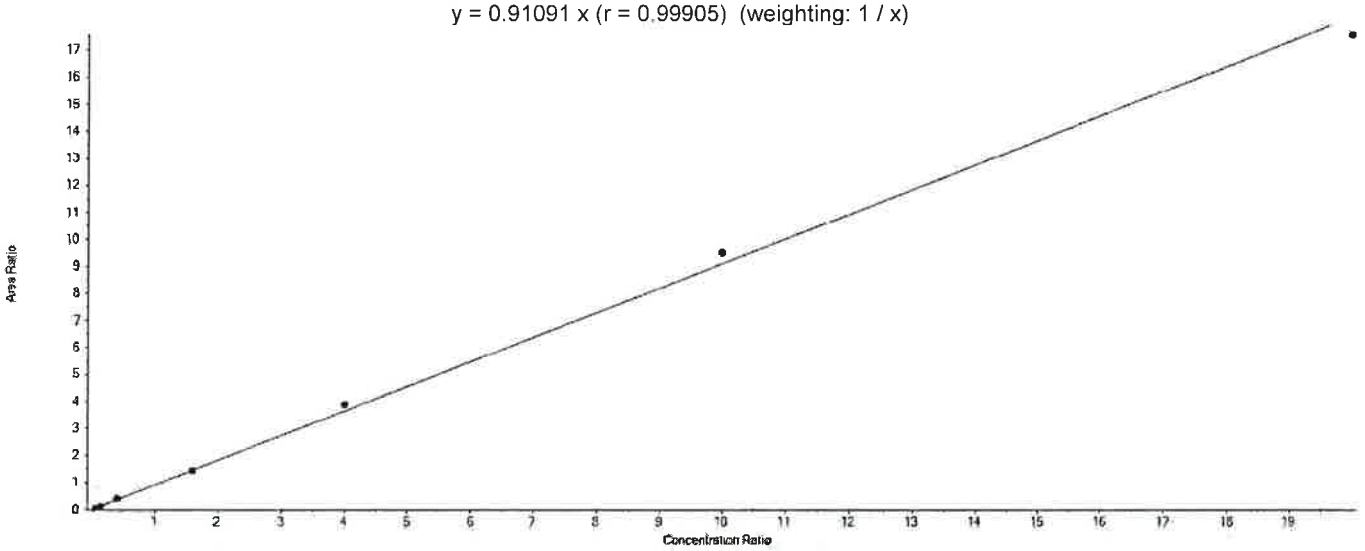
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDA

y = 0.91091 x (r = 0.99905) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65429.7	1711460.2	True	5.00	0.038	7.08	1.000	0.200	0.210	4.9	50.0	
CAL2	202762.4	1791292.2	True	5.00	0.113	7.07	1.000	0.600	0.621	3.6	30.0	
CAL3	651504.7	1727707.8	True	5.00	0.377	7.08	1.000	2.000	2.070	3.5	30.0	
CAL4	2867669.5	1983112.7	True	5.00	1.446	7.07	1.000	8.000	7.937	-0.8	30.0	
CAL5	6700356.8	1721524.0	True	5.00	3.892	7.08	1.000	20.000	21.364	6.8	30.0	
CAL6	14567251.2	1529554.5	True	5.00	9.524	7.08	1.000	50.000	52.277	4.6	30.0	
CAL7	23920790.4	1363173.5	True	5.00	17.548	7.07	1.000	100.000	96.321	-3.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

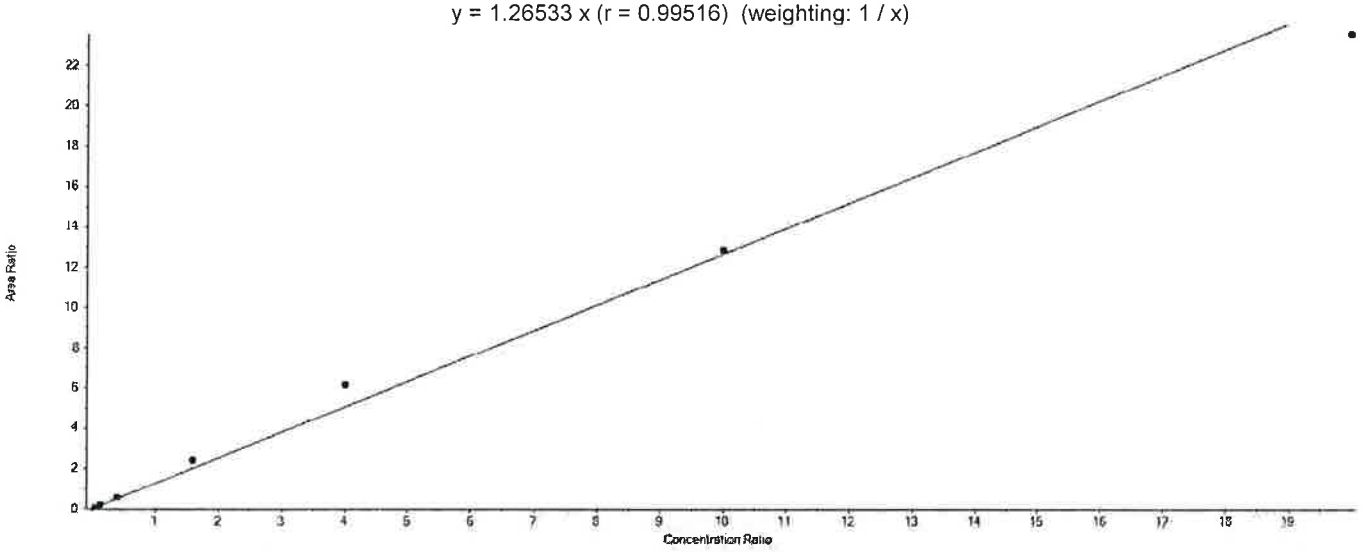
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFUnDA

y = 1.26533 x (r = 0.99516) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	60752.5	995821.2	True	5.00	0.061	7.38	1.000	0.200	0.241	20.5	50.0	
CAL2	179405.7	1030183.1	True	5.00	0.174	7.38	1.000	0.600	0.688	14.7	30.0	
CAL3	520270.4	888871.0	True	5.00	0.585	7.39	1.000	2.000	2.313	15.6	30.0	
CAL4	2424026.1	1010630.1	True	5.00	2.399	7.38	1.000	8.000	9.478	18.5	30.0	
CAL5	5418373.0	881054.2	True	5.00	6.150	7.39	1.000	20.000	24.301	21.5	30.0	
CAL6	11330823.0	880392.6	True	5.00	12.870	7.38	1.000	50.000	50.857	1.7	30.0	
CAL7	17636489.7	749999.2	True	5.00	23.515	7.38	1.000	100.000	92.922	-7.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

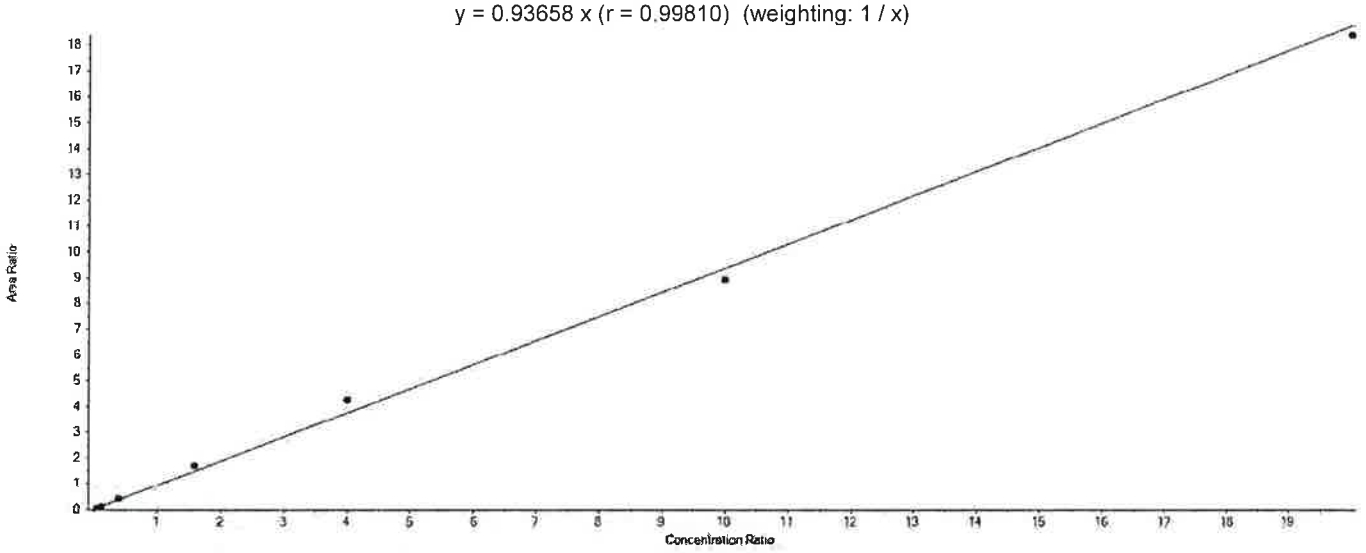
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDoDA

y = 0.93658 x (r = 0.99810) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	64094.9	1448567.4	True	5.00	0.044	7.67	1.000	0.200	0.236	18.1	50.0	
CAL2	184825.5	1502007.0	True	5.00	0.123	7.67	1.000	0.600	0.657	9.5	30.0	
CAL3	566845.7	1365297.0	True	5.00	0.415	7.68	1.000	2.000	2.216	10.8	30.0	
CAL4	2555860.6	1486696.5	True	5.00	1.719	7.67	1.000	8.000	9.178	14.7	30.0	
CAL5	5814088.5	1368417.8	True	5.00	4.249	7.67	1.000	20.000	22.682	13.4	30.0	
CAL6	11976721.9	1341062.3	True	5.00	8.931	7.67	1.000	50.000	47.677	-4.6	30.0	
CAL7	21119318.7	1148686.5	True	5.00	18.386	7.67	1.000	100.000	98.153	-1.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

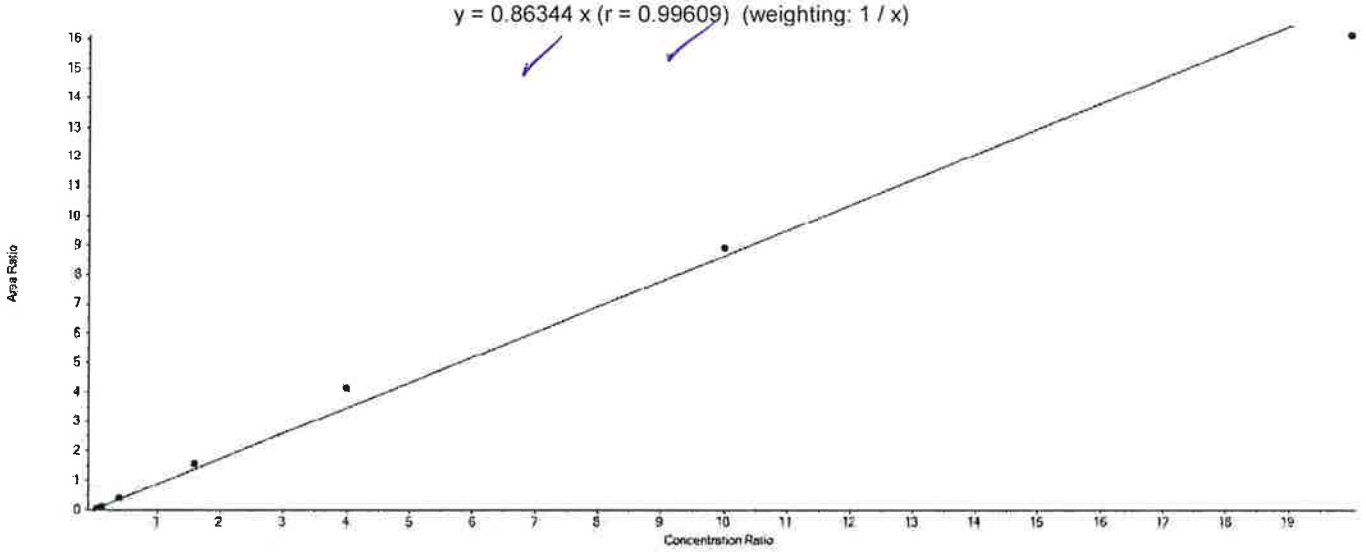
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTrDA

y = 0.86344 x (r = 0.99609) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	54019.6	1448567.4	True	5.00	0.037	7.95	1.040	0.200	0.216	8.0	50.0	
CAL2	161399.0	1502007.0	True	5.00	0.107	7.95	1.040	0.600	0.622	3.7	30.0	
CAL3	511966.6	1365297.0	True	5.00	0.375	7.96	1.040	2.000	2.171	8.6	30.0	
CAL4	2336426.8	1486696.5	True	5.00	1.572	7.95	1.040	8.000	9.101	13.8	30.0	
CAL5	5636683.2	1368417.8	True	5.00	4.119	7.95	1.040	20.000	23.853	19.3	30.0	
CAL6	11924146.0	1341062.3	True	5.00	8.892	7.95	1.040	50.000	51.489	3.0	30.0	
CAL7	18517016.1	1148686.5	True	5.00	16.120	7.95	1.040	100.000	93.348	-6.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

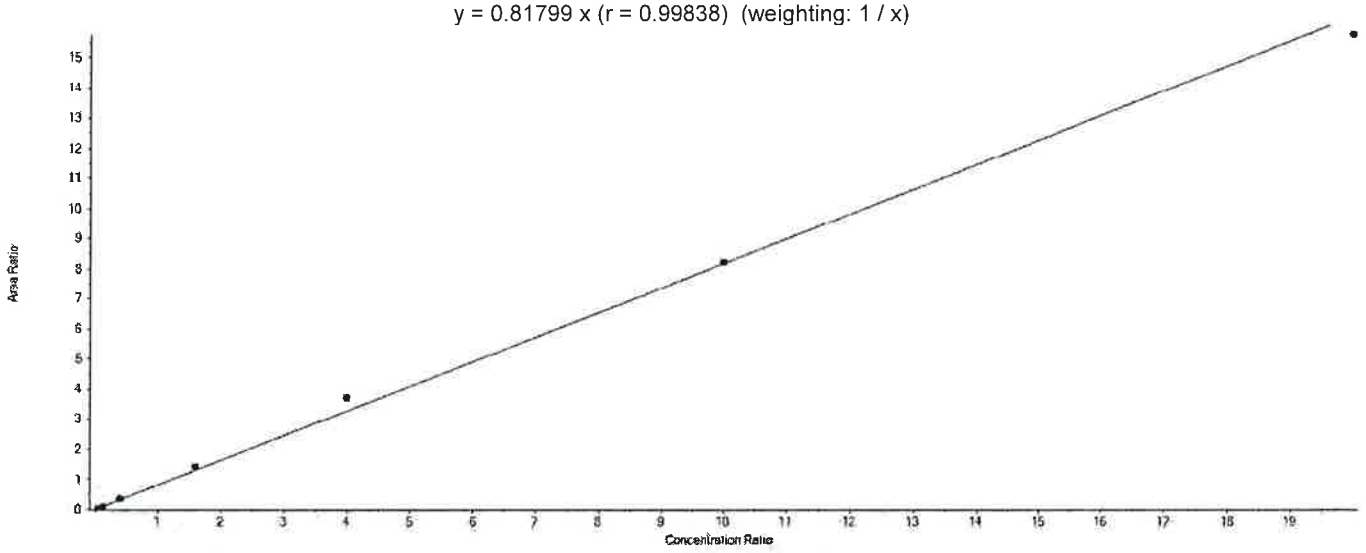
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTeDA

y = 0.81799 x (r = 0.99838) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	67538.8	1802191.1	True	5.00	0.037	8.23	1.000	0.200	0.229	14.5	50.0	
CAL2	198788.8	1915714.8	True	5.00	0.104	8.23	1.000	0.600	0.634	5.7	30.0	
CAL3	559418.0	1639034.8	True	5.00	0.341	8.24	1.000	2.000	2.086	4.3	30.0	
CAL4	2742002.8	1938387.9	True	5.00	1.415	8.23	1.000	8.000	8.647	8.1	30.0	
CAL5	6444723.9	1730502.5	True	5.00	3.724	8.23	1.000	20.000	22.764	13.8	30.0	
CAL6	13051195.0	1588690.1	True	5.00	8.215	8.23	1.000	50.000	50.215	0.4	30.0	
CAL7	21068198.2	1338346.4	True	5.00	15.742	8.23	1.000	100.000	96.224	-3.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR11MCAL-24.wiff	4/12/2018 1:38:18 AM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	343494.8	13C4-PFBA	1035938.3	5.00	0.332	4.44	1.00	2.000	1.974	-1.3	30.0	
PFPeA	354319.7	13C5-PFPeA	920580.4	5.00	0.385	5.02	1.00	2.000	1.887	-5.7	30.0	
PFBS	171751.0	13C3-PFBS	482466.1	4.65	0.356	5.07	1.00	1.770	1.676	-5.3	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	235336.0	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	568942.0	13C5-PFHxA	1640212.3	5.00	0.347	5.49	1.00	2.000	1.894	-5.3	30.0	
PFPeS	N/A	13C3-PFBS	482466.1	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	157750.3	13C3-PFHxS	436995.1	4.73	0.361	5.93	1.00	1.890	1.758	-7.0	30.0	
PFHpA	684916.6	13C4-PFHpA	1571926.3	5.00	0.436	5.93	1.00	2.000	2.014	0.7	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	176186.7	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	136838.6	13C3-PFHxS	436995.1	4.73	0.313	6.33	1.07	1.900	1.780	-6.3	30.0	
PFOA	719520.7	13C8-PFOA	1921659.6	5.00	0.374	6.35	1.00	2.000	2.038	1.9	30.0	
PFOS	145864.6	13C8-PFOS	384128.1	4.78	0.380	6.70	1.00	1.910	1.823	-4.6	30.0	
PFNA	647472.8	13C9-PFNA	1422883.2	5.00	0.455	6.73	1.00	2.000	1.981	-1.0	30.0	
PFOSA	N/A	13C8-PFOSA	909534.1	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	384128.1	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	681309.0	13C6-PFDA	1843786.5	5.00	0.370	7.07	1.00	2.000	2.028	1.4	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	249297.5	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	191391.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	149190.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	165522.8	d3-NMeFOSAA	394274.7	5.00	0.420	7.25	1.00	2.000	2.046	2.3	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	227431.6	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	116674.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	74021.0	13C8-PFOS	384128.1	4.78	0.193	7.34	1.10	1.930	1.819	-5.7	30.0	
PFUnDA	545999.7	13C7-PFUnDA	994001.6	5.00	0.549	7.38	1.00	2.000	2.171	8.5	30.0	
NEtFOSAA	168058.5	d5-NEtFOSAA	388208.8	5.00	0.433	7.41	1.00	2.000	2.009	0.4	30.0	
PFDoDA	545827.4	13C2-PFDoDA	1440214.4	5.00	0.379	7.67	1.00	2.000	2.023	1.2	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	249297.5	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	384128.1	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	513279.1	13C2-PFDoDA	1440214.4	5.00	0.356	7.95	1.04	2.000	2.064	3.2	30.0	
PFTeDA	580792.8	13C2-PFTeDA	1773299.5	5.00	0.328	8.23	1.00	2.000	2.002	0.1	30.0	
PFHxDA	N/A	13C2-PFTeDA	1773299.5	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	1773299.5	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

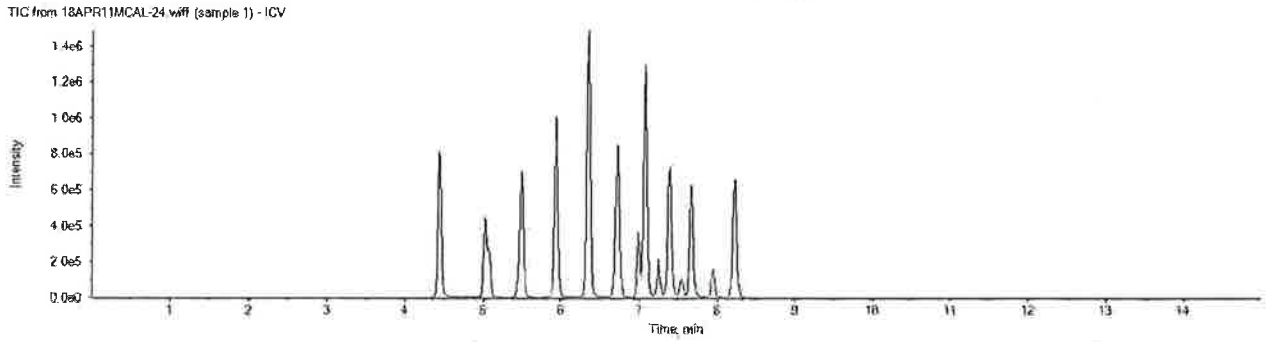
Analyte Quantitation Peak Table

Sample Name: ICV **Instrument Name:** LM24743 **File Name:** 18APR11MCAL-24.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	343494.8	A	13C4-PFBA	4.44	1035938.3	0.332	1.974
PFPeA	5.02	1.000	354319.7	A	13C5-PFPeA	5.02	920580.4	0.385	1.887
PFBS	5.07	1.000	171751.0	A	13C3-PFBS	5.07	482466.1	0.356	1.676
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.45	235336.0	N/A	
PFHxA	5.49	1.000	568942.0	A	13C5-PFHxA	5.49	1640212.3	0.347	1.894
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.07	482466.1	N/A	
PFHxS	5.93	1.000	157750.3	A	13C3-PFHxS	5.93	436995.1	0.361	1.758
PFHpA	5.93	1.000	684916.6	A	13C4-PFHpA	5.93	1571926.3	0.436	2.014
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.34	176186.7	N/A	
PFHpS	6.33	1.070	136838.6	A	13C3-PFHxS	5.93	436995.1	0.313	1.780
PFOA	6.35	1.000	719520.7	A	13C8-PFOA	6.35	1921659.6	0.374	2.038
PFOS	6.70	1.000	145864.6	A	13C8-PFOS	6.70	384128.1	0.380	1.823
PFNA	6.73	1.000	647472.8	A	13C9-PFNA	6.73	1422883.2	0.455	1.981
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.99	909534.1	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.70	384128.1	N/A	
PFDA	7.07	1.000	681309.0	A	13C6-PFDA	7.07	1843786.5	0.370	2.028
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.08	249297.5	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.38	191391.4	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.40	149190.7	N/A	
NMeFOSAA	7.25	1.000	165522.8	A	d3-NMeFOSAA	7.24	394274.7	0.420	2.046
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.53	227431.6	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.56	116674.4	N/A	
PFDS	7.34	1.100	74021.0	A	13C8-PFOS	6.70	384128.1	0.193	1.819
PFUnDA	7.38	1.000	545999.7	A	13C7-PFUnDA	7.38	994001.6	0.549	2.171
NEtFOSAA	7.41	1.000	168058.5	A	d5-NEtFOSAA	7.40	388208.8	0.433	2.009
PFDoDA	7.67	1.000	545827.4	A	13C2-PFDoDA	7.67	1440214.4	0.379	2.023
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.08	249297.5	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.70	384128.1	N/A	
PFTrDA	7.95	1.040	513279.1	A	13C2-PFDoDA	7.67	1440214.4	0.356	2.064
PFTeDA	8.23	1.000	580792.8	A	13C2-PFTeDA	8.23	1773299.5	0.328	2.002
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.23	1773299.5	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.23	1773299.5	N/A	

Total Ion Chromatogram



APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:54 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

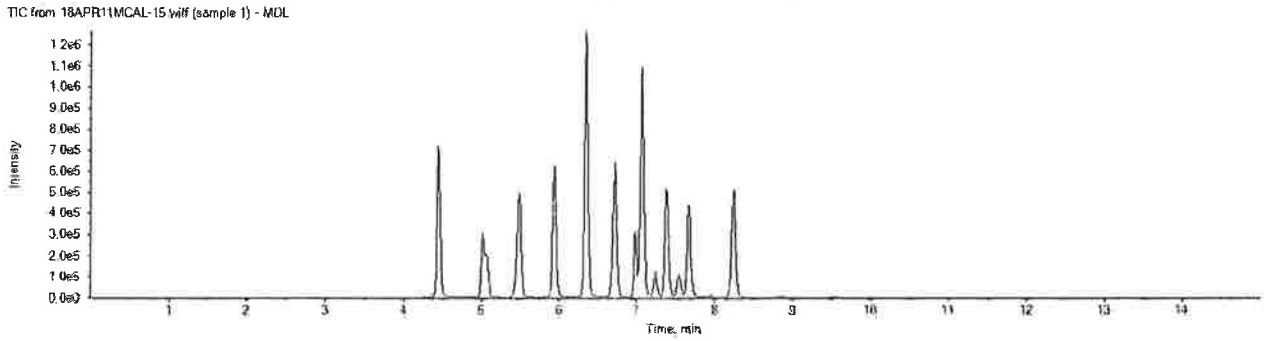
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24743 **File Name:** 18APR11MCAL-15.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	19901.2	M	13C4-PFBA	4.44	1027509.6	0.019	0.115
PFPeA	5.01	1.000	20427.5	M	13C5-PFPeA	5.01	854377.8	0.024	0.117
PFBS	5.07	1.000	8749.0	M	13C3-PFBS	5.07	482216.9	0.018	0.085
4:2-FTS	5.44	1.000	20380.3	A	13C2-4:2-FTS	5.44	215496.1	0.095	0.517
PFHxA	5.48	1.000	31766.2	M	13C5-PFHxA	5.49	1546286.6	0.021	0.112
PFPeS	5.50	1.080	4351.0	M	13C3-PFBS	5.07	482216.9	0.009	0.087
PFHxS	5.92	1.000	9103.7	M	13C3-PFHxS	5.92	437110.4	0.021	0.101
PFHpA	5.93	1.000	38729.7	M	13C4-PFHpA	5.93	1479720.2	0.026	0.121
6:2-FTS	6.34	1.000	16650.3	M	13C2-6:2-FTS	6.33	178830.5	0.093	0.478
PFHpS	6.33	1.070	6997.7	M	13C3-PFHxS	5.92	437110.4	0.016	0.091
PFOA	6.35	1.000	37479.6	M	13C8-PFOA	6.35	1903950.6	0.020	0.107
PFOS	6.70	1.000	8213.8	M	13C8-PFOS	6.70	360784.3	0.023	0.109
PFNA	6.72	1.000	38974.2	M	13C9-PFNA	6.72	1383683.1	0.028	0.123
PFOSA	6.98	1.000	20687.7	M	13C8-PFOSA	6.98	880213.0	0.024	0.123
PFNS	7.04	1.050	5166.8	M	13C8-PFOS	6.70	360784.3	0.014	0.097
PFDA	7.07	1.000	33377.4	M	13C6-PFDA	7.07	1777400.3	0.019	0.103
8:2-FTS	7.09	1.000	21207.1	M	13C2-8:2-FTS	7.09	228379.3	0.093	0.465
NMePFOSAE	7.38	1.000	5416.4	M	d7-NMePFOSAE	7.38	193143.7	0.028	0.122
NMePFOSA	7.41	1.000	3461.1	M	d3-NMePFOSA	7.40	147870.5	0.023	0.112
NMeFOSAA	7.24	1.000	9179.6	M	d3-NMeFOSAA	7.24	352181.2	0.026	0.127
NEtPFOSAE	7.54	1.000	6889.5	M	d9-NEtPFOSAE	7.53	223289.1	0.031	0.129
NEtPFOSA	7.56	1.000	2732.1	M	d5-NEtPFOSA	7.55	124912.8	0.022	0.105
PFDS	7.33	1.100	4563.1	M	13C8-PFOS	6.70	360784.3	0.013	0.119
PFUnDA	7.38	1.000	29497.1	M	13C7-PFUnDA	7.38	944369.5	0.031	0.123
NEtFOSAA	7.40	1.000	10943.9	M	d5-NEtFOSAA	7.40	389065.9	0.028	0.131
PFDoDA	7.67	1.000	29062.1	M	13C2-PFDoDA	7.67	1399603.8	0.021	0.111
10:2-FTS	7.71	1.090	28762.9	M	13C2-8:2-FTS	7.09	228379.3	0.126	0.487
PFDoS	7.90	1.180	1515.2	M	13C8-PFOS	6.70	360784.3	0.004	0.085
PFTrDA	7.95	1.040	26359.0	A	13C2-PFDoDA	7.67	1399603.8	0.019	0.109
PFTeDA	8.23	1.000	33911.9	M	13C2-PFTeDA	8.23	1746064.4	0.019	0.119
PFHxDA	8.83	1.070	29658.4	A	13C2-PFTeDA	8.23	1746064.4	0.017	0.128
PFODA	9.52	1.160	26313.3	A	13C2-PFTeDA	8.23	1746064.4	0.015	0.100

Total Ion Chromatogram



APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

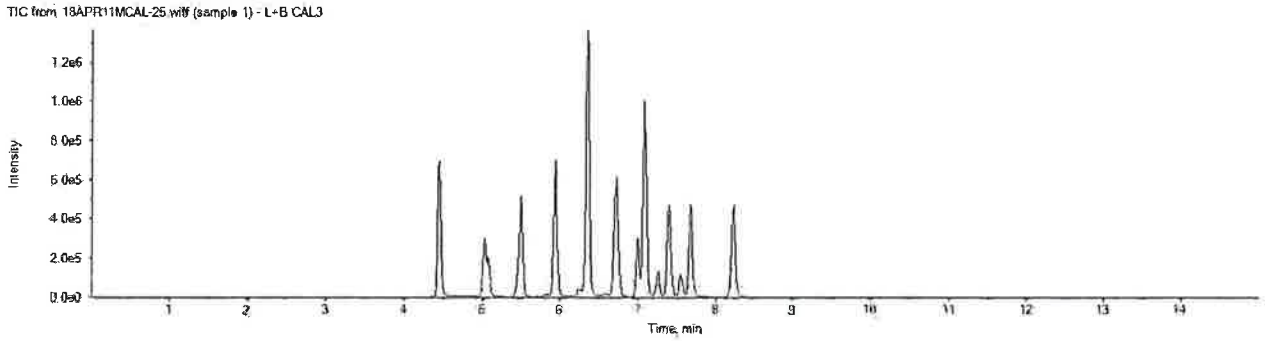
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM24743 **File Name:** 18APR11MCAL-25.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1025595.8	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	851380.9	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	461058.2	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.45	208218.8	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	1483774.0	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.07	461058.2	N/A	
PFHxS	5.93	1.000	147178.9	M	13C3-PFHxS	5.93	416726.5	0.353	1.720
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.94	1459285.4	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.34	175669.4	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	416726.5	N/A	
PFOA	6.35	1.000	618117.4	M	13C8-PFOA	6.35	1847576.1	0.335	1.821
PFOS	6.70	1.000	155868.0	M	13C8-PFOS	6.70	386857.3	0.403	1.934
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	1333305.3	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.99	825021.3	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.70	386857.3	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.08	1759691.0	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.09	206641.5	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.39	181846.2	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.41	138327.0	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.25	380006.4	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.54	243485.0	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.56	115523.0	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.70	386857.3	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.39	915750.2	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.41	367618.9	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	1448481.7	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.09	206641.5	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.70	386857.3	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	1448481.7	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.24	1649343.3	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.24	1649343.3	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.24	1649343.3	N/A	

Total Ion Chromatogram

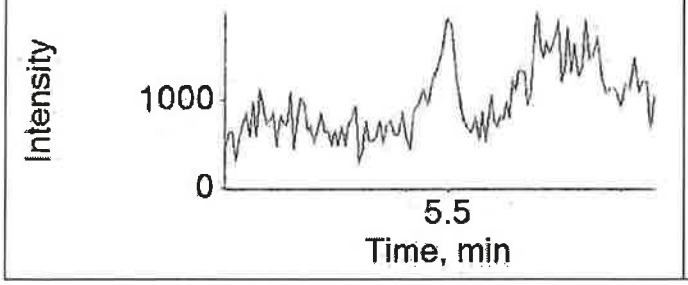


APPROVED
By JPT at 12:32 pm, 4/12/18

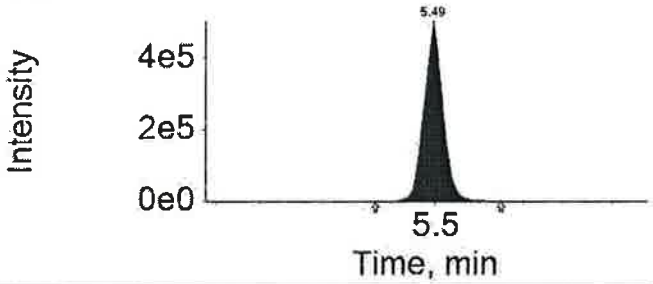
REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

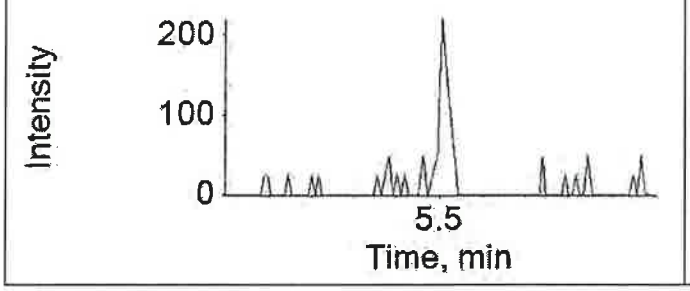
Analyte: PFHxA
313.0 / 269.0



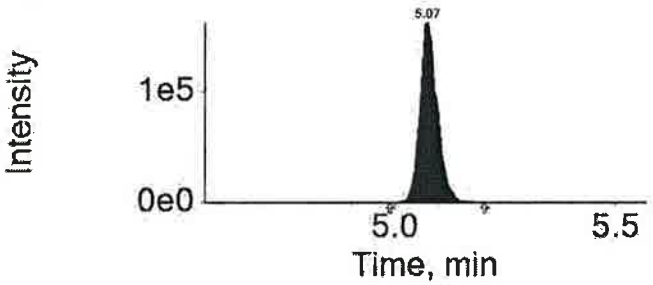
Extraction Standard: 13C5-PFHxA
318.0 / 273.0



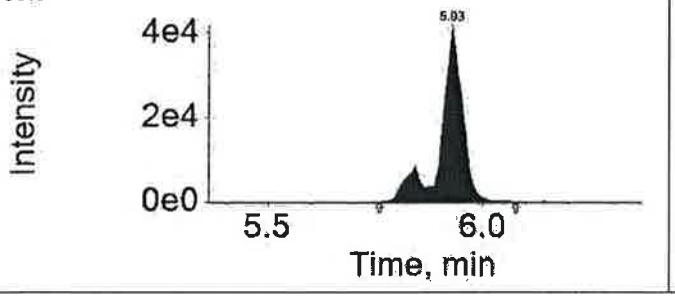
Analyte: PFPeS
349.0 / 80.0



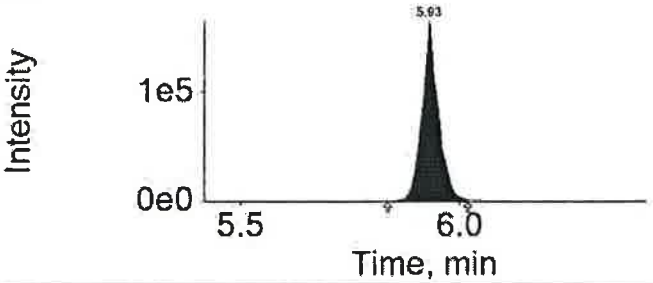
Extraction Standard: 13C3-PFBS
302.0 / 80.0



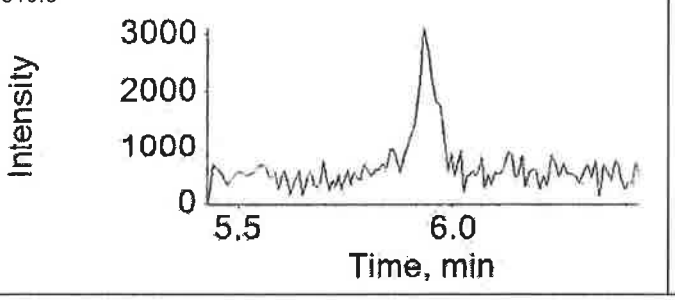
Analyte: PFHxS
399.0 / 80.0



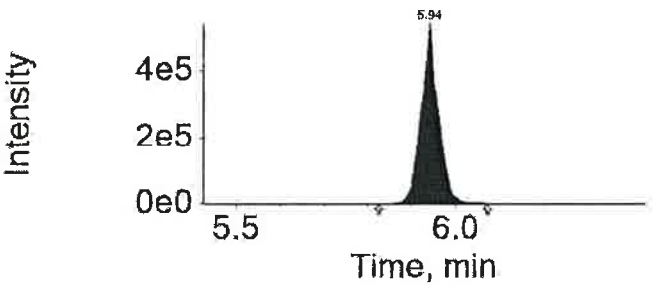
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0

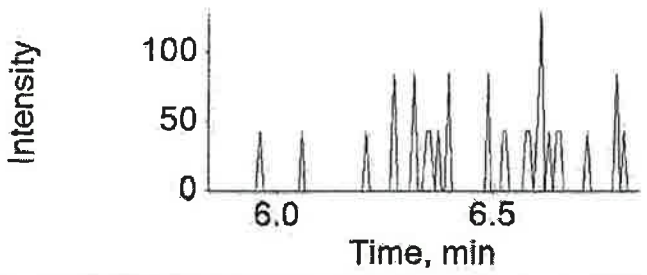


APPROVED
By JPT at 12:32 pm, 4/12/18

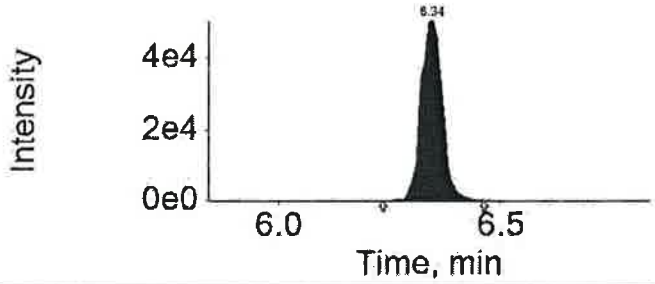
REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

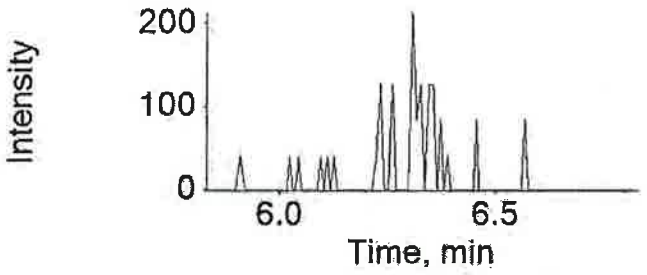
Analyte: 6:2-FTS
427.0 / 407.0



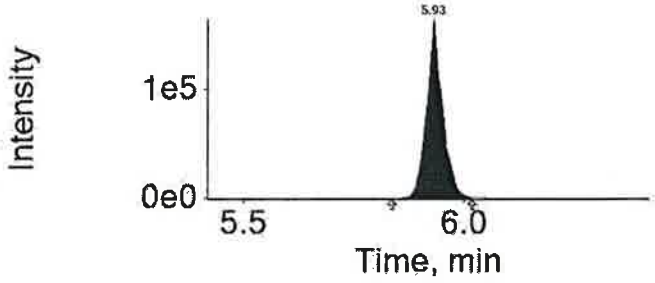
Extraction Standard: 13C2-6:2-FTS
429.0 / 409.0



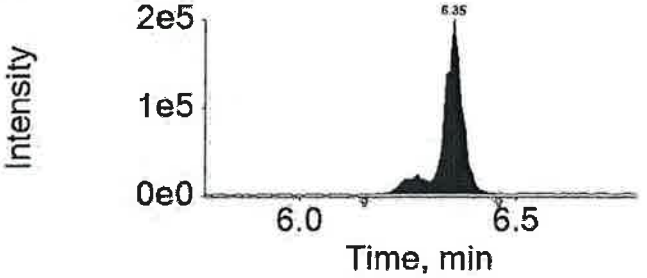
Analyte: PFHpS
449.0 / 80.0



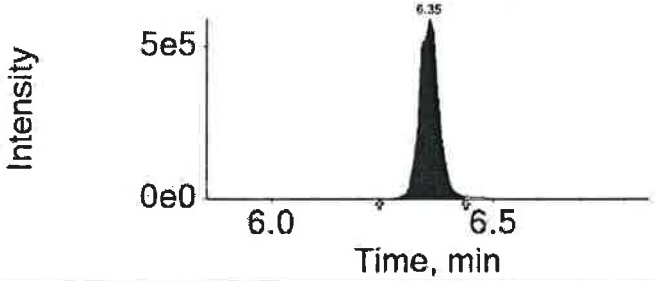
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



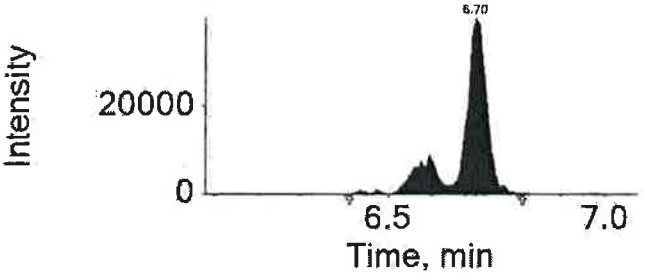
Analyte: PFOA
413.0 / 369.0



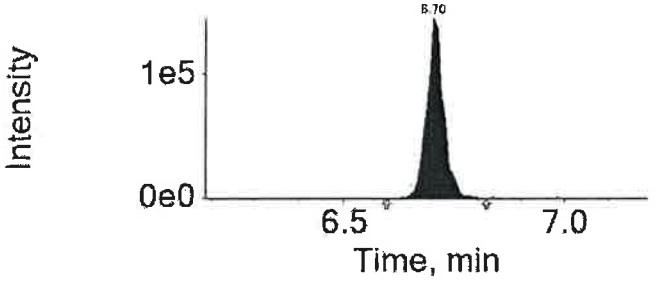
Extraction Standard: 13C8-PFOA
421.0 / 376.0



Analyte: PFOS
499.0 / 80.0



Extraction Standard: 13C8-PFOS
507.0 / 80.0



APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.224	12.2	±50
CAL2	0.099	0.60	0.588	-2.0	±30
CAL3	0.334	2.00	1.988	-0.6	±30
CAL4	1.385	8.00	8.248	3.1	±30
CAL5	3.703	20.00	22.049	10.2	±30
CAL6	8.510	50.00	50.671	1.3	±30
CAL7	16.296	100.00	97.032	-3.0	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.218	9.0	±50
CAL2	0.128	0.60	0.626	4.3	±30
CAL3	0.422	2.00	2.071	3.6	±30
CAL4	1.652	8.00	8.100	1.2	±30
CAL5	4.544	20.00	22.277	11.4	±30
CAL6	10.208	50.00	50.047	0.1	±30
CAL7	19.880	100.00	97.461	-2.5	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.17	0.182	7.2	±50
CAL2	0.119	0.53	0.561	5.8	±30
CAL3	0.369	1.77	1.738	-1.8	±30
CAL4	1.485	7.08	6.993	-1.2	±30
CAL5	3.805	17.69	17.920	1.3	±30
CAL6	9.149	44.22	43.084	-2.6	±30
CAL7	18.991	88.45	89.432	1.1	±30

4:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.119	0.58	0.649	11.9	±50
CAL2	0.413	1.98	2.258	14.1	±30
CAL3	0.874	4.90	4.777	-2.5	±30
CAL4	1.963	10.04	10.723	6.8	±30
CAL5	2.120	12.49	11.582	-7.3	±30

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CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.20	0.232	15.8	±50
CAL2	0.113	0.60	0.618	2.9	±30
CAL3	0.402	2.00	2.194	9.7	±30
CAL4	1.566	8.00	8.551	6.9	±30
CAL5	4.418	20.00	24.124	20.6	±30
CAL6	9.113	50.00	49.758	-0.5	±30
CAL7	17.458	100.00	95.324	-4.7	±30

Perfluoropentanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.021	0.19	0.205	7.7	±50
CAL2	0.056	0.56	0.540	-3.6	±30
CAL3	0.193	1.88	1.875	-0.2	±30
CAL4	0.804	7.50	7.799	4.0	±30
CAL5	1.981	18.76	19.206	2.4	±30
CAL6	4.630	46.90	44.882	-4.3	±30
CAL7	9.808	93.80	95.083	1.4	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.19	0.197	3.6	±50
CAL2	0.109	0.57	0.530	-7.0	±30
CAL3	0.390	1.89	1.899	0.5	±30
CAL4	1.670	7.56	8.134	7.6	±30
CAL5	4.318	18.91	21.035	11.2	±30
CAL6	9.341	47.28	45.497	-3.8	±30
CAL7	19.228	94.55	93.658	-0.9	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.236	18.0	±50
CAL2	0.134	0.60	0.617	2.9	±30
CAL3	0.484	2.00	2.238	11.9	±30
CAL4	1.900	8.00	8.781	9.8	±30
CAL5	5.361	20.00	24.781	23.9	±30
CAL6	10.928	50.00	50.515	1.0	±30
CAL7	20.257	100.00	93.632	-6.4	±30

* Outside QC Limits

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SDG No.: SBN09

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CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

6:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.272	1.30	1.396	7.4	±50
CAL2	0.423	2.09	2.169	3.8	±30
CAL3	1.228	5.21	6.297	20.9	±30
CAL4	2.141	10.43	10.983	5.3	±30
CAL5	2.188	13.04	11.225	-13.9	±30

Perfluoroheptanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.19	0.210	10.8	±50
CAL2	0.098	0.57	0.558	-2.1	±30
CAL3	0.349	1.90	1.983	4.4	±30
CAL4	1.466	7.61	8.333	9.5	±30
CAL5	3.683	19.03	20.941	10.0	±30
CAL6	8.168	47.58	46.438	-2.4	±30
CAL7	16.457	95.15	93.566	-1.7	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.047	0.20	0.255	27.4	±50
CAL2	0.117	0.60	0.635	5.9	±30
CAL3	0.397	2.00	2.159	7.9	±30
CAL4	1.638	8.00	8.916	11.4	±30
CAL5	4.179	20.00	22.743	13.7	±30
CAL6	9.432	50.00	51.330	2.7	±30
CAL7	17.413	100.00	94.762	-5.2	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.19	0.185	-2.9	±50
CAL2	0.112	0.57	0.538	-5.6	±30
CAL3	0.375	1.91	1.801	-5.7	±30
CAL4	1.618	7.65	7.764	1.5	±30
CAL5	4.246	19.12	20.378	6.6	±30
CAL6	9.951	47.80	47.762	-0.1	±30
CAL7	19.670	95.60	94.413	-1.2	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
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SDG No.: SBN09

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

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CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.057	0.20	0.248	23.8	±50
CAL2	0.149	0.60	0.648	8.0	±30
CAL3	0.537	2.00	2.338	16.9	±30
CAL4	2.029	8.00	8.832	10.4	±30
CAL5	5.496	20.00	23.924	19.6	±30
CAL6	11.565	50.00	50.347	0.7	±30
CAL7	21.699	100.00	94.462	-5.5	±30

Perfluorooctanesulfonamide	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.207	3.5	±50
CAL2	0.119	0.60	0.625	4.2	±30
CAL3	0.430	2.00	2.253	12.7	±30
CAL4	1.503	8.00	7.878	-1.5	±30
CAL5	1.883	10.00	9.869	-1.3	±30
CAL6	9.474	50.00	49.663	-0.7	±30
CAL7	19.135	100.00	100.306	0.3	±30

Perfluorononanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.032	0.19	0.213	12.2	±50
CAL2	0.076	0.58	0.510	-12.1	±30
CAL3	0.267	1.92	1.804	-6.1	±30
CAL4	1.161	7.68	7.837	2.0	±30
CAL5	3.054	19.20	20.612	7.4	±30
CAL6	6.983	48.00	47.127	-1.8	±30
CAL7	14.146	96.00	95.467	-0.6	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.210	4.9	±50
CAL2	0.113	0.60	0.621	3.6	±30
CAL3	0.377	2.00	2.070	3.5	±30
CAL4	1.446	8.00	7.937	-0.8	±30
CAL5	3.892	20.00	21.364	6.8	±30
CAL6	9.524	50.00	52.277	4.6	±30
CAL7	17.548	100.00	96.321	-3.7	±30

* Outside QC Limits

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SDG No.: SBN09

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

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CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

8:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.317	1.32	1.590	20.4	±50
CAL2	0.437	2.11	2.193	3.9	±30
CAL3	1.092	5.27	5.474	3.9	±30
CAL4	2.125	10.54	10.651	1.1	±30
CAL5	2.494	13.17	12.502	-5.1	±30

NMeFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.212	5.8	±50
CAL2	0.125	0.60	0.610	1.7	±30
CAL3	0.442	2.00	2.155	7.7	±30
CAL4	1.693	8.00	8.253	3.2	±30
CAL5	2.112	10.00	10.295	2.9	±30
CAL6	10.098	50.00	49.210	-1.6	±30
CAL7	20.532	100.00	100.065	0.1	±30

Perfluorodecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.022	0.19	0.211	10.9	±50
CAL2	0.059	0.58	0.557	-4.0	±30
CAL3	0.179	1.93	1.688	-12.5	±30
CAL4	0.774	7.70	7.304	-5.1	±30
CAL5	2.161	19.26	20.401	5.9	±30
CAL6	5.049	48.15	47.666	-1.0	±30
CAL7	10.199	96.30	96.284	0.0	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.061	0.20	0.241	20.5	±50
CAL2	0.174	0.60	0.688	14.7	±30
CAL3	0.585	2.00	2.313	15.6	±30
CAL4	2.399	8.00	9.478	18.5	±30
CAL5	6.150	20.00	24.301	21.5	±30
CAL6	12.870	50.00	50.857	1.7	±30
CAL7	23.515	100.00	92.922	-7.1	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

NEtFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.20	0.207	3.7	±50
CAL2	0.120	0.60	0.557	-7.2	±30
CAL3	0.429	2.00	1.992	-0.4	±30
CAL4	1.682	8.00	7.803	-2.5	±30
CAL5	2.078	10.00	9.645	-3.6	±30
CAL6	10.677	50.00	49.542	-0.9	±30
CAL7	21.777	100.00	101.054	1.1	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.236	18.1	±50
CAL2	0.123	0.60	0.657	9.5	±30
CAL3	0.415	2.00	2.216	10.8	±30
CAL4	1.719	8.00	9.178	14.7	±30
CAL5	4.249	20.00	22.682	13.4	±30
CAL6	8.931	50.00	47.677	-4.6	±30
CAL7	18.386	100.00	98.153	-1.8	±30

10:2-fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.391	1.33	1.513	13.8	±50
CAL2	0.615	2.12	2.379	12.2	±30
CAL3	1.297	5.30	5.022	-5.3	±30
CAL4	2.857	10.60	11.059	4.3	±30
CAL5	3.265	13.26	12.637	-4.7	±30

Perfluorododecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.010	0.19	0.197	3.7	±50
CAL2	0.027	0.58	0.556	-4.1	±30
CAL3	0.085	1.94	1.720	-11.3	±30
CAL4	0.350	7.74	7.104	-8.2	±30
CAL5	0.949	19.36	19.278	-0.4	±30
CAL6	2.396	48.40	48.667	0.6	±30
CAL7	4.800	96.80	97.488	0.7	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.20	0.216	8.0	±50
CAL2	0.107	0.60	0.622	3.7	±30
CAL3	0.375	2.00	2.171	8.6	±30
CAL4	1.572	8.00	9.101	13.8	±30
CAL5	4.119	20.00	23.853	19.3	±30
CAL6	8.892	50.00	51.489	3.0	±30
CAL7	16.120	100.00	93.348	-6.7	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.20	0.229	14.5	±50
CAL2	0.104	0.60	0.634	5.7	±30
CAL3	0.341	2.00	2.086	4.3	±30
CAL4	1.415	8.00	8.647	8.1	±30
CAL5	3.724	20.00	22.764	13.8	±30
CAL6	8.215	50.00	50.215	0.4	±30
CAL7	15.742	100.00	96.224	-3.8	±30

Perfluorohexadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.032	0.20	0.243	21.3	±50
CAL2	0.084	0.60	0.627	4.5	±30
CAL3	0.299	2.00	2.247	12.3	±30
CAL4	1.096	8.00	8.230	2.9	±30
CAL5	2.836	20.00	21.286	6.4	±30
CAL6	6.473	50.00	48.592	-2.8	±30
CAL7	13.265	100.00	99.575	-0.4	±30

Perfluorooctadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.031	0.20	0.206	2.8	±50
CAL2	0.084	0.60	0.554	-7.6	±30
CAL3	0.308	2.00	2.034	1.7	±30
CAL4	1.200	8.00	7.925	-0.9	±30
CAL5	3.133	20.00	20.691	3.5	±30
CAL6	7.422	50.00	49.023	-2.0	±30
CAL7	15.196	100.00	100.367	0.4	±30

* Outside QC Limits

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR11MCAL-26.WIFF

Date/Time Analyzed: 04/12/2018 02:09 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.06	2.84	±30
Perfluoropentanoic acid	2.00	1.96	-1.77	±30
Perfluorobutanesulfonate	1.77	1.81	2.25	±30
4:2 fluorotelomersulfonate	4.90	5.38	9.82	±30
Perfluorohexanoic acid	2.00	2.12	5.96	±30
Perfluoropentanesulfonate	1.88	1.84	-2.24	±30
Perfluorohexanesulfonate	1.89	1.83	-2.93	±30
Perfluoroheptanoic acid	2.00	2.31	15.26	±30
6:2 fluorotelomersulfonate	5.21	5.58	7.18	±30
Perfluoroheptanesulfonate	1.90	1.79	-5.85	±30
Perfluorooctanoic acid	2.00	2.15	7.65	±30
Perfluoro-octanesulfonate	1.91	1.95	2.01	±30
Perfluorononanoic acid	2.00	2.24	12.02	±30
Perfluorooctanesulfonamide	2.00	2.19	9.28	±30
Perfluorononanesulfonate	1.92	2.02	5.25	±30
Perfluorodecanoic acid	2.00	2.14	6.93	±30
8:2 fluorotelomersulfonate	5.27	5.87	11.44	±30
NMeFOSAA	2.00	2.25	12.32	±30
Perfluorodecanesulfonate	1.93	2.00	3.76	±30
Perfluoroundecanoic acid	2.00	2.41	20.34	±30

* Outside QC Limits.

SBN09 - Page 93 of 2021

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR11MCAL-26.WIFF

Date/Time Analyzed: 04/12/2018 02:09 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.01	0.69	±30
Perfluorododecanoic acid	2.00	2.13	6.62	±30
10:2-fluorotelomersulfonate	5.30	5.55	4.80	±30
Perfluorododecanesulfonate	1.94	1.96	0.85	±30
Perfluorotridecanoic acid	2.00	2.15	7.65	±30
Perfluorotetradecanoic acid	2.00	2.16	7.93	±30
Perfluorohexadecanoic acid	2.00	2.21	10.46	±30
Perfluorooctadecanoic acid	2.00	2.01	0.74	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR18-05.WIFF

Date/Time Analyzed: 04/18/2018 09:28 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.05	2.68	±30
Perfluoropentanoic acid	2.00	2.12	5.96	±30
Perfluorobutanesulfonate	1.77	1.63	-7.76	±30
4:2 fluorotelomersulfonate	4.90	5.42	10.67	±30
Perfluorohexanoic acid	2.00	2.10	5.10	±30
Perfluoropentanesulfonate	1.88	1.86	-1.28	±30
Perfluorohexanesulfonate	1.89	2.01	6.09	±30
Perfluoroheptanoic acid	2.00	2.12	6.18	±30
6:2 fluorotelomersulfonate	5.21	5.69	9.20	±30
Perfluoroheptanesulfonate	1.90	1.99	4.88	±30
Perfluorooctanoic acid	2.00	2.24	12.15	±30
Perfluoro-octanesulfonate	1.91	1.91	-0.25	±30
Perfluorononanoic acid	2.00	2.29	14.66	±30
Perfluorooctanesulfonamide	2.00	2.09	4.58	±30
Perfluorononanesulfonate	1.92	1.98	3.36	±30
Perfluorodecanoic acid	2.00	2.12	5.76	±30
8:2 fluorotelomersulfonate	5.27	5.41	2.64	±30
NMeFOSAA	2.00	2.18	9.13	±30
Perfluorodecanesulfonate	1.93	1.87	-2.90	±30
Perfluoroundecanoic acid	2.00	2.30	15.19	±30

* Outside QC Limits.

SBN09 Page 97 of 2021

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR18-05.WIFF

Date/Time Analyzed: 04/18/2018 09:28 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.12	6.03	±30
Perfluorododecanoic acid	2.00	2.07	3.64	±30
10:2-fluorotelomersulfonate	5.30	5.78	9.00	±30
Perfluorododecanesulfonate	1.94	1.69	-12.94	±30
Perfluorotridecanoic acid	2.00	2.20	10.23	±30
Perfluorotetradecanoic acid	2.00	2.05	2.63	±30
Perfluorohexadecanoic acid	2.00	2.26	12.78	±30
Perfluorooctadecanoic acid	2.00	2.14	7.18	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR18-18.WIFF

Date/Time Analyzed: 04/18/2018 12:50 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.37	4.57	±30
Perfluoropentanoic acid	8.00	8.18	2.20	±30
Perfluorobutanesulfonate	7.08	7.64	7.93	±30
4:2 fluorotelomersulfonate	10.04	10.40	3.58	±30
Perfluorohexanoic acid	8.00	8.39	4.89	±30
Perfluoropentanesulfonate	7.50	7.99	6.57	±30
Perfluorohexanesulfonate	7.56	7.53	-0.42	±30
Perfluoroheptanoic acid	8.00	9.18	14.77	±30
6:2 fluorotelomersulfonate	10.43	10.06	-3.60	±30
Perfluoroheptanesulfonate	7.61	7.76	1.95	±30
Perfluorooctanoic acid	8.00	8.85	10.64	±30
Perfluoro-octanesulfonate	7.65	7.91	3.34	±30
Perfluorononanoic acid	8.00	8.91	11.33	±30
Perfluorooctanesulfonamide	8.00	7.93	-0.89	±30
Perfluorononanesulfonate	7.68	7.33	-4.55	±30
Perfluorodecanoic acid	8.00	8.14	1.73	±30
8:2 fluorotelomersulfonate	10.54	9.70	-7.93	±30
NMeFOSAA	8.00	7.95	-0.61	±30
Perfluorodecanesulfonate	7.70	7.02	-8.85	±30
Perfluoroundecanoic acid	8.00	8.38	4.73	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR18-18.WIFF

Date/Time Analyzed: 04/18/2018 12:50 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	8.00	7.43	-7.15	±30
Perfluorododecanoic acid	8.00	8.51	6.40	±30
10:2-fluorotelomersulfonate	10.60	8.55	-19.37	±30
Perfluorododecanesulfonate	7.74	6.54	-15.56	±30
Perfluorotridecanoic acid	8.00	8.72	8.99	±30
Perfluorotetradecanoic acid	8.00	8.68	8.46	±30
Perfluorohexadecanoic acid	8.00	8.26	3.23	±30
Perfluorooctadecanoic acid	8.00	8.26	3.30	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR18-30.WIFF

Date/Time Analyzed: 04/18/2018 15:56 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.28	11.42	±30
Perfluoropentanoic acid	20.00	22.61	13.06	±30
Perfluorobutanesulfonate	17.69	19.66	11.12	±30
4:2 fluorotelomersulfonate	12.49	12.23	-2.11	±30
Perfluorohexanoic acid	20.00	22.09	10.46	±30
Perfluoropentanesulfonate	18.76	21.24	13.20	±30
Perfluorohexanesulfonate	18.91	20.67	9.29	±30
Perfluoroheptanoic acid	20.00	23.53	17.67	±30
6:2 fluorotelomersulfonate	13.04	12.23	-6.20	±30
Perfluoroheptanesulfonate	19.03	21.13	11.02	±30
Perfluorooctanoic acid	20.00	24.48	22.38	±30
Perfluoro-octanesulfonate	19.12	22.15	15.86	±30
Perfluorononanoic acid	20.00	23.79	18.97	±30
Perfluorooctanesulfonamide	10.00	9.97	-0.25	±30
Perfluorononanesulfonate	19.20	22.33	16.31	±30
Perfluorodecanoic acid	20.00	22.44	12.22	±30
8:2 fluorotelomersulfonate	13.17	13.10	-0.53	±30
NMeFOSAA	10.00	10.95	9.48	±30
Perfluorodecanesulfonate	19.26	23.17	20.29	±30
Perfluoroundecanoic acid	20.00	22.55	12.73	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR18-30.WIFF

Date/Time Analyzed: 04/18/2018 15:56 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	10.00	8.93	-10.66	±30
Perfluorododecanoic acid	20.00	23.14	15.69	±30
10:2-fluorotelomersulfonate	13.26	13.87	4.58	±30
Perfluorododecanesulfonate	19.36	21.20	9.52	±30
Perfluorotridecanoic acid	20.00	22.27	11.36	±30
Perfluorotetradecanoic acid	20.00	22.36	11.81	±30
Perfluorohexadecanoic acid	20.00	21.67	8.36	±30
Perfluorooctadecanoic acid	20.00	20.53	2.66	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR18-42.WIFF

Date/Time Analyzed: 04/18/2018 19:03 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.05	2.34	±30
Perfluoropentanoic acid	2.00	2.02	1.09	±30
Perfluorobutanesulfonate	1.77	1.73	-2.54	±30
4:2 fluorotelomersulfonate	4.90	4.98	1.69	±30
Perfluorohexanoic acid	2.00	2.15	7.71	±30
Perfluoropentanesulfonate	1.88	1.85	-1.73	±30
Perfluorohexanesulfonate	1.89	1.99	5.25	±30
Perfluoroheptanoic acid	2.00	2.35	17.49	±30
6:2 fluorotelomersulfonate	5.21	5.89	13.00	±30
Perfluoroheptanesulfonate	1.90	2.07	9.03	±30
Perfluorooctanoic acid	2.00	2.09	4.71	±30
Perfluoro-octanesulfonate	1.91	1.83	-4.21	±30
Perfluorononanoic acid	2.00	2.18	8.84	±30
Perfluorooctanesulfonamide	2.00	2.17	8.66	±30
Perfluorononanesulfonate	1.92	1.90	-0.91	±30
Perfluorodecanoic acid	2.00	2.09	4.60	±30
8:2 fluorotelomersulfonate	5.27	6.15	16.64	±30
NMeFOSAA	2.00	2.27	13.55	±30
Perfluorodecanesulfonate	1.93	1.81	-6.28	±30
Perfluoroundecanoic acid	2.00	2.19	9.61	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR18-42.WIFF

Date/Time Analyzed: 04/18/2018 19:03 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.10	4.78	±30
Perfluorododecanoic acid	2.00	2.05	2.73	±30
10:2-fluorotelomersulfonate	5.30	6.03	13.77	±30
Perfluorododecanesulfonate	1.94	1.92	-1.07	±30
Perfluorotridecanoic acid	2.00	2.07	3.35	±30
Perfluorotetradecanoic acid	2.00	2.09	4.46	±30
Perfluorohexadecanoic acid	2.00	2.19	9.28	±30
Perfluorooctadecanoic acid	2.00	2.11	5.75	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR19-29.WIFF

Date/Time Analyzed: 04/19/2018 13:00 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	21.72	8.61	±30
Perfluoropentanoic acid	20.00	22.21	11.07	±30
Perfluorobutanesulfonate	17.69	19.04	7.65	±30
4:2 fluorotelomersulfonate	12.49	11.69	-6.41	±30
Perfluorohexanoic acid	20.00	23.59	17.94	±30
Perfluoropentanesulfonate	18.76	21.67	15.49	±30
Perfluorohexanesulfonate	18.91	20.52	8.49	±30
Perfluoroheptanoic acid	20.00	23.39	16.96	±30
6:2 fluorotelomersulfonate	13.04	12.78	-1.96	±30
Perfluoroheptanesulfonate	19.03	21.56	13.31	±30
Perfluorooctanoic acid	20.00	23.73	18.65	±30
Perfluoro-octanesulfonate	19.12	20.02	4.72	±30
Perfluorononanoic acid	20.00	23.33	16.64	±30
Perfluorooctanesulfonamide	10.00	10.06	0.61	±30
Perfluorononanesulfonate	19.20	21.46	11.78	±30
Perfluorodecanoic acid	20.00	20.81	4.05	±30
8:2 fluorotelomersulfonate	13.17	11.78	-10.58	±30
NMeFOSAA	10.00	10.43	4.31	±30
Perfluorodecanesulfonate	19.26	20.84	8.21	±30
Perfluoroundecanoic acid	20.00	23.13	15.63	±30

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR19-29.WIFF

Date/Time Analyzed: 04/19/2018 13:00 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	10.00	9.91	-0.95	±30
Perfluorododecanoic acid	20.00	23.14	15.69	±30
10:2-fluorotelomersulfonate	13.26	11.48	-13.42	±30
Perfluorododecanesulfonate	19.36	20.90	7.98	±30
Perfluorotridecanoic acid	20.00	23.51	17.53	±30
Perfluorotetradecanoic acid	20.00	21.83	9.16	±30
Perfluorohexadecanoic acid	20.00	22.73	13.64	±30
Perfluorooctadecanoic acid	20.00	22.48	12.38	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR19-38.WIFF

Date/Time Analyzed: 04/19/2018 15:20 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.07	3.40	±30
Perfluoropentanoic acid	2.00	1.95	-2.41	±30
Perfluorobutanesulfonate	1.77	1.77	0.09	±30
4:2 fluorotelomersulfonate	4.90	5.52	12.67	±30
Perfluorohexanoic acid	2.00	2.26	12.76	±30
Perfluoropentanesulfonate	1.88	1.86	-1.15	±30
Perfluorohexanesulfonate	1.89	1.95	3.18	±30
Perfluoroheptanoic acid	2.00	2.19	9.66	±30
6:2 fluorotelomersulfonate	5.21	5.83	11.99	±30
Perfluoroheptanesulfonate	1.90	2.03	6.69	±30
Perfluorooctanoic acid	2.00	2.14	6.98	±30
Perfluoro-octanesulfonate	1.91	1.84	-3.64	±30
Perfluorononanoic acid	2.00	2.15	7.64	±30
Perfluorooctanesulfonamide	2.00	2.14	6.95	±30
Perfluorononanesulfonate	1.92	1.93	0.42	±30
Perfluorodecanoic acid	2.00	2.08	4.25	±30
8:2 fluorotelomersulfonate	5.27	5.51	4.59	±30
NMeFOSAA	2.00	2.45	22.54	±30
Perfluorodecanesulfonate	1.93	1.71	-11.22	±30
Perfluoroundecanoic acid	2.00	2.18	8.78	±30

* Outside QC Limits.

eurofins | Lancaster Laboratories Environmental

FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24743 Lab File ID: 18APR19-38.WIFF

Date/Time Analyzed: 04/19/2018 15:20 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.20	10.18	±30
Perfluorododecanoic acid	2.00	2.23	11.30	±30
10:2-fluorotelomersulfonate	5.30	5.92	11.70	±30
Perfluorododecanesulfonate	1.94	1.80	-7.44	±30
Perfluorotridecanoic acid	2.00	2.20	10.05	±30
Perfluorotetradecanoic acid	2.00	2.13	6.47	±30
Perfluorohexadecanoic acid	2.00	2.24	12.20	±30
Perfluorooctadecanoic acid	2.00	2.10	4.93	±30

* Outside QC Limits.

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18APR04-06.wiff	4/4/2018 3:48:45 PM	CALMOD11833A	CAL1
18APR04-07.wiff	4/4/2018 4:03:18 PM	CALMOD21833A	CAL2
18APR04-08.wiff	4/4/2018 4:17:51 PM	CALMOD31833A	CAL3
18APR04-09.wiff	4/4/2018 4:32:25 PM	CALMOD41833A	CAL4
18APR04-10.wiff	4/4/2018 4:46:55 PM	CALMOD51833A	CAL5
18APR04-11.wiff	4/4/2018 5:01:25 PM	CALMOD61833A	CAL6
18APR04-12.wiff	4/4/2018 5:15:55 PM	CALMOD71833A	CAL7

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	1338537.7	1219379.4
CAL2	I13C3-PFBA	True	1353361.4	1219379.4
CAL3	I13C3-PFBA	True	1366866.4	1219379.4
CAL4	I13C3-PFBA	True	1364649.4	1219379.4
CAL5	I13C3-PFBA	True	1180173.3	1219379.4
CAL6	I13C3-PFBA	True	1091968.7	1219379.4
CAL7	I13C3-PFBA	True	840099.1	1219379.4
CAL1	I13C2-PFOA	True	781891.6	720254.8
CAL2	I13C2-PFOA	True	759555.9	720254.8
CAL3	I13C2-PFOA	True	796671.7	720254.8
CAL4	I13C2-PFOA	True	801538.1	720254.8
CAL5	I13C2-PFOA	True	721181.7	720254.8
CAL6	I13C2-PFOA	True	673138.2	720254.8
CAL7	I13C2-PFOA	True	507806.1	720254.8
CAL1	I13C4-PFOS	True	595978.7	545874.2
CAL2	I13C4-PFOS	True	585629.3	545874.2
CAL3	I13C4-PFOS	True	592788.2	545874.2
CAL4	I13C4-PFOS	True	606106.1	545874.2
CAL5	I13C4-PFOS	True	544207.3	545874.2
CAL6	I13C4-PFOS	True	509822.5	545874.2
CAL7	I13C4-PFOS	True	386587.4	545874.2
CAL1	I13C2-PFDA	True	774613.7	700408.6
CAL2	I13C2-PFDA	True	738234.0	700408.6
CAL3	I13C2-PFDA	True	748620.3	700408.6
CAL4	I13C2-PFDA	True	776351.7	700408.6
CAL5	I13C2-PFDA	True	691979.8	700408.6
CAL6	I13C2-PFDA	True	672295.9	700408.6
CAL7	I13C2-PFDA	True	500764.6	700408.6

APPROVED
By DMW at 7:46 pm, 4/4/18

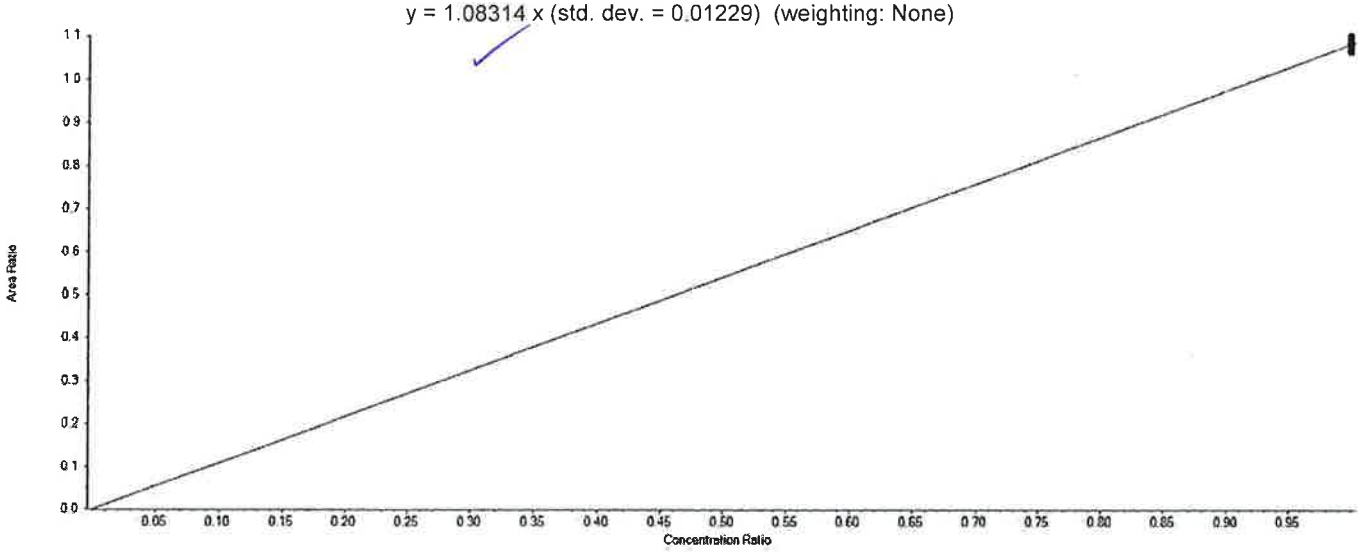
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

E13C4-PFBA

y = 1.08314 x (std. dev. = 0.01229) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1432821.0	1338537.7	True	5.00	1.070	4.45	1.000	5.000	4.941	-1.2	50.0	
CAL2	1491306.9	1353361.4	True	5.00	1.102	4.45	1.000	5.000	5.087	1.7	30.0	
CAL3	1478315.5	1366866.4	True	5.00	1.082	4.45	1.000	5.000	4.993	-0.1	30.0	
CAL4	1492415.1	1364649.4	True	5.00	1.094	4.45	1.000	5.000	5.048	1.0	30.0	
CAL5	1279925.2	1180173.3	True	5.00	1.085	4.45	1.000	5.000	5.006	0.1	30.0	
CAL6	1164549.4	1091968.7	True	5.00	1.066	4.45	1.000	5.000	4.923	-1.5	30.0	
CAL7	910199.6	840099.1	True	5.00	1.083	4.45	1.000	5.000	5.001	0.0	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

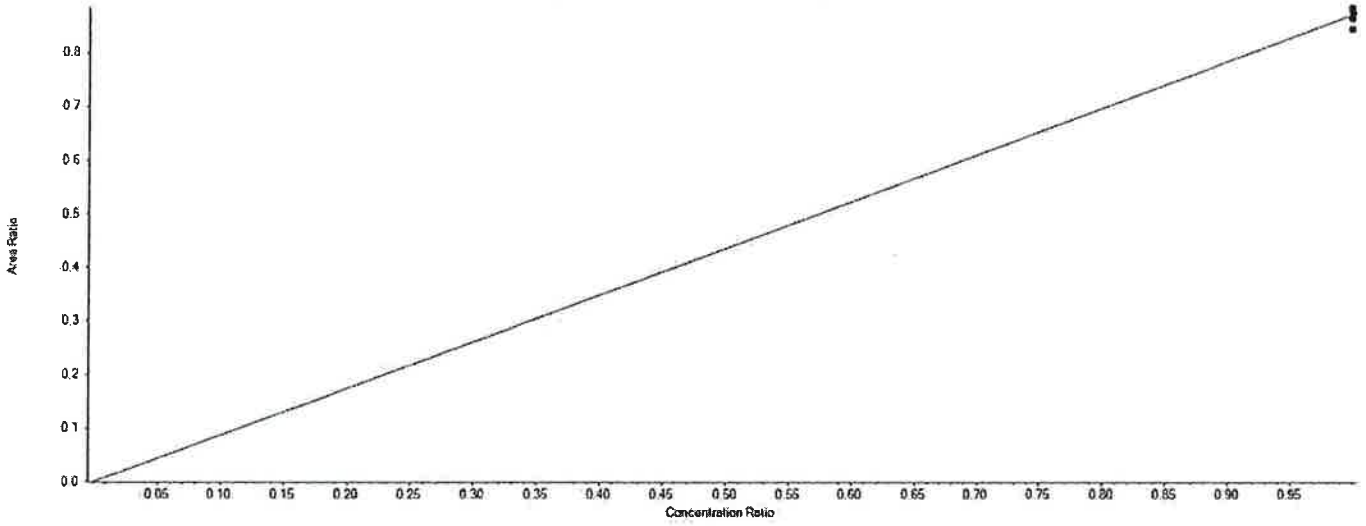
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

E13C5-PFPeA

y = 0.87052 x (std. dev. = 0.01423) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1159123.8	1338537.7	True	5.00	0.866	5.05	1.130	5.000	4.974	-0.5	50.0	
CAL2	1195053.2	1353361.4	True	5.00	0.883	5.05	1.130	5.000	5.072	1.4	30.0	
CAL3	1180767.9	1366866.4	True	5.00	0.864	5.05	1.130	5.000	4.962	-0.8	30.0	
CAL4	1197892.2	1364649.4	True	5.00	0.878	5.05	1.130	5.000	5.042	0.8	30.0	
CAL5	1035491.5	1180173.3	True	5.00	0.877	5.04	1.130	5.000	5.040	0.8	30.0	
CAL6	920666.1	1091968.7	True	5.00	0.843	5.05	1.130	5.000	4.843	-3.1	30.0	
CAL7	741353.4	840099.1	True	5.00	0.882	5.05	1.130	5.000	5.069	1.4	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

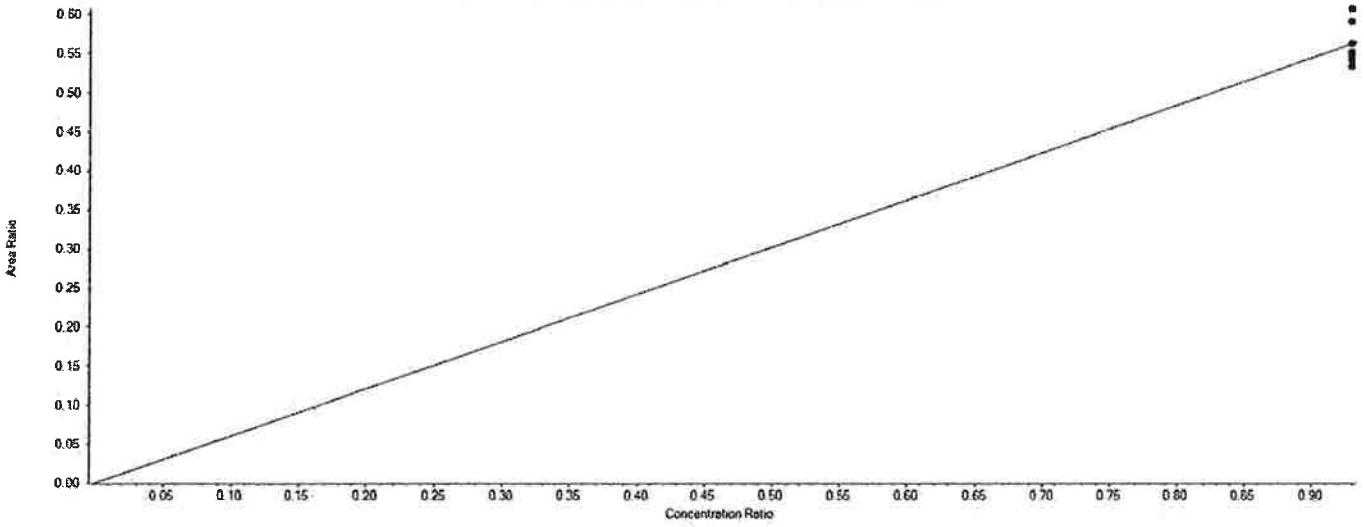
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

E13C3-PFBS

y = 0.60437 x (std. dev. = 0.02878) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	725429.5	1338537.7	True	5.00	0.542	5.10	1.150	4.650	4.484	-3.6	50.0	
CAL2	741762.1	1353361.4	True	5.00	0.548	5.11	1.150	4.650	4.534	-2.5	30.0	
CAL3	729267.9	1366866.4	True	5.00	0.534	5.10	1.150	4.650	4.414	-5.1	30.0	
CAL4	767091.6	1364649.4	True	5.00	0.562	5.10	1.150	4.650	4.650	0.0	30.0	
CAL5	651208.2	1180173.3	True	5.00	0.552	5.10	1.150	4.650	4.565	-1.8	30.0	
CAL6	644838.4	1091968.7	True	5.00	0.591	5.10	1.150	4.650	4.885	5.1	30.0	
CAL7	509462.3	840099.1	True	5.00	0.606	5.11	1.150	4.650	5.017	7.9	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

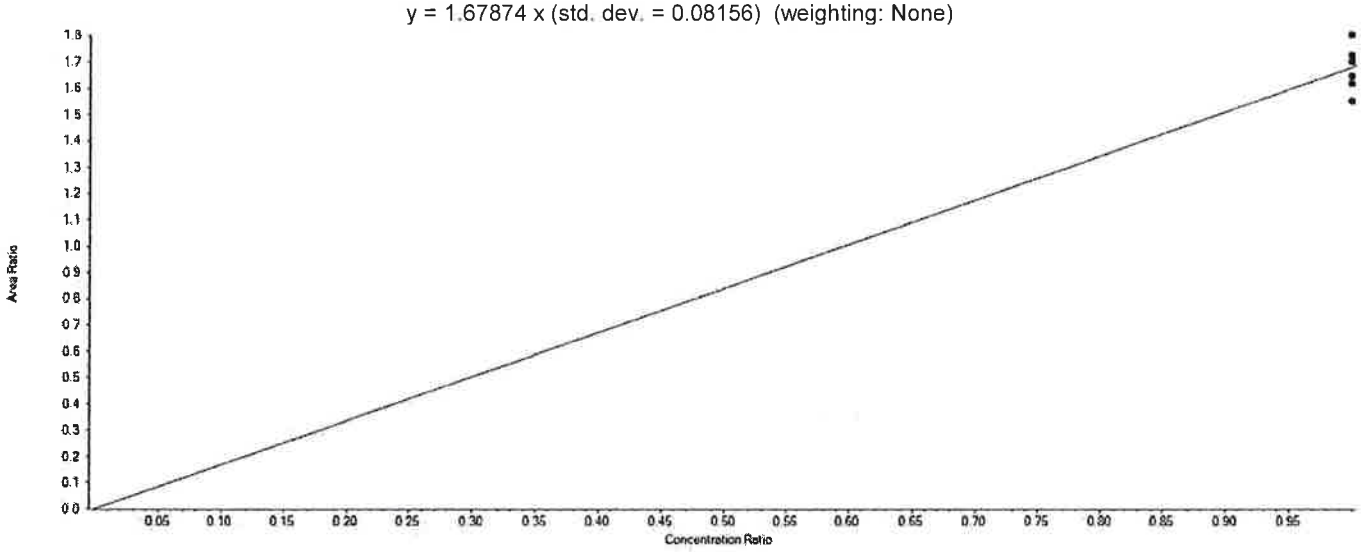
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

E13C5-PFHxA

y = 1.67874 x (std. dev. = 0.08156) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1351130.3	781891.6	True	5.00	1.728	5.51	0.870	5.000	5.147	2.9	50.0	
CAL2	1369184.6	759555.9	True	5.00	1.803	5.52	0.870	5.000	5.369	7.4	30.0	
CAL3	1355401.8	796671.7	True	5.00	1.701	5.51	0.870	5.000	5.067	1.3	30.0	
CAL4	1366195.3	801538.1	True	5.00	1.704	5.52	0.870	5.000	5.077	1.5	30.0	
CAL5	1187670.9	721181.7	True	5.00	1.647	5.51	0.870	5.000	4.905	-1.9	30.0	
CAL6	1045027.8	673138.2	True	5.00	1.552	5.51	0.870	5.000	4.624	-7.5	30.0	
CAL7	820341.1	507806.1	True	5.00	1.615	5.51	0.870	5.000	4.812	-3.8	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

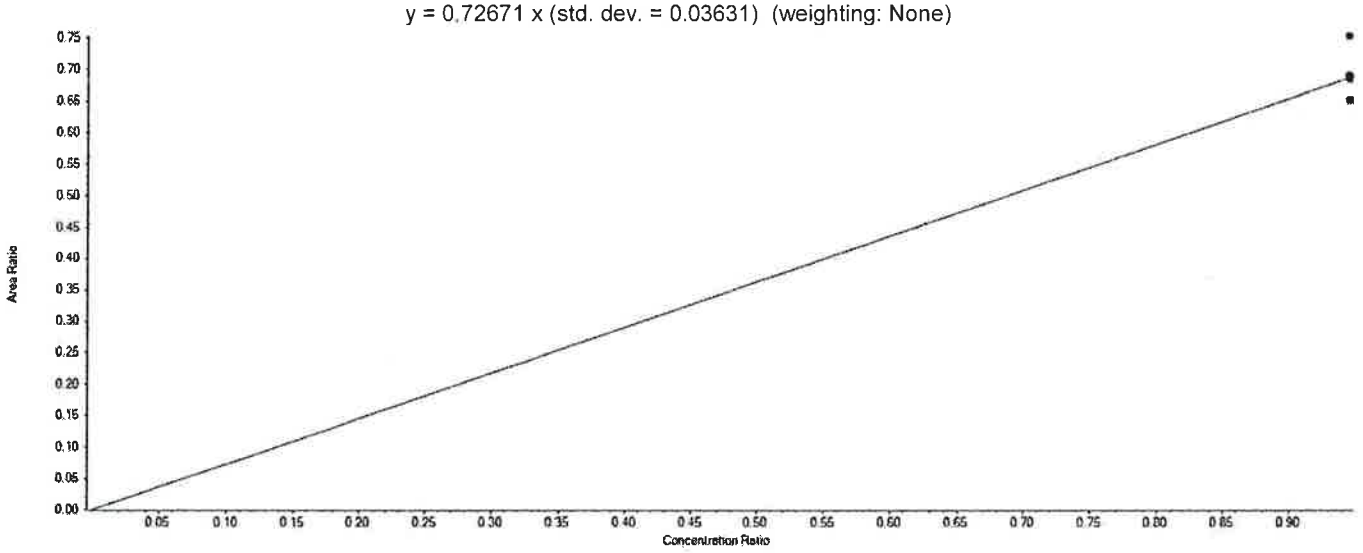
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

E13C3-PFHxS

y = 0.72671 x (std. dev. = 0.03631) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	540400.8	781891.6	True	5.00	0.691	5.94	0.930	4.730	4.755	0.5	50.0	
CAL2	572528.3	759555.9	True	5.00	0.754	5.95	0.930	4.730	5.186	9.6	30.0	
CAL3	548173.2	796671.7	True	5.00	0.688	5.94	0.930	4.730	4.734	0.1	30.0	
CAL4	554772.0	801538.1	True	5.00	0.692	5.94	0.930	4.730	4.762	0.7	30.0	
CAL5	469290.7	721181.7	True	5.00	0.651	5.94	0.930	4.730	4.477	-5.3	30.0	
CAL6	438562.7	673138.2	True	5.00	0.652	5.94	0.930	4.730	4.483	-5.2	30.0	
CAL7	347791.7	507806.1	True	5.00	0.685	5.94	0.930	4.730	4.712	-0.4	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

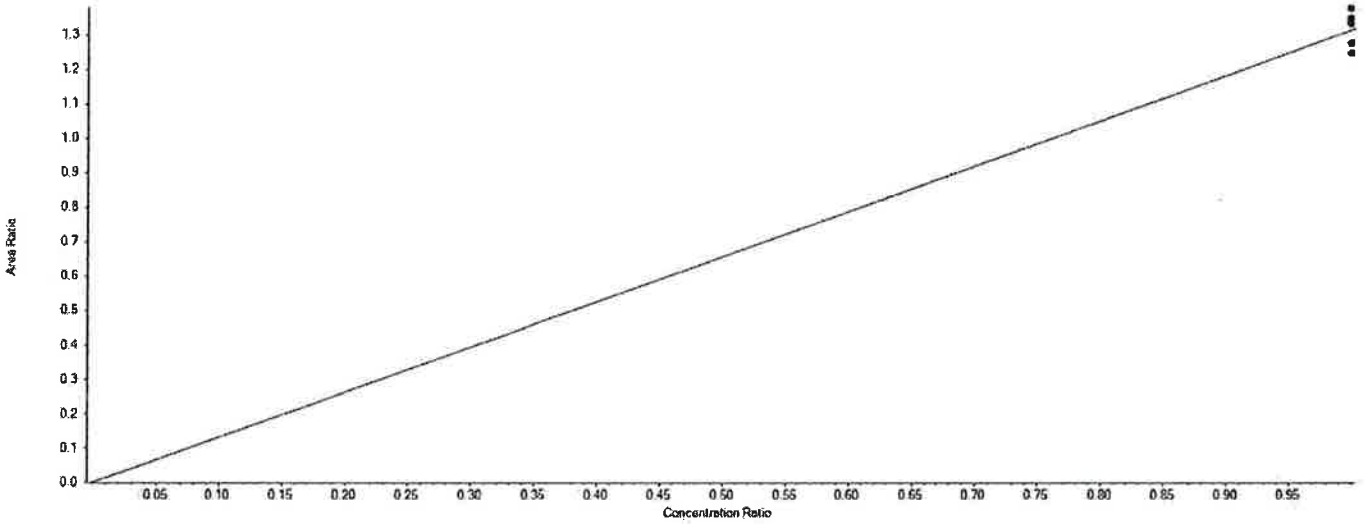
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

E13C4-PFHpA

y = 1.31309 x (std. dev. = 0.04786) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	995288.0	781891.6	True	5.00	1.273	5.95	0.940	5.000	4.847	-3.1	50.0	
CAL2	1045765.8	759555.9	True	5.00	1.377	5.96	0.940	5.000	5.243	4.9	30.0	
CAL3	1066070.0	796671.7	True	5.00	1.338	5.95	0.940	5.000	5.095	1.9	30.0	
CAL4	1081216.3	801538.1	True	5.00	1.349	5.95	0.940	5.000	5.136	2.7	30.0	
CAL5	921740.0	721181.7	True	5.00	1.278	5.95	0.940	5.000	4.867	-2.7	30.0	
CAL6	838239.7	673138.2	True	5.00	1.245	5.95	0.940	5.000	4.742	-5.2	30.0	
CAL7	676101.1	507806.1	True	5.00	1.331	5.95	0.940	5.000	5.070	1.4	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

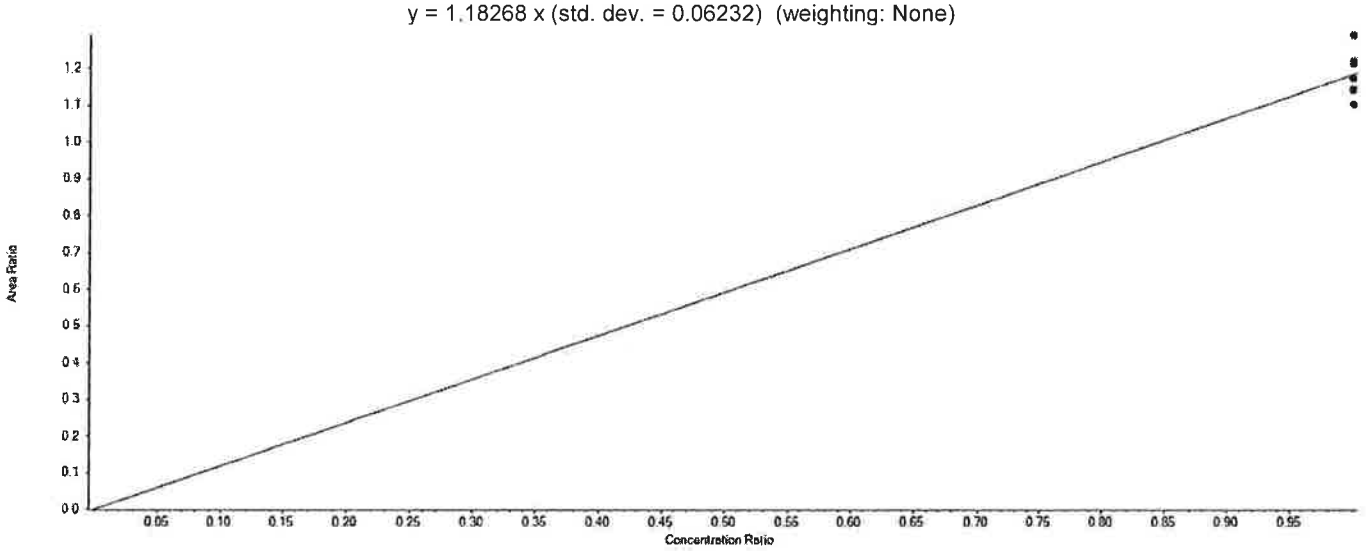
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

E13C8-PFOA

y = 1.18268 x (std. dev. = 0.06232) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	947435.3	781891.6	True	5.00	1.212	6.36	1.000	5.000	5.123	2.5	50.0	
CAL2	978832.7	759555.9	True	5.00	1.289	6.37	1.000	5.000	5.448	9.0	30.0	
CAL3	971547.3	796671.7	True	5.00	1.220	6.36	1.000	5.000	5.156	3.1	30.0	
CAL4	939466.6	801538.1	True	5.00	1.172	6.36	1.000	5.000	4.955	-0.9	30.0	
CAL5	824231.2	721181.7	True	5.00	1.143	6.36	1.000	5.000	4.832	-3.4	30.0	
CAL6	741871.7	673138.2	True	5.00	1.102	6.36	1.000	5.000	4.659	-6.8	30.0	
CAL7	579783.7	507806.1	True	5.00	1.142	6.36	1.000	5.000	4.827	-3.5	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

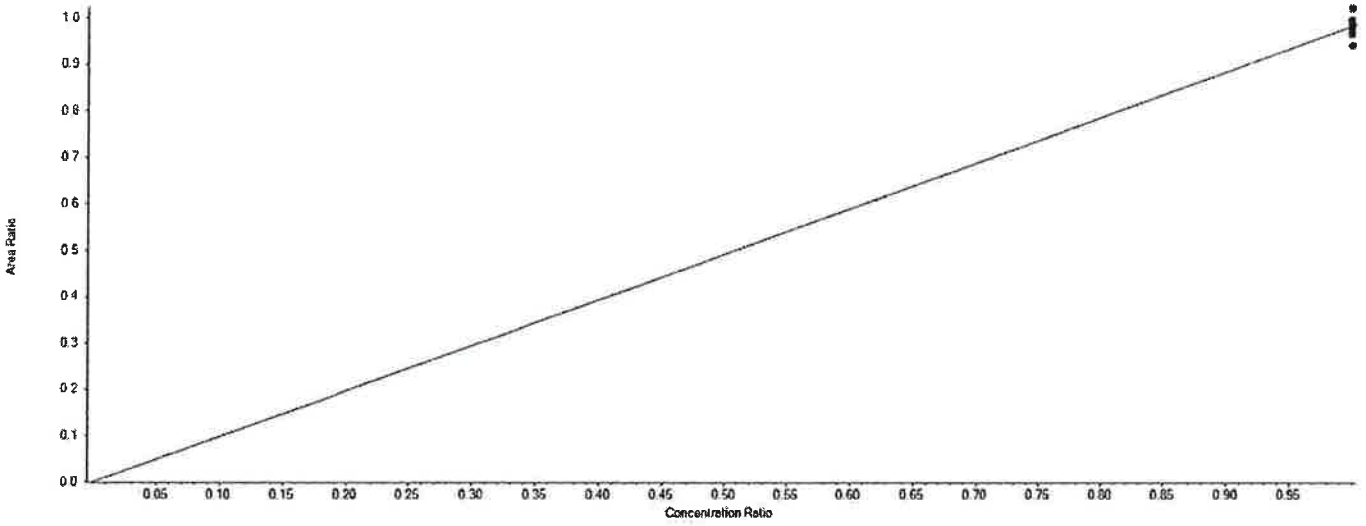
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

E13C8-PFOS

y = 0.98239 x (std. dev. = 0.02531) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	575735.6	595978.7	True	4.78	0.966	6.71	1.000	4.780	4.700	-1.7	50.0	
CAL2	597777.5	585629.3	True	4.78	1.021	6.71	1.000	4.780	4.967	3.9	30.0	
CAL3	577197.0	592788.2	True	4.78	0.974	6.70	1.000	4.780	4.738	-0.9	30.0	
CAL4	603950.3	606106.1	True	4.78	0.996	6.71	1.000	4.780	4.848	1.4	30.0	
CAL5	540266.2	544207.3	True	4.78	0.993	6.70	1.000	4.780	4.830	1.1	30.0	
CAL6	479755.3	509822.5	True	4.78	0.941	6.70	1.000	4.780	4.579	-4.2	30.0	
CAL7	381194.4	386587.4	True	4.78	0.986	6.70	1.000	4.780	4.798	0.4	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

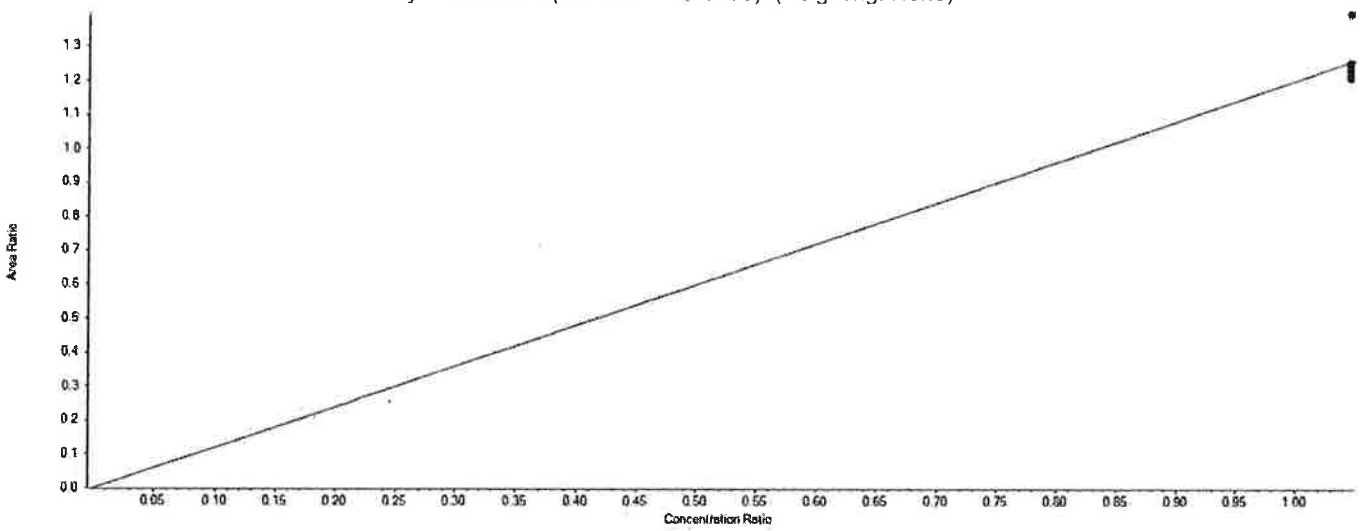
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

E13C9-PFNA

y = 1.20012 x (std. dev. = 0.06036) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	724963.1	595978.7	True	4.78	1.216	6.73	1.000	5.000	4.845	-3.1	50.0	
CAL2	733613.3	585629.3	True	4.78	1.253	6.74	1.000	5.000	4.989	-0.2	30.0	
CAL3	715572.6	592788.2	True	4.78	1.207	6.73	1.000	5.000	4.808	-3.8	30.0	
CAL4	755578.7	606106.1	True	4.78	1.247	6.73	1.000	5.000	4.965	-0.7	30.0	
CAL5	668932.5	544207.3	True	4.78	1.229	6.73	1.000	5.000	4.896	-2.1	30.0	
CAL6	633095.3	509822.5	True	4.78	1.242	6.73	1.000	5.000	4.946	-1.1	30.0	
CAL7	538768.2	386587.4	True	4.78	1.394	6.74	1.000	5.000	5.551	11.0	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

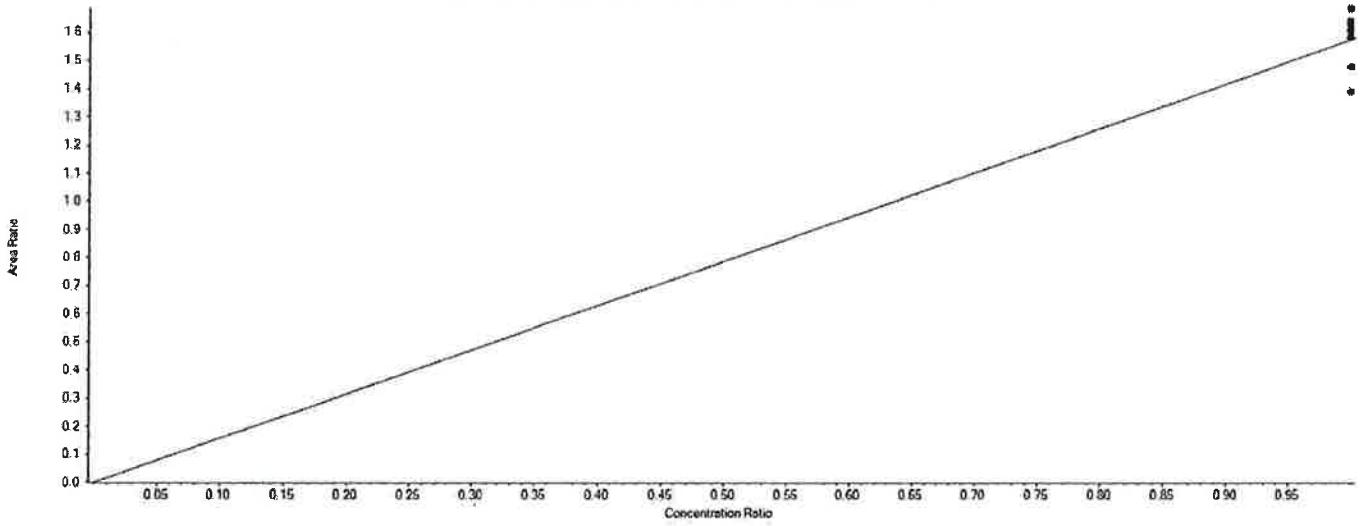
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

E13C6-PFDA

y = 1.57261 x (std. dev. = 0.10329) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1259790.4	774613.7	True	5.00	1.626	7.08	1.000	5.000	5.171	3.4	50.0	
CAL2	1243312.3	738234.0	True	5.00	1.684	7.08	1.000	5.000	5.355	7.1	30.0	
CAL3	1228160.9	748620.3	True	5.00	1.641	7.07	1.000	5.000	5.216	4.3	30.0	
CAL4	1248022.6	776351.7	True	5.00	1.608	7.08	1.000	5.000	5.111	2.2	30.0	
CAL5	1095255.2	691979.8	True	5.00	1.583	7.07	1.000	5.000	5.032	0.6	30.0	
CAL6	933646.1	672295.9	True	5.00	1.389	7.07	1.000	5.000	4.415	-11.7	30.0	
CAL7	740179.1	500764.6	True	5.00	1.478	7.08	1.000	5.000	4.700	-6.0	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

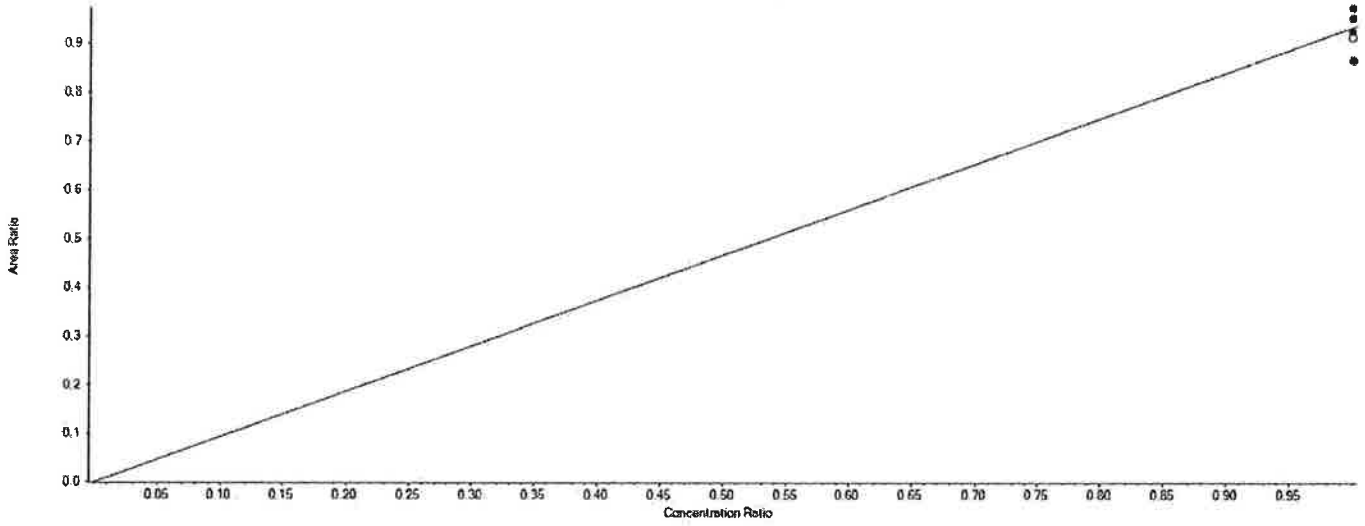
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

E13C7-PFUnDA

y = 0.93483 x (std. dev. = 0.04071) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	672582.2	774613.7	True	5.00	0.868	7.38	1.040	5.000	4.644	-7.1	50.0	
CAL2	718673.5	738234.0	True	5.00	0.974	7.38	1.040	5.000	5.207	4.1	30.0	
CAL3	714424.9	748620.3	True	5.00	0.954	7.38	1.040	5.000	5.104	2.1	30.0	
CAL4	719661.0	776351.7	True	5.00	0.927	7.38	1.040	5.000	4.958	-0.8	30.0	
CAL5	658105.4	691979.8	True	5.00	0.951	7.38	1.040	5.000	5.087	1.7	30.0	
CAL6	614625.5	672295.9	False	5.00	0.914	7.38	1.040	5.000	4.890	-2.2	30.0	
CAL7	433060.9	500764.6	False	5.00	0.865	7.38	1.040	5.000	4.625	-7.5	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

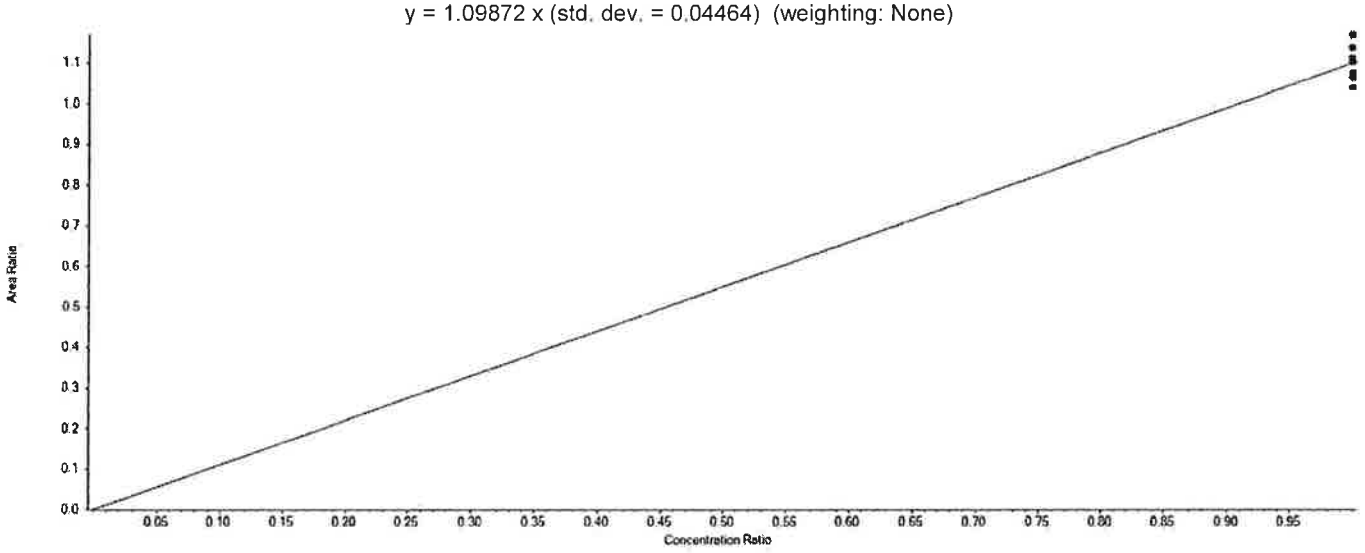
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

E13C2-PFDoDA

y = 1.09872 x (std. dev. = 0.04464) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	822676.2	774613.7	True	5.00	1.062	7.66	1.080	5.000	4.833	-3.3	50.0	
CAL2	812912.2	738234.0	True	5.00	1.101	7.67	1.080	5.000	5.011	0.2	30.0	
CAL3	851571.4	748620.3	True	5.00	1.138	7.66	1.080	5.000	5.177	3.5	30.0	
CAL4	862158.7	776351.7	True	5.00	1.111	7.67	1.080	5.000	5.054	1.1	30.0	
CAL5	742312.2	691979.8	True	5.00	1.073	7.66	1.080	5.000	4.882	-2.4	30.0	
CAL6	698738.0	672295.9	True	5.00	1.039	7.66	1.080	5.000	4.730	-5.4	30.0	
CAL7	584739.7	500764.6	True	5.00	1.168	7.66	1.080	5.000	5.314	6.3	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

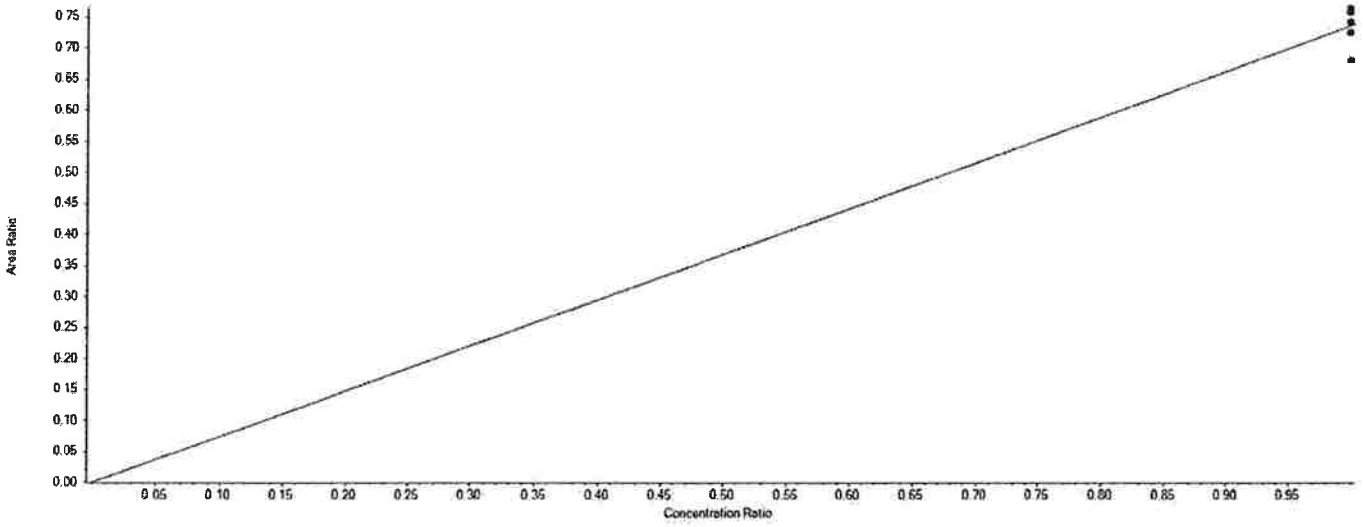
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

E13C2-PFTeDA

y = 0.73557 x (std. dev. = 0.02956) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	525505.2	774613.7	True	5.00	0.678	8.20	1.160	5.000	4.611	-7.8	50.0	
CAL2	559072.3	738234.0	True	5.00	0.757	8.20	1.160	5.000	5.148	3.0	30.0	
CAL3	555595.4	748620.3	True	5.00	0.742	8.19	1.160	5.000	5.045	0.9	30.0	
CAL4	563177.1	776351.7	True	5.00	0.725	8.20	1.160	5.000	4.931	-1.4	30.0	
CAL5	528339.4	691979.8	True	5.00	0.764	8.20	1.160	5.000	5.190	3.8	30.0	
CAL6	487466.0	672295.9	True	5.00	0.725	8.19	1.160	5.000	4.929	-1.4	30.0	
CAL7	379143.5	500764.6	True	5.00	0.757	8.20	1.160	5.000	5.147	2.9	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

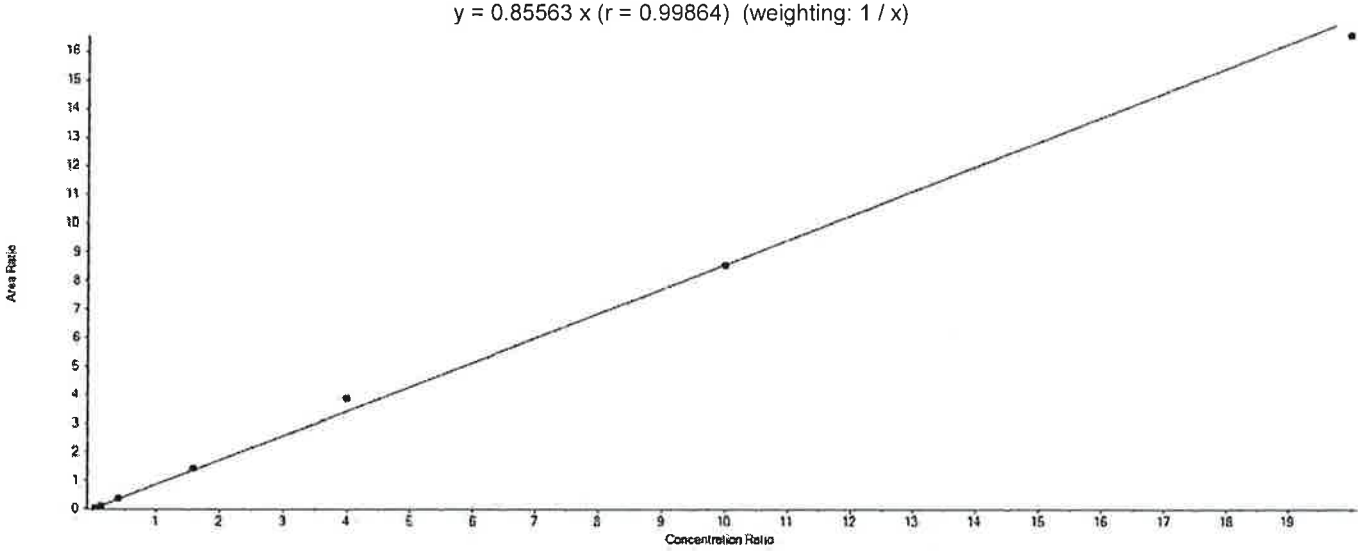
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

PFBA

y = 0.85563 x (r = 0.99864) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	60886.2	1432821.0	True	5.00	0.042	4.45	1.000	0.200	0.248	24.2	50.0	
CAL2	162431.8	1491306.9	True	5.00	0.109	4.45	1.000	0.600	0.636	6.1	30.0	
CAL3	530565.3	1478315.5	True	5.00	0.359	4.44	1.000	2.000	2.097	4.9	30.0	
CAL4	2144266.0	1492415.1	True	5.00	1.437	4.45	1.000	8.000	8.396	5.0	30.0	
CAL5	4969498.1	1279925.2	True	5.00	3.883	4.45	1.000	20.000	22.689	13.4	30.0	
CAL6	9962881.9	1164549.4	True	5.00	8.555	4.44	1.000	50.000	49.993	0.0	30.0	
CAL7	15068172.7	910199.6	True	5.00	16.555	4.45	1.000	100.000	96.740	-3.3	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

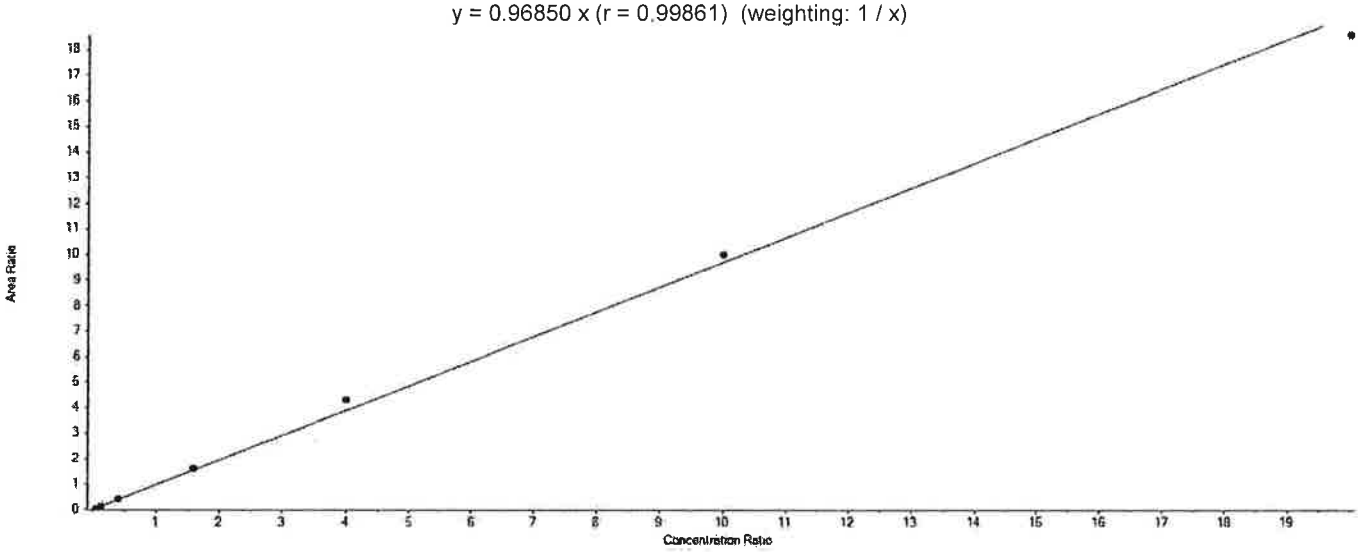
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

PFPeA

y = 0.96850 x (r = 0.99861) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	54095.3	1159123.8	True	5.00	0.047	5.05	1.000	0.200	0.241	20.5	50.0	
CAL2	143836.5	1195053.2	True	5.00	0.120	5.05	1.000	0.600	0.621	3.6	30.0	
CAL3	464842.1	1180767.9	True	5.00	0.394	5.04	1.000	2.000	2.032	1.6	30.0	
CAL4	1945500.9	1197892.2	True	5.00	1.624	5.05	1.000	8.000	8.385	4.8	30.0	
CAL5	4459132.0	1035491.5	True	5.00	4.306	5.04	1.000	20.000	22.232	11.2	30.0	
CAL6	9190156.1	920666.1	True	5.00	9.982	5.04	1.000	50.000	51.534	3.1	30.0	
CAL7	13750475.3	741353.4	True	5.00	18.548	5.05	1.000	100.000	95.755	-4.2	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

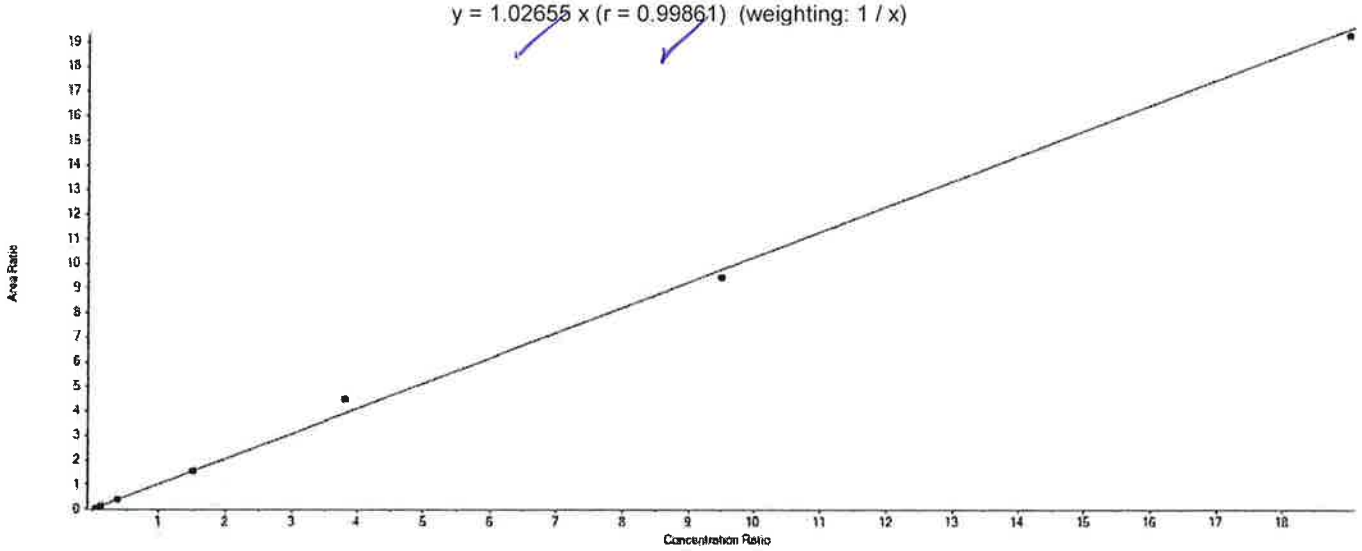
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

PFBS

y = 1.02655 x (r = 0.99861) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	30865.8	725429.5	True	4.65	0.043	5.10	1.000	0.170	0.193	13.4	50.0	
CAL2	87365.3	741762.1	True	4.65	0.118	5.11	1.000	0.530	0.534	0.7	30.0	
CAL3	276585.5	729267.9	True	4.65	0.379	5.10	1.000	1.770	1.718	-2.9	30.0	
CAL4	1197281.8	767091.6	True	4.65	1.561	5.10	1.000	7.080	7.070	-0.1	30.0	
CAL5	2912187.1	651208.2	True	4.65	4.472	5.10	1.000	17.690	20.257	14.5	30.0	
CAL6	6099433.8	644838.4	True	4.65	9.459	5.10	1.000	44.220	42.846	-3.1	30.0	
CAL7	9817809.1	509462.3	True	4.65	19.271	5.11	1.000	88.450	87.292	-1.3	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

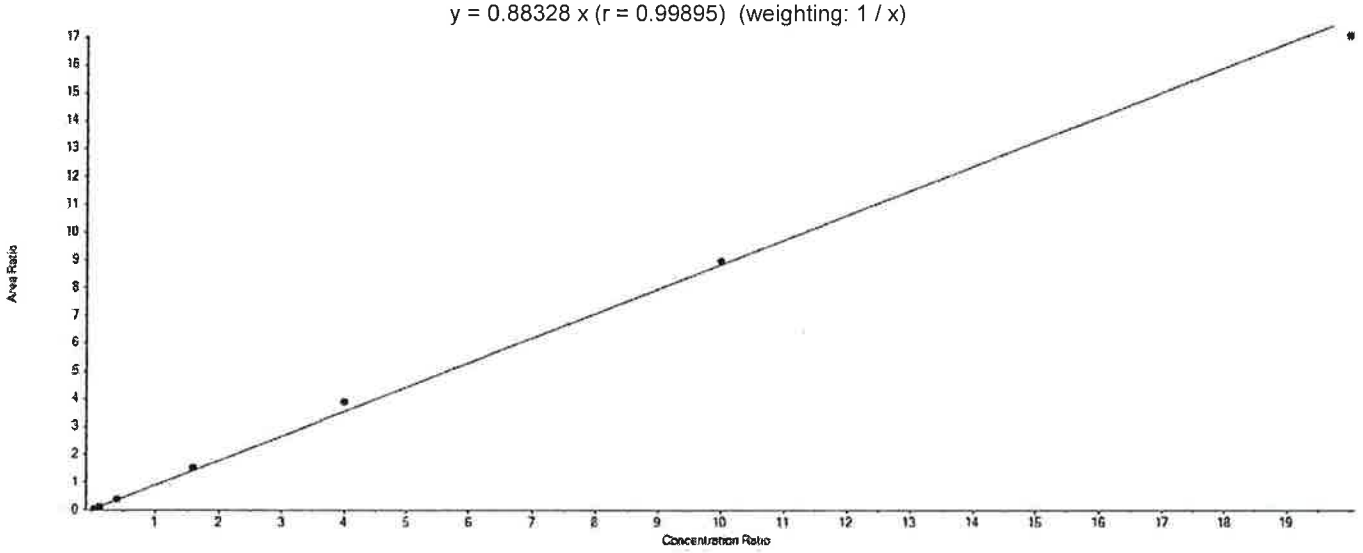
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

PFHxA

y = 0.88328 x (r = 0.99895) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	54394.6	1351130.3	True	5.00	0.040	5.51	1.000	0.200	0.228	13.9	50.0	
CAL2	151527.0	1369184.6	True	5.00	0.111	5.52	1.000	0.600	0.626	4.4	30.0	
CAL3	497289.2	1355401.8	True	5.00	0.367	5.51	1.000	2.000	2.077	3.8	30.0	
CAL4	2081363.7	1366195.3	True	5.00	1.523	5.51	1.000	8.000	8.624	7.8	30.0	
CAL5	4614203.6	1187670.9	True	5.00	3.885	5.51	1.000	20.000	21.992	10.0	30.0	
CAL6	9364641.5	1045027.8	True	5.00	8.961	5.51	1.000	50.000	50.726	1.5	30.0	
CAL7	13988385.9	820341.1	True	5.00	17.052	5.51	1.000	100.000	96.526	-3.5	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

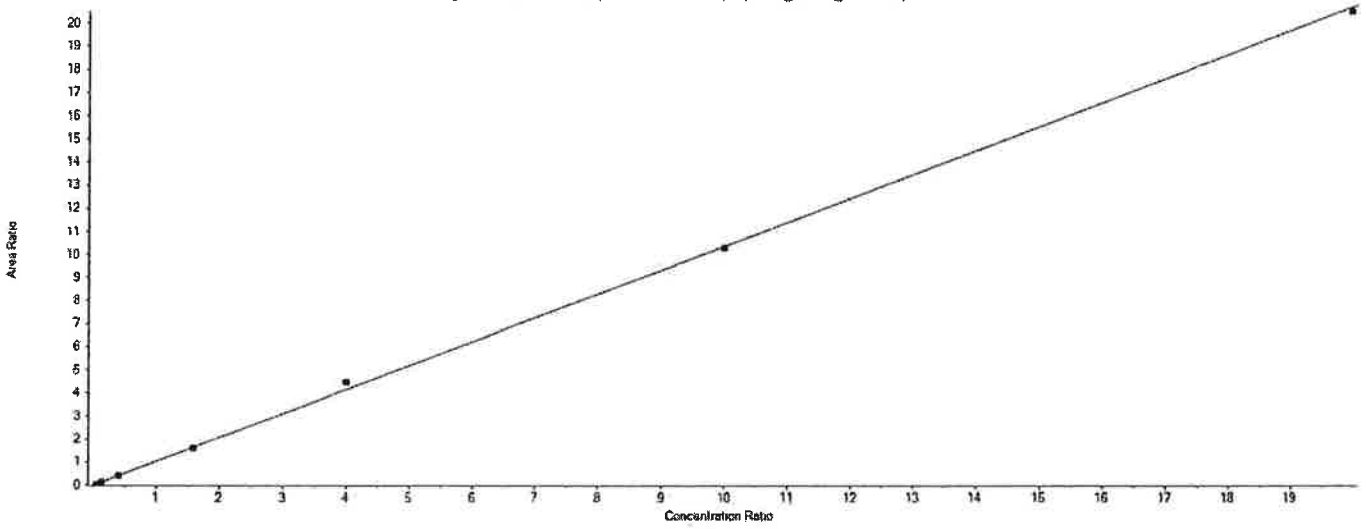
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

PFHxS

y = 1.03523 x (r = 0.99962) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	23916.8	540400.8	True	4.73	0.044	5.94	1.000	0.190	0.202	6.4	50.0	
CAL2	66060.9	572528.3	True	4.73	0.115	5.95	1.000	0.570	0.527	-7.5	30.0	
CAL3	221965.1	548173.2	True	4.73	0.405	5.94	1.000	1.890	1.850	-2.1	30.0	
CAL4	891511.8	554772.0	True	4.73	1.607	5.94	1.000	7.560	7.342	-2.9	30.0	
CAL5	2087556.9	469290.7	True	4.73	4.448	5.94	1.000	18.910	20.325	7.5	30.0	
CAL6	4512212.8	438562.7	True	4.73	10.289	5.94	1.000	47.280	47.009	-0.6	30.0	
CAL7	7131965.8	347791.7	True	4.73	20.506	5.94	1.000	94.550	93.695	-0.9	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

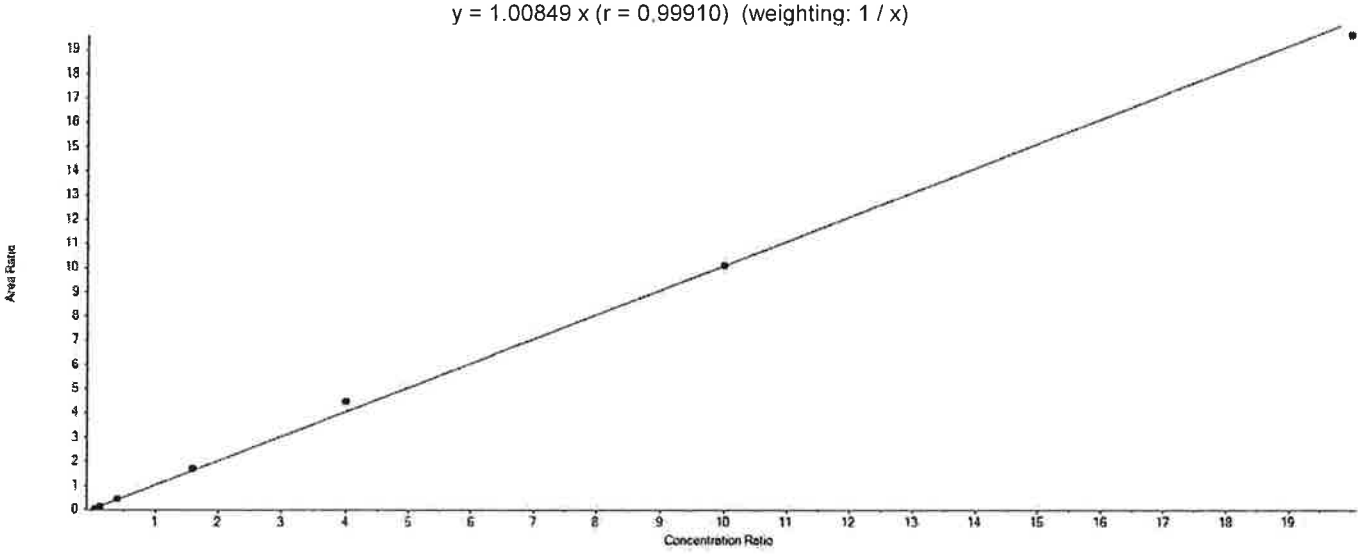
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

PFHpA

y = 1.00849 x (r = 0.99910) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	49624.1	995288.0	True	5.00	0.050	5.95	1.000	0.200	0.247	23.6	50.0	
CAL2	140644.2	1045765.8	True	5.00	0.134	5.96	1.000	0.600	0.667	11.1	30.0	
CAL3	469901.3	1066070.0	True	5.00	0.441	5.95	1.000	2.000	2.185	9.3	30.0	
CAL4	1840960.8	1081216.3	True	5.00	1.703	5.95	1.000	8.000	8.442	5.5	30.0	
CAL5	4101643.5	921740.0	True	5.00	4.450	5.95	1.000	20.000	22.062	10.3	30.0	
CAL6	8474827.8	838239.7	True	5.00	10.110	5.95	1.000	50.000	50.126	0.3	30.0	
CAL7	13237298.7	676101.1	True	5.00	19.579	5.95	1.000	100.000	97.071	-2.9	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

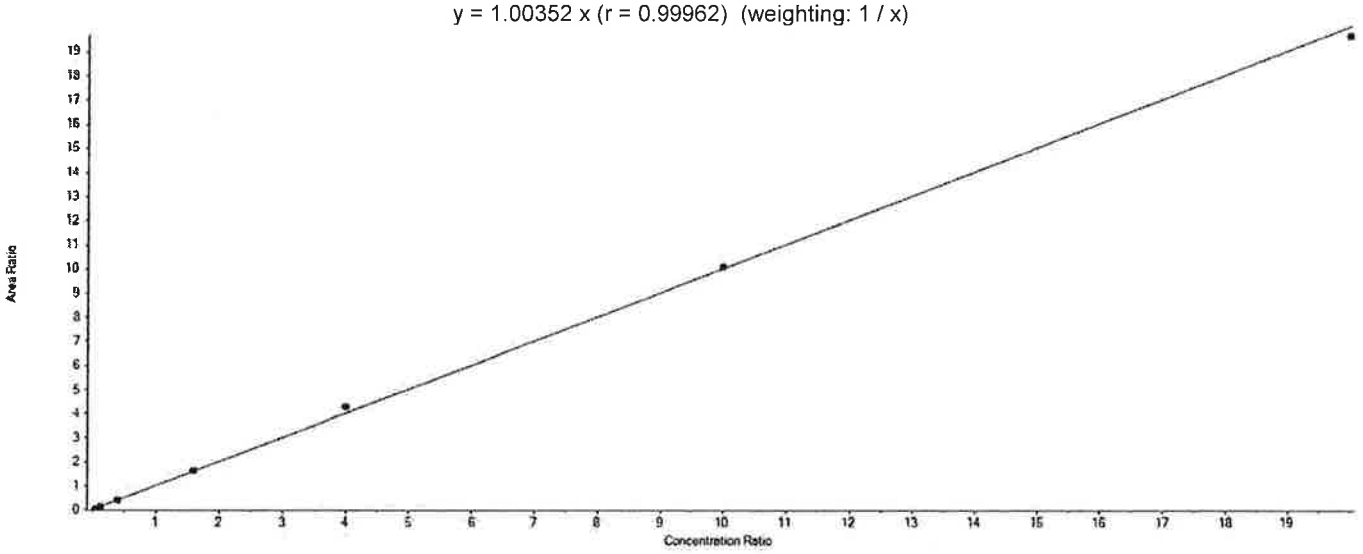
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

PFOA

y = 1.00352 x (r = 0.99962) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	43309.5	947435.3	True	5.00	0.046	6.36	1.000	0.200	0.228	13.9	50.0	
CAL2	119852.6	978832.7	True	5.00	0.122	6.37	1.000	0.600	0.610	1.7	30.0	
CAL3	391295.1	971547.3	True	5.00	0.403	6.36	1.000	2.000	2.007	0.3	30.0	
CAL4	1540515.0	939466.6	True	5.00	1.640	6.36	1.000	8.000	8.170	2.1	30.0	
CAL5	3527952.9	824231.2	True	5.00	4.280	6.36	1.000	20.000	21.326	6.6	30.0	
CAL6	7513172.6	741871.7	True	5.00	10.127	6.36	1.000	50.000	50.459	0.9	30.0	
CAL7	11403739.1	579783.7	True	5.00	19.669	6.36	1.000	100.000	98.000	-2.0	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

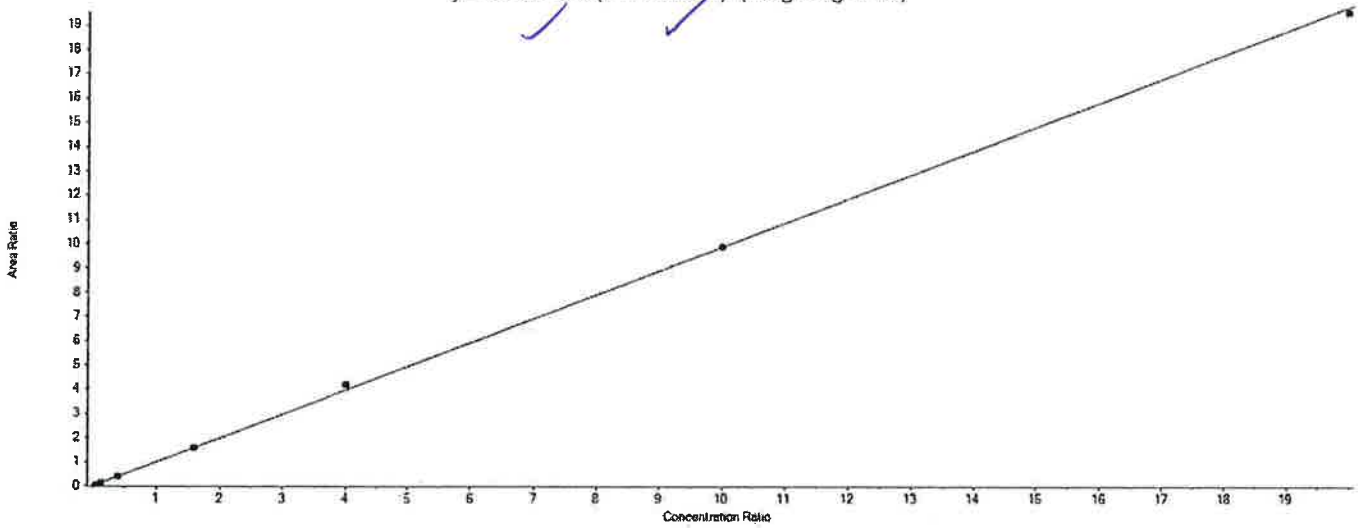
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

PFOS

y = 0.98725 x (r = 0.99981) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	25539.7	575735.6	True	4.78	0.044	6.71	1.000	0.190	0.215	13.0	50.0	
CAL2	69650.0	597777.5	True	4.78	0.117	6.71	1.000	0.570	0.564	-1.0	30.0	
CAL3	229146.4	577197.0	True	4.78	0.397	6.70	1.000	1.910	1.922	0.6	30.0	
CAL4	948214.5	603950.3	True	4.78	1.570	6.71	1.000	7.650	7.602	-0.6	30.0	
CAL5	2246682.1	540266.2	True	4.78	4.158	6.70	1.000	19.120	20.134	5.3	30.0	
CAL6	4738192.1	479755.3	True	4.78	9.876	6.70	1.000	47.800	47.818	0.0	30.0	
CAL7	7446778.1	381194.4	True	4.78	19.535	6.70	1.000	95.600	94.585	-1.1	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

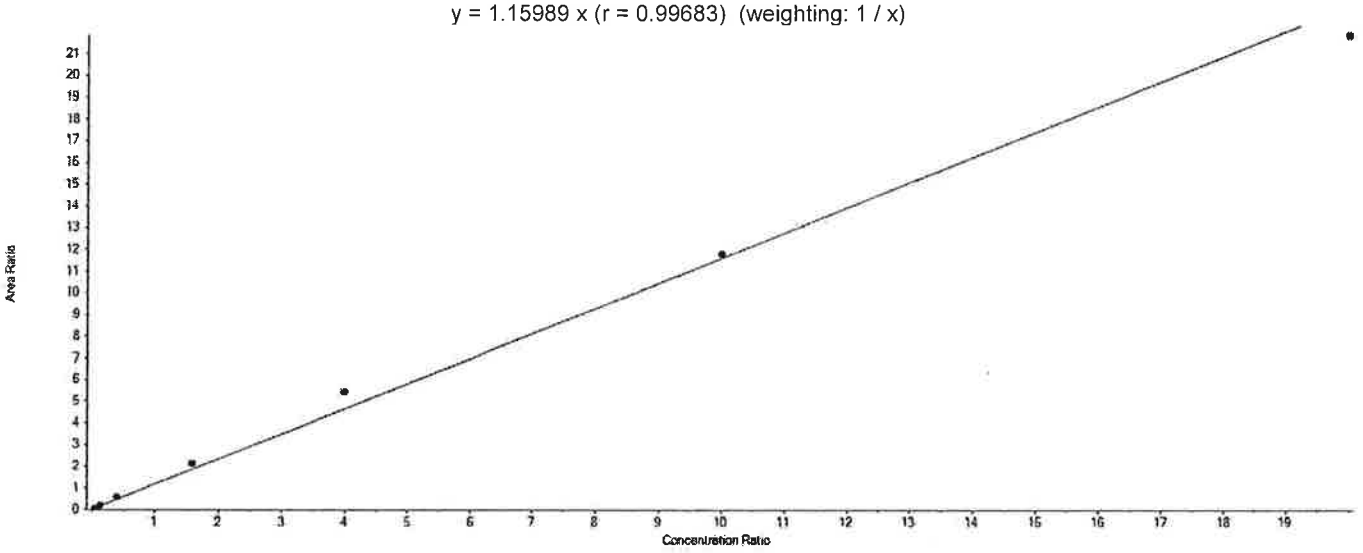
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

PFNA

y = 1.15989 x (r = 0.99683) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	40247.8	724963.1	True	5.00	0.056	6.73	1.000	0.200	0.239	19.7	50.0	
CAL2	116942.2	733613.3	True	5.00	0.159	6.74	1.000	0.600	0.687	14.5	30.0	
CAL3	399060.3	715572.6	True	5.00	0.558	6.73	1.000	2.000	2.404	20.2	30.0	
CAL4	1596800.1	755578.7	True	5.00	2.113	6.73	1.000	8.000	9.110	13.9	30.0	
CAL5	3630358.1	668932.5	True	5.00	5.427	6.73	1.000	20.000	23.395	17.0	30.0	
CAL6	7465375.0	633095.3	True	5.00	11.792	6.73	1.000	50.000	50.832	1.7	30.0	
CAL7	11764955.9	538768.2	True	5.00	21.837	6.74	1.000	100.000	94.133	-5.9	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

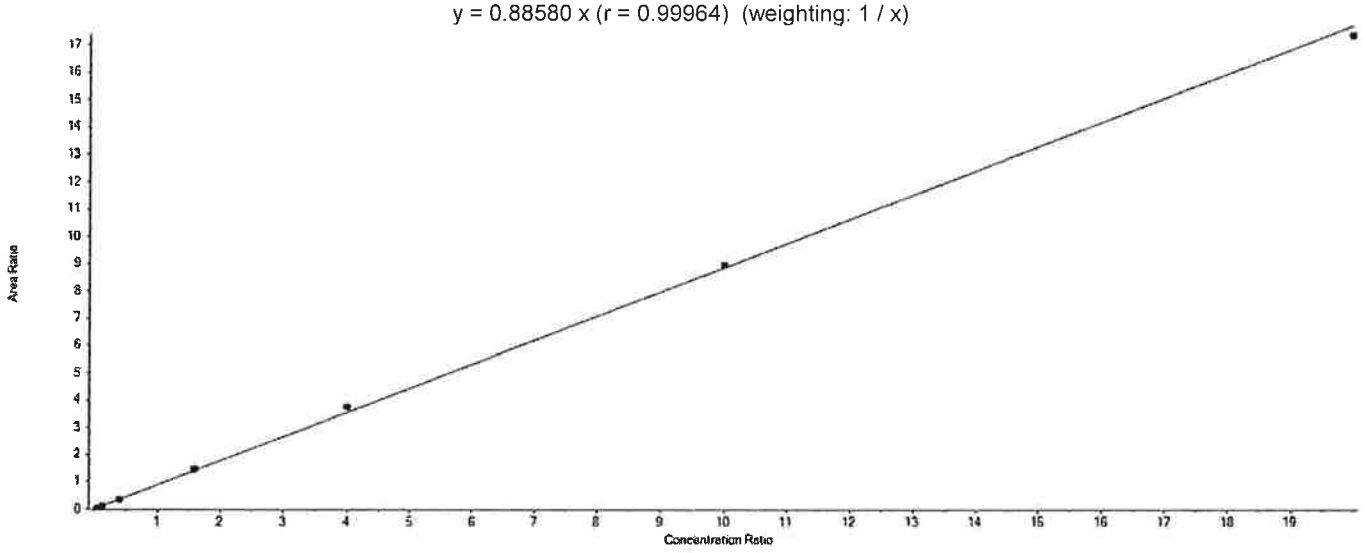
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

PFDA

y = 0.88580 x (r = 0.99964) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	49098.2	1259790.4	True	5.00	0.039	7.08	1.000	0.200	0.220	10.0	50.0	
CAL2	130895.0	1243312.3	True	5.00	0.105	7.08	1.000	0.600	0.594	-1.0	30.0	
CAL3	444974.0	1228160.9	True	5.00	0.362	7.07	1.000	2.000	2.045	2.3	30.0	
CAL4	1827576.6	1248022.6	True	5.00	1.464	7.08	1.000	8.000	8.266	3.3	30.0	
CAL5	4112364.5	1095255.2	True	5.00	3.755	7.07	1.000	20.000	21.194	6.0	30.0	
CAL6	8361313.2	933646.1	True	5.00	8.956	7.07	1.000	50.000	50.550	1.1	30.0	
CAL7	12841716.2	740179.1	True	5.00	17.349	7.08	1.000	100.000	97.931	-2.1	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

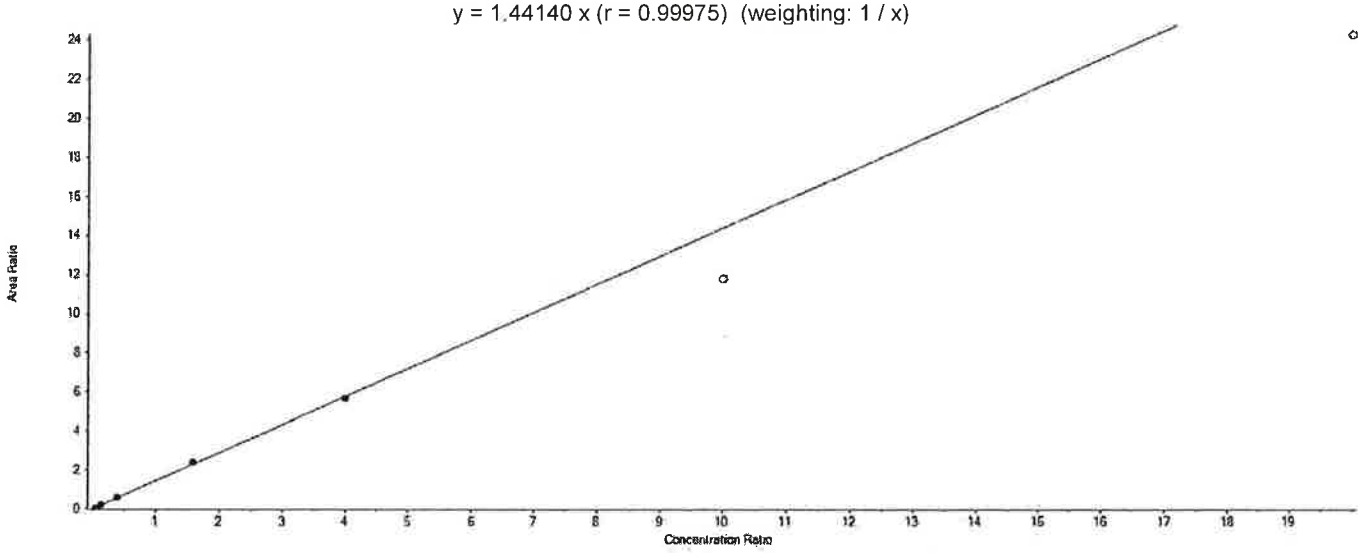
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

PFUnDA

y = 1.44140 x (r = 0.99975) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	46014.5	672582.2	True	5.00	0.068	7.38	1.000	0.200	0.237	18.7	50.0	
CAL2	128014.8	718673.5	True	5.00	0.178	7.38	1.000	0.600	0.618	3.0	30.0	
CAL3	407186.8	714424.9	True	5.00	0.570	7.38	1.000	2.000	1.977	-1.1	30.0	
CAL4	1714828.1	719661.0	True	5.00	2.383	7.38	1.000	8.000	8.266	3.3	30.0	
CAL5	3737826.4	658105.4	True	5.00	5.680	7.38	1.000	20.000	19.702	-1.5	30.0	
CAL6	7253271.2	614625.5	False	5.00	11.801	7.38	1.000	50.000	40.936	-18.1	30.0	
CAL7	10508394.5	433060.9	False	5.00	24.265	7.38	1.000	100.000	84.173	-15.8	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

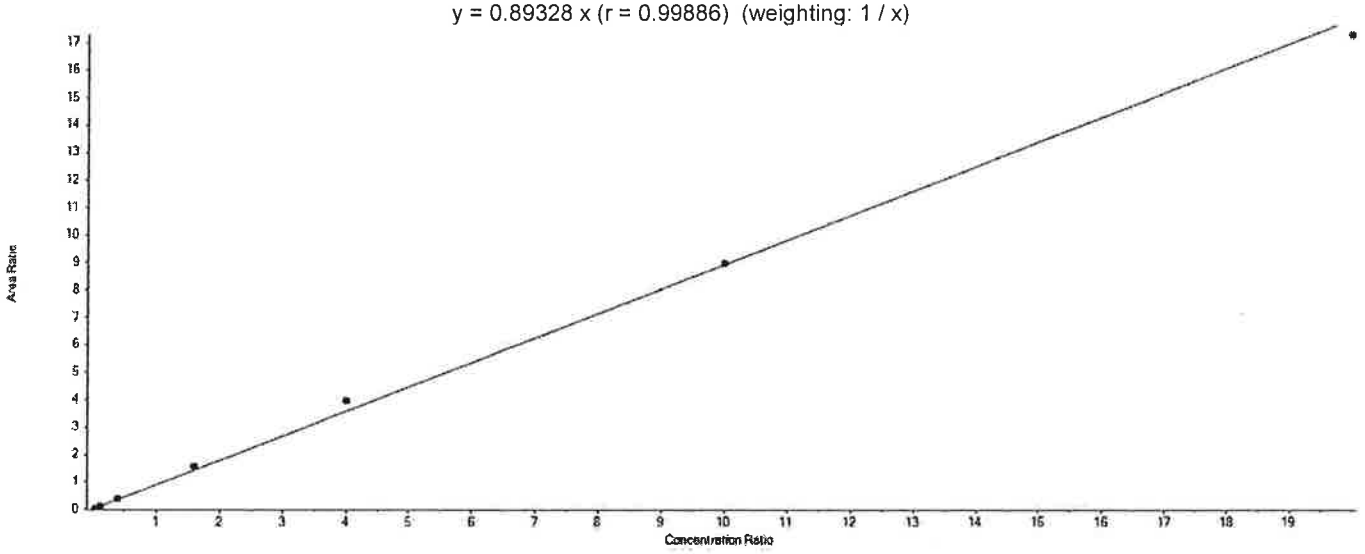
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

PFDoDA

y = 0.89328 x (r = 0.99886) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	35504.6	822676.2	True	5.00	0.043	7.66	1.000	0.200	0.242	20.8	50.0	
CAL2	94591.4	812912.2	True	5.00	0.116	7.67	1.000	0.600	0.651	8.6	30.0	
CAL3	331525.5	851571.4	True	5.00	0.389	7.66	1.000	2.000	2.179	9.0	30.0	
CAL4	1335985.8	862158.7	True	5.00	1.550	7.67	1.000	8.000	8.674	8.4	30.0	
CAL5	2942807.2	742312.2	True	5.00	3.964	7.66	1.000	20.000	22.190	11.0	30.0	
CAL6	6268078.2	698738.0	True	5.00	8.971	7.66	1.000	50.000	50.211	0.4	30.0	
CAL7	10097171.9	584739.7	True	5.00	17.268	7.66	1.000	100.000	96.653	-3.3	30.0	

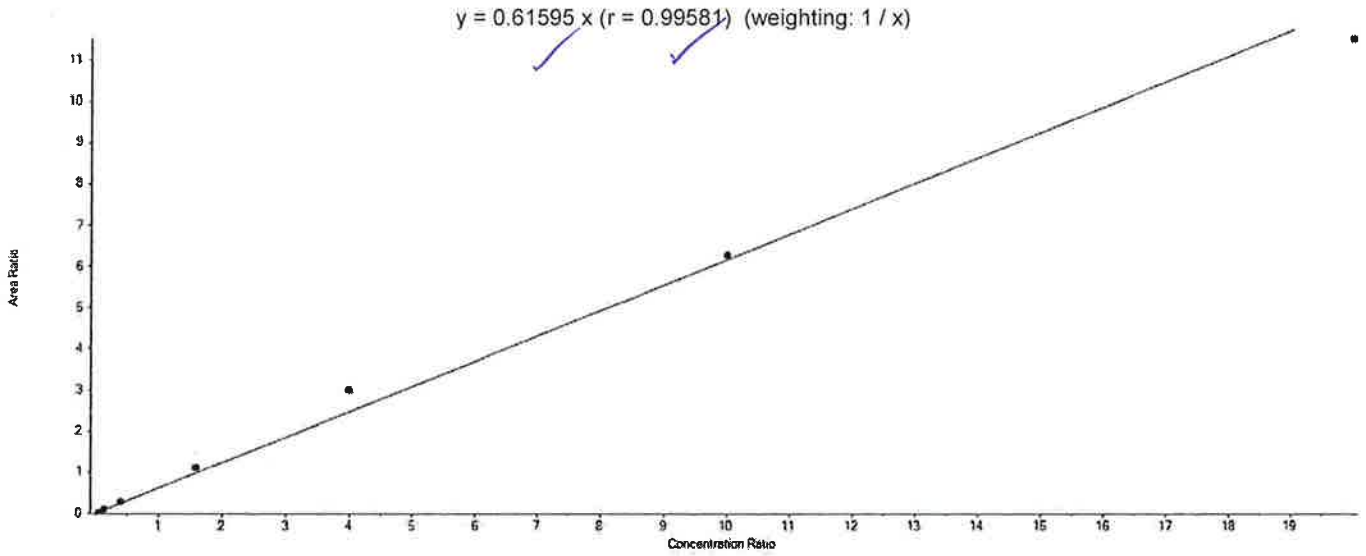
APPROVED
By DMW at 7:46 pm, 4/4/18

REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

PFTrDA



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	26312.8	822676.2	True	5.00	0.032	7.93	1.030	0.200	0.260	29.8	50.0	
CAL2	68312.8	812912.2	True	5.00	0.084	7.93	1.030	0.600	0.682	13.7	30.0	
CAL3	238023.0	851571.4	True	5.00	0.280	7.93	1.030	2.000	2.269	13.4	30.0	
CAL4	960988.2	862158.7	True	5.00	1.115	7.93	1.030	8.000	9.048	13.1	30.0	
CAL5	2214847.0	742312.2	True	5.00	2.984	7.93	1.030	20.000	24.220	21.1	30.0	
CAL6	4390973.0	698738.0	True	5.00	6.284	7.93	1.030	50.000	51.012	2.0	30.0	
CAL7	6721503.4	584739.7	True	5.00	11.495	7.93	1.040	100.000	93.309	-6.7	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

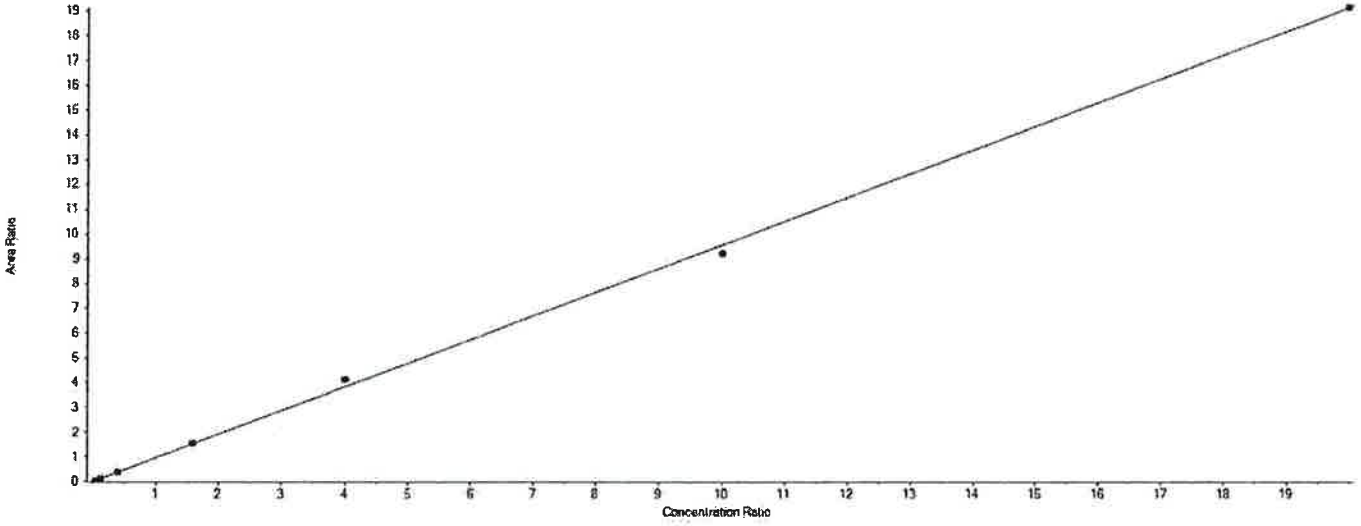
REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

PFTeDA

y = 0.95616 x (r = 0.99942) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	20368.4	525505.2	True	5.00	0.039	8.20	1.000	0.200	0.203	1.3	50.0	
CAL2	65553.3	559072.3	True	5.00	0.117	8.20	1.000	0.600	0.613	2.2	30.0	
CAL3	213659.0	555595.4	True	5.00	0.385	8.19	1.000	2.000	2.011	0.5	30.0	
CAL4	865690.3	563177.1	True	5.00	1.537	8.20	1.000	8.000	8.038	0.5	30.0	
CAL5	2189993.0	528339.4	True	5.00	4.145	8.19	1.000	20.000	21.675	8.4	30.0	
CAL6	4495810.4	487466.0	True	5.00	9.223	8.19	1.000	50.000	48.228	-3.5	30.0	
CAL7	7252706.3	379143.5	True	5.00	19.129	8.20	1.000	100.000	100.031	0.0	30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

REVIEWED
By umar at 2:24 pm, 4/6/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR04MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR04MCAL4/4/2018 7:34:51 PM **Acquisition Method:** PFC-32 18MAR29_divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR04-18.wiff	4/4/2018 6:43:13 PM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	530080.1	13C4-PFBA	1557896.3	5.00	0.340	4.44	1.00	2.000	1.988	-0.6	30.0	
PFPeA	472360.6	13C5-PFPeA	1294298.9	5.00	0.365	5.04	1.00	2.000	1.884	-5.8	30.0	
PFBS	280119.0	13C3-PFBS	798742.1	4.65	0.351	5.10	1.00	1.770	1.589	-10.2	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	148352.5	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	495449.3	13C5-PFHxA	1444174.4	5.00	0.343	5.51	1.00	2.000	1.942	-2.9	30.0	
PFPeS	N/A	13C3-PFBS	798742.1	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	225070.9	13C3-PFHxS	593972.5	4.73	0.379	5.94	1.00	1.890	1.731	-8.4	30.0	
PFHpA	464501.4	13C4-PFHpA	1138452.6	5.00	0.408	5.95	1.00	2.000	2.023	1.1	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	98781.5	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	192931.1	13C3-PFHxS	593972.5	4.73	0.325	6.34	1.07	1.900	1.702	-10.4	30.0	
PFOA	391031.9	13C8-PFOA	1038683.2	5.00	0.376	6.36	1.00	2.000	1.876	-6.2	30.0	
PFOS	240952.5	13C8-PFOS	643305.1	4.78	0.375	6.70	1.00	1.910	1.813	-5.1	30.0	
PFNA	400763.5	13C9-PFNA	813624.6	5.00	0.493	6.73	1.00	2.000	2.123	6.2	30.0	
PFOSA	N/A	13C8-PFOSA	1448866.8	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	643305.1	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	509141.9	13C6-PFDA	1504940.0	5.00	0.338	7.07	1.00	2.000	1.910	-4.5	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	220313.3	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	327364.8	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	158926.0	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	136201.5	d3-NMeFOSAA	328721.8	5.00	0.414	7.24	1.00	2.000	2.037	1.9	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	426531.2	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	139750.1	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	100546.6	13C8-PFOS	643305.1	4.78	0.156	7.34	1.09	1.930	1.363	-29.4	30.0	
PFUnDA	331013.4	13C7-PFUnDA	630307.9	5.00	0.525	7.38	1.00	2.000	1.822	-8.9	30.0	
NEtFOSAA	118528.2	d5-NEtFOSAA	324540.2	5.00	0.365	7.40	1.00	2.000	1.805	-9.7	30.0	
PFDoDA	268928.1	13C2-PFDoDA	775320.5	5.00	0.347	7.66	1.00	2.000	1.941	-2.9	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	220313.3	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	643305.1	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	247571.9	13C2-PFDoDA	775320.5	5.00	0.319	7.93	1.03	2.000	2.592	29.6	30.0	
PFTeDA	218724.3	13C2-PFTeDA	611803.4	5.00	0.358	8.19	1.00	2.000	1.869	-6.5	30.0	
PFHxDA	N/A	13C2-PFTeDA	611803.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	611803.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By DMW at 7:46 pm, 4/4/18

REVIEWED
By umar at 2:24 pm, 4/6/18

ICAL Name: 18APR04MCAL **Result Table:** 18APR04MCAL 4/4/2018 7:34:51 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

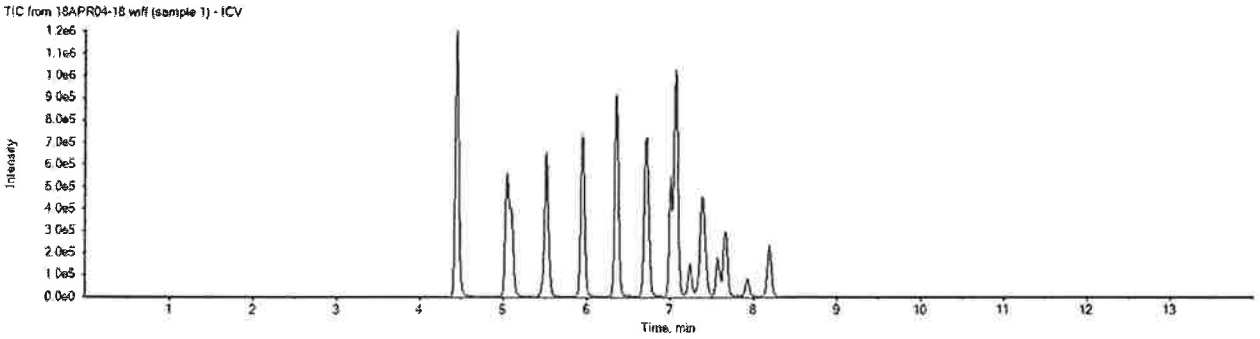
Analyte Quantitation Peak Table

Sample Name: ICV **Instrument Name:** LM24960 **File Name:** 18APR04-18.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	4.44	1.000	530080.1	A	13C4-PFBA	4.45	1557896.3	0.340	1.988
PFPeA	5.04	1.000	472360.6	A	13C5-PFPeA	5.05	1294298.9	0.365	1.884
PFBS	5.10	1.000	280119.0	A	13C3-PFBS	5.10	798742.1	0.351	1.589
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.47	148352.5	N/A	
PFHxA	5.51	1.000	495449.3	A	13C5-PFHxA	5.51	1444174.4	0.343	1.942
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.10	798742.1	N/A	
PFHxS	5.94	1.000	225070.9	M	13C3-PFHxS	5.94	593972.5	0.379	1.731
PFHpA	5.95	1.000	464501.4	A	13C4-PFHpA	5.95	1138452.6	0.408	2.023
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.35	98781.5	N/A	
PFHpS	6.34	1.070	192931.1	A	13C3-PFHxS	5.94	593972.5	0.325	1.702
PFOA	6.36	1.000	391031.9	A	13C8-PFOA	6.36	1038683.2	0.376	1.876
PFOS	6.70	1.000	240952.5	M	13C8-PFOS	6.70	643305.1	0.375	1.813
PFNA	6.73	1.000	400763.5	A	13C9-PFNA	6.73	813624.6	0.493	2.123
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	7.01	1448866.8	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.70	643305.1	N/A	
PFDA	7.07	1.000	509141.9	A	13C6-PFDA	7.07	1504940.0	0.338	1.910
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.08	220313.3	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.41	327364.8	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.44	158926.0	N/A	
NMeFOSAA	7.24	1.000	136201.5	A	d3-NMeFOSAA	7.24	328721.8	0.414	2.037
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.57	426531.2	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.59	139750.1	N/A	
PFDS	7.34	1.090	100546.6	A	13C8-PFOS	6.70	643305.1	0.156	1.363
PFUnDA	7.38	1.000	331013.4	A	13C7-PFUnDA	7.38	630307.9	0.525	1.822
NEtFOSAA	7.40	1.000	118528.2	A	d5-NEtFOSAA	7.39	324540.2	0.365	1.805
PFDoDA	7.66	1.000	268928.1	A	13C2-PFDoDA	7.66	775320.5	0.347	1.941
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.08	220313.3	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.70	643305.1	N/A	
PFTrDA	7.93	1.030	247571.9	A	13C2-PFDoDA	7.66	775320.5	0.319	2.592
PFTeDA	8.19	1.000	218724.3	M	13C2-PFTeDA	8.19	611803.4	0.358	1.869
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	611803.4	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	611803.4	N/A	

Total Ion Chromatogram



APPROVED
By DMW at 7:47 pm, 4/4/18

REVIEWED
By umar at 2:25 pm, 4/6/18

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LC-MS/MS Analysis Report

Printed: 4/4/2018 7:37:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR04MCAL **Result Table:** 18APR04MCAL 4/4/2018 7:34:51 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

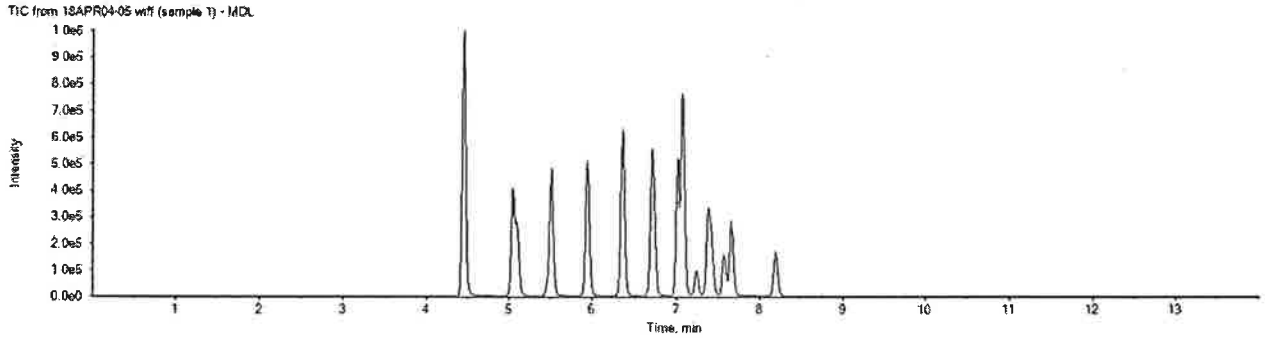
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24960 **File Name:** 18APR04-05.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	4.45	1.000	33222.0	M	13C4-PFBA	4.45	1480588.0	0.022	0.131
PFPeA	5.04	1.000	26642.3	M	13C5-PFPeA	5.05	1199004.0	0.022	0.115
PFBS	5.10	1.000	14390.0	M	13C3-PFBS	5.10	720100.4	0.020	0.091
4:2-FTS	5.47	1.000	13439.1	M	13C2-4:2-FTS	5.47	135633.7	0.099	0.525
PFHxA	5.51	1.000	27459.5	M	13C5-PFHxA	5.51	1384945.7	0.020	0.112
PFPeS	5.52	1.080	6816.8	M	13C3-PFBS	5.10	720100.4	0.009	0.108
PFHxS	5.94	1.000	11760.7	M	13C3-PFHxS	5.94	556140.3	0.021	0.097
PFHpA	5.95	1.000	25308.8	M	13C4-PFHpA	5.95	1106071.3	0.023	0.113
6:2-FTS	6.35	1.000	9505.8	A	13C2-6:2-FTS	6.35	99242.4	0.096	0.495
PFHpS	6.34	1.070	9874.5	M	13C3-PFHxS	5.94	556140.3	0.018	0.093
PFOA	6.36	1.000	22403.2	M	13C8-PFOA	6.36	955665.0	0.023	0.117
PFOS	6.70	1.000	14201.9	M	13C8-PFOS	6.71	625408.4	0.023	0.110
PFNA	6.73	1.000	21435.2	M	13C9-PFNA	6.73	744123.5	0.029	0.124
PFOSA	7.01	1.000	30757.5	M	13C8-PFOSA	7.01	1399699.0	0.022	0.116
PFNS	7.04	1.050	8520.1	M	13C8-PFOS	6.71	625408.4	0.014	0.097
PFDA	7.07	1.000	25229.5	M	13C6-PFDA	7.07	1290082.9	0.020	0.110
8:2-FTS	7.09	1.000	15911.5	M	13C2-8:2-FTS	7.09	165170.6	0.096	0.497
NMePFOSAE	7.42	1.000	7755.1	M	d7-NMePFOSAE	7.42	345082.1	0.022	0.102
NMePFOSA	7.43	1.000	3203.2	M	d3-NMePFOSA	7.44	158114.0	0.020	0.094
NMeFOSAA	7.24	1.000	7546.5	A	d3-NMeFOSAA	7.24	303752.5	0.025	0.122
NEtPFOSAE	7.58	1.000	10583.5	M	d9-NEtPFOSAE	7.57	409213.8	0.026	0.112
NEtPFOSA	7.59	1.000	2999.9	M	d5-NEtPFOSA	7.59	132178.8	0.023	0.115
PFDS	7.34	1.090	7308.1	M	13C8-PFOS	6.71	625408.4	0.012	0.102
PFUnDA	7.38	1.000	19621.5	M	13C7-PFUnDA	7.38	708792.7	0.028	0.096
NEtFOSAA	7.40	1.000	6665.3	M	d5-NEtFOSAA	7.40	301462.1	0.022	0.109
PFDoDA	7.66	1.000	17359.7	M	13C2-PFDoDA	7.66	848888.4	0.020	0.114
10:2-FTS	7.69	1.090	13172.5	M	13C2-8:2-FTS	7.09	165170.6	0.080	0.466
PFDoS	7.88	1.170	2256.2	M	13C8-PFOS	6.71	625408.4	0.004	0.073
PFTrDA	7.93	1.030	12209.1	M	13C2-PFDoDA	7.66	848888.4	0.014	0.117
PFTeDA	8.19	1.000	10952.8	M	13C2-PFTeDA	8.19	570677.3	0.019	0.100
PFHxDA	8.76	1.070	8201.1	M	13C2-PFTeDA	8.19	570677.3	0.014	0.094
PFODA	9.41	1.150	5495.3	M	13C2-PFTeDA	8.19	570677.3	0.010	0.076

Total Ion Chromatogram



APPROVED
By DMW at 7:47 pm, 4/4/18

REVIEWED
By umar at 2:25 pm, 4/6/18

ICAL Name: 18APR04MCAL **Result Table:** 18APR04MCAL 4/4/2018 7:34:51 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

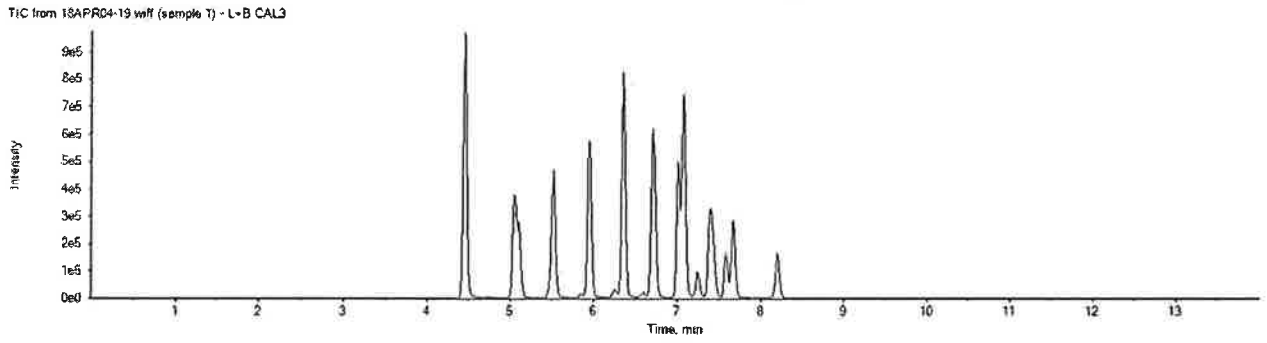
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM24960 **File Name:** 18APR04-19.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	1520003.8	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.05	1222196.1	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.11	747144.0	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.47	135410.4	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.52	1409651.0	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.11	747144.0	N/A	
PFHxS	5.95	1.000	222831.2	M	13C3-PFHxS	5.95	561774.6	0.397	1.812
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.95	1089353.1	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.35	99766.0	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	5.95	561774.6	N/A	
PFOA	6.36	1.000	329370.3	M	13C8-PFOA	6.36	1004552.8	0.328	1.634
PFOS	6.71	1.000	248607.4	M	13C8-PFOS	6.71	605172.4	0.411	1.989
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	787963.5	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	7.02	1401201.1	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.71	605172.4	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.08	1312027.5	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.09	160142.3	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.42	310217.9	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.44	146404.6	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.24	299630.3	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.57	422260.1	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.60	135423.0	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.71	605172.4	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.38	753371.7	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.40	298720.2	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	896936.9	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.09	160142.3	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.71	605172.4	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	896936.9	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.20	537941.5	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.20	537941.5	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.20	537941.5	N/A	

Total Ion Chromatogram

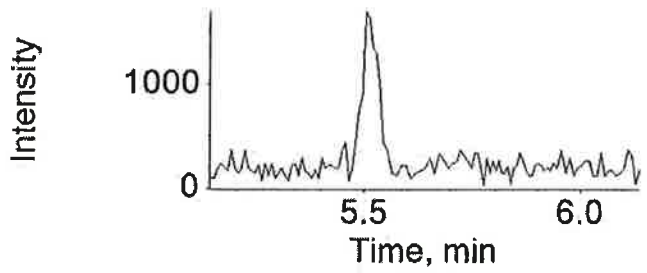


APPROVED
By DMW at 7:47 pm, 4/4/18

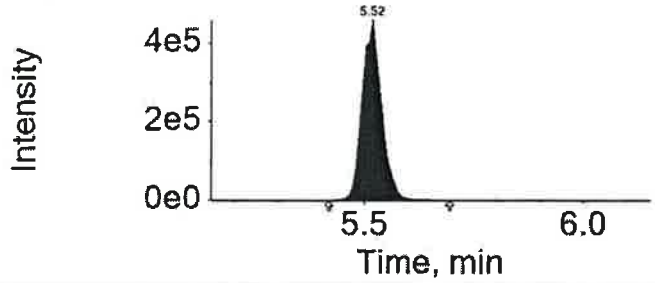
REVIEWED
By umar at 2:25 pm, 4/6/18

ICAL Name: 18APR04MCAL **Result Table:** 18APR04MCAL 4/4/2018 7:34:51 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

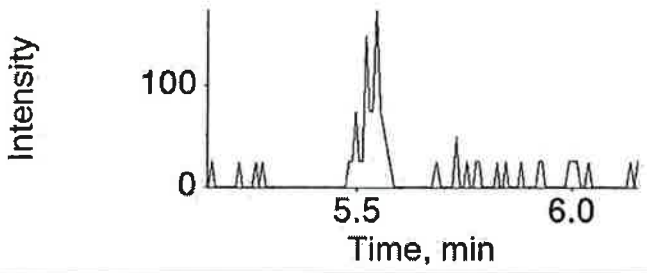
Analyte: PFHxA
313.0 / 269.0



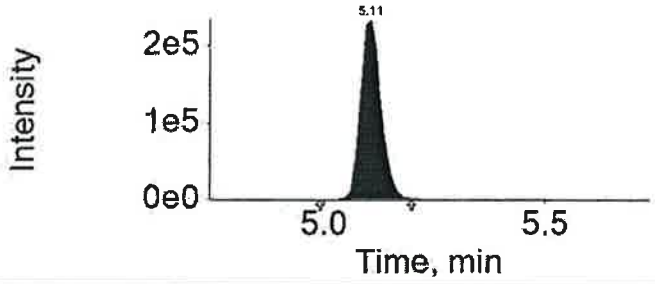
Extraction Standard: 13C5-PFHxA
318.0 / 273.0



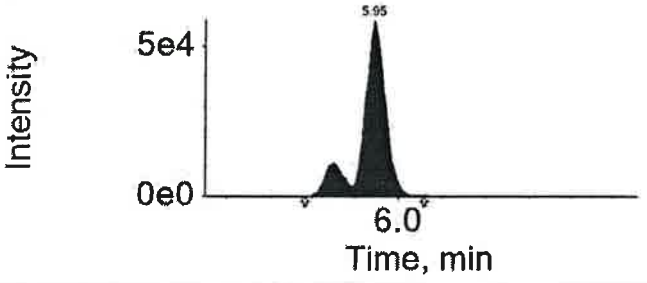
Analyte: PFPeS
349.0 / 80.0



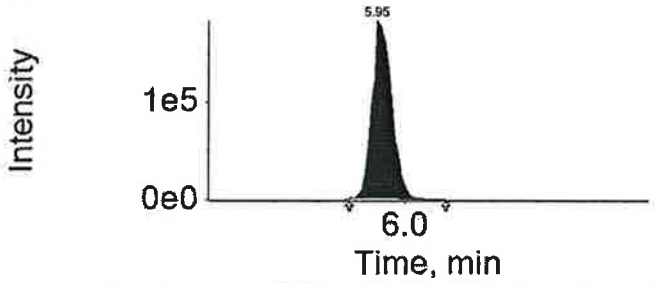
Extraction Standard: 13C3-PFBS
302.0 / 80.0



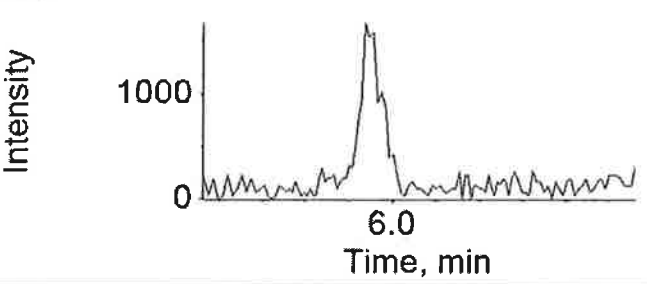
Analyte: PFHxS
399.0 / 80.0



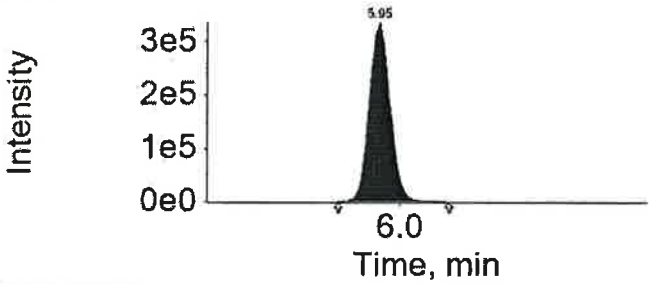
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0

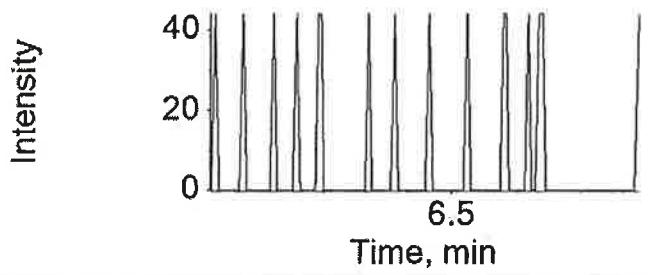


APPROVED
By DMW at 7:47 pm, 4/4/18

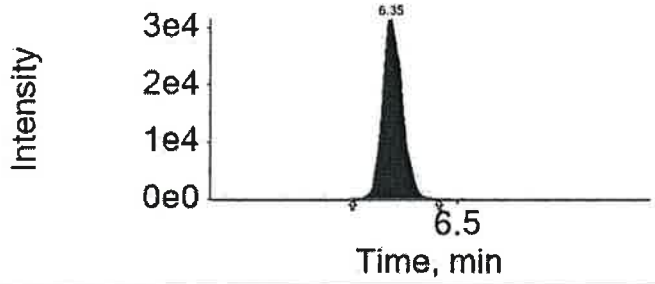
REVIEWED
By umar at 2:25 pm, 4/6/18

ICAL Name: 18APR04MCAL **Result Table:** 18APR04MCAL 4/4/2018 7:34:51 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18MAR29_divert.dam

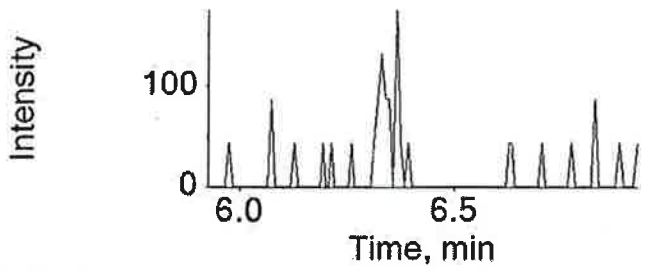
Analyte: 6:2-FTS
427.0 / 407.0



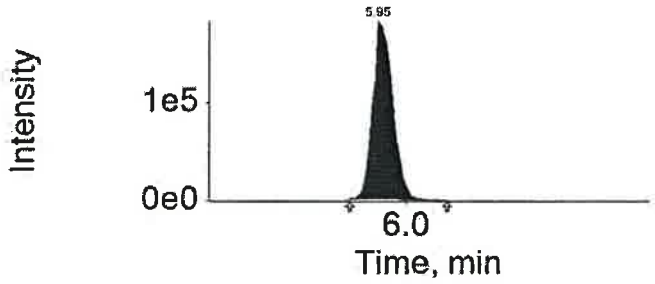
Extraction Standard: 13C2-6:2-FTS
429.0 / 409.0



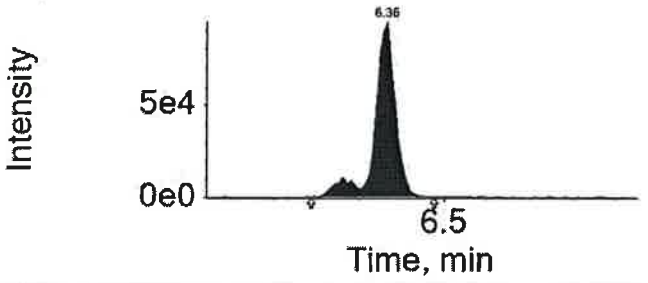
Analyte: PFHpS
449.0 / 80.0



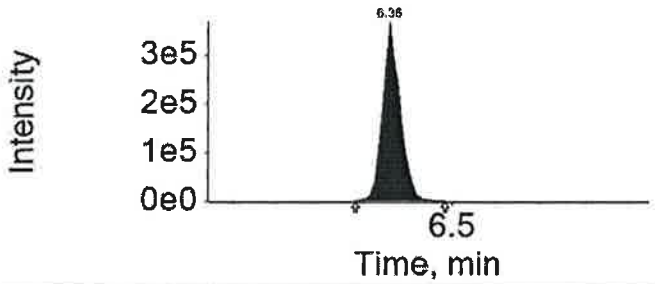
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



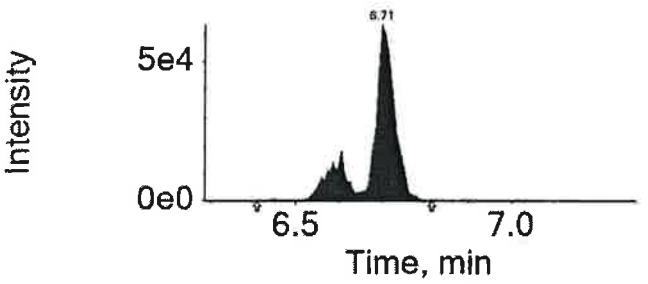
Analyte: PFOA
413.0 / 369.0



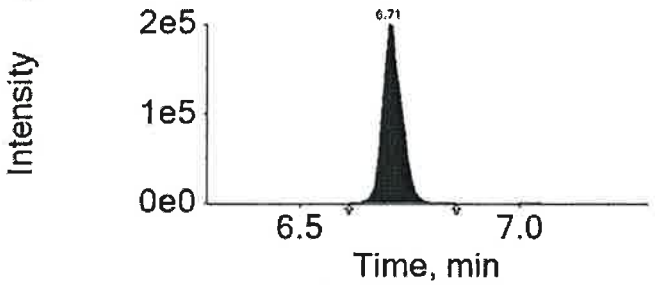
Extraction Standard: 13C8-PFOA
421.0 / 376.0



Analyte: PFOS
499.0 / 80.0



Extraction Standard: 13C8-PFOS
507.0 / 80.0



APPROVED
By DMW at 7:47 pm, 4/4/18

REVIEWED
By umar at 2:25 pm, 4/6/18

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Lab File Names: CAL1= 18APR04-06.WIFF; CAL2= 18APR04-07.WIFF; CAL3= 18APR04-08.WIFF; CAL4= 18APR04-09.WIFF; CAL5= 18APR04-10.WIFF; CAL6= 18APR04-11.WIFF; CAL7= 18APR04-12.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.20	0.248	24.2	±50
CAL2	0.109	0.60	0.636	6.1	±30
CAL3	0.359	2.00	2.097	4.9	±30
CAL4	1.437	8.00	8.396	4.9	±30
CAL5	3.883	20.00	22.689	13.4	±30
CAL6	8.555	50.00	49.993	0.0	±30
CAL7	16.555	100.00	96.740	-3.3	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.047	0.20	0.241	20.5	±50
CAL2	0.120	0.60	0.621	3.6	±30
CAL3	0.394	2.00	2.032	1.6	±30
CAL4	1.624	8.00	8.385	4.8	±30
CAL5	4.306	20.00	22.232	11.2	±30
CAL6	9.982	50.00	51.534	3.1	±30
CAL7	18.548	100.00	95.755	-4.2	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.17	0.193	13.4	±50
CAL2	0.118	0.53	0.534	0.7	±30
CAL3	0.379	1.77	1.718	-2.9	±30
CAL4	1.561	7.08	7.070	-0.1	±30
CAL5	4.472	17.69	20.257	14.5	±30
CAL6	9.459	44.22	42.846	-3.1	±30
CAL7	19.271	88.45	87.292	-1.3	±30

4:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.122	0.58	0.646	11.4	±50
CAL2	0.400	1.98	2.123	7.2	±30
CAL3	1.009	4.90	5.349	9.2	±30
CAL4	1.843	10.04	9.769	-2.7	±30
CAL5	2.284	12.49	12.104	-3.1	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Lab File Names: CAL1= 18APR04-06.WIFF; CAL2= 18APR04-07.WIFF; CAL3= 18APR04-08.WIFF; CAL4= 18APR04-09.WIFF; CAL5= 18APR04-10.WIFF; CAL6= 18APR04-11.WIFF; CAL7= 18APR04-12.WIFF;

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.228	13.9	±50
CAL2	0.111	0.60	0.626	4.4	±30
CAL3	0.367	2.00	2.077	3.8	±30
CAL4	1.523	8.00	8.624	7.8	±30
CAL5	3.885	20.00	21.992	10.0	±30
CAL6	8.961	50.00	50.726	1.5	±30
CAL7	17.052	100.00	96.526	-3.5	±30

Perfluoropentanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.018	0.19	0.200	5.2	±50
CAL2	0.051	0.56	0.582	3.9	±30
CAL3	0.173	1.88	1.966	4.6	±30
CAL4	0.699	7.50	7.946	5.9	±30
CAL5	1.887	18.76	21.466	14.4	±30
CAL6	4.056	46.90	46.136	-1.6	±30
CAL7	8.026	93.80	91.294	-2.7	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.19	0.202	6.4	±50
CAL2	0.115	0.57	0.527	-7.5	±30
CAL3	0.405	1.89	1.850	-2.1	±30
CAL4	1.607	7.56	7.342	-2.9	±30
CAL5	4.448	18.91	20.325	7.5	±30
CAL6	10.289	47.28	47.009	-0.6	±30
CAL7	20.506	94.55	93.695	-0.9	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.050	0.20	0.247	23.6	±50
CAL2	0.134	0.60	0.667	11.1	±30
CAL3	0.441	2.00	2.185	9.3	±30
CAL4	1.703	8.00	8.442	5.5	±30
CAL5	4.450	20.00	22.062	10.3	±30
CAL6	10.110	50.00	50.126	0.3	±30
CAL7	19.579	100.00	97.071	-2.9	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Lab File Names: CAL1= 18APR04-06.WIFF; CAL2= 18APR04-07.WIFF; CAL3= 18APR04-08.WIFF; CAL4= 18APR04-09.WIFF; CAL5= 18APR04-10.WIFF; CAL6= 18APR04-11.WIFF; CAL7= 18APR04-12.WIFF;

6:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.272	1.30	1.406	8.1	±50
CAL2	0.465	2.09	2.404	15.0	±30
CAL3	1.105	5.21	5.712	9.6	±30
CAL4	2.022	10.43	10.450	0.2	±30
CAL5	2.341	13.04	12.098	-7.2	±30

Perfluoroheptanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.19	0.215	13.1	±50
CAL2	0.101	0.57	0.529	-7.1	±30
CAL3	0.348	1.90	1.823	-4.0	±30
CAL4	1.418	7.61	7.430	-2.4	±30
CAL5	3.947	19.03	20.688	8.7	±30
CAL6	8.921	47.58	46.757	-1.7	±30
CAL7	18.047	95.15	94.587	-0.6	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.228	13.9	±50
CAL2	0.122	0.60	0.610	1.7	±30
CAL3	0.403	2.00	2.007	0.3	±30
CAL4	1.640	8.00	8.170	2.1	±30
CAL5	4.280	20.00	21.326	6.6	±30
CAL6	10.127	50.00	50.459	0.9	±30
CAL7	19.669	100.00	98.000	-2.0	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.19	0.215	13.0	±50
CAL2	0.117	0.57	0.564	-1.0	±30
CAL3	0.397	1.91	1.922	0.6	±30
CAL4	1.570	7.65	7.602	-0.6	±30
CAL5	4.158	19.12	20.134	5.3	±30
CAL6	9.876	47.80	47.818	0.0	±30
CAL7	19.535	95.60	94.585	-1.1	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Lab File Names: CAL1= 18APR04-06.WIFF; CAL2= 18APR04-07.WIFF; CAL3= 18APR04-08.WIFF; CAL4= 18APR04-09.WIFF; CAL5= 18APR04-10.WIFF; CAL6= 18APR04-11.WIFF; CAL7= 18APR04-12.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.056	0.20	0.239	19.7	±50
CAL2	0.159	0.60	0.687	14.5	±30
CAL3	0.558	2.00	2.404	20.2	±30
CAL4	2.113	8.00	9.110	13.9	±30
CAL5	5.427	20.00	23.395	17.0	±30
CAL6	11.792	50.00	50.832	1.7	±30
CAL7	21.837	100.00	94.133	-5.9	±30

Perfluorooctanesulfonamide	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.217	8.3	±50
CAL2	0.119	0.60	0.626	4.4	±30
CAL3	0.400	2.00	2.104	5.2	±30
CAL4	1.533	8.00	8.068	0.9	±30
CAL5	1.934	10.00	10.179	1.8	±30
CAL6	9.580	50.00	50.416	0.8	±30
CAL7	18.849	100.00	99.190	-0.8	±30

Perfluorononanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.033	0.19	0.234	23.0	±50
CAL2	0.087	0.58	0.615	6.1	±30
CAL3	0.287	1.92	2.037	6.1	±30
CAL4	1.118	7.68	7.940	3.4	±30
CAL5	3.094	19.20	21.978	14.5	±30
CAL6	6.738	48.00	47.858	-0.3	±30
CAL7	13.081	96.00	92.908	-3.2	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.220	10.0	±50
CAL2	0.105	0.60	0.594	-1.0	±30
CAL3	0.362	2.00	2.045	2.3	±30
CAL4	1.464	8.00	8.266	3.3	±30
CAL5	3.755	20.00	21.194	6.0	±30
CAL6	8.956	50.00	50.550	1.1	±30
CAL7	17.349	100.00	97.931	-2.1	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Lab File Names: CAL1= 18APR04-06.WIFF; CAL2= 18APR04-07.WIFF; CAL3= 18APR04-08.WIFF; CAL4= 18APR04-09.WIFF; CAL5= 18APR04-10.WIFF; CAL6= 18APR04-11.WIFF; CAL7= 18APR04-12.WIFF;

8:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.285	1.32	1.473	11.6	±50
CAL2	0.446	2.11	2.304	9.2	±30
CAL3	1.085	5.27	5.599	6.2	±30
CAL4	2.056	10.54	10.612	0.7	±30
CAL5	2.407	13.17	12.421	-5.7	±30

NMeFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.20	0.222	10.8	±50
CAL2	0.124	0.60	0.611	1.9	±30
CAL3	0.439	2.00	2.158	7.9	±30
CAL4	1.612	8.00	7.924	-1.0	±30
CAL5	2.020	10.00	9.932	-0.7	±30
CAL6	9.963	50.00	48.988	-2.0	±30
CAL7	20.534	100.00	100.965	1.0	±30

Perfluorodecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.024	0.19	0.208	9.7	±50
CAL2	0.059	0.58	0.512	-11.7	±30
CAL3	0.204	1.93	1.778	-7.9	±30
CAL4	0.869	7.70	7.579	-1.6	±30
CAL5	2.310	19.26	20.143	4.6	±30
CAL6	5.701	48.15	49.703	3.2	±30
CAL7	10.803	96.30	94.185	-2.2	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.068	0.20	0.237	18.7	±50
CAL2	0.178	0.60	0.618	3.0	±30
CAL3	0.570	2.00	1.977	-1.1	±30
CAL4	2.383	8.00	8.266	3.3	±30
CAL5	5.680	20.00	19.702	-1.5	±30
CAL6	11.801	50.00	40.936	-18.1	±30
CAL7	24.265	100.00	84.173	-15.8	±30

* Outside QC Limits

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FORM 06
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SDG No.: SBN09

Instrument ID: 24960

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NEtFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.219	9.5	±50
CAL2	0.126	0.60	0.623	3.8	±30
CAL3	0.429	2.00	2.119	5.9	±30
CAL4	1.549	8.00	7.656	-4.3	±30
CAL5	2.005	10.00	9.909	-0.9	±30
CAL6	10.396	50.00	51.387	2.8	±30
CAL7	20.006	100.00	98.888	-1.1	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.242	20.8	±50
CAL2	0.116	0.60	0.651	8.6	±30
CAL3	0.389	2.00	2.179	9.0	±30
CAL4	1.550	8.00	8.674	8.4	±30
CAL5	3.964	20.00	22.190	10.9	±30
CAL6	8.971	50.00	50.211	0.4	±30
CAL7	17.268	100.00	96.653	-3.3	±30

10:2-fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.230	1.33	1.341	0.8	±50
CAL2	0.365	2.12	2.129	0.4	±30
CAL3	0.910	5.30	5.314	0.3	±30
CAL4	1.867	10.60	10.907	2.9	±30
CAL5	2.212	13.26	12.920	-2.6	±30

Perfluorododecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.009	0.19	0.182	-4.5	±50
CAL2	0.025	0.58	0.496	-14.4	±30
CAL3	0.084	1.94	1.704	-12.2	±30
CAL4	0.351	7.74	7.084	-8.5	±30
CAL5	0.964	19.36	19.465	0.5	±30
CAL6	2.375	48.40	47.957	-0.9	±30
CAL7	4.859	96.80	98.122	1.4	±30

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FORM 06
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SDG No.: SBN09

Instrument ID: 24960

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Lab File Names: CAL1= 18APR04-06.WIFF; CAL2= 18APR04-07.WIFF; CAL3= 18APR04-08.WIFF; CAL4= 18APR04-09.WIFF; CAL5= 18APR04-10.WIFF; CAL6= 18APR04-11.WIFF; CAL7= 18APR04-12.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.032	0.20	0.260	29.8	±50
CAL2	0.084	0.60	0.682	13.7	±30
CAL3	0.280	2.00	2.269	13.4	±30
CAL4	1.115	8.00	9.048	13.1	±30
CAL5	2.984	20.00	24.220	21.1	±30
CAL6	6.284	50.00	51.012	2.0	±30
CAL7	11.495	100.00	93.309	-6.7	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.203	1.3	±50
CAL2	0.117	0.60	0.613	2.2	±30
CAL3	0.385	2.00	2.011	0.5	±30
CAL4	1.537	8.00	8.038	0.5	±30
CAL5	4.145	20.00	21.675	8.4	±30
CAL6	9.223	50.00	48.228	-3.5	±30
CAL7	19.129	100.00	100.031	0.0	±30

Perfluorohexadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.028	0.20	0.182	-9.2	±50
CAL2	0.081	0.60	0.530	-11.6	±30
CAL3	0.256	2.00	1.667	-16.6	±30
CAL4	1.123	8.00	7.319	-8.5	±30
CAL5	3.126	20.00	20.383	1.9	±30
CAL6	7.354	50.00	47.946	-4.1	±30
CAL7	15.763	100.00	102.773	2.8	±30

Perfluorooctadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.021	0.20	0.162	-18.8	±50
CAL2	0.060	0.60	0.471	-21.6	±30
CAL3	0.203	2.00	1.599	-20.0	±30
CAL4	0.905	8.00	7.122	-11.0	±30
CAL5	2.485	20.00	19.550	-2.2	±30
CAL6	5.957	50.00	46.863	-6.3	±30
CAL7	13.352	100.00	105.032	5.0	±30

* Outside QC Limits

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR04-20.WIFF

Date/Time Analyzed: 04/04/2018 19:12 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.10	4.82	±30
Perfluoropentanoic acid	2.00	2.09	4.38	±30
Perfluorobutanesulfonate	1.77	1.73	-1.98	±30
4:2 fluorotelomersulfonate	4.90	5.07	3.39	±30
Perfluorohexanoic acid	2.00	2.14	7.03	±30
Perfluoropentanesulfonate	1.88	1.98	5.21	±30
Perfluorohexanesulfonate	1.89	1.85	-2.29	±30
Perfluoroheptanoic acid	2.00	2.25	12.31	±30
6:2 fluorotelomersulfonate	5.21	5.67	8.88	±30
Perfluoroheptanesulfonate	1.90	1.96	2.98	±30
Perfluorooctanoic acid	2.00	1.99	-0.34	±30
Perfluoro-octanesulfonate	1.91	1.94	1.60	±30
Perfluorononanoic acid	2.00	2.20	9.79	±30
Perfluorooctanesulfonamide	2.00	2.17	8.73	±30
Perfluorononanesulfonate	1.92	2.08	8.51	±30
Perfluorodecanoic acid	2.00	2.11	5.25	±30
8:2 fluorotelomersulfonate	5.27	5.91	12.17	±30
NMeFOSAA	2.00	2.23	11.37	±30
Perfluorodecanesulfonate	1.93	1.83	-5.03	±30
Perfluoroundecanoic acid	2.00	1.98	-1.15	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR04-20.WIFF

Date/Time Analyzed: 04/04/2018 19:12 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.08	3.90	±30
Perfluorododecanoic acid	2.00	2.07	3.71	±30
10:2-fluorotelomersulfonate	5.30	5.49	3.66	±30
Perfluorododecanesulfonate	1.94	1.71	-11.89	±30
Perfluorotridecanoic acid	2.00	2.37	18.31	±30
Perfluorotetradecanoic acid	2.00	1.99	-0.65	±30
Perfluorohexadecanoic acid	2.00	1.66	-17.15	±30
Perfluorooctadecanoic acid	2.00	1.59	-20.72	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR05-41.WIFF

Date/Time Analyzed: 04/06/2018 00:27 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.12	5.90	±30
Perfluoropentanoic acid	2.00	2.04	2.18	±30
Perfluorobutanesulfonate	1.77	1.73	-2.38	±30
4:2 fluorotelomersulfonate	4.90	4.77	-2.61	±30
Perfluorohexanoic acid	2.00	2.07	3.47	±30
Perfluoropentanesulfonate	1.88	1.96	4.08	±30
Perfluorohexanesulfonate	1.89	1.84	-2.90	±30
Perfluoroheptanoic acid	2.00	2.25	12.68	±30
6:2 fluorotelomersulfonate	5.21	5.41	3.78	±30
Perfluoroheptanesulfonate	1.90	1.88	-0.89	±30
Perfluorooctanoic acid	2.00	2.05	2.36	±30
Perfluoro-octanesulfonate	1.91	1.96	2.38	±30
Perfluorononanoic acid	2.00	2.33	16.46	±30
Perfluorooctanesulfonamide	2.00	2.21	10.68	±30
Perfluorononanesulfonate	1.92	1.95	1.34	±30
Perfluorodecanoic acid	2.00	2.07	3.31	±30
8:2 fluorotelomersulfonate	5.27	5.97	13.27	±30
NMePFOSAE	2.00	2.07	3.41	±30
NMePFOSA	2.00	2.19	9.58	±30
NMeFOSAA	2.00	2.21	10.51	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR05-41.WIFF

Date/Time Analyzed: 04/06/2018 00:27 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	2.00	2.15	7.69	±30
NEtPFOSA	2.00	2.16	8.08	±30
Perfluorodecanesulfonate	1.93	1.80	-6.95	±30
Perfluoroundecanoic acid	2.00	2.16	7.77	±30
NEtFOSAA	2.00	2.05	2.42	±30
Perfluorododecanoic acid	2.00	2.09	4.61	±30
10:2-fluorotelomersulfonate	5.30	5.47	3.15	±30
Perfluorododecanesulfonate	1.94	1.68	-13.46	±30
Perfluorotridecanoic acid	2.00	2.23	11.70	±30
Perfluorotetradecanoic acid	2.00	2.01	0.70	±30
Perfluorohexadecanoic acid	2.00	1.73	-13.27	±30
Perfluorooctadecanoic acid	2.00	1.54	-22.98	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR05-54.WIFF

Date/Time Analyzed: 04/06/2018 03:36 Lab Sample ID: CCV5_CAL4

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.43	5.32	±30
Perfluoropentanoic acid	8.00	8.05	0.57	±30
Perfluorobutanesulfonate	7.08	7.26	2.53	±30
4:2 fluorotelomersulfonate	10.04	9.87	-1.70	±30
Perfluorohexanoic acid	8.00	8.53	6.67	±30
Perfluoropentanesulfonate	7.50	8.18	9.03	±30
Perfluorohexanesulfonate	7.56	7.56	-0.04	±30
Perfluoroheptanoic acid	8.00	9.12	13.95	±30
6:2 fluorotelomersulfonate	10.43	10.40	-0.28	±30
Perfluoroheptanesulfonate	7.61	7.86	3.24	±30
Perfluorooctanoic acid	8.00	8.01	0.11	±30
Perfluoro-octanesulfonate	7.65	7.64	-0.15	±30
Perfluorononanoic acid	8.00	9.13	14.07	±30
Perfluorooctanesulfonamide	8.00	8.53	6.63	±30
Perfluorononanesulfonate	7.68	8.05	4.86	±30
Perfluorodecanoic acid	8.00	8.16	2.01	±30
8:2 fluorotelomersulfonate	10.54	11.31	7.29	±30
NMePFOSAE	8.00	8.02	0.30	±30
NMePFOSA	8.00	7.40	-7.51	±30
NMeFOSAA	8.00	8.14	1.74	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR05-54.WIFF

Date/Time Analyzed: 04/06/2018 03:36 Lab Sample ID: CCV5_CAL4

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Analytes	Specified Amount	Calculated Amount	% Difference	Limit	
NEtPFOSAE	8.00	8.01	0.13	±30	
NEtPFOSA	8.00	8.10	1.21	±30	
Perfluorodecanesulfonate	7.70	7.50	-2.60	±30	
Perfluoroundecanoic acid	8.00	8.25	3.17	±30	
NEtFOSAA	8.00	8.03	0.41	±30	
Perfluorododecanoic acid	8.00	7.87	-1.59	±30	
10:2-fluorotelomersulfonate	10.60	17.18	62.06 *	±30	NJ
Perfluorododecanesulfonate	7.74	6.63	-14.40	±30	
Perfluorotridecanoic acid	8.00	8.14	1.74	±30	
Perfluorotetradecanoic acid	8.00	8.02	0.25	±30	
Perfluorohexadecanoic acid	8.00	4.55	-43.08 *	±30	NJ
Perfluorooctadecanoic acid	8.00	4.26	-46.79 *	±30	NJ

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR05-67.WIFF

Date/Time Analyzed: 04/06/2018 06:46 Lab Sample ID: CCV6_CAL5

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.18	10.89	±30
Perfluoropentanoic acid	20.00	22.26	11.30	±30
Perfluorobutanesulfonate	17.69	18.53	4.76	±30
4:2 fluorotelomersulfonate	12.49	11.46	-8.22	±30
Perfluorohexanoic acid	20.00	22.16	10.79	±30
Perfluoropentanesulfonate	18.76	20.06	6.95	±30
Perfluorohexanesulfonate	18.91	20.97	10.88	±30
Perfluoroheptanoic acid	20.00	23.35	16.74	±30
6:2 fluorotelomersulfonate	13.04	12.75	-2.22	±30
Perfluoroheptanesulfonate	19.03	21.71	14.06	±30
Perfluorooctanoic acid	20.00	22.11	10.55	±30
Perfluoro-octanesulfonate	19.12	21.09	10.30	±30
Perfluorononanoic acid	20.00	22.88	14.42	±30
Perfluorooctanesulfonamide	10.00	9.86	-1.37	±30
Perfluorononanesulfonate	19.20	22.11	15.18	±30
Perfluorodecanoic acid	20.00	22.28	11.42	±30
8:2 fluorotelomersulfonate	13.17	13.77	4.55	±30
NMePFOSAE	10.00	9.52	-4.83	±30
NMePFOSA	10.00	9.75	-2.50	±30
NMeFOSAA	10.00	9.98	-0.17	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR05-67.WIFF

Date/Time Analyzed: 04/06/2018 06:46 Lab Sample ID: CCV6_CAL5

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	10.00	9.55	-4.52	±30
NEtPFOSA	10.00	9.64	-3.64	±30
Perfluorodecanesulfonate	19.26	20.81	8.03	±30
Perfluoroundecanoic acid	20.00	21.71	8.53	±30
NEtFOSAA	10.00	9.40	-6.03	±30
Perfluorododecanoic acid	20.00	22.40	12.01	±30
10:2-fluorotelomersulfonate	13.26	12.57	-5.20	±30
Perfluorododecanesulfonate	19.36	19.41	0.28	±30
Perfluorotridecanoic acid	20.00	23.28	16.42	±30
Perfluorotetradecanoic acid	20.00	22.81	14.04	±30
Perfluorohexadecanoic acid	20.00	20.12	0.60	±30
Perfluorooctadecanoic acid	20.00	19.35	-3.27	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR06-02.WIFF

Date/Time Analyzed: 04/06/2018 07:29 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.05	2.35	±30
Perfluoropentanoic acid	2.00	2.08	3.82	±30
Perfluorobutanesulfonate	1.77	1.79	1.32	±30
4:2 fluorotelomersulfonate	4.90	5.12	4.45	±30
Perfluorohexanoic acid	2.00	2.08	4.17	±30
Perfluoropentanesulfonate	1.88	2.04	8.59	±30
Perfluorohexanesulfonate	1.89	1.80	-4.70	±30
Perfluoroheptanoic acid	2.00	2.15	7.65	±30
6:2 fluorotelomersulfonate	5.21	5.96	14.40	±30
Perfluoroheptanesulfonate	1.90	1.99	4.72	±30
Perfluorooctanoic acid	2.00	2.02	1.13	±30
Perfluoro-octanesulfonate	1.91	1.91	0.11	±30
Perfluorononanoic acid	2.00	2.10	4.97	±30
Perfluorooctanesulfonamide	2.00	2.12	5.93	±30
Perfluorononanesulfonate	1.92	2.06	7.15	±30
Perfluorodecanoic acid	2.00	2.05	2.45	±30
8:2 fluorotelomersulfonate	5.27	5.70	8.13	±30
NMePFOSAE	2.00	2.35	17.32	±30
NMePFOSA	2.00	2.01	0.65	±30
NMeFOSAA	2.00	2.10	4.99	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR06-02.WIFF

Date/Time Analyzed: 04/06/2018 07:29 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	2.00	2.28	13.88	±30
NEtPFOSA	2.00	2.10	5.09	±30
Perfluorodecanesulfonate	1.93	1.85	-4.03	±30
Perfluoroundecanoic acid	2.00	2.18	8.77	±30
NEtFOSAA	2.00	1.96	-1.83	±30
Perfluorododecanoic acid	2.00	2.18	8.83	±30
10:2-fluorotelomersulfonate	5.30	5.44	2.56	±30
Perfluorododecanesulfonate	1.94	1.66	-14.48	±30
Perfluorotridecanoic acid	2.00	2.25	12.71	±30
Perfluorotetradecanoic acid	2.00	2.11	5.48	±30
Perfluorohexadecanoic acid	2.00	1.69	-15.44	±30
Perfluorooctadecanoic acid	2.00	1.58	-21.08	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR06-14.WIFF

Date/Time Analyzed: 04/06/2018 10:23 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.36	4.49	±30
Perfluoropentanoic acid	8.00	8.00	0.03	±30
Perfluorobutanesulfonate	7.08	7.42	4.80	±30
4:2 fluorotelomersulfonate	10.04	9.58	-4.54	±30
Perfluorohexanoic acid	8.00	8.46	5.80	±30
Perfluoropentanesulfonate	7.50	8.17	8.90	±30
Perfluorohexanesulfonate	7.56	7.41	-2.00	±30
Perfluoroheptanoic acid	8.00	8.69	8.57	±30
6:2 fluorotelomersulfonate	10.43	10.51	0.75	±30
Perfluoroheptanesulfonate	7.61	8.03	5.49	±30
Perfluorooctanoic acid	8.00	8.19	2.33	±30
Perfluoro-octanesulfonate	7.65	7.92	3.54	±30
Perfluorononanoic acid	8.00	9.00	12.50	±30
Perfluorooctanesulfonamide	8.00	7.55	-5.64	±30
Perfluorononanesulfonate	7.68	8.36	8.84	±30
Perfluorodecanoic acid	8.00	8.33	4.16	±30
8:2 fluorotelomersulfonate	10.54	10.55	0.05	±30
NMePFOSAE	8.00	7.86	-1.74	±30
NMePFOSA	8.00	7.28	-8.96	±30
NMeFOSAA	8.00	8.35	4.36	±30

* Outside QC Limits.

SBN09 - Page 119 of 2021

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR06-14.WIFF

Date/Time Analyzed: 04/06/2018 10:23 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	8.00	8.07	0.84	±30
NEtPFOSA	8.00	8.04	0.48	±30
Perfluorodecanesulfonate	7.70	7.52	-2.38	±30
Perfluoroundecanoic acid	8.00	7.91	-1.14	±30
NEtFOSAA	8.00	7.97	-0.39	±30
Perfluorododecanoic acid	8.00	8.71	8.82	±30
10:2-fluorotelomersulfonate	10.60	10.95	3.26	±30
Perfluorododecanesulfonate	7.74	7.27	-6.01	±30
Perfluorotridecanoic acid	8.00	8.99	12.36	±30
Perfluorotetradecanoic acid	8.00	8.15	1.91	±30
Perfluorohexadecanoic acid	8.00	7.32	-8.56	±30
Perfluorooctadecanoic acid	8.00	6.60	-17.53	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR06-26.WIFF

Date/Time Analyzed: 04/06/2018 13:18 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.70	13.50	±30
Perfluoropentanoic acid	20.00	22.14	10.70	±30
Perfluorobutanesulfonate	17.69	19.02	7.51	±30
4:2 fluorotelomersulfonate	12.49	11.35	-9.15	±30
Perfluorohexanoic acid	20.00	23.15	15.74	±30
Perfluoropentanesulfonate	18.76	21.37	13.93	±30
Perfluorohexanesulfonate	18.91	19.89	5.17	±30
Perfluoroheptanoic acid	20.00	21.90	9.52	±30
6:2 fluorotelomersulfonate	13.04	12.32	-5.54	±30
Perfluoroheptanesulfonate	19.03	21.15	11.14	±30
Perfluorooctanoic acid	20.00	22.22	11.11	±30
Perfluoro-octanesulfonate	19.12	20.34	6.36	±30
Perfluorononanoic acid	20.00	21.57	7.85	±30
Perfluorooctanesulfonamide	10.00	10.06	0.58	±30
Perfluorononanesulfonate	19.20	22.23	15.81	±30
Perfluorodecanoic acid	20.00	22.67	13.34	±30
8:2 fluorotelomersulfonate	13.17	12.46	-5.38	±30
NMePFOSAE	10.00	9.61	-3.94	±30
NMePFOSA	10.00	9.30	-7.04	±30
NMeFOSAA	10.00	10.41	4.10	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR06-26.WIFF

Date/Time Analyzed: 04/06/2018 13:18 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/04/2018 15:48 04/04/2018 17:15

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	10.00	10.14	1.38	±30
NEtPFOSA	10.00	9.94	-0.56	±30
Perfluorodecanesulfonate	19.26	20.36	5.70	±30
Perfluoroundecanoic acid	20.00	21.73	8.67	±30
NEtFOSAA	10.00	9.72	-2.78	±30
Perfluorododecanoic acid	20.00	23.11	15.54	±30
10:2-fluorotelomersulfonate	13.26	12.76	-3.76	±30
Perfluorododecanesulfonate	19.36	19.96	3.09	±30
Perfluorotridecanoic acid	20.00	24.55	22.73	±30
Perfluorotetradecanoic acid	20.00	21.51	7.57	±30
Perfluorohexadecanoic acid	20.00	18.84	-5.80	±30
Perfluorooctadecanoic acid	20.00	16.95	-15.24	±30

* Outside QC Limits.

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18APR07MCAL-19.wiff	4/8/2018 2:28:00 AM	CALMOD11833A	CAL1
18APR07MCAL-20.wiff	4/8/2018 2:42:33 AM	CALMOD21833A	CAL2
18APR07MCAL-21.wiff	4/8/2018 2:57:03 AM	CALMOD31833A	CAL3
18APR07MCAL-22.wiff	4/8/2018 3:11:34 AM	CALMOD41833A	CAL4
18APR07MCAL-23.wiff	4/8/2018 3:26:06 AM	CALMOD51833A	CAL5
18APR07MCAL-24.wiff	4/8/2018 3:40:39 AM	CALMOD61833A	CAL6
18APR07MCAL-25.wiff	4/8/2018 3:55:12 AM	CALMOD71833A	CAL7

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	1798469.8	1589581.0
CAL2	I13C3-PFBA	True	1765778.6	1589581.0
CAL3	I13C3-PFBA	True	1941504.0	1589581.0
CAL4	I13C3-PFBA	True	1777572.1	1589581.0
CAL5	I13C3-PFBA	True	1524315.7	1589581.0
CAL6	I13C3-PFBA	True	1301256.8	1589581.0
CAL7	I13C3-PFBA	True	1018169.7	1589581.0
CAL1	I13C2-PFOA	True	1106995.2	979042.1
CAL2	I13C2-PFOA	True	1069381.6	979042.1
CAL3	I13C2-PFOA	True	1223181.5	979042.1
CAL4	I13C2-PFOA	True	1098579.4	979042.1
CAL5	I13C2-PFOA	True	941808.6	979042.1
CAL6	I13C2-PFOA	True	767793.5	979042.1
CAL7	I13C2-PFOA	True	645555.1	979042.1
CAL1	I13C4-PFOS	True	798459.3	723191.7
CAL2	I13C4-PFOS	True	776185.9	723191.7
CAL3	I13C4-PFOS	True	888258.8	723191.7
CAL4	I13C4-PFOS	True	813584.4	723191.7
CAL5	I13C4-PFOS	True	699879.3	723191.7
CAL6	I13C4-PFOS	True	601867.3	723191.7
CAL7	I13C4-PFOS	True	484106.7	723191.7
CAL1	I13C2-PFDA	True	1165819.0	1007241.2
CAL2	I13C2-PFDA	True	1147160.8	1007241.2
CAL3	I13C2-PFDA	True	1145668.9	1007241.2
CAL4	I13C2-PFDA	True	1100677.4	1007241.2
CAL5	I13C2-PFDA	True	939029.8	1007241.2
CAL6	I13C2-PFDA	True	864778.0	1007241.2
CAL7	I13C2-PFDA	True	687554.3	1007241.2

APPROVED
By DMW at 12:15 pm, 4/8/18

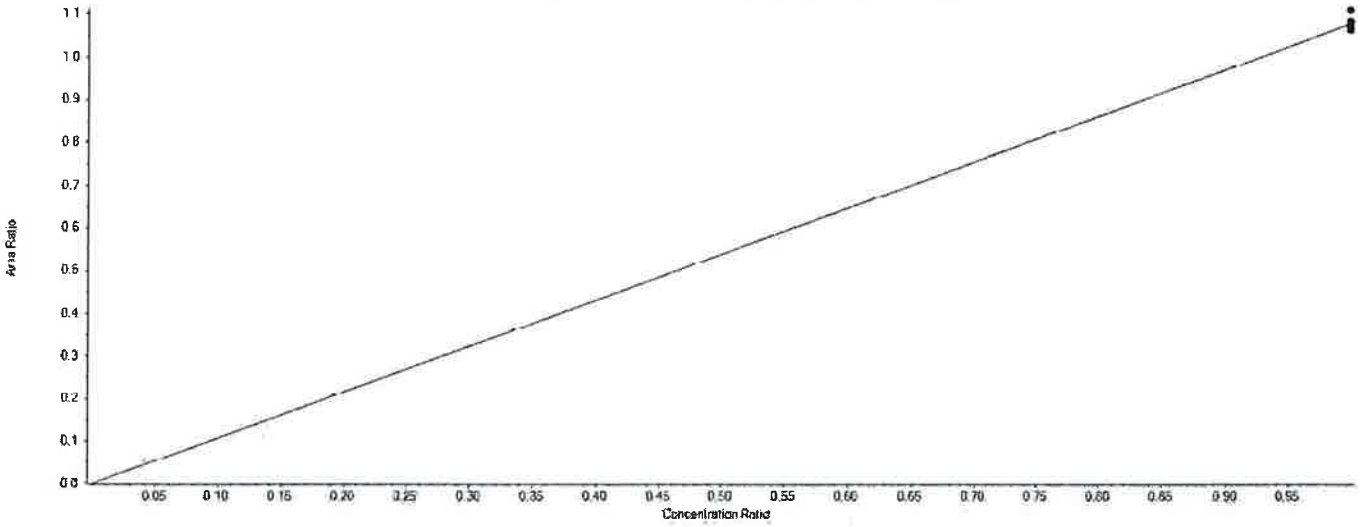
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C4-PFBA

y = 1.07826 x (std. dev. = 0.01525) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1924849.9	1798469.8	True	5.00	1.070	4.47	1.000	5.000	4.963	-0.7	50.0	
CAL2	1959719.2	1765778.6	True	5.00	1.110	4.46	1.000	5.000	5.146	2.9	30.0	
CAL3	2084812.5	1941504.0	True	5.00	1.074	4.46	1.000	5.000	4.979	-0.4	30.0	
CAL4	1924087.3	1777572.1	True	5.00	1.082	4.46	1.000	5.000	5.019	0.4	30.0	
CAL5	1641151.9	1524315.7	True	5.00	1.077	4.46	1.000	5.000	4.993	-0.1	30.0	
CAL6	1381898.4	1301256.8	True	5.00	1.062	4.46	1.000	5.000	4.924	-1.5	30.0	
CAL7	1092348.9	1018169.7	True	5.00	1.073	4.46	1.000	5.000	✓ 4.975	✓ -0.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

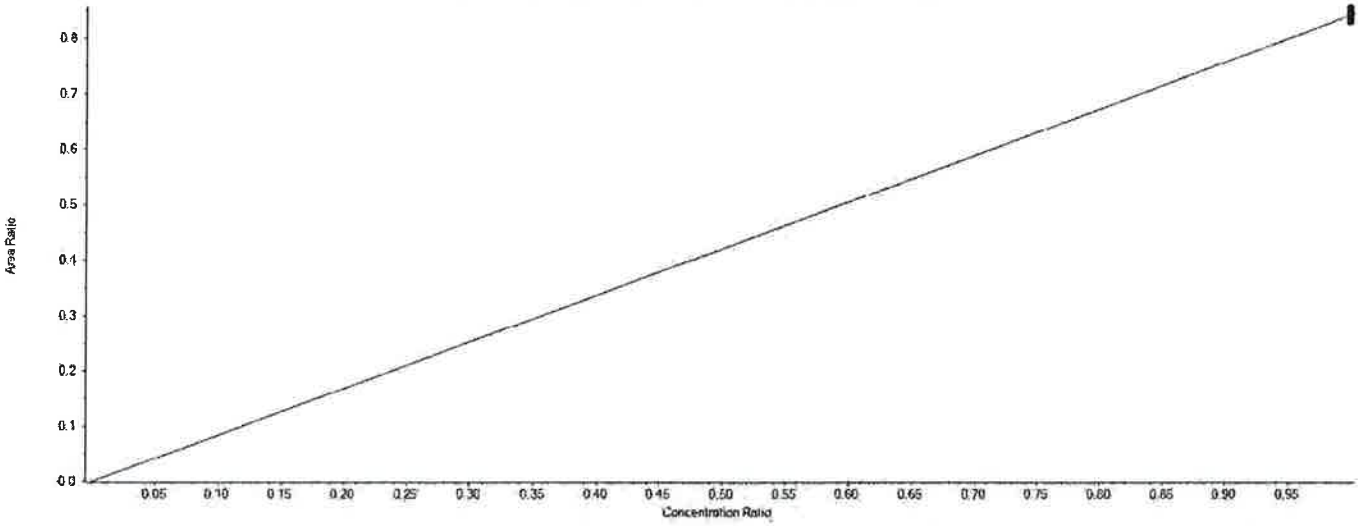
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C5-PFPeA

y = 0.84174 x (std. dev. = 0.00889) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1501835.6	1798469.8	True	5.00	0.835	5.08	1.140	5.000	4.960	-0.8	50.0	
CAL2	1510101.8	1765778.6	True	5.00	0.855	5.07	1.140	5.000	5.080	1.6	30.0	
CAL3	1644584.0	1941504.0	True	5.00	0.847	5.07	1.140	5.000	5.032	0.6	30.0	
CAL4	1506387.3	1777572.1	True	5.00	0.847	5.07	1.140	5.000	5.034	0.7	30.0	
CAL5	1277613.6	1524315.7	True	5.00	0.838	5.07	1.140	5.000	4.979	-0.4	30.0	
CAL6	1093978.3	1301256.8	True	5.00	0.841	5.07	1.140	5.000	4.994	-0.1	30.0	
CAL7	843605.3	1018169.7	True	5.00	0.829	5.06	1.140	5.000	4.922	-1.6	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

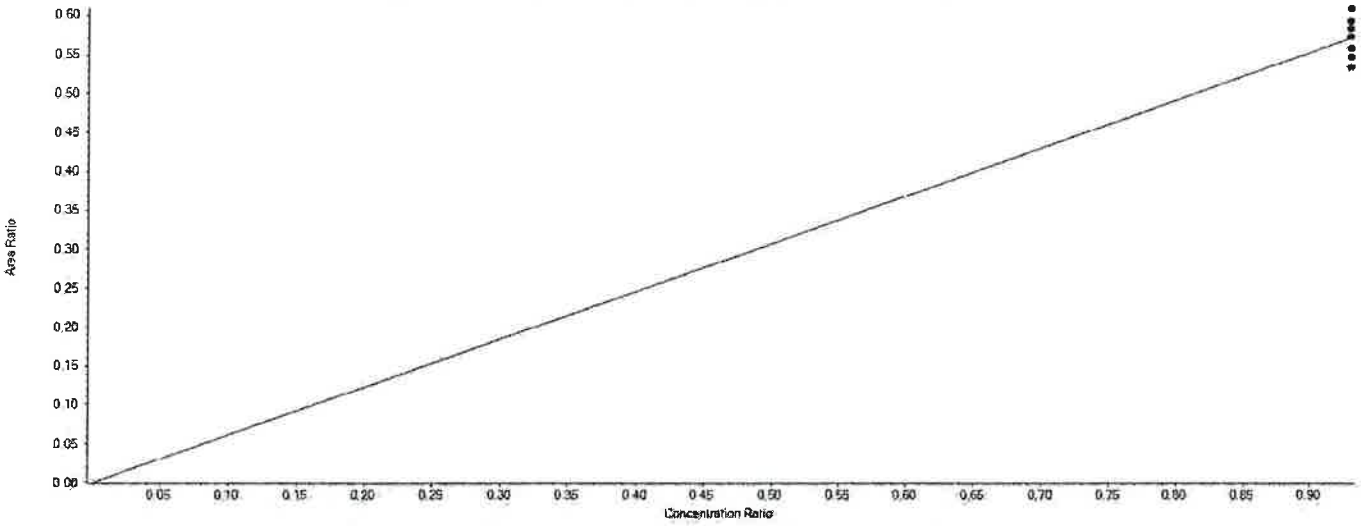
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C3-PFBS

y = 0.61362 x (std. dev. = 0.02819) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	958872.4	1798469.8	True	5.00	0.533	5.13	1.150	4.650	4.344	-6.6	50.0	
CAL2	1011369.7	1765778.6	True	5.00	0.573	5.13	1.150	4.650	4.667	0.4	30.0	
CAL3	1084316.8	1941504.0	True	5.00	0.558	5.12	1.150	4.650	4.551	-2.1	30.0	
CAL4	972984.8	1777572.1	True	5.00	0.547	5.13	1.150	4.650	4.460	-4.1	30.0	
CAL5	887408.7	1524315.7	True	5.00	0.582	5.12	1.150	4.650	4.744	2.0	30.0	
CAL6	770851.5	1301256.8	True	5.00	0.592	5.13	1.150	4.650	4.827	3.8	30.0	
CAL7	619353.5	1018169.7	True	5.00	0.608	5.12	1.150	4.650	4.957	6.6	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

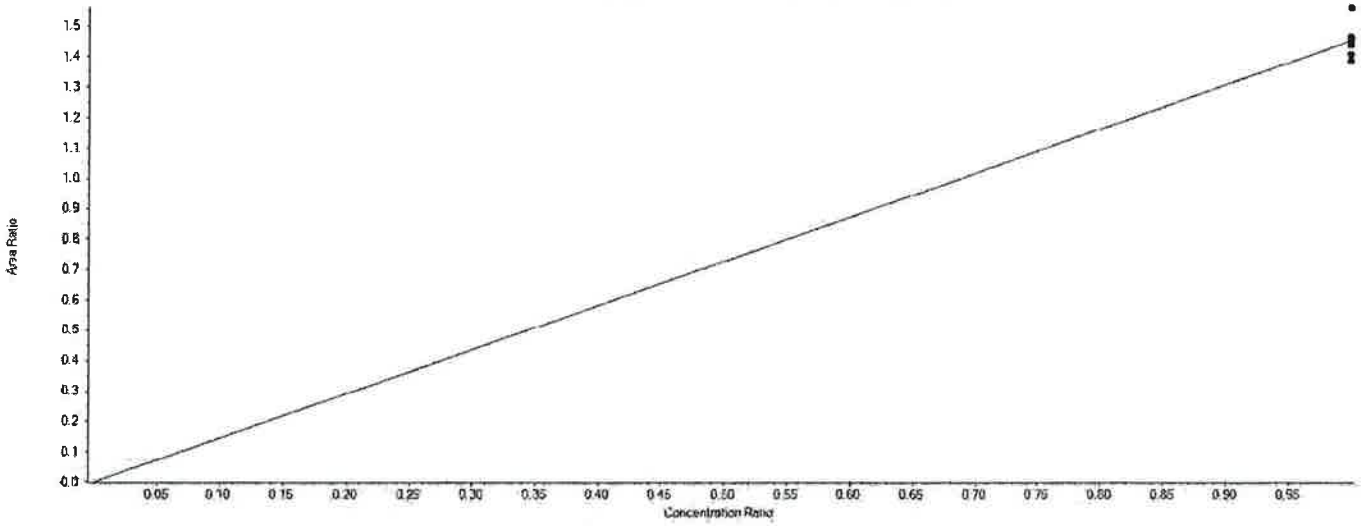
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C5-PFHxA

y = 1.45259 x (std. dev. = 0.05470) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1594435.8	1106995.2	True	5.00	1.440	5.55	0.870	5.000	4.958	-0.8	50.0	
CAL2	1666616.8	1069381.6	True	5.00	1.558	5.55	0.870	5.000	5.365	7.3	30.0	
CAL3	1720911.0	1223181.5	True	5.00	1.407	5.54	0.870	5.000	4.843	-3.1	30.0	
CAL4	1598976.8	1098579.4	True	5.00	1.455	5.55	0.870	5.000	5.010	0.2	30.0	
CAL5	1369998.3	941808.6	True	5.00	1.455	5.54	0.870	5.000	5.007	0.1	30.0	
CAL6	1125149.6	767793.5	True	5.00	1.465	5.54	0.870	5.000	5.044	0.9	30.0	
CAL7	895283.9	645555.1	True	5.00	1.387	5.54	0.860	5.000	4.774	-4.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

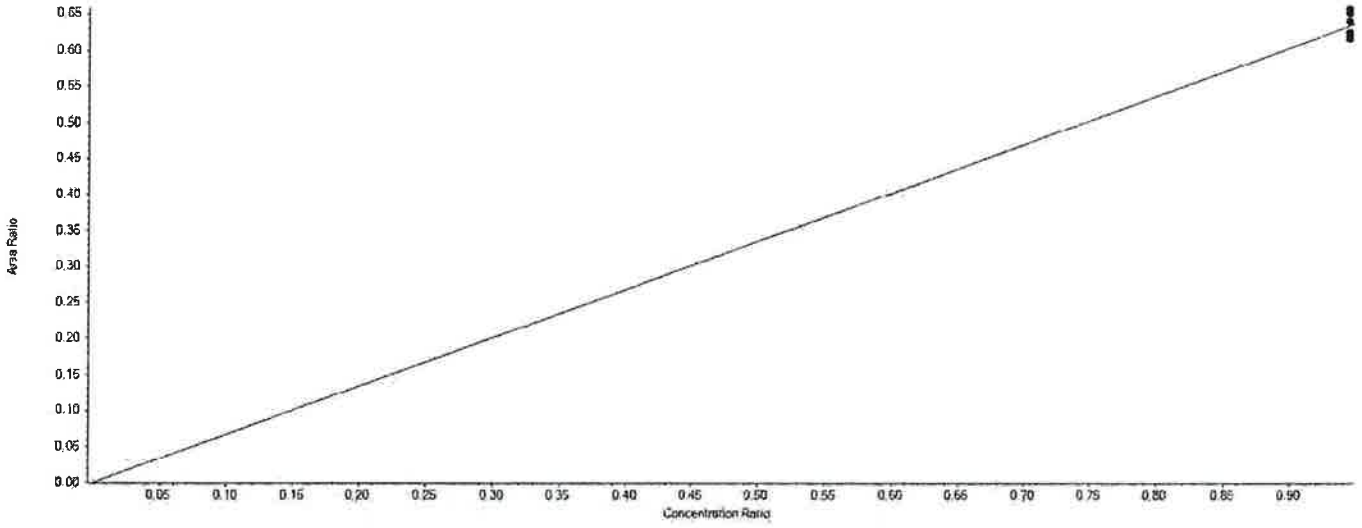
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C3-PFHxS

y = 0.67048 x (std. dev. = 0.01652) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	691939.8	1106995.2	True	5.00	0.625	5.99	0.930	4.730	4.661	-1.5	50.0	
CAL2	696545.9	1069381.6	True	5.00	0.651	5.98	0.930	4.730	4.857	2.7	30.0	
CAL3	754864.9	1223181.5	True	5.00	0.617	5.98	0.930	4.730	4.602	-2.7	30.0	
CAL4	683609.2	1098579.4	True	5.00	0.622	5.98	0.930	4.730	4.640	-1.9	30.0	
CAL5	602855.5	941808.6	True	5.00	0.640	5.98	0.930	4.730	4.773	0.9	30.0	
CAL6	505030.5	767793.5	True	5.00	0.658	5.98	0.930	4.730	4.905	3.7	30.0	
CAL7	404260.0	645555.1	True	5.00	0.626	5.97	0.930	4.730	4.670	-1.3	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

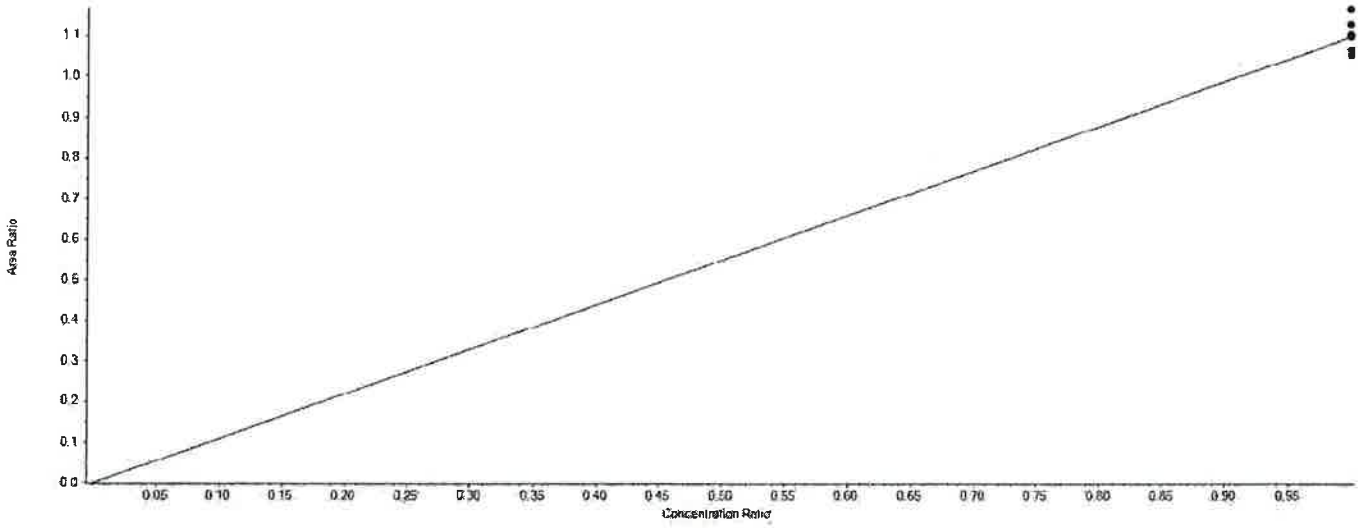
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C4-PFHpA

y = 1.09761 x (std. dev. = 0.03939) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1166383.1	1106995.2	True	5.00	1.054	6.00	0.940	5.000	4.800	-4.0	50.0	
CAL2	1246208.3	1069381.6	True	5.00	1.165	5.99	0.940	5.000	5.309	6.2	30.0	
CAL3	1306089.2	1223181.5	True	5.00	1.068	5.99	0.940	5.000	4.864	-2.7	30.0	
CAL4	1213654.2	1098579.4	True	5.00	1.105	5.99	0.940	5.000	5.033	0.7	30.0	
CAL5	1033263.3	941808.6	True	5.00	1.097	5.99	0.940	5.000	4.998	0.0	30.0	
CAL6	865825.4	767793.5	True	5.00	1.128	5.99	0.940	5.000	5.137	2.7	30.0	
CAL7	688769.4	645555.1	True	5.00	1.067	5.98	0.930	5.000	4.860	-2.8	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

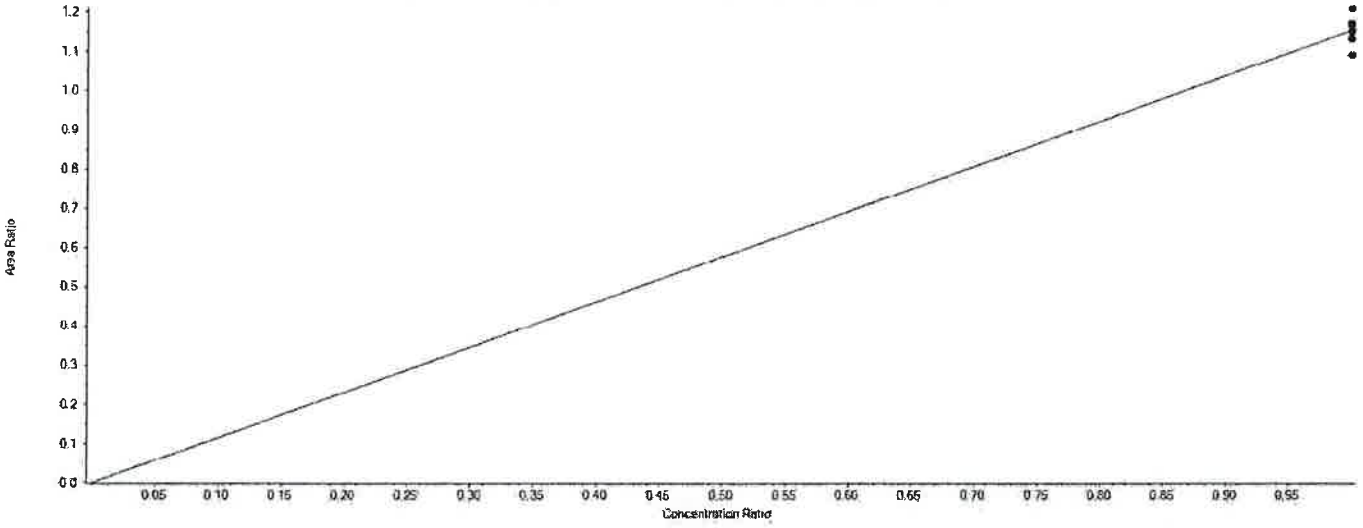
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C8-PFOA

y = 1.15349 x (std. dev. = 0.03602) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1292482.0	1106995.2	True	5.00	1.168	6.41	1.000	5.000	5.061	1.2	50.0	
CAL2	1292042.1	1069381.6	True	5.00	1.208	6.41	1.000	5.000	5.237	4.7	30.0	
CAL3	1405592.8	1223181.5	True	5.00	1.149	6.40	1.000	5.000	4.981	-0.4	30.0	
CAL4	1245323.0	1098579.4	True	5.00	1.134	6.40	1.000	5.000	4.914	-1.7	30.0	
CAL5	1103424.0	941808.6	True	5.00	1.172	6.40	1.000	5.000	5.079	1.6	30.0	
CAL6	885176.7	767793.5	True	5.00	1.153	6.41	1.000	5.000	4.997	-0.1	30.0	
CAL7	704601.2	645555.1	True	5.00	1.091	6.40	1.000	5.000	4.731	-5.4	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

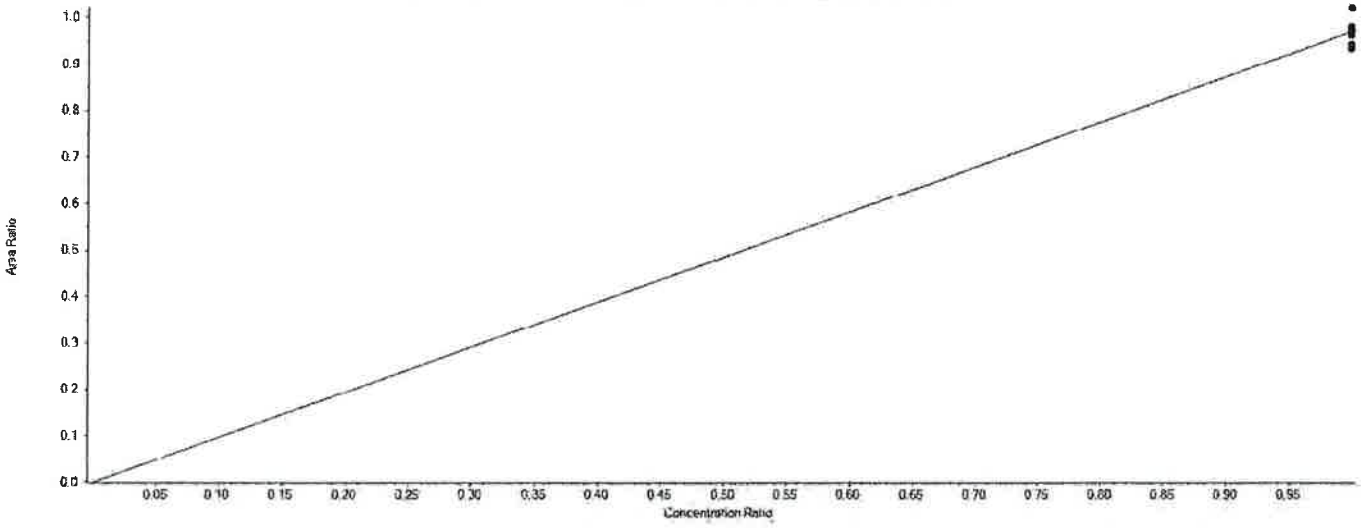
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C8-PFOS

y = 0.96949 x (std. dev. = 0.02815) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	782097.5	798459.3	True	4.78	0.980	6.76	1.000	4.780	4.829	1.0	50.0	
CAL2	791217.4	776185.9	True	4.78	1.019	6.76	1.000	4.780	5.026	5.1	30.0	
CAL3	838024.6	888258.8	True	4.78	0.943	6.75	1.000	4.780	4.652	-2.7	30.0	
CAL4	788939.6	813584.4	True	4.78	0.970	6.76	1.000	4.780	4.781	0.0	30.0	
CAL5	673644.0	699879.3	True	4.78	0.963	6.75	1.000	4.780	4.746	-0.7	30.0	
CAL6	561417.6	601867.3	True	4.78	0.933	6.75	1.000	4.780	4.599	-3.8	30.0	
CAL7	473989.6	484106.7	True	4.78	0.979	6.75	1.000	4.780	4.827	1.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

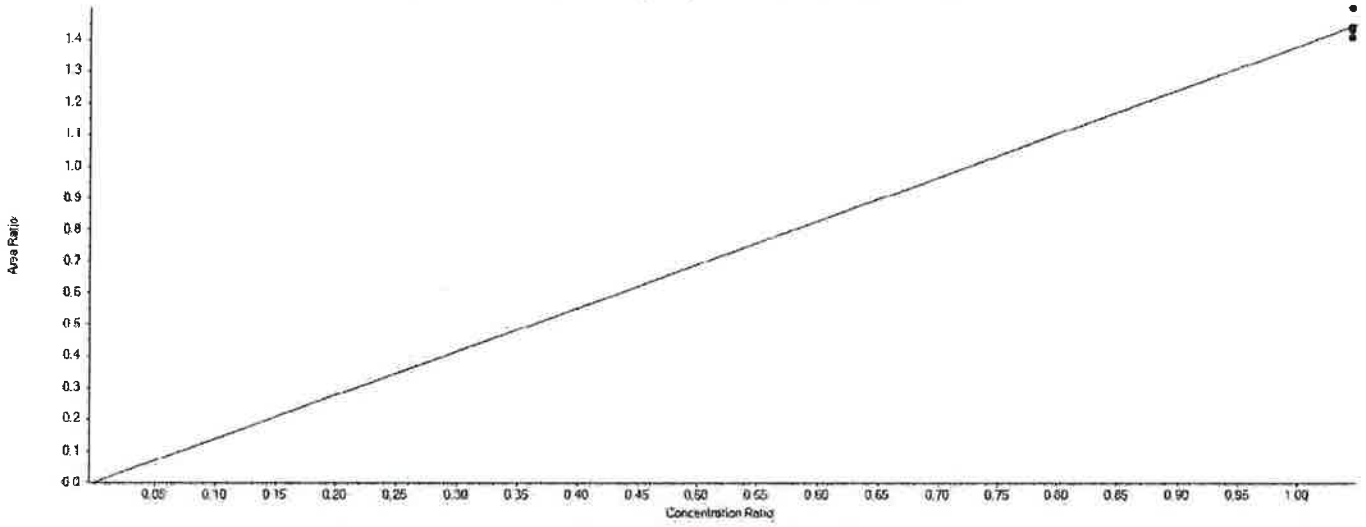
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C9-PFNA

y = 1.37835 x (std. dev. = 0.02646) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1142124.6	798459.3	True	4.78	1.430	6.79	1.000	5.000	4.961	-0.8	50.0	
CAL2	1162956.4	776185.9	True	4.78	1.498	6.78	1.000	5.000	5.196	3.9	30.0	
CAL3	1279709.6	888258.8	True	4.78	1.441	6.78	1.000	5.000	4.996	-0.1	30.0	
CAL4	1171820.5	813584.4	True	4.78	1.440	6.78	1.000	5.000	4.995	-0.1	30.0	
CAL5	1008795.0	699879.3	True	4.78	1.441	6.78	1.000	5.000	4.999	0.0	30.0	
CAL6	846767.8	601867.3	True	4.78	1.407	6.78	1.000	5.000	4.879	-2.4	30.0	
CAL7	694471.9	484106.7	True	4.78	1.435	6.78	1.010	5.000	4.975	-0.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

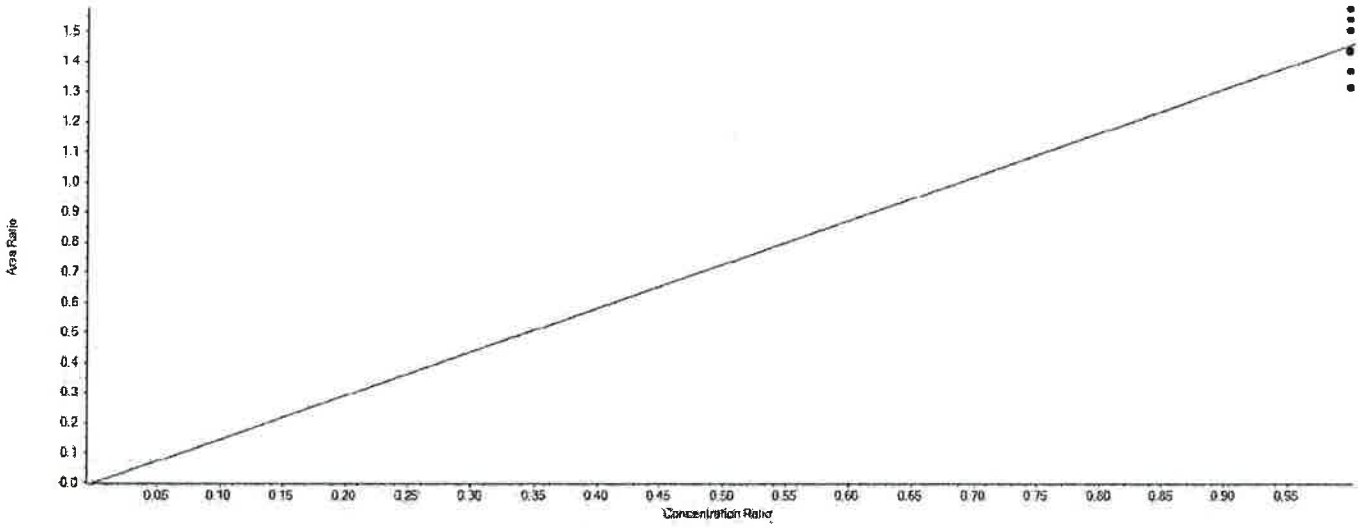
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C6-PFDA

y = 1.45412 x (std. dev. = 0.09291) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1673534.9	1165819.0	True	5.00	1.436	7.14	1.000	5.000	4.936	-1.3	50.0	
CAL2	1766826.2	1147160.8	True	5.00	1.540	7.13	1.000	5.000	5.296	5.9	30.0	
CAL3	1803035.3	1145668.9	True	5.00	1.574	7.13	1.000	5.000	5.411	8.2	30.0	
CAL4	1656227.7	1100677.4	True	5.00	1.505	7.13	1.000	5.000	5.174	3.5	30.0	
CAL5	1354179.2	939029.8	True	5.00	1.442	7.13	1.000	5.000	4.959	-0.8	30.0	
CAL6	1183910.8	864778.0	True	5.00	1.369	7.13	1.000	5.000	4.707	-5.9	30.0	
CAL7	903084.3	687554.3	True	5.00	1.313	7.13	1.000	5.000	4.516	-9.7	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

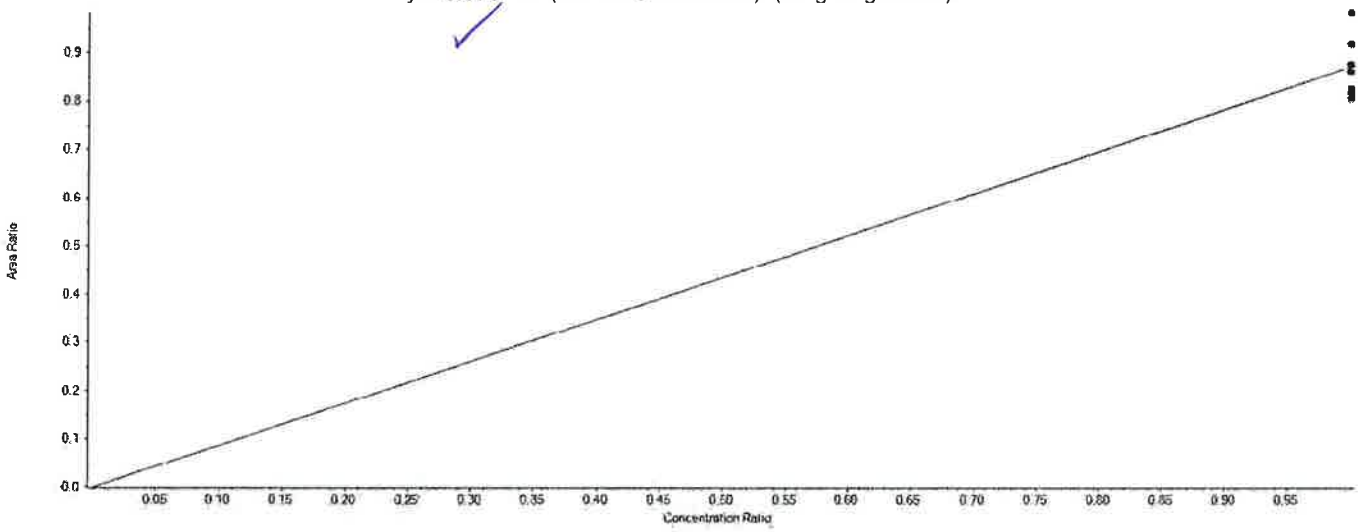
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C7-PFUnDA

y = 0.87014 x (std. dev. = 0.06281) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	953923.1	1165819.0	True	5.00	0.818	7.46	1.040	5.000	4.702	-6.0	50.0	
CAL2	988706.2	1147160.8	True	5.00	0.862	7.45	1.040	5.000	4.952	-1.0	30.0	
CAL3	1124860.5	1145668.9	True	5.00	0.982	7.45	1.040	5.000	5.642	12.8	30.0	
CAL4	1011445.6	1100677.4	True	5.00	0.919	7.45	1.040	5.000	5.280	5.6	30.0	
CAL5	824102.9	939029.8	True	5.00	0.878	7.44	1.040	5.000	5.043	0.9	30.0	
CAL6	697523.3	864778.0	True	5.00	0.807	7.45	1.040	5.000	4.635	-7.3	30.0	
CAL7	567844.0	687554.3	True	5.00	0.826	7.44	1.040	5.000	4.746	-5.1	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

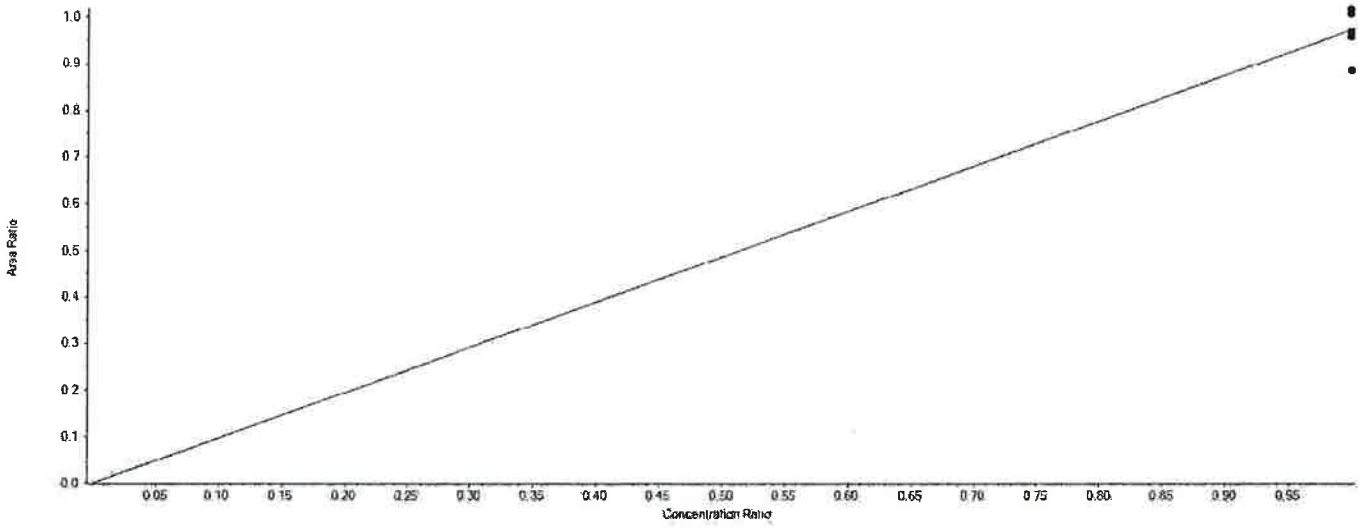
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C2-PFDoDA

y = 0.97223 x (std. dev. = 0.04464) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1032784.2	1165819.0	True	5.00	0.886	7.75	1.090	5.000	4.556	-8.9	50.0	
CAL2	1096813.9	1147160.8	True	5.00	0.956	7.75	1.090	5.000	4.917	-1.7	30.0	
CAL3	1164562.2	1145668.9	True	5.00	1.016	7.74	1.080	5.000	5.228	4.6	30.0	
CAL4	1063138.1	1100677.4	True	5.00	0.966	7.74	1.080	5.000	4.967	-0.7	30.0	
CAL5	944759.6	939029.8	True	5.00	1.006	7.74	1.090	5.000	5.174	3.5	30.0	
CAL6	838692.0	864778.0	True	5.00	0.970	7.74	1.080	5.000	4.988	-0.2	30.0	
CAL7	691174.2	687554.3	True	5.00	1.005	7.73	1.080	5.000	5.170	3.4	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

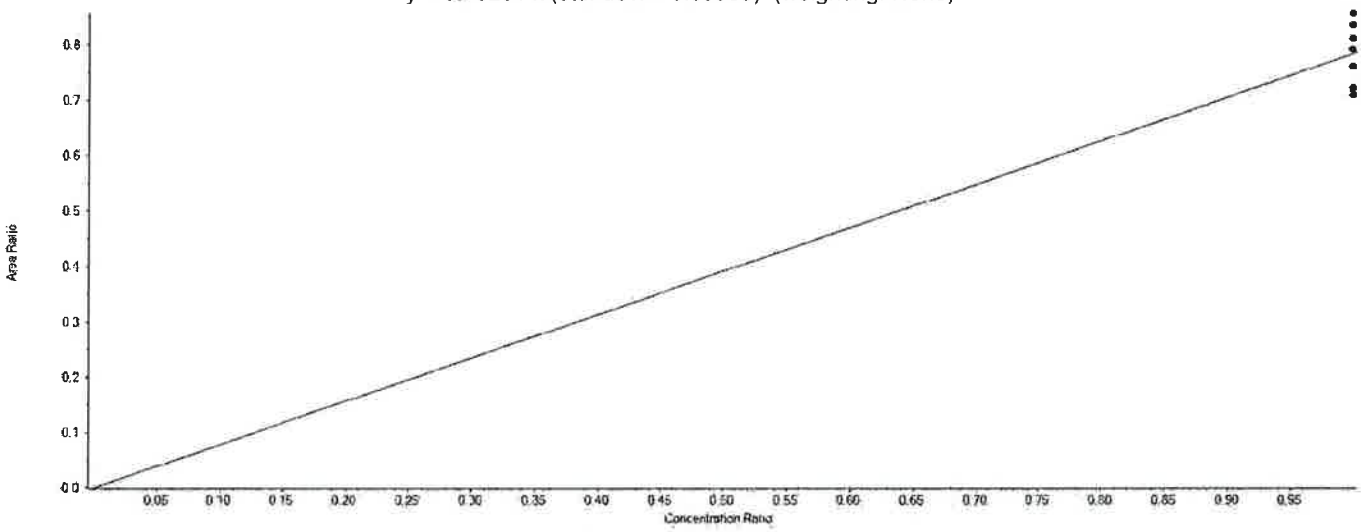
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C2-PFTeDA

y = 0.78281 x (std. dev. = 0.05535) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	826907.4	1165819.0	True	5.00	0.709	8.34	1.170	5.000	4.530	-9.4	50.0	
CAL2	872521.9	1147160.8	True	5.00	0.761	8.33	1.170	5.000	4.858	-2.8	30.0	
CAL3	927708.5	1145668.9	True	5.00	0.810	8.33	1.170	5.000	5.172	3.4	30.0	
CAL4	917389.5	1100677.4	True	5.00	0.833	8.32	1.170	5.000	5.324	6.5	30.0	
CAL5	802888.6	939029.8	True	5.00	0.855	8.32	1.170	5.000	5.461	9.2	30.0	
CAL6	684222.1	864778.0	True	5.00	0.791	8.32	1.170	5.000	5.054	1.1	30.0	
CAL7	495239.1	687554.3	True	5.00	0.720	8.31	1.170	5.000	4.601	-8.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

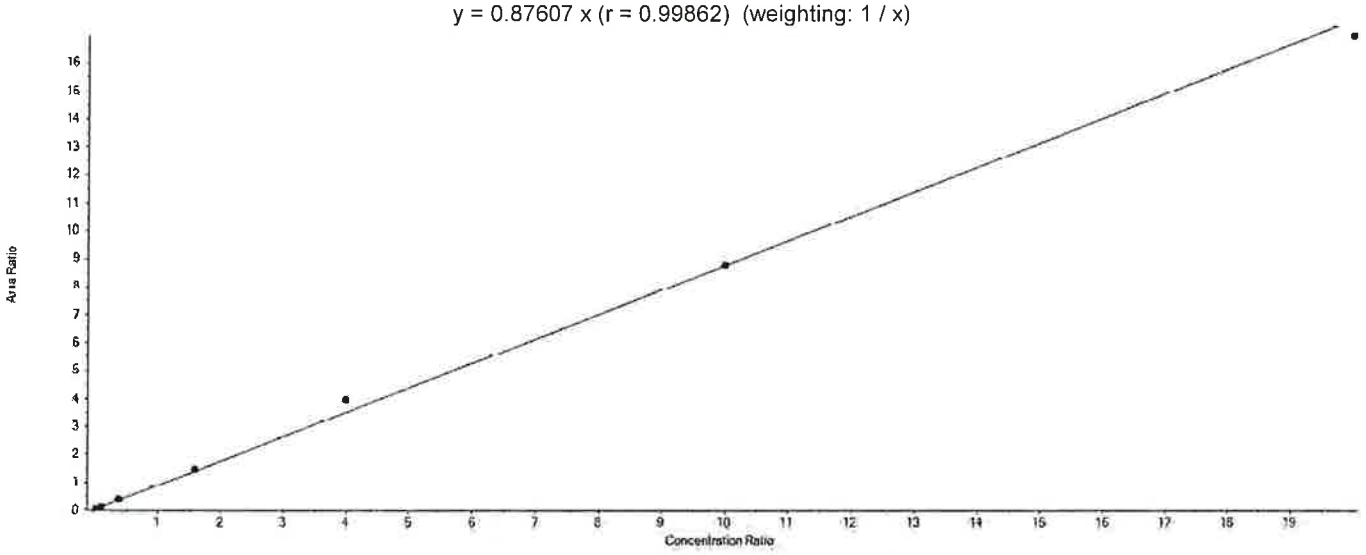
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFBA

y = 0.87607 x (r = 0.99862) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	83072.0	1924849.9	True	5.00	0.043	4.47	1.000	0.200	0.246	23.2	50.0	
CAL2	216601.6	1959719.2	True	5.00	0.111	4.46	1.000	0.600	0.631	5.1	30.0	
CAL3	761685.4	2084812.5	True	5.00	0.365	4.46	1.000	2.000	2.085	4.3	30.0	
CAL4	2841977.1	1924087.3	True	5.00	1.477	4.46	1.000	8.000	8.430	5.4	30.0	
CAL5	6527313.4	1641151.9	True	5.00	3.977	4.46	1.000	20.000	22.700	13.5	30.0	
CAL6	12108277.7	1381898.4	True	5.00	8.762	4.46	1.000	50.000	50.008	0.0	30.0	
CAL7	18507815.1	1092348.9	True	5.00	16.943	4.46	1.000	100.000	96.700	-3.3	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

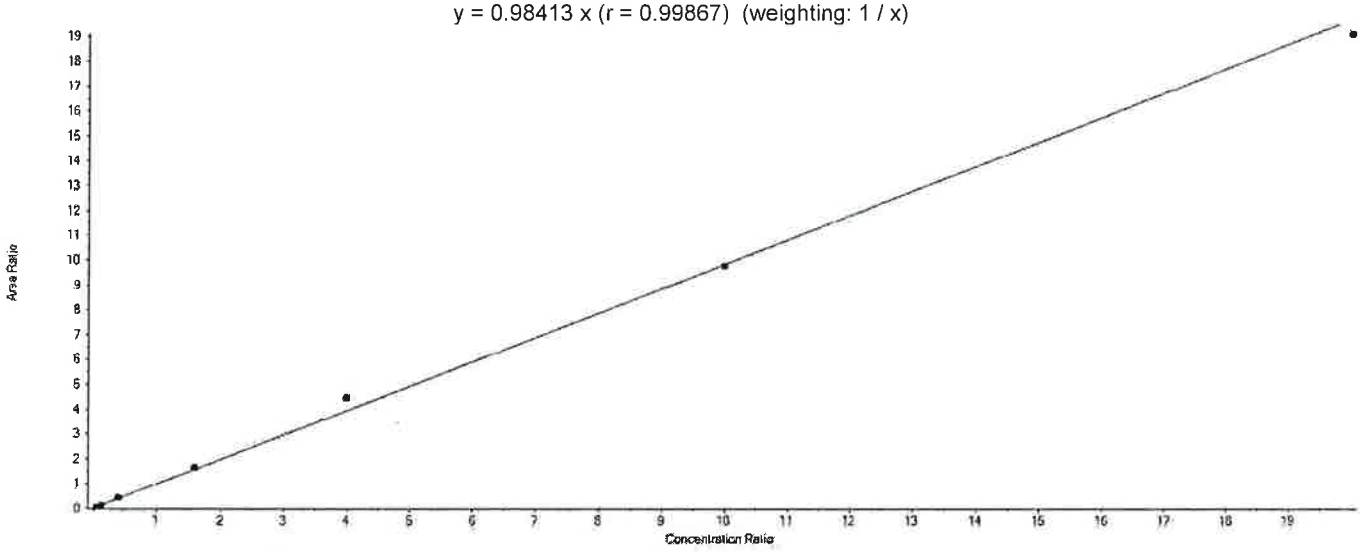
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFPeA

y = 0.98413 x (r = 0.99867) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	66857.1	1501835.6	True	5.00	0.045	5.08	1.000	0.200	0.226	13.1	50.0	
CAL2	187488.5	1510101.8	True	5.00	0.124	5.07	1.000	0.600	0.631	5.1	30.0	
CAL3	686846.3	1644584.0	True	5.00	0.418	5.07	1.000	2.000	2.122	6.1	30.0	
CAL4	2502106.0	1506387.3	True	5.00	1.661	5.07	1.000	8.000	8.439	5.5	30.0	
CAL5	5700049.7	1277613.6	True	5.00	4.461	5.07	1.000	20.000	22.667	13.3	30.0	
CAL6	10700451.2	1093978.3	True	5.00	9.781	5.07	1.000	50.000	49.695	-0.6	30.0	
CAL7	16109519.0	843605.3	True	5.00	19.096	5.06	1.000	100.000	97.020	-3.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

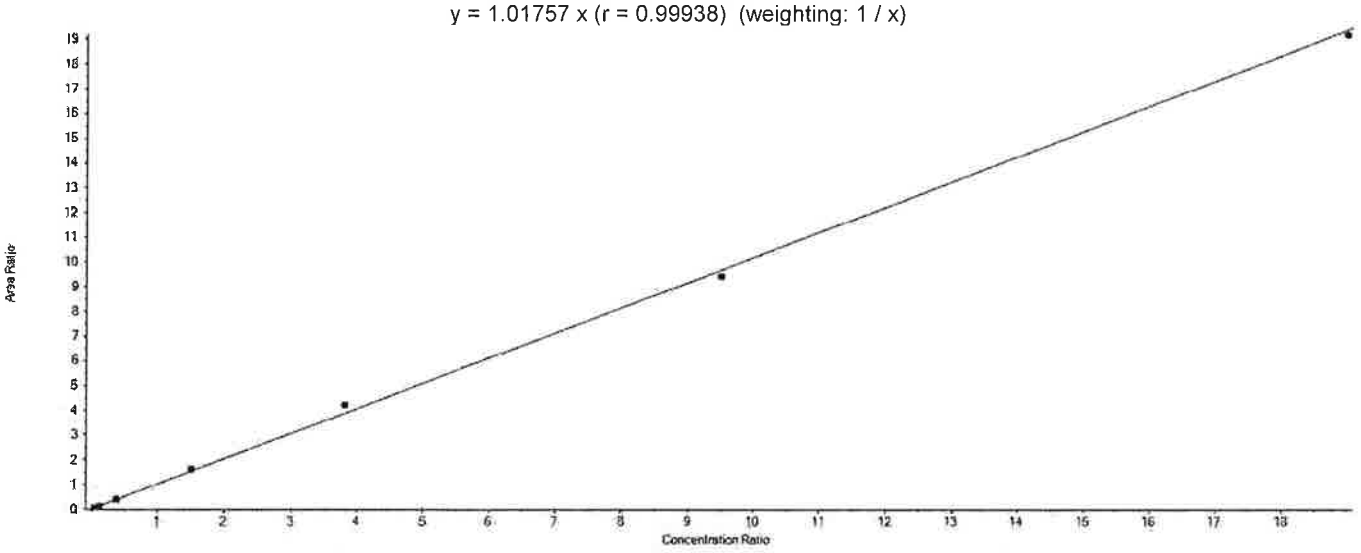
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFBS

y = 1.01757 x (r = 0.99938) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	40942.7	958872.4	True	4.65	0.043	5.13	1.000	0.170	0.195	14.8	50.0	
CAL2	117789.3	1011369.7	True	4.65	0.116	5.13	1.000	0.530	0.532	0.4	30.0	
CAL3	422494.5	1084316.8	True	4.65	0.390	5.12	1.000	1.770	1.781	0.6	30.0	
CAL4	1577527.4	972984.8	True	4.65	1.621	5.13	1.000	7.080	7.409	4.6	30.0	
CAL5	3745599.0	887408.7	True	4.65	4.221	5.12	1.000	17.690	19.288	9.0	30.0	
CAL6	7278697.6	770851.5	True	4.65	9.442	5.13	1.000	44.220	43.149	-2.4	30.0	
CAL7	11866779.1	619353.5	True	4.65	19.160	5.12	1.000	88.450	87.556	-1.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

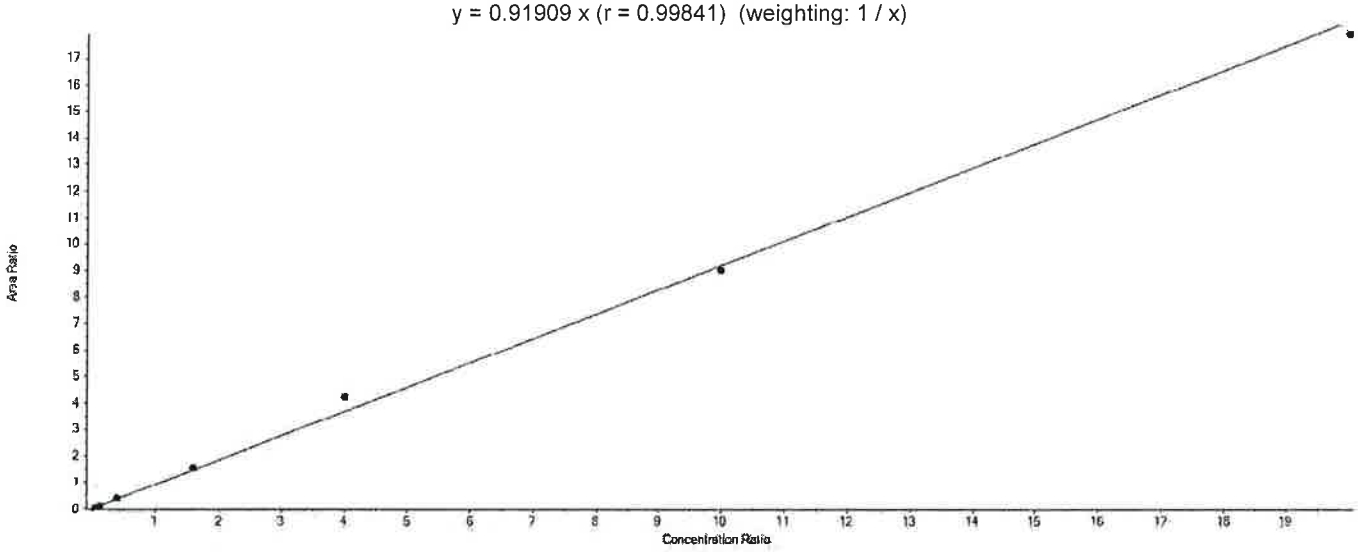
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFHxA

y = 0.91909 x (r = 0.99841) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65636.1	1594435.8	True	5.00	0.041	5.55	1.000	0.200	0.224	12.0	50.0	
CAL2	187046.3	1666616.8	True	5.00	0.112	5.55	1.000	0.600	0.611	1.8	30.0	
CAL3	698160.9	1720911.0	True	5.00	0.406	5.54	1.000	2.000	2.207	10.4	30.0	
CAL4	2497067.6	1598976.8	True	5.00	1.562	5.55	1.000	8.000	8.496	6.2	30.0	
CAL5	5774072.1	1369998.3	True	5.00	4.215	5.54	1.000	20.000	22.928	14.6	30.0	
CAL6	10142715.2	1125149.6	True	5.00	9.015	5.54	1.000	50.000	49.041	-1.9	30.0	
CAL7	16011473.0	895283.9	True	5.00	17.884	5.54	1.000	100.000	97.293	-2.7	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

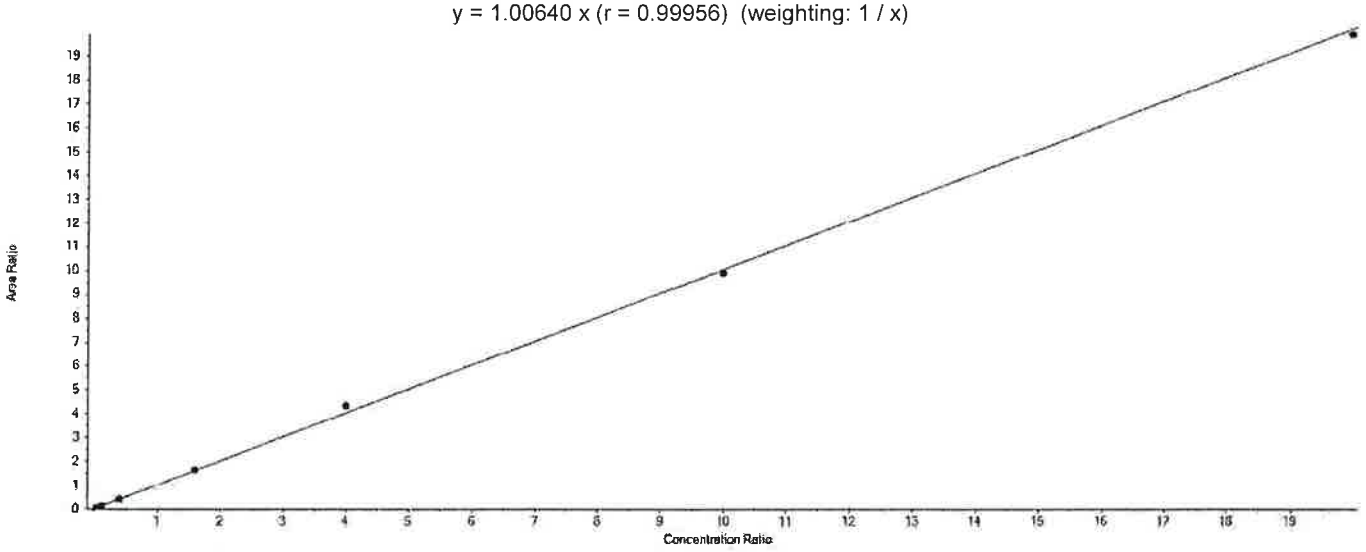
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFHxS

y = 1.00640 x (r = 0.99956) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	28849.5	691939.8	True	4.73	0.042	5.99	1.000	0.190	0.196	3.1	50.0	
CAL2	80965.4	696545.9	True	4.73	0.116	5.98	1.000	0.570	0.546	-4.2	30.0	
CAL3	305439.8	754864.9	True	4.73	0.405	5.98	1.000	1.890	1.902	0.6	30.0	
CAL4	1123264.2	683609.2	True	4.73	1.643	5.98	1.000	7.560	7.723	2.2	30.0	
CAL5	2620134.3	602855.5	True	4.73	4.346	5.98	1.000	18.910	20.427	8.0	30.0	
CAL6	5009170.1	505030.5	True	4.73	9.919	5.98	1.000	47.280	46.616	-1.4	30.0	
CAL7	8045768.3	404260.0	True	4.73	19.902	5.97	1.000	94.550	93.540	-1.1	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

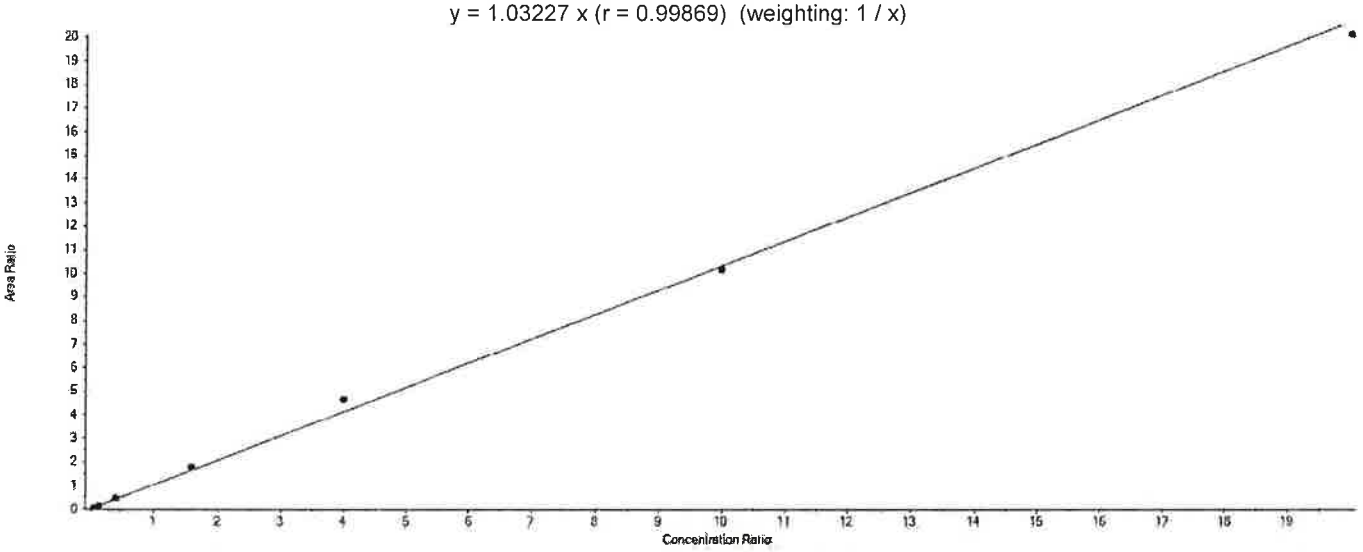
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFHpA

y = 1.03227 x (r = 0.99869) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	57780.5	1166383.1	True	5.00	0.050	6.00	1.000	0.200	0.240	20.0	50.0	
CAL2	157349.1	1246208.3	True	5.00	0.126	5.99	1.000	0.600	0.612	1.9	30.0	
CAL3	581970.3	1306089.2	True	5.00	0.446	5.99	1.000	2.000	2.158	7.9	30.0	
CAL4	2148078.3	1213654.2	True	5.00	1.770	5.99	1.000	8.000	8.573	7.2	30.0	
CAL5	4823800.2	1033263.3	True	5.00	4.669	5.99	1.000	20.000	22.613	13.1	30.0	
CAL6	8806314.7	865825.4	True	5.00	10.171	5.99	1.000	50.000	49.265	-1.5	30.0	
CAL7	13841660.8	688769.4	True	5.00	20.096	5.99	1.000	100.000	97.340	-2.7	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

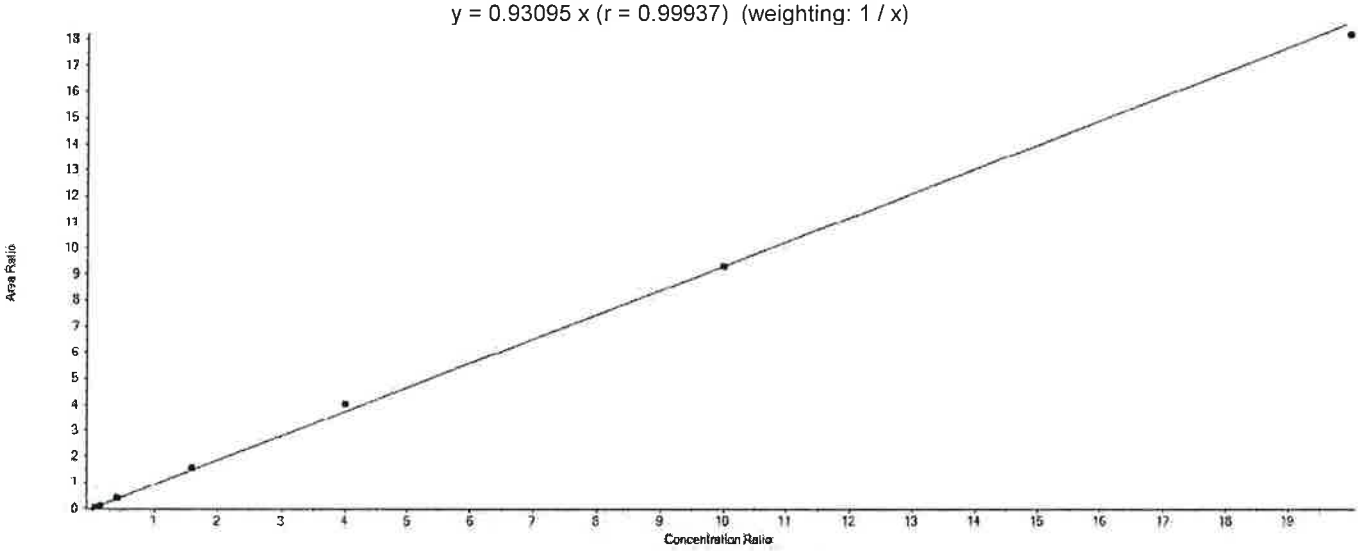
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFOA

y = 0.93095 x (r = 0.99937) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	56876.5	1292482.0	True	5.00	0.044	6.41	1.000	0.200	0.236	18.2	50.0	
CAL2	155637.0	1292042.1	True	5.00	0.120	6.40	1.000	0.600	0.647	7.8	30.0	
CAL3	554673.5	1405592.8	True	5.00	0.395	6.40	1.000	2.000	2.119	6.0	30.0	
CAL4	1969234.2	1245323.0	True	5.00	1.581	6.40	1.000	8.000	8.493	6.2	30.0	
CAL5	4455480.3	1103424.0	True	5.00	4.038	6.40	1.000	20.000	21.687	8.4	30.0	
CAL6	8234235.6	885176.7	True	5.00	9.302	6.41	1.000	50.000	49.962	-0.1	30.0	
CAL7	12811364.5	704601.2	True	5.00	18.182	6.40	1.000	100.000	97.656	-2.3	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

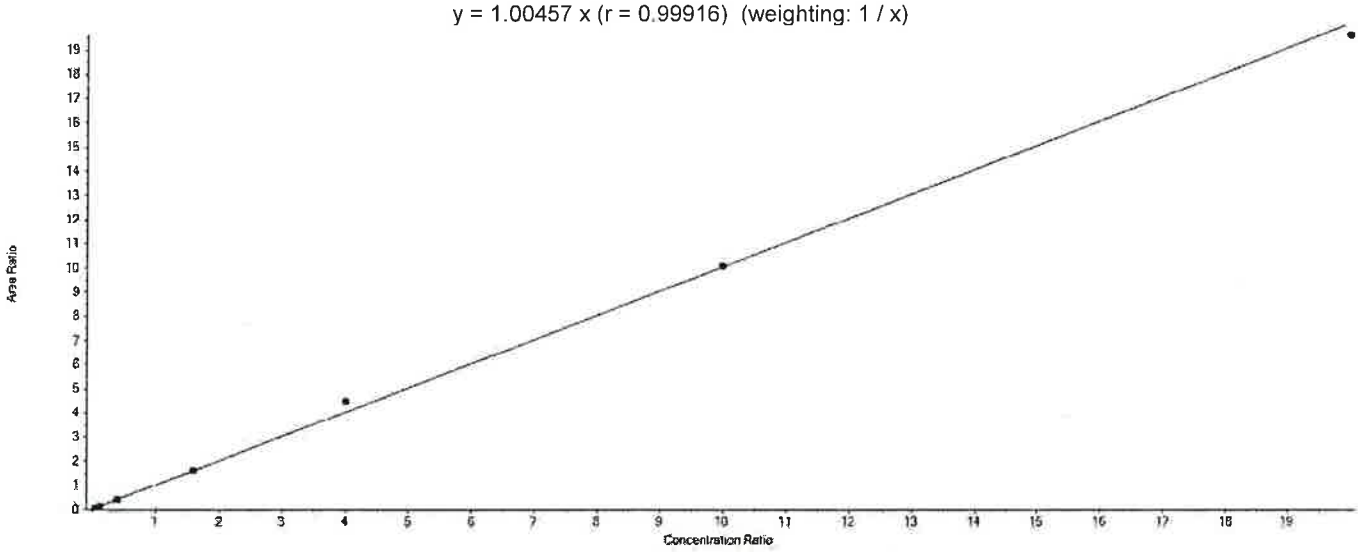
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFOS

y = 1.00457 x (r = 0.99916) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	32660.6	782097.5	True	4.78	0.042	6.76	1.000	0.190	0.199	4.6	50.0	
CAL2	91967.1	791217.4	True	4.78	0.116	6.76	1.000	0.570	0.553	-3.0	30.0	
CAL3	332396.7	838024.6	True	4.78	0.397	6.75	1.000	1.910	1.887	-1.2	30.0	
CAL4	1277739.2	788939.6	True	4.78	1.620	6.76	1.000	7.650	7.706	0.7	30.0	
CAL5	3000207.0	673644.0	True	4.78	4.454	6.75	1.000	19.120	21.192	10.8	30.0	
CAL6	5659042.1	561417.6	True	4.78	10.080	6.75	1.000	47.800	47.963	0.3	30.0	
CAL7	9297922.2	473989.6	True	4.78	19.616	6.74	1.000	95.600	93.340	-2.4	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

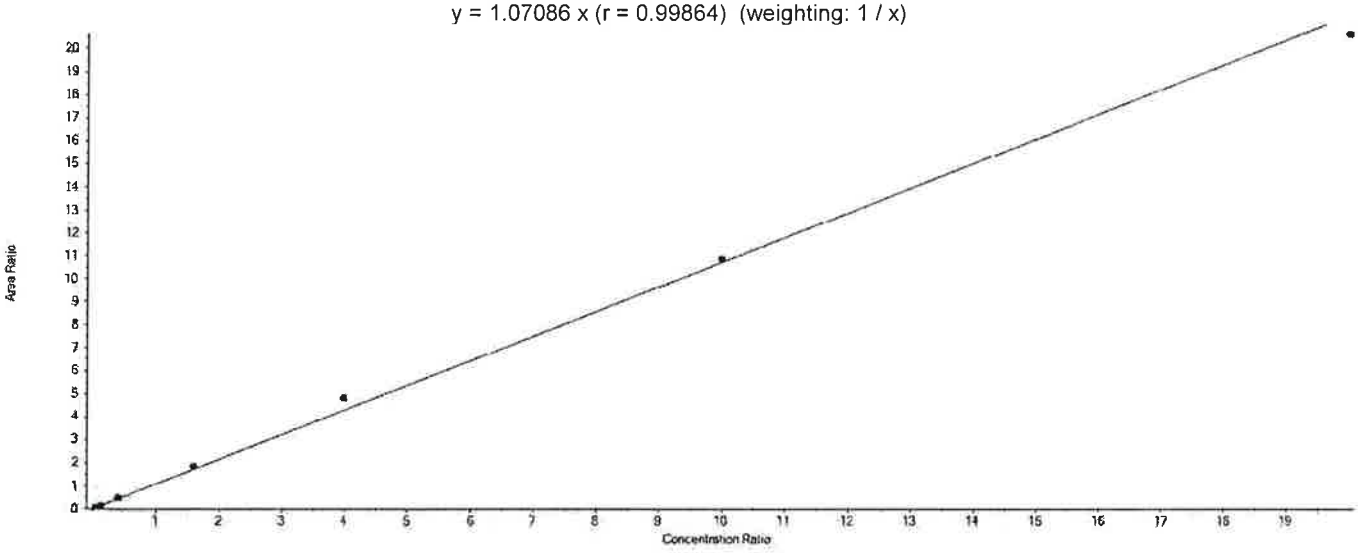
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFNA

y = 1.07086 x (r = 0.99864) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	59919.0	1142124.6	True	5.00	0.052	6.79	1.000	0.200	0.245	22.5	50.0	
CAL2	166200.5	1162956.4	True	5.00	0.143	6.78	1.000	0.600	0.667	11.2	30.0	
CAL3	607863.8	1279709.6	True	5.00	0.475	6.78	1.000	2.000	2.218	10.9	30.0	
CAL4	2132461.7	1171820.5	True	5.00	1.820	6.78	1.000	8.000	8.497	6.2	30.0	
CAL5	4850412.8	1008795.0	True	5.00	4.808	6.78	1.000	20.000	22.450	12.2	30.0	
CAL6	9165821.6	846767.8	True	5.00	10.824	6.78	1.000	50.000	50.541	1.1	30.0	
CAL7	14305765.2	694471.9	True	5.00	20.599	6.78	1.000	100.000	96.182	-3.8	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

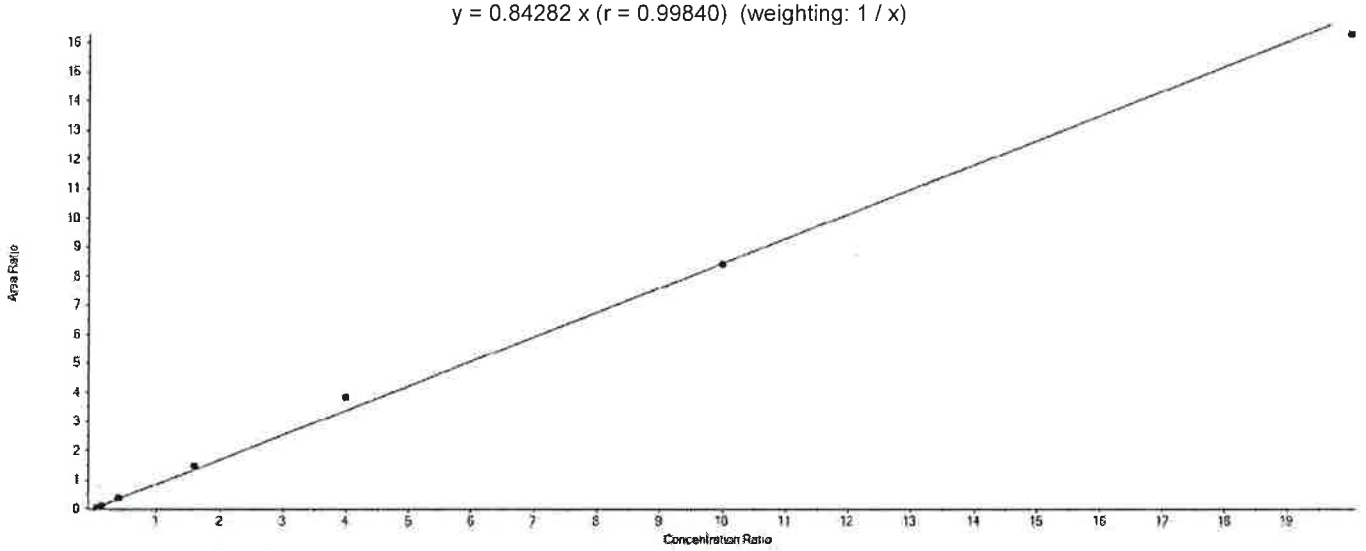
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFDA

y = 0.84282 x (r = 0.99840) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65331.0	1673534.9	True	5.00	0.039	7.14	1.000	0.200	0.232	15.8	50.0	
CAL2	185820.6	1766826.2	True	5.00	0.105	7.14	1.000	0.600	0.624	4.0	30.0	
CAL3	637049.8	1803035.3	True	5.00	0.353	7.13	1.000	2.000	2.096	4.8	30.0	
CAL4	2443005.6	1656227.7	True	5.00	1.475	7.14	1.000	8.000	8.751	9.4	30.0	
CAL5	5194694.3	1354179.2	True	5.00	3.836	7.13	1.000	20.000	22.757	13.8	30.0	
CAL6	9947778.2	1183910.8	True	5.00	8.402	7.13	1.000	50.000	49.847	-0.3	30.0	
CAL7	14688971.5	903084.3	True	5.00	16.265	7.13	1.000	100.000	96.493	-3.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

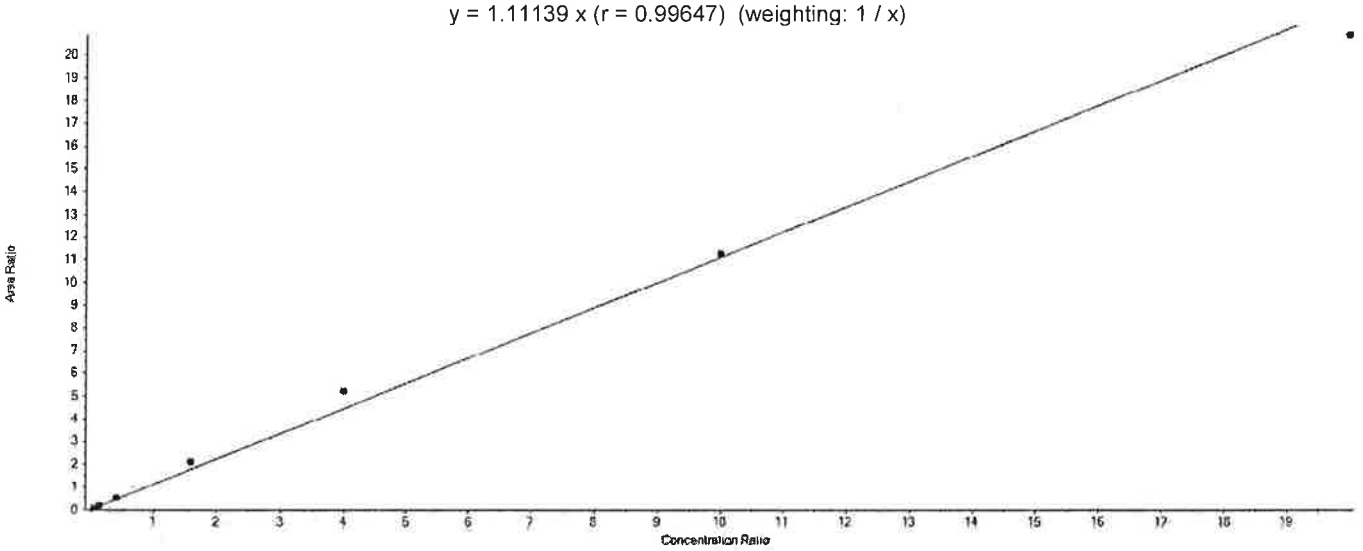
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFUnDA

y = 1.11139 x (r = 0.99647) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	53783.1	953923.1	True	5.00	0.056	7.46	1.000	0.200	0.254	26.8	50.0	
CAL2	166077.8	988706.2	True	5.00	0.168	7.45	1.000	0.600	0.756	26.0	30.0	
CAL3	575865.8	1124860.5	True	5.00	0.512	7.45	1.000	2.000	2.303	15.2	30.0	
CAL4	2132174.6	1011445.6	True	5.00	2.108	7.45	1.000	8.000	9.484	18.5	30.0	
CAL5	4297346.1	824102.9	True	5.00	5.215	7.44	1.000	20.000	23.460	17.3	30.0	
CAL6	7858951.3	697523.3	True	5.00	11.267	7.45	1.000	50.000	50.689	1.4	30.0	
CAL7	11846326.9	567844.0	True	5.00	20.862	7.44	1.000	100.000	93.855	-6.1	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

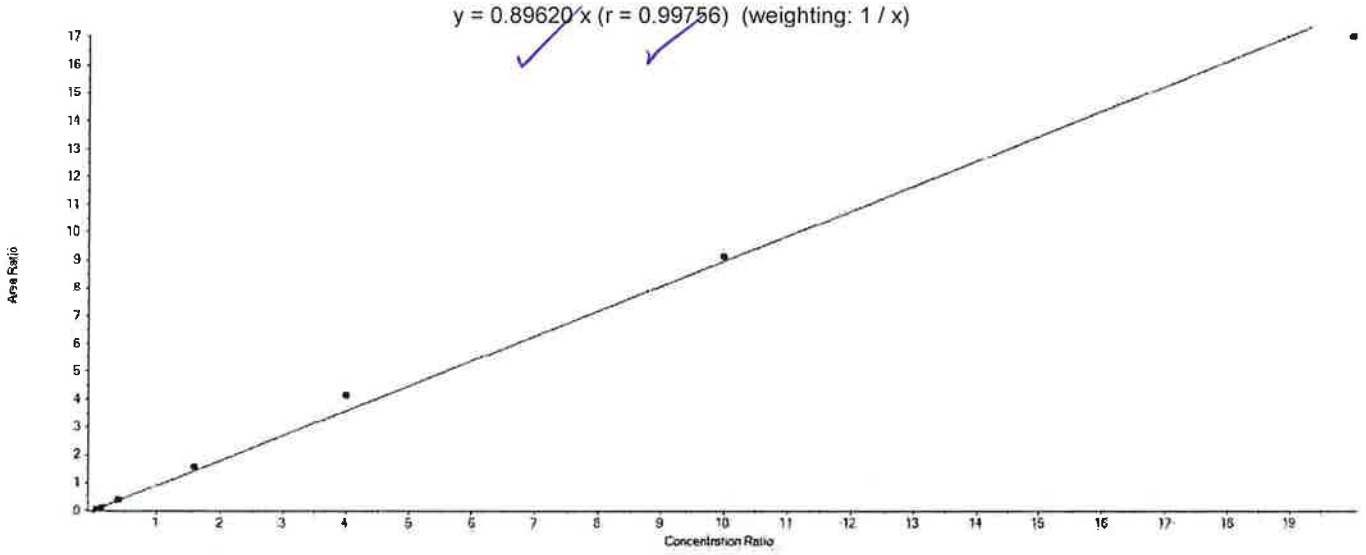
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFDoDA

y = 0.89620x (r = 0.99756) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	42566.8	1032784.2	True	5.00	0.041	7.75	1.000	0.200	0.230	15.0	50.0	
CAL2	120934.1	1096813.9	True	5.00	0.110	7.75	1.000	0.600	0.615	2.5	30.0	
CAL3	453251.3	1164562.2	True	5.00	0.389	7.74	1.000	2.000	2.171	8.6	30.0	
CAL4	1661667.3	1063138.1	True	5.00	1.563	7.74	1.000	8.000	8.720	9.0	30.0	
CAL5	3934621.1	944759.6	True	5.00	4.165	7.73	1.000	20.000	23.235	16.2	30.0	
CAL6	7651287.6	838692.0	True	5.00	9.123	7.74	1.000	50.000	50.897	1.8	30.0	
CAL7	11760698.5	691174.2	True	5.00	17.016	7.73	1.000	100.000	94.931	-5.1	30.0	

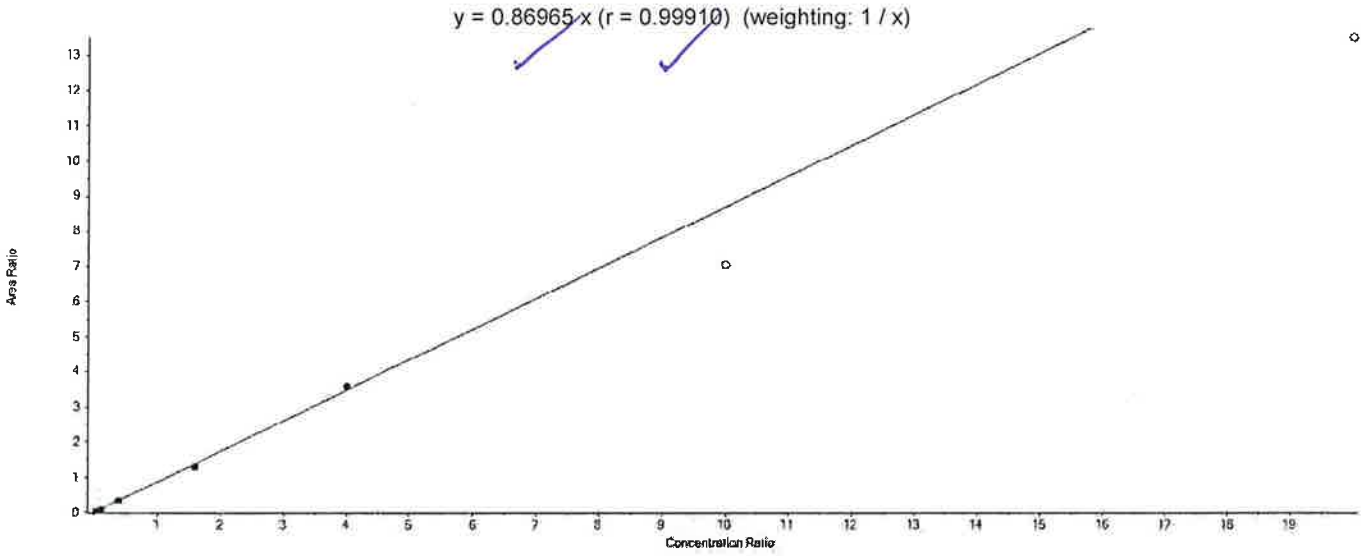
APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFTrDA



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	35878.4	1032784.2	True	5.00	0.035	8.04	1.040	0.200	0.200	-0.1	50.0	
CAL2	101163.0	1096813.9	True	5.00	0.092	8.04	1.040	0.600	0.530	-11.6	30.0	
CAL3	390633.2	1164562.2	True	5.00	0.335	8.03	1.040	2.000	1.929	-3.6	30.0	
CAL4	1394459.0	1063138.1	True	5.00	1.312	8.03	1.040	8.000	7.541	-5.7	30.0	
CAL5	3385095.1	944759.6	True	5.00	3.583	8.02	1.040	20.000	20.600	3.0	30.0	
CAL6	5891260.9	838692.0	False	5.00	7.024	8.03	1.040	50.000	40.386	-19.2	30.0	
CAL7	9315016.2	691174.2	False	5.00	13.477	8.02	1.040	100.000	77.485	-22.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

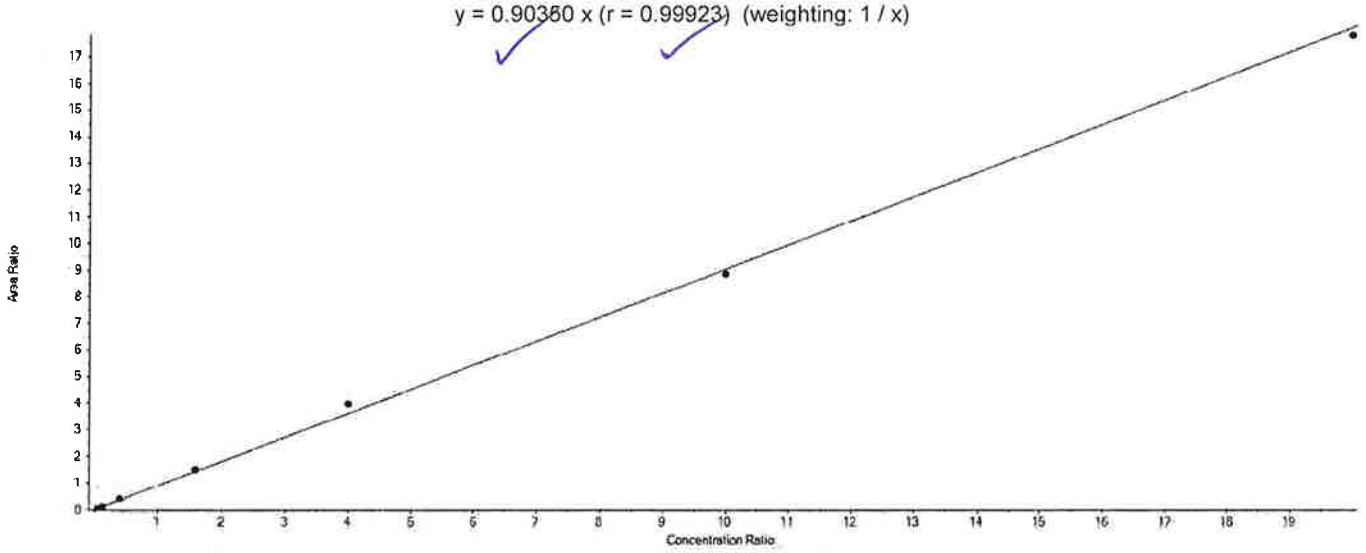
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFTeDA

y = 0.90360 x (r = 0.99923) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	33544.7	826907.4	True	5.00	0.041	8.34	1.000	0.200	0.224	12.2	50.0	
CAL2	99126.0	872521.9	True	5.00	0.114	8.33	1.000	0.600	0.629	4.8	30.0	
CAL3	371414.0	927708.5	True	5.00	0.400	8.32	1.000	2.000	2.216	10.8	30.0	
CAL4	1378385.7	917389.5	True	5.00	1.503	8.32	1.000	8.000	8.315	3.9	30.0	
CAL5	3192627.0	802888.6	True	5.00	3.976	8.31	1.000	20.000	22.006	10.0	30.0	
CAL6	6053232.5	684222.1	True	5.00	8.847	8.32	1.000	50.000	48.959	-2.1	30.0	
CAL7	8810464.7	495239.1	True	5.00	17.790	8.30	1.000	100.000	98.452	-1.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:49 pm, 4/10/18

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LC-MS/MS Analysis Report

Printed: 4/8/2018 12:05:00 PM
Template: MQ-ICAL-16NOV21.docx

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR07MCAL-27.wiff	4/8/2018 4:24:18 AM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	631732.5	13C4-PFBA	1858582.4	5.00	0.340	4.46	1.00	2.000	1.940	-3.0	30.0	
PFPeA	554763.9	13C5-PFPeA	1426714.6	5.00	0.389	5.07	1.00	2.000	1.976	-1.2	30.0	
PFBS	343338.3	13C3-PFBS	913208.7	4.65	0.376	5.12	1.00	1.770	1.718	-2.9	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	156022.8	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	575037.3	13C5-PFHxA	1554783.0	5.00	0.370	5.54	1.00	2.000	2.012	0.6	30.0	
PFPeS	N/A	13C3-PFBS	913208.7	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	252512.2	13C3-PFHxS	663064.4	4.73	0.381	5.98	1.00	1.890	1.790	-5.3	30.0	
PFHpA	490721.9	13C4-PFHpA	1208658.9	5.00	0.406	5.99	1.00	2.000	1.967	-1.7	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	123524.3	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	238017.5	13C3-PFHxS	663064.4	4.73	0.359	6.38	1.07	1.900	1.759	-7.4	30.0	
PFOA	452731.8	13C8-PFOA	1200833.7	5.00	0.377	6.40	1.00	2.000	2.025	1.2	30.0	
PFOS	268048.4	13C8-PFOS	733611.0	4.78	0.365	6.75	1.00	1.910	1.739	-9.0	30.0	
PFNA	491999.6	13C9-PFNA	1153598.9	5.00	0.426	6.78	1.00	2.000	1.991	-0.4	30.0	
PFOSA	N/A	13C8-PFOSA	1791867.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	733611.0	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	547826.1	13C6-PFDA	1639995.7	5.00	0.334	7.13	1.00	2.000	1.982	-0.9	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	224551.0	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	383774.6	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	183524.5	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	154163.7	d3-NMeFOSAA	364501.6	5.00	0.423	7.30	1.00	2.000	2.055	2.8	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	538967.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	176152.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	149152.3	13C8-PFOS	733611.0	4.78	0.203	7.40	1.10	1.930	1.721	-10.8	30.0	
PFUnDA	486150.5	13C7-PFUnDA	951029.4	5.00	0.511	7.44	1.00	2.000	2.300	15.0	30.0	
NEtFOSAA	137893.5	d5-NEtFOSAA	351466.1	5.00	0.392	7.47	1.00	2.000	1.840	-8.0	30.0	
PFDoDA	364384.5	13C2-PFDoDA	1056526.4	5.00	0.345	7.73	1.00	2.000	1.924	-3.8	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	224551.0	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	733611.0	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	296804.7	13C2-PFDoDA	1056526.4	5.00	0.281	8.02	1.04	2.000	1.615	-19.2	30.0	
PFTeDA	279594.4	13C2-PFTeDA	775730.9	5.00	0.360	8.31	1.00	2.000	1.995	-0.3	30.0	
PFHxDA	N/A	13C2-PFTeDA	775730.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	775730.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:49 pm, 4/10/18

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

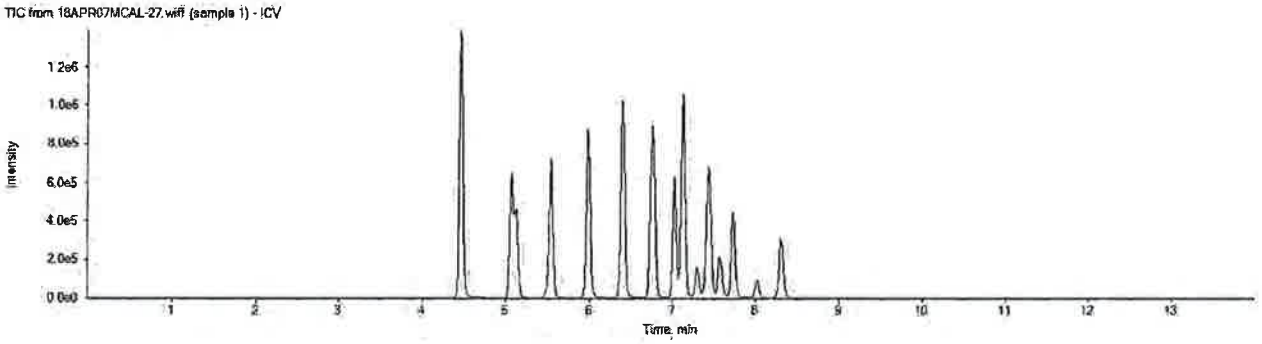
Analyte Quantitation Peak Table

Sample Name: ICV **Instrument Name:** LM24960 **File Name:** 18APR07MCAL-27.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	4.46	1.000	631732.5	A	13C4-PFBA	4.46	1858582.4	0.340	1.940
PFPeA	5.07	1.000	554763.9	A	13C5-PFPeA	5.07	1426714.6	0.389	1.976
PFBS	5.12	1.000	343338.3	A	13C3-PFBS	5.13	913208.7	0.376	1.718
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.50	156022.8	N/A	
PFHxA	5.54	1.000	575037.3	A	13C5-PFHxA	5.54	1554783.0	0.370	2.012
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.13	913208.7	N/A	
PFHxS	5.98	1.000	252512.2	A	13C3-PFHxS	5.98	663064.4	0.381	1.790
PFHpA	5.99	1.000	490721.9	A	13C4-PFHpA	5.99	1208658.9	0.406	1.967
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.39	123524.3	N/A	
PFHpS	6.38	1.070	238017.5	A	13C3-PFHxS	5.98	663064.4	0.359	1.759
PFOA	6.40	1.000	452731.8	A	13C8-PFOA	6.40	1200833.7	0.377	2.025
PFOS	6.75	1.000	268048.4	A	13C8-PFOS	6.75	733611.0	0.365	1.739
PFNA	6.78	1.000	491999.6	A	13C9-PFNA	6.78	1153598.9	0.426	1.991
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	7.03	1791867.7	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.75	733611.0	N/A	
PFDA	7.13	1.000	547826.1	A	13C6-PFDA	7.13	1639995.7	0.334	1.982
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.14	224551.0	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.42	383774.6	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.44	183524.5	N/A	
NMeFOSAA	7.30	1.000	154163.7	A	d3-NMeFOSAA	7.30	364501.6	0.423	2.055
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.57	538967.7	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.60	176152.7	N/A	
PFDS	7.40	1.100	149152.3	A	13C8-PFOS	6.75	733611.0	0.203	1.721
PFUnDA	7.44	1.000	486150.5	A	13C7-PFUnDA	7.44	951029.4	0.511	2.300
NEtFOSAA	7.47	1.000	137893.5	A	d5-NEtFOSAA	7.46	351466.1	0.392	1.840
PFDoDA	7.73	1.000	364384.5	A	13C2-PFDoDA	7.73	1056526.4	0.345	1.924
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.14	224551.0	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.75	733611.0	N/A	
PFTrDA	8.02	1.040	296804.7	A	13C2-PFDoDA	7.73	1056526.4	0.281	1.615
PFTeDA	8.31	1.000	279594.4	M	13C2-PFTeDA	8.31	775730.9	0.360	1.995
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.31	775730.9	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.31	775730.9	N/A	

Total Ion Chromatogram



APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:50 pm, 4/10/18

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LC-MS/MS Analysis Report

Printed: 4/8/2018 12:06:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

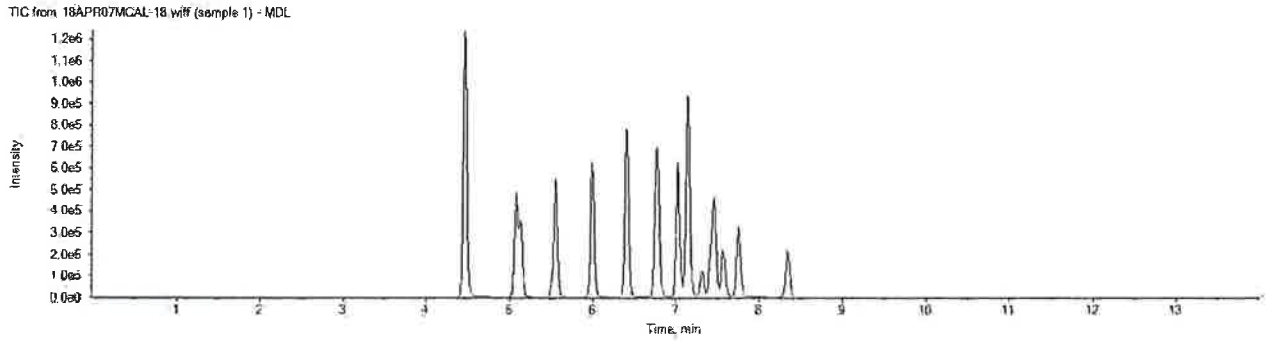
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24960 **File Name:** 18APR07MCAL-18.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	4.46	1.000	39077.4	M	13C4-PFBA	4.46	1822986.2	0.021	0.122
PFPeA	5.07	1.000	34150.3	M	13C5-PFPeA	5.08	1408868.8	0.024	0.123
PFBS	5.13	1.000	19598.5	A	13C3-PFBS	5.13	955478.9	0.021	0.094
4:2-FTS	5.50	1.000	16973.5	M	13C2-4:2-FTS	5.51	177534.7	0.096	0.513
PFHxA	5.55	1.000	33334.5	M	13C5-PFHxA	5.55	1572144.7	0.021	0.115
PFPeS	5.57	1.080	7849.8	M	13C3-PFBS	5.13	955478.9	0.008	0.093
PFHxS	5.99	1.000	14949.4	M	13C3-PFHxS	5.99	661360.0	0.023	0.106
PFHpA	5.99	1.000	26922.9	M	13C4-PFHpA	6.00	1170836.4	0.023	0.111
6:2-FTS	6.40	1.000	12495.8	M	13C2-6:2-FTS	6.40	124292.0	0.101	0.520
PFHpS	6.39	1.070	13201.7	M	13C3-PFHxS	5.99	661360.0	0.020	0.098
PFOA	6.41	1.000	30000.2	M	13C8-PFOA	6.41	1220875.9	0.025	0.132
PFOS	6.76	1.000	16697.5	M	13C8-PFOS	6.76	745709.1	0.022	0.107
PFNA	6.79	1.000	26542.0	M	13C9-PFNA	6.79	1112339.4	0.024	0.111
PFOSA	7.03	1.000	36753.7	M	13C8-PFOSA	7.02	1765843.1	0.021	0.113
PFNS	7.11	1.050	11830.1	M	13C8-PFOS	6.76	745709.1	0.016	0.100
PFDA	7.14	1.000	31528.1	M	13C6-PFDA	7.14	1674611.3	0.019	0.112
8:2-FTS	7.15	1.000	23986.8	M	13C2-8:2-FTS	7.16	249614.1	0.096	0.496
NMePFOSAE	7.43	1.000	9871.4	M	d7-NMePFOSAE	7.41	404203.3	0.024	0.114
NMePFOSA	7.44	1.000	4421.4	M	d3-NMePFOSA	7.44	187191.6	0.024	0.111
NMeFOSAA	7.32	1.000	9025.0	M	d3-NMeFOSAA	7.32	385084.8	0.023	0.114
NEtPFOSAE	7.57	1.000	13166.4	M	d9-NEtPFOSAE	7.56	533740.7	0.025	0.113
NEtPFOSA	7.60	1.000	3700.9	M	d5-NEtPFOSA	7.59	175172.0	0.021	0.111
PFDS	7.42	1.100	9905.8	M	13C8-PFOS	6.76	745709.1	0.013	0.112
PFUnDA	7.46	1.000	28780.4	M	13C7-PFUnDA	7.46	981039.7	0.029	0.132
NEtFOSAA	7.49	1.000	8622.0	M	d5-NEtFOSAA	7.48	386725.5	0.022	0.105
PFDoDA	7.75	1.000	21549.4	M	13C2-PFDoDA	7.75	1023118.2	0.021	0.118
10:2-FTS	7.79	1.090	17267.1	M	13C2-8:2-FTS	7.16	249614.1	0.069	0.467
PFDoS	8.00	1.180	3030.6	M	13C8-PFOS	6.76	745709.1	0.004	0.074
PFTrDA	8.04	1.040	16594.5	M	13C2-PFDoDA	7.75	1023118.2	0.016	0.093
PFTeDA	8.34	1.000	16025.6	M	13C2-PFTeDA	8.34	749062.8	0.021	0.118
PFHxDA	8.99	1.080	9731.8	M	13C2-PFTeDA	8.34	749062.8	0.013	0.105
PFODA	9.76	1.170	6097.8	M	13C2-PFTeDA	8.34	749062.8	0.008	0.095

Total Ion Chromatogram



APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:50 pm, 4/10/18

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

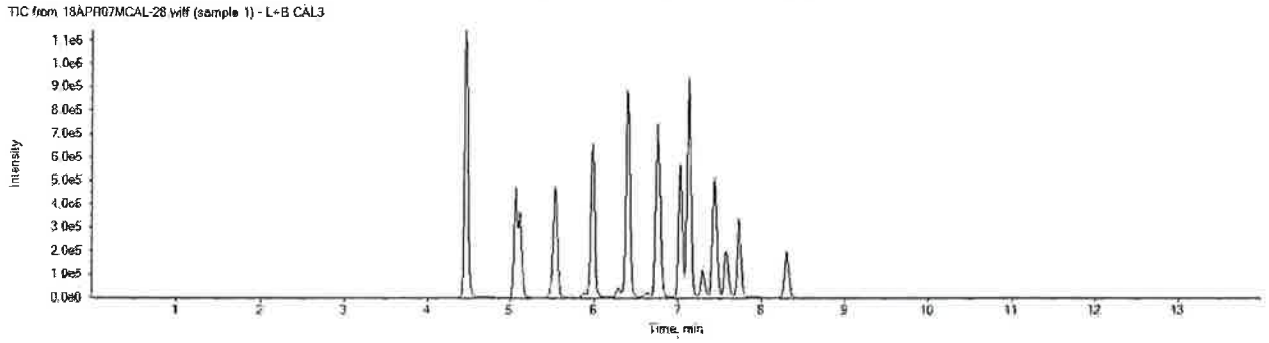
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM24960 **File Name:** 18APR07MCAL-28.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.46	1796967.7	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.07	1384632.0	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.13	918291.0	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.50	160945.1	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.55	1540991.2	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.13	918291.0	N/A	
PFHxS	5.98	1.000	250226.5	M	13C3-PFHxS	5.98	648870.9	0.386	1.812
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.99	1143323.7	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.39	129499.9	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	5.98	648870.9	N/A	
PFOA	6.40	1.000	382876.9	M	13C8-PFOA	6.40	1135188.4	0.337	1.811
PFOS	6.75	1.000	294925.1	M	13C8-PFOS	6.75	727782.8	0.405	1.928
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.78	1008946.6	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	7.03	1773769.1	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.75	727782.8	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.13	1632370.3	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.14	226522.8	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.42	378019.1	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.44	186315.7	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.30	358466.7	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.57	497566.6	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.60	167308.2	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.75	727782.8	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.44	925969.7	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.46	354826.8	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.73	983513.9	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.14	226522.8	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.75	727782.8	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.73	983513.9	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.30	651366.1	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.30	651366.1	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.30	651366.1	N/A	

Total Ion Chromatogram

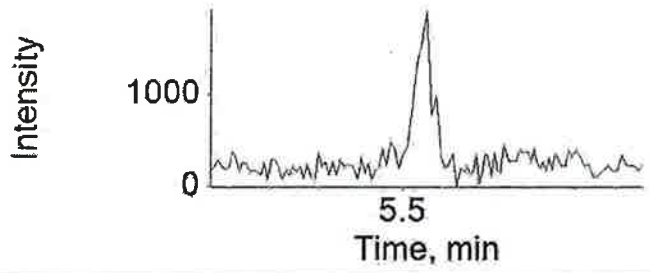


APPROVED
By DMW at 12:15 pm, 4/8/18

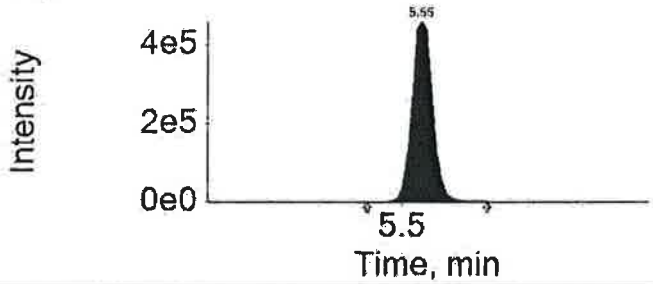
REVIEWED
By umar at 3:50 pm, 4/10/18

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

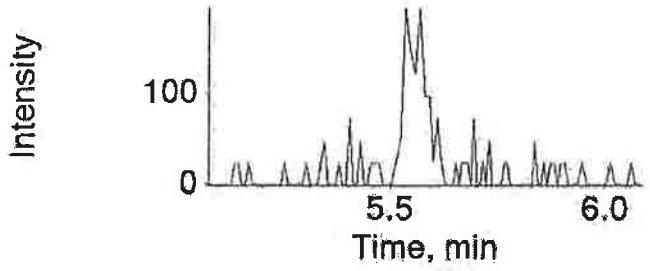
Analyte: PFHxA
313.0 / 269.0



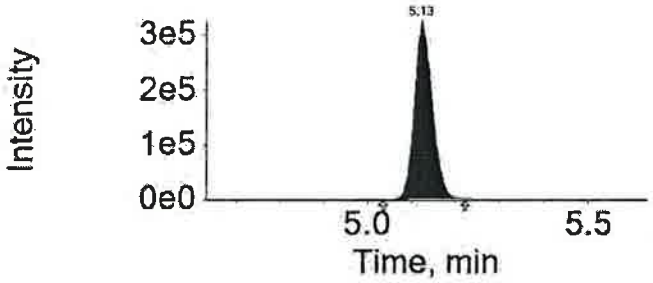
Extraction Standard: 13C5-PFHxA
318.0 / 273.0



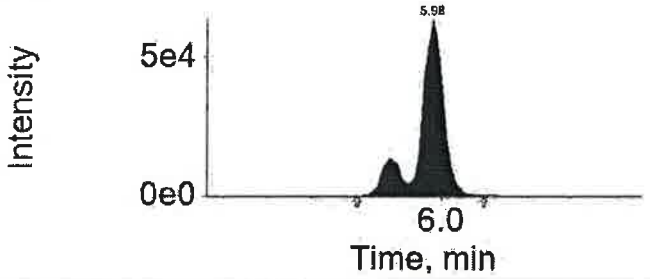
Analyte: PFPeS
349.0 / 80.0



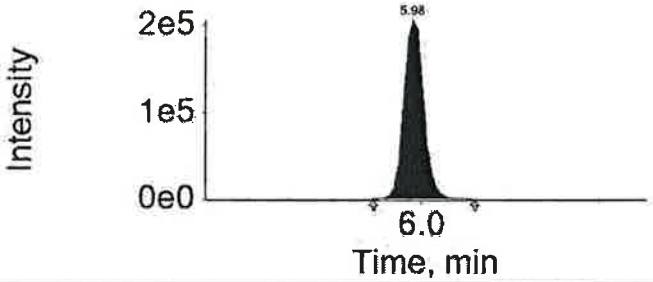
Extraction Standard: 13C3-PFBS
302.0 / 80.0



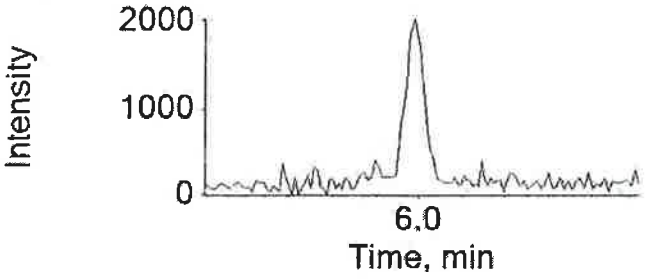
Analyte: PFHxS
399.0 / 80.0



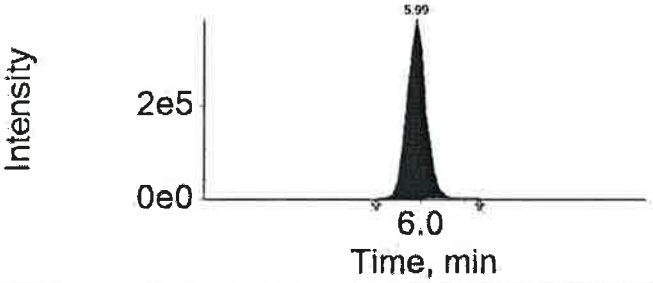
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0

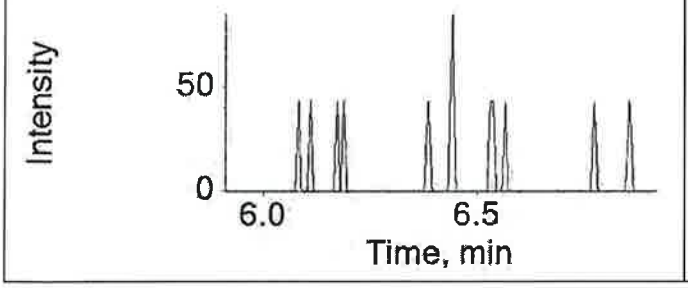


APPROVED
By DMW at 12:15 pm, 4/8/18

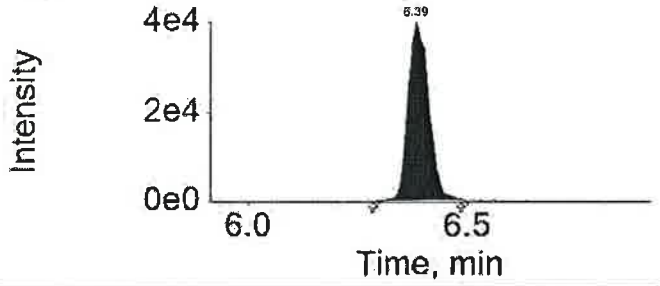
REVIEWED
By umar at 3:50 pm, 4/10/18

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

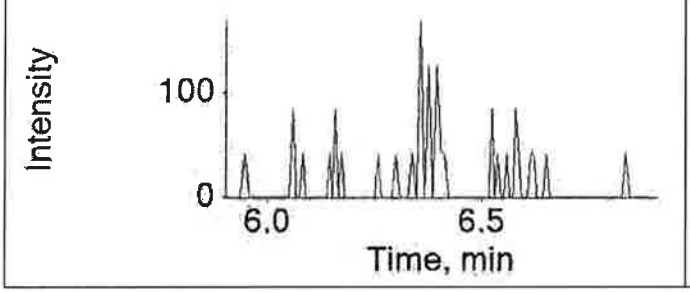
Analyte: 6:2-FTS
427.0 / 407.0



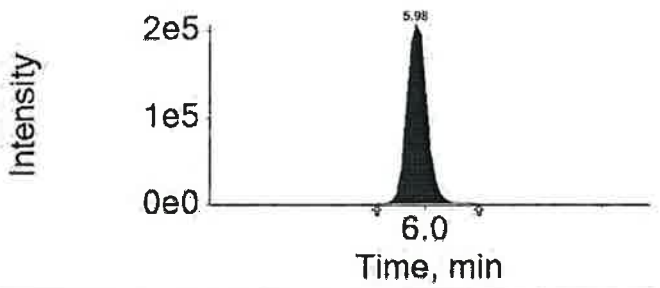
Extraction Standard: 13C2-6:2-FTS
429.0 / 409.0



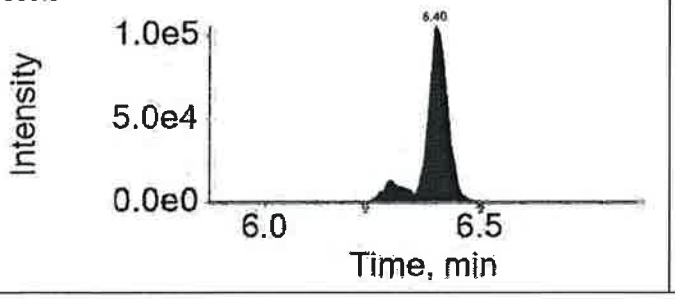
Analyte: PFHpS
449.0 / 80.0



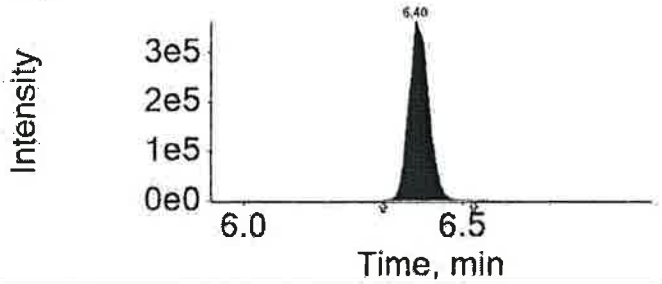
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



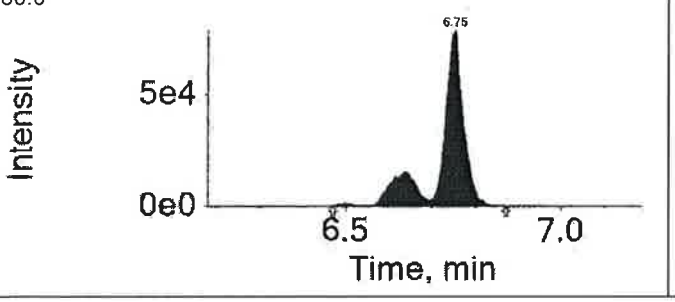
Analyte: PFOA
413.0 / 369.0



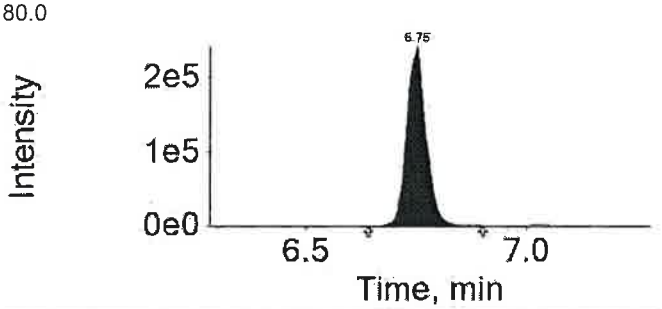
Extraction Standard: 13C8-PFOA
421.0 / 376.0



Analyte: PFOS
499.0 / 80.0



Extraction Standard: 13C8-PFOS
507.0 / 80.0



APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:50 pm, 4/10/18

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.246	23.2	±50
CAL2	0.111	0.60	0.631	5.1	±30
CAL3	0.365	2.00	2.085	4.3	±30
CAL4	1.477	8.00	8.430	5.4	±30
CAL5	3.977	20.00	22.700	13.5	±30
CAL6	8.762	50.00	50.008	0.0	±30
CAL7	16.943	100.00	96.700	-3.3	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.20	0.226	13.1	±50
CAL2	0.124	0.60	0.631	5.1	±30
CAL3	0.418	2.00	2.122	6.1	±30
CAL4	1.661	8.00	8.439	5.5	±30
CAL5	4.461	20.00	22.667	13.3	±30
CAL6	9.781	50.00	49.695	-0.6	±30
CAL7	19.096	100.00	97.020	-3.0	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.17	0.195	14.8	±50
CAL2	0.116	0.53	0.532	0.4	±30
CAL3	0.390	1.77	1.781	0.6	±30
CAL4	1.621	7.08	7.409	4.6	±30
CAL5	4.221	17.69	19.288	9.0	±30
CAL6	9.442	44.22	43.149	-2.4	±30
CAL7	19.160	88.45	87.556	-1.0	±30

4:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.118	0.58	0.632	9.0	±50
CAL2	0.403	1.98	2.161	9.1	±30
CAL3	0.994	4.90	5.335	8.9	±30
CAL4	1.789	10.04	9.604	-4.3	±30
CAL5	2.284	12.49	12.257	-1.9	±30

* Outside QC Limits

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FORM 06
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SDG No.: SBN09

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

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CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.224	12.0	±50
CAL2	0.112	0.60	0.611	1.8	±30
CAL3	0.406	2.00	2.207	10.4	±30
CAL4	1.562	8.00	8.496	6.2	±30
CAL5	4.215	20.00	22.928	14.6	±30
CAL6	9.015	50.00	49.041	-1.9	±30
CAL7	17.884	100.00	97.293	-2.7	±30

Perfluoropentanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.019	0.19	0.213	11.9	±50
CAL2	0.053	0.56	0.596	6.4	±30
CAL3	0.180	1.88	2.039	8.5	±30
CAL4	0.746	7.50	8.456	12.8	±30
CAL5	1.844	18.76	20.894	11.4	±30
CAL6	3.997	46.90	45.281	-3.5	±30
CAL7	8.130	93.80	92.111	-1.8	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.19	0.196	3.1	±50
CAL2	0.116	0.57	0.546	-4.2	±30
CAL3	0.405	1.89	1.902	0.6	±30
CAL4	1.643	7.56	7.723	2.2	±30
CAL5	4.346	18.91	20.427	8.0	±30
CAL6	9.919	47.28	46.616	-1.4	±30
CAL7	19.902	94.55	93.540	-1.1	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.050	0.20	0.240	20.0	±50
CAL2	0.126	0.60	0.612	1.9	±30
CAL3	0.446	2.00	2.158	7.9	±30
CAL4	1.770	8.00	8.573	7.2	±30
CAL5	4.669	20.00	22.613	13.1	±30
CAL6	10.171	50.00	49.265	-1.5	±30
CAL7	20.096	100.00	97.340	-2.7	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

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CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

6:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.272	1.30	1.405	8.1	±50
CAL2	0.414	2.09	2.143	2.5	±30
CAL3	1.028	5.21	5.318	2.1	±30
CAL4	2.010	10.43	10.397	-0.3	±30
CAL5	2.476	13.04	12.807	-1.8	±30

Perfluoroheptanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.19	0.199	4.9	±50
CAL2	0.116	0.57	0.568	-0.4	±30
CAL3	0.374	1.90	1.830	-3.7	±30
CAL4	1.538	7.61	7.535	-1.0	±30
CAL5	4.155	19.03	20.359	7.0	±30
CAL6	9.661	47.58	47.338	-0.5	±30
CAL7	19.225	95.15	94.200	-1.0	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.236	18.2	±50
CAL2	0.120	0.60	0.647	7.8	±30
CAL3	0.395	2.00	2.119	6.0	±30
CAL4	1.581	8.00	8.493	6.2	±30
CAL5	4.038	20.00	21.687	8.4	±30
CAL6	9.302	50.00	49.962	-0.1	±30
CAL7	18.182	100.00	97.656	-2.3	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.19	0.199	4.6	±50
CAL2	0.116	0.57	0.553	-3.0	±30
CAL3	0.397	1.91	1.887	-1.2	±30
CAL4	1.620	7.65	7.706	0.7	±30
CAL5	4.454	19.12	21.192	10.8	±30
CAL6	10.080	47.80	47.963	0.3	±30
CAL7	19.616	95.60	93.340	-2.4	±30

* Outside QC Limits

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LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

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CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.052	0.20	0.245	22.5	±50
CAL2	0.143	0.60	0.667	11.2	±30
CAL3	0.475	2.00	2.218	10.9	±30
CAL4	1.820	8.00	8.497	6.2	±30
CAL5	4.808	20.00	22.450	12.2	±30
CAL6	10.824	50.00	50.541	1.1	±30
CAL7	20.599	100.00	96.182	-3.8	±30

Perfluorooctanesulfonamide	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.210	5.1	±50
CAL2	0.121	0.60	0.657	9.5	±30
CAL3	0.408	2.00	2.216	10.8	±30
CAL4	1.570	8.00	8.520	6.5	±30
CAL5	1.901	10.00	10.321	3.2	±30
CAL6	9.449	50.00	51.295	2.6	±30
CAL7	17.975	100.00	97.579	-2.4	±30

Perfluorononanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.033	0.19	0.207	8.9	±50
CAL2	0.083	0.58	0.519	-10.4	±30
CAL3	0.290	1.92	1.823	-5.1	±30
CAL4	1.173	7.68	7.371	-4.0	±30
CAL5	3.331	19.20	20.928	9.0	±30
CAL6	7.910	48.00	49.693	3.5	±30
CAL7	14.808	96.00	93.030	-3.1	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.232	15.8	±50
CAL2	0.105	0.60	0.624	4.0	±30
CAL3	0.353	2.00	2.096	4.8	±30
CAL4	1.475	8.00	8.751	9.4	±30
CAL5	3.836	20.00	22.757	13.8	±30
CAL6	8.402	50.00	49.847	-0.3	±30
CAL7	16.265	100.00	96.493	-3.5	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

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CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

8:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.304	1.32	1.570	19.0	±50
CAL2	0.451	2.11	2.329	10.4	±30
CAL3	1.120	5.27	5.788	9.8	±30
CAL4	1.987	10.54	10.263	-2.6	±30
CAL5	2.412	13.17	12.460	-5.4	±30

NMePFOSAE	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.213	6.4	±50
CAL2	0.129	0.60	0.601	0.2	±30
CAL3	0.450	2.00	2.102	5.1	±30
CAL4	1.598	8.00	7.465	-6.7	±30
CAL5	2.115	10.00	9.878	-1.2	±30
CAL6	10.877	50.00	50.797	1.6	±30
CAL7	21.357	100.00	99.744	-0.3	±30

NMePFOSA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.048	0.20	0.224	12.1	±50
CAL2	0.136	0.60	0.637	6.2	±30
CAL3	0.417	2.00	1.952	-2.4	±30
CAL4	1.694	8.00	7.937	-0.8	±30
CAL5	2.120	10.00	9.929	-0.7	±30
CAL6	10.809	50.00	50.634	1.3	±30
CAL7	21.237	100.00	99.487	-0.5	±30

NMeFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.209	4.7	±50
CAL2	0.139	0.60	0.677	12.8	±30
CAL3	0.426	2.00	2.072	3.6	±30
CAL4	1.699	8.00	8.255	3.2	±30
CAL5	2.079	10.00	10.104	1.0	±30
CAL6	9.780	50.00	47.522	-5.0	±30
CAL7	20.984	100.00	101.960	2.0	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960

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Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

NEtPFOSAE	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.211	5.5	±50
CAL2	0.136	0.60	0.621	3.6	±30
CAL3	0.501	2.00	2.291	14.5	±30
CAL4	1.724	8.00	7.890	-1.4	±30
CAL5	2.183	10.00	9.989	-0.1	±30
CAL6	11.463	50.00	52.460	4.9	±30
CAL7	21.269	100.00	97.338	-2.7	±30

NEtPFOSA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.205	2.4	±50
CAL2	0.118	0.60	0.617	2.9	±30
CAL3	0.403	2.00	2.107	5.4	±30
CAL4	1.567	8.00	8.193	2.4	±30
CAL5	1.834	10.00	9.592	-4.1	±30
CAL6	9.304	50.00	48.662	-2.7	±30
CAL7	19.392	100.00	101.424	1.4	±30

Perfluorodecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.019	0.19	0.158	-17.0	±50
CAL2	0.062	0.58	0.525	-9.5	±30
CAL3	0.202	1.93	1.709	-11.5	±30
CAL4	0.876	7.70	7.410	-3.8	±30
CAL5	2.413	19.26	20.424	6.0	±30
CAL6	5.849	48.15	49.499	2.8	±30
CAL7	11.153	96.30	94.385	-2.0	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.056	0.20	0.254	26.8	±50
CAL2	0.168	0.60	0.756	25.9	±30
CAL3	0.512	2.00	2.303	15.2	±30
CAL4	2.108	8.00	9.484	18.5	±30
CAL5	5.215	20.00	23.460	17.3	±30
CAL6	11.267	50.00	50.689	1.4	±30
CAL7	20.862	100.00	93.855	-6.1	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

NEtFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.179	-10.4	±50
CAL2	0.118	0.60	0.552	-8.0	±30
CAL3	0.438	2.00	2.055	2.7	±30
CAL4	1.568	8.00	7.351	-8.1	±30
CAL5	1.975	10.00	9.262	-7.4	±30
CAL6	10.396	50.00	48.750	-2.5	±30
CAL7	21.891	100.00	102.652	2.7	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.230	15.0	±50
CAL2	0.110	0.60	0.615	2.5	±30
CAL3	0.389	2.00	2.171	8.6	±30
CAL4	1.563	8.00	8.720	9.0	±30
CAL5	4.165	20.00	23.235	16.2	±30
CAL6	9.123	50.00	50.897	1.8	±30
CAL7	17.016	100.00	94.931	-5.1	±30

10:2-fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.200	1.33	1.353	1.7	±50
CAL2	0.308	2.12	2.079	-2.0	±30
CAL3	0.827	5.30	5.585	5.4	±30
CAL4	1.510	10.60	10.193	-3.8	±30
CAL5	1.985	13.26	13.401	1.1	±30

Perfluorododecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.011	0.19	0.204	7.3	±50
CAL2	0.027	0.58	0.485	-16.5	±30
CAL3	0.101	1.94	1.831	-5.6	±30
CAL4	0.392	7.74	7.130	-7.9	±30
CAL5	1.128	19.36	20.512	6.0	±30
CAL6	2.717	48.40	49.424	2.1	±30
CAL7	5.246	96.80	95.425	-1.4	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.035	0.20	0.200	-0.1	±50
CAL2	0.092	0.60	0.530	-11.6	±30
CAL3	0.335	2.00	1.929	-3.6	±30
CAL4	1.312	8.00	7.541	-5.7	±30
CAL5	3.583	20.00	20.600	3.0	±30
CAL6	7.024	50.00	40.386	-19.2	±30
CAL7	13.477	100.00	77.485	-22.5	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.224	12.2	±50
CAL2	0.114	0.60	0.629	4.8	±30
CAL3	0.400	2.00	2.216	10.8	±30
CAL4	1.503	8.00	8.315	3.9	±30
CAL5	3.976	20.00	22.006	10.0	±30
CAL6	8.847	50.00	48.959	-2.1	±30
CAL7	17.790	100.00	98.452	-1.5	±30

Perfluorohexadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.024	0.20	0.193	-3.4	±50
CAL2	0.062	0.60	0.502	-16.3	±30
CAL3	0.215	2.00	1.733	-13.3	±30
CAL4	0.822	8.00	6.613	-17.3	±30
CAL5	2.405	20.00	19.354	-3.2	±30
CAL6	5.592	50.00	45.001	-10.0	±30
CAL7	13.346	100.00	107.403	7.4	±30

Perfluorooctadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.015	0.20	0.171	-14.3	±50
CAL2	0.042	0.60	0.484	-19.3	±30
CAL3	0.151	2.00	1.753	-12.3	±30
CAL4	0.610	8.00	7.097	-11.3	±30
CAL5	1.754	20.00	20.409	2.0	±30
CAL6	4.374	50.00	50.885	1.8	±30
CAL7	11.008	100.00	128.076	28.1	±30

* Outside QC Limits

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR07MCAL-29.WIFF

Date/Time Analyzed: 04/08/2018 04:53 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.10	5.03	±30
Perfluoropentanoic acid	2.00	2.09	4.47	±30
Perfluorobutanesulfonate	1.77	1.77	0.17	±30
4:2 fluorotelomersulfonate	4.90	5.24	6.99	±30
Perfluorohexanoic acid	2.00	2.10	4.78	±30
Perfluoropentanesulfonate	1.88	2.00	6.55	±30
Perfluorohexanesulfonate	1.89	1.88	-0.43	±30
Perfluoroheptanoic acid	2.00	2.10	4.80	±30
6:2 fluorotelomersulfonate	5.21	5.72	9.75	±30
Perfluoroheptanesulfonate	1.90	1.81	-4.74	±30
Perfluorooctanoic acid	2.00	2.26	12.78	±30
Perfluoro-octanesulfonate	1.91	1.92	0.52	±30
Perfluorononanoic acid	2.00	2.24	11.81	±30
Perfluorooctanesulfonamide	2.00	2.24	11.87	±30
Perfluorononanesulfonate	1.92	1.72	-10.66	±30
Perfluorodecanoic acid	2.00	2.21	10.62	±30
8:2 fluorotelomersulfonate	5.27	5.57	5.68	±30
NMePFOSAE	2.00	2.18	9.19	±30
NMePFOSA	2.00	2.06	2.77	±30
NMeFOSAA	2.00	2.28	13.80	±30

* Outside QC Limits.

SBN09 - Page 123 of 2021

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR07MCAL-29.WIFF

Date/Time Analyzed: 04/08/2018 04:53 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	2.00	2.24	11.78	±30
NEtPFOSA	2.00	2.05	2.36	±30
Perfluorodecanesulfonate	1.93	1.80	-6.56	±30
Perfluoroundecanoic acid	2.00	2.40	19.78	±30
NEtFOSAA	2.00	1.92	-3.79	±30
Perfluorododecanoic acid	2.00	2.15	7.26	±30
10:2-fluorotelomersulfonate	5.30	5.34	0.70	±30
Perfluorododecanesulfonate	1.94	1.67	-14.10	±30
Perfluorotridecanoic acid	2.00	1.84	-7.92	±30
Perfluorotetradecanoic acid	2.00	2.11	5.55	±30
Perfluorohexadecanoic acid	2.00	1.70	-15.16	±30
Perfluorooctadecanoic acid	2.00	1.76	-11.79	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR08-53.WIFF

Date/Time Analyzed: 04/08/2018 23:31 Lab Sample ID: CCV6_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.15	7.71	±30
Perfluoropentanoic acid	2.00	2.06	3.25	±30
Perfluorobutanesulfonate	1.77	1.74	-1.87	±30
4:2 fluorotelomersulfonate	4.90	5.13	4.75	±30
Perfluorohexanoic acid	2.00	2.15	7.37	±30
Perfluoropentanesulfonate	1.88	1.97	4.85	±30
Perfluorohexanesulfonate	1.89	1.80	-5.00	±30
Perfluoroheptanoic acid	2.00	2.16	8.12	±30
6:2 fluorotelomersulfonate	5.21	5.44	4.44	±30
Perfluoroheptanesulfonate	1.90	1.76	-7.53	±30
Perfluorooctanoic acid	2.00	2.11	5.50	±30
Perfluoro-octanesulfonate	1.91	1.92	0.58	±30
Perfluorononanoic acid	2.00	2.23	11.32	±30
Perfluorooctanesulfonamide	2.00	2.29	14.48	±30
Perfluorononanesulfonate	1.92	1.91	-0.67	±30
Perfluorodecanoic acid	2.00	2.10	5.08	±30
8:2 fluorotelomersulfonate	5.27	5.70	8.20	±30
NMePFOSAE	2.00	2.29	14.51	±30
NMePFOSA	2.00	2.05	2.61	±30
NMeFOSAA	2.00	2.15	7.70	±30

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR08-53.WIFF

Date/Time Analyzed: 04/08/2018 23:31 Lab Sample ID: CCV6_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	2.00	2.11	5.61	±30
NEtPFOSA	2.00	2.05	2.70	±30
Perfluorodecanesulfonate	1.93	1.85	-4.38	±30
Perfluoroundecanoic acid	2.00	2.53	26.70	±30
NEtFOSAA	2.00	1.91	-4.38	±30
Perfluorododecanoic acid	2.00	2.24	12.10	±30
10:2-fluorotelomersulfonate	5.30	5.52	4.19	±30
Perfluorododecanesulfonate	1.94	1.76	-9.27	±30
Perfluorotridecanoic acid	2.00	1.85	-7.30	±30
Perfluorotetradecanoic acid	2.00	2.09	4.55	±30
Perfluorohexadecanoic acid	2.00	1.85	-7.38	±30
Perfluorooctadecanoic acid	2.00	2.02	0.87	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR08-67.WIFF

Date/Time Analyzed: 04/09/2018 02:55 Lab Sample ID: CCV7_CAL4

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.46	5.76	±30
Perfluoropentanoic acid	8.00	8.35	4.33	±30
Perfluorobutanesulfonate	7.08	6.83	-3.59	±30
4:2 fluorotelomersulfonate	10.04	9.92	-1.23	±30
Perfluorohexanoic acid	8.00	8.08	1.04	±30
Perfluoropentanesulfonate	7.50	7.65	1.94	±30
Perfluorohexanesulfonate	7.56	7.76	2.63	±30
Perfluoroheptanoic acid	8.00	8.54	6.72	±30
6:2 fluorotelomersulfonate	10.43	10.42	-0.11	±30
Perfluoroheptanesulfonate	7.61	8.01	5.28	±30
Perfluorooctanoic acid	8.00	8.62	7.74	±30
Perfluoro-octanesulfonate	7.65	7.53	-1.58	±30
Perfluorononanoic acid	8.00	8.63	7.83	±30
Perfluorooctanesulfonamide	8.00	8.48	6.05	±30
Perfluorononanesulfonate	7.68	7.54	-1.78	±30
Perfluorodecanoic acid	8.00	8.30	3.70	±30
8:2 fluorotelomersulfonate	10.54	10.93	3.69	±30
NMePFOSAE	8.00	8.45	5.58	±30
NMePFOSA	8.00	7.47	-6.60	±30
NMeFOSAA	8.00	8.21	2.60	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN09

Instrument ID: 24960 Lab File ID: 18APR08-67.WIFF

Date/Time Analyzed: 04/09/2018 02:55 Lab Sample ID: CCV7_CAL4

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	8.00	8.14	1.72	±30
NEtPFOSA	8.00	7.71	-3.61	±30
Perfluorodecanesulfonate	7.70	7.47	-2.97	±30
Perfluoroundecanoic acid	8.00	9.77	22.11	±30
NEtFOSAA	8.00	7.46	-6.74	±30
Perfluorododecanoic acid	8.00	8.60	7.45	±30
10:2-fluorotelomersulfonate	10.60	10.79	1.75	±30
Perfluorododecanesulfonate	7.74	7.07	-8.64	±30
Perfluorotridecanoic acid	8.00	6.82	-14.76	±30
Perfluorotetradecanoic acid	8.00	8.62	7.77	±30
Perfluorohexadecanoic acid	8.00	7.46	-6.70	±30
Perfluorooctadecanoic acid	8.00	8.71	8.88	±30

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN09
Matrix: WATER

18092009		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1521482	1927063	1069642	472838
UPPER LIMIT		2282223	2890595	1604463	709257
LOWER LIMIT		760741	963532	534821	236419
LAB SAMPLE ID	**DATE ANALYZED**				
LCS092009	04/05/18 15:40	1713328	2008816	1256748	516211
LCSDA	04/05/18 15:55	1719837	2165029	1269362	521502
BLK092009	04/05/18 16:26	1696202	2164507	1289355	512107
9535320	04/05/18 17:13	1768491	2148783	1190758	525270
9535321	04/05/18 17:29	1943790	2315675	1221714	521507
9535322	04/05/18 17:44	1772440	2093535	1199463	524283

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN09
Matrix: SOIL

18102019		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1163606	1442107	926861	371819
UPPER LIMIT		1745409	2163161	1390292	557729
LOWER LIMIT		581803	721054	463431	185910
LAB SAMPLE ID	**DATE ANALYZED**				
LCS102019	04/18/18 09:59	1811699 *	1769358	1085961	413141
BLK102019	04/18/18 11:02	2007040 *	1990356	1169307	405801
9535313	04/18/18 12:04	1379510	1255628	1112857	409137
9535326	04/18/18 12:19	1574379	1075611	1113940	409070
9535313DL	04/18/18 17:14	1421776	1574734	1096058	411344
9535326DL	04/19/18 14:33	1403431	1628483	1085097	426264

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN09
Matrix: SOIL

18093014		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		700409	720255	1219379	545874
UPPER LIMIT		1050614	1080383	1829069	818811
LOWER LIMIT		350205	360128	609690	272937
LAB SAMPLE ID	**DATE ANALYZED**				
LCSA093014	04/06/18 01:26	767212	812079	1443857	626430
LCSDA	04/06/18 01:55	903534	746064	1390554	621683
BLKA093014	04/06/18 02:38	819706	781187	1443506	611961
9535317	04/06/18 04:35	1088935 *	945633	1562777	629670
9535317RE	04/06/18 07:44	1120385 *	999618	1608283	680480
9535312	04/06/18 07:58	1087983 *	348556 *	1645813	690591
9535312DL	04/06/18 08:13	915011	775403	1581771	722247
9535314	04/06/18 08:27	967761	817090	1528419	677010
9535315	04/06/18 08:42	951437	812017	1560686	690093
9535316	04/06/18 08:56	917374	812118	1578640	699423
9535318	04/06/18 09:11	918200	776133	1543978	692852
9535319DL	04/06/18 09:40	834913	777349	1548118	696571
9535323	04/06/18 09:54	946801	812124	1536857	689248
9535324	04/06/18 10:38	932341	803956	1502552	692050
9535325	04/06/18 10:53	952247	714864	1461551	637473

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN09
Matrix: SOIL

18093014		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1007241	979042	1589581	723192
UPPER LIMIT		1510862	1468563	2384372	1084788
LOWER LIMIT		503621	489521	794791	361596
LAB SAMPLE ID	**DATE ANALYZED**				
9535319	04/09/18 00:58	1087777	442896 *	1748541	808297

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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LC-MS/MS Sample Run Log

Printed: 4/7/2018 10:59:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24743

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR03MCAL-09.wiff	MDL	N/A	4/3/2018 5:30:13 PM
18APR03MCAL-10.wiff	CAL1	N/A	4/3/2018 5:45:46 PM
18APR03MCAL-11.wiff	CAL2	N/A	4/3/2018 6:01:16 PM
18APR03MCAL-12.wiff	CAL3	N/A	4/3/2018 6:16:46 PM
18APR03MCAL-13.wiff	CAL4	N/A	4/3/2018 6:32:19 PM
18APR03MCAL-14.wiff	CAL5	N/A	4/3/2018 6:47:49 PM
18APR03MCAL-15.wiff	CAL6	N/A	4/3/2018 7:03:19 PM
18APR03MCAL-16.wiff	CAL7	N/A	4/3/2018 7:18:49 PM
18APR03MCAL-17.wiff	Instrument Blank	N/A	4/3/2018 7:34:19 PM
18APR03MCAL-18.wiff	ICV	N/A	4/3/2018 7:49:49 PM
18APR03MCAL-19.wiff	L+B CAL3	N/A	4/3/2018 8:05:22 PM
18APR03MCAL-20.wiff	CCV1_CAL3	N/A	4/3/2018 8:20:55 PM
18APR05-01.wiff	CCV1_CAL3	N/A	4/5/2018 9:58:50 AM
18APR05-02.wiff	Instrument Blank	N/A	4/5/2018 10:14:20 AM
18APR05-03.wiff	LCS092009	18092009	4/5/2018 3:40:20 PM
18APR05-04.wiff	LCSDA	18092009	4/5/2018 3:55:50 PM
18APR05-05.wiff	Solvent	NA	4/5/2018 4:11:20 PM
18APR05-06.wiff	BLK092009	18092009	4/5/2018 4:26:53 PM
18APR05-07.wiff	9535292	18092009	4/5/2018 4:42:26 PM
18APR05-08.wiff	9535293	18092009	4/5/2018 4:57:59 PM
18APR05-09.wiff	9535320	18092009	4/5/2018 5:13:29 PM
18APR05-10.wiff	9535321	18092009	4/5/2018 5:29:02 PM
18APR05-11.wiff	9535322	18092009	4/5/2018 5:44:32 PM
18APR05-12.wiff	9536665	18092009	4/5/2018 6:00:05 PM
18APR05-13.wiff	9536666	18092009	4/5/2018 6:15:38 PM
18APR05-14.wiff	CCV2_CAL4	NA	4/5/2018 6:31:08 PM
18APR05-15.wiff	Solvent	NA	4/5/2018 6:46:41 PM
18APR05-16.wiff	9536667	18092009	4/5/2018 7:02:11 PM
18APR05-17.wiff	9536674	18092009	4/5/2018 7:17:41 PM
18APR05-18.wiff	9536687	18092009	4/5/2018 7:33:11 PM
18APR05-19.wiff	9536688	18092009	4/5/2018 7:48:41 PM
18APR05-20.wiff	CCV3_CAL5	N/A	4/5/2018 8:04:11 PM
18APR05-21.wiff	solvent	N/A	4/5/2018 8:19:41 PM
18APR05-22.wiff	solvent	N/A	4/5/2018 8:35:14 PM
18APR05-23.wiff	solvent	N/A	4/5/2018 8:50:44 PM
18APR05-24.wiff	solvent	N/A	4/5/2018 9:06:14 PM
18APR05-25.wiff	CCV4_CAL1	N/A	4/5/2018 9:21:47 PM
18APR05-26.wiff	Instrument Blank	N/A	4/5/2018 9:37:21 PM
18APR05-27.wiff	LCS087009	18087009	4/5/2018 9:52:54 PM
18APR05-28.wiff	LCSDA	18087009	4/5/2018 10:08:27 PM
18APR05-29.wiff	9522075MS	18087009	4/5/2018 10:24:00 PM
18APR05-30.wiff	solvent	N/A	4/5/2018 10:39:33 PM
18APR05-31.wiff	BLK087009	18087009	4/5/2018 10:55:03 PM
18APR05-32.wiff	9522075BKG	18087009	4/5/2018 11:10:33 PM
18APR05-33.wiff	9522076	18087009	4/5/2018 11:26:06 PM
18APR05-34.wiff	9522077	18087009	4/5/2018 11:41:36 PM
18APR05-35.wiff	9522078	18087009	4/5/2018 11:57:06 PM
18APR05-36.wiff	9522079	18087009	4/6/2018 12:12:36 AM
18APR05-37.wiff	9522080	18087009	4/6/2018 12:28:06 AM
18APR05-38.wiff	CCV5_CAL2	N/A	4/6/2018 12:43:36 AM
18APR05-39.wiff	solvent	N/A	4/6/2018 12:59:09 AM
18APR05-40.wiff	9522081	18087009	4/6/2018 1:14:42 AM
18APR05-41.wiff	9522082	18087009	4/6/2018 1:30:15 AM
18APR05-42.wiff	9522083	18087009	4/6/2018 1:45:48 AM
18APR05-43.wiff	9522084	18087009	4/6/2018 2:01:21 AM
18APR05-44.wiff	9522085	18087009	4/6/2018 2:16:54 AM
18APR05-45.wiff	9522086	18087009	4/6/2018 2:32:27 AM

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Printed: 4/7/2018 10:59:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24743

18APR05-46.wiff	9522087	18087009	4/6/2018 2:48:00 AM
18APR05-47.wiff	9522088	18087009	4/6/2018 3:03:33 AM
18APR05-48.wiff	9522089	18087009	4/6/2018 3:19:06 AM
18APR05-49.wiff	9522090	18087009	4/6/2018 3:34:36 AM
18APR05-50.wiff	CCV6_CAL3	N/A	4/6/2018 3:50:06 AM
18APR05-51.wiff	solvent	N/A	4/6/2018 4:05:39 AM
18APR05-52.wiff	9522091	18087009	4/6/2018 4:21:12 AM
18APR05-53.wiff	9522092	18087009	4/6/2018 4:36:42 AM
18APR05-54.wiff	9522093	18087009	4/6/2018 4:52:12 AM
18APR05-55.wiff	9522094	18087009	4/6/2018 5:07:42 AM
18APR05-56.wiff	CCV7_CAL1	N/A	4/6/2018 5:23:12 AM
18APR05-57.wiff	Instrument Blank	N/A	4/6/2018 5:38:42 AM
18APR05-58.wiff	MSMODX1833L	N/A	4/6/2018 5:54:15 AM
18APR05-59.wiff	solvent	N/A	4/6/2018 6:09:46 AM
18APR05-60.wiff	solvent	N/A	4/6/2018 6:25:18 AM
18APR05-61.wiff	solvent	N/A	4/6/2018 6:40:51 AM
18APR05-62.wiff	solvent	N/A	4/6/2018 6:56:24 AM
18APR05-63.wiff	solvent	N/A	4/6/2018 7:11:54 AM
18APR05-64.wiff	solvent	N/A	4/6/2018 7:27:24 AM
18APR05-65.wiff	solvent	N/A	4/6/2018 7:42:57 AM
18APR05-66.wiff	solvent	N/A	4/6/2018 7:58:30 AM

20 mM Ammonium Acetate in H2O: 782404051833A
Methanol: DT149-US

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LC-MS/MS Sample Run Log

Printed: 4/19/2018 11:19:00 AM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24743

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR18-01.wiff	solvent	N/A	4/18/2018 8:26:47 AM
18APR18-02.wiff	solvent	N/A	4/18/2018 8:42:20 AM
18APR18-03.wiff	solvent	N/A	4/18/2018 8:57:53 AM
18APR18-04.wiff	solvent	N/A	4/18/2018 9:13:26 AM
18APR18-05.wiff	CCV1_CAL3	N/A	4/18/2018 9:28:59 AM
18APR18-06.wiff	solvent	N/A	4/18/2018 9:44:29 AM
18APR18-07.wiff	LCS102019	18102019	4/18/2018 9:59:59 AM
18APR18-08.wiff	9536677MS	18102019	4/18/2018 10:15:29 AM
18APR18-09.wiff	9536678MSD	18102019	4/18/2018 10:30:59 AM
18APR18-10.wiff	solvent	N/A	4/18/2018 10:46:32 AM
18APR18-11.wiff	BLK102019	18102019	4/18/2018 11:02:05 AM
18APR18-12.wiff	9535298	18102019	4/18/2018 11:17:38 AM
18APR18-13.wiff	9535302	18102019	4/18/2018 11:33:08 AM
18APR18-14.wiff	9535304	18102019	4/18/2018 11:48:41 AM
18APR18-15.wiff	9535313	18102019	4/18/2018 12:04:11 PM
18APR18-16.wiff	9535326	18102019	4/18/2018 12:19:41 PM
18APR18-17.wiff	9536661	18102019	4/18/2018 12:35:11 PM
18APR18-18.wiff	CCV2_CAL4	N/A	4/18/2018 12:50:44 PM
18APR18-19.wiff	solvent	N/A	4/18/2018 1:06:14 PM
18APR18-20.wiff	9536664	18102019	4/18/2018 1:21:47 PM
18APR18-21.wiff	9536670	18102019	4/18/2018 1:37:20 PM
18APR18-22.wiff	9536671	18102019	4/18/2018 1:52:50 PM
18APR18-23.wiff	9536676	18102019	4/18/2018 2:08:20 PM
18APR18-24.wiff	9536681	18102019	4/18/2018 2:23:50 PM
18APR18-25.wiff	9536684	18102019	4/18/2018 2:39:20 PM
18APR18-26.wiff	9536686	18102019	4/18/2018 2:54:53 PM
18APR18-27.wiff	9536694	18102019	4/18/2018 3:10:23 PM
18APR18-28.wiff	9536677MSDL	18102019	4/18/2018 3:25:53 PM
18APR18-29.wiff	9536678MSDDL	18102019	4/18/2018 3:41:23 PM
18APR18-30.wiff	CCV3_CAL5	N/A	4/18/2018 3:56:53 PM
18APR18-31.wiff	solvent	N/A	4/18/2018 4:12:26 PM
18APR18-32.wiff	9535298DL	18102019	4/18/2018 4:27:56 PM
18APR18-33.wiff	9535302DL	18102019	4/18/2018 4:43:29 PM
18APR18-34.wiff	9535304DL	18102019	4/18/2018 4:59:02 PM
18APR18-35.wiff	9535313DL	18102019	4/18/2018 5:14:35 PM
18APR18-36.wiff	9535326DL	18102019	4/18/2018 5:30:05 PM
18APR18-37.wiff	9536661DL	18102019	4/18/2018 5:45:35 PM
18APR18-38.wiff	9536664DL	18102019	4/18/2018 6:01:05 PM
18APR18-39.wiff	9536670DL	18102019	4/18/2018 6:16:35 PM
18APR18-40.wiff	9536671DL	18102019	4/18/2018 6:32:05 PM
18APR18-41.wiff	9536676DL	18102019	4/18/2018 6:47:35 PM
18APR18-42.wiff	CCV4_CAL3	N/A	4/18/2018 7:03:08 PM
18APR18-43.wiff	solvent	N/A	4/18/2018 7:18:41 PM
18APR18-44.wiff	9536681DL	18102019	4/18/2018 7:34:14 PM
18APR18-45.wiff	9536684DL	18102019	4/18/2018 7:49:44 PM
18APR18-46.wiff	9536686DL	18102019	4/18/2018 8:05:17 PM
18APR18-47.wiff	9536694DL	18102019	4/18/2018 8:20:50 PM
18APR18-48.wiff	9536671DL2	18102019	4/18/2018 8:36:24 PM
18APR18-49.wiff	9536694DL	18102019	4/18/2018 8:51:57 PM
18APR18-50.wiff	CCV5_CAL4	N/A	4/18/2018 9:07:29 PM
18APR18-51.wiff	solvent	N/A	4/18/2018 9:23:00 PM
18APR18-52.wiff	LCS094018	18094018	4/18/2018 9:38:30 PM
18APR18-53.wiff	9536677MSDL	18094018	4/18/2018 9:54:00 PM
18APR18-54.wiff	9536678MSDDL	18094018	4/18/2018 10:09:29 PM
18APR18-55.wiff	solvent	N/A	4/18/2018 10:25:00 PM
18APR18-56.wiff	BLK094018	18094018	4/18/2018 10:40:33 PM
18APR18-57.wiff	9535308DL	18094018	4/18/2018 10:56:06 PM

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Instrument Name: LM24743

18APR18-58.wiff	9535308DL2	18094018	4/18/2018 11:11:36 PM
18APR18-59.wiff	9536676BKGDL	18094018	4/18/2018 11:27:06 PM
18APR18-60.wiff	CCV6_CAL5	N/A	4/18/2018 11:42:36 PM
18APR18-61.wiff	solvent	N/A	4/18/2018 11:58:06 PM
18APR18-62.wiff	9542917	18101008	4/19/2018 12:13:39 AM
18APR18-63.wiff	9542918	18101008	4/19/2018 12:29:12 AM
18APR18-64.wiff	9542919	18101008	4/19/2018 12:44:45 AM
18APR18-65.wiff	9542920	18101008	4/19/2018 1:00:18 AM
18APR18-66.wiff	9542921	18101008	4/19/2018 1:15:51 AM
18APR18-67.wiff	9542922	18101008	4/19/2018 1:31:24 AM
18APR18-68.wiff	9542923	18101008	4/19/2018 1:46:57 AM
18APR18-69.wiff	9542924	18101008	4/19/2018 2:02:27 AM
18APR18-70.wiff	9542925	18101008	4/19/2018 2:17:57 AM
18APR18-71.wiff	9542926	18101008	4/19/2018 2:33:27 AM
18APR18-72.wiff	CCV7_CAL3	N/A	4/19/2018 2:48:57 AM
18APR18-73.wiff	solvent	N/A	4/19/2018 3:04:30 AM
18APR18-74.wiff	9542927	18101008	4/19/2018 3:20:03 AM
18APR18-75.wiff	9542928	18101008	4/19/2018 3:35:33 AM
18APR18-76.wiff	9542929	18101008	4/19/2018 3:51:03 AM
18APR18-77.wiff	9542930	18101008	4/19/2018 4:06:36 AM
18APR18-78.wiff	9542931RE	18101008	4/19/2018 4:22:09 AM
18APR18-79.wiff	9542932RE	18101008	4/19/2018 4:37:42 AM
18APR18-80.wiff	9542933RE	18101008	4/19/2018 4:53:16 AM
18APR18-81.wiff	9542934RE	18101008	4/19/2018 5:08:48 AM
18APR18-82.wiff	CCV8_CAL4	N/A	4/19/2018 5:24:21 AM
18APR18-83.wiff	solvent	N/A	4/19/2018 5:39:51 AM

20mM Ammonium Acetate: 782404161833A
Methanol: Honeywell DT632-US

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LC-MS/MS Sample Run Log

Printed: 4/19/2018 10:04:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24743

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR11MCAL-15.wiff	MDL	N/A	4/11/2018 11:18:32 PM
18APR11MCAL-16.wiff	CAL1	N/A	4/11/2018 11:34:06 PM
18APR11MCAL-17.wiff	CAL2	N/A	4/11/2018 11:49:39 PM
18APR11MCAL-18.wiff	CAL3	N/A	4/12/2018 12:05:11 AM
18APR11MCAL-19.wiff	CAL4	N/A	4/12/2018 12:20:42 AM
18APR11MCAL-20.wiff	CAL5	N/A	4/12/2018 12:36:12 AM
18APR11MCAL-21.wiff	CAL6	N/A	4/12/2018 12:51:42 AM
18APR11MCAL-22.wiff	CAL7	N/A	4/12/2018 1:07:12 AM
18APR11MCAL-23.wiff	Instrument Blank	N/A	4/12/2018 1:22:45 AM
18APR11MCAL-24.wiff	ICV	N/A	4/12/2018 1:38:18 AM
18APR11MCAL-25.wiff	L+B CAL3	N/A	4/12/2018 1:53:51 AM
18APR11MCAL-26.wiff	CCV1_CAL3	N/A	4/12/2018 2:09:24 AM
18APR19-01.wiff	solvent	N/A	4/19/2018 5:55:24 AM
18APR19-02.wiff	solvent	N/A	4/19/2018 6:10:57 AM
18APR19-03.wiff	solvent	N/A	4/19/2018 6:26:30 AM
18APR19-04.wiff	solvent	N/A	4/19/2018 6:42:03 AM
18APR19-05.wiff	CCV1_CAL3	N/A	4/19/2018 6:57:37 AM
18APR19-06.wiff	solvent	N/A	4/19/2018 7:13:09 AM
18APR19-07.wiff	LCS106004	18106004	4/19/2018 7:28:43 AM
18APR19-08.wiff	LCSDA	18106004	4/19/2018 7:44:15 AM
18APR19-09.wiff	LCS104002	18104002	4/19/2018 7:59:48 AM
18APR19-10.wiff	LCSDA	18104002	4/19/2018 8:15:19 AM
18APR19-11.wiff	solvent	N/A	4/19/2018 8:30:51 AM
18APR19-12.wiff	BLK106004	18106004	4/19/2018 8:46:21 AM
18APR19-13.wiff	BLK104002	18104002	4/19/2018 9:01:51 AM
18APR19-14.wiff	9557790	18106004	4/19/2018 9:17:21 AM
18APR19-15.wiff	9557791	18106004	4/19/2018 9:32:51 AM
18APR19-16.wiff	9551241	18104002	4/19/2018 9:48:21 AM
18APR19-17.wiff	9551242	18104002	4/19/2018 10:03:51 AM
18APR19-18.wiff	CCV2_CAL4	N/A	4/19/2018 10:19:22 AM
18APR19-19.wiff	solvent	N/A	4/19/2018 10:34:52 AM
18APR19-20.wiff	9535308DLRE	18094018	4/19/2018 10:50:25 AM
18APR19-21.wiff	9535308DL2RE	18094018	4/19/2018 11:05:58 AM
18APR19-23.wiff	solvent	N/A	4/19/2018 11:27:05 AM
18APR19-24.wiff	solvent	N/A	4/19/2018 11:42:39 AM
18APR19-25.wiff	solvent	N/A	4/19/2018 11:58:15 AM
18APR19-26.wiff	9535308DL	18094018	4/19/2018 12:13:48 PM
18APR19-27.wiff	9535308DL2	18094018	4/19/2018 12:29:18 PM
18APR19-28.wiff	9536676BKGDL	18094018	4/19/2018 12:44:51 PM
18APR19-29.wiff	CCV3_CAL5	N/A	4/19/2018 1:00:24 PM
18APR19-30.wiff	solvent	N/A	4/19/2018 1:15:54 PM
18APR19-31.wiff	9536677MSDL2	18102019	4/19/2018 1:31:27 PM
18APR19-32.wiff	9536678MSDDL2	18102019	4/19/2018 1:47:00 PM
18APR19-33.wiff	9535298DL	18102019	4/19/2018 2:02:33 PM
18APR19-34.wiff	9535302DL	18102019	4/19/2018 2:18:06 PM
18APR19-35.wiff	9535326DL	18102019	4/19/2018 2:33:39 PM
18APR19-36.wiff	9536664DL	18102019	4/19/2018 2:49:09 PM
18APR19-37.wiff	9536676DL	18102019	4/19/2018 3:04:40 PM
18APR19-38.wiff	CCV4_CAL3	N/A	4/19/2018 3:20:09 PM
18APR19-39.wiff	solvent	N/A	4/19/2018 3:35:42 PM
18APR19-40.wiff	9542917RE	18101008	4/19/2018 3:51:16 PM
18APR19-41.wiff	9542918RE	18101008	4/19/2018 4:06:46 PM
18APR19-42.wiff	9542919RE	18101008	4/19/2018 4:22:18 PM
18APR19-43.wiff	9542920RE	18101008	4/19/2018 4:37:52 PM
18APR19-44.wiff	9542921RE	18101008	4/19/2018 4:53:25 PM
18APR19-45.wiff	9542922RE	18101008	4/19/2018 5:08:59 PM
18APR19-46.wiff	9542923RE	18101008	4/19/2018 5:24:34 PM

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By MCD at 10:04 pm, 4/19/18

Instrument Name: LM24743

18APR19-47.wiff	9542924RE	18101008	4/19/2018 5:40:07 PM
18APR19-48.wiff	9542925RE	18101008	4/19/2018 5:55:40 PM
18APR19-49.wiff	9542927RE	18101008	4/19/2018 6:11:13 PM
18APR19-50.wiff	CCV5_CAL4	N/A	4/19/2018 6:26:46 PM
18APR19-51.wiff	solvent	N/A	4/19/2018 6:42:16 PM
18APR19-52.wiff	9542928RE	18101008	4/19/2018 6:57:46 PM
18APR19-53.wiff	9542929RE	18101008	4/19/2018 7:13:19 PM
18APR19-54.wiff	9542930RE	18101008	4/19/2018 7:28:49 PM
18APR19-55.wiff	CCV6_CAL5	N/A	4/19/2018 7:44:19 PM
18APR19-56.wiff	solvent	N/A	4/19/2018 7:59:49 PM

20 mM Ammonium Acetate in H2O: 782404181833A
Methanol: DT632-US

APPROVED
By MCD at 10:04 pm, 4/19/18

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LC-MS/MS Sample Run Log

Printed: 4/10/2018 3:06:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24960

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR04-05.wiff	MDL	18APR04MCAL	4/4/2018 3:34:12 PM
18APR04-06.wiff	CAL1	18APR04MCAL	4/4/2018 3:48:45 PM
18APR04-07.wiff	CAL2	18APR04MCAL	4/4/2018 4:03:18 PM
18APR04-08.wiff	CAL3	18APR04MCAL	4/4/2018 4:17:51 PM
18APR04-09.wiff	CAL4	18APR04MCAL	4/4/2018 4:32:25 PM
18APR04-10.wiff	CAL5	18APR04MCAL	4/4/2018 4:46:55 PM
18APR04-11.wiff	CAL6	18APR04MCAL	4/4/2018 5:01:25 PM
18APR04-12.wiff	CAL7	18APR04MCAL	4/4/2018 5:15:55 PM
18APR04-13.wiff	Instrument Blank	18APR04MCAL	4/4/2018 5:30:28 PM
18APR04-18.wiff	ICV	18APR04MCAL	4/4/2018 6:43:13 PM
18APR04-19.wiff	L+B CAL3	18APR04MCAL	4/4/2018 6:57:43 PM
18APR04-20.wiff	CCV1_CAL3	18APR04MCAL	4/4/2018 7:12:16 PM
18APR05-01.wiff	CCV1_CAL3	NA	4/5/2018 2:46:41 PM
18APR05-02.wiff	solvent	NA	4/5/2018 3:01:11 PM
18APR05-03.wiff	LCS094002	18094002	4/5/2018 3:15:44 PM
18APR05-04.wiff	LCSDA	18094002	4/5/2018 3:30:17 PM
18APR05-05.wiff	solvent	NA	4/5/2018 3:44:50 PM
18APR05-06.wiff	BLK094002	18094002	4/5/2018 3:59:23 PM
18APR05-07.wiff	9520013RE	18094002	4/5/2018 4:13:56 PM
18APR05-08.wiff	9539093	18094002	4/5/2018 4:28:26 PM
18APR05-09.wiff	9539093DL	18094002	4/5/2018 4:42:56 PM
18APR05-10.wiff	9539094	18094002	4/5/2018 4:57:26 PM
18APR05-11.wiff	solvent	NA	4/5/2018 5:11:56 PM
18APR05-12.wiff	LCS094003	18094003	4/5/2018 5:26:29 PM
18APR05-13.wiff	LCSDA	18094003	4/5/2018 5:40:59 PM
18APR05-14.wiff	solvent	NA	4/5/2018 5:55:29 PM
18APR05-15.wiff	BLK094003	18094003	4/5/2018 6:09:59 PM
18APR05-16.wiff	CCV2_CAL4	NA	4/5/2018 6:24:32 PM
18APR05-17.wiff	solvent	NA	4/5/2018 6:39:05 PM
18APR05-18.wiff	9520792	18094003	4/5/2018 6:53:38 PM
18APR05-19.wiff	9520793	18094003	4/5/2018 7:08:11 PM
18APR05-20.wiff	9520795	18094003	4/5/2018 7:22:45 PM
18APR05-21.wiff	LCS089008	18089008	4/5/2018 7:37:17 PM
18APR05-22.wiff	9528399MS	18089008	4/5/2018 7:51:50 PM
18APR05-23.wiff	9528400MSD	18089008	4/5/2018 8:06:24 PM
18APR05-24.wiff	solvent	NA	4/5/2018 8:20:56 PM
18APR05-25.wiff	BLK089008	18089008	4/5/2018 8:35:29 PM
18APR05-26.wiff	9528379	18089008	4/5/2018 8:49:59 PM
18APR05-27.wiff	9528380	18089008	4/5/2018 9:04:29 PM
18APR05-28.wiff	9528381	18089008	4/5/2018 9:19:00 PM
18APR05-29.wiff	CCV3_CAL5	NA	4/5/2018 9:33:29 PM
18APR05-30.wiff	solvent	NA	4/5/2018 9:48:03 PM
18APR05-31.wiff	9528382	18089008	4/5/2018 10:02:35 PM
18APR05-32.wiff	9528397	18089008	4/5/2018 10:17:06 PM
18APR05-33.wiff	9528398	18089008	4/5/2018 10:31:36 PM
18APR05-34.wiff	9528402	18089008	4/5/2018 10:46:09 PM
18APR05-35.wiff	9528403	18089008	4/5/2018 11:00:42 PM
18APR05-36.wiff	9528404	18089008	4/5/2018 11:15:12 PM
18APR05-37.wiff	9531217	18089008	4/5/2018 11:29:45 PM
18APR05-38.wiff	9531218	18089008	4/5/2018 11:44:18 PM
18APR05-39.wiff	9531219	18089008	4/5/2018 11:58:51 PM
18APR05-40.wiff	9531220	18089008	4/6/2018 12:13:24 AM
18APR05-41.wiff	CCV4_CAL3	NA	4/6/2018 12:27:54 AM
18APR05-42.wiff	solvent	NA	4/6/2018 12:42:27 AM
18APR05-43.wiff	9531221	18089008	4/6/2018 12:57:00 AM
18APR05-44.wiff	9531222	18089008	4/6/2018 1:11:33 AM
18APR05-45.wiff	LCSA093014	18093014	4/6/2018 1:26:06 AM

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Sample Run Log

Printed: 4/10/2018 3:06:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24960

18APR05-46.wiff	LCSB093014	18093014	4/6/2018 1:40:39 AM
18APR05-47.wiff	LCSDA	18093014	4/6/2018 1:55:12 AM
18APR05-48.wiff	LCSDB	18093014	4/6/2018 2:09:45 AM
18APR05-49.wiff	solvent	N\A	4/6/2018 2:24:18 AM
18APR05-50.wiff	BLKA093014	18093014	4/6/2018 2:38:51 AM
18APR05-51.wiff	BLKB093014	18093014	4/6/2018 2:53:24 AM
18APR05-52.wiff	9535312	18093014	4/6/2018 3:07:54 AM
18APR05-53.wiff	9535314	18093014	4/6/2018 3:22:24 AM
18APR05-54.wiff	CCV5_CAL4	N\A	4/6/2018 3:36:54 AM
18APR05-55.wiff	solvent	N\A	4/6/2018 3:51:27 AM
18APR05-56.wiff	9535315	18093014	4/6/2018 4:06:00 AM
18APR05-57.wiff	9535316	18093014	4/6/2018 4:20:33 AM
18APR05-58.wiff	9535317	18093014	4/6/2018 4:35:06 AM
18APR05-59.wiff	9535318	18093014	4/6/2018 4:49:39 AM
18APR05-60.wiff	9535319	18093014	4/6/2018 5:04:12 AM
18APR05-61.wiff	9535323	18093014	4/6/2018 5:18:45 AM
18APR05-62.wiff	9535324	18093014	4/6/2018 5:33:18 AM
18APR05-63.wiff	9535325	18093014	4/6/2018 5:47:51 AM
18APR05-64.wiff	solvent	NA	4/6/2018 6:02:24 AM
18APR05-65.wiff	solvent	NA	4/6/2018 6:16:57 AM
18APR05-66.wiff	9539093RE	18094002	4/6/2018 6:31:30 AM
18APR05-67.wiff	CCV6_CAL5	N\A	4/6/2018 6:46:03 AM
18APR05-68.wiff	solvent	N\A	4/6/2018 7:00:33 AM

20mM Ammonium Acetate: 1026204041833A
Methanol: Honeywell DT149-US

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LC-MS/MS Sample Run Log

Printed: 4/10/2018 3:09:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24960

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR04-05.wiff	MDL	18APR04MCAL	4/4/2018 3:34:12 PM
18APR04-06.wiff	CAL1	18APR04MCAL	4/4/2018 3:48:45 PM
18APR04-07.wiff	CAL2	18APR04MCAL	4/4/2018 4:03:18 PM
18APR04-08.wiff	CAL3	18APR04MCAL	4/4/2018 4:17:51 PM
18APR04-09.wiff	CAL4	18APR04MCAL	4/4/2018 4:32:25 PM
18APR04-10.wiff	CAL5	18APR04MCAL	4/4/2018 4:46:55 PM
18APR04-11.wiff	CAL6	18APR04MCAL	4/4/2018 5:01:25 PM
18APR04-12.wiff	CAL7	18APR04MCAL	4/4/2018 5:15:55 PM
18APR04-13.wiff	Instrument Blank	18APR04MCAL	4/4/2018 5:30:28 PM
18APR04-18.wiff	ICV	18APR04MCAL	4/4/2018 6:43:13 PM
18APR04-19.wiff	L+B CAL3	18APR04MCAL	4/4/2018 6:57:43 PM
18APR04-20.wiff	CCV1_CAL3	18APR04MCAL	4/4/2018 7:12:16 PM
18APR06-01.wiff	solvent	N\A	4/6/2018 7:15:06 AM
18APR06-02.wiff	CCV1_CAL3	18APR04MCAL	4/6/2018 7:29:39 AM
18APR06-03.wiff	9535317RE	18093014	4/6/2018 7:44:09 AM
18APR06-04.wiff	9535312	18093014	4/6/2018 7:58:39 AM
18APR06-05.wiff	9535312DL	18093014	4/6/2018 8:13:12 AM
18APR06-06.wiff	9535314DL	18093014	4/6/2018 8:27:42 AM
18APR06-07.wiff	9535315DL	18093014	4/6/2018 8:42:12 AM
18APR06-08.wiff	9535316DL	18093014	4/6/2018 8:56:45 AM
18APR06-09.wiff	9535318DL	18093014	4/6/2018 9:11:15 AM
18APR06-11.wiff	9535319DL	18093014	4/6/2018 9:40:21 AM
18APR06-12.wiff	9535323DL	18093014	4/6/2018 9:54:55 AM
18APR06-13.wiff	solvent	N\A	4/6/2018 10:09:25 AM
18APR06-14.wiff	CCV2_CAL4	N\A	4/6/2018 10:23:58 AM
18APR06-15.wiff	9535324DL	18093014	4/6/2018 10:38:27 AM
18APR06-16.wiff	9535325DL	18093014	4/6/2018 10:53:00 AM
18APR06-17.wiff	solvent	NA	4/6/2018 11:07:34 AM
18APR06-18.wiff	LCS087004	18087004	4/6/2018 11:22:06 AM
18APR06-19.wiff	LCSDA	18087004	4/6/2018 11:36:36 AM
18APR06-20.wiff	solvent	NA	4/6/2018 11:51:10 AM
18APR06-21.wiff	BLK087004	18087004	4/6/2018 12:05:43 PM
18APR06-22.wiff	9515956	18087004	4/6/2018 12:20:12 PM
18APR06-23.wiff	9515957	18087004	4/6/2018 12:34:43 PM
18APR06-24.wiff	9515958	18087004	4/6/2018 12:49:16 PM
18APR06-25.wiff	9515959	18087004	4/6/2018 1:03:45 PM
18APR06-26.wiff	CCV3_CAL5	NA	4/6/2018 1:18:16 PM
18APR06-27.wiff	solvent	NA	4/6/2018 1:32:46 PM
18APR06-28.wiff	LCS086012	18086012	4/6/2018 1:47:19 PM
18APR06-29.wiff	LCSDA	18086012	4/6/2018 2:01:49 PM
18APR06-30.wiff	solvent	NA	4/6/2018 2:16:22 PM
18APR06-31.wiff	BLK086012	18086012	4/6/2018 2:30:55 PM
18APR06-32.wiff	9517493	18086012	4/6/2018 2:45:28 PM
18APR06-33.wiff	9517494	18086012	4/6/2018 3:00:01 PM
18APR06-34.wiff	9517495	18086012	4/6/2018 3:14:31 PM
18APR06-35.wiff	9517496	18086012	4/6/2018 3:29:04 PM
18APR06-36.wiff	9517497	18086012	4/6/2018 3:43:37 PM
18APR06-37.wiff	9528381RE	18089008	4/6/2018 3:58:10 PM
18APR06-38.wiff	9528381DL	18089008	4/6/2018 4:12:40 PM
18APR06-39.wiff	CCV4_CAL3	NA	4/6/2018 4:27:10 PM
18APR06-40.wiff	solvent	NA	4/6/2018 4:41:43 PM
18APR06-41.wiff	9528382	18089008	4/6/2018 4:56:16 PM
18APR06-42.wiff	9528382DL	18089008	4/6/2018 5:10:49 PM
18APR06-43.wiff	9531221DL	18089008	4/6/2018 5:25:22 PM
18APR06-44.wiff	9531222	18089008	4/6/2018 5:39:55 PM
18APR06-45.wiff	Methanol 2 Test	NA	4/6/2018 5:54:25 PM
18APR06-46.wiff	LCS095011	18095011	4/6/2018 6:08:58 PM

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Instrument Name: LM24960

18APR06-47.wiff	LCSDA	18095011	4/6/2018 6:23:28 PM
18APR06-48.wiff	solvent	NA	4/6/2018 6:38:01 PM
18APR06-49.wiff	BLK095011	18095011	4/6/2018 6:52:33 PM
18APR06-50.wiff	9536031	18095011	4/6/2018 7:07:07 PM
18APR06-51.wiff	9536032	18095011	4/6/2018 7:21:40 PM
18APR06-52.wiff	9542837	18095011	4/6/2018 7:36:13 PM
18APR06-53.wiff	CCV5_CAL4	NA	4/6/2018 7:50:46 PM
18APR06-54.wiff	solvent	NA	4/6/2018 8:05:17 PM
18APR06-55.wiff	9542838	18095011	4/6/2018 8:19:50 PM
18APR06-56.wiff	9542839	18095011	4/6/2018 8:34:22 PM
18APR06-57.wiff	9542840	18095011	4/6/2018 8:48:52 PM
18APR06-58.wiff	9542841	18095011	4/6/2018 9:03:25 PM
18APR06-59.wiff	9542842	18095011	4/6/2018 9:17:58 PM
18APR06-60.wiff	9542843	18095011	4/6/2018 9:32:31 PM
18APR06-61.wiff	9542847	18095011	4/6/2018 9:47:05 PM
18APR06-62.wiff	9542848	18095011	4/6/2018 10:01:34 PM
18APR06-63.wiff	9542849	18095011	4/6/2018 10:16:08 PM
18APR06-64.wiff	9542852	18095011	4/6/2018 10:30:40 PM
18APR06-65.wiff	CCV6_CAL5	NA	4/6/2018 10:45:13 PM
18APR06-66.wiff	solvent	NA	4/6/2018 10:59:46 PM
18APR06-67.wiff	LCS089005	18089005	4/6/2018 11:14:19 PM
18APR06-68.wiff	LCSDA	18089005	4/6/2018 11:28:53 PM
18APR06-69.wiff	solvent	NA	4/6/2018 11:43:25 PM
18APR06-70.wiff	BLK089005	18089005	4/6/2018 11:57:55 PM
18APR06-71.wiff	9530882	18089005	4/7/2018 12:12:28 AM
18APR06-72.wiff	9530883	18089005	4/7/2018 12:26:59 AM
18APR06-73.wiff	9530887	18089005	4/7/2018 12:41:28 AM
18APR06-74.wiff	9530888	18089005	4/7/2018 12:55:58 AM
18APR06-75.wiff	9530897	18089005	4/7/2018 1:10:28 AM
18APR06-76.wiff	9530898	18089005	4/7/2018 1:24:59 AM
18APR06-77.wiff	9530899	18089005	4/7/2018 1:39:28 AM
18APR06-78.wiff	CCV7_CAL3	NA	4/7/2018 1:54:02 AM
18APR06-79.wiff	solvent	NA	4/7/2018 2:08:34 AM
18APR06-80.wiff	9530900	18089005	4/7/2018 2:23:07 AM
18APR06-81.wiff	9530901	18089005	4/7/2018 2:37:37 AM
18APR06-82.wiff	9530902	18089005	4/7/2018 2:52:07 AM
18APR06-83.wiff	9530906	18089005	4/7/2018 3:06:37 AM
18APR06-84.wiff	9530907	18089005	4/7/2018 3:21:10 AM
18APR06-85.wiff	9530908	18089005	4/7/2018 3:35:43 AM
18APR06-86.wiff	9530909	18089005	4/7/2018 3:50:17 AM
18APR06-87.wiff	9530922	18089005	4/7/2018 4:04:50 AM
18APR06-88.wiff	9530923	18089005	4/7/2018 4:19:23 AM
18APR06-89.wiff	9530933	18089005	4/7/2018 4:33:56 AM
18APR06-90.wiff	CCV8_CAL4	NA	4/7/2018 4:48:29 AM
18APR06-91.wiff	solvent	NA	4/7/2018 5:03:02 AM
18APR06-92.wiff	9530934	18089005	4/7/2018 5:17:34 AM
18APR06-93.wiff	9530935	18089005	4/7/2018 5:32:08 AM
18APR06-94.wiff	9530948	18089005	4/7/2018 5:46:41 AM
18APR06-95.wiff	CCV9_CAL5	NA	4/7/2018 6:01:14 AM

20mM Ammonium Acetate: 1026204041833A
Methanol: Honeywell DT149-US

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By DMW at 3:09 pm, 4/10/18

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LC-MS/MS Sample Run Log

Printed: 4/11/2018 6:05:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24960

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR07MCAL-18.wiff	MDL	18APR04MCAL	4/8/2018 2:13:27 AM
18APR07MCAL-19.wiff	CAL1	18APR04MCAL	4/8/2018 2:28:00 AM
18APR07MCAL-20.wiff	CAL2	18APR04MCAL	4/8/2018 2:42:33 AM
18APR07MCAL-21.wiff	CAL3	18APR04MCAL	4/8/2018 2:57:03 AM
18APR07MCAL-22.wiff	CAL4	18APR04MCAL	4/8/2018 3:11:34 AM
18APR07MCAL-23.wiff	CAL5	18APR04MCAL	4/8/2018 3:26:06 AM
18APR07MCAL-24.wiff	CAL6	18APR04MCAL	4/8/2018 3:40:39 AM
18APR07MCAL-25.wiff	CAL7	18APR04MCAL	4/8/2018 3:55:12 AM
18APR07MCAL-26.wiff	Instrument Blank	18APR04MCAL	4/8/2018 4:09:45 AM
18APR07MCAL-27.wiff	ICV	18APR04MCAL	4/8/2018 4:24:18 AM
18APR07MCAL-28.wiff	L+B CAL3	18APR04MCAL	4/8/2018 4:38:51 AM
18APR07MCAL-29.wiff	CCV1_CAL3	18APR04MCAL	4/8/2018 4:53:27 AM
18APR08-01.wiff	solvent	N\A	4/8/2018 10:54:58 AM
18APR08-02.wiff	solvent	N\A	4/8/2018 11:09:31 AM
18APR08-03.wiff	solvent	N\A	4/8/2018 11:24:04 AM
18APR08-04.wiff	solvent	N\A	4/8/2018 11:38:40 AM
18APR08-05.wiff	solvent	N\A	4/8/2018 11:53:13 AM
18APR08-06.wiff	solvent	N\A	4/8/2018 12:07:46 PM
18APR08-07.wiff	CCV1_CAL1	N\A	4/8/2018 12:22:19 PM
18APR08-08.wiff	Instrument Blank	N\A	4/8/2018 12:36:52 PM
18APR08-09.wiff	9522115DL	18091005	4/8/2018 12:51:25 PM
18APR08-10.wiff	9522117DL	18091005	4/8/2018 1:05:58 PM
18APR08-11.wiff	9522118DL	18091005	4/8/2018 1:20:31 PM
18APR08-12.wiff	CCV2_CAL2	N\A	4/8/2018 1:35:04 PM
18APR08-13.wiff	CCV3_CAL3	N\A	4/8/2018 1:49:37 PM
18APR08-14.wiff	solvent	N\A	4/8/2018 2:04:07 PM
18APR08-15.wiff	LCS093007	18093007	4/8/2018 2:18:40 PM
18APR08-16.wiff	LCSDA	18093007	4/8/2018 2:33:13 PM
18APR08-17.wiff	solvent	N\A	4/8/2018 2:47:46 PM
18APR08-18.wiff	BLK093007	18093007	4/8/2018 3:02:19 PM
18APR08-19.wiff	9536245	18093007	4/8/2018 3:16:52 PM
18APR08-20.wiff	LCS094013	18094013	4/8/2018 3:31:25 PM
18APR08-21.wiff	LCS094013	18094013	4/8/2018 3:45:58 PM
18APR08-22.wiff	LCSDA	18094013	4/8/2018 4:00:34 PM
18APR08-23.wiff	LCSDB	18094013	4/8/2018 4:15:10 PM
18APR08-24.wiff	solvent	N\A	4/8/2018 4:29:43 PM
18APR08-25.wiff	BLK094013	18094013	4/8/2018 4:44:19 PM
18APR08-26.wiff	BLK094013	18094013	4/8/2018 4:58:53 PM
18APR08-27.wiff	CCV4_CAL4	N\A	4/8/2018 5:13:26 PM
18APR08-28.wiff	solvent	N\A	4/8/2018 5:27:58 PM
18APR08-29.wiff	9536682	18094013	4/8/2018 5:42:34 PM
18APR08-30.wiff	9536683	18094013	4/8/2018 5:57:10 PM
18APR08-31.wiff	9536685	18094013	4/8/2018 6:11:43 PM
18APR08-32.wiff	9536689	18094013	4/8/2018 6:26:16 PM
18APR08-33.wiff	9536690	18094013	4/8/2018 6:40:49 PM
18APR08-34.wiff	9536691	18094013	4/8/2018 6:55:22 PM
18APR08-35.wiff	9536692	18094013	4/8/2018 7:09:56 PM
18APR08-36.wiff	9536693	18094013	4/8/2018 7:24:29 PM
18APR08-37.wiff	9536695	18094013	4/8/2018 7:39:02 PM
18APR08-38.wiff	9536696	18094013	4/8/2018 7:53:35 PM
18APR08-39.wiff	CCV5_CAL5	N\A	4/8/2018 8:08:08 PM
18APR08-40.wiff	solvent	N\A	4/8/2018 8:22:41 PM
18APR08-41.wiff	9536697	18094013	4/8/2018 8:37:17 PM
18APR08-42.wiff	9536698	18094013	4/8/2018 8:51:53 PM
18APR08-43.wiff	9536699	18094013	4/8/2018 9:06:26 PM
18APR08-44.wiff	9536700	18094013	4/8/2018 9:20:59 PM
18APR08-45.wiff	solvent	N\A	4/8/2018 9:35:32 PM

APPROVED
By DMW at 6:25 pm, 4/11/18

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LC-MS/MS Sample Run Log

Printed: 4/11/2018 6:05:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24960

18APR08-46.wiff	solvent	N\A	4/8/2018 9:50:05 PM
18APR08-47.wiff	BLK095011	18095011	4/8/2018 10:04:38 PM
18APR08-48.wiff	9542847RE	18095011	4/8/2018 10:19:11 PM
18APR08-49.wiff	9542848RE	18095011	4/8/2018 10:33:44 PM
18APR08-50.wiff	9542849RE	18095011	4/8/2018 10:48:17 PM
18APR08-51.wiff	9542847DL	18095011	4/8/2018 11:02:50 PM
18APR08-52.wiff	9542848DL	18095011	4/8/2018 11:17:23 PM
18APR08-53.wiff	CCV6_CAL3	N\A	4/8/2018 11:31:56 PM
18APR08-54.wiff	solvent	N\A	4/8/2018 11:46:26 PM
18APR08-55.wiff	9542849DL	18095011	4/9/2018 12:00:56 AM
18APR08-56.wiff	9542847DL2	18095011	4/9/2018 12:15:26 AM
18APR08-57.wiff	9542848DL2	18095011	4/9/2018 12:29:56 AM
18APR08-58.wiff	9542849DL2	18095011	4/9/2018 12:44:26 AM
18APR08-59.wiff	9535319	18093014	4/9/2018 12:58:59 AM
18APR08-60.wiff	solvent	N\A	4/9/2018 1:13:29 AM
18APR08-61.wiff	LCS096003	18096003	4/9/2018 1:28:02 AM
18APR08-62.wiff	LCSDA	18096003	4/9/2018 1:42:38 AM
18APR08-63.wiff	solvent	N\A	4/9/2018 1:57:14 AM
18APR08-64.wiff	BLK096003	18096003	4/9/2018 2:11:47 AM
18APR08-65.wiff	9535462RE	18096003	4/9/2018 2:26:20 AM
18APR08-66.wiff	9535463RE	18096003	4/9/2018 2:40:53 AM
18APR08-67.wiff	CCV7_CAL4	N\A	4/9/2018 2:55:26 AM
18APR08-68.wiff	solvent	N\A	4/9/2018 3:09:59 AM
18APR08-69.wiff	9543510	18096003	4/9/2018 3:24:32 AM
18APR08-70.wiff	9543512	18096003	4/9/2018 3:39:05 AM
18APR08-71.wiff	9543513	18096003	4/9/2018 3:53:38 AM
18APR08-72.wiff	9543514	18096003	4/9/2018 4:08:11 AM
18APR08-73.wiff	9543515	18096003	4/9/2018 4:22:44 AM
18APR08-74.wiff	CCV8_CAL5	N\A	4/9/2018 4:37:14 AM
18APR08-75.wiff	CCV9_CAL4	N\A	4/9/2018 4:51:47 AM
18APR08-76.wiff	solvent	N\A	4/9/2018 5:06:17 AM
18APR08-77.wiff	LCS096010	18096010	4/9/2018 5:20:50 AM
18APR08-78.wiff	LCSDA	18096010	4/9/2018 5:35:20 AM
18APR08-79.wiff	solvent	N\A	4/9/2018 5:49:53 AM
18APR08-80.wiff	BLK096010	18096010	4/9/2018 6:04:26 AM
18APR08-81.wiff	9545237	18096010	4/9/2018 6:18:59 AM
18APR08-82.wiff	9545238	18096010	4/9/2018 6:33:32 AM
18APR08-83.wiff	9545239	18096010	4/9/2018 6:48:05 AM
18APR08-84.wiff	9545240	18096010	4/9/2018 7:02:41 AM
18APR08-85.wiff	9545241	18096010	4/9/2018 7:17:14 AM
18APR08-86.wiff	9545242	18096010	4/9/2018 7:31:50 AM
18APR08-87.wiff	9545243	18096010	4/9/2018 7:46:23 AM
18APR08-88.wiff	CCV10_CAL4	N\A	4/9/2018 8:00:56 AM
18APR08-89.wiff	MeOH Bottle 2 - retest	N\A	4/9/2018 8:15:29 AM
18APR08-90.wiff	MeOH Bottle 1	N\A	4/9/2018 8:30:02 AM
18APR08-91.wiff	MeOH Bottle 2	N\A	4/9/2018 8:44:35 AM
18APR08-92.wiff	MeOH Bottle 3	N\A	4/9/2018 8:59:09 AM
18APR08-93.wiff	MeOH Bottle 4	N\A	4/9/2018 9:13:41 AM

Ammonium Acetate: 1026204071833B
Methanol: DT149-US

APPROVED
By DMW at 6:25 pm, 4/11/18

Organic Extraction Batchlog Assigned to: 26543 Anthony Polaski Reviewed by: MCD 7824 Start Date: 4/3/18 Start time: 17:00

18092009 Tech 1: ACP26543 Tech 2: _____

Analyses on Batch: PFAS in Water by LC/MS/MS

Dept: 33 Prep Analysis: 14091 PFAS Water Prep

Port#	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS amt (uL)	BC	Comments
1	BLANKA	BLK092009	250.00	SSMODX1833V	.025	———	—	1mL	20	7	
2	LCSA	LCS092009	↓	SSMODX1833V	.025	MSMODX1833K	.04	↓	↓	↓	
3	LCSDA	LCSD092009	↓	SSMODX1833V	.025	MSMODX1833K	.04	↓	↓	↓	

Spike Solutions: Witness: DDM25478 Instrument: LM24743

MSMODX1833K PFAS 537 Native Spike

SSMODX1833V PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18APR03M00/18APR05

Port#	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
4	1 9535292	TB 8131	274.31	SSMODX1833V	.025	1mL	20	173b		14473	04/10/2018	S
5	2 9535293	FB 8131	268.86	SSMODX1833V	.025	↓	↓	173b		14473	04/10/2018	S
6	3 9535320	RB 8149	276.87	SSMODX1833V	.025			173b		14473	04/10/2018	S
7	4 9535321	RB 8149	273.63	SSMODX1833V	.025			173b		14473	04/10/2018	S
8	5 9535322	RB 8150	270.06	SSMODX1833V	.025			173b		14473	04/10/2018	S
9	6 9536665	FB N10-7	269.80	SSMODX1833V	.025			173b		14473	04/11/2018	S
10	7 9536666	TB N10-8	272.30	SSMODX1833V	.025			173b		14473	04/11/2018	S
11	8 9536667	RB N10-9	274.78	SSMODX1833V	.025			173b		14473	04/11/2018	S
12	9 9536674	EB 10-16	274.68	SSMODX1833V	.025			173b		14473	04/11/2018	S
1	10 9536687	FB 11-07	271.79	SSMODX1833V	.025			173b		14473	04/11/2018	S
2	11 9536688	TB 11-08	273.58	SSMODX1833V	.025	↓	↓	173b		14473	04/11/2018	S

SBN09 Page 2014 of 2021

Balance #	B629764122	SPE Manifold	1,2	N-evap	25 C

RJR9213 4/4/18

18092009

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
0.3% NH4OH:MeOH	921304021833A
1:1 ACN:MeOH	921304031833A
Auto-pipette (dilutions)	——
Auto-pipette (extract vialin	P1000-3
Internal Standard	IS1809333B
Methanol	DT652-US
Milli-Q H2O	House A223
SPE Cartridge #1	6387380-09
Sodium Thiosulfate	——
Syringe (IS)	PFAS 4
Syringe (MS)	PFAS 10
Syringe (SS)	PFAS 9
Trizma	——

Organic Extraction Batchlog Assigned to: 25478 Danielle McCully Reviewed by: JWK9524 Start Date: 4/3/18 Start time: 15:00

18093014 Tech 1: DDM25478 Tech 2: _____

Analyses on Batch: PFAS in Soil by LC/MS/MS

Dept: 33 Prep Analysis: 14090 PFAS Solid Prep

Port #	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
	BLANKA	BLK093014	1.00	SSMODX1833W	0.050			1ml	20		solvent
	BLANKB	BLK093014	1.00	SSMODX1833W	0.050						wipe
	LCSA	LCS093014	1.00	SSMODX1833W	0.050	MSMODX1833K	0.040				solvent
	LCSB	LCS093014	1.00	SSMODX1833W	0.050	MSMODX1833K	0.040				wipe
	LCSDA	LCSD093014	1.00	SSMODX1833W	0.050	MSMODX1833K	0.040				solvent
	LCSDB	LCSD093014	1.00	SSMODX1833W	0.050	MSMODX1833K	0.040				wipe

Spike Solutions: Witness: MCD 7824 Instrument: LM24960

MSMODX1833K PFAS 537 Native Spike

SSMODX1833W PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18APR04M05 – 18APR05 | 18APR06 | 18APR07M05 – 18APR08

Port#		Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
	1	9535312	81490	1.99	SSMODX1833W	0.050	1ml	20	123a	DL10, DL100	14027	04/10/2018	S
	2	9535314	81492	2.00	SSMODX1833W	0.050				DL10, DL100	14027	04/10/2018	S
	3	9535315	81493	1.99	SSMODX1833W	0.050				DL10, DL100	14027	04/10/2018	S
	4	9535316	81494	1.79	SSMODX1833W	0.050				⑧ DL100, DL1000	14027	04/10/2018	S
	5	9535317	EB 81495	2.17	SSMODX1833W	0.050					14027	04/10/2018	S
	6	9535318	FD 81496	2.25	SSMODX1833W	0.050				⑧ DL100, DL100	14027	04/10/2018	S
	7	9535319	81497	2.84	SSMODX1833W	0.050				DL100, DL1000	14027	04/10/2018	S
	8	9535323	81501	2.06	SSMODX1833W	0.050				DL10, DL100	14027	04/10/2018	S
	9	9535324	81502	2.70	SSMODX1833W	0.050				DL10, DL100	14027	04/10/2018	S
	10	9535325	81503	1.89 ⑧	SSMODX1833W	0.050				DL10, DL100	14027	04/10/2018	S

⑧ Samples ~~is~~ are 1.00g PJR9213 4/6/18

4/4/18 DDM25478

Balance #	B679704122	Sonic Bath ID	5800	N-evap	35C	SPE Manifold	—	18093014

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

⑧ took an extra 3 hours to blow down DDM25478 4/4/18

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
1:1 MeOH:ACN	~~921305~~ ③ 921304031833A ③ DDM25478 4/3/18
Auto-pipette (dilutions)	P100-1
Auto-pipette (extract vialin	P1000-3
Internal Standard	IS18093331C
Methanol	DT632-US
Sand	UKBW7314QV
Syringe (IS)	PFAS 4
Syringe (MS)	PFAS 10
Syringe (SS)	PFAS 13

③ JWK9524 4/6/18
METHANOL (DT149-US)

DL10 - 100µl OF EXTRACT WAS MIXED W/ 877µl ~~SURROGATE (SSMODX1833X)~~ AND 22.5µl SURROGATE (SSMODX1833X). 400µl WAS THEN MIXED W/ 20µl INTERNAL (IS18093333B) PRIOR TO INJECTIONS. JWK9524 4/6/18

DL100 - 10µl OF EXTRACT WAS MIXED W/ 965µl MeOH (DT149-US) AND 25.0µl SURROGATE (SSMODX1833X). 400µl OF THIS SOLUTION WAS MIXED W/ 20µl INTERNAL (IS18093333B) PRIOR TO INJECTION. JWK9524 4/6/18.

DL1000 - 100µl OF THE DL100 WAS MIXED W/ 877µl METHANOL (DT149-US) AND 22.5µl SURROGATE (SSMODX1833X). 400µl OF THIS SOLUTION WAS MIXED W/ 20µl INTERNAL (IS18093337B) PRIOR TO INJECTION. JWK9524 4/6/18

Organic Extraction Batchlog Assigned to: 375 Robert Brown Reviewed by: SPT12222 Start Date: 4-13-18 Start time: 10:30

18102019 Tech 1: RGB/375 Tech 2: _____

Analyses on Batch: PFAS in Soil by LC/MS/MS

Dept: 33 Prep Analysis: 14090 PFAS Solid Prep

Port #	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
	9536677MS	10-18	1.00	SSMODX1833Y	0.05	~~MSMODX1833L~~ (8)	.04	1mL	20	170a	Paint Chips / Peat D5000
	9536678MSD	10-18	1.03	SSMODX1833Y	0.05	~~MSMODX1833L~~ (8)	.04	"	"	170a	Paint Chips / Peat D5000
	BLANKA	BLK102019	1.00	SSMODX1833Y	.05	———	———				
	LCSA	LCS102019	1.00	SSMODX1833Y	.05	~~MSMODX1833L~~ (8)	.04	"	"		

(8) MSMODX1833M. PJR9213 4/13/18

Spike Solutions: Witness: PJR9213 Instrument: LM241743

(8) ~~MSMODX1833L~~ PFAS 537 Native Spike

SSMODX1833Y PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18APR11MOD/18APR18 ; 18APR19

(3) RGB/375 4-13-18

Port#	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	(3) Comments	Analyses	Due Date	Prio
	1 9535298 R	81320	1.00	SSMODX1833Y	.05	1mL	20	170a	~~Foam~~ Gravel D5000	14027	04/13/2018	S
	2 9535302 R	81324	1.04	SSMODX1833Y	.05	"	"	170a	Coal-like Gravel D5000	14027	04/13/2018	S
	3 9535304 R	81326	0.54	SSMODX1833Y	.05	"	"	170a	Foamy Insulation	14027	04/13/2018	S
	~~4 9535308 R~~	~~81330~~		~~SSMODX1833Y~~				170a	No remaining sample	14027	04/13/2018	S
	5 9535313 R	81491	1.05	SSMODX1833Y	.05	1mL	20	170a	Dry dust/dirt	14027	04/13/2018	S
	6 9535326 R	81504	1.01	SSMODX1833Y	.05	"	"	170a	Soil / dirt D5000	14027	04/13/2018	S
	7 9536661 R	N10-3	0.52	SSMODX1833Y	.05	"	"	170a	Insulation back	14027	04/16/2018	S
	8 9536664 R	N10-6	1.00	SSMODX1833Y	.05	"	"	170a	Dried mud D5000	14027	04/16/2018	S
	9 9536670 R	10-12	1.02	SSMODX1833Y	.05	"	"	170a	Paper/cardboard	14027	04/16/2018	S
	10 9536671 R	10-13	1.05	SSMODX1833Y	.05	"	"	170a	Adhesive backing D10	14027	04/16/2018	S
	11 9536676 R	BKG 10-18	1.07	SSMODX1833Y	.05	"	"	170a	Paint Chips, Peat D5000	14027	04/16/2018	S
	12 9536681 R	11-01	1.10	SSMODX1833Y	.05	"	"	170a	Soil	14027	04/16/2018	S
	13 9536684 R	11-04	1.02	SSMODX1833Y	.05	"	"	170a	Insulation Backing	14027	04/16/2018	S
	14 9536686 R	FD 11-06	1.04	SSMODX1833Y	.05	"	"	170a	Soil	14027	04/16/2018	S

SBN09 Page 2018 of 2021

Balance #	B629764122	Sonic Bath ID	5800	N-evap	C	SPE Manifold	———	18102019

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

	15	9536694 R	1114-	1.02	SSMODX1833Y	.05	1 mL	20 uL	170a	Insulation DIO Packing	14027	04/16/2018	S

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
1:1 MeOH:ACN	26543041118333A
Auto-pipette (dilutions)	P1000-7 + P100-1
Auto-pipette (extract vialin	P1000-3
Internal Standard	IS1804333
Methanol	DT632-US
Sand	MKBW7349V
Syringe (IS)	PFAS4
Syringe (MS)	PFAS10
Syringe (SS)	PFAS13

ENVI-Carb 95303

all extracts treated with 25mg loose ENVI-Carb, vortexed & centrifuged.
Supernatant filtered through acrodisc 13mm; 0.2 µm GHP filter.
RLB/375 4-16-18

All samples (including MS & MSD) ran at initial D100s + D1000s.
D100s prepared using 965 µL methanol (DT632-US), 10 µL sample, and 25 µL surrogate (SSMODX18332). 400 µL internalized w/ 20 µL IS1804333.
D1000s prepared using 877 µL methanol (DT632-US), 100 µL sample (D100 soln), and 22.5 µL surrogate (SSMODX18332.) 400 µL internalized w/ 20 µL IS1804333.
MCD 784 4/17/18

D10: 877µL of MeOH (DT632-US) combined w/ 100µL of sample extract and 22.5µL of surrogate (SSMODX18332), vortexed to mix. 400µL of this solution internalized w/ 20µL IS1810633A. JPT 12262 4/19/18

D5000: 780µL of MeOH (DT632-US) combined w/ 200µL D1000 solution and 20µL surrogate (SSMODX1833AA), vortexed to mix. 400µL of this solution internalized w/ 20µL IS1810633B. JPT12262 4/19/18

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LOQ/MDL Summary
PFAS Group

SDG: SBN09

Fraction: PFAS by LC/MS/MS

14027: 14 PFCs Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.20	0.60	ng/wipe
Perfluorononanoic acid	0.20	0.60	ng/wipe
Perfluorodecanoic acid	0.20	0.60	ng/wipe
Perfluoroundecanoic acid	0.20	0.60	ng/wipe
Perfluorododecanoic acid	0.20	0.60	ng/wipe
Perfluorotridecanoic acid	0.20	0.60	ng/wipe
Perfluorotetradecanoic acid	0.20	0.60	ng/wipe
Perfluorohexanoic acid	0.20	0.60	ng/wipe
Perfluoroheptanoic acid	0.20	0.60	ng/wipe
Perfluorobutanesulfonate	0.20	0.60	ng/wipe
Perfluorohexanesulfonate	0.20	0.60	ng/wipe
Perfluoro-octanesulfonate	0.30	0.90	ng/wipe
Perfluorobutanoic acid	0.20	0.60	ng/wipe
Perfluoropentanoic acid	0.20	0.60	ng/wipe

14473: 14 PFAS Compounds Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.3	1	ng/l
Perfluorononanoic acid	0.4	2	ng/l
Perfluorodecanoic acid	1	2	ng/l
Perfluoroundecanoic acid	0.4	2	ng/l
Perfluorododecanoic acid	0.3	1	ng/l
Perfluorotridecanoic acid	0.3	1	ng/l
Perfluorotetradecanoic acid	0.3	1	ng/l
Perfluorohexanoic acid	0.4	2	ng/l
Perfluoroheptanoic acid	0.3	1	ng/l
Perfluorobutanesulfonate	0.3	1	ng/l
Perfluorohexanesulfonate	0.4	2	ng/l
Perfluoro-octanesulfonate	0.4	2	ng/l
Perfluorobutanoic acid	2	6	ng/l
Perfluoropentanoic acid	2	6	ng/l

SECTION 6

LABORATORY CASE NARRATIVES

AND PROJECT CHAIN-OF-CUSTODY RECORDS

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Sample Reference List for SDG Number SBN08 with a Data Package Type of I

37191 - C. T. Male Associates
Project: SGPP - Bennington

Lab Sample Number	Client Sample ID	Collection Date	Date Received
9535292	SG3a-LTB01-180329	03/29/2018 00:00	03/30/2018 10:20
9535293	SG3a-FTB01-180329	03/29/2018 08:40	03/30/2018 10:20
9535294	SG3a-WP01-A1.5	03/29/2018 09:10	03/30/2018 10:20
9535295	SG3a-WP01-A8.0	03/29/2018 10:00	03/30/2018 10:20
9535296	SG3a-WP01-A16.0	03/29/2018 10:05	03/30/2018 10:20
9535297	SG3a-WP01-A23.0	03/29/2018 10:25	03/30/2018 10:20
9535298	SG3a-BL01-A24.0	03/29/2018 10:30	03/30/2018 10:20
9535299	SG3a-WP02-A8.0	03/29/2018 10:45	03/30/2018 10:20
9535300	SG3a-WP02-A16.0	03/29/2018 10:55	03/30/2018 10:20
9535301	SG3a-WP02-A23.0	03/29/2018 11:00	03/30/2018 10:20
9535302	SG3a-BL02-A22.5	03/29/2018 11:05	03/30/2018 10:20
9535303	SG3a-WP03-STACK25.0	03/29/2018 11:40	03/30/2018 10:20
9535304	SG3a-BL03-STACK24.0	03/29/2018 11:50	03/30/2018 10:20
9535305	SG3a-WP04-A8.0	03/29/2018 11:55	03/30/2018 10:20
9535306	SG3a-WP04-A16.0	03/29/2018 12:00	03/30/2018 10:20
9535307	SG3a-WP04-A23.0	03/29/2018 12:10	03/30/2018 10:20
9535308	SG3a-BL04-A22.5	03/29/2018 12:15	03/30/2018 10:20
9535309	SG3a-WP05-A8.0	03/29/2018 12:40	03/30/2018 10:20
9535310	SG3a-WP05-A16.0	03/29/2018 12:45	03/30/2018 10:20
9535311	SG3a-WP05-A23.0	03/29/2018 12:50	03/30/2018 10:20

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Project Name: SGPP - Bennington
ELLE Group #: 1926078

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous

Sample #s: 9535295, 9535297, 9535301, 9535303, 9535305, 9535306, 9535307, 9535309, 9535310, 9535311

Due to the sample matrix, the recovery for the sample injection internal standards(s) and the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9535294, 9535296

Due to the sample matrix, the recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9535299, 9535300

Due to the sample matrix, the recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. Sufficient sample was not available to repeat the analysis.

Sample #s: 9535298, 9535302, 9535304

Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9535308

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for native compounds perfluroheptanoic acid (PFHpA) and perfluorooctanoic acid (PFOA) is outside of QC acceptance limits as noted on the QC Summary in the laboratory control spike sample (LCS). Sufficient sample was not available to repeat the analysis.

Batch #: 18093011 (Sample number(s): 9535294-9535297, 9535299-9535301, 9535303, 9535305-9535307, 9535309-9535311)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9535294, 9535295, 9535296, 9535299, 9535300, 9535301, 9535303, 9535305, 9535306, 9535307, 9535309, 9535310, 9535311

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9535294, 9535295, 9535296, 9535297, 9535299, 9535300, 9535301, 9535303, 9535305, 9535306, 9535307, 9535309, 9535310, 9535311, Blank

Batch #: 18094018 (Sample number(s): 9535308)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, Perfluoroheptanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9535308

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) Blank

Batch #: 18102019 (Sample number(s): 9535298, 9535302, 9535304 UNSPK: P536676)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorodecanoic acid, Perfluoroundecanoic acid, Perfluorododecanoic acid, Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluoro-octanesulfonate, Perfluorobutanoic acid, Perfluoropentanoic acid, Perfluoroheptanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9535298, 9535302, MS, MSD

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9535302

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SBN08

PFAS Group

Fraction: PFAS by LC/MS/MS

14 PFAS Compounds

		Matrix			
Sample #	Client ID	Liquid	Solid	DF	Comments
9535292	SG3a-LTB01-180329	X		1	Trip Blank
9535293	SG3a-FTB01-180329	X		1	Field Blank
9535294	SG3a-WP01-A1.5		X	1; 100	
9535295	SG3a-WP01-A8.0		X	1; 100	
9535296	SG3a-WP01-A16.0		X	1; 100	
9535297	SG3a-WP01-A23.0		X	1; 10; 1000	
9535298	SG3a-BL01-A24.0		X	100; 5000	
9535299	SG3a-WP02-A8.0		X	1; 100	
9535300	SG3a-WP02-A16.0		X	1; 100	
9535301	SG3a-WP02-A23.0		X	1; 10; 100	
9535302	SG3a-BL02-A22.5		X	100; 5000	
9535303	SG3a-WP03-STACK25.0		X	1; 10; 1000	
9535304	SG3a-BL03-STACK24.0		X	100; 1000	
9535305	SG3a-WP04-A8.0		X	1; 100	
9535306	SG3a-WP04-A16.0		X	1; 100	
9535307	SG3a-WP04-A23.0		X	1; 10; 1000	
9535308	SG3a-BL04-A22.5		X	100; 1000	
9535309	SG3a-WP05-A8.0		X	1; 100	
9535310	SG3a-WP05-A16.0		X	1; 100	
9535311	SG3a-WP05-A23.0		X	1; 10; 1000	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SBN08

PFAS Group

Fraction: PFAS by LC/MS/MS

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Method Blank

For noncompliant preparation/method blanks, corrective action is not required if the sample is ND or > 10 times the blank concentration, unless otherwise specified in the method or by the client.

(Sample number(s): 9535299-9535300: Analysis: 14027)
Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. Sufficient sample was not available to repeat the analysis.

LCS/LCSD

Batch#: 18094018 (Sample number(s): 9535308)
The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluoroheptanoic acid, Perfluorooctanoic acid

(Sample number(s): 9535308: Analysis: 14027)
The recovery for native compounds perfluroheptanoic acid (PFHpA) and perfluorooctanoic acid (PFOA) is outside of QC acceptance limits as noted on the QC Summary in the laboratory control spike sample (LCS). Sufficient sample was not available to repeat the analysis.

MS/MSD

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

Surrogate

Surrogate recoveries that are noncompliant are confirmed unless attributed to a dilution or otherwise noted.

Batch#: 18102019 (Sample number(s): 9535298, 9535302, 9535304)
The recovery(ies) for the following surrogate(s) exceeded the acceptance window: 13C3-PFHxS (9535298), 13C4-PFHpA (9535298, 9535302), 13C5-PFHxA (9535298)
The recovery(ies) for the following surrogate(s) were below the acceptance window: 13C5-PFPeA (9535302)

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SBN08

PFAS Group

Fraction: PFAS by LC/MS/MS

Batch#: 18094018 (Sample number(s): 9535308)
The recovery(ies) for the following surrogate(s) exceeded the acceptance window: 13C4-PFHpA (9535308), 13C5-PFHxA (9535308)
The recovery(ies) for the following surrogate(s) were below the acceptance window: 13C5-PFPeA (BLK094018B)

Batch#: 18093011 (Sample number(s): 9535294-9535297, 9535299-9535301, 9535303, 9535305-9535307, 9535309-9535311)
The recovery(ies) for the following surrogate(s) exceeded the acceptance window: 13C3-PFBS (9535301), 13C3-PFHxS (9535294, 9535295, 9535296, 9535300, 9535301, 9535303, 9535305, 9535306, 9535307, 9535309, 9535310, 9535311), 13C4-PFHpA (9535294, 9535295, 9535296, 9535299, 9535300, 9535303, 9535305, 9535306, 9535307, 9535309, 9535310, 9535311), 13C5-PFHxA (9535294, 9535295, 9535296, 9535300, 9535303, 9535307, 9535311)
The recovery(ies) for the following surrogate(s) were below the acceptance window: 13C5-PFPeA (9535294, 9535296, 9535297, 9535299, 9535300, 9535301, 9535305, 9535306, 9535309, 9535310, 9535311, BLKA093011B), 13C8-PFOA (9535295, 9535297, 9535301, 9535303, 9535305, 9535307, 9535309, 9535310, 9535311)

(Sample number(s): 9535295, 9535297, 9535301, 9535303, 9535305-9535311: Analysis: 14027)
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

(Sample number(s): 9535294, 9535296, 9535299-9535300: Analysis: 14027)
Due to the sample matrix, the recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

(Sample number(s): 9535295, 9535297, 9535301, 9535303, 9535305-9535307, 9535309-9535311: Analysis: 14027)
Due to the sample matrix, the recovery for the sample injection internal standards(s) and the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

SAMPLE ANALYSIS:

(Sample number(s): 9535298, 9535302, 9535304, 9535308: Analysis: 14027)
Reporting limits were raised due to interference from the sample matrix.

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Environmental Services Analysis Request/Chain of Custody

1 of 4

Acct. #: 37191 Group #: 1926078 Sample #: 9535292-11 COC#: 18821

Client:	C.T. Male Associates
Project Name/#:	SGPP - Bennington
Site ID:	
Project Manager:	Kirk Moline
P.O. #:	16.6131
Sampler:	JD, DK, CB, CO
Phone #:	518-786-7400
Quote #:	214135
State where sample(s) were collected:	VT

Matrix: Sediment ☐; Ground ☒; Surface ☐; Soil/Waste ☒; Potable/BULK/Water; NPDES; Other: Rinse Blank

Analyses Requested: 14 PFAS (EPA 537 mod.)

For Lab Use Only: SF#: 271284; SCR#: 222240

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Date	Time	Grab	Composite	Soil/Waste	Water	Other: Rinse Blank	Total # of Containers	14 PFAS (EPA 537 mod.)	Remarks
SG3a-LTB01-180329	3/29/18	—	✓				✓	2	✓	
SG3a-FTB01-180329	↓	8:40	✓				✓	2	✓	
SG3a-WP01-A1.5		9:10	✓		✓			1	✓	
SG3a-WP01-A8.0		10:00	✓		✓			1	✓	
SG3a-WP01-A16.0		10:05	✓		✓			1	✓	
SG3a-WP01-A23.0		10:25	✓		✓			1	✓	
SG3a-BL01-A24.0		10:30	✓			✓		1	✓	
SG3a-WP02-A8.0		10:45	✓		✓			1	✓	
SG3a-WP02-A16.0		10:55	✓		✓			1	✓	
SG3a-WP02-A23.0	↓	11:00	✓		✓			1	✓	

Turnaround Time Requested (TAT) (please check): Standard ☑ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☑	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☑		

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3/29/18	15:00	[signature]	3/29/18	1500
[signature]	3/29/18	1645			
			[signature]	3/30/18	10:20

Airbill No.:

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 1.3/1.4 °C

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Environmental Services Analysis Request/Chain of Custody

2 of 4

Acct. #: 37191 Group #: 1926098 Sample #: 9535292-11 COC#: 18821

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: JD, OK, CB, CO	
Phone #: 518-786-7400	Quote #: 214135
State where sample(s) were collected: VT	

For Lab Use Only
SF#: 271284
SCR#: 222240

Preservation Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 P = H_3PO_4
O = Other

Matrix: Sediment; Ground; Surface; Soil (WIPE); Water (BULK); NPDES; Other: Rinse Water

Analyses Requested: 14 PFAS (EPA 537 mod.)

Sample Identification	Date	Time	Grab	Composite	Sediment/Soil (Wipe)	Water (Bulk)	NPDES	Other: Rinse Water	Total # of Containers	14 PFAS (EPA 537 mod.)	Remarks
SG3a-BL02-A22.5	3/29/18	11:05	✓			✓			1	✓	
SG3a-WP03-STACK25.0		11:40	✓		✓				1	✓	Tower E
SG3a-BL03-STACK24.0		11:50	✓			✓			1	✓	Tower E
SG3a-WP04-A8.0		11:55	✓		✓				1	✓	
SG3a-WP04-A16.0		12:00	✓		✓				1	✓	
SG3a-WP04-A23.0		12:10	✓		✓				1	✓	
SG3a-BL04-A22.5		12:15	✓			✓			1	✓	
SG3a-WP05-A8.0		12:40	✓		✓				1	✓	
SG3a-WP05-A16.0		12:45	✓		✓				1	✓	
SG3a-WP05-A23.0		12:50	✓		✓				1	✓	

Turnaround Time Requested (TAT) (please check): Standard ☑ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results: kmoline@ctmale.com

Data Package Options (please check if required)
Type I (Validation/non-CLP) ☑ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☐

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	3/29/18	15:00	[signature]	3/29/18	1500
[signature]	3/29/18	1645			
			[signature]	3/30/18	1020

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ______ Other ______

Temperature upon receipt 1.3/1.4 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 212424

Group Number(s): 1926078

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/30/2018 10:20
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (2, 250mL PLastic Bottles)

Unpacked by Wyatt Shiffler (12792) at 15:56 on 03/30/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	1.3	DT	Wet	Y	Bagged	N
2	DT42-03	1.4	DT	Wet	Y	Bagged	N

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Sample Reference List for SDG Number SBN09 with a Data Package Type of I

37191 - C. T. Male Associates

Project: SGPP - Bennington

Lab Sample Number	Client Sample ID	Collection Date	Date Received
9535312	SG3a-WP06-STACK25.0	03/29/2018 13:00	03/30/2018 10:20
9535313	SG3a-BL05-A22.5	03/29/2018 12:55	03/30/2018 10:20
9535314	SG3a-WP07-A8.0	03/29/2018 13:20	03/30/2018 10:20
9535315	SG3a-WP07-A16.0	03/29/2018 13:25	03/30/2018 10:20
9535316	SG3a-WP07-A23.0	03/29/2018 13:35	03/30/2018 10:20
9535317	SG3a-EB01-180329	03/29/2018 13:45	03/30/2018 10:20
9535318	SG3a-FD01-180329	03/29/2018 00:00	03/30/2018 10:20
9535319	SG3a-WP08-STACK25.0	03/29/2018 13:50	03/30/2018 10:20
9535320	SG3a-RB01-180329	03/29/2018 14:15	03/30/2018 10:20
9535321	SG3a-RB02-180329	03/29/2018 14:20	03/30/2018 10:20
9535322	SG3a-RB03-180329	03/29/2018 14:25	03/30/2018 10:20
9535323	SG3a-WP09-A8.0	03/29/2018 14:05	03/30/2018 10:20
9535324	SG3a-WP09-A16.0	03/29/2018 14:10	03/30/2018 10:20
9535325	SG3a-WP09-A23.0	03/29/2018 14:15	03/30/2018 10:20
9535326	SG3a-BL09-A22.5	03/29/2018 14:20	03/30/2018 10:20

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Project Name: SGPP - Bennington
ELLE Group #: 1926079

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous

Sample #s: 9535313, 9535326

Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9535315, 9535316, 9535318, 9535324, 9535325

Reporting limits were raised due to interference from the sample matrix.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9535312

Reporting limits were raised due to interference from the sample matrix.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample internal standard(s) and extraction standard(s) were outside the QC acceptance limits due to the sample matrix.

Sample #s: 9535317

Reporting limits were raised due to interference from the sample matrix.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample internal standard(s) is outside the QC acceptance limits. The following corrective action was taken: the sample was reinjected and similar recoveries were observed for the internal standards.

Target analytes were detected in the method blank as noted on the QC summary.

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Sample #s: 9535314, 9535323

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9535319

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample internal standard(s) and extraction standard(s) were outside the QC acceptance limits due to sample matrix.

Batch #: 18093014 (Sample number(s): 9535312, 9535314-9535319, 9535323-9535325)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid, Perfluorobutanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9535312, 9535319

Batch #: 18102019 (Sample number(s): 9535313, 9535326 UNSPK: P536676)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorodecanoic acid, Perfluoroundecanoic acid, Perfluorododecanoic acid, Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluoro-octanesulfonate, Perfluorobutanoic acid, Perfluoropentanoic acid, Perfluoroheptanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9535326, MS, MSD

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SBN09

PFAS Group
Fraction: PFAS by LC/MS/MS

		Matrix			
Sample #	Client ID	Liquid	Solid	DF	Comments
9535312	SG3a-WP06-STACK25.0		X	10; 100	
9535313	SG3a-BL05-A22.5		X	100; 1000	
9535314	SG3a-WP07-A8.0		X	100	
9535315	SG3a-WP07-A16.0		X	100	
9535316	SG3a-WP07-A23.0		X	100	
9535317	SG3a-EB01-180329		X	1	Equipment Blank
9535318	SG3a-FD01-180329		X	1000	Field Duplicate Sample
9535319	SG3a-WP08-STACK25.0		X	100; 1000	
9535320	SG3a-RB01-180329	X		1	Material Rinse Blank
9535321	SG3a-RB02-180329	X		1	Material Rinse Blank
9535322	SG3a-RB03-180329	X		1	Material Rinse Blank
9535323	SG3a-WP09-A8.0		X	100	
9535324	SG3a-WP09-A16.0		X	100	
9535325	SG3a-WP09-A23.0		X	100	
9535326	SG3a-BL09-A22.5		X	100; 5000	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SBN09

PFAS Group

Fraction: PFAS by LC/MS/MS

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Method Blank

For noncompliant preparation/method blanks, corrective action is not required if the sample is ND or > 10 times the blank concentration, unless otherwise specified in the method or by the client.

(Sample number(s): 9535317: Analysis: 14027)
Target analytes were detected in the method blank as noted on the QC summary.

LCS/LCSD

(Sample number(s): 9535312, 9535314-9535319, 9535323-9535325: Analysis: 14027)
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch#: 18093014 (Sample number(s): 9535312, 9535314-9535319, 9535323-9535325)
The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorobutanoic acid, Perfluorotridecanoic acid

MS/MSD

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

Surrogate

Surrogate recoveries that are noncompliant are confirmed unless attributed to a dilution or otherwise noted.

Batch#: 18093014 (Sample number(s): 9535312, 9535314-9535319, 9535323-9535325)
The recovery(ies) for the following surrogate(s) exceeded the acceptance window: 13C3-PFHxS (9535312, 9535319), 13C4-PFHpA (9535312, 9535319), 13C5-PFHxA (9535312, 9535319)

Batch#: 18102019 (Sample number(s): 9535313, 9535326)
The recovery(ies) for the following surrogate(s) exceeded the acceptance window: 13C5-PFHxA (9535326)

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SBN09

PFAS Group

Fraction: PFAS by LC/MS/MS

SAMPLE ANALYSIS:

(Sample number(s): 9535312-9535319, 9535323-9535326: Analysis: 14027)
Reporting limits were raised due to interference from the sample matrix.

(Sample number(s): 9535312, 9535319: Analysis: 14027)
The recovery for the sample internal standard(s) and extraction standard(s) were outside the QC acceptance limits due to sample matrix.

(Sample number(s): 9535317: Analysis: 14027)
The recovery for the sample internal standard(s) is outside the QC acceptance limits. The following corrective action was taken: the sample was reinjected and similar recoveries were observed for the internal standards.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1926079 Sample # 9535312-26

COC # 558203

Client Information

Client: C.T. Male Associates	Accl. #:
Project Name/#: SGPP-Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16,6131
Sampler: JO, DR, CB, CO	Quote #: 214135
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ Water ☐ Ground ☐ Surface ☐ Potable ☐ NPDES ☐ Other: Rinse Water

Analysis Requested

Preservation and Filtration Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	14 PFAS (EPA 537.1)	Remarks
SG3a-WP06-STACK25.0	3/29/18	13:00	✓		1	✓	Towel
SG3a-EBLOS-ACA-QA25		12:55	✓		1	✓	
SG3a-WP07-A8.0		13:20	✓		1	✓	
SG3a-WP07-A16.0		13:25	✓		1	✓	
SG3a-WP07-A23.0		13:35	✓		1	✓	
SG3a-EB01-180329		13:45	✓		1	✓	Wipe Blank
SG3a-FD01-180329		—	✓		1	✓	
SG3a-WP08-STACK25.0		13:50	✓		1	✓	Tower G
SG3a-RB01-180329		14:15	✓		2	✓	Scraper
SG3a-RB02-180329		14:20	✓		2	✓	Wipe

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

3 of 4

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	3/29/18	15:00		3/29/18	1500
Chris Ramsey	3/29/18	1645			

EDD Required? Yes No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx ✓ Other

Temperature upon receipt 1.3/1.4 °C ✓

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 37191 Group # 1926079 Sample # 9535512-26

COC # 539219

Client Information

Client: C.T. Male Associates
Acct. #:
Project Name/#: SGPP-Bennington
PWSID #:
Project Manager: Kirk Moline
P.O. #: 16.6131
Sampler: JD, DK, CB, CO
Quote #: 214135
State where samples were collected: VT
For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐
Water ☐ Potable ☐ Ground ☑ Surface ☐ NPDES ☐
Other: Rinse Water

Analysis Requested

Preservation Codes

14 PFAS (EPA 537 mod.)

For Lab Use Only

FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

4 of 4

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Water	Other	Total # of Containers	14 PFAS (EPA 537 mod.)	Remarks
SG3a-BR03-180329	3/29/18	14:25	✓		✓		✓	2	✓	Nitrile Glove
SG3a-WP09-A8.0		14:05	✓		✓			1	✓	
SG3a-WP09-A16.0		14:10	✓		✓			1	✓	
SG3a-WP09-A23.0		14:15	✓		✓			1	✓	
SG3a-BL09-~~A24~~ A22.5	↓	14:20	✓			✓		1	✓	

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:
E-mail address: Kmoline@ctmale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP)
Type VI (Raw Data Only)
Type III (Reduced non-CLP)
NJ DKQP
TX TRRP-13
NYSDEC Category A or B
MA MCP
CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	3/29/18	15:00		3/29/18	1500
	3/29/18	1645			
				3/30/18	1020

EDD Required? Yes No
If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ✓ Other ____

Temperature upon receipt 1.3/1.4 °C ✓

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Sample Administration Receipt Documentation Log

Doc Log ID: 212424

Group Number(s): 1926079

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/30/2018 10:20
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (2, 250mL PLastic Bottles)

Unpacked by Wyatt Shiffler (12792) at 15:56 on 03/30/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	1.3	DT	Wet	Y	Bagged	N
2	DT42-03	1.4	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425

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SECTION 7

PROJECT CORRESPONDENCE

Bryan J. Eck

From:	Meg Michell
Sent:	Tuesday, May 8, 2018 9:13 AM
To:	Christine Ratcliff; Nancy Bornholm
Cc:	Charles Neslund; David Blye; Moline, Kirk (k.moline@ctmale.com); Ward Swanson (WSwanson@barr.com); Lauren Brady; Michael D. Dupay; StGobain; Bryan J. Eck; Jared K. Acker; Tom Weinmann; Kelly Caddy
Subject:	RE: SBN09 PFOA issues - also SBN10, SBN11, SMC48

Checking in on these revisions since it has been awhile. When do you expect to have this done?

From: Christine Ratcliff [mailto:ChristineRatcliff@eurofinsUS.com]
Sent: Thursday, April 26, 2018 1:32 PM
To: Meg Michell <mmichell@envstd.com>; Nancy Bornholm <NancyBornholm@eurofinsUS.com>
Cc: Charles Neslund <CharlesNeslund@eurofinsUS.com>; David Blye <DBLYE@envstd.com>; Moline, Kirk (k.moline@ctmale.com) <k.moline@ctmale.com>; Ward Swanson (WSwanson@barr.com) <WSwanson@barr.com>; Lauren Brady <LBrady@barr.com>; Michael D. Dupay <MDupay@barr.com>; StGobain <StGobain@envstd.com>; Bryan J. Eck <beck@envstd.com>
Subject: RE: SBN09 PFOA issues

Meg,
When this package was created, the incorrect ICAL was pulled. I am having a second version of the package created with the correct ICAL data. You will also have the same issue in the following SDGs: SMC48, SBN10, SBN11. New versions of these packages will also be created and put up.

I apologize for the confusion.

Christine Ratcliff
Manager
HRMS Group/PFAS Group

Eurofins Lancaster Laboratories Environmental LLC
2425 New Holland Pike
Lancaster, PA 17601
USA

Phone: 717-556-7380
Fax: 717-656-2681

ChristineRatcliff@EurofinsUS.com
www.EurofinsUS.com\LancLabsEnv

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Wednesday, April 25, 2018 1:50 PM
To: Nancy Bornholm

Cc: Christine Ratcliff; Charles Neslund; David Blye; Moline, Kirk (k.moline@ctmale.com); Ward Swanson (WSwanson@barr.com); Lauren Brady; Michael D. Dupay; StGobain; Bryan J. Eck
Subject: FW: SBN09 PFOA issues

EXTERNAL EMAIL*

Hi-
Could you address the PFOA discrepancies for the CCV, LCS, and samples below?
Thanks!

From: Bryan J. Eck
Sent: Wednesday, April 25, 2018 1:41 PM
To: Meg Michell <mmichell@envstd.com>
Subject: SBN09 PFOA issues

In the SBN09 CCV below, the result for PFOA in the summary is incorrect. The calculation agrees with the raw data. Both results are within limits, so no qualification is necessary, but it should be revised to reflect the correct value. All of the other analytes agree between the raw data and the summary.

Instrument ID: 24743 Lab File ID: 18APR03MCAL-20.WIFF

Date/Time Analyzed: 04/03/2018 20:20 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.11	5.73	±30
Perfluoropentanoic acid	2.00	2.02	1.20	±30
Perfluorobutanesulfonate	1.77	1.77	-0.16	±30
4:2 fluorotelomersulfonate	4.90	5.02	2.49	±30
Perfluorohexanoic acid	2.00	2.12	6.07	±30
Perfluoropentanesulfonate	1.88	1.97	4.60	±30
Perfluorohexanesulfonate	1.89	1.90	0.70	±30
Perfluoroheptanoic acid	2.00	2.40	20.22	±30
6:2 fluorotelomersulfonate	5.21	5.82	11.78	±30
Perfluoroheptanesulfonate	1.90	1.86	-2.20	±30
Perfluorooctanoic acid	2.00	2.10	5.06	±30
Perfluoro-octanesulfonate	1.91	1.97	3.21	±30
Perfluorononanoic acid	2.00	2.08	4.14	±30
Perfluorooctanesulfonamide	2.00	2.24	11.78	±30
Perfluorononanesulfonate	1.92	1.95	1.47	±30
Perfluorodecanoic acid	2.00	2.23	11.37	±30
8:2 fluorotelomersulfonate	5.27	5.66	7.44	±30
NMeFOSAA	2.00	2.19	9.50	±30
Perfluorodecanesulfonate	1.93	1.88	-2.71	±30
Perfluoroundecanoic acid	2.00	2.08	4.13	±30

Continuing Calibration Verfication

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL 4/3/2018 8:20:12 PM

QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

Instrument Name:	Sample Name:	Sample ID:	Sample File:	Acquisition Date:
LM24743	CCV1_CAL3	CALMOD31733F	18APR03MCAL-20.wiff	2018-04-03T20:20:55

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	401087.5	13C4-PFBA	1128599.9	5.0	0.355	4.43	1.000	2.000	2.115	5.7	30.0	
PFPeA	401982.4	13C5-PFPeA	971390.9	5.0	0.414	5.01	1.000	2.000	2.024	1.2	30.0	
PFBS	205732.3	13C3-PFBS	570783.7	4.7	0.360	5.06	1.000	1.770	1.767	-0.2	30.0	
4:2-FTS	345661.0	13C2-4:2-FTS	388991.3	4.7	0.889	5.43	1.000	4.900	5.022	2.5	30.0	
PFHxA	730690.7	13C5-PFHxA	1866027.5	5.0	0.392	5.48	1.000	2.000	2.121	6.1	30.0	
PFPeS	109858.2	13C3-PFBS	570783.7	4.7	0.192	5.49	1.080	1.880	1.966	4.6	30.0	
PFHxS	223935.8	13C3-PFHxS	558212.3	4.7	0.401	5.92	1.000	1.890	1.903	0.7	30.0	
PFHpA	938935.4	13C4-PFHpA	1853523.4	5.0	0.507	5.92	1.000	2.000	2.404	20.2	30.0	
6:2-FTS	349503.8	13C2-6:2-FTS	315578.9	4.8	1.108	6.32	1.000	5.210	5.823	11.8	30.0	
PFHpS	189585.5	13C3-PFHxS	558212.3	4.7	0.340	6.32	1.070	1.900	1.858	-2.2	30.0	
PFOA	928466.1	13C8-PFOA	2385779.2	5.0	0.389	6.33	1.000	2.000	2.225	11.3	30.0	
PFOS	186049.3	13C8-PFOS	464357.0	4.8	0.401	6.68	1.000	1.910	1.971	3.2	30.0	
PFNA	846644.7	13C9-PFNA	1736512.9	5.0	0.488	6.71	1.000	2.000	2.083	4.1	30.0	
PFOSA	447834.3	13C8-PFOSA	1053774.5	5.0	0.425	6.98	1.000	2.000	2.236	11.8	30.0	
PFNS	126800.6	13C8-PFOS	464357.0	4.8	0.273	7.01	1.050	1.920	1.948	1.5	30.0	
PFDA	789946.6	13C8-PFDA	2030994.9	5.0	0.389	7.05	1.000	2.000	2.227	11.4	30.0	
8:2-FTS	426844.5	13C2-8:2-FTS	385173.3	4.8	1.108	7.06	1.000	5.270	5.662	7.4	30.0	
NMePFOSAE	88315.5	d7-NMePFOSAE	188363.9	5.0	0.469	7.39	1.000	2.000	2.016	0.8	30.0	
NMePFOSA	76819.0	d3-NMePFOSA	178256.5	5.0	0.431	7.41	1.000	2.000	2.115	5.7	30.0	
NMeFOSAA	214230.9	d3-NMeFOSAA	458759.8	5.0	0.467	7.22	1.000	2.000	2.190	9.5	30.0	
NEtPFOSAE	124959.0	d9-NEtPFOSAE	234485.8	5.0	0.533	7.54	1.000	2.000	2.107	5.3	30.0	

In addition, results for PFOA in SBN09 samples 9535320 and 9535321 as well as the LCS/LCSD associated with batch 18092009 do not calculate correctly. These samples are also in the same ICAL that had the incorrect CCV calculation for PFOA. The actual concentrations are consistently 1.06x the concentration given, leading me to believe the laboratory is using the wrong slope or the slope expressed in the ICAL (0.87446) is incorrect. I calculated the estimated slope to be 0.92614.

Bryan J. Eck
Staff Chemist I

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DATA USABILITY SUMMARY REPORT

ANALYSIS OF PERFLUORINATED AND POLYFLUORINATED ALKYL SUBSTANCES

IN WIPE, SOLID, AND AQUEOUS BLANK SAMPLES

1030 WATER STREET, VILLAGE OF NORTH BENNINGTON, BENNINGTON COUNTY, VERMONT, VTDEC SMS SITE # 20164630

SAMPLE DELIVERY GROUPS: SBN10 AND SBN11

May 25, 2018

Prepared for:

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

Prepared by:

ENVIRONMENTAL STANDARDS, INC.
1140 Valley Forge Road
P.O. Box 810
Valley Forge, PA 19482-0810

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TABLE OF CONTENTS

Introduction

Section 1 Quality Assurance Review

A. Organic Data Review

B. Conclusions

Section 2 Validated Data Summary Tables

A. SDG SBN10

B. SDG SBN11

Section 3 Laboratory Calibration and Quality Control Acceptance Criteria

Section 4 Environmental Standards, Inc., Standard Operating Procedure

Section 5 Organic Data Support Documentation

A. SDG SBN10

B. SDG SBN11

Section 6 Laboratory Case Narratives and Project Chain-of-Custody Records

Section 7 Project Correspondence

Introduction

This Data Usability Summary Report (DUSR) was based upon an examination of the data generated from samples that were collected on March 29 and 30, 2018, as part of the 1030 Water Street, Village of North Bennington, Vermont project based on the "Initial Site Characterization Investigation Work Plan Saint-Gobain Performance Plastics Site 1030 Water Street, Village of North Bennington, Bennington County, Vermont" (Work Plan, April 2016). The analyses of the samples (and associated quality control [QC] samples) listed on the table below were performed by Eurofins Lancaster Laboratories Environmental (ELLE) of Lancaster, Pennsylvania. Solid and wipe samples were analyzed for perfluorinated and polyfluorinated alkyl substances (PFASs) according to ELLE's internal standard operating procedure (SOP) "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3). Aqueous samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI14355, Version 3). The Analytical Services Protocol (ASP) Category B data deliverables were prepared by the laboratory and were reviewed by Environmental Standards, Inc. (Environmental Standards). The samples that have undergone a Full quality assurance (QA) review are listed on Table 1. Table 1 also presents the laboratory sample number, laboratory Sample Delivery Group (SDG), matrix, collection date, and parameter analyzed and reviewed for the samples.

The reported analytical results are presented on the validated data summary tables included in Section 2. These validated data summary tables were generated from electronic data deliverables (EDDs) provided by the laboratory and have been edited by the data reviewer to include all final data validation qualifiers and results. The "Lab Result," "Lab MDL" (*i.e.*, the method detection limit [MDL]), "Lab LOQ" (*i.e.*, the limit of quantitation [LOQ]), "Lab Qualifier," and "Lab Detect Flag" fields presented on the validated data summary tables were derived directly from the laboratory-provided EDD. Errors in the "Lab Result," "Lab MDL," "Lab LOQ," and "Lab Detect Flag" fields noted during validation have been corrected, and the corrections are reflected in the "Final Result," "Final MDL," "Final LOQ," and "Final Detect Flag" fields, respectively, on the validated data summary tables. Validation qualifier codes have been placed in the "Final Qualifier" fields on the data tables to enable the data user to quickly assess the qualitative and/or quantitative reliability of a result based on the criteria evaluated during this QA review. Finally, the "Validation Reason Code" field has been populated with codes that indicate the reason for the validation qualifiers. Definitions of the validation qualifiers and reason codes are presented with the validated data summary tables.

This QA review has been performed with guidance from the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016), and the "National Functional Guidelines for High Resolution Superfund Methods Data Review" (US EPA, April 2016); however, these validation guidance documents specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocol performed by the

laboratory for these samples. Environmental Standards used professional judgment to determine the usability of the analytical results and compliance relative to the requirements specified in the Work Plan and ELLE's internal SOPs for PFAS analysis. US EPA Method 537 is written strictly for drinking water samples, and no approved US EPA method currently exists for other sample matrices. Although ELLE's internal SOPs reference US EPA Method 537 for PFAS analysis, the procedures are really "in-house" procedures that are also considered "Confidential Information"; therefore, a summary of the Calibration and QC Requirements used by ELLE for PFAS analysis has been included in Section 3. In addition, the SOP used by Environmental Standards to validate data generated under the ELLE PFAS SOPs is provided in Section 4. Details of this QA review are presented in Section 1 of this DUSR.

This DUSR identifies data quality issues for specific samples and specific evaluation criteria. The data qualifications allow the data end-user to best understand the usability of the analysis results. Data not qualified in this report should be considered valid based on the QC criteria that have been reviewed.

Section 5 of the report presents the Organic Data Support Documentation for this DUSR, and the Laboratory Case Narratives and Project Chain-of-Custody Records are presented in Section 6. Project Correspondence is presented in Section 7.

TABLE 1 – SUMMARY OF SAMPLES REVIEWED

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter Examined
SG3a-WP10-B35.0	9536659	SBN10	W	3/29/18	F	PFAS
SG3a-WP10-B33.0	9536660	SBN10	W	3/29/18	F	PFAS
SG3a-BL10-B26.0	9536661	SBN10	S	3/29/18	F	PFAS
SG3a-WP10-B23.0	9536662	SBN10	W	3/29/18	F	PFAS
SG3a-WP10-B11.0	9536663	SBN10	W	3/29/18	F	PFAS
SG3a-BL10-B29.0	9536664	SBN10	S	3/29/18	F	PFAS
SG3a-FTB01-180330 (Field Blank)	9536665	SBN10	Aq	3/30/18	F	PFAS
SG3a-LTB01-180330 (Trip Blank)	9536666	SBN10	Aq	3/30/18	F	PFAS
SG3a-RB01-180330 (Rinse Blank)	9536667	SBN10	Aq	3/30/18	F	PFAS
SG3a-WP11-B42.0	9536668	SBN10	W	3/30/18	F	PFAS
SG3a-WP11-B41.0	9536669	SBN10	W	3/30/18	F	PFAS
SG3a-BL11-B40.5	9536670	SBN10	S	3/30/18	F	PFAS
SG3a-BL11-B25.0	9536671	SBN10	S	3/30/18	F	PFAS
SG3a-WP11-B24.0	9536672	SBN10	W	3/30/18	F	PFAS
SG3a-WP11-B16.0	9536673	SBN10	W	3/30/18	F	PFAS
SG3a-EB01-180330 (Equipment Blank)	9536674	SBN10	Aq	3/30/18	F	PFAS
SG3a-EB02-180330 (Equipment Blank)	9536675	SBN10	W	3/30/18	F	PFAS
SG3a-BL13-C	9536676	SBN10	S	3/30/18	F	PFAS
SG3a-BL13-C MS (Matrix Spike)	9536677	SBN10	S	3/30/18	F	PFAS
SG3a-BL13-C MSD (Matrix Spike Duplicate)	9536678	SBN10	S	3/30/18	F	PFAS
SG3a-WP12-B44.5	9536679	SBN10	W	3/30/18	F	PFAS
SG3a-WP12-B43.0	9536680	SBN10	W	3/30/18	F	PFAS
SG3a-BL12-B42.5	9536681	SBN11	S	3/30/18	F	PFAS
SG3a-WP12-B30.0	9536682	SBN11	W	3/30/18	F	PFAS
SG3a-WP12-B15.0	9536683	SBN11	W	3/30/18	F	PFAS
SG3a-BL12-B28.0	9536684	SBN11	S	3/30/18	F	PFAS
SG3a-FD01-180330 (Field Duplicate of SG3a-WP12-B44.5)	9536685	SBN11	W	3/30/18	F	PFAS
SG3a-FD02-180330 (Field Duplicate of SG3a-BL12-B42.5)	9536686	SBN11	S	3/30/18	F	PFAS

TABLE 1 (Cont.)

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter Examined
SG3a-FTB02-180330 (Field Blank)	9536687	SBN11	Aq	3/30/18	F	PFAS
SG3a-LTB02-180330 (Trip Blank)	9536688	SBN11	Aq	3/30/18	F	PFAS
SG3a-WP02-A1.5	9536689	SBN11	W	3/30/18	F	PFAS
SG3a-WP04-A1.5	9536690	SBN11	W	3/30/18	F	PFAS
SG3a-WP05-A1.5	9536691	SBN11	W	3/30/18	F	PFAS
SG3a-WP07-A1.5	9536692	SBN11	W	3/30/18	F	PFAS
SG3a-WP09-A1.5	9536693	SBN11	W	3/30/18	F	PFAS
SG3a-BL14-A5.5	9536694	SBN11	S	3/30/18	F	PFAS
SG3a-WP15-E	9536695	SBN11	W	3/30/18	F	PFAS
SG3a-WP16-E	9536696	SBN11	W	3/30/18	F	PFAS
SG3a-WP17-E	9536697	SBN11	W	3/30/18	F	PFAS
SG3a-WP18-E	9536698	SBN11	W	3/30/18	F	PFAS
SG3a-EB03-180330 (Equipment Blank)	9536699	SBN11	W	3/30/18	F	PFAS
SG3a-FD03-180330 (Field Duplicate of SG3a-WP17-E)	9536700	SBN11	W	3/30/18	F	PFAS

NOTES:

PFAS - Perfluorinated and Polyfluorinated Alkyl Substances (PFASs) according to ELLE's SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3) for solid and wipe samples and "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI14355, Version 3) for aqueous samples. (42 Full analyses)

F - Full QA Review (refer to Section 1).

S - Solid.

W - Wipe.

Aq - Aqueous.

Section 1 Quality Assurance Review

A. Organic Data Review

The organic analyses of 25 wipe, 11 solid, and six aqueous samples (including QC samples) collected on March 29 and 30, 2018, as part of the 1030 Water Street, Village of North Bennington, Vermont project were performed by ELLE. Solid and wipe samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3). Aqueous samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances in Aqueous Samples by Method 537 Revision 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI14355, Version 3). Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data reviewed were presented in an ASP Category B data deliverables.

The findings offered in this report for analyses that underwent a Full QA review were based upon a rigorous review of all tabulated QC summary forms and all raw data, including the following QC measures:

- Sample and extract holding times
- Blank analysis results
- Second-source initial calibration verification (ICV) recoveries
- Laboratory control spike/laboratory control spike duplicate (LCS/LCSD) results
- Labeled pre-extraction internal standard recoveries
- Qualitative identification
- Field duplicate precision
- Sample condition upon laboratory receipt
- Initial calibrations
- Continuing calibration verification (CCV) recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Pre-injection internal standard responses
- Quantitation of results
- Analytical sequence

The analytical results for the organic target compounds are presented on the validated data summary tables in Section 2 of this DUSR. The validated data summary tables include the full names of the target analytes along with their associated acronyms, which are used throughout the text of this DUSR. A summary of ELLE's Calibration and QC Requirements has been included in Section 3. The SOP used by Environmental Standards to validate data generated under the ELLE SOPs is provided in Section 4. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, and other documentation needed to support the findings in this DUSR in the Organic Data Support Documentation provided in Section 5, Laboratory Case Narratives and Project Chain-of-Custody Records in Section 6, and Project Correspondence in Section 7. The data reviewer has also manually edited the laboratory-reported data and QC summary forms included in these sections based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Usability issues are addressed in the subsequent Organic Data Qualifiers section. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the analytical methods performed and the ELLE internal SOPs.

Reporting Issues

1. In SDG SBN10 and SBN11, the slopes for PFOA and $^{13}C_8$-PFOA in the initial calibration performed 4/3/2018, on instrument LM24743 were incorrectly calculated. Upon request, the laboratory revised the data packages to reflect the correct values. All samples and QC concentrations for PFOA associated with this initial calibration were calculated using the correct value; therefore, no revisions to the samples and QC were necessary (refer to Project Correspondence).

2. In the Level 4 data package for SDG SBN10 and SBN11, multiple summary forms incorrectly display sample type (soil as wipes) and units (ng/g as ng/wipes) for soild samples as if they were wipe samples. The data reviewer hand corrected the forms as needed.

3. The results for PFOA in multiple samples from SDG SBN10 and SBN11 were reported from analyses performed at secondary dilutions; however, the laboratory reported the recoveries of the associated labeled pre-extraction internal standard from the undiluted or primary dilution analyses in the Surrogate Quality Control section of the Analysis Report. The data reviewer assessed the pre-extraction internal standard recoveries from the Form 02A's and raw data.

Procedural Issues

1. US EPA Method 537 is listed as the reference method in the title of the ELLE SOPs; however, US EPA Method 537 is written specifically for the analysis of drinking water samples. As a result, the laboratory has made modifications to the extraction procedure to accommodate preparation of non-aqueous samples (ultrasonic extraction for an hour with 1:1 acetonitrile/methanol mixture vs. solid-phase extraction). In addition, the laboratory has made other modifications, including, but not limited to, the following:

    - For aqueous samples, Agilent SampliQ Weak Anion Exchange ("WAX") solid-phase extraction cartridges were used instead of polystyrenedivinylbenzene.
    - The laboratory utilized additional labeled analogs of the target PFASs, where available for use, as pre-extraction internal standards (all target PFASs except PFTriA), which generally should normalize any extraction inefficiency and provide greater accuracy in quantitation. For dilution analyses, the pre-extraction internal standards were refortified after extraction and prior to dilution. In addition, the laboratory spiked the extracts with yet additional labeled analogs of the target PFASs post extraction and used these labeled analogs as the internal standards for the pre-extraction internal standards.

- As the labeled internal standards were added prior to extractions, additional labeled surrogate compounds were not used.
- A holding time of 28 days from collection to extraction was used for solid and wipe samples.
- The laboratory did not control the relative percent difference (RPD) between the high and low areas for each internal standard in the initial calibration (must be < 20% by US EPA Method 537, Version 1.1).
- The laboratory did not calculate the peak asymmetry factor.
- The laboratory did not rotate the concentration used for the LCS.
- The calibration standards only included the linear PFAS isomers; however, available branched/linear standards were analyzed for qualitative purposes.
- Alternate ion transitions were used for PFBS and $^{13}C_8$-PFOS (299→99 instead of 299→80 for PFBS and 503→99 instead of 503→80 for $^{13}C_8$-PFOS) - the fragment represented by *m/z* 80 is the sulfonate group; whereas, the fragment represented by *m/z* 99 is the fluorinated sulfonate group.

2. The laboratory analyzed a qualitative standard that included both branched and linear isomers for PFHxS, PFOA, and PFOS. Where transition ion peaks were observed and deemed by laboratory personnel to represent branched isomers in samples based on the analysis of this standard, the responses for such peaks were included in the response for the analyte and used to quantitate the results for PFHxS, PFOA, and PFOS in samples relative to the linear isomer calibration standards. The laboratory did not integrate peaks other than the peak representative of the linear isomer (based on calibration standards) for target analytes other than PFHxS, PFOA, and PFOS in samples.

3. The laboratory noted high (> 130%) recoveries for PFBA, PFOA, and PFUnA in the LCS/LCSD associated with all SDG SBN10 wipe samples; however, the laboratory could not re-extract the LCS/LCSD and associated samples according to the Laboratory Calibration and Quality Control Acceptance Criteria (Section 3) because of the limited nature of wipe samples. Qualification of the data due to the high LCS/LCSD recoveries is addressed in the subsequent Organic Data Qualifiers section.

4. As stated in the Case Narratives, the MDLs and LOQs were raised due to sample matrix for several samples. Theses samples were analyzed at initial dilutions.

5. The laboratory extracted wipe samples according to its internal SOP T-PFAS-WI12031, which is for solid samples. The reported method blank and LCS did not include a blank wipe matrix. Several positive results and interferences were observed in the equipment blanks (SG3a-EB02-180330 and SG3a-EB03-180330) that did include an unused wipe.

Data Evaluation

With respect to data usability, the principal areas of concern are blank contamination, field duplicate imprecision, high LCS/LCSD recoveries, low MS/MSD recoveries, chromatographic interference, out-of-criteria pre-extraction internal standard recoveries, and results reported between the MDL and the LOQ. Based on a review of the data provided, the following data

qualifiers are offered. The following data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical method used for analysis. Accordingly, the following data usability issues should not be construed as an indication of laboratory performance.

Organic Data Qualifiers

- Due to the presence of PFBA in the associated equipment blanks, the reported positive results on the table below should be considered "not-detected" and have been flagged "UB" on the data tables. In addition, the data reviewer deleted the results from the "Final Result" field, changed the "Final Detect Flag" to "N," and raised the "Final MDL" to the value of the original positive result, on the data tables. (Validation Reason Code: EB)

Sample(s)	SDG	Compound with Adjusted MDLs and/or LOQs ("UB")
SG3a-WP11-B41.0	SBN10	PFBA
SG3a-WP12-B30.0, SG3a-FD01-180330, SG3a-WP02-A1.5, SG3a-WP05-A1.5, SG3a-WP07-A1.5, SG3a-WP09-A1.5, SG3a-WP15-E, SG3a-WP16-E, SG3a-WP17-E, and SG3a-FD03-180330	SBN11	PFBA

- The reported positive results for PFOS in SDG SBN10 sample SG3a-EB02-180330 and SDG SBN11 samples SG3a-WP12-B15.0, SG3a-WP05-A1.5, and SG3a-EB03-180330 should be considered unusable and have been flagged "R" on the data tables. Significant chromatographic interference, in the form of a series of unresolved peaks, was observed for the PFOS ion transition in the chromatographic region where PFOS elutes; the laboratory integrated these peaks in order to qualitatively identify and quantitate PFOS in these samples. (Validation Reason Code: CI)

- The reported positive results for PFOS in SDG SBN11 samples SG3a-WP12-B30.0, SG3a-WP02-A1.5, SG3a-WP04-A1.5, SG3a-WP07-A1.5, and SG3a-WP09-A1.5 should be considered tentatively identified as well as estimated, and have been flagged "JN" on the data tables. Chromatographic interference was observed for the ion transition for PFOS in the chromatographic region where this compound elutes. The laboratory integrated area within the interference in order to qualitatively identify and quantitate PFOS in the aforementioned samples. (Validation Reason Code: CI)

- The reported positive results for PFOS in SDG SBN10 sample SG3a-WP11-B41.0 and SDG SBN11 samples SG3a-FD01-180330, SG3a-WP15-E, SG3a-WP16-E, SG3a-WP17-E, and SG3a-FD03-180330 should be considered estimated and have been flagged "J" on the data tables. The integration of the PFOS peaks included contribution from an unresolved chromatographic interference. (Validation Reason Code: CI)

- The reported positive results for PFDA, PFDoA, PFHpA, PFOA, and PFTA in SDG SBN10 sample SG3a-WP12-B44.5 and SDG SBN11 sample SG3a-FD01-180330; and for PFHpA, PFHxA, and PFTA in SDG SNB11 samples SG3a-WP17-E and SG3a-FD03-180330 should be considered estimated and have been flagged "J" on the data tables. Large discrepancies (RPD > 30% when both results were ≥ 5× the LOQ, or the difference between the results was > 1.5× the LOQ when at least one result was < 5× the LOQ) were observed for these analytes in the associated field duplicate analyses. (Validation Reason Code: FD)

- The reported positive results for PFBA, PFOA, and PFUnA in all SDG SBN10 wipe samples should be considered estimated and have been flagged "J" on the data tables (unless previously flagged "UB"). High recoveries (%R > 130%) were observed for these compounds in the associated LCS/LCSD analyses (see Procedural Issue No. 4). (Validation Reason Code: LAH)

- The positive results for PFBS, PFHxS, PFNA, PFTriA, and PFUnA in SDG SBN10 sample SG3a-BL13-C should be considered estimated and have been flagged "J" on the data tables. Very low recoveries (< 30%) were observed for these compounds in the associated MS/MSD analyses. (Validation Reason Code: MAL)

- The MDLs and LOQs for the PFPeA in the samples listed on the table below may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. In addition, the reported positive results listed on the table below should be considered estimated and have been flagged "J" on the data tables. Low recoveries (< lower laboratory acceptance limits) were observed for the pre-extraction internal standard used to quantitate PFPeA in the analyses of these samples. (Validation Reason Code: IS)

Sample(s)	SDG	Compound With Estimated MDLs and LOQs ("UJ")	Compound With Estimated Results ("J")
SG3a-BL11-B40.5 and SG3a-BL13-C	SBN10	-	PFPeA
SG3a-EB03-180330	SBN11	PFPeA	-

- The MDLs and LOQs for the compounds listed on the table below may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. In addition, the reported positive results listed on the table below should be considered estimated and have been flagged "J" on the data tables. High recoveries (> upper laboratory acceptance limits) were observed for the pre-extraction internal standards used to quantitate these compounds in the analyses of these samples. (Validation Reason Code: IS)

Sample(s)	SDG	Compound With Estimated MDLs and LOQs ("UJ")	Compound(s) With Estimated Results ("J")
SG3a-WP10-B35.0, SG3a-WP10-B33.0, SG3a-WP10-B23.0, SG3a-WP11-B41.0, SG3a-WP11-B24.0, SG3a-WP11-B16.0, and SG3a-WP12-B43.0	SBN10	PFHxS	PFHxA and PFHpA
SG3a-WP10-B11.0 and SG3a-WP11-B42.0	SBN10	-	PFHxA and PFHpA
SG3a-WP12-B44.5	SBN10	-	PFHxA
SG3a-WP12-B30.0, SG3a-WP12-B15.0, SG3a-FD01-180330, SG3a-WP02-A1.5, SG3a-WP04-A1.5, SG3a-WP05-A1.5, SG3a-WP07-A1.5, SG3a-WP09-A1.5, SG3a-WP15-E, SG3a-WP16-E, SG3a-WP17-E, SG3a-WP18-E, and SG3a-FD03-180330	SBN11	PFHxS	PFHxA and PFHpA
SG3a-BL14-A5.5	SBN11	PFHxS	PFHxA, PFHpA, and PFNA

- All positive results reported with concentrations between the laboratory's reported MDLs and LOQs were flagged "J" by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

B. Conclusions

The analytical data are acceptable for use as reported by the laboratory with the following exceptions and qualifications. Several organic results were qualified as unusable due to significant chromatographic interference. In addition, several organic results were qualified as "not-detected" due to blank contamination, and several results were qualified as estimated due to field duplicate imprecision, high LCS/LCSD recoveries, low MS/MSD recoveries, chromatographic interference, out-of-criteria pre-extraction internal standard recoveries, and results reported between the MDL and the LOQ. In order to use any of the data, the data user should understand the qualifications and limitations as specified in this DUSR.

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SECTION 2

VALIDATED DATA SUMMARY TABLES

Validation Qualifier and Reason Code Definitions

Table 1. Validation Qualifiers and Definitions

Validation Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analyte has been “tentatively identified” or considered “presumptively” present.
UJ	The analyte was analyzed for, but was not detected. The reported MDL and limit of quantitation (LOQ) are approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
UB	The Analyte was not detected substantially above the level reported in the associated laboratory, equipment, field, or trip blank.

Table 2. Validation Reason Codes and Descriptions

Validation Reason Code	Description
CI	Chromatographic interference
CR	Calculated result in which one or more of the components has been qualified, potential bias indeterminate
CRH	Calculated result in which one or more of the components has been qualified, potential high bias
CRL	Calculated result in which one or more of the components has been qualified potential low bias
CV	Continuing calibration verification evaluation criteria not met, potential bias indeterminate
CVH	Continuing calibration verification evaluation criteria not met, potential high bias
CVL	Continuing calibration verification evaluation criteria not met, potential low bias
DC	Reporting limit exceeds decision criteria (for non-detects)
DL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the detection limit.
DT	Dissolved metals concentration exceeded total metals concentration in the sample above the acceptance criteria
DV	Missing Deliverables
EB	Equipment blank contamination
EC	Result exceeds the calibration range, potential bias indeterminate
ECH	Result exceeds the calibration range, potential high bias
ECL	Result exceeds the calibration range, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
EP	Estimated Maximum Possible Concentration (EMPC)
FB	Field blank contamination
FD	Field duplicate imprecision, potential bias indeterminate
FP	Potential false positives
FR	Field replicate imprecision, potential bias indeterminate
HA	Holding time - preparation to analysis, potential bias indeterminate
HAH	Holding time - preparation to analysis, potential high bias
HAL	Holding time - preparation to analysis, potential low bias
HC	Holding time - collection to analysis, potential bias indeterminate
HCH	Holding time - collection to analysis, potential high bias
HCL	Holding time - collection to analysis, potential low bias
HP	Holding time - collection to preparation, potential bias indeterminate
HPH	Holding time - collection to preparation, potential high bias
HPL	Holding time - collection to preparation, potential low bias
HV	Headspace present in volatile vials, potential bias indeterminate
HVL	Headspace present in volatile vials, potential low bias
IB	Instrument (including initial calibration or continuing calibration) blank contamination
IC	Initial calibration evaluation criteria not met, potential bias indeterminate
ICH	Initial calibration evaluation criteria not met, potential high bias
ICL	Initial calibration evaluation criteria not met, potential low bias
ID	Target compound identification criteria not met
IN	Elevated detection limit due to interference (i.e., laboratory, chemical, and/or matrix)
IR	Interference check standard recovery criteria not met, potential bias indeterminate
IRH	Interference check standard recovery criteria not met, potential high bias
IRL	Interference check standard recovery criteria not met, potential low bias
IS	Internal standard evaluation criteria not met, potential bias indeterminate
ISH	Internal standard evaluation criteria not met, potential high bias
ISL	Internal standard evaluation criteria not met, potential low bias
LA	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential bias indeterminate
LAH	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential high bias
LAL	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
LD	Laboratory duplicate precision criteria not met, potential bias indeterminate
LM	The PFK lock mass SICPs indicate that ion suppression evident
LP	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential bias indeterminate
LPH	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential high bias
LPL	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential low bias
LR	Linear range exceeded, potential bias indeterminate
MA	Matrix spike (MS &/or MSD) recovery criteria not met, potential bias indeterminate
MAH	Matrix spike (MS &/or MSD) recovery criteria not met, potential high bias
MAL	Matrix spike (MS &/or MSD) recovery criteria not met, potential low bias
MB	Method blank or preparation blank contamination
MP	Matrix spike (MS/MSD) or laboratory duplicate precision criteria not met, potential bias indeterminate
NB	Elevated detection limit or estimated result due to instrument drift (i.e., negative ICB or CCB result with an absolute value > 2× the MDL)
PD	Post-digestion spike recovery outside acceptance range, potential bias indeterminate
PDH	Post-digestion spike recovery outside acceptance range, potential high bias
PDL	Post-digestion spike recovery outside acceptance range, potential low bias
PJ	Professional judgment, potential bias indeterminate
PJH	Professional judgment, potential high bias
PJL	Professional judgment, potential low bias
PM	Performance evaluation mixture criteria not met, potential bias indeterminate
PMH	Performance evaluation mixture criteria not met, potential high bias
PML	Performance evaluation mixture criteria not met, potential low bias
PR	Peak(s) not adequately resolved, potential bias indeterminate
PRH	Peak(s) not adequately resolved, potential high bias
PRL	Peak(s) not adequately resolved, potential low bias
PS	Low percent solids could affect accuracy, potential bias indeterminate
PT	Chromatographic pattern in sample does not match pattern of calibration standard
RA	Reference material recovery criteria not met, potential bias indeterminate

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
RAH	Reference material recovery criteria not met, potential high bias
RAL	Reference material recovery criteria not met, potential low bias
RB	Rinsate blank contamination
RL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the quantitation or reporting limit, potential bias indeterminate
SA	Method of standard additions correction coefficient <0.995, potential bias indeterminate
SC	RPD Between two columns exceeds criteria, potential bias indeterminate
SD	Serial dilution results did not meet evaluation criteria, potential bias indeterminate
SDH	Serial dilution results did not meet evaluation criteria, potential high bias
SDL	Serial dilution results did not meet evaluation criteria, potential low bias
SP	Sample Preservation / Cooler Temperature, potential bias indeterminate
SPH	Sample Preservation / Cooler Temperature, potential high bias
SPL	Sample Preservation / Cooler Temperature, potential low bias
SR	Surrogate recovery outside acceptance range, potential bias indeterminate
SRH	Surrogate recovery outside acceptance range, potential high bias
SRL	Surrogate recovery outside acceptance range, potential low bias
SS	Second source evaluation criteria not met, potential bias indeterminate
SSH	Second source evaluation criteria not met, potential high bias
SSL	Second source evaluation criteria not met, potential low bias
ST	Compound not quantitated against an authentic standard, potential bias indeterminate
TB	Trip blank contamination
TD	Result for dissolved constituent significantly exceeded result for total constituent, potential bias indeterminate
TIC	Tentative identification, quantified using an assumed calibration factor, potential bias indeterminate.
TIR	Tentative identification and was observed in an associated laboratory, equipment, field, or trip blank.
TN	Instrument performance (tuning) criteria not met
YH	Due to a high y-intercept in the calibration curve, the sample result quantitated to a value greater than the MDL. Since the response ratio in the sample was less than the response ratio in the associated MDL standard, the reported result was changed to not-detected.

A. SDG SBN10

Sample ID	SG3a-WP10-B35.0
Sample Date	3/29/2018 3:20:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536659
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP10-B35.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	77	20	60	B	Y	77	20	60	J	Y	LAH	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	69	20	60		Y	69	20	60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	38	20	60	J	Y	38	20	60	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	1100	20	60		Y	1100	20	60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	570	20	60		Y	570	20	60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	89	20	60		Y	89	20	60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	130000	200	600		Y	130000	200	600	J	Y	LAH	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	67	20	60		Y	67	20	60		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	27	20	60	J	Y	27	20	60	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	25	20	60	J	Y	25	20	60	J	Y	RL,LAH	Yes

Sample ID	SG3a-WP10-B33.0
Sample Date	3/29/2018 3:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536660
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP10-B33.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	25	20	60	JB	Y	25	20	60	J	Y	RL,LAH	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	230	20	60		Y	230	20	60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	140	20	60		Y	140	20	60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	19000	200	600		Y	19000	200	600	J	Y	LAH	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	21	20	60	J	Y	21	20	60	J	Y	RL	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100		20	60	U	N		20	60	U	N		Yes

Sample ID	SG3a-BL10-B26.0
Sample Date	3/29/2018 3:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9536661
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL10-B26.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100	60	38	120	J	Y	60	38	120	J	Y	RL	Yes
	Perfluorobutanoic Acid	375-22-4	T	100	110	38	120	J	Y	110	38	120	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	110	38	120	J	Y	110	38	120	J	Y	RL	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	70	38	120	J	Y	70	38	120	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	2300	38	120		Y	2300	38	120		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		38	120	U	N		38	120	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	1400	38	120		Y	1400	38	120		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	120	38	120		Y	120	38	120		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100	78	58	170	J	Y	78	58	170	J	Y	RL	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	240000	380	1200		Y	240000	380	1200		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	170	38	120		Y	170	38	120		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	46	38	120	J	Y	46	38	120	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100		38	120	U	N		38	120	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100		38	120	U	N		38	120	U	N		Yes

Sample ID	SG3a-WP10-B23.0
Sample Date	3/29/2018 3:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536662
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP10-B23.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	24	20	60	JB	Y	24	20	60	J	Y	RL,LAH	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	42	20	60	J	Y	42	20	60	J	Y	RL	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	38	20	60	J	Y	38	20	60	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	250	20	60		Y	250	20	60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	130	20	60		Y	130	20	60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	31	20	60	J	Y	31	20	60	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	26000	200	600		Y	26000	200	600	J	Y	LAH	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	24	20	60	J	Y	24	20	60	J	Y	RL	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	35	20	60	J	Y	35	20	60	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	20	20	60	J	Y	20	20	60	J	Y	RL,LAH	Yes

Sample ID	SG3a-WP10-B11.0
Sample Date	3/29/2018 3:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536663
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP10-B11.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	100	20	60		Y	100	20	60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	57	20	60	J	Y	57	20	60	J	Y	RL,IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	12000	20	60		Y	12000	20	60	J	Y	LAH	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100		20	60	U	N		20	60	U	N		Yes

Sample ID	SG3a-BL10-B29.0
Sample Date	3/29/2018 3:25:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9536664
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL10-B29.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100	110	20	60		Y	110	20	60		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	310	20	60		Y	310	20	60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	160	20	60		Y	160	20	60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	85	20	60		Y	85	20	60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	1900	20	60		Y	1900	20	60		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	1500	20	60		Y	1500	20	60		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	120	20	60		Y	120	20	60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100	52	30	90	J	Y	52	30	90	J	Y	RL	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	5000	170000	1000	3000		Y	170000	1000	3000		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	220	20	60		Y	220	20	60		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	52	20	60	J	Y	52	20	60	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	25	20	60	J	Y	25	20	60	J	Y	RL	Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	35	20	60	J	Y	35	20	60	J	Y	RL	Yes

Sample ID	SG3a-FTB01-180330
Sample Date	3/30/2018 8:25:00 AM
Sample Type	FB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9536665
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-LTB01-180330
Sample Date	3/30/2018 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9536666
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.28	0.92	U	N		0.28	0.92	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		1.8	5.5	U	N		1.8	5.5	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.92	1.8	U	N		0.92	1.8	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.28	0.92	U	N		0.28	0.92	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.28	0.92	U	N		0.28	0.92	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.37	1.8	U	N		0.37	1.8	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.37	1.8	U	N		0.37	1.8	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.37	1.8	U	N		0.37	1.8	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.37	1.8	U	N		0.37	1.8	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	1.8	0.28	0.92		Y	1.8	0.28	0.92		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		1.8	5.5	U	N		1.8	5.5	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.28	0.92	U	N		0.28	0.92	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.28	0.92	U	N		0.28	0.92	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.37	1.8	U	N		0.37	1.8	U	N		Yes

Sample ID	SG3a-RB01-180330
Sample Date	3/30/2018 8:35:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9536667
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	5	U	N		2	5	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	4	0.3	0.9		Y	4	0.3	0.9		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	5	U	N		2	5	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-WP11-B42.0
Sample Date	3/30/2018 8:20:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536668
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP11-B42.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	86	20	60		Y	86	20	60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	52	20	60	J	Y	52	20	60	J	Y	RL,IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	11000	20	60		Y	11000	20	60	J	Y	LAH	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100		20	60	U	N		20	60	U	N		Yes

Sample ID	SG3a-WP11-B41.0
Sample Date	3/30/2018 8:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536669
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP11-B41.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10	6.7	2.0	6.0		Y	6.7	2.0	6.0		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	13	2.0	6.0	B	Y		13	13	UB	N	EB,LAH	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	7.8	2.0	6.0		Y	7.8	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	4.2	2.0	6.0	J	Y	4.2	2.0	6.0	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	62	2.0	6.0		Y	62	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	37	2.0	6.0		Y	37	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	5.8	2.0	6.0	J	Y	5.8	2.0	6.0	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	5.4	3.0	9.0	J	Y	5.4	3.0	9.0	J	Y	CI,RL	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	7900	20	60		Y	7900	20	60	J	Y	LAH	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	9.3	2.0	6.0		Y	9.3	2.0	6.0		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	2.9	2.0	6.0	J	Y	2.9	2.0	6.0	J	Y	RL,LAH	Yes

Sample ID	SG3a-BL11-B40.5
Sample Date	3/30/2018 8:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9536670
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL11-B40.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100	140	20	59		Y	140	20	59		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	240	20	59		Y	240	20	59		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	130	20	59		Y	130	20	59		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	89	20	59		Y	89	20	59		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	910	20	59		Y	910	20	59		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	59	U	N		20	59	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	650	20	59		Y	650	20	59		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	82	20	59		Y	82	20	59		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100	46	29	88	J	Y	46	29	88	J	Y	RL	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	81000	200	590		Y	81000	200	590		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	170	20	59		Y	170	20	59	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	63	20	59		Y	63	20	59		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	34	20	59	J	Y	34	20	59	J	Y	RL	Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	46	20	59	J	Y	46	20	59	J	Y	RL	Yes

Sample ID	SG3a-BL11-B25.0
Sample Date	3/30/2018 8:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9536671
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL11-B25.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10	56	1.9	5.7		Y	56	1.9	5.7		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	6.9	1.9	5.7		Y	6.9	1.9	5.7		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	29	1.9	5.7		Y	29	1.9	5.7		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	26	1.9	5.7		Y	26	1.9	5.7		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	91	1.9	5.7		Y	91	1.9	5.7		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		1.9	5.7	U	N		1.9	5.7	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	41	1.9	5.7		Y	41	1.9	5.7		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	13	1.9	5.7		Y	13	1.9	5.7		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	10	2.9	8.6		Y	10	2.9	8.6		Y		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	8800	19	57		Y	8800	19	57		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	8.1	1.9	5.7		Y	8.1	1.9	5.7		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	33	1.9	5.7		Y	33	1.9	5.7		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	13	1.9	5.7		Y	13	1.9	5.7		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	10	1.9	5.7		Y	10	1.9	5.7		Y		Yes

Sample ID	SG3a-WP11-B24.0
Sample Date	3/30/2018 8:45:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536672
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP11-B24.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	74	20	60	B	Y	74	20	60	J	Y	LAH	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	83	20	60		Y	83	20	60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	70	20	60		Y	70	20	60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	620	20	60		Y	620	20	60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	350	20	60		Y	350	20	60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	51	20	60	J	Y	51	20	60	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100	36	30	90	J	Y	36	30	90	J	Y	RL	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	63000	200	600		Y	63000	200	600	J	Y	LAH	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	79	20	60		Y	79	20	60		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	55	20	60	J	Y	55	20	60	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	24	20	60	J	Y	24	20	60	J	Y	RL	Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	37	20	60	J	Y	37	20	60	J	Y	RL,LAH	Yes

Sample ID	SG3a-WP11-B16.0
Sample Date	3/30/2018 8:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536673
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP11-B16.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	34	20	60	JB	Y	34	20	60	J	Y	RL,LAH	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	39	20	60	J	Y	39	20	60	J	Y	RL	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	28	20	60	J	Y	28	20	60	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	320	20	60		Y	320	20	60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	180	20	60		Y	180	20	60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	29	20	60	J	Y	29	20	60	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	36000	200	600		Y	36000	200	600	J	Y	LAH	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	34	20	60	J	Y	34	20	60	J	Y	RL	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	20	20	60	J	Y	20	20	60	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100		20	60	U	N		20	60	U	N		Yes

Sample ID	SG3a-EB01-180330
Sample Date	3/30/2018 9:35:00 AM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9536674
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.27	0.91	U	N		0.27	0.91	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		1.8	5.5	U	N		1.8	5.5	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.91	1.8	U	N		0.91	1.8	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.27	0.91	U	N		0.27	0.91	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.27	0.91	U	N		0.27	0.91	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.40	0.27	0.91	J	Y	0.40	0.27	0.91	J	Y	RL	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		1.8	5.5	U	N		1.8	5.5	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.27	0.91	U	N		0.27	0.91	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.27	0.91	U	N		0.27	0.91	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes

Sample ID	SG3a-EB02-180330
Sample Date	3/30/2018 10:00:00 AM
Sample Type	EB
Parent Sample ID	
Sample Matrix	SQ
Lab Sample ID	9536675
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.28	0.20	0.60	JB	Y	0.28	0.20	0.60	J	Y	RL,LAH	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	0.28	0.20	0.60	J	Y	0.28	0.20	0.60	J	Y	RL	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	4.0	0.30	0.90		Y	4.0	0.30	0.90	R	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	33	0.20	0.60		Y	33	0.20	0.60	J	Y	LAH	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes

Sample ID	SG3a-BL13-C
Sample Date	3/30/2018 10:05:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9536676
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL13-C
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100	300	19	56		Y	300	19	56	J	Y	MAL	Yes
	Perfluorobutanoic Acid	375-22-4	T	100	580	19	56		Y	580	19	56		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	910	19	56		Y	910	19	56		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	620	19	56		Y	620	19	56		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	3500	19	56		Y	3500	19	56		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100	82	19	56		Y	82	19	56	J	Y	MAL	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	2800	19	56		Y	2800	19	56		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	430	19	56		Y	430	19	56	J	Y	MAL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100	1500	28	84		Y	1500	28	84		Y		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	5000	270000	930	2800		Y	270000	930	2800		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	580	19	56		Y	580	19	56	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	550	19	56		Y	550	19	56		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	250	19	56		Y	250	19	56	J	Y	MAL	Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	240	19	56		Y	240	19	56	J	Y	MAL	Yes

Sample ID	SG3a-WP12-B44.5
Sample Date	3/30/2018 9:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536679
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP12-B44.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	22	20	60	J	Y	22	20	60	J	Y	RL,FD	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	29	20	60	J	Y	29	20	60	J	Y	RL,FD	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	58	20	60	J	Y	58	20	60	J	Y	RL,FD	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	28	20	60	J	Y	28	20	60	J	Y	RL,IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	5200	20	60		Y	5200	20	60	J	Y	LAH,FD	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	58	20	60	J	Y	58	20	60	J	Y	RL,FD	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100		20	60	U	N		20	60	U	N		Yes

Sample ID	SG3a-WP12-B43.0
Sample Date	3/30/2018 9:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536680
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP12-B43.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	190	20	60		Y	190	20	60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	230	20	60		Y	230	20	60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	400	20	60		Y	400	20	60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	98	20	60		Y	98	20	60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	75	20	60		Y	75	20	60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	23000	200	600		Y	23000	200	600	J	Y	LAH	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	260	20	60		Y	260	20	60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	97	20	60		Y	97	20	60		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	130	20	60		Y	130	20	60	J	Y	LAH	Yes

B. SDG SBN11

Sample ID	SG3a-BL12-B42.5
Sample Date	3/30/2018 9:35:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9536681
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL12-B42.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		18	55	U	N		18	55	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	58	18	55		Y	58	18	55		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	750	18	55		Y	750	18	55		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	640	18	55		Y	640	18	55		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	1900	18	55		Y	1900	18	55		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		18	55	U	N		18	55	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	590	18	55		Y	590	18	55		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	300	18	55		Y	300	18	55		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		27	82	U	N		27	82	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	71000	180	550		Y	71000	180	550		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	88	18	55		Y	88	18	55		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	580	18	55		Y	580	18	55		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	250	18	55		Y	250	18	55		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	280	18	55		Y	280	18	55		Y		Yes

Sample ID	SG3a-WP12-B30.0
Sample Date	3/30/2018 9:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536682
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP12-B30.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10	2.4	2.0	6.0	J	Y	2.4	2.0	6.0	J	Y	RL	Yes
	Perfluorobutanoic Acid	375-22-4	T	10	3.5	2.0	6.0	JB	Y		3.5	6.0	UB	N	RL,EB	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	99	2.0	6.0		Y	99	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	170	2.0	6.0		Y	170	2.0	6.0		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	120	2.0	6.0		Y	120	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	36	2.0	6.0		Y	36	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	40	2.0	6.0		Y	40	2.0	6.0		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	17	3.0	9.0		Y	17	3.0	9.0	JN	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	12000	20	60		Y	12000	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	6.0	2.0	6.0		Y	6.0	2.0	6.0		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	300	2.0	6.0		Y	300	2.0	6.0		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	99	2.0	6.0		Y	99	2.0	6.0		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	80	2.0	6.0		Y	80	2.0	6.0		Y		Yes

Sample ID	SG3a-WP12-B15.0
Sample Date	3/30/2018 9:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536683
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP12-B15.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	28	2.0	6.0	B	Y	28	2.0	6.0		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	30	2.0	6.0		Y	30	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	17	2.0	6.0		Y	17	2.0	6.0		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	320	2.0	6.0		Y	320	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	170	2.0	6.0		Y	170	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	24	2.0	6.0		Y	24	2.0	6.0		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	13	3.0	9.0		Y	13	3.0	9.0	R	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	20000	200	600		Y	20000	200	600		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	31	2.0	6.0		Y	31	2.0	6.0		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	16	2.0	6.0		Y	16	2.0	6.0		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	6.0	2.0	6.0		Y	6.0	2.0	6.0		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	10	2.0	6.0		Y	10	2.0	6.0		Y		Yes

Sample ID	SG3a-BL12-B28.0
Sample Date	3/30/2018 9:45:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9536684
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL12-B28.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	59	U	N		20	59	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	30	20	59	J	Y	30	20	59	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	420	20	59		Y	420	20	59		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	690	20	59		Y	690	20	59		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	740	20	59		Y	740	20	59		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	59	U	N		20	59	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	300	20	59		Y	300	20	59		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	160	20	59		Y	160	20	59		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100	98	29	88		Y	98	29	88		Y		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	100000	200	590		Y	100000	200	590		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	54	20	59	J	Y	54	20	59	J	Y	RL	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	1100	20	59		Y	1100	20	59		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	400	20	59		Y	400	20	59		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	260	20	59		Y	260	20	59		Y		Yes

Sample ID	SG3a-FD01-180330
Sample Date	3/30/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-WP12-B44.5_03/30/2018
Sample Matrix	SW
Lab Sample ID	9536685
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP12-B44.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10	8.1	2.0	6.0		Y	8.1	2.0	6.0		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	9.0	2.0	6.0	B	Y		9.0	9.0	UB	N	EB	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	170	2.0	6.0		Y	170	2.0	6.0	J	Y	FD	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	200	2.0	6.0		Y	200	2.0	6.0	J	Y	FD	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	350	2.0	6.0		Y	350	2.0	6.0	J	Y	FD,IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	88	2.0	6.0		Y	88	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	67	2.0	6.0		Y	67	2.0	6.0		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	17	3.0	9.0		Y	17	3.0	9.0	J	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	15000	200	600		Y	15000	200	600	J	Y	FD	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	16	2.0	6.0		Y	16	2.0	6.0		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	220	2.0	6.0		Y	220	2.0	6.0	J	Y	FD	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	92	2.0	6.0		Y	92	2.0	6.0		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	100	2.0	6.0		Y	100	2.0	6.0		Y		Yes

Sample ID	SG3a-FD02-180330
Sample Date	3/30/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-BL12-B42.5_03/30/2018
Sample Matrix	SN
Lab Sample ID	9536686
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL12-B42.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		19	58	U	N		19	58	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	48	19	58	J	Y	48	19	58	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	650	19	58		Y	650	19	58		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100	550	19	58		Y	550	19	58		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	1600	19	58		Y	1600	19	58		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		19	58	U	N		19	58	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	520	19	58		Y	520	19	58		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	280	19	58		Y	280	19	58		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		29	87	U	N		29	87	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	60000	190	580		Y	60000	190	580		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	71	19	58		Y	71	19	58		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100	520	19	58		Y	520	19	58		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100	230	19	58		Y	230	19	58		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100	250	19	58		Y	250	19	58		Y		Yes

Sample ID	SG3a-FTB02-180330
Sample Date	3/30/2018 10:30:00 AM
Sample Type	FB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9536687
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.3	0.3	0.9	J	Y	0.3	0.3	0.9	J	Y	RL	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-LTB02-180330
Sample Date	3/30/2018 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9536688
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	5	U	N		2	5	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.3	0.3	0.9	J	Y	0.3	0.3	0.9	J	Y	RL	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	5	U	N		2	5	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-WP02-A1.5
Sample Date	3/30/2018 11:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536689
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP02-A1.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	6.4	2.0	6.0	B	Y		6.4	6.4	UB	N	EB	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	49	2.0	6.0		Y	49	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	200	2.0	6.0		Y	200	2.0	6.0		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	84	2.0	6.0		Y	84	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	41	2.0	6.0		Y	41	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	18	2.0	6.0		Y	18	2.0	6.0		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	9.4	3.0	9.0		Y	9.4	3.0	9.0	JN	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	10000	20	60		Y	10000	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	6.8	2.0	6.0		Y	6.8	2.0	6.0		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	450	2.0	6.0		Y	450	2.0	6.0		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	110	2.0	6.0		Y	110	2.0	6.0		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	47	2.0	6.0		Y	47	2.0	6.0		Y		Yes

Sample ID	SG3a-WP04-A1.5
Sample Date	3/30/2018 11:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536690
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP04-A1.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	15	2.0	6.0	B	Y	15	2.0	6.0		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	160	2.0	6.0		Y	160	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	440	2.0	6.0		Y	440	2.0	6.0		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	230	2.0	6.0		Y	230	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	100	2.0	6.0		Y	100	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	67	2.0	6.0		Y	67	2.0	6.0		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	15	3.0	9.0		Y	15	3.0	9.0	JN	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	27000	200	600		Y	27000	200	600		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	16	2.0	6.0		Y	16	2.0	6.0		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	900	2.0	6.0		Y	900	2.0	6.0		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	220	2.0	6.0		Y	220	2.0	6.0		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	130	2.0	6.0		Y	130	2.0	6.0		Y		Yes

Sample ID	SG3a-WP05-A1.5
Sample Date	3/30/2018 11:35:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536691
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP05-A1.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	6.0	2.0	6.0	JB	Y		6.0	6.0	UB	N	RL,EB	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	8.9	2.0	6.0		Y	8.9	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	6.6	2.0	6.0		Y	6.6	2.0	6.0		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	50	2.0	6.0		Y	50	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	30	2.0	6.0		Y	30	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	5.4	2.0	6.0	J	Y	5.4	2.0	6.0	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	12	3.0	9.0		Y	12	3.0	9.0	R	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	4500	20	60		Y	4500	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	5.1	2.0	6.0	J	Y	5.1	2.0	6.0	J	Y	RL	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	11	2.0	6.0		Y	11	2.0	6.0		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	2.9	2.0	6.0	J	Y	2.9	2.0	6.0	J	Y	RL	Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	3.7	2.0	6.0	J	Y	3.7	2.0	6.0	J	Y	RL	Yes

Sample ID	SG3a-WP07-A1.5
Sample Date	3/30/2018 11:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536692
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP07-A1.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	6.0	2.0	6.0	B	Y		6.0	6.0	UB	N	EB	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	12	2.0	6.0		Y	12	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	7.3	2.0	6.0		Y	7.3	2.0	6.0		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	72	2.0	6.0		Y	72	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	39	2.0	6.0		Y	39	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	8.7	2.0	6.0		Y	8.7	2.0	6.0		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	7.7	3.0	9.0	J	Y	7.7	3.0	9.0	JN	Y	RL,CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	7300	20	60		Y	7300	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	6.8	2.0	6.0		Y	6.8	2.0	6.0		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	8.9	2.0	6.0		Y	8.9	2.0	6.0		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	2.9	2.0	6.0	J	Y	2.9	2.0	6.0	J	Y	RL	Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	4.6	2.0	6.0	J	Y	4.6	2.0	6.0	J	Y	RL	Yes

Sample ID	SG3a-WP09-A1.5
Sample Date	3/30/2018 11:45:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536693
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP09-A1.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	2.2	2.0	6.0	JB	Y		2.2	6.0	UB	N	RL,EB	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	6.3	2.0	6.0		Y	6.3	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	8.7	2.0	6.0		Y	8.7	2.0	6.0		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	30	2.0	6.0		Y	30	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	14	2.0	6.0		Y	14	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	3.8	2.0	6.0	J	Y	3.8	2.0	6.0	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	5.6	3.0	9.0	J	Y	5.6	3.0	9.0	JN	Y	RL,CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	3000	20	60		Y	3000	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	2.2	2.0	6.0	J	Y	2.2	2.0	6.0	J	Y	RL	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	26	2.0	6.0		Y	26	2.0	6.0		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	4.7	2.0	6.0	J	Y	4.7	2.0	6.0	J	Y	RL	Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	3.5	2.0	6.0	J	Y	3.5	2.0	6.0	J	Y	RL	Yes

Sample ID	SG3a-BL14-A5.5
Sample Date	3/30/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9536694
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL14-A5.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10	3.2	2.0	5.9	J	Y	3.2	2.0	5.9	J	Y	RL	Yes
	Perfluorobutanoic Acid	375-22-4	T	10	73	2.0	5.9		Y	73	2.0	5.9		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	21	2.0	5.9		Y	21	2.0	5.9		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	29	2.0	5.9		Y	29	2.0	5.9		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	640	2.0	5.9		Y	640	2.0	5.9	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	5.9	U	N		2.0	5.9	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	580	2.0	5.9		Y	580	2.0	5.9	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	12	2.0	5.9		Y	12	2.0	5.9	J	Y	IS	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	5.5	2.9	8.8	J	Y	5.5	2.9	8.8	J	Y	RL	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	18000	200	590		Y	18000	200	590		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	120	2.0	5.9		Y	120	2.0	5.9		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	48	2.0	5.9		Y	48	2.0	5.9		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	15	2.0	5.9		Y	15	2.0	5.9		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	8.4	2.0	5.9		Y	8.4	2.0	5.9		Y		Yes

Sample ID	SG3a-WP15-E
Sample Date	3/30/2018 12:05:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536695
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP15-E
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	9.8	2.0	6.0	B	Y		9.8	9.8	UB	N	EB	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	45	2.0	6.0		Y	45	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	32	2.0	6.0		Y	32	2.0	6.0		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	210	2.0	6.0		Y	210	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	100	2.0	6.0		Y	100	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	29	2.0	6.0		Y	29	2.0	6.0		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	9.7	3.0	9.0		Y	9.7	3.0	9.0	J	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	31000	200	600		Y	31000	200	600		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	14	2.0	6.0		Y	14	2.0	6.0		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	29	2.0	6.0		Y	29	2.0	6.0		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	11	2.0	6.0		Y	11	2.0	6.0		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	17	2.0	6.0		Y	17	2.0	6.0		Y		Yes

Sample ID	SG3a-WP16-E
Sample Date	3/30/2018 12:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536696
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP16-E
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10	4.0	2.0	6.0	J	Y	4.0	2.0	6.0	J	Y	RL	Yes
	Perfluorobutanoic Acid	375-22-4	T	10	13	2.0	6.0	B	Y		13	13	UB	N	EB	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	52	2.0	6.0		Y	52	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	39	2.0	6.0		Y	39	2.0	6.0		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	210	2.0	6.0		Y	210	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	96	2.0	6.0		Y	96	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	29	2.0	6.0		Y	29	2.0	6.0		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	17	3.0	9.0		Y	17	3.0	9.0	J	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	18000	200	600		Y	18000	200	600		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	16	2.0	6.0		Y	16	2.0	6.0		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	38	2.0	6.0		Y	38	2.0	6.0		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	14	2.0	6.0		Y	14	2.0	6.0		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	20	2.0	6.0		Y	20	2.0	6.0		Y		Yes

Sample ID	SG3a-WP17-E
Sample Date	3/30/2018 12:15:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536697
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP17-E
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	8.1	2.0	6.0	B	Y		8.1	8.1	UB	N	EB	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	39	2.0	6.0		Y	39	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	26	2.0	6.0		Y	26	2.0	6.0		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	180	2.0	6.0		Y	180	2.0	6.0	J	Y	FD,IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	88	2.0	6.0		Y	88	2.0	6.0	J	Y	FD,IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	26	2.0	6.0		Y	26	2.0	6.0		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	12	3.0	9.0		Y	12	3.0	9.0	J	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	18000	200	600		Y	18000	200	600		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	11	2.0	6.0		Y	11	2.0	6.0		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	29	2.0	6.0		Y	29	2.0	6.0	J	Y	FD	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	9.7	2.0	6.0		Y	9.7	2.0	6.0		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	14	2.0	6.0		Y	14	2.0	6.0		Y		Yes

Sample ID	SG3a-WP18-E
Sample Date	3/30/2018 12:20:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536698
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP18-E
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	21	2.0	6.0	B	Y	21	2.0	6.0		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	59	2.0	6.0		Y	59	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	38	2.0	6.0		Y	38	2.0	6.0		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	330	2.0	6.0		Y	330	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	150	2.0	6.0		Y	150	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	31	2.0	6.0		Y	31	2.0	6.0		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	15	3.0	9.0		Y	15	3.0	9.0		Y		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	32000	200	600		Y	32000	200	600		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	30	2.0	6.0		Y	30	2.0	6.0		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	31	2.0	6.0		Y	31	2.0	6.0		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	9.6	2.0	6.0		Y	9.6	2.0	6.0		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	21	2.0	6.0		Y	21	2.0	6.0		Y		Yes

Sample ID	SG3a-EB03-180330
Sample Date	3/30/2018 12:15:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9536699
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	2.9	2.0	6.0	JB	Y	2.9	2.0	6.0	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	2.0	2.0	6.0	J	Y	2.0	2.0	6.0	J	Y	RL	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	60	3.0	9.0		Y	60	3.0	9.0	R	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	10	220	2.0	6.0		Y	220	2.0	6.0		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes

Sample ID	SG3a-FD03-180330
Sample Date	3/30/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-WP17-E_03/30/2018
Sample Matrix	SW
Lab Sample ID	9536700
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP17-E
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	6.6	2.0	6.0	B	Y		6.6	6.6	UB	N	EB	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	38	2.0	6.0		Y	38	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	29	2.0	6.0		Y	29	2.0	6.0		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	120	2.0	6.0		Y	120	2.0	6.0	J	Y	FD,IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	57	2.0	6.0		Y	57	2.0	6.0	J	Y	FD,IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	24	2.0	6.0		Y	24	2.0	6.0		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	9.0	3.0	9.0	J	Y	9.0	3.0	9.0	J	Y	RL,CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	15000	20	60		Y	15000	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	7.6	2.0	6.0		Y	7.6	2.0	6.0		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	42	2.0	6.0		Y	42	2.0	6.0	J	Y	FD	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	11	2.0	6.0		Y	11	2.0	6.0		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	14	2.0	6.0		Y	14	2.0	6.0		Y		Yes

SECTION 3

LABORATORY CALIBRATION AND QUALITY CONTROL ACCEPTANCE CRITERIA

Initial Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
1. Initial Calibration: Minimum of five calibration standards. 2. Analyze MDL standard to ensure all compounds detected at MDL level 3. Analyze a technical grade branched/linear chained standard for PFOA/PFOS/PFHxS.	1. Initially and the after continuing calibration fails. 2. Analyzed with each initial calibration. 3. Run with each initial calibration.	1. Back calculated concentration of each calibration point should be within ±30% (or 70-130%) of true. The level 1 calibration standard back calculated concentrations should be ±50% (or 50-150%) of true value. $R^2 \geq 0.99$ for each analyte. 2. All compounds detected. 3. Qualitative use only to assist chemists in the integration of these compounds.	1. If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the initial calibration can be used. In those cases, the data will be reported with a qualifying comment. 2. If compound not detected in MDL standard, the source of the problem should be determined and the system recalibrated.

Continuing Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Analyze every 10 samples and at the end of the analysis sequence. Concentrations alternate between low, mid, and high levels of the calibration curve. The CCV ran after ICAL must be at CAL3 level. Opening CCV for sequence **should** be at CAL1 level and must be within 50-150%.	Occurs every 10 samples and at the end of the analysis sequence.	Calculated amount for the native analytes should be within ±30% of the true value. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. The calculated amount for the isotopically labeled extraction standards should be within the advisory window of 70-130%	If criteria are not met, the source of the problem **should** be determined, corrected and the system recalibrated. Situations may exist where the continuing calibration can be used. In those cases, the data will be reported with a qualifying comment.

Initial Calibration Verification

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Second source standard analyzed at the end of each initial calibration.	Analyzed with each initial calibration	1. Calculated amount for each native analytes should be within 70-130% of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration.	1. If criteria are not met, the source of the problem should be determined and corrected. Situations may exist where the initial calibration verification can be used. In those cases, the data will be reported with a qualifying comment.

QC Acceptance Criteria

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Method Blanks	1 per 20 field samples	1. No positive detections above the MDL. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	1. Report if the analyte present in the method blank is not detected in the sample or the analyte detected in the sample at greater than 10x's the amount in the method blank. If analyte detected in blank and sample at approximately the sample concentration sample will be RX'd. 2. Blank will be reinjected. Blank data may be qualified and reported. 3. If extraction standards are outside the advisory window and there are positive detections in the blank, the blank may be reinjected. If after reinjection, extraction standards are still out data may be reported and qualified due to the advisory nature of the windows.
LCS	1 per 20 field samples	1. Advisory QC limits of 70-130%, RPD<30% 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	1. Reextract LCS and associated samples. Analytes that fail high and are ND in the samples can be reported. Due to the advisory nature of the acceptance limits, situations may exist where LCS can be used. In those cases, the data will be reported with a qualifying comment. 2. If all native recoveries are within QC limits, data can be reported. 3. If all native recoveries are within QC limits, data can be reported.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
MS/MSD	MS is routinely prepared with each extraction batch. If limited sample volume exists, an LCS/LCSD will be prepared.	1. Advisory QC limits of 70-130%, RPD<30%. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	Evaluate in conjunction with LCS.
Isotopically labeled internal standards	Per sample (including MS/MSD, LCS, and Blanks)	The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration.	Reinject samples as necessary. Report data with qualifying comment.
Isotopically labeled extraction standards	Per sample (including MS/MSD, LCS, and Blanks)	The percent difference for the isotopically labeled extraction standards should be within the advisory QC window of 70-130% or laboratory-generated control limits, if available.	Reinject samples as necessary. Report data with qualifying comment.

SECTION 4

ENVIRONMENTAL STANDARDS, INC., STANDARD OPERATING PROCEDURE

1.0 OBJECTIVES

This standard operating procedure (SOP) describes procedures that the Environmental Standards data reviewers will use to validate Perfluorinated and Polyfluorinated Alkyl Substance (PFAS) data for solid samples generated by Eurofins SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins Document Reference T-PFAS-WI12031, Version 2) and aqueous samples generated by Eurofins SOP "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Using LC/MS/MS" (Eurofins Document Reference T-PFAS-WI14355, Version 2) for various Saint-Gobain Performance Plastics Corporation (Saint-Gobain) sites. Validation will be performed to assess compliance of the sample data to these Eurofins SOPs and any applicable Work Plans and/or Quality Assurance Project Plans (QAPPs). In addition, the usability of the PFAS data provided by the analytical laboratory will be determined based on the general guidance provided in the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016) and "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016). It should be noted that the National Functional Guidelines apply strictly to data generated by the Contract Laboratory Program (CLP) protocol and are not directly applicable to validation of data generated by Modified EPA Method 537; therefore, this SOP presents the specific data qualification actions that will be used for validation.

The validation findings will be presented in a quality assurance review (QAR) that will be prepared for one or more sample delivery groups (SDGs). Copies of annotated analytical results summaries (Form I's), including any changes to the analytical results and data qualifier codes, or a data summary spreadsheet of the qualified analytical results, will be included in the support documentation of the QAR.

2.0 EVALUATION TOOLS

- field duplicate form (DVF_DUP_SG_ELLE.xlsm)

Chemistry Applications:

- Curve fitting software (DVF_CAL.xlsm)
- Methods Database

3.0 REFERENCE DOCUMENTS

- "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016)

- "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016).

- Eurofins Document Reference T-PFAS-WI12031.

- Eurofins Document Reference T-PFAS-WI14355.

- US EPA Method 537, Version 1.1 (September 2009).

- Guidance for Labelling Externally Validated Laboratory Analytical Data for Superfund Use (EPA 540-R-08-005, 2009).

4.0 PROCEDURE

4.1 EVALUATION OF METHOD COMPLIANCE

The data reviewer will assess the method compliance of the PFAS data based on an evaluation of information presented in the data package deliverables. Compliance to the aforementioned SOPs (and Work Plan and/or QAPP when applicable) will be evaluated as part of the assessment. In addition, the deliverables will be evaluated for reporting errors and inconsistencies. The findings of the compliance assessment will be described in terms of comments/deficiencies about the data/deliverables and presented in two subdivisions (*i.e.*, Reporting Issues and Procedural Issues) of the Organic Data Evaluation Section of the QAR. Each issue discussed in the QAR will indicate any subsequent impact on the usability of the data or will identify aspect(s) of the data that could not be evaluated due to the deficiency.

The data reviewer may contact the project laboratory to request the correction of deficiencies prior to submittal of the QAR (if feasible and sanctioned by Saint Gobain). At a minimum, corrections required to allow for a full evaluation of the usability of the data should be requested. Such correctable deficiencies may include sample result errors, missing data deliverables, or calculation errors that would require a significant amount of the data reviewer's time to correct. Any laboratory resubmittals as a result of such requests will be discussed in the Reporting Issue subdivision of the QAR and included as an attachment to the QAR.

4.2 DETERMINATION OF DATA USABILITY

The data reviewer will determine the usability of the PFAS data based on an evaluation of the information presented in the data package deliverables. The findings of the PFAS data usability assessment will be presented in terms of data qualifications that the project team should consider in order to best utilize the data; these qualifications will be presented in the Organic Data Qualifier subsection of the QAR. Each qualification discussed in the QAR will indicate that the affected sample result(s) has been flagged with a representative qualifier code(s) in the data tables to provide, at a glance, an indication of the quantitative and qualitative reliability of each analytical result. In general, the qualifier statements will be presented in the QAR in the following order: blank contamination (UB), unusable results (R/UR), estimated results (J/UJ), tentative identifications of target compound results (N), and a general qualifier for all results reported below the limit of quantitation (if applicable). In addition, a Validation Reason Code will be presented on the data tables to indicate the reason that a qualifier code has been applied.

The data reviewer's criteria for evaluating the usability of the PFAS data and the resultant qualifications and reason codes will be as stipulated on the attached Table for the Validation of PFAS Data Generated. Additional qualifications and reason codes will be assigned based on professional judgement. It should be noted that the project manager should be consulted when "professional judgement" use is indicated on the attached table.

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Temperature Upon Receipt	≤6°C	If temperature is <2°C, no action is required unless samples were frozen/broken and then professional judgment should be used. If temperature is >6°C but ≤20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SPL") If temperature is > 20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SPL") Note time of collection relative to receipt at laboratory. Professional judgement should be used if < 8 hours has elapsed from collection to receipt at the laboratory to determine if qualification due to elevated temperature applies.
Technical Holding Time	Solid samples should be extracted within 28 days of sample collection and aqueous samples should be extracted within 14 days of collection. All extracts should be analyzed within 28 days after extraction.	If a holding time is exceeded, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively) If a holding time is grossly exceeded (*i.e.*, > twice the holding time), qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively)

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Initial Calibration (See Note #1 for additional information.)	Back calculated concentration of each calibration point should be within 70-130% of true value. The level 1 (lowest) calibration standard back calculated concentrations should be within 50-150% of true value. $r^2 \geq 0.99$ for each analyte.	**When evaluating initial calibration, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS(s).** If the low point or consecutive points at the low end of the curve are below the lower recovery criteria, qualify positive results < lowest compliant point as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "ICL") If the low point or consecutive points at the low end of the curve are above the upper recovery criteria, qualify positive results < lowest compliant point as estimated ("J"). (Validation Reason Code "ICH") If a point in the middle of the curve or non-consecutive points (beside the low point) quantitate outside of criteria, qualify positive results as estimated ("J"). If the high point or consecutive points at the upper end of the curve quantitates outside of criteria, qualify positive results > highest compliant point as estimated ("J"). (Validation Reason Code "ICL," "ICH," or "IC," are to be used based on whether direction of bias can be determined in these situations) Professional judgement should be used to qualify "not-detected" results as estimated ("UJ") if low recoveries are observed for standards other than the lowest calibration point. (Validation Reason Code "ICL") If the $r^2 \geq 0.99$ for any analyte, qualify positive results as estimated ("J"). (Validation Reason Code "IC")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Second Source Initial Calibration Verification (ICV)	1. Calculated amount for each compound should be within 70-130% (±30%) of the true value. 2. The isotopically labeled injection and/or extraction standards should be within criteria.	**Qualification is for all samples associated with initial calibration being verified.** **When evaluating ICV, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS.** If target PFAS has %D>30% with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "SSH") If target PFAS has %D>30% but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SSL") If target PFAS has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SSL")
Continuing Calibration Verification (See Note #2 for additional information.)	Calculated amount should be within ±30% of the true value. The isotopically labeled injection and/or extraction standards should be within criteria. The CCV ran after ICAL must be at CAL3 level. Opening CCV for sequence **should** be at CAL1 level and must be within 50-150%.	**Qualification is for all samples on both sides of the out-of-criteria calibration verification standards**. **When evaluating calibration verification, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS.** If target PFAS has %D>30% (50% for CAL1 CCV) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "CVH") If target PFAS has %D>30% (50% for CAL1 CCV) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "CVL") If target PFAS has %D>90% with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "CVL")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Blanks (See Note #3 for additional information.)	Summarize all results greater than the method detection limit (MDL) present in the blanks. The highest positive result associated with a sample should be utilized for evaluation of contamination.	If a target PFAS is found in the blank but not in the associated sample(s), no action is required. If a sample result is ≤5× the blank result, qualify the positive result as "not detected" ("UB") and raise the method detection limit (MDL) and/or limit of quantitation (LOQ) (if lower than original reported positive result) to the value of the original result. (Validation Reason Code(s) "EB," FB," "IB," "MB," and or "TB," as appropriate). If a sample result is >5× blank result, qualification is not required. Professional judgement should be used to evaluate whether an aqueous blank should be used to qualify a solid sample.
Injection/Internal Standards (Labelled Analytes, spiked prior to injection and used as internal standards for extraction standards)	The response for each internal standard in the original sample must be within ±%50 of the average initial calibration response.	If an internal response is outside of criteria, use professional judgment to determine the potential impact on the quantitation of the extraction standard recoveries and whether qualification due to out-of-criteria extraction standard recoveries (see directly below) should be modified.
Extraction Standards (Labelled Analytes, spiked prior to extraction and used as internal standards for target compounds)	The response for each ES in the original sample must be within the advisory limits of 70-130% recovery or laboratory-generated control limits, if available.	If an ES response or recovery is outside of criteria but ≥10%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ") for PFASs quantitated using that ES. (Validation Reason Code "IS") If an ES response is < 10%, qualify positive results for the associated PFASs as estimated ("J") and qualify "not-detected" results for the associated PFASs as estimated ("UJ") or unusable ("R") using professional judgment (based on the approximate signal-to-noise ratio for the ES and the expected response for the target PFAS at the LOQ). (Validation Reason Code "IS")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Laboratory Control Samples (LCS)/ Laboratory Control Sample Duplicates (LCSD)	%R within 70-130%, RPD ≤ 30%.	**The LCS qualification will be applied to all samples in the preparation batch.** If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). (Validation Reason Code "LAL") If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "LAL") If the precision between recoveries exceeds the RPD criterion, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LP")
Matrix Spike/Matrix Spike Duplicate (MS/MSD) (If performed)	%R within 70-130%, RPD ≤ 30%.	**The MS/MSD qualification will be applied to the unspiked parent sample.** Data should not be qualified due to %Rs (or RPDs calculated on %Rs) that are outside of criteria if the original concentration of a PFAS is >4× the spiking level for that compound. In such cases, RPDs calculated using MS/MSD results can be used to evaluate precision. If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "MAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "MAL") If the precision between recoveries exceeds the RPD criterion, qualify the positive result in the native sample as estimated ("J") and do not qualify the "not-detected" result. (Validation Reason Code "MP")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Field/Laboratory Duplicate (See Note #4 for additional information)	The RPD should be ≤30% when both results are >5× the sample-specific LOQ (RL). The difference between results should be ≤ 1.5×LOQ when at least one result is ≤5× the LOQ.	**If both results are <LOQ, a quantitative assessment of duplicate precision is not performed.** If the criteria are not met, qualify positive results for the out-of-criteria PFASs in the original sample and its duplicate as estimated ("J"). (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate) Use the MDL as a numerical value for any "not-detected" result in the difference calculation. Qualify "not-detected" results as estimated ("UJ") if the difference between the results is outside of criteria. (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate)
Percent Solids	Solid samples with less than 30% solid content require qualification.	If a solid sample has a percent solid content <30%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code of "PS") Use professional judgment to qualified "not-detected" results as unusable ("R") if a solid sample has a percent solids content <10%. (Validation Reason Code of "PS")
Compound Quantitation and Qualitative Identification (See Notes #5 for additional information.)	Samples with results that exceed the instrument calibration range should be reanalyzed at a dilution or re-extracted with a lower volume.	If a target PFAS result exceeds the instrument calibration range, qualify positive result as estimated ("J"). (Validation Reason Code "EC") Use professional judgment to determine whether sample reanalyses and dilutions should be compared to the original analyses. If criteria (see field duplicate usability) between the original sample results and the reanalysis sample results are not met, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "LD") If a target PFAS is <LOQ but ≥MDL, qualify positive results as estimated ("J"). (Validation Reason Code "RL") Use professional judgment to determine whether quantitation and qualitative identifications are accurate and whether data qualification is necessary.
System Performance	Professional judgement should be used when assessing the degradation of system performance during analyses.	Use professional judgment to qualify the data if it is determined that system performance degraded during sample analyses.

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Overall Assessment of Data	Assess overall quality of the data. Review available materials to assess the quality, keeping in mind the additive nature of the analytical problems.	Use professional judgment to determine the need to qualify data not qualified based on the QC previously discussed. Write a brief narrative to give the user an indication of the analytical limitations of the data. If sufficient information on the intended use and required quality of the data is available, include the assessment of the usability of the data within the given context.

Validation Notes

1. Use professional judgment when evaluating the response intercept of a calibration curve. If the response intercept is positive, the samples should be evaluated for false positives. If the response intercept is negative, the sample should be evaluated for false negatives.

2. If instrument instability (*i.e.*, several calibration verification standards with PFASs exhibiting both increasing and decreasing sensitivity throughout an analytical sequence) is observed in the analysis of sequential calibration verification standards, "not-detected" results may be qualified as estimated ("UJ") due to instrument sensitivity of a continuing calibration standard response that is greater than the initial calibration standard response (increase in instrument sensitivity).

3. The frequency of equipment/rinse blanks is determined during the sampling event. The results of an equipment/rinse blank should be applied to all collected in the same day by the same techniques, unless only one blank was collected for a several-day sampling event. In instances where more than one blank is associated with a given sample, qualification should be based upon a comparison with the associated blank having the highest concentration of a contaminant. Professional judgement should be used to evaluate whether an aqueous blank should be used to directly qualify a solid sample.

   Method blank contamination should be applied to samples in the preparation batch.

   Instrument blank contamination should be applied to samples bracketing the contaminated instrument blank.

   Blanks should also be evaluated using professional judgment for non-target interference.

Validation Notes

4. Duplicate samples may be collected and analyzed as an indication of overall precision. Field duplicate analyses measure both field and laboratory precision; therefore, the results may have more variability than laboratory duplicates that measure only laboratory performance. Laboratory duplicate results and field duplicate results apply only to the original sample and the laboratory/field duplicate. Solid duplicate results are expected to have greater variance than aqueous duplicate results.

5. If a sample result exceeds the instrument calibration range (lower dilution analysis) or is less than the LOQ (secondary dilution), do not utilize this result when comparing an original analysis and a diluted reanalysis.

   Poor chromatographic performance may affect qualitative identification and/or quantitation. Indications of substandard performance include:

   - High background levels
   - Extraneous peaks
   - Loss of resolution

- Peak tailing or peak splitting that may result in inaccurate quantitation
- The laboratory analyzes a Cal3 level standard that contains linear and branch chained isomers of PFOA, PFOS, and PFHxS for analyses. The analysis of this standard is used to demonstrate where the branch chained isomers elute and is not included in the calibration curve. This will assist the chemist in the integration of branched isomers of these compounds in samples.

SECTION 5

ORGANIC DATA SUPPORT DOCUMENTATION

A. SDG SBN10

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	Saint Gobain Vermont	Reviewed by:	JA 5/11/18
Sample Collection Dates:	3/29/18 – 3/30/18	Approved by:	THW
Job Number:	20167391.NBEN	Completion Date:	5/2018
Project Manager:	Meg Michell		
Laboratory:	ELLE	Applicable Sample No's (X)	Refer to Table 1 in the Quality Assurance Review

			Sample No.	Lab Control No.
Deliverable:	CLP (Full)	( )	SBN10	
	Level IV (Full)	(X)		
	Limited	( )		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail Check (√) if Yes or Footnote Letter for Comments Below					Problems Identified Check (√) if Yes or Footnote Letter for Comments Below					Support Documentation Attachments Check (√) if Yes or Footnote Letter for Comments Below				
	PFAS					PFAS					PFAS				
Holding Times	X										X				
Blank Analysis: Target Cmpds	X					X					X				
Sys Montr Cmps/Surrogates															
Matrix Spike/Matrix Spike Duplicate	X					X					X				
Blank Spike	X					X					X				
Duplicate Analysis (X) Field ( ) Lab	X					X					X				
Detection Limit/Sensitivity	X										X				
Qualitative Identification: Target Cmpds	X					X					X				
Qualitative Identification: TICs															
DFTPP & BFB Mass Tuning															
GC Instrument Performance															
Initial Calibrations	X										X				
Continuing Calibrations	X										X				
Quantitation of Results	X										X				
DDT/Endrin Breakdown															
Surrogate Retention Time Shifts															
Internal Standards Performance	X					X					X				
Resolution Check Standards															
Analytical Sequence	X										X				
Florisil Cartridge & GPC Calibration															
GC Column Agreement															
Condition Upon Receipt	X										X				
Percent Solids															
Others:															

Comments: _____

ENVIRONMENTAL STANDARDS

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample / batch ID	Contaminant	Concentration ng/wipe, ng/g, ng/L	Qualification limit	
						5×	10×
O	Aq	TB	SG3a-LTB01-180330	PFOA	1.8	9	
O	Aq	RB	SG3a-RB01-180330	PFOA	4	20	
O	Aq	EB	SG3a-EB01-180330	PFOA	0.4	2	
O	Wipe	MB	18094001	PFBA	0.26	1.3	
O	Wipe	EB	SG3a-EB02-180330	PFBA	0.28	1.4	
O	Wipe	EB	SG3a-EB02-180330	PFHpA	0.28	1.4	
O	Wipe	EB	SG3a-EB02-180330	PFOS	4	20	
O	Wipe	EB	SG3a-EB02-180330	PFOA	33	165	

1 - V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: PFAS

2 - MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; RB = Rinse Blank

Notes:

** Columns G and H contains formulas

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF TRIPLICATE ANALYSIS PRECISION

Effective Date: 11/23/2015
Revision: 0

Units: ng/g	PRECISION OBJECTIVES:
	If Analyte >5 X QL, RSD <: 30
	Analyte < 5 X QL, Maximum Difference <: 1.5 x Maximum QL

Analyte	Rep 1 ID:	9536676		Rep 2 ID:	9536676MS		Rep 3 ID:	9536676MSD		Max. Difference	RSD	Flag
	Rep 1 Concentration	Qual	QL	Rep 2 Concentration	Qual	QL	Rep 3 Concentration	Qual	QL			
PFBS	296		56	241		56	249		56	55.53	NA	
PFBA	577		56	562		56	558		56	NA	1.7	
PFDA	908		56	937		56	937		56	NA	1.8	
PFDoA	623		56	617		56	645		56	NA	2.4	
PFHpA	3528		56	3599		56	3678		56	NA	2.1	
PFHxS	82		56	84		56	84		56	2.74	NA	
PFHxA	2751		56	2507		56	2567		56	NA	4.9	
PFNA	433		56	437		56	422		56	NA	1.7	
PFOS	1452		84	1426		84	1499		84	NA	2.6	
PFOA	274014		2800	196929		2800	190106		2800	NA	21.1	
PFPeA	581		56	542		56	565		56	NA	3.5	
PFTA	553		56	572		56	565		56	NA	1.7	
PFTriA	248		56	235		56	257		56	22.05	NA	
PFUnA	240		56	238		56	237		56	2.83	NA	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

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Analysis Report

Sample Description: SG3a-WP10-B35.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/29/2018 15:20
SDG#: SBN10-01

C. T. Male Associates
ELLE Sample #: WP 9536659
ELLE Group #: 1926425
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	**Perfluorobutanoic acid**	375-22-4	**77 B**	20	60	100
14027	**Perfluorodecanoic acid**	335-76-2	**69**	20	60	100
14027	**Perfluorododecanoic acid**	307-55-1	**38 J**	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**1,100**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**570**	20	60	100
14027	**Perfluorononanoic acid**	375-95-1	**89**	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**130,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**67**	20	60	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**27 J**	20	60	100
14027	Perfluorotridecanoic acid	72629-94-8	20 U	20	60	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**25 J**	20	60	100

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

Sample injection internal peak areas were outside of QC acceptance limits as noted on the QC Summary.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/09/2018 16:29	Jason W Knight	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/10/2018 16:43	Jason W Knight	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094001	04/04/2018 06:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3a-WP10-B33.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/29/2018 15:30
SDG#: SBN10-02

C. T. Male Associates
ELLE Sample #: WP 9536660
ELLE Group #: 1926425
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	**Perfluorobutanoic acid**	375-22-4	**25 JB**	20	60	100
14027	Perfluorodecanoic acid	335-76-2	20 U	20	60	100
14027	Perfluorododecanoic acid	307-55-1	20 U	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**230**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**140**	20	60	100
14027	Perfluorononanoic acid	375-95-1	20 U	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**19,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**21 J**	20	60	100
14027	Perfluorotetradecanoic acid	376-06-7	20 U	20	60	100
14027	Perfluorotridecanoic acid	72629-94-8	20 U	20	60	100
14027	Perfluoroundecanoic acid	2058-94-8	20 U	20	60	100

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/09/2018 16:44	Jason W Knight	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/10/2018 16:58	Jason W Knight	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094001	04/04/2018 06:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-BL10-B26.0 Grab Bulk Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/29/2018 15:35
SDG#: SBN10-03

C. T. Male Associates
ELLE Sample #: SW 9536661
ELLE Group #: 1926425
Matrix: Bulk Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**60 J**	38	120	100
14027	**Perfluorobutanoic acid**	375-22-4	**110 J**	38	120	100
14027	**Perfluorodecanoic acid**	335-76-2	**110 J**	38	120	100
14027	**Perfluorododecanoic acid**	307-55-1	**70 J**	38	120	100
14027	**Perfluoroheptanoic acid**	375-85-9	**2,300**	38	120	100
14027	Perfluorohexanesulfonate	355-46-4	38 U	38	120	100
14027	**Perfluorohexanoic acid**	307-24-4	**1,400**	38	120	100
14027	**Perfluorononanoic acid**	375-95-1	**120**	38	120	100
14027	**Perfluoro-octanesulfonate**	1763-23-1	**78 J**	58	170	100
14027	**Perfluorooctanoic acid**	335-67-1	**240,000**	380	1,200	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**170**	38	120	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**46 J**	38	120	100
14027	Perfluorotridecanoic acid	72629-94-8	38 U	38	120	100
14027	Perfluoroundecanoic acid	2058-94-8	38 U	38	120	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 12:35	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 17:45	Joshua P Trost	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18102019	04/13/2018 10:30	Robert Brown	1

L28 2015

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Analysis Report

Sample Description: SG3a-WP10-B23.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/29/2018 15:40
SDG#: SBN10-04

C. T. Male Associates
ELLE Sample #: WP 9536662
ELLE Group #: 1926425
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	**Perfluorobutanoic acid**	375-22-4	**24 JB**	20	60	100
14027	**Perfluorodecanoic acid**	335-76-2	**42 J**	20	60	100
14027	**Perfluorododecanoic acid**	307-55-1	**38 J**	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**250**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**130**	20	60	100
14027	**Perfluorononanoic acid**	375-95-1	**31 J**	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**26,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**24 J**	20	60	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**35 J**	20	60	100
14027	Perfluorotridecanoic acid	72629-94-8	20 U	20	60	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**20 J**	20	60	100

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/09/2018 16:59	Jason W Knight	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/10/2018 17:13	Jason W Knight	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094001	04/04/2018 06:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-WP10-B11.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/29/2018 15:45
SDG#: SBN10-05

C. T. Male Associates
ELLE Sample #: WP 9536663
ELLE Group #: 1926425
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	Perfluorobutanoic acid	375-22-4	20 U	20	60	100
14027	Perfluorodecanoic acid	335-76-2	20 U	20	60	100
14027	Perfluorododecanoic acid	307-55-1	20 U	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**100**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**57 J** ✓	20	60	100
14027	Perfluorononanoic acid	375-95-1	20 U	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**12,000**	20	60	100
14027	Perfluoropentanoic acid	2706-90-3	20 U	20	60	100
14027	Perfluorotetradecanoic acid	376-06-7	20 U	20	60	100
14027	Perfluorotridecanoic acid	72629-94-8	20 U	20	60	100
14027	Perfluoroundecanoic acid	2058-94-8	20 U	20	60	100

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/09/2018 17:13	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094001	04/04/2018 06:45 ✓	Pamela Rothharpt	1

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Analysis Report

Sample Description: SG3a-BL10-B29.0 Grab Bulk Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/29/2018 15:25
SDG#: SBN10-06

C. T. Male Associates
ELLE Sample #: SW 9536664
ELLE Group #: 1926425
Matrix: Bulk Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**110**	20	60	100
14027	**Perfluorobutanoic acid**	375-22-4	**310**	20	60	100
14027	**Perfluorodecanoic acid**	335-76-2	**160**	20	60	100
14027	**Perfluorododecanoic acid**	307-55-1	**85**	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**1,900**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**1,500**	20	60	100
14027	**Perfluorononanoic acid**	375-95-1	**120**	20	60	100
14027	**Perfluoro-octanesulfonate**	1763-23-1	**52 J** ✓	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**170,000** ✓	1,000	3,000	5000
14027	**Perfluoropentanoic acid**	2706-90-3	**220**	20	60	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**52 J** ✓	20	60	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**25 J**	20	60	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**35 J**	20	60	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 13:21	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/19/2018 14:49	Joshua P Trost	5000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18102019	04/13/2018 10:30	Robert Brown	1

✓

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Analysis Report

Sample Description: SG3a-FTB01-180330 Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 08:25
SDG#: SBN10-07FB

C. T. Male Associates
ELLE Sample #: WW 9536665
ELLE Group #: 1926425
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18092009	04/05/2018 18:00	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18092009	04/03/2018 17:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-LTB01-180330 Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018
SDG#: SBN10-08TB

C. T. Male Associates
ELLE Sample #: WW 9536666
ELLE Group #: 1926425
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.28 U	0.28	0.92	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.5	1
14473	Perfluorodecanoic acid	335-76-2	0.92 U	0.92	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.28 U	0.28	0.92	1
14473	Perfluoroheptanoic acid	375-85-9	0.28 U	0.28	0.92	1
14473	Perfluorohexanesulfonate	355-46-4	0.37 U	0.37	1.8	1
14473	Perfluorohexanoic acid	307-24-4	0.37 U	0.37	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.37 U	0.37	1.8	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.37 U	0.37	1.8	1
14473	Perfluorooctanoic acid	335-67-1	1.8	0.28	0.92	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.28 U	0.28	0.92	1
14473	Perfluorotridecanoic acid	72629-94-8	0.28 U	0.28	0.92	1
14473	Perfluoroundecanoic acid	2058-94-8	0.37 U	0.37	1.8	1

Native compound perfluorooctanoic acid (PFOA) was detected in this trip blank. Sufficient sample was not available to repeat the analysis.

All results 75× blank

No qual.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18092009	04/05/2018 18:15	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18092009	04/03/2018 17:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB01-180330 Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 08:35
SDG#: SBN10-09RB

C. T. Male Associates
ELLE Sample #: WW 9536667
ELLE Group #: 1926425
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	4	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18092009	04/05/2018 19:02	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18092009	04/03/2018 17:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-WP11-B42.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 08:20
SDG#: SBN10-10

C. T. Male Associates
ELLE Sample #: WP 9536668
ELLE Group #: 1926425
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	Perfluorobutanoic acid	375-22-4	20 U	20	60	100
14027	Perfluorodecanoic acid	335-76-2	20 U	20	60	100
14027	Perfluorododecanoic acid	307-55-1	20 U	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**86**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**52 J**	20	60	100
14027	Perfluorononanoic acid	375-95-1	20 U	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**11,000**	20	60	100
14027	Perfluoropentanoic acid	2706-90-3	20 U	20	60	100
14027	Perfluorotetradecanoic acid	376-06-7	20 U	20	60	100
14027	Perfluorotridecanoic acid	72629-94-8	20 U	20	60	100
14027	Perfluoroundecanoic acid	2058-94-8	20 U	20	60	100

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/09/2018 17:28	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094001	04/04/2018 06:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-WP11-B41.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 08:25
SDG#: SBN10-11

C. T. Male Associates
ELLE Sample #: WP 9536669
ELLE Group #: 1926425
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**6.7**	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**13 B**	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**7.8**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**4.2 J**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**62**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**37**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**5.8 J**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**5.4 J**	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**7,900**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**9.3**	2.0	6.0	10
14027	Perfluorotetradecanoic acid	376-06-7	2.0 U	2.0	6.0	10
14027	Perfluorotridecanoic acid	72629-94-8	2.0 U	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.9 J**	2.0	6.0	10

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/09/2018 17:42	Jason W Knight	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/10/2018 17:27	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094001	04/04/2018 06:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094001 4/10/2018 10:31:40 AM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

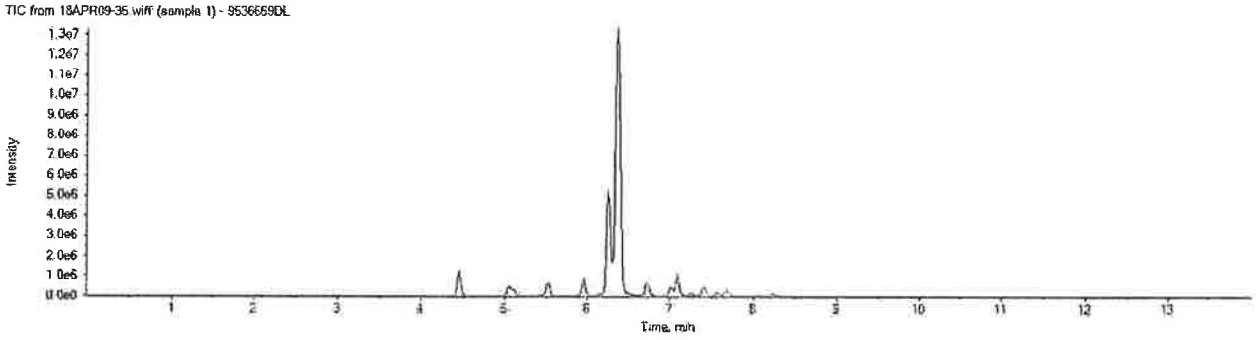
Analyte Quantitation Peak Table

Sample Name: 9536669 **Instrument Name:** LM24960 **File Name:** 18APR09-35.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.45	1.000	195226.6	A	13C4-PFBA	4.45	1678423.4	0.116	13.277
PFPeA	5.05	1.000	118513.4	A	13C5-PFPeA	5.05	1295542.5	0.091	9.295
PFBS	5.11	1.000	64162.9	A	13C3-PFBS	5.11	876700.0	0.073	6.689
PFHxA	5.52	1.000	532939.2	M	13C5-PFHxA	5.52	1554049.8	0.343	37.313
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.96	610060.8	N/A	
PFHpA	5.96	1.000	760580.9	M	13C4-PFHpA	5.96	1197682.8	0.635	61.519
PFOA	6.37	1.000	34167244.6	M	13C8-PFOA	6.37	563637.8	60.619	6511.556
PFOS	6.72	1.000	37606.1	M	13C8-PFOS	6.72	666359.4	0.056	5.371
PFNA	6.75	1.000	64731.1	M	13C9-PFNA	6.75	1034749.0	0.063	5.842
PFDA	7.09	1.000	105416.1	M	13C6-PFDA	7.09	1599389.7	0.066	7.820
PFUnDA	7.40	1.000	26344.8	M	13C7-PFUnDA	7.40	831112.9	0.032	2.852
PFDoDA	7.68	1.000	33103.2	M	13C2-PFDoDA	7.68	875016.2	0.038	4.221
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	875016.2	N/A	
PFTeDA	8.22	1.000	9171.4	A	13C2-PFTeDA	8.23	522452.3	0.018	1.943

Total Ion Chromatogram

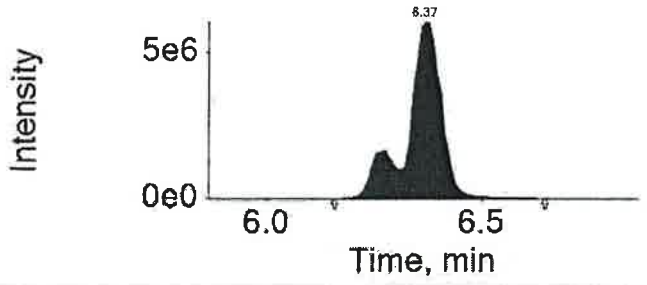


APPROVED
By JWK at 10:50 am, 4/10/18

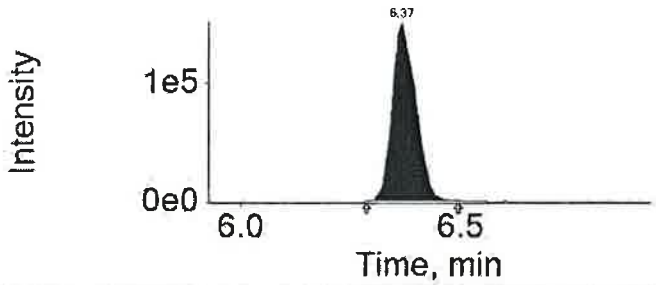
REVIEWED
By uild at 12:19 pm, 4/11/18

ICAL Name: 18APR07MCAL **Result Table:** 18094001 4/10/2018 10:31:40 AM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

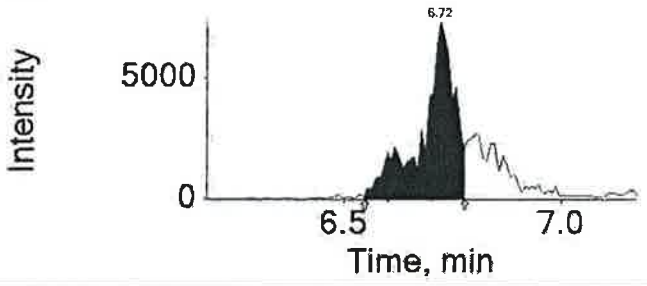
Analyte: PFOA
413.0 / 369.0



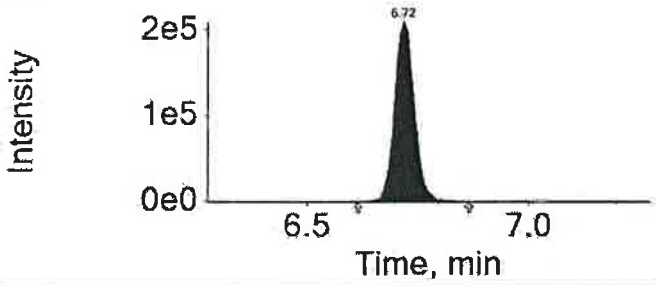
Extraction Standard: 13C8-PFOA
421.0 / 376.0



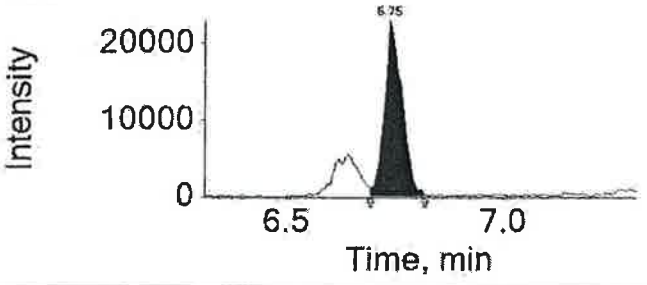
Analyte: PFOS
499.0 / 80.0



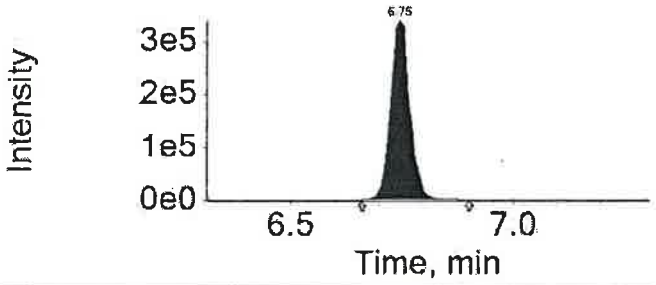
Extraction Standard: 13C8-PFOS
507.0 / 80.0



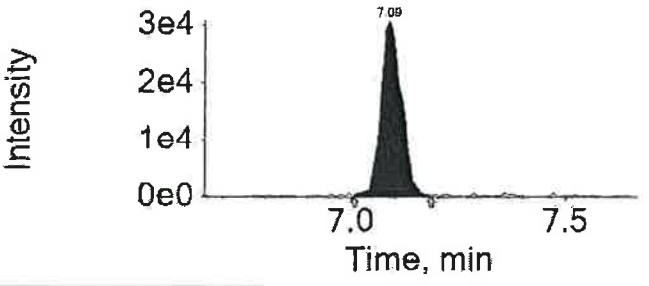
Analyte: PFNA
463.0 / 419.0



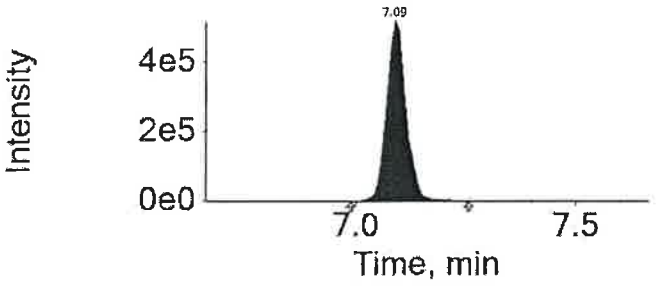
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JWK at 10:50 am, 4/10/18

REVIEWED
By uild at 12:19 pm, 4/11/18

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Sample Description: SG3a-BL11-B40.5 Grab Bulk Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 08:30
SDG#: SBN10-12

C. T. Male Associates
ELLE Sample #: SW 9536670
ELLE Group #: 1926425
Matrix: Bulk Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**140** ✓	20	59	100
14027	**Perfluorobutanoic acid**	375-22-4	**240**	20	59	100
14027	**Perfluorodecanoic acid**	335-76-2	**130**	20	59	100
14027	**Perfluorododecanoic acid**	307-55-1	**89**	20	59	100
14027	**Perfluoroheptanoic acid**	375-85-9	**910**	20	59	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	59	100
14027	**Perfluorohexanoic acid**	307-24-4	**650**	20	59	100
14027	**Perfluorononanoic acid**	375-95-1	**82**	20	59	100
14027	**Perfluoro-octanesulfonate**	1763-23-1	**46 J**	29	88	100
14027	**Perfluorooctanoic acid**	335-67-1	**81,000** ✓	200	590	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**170**	20	59	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**63**	20	59	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**34 J**	20	59	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**46 J**	20	59	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

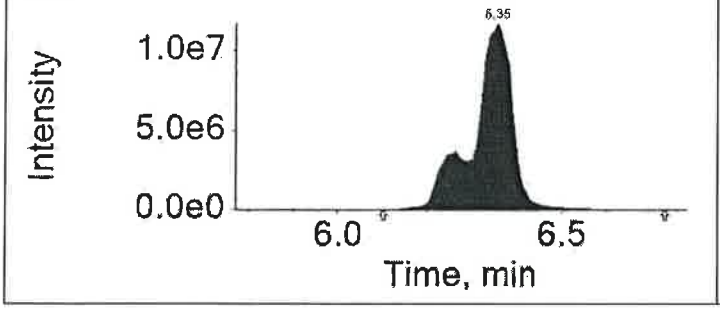
CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 13:37	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 18:16	Joshua P Trost	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18102019	04/13/2018 10:30	Robert Brown	1

✓

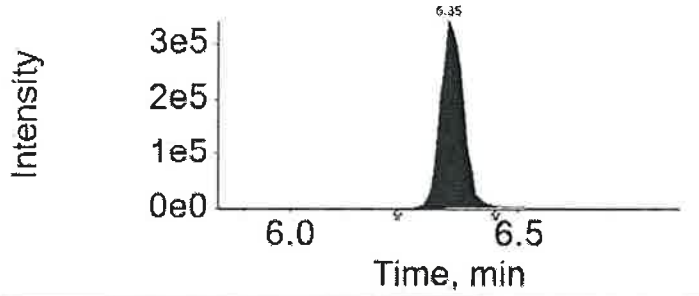
*=This limit was used in the evaluation of the final result

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

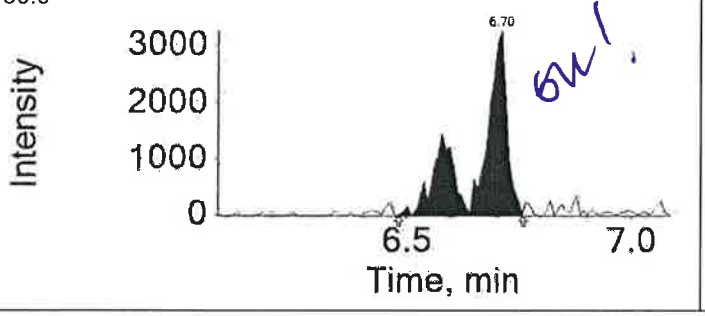
Analyte: PFOA
413.0 / 369.0



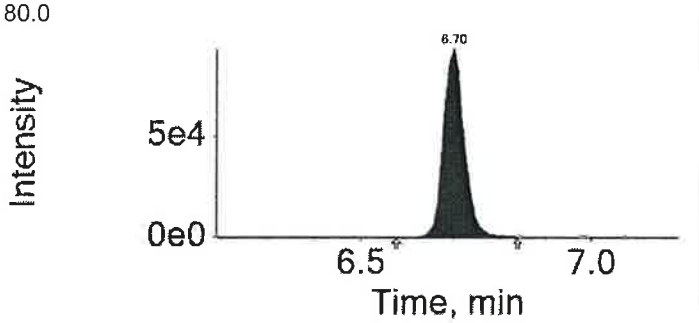
Extraction Standard: 13C8-PFOA
421.0 / 376.0



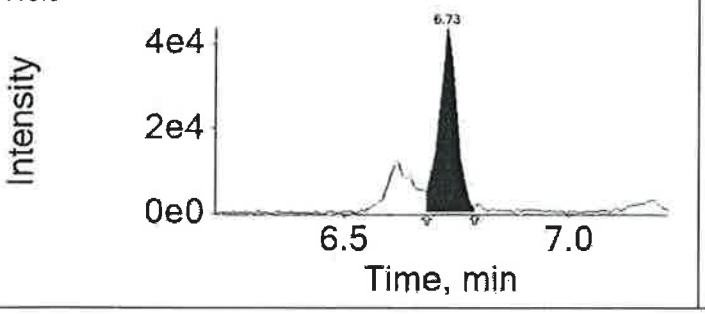
Analyte: PFOS
499.0 / 80.0



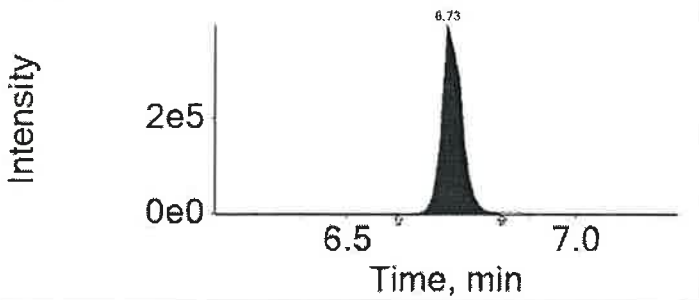
Extraction Standard: 13C8-PFOS
507.0 / 80.0



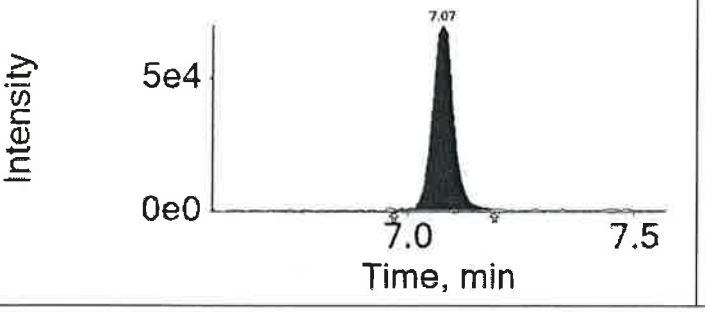
Analyte: PFNA
463.0 / 419.0



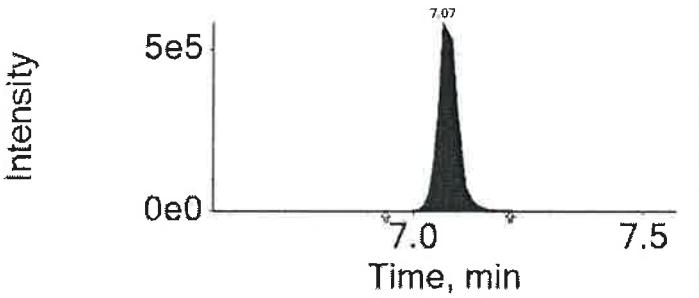
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 3:32 pm, 4/19/18

REVIEWED
By umar at 10:50 am, 4/23/18

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Analysis Report

Sample Description: SG3a-BL11-B25.0 Grab Bulk Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 08:40
SDG#: SBN10-13

C. T. Male Associates
ELLE Sample #: SW 9536671
ELLE Group #: 1926425
Matrix: Bulk Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**56**	1.9	5.7	10
14027	**Perfluorobutanoic acid**	375-22-4	**6.9**	1.9	5.7	10
14027	**Perfluorodecanoic acid**	335-76-2	**29**	1.9	5.7	10
14027	**Perfluorododecanoic acid**	307-55-1	**26**	1.9	5.7	10
14027	**Perfluoroheptanoic acid**	375-85-9	**91**	1.9	5.7	10
14027	Perfluorohexanesulfonate	355-46-4	1.9 U	1.9	5.7	10
14027	**Perfluorohexanoic acid**	307-24-4	**41**	1.9	5.7	10
14027	**Perfluorononanoic acid**	375-95-1	**13**	1.9	5.7	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**10**	2.9	8.6	10
14027	**Perfluorooctanoic acid**	335-67-1	**8,800**	19	57	100
14027	**Perfluoropentanoic acid**	2706-90-3	**8.1**	1.9	5.7	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**33**	1.9	5.7	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**13**	1.9	5.7	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**10**	1.9	5.7	10

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

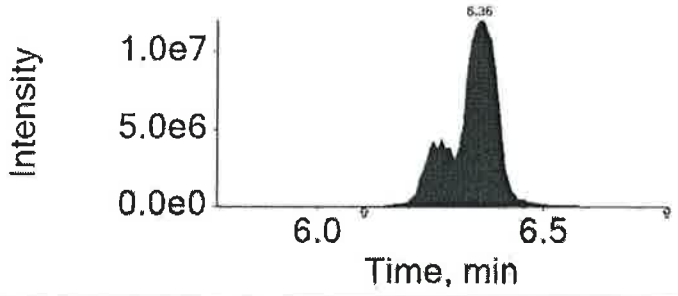
Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 13:52	Joshua P Trost	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 18:32	Joshua P Trost	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18102019	04/13/2018 10:30	Robert Brown	1

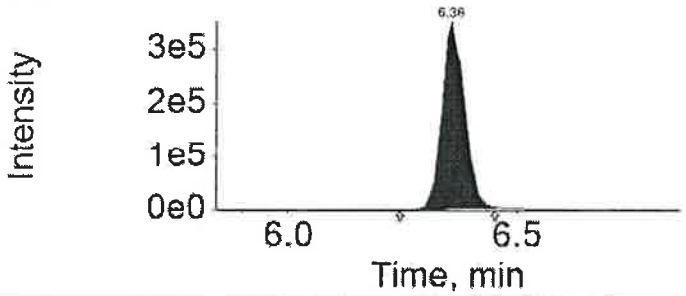
*=This limit was used in the evaluation of the final result

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

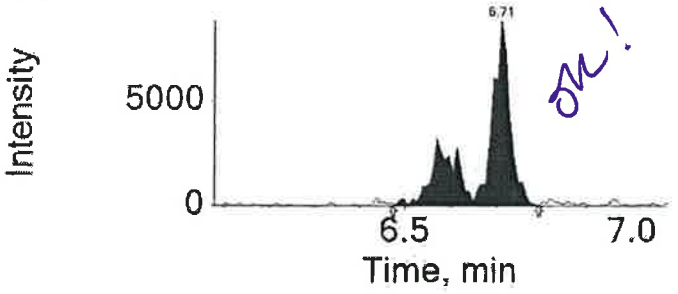
Analyte: PFOA
413.0 / 369.0



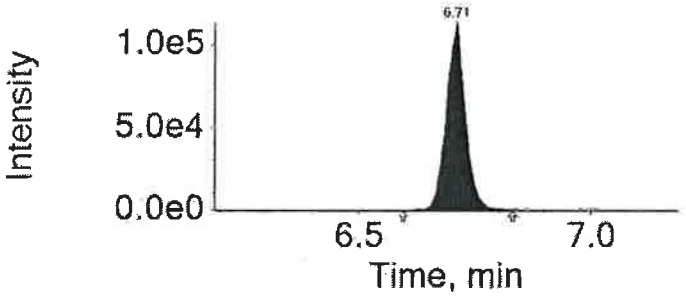
Extraction Standard: 13C8-PFOA
421.0 / 376.0



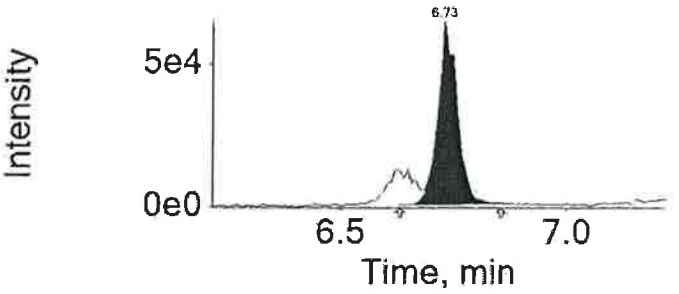
Analyte: PFOS
499.0 / 80.0



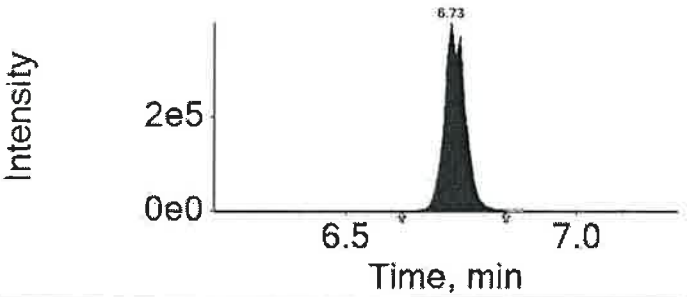
Extraction Standard: 13C8-PFOS
507.0 / 80.0



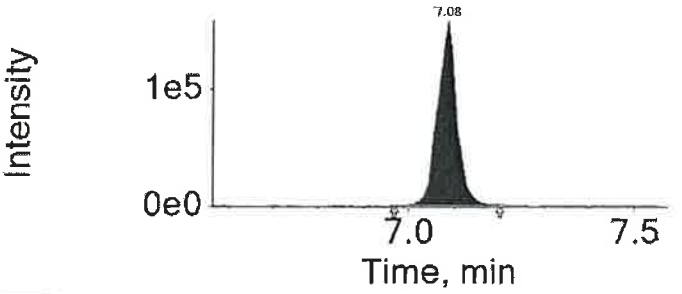
Analyte: PFNA
463.0 / 419.0



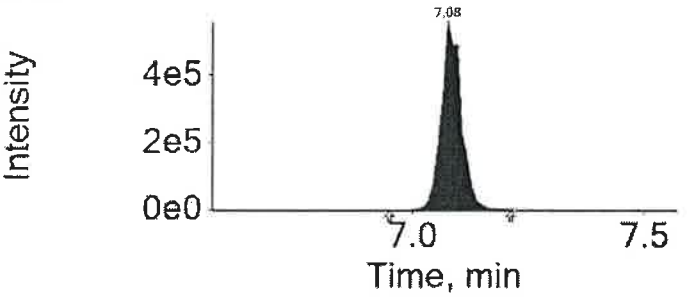
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 3:32 pm, 4/19/18

REVIEWED
By umar at 10:50 am, 4/23/18

Sample Description: SG3a-WP11-B24.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 08:45
SDG#: SBN10-14

C. T. Male Associates
ELLE Sample #: WP 9536672
ELLE Group #: 1926425
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	**Perfluorobutanoic acid**	375-22-4	**74 B**	20	60	100
14027	**Perfluorodecanoic acid**	335-76-2	**83** ✓	20	60	100
14027	**Perfluorododecanoic acid**	307-55-1	**70**	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**620**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**350**	20	60	100
14027	**Perfluorononanoic acid**	375-95-1	**51 J**	20	60	100
14027	**Perfluoro-octanesulfonate**	1763-23-1	**36 J**	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**63,000** ✓	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**79**	20	60	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**55 J**	20	60	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**24 J**	20	60	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**37 J**	20	60	100

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

PFOS ok ✓

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/09/2018 17:57	Jason W Knight	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/10/2018 17:42	Jason W Knight	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094001	04/04/2018 06:45	Pamela Rothharpt	1

✓

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094001 4/10/2018 10:31:40 AM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

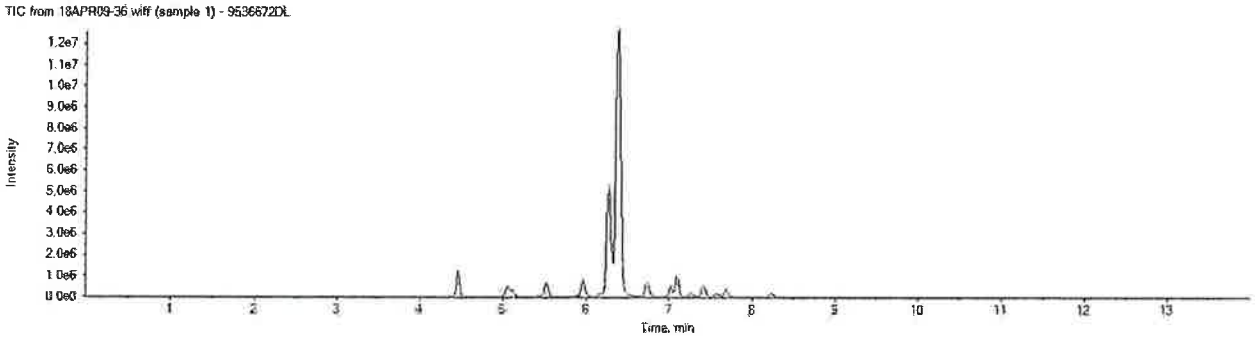
Analyte Quantitation Peak Table

Sample Name: 9536672 **Instrument Name:** LM24960 **File Name:** 18APR09-36.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.45	1.000	110512.0	A	13C4-PFBA	4.45	1708714.9	0.065	73.825
PFPeA	5.06	1.000	103048.8	M	13C5-PFPeA	5.06	1327290.3	0.078	78.891
PFBS	5.11	1.000	14529.9	M	13C3-PFBS	5.11	841201.5	0.017	15.786
PFHxA	5.53	1.000	487185.6	M	13C5-PFHxA	5.53	1529412.0	0.319	346.588
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.96	610893.4	N/A	
PFHpA	5.97	1.000	731110.0	M	13C4-PFHpA	5.97	1142264.8	0.640	620.041
PFOA	6.38	1.000	33341189.8	M	13C8-PFOA	6.38	533446.0	62.502	67137.568
PFOS	6.72	1.000	26933.8	M	13C8-PFOS	6.72	703979.0	0.038	36.410
PFNA	6.75	1.000	54227.0	M	13C9-PFNA	6.75	1001462.2	0.054	50.565
PFDA	7.09	1.000	102572.8	M	13C6-PFDA	7.09	1465987.8	0.070	83.017
PFUnDA	7.40	1.000	41177.7	M	13C7-PFUnDA	7.40	1007784.7	0.041	36.764
PFDoDA	7.69	1.000	57770.7	A	13C2-PFDoDA	7.69	923562.5	0.063	69.797
PFTrDA	7.96	1.040	19054.4	A	13C2-PFDoDA	7.69	923562.5	0.021	23.724
PFTeDA	8.23	1.000	29724.1	A	13C2-PFTeDA	8.23	603457.6	0.049	54.517

Total Ion Chromatogram

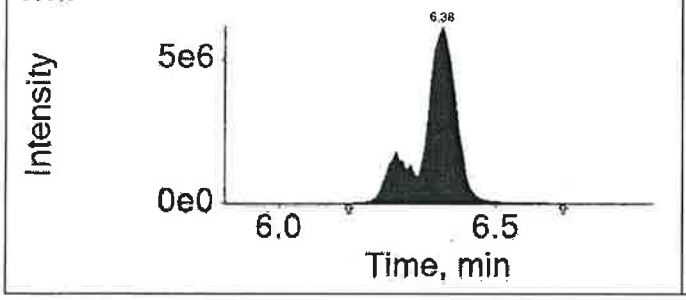


APPROVED
By JWK at 10:50 am, 4/10/18

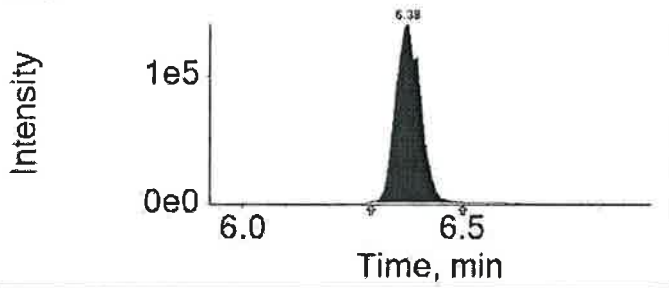
REVIEWED
By uild at 12:19 pm, 4/11/18

ICAL Name: 18APR07MCAL **Result Table:** 18094001 4/10/2018 10:31:40 AM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

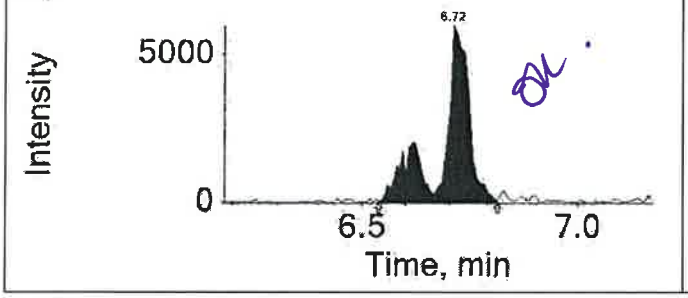
Analyte: PFOA
413.0 / 369.0



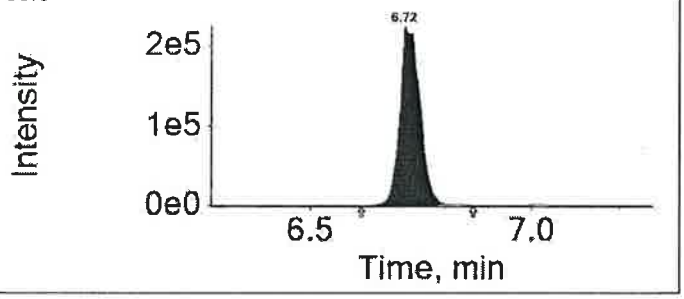
Extraction Standard: 13C8-PFOA
421.0 / 376.0



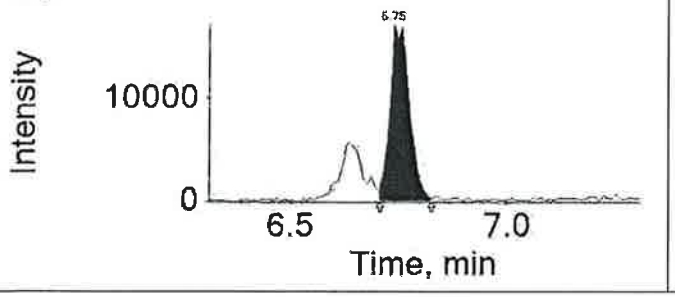
Analyte: PFOS
499.0 / 80.0



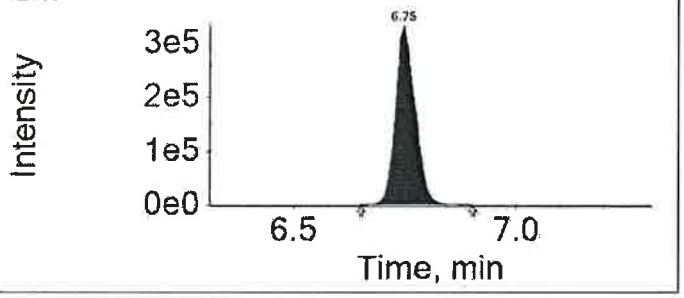
Extraction Standard: 13C8-PFOS
507.0 / 80.0



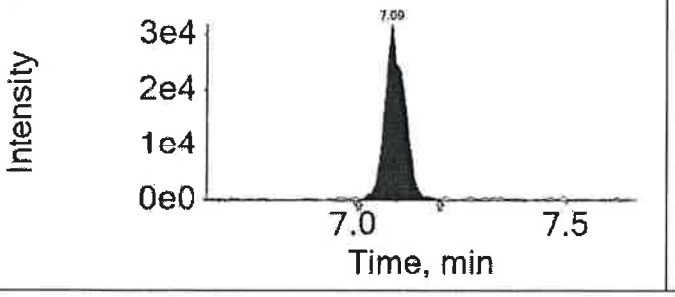
Analyte: PFNA
463.0 / 419.0



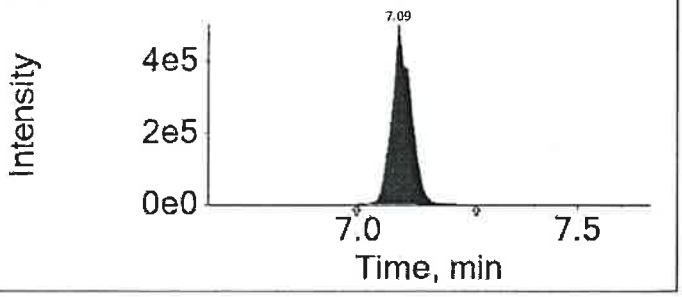
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JWK at 10:50 am, 4/10/18

REVIEWED
By uild at 12:19 pm, 4/11/18

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Sample Description: SG3a-WP11-B16.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 08:50
SDG#: SBN10-15

C. T. Male Associates
ELLE Sample #: WP 9536673
ELLE Group #: 1926425
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	**Perfluorobutanoic acid**	375-22-4	**34 JB**	20	60	100
14027	**Perfluorodecanoic acid**	335-76-2	**39 J**	20	60	100
14027	**Perfluorododecanoic acid**	307-55-1	**28 J**	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**320**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**180**	20	60	100
14027	**Perfluorononanoic acid**	375-95-1	**29 J**	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**36,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**34 J**	20	60	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**20 J**	20	60	100
14027	Perfluorotridecanoic acid	72629-94-8	20 U	20	60	100
14027	Perfluoroundecanoic acid	2058-94-8	20 U	20	60	100

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/09/2018 18:11	Jason W Knight	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/10/2018 17:56	Jason W Knight	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094001	04/04/2018 06:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-EB01-180330 Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 09:35
SDG#: SBN10-16EB

C. T. Male Associates
ELLE Sample #: WW 9536674
ELLE Group #: 1926425
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.27 U	0.27	0.91	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.5	1
14473	Perfluorodecanoic acid	335-76-2	0.91 U	0.91	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.91	1
14473	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.91	1
14473	Perfluorohexanesulfonate	355-46-4	0.36 U	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	0.36 U	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	0.40 J	0.27	0.91	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.91	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.91	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18092009	04/05/2018 19:17	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18092009	04/03/2018 17:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3a-EB02-180330 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 10:00
SDG#: SBN10-17EB

C. T. Male Associates
ELLE Sample #: WP 9536675
ELLE Group #: 1926425
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.28 JB**	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.28 J**	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.20 U	0.20	0.60	1
14027	Perfluorononanoic acid	375-95-1	0.20 U	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**4.0**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**33**	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank as noted on the QC summary.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/09/2018 18:26	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094001	04/04/2018 06:45	Pamela Rothhaupt	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094001 4/10/2018 10:31:40 AM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

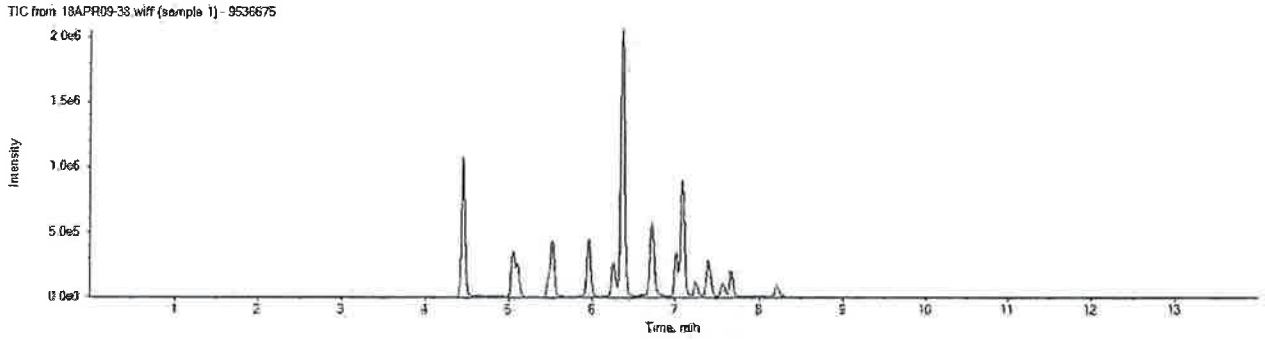
Analyte Quantitation Peak Table

Sample Name: 9536675 **Instrument Name:** LM24960 **File Name:** 18APR09-38.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.45	1.000	34103.7	M	13C4-PFBA	4.45	1392133.3	0.024	0.280
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.05	1038471.4	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.11	677913.6	N/A	
PFHxA	5.52	1.000	19288.3	M	13C5-PFHxA	5.52	1197484.6	0.016	0.175
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.95	470413.9	N/A	
PFHpA	5.96	1.000	26409.7	M	13C4-PFHpA	5.96	925162.2	0.029	0.277
PFOA	6.37	1.000	2598129.5	M	13C8-PFOA	6.37	851766.7	3.050	32.765
PFOS	6.74	1.000	213430.7	M	13C8-PFOS	6.72	507274.0	0.421	4.004
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.74	780390.6	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.09	1222198.6	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.39	568310.7	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	553388.5	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.67	553388.5	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.21	287154.8	N/A	

Total Ion Chromatogram

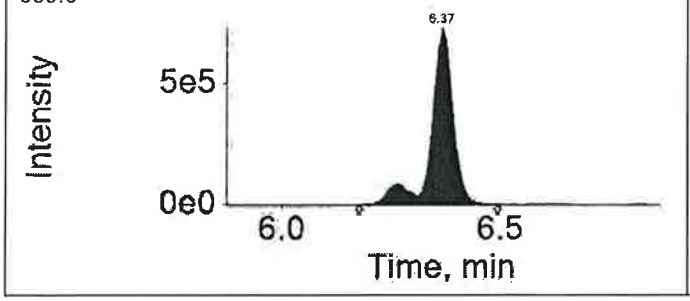


APPROVED
By JWK at 10:50 am, 4/10/18

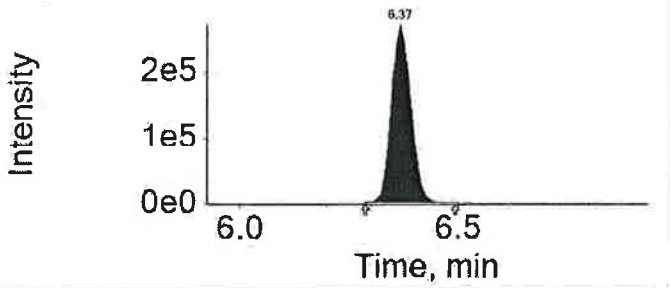
REVIEWED
By uild at 12:19 pm, 4/11/18

ICAL Name: 18APR07MCAL **Result Table:** 18094001 4/10/2018 10:31:40 AM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

Analyte: PFOA
413.0 / 369.0

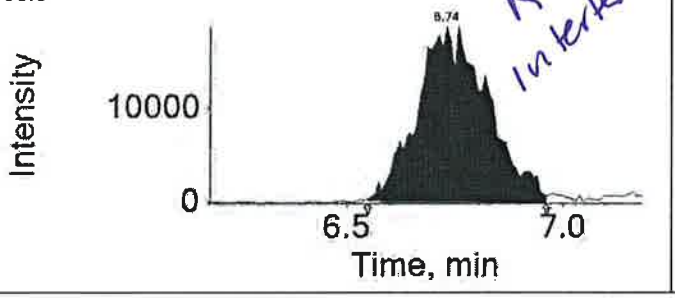


Extraction Standard: 13C8-PFOA
421.0 / 376.0

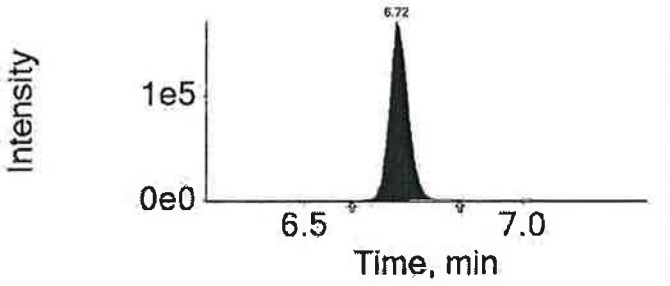


Analyte: PFOS
499.0 / 80.0

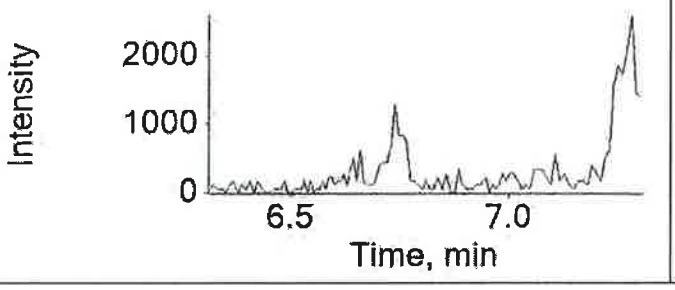
R — Interference



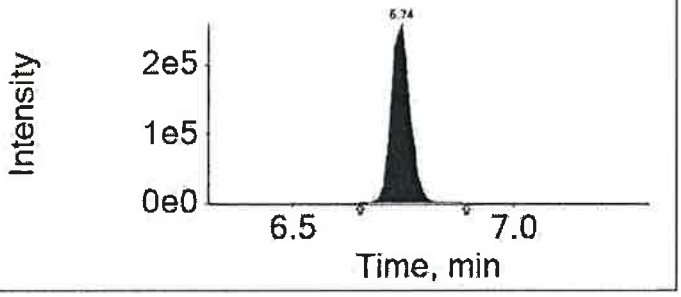
Extraction Standard: 13C8-PFOS
507.0 / 80.0



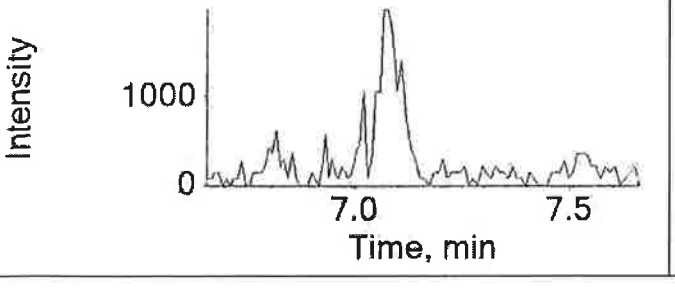
Analyte: PFNA
463.0 / 419.0



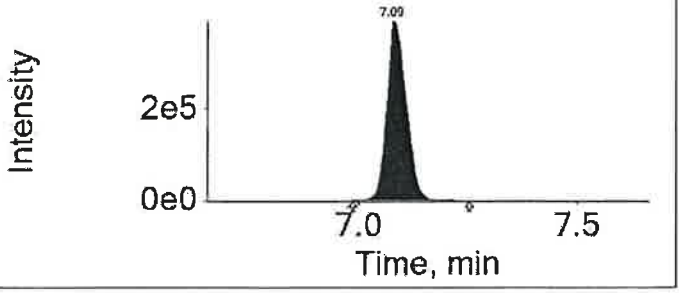
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JWK at 10:50 am, 4/10/18

REVIEWED
By uild at 12:19 pm, 4/11/18

Sample Description: SG3a-BL13-C Grab Bulk Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 10:05
SDG#: SBN10-18BKG

C. T. Male Associates
ELLE Sample #: SW 9536676
ELLE Group #: 1926425
Matrix: Bulk Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**300**	19	56	100
14027	**Perfluorobutanoic acid**	375-22-4	**580**	19	56	100
14027	**Perfluorodecanoic acid**	335-76-2	**910**	19	56	100
14027	**Perfluorododecanoic acid**	307-55-1	**620**	19	56	100
14027	**Perfluoroheptanoic acid**	375-85-9	**3,500**	19	56	100
14027	**Perfluorohexanesulfonate**	355-46-4	**82**	19	56	100
14027	**Perfluorohexanoic acid**	307-24-4	**2,800**	19	56	100
14027	**Perfluorononanoic acid**	375-95-1	**430**	19	56	100
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1,500** ✓	28	84	100
14027	**Perfluorooctanoic acid**	335-67-1	**270,000** ✓	930	2,800	5000
14027	**Perfluoropentanoic acid**	2706-90-3	**580**	19	56	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**550**	19	56	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**250**	19	56	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**240**	19	56	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

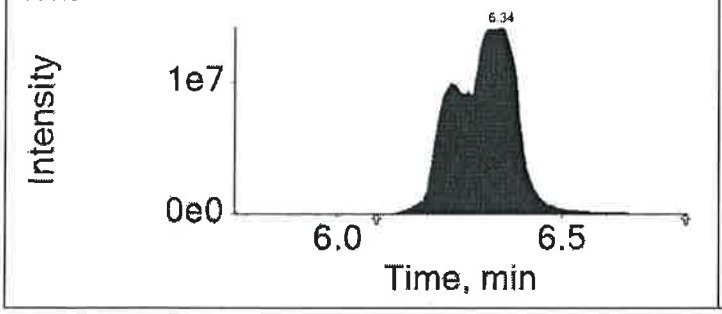
CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 14:08	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/19/2018 15:04	Joshua P Trost	5000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18102019	04/13/2018 10:30	Robert Brown	1

✓

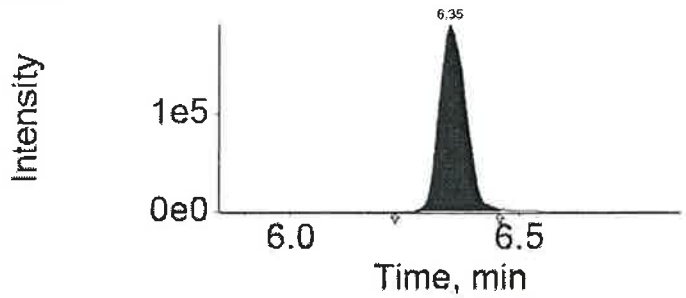
*=This limit was used in the evaluation of the final result

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

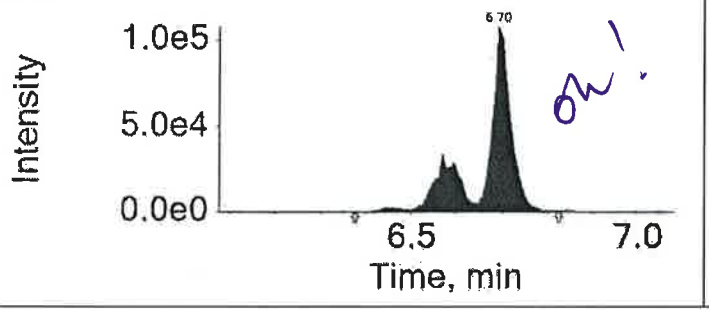
Analyte: PFOA
413.0 / 369.0



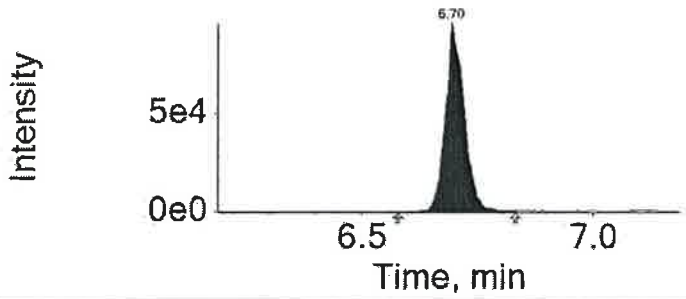
Extraction Standard: 13C8-PFOA
421.0 / 376.0



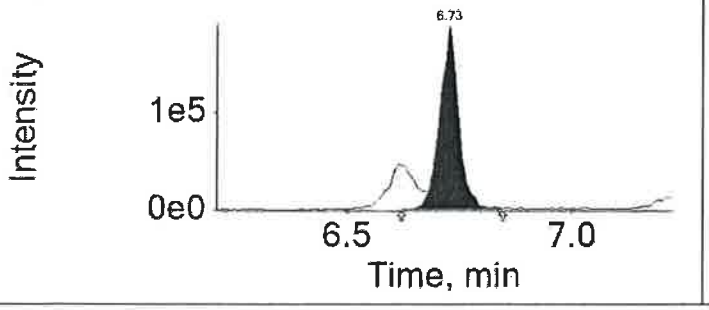
Analyte: PFOS
499.0 / 80.0



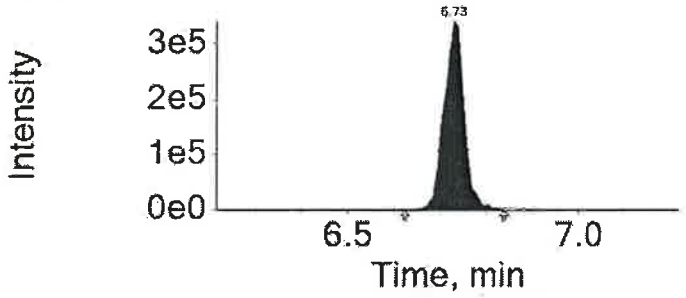
Extraction Standard: 13C8-PFOS
507.0 / 80.0



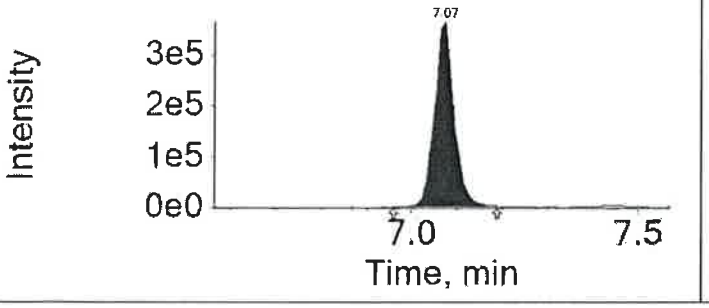
Analyte: PFNA
463.0 / 419.0



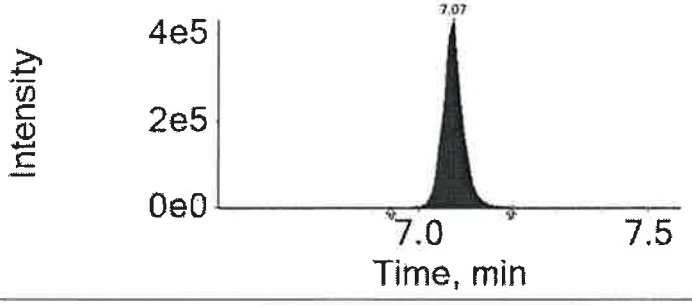
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 3:32 pm, 4/19/18

REVIEWED
By umar at 10:50 am, 4/23/18

Sample Description: SG3a-WP12-B44.5 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 09:25
SDG#: SBN10-19

C. T. Male Associates
ELLE Sample #: WP 9536679
ELLE Group #: 1926425
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	Perfluorobutanoic acid	375-22-4	20 U	20	60	100
14027	**Perfluorodecanoic acid**	335-76-2	**22 J**	20	60	100
14027	**Perfluorododecanoic acid**	307-55-1	**29 J**	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**58 J**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**28 J**	20	60	100
14027	Perfluorononanoic acid	375-95-1	20 U	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**5,200**	20	60	100
14027	Perfluoropentanoic acid	2706-90-3	20 U	20	60	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**58 J**	20	60	100
14027	Perfluorotridecanoic acid	72629-94-8	20 U	20	60	100
14027	Perfluoroundecanoic acid	2058-94-8	20 U	20	60	100

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/09/2018 19:09	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094001	04/04/2018 06:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-WP12-B43.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 09:30
SDG#: SBN10-20

C. T. Male Associates
ELLE Sample #: WP 9536680
ELLE Group #: 1926425
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	Perfluorobutanoic acid	375-22-4	20 U	20	60	100
14027	**Perfluorodecanoic acid**	335-76-2	**190**	20	60	100
14027	**Perfluorododecanoic acid**	307-55-1	**230**	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**400**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**98** ✓	20	60	100
14027	**Perfluorononanoic acid**	375-95-1	**75**	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U ✓	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**23,000** ✓	200	600	1000
14027	Perfluoropentanoic acid	2706-90-3	20 U	20	60	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**260**	20	60	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**97**	20	60	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**130**	20	60	100

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/09/2018 19:24	Jason W Knight	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/10/2018 18:11	Jason W Knight	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094001	04/04/2018 06:45	Pamela Rothharpt	1

✓

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 16:46

Group Number: 1926425

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 18102019	Sample number(s): 9536661,9536664,9536670-9536671,9536676-9536678		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.20 U	0.20	0.60
Perfluorononanoic acid	0.20 U	0.20	0.60
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l ✓	ng/l	ng/l
Batch number: 18092009	Sample number(s): 9536665-9536667,9536674		
Perfluorobutanesulfonate	0.30 U	0.30	1.0
Perfluorobutanoic acid	2.0 U	2.0	6.0
Perfluorodecanoic acid	1.0 U	1.0	2.0
Perfluorododecanoic acid	0.30 U	0.30	1.0
Perfluoroheptanoic acid	0.30 U	0.30	1.0
Perfluorohexanesulfonate	0.40 U	0.40	2.0
Perfluorohexanoic acid	0.40 U	0.40	2.0
Perfluorononanoic acid	0.40 U	0.40	2.0
Perfluoro-octanesulfonate	0.40 U	0.40	2.0
Perfluorooctanoic acid	0.30 U	0.30	1.0
Perfluoropentanoic acid	2.0 U	2.0	6.0
Perfluorotetradecanoic acid	0.30 U	0.30	1.0
Perfluorotridecanoic acid	0.30 U	0.30	1.0
Perfluoroundecanoic acid	0.40 U ✓	0.40	2.0
	ng/wipe	ng/wipe	ng/wipe
Batch number: 18094001	Sample number(s): 9536659-9536660,9536662-9536663,9536668-9536669,9536672-9536673,9536675,9536679-9536680		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.26 J	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60

5X / 1-3

All PFBA results 5X blank or < MDL. ∴ No qual.

✓

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 16:46

Group Number: 1926425

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/wipe	ng/wipe	ng/wipe
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.20 U	0.20	0.60
Perfluorononanoic acid	0.20 U	0.20	0.60
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 18102019	Sample number(s): 9536661,9536664,9536670-9536671,9536676-9536678								
Perfluorobutanesulfonate	1.20	1.15			96		70-130		
Perfluorobutanoic acid	1.36	1.37			101		70-130		
Perfluorodecanoic acid	1.36	1.44			106		70-130		
Perfluorododecanoic acid	1.36	1.33			98		70-130		
Perfluoroheptanoic acid	1.36	1.37			101		70-130		
Perfluorohexanesulfonate	1.29	1.16			90		70-130		
Perfluorohexanoic acid	1.36	1.28			94		70-130		
Perfluorononanoic acid	1.36	1.33			98		70-130		
Perfluoro-octanesulfonate	1.30	1.14			88		70-130		
Perfluorooctanoic acid	1.36	1.53			112		70-130		
Perfluoropentanoic acid	1.36	1.21			89		70-130		
Perfluorotetradecanoic acid	1.36	1.38			102		70-130		
Perfluorotridecanoic acid	1.36	1.36			100		70-130		
Perfluoroundecanoic acid	1.36	1.38			102		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 18092009	Sample number(s): 9536665-9536667,9536674								
Perfluorobutanesulfonate	4.81	4.36	4.81	4.34	91	90	70-130	0	30
Perfluorobutanoic acid	5.44	4.91	5.44	5.14	90	94	70-130	5	30
Perfluorodecanoic acid	5.44	5.49	5.44	5.02	101	92	70-130	9	30
Perfluorododecanoic acid	5.44	4.95	5.44	5.20	91	96	70-130	5	30
Perfluoroheptanoic acid	5.44	5.25	5.44	5.41	97	99	70-130	3	30
Perfluorohexanesulfonate	5.14	4.28	5.14	4.34	83	84	70-130	1	30
Perfluorohexanoic acid	5.44	5.55	5.44	5.11	102	94	70-130	8	30
Perfluorononanoic acid	5.44	4.79	5.44	5.03	88	93	70-130	5	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 16:46

Group Number: 1926425

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	5.20	4.57	5.20	4.64	88	89	70-130	2	30
Perfluorooctanoic acid	5.44	5.16	5.44	5.25	95	96	70-130	2	30
Perfluoropentanoic acid	5.44	4.84	5.44	5.09	89	94	70-130	5	30
Perfluorotetradecanoic acid	5.44	4.98	5.44	4.98	91	92	70-130	0	30
Perfluorotridecanoic acid	5.44	4.61	5.44	5.37	85	99	70-130	15	30
Perfluoroundecanoic acid	5.44	4.88	5.44	5.07	90	93	70-130	4	30
	ng/wipe	ng/wipe	ng/wipe	ng/wipe		✓		✓	
Batch number: 18094001	Sample number(s): 9536659-9536660,9536662-9536663,9536668-9536669,9536672-9536673,9536675,9536679-9536680								
Perfluorobutanesulfonate	1.20	1.30	1.20	1.38	108	114	70-130	6	30
Perfluorobutanoic acid	1.36	1.76	1.36	1.80	129	133*	70-130	3	30
Perfluorodecanoic acid	1.36	1.61	1.36	1.54	118	113	70-130	4	30
Perfluorododecanoic acid	1.36	1.52	1.36	1.52	112	112	70-130	0	30
Perfluoroheptanoic acid	1.36	1.45	1.36	1.51	107	111	70-130	3	30
Perfluorohexanesulfonate	1.29	1.38	1.29	1.42	107	110	70-130	2	30
Perfluorohexanoic acid	1.36	1.51	1.36	1.54	111	114	70-130	2	30
Perfluorononanoic acid	1.36	1.58	1.36	1.57	116	115	70-130	1	30
Perfluoro-octanesulfonate	1.30	1.37	1.30	1.37	106	105	70-130	0	30
Perfluorooctanoic acid	1.36	1.79	1.36	1.61	131*	118	70-130	11	30
Perfluoropentanoic acid	1.36	1.66	1.36	1.56	122	115	70-130	6	30
Perfluorotetradecanoic acid	1.36	1.48	1.36	1.48	109	109	70-130	0	30
Perfluorotridecanoic acid	1.36	1.35	1.36	1.06	99	78	70-130	24	30
Perfluoroundecanoic acid	1.36	1.76	1.36	1.79	129	131*	70-130	2	30

J, LAH ④ PFBA, PFOA, PFOSA results

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18102019	Sample number(s): 9536661,9536664,9536670-9536671,9536676-9536678 UNSPK: 9536676									
Perfluorobutanesulfonate	296.4 J	120.2	240.87	116.7	248.57	-45*	-40*	70-130	3	30
Perfluorobutanoic acid	577	136	562.36	132.04	558.34	-10 (2)	-13 (2)	70-130	1	30
Perfluorodecanoic acid	908	136	936.93	132.04	937.36	21 (2)	22 (2)	70-130	0	30
Perfluorododecanoic acid	623.43	136	617.27	132.04	645.46	-4 (2)	17 (2)	70-130	4	30
Perfluoroheptanoic acid	3528.07	136	3599.26	132.04	3678.05	52 (2)	114 (2)	70-130	2	30
Perfluorohexanesulfonate	81.61 J	128.6	84.35	124.85	83.68	2*	2*	70-130	1	30
Perfluorohexanoic acid	2750.52	136	2506.73	132.04	2567.27	-178 (2)	-138 (2)	70-130	2	30
Perfluorononanoic acid	433.21 J	136	436.52	132.04	422.22	2*	-7*	70-130	3	30
Perfluoro-octanesulfonate	1452.01	130	1425.6	126.21	1499.39	-19 (2)	38 (2)	70-130	5	30

~~-possibly not spiked?~~
~~- check w/ lab~~

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Not evaluated

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 16:46

Group Number: 1926425

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorooctanoic acid	274013.81	136	196929.43	132.04	190105.82	-56679 (2)	-63547 (2)	70-130	4	30
Perfluoropentanoic acid	581.38	136	541.62	132.04	564.53	-28 (2)	-12 (2)	70-130	4	30
Perfluorotetradecanoic acid	552.51	136	571.76	132.04	564.99	14 (2)	9 (2)	70-130	1	30
Perfluorotridecanoic acid	248.38	136	234.91	132.04	256.96	-9*	6*	70-130	9	30
Perfluoroundecanoic acid	240	136	237.93	132.04	237.17	-1*	-1*	70-130	0	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFAS Compounds
Batch number: 18092009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9536665	107	109	102	109	101	106
9536666	98	100	93	109	105	102
9536667	97	97	93	98	95	100
9536674	102	102	95	102	97	102
Blank	92	89	79	91	89	90
LCS	102	101	91	108	105	110
LCSD	104	103	92	101	103	103
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9536665	106	107	119	108	107	110
9536666	104	95	106	97	100	94
9536667	95	94	106	97	97	95
9536674	98	95	108	103	98	81
Blank	91	89	93	98	100	98
LCS	101	104	108	102	106	109
LCSD	103	103	106	111	108	107
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9536665	113
9536666	102
9536667	87
9536674	76

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 16:46

Group Number: 1926425

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFAS Compounds
Batch number: 18092009

	13C2-PFTeDA
Blank	98
LCS	103
LCSD	110
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 18094001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9536659	97	97	93	264* J	238* J	251* J
9536660	94	91	88	142* J	126* J	138* J
9536662	92	90	89	148* J	132* J	153* J
9536663	99	98	92	132* J	123	128* J
9536668	101	99	94	125* J	125	131* J
9536669	93	92	92	197* J	177* J	201* J
9536672	98	98	91	201* J	184* J	199* J
9536673	97	92	89	165* J	148* J	155* J
9536675	77	73	71	79	71	80
9536679	99	97	92	117* J	106	112
9536680	100	101	93	151* J	135* J	149* J
Blank	88	79	82	97	91	99
LCS	83	76	78	90	85	95
LCSD	90	87	80	94	87	98
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9536659	81	99	100	96	94	83
9536660	91	92	89	98	99	92
9536662	88	94	90	84	90	76
9536663	97	100	89	104	98	94
9536668	100	101	92	100	101	103
9536669	90	93	98	95	82	78
9536672	88	100	96	90	104	85
9536673	89	101	91	100	103	97
9536675	70	76	78	73	56	49
9536679	98	100	97	102	106	102
9536680	94	101	103	100	99	96
Blank	90	93	80	85	83	82
LCS	83	85	71	88	83	81
LCSD	91	89	92	85	86	80

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 16:46

Group Number: 1926425

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18094001

Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9536659	56
9536660	69
9536662	55
9536663	77
9536668	74
9536669	57
9536672	69
9536673	79
9536675	32
9536679	72
9536680	74
Blank	66
LCS	64
LCSD	57
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 18102019

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9536661	75	73	71	98	94	98
9536664	69	70	68	99	102	110
9536670	72	69*	69	80	83	90
9536671	85	82	82	100	101	112
9536676	71	67*	71	90	102	109
9536677	75	72	77	101	98	117*
9536678	79	71	75	101	109	118*
Blank	83	84	77	75	71	77
LCS	76	82	67	79	73	77
MS	75	72	77	101	98	117*
MSD	79	71	75	101	109	118*
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9536661	65	77	90	70	83	60
9536664	58	74	89	64	78	62
9536670	65	74	84	70	78	59
9536671	76	87	93	76	95	77
9536676	52	78	83	61	92	62

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 16:46

Group Number: 1926425

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18102019

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9536677	54	77	82	62	101	68
9536678	57	82	87	63	104	66
Blank	75	91	114	75	78	71
LCS	79	81	90	70	74	70
MS	54	77	82	62	101	68
MSD	57	82	87	63	104	66
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9536661	53
9536664	59
9536670	61
9536671	80
9536676	65
9536677	69
9536678	69
Blank	67
LCS	67
MS	69
MSD	69
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN10
Matrix: SOIL

18102019		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery
LCS102019	04/18/18 09:59	79	81	90
9536677MS	04/18/18 10:15	54	77	82
9536678MSD	04/18/18 10:30	57	82	87
BLK102019	04/18/18 11:02	75	91	114
9536661	04/18/18 12:35	65	77	90
9536664	04/18/18 13:21	58	74	89
9536670	04/18/18 13:37	65	74	84
9536671	04/18/18 13:52	76	87	93
9536676	04/18/18 14:08	52	78	83
9536661DL	04/18/18 17:45	68	76	79
9536670DL	04/18/18 18:16	73	75	70
9536671DL	04/18/18 18:32	72	76	76
9536664DL	04/19/18 14:49	97	88	98
9536676DL	04/19/18 15:04	94	90	93

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN10
Matrix: SOIL

18094001		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery
LCS094001	04/09/18 14:18	83	85	71
LCSDA	04/09/18 14:48	91	89	92
BLK094001	04/09/18 15:31	90	93	80
9536659	04/09/18 16:29	81	99	100
9536660	04/09/18 16:44	91	92	89
9536662	04/09/18 16:59	88	94	90
9536663	04/09/18 17:13	97	100	89
9536668	04/09/18 17:28	100	101	92
9536669	04/09/18 17:42	90	93	98
9536672	04/09/18 17:57	88	100	96
9536673	04/09/18 18:11	89	101	91
9536675	04/09/18 18:26	70	76	78
9536679	04/09/18 19:09	98	100	97
9536680	04/09/18 19:24	94	101	103
9536659DL	04/10/18 16:43	94	96	77
9536660DL	04/10/18 16:58	107	99	86
9536662DL	04/10/18 17:13	109	107	95
9536669DL	04/10/18 17:27	88	89	78
9536672DL	04/10/18 17:42	102	99	84
9536673DL	04/10/18 17:56	100	101	87

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN10
Matrix: SOIL

18094001		13C8-PFOA	13C8-PFOS	13C9-PFNA		
	Limits	44-115	42-118	37-124		
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
9536680DL	04/10/18 18:11	103	106	93		

* Outside QC Limits

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Quality Control Reference List
PFAS Group

CLIENT: C. T. Male Associates
SDG: SBN10

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
14 PFAS Compounds	18092009	BLK092009	04/05/2018 16:26:00
		LCS092009	04/05/2018 15:40:00
		LCSDA	04/05/2018 15:55:00
		9536665	04/05/2018 18:00:00
		9536666	04/05/2018 18:15:00
		9536667	04/05/2018 19:02:00
		9536674	04/05/2018 19:17:00
14 PFCs	18094001	BLK094001	04/09/2018 15:31:00
		LCS094001	04/09/2018 14:18:00
		LCSDA	04/09/2018 14:48:00
		9536659	04/09/2018 16:29:00
		9536659	04/10/2018 16:43:00
		9536660	04/09/2018 16:44:00
		9536660	04/10/2018 16:58:00
		9536662	04/09/2018 16:59:00
		9536662	04/10/2018 17:13:00
		9536663	04/09/2018 17:13:00
		9536668	04/09/2018 17:28:00
		9536669	04/09/2018 17:42:00
		9536669	04/10/2018 17:27:00
		9536672	04/09/2018 17:57:00
		9536672	04/10/2018 17:42:00
		9536673	04/09/2018 18:11:00
		9536673	04/10/2018 17:56:00
		9536675	04/09/2018 18:26:00
		9536679	04/09/2018 19:09:00
		9536680	04/09/2018 19:24:00
		9536680	04/10/2018 18:11:00
14 PFCs	18102019	BLK102019	04/18/2018 11:02:00
		LCS102019	04/18/2018 09:59:00
		9536661	04/18/2018 12:35:00
		9536661	04/18/2018 17:45:00
		9536664	04/18/2018 13:21:00
		9536664	04/19/2018 14:49:00
		9536670	04/18/2018 13:37:00
		9536670	04/18/2018 18:16:00
		9536671	04/18/2018 13:52:00
		9536671	04/18/2018 18:32:00
		9536676 UNSPK	04/18/2018 14:08:00
		9536676 UNSPK	04/19/2018 15:04:00
		9536677 MS	04/18/2018 10:15:00
		9536678 MSD	04/18/2018 10:30:00

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Quality Control Summary
Method Blank
PFAS Group
SDG: SBN10
Matrix: SOLID

Fraction: PFAS by LC/MS/MS

18094001 / BLK094001 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorononanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorodecanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluoroundecanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorododecanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorotridecanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorotetradecanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluoroheptanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorobutanesulfonate	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanesulfonate	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluoro-octanesulfonate	04/09/18	N.D.	ng/wipe	0.30	0.90
Perfluorobutanoic acid	04/09/18	0.26 J	ng/wipe	0.20	0.60
Perfluoropentanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60

18102019 / BLK102019 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorononanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorodecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoroundecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorododecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorotridecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorotetradecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoroheptanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorobutanesulfonate	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanesulfonate	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoro-octanesulfonate	04/18/18	N.D.	ng/wipe	0.30	0.90
Perfluorobutanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoropentanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60

ng/g

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Quality Control Summary
Method Blank
PFAS Group
SDG: SBN10
Matrix: LIQUID

Fraction: PFAS by LC/MS/MS

18092009 / BLK092009 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorononanoic acid	04/05/18	N.D.	ng/l	0.40	2.0
Perfluorodecanoic acid	04/05/18	N.D.	ng/l	1.0	2.0
Perfluoroundecanoic acid	04/05/18	N.D.	ng/l	0.40	2.0
Perfluorododecanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorotridecanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorotetradecanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorohexanoic acid	04/05/18	N.D.	ng/l	0.40	2.0
Perfluoroheptanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorobutanesulfonate	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorohexanesulfonate	04/05/18	N.D.	ng/l	0.40	2.0
Perfluoro-octanesulfonate	04/05/18	N.D.	ng/l	0.40	2.0
Perfluorobutanoic acid	04/05/18	N.D.	ng/l	2.0	6.0
Perfluoropentanoic acid	04/05/18	N.D.	ng/l	2.0	6.0

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SBN10
Matrix: SOLID

PFAS Group
Fraction: PFAS by LC/MS/MS

UNSPK: 9536676 MS: 9536677 MSD: 9536678 **Analyte**	Batch: **18102019** (Sample number(s): 9536661, 9536664, 9536670-9536671, 9536676-9536678)								
	Spike Added ng/wipe MS/MSD	**Unspiked Conc ng/wipe**	**MS Conc ng/wipe**	**MSD Conc ng/wipe**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	136 / 132.04	274013.81	196929.43	190105.82	-56679 (2)	-63547 (2)	70-130	4	30
Perfluorononanoic acid	136 / 132.04	433.21	436.52	422.22	2 *	-7 *	70-130	3	30
Perfluorodecanoic acid	136 / 132.04	908.	936.93	937.36	21 (2)	22 (2)	70-130	0	30
Perfluoroundecanoic acid	136 / 132.04	240.	237.93	237.17	-1 *	-1 *	70-130	0	30
Perfluorododecanoic acid	136 / 132.04	623.43	617.27	645.46	-4 (2)	17 (2)	70-130	4	30
Perfluorotridecanoic acid	136 / 132.04	248.38	234.91	256.96	-9 *	6 *	70-130	9	30
Perfluorotetradecanoic acid	136 / 132.04	552.51	571.76	564.99	14 (2)	9 (2)	70-130	1	30
Perfluorohexanoic acid	136 / 132.04	2750.52	2506.73	2567.27	-178 (2)	-138 (2)	70-130	2	30
Perfluoroheptanoic acid	136 / 132.04	3528.07	3599.26	3678.05	52 (2)	114 (2)	70-130	2	30
Perfluorobutanesulfonate	120.2 / 116.7	296.4	240.87	248.57	-45 *	-40 *	70-130	3	30
Perfluorohexanesulfonate	128.6 / 124.85	81.61	84.35	83.68	2 *	2 *	70-130	1	30
Perfluoro-octanesulfonate	130 / 126.21	1452.01	1425.6	1499.39	-19 (2)	38 (2)	70-130	5	30
Perfluorobutanoic acid	136 / 132.04	577.	562.36	558.34	-10 (2)	-13 (2)	70-130	1	30
Perfluoropentanoic acid	136 / 132.04	581.38	541.62	564.53	-28 (2)	-12 (2)	70-130	4	30

- MS/MSD do not appear to have been Spiked.
- Check w/ laboratory

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SBN10
Matrix: SOLID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCS094001 LCSD: LCSDA	Batch: **18094001** (Sample number(s): 9536659-9536660, 9536662-9536663, 9536668-9536669, 9536672-9536673, 9536675, 9536679-9536680)							
Analyte	**Spike Added ng/wipe**	**LCS Conc ng/wipe**	**LCSD Conc ng/wipe**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	1.79	1.61	131 *	118	70-130	11	30
Perfluorononanoic acid	1.36	1.58	1.57	116	115	70-130	1	30
Perfluorodecanoic acid	1.36	1.61	1.54	118	113	70-130	4	30
Perfluoroundecanoic acid	1.36	1.76	1.79	129	131 *	70-130	2	30
Perfluorododecanoic acid	1.36	1.52	1.52	112	112	70-130	0	30
Perfluorotridecanoic acid	1.36	1.35	1.06	99	78	70-130	24	30
Perfluorotetradecanoic acid	1.36	1.48	1.48	109	109	70-130	0	30
Perfluorohexanoic acid	1.36	1.51	1.54	111	114	70-130	2	30
Perfluoroheptanoic acid	1.36	1.45	1.51	107	111	70-130	3	30
Perfluorobutanesulfonate	1.20	1.30	1.38	108	114	70-130	6	30
Perfluorohexanesulfonate	1.29	1.38	1.42	107	110	70-130	2	30
Perfluoro-octanesulfonate	1.30	1.37	1.37	106	105	70-130	0	30
Perfluorobutanoic acid	1.36	1.76	1.80	129	133 *	70-130	3	30
Perfluoropentanoic acid	1.36	1.66	1.56	122	115	70-130	6	30

LCS: LCS102019	Batch: **18102019** (Sample number(s): 9536661, 9536664, 9536670-9536671, 9536676-9536678)							
Analyte	**Spike Added ng/~~wipe~~ g**	**LCS Conc ng/~~wipe~~ g**	**LCSD Conc ng/~~wipe~~ g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	1.53	NA	112	NA	70-130	NA	NA
Perfluorononanoic acid	1.36	1.33	NA	98	NA	70-130	NA	NA
Perfluorodecanoic acid	1.36	1.44	NA	106	NA	70-130	NA	NA
Perfluoroundecanoic acid	1.36	1.38	NA	102	NA	70-130	NA	NA
Perfluorododecanoic acid	1.36	1.33	NA	98	NA	70-130	NA	NA
Perfluorotridecanoic acid	1.36	1.36	NA	100	NA	70-130	NA	NA
Perfluorotetradecanoic acid	1.36	1.38	NA	102	NA	70-130	NA	NA
Perfluorohexanoic acid	1.36	1.28	NA	94	NA	70-130	NA	NA
Perfluoroheptanoic acid	1.36	1.37	NA	101	NA	70-130	NA	NA
Perfluorobutanesulfonate	1.20	1.15	NA	96	NA	70-130	NA	NA
Perfluorohexanesulfonate	1.29	1.16	NA	90	NA	70-130	NA	NA
Perfluoro-octanesulfonate	1.30	1.14	NA	88	NA	70-130	NA	NA
Perfluorobutanoic acid	1.36	1.37	NA	101	NA	70-130	NA	NA
Perfluoropentanoic acid	1.36	1.21	NA	89	NA	70-130	NA	NA

✓

J LAH wipe ⊕'s
for PFOA, ~~PFDA~~, PFBA, PFUnA

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SBN10
Matrix: LIQUID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCS092009 LCSD: LCSDA Analyte	Batch: **18092009** (Sample number(s): 9536665-9536667, 9536674)							
	Spike Added ng/l	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	5.44	5.16	5.25	95	96	70-130	2	30
Perfluorononanoic acid	5.44	4.79	5.03	88	93	70-130	5	30
Perfluorodecanoic acid	5.44	5.49	5.02	101	92	70-130	9	30
Perfluoroundecanoic acid	5.44	4.88	5.07	90	93	70-130	4	30
Perfluorododecanoic acid	5.44	4.95	5.20	91	96	70-130	5	30
Perfluorotridecanoic acid	5.44	4.61	5.37	85	99	70-130	15	30
Perfluorotetradecanoic acid	5.44	4.98	4.98	91	92	70-130	0	30
Perfluorohexanoic acid	5.44	5.55	5.11	102	94	70-130	8	30
Perfluoroheptanoic acid	5.44	5.25	5.41	97	99	70-130	3	30
Perfluorobutanesulfonate	4.81	4.36	4.34	91	90	70-130	0	30
Perfluorohexanesulfonate	5.14	4.28	4.34	83	84	70-130	1	30
Perfluoro-octanesulfonate	5.20	4.57	4.64	88	89	70-130	2	30
Perfluorobutanoic acid	5.44	4.91 J	5.14 J	90	94	70-130	5	30
Perfluoropentanoic acid	5.44	4.84 J	5.09 J	89	94	70-130	5	30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN10

ICAL & ICV validated SBN09 BJE.

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.236	18.0	±50
CAL2	0.104	0.60	0.620	3.4	±30
CAL3	0.354	2.00	2.107	5.3	±30
CAL4	1.406	8.00	8.364	4.6	±30
CAL5	3.723	20.00	22.155	10.8	±30
CAL6	8.329	50.00	49.559	-0.9	±30
CAL7	16.430	100.00	97.759	-2.2	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.050	0.20	0.243	21.7	±50
CAL2	0.128	0.60	0.625	4.2	±30
CAL3	0.424	2.00	2.073	3.6	±30
CAL4	1.755	8.00	8.584	7.3	±30
CAL5	4.641	20.00	22.698	13.5	±30
CAL6	10.070	50.00	49.250	-1.5	±30
CAL7	19.900	100.00	97.327	-2.7	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.17	0.200	17.7	±50
CAL2	0.109	0.53	0.534	0.7	±30
CAL3	0.368	1.77	1.802	1.8	±30
CAL4	1.534	7.08	7.521	6.2	±30
CAL5	3.588	17.69	17.592	-0.6	±30
CAL6	8.737	44.22	42.833	-3.1	±30
CAL7	18.240	88.45	89.428	1.1	±30

4:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.120	0.58	0.680	17.2	±50
CAL2	0.365	1.98	2.065	4.3	±30
CAL3	0.966	4.90	5.461	11.5	±30
CAL4	1.668	10.04	9.427	-6.1	±30
CAL5	2.187	12.49	12.358	-1.1	±30

* Outside QC Limits

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FORM 06
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SDG No.: SBN10

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CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.216	8.2	±50
CAL2	0.113	0.60	0.610	1.7	±30
CAL3	0.383	2.00	2.075	3.7	±30
CAL4	1.583	8.00	8.574	7.2	±30
CAL5	4.328	20.00	23.448	17.2	±30
CAL6	9.215	50.00	49.922	-0.2	±30
CAL7	17.712	100.00	95.955	-4.0	±30

Perfluoropentanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.023	0.19	0.237	24.7	±50
CAL2	0.053	0.56	0.543	-3.0	±30
CAL3	0.192	1.88	1.960	4.2	±30
CAL4	0.800	7.50	8.171	8.9	±30
CAL5	2.030	18.76	20.742	10.6	±30
CAL6	4.441	46.90	45.377	-3.2	±30
CAL7	9.060	93.80	92.560	-1.3	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.19	0.193	1.7	±50
CAL2	0.123	0.57	0.585	2.7	±30
CAL3	0.401	1.89	1.900	0.6	±30
CAL4	1.655	7.56	7.853	3.9	±30
CAL5	4.442	18.91	21.073	11.4	±30
CAL6	9.646	47.28	45.764	-3.2	±30
CAL7	19.725	94.55	93.581	-1.0	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.241	20.3	±50
CAL2	0.147	0.60	0.698	16.3	±30
CAL3	0.492	2.00	2.335	16.7	±30
CAL4	1.907	8.00	9.049	13.1	±30
CAL5	5.047	20.00	23.957	19.8	±30
CAL6	10.582	50.00	50.225	0.5	±30
CAL7	19.866	100.00	94.295	-5.7	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

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CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

6:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.261	1.30	1.372	5.5	±50
CAL2	0.443	2.09	2.331	11.5	±30
CAL3	1.071	5.21	5.632	8.1	±30
CAL4	1.990	10.43	10.465	0.3	±30
CAL5	2.334	13.04	12.270	-5.9	±30

Perfluoroheptanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.036	0.19	0.196	3.2	±50
CAL2	0.106	0.57	0.578	1.5	±30
CAL3	0.323	1.90	1.767	-7.0	±30
CAL4	1.428	7.61	7.811	2.6	±30
CAL5	3.721	19.03	20.357	7.0	±30
CAL6	8.244	47.58	45.107	-5.2	±30
CAL7	17.585	95.15	96.214	1.1	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.250	25.0	±50
CAL2	0.122	0.60	0.660	10.0	±30
CAL3	0.359	2.00	1.939	-3.1	±30
CAL4	1.601	8.00	8.642	8.0	±30
CAL5	3.992	20.00	21.554	7.8	±30
CAL6	8.845	50.00	47.755	-4.5	±30
CAL7	16.655	100.00	89.923	-10.1	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.19	0.226	19.2	±50
CAL2	0.119	0.57	0.583	2.3	±30
CAL3	0.400	1.91	1.969	3.1	±30
CAL4	1.593	7.65	7.839	2.5	±30
CAL5	4.357	19.12	21.438	12.1	±30
CAL6	9.387	47.80	46.184	-3.4	±30
CAL7	19.227	95.60	94.600	-1.0	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.054	0.20	0.232	16.2	±50
CAL2	0.143	0.60	0.609	1.6	±30
CAL3	0.504	2.00	2.152	7.6	±30
CAL4	2.027	8.00	8.659	8.2	±30
CAL5	5.219	20.00	22.293	11.5	±30
CAL6	10.968	50.00	46.855	-6.3	±30
CAL7	19.567	100.00	83.589	-16.4	±30

Perfluorooctanesulfonamide	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.228	13.9	±50
CAL2	0.116	0.60	0.613	2.1	±30
CAL3	0.409	2.00	2.151	7.5	±30
CAL4	1.473	8.00	7.748	-3.1	±30
CAL5	1.870	10.00	9.834	-1.7	±30
CAL6	9.344	50.00	49.150	-1.7	±30
CAL7	19.215	100.00	101.076	1.1	±30

Perfluorononanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.032	0.19	0.232	22.1	±50
CAL2	0.082	0.58	0.586	1.0	±30
CAL3	0.267	1.92	1.911	-0.5	±30
CAL4	1.118	7.68	7.991	4.1	±30
CAL5	2.911	19.20	20.804	8.4	±30
CAL6	6.831	48.00	48.816	1.7	±30
CAL7	13.046	96.00	93.230	-2.9	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.20	0.259	29.3	±50
CAL2	0.108	0.60	0.616	2.7	±30
CAL3	0.399	2.00	2.285	14.3	±30
CAL4	1.481	8.00	8.482	6.0	±30
CAL5	4.138	20.00	23.698	18.5	±30
CAL6	8.554	50.00	48.987	-2.0	±30
CAL7	16.846	100.00	96.473	-3.5	±30

* Outside QC Limits

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FORM 06
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LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

8:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.282	1.32	1.442	9.2	±50
CAL2	0.471	2.11	2.407	14.1	±30
CAL3	1.154	5.27	5.897	11.9	±30
CAL4	2.074	10.54	10.597	0.5	±30
CAL5	2.362	13.17	12.066	-8.4	±30

NMeFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.190	-5.2	±50
CAL2	0.133	0.60	0.623	3.9	±30
CAL3	0.490	2.00	2.298	14.9	±30
CAL4	1.718	8.00	8.059	0.7	±30
CAL5	2.113	10.00	9.912	-0.9	±30
CAL6	10.655	50.00	49.972	-0.1	±30
CAL7	21.269	100.00	99.747	-0.3	±30

Perfluorodecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.024	0.19	0.229	20.5	±50
CAL2	0.053	0.58	0.499	-14.0	±30
CAL3	0.191	1.93	1.792	-7.2	±30
CAL4	0.778	7.70	7.308	-5.1	±30
CAL5	2.111	19.26	19.833	3.0	±30
CAL6	4.685	48.15	44.027	-8.6	±30
CAL7	9.661	96.30	90.779	-5.7	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.068	0.20	0.244	22.1	±50
CAL2	0.191	0.60	0.692	15.3	±30
CAL3	0.605	2.00	2.185	9.3	±30
CAL4	2.297	8.00	8.301	3.8	±30
CAL5	6.271	20.00	22.662	13.3	±30
CAL6	12.928	50.00	46.716	-6.6	±30
CAL7	23.624	100.00	85.367	-14.6	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

NEtFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.214	6.8	±50
CAL2	0.122	0.60	0.569	-5.2	±30
CAL3	0.430	2.00	2.010	0.5	±30
CAL4	1.568	8.00	7.324	-8.5	±30
CAL5	2.097	10.00	9.795	-2.1	±30
CAL6	10.400	50.00	48.579	-2.8	±30
CAL7	21.903	100.00	102.309	2.3	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.047	0.20	0.246	23.0	±50
CAL2	0.115	0.60	0.611	1.8	±30
CAL3	0.423	2.00	2.238	11.9	±30
CAL4	1.686	8.00	8.913	11.4	±30
CAL5	4.202	20.00	22.219	11.1	±30
CAL6	9.583	50.00	50.668	1.3	±30
CAL7	18.139	100.00	95.906	-4.1	±30

10:2-fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.274	1.33	1.241	-6.7	±50
CAL2	0.490	2.12	2.222	4.8	±30
CAL3	1.237	5.30	5.609	5.8	±30
CAL4	2.522	10.60	11.435	7.9	±30
CAL5	2.669	13.26	12.104	-8.7	±30

Perfluorododecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.010	0.19	0.227	19.6	±50
CAL2	0.026	0.58	0.565	-2.7	±30
CAL3	0.086	1.94	1.896	-2.3	±30
CAL4	0.347	7.74	7.636	-1.3	±30
CAL5	0.938	19.36	20.615	6.5	±30
CAL6	2.194	48.40	48.233	-0.3	±30
CAL7	4.359	96.80	95.838	-1.0	±30

* Outside QC Limits

FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.255	27.7	±50
CAL2	0.114	0.60	0.656	9.4	±30
CAL3	0.384	2.00	2.205	10.3	±30
CAL4	1.639	8.00	9.420	17.7	±30
CAL5	4.031	20.00	23.167	15.8	±30
CAL6	8.987	50.00	51.648	3.3	±30
CAL7	16.261	100.00	93.448	-6.6	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.246	23.2	±50
CAL2	0.102	0.60	0.634	5.6	±30
CAL3	0.347	2.00	2.151	7.5	±30
CAL4	1.388	8.00	8.596	7.4	±30
CAL5	3.501	20.00	21.688	8.4	±30
CAL6	8.345	50.00	51.692	3.4	±30
CAL7	15.465	100.00	95.793	-4.2	±30

Perfluorohexadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.20	0.249	24.7	±50
CAL2	0.098	0.60	0.661	10.2	±30
CAL3	0.316	2.00	2.122	6.1	±30
CAL4	1.288	8.00	8.655	8.2	±30
CAL5	3.239	20.00	21.763	8.8	±30
CAL6	7.579	50.00	50.932	1.9	±30
CAL7	14.348	100.00	96.418	-3.6	±30

Perfluorooctadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.034	0.20	0.218	8.9	±50
CAL2	0.095	0.60	0.609	1.5	±30
CAL3	0.316	2.00	2.034	1.7	±30
CAL4	1.325	8.00	8.523	6.5	±30
CAL5	3.423	20.00	22.009	10.0	±30
CAL6	7.986	50.00	51.354	2.7	±30
CAL7	14.937	100.00	96.052	-3.9	±30

* Outside QC Limits

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18APR03MCAL-10.wiff	4/3/2018 5:45:46 PM	CALMOD11833A	CAL1
18APR03MCAL-11.wiff	4/3/2018 6:01:16 PM	CALMOD21833A	CAL2
18APR03MCAL-12.wiff	4/3/2018 6:16:46 PM	CALMOD31833A	CAL3
18APR03MCAL-13.wiff	4/3/2018 6:32:19 PM	CALMOD41833A	CAL4
18APR03MCAL-14.wiff	4/3/2018 6:47:49 PM	CALMOD51833A	CAL5
18APR03MCAL-15.wiff	4/3/2018 7:03:19 PM	CALMOD61833A	CAL6
18APR03MCAL-16.wiff	4/3/2018 7:18:49 PM	CALMOD71833A	CAL7

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	1070927.1	1069641.9
CAL2	I13C3-PFBA	True	1126426.9	1069641.9
CAL3	I13C3-PFBA	True	1095390.6	1069641.9
CAL4	I13C3-PFBA	True	1102085.4	1069641.9
CAL5	I13C3-PFBA	True	1033749.3	1069641.9
CAL6	I13C3-PFBA	True	1107818.3	1069641.9
CAL7	I13C3-PFBA	True	951095.5	1069641.9
CAL1	I13C2-PFOA	True	1970005.5	1927063.1
CAL2	I13C2-PFOA	True	1999752.1	1927063.1
CAL3	I13C2-PFOA	True	1985935.1	1927063.1
CAL4	I13C2-PFOA	True	1971896.3	1927063.1
CAL5	I13C2-PFOA	True	1892151.4	1927063.1
CAL6	I13C2-PFOA	True	1981982.5	1927063.1
CAL7	I13C2-PFOA	True	1687719.0	1927063.1
CAL1	I13C4-PFOS	True	455687.7	472837.8
CAL2	I13C4-PFOS	True	477917.0	472837.8
CAL3	I13C4-PFOS	True	462822.9	472837.8
CAL4	I13C4-PFOS	True	479900.6	472837.8
CAL5	I13C4-PFOS	True	460308.6	472837.8
CAL6	I13C4-PFOS	True	512774.7	472837.8
CAL7	I13C4-PFOS	True	460453.3	472837.8
CAL1	I13C2-PFDA	True	1551629.8	1521482.1
CAL2	I13C2-PFDA	True	1685581.2	1521482.1
CAL3	I13C2-PFDA	True	1490238.0	1521482.1
CAL4	I13C2-PFDA	True	1610063.4	1521482.1
CAL5	I13C2-PFDA	True	1432482.7	1521482.1
CAL6	I13C2-PFDA	True	1525226.0	1521482.1
CAL7	I13C2-PFDA	True	1355153.9	1521482.1

APPROVED
By DMW at 9:32 pm, 4/3/18

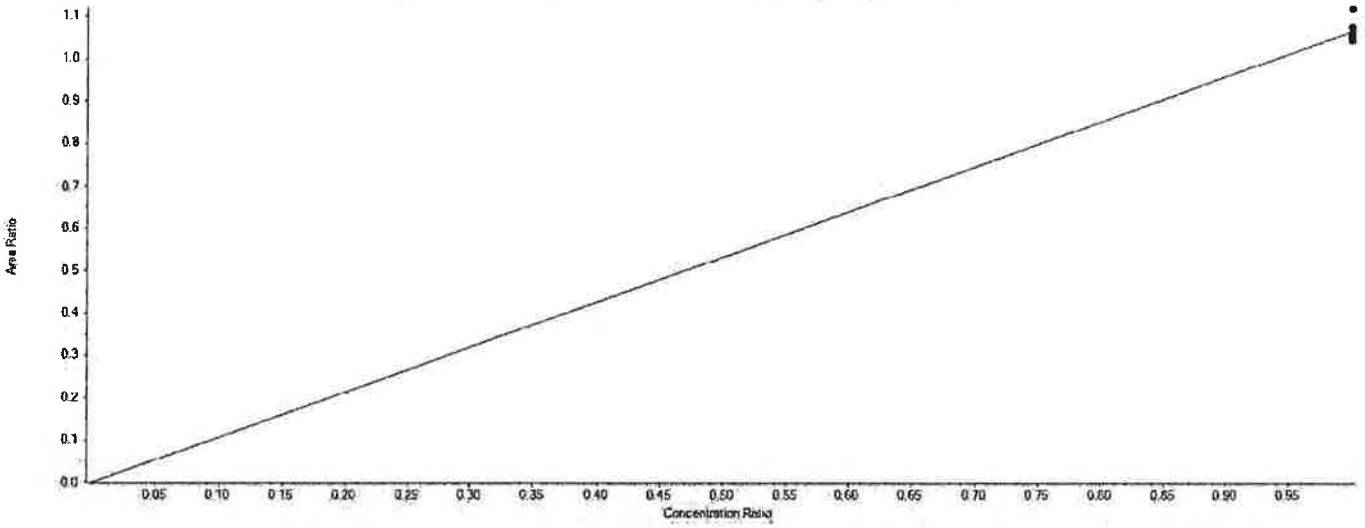
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFBA

y = 1.06568 x (std. dev. = 0.02477) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1117947.8	1070927.1	True	5.00	1.044	4.43	1.000	5.000	4.898	-2.0	50.0	
CAL2	1257830.7	1126426.9	True	5.00	1.117	4.43	1.000	5.000	5.239	4.8	30.0	
CAL3	1154404.8	1095390.6	True	5.00	1.054	4.44	1.000	5.000	4.945	-1.1	30.0	
CAL4	1164284.0	1102085.4	True	5.00	1.056	4.43	1.000	5.000	4.957	-0.9	30.0	
CAL5	1113524.3	1033749.3	True	5.00	1.077	4.44	1.000	5.000	5.054	1.1	30.0	
CAL6	1163702.8	1107818.3	True	5.00	1.050	4.43	1.000	5.000	4.929	-1.4	30.0	
CAL7	1009398.2	951095.5	True	5.00	1.061	4.43	1.000	5.000	4.979	-0.4	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

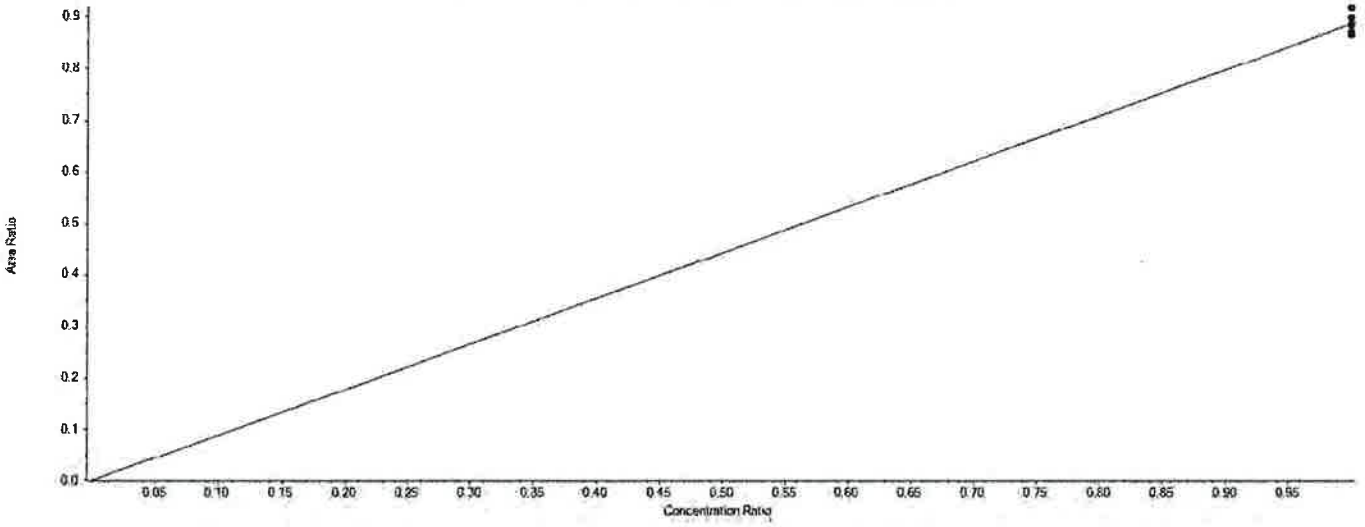
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFPeA

y = 0.88682 x (std. dev. = 0.01720) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	927299.9	1070927.1	True	5.00	0.866	5.01	1.130	5.000	4.882	-2.4	50.0	
CAL2	1033297.5	1126426.9	True	5.00	0.917	5.01	1.130	5.000	5.172	3.4	30.0	
CAL3	953673.8	1095390.6	True	5.00	0.871	5.01	1.130	5.000	4.909	-1.8	30.0	
CAL4	977038.3	1102085.4	True	5.00	0.887	5.01	1.130	5.000	4.998	0.0	30.0	
CAL5	915279.4	1033749.3	True	5.00	0.885	5.01	1.130	5.000	4.992	-0.2	30.0	
CAL6	978916.5	1107818.3	True	5.00	0.884	5.01	1.130	5.000	4.982	-0.4	30.0	
CAL7	854369.5	951095.5	True	5.00	0.898	5.01	1.130	5.000	5.065	1.3	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

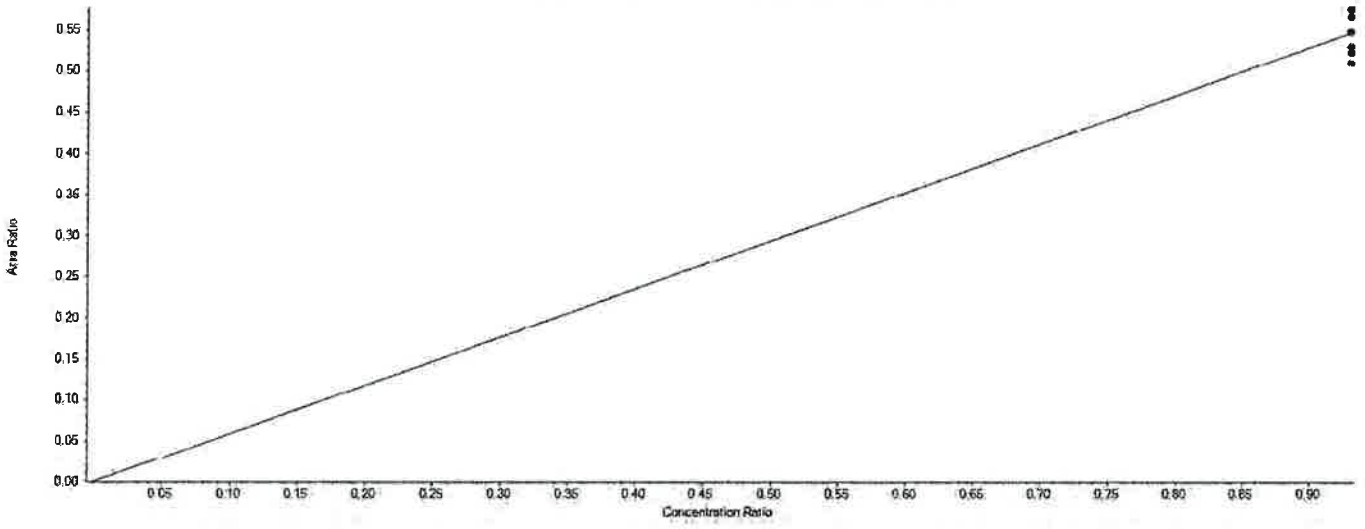
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFBS

y = 0.58770 x (std. dev. = 0.02796) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	546699.6	1070927.1	True	5.00	0.510	5.06	1.140	4.650	4.343	-6.6	50.0	
CAL2	617333.5	1126426.9	True	5.00	0.548	5.06	1.140	4.650	4.663	0.3	30.0	
CAL3	573261.0	1095390.6	True	5.00	0.523	5.06	1.140	4.650	4.452	-4.2	30.0	
CAL4	583555.1	1102085.4	True	5.00	0.530	5.06	1.140	4.650	4.505	-3.1	30.0	
CAL5	593273.0	1033749.3	True	5.00	0.574	5.06	1.140	4.650	4.883	5.0	30.0	
CAL6	626580.1	1107818.3	True	5.00	0.566	5.06	1.140	4.650	4.812	3.5	30.0	
CAL7	546947.7	951095.5	True	5.00	0.575	5.06	1.140	4.650	4.893	5.2	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

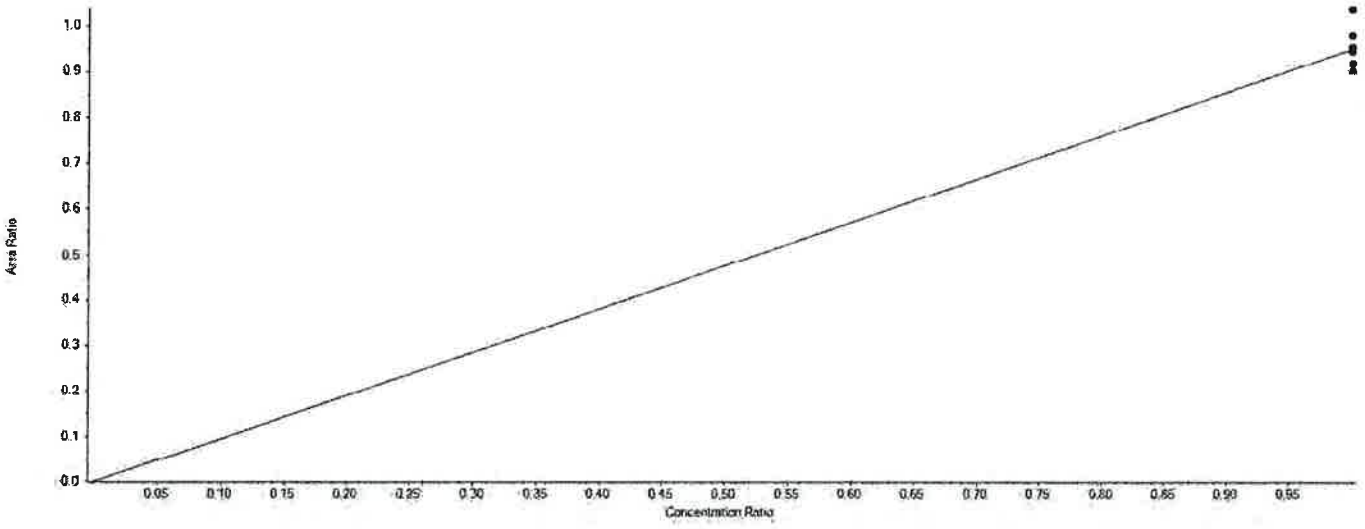
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFHxA

y = 0.95084 x (std. dev. = 0.04693) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1862010.2	1970005.5	True	5.00	0.945	5.47	0.860	5.000	4.970	-0.6	50.0	
CAL2	2074362.3	1999752.1	True	5.00	1.037	5.48	0.860	5.000	5.455	9.1	30.0	
CAL3	1898264.9	1985935.1	True	5.00	0.956	5.48	0.860	5.000	5.026	0.5	30.0	
CAL4	1935951.9	1971896.3	True	5.00	0.982	5.48	0.860	5.000	5.163	3.3	30.0	
CAL5	1734006.8	1892151.4	True	5.00	0.916	5.48	0.860	5.000	4.819	-3.6	30.0	
CAL6	1785750.2	1981982.5	True	5.00	0.901	5.48	0.860	5.000	4.738	-5.2	30.0	
CAL7	1549939.6	1687719.0	True	5.00	0.918	5.47	0.860	5.000	4.829	-3.4	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

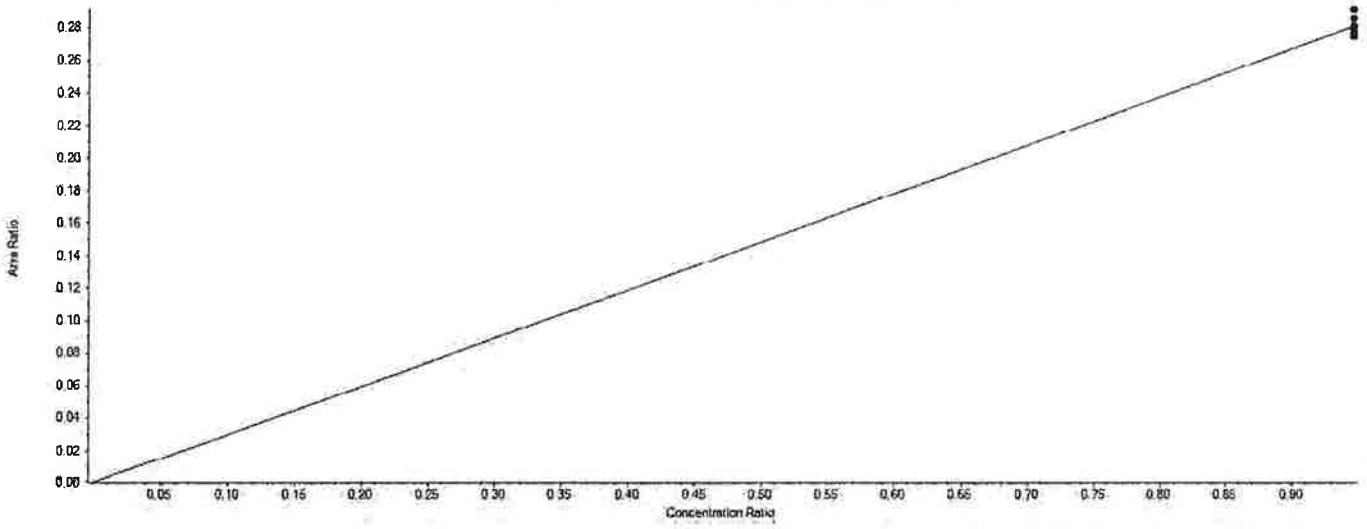
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFHxS

y = 0.29684 x (std. dev. = 0.00606) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	541210.3	1970005.5	True	5.00	0.275	5.91	0.930	4.730	4.627	-2.2	50.0	
CAL2	571572.2	1999752.1	True	5.00	0.286	5.91	0.930	4.730	4.814	1.8	30.0	
CAL3	548482.6	1985935.1	True	5.00	0.276	5.92	0.930	4.730	4.652	-1.6	30.0	
CAL4	548133.1	1971896.3	True	5.00	0.278	5.91	0.930	4.730	4.682	-1.0	30.0	
CAL5	528221.7	1892151.4	True	5.00	0.279	5.92	0.930	4.730	4.702	-0.6	30.0	
CAL6	576693.9	1981982.5	True	5.00	0.291	5.91	0.930	4.730	4.901	3.6	30.0	
CAL7	474004.2	1687719.0	True	5.00	0.281	5.91	0.930	4.730	4.731	0.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

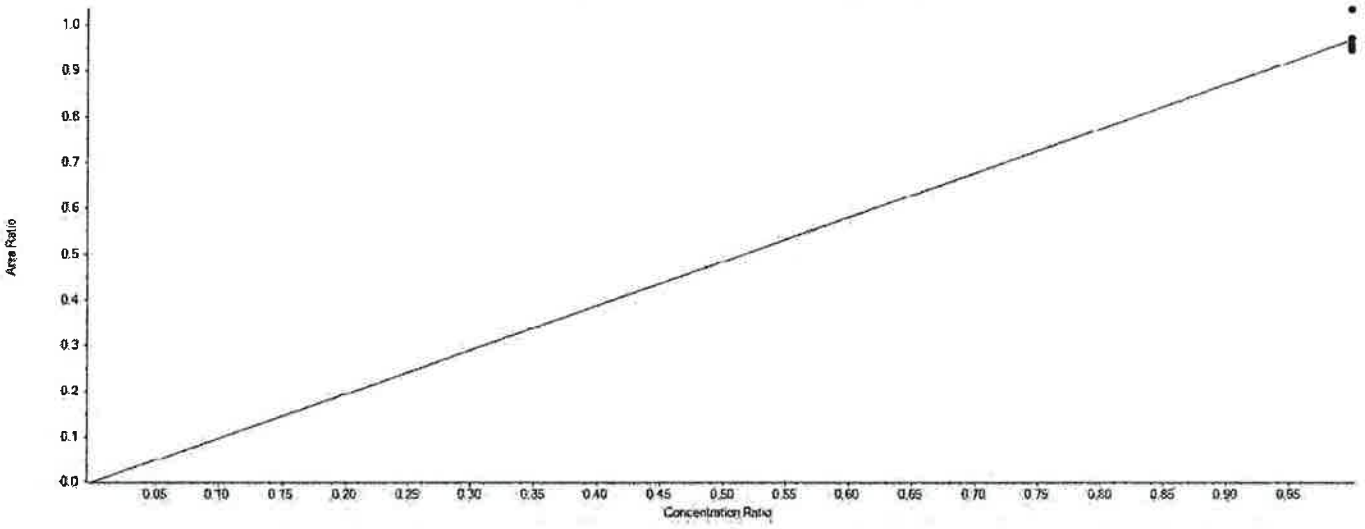
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFHpA

y = 0.96865 x (std. dev. = 0.02996) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1865122.6	1970005.5	True	5.00	0.947	5.92	0.930	5.000	4.887	-2.3	50.0	
CAL2	2068451.2	1999752.1	True	5.00	1.034	5.92	0.940	5.000	5.339	6.8	30.0	
CAL3	1899015.5	1985935.1	True	5.00	0.956	5.93	0.940	5.000	4.936	-1.3	30.0	
CAL4	1917007.4	1971896.3	True	5.00	0.972	5.92	0.940	5.000	5.018	0.4	30.0	
CAL5	1811074.9	1892151.4	True	5.00	0.957	5.92	0.930	5.000	4.941	-1.2	30.0	
CAL6	1902587.0	1981982.5	True	5.00	0.960	5.92	0.930	5.000	4.955	-0.9	30.0	
CAL7	1609975.6	1687719.0	True	5.00	0.954	5.92	0.940	5.000	4.924	-1.5	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

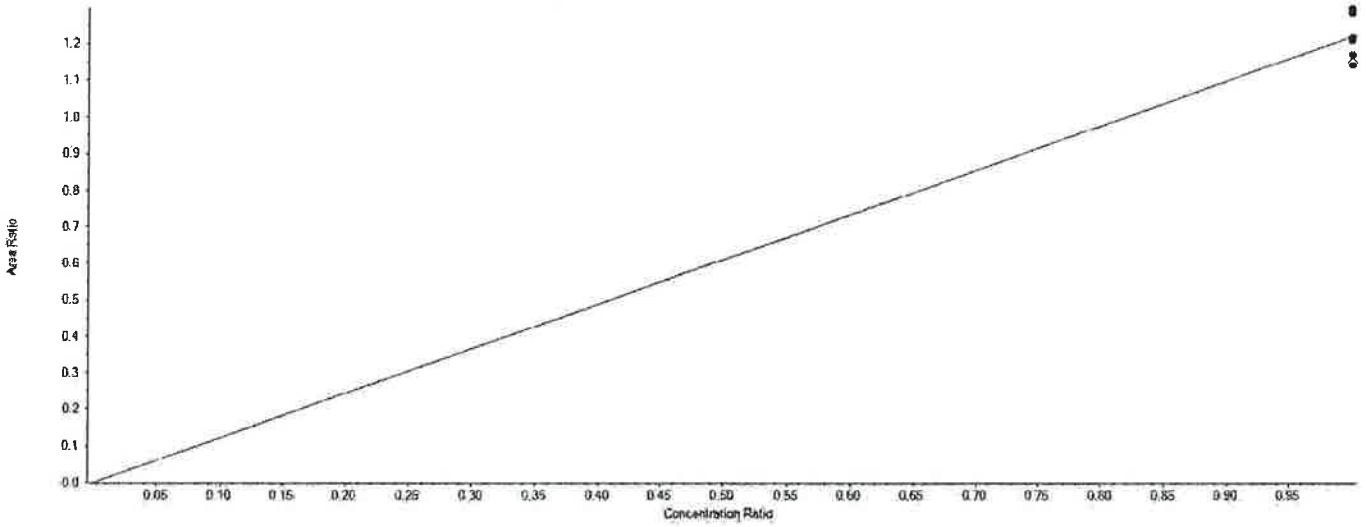
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOA

y = 1.22028 x (std. dev. = 0.06083) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	2304033.3	1970005.5	True	5.00	1.170	6.33	1.000	5.000	4.792	-4.2	50.0	
CAL2	2592220.3	1999752.1	True	5.00	1.296	6.33	1.000	5.000	5.311	6.2	30.0	
CAL3	2548782.1	1985935.1	True	5.00	1.283	6.34	1.000	5.000	5.259	5.2	30.0	
CAL4	2388447.3	1971896.3	True	5.00	1.211	6.33	1.000	5.000	4.963	-0.7	30.0	
CAL5	2306378.4	1892151.4	True	5.00	1.219	6.34	1.000	5.000	4.994	-0.1	30.0	
CAL6	2263958.6	1981982.5	True	5.00	1.142	6.34	1.000	5.000	4.680	-6.4	30.0	
CAL7	1940157.1	1687719.0	False	5.00	1.150	6.33	1.000	5.000	4.710	-5.8	30.0	

Revised
(used for CCV & Samples)

APPROVED
By MCD at 6:37 pm, 4/19/18

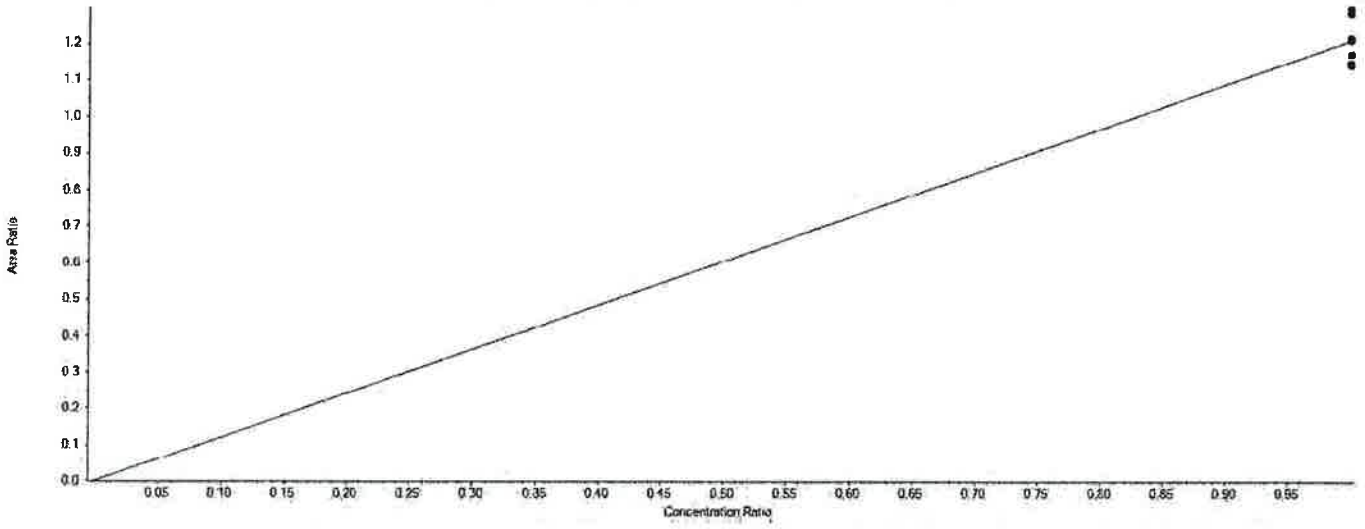
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOA

y = 1.21018 x (std. dev. = 0.06163) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	2304033.3	1970005.5	True	5.00	1.170	6.33	1.000	5.000	4.832	-3.4	50.0	
CAL2	2592220.3	1999752.1	True	5.00	1.296	6.33	1.000	5.000	5.356	7.1	30.0	
CAL3	2548782.1	1985935.1	True	5.00	1.283	6.34	1.000	5.000	5.303	6.1	30.0	
CAL4	2388447.3	1971896.3	True	5.00	1.211	6.33	1.000	5.000	5.004	0.1	30.0	
CAL5	2306378.4	1892151.4	True	5.00	1.219	6.34	1.000	5.000	5.036	0.7	30.0	
CAL6	2263958.6	1981982.5	True	5.00	1.142	6.34	1.000	5.000	4.719	-5.6	30.0	
CAL7	1940157.1	1687719.0	True	5.00	1.150	6.33	1.000	5.000	4.750	-5.0	30.0	

Original
(used for ICV)

APPROVED
By DMW at 9:32 pm, 4/3/18

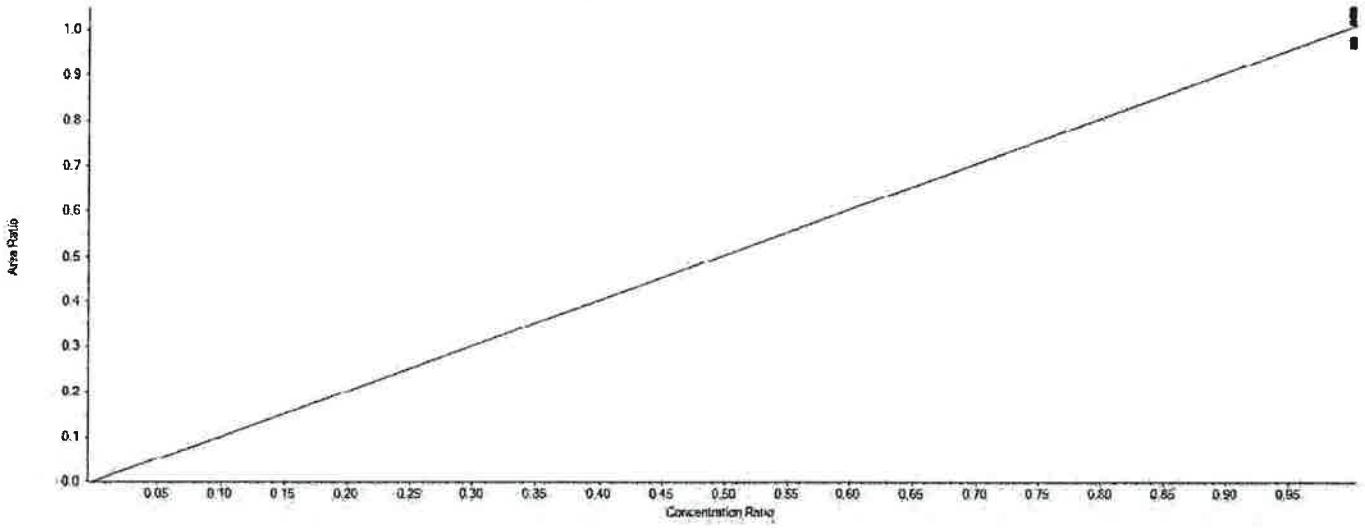
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOS

y = 1.00766 x (std. dev. = 0.03337) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	443411.4	455687.7	True	4.78	0.973	6.67	1.000	4.780	4.616	-3.4	50.0	
CAL2	496179.7	477917.0	True	4.78	1.038	6.67	1.000	4.780	4.925	3.0	30.0	
CAL3	484080.2	462822.9	True	4.78	1.046	6.68	1.000	4.780	4.962	3.8	30.0	
CAL4	488577.4	479900.6	True	4.78	1.018	6.68	1.000	4.780	4.829	1.0	30.0	
CAL5	474614.5	460308.6	True	4.78	1.031	6.68	1.000	4.780	4.891	2.3	30.0	
CAL6	503058.6	512774.7	True	4.78	0.981	6.68	1.000	4.780	4.654	-2.6	30.0	
CAL7	444882.0	460453.3	True	4.78	0.966	6.68	1.000	4.780	4.583	-4.1	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

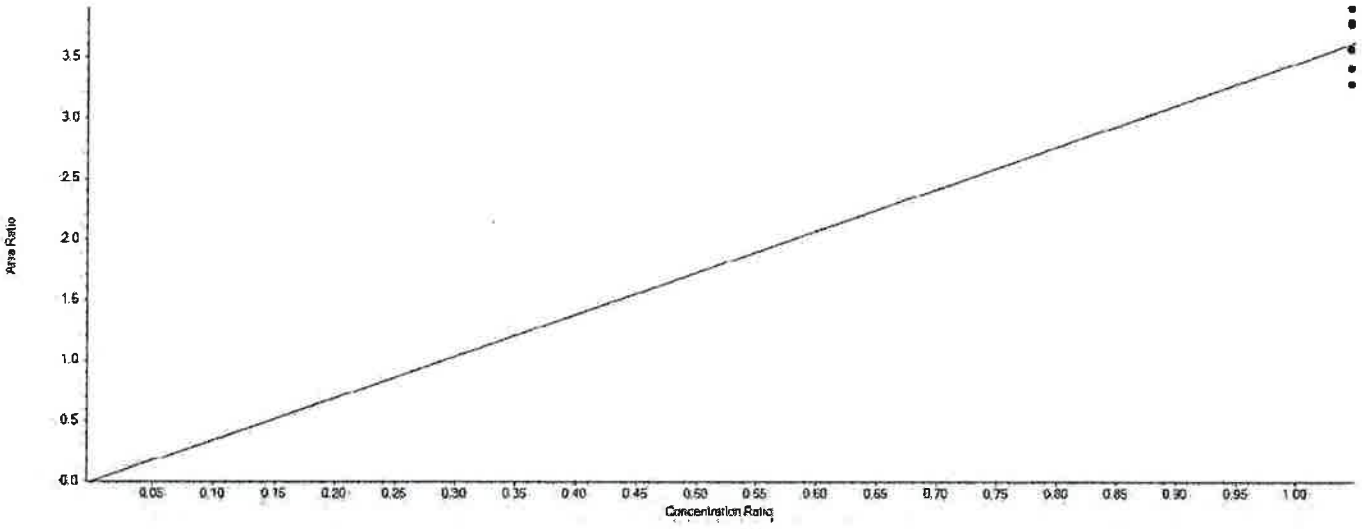
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C9-PFNA

y = 3.44849 x (std. dev. = 0.21241) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1626342.4	455687.7	True	4.78	3.569	6.70	1.000	5.000	4.947	-1.1	50.0	
CAL2	1861072.1	477917.0	True	4.78	3.894	6.70	1.000	5.000	5.398	8.0	30.0	
CAL3	1742212.3	462822.9	True	4.78	3.764	6.71	1.000	5.000	5.218	4.4	30.0	
CAL4	1817151.4	479900.6	True	4.78	3.787	6.70	1.000	5.000	5.249	5.0	30.0	
CAL5	1639175.4	460308.6	True	4.78	3.561	6.71	1.000	5.000	4.936	-1.3	30.0	
CAL6	1678669.6	512774.7	True	4.78	3.274	6.71	1.000	5.000	4.538	-9.2	30.0	
CAL7	1566344.3	460453.3	True	4.78	3.402	6.71	1.000	5.000	4.715	-5.7	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

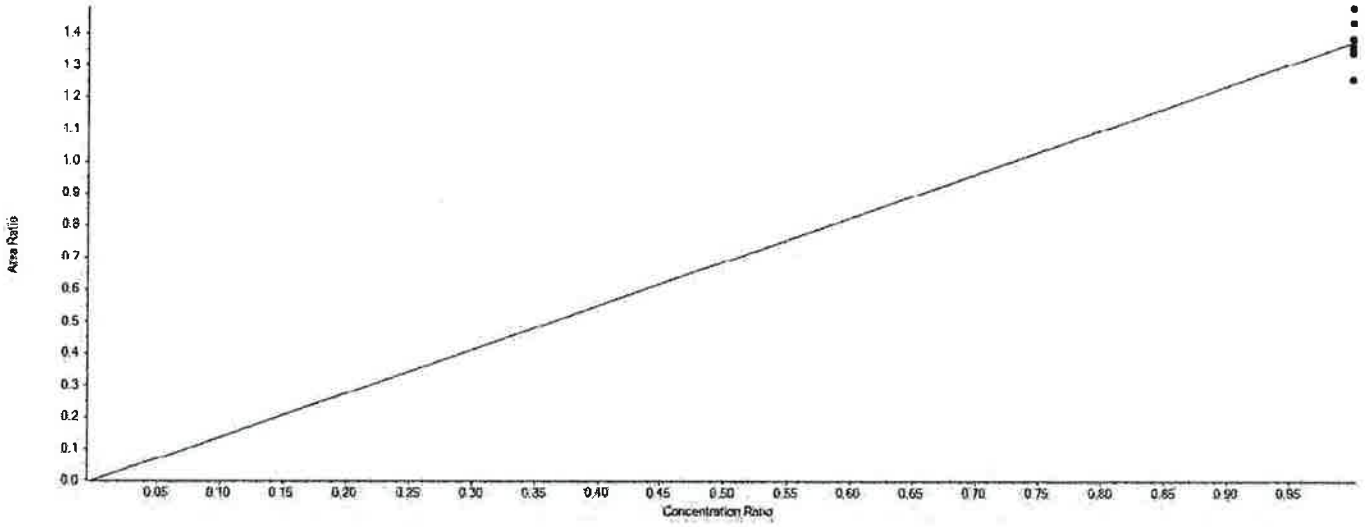
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C6-PFDA

y = 1.37428 x (std. dev. = 0.06976) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	2080191.8	1551629.8	True	5.00	1.341	7.04	1.000	5.000	4.878	-2.4	50.0	
CAL2	2492323.6	1685581.2	True	5.00	1.479	7.05	1.000	5.000	5.380	7.6	30.0	
CAL3	2023224.6	1490238.0	True	5.00	1.358	7.05	1.000	5.000	4.940	-1.2	30.0	
CAL4	2231084.6	1610063.4	True	5.00	1.386	7.04	1.000	5.000	5.042	0.8	30.0	
CAL5	2053320.9	1432482.7	True	5.00	1.433	7.05	1.000	5.000	5.215	4.3	30.0	
CAL6	2081140.9	1525226.0	True	5.00	1.364	7.05	1.000	5.000	4.964	-0.7	30.0	
CAL7	1706736.6	1355153.9	True	5.00	1.259	7.05	1.000	5.000	4.582	-8.4	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

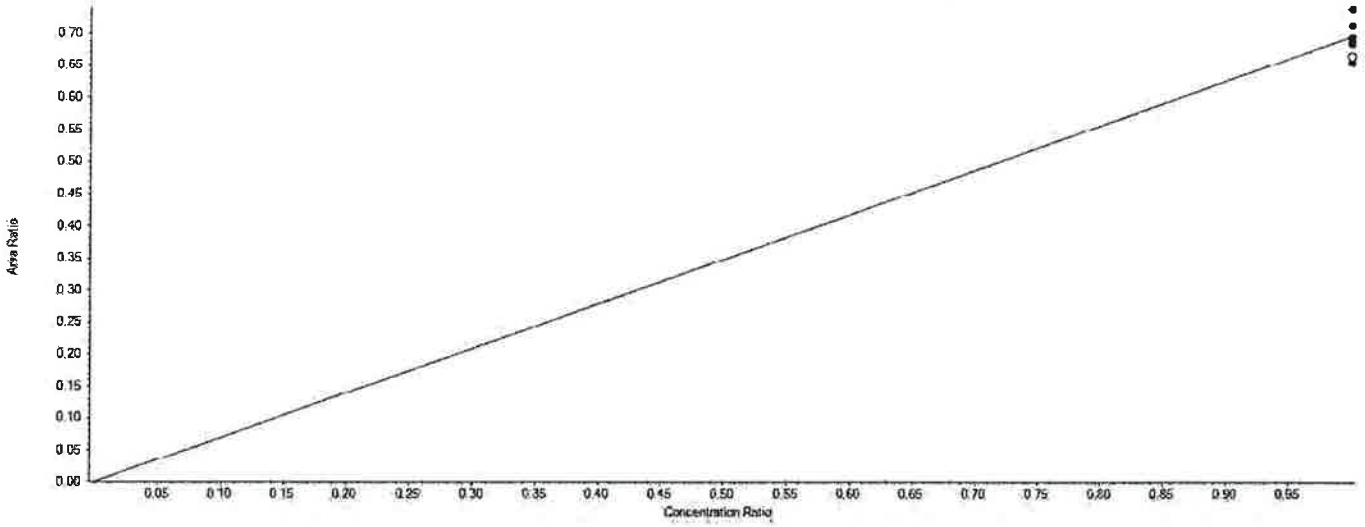
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C7-PFUnDA

y = 0.69529 x (std. dev. = 0.02768) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1015693.5	1551629.8	True	5.00	0.655	7.35	1.040	5.000	4.707	-5.9	50.0	
CAL2	1164506.3	1685581.2	True	5.00	0.691	7.35	1.040	5.000	4.968	-0.6	30.0	
CAL3	1098700.6	1490238.0	True	5.00	0.737	7.35	1.040	5.000	5.302	6.0	30.0	
CAL4	1145612.3	1610063.4	True	5.00	0.712	7.35	1.040	5.000	5.117	2.3	30.0	
CAL5	993380.7	1432482.7	True	5.00	0.693	7.35	1.040	5.000	4.987	-0.3	30.0	
CAL6	1043242.6	1525226.0	True	5.00	0.684	7.36	1.040	5.000	4.919	-1.6	30.0	
CAL7	900995.9	1355153.9	False	5.00	0.665	7.35	1.040	5.000	4.781	-4.4	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

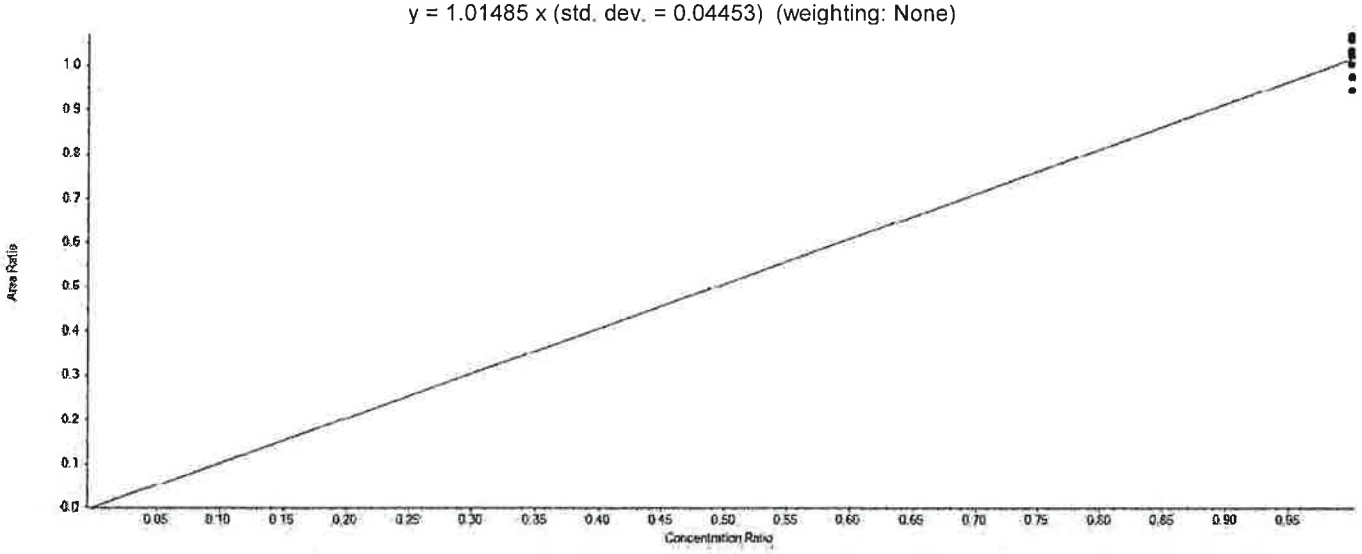
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFDoDA

y = 1.01485 x (std. dev. = 0.04453) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1464592.1	1551629.8	True	5.00	0.944	7.63	1.080	5.000	4.650	-7.0	50.0	
CAL2	1742039.0	1685581.2	True	5.00	1.033	7.63	1.080	5.000	5.092	1.8	30.0	
CAL3	1576303.1	1490238.0	True	5.00	1.058	7.64	1.080	5.000	5.211	4.2	30.0	
CAL4	1616114.9	1610063.4	True	5.00	1.004	7.63	1.080	5.000	4.945	-1.1	30.0	
CAL5	1530208.0	1432482.7	True	5.00	1.068	7.64	1.080	5.000	5.263	5.3	30.0	
CAL6	1559544.9	1525226.0	True	5.00	1.023	7.64	1.080	5.000	5.038	0.8	30.0	
CAL7	1320302.6	1355153.9	True	5.00	0.974	7.64	1.080	5.000	4.800	-4.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

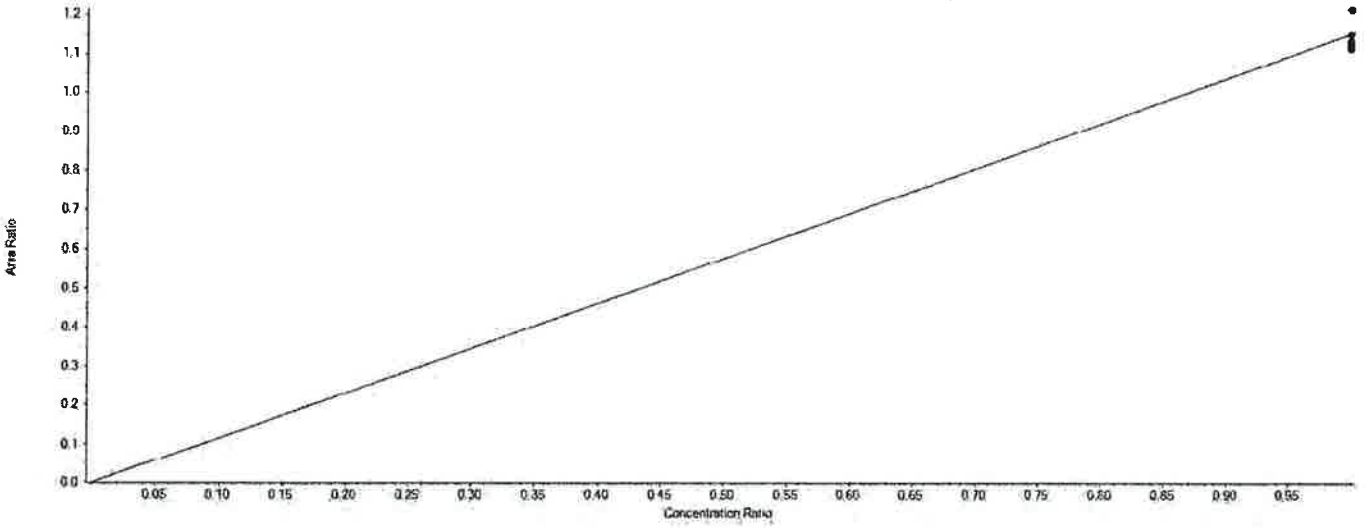
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFTeDA

y = 1.15175 x (std. dev. = 0.04214) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1727146.0	1551629.8	True	5.00	1.113	8.17	1.160	5.000	4.832	-3.4	50.0	
CAL2	1884917.7	1685581.2	True	5.00	1.118	8.17	1.160	5.000	4.855	-2.9	30.0	
CAL3	1804912.7	1490238.0	True	5.00	1.211	8.18	1.160	5.000	5.258	5.2	30.0	
CAL4	1811742.7	1610063.4	True	5.00	1.125	8.17	1.160	5.000	4.885	-2.3	30.0	
CAL5	1734299.9	1432482.7	True	5.00	1.211	8.18	1.160	5.000	5.256	5.1	30.0	
CAL6	1728825.0	1525226.0	True	5.00	1.133	8.18	1.160	5.000	4.921	-1.6	30.0	
CAL7	1558811.5	1355153.9	True	5.00	1.150	8.18	1.160	5.000	4.994	-0.1	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

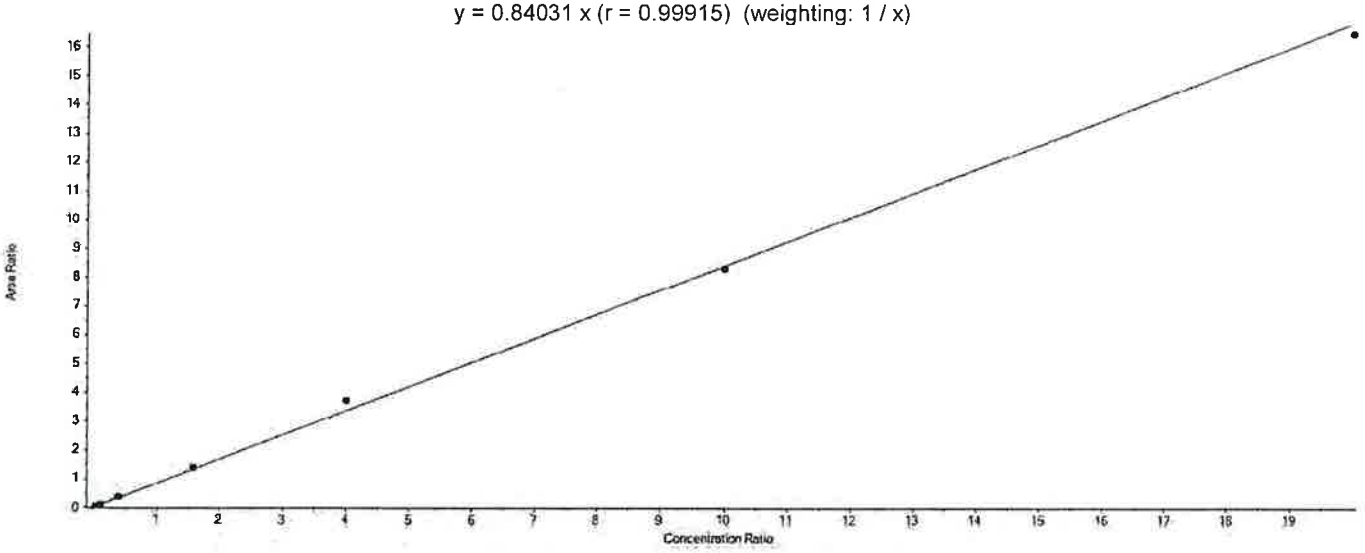
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBA

y = 0.84031 x (r = 0.99915) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	44357.9	1117947.8	True	5.00	0.040	4.43	1.000	0.200	0.236	18.0	50.0	
CAL2	131145.5	1257830.7	True	5.00	0.104	4.43	1.000	0.600	0.620	3.4	30.0	
CAL3	408767.9	1154404.8	True	5.00	0.354	4.44	1.000	2.000	2.107	5.3	30.0	
CAL4	1636608.6	1164284.0	True	5.00	1.406	4.43	1.000	8.000	8.364	4.6	30.0	
CAL5	4146003.6	1113524.3	True	5.00	3.723	4.43	1.000	20.000	22.155	10.8	30.0	
CAL6	9692379.4	1163702.8	True	5.00	8.329	4.43	1.000	50.000	49.559	-0.9	30.0	
CAL7	16583907.3	1009398.2	True	5.00	16.430	4.43	1.000	100.000	97.759	-2.2	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

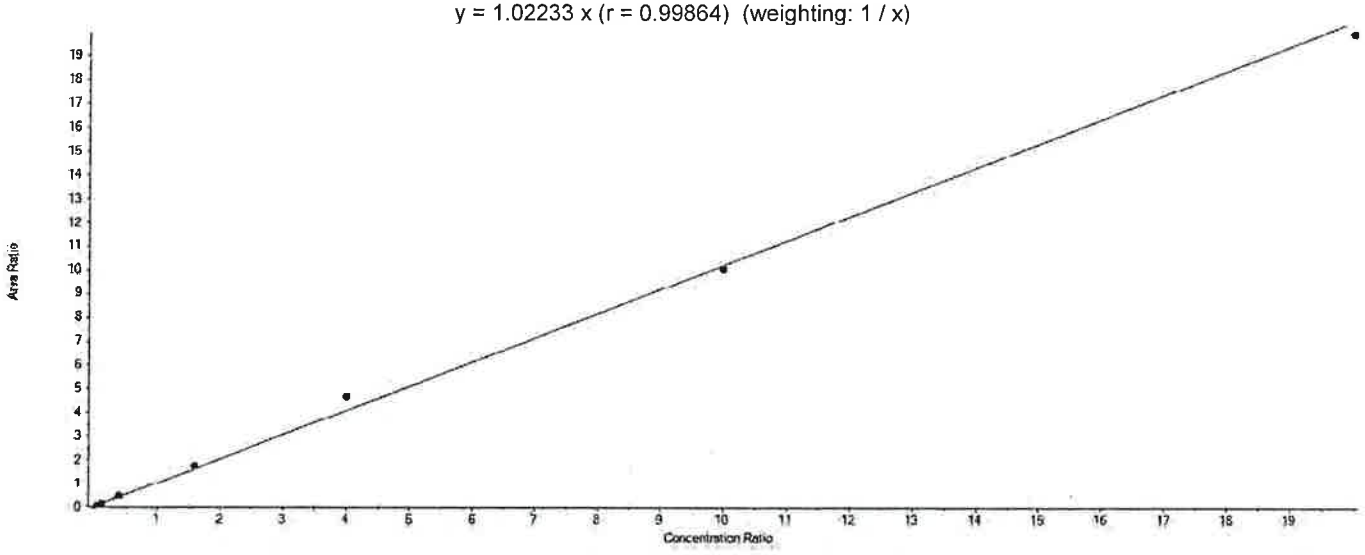
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFPeA

y = 1.02233 x (r = 0.99864) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	46166.0	927299.9	True	5.00	0.050	5.01	1.000	0.200	0.243	21.7	50.0	
CAL2	132108.5	1033297.5	True	5.00	0.128	5.01	1.000	0.600	0.625	4.2	30.0	
CAL3	404141.7	953673.8	True	5.00	0.424	5.01	1.000	2.000	2.073	3.6	30.0	
CAL4	1714749.5	977038.3	True	5.00	1.755	5.01	1.000	8.000	8.584	7.3	30.0	
CAL5	4247734.6	915279.4	True	5.00	4.641	5.01	1.000	20.000	22.698	13.5	30.0	
CAL6	9857542.2	978916.5	True	5.00	10.070	5.01	1.000	50.000	49.250	-1.5	30.0	
CAL7	17002017.3	854369.5	True	5.00	19.900	5.01	1.000	100.000	97.327	-2.7	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

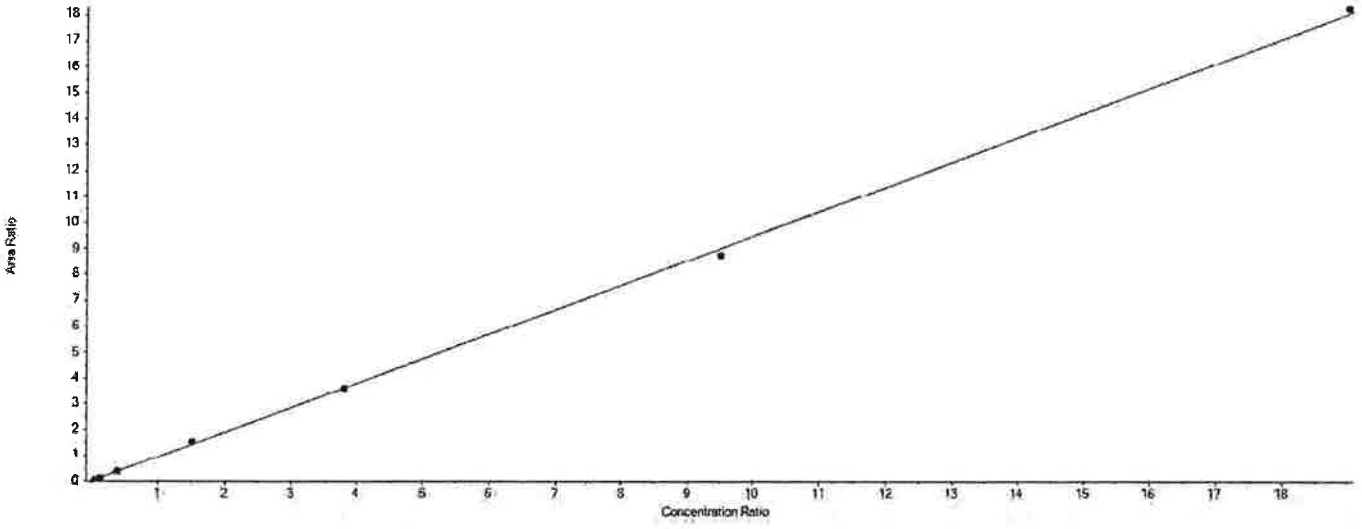
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBS

y = 0.94845 x (r = 0.99974) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	22305.5	546699.6	True	4.65	0.041	5.06	1.000	0.170	0.200	17.7	50.0	
CAL2	67204.6	617333.5	True	4.65	0.109	5.06	1.000	0.530	0.534	0.7	30.0	
CAL3	210725.2	573261.0	True	4.65	0.368	5.06	1.000	1.770	1.802	1.8	30.0	
CAL4	895197.7	583555.1	True	4.65	1.534	5.06	1.000	7.080	7.521	6.2	30.0	
CAL5	2128725.1	593273.0	True	4.65	3.588	5.06	1.000	17.690	17.592	-0.6	30.0	
CAL6	5474180.5	626580.1	True	4.65	8.737	5.06	1.000	44.220	42.833	-3.1	30.0	
CAL7	9976593.6	546947.7	True	4.65	18.240	5.06	1.000	88.450	89.428	1.1	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

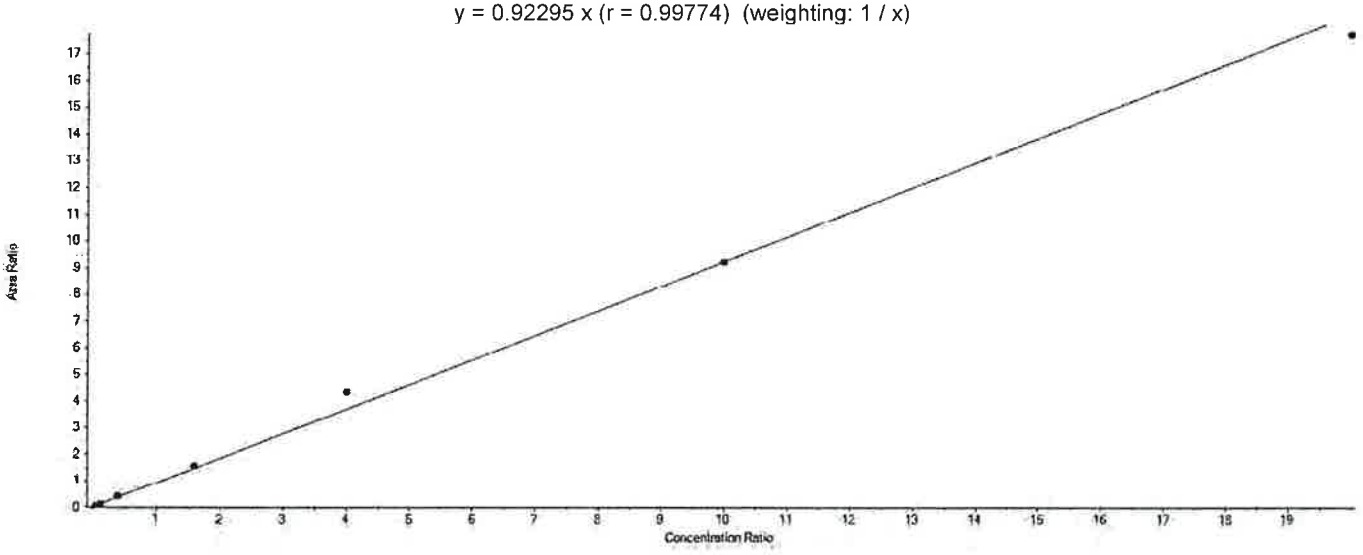
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxA

y = 0.92295 x (r = 0.99774) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	74412.0	1862010.2	True	5.00	0.040	5.47	1.000	0.200	0.216	8.2	50.0	
CAL2	233662.9	2074362.3	True	5.00	0.113	5.48	1.000	0.600	0.610	1.7	30.0	
CAL3	726946.0	1898264.9	True	5.00	0.383	5.48	1.000	2.000	2.075	3.7	30.0	
CAL4	3064026.7	1935951.9	True	5.00	1.583	5.48	1.000	8.000	8.574	7.2	30.0	
CAL5	7505176.4	1734006.8	True	5.00	4.328	5.48	1.000	20.000	23.448	17.2	30.0	
CAL6	16455995.7	1785750.2	True	5.00	9.215	5.48	1.000	50.000	49.922	-0.2	30.0	
CAL7	27452984.6	1549939.6	True	5.00	17.712	5.47	1.000	100.000	95.955	-4.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

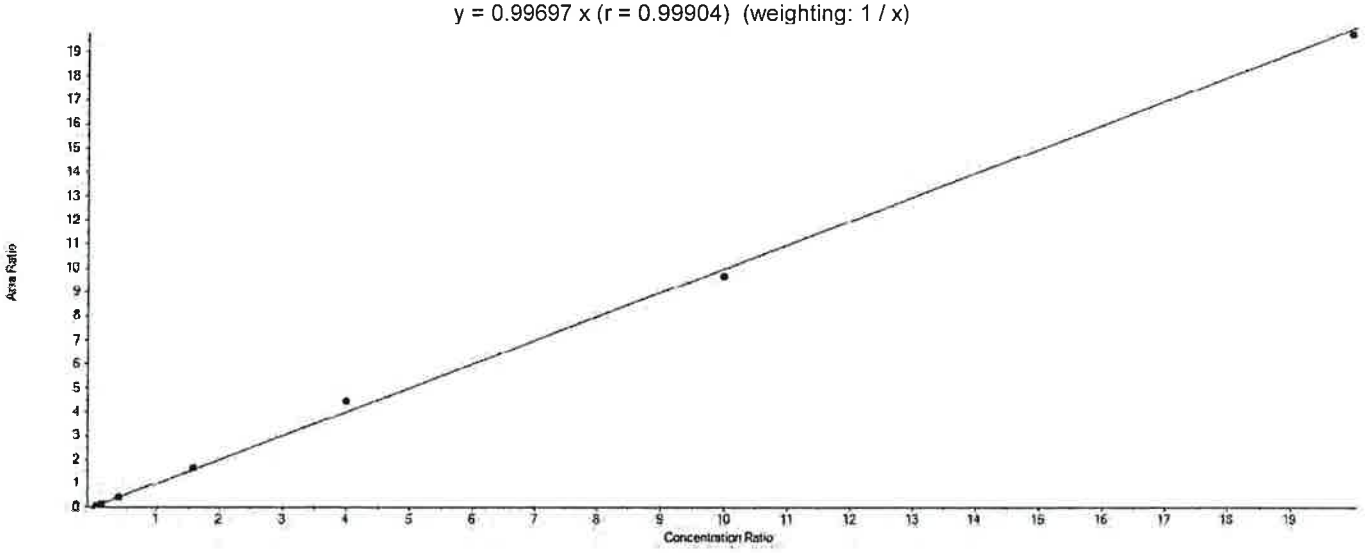
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxS

y = 0.99697 x (r = 0.99904) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	22052.7	541210.3	True	4.73	0.041	5.92	1.000	0.190	0.193	1.7	50.0	
CAL2	70492.5	571572.2	True	4.73	0.123	5.91	1.000	0.570	0.585	2.7	30.0	
CAL3	219704.5	548482.6	True	4.73	0.401	5.92	1.000	1.890	1.900	0.6	30.0	
CAL4	907280.1	548133.1	True	4.73	1.655	5.91	1.000	7.560	7.853	3.9	30.0	
CAL5	2346223.1	528221.7	True	4.73	4.442	5.92	1.000	18.910	21.073	11.4	30.0	
CAL6	5562707.2	576693.9	True	4.73	9.646	5.91	1.000	47.280	45.764	-3.2	30.0	
CAL7	9349590.8	474004.2	True	4.73	19.725	5.91	1.000	94.550	93.581	-1.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

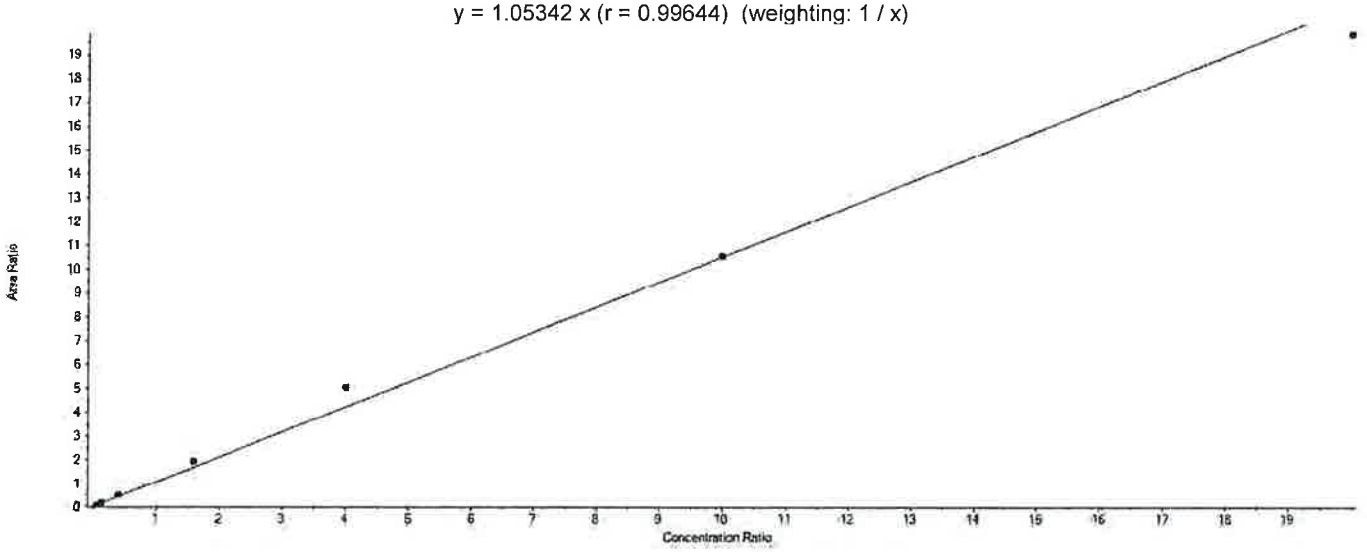
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHpA

y = 1.05342 x (r = 0.99644) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	94576.4	1865122.6	True	5.00	0.051	5.92	1.000	0.200	0.241	20.3	50.0	
CAL2	304138.4	2068451.2	True	5.00	0.147	5.92	1.000	0.600	0.698	16.3	30.0	
CAL3	934133.3	1899015.5	True	5.00	0.492	5.92	1.000	2.000	2.335	16.7	30.0	
CAL4	3654905.7	1917007.4	True	5.00	1.907	5.92	1.000	8.000	9.049	13.1	30.0	
CAL5	9141199.5	1811074.9	True	5.00	5.047	5.92	1.000	20.000	23.957	19.8	30.0	
CAL6	20132658.5	1902587.0	True	5.00	10.582	5.92	1.000	50.000	50.225	0.5	30.0	
CAL7	31984556.1	1609975.6	True	5.00	19.866	5.92	1.000	100.000	94.295	-5.7	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

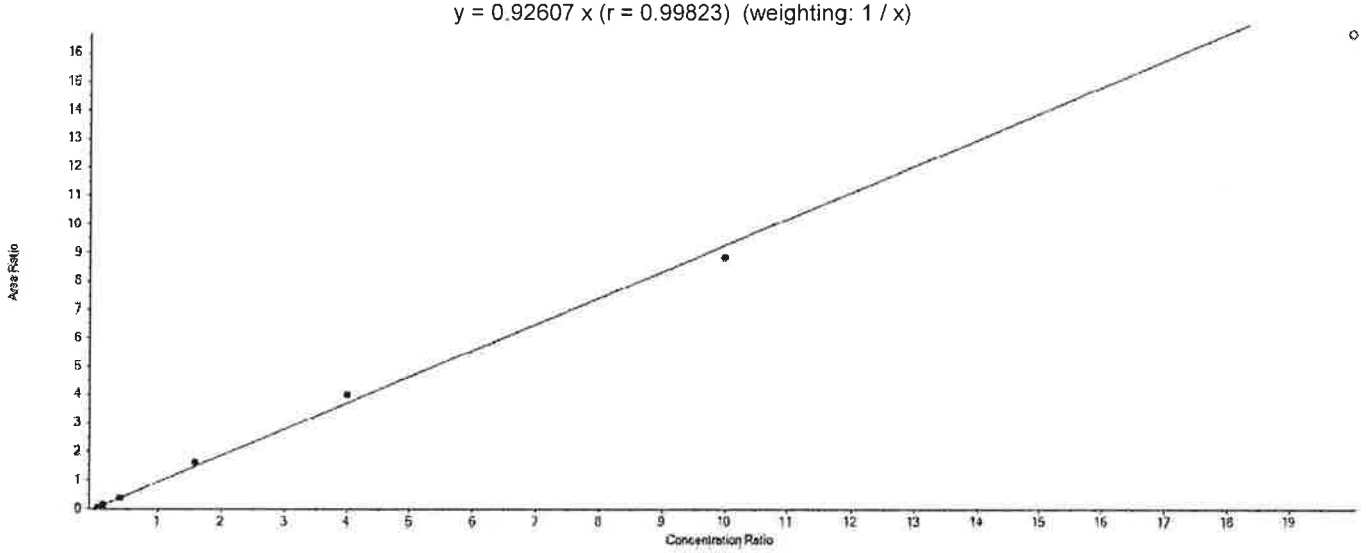
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOA

y = 0.92607 x (r = 0.99823) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	106701.5	2304033.3	True	5.00	0.046	6.33	1.000	0.200	0.250	25.0	50.0	
CAL2	316936.4	2592220.3	True	5.00	0.122	6.33	1.000	0.600	0.660	10.0	30.0	
CAL3	915319.1	2548782.1	True	5.00	0.359	6.34	1.000	2.000	1.939	-3.1	30.0	
CAL4	3822883.7	2388447.3	True	5.00	1.601	6.33	1.000	8.000	8.642	8.0	30.0	
CAL5	9207343.7	2306378.4	True	5.00	3.992	6.34	1.000	20.000	21.554	7.8	30.0	
CAL6	20024624.4	2263958.6	True	5.00	8.845	6.33	1.000	50.000	47.755	-4.5	30.0	
CAL7	32313532.1	1940157.1	False	5.00	16.655	6.33	1.000	100.000	89.923	-10.1	30.0	

Revised

APPROVED
By MCD at 6:37 pm, 4/19/18

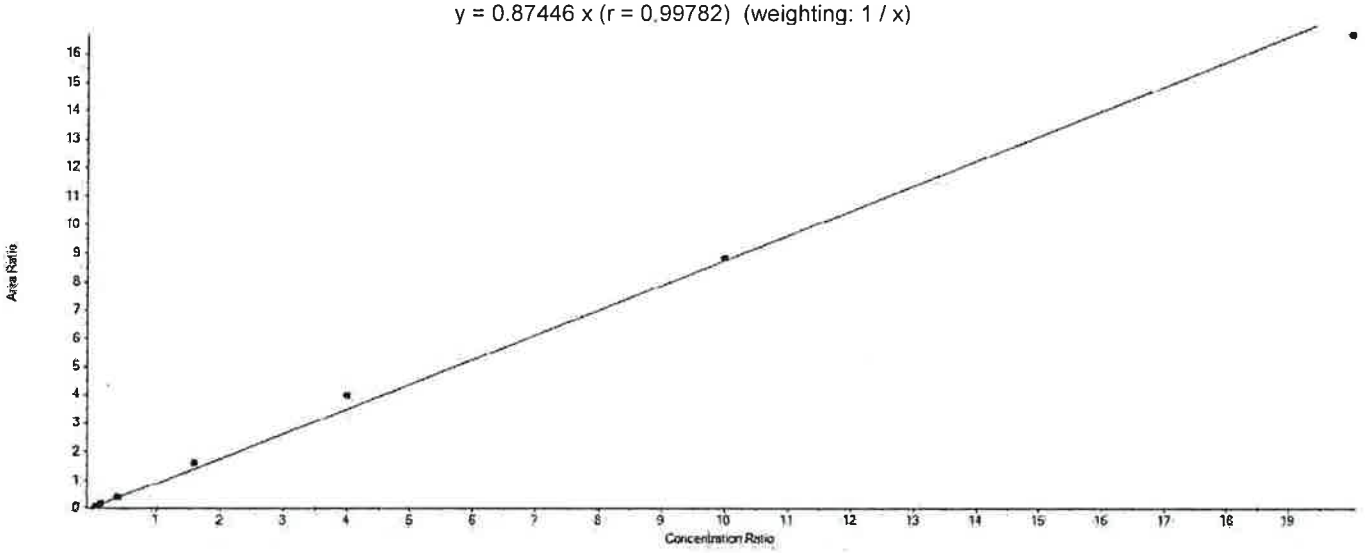
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOA

y = 0.87446 x (r = 0.99782) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	106701.5	2304033.3	True	5.00	0.046	6.33	1.000	0.200	0.265	32.4	50.0	
CAL2	316936.4	2592220.3	True	5.00	0.122	6.33	1.000	0.600	0.699	16.5	30.0	
CAL3	915319.1	2548782.1	True	5.00	0.359	6.34	1.000	2.000	2.053	2.7	30.0	
CAL4	3822883.7	2388447.3	True	5.00	1.601	6.33	1.000	8.000	9.152	14.4	30.0	
CAL5	9207343.7	2306378.4	True	5.00	3.992	6.34	1.000	20.000	22.826	14.1	30.0	
CAL6	20024624.4	2263958.6	True	5.00	8.845	6.33	1.000	50.000	50.574	1.1	30.0	
CAL7	32313532.1	1940157.1	True	5.00	16.655	6.33	1.000	100.000	95.231	-4.8	30.0	

Original

APPROVED
By DMW at 9:32 pm, 4/3/18

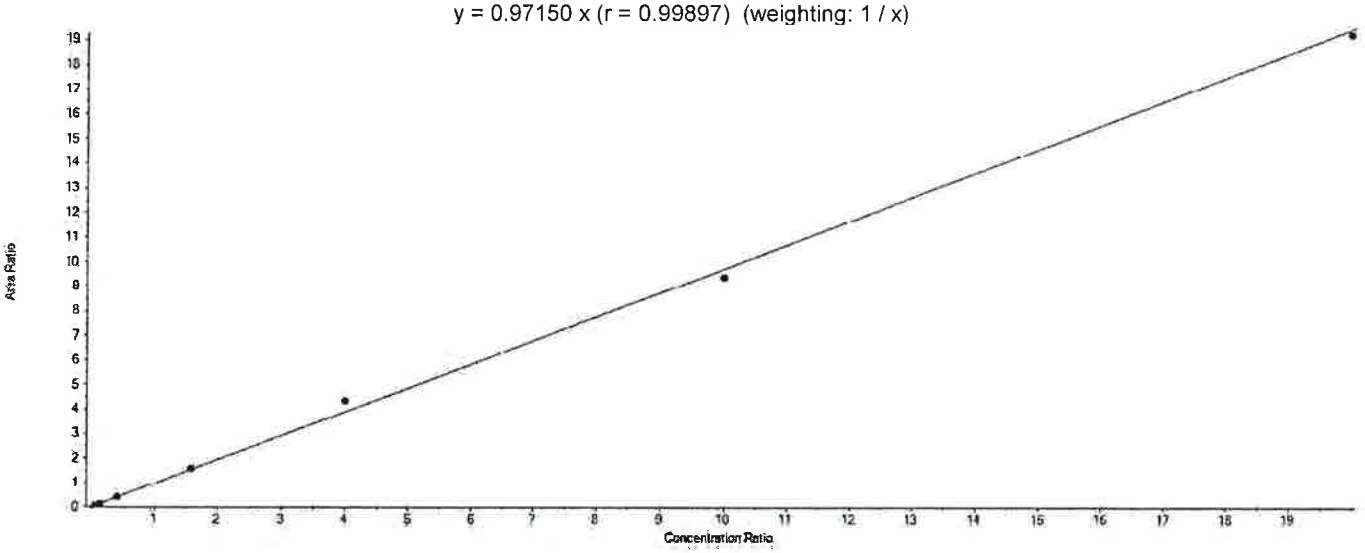
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOS

y = 0.97150 x (r = 0.99897) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	20403.5	443411.4	True	4.78	0.046	6.67	1.000	0.190	0.226	19.2	50.0	
CAL2	58822.7	496179.7	True	4.78	0.119	6.68	1.000	0.570	0.583	2.3	30.0	
CAL3	193744.0	484080.2	True	4.78	0.400	6.68	1.000	1.910	1.969	3.1	30.0	
CAL4	778409.3	488577.4	True	4.78	1.593	6.67	1.000	7.650	7.839	2.5	30.0	
CAL5	2067903.0	474614.5	True	4.78	4.357	6.68	1.000	19.120	21.438	12.1	30.0	
CAL6	4722005.0	503058.6	True	4.78	9.387	6.68	1.000	47.800	46.184	-3.4	30.0	
CAL7	8553645.9	444882.0	True	4.78	19.227	6.68	1.000	95.600	94.600	-1.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

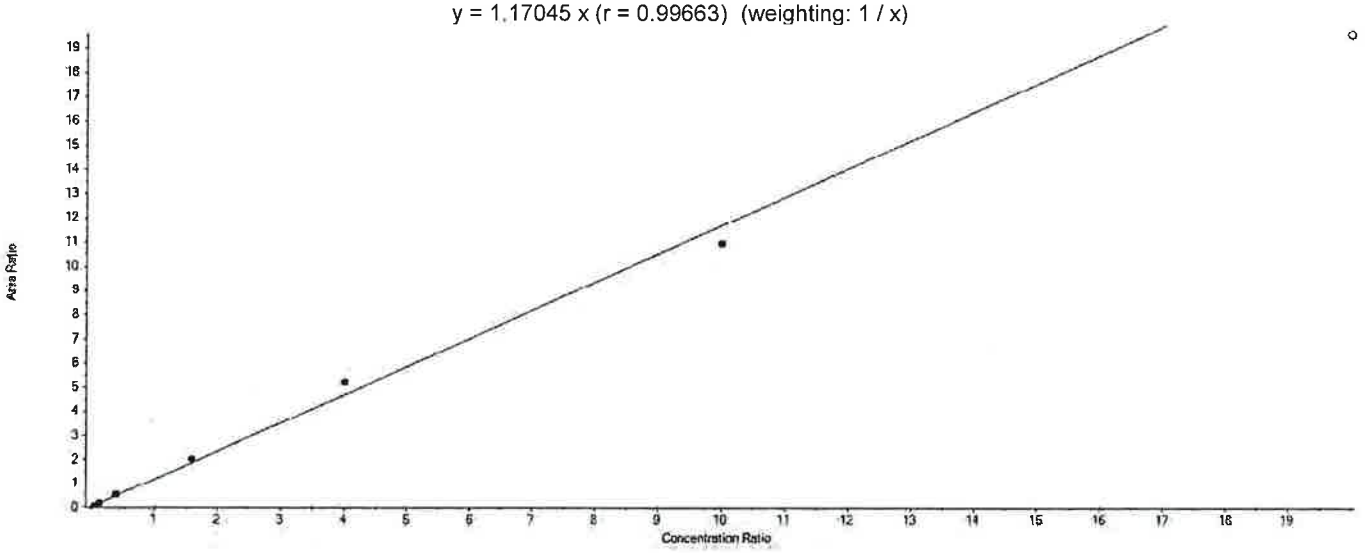
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFNA

y = 1.17045 x (r = 0.99663) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	88469.3	1626342.4	True	5.00	0.054	6.70	1.000	0.200	0.232	16.2	50.0	
CAL2	265497.7	1861072.1	True	5.00	0.143	6.71	1.000	0.600	0.609	1.6	30.0	
CAL3	877547.8	1742212.3	True	5.00	0.504	6.71	1.000	2.000	2.152	7.6	30.0	
CAL4	3683261.8	1817151.4	True	5.00	2.027	6.70	1.000	8.000	8.659	8.2	30.0	
CAL5	8554081.4	1639175.4	True	5.00	5.219	6.71	1.000	20.000	22.293	11.5	30.0	
CAL6	18412034.2	1678669.6	True	5.00	10.968	6.71	1.000	50.000	46.855	-6.3	30.0	
CAL7	30649358.3	1566344.3	False	5.00	19.567	6.71	1.000	100.000	83.589	-16.4	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

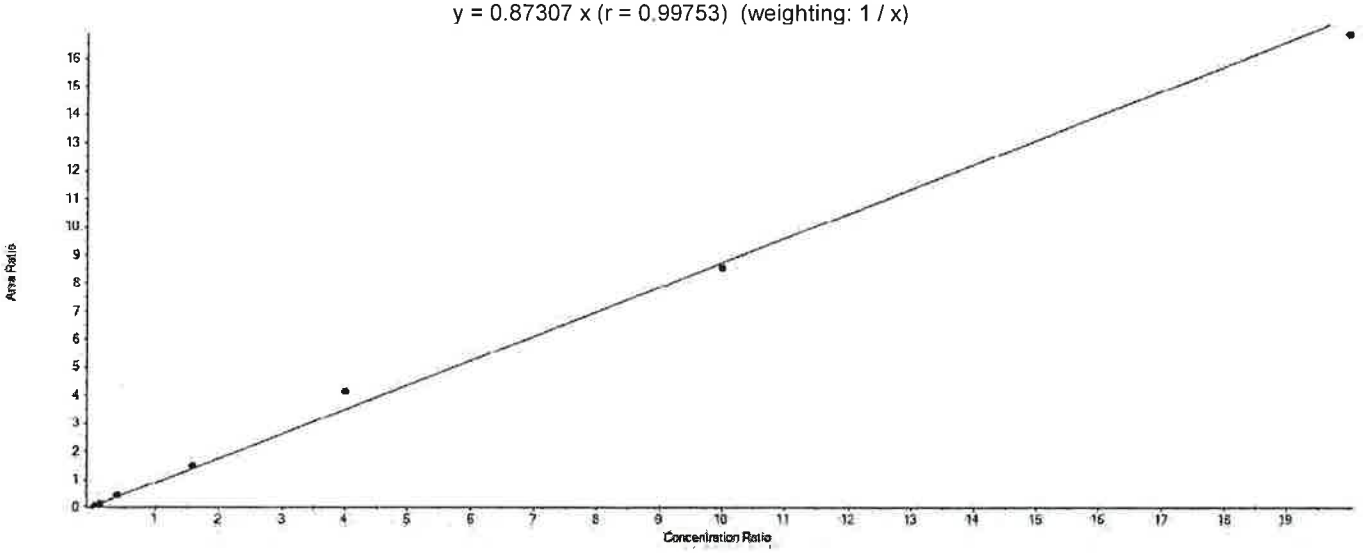
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDA

y = 0.87307 x (r = 0.99753) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	93904.0	2080191.8	True	5.00	0.045	7.04	1.000	0.200	0.259	29.3	50.0	
CAL2	268082.6	2492323.6	True	5.00	0.108	7.04	1.000	0.600	0.616	2.7	30.0	
CAL3	807379.8	2023224.6	True	5.00	0.399	7.05	1.000	2.000	2.285	14.3	30.0	
CAL4	3304575.3	2231084.6	True	5.00	1.481	7.04	1.000	8.000	8.482	6.0	30.0	
CAL5	8496468.6	2053320.9	True	5.00	4.138	7.05	1.000	20.000	23.698	18.5	30.0	
CAL6	17801760.4	2081140.9	True	5.00	8.554	7.05	1.000	50.000	48.987	-2.0	30.0	
CAL7	28750888.2	1706736.6	True	5.00	16.846	7.05	1.000	100.000	96.473	-3.5	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

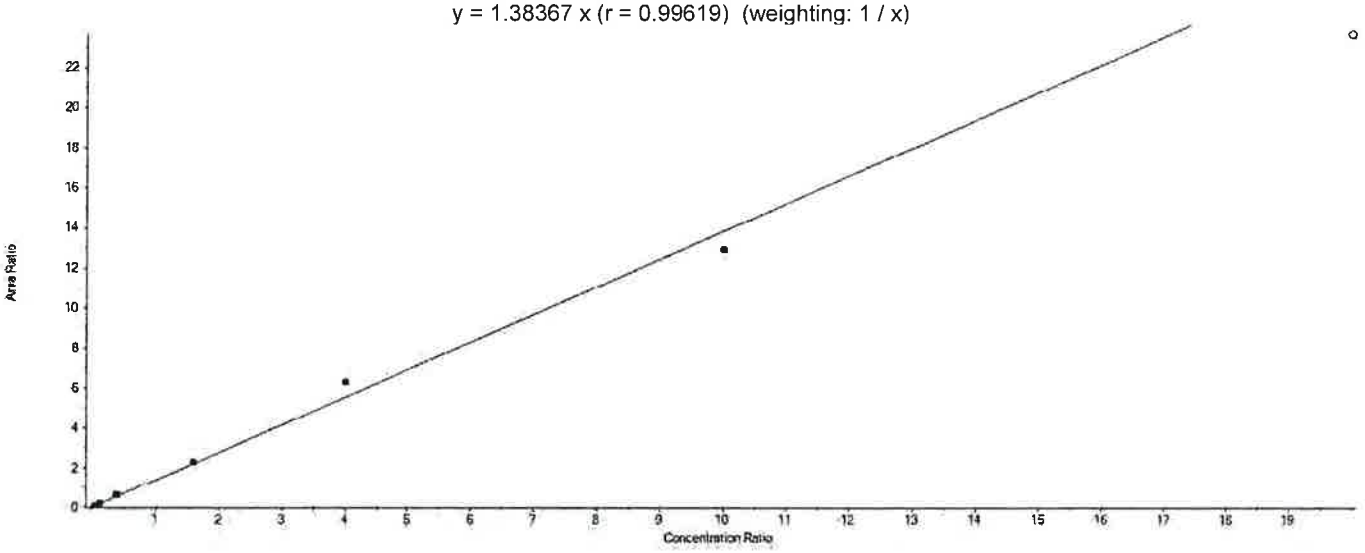
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFUnDA

y = 1.38367 x (r = 0.99619) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	68643.9	1015693.5	True	5.00	0.068	7.35	1.000	0.200	0.244	22.1	50.0	
CAL2	222945.9	1164506.3	True	5.00	0.191	7.35	1.000	0.600	0.692	15.3	30.0	
CAL3	664404.8	1098700.6	True	5.00	0.605	7.35	1.000	2.000	2.185	9.3	30.0	
CAL4	2631613.4	1145612.3	True	5.00	2.297	7.35	1.000	8.000	8.301	3.8	30.0	
CAL5	6229864.6	993380.7	True	5.00	6.271	7.35	1.000	20.000	22.662	13.3	30.0	
CAL6	13486806.0	1043242.6	True	5.00	12.928	7.35	1.000	50.000	46.716	-6.6	30.0	
CAL7	21285064.9	900995.9	False	5.00	23.624	7.35	1.000	100.000	85.367	-14.6	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

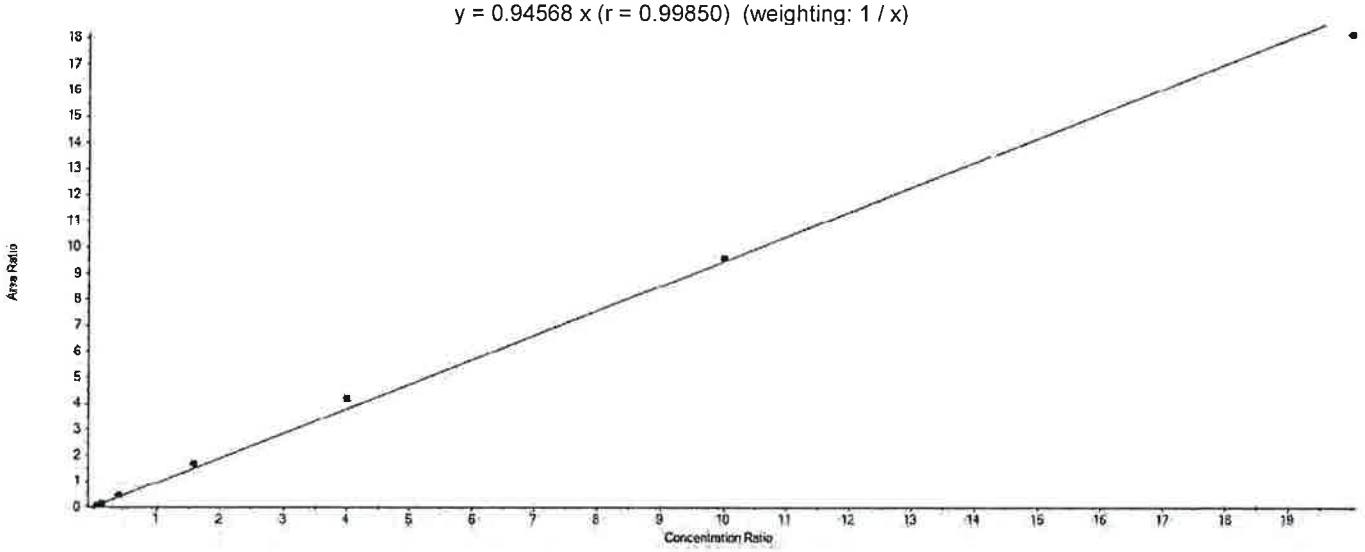
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDoDA

y = 0.94568 x (r = 0.99850) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	68135.4	1464592.1	True	5.00	0.047	7.63	1.000	0.200	0.246	23.0	50.0	
CAL2	201201.9	1742039.0	True	5.00	0.115	7.63	1.000	0.600	0.611	1.8	30.0	
CAL3	667345.7	1576303.1	True	5.00	0.423	7.64	1.000	2.000	2.238	11.9	30.0	
CAL4	2724298.9	1616114.9	True	5.00	1.686	7.63	1.000	8.000	8.913	11.4	30.0	
CAL5	6430562.7	1530208.0	True	5.00	4.202	7.64	1.000	20.000	22.219	11.1	30.0	
CAL6	14945174.7	1559544.9	True	5.00	9.583	7.64	1.000	50.000	50.668	1.3	30.0	
CAL7	23949160.3	1320302.6	True	5.00	18.139	7.63	1.000	100.000	95.906	-4.1	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

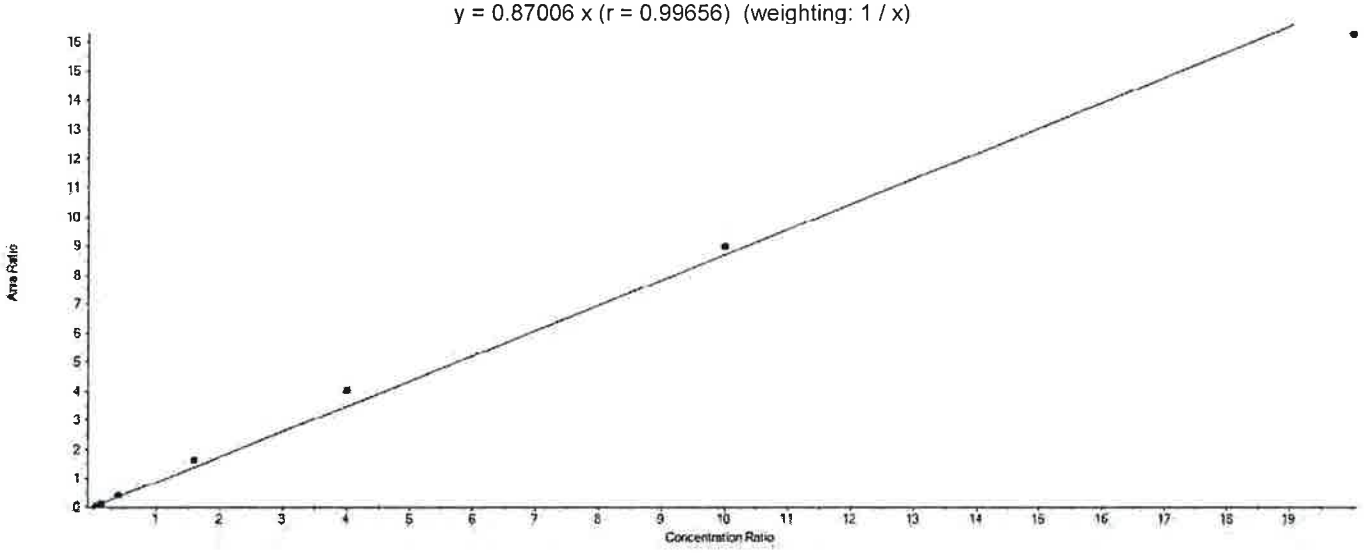
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTrDA

y = 0.87006 x (r = 0.99656) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65101.4	1464592.1	True	5.00	0.044	7.90	1.040	0.200	0.255	27.7	50.0	
CAL2	198994.6	1742039.0	True	5.00	0.114	7.90	1.040	0.600	0.656	9.4	30.0	
CAL3	604861.6	1576303.1	True	5.00	0.384	7.91	1.040	2.000	2.205	10.3	30.0	
CAL4	2649045.9	1616114.9	True	5.00	1.639	7.90	1.040	8.000	9.420	17.7	30.0	
CAL5	6168830.6	1530208.0	True	5.00	4.031	7.91	1.040	20.000	23.167	15.8	30.0	
CAL6	14016209.1	1559544.9	True	5.00	8.987	7.91	1.040	50.000	51.648	3.3	30.0	
CAL7	21469555.2	1320302.6	True	5.00	16.261	7.91	1.040	100.000	93.448	-6.6	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

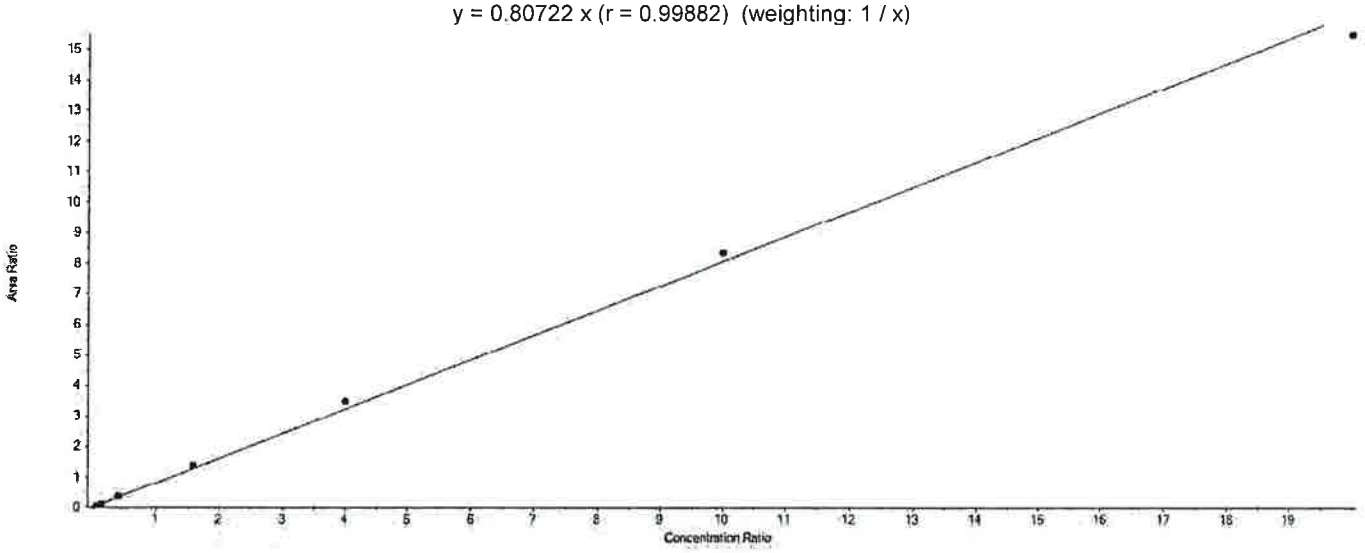
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTeDA

y = 0.80722 x (r = 0.99882) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	68731.5	1727146.0	True	5.00	0.040	8.17	1.000	0.200	0.246	23.2	50.0	
CAL2	192789.5	1884917.7	True	5.00	0.102	8.17	1.000	0.600	0.634	5.6	30.0	
CAL3	626767.4	1804912.7	True	5.00	0.347	8.17	1.000	2.000	2.151	7.5	30.0	
CAL4	2514172.5	1811742.7	True	5.00	1.388	8.17	1.000	8.000	8.596	7.4	30.0	
CAL5	6072449.2	1734299.9	True	5.00	3.501	8.17	1.000	20.000	21.688	8.4	30.0	
CAL6	14427637.3	1728825.0	True	5.00	8.345	8.17	1.000	50.000	51.692	3.4	30.0	
CAL7	24107266.8	1558811.5	True	5.00	15.465	8.17	1.000	100.000	95.793	-4.2	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

REVIEWED
By UMJS at 10:41 am, 4/5/18

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL 4/3/2018 9:20:12 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

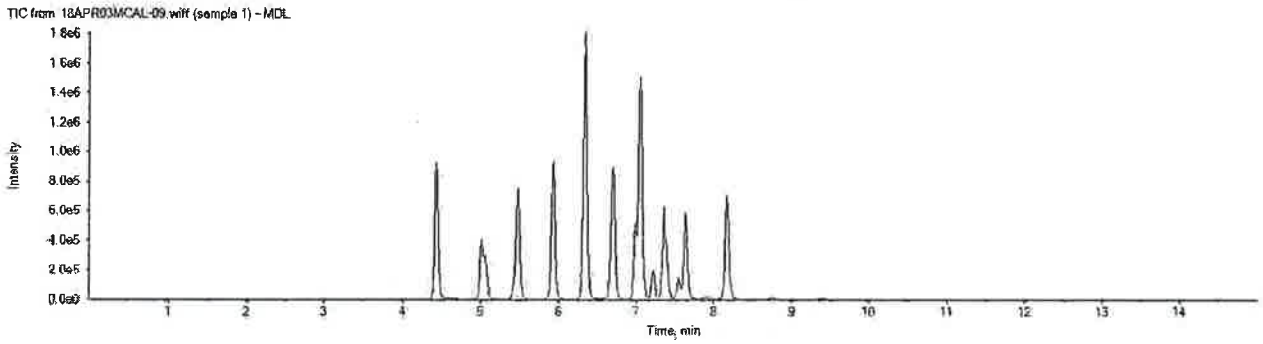
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24743 **File Name:** 18APR03MCAL-09.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	4.43	1.000	28844.2	M	13C4-PFBA	4.43	1411181.2	0.020	0.122
PFPeA	5.01	1.000	29967.7	M	13C5-PFPeA	5.01	1140849.6	0.026	0.128
PFBS	5.06	1.000	12632.8	M	13C3-PFBS	5.06	714447.5	0.018	0.087
4:2-FTS	5.44	1.000	38417.3	A	13C2-4:2-FTS	5.44	440246.2	0.087	0.493
PFHxA	5.48	1.000	47124.4	M	13C5-PFHxA	5.48	2250071.1	0.021	0.113
PFPeS	5.49	1.080	7053.7	A	13C3-PFBS	5.06	714447.5	0.010	0.101
PFHxS	5.91	1.000	13450.8	M	13C3-PFHxS	5.92	658183.7	0.020	0.097
PFHpA	5.92	1.000	58576.5	A	13C4-PFHpA	5.92	2299220.3	0.025	0.121
6:2-FTS	6.32	1.000	36266.5	M	13C2-6:2-FTS	6.32	384450.0	0.094	0.496
PFHpS	6.32	1.070	10521.5	M	13C3-PFHxS	5.92	658183.7	0.016	0.087
PFOA	6.33	1.000	61198.4	M	13C8-PFOA	6.33	2834097.1	0.022	0.123
PFOS	6.67	1.000	12517.4	M	13C8-PFOS	6.68	550741.0	0.023	0.112
PFNA	6.70	1.000	53952.9	M	13C9-PFNA	6.70	2087443.6	0.026	0.110
PFOSA	6.98	1.000	28892.2	M	13C8-PFOSA	6.98	1318259.1	0.022	0.115
PFNS	7.01	1.050	6702.9	M	13C8-PFOS	6.68	550741.0	0.012	0.087
PFDA	7.04	1.000	53424.3	M	13C6-PFDA	7.04	2582569.3	0.021	0.118
8:2-FTS	7.06	1.000	41707.9	M	13C2-8:2-FTS	7.06	450139.5	0.093	0.473
NMePFOSAE	7.40	1.000	5999.8	M	d7-NMePFOSAE	7.38	208213.1	0.029	0.124
NMePFOSA	7.40	1.000	4327.2	M	d3-NMePFOSA	7.41	199310.0	0.022	0.107
NMeFOSAA	7.22	1.000	15435.4	M	d3-NMeFOSAA	7.21	587315.5	0.026	0.123
NEtPFOSAE	7.55	1.000	7329.9	M	d9-NEtPFOSAE	7.54	274356.0	0.027	0.106
NEtPFOSA	7.57	1.000	3196.2	M	d5-NEtPFOSA	7.56	156398.4	0.020	0.098
PFDS	7.31	1.090	4789.4	M	13C8-PFOS	6.68	550741.0	0.009	0.082
PFUnDA	7.35	1.000	35781.0	M	13C7-PFUnDA	7.35	1294445.4	0.028	0.100
NEtFOSAA	7.38	1.000	13395.0	M	d5-NEtFOSAA	7.37	475333.5	0.028	0.132
PFDoDA	7.64	1.000	38696.5	M	13C2-PFDoDA	7.63	1816936.3	0.021	0.113
10:2-FTS	7.67	1.090	47104.4	M	13C2-8:2-FTS	7.06	450139.5	0.105	0.474
PFDoS	7.85	1.180	2128.6	M	13C8-PFOS	6.68	550741.0	0.004	0.085
PFTrDA	7.90	1.040	36799.2	M	13C2-PFDoDA	7.63	1816936.3	0.020	0.116
PFTeDA	8.17	1.000	40370.3	M	13C2-PFTeDA	8.17	2311587.8	0.017	0.108
PFHxDA	8.75	1.070	42368.9	A	13C2-PFTeDA	8.17	2311587.8	0.018	0.123
PFODA	9.40	1.150	34113.5	A	13C2-PFTeDA	8.17	2311587.8	0.015	0.095

Total Ion Chromatogram



APPROVED
By DMW at 9:32 pm, 4/3/18

REVIEWED
By UMJS at 10:42 am, 4/5/18

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LC-MS/MS Analysis Report

Printed: 4/3/2018 9:26:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL 4/3/2018 9:20:12 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

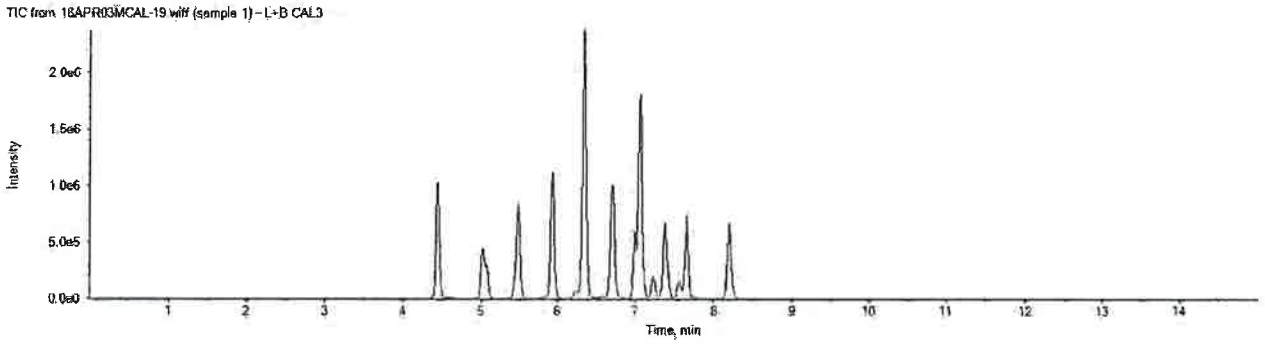
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM24743 **File Name:** 18APR03MCAL-19.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1630644.9	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	1325898.6	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	796416.8	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.44	456754.0	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	2635526.8	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.07	796416.8	N/A	
PFHxS	5.92	1.000	267269.0	M	13C3-PFHxS	5.92	732851.7	0.365	1.730
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.93	2674881.1	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.33	419395.0	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	5.92	732851.7	N/A	
PFOA	6.34	1.000	1114582.4	M	13C8-PFOA	6.34	3190026.3	0.349	1.998
PFOS	6.68	1.000	247664.6	M	13C8-PFOS	6.69	653590.8	0.379	1.864
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.71	2331967.2	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.99	1534178.2	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.69	653590.8	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.05	3116051.9	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.07	479655.5	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.39	224776.6	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.42	219217.9	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.22	640369.5	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.54	310435.4	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.57	184345.1	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.69	653590.8	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.36	1489992.5	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.38	575726.1	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.65	2024072.7	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.07	479655.5	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.69	653590.8	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.65	2024072.7	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	2322916.2	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	2322916.2	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	2322916.2	N/A	

Total Ion Chromatogram

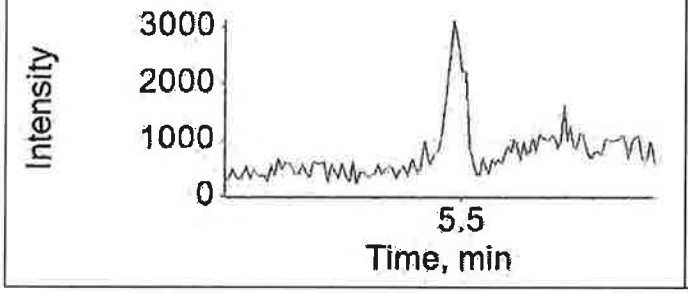


APPROVED
By DMW at 9:32 pm, 4/3/18

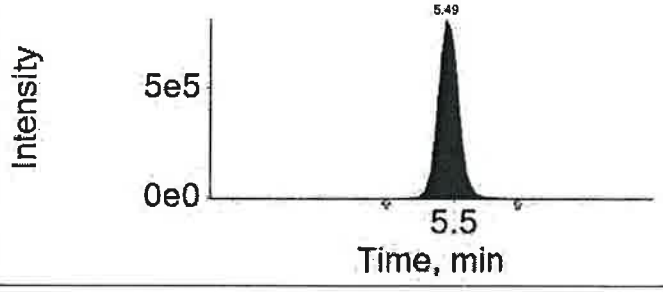
REVIEWED
By UMJS at 10:42 am, 4/5/18

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL 4/3/2018 9:20:12 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

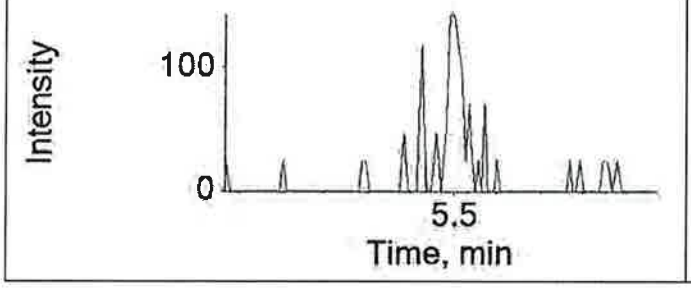
Analyte: PFHxA
313.0 / 269.0



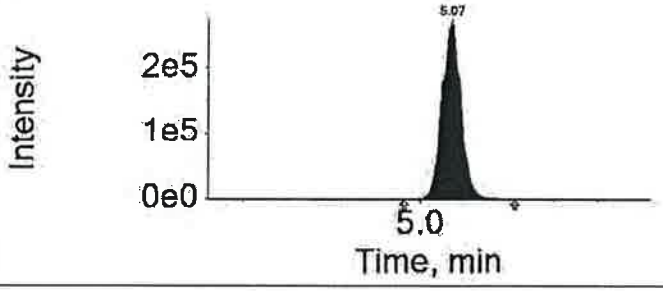
Extraction Standard: 13C5-PFHxA
318.0 / 273.0



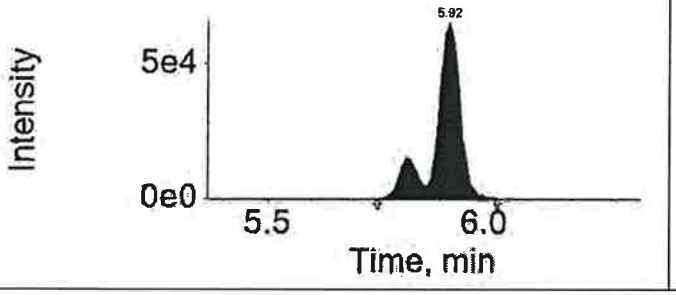
Analyte: PFPeS
349.0 / 80.0



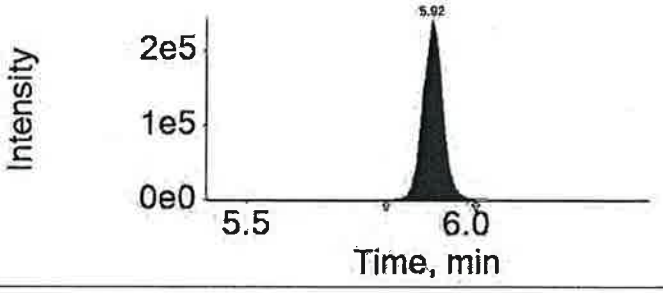
Extraction Standard: 13C3-PFBS
302.0 / 80.0



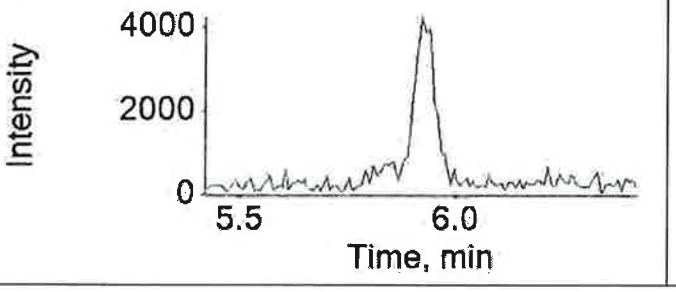
Analyte: PFHxS
399.0 / 80.0



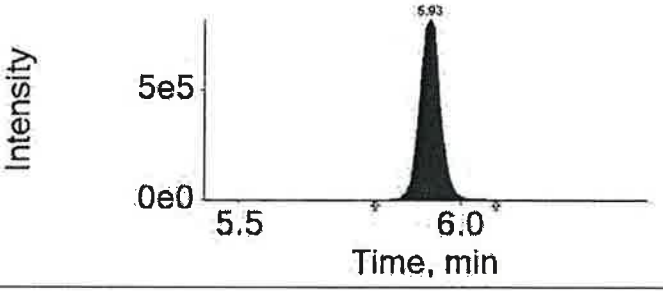
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0

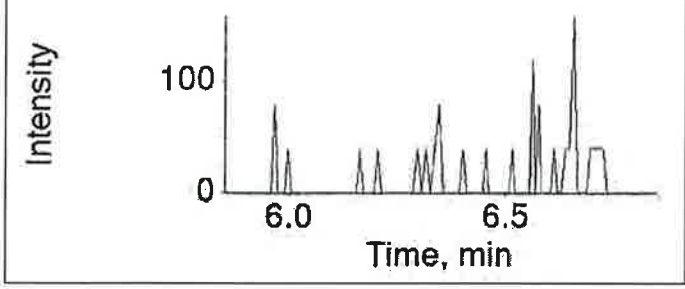


APPROVED
By DMW at 9:32 pm, 4/3/18

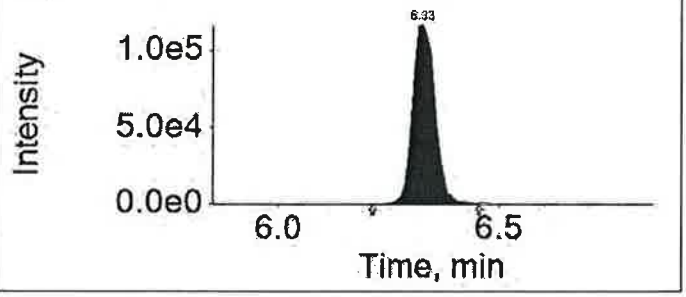
REVIEWED
By UMJS at 10:42 am, 4/5/18

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL 4/3/2018 9:20:12 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

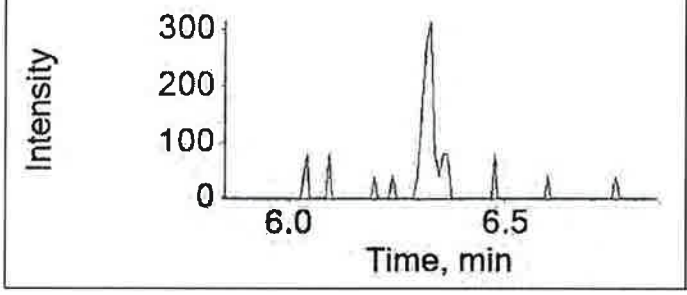
Analyte: 6:2-FTS
427.0 / 407.0



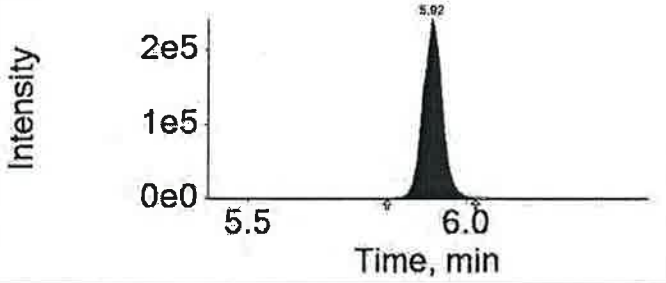
Extraction Standard: 13C2-6:2-FTS
429.0 / 409.0



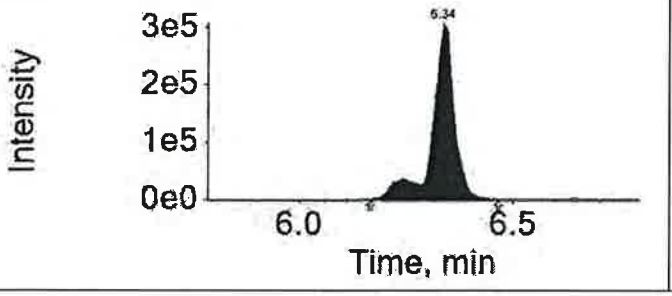
Analyte: PFHpS
449.0 / 80.0



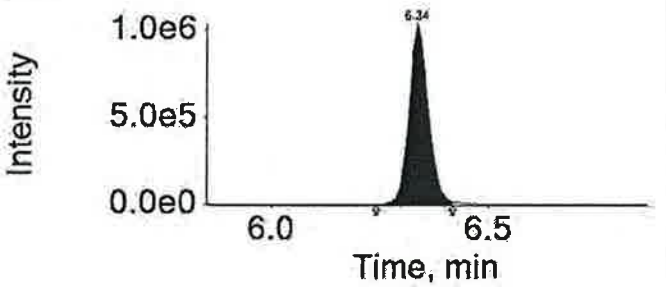
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



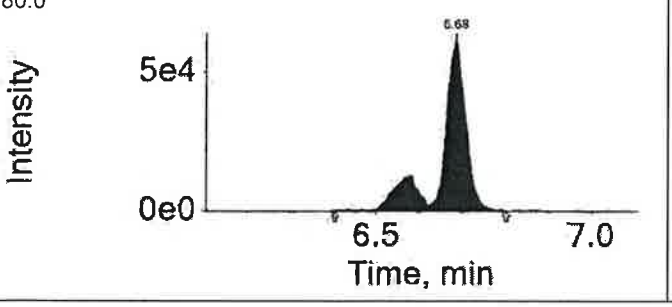
Analyte: PFOA
413.0 / 369.0



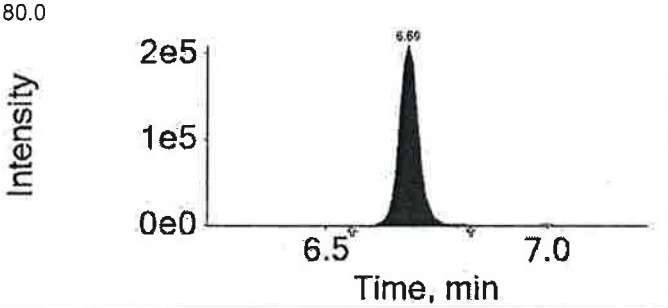
Extraction Standard: 13C8-PFOA
421.0 / 376.0



Analyte: PFOS
499.0 / 80.0



Extraction Standard: 13C8-PFOS
507.0 / 80.0



APPROVED
By DMW at 9:32 pm, 4/3/18

REVIEWED
By UMJS at 10:42 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR03MCAL-18.wiff	4/3/2018 7:49:49 PM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	429254.1	13C4-PFBA	1312700.0	5.00	0.327	4.44	1.00	2.000	1.946	-2.7	30.0	
PFPeA	441876.5	13C5-PFPeA	1106378.3	5.00	0.399	5.01	1.00	2.000	1.953	-2.3	30.0	
PFBS	221662.2	13C3-PFBS	646282.1	4.65	0.343	5.06	1.00	1.770	1.682	-5.0	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	378478.7	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	809643.6	13C5-PFHxA	2076145.9	5.00	0.390	5.48	1.00	2.000	2.113	5.6	30.0	
PFPeS	N/A	13C3-PFBS	646282.1	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	227538.4	13C3-PFHxS	599720.9	4.73	0.379	5.92	1.00	1.890	1.800	-4.8	30.0	
PFHpA	947428.8	13C4-PFHpA	2048216.7	5.00	0.463	5.92	1.00	2.000	2.196	9.8	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	319317.4	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	196150.0	13C3-PFHxS	599720.9	4.73	0.327	6.32	1.07	1.900	1.790	-5.8	30.0	
PFOA	964693.9	13C8-PFOA	2645727.3	5.00	0.365	6.34	1.00	2.000	2.085	4.2	30.0	
PFOS	192506.8	13C8-PFOS	499659.3	4.78	0.385	6.68	1.00	1.910	1.896	-0.8	30.0	
PFNA	862290.6	13C9-PFNA	1887154.0	5.00	0.457	6.71	1.00	2.000	1.952	-2.4	30.0	
PFOSA	N/A	13C8-PFOSA	1209014.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	499659.3	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	889781.6	13C6-PFDA	2434997.5	5.00	0.365	7.05	1.00	2.000	2.093	4.6	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	376908.8	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	202569.6	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	186432.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	214598.0	d3-NMeFOSAA	509789.8	5.00	0.421	7.22	1.00	2.000	1.974	-1.3	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	260857.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	148046.1	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	88852.0	13C8-PFOS	499659.3	4.78	0.178	7.32	1.09	1.930	1.671	-13.4	30.0	
PFUnDA	679215.9	13C7-PFUnDA	1179605.0	5.00	0.576	7.35	1.00	2.000	2.081	4.0	30.0	
NEtFOSAA	180122.2	d5-NEtFOSAA	420719.8	5.00	0.428	7.38	1.00	2.000	2.000	0.0	30.0	
PFDoDA	591580.2	13C2-PFDoDA	1713470.7	5.00	0.345	7.64	1.00	2.000	1.825	-8.7	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	376908.8	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	499659.3	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	646541.8	13C2-PFDoDA	1713470.7	5.00	0.377	7.91	1.04	2.000	2.168	8.4	30.0	
PFTeDA	621765.0	13C2-PFTeDA	1966699.0	5.00	0.316	8.18	1.00	2.000	1.958	-2.1	30.0	
PFHxDA	N/A	13C2-PFTeDA	1966699.0	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	1966699.0	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

REVIEWED
By UMJS at 10:41 am, 4/5/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR03MCAL-20.WIFF

Date/Time Analyzed: 04/03/2018 20:20 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.11	5.73	±30
Perfluoropentanoic acid	2.00	2.02	1.20	±30
Perfluorobutanesulfonate	1.77	1.77	-0.16	±30
4:2 fluorotelomersulfonate	4.90	5.02	2.49	±30
Perfluorohexanoic acid	2.00	2.12	6.07	±30
Perfluoropentanesulfonate	1.88	1.97	4.60	±30
Perfluorohexanesulfonate	1.89	1.90	0.70	±30
Perfluoroheptanoic acid	2.00	2.40	20.22	±30
6:2 fluorotelomersulfonate	5.21	5.82	11.78	±30
Perfluoroheptanesulfonate	1.90	1.86	-2.20	±30
Perfluorooctanoic acid	2.00	2.10	5.06	±30
Perfluoro-octanesulfonate	1.91	1.97	3.21	±30
Perfluorononanoic acid	2.00	2.08	4.14	±30
Perfluorooctanesulfonamide	2.00	2.24	11.78	±30
Perfluorononanesulfonate	1.92	1.95	1.47	±30
Perfluorodecanoic acid	2.00	2.23	11.37	±30
8:2 fluorotelomersulfonate	5.27	5.66	7.44	±30
NMeFOSAA	2.00	2.19	9.50	±30
Perfluorodecanesulfonate	1.93	1.88	-2.71	±30
Perfluoroundecanoic acid	2.00	2.08	4.13	±30

✓

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR03MCAL-20.WIFF

Date/Time Analyzed: 04/03/2018 20:20 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.00	0.05	±30
Perfluorododecanoic acid	2.00	2.08	3.87	±30
10:2-fluorotelomersulfonate	5.30	5.05	-4.79	±30
Perfluorododecanesulfonate	1.94	2.03	4.83	±30
Perfluorotridecanoic acid	2.00	2.32	15.83	±30
Perfluorotetradecanoic acid	2.00	2.18	8.91	±30
Perfluorohexadecanoic acid	2.00	2.15	7.48	±30
Perfluorooctadecanoic acid	2.00	2.02	1.20	±30

* Outside QC Limits.

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN10

ICAL & ICV validated in SBN09 BJE

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.246	23.2	±50
CAL2	0.111	0.60	0.631	5.1	±30
CAL3	0.365	2.00	2.085	4.3	±30
CAL4	1.477	8.00	8.430	5.4	±30
CAL5	3.977	20.00	22.700	13.5	±30
CAL6	8.762	50.00	50.008	0.0	±30
CAL7	16.943	100.00	96.700	-3.3	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.20	0.226	13.1	±50
CAL2	0.124	0.60	0.631	5.1	±30
CAL3	0.418	2.00	2.122	6.1	±30
CAL4	1.661	8.00	8.439	5.5	±30
CAL5	4.461	20.00	22.667	13.3	±30
CAL6	9.781	50.00	49.695	-0.6	±30
CAL7	19.096	100.00	97.020	-3.0	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.17	0.195	14.8	±50
CAL2	0.116	0.53	0.532	0.4	±30
CAL3	0.390	1.77	1.781	0.6	±30
CAL4	1.621	7.08	7.409	4.6	±30
CAL5	4.221	17.69	19.288	9.0	±30
CAL6	9.442	44.22	43.149	-2.4	±30
CAL7	19.160	88.45	87.556	-1.0	±30

4:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.118	0.58	0.632	9.0	±50
CAL2	0.403	1.98	2.161	9.1	±30
CAL3	0.994	4.90	5.335	8.9	±30
CAL4	1.789	10.04	9.604	-4.3	±30
CAL5	2.284	12.49	12.257	-1.9	±30

* Outside QC Limits

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FORM 06
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LC/MS/MS

SDG No.: SBN10

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

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CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.224	12.0	±50
CAL2	0.112	0.60	0.611	1.8	±30
CAL3	0.406	2.00	2.207	10.4	±30
CAL4	1.562	8.00	8.496	6.2	±30
CAL5	4.215	20.00	22.928	14.6	±30
CAL6	9.015	50.00	49.041	-1.9	±30
CAL7	17.884	100.00	97.293	-2.7	±30

Perfluoropentanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.019	0.19	0.213	11.9	±50
CAL2	0.053	0.56	0.596	6.4	±30
CAL3	0.180	1.88	2.039	8.5	±30
CAL4	0.746	7.50	8.456	12.8	±30
CAL5	1.844	18.76	20.894	11.4	±30
CAL6	3.997	46.90	45.281	-3.5	±30
CAL7	8.130	93.80	92.111	-1.8	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.19	0.196	3.1	±50
CAL2	0.116	0.57	0.546	-4.2	±30
CAL3	0.405	1.89	1.902	0.6	±30
CAL4	1.643	7.56	7.723	2.2	±30
CAL5	4.346	18.91	20.427	8.0	±30
CAL6	9.919	47.28	46.616	-1.4	±30
CAL7	19.902	94.55	93.540	-1.1	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.050	0.20	0.240	20.0	±50
CAL2	0.126	0.60	0.612	1.9	±30
CAL3	0.446	2.00	2.158	7.9	±30
CAL4	1.770	8.00	8.573	7.2	±30
CAL5	4.669	20.00	22.613	13.1	±30
CAL6	10.171	50.00	49.265	-1.5	±30
CAL7	20.096	100.00	97.340	-2.7	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

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CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

6:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.272	1.30	1.405	8.1	±50
CAL2	0.414	2.09	2.143	2.5	±30
CAL3	1.028	5.21	5.318	2.1	±30
CAL4	2.010	10.43	10.397	-0.3	±30
CAL5	2.476	13.04	12.807	-1.8	±30

Perfluoroheptanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.19	0.199	4.9	±50
CAL2	0.116	0.57	0.568	-0.4	±30
CAL3	0.374	1.90	1.830	-3.7	±30
CAL4	1.538	7.61	7.535	-1.0	±30
CAL5	4.155	19.03	20.359	7.0	±30
CAL6	9.661	47.58	47.338	-0.5	±30
CAL7	19.225	95.15	94.200	-1.0	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.236	18.2	±50
CAL2	0.120	0.60	0.647	7.8	±30
CAL3	0.395	2.00	2.119	6.0	±30
CAL4	1.581	8.00	8.493	6.2	±30
CAL5	4.038	20.00	21.687	8.4	±30
CAL6	9.302	50.00	49.962	-0.1	±30
CAL7	18.182	100.00	97.656	-2.3	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.19	0.199	4.6	±50
CAL2	0.116	0.57	0.553	-3.0	±30
CAL3	0.397	1.91	1.887	-1.2	±30
CAL4	1.620	7.65	7.706	0.7	±30
CAL5	4.454	19.12	21.192	10.8	±30
CAL6	10.080	47.80	47.963	0.3	±30
CAL7	19.616	95.60	93.340	-2.4	±30

* Outside QC Limits

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FORM 06
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SDG No.: SBN10

Instrument ID: 24960

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CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.052	0.20	0.245	22.5	±50
CAL2	0.143	0.60	0.667	11.2	±30
CAL3	0.475	2.00	2.218	10.9	±30
CAL4	1.820	8.00	8.497	6.2	±30
CAL5	4.808	20.00	22.450	12.2	±30
CAL6	10.824	50.00	50.541	1.1	±30
CAL7	20.599	100.00	96.182	-3.8	±30

Perfluorooctanesulfonamide	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.210	5.1	±50
CAL2	0.121	0.60	0.657	9.5	±30
CAL3	0.408	2.00	2.216	10.8	±30
CAL4	1.570	8.00	8.520	6.5	±30
CAL5	1.901	10.00	10.321	3.2	±30
CAL6	9.449	50.00	51.295	2.6	±30
CAL7	17.975	100.00	97.579	-2.4	±30

Perfluorononanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.033	0.19	0.207	8.9	±50
CAL2	0.083	0.58	0.519	-10.4	±30
CAL3	0.290	1.92	1.823	-5.1	±30
CAL4	1.173	7.68	7.371	-4.0	±30
CAL5	3.331	19.20	20.928	9.0	±30
CAL6	7.910	48.00	49.693	3.5	±30
CAL7	14.808	96.00	93.030	-3.1	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.232	15.8	±50
CAL2	0.105	0.60	0.624	4.0	±30
CAL3	0.353	2.00	2.096	4.8	±30
CAL4	1.475	8.00	8.751	9.4	±30
CAL5	3.836	20.00	22.757	13.8	±30
CAL6	8.402	50.00	49.847	-0.3	±30
CAL7	16.265	100.00	96.493	-3.5	±30

* Outside QC Limits

SDG No.: SBN10

Instrument ID: 24960

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CAL7= 18APR07MCAL-25.WIFF;

8:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.304	1.32	1.570	19.0	±50
CAL2	0.451	2.11	2.329	10.4	±30
CAL3	1.120	5.27	5.788	9.8	±30
CAL4	1.987	10.54	10.263	-2.6	±30
CAL5	2.412	13.17	12.460	-5.4	±30

NMePFOSAE	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.213	6.4	±50
CAL2	0.129	0.60	0.601	0.2	±30
CAL3	0.450	2.00	2.102	5.1	±30
CAL4	1.598	8.00	7.465	-6.7	±30
CAL5	2.115	10.00	9.878	-1.2	±30
CAL6	10.877	50.00	50.797	1.6	±30
CAL7	21.357	100.00	99.744	-0.3	±30

NMePFOSA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.048	0.20	0.224	12.1	±50
CAL2	0.136	0.60	0.637	6.2	±30
CAL3	0.417	2.00	1.952	-2.4	±30
CAL4	1.694	8.00	7.937	-0.8	±30
CAL5	2.120	10.00	9.929	-0.7	±30
CAL6	10.809	50.00	50.634	1.3	±30
CAL7	21.237	100.00	99.487	-0.5	±30

NMeFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.209	4.7	±50
CAL2	0.139	0.60	0.677	12.8	±30
CAL3	0.426	2.00	2.072	3.6	±30
CAL4	1.699	8.00	8.255	3.2	±30
CAL5	2.079	10.00	10.104	1.0	±30
CAL6	9.780	50.00	47.522	-5.0	±30
CAL7	20.984	100.00	101.960	2.0	±30

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FORM 06
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SDG No.: SBN10

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CAL7= 18APR07MCAL-25.WIFF;

NEtPFOSAE	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.211	5.5	±50
CAL2	0.136	0.60	0.621	3.6	±30
CAL3	0.501	2.00	2.291	14.5	±30
CAL4	1.724	8.00	7.890	-1.4	±30
CAL5	2.183	10.00	9.989	-0.1	±30
CAL6	11.463	50.00	52.460	4.9	±30
CAL7	21.269	100.00	97.338	-2.7	±30

NEtPFOSA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.205	2.4	±50
CAL2	0.118	0.60	0.617	2.9	±30
CAL3	0.403	2.00	2.107	5.4	±30
CAL4	1.567	8.00	8.193	2.4	±30
CAL5	1.834	10.00	9.592	-4.1	±30
CAL6	9.304	50.00	48.662	-2.7	±30
CAL7	19.392	100.00	101.424	1.4	±30

Perfluorodecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.019	0.19	0.158	-17.0	±50
CAL2	0.062	0.58	0.525	-9.5	±30
CAL3	0.202	1.93	1.709	-11.5	±30
CAL4	0.876	7.70	7.410	-3.8	±30
CAL5	2.413	19.26	20.424	6.0	±30
CAL6	5.849	48.15	49.499	2.8	±30
CAL7	11.153	96.30	94.385	-2.0	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.056	0.20	0.254	26.8	±50
CAL2	0.168	0.60	0.756	25.9	±30
CAL3	0.512	2.00	2.303	15.2	±30
CAL4	2.108	8.00	9.484	18.5	±30
CAL5	5.215	20.00	23.460	17.3	±30
CAL6	11.267	50.00	50.689	1.4	±30
CAL7	20.862	100.00	93.855	-6.1	±30

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SDG No.: SBN10

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CAL7= 18APR07MCAL-25.WIFF;

NEtFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.179	-10.4	±50
CAL2	0.118	0.60	0.552	-8.0	±30
CAL3	0.438	2.00	2.055	2.7	±30
CAL4	1.568	8.00	7.351	-8.1	±30
CAL5	1.975	10.00	9.262	-7.4	±30
CAL6	10.396	50.00	48.750	-2.5	±30
CAL7	21.891	100.00	102.652	2.7	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.230	15.0	±50
CAL2	0.110	0.60	0.615	2.5	±30
CAL3	0.389	2.00	2.171	8.6	±30
CAL4	1.563	8.00	8.720	9.0	±30
CAL5	4.165	20.00	23.235	16.2	±30
CAL6	9.123	50.00	50.897	1.8	±30
CAL7	17.016	100.00	94.931	-5.1	±30

10:2-fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.200	1.33	1.353	1.7	±50
CAL2	0.308	2.12	2.079	-2.0	±30
CAL3	0.827	5.30	5.585	5.4	±30
CAL4	1.510	10.60	10.193	-3.8	±30
CAL5	1.985	13.26	13.401	1.1	±30

Perfluorododecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.011	0.19	0.204	7.3	±50
CAL2	0.027	0.58	0.485	-16.5	±30
CAL3	0.101	1.94	1.831	-5.6	±30
CAL4	0.392	7.74	7.130	-7.9	±30
CAL5	1.128	19.36	20.512	6.0	±30
CAL6	2.717	48.40	49.424	2.1	±30
CAL7	5.246	96.80	95.425	-1.4	±30

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CAL7= 18APR07MCAL-25.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.035	0.20	0.200	-0.1	±50
CAL2	0.092	0.60	0.530	-11.6	±30
CAL3	0.335	2.00	1.929	-3.6	±30
CAL4	1.312	8.00	7.541	-5.7	±30
CAL5	3.583	20.00	20.600	3.0	±30
CAL6	7.024	50.00	40.386	-19.2	±30
CAL7	13.477	100.00	77.485	-22.5	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.224	12.2	±50
CAL2	0.114	0.60	0.629	4.8	±30
CAL3	0.400	2.00	2.216	10.8	±30
CAL4	1.503	8.00	8.315	3.9	±30
CAL5	3.976	20.00	22.006	10.0	±30
CAL6	8.847	50.00	48.959	-2.1	±30
CAL7	17.790	100.00	98.452	-1.5	±30

Perfluorohexadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.024	0.20	0.193	-3.4	±50
CAL2	0.062	0.60	0.502	-16.3	±30
CAL3	0.215	2.00	1.733	-13.3	±30
CAL4	0.822	8.00	6.613	-17.3	±30
CAL5	2.405	20.00	19.354	-3.2	±30
CAL6	5.592	50.00	45.001	-10.0	±30
CAL7	13.346	100.00	107.403	7.4	±30

Perfluorooctadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.015	0.20	0.171	-14.3	±50
CAL2	0.042	0.60	0.484	-19.3	±30
CAL3	0.151	2.00	1.753	-12.3	±30
CAL4	0.610	8.00	7.097	-11.3	±30
CAL5	1.754	20.00	20.409	2.0	±30
CAL6	4.374	50.00	50.885	1.8	±30
CAL7	11.008	100.00	128.076	28.1	±30

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18APR07MCAL-19.wiff	4/8/2018 2:28:00 AM	CALMOD11833A	CAL1
18APR07MCAL-20.wiff	4/8/2018 2:42:33 AM	CALMOD21833A	CAL2
18APR07MCAL-21.wiff	4/8/2018 2:57:03 AM	CALMOD31833A	CAL3
18APR07MCAL-22.wiff	4/8/2018 3:11:34 AM	CALMOD41833A	CAL4
18APR07MCAL-23.wiff	4/8/2018 3:26:06 AM	CALMOD51833A	CAL5
18APR07MCAL-24.wiff	4/8/2018 3:40:39 AM	CALMOD61833A	CAL6
18APR07MCAL-25.wiff	4/8/2018 3:55:12 AM	CALMOD71833A	CAL7

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	1798469.8	1589581.0
CAL2	I13C3-PFBA	True	1765778.6	1589581.0
CAL3	I13C3-PFBA	True	1941504.0	1589581.0
CAL4	I13C3-PFBA	True	1777572.1	1589581.0
CAL5	I13C3-PFBA	True	1524315.7	1589581.0
CAL6	I13C3-PFBA	True	1301256.8	1589581.0
CAL7	I13C3-PFBA	True	1018169.7	1589581.0
CAL1	I13C2-PFOA	True	1106995.2	979042.1
CAL2	I13C2-PFOA	True	1069381.6	979042.1
CAL3	I13C2-PFOA	True	1223181.5	979042.1
CAL4	I13C2-PFOA	True	1098579.4	979042.1
CAL5	I13C2-PFOA	True	941808.6	979042.1
CAL6	I13C2-PFOA	True	767793.5	979042.1
CAL7	I13C2-PFOA	True	645555.1	979042.1
CAL1	I13C4-PFOS	True	798459.3	723191.7
CAL2	I13C4-PFOS	True	776185.9	723191.7
CAL3	I13C4-PFOS	True	888258.8	723191.7
CAL4	I13C4-PFOS	True	813584.4	723191.7
CAL5	I13C4-PFOS	True	699879.3	723191.7
CAL6	I13C4-PFOS	True	601867.3	723191.7
CAL7	I13C4-PFOS	True	484106.7	723191.7
CAL1	I13C2-PFDA	True	1165819.0	1007241.2
CAL2	I13C2-PFDA	True	1147160.8	1007241.2
CAL3	I13C2-PFDA	True	1145668.9	1007241.2
CAL4	I13C2-PFDA	True	1100677.4	1007241.2
CAL5	I13C2-PFDA	True	939029.8	1007241.2
CAL6	I13C2-PFDA	True	864778.0	1007241.2
CAL7	I13C2-PFDA	True	687554.3	1007241.2

APPROVED
By DMW at 12:15 pm, 4/8/18

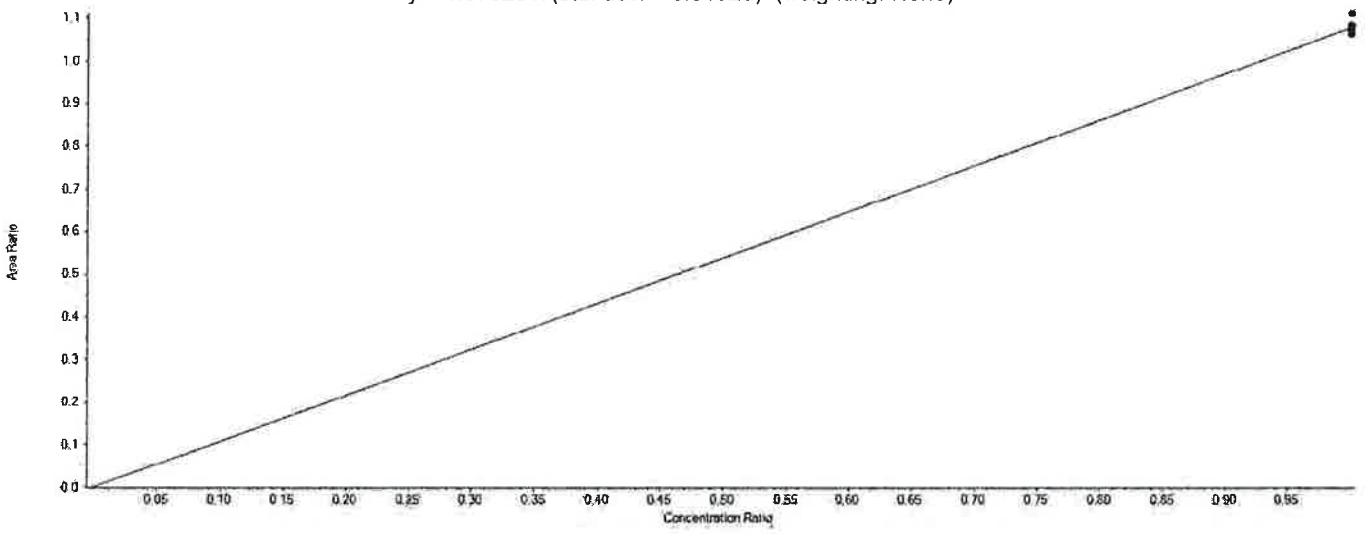
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C4-PFBA

y = 1.07826 x (std. dev. = 0.01525) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1924849.9	1798469.8	True	5.00	1.070	4.47	1.000	5.000	4.963	-0.7	50.0	
CAL2	1959719.2	1765778.6	True	5.00	1.110	4.46	1.000	5.000	5.146	2.9	30.0	
CAL3	2084812.5	1941504.0	True	5.00	1.074	4.46	1.000	5.000	4.979	-0.4	30.0	
CAL4	1924087.3	1777572.1	True	5.00	1.082	4.46	1.000	5.000	5.019	0.4	30.0	
CAL5	1641151.9	1524315.7	True	5.00	1.077	4.46	1.000	5.000	4.993	-0.1	30.0	
CAL6	1381898.4	1301256.8	True	5.00	1.062	4.46	1.000	5.000	4.924	-1.5	30.0	
CAL7	1092348.9	1018169.7	True	5.00	1.073	4.46	1.000	5.000	4.975	-0.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

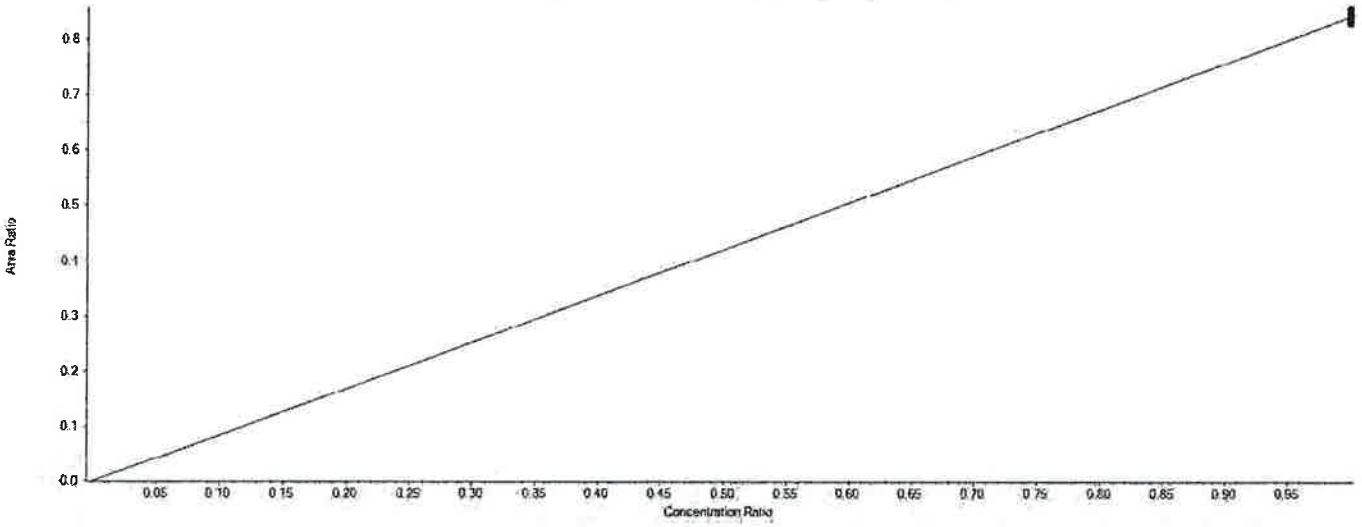
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C5-PFPeA

y = 0.84174 x (std. dev. = 0.00889) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1501835.6	1798469.8	True	5.00	0.835	5.08	1.140	5.000	4.960	-0.8	50.0	
CAL2	1510101.8	1765778.6	True	5.00	0.855	5.07	1.140	5.000	5.080	1.6	30.0	
CAL3	1644584.0	1941504.0	True	5.00	0.847	5.07	1.140	5.000	5.032	0.6	30.0	
CAL4	1506387.3	1777572.1	True	5.00	0.847	5.07	1.140	5.000	5.034	0.7	30.0	
CAL5	1277613.6	1524315.7	True	5.00	0.838	5.07	1.140	5.000	4.979	-0.4	30.0	
CAL6	1093978.3	1301256.8	True	5.00	0.841	5.07	1.140	5.000	4.994	-0.1	30.0	
CAL7	843605.3	1018169.7	True	5.00	0.829	5.06	1.140	5.000	4.922	-1.6	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

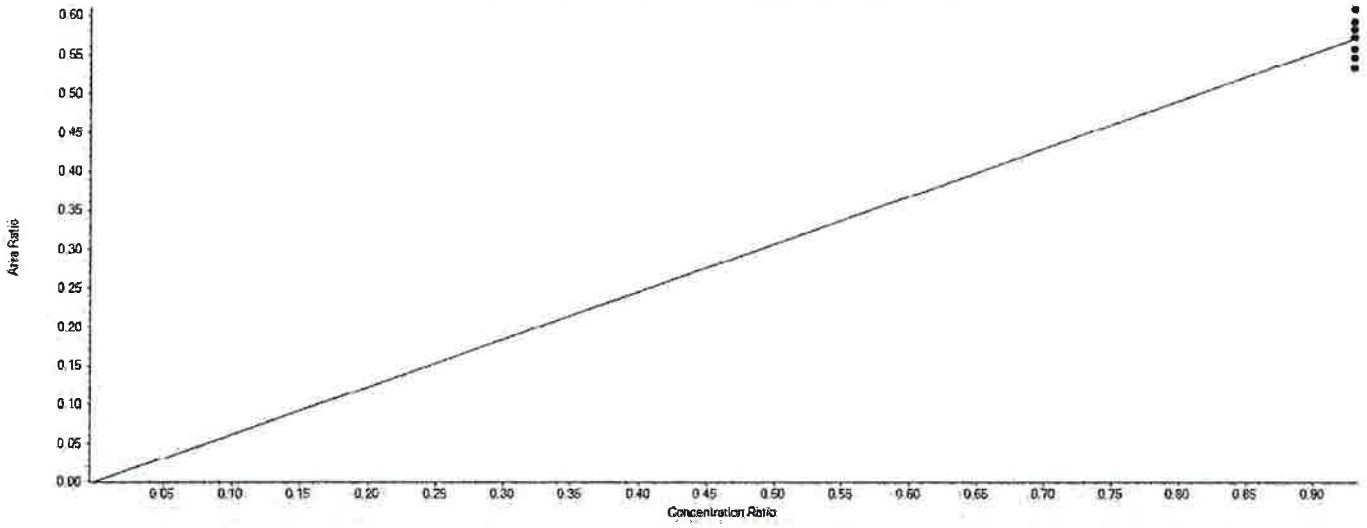
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C3-PFBS

y = 0.61362 x (std. dev. = 0.02819) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	958872.4	1798469.8	True	5.00	0.533	5.13	1.150	4.650	4.344	-6.6	50.0	
CAL2	1011369.7	1765778.6	True	5.00	0.573	5.13	1.150	4.650	4.667	0.4	30.0	
CAL3	1084316.8	1941504.0	True	5.00	0.558	5.12	1.150	4.650	4.551	-2.1	30.0	
CAL4	972984.8	1777572.1	True	5.00	0.547	5.13	1.150	4.650	4.460	-4.1	30.0	
CAL5	887408.7	1524315.7	True	5.00	0.582	5.12	1.150	4.650	4.744	2.0	30.0	
CAL6	770851.5	1301256.8	True	5.00	0.592	5.13	1.150	4.650	4.827	3.8	30.0	
CAL7	619353.5	1018169.7	True	5.00	0.608	5.12	1.150	4.650	4.957	6.6	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

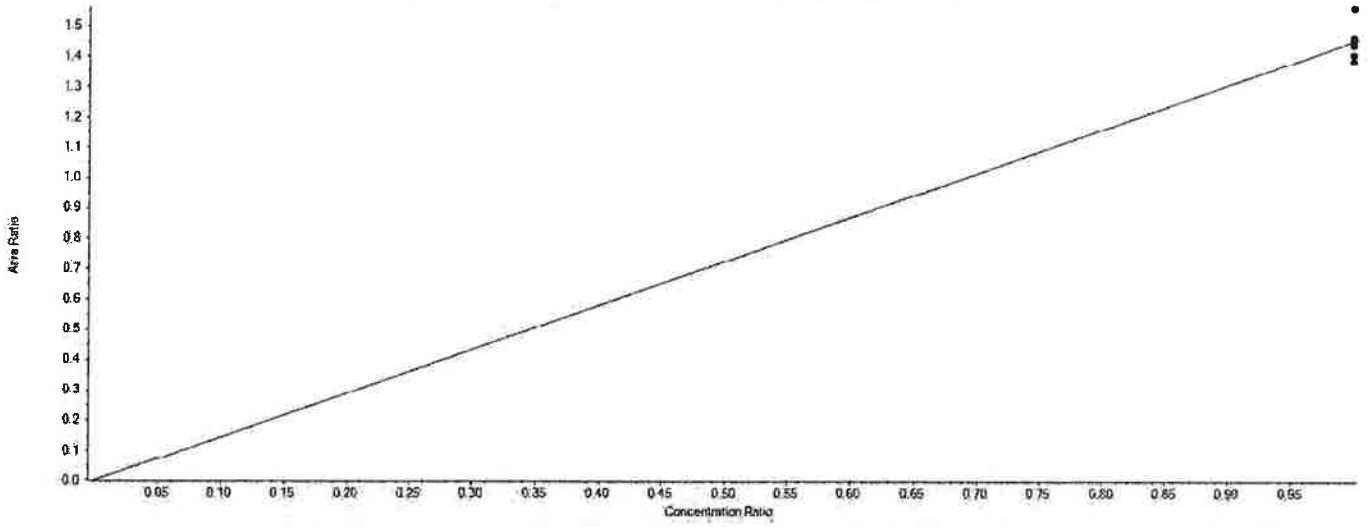
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C5-PFHxA

y = 1.45259 x (std. dev. = 0.05470) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1594435.8	1106995.2	True	5.00	1.440	5.55	0.870	5.000	4.958	-0.8	50.0	
CAL2	1666616.8	1069381.6	True	5.00	1.558	5.55	0.870	5.000	5.365	7.3	30.0	
CAL3	1720911.0	1223181.5	True	5.00	1.407	5.54	0.870	5.000	4.843	-3.1	30.0	
CAL4	1598976.8	1098579.4	True	5.00	1.455	5.55	0.870	5.000	5.010	0.2	30.0	
CAL5	1369998.3	941808.6	True	5.00	1.455	5.54	0.870	5.000	5.007	0.1	30.0	
CAL6	1125149.6	767793.5	True	5.00	1.465	5.54	0.870	5.000	5.044	0.9	30.0	
CAL7	895283.9	645555.1	True	5.00	1.387	5.54	0.860	5.000	4.774	-4.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

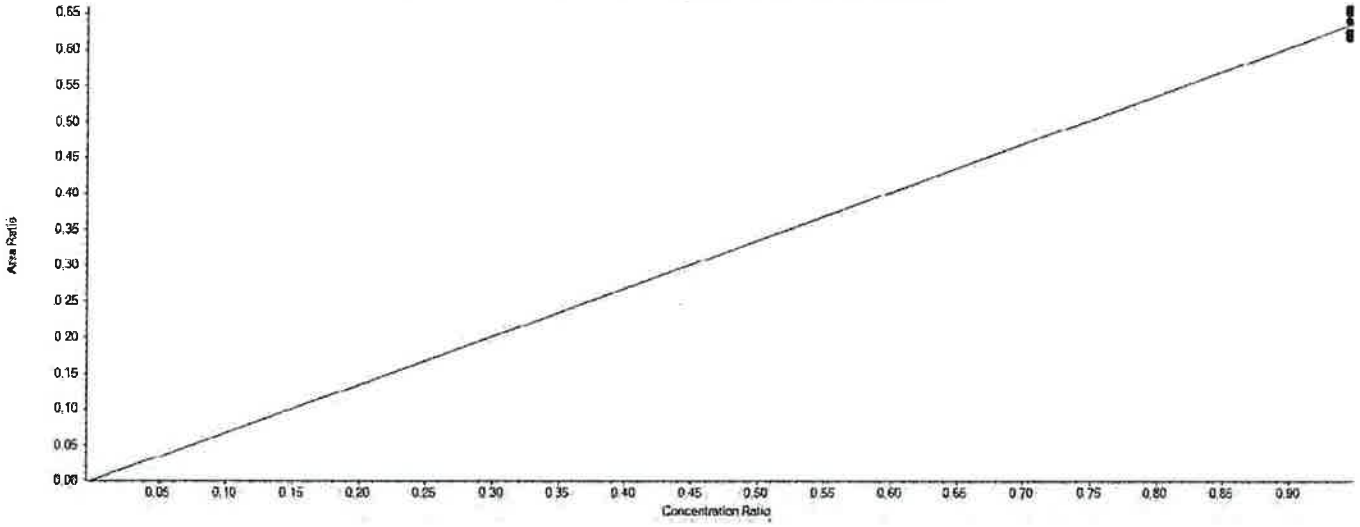
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C3-PFHxS

y = 0.67048 x (std. dev. = 0.01652) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	691939.8	1106995.2	True	5.00	0.625	5.99	0.930	4.730	4.661	-1.5	50.0	
CAL2	696545.9	1069381.6	True	5.00	0.651	5.98	0.930	4.730	4.857	2.7	30.0	
CAL3	754864.9	1223181.5	True	5.00	0.617	5.98	0.930	4.730	4.602	-2.7	30.0	
CAL4	683609.2	1098579.4	True	5.00	0.622	5.98	0.930	4.730	4.640	-1.9	30.0	
CAL5	602855.5	941808.6	True	5.00	0.640	5.98	0.930	4.730	4.773	0.9	30.0	
CAL6	505030.5	767793.5	True	5.00	0.658	5.98	0.930	4.730	4.905	3.7	30.0	
CAL7	404260.0	645555.1	True	5.00	0.626	5.97	0.930	4.730	4.670	-1.3	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

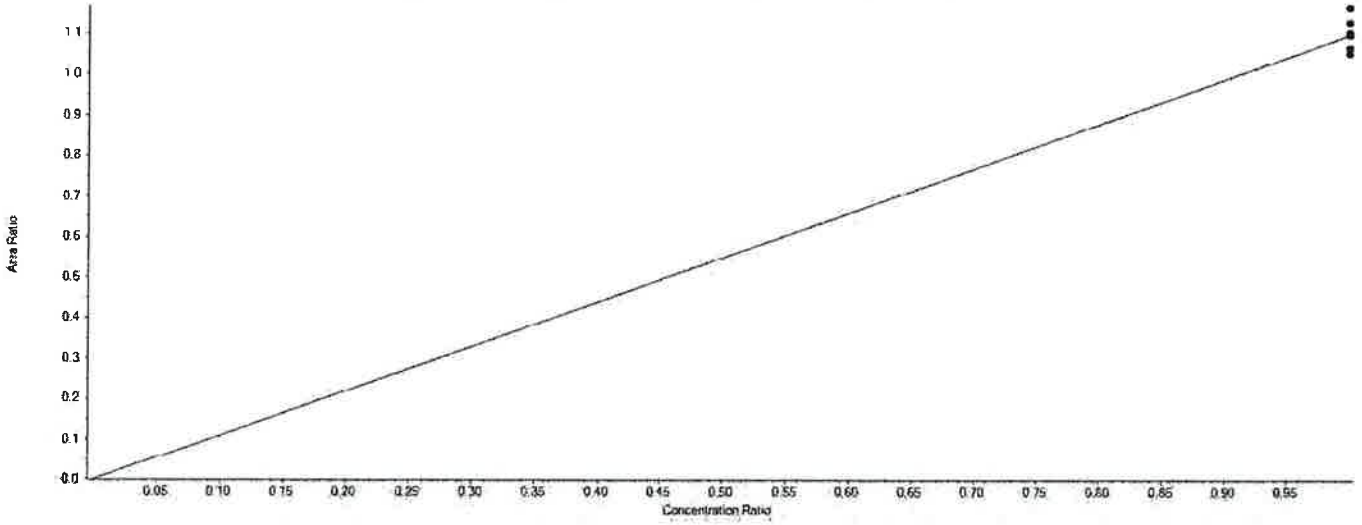
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C4-PFHpA

y = 1.09761 x (std. dev. = 0.03939) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1166383.1	1106995.2	True	5.00	1.054	6.00	0.940	5.000	4.800	-4.0	50.0	
CAL2	1246208.3	1069381.6	True	5.00	1.165	5.99	0.940	5.000	5.309	6.2	30.0	
CAL3	1306089.2	1223181.5	True	5.00	1.068	5.99	0.940	5.000	4.864	-2.7	30.0	
CAL4	1213654.2	1098579.4	True	5.00	1.105	5.99	0.940	5.000	5.033	0.7	30.0	
CAL5	1033263.3	941808.6	True	5.00	1.097	5.99	0.940	5.000	4.998	0.0	30.0	
CAL6	865825.4	767793.5	True	5.00	1.128	5.99	0.940	5.000	5.137	2.7	30.0	
CAL7	688769.4	645555.1	True	5.00	1.067	5.98	0.930	5.000	4.860	-2.8	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

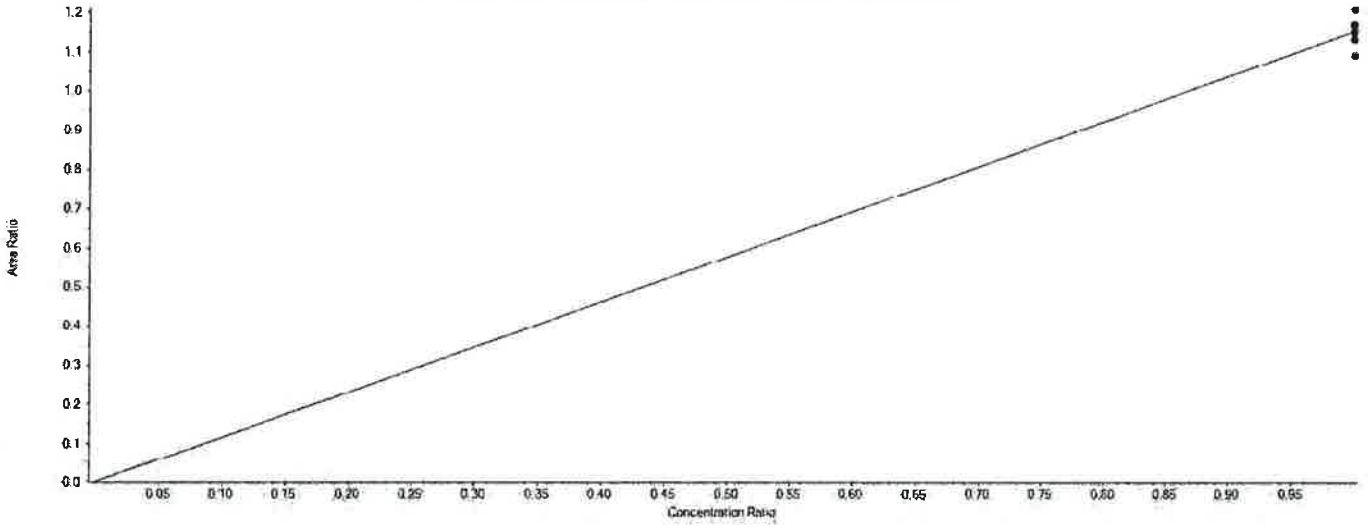
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C8-PFOA

y = 1.15349 x (std. dev. = 0.03602) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1292482.0	1106995.2	True	5.00	1.168	6.41	1.000	5.000	5.061	1.2	50.0	
CAL2	1292042.1	1069381.6	True	5.00	1.208	6.41	1.000	5.000	5.237	4.7	30.0	
CAL3	1405592.8	1223181.5	True	5.00	1.149	6.40	1.000	5.000	4.981	-0.4	30.0	
CAL4	1245323.0	1098579.4	True	5.00	1.134	6.40	1.000	5.000	4.914	-1.7	30.0	
CAL5	1103424.0	941808.6	True	5.00	1.172	6.40	1.000	5.000	5.079	1.6	30.0	
CAL6	885176.7	767793.5	True	5.00	1.153	6.41	1.000	5.000	4.997	-0.1	30.0	
CAL7	704601.2	645555.1	True	5.00	1.091	6.40	1.000	5.000	4.731	-5.4	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

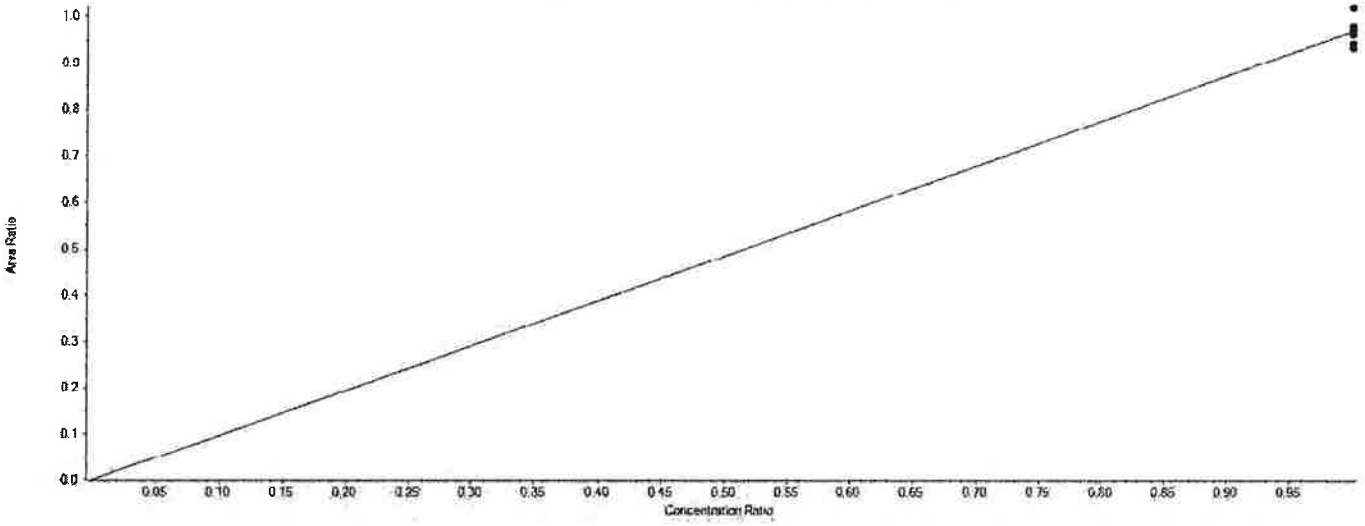
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C8-PFOS

y = 0.96949 x (std. dev. = 0.02815) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	782097.5	798459.3	True	4.78	0.980	6.76	1.000	4.780	4.829	1.0	50.0	
CAL2	791217.4	776185.9	True	4.78	1.019	6.76	1.000	4.780	5.026	5.1	30.0	
CAL3	838024.6	888258.8	True	4.78	0.943	6.75	1.000	4.780	4.652	-2.7	30.0	
CAL4	788939.6	813584.4	True	4.78	0.970	6.76	1.000	4.780	4.781	0.0	30.0	
CAL5	673644.0	699879.3	True	4.78	0.963	6.75	1.000	4.780	4.746	-0.7	30.0	
CAL6	561417.6	601867.3	True	4.78	0.933	6.75	1.000	4.780	4.599	-3.8	30.0	
CAL7	473989.6	484106.7	True	4.78	0.979	6.75	1.000	4.780	4.827	1.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

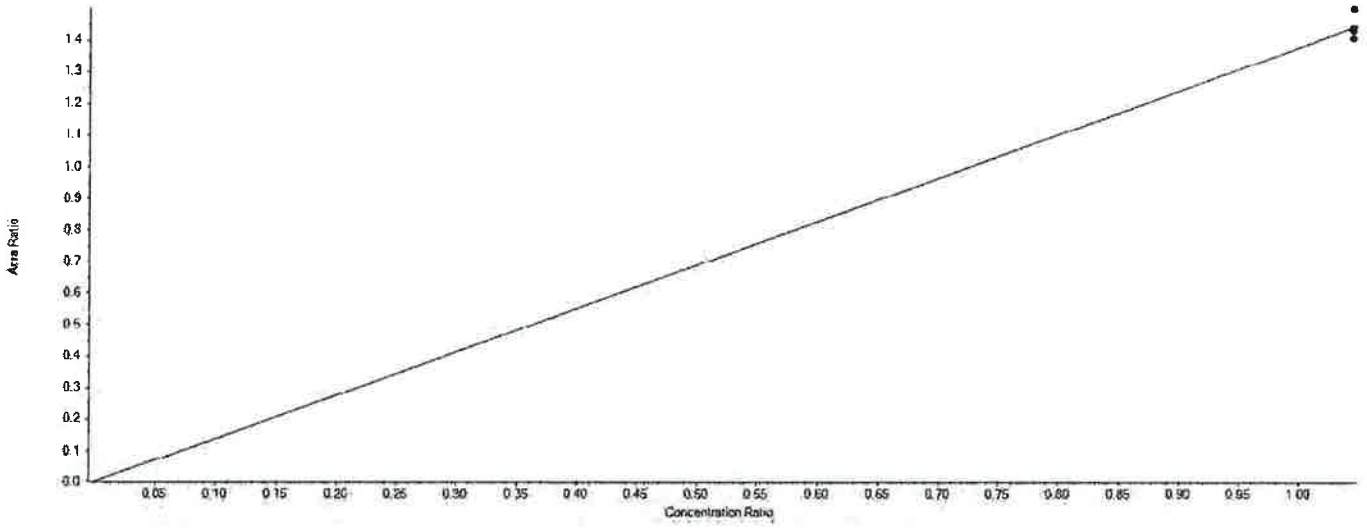
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C9-PFNA

y = 1.37835 x (std. dev. = 0.02646) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1142124.6	798459.3	True	4.78	1.430	6.79	1.000	5.000	4.961	-0.8	50.0	
CAL2	1162956.4	776185.9	True	4.78	1.498	6.78	1.000	5.000	5.196	3.9	30.0	
CAL3	1279709.6	888258.8	True	4.78	1.441	6.78	1.000	5.000	4.996	-0.1	30.0	
CAL4	1171820.5	813584.4	True	4.78	1.440	6.78	1.000	5.000	4.995	-0.1	30.0	
CAL5	1008795.0	699879.3	True	4.78	1.441	6.78	1.000	5.000	4.999	0.0	30.0	
CAL6	846767.8	601867.3	True	4.78	1.407	6.78	1.000	5.000	4.879	-2.4	30.0	
CAL7	694471.9	484106.7	True	4.78	1.435	6.78	1.010	5.000	4.975	-0.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

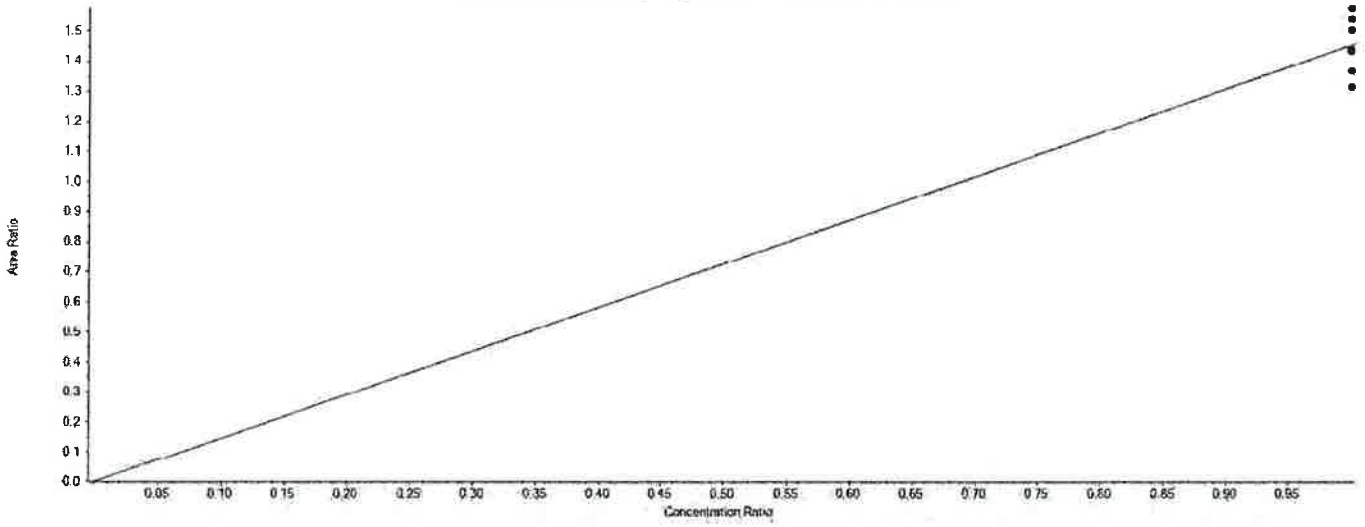
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C6-PFDA

y = 1.45412 x (std. dev. = 0.09291) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1673534.9	1165819.0	True	5.00	1.436	7.14	1.000	5.000	4.936	-1.3	50.0	
CAL2	1766826.2	1147160.8	True	5.00	1.540	7.13	1.000	5.000	5.296	5.9	30.0	
CAL3	1803035.3	1145668.9	True	5.00	1.574	7.13	1.000	5.000	5.411	8.2	30.0	
CAL4	1656227.7	1100677.4	True	5.00	1.505	7.13	1.000	5.000	5.174	3.5	30.0	
CAL5	1354179.2	939029.8	True	5.00	1.442	7.13	1.000	5.000	4.959	-0.8	30.0	
CAL6	1183910.8	864778.0	True	5.00	1.369	7.13	1.000	5.000	4.707	-5.9	30.0	
CAL7	903084.3	687554.3	True	5.00	1.313	7.13	1.000	5.000	4.516	-9.7	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

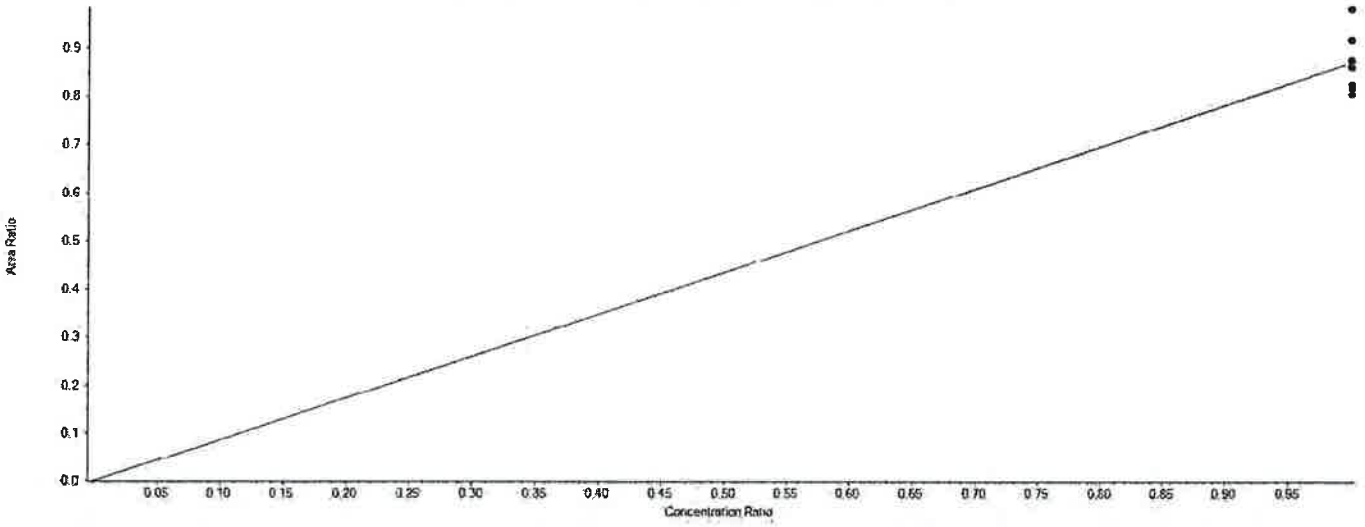
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C7-PFUnDA

y = 0.87014 x (std. dev. = 0.06281) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	953923.1	1165819.0	True	5.00	0.818	7.46	1.040	5.000	4.702	-6.0	50.0	
CAL2	988706.2	1147160.8	True	5.00	0.862	7.45	1.040	5.000	4.952	-1.0	30.0	
CAL3	1124860.5	1145668.9	True	5.00	0.982	7.45	1.040	5.000	5.642	12.8	30.0	
CAL4	1011445.6	1100677.4	True	5.00	0.919	7.45	1.040	5.000	5.280	5.6	30.0	
CAL5	824102.9	939029.8	True	5.00	0.878	7.44	1.040	5.000	5.043	0.9	30.0	
CAL6	697523.3	864778.0	True	5.00	0.807	7.45	1.040	5.000	4.635	-7.3	30.0	
CAL7	567844.0	687554.3	True	5.00	0.826	7.44	1.040	5.000	4.746	-5.1	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

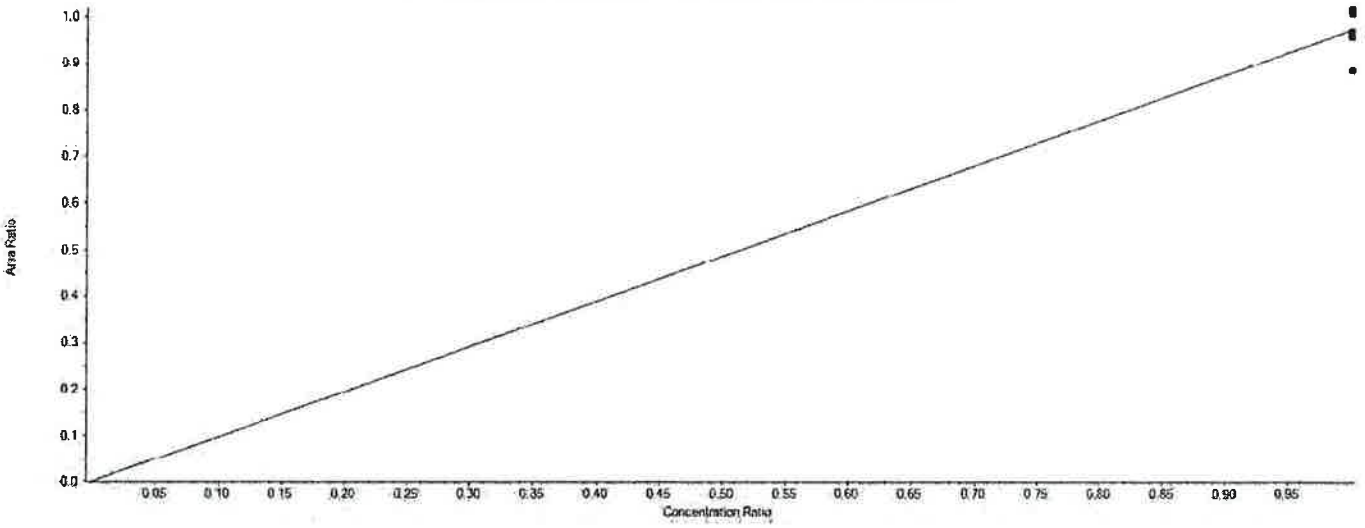
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C2-PFDoDA

y = 0.97223 x (std. dev. = 0.04464) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1032784.2	1165819.0	True	5.00	0.886	7.75	1.090	5.000	4.556	-8.9	50.0	
CAL2	1096813.9	1147160.8	True	5.00	0.956	7.75	1.090	5.000	4.917	-1.7	30.0	
CAL3	1164562.2	1145668.9	True	5.00	1.016	7.74	1.080	5.000	5.228	4.6	30.0	
CAL4	1063138.1	1100677.4	True	5.00	0.966	7.74	1.080	5.000	4.967	-0.7	30.0	
CAL5	944759.6	939029.8	True	5.00	1.006	7.74	1.090	5.000	5.174	3.5	30.0	
CAL6	838692.0	864778.0	True	5.00	0.970	7.74	1.080	5.000	4.988	-0.2	30.0	
CAL7	691174.2	687554.3	True	5.00	1.005	7.73	1.080	5.000	5.170	3.4	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

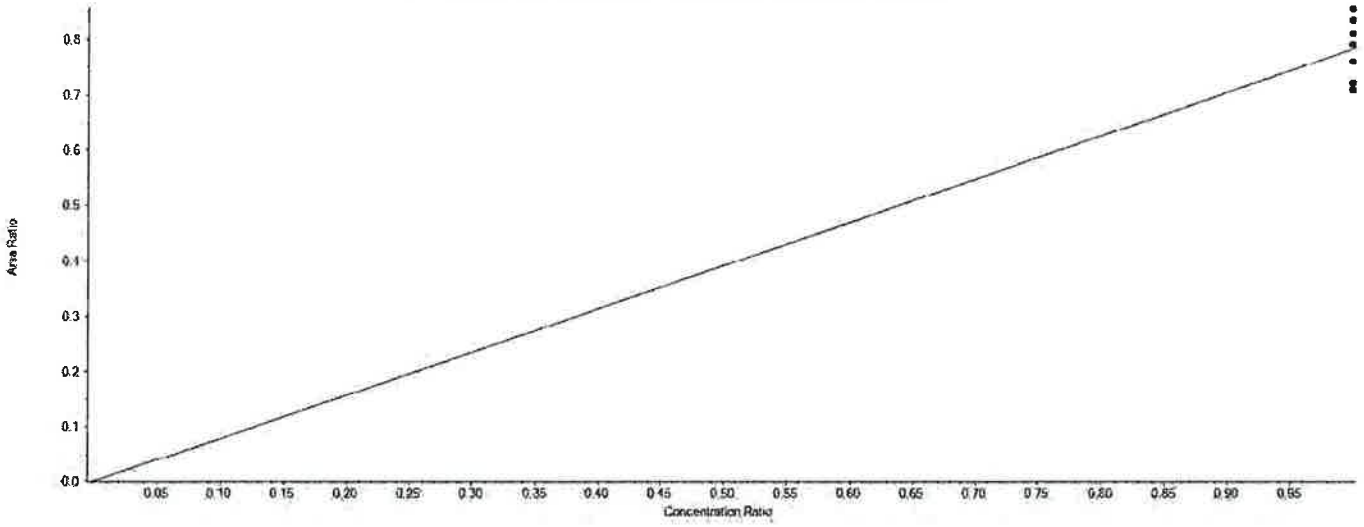
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C2-PFTeDA

y = 0.78281 x (std. dev. = 0.05535) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	826907.4	1165819.0	True	5.00	0.709	8.34	1.170	5.000	4.530	-9.4	50.0	
CAL2	872521.9	1147160.8	True	5.00	0.761	8.33	1.170	5.000	4.858	-2.8	30.0	
CAL3	927708.5	1145668.9	True	5.00	0.810	8.33	1.170	5.000	5.172	3.4	30.0	
CAL4	917389.5	1100677.4	True	5.00	0.833	8.32	1.170	5.000	5.324	6.5	30.0	
CAL5	802888.6	939029.8	True	5.00	0.855	8.32	1.170	5.000	5.461	9.2	30.0	
CAL6	684222.1	864778.0	True	5.00	0.791	8.32	1.170	5.000	5.054	1.1	30.0	
CAL7	495239.1	687554.3	True	5.00	0.720	8.31	1.170	5.000	4.601	-8.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

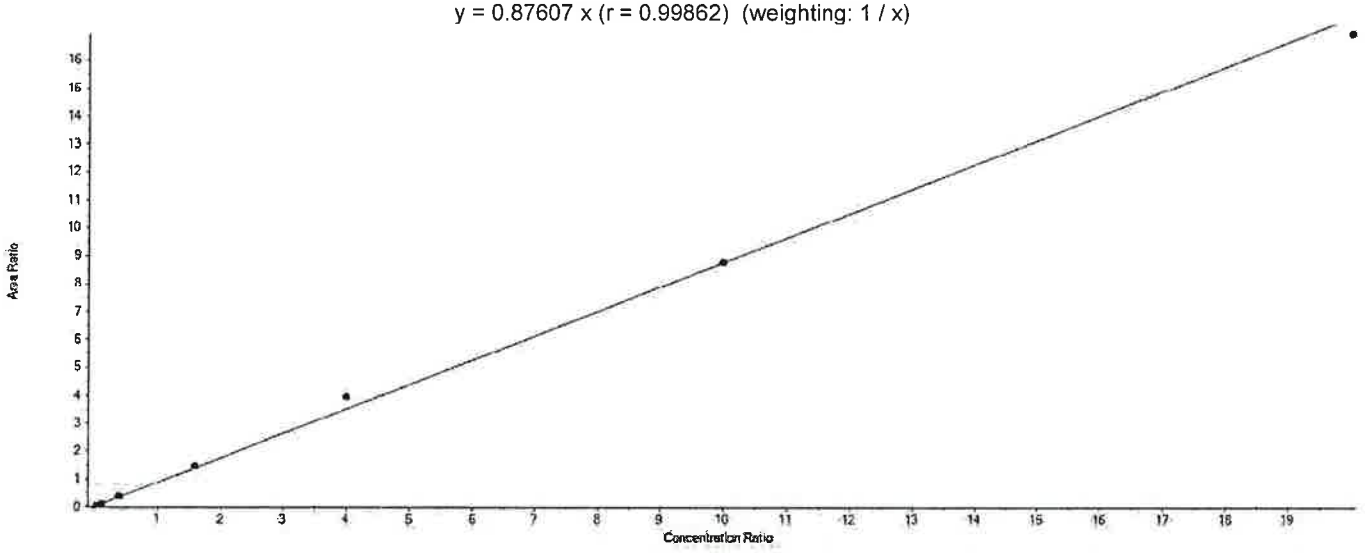
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFBA

y = 0.87607 x (r = 0.99862) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	83072.0	1924849.9	True	5.00	0.043	4.47	1.000	0.200	0.246	23.2	50.0	
CAL2	216601.6	1959719.2	True	5.00	0.111	4.46	1.000	0.600	0.631	5.1	30.0	
CAL3	761685.4	2084812.5	True	5.00	0.365	4.46	1.000	2.000	2.085	4.3	30.0	
CAL4	2841977.1	1924087.3	True	5.00	1.477	4.46	1.000	8.000	8.430	5.4	30.0	
CAL5	6527313.4	1641151.9	True	5.00	3.977	4.46	1.000	20.000	22.700	13.5	30.0	
CAL6	12108277.7	1381898.4	True	5.00	8.762	4.46	1.000	50.000	50.008	0.0	30.0	
CAL7	18507815.1	1092348.9	True	5.00	16.943	4.46	1.000	100.000	96.700	-3.3	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

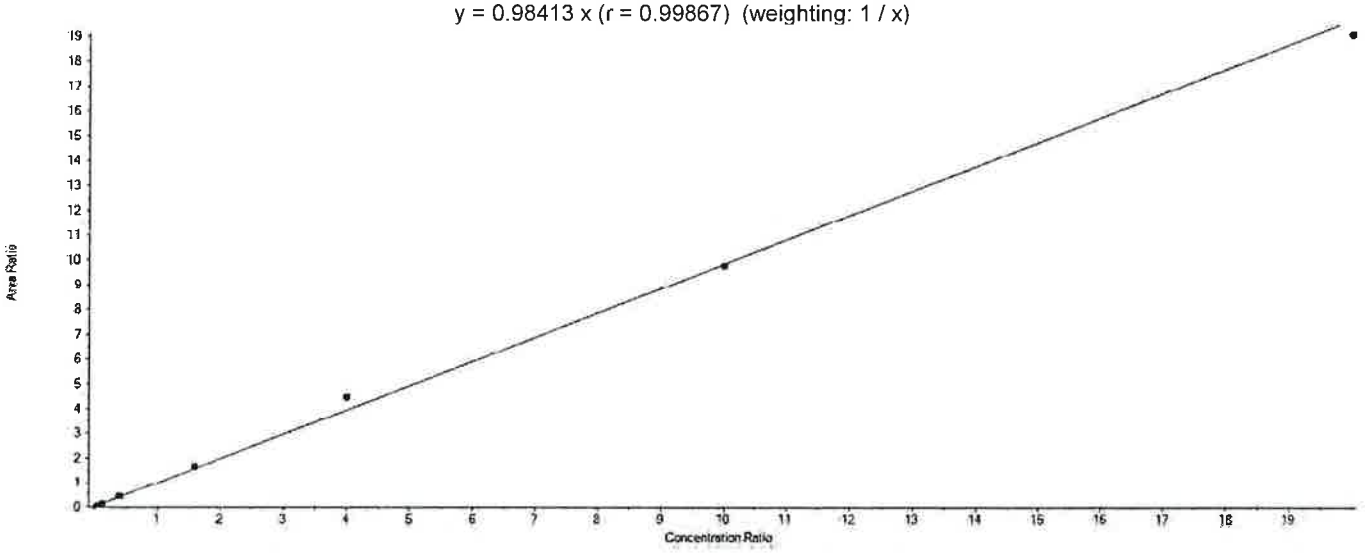
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFPeA

y = 0.98413 x (r = 0.99867) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	66857.1	1501835.6	True	5.00	0.045	5.08	1.000	0.200	0.226	13.1	50.0	
CAL2	187488.5	1510101.8	True	5.00	0.124	5.07	1.000	0.600	0.631	5.1	30.0	
CAL3	686846.3	1644584.0	True	5.00	0.418	5.07	1.000	2.000	2.122	6.1	30.0	
CAL4	2502106.0	1506387.3	True	5.00	1.661	5.07	1.000	8.000	8.439	5.5	30.0	
CAL5	5700049.7	1277613.6	True	5.00	4.461	5.07	1.000	20.000	22.667	13.3	30.0	
CAL6	10700451.2	1093978.3	True	5.00	9.781	5.07	1.000	50.000	49.695	-0.6	30.0	
CAL7	16109519.0	843605.3	True	5.00	19.096	5.06	1.000	100.000	97.020	-3.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

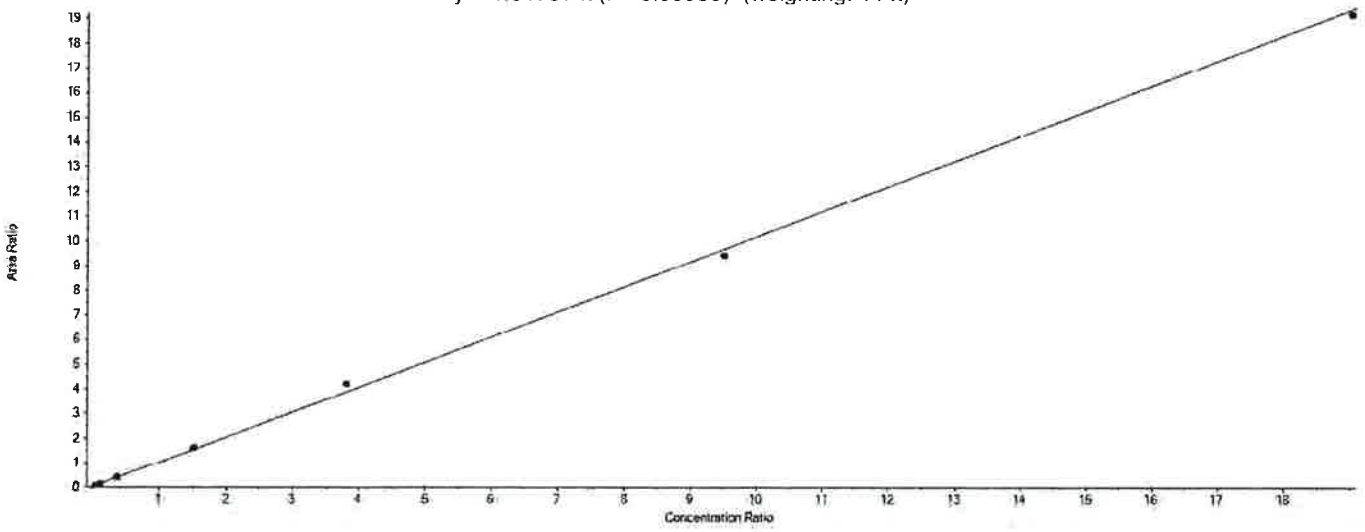
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFBS

y = 1.01757 x (r = 0.99938) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	40942.7	958872.4	True	4.65	0.043	5.13	1.000	0.170	0.195	14.8	50.0	
CAL2	117789.3	1011369.7	True	4.65	0.116	5.13	1.000	0.530	0.532	0.4	30.0	
CAL3	422494.5	1084316.8	True	4.65	0.390	5.12	1.000	1.770	1.781	0.6	30.0	
CAL4	1577527.4	972984.8	True	4.65	1.621	5.13	1.000	7.080	7.409	4.6	30.0	
CAL5	3745599.0	887408.7	True	4.65	4.221	5.12	1.000	17.690	19.288	9.0	30.0	
CAL6	7278697.6	770851.5	True	4.65	9.442	5.13	1.000	44.220	43.149	-2.4	30.0	
CAL7	11866779.1	619353.5	True	4.65	19.160	5.12	1.000	88.450	87.556	-1.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

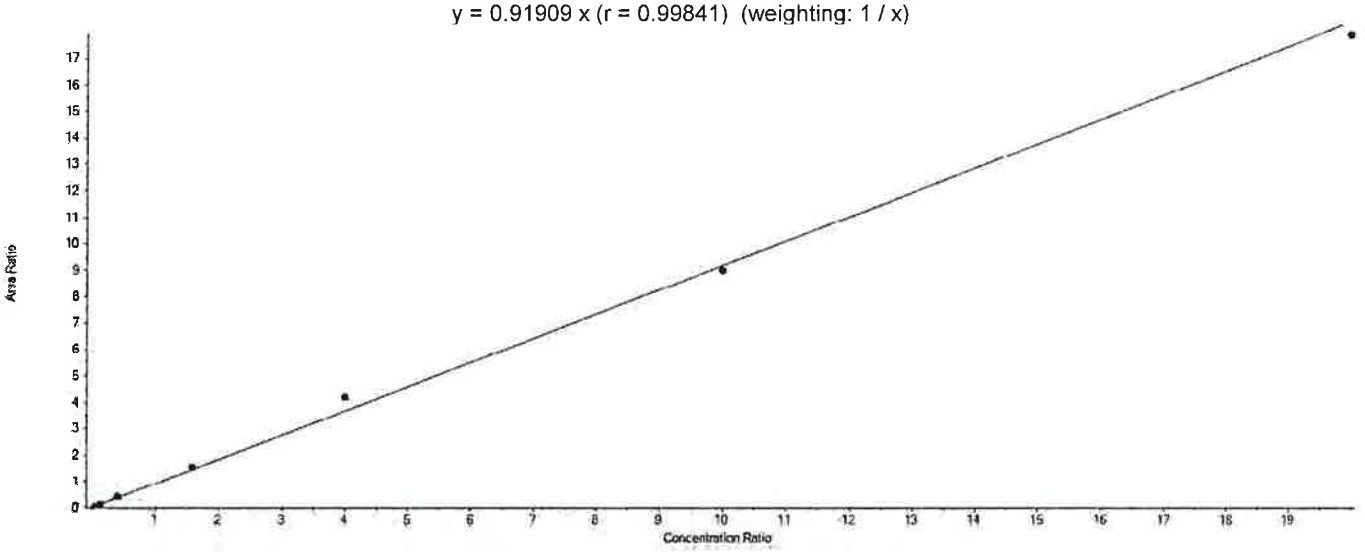
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFHxA

y = 0.91909 x (r = 0.99841) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65636.1	1594435.8	True	5.00	0.041	5.55	1.000	0.200	0.224	12.0	50.0	
CAL2	187046.3	1666616.8	True	5.00	0.112	5.55	1.000	0.600	0.611	1.8	30.0	
CAL3	698160.9	1720911.0	True	5.00	0.406	5.54	1.000	2.000	2.207	10.4	30.0	
CAL4	2497067.6	1598976.8	True	5.00	1.562	5.55	1.000	8.000	8.496	6.2	30.0	
CAL5	5774072.1	1369998.3	True	5.00	4.215	5.54	1.000	20.000	22.928	14.6	30.0	
CAL6	10142715.2	1125149.6	True	5.00	9.015	5.54	1.000	50.000	49.041	-1.9	30.0	
CAL7	16011473.0	895283.9	True	5.00	17.884	5.54	1.000	100.000	97.293	-2.7	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

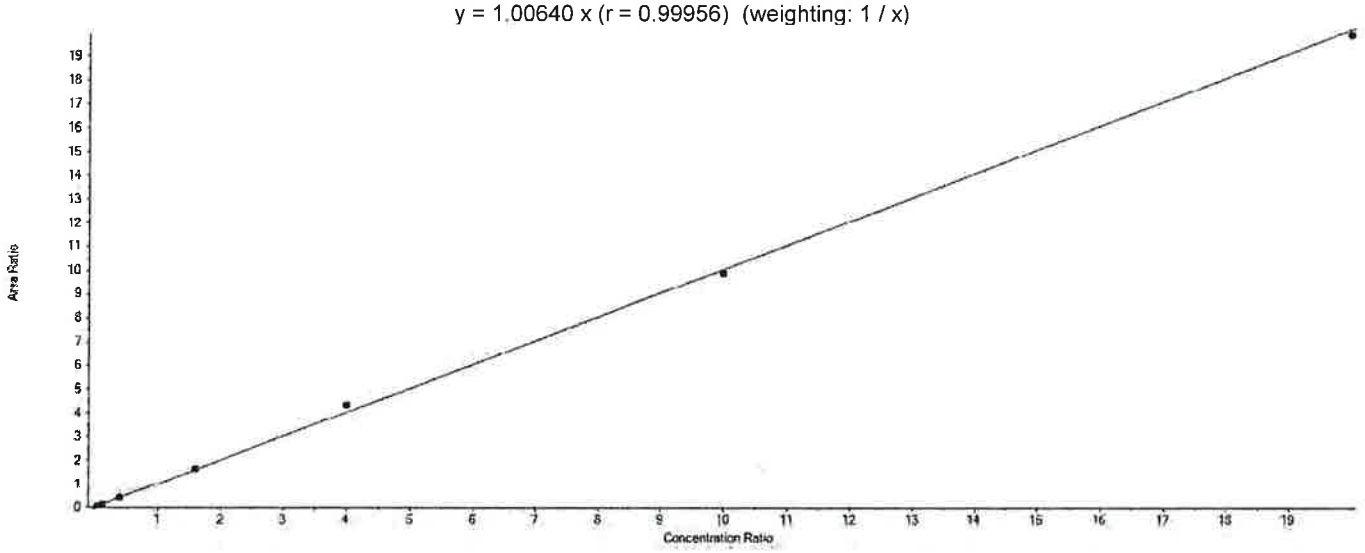
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFHxS

y = 1.00640 x (r = 0.99956) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	28849.5	691939.8	True	4.73	0.042	5.99	1.000	0.190	0.196	3.1	50.0	
CAL2	80965.4	696545.9	True	4.73	0.116	5.98	1.000	0.570	0.546	-4.2	30.0	
CAL3	305439.8	754864.9	True	4.73	0.405	5.98	1.000	1.890	1.902	0.6	30.0	
CAL4	1123264.2	683609.2	True	4.73	1.643	5.98	1.000	7.560	7.723	2.2	30.0	
CAL5	2620134.3	602855.5	True	4.73	4.346	5.98	1.000	18.910	20.427	8.0	30.0	
CAL6	5009170.1	505030.5	True	4.73	9.919	5.98	1.000	47.280	46.616	-1.4	30.0	
CAL7	8045768.3	404260.0	True	4.73	19.902	5.97	1.000	94.550	93.540	-1.1	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

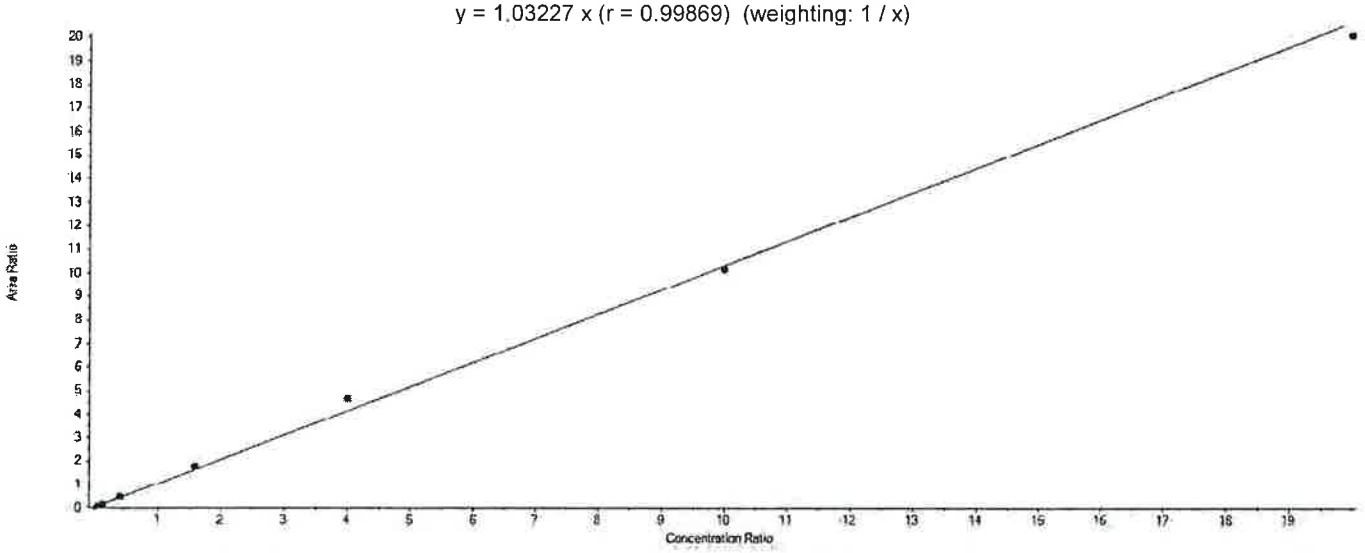
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFHpA

y = 1.03227 x (r = 0.99869) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	57780.5	1166383.1	True	5.00	0.050	6.00	1.000	0.200	0.240	20.0	50.0	
CAL2	157349.1	1246208.3	True	5.00	0.126	5.99	1.000	0.600	0.612	1.9	30.0	
CAL3	581970.3	1306089.2	True	5.00	0.446	5.99	1.000	2.000	2.158	7.9	30.0	
CAL4	2148078.3	1213654.2	True	5.00	1.770	5.99	1.000	8.000	8.573	7.2	30.0	
CAL5	4823800.2	1033263.3	True	5.00	4.669	5.99	1.000	20.000	22.613	13.1	30.0	
CAL6	8806314.7	865825.4	True	5.00	10.171	5.99	1.000	50.000	49.265	-1.5	30.0	
CAL7	13841660.8	688769.4	True	5.00	20.096	5.99	1.000	100.000	97.340	-2.7	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

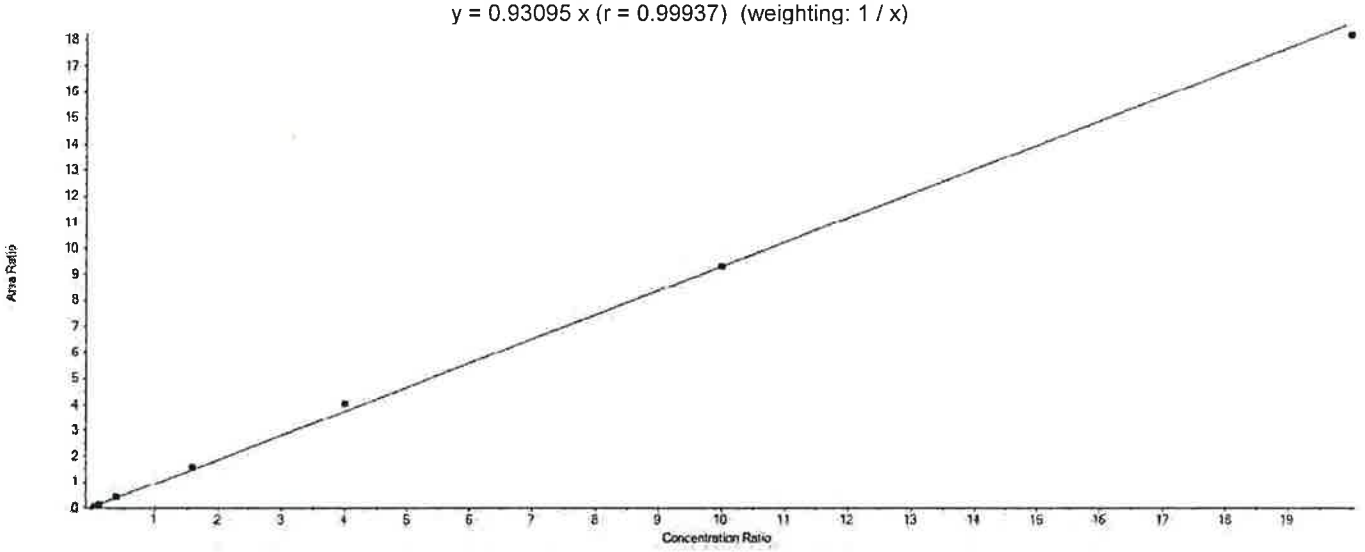
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFOA

y = 0.93095 x (r = 0.99937) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	56876.5	1292482.0	True	5.00	0.044	6.41	1.000	0.200	0.236	18.2	50.0	
CAL2	155637.0	1292042.1	True	5.00	0.120	6.40	1.000	0.600	0.647	7.8	30.0	
CAL3	554673.5	1405592.8	True	5.00	0.395	6.40	1.000	2.000	2.119	6.0	30.0	
CAL4	1969234.2	1245323.0	True	5.00	1.581	6.40	1.000	8.000	8.493	6.2	30.0	
CAL5	4455480.3	1103424.0	True	5.00	4.038	6.40	1.000	20.000	21.687	8.4	30.0	
CAL6	8234235.6	885176.7	True	5.00	9.302	6.41	1.000	50.000	49.962	-0.1	30.0	
CAL7	12811364.5	704601.2	True	5.00	18.182	6.40	1.000	100.000	97.656	-2.3	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

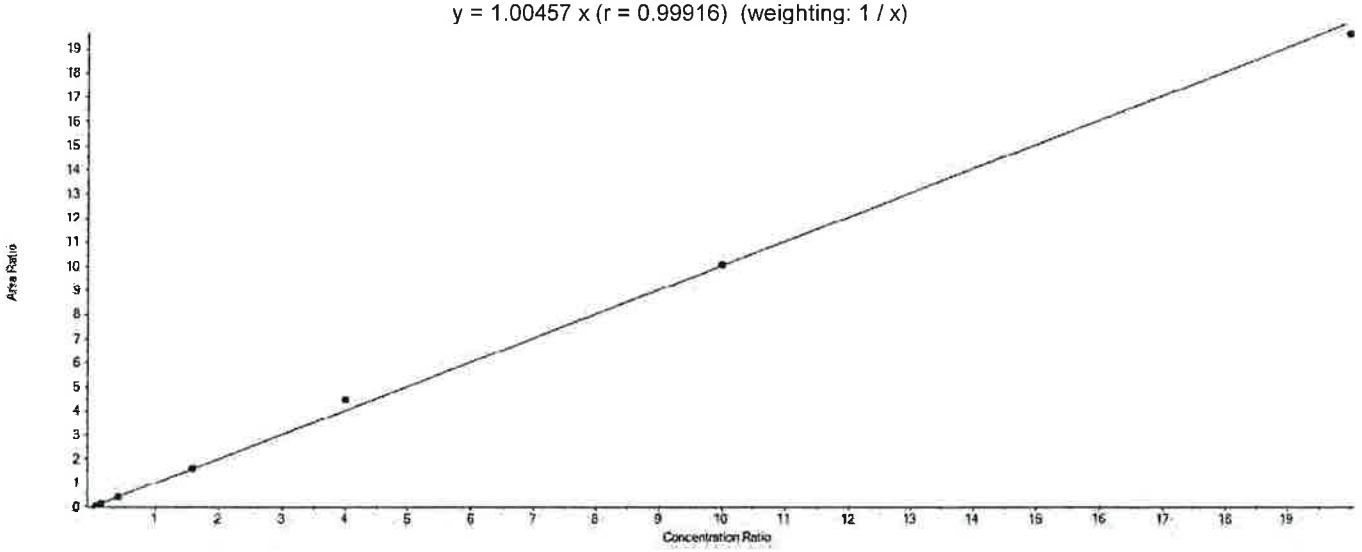
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFOS

y = 1.00457 x (r = 0.99916) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	32660.6	782097.5	True	4.78	0.042	6.76	1.000	0.190	0.199	4.6	50.0	
CAL2	91967.1	791217.4	True	4.78	0.116	6.76	1.000	0.570	0.553	-3.0	30.0	
CAL3	332396.7	838024.6	True	4.78	0.397	6.75	1.000	1.910	1.887	-1.2	30.0	
CAL4	1277739.2	788939.6	True	4.78	1.620	6.76	1.000	7.650	7.706	0.7	30.0	
CAL5	3000207.0	673644.0	True	4.78	4.454	6.75	1.000	19.120	21.192	10.8	30.0	
CAL6	5659042.1	561417.6	True	4.78	10.080	6.75	1.000	47.800	47.963	0.3	30.0	
CAL7	9297922.2	473989.6	True	4.78	19.616	6.74	1.000	95.600	93.340	-2.4	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

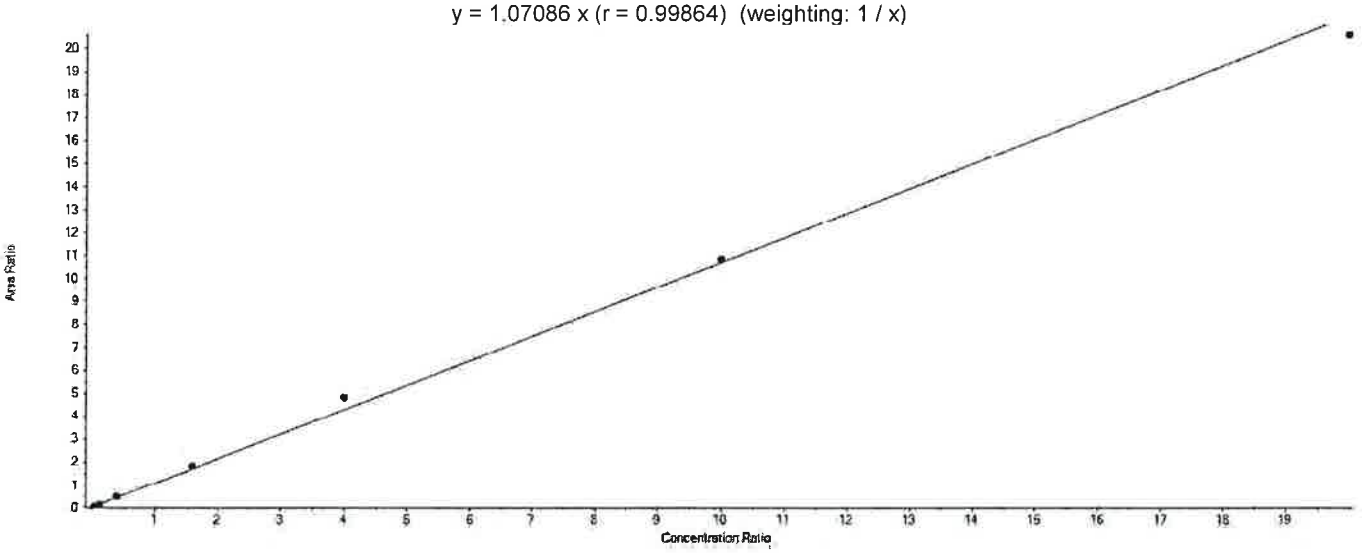
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFNA

y = 1.07086 x (r = 0.99864) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	59919.0	1142124.6	True	5.00	0.052	6.79	1.000	0.200	0.245	22.5	50.0	
CAL2	166200.5	1162956.4	True	5.00	0.143	6.78	1.000	0.600	0.667	11.2	30.0	
CAL3	607863.8	1279709.6	True	5.00	0.475	6.78	1.000	2.000	2.218	10.9	30.0	
CAL4	2132461.7	1171820.5	True	5.00	1.820	6.78	1.000	8.000	8.497	6.2	30.0	
CAL5	4850412.8	1008795.0	True	5.00	4.808	6.78	1.000	20.000	22.450	12.2	30.0	
CAL6	9165821.6	846767.8	True	5.00	10.824	6.78	1.000	50.000	50.541	1.1	30.0	
CAL7	14305765.2	694471.9	True	5.00	20.599	6.78	1.000	100.000	96.182	-3.8	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

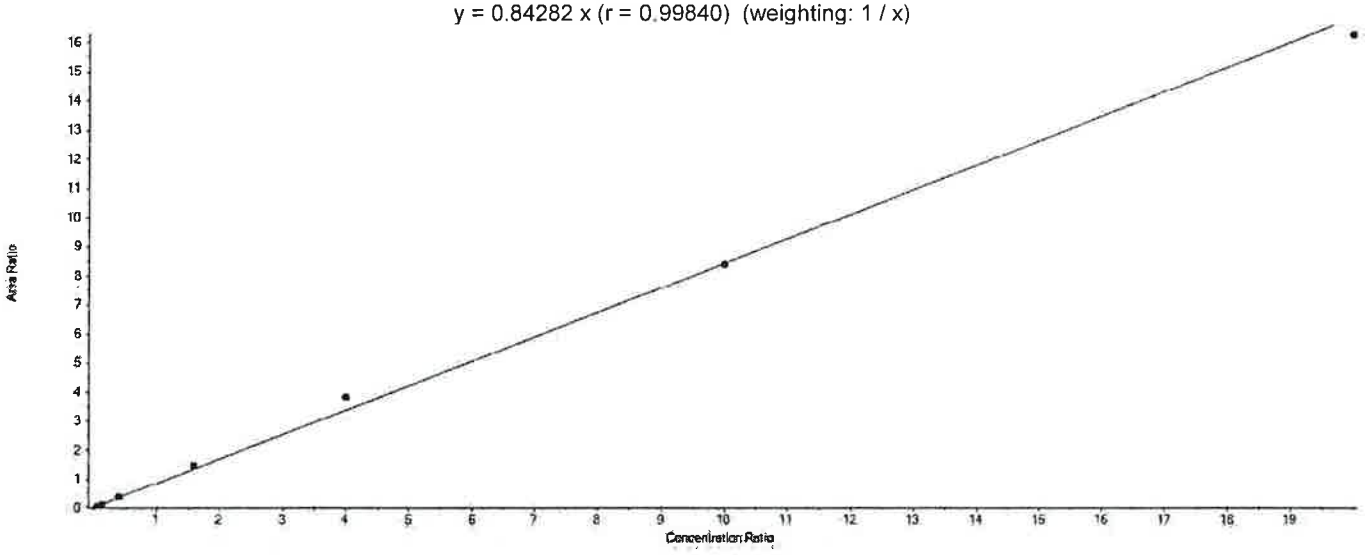
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFDA

y = 0.84282 x (r = 0.99840) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65331.0	1673534.9	True	5.00	0.039	7.14	1.000	0.200	0.232	15.8	50.0	
CAL2	185820.6	1766826.2	True	5.00	0.105	7.14	1.000	0.600	0.624	4.0	30.0	
CAL3	637049.8	1803035.3	True	5.00	0.353	7.13	1.000	2.000	2.096	4.8	30.0	
CAL4	2443005.6	1656227.7	True	5.00	1.475	7.14	1.000	8.000	8.751	9.4	30.0	
CAL5	5194694.3	1354179.2	True	5.00	3.836	7.13	1.000	20.000	22.757	13.8	30.0	
CAL6	9947778.2	1183910.8	True	5.00	8.402	7.13	1.000	50.000	49.847	-0.3	30.0	
CAL7	14688971.5	903084.3	True	5.00	16.265	7.13	1.000	100.000	96.493	-3.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

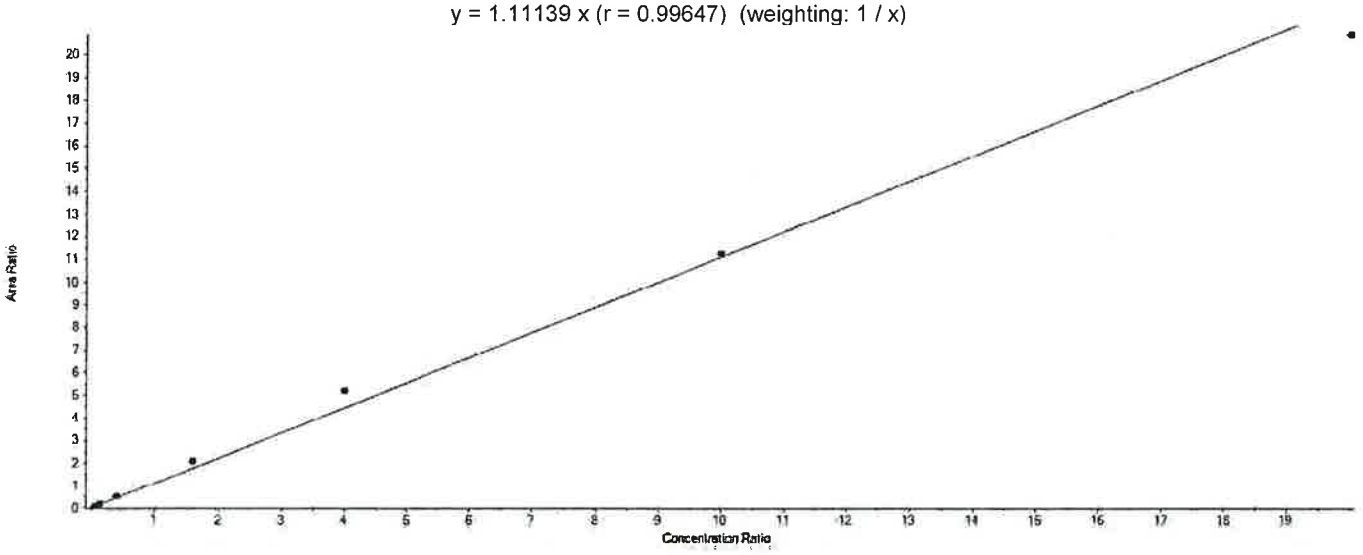
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFUnDA

y = 1.11139 x (r = 0.99647) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	53783.1	953923.1	True	5.00	0.056	7.46	1.000	0.200	0.254	26.8	50.0	
CAL2	166077.8	988706.2	True	5.00	0.168	7.45	1.000	0.600	0.756	26.0	30.0	
CAL3	575865.8	1124860.5	True	5.00	0.512	7.45	1.000	2.000	2.303	15.2	30.0	
CAL4	2132174.6	1011445.6	True	5.00	2.108	7.45	1.000	8.000	9.484	18.5	30.0	
CAL5	4297346.1	824102.9	True	5.00	5.215	7.44	1.000	20.000	23.460	17.3	30.0	
CAL6	7858951.3	697523.3	True	5.00	11.267	7.45	1.000	50.000	50.689	1.4	30.0	
CAL7	11846326.9	567844.0	True	5.00	20.862	7.44	1.000	100.000	93.855	-6.1	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

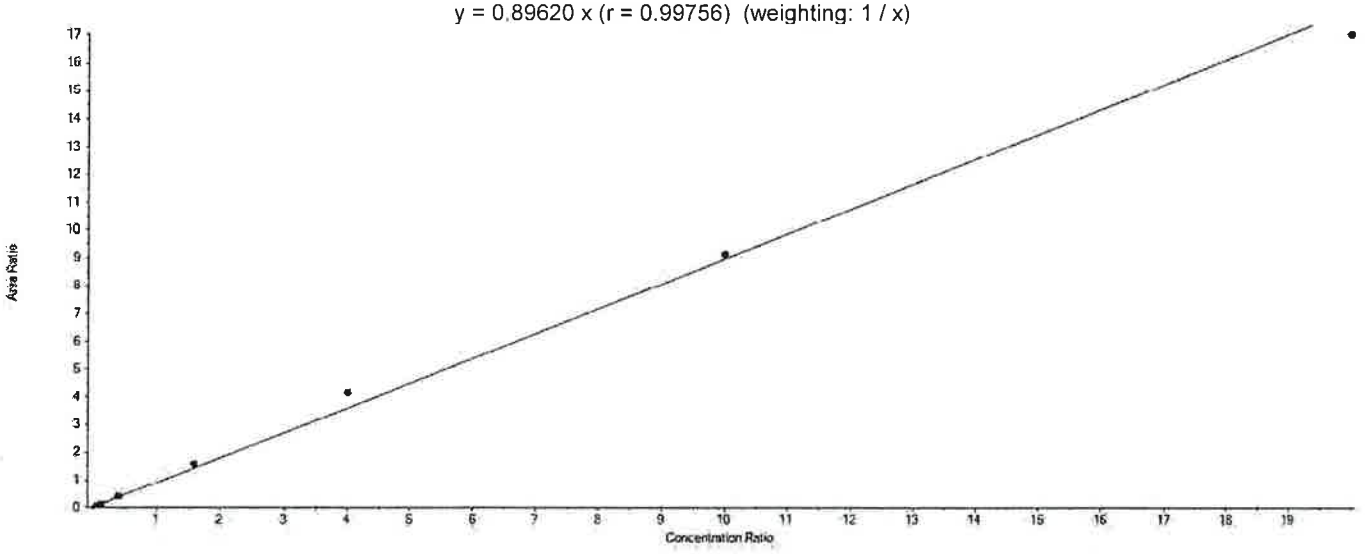
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFDoDA

y = 0.89620 x (r = 0.99756) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	42566.8	1032784.2	True	5.00	0.041	7.75	1.000	0.200	0.230	15.0	50.0	
CAL2	120934.1	1096813.9	True	5.00	0.110	7.75	1.000	0.600	0.615	2.5	30.0	
CAL3	453251.3	1164562.2	True	5.00	0.389	7.74	1.000	2.000	2.171	8.6	30.0	
CAL4	1661667.3	1063138.1	True	5.00	1.563	7.74	1.000	8.000	8.720	9.0	30.0	
CAL5	3934621.1	944759.6	True	5.00	4.165	7.73	1.000	20.000	23.235	16.2	30.0	
CAL6	7651287.6	838692.0	True	5.00	9.123	7.74	1.000	50.000	50.897	1.8	30.0	
CAL7	11760698.5	691174.2	True	5.00	17.016	7.73	1.000	100.000	94.931	-5.1	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

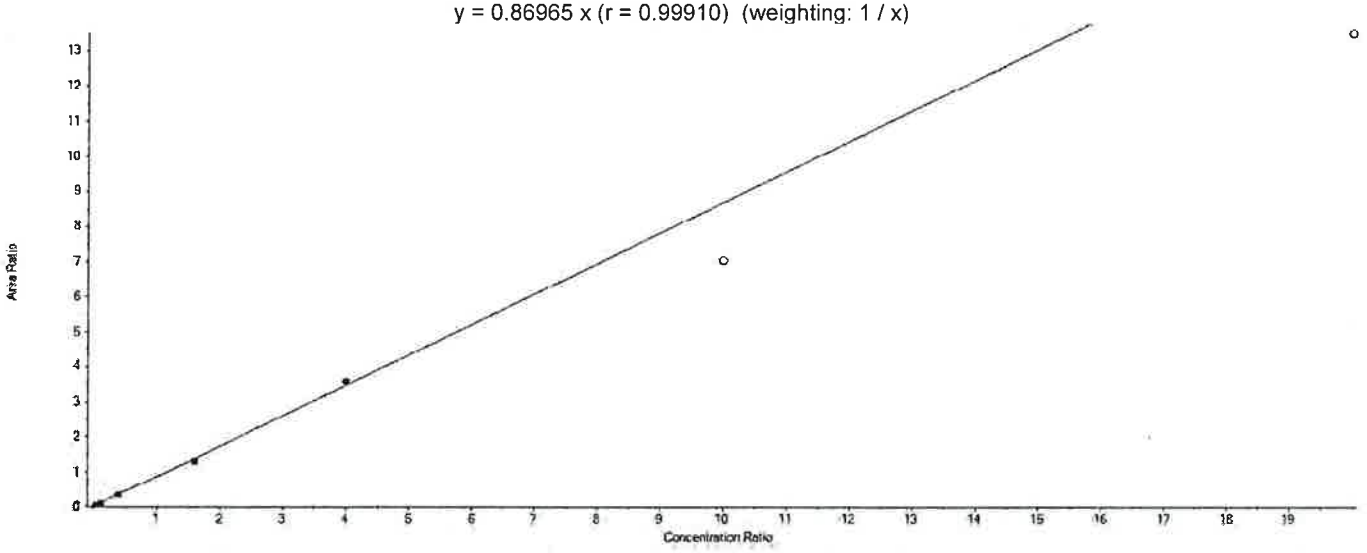
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFTrDA

y = 0.86965 x (r = 0.99910) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	35878.4	1032784.2	True	5.00	0.035	8.04	1.040	0.200	0.200	-0.1	50.0	
CAL2	101163.0	1096813.9	True	5.00	0.092	8.04	1.040	0.600	0.530	-11.6	30.0	
CAL3	390633.2	1164562.2	True	5.00	0.335	8.03	1.040	2.000	1.929	-3.6	30.0	
CAL4	1394459.0	1063138.1	True	5.00	1.312	8.03	1.040	8.000	7.541	-5.7	30.0	
CAL5	3385095.1	944759.6	True	5.00	3.583	8.02	1.040	20.000	20.600	3.0	30.0	
CAL6	5891260.9	838692.0	False	5.00	7.024	8.03	1.040	50.000	40.386	-19.2	30.0	
CAL7	9315016.2	691174.2	False	5.00	13.477	8.02	1.040	100.000	77.485	-22.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

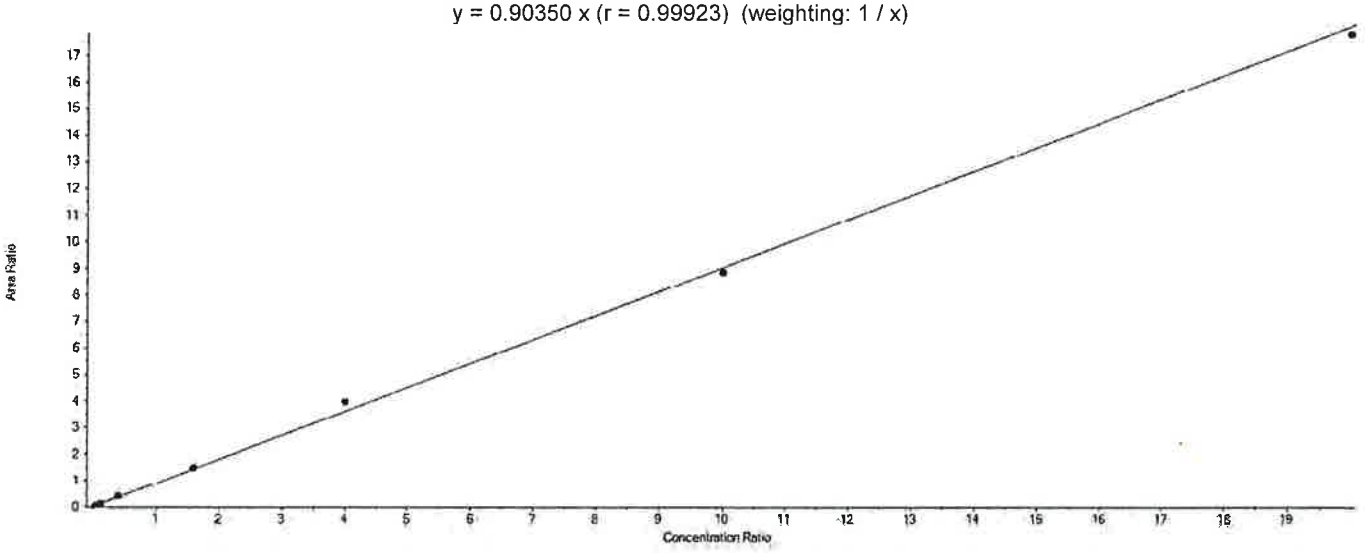
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFTeDA

y = 0.90350 x (r = 0.99923) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	33544.7	826907.4	True	5.00	0.041	8.34	1.000	0.200	0.224	12.2	50.0	
CAL2	99126.0	872521.9	True	5.00	0.114	8.33	1.000	0.600	0.629	4.8	30.0	
CAL3	371414.0	927708.5	True	5.00	0.400	8.32	1.000	2.000	2.216	10.8	30.0	
CAL4	1378385.7	917389.5	True	5.00	1.503	8.32	1.000	8.000	8.315	3.9	30.0	
CAL5	3192627.0	802888.6	True	5.00	3.976	8.31	1.000	20.000	22.006	10.0	30.0	
CAL6	6053232.5	684222.1	True	5.00	8.847	8.32	1.000	50.000	48.959	-2.1	30.0	
CAL7	8810464.7	495239.1	True	5.00	17.790	8.30	1.000	100.000	98.452	-1.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:49 pm, 4/10/18

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

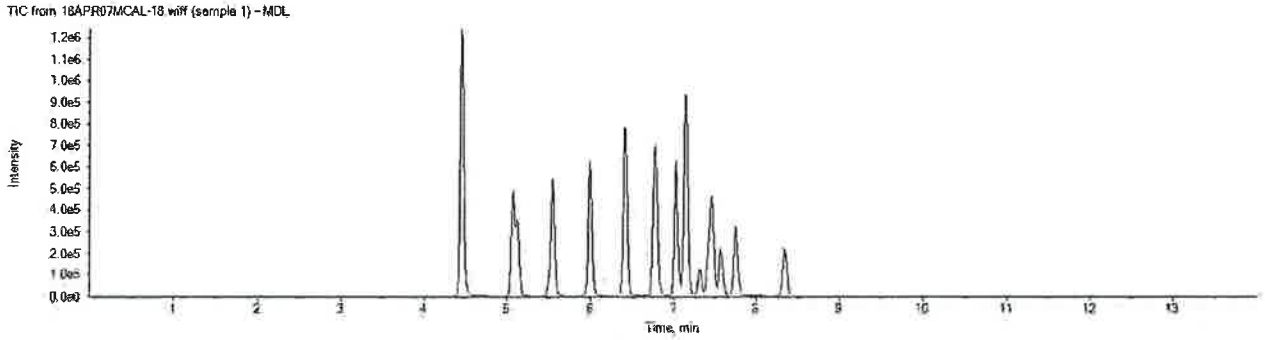
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24960 **File Name:** 18APR07MCAL-18.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	4.46	1.000	39077.4	M	13C4-PFBA	4.46	1822986.2	0.021	0.122
PFPeA	5.07	1.000	34150.3	M	13C5-PFPeA	5.08	1408868.8	0.024	0.123
PFBS	5.13	1.000	19598.5	A	13C3-PFBS	5.13	955478.9	0.021	0.094
4:2-FTS	5.50	1.000	16973.5	M	13C2-4:2-FTS	5.51	177534.7	0.096	0.513
PFHxA	5.55	1.000	33334.5	M	13C5-PFHxA	5.55	1572144.7	0.021	0.115
PFPeS	5.57	1.080	7849.8	M	13C3-PFBS	5.13	955478.9	0.008	0.093
PFHxS	5.99	1.000	14949.4	M	13C3-PFHxS	5.99	661360.0	0.023	0.106
PFHpA	5.99	1.000	26922.9	M	13C4-PFHpA	6.00	1170836.4	0.023	0.111
6:2-FTS	6.40	1.000	12495.8	M	13C2-6:2-FTS	6.40	124292.0	0.101	0.520
PFHpS	6.39	1.070	13201.7	M	13C3-PFHxS	5.99	661360.0	0.020	0.098
PFOA	6.41	1.000	30000.2	M	13C8-PFOA	6.41	1220875.9	0.025	0.132
PFOS	6.76	1.000	16697.5	M	13C8-PFOS	6.76	745709.1	0.022	0.107
PFNA	6.79	1.000	26542.0	M	13C9-PFNA	6.79	1112339.4	0.024	0.111
PFOSA	7.03	1.000	36753.7	M	13C8-PFOSA	7.02	1765843.1	0.021	0.113
PFNS	7.11	1.050	11830.1	M	13C8-PFOS	6.76	745709.1	0.016	0.100
PFDA	7.14	1.000	31528.1	M	13C6-PFDA	7.14	1674611.3	0.019	0.112
8:2-FTS	7.15	1.000	23986.8	M	13C2-8:2-FTS	7.16	249614.1	0.096	0.496
NMePFOSAE	7.43	1.000	9871.4	M	d7-NMePFOSAE	7.41	404203.3	0.024	0.114
NMePFOSA	7.44	1.000	4421.4	M	d3-NMePFOSA	7.44	187191.6	0.024	0.111
NMeFOSAA	7.32	1.000	9025.0	M	d3-NMeFOSAA	7.32	385084.8	0.023	0.114
NEtPFOSAE	7.57	1.000	13166.4	M	d9-NEtPFOSAE	7.56	533740.7	0.025	0.113
NEtPFOSA	7.60	1.000	3700.9	M	d5-NEtPFOSA	7.59	175172.0	0.021	0.111
PFDS	7.42	1.100	9905.8	M	13C8-PFOS	6.76	745709.1	0.013	0.112
PFUnDA	7.46	1.000	28780.4	M	13C7-PFUnDA	7.46	981039.7	0.029	0.132
NEtFOSAA	7.49	1.000	8622.0	M	d5-NEtFOSAA	7.48	386725.5	0.022	0.105
PFDoDA	7.75	1.000	21549.4	M	13C2-PFDoDA	7.75	1023118.2	0.021	0.118
10:2-FTS	7.79	1.090	17267.1	M	13C2-8:2-FTS	7.16	249614.1	0.069	0.467
PFDoS	8.00	1.180	3030.6	M	13C8-PFOS	6.76	745709.1	0.004	0.074
PFTrDA	8.04	1.040	16594.5	M	13C2-PFDoDA	7.75	1023118.2	0.016	0.093
PFTeDA	8.34	1.000	16025.6	M	13C2-PFTeDA	8.34	749062.8	0.021	0.118
PFHxDA	8.99	1.080	9731.8	M	13C2-PFTeDA	8.34	749062.8	0.013	0.105
PFODA	9.76	1.170	6097.8	M	13C2-PFTeDA	8.34	749062.8	0.008	0.095

Total Ion Chromatogram



APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:50 pm, 4/10/18

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

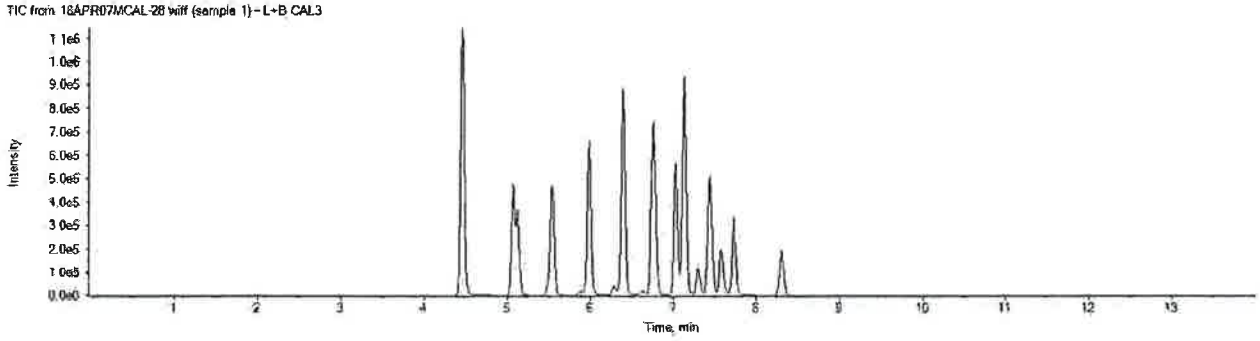
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM24960 **File Name:** 18APR07MCAL-28.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.46	1796967.7	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.07	1384632.0	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.13	918291.0	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.50	160945.1	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.55	1540991.2	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.13	918291.0	N/A	
PFHxS	5.98	1.000	250226.5	M	13C3-PFHxS	5.98	648870.9	0.386	1.812
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.99	1143323.7	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.39	129499.9	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	5.98	648870.9	N/A	
PFOA	6.40	1.000	382876.9	M	13C8-PFOA	6.40	1135188.4	0.337	1.811
PFOS	6.75	1.000	294925.1	M	13C8-PFOS	6.75	727782.8	0.405	1.928
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.78	1008946.6	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	7.03	1773769.1	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.75	727782.8	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.13	1632370.3	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.14	226522.8	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.42	378019.1	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.44	186315.7	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.30	358466.7	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.57	497566.6	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.60	167308.2	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.75	727782.8	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.44	925969.7	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.46	354826.8	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.73	983513.9	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.14	226522.8	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.75	727782.8	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.73	983513.9	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.30	651366.1	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.30	651366.1	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.30	651366.1	N/A	

Total Ion Chromatogram

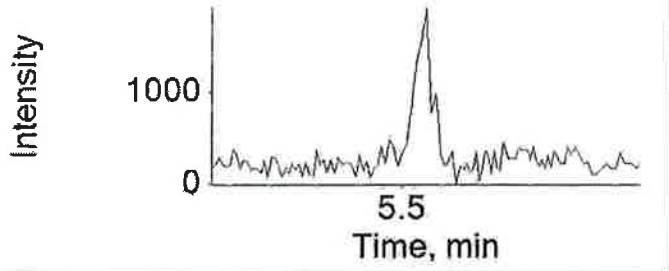


APPROVED
By DMW at 12:15 pm, 4/8/18

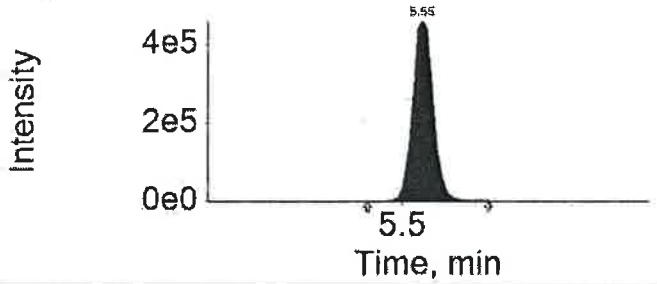
REVIEWED
By umar at 3:50 pm, 4/10/18

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

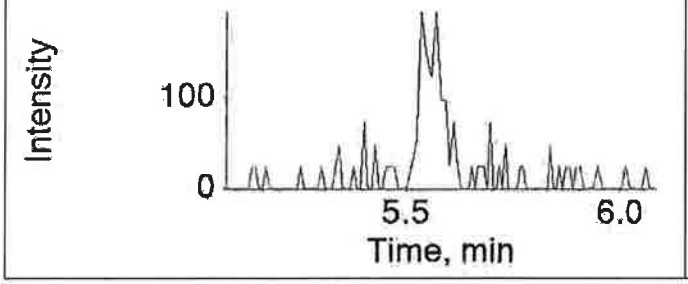
Analyte: PFHxA
313.0 / 269.0



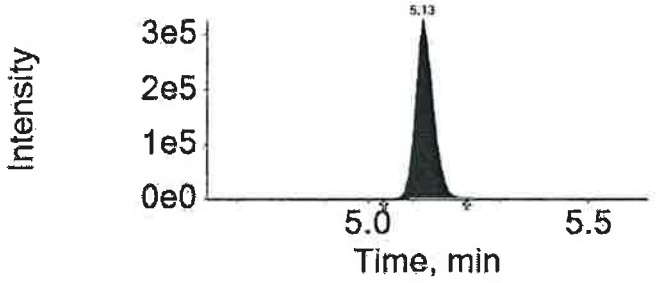
Extraction Standard: 13C5-PFHxA
318.0 / 273.0



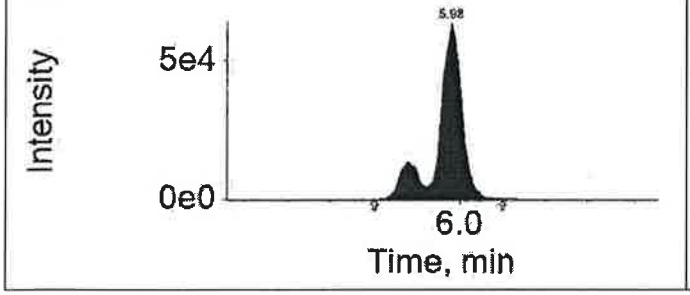
Analyte: PFPeS
349.0 / 80.0



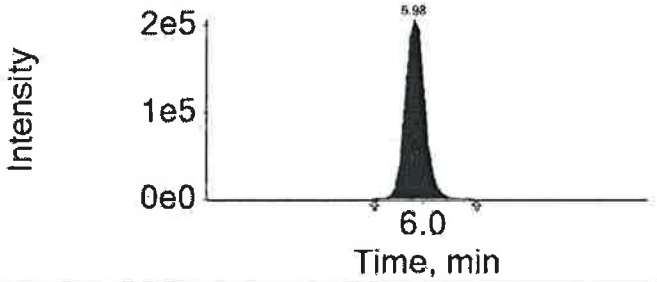
Extraction Standard: 13C3-PFBS
302.0 / 80.0



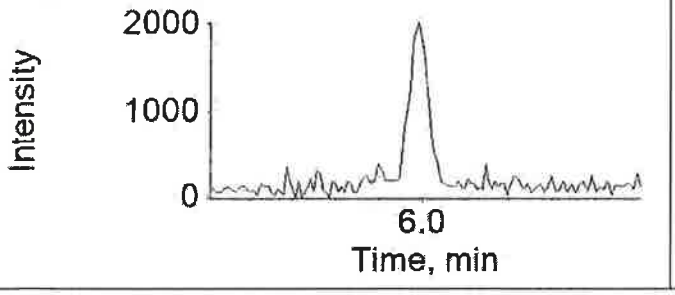
Analyte: PFHxS
399.0 / 80.0



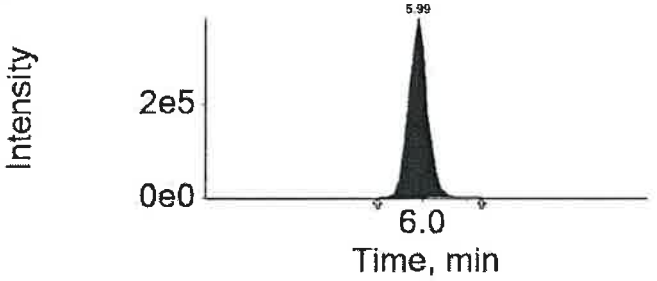
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0

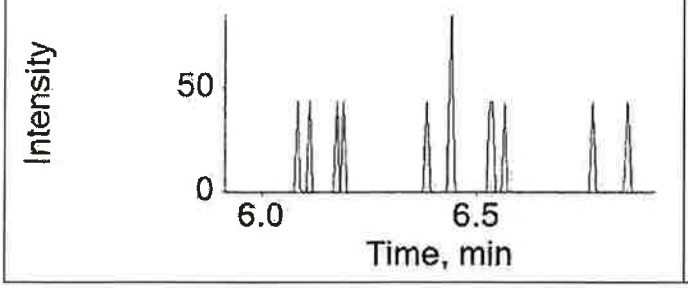


APPROVED
By DMW at 12:15 pm, 4/8/18

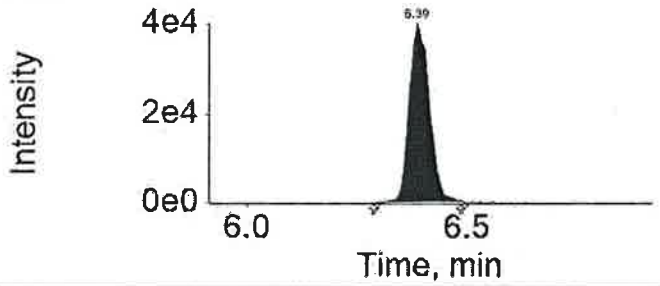
REVIEWED
By umar at 3:50 pm, 4/10/18

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

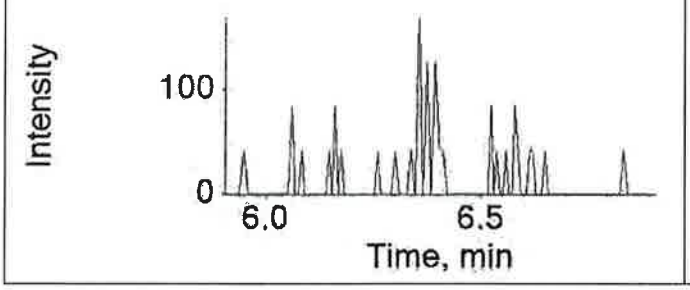
Analyte: 6:2-FTS
427.0 / 407.0



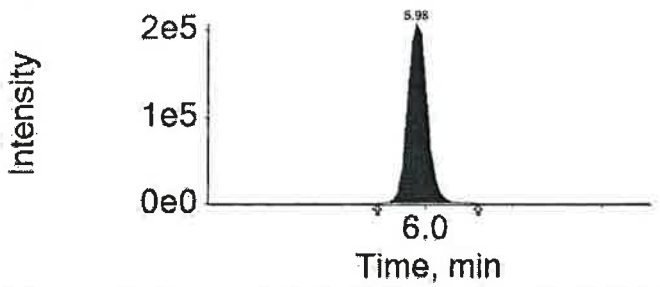
Extraction Standard: 13C2-6:2-FTS
429.0 / 409.0



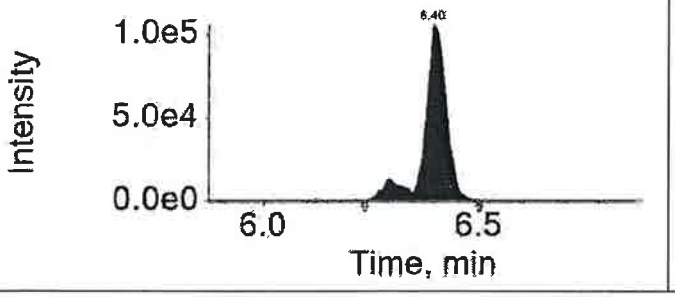
Analyte: PFHpS
449.0 / 80.0



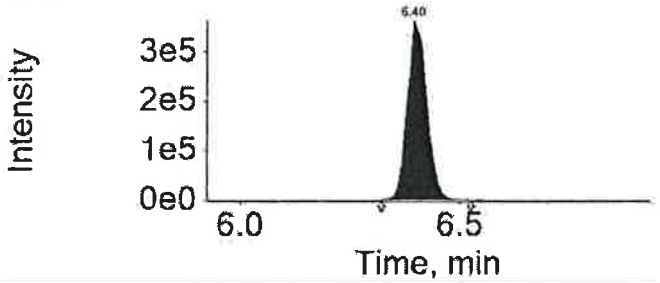
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



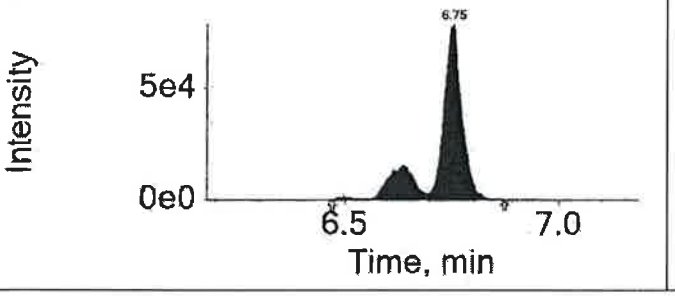
Analyte: PFOA
413.0 / 369.0



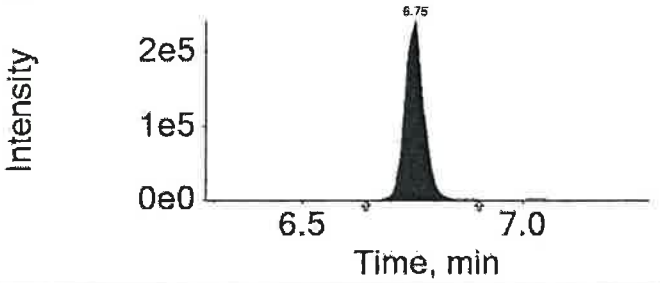
Extraction Standard: 13C8-PFOA
421.0 / 376.0



Analyte: PFOS
499.0 / 80.0



Extraction Standard: 13C8-PFOS
507.0 / 80.0



APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:50 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR07MCAL-27.wiff	4/8/2018 4:24:18 AM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	631732.5	13C4-PFBA	1858582.4	5.00	0.340	4.46	1.00	2.000	1.940	-3.0	30.0	
PFPeA	554763.9	13C5-PFPeA	1426714.6	5.00	0.389	5.07	1.00	2.000	1.976	-1.2	30.0	
PFBS	343338.3	13C3-PFBS	913208.7	4.65	0.376	5.12	1.00	1.770	1.718	-2.9	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	156022.8	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	575037.3	13C5-PFHxA	1554783.0	5.00	0.370	5.54	1.00	2.000	2.012	0.6	30.0	
PFPeS	N/A	13C3-PFBS	913208.7	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	252512.2	13C3-PFHxS	663064.4	4.73	0.381	5.98	1.00	1.890	1.790	-5.3	30.0	
PFHpA	490721.9	13C4-PFHpA	1208658.9	5.00	0.406	5.99	1.00	2.000	1.967	-1.7	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	123524.3	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	238017.5	13C3-PFHxS	663064.4	4.73	0.359	6.38	1.07	1.900	1.759	-7.4	30.0	
PFOA	452731.8	13C8-PFOA	1200833.7	5.00	0.377	6.40	1.00	2.000	2.025	1.2	30.0	
PFOS	268048.4	13C8-PFOS	733611.0	4.78	0.365	6.75	1.00	1.910	1.739	-9.0	30.0	
PFNA	491999.6	13C9-PFNA	1153598.9	5.00	0.426	6.78	1.00	2.000	1.991	-0.4	30.0	
PFOSA	N/A	13C8-PFOSA	1791867.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	733611.0	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	547826.1	13C6-PFDA	1639995.7	5.00	0.334	7.13	1.00	2.000	1.982	-0.9	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	224551.0	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	383774.6	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	183524.5	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	154163.7	d3-NMeFOSAA	364501.6	5.00	0.423	7.30	1.00	2.000	2.055	2.8	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	538967.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	176152.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	149152.3	13C8-PFOS	733611.0	4.78	0.203	7.40	1.10	1.930	1.721	-10.8	30.0	
PFUnDA	486150.5	13C7-PFUnDA	951029.4	5.00	0.511	7.44	1.00	2.000	2.300	15.0	30.0	
NEtFOSAA	137893.5	d5-NEtFOSAA	351466.1	5.00	0.392	7.47	1.00	2.000	1.840	-8.0	30.0	
PFDoDA	364384.5	13C2-PFDoDA	1056526.4	5.00	0.345	7.73	1.00	2.000	1.924	-3.8	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	224551.0	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	733611.0	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	296804.7	13C2-PFDoDA	1056526.4	5.00	0.281	8.02	1.04	2.000	1.615	-19.2	30.0	
PFTeDA	279594.4	13C2-PFTeDA	775730.9	5.00	0.360	8.31	1.00	2.000	1.995	-0.3	30.0	
PFHxDA	N/A	13C2-PFTeDA	775730.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	775730.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24960 Lab File ID: 18APR07MCAL-29.WIFF

Date/Time Analyzed: 04/08/2018 04:53 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.10	5.03	±30
Perfluoropentanoic acid	2.00	2.09	4.47	±30
Perfluorobutanesulfonate	1.77	1.77	0.17	±30
4:2 fluorotelomersulfonate	4.90	5.24	6.99	±30
Perfluorohexanoic acid	2.00	2.10	4.78	±30
Perfluoropentanesulfonate	1.88	2.00	6.55	±30
Perfluorohexanesulfonate	1.89	1.88	-0.43	±30
Perfluoroheptanoic acid	2.00	2.10	4.80	±30
6:2 fluorotelomersulfonate	5.21	5.72	9.75	±30
Perfluoroheptanesulfonate	1.90	1.81	-4.74	±30
Perfluorooctanoic acid	2.00	2.26	12.78	±30
Perfluoro-octanesulfonate	1.91	1.92	0.52	±30
Perfluorononanoic acid	2.00	2.24	11.81	±30
Perfluorooctanesulfonamide	2.00	2.24	11.87	±30
Perfluorononanesulfonate	1.92	1.72	-10.66	±30
Perfluorodecanoic acid	2.00	2.21	10.62	±30
8:2 fluorotelomersulfonate	5.27	5.57	5.68	±30
NMePFOSAE	2.00	2.18	9.19	±30
NMePFOSA	2.00	2.06	2.77	±30
NMeFOSAA	2.00	2.28	13.80	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24960 Lab File ID: 18APR07MCAL-29.WIFF

Date/Time Analyzed: 04/08/2018 04:53 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	2.00	2.24	11.78	±30
NEtPFOSA	2.00	2.05	2.36	±30
Perfluorodecanesulfonate	1.93	1.80	-6.56	±30
Perfluoroundecanoic acid	2.00	2.40	19.78	±30
NEtFOSAA	2.00	1.92	-3.79	±30
Perfluorododecanoic acid	2.00	2.15	7.26	±30
10:2-fluorotelomersulfonate	5.30	5.34	0.70	±30
Perfluorododecanesulfonate	1.94	1.67	-14.10	±30
Perfluorotridecanoic acid	2.00	1.84	-7.92	±30
Perfluorotetradecanoic acid	2.00	2.11	5.55	±30
Perfluorohexadecanoic acid	2.00	1.70	-15.16	±30
Perfluorooctadecanoic acid	2.00	1.76	-11.79	±30

* Outside QC Limits.

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

ICAL & ICV validated in SBN09 BJE

SDG No.: SBN10

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.224	12.2	±50
CAL2	0.099	0.60	0.588	-2.0	±30
CAL3	0.334	2.00	1.988	-0.6	±30
CAL4	1.385	8.00	8.248	3.1	±30
CAL5	3.703	20.00	22.049	10.2	±30
CAL6	8.510	50.00	50.671	1.3	±30
CAL7	16.296	100.00	97.032	-3.0	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.218	9.0	±50
CAL2	0.128	0.60	0.626	4.3	±30
CAL3	0.422	2.00	2.071	3.6	±30
CAL4	1.652	8.00	8.100	1.2	±30
CAL5	4.544	20.00	22.277	11.4	±30
CAL6	10.208	50.00	50.047	0.1	±30
CAL7	19.880	100.00	97.461	-2.5	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.17	0.182	7.2	±50
CAL2	0.119	0.53	0.561	5.8	±30
CAL3	0.369	1.77	1.738	-1.8	±30
CAL4	1.485	7.08	6.993	-1.2	±30
CAL5	3.805	17.69	17.920	1.3	±30
CAL6	9.149	44.22	43.084	-2.6	±30
CAL7	18.991	88.45	89.432	1.1	±30

4:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.119	0.58	0.649	11.9	±50
CAL2	0.413	1.98	2.258	14.1	±30
CAL3	0.874	4.90	4.777	-2.5	±30
CAL4	1.963	10.04	10.723	6.8	±30
CAL5	2.120	12.49	11.582	-7.3	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.20	0.232	15.8	±50
CAL2	0.113	0.60	0.618	2.9	±30
CAL3	0.402	2.00	2.194	9.7	±30
CAL4	1.566	8.00	8.551	6.9	±30
CAL5	4.418	20.00	24.124	20.6	±30
CAL6	9.113	50.00	49.758	-0.5	±30
CAL7	17.458	100.00	95.324	-4.7	±30

Perfluoropentanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.021	0.19	0.205	7.7	±50
CAL2	0.056	0.56	0.540	-3.6	±30
CAL3	0.193	1.88	1.875	-0.2	±30
CAL4	0.804	7.50	7.799	4.0	±30
CAL5	1.981	18.76	19.206	2.4	±30
CAL6	4.630	46.90	44.882	-4.3	±30
CAL7	9.808	93.80	95.083	1.4	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.19	0.197	3.6	±50
CAL2	0.109	0.57	0.530	-7.0	±30
CAL3	0.390	1.89	1.899	0.5	±30
CAL4	1.670	7.56	8.134	7.6	±30
CAL5	4.318	18.91	21.035	11.2	±30
CAL6	9.341	47.28	45.497	-3.8	±30
CAL7	19.228	94.55	93.658	-0.9	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.236	18.0	±50
CAL2	0.134	0.60	0.617	2.9	±30
CAL3	0.484	2.00	2.238	11.9	±30
CAL4	1.900	8.00	8.781	9.8	±30
CAL5	5.361	20.00	24.781	23.9	±30
CAL6	10.928	50.00	50.515	1.0	±30
CAL7	20.257	100.00	93.632	-6.4	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

6:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.272	1.30	1.396	7.4	±50
CAL2	0.423	2.09	2.169	3.8	±30
CAL3	1.228	5.21	6.297	20.9	±30
CAL4	2.141	10.43	10.983	5.3	±30
CAL5	2.188	13.04	11.225	-13.9	±30

Perfluoroheptanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.19	0.210	10.8	±50
CAL2	0.098	0.57	0.558	-2.1	±30
CAL3	0.349	1.90	1.983	4.4	±30
CAL4	1.466	7.61	8.333	9.5	±30
CAL5	3.683	19.03	20.941	10.0	±30
CAL6	8.168	47.58	46.438	-2.4	±30
CAL7	16.457	95.15	93.566	-1.7	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.047	0.20	0.255	27.4	±50
CAL2	0.117	0.60	0.635	5.9	±30
CAL3	0.397	2.00	2.159	7.9	±30
CAL4	1.638	8.00	8.916	11.4	±30
CAL5	4.179	20.00	22.743	13.7	±30
CAL6	9.432	50.00	51.330	2.7	±30
CAL7	17.413	100.00	94.762	-5.2	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.19	0.185	-2.9	±50
CAL2	0.112	0.57	0.538	-5.6	±30
CAL3	0.375	1.91	1.801	-5.7	±30
CAL4	1.618	7.65	7.764	1.5	±30
CAL5	4.246	19.12	20.378	6.6	±30
CAL6	9.951	47.80	47.762	-0.1	±30
CAL7	19.670	95.60	94.413	-1.2	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.057	0.20	0.248	23.8	±50
CAL2	0.149	0.60	0.648	8.0	±30
CAL3	0.537	2.00	2.338	16.9	±30
CAL4	2.029	8.00	8.832	10.4	±30
CAL5	5.496	20.00	23.924	19.6	±30
CAL6	11.565	50.00	50.347	0.7	±30
CAL7	21.699	100.00	94.462	-5.5	±30

Perfluorooctanesulfonamide	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.207	3.5	±50
CAL2	0.119	0.60	0.625	4.2	±30
CAL3	0.430	2.00	2.253	12.7	±30
CAL4	1.503	8.00	7.878	-1.5	±30
CAL5	1.883	10.00	9.869	-1.3	±30
CAL6	9.474	50.00	49.663	-0.7	±30
CAL7	19.135	100.00	100.306	0.3	±30

Perfluorononanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.032	0.19	0.213	12.2	±50
CAL2	0.076	0.58	0.510	-12.1	±30
CAL3	0.267	1.92	1.804	-6.1	±30
CAL4	1.161	7.68	7.837	2.0	±30
CAL5	3.054	19.20	20.612	7.4	±30
CAL6	6.983	48.00	47.127	-1.8	±30
CAL7	14.146	96.00	95.467	-0.6	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.210	4.9	±50
CAL2	0.113	0.60	0.621	3.6	±30
CAL3	0.377	2.00	2.070	3.5	±30
CAL4	1.446	8.00	7.937	-0.8	±30
CAL5	3.892	20.00	21.364	6.8	±30
CAL6	9.524	50.00	52.277	4.6	±30
CAL7	17.548	100.00	96.321	-3.7	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

8:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.317	1.32	1.590	20.4	±50
CAL2	0.437	2.11	2.193	3.9	±30
CAL3	1.092	5.27	5.474	3.9	±30
CAL4	2.125	10.54	10.651	1.1	±30
CAL5	2.494	13.17	12.502	-5.1	±30

NMeFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.212	5.8	±50
CAL2	0.125	0.60	0.610	1.7	±30
CAL3	0.442	2.00	2.155	7.7	±30
CAL4	1.693	8.00	8.253	3.2	±30
CAL5	2.112	10.00	10.295	2.9	±30
CAL6	10.098	50.00	49.210	-1.6	±30
CAL7	20.532	100.00	100.065	0.1	±30

Perfluorodecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.022	0.19	0.211	10.9	±50
CAL2	0.059	0.58	0.557	-4.0	±30
CAL3	0.179	1.93	1.688	-12.5	±30
CAL4	0.774	7.70	7.304	-5.1	±30
CAL5	2.161	19.26	20.401	5.9	±30
CAL6	5.049	48.15	47.666	-1.0	±30
CAL7	10.199	96.30	96.284	0.0	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.061	0.20	0.241	20.5	±50
CAL2	0.174	0.60	0.688	14.7	±30
CAL3	0.585	2.00	2.313	15.6	±30
CAL4	2.399	8.00	9.478	18.5	±30
CAL5	6.150	20.00	24.301	21.5	±30
CAL6	12.870	50.00	50.857	1.7	±30
CAL7	23.515	100.00	92.922	-7.1	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

NEtFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.20	0.207	3.7	±50
CAL2	0.120	0.60	0.557	-7.2	±30
CAL3	0.429	2.00	1.992	-0.4	±30
CAL4	1.682	8.00	7.803	-2.5	±30
CAL5	2.078	10.00	9.645	-3.6	±30
CAL6	10.677	50.00	49.542	-0.9	±30
CAL7	21.777	100.00	101.054	1.1	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.236	18.1	±50
CAL2	0.123	0.60	0.657	9.5	±30
CAL3	0.415	2.00	2.216	10.8	±30
CAL4	1.719	8.00	9.178	14.7	±30
CAL5	4.249	20.00	22.682	13.4	±30
CAL6	8.931	50.00	47.677	-4.6	±30
CAL7	18.386	100.00	98.153	-1.8	±30

10:2-fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.391	1.33	1.513	13.8	±50
CAL2	0.615	2.12	2.379	12.2	±30
CAL3	1.297	5.30	5.022	-5.3	±30
CAL4	2.857	10.60	11.059	4.3	±30
CAL5	3.265	13.26	12.637	-4.7	±30

Perfluorododecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.010	0.19	0.197	3.7	±50
CAL2	0.027	0.58	0.556	-4.1	±30
CAL3	0.085	1.94	1.720	-11.3	±30
CAL4	0.350	7.74	7.104	-8.2	±30
CAL5	0.949	19.36	19.278	-0.4	±30
CAL6	2.396	48.40	48.667	0.6	±30
CAL7	4.800	96.80	97.488	0.7	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.20	0.216	8.0	±50
CAL2	0.107	0.60	0.622	3.7	±30
CAL3	0.375	2.00	2.171	8.6	±30
CAL4	1.572	8.00	9.101	13.8	±30
CAL5	4.119	20.00	23.853	19.3	±30
CAL6	8.892	50.00	51.489	3.0	±30
CAL7	16.120	100.00	93.348	-6.7	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.20	0.229	14.5	±50
CAL2	0.104	0.60	0.634	5.7	±30
CAL3	0.341	2.00	2.086	4.3	±30
CAL4	1.415	8.00	8.647	8.1	±30
CAL5	3.724	20.00	22.764	13.8	±30
CAL6	8.215	50.00	50.215	0.4	±30
CAL7	15.742	100.00	96.224	-3.8	±30

Perfluorohexadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.032	0.20	0.243	21.3	±50
CAL2	0.084	0.60	0.627	4.5	±30
CAL3	0.299	2.00	2.247	12.3	±30
CAL4	1.096	8.00	8.230	2.9	±30
CAL5	2.836	20.00	21.286	6.4	±30
CAL6	6.473	50.00	48.592	-2.8	±30
CAL7	13.265	100.00	99.575	-0.4	±30

Perfluorooctadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.031	0.20	0.206	2.8	±50
CAL2	0.084	0.60	0.554	-7.6	±30
CAL3	0.308	2.00	2.034	1.7	±30
CAL4	1.200	8.00	7.925	-0.9	±30
CAL5	3.133	20.00	20.691	3.5	±30
CAL6	7.422	50.00	49.023	-2.0	±30
CAL7	15.196	100.00	100.367	0.4	±30

* Outside QC Limits

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18APR11MCAL-16.wiff	4/11/2018 11:34:06 PM	CALMOD11833A	CAL1
18APR11MCAL-17.wiff	4/11/2018 11:49:39 PM	CALMOD21833A	CAL2
18APR11MCAL-18.wiff	4/12/2018 12:05:11 AM	CALMOD31833A	CAL3
18APR11MCAL-19.wiff	4/12/2018 12:20:42 AM	CALMOD41833A	CAL4
18APR11MCAL-20.wiff	4/12/2018 12:36:12 AM	CALMOD51833A	CAL5
18APR11MCAL-21.wiff	4/12/2018 12:51:42 AM	CALMOD61833A	CAL6
18APR11MCAL-22.wiff	4/12/2018 1:07:12 AM	CALMOD71833A	CAL7

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	981637.7	926861.5
CAL2	I13C3-PFBA	True	988005.5	926861.5
CAL3	I13C3-PFBA	True	930730.7	926861.5
CAL4	I13C3-PFBA	True	1040816.4	926861.5
CAL5	I13C3-PFBA	True	906067.6	926861.5
CAL6	I13C3-PFBA	True	884773.3	926861.5
CAL7	I13C3-PFBA	True	755999.2	926861.5
CAL1	I13C2-PFOA	True	1517685.2	1442106.8
CAL2	I13C2-PFOA	True	1471766.5	1442106.8
CAL3	I13C2-PFOA	True	1408725.6	1442106.8
CAL4	I13C2-PFOA	True	1617189.6	1442106.8
CAL5	I13C2-PFOA	True	1449501.9	1442106.8
CAL6	I13C2-PFOA	True	1339081.9	1442106.8
CAL7	I13C2-PFOA	True	1290796.5	1442106.8
CAL1	I13C4-PFOS	True	371830.6	371819.0
CAL2	I13C4-PFOS	True	390170.7	371819.0
CAL3	I13C4-PFOS	True	368989.1	371819.0
CAL4	I13C4-PFOS	True	420653.5	371819.0
CAL5	I13C4-PFOS	True	376580.0	371819.0
CAL6	I13C4-PFOS	True	363644.2	371819.0
CAL7	I13C4-PFOS	True	310865.0	371819.0
CAL1	I13C2-PFDA	True	1235492.2	1163605.9
CAL2	I13C2-PFDA	True	1134641.4	1163605.9
CAL3	I13C2-PFDA	True	1174340.8	1163605.9
CAL4	I13C2-PFDA	True	1324769.0	1163605.9
CAL5	I13C2-PFDA	True	1127552.9	1163605.9
CAL6	I13C2-PFDA	True	1129666.7	1163605.9
CAL7	I13C2-PFDA	True	1018778.6	1163605.9

APPROVED
By JPT at 12:32 pm, 4/12/18

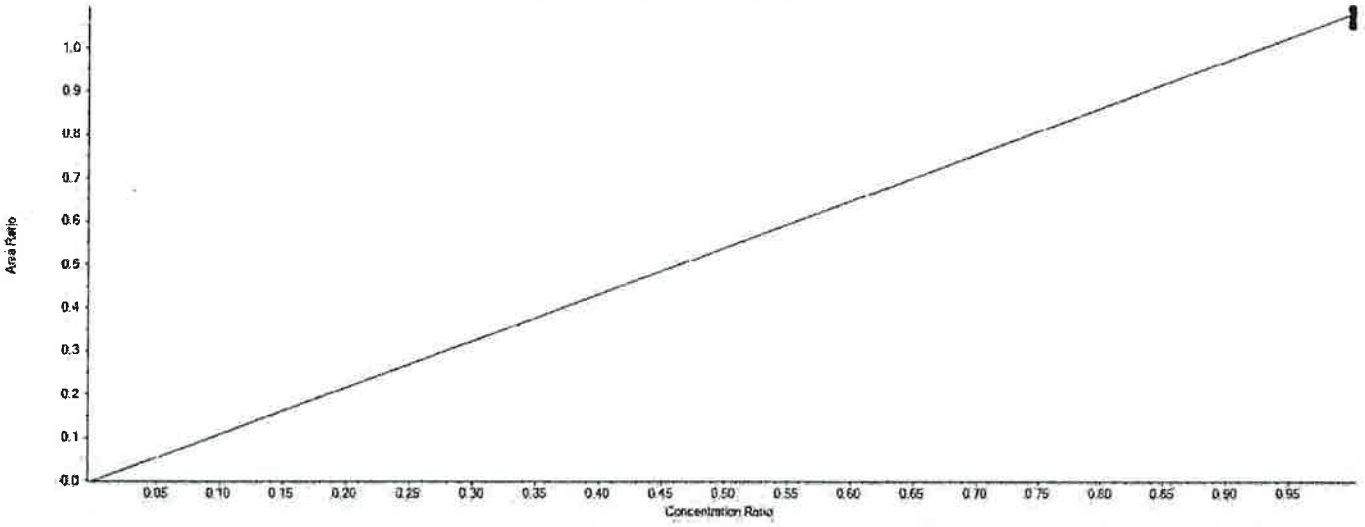
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFBA

y = 1.07794 x (std. dev. = 0.01707) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1039556.0	981637.7	True	5.00	1.059	4.44	1.000	5.000	4.912	-1.8	50.0	
CAL2	1077209.5	988005.5	True	5.00	1.090	4.44	1.000	5.000	5.057	1.1	30.0	
CAL3	1012510.8	930730.7	True	5.00	1.088	4.45	1.000	5.000	5.046	0.9	30.0	
CAL4	1117209.1	1040816.4	True	5.00	1.073	4.44	1.000	5.000	4.979	-0.4	30.0	
CAL5	989813.1	906067.6	True	5.00	1.092	4.44	1.000	5.000	5.067	1.3	30.0	
CAL6	929933.5	884773.3	True	5.00	1.051	4.44	1.000	5.000	4.875	-2.5	30.0	
CAL7	825195.3	755999.2	True	5.00	1.092	4.44	1.000	5.000	5.063	1.3	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

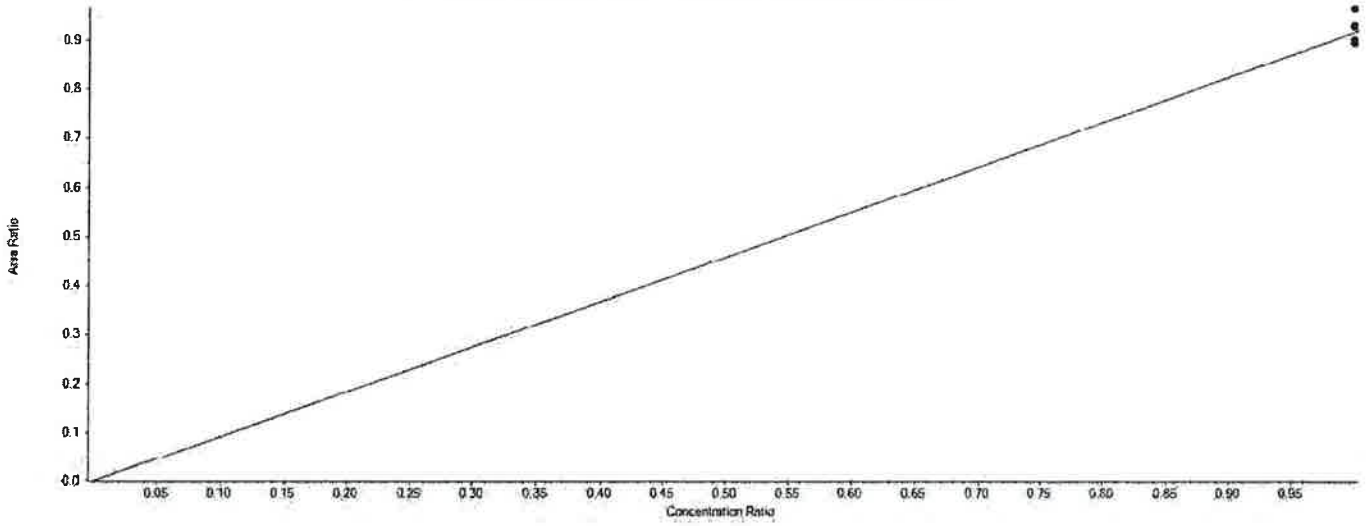
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFPeA

y = 0.91622 x (std. dev. = 0.02552) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	877803.9	981637.7	True	5.00	0.894	5.02	1.130	5.000	4.880	-2.4	50.0	
CAL2	885186.3	988005.5	True	5.00	0.896	5.02	1.130	5.000	4.889	-2.2	30.0	
CAL3	838933.5	930730.7	True	5.00	0.901	5.03	1.130	5.000	4.919	-1.6	30.0	
CAL4	1003319.3	1040816.4	True	5.00	0.964	5.02	1.130	5.000	5.261	5.2	30.0	
CAL5	842931.7	906067.6	True	5.00	0.930	5.02	1.130	5.000	5.077	1.5	30.0	
CAL6	797721.6	884773.3	True	5.00	0.902	5.02	1.130	5.000	4.920	-1.6	30.0	
CAL7	700132.2	755999.2	True	5.00	0.926	5.02	1.130	5.000	5.054	1.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

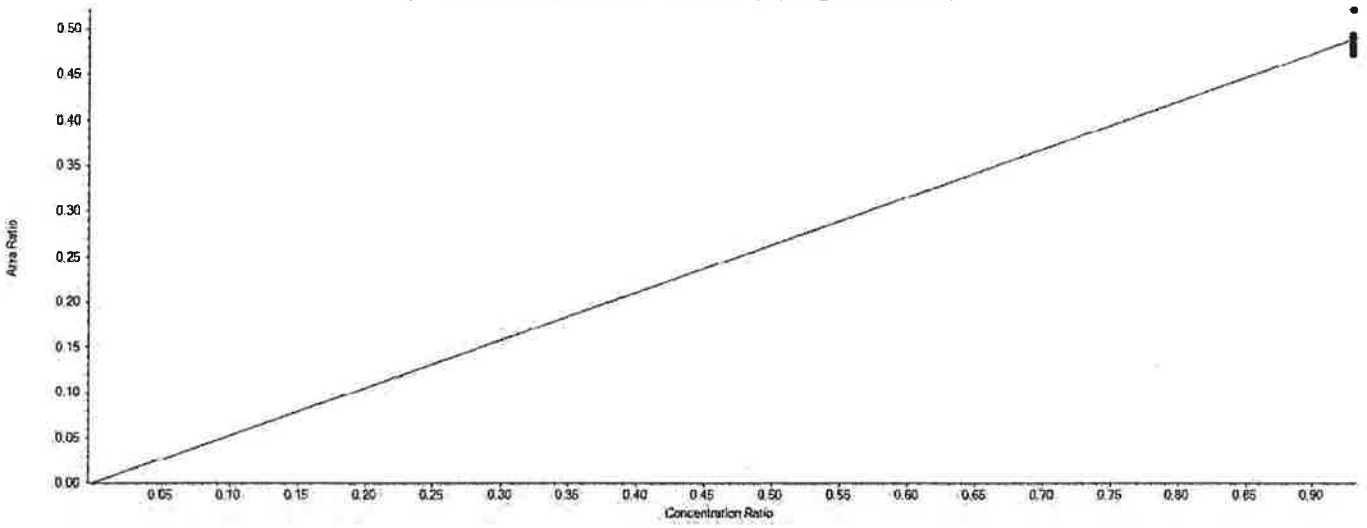
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFBS

y = 0.52578 x (std. dev. = 0.01691) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	469304.3	981637.7	True	5.00	0.478	5.07	1.140	4.650	4.546	-2.2	50.0	
CAL2	466889.8	988005.5	True	5.00	0.473	5.07	1.140	4.650	4.494	-3.4	30.0	
CAL3	450301.5	930730.7	True	5.00	0.484	5.08	1.140	4.650	4.601	-1.1	30.0	
CAL4	513505.4	1040816.4	True	5.00	0.493	5.07	1.140	4.650	4.692	0.9	30.0	
CAL5	471919.1	906067.6	True	5.00	0.521	5.07	1.140	4.650	4.953	6.5	30.0	
CAL6	434168.7	884773.3	True	5.00	0.491	5.07	1.140	4.650	4.667	0.4	30.0	
CAL7	365470.0	755999.2	True	5.00	0.483	5.07	1.140	4.650	4.597	-1.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

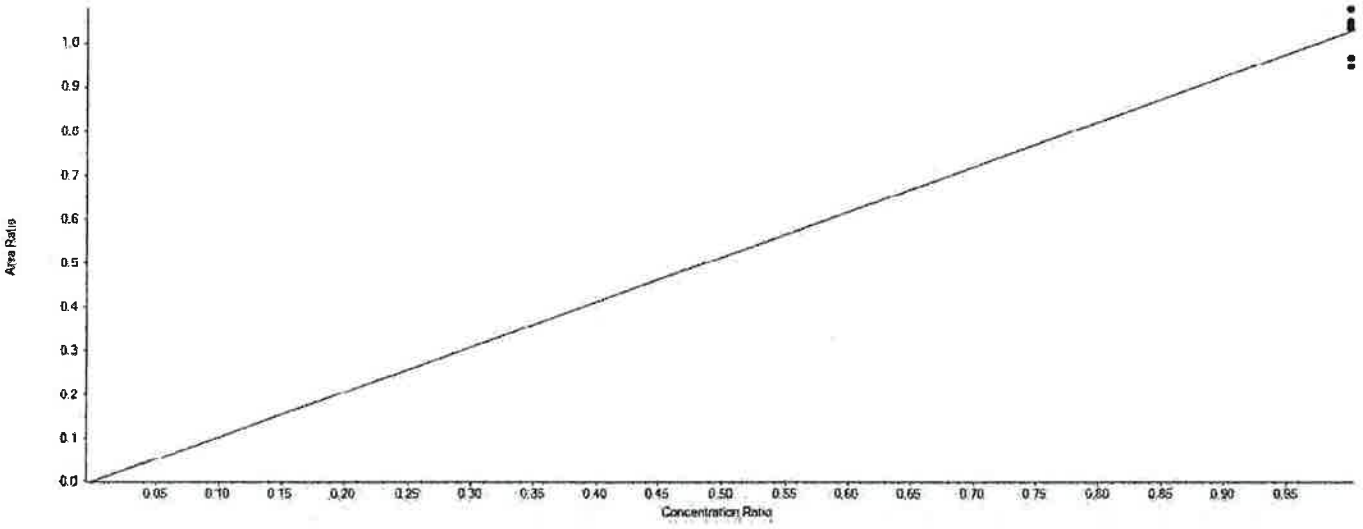
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFHxA

y = 1.02736 x (std. dev. = 0.05147) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1578041.0	1517685.2	True	5.00	1.040	5.49	0.860	5.000	5.060	1.2	50.0	
CAL2	1586428.0	1471766.5	True	5.00	1.078	5.49	0.860	5.000	5.246	4.9	30.0	
CAL3	1478796.2	1408725.6	True	5.00	1.050	5.50	0.860	5.000	5.109	2.2	30.0	
CAL4	1742134.0	1617189.6	True	5.00	1.077	5.49	0.860	5.000	5.243	4.9	30.0	
CAL5	1400228.9	1449501.9	True	5.00	0.966	5.49	0.860	5.000	4.701	-6.0	30.0	
CAL6	1383842.5	1339081.9	True	5.00	1.033	5.49	0.860	5.000	5.030	0.6	30.0	
CAL7	1222888.1	1290796.5	True	5.00	0.947	5.48	0.860	5.000	4.611	-7.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

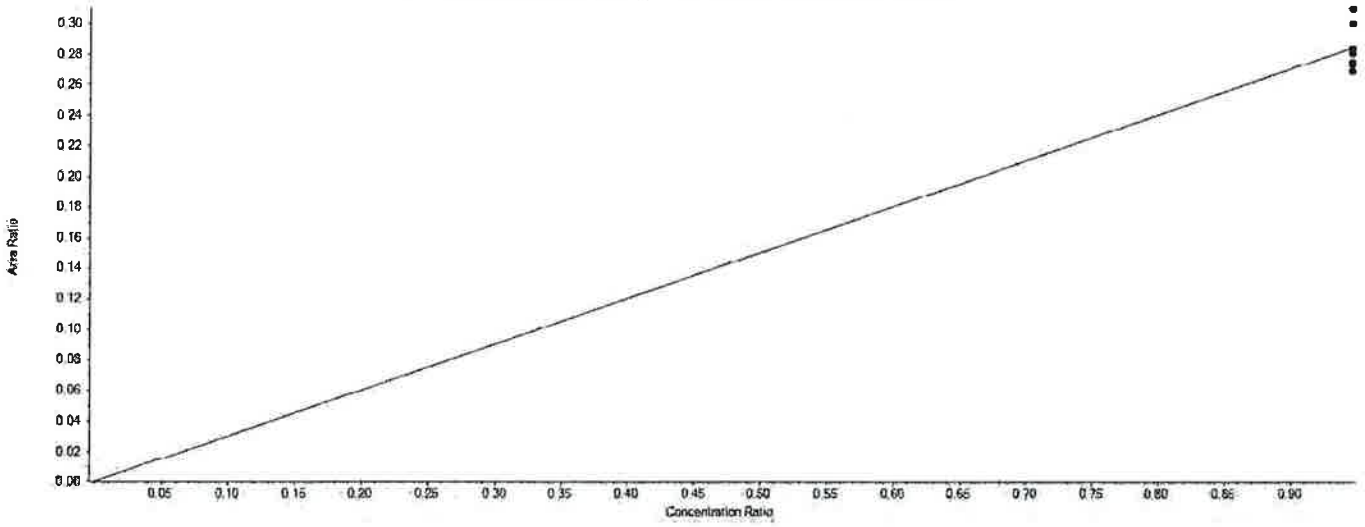
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFHxS

y = 0.30083 x (std. dev. = 0.01586) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	426034.3	1517685.2	True	5.00	0.281	5.93	0.930	4.730	4.666	-1.4	50.0	
CAL2	455593.9	1471766.5	True	5.00	0.310	5.93	0.930	4.730	5.145	8.8	30.0	
CAL3	399928.7	1408725.6	True	5.00	0.284	5.94	0.930	4.730	4.719	-0.2	30.0	
CAL4	441902.6	1617189.6	True	5.00	0.273	5.93	0.930	4.730	4.542	-4.0	30.0	
CAL5	398901.0	1449501.9	True	5.00	0.275	5.93	0.930	4.730	4.574	-3.3	30.0	
CAL6	402347.5	1339081.9	True	5.00	0.300	5.93	0.930	4.730	4.994	5.6	30.0	
CAL7	347206.8	1290796.5	True	5.00	0.269	5.93	0.930	4.730	4.471	-5.5	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

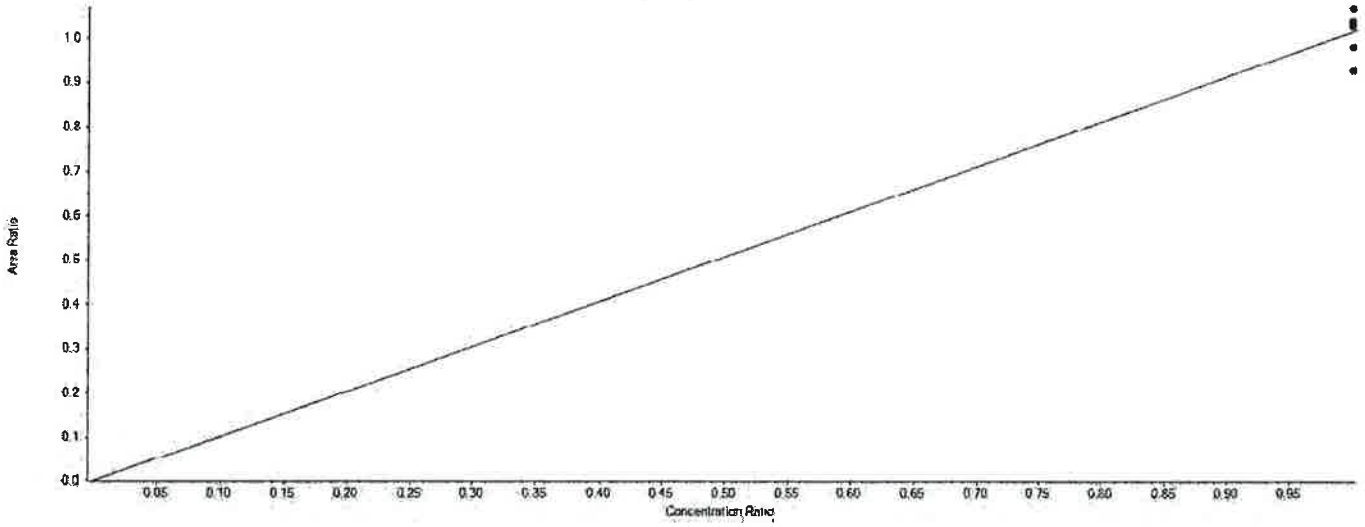
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFHpA

y = 1.01589 x (std. dev. = 0.04639) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1560780.0	1517685.2	True	5.00	1.028	5.94	0.930	5.000	5.062	1.2	50.0	
CAL2	1570376.7	1471766.5	True	5.00	1.067	5.94	0.930	5.000	5.252	5.0	30.0	
CAL3	1457586.2	1408725.6	True	5.00	1.035	5.94	0.930	5.000	5.092	1.9	30.0	
CAL4	1672856.6	1617189.6	True	5.00	1.034	5.93	0.930	5.000	5.091	1.8	30.0	
CAL5	1421056.3	1449501.9	True	5.00	0.980	5.94	0.930	5.000	4.825	-3.5	30.0	
CAL6	1390212.8	1339081.9	True	5.00	1.038	5.94	0.940	5.000	5.110	2.2	30.0	
CAL7	1198107.1	1290796.5	True	5.00	0.928	5.93	0.930	5.000	4.568	-8.6	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

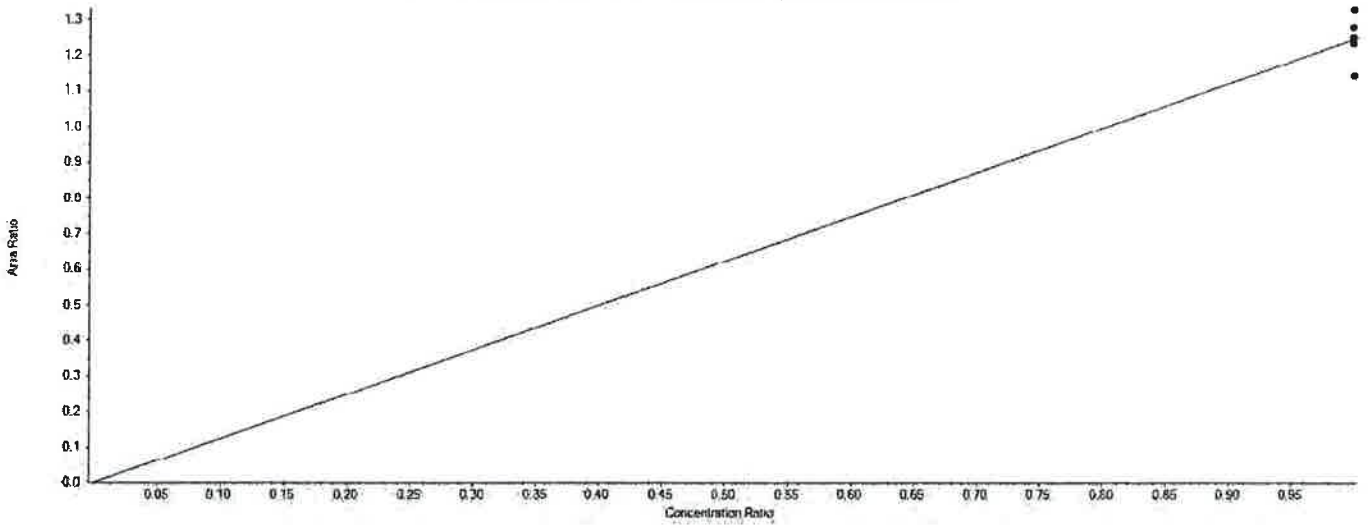
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOA

y = 1.24539 x (std. dev. = 0.05604) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1873019.4	1517685.2	True	5.00	1.234	6.35	1.000	5.000	4.955	-0.9	50.0	
CAL2	1952831.6	1471766.5	True	5.00	1.327	6.35	1.000	5.000	5.327	6.5	30.0	
CAL3	1801314.0	1408725.6	True	5.00	1.279	6.36	1.000	5.000	5.134	2.7	30.0	
CAL4	2011849.9	1617189.6	True	5.00	1.244	6.35	1.000	5.000	4.995	-0.1	30.0	
CAL5	1798992.1	1449501.9	True	5.00	1.241	6.36	1.000	5.000	4.983	-0.3	30.0	
CAL6	1676401.5	1339081.9	True	5.00	1.252	6.35	1.000	5.000	5.026	0.5	30.0	
CAL7	1472755.6	1290796.5	True	5.00	1.141	6.35	1.000	5.000	4.581	-8.4	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

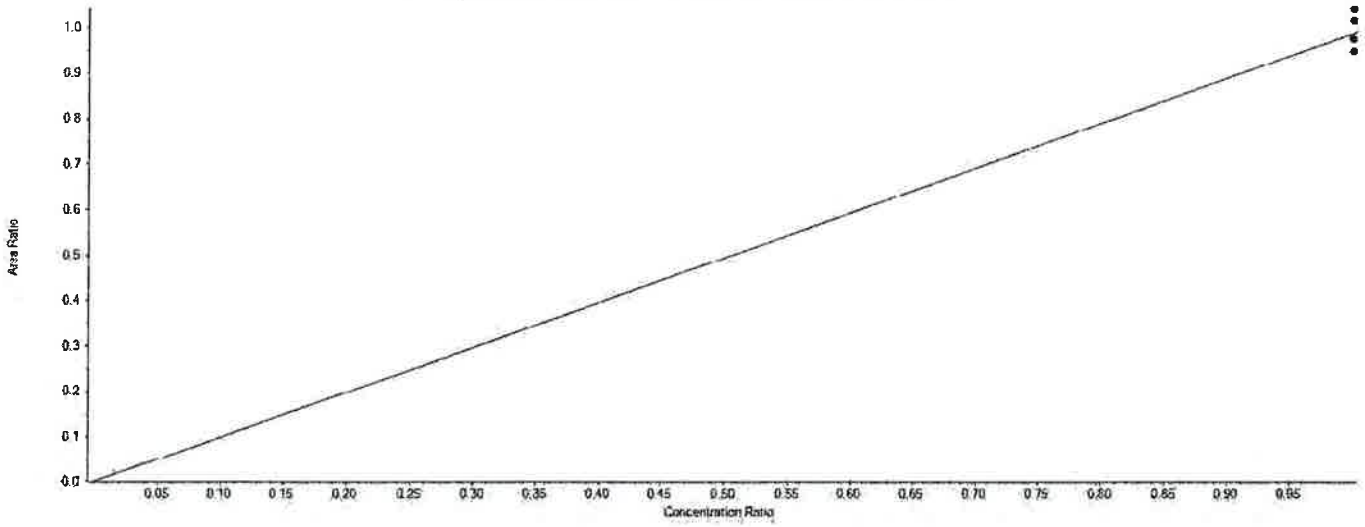
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOS

y = 0.98785 x (std. dev. = 0.03046) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	363441.3	371830.6	True	4.78	0.977	6.70	1.000	4.780	4.730	-1.1	50.0	
CAL2	396417.6	390170.7	True	4.78	1.016	6.70	1.000	4.780	4.916	2.9	30.0	
CAL3	384020.6	368989.1	True	4.78	1.041	6.71	1.000	4.780	5.036	5.4	30.0	
CAL4	411532.4	420653.5	True	4.78	0.978	6.70	1.000	4.780	4.734	-1.0	30.0	
CAL5	367609.6	376580.0	True	4.78	0.976	6.70	1.000	4.780	4.724	-1.2	30.0	
CAL6	344965.0	363644.2	True	4.78	0.949	6.70	1.000	4.780	4.590	-4.0	30.0	
CAL7	303903.7	310865.0	True	4.78	0.978	6.69	1.000	4.780	4.730	-1.0	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

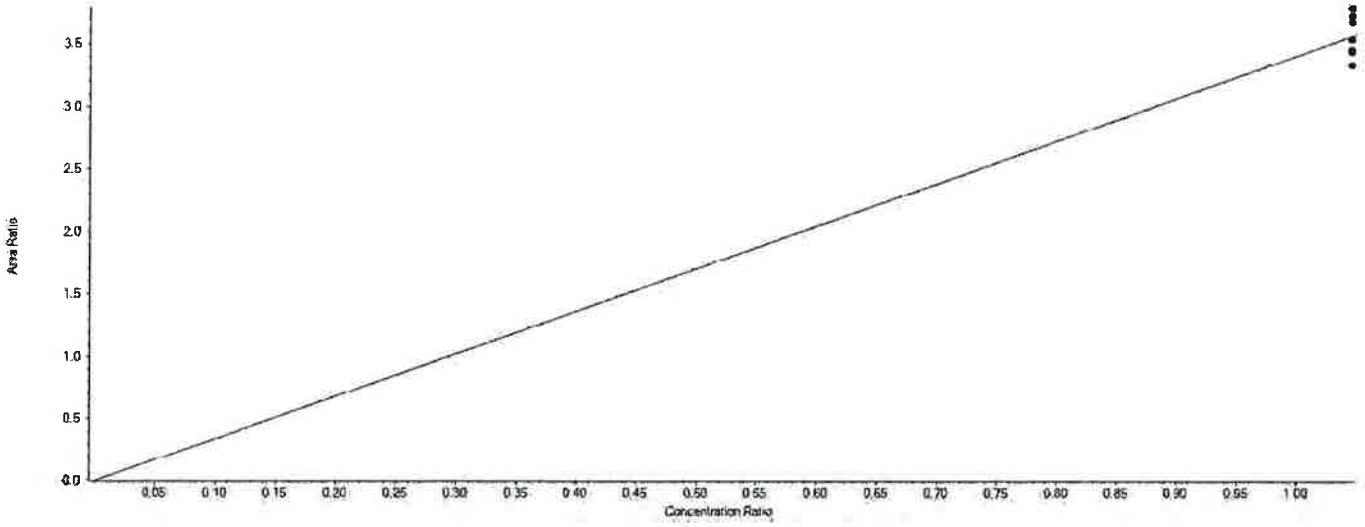
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C9-PFNA

y = 3.40869 x (std. dev. = 0.15980) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1384282.8	371830.6	True	4.78	3.723	6.73	1.000	5.000	5.221	4.4	50.0	
CAL2	1434808.2	390170.7	True	4.78	3.677	6.73	1.000	5.000	5.157	3.1	30.0	
CAL3	1269254.7	368989.1	True	4.78	3.440	6.74	1.000	5.000	4.824	-3.5	30.0	
CAL4	1455556.9	420653.5	True	4.78	3.460	6.73	1.000	5.000	4.852	-3.0	30.0	
CAL5	1254850.3	376580.0	True	4.78	3.332	6.73	1.000	5.000	4.673	-6.5	30.0	
CAL6	1287621.8	363644.2	True	4.78	3.541	6.73	1.000	5.000	4.965	-0.7	30.0	
CAL7	1176812.6	310865.0	True	4.78	3.786	6.72	1.000	5.000	5.309	6.2	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

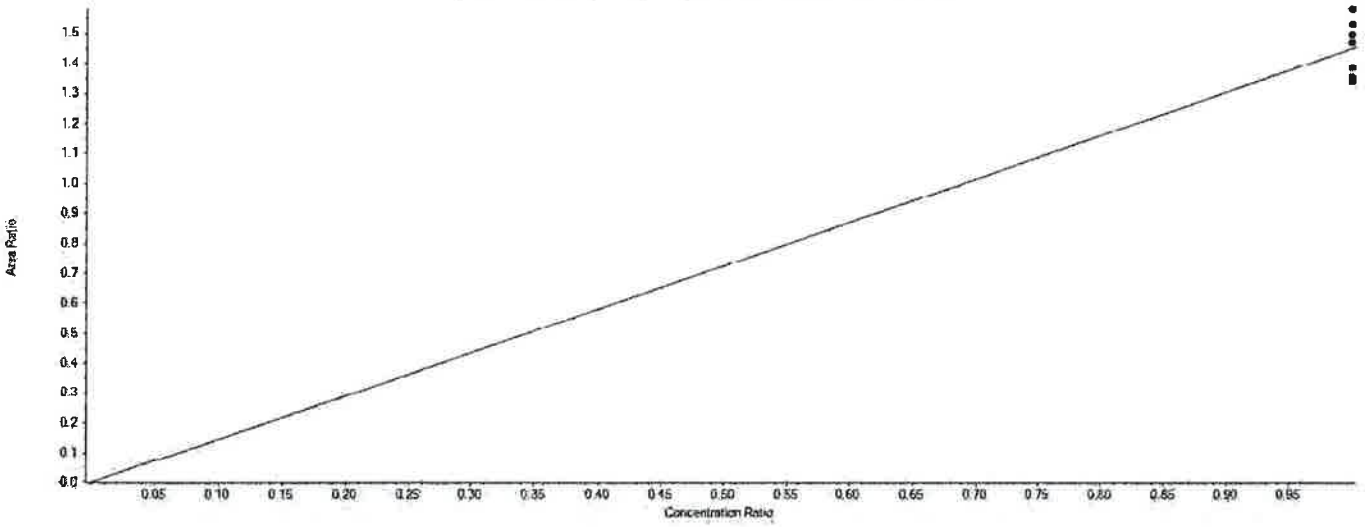
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C6-PFDA

y = 1.45014 x (std. dev. = 0.09225) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1711460.2	1235492.2	True	5.00	1.385	7.08	1.000	5.000	4.776	-4.5	50.0	
CAL2	1791292.2	1134641.4	True	5.00	1.579	7.07	1.000	5.000	5.443	8.9	30.0	
CAL3	1727707.8	1174340.8	True	5.00	1.471	7.08	1.000	5.000	5.073	1.5	30.0	
CAL4	1983112.7	1324769.0	True	5.00	1.497	7.07	1.000	5.000	5.161	3.2	30.0	
CAL5	1721524.0	1127552.9	True	5.00	1.527	7.08	1.000	5.000	5.264	5.3	30.0	
CAL6	1529554.5	1129666.7	True	5.00	1.354	7.08	1.000	5.000	4.668	-6.6	30.0	
CAL7	1363173.5	1018778.6	True	5.00	1.338	7.07	1.000	5.000	4.614	-7.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

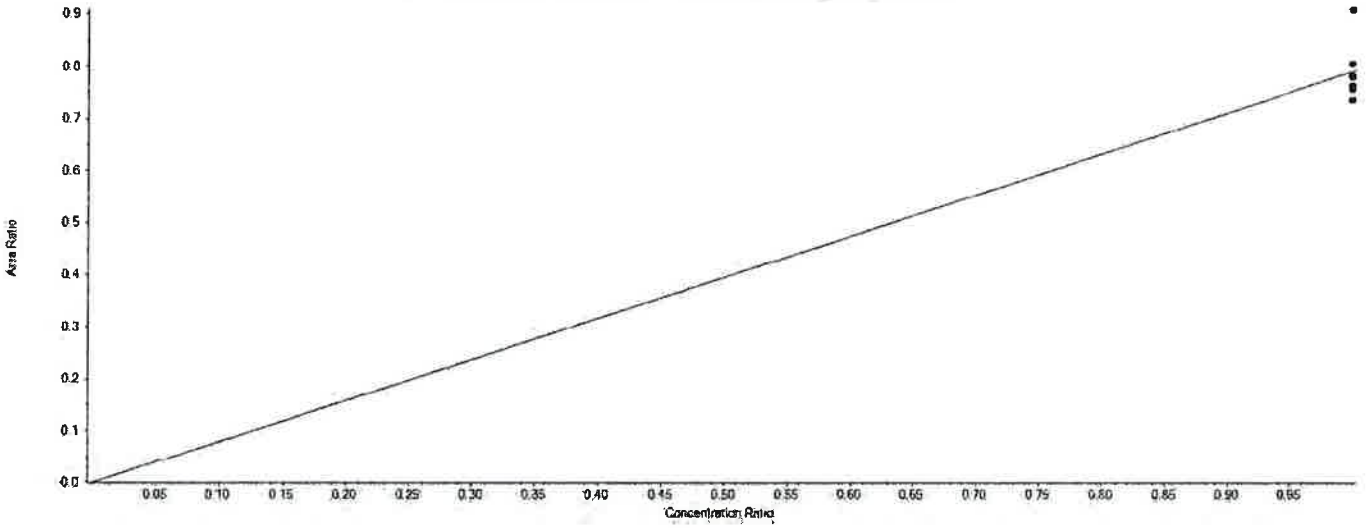
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C7-PFUnDA

y = 0.79009 x (std. dev. = 0.05639) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	995821.2	1235492.2	True	5.00	0.806	7.39	1.040	5.000	5.101	2.0	50.0	
CAL2	1030183.1	1134641.4	True	5.00	0.908	7.38	1.040	5.000	5.746	14.9	30.0	
CAL3	888871.0	1174340.8	True	5.00	0.757	7.39	1.040	5.000	4.790	-4.2	30.0	
CAL4	1010630.1	1324769.0	True	5.00	0.763	7.38	1.040	5.000	4.828	-3.4	30.0	
CAL5	881054.2	1127552.9	True	5.00	0.781	7.39	1.040	5.000	4.945	-1.1	30.0	
CAL6	880392.6	1129666.7	True	5.00	0.779	7.38	1.040	5.000	4.932	-1.4	30.0	
CAL7	749999.2	1018778.6	True	5.00	0.736	7.38	1.040	5.000	4.659	-6.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

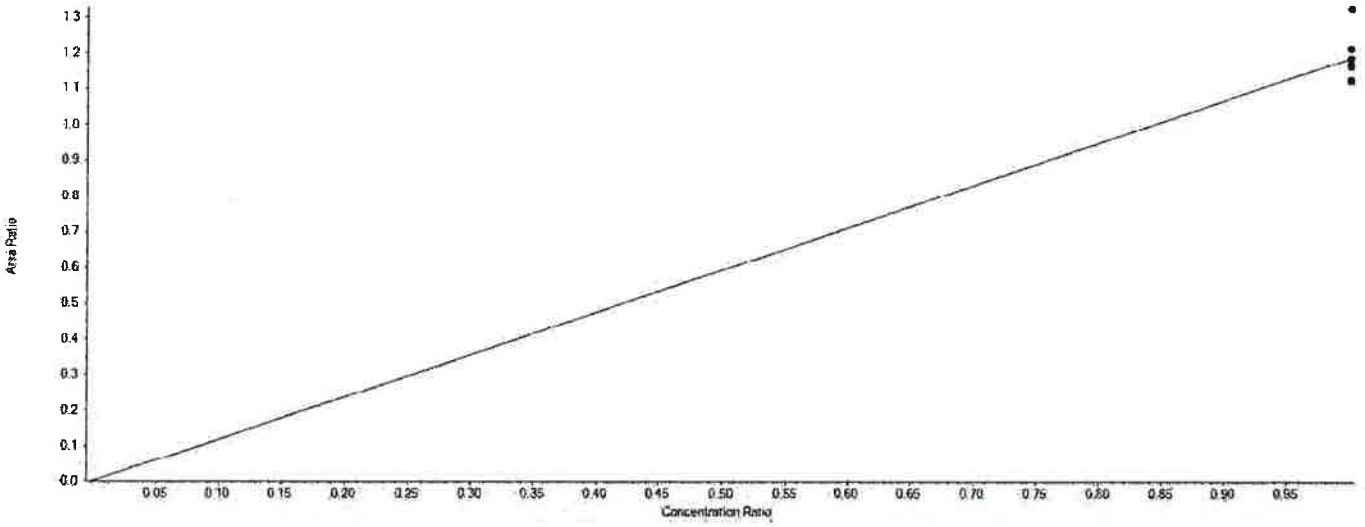
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFDoDA

y = 1.18705 x (std. dev. = 0.06826) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1448567.4	1235492.2	True	5.00	1.172	7.67	1.080	5.000	4.939	-1.2	50.0	
CAL2	1502007.0	1134641.4	True	5.00	1.324	7.67	1.080	5.000	5.576	11.5	30.0	
CAL3	1365297.0	1174340.8	True	5.00	1.163	7.68	1.080	5.000	4.897	-2.1	30.0	
CAL4	1486696.5	1324769.0	True	5.00	1.122	7.67	1.080	5.000	4.727	-5.5	30.0	
CAL5	1368417.8	1127552.9	True	5.00	1.214	7.67	1.080	5.000	5.112	2.2	30.0	
CAL6	1341062.3	1129666.7	True	5.00	1.187	7.67	1.080	5.000	5.000	0.0	30.0	
CAL7	1148686.5	1018778.6	True	5.00	1.128	7.67	1.080	5.000	4.749	-5.0	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

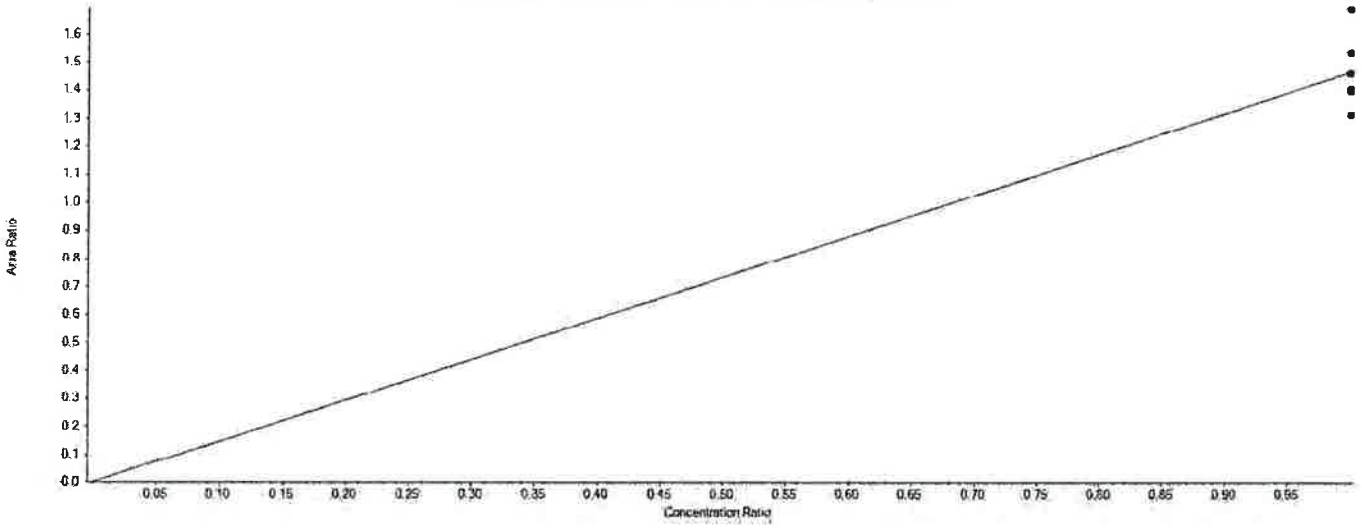
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFTeDA

y = 1.46582 x (std. dev. = 0.11968) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1802191.1	1235492.2	True	5.00	1.459	8.24	1.160	5.000	4.976	-0.5	50.0	
CAL2	1915714.8	1134641.4	True	5.00	1.688	8.23	1.160	5.000	5.759	15.2	30.0	
CAL3	1639034.8	1174340.8	True	5.00	1.396	8.24	1.160	5.000	4.761	-4.8	30.0	
CAL4	1938387.9	1324769.0	True	5.00	1.463	8.23	1.160	5.000	4.991	-0.2	30.0	
CAL5	1730502.5	1127552.9	True	5.00	1.535	8.23	1.160	5.000	5.235	4.7	30.0	
CAL6	1588690.1	1129666.7	True	5.00	1.406	8.23	1.160	5.000	4.797	-4.1	30.0	
CAL7	1338346.4	1018778.6	True	5.00	1.314	8.23	1.160	5.000	4.481	-10.4	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

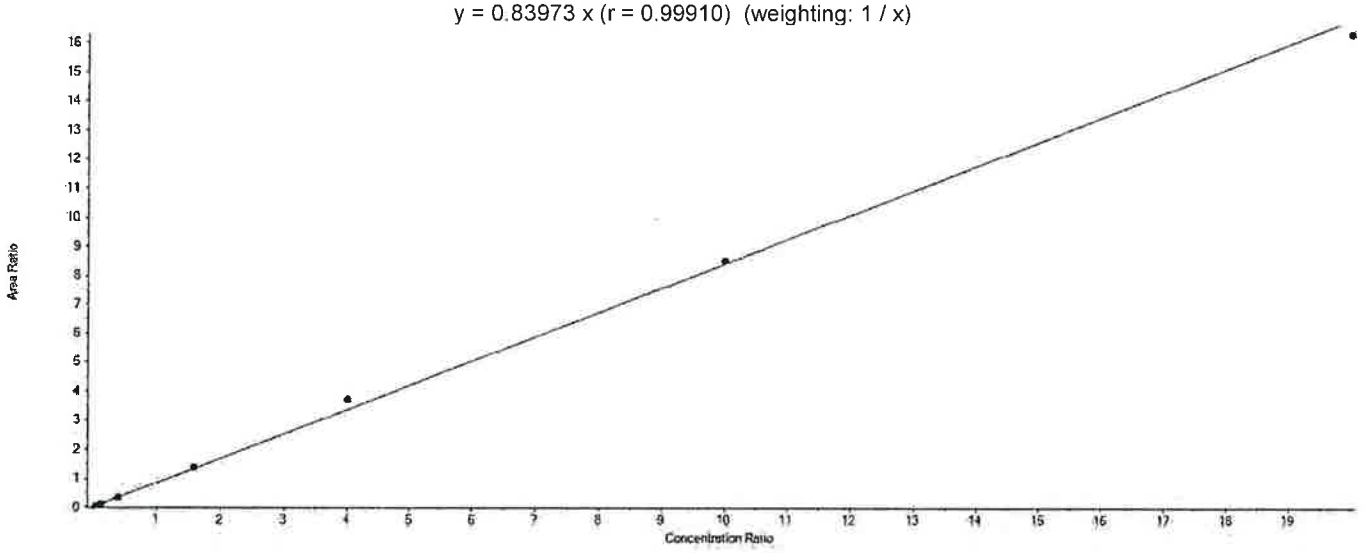
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBA

y = 0.83973 x (r = 0.99910) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	39178.0	1039556.0	True	5.00	0.038	4.44	1.000	0.200	0.224	12.2	50.0	
CAL2	106388.4	1077209.5	True	5.00	0.099	4.44	1.000	0.600	0.588	-2.0	30.0	
CAL3	338058.3	1012510.8	True	5.00	0.334	4.45	1.000	2.000	1.988	-0.6	30.0	
CAL4	1547540.4	1117209.1	True	5.00	1.385	4.44	1.000	8.000	8.248	3.1	30.0	
CAL5	3665408.7	989813.1	True	5.00	3.703	4.44	1.000	20.000	22.049	10.2	30.0	
CAL6	7913689.7	929933.5	True	5.00	8.510	4.44	1.000	50.000	50.671	1.3	30.0	
CAL7	13447476.8	825195.3	True	5.00	16.296	4.44	1.000	100.000	97.032	-3.0	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

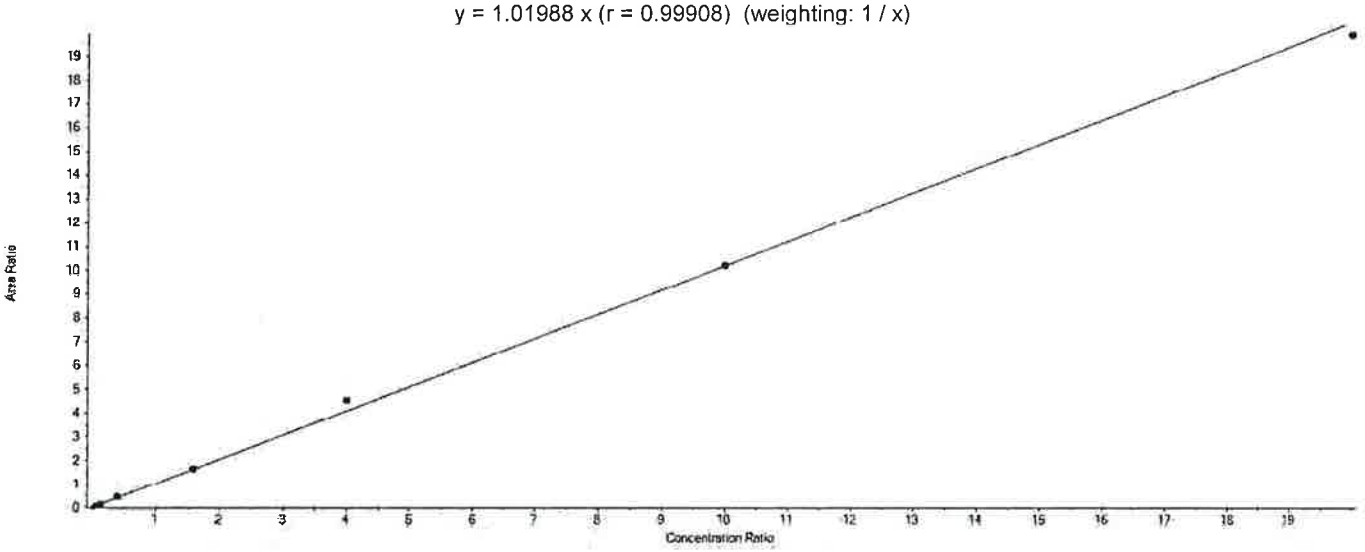
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFPeA

y = 1.01988 x (r = 0.99908) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	39036.7	877803.9	True	5.00	0.044	5.02	1.000	0.200	0.218	9.0	50.0	
CAL2	113014.6	885186.3	True	5.00	0.128	5.02	1.000	0.600	0.626	4.3	30.0	
CAL3	354432.4	838933.5	True	5.00	0.422	5.03	1.000	2.000	2.071	3.6	30.0	
CAL4	1657661.6	1003319.3	True	5.00	1.652	5.02	1.000	8.000	8.100	1.2	30.0	
CAL5	3830218.6	842931.7	True	5.00	4.544	5.02	1.000	20.000	22.277	11.4	30.0	
CAL6	8143498.5	797721.6	True	5.00	10.208	5.02	1.000	50.000	50.047	0.1	30.0	
CAL7	13918495.7	700132.2	True	5.00	19.880	5.02	1.000	100.000	97.461	-2.5	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

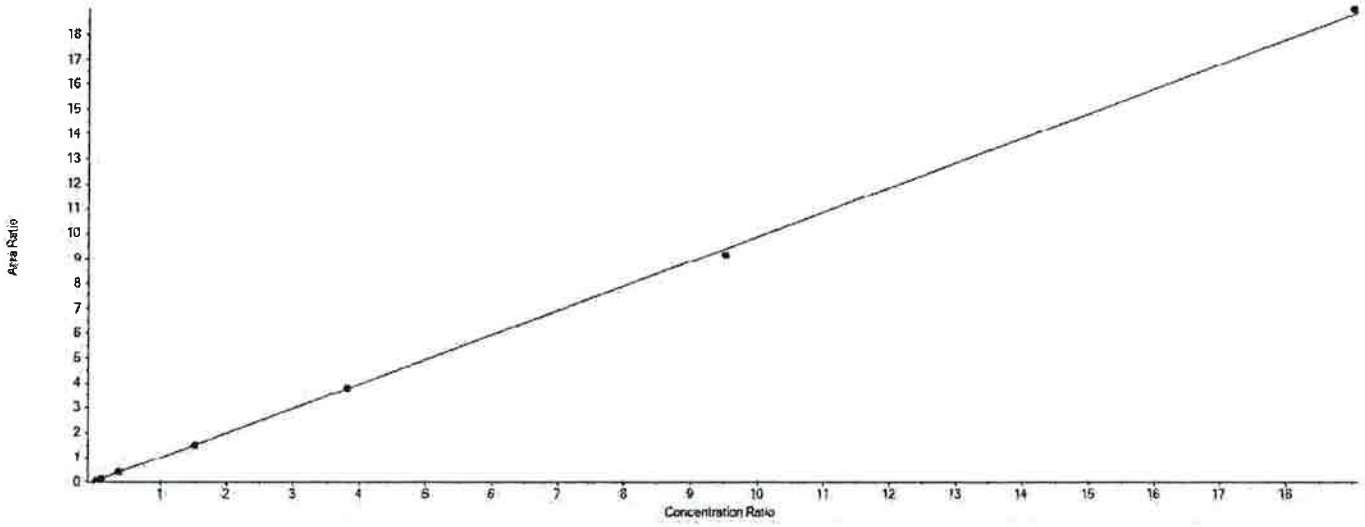
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBS

y = 0.98743 x (r = 0.99985) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	18164.8	469304.3	True	4.65	0.039	5.07	1.000	0.170	0.182	7.2	50.0	
CAL2	55595.4	466889.8	True	4.65	0.119	5.07	1.000	0.530	0.561	5.8	30.0	
CAL3	166170.8	450301.5	True	4.65	0.369	5.08	1.000	1.770	1.738	-1.8	30.0	
CAL4	762505.8	513505.4	True	4.65	1.485	5.07	1.000	7.080	6.993	-1.2	30.0	
CAL5	1795781.4	471919.1	True	4.65	3.805	5.07	1.000	17.690	17.920	1.3	30.0	
CAL6	3972190.1	434168.7	True	4.65	9.149	5.07	1.000	44.220	43.084	-2.6	30.0	
CAL7	6940632.1	365470.0	True	4.65	18.991	5.07	1.000	88.450	89.432	1.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

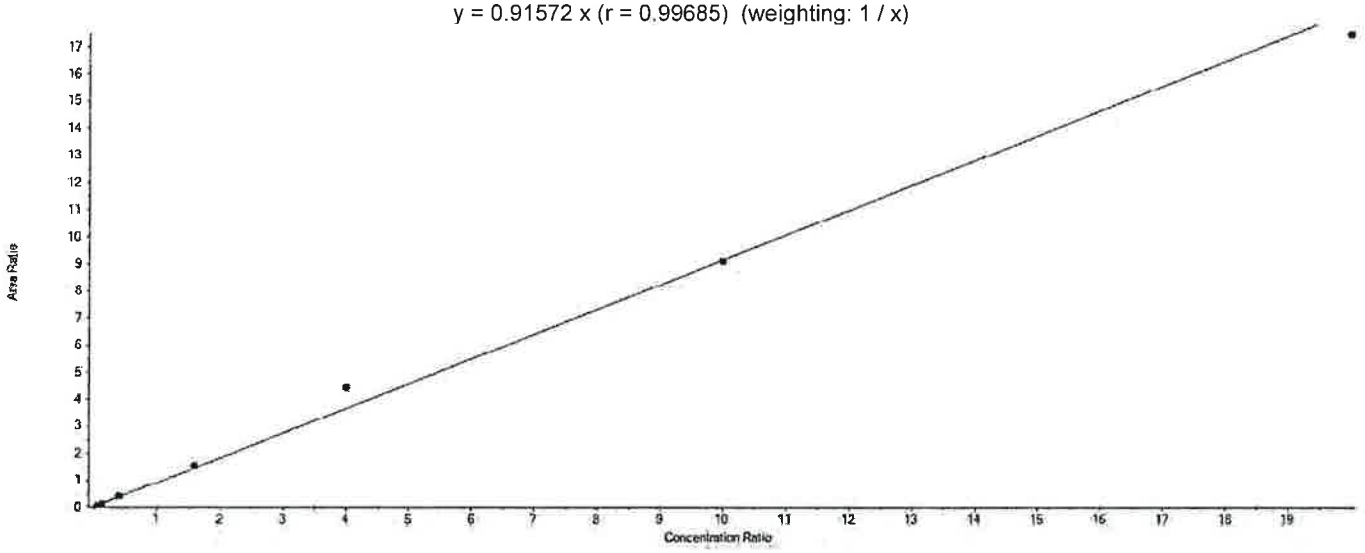
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxA

y = 0.91572 x (r = 0.99685) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	66951.6	1578041.0	True	5.00	0.042	5.49	1.000	0.200	0.232	15.8	50.0	
CAL2	179410.6	1586428.0	True	5.00	0.113	5.49	1.000	0.600	0.618	2.9	30.0	
CAL3	594164.8	1478796.2	True	5.00	0.402	5.50	1.000	2.000	2.194	9.7	30.0	
CAL4	2728366.2	1742134.0	True	5.00	1.566	5.49	1.000	8.000	8.551	6.9	30.0	
CAL5	6186430.9	1400228.9	True	5.00	4.418	5.49	1.000	20.000	24.124	20.6	30.0	
CAL6	12610653.6	1383842.5	True	5.00	9.113	5.49	1.000	50.000	49.758	-0.5	30.0	
CAL7	21349075.8	1222888.1	True	5.00	17.458	5.49	1.000	100.000	95.324	-4.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

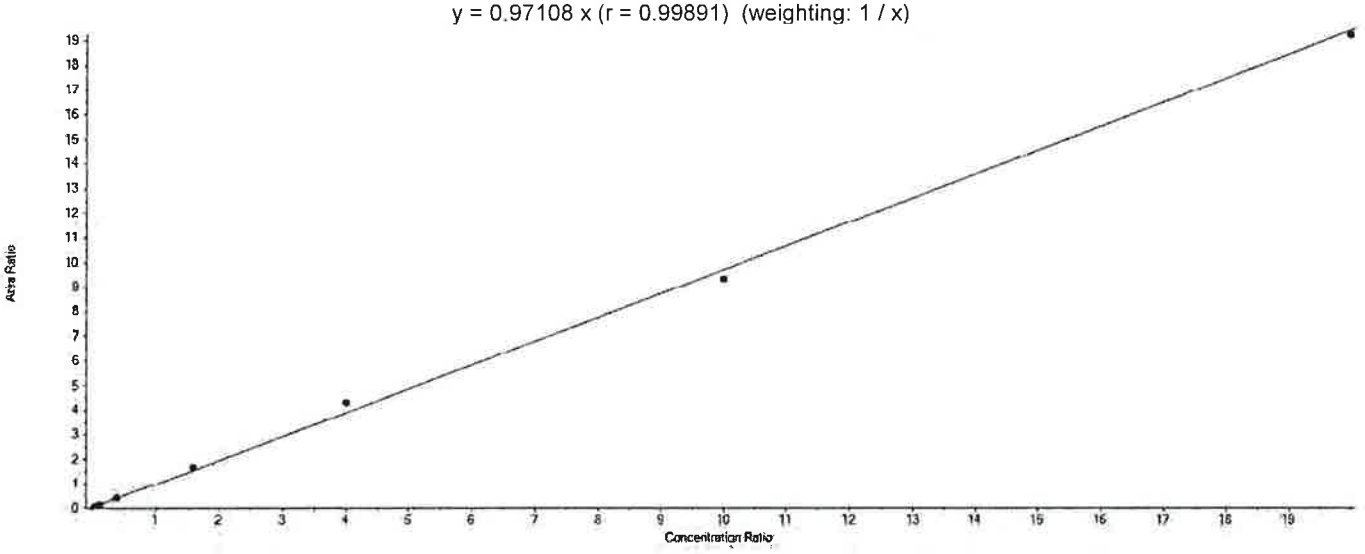
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxS

y = 0.97108 x (r = 0.99891) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	17208.4	426034.3	True	4.73	0.040	5.93	1.000	0.190	0.197	3.6	50.0	
CAL2	49603.0	455593.9	True	4.73	0.109	5.93	1.000	0.570	0.530	-7.0	30.0	
CAL3	155948.7	399928.7	True	4.73	0.390	5.94	1.000	1.890	1.899	0.5	30.0	
CAL4	737916.4	441902.6	True	4.73	1.670	5.93	1.000	7.560	8.134	7.6	30.0	
CAL5	1722622.3	398901.0	True	4.73	4.318	5.93	1.000	18.910	21.035	11.2	30.0	
CAL6	3758194.2	402347.5	True	4.73	9.341	5.93	1.000	47.280	45.497	-3.8	30.0	
CAL7	6676151.3	347206.8	True	4.73	19.228	5.92	1.000	94.550	93.658	-0.9	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

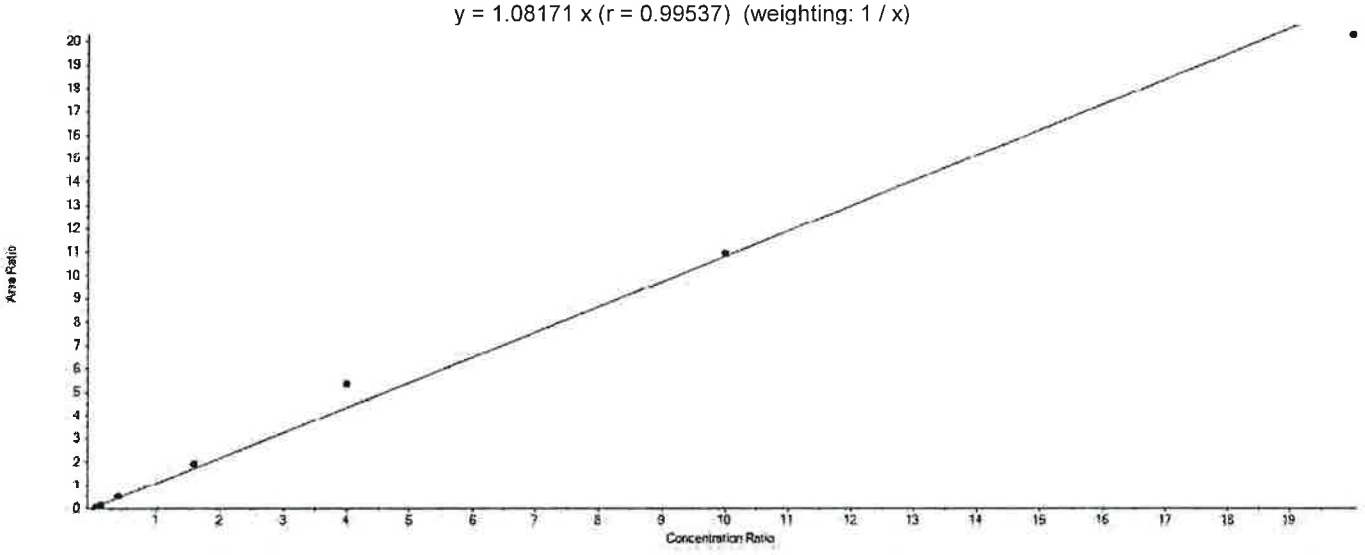
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHpA

y = 1.08171 x (r = 0.99537) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	79711.9	1560780.0	True	5.00	0.051	5.94	1.000	0.200	0.236	18.0	50.0	
CAL2	209694.5	1570376.7	True	5.00	0.134	5.94	1.000	0.600	0.617	2.9	30.0	
CAL3	705719.0	1457586.2	True	5.00	0.484	5.94	1.000	2.000	2.238	11.9	30.0	
CAL4	3178105.8	1672856.6	True	5.00	1.900	5.93	1.000	8.000	8.781	9.8	30.0	
CAL5	7618444.5	1421056.3	True	5.00	5.361	5.94	1.000	20.000	24.781	23.9	30.0	
CAL6	15192870.6	1390212.8	True	5.00	10.928	5.94	1.000	50.000	50.515	1.0	30.0	
CAL7	24269495.0	1198107.1	True	5.00	20.257	5.93	1.000	100.000	93.632	-6.4	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

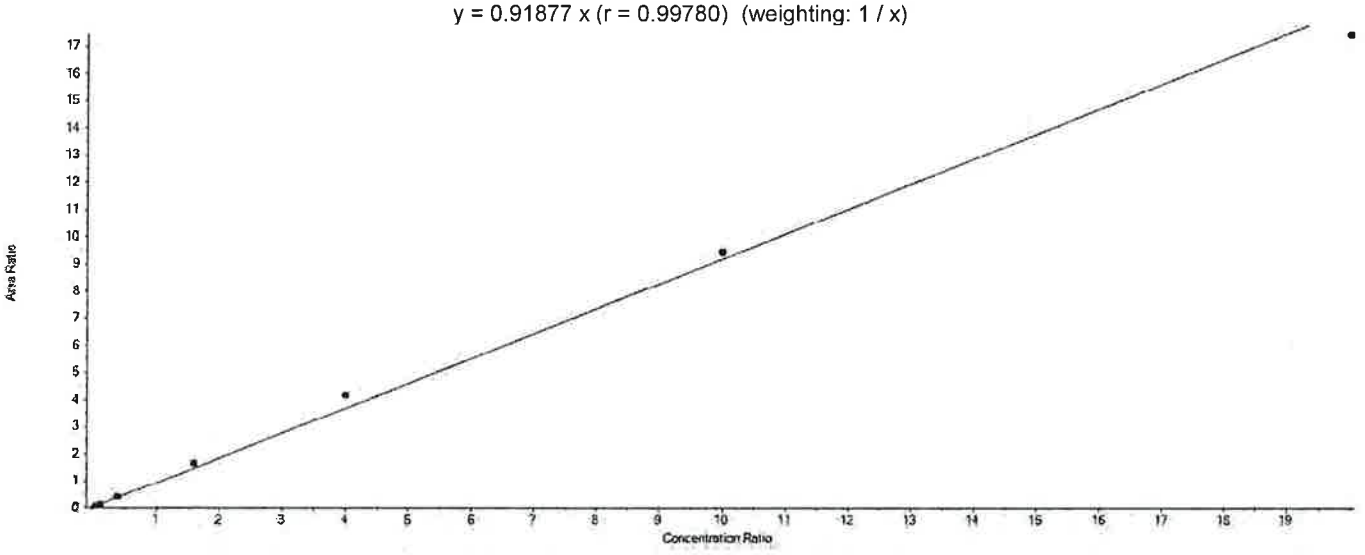
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOA

y = 0.91877 x (r = 0.99780) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	87710.9	1873019.4	True	5.00	0.047	6.35	1.000	0.200	0.255	27.4	50.0	
CAL2	227941.6	1952831.6	True	5.00	0.117	6.35	1.000	0.600	0.635	5.9	30.0	
CAL3	714469.8	1801314.0	True	5.00	0.397	6.36	1.000	2.000	2.159	7.9	30.0	
CAL4	3296055.7	2011849.9	True	5.00	1.638	6.35	1.000	8.000	8.916	11.4	30.0	
CAL5	7518281.9	1798992.1	True	5.00	4.179	6.35	1.000	20.000	22.743	13.7	30.0	
CAL6	15812025.5	1676401.5	True	5.00	9.432	6.35	1.000	50.000	51.330	2.7	30.0	
CAL7	25644747.4	1472755.6	True	5.00	17.413	6.35	1.000	100.000	94.762	-5.2	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

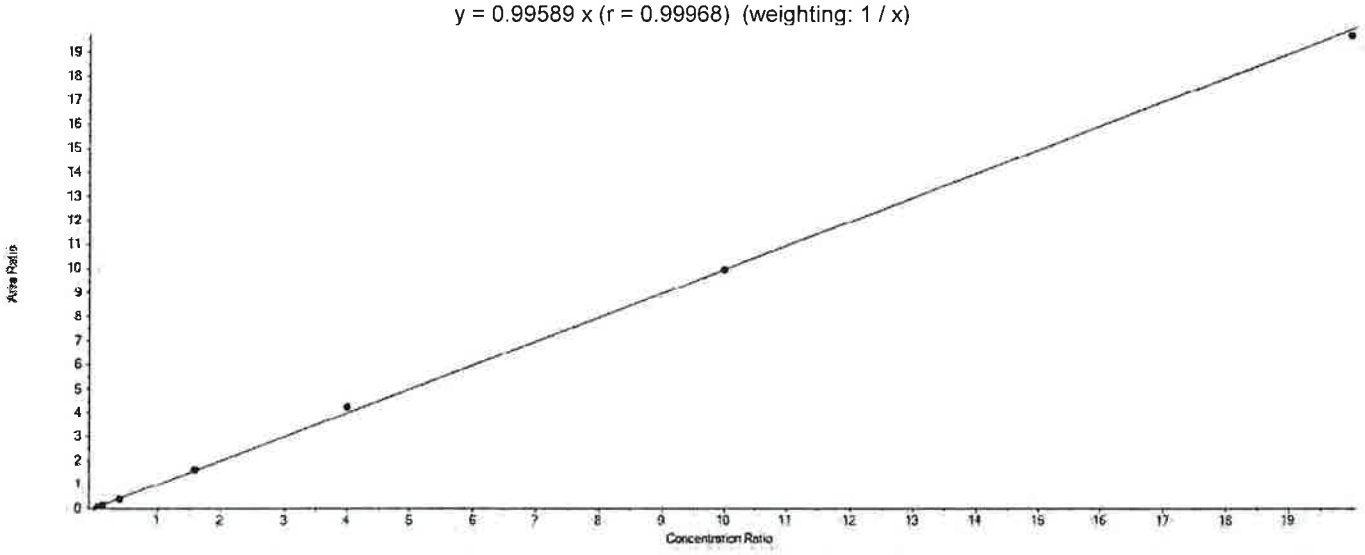
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOS

y = 0.99589 x (r = 0.99968) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	13971.6	363441.3	True	4.78	0.038	6.70	1.000	0.190	0.185	-2.9	50.0	
CAL2	44443.8	396417.6	True	4.78	0.112	6.70	1.000	0.570	0.538	-5.6	30.0	
CAL3	144086.6	384020.6	True	4.78	0.375	6.71	1.000	1.910	1.801	-5.7	30.0	
CAL4	665675.0	411532.4	True	4.78	1.618	6.70	1.000	7.650	7.764	1.5	30.0	
CAL5	1560715.5	367609.6	True	4.78	4.246	6.70	1.000	19.120	20.378	6.6	30.0	
CAL6	3432757.7	344965.0	True	4.78	9.951	6.70	1.000	47.800	47.762	-0.1	30.0	
CAL7	5977900.2	303903.7	True	4.78	19.670	6.70	1.000	95.600	94.413	-1.2	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

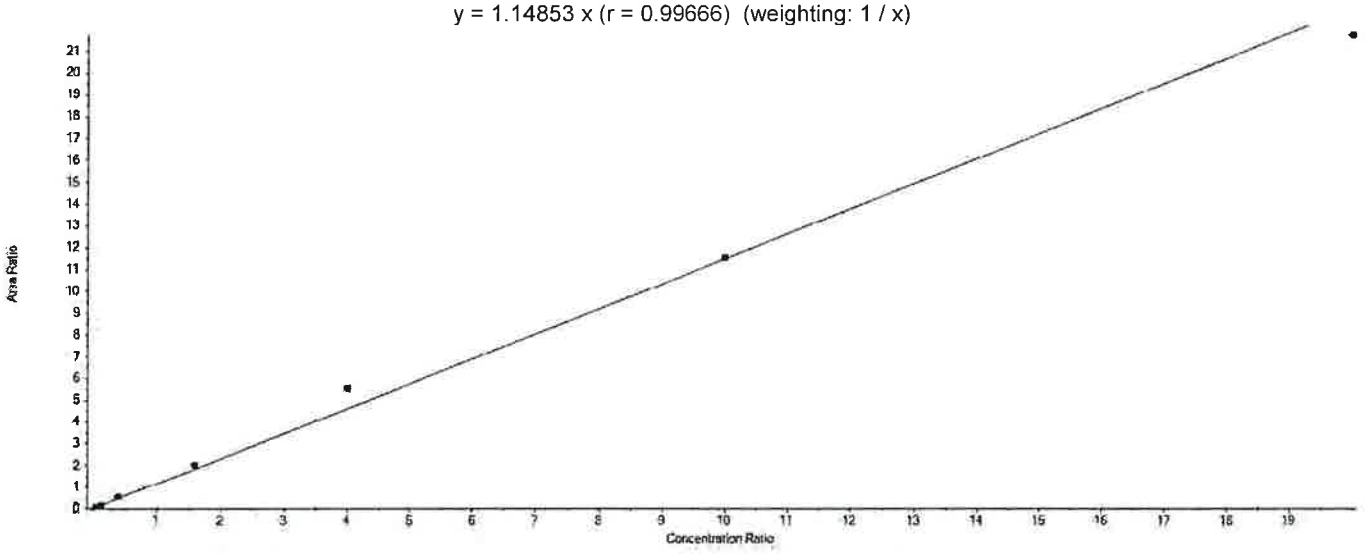
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFNA

y = 1.14853 x (r = 0.99666) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	78706.9	1384282.8	True	5.00	0.057	6.73	1.000	0.200	0.248	23.8	50.0	
CAL2	213525.8	1434808.2	True	5.00	0.149	6.73	1.000	0.600	0.648	8.0	30.0	
CAL3	681798.5	1269254.7	True	5.00	0.537	6.74	1.000	2.000	2.338	16.9	30.0	
CAL4	2953048.0	1455556.9	True	5.00	2.029	6.73	1.000	8.000	8.832	10.4	30.0	
CAL5	6896123.3	1254850.3	True	5.00	5.496	6.73	1.000	20.000	23.924	19.6	30.0	
CAL6	14891502.0	1287621.8	True	5.00	11.565	6.73	1.000	50.000	50.347	0.7	30.0	
CAL7	25535140.0	1176812.6	True	5.00	21.699	6.72	1.000	100.000	94.462	-5.5	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

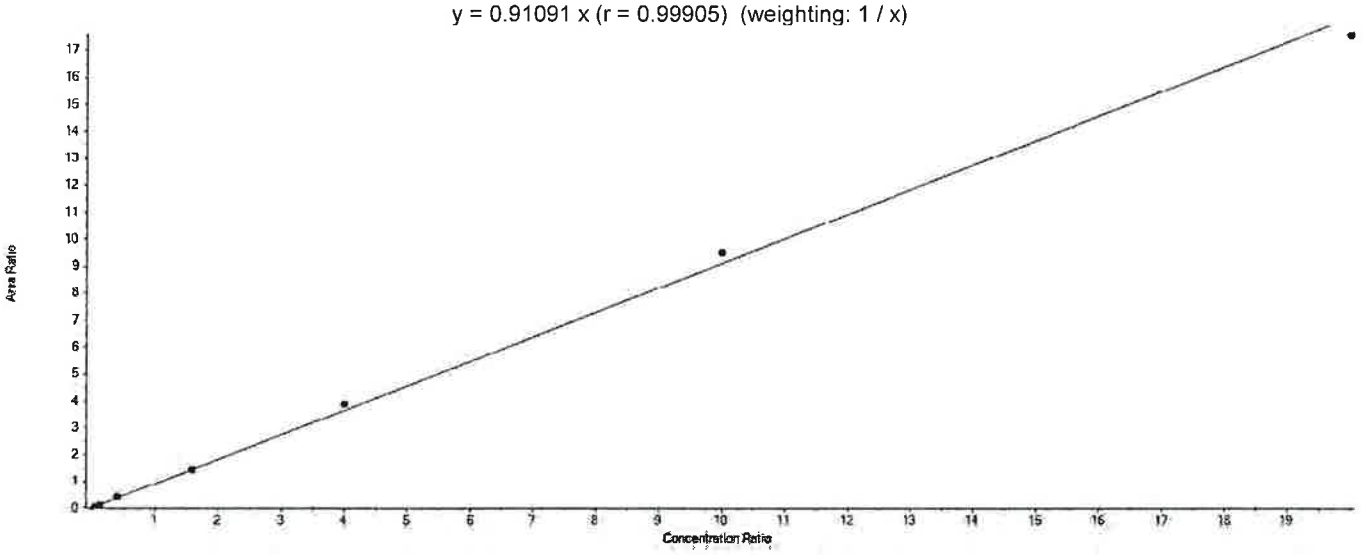
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDA

y = 0.91091 x (r = 0.99905) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65429.7	1711460.2	True	5.00	0.038	7.08	1.000	0.200	0.210	4.9	50.0	
CAL2	202762.4	1791292.2	True	5.00	0.113	7.07	1.000	0.600	0.621	3.6	30.0	
CAL3	651504.7	1727707.8	True	5.00	0.377	7.08	1.000	2.000	2.070	3.5	30.0	
CAL4	2867669.5	1983112.7	True	5.00	1.446	7.07	1.000	8.000	7.937	-0.8	30.0	
CAL5	6700356.8	1721524.0	True	5.00	3.892	7.08	1.000	20.000	21.364	6.8	30.0	
CAL6	14567251.2	1529554.5	True	5.00	9.524	7.08	1.000	50.000	52.277	4.6	30.0	
CAL7	23920790.4	1363173.5	True	5.00	17.548	7.07	1.000	100.000	96.321	-3.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

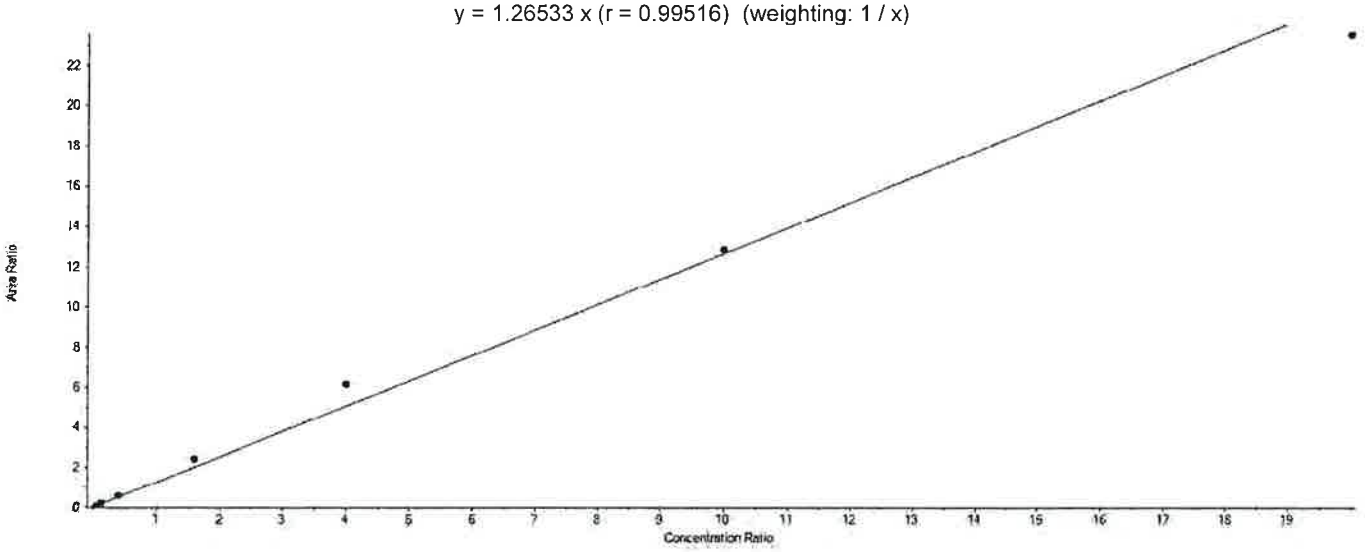
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFUnDA

y = 1.26533 x (r = 0.99516) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	60752.5	995821.2	True	5.00	0.061	7.38	1.000	0.200	0.241	20.5	50.0	
CAL2	179405.7	1030183.1	True	5.00	0.174	7.38	1.000	0.600	0.688	14.7	30.0	
CAL3	520270.4	888871.0	True	5.00	0.585	7.39	1.000	2.000	2.313	15.6	30.0	
CAL4	2424026.1	1010630.1	True	5.00	2.399	7.38	1.000	8.000	9.478	18.5	30.0	
CAL5	5418373.0	881054.2	True	5.00	6.150	7.39	1.000	20.000	24.301	21.5	30.0	
CAL6	11330823.0	880392.6	True	5.00	12.870	7.38	1.000	50.000	50.857	1.7	30.0	
CAL7	17636489.7	749999.2	True	5.00	23.515	7.38	1.000	100.000	92.922	-7.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

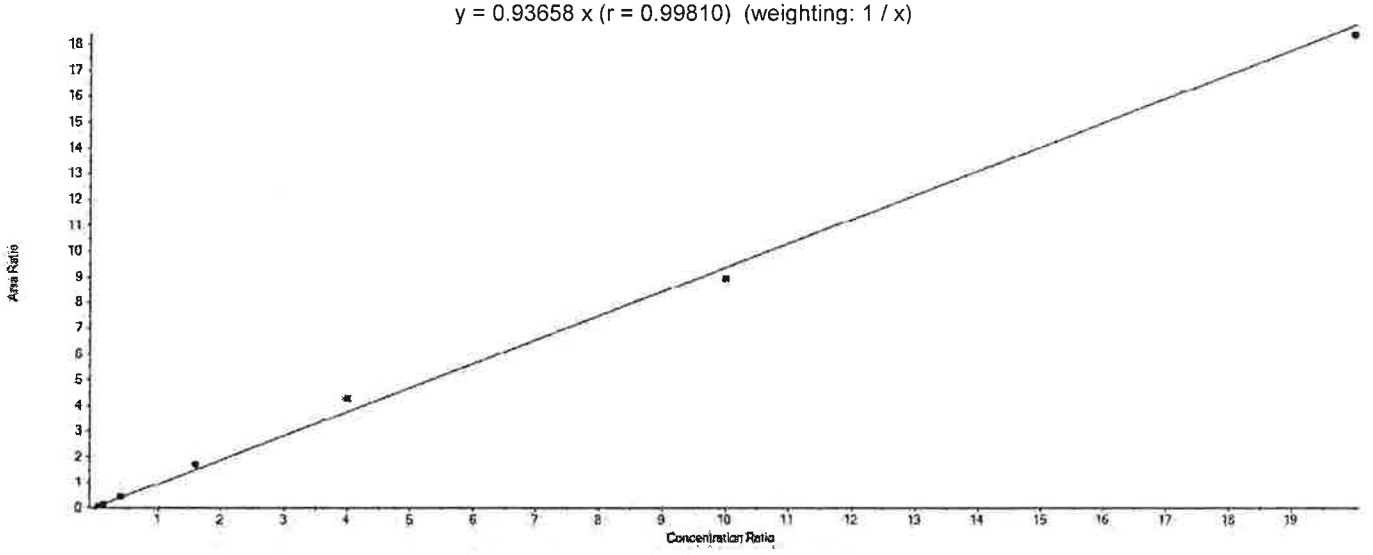
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDoDA

y = 0.93658 x (r = 0.99810) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	64094.9	1448567.4	True	5.00	0.044	7.67	1.000	0.200	0.236	18.1	50.0	
CAL2	184825.5	1502007.0	True	5.00	0.123	7.67	1.000	0.600	0.657	9.5	30.0	
CAL3	566845.7	1365297.0	True	5.00	0.415	7.68	1.000	2.000	2.216	10.8	30.0	
CAL4	2555860.6	1486696.5	True	5.00	1.719	7.67	1.000	8.000	9.178	14.7	30.0	
CAL5	5814088.5	1368417.8	True	5.00	4.249	7.67	1.000	20.000	22.682	13.4	30.0	
CAL6	11976721.9	1341062.3	True	5.00	8.931	7.67	1.000	50.000	47.677	-4.6	30.0	
CAL7	21119318.7	1148686.5	True	5.00	18.386	7.67	1.000	100.000	98.153	-1.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

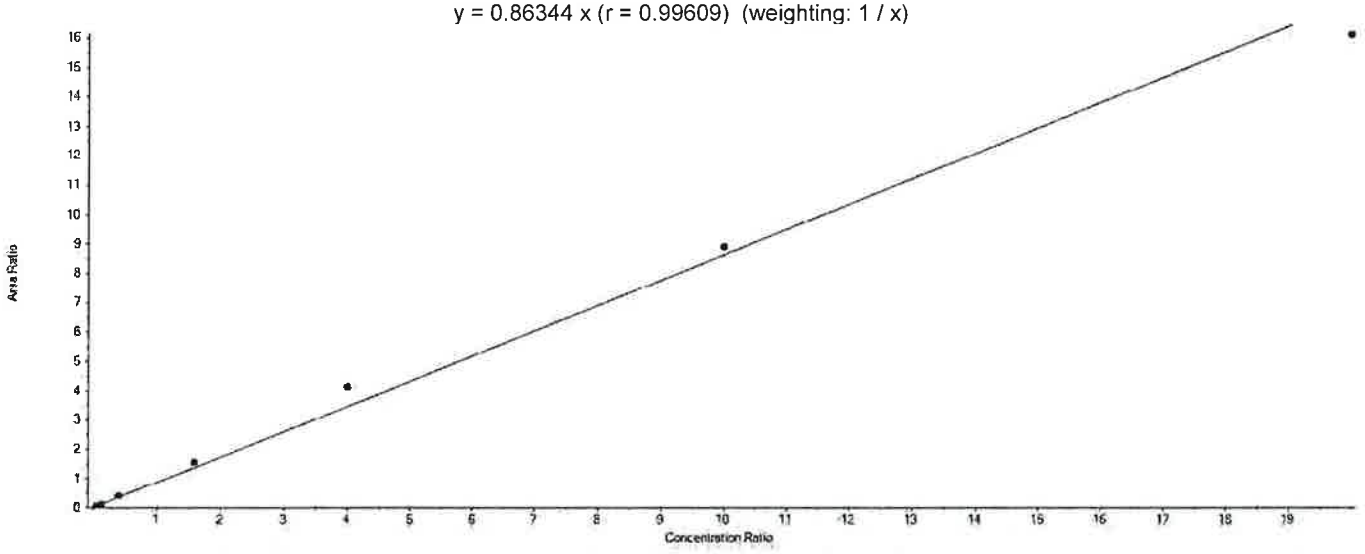
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTrDA

y = 0.86344 x (r = 0.99609) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	54019.6	1448567.4	True	5.00	0.037	7.95	1.040	0.200	0.216	8.0	50.0	
CAL2	161399.0	1502007.0	True	5.00	0.107	7.95	1.040	0.600	0.622	3.7	30.0	
CAL3	511966.6	1365297.0	True	5.00	0.375	7.96	1.040	2.000	2.171	8.6	30.0	
CAL4	2336426.8	1486696.5	True	5.00	1.572	7.95	1.040	8.000	9.101	13.8	30.0	
CAL5	5636683.2	1368417.8	True	5.00	4.119	7.95	1.040	20.000	23.853	19.3	30.0	
CAL6	11924146.0	1341062.3	True	5.00	8.892	7.95	1.040	50.000	51.489	3.0	30.0	
CAL7	18517016.1	1148686.5	True	5.00	16.120	7.95	1.040	100.000	93.348	-6.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

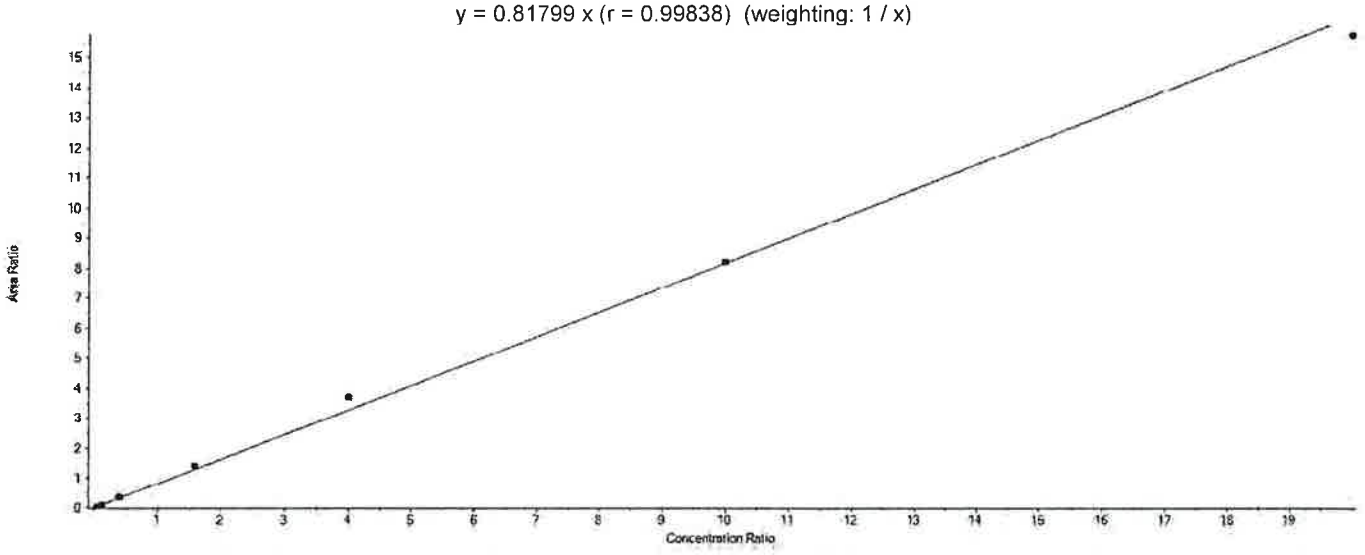
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTeDA

y = 0.81799 x (r = 0.99838) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	67538.8	1802191.1	True	5.00	0.037	8.23	1.000	0.200	0.229	14.5	50.0	
CAL2	198788.8	1915714.8	True	5.00	0.104	8.23	1.000	0.600	0.634	5.7	30.0	
CAL3	559418.0	1639034.8	True	5.00	0.341	8.24	1.000	2.000	2.086	4.3	30.0	
CAL4	2742002.8	1938387.9	True	5.00	1.415	8.23	1.000	8.000	8.647	8.1	30.0	
CAL5	6444723.9	1730502.5	True	5.00	3.724	8.23	1.000	20.000	22.764	13.8	30.0	
CAL6	13051195.0	1588690.1	True	5.00	8.215	8.23	1.000	50.000	50.215	0.4	30.0	
CAL7	21068198.2	1338346.4	True	5.00	15.742	8.23	1.000	100.000	96.224	-3.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

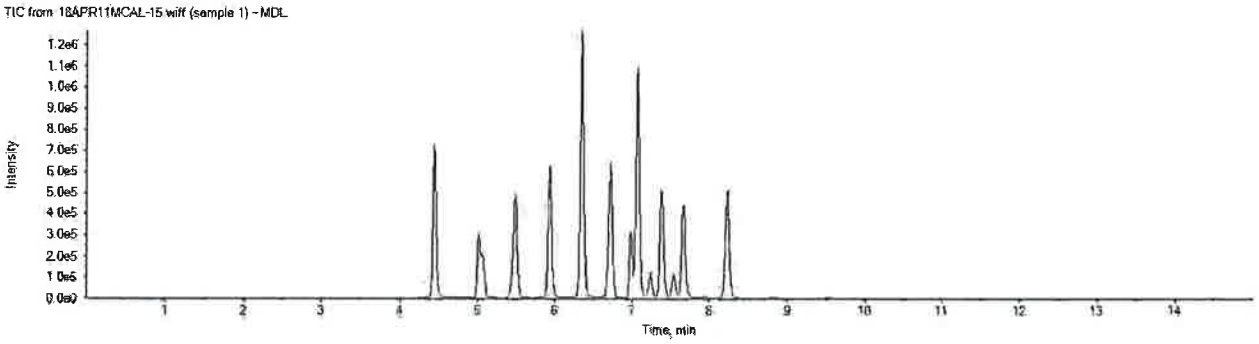
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24743 **File Name:** 18APR11MCAL-15.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	19901.2	M	13C4-PFBA	4.44	1027509.6	0.019	0.115
PFPeA	5.01	1.000	20427.5	M	13C5-PFPeA	5.01	854377.8	0.024	0.117
PFBS	5.07	1.000	8749.0	M	13C3-PFBS	5.07	482216.9	0.018	0.085
4:2-FTS	5.44	1.000	20380.3	A	13C2-4:2-FTS	5.44	215496.1	0.095	0.517
PFHxA	5.48	1.000	31766.2	M	13C5-PFHxA	5.49	1546286.6	0.021	0.112
PFPeS	5.50	1.080	4351.0	M	13C3-PFBS	5.07	482216.9	0.009	0.087
PFHxS	5.92	1.000	9103.7	M	13C3-PFHxS	5.92	437110.4	0.021	0.101
PFHpA	5.93	1.000	38729.7	M	13C4-PFHpA	5.93	1479720.2	0.026	0.121
6:2-FTS	6.34	1.000	16650.3	M	13C2-6:2-FTS	6.33	178830.5	0.093	0.478
PFHpS	6.33	1.070	6997.7	M	13C3-PFHxS	5.92	437110.4	0.016	0.091
PFOA	6.35	1.000	37479.6	M	13C8-PFOA	6.35	1903950.6	0.020	0.107
PFOS	6.70	1.000	8213.8	M	13C8-PFOS	6.70	360784.3	0.023	0.109
PFNA	6.72	1.000	38974.2	M	13C9-PFNA	6.72	1383683.1	0.028	0.123
PFOSA	6.98	1.000	20687.7	M	13C8-PFOSA	6.98	880213.0	0.024	0.123
PFNS	7.04	1.050	5166.8	M	13C8-PFOS	6.70	360784.3	0.014	0.097
PFDA	7.07	1.000	33377.4	M	13C6-PFDA	7.07	1777400.3	0.019	0.103
8:2-FTS	7.09	1.000	21207.1	M	13C2-8:2-FTS	7.09	228379.3	0.093	0.465
NMePFOSAE	7.38	1.000	5416.4	M	d7-NMePFOSAE	7.38	193143.7	0.028	0.122
NMePFOSA	7.41	1.000	3461.1	M	d3-NMePFOSA	7.40	147870.5	0.023	0.112
NMeFOSAA	7.24	1.000	9179.6	M	d3-NMeFOSAA	7.24	352181.2	0.026	0.127
NEtPFOSAE	7.54	1.000	6889.5	M	d9-NEtPFOSAE	7.53	223289.1	0.031	0.129
NEtPFOSA	7.56	1.000	2732.1	M	d5-NEtPFOSA	7.55	124912.8	0.022	0.105
PFDS	7.33	1.100	4563.1	M	13C8-PFOS	6.70	360784.3	0.013	0.119
PFUnDA	7.38	1.000	29497.1	M	13C7-PFUnDA	7.38	944369.5	0.031	0.123
NEtFOSAA	7.40	1.000	10943.9	M	d5-NEtFOSAA	7.40	389065.9	0.028	0.131
PFDoDA	7.67	1.000	29062.1	M	13C2-PFDoDA	7.67	1399603.8	0.021	0.111
10:2-FTS	7.71	1.090	28762.9	M	13C2-8:2-FTS	7.09	228379.3	0.126	0.487
PFDoS	7.90	1.180	1515.2	M	13C8-PFOS	6.70	360784.3	0.004	0.085
PFTrDA	7.95	1.040	26359.0	A	13C2-PFDoDA	7.67	1399603.8	0.019	0.109
PFTeDA	8.23	1.000	33911.9	M	13C2-PFTeDA	8.23	1746064.4	0.019	0.119
PFHxDA	8.83	1.070	29658.4	A	13C2-PFTeDA	8.23	1746064.4	0.017	0.128
PFODA	9.52	1.160	26313.3	A	13C2-PFTeDA	8.23	1746064.4	0.015	0.100

Total Ion Chromatogram



APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

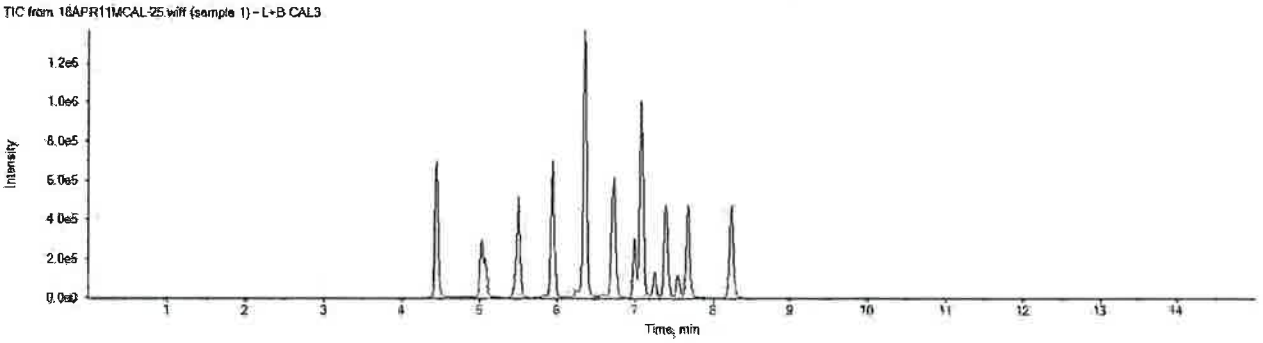
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM24743 **File Name:** 18APR11MCAL-25.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1025595.8	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	851380.9	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	461058.2	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.45	208218.8	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	1483774.0	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.07	461058.2	N/A	
PFHxS	5.93	1.000	147178.9	M	13C3-PFHxS	5.93	416726.5	0.353	1.720
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.94	1459285.4	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.34	175669.4	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	416726.5	N/A	
PFOA	6.35	1.000	618117.4	M	13C8-PFOA	6.35	1847576.1	0.335	1.821
PFOS	6.70	1.000	155868.0	M	13C8-PFOS	6.70	386857.3	0.403	1.934
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	1333305.3	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.99	825021.3	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.70	386857.3	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.08	1759691.0	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.09	206641.5	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.39	181846.2	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.41	138327.0	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.25	380006.4	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.54	243485.0	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.56	115523.0	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.70	386857.3	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.39	915750.2	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.41	367618.9	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	1448481.7	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.09	206641.5	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.70	386857.3	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	1448481.7	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.24	1649343.3	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.24	1649343.3	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.24	1649343.3	N/A	

Total Ion Chromatogram

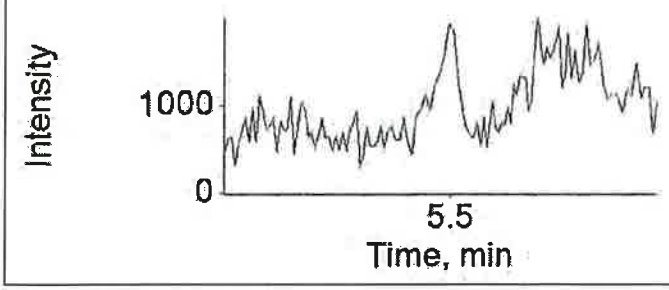


APPROVED
By JPT at 12:32 pm, 4/12/18

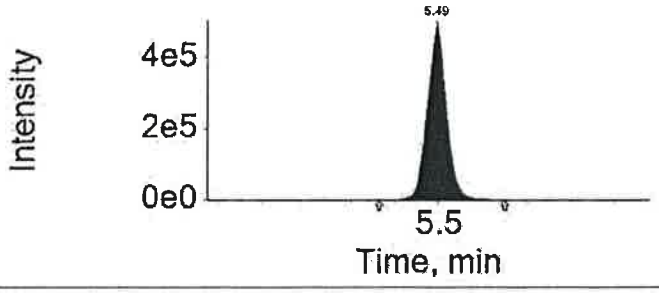
REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

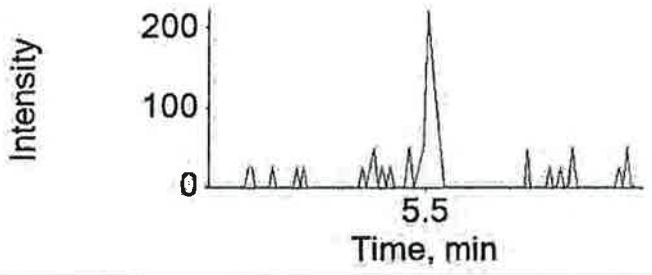
Analyte: PFHxA
313.0 / 269.0



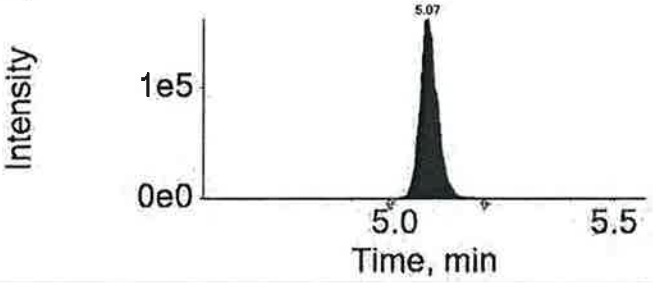
Extraction Standard: 13C5-PFHxA
318.0 / 273.0



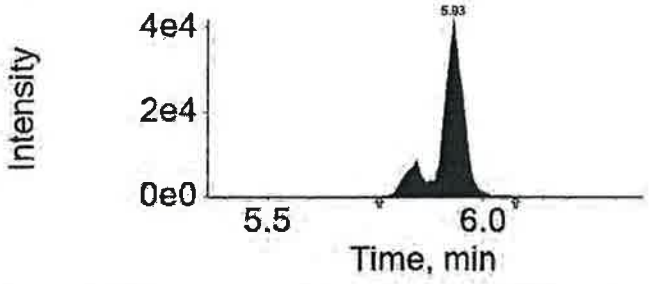
Analyte: PFPeS
349.0 / 80.0



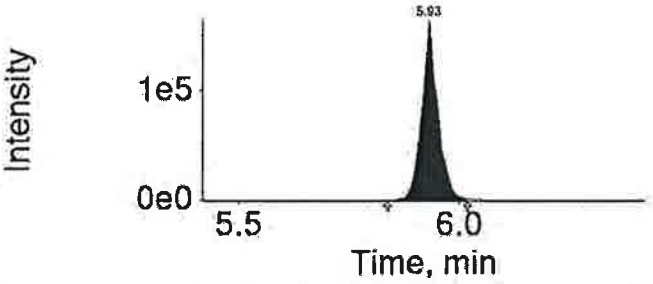
Extraction Standard: 13C3-PFBS
302.0 / 80.0



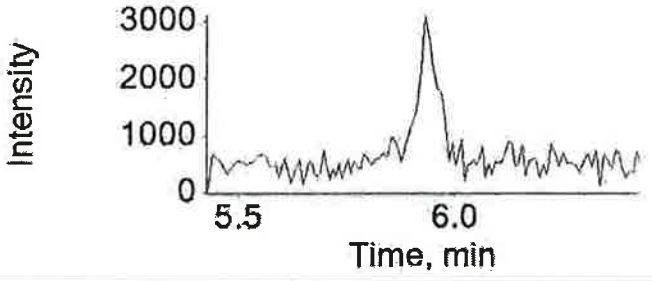
Analyte: PFHxS
399.0 / 80.0



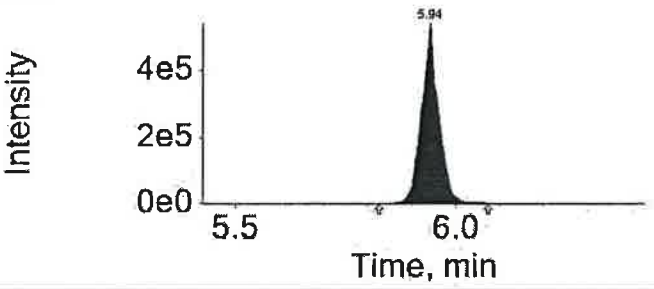
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0

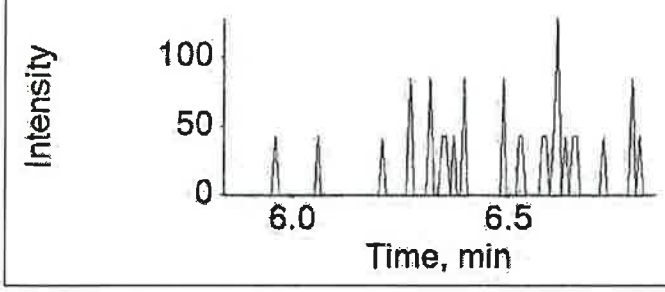


APPROVED
By JPT at 12:32 pm, 4/12/18

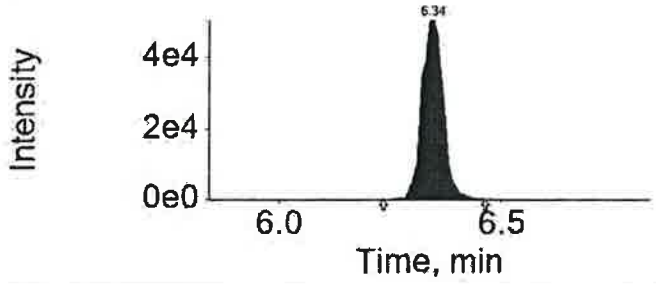
REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

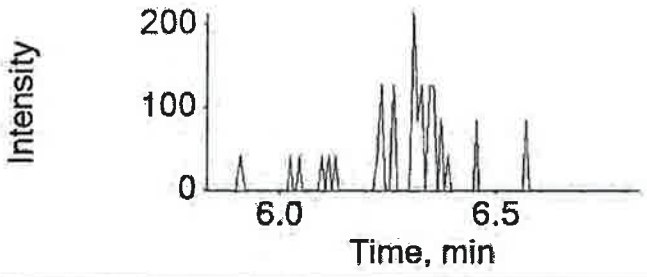
Analyte: 6:2-FTS
427.0 / 407.0



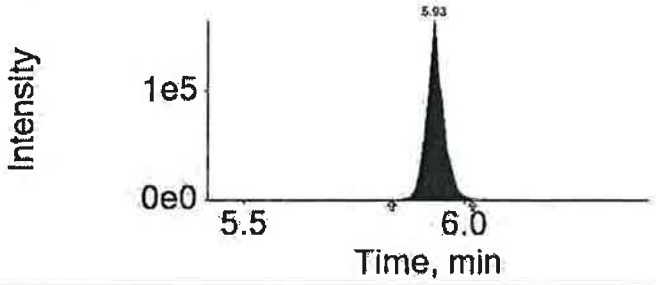
Extraction Standard: 13C2-6:2-FTS
429.0 / 409.0



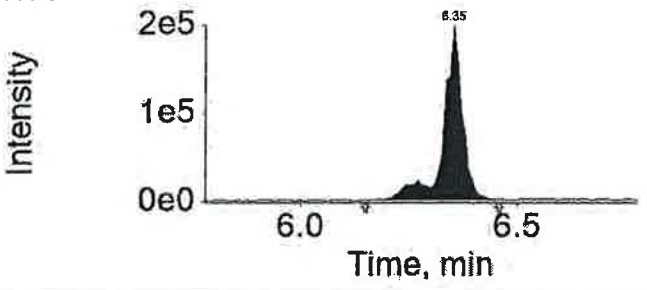
Analyte: PFHpS
449.0 / 80.0



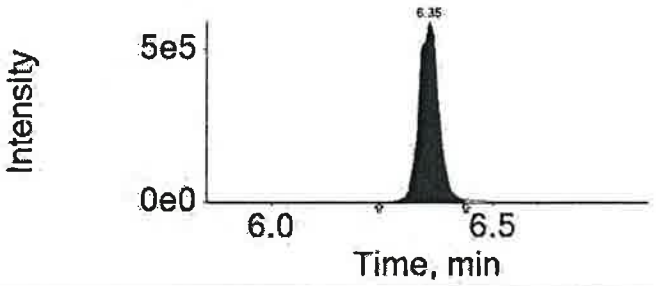
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



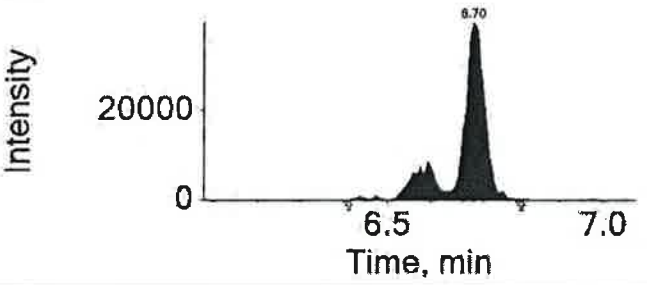
Analyte: PFOA
413.0 / 369.0



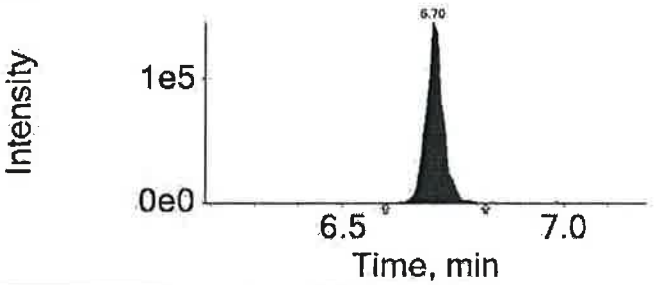
Extraction Standard: 13C8-PFOA
421.0 / 376.0



Analyte: PFOS
499.0 / 80.0



Extraction Standard: 13C8-PFOS
507.0 / 80.0



APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

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LC-MS/MS Analysis Report

Printed: 4/12/2018 12:16:00 PM
Template: MQ-ICAL-16NOV21.docx

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR11MCAL-24.wiff	4/12/2018 1:38:18 AM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	343494.8	13C4-PFBA	1035938.3	5.00	0.332	4.44	1.00	2.000	1.974	-1.3	30.0	
PFPeA	354319.7	13C5-PFPeA	920580.4	5.00	0.385	5.02	1.00	2.000	1.887	-5.7	30.0	
PFBS	171751.0	13C3-PFBS	482466.1	4.65	0.356	5.07	1.00	1.770	1.676	-5.3	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	235336.0	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	568942.0	13C5-PFHxA	1640212.3	5.00	0.347	5.49	1.00	2.000	1.894	-5.3	30.0	
PFPeS	N/A	13C3-PFBS	482466.1	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	157750.3	13C3-PFHxS	436995.1	4.73	0.361	5.93	1.00	1.890	1.758	-7.0	30.0	
PFHpA	684916.6	13C4-PFHpA	1571926.3	5.00	0.436	5.93	1.00	2.000	2.014	0.7	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	176186.7	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	136838.6	13C3-PFHxS	436995.1	4.73	0.313	6.33	1.07	1.900	1.780	-6.3	30.0	
PFOA	719520.7	13C8-PFOA	1921659.6	5.00	0.374	6.35	1.00	2.000	2.038	1.9	30.0	
PFOS	145864.6	13C8-PFOS	384128.1	4.78	0.380	6.70	1.00	1.910	1.823	-4.6	30.0	
PFNA	647472.8	13C9-PFNA	1422883.2	5.00	0.455	6.73	1.00	2.000	1.981	-1.0	30.0	
PFOSA	N/A	13C8-PFOSA	909534.1	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	384128.1	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	681309.0	13C6-PFDA	1843786.5	5.00	0.370	7.07	1.00	2.000	2.028	1.4	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	249297.5	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	191391.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	149190.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	165522.8	d3-NMeFOSAA	394274.7	5.00	0.420	7.25	1.00	2.000	2.046	2.3	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	227431.6	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	116674.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	74021.0	13C8-PFOS	384128.1	4.78	0.193	7.34	1.10	1.930	1.819	-5.7	30.0	
PFUnDA	545999.7	13C7-PFUnDA	994001.6	5.00	0.549	7.38	1.00	2.000	2.171	8.5	30.0	
NEtFOSAA	168058.5	d5-NEtFOSAA	388208.8	5.00	0.433	7.41	1.00	2.000	2.009	0.4	30.0	
PFDoDA	545827.4	13C2-PFDoDA	1440214.4	5.00	0.379	7.67	1.00	2.000	2.023	1.2	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	249297.5	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	384128.1	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	513279.1	13C2-PFDoDA	1440214.4	5.00	0.356	7.95	1.04	2.000	2.064	3.2	30.0	
PFTeDA	580792.8	13C2-PFTeDA	1773299.5	5.00	0.328	8.23	1.00	2.000	2.002	0.1	30.0	
PFHxDA	N/A	13C2-PFTeDA	1773299.5	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	1773299.5	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR11MCAL-26.WIFF

Date/Time Analyzed: 04/12/2018 02:09 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.06	2.84	±30
Perfluoropentanoic acid	2.00	1.96	-1.77	±30
Perfluorobutanesulfonate	1.77	1.81	2.25	±30
4:2 fluorotelomersulfonate	4.90	5.38	9.82	±30
Perfluorohexanoic acid	2.00	2.12	5.96	±30
Perfluoropentanesulfonate	1.88	1.84	-2.24	±30
Perfluorohexanesulfonate	1.89	1.83	-2.93	±30
Perfluoroheptanoic acid	2.00	2.31	15.26	±30
6:2 fluorotelomersulfonate	5.21	5.58	7.18	±30
Perfluoroheptanesulfonate	1.90	1.79	-5.85	±30
Perfluorooctanoic acid	2.00	2.15	7.65	±30
Perfluoro-octanesulfonate	1.91	1.95	2.01	±30
Perfluorononanoic acid	2.00	2.24	12.02	±30
Perfluorooctanesulfonamide	2.00	2.19	9.28	±30
Perfluorononanesulfonate	1.92	2.02	5.25	±30
Perfluorodecanoic acid	2.00	2.14	6.93	±30
8:2 fluorotelomersulfonate	5.27	5.87	11.44	±30
NMeFOSAA	2.00	2.25	12.32	±30
Perfluorodecanesulfonate	1.93	2.00	3.76	±30
Perfluoroundecanoic acid	2.00	2.41	20.34	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR11MCAL-26.WIFF

Date/Time Analyzed: 04/12/2018 02:09 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.01	0.69	±30
Perfluorododecanoic acid	2.00	2.13	6.62	±30
10:2-fluorotelomersulfonate	5.30	5.55	4.80	±30
Perfluorododecanesulfonate	1.94	1.96	0.85	±30
Perfluorotridecanoic acid	2.00	2.15	7.65	±30
Perfluorotetradecanoic acid	2.00	2.16	7.93	±30
Perfluorohexadecanoic acid	2.00	2.21	10.46	±30
Perfluorooctadecanoic acid	2.00	2.01	0.74	±30

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* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR05-01.WIFF

Date/Time Analyzed: 04/05/2018 09:58 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.07	3.60	±30
Perfluoropentanoic acid	2.00	2.13	6.68	±30
Perfluorobutanesulfonate	1.77	1.82	2.95	±30
4:2 fluorotelomersulfonate	4.90	5.46	11.40	±30
Perfluorohexanoic acid	2.00	2.12 ✓	6.07 ✓	±30
Perfluoropentanesulfonate	1.88	1.96	4.12	±30
Perfluorohexanesulfonate	1.89	1.91	1.20	±30
Perfluoroheptanoic acid	2.00	2.32	16.17	±30
6:2 fluorotelomersulfonate	5.21	5.62	7.87	±30
Perfluoroheptanesulfonate	1.90	1.97 ✓	3.64	±30
Perfluorooctanoic acid	2.00	2.22 ✓	11.04 ✓	±30
Perfluoro-octanesulfonate	1.91	2.07	8.18	±30
Perfluorononanoic acid	2.00	2.12	5.80	±30
Perfluorooctanesulfonamide	2.00	2.21	10.32	±30
Perfluorononanesulfonate	1.92	2.06	7.19	±30
Perfluorodecanoic acid	2.00	2.23	11.49	±30
8:2 fluorotelomersulfonate	5.27	5.63	6.88	±30
NMePFOSAE	2.00	2.28	14.11	±30
NMePFOSA	2.00	2.34	16.77	±30
NMeFOSAA	2.00	2.22	11.20	±30

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* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR05-01.WIFF

Date/Time Analyzed: 04/05/2018 09:58 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	2.00	1.95	-2.61	±30
NEtPFOSA	2.00	1.91	-4.64	±30
Perfluorodecanesulfonate	1.93	1.81	-6.43	±30
Perfluoroundecanoic acid	2.00	2.11	5.70	±30
NEtFOSAA	2.00	2.06	2.83	±30
Perfluorododecanoic acid	2.00	2.00	0.09	±30
10:2-fluorotelomersulfonate	5.30	6.38	20.29	±30
Perfluorododecanesulfonate	1.94	2.04	4.91	±30
Perfluorotridecanoic acid	2.00	2.01	0.67	±30
Perfluorotetradecanoic acid	2.00	2.21	10.46	±30
Perfluorohexadecanoic acid	2.00	2.00	0.04	±30
Perfluorooctadecanoic acid	2.00	2.07	3.64	±30

✓

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR05-14.WIFF

Date/Time Analyzed: 04/05/2018 18:31 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.33	4.13	±30
Perfluoropentanoic acid	8.00	8.51	6.40	±30
Perfluorobutanesulfonate	7.08	7.62	7.60	±30
4:2 fluorotelomersulfonate	10.04	10.39	3.48	±30
Perfluorohexanoic acid	8.00	8.65	8.16	±30
Perfluoropentanesulfonate	7.50	8.25	10.00	±30
Perfluorohexanesulfonate	7.56	7.81	3.37	±30
Perfluoroheptanoic acid	8.00	9.11	13.90	±30
6:2 fluorotelomersulfonate	10.43	10.73	2.85	±30
Perfluoroheptanesulfonate	7.61	7.60	-0.19	±30
Perfluorooctanoic acid	8.00	8.77	9.57	±30
Perfluoro-octanesulfonate	7.65	8.06	5.42	±30
Perfluorononanoic acid	8.00	8.41	5.08	±30
Perfluorooctanesulfonamide	8.00	8.41	5.11	±30
Perfluorononanesulfonate	7.68	7.94	3.35	±30
Perfluorodecanoic acid	8.00	8.79	9.84	±30
8:2 fluorotelomersulfonate	10.54	10.73	1.80	±30
NMePFOSAE	8.00	8.07	0.82	±30
NMePFOSA	8.00	8.13	1.63	±30
NMeFOSAA	8.00	7.79	-2.66	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR05-14.WIFF

Date/Time Analyzed: 04/05/2018 18:31 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	8.00	7.43	-7.08	±30
NEtPFOSA	8.00	7.77	-2.92	±30
Perfluorodecanesulfonate	7.70	7.78	1.04	±30
Perfluoroundecanoic acid	8.00	8.55	6.89	±30
NEtFOSAA	8.00	7.50	-6.20	±30
Perfluorododecanoic acid	8.00	8.96	11.95	±30
10:2-fluorotelomersulfonate	10.60	11.56	9.03	±30
Perfluorododecanesulfonate	7.74	8.15	5.24	±30
Perfluorotridecanoic acid	8.00	8.57	7.13	±30
Perfluorotetradecanoic acid	8.00	8.50	6.19	±30
Perfluorohexadecanoic acid	8.00	7.86	-1.79	±30
Perfluorooctadecanoic acid	8.00	8.28	3.49	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR05-20.WIFF

Date/Time Analyzed: 04/05/2018 20:04 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.10	10.52	±30
Perfluoropentanoic acid	20.00	22.48	12.38	±30
Perfluorobutanesulfonate	17.69	19.85	12.23	±30
4:2 fluorotelomersulfonate	12.49	13.41	7.36	±30
Perfluorohexanoic acid	20.00	22.23	11.13	±30
Perfluoropentanesulfonate	18.76	21.27	13.38	±30
Perfluorohexanesulfonate	18.91	20.18	6.72	±30
Perfluoroheptanoic acid	20.00	24.77	23.83	±30
6:2 fluorotelomersulfonate	13.04	12.99	-0.39	±30
Perfluoroheptanesulfonate	19.03	21.57	13.37	±30
Perfluorooctanoic acid	20.00	23.03	15.14	±30
Perfluoro-octanesulfonate	19.12	20.02	4.70	±30
Perfluorononanoic acid	20.00	22.98	14.90	±30
Perfluorooctanesulfonamide	10.00	9.97	-0.34	±30
Perfluorononanesulfonate	19.20	20.42	6.35	±30
Perfluorodecanoic acid	20.00	23.38	16.92	±30
8:2 fluorotelomersulfonate	13.17	12.48	-5.26	±30
NMePFOSAE	10.00	10.69	6.91	±30
NMePFOSA	10.00	9.51	-4.86	±30
NMeFOSAA	10.00	9.73	-2.70	±30

PFOA only

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24960 Lab File ID: 18APR09-14.WIFF

Date/Time Analyzed: 04/09/2018 12:37 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.50	6.20	±30
Perfluoropentanoic acid	8.00	8.39	4.85	±30
Perfluorobutanesulfonate	7.08	7.03	-0.69	±30
4:2 fluorotelomersulfonate	10.04	9.67	-3.67	±30
Perfluorohexanoic acid	8.00	8.50	6.31	±30
Perfluoropentanesulfonate	7.50	8.03	7.02	±30
Perfluorohexanesulfonate	7.56	7.92	4.70	±30
Perfluoroheptanoic acid	8.00	8.34	4.30	±30
6:2 fluorotelomersulfonate	10.43	10.33	-0.93	±30
Perfluoroheptanesulfonate	7.61	7.40	-2.82	±30
Perfluorooctanoic acid	8.00	8.41	5.14	±30
Perfluoro-octanesulfonate	7.65	7.69	0.46	±30
Perfluorononanoic acid	8.00	9.04	13.05	±30
Perfluorooctanesulfonamide	8.00	8.55	6.83	±30
Perfluorononanesulfonate	7.68	7.87	2.52	±30
Perfluorodecanoic acid	8.00	8.90	11.26	±30
8:2 fluorotelomersulfonate	10.54	11.06	4.97	±30
NMePFOSAE	8.00	7.82	-2.25	±30
NMePFOSA	8.00	7.41	-7.32	±30
NMeFOSAA	8.00	7.78	-2.79	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24960 Lab File ID: 18APR09-14.WIFF

Date/Time Analyzed: 04/09/2018 12:37 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	8.00	7.73	-3.44	±30
NEtPFOSA	8.00	7.71	-3.63	±30
Perfluorodecanesulfonate	7.70	7.45	-3.20	±30
Perfluoroundecanoic acid	8.00	9.20	14.95	±30
NEtFOSAA	8.00	7.14	-10.72	±30
Perfluorododecanoic acid	8.00	8.38	4.74	±30
10:2-fluorotelomersulfonate	10.60	10.56	-0.37	±30
Perfluorododecanesulfonate	7.74	7.44	-3.84	±30
Perfluorotridecanoic acid	8.00	6.92	-13.48	±30
Perfluorotetradecanoic acid	8.00	8.53	6.64	±30
Perfluorohexadecanoic acid	8.00	8.15	1.87	±30
Perfluorooctadecanoic acid	8.00	9.00	12.46	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24960 Lab File ID: 18APR09-27.WIFF

Date/Time Analyzed: 04/09/2018 15:46 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.17	10.84	±30
Perfluoropentanoic acid	20.00	22.02	10.10	±30
Perfluorobutanesulfonate	17.69	19.50	10.24	±30
4:2 fluorotelomersulfonate	12.49	11.47	-8.20	±30
Perfluorohexanoic acid	20.00	21.94	9.68	±30
Perfluoropentanesulfonate	18.76	21.48	14.52	±30
Perfluorohexanesulfonate	18.91	20.19	6.79	±30
Perfluoroheptanoic acid	20.00	22.47	12.37	±30
6:2 fluorotelomersulfonate	13.04	12.49	-4.19	±30
Perfluoroheptanesulfonate	19.03	20.17	5.99	±30
Perfluorooctanoic acid	20.00	22.56	12.79	±30
Perfluoro-octanesulfonate	19.12	20.87	9.14	±30
Perfluorononanoic acid	20.00	23.74	18.68	±30
Perfluorooctanesulfonamide	10.00	10.04	0.44	±30
Perfluorononanesulfonate	19.20	19.99	4.11	±30
Perfluorodecanoic acid	20.00	22.92	14.62	±30
8:2 fluorotelomersulfonate	13.17	12.64	-4.01	±30
NMePFOSAE	10.00	10.13	1.27	±30
NMePFOSA	10.00	10.09	0.93	±30
NMeFOSAA	10.00	10.04	0.37	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24960 Lab File ID: 18APR09-27.WIFF

Date/Time Analyzed: 04/09/2018 15:46 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	10.00	10.27	2.73	±30
NEtPFOSA	10.00	10.08	0.82	±30
Perfluorodecanesulfonate	19.26	21.19	10.00	±30
Perfluoroundecanoic acid	20.00	24.50	22.49	±30
NEtFOSAA	10.00	9.15	-8.47	±30
Perfluorododecanoic acid	20.00	21.69	8.43	±30
10:2-fluorotelomersulfonate	13.26	17.91	35.06 *	±30
Perfluorododecanesulfonate	19.36	20.93	8.13	±30
Perfluorotridecanoic acid	20.00	19.63	-1.86	±30
Perfluorotetradecanoic acid	20.00	23.08	15.38	±30
Perfluorohexadecanoic acid	20.00	16.85	-15.76	±30
Perfluorooctadecanoic acid	20.00	21.41	7.04	±30

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* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24960 Lab File ID: 18APR09-39.WIFF

Date/Time Analyzed: 04/09/2018 18:40 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.09	4.44	±30
Perfluoropentanoic acid	2.00	2.05	2.60	±30
Perfluorobutanesulfonate	1.77	1.82	2.83	±30
4:2 fluorotelomersulfonate	4.90	5.10	4.17	±30
Perfluorohexanoic acid	2.00	2.07	3.72	±30
Perfluoropentanesulfonate	1.88	1.92	2.05	±30
Perfluorohexanesulfonate	1.89	1.97	4.19	±30
Perfluoroheptanoic acid	2.00	2.16	8.19	±30
6:2 fluorotelomersulfonate	5.21	5.73	9.89	±30
Perfluoroheptanesulfonate	1.90	1.91	0.55	±30
Perfluorooctanoic acid	2.00	2.11	5.73	±30
Perfluoro-octanesulfonate	1.91	2.02	5.58	±30
Perfluorononanoic acid	2.00	2.13	6.69	±30
Perfluorooctanesulfonamide	2.00	2.25	12.46	±30
Perfluorononanesulfonate	1.92	1.78	-7.54	±30
Perfluorodecanoic acid	2.00	2.07	3.47	±30
8:2 fluorotelomersulfonate	5.27	5.51	4.47	±30
NMePFOSAE	2.00	2.11	5.66	±30
NMePFOSA	2.00	2.17	8.41	±30
NMeFOSAA	2.00	2.29	14.57	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24960 Lab File ID: 18APR09-39.WIFF

Date/Time Analyzed: 04/09/2018 18:40 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	2.00	2.28	14.02	±30
NEtPFOSA	2.00	2.04	2.04	±30
Perfluorodecanesulfonate	1.93	1.84	-4.64	±30
Perfluoroundecanoic acid	2.00	2.27	13.46	±30
NEtFOSAA	2.00	2.06	3.04	±30
Perfluorododecanoic acid	2.00	2.03	1.49	±30
10:2-fluorotelomersulfonate	5.30	6.99	31.94 *	±30
Perfluorododecanesulfonate	1.94	1.82	-6.32	±30
Perfluorotridecanoic acid	2.00	1.50	-25.08	±30
Perfluorotetradecanoic acid	2.00	1.96	-2.00	±30
Perfluorohexadecanoic acid	2.00	1.76	-11.84	±30
Perfluorooctadecanoic acid	2.00	1.23	-38.30 *	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24960 Lab File ID: 18APR09-52.WIFF

Date/Time Analyzed: 04/09/2018 21:49 Lab Sample ID: CCV5_CAL4

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.33	4.12	±30
Perfluoropentanoic acid	8.00	8.50	6.25	±30
Perfluorobutanesulfonate	7.08	7.52	6.28	±30
4:2 fluorotelomersulfonate	10.04	9.93	-1.10	±30
Perfluorohexanoic acid	8.00	8.09	1.12	±30
Perfluoropentanesulfonate	7.50	7.81	4.20	±30
Perfluorohexanesulfonate	7.56	7.99	5.62	±30
Perfluoroheptanoic acid	8.00	8.51	6.35	±30
6:2 fluorotelomersulfonate	10.43	11.20	7.34	±30
Perfluoroheptanesulfonate	7.61	8.24	8.30	±30
Perfluorooctanoic acid	8.00	8.74	9.27	±30
Perfluoro-octanesulfonate	7.65	7.59	-0.82	±30
Perfluorononanoic acid	8.00	9.17	14.56	±30
Perfluorooctanesulfonamide	8.00	8.45	5.67	±30
Perfluorononanesulfonate	7.68	7.07	-7.91	±30
Perfluorodecanoic acid	8.00	9.21	15.12	±30
8:2 fluorotelomersulfonate	10.54	10.31	-2.18	±30
NMePFOSAE	8.00	8.48	6.01	±30
NMePFOSA	8.00	7.89	-1.40	±30
NMeFOSAA	8.00	7.83	-2.10	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24960 Lab File ID: 18APR09-52.WIFF

Date/Time Analyzed: 04/09/2018 21:49 Lab Sample ID: CCV5_CAL4

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	8.00	8.22	2.71	±30
NEtPFOSA	8.00	8.11	1.36	±30
Perfluorodecanesulfonate	7.70	7.15	-7.10	±30
Perfluoroundecanoic acid	8.00	8.91	11.37	±30
NEtFOSAA	8.00	7.53	-5.88	±30
Perfluorododecanoic acid	8.00	8.82	10.27	±30
10:2-fluorotelomersulfonate	10.60	16.14	52.27 *	±30
Perfluorododecanesulfonate	7.74	7.07	-8.60	±30
Perfluorotridecanoic acid	8.00	6.61	-17.37	±30
Perfluorotetradecanoic acid	8.00	8.55	6.87	±30
Perfluorohexadecanoic acid	8.00	6.17	-22.84	±30
Perfluorooctadecanoic acid	8.00	7.36	-8.04	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24960 Lab File ID: 18APR10-15.WIFF

Date/Time Analyzed: 04/10/2018 15:31 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.16	2.01	±30
Perfluoropentanoic acid	8.00	8.22	2.76	±30
Perfluorobutanesulfonate	7.08	6.96	-1.63	±30
4:2 fluorotelomersulfonate	10.04	10.18	1.42	±30
Perfluorohexanoic acid	8.00	8.60	7.46	±30
Perfluoropentanesulfonate	7.50	7.69	2.54	±30
Perfluorohexanesulfonate	7.56	7.75	2.51	±30
Perfluoroheptanoic acid	8.00	8.50	6.21	±30
6:2 fluorotelomersulfonate	10.43	10.62	1.80	±30
Perfluoroheptanesulfonate	7.61	8.03	5.58	±30
Perfluorooctanoic acid	8.00	8.66	8.26	±30
Perfluoro-octanesulfonate	7.65	7.81	2.09	±30
Perfluorononanoic acid	8.00	9.33	16.67	±30
Perfluorooctanesulfonamide	8.00	7.98	-0.27	±30
Perfluorononanesulfonate	7.68	7.54	-1.85	±30
Perfluorodecanoic acid	8.00	8.70	8.80	±30
8:2 fluorotelomersulfonate	10.54	9.78	-7.24	±30
NMePFOSAE	8.00	8.81	10.12	±30
NMePFOSA	8.00	7.90	-1.20	±30
NMeFOSAA	8.00	7.98	-0.26	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24960 Lab File ID: 18APR10-27.WIFF

Date/Time Analyzed: 04/10/2018 18:25 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.12	10.60	±30
Perfluoropentanoic acid	20.00	22.58	12.92	±30
Perfluorobutanesulfonate	17.69	19.17	8.37	±30
4:2 fluorotelomersulfonate	12.49	11.59	-7.24	±30
Perfluorohexanoic acid	20.00	21.47	7.35	±30
Perfluoropentanesulfonate	18.76	20.51	9.30	±30
Perfluorohexanesulfonate	18.91	20.39	7.84	±30
Perfluoroheptanoic acid	20.00	22.56	12.82	±30
6:2 fluorotelomersulfonate	13.04	13.07	0.25	±30
Perfluoroheptanesulfonate	19.03	19.68	3.42	±30
Perfluorooctanoic acid	20.00	22.80	13.98	±30
Perfluoro-octanesulfonate	19.12	20.77	8.61	±30
Perfluorononanoic acid	20.00	23.22	16.11	±30
Perfluorooctanesulfonamide	10.00	10.38	3.83	±30
Perfluorononanesulfonate	19.20	19.84	3.35	±30
Perfluorodecanoic acid	20.00	21.76	8.82	±30
8:2 fluorotelomersulfonate	13.17	13.43	1.94	±30
NMePFOSAE	10.00	10.18	1.79	±30
NMePFOSA	10.00	9.23	-7.72	±30
NMeFOSAA	10.00	9.56	-4.38	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR18-05.WIFF

Date/Time Analyzed: 04/18/2018 09:28 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.05	2.68	±30
Perfluoropentanoic acid	2.00	2.12	5.96	±30
Perfluorobutanesulfonate	1.77	1.63	-7.76	±30
4:2 fluorotelomersulfonate	4.90	5.42	10.67	±30
Perfluorohexanoic acid	2.00	2.10	5.10	±30
Perfluoropentanesulfonate	1.88	1.86	-1.28	±30
Perfluorohexanesulfonate	1.89	2.01	6.09	±30
Perfluoroheptanoic acid	2.00	2.12	6.18	±30
6:2 fluorotelomersulfonate	5.21	5.69	9.20	±30
Perfluoroheptanesulfonate	1.90	1.99	4.88	±30
Perfluorooctanoic acid	2.00	2.24	12.15	±30
Perfluoro-octanesulfonate	1.91	1.91	-0.25	±30
Perfluorononanoic acid	2.00	2.29	14.66	±30
Perfluorooctanesulfonamide	2.00	2.09	4.58	±30
Perfluorononanesulfonate	1.92	1.98	3.36	±30
Perfluorodecanoic acid	2.00	2.12	5.76	±30
8:2 fluorotelomersulfonate	5.27	5.41	2.64	±30
NMeFOSAA	2.00	2.18	9.13	±30
Perfluorodecanesulfonate	1.93	1.87	-2.90	±30
Perfluoroundecanoic acid	2.00	2.30	15.19	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR18-05.WIFF

Date/Time Analyzed: 04/18/2018 09:28 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.12	6.03	±30
Perfluorododecanoic acid	2.00	2.07	3.64	±30
10:2-fluorotelomersulfonate	5.30	5.78	9.00	±30
Perfluorododecanesulfonate	1.94	1.69	-12.94	±30
Perfluorotridecanoic acid	2.00	2.20	10.23	±30
Perfluorotetradecanoic acid	2.00	2.05	2.63	±30
Perfluorohexadecanoic acid	2.00	2.26	12.78	±30
Perfluorooctadecanoic acid	2.00	2.14	7.18	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR18-18.WIFF

Date/Time Analyzed: 04/18/2018 12:50 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.37	4.57	±30
Perfluoropentanoic acid	8.00	8.18	2.20	±30
Perfluorobutanesulfonate	7.08	7.64	7.93	±30
4:2 fluorotelomersulfonate	10.04	10.40	3.58	±30
Perfluorohexanoic acid	8.00	8.39	4.89	±30
Perfluoropentanesulfonate	7.50	7.99	6.57	±30
Perfluorohexanesulfonate	7.56	7.53	-0.42	±30
Perfluoroheptanoic acid	8.00	9.18	14.77	±30
6:2 fluorotelomersulfonate	10.43	10.06	-3.60	±30
Perfluoroheptanesulfonate	7.61	7.76	1.95	±30
Perfluorooctanoic acid	8.00	8.85	10.64	±30
Perfluoro-octanesulfonate	7.65	7.91	3.34	±30
Perfluorononanoic acid	8.00	8.91	11.33	±30
Perfluorooctanesulfonamide	8.00	7.93	-0.89	±30
Perfluorononanesulfonate	7.68	7.33	-4.55	±30
Perfluorodecanoic acid	8.00	8.14	1.73	±30
8:2 fluorotelomersulfonate	10.54	9.70	-7.93	±30
NMeFOSAA	8.00	7.95	-0.61	±30
Perfluorodecanesulfonate	7.70	7.02	-8.85	±30
Perfluoroundecanoic acid	8.00	8.38	4.73	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR18-18.WIFF

Date/Time Analyzed: 04/18/2018 12:50 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	8.00	7.43	-7.15	±30
Perfluorododecanoic acid	8.00	8.51	6.40	±30
10:2-fluorotelomersulfonate	10.60	8.55	-19.37	±30
Perfluorododecanesulfonate	7.74	6.54	-15.56	±30
Perfluorotridecanoic acid	8.00	8.72	8.99	±30
Perfluorotetradecanoic acid	8.00	8.68	8.46	±30
Perfluorohexadecanoic acid	8.00	8.26	3.23	±30
Perfluorooctadecanoic acid	8.00	8.26	3.30	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR18-30.WIFF

Date/Time Analyzed: 04/18/2018 15:56 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.28	11.42	±30
Perfluoropentanoic acid	20.00	22.61	13.06	±30
Perfluorobutanesulfonate	17.69	19.66	11.12	±30
4:2 fluorotelomersulfonate	12.49	12.23	-2.11	±30
Perfluorohexanoic acid	20.00	22.09	10.46	±30
Perfluoropentanesulfonate	18.76	21.24	13.20	±30
Perfluorohexanesulfonate	18.91	20.67	9.29	±30
Perfluoroheptanoic acid	20.00	23.53	17.67	±30
6:2 fluorotelomersulfonate	13.04	12.23	-6.20	±30
Perfluoroheptanesulfonate	19.03	21.13	11.02	±30
Perfluorooctanoic acid	20.00	24.48	22.38	±30
Perfluoro-octanesulfonate	19.12	22.15	15.86	±30
Perfluorononanoic acid	20.00	23.79	18.97	±30
Perfluorooctanesulfonamide	10.00	9.97	-0.25	±30
Perfluorononanesulfonate	19.20	22.33	16.31	±30
Perfluorodecanoic acid	20.00	22.44	12.22	±30
8:2 fluorotelomersulfonate	13.17	13.10	-0.53	±30
NMeFOSAA	10.00	10.95	9.48	±30
Perfluorodecanesulfonate	19.26	23.17	20.29	±30
Perfluoroundecanoic acid	20.00	22.55	12.73	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR18-30.WIFF

Date/Time Analyzed: 04/18/2018 15:56 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	10.00	8.93	-10.66	±30
Perfluorododecanoic acid	20.00	23.14	15.69	±30
10:2-fluorotelomersulfonate	13.26	13.87	4.58	±30
Perfluorododecanesulfonate	19.36	21.20	9.52	±30
Perfluorotridecanoic acid	20.00	22.27	11.36	±30
Perfluorotetradecanoic acid	20.00	22.36	11.81	±30
Perfluorohexadecanoic acid	20.00	21.67	8.36	±30
Perfluorooctadecanoic acid	20.00	20.53	2.66	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR18-42.WIFF

Date/Time Analyzed: 04/18/2018 19:03 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.05	2.34	±30
Perfluoropentanoic acid	2.00	2.02	1.09	±30
Perfluorobutanesulfonate	1.77	1.73	-2.54	±30
4:2 fluorotelomersulfonate	4.90	4.98	1.69	±30
Perfluorohexanoic acid	2.00	2.15	7.71	±30
Perfluoropentanesulfonate	1.88	1.85	-1.73	±30
Perfluorohexanesulfonate	1.89	1.99	5.25	±30
Perfluoroheptanoic acid	2.00	2.35	17.49	±30
6:2 fluorotelomersulfonate	5.21	5.89	13.00	±30
Perfluoroheptanesulfonate	1.90	2.07	9.03	±30
Perfluorooctanoic acid	2.00	2.09	4.71	±30
Perfluoro-octanesulfonate	1.91	1.83	-4.21	±30
Perfluorononanoic acid	2.00	2.18	8.84	±30
Perfluorooctanesulfonamide	2.00	2.17	8.66	±30
Perfluorononanesulfonate	1.92	1.90	-0.91	±30
Perfluorodecanoic acid	2.00	2.09	4.60	±30
8:2 fluorotelomersulfonate	5.27	6.15	16.64	±30
NMeFOSAA	2.00	2.27	13.55	±30
Perfluorodecanesulfonate	1.93	1.81	-6.28	±30
Perfluoroundecanoic acid	2.00	2.19	9.61	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR19-29.WIFF

Date/Time Analyzed: 04/19/2018 13:00 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	21.72	8.61	±30
Perfluoropentanoic acid	20.00	22.21	11.07	±30
Perfluorobutanesulfonate	17.69	19.04	7.65	±30
4:2 fluorotelomersulfonate	12.49	11.69	-6.41	±30
Perfluorohexanoic acid	20.00	23.59	17.94	±30
Perfluoropentanesulfonate	18.76	21.67	15.49	±30
Perfluorohexanesulfonate	18.91	20.52	8.49	±30
Perfluoroheptanoic acid	20.00	23.39	16.96	±30
6:2 fluorotelomersulfonate	13.04	12.78	-1.96	±30
Perfluoroheptanesulfonate	19.03	21.56	13.31	±30
Perfluorooctanoic acid	20.00	23.73	18.65	±30
Perfluoro-octanesulfonate	19.12	20.02	4.72	±30
Perfluorononanoic acid	20.00	23.33	16.64	±30
Perfluorooctanesulfonamide	10.00	10.06	0.61	±30
Perfluorononanesulfonate	19.20	21.46	11.78	±30
Perfluorodecanoic acid	20.00	20.81	4.05	±30
8:2 fluorotelomersulfonate	13.17	11.78	-10.58	±30
NMeFOSAA	10.00	10.43	4.31	±30
Perfluorodecanesulfonate	19.26	20.84	8.21	±30
Perfluoroundecanoic acid	20.00	23.13	15.63	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN10

Instrument ID: 24743 Lab File ID: 18APR19-38.WIFF

Date/Time Analyzed: 04/19/2018 15:20 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.07	3.40	±30
Perfluoropentanoic acid	2.00	1.95	-2.41	±30
Perfluorobutanesulfonate	1.77	1.77	0.09	±30
4:2 fluorotelomersulfonate	4.90	5.52	12.67	±30
Perfluorohexanoic acid	2.00	2.26	12.76	±30
Perfluoropentanesulfonate	1.88	1.86	-1.15	±30
Perfluorohexanesulfonate	1.89	1.95	3.18	±30
Perfluoroheptanoic acid	2.00	2.19	9.66	±30
6:2 fluorotelomersulfonate	5.21	5.83	11.99	±30
Perfluoroheptanesulfonate	1.90	2.03	6.69	±30
Perfluorooctanoic acid	2.00	2.14	6.98	±30
Perfluoro-octanesulfonate	1.91	1.84	-3.64	±30
Perfluorononanoic acid	2.00	2.15	7.64	±30
Perfluorooctanesulfonamide	2.00	2.14	6.95	±30
Perfluorononanesulfonate	1.92	1.93	0.42	±30
Perfluorodecanoic acid	2.00	2.08	4.25	±30
8:2 fluorotelomersulfonate	5.27	5.51	4.59	±30
NMeFOSAA	2.00	2.45	22.54	±30
Perfluorodecanesulfonate	1.93	1.71	-11.22	±30
Perfluoroundecanoic acid	2.00	2.18	8.78	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN10
Matrix: WATER

18092009		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1521482	1927063	1069642	472838
UPPER LIMIT		2282223	2890595	1604463	709257
LOWER LIMIT		760741	963532	534821	236419
LAB SAMPLE ID	**DATE ANALYZED**				
LCS092009	04/05/18 15:40	1713328	2008816	1256748	516211
LCSDA	04/05/18 15:55	1719837	2165029	1269362	521502
BLK092009	04/05/18 16:26	1696202	2164507	1289355	512107
9536665	04/05/18 18:00	1752046	2201071	1205051	504966
9536666	04/05/18 18:15	1794228	2029084	1198800	513915
9536667	04/05/18 19:02	1827692	2113412	1184901	495853
9536674	04/05/18 19:17	1769588	2149329	1198778	520643

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN10
Matrix: ~~SOIL~~ tripes

18094001		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1007241	979042	1589581	723192
UPPER LIMIT		1510862	1468563	2384372	1084788
LOWER LIMIT		503621	489521	794791	361596
LAB SAMPLE ID	**DATE ANALYZED**				
LCS094001	04/09/18 14:18	938579	952032	1612523	721646
LCSDA	04/09/18 14:48	1132820	964876	1602483	731736
BLK094001	04/09/18 15:31	1052397	941275	1631914	704758
9536659	04/09/18 16:29	1178791	385187 *	1617865	738903
9536660	04/09/18 16:44	1053141	697371	1637449	754508
9536662	04/09/18 16:59	1207287	676527	1634610	702035
9536663	04/09/18 17:13	1008857	791315	1596656	718617
9536668	04/09/18 17:28	1039316	816618	1614949	736407
9536669	04/09/18 17:42	1160960	542240	1664989	735849
9536672	04/09/18 17:57	1114949	522810	1614748	725789
9536673	04/09/18 18:11	1007848	639165	1662053	707119
9536675	04/09/18 18:26	1157391	1048433	1684495	690652
9536679	04/09/18 19:09	1070479	918010	1622006	726708
9536680	04/09/18 19:24	1068788	721249	1593977	682687
9536659DL	04/10/18 16:43	908021	806194	1668714	718282
9536660DL	04/10/18 16:58	947052	889719	1635426	735518
9536662DL	04/10/18 17:13	982576	869427	1588561	702062
9536669DL	04/10/18 17:27	1006014	862557	1641448	715786
9536672DL	04/10/18 17:42	970738	821119	1589287	718290
9536673DL	04/10/18 17:56	877971	872388	1603940	711838

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

No goal for pre-inj I.S.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN10
Matrix: ~~SOIL~~ Wipes

18094001		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1007241	979042 ✓	1589581	723192
UPPER LIMIT		1510862	1468563	2384372	1084788
LOWER LIMIT		503621	489521	794791	361596
LAB SAMPLE ID	**DATE ANALYZED**				
9536680DL	04/10/18 18:11	994619	911421 ✓	1688649	687151

AREA: Upper limit: 150% of the internal standard area. ✓
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN10
Matrix: SOIL

18102019		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1163606	1442107	926861	371819
UPPER LIMIT		1745409	2163161	1390292	557729
LOWER LIMIT		581803	721054	463431	185910
LAB SAMPLE ID	**DATE ANALYZED**				
LCS102019	04/18/18 09:59	1811699 *	1769358	1085961	413141
9536677MS	04/18/18 10:15	1457440	1189562	1027624	384654
9536678MSD	04/18/18 10:30	1438336	1130996	1011161	349997
BLK102019	04/18/18 11:02	2007040 *	1990356	1169307	405801
9536661	04/18/18 12:35	1692519	1325716	1109533	404453
9536664	04/18/18 13:21	1758520 *	1180407	1128884	397325
9536670	04/18/18 13:37	1806373 *	1491003	1172847	405324
9536671	04/18/18 13:52	1527981	1259240	989993	372922
9536676	04/18/18 14:08	1440502	1170071	1016888	349684
9536661DL	04/18/18 17:45	1338525	1574488	1092217	403234
9536670DL	04/18/18 18:16	1416661	1579290	1094293	411471
9536671DL	04/18/18 18:32	1432246	1737760	1089442	413702
9536664DL	04/19/18 14:49	1308653	1516004	1040193	394377
9536676DL	04/19/18 15:04	1438958	1582526	1054041	408044

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

No Eval (pre-inj)

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LC-MS/MS Sample Run Log

Printed: 4/7/2018 10:59:00 PM
Template: Sample Run Log-17JUL05.docx

A2.

Instrument Name: LM24743

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR03MCAL-09.wiff	MDL	N/A	4/3/2018 5:30:13 PM
18APR03MCAL-10.wiff	CAL1	N/A	4/3/2018 5:45:46 PM
18APR03MCAL-11.wiff	CAL2	N/A	4/3/2018 6:01:16 PM
18APR03MCAL-12.wiff	CAL3	N/A	4/3/2018 6:16:46 PM
18APR03MCAL-13.wiff	CAL4	N/A	4/3/2018 6:32:19 PM
18APR03MCAL-14.wiff	CAL5	N/A	4/3/2018 6:47:49 PM
18APR03MCAL-15.wiff	CAL6	N/A	4/3/2018 7:03:19 PM
18APR03MCAL-16.wiff	CAL7	N/A	4/3/2018 7:18:49 PM
18APR03MCAL-17.wiff	Instrument Blank	N/A	4/3/2018 7:34:19 PM
18APR03MCAL-18.wiff	ICV	N/A	4/3/2018 7:49:49 PM
18APR03MCAL-19.wiff	L+B CAL3	N/A	4/3/2018 8:05:22 PM
18APR03MCAL-20.wiff	CCV1_CAL3	N/A	4/3/2018 8:20:55 PM
18APR05-01.wiff	CCV1_CAL3	N/A	4/5/2018 9:58:50 AM
18APR05-02.wiff	Instrument Blank	N/A	4/5/2018 10:14:20 AM
18APR05-03.wiff	LCS092009	18092009	4/5/2018 3:40:20 PM
18APR05-04.wiff	LCSDA	18092009	4/5/2018 3:55:50 PM
18APR05-05.wiff	Solvent	NA	4/5/2018 4:11:20 PM
18APR05-06.wiff	BLK092009	18092009	4/5/2018 4:26:53 PM
18APR05-07.wiff	9535292	18092009	4/5/2018 4:42:26 PM
18APR05-08.wiff	9535293	18092009	4/5/2018 4:57:59 PM
18APR05-09.wiff	9535320	18092009	4/5/2018 5:13:29 PM
18APR05-10.wiff	9535321	18092009	4/5/2018 5:29:02 PM
18APR05-11.wiff	9535322	18092009	4/5/2018 5:44:32 PM
18APR05-12.wiff	9536665	18092009	4/5/2018 6:00:05 PM
18APR05-13.wiff	9536666	18092009	4/5/2018 6:15:38 PM
18APR05-14.wiff	CCV2_CAL4	NA	4/5/2018 6:31:08 PM
18APR05-15.wiff	Solvent	NA	4/5/2018 6:46:41 PM
18APR05-16.wiff	9536667	18092009	4/5/2018 7:02:11 PM
18APR05-17.wiff	9536674	18092009	4/5/2018 7:17:41 PM
18APR05-18.wiff	9536687	18092009	4/5/2018 7:33:11 PM
18APR05-19.wiff	9536688	18092009	4/5/2018 7:48:41 PM
18APR05-20.wiff	CCV3_CAL5	N/A	4/5/2018 8:04:11 PM
18APR05-21.wiff	solvent	N/A	4/5/2018 8:19:41 PM
18APR05-22.wiff	solvent	N/A	4/5/2018 8:35:14 PM
18APR05-23.wiff	solvent	N/A	4/5/2018 8:50:44 PM
18APR05-24.wiff	solvent	N/A	4/5/2018 9:06:14 PM
18APR05-25.wiff	CCV4_CAL1	N/A	4/5/2018 9:21:47 PM
18APR05-26.wiff	Instrument Blank	N/A	4/5/2018 9:37:21 PM
18APR05-27.wiff	LCS087009	18087009	4/5/2018 9:52:54 PM
18APR05-28.wiff	LCSDA	18087009	4/5/2018 10:08:27 PM
18APR05-29.wiff	9522075MS	18087009	4/5/2018 10:24:00 PM
18APR05-30.wiff	solvent	N/A	4/5/2018 10:39:33 PM
18APR05-31.wiff	BLK087009	18087009	4/5/2018 10:55:03 PM
18APR05-32.wiff	9522075BKG	18087009	4/5/2018 11:10:33 PM
18APR05-33.wiff	9522076	18087009	4/5/2018 11:26:06 PM
18APR05-34.wiff	9522077	18087009	4/5/2018 11:41:36 PM
18APR05-35.wiff	9522078	18087009	4/5/2018 11:57:06 PM
18APR05-36.wiff	9522079	18087009	4/6/2018 12:12:36 AM
18APR05-37.wiff	9522080	18087009	4/6/2018 12:28:06 AM
18APR05-38.wiff	CCV5_CAL2	N/A	4/6/2018 12:43:36 AM
18APR05-39.wiff	solvent	N/A	4/6/2018 12:59:09 AM
18APR05-40.wiff	9522081	18087009	4/6/2018 1:14:42 AM
18APR05-41.wiff	9522082	18087009	4/6/2018 1:30:15 AM
18APR05-42.wiff	9522083	18087009	4/6/2018 1:45:48 AM
18APR05-43.wiff	9522084	18087009	4/6/2018 2:01:21 AM
18APR05-44.wiff	9522085	18087009	4/6/2018 2:16:54 AM
18APR05-45.wiff	9522086	18087009	4/6/2018 2:32:27 AM

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By MCD at 11:00 pm, 4/7/18

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LC-MS/MS Sample Run Log

Printed: 4/11/2018 6:15:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24960

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR07MCAL-18.wiff	MDL	18APR04MCAL	4/8/2018 2:13:27 AM
18APR07MCAL-19.wiff	CAL1	18APR04MCAL	4/8/2018 2:28:00 AM
18APR07MCAL-20.wiff	CAL2	18APR04MCAL	4/8/2018 2:42:33 AM
18APR07MCAL-21.wiff	CAL3	18APR04MCAL	4/8/2018 2:57:03 AM
18APR07MCAL-22.wiff	CAL4	18APR04MCAL	4/8/2018 3:11:34 AM
18APR07MCAL-23.wiff	CAL5	18APR04MCAL	4/8/2018 3:26:06 AM
18APR07MCAL-24.wiff	CAL6	18APR04MCAL	4/8/2018 3:40:39 AM
18APR07MCAL-25.wiff	CAL7	18APR04MCAL	4/8/2018 3:55:12 AM
18APR07MCAL-26.wiff	Instrument Blank	18APR04MCAL	4/8/2018 4:09:45 AM
18APR07MCAL-27.wiff	ICV	18APR04MCAL	4/8/2018 4:24:18 AM
18APR07MCAL-28.wiff	L+B CAL3	18APR04MCAL	4/8/2018 4:38:51 AM
18APR07MCAL-29.wiff	CCV1_CAL3	18APR04MCAL	4/8/2018 4:53:27 AM
18APR09-01.wiff	CCV1_CAL3	NA	4/9/2018 9:28:15 AM
18APR09-02.wiff	solvent	NA	4/9/2018 9:42:44 AM
18APR09-03.wiff	LCS094019	18094019	4/9/2018 9:57:17 AM
18APR09-04.wiff	LCSDA	18094019	4/9/2018 10:11:51 AM
18APR09-05.wiff	solvent	NA	4/9/2018 10:26:24 AM
18APR09-06.wiff	BLK094019	18094019	4/9/2018 10:40:57 AM
18APR09-07.wiff	9539754	18094019	4/9/2018 10:55:27 AM
18APR09-08.wiff	9539755	18094019	4/9/2018 11:09:57 AM
18APR09-09.wiff	9539756	18094019	4/9/2018 11:24:30 AM
18APR09-10.wiff	9539757	18094019	4/9/2018 11:39:00 AM
18APR09-11.wiff	9539758	18094019	4/9/2018 11:53:33 AM
18APR09-12.wiff	9539760	18094019	4/9/2018 12:08:03 PM
18APR09-13.wiff	9539761	18094019	4/9/2018 12:22:36 PM
18APR09-14.wiff	CCV2_CAL4	NA	4/9/2018 12:37:09 PM
18APR09-15.wiff	solvent	NA	4/9/2018 12:51:42 PM
18APR09-16.wiff	9539762	18094019	4/9/2018 1:06:15 PM
18APR09-17.wiff	9539763	18094019	4/9/2018 1:20:48 PM
18APR09-18.wiff	9539764	18094019	4/9/2018 1:35:21 PM
18APR09-19.wiff	Filtered LCS test 1	N\A	4/9/2018 1:49:54 PM
18APR09-20.wiff	Filtered LCS test 2	N\A	4/9/2018 2:04:24 PM
18APR09-21.wiff	LCS094001	18094001	4/9/2018 2:18:54 PM
18APR09-22.wiff	LCS094001	18094001	4/9/2018 2:33:27 PM
18APR09-23.wiff	LCSDA	18094001	4/9/2018 2:48:00 PM
18APR09-24.wiff	LCSDB	18094001	4/9/2018 3:02:36 PM
18APR09-25.wiff	solvent	NA	4/9/2018 3:17:09 PM
18APR09-26.wiff	BLK094001	18094001	4/9/2018 3:31:42 PM
18APR09-27.wiff	CCV3_CAL5	NA	4/9/2018 3:46:15 PM
18APR09-28.wiff	solvent	NA	4/9/2018 4:00:48 PM
18APR09-29.wiff	BLK094001	18094001	4/9/2018 4:15:24 PM
18APR09-30.wiff	9536659DL	18094001	4/9/2018 4:29:57 PM
18APR09-31.wiff	9536660DL	18094001	4/9/2018 4:44:30 PM
18APR09-32.wiff	9536662DL	18094001	4/9/2018 4:59:03 PM
18APR09-33.wiff	9536663DL	18094001	4/9/2018 5:13:36 PM
18APR09-34.wiff	9536668DL	18094001	4/9/2018 5:28:06 PM
18APR09-35.wiff	9536669DL	18094001	4/9/2018 5:42:39 PM
18APR09-36.wiff	9536672DL	18094001	4/9/2018 5:57:09 PM
18APR09-37.wiff	9536673DL	18094001	4/9/2018 6:11:39 PM
18APR09-38.wiff	9536675	18094001	4/9/2018 6:26:09 PM
18APR09-39.wiff	CCV4_CAL3	NA	4/9/2018 6:40:42 PM
18APR09-40.wiff	solvent	NA	4/9/2018 6:55:15 PM
18APR09-41.wiff	9536679DL	18094001	4/9/2018 7:09:48 PM
18APR09-42.wiff	9536680DL	18094001	4/9/2018 7:24:21 PM
18APR09-43.wiff	LCS094017	18094017	4/9/2018 7:38:54 PM
18APR09-44.wiff	LCS094017	18094017	4/9/2018 7:53:27 PM
18APR09-45.wiff	LCSDA	18094017	4/9/2018 8:08:00 PM

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By DMW at 6:25 pm, 4/11/18

Instrument Name: LM24960

18APR09-46.wiff	LCSDB	18094017	4/9/2018 8:22:33 PM
18APR09-47.wiff	solvent	NA	4/9/2018 8:37:06 PM
18APR09-48.wiff	BLK094017	18094017	4/9/2018 8:51:39 PM
18APR09-49.wiff	BLK094017	18094017	4/9/2018 9:06:12 PM
18APR09-50.wiff	9536701DL	18094017	4/9/2018 9:20:45 PM
18APR09-51.wiff	9536702DL	18094017	4/9/2018 9:35:18 PM
18APR09-52.wiff	CCV5_CAL4	NA	4/9/2018 9:49:48 PM
18APR09-53.wiff	solvent	NA	4/9/2018 10:04:18 PM
18APR09-54.wiff	9536703DL	18094017	4/9/2018 10:18:51 PM
18APR09-55.wiff	9536704DL	18094017	4/9/2018 10:33:24 PM
18APR09-56.wiff	9536705DL	18094017	4/9/2018 10:47:54 PM
18APR09-57.wiff	9536706DL	18094017	4/9/2018 11:02:25 PM
18APR09-58.wiff	9536707DL	18094017	4/9/2018 11:16:58 PM
18APR09-59.wiff	9536708DL	18094017	4/9/2018 11:31:28 PM
18APR09-60.wiff	9536709DL	18094017	4/9/2018 11:46:01 PM
18APR09-61.wiff	9536710DL	18094017	4/10/2018 12:00:33 AM
18APR09-62.wiff	solvent	N\A	4/10/2018 12:15:06 AM
18APR09-63.wiff	LCSDA	18089005	4/10/2018 12:29:40 AM
18APR09-64.wiff	9530907DL	18089005	4/10/2018 12:44:15 AM
18APR09-65.wiff	CCV6_CAL5	N\A	4/10/2018 12:58:52 AM
18APR09-66.wiff	solvent	N\A	4/10/2018 1:13:24 AM
18APR09-67.wiff	BLK096003	18096003	4/10/2018 1:27:57 AM
18APR09-68.wiff	LCS096003	18096003	4/10/2018 1:42:34 AM
18APR09-69.wiff	9543515RE	18096003	4/10/2018 1:57:07 AM
18APR09-70.wiff	9543510RE	18096003	4/10/2018 2:11:40 AM
18APR09-71.wiff	9543510DL	18096003	4/10/2018 2:26:09 AM
18APR09-72.wiff	9536245RE	18093007	4/10/2018 2:40:39 AM
18APR09-73.wiff	LCS098002	18098002	4/10/2018 2:55:13 AM
18APR09-74.wiff	LCSDA	18098002	4/10/2018 3:09:43 AM
18APR09-75.wiff	solvent	N\A	4/10/2018 3:24:13 AM
18APR09-76.wiff	BLK098002	18098002	4/10/2018 3:38:45 AM
18APR09-77.wiff	9517099RE	18098002	4/10/2018 3:53:16 AM
18APR09-78.wiff	CCV7_CAL3	N\A	4/10/2018 4:07:46 AM
18APR09-79.wiff	solvent	N\A	4/10/2018 4:22:16 AM
18APR09-80.wiff	9542886	18098002	4/10/2018 4:36:49 AM
18APR09-81.wiff	9542887	18098002	4/10/2018 4:51:22 AM
18APR09-82.wiff	9542888	18098002	4/10/2018 5:05:55 AM
18APR09-83.wiff	9542889	18098002	4/10/2018 5:20:28 AM
18APR09-84.wiff	9542890	18098002	4/10/2018 5:35:01 AM
18APR09-85.wiff	9542891	18098002	4/10/2018 5:49:34 AM
18APR09-86.wiff	9542898	18098002	4/10/2018 6:04:07 AM
18APR09-87.wiff	9542899	18098002	4/10/2018 6:18:43 AM
18APR09-88.wiff	9542901	18098002	4/10/2018 6:33:16 AM
18APR09-89.wiff	9547412	18098002	4/10/2018 6:47:49 AM
18APR09-90.wiff	CCV8_CAL4	N\A	4/10/2018 7:02:22 AM
18APR09-91.wiff	solvent	N\A	4/10/2018 7:16:55 AM
18APR09-92.wiff	9547412DL	18098002	4/10/2018 7:31:28 AM
18APR09-93.wiff	9547413	18098002	4/10/2018 7:46:01 AM
18APR09-94.wiff	9547413DL	18098002	4/10/2018 8:00:31 AM
18APR09-95.wiff	9547414	18098002	4/10/2018 8:15:04 AM
18APR09-96.wiff	9547414DL	18098002	4/10/2018 8:29:34 AM
18APR09-97.wiff	9547415	18098002	4/10/2018 8:44:04 AM
18APR09-98.wiff	9547416	18098002	4/10/2018 8:58:34 AM
18APR09-99.wiff	9547417	18098002	4/10/2018 9:13:04 AM
18APR09-100.wiff	9547418	18098002	4/10/2018 9:27:37 AM
18APR09-101.wiff	9547419	18098002	4/10/2018 9:42:10 AM
18APR09-102.wiff	CCV9_CAL5	N\A	4/10/2018 9:56:43 AM
18APR09-103.wiff	solvent	N\A	4/10/2018 10:11:16 AM

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LC-MS/MS Sample Run Log

Printed: 4/11/2018 6:26:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24960

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR07MCAL-18.wiff	MDL	18APR04MCAL	4/8/2018 2:13:27 AM
18APR07MCAL-19.wiff	CAL1	18APR04MCAL	4/8/2018 2:28:00 AM
18APR07MCAL-20.wiff	CAL2	18APR04MCAL	4/8/2018 2:42:33 AM
18APR07MCAL-21.wiff	CAL3	18APR04MCAL	4/8/2018 2:57:03 AM
18APR07MCAL-22.wiff	CAL4	18APR04MCAL	4/8/2018 3:11:34 AM
18APR07MCAL-23.wiff	CAL5	18APR04MCAL	4/8/2018 3:26:06 AM
18APR07MCAL-24.wiff	CAL6	18APR04MCAL	4/8/2018 3:40:39 AM
18APR07MCAL-25.wiff	CAL7	18APR04MCAL	4/8/2018 3:55:12 AM
18APR07MCAL-26.wiff	Instrument Blank	18APR04MCAL	4/8/2018 4:09:45 AM
18APR07MCAL-27.wiff	ICV	18APR04MCAL	4/8/2018 4:24:18 AM
18APR07MCAL-28.wiff	L+B CAL3	18APR04MCAL	4/8/2018 4:38:51 AM
18APR07MCAL-29.wiff	CCV1_CAL3	18APR04MCAL	4/8/2018 4:53:27 AM
18APR10-01.wiff	CCV1_CAL3	18APR04MCAL	4/10/2018 12:07:40 PM
18APR10-02.wiff	solvent	N\A	4/10/2018 12:22:13 PM
18APR10-03.wiff	LCS094021	18094021	4/10/2018 12:36:46 PM
18APR10-04.wiff	LCSDA	18094021	4/10/2018 12:51:19 PM
18APR10-05.wiff	solvent	NA	4/10/2018 1:05:52 PM
18APR10-06.wiff	BLK094021	18094021	4/10/2018 1:20:25 PM
18APR10-07.wiff	9540926	18094021	4/10/2018 1:34:58 PM
18APR10-08.wiff	9540926DL	18094021	4/10/2018 1:49:31 PM
18APR10-09.wiff	9540927	18094021	4/10/2018 2:04:04 PM
18APR10-10.wiff	LCS098003	18098003	4/10/2018 2:18:34 PM
18APR10-11.wiff	LCSDA	18098003	4/10/2018 2:33:04 PM
18APR10-12.wiff	solvent	NA	4/10/2018 2:47:38 PM
18APR10-13.wiff	BLK098003	18098003	4/10/2018 3:02:10 PM
18APR10-14.wiff	9547780	18098003	4/10/2018 3:16:43 PM
18APR10-15.wiff	CCV2_CAL4	NA	4/10/2018 3:31:16 PM
18APR10-16.wiff	solvent	NA	4/10/2018 3:45:49 PM
18APR10-17.wiff	9547781	18098003	4/10/2018 4:00:22 PM
18APR10-18.wiff	9547782	18098003	4/10/2018 4:14:55 PM
18APR10-19.wiff	BLK089005	18089005	4/10/2018 4:29:28 PM
18APR10-20.wiff	9536659DL	18094001	4/10/2018 4:43:59 PM
18APR10-21.wiff	9536660DL	18094001	4/10/2018 4:58:32 PM
18APR10-22.wiff	9536662DL	18094001	4/10/2018 5:13:05 PM
18APR10-23.wiff	9536669DL	18094001	4/10/2018 5:27:38 PM
18APR10-24.wiff	9536672DL	18094001	4/10/2018 5:42:11 PM
18APR10-25.wiff	9536673DL	18094001	4/10/2018 5:56:47 PM
18APR10-26.wiff	9536680DL	18094001	4/10/2018 6:11:20 PM
18APR10-27.wiff	CCV3_CAL5	N\A	4/10/2018 6:25:53 PM
18APR10-28.wiff	solvent	N\A	4/10/2018 6:40:26 PM
18APR10-29.wiff	9536682DL	18094013	4/10/2018 6:54:59 PM
18APR10-30.wiff	9536683DL	18094013	4/10/2018 7:09:32 PM
18APR10-31.wiff	9536685DL	18094013	4/10/2018 7:24:05 PM
18APR10-32.wiff	9536689DL	18094013	4/10/2018 7:38:38 PM
18APR10-33.wiff	9536690DL	18094013	4/10/2018 7:53:11 PM
18APR10-34.wiff	9536691DL	18094013	4/10/2018 8:07:44 PM
18APR10-35.wiff	9536692DL	18094013	4/10/2018 8:22:17 PM
18APR10-36.wiff	9536693DL	18094013	4/10/2018 8:36:50 PM
18APR10-37.wiff	9536695DL	18094013	4/10/2018 8:51:20 PM
18APR10-38.wiff	9536696DL	18094013	4/10/2018 9:05:53 PM
18APR10-39.wiff	CCV4_CAL3	N\A	4/10/2018 9:20:26 PM
18APR10-40.wiff	solvent	N\A	4/10/2018 9:34:59 PM
18APR10-41.wiff	9536697DL	18094013	4/10/2018 9:49:29 PM
18APR10-42.wiff	9536698DL	18094013	4/10/2018 10:04:02 PM
18APR10-43.wiff	9536700DL	18094013	4/10/2018 10:18:35 PM
18APR10-44.wiff	9536701	18094017	4/10/2018 10:33:08 PM
18APR10-45.wiff	9536702DL	18094017	4/10/2018 10:47:41 PM

PFOA only

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By DMW at 6:27 pm, 4/11/18

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LC-MS/MS Sample Run Log

Printed: 4/19/2018 11:19:00 AM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24743

APRIImCAL

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR18-01.wiff	solvent	N/A	4/18/2018 8:26:47 AM
18APR18-02.wiff	solvent	N/A	4/18/2018 8:42:20 AM
18APR18-03.wiff	solvent	N/A	4/18/2018 8:57:53 AM
18APR18-04.wiff	solvent	N/A	4/18/2018 9:13:26 AM
18APR18-05.wiff	CCV1_CAL3	N/A	4/18/2018 9:28:59 AM
18APR18-06.wiff	solvent	N/A	4/18/2018 9:44:29 AM
18APR18-07.wiff	LCS102019	18102019	4/18/2018 9:59:59 AM
18APR18-08.wiff	9536677MS	18102019	4/18/2018 10:15:29 AM
18APR18-09.wiff	9536678MSD	18102019	4/18/2018 10:30:59 AM
18APR18-10.wiff	solvent	N/A	4/18/2018 10:46:32 AM
18APR18-11.wiff	BLK102019	18102019	4/18/2018 11:02:05 AM
18APR18-12.wiff	9535298	18102019	4/18/2018 11:17:38 AM
18APR18-13.wiff	9535302	18102019	4/18/2018 11:33:08 AM
18APR18-14.wiff	9535304	18102019	4/18/2018 11:48:41 AM
18APR18-15.wiff	9535313	18102019	4/18/2018 12:04:11 PM
18APR18-16.wiff	9535326	18102019	4/18/2018 12:19:41 PM
18APR18-17.wiff	9536661	18102019	4/18/2018 12:35:11 PM
18APR18-18.wiff	CCV2_CAL4	N/A	4/18/2018 12:50:44 PM
18APR18-19.wiff	solvent	N/A	4/18/2018 1:06:14 PM
18APR18-20.wiff	9536664	18102019	4/18/2018 1:21:47 PM
18APR18-21.wiff	9536670	18102019	4/18/2018 1:37:20 PM
18APR18-22.wiff	9536671	18102019	4/18/2018 1:52:50 PM
18APR18-23.wiff	9536676	18102019	4/18/2018 2:08:20 PM
18APR18-24.wiff	9536681	18102019	4/18/2018 2:23:50 PM
18APR18-25.wiff	9536684	18102019	4/18/2018 2:39:20 PM
18APR18-26.wiff	9536686	18102019	4/18/2018 2:54:53 PM
18APR18-27.wiff	9536694	18102019	4/18/2018 3:10:23 PM
18APR18-28.wiff	9536677MSDL	18102019	4/18/2018 3:25:53 PM
18APR18-29.wiff	9536678MSDDL	18102019	4/18/2018 3:41:23 PM
18APR18-30.wiff	CCV3_CAL5	N/A	4/18/2018 3:56:53 PM
18APR18-31.wiff	solvent	N/A	4/18/2018 4:12:26 PM
18APR18-32.wiff	9535298DL	18102019	4/18/2018 4:27:56 PM
18APR18-33.wiff	9535302DL	18102019	4/18/2018 4:43:29 PM
18APR18-34.wiff	9535304DL	18102019	4/18/2018 4:59:02 PM
18APR18-35.wiff	9535313DL	18102019	4/18/2018 5:14:35 PM
18APR18-36.wiff	9535326DL	18102019	4/18/2018 5:30:05 PM
18APR18-37.wiff	9536661DL	18102019	4/18/2018 5:45:35 PM
18APR18-38.wiff	9536664DL	18102019	4/18/2018 6:01:05 PM
18APR18-39.wiff	9536670DL	18102019	4/18/2018 6:16:35 PM
18APR18-40.wiff	9536671DL	18102019	4/18/2018 6:32:05 PM
18APR18-41.wiff	9536676DL	18102019	4/18/2018 6:47:35 PM
18APR18-42.wiff	CCV4_CAL3	N/A	4/18/2018 7:03:08 PM
18APR18-43.wiff	solvent	N/A	4/18/2018 7:18:41 PM
18APR18-44.wiff	9536681DL	18102019	4/18/2018 7:34:14 PM
18APR18-45.wiff	9536684DL	18102019	4/18/2018 7:49:44 PM
18APR18-46.wiff	9536686DL	18102019	4/18/2018 8:05:17 PM
18APR18-47.wiff	9536694DL	18102019	4/18/2018 8:20:50 PM
18APR18-48.wiff	9536671DL2	18102019	4/18/2018 8:36:24 PM
18APR18-49.wiff	9536694DL	18102019	4/18/2018 8:51:57 PM
18APR18-50.wiff	CCV5_CAL4	N/A	4/18/2018 9:07:29 PM
18APR18-51.wiff	solvent	N/A	4/18/2018 9:23:00 PM
18APR18-52.wiff	LCS094018	18094018	4/18/2018 9:38:30 PM
18APR18-53.wiff	9536677MSDL	18094018	4/18/2018 9:54:00 PM
18APR18-54.wiff	9536678MSDDL	18094018	4/18/2018 10:09:29 PM
18APR18-55.wiff	solvent	N/A	4/18/2018 10:25:00 PM
18APR18-56.wiff	BLK094018	18094018	4/18/2018 10:40:33 PM
18APR18-57.wiff	9535308	18094018	4/18/2018 10:56:06 PM

PFOA only

APPROVED
By JPT at 11:21 am, 4/19/18

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LC-MS/MS Sample Run Log

Printed: 4/19/2018 10:04:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24743

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR11MCAL-15.wiff	MDL	N/A	4/11/2018 11:18:32 PM
18APR11MCAL-16.wiff	CAL1	N/A	4/11/2018 11:34:06 PM
18APR11MCAL-17.wiff	CAL2	N/A	4/11/2018 11:49:39 PM
18APR11MCAL-18.wiff	CAL3	N/A	4/12/2018 12:05:11 AM
18APR11MCAL-19.wiff	CAL4	N/A	4/12/2018 12:20:42 AM
18APR11MCAL-20.wiff	CAL5	N/A	4/12/2018 12:36:12 AM
18APR11MCAL-21.wiff	CAL6	N/A	4/12/2018 12:51:42 AM
18APR11MCAL-22.wiff	CAL7	N/A	4/12/2018 1:07:12 AM
18APR11MCAL-23.wiff	Instrument Blank	N/A	4/12/2018 1:22:45 AM
18APR11MCAL-24.wiff	ICV	N/A	4/12/2018 1:38:18 AM
18APR11MCAL-25.wiff	L+B CAL3	N/A	4/12/2018 1:53:51 AM
18APR11MCAL-26.wiff	CCV1_CAL3	N/A	4/12/2018 2:09:24 AM
18APR19-01.wiff	solvent	N/A	4/19/2018 5:55:24 AM
18APR19-02.wiff	solvent	N/A	4/19/2018 6:10:57 AM
18APR19-03.wiff	solvent	N/A	4/19/2018 6:26:30 AM
18APR19-04.wiff	solvent	N/A	4/19/2018 6:42:03 AM
18APR19-05.wiff	CCV1_CAL3	N/A	4/19/2018 6:57:37 AM
18APR19-06.wiff	solvent	N/A	4/19/2018 7:13:09 AM
18APR19-07.wiff	LCS106004	18106004	4/19/2018 7:28:43 AM
18APR19-08.wiff	LCSDA	18106004	4/19/2018 7:44:15 AM
18APR19-09.wiff	LCS104002	18104002	4/19/2018 7:59:48 AM
18APR19-10.wiff	LCSDA	18104002	4/19/2018 8:15:19 AM
18APR19-11.wiff	solvent	N/A	4/19/2018 8:30:51 AM
18APR19-12.wiff	BLK106004	18106004	4/19/2018 8:46:21 AM
18APR19-13.wiff	BLK104002	18104002	4/19/2018 9:01:51 AM
18APR19-14.wiff	9557790	18106004	4/19/2018 9:17:21 AM
18APR19-15.wiff	9557791	18106004	4/19/2018 9:32:51 AM
18APR19-16.wiff	9551241	18104002	4/19/2018 9:48:21 AM
18APR19-17.wiff	9551242	18104002	4/19/2018 10:03:51 AM
18APR19-18.wiff	CCV2_CAL4	N/A	4/19/2018 10:19:22 AM
18APR19-19.wiff	solvent	N/A	4/19/2018 10:34:52 AM
18APR19-20.wiff	9535308DLRE	18094018	4/19/2018 10:50:25 AM
18APR19-21.wiff	9535308DL2RE	18094018	4/19/2018 11:05:58 AM
18APR19-23.wiff	solvent	N/A	4/19/2018 11:27:05 AM
18APR19-24.wiff	solvent	N/A	4/19/2018 11:42:39 AM
18APR19-25.wiff	solvent	N/A	4/19/2018 11:58:15 AM
18APR19-26.wiff	9535308RE	18094018	4/19/2018 12:13:48 PM
18APR19-27.wiff	9535308DL	18094018	4/19/2018 12:29:18 PM
18APR19-28.wiff	9536676BKGDL	18094018	4/19/2018 12:44:51 PM
18APR19-29.wiff	CCV3_CAL5	N/A	4/19/2018 1:00:24 PM
18APR19-30.wiff	solvent	N/A	4/19/2018 1:15:54 PM
18APR19-31.wiff	9536677MSDL2	18102019	4/19/2018 1:31:27 PM
18APR19-32.wiff	9536678MSDDL2	18102019	4/19/2018 1:47:00 PM
18APR19-33.wiff	9535298DL	18102019	4/19/2018 2:02:33 PM
18APR19-34.wiff	9535302DL	18102019	4/19/2018 2:18:06 PM
18APR19-35.wiff	9535326DL	18102019	4/19/2018 2:33:39 PM
18APR19-36.wiff	9536664DL	18102019	4/19/2018 2:49:09 PM
18APR19-37.wiff	9536676DL	18102019	4/19/2018 3:04:40 PM
18APR19-38.wiff	CCV4_CAL3	N/A	4/19/2018 3:20:09 PM
18APR19-39.wiff	solvent	N/A	4/19/2018 3:35:42 PM
18APR19-40.wiff	9542917RE	18101008	4/19/2018 3:51:16 PM
18APR19-41.wiff	9542918RE	18101008	4/19/2018 4:06:46 PM
18APR19-42.wiff	9542919RE	18101008	4/19/2018 4:22:18 PM
18APR19-43.wiff	9542920RE	18101008	4/19/2018 4:37:52 PM
18APR19-44.wiff	9542921RE	18101008	4/19/2018 4:53:25 PM
18APR19-45.wiff	9542922RE	18101008	4/19/2018 5:08:59 PM
18APR19-46.wiff	9542923RE	18101008	4/19/2018 5:24:34 PM

} QA only

APPROVED
By MCD at 10:04 pm, 4/19/18

Organic Extraction Batchlog Assigned to: 26543 Anthony Polaski Reviewed by: MCD 7824 Start Date: 4/3/18 Start time: 17:00

18092009 Tech 1: ACP26543 Tech 2: _____

< 14 days ✓

Analyses on Batch: PFAS in Water by LC/MS/MS

Dept: 33 Prep Analysis: 14091 PFAS Water Prep

Port#.	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS amt (uL)	BC	Comments
1	BLANKA	BLK092009	250.00	SSMODX1833V	.025	———	—	1mL	20	7	
2	LCSA	LCS092009	↓	SSMODX1833V	.025	MSMODX1833K	.04	↓	↓	↓	
3	LCSDA	LCSD092009	↓	SSMODX1833V	.025	MSMODX1833K	.04	↓	↓	↓	

Spike Solutions: Witness: DDM25478

MSMODX1833K PFAS 537 Native Spike

SSMODX1833V PFAS 537 Modified Extraction/Surrogate Spik

Instrument: LM24743

Sequence: 18APR03MOD/18APR05

Port#	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
4	1 9535292	TB 8131	274.31	SSMODX1833V	.025	1mL	20	173b		14473	04/10/2018	S
5	2 9535293	FB 8131	268.86	SSMODX1833V	.025	↓	↓	173b		14473	04/10/2018	S
6	3 9535320	RB 8149	276.87	SSMODX1833V	.025			173b		14473	04/10/2018	S
7	4 9535321	RB 8149	273.63	SSMODX1833V	.025			173b		14473	04/10/2018	S
8	5 9535322	RB 8150	270.06	SSMODX1833V	.025			173b		14473	04/10/2018	S
9	6 9536665	FB N10-7	269.80	SSMODX1833V	.025			173b		14473	04/11/2018	S
10	7 9536666	TB N10-8	272.30	SSMODX1833V	.025			173b		14473	04/11/2018	S
11	8 9536667	RB N10-9	274.78	SSMODX1833V	.025			173b		14473	04/11/2018	S
12	9 9536674	EB 10-16	274.68	SSMODX1833V	.025			173b		14473	04/11/2018	S
1	10 9536687	FB 11-07	271.79	SSMODX1833V	.025			173b		14473	04/11/2018	S
2	11 9536688	TB 11-08	273.58	SSMODX1833V	.025	↓	↓	173b		14473	04/11/2018	S

SBN10 Page 1927 of 1932

Balance #	B629764122	SPE Manifold	1,2	N-evap	25 C

RJR9213 4/4/18

18092009

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
0.3% NH4OH:MeOH	921304021833A
1:1 ACN:MeOH	921304031833A
Auto-pipette (dilutions)	———
Auto-pipette (extract vialin	P1000-3
Internal Standard	IS18093331
Methanol	DT652-US
Milli-Q H2O	Hawe AZZ3
SPE Cartridge #1	6387380-09
Sodium Thiosulfate	———
Syringe (IS)	PFAS 4
Syringe (MS)	PFAS 10
Syringe (SS)	PFAS 9
Trizma	———

Organic Extraction Batchlog Assigned to: 9213 Pamela Rothharpt Reviewed by: JWK9524 Start Date: 4/4/18 Start time: 0745

18094001 Tech 1: PJR9213 Tech 2: _____

Wipes

Analyses on Batch: PFAS in Soil by LC/MS/MS

<28 days ✓

Dept: 33 Prep Analysis: 14090 PFAS Solid Prep

Port #	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
	BLANKA	BLK094001	1.00	SSMODX1833W	.05			1ml	20		Solvent
	BLANKB	BLK094001	1.00	SSMODX1833W	.05						wipes
	LCSA	LCS094001	1.00	SSMODX1833W	.05	MSMODX1833K	.04				Solvent
	LCSB	LCS094001	1.00	SSMODX1833W	.05	MSMODX1833K	.04				wipes
	LCSDA	LCSD094001	1.00	SSMODX1833W	.05	MSMODX1833K	.04				Solvent
	LCSDB	LCSD094001	1.00	SSMODX1833W	.05	MSMODX1833K	.04				wipes

Spike Solutions: Witness: MS#26157-F Instrument: LM24960

MSMODX1833K PFAS 537 Native Spike

SSMODX1833W PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18APR07MOD - (18APR09) (18APR10)

Port#		Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
	1	9536659	N10-1	1.00	SSMODX1833W	.05	1ml	20	1239	DL100, DL1000	14027	04/11/2018	S
	2	9536660	N10-2	1.00	SSMODX1833W	.05				DL100, DL1000	14027	04/11/2018	S
	3	9536662	N10-4	1.00	SSMODX1833W	.05				DL100, DL1000	14027	04/11/2018	S
	4	9536663	N10-5	1.00	SSMODX1833W	.05				DL100 ~~may be dilute spiked~~ ③ JWK9524 4/10/18	14027	04/11/2018	S
	5	9536668	10-10	1.00	SSMODX1833W	.05				DL100	14027	04/11/2018	S
	6	9536669	10-11	1.00	SSMODX1833W	.05				DL10, DL100	14027	04/11/2018	S
	7	9536672	10-14	1.00	SSMODX1833W	.05				DL100, DL1000	14027	04/11/2018	S
	8	9536673	10-15	1.00	SSMODX1833W	.05				DL100 DL1000	14027	04/11/2018	S
	9	9536675	EB 10-17	1.00	SSMODX1833W	.05				~~DL10~~ N/A ③ JWK9524 4/10/18	14027	04/11/2018	S
	10	9536679	10-19	1.00	SSMODX1833W	.05				DL100	14027	04/11/2018	S
	11	9536680	10-20	1.00	SSMODX1833W	.05				DL100, DL1000	14027	04/11/2018	S

4/5/18 DDW DEVELOPED

Balance #	B629764122	Sonic Bath ID	5600	N-evap	26°C	SPE Manifold	—	18094001

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
1:1 MeOH:ACN	921304041833A
Auto-pipette (dilutions)	P100-2, P1000-1
Auto-pipette (extract vialin	P1000-1
Internal Standard	IS18096334
Methanol	DT032-US
Sand	———
Syringe (IS)	PFAS4
Syringe (MS)	PFAS 10
Syringe (SS)	PFAS 13

DL10: 100µL sample extract combined w/ 877 µL MeOH (DT149-US) and 22.5µL surrogate (SSM08X1833X), then vortexed to mix. 400µL of this solution was mixed w/ 20µL internal (IS18096334) and vortexed prior to injection. JPT122262 4/9/18

DL100: 10µL sample extract combined w/ 965 µL MeOH (DT149-US) and 25µL surrogate (SSM08X1833X), then vortexed to mix. 400µL of this solution was mixed w/ 20µL internal (IS18096334) and vortexed prior to injection. JPT122262 4/9/18

DL1000: 100µl of the DL100 prep was mixed w/ 877µl MeOH (DT149-US) and 22.5µl surrogate (SSM08X1833X). 400µl of solution was then mixed w/ 20µl internal (IS18096334) prior to injection. JWK9524 4/10/18

SBN10 Page 1930 of 1932

Organic Extraction Batchlog Assigned to: 375 Robert Brown Reviewed by: SPT12222 Start Date: 4-13-18 Start time: 10:30

18102019 Tech 1: RGB/375 Tech 2: _____

Solids

< 28 days ✓

Analyses on Batch: PFAS in Soil by LC/MS/MS

Dept: 33 Prep Analysis: 14090 PFAS Solid Prep

Port #	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
	9536677MS	10-18	1.00	SSMODX1833Y	0.05	~~MSMODX1833L~~ (8)	.04	1mL	20	170a	Paint chips / Peat DS000
	9536678MSD	10-18	1.03	SSMODX1833Y	0.05	~~MSMODX1833L~~ (8)	.04	"	"	170a	Paint chips / Peat DS000
	BLANKA	BLK102019	1.00	SSMODX1833Y	.05	———					
	LCSA	LCS102019	1.00	SSMODX1833Y	.05	~~MSMODX1833L~~ (8)	.04	"	"		

(8) MSMODX1833M. PJR9213 4/13/18

Spike Solutions:
(8) ~~MSMODX1833L~~ SSMODX1833Y

Witness: PJR9213

PFAS 537 Native Spike
PFAS 537 Modified Extraction/Surrogate Spik

Instrument: LM24743

Sequence: 18APRIMOD/18APR18 & 18APR19

(3) RGB/375 4-13-18

Port#		Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	(3) Comments	Analyses	Due Date	Prio
	1	9535298 R	81320	1.00	SSMODX1833Y	.05	1mL	20	170a	~~Fotn~~ Gravel DS000	14027	04/13/2018	S
	2	9535302 R	81324	1.04	SSMODX1833Y	.05	"	"	170a	Coal-like Gravel DS000	14027	04/13/2018	S
	3	9535304 R	81326	0.54	SSMODX1833Y	.05	"	"	170a	Foamy Insulation	14027	04/13/2018	S
	~~4~~	~~9535308 R~~	~~81330~~		~~SSMODX1833Y~~				170a	No remaining sample	14027	04/13/2018	S
	5	9535313 R	81491	1.05	SSMODX1833Y	.05	1mL	20	170a	Dry dust/dirt	14027	04/13/2018	S
	6	9535326 R	81504	1.01	SSMODX1833Y	.05	"	"	170a	Soil / dirt DS000	14027	04/13/2018	S
	7	9536661 R	N10-3	0.52	SSMODX1833Y	.05	"	"	170a	Insulation back	14027	04/16/2018	S
	8	9536664 R	N10-6	1.00	SSMODX1833Y	.05	"	"	170a	Dried mud DS000	14027	04/16/2018	S
	9	9536670 R	10-12	1.02	SSMODX1833Y	.05	"	"	170a	Paper/cardboard	14027	04/16/2018	S
	10	9536671 R	10-13	1.05	SSMODX1833Y	.05	"	"	170a	Adhesive backing DW	14027	04/16/2018	S
	11	9536676 R	BKG 10-18	1.07	SSMODX1833Y	.05	"	"	170a	Paint Chips, Peat. DS000	14027	04/16/2018	S
	12	9536681 R	11-01	1.10	SSMODX1833Y	.05	"	"	170a	Soil	14027	04/16/2018	S
	13	9536684 R	11-04	1.02	SSMODX1833Y	.05	"	"	170a	Insulation Backing	14027	04/16/2018	S
	14	9536686 R	FD 11-06	1.04	SSMODX1833Y	.05	"	"	170a	Soil	14027	04/16/2018	S

SBN10 Page 1931 of 1932

Balance #	B629764122	Sonic Bath ID	5800	N-evap	C	SPE Manifold	———	18102019

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

	15	9536694 R	1114-	1,02	SSMODX1833Y	.05	1 mL	20 µL	170a	Insulation DIO Backing	14027	04/16/2018	S

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
1:1 MeOH:ACN	265430411833A
Auto-pipette (dilutions)	P1000-2 + P100-1
Auto-pipette (extract vialin	P1000-3
Internal Standard	IS1804333
Methanol	DT632-US
Sand	MKBW7349V
Syringe (IS)	PFAS4
Syringe (MS)	PFAS10
Syringe (SS)	PFAS13
ENVI-Carb	95303

all extracts treated with 25mg loose ENVI-Carb, vortexed & centrifuged.
Supernatant filtered through acrodisc 13mm; 0.2µm GHP filter.
RGB/375 4-16-18

All samples (including MSr MSD) ran at initial D100s + D1000s.
D100s prepared using 965 µL methanol (DT632-US), 10 µL sample, and 25 µL surrogate (SSMODX18332). 400 µL internalized w/ 20 µL IS1804333.
D1000s prepared using 877 µL methanol (DT632-US), 100 µL sample (D100 soln), and 22.5 µL surrogate (SSMODX 18332.) 400 µL internalized w/ 20 µL IS1804333.
MCD 784 4/17/18

D10: 877µL of MeOH (DT632-US) combined w/ 100µL of sample extract and 22.5µL of surrogate (SSMODX 18332), vortexed to mix. 400µL of this solution internalized w/ 20µL IS1810633A. JPT 12262 4/18/18

D5000: 780µL of MeOH (DT632-US) combined w/ 200µL D1000 solution and 20µL surrogate (SSMODX 1833AA), vortexed to mix. 400µL of this solution internalized w/ 20µL IS1810633B. JPT 12262 4/19/18

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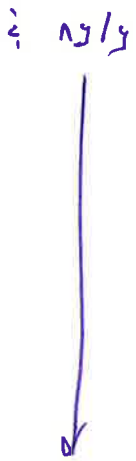
LOQ/MDL Summary
PFAS Group

SDG: SBN10

Fraction: PFAS by LC/MS/MS

14027: 14 PFCs Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.20	0.60	ng/wipe
Perfluorononanoic acid	0.20	0.60	ng/wipe
Perfluorodecanoic acid	0.20	0.60	ng/wipe
Perfluoroundecanoic acid	0.20	0.60	ng/wipe
Perfluorododecanoic acid	0.20	0.60	ng/wipe
Perfluorotridecanoic acid	0.20	0.60	ng/wipe
Perfluorotetradecanoic acid	0.20	0.60	ng/wipe
Perfluorohexanoic acid	0.20	0.60	ng/wipe
Perfluoroheptanoic acid	0.20	0.60	ng/wipe
Perfluorobutanesulfonate	0.20	0.60	ng/wipe
Perfluorohexanesulfonate	0.20	0.60	ng/wipe
Perfluoro-octanesulfonate	0.30	0.90	ng/wipe
Perfluorobutanoic acid	0.20	0.60	ng/wipe
Perfluoropentanoic acid	0.20	0.60	ng/wipe



14473: 14 PFAS Compounds Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.3	1	ng/l
Perfluorononanoic acid	0.4	2	ng/l
Perfluorodecanoic acid	1	2	ng/l
Perfluoroundecanoic acid	0.4	2	ng/l
Perfluorododecanoic acid	0.3	1	ng/l
Perfluorotridecanoic acid	0.3	1	ng/l
Perfluorotetradecanoic acid	0.3	1	ng/l
Perfluorohexanoic acid	0.4	2	ng/l
Perfluoroheptanoic acid	0.3	1	ng/l
Perfluorobutanesulfonate	0.3	1	ng/l
Perfluorohexanesulfonate	0.4	2	ng/l
Perfluoro-octanesulfonate	0.4	2	ng/l
Perfluorobutanoic acid	2	6	ng/l
Perfluoropentanoic acid	2	6	ng/l

B. SDG SBN11

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: Saint Gobain Vermont
Sample Collection Dates: 3/30/18
Job Number: 20167391.NBEN
Project Manager: Meg Michell
Laboratory: ELLE

Reviewed by: JA 5/11/18
Approved by: TMW
Completion Date: 5/2018

Applicable Sample No's (X) — Refer to Table 1 in the Quality Assurance Review

Deliverable:
- CLP (Full) ( )
- Level IV (Full) (X)
- Limited ( )
- Other:

Sample No.	Lab Control No.
SBN11	

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	PFAS					PFAS					PFAS				
Holding Times	X										X				
Blank Analysis: Target Cmpds	X					X					X				
Sys Montr Cmps/Surrogates															
Matrix Spike/Matrix Spike Duplicate															
Blank Spike	X										X				
Duplicate Analysis (X) Field ( ) Lab	X					X					X				
Detection Limit/Sensitivity	X										X				
Qualitative Identification: Target Cmpds	X					X					X				
Qualitative Identification: TICs															
DFTPP & BFB Mass Tuning															
GC Instrument Performance															
Initial Calibrations	X										X				
Continuing Calibrations	X										X				
Quantitation of Results	X										X				
DDT/Endrin Breakdown															
Surrogate Retention Time Shifts															
Internal Standards Performance	X					X					X				
Resolution Check Standards															
Analytical Sequence	X										X				
Florisil Cartridge & GPC Calibration															
GC Column Agreement															
Condition Upon Receipt	X										X				
Percent Solids															
Others:															

Comments:

ENVIRONMENTAL STANDARDS

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample / batch ID	Contaminant	Concentration ng/wipe, ng/g, ng/L	Qualification limit	
						5×	10×
O	Aq	FB	SG3a-FTB02-180330	PFOA	0.3	1.5	
O	Aq	TB	SG3a-LTB02-180330	PFOA	0.3	1.5	
O	Wipe	MB	18094013	PFBA	0.23	1.2	
O	Wipe	EB	SG3a-EB03-180330	PFBA	2.9	15	
O	Wipe	EB	SG3a-EB03-180330	PFHpA	2	10	
O	Wipe	EB	SG3a-EB03-180330	PFOS	60	300	
O	Wipe	EB	SG3a-EB03-180330	PFOA	220	1100	

1 - V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: PFAS

2 - MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; RB = Rinse Blank

Notes: _____

** Columns G and H contains formulas

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Matrix: ○ Aqueous ◉ Non-a
Reporting Level: ◉ MDL ○ QL
Units: ng/wipe

PRECISION OBJECTIVES:
If Both Results ≥ 5 × Their QL, RPD ≤: 30
If Either Result < 5 × Its QL, Dif. ≤: 1.5 × Highest QL

Sample ID:	SG3a-WP12-B44.5				Duplicate Sample ID:	SG3a-FD01-180330					
Analyte	Sample Concentration	Qual	QL	MDL	Duplicate Concentration	Qual	QL	MDL	Difference	RPD	Flag
PFDA	22	J	60	20	170		6.0	2.0	148	NA	J
PFDoA	29	J	60	20	200		6.0	2.0	171	NA	J
PFHpA	58	J	60	20	350		6.0	2.0	292	NA	J
PFHxA	28	J	60	20	88		6.0	2.0	60	NA	
PFOA	5200		60	20	15000		600	200	NA	97%	J
PFTA	58	J	60	20	220		6.0	2.0	162	NA	J
PFBS	20	U	60	20	8.1		6.0	2.0	11.9	NA	
PFBA	20	U	60	20	9.0		6.0	2.0	11	NA	
PFNA	20	U	60	20	67		6.0	2.0	47	NA	
PFOS	30	U	~~90~~ ~~60~~	30	17		9.0	3.0	13	NA	
PFPeA	20	U	60	20	16		6.0	2.0	4	NA	
PFTriA	20	U	60	20	92		6.0	2.0	72	NA	
PFUnA	20	U	60	20	100		6.0	2.0	80	NA	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

SNB62

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Effective Date: 11/23/2015
Revision: 0

Matrix: ○ Aqueous ◉ Non-a
Reporting Level: ◉ MDL ○ QL
Units: ng/g

PRECISION OBJECTIVES:
If Both Results ≥ 5 × Their QL, RPD ≤: 30
If Either Result < 5 × Its QL, Dif. ≤: 1.5 **× Highest QL**

Sample ID: SG3a-BL12-B42.5 **Duplicate Sample ID:** SG3a-FD02-180330

Analyte	Sample Concentration	Qual	QL	MDL	Duplicate Concentration	Qual	QL	MDL	Difference	RPD	Flag
PFBA	58		55	18	48	J	58	19	10	NA	
PFDA	750		55	18	650		58	19	NA	14%	
PFDoA	640		55	18	550		58	19	NA	15%	
PFHpA	1900		55	18	1600		58	19	NA	17%	
PFHxA	590		55	18	520		58	19	NA	13%	
PFNA	300		55	18	280		58	19	20	NA	
PFOA	71000		550	180	60000		580	190	NA	17%	
PFPeA	88		55	18	71		58	19	17	NA	
PFTA	580		55	18	520		58	19	NA	11%	
PFTriA	250		55	18	230		58	19	20	NA	
PFUnA	280		55	18	250		58	19	30	NA	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

SNB62

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Effective Date: 11/23/2015
Revision: 0

Matrix: ○ Aqueous ◉ Non-a	**PRECISION OBJECTIVES:**
Reporting Level: ◉ MDL ○ QL	**If Both Results ≥ 5 × Their QL, RPD ≤:** 30
Units: ng/g	**If Either Result < 5 × Its QL, Dif. ≤:** 1.5 **× Highest QL**

Sample ID:	SG3a-WP17-E				**Duplicate Sample ID:**	SG3a-FD03-180330					
Analyte	**Sample Concentration**	**Qual**	**QL**	**MDL**	**Duplicate Concentration**	**Qual**	**QL**	**MDL**	**Difference**	**RPD**	**Flag**
PFDA	39		6.0	2.0	38		6.0	2.0	NA	3%	
PFDoA	26		6.0	2.0	29		6.0	2.0	3	NA	
PFHpA	180		6.0	2.0	120		6.0	2.0	NA	40%	J
PFHxA	88		6.0	2.0	57		6.0	2.0	NA	43%	J
PFNA	26		6.0	2.0	24		6.0	2.0	2	NA	
PFOS	12		9.0	3.0	9.0	J	9.0	3.0	3	NA	
PFOA	18000		600	200	15000		60	20	NA	18%	
PFPeA	11		6.0	2.0	7.6		6.0	2.0	3.4	NA	
PFTA	29		6.0	2.0	42		6.0	2.0	13	NA	J
PFTriA	10		6.0	2.0	11		6.0	2.0	1.3	NA	
PFUnA	14		6.0	2.0	14		6.0	2.0	0	NA	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

SNB62

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Analysis Report

Sample Description: SG3a-BL12-B42.5 Grab Bulk Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 09:35
SDG#: SBN11-01

C. T. Male Associates
ELLE Sample #: SW 9536681
ELLE Group #: 1926426
Matrix: Bulk Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	18 U	18	55	100
14027	**Perfluorobutanoic acid**	375-22-4	**58**	18	55	100
14027	**Perfluorodecanoic acid**	335-76-2	**750**	18	55	100
14027	**Perfluorododecanoic acid**	307-55-1	**640**	18	55	100
14027	**Perfluoroheptanoic acid**	375-85-9	**1,900**	18	55	100
14027	Perfluorohexanesulfonate	355-46-4	18 U	18	55	100
14027	**Perfluorohexanoic acid**	307-24-4	**590**	18	55	100
14027	**Perfluorononanoic acid**	375-95-1	**300**	18	55	100
14027	Perfluoro-octanesulfonate	1763-23-1	27 U	27	82	100
14027	**Perfluorooctanoic acid**	335-67-1	**71,000**	180	550	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**88**	18	55	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**580**	18	55	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**250**	18	55	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**280**	18	55	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 14:23	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 19:34	Joshua P Trost	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18102019	04/13/2018 10:30	Robert Brown	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3a-WP12-B30.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 09:40
SDG#: SBN11-02

C. T. Male Associates
ELLE Sample #: WP 9536682
ELLE Group #: 1926426
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**2.4 J**	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**3.5 JB** ✓	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**99**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**170**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**120**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**36**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**40**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**17** PJ ✓	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**12,000** ✓	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**6.0**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**300** ✓	2.0	6.0	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**99**	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**80**	2.0	6.0	10

The recovery for the sample injection internal standard peak areas and labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/08/2018 17:42	Devon M Whooley	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/10/2018 18:54	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094013	04/04/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

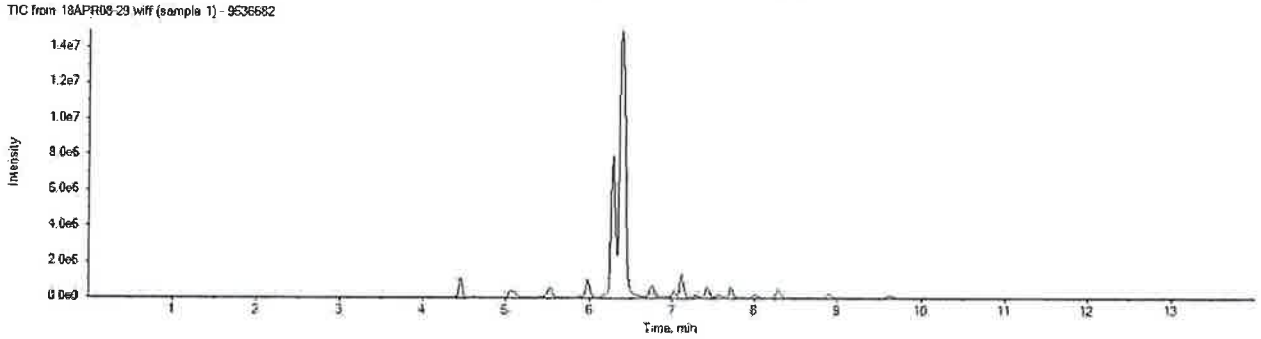
Analyte Quantitation Peak Table

Sample Name: 9536682 **Instrument Name:** LM24960 **File Name:** 18APR08-29.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.46	1.000	45376.6	A	13C4-PFBA	4.46	1478132.7	0.031	3.504
PFPeA	5.06	1.000	67431.3	M	13C5-PFPeA	5.06	1139096.5	0.059	6.015
PFBS	5.12	1.000	21340.4	M	13C3-PFBS	5.12	815687.3	0.026	2.391
PFHxA	5.54	1.000	448015.3	A	13C5-PFHxA	5.54	1344714.4	0.333	36.250
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.97	558863.3	N/A	
PFHpA	5.98	1.000	1407180.3	M	13C4-PFHpA	5.98	1098113.0	1.281	124.139
PFOA	6.39	1.000	45155662.5	M	13C8-PFOA	6.39	372840.6	121.113	13009.600
PFOS	6.75	1.000	105301.3	M	13C8-PFOS	6.74	591104.4	0.178	16.953
PFNA	6.77	1.000	354039.8	M	13C9-PFNA	6.77	832724.1	0.425	39.703
PFDA	7.11	1.000	1050781.5	A	13C6-PFDA	7.12	1256759.2	0.836	99.203
PFUnDA	7.43	1.000	680504.6	A	13C7-PFUnDA	7.43	760825.2	0.894	80.479
PFDoDA	7.72	1.000	1070643.9	A	13C2-PFDoDA	7.72	714630.4	1.498	167.169
PFTrDA	8.00	1.040	614755.8	A	13C2-PFDoDA	7.72	714630.4	0.860	98.918
PFTeDA	8.28	1.000	1217217.0	A	13C2-PFTeDA	8.28	446385.5	2.727	301.806

Total Ion Chromatogram

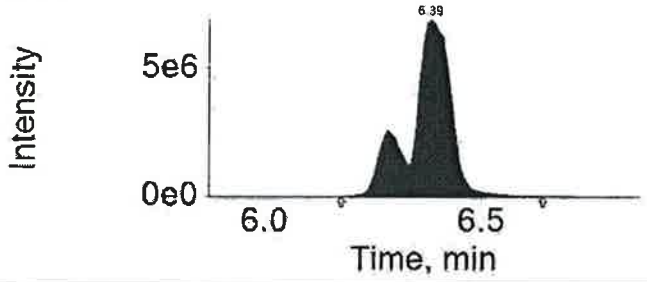


APPROVED
By DMW at 3:25 pm, 4/17/18

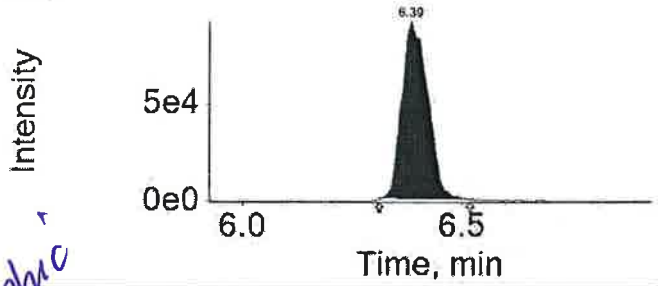
REVIEWED
By UMJS at 8:24 pm, 4/23/18

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

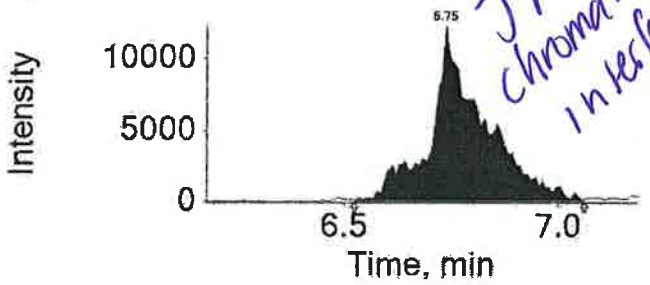
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

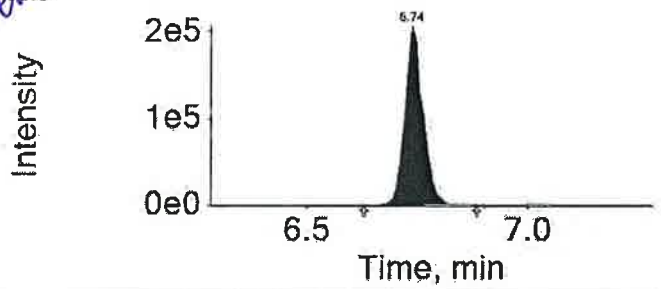


Analyte: PFOS
499.0 / 80.0

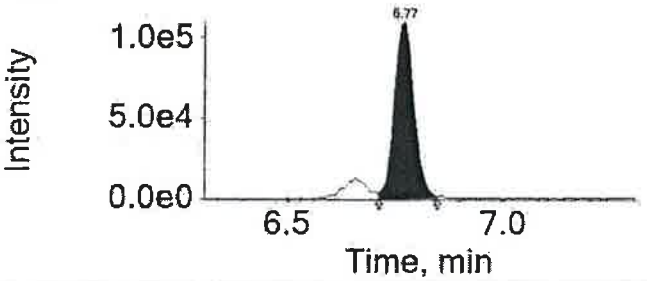


JN Chromatographic interference

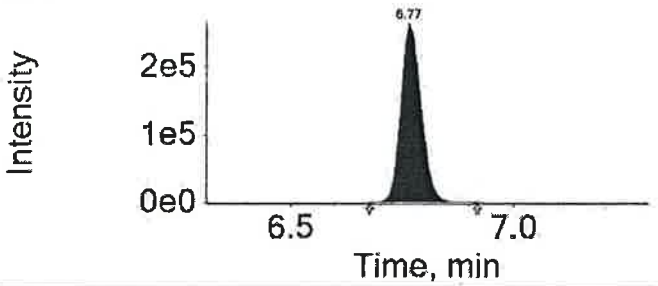
Extraction Standard: 13C8-PFOS
507.0 / 80.0



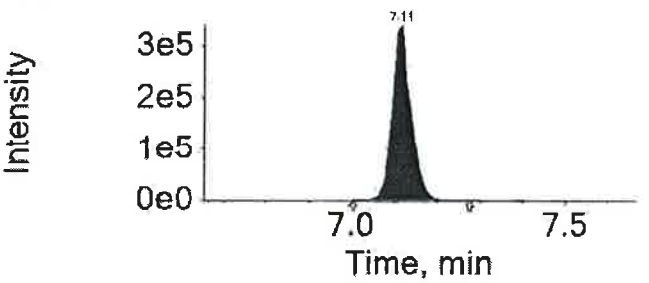
Analyte: PFNA
463.0 / 419.0



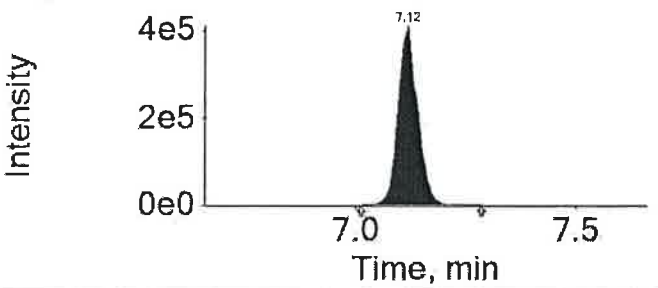
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 3:25 pm, 4/17/18

REVIEWED
By UMJS at 8:24 pm, 4/23/18

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Analysis Report

Sample Description: SG3a-WP12-B15.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 09:50
SDG#: SBN11-03

C. T. Male Associates
ELLE Sample #: WP 9536683
ELLE Group #: 1926426
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**28 B**	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**30**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**17**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**320**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**170**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**24**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**13**	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**20,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**31**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**16**	2.0	6.0	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**6.0**	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**10**	2.0	6.0	10

The recovery for the sample injection internal standard peak areas and labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/08/2018 17:57	Jason W Knight	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/10/2018 19:09	Jason W Knight	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094013	04/04/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

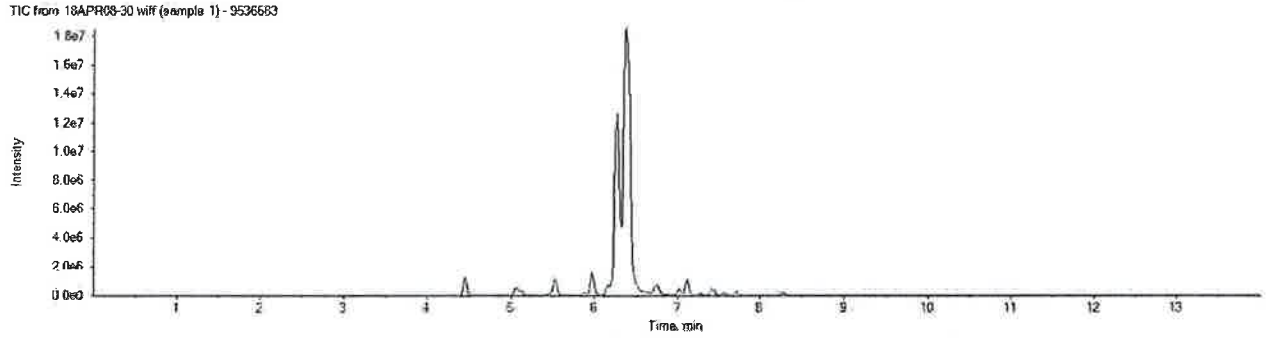
Analyte Quantitation Peak Table

Sample Name: 9536683 **Instrument Name:** LM24960 **File Name:** 18APR08-30.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.45	1.000	384494.6	A	13C4-PFBA	4.45	1544611.3	0.249	28.414
PFPeA	5.06	1.000	358383.5	A	13C5-PFPeA	5.06	1167921.5	0.307	31.180
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.12	808964.2	N/A	
PFHxA	5.53	1.000	2107436.8	M	13C5-PFHxA	5.53	1364912.6	1.544	167.994
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.97	557515.1	N/A	
PFHpA	5.98	1.000	3432408.4	M	13C4-PFHpA	5.98	1046713.3	3.279	317.670
PFOA	6.39	1.000	65142934.1	M	13C8-PFOA	6.39	242844.9	268.249	28814.650
PFOS	6.78	1.010	85506.9	M	13C8-PFOS	6.74	644419.1	0.133	12.627
PFNA	6.76	1.000	247514.8	M	13C9-PFNA	6.76	973504.1	0.254	23.743
PFDA	7.11	1.000	355393.2	A	13C6-PFDA	7.11	1411238.8	0.252	29.879
PFUnDA	7.42	1.000	82900.5	A	13C7-PFUnDA	7.42	736082.7	0.113	10.134
PFDoDA	7.71	1.000	113938.0	A	13C2-PFDoDA	7.71	761861.0	0.150	16.687
PFTrDA	8.00	1.040	39791.1	A	13C2-PFDoDA	7.71	761861.0	0.052	6.006
PFTeDA	8.28	1.000	65772.7	M	13C2-PFTeDA	8.28	463806.2	0.142	15.696

Total Ion Chromatogram

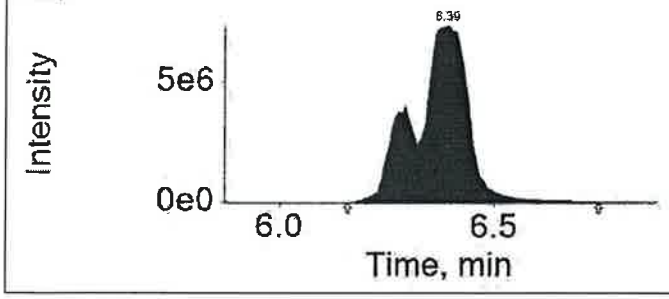


APPROVED
By DMW at 3:25 pm, 4/17/18

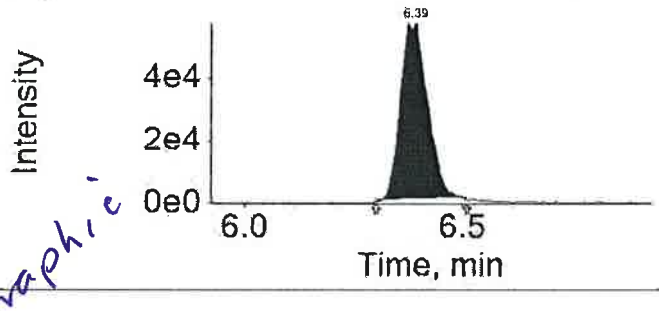
REVIEWED
By UMJS at 8:24 pm, 4/23/18

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

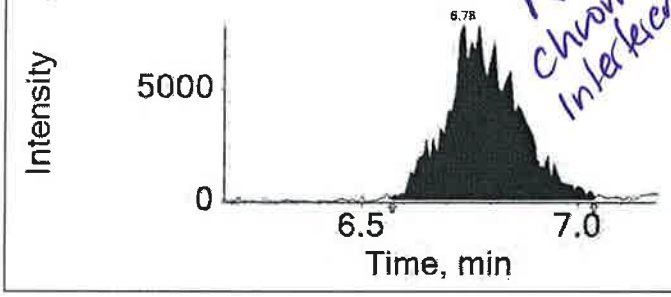
Analyte: PFOA
413.0 / 369.0



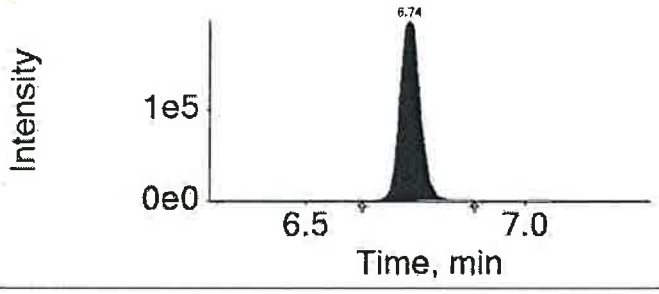
Extraction Standard: 13C8-PFOA
421.0 / 376.0



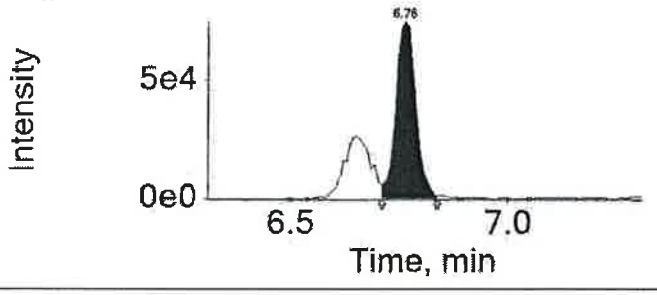
Analyte: PFOS
499.0 / 80.0



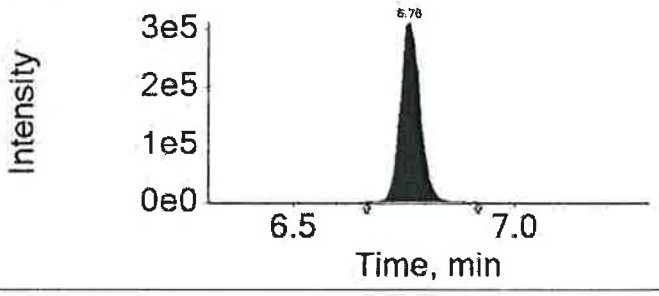
Extraction Standard: 13C8-PFOS
507.0 / 80.0



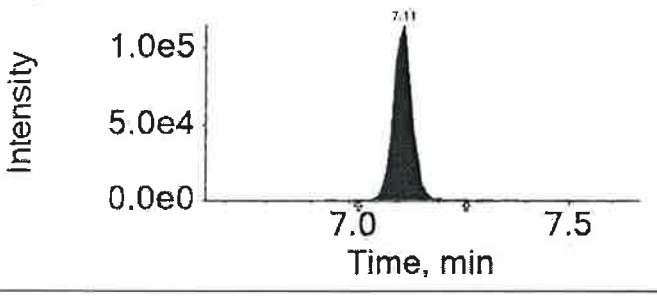
Analyte: PFNA
463.0 / 419.0



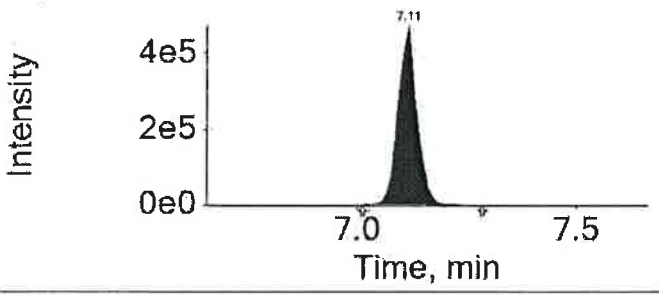
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



Chromatographie R
Chroma to graphic Interference

APPROVED
By DMW at 3:25 pm, 4/17/18

REVIEWED
By UMJS at 8:24 pm, 4/23/18

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Analysis Report

Sample Description: SG3a-BL12-B28.0 Grab Bulk Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 09:45
SDG#: SBN11-04

C. T. Male Associates
ELLE Sample #: SW 9536684
ELLE Group #: 1926426
Matrix: Bulk Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	59	100
14027	**Perfluorobutanoic acid**	375-22-4	**30 J**	20	59	100
14027	**Perfluorodecanoic acid**	335-76-2	**420**	20	59	100
14027	**Perfluorododecanoic acid**	307-55-1	**690**	20	59	100
14027	**Perfluoroheptanoic acid**	375-85-9	**740**	20	59	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	59	100
14027	**Perfluorohexanoic acid**	307-24-4	**300**	20	59	100
14027	**Perfluorononanoic acid**	375-95-1	**160**	20	59	100
14027	**Perfluoro-octanesulfonate**	1763-23-1	**98**	29	88	100
14027	**Perfluorooctanoic acid**	335-67-1	**100,000**	200	590	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**54 J**	20	59	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**1,100**	20	59	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**400**	20	59	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**260**	20	59	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

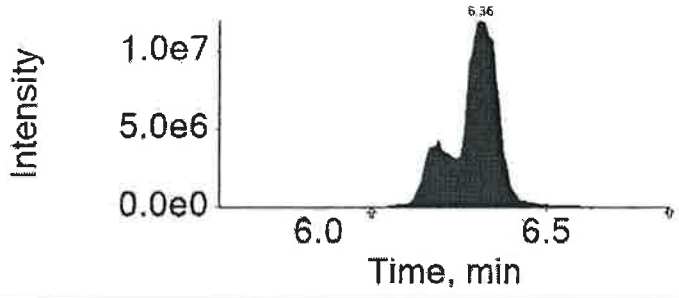
Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 14:39	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 19:49	Joshua P Trost	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18102019	04/13/2018 10:30	Robert Brown	1

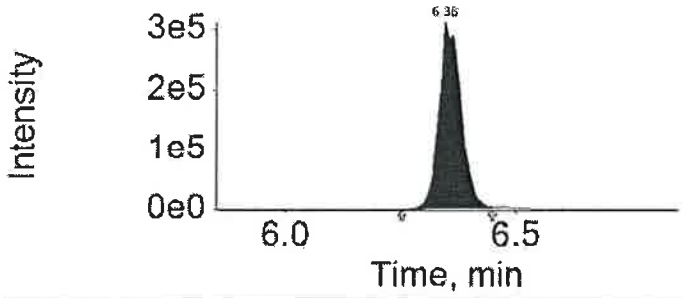
*=This limit was used in the evaluation of the final result

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

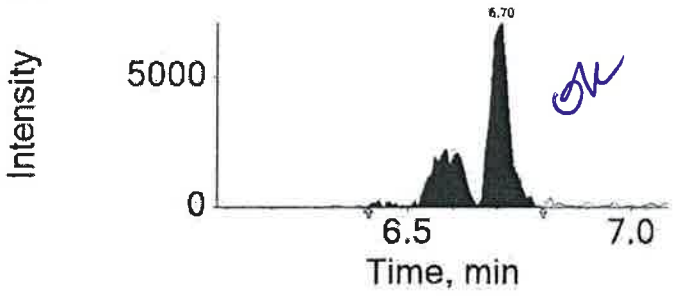
Analyte: PFOA
413.0 / 369.0



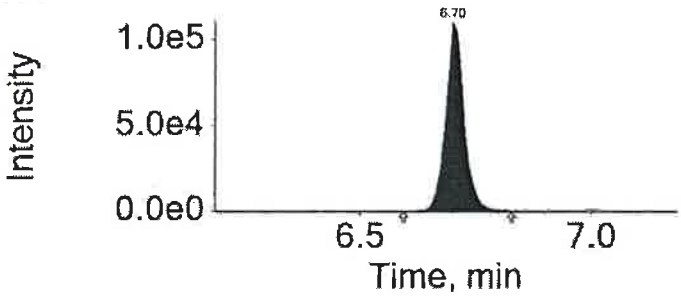
Extraction Standard: 13C8-PFOA
421.0 / 376.0



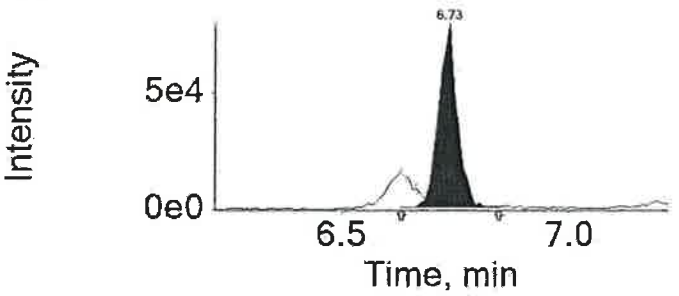
Analyte: PFOS
499.0 / 80.0



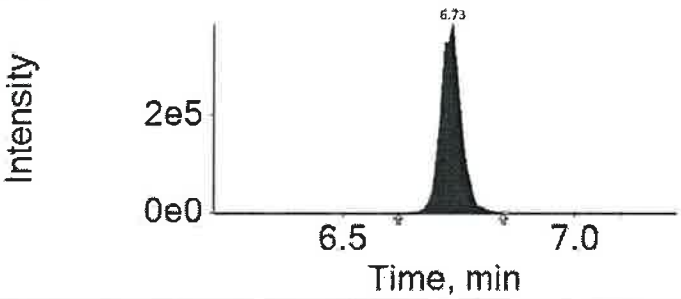
Extraction Standard: 13C8-PFOS
507.0 / 80.0



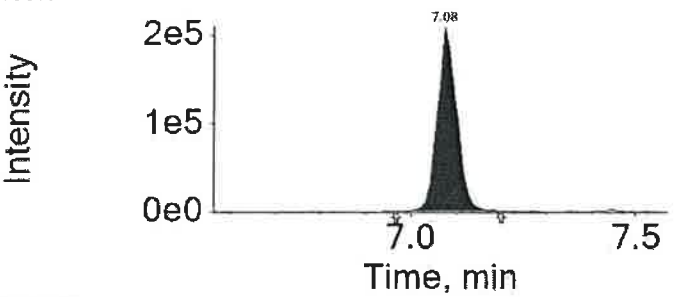
Analyte: PFNA
463.0 / 419.0



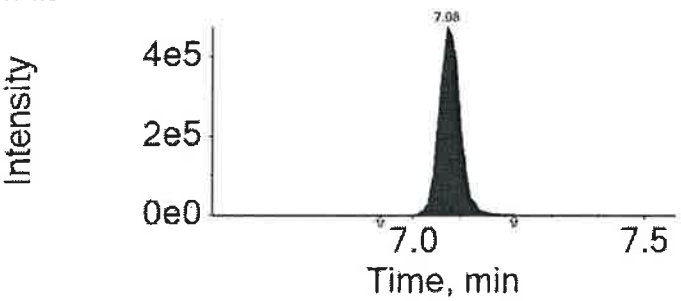
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 3:32 pm, 4/19/18

REVIEWED
By umar at 11:00 am, 4/23/18

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Analysis Report

Sample Description: SG3a-FD01-180330 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018
SDG#: SBN11-05FD

C. T. Male Associates
ELLE Sample #: WP 9536685
ELLE Group #: 1926426
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**8.1**	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**9.0** B	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**170**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**200**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**350**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**88**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**67**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**17**	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**15,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**16**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**220**	2.0	6.0	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**92**	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**100**	2.0	6.0	10

The recovery for the sample injection internal standard peak areas and labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/08/2018 18:11	Jason W Knight	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/10/2018 19:24	Jason W Knight	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094013	04/04/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

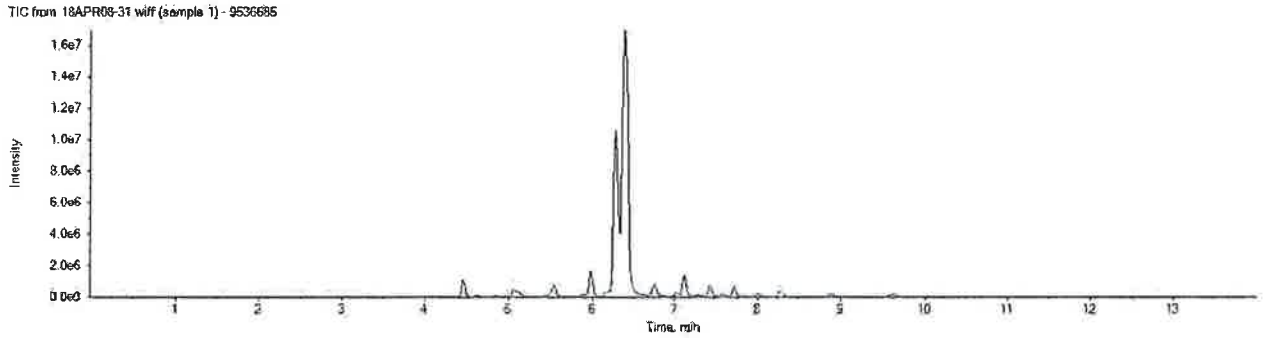
Analyte Quantitation Peak Table

Sample Name: 9536685 **Instrument Name:** LM24960 **File Name:** 18APR08-31.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.46	1.000	109049.5	A	13C4-PFBA	4.46	1380401.7	0.079	9.017
PFPeA	5.06	1.000	172424.8	M	13C5-PFPeA	5.06	1085952.9	0.159	16.134
PFBS	5.12	1.000	68883.9	M	13C3-PFBS	5.12	777773.6	0.089	8.094
PFHxA	5.54	1.000	1008727.2	M	13C5-PFHxA	5.54	1240186.5	0.813	88.497
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.97	531916.6	N/A	
PFHpA	5.98	1.000	3668114.9	M	13C4-PFHpA	5.98	1022931.5	3.586	347.377
PFOA	6.39	1.000	55272366.3	M	13C8-PFOA	6.39	289796.1	190.728	20487.569
PFOS	6.74	1.000	105918.4	M	13C8-PFOS	6.74	578697.0	0.183	17.418
PFNA	6.77	1.000	577966.0	M	13C9-PFNA	6.77	802400.4	0.720	67.263
PFDA	7.12	1.000	1627969.8	A	13C6-PFDA	7.11	1116974.7	1.457	172.929
PFUnDA	7.43	1.000	938292.5	A	13C7-PFUnDA	7.43	821802.7	1.142	102.732
PFDoDA	7.72	1.000	1318961.1	A	13C2-PFDoDA	7.72	737954.0	1.787	199.432
PFTrDA	8.00	1.040	590948.1	A	13C2-PFDoDA	7.72	737954.0	0.801	92.082
PFTeDA	8.28	1.000	874513.1	A	13C2-PFTeDA	8.28	433380.5	2.018	223.340

Total Ion Chromatogram

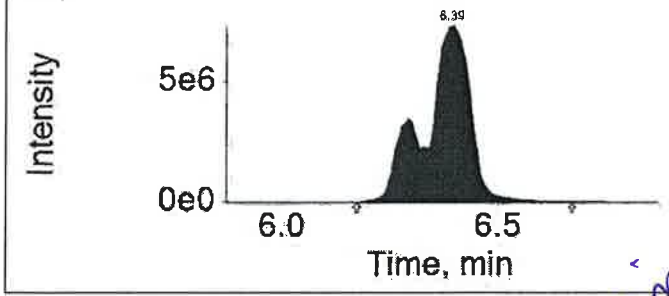


APPROVED
By DMW at 3:25 pm, 4/17/18

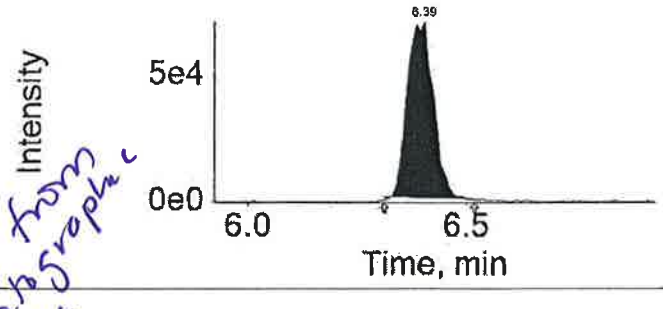
REVIEWED
By UMJS at 8:24 pm, 4/23/18

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

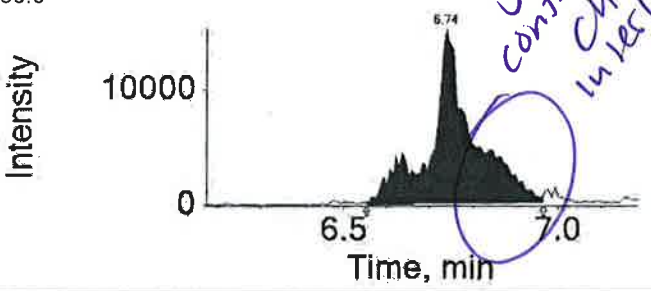
Analyte: PFOA
413.0 / 369.0



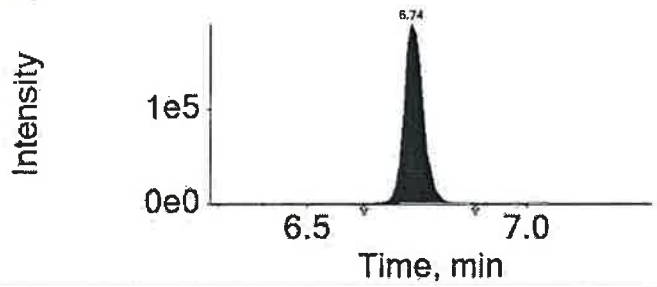
Extraction Standard: 13C8-PFOA
421.0 / 376.0



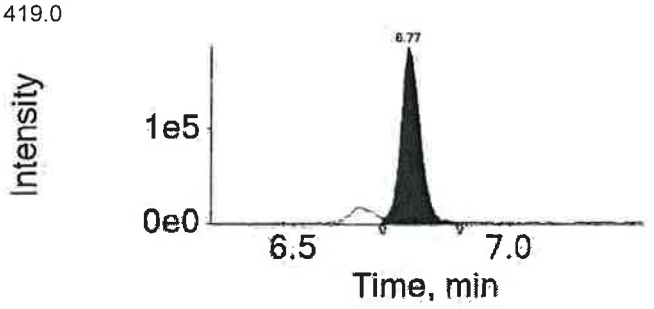
Analyte: PFOS
499.0 / 80.0



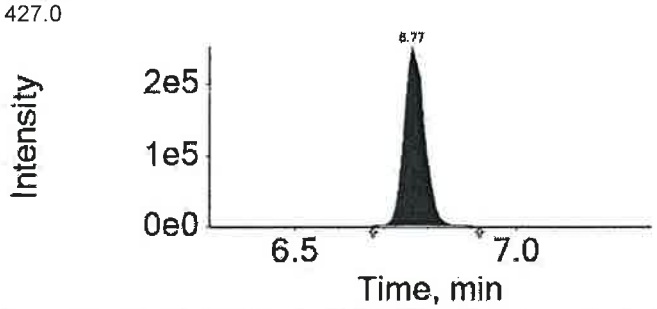
Extraction Standard: 13C8-PFOS
507.0 / 80.0



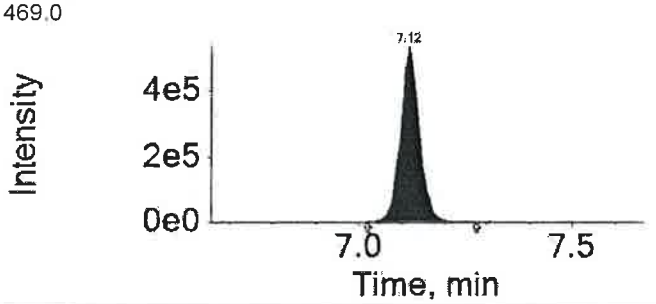
Analyte: PFNA
463.0 / 419.0



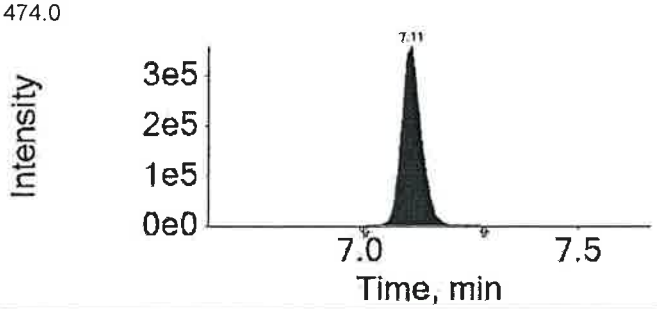
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



Contribution from chromatograph interference

APPROVED
By DMW at 3:25 pm, 4/17/18

REVIEWED
By UMJS at 8:24 pm, 4/23/18

Sample Description: SG3a-FD02-180330 Grab Bulk Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018
SDG#: SBN11-06FD

C. T. Male Associates
ELLE Sample #: SW 9536686
ELLE Group #: 1926426
Matrix: Bulk Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	19 U	19	58	100
14027	**Perfluorobutanoic acid**	375-22-4	**48 J**	19	58	100
14027	**Perfluorodecanoic acid**	335-76-2	**650**	19	58	100
14027	**Perfluorododecanoic acid**	307-55-1	**550**	19	58	100
14027	**Perfluoroheptanoic acid**	375-85-9	**1,600**	19	58	100
14027	Perfluorohexanesulfonate	355-46-4	19 U	19	58	100
14027	**Perfluorohexanoic acid**	307-24-4	**520**	19	58	100
14027	**Perfluorononanoic acid**	375-95-1	**280**	19	58	100
14027	Perfluoro-octanesulfonate	1763-23-1	29 U	29	87	100
14027	**Perfluorooctanoic acid**	335-67-1	**60,000**	190	580	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**71**	19	58	100
14027	**Perfluorotetradecanoic acid**	376-06-7	**520**	19	58	100
14027	**Perfluorotridecanoic acid**	72629-94-8	**230**	19	58	100
14027	**Perfluoroundecanoic acid**	2058-94-8	**250**	19	58	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 14:54	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 20:05	Joshua P Trost	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18102019	04/13/2018 10:30	Robert Brown	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3a-FTB02-180330 Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 10:30
SDG#: SBN11-07FB

C. T. Male Associates
ELLE Sample #: WW 9536687
ELLE Group #: 1926426
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.3 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18092009	04/05/2018 19:33	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18092009	04/03/2018 17:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3a-LTB02-180330 Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018
SDG#: SBN11-08TB

C. T. Male Associates
ELLE Sample #: WW 9536688
ELLE Group #: 1926426
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.3 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18092009	04/05/2018 19:48	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18092009	04/03/2018 17:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-WP02-A1.5 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 11:25
SDG#: SBN11-09

C. T. Male Associates
ELLE Sample #: WP 9536689
ELLE Group #: 1926426
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**6.4** B	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**49**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**200**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**84**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**41**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**18**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**9.4**	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**10,000**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**6.8**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**450**	2.0	6.0	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**110**	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**47**	2.0	6.0	10

The recovery for the sample injection internal standard peak areas and labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/08/2018 18:26	Jason W Knight	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/10/2018 19:38	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094013	04/04/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

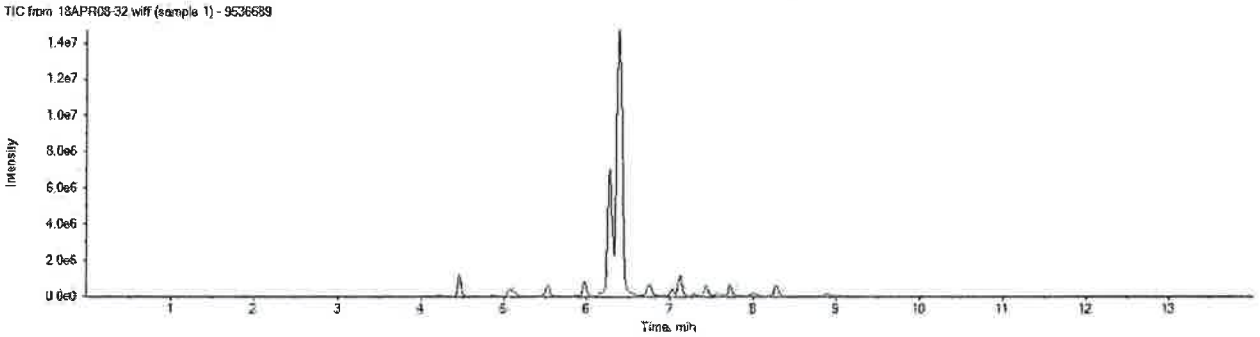
Analyte Quantitation Peak Table

Sample Name: 9536689 **Instrument Name:** LM24960 **File Name:** 18APR08-32.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.46	1.000	84936.6	M	13C4-PFBA	4.46	1520136.1	0.056	6.378
PFPeA	5.07	1.000	77453.6	A	13C5-PFPeA	5.07	1164592.0	0.067	6.758
PFBS	5.12	1.000	15904.8	M	13C3-PFBS	5.12	798617.2	0.020	1.820
PFHxA	5.54	1.000	502521.4	M	13C5-PFHxA	5.54	1340689.6	0.375	40.782
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.97	566775.6	N/A	
PFHpA	5.98	1.000	925716.9	M	13C4-PFHpA	5.98	1071121.3	0.864	83.723
PFOA	6.39	1.000	42974245.9	M	13C8-PFOA	6.39	400601.4	107.274	11523.137
PFOS	6.75	1.000	59252.9	M	13C8-PFOS	6.74	603079.4	0.098	9.350
PFNA	6.77	1.000	179864.7	M	13C9-PFNA	6.77	956974.9	0.188	17.551
PFDA	7.12	1.000	555483.9	A	13C6-PFDA	7.12	1335901.1	0.416	49.336
PFUnDA	7.42	1.000	400102.5	A	13C7-PFUnDA	7.43	763352.2	0.524	47.161
PFDoDA	7.71	1.000	1352616.1	A	13C2-PFDoDA	7.72	744491.2	1.817	202.725
PFTrDA	8.00	1.040	715835.2	A	13C2-PFDoDA	7.72	744491.2	0.962	110.562
PFTeDA	8.28	1.000	1844736.7	A	13C2-PFTeDA	8.28	453832.2	4.065	449.893

Total Ion Chromatogram

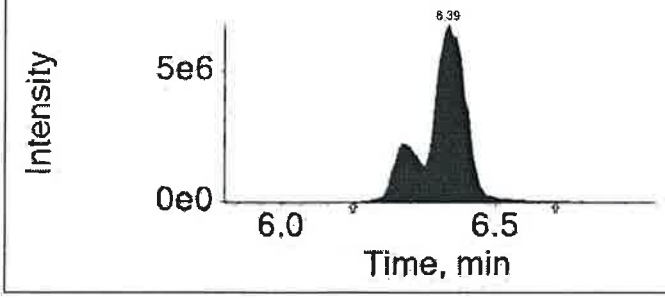


APPROVED
By DMW at 3:25 pm, 4/17/18

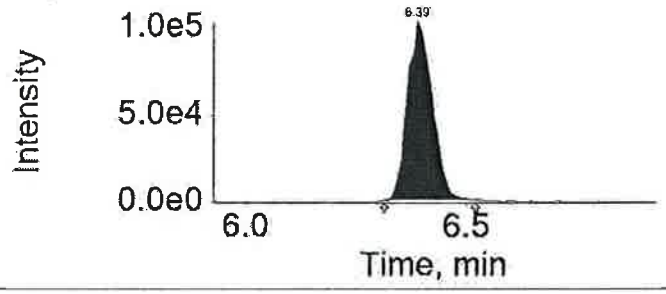
REVIEWED
By UMJS at 8:24 pm, 4/23/18

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

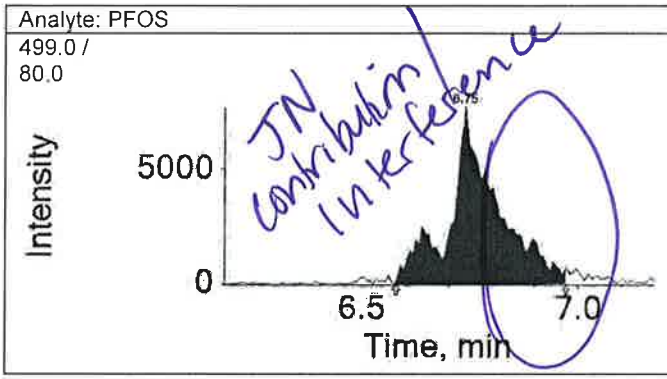
Analyte: PFOA
413.0 / 369.0



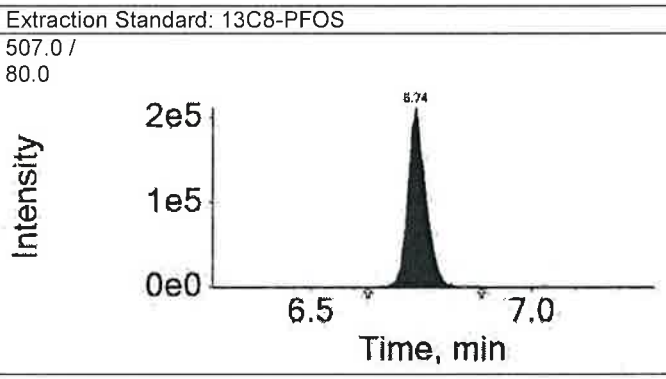
Extraction Standard: 13C8-PFOA
421.0 / 376.0



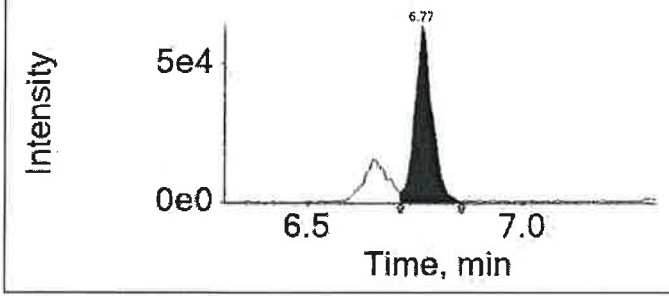
Analyte: PFOS
499.0 / 80.0



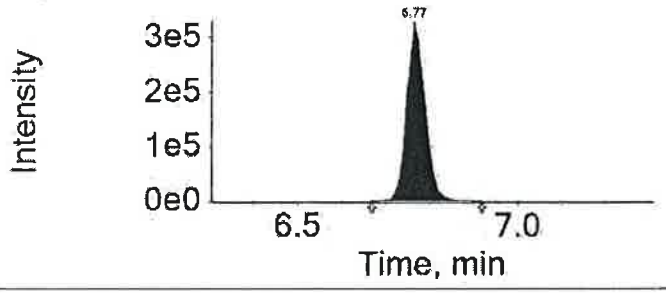
Extraction Standard: 13C8-PFOS
507.0 / 80.0



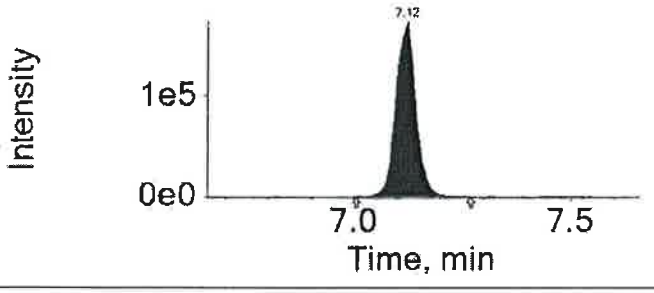
Analyte: PFNA
463.0 / 419.0



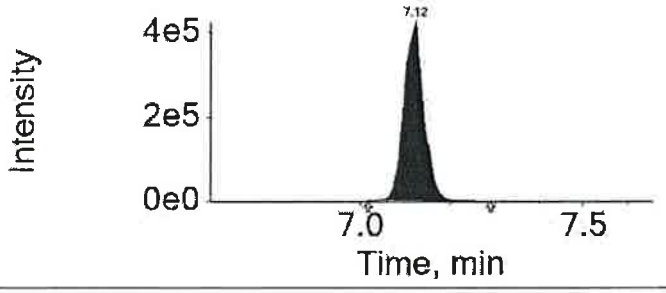
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 3:25 pm, 4/17/18

REVIEWED
By UMJS at 8:24 pm, 4/23/18

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Analysis Report

Sample Description: SG3a-WP04-A1.5 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 11:30
SDG#: SBN11-10

C. T. Male Associates
ELLE Sample #: WP 9536690
ELLE Group #: 1926426
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**15 B**	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**160**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**440**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**230**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**100**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**67**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**15**	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**27,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**16**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**900**	2.0	6.0	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**220**	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**130**	2.0	6.0	10

The recovery for the sample injection internal standard peak areas and labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/08/2018 18:40	Jason W Knight	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/10/2018 19:53	Jason W Knight	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094013	04/04/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

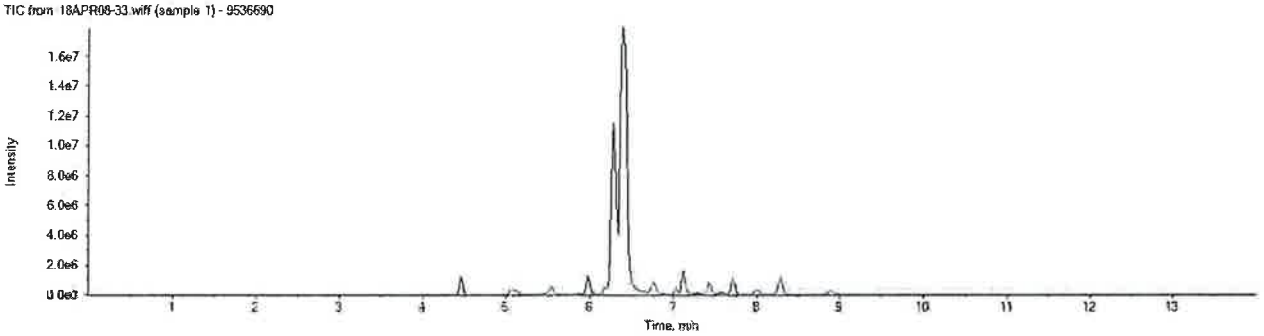
Analyte Quantitation Peak Table

Sample Name: 9536690 **Instrument Name:** LM24960 **File Name:** 18APR08-33.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.46	1.000	184674.8	A	13C4-PFBA	4.46	1436831.4	0.129	14.671
PFPeA	5.07	1.000	170279.4	A	13C5-PFPeA	5.07	1098619.9	0.155	15.749
PFBS	5.13	1.000	9682.8	A	13C3-PFBS	5.12	746603.0	0.013	1.185
PFHxA	5.55	1.000	891168.6	M	13C5-PFHxA	5.55	962835.0	0.926	100.705
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.97	528924.6	N/A	
PFHpA	5.98	1.000	2303731.0	M	13C4-PFHpA	5.98	980545.3	2.349	227.598
PFOA	6.40	1.000	62046316.4	M	13C8-PFOA	6.39	229078.7	270.852	29094.188
PFOS	6.75	1.000	88811.5	M	13C8-PFOS	6.74	574744.1	0.155	14.705
PFNA	6.77	1.000	636249.1	M	13C9-PFNA	6.77	880818.9	0.722	67.454
PFDA	7.12	1.000	1828833.7	A	13C6-PFDA	7.12	1343524.5	1.361	161.508
PFUnDA	7.43	1.000	1124116.8	A	13C7-PFUnDA	7.43	766724.1	1.466	131.919
PFDoDA	7.72	1.000	2708156.6	A	13C2-PFDoDA	7.72	681250.5	3.975	443.568
PFTrDA	8.00	1.040	1315896.2	A	13C2-PFDoDA	7.72	681250.5	1.932	222.110
PFTeDA	8.28	1.000	3605724.5	A	13C2-PFTeDA	8.28	441528.1	8.166	903.867

Total Ion Chromatogram

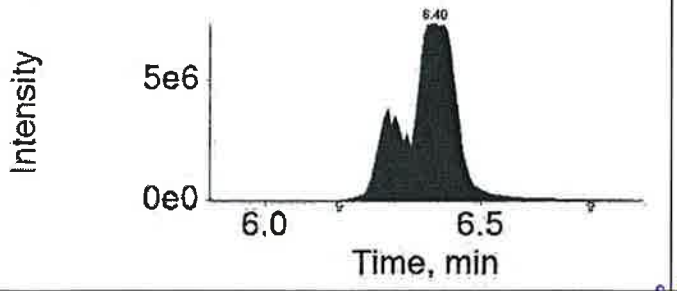


APPROVED
By DMW at 3:25 pm, 4/17/18

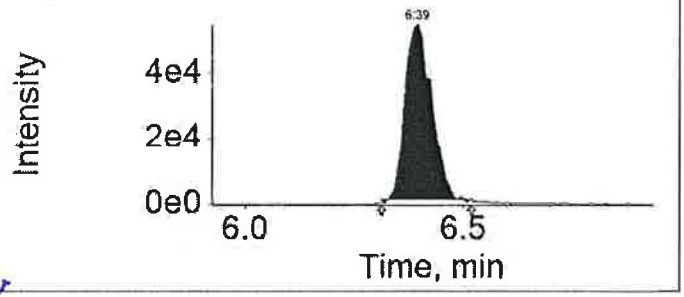
REVIEWED
By UMJS at 8:24 pm, 4/23/18

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

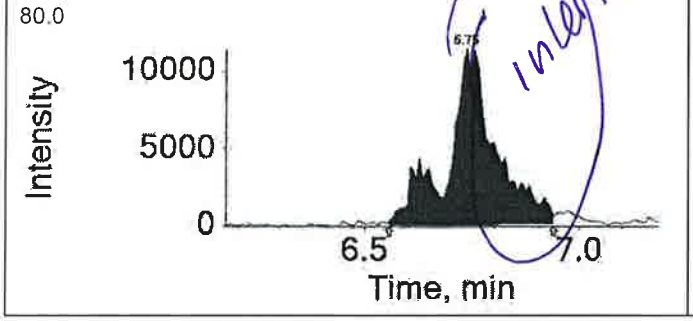
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

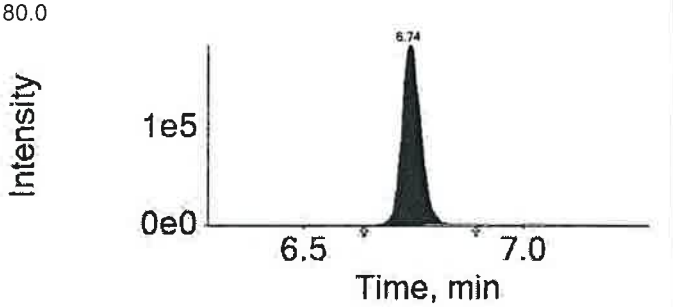


Analyte: PFOS
499.0 / 80.0

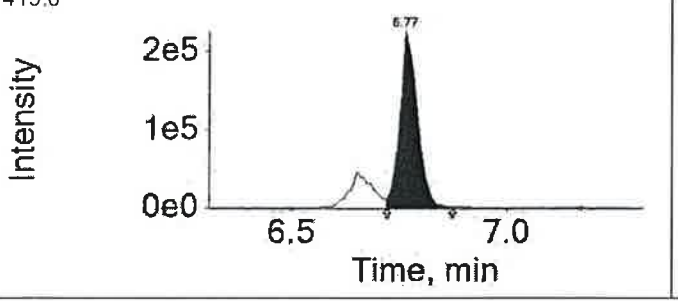


Interference

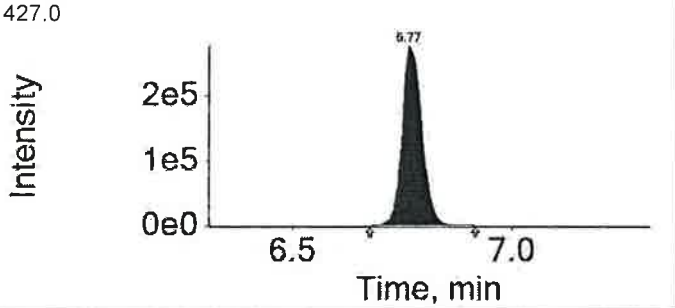
Extraction Standard: 13C8-PFOS
507.0 / 80.0



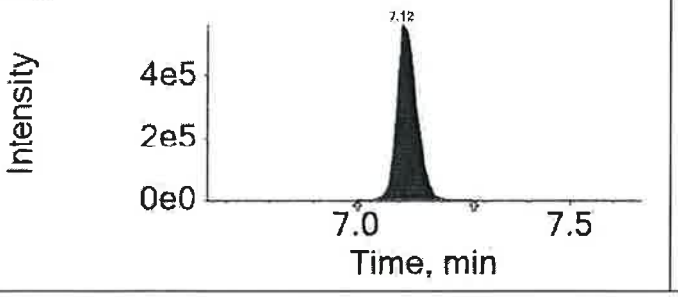
Analyte: PFNA
463.0 / 419.0



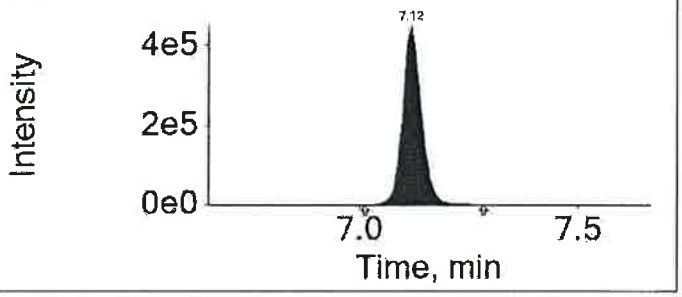
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 3:25 pm, 4/17/18

REVIEWED
By UMJS at 8:25 pm, 4/23/18

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Analysis Report

Sample Description: SG3a-WP05-A1.5 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 11:35
SDG#: SBN11-11

C. T. Male Associates
ELLE Sample #: WP 9536691
ELLE Group #: 1926426
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**6.0 JB**	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**8.9**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**6.6**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**50**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**30**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**5.4 J**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**12**	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**4,500**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**5.1 J**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**11**	2.0	6.0	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**2.9 J**	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**3.7 J**	2.0	6.0	10

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/08/2018 18:55	Jason W Knight	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/10/2018 20:07	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094013	04/04/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/17/2018 3:14:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

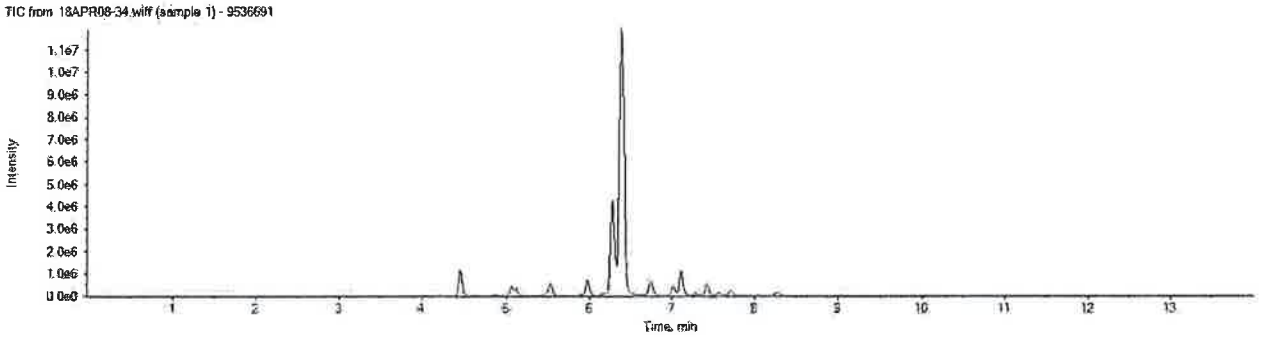
Analyte Quantitation Peak Table

Sample Name: 9536691 **Instrument Name:** LM24960 **File Name:** 18APR08-34.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.46	1.000	80214.9	M	13C4-PFBA	4.46	1537937.4	0.052	5.954
PFPeA	5.06	1.000	60743.1	M	13C5-PFPeA	5.06	1221236.9	0.050	5.054
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.12	796234.5	N/A	
PFHxA	5.53	1.000	377964.0	M	13C5-PFHxA	5.53	1382749.1	0.273	29.741
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.97	580254.8	N/A	
PFHpA	5.98	1.000	574307.5	M	13C4-PFHpA	5.98	1102504.2	0.521	50.463
PFOA	6.39	1.000	29154333.2	M	13C8-PFOA	6.39	596284.1	48.893	5252.002
PFOS	6.77	1.000	75574.6	M	13C8-PFOS	6.74	614747.9	0.123	11.699
PFNA	6.77	1.000	57209.2	M	13C9-PFNA	6.76	990840.4	0.058	5.392
PFDA	7.11	1.000	111040.0	A	13C6-PFDA	7.11	1482573.6	0.075	8.886
PFUnDA	7.42	1.000	33223.1	A	13C7-PFUnDA	7.42	805063.1	0.041	3.713
PFDoDA	7.71	1.000	49357.6	A	13C2-PFDoDA	7.71	831565.5	0.059	6.623
PFTrDA	7.99	1.040	21170.4	A	13C2-PFDoDA	7.71	831565.5	0.025	2.927
PFTeDA	8.27	1.000	48803.4	M	13C2-PFTeDA	8.27	498435.7	0.098	10.837

Total Ion Chromatogram

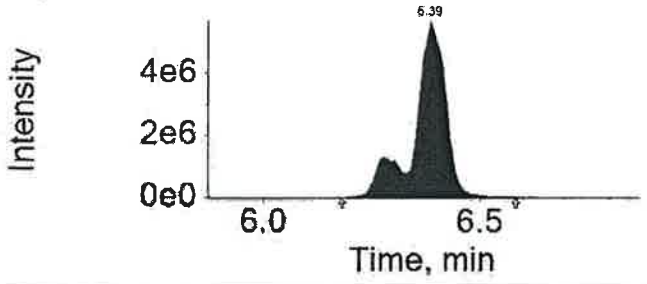


APPROVED
By DMW at 3:25 pm, 4/17/18

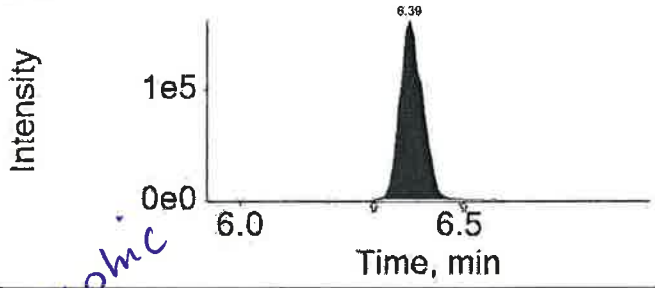
REVIEWED
By UMJS at 8:25 pm, 4/23/18

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

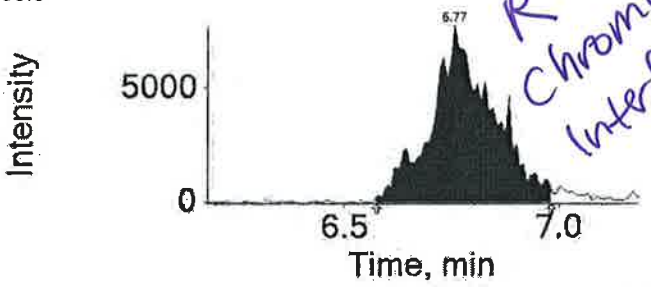
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

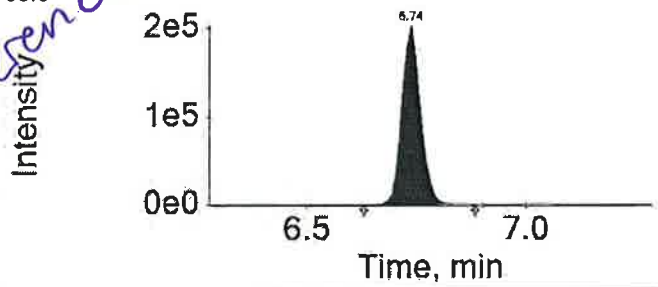


Analyte: PFOS
499.0 / 80.0

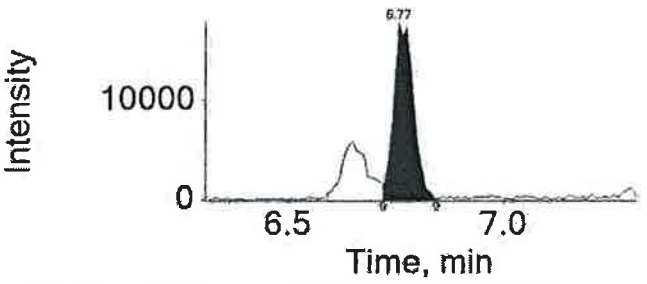


R - Chromatographic Interference

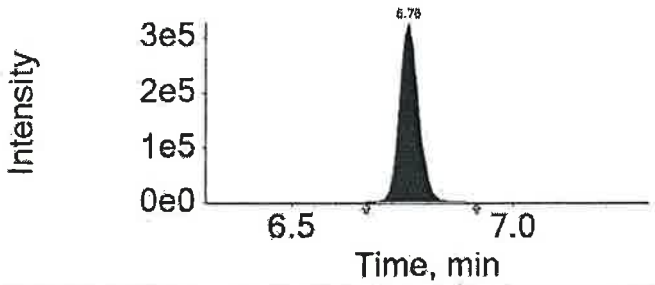
Extraction Standard: 13C8-PFOS
507.0 / 80.0



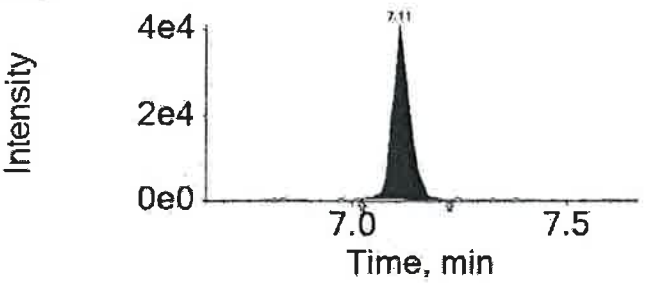
Analyte: PFNA
463.0 / 419.0



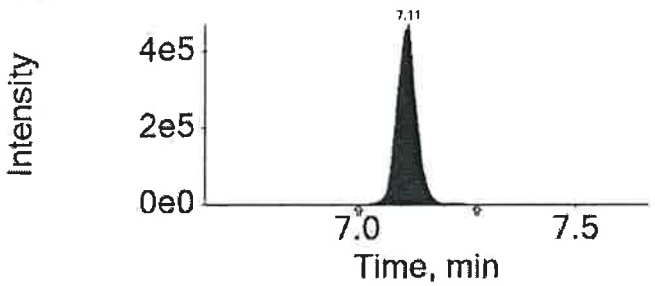
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 3:25 pm, 4/17/18

REVIEWED
By UMJS at 8:25 pm, 4/23/18

Sample Description: SG3a-WP07-A1.5 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 11:40
SDG#: SBN11-12

C. T. Male Associates
ELLE Sample #: WP 9536692
ELLE Group #: 1926426
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**6.0 B**	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**12**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**7.3**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**72**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**39**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**8.7**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**7.7 J**	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**7,300**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**6.8**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**8.9**	2.0	6.0	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**2.9 J**	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**4.6 J**	2.0	6.0	10

The recovery for the sample injection internal standard peak areas and labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/08/2018 19:09	Devon M Whooley	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/10/2018 20:22	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094013	04/04/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

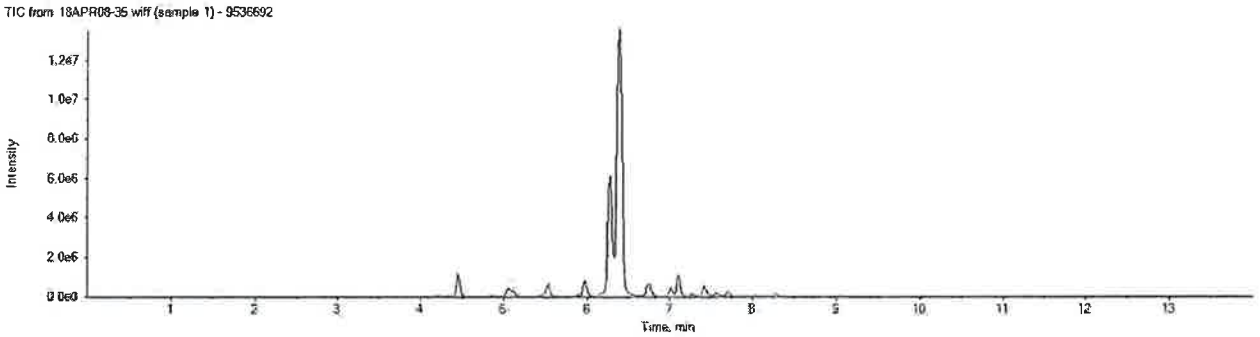
Analyte Quantitation Peak Table

Sample Name: 9536692 **Instrument Name:** LM24960 **File Name:** 18APR08-35.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

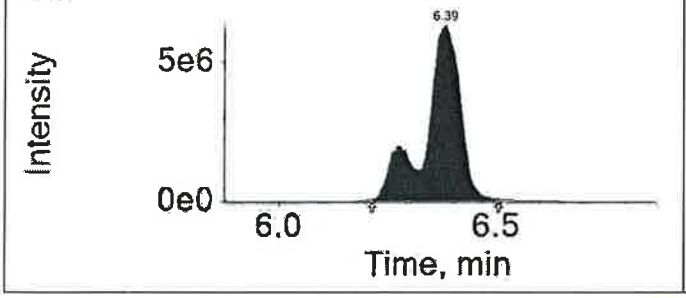
Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.45	1.000	80372.6	M	13C4-PFBA	4.45	1519709.2	0.053	6.037
PFPeA	5.06	1.000	77627.4	M	13C5-PFPeA	5.06	1167557.5	0.066	6.756
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.11	790953.4	N/A	
PFHxA	5.53	1.000	479691.2	M	13C5-PFHxA	5.53	1338078.2	0.358	39.005
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.96	557314.2	N/A	
PFHpA	5.97	1.000	825146.7	M	13C4-PFHpA	5.97	1108852.2	0.744	72.088
PFOA	6.39	1.000	36205449.5	M	13C8-PFOA	6.38	466445.6	77.620	8337.732
PFOS	6.76	1.000	50463.9	M	13C8-PFOS	6.73	620224.7	0.081	7.743
PFNA	6.76	1.000	91037.5	M	13C9-PFNA	6.76	982229.8	0.093	8.655
PFDA	7.11	1.000	143838.9	A	13C6-PFDA	7.11	1382888.9	0.104	12.341
PFUnDA	7.42	1.000	41922.8	A	13C7-PFUnDA	7.42	828859.5	0.051	4.551
PFDoDA	7.71	1.000	54450.8	A	13C2-PFDoDA	7.71	831351.2	0.065	7.308
PFTrDA	7.99	1.040	21000.8	A	13C2-PFDoDA	7.71	831351.2	0.025	2.905
PFTeDA	8.27	1.000	41592.2	M	13C2-PFTeDA	8.27	519880.3	0.080	8.855

Total Ion Chromatogram

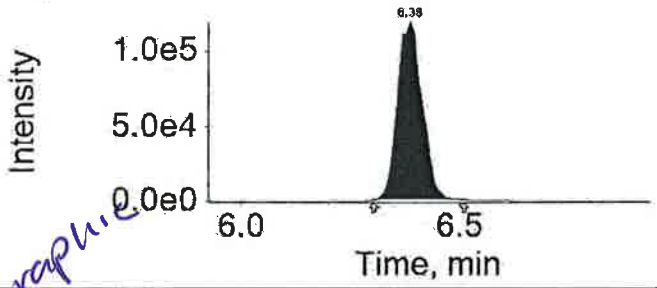


ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

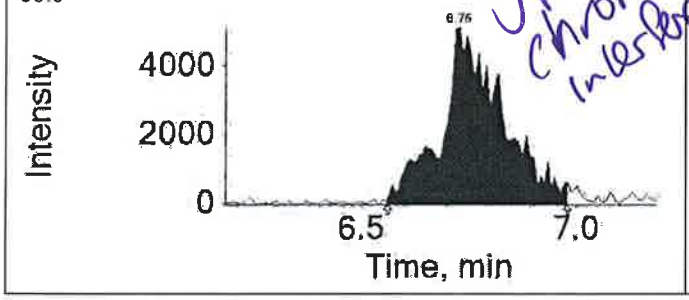
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

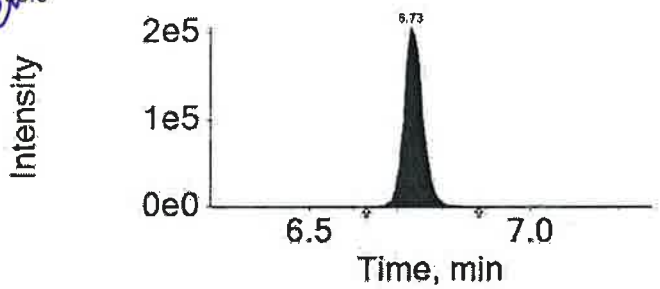


Analyte: PFOS
499.0 / 80.0

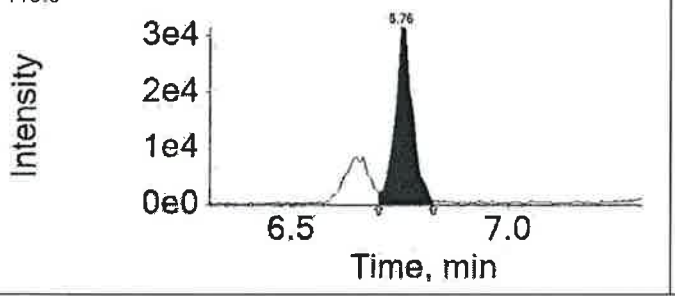


JN - Chromatographic interference

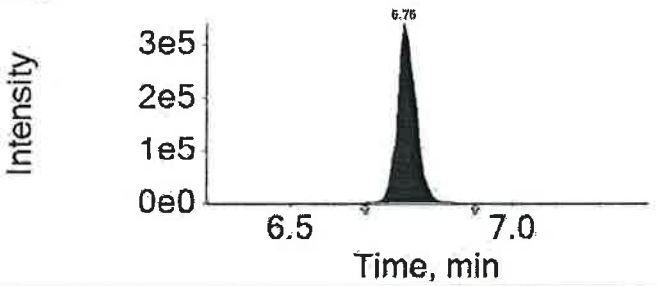
Extraction Standard: 13C8-PFOS
507.0 / 80.0



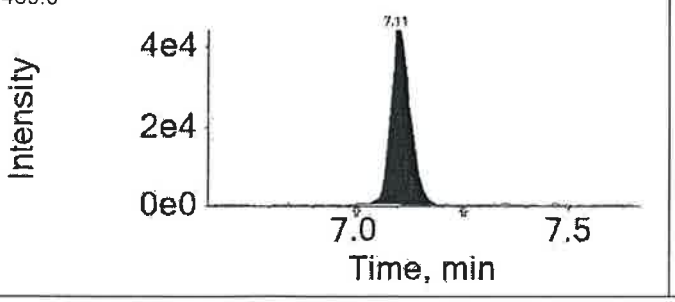
Analyte: PFNA
463.0 / 419.0



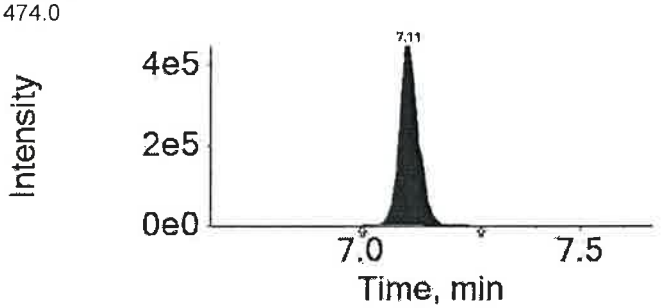
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 3:25 pm, 4/17/18

REVIEWED
By UMJS at 8:25 pm, 4/23/18

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Analysis Report

Sample Description: SG3a-WP09-A1.5 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 11:45
SDG#: SBN11-13

C. T. Male Associates
ELLE Sample #: WP 9536693
ELLE Group #: 1926426
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**2.2 JB**	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**6.3**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**8.7**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**30**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**14**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**3.8 J**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**5.6 J** PJ	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**3,000** ✓	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**2.2 J**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**26** ✓	2.0	6.0	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**4.7 J**	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**3.5 J**	2.0	6.0	10

The recovery for several llabeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

Target analytes were detected in the method blank associated with this sample. Sufficient sample was not available to repeat the analysis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/08/2018 19:24	Jason W Knight	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/10/2018 20:36	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094013	04/04/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

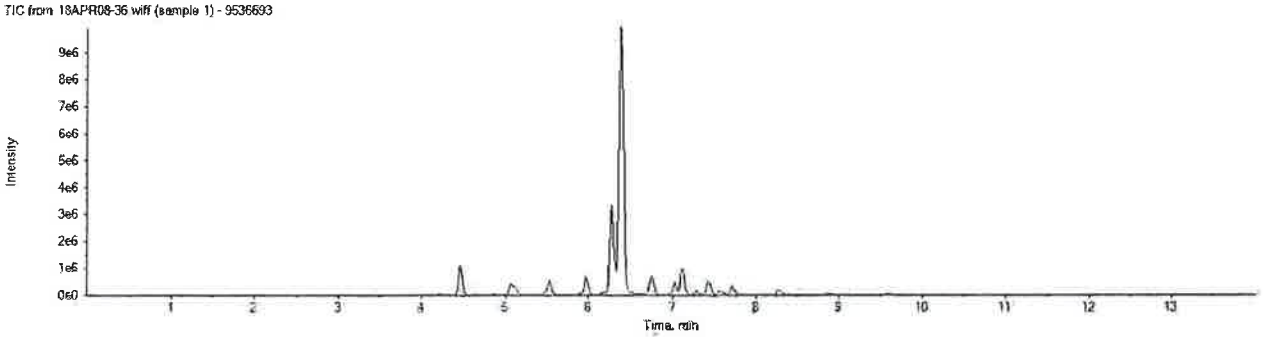
Analyte Quantitation Peak Table

Sample Name: 9536693 **Instrument Name:** LM24960 **File Name:** 18APR08-36.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.46	1.000	30672.9	M	13C4-PFBA	4.46	1593699.9	0.019	2.197
PFPeA	5.06	1.000	26809.5	M	13C5-PFPeA	5.06	1217320.8	0.022	2.238
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.12	818872.4	N/A	
PFHxA	5.54	1.000	166962.0	M	13C5-PFHxA	5.54	1330253.5	0.126	13.656
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.97	608325.1	N/A	
PFHpA	5.98	1.000	346602.3	M	13C4-PFHpA	5.98	1133702.1	0.306	29.617
PFOA	6.39	1.000	22988961.6	M	13C8-PFOA	6.39	692645.8	33.190	3565.193
PFOS	6.75	1.000	38896.1	M	13C8-PFOS	6.74	657382.6	0.059	5.631
PFNA	6.77	1.000	42367.5	M	13C9-PFNA	6.77	1031376.5	0.041	3.836
PFDA	7.11	1.000	81177.6	A	13C6-PFDA	7.11	1530179.1	0.053	6.294
PFUnDA	7.42	1.000	33459.9	M	13C7-PFUnDA	7.42	866925.4	0.039	3.473
PFDoDA	7.71	1.000	71220.2	A	13C2-PFDoDA	7.71	916272.1	0.078	8.673
PFTrDA	7.99	1.040	37480.8	A	13C2-PFDoDA	7.71	916272.1	0.041	4.704
PFTeDA	8.27	1.000	129567.8	A	13C2-PFTeDA	8.28	554312.6	0.234	25.871

Total Ion Chromatogram

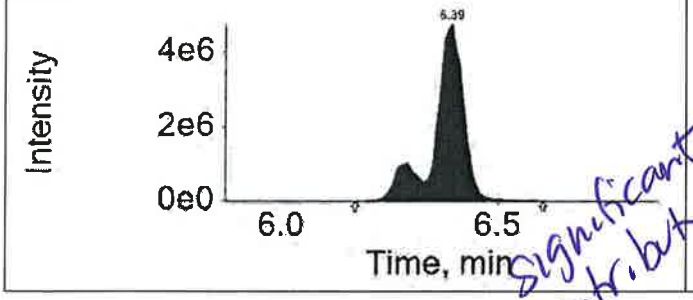


APPROVED
By DMW at 3:25 pm, 4/17/18

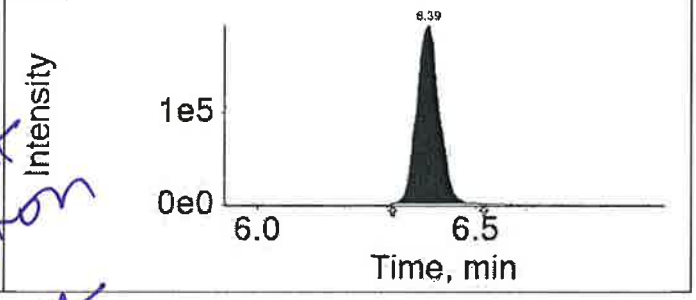
REVIEWED
By UMJS at 8:25 pm, 4/23/18

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

Analyte: PFOA
413.0 / 369.0

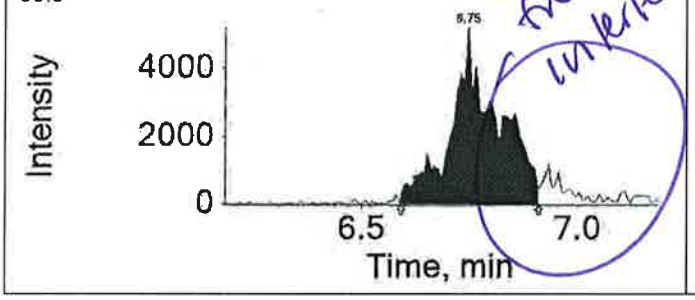


Extraction Standard: 13C8-PFOA
421.0 / 376.0

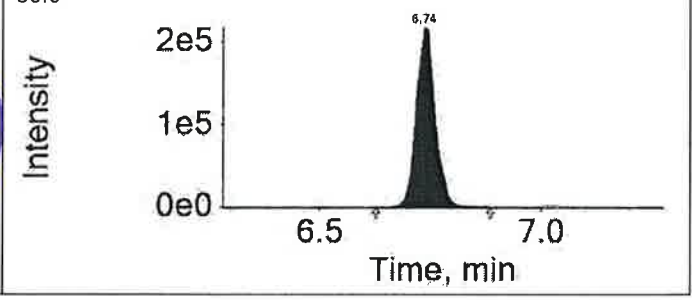


Significant IN contribution from interference

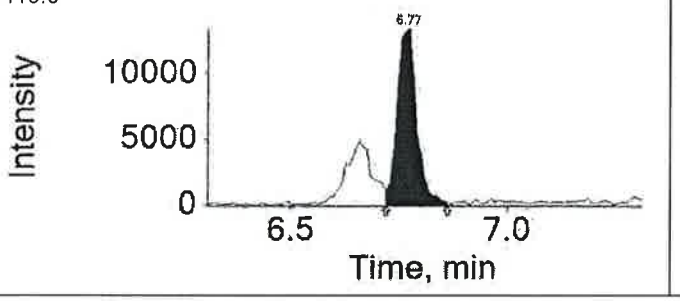
Analyte: PFOS
499.0 / 80.0



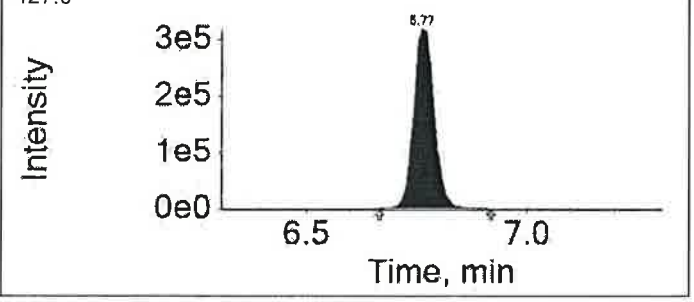
Extraction Standard: 13C8-PFOS
507.0 / 80.0



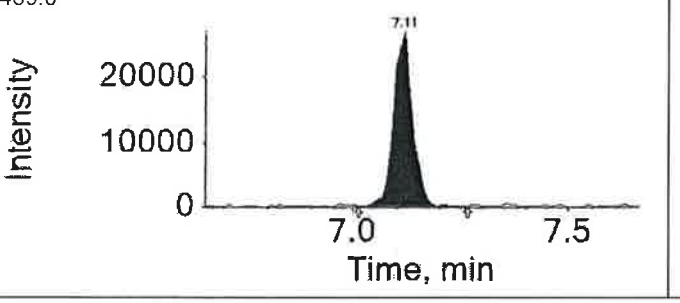
Analyte: PFNA
463.0 / 419.0



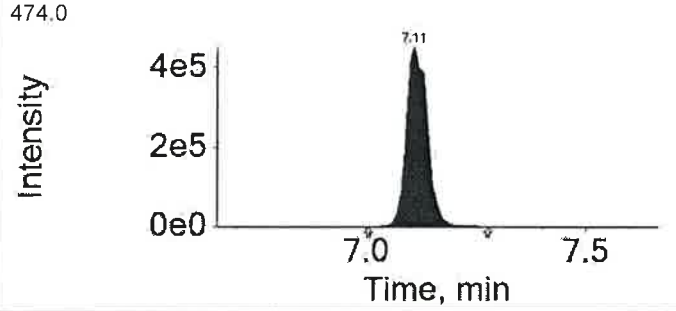
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 3:25 pm, 4/17/18

REVIEWED
By UMJS at 8:25 pm, 4/23/18

Sample Description: SG3a-BL14-A5.5 Grab Bulk Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 12:00
SDG#: SBN11-14

C. T. Male Associates
ELLE Sample #: SW 9536694
ELLE Group #: 1926426
Matrix: Bulk Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**3.2 J**	2.0	5.9	10
14027	**Perfluorobutanoic acid**	375-22-4	**73**	2.0	5.9	10
14027	**Perfluorodecanoic acid**	335-76-2	**21**	2.0	5.9	10
14027	**Perfluorododecanoic acid**	307-55-1	**29**	2.0	5.9	10
14027	**Perfluoroheptanoic acid**	375-85-9	**640**	2.0	5.9	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	5.9	10
14027	**Perfluorohexanoic acid**	307-24-4	**580**	2.0	5.9	10
14027	**Perfluorononanoic acid**	375-95-1	**12**	2.0	5.9	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**5.5 J**	2.9	8.8	10
14027	**Perfluorooctanoic acid**	335-67-1	**18,000**	200	590	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**120**	2.0	5.9	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**48**	2.0	5.9	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**15**	2.0	5.9	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**8.4**	2.0	5.9	10

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

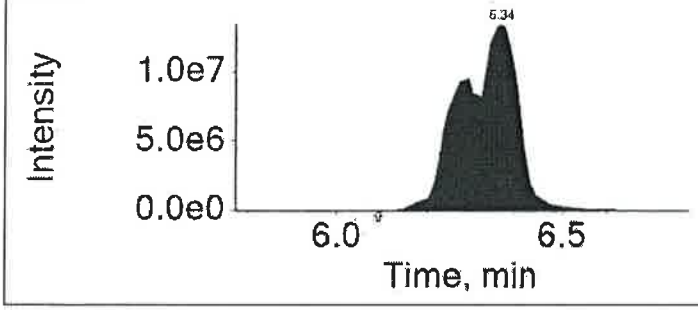
Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 15:10	Joshua P Trost	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18102019	04/18/2018 20:51	Joshua P Trost	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18102019	04/13/2018 10:30	Robert Brown	1

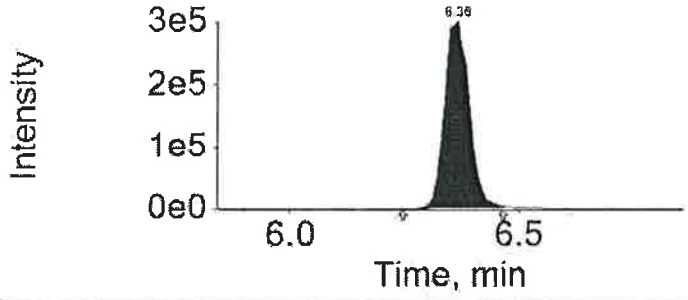
*=This limit was used in the evaluation of the final result

ICAL Name: 18APR11MCAL **Result Table:** 18102019 4/19/2018 2:41:55 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

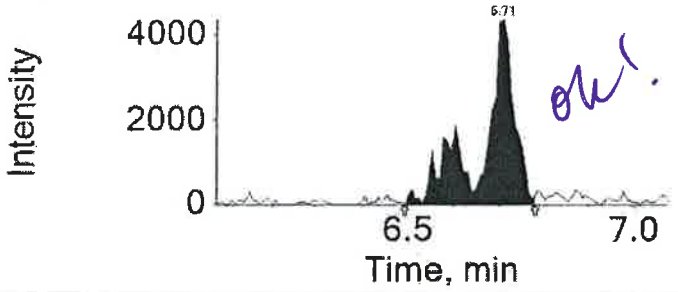
Analyte: PFOA
413.0 / 369.0



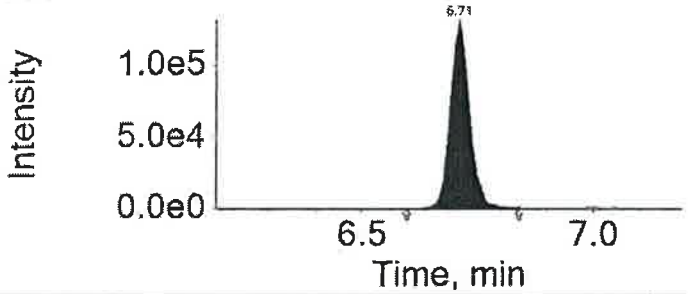
Extraction Standard: 13C8-PFOA
421.0 / 376.0



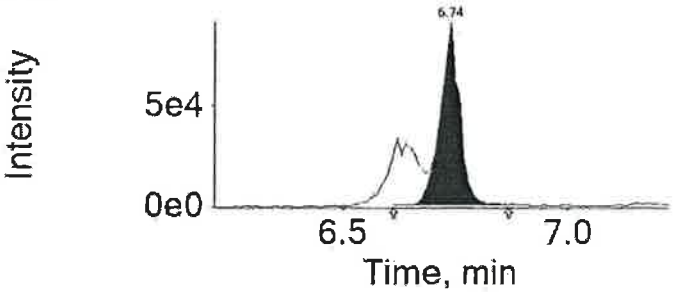
Analyte: PFOS
499.0 / 80.0



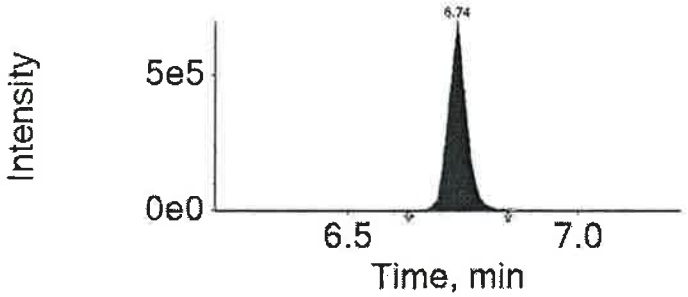
Extraction Standard: 13C8-PFOS
507.0 / 80.0



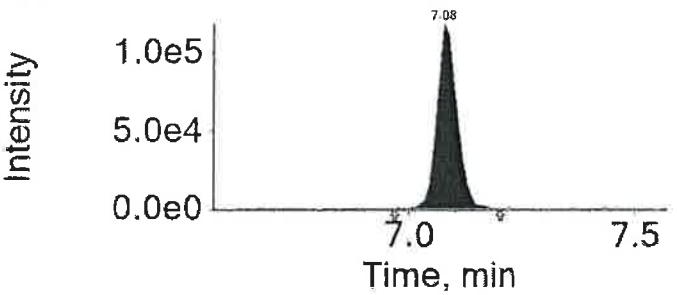
Analyte: PFNA
463.0 / 419.0



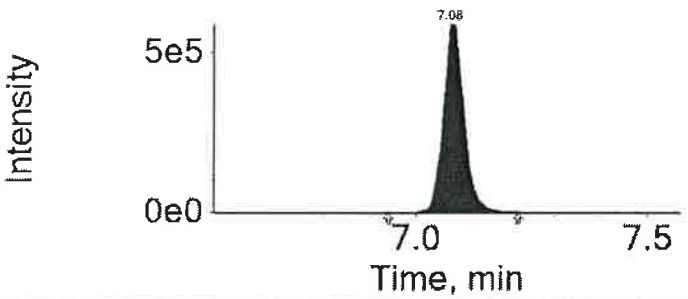
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By JPT at 3:32 pm, 4/19/18

REVIEWED
By umar at 11:08 am, 4/23/18

Sample Description: SG3a-WP15-E Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 12:05
SDG#: SBN11-15

C. T. Male Associates
ELLE Sample #: WP 9536695
ELLE Group #: 1926426
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**9.8 B**	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**45**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**32**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**210**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**100**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**29**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**9.7**	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**31,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**14**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**29**	2.0	6.0	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**11**	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**17**	2.0	6.0	10

The recovery for the sample injection internal standard peak areas and labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/08/2018 19:39	Jason W Knight	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/10/2018 20:51	Jason W Knight	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094013	04/04/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/17/2018 3:15:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

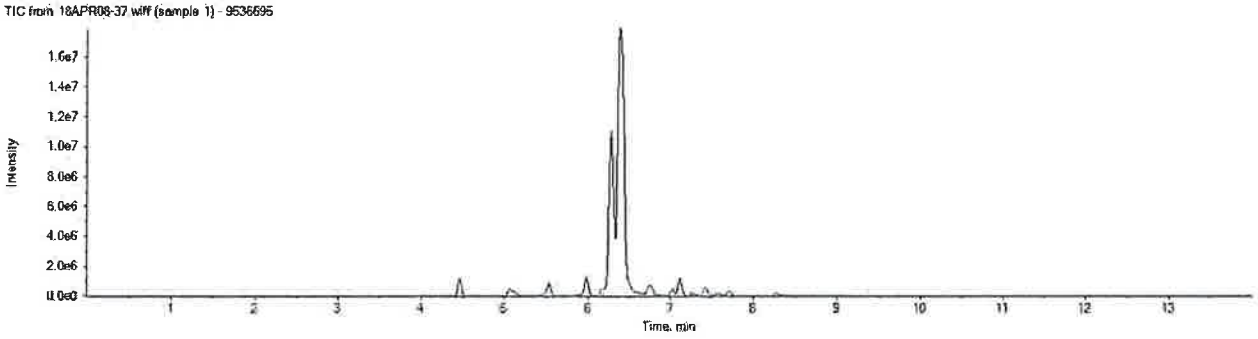
Analyte Quantitation Peak Table

Sample Name: 9536695 **Instrument Name:** LM24960 **File Name:** 18APR08-37.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.46	1.000	135259.0	A	13C4-PFBA	4.46	1570656.0	0.086	9.830
PFPeA	5.07	1.000	165944.2	A	13C5-PFPeA	5.07	1205863.8	0.138	13.983
PFBS	5.12	1.000	10624.9	A	13C3-PFBS	5.12	798663.7	0.013	1.216
PFHxA	5.54	1.000	1262315.3	M	13C5-PFHxA	5.54	1346529.9	0.937	101.999
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.97	575382.3	N/A	
PFHpA	5.98	1.000	2360357.1	M	13C4-PFHpA	5.98	1100861.9	2.144	207.706
PFOA	6.39	1.000	60262315.8	M	13C8-PFOA	6.39	249578.1	241.457	25936.675
PFOS	6.74	1.000	63391.5	M	13C8-PFOS	6.74	620776.8	0.102	9.718
PFNA	6.77	1.000	293577.8	M	13C9-PFNA	6.77	950196.5	0.309	28.852
PFDA	7.11	1.000	544210.4	A	13C6-PFDA	7.12	1448034.7	0.376	44.592
PFUnDA	7.42	1.000	149527.2	A	13C7-PFUnDA	7.42	805670.5	0.186	16.699
PFDoDA	7.71	1.000	234421.2	A	13C2-PFDoDA	7.71	825030.2	0.284	31.704
PFTrDA	7.99	1.040	78261.3	A	13C2-PFDoDA	7.71	825030.2	0.095	10.908
PFTeDA	8.27	1.000	133606.8	M	13C2-PFTeDA	8.28	510894.9	0.262	28.945

Total Ion Chromatogram

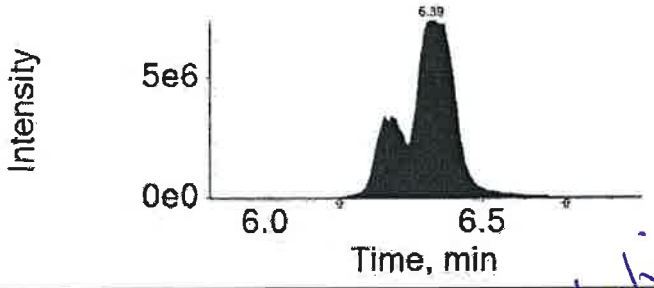


APPROVED
By DMW at 3:25 pm, 4/17/18

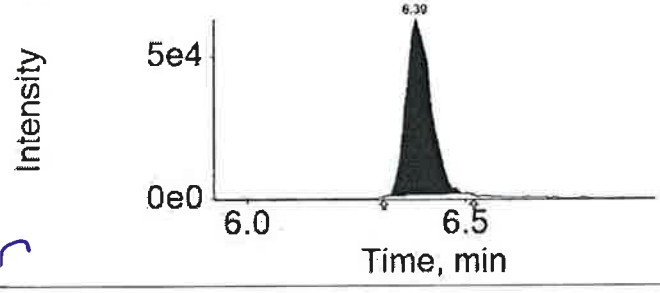
REVIEWED
By UMJS at 8:25 pm, 4/23/18

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

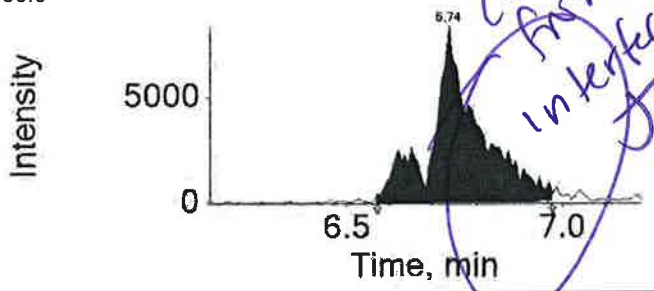
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

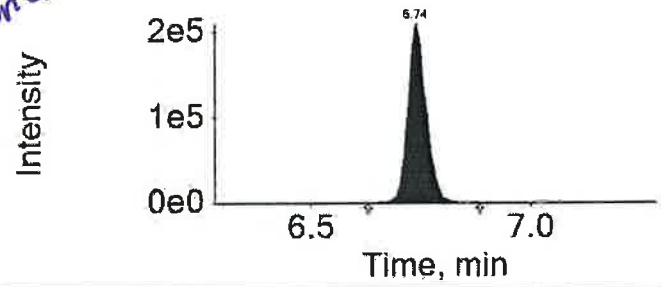


Analyte: PFOS
499.0 / 80.0

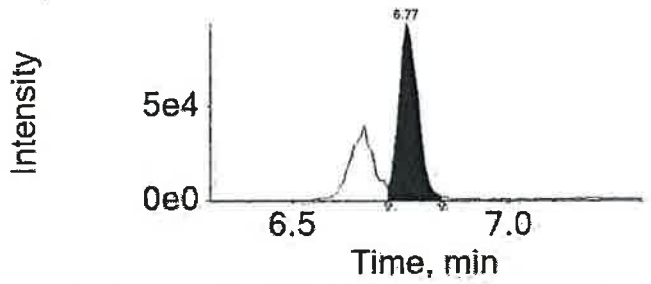


contribution from interference

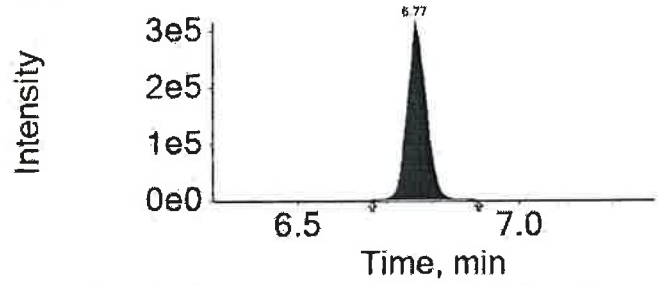
Extraction Standard: 13C8-PFOS
507.0 / 80.0



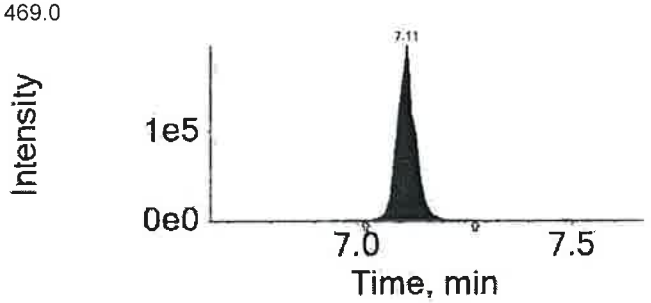
Analyte: PFNA
463.0 / 419.0



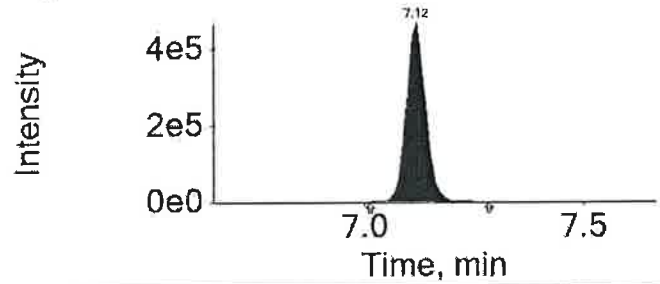
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 3:25 pm, 4/17/18

REVIEWED
By UMJS at 8:25 pm, 4/23/18

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Analysis Report

Sample Description: SG3a-WP16-E Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 12:10
SDG#: SBN11-16

C. T. Male Associates
ELLE Sample #: WP 9536696
ELLE Group #: 1926426
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	**Perfluorobutanesulfonate**	375-73-5	**4.0 J**	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**13 B**	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**52**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**39**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**210**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**96**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**29**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**17**	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**18,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**16**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**38**	2.0	6.0	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**14**	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**20**	2.0	6.0	10

The recovery for the sample injection internal standard peak areas and labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/08/2018 19:53	Jason W Knight	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/10/2018 21:05	Jason W Knight	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094013	04/04/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

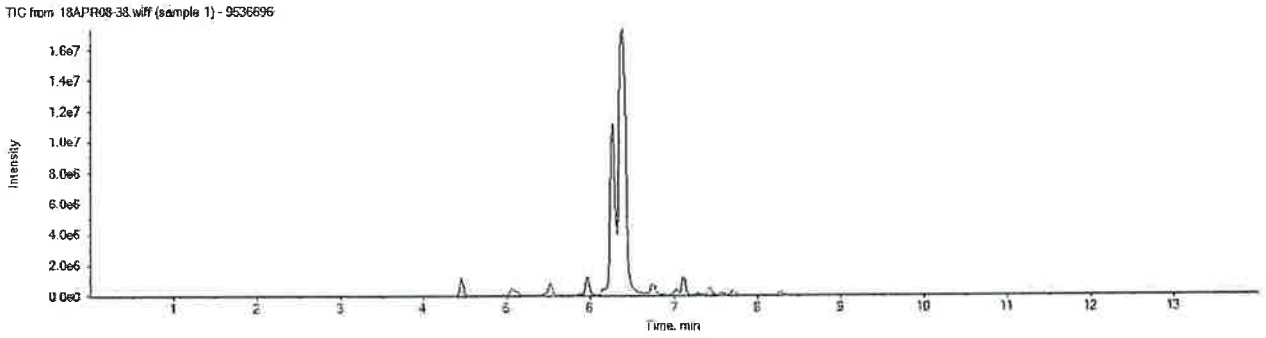
Analyte Quantitation Peak Table

Sample Name: 9536696 **Instrument Name:** LM24960 **File Name:** 18APR08-38.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.45	1.000	176981.4	A	13C4-PFBA	4.45	1501848.8	0.118	13.451
PFPeA	5.06	1.000	179462.6	M	13C5-PFPeA	5.06	1154866.0	0.155	15.790
PFBS	5.11	1.000	34704.5	A	13C3-PFBS	5.11	789401.9	0.044	4.018
PFHxA	5.53	1.000	1164711.3	M	13C5-PFHxA	5.53	1318393.6	0.883	96.121
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.96	553589.5	N/A	
PFHpA	5.97	1.000	2262854.6	M	13C4-PFHpA	5.97	1049433.5	2.156	208.885
PFOA	6.38	1.000	59811777.7	M	13C8-PFOA	6.38	262931.2	227.481	24435.403
PFOS	6.73	1.000	106720.7	M	13C8-PFOS	6.73	605068.5	0.176	16.785
PFNA	6.76	1.000	294901.9	M	13C9-PFNA	6.76	935118.7	0.315	29.450
PFDA	7.11	1.000	607323.9	A	13C6-PFDA	7.11	1384061.1	0.439	52.063
PFUnDA	7.42	1.000	164815.3	A	13C7-PFUnDA	7.42	745161.1	0.221	19.901
PFDoDA	7.70	1.000	252568.5	A	13C2-PFDoDA	7.70	730016.3	0.346	38.605
PFTrDA	7.98	1.040	90889.1	A	13C2-PFDoDA	7.70	730016.3	0.125	14.316
PFTeDA	8.27	1.000	165092.8	M	13C2-PFTeDA	8.27	481051.8	0.343	37.985

Total Ion Chromatogram

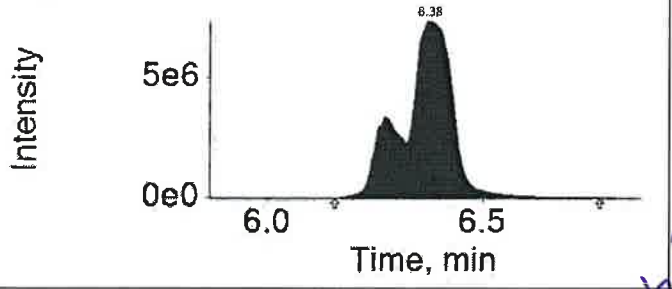


APPROVED
By DMW at 3:25 pm, 4/17/18

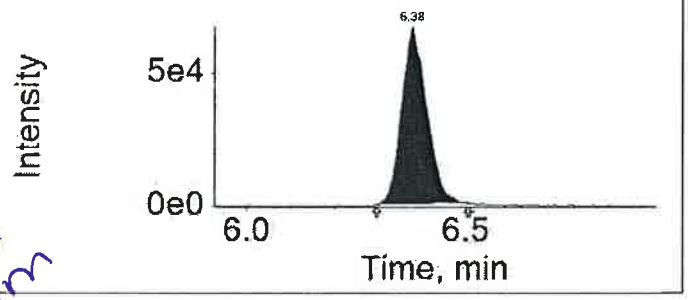
REVIEWED
By UMJS at 8:25 pm, 4/23/18

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

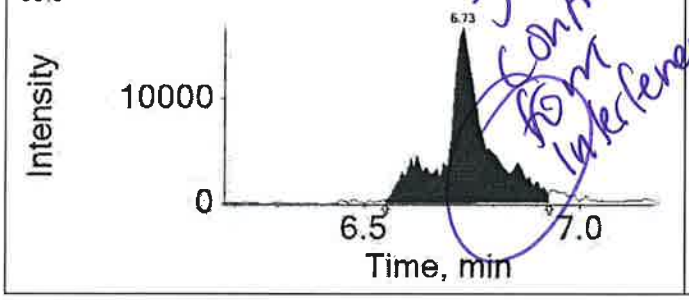
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

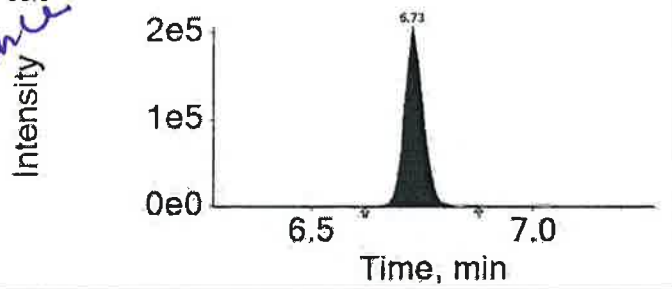


Analyte: PFOS
499.0 / 80.0

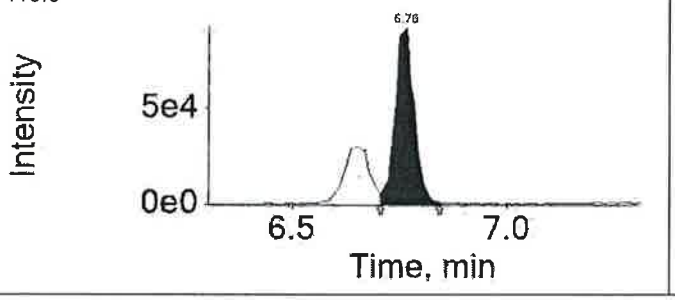


I don't know what from interference

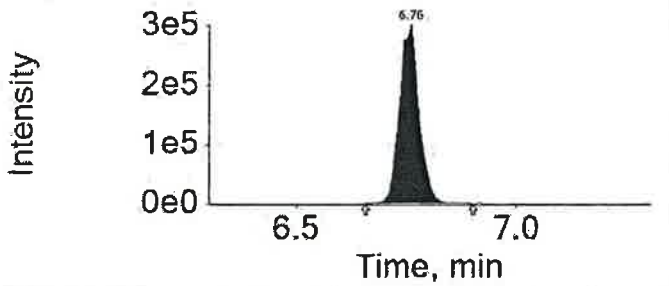
Extraction Standard: 13C8-PFOS
507.0 / 80.0



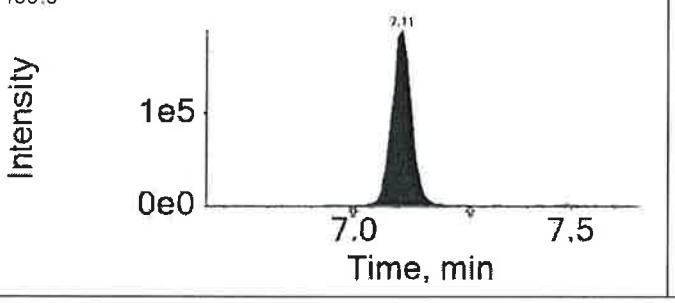
Analyte: PFNA
463.0 / 419.0



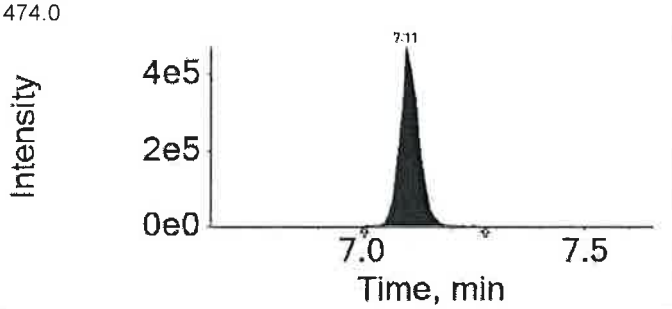
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 3:25 pm, 4/17/18

REVIEWED
By UMJS at 8:25 pm, 4/23/18

Sample Description: SG3a-WP17-E Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 12:15
SDG#: SBN11-17

C. T. Male Associates
ELLE Sample #: WP 9536697
ELLE Group #: 1926426
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**8.1 B**	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**39**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**26**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**180**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**88**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**26**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**12**	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**18,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**11**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**29**	2.0	6.0	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**9.7**	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**14**	2.0	6.0	10

The recovery for the sample injection internal standard peak areas and labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/08/2018 20:37	Devon M Whooley	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/10/2018 21:49	Jason W Knight	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094013	04/04/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/23/2018 8:35:44 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

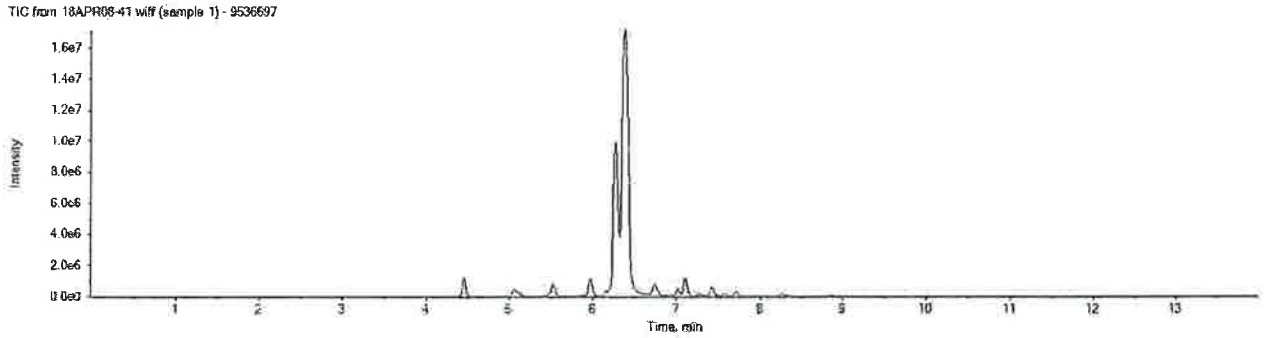
Analyte Quantitation Peak Table

Sample Name: 9536697 **Instrument Name:** LM24960 **File Name:** 18APR08-41.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.45	1.000	112173.3	M	13C4-PFBA	4.46	1584512.1	0.071	8.081
PFPeA	5.06	1.000	124020.8	A	13C5-PFPeA	5.06	1184792.9	0.105	10.637
PFBS	5.12	1.000	14130.3	M	13C3-PFBS	5.12	846236.9	0.017	1.526
PFHxA	5.53	1.000	1100320.4	M	13C5-PFHxA	5.53	1363440.0	0.807	87.806
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.97	577113.8	N/A	
PFHpA	5.97	1.000	2079966.9	M	13C4-PFHpA	5.97	1100834.3	1.889	183.037
PFOA	6.39	1.000	57253660.2	M	13C8-PFOA	6.38	293673.8	194.957	20941.752
PFOS	6.74	1.000	76837.7	M	13C8-PFOS	6.73	615520.2	0.125	11.880
PFNA	6.76	1.000	280466.3	M	13C9-PFNA	6.76	1020643.2	0.275	25.661
PFDA	7.11	1.000	467500.3	A	13C6-PFDA	7.11	1422291.2	0.329	38.999
PFUnDA	7.42	1.000	127363.3	A	13C7-PFUnDA	7.42	798535.9	0.159	14.351
PFDoDA	7.71	1.000	191321.3	A	13C2-PFDoDA	7.71	819734.1	0.233	26.043
PFTrDA	7.98	1.040	69355.4	A	13C2-PFDoDA	7.71	819734.1	0.085	9.729
PFTeDA	8.26	1.000	129103.2	M	13C2-PFTeDA	8.26	496032.8	0.260	28.807

Total Ion Chromatogram

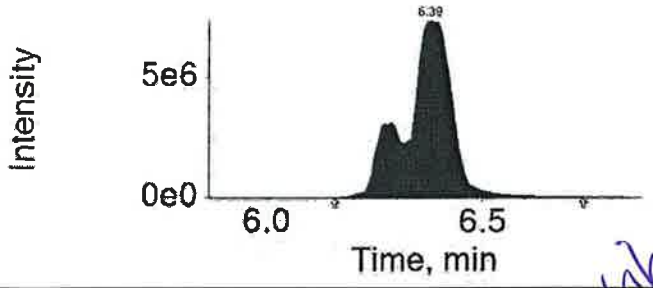


APPROVED
By DMW at 8:39 pm, 4/23/18

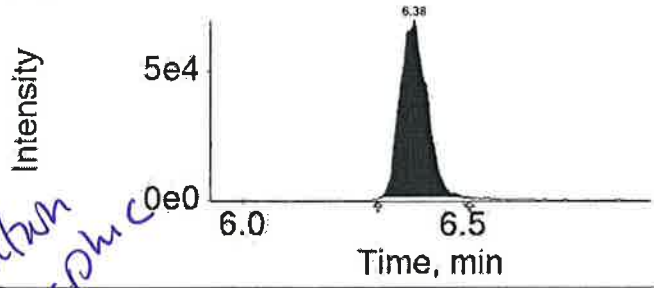
REVIEWED
By UMJS at 8:46 pm, 4/23/18

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/23/2018 8:35:44 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

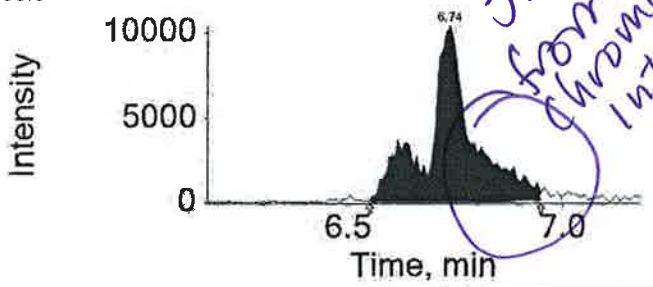
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

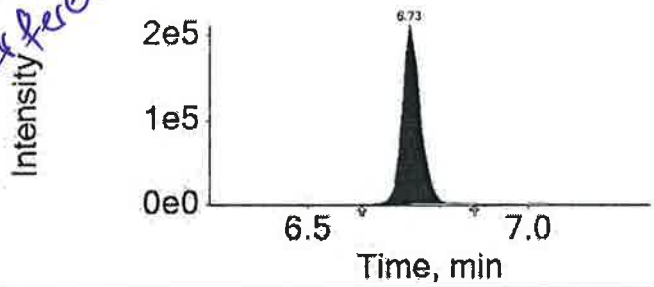


Analyte: PFOS
499.0 / 80.0

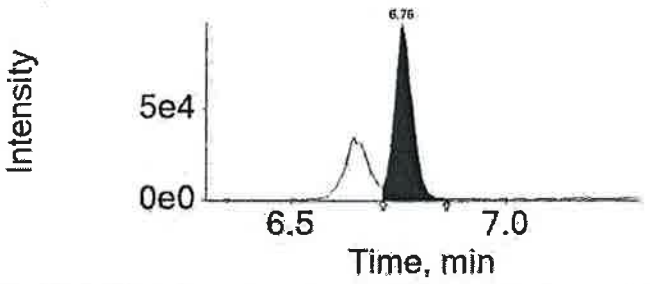


J. contribution from chromatographic interference

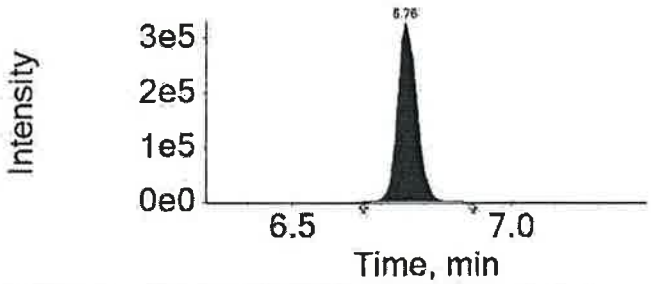
Extraction Standard: 13C8-PFOS
507.0 / 80.0



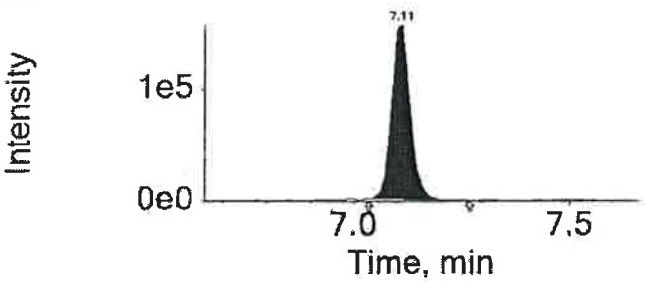
Analyte: PFNA
463.0 / 419.0



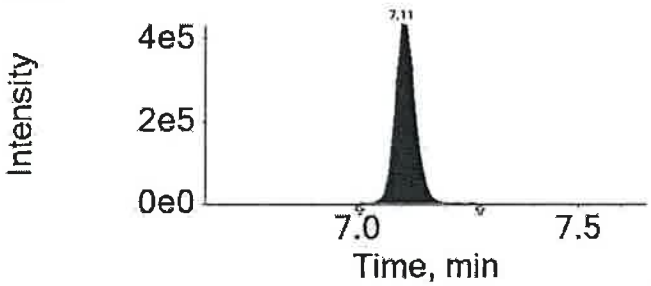
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 8:39 pm, 4/23/18

REVIEWED
By UMJS at 8:46 pm, 4/23/18

Sample Description: SG3a-WP18-E Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 12:20
SDG#: SBN11-18

C. T. Male Associates
ELLE Sample #: WP 9536698
ELLE Group #: 1926426
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**21 B**	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**59**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**38**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**330**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**150**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**31**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**15**	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**32,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**30**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**31**	2.0	6.0	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**9.6**	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**21**	2.0	6.0	10

The recovery for the sample injection internal standard peak areas and labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/08/2018 20:51	Devon M Whooley	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/10/2018 22:04	Jason W Knight	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094013	04/04/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/23/2018 8:36:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/23/2018 8:35:44 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

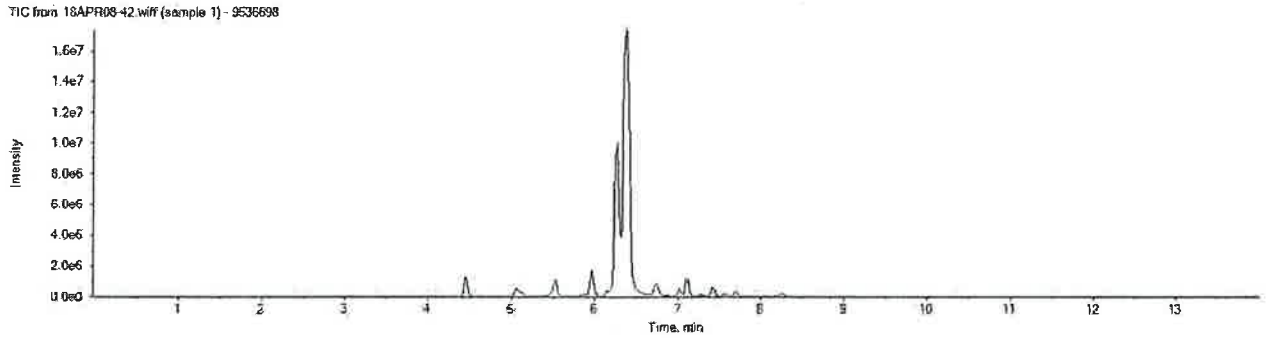
Analyte Quantitation Peak Table

Sample Name: 9536698 **Instrument Name:** LM24960 **File Name:** 18APR08-42.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.45	1.000	295037.4	A	13C4-PFBA	4.45	1607648.0	0.184	20.948
PFPeA	5.06	1.000	355049.4	A	13C5-PFPeA	5.06	1213640.7	0.293	29.727
PFBS	5.11	1.000	11943.8	M	13C3-PFBS	5.11	842684.6	0.014	1.295
PFHxA	5.53	1.000	1957361.3	M	13C5-PFHxA	5.53	1434790.1	1.364	148.431
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.96	555852.6	N/A	
PFHpA	5.97	1.000	3518632.2	M	13C4-PFHpA	5.97	1043300.7	3.373	326.715
PFOA	6.38	1.000	56595365.0	M	13C8-PFOA	6.38	274241.2	206.371	22167.830
PFOS	6.73	1.000	98959.4	M	13C8-PFOS	6.73	642112.0	0.154	14.666
PFNA	6.76	1.000	335927.9	M	13C9-PFNA	6.76	1018878.2	0.330	30.789
PFDA	7.11	1.000	716798.9	A	13C6-PFDA	7.11	1437732.4	0.499	59.154
PFUnDA	7.42	1.000	195244.7	A	13C7-PFUnDA	7.42	856863.0	0.228	20.502
PFDoDA	7.70	1.000	298119.2	A	13C2-PFDoDA	7.70	883310.2	0.338	37.659
PFTrDA	7.98	1.040	73972.7	A	13C2-PFDoDA	7.70	883310.2	0.084	9.630
PFTeDA	8.26	1.000	151330.7	M	13C2-PFTeDA	8.26	538181.6	0.281	31.122

Total Ion Chromatogram

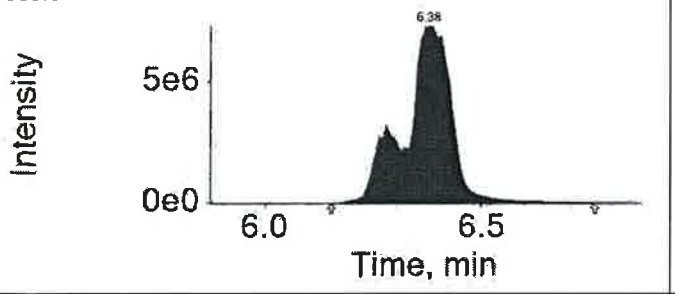


APPROVED
By DMW at 8:39 pm, 4/23/18

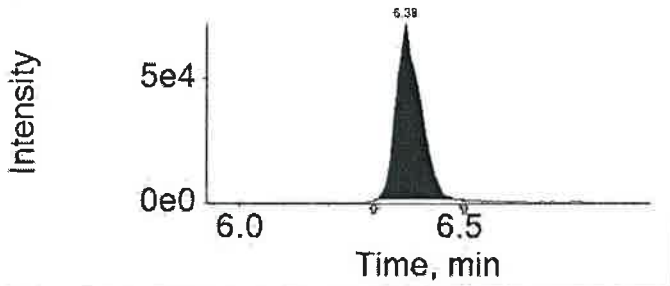
REVIEWED
By UMJS at 8:46 pm, 4/23/18

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/23/2018 8:35:44 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

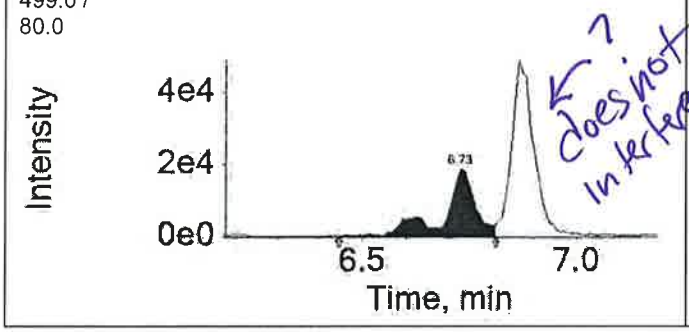
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

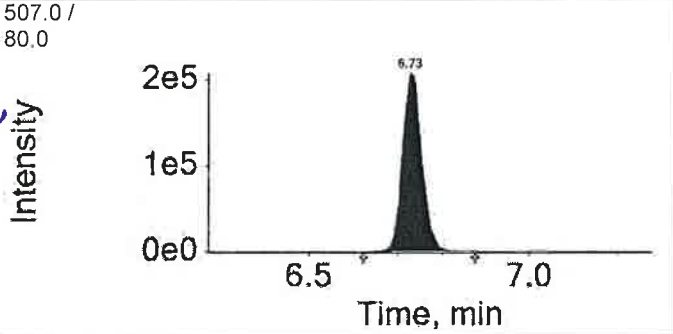


Analyte: PFOS
499.0 / 80.0

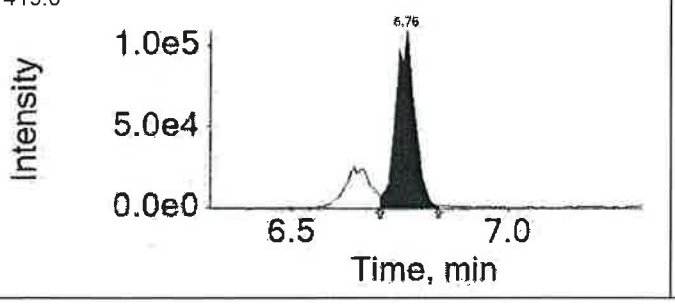


? ← does not interfere

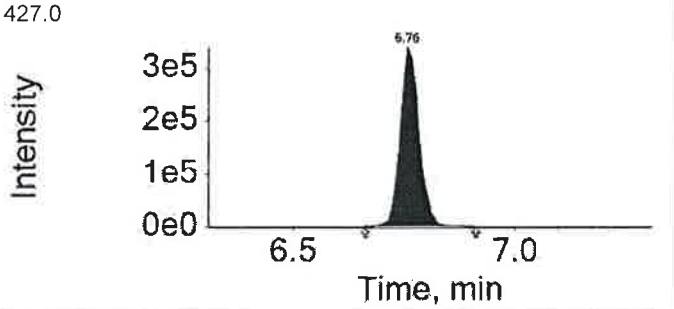
Extraction Standard: 13C8-PFOS
507.0 / 80.0



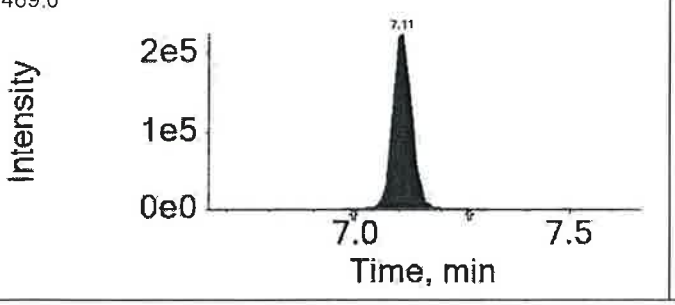
Analyte: PFNA
463.0 / 419.0



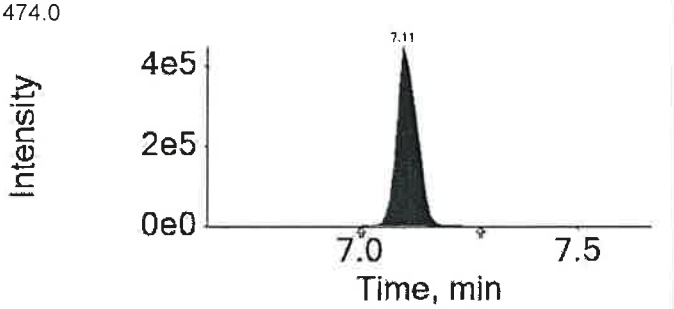
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 8:39 pm, 4/23/18

REVIEWED
By UMJS at 8:46 pm, 4/23/18

Sample Description: SG3a-EB03-180330 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 12:15
SDG#: SBN11-19EB

C. T. Male Associates
ELLE Sample #: WP 9536699
ELLE Group #: 1926426
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	Perfluorobutanoic acid	375-22-4	2.9 JB	2.0	6.0	10
14027	Perfluorodecanoic acid	335-76-2	2.0 U	2.0	6.0	10
14027	Perfluorododecanoic acid	307-55-1	2.0 U	2.0	6.0	10
14027	Perfluoroheptanoic acid	375-85-9	2.0 J	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	Perfluorohexanoic acid	307-24-4	2.0 U	2.0	6.0	10
14027	Perfluorononanoic acid	375-95-1	2.0 U	2.0	6.0	10
14027	Perfluoro-octanesulfonate	1763-23-1	60	3.0	9.0	10
14027	Perfluorooctanoic acid	335-67-1	220	2.0	6.0	10
14027	Perfluoropentanoic acid	2706-90-3	2.0 U	2.0	6.0	10
14027	Perfluorotetradecanoic acid	376-06-7	2.0 U	2.0	6.0	10
14027	Perfluorotridecanoic acid	72629-94-8	2.0 U	2.0	6.0	10
14027	Perfluoroundecanoic acid	2058-94-8	2.0 U	2.0	6.0	10

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were deteted in the method blank associated with this sample. Sufficient sample was not available to repeat the analysis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/08/2018 21:06	Jason W Knight	10
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094013	04/04/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 4/17/2018 3:16:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

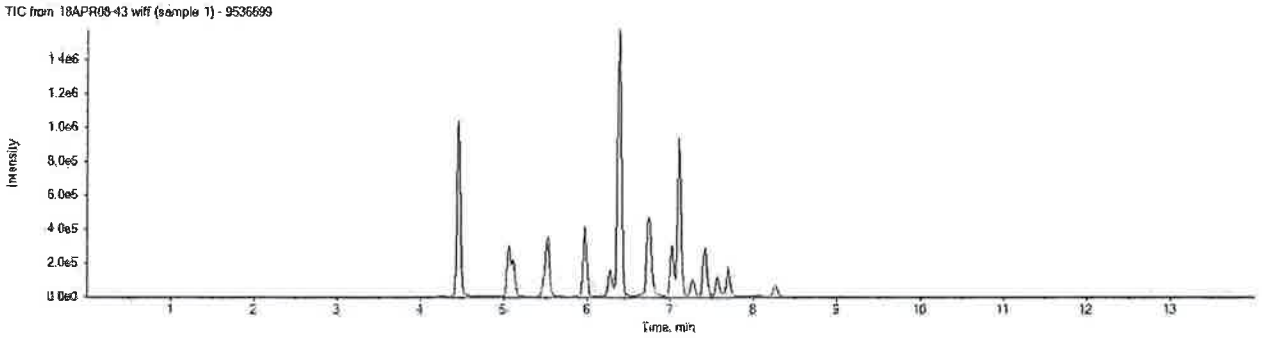
Analyte Quantitation Peak Table

Sample Name: 9536699 **Instrument Name:** LM24960 **File Name:** 18APR08-43.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.46	1.000	29718.1	M	13C4-PFBA	4.46	1174074.5	0.025	2.889
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.06	910804.2	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.12	583200.1	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.53	1030963.6	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.97	412365.8	N/A	
PFHpA	5.97	1.000	16223.4	M	13C4-PFHpA	5.97	777831.9	0.021	2.021
PFOA	6.39	1.000	1621354.5	M	13C8-PFOA	6.39	796999.3	2.034	218.522
PFOS	6.76	1.000	264491.1	M	13C8-PFOS	6.73	416290.2	0.635	60.464
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.76	652990.4	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.11	984935.2	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.42	528740.5	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.70	499742.7	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.70	499742.7	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.26	263244.5	N/A	

Total Ion Chromatogram

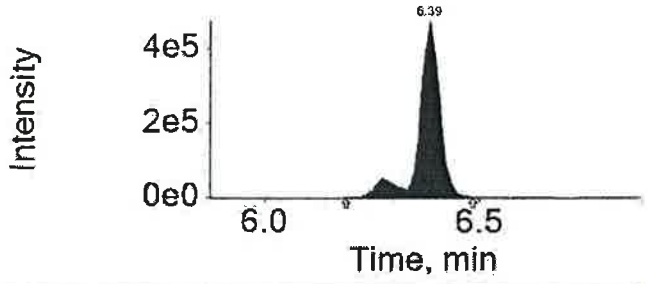


APPROVED
By DMW at 3:25 pm, 4/17/18

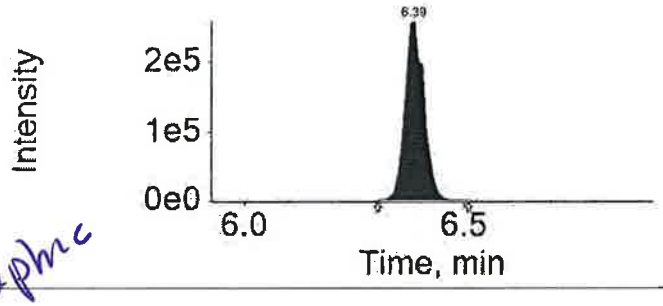
REVIEWED
By UMJS at 8:25 pm, 4/23/18

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

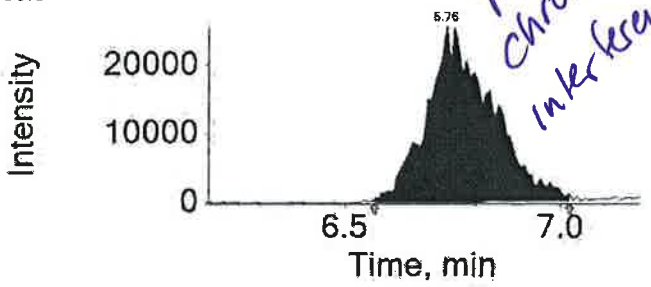
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

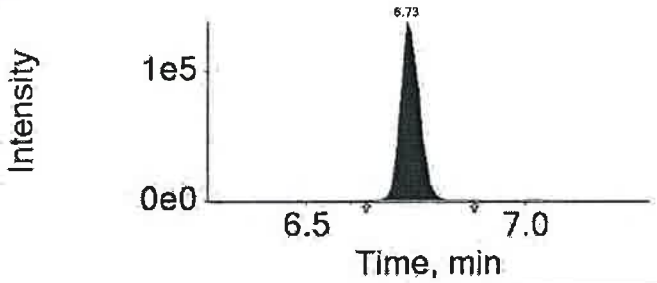


Analyte: PFOS
499.0 / 80.0

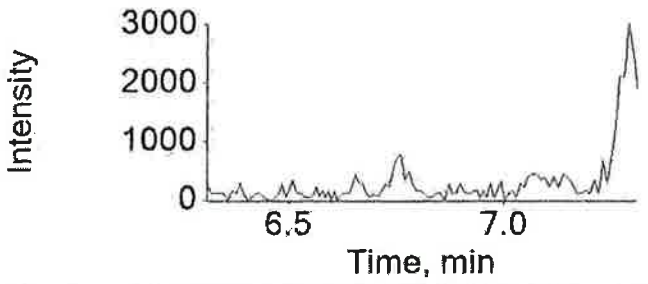


R — chromatographic interference

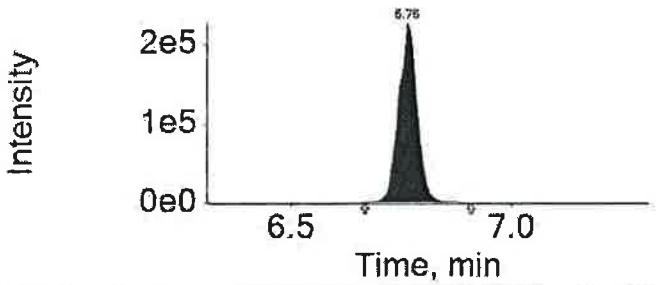
Extraction Standard: 13C8-PFOS
507.0 / 80.0



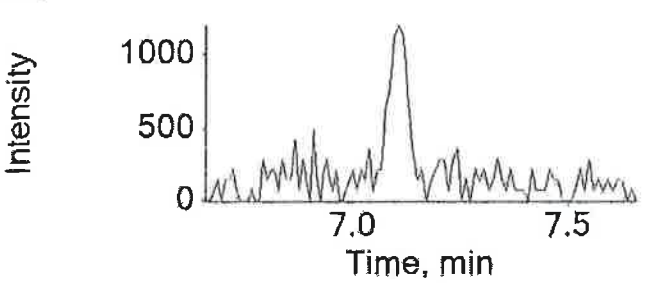
Analyte: PFNA
463.0 / 419.0



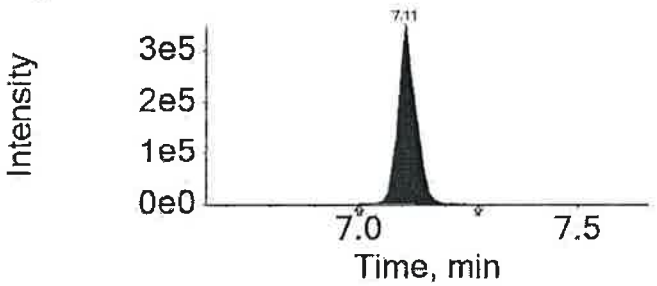
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 3:25 pm, 4/17/18

REVIEWED
By UMJS at 8:25 pm, 4/23/18

Sample Description: SG3a-FD03-180330 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018
SDG#: SBN11-20FD

C. T. Male Associates
ELLE Sample #: WP 9536700
ELLE Group #: 1926426
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**6.6 B**	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**38**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**29**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**120**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**57**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**24**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**9.0 J**	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**15,000**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**7.6**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**42**	2.0	6.0	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**11**	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**14**	2.0	6.0	10

The recovery for the sample injection internal standard peak areas and labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/08/2018 21:20	Jason W Knight	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/10/2018 22:18	Jason W Knight	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094013	04/04/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

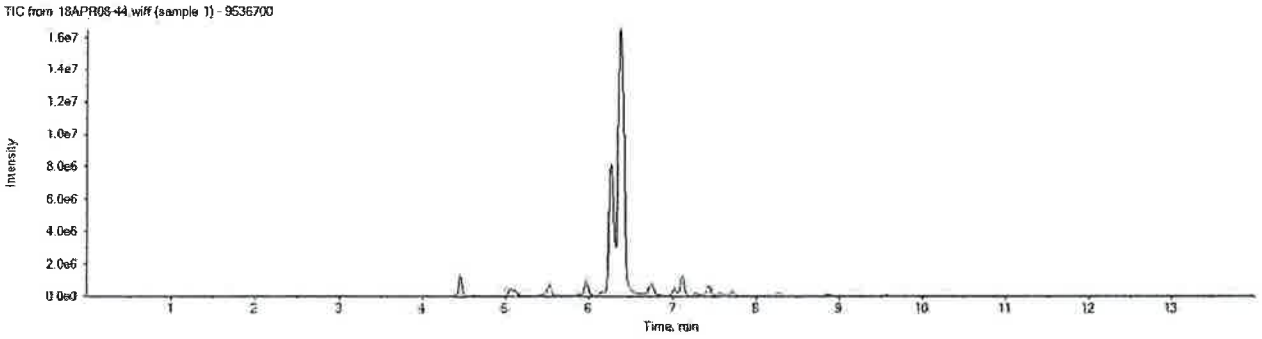
Analyte Quantitation Peak Table

Sample Name: 9536700 **Instrument Name:** LM24960 **File Name:** 18APR08-44.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.46	1.000	94528.6	A	13C4-PFBA	4.46	1637477.8	0.058	6.589
PFPeA	5.06	1.000	93377.1	A	13C5-PFPeA	5.06	1247749.5	0.075	7.604
PFBS	5.12	1.000	9897.0	M	13C3-PFBS	5.12	853570.3	0.012	1.060
PFHxA	5.53	1.000	735540.2	M	13C5-PFHxA	5.53	1400184.0	0.525	57.156
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.97	603960.2	N/A	
PFHpA	5.97	1.000	1346013.1	M	13C4-PFHpA	5.97	1116140.1	1.206	116.825
PFOA	6.39	1.000	49903099.8	M	13C8-PFOA	6.38	333902.4	149.454	16053.988
PFOS	6.74	1.000	61543.7	M	13C8-PFOS	6.73	654287.2	0.094	8.951
PFNA	6.76	1.000	264105.0	M	13C9-PFNA	6.76	1034229.3	0.255	23.847
PFDA	7.11	1.000	500784.9	A	13C6-PFDA	7.11	1548081.2	0.323	38.381
PFUnDA	7.42	1.000	147648.6	A	13C7-PFUnDA	7.42	927041.9	0.159	14.331
PFDoDA	7.70	1.000	217468.8	A	13C2-PFDoDA	7.71	843630.5	0.258	28.763
PFTrDA	7.98	1.040	81335.5	A	13C2-PFDoDA	7.71	843630.5	0.096	11.086
PFTeDA	8.26	1.000	193681.5	M	13C2-PFTeDA	8.26	515433.2	0.376	41.590

Total Ion Chromatogram



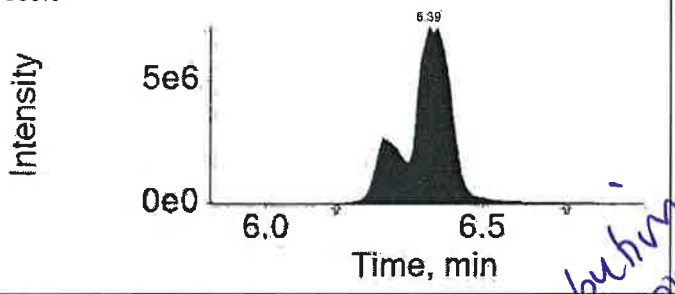
APPROVED
By DMW at 3:25 pm, 4/17/18

REVIEWED
By UMJS at 8:25 pm, 4/23/18

ICAL Name: 18APR07MCAL **Result Table:** 18094013 4/17/2018 3:10:42 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

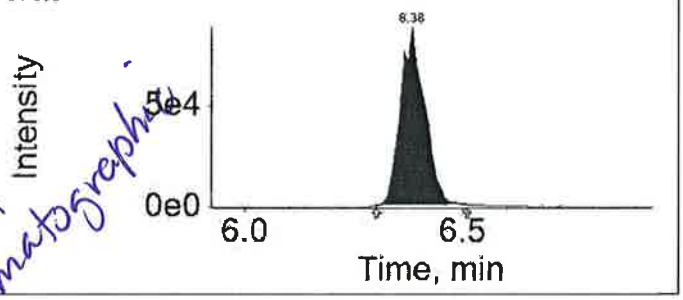
Analyte: PFOA

413.0 / 369.0



Extraction Standard: 13C8-PFOA

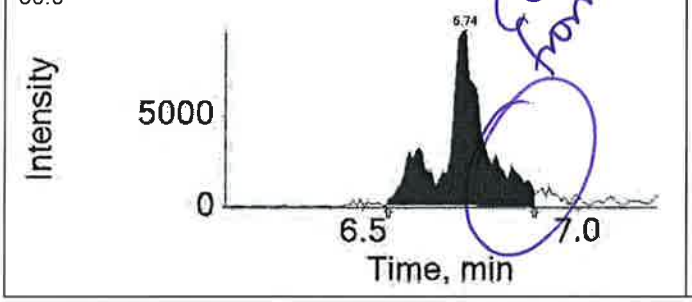
421.0 / 376.0



Contribution from chromatography

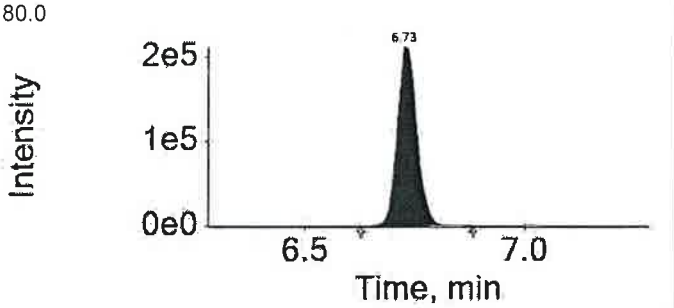
Analyte: PFOS

499.0 / 80.0



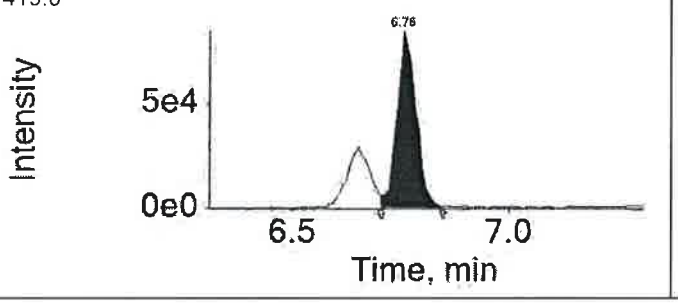
Extraction Standard: 13C8-PFOS

507.0 / 80.0



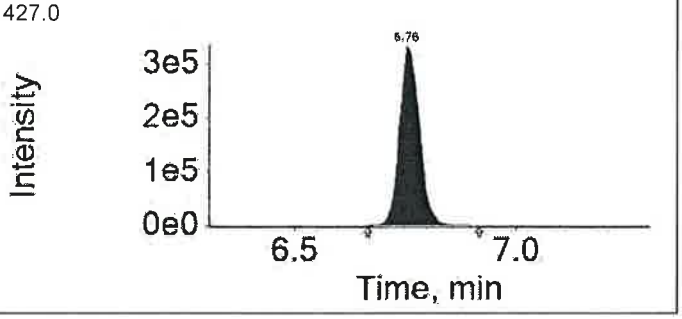
Analyte: PFNA

463.0 / 419.0



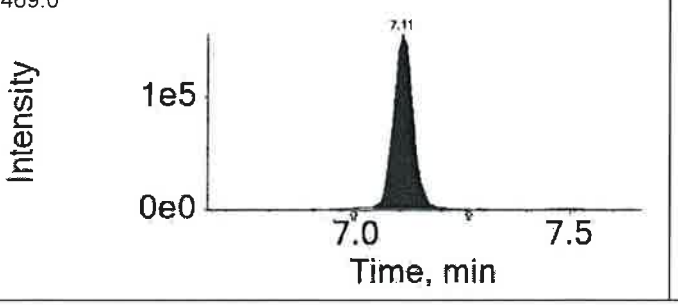
Extraction Standard: 13C9-PFNA

472.0 / 427.0



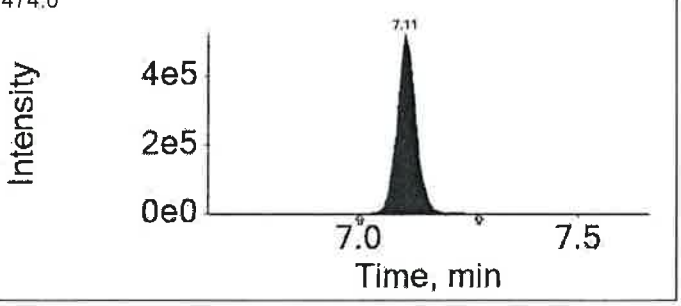
Analyte: PFDA

513.0 / 469.0



Extraction Standard: 13C6-PFDA

519.0 / 474.0



APPROVED
By DMW at 3:25 pm, 4/17/18

REVIEWED
By UMJS at 8:25 pm, 4/23/18

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 21:11

Group Number: 1926426

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 18102019	Sample number(s): 9536681,9536684,9536686,9536694		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.20 U	0.20	0.60
Perfluorononanoic acid	0.20 U	0.20	0.60
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 18092009	Sample number(s): 9536687-9536688		
Perfluorobutanesulfonate	0.30 U	0.30	1.0
Perfluorobutanoic acid	2.0 U	2.0	6.0
Perfluorodecanoic acid	1.0 U	1.0	2.0
Perfluorododecanoic acid	0.30 U	0.30	1.0
Perfluoroheptanoic acid	0.30 U	0.30	1.0
Perfluorohexanesulfonate	0.40 U	0.40	2.0
Perfluorohexanoic acid	0.40 U	0.40	2.0
Perfluorononanoic acid	0.40 U	0.40	2.0
Perfluoro-octanesulfonate	0.40 U	0.40	2.0
Perfluorooctanoic acid	0.30 U	0.30	1.0
Perfluoropentanoic acid	2.0 U	2.0	6.0
Perfluorotetradecanoic acid	0.30 U	0.30	1.0
Perfluorotridecanoic acid	0.30 U	0.30	1.0
Perfluoroundecanoic acid	0.40 U	0.40	2.0
	ng/wipe	ng/wipe	ng/wipe
Batch number: 18094013	Sample number(s): 9536682-9536683,9536685,9536689-9536693,9536695-9536700		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.23 J	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60

5x
1.15

All Samples 7 5x
blank is ND
qual

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 21:11

Group Number: 1926426

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/wipe	ng/wipe	ng/wipe
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.20 U	0.20	0.60
Perfluorononanoic acid	0.20 U	0.20	0.60
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 18102019	Sample number(s): 9536681,9536684,9536686,9536694								
Perfluorobutanesulfonate	1.20	1.15			96		70-130		
Perfluorobutanoic acid	1.36	1.37			101		70-130		
Perfluorodecanoic acid	1.36	1.44			106		70-130		
Perfluorododecanoic acid	1.36	1.33			98		70-130		
Perfluoroheptanoic acid	1.36	1.37			101		70-130		
Perfluorohexanesulfonate	1.29	1.16			90		70-130		
Perfluorohexanoic acid	1.36	1.28			94		70-130		
Perfluorononanoic acid	1.36	1.33			98		70-130		
Perfluoro-octanesulfonate	1.30	1.14			88		70-130		
Perfluorooctanoic acid	1.36	1.53			112		70-130		
Perfluoropentanoic acid	1.36	1.21			89		70-130		
Perfluorotetradecanoic acid	1.36	1.38			102		70-130		
Perfluorotridecanoic acid	1.36	1.36			100		70-130		
Perfluoroundecanoic acid	1.36	1.38			102		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 18092009	Sample number(s): 9536687-9536688								
Perfluorobutanesulfonate	4.81	4.36	4.81	4.34	91	90	70-130	0	30
Perfluorobutanoic acid	5.44	4.91	5.44	5.14	90	94	70-130	5	30
Perfluorodecanoic acid	5.44	5.49	5.44	5.02	101	92	70-130	9	30
Perfluorododecanoic acid	5.44	4.95	5.44	5.20	91	96	70-130	5	30
Perfluoroheptanoic acid	5.44	5.25	5.44	5.41	97	99	70-130	3	30
Perfluorohexanesulfonate	5.14	4.28	5.14	4.34	83	84	70-130	1	30
Perfluorohexanoic acid	5.44	5.55	5.44	5.11	102	94	70-130	8	30
Perfluorononanoic acid	5.44	4.79	5.44	5.03	88	93	70-130	5	30
Perfluoro-octanesulfonate	5.20	4.57	5.20	4.64	88	89	70-130	2	30

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(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 21:11

Group Number: 1926426

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorooctanoic acid	5.44	5.16	5.44	5.25	95	96	70-130	2	30
Perfluoropentanoic acid	5.44	4.84	5.44	5.09	89	94	70-130	5	30
Perfluorotetradecanoic acid	5.44	4.98	5.44	4.98	91	92	70-130	0	30
Perfluorotridecanoic acid	5.44	4.61	5.44	5.37	85	99	70-130	15	30
Perfluoroundecanoic acid	5.44	4.88	5.44	5.07	90	93	70-130	4	30
	ng/wipe	ng/wipe	ng/wipe	ng/wipe		✓		✓	
Batch number: 18094013	Sample number(s): 9536682-9536683,9536685,9536689-9536693,9536695-9536700								
Perfluorobutanesulfonate	1.20	1.23	1.20	1.23	102	103	70-130	0	30
Perfluorobutanoic acid	1.36	1.70	1.36	1.66	125	122	70-130	2	30
Perfluorodecanoic acid	1.36	1.43	1.36	1.45	105	107	70-130	1	30
Perfluorododecanoic acid	1.36	1.49	1.36	1.53	110	112	70-130	2	30
Perfluoroheptanoic acid	1.36	1.42	1.36	1.51	104	111	70-130	6	30
Perfluorohexanesulfonate	1.29	1.30	1.29	1.32	101	103	70-130	2	30
Perfluorohexanoic acid	1.36	1.42	1.36	1.43	104	105	70-130	1	30
Perfluorononanoic acid	1.36	1.68	1.36	1.57	124	116	70-130	7	30
Perfluoro-octanesulfonate	1.30	1.35	1.30	1.36	104	105	70-130	1	30
Perfluorooctanoic acid	1.36	1.50	1.36	1.51	110	111	70-130	1	30
Perfluoropentanoic acid	1.36	1.50	1.36	1.50	110	110	70-130	0	30
Perfluorotetradecanoic acid	1.36	1.53	1.36	1.47	112	108	70-130	4	30
Perfluorotridecanoic acid	1.36	1.11	1.36	1.12	81	82	70-130	1	30
Perfluoroundecanoic acid	1.36	1.75	1.36	1.65	129	121	70-130	6	30
						✓		✓	

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18102019	Sample number(s): 9536681,9536684,9536686,9536694 UNSPK: P536676						Non SDG	(SBN10)		
Perfluorobutanesulfonate	296.4	120.2	240.87	116.7	248.57	-45*	-40*	70-130	3	30
Perfluorobutanoic acid	577	136	562.36	132.04	558.34	-10 (2)	-13 (2)	70-130	1	30
Perfluorodecanoic acid	908	136	936.93	132.04	937.36	21 (2)	22 (2)	70-130	0	30
Perfluorododecanoic acid	623.43	136	617.27	132.04	645.46	-4 (2)	17 (2)	70-130	4	30
Perfluoroheptanoic acid	3528.07	136	3599.26	132.04	3678.05	52 (2)	114 (2)	70-130	2	30
Perfluorohexanesulfonate	81.61	128.6	84.35	124.85	83.68	2*	2*	70-130	1	30
Perfluorohexanoic acid	2750.52	136	2506.73	132.04	2567.27	-178 (2)	-138 (2)	70-130	2	30
Perfluorononanoic acid	433.21	136	436.52	132.04	422.22	2*	-7*	70-130	3	30
Perfluoro-octanesulfonate	1452.01	130	1425.6	126.21	1499.39	-19 (2)	38 (2)	70-130	5	30
Perfluorooctanoic acid	274013.81	136	196929.43	132.04	190105.82	-56679 (2)	-63547 (2)	70-130	4	30

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 21:11

Group Number: 1926426

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoropentanoic acid	581.38	136	541.62	132.04	564.53	-28 (2)	-12 (2)	70-130	4	30
Perfluorotetradecanoic acid	552.51	136	571.76	132.04	564.99	14 (2)	9 (2)	70-130	1	30
Perfluorotridecanoic acid	248.38	136	234.91	132.04	256.96	-9*	6*	70-130	9	30
Perfluoroundecanoic acid	240	136	237.93	132.04	237.17	-1*	-1*	70-130	0	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFAS Compounds
Batch number: 18092009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9536687	101	100	94	107	99	101
9536688	104	105	101	112	105	105
Blank	92	89	79	91	89	90
LCS	102	101	91	108	105	110
LCSD	104	103	92	101	103	103
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9536687	102	96	105	102	109	102
9536688	105	102	111	104	104	106
Blank	91	89	93	98	100	98
LCS	101	104	108	102	106	109
LCSD	103	103	106	111	108	107
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9536687	104
9536688	103
Blank	98
LCS	103
LCSD	110
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 18094013

*- Outside of specification
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P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 21:11

Group Number: 1926426

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18094013

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9536682	81	80	85	205* J, IS	196* UJ, IS	222* J, IS
9536683	90	87	89	327*	305*	331*
9536685	84	85	90	238*	234*	260*
9536689	86	84	85	213*	206*	225*
9536690	77	76	76	199*	250*	268*
9536691	86	87	84	152*	146*	160*
9536692	84	83	83	169*	162*	186*
9536693	88	86	85	123*	129*	139*
9536695	85	84	82	293*	287*	317*
9536696	87	86	87	274*	263*	288*
9536697	86	82	86	269*	261*	288*
9536698	86	83	85	300*	266*	289*
9536699	62	62* UJ IS	59	63	58	63
9536700	86	84	85	236*	233*	249*
Blank	81	80	79	85	86	88
LCS	76	75	75	85	82	85
LCSD	77	75	75	80	78	81
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9536682	72	85	81	75	76	64
9536683	73	95	97	82	72	66
9536685	70	84	78	74	91	73
9536689	80	86	92	77	74	64
9536690	60	78	81	74	71	56
9536691	82	84	91	81	73	68
9536692	74	83	88	81	81	73
9536693	81	88	93	86	82	77
9536695	68	83	86	82	76	70
9536696	69	86	89	80	72	63
9536697	73	85	95	82	77	71
9536698	72	84	90	82	81	75
9536699	61	61	64	55	50	42
9536700	71	84	90	83	83	68
Blank	82	83	74	82	79	84
LCS	78	71	64	83	76	74
LCSD	82	78	79	78	72	62
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

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(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 21:11

Group Number: 1926426

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18094013

	13C2-PFTeDA
9536682	50
9536683	50
9536685	53
9536689	49
9536690	45
9536691	50
9536692	56
9536693	58
9536695	54
9536696	52
9536697	53
9536698	57
9536699	28
9536700	51
Blank	61
LCS	56
LCSD	51
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 18102019

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9536681	75	75	71	89	82	88
9536684	73	70	67	91	91	99
9536686	76	75	72	89	83	87
9536694	99	95	94	141* J	128* UJ	141* J
Blank	83	84	77	75	71	77
LCS	76	82	67	79	73	77
MS	75	72	77	101	98	117*
MSD	79	71	75	101	109	118*
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9536681	66	74	74	71	97	78
9536684	61	77	83	66	87	66
9536686	67	76	79	75	93	70
9536694	81	105	144* J	86	108	86
Blank	75	91	114	75	78	71
LCS	79	81	90	70	74	70
MS	54	77	82	62	101	68

IS qual.

*- Outside of specification
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P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 21:11

Group Number: 1926426

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18102019

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
MSD	57	82	87	63	104	66
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9536681	79
9536684	57
9536686	67
9536694	63
Blank	67
LCS	67
MS	69
MSD	69
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN11
Matrix: SOIL

18102019		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery
LCS102019	04/18/18 09:59	79	81	90
BLK102019	04/18/18 11:02	75	91	114
9536681	04/18/18 14:23	66	74	74
9536684	04/18/18 14:39	61	77	83
9536686	04/18/18 14:54	67	76	79
9536694	04/18/18 15:10	81	105	144 *
9536681DL	04/18/18 19:34	76	75	76
9536684DL	04/18/18 19:49	70	76	83
9536686DL	04/18/18 20:05	72	76	80
9536694DL	04/18/18 20:51	78	73	78

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN11
Matrix: SOIL

18094013		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery
LCS094013	04/08/18 15:31	78	71	64
LCSDA	04/08/18 16:00	82	78	79
BLK094013	04/08/18 16:44	82	83	74
9536682	04/08/18 17:42	72	85	81
9536683	04/08/18 17:57	73	95	97
9536685	04/08/18 18:11	70	84	78
9536689	04/08/18 18:26	80	86	92
9536690	04/08/18 18:40	60	78	81
9536691	04/08/18 18:55	82	84	91
9536692	04/08/18 19:09	74	83	88
9536693	04/08/18 19:24	81	88	93
9536695	04/08/18 19:39	68	83	86
9536696	04/08/18 19:53	69	86	89
9536697	04/08/18 20:37	73	85	95
9536698	04/08/18 20:51	72	84	90
9536699	04/08/18 21:06	61	61	64
9536700	04/08/18 21:20	71	84	90
9536682DL	04/10/18 18:54	90	99	91
9536683DL	04/10/18 19:09	101	101	86
9536685DL	04/10/18 19:24	97	103	90

* Outside QC Limits

SDG No.: SBN11
Matrix: SOIL

18094013		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery
9536689DL	04/10/18 19:38	102	101	94
9536690DL	04/10/18 19:53	102	101	80
9536691DL	04/10/18 20:07	107	105	96
9536692DL	04/10/18 20:22	101	105	97
9536693DL	04/10/18 20:36	103	106	95
9536695DL	04/10/18 20:51	96	95	83
9536696DL	04/10/18 21:05	109	102	86
9536697DL	04/10/18 21:49	105	98	80
9536698DL	04/10/18 22:04	99	103	85
9536700DL	04/10/18 22:18	109	99	91

* Outside QC Limits

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Quality Control Reference List
PFAS Group

CLIENT: C. T. Male Associates
SDG: SBN11

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
14 PFAS Compounds	18092009	BLK092009	04/05/2018 16:26:00
		LCS092009	04/05/2018 15:40:00
		LCSDA	04/05/2018 15:55:00
		9536687	04/05/2018 19:33:00
		9536688	04/05/2018 19:48:00
14 PFCs	18094013	BLK094013	04/08/2018 16:44:00
		LCS094013	04/08/2018 15:31:00
		LCSDA	04/08/2018 16:00:00
		9536682	04/08/2018 17:42:00
		9536682	04/10/2018 18:54:00
		9536683	04/08/2018 17:57:00
		9536683	04/10/2018 19:09:00
		9536685	04/08/2018 18:11:00
		9536685	04/10/2018 19:24:00
		9536689	04/08/2018 18:26:00
		9536689	04/10/2018 19:38:00
		9536690	04/08/2018 18:40:00
		9536690	04/10/2018 19:53:00
		9536691	04/08/2018 18:55:00
		9536691	04/10/2018 20:07:00
		9536692	04/08/2018 19:09:00
		9536692	04/10/2018 20:22:00
		9536693	04/08/2018 19:24:00
		9536693	04/10/2018 20:36:00
		9536695	04/08/2018 19:39:00
		9536695	04/10/2018 20:51:00
		9536696	04/08/2018 19:53:00
		9536696	04/10/2018 21:05:00
		9536697	04/08/2018 20:37:00
		9536697	04/10/2018 21:49:00
		9536698	04/08/2018 20:51:00
		9536698	04/10/2018 22:04:00
		9536699	04/08/2018 21:06:00
		9536700	04/08/2018 21:20:00
		9536700	04/10/2018 22:18:00
14 PFCs	18102019	BLK102019	04/18/2018 11:02:00
		LCS102019	04/18/2018 09:59:00
		9536681	04/18/2018 14:23:00
		9536681	04/18/2018 19:34:00
		9536684	04/18/2018 14:39:00
		9536684	04/18/2018 19:49:00
		9536686	04/18/2018 14:54:00
		9536686	04/18/2018 20:05:00
		9536694	04/18/2018 15:10:00
		9536694	04/18/2018 20:51:00

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Quality Control Summary
Method Blank
PFAS Group
SDG: SBN11
Matrix: SOLID

Fraction: PFAS by LC/MS/MS

18094013 / BLK094013 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	04/08/18	N.D.	ng/wipe	0.20	0.60
Perfluorononanoic acid	04/08/18	N.D.	ng/wipe	0.20	0.60
Perfluorodecanoic acid	04/08/18	N.D.	ng/wipe	0.20	0.60
Perfluoroundecanoic acid	04/08/18	N.D.	ng/wipe	0.20	0.60
Perfluorododecanoic acid	04/08/18	N.D.	ng/wipe	0.20	0.60
Perfluorotridecanoic acid	04/08/18	N.D.	ng/wipe	0.20	0.60
Perfluorotetradecanoic acid	04/08/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanoic acid	04/08/18	N.D.	ng/wipe	0.20	0.60
Perfluoroheptanoic acid	04/08/18	N.D.	ng/wipe	0.20	0.60
Perfluorobutanesulfonate	04/08/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanesulfonate	04/08/18	N.D.	ng/wipe	0.20	0.60
Perfluoro-octanesulfonate	04/08/18	N.D.	ng/wipe	0.30	0.90
Perfluorobutanoic acid	04/08/18	0.23 J	ng/wipe	0.20	0.60
Perfluoropentanoic acid	04/08/18	N.D.	ng/wipe	0.20	0.60

All results 7.5x blank ∴ No qual

18102019 / BLK102019 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorononanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorodecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoroundecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorododecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorotridecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorotetradecanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoroheptanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorobutanesulfonate	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanesulfonate	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoro-octanesulfonate	04/18/18	N.D.	ng/wipe	0.30	0.90
Perfluorobutanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60
Perfluoropentanoic acid	04/18/18	N.D.	ng/wipe	0.20	0.60

ng/g

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Quality Control Summary
Method Blank
PFAS Group
SDG: SBN11
Matrix: LIQUID

Fraction: PFAS by LC/MS/MS

18092009 / BLK092009 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorononanoic acid	04/05/18	N.D.	ng/l	0.40	2.0
Perfluorodecanoic acid	04/05/18	N.D.	ng/l	1.0	2.0
Perfluoroundecanoic acid	04/05/18	N.D.	ng/l	0.40	2.0
Perfluorododecanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorotridecanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorotetradecanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorohexanoic acid	04/05/18	N.D.	ng/l	0.40	2.0
Perfluoroheptanoic acid	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorobutanesulfonate	04/05/18	N.D.	ng/l	0.30	1.0
Perfluorohexanesulfonate	04/05/18	N.D.	ng/l	0.40	2.0
Perfluoro-octanesulfonate	04/05/18	N.D.	ng/l	0.40	2.0
Perfluorobutanoic acid	04/05/18	N.D.	ng/l	2.0	6.0
Perfluoropentanoic acid	04/05/18	N.D.	ng/l	2.0	6.0

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SBN11
Matrix: SOLID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCS094013 LCSD: LCSDA Analyte	Batch: **18094013** (Sample number(s): 9536682-9536683, 9536685, 9536689-9536693, 9536695-9536700)							
	Spike Added ng/wipe	**LCS Conc ng/wipe**	**LCSD Conc ng/wipe**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	1.50	1.51	110	111	70-130	1	30
Perfluorononanoic acid	1.36	1.68	1.57	124	116	70-130	7	30
Perfluorodecanoic acid	1.36	1.43	1.45	105	107	70-130	1	30
Perfluoroundecanoic acid	1.36	1.75	1.65	129	121	70-130	6	30
Perfluorododecanoic acid	1.36	1.49	1.53	110	112	70-130	2	30
Perfluorotridecanoic acid	1.36	1.11	1.12	81	82	70-130	1	30
Perfluorotetradecanoic acid	1.36	1.53	1.47	112	108	70-130	4	30
Perfluorohexanoic acid	1.36	1.42	1.43	104	105	70-130	1	30
Perfluoroheptanoic acid	1.36	1.42	1.51	104	111	70-130	6	30
Perfluorobutanesulfonate	1.20	1.23	1.23	102	103	70-130	0	30
Perfluorohexanesulfonate	1.29	1.30	1.32	101	103	70-130	2	30
Perfluoro-octanesulfonate	1.30	1.35	1.36	104	105	70-130	1	30
Perfluorobutanoic acid	1.36	1.70	1.66	125	122	70-130	2	30
Perfluoropentanoic acid	1.36	1.50	1.50	110	110	70-130	0	30

LCS: LCS102019 Analyte	Batch: **18102019** (Sample number(s): 9536681, 9536684, 9536686, 9536694)							
	Spike Added ng/wipe	**LCS Conc ng/wipe**	**LCSD Conc ng/wipe**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	1.53	NA	112	NA	70-130	NA	NA
Perfluorononanoic acid	1.36	1.33	NA	98	NA	70-130	NA	NA
Perfluorodecanoic acid	1.36	1.44	NA	106	NA	70-130	NA	NA
Perfluoroundecanoic acid	1.36	1.38	NA	102	NA	70-130	NA	NA
Perfluorododecanoic acid	1.36	1.33	NA	98	NA	70-130	NA	NA
Perfluorotridecanoic acid	1.36	1.36	NA	100	NA	70-130	NA	NA
Perfluorotetradecanoic acid	1.36	1.38	NA	102	NA	70-130	NA	NA
Perfluorohexanoic acid	1.36	1.28	NA	94	NA	70-130	NA	NA
Perfluoroheptanoic acid	1.36	1.37	NA	101	NA	70-130	NA	NA
Perfluorobutanesulfonate	1.20	1.15	NA	96	NA	70-130	NA	NA
Perfluorohexanesulfonate	1.29	1.16	NA	90	NA	70-130	NA	NA
Perfluoro-octanesulfonate	1.30	1.14	NA	88	NA	70-130	NA	NA
Perfluorobutanoic acid	1.36	1.37	NA	101	NA	70-130	NA	NA
Perfluoropentanoic acid	1.36	1.21	NA	89	NA	70-130	NA	NA

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SBN11
Matrix: LIQUID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCS092009 LCSD: LCSDA Analyte	Batch: **18092009** (Sample number(s): 9536687-9536688) Spike Added ng/l	LCS Conc ng/l	LCSD Conc ng/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Perfluorooctanoic acid	5.44	5.16	5.25	95	96	70-130	2	30
Perfluorononanoic acid	5.44	4.79	5.03	88	93	70-130	5	30
Perfluorodecanoic acid	5.44	5.49	5.02	101	92	70-130	9	30
Perfluoroundecanoic acid	5.44	4.88	5.07	90	93	70-130	4	30
Perfluorododecanoic acid	5.44	4.95	5.20	91	96	70-130	5	30
Perfluorotridecanoic acid	5.44	4.61	5.37	85	99	70-130	15	30
Perfluorotetradecanoic acid	5.44	4.98	4.98	91	92	70-130	0	30
Perfluorohexanoic acid	5.44	5.55	5.11	102	94	70-130	8	30
Perfluoroheptanoic acid	5.44	5.25	5.41	97	99	70-130	3	30
Perfluorobutanesulfonate	4.81	4.36	4.34	91	90	70-130	0	30
Perfluorohexanesulfonate	5.14	4.28	4.34	83	84	70-130	1	30
Perfluoro-octanesulfonate	5.20	4.57	4.64	88	89	70-130	2	30
Perfluorobutanoic acid	5.44	4.91 J	5.14 J	90	94	70-130	5	30
Perfluoropentanoic acid	5.44	4.84 J	5.09 J	89	94	70-130	5	30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

ICAL & ICV Validated SBN09 BJE

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.236	18.0	±50
CAL2	0.104	0.60	0.620	3.4	±30
CAL3	0.354	2.00	2.107	5.3	±30
CAL4	1.406	8.00	8.364	4.6	±30
CAL5	3.723	20.00	22.155	10.8	±30
CAL6	8.329	50.00	49.559	-0.9	±30
CAL7	16.430	100.00	97.759	-2.2	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.050	0.20	0.243	21.7	±50
CAL2	0.128	0.60	0.625	4.2	±30
CAL3	0.424	2.00	2.073	3.6	±30
CAL4	1.755	8.00	8.584	7.3	±30
CAL5	4.641	20.00	22.698	13.5	±30
CAL6	10.070	50.00	49.250	-1.5	±30
CAL7	19.900	100.00	97.327	-2.7	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.17	0.200	17.7	±50
CAL2	0.109	0.53	0.534	0.7	±30
CAL3	0.368	1.77	1.802	1.8	±30
CAL4	1.534	7.08	7.521	6.2	±30
CAL5	3.588	17.69	17.592	-0.6	±30
CAL6	8.737	44.22	42.833	-3.1	±30
CAL7	18.240	88.45	89.428	1.1	±30

4:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.120	0.58	0.680	17.2	±50
CAL2	0.365	1.98	2.065	4.3	±30
CAL3	0.966	4.90	5.461	11.5	±30
CAL4	1.668	10.04	9.427	-6.1	±30
CAL5	2.187	12.49	12.358	-1.1	±30

FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.216	8.2	±50
CAL2	0.113	0.60	0.610	1.7	±30
CAL3	0.383	2.00	2.075	3.7	±30
CAL4	1.583	8.00	8.574	7.2	±30
CAL5	4.328	20.00	23.448	17.2	±30
CAL6	9.215	50.00	49.922	-0.2	±30
CAL7	17.712	100.00	95.955	-4.0	±30

Perfluoropentanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.023	0.19	0.237	24.7	±50
CAL2	0.053	0.56	0.543	-3.0	±30
CAL3	0.192	1.88	1.960	4.2	±30
CAL4	0.800	7.50	8.171	8.9	±30
CAL5	2.030	18.76	20.742	10.6	±30
CAL6	4.441	46.90	45.377	-3.2	±30
CAL7	9.060	93.80	92.560	-1.3	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.19	0.193	1.7	±50
CAL2	0.123	0.57	0.585	2.7	±30
CAL3	0.401	1.89	1.900	0.6	±30
CAL4	1.655	7.56	7.853	3.9	±30
CAL5	4.442	18.91	21.073	11.4	±30
CAL6	9.646	47.28	45.764	-3.2	±30
CAL7	19.725	94.55	93.581	-1.0	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.241	20.3	±50
CAL2	0.147	0.60	0.698	16.3	±30
CAL3	0.492	2.00	2.335	16.7	±30
CAL4	1.907	8.00	9.049	13.1	±30
CAL5	5.047	20.00	23.957	19.8	±30
CAL6	10.582	50.00	50.225	0.5	±30
CAL7	19.866	100.00	94.295	-5.7	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

6:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.261	1.30	1.372	5.5	±50
CAL2	0.443	2.09	2.331	11.5	±30
CAL3	1.071	5.21	5.632	8.1	±30
CAL4	1.990	10.43	10.465	0.3	±30
CAL5	2.334	13.04	12.270	-5.9	±30

Perfluoroheptanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.036	0.19	0.196	3.2	±50
CAL2	0.106	0.57	0.578	1.5	±30
CAL3	0.323	1.90	1.767	-7.0	±30
CAL4	1.428	7.61	7.811	2.6	±30
CAL5	3.721	19.03	20.357	7.0	±30
CAL6	8.244	47.58	45.107	-5.2	±30
CAL7	17.585	95.15	96.214	1.1	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.250	25.0	±50
CAL2	0.122	0.60	0.660	10.0	±30
CAL3	0.359	2.00	1.939	-3.1	±30
CAL4	1.601	8.00	8.642	8.0	±30
CAL5	3.992	20.00	21.554	7.8	±30
CAL6	8.845	50.00	47.755	-4.5	±30
CAL7	16.655	100.00	89.923	-10.1	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.19	0.226	19.2	±50
CAL2	0.119	0.57	0.583	2.3	±30
CAL3	0.400	1.91	1.969	3.1	±30
CAL4	1.593	7.65	7.839	2.5	±30
CAL5	4.357	19.12	21.438	12.1	±30
CAL6	9.387	47.80	46.184	-3.4	±30
CAL7	19.227	95.60	94.600	-1.0	±30

* Outside QC Limits

FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.054	0.20	0.232	16.2	±50
CAL2	0.143	0.60	0.609	1.6	±30
CAL3	0.504	2.00	2.152	7.6	±30
CAL4	2.027	8.00	8.659	8.2	±30
CAL5	5.219	20.00	22.293	11.5	±30
CAL6	10.968	50.00	46.855	-6.3	±30
CAL7	19.567	100.00	83.589	-16.4	±30

Perfluorooctanesulfonamide	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.228	13.9	±50
CAL2	0.116	0.60	0.613	2.1	±30
CAL3	0.409	2.00	2.151	7.5	±30
CAL4	1.473	8.00	7.748	-3.1	±30
CAL5	1.870	10.00	9.834	-1.7	±30
CAL6	9.344	50.00	49.150	-1.7	±30
CAL7	19.215	100.00	101.076	1.1	±30

Perfluorononanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.032	0.19	0.232	22.1	±50
CAL2	0.082	0.58	0.586	1.0	±30
CAL3	0.267	1.92	1.911	-0.5	±30
CAL4	1.118	7.68	7.991	4.1	±30
CAL5	2.911	19.20	20.804	8.4	±30
CAL6	6.831	48.00	48.816	1.7	±30
CAL7	13.046	96.00	93.230	-2.9	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.20	0.259	29.3	±50
CAL2	0.108	0.60	0.616	2.7	±30
CAL3	0.399	2.00	2.285	14.3	±30
CAL4	1.481	8.00	8.482	6.0	±30
CAL5	4.138	20.00	23.698	18.5	±30
CAL6	8.554	50.00	48.987	-2.0	±30
CAL7	16.846	100.00	96.473	-3.5	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

8:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.282	1.32	1.442	9.2	±50
CAL2	0.471	2.11	2.407	14.1	±30
CAL3	1.154	5.27	5.897	11.9	±30
CAL4	2.074	10.54	10.597	0.5	±30
CAL5	2.362	13.17	12.066	-8.4	±30

NMeFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.190	-5.2	±50
CAL2	0.133	0.60	0.623	3.9	±30
CAL3	0.490	2.00	2.298	14.9	±30
CAL4	1.718	8.00	8.059	0.7	±30
CAL5	2.113	10.00	9.912	-0.9	±30
CAL6	10.655	50.00	49.972	-0.1	±30
CAL7	21.269	100.00	99.747	-0.3	±30

Perfluorodecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.024	0.19	0.229	20.5	±50
CAL2	0.053	0.58	0.499	-14.0	±30
CAL3	0.191	1.93	1.792	-7.2	±30
CAL4	0.778	7.70	7.308	-5.1	±30
CAL5	2.111	19.26	19.833	3.0	±30
CAL6	4.685	48.15	44.027	-8.6	±30
CAL7	9.661	96.30	90.779	-5.7	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.068	0.20	0.244	22.1	±50
CAL2	0.191	0.60	0.692	15.3	±30
CAL3	0.605	2.00	2.185	9.3	±30
CAL4	2.297	8.00	8.301	3.8	±30
CAL5	6.271	20.00	22.662	13.3	±30
CAL6	12.928	50.00	46.716	-6.6	±30
CAL7	23.624	100.00	85.367	-14.6	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

NEtFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.214	6.8	±50
CAL2	0.122	0.60	0.569	-5.2	±30
CAL3	0.430	2.00	2.010	0.5	±30
CAL4	1.568	8.00	7.324	-8.5	±30
CAL5	2.097	10.00	9.795	-2.1	±30
CAL6	10.400	50.00	48.579	-2.8	±30
CAL7	21.903	100.00	102.309	2.3	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.047	0.20	0.246	23.0	±50
CAL2	0.115	0.60	0.611	1.8	±30
CAL3	0.423	2.00	2.238	11.9	±30
CAL4	1.686	8.00	8.913	11.4	±30
CAL5	4.202	20.00	22.219	11.1	±30
CAL6	9.583	50.00	50.668	1.3	±30
CAL7	18.139	100.00	95.906	-4.1	±30

10:2-fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.274	1.33	1.241	-6.7	±50
CAL2	0.490	2.12	2.222	4.8	±30
CAL3	1.237	5.30	5.609	5.8	±30
CAL4	2.522	10.60	11.435	7.9	±30
CAL5	2.669	13.26	12.104	-8.7	±30

Perfluorododecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.010	0.19	0.227	19.6	±50
CAL2	0.026	0.58	0.565	-2.7	±30
CAL3	0.086	1.94	1.896	-2.3	±30
CAL4	0.347	7.74	7.636	-1.3	±30
CAL5	0.938	19.36	20.615	6.5	±30
CAL6	2.194	48.40	48.233	-0.3	±30
CAL7	4.359	96.80	95.838	-1.0	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Lab File Names: CAL1= 18APR03MCAL-10.WIFF; CAL2= 18APR03MCAL-11.WIFF; CAL3= 18APR03MCAL-12.WIFF;
CAL4= 18APR03MCAL-13.WIFF; CAL5= 18APR03MCAL-14.WIFF; CAL6= 18APR03MCAL-15.WIFF;
CAL7= 18APR03MCAL-16.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.255	27.7	±50
CAL2	0.114	0.60	0.656	9.4	±30
CAL3	0.384	2.00	2.205	10.3	±30
CAL4	1.639	8.00	9.420	17.7	±30
CAL5	4.031	20.00	23.167	15.8	±30
CAL6	8.987	50.00	51.648	3.3	±30
CAL7	16.261	100.00	93.448	-6.6	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.246	23.2	±50
CAL2	0.102	0.60	0.634	5.6	±30
CAL3	0.347	2.00	2.151	7.5	±30
CAL4	1.388	8.00	8.596	7.4	±30
CAL5	3.501	20.00	21.688	8.4	±30
CAL6	8.345	50.00	51.692	3.4	±30
CAL7	15.465	100.00	95.793	-4.2	±30

Perfluorohexadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.20	0.249	24.7	±50
CAL2	0.098	0.60	0.661	10.2	±30
CAL3	0.316	2.00	2.122	6.1	±30
CAL4	1.288	8.00	8.655	8.2	±30
CAL5	3.239	20.00	21.763	8.8	±30
CAL6	7.579	50.00	50.932	1.9	±30
CAL7	14.348	100.00	96.418	-3.6	±30

Perfluorooctadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.034	0.20	0.218	8.9	±50
CAL2	0.095	0.60	0.609	1.5	±30
CAL3	0.316	2.00	2.034	1.7	±30
CAL4	1.325	8.00	8.523	6.5	±30
CAL5	3.423	20.00	22.009	10.0	±30
CAL6	7.986	50.00	51.354	2.7	±30
CAL7	14.937	100.00	96.052	-3.9	±30

* Outside QC Limits

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18APR03MCAL-10.wiff	4/3/2018 5:45:46 PM	CALMOD11833A	CAL1
18APR03MCAL-11.wiff	4/3/2018 6:01:16 PM	CALMOD21833A	CAL2
18APR03MCAL-12.wiff	4/3/2018 6:16:46 PM	CALMOD31833A	CAL3
18APR03MCAL-13.wiff	4/3/2018 6:32:19 PM	CALMOD41833A	CAL4
18APR03MCAL-14.wiff	4/3/2018 6:47:49 PM	CALMOD51833A	CAL5
18APR03MCAL-15.wiff	4/3/2018 7:03:19 PM	CALMOD61833A	CAL6
18APR03MCAL-16.wiff	4/3/2018 7:18:49 PM	CALMOD71833A	CAL7

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	1070927.1	1069641.9
CAL2	I13C3-PFBA	True	1126426.9	1069641.9
CAL3	I13C3-PFBA	True	1095390.6	1069641.9
CAL4	I13C3-PFBA	True	1102085.4	1069641.9
CAL5	I13C3-PFBA	True	1033749.3	1069641.9
CAL6	I13C3-PFBA	True	1107818.3	1069641.9
CAL7	I13C3-PFBA	True	951095.5	1069641.9
CAL1	I13C2-PFOA	True	1970005.5	1927063.1
CAL2	I13C2-PFOA	True	1999752.1	1927063.1
CAL3	I13C2-PFOA	True	1985935.1	1927063.1
CAL4	I13C2-PFOA	True	1971896.3	1927063.1
CAL5	I13C2-PFOA	True	1892151.4	1927063.1
CAL6	I13C2-PFOA	True	1981982.5	1927063.1
CAL7	I13C2-PFOA	True	1687719.0	1927063.1
CAL1	I13C4-PFOS	True	455687.7	472837.8
CAL2	I13C4-PFOS	True	477917.0	472837.8
CAL3	I13C4-PFOS	True	462822.9	472837.8
CAL4	I13C4-PFOS	True	479900.6	472837.8
CAL5	I13C4-PFOS	True	460308.6	472837.8
CAL6	I13C4-PFOS	True	512774.7	472837.8
CAL7	I13C4-PFOS	True	460453.3	472837.8
CAL1	I13C2-PFDA	True	1551629.8	1521482.1
CAL2	I13C2-PFDA	True	1685581.2	1521482.1
CAL3	I13C2-PFDA	True	1490238.0	1521482.1
CAL4	I13C2-PFDA	True	1610063.4	1521482.1
CAL5	I13C2-PFDA	True	1432482.7	1521482.1
CAL6	I13C2-PFDA	True	1525226.0	1521482.1
CAL7	I13C2-PFDA	True	1355153.9	1521482.1

APPROVED
By DMW at 9:32 pm, 4/3/18

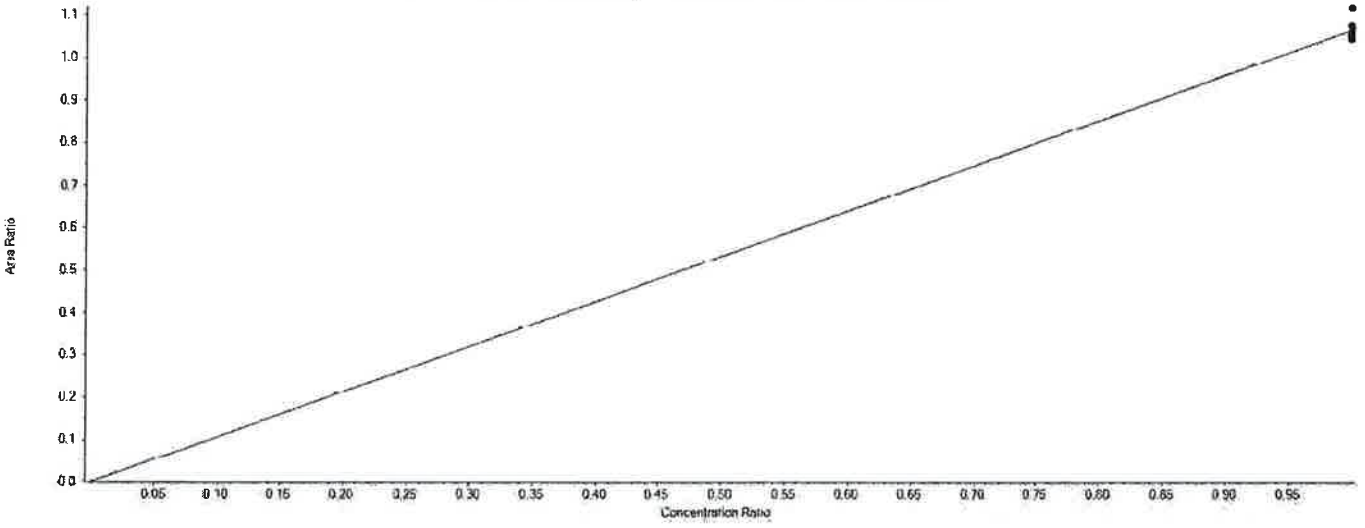
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFBA

y = 1.06568 x (std. dev. = 0.02477) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1117947.8	1070927.1	True	5.00	1.044	4.43	1.000	5.000	4.898	-2.0	50.0	
CAL2	1257830.7	1126426.9	True	5.00	1.117	4.43	1.000	5.000	5.239	4.8	30.0	
CAL3	1154404.8	1095390.6	True	5.00	1.054	4.44	1.000	5.000	4.945	-1.1	30.0	
CAL4	1164284.0	1102085.4	True	5.00	1.056	4.43	1.000	5.000	4.957	-0.9	30.0	
CAL5	1113524.3	1033749.3	True	5.00	1.077	4.44	1.000	5.000	5.054	1.1	30.0	
CAL6	1163702.8	1107818.3	True	5.00	1.050	4.43	1.000	5.000	4.929	-1.4	30.0	
CAL7	1009398.2	951095.5	True	5.00	1.061	4.43	1.000	5.000	4.979	-0.4	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

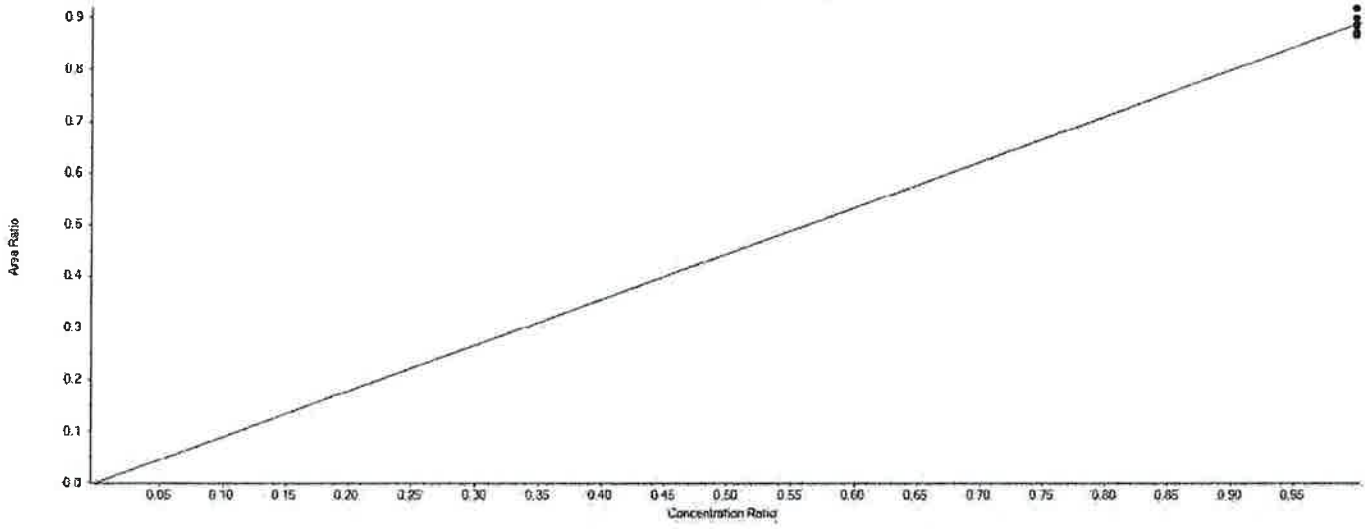
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFPeA

y = 0.88682 x (std. dev. = 0.01720) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	927299.9	1070927.1	True	5.00	0.866	5.01	1.130	5.000	4.882	-2.4	50.0	
CAL2	1033297.5	1126426.9	True	5.00	0.917	5.01	1.130	5.000	5.172	3.4	30.0	
CAL3	953673.8	1095390.6	True	5.00	0.871	5.01	1.130	5.000	4.909	-1.8	30.0	
CAL4	977038.3	1102085.4	True	5.00	0.887	5.01	1.130	5.000	4.998	0.0	30.0	
CAL5	915279.4	1033749.3	True	5.00	0.885	5.01	1.130	5.000	4.992	-0.2	30.0	
CAL6	978916.5	1107818.3	True	5.00	0.884	5.01	1.130	5.000	4.982	-0.4	30.0	
CAL7	854369.5	951095.5	True	5.00	0.898	5.01	1.130	5.000	5.065	1.3	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

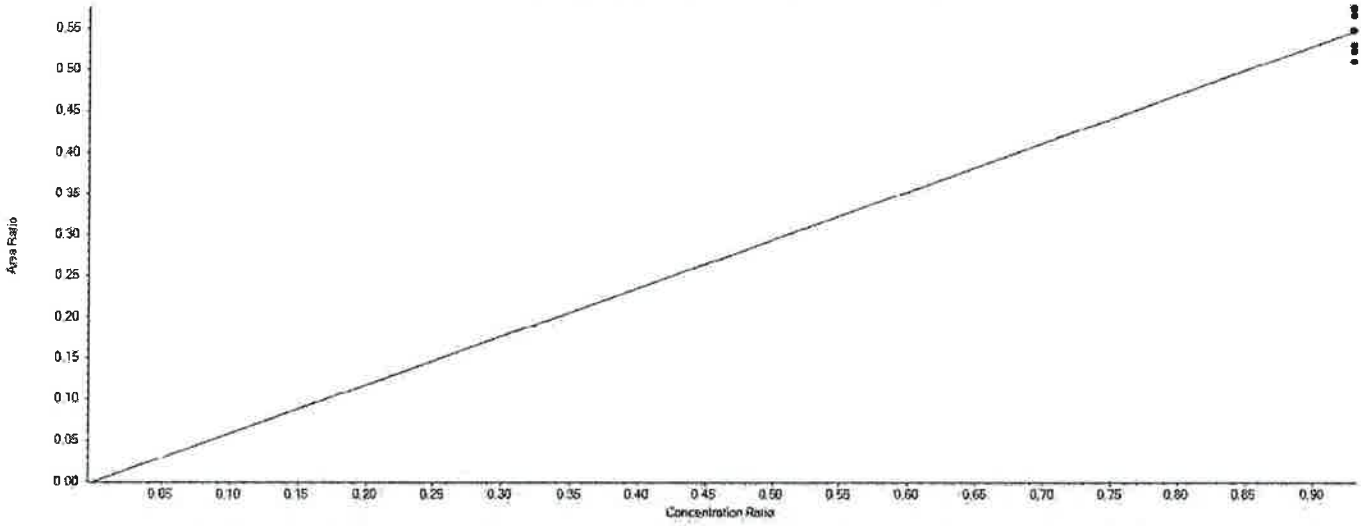
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFBS

y = 0.58770 x (std. dev. = 0.02796) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	546699.6	1070927.1	True	5.00	0.510	5.06	1.140	4.650	4.343	-6.6	50.0	
CAL2	617333.5	1126426.9	True	5.00	0.548	5.06	1.140	4.650	4.663	0.3	30.0	
CAL3	573261.0	1095390.6	True	5.00	0.523	5.06	1.140	4.650	4.452	-4.2	30.0	
CAL4	583555.1	1102085.4	True	5.00	0.530	5.06	1.140	4.650	4.505	-3.1	30.0	
CAL5	593273.0	1033749.3	True	5.00	0.574	5.06	1.140	4.650	4.883	5.0	30.0	
CAL6	626580.1	1107818.3	True	5.00	0.566	5.06	1.140	4.650	4.812	3.5	30.0	
CAL7	546947.7	951095.5	True	5.00	0.575	5.06	1.140	4.650	4.893	5.2	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

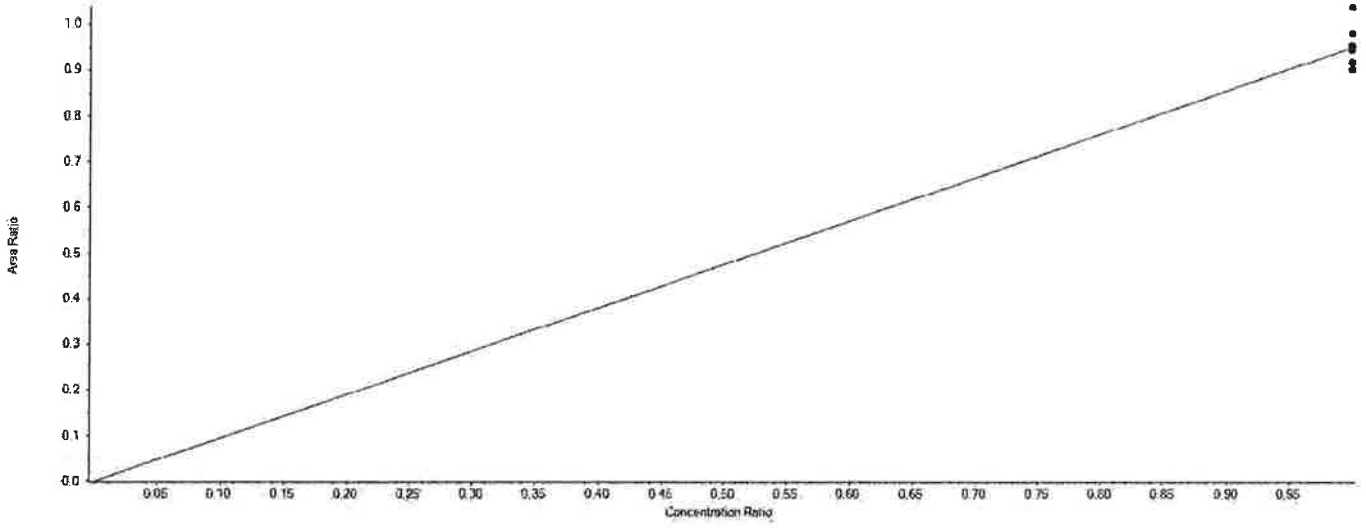
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFHxA

y = 0.95084 x (std. dev. = 0.04693) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1862010.2	1970005.5	True	5.00	0.945	5.47	0.860	5.000	4.970	-0.6	50.0	
CAL2	2074362.3	1999752.1	True	5.00	1.037	5.48	0.860	5.000	5.455	9.1	30.0	
CAL3	1898264.9	1985935.1	True	5.00	0.956	5.48	0.860	5.000	5.026	0.5	30.0	
CAL4	1935951.9	1971896.3	True	5.00	0.982	5.48	0.860	5.000	5.163	3.3	30.0	
CAL5	1734006.8	1892151.4	True	5.00	0.916	5.48	0.860	5.000	4.819	-3.6	30.0	
CAL6	1785750.2	1981982.5	True	5.00	0.901	5.48	0.860	5.000	4.738	-5.2	30.0	
CAL7	1549939.6	1687719.0	True	5.00	0.918	5.47	0.860	5.000	4.829	-3.4	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

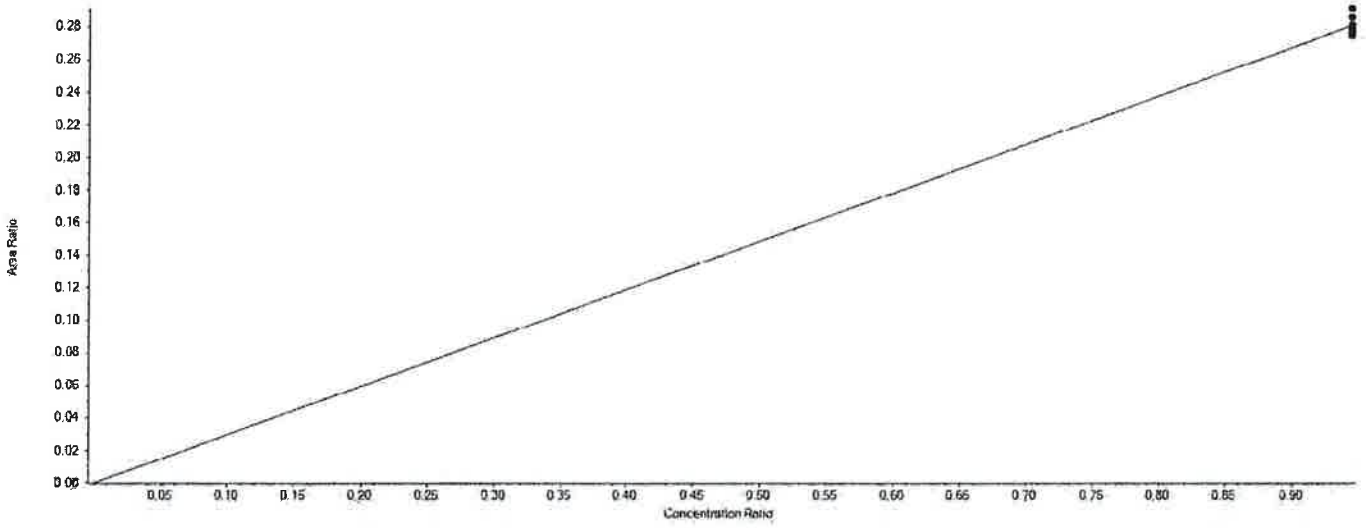
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFHxS

y = 0.29684 x (std. dev. = 0.00606) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	541210.3	1970005.5	True	5.00	0.275	5.91	0.930	4.730	4.627	-2.2	50.0	
CAL2	571572.2	1999752.1	True	5.00	0.286	5.91	0.930	4.730	4.814	1.8	30.0	
CAL3	548482.6	1985935.1	True	5.00	0.276	5.92	0.930	4.730	4.652	-1.6	30.0	
CAL4	548133.1	1971896.3	True	5.00	0.278	5.91	0.930	4.730	4.682	-1.0	30.0	
CAL5	528221.7	1892151.4	True	5.00	0.279	5.92	0.930	4.730	4.702	-0.6	30.0	
CAL6	576693.9	1981982.5	True	5.00	0.291	5.91	0.930	4.730	4.901	3.6	30.0	
CAL7	474004.2	1687719.0	True	5.00	0.281	5.91	0.930	4.730	4.731	0.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

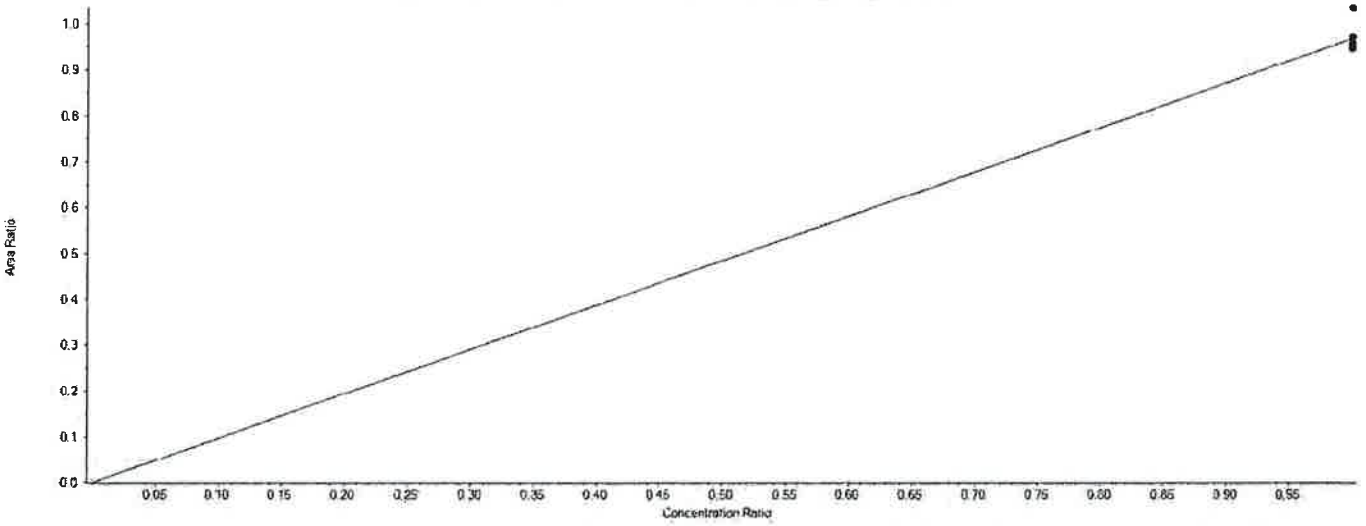
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFHpA

y = 0.96865 x (std. dev. = 0.02996) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1865122.6	1970005.5	True	5.00	0.947	5.92	0.930	5.000	4.887	-2.3	50.0	
CAL2	2068451.2	1999752.1	True	5.00	1.034	5.92	0.940	5.000	5.339	6.8	30.0	
CAL3	1899015.5	1985935.1	True	5.00	0.956	5.93	0.940	5.000	4.936	-1.3	30.0	
CAL4	1917007.4	1971896.3	True	5.00	0.972	5.92	0.940	5.000	5.018	0.4	30.0	
CAL5	1811074.9	1892151.4	True	5.00	0.957	5.92	0.930	5.000	4.941	-1.2	30.0	
CAL6	1902587.0	1981982.5	True	5.00	0.960	5.92	0.930	5.000	4.955	-0.9	30.0	
CAL7	1609975.6	1687719.0	True	5.00	0.954	5.92	0.940	5.000	4.924	-1.5	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

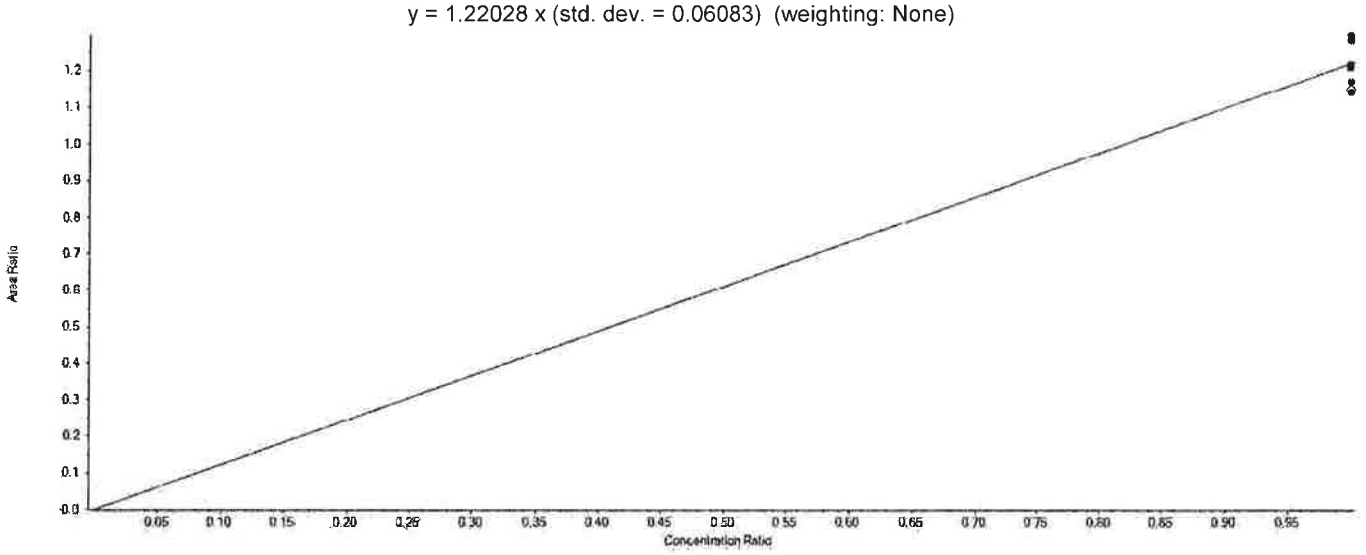
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOA

y = 1.22028 x (std. dev. = 0.06083) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	2304033.3	1970005.5	True	5.00	1.170	6.33	1.000	5.000	4.792	-4.2	50.0	
CAL2	2592220.3	1999752.1	True	5.00	1.296	6.33	1.000	5.000	5.311	6.2	30.0	
CAL3	2548782.1	1985935.1	True	5.00	1.283	6.34	1.000	5.000	5.259	5.2	30.0	
CAL4	2388447.3	1971896.3	True	5.00	1.211	6.33	1.000	5.000	4.963	-0.7	30.0	
CAL5	2306378.4	1892151.4	True	5.00	1.219	6.34	1.000	5.000	4.994	-0.1	30.0	
CAL6	2263958.6	1981982.5	True	5.00	1.142	6.34	1.000	5.000	4.680	-6.4	30.0	
CAL7	1940157.1	1687719.0	False	5.00	1.150	6.33	1.000	5.000	4.710	-5.8	30.0	

Reused (used for CCV & Samples)

APPROVED
By MCD at 6:37 pm, 4/19/18

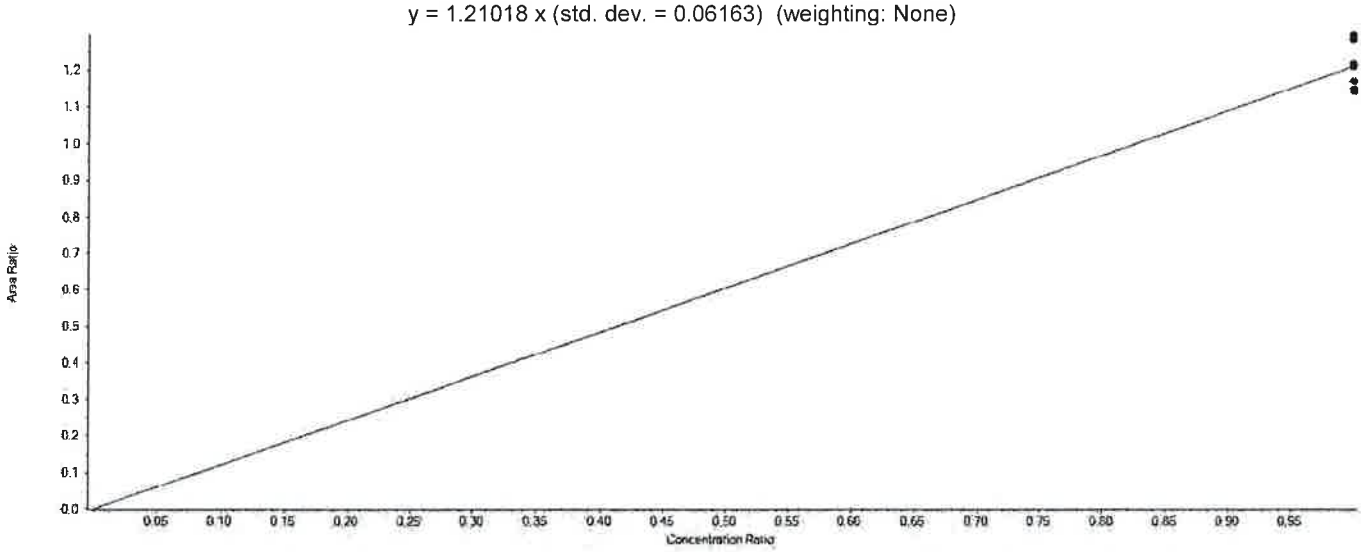
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOA

y = 1.21018 x (std. dev. = 0.06163) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	2304033.3	1970005.5	True	5.00	1.170	6.33	1.000	5.000	4.832	-3.4	50.0	
CAL2	2592220.3	1999752.1	True	5.00	1.296	6.33	1.000	5.000	5.356	7.1	30.0	
CAL3	2548782.1	1985935.1	True	5.00	1.283	6.34	1.000	5.000	5.303	6.1	30.0	
CAL4	2388447.3	1971896.3	True	5.00	1.211	6.33	1.000	5.000	5.004	0.1	30.0	
CAL5	2306378.4	1892151.4	True	5.00	1.219	6.34	1.000	5.000	5.036	0.7	30.0	
CAL6	2263958.6	1981982.5	True	5.00	1.142	6.34	1.000	5.000	4.719	-5.6	30.0	
CAL7	1940157.1	1687719.0	True	5.00	1.150	6.33	1.000	5.000	4.750	-5.0	30.0	

Original (used for ICV)

APPROVED
By DMW at 9:32 pm, 4/3/18

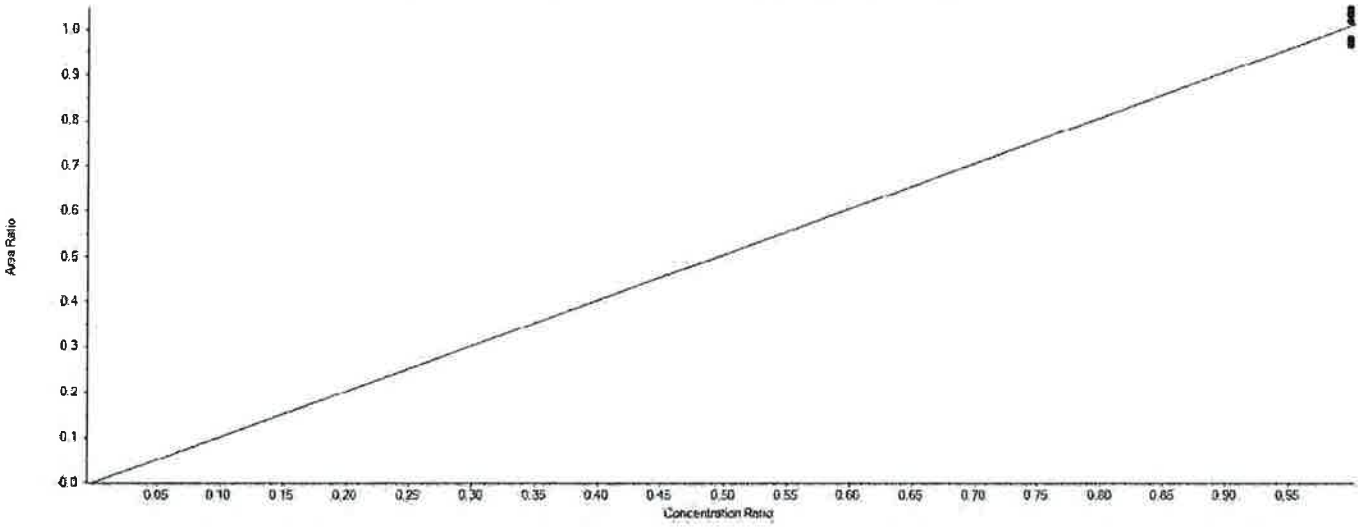
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOS

y = 1.00766 x (std. dev. = 0.03337) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	443411.4	455687.7	True	4.78	0.973	6.67	1.000	4.780	4.616	-3.4	50.0	
CAL2	496179.7	477917.0	True	4.78	1.038	6.67	1.000	4.780	4.925	3.0	30.0	
CAL3	484080.2	462822.9	True	4.78	1.046	6.68	1.000	4.780	4.962	3.8	30.0	
CAL4	488577.4	479900.6	True	4.78	1.018	6.68	1.000	4.780	4.829	1.0	30.0	
CAL5	474614.5	460308.6	True	4.78	1.031	6.68	1.000	4.780	4.891	2.3	30.0	
CAL6	503058.6	512774.7	True	4.78	0.981	6.68	1.000	4.780	4.654	-2.6	30.0	
CAL7	444882.0	460453.3	True	4.78	0.966	6.68	1.000	4.780	4.583	-4.1	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

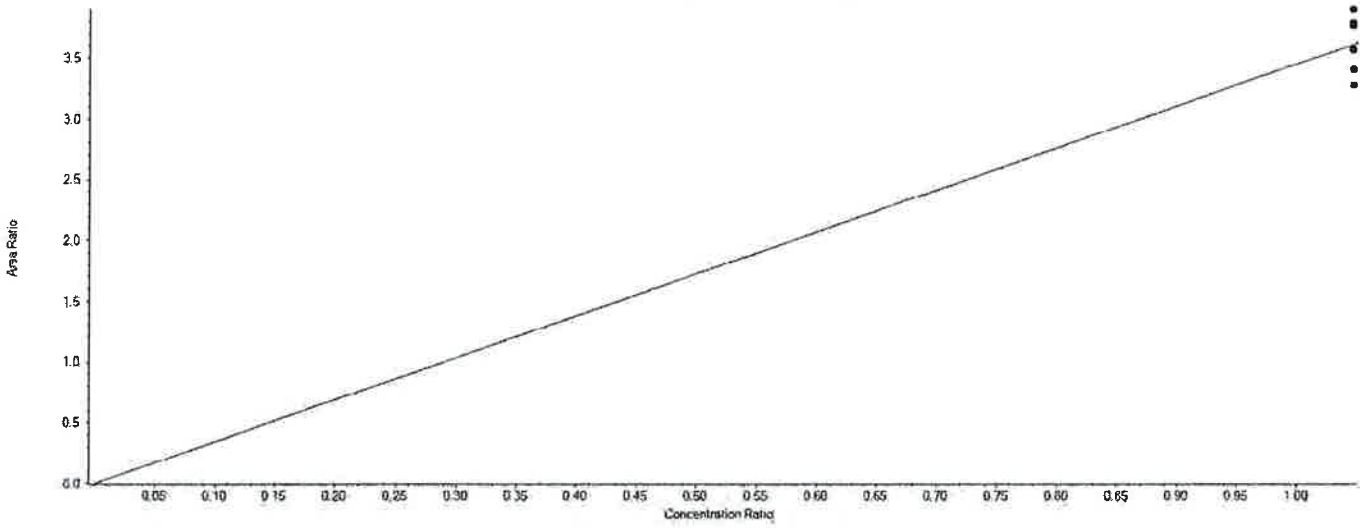
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C9-PFNA

y = 3.44849 x (std. dev. = 0.21241) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1626342.4	455687.7	True	4.78	3.569	6.70	1.000	5.000	4.947	-1.1	50.0	
CAL2	1861072.1	477917.0	True	4.78	3.894	6.70	1.000	5.000	5.398	8.0	30.0	
CAL3	1742212.3	462822.9	True	4.78	3.764	6.71	1.000	5.000	5.218	4.4	30.0	
CAL4	1817151.4	479900.6	True	4.78	3.787	6.70	1.000	5.000	5.249	5.0	30.0	
CAL5	1639175.4	460308.6	True	4.78	3.561	6.71	1.000	5.000	4.936	-1.3	30.0	
CAL6	1678669.6	512774.7	True	4.78	3.274	6.71	1.000	5.000	4.538	-9.2	30.0	
CAL7	1566344.3	460453.3	True	4.78	3.402	6.71	1.000	5.000	4.715	-5.7	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

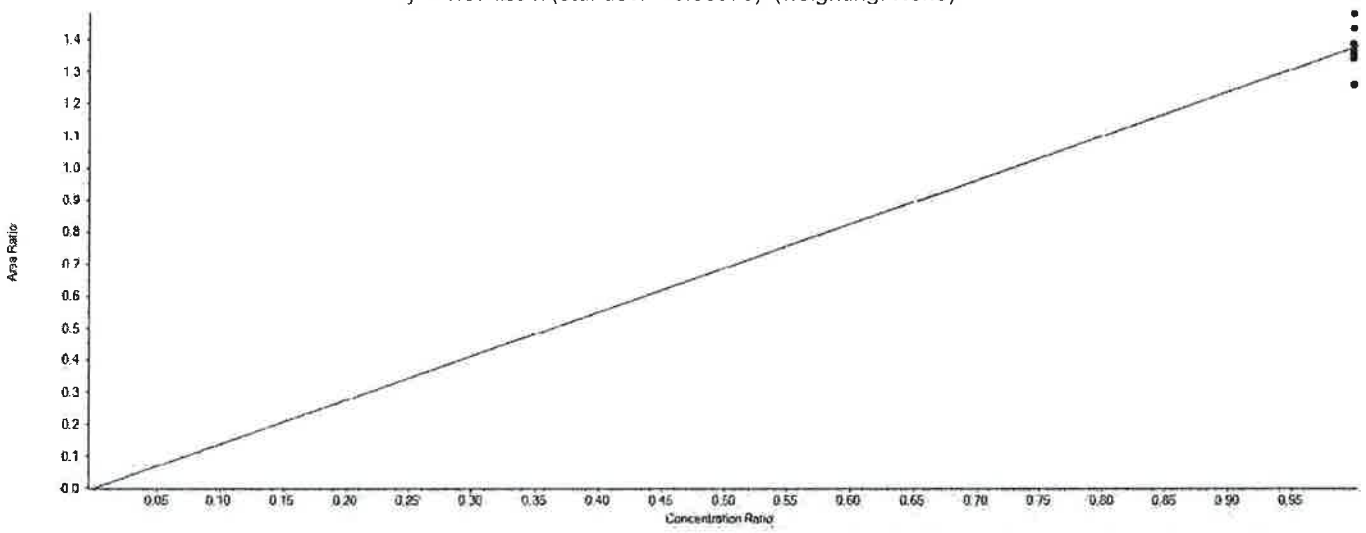
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C6-PFDA

y = 1.37428 x (std. dev. = 0.06976) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	2080191.8	1551629.8	True	5.00	1.341	7.04	1.000	5.000	4.878	-2.4	50.0	
CAL2	2492323.6	1685581.2	True	5.00	1.479	7.05	1.000	5.000	5.380	7.6	30.0	
CAL3	2023224.6	1490238.0	True	5.00	1.358	7.05	1.000	5.000	4.940	-1.2	30.0	
CAL4	2231084.6	1610063.4	True	5.00	1.386	7.04	1.000	5.000	5.042	0.8	30.0	
CAL5	2053320.9	1432482.7	True	5.00	1.433	7.05	1.000	5.000	5.215	4.3	30.0	
CAL6	2081140.9	1525226.0	True	5.00	1.364	7.05	1.000	5.000	4.964	-0.7	30.0	
CAL7	1706736.6	1355153.9	True	5.00	1.259	7.05	1.000	5.000	4.582	-8.4	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

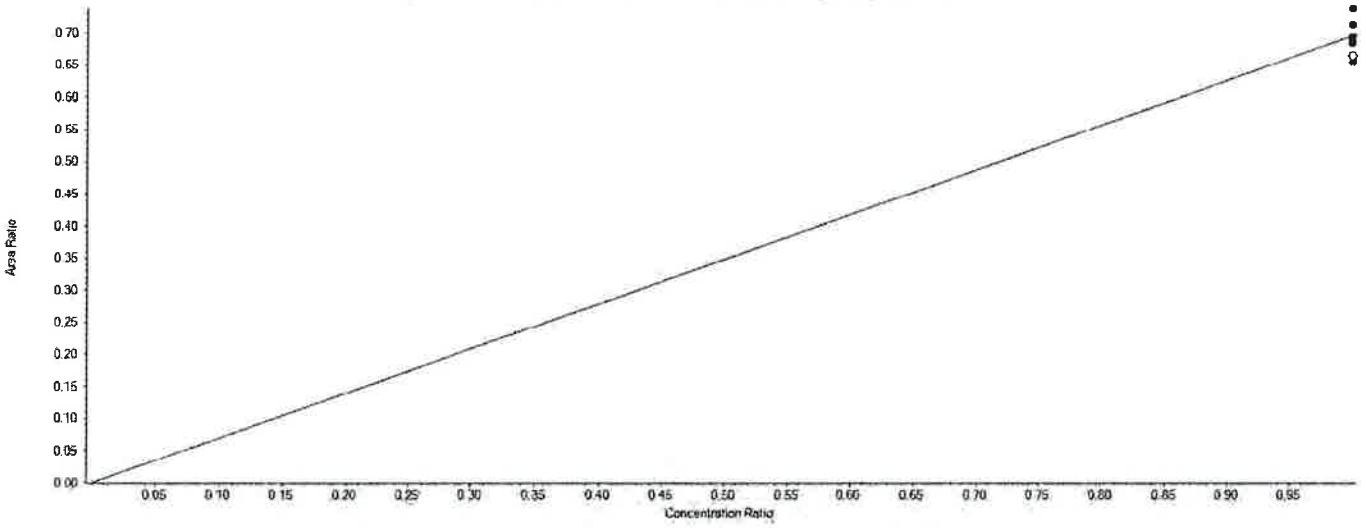
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C7-PFUnDA

y = 0.69529 x (std. dev. = 0.02768) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1015693.5	1551629.8	True	5.00	0.655	7.35	1.040	5.000	4.707	-5.9	50.0	
CAL2	1164506.3	1685581.2	True	5.00	0.691	7.35	1.040	5.000	4.968	-0.6	30.0	
CAL3	1098700.6	1490238.0	True	5.00	0.737	7.35	1.040	5.000	5.302	6.0	30.0	
CAL4	1145612.3	1610063.4	True	5.00	0.712	7.35	1.040	5.000	5.117	2.3	30.0	
CAL5	993380.7	1432482.7	True	5.00	0.693	7.35	1.040	5.000	4.987	-0.3	30.0	
CAL6	1043242.6	1525226.0	True	5.00	0.684	7.36	1.040	5.000	4.919	-1.6	30.0	
CAL7	900995.9	1355153.9	False	5.00	0.665	7.35	1.040	5.000	4.781	-4.4	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

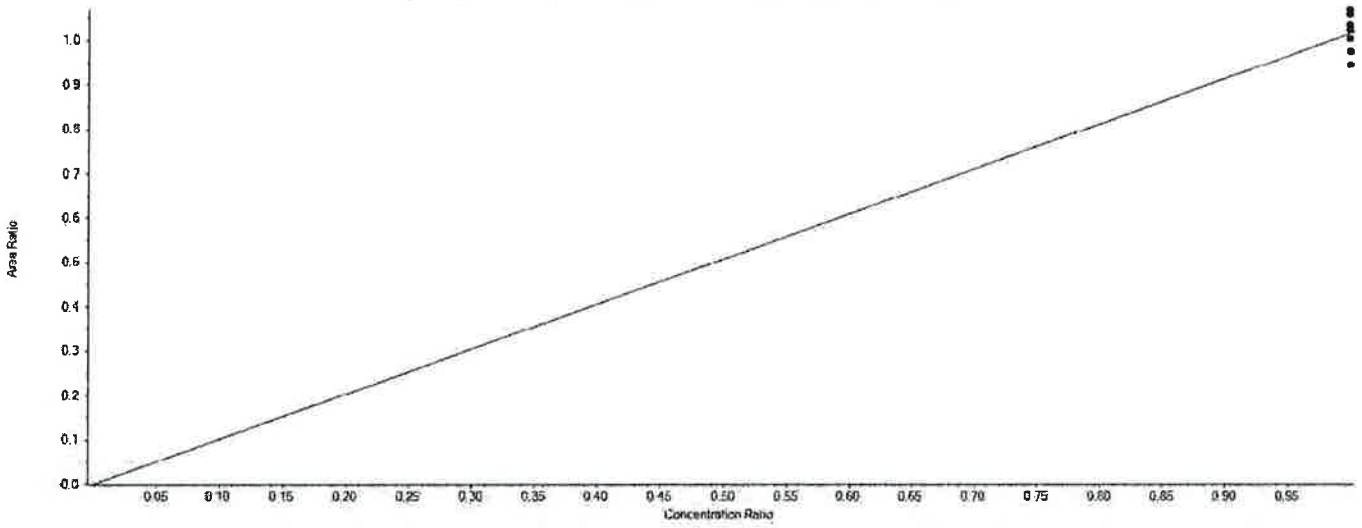
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFDoDA

y = 1.01485 x (std. dev. = 0.04453) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1464592.1	1551629.8	True	5.00	0.944	7.63	1.080	5.000	4.650	-7.0	50.0	
CAL2	1742039.0	1685581.2	True	5.00	1.033	7.63	1.080	5.000	5.092	1.8	30.0	
CAL3	1576303.1	1490238.0	True	5.00	1.058	7.64	1.080	5.000	5.211	4.2	30.0	
CAL4	1616114.9	1610063.4	True	5.00	1.004	7.63	1.080	5.000	4.945	-1.1	30.0	
CAL5	1530208.0	1432482.7	True	5.00	1.068	7.64	1.080	5.000	5.263	5.3	30.0	
CAL6	1559544.9	1525226.0	True	5.00	1.023	7.64	1.080	5.000	5.038	0.8	30.0	
CAL7	1320302.6	1355153.9	True	5.00	0.974	7.64	1.080	5.000	4.800	-4.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

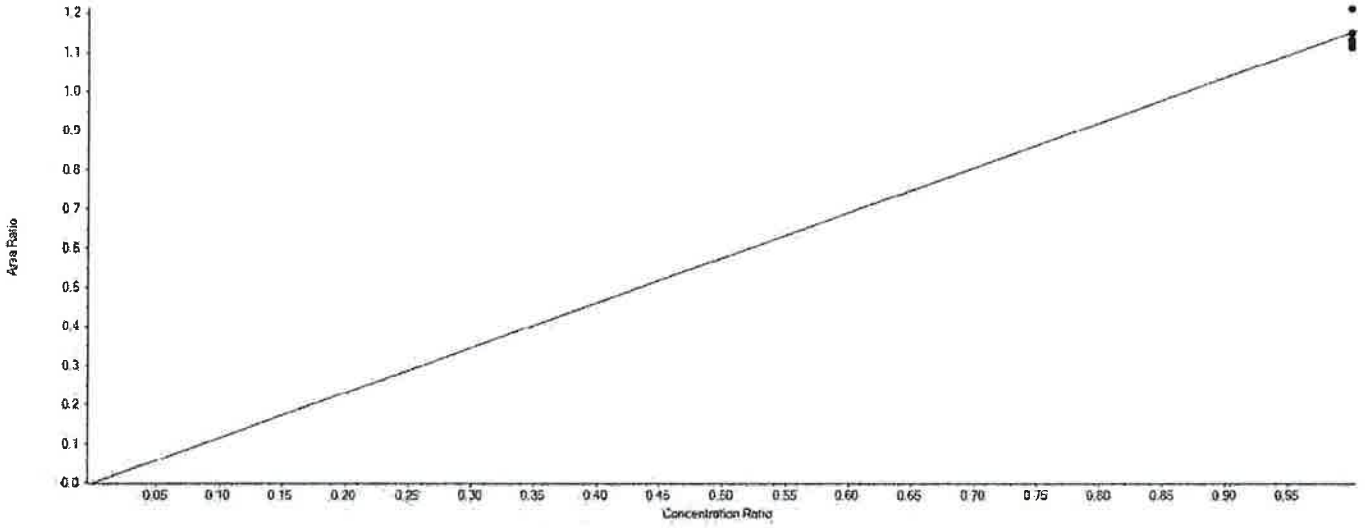
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFTeDA

y = 1.15175 x (std. dev. = 0.04214) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1727146.0	1551629.8	True	5.00	1.113	8.17	1.160	5.000	4.832	-3.4	50.0	
CAL2	1884917.7	1685581.2	True	5.00	1.118	8.17	1.160	5.000	4.855	-2.9	30.0	
CAL3	1804912.7	1490238.0	True	5.00	1.211	8.18	1.160	5.000	5.258	5.2	30.0	
CAL4	1811742.7	1610063.4	True	5.00	1.125	8.17	1.160	5.000	4.885	-2.3	30.0	
CAL5	1734299.9	1432482.7	True	5.00	1.211	8.18	1.160	5.000	5.256	5.1	30.0	
CAL6	1728825.0	1525226.0	True	5.00	1.133	8.18	1.160	5.000	4.921	-1.6	30.0	
CAL7	1558811.5	1355153.9	True	5.00	1.150	8.18	1.160	5.000	4.994	-0.1	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

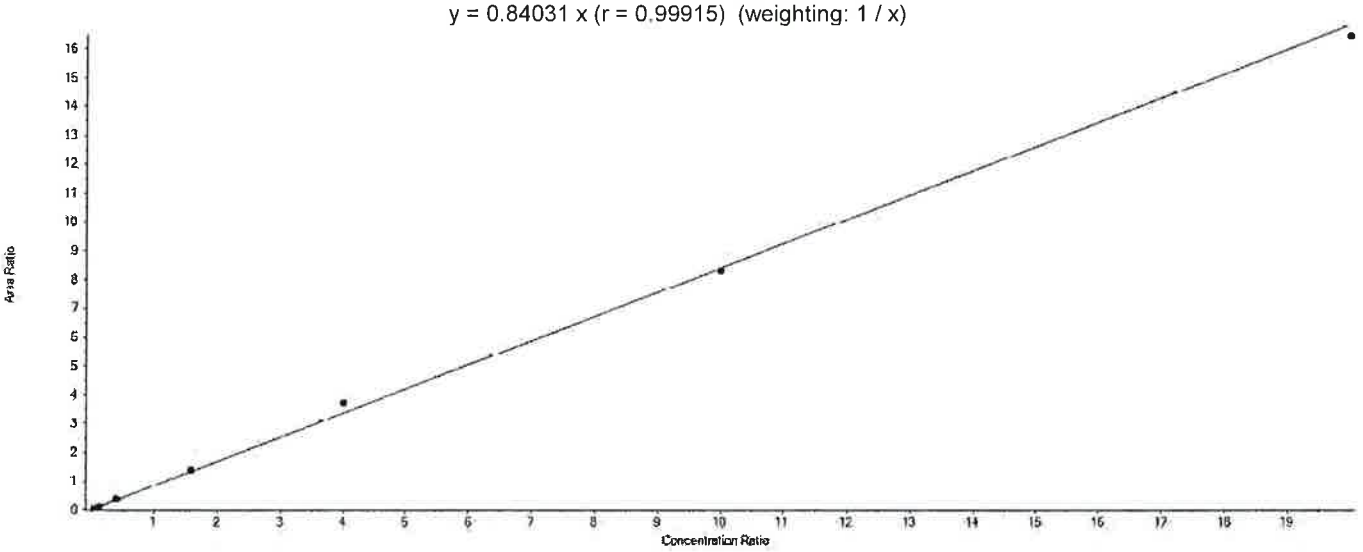
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBA

y = 0.84031 x (r = 0.99915) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	44357.9	1117947.8	True	5.00	0.040	4.43	1.000	0.200	0.236	18.0	50.0	
CAL2	131145.5	1257830.7	True	5.00	0.104	4.43	1.000	0.600	0.620	3.4	30.0	
CAL3	408767.9	1154404.8	True	5.00	0.354	4.44	1.000	2.000	2.107	5.3	30.0	
CAL4	1636608.6	1164284.0	True	5.00	1.406	4.43	1.000	8.000	8.364	4.6	30.0	
CAL5	4146003.6	1113524.3	True	5.00	3.723	4.43	1.000	20.000	22.155	10.8	30.0	
CAL6	9692379.4	1163702.8	True	5.00	8.329	4.43	1.000	50.000	49.559	-0.9	30.0	
CAL7	16583907.3	1009398.2	True	5.00	16.430	4.43	1.000	100.000	97.759	-2.2	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

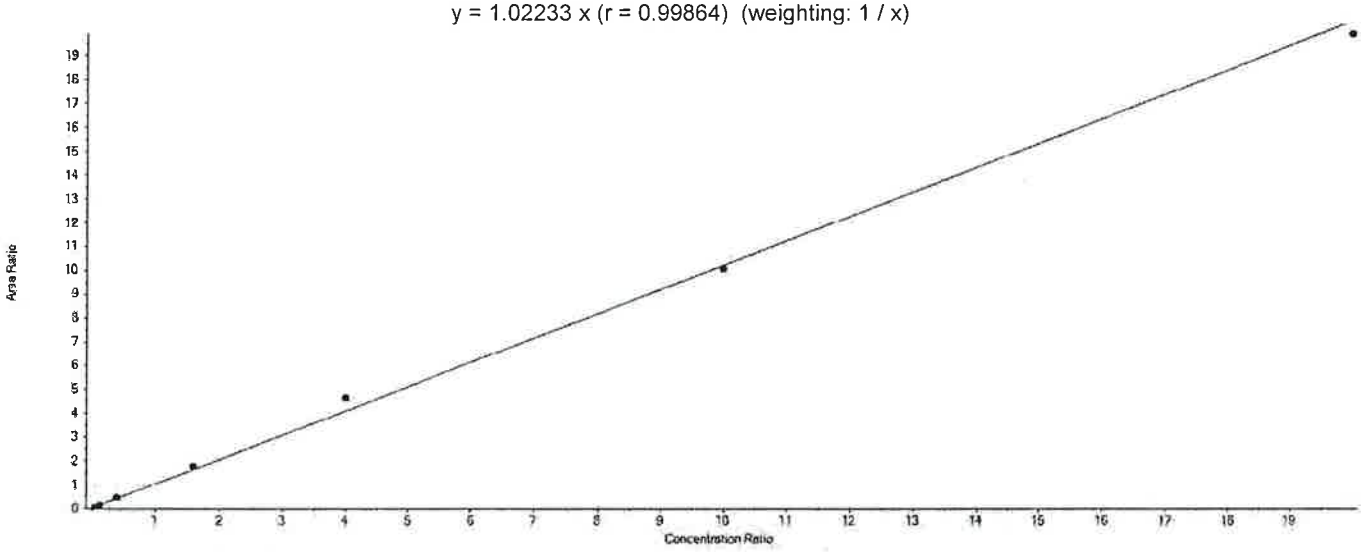
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFPeA

y = 1.02233 x (r = 0.99864) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	46166.0	927299.9	True	5.00	0.050	5.01	1.000	0.200	0.243	21.7	50.0	
CAL2	132108.5	1033297.5	True	5.00	0.128	5.01	1.000	0.600	0.625	4.2	30.0	
CAL3	404141.7	953673.8	True	5.00	0.424	5.01	1.000	2.000	2.073	3.6	30.0	
CAL4	1714749.5	977038.3	True	5.00	1.755	5.01	1.000	8.000	8.584	7.3	30.0	
CAL5	4247734.6	915279.4	True	5.00	4.641	5.01	1.000	20.000	22.698	13.5	30.0	
CAL6	9857542.2	978916.5	True	5.00	10.070	5.01	1.000	50.000	49.250	-1.5	30.0	
CAL7	17002017.3	854369.5	True	5.00	19.900	5.01	1.000	100.000	97.327	-2.7	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

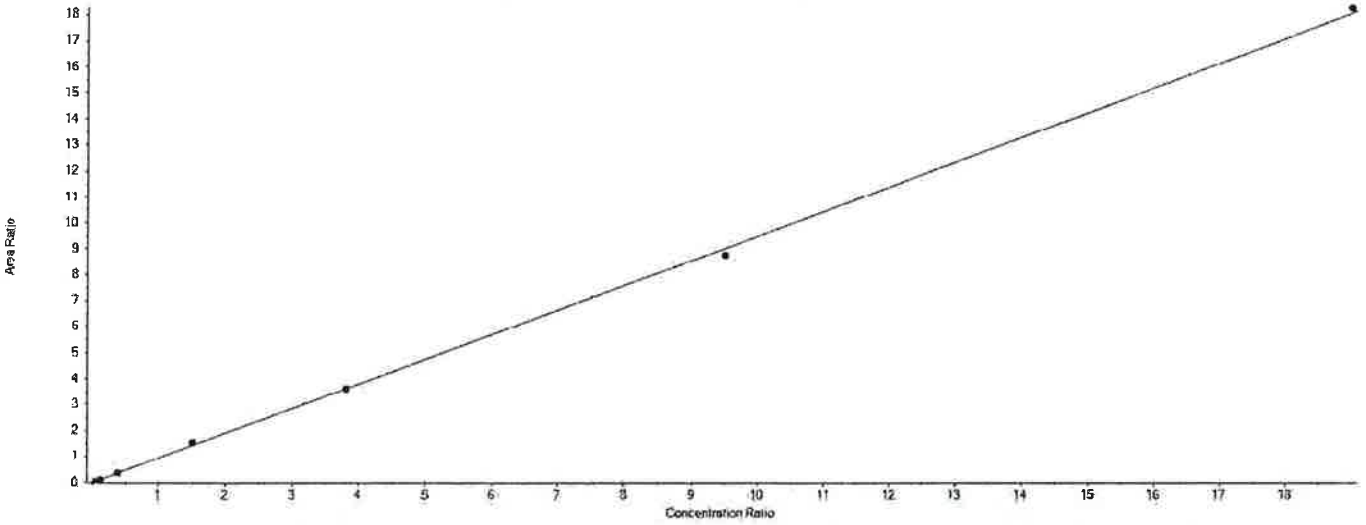
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBS

y = 0.94845 x (r = 0.99974) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	22305.5	546699.6	True	4.65	0.041	5.06	1.000	0.170	0.200	17.7	50.0	
CAL2	67204.6	617333.5	True	4.65	0.109	5.06	1.000	0.530	0.534	0.7	30.0	
CAL3	210725.2	573261.0	True	4.65	0.368	5.06	1.000	1.770	1.802	1.8	30.0	
CAL4	895197.7	583555.1	True	4.65	1.534	5.06	1.000	7.080	7.521	6.2	30.0	
CAL5	2128725.1	593273.0	True	4.65	3.588	5.06	1.000	17.690	17.592	-0.6	30.0	
CAL6	5474180.5	626580.1	True	4.65	8.737	5.06	1.000	44.220	42.833	-3.1	30.0	
CAL7	9976593.6	546947.7	True	4.65	18.240	5.06	1.000	88.450	89.428	1.1	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

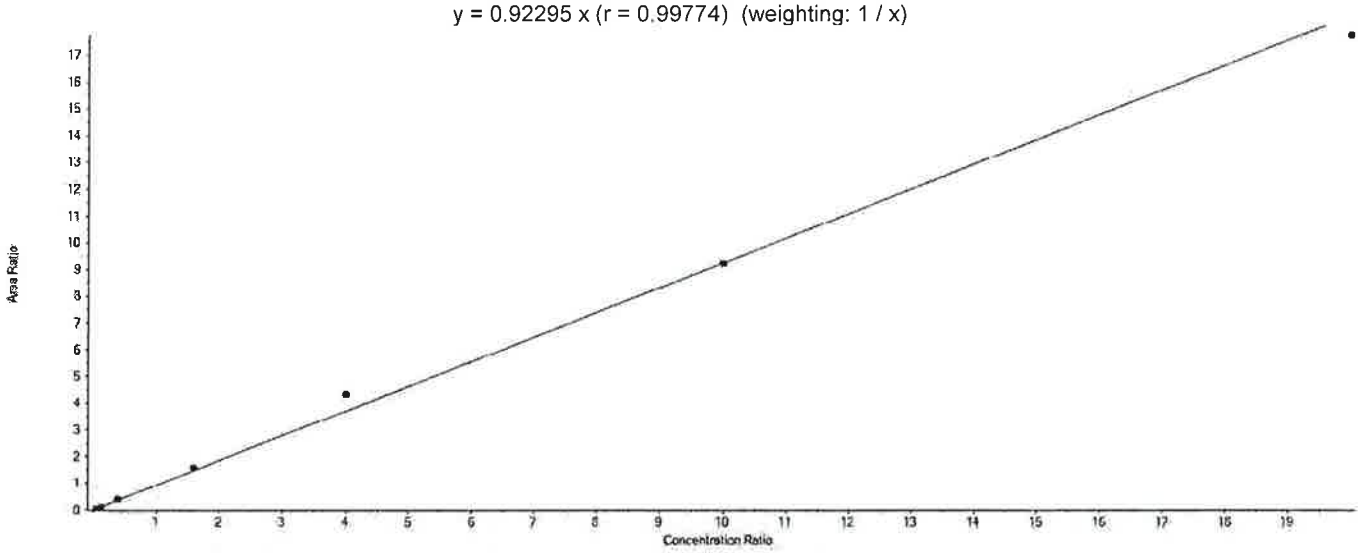
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxA

y = 0.92295 x (r = 0.99774) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	74412.0	1862010.2	True	5.00	0.040	5.47	1.000	0.200	0.216	8.2	50.0	
CAL2	233662.9	2074362.3	True	5.00	0.113	5.48	1.000	0.600	0.610	1.7	30.0	
CAL3	726946.0	1898264.9	True	5.00	0.383	5.48	1.000	2.000	2.075	3.7	30.0	
CAL4	3064026.7	1935951.9	True	5.00	1.583	5.48	1.000	8.000	8.574	7.2	30.0	
CAL5	7505176.4	1734006.8	True	5.00	4.328	5.48	1.000	20.000	23.448	17.2	30.0	
CAL6	16455995.7	1785750.2	True	5.00	9.215	5.48	1.000	50.000	49.922	-0.2	30.0	
CAL7	27452984.6	1549939.6	True	5.00	17.712	5.47	1.000	100.000	95.955	-4.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

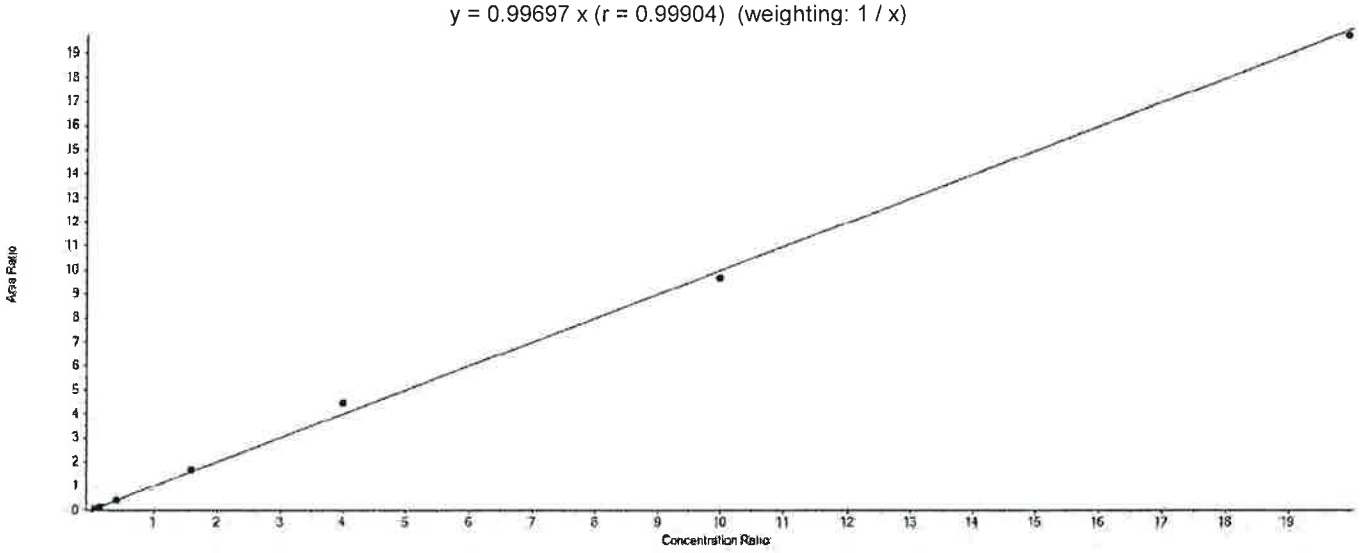
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxS

y = 0.99697 x (r = 0.99904) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	22052.7	541210.3	True	4.73	0.041	5.92	1.000	0.190	0.193	1.7	50.0	
CAL2	70492.5	571572.2	True	4.73	0.123	5.91	1.000	0.570	0.585	2.7	30.0	
CAL3	219704.5	548482.6	True	4.73	0.401	5.92	1.000	1.890	1.900	0.6	30.0	
CAL4	907280.1	548133.1	True	4.73	1.655	5.91	1.000	7.560	7.853	3.9	30.0	
CAL5	2346223.1	528221.7	True	4.73	4.442	5.92	1.000	18.910	21.073	11.4	30.0	
CAL6	5562707.2	576693.9	True	4.73	9.646	5.91	1.000	47.280	45.764	-3.2	30.0	
CAL7	9349590.8	474004.2	True	4.73	19.725	5.91	1.000	94.550	93.581	-1.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

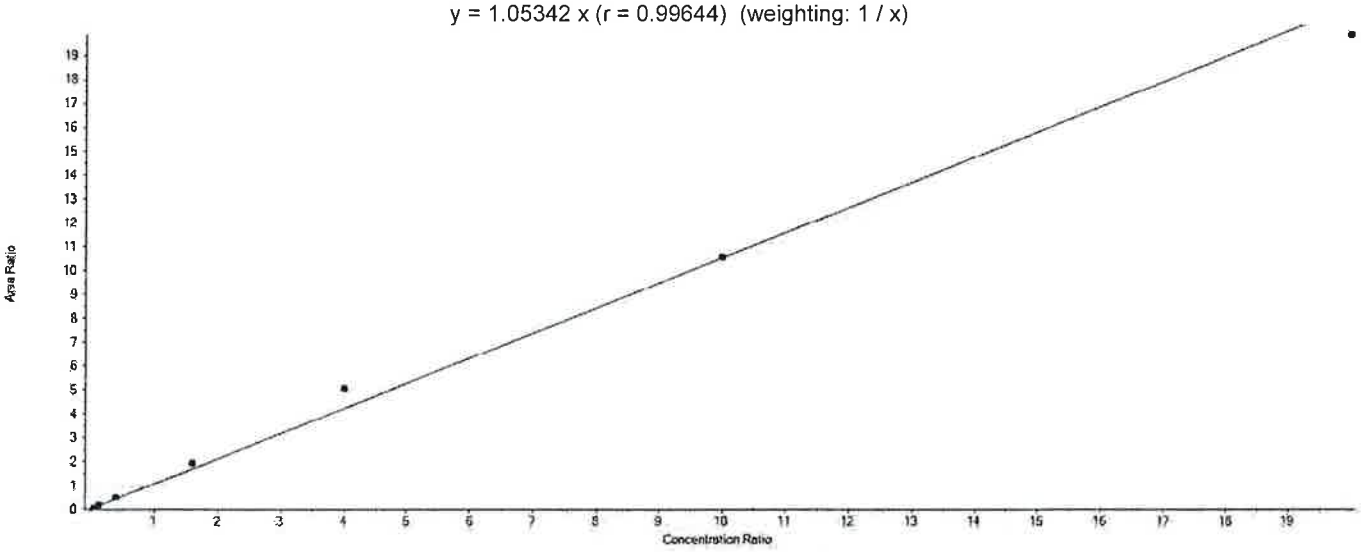
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHpA

y = 1.05342 x (r = 0.99644) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	94576.4	1865122.6	True	5.00	0.051	5.92	1.000	0.200	0.241	20.3	50.0	
CAL2	304138.4	2068451.2	True	5.00	0.147	5.92	1.000	0.600	0.698	16.3	30.0	
CAL3	934133.3	1899015.5	True	5.00	0.492	5.92	1.000	2.000	2.335	16.7	30.0	
CAL4	3654905.7	1917007.4	True	5.00	1.907	5.92	1.000	8.000	9.049	13.1	30.0	
CAL5	9141199.5	1811074.9	True	5.00	5.047	5.92	1.000	20.000	23.957	19.8	30.0	
CAL6	20132658.5	1902587.0	True	5.00	10.582	5.92	1.000	50.000	50.225	0.5	30.0	
CAL7	31984556.1	1609975.6	True	5.00	19.866	5.92	1.000	100.000	94.295	-5.7	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

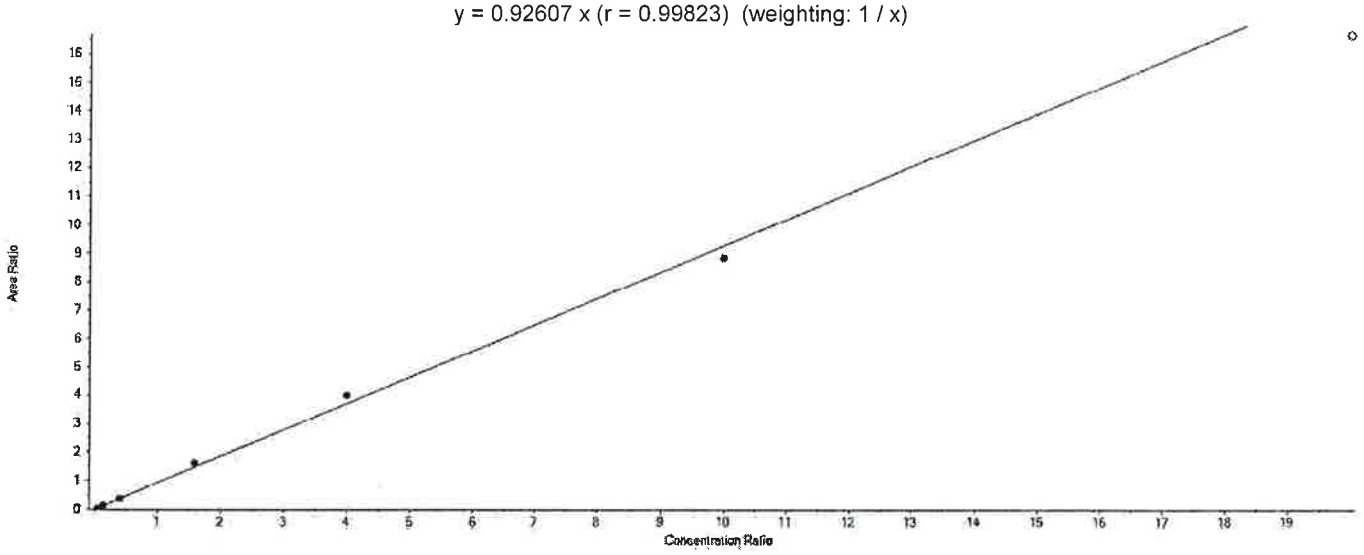
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL - 32 Compounds4/19/2018 6:22:36 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOA

y = 0.92607 x (r = 0.99823) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	106701.5	2304033.3	True	5.00	0.046	6.33	1.000	0.200	0.250	25.0	50.0	
CAL2	316936.4	2592220.3	True	5.00	0.122	6.33	1.000	0.600	0.660	10.0	30.0	
CAL3	915319.1	2548782.1	True	5.00	0.359	6.34	1.000	2.000	1.939	-3.1	30.0	
CAL4	3822883.7	2388447.3	True	5.00	1.601	6.33	1.000	8.000	8.642	8.0	30.0	
CAL5	9207343.7	2306378.4	True	5.00	3.992	6.34	1.000	20.000	21.554	7.8	30.0	
CAL6	20024624.4	2263958.6	True	5.00	8.845	6.33	1.000	50.000	47.755	-4.5	30.0	
CAL7	32313532.1	1940157.1	False	5.00	16.655	6.33	1.000	100.000	89.923	-10.1	30.0	

Revised

APPROVED
By MCD at 6:37 pm, 4/19/18

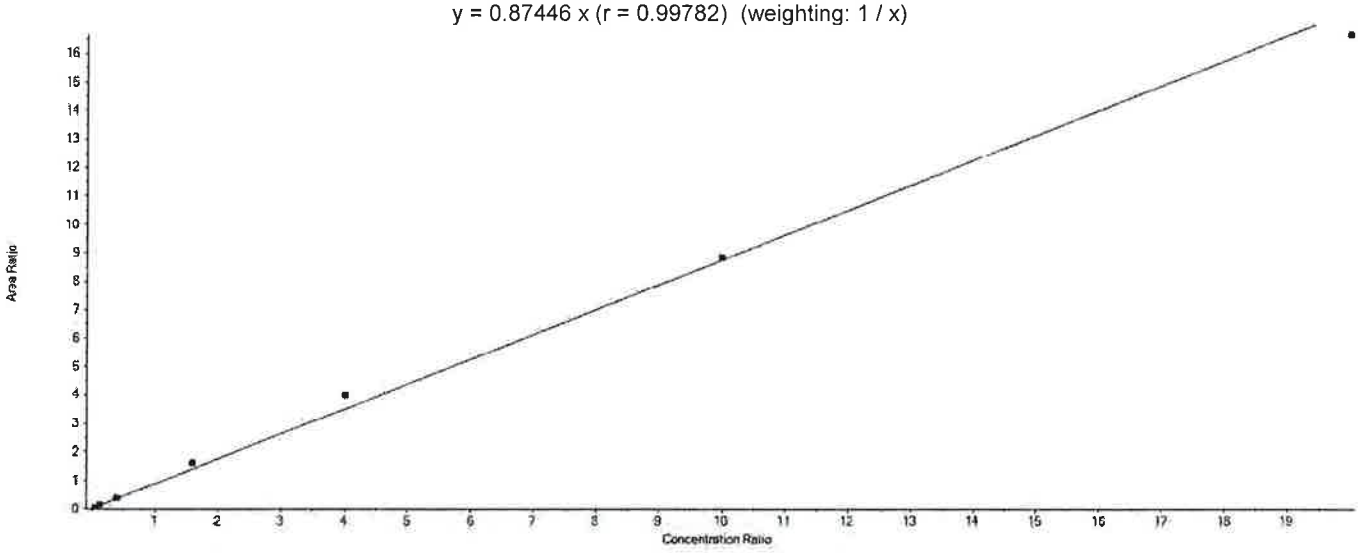
REVIEWED
By UMJS at 6:55 am, 4/23/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOA

y = 0.87446 x (r = 0.99782) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	106701.5	2304033.3	True	5.00	0.046	6.33	1.000	0.200	0.265	32.4	50.0	
CAL2	316936.4	2592220.3	True	5.00	0.122	6.33	1.000	0.600	0.699	16.5	30.0	
CAL3	915319.1	2548782.1	True	5.00	0.359	6.34	1.000	2.000	2.053	2.7	30.0	
CAL4	3822883.7	2388447.3	True	5.00	1.601	6.33	1.000	8.000	9.152	14.4	30.0	
CAL5	9207343.7	2306378.4	True	5.00	3.992	6.34	1.000	20.000	22.826	14.1	30.0	
CAL6	20024624.4	2263958.6	True	5.00	8.845	6.33	1.000	50.000	50.574	1.1	30.0	
CAL7	32313532.1	1940157.1	True	5.00	16.655	6.33	1.000	100.000	95.231	-4.8	30.0	

Original

APPROVED
By DMW at 9:32 pm, 4/3/18

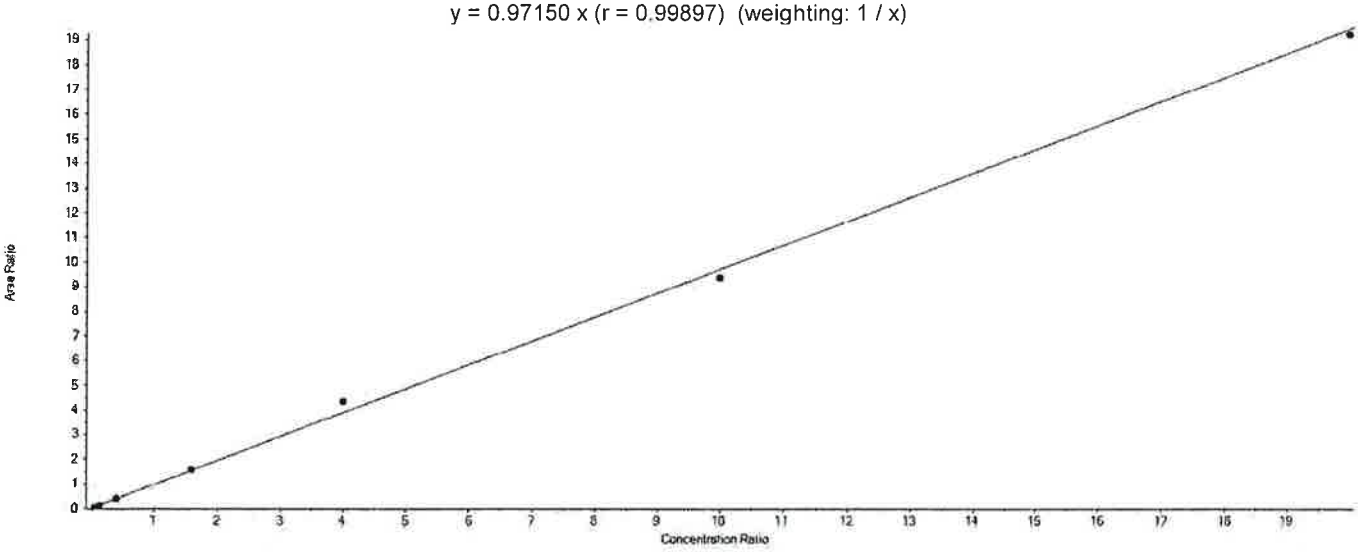
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOS

y = 0.97150 x (r = 0.99897) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	20403.5	443411.4	True	4.78	0.046	6.67	1.000	0.190	0.226	19.2	50.0	
CAL2	58822.7	496179.7	True	4.78	0.119	6.68	1.000	0.570	0.583	2.3	30.0	
CAL3	193744.0	484080.2	True	4.78	0.400	6.68	1.000	1.910	1.969	3.1	30.0	
CAL4	778409.3	488577.4	True	4.78	1.593	6.67	1.000	7.650	7.839	2.5	30.0	
CAL5	2067903.0	474614.5	True	4.78	4.357	6.68	1.000	19.120	21.438	12.1	30.0	
CAL6	4722005.0	503058.6	True	4.78	9.387	6.68	1.000	47.800	46.184	-3.4	30.0	
CAL7	8553645.9	444882.0	True	4.78	19.227	6.68	1.000	95.600	94.600	-1.0	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

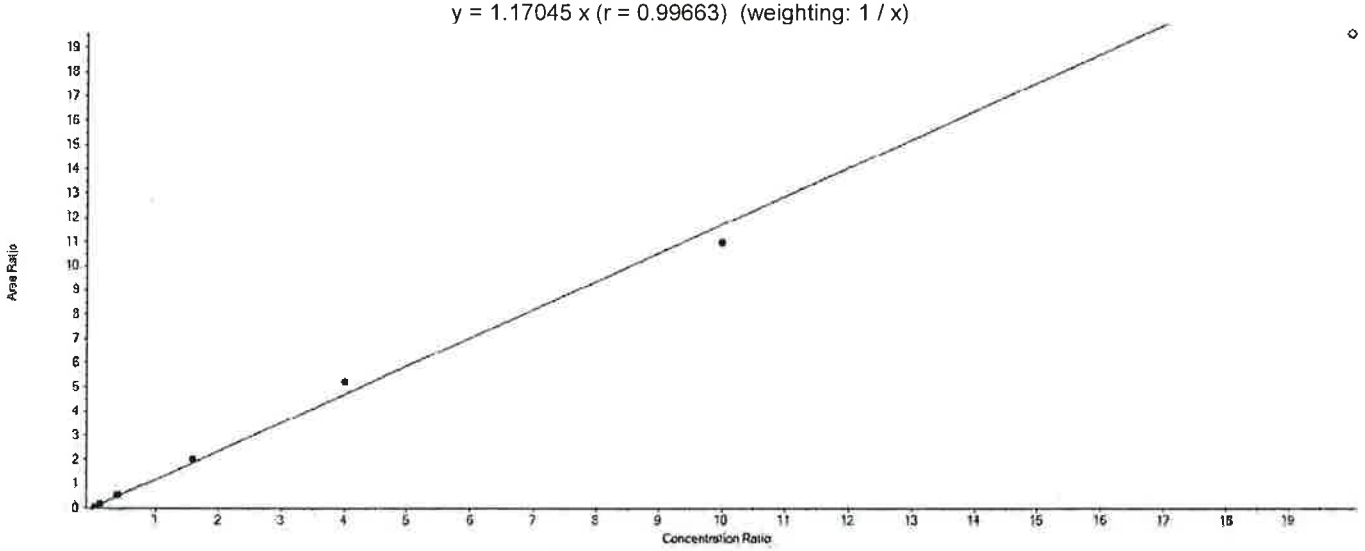
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFNA

y = 1.17045 x (r = 0.99663) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	88469.3	1626342.4	True	5.00	0.054	6.70	1.000	0.200	0.232	16.2	50.0	
CAL2	265497.7	1861072.1	True	5.00	0.143	6.71	1.000	0.600	0.609	1.6	30.0	
CAL3	877547.8	1742212.3	True	5.00	0.504	6.71	1.000	2.000	2.152	7.6	30.0	
CAL4	3683261.8	1817151.4	True	5.00	2.027	6.70	1.000	8.000	8.659	8.2	30.0	
CAL5	8554081.4	1639175.4	True	5.00	5.219	6.71	1.000	20.000	22.293	11.5	30.0	
CAL6	18412034.2	1678669.6	True	5.00	10.968	6.71	1.000	50.000	46.855	-6.3	30.0	
CAL7	30649358.3	1566344.3	False	5.00	19.567	6.71	1.000	100.000	83.589	-16.4	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

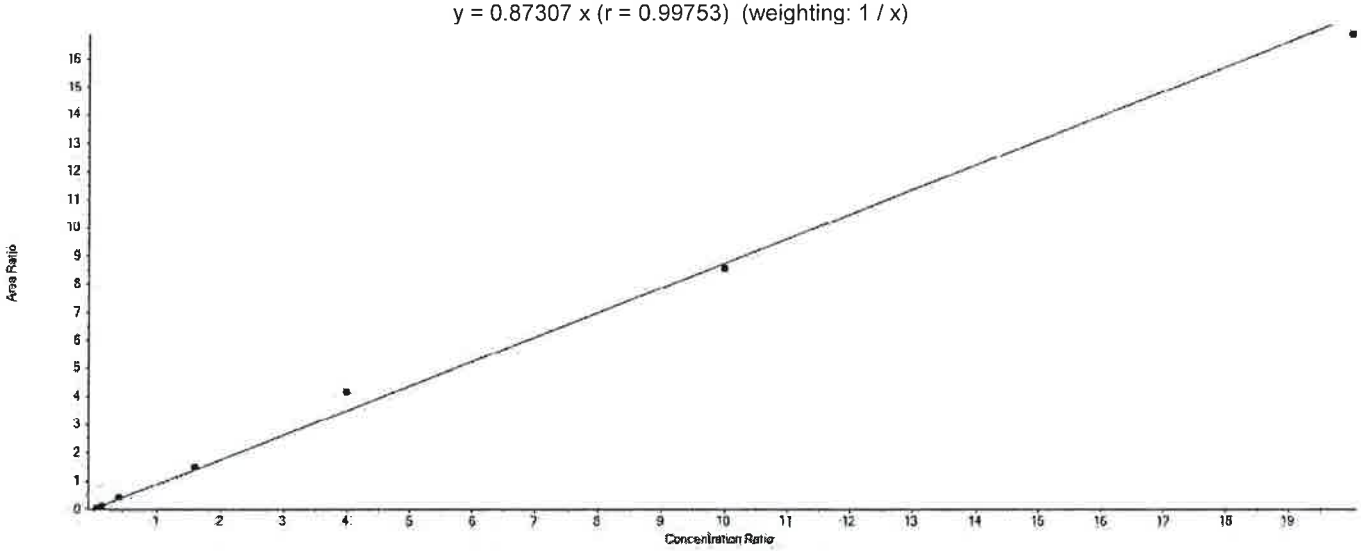
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDA

y = 0.87307 x (r = 0.99753) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	93904.0	2080191.8	True	5.00	0.045	7.04	1.000	0.200	0.259	29.3	50.0	
CAL2	268082.6	2492323.6	True	5.00	0.108	7.04	1.000	0.600	0.616	2.7	30.0	
CAL3	807379.8	2023224.6	True	5.00	0.399	7.05	1.000	2.000	2.285	14.3	30.0	
CAL4	3304575.3	2231084.6	True	5.00	1.481	7.04	1.000	8.000	8.482	6.0	30.0	
CAL5	8496468.6	2053320.9	True	5.00	4.138	7.05	1.000	20.000	23.698	18.5	30.0	
CAL6	17801760.4	2081140.9	True	5.00	8.554	7.05	1.000	50.000	48.987	-2.0	30.0	
CAL7	28750888.2	1706736.6	True	5.00	16.846	7.05	1.000	100.000	96.473	-3.5	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

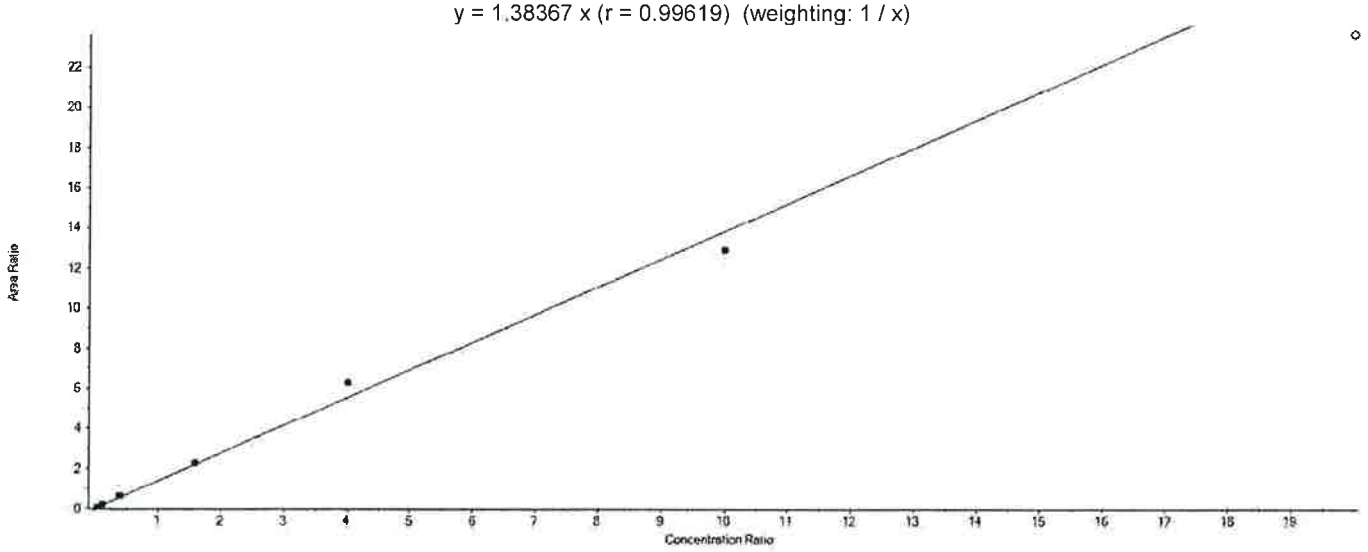
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFUnDA

y = 1.38367 x (r = 0.99619) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	68643.9	1015693.5	True	5.00	0.068	7.35	1.000	0.200	0.244	22.1	50.0	
CAL2	222945.9	1164506.3	True	5.00	0.191	7.35	1.000	0.600	0.692	15.3	30.0	
CAL3	664404.8	1098700.6	True	5.00	0.605	7.35	1.000	2.000	2.185	9.3	30.0	
CAL4	2631613.4	1145612.3	True	5.00	2.297	7.35	1.000	8.000	8.301	3.8	30.0	
CAL5	6229864.6	993380.7	True	5.00	6.271	7.35	1.000	20.000	22.662	13.3	30.0	
CAL6	13486806.0	1043242.6	True	5.00	12.928	7.35	1.000	50.000	46.716	-6.6	30.0	
CAL7	21285064.9	900995.9	False	5.00	23.624	7.35	1.000	100.000	85.367	-14.6	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

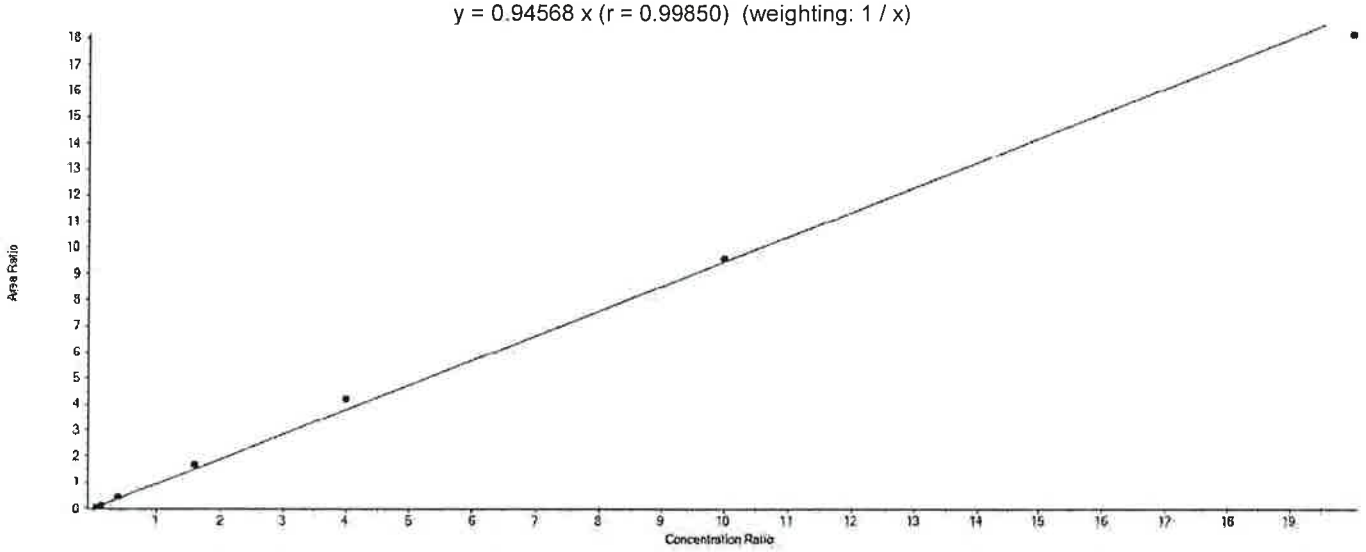
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDoDA

y = 0.94568 x (r = 0.99850) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	68135.4	1464592.1	True	5.00	0.047	7.63	1.000	0.200	0.246	23.0	50.0	
CAL2	201201.9	1742039.0	True	5.00	0.115	7.63	1.000	0.600	0.611	1.8	30.0	
CAL3	667345.7	1576303.1	True	5.00	0.423	7.64	1.000	2.000	2.238	11.9	30.0	
CAL4	2724298.9	1616114.9	True	5.00	1.686	7.63	1.000	8.000	8.913	11.4	30.0	
CAL5	6430562.7	1530208.0	True	5.00	4.202	7.64	1.000	20.000	22.219	11.1	30.0	
CAL6	14945174.7	1559544.9	True	5.00	9.583	7.64	1.000	50.000	50.668	1.3	30.0	
CAL7	23949160.3	1320302.6	True	5.00	18.139	7.63	1.000	100.000	95.906	-4.1	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

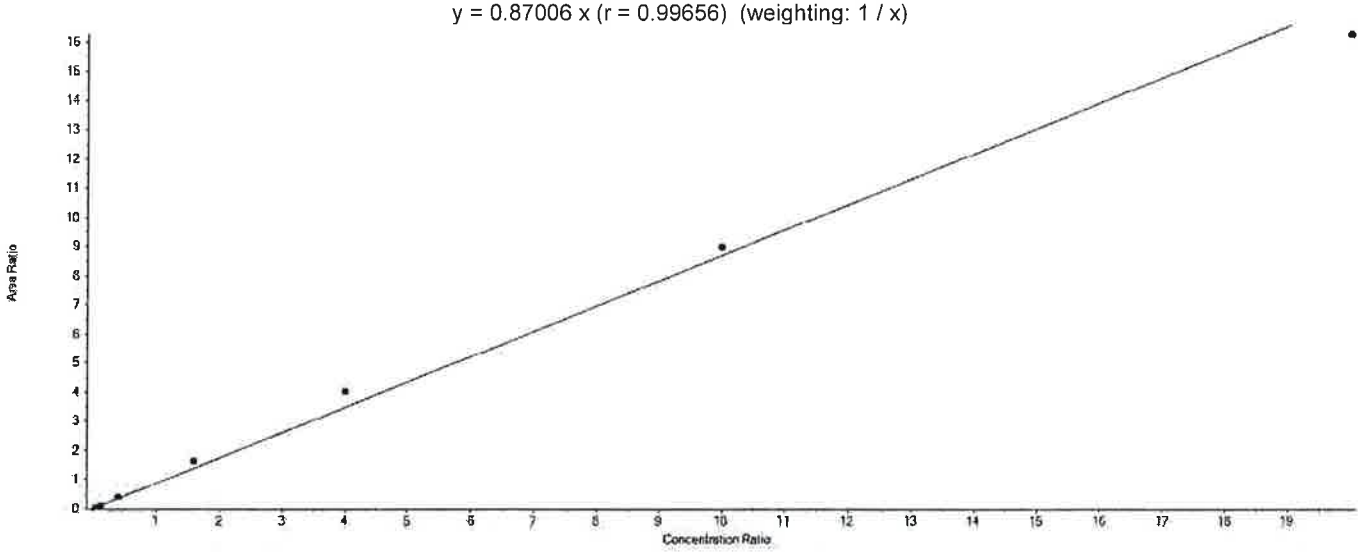
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTrDA

y = 0.87006 x (r = 0.99656) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65101.4	1464592.1	True	5.00	0.044	7.90	1.040	0.200	0.255	27.7	50.0	
CAL2	198994.6	1742039.0	True	5.00	0.114	7.90	1.040	0.600	0.656	9.4	30.0	
CAL3	604861.6	1576303.1	True	5.00	0.384	7.91	1.040	2.000	2.205	10.3	30.0	
CAL4	2649045.9	1616114.9	True	5.00	1.639	7.90	1.040	8.000	9.420	17.7	30.0	
CAL5	6168830.6	1530208.0	True	5.00	4.031	7.91	1.040	20.000	23.167	15.8	30.0	
CAL6	14016209.1	1559544.9	True	5.00	8.987	7.91	1.040	50.000	51.648	3.3	30.0	
CAL7	21469555.2	1320302.6	True	5.00	16.261	7.91	1.040	100.000	93.448	-6.6	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

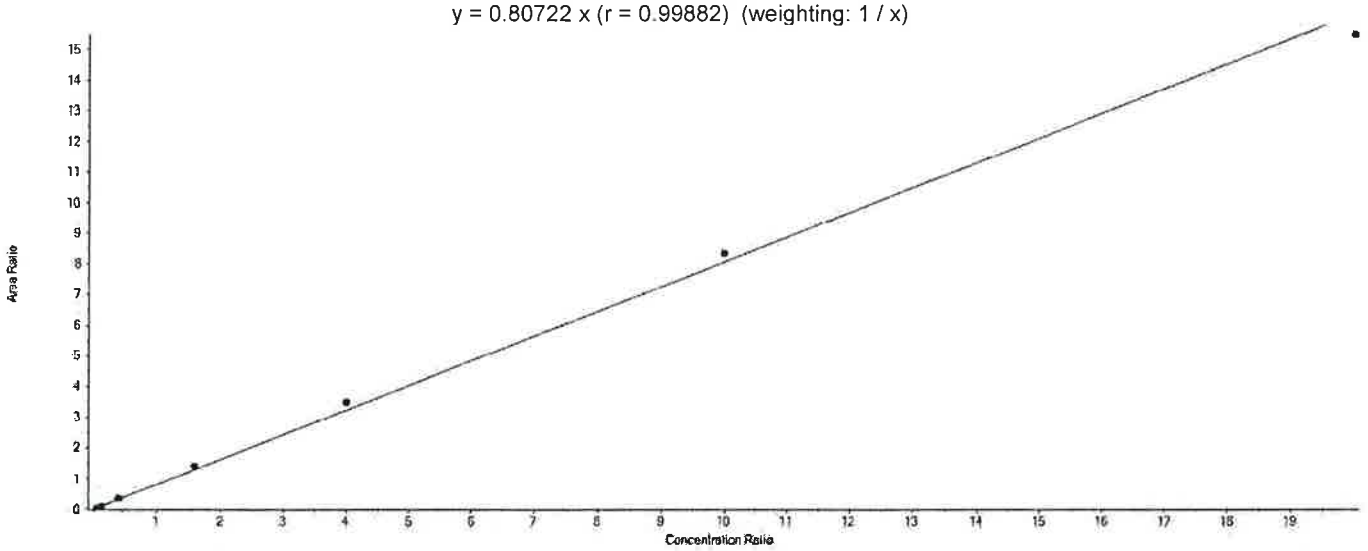
REVIEWED
By UMJS at 10:41 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTeDA

y = 0.80722 x (r = 0.99882) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	68731.5	1727146.0	True	5.00	0.040	8.17	1.000	0.200	0.246	23.2	50.0	
CAL2	192789.5	1884917.7	True	5.00	0.102	8.17	1.000	0.600	0.634	5.6	30.0	
CAL3	626767.4	1804912.7	True	5.00	0.347	8.17	1.000	2.000	2.151	7.5	30.0	
CAL4	2514172.5	1811742.7	True	5.00	1.388	8.17	1.000	8.000	8.596	7.4	30.0	
CAL5	6072449.2	1734299.9	True	5.00	3.501	8.17	1.000	20.000	21.688	8.4	30.0	
CAL6	14427637.3	1728825.0	True	5.00	8.345	8.17	1.000	50.000	51.692	3.4	30.0	
CAL7	24107266.8	1558811.5	True	5.00	15.465	8.17	1.000	100.000	95.793	-4.2	30.0	

APPROVED
By DMW at 9:32 pm, 4/3/18

REVIEWED
By UMJS at 10:41 am, 4/5/18

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LC-MS/MS Analysis Report

Printed: 4/3/2018 9:22:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL 4/3/2018 9:20:12 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

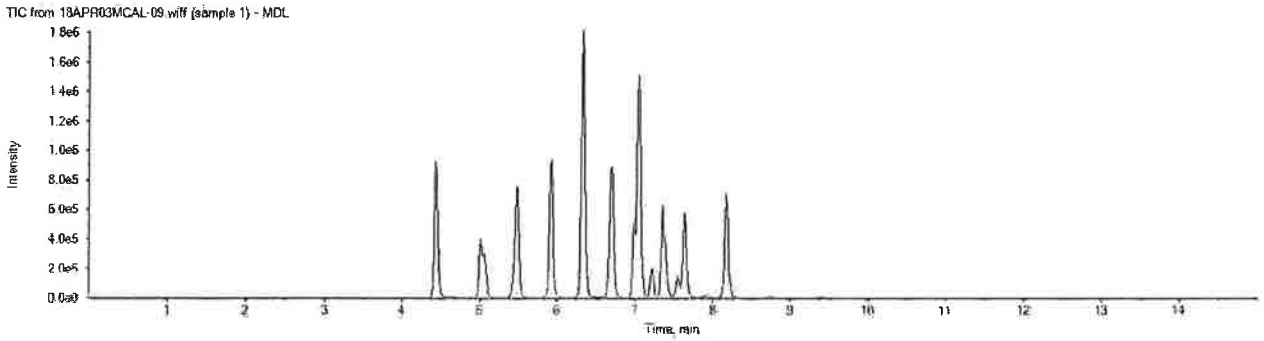
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24743 **File Name:** 18APR03MCAL-09.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	4.43	1.000	28844.2	M	13C4-PFBA	4.43	1411181.2	0.020	0.122
PFPeA	5.01	1.000	29967.7	M	13C5-PFPeA	5.01	1140849.6	0.026	0.128
PFBS	5.06	1.000	12632.8	M	13C3-PFBS	5.06	714447.5	0.018	0.087
4:2-FTS	5.44	1.000	38417.3	A	13C2-4:2-FTS	5.44	440246.2	0.087	0.493
PFHxA	5.48	1.000	47124.4	M	13C5-PFHxA	5.48	2250071.1	0.021	0.113
PFPeS	5.49	1.080	7053.7	A	13C3-PFBS	5.06	714447.5	0.010	0.101
PFHxS	5.91	1.000	13450.8	M	13C3-PFHxS	5.92	658183.7	0.020	0.097
PFHpA	5.92	1.000	58576.5	A	13C4-PFHpA	5.92	2299220.3	0.025	0.121
6:2-FTS	6.32	1.000	36266.5	M	13C2-6:2-FTS	6.32	384450.0	0.094	0.496
PFHpS	6.32	1.070	10521.5	M	13C3-PFHxS	5.92	658183.7	0.016	0.087
PFOA	6.33	1.000	61198.4	M	13C8-PFOA	6.33	2834097.1	0.022	0.123
PFOS	6.67	1.000	12517.4	M	13C8-PFOS	6.68	550741.0	0.023	0.112
PFNA	6.70	1.000	53952.9	M	13C9-PFNA	6.70	2087443.6	0.026	0.110
PFOSA	6.98	1.000	28892.2	M	13C8-PFOSA	6.98	1318259.1	0.022	0.115
PFNS	7.01	1.050	6702.9	M	13C8-PFOS	6.68	550741.0	0.012	0.087
PFDA	7.04	1.000	53424.3	M	13C6-PFDA	7.04	2582569.3	0.021	0.118
8:2-FTS	7.06	1.000	41707.9	M	13C2-8:2-FTS	7.06	450139.5	0.093	0.473
NMePFOSAE	7.40	1.000	5999.8	M	d7-NMePFOSAE	7.38	208213.1	0.029	0.124
NMePFOSA	7.40	1.000	4327.2	M	d3-NMePFOSA	7.41	199310.0	0.022	0.107
NMeFOSAA	7.22	1.000	15435.4	M	d3-NMeFOSAA	7.21	587315.5	0.026	0.123
NEtPFOSAE	7.55	1.000	7329.9	M	d9-NEtPFOSAE	7.54	274356.0	0.027	0.106
NEtPFOSA	7.57	1.000	3196.2	M	d5-NEtPFOSA	7.56	156398.4	0.020	0.098
PFDS	7.31	1.090	4789.4	M	13C8-PFOS	6.68	550741.0	0.009	0.082
PFUnDA	7.35	1.000	35781.0	M	13C7-PFUnDA	7.35	1294445.4	0.028	0.100
NEtFOSAA	7.38	1.000	13395.0	M	d5-NEtFOSAA	7.37	475333.5	0.028	0.132
PFDoDA	7.64	1.000	38696.5	M	13C2-PFDoDA	7.63	1816936.3	0.021	0.113
10:2-FTS	7.67	1.090	47104.4	M	13C2-8:2-FTS	7.06	450139.5	0.105	0.474
PFDoS	7.85	1.180	2128.6	M	13C8-PFOS	6.68	550741.0	0.004	0.085
PFTrDA	7.90	1.040	36799.2	M	13C2-PFDoDA	7.63	1816936.3	0.020	0.116
PFTeDA	8.17	1.000	40370.3	M	13C2-PFTeDA	8.17	2311587.8	0.017	0.108
PFHxDA	8.75	1.070	42368.9	A	13C2-PFTeDA	8.17	2311587.8	0.018	0.123
PFODA	9.40	1.150	34113.5	A	13C2-PFTeDA	8.17	2311587.8	0.015	0.095

Total Ion Chromatogram



APPROVED
By DMW at 9:32 pm, 4/3/18

REVIEWED
By UMJS at 10:42 am, 4/5/18

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LC-MS/MS Analysis Report

Printed: 4/3/2018 9:26:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL 4/3/2018 9:20:12 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

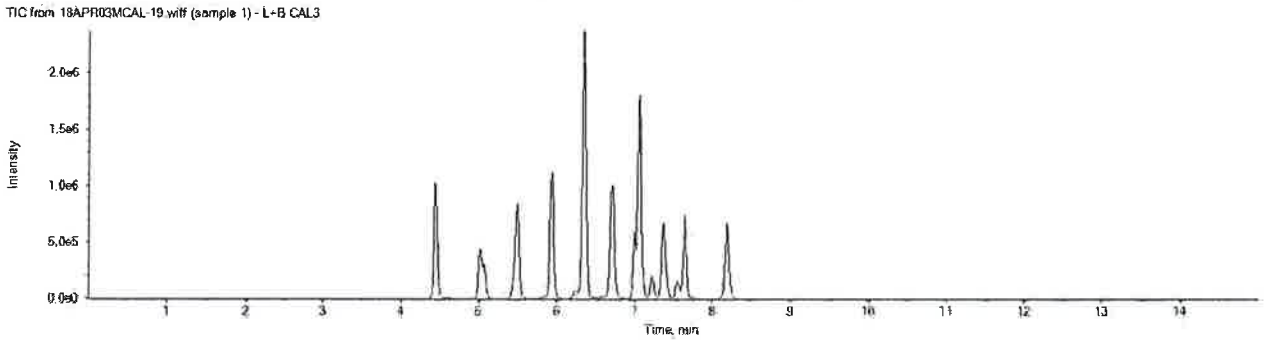
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM24743 **File Name:** 18APR03MCAL-19.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1630644.9	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	1325898.6	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	796416.8	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.44	456754.0	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	2635526.8	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.07	796416.8	N/A	
PFHxS	5.92	1.000	267269.0	M	13C3-PFHxS	5.92	732851.7	0.365	1.730
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.93	2674881.1	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.33	419395.0	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	5.92	732851.7	N/A	
PFOA	6.34	1.000	1114582.4	M	13C8-PFOA	6.34	3190026.3	0.349	1.998
PFOS	6.68	1.000	247664.6	M	13C8-PFOS	6.69	653590.8	0.379	1.864
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.71	2331967.2	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.99	1534178.2	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.69	653590.8	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.05	3116051.9	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.07	479655.5	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.39	224776.6	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.42	219217.9	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.22	640369.5	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.54	310435.4	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.57	184345.1	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.69	653590.8	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.36	1489992.5	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.38	575726.1	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.65	2024072.7	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.07	479655.5	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.69	653590.8	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.65	2024072.7	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	2322916.2	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	2322916.2	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.19	2322916.2	N/A	

Total Ion Chromatogram



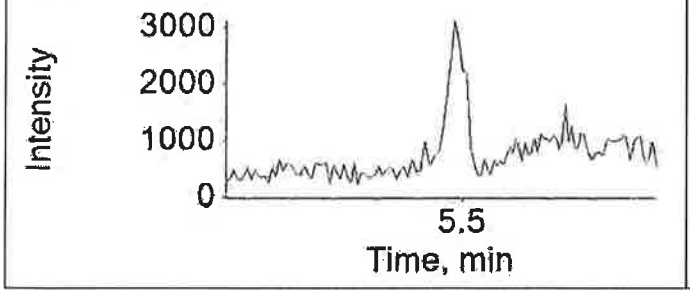
APPROVED
By DMW at 9:32 pm, 4/3/18

REVIEWED
By UMJS at 10:42 am, 4/5/18

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL 4/3/2018 9:20:12 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

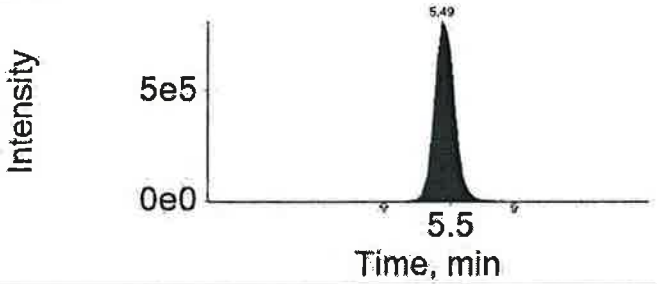
Analyte: PFHxA

313.0 / 269.0



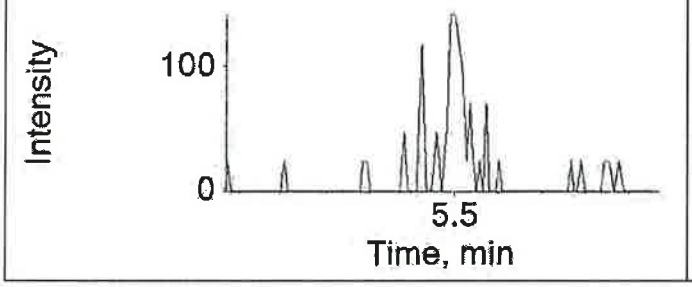
Extraction Standard: 13C5-PFHxA

318.0 / 273.0



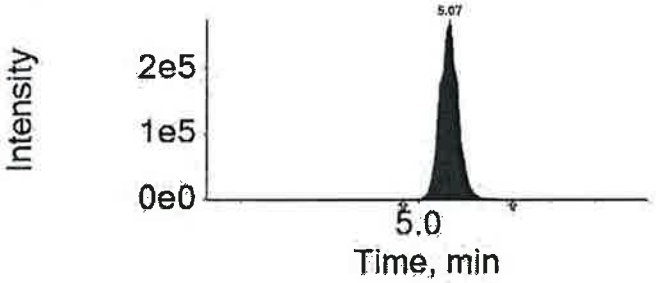
Analyte: PFPeS

349.0 / 80.0



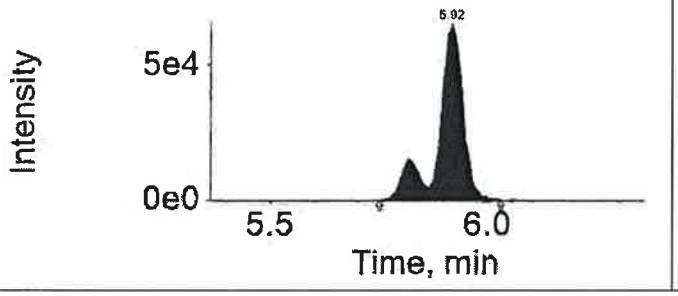
Extraction Standard: 13C3-PFBS

302.0 / 80.0



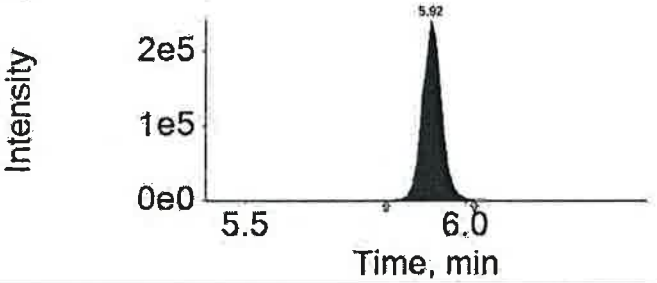
Analyte: PFHxS

399.0 / 80.0



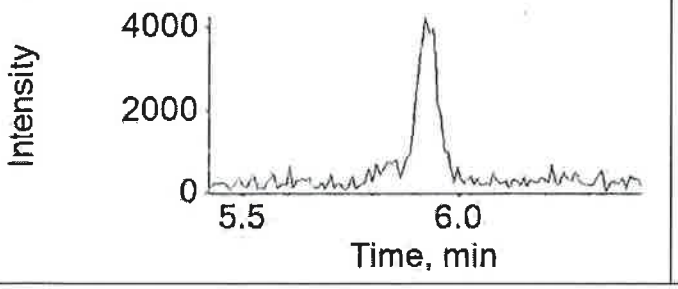
Extraction Standard: 13C3-PFHxS

402.0 / 80.0



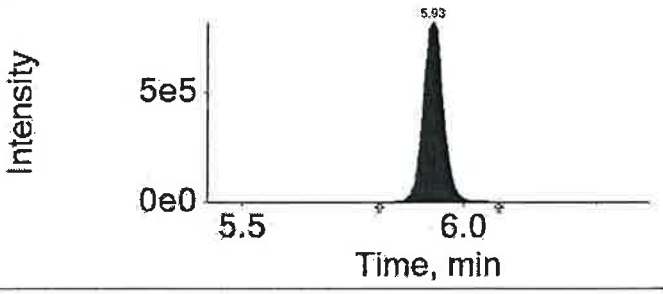
Analyte: PFHpA

363.0 / 319.0



Extraction Standard: 13C4-PFHpA

367.0 / 322.0

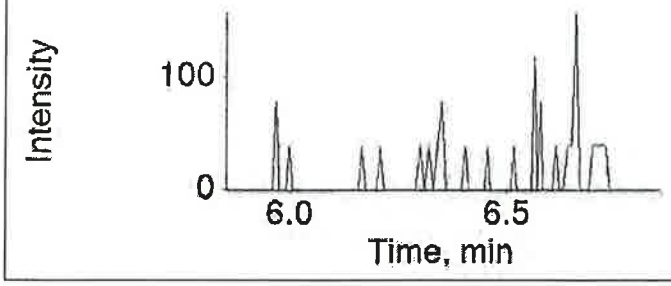


APPROVED
By DMW at 9:32 pm, 4/3/18

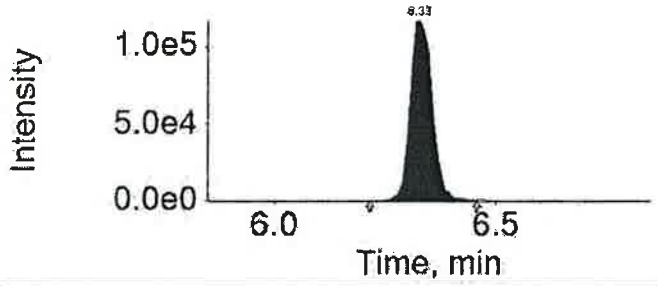
REVIEWED
By UMJS at 10:42 am, 4/5/18

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL 4/3/2018 9:20:12 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

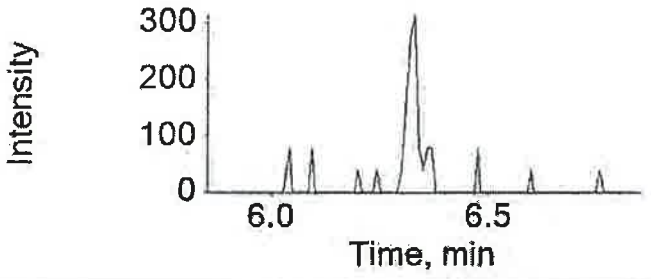
Analyte: 6:2-FTS
427.0 / 407.0



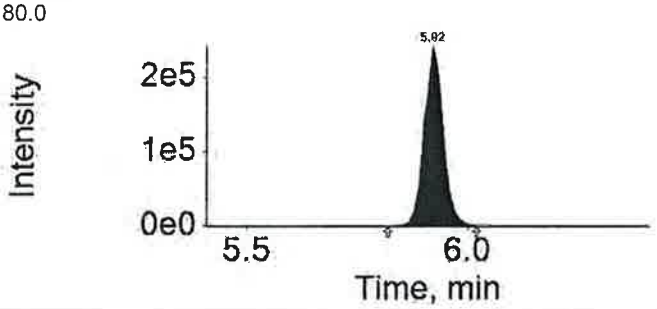
Extraction Standard: 13C2-6:2-FTS
429.0 / 409.0



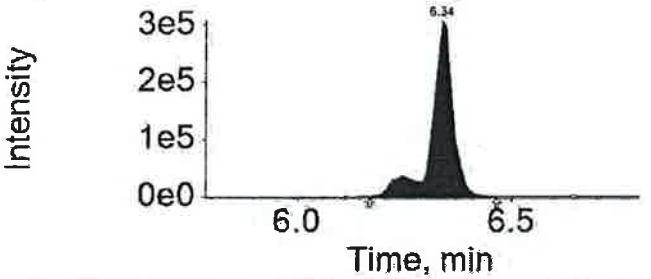
Analyte: PFHpS
449.0 / 80.0



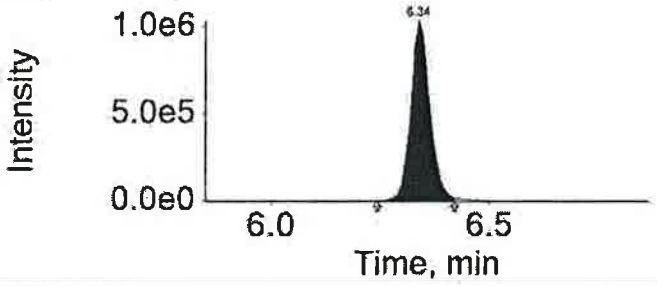
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



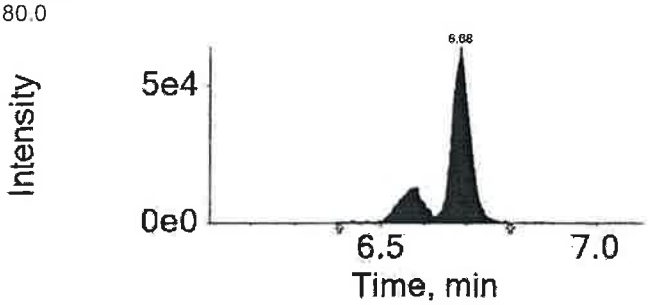
Analyte: PFOA
413.0 / 369.0



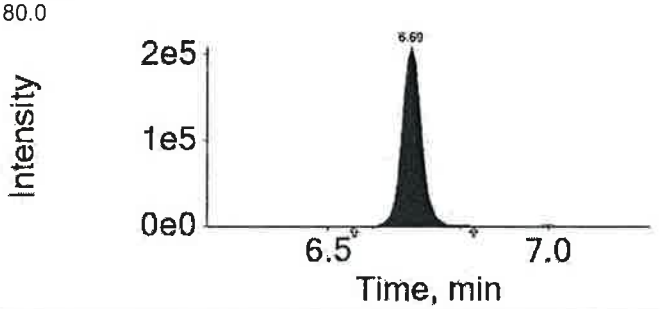
Extraction Standard: 13C8-PFOA
421.0 / 376.0



Analyte: PFOS
499.0 / 80.0



Extraction Standard: 13C8-PFOS
507.0 / 80.0



APPROVED
By DMW at 9:32 pm, 4/3/18

REVIEWED
By UMJS at 10:42 am, 4/5/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR03MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR03MCAL4/3/2018 9:20:12 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR03MCAL-18.wiff	4/3/2018 7:49:49 PM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	429254.1	13C4-PFBA	1312700.0	5.00	0.327	4.44	1.00	2.000	1.946	-2.7	30.0	
PFPeA	441876.5	13C5-PFPeA	1106378.3	5.00	0.399	5.01	1.00	2.000	1.953	-2.3	30.0	
PFBS	221662.2	13C3-PFBS	646282.1	4.65	0.343	5.06	1.00	1.770	1.682	-5.0	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	378478.7	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	809643.6	13C5-PFHxA	2076145.9	5.00	0.390	5.48	1.00	2.000	2.113	5.6	30.0	
PFPeS	N/A	13C3-PFBS	646282.1	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	227538.4	13C3-PFHxS	599720.9	4.73	0.379	5.92	1.00	1.890	1.800	-4.8	30.0	
PFHpA	947428.8	13C4-PFHpA	2048216.7	5.00	0.463	5.92	1.00	2.000	2.196	9.8	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	319317.4	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	196150.0	13C3-PFHxS	599720.9	4.73	0.327	6.32	1.07	1.900	1.790	-5.8	30.0	
PFOA	964693.9	13C8-PFOA	2645727.3	5.00	0.365	6.34	1.00	2.000	2.085	4.2	30.0	
PFOS	192506.8	13C8-PFOS	499659.3	4.78	0.385	6.68	1.00	1.910	1.896	-0.8	30.0	
PFNA	862290.6	13C9-PFNA	1887154.0	5.00	0.457	6.71	1.00	2.000	1.952	-2.4	30.0	
PFOSA	N/A	13C8-PFOSA	1209014.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	499659.3	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	889781.6	13C6-PFDA	2434997.5	5.00	0.365	7.05	1.00	2.000	2.093	4.6	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	376908.8	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	202569.6	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	186432.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	214598.0	d3-NMeFOSAA	509789.8	5.00	0.421	7.22	1.00	2.000	1.974	-1.3	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	260857.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	148046.1	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	88852.0	13C8-PFOS	499659.3	4.78	0.178	7.32	1.09	1.930	1.671	-13.4	30.0	
PFUnDA	679215.9	13C7-PFUnDA	1179605.0	5.00	0.576	7.35	1.00	2.000	2.081	4.0	30.0	
NEtFOSAA	180122.2	d5-NEtFOSAA	420719.8	5.00	0.428	7.38	1.00	2.000	2.000	0.0	30.0	
PFDoDA	591580.2	13C2-PFDoDA	1713470.7	5.00	0.345	7.64	1.00	2.000	1.825	-8.7	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	376908.8	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	499659.3	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	646541.8	13C2-PFDoDA	1713470.7	5.00	0.377	7.91	1.04	2.000	2.168	8.4	30.0	
PFTeDA	621765.0	13C2-PFTeDA	1966699.0	5.00	0.316	8.18	1.00	2.000	1.958	-2.1	30.0	
PFHxDA	N/A	13C2-PFTeDA	1966699.0	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	1966699.0	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

✓

APPROVED
By DMW at 9:32 pm, 4/3/18

REVIEWED
By UMJS at 10:41 am, 4/5/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR03MCAL-20.WIFF

Date/Time Analyzed: 04/03/2018 20:20 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.11	5.73	±30
Perfluoropentanoic acid	2.00	2.02	1.20	±30
Perfluorobutanesulfonate	1.77	1.77	-0.16	±30
4:2 fluorotelomersulfonate	4.90	5.02	2.49	±30
Perfluorohexanoic acid	2.00	2.12	6.07	±30
Perfluoropentanesulfonate	1.88	1.97	4.60	±30
Perfluorohexanesulfonate	1.89	1.90	0.70	±30
Perfluoroheptanoic acid	2.00	2.40	20.22	±30
6:2 fluorotelomersulfonate	5.21	5.82	11.78	±30
Perfluoroheptanesulfonate	1.90	1.86	-2.20	±30
Perfluorooctanoic acid	2.00	2.10	5.06	±30
Perfluoro-octanesulfonate	1.91	1.97	3.21	±30
Perfluorononanoic acid	2.00	2.08	4.14	±30
Perfluorooctanesulfonamide	2.00	2.24	11.78	±30
Perfluorononanesulfonate	1.92	1.95	1.47	±30
Perfluorodecanoic acid	2.00	2.23	11.37	±30
8:2 fluorotelomersulfonate	5.27	5.66	7.44	±30
NMeFOSAA	2.00	2.19	9.50	±30
Perfluorodecanesulfonate	1.93	1.88	-2.71	±30
Perfluoroundecanoic acid	2.00	2.08	4.13	±30

✓

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR03MCAL-20.WIFF

Date/Time Analyzed: 04/03/2018 20:20 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.00	0.05	±30
Perfluorododecanoic acid	2.00	2.08	3.87	±30
10:2-fluorotelomersulfonate	5.30	5.05	-4.79	±30
Perfluorododecanesulfonate	1.94	2.03	4.83	±30
Perfluorotridecanoic acid	2.00	2.32	15.83	±30
Perfluorotetradecanoic acid	2.00	2.18	8.91	±30
Perfluorohexadecanoic acid	2.00	2.15	7.48	±30
Perfluorooctadecanoic acid	2.00	2.02	1.20	±30

* Outside QC Limits.

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

ICAL & ICV Validated SBN09 BJE

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.246	23.2	±50
CAL2	0.111	0.60	0.631	5.1	±30
CAL3	0.365	2.00	2.085	4.3	±30
CAL4	1.477	8.00	8.430	5.4	±30
CAL5	3.977	20.00	22.700	13.5	±30
CAL6	8.762	50.00	50.008	0.0	±30
CAL7	16.943	100.00	96.700	-3.3	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.20	0.226	13.1	±50
CAL2	0.124	0.60	0.631	5.1	±30
CAL3	0.418	2.00	2.122	6.1	±30
CAL4	1.661	8.00	8.439	5.5	±30
CAL5	4.461	20.00	22.667	13.3	±30
CAL6	9.781	50.00	49.695	-0.6	±30
CAL7	19.096	100.00	97.020	-3.0	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.17	0.195	14.8	±50
CAL2	0.116	0.53	0.532	0.4	±30
CAL3	0.390	1.77	1.781	0.6	±30
CAL4	1.621	7.08	7.409	4.6	±30
CAL5	4.221	17.69	19.288	9.0	±30
CAL6	9.442	44.22	43.149	-2.4	±30
CAL7	19.160	88.45	87.556	-1.0	±30

4:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.118	0.58	0.632	9.0	±50
CAL2	0.403	1.98	2.161	9.1	±30
CAL3	0.994	4.90	5.335	8.9	±30
CAL4	1.789	10.04	9.604	-4.3	±30
CAL5	2.284	12.49	12.257	-1.9	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.224	12.0	±50
CAL2	0.112	0.60	0.611	1.8	±30
CAL3	0.406	2.00	2.207	10.4	±30
CAL4	1.562	8.00	8.496	6.2	±30
CAL5	4.215	20.00	22.928	14.6	±30
CAL6	9.015	50.00	49.041	-1.9	±30
CAL7	17.884	100.00	97.293	-2.7	±30

Perfluoropentanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.019	0.19	0.213	11.9	±50
CAL2	0.053	0.56	0.596	6.4	±30
CAL3	0.180	1.88	2.039	8.5	±30
CAL4	0.746	7.50	8.456	12.8	±30
CAL5	1.844	18.76	20.894	11.4	±30
CAL6	3.997	46.90	45.281	-3.5	±30
CAL7	8.130	93.80	92.111	-1.8	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.19	0.196	3.1	±50
CAL2	0.116	0.57	0.546	-4.2	±30
CAL3	0.405	1.89	1.902	0.6	±30
CAL4	1.643	7.56	7.723	2.2	±30
CAL5	4.346	18.91	20.427	8.0	±30
CAL6	9.919	47.28	46.616	-1.4	±30
CAL7	19.902	94.55	93.540	-1.1	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.050	0.20	0.240	20.0	±50
CAL2	0.126	0.60	0.612	1.9	±30
CAL3	0.446	2.00	2.158	7.9	±30
CAL4	1.770	8.00	8.573	7.2	±30
CAL5	4.669	20.00	22.613	13.1	±30
CAL6	10.171	50.00	49.265	-1.5	±30
CAL7	20.096	100.00	97.340	-2.7	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

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CAL7= 18APR07MCAL-25.WIFF;

6:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.272	1.30	1.405	8.1	±50
CAL2	0.414	2.09	2.143	2.5	±30
CAL3	1.028	5.21	5.318	2.1	±30
CAL4	2.010	10.43	10.397	-0.3	±30
CAL5	2.476	13.04	12.807	-1.8	±30

Perfluoroheptanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.19	0.199	4.9	±50
CAL2	0.116	0.57	0.568	-0.4	±30
CAL3	0.374	1.90	1.830	-3.7	±30
CAL4	1.538	7.61	7.535	-1.0	±30
CAL5	4.155	19.03	20.359	7.0	±30
CAL6	9.661	47.58	47.338	-0.5	±30
CAL7	19.225	95.15	94.200	-1.0	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.236	18.2	±50
CAL2	0.120	0.60	0.647	7.8	±30
CAL3	0.395	2.00	2.119	6.0	±30
CAL4	1.581	8.00	8.493	6.2	±30
CAL5	4.038	20.00	21.687	8.4	±30
CAL6	9.302	50.00	49.962	-0.1	±30
CAL7	18.182	100.00	97.656	-2.3	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.19	0.199	4.6	±50
CAL2	0.116	0.57	0.553	-3.0	±30
CAL3	0.397	1.91	1.887	-1.2	±30
CAL4	1.620	7.65	7.706	0.7	±30
CAL5	4.454	19.12	21.192	10.8	±30
CAL6	10.080	47.80	47.963	0.3	±30
CAL7	19.616	95.60	93.340	-2.4	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

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CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.052	0.20	0.245	22.5	±50
CAL2	0.143	0.60	0.667	11.2	±30
CAL3	0.475	2.00	2.218	10.9	±30
CAL4	1.820	8.00	8.497	6.2	±30
CAL5	4.808	20.00	22.450	12.2	±30
CAL6	10.824	50.00	50.541	1.1	±30
CAL7	20.599	100.00	96.182	-3.8	±30

Perfluorooctanesulfonamide	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.210	5.1	±50
CAL2	0.121	0.60	0.657	9.5	±30
CAL3	0.408	2.00	2.216	10.8	±30
CAL4	1.570	8.00	8.520	6.5	±30
CAL5	1.901	10.00	10.321	3.2	±30
CAL6	9.449	50.00	51.295	2.6	±30
CAL7	17.975	100.00	97.579	-2.4	±30

Perfluorononanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.033	0.19	0.207	8.9	±50
CAL2	0.083	0.58	0.519	-10.4	±30
CAL3	0.290	1.92	1.823	-5.1	±30
CAL4	1.173	7.68	7.371	-4.0	±30
CAL5	3.331	19.20	20.928	9.0	±30
CAL6	7.910	48.00	49.693	3.5	±30
CAL7	14.808	96.00	93.030	-3.1	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.232	15.8	±50
CAL2	0.105	0.60	0.624	4.0	±30
CAL3	0.353	2.00	2.096	4.8	±30
CAL4	1.475	8.00	8.751	9.4	±30
CAL5	3.836	20.00	22.757	13.8	±30
CAL6	8.402	50.00	49.847	-0.3	±30
CAL7	16.265	100.00	96.493	-3.5	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

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CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

8:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.304	1.32	1.570	19.0	±50
CAL2	0.451	2.11	2.329	10.4	±30
CAL3	1.120	5.27	5.788	9.8	±30
CAL4	1.987	10.54	10.263	-2.6	±30
CAL5	2.412	13.17	12.460	-5.4	±30

NMePFOSAE	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.213	6.4	±50
CAL2	0.129	0.60	0.601	0.2	±30
CAL3	0.450	2.00	2.102	5.1	±30
CAL4	1.598	8.00	7.465	-6.7	±30
CAL5	2.115	10.00	9.878	-1.2	±30
CAL6	10.877	50.00	50.797	1.6	±30
CAL7	21.357	100.00	99.744	-0.3	±30

NMePFOSA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.048	0.20	0.224	12.1	±50
CAL2	0.136	0.60	0.637	6.2	±30
CAL3	0.417	2.00	1.952	-2.4	±30
CAL4	1.694	8.00	7.937	-0.8	±30
CAL5	2.120	10.00	9.929	-0.7	±30
CAL6	10.809	50.00	50.634	1.3	±30
CAL7	21.237	100.00	99.487	-0.5	±30

NMeFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.209	4.7	±50
CAL2	0.139	0.60	0.677	12.8	±30
CAL3	0.426	2.00	2.072	3.6	±30
CAL4	1.699	8.00	8.255	3.2	±30
CAL5	2.079	10.00	10.104	1.0	±30
CAL6	9.780	50.00	47.522	-5.0	±30
CAL7	20.984	100.00	101.960	2.0	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

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CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

NEtPFOSAE	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.211	5.5	±50
CAL2	0.136	0.60	0.621	3.6	±30
CAL3	0.501	2.00	2.291	14.5	±30
CAL4	1.724	8.00	7.890	-1.4	±30
CAL5	2.183	10.00	9.989	-0.1	±30
CAL6	11.463	50.00	52.460	4.9	±30
CAL7	21.269	100.00	97.338	-2.7	±30

NEtPFOSA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.205	2.4	±50
CAL2	0.118	0.60	0.617	2.9	±30
CAL3	0.403	2.00	2.107	5.4	±30
CAL4	1.567	8.00	8.193	2.4	±30
CAL5	1.834	10.00	9.592	-4.1	±30
CAL6	9.304	50.00	48.662	-2.7	±30
CAL7	19.392	100.00	101.424	1.4	±30

Perfluorodecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.019	0.19	0.158	-17.0	±50
CAL2	0.062	0.58	0.525	-9.5	±30
CAL3	0.202	1.93	1.709	-11.5	±30
CAL4	0.876	7.70	7.410	-3.8	±30
CAL5	2.413	19.26	20.424	6.0	±30
CAL6	5.849	48.15	49.499	2.8	±30
CAL7	11.153	96.30	94.385	-2.0	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.056	0.20	0.254	26.8	±50
CAL2	0.168	0.60	0.756	25.9	±30
CAL3	0.512	2.00	2.303	15.2	±30
CAL4	2.108	8.00	9.484	18.5	±30
CAL5	5.215	20.00	23.460	17.3	±30
CAL6	11.267	50.00	50.689	1.4	±30
CAL7	20.862	100.00	93.855	-6.1	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

NEtFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.179	-10.4	±50
CAL2	0.118	0.60	0.552	-8.0	±30
CAL3	0.438	2.00	2.055	2.7	±30
CAL4	1.568	8.00	7.351	-8.1	±30
CAL5	1.975	10.00	9.262	-7.4	±30
CAL6	10.396	50.00	48.750	-2.5	±30
CAL7	21.891	100.00	102.652	2.7	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.230	15.0	±50
CAL2	0.110	0.60	0.615	2.5	±30
CAL3	0.389	2.00	2.171	8.6	±30
CAL4	1.563	8.00	8.720	9.0	±30
CAL5	4.165	20.00	23.235	16.2	±30
CAL6	9.123	50.00	50.897	1.8	±30
CAL7	17.016	100.00	94.931	-5.1	±30

10:2-fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.200	1.33	1.353	1.7	±50
CAL2	0.308	2.12	2.079	-2.0	±30
CAL3	0.827	5.30	5.585	5.4	±30
CAL4	1.510	10.60	10.193	-3.8	±30
CAL5	1.985	13.26	13.401	1.1	±30

Perfluorododecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.011	0.19	0.204	7.3	±50
CAL2	0.027	0.58	0.485	-16.5	±30
CAL3	0.101	1.94	1.831	-5.6	±30
CAL4	0.392	7.74	7.130	-7.9	±30
CAL5	1.128	19.36	20.512	6.0	±30
CAL6	2.717	48.40	49.424	2.1	±30
CAL7	5.246	96.80	95.425	-1.4	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.035	0.20	0.200	-0.1	±50
CAL2	0.092	0.60	0.530	-11.6	±30
CAL3	0.335	2.00	1.929	-3.6	±30
CAL4	1.312	8.00	7.541	-5.7	±30
CAL5	3.583	20.00	20.600	3.0	±30
CAL6	7.024	50.00	40.386	-19.2	±30
CAL7	13.477	100.00	77.485	-22.5	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.224	12.2	±50
CAL2	0.114	0.60	0.629	4.8	±30
CAL3	0.400	2.00	2.216	10.8	±30
CAL4	1.503	8.00	8.315	3.9	±30
CAL5	3.976	20.00	22.006	10.0	±30
CAL6	8.847	50.00	48.959	-2.1	±30
CAL7	17.790	100.00	98.452	-1.5	±30

Perfluorohexadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.024	0.20	0.193	-3.4	±50
CAL2	0.062	0.60	0.502	-16.3	±30
CAL3	0.215	2.00	1.733	-13.3	±30
CAL4	0.822	8.00	6.613	-17.3	±30
CAL5	2.405	20.00	19.354	-3.2	±30
CAL6	5.592	50.00	45.001	-10.0	±30
CAL7	13.346	100.00	107.403	7.4	±30

Perfluorooctadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.015	0.20	0.171	-14.3	±50
CAL2	0.042	0.60	0.484	-19.3	±30
CAL3	0.151	2.00	1.753	-12.3	±30
CAL4	0.610	8.00	7.097	-11.3	±30
CAL5	1.754	20.00	20.409	2.0	±30
CAL6	4.374	50.00	50.885	1.8	±30
CAL7	11.008	100.00	128.076	28.1	±30

* Outside QC Limits

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18APR07MCAL-19.wiff	4/8/2018 2:28:00 AM	CALMOD11833A	CAL1
18APR07MCAL-20.wiff	4/8/2018 2:42:33 AM	CALMOD21833A	CAL2
18APR07MCAL-21.wiff	4/8/2018 2:57:03 AM	CALMOD31833A	CAL3
18APR07MCAL-22.wiff	4/8/2018 3:11:34 AM	CALMOD41833A	CAL4
18APR07MCAL-23.wiff	4/8/2018 3:26:06 AM	CALMOD51833A	CAL5
18APR07MCAL-24.wiff	4/8/2018 3:40:39 AM	CALMOD61833A	CAL6
18APR07MCAL-25.wiff	4/8/2018 3:55:12 AM	CALMOD71833A	CAL7

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	1798469.8	1589581.0
CAL2	I13C3-PFBA	True	1765778.6	1589581.0
CAL3	I13C3-PFBA	True	1941504.0	1589581.0
CAL4	I13C3-PFBA	True	1777572.1	1589581.0
CAL5	I13C3-PFBA	True	1524315.7	1589581.0
CAL6	I13C3-PFBA	True	1301256.8	1589581.0
CAL7	I13C3-PFBA	True	1018169.7	1589581.0
CAL1	I13C2-PFOA	True	1106995.2	979042.1
CAL2	I13C2-PFOA	True	1069381.6	979042.1
CAL3	I13C2-PFOA	True	1223181.5	979042.1
CAL4	I13C2-PFOA	True	1098579.4	979042.1
CAL5	I13C2-PFOA	True	941808.6	979042.1
CAL6	I13C2-PFOA	True	767793.5	979042.1
CAL7	I13C2-PFOA	True	645555.1	979042.1
CAL1	I13C4-PFOS	True	798459.3	723191.7
CAL2	I13C4-PFOS	True	776185.9	723191.7
CAL3	I13C4-PFOS	True	888258.8	723191.7
CAL4	I13C4-PFOS	True	813584.4	723191.7
CAL5	I13C4-PFOS	True	699879.3	723191.7
CAL6	I13C4-PFOS	True	601867.3	723191.7
CAL7	I13C4-PFOS	True	484106.7	723191.7
CAL1	I13C2-PFDA	True	1165819.0	1007241.2
CAL2	I13C2-PFDA	True	1147160.8	1007241.2
CAL3	I13C2-PFDA	True	1145668.9	1007241.2
CAL4	I13C2-PFDA	True	1100677.4	1007241.2
CAL5	I13C2-PFDA	True	939029.8	1007241.2
CAL6	I13C2-PFDA	True	864778.0	1007241.2
CAL7	I13C2-PFDA	True	687554.3	1007241.2

APPROVED
By DMW at 12:15 pm, 4/8/18

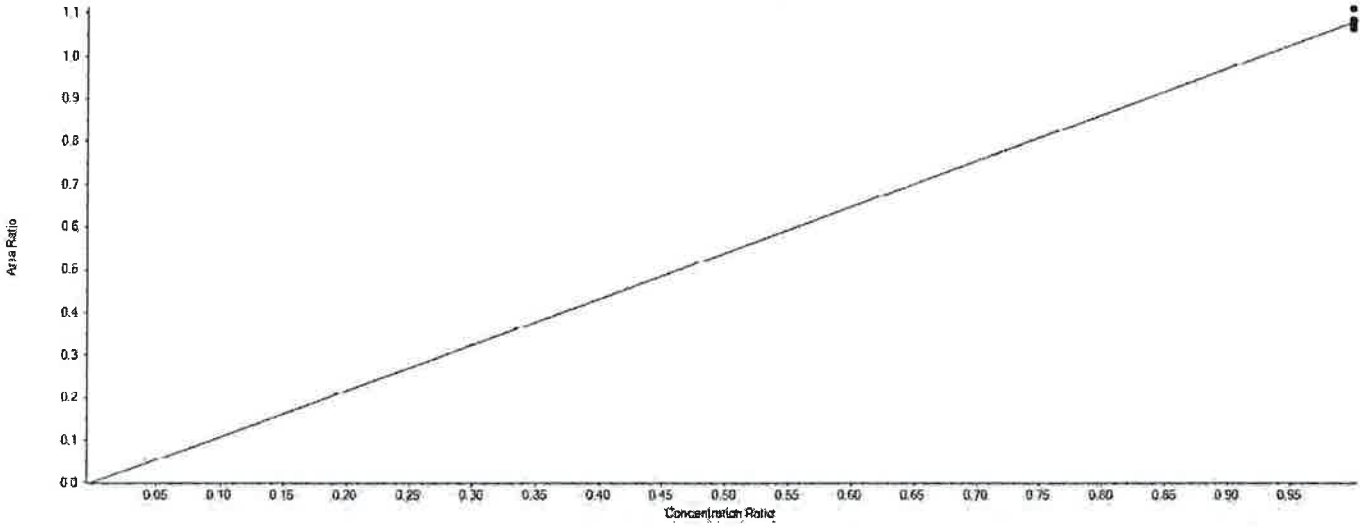
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C4-PFBA

y = 1.07826 x (std. dev. = 0.01525) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1924849.9	1798469.8	True	5.00	1.070	4.47	1.000	5.000	4.963	-0.7	50.0	
CAL2	1959719.2	1765778.6	True	5.00	1.110	4.46	1.000	5.000	5.146	2.9	30.0	
CAL3	2084812.5	1941504.0	True	5.00	1.074	4.46	1.000	5.000	4.979	-0.4	30.0	
CAL4	1924087.3	1777572.1	True	5.00	1.082	4.46	1.000	5.000	5.019	0.4	30.0	
CAL5	1641151.9	1524315.7	True	5.00	1.077	4.46	1.000	5.000	4.993	-0.1	30.0	
CAL6	1381898.4	1301256.8	True	5.00	1.062	4.46	1.000	5.000	4.924	-1.5	30.0	
CAL7	1092348.9	1018169.7	True	5.00	1.073	4.46	1.000	5.000	4.975	-0.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

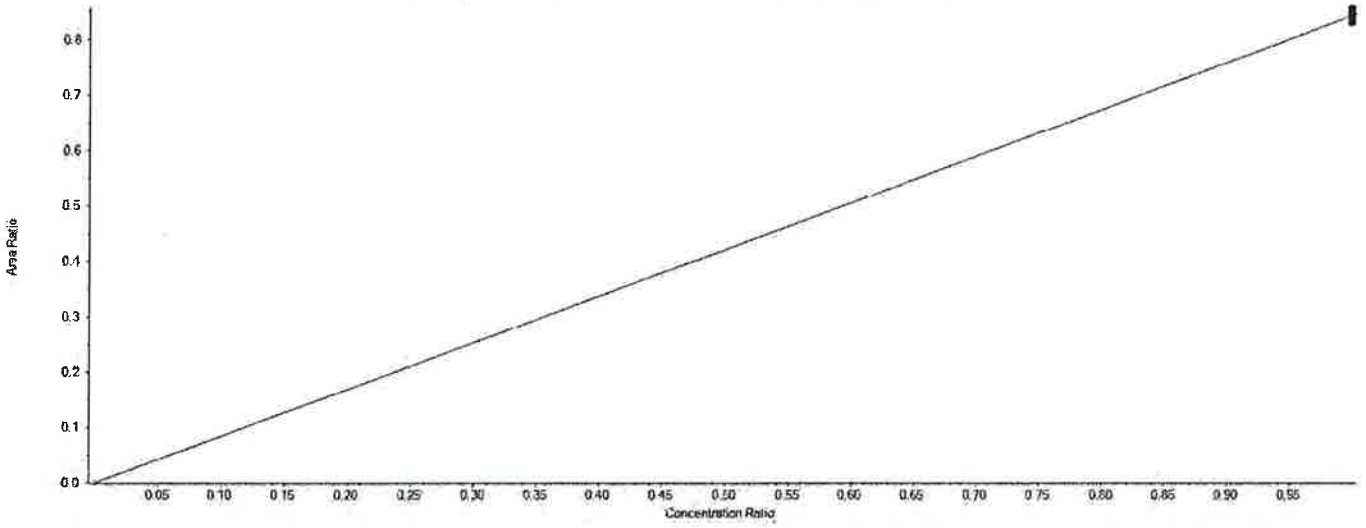
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C5-PFPeA

y = 0.84174 x (std. dev. = 0.00889) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1501835.6	1798469.8	True	5.00	0.835	5.08	1.140	5.000	4.960	-0.8	50.0	
CAL2	1510101.8	1765778.6	True	5.00	0.855	5.07	1.140	5.000	5.080	1.6	30.0	
CAL3	1644584.0	1941504.0	True	5.00	0.847	5.07	1.140	5.000	5.032	0.6	30.0	
CAL4	1506387.3	1777572.1	True	5.00	0.847	5.07	1.140	5.000	5.034	0.7	30.0	
CAL5	1277613.6	1524315.7	True	5.00	0.838	5.07	1.140	5.000	4.979	-0.4	30.0	
CAL6	1093978.3	1301256.8	True	5.00	0.841	5.07	1.140	5.000	4.994	-0.1	30.0	
CAL7	843605.3	1018169.7	True	5.00	0.829	5.06	1.140	5.000	4.922	-1.6	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

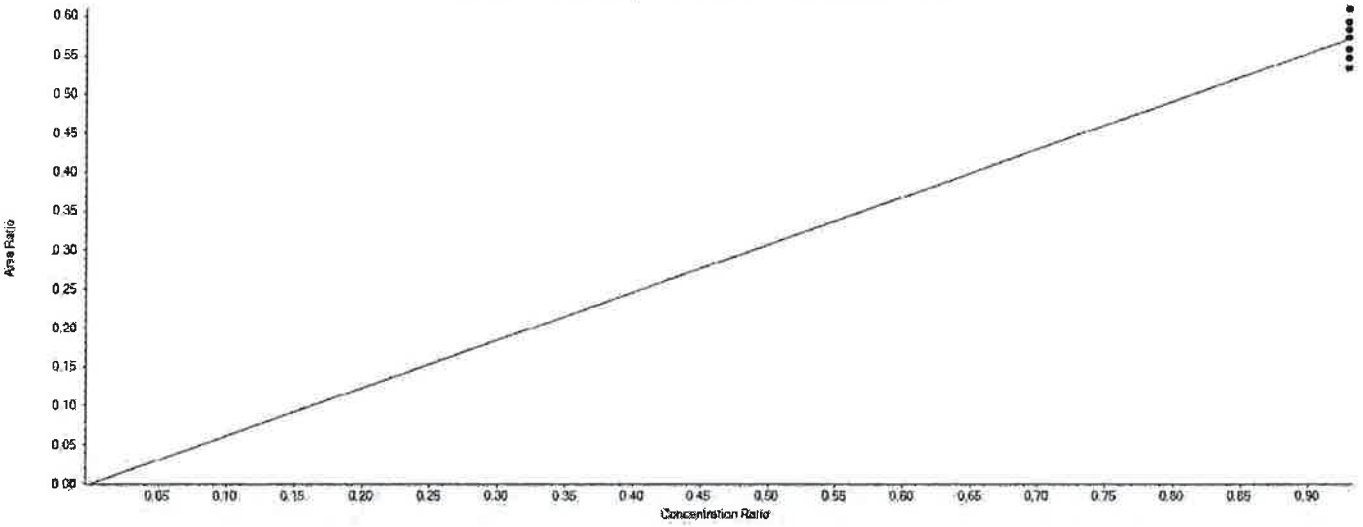
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C3-PFBS

y = 0.61362 x (std. dev. = 0.02819) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	958872.4	1798469.8	True	5.00	0.533	5.13	1.150	4.650	4.344	-6.6	50.0	
CAL2	1011369.7	1765778.6	True	5.00	0.573	5.13	1.150	4.650	4.667	0.4	30.0	
CAL3	1084316.8	1941504.0	True	5.00	0.558	5.12	1.150	4.650	4.551	-2.1	30.0	
CAL4	972984.8	1777572.1	True	5.00	0.547	5.13	1.150	4.650	4.460	-4.1	30.0	
CAL5	887408.7	1524315.7	True	5.00	0.582	5.12	1.150	4.650	4.744	2.0	30.0	
CAL6	770851.5	1301256.8	True	5.00	0.592	5.13	1.150	4.650	4.827	3.8	30.0	
CAL7	619353.5	1018169.7	True	5.00	0.608	5.12	1.150	4.650	4.957	6.6	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

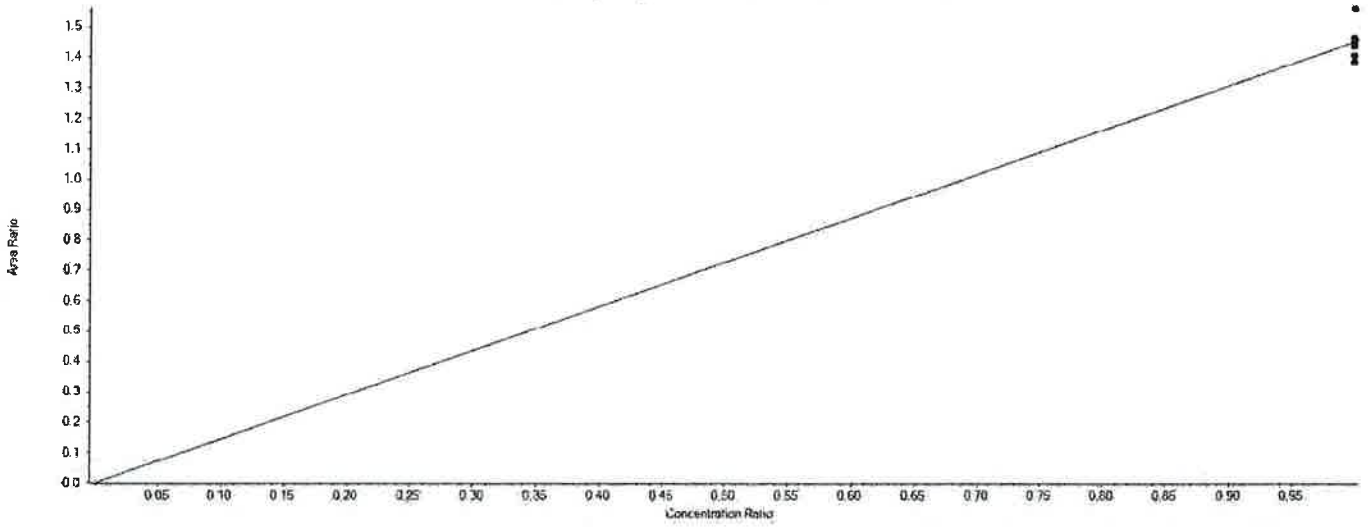
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C5-PFHxA

y = 1.45259 x (std. dev. = 0.05470) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1594435.8	1106995.2	True	5.00	1.440	5.55	0.870	5.000	4.958	-0.8	50.0	
CAL2	1666616.8	1069381.6	True	5.00	1.558	5.55	0.870	5.000	5.365	7.3	30.0	
CAL3	1720911.0	1223181.5	True	5.00	1.407	5.54	0.870	5.000	4.843	-3.1	30.0	
CAL4	1598976.8	1098579.4	True	5.00	1.455	5.55	0.870	5.000	5.010	0.2	30.0	
CAL5	1369998.3	941808.6	True	5.00	1.455	5.54	0.870	5.000	5.007	0.1	30.0	
CAL6	1125149.6	767793.5	True	5.00	1.465	5.54	0.870	5.000	5.044	0.9	30.0	
CAL7	895283.9	645555.1	True	5.00	1.387	5.54	0.860	5.000	4.774	-4.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

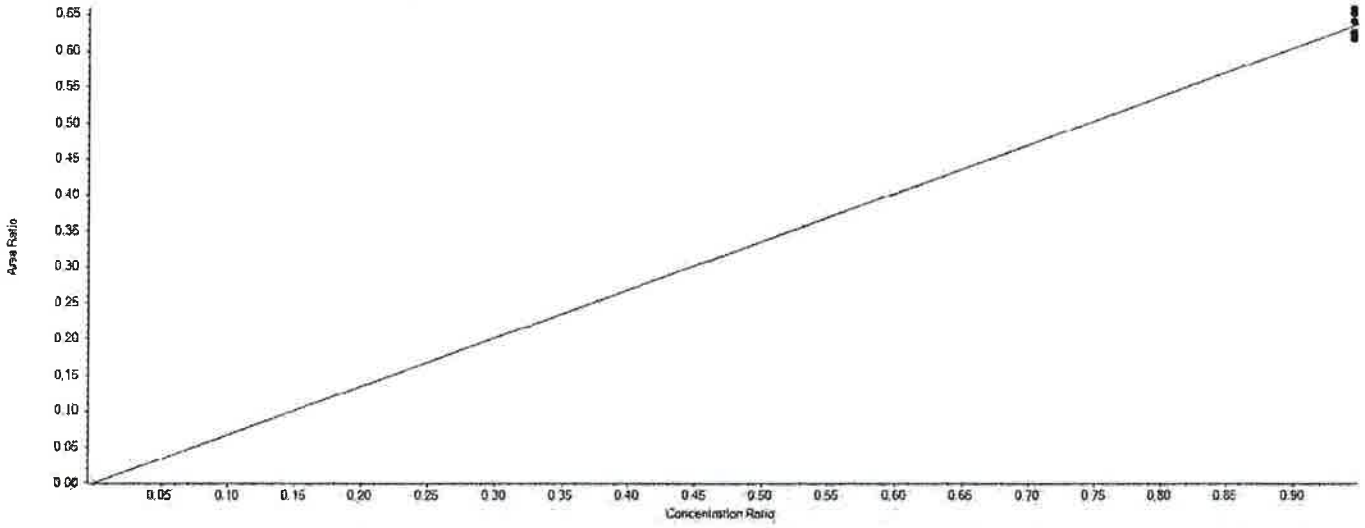
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C3-PFHxS

y = 0.67048 x (std. dev. = 0.01652) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	691939.8	1106995.2	True	5.00	0.625	5.99	0.930	4.730	4.661	-1.5	50.0	
CAL2	696545.9	1069381.6	True	5.00	0.651	5.98	0.930	4.730	4.857	2.7	30.0	
CAL3	754864.9	1223181.5	True	5.00	0.617	5.98	0.930	4.730	4.602	-2.7	30.0	
CAL4	683609.2	1098579.4	True	5.00	0.622	5.98	0.930	4.730	4.640	-1.9	30.0	
CAL5	602855.5	941808.6	True	5.00	0.640	5.98	0.930	4.730	4.773	0.9	30.0	
CAL6	505030.5	767793.5	True	5.00	0.658	5.98	0.930	4.730	4.905	3.7	30.0	
CAL7	404260.0	645555.1	True	5.00	0.626	5.97	0.930	4.730	4.670	-1.3	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

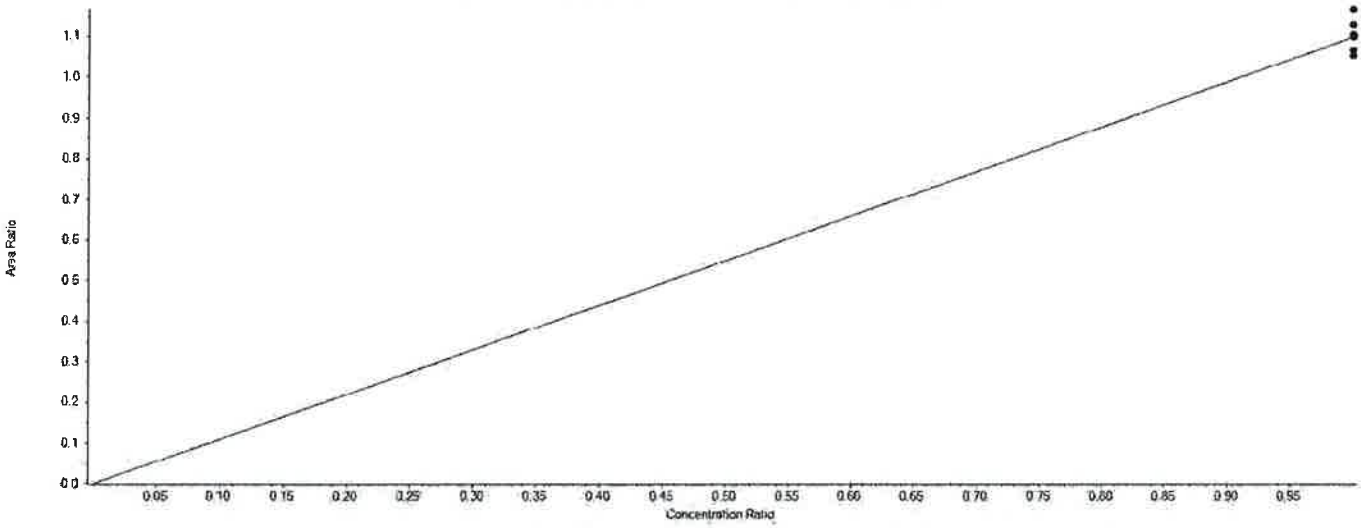
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C4-PFHpA

y = 1.09761 x (std. dev. = 0.03939) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1166383.1	1106995.2	True	5.00	1.054	6.00	0.940	5.000	4.800	-4.0	50.0	
CAL2	1246208.3	1069381.6	True	5.00	1.165	5.99	0.940	5.000	5.309	6.2	30.0	
CAL3	1306089.2	1223181.5	True	5.00	1.068	5.99	0.940	5.000	4.864	-2.7	30.0	
CAL4	1213654.2	1098579.4	True	5.00	1.105	5.99	0.940	5.000	5.033	0.7	30.0	
CAL5	1033263.3	941808.6	True	5.00	1.097	5.99	0.940	5.000	4.998	0.0	30.0	
CAL6	865825.4	767793.5	True	5.00	1.128	5.99	0.940	5.000	5.137	2.7	30.0	
CAL7	688769.4	645555.1	True	5.00	1.067	5.98	0.930	5.000	4.860	-2.8	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

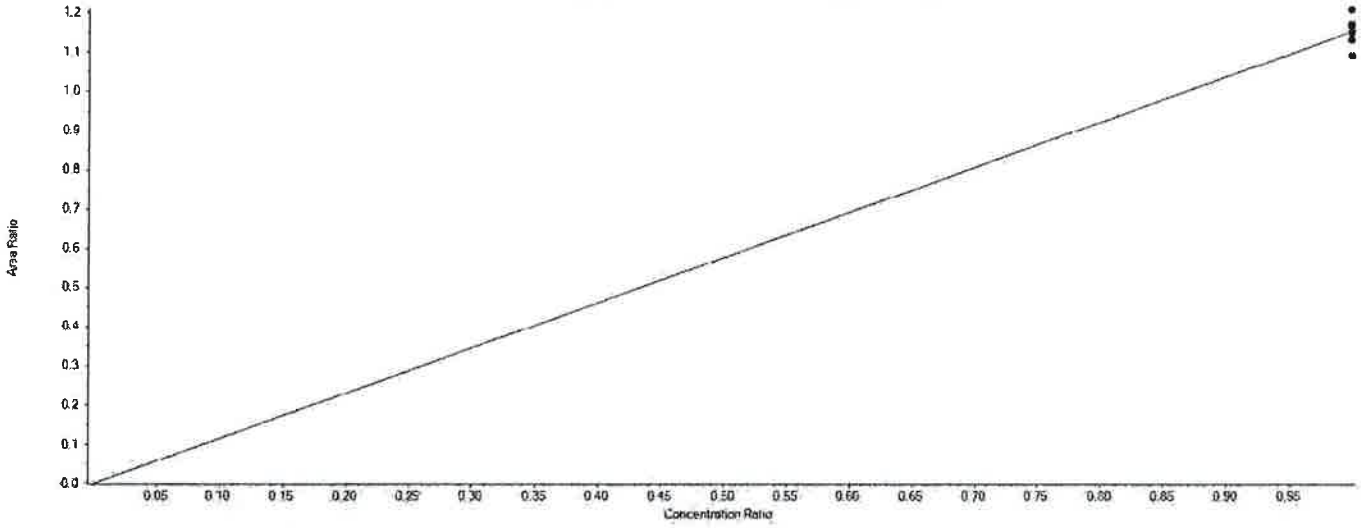
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C8-PFOA

y = 1.15349 x (std. dev. = 0.03602) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1292482.0	1106995.2	True	5.00	1.168	6.41	1.000	5.000	5.061	1.2	50.0	
CAL2	1292042.1	1069381.6	True	5.00	1.208	6.41	1.000	5.000	5.237	4.7	30.0	
CAL3	1405592.8	1223181.5	True	5.00	1.149	6.40	1.000	5.000	4.981	-0.4	30.0	
CAL4	1245323.0	1098579.4	True	5.00	1.134	6.40	1.000	5.000	4.914	-1.7	30.0	
CAL5	1103424.0	941808.6	True	5.00	1.172	6.40	1.000	5.000	5.079	1.6	30.0	
CAL6	885176.7	767793.5	True	5.00	1.153	6.41	1.000	5.000	4.997	-0.1	30.0	
CAL7	704601.2	645555.1	True	5.00	1.091	6.40	1.000	5.000	4.731	-5.4	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

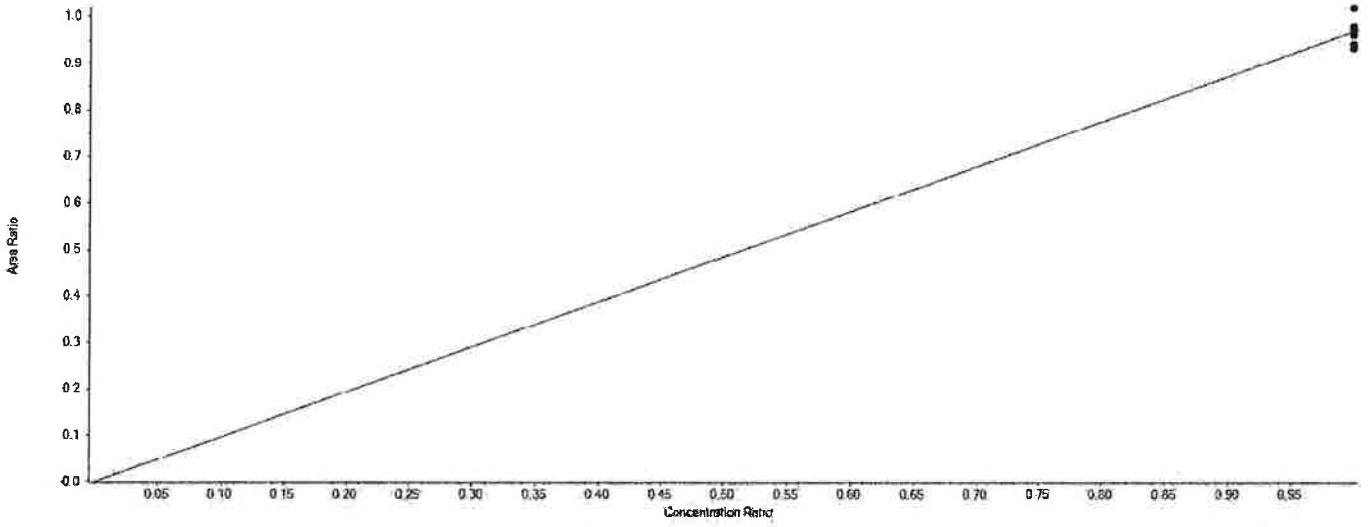
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C8-PFOS

y = 0.96949 x (std. dev. = 0.02815) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	782097.5	798459.3	True	4.78	0.980	6.76	1.000	4.780	4.829	1.0	50.0	
CAL2	791217.4	776185.9	True	4.78	1.019	6.76	1.000	4.780	5.026	5.1	30.0	
CAL3	838024.6	888258.8	True	4.78	0.943	6.75	1.000	4.780	4.652	-2.7	30.0	
CAL4	788939.6	813584.4	True	4.78	0.970	6.76	1.000	4.780	4.781	0.0	30.0	
CAL5	673644.0	699879.3	True	4.78	0.963	6.75	1.000	4.780	4.746	-0.7	30.0	
CAL6	561417.6	601867.3	True	4.78	0.933	6.75	1.000	4.780	4.599	-3.8	30.0	
CAL7	473989.6	484106.7	True	4.78	0.979	6.75	1.000	4.780	4.827	1.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

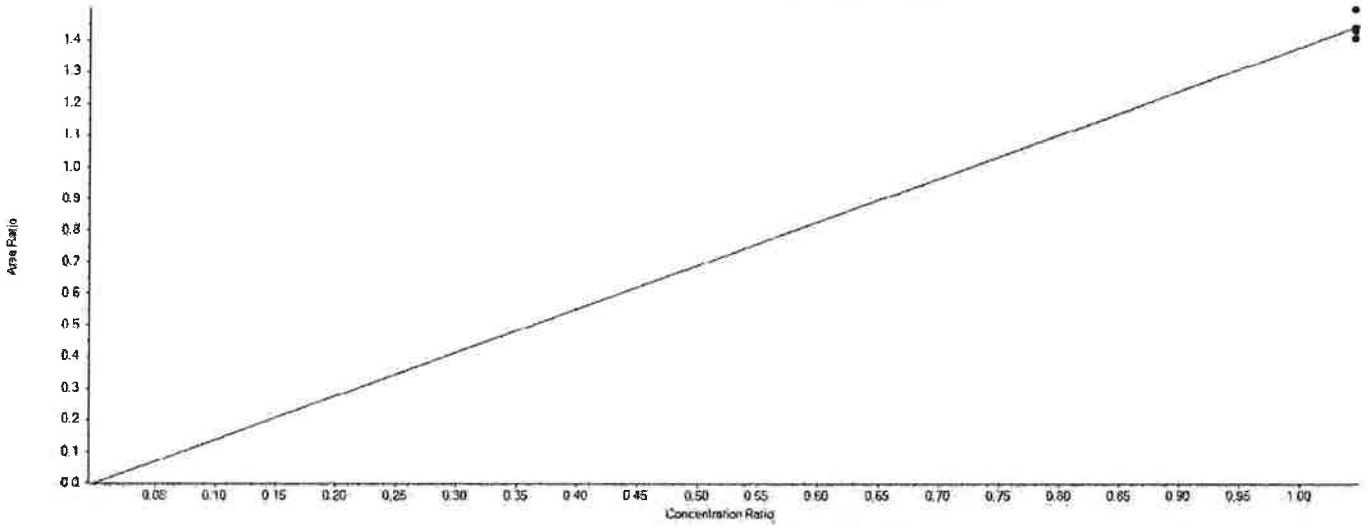
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C9-PFNA

y = 1.37835 x (std. dev. = 0.02646) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1142124.6	798459.3	True	4.78	1.430	6.79	1.000	5.000	4.961	-0.8	50.0	
CAL2	1162956.4	776185.9	True	4.78	1.498	6.78	1.000	5.000	5.196	3.9	30.0	
CAL3	1279709.6	888258.8	True	4.78	1.441	6.78	1.000	5.000	4.996	-0.1	30.0	
CAL4	1171820.5	813584.4	True	4.78	1.440	6.78	1.000	5.000	4.995	-0.1	30.0	
CAL5	1008795.0	699879.3	True	4.78	1.441	6.78	1.000	5.000	4.999	0.0	30.0	
CAL6	846767.8	601867.3	True	4.78	1.407	6.78	1.000	5.000	4.879	-2.4	30.0	
CAL7	694471.9	484106.7	True	4.78	1.435	6.78	1.010	5.000	4.975	-0.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

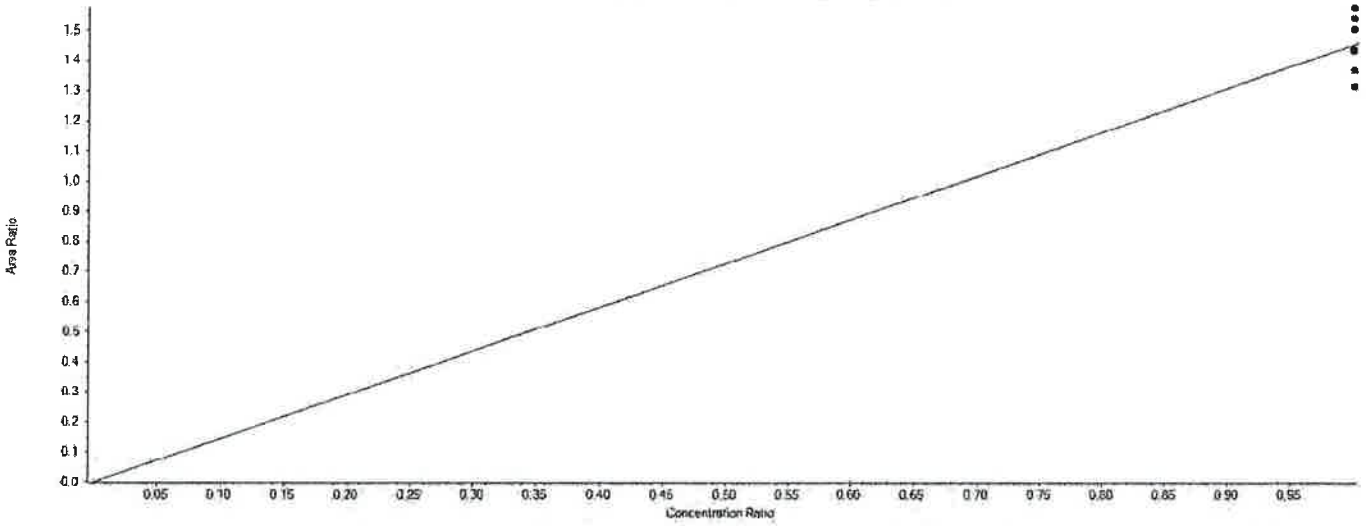
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C6-PFDA

y = 1.45412 x (std. dev. = 0.09291) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1673534.9	1165819.0	True	5.00	1.436	7.14	1.000	5.000	4.936	-1.3	50.0	
CAL2	1766826.2	1147160.8	True	5.00	1.540	7.13	1.000	5.000	5.296	5.9	30.0	
CAL3	1803035.3	1145668.9	True	5.00	1.574	7.13	1.000	5.000	5.411	8.2	30.0	
CAL4	1656227.7	1100677.4	True	5.00	1.505	7.13	1.000	5.000	5.174	3.5	30.0	
CAL5	1354179.2	939029.8	True	5.00	1.442	7.13	1.000	5.000	4.959	-0.8	30.0	
CAL6	1183910.8	864778.0	True	5.00	1.369	7.13	1.000	5.000	4.707	-5.9	30.0	
CAL7	903084.3	687554.3	True	5.00	1.313	7.13	1.000	5.000	4.516	-9.7	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

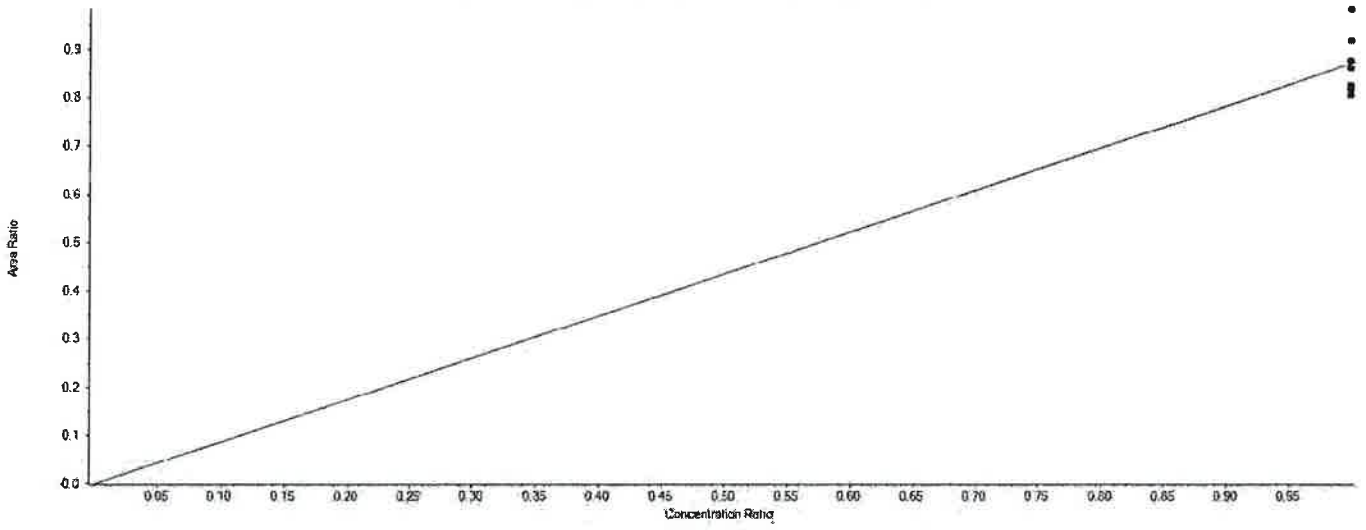
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C7-PFUnDA

y = 0.87014 x (std. dev. = 0.06281) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	953923.1	1165819.0	True	5.00	0.818	7.46	1.040	5.000	4.702	-6.0	50.0	
CAL2	988706.2	1147160.8	True	5.00	0.862	7.45	1.040	5.000	4.952	-1.0	30.0	
CAL3	1124860.5	1145668.9	True	5.00	0.982	7.45	1.040	5.000	5.642	12.8	30.0	
CAL4	1011445.6	1100677.4	True	5.00	0.919	7.45	1.040	5.000	5.280	5.6	30.0	
CAL5	824102.9	939029.8	True	5.00	0.878	7.44	1.040	5.000	5.043	0.9	30.0	
CAL6	697523.3	864778.0	True	5.00	0.807	7.45	1.040	5.000	4.635	-7.3	30.0	
CAL7	567844.0	687554.3	True	5.00	0.826	7.44	1.040	5.000	4.746	-5.1	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

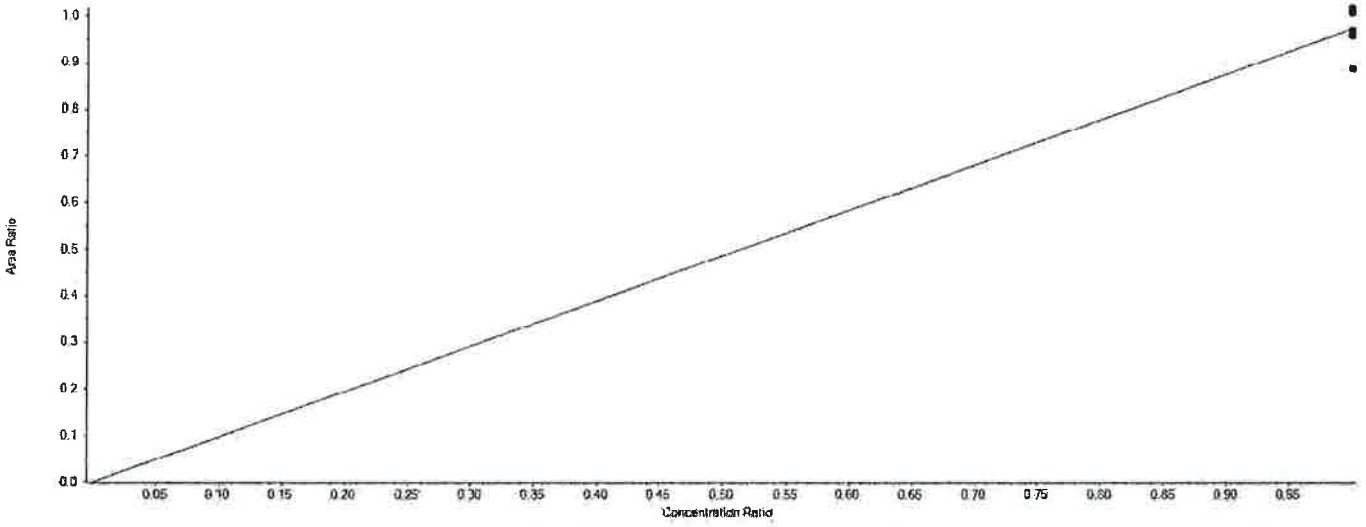
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C2-PFDoDA

y = 0.97223 x (std. dev. = 0.04464) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1032784.2	1165819.0	True	5.00	0.886	7.75	1.090	5.000	4.556	-8.9	50.0	
CAL2	1096813.9	1147160.8	True	5.00	0.956	7.75	1.090	5.000	4.917	-1.7	30.0	
CAL3	1164562.2	1145668.9	True	5.00	1.016	7.74	1.080	5.000	5.228	4.6	30.0	
CAL4	1063138.1	1100677.4	True	5.00	0.966	7.74	1.080	5.000	4.967	-0.7	30.0	
CAL5	944759.6	939029.8	True	5.00	1.006	7.74	1.090	5.000	5.174	3.5	30.0	
CAL6	838692.0	864778.0	True	5.00	0.970	7.74	1.080	5.000	4.988	-0.2	30.0	
CAL7	691174.2	687554.3	True	5.00	1.005	7.73	1.080	5.000	5.170	3.4	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

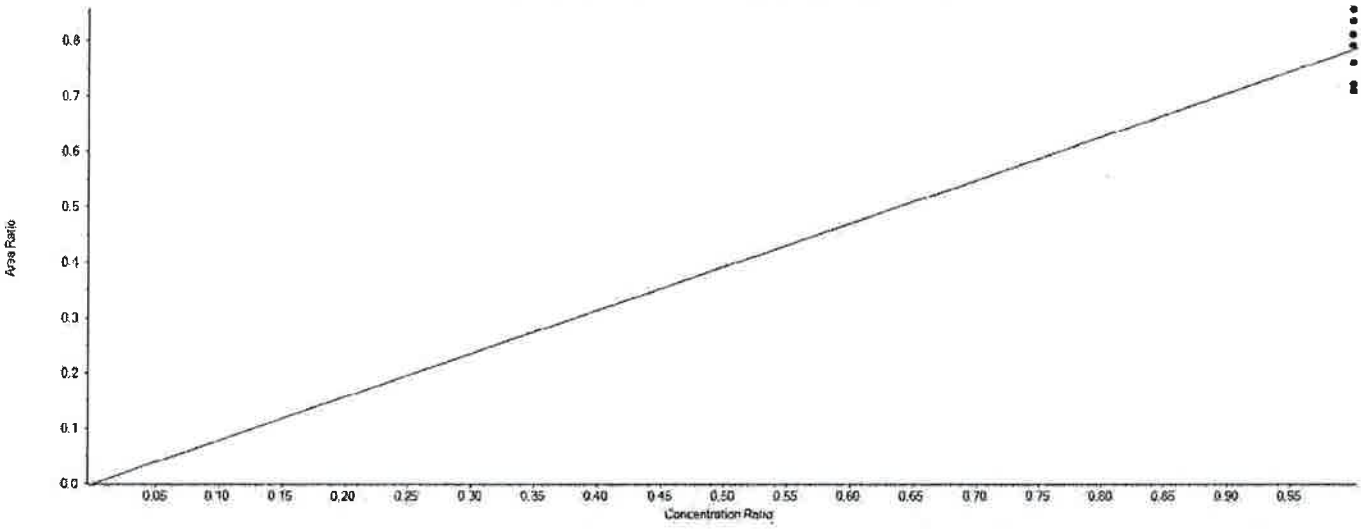
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C2-PFTeDA

y = 0.78281 x (std. dev. = 0.05535) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	826907.4	1165819.0	True	5.00	0.709	8.34	1.170	5.000	4.530	-9.4	50.0	
CAL2	872521.9	1147160.8	True	5.00	0.761	8.33	1.170	5.000	4.858	-2.8	30.0	
CAL3	927708.5	1145668.9	True	5.00	0.810	8.33	1.170	5.000	5.172	3.4	30.0	
CAL4	917389.5	1100677.4	True	5.00	0.833	8.32	1.170	5.000	5.324	6.5	30.0	
CAL5	802888.6	939029.8	True	5.00	0.855	8.32	1.170	5.000	5.461	9.2	30.0	
CAL6	684222.1	864778.0	True	5.00	0.791	8.32	1.170	5.000	5.054	1.1	30.0	
CAL7	495239.1	687554.3	True	5.00	0.720	8.31	1.170	5.000	4.601	-8.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

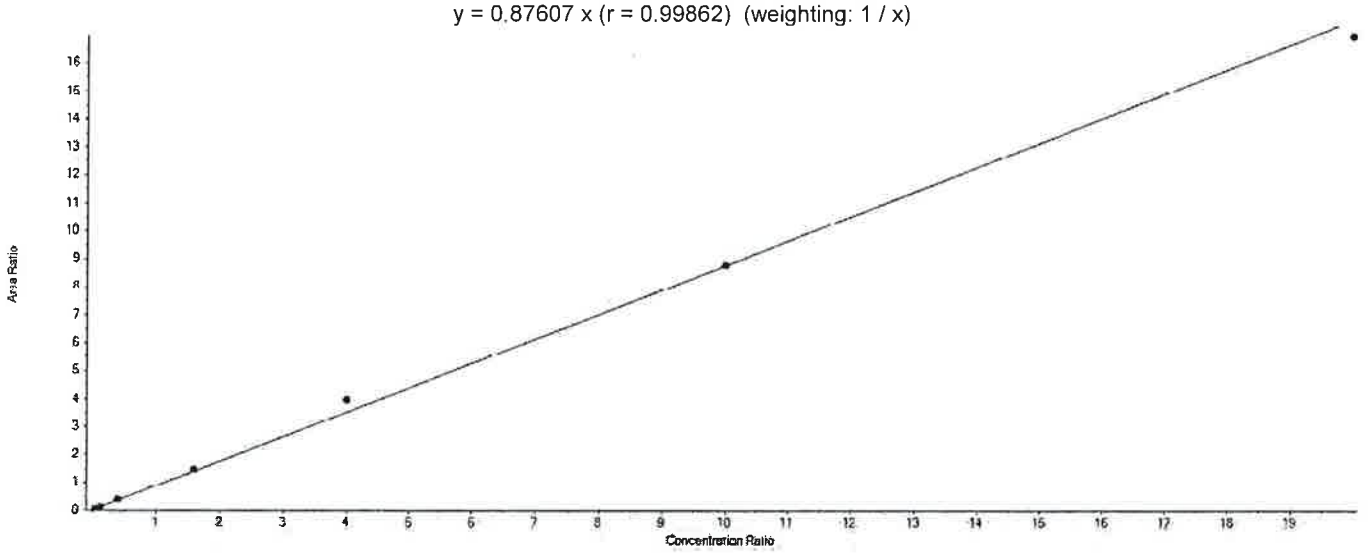
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFBA

y = 0.87607 x (r = 0.99862) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	83072.0	1924849.9	True	5.00	0.043	4.47	1.000	0.200	0.246	23.2	50.0	
CAL2	216601.6	1959719.2	True	5.00	0.111	4.46	1.000	0.600	0.631	5.1	30.0	
CAL3	761685.4	2084812.5	True	5.00	0.365	4.46	1.000	2.000	2.085	4.3	30.0	
CAL4	2841977.1	1924087.3	True	5.00	1.477	4.46	1.000	8.000	8.430	5.4	30.0	
CAL5	6527313.4	1641151.9	True	5.00	3.977	4.46	1.000	20.000	22.700	13.5	30.0	
CAL6	12108277.7	1381898.4	True	5.00	8.762	4.46	1.000	50.000	50.008	0.0	30.0	
CAL7	18507815.1	1092348.9	True	5.00	16.943	4.46	1.000	100.000	96.700	-3.3	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

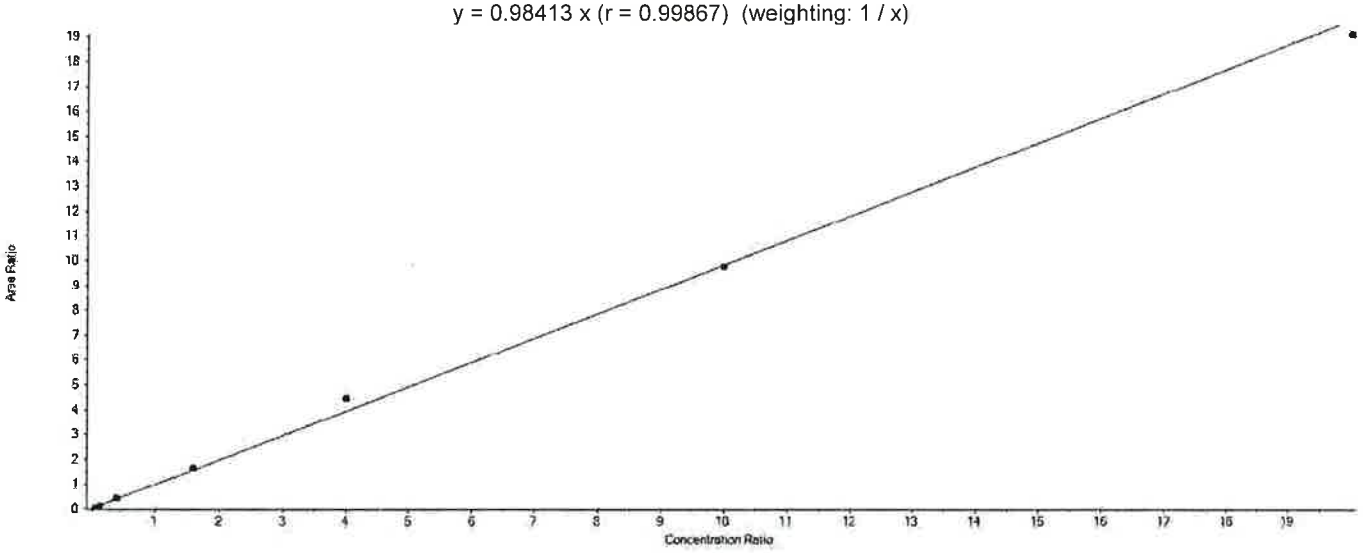
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFPeA

y = 0.98413 x (r = 0.99867) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	66857.1	1501835.6	True	5.00	0.045	5.08	1.000	0.200	0.226	13.1	50.0	
CAL2	187488.5	1510101.8	True	5.00	0.124	5.07	1.000	0.600	0.631	5.1	30.0	
CAL3	686846.3	1644584.0	True	5.00	0.418	5.07	1.000	2.000	2.122	6.1	30.0	
CAL4	2502106.0	1506387.3	True	5.00	1.661	5.07	1.000	8.000	8.439	5.5	30.0	
CAL5	5700049.7	1277613.6	True	5.00	4.461	5.07	1.000	20.000	22.667	13.3	30.0	
CAL6	10700451.2	1093978.3	True	5.00	9.781	5.07	1.000	50.000	49.695	-0.6	30.0	
CAL7	16109519.0	843605.3	True	5.00	19.096	5.06	1.000	100.000	97.020	-3.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

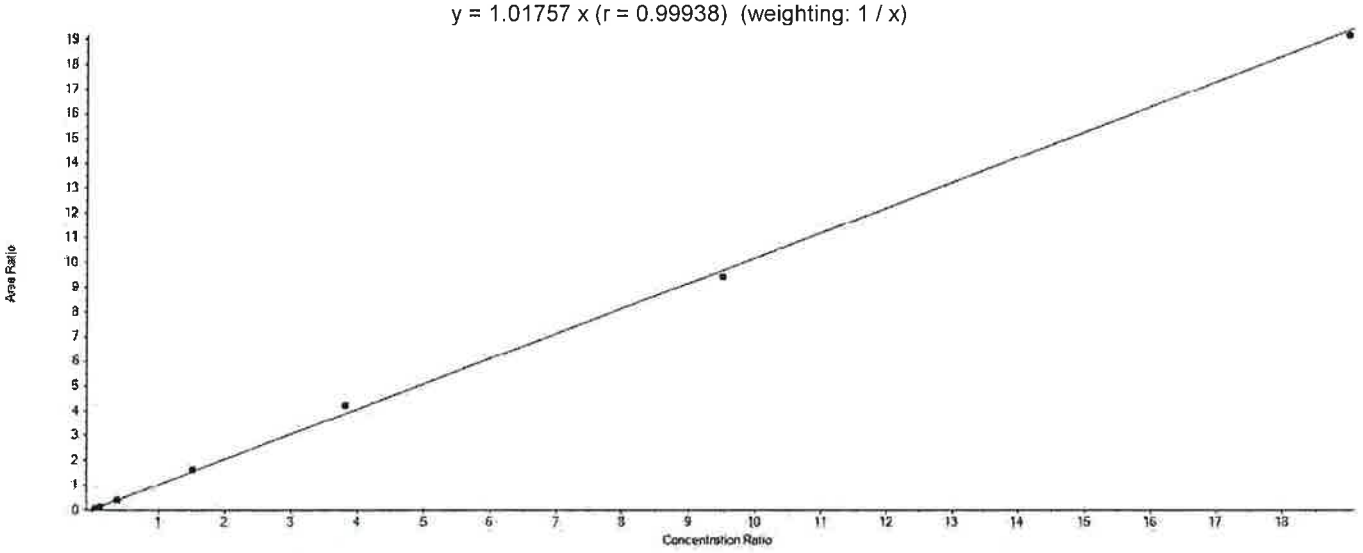
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFBS

y = 1.01757 x (r = 0.99938) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	40942.7	958872.4	True	4.65	0.043	5.13	1.000	0.170	0.195	14.8	50.0	
CAL2	117789.3	1011369.7	True	4.65	0.116	5.13	1.000	0.530	0.532	0.4	30.0	
CAL3	422494.5	1084316.8	True	4.65	0.390	5.12	1.000	1.770	1.781	0.6	30.0	
CAL4	1577527.4	972984.8	True	4.65	1.621	5.13	1.000	7.080	7.409	4.6	30.0	
CAL5	3745599.0	887408.7	True	4.65	4.221	5.12	1.000	17.690	19.288	9.0	30.0	
CAL6	7278697.6	770851.5	True	4.65	9.442	5.13	1.000	44.220	43.149	-2.4	30.0	
CAL7	11866779.1	619353.5	True	4.65	19.160	5.12	1.000	88.450	87.556	-1.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

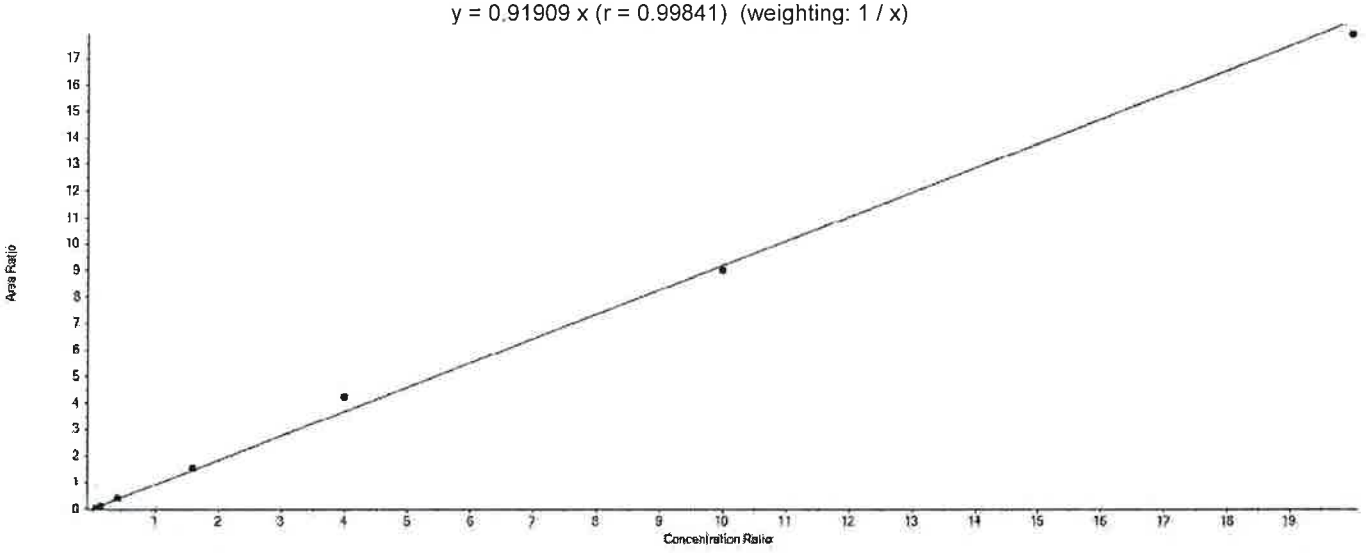
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFHxA

y = 0.91909 x (r = 0.99841) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65636.1	1594435.8	True	5.00	0.041	5.55	1.000	0.200	0.224	12.0	50.0	
CAL2	187046.3	1666616.8	True	5.00	0.112	5.55	1.000	0.600	0.611	1.8	30.0	
CAL3	698160.9	1720911.0	True	5.00	0.406	5.54	1.000	2.000	2.207	10.4	30.0	
CAL4	2497067.6	1598976.8	True	5.00	1.562	5.55	1.000	8.000	8.496	6.2	30.0	
CAL5	5774072.1	1369998.3	True	5.00	4.215	5.54	1.000	20.000	22.928	14.6	30.0	
CAL6	10142715.2	1125149.6	True	5.00	9.015	5.54	1.000	50.000	49.041	-1.9	30.0	
CAL7	16011473.0	895283.9	True	5.00	17.884	5.54	1.000	100.000	97.293	-2.7	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

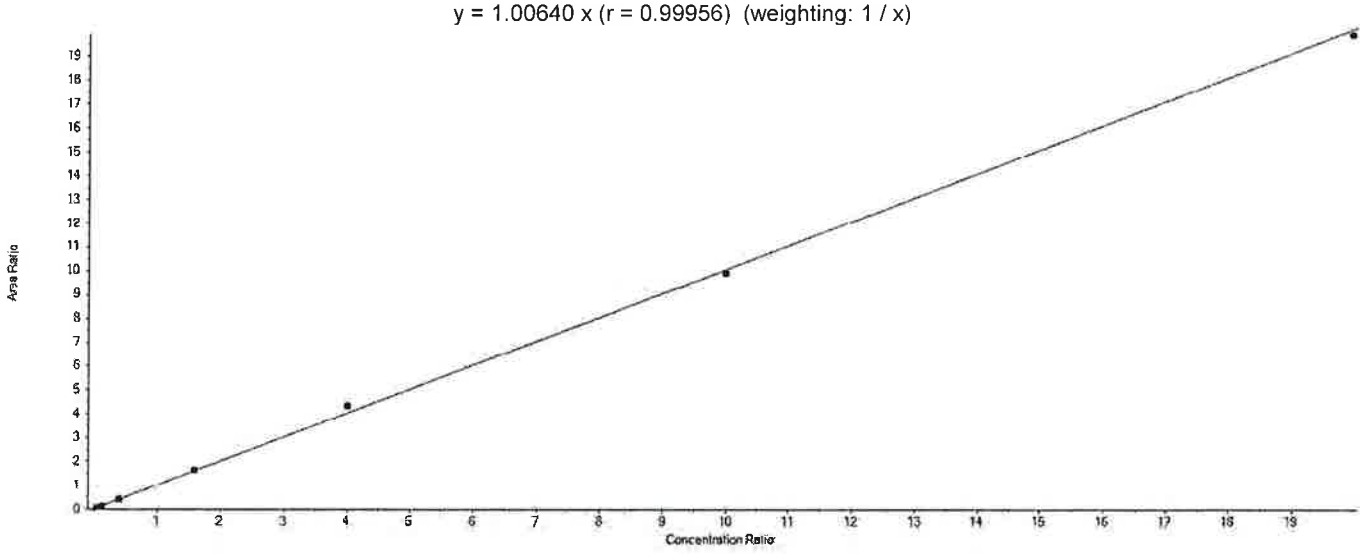
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFHxS

y = 1.00640 x (r = 0.99956) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	28849.5	691939.8	True	4.73	0.042	5.99	1.000	0.190	0.196	3.1	50.0	
CAL2	80965.4	696545.9	True	4.73	0.116	5.98	1.000	0.570	0.546	-4.2	30.0	
CAL3	305439.8	754864.9	True	4.73	0.405	5.98	1.000	1.890	1.902	0.6	30.0	
CAL4	1123264.2	683609.2	True	4.73	1.643	5.98	1.000	7.560	7.723	2.2	30.0	
CAL5	2620134.3	602855.5	True	4.73	4.346	5.98	1.000	18.910	20.427	8.0	30.0	
CAL6	5009170.1	505030.5	True	4.73	9.919	5.98	1.000	47.280	46.616	-1.4	30.0	
CAL7	8045768.3	404260.0	True	4.73	19.902	5.97	1.000	94.550	93.540	-1.1	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

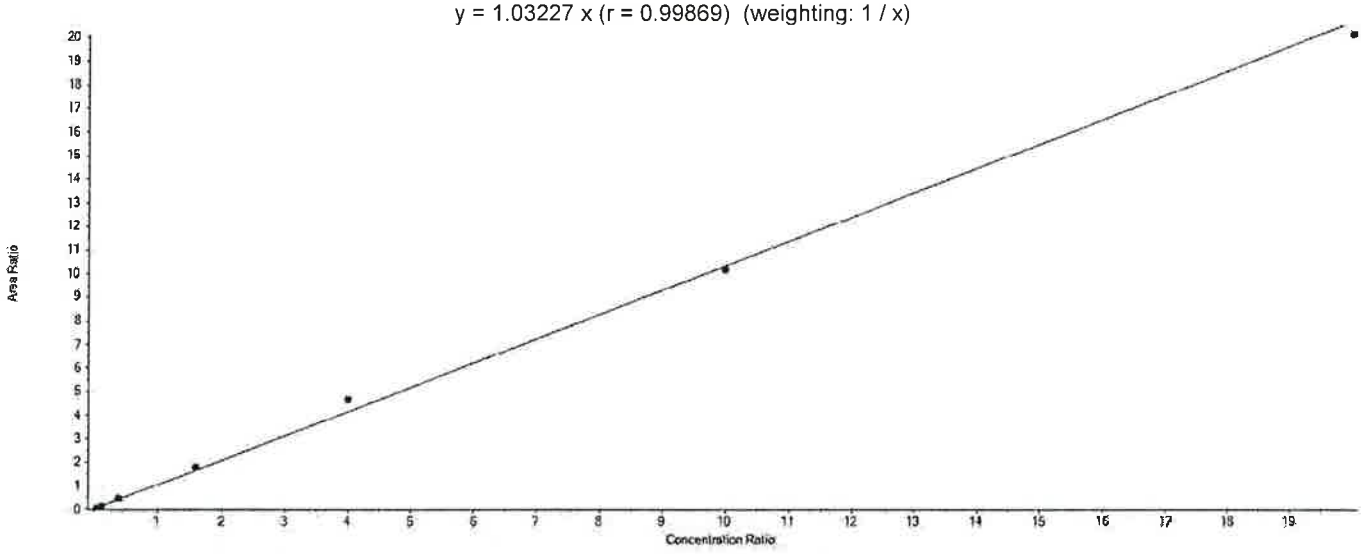
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFHpA

y = 1.03227 x (r = 0.99869) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	57780.5	1166383.1	True	5.00	0.050	6.00	1.000	0.200	0.240	20.0	50.0	
CAL2	157349.1	1246208.3	True	5.00	0.126	5.99	1.000	0.600	0.612	1.9	30.0	
CAL3	581970.3	1306089.2	True	5.00	0.446	5.99	1.000	2.000	2.158	7.9	30.0	
CAL4	2148078.3	1213654.2	True	5.00	1.770	5.99	1.000	8.000	8.573	7.2	30.0	
CAL5	4823800.2	1033263.3	True	5.00	4.669	5.99	1.000	20.000	22.613	13.1	30.0	
CAL6	8806314.7	865825.4	True	5.00	10.171	5.99	1.000	50.000	49.265	-1.5	30.0	
CAL7	13841660.8	688769.4	True	5.00	20.096	5.99	1.000	100.000	97.340	-2.7	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

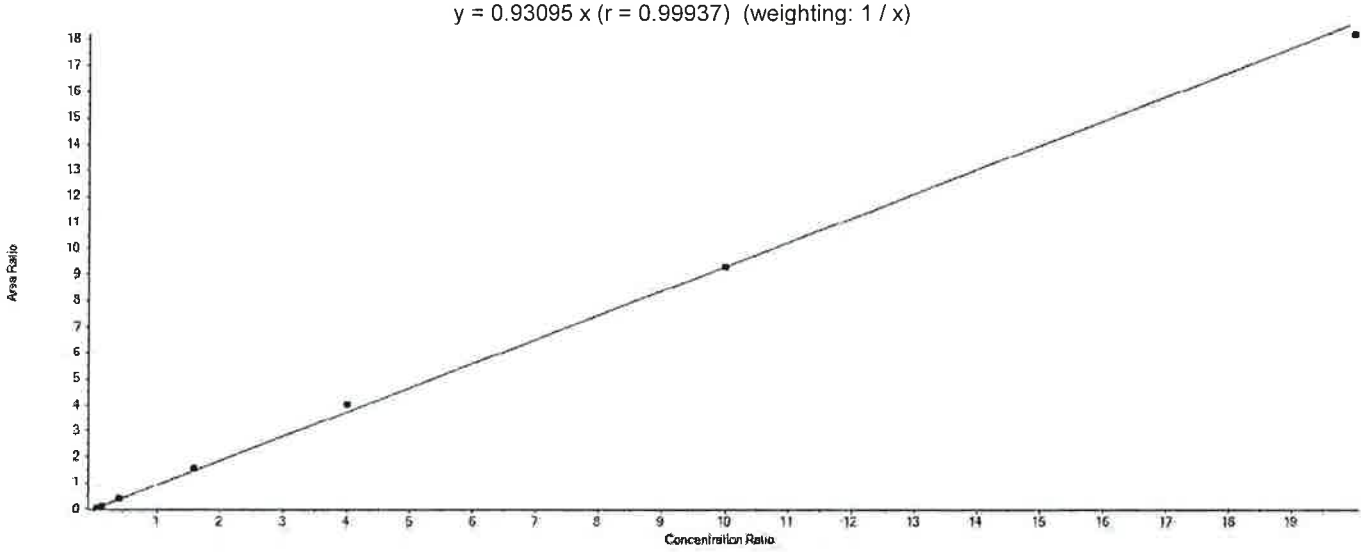
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFOA

y = 0.93095 x (r = 0.99937) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	56876.5	1292482.0	True	5.00	0.044	6.41	1.000	0.200	0.236	18.2	50.0	
CAL2	155637.0	1292042.1	True	5.00	0.120	6.40	1.000	0.600	0.647	7.8	30.0	
CAL3	554673.5	1405592.8	True	5.00	0.395	6.40	1.000	2.000	2.119	6.0	30.0	
CAL4	1969234.2	1245323.0	True	5.00	1.581	6.40	1.000	8.000	8.493	6.2	30.0	
CAL5	4455480.3	1103424.0	True	5.00	4.038	6.40	1.000	20.000	21.687	8.4	30.0	
CAL6	8234235.6	885176.7	True	5.00	9.302	6.41	1.000	50.000	49.962	-0.1	30.0	
CAL7	12811364.5	704601.2	True	5.00	18.182	6.40	1.000	100.000	97.656	-2.3	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

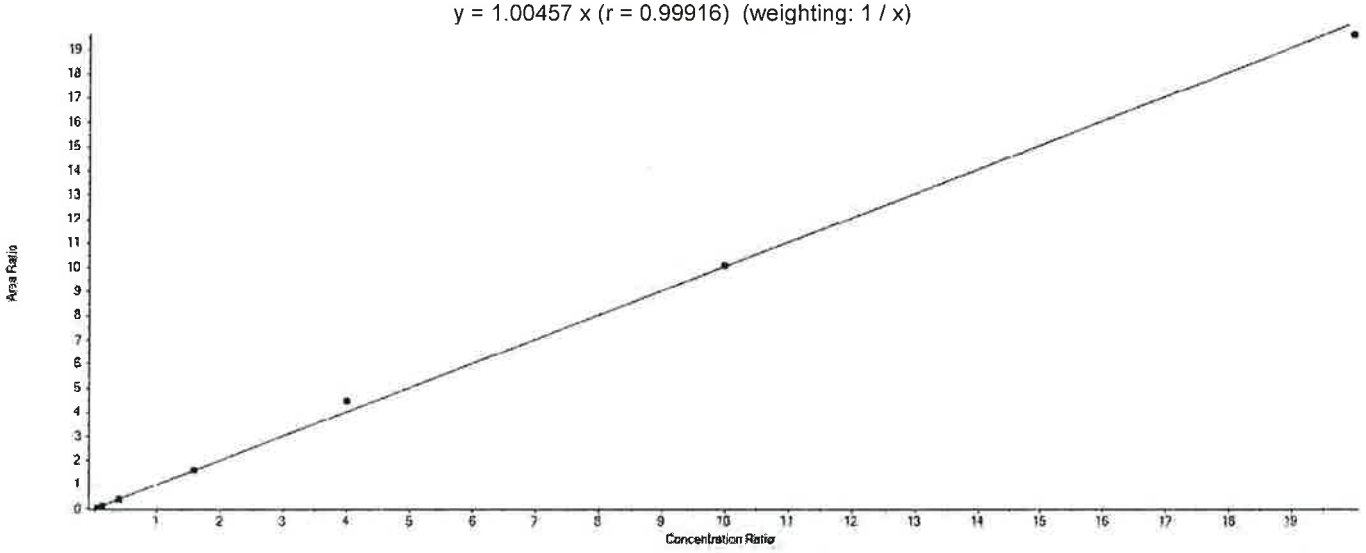
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFOS

y = 1.00457 x (r = 0.99916) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	32660.6	782097.5	True	4.78	0.042	6.76	1.000	0.190	0.199	4.6	50.0	
CAL2	91967.1	791217.4	True	4.78	0.116	6.76	1.000	0.570	0.553	-3.0	30.0	
CAL3	332396.7	838024.6	True	4.78	0.397	6.75	1.000	1.910	1.887	-1.2	30.0	
CAL4	1277739.2	788939.6	True	4.78	1.620	6.76	1.000	7.650	7.706	0.7	30.0	
CAL5	3000207.0	673644.0	True	4.78	4.454	6.75	1.000	19.120	21.192	10.8	30.0	
CAL6	5659042.1	561417.6	True	4.78	10.080	6.75	1.000	47.800	47.963	0.3	30.0	
CAL7	9297922.2	473989.6	True	4.78	19.616	6.74	1.000	95.600	93.340	-2.4	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

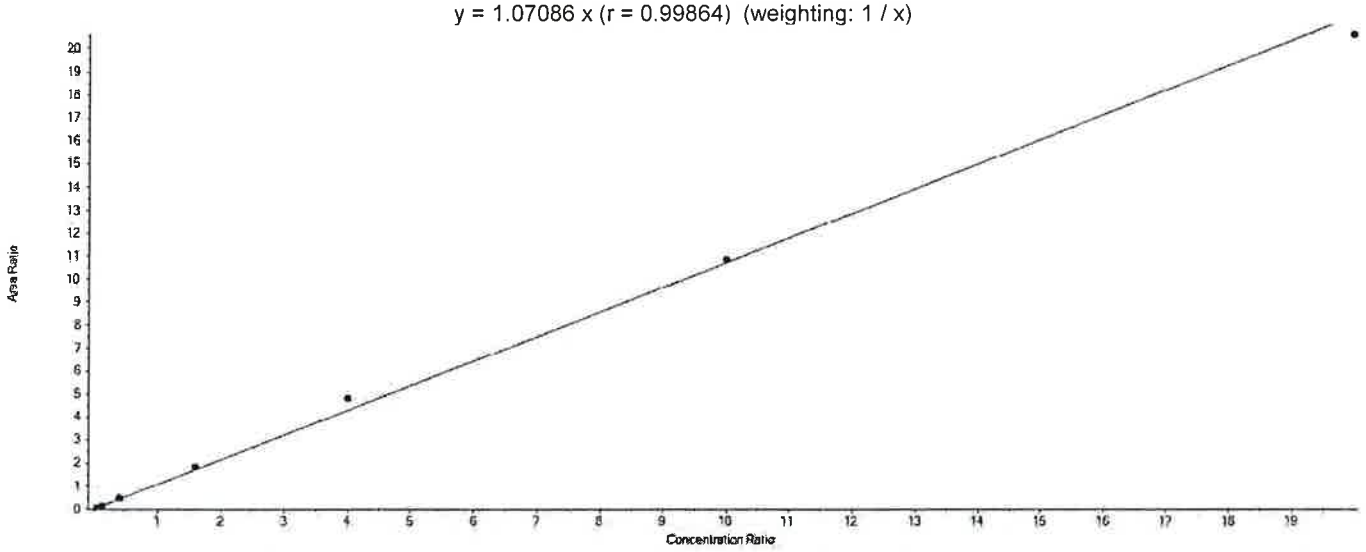
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFNA

y = 1.07086 x (r = 0.99864) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	59919.0	1142124.6	True	5.00	0.052	6.79	1.000	0.200	0.245	22.5	50.0	
CAL2	166200.5	1162956.4	True	5.00	0.143	6.78	1.000	0.600	0.667	11.2	30.0	
CAL3	607863.8	1279709.6	True	5.00	0.475	6.78	1.000	2.000	2.218	10.9	30.0	
CAL4	2132461.7	1171820.5	True	5.00	1.820	6.78	1.000	8.000	8.497	6.2	30.0	
CAL5	4850412.8	1008795.0	True	5.00	4.808	6.78	1.000	20.000	22.450	12.2	30.0	
CAL6	9165821.6	846767.8	True	5.00	10.824	6.78	1.000	50.000	50.541	1.1	30.0	
CAL7	14305765.2	694471.9	True	5.00	20.599	6.78	1.000	100.000	96.182	-3.8	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

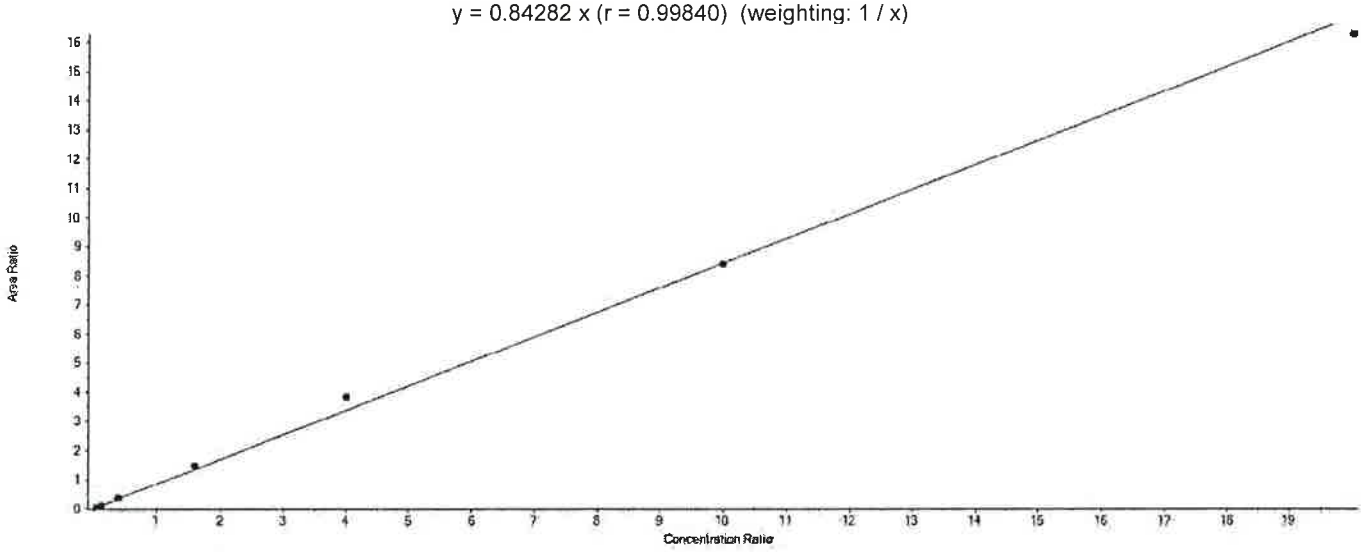
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFDA

y = 0.84282 x (r = 0.99840) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65331.0	1673534.9	True	5.00	0.039	7.14	1.000	0.200	0.232	15.8	50.0	
CAL2	185820.6	1766826.2	True	5.00	0.105	7.14	1.000	0.600	0.624	4.0	30.0	
CAL3	637049.8	1803035.3	True	5.00	0.353	7.13	1.000	2.000	2.096	4.8	30.0	
CAL4	2443005.6	1656227.7	True	5.00	1.475	7.14	1.000	8.000	8.751	9.4	30.0	
CAL5	5194694.3	1354179.2	True	5.00	3.836	7.13	1.000	20.000	22.757	13.8	30.0	
CAL6	9947778.2	1183910.8	True	5.00	8.402	7.13	1.000	50.000	49.847	-0.3	30.0	
CAL7	14688971.5	903084.3	True	5.00	16.265	7.13	1.000	100.000	96.493	-3.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

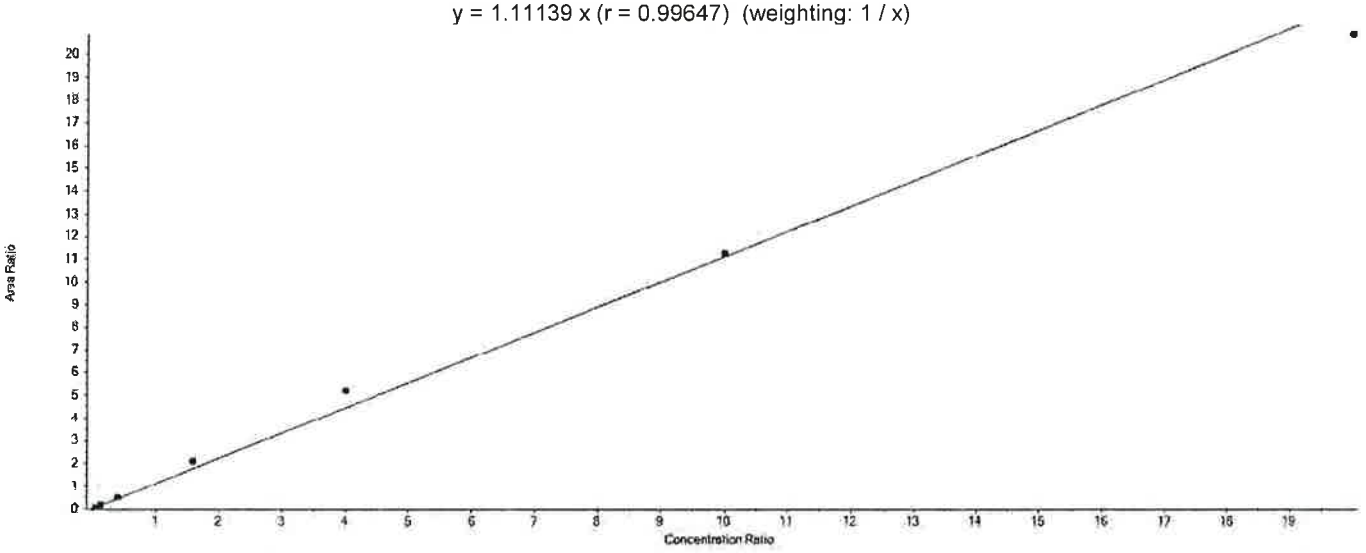
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFUnDA

y = 1.11139 x (r = 0.99647) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	53783.1	953923.1	True	5.00	0.056	7.46	1.000	0.200	0.254	26.8	50.0	
CAL2	166077.8	988706.2	True	5.00	0.168	7.45	1.000	0.600	0.756	26.0	30.0	
CAL3	575865.8	1124860.5	True	5.00	0.512	7.45	1.000	2.000	2.303	15.2	30.0	
CAL4	2132174.6	1011445.6	True	5.00	2.108	7.45	1.000	8.000	9.484	18.5	30.0	
CAL5	4297346.1	824102.9	True	5.00	5.215	7.44	1.000	20.000	23.460	17.3	30.0	
CAL6	7858951.3	697523.3	True	5.00	11.267	7.45	1.000	50.000	50.689	1.4	30.0	
CAL7	11846326.9	567844.0	True	5.00	20.862	7.44	1.000	100.000	93.855	-6.1	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

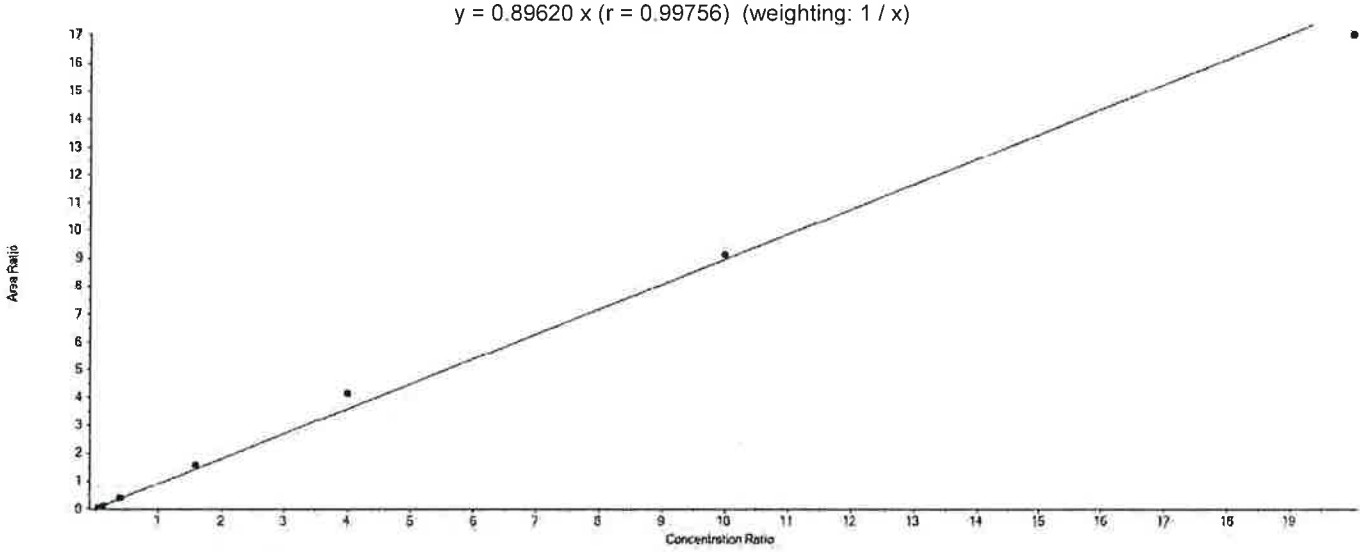
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFDoDA

y = 0.89620 x (r = 0.99756) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	42566.8	1032784.2	True	5.00	0.041	7.75	1.000	0.200	0.230	15.0	50.0	
CAL2	120934.1	1096813.9	True	5.00	0.110	7.75	1.000	0.600	0.615	2.5	30.0	
CAL3	453251.3	1164562.2	True	5.00	0.389	7.74	1.000	2.000	2.171	8.6	30.0	
CAL4	1661667.3	1063138.1	True	5.00	1.563	7.74	1.000	8.000	8.720	9.0	30.0	
CAL5	3934621.1	944759.6	True	5.00	4.165	7.73	1.000	20.000	23.235	16.2	30.0	
CAL6	7651287.6	838692.0	True	5.00	9.123	7.74	1.000	50.000	50.897	1.8	30.0	
CAL7	11760698.5	691174.2	True	5.00	17.016	7.73	1.000	100.000	94.931	-5.1	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

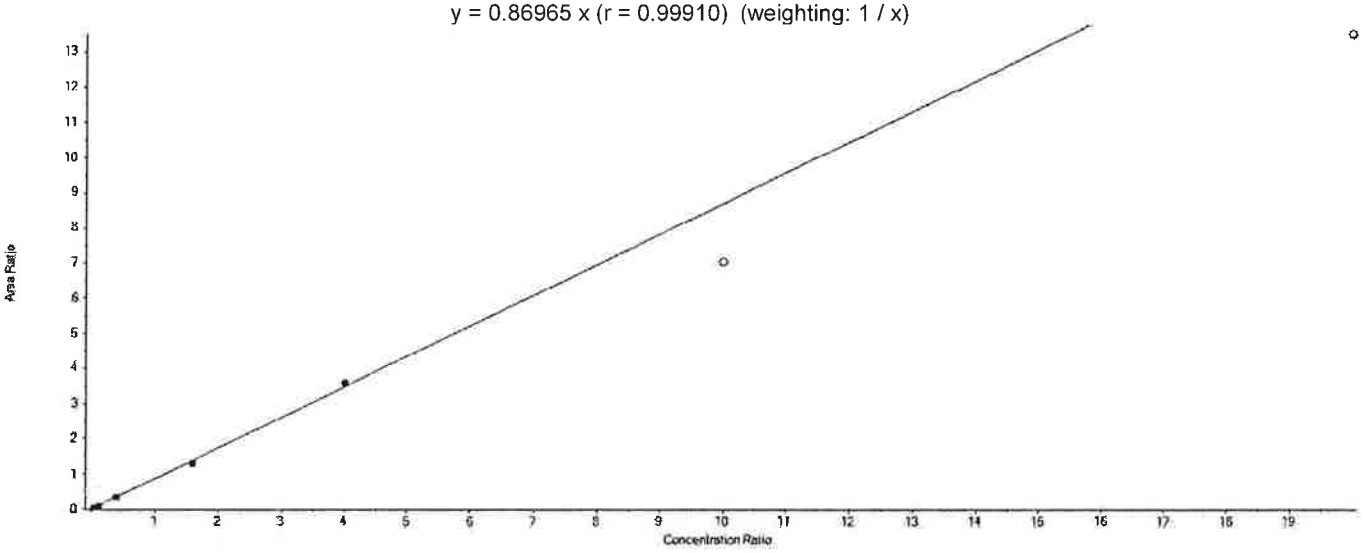
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFTrDA

y = 0.86965 x (r = 0.99910) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	35878.4	1032784.2	True	5.00	0.035	8.04	1.040	0.200	0.200	-0.1	50.0	
CAL2	101163.0	1096813.9	True	5.00	0.092	8.04	1.040	0.600	0.530	-11.6	30.0	
CAL3	390633.2	1164562.2	True	5.00	0.335	8.03	1.040	2.000	1.929	-3.6	30.0	
CAL4	1394459.0	1063138.1	True	5.00	1.312	8.03	1.040	8.000	7.541	-5.7	30.0	
CAL5	3385095.1	944759.6	True	5.00	3.583	8.02	1.040	20.000	20.600	3.0	30.0	
CAL6	5891260.9	838692.0	False	5.00	7.024	8.03	1.040	50.000	40.386	-19.2	30.0	
CAL7	9315016.2	691174.2	False	5.00	13.477	8.02	1.040	100.000	77.485	-22.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

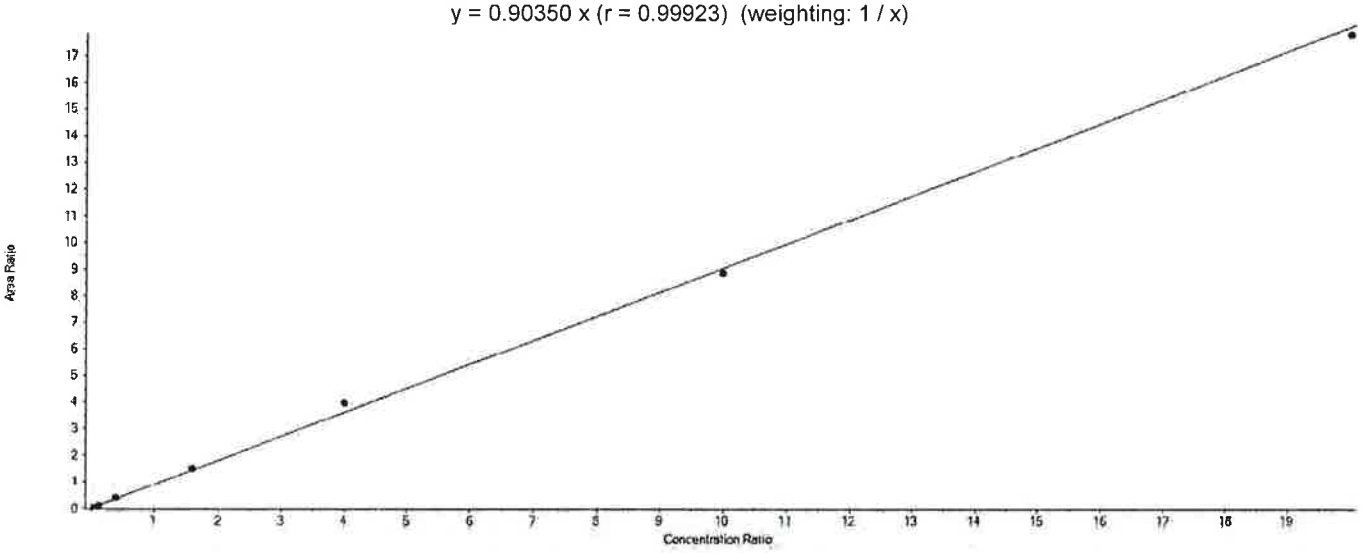
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFTeDA

y = 0.90350 x (r = 0.99923) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	33544.7	826907.4	True	5.00	0.041	8.34	1.000	0.200	0.224	12.2	50.0	
CAL2	99126.0	872521.9	True	5.00	0.114	8.33	1.000	0.600	0.629	4.8	30.0	
CAL3	371414.0	927708.5	True	5.00	0.400	8.32	1.000	2.000	2.216	10.8	30.0	
CAL4	1378385.7	917389.5	True	5.00	1.503	8.32	1.000	8.000	8.315	3.9	30.0	
CAL5	3192627.0	802888.6	True	5.00	3.976	8.31	1.000	20.000	22.006	10.0	30.0	
CAL6	6053232.5	684222.1	True	5.00	8.847	8.32	1.000	50.000	48.959	-2.1	30.0	
CAL7	8810464.7	495239.1	True	5.00	17.790	8.30	1.000	100.000	98.452	-1.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:49 pm, 4/10/18

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

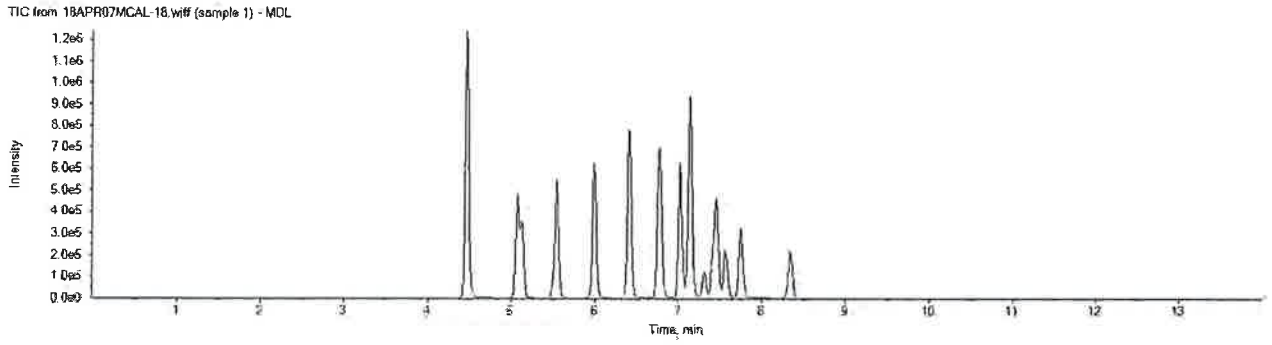
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24960 **File Name:** 18APR07MCAL-18.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	4.46	1.000	39077.4	M	13C4-PFBA	4.46	1822986.2	0.021	0.122
PFPeA	5.07	1.000	34150.3	M	13C5-PFPeA	5.08	1408868.8	0.024	0.123
PFBS	5.13	1.000	19598.5	A	13C3-PFBS	5.13	955478.9	0.021	0.094
4:2-FTS	5.50	1.000	16973.5	M	13C2-4:2-FTS	5.51	177534.7	0.096	0.513
PFHxA	5.55	1.000	33334.5	M	13C5-PFHxA	5.55	1572144.7	0.021	0.115
PFPeS	5.57	1.080	7849.8	M	13C3-PFBS	5.13	955478.9	0.008	0.093
PFHxS	5.99	1.000	14949.4	M	13C3-PFHxS	5.99	661360.0	0.023	0.106
PFHpA	5.99	1.000	26922.9	M	13C4-PFHpA	6.00	1170836.4	0.023	0.111
6:2-FTS	6.40	1.000	12495.8	M	13C2-6:2-FTS	6.40	124292.0	0.101	0.520
PFHpS	6.39	1.070	13201.7	M	13C3-PFHxS	5.99	661360.0	0.020	0.098
PFOA	6.41	1.000	30000.2	M	13C8-PFOA	6.41	1220875.9	0.025	0.132
PFOS	6.76	1.000	16697.5	M	13C8-PFOS	6.76	745709.1	0.022	0.107
PFNA	6.79	1.000	26542.0	M	13C9-PFNA	6.79	1112339.4	0.024	0.111
PFOSA	7.03	1.000	36753.7	M	13C8-PFOSA	7.02	1765843.1	0.021	0.113
PFNS	7.11	1.050	11830.1	M	13C8-PFOS	6.76	745709.1	0.016	0.100
PFDA	7.14	1.000	31528.1	M	13C6-PFDA	7.14	1674611.3	0.019	0.112
8:2-FTS	7.15	1.000	23986.8	M	13C2-8:2-FTS	7.16	249614.1	0.096	0.496
NMePFOSAE	7.43	1.000	9871.4	M	d7-NMePFOSAE	7.41	404203.3	0.024	0.114
NMePFOSA	7.44	1.000	4421.4	M	d3-NMePFOSA	7.44	187191.6	0.024	0.111
NMeFOSAA	7.32	1.000	9025.0	M	d3-NMeFOSAA	7.32	385084.8	0.023	0.114
NEtPFOSAE	7.57	1.000	13166.4	M	d9-NEtPFOSAE	7.56	533740.7	0.025	0.113
NEtPFOSA	7.60	1.000	3700.9	M	d5-NEtPFOSA	7.59	175172.0	0.021	0.111
PFDS	7.42	1.100	9905.8	M	13C8-PFOS	6.76	745709.1	0.013	0.112
PFUnDA	7.46	1.000	28780.4	M	13C7-PFUnDA	7.46	981039.7	0.029	0.132
NEtFOSAA	7.49	1.000	8622.0	M	d5-NEtFOSAA	7.48	386725.5	0.022	0.105
PFDoDA	7.75	1.000	21549.4	M	13C2-PFDoDA	7.75	1023118.2	0.021	0.118
10:2-FTS	7.79	1.090	17267.1	M	13C2-8:2-FTS	7.16	249614.1	0.069	0.467
PFDoS	8.00	1.180	3030.6	M	13C8-PFOS	6.76	745709.1	0.004	0.074
PFTrDA	8.04	1.040	16594.5	M	13C2-PFDoDA	7.75	1023118.2	0.016	0.093
PFTeDA	8.34	1.000	16025.6	M	13C2-PFTeDA	8.34	749062.8	0.021	0.118
PFHxDA	8.99	1.080	9731.8	M	13C2-PFTeDA	8.34	749062.8	0.013	0.105
PFODA	9.76	1.170	6097.8	M	13C2-PFTeDA	8.34	749062.8	0.008	0.095

Total Ion Chromatogram



APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:50 pm, 4/10/18

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

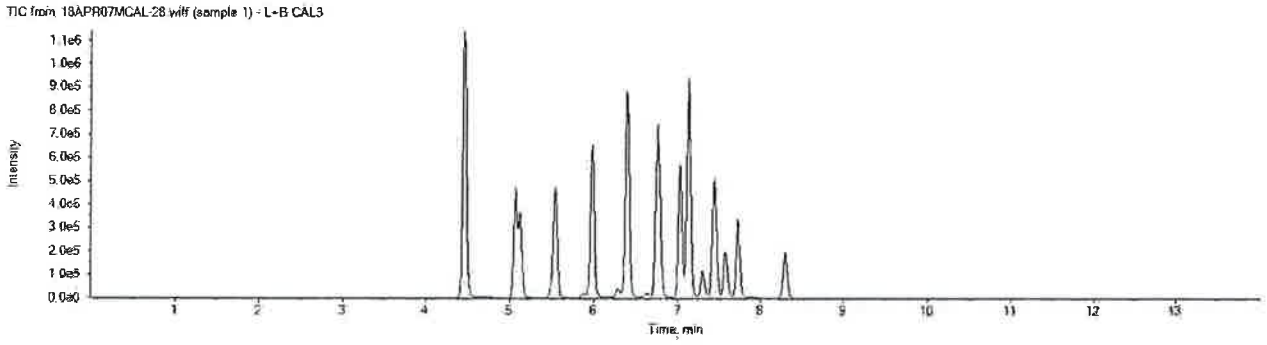
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM24960 **File Name:** 18APR07MCAL-28.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.46	1796967.7	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.07	1384632.0	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.13	918291.0	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.50	160945.1	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.55	1540991.2	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.13	918291.0	N/A	
PFHxS	5.98	1.000	250226.5	M	13C3-PFHxS	5.98	648870.9	0.386	1.812
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.99	1143323.7	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.39	129499.9	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	5.98	648870.9	N/A	
PFOA	6.40	1.000	382876.9	M	13C8-PFOA	6.40	1135188.4	0.337	1.811
PFOS	6.75	1.000	294925.1	M	13C8-PFOS	6.75	727782.8	0.405	1.928
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.78	1008946.6	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	7.03	1773769.1	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.75	727782.8	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.13	1632370.3	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.14	226522.8	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.42	378019.1	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.44	186315.7	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.30	358466.7	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.57	497566.6	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.60	167308.2	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.75	727782.8	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.44	925969.7	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.46	354826.8	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.73	983513.9	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.14	226522.8	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.75	727782.8	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.73	983513.9	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.30	651366.1	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.30	651366.1	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.30	651366.1	N/A	

Total Ion Chromatogram

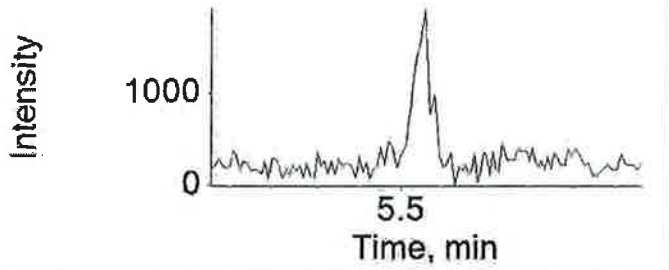


APPROVED
By DMW at 12:15 pm, 4/8/18

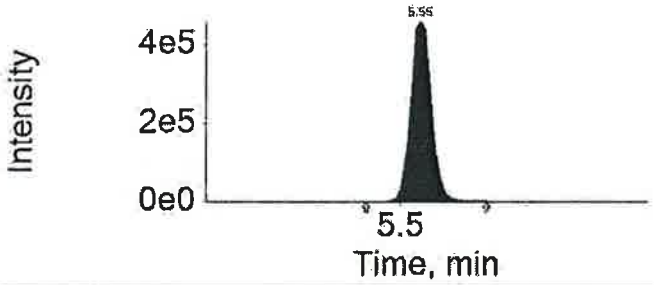
REVIEWED
By umar at 3:50 pm, 4/10/18

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

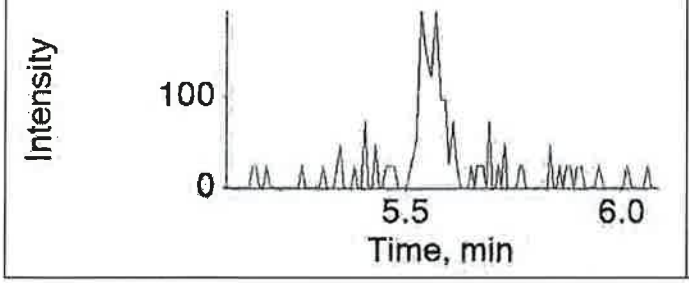
Analyte: PFHxA
313.0 / 269.0



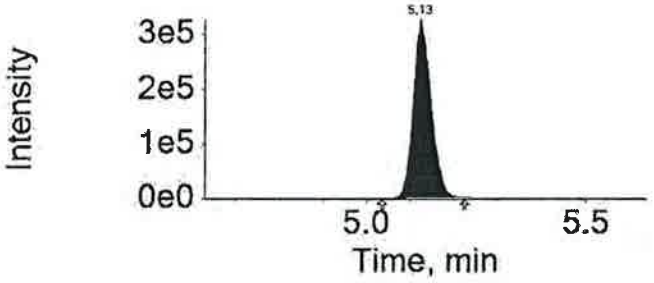
Extraction Standard: 13C5-PFHxA
318.0 / 273.0



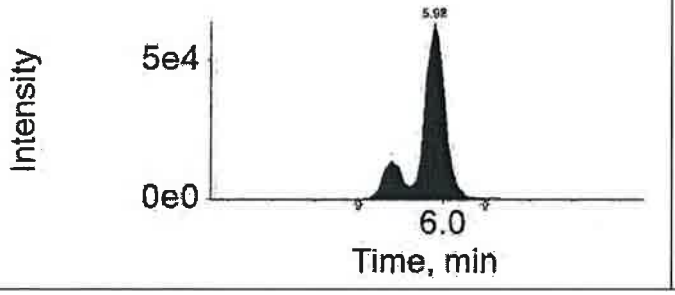
Analyte: PFPeS
349.0 / 80.0



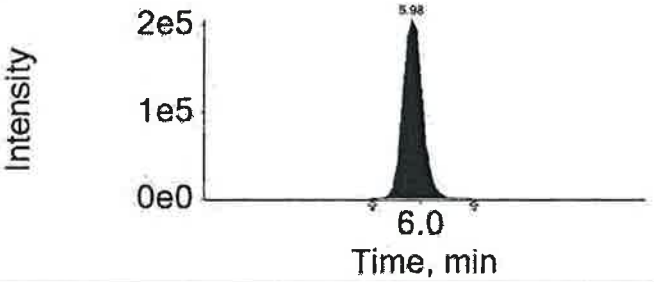
Extraction Standard: 13C3-PFBS
302.0 / 80.0



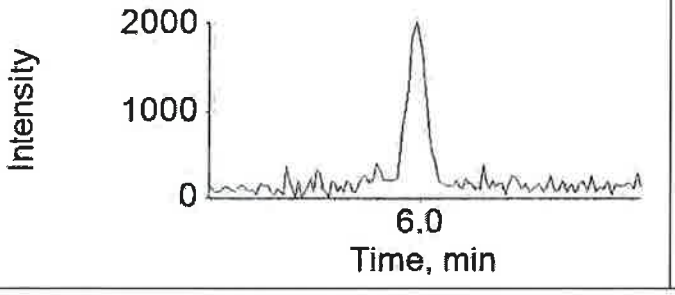
Analyte: PFHxS
399.0 / 80.0



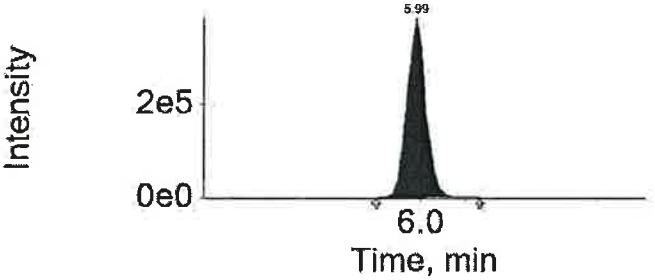
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0



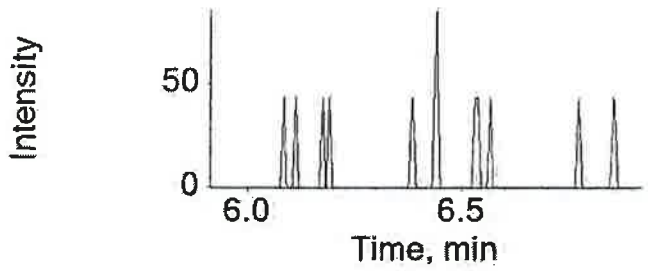
APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:50 pm, 4/10/18

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

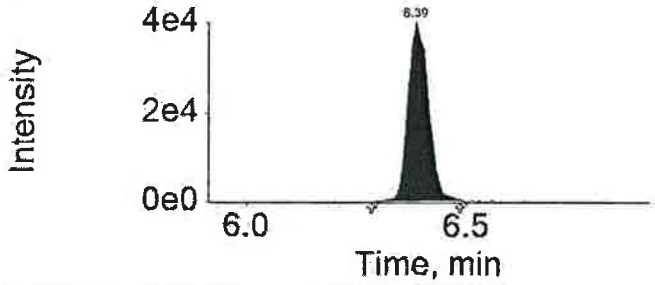
Analyte: 6:2-FTS

427.0 /
407.0



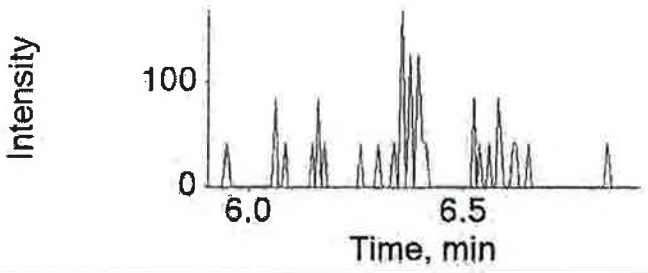
Extraction Standard: 13C2-6:2-FTS

429.0 /
409.0



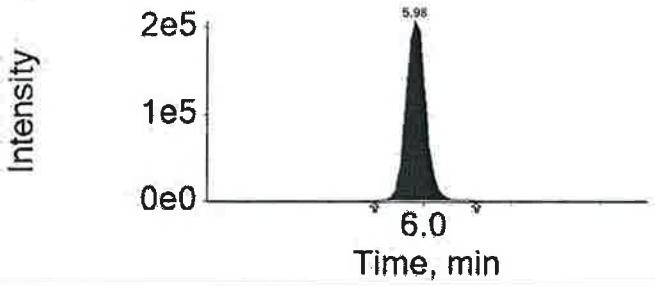
Analyte: PFHpS

449.0 /
80.0



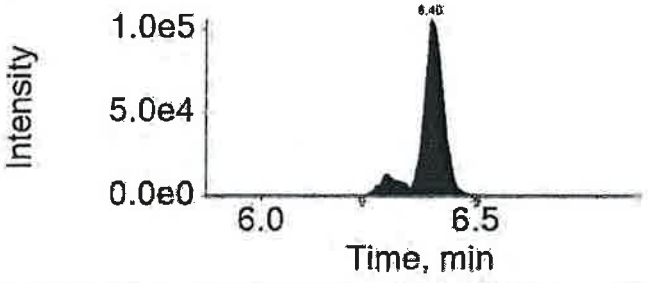
Extraction Standard: 13C3-PFHxS

402.0 /
80.0



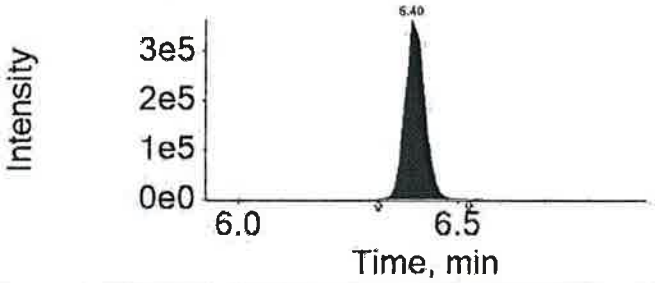
Analyte: PFOA

413.0 /
369.0



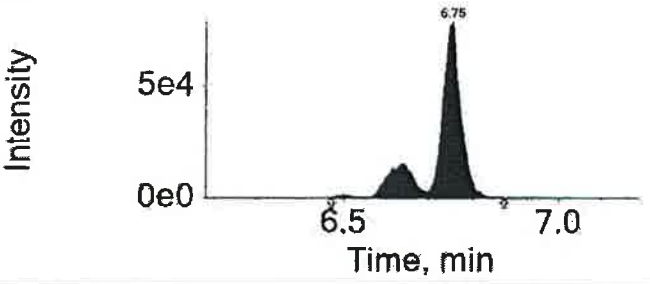
Extraction Standard: 13C8-PFOA

421.0 /
376.0



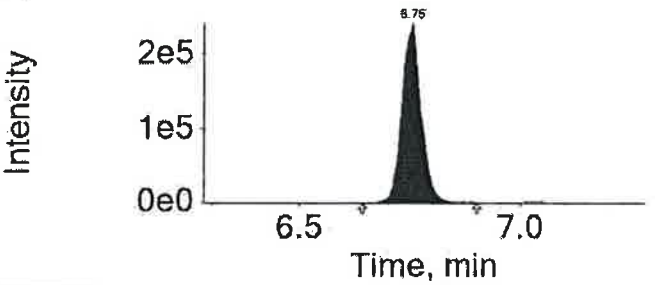
Analyte: PFOS

499.0 /
80.0



Extraction Standard: 13C8-PFOS

507.0 /
80.0



APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:50 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR07MCAL-27.wiff	4/8/2018 4:24:18 AM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	631732.5	13C4-PFBA	1858582.4	5.00	0.340	4.46	1.00	2.000	1.940	-3.0	30.0	
PFPeA	554763.9	13C5-PFPeA	1426714.6	5.00	0.389	5.07	1.00	2.000	1.976	-1.2	30.0	
PFBS	343338.3	13C3-PFBS	913208.7	4.65	0.376	5.12	1.00	1.770	1.718	-2.9	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	156022.8	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	575037.3	13C5-PFHxA	1554783.0	5.00	0.370	5.54	1.00	2.000	2.012	0.6	30.0	
PFPeS	N/A	13C3-PFBS	913208.7	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	252512.2	13C3-PFHxS	663064.4	4.73	0.381	5.98	1.00	1.890	1.790	-5.3	30.0	
PFHpA	490721.9	13C4-PFHpA	1208658.9	5.00	0.406	5.99	1.00	2.000	1.967	-1.7	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	123524.3	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	238017.5	13C3-PFHxS	663064.4	4.73	0.359	6.38	1.07	1.900	1.759	-7.4	30.0	
PFOA	452731.8	13C8-PFOA	1200833.7	5.00	0.377	6.40	1.00	2.000	2.025	1.2	30.0	
PFOS	268048.4	13C8-PFOS	733611.0	4.78	0.365	6.75	1.00	1.910	1.739	-9.0	30.0	
PFNA	491999.6	13C9-PFNA	1153598.9	5.00	0.426	6.78	1.00	2.000	1.991	-0.4	30.0	
PFOSA	N/A	13C8-PFOSA	1791867.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	733611.0	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	547826.1	13C6-PFDA	1639995.7	5.00	0.334	7.13	1.00	2.000	1.982	-0.9	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	224551.0	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	383774.6	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	183524.5	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	154163.7	d3-NMeFOSAA	364501.6	5.00	0.423	7.30	1.00	2.000	2.055	2.8	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	538967.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	176152.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	149152.3	13C8-PFOS	733611.0	4.78	0.203	7.40	1.10	1.930	1.721	-10.8	30.0	
PFUnDA	486150.5	13C7-PFUnDA	951029.4	5.00	0.511	7.44	1.00	2.000	2.300	15.0	30.0	
NEtFOSAA	137893.5	d5-NEtFOSAA	351466.1	5.00	0.392	7.47	1.00	2.000	1.840	-8.0	30.0	
PFDoDA	364384.5	13C2-PFDoDA	1056526.4	5.00	0.345	7.73	1.00	2.000	1.924	-3.8	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	224551.0	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	733611.0	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	296804.7	13C2-PFDoDA	1056526.4	5.00	0.281	8.02	1.04	2.000	1.615	-19.2	30.0	
PFTeDA	279594.4	13C2-PFTeDA	775730.9	5.00	0.360	8.31	1.00	2.000	1.995	-0.3	30.0	
PFHxDA	N/A	13C2-PFTeDA	775730.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	775730.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:49 pm, 4/10/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960 Lab File ID: 18APR07MCAL-29.WIFF

Date/Time Analyzed: 04/08/2018 04:53 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.10	5.03	±30
Perfluoropentanoic acid	2.00	2.09	4.47	±30
Perfluorobutanesulfonate	1.77	1.77	0.17	±30
4:2 fluorotelomersulfonate	4.90	5.24	6.99	±30
Perfluorohexanoic acid	2.00	2.10	4.78	±30
Perfluoropentanesulfonate	1.88	2.00	6.55	±30
Perfluorohexanesulfonate	1.89	1.88	-0.43	±30
Perfluoroheptanoic acid	2.00	2.10	4.80	±30
6:2 fluorotelomersulfonate	5.21	5.72	9.75	±30
Perfluoroheptanesulfonate	1.90	1.81	-4.74	±30
Perfluorooctanoic acid	2.00	2.26	12.78	±30
Perfluoro-octanesulfonate	1.91	1.92	0.52	±30
Perfluorononanoic acid	2.00	2.24	11.81	±30
Perfluorooctanesulfonamide	2.00	2.24	11.87	±30
Perfluorononanesulfonate	1.92	1.72	-10.66	±30
Perfluorodecanoic acid	2.00	2.21	10.62	±30
8:2 fluorotelomersulfonate	5.27	5.57	5.68	±30
NMePFOSAE	2.00	2.18	9.19	±30
NMePFOSA	2.00	2.06	2.77	±30
NMeFOSAA	2.00	2.28	13.80	±30

✓

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960 Lab File ID: 18APR07MCAL-29.WIFF

Date/Time Analyzed: 04/08/2018 04:53 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	2.00	2.24	11.78	±30
NEtPFOSA	2.00	2.05	2.36	±30
Perfluorodecanesulfonate	1.93	1.80	-6.56	±30
Perfluoroundecanoic acid	2.00	2.40	19.78	±30
NEtFOSAA	2.00	1.92	-3.79	±30
Perfluorododecanoic acid	2.00	2.15	7.26	±30
10:2-fluorotelomersulfonate	5.30	5.34	0.70	±30
Perfluorododecanesulfonate	1.94	1.67	-14.10	±30
Perfluorotridecanoic acid	2.00	1.84	-7.92	±30
Perfluorotetradecanoic acid	2.00	2.11	5.55	±30
Perfluorohexadecanoic acid	2.00	1.70	-15.16	±30
Perfluorooctadecanoic acid	2.00	1.76	-11.79	±30

✓

* Outside QC Limits.

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

ICAL & ICV Validated SBN09 BJE

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.224	12.2	±50
CAL2	0.099	0.60	0.588	-2.0	±30
CAL3	0.334	2.00	1.988	-0.6	±30
CAL4	1.385	8.00	8.248	3.1	±30
CAL5	3.703	20.00	22.049	10.2	±30
CAL6	8.510	50.00	50.671	1.3	±30
CAL7	16.296	100.00	97.032	-3.0	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.218	9.0	±50
CAL2	0.128	0.60	0.626	4.3	±30
CAL3	0.422	2.00	2.071	3.6	±30
CAL4	1.652	8.00	8.100	1.2	±30
CAL5	4.544	20.00	22.277	11.4	±30
CAL6	10.208	50.00	50.047	0.1	±30
CAL7	19.880	100.00	97.461	-2.5	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.17	0.182	7.2	±50
CAL2	0.119	0.53	0.561	5.8	±30
CAL3	0.369	1.77	1.738	-1.8	±30
CAL4	1.485	7.08	6.993	-1.2	±30
CAL5	3.805	17.69	17.920	1.3	±30
CAL6	9.149	44.22	43.084	-2.6	±30
CAL7	18.991	88.45	89.432	1.1	±30

4:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.119	0.58	0.649	11.9	±50
CAL2	0.413	1.98	2.258	14.1	±30
CAL3	0.874	4.90	4.777	-2.5	±30
CAL4	1.963	10.04	10.723	6.8	±30
CAL5	2.120	12.49	11.582	-7.3	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.20	0.232	15.8	±50
CAL2	0.113	0.60	0.618	2.9	±30
CAL3	0.402	2.00	2.194	9.7	±30
CAL4	1.566	8.00	8.551	6.9	±30
CAL5	4.418	20.00	24.124	20.6	±30
CAL6	9.113	50.00	49.758	-0.5	±30
CAL7	17.458	100.00	95.324	-4.7	±30

Perfluoropentanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.021	0.19	0.205	7.7	±50
CAL2	0.056	0.56	0.540	-3.6	±30
CAL3	0.193	1.88	1.875	-0.2	±30
CAL4	0.804	7.50	7.799	4.0	±30
CAL5	1.981	18.76	19.206	2.4	±30
CAL6	4.630	46.90	44.882	-4.3	±30
CAL7	9.808	93.80	95.083	1.4	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.19	0.197	3.6	±50
CAL2	0.109	0.57	0.530	-7.0	±30
CAL3	0.390	1.89	1.899	0.5	±30
CAL4	1.670	7.56	8.134	7.6	±30
CAL5	4.318	18.91	21.035	11.2	±30
CAL6	9.341	47.28	45.497	-3.8	±30
CAL7	19.228	94.55	93.658	-0.9	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.236	18.0	±50
CAL2	0.134	0.60	0.617	2.9	±30
CAL3	0.484	2.00	2.238	11.9	±30
CAL4	1.900	8.00	8.781	9.8	±30
CAL5	5.361	20.00	24.781	23.9	±30
CAL6	10.928	50.00	50.515	1.0	±30
CAL7	20.257	100.00	93.632	-6.4	±30

* Outside QC Limits

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FORM 06
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SDG No.: SBN11

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1= 18APR11MCAL-16.WIFF; CAL2= 18APR11MCAL-17.WIFF; CAL3= 18APR11MCAL-18.WIFF;
CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

6:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.272	1.30	1.396	7.4	±50
CAL2	0.423	2.09	2.169	3.8	±30
CAL3	1.228	5.21	6.297	20.9	±30
CAL4	2.141	10.43	10.983	5.3	±30
CAL5	2.188	13.04	11.225	-13.9	±30

Perfluoroheptanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.19	0.210	10.8	±50
CAL2	0.098	0.57	0.558	-2.1	±30
CAL3	0.349	1.90	1.983	4.4	±30
CAL4	1.466	7.61	8.333	9.5	±30
CAL5	3.683	19.03	20.941	10.0	±30
CAL6	8.168	47.58	46.438	-2.4	±30
CAL7	16.457	95.15	93.566	-1.7	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.047	0.20	0.255	27.4	±50
CAL2	0.117	0.60	0.635	5.9	±30
CAL3	0.397	2.00	2.159	7.9	±30
CAL4	1.638	8.00	8.916	11.4	±30
CAL5	4.179	20.00	22.743	13.7	±30
CAL6	9.432	50.00	51.330	2.7	±30
CAL7	17.413	100.00	94.762	-5.2	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.19	0.185	-2.9	±50
CAL2	0.112	0.57	0.538	-5.6	±30
CAL3	0.375	1.91	1.801	-5.7	±30
CAL4	1.618	7.65	7.764	1.5	±30
CAL5	4.246	19.12	20.378	6.6	±30
CAL6	9.951	47.80	47.762	-0.1	±30
CAL7	19.670	95.60	94.413	-1.2	±30

* Outside QC Limits

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FORM 06
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SDG No.: SBN11

Instrument ID: 24743

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CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.057	0.20	0.248	23.8	±50
CAL2	0.149	0.60	0.648	8.0	±30
CAL3	0.537	2.00	2.338	16.9	±30
CAL4	2.029	8.00	8.832	10.4	±30
CAL5	5.496	20.00	23.924	19.6	±30
CAL6	11.565	50.00	50.347	0.7	±30
CAL7	21.699	100.00	94.462	-5.5	±30

Perfluorooctanesulfonamide	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.207	3.5	±50
CAL2	0.119	0.60	0.625	4.2	±30
CAL3	0.430	2.00	2.253	12.7	±30
CAL4	1.503	8.00	7.878	-1.5	±30
CAL5	1.883	10.00	9.869	-1.3	±30
CAL6	9.474	50.00	49.663	-0.7	±30
CAL7	19.135	100.00	100.306	0.3	±30

Perfluorononanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.032	0.19	0.213	12.2	±50
CAL2	0.076	0.58	0.510	-12.1	±30
CAL3	0.267	1.92	1.804	-6.1	±30
CAL4	1.161	7.68	7.837	2.0	±30
CAL5	3.054	19.20	20.612	7.4	±30
CAL6	6.983	48.00	47.127	-1.8	±30
CAL7	14.146	96.00	95.467	-0.6	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.210	4.9	±50
CAL2	0.113	0.60	0.621	3.6	±30
CAL3	0.377	2.00	2.070	3.5	±30
CAL4	1.446	8.00	7.937	-0.8	±30
CAL5	3.892	20.00	21.364	6.8	±30
CAL6	9.524	50.00	52.277	4.6	±30
CAL7	17.548	100.00	96.321	-3.7	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

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CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

8:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.317	1.32	1.590	20.4	±50
CAL2	0.437	2.11	2.193	3.9	±30
CAL3	1.092	5.27	5.474	3.9	±30
CAL4	2.125	10.54	10.651	1.1	±30
CAL5	2.494	13.17	12.502	-5.1	±30

NMeFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.212	5.8	±50
CAL2	0.125	0.60	0.610	1.7	±30
CAL3	0.442	2.00	2.155	7.7	±30
CAL4	1.693	8.00	8.253	3.2	±30
CAL5	2.112	10.00	10.295	2.9	±30
CAL6	10.098	50.00	49.210	-1.6	±30
CAL7	20.532	100.00	100.065	0.1	±30

Perfluorodecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.022	0.19	0.211	10.9	±50
CAL2	0.059	0.58	0.557	-4.0	±30
CAL3	0.179	1.93	1.688	-12.5	±30
CAL4	0.774	7.70	7.304	-5.1	±30
CAL5	2.161	19.26	20.401	5.9	±30
CAL6	5.049	48.15	47.666	-1.0	±30
CAL7	10.199	96.30	96.284	0.0	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.061	0.20	0.241	20.5	±50
CAL2	0.174	0.60	0.688	14.7	±30
CAL3	0.585	2.00	2.313	15.6	±30
CAL4	2.399	8.00	9.478	18.5	±30
CAL5	6.150	20.00	24.301	21.5	±30
CAL6	12.870	50.00	50.857	1.7	±30
CAL7	23.515	100.00	92.922	-7.1	±30

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FORM 06
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SDG No.: SBN11

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CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

NEtFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.20	0.207	3.7	±50
CAL2	0.120	0.60	0.557	-7.2	±30
CAL3	0.429	2.00	1.992	-0.4	±30
CAL4	1.682	8.00	7.803	-2.5	±30
CAL5	2.078	10.00	9.645	-3.6	±30
CAL6	10.677	50.00	49.542	-0.9	±30
CAL7	21.777	100.00	101.054	1.1	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.236	18.1	±50
CAL2	0.123	0.60	0.657	9.5	±30
CAL3	0.415	2.00	2.216	10.8	±30
CAL4	1.719	8.00	9.178	14.7	±30
CAL5	4.249	20.00	22.682	13.4	±30
CAL6	8.931	50.00	47.677	-4.6	±30
CAL7	18.386	100.00	98.153	-1.8	±30

10:2-fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.391	1.33	1.513	13.8	±50
CAL2	0.615	2.12	2.379	12.2	±30
CAL3	1.297	5.30	5.022	-5.3	±30
CAL4	2.857	10.60	11.059	4.3	±30
CAL5	3.265	13.26	12.637	-4.7	±30

Perfluorododecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.010	0.19	0.197	3.7	±50
CAL2	0.027	0.58	0.556	-4.1	±30
CAL3	0.085	1.94	1.720	-11.3	±30
CAL4	0.350	7.74	7.104	-8.2	±30
CAL5	0.949	19.36	19.278	-0.4	±30
CAL6	2.396	48.40	48.667	0.6	±30
CAL7	4.800	96.80	97.488	0.7	±30

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FORM 06
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SDG No.: SBN11

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CAL4= 18APR11MCAL-19.WIFF; CAL5= 18APR11MCAL-20.WIFF; CAL6= 18APR11MCAL-21.WIFF;
CAL7= 18APR11MCAL-22.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.20	0.216	8.0	±50
CAL2	0.107	0.60	0.622	3.7	±30
CAL3	0.375	2.00	2.171	8.6	±30
CAL4	1.572	8.00	9.101	13.8	±30
CAL5	4.119	20.00	23.853	19.3	±30
CAL6	8.892	50.00	51.489	3.0	±30
CAL7	16.120	100.00	93.348	-6.7	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.20	0.229	14.5	±50
CAL2	0.104	0.60	0.634	5.7	±30
CAL3	0.341	2.00	2.086	4.3	±30
CAL4	1.415	8.00	8.647	8.1	±30
CAL5	3.724	20.00	22.764	13.8	±30
CAL6	8.215	50.00	50.215	0.4	±30
CAL7	15.742	100.00	96.224	-3.8	±30

Perfluorohexadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.032	0.20	0.243	21.3	±50
CAL2	0.084	0.60	0.627	4.5	±30
CAL3	0.299	2.00	2.247	12.3	±30
CAL4	1.096	8.00	8.230	2.9	±30
CAL5	2.836	20.00	21.286	6.4	±30
CAL6	6.473	50.00	48.592	-2.8	±30
CAL7	13.265	100.00	99.575	-0.4	±30

Perfluorooctadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.031	0.20	0.206	2.8	±50
CAL2	0.084	0.60	0.554	-7.6	±30
CAL3	0.308	2.00	2.034	1.7	±30
CAL4	1.200	8.00	7.925	-0.9	±30
CAL5	3.133	20.00	20.691	3.5	±30
CAL6	7.422	50.00	49.023	-2.0	±30
CAL7	15.196	100.00	100.367	0.4	±30

* Outside QC Limits

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18APR11MCAL-16.wiff	4/11/2018 11:34:06 PM	CALMOD11833A	CAL1
18APR11MCAL-17.wiff	4/11/2018 11:49:39 PM	CALMOD21833A	CAL2
18APR11MCAL-18.wiff	4/12/2018 12:05:11 AM	CALMOD31833A	CAL3
18APR11MCAL-19.wiff	4/12/2018 12:20:42 AM	CALMOD41833A	CAL4
18APR11MCAL-20.wiff	4/12/2018 12:36:12 AM	CALMOD51833A	CAL5
18APR11MCAL-21.wiff	4/12/2018 12:51:42 AM	CALMOD61833A	CAL6
18APR11MCAL-22.wiff	4/12/2018 1:07:12 AM	CALMOD71833A	CAL7

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	981637.7	926861.5
CAL2	I13C3-PFBA	True	988005.5	926861.5
CAL3	I13C3-PFBA	True	930730.7	926861.5
CAL4	I13C3-PFBA	True	1040816.4	926861.5
CAL5	I13C3-PFBA	True	906067.6	926861.5
CAL6	I13C3-PFBA	True	884773.3	926861.5
CAL7	I13C3-PFBA	True	755999.2	926861.5
CAL1	I13C2-PFOA	True	1517685.2	1442106.8
CAL2	I13C2-PFOA	True	1471766.5	1442106.8
CAL3	I13C2-PFOA	True	1408725.6	1442106.8
CAL4	I13C2-PFOA	True	1617189.6	1442106.8
CAL5	I13C2-PFOA	True	1449501.9	1442106.8
CAL6	I13C2-PFOA	True	1339081.9	1442106.8
CAL7	I13C2-PFOA	True	1290796.5	1442106.8
CAL1	I13C4-PFOS	True	371830.6	371819.0
CAL2	I13C4-PFOS	True	390170.7	371819.0
CAL3	I13C4-PFOS	True	368989.1	371819.0
CAL4	I13C4-PFOS	True	420653.5	371819.0
CAL5	I13C4-PFOS	True	376580.0	371819.0
CAL6	I13C4-PFOS	True	363644.2	371819.0
CAL7	I13C4-PFOS	True	310865.0	371819.0
CAL1	I13C2-PFDA	True	1235492.2	1163605.9
CAL2	I13C2-PFDA	True	1134641.4	1163605.9
CAL3	I13C2-PFDA	True	1174340.8	1163605.9
CAL4	I13C2-PFDA	True	1324769.0	1163605.9
CAL5	I13C2-PFDA	True	1127552.9	1163605.9
CAL6	I13C2-PFDA	True	1129666.7	1163605.9
CAL7	I13C2-PFDA	True	1018778.6	1163605.9

APPROVED
By JPT at 12:32 pm, 4/12/18

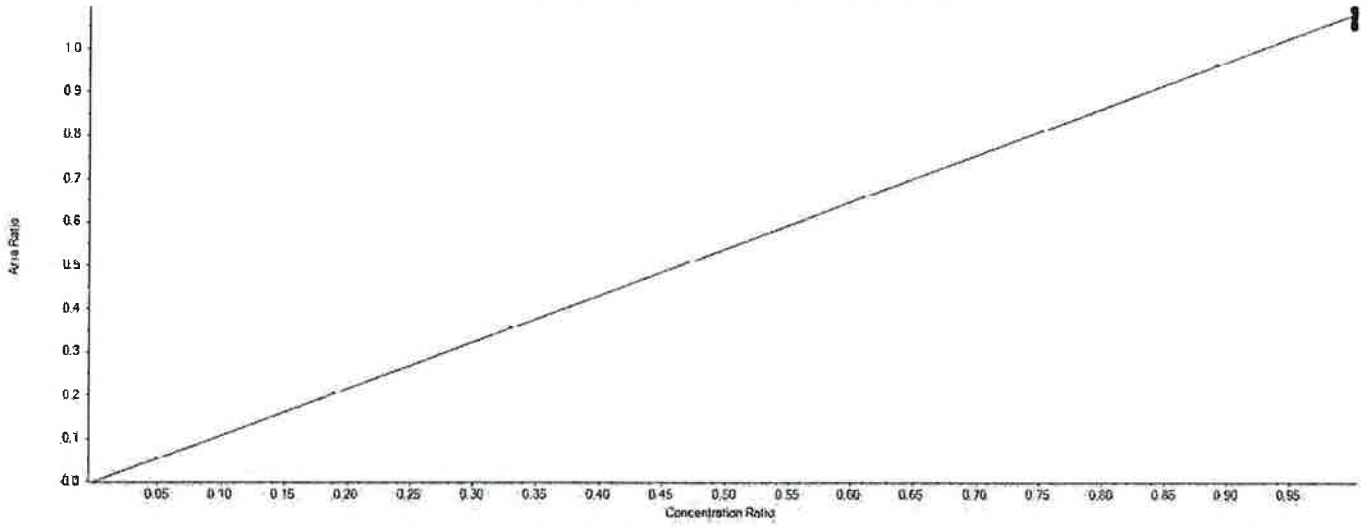
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFBA

y = 1.07794 x (std. dev. = 0.01707) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1039556.0	981637.7	True	5.00	1.059	4.44	1.000	5.000	4.912	-1.8	50.0	
CAL2	1077209.5	988005.5	True	5.00	1.090	4.44	1.000	5.000	5.057	1.1	30.0	
CAL3	1012510.8	930730.7	True	5.00	1.088	4.45	1.000	5.000	5.046	0.9	30.0	
CAL4	1117209.1	1040816.4	True	5.00	1.073	4.44	1.000	5.000	4.979	-0.4	30.0	
CAL5	989813.1	906067.6	True	5.00	1.092	4.44	1.000	5.000	5.067	1.3	30.0	
CAL6	929933.5	884773.3	True	5.00	1.051	4.44	1.000	5.000	4.875	-2.5	30.0	
CAL7	825195.3	755999.2	True	5.00	1.092	4.44	1.000	5.000	5.063	1.3	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

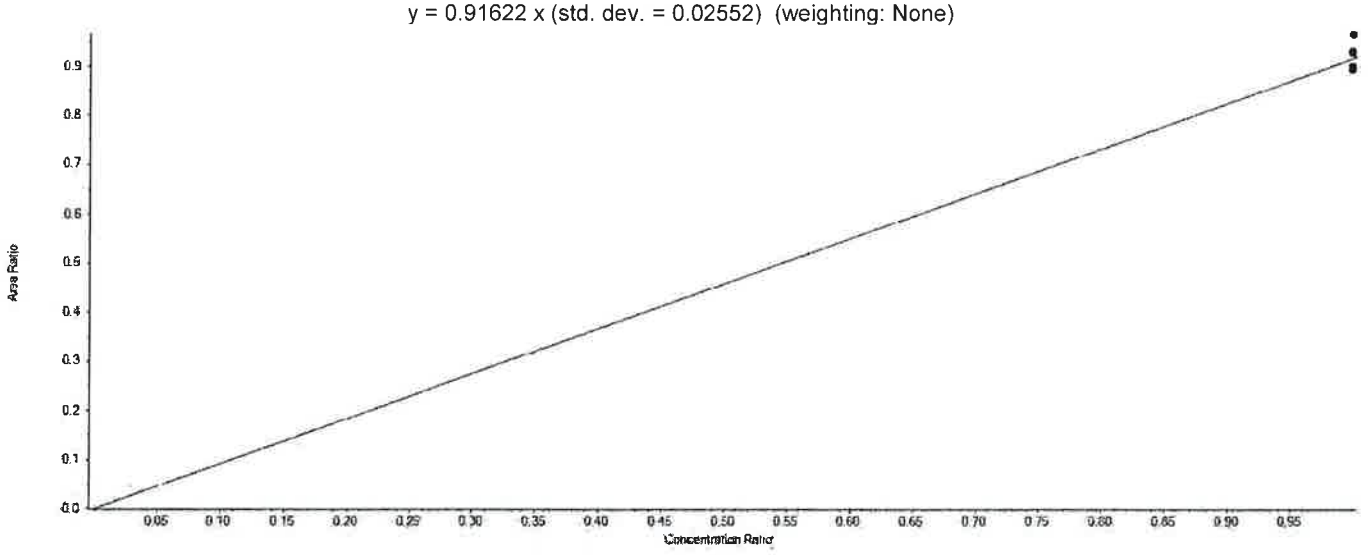
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFPeA

y = 0.91622 x (std. dev. = 0.02552) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	877803.9	981637.7	True	5.00	0.894	5.02	1.130	5.000	4.880	-2.4	50.0	
CAL2	885186.3	988005.5	True	5.00	0.896	5.02	1.130	5.000	4.889	-2.2	30.0	
CAL3	838933.5	930730.7	True	5.00	0.901	5.03	1.130	5.000	4.919	-1.6	30.0	
CAL4	1003319.3	1040816.4	True	5.00	0.964	5.02	1.130	5.000	5.261	5.2	30.0	
CAL5	842931.7	906067.6	True	5.00	0.930	5.02	1.130	5.000	5.077	1.5	30.0	
CAL6	797721.6	884773.3	True	5.00	0.902	5.02	1.130	5.000	4.920	-1.6	30.0	
CAL7	700132.2	755999.2	True	5.00	0.926	5.02	1.130	5.000	5.054	1.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

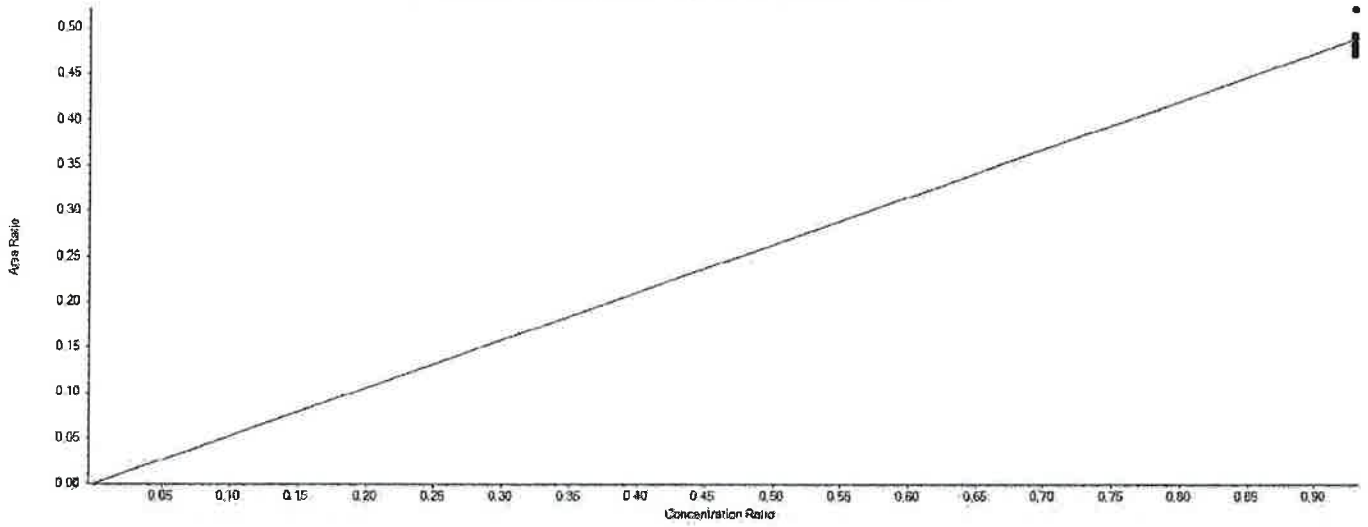
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFBS

y = 0.52578 x (std. dev. = 0.01691) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	469304.3	981637.7	True	5.00	0.478	5.07	1.140	4.650	4.546	-2.2	50.0	
CAL2	466889.8	988005.5	True	5.00	0.473	5.07	1.140	4.650	4.494	-3.4	30.0	
CAL3	450301.5	930730.7	True	5.00	0.484	5.08	1.140	4.650	4.601	-1.1	30.0	
CAL4	513505.4	1040816.4	True	5.00	0.493	5.07	1.140	4.650	4.692	0.9	30.0	
CAL5	471919.1	906067.6	True	5.00	0.521	5.07	1.140	4.650	4.953	6.5	30.0	
CAL6	434168.7	884773.3	True	5.00	0.491	5.07	1.140	4.650	4.667	0.4	30.0	
CAL7	365470.0	755999.2	True	5.00	0.483	5.07	1.140	4.650	4.597	-1.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

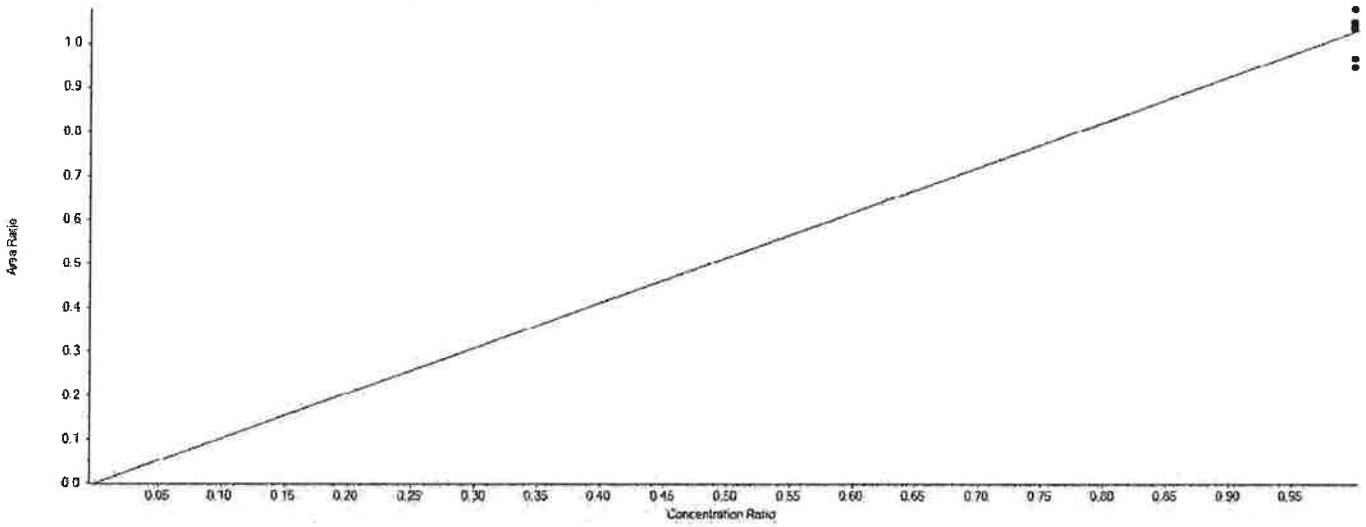
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFHxA

y = 1.02736 x (std. dev. = 0.05147) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1578041.0	1517685.2	True	5.00	1.040	5.49	0.860	5.000	5.060	1.2	50.0	
CAL2	1586428.0	1471766.5	True	5.00	1.078	5.49	0.860	5.000	5.246	4.9	30.0	
CAL3	1478796.2	1408725.6	True	5.00	1.050	5.50	0.860	5.000	5.109	2.2	30.0	
CAL4	1742134.0	1617189.6	True	5.00	1.077	5.49	0.860	5.000	5.243	4.9	30.0	
CAL5	1400228.9	1449501.9	True	5.00	0.966	5.49	0.860	5.000	4.701	-6.0	30.0	
CAL6	1383842.5	1339081.9	True	5.00	1.033	5.49	0.860	5.000	5.030	0.6	30.0	
CAL7	1222888.1	1290796.5	True	5.00	0.947	5.48	0.860	5.000	4.611	-7.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

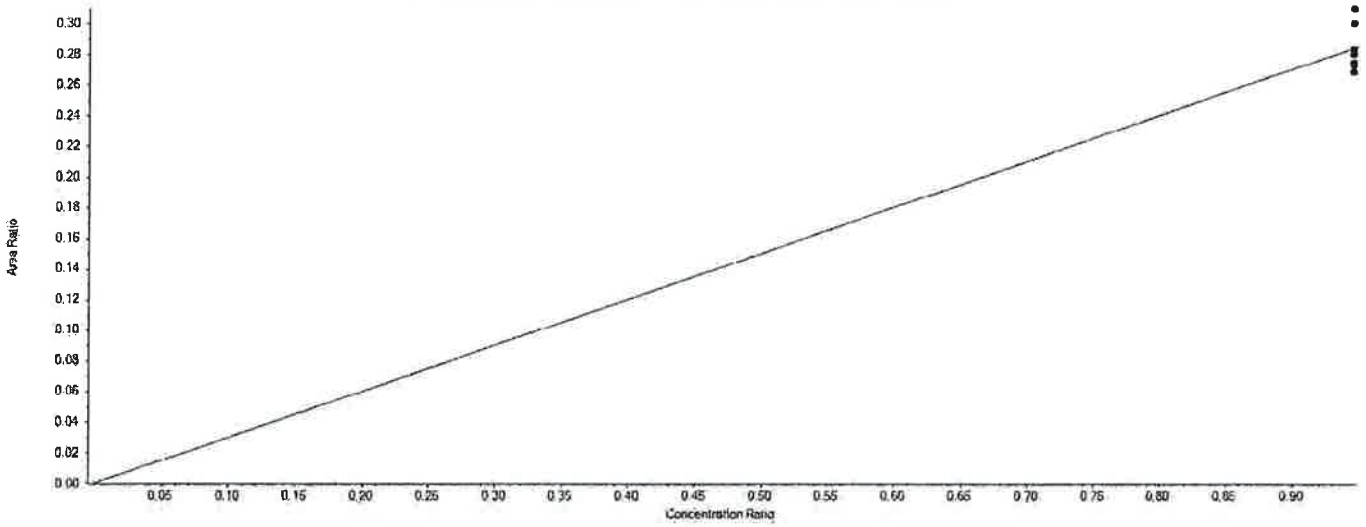
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFHxS

y = 0.30083 x (std. dev. = 0.01586) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	426034.3	1517685.2	True	5.00	0.281	5.93	0.930	4.730	4.666	-1.4	50.0	
CAL2	455593.9	1471766.5	True	5.00	0.310	5.93	0.930	4.730	5.145	8.8	30.0	
CAL3	399928.7	1408725.6	True	5.00	0.284	5.94	0.930	4.730	4.719	-0.2	30.0	
CAL4	441902.6	1617189.6	True	5.00	0.273	5.93	0.930	4.730	4.542	-4.0	30.0	
CAL5	398901.0	1449501.9	True	5.00	0.275	5.93	0.930	4.730	4.574	-3.3	30.0	
CAL6	402347.5	1339081.9	True	5.00	0.300	5.93	0.930	4.730	4.994	5.6	30.0	
CAL7	347206.8	1290796.5	True	5.00	0.269	5.93	0.930	4.730	4.471	-5.5	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

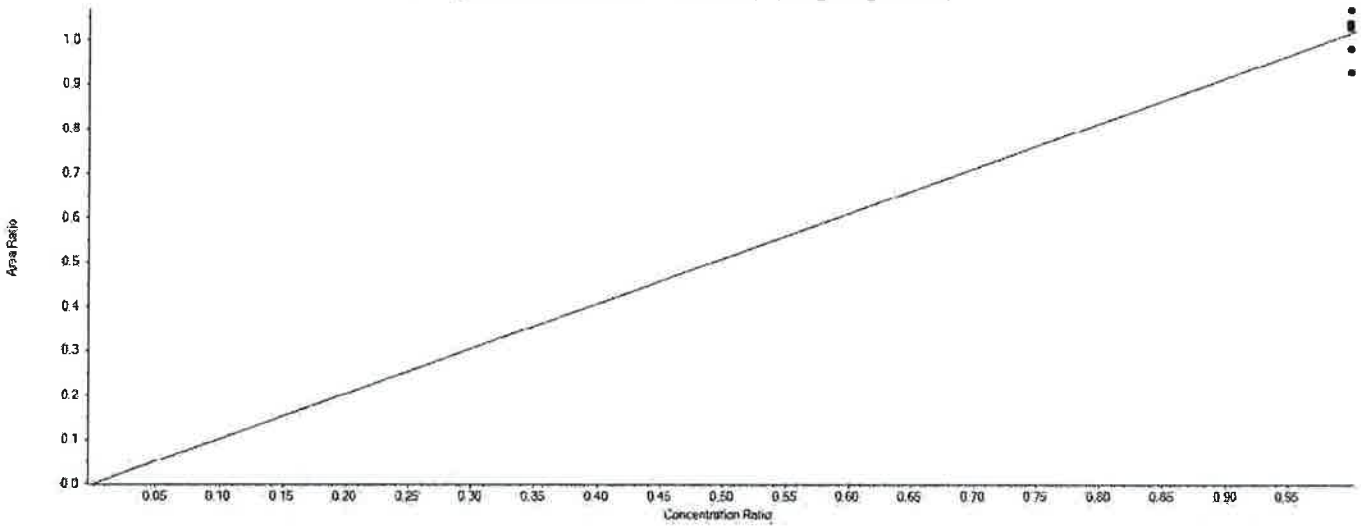
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFHpA

y = 1.01589 x (std. dev. = 0.04639) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1560780.0	1517685.2	True	5.00	1.028	5.94	0.930	5.000	5.062	1.2	50.0	
CAL2	1570376.7	1471766.5	True	5.00	1.067	5.94	0.930	5.000	5.252	5.0	30.0	
CAL3	1457586.2	1408725.6	True	5.00	1.035	5.94	0.930	5.000	5.092	1.9	30.0	
CAL4	1672856.6	1617189.6	True	5.00	1.034	5.93	0.930	5.000	5.091	1.8	30.0	
CAL5	1421056.3	1449501.9	True	5.00	0.980	5.94	0.930	5.000	4.825	-3.5	30.0	
CAL6	1390212.8	1339081.9	True	5.00	1.038	5.94	0.940	5.000	5.110	2.2	30.0	
CAL7	1198107.1	1290796.5	True	5.00	0.928	5.93	0.930	5.000	4.568	-8.6	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

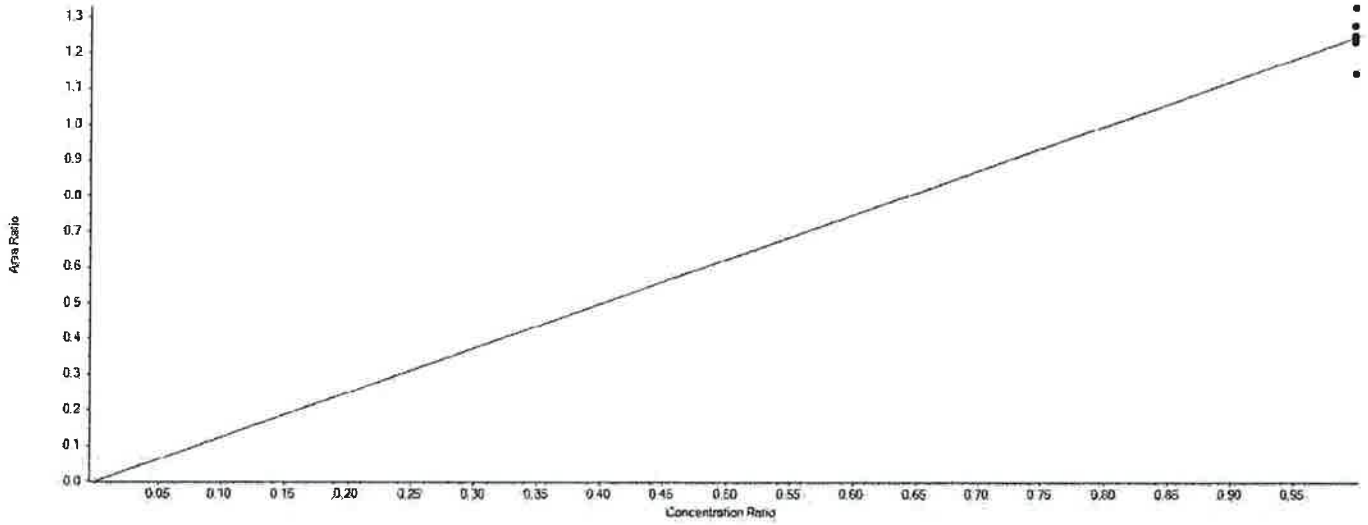
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOA

y = 1.24539 x (std. dev. = 0.05604) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1873019.4	1517685.2	True	5.00	1.234	6.35	1.000	5.000	4.955	-0.9	50.0	
CAL2	1952831.6	1471766.5	True	5.00	1.327	6.35	1.000	5.000	5.327	6.5	30.0	
CAL3	1801314.0	1408725.6	True	5.00	1.279	6.36	1.000	5.000	5.134	2.7	30.0	
CAL4	2011849.9	1617189.6	True	5.00	1.244	6.35	1.000	5.000	4.995	-0.1	30.0	
CAL5	1798992.1	1449501.9	True	5.00	1.241	6.36	1.000	5.000	4.983	-0.3	30.0	
CAL6	1676401.5	1339081.9	True	5.00	1.252	6.35	1.000	5.000	5.026	0.5	30.0	
CAL7	1472755.6	1290796.5	True	5.00	1.141	6.35	1.000	5.000	4.581	-8.4	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

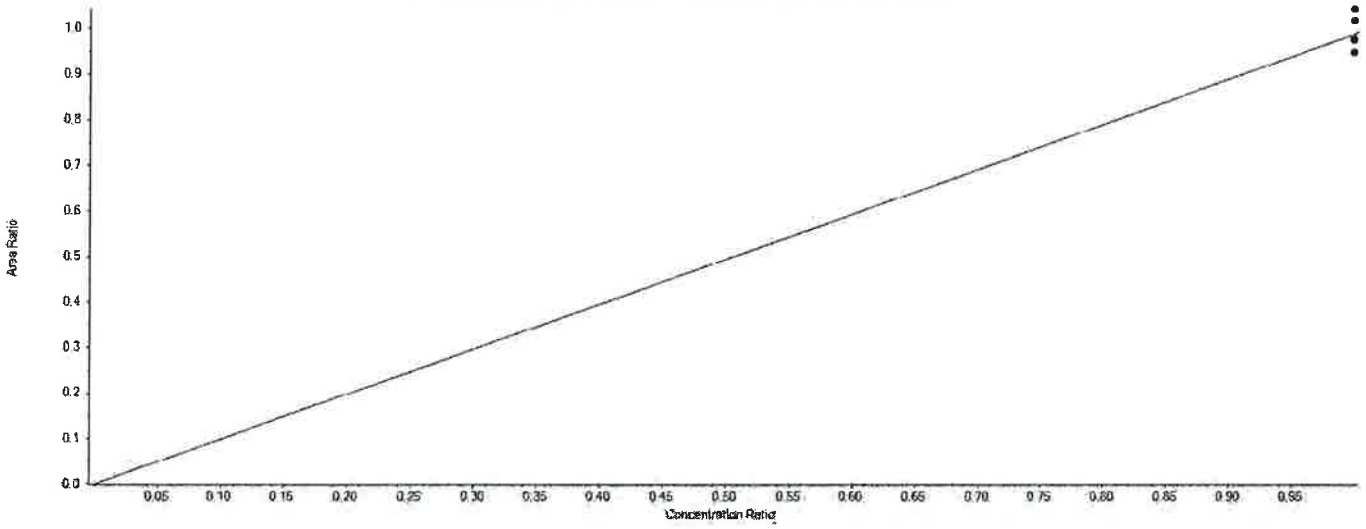
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOS

y = 0.98785 x (std. dev. = 0.03046) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	363441.3	371830.6	True	4.78	0.977	6.70	1.000	4.780	4.730	-1.1	50.0	
CAL2	396417.6	390170.7	True	4.78	1.016	6.70	1.000	4.780	4.916	2.9	30.0	
CAL3	384020.6	368989.1	True	4.78	1.041	6.71	1.000	4.780	5.036	5.4	30.0	
CAL4	411532.4	420653.5	True	4.78	0.978	6.70	1.000	4.780	4.734	-1.0	30.0	
CAL5	367609.6	376580.0	True	4.78	0.976	6.70	1.000	4.780	4.724	-1.2	30.0	
CAL6	344965.0	363644.2	True	4.78	0.949	6.70	1.000	4.780	4.590	-4.0	30.0	
CAL7	303903.7	310865.0	True	4.78	0.978	6.69	1.000	4.780	4.730	-1.0	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

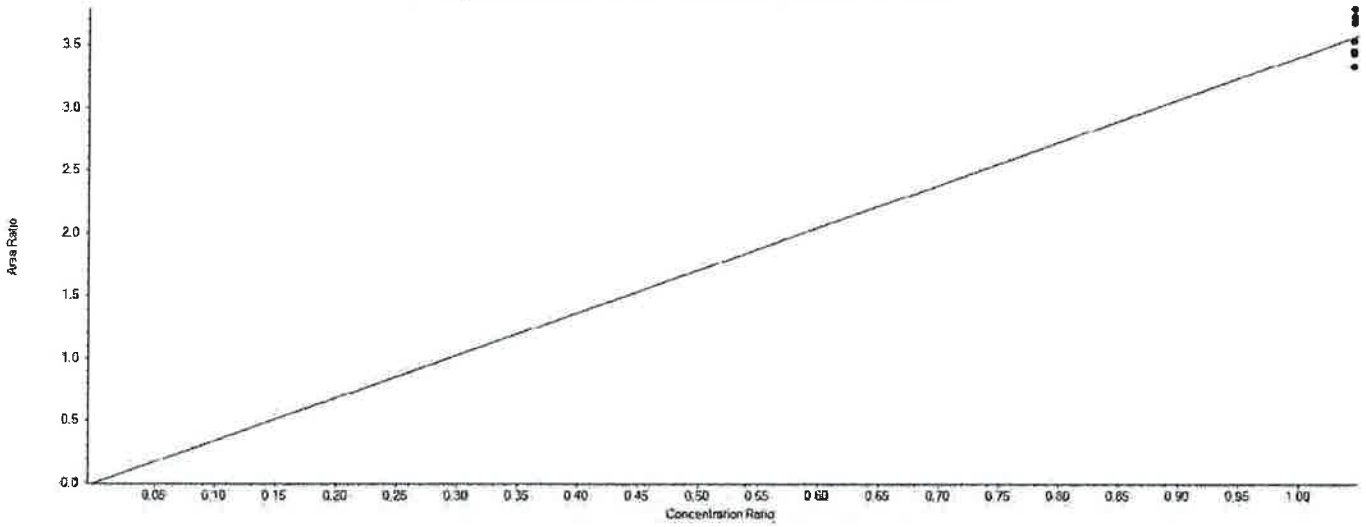
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C9-PFNA

y = 3.40869 x (std. dev. = 0.15980) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1384282.8	371830.6	True	4.78	3.723	6.73	1.000	5.000	5.221	4.4	50.0	
CAL2	1434808.2	390170.7	True	4.78	3.677	6.73	1.000	5.000	5.157	3.1	30.0	
CAL3	1269254.7	368989.1	True	4.78	3.440	6.74	1.000	5.000	4.824	-3.5	30.0	
CAL4	1455556.9	420653.5	True	4.78	3.460	6.73	1.000	5.000	4.852	-3.0	30.0	
CAL5	1254850.3	376580.0	True	4.78	3.332	6.73	1.000	5.000	4.673	-6.5	30.0	
CAL6	1287621.8	363644.2	True	4.78	3.541	6.73	1.000	5.000	4.965	-0.7	30.0	
CAL7	1176812.6	310865.0	True	4.78	3.786	6.72	1.000	5.000	5.309	6.2	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

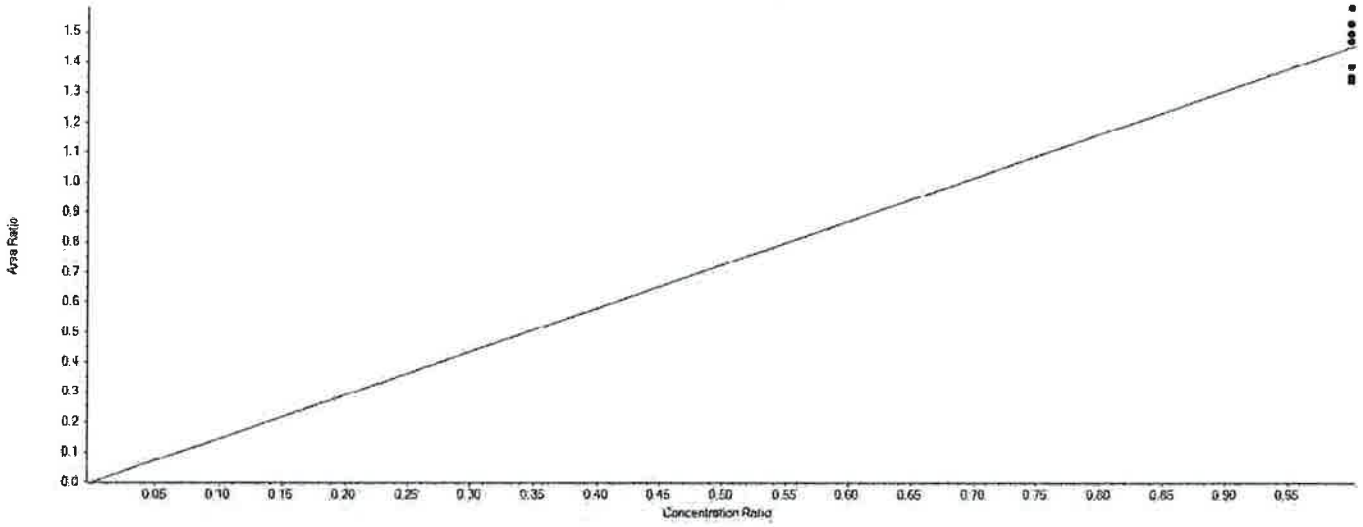
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C6-PFDA

y = 1.45014 x (std. dev. = 0.09225) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1711460.2	1235492.2	True	5.00	1.385	7.08	1.000	5.000	4.776	-4.5	50.0	
CAL2	1791292.2	1134641.4	True	5.00	1.579	7.07	1.000	5.000	5.443	8.9	30.0	
CAL3	1727707.8	1174340.8	True	5.00	1.471	7.08	1.000	5.000	5.073	1.5	30.0	
CAL4	1983112.7	1324769.0	True	5.00	1.497	7.07	1.000	5.000	5.161	3.2	30.0	
CAL5	1721524.0	1127552.9	True	5.00	1.527	7.08	1.000	5.000	5.264	5.3	30.0	
CAL6	1529554.5	1129666.7	True	5.00	1.354	7.08	1.000	5.000	4.668	-6.6	30.0	
CAL7	1363173.5	1018778.6	True	5.00	1.338	7.07	1.000	5.000	4.614	-7.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

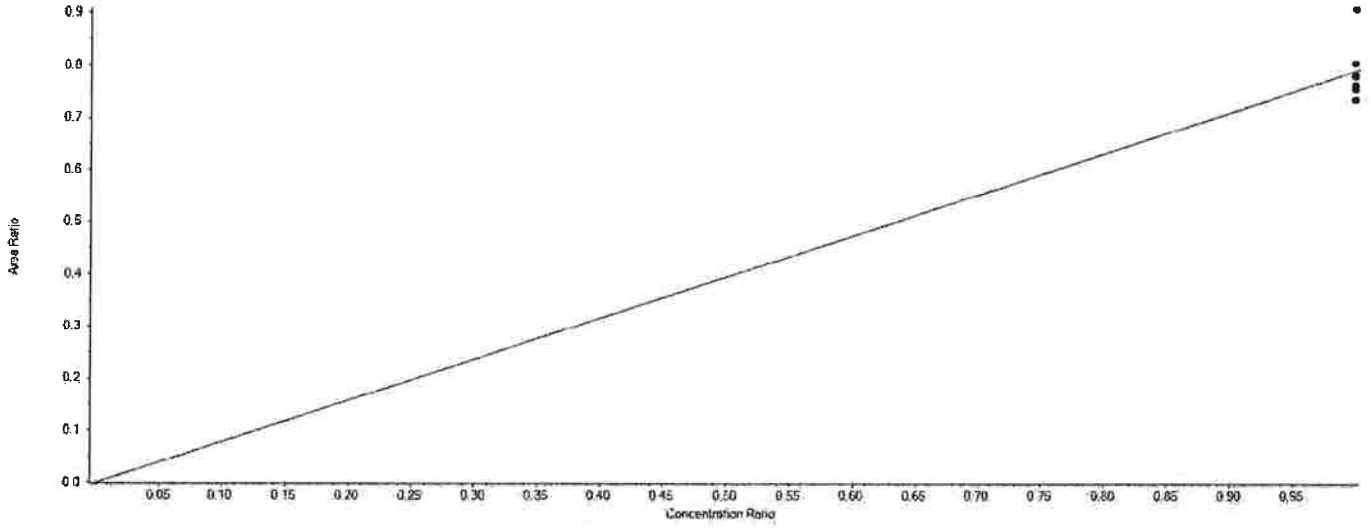
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C7-PFUnDA

y = 0.79009 x (std. dev. = 0.05639) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	995821.2	1235492.2	True	5.00	0.806	7.39	1.040	5.000	5.101	2.0	50.0	
CAL2	1030183.1	1134641.4	True	5.00	0.908	7.38	1.040	5.000	5.746	14.9	30.0	
CAL3	888871.0	1174340.8	True	5.00	0.757	7.39	1.040	5.000	4.790	-4.2	30.0	
CAL4	1010630.1	1324769.0	True	5.00	0.763	7.38	1.040	5.000	4.828	-3.4	30.0	
CAL5	881054.2	1127552.9	True	5.00	0.781	7.39	1.040	5.000	4.945	-1.1	30.0	
CAL6	880392.6	1129666.7	True	5.00	0.779	7.38	1.040	5.000	4.932	-1.4	30.0	
CAL7	749999.2	1018778.6	True	5.00	0.736	7.38	1.040	5.000	4.659	-6.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

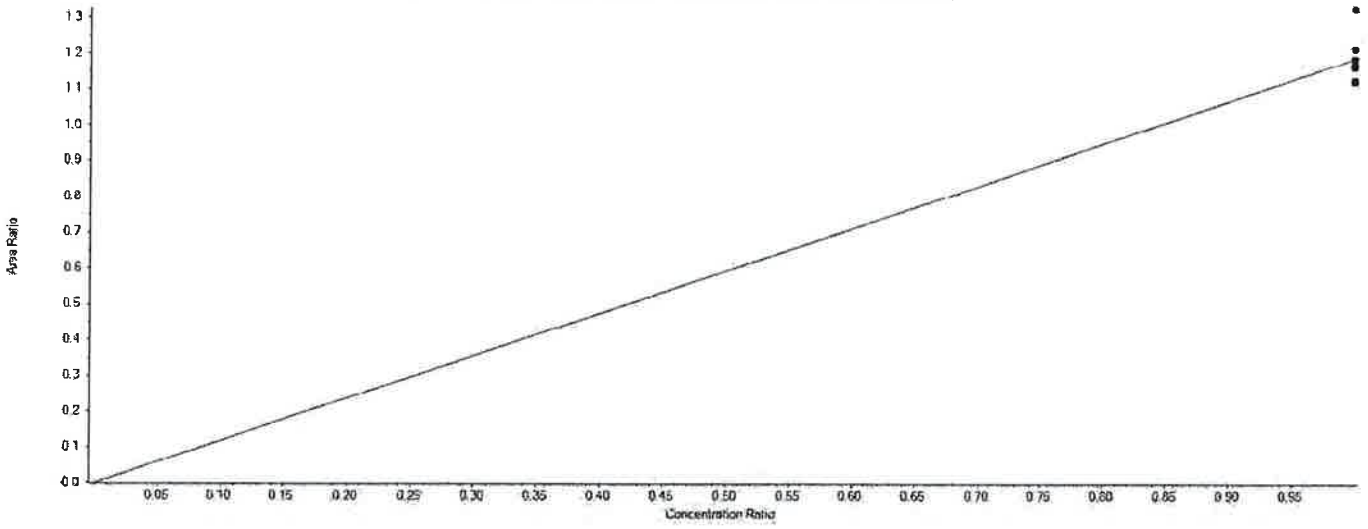
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFDoDA

y = 1.18705 x (std. dev. = 0.06826) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1448567.4	1235492.2	True	5.00	1.172	7.67	1.080	5.000	4.939	-1.2	50.0	
CAL2	1502007.0	1134641.4	True	5.00	1.324	7.67	1.080	5.000	5.576	11.5	30.0	
CAL3	1365297.0	1174340.8	True	5.00	1.163	7.68	1.080	5.000	4.897	-2.1	30.0	
CAL4	1486696.5	1324769.0	True	5.00	1.122	7.67	1.080	5.000	4.727	-5.5	30.0	
CAL5	1368417.8	1127552.9	True	5.00	1.214	7.67	1.080	5.000	5.112	2.2	30.0	
CAL6	1341062.3	1129666.7	True	5.00	1.187	7.67	1.080	5.000	5.000	0.0	30.0	
CAL7	1148686.5	1018778.6	True	5.00	1.128	7.67	1.080	5.000	4.749	-5.0	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

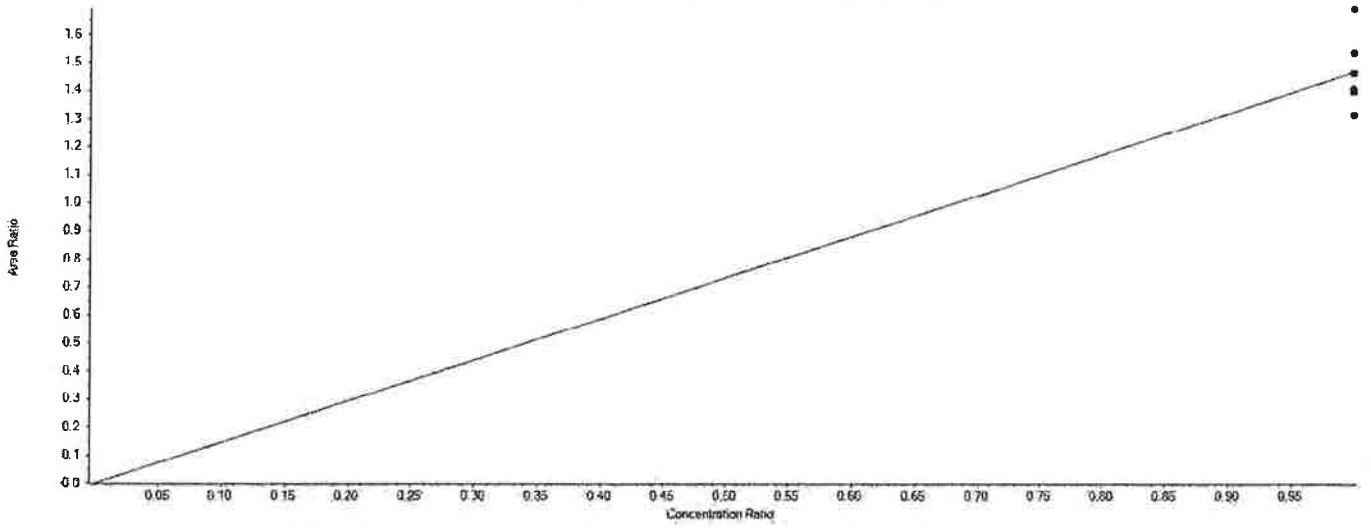
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFTeDA

y = 1.46582 x (std. dev. = 0.11968) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1802191.1	1235492.2	True	5.00	1.459	8.24	1.160	5.000	4.976	-0.5	50.0	
CAL2	1915714.8	1134641.4	True	5.00	1.688	8.23	1.160	5.000	5.759	15.2	30.0	
CAL3	1639034.8	1174340.8	True	5.00	1.396	8.24	1.160	5.000	4.761	-4.8	30.0	
CAL4	1938387.9	1324769.0	True	5.00	1.463	8.23	1.160	5.000	4.991	-0.2	30.0	
CAL5	1730502.5	1127552.9	True	5.00	1.535	8.23	1.160	5.000	5.235	4.7	30.0	
CAL6	1588690.1	1129666.7	True	5.00	1.406	8.23	1.160	5.000	4.797	-4.1	30.0	
CAL7	1338346.4	1018778.6	True	5.00	1.314	8.23	1.160	5.000	4.481	-10.4	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

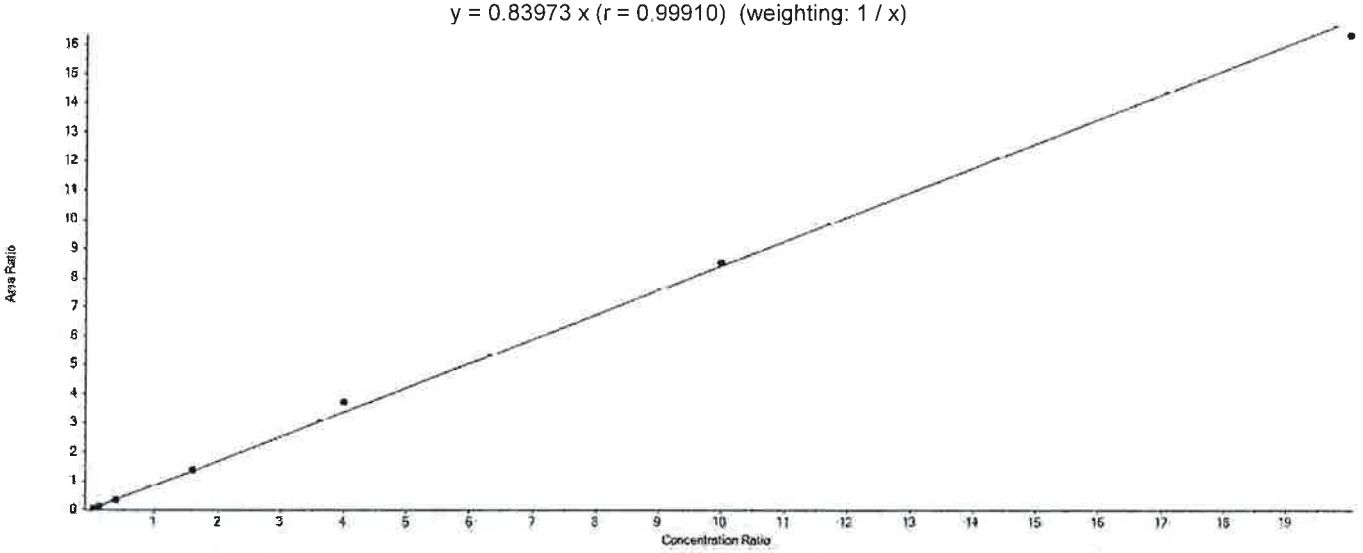
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBA

y = 0.83973 x (r = 0.99910) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	39178.0	1039556.0	True	5.00	0.038	4.44	1.000	0.200	0.224	12.2	50.0	
CAL2	106388.4	1077209.5	True	5.00	0.099	4.44	1.000	0.600	0.588	-2.0	30.0	
CAL3	338058.3	1012510.8	True	5.00	0.334	4.45	1.000	2.000	1.988	-0.6	30.0	
CAL4	1547540.4	1117209.1	True	5.00	1.385	4.44	1.000	8.000	8.248	3.1	30.0	
CAL5	3665408.7	989813.1	True	5.00	3.703	4.44	1.000	20.000	22.049	10.2	30.0	
CAL6	7913689.7	929933.5	True	5.00	8.510	4.44	1.000	50.000	50.671	1.3	30.0	
CAL7	13447476.8	825195.3	True	5.00	16.296	4.44	1.000	100.000	97.032	-3.0	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

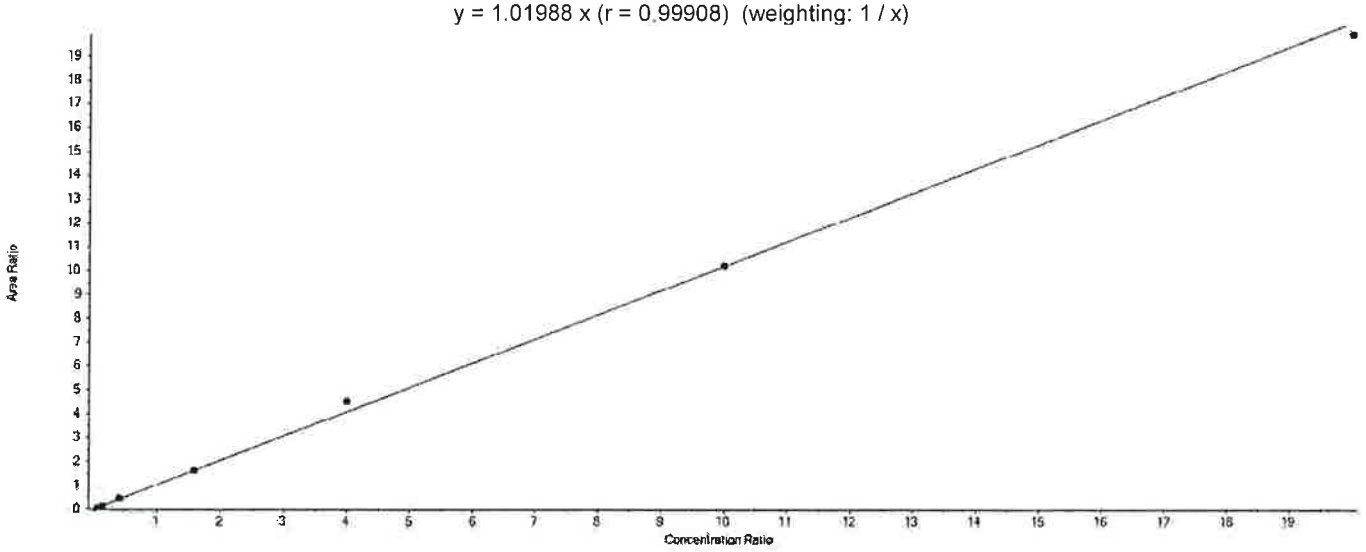
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFPeA

y = 1.01988 x (r = 0.99908) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	39036.7	877803.9	True	5.00	0.044	5.02	1.000	0.200	0.218	9.0	50.0	
CAL2	113014.6	885186.3	True	5.00	0.128	5.02	1.000	0.600	0.626	4.3	30.0	
CAL3	354432.4	838933.5	True	5.00	0.422	5.03	1.000	2.000	2.071	3.6	30.0	
CAL4	1657661.6	1003319.3	True	5.00	1.652	5.02	1.000	8.000	8.100	1.2	30.0	
CAL5	3830218.6	842931.7	True	5.00	4.544	5.02	1.000	20.000	22.277	11.4	30.0	
CAL6	8143498.5	797721.6	True	5.00	10.208	5.02	1.000	50.000	50.047	0.1	30.0	
CAL7	13918495.7	700132.2	True	5.00	19.880	5.02	1.000	100.000	97.461	-2.5	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

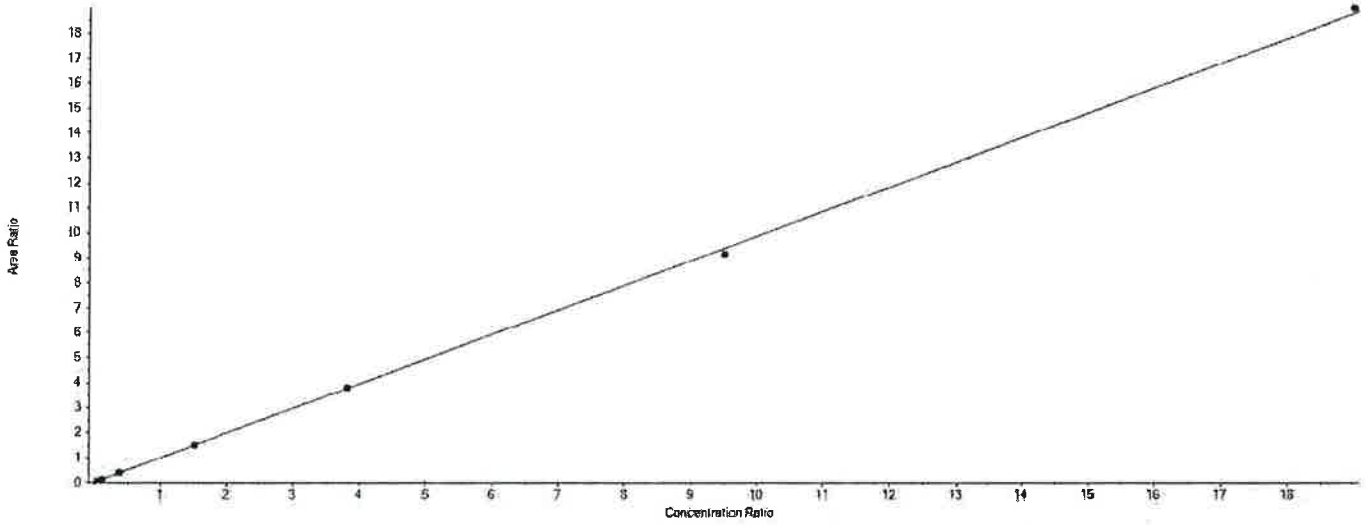
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBS

y = 0.98743 x (r = 0.99985) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	18164.8	469304.3	True	4.65	0.039	5.07	1.000	0.170	0.182	7.2	50.0	
CAL2	55595.4	466889.8	True	4.65	0.119	5.07	1.000	0.530	0.561	5.8	30.0	
CAL3	166170.8	450301.5	True	4.65	0.369	5.08	1.000	1.770	1.738	-1.8	30.0	
CAL4	762505.8	513505.4	True	4.65	1.485	5.07	1.000	7.080	6.993	-1.2	30.0	
CAL5	1795781.4	471919.1	True	4.65	3.805	5.07	1.000	17.690	17.920	1.3	30.0	
CAL6	3972190.1	434168.7	True	4.65	9.149	5.07	1.000	44.220	43.084	-2.6	30.0	
CAL7	6940632.1	365470.0	True	4.65	18.991	5.07	1.000	88.450	89.432	1.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

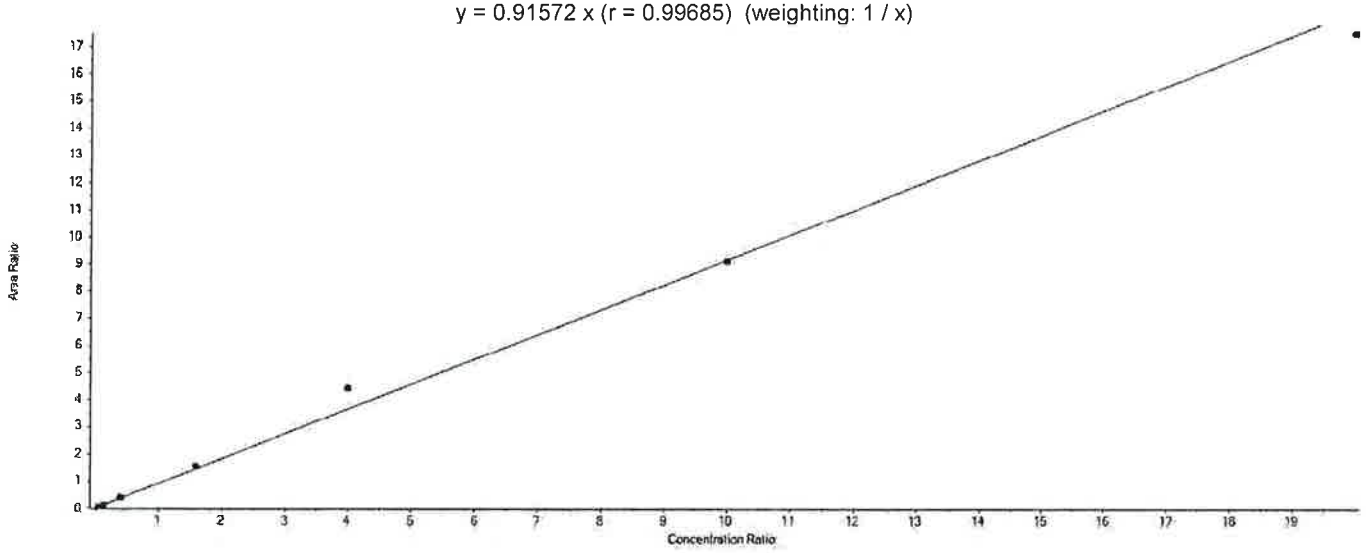
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxA

y = 0.91572 x (r = 0.99685) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	66951.6	1578041.0	True	5.00	0.042	5.49	1.000	0.200	0.232	15.8	50.0	
CAL2	179410.6	1586428.0	True	5.00	0.113	5.49	1.000	0.600	0.618	2.9	30.0	
CAL3	594164.8	1478796.2	True	5.00	0.402	5.50	1.000	2.000	2.194	9.7	30.0	
CAL4	2728366.2	1742134.0	True	5.00	1.566	5.49	1.000	8.000	8.551	6.9	30.0	
CAL5	6186430.9	1400228.9	True	5.00	4.418	5.49	1.000	20.000	24.124	20.6	30.0	
CAL6	12610653.6	1383842.5	True	5.00	9.113	5.49	1.000	50.000	49.758	-0.5	30.0	
CAL7	21349075.8	1222888.1	True	5.00	17.458	5.49	1.000	100.000	95.324	-4.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

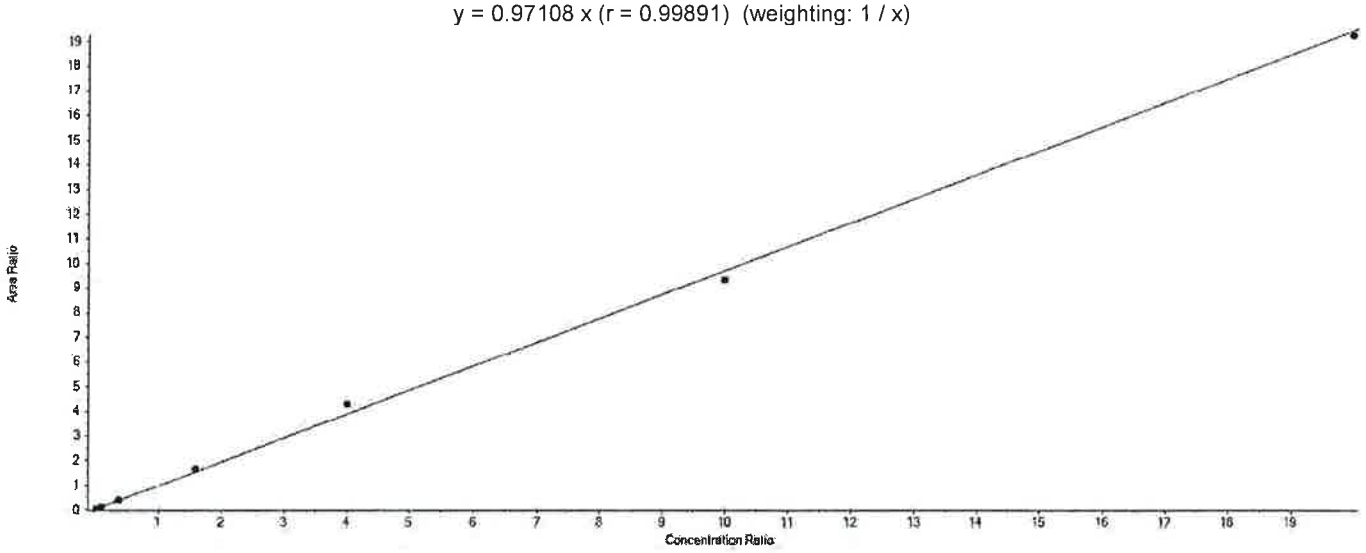
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxS

y = 0.97108 x (r = 0.99891) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	17208.4	426034.3	True	4.73	0.040	5.93	1.000	0.190	0.197	3.6	50.0	
CAL2	49603.0	455593.9	True	4.73	0.109	5.93	1.000	0.570	0.530	-7.0	30.0	
CAL3	155948.7	399928.7	True	4.73	0.390	5.94	1.000	1.890	1.899	0.5	30.0	
CAL4	737916.4	441902.6	True	4.73	1.670	5.93	1.000	7.560	8.134	7.6	30.0	
CAL5	1722622.3	398901.0	True	4.73	4.318	5.93	1.000	18.910	21.035	11.2	30.0	
CAL6	3758194.2	402347.5	True	4.73	9.341	5.93	1.000	47.280	45.497	-3.8	30.0	
CAL7	6676151.3	347206.8	True	4.73	19.228	5.92	1.000	94.550	93.658	-0.9	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

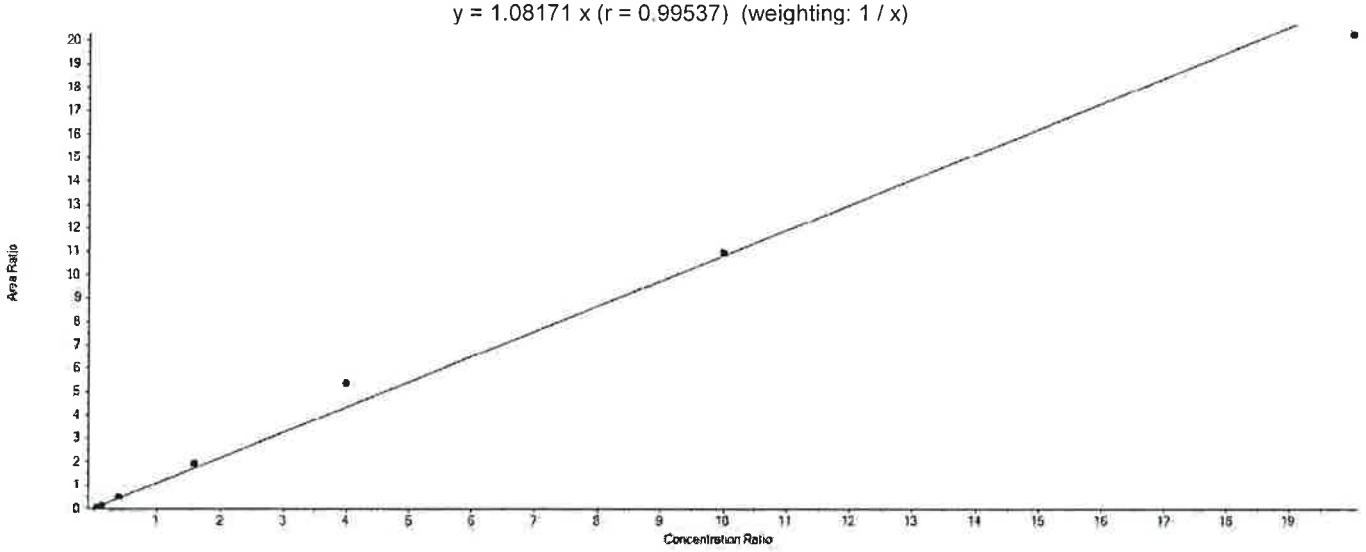
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHpA

y = 1.08171 x (r = 0.99537) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	79711.9	1560780.0	True	5.00	0.051	5.94	1.000	0.200	0.236	18.0	50.0	
CAL2	209694.5	1570376.7	True	5.00	0.134	5.94	1.000	0.600	0.617	2.9	30.0	
CAL3	705719.0	1457586.2	True	5.00	0.484	5.94	1.000	2.000	2.238	11.9	30.0	
CAL4	3178105.8	1672856.6	True	5.00	1.900	5.93	1.000	8.000	8.781	9.8	30.0	
CAL5	7618444.5	1421056.3	True	5.00	5.361	5.94	1.000	20.000	24.781	23.9	30.0	
CAL6	15192870.6	1390212.8	True	5.00	10.928	5.94	1.000	50.000	50.515	1.0	30.0	
CAL7	24269495.0	1198107.1	True	5.00	20.257	5.93	1.000	100.000	93.632	-6.4	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

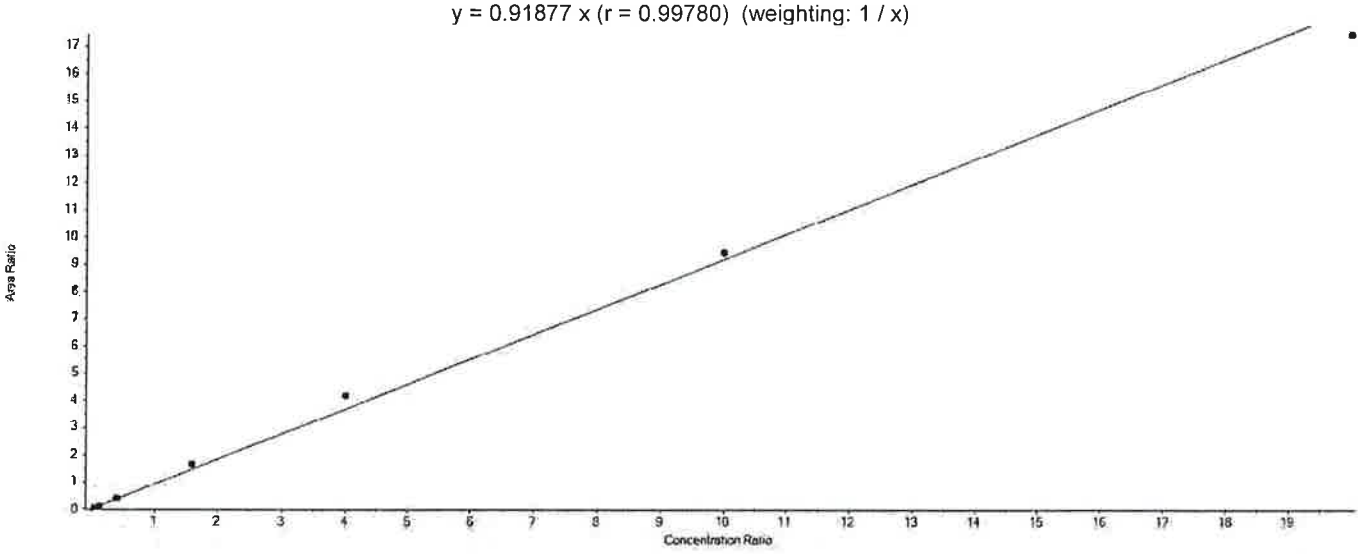
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOA

y = 0.91877 x (r = 0.99780) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	87710.9	1873019.4	True	5.00	0.047	6.35	1.000	0.200	0.255	27.4	50.0	
CAL2	227941.6	1952831.6	True	5.00	0.117	6.35	1.000	0.600	0.635	5.9	30.0	
CAL3	714469.8	1801314.0	True	5.00	0.397	6.36	1.000	2.000	2.159	7.9	30.0	
CAL4	3296055.7	2011849.9	True	5.00	1.638	6.35	1.000	8.000	8.916	11.4	30.0	
CAL5	7518281.9	1798992.1	True	5.00	4.179	6.35	1.000	20.000	22.743	13.7	30.0	
CAL6	15812025.5	1676401.5	True	5.00	9.432	6.35	1.000	50.000	51.330	2.7	30.0	
CAL7	25644747.4	1472755.6	True	5.00	17.413	6.35	1.000	100.000	94.762	-5.2	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

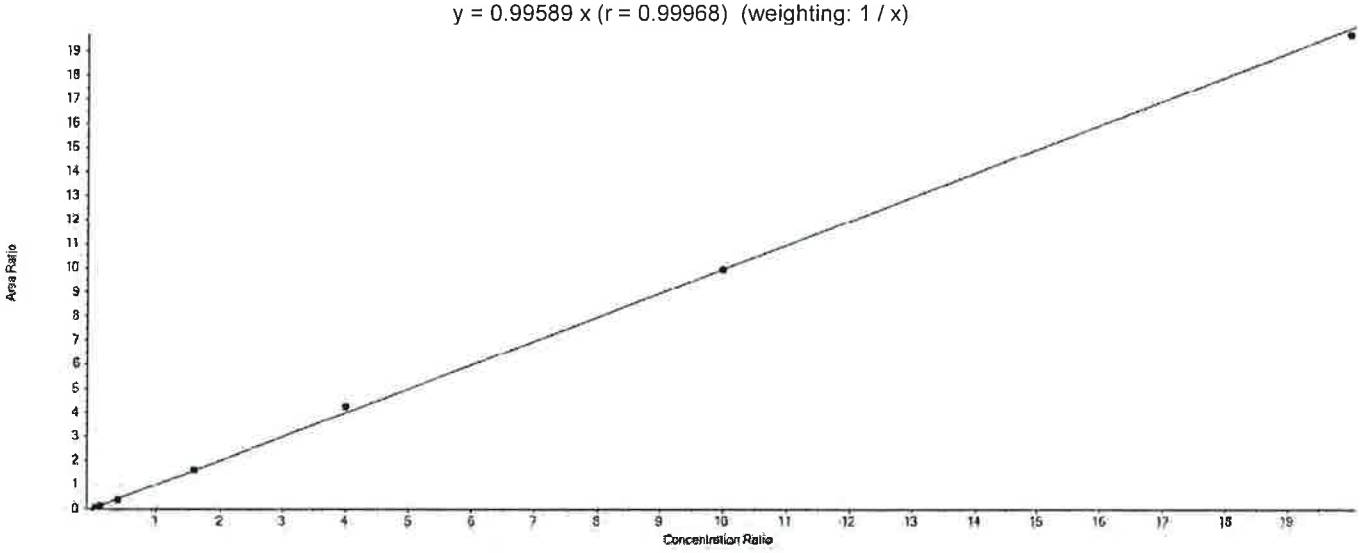
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOS

y = 0.99589 x (r = 0.99968) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	13971.6	363441.3	True	4.78	0.038	6.70	1.000	0.190	0.185	-2.9	50.0	
CAL2	44443.8	396417.6	True	4.78	0.112	6.70	1.000	0.570	0.538	-5.6	30.0	
CAL3	144086.6	384020.6	True	4.78	0.375	6.71	1.000	1.910	1.801	-5.7	30.0	
CAL4	665675.0	411532.4	True	4.78	1.618	6.70	1.000	7.650	7.764	1.5	30.0	
CAL5	1560715.5	367609.6	True	4.78	4.246	6.70	1.000	19.120	20.378	6.6	30.0	
CAL6	3432757.7	344965.0	True	4.78	9.951	6.70	1.000	47.800	47.762	-0.1	30.0	
CAL7	5977900.2	303903.7	True	4.78	19.670	6.70	1.000	95.600	94.413	-1.2	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

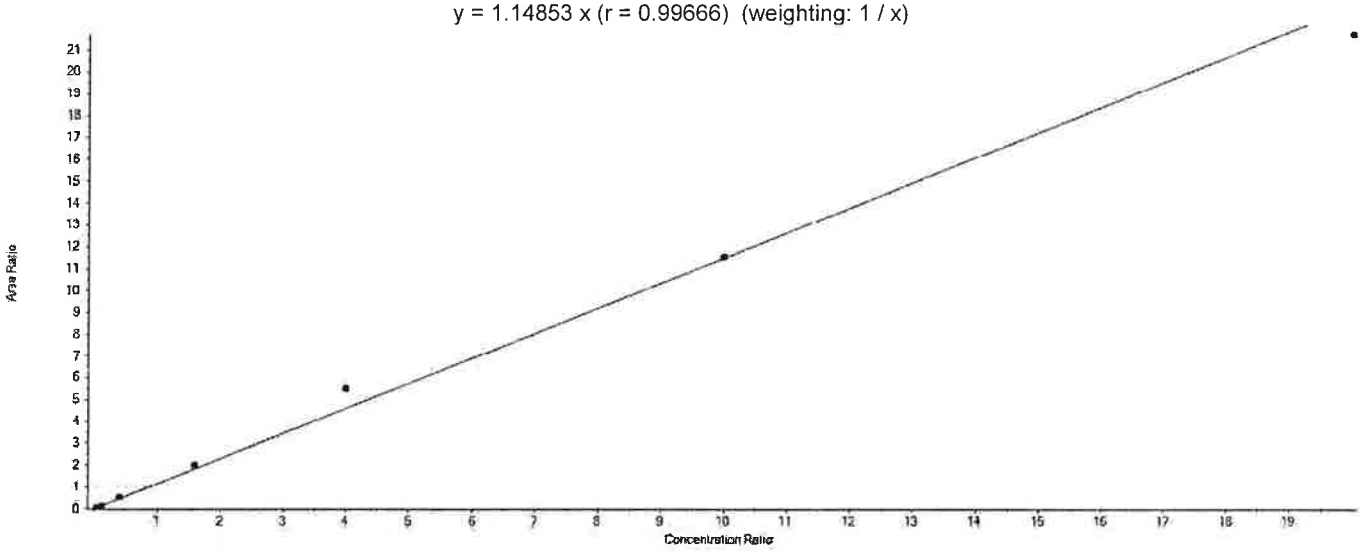
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFNA

y = 1.14853 x (r = 0.99666) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	78706.9	1384282.8	True	5.00	0.057	6.73	1.000	0.200	0.248	23.8	50.0	
CAL2	213525.8	1434808.2	True	5.00	0.149	6.73	1.000	0.600	0.648	8.0	30.0	
CAL3	681798.5	1269254.7	True	5.00	0.537	6.74	1.000	2.000	2.338	16.9	30.0	
CAL4	2953048.0	1455556.9	True	5.00	2.029	6.73	1.000	8.000	8.832	10.4	30.0	
CAL5	6896123.3	1254850.3	True	5.00	5.496	6.73	1.000	20.000	23.924	19.6	30.0	
CAL6	14891502.0	1287621.8	True	5.00	11.565	6.73	1.000	50.000	50.347	0.7	30.0	
CAL7	25535140.0	1176812.6	True	5.00	21.699	6.72	1.000	100.000	94.462	-5.5	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

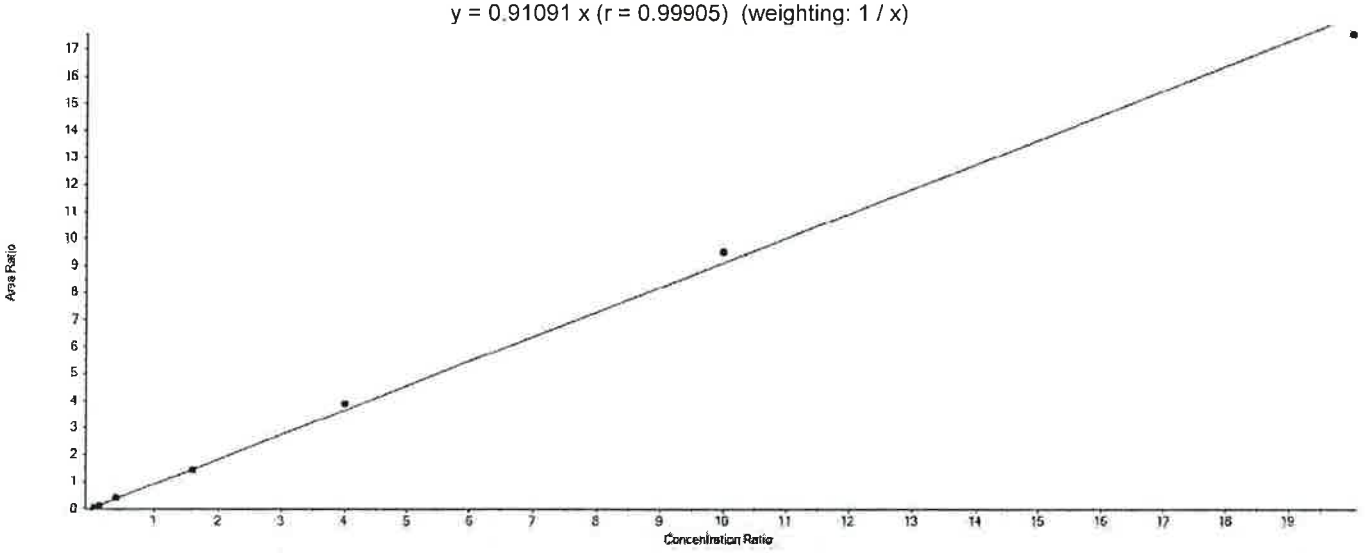
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDA

y = 0.91091 x (r = 0.99905) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65429.7	1711460.2	True	5.00	0.038	7.08	1.000	0.200	0.210	4.9	50.0	
CAL2	202762.4	1791292.2	True	5.00	0.113	7.07	1.000	0.600	0.621	3.6	30.0	
CAL3	651504.7	1727707.8	True	5.00	0.377	7.08	1.000	2.000	2.070	3.5	30.0	
CAL4	2867669.5	1983112.7	True	5.00	1.446	7.07	1.000	8.000	7.937	-0.8	30.0	
CAL5	6700356.8	1721524.0	True	5.00	3.892	7.08	1.000	20.000	21.364	6.8	30.0	
CAL6	14567251.2	1529554.5	True	5.00	9.524	7.08	1.000	50.000	52.277	4.6	30.0	
CAL7	23920790.4	1363173.5	True	5.00	17.548	7.07	1.000	100.000	96.321	-3.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

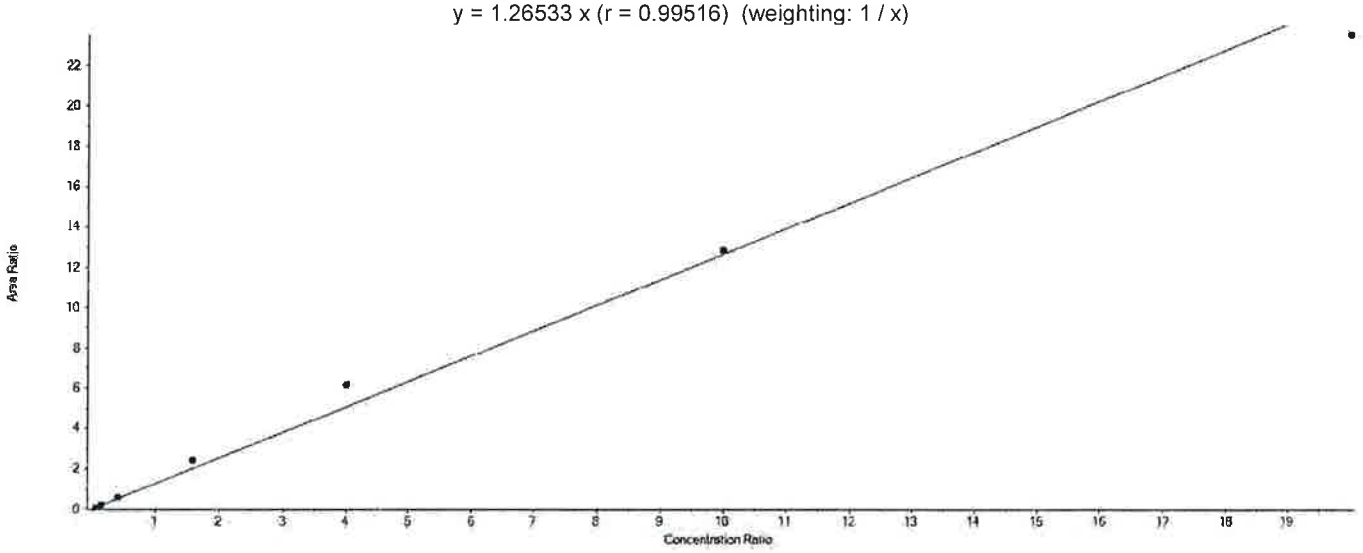
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFUnDA

y = 1.26533 x (r = 0.99516) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	60752.5	995821.2	True	5.00	0.061	7.38	1.000	0.200	0.241	20.5	50.0	
CAL2	179405.7	1030183.1	True	5.00	0.174	7.38	1.000	0.600	0.688	14.7	30.0	
CAL3	520270.4	888871.0	True	5.00	0.585	7.39	1.000	2.000	2.313	15.6	30.0	
CAL4	2424026.1	1010630.1	True	5.00	2.399	7.38	1.000	8.000	9.478	18.5	30.0	
CAL5	5418373.0	881054.2	True	5.00	6.150	7.39	1.000	20.000	24.301	21.5	30.0	
CAL6	11330823.0	880392.6	True	5.00	12.870	7.38	1.000	50.000	50.857	1.7	30.0	
CAL7	17636489.7	749999.2	True	5.00	23.515	7.38	1.000	100.000	92.922	-7.1	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

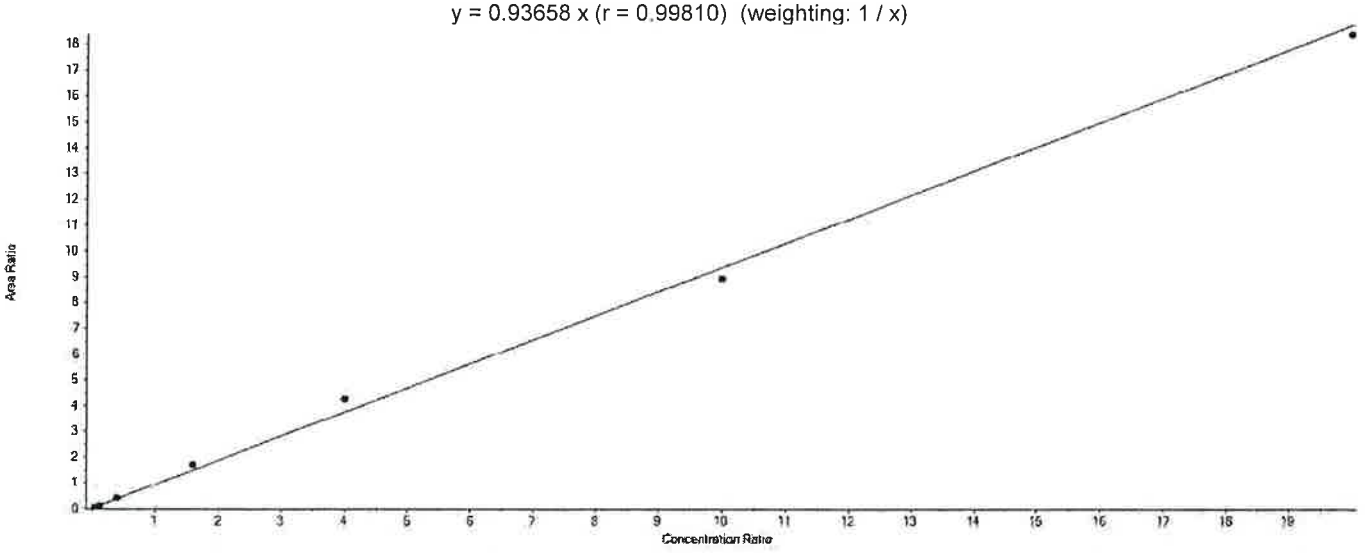
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDoDA

y = 0.93658 x (r = 0.99810) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	64094.9	1448567.4	True	5.00	0.044	7.67	1.000	0.200	0.236	18.1	50.0	
CAL2	184825.5	1502007.0	True	5.00	0.123	7.67	1.000	0.600	0.657	9.5	30.0	
CAL3	566845.7	1365297.0	True	5.00	0.415	7.68	1.000	2.000	2.216	10.8	30.0	
CAL4	2555860.6	1486696.5	True	5.00	1.719	7.67	1.000	8.000	9.178	14.7	30.0	
CAL5	5814088.5	1368417.8	True	5.00	4.249	7.67	1.000	20.000	22.682	13.4	30.0	
CAL6	11976721.9	1341062.3	True	5.00	8.931	7.67	1.000	50.000	47.677	-4.6	30.0	
CAL7	21119318.7	1148686.5	True	5.00	18.386	7.67	1.000	100.000	98.153	-1.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

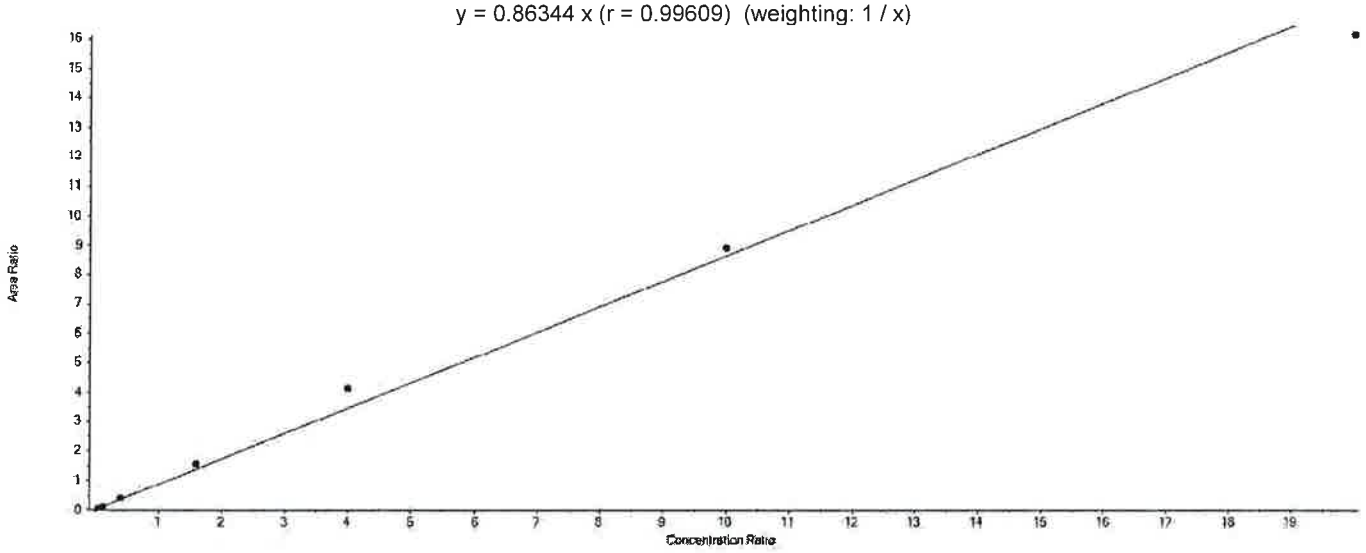
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTrDA

y = 0.86344 x (r = 0.99609) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	54019.6	1448567.4	True	5.00	0.037	7.95	1.040	0.200	0.216	8.0	50.0	
CAL2	161399.0	1502007.0	True	5.00	0.107	7.95	1.040	0.600	0.622	3.7	30.0	
CAL3	511966.6	1365297.0	True	5.00	0.375	7.96	1.040	2.000	2.171	8.6	30.0	
CAL4	2336426.8	1486696.5	True	5.00	1.572	7.95	1.040	8.000	9.101	13.8	30.0	
CAL5	5636683.2	1368417.8	True	5.00	4.119	7.95	1.040	20.000	23.853	19.3	30.0	
CAL6	11924146.0	1341062.3	True	5.00	8.892	7.95	1.040	50.000	51.489	3.0	30.0	
CAL7	18517016.1	1148686.5	True	5.00	16.120	7.95	1.040	100.000	93.348	-6.7	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

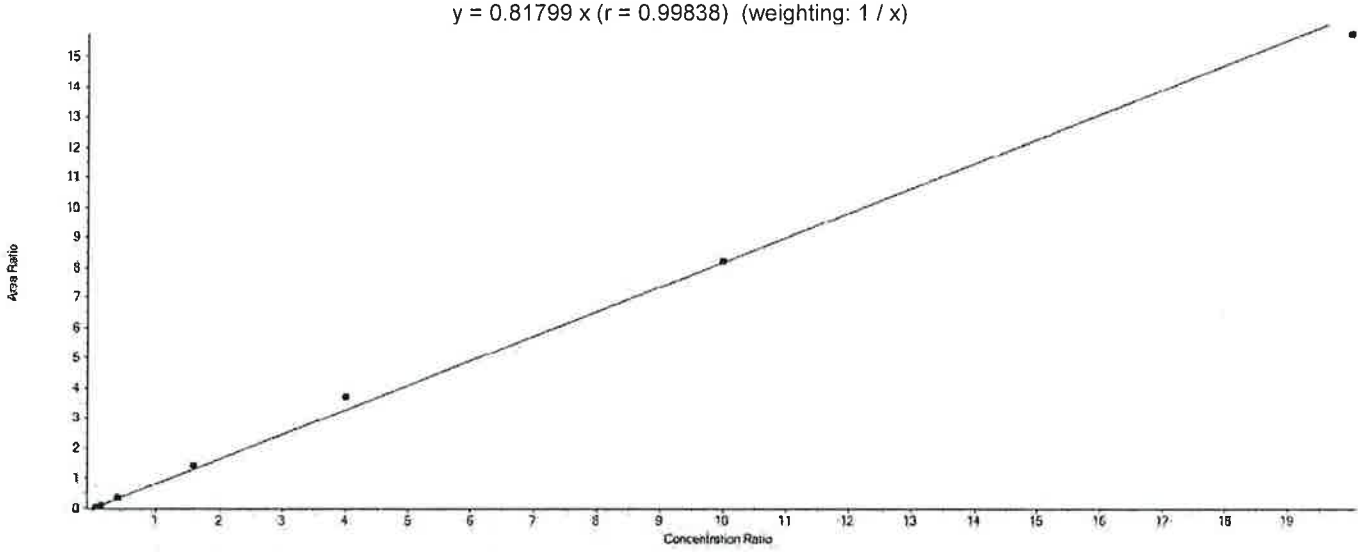
REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTeDA

y = 0.81799 x (r = 0.99838) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	67538.8	1802191.1	True	5.00	0.037	8.23	1.000	0.200	0.229	14.5	50.0	
CAL2	198788.8	1915714.8	True	5.00	0.104	8.23	1.000	0.600	0.634	5.7	30.0	
CAL3	559418.0	1639034.8	True	5.00	0.341	8.24	1.000	2.000	2.086	4.3	30.0	
CAL4	2742002.8	1938387.9	True	5.00	1.415	8.23	1.000	8.000	8.647	8.1	30.0	
CAL5	6444723.9	1730502.5	True	5.00	3.724	8.23	1.000	20.000	22.764	13.8	30.0	
CAL6	13051195.0	1588690.1	True	5.00	8.215	8.23	1.000	50.000	50.215	0.4	30.0	
CAL7	21068198.2	1338346.4	True	5.00	15.742	8.23	1.000	100.000	96.224	-3.8	30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

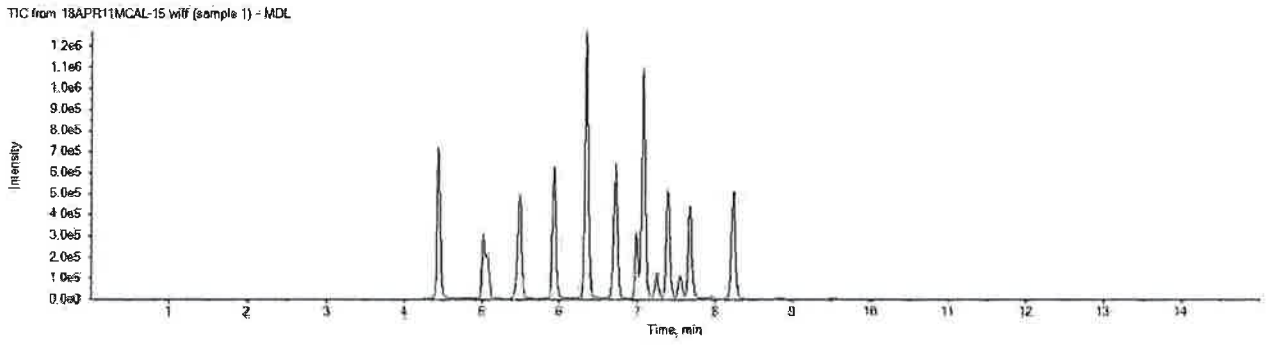
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24743 **File Name:** 18APR11MCAL-15.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	19901.2	M	13C4-PFBA	4.44	1027509.6	0.019	0.115
PFPeA	5.01	1.000	20427.5	M	13C5-PFPeA	5.01	854377.8	0.024	0.117
PFBS	5.07	1.000	8749.0	M	13C3-PFBS	5.07	482216.9	0.018	0.085
4:2-FTS	5.44	1.000	20380.3	A	13C2-4:2-FTS	5.44	215496.1	0.095	0.517
PFHxA	5.48	1.000	31766.2	M	13C5-PFHxA	5.49	1546286.6	0.021	0.112
PFPeS	5.50	1.080	4351.0	M	13C3-PFBS	5.07	482216.9	0.009	0.087
PFHxS	5.92	1.000	9103.7	M	13C3-PFHxS	5.92	437110.4	0.021	0.101
PFHpA	5.93	1.000	38729.7	M	13C4-PFHpA	5.93	1479720.2	0.026	0.121
6:2-FTS	6.34	1.000	16650.3	M	13C2-6:2-FTS	6.33	178830.5	0.093	0.478
PFHpS	6.33	1.070	6997.7	M	13C3-PFHxS	5.92	437110.4	0.016	0.091
PFOA	6.35	1.000	37479.6	M	13C8-PFOA	6.35	1903950.6	0.020	0.107
PFOS	6.70	1.000	8213.8	M	13C8-PFOS	6.70	360784.3	0.023	0.109
PFNA	6.72	1.000	38974.2	M	13C9-PFNA	6.72	1383683.1	0.028	0.123
PFOSA	6.98	1.000	20687.7	M	13C8-PFOSA	6.98	880213.0	0.024	0.123
PFNS	7.04	1.050	5166.8	M	13C8-PFOS	6.70	360784.3	0.014	0.097
PFDA	7.07	1.000	33377.4	M	13C6-PFDA	7.07	1777400.3	0.019	0.103
8:2-FTS	7.09	1.000	21207.1	M	13C2-8:2-FTS	7.09	228379.3	0.093	0.465
NMePFOSAE	7.38	1.000	5416.4	M	d7-NMePFOSAE	7.38	193143.7	0.028	0.122
NMePFOSA	7.41	1.000	3461.1	M	d3-NMePFOSA	7.40	147870.5	0.023	0.112
NMeFOSAA	7.24	1.000	9179.6	M	d3-NMeFOSAA	7.24	352181.2	0.026	0.127
NEtPFOSAE	7.54	1.000	6889.5	M	d9-NEtPFOSAE	7.53	223289.1	0.031	0.129
NEtPFOSA	7.56	1.000	2732.1	M	d5-NEtPFOSA	7.55	124912.8	0.022	0.105
PFDS	7.33	1.100	4563.1	M	13C8-PFOS	6.70	360784.3	0.013	0.119
PFUnDA	7.38	1.000	29497.1	M	13C7-PFUnDA	7.38	944369.5	0.031	0.123
NEtFOSAA	7.40	1.000	10943.9	M	d5-NEtFOSAA	7.40	389065.9	0.028	0.131
PFDoDA	7.67	1.000	29062.1	M	13C2-PFDoDA	7.67	1399603.8	0.021	0.111
10:2-FTS	7.71	1.090	28762.9	M	13C2-8:2-FTS	7.09	228379.3	0.126	0.487
PFDoS	7.90	1.180	1515.2	M	13C8-PFOS	6.70	360784.3	0.004	0.085
PFTrDA	7.95	1.040	26359.0	A	13C2-PFDoDA	7.67	1399603.8	0.019	0.109
PFTeDA	8.23	1.000	33911.9	M	13C2-PFTeDA	8.23	1746064.4	0.019	0.119
PFHxDA	8.83	1.070	29658.4	A	13C2-PFTeDA	8.23	1746064.4	0.017	0.128
PFODA	9.52	1.160	26313.3	A	13C2-PFTeDA	8.23	1746064.4	0.015	0.100

Total Ion Chromatogram



APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

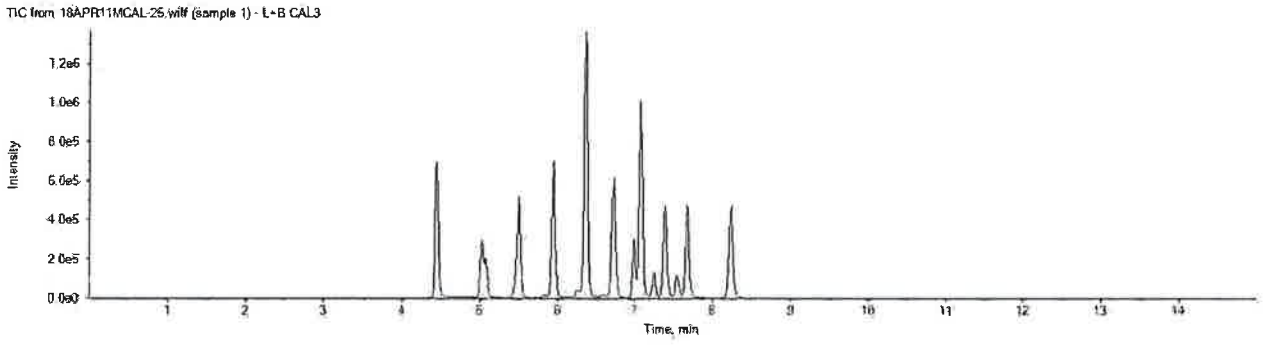
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM24743 **File Name:** 18APR11MCAL-25.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1025595.8	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	851380.9	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	461058.2	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.45	208218.8	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.49	1483774.0	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.07	461058.2	N/A	
PFHxS	5.93	1.000	147178.9	M	13C3-PFHxS	5.93	416726.5	0.353	1.720
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.94	1459285.4	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.34	175669.4	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	416726.5	N/A	
PFOA	6.35	1.000	618117.4	M	13C8-PFOA	6.35	1847576.1	0.335	1.821
PFOS	6.70	1.000	155868.0	M	13C8-PFOS	6.70	386857.3	0.403	1.934
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	1333305.3	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.99	825021.3	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.70	386857.3	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.08	1759691.0	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.09	206641.5	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.39	181846.2	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.41	138327.0	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.25	380006.4	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.54	243485.0	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.56	115523.0	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.70	386857.3	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.39	915750.2	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.41	367618.9	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	1448481.7	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.09	206641.5	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.70	386857.3	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	1448481.7	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.24	1649343.3	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.24	1649343.3	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.24	1649343.3	N/A	

Total Ion Chromatogram



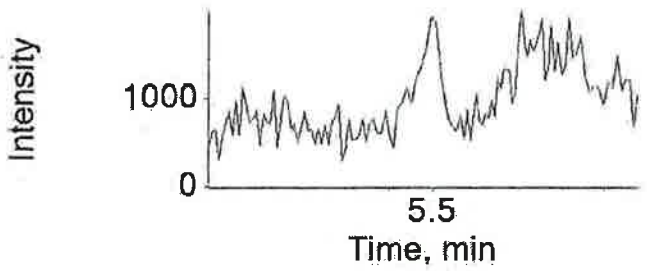
APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

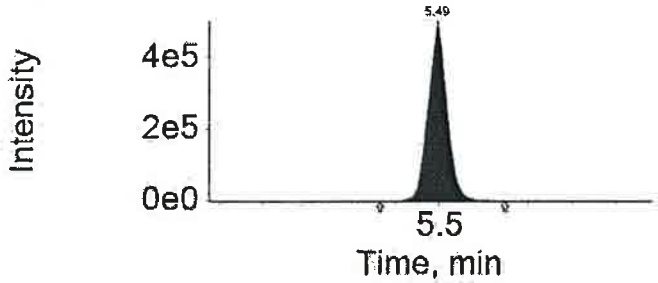
Analyte: PFHxA

313.0 /
269.0



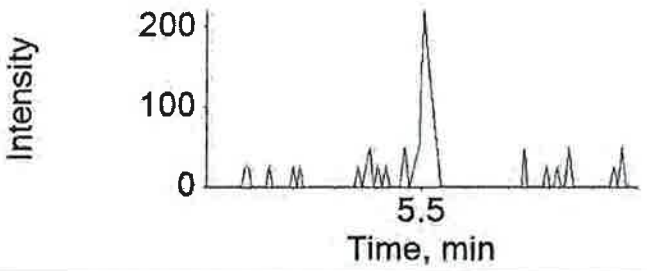
Extraction Standard: 13C5-PFHxA

318.0 /
273.0



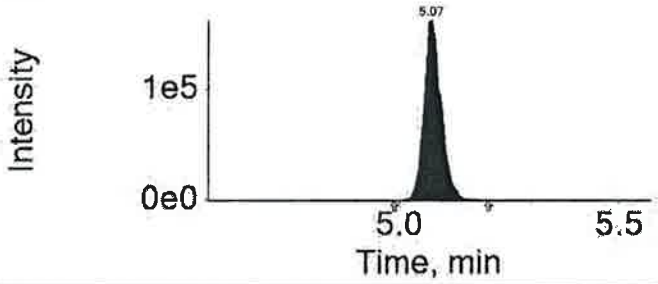
Analyte: PFPeS

349.0 /
80.0



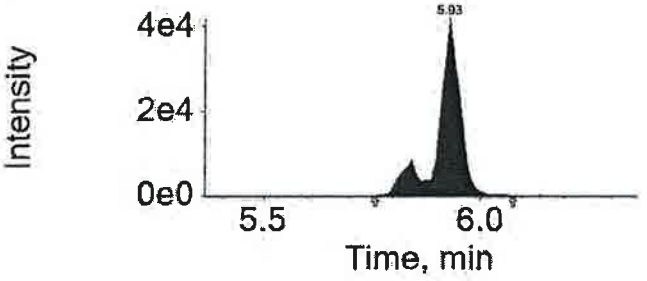
Extraction Standard: 13C3-PFBS

302.0 /
80.0



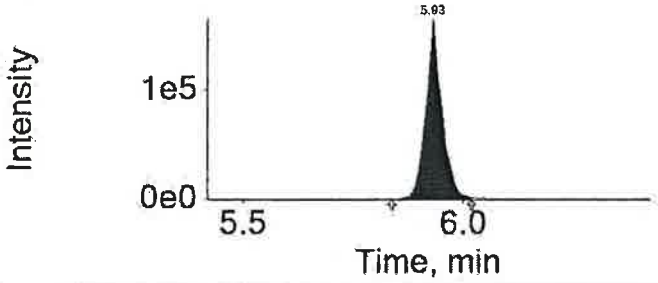
Analyte: PFHxS

399.0 /
80.0



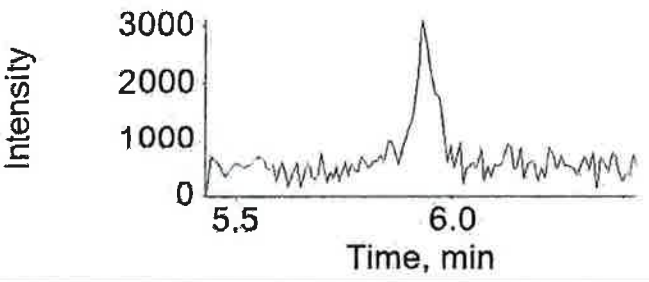
Extraction Standard: 13C3-PFHxS

402.0 /
80.0



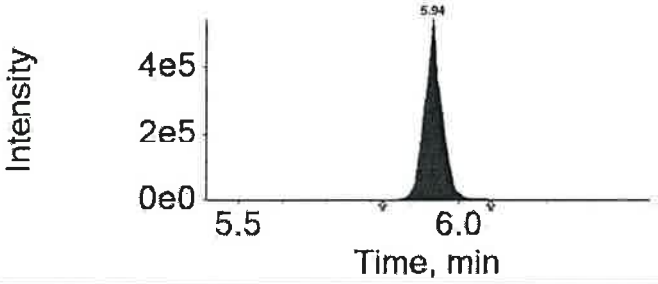
Analyte: PFHpA

363.0 /
319.0



Extraction Standard: 13C4-PFHpA

367.0 /
322.0



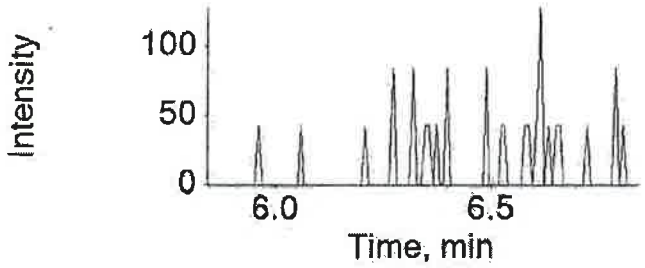
APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

ICAL Name: 18APR11MCAL **Result Table:** 18APR11MCAL 4/12/2018 11:24:53 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

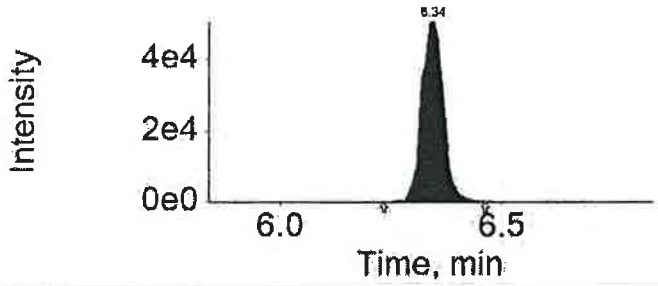
Analyte: 6:2-FTS

427.0 / 407.0



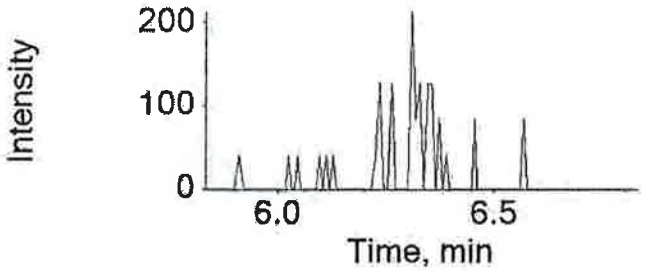
Extraction Standard: 13C2-6:2-FTS

429.0 / 409.0



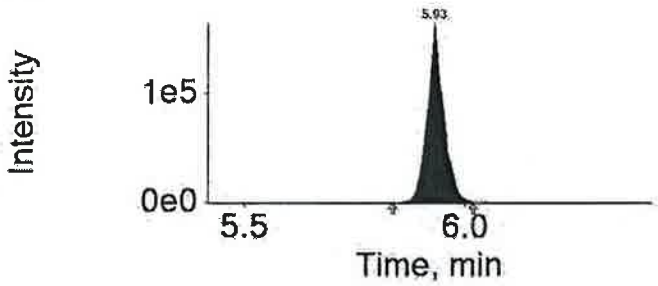
Analyte: PFHpS

449.0 / 80.0



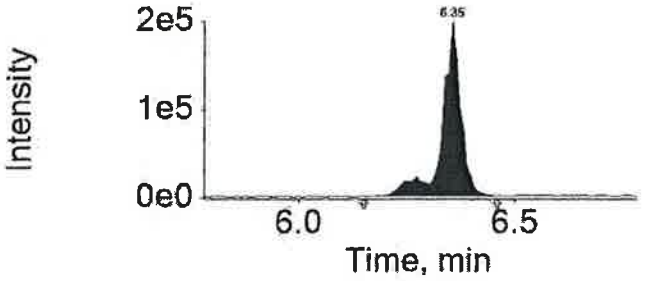
Extraction Standard: 13C3-PFHxS

402.0 / 80.0



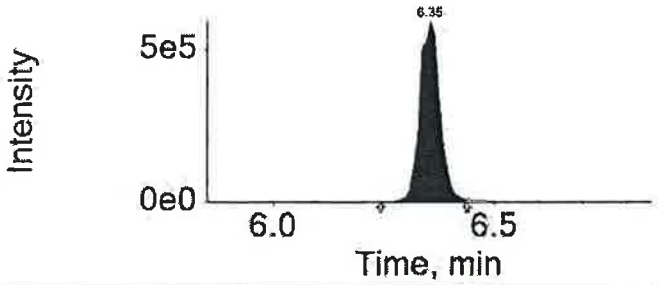
Analyte: PFOA

413.0 / 369.0



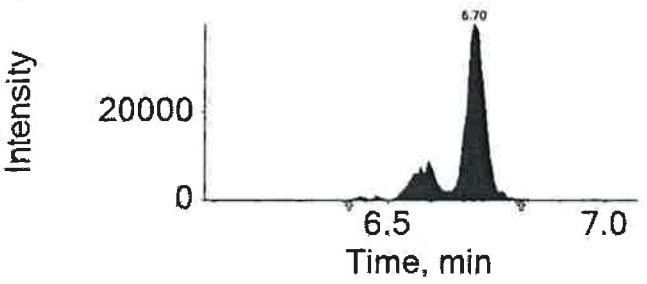
Extraction Standard: 13C8-PFOA

421.0 / 376.0



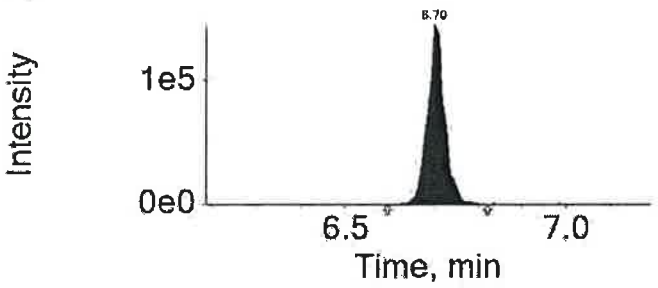
Analyte: PFOS

499.0 / 80.0



Extraction Standard: 13C8-PFOS

507.0 / 80.0



APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18APR11MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR11MCAL4/12/2018 11:24:53 AM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR11MCAL-24.wiff	4/12/2018 1:38:18 AM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	343494.8	13C4-PFBA	1035938.3	5.00	0.332	4.44	1.00	2.000	1.974	-1.3	30.0	
PFPeA	354319.7	13C5-PFPeA	920580.4	5.00	0.385	5.02	1.00	2.000	1.887	-5.7	30.0	
PFBS	171751.0	13C3-PFBS	482466.1	4.65	0.356	5.07	1.00	1.770	1.676	-5.3	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	235336.0	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	568942.0	13C5-PFHxA	1640212.3	5.00	0.347	5.49	1.00	2.000	1.894	-5.3	30.0	
PFPeS	N/A	13C3-PFBS	482466.1	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	157750.3	13C3-PFHxS	436995.1	4.73	0.361	5.93	1.00	1.890	1.758	-7.0	30.0	
PFHpA	684916.6	13C4-PFHpA	1571926.3	5.00	0.436	5.93	1.00	2.000	2.014	0.7	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	176186.7	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	136838.6	13C3-PFHxS	436995.1	4.73	0.313	6.33	1.07	1.900	1.780	-6.3	30.0	
PFOA	719520.7	13C8-PFOA	1921659.6	5.00	0.374	6.35	1.00	2.000	2.038	1.9	30.0	
PFOS	145864.6	13C8-PFOS	384128.1	4.78	0.380	6.70	1.00	1.910	1.823	-4.6	30.0	
PFNA	647472.8	13C9-PFNA	1422883.2	5.00	0.455	6.73	1.00	2.000	1.981	-1.0	30.0	
PFOSA	N/A	13C8-PFOSA	909534.1	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	384128.1	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	681309.0	13C6-PFDA	1843786.5	5.00	0.370	7.07	1.00	2.000	2.028	1.4	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	249297.5	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	191391.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	149190.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	165522.8	d3-NMeFOSAA	394274.7	5.00	0.420	7.25	1.00	2.000	2.046	2.3	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	227431.6	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	116674.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	74021.0	13C8-PFOS	384128.1	4.78	0.193	7.34	1.10	1.930	1.819	-5.7	30.0	
PFUnDA	545999.7	13C7-PFUnDA	994001.6	5.00	0.549	7.38	1.00	2.000	2.171	8.5	30.0	
NEtFOSAA	168058.5	d5-NEtFOSAA	388208.8	5.00	0.433	7.41	1.00	2.000	2.009	0.4	30.0	
PFDoDA	545827.4	13C2-PFDoDA	1440214.4	5.00	0.379	7.67	1.00	2.000	2.023	1.2	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	249297.5	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	384128.1	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	513279.1	13C2-PFDoDA	1440214.4	5.00	0.356	7.95	1.04	2.000	2.064	3.2	30.0	
PFTeDA	580792.8	13C2-PFTeDA	1773299.5	5.00	0.328	8.23	1.00	2.000	2.002	0.1	30.0	
PFHxDA	N/A	13C2-PFTeDA	1773299.5	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	1773299.5	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By JPT at 12:32 pm, 4/12/18

REVIEWED
By umar at 9:55 am, 4/18/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR11MCAL-26.WIFF

Date/Time Analyzed: 04/12/2018 02:09 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.06	2.84	±30
Perfluoropentanoic acid	2.00	1.96	-1.77	±30
Perfluorobutanesulfonate	1.77	1.81	2.25	±30
4:2 fluorotelomersulfonate	4.90	5.38	9.82	±30
Perfluorohexanoic acid	2.00	2.12	5.96	±30
Perfluoropentanesulfonate	1.88	1.84	-2.24	±30
Perfluorohexanesulfonate	1.89	1.83	-2.93	±30
Perfluoroheptanoic acid	2.00	2.31	15.26	±30
6:2 fluorotelomersulfonate	5.21	5.58	7.18	±30
Perfluoroheptanesulfonate	1.90	1.79	-5.85	±30
Perfluorooctanoic acid	2.00	2.15	7.65	±30
Perfluoro-octanesulfonate	1.91	1.95	2.01	±30
Perfluorononanoic acid	2.00	2.24	12.02	±30
Perfluorooctanesulfonamide	2.00	2.19	9.28	±30
Perfluorononanesulfonate	1.92	2.02	5.25	±30
Perfluorodecanoic acid	2.00	2.14	6.93	±30
8:2 fluorotelomersulfonate	5.27	5.87	11.44	±30
NMeFOSAA	2.00	2.25	12.32	±30
Perfluorodecanesulfonate	1.93	2.00	3.76	±30
Perfluoroundecanoic acid	2.00	2.41	20.34	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR11MCAL-26.WIFF

Date/Time Analyzed: 04/12/2018 02:09 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.01	0.69	±30
Perfluorododecanoic acid	2.00	2.13	6.62	±30
10:2-fluorotelomersulfonate	5.30	5.55	4.80	±30
Perfluorododecanesulfonate	1.94	1.96	0.85	±30
Perfluorotridecanoic acid	2.00	2.15	7.65	±30
Perfluorotetradecanoic acid	2.00	2.16	7.93	±30
Perfluorohexadecanoic acid	2.00	2.21	10.46	±30
Perfluorooctadecanoic acid	2.00	2.01	0.74	±30

✓

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR05-01.WIFF

Date/Time Analyzed: 04/05/2018 09:58 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.07	3.60	±30
Perfluoropentanoic acid	2.00	2.13	6.68	±30
Perfluorobutanesulfonate	1.77	1.82	2.95	±30
4:2 fluorotelomersulfonate	4.90	5.46	11.40	±30
Perfluorohexanoic acid	2.00	2.12	6.07	±30
Perfluoropentanesulfonate	1.88	1.96	4.12	±30
Perfluorohexanesulfonate	1.89	1.91	1.20	±30
Perfluoroheptanoic acid	2.00	2.32	16.17	±30
6:2 fluorotelomersulfonate	5.21	5.62	7.87	±30
Perfluoroheptanesulfonate	1.90	1.97	3.64	±30
Perfluorooctanoic acid	2.00	2.22	11.04	±30
Perfluoro-octanesulfonate	1.91	2.07	8.18	±30
Perfluorononanoic acid	2.00	2.12	5.80	±30
Perfluorooctanesulfonamide	2.00	2.21	10.32	±30
Perfluorononanesulfonate	1.92	2.06	7.19	±30
Perfluorodecanoic acid	2.00	2.23	11.49	±30
8:2 fluorotelomersulfonate	5.27	5.63	6.88	±30
NMePFOSAE	2.00	2.28	14.11	±30
NMePFOSA	2.00	2.34	16.77	±30
NMeFOSAA	2.00	2.22	11.20	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR05-01.WIFF

Date/Time Analyzed: 04/05/2018 09:58 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	2.00	1.95	-2.61	±30
NEtPFOSA	2.00	1.91	-4.64	±30
Perfluorodecanesulfonate	1.93	1.81	-6.43	±30
Perfluoroundecanoic acid	2.00	2.11	5.70	±30
NEtFOSAA	2.00	2.06	2.83	±30
Perfluorododecanoic acid	2.00	2.00	0.09	±30
10:2-fluorotelomersulfonate	5.30	6.38	20.29	±30
Perfluorododecanesulfonate	1.94	2.04	4.91	±30
Perfluorotridecanoic acid	2.00	2.01	0.67	±30
Perfluorotetradecanoic acid	2.00	2.21	10.46	±30
Perfluorohexadecanoic acid	2.00	2.00	0.04	±30
Perfluorooctadecanoic acid	2.00	2.07	3.64	±30

✓

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR05-14.WIFF

Date/Time Analyzed: 04/05/2018 18:31 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.33	4.13	±30
Perfluoropentanoic acid	8.00	8.51	6.40	±30
Perfluorobutanesulfonate	7.08	7.62	7.60	±30
4:2 fluorotelomersulfonate	10.04	10.39	3.48	±30
Perfluorohexanoic acid	8.00	8.65	8.16	±30
Perfluoropentanesulfonate	7.50	8.25	10.00	±30
Perfluorohexanesulfonate	7.56	7.81	3.37	±30
Perfluoroheptanoic acid	8.00	9.11	13.90	±30
6:2 fluorotelomersulfonate	10.43	10.73	2.85	±30
Perfluoroheptanesulfonate	7.61	7.60	-0.19	±30
Perfluorooctanoic acid	8.00	8.77	9.57	±30
Perfluoro-octanesulfonate	7.65	8.06	5.42	±30
Perfluorononanoic acid	8.00	8.41	5.08	±30
Perfluorooctanesulfonamide	8.00	8.41	5.11	±30
Perfluorononanesulfonate	7.68	7.94	3.35	±30
Perfluorodecanoic acid	8.00	8.79	9.84	±30
8:2 fluorotelomersulfonate	10.54	10.73	1.80	±30
NMePFOSAE	8.00	8.07	0.82	±30
NMePFOSA	8.00	8.13	1.63	±30
NMeFOSAA	8.00	7.79	-2.66	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR05-14.WIFF

Date/Time Analyzed: 04/05/2018 18:31 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	8.00	7.43	-7.08	±30
NEtPFOSA	8.00	7.77	-2.92	±30
Perfluorodecanesulfonate	7.70	7.78	1.04	±30
Perfluoroundecanoic acid	8.00	8.55	6.89	±30
NEtFOSAA	8.00	7.50	-6.20	±30
Perfluorododecanoic acid	8.00	8.96	11.95	±30
10:2-fluorotelomersulfonate	10.60	11.56	9.03	±30
Perfluorododecanesulfonate	7.74	8.15	5.24	±30
Perfluorotridecanoic acid	8.00	8.57	7.13	±30
Perfluorotetradecanoic acid	8.00	8.50	6.19	±30
Perfluorohexadecanoic acid	8.00	7.86	-1.79	±30
Perfluorooctadecanoic acid	8.00	8.28	3.49	±30

✓

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR05-20.WIFF

Date/Time Analyzed: 04/05/2018 20:04 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.10	10.52	±30
Perfluoropentanoic acid	20.00	22.48	12.38	±30
Perfluorobutanesulfonate	17.69	19.85	12.23	±30
4:2 fluorotelomersulfonate	12.49	13.41	7.36	±30
Perfluorohexanoic acid	20.00	22.23	11.13	±30
Perfluoropentanesulfonate	18.76	21.27	13.38	±30
Perfluorohexanesulfonate	18.91	20.18	6.72	±30
Perfluoroheptanoic acid	20.00	24.77	23.83	±30
6:2 fluorotelomersulfonate	13.04	12.99	-0.39	±30
Perfluoroheptanesulfonate	19.03	21.57	13.37	±30
Perfluorooctanoic acid	20.00	23.03	15.14	±30
Perfluoro-octanesulfonate	19.12	20.02	4.70	±30
Perfluorononanoic acid	20.00	22.98	14.90	±30
Perfluorooctanesulfonamide	10.00	9.97	-0.34	±30
Perfluorononanesulfonate	19.20	20.42	6.35	±30
Perfluorodecanoic acid	20.00	23.38	16.92	±30
8:2 fluorotelomersulfonate	13.17	12.48	-5.26	±30
NMePFOSAE	10.00	10.69	6.91	±30
NMePFOSA	10.00	9.51	-4.86	±30
NMeFOSAA	10.00	9.73	-2.70	±30

PFOA only

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960 Lab File ID: 18APR08-13.WIFF

Date/Time Analyzed: 04/08/2018 13:49 Lab Sample ID: CCV3_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.09	4.73	±30
Perfluoropentanoic acid	2.00	2.13	6.34	±30
Perfluorobutanesulfonate	1.77	1.77	0.05	±30
4:2 fluorotelomersulfonate	4.90	5.50	12.29	±30
Perfluorohexanoic acid	2.00	2.17	8.35	±30
Perfluoropentanesulfonate	1.88	1.96	4.14	±30
Perfluorohexanesulfonate	1.89	1.87	-1.00	±30
Perfluoroheptanoic acid	2.00	2.08	4.12	±30
6:2 fluorotelomersulfonate	5.21	5.61	7.70	±30
Perfluoroheptanesulfonate	1.90	1.77	-6.72	±30
Perfluorooctanoic acid	2.00	2.17	8.57	±30
Perfluoro-octanesulfonate	1.91	1.84	-3.83	±30
Perfluorononanoic acid	2.00	2.21	10.68	±30
Perfluorooctanesulfonamide	2.00	2.39	19.59	±30
Perfluorononanesulfonate	1.92	1.81	-5.98	±30
Perfluorodecanoic acid	2.00	2.23	11.37	±30
8:2 fluorotelomersulfonate	5.27	5.88	11.60	±30
NMePFOSAE	2.00	2.04	1.78	±30
NMePFOSA	2.00	2.05	2.33	±30
NMeFOSAA	2.00	2.16	8.11	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960 Lab File ID: 18APR08-13.WIFF

Date/Time Analyzed: 04/08/2018 13:49 Lab Sample ID: CCV3_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	2.00	2.17	8.64	±30
NEtPFOSA	2.00	2.17	8.40	±30
Perfluorodecanesulfonate	1.93	1.77	-8.35	±30
Perfluoroundecanoic acid	2.00	2.51	25.26	±30
NEtFOSAA	2.00	1.99	-0.73	±30
Perfluorododecanoic acid	2.00	2.19	9.54	±30
10:2-fluorotelomersulfonate	5.30	5.40	1.89	±30
Perfluorododecanesulfonate	1.94	1.76	-9.20	±30
Perfluorotridecanoic acid	2.00	1.88	-6.23	±30
Perfluorotetradecanoic acid	2.00	1.98	-1.11	±30
Perfluorohexadecanoic acid	2.00	1.63	-18.65	±30
Perfluorooctadecanoic acid	2.00	1.59	-20.40	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960 Lab File ID: 18APR08-27.WIFF

Date/Time Analyzed: 04/08/2018 17:13 Lab Sample ID: CCV4_CAL4

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.45	5.66	±30
Perfluoropentanoic acid	8.00	8.31	3.87	±30
Perfluorobutanesulfonate	7.08	7.52	6.18	±30
4:2 fluorotelomersulfonate	10.04	9.83	-2.06	±30
Perfluorohexanoic acid	8.00	8.33	4.16	±30
Perfluoropentanesulfonate	7.50	7.78	3.77	±30
Perfluorohexanesulfonate	7.56	7.50	-0.75	±30
Perfluoroheptanoic acid	8.00	8.72	9.01	±30
6:2 fluorotelomersulfonate	10.43	10.63	1.93	±30
Perfluoroheptanesulfonate	7.61	7.56	-0.63	±30
Perfluorooctanoic acid	8.00	8.62	7.72	±30
Perfluoro-octanesulfonate	7.65	7.84	2.43	±30
Perfluorononanoic acid	8.00	8.82	10.26	±30
Perfluorooctanesulfonamide	8.00	8.11	1.34	±30
Perfluorononanesulfonate	7.68	7.33	-4.59	±30
Perfluorodecanoic acid	8.00	8.75	9.42	±30
8:2 fluorotelomersulfonate	10.54	11.11	5.44	±30
NMePFOSAE	8.00	7.90	-1.25	±30
NMePFOSA	8.00	7.45	-6.83	±30
NMeFOSAA	8.00	8.22	2.70	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960 Lab File ID: 18APR08-27.WIFF

Date/Time Analyzed: 04/08/2018 17:13 Lab Sample ID: CCV4_CAL4

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	8.00	8.48	6.04	±30
NEtPFOSA	8.00	7.92	-1.02	±30
Perfluorodecanesulfonate	7.70	6.78	-11.93	±30
Perfluoroundecanoic acid	8.00	8.74	9.31	±30
NEtFOSAA	8.00	7.53	-5.83	±30
Perfluorododecanoic acid	8.00	8.61	7.65	±30
10:2-fluorotelomersulfonate	10.60	12.13	14.47	±30
Perfluorododecanesulfonate	7.74	6.68	-13.73	±30
Perfluorotridecanoic acid	8.00	6.62	-17.19	±30
Perfluorotetradecanoic acid	8.00	8.01	0.15	±30
Perfluorohexadecanoic acid	8.00	7.05	-11.91	±30
Perfluorooctadecanoic acid	8.00	6.67	-16.57	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960 Lab File ID: 18APR08-39.WIFF

Date/Time Analyzed: 04/08/2018 20:08 Lab Sample ID: CCV5_CAL5

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.41	12.07	±30
Perfluoropentanoic acid	20.00	22.54	12.68	±30
Perfluorobutanesulfonate	17.69	19.47	10.04	±30
4:2 fluorotelomersulfonate	12.49	12.17	-2.60	±30
Perfluorohexanoic acid	20.00	22.69	13.44	±30
Perfluoropentanesulfonate	18.76	20.58	9.69	±30
Perfluorohexanesulfonate	18.91	20.72	9.57	±30
Perfluoroheptanoic acid	20.00	21.75	8.74	±30
6:2 fluorotelomersulfonate	13.04	12.25	-6.04	±30
Perfluoroheptanesulfonate	19.03	19.91	4.60	±30
Perfluorooctanoic acid	20.00	23.44	17.19	±30
Perfluoro-octanesulfonate	19.12	20.99	9.76	±30
Perfluorononanoic acid	20.00	23.88	19.40	±30
Perfluorooctanesulfonamide	10.00	10.45	4.48	±30
Perfluorononanesulfonate	19.20	20.13	4.86	±30
Perfluorodecanoic acid	20.00	23.00	15.01	±30
8:2 fluorotelomersulfonate	13.17	12.87	-2.31	±30
NMePFOSAE	10.00	10.33	3.35	±30
NMePFOSA	10.00	9.90	-0.98	±30
NMeFOSAA	10.00	9.38	-6.23	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960 Lab File ID: 18APR08-39.WIFF

Date/Time Analyzed: 04/08/2018 20:08 Lab Sample ID: CCV5_CAL5

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	10.00	10.49	4.92	±30
NEtPFOSA	10.00	9.33	-6.75	±30
Perfluorodecanesulfonate	19.26	20.74	7.67	±30
Perfluoroundecanoic acid	20.00	24.30	21.52	±30
NEtFOSAA	10.00	9.84	-1.62	±30
Perfluorododecanoic acid	20.00	21.36	6.78	±30
10:2-fluorotelomersulfonate	13.26	17.09	28.91	±30
Perfluorododecanesulfonate	19.36	19.76	2.07	±30
Perfluorotridecanoic acid	20.00	18.38	-8.08	±30
Perfluorotetradecanoic acid	20.00	22.34	11.69	±30
Perfluorohexadecanoic acid	20.00	16.88	-15.59	±30
Perfluorooctadecanoic acid	20.00	22.62	13.10	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960 Lab File ID: 18APR08-53.WIFF

Date/Time Analyzed: 04/08/2018 23:31 Lab Sample ID: CCV6_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.15	7.71	±30
Perfluoropentanoic acid	2.00	2.06	3.25	±30
Perfluorobutanesulfonate	1.77	1.74	-1.87	±30
4:2 fluorotelomersulfonate	4.90	5.13	4.75	±30
Perfluorohexanoic acid	2.00	2.15	7.37	±30
Perfluoropentanesulfonate	1.88	1.97	4.85	±30
Perfluorohexanesulfonate	1.89	1.80	-5.00	±30
Perfluoroheptanoic acid	2.00	2.16	8.12	±30
6:2 fluorotelomersulfonate	5.21	5.44	4.44	±30
Perfluoroheptanesulfonate	1.90	1.76	-7.53	±30
Perfluorooctanoic acid	2.00	2.11	5.50	±30
Perfluoro-octanesulfonate	1.91	1.92	0.58	±30
Perfluorononanoic acid	2.00	2.23	11.32	±30
Perfluorooctanesulfonamide	2.00	2.29	14.48	±30
Perfluorononanesulfonate	1.92	1.91	-0.67	±30
Perfluorodecanoic acid	2.00	2.10	5.08	±30
8:2 fluorotelomersulfonate	5.27	5.70	8.20	±30
NMePFOSAE	2.00	2.29	14.51	±30
NMePFOSA	2.00	2.05	2.61	±30
NMeFOSAA	2.00	2.15	7.70	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960 Lab File ID: 18APR08-53.WIFF

Date/Time Analyzed: 04/08/2018 23:31 Lab Sample ID: CCV6_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	2.00	2.11	5.61	±30
NEtPFOSA	2.00	2.05	2.70	±30
Perfluorodecanesulfonate	1.93	1.85	-4.38	±30
Perfluoroundecanoic acid	2.00	2.53	26.70	±30
NEtFOSAA	2.00	1.91	-4.38	±30
Perfluorododecanoic acid	2.00	2.24	12.10	±30
10:2-fluorotelomersulfonate	5.30	5.52	4.19	±30
Perfluorododecanesulfonate	1.94	1.76	-9.27	±30
Perfluorotridecanoic acid	2.00	1.85	-7.30	±30
Perfluorotetradecanoic acid	2.00	2.09	4.55	±30
Perfluorohexadecanoic acid	2.00	1.85	-7.38	±30
Perfluorooctadecanoic acid	2.00	2.02	0.87	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960 Lab File ID: 18APR10-27.WIFF

Date/Time Analyzed: 04/10/2018 18:25 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.12	10.60	±30
Perfluoropentanoic acid	20.00	22.58	12.92	±30
Perfluorobutanesulfonate	17.69	19.17	8.37	±30
4:2 fluorotelomersulfonate	12.49	11.59	-7.24	±30
Perfluorohexanoic acid	20.00	21.47	7.35	±30
Perfluoropentanesulfonate	18.76	20.51	9.30	±30
Perfluorohexanesulfonate	18.91	20.39	7.84	±30
Perfluoroheptanoic acid	20.00	22.56	12.82	±30
6:2 fluorotelomersulfonate	13.04	13.07	0.25	±30
Perfluoroheptanesulfonate	19.03	19.68	3.42	±30
Perfluorooctanoic acid	20.00	22.80	13.98	±30
Perfluoro-octanesulfonate	19.12	20.77	8.61	±30
Perfluorononanoic acid	20.00	23.22	16.11	±30
Perfluorooctanesulfonamide	10.00	10.38	3.83	±30
Perfluorononanesulfonate	19.20	19.84	3.35	±30
Perfluorodecanoic acid	20.00	21.76	8.82	±30
8:2 fluorotelomersulfonate	13.17	13.43	1.94	±30
NMePFOSAE	10.00	10.18	1.79	±30
NMePFOSA	10.00	9.23	-7.72	±30
NMeFOSAA	10.00	9.56	-4.38	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960 Lab File ID: 18APR10-39.WIFF

Date/Time Analyzed: 04/10/2018 21:20 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.05	2.73	±30
Perfluoropentanoic acid	2.00	2.17	8.74	±30
Perfluorobutanesulfonate	1.77	1.76	-0.79	±30
4:2 fluorotelomersulfonate	4.90	5.37	9.51	±30
Perfluorohexanoic acid	2.00	2.13	6.45	±30
Perfluoropentanesulfonate	1.88	1.87	-0.58	±30
Perfluorohexanesulfonate	1.89	1.89	0.03	±30
Perfluoroheptanoic acid	2.00	2.13	6.64	±30
6:2 fluorotelomersulfonate	5.21	5.58	7.03	±30
Perfluoroheptanesulfonate	1.90	1.82	-4.06	±30
Perfluorooctanoic acid	2.00	2.05	2.45	±30
Perfluoro-octanesulfonate	1.91	1.98	3.79	±30
Perfluorononanoic acid	2.00	2.19	9.58	±30
Perfluorooctanesulfonamide	2.00	2.25	12.67	±30
Perfluorononanesulfonate	1.92	1.95	1.44	±30
Perfluorodecanoic acid	2.00	2.18	8.79	±30
8:2 fluorotelomersulfonate	5.27	5.90	12.05	±30
NMeFOSAA	2.00	2.20	10.09	±30
Perfluorodecanesulfonate	1.93	1.77	-8.14	±30
Perfluoroundecanoic acid	2.00	2.60	29.91	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24960 Lab File ID: 18APR10-51.WIFF

Date/Time Analyzed: 04/11/2018 00:14 Lab Sample ID: CCV5_CAL4

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.30	3.72	±30
Perfluoropentanoic acid	8.00	8.54	6.74	±30
Perfluorobutanesulfonate	7.08	7.22	1.95	±30
4:2 fluorotelomersulfonate	10.04	9.85	-1.88	±30
Perfluorohexanoic acid	8.00	8.14	1.81	±30
Perfluoropentanesulfonate	7.50	7.53	0.46	±30
Perfluorohexanesulfonate	7.56	7.88	4.25	±30
Perfluoroheptanoic acid	8.00	8.37	4.68	±30
6:2 fluorotelomersulfonate	10.43	10.67	2.32	±30
Perfluoroheptanesulfonate	7.61	7.78	2.21	±30
Perfluorooctanoic acid	8.00	8.61	7.58	±30
Perfluoro-octanesulfonate	7.65	7.72	0.91	±30
Perfluorononanoic acid	8.00	8.94	11.75	±30
Perfluorooctanesulfonamide	8.00	9.02	12.77	±30
Perfluorononanesulfonate	7.68	7.55	-1.75	±30
Perfluorodecanoic acid	8.00	8.20	2.53	±30
8:2 fluorotelomersulfonate	10.54	11.11	5.41	±30
NMeFOSAA	8.00	7.48	-6.48	±30
Perfluorodecanesulfonate	7.70	7.43	-3.57	±30
Perfluoroundecanoic acid	8.00	9.61	20.19	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR18-05.WIFF

Date/Time Analyzed: 04/18/2018 09:28 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.05	2.68	±30
Perfluoropentanoic acid	2.00	2.12	5.96	±30
Perfluorobutanesulfonate	1.77	1.63	-7.76	±30
4:2 fluorotelomersulfonate	4.90	5.42	10.67	±30
Perfluorohexanoic acid	2.00	2.10	5.10	±30
Perfluoropentanesulfonate	1.88	1.86	-1.28	±30
Perfluorohexanesulfonate	1.89	2.01	6.09	±30
Perfluoroheptanoic acid	2.00	2.12	6.18	±30
6:2 fluorotelomersulfonate	5.21	5.69	9.20	±30
Perfluoroheptanesulfonate	1.90	1.99	4.88	±30
Perfluorooctanoic acid	2.00	2.24	12.15	±30
Perfluoro-octanesulfonate	1.91	1.91	-0.25	±30
Perfluorononanoic acid	2.00	2.29	14.66	±30
Perfluorooctanesulfonamide	2.00	2.09	4.58	±30
Perfluorononanesulfonate	1.92	1.98	3.36	±30
Perfluorodecanoic acid	2.00	2.12	5.76	±30
8:2 fluorotelomersulfonate	5.27	5.41	2.64	±30
NMeFOSAA	2.00	2.18	9.13	±30
Perfluorodecanesulfonate	1.93	1.87	-2.90	±30
Perfluoroundecanoic acid	2.00	2.30	15.19	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR18-05.WIFF

Date/Time Analyzed: 04/18/2018 09:28 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.12	6.03	±30
Perfluorododecanoic acid	2.00	2.07	3.64	±30
10:2-fluorotelomersulfonate	5.30	5.78	9.00	±30
Perfluorododecanesulfonate	1.94	1.69	-12.94	±30
Perfluorotridecanoic acid	2.00	2.20	10.23	±30
Perfluorotetradecanoic acid	2.00	2.05	2.63	±30
Perfluorohexadecanoic acid	2.00	2.26	12.78	±30
Perfluorooctadecanoic acid	2.00	2.14	7.18	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR18-18.WIFF

Date/Time Analyzed: 04/18/2018 12:50 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.37	4.57	±30
Perfluoropentanoic acid	8.00	8.18	2.20	±30
Perfluorobutanesulfonate	7.08	7.64	7.93	±30
4:2 fluorotelomersulfonate	10.04	10.40	3.58	±30
Perfluorohexanoic acid	8.00	8.39	4.89	±30
Perfluoropentanesulfonate	7.50	7.99	6.57	±30
Perfluorohexanesulfonate	7.56	7.53	-0.42	±30
Perfluoroheptanoic acid	8.00	9.18	14.77	±30
6:2 fluorotelomersulfonate	10.43	10.06	-3.60	±30
Perfluoroheptanesulfonate	7.61	7.76	1.95	±30
Perfluorooctanoic acid	8.00	8.85	10.64	±30
Perfluoro-octanesulfonate	7.65	7.91	3.34	±30
Perfluorononanoic acid	8.00	8.91	11.33	±30
Perfluorooctanesulfonamide	8.00	7.93	-0.89	±30
Perfluorononanesulfonate	7.68	7.33	-4.55	±30
Perfluorodecanoic acid	8.00	8.14	1.73	±30
8:2 fluorotelomersulfonate	10.54	9.70	-7.93	±30
NMeFOSAA	8.00	7.95	-0.61	±30
Perfluorodecanesulfonate	7.70	7.02	-8.85	±30
Perfluoroundecanoic acid	8.00	8.38	4.73	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR18-18.WIFF

Date/Time Analyzed: 04/18/2018 12:50 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	8.00	7.43	-7.15	±30
Perfluorododecanoic acid	8.00	8.51	6.40	±30
10:2-fluorotelomersulfonate	10.60	8.55	-19.37	±30
Perfluorododecanesulfonate	7.74	6.54	-15.56	±30
Perfluorotridecanoic acid	8.00	8.72	8.99	±30
Perfluorotetradecanoic acid	8.00	8.68	8.46	±30
Perfluorohexadecanoic acid	8.00	8.26	3.23	±30
Perfluorooctadecanoic acid	8.00	8.26	3.30	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR18-30.WIFF

Date/Time Analyzed: 04/18/2018 15:56 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.28	11.42	±30
Perfluoropentanoic acid	20.00	22.61	13.06	±30
Perfluorobutanesulfonate	17.69	19.66	11.12	±30
4:2 fluorotelomersulfonate	12.49	12.23	-2.11	±30
Perfluorohexanoic acid	20.00	22.09	10.46	±30
Perfluoropentanesulfonate	18.76	21.24	13.20	±30
Perfluorohexanesulfonate	18.91	20.67	9.29	±30
Perfluoroheptanoic acid	20.00	23.53	17.67	±30
6:2 fluorotelomersulfonate	13.04	12.23	-6.20	±30
Perfluoroheptanesulfonate	19.03	21.13	11.02	±30
Perfluorooctanoic acid	20.00	24.48	22.38	±30
Perfluoro-octanesulfonate	19.12	22.15	15.86	±30
Perfluorononanoic acid	20.00	23.79	18.97	±30
Perfluorooctanesulfonamide	10.00	9.97	-0.25	±30
Perfluorononanesulfonate	19.20	22.33	16.31	±30
Perfluorodecanoic acid	20.00	22.44	12.22	±30
8:2 fluorotelomersulfonate	13.17	13.10	-0.53	±30
NMeFOSAA	10.00	10.95	9.48	±30
Perfluorodecanesulfonate	19.26	23.17	20.29	±30
Perfluoroundecanoic acid	20.00	22.55	12.73	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR18-30.WIFF

Date/Time Analyzed: 04/18/2018 15:56 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	10.00	8.93	-10.66	±30
Perfluorododecanoic acid	20.00	23.14	15.69	±30
10:2-fluorotelomersulfonate	13.26	13.87	4.58	±30
Perfluorododecanesulfonate	19.36	21.20	9.52	±30
Perfluorotridecanoic acid	20.00	22.27	11.36	±30
Perfluorotetradecanoic acid	20.00	22.36	11.81	±30
Perfluorohexadecanoic acid	20.00	21.67	8.36	±30
Perfluorooctadecanoic acid	20.00	20.53	2.66	±30

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* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR18-42.WIFF

Date/Time Analyzed: 04/18/2018 19:03 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.05	2.34	±30
Perfluoropentanoic acid	2.00	2.02	1.09	±30
Perfluorobutanesulfonate	1.77	1.73	-2.54	±30
4:2 fluorotelomersulfonate	4.90	4.98	1.69	±30
Perfluorohexanoic acid	2.00	2.15	7.71	±30
Perfluoropentanesulfonate	1.88	1.85	-1.73	±30
Perfluorohexanesulfonate	1.89	1.99	5.25	±30
Perfluoroheptanoic acid	2.00	2.35	17.49	±30
6:2 fluorotelomersulfonate	5.21	5.89	13.00	±30
Perfluoroheptanesulfonate	1.90	2.07	9.03	±30
Perfluorooctanoic acid	2.00	2.09	4.71	±30
Perfluoro-octanesulfonate	1.91	1.83	-4.21	±30
Perfluorononanoic acid	2.00	2.18	8.84	±30
Perfluorooctanesulfonamide	2.00	2.17	8.66	±30
Perfluorononanesulfonate	1.92	1.90	-0.91	±30
Perfluorodecanoic acid	2.00	2.09	4.60	±30
8:2 fluorotelomersulfonate	5.27	6.15	16.64	±30
NMeFOSAA	2.00	2.27	13.55	±30
Perfluorodecanesulfonate	1.93	1.81	-6.28	±30
Perfluoroundecanoic acid	2.00	2.19	9.61	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN11

Instrument ID: 24743 Lab File ID: 18APR18-50.WIFF

Date/Time Analyzed: 04/18/2018 21:07 Lab Sample ID: CCV5_CAL4

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.17	2.18	±30
Perfluoropentanoic acid	8.00	8.16	1.94	±30
Perfluorobutanesulfonate	7.08	7.02	-0.82	±30
4:2 fluorotelomersulfonate	10.04	9.70	-3.39	±30
Perfluorohexanoic acid	8.00	8.60	7.54	±30
Perfluoropentanesulfonate	7.50	7.87	4.89	±30
Perfluorohexanesulfonate	7.56	7.76	2.71	±30
Perfluoroheptanoic acid	8.00	8.64	7.96	±30
6:2 fluorotelomersulfonate	10.43	9.65	-7.48	±30
Perfluoroheptanesulfonate	7.61	7.77	2.05	±30
Perfluorooctanoic acid	8.00	8.96	12.05	±30
Perfluoro-octanesulfonate	7.65	7.54	-1.48	±30
Perfluorononanoic acid	8.00	8.63	7.92	±30
Perfluorooctanesulfonamide	8.00	8.24	3.02	±30
Perfluorononanesulfonate	7.68	7.11	-7.36	±30
Perfluorodecanoic acid	8.00	8.54	6.77	±30
8:2 fluorotelomersulfonate	10.54	9.91	-5.93	±30
NMeFOSAA	8.00	8.38	4.75	±30
Perfluorodecanesulfonate	7.70	7.00	-9.14	±30
Perfluoroundecanoic acid	8.00	9.29	16.14	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN11
Matrix: WATER

18092009		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1521482	1927063	1069642	472838
UPPER LIMIT		2282223	2890595	1604463	709257
LOWER LIMIT		760741	963532	534821	236419
LAB SAMPLE ID	**DATE ANALYZED**				
LCS092009	04/05/18 15:40	1713328	2008816	1256748	516211
LCSDA	04/05/18 15:55	1719837	2165029	1269362	521502
BLK092009	04/05/18 16:26	1696202	2164507	1289355	512107
9536687	04/05/18 19:33	1728505	2112072	1202817	534832
9536688	04/05/18 19:48	1787555	2079660	1193654	521845

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN11
Matrix: ~~SOIL~~ Wipe

18094013		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1007241	979042	1589581 ✓	723192
UPPER LIMIT		1510862	1468563	2384372 ✓	1084788
LOWER LIMIT		503621	489521	794791 ✓	361596
LAB SAMPLE ID	DATE ANALYZED				
LCS094013	04/08/18 15:31	1043887	1035162	1701328	833652
LCSDA	04/08/18 16:00	1243025	1086135	1740871	798565
BLK094013	04/08/18 16:44	1147101	1088505	1765321	836208
9536682	04/08/18 17:42	1149283 ✓	450498 *	1687363	714125
9536683	04/08/18 17:57	1179944	287779 *	1597221	698376
9536685	04/08/18 18:11	1036029	359006 *	1521241	709813
9536689	04/08/18 18:26	1189547	433405 * ✓	1648337	721224
9536690	04/08/18 18:40	1241986	333769 *	1726945	758530
9536691	04/08/18 18:55	1261244	627740	1662982	757084
9536692	04/08/18 19:09	1178701	544065	1673967	774235
9536693	04/08/18 19:24	1222077	744492	1682752	766954
9536695	04/08/18 19:39	1211444	316596 *	1711566 ✓	769821
9536696	04/08/18 19:53	1191475	331733 *	1598011	724952
9536697	04/08/18 20:37	1186245	348493 *	1716277	747620
9536698	04/08/18 20:51	1212449	329302 *	1731044	784786
9536699	04/08/18 21:06	1221598	1130064	1744379	702826 ✓
9536700	04/08/18 21:20	1280194	408844 *	1755805	800841
9536682DL	04/10/18 18:54	996478	804903	1625411	695845
9536683DL	04/10/18 19:09	946784	860761	1589899	696457
9536685DL	04/10/18 19:24	932891	861549	1595691	675103

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

No prc inj. IS qual

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN11
Matrix: ~~SOIL~~ wipe

18094013		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1007241	979042	1589581	723192
UPPER LIMIT		1510862	1468563	2384372	1084788
LOWER LIMIT		503621	489521	794791	361596
LAB SAMPLE ID	**DATE ANALYZED**				
9536689DL	04/10/18 19:38	1056530	796701	1679971	744009
9536690DL	04/10/18 19:53	961261	865500	1560862	706540
9536691DL	04/10/18 20:07	956955	828960	1612175	691634
9536692DL	04/10/18 20:22	986948	832884	1617752	716621
9536693DL	04/10/18 20:36	900005	846426	1550298	691406
9536695DL	04/10/18 20:51	915525	819381	1604732	708277
9536696DL	04/10/18 21:05	848516	874135	1590930	693858
9536697DL	04/10/18 21:49	926520	854050	1643871	725724
9536698DL	04/10/18 22:04	914271	867492	1611212	682264
9536700DL	04/10/18 22:18	1023152	720879	1591247	745706

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN11
Matrix: ~~SOIL~~ SOLID

18102019		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1163606	1442107	926861	371819
UPPER LIMIT		1745409	2163161	1390292	557729
LOWER LIMIT		581803	721054	463431	185910
LAB SAMPLE ID	**DATE ANALYZED**				
LCS102019	04/18/18 09:59	1811699 * QC	1769358	1085961	413141
BLK102019	04/18/18 11:02	2007040 * QC	1990356	1169307	405801
9536681	04/18/18 14:23	1432612	1428857	1111898	446094
9536684	04/18/18 14:39	1644633	1399641	1128455	409232
9536686	04/18/18 14:54	1442857	1396738	1073254	400410
9536694	04/18/18 15:10	1503512	1127977	1004117	~~365159~~
9536681DL	04/18/18 19:34	1349918	1506567	1111875	396499
9536684DL	04/18/18 19:49	1420620	1644599	1123567	388884
9536686DL	04/18/18 20:05	1355502	1654225	1105379	380002
9536694DL	04/18/18 20:51	1401846	1518512	1040200	396688

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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LC-MS/MS Sample Run Log

Printed: 4/7/2018 10:59:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24743

AZ

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR03MCAL-09.wiff	MDL	N/A	4/3/2018 5:30:13 PM
18APR03MCAL-10.wiff	CAL1	N/A	4/3/2018 5:45:46 PM
18APR03MCAL-11.wiff	CAL2	N/A	4/3/2018 6:01:16 PM
18APR03MCAL-12.wiff	CAL3	N/A	4/3/2018 6:16:46 PM
18APR03MCAL-13.wiff	CAL4	N/A	4/3/2018 6:32:19 PM
18APR03MCAL-14.wiff	CAL5	N/A	4/3/2018 6:47:49 PM
18APR03MCAL-15.wiff	CAL6	N/A	4/3/2018 7:03:19 PM
18APR03MCAL-16.wiff	CAL7	N/A	4/3/2018 7:18:49 PM
18APR03MCAL-17.wiff	Instrument Blank	N/A	4/3/2018 7:34:19 PM
18APR03MCAL-18.wiff	ICV	N/A	4/3/2018 7:49:49 PM
18APR03MCAL-19.wiff	L+B CAL3	N/A	4/3/2018 8:05:22 PM
18APR03MCAL-20.wiff	CCV1_CAL3	N/A	4/3/2018 8:20:55 PM
18APR05-01.wiff	CCV1_CAL3	N/A	4/5/2018 9:58:50 AM
18APR05-02.wiff	Instrument Blank	N/A	4/5/2018 10:14:20 AM
18APR05-03.wiff	LCS092009	18092009	4/5/2018 3:40:20 PM
18APR05-04.wiff	LCSDA	18092009	4/5/2018 3:55:50 PM
18APR05-05.wiff	Solvent	NA	4/5/2018 4:11:20 PM
18APR05-06.wiff	BLK092009	18092009	4/5/2018 4:26:53 PM
18APR05-07.wiff	9535292	18092009	4/5/2018 4:42:26 PM
18APR05-08.wiff	9535293	18092009	4/5/2018 4:57:59 PM
18APR05-09.wiff	9535320	18092009	4/5/2018 5:13:29 PM
18APR05-10.wiff	9535321	18092009	4/5/2018 5:29:02 PM
18APR05-11.wiff	9535322	18092009	4/5/2018 5:44:32 PM
18APR05-12.wiff	9536665	18092009	4/5/2018 6:00:05 PM
18APR05-13.wiff	9536666	18092009	4/5/2018 6:15:38 PM
18APR05-14.wiff	CCV2_CAL4	NA	4/5/2018 6:31:08 PM
18APR05-15.wiff	Solvent	NA	4/5/2018 6:46:41 PM
18APR05-16.wiff	9536667	18092009	4/5/2018 7:02:11 PM
18APR05-17.wiff	9536674	18092009	4/5/2018 7:17:41 PM
18APR05-18.wiff	9536687	18092009	4/5/2018 7:33:11 PM
18APR05-19.wiff	9536688	18092009	4/5/2018 7:48:41 PM
18APR05-20.wiff	CCV3_CAL5	N/A	4/5/2018 8:04:11 PM
18APR05-21.wiff	solvent	N/A	4/5/2018 8:19:41 PM
18APR05-22.wiff	solvent	N/A	4/5/2018 8:35:14 PM
18APR05-23.wiff	solvent	N/A	4/5/2018 8:50:44 PM
18APR05-24.wiff	solvent	N/A	4/5/2018 9:06:14 PM
18APR05-25.wiff	CCV4_CAL1	N/A	4/5/2018 9:21:47 PM
18APR05-26.wiff	Instrument Blank	N/A	4/5/2018 9:37:21 PM
18APR05-27.wiff	LCS087009	18087009	4/5/2018 9:52:54 PM
18APR05-28.wiff	LCSDA	18087009	4/5/2018 10:08:27 PM
18APR05-29.wiff	9522075MS	18087009	4/5/2018 10:24:00 PM
18APR05-30.wiff	solvent	N/A	4/5/2018 10:39:33 PM
18APR05-31.wiff	BLK087009	18087009	4/5/2018 10:55:03 PM
18APR05-32.wiff	9522075BKG	18087009	4/5/2018 11:10:33 PM
18APR05-33.wiff	9522076	18087009	4/5/2018 11:26:06 PM
18APR05-34.wiff	9522077	18087009	4/5/2018 11:41:36 PM
18APR05-35.wiff	9522078	18087009	4/5/2018 11:57:06 PM
18APR05-36.wiff	9522079	18087009	4/6/2018 12:12:36 AM
18APR05-37.wiff	9522080	18087009	4/6/2018 12:28:06 AM
18APR05-38.wiff	CCV5_CAL2	N/A	4/6/2018 12:43:36 AM
18APR05-39.wiff	solvent	N/A	4/6/2018 12:59:09 AM
18APR05-40.wiff	9522081	18087009	4/6/2018 1:14:42 AM
18APR05-41.wiff	9522082	18087009	4/6/2018 1:30:15 AM
18APR05-42.wiff	9522083	18087009	4/6/2018 1:45:48 AM
18APR05-43.wiff	9522084	18087009	4/6/2018 2:01:21 AM
18APR05-44.wiff	9522085	18087009	4/6/2018 2:16:54 AM
18APR05-45.wiff	9522086	18087009	4/6/2018 2:32:27 AM

UA
DA

APPROVED
By MCD at 11:00 pm, 4/7/18

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LC-MS/MS Sample Run Log

Printed: 4/11/2018 6:05:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24960

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR07MCAL-18.wiff	MDL	18APR04MCAL	4/8/2018 2:13:27 AM
18APR07MCAL-19.wiff	CAL1	18APR04MCAL	4/8/2018 2:28:00 AM
18APR07MCAL-20.wiff	CAL2	18APR04MCAL	4/8/2018 2:42:33 AM
18APR07MCAL-21.wiff	CAL3	18APR04MCAL	4/8/2018 2:57:03 AM
18APR07MCAL-22.wiff	CAL4	18APR04MCAL	4/8/2018 3:11:34 AM
18APR07MCAL-23.wiff	CAL5	18APR04MCAL	4/8/2018 3:26:06 AM
18APR07MCAL-24.wiff	CAL6	18APR04MCAL	4/8/2018 3:40:39 AM
18APR07MCAL-25.wiff	CAL7	18APR04MCAL	4/8/2018 3:55:12 AM
18APR07MCAL-26.wiff	Instrument Blank	18APR04MCAL	4/8/2018 4:09:45 AM
18APR07MCAL-27.wiff	ICV	18APR04MCAL	4/8/2018 4:24:18 AM
18APR07MCAL-28.wiff	L+B CAL3	18APR04MCAL	4/8/2018 4:38:51 AM
18APR07MCAL-29.wiff	CCV1_CAL3	18APR04MCAL	4/8/2018 4:53:27 AM
18APR08-01.wiff	solvent	N\A	4/8/2018 10:54:58 AM
18APR08-02.wiff	solvent	N\A	4/8/2018 11:09:31 AM
18APR08-03.wiff	solvent	N\A	4/8/2018 11:24:04 AM
18APR08-04.wiff	solvent	N\A	4/8/2018 11:38:40 AM
18APR08-05.wiff	solvent	N\A	4/8/2018 11:53:13 AM
18APR08-06.wiff	solvent	N\A	4/8/2018 12:07:46 PM
18APR08-07.wiff	CCV1_CAL1	N\A	4/8/2018 12:22:19 PM
18APR08-08.wiff	Instrument Blank	N\A	4/8/2018 12:36:52 PM
18APR08-09.wiff	9522115DL	18091005	4/8/2018 12:51:25 PM
18APR08-10.wiff	9522117DL	18091005	4/8/2018 1:05:58 PM
18APR08-11.wiff	9522118DL	18091005	4/8/2018 1:20:31 PM
18APR08-12.wiff	CCV2_CAL2	N\A	4/8/2018 1:35:04 PM
18APR08-13.wiff	CCV3_CAL3	N\A	4/8/2018 1:49:37 PM
18APR08-14.wiff	solvent	N\A	4/8/2018 2:04:07 PM
18APR08-15.wiff	LCS093007	18093007	4/8/2018 2:18:40 PM
18APR08-16.wiff	LCSDA	18093007	4/8/2018 2:33:13 PM
18APR08-17.wiff	solvent	N\A	4/8/2018 2:47:46 PM
18APR08-18.wiff	BLK093007	18093007	4/8/2018 3:02:19 PM
18APR08-19.wiff	9536245	18093007	4/8/2018 3:16:52 PM
18APR08-20.wiff	LCS094013	18094013	4/8/2018 3:31:25 PM
18APR08-21.wiff	LCS094013	18094013	4/8/2018 3:45:58 PM
18APR08-22.wiff	LCSDA	18094013	4/8/2018 4:00:34 PM
18APR08-23.wiff	LCSDB	18094013	4/8/2018 4:15:10 PM
18APR08-24.wiff	solvent	N\A	4/8/2018 4:29:43 PM
18APR08-25.wiff	BLK094013	18094013	4/8/2018 4:44:19 PM
18APR08-26.wiff	BLK094013	18094013	4/8/2018 4:58:53 PM
18APR08-27.wiff	CCV4_CAL4	N\A	4/8/2018 5:13:26 PM
18APR08-28.wiff	solvent	N\A	4/8/2018 5:27:58 PM
18APR08-29.wiff	9536682	18094013	4/8/2018 5:42:34 PM
18APR08-30.wiff	9536683	18094013	4/8/2018 5:57:10 PM
18APR08-31.wiff	9536685	18094013	4/8/2018 6:11:43 PM
18APR08-32.wiff	9536689	18094013	4/8/2018 6:26:16 PM
18APR08-33.wiff	9536690	18094013	4/8/2018 6:40:49 PM
18APR08-34.wiff	9536691	18094013	4/8/2018 6:55:22 PM
18APR08-35.wiff	9536692	18094013	4/8/2018 7:09:56 PM
18APR08-36.wiff	9536693	18094013	4/8/2018 7:24:29 PM
18APR08-37.wiff	9536695	18094013	4/8/2018 7:39:02 PM
18APR08-38.wiff	9536696	18094013	4/8/2018 7:53:35 PM
18APR08-39.wiff	CCV5_CAL5	N\A	4/8/2018 8:08:08 PM
18APR08-40.wiff	solvent	N\A	4/8/2018 8:22:41 PM
18APR08-41.wiff	9536697	18094013	4/8/2018 8:37:17 PM
18APR08-42.wiff	9536698	18094013	4/8/2018 8:51:53 PM
18APR08-43.wiff	9536699	18094013	4/8/2018 9:06:26 PM
18APR08-44.wiff	9536700	18094013	4/8/2018 9:20:59 PM
18APR08-45.wiff	solvent	N\A	4/8/2018 9:35:32 PM

APPROVED
By DMW at 6:25 pm, 4/11/18

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LC-MS/MS Sample Run Log

Printed: 4/11/2018 6:05:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24960

18APR08-46.wiff	solvent	N\A	4/8/2018 9:50:05 PM
18APR08-47.wiff	BLK095011	18095011	4/8/2018 10:04:38 PM
18APR08-48.wiff	9542847RE	18095011	4/8/2018 10:19:11 PM
18APR08-49.wiff	9542848RE	18095011	4/8/2018 10:33:44 PM
18APR08-50.wiff	9542849RE	18095011	4/8/2018 10:48:17 PM
18APR08-51.wiff	9542847DL	18095011	4/8/2018 11:02:50 PM
18APR08-52.wiff	9542848DL	18095011	4/8/2018 11:17:23 PM
18APR08-53.wiff	CCV6_CAL3	N\A	4/8/2018 11:31:56 PM
18APR08-54.wiff	solvent	N\A	4/8/2018 11:46:26 PM
18APR08-55.wiff	9542849DL	18095011	4/9/2018 12:00:56 AM
18APR08-56.wiff	9542847DL2	18095011	4/9/2018 12:15:26 AM
18APR08-57.wiff	9542848DL2	18095011	4/9/2018 12:29:56 AM
18APR08-58.wiff	9542849DL2	18095011	4/9/2018 12:44:26 AM
18APR08-59.wiff	9535319	18093014	4/9/2018 12:58:59 AM
18APR08-60.wiff	solvent	N\A	4/9/2018 1:13:29 AM
18APR08-61.wiff	LCS096003	18096003	4/9/2018 1:28:02 AM
18APR08-62.wiff	LCSDA	18096003	4/9/2018 1:42:38 AM
18APR08-63.wiff	solvent	N\A	4/9/2018 1:57:14 AM
18APR08-64.wiff	BLK096003	18096003	4/9/2018 2:11:47 AM
18APR08-65.wiff	9535462RE	18096003	4/9/2018 2:26:20 AM
18APR08-66.wiff	9535463RE	18096003	4/9/2018 2:40:53 AM
18APR08-67.wiff	CCV7_CAL4	N\A	4/9/2018 2:55:26 AM
18APR08-68.wiff	solvent	N\A	4/9/2018 3:09:59 AM
18APR08-69.wiff	9543510	18096003	4/9/2018 3:24:32 AM
18APR08-70.wiff	9543512	18096003	4/9/2018 3:39:05 AM
18APR08-71.wiff	9543513	18096003	4/9/2018 3:53:38 AM
18APR08-72.wiff	9543514	18096003	4/9/2018 4:08:11 AM
18APR08-73.wiff	9543515	18096003	4/9/2018 4:22:44 AM
18APR08-74.wiff	CCV8_CAL5	N\A	4/9/2018 4:37:14 AM
18APR08-75.wiff	CCV9_CAL4	N\A	4/9/2018 4:51:47 AM
18APR08-76.wiff	solvent	N\A	4/9/2018 5:06:17 AM
18APR08-77.wiff	LCS096010	18096010	4/9/2018 5:20:50 AM
18APR08-78.wiff	LCSDA	18096010	4/9/2018 5:35:20 AM
18APR08-79.wiff	solvent	N\A	4/9/2018 5:49:53 AM
18APR08-80.wiff	BLK096010	18096010	4/9/2018 6:04:26 AM
18APR08-81.wiff	9545237	18096010	4/9/2018 6:18:59 AM
18APR08-82.wiff	9545238	18096010	4/9/2018 6:33:32 AM
18APR08-83.wiff	9545239	18096010	4/9/2018 6:48:05 AM
18APR08-84.wiff	9545240	18096010	4/9/2018 7:02:41 AM
18APR08-85.wiff	9545241	18096010	4/9/2018 7:17:14 AM
18APR08-86.wiff	9545242	18096010	4/9/2018 7:31:50 AM
18APR08-87.wiff	9545243	18096010	4/9/2018 7:46:23 AM
18APR08-88.wiff	CCV10_CAL4	N\A	4/9/2018 8:00:56 AM
18APR08-89.wiff	MeOH Bottle 2 - retest	N\A	4/9/2018 8:15:29 AM
18APR08-90.wiff	MeOH Bottle 1	N\A	4/9/2018 8:30:02 AM
18APR08-91.wiff	MeOH Bottle 2	N\A	4/9/2018 8:44:35 AM
18APR08-92.wiff	MeOH Bottle 3	N\A	4/9/2018 8:59:09 AM
18APR08-93.wiff	MeOH Bottle 4	N\A	4/9/2018 9:13:41 AM

Ammonium Acetate: 1026204071833B
Methanol: DT149-US

APPROVED
By DMW at 6:25 pm, 4/11/18

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LC-MS/MS Sample Run Log

Printed: 4/11/2018 6:26:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24960

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR07MCAL-18.wiff	MDL	18APR04MCAL	4/8/2018 2:13:27 AM
18APR07MCAL-19.wiff	CAL1	18APR04MCAL	4/8/2018 2:28:00 AM
18APR07MCAL-20.wiff	CAL2	18APR04MCAL	4/8/2018 2:42:33 AM
18APR07MCAL-21.wiff	CAL3	18APR04MCAL	4/8/2018 2:57:03 AM
18APR07MCAL-22.wiff	CAL4	18APR04MCAL	4/8/2018 3:11:34 AM
18APR07MCAL-23.wiff	CAL5	18APR04MCAL	4/8/2018 3:26:06 AM
18APR07MCAL-24.wiff	CAL6	18APR04MCAL	4/8/2018 3:40:39 AM
18APR07MCAL-25.wiff	CAL7	18APR04MCAL	4/8/2018 3:55:12 AM
18APR07MCAL-26.wiff	Instrument Blank	18APR04MCAL	4/8/2018 4:09:45 AM
18APR07MCAL-27.wiff	ICV	18APR04MCAL	4/8/2018 4:24:18 AM
18APR07MCAL-28.wiff	L+B CAL3	18APR04MCAL	4/8/2018 4:38:51 AM
18APR07MCAL-29.wiff	CCV1_CAL3	18APR04MCAL	4/8/2018 4:53:27 AM
18APR10-01.wiff	CCV1_CAL3	18APR04MCAL	4/10/2018 12:07:40 PM
18APR10-02.wiff	solvent	N\A	4/10/2018 12:22:13 PM
18APR10-03.wiff	LCS094021	18094021	4/10/2018 12:36:46 PM
18APR10-04.wiff	LCSDA	18094021	4/10/2018 12:51:19 PM
18APR10-05.wiff	solvent	NA	4/10/2018 1:05:52 PM
18APR10-06.wiff	BLK094021	18094021	4/10/2018 1:20:25 PM
18APR10-07.wiff	9540926	18094021	4/10/2018 1:34:58 PM
18APR10-08.wiff	9540926DL	18094021	4/10/2018 1:49:31 PM
18APR10-09.wiff	9540927	18094021	4/10/2018 2:04:04 PM
18APR10-10.wiff	LCS098003	18098003	4/10/2018 2:18:34 PM
18APR10-11.wiff	LCSDA	18098003	4/10/2018 2:33:04 PM
18APR10-12.wiff	solvent	NA	4/10/2018 2:47:38 PM
18APR10-13.wiff	BLK098003	18098003	4/10/2018 3:02:10 PM
18APR10-14.wiff	9547780	18098003	4/10/2018 3:16:43 PM
18APR10-15.wiff	CCV2_CAL4	NA	4/10/2018 3:31:16 PM
18APR10-16.wiff	solvent	NA	4/10/2018 3:45:49 PM
18APR10-17.wiff	9547781	18098003	4/10/2018 4:00:22 PM
18APR10-18.wiff	9547782	18098003	4/10/2018 4:14:55 PM
18APR10-19.wiff	BLK089005	18089005	4/10/2018 4:29:28 PM
18APR10-20.wiff	9536659DL	18094001	4/10/2018 4:43:59 PM
18APR10-21.wiff	9536660DL	18094001	4/10/2018 4:58:32 PM
18APR10-22.wiff	9536662DL	18094001	4/10/2018 5:13:05 PM
18APR10-23.wiff	9536669DL	18094001	4/10/2018 5:27:38 PM
18APR10-24.wiff	9536672DL	18094001	4/10/2018 5:42:11 PM
18APR10-25.wiff	9536673DL	18094001	4/10/2018 5:56:47 PM
18APR10-26.wiff	9536680DL	18094001	4/10/2018 6:11:20 PM
18APR10-27.wiff	CCV3_CAL5	N\A	4/10/2018 6:25:53 PM
18APR10-28.wiff	solvent	N\A	4/10/2018 6:40:26 PM
18APR10-29.wiff	9536682DL	18094013	4/10/2018 6:54:59 PM
18APR10-30.wiff	9536683DL	18094013	4/10/2018 7:09:32 PM
18APR10-31.wiff	9536685DL	18094013	4/10/2018 7:24:05 PM
18APR10-32.wiff	9536689DL	18094013	4/10/2018 7:38:38 PM
18APR10-33.wiff	9536690DL	18094013	4/10/2018 7:53:11 PM
18APR10-34.wiff	9536691DL	18094013	4/10/2018 8:07:44 PM
18APR10-35.wiff	9536692DL	18094013	4/10/2018 8:22:17 PM
18APR10-36.wiff	9536693DL	18094013	4/10/2018 8:36:50 PM
18APR10-37.wiff	9536695DL	18094013	4/10/2018 8:51:20 PM
18APR10-38.wiff	9536696DL	18094013	4/10/2018 9:05:53 PM
18APR10-39.wiff	CCV4_CAL3	N\A	4/10/2018 9:20:26 PM
18APR10-40.wiff	solvent	N\A	4/10/2018 9:34:59 PM
18APR10-41.wiff	9536697DL	18094013	4/10/2018 9:49:29 PM
18APR10-42.wiff	9536698DL	18094013	4/10/2018 10:04:02 PM
18APR10-43.wiff	9536700DL	18094013	4/10/2018 10:18:35 PM
18APR10-44.wiff	9536701	18094017	4/10/2018 10:33:08 PM
18APR10-45.wiff	9536702DL	18094017	4/10/2018 10:47:41 PM

PLOA only

APPROVED
By DMW at 6:27 pm, 4/11/18

Instrument Name: LM24960

18APR10-46.wiff	9536703DL	18094017	4/10/2018 11:02:14 PM
18APR10-47.wiff	9536704DL	18094017	4/10/2018 11:16:47 PM
18APR10-48.wiff	9536705DL	18094017	4/10/2018 11:31:20 PM
18APR10-49.wiff	9536706	18094017	4/10/2018 11:45:53 PM
18APR10-50.wiff	9536707	18094017	4/11/2018 12:00:26 AM
18APR10-51.wiff	CCV5_CAL4	N\A	4/11/2018 12:14:59 AM
18APR10-52.wiff	solvent	N\A	4/11/2018 12:29:32 AM
18APR10-53.wiff	9536708	18094017	4/11/2018 12:44:05 AM
18APR10-54.wiff	9536709	18094017	4/11/2018 12:58:38 AM
18APR10-55.wiff	9536710	18094017	4/11/2018 1:13:11 AM
18APR10-56.wiff	9547414DL	18098002	4/11/2018 1:27:44 AM
18APR10-57.wiff	solvent	N\A	4/11/2018 1:42:17 AM
18APR10-58.wiff	LCS096009	18096009	4/11/2018 1:56:47 AM
18APR10-59.wiff	9525204MS	18096009	4/11/2018 2:11:20 AM
18APR10-60.wiff	9525205MSD	18096009	4/11/2018 2:25:50 AM
18APR10-61.wiff	solvent	N\A	4/11/2018 2:40:20 AM
18APR10-62.wiff	BLK096009	18096009	4/11/2018 2:54:50 AM
18APR10-63.wiff	9525201BKG	18096009	4/11/2018 3:09:20 AM
18APR10-64.wiff	9525206	18096009	4/11/2018 3:23:53 AM
18APR10-65.wiff	CCV6_CAL5	N\A	4/11/2018 3:38:26 AM
18APR10-66.wiff	solvent	N\A	4/11/2018 3:52:59 AM
18APR10-67.wiff	9525207	18096009	4/11/2018 4:07:32 AM
18APR10-68.wiff	9525208	18096009	4/11/2018 4:22:05 AM
18APR10-69.wiff	9525209	18096009	4/11/2018 4:36:38 AM
18APR10-70.wiff	9525210	18096009	4/11/2018 4:51:11 AM
18APR10-71.wiff	solvent	NA	4/11/2018 5:05:44 AM
18APR10-72.wiff	BLK094021	18094021	4/11/2018 5:20:17 AM
18APR10-73.wiff	CCV7_CAL3	N\A	4/11/2018 5:34:47 AM
18APR10-74.wiff	solvent	N\A	4/11/2018 5:49:17 AM
18APR10-75.wiff	solvent	N\A	4/11/2018 6:26:08 AM
18APR10-76.wiff	solvent	N\A	4/11/2018 6:40:41 AM
18APR10-77.wiff	solvent	N\A	4/11/2018 6:55:14 AM

Ammonium Acetate: 1026204071833B
Methanol: DT149-US

APPROVED
By DMW at 6:27 pm, 4/11/18

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LC-MS/MS Sample Run Log

Printed: 4/19/2018 11:19:00 AM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24743

S

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR18-01.wiff	solvent	N/A	4/18/2018 8:26:47 AM
18APR18-02.wiff	solvent	N/A	4/18/2018 8:42:20 AM
18APR18-03.wiff	solvent	N/A	4/18/2018 8:57:53 AM
18APR18-04.wiff	solvent	N/A	4/18/2018 9:13:26 AM
18APR18-05.wiff	CCV1_CAL3	N/A	4/18/2018 9:28:59 AM
18APR18-06.wiff	solvent	N/A	4/18/2018 9:44:29 AM
18APR18-07.wiff	LCS102019	18102019	4/18/2018 9:59:59 AM
18APR18-08.wiff	9536677MS	18102019	4/18/2018 10:15:29 AM
18APR18-09.wiff	9536678MSD	18102019	4/18/2018 10:30:59 AM
18APR18-10.wiff	solvent	N/A	4/18/2018 10:46:32 AM
18APR18-11.wiff	BLK102019	18102019	4/18/2018 11:02:05 AM
18APR18-12.wiff	9535298	18102019	4/18/2018 11:17:38 AM
18APR18-13.wiff	9535302	18102019	4/18/2018 11:33:08 AM
18APR18-14.wiff	9535304	18102019	4/18/2018 11:48:41 AM
18APR18-15.wiff	9535313	18102019	4/18/2018 12:04:11 PM
18APR18-16.wiff	9535326	18102019	4/18/2018 12:19:41 PM
18APR18-17.wiff	9536661	18102019	4/18/2018 12:35:11 PM
18APR18-18.wiff	CCV2_CAL4	N/A	4/18/2018 12:50:44 PM
18APR18-19.wiff	solvent	N/A	4/18/2018 1:06:14 PM
18APR18-20.wiff	9536664	18102019	4/18/2018 1:21:47 PM
18APR18-21.wiff	9536670	18102019	4/18/2018 1:37:20 PM
18APR18-22.wiff	9536671	18102019	4/18/2018 1:52:50 PM
18APR18-23.wiff	9536676	18102019	4/18/2018 2:08:20 PM
18APR18-24.wiff	9536681	18102019	4/18/2018 2:23:50 PM
18APR18-25.wiff	9536684	18102019	4/18/2018 2:39:20 PM
18APR18-26.wiff	9536686	18102019	4/18/2018 2:54:53 PM
18APR18-27.wiff	9536694	18102019	4/18/2018 3:10:23 PM
18APR18-28.wiff	9536677MSDL	18102019	4/18/2018 3:25:53 PM
18APR18-29.wiff	9536678MSDDL	18102019	4/18/2018 3:41:23 PM
18APR18-30.wiff	CCV3_CAL5	N/A	4/18/2018 3:56:53 PM
18APR18-31.wiff	solvent	N/A	4/18/2018 4:12:26 PM
18APR18-32.wiff	9535298DL	18102019	4/18/2018 4:27:56 PM
18APR18-33.wiff	9535302DL	18102019	4/18/2018 4:43:29 PM
18APR18-34.wiff	9535304DL	18102019	4/18/2018 4:59:02 PM
18APR18-35.wiff	9535313DL	18102019	4/18/2018 5:14:35 PM
18APR18-36.wiff	9535326DL	18102019	4/18/2018 5:30:05 PM
18APR18-37.wiff	9536661DL	18102019	4/18/2018 5:45:35 PM
18APR18-38.wiff	9536664DL	18102019	4/18/2018 6:01:05 PM
18APR18-39.wiff	9536670DL	18102019	4/18/2018 6:16:35 PM
18APR18-40.wiff	9536671DL	18102019	4/18/2018 6:32:05 PM
18APR18-41.wiff	9536676DL	18102019	4/18/2018 6:47:35 PM
18APR18-42.wiff	CCV4_CAL3	N/A	4/18/2018 7:03:08 PM
18APR18-43.wiff	solvent	N/A	4/18/2018 7:18:41 PM
18APR18-44.wiff	9536681DL	18102019	4/18/2018 7:34:14 PM
18APR18-45.wiff	9536684DL	18102019	4/18/2018 7:49:44 PM
18APR18-46.wiff	9536686DL	18102019	4/18/2018 8:05:17 PM
18APR18-47.wiff	9536694DL	18102019	4/18/2018 8:20:50 PM
18APR18-48.wiff	9536671DL2	18102019	4/18/2018 8:36:24 PM
18APR18-49.wiff	9536694DL	18102019	4/18/2018 8:51:57 PM
18APR18-50.wiff	CCV5_CAL4	N/A	4/18/2018 9:07:29 PM
18APR18-51.wiff	solvent	N/A	4/18/2018 9:23:00 PM
18APR18-52.wiff	LCS094018	18094018	4/18/2018 9:38:30 PM
18APR18-53.wiff	9536677MSDL	18094018	4/18/2018 9:54:00 PM
18APR18-54.wiff	9536678MSDDL	18094018	4/18/2018 10:09:29 PM
18APR18-55.wiff	solvent	N/A	4/18/2018 10:25:00 PM
18APR18-56.wiff	BLK094018	18094018	4/18/2018 10:40:33 PM
18APR18-57.wiff	9535308	18094018	4/18/2018 10:56:06 PM

APFOA 9211

APPROVED
By JPT at 11:21 am, 4/19/18

Organic Extraction Batchlog Assigned to: 26543 Anthony Polaski Reviewed by: MCD 7824 Start Date: 4/3/18 Start time: 17:00

18092009 Tech 1: ACP26543 Tech 2: _____

<14 days ✓

Analyses on Batch: PFAS in Water by LC/MS/MS

Dept: 33 Prep Analysis: 14091 PFAS Water Prep

Port#	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS amt (uL)	BC	Comments
1	BLANKA	BLK092009	250.00	SSMODX1833V	.025	———	—	1mL	20	7	
2	LCSA	LCS092009	↓	SSMODX1833V	.025	MSMODX1833K	.04	↓	↓	Z	
3	LCSDA	LCSD092009	↓	SSMODX1833V	.025	MSMODX1833K	.04	↓	↓	Z	

Spike Solutions: Witness: DDM25478

MSMODX1833K PFAS 537 Native Spike

SSMODX1833V PFAS 537 Modified Extraction/Surrogate Spik

Instrument: LM24743

Sequence: 18APR03MOD/18APR05

Port#	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
4	1 9535292	TB 8131	274.31	SSMODX1833V	.025	1mL	20	173b		14473	04/10/2018	S
5	2 9535293	FB 8131	268.86	SSMODX1833V	.025	↓	↓	173b		14473	04/10/2018	S
6	3 9535320	RB 8149	276.87	SSMODX1833V	.025	↓	↓	173b		14473	04/10/2018	S
7	4 9535321	RB 8149	273.63	SSMODX1833V	.025	↓	↓	173b		14473	04/10/2018	S
8	5 9535322	RB 8150	270.06	SSMODX1833V	.025	↓	↓	173b		14473	04/10/2018	S
9	6 9536665	FB N10-7	269.80	SSMODX1833V	.025	↓	↓	173b		14473	04/11/2018	S
10	7 9536666	TB N10-8	272.30	SSMODX1833V	.025	↓	↓	173b		14473	04/11/2018	S
11	8 9536667	RB N10-9	274.78	SSMODX1833V	.025	↓	↓	173b		14473	04/11/2018	S
12	9 9536674	EB 10-16	274.68	SSMODX1833V	.025	↓	↓	173b		14473	04/11/2018	S
1	10 9536687	FB 11-07	271.79	SSMODX1833V	.025	↓	↓	173b		14473	04/11/2018	S
2	11 9536688	TB 11-08	273.58	SSMODX1833V	.025	↓	↓	173b		14473	04/11/2018	S

SBN11 Page 1945 of 1950

Balance #	B629764122	SPE Manifold	1,2	N-evap	25 C

RJR9213 4/4/18

18092009

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
0.3% NH4OH:MeOH	9213040218333A
1:1 ACN:MeOH	9213041031833A
Auto-pipette (dilutions)	——
Auto-pipette (extract vialin	P1000-3
Internal Standard	IS18093331
Methanol	DT652-US
Milli-Q H2O	Hawc A223
SPE Cartridge #1	6387380-09
Sodium Thiosulfate	——
Syringe (IS)	PFAS 4
Syringe (MS)	PFAS 10
Syringe (SS)	PFAS 9
Trizma	——

Organic Extraction Batchlog Assigned to: 25478 Danielle McCully Reviewed by: JWK9524 Start Date: 4/4/18 Start time: 15:00

18094013 Tech 1: DDM25477 WIPES Tech 2: _____ 229 days ✓

Analyses on Batch: PFAS in Soil by LC/MS/MS

Dept: 33 Prep Analysis: 14090 PFAS Solid Prep

Port #	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
	BLANKA	BLK094013	1.00	SSMODX1833W	.05			1mL	20		solvent
	BLANKB	BLK094013	1.00	SSMODX1833W	.05						wipe
	LCSA	LCS094013	1.00	SSMODX1833W	.05	MSMODX1833K	.04				solvent
	LCSB	LCS094013	1.00	SSMODX1833W	.05	MSMODX1833K	.04				wipe
	LCSDA	LCSD094013	1.00	SSMODX1833W	.05	MSMODX1833K	.04				solvent
	LCSDB	LCSD094013	1.00	SSMODX1833W	.05	MSMODX1833K	.04				wipe

Spike Solutions: Witness: ACP26543 Instrument: LM24960

MSMODX1833K PFAS 537 Native Spike

SSMODX1833W PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18APR07MOD-(18APR08)(18APR10)

Port#		Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
	1	9536682	11-02	1.99	SSMODX1833W	.05	1mL	20	1239		14027 DL10, DL100	04/11/2018	S
	2	9536683	11-03	2.03	SSMODX1833W	.05					14027 DL10, DL1000	04/11/2018	S
	3	9536685	FD 11-05	2.05	SSMODX1833W	.05					14027 DL10, DL1000	04/11/2018	S
	4	9536689	11-09	1.88	SSMODX1833W	.05					14027 DL10, DL100	04/11/2018	S
	5	9536690	11-10	2.34	SSMODX1833W	.05					14027 DL10, DL1000	04/11/2018	S
	6	9536691	11-11	1.96	SSMODX1833W	.05				container has ⑧	14027 DL10, DL100	04/11/2018	S
	7	9536692	11-12	1.92	SSMODX1833W	.05					14027 DL10, DL100	04/11/2018	S
	8	9536693	11-13	2.25	SSMODX1833W	.05					14027 DL10, DL100	04/11/2018	S
	9	9536695	1115-	2.10	SSMODX1833W	.05					14027 DL10, DL1000	04/11/2018	S
	10	9536696	1116-	1.67	SSMODX1833W	.05					14027 DL10, DL1000	04/11/2018	S
	11	9536697	1117-	1.70	SSMODX1833W	.05					14027 DL10, DL1000	04/11/2018	S
	12	9536698	1118-	1.97 ⑧	SSMODX1833W	.05					14027 DL10, DL1000	04/11/2018	S

Page 1947 of 1950

⑧ samples are 1.00g RJR 9213 4/6/18 DMW 4/5/18 ⑧ crack on bottom DDM25477 4/4/18

Balance #	B629764122	Sonic Bath ID	5800	N-evap	C	SPE Manifold	———	18094013

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

	13	9536699	EB 1119-	2.82	SSMODX1833W	.05	1nL	20	123a	DL10	14027	04/11/2018	S
	14	9536700	FD 1120-	1.616	SSMODX1833W	.05	↓		↓	DL10, DL100	14027	04/11/2018	S

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
1:1 MeOH:ACN	921304041833A
Auto-pipette (dilutions)	P100-1
Auto-pipette (extract vialin	P1000-3
Internal Standard	IS18093335C
Methanol	DT632-US
Sand	MKBW7349V
Syringe (IS)	PPAS 4
Syringe (MS)	PPAS 10
Syringe (SS)	PPAS 13

SBN11 Page 1948 of 1950

DL10 - 100µl OF SAMPLE EXTRACT WAS MIXED W/ 877µl MEOH (DT149-US) AND 225µl SURROGATE (SSMODX1033x). 400µl WAS MIXED W/ 20µl INTERNAL PRIOR TO INJECTION. JWK9524 4/08/18

DL100 - 10µl OF EXTRACT WAS MIXED W/ 965µl MEOH (DT149-US) AND 250µl SURROGATE (SSMODX1033x). 400µl WAS MIXED W/ 20µl INTERNAL PRIOR TO INJECTION. JWK9524 4/09/18.

DL1000 - 100µl OF THE DL100 SOLUTION WAS MIXED W/ 877µl MEOH (DT149-US) AND 225µl SURROGATE (SSMODX1033x). 400µl OF SOLUTION WAS MIXED W/ 20µl INTERNAL (IS18093335) PRIOR TO INJECTION JWK9524 4/09/18

Organic Extraction Batchlog Assigned to: 375 Robert Brown Reviewed by: SPT12222 Start Date: 4-13-18 Start time: 10:30

18102019

Tech 1: RGB/375 Tech 2: _____

SOLIDS

Analyses on Batch: PFAS in Soil by LC/MS/MS

128 days ✓

Dept: 33 Prep Analysis: 14090 PFAS Solid Prep

Port #	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
	9536677MS	10-18	1.00	SSMODX1833Y	0.05	~~MSMODX1833L~~ ⑧	.04	1mL	20	170a	Paint Chips / Peat DS000
	9536678MSD	10-18	1.03	SSMODX1833Y	0.05	~~MSMODX1833L~~ ⑧	.04	"	"	170a	Paint Chips / Peat DS000
	BLANKA	BLK102019	1.00	SSMODX1833Y	.05	———	———				
	LCSA	LCS102019	1.00	SSMODX1833Y	.05	~~MSMODX1833L~~ ⑧	.04	"	"		

⑧ MSMODX1833M. PJR9213 4/13/18

Spike Solutions: Witness: PJR9213 Instrument: LM24743

⑧ ~~MSMODX1833L~~ PFAS 537 Native Spike

SSMODX1833Y PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18APR11MOD/18APR18 ; 18APR19

③ RGB/375 4-13-18

Port#	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	③ Comments	Analyses	Due Date	Prio
	1 9535298 R	81320	1.00	SSMODX1833Y	.05	1mL	20	170a	~~Paint~~ Gravel DS000	14027	04/13/2018	S
	2 9535302 R	81324	1.04	SSMODX1833Y	.05	"	"	170a	Coal-like Gravel DS000	14027	04/13/2018	S
	3 9535304 R	81326	0.54	SSMODX1833Y	.05	"	"	170a	Foamy Insulation	14027	04/13/2018	S
	~~4 9535308 R~~	~~81330~~		~~SSMODX1833Y~~				170a	No remaining sample	14027	04/13/2018	S
	5 9535313 R	81491	1.05	SSMODX1833Y	.05	1mL	20	170a	Dry dust/dirt	14027	04/13/2018	S
	6 9535326 R	81504	1.01	SSMODX1833Y	.05	"	"	170a	Soil / dirt DS000	14027	04/13/2018	S
	7 9536661 R	N10-3	0.52	SSMODX1833Y	.05	"	"	170a	Insulation back	14027	04/16/2018	S
	8 9536664 R	N10-6	1.00	SSMODX1833Y	.05	"	"	170a	Dried mud DS000	14027	04/16/2018	S
	9 9536670 R	10-12	1.02	SSMODX1833Y	.05	"	"	170a	Paper/cardboard	14027	04/16/2018	S
	10 9536671 R	10-13	1.05	SSMODX1833Y	.05	"	"	170a	Adhesive backing DUP	14027	04/16/2018	S
	11 9536676 R	BKG 10-18	1.07	SSMODX1833Y	.05	"	"	170a	Paint Chips, Peat DS000	14027	04/16/2018	S
	12 9536681 R	11-01	1.10	SSMODX1833Y	.05	"	"	170a	Soil	14027	04/16/2018	S
	13 9536684 R	11-04	1.02	SSMODX1833Y	.05	"	"	170a	Insulation Backing	14027	04/16/2018	S
	14 9536686 R	FD 11-06	1.04	SSMODX1833Y	.05	"	"	170a	Soil	14027	04/16/2018	S

SBN11 Page 1949 of 1950

Balance #	B629764122	Sonic Bath ID	5800	N-evap	C	SPE Manifold	———	18102019

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

	15 9536694 R	1114	1.02	SSMODX1833Y	.05	1 mL	20 mL	170a	Insulation Dio Packing	14027	04/16/2018	S

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
1:1 MeOH:ACN	26543041/1833A
Auto-pipette (dilutions)	P1000-7 + P100-1
Auto-pipette (extract vialin	P1000-3
Internal Standard	IS1804331B
Methanol	DT632-US
Sand	MKBW7349V
Syringe (IS)	PFAS4
Syringe (MS)	PFAS10
Syringe (SS)	PFAS13
ENVI-Carb	95303

all extracts treated with 25mg loose ENVI-Carb, vortexed & centrifuged. Supernatant filtered through acrodisc 13mm; 0.2 µm GHP filter.

RLB/375 4-16-18

All samples (including MS & MSD) ran at initial D100s + D1000s.

D100s prepared using 965 µL methanol (DT632-US), 10 µL sample, and 25 µL surrogate (SSMODX18332). 400 µL internalized w/ 20 µL IS1804331B.

D1000s prepared using 877 µL methanol (DT632-US), 100 µL sample (D100 soln), and 22.5 µL surrogate (SSMODX 18332.) 400 µL internalized w/ 20 µL IS1804331B.

MCD 784 4/17/18

D10: 877µL of MeOH (DT632-US) combined w/ 100µL of sample extract and 22.5µL of surrogate (SSMODX 18332), vortexed to mix. 400µL of this solution internalized w/ 20µL IS1810633A. JPT 12262 4/19/18

D5000: 780µL of MeOH (DT632-US) combined w/ 200µL D1000 solution and 20µL surrogate (SSMODX 1833AA), vortexed to mix. 400µL of this solution internalized w/ 20µL IS1810633B. JPT12262 4/19/18

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LOQ/MDL Summary
PFAS Group

SDG: SBN11

Fraction: PFAS by LC/MS/MS

14027: 14 PFCs Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.20	0.60	ng/wipe
Perfluorononanoic acid	0.20	0.60	ng/wipe
Perfluorodecanoic acid	0.20	0.60	ng/wipe
Perfluoroundecanoic acid	0.20	0.60	ng/wipe
Perfluorododecanoic acid	0.20	0.60	ng/wipe
Perfluorotridecanoic acid	0.20	0.60	ng/wipe
Perfluorotetradecanoic acid	0.20	0.60	ng/wipe
Perfluorohexanoic acid	0.20	0.60	ng/wipe
Perfluoroheptanoic acid	0.20	0.60	ng/wipe
Perfluorobutanesulfonate	0.20	0.60	ng/wipe
Perfluorohexanesulfonate	0.20	0.60	ng/wipe
Perfluoro-octanesulfonate	0.30	0.90	ng/wipe
Perfluorobutanoic acid	0.20	0.60	ng/wipe
Perfluoropentanoic acid	0.20	0.60	ng/wipe

ng/g (solids)

14473: 14 PFAS Compounds Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.3	1	ng/l
Perfluorononanoic acid	0.4	2	ng/l
Perfluorodecanoic acid	1	2	ng/l
Perfluoroundecanoic acid	0.4	2	ng/l
Perfluorododecanoic acid	0.3	1	ng/l
Perfluorotridecanoic acid	0.3	1	ng/l
Perfluorotetradecanoic acid	0.3	1	ng/l
Perfluorohexanoic acid	0.4	2	ng/l
Perfluoroheptanoic acid	0.3	1	ng/l
Perfluorobutanesulfonate	0.3	1	ng/l
Perfluorohexanesulfonate	0.4	2	ng/l
Perfluoro-octanesulfonate	0.4	2	ng/l
Perfluorobutanoic acid	2	6	ng/l
Perfluoropentanoic acid	2	6	ng/l

SECTION 6

LABORATORY CASE NARRATIVE AND

PROJECT CHAIN-OF-CUSTODY RECORD

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3a-WP10-B35.0 Grab Wipe	03/29/2018 15:20	9536659
SG3a-WP10-B33.0 Grab Wipe	03/29/2018 15:30	9536660
SG3a-BL10-B26.0 Grab Bulk Solid	03/29/2018 15:35	9536661
SG3a-WP10-B23.0 Grab Wipe	03/29/2018 15:40	9536662
SG3a-WP10-B11.0 Grab Wipe	03/29/2018 15:45	9536663
SG3a-BL10-B29.0 Grab Bulk Solid	03/29/2018 15:25	9536664
SG3a-FTB01-180330 Blank Water	03/30/2018 08:25	9536665
SG3a-LTB01-180330 Water	03/30/2018	9536666
SG3a-RB01-180330 Blank Water	03/30/2018 08:35	9536667
SG3a-WP11-B42.0 Grab Wipe	03/30/2018 08:20	9536668
SG3a-WP11-B41.0 Grab Wipe	03/30/2018 08:25	9536669
SG3a-BL11-B40.5 Grab Bulk Solid	03/30/2018 08:30	9536670
SG3a-BL11-B25.0 Grab Bulk Solid	03/30/2018 08:40	9536671
SG3a-WP11-B24.0 Grab Wipe	03/30/2018 08:45	9536672
SG3a-WP11-B16.0 Grab Wipe	03/30/2018 08:50	9536673
SG3a-EB01-180330 Blank Water	03/30/2018 09:35	9536674
SG3a-EB02-180330 Grab Wipe	03/30/2018 10:00	9536675
SG3a-BL13-C Grab Bulk Solid	03/30/2018 10:05	9536676
SG3a-BL13-C MS Grab Bulk Solid	03/30/2018 10:05	9536677
SG3a-BL13-C MSD Grab Bulk Solid	03/30/2018 10:05	9536678
SG3a-WP12-B44.5 Grab Wipe	03/30/2018 09:25	9536679
SG3a-WP12-B43.0 Grab Wipe	03/30/2018 09:30	9536680

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1926425

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous

Sample #s: 9536666

Native compound perfluorooctanoic acid (PFOA) was detected in this trip blank. Sufficient sample was not available to repeat the analysis.

Sample #s: 9536661, 9536664, 9536670, 9536671, 9536676, 9536677, 9536678 – Solids

Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9536660, 9536662, 9536663, 9536668, 9536669, 9536672, 9536673, 9536679, 9536680 – Wipes

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

Sample #s: 9536659

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

– wipe

Reporting limits were raised due to interference from the sample matrix.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

Sample injection internal peak areas were outside of QC acceptance limits as noted on the QC Summary.

Sample #s: 9536675

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank as noted on the QC summary.

Batch #: 18094001 (Sample number(s): 9536659-9536660, 9536662-9536663, 9536668-9536669, 9536672-9536673, 9536675, 9536679-9536680)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluoroundecanoic acid, Perfluorobutanoic acid, Perfluorooctanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9536659, 9536660, 9536662, 9536663, 9536668, 9536669, 9536672, 9536673, 9536679, 9536680

Batch #: 18102019 (Sample number(s): 9536661, 9536664, 9536670-9536671, 9536676-9536678 UNSPK: 9536676)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorodecanoic acid, Perfluoroundecanoic acid, Perfluorododecanoic acid, Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluoro-octanesulfonate, Perfluorobutanoic acid, Perfluoropentanoic acid, Perfluoroheptanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9536677, 9536678, MS, MSD

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9536670, 9536676

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SBN10

PFAS Group

Fraction: PFAS by LC/MS/MS

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
9536659	SG3a-WP10-B35.0		X	100; 1000	
9536660	SG3a-WP10-B33.0		X	100; 1000	
9536661	SG3a-BL10-B26.0		X	100; 1000	
9536662	SG3a-WP10-B23.0		X	100; 1000	
9536663	SG3a-WP10-B11.0		X	100	
9536664	SG3a-BL10-B29.0		X	100; 5000	
9536665	SG3a-FTB01-180330	X		1	Field Blank
9536666	SG3a-LTB01-180330	X		1	Trip Blank
9536667	SG3a-RB01-180330	X		1	Material Rinse Blank
9536668	SG3a-WP11-B42.0		X	100	
9536669	SG3a-WP11-B41.0		X	10; 100	
9536670	SG3a-BL11-B40.5		X	100; 1000	
9536671	SG3a-BL11-B25.0		X	10; 100	
9536672	SG3a-WP11-B24.0		X	100; 1000	
9536673	SG3a-WP11-B16.0		X	100; 1000	
9536674	SG3a-EB01-180330	X		1	Equipment Blank
9536675	SG3a-EB02-180330		X	1	Equipment Blank
9536676	SG3a-BL13-C		X	100; 5000	Unspiked
9536677	SG3a-BL13-C MS		X	100	Matrix Spike
9536678	SG3a-BL13-C MSD		X	100	Matrix Spike Duplicate
9536679	SG3a-WP12-B44.5		X	100	
9536680	SG3a-WP12-B43.0		X	100; 1000	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SBN10

PFAS Group
Fraction: PFAS by LC/MS/MS

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Method Blank

For noncompliant preparation/method blanks, corrective action is not required if the sample is ND or > 10 times the blank concentration, unless otherwise specified in the method or by the client.

(Sample number(s): 9536675: Analysis: 14027)
Target analytes were detected in the method blank as noted on the QC summary.

LCS/LCSD

(Sample number(s): 9536659-9536660, 9536662-9536663, 9536668-9536669, 9536672-9536673, 9536675, 9536679-9536680
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch#: 18094001 (Sample number(s): 9536659-9536660, 9536662-9536663, 9536668-9536669, 9536672-9536673, 9536675, 9536679-9536680)
The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid

The recovery(ies) for the following analyte(s) in the LCSD exceeded the acceptance window indicating a positive bias: Perfluorobutanoic acid, Perfluoroundecanoic acid

MS/MSD

Please note that US EPA Methods for organic compounds do not require action by the laboratory based on out-of-specification MS/MSD results.

Batch#: 18102019 (Sample number(s): 9536661, 9536664, 9536670-9536671, 9536676-9536678, UNSPK: 9536676)
The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Perfluoroheptanoic acid

The recovery(ies) for the following analyte(s) in the MS and MSD were below the acceptance window: Perfluorobutanesulfonate, Perfluorobutanoic acid, Perfluorodecanoic acid, Perfluorododecanoic acid, Perfluorohexanesulfonate, Perfluorohexanoic acid, Perfluorononanoic acid, Perfluoro-octanesulfonate, Perfluorooctanoic acid,

Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SBN10

PFAS Group

Fraction: PFAS by LC/MS/MS

Perfluoropentanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid, Perfluoroundecanoic acid

Surrogate

Surrogate recoveries that are noncompliant are confirmed unless attributed to a dilution or otherwise noted.

(Sample number(s): 9536660, 9536662-9536663, 9536668-9536669, 9536672-9536673, 9536679-9536680: Analysis: 14027)
The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

(Sample number(s): 9536659: Analysis: 14027)
The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

Batch#: 18094001 (Sample number(s): 9536659-9536660, 9536662-9536663, 9536668-9536669, 9536672-9536673, 9536675, 9536679-9536680)
The recovery(ies) for the following surrogate(s) exceeded the acceptance window: 13C3-PFHxS (9536659, 9536660, 9536662, 9536669, 9536672, 9536673, 9536680), 13C4-PFHpA (9536659, 9536660, 9536662, 9536663, 9536668, 9536669, 9536672, 9536673, 9536680), 13C5-PFHxA (9536659, 9536660, 9536662, 9536663, 9536668, 9536669, 9536672, 9536673, 9536679, 9536680)

Batch#: 18102019 (Sample number(s): 9536661, 9536664, 9536670-9536671, 9536676-9536678, UNSPK: 9536676)
The recovery(ies) for the following surrogate(s) exceeded the acceptance window: 13C4-PFHpA (9536677, 9536678)

The recovery(ies) for the following surrogate(s) were below the acceptance window: 13C5-PFPeA (9536670, 9536676 UNSPK)

SAMPLE ANALYSIS:

(Sample number(s): 9536659-9536664, 9536668-9536673, 9536676-9536680: Analysis: 14027)
Reporting limits were raised due to interference from the sample matrix.

(Sample number(s): 9536666: Analysis: 14473)
Native compound perfluorooctanoic acid (PFOA) was detected in this trip blank. Sufficient sample was not available to repeat the analysis.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1926425 Sample # 9536659-80

COC # 558201

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP-Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: JD, DK, CB, CO	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Tissue ☐ | Sediment ☐ | Soil ☐ | Potable Water ☐ | Ground ☑ | Surface ☐ | NPDES ☐ | Bulk ☐ | Other: Rinse Water

Analysis Requested

Preservation and Filtration Codes

14 PFAS (EPA 537 mod)

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

1 of 5

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers
SG3a-WP10-B35.0	3/29/18	15:20	✓		1
SG3a-WP10-B33.0		15:30	✓		1
SG3a-BL10-B26.0		15:35	✓		1
SG3a-WP10-B23.0		15:40	✓		1
SG3a-WP10-B11.0		15:45	✓		1
SG3a-BL10-B29.0	3/29/18	15:25	✓		1
SG3a-FTB01-180330	3/30/18	8:25	✓		2
SG3a-LTB01-180330		—	✓		2
SG3a-RB01-180330		8:35	✓		2
SG3a-WP11-B42.0		8:20	✓		1

Wipe Template

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or B | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	3/30/18	15:40			
				3/31/18	9:55

EDD Required? (Yes) No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____

Temperature upon receipt 1.4-2.0 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1926425 Sample # 9536659/80

COC # 558202

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP-Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16,6131
Sampler: JD, DK, CB, CO	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Tissue	Sediment	Soil	Potable Water	Ground Water	Bulk	NPDES	Surface Water	Other: Rinse Water	Total # of Containers	14 PFAS (EPA 537 mod)	Remarks
SG3a-WP11-B41.6	3/30/18	8:25	✓			✓								1	✓	
SG3a-BL11-B40.5		8:30	✓						✓					1	✓	
SG3a-BL11-B25.6		8:40	✓						✓					1	✓	installation
SG3a-WP11-B24.0		8:45	✓			✓								1	✓	
SG3a-WP11-B16.0		8:50	✓			✓								1	✓	
SG3a-EB01-180330		9:35	✓										✓	2	✓	Chisel
SG3a-EB02-180330		10:00	✓			✓								1	✓	
SG3a-BL13-C		10:05	✓						✓					3	✓	MS/MSD here
SG3a-WP12-B44.5		9:25	✓			✓								1	✓	
SG3a-WP12-B43.0		9:30	✓			✓								1	✓	

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	3/30/18	15:40			
				3-31-18	955

EDD Required? Yes No
If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS FedEx Other

Temperature upon receipt 1.4-2.0 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 212542

Group Number(s): 1926425

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/31/2018 9:55
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 4-250 mL plastic bottles (unpre)

Unpacked by Melvin Sanchez (8943) at 14:31 on 03/31/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	2.0	DT	Wet	Y	Bagged	N
2	DT131	1.4	DT	Wet	Y	Bagged	N

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3a-BL12-B42.5 Grab Bulk Solid	03/30/2018 09:35	9536681
SG3a-WP12-B30.0 Grab Wipe	03/30/2018 09:40	9536682
SG3a-WP12-B15.0 Grab Wipe	03/30/2018 09:50	9536683
SG3a-BL12-B28.0 Grab Bulk Solid	03/30/2018 09:45	9536684
SG3a-FD01-180330 Grab Wipe	03/30/2018	9536685
SG3a-FD02-180330 Grab Bulk Solid	03/30/2018	9536686
SG3a-FTB02-180330 Blank Water	03/30/2018 10:30	9536687
SG3a-LTB02-180330 Water	03/30/2018	9536688
SG3a-WP02-A1.5 Grab Wipe	03/30/2018 11:25	9536689
SG3a-WP04-A1.5 Grab Wipe	03/30/2018 11:30	9536690
SG3a-WP05-A1.5 Grab Wipe	03/30/2018 11:35	9536691
SG3a-WP07-A1.5 Grab Wipe	03/30/2018 11:40	9536692
SG3a-WP09-A1.5 Grab Wipe	03/30/2018 11:45	9536693
SG3a-BL14-A5.5 Grab Bulk Solid	03/30/2018 12:00	9536694
SG3a-WP15-E Grab Wipe	03/30/2018 12:05	9536695
SG3a-WP16-E Grab Wipe	03/30/2018 12:10	9536696
SG3a-WP17-E Grab Wipe	03/30/2018 12:15	9536697
SG3a-WP18-E Grab Wipe	03/30/2018 12:20	9536698
SG3a-EB03-180330 Grab Wipe	03/30/2018 12:15	9536699
SG3a-FD03-180330 Grab Wipe	03/30/2018	9536700

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1926426

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous

Sample #s: 9536681, 9536684, 9536686, 9536694 Solids

R Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9536691

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

R Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9536693

The recovery for several llabeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

R Reporting limits were raised due to interference from the sample matrix.

Target analytes were detected in the method blank associated with this sample. Sufficient sample was not available to repeat the analysis.

Sample #s: 9536682, 9536683, 9536685, 9536689, 9536690, 9536692, 9536695, 9536696, 9536697, 9536698, 9536700

The recovery for the sample injection internal standard peak areas and labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

R Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9536699

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were deteted in the method blank associated with this sample. Sufficient sample was not available to repeat the analysis.

Batch #: 18094013 (Sample number(s): 9536682-9536683, 9536685, 9536689-9536693, 9536695-9536700)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9536682, 9536683, 9536685, 9536689, 9536690, 9536691, 9536692, 9536693, 9536695, 9536696, 9536697, 9536698, 9536700

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9536699

Batch #: 18102019 (Sample number(s): 9536681, 9536684, 9536686, 9536694 UNSPK: P536676)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorodecanoic acid, Perfluoroundecanoic acid, Perfluorododecanoic acid, Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluoro-octanesulfonate, Perfluorobutanoic acid, Perfluoropentanoic acid, Perfluoroheptanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9536694, MS, MSD

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SBN11

PFAS Group

Fraction: PFAS by LC/MS/MS

		Matrix			
Sample #	Client ID	Liquid	Solid	DF	Comments
9536681	SG3a-BL12-B42.5		X	100; 1000	
9536682	SG3a-WP12-B30.0		X	10; 100	
9536683	SG3a-WP12-B15.0		X	10; 1000	
9536684	SG3a-BL12-B28.0		X	100; 1000	
9536685	SG3a-FD01-180330		X	10; 1000	Field Duplicate Sample
9536686	SG3a-FD02-180330		X	100; 1000	Field Duplicate Sample
9536687	SG3a-FTB02-180330	X		1	Field Blank
9536688	SG3a-LTB02-180330	X		1	Trip Blank
9536689	SG3a-WP02-A1.5		X	10; 100	
9536690	SG3a-WP04-A1.5		X	10; 1000	
9536691	SG3a-WP05-A1.5		X	10; 100	
9536692	SG3a-WP07-A1.5		X	10; 100	
9536693	SG3a-WP09-A1.5		X	10; 100	
9536694	SG3a-BL14-A5.5		X	10; 1000	
9536695	SG3a-WP15-E		X	10; 1000	
9536696	SG3a-WP16-E		X	10; 1000	
9536697	SG3a-WP17-E		X	10; 1000	
9536698	SG3a-WP18-E		X	10; 1000	
9536699	SG3a-EB03-180330		X	10	Equipment Blank
9536700	SG3a-FD03-180330		X	10; 100	Field Duplicate Sample

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SBN11

PFAS Group
Fraction: PFAS by LC/MS/MS

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Method Blank

For noncompliant preparation/method blanks, corrective action is not required if the sample is ND or > 10 times the blank concentration, unless otherwise specified in the method or by the client.

(Sample number(s): 9536693, 9536699: Analysis: 14027)
Target analytes were detected in the method blank associated with this sample.
Sufficient sample was not available to repeat the analysis.

MS/MSD

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

Surrogate

Surrogate recoveries that are noncompliant are confirmed unless attributed to a dilution or otherwise noted.

(Sample number(s): 9536691, 9536693, 9536699: Analysis: 14027)
The stated QC limits are advisory only until sufficient data points
can be obtained to calculate statistical limits.

(Sample number(s): 9536691: Analysis: 14027)
The recovery for several labeled compounds used as extraction standards
is outside of QC acceptance limits due to the matrix of the sample.

Batch#: 18094013 (Sample number(s): 9536682-9536683, 9536685, 9536689-9536693, 9536695-9536700)
The recovery(ies) for the following surrogate(s) exceeded the acceptance window:
13C3-PFHxS (9536682, 9536683, 9536685, 9536689, 9536690, 9536691, 9536692, 9536693, 9536695, 9536696, 9536697, 9536698, 9536700), 13C4-PFHpA (9536682, 9536683, 9536685, 9536689, 9536690, 9536691, 9536692, 9536693, 9536695, 9536696, 9536697, 9536698, 9536700), 13C5-PFHxA (9536682, 9536683, 9536685, 9536689, 9536690, 9536691, 9536692, 9536693, 9536695, 9536696, 9536697, 9536698, 9536700)

The recovery(ies) for the following surrogate(s) were below the acceptance window:
13C5-PFPeA (9536699)

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SBN11

PFAS Group

Fraction: PFAS by LC/MS/MS

Batch#: 18102019 (Sample number(s): 9536681, 9536684, 9536686, 9536694)
The recovery(ies) for the following surrogate(s) exceeded the acceptance window:
13C3-PFHxS (9536694), 13C4-PFHpA (9536694), 13C5-PFHxA (9536694), 13C9-PFNA (9536694)

SAMPLE ANALYSIS:

(Sample number(s): 9536681, 9536684, 9536686, 9536691, 9536693-9536694: Analysis: 14027)
Reporting limits were raised due to interference from the sample matrix.

(Sample number(s): 9536682-9536683, 9536685, 9536689-9536690, 9536692, 9536695-9536698, 9536700: Analysis: 14027)
The recovery for the sample injection internal standard peak areas and labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1926426 Sample # 9536681-700

COC # 558206

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: SGPP Bennington

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: JD, DR, CB, CO

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Tissue ☐ Ground ☐ Surface ☐

Sediment ☐ Potable ☐ NPDES ☐

Soil ~~Bulk~~ Water ~~Bulk~~ Other: Rinse Water

Analysis Requested

Preservation and Filtration Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 P=H_3PO_4

F=Field Filtered O=Other

Remarks

3 of 5

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	14 PFAS (EPA 533 mod.)	Remarks
SG3a-BL12-B42.5	3/30/18	9:35	✓		1	✓	
SG3a-WP12-B30.0		9:40	✓		1	✓	
SG3a-WP12-B15.0		9:50	✓		1	✓	
SG3a-BL12-B28.0		9:45	✓		1	✓	Insulation
SG3a-FD01-180330		—	✓		1	✓	
SG3a-FD02-180330		—	✓		1	✓	
SG3a-FTB02-180330		10:30	✓		2	✓	
SG3a-LTB02-180330		—	✓		2	✓	
SG3a-WP02-A1.5		11:25	✓		1	✓	
SG3a-WP04-A1.5		11:30	✓		1	✓	

Turnaround Time (TAT) Requested (please circle)

(Standard) Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: k.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

(NYSDEC Category A or B) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	3/30/18	15:40			

EDD Required? (Yes) No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____

Temperature upon receipt 1.4-2.0°C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1926426 Sample # 9536681-700

COC # 544577

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: SAPP-Bennington

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: JD, DK, CB, CO

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Tissue ☐ Sediment ☐ Soil ☐ Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: Rinse Water

Analysis Requested

Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix	Total # of Containers	Analysis Requested	Remarks
SG3a-WP05-A1.5	3/30/18	11:35	✓		Soil	1	✓	
SG3a-WP07-A1.5		11:40	✓		Soil	1	✓	
SG3a-WP09-A1.5		11:45	✓		Soil	1	✓	
SG3a-BL14-A5.5		12:00	✓		Water	1	✓	insulation
SG3a-WP15-E		12:05	✓		Soil	1	✓	
SG3a-WP16-E		12:10	✓		Soil	1	✓	
SG3a-WP17-E		12:15	✓		Soil	1	✓	
SG3a-WP18-E		12:20	✓		Soil	1	✓	
SG3a-EB03-180330		12:15	✓		Soil	1	✓	
SG3a-FD03-180330	↓	—	✓		Soil	1	✓	

HPFAS (EPA 537 mod.)

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

4 of 5

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: kmoline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type VI (Raw Data Only)

Type III (Reduced non-CLP)

NJ DKQP

TX TRRP-13

NYSDEC Category A or B

MA MCP

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	3/30/18	15:40			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	3-31-18	9:55

EDD Required? Yes / No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ____ Other ____

Temperature upon receipt 1.9-2.0 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 212542

Group Number(s): 1926426

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/31/2018 9:55
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 4-250 mL plastic bottles (unpre)

Unpacked by Melvin Sanchez (8943) at 14:31 on 03/31/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	2.0	DT	Wet	Y	Bagged	N
2	DT131	1.4	DT	Wet	Y	Bagged	N

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SECTION 7

PROJECT CORRESPONDENCE

Jared K. Acker

From: Meg Michell
Sent: Tuesday, May 8, 2018 9:13 AM
To: Christine Ratcliff; Nancy Bornholm
Cc: Charles Neslund; David Blye; Moline, Kirk (k.moline@ctmale.com); Ward Swanson (WSwanson@barr.com); Lauren Brady; Michael D. Dupay; StGobain; Bryan J. Eck; Jared K. Acker; Tom Weinmann; Kelly Caddy
Subject: RE: SBN09 PFOA issues - also SBN10, SBN11, SMC48

Checking in on these revisions since it has been awhile. When do you expect to have this done?

From: Christine Ratcliff [mailto:ChristineRatcliff@eurofinsUS.com]
Sent: Thursday, April 26, 2018 1:32 PM
To: Meg Michell <mmichell@envstd.com>; Nancy Bornholm <NancyBornholm@eurofinsUS.com>
Cc: Charles Neslund <CharlesNeslund@eurofinsUS.com>; David Blye <DBLYE@envstd.com>; Moline, Kirk (k.moline@ctmale.com) <k.moline@ctmale.com>; Ward Swanson (WSwanson@barr.com) <WSwanson@barr.com>; Lauren Brady <LBrady@barr.com>; Michael D. Dupay <MDupay@barr.com>; StGobain <StGobain@envstd.com>; Bryan J. Eck <beck@envstd.com>
Subject: RE: SBN09 PFOA issues

Meg,
When this package was created, the incorrect ICAL was pulled. I am having a second version of the package created with the correct ICAL data. You will also have the same issue in the following SDGs: SMC48, SBN10, SBN11. New versions of these packages will also be created and put up.

I apologize for the confusion.

Christine Ratcliff
Manager
HRMS Group/PFAS Group

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USA

Phone: 717-556-7380
Fax: 717-656-2681

ChristineRatcliff@EurofinsUS.com
www.EurofinsUS.com\LancLabsEnv

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Wednesday, April 25, 2018 1:50 PM
To: Nancy Bornholm

Cc: Christine Ratcliff; Charles Neslund; David Blye; Moline, Kirk (k.moline@ctmale.com); Ward Swanson (WSwanson@barr.com); Lauren Brady; Michael D. Dupay; StGobain; Bryan J. Eck
Subject: FW: SBN09 PFOA issues

EXTERNAL EMAIL*

Hi-
Could you address the PFOA discrepancies for the CCV, LCS, and samples below?
Thanks!

From: Bryan J. Eck
Sent: Wednesday, April 25, 2018 1:41 PM
To: Meg Michell <mmichell@envstd.com>
Subject: SBN09 PFOA issues

In the SBN09 CCV below, the result for PFOA in the summary is incorrect. The calculation agrees with the raw data. Both results are within limits, so no qualification is necessary, but it should be revised to reflect the correct value. All of the other analytes agree between the raw data and the summary.

Instrument ID: 24743 Lab File ID: 18APR03MCAL-20.WIFF

Date/Time Analyzed: 04/03/2018 20:20 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/03/2018 17:45 04/03/2018 19:18

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.11	5.73	±30
Perfluoropentanoic acid	2.00	2.02	1.20	±30
Perfluorobutanesulfonate	1.77	1.77	-0.16	±30
4:2 fluorotelomersulfonate	4.90	5.02	2.49	±30
Perfluorohexanoic acid	2.00	2.12	6.07	±30
Perfluoropentanesulfonate	1.88	1.97	4.60	±30
Perfluorohexanesulfonate	1.89	1.90	0.70	±30
Perfluoroheptanoic acid	2.00	2.40	20.22	±30
6:2 fluorotelomersulfonate	5.21	5.82	11.78	±30
Perfluoroheptanesulfonate	1.90	1.86	-2.20	±30
Perfluorooctanoic acid	2.00	2.10	5.06	±30
Perfluoro-octanesulfonate	1.91	1.97	3.21	±30
Perfluorononanoic acid	2.00	2.08	4.14	±30
Perfluorooctanesulfonamide	2.00	2.24	11.78	±30
Perfluorononanesulfonate	1.92	1.95	1.47	±30
Perfluorodecanoic acid	2.00	2.23	11.37	±30
8:2 fluorotelomersulfonate	5.27	5.66	7.44	±30
NMeFOSAA	2.00	2.19	9.50	±30
Perfluorodecanesulfonate	1.93	1.89	-2.71	±30
Perfluoroundecanoic acid	2.00	2.08	4.13	±30

Continuing Calibration Verfication

ICAL Name: 18APR03MCAL **Result Table:** 18APR03MCAL 4/3/2018 9:20:12 PM

QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

Instrument Name:	Sample Name:	Sample ID:	Sample File:	Acquisition Date:
LM24743	CCV1_CAL3	CALMOD31733F	18APR03MCAL-20.wiff	2018-04-03T20:20:55

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	401087.5	13C4-PFBA	1128599.9	5.0	0.355	4.43	1.000	2.000	2.115	5.7	30.0	
PFPeA	401982.4	13C5-PFPeA	971390.9	5.0	0.414	5.01	1.000	2.000	2.024	1.2	30.0	
PFBS	205732.3	13C3-PFBS	570783.7	4.7	0.360	5.06	1.000	1.770	1.767	-0.2	30.0	
4:2-FTS	345661.0	13C2-4:2-FTS	388991.3	4.7	0.889	5.43	1.000	4.900	5.022	2.5	30.0	
PFHxA	730690.7	13C5-PFHxA	1866027.5	5.0	0.392	5.48	1.000	2.000	2.121	6.1	30.0	
PFPeS	109858.2	13C3-PFBS	570783.7	4.7	0.192	5.49	1.080	1.880	1.966	4.6	30.0	
PFHxS	223935.8	13C3-PFHxS	558212.3	4.7	0.401	5.92	1.000	1.890	1.903	0.7	30.0	
PFHpA	938935.4	13C4-PFHpA	1853523.4	5.0	0.507	5.92	1.000	2.000	2.404	20.2	30.0	
6:2-FTS	349503.8	13C2-6:2-FTS	315576.9	4.8	1.108	6.32	1.000	5.210	5.823	11.8	30.0	
PFHpS	189585.5	13C3-PFHxS	558212.3	4.7	0.340	6.32	1.070	1.900	1.858	-2.2	30.0	
PFOA	929466.1	13C8-PFOA	2385779.2	5.0	0.389	6.33	1.000	2.000	2.225	11.3	30.0	
PFOS	186049.3	13C8-PFOS	464357.0	4.8	0.401	6.68	1.000	1.910	1.971	3.2	30.0	
PFNA	846644.7	13C9-PFNA	1736512.9	5.0	0.488	6.71	1.000	2.000	2.083	4.1	30.0	
PFOSA	447834.3	13C8-PFOSA	1053774.5	5.0	0.425	6.98	1.000	2.000	2.236	11.8	30.0	
PFNS	126800.6	13C8-PFOS	464357.0	4.8	0.273	7.01	1.050	1.920	1.948	1.5	30.0	
PFDA	789946.6	13C6-PFDA	2030994.9	5.0	0.389	7.05	1.000	2.000	2.227	11.4	30.0	
8:2-FTS	426844.5	13C2-8:2-FTS	385173.3	4.8	1.108	7.08	1.000	5.270	5.662	7.4	30.0	
NMePFOSAE	88315.5	d7-NMePFOSAE	188363.9	5.0	0.469	7.39	1.000	2.000	2.016	0.8	30.0	
NMePFOSA	76819.0	d3-NMePFOSA	178256.5	5.0	0.431	7.41	1.000	2.000	2.115	5.7	30.0	
NMeFOSAA	214230.9	d3-NMeFOSAA	458759.8	5.0	0.467	7.22	1.000	2.000	2.190	9.5	30.0	
NEtPFOSAE	124959.0	d9-NEtPFOSAE	234485.8	5.0	0.533	7.54	1.000	2.000	2.107	5.3	30.0	

In addition, results for PFOA in SBN09 samples 9535320 and 9535321 as well as the LCS/LCSD associated with batch 18092009 do not calculate correctly. These samples are also in the same ICAL that had the incorrect CCV calculation for PFOA. The actual concentrations are consistently 1.06x the concentration given, leading me to believe the laboratory is using the wrong slope or the slope expressed in the ICAL (0.87446) is incorrect. I calculated the estimated slope to be 0.92614.

Bryan J. Eck
Staff Chemist I

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Jared K. Acker

From: Charles Neslund <CharlesNeslund@eurofinsUS.com>
Sent: Tuesday, April 24, 2018 5:12 PM
To: Meg Michell
Cc: Bryan J. Eck; Jared K. Acker; David Blye; Christine Ratcliff
Subject: FW: PFAS in wipes
Attachments: image002.jpg.html; image004.jpg.html; image001.gif.html

Hi Meg,

We do not have a separate SOP for the analysis of wipes. Frankly, the volume of wipes has not been that large so we have used the soil extraction SOP with a couple of volume changes that should have been documented on the batchlog. If I remember correctly, what we had them end up doing was using a larger volume of solvent to extract the wipe (so that the solvent covered the wipe), but then they used a larger portion of that extraction fluid to concentrate for analysis so that preparation factors would be comparable. But as I said, I think that it should have been documented on the extraction log.

Chuck

Charles Neslund
Scientific Officer

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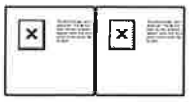

From: Christine Ratcliff
Sent: Tuesday, April 24, 2018 9:12 AM
To: Charles Neslund
Subject: Fwd: PFAS in wipes

Begin forwarded message:

> **From:** Meg Michell <mmichell@envstd.com>
> **Date:** April 24, 2018 at 9:10:05 AM EDT
> **To:** "Christine Ratcliff (ChristineRatcliff@eurofinsUS.com)" <ChristineRatcliff@eurofinsUS.com>
> **Cc:** "Bryan J. Eck" <beck@envstd.com>, "Jared K. Acker" <jacker@envstd.com>, David Blye <DBLYE@envstd.com>
> **Subject: PFAS in wipes**
>
> EXTERNAL EMAIL*

Hi-
I am wondering if you have an SOP for this analysis?
Thanks!

Meg A. Michell
Senior Technical Chemist
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ENVIRONMENTAL® STANDARDS

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DATA USABILITY SUMMARY REPORT

ANALYSIS OF VARIOUS ANALYTES

IN WIPE, SOLID, AND AQUEOUS BLANK SAMPLES

1030 WATER STREET, VILLAGE OF NORTH BENNINGTON,

BENNINGTON COUNTY, VERMONT, VTDEC SMS SITE # 20164630

SAMPLE DELIVERY GROUPS: SBN12 AND SBN13

May 25, 2018

Prepared for:

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

Prepared by:

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TABLE OF CONTENTS

Introduction

Section 1 Quality Assurance Review

A. Organic Data Review

B. Inorganic and Wet Chemistry Data Review

C. Conclusions

Section 2 Validated Data Summary Tables

A. SDG SBN12

B. SDG SBN13

Section 3 Laboratory Calibration and Quality Control Acceptance Criteria

Section 4 Environmental Standards, Inc., Standard Operating Procedure

Section 5 Organic Data Support Documentation

A. SDG SBN12

B. SDG SBN13

Section 6 Inorganic and Wet Chemistry Data Support Documentation

Section 7 Laboratory Case Narratives and Project Chain-of-Custody Records

Introduction

This Data Usability Summary Report (DUSR) was based upon an examination of the data generated from samples that were collected on March 30 and April 5, 2018, as part of the 1030 Water Street, Village of North Bennington, Vermont project based on the "Initial Site Characterization Investigation Work Plan Saint-Gobain Performance Plastics Site 1030 Water Street, Village of North Bennington, Bennington County, Vermont" (Work Plan, April 2016). The analyses of the samples (and associated quality control [QC] samples) listed on the table below were performed by Eurofins Lancaster Laboratories Environmental (ELLE) of Lancaster, Pennsylvania. Solid and wipe samples were analyzed for perfluorinated and polyfluorinated alkyl substances (PFASs) according to ELLE's internal standard operating procedure (SOP) "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3). Aqueous samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI14355, Version 3). All other analyses were performed in accordance with Standard Method (SM) or SW-846 methods. The Analytical Services Protocol (ASP) Category A and Category B data deliverables were prepared by the laboratory and were reviewed by Environmental Standards, Inc. (Environmental Standards). The samples that have undergone a Full or Limited quality assurance (QA) review are listed on Table 1. Table 1 also presents the laboratory sample number, laboratory Sample Delivery Group (SDG), matrix, collection date, and parameters analyzed and reviewed for the samples.

The reported analytical results are presented on the validated data summary tables included in Section 2. These validated data summary tables were generated from electronic data deliverables (EDDs) provided by the laboratory and have been edited by the data reviewer to include all final data validation qualifiers and results. The "Lab Result," "Lab MDL" (*i.e.*, the method detection limit [MDL]), "Lab LOQ" (*i.e.*, the limit of quantitation [LOQ]), "Lab Qualifier," and "Lab Detect Flag" fields presented on the validated data summary tables were derived directly from the laboratory-provided EDD. Errors in the "Lab Result," "Lab MDL," "Lab LOQ," and "Lab Detect Flag" fields noted during validation have been corrected, and the corrections are reflected in the "Final Result," "Final MDL," "Final LOQ," and "Final Detect Flag" fields, respectively, on the validated data summary tables. Validation qualifier codes have been placed in the "Validation Qualifier" fields on the data tables to enable the data user to quickly assess the qualitative and/or quantitative reliability of a result based on the criteria evaluated during this QA review. Finally, the "Validation Reason Code" field has been populated with codes that indicate the reason for the validation qualifiers. Definitions of the validation qualifier and reason codes are presented with the validated data summary tables.

This QA review has been performed with guidance from the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016), the "National Functional Guidelines for High Resolution Superfund Methods Data Review" (US EPA, April 2016), and the "National Functional Guidelines for Inorganic Superfund Data Review" (US EPA, September 2016); however, these validation guidance documents specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocol performed by the laboratory for these samples. Environmental Standards used professional judgment to determine the usability of the analytical results and compliance relative to the requirements

specified in the Work Plan, ELLE's internal SOPs for PFAS analysis, US EPA methods, SW-846 methods, and SM analyses. US EPA Method 537 is written strictly for drinking water samples, and no approved US EPA method currently exists for other sample matrices. Although ELLE's internal SOPs reference US EPA Method 537 for PFAS analysis, the procedure is really an "in-house" procedure that is also considered "Confidential Information"; therefore, a summary of the Calibration and QC Requirements used by ELLE for PFAS analysis has been included in Section 3. In addition, the SOP used by Environmental Standards to validate data generated under the ELLE PFAS SOPs is provided in Section 4. Details of this QA review are presented in Section 1 of this DUSR.

This DUSR identifies data quality issues for specific samples and specific evaluation criteria. The data qualifications allow the data end-user to best understand the usability of the analysis results. Data not qualified in this report should be considered valid based on the QC criteria that have been reviewed.

Section 5 of the report presents the Organic Data Support Documentation for this DUSR. Section 6 of the report presents the Inorganic and Wet Chemistry Data Support Documentation for this DUSR, and the Laboratory Case Narratives and Project Chain-of-Custody Records are presented in Section 7.

TABLE 1 – SUMMARY OF SAMPLES REVIEWED

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3a-WP19-D	9536701	SBN12	W	3/30/18	F	PFAS
SG3a-WP19-D5.5	9536702	SBN12	W	3/30/18	F	PFAS
SG3a-WP20-D	9536703	SBN12	W	3/30/18	F	PFAS
SG3a-WP20-D5.5	9536704	SBN12	W	3/30/18	F	PFAS
SG3a-WP21-D5.5	9536705	SBN12	W	3/30/18	F	PFAS
SG3a-WP22-E	9536706	SBN12	W	3/30/18	F	PFAS
SG3a-WP23-F5.0	9536707	SBN12	W	3/30/18	F	PFAS
SG3a-WP24-F3.0	9536708	SBN12	W	3/30/18	F	PFAS
SG3a-WP25-E	9536709	SBN12	W	3/30/18	F	PFAS
SG3a-WP26-F5.0	9536710	SBN12	W	3/30/18	F	PFAS
SG3a-Sludge18-02-180405	9546280	SBN13	S	4/5/18	F L2	PFAS V, SV, M, M[1], Hg, TOC, pH, Mois
SG3a-Sludge18-03-180405	9546281	SBN13	S	4/5/18	F	PFAS, V, SV, M, M[1], Hg, TOC, pH, Mois
SG3a-Sludge18-03-180405 MS (Matrix Spike)	9546282	SBN13	S	4/5/18	F	PFAS, V, SV, M, M[1], Hg, TOC
SG3a-Sludge18-03-180405 MSD (Matrix Spike Duplicate)	9546283	SBN13	S	4/5/18	F	PFAS, V, SV, M, M[1], Hg, TOC
SG3a-Sludge18-03-180405 Dupl (Laboratory Duplicate)	9546284	SBN13	S	4/5/18	F	M, M[1], Hg, TOC, pH, Mois
SG3a-Sludge18-04-180405	9546285	SBN13	S	4/5/18	F L2	PFAS V, SV, M, M[1], Hg, TOC, pH, Mois
SG3a-FD01-180405 (Field Duplicate of SG3a-Sludge18-02-180405)	9546286	SBN13	S	4/5/18	F L2	PFAS V, SV, M, M[1], Hg, TOC, pH, Mois
SG3a-EB01-180405 (Equipment Blank)	9546287	SBN13	Aq	4/5/18	F L2	PFAS V, SV, M, M[1], Hg, TOC, pH
SG3a-FTB01-180405 (Field Blank)	9546288	SBN13	Aq	4/5/18	F	PFAS
SG3a-LTB01-180405 (Trip Blank)	9546289	SBN13	Aq	4/5/18	F L2	PFAS V

TABLE 1 (Cont.)

NOTES:

PFAS	-	Perfluorinated and Polyfluorinated Alkyl Substances (PFASs) according to ELLE's SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3) for solid and wipe samples and "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI14355, Version 3) for aqueous samples. (19 Full analyses)
V	-	Volatile Organic Compounds by SW-846 Method 8260C. (3 Full analyses and 5 Limited analyses)
SV	-	Semivolatile Organic Compounds by SW-846 Method 8270D (SIM). (3 Full analyses and 4 Limited analyses)
M	-	Total Metals by SW-846 Method 6010C. (4 Full analyses and 4 Limited analyses)
M[1]	-	Total Metals by SW-846 Method 6020A. (4 Full analyses and 4 Limited analyses)
Hg	-	Mercury by SW-846 Method 7470A (aqueous samples) or SW-846 Method 7471B (solid samples). (4 Full analyses and 4 Limited analyses)
TOC	-	Total Organic Carbon (TOC) by SM 5310C (aqueous samples) or SM 5310B (solid samples). (4 Full analyses and 4 Limited analyses)
pH	-	pH by SM 4500 H+ B (aqueous samples) or SW-846 Method 9045 (solid samples). (2 Full analyses and 4 Limited analyses)
Mois	-	Percent moisture by SM 2540G. (2 Full analyses and 3 Limited analyses)
L2	-	Limited QA Review (refer to Section 1).
F	-	Full QA Review (refer to Section 1).
S	-	Solid.
W	-	Wipe.
Aq	-	Aqueous.

Section 1 Quality Assurance Review

A. Organic Data Review

The organic analyses of 10 wipe samples, six solid samples, and three aqueous blank samples collected as part of the 1030 Water Street, Village of North Bennington, Vermont project on March 30 and April 5, 2018, were performed by ELLE. Solid and wipe samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3). Aqueous samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI14355, Version 3). Solid samples were also analyzed for volatile organic compounds by SW-846 Method 8260C and semivolatile organic compounds by SW-846 Method 8270D. Specific analyses reviewed for all samples are identified on Table 1. The data reviewed were presented in ASP Category A and Category B data deliverables.

The findings offered in this report for analyses that underwent a Limited QA review are based upon a review of tabulated QC summary forms, including the following QC measures:

- Sample and extract holding times
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Surrogate recoveries
- Sample condition upon laboratory receipt
- Blank analysis results
- Analytical sequence

The findings offered in this report for analyses that underwent a Full QA review are based upon a rigorous review of all tabulated QC summary forms and all raw data, including the following QC measures:

- Sample and extract holding times
- Blank analysis results
- Second-source initial calibration verification (ICV) recoveries
- LCS/LCSD results
- Pre-injection internal standard responses
- Surrogate recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries and precision
- Quantitation of results
- Sample condition upon laboratory receipt
- Initial calibrations
- Continuing calibration verification (CCV) recoveries
- Labeled pre-extraction internal standard recoveries
- Analytical sequence
- Internal standard recoveries
- Qualitative identification
- Field duplicate precision

The analytical results for the organic target compounds are presented on the validated data summary tables in Section 2 of this report. The validated data summary tables include the full names of the target analytes along with their associated acronyms, which are used throughout the text of this DUSR. A summary of ELLE's Calibration and QC Requirements has been included in Section 3. The SOP used by Environmental Standards to validate data generated under the ELLE SOPs is provided in Section 4. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, relevant raw data, and other documentation needed to support the findings in this DUSR in the Organic Data Support Documentation (Section 5). The data reviewer has also manually edited the laboratory-reported data and QC summary forms included in these sections based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Usability issues are addressed in the subsequent Organic Data Qualifiers section. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the analytical methods performed and the ELLE internal SOPs.

Reporting Issue

- The results for PFOA in several samples were reported from secondary dilution analyses; however, the laboratory only reported recoveries for the associated labeled pre-extraction internal standards from the undiluted or primary dilution analyses on the QC summary section of the Analysis Report. The data reviewer evaluated the pre-extraction internal standard recoveries using the Form 2A's and the raw data for the analysis from which each compound was reported.

Procedural Issues

1. US EPA Method 537 is listed as the reference method in the title of the ELLE SOPs; however, US EPA Method 537 is written specifically for the analysis of drinking water samples. As a result, the laboratory has made modifications to the extraction procedure to accommodate preparation of non-aqueous samples (ultrasonic extraction for an hour with 1:1 acetonitrile/water mixture vs. solid-phase extraction). In addition, the laboratory has made other modifications, including, but not limited to, the following:

    - For aqueous samples, Agilent SampliQ Weak Anion Exchange ("WAX") solid-phase extraction cartridges were used instead of polystyrenedivinylbenzene.
    - The laboratory utilized additional labeled analogs of the target PFASs, where available for use, as pre-extraction internal standards (all target PFASs except PFTriA), which generally should normalize any extraction inefficiency and provide greater accuracy in quantitation. For dilution analyses, the pre-extraction internal standards were refortified after extraction and prior to dilution. In addition, the laboratory spiked the extracts with yet additional labeled analogs of the target PFASs post extraction and used these labeled analogs as the internal standards for the pre-extraction internal standards.

- As the labeled internal standards were added prior to extractions, additional labeled surrogate compounds were not used.
- A holding time of 28 days from collection to extraction was used for solid and wipe samples.
- The laboratory did not control the relative percent difference (RPD) between the high and low areas for each internal standard in the initial calibration (must be < 20% by US EPA Method 537, Version 1.1).
- The laboratory did not calculate the peak asymmetry factor.
- The laboratory did not rotate the concentration used for the LCS.
- The calibration standards only included the linear PFAS isomers; however, available branched/linear standards were analyzed for qualitative purposes.
- Alternate ion transitions were used for PFBS and $^{13}C_8$-PFOS (299→99 instead of 299→80 for PFBS and 503→99 instead of 503→80 for $^{13}C_8$-PFOS) - the fragment represented by *m/z* 80 is the sulfonate group; whereas, the fragment represented by *m/z* 99 is the fluorinated sulfonate group.

2. The laboratory analyzed a qualitative standard that included both branched and linear isomers for PFHxS, PFOA, and PFOS. Where transition ion peaks were observed and deemed by laboratory personnel to represent branched isomers in samples based on the analysis of this standard, the responses for such peaks were included in the response for the analyte and used to quantitate the results for PFHxS, PFOA, and PFOS in samples relative to the linear isomer calibration standards. The laboratory did not integrate peaks other than the peak representative of the linear isomer (based on calibration standards) for target analytes other than PFHxS, PFOA, and PFOS in samples.

3. The laboratory noted a high (> 130%) recovery for PFUnA in the LCS associated with all SDG SBN12 samples; however, the laboratory did not re-extract the LCS and associated samples according to the Laboratory Calibration and Quality Control Acceptance Criteria (Section 3). Qualification of the data due to the high LCS recovery is addressed in the subsequent Organic Data Qualifiers section.

4. As stated in the SBN12 Case Narrative, the PFAS MDLs and LOQs for many samples in SDG SBN12 were raised due to sample matrix. The samples were analyzed at initial dilutions.

5. As stated in the SBN13 Case Narrative, the VOC MDLs and LOQs in sample SG3a-Sludge18-04-180405 and the SVOC MDLs and LOQs for all solid samples were raised due to interference from the sample matrix. The samples were analyzed at initial dilutions.

6. The laboratory extracted wipe samples according to its internal SOP T-PFAS-WI12031, which is for solid samples. The reported method blank and LCS did not include a blank wipe matrix. Several positive results and interferences were observed in the associated equipment blanks. (SG3a-EB02-180330 and SG3a-EB03-180330) that did include an unused wipe.

Data Evaluation

With respect to data usability, the principal areas of concern are blank contamination, out-of-specification MS/MSD recoveries, chromatographic interference, calibration issues, low internal standard responses, out-of-specification pre-extraction internal standard recoveries, MS/MSD imprecision, a high LCS recovery, and reported positive results between the MDL and the LOQ. Based on a rigorous review of the data provided, the following data qualifiers are offered. The following data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical SOP used for analysis. Accordingly, the following data usability issues should not be construed as an indication of laboratory performance.

Organic Data Qualifiers

- The reported positive results for the compounds in the samples listed below should be considered "not-detected" and have been flagged "UB" on the data tables. In addition, the data reviewer deleted the results from the "Final Result" field, changed the "Final Detect Flag" to "N," and raised the "Final MDL" and/or "Final LOQ" to the value of the original positive results. (Validation Reason Code: EB)

Sample(s)	SDG	Compound(s) with Adjusted MDLs and/or LOQs ("UB")
SG3a-WP19-D and SG3a-WP19-D5.5	SBN12	PFBA
SG3a-WP22-E	SBN12	PFOA
SG3a-WP24-F3.0, SG3a-WP25-E, and SG3a-WP26-F5.0	SBN12	PFBA, PFHpA, and PFOA

- The reported positive results for PFOS in SDG SBN12 samples SG3a-WP24-F3.0, SG3a-WP25-E, and SG3a-WP26-F5.0 should be considered unusable and have been flagged "R" on the data tables. Significant chromatographic interference, in the form of a series of unresolved peaks, was observed for the PFOS ion transition in the chromatographic region where PFOS elutes. The laboratory integrated these peaks in order to qualitatively identify and quantitate PFOS in these samples. (Validation Reason Code: CI)

- The MDL and LOQ for hexachlorocyclopentadiene in SDG SBN13 sample SG3a-SLUDGE18-03-180405 may be may be unusable, and the "not-detected" result has been flagged "R" on the data tables. Very low recoveries (< 10%) were observed for hexachlorocyclopentadiene in the associated MS and MSD analyses. (Validation Reason Code: MAL)

- The positive results for PFOS in SDG SBN12 samples SG3a-WP23-F5.0 should be considered an estimated tentative identification and has been flagged “JN” on the data tables. Chromatographic interference was observed for the PFOS ion transition in the chromatographic region where PFOS elutes. The interference was not well resolved from the potential PFOS peaks. (Validation Reason Code: CI)

- The MDL and LOQ for pentachlorophenol in SDG SBN13 sludge sample SG3a-Sludge18-03-180405 may be higher than reported and the “not-detected” result has been flagged “UJ” on the data tables. A high percent difference (> 20%) coupled with a decrease in sensitivity was observed for pentachlorophenol in the associated CCV. (Validation Reason Code: CVL)

- The reported positive results for the analytes listed in the sample on the table below should be considered estimated as have been flagged “J” on the data tables. High percent differences (> 20%) coupled with an increase in sensitivity were observed for these compounds in the associated CCV analyses. (Validation Reason Code: CVH)

Sample(s)	Fraction	Compounds With Estimated Positive Results (“J”)
SG3a-SLUDGE18-03-180405	VOC	acetone, carbon disulfide, and methyl ethyl ketone (2-butanone)

- The MDLs and LOQs for 1,1,2,2-tetrachloroethane; 1,2,3-trichlorobenzene; 1,2,4-trichlorobenzene; 1,2-dibromo-3-chloropropane; 1,2-dichlorobenzene; 1,3-dichlorobenzene; and 1,4-dichlorobenzene may be higher than reported in SDG SBN13 sample SG3a-SLUDGE18-03-180405, and the “not-detected” results have been flagged UJ on the data tables. A low response (< 50% of the associated CCV response) was observed for the internal standard used to quantitate these compounds in the analyses of these samples. (Validation Reason Code: IS)

- The MDL and LOQ for PFPeA in SDG SBN12 sample SG3a-WP26-F5.0 may be higher than reported, and the “not-detected” result has been flagged “UJ” on the data tables. A low recovery (< advisory limit of 70%) was observed for the pre-extraction internal standards used to quantitate these PFPeA in this sample. (Validation Reason Code: IS)

- The MDLs and LOQs for the compounds in the samples listed on the table below may be higher than reported, and the “not-detected” results have been flagged “UJ” on the data tables. In addition, the reported positive results listed in the table below should be considered estimated and have been flagged “J” on the data tables. High recoveries (> laboratory acceptance limits) were observed for the pre-extraction internal standards used to quantitate these compounds in these samples. (Validation Reason Code: IS)

Sample	SDG	Compound(s) With Estimated Positive Results ("J")	Compound With Estimated MDL and LOQ ("UJ")
SG3a-WP19-D, SG3a-WP20-D, SG3a-WP20-D5.5, and SG3a-WP21-D5.5	SBN12	PFHpA and PFHxA	PFHxS
SG3a-WP19-D5.5 and SG3a-WP23-F5.0	SBN12	PFHpA and PFHxA	-
SG3a-SLUDGE18-04-180405	SBN13	PFNA	-

- The MDLs and LOQs for 1,2,3-trichlorobenzene; 1,2,4-trichlorobenzene; methylcyclohexane; 2,3,4,6-tetrachlorophenol; and 2,4-dinitrophenol in SDG SBN13 sample SG3a-SLUDGE18-03-180405 may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. Low recoveries (< the laboratory lower acceptance limits) were observed for these compounds in the associated MS and/or MSD analyses. (Validation Reason Code: MAL)

- The reported positive results for acetone and methyl ethyl ketone (2-butanone) in SDG SBN13 sample SG3a-SLUDGE18-03-180405 should be considered estimated and have been flagged "J" on the data tables. High recoveries (> the laboratory upper acceptance limits) were observed for acetone and 2-butanone in the associated MS analysis. (Validation Reason Code: MAH)

- The reported positive result for PFOA in SDG SBN13 sample SG3a-SLUDGE18-03-180405 should be considered estimated and has been flagged "J" on the data tables. A large discrepancy (the RPD was > the laboratory acceptance limit) was observed for PFOA in the associated MS and MSD analyses. (Validation Reason Code: MP)

- The reported positive values for PFUnA in SDG SBN12 samples SG3a-WP19-D, SG3a-WP19-D5.5, SG3a-WP20-D, SG3a-WP23-F5.0, SG3a-WP24-F3.0, and SG3a-WP25-E should be considered estimated and have been flagged "J" on the data tables. A high recovery (> the laboratory upper acceptance limit) was observed for PFUnA in the associated LCS analysis (see Procedural Issue No. 3). (Validation Reason Code: LAH)

- The positive result for PFOS in SDG SBN12 sample SG3a-WP19-D should be considered estimated and has been flagged "J" on the data tables. The integration of the PFOS peaks included contribution from an unresolved chromatographic interference (Validation Reason Code: CI)

- The MDL and LOQ for PFOS in SDG SBN12 sample SG3a-WP19-D5.5 may be higher than reported, and the "not-detected" result has been flagged "UJ" on the data tables. Chromatographic interference, in the form of a series of unresolved peaks, was observed for the PFOS ion transition in the aforementioned sample at an intensity great than the MDL standard. (Validation Reason Code: CI)

- All positive results reported with concentrations between the laboratory's reported MDLs and LOQs were flagged "J" by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

B. Inorganic and Wet Chemistry Data Review

The inorganic and wet chemistry analyses of seven solid samples and one aqueous sample (including QC samples) collected as part of the 1030 Water Street, Village of North Bennington, Vermont project on April 5, 2018, were performed by ELLE. The samples were collectively analyzed for total metals by SW-846 Methods 6010C and 6020A, mercury by SW-846 Method 7470A and 7471B, total organic carbon (TOC) by SM 5310B and SM 5310C, pH by SW-846 Method 9045 and SM 4500 H+ B, and percent moisture by SM 2540G. Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data reviewed were presented in ASP Category A and Category B data deliverables.

The findings offered in this report for analyses that underwent a Limited QA review are based upon a review of tabulated QC summary forms including the following QC measures:

- Sample holding times
- Blank analysis results
- MS/MSD results
- Field duplicate precision
- Sample condition upon laboratory receipt
- LCS/LCSD results
- Laboratory duplicate precision

The findings offered in this report for analyses that underwent a Full QA review are based upon a rigorous review of all tabulated QC summary forms and all raw data, including the following QC measures:

- Sample and extract holding times
- Blank analysis results
- Second-source ICV recoveries
- LCS/LCSD results
- MS/MSD recoveries and precision
- Laboratory duplicate precision
- Quantitation of results
- Sample condition upon laboratory receipt
- Initial calibrations
- CCV recoveries
- Internal standard recoveries
- Analytical sequence
- Qualitative identification

The analytical results for the target compounds are presented on the data tables in Section 2 of this DUSR. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, and other documentation needed to support the findings in this DUSR in the Inorganic and Wet Chemistry Data Support Documentation (Section 6). The data reviewer has also manually edited the

laboratory-reported data and QC summary forms included in this section based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the analytical methods performed.

Reporting Issue

- Reporting issues were not identified during this QA review.

Procedural Issue

- The analysis for pH in sample SG3a-EB01-180405 was performed outside of the required 15-minute holding time (40 CFR Part 136, Table II). The result was qualified as addressed in the subsequent Inorganic and Wet Chemistry Data Qualifiers.

Data Evaluation

With respect to data usability, the principal areas of concern were blank contamination, exceeded holding time, out-of-specification MS and MSD recoveries, MS/MSD imprecision, laboratory duplicate imprecision, field duplicate imprecision, and reported positive results between the MDL and LOQ. Based on a review of the data provided, the following data qualifiers are offered. The following data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical method used for analysis. Accordingly, the following data usability issues should not be construed as an indication of laboratory performance.

Inorganic and Wet Chemistry Data Qualifiers

- Due to their presence in the associated initial calibration blanks, the reported positive results for antimony, beryllium, and thallium in SDG SBN13 sample SG3a-SLUDGE18-03-180405 should be considered “not-detected” and have been flagged “UB” on the data tables. In addition, the data reviewer has changed the results from the “Final Result” fields changed the “Final Detect Flag” to “N” and raised the “Final MDL” and/or “Final LOQ” field to the value of the original positive result, when appropriate, on the data tables. (Validation Reason Code: IB)

- The pH result in SDG SBN13 sample SG3a-EB01-180405 should be considered estimated and has been flagged “J” on the data tables. The sample was analyzed beyond the 15-minute holding time (refer to Procedural Issue). (Validation Reason Code: HCL)

- The reported positive results for barium in all SDG SBN13 solid samples should be considered estimated and have been flagged “J” on the data tables. A very low percent recovery (< 30%) was observed for barium in the associated MS analysis. (Validation Reason Code: MAL)

- The reported positive results for copper in all SDG SBN13 sludge samples should be considered estimated and have been flagged “J” on the data tables. A low percent recovery (< the lower laboratory acceptance limit) was observed for copper in the associated MS analysis. (Validation Reason Code: MAL)

- The reported positive results for potassium, zinc, arsenic, and lead all SDG SBN13 solid samples should be considered estimated and have been flagged “J” on the data tables. High percent recoveries (> the laboratory upper acceptance limits) were observed for these analytes in the associated MS/MSD analyses. (Validation Reason Code: MAH)

- The reported positive results for calcium, iron, magnesium, and barium all SDG SBN13 solid samples should be considered estimated and have been flagged “J” on the data tables. Large discrepancies (the RPDs were > the laboratory acceptance limits) were observed for these analytes in the associated MS/MSD analyses. (Validation Reason Code: MP)

- The reported positive results for aluminum, magnesium, barium, and TOC all SDG SBN13 solid samples should be considered estimated and have been flagged “J” on the data tables. Large discrepancies (the RPDs were < the laboratory acceptance limits when the results were > 5× the LOQs) were observed for these analytes in the laboratory duplicate analyses. (Validation Reason Code: LD).

- The reported positive results for percent moisture and calcium in samples SG3a-SLUDGE18-02-180405 and SG3a-FD01-180405 should be considered estimated and have been flagged “J” on the data tables. Large discrepancies (the RPDs were > 40% when the results were > 5× the LOQs) were observed for these analytes in the field duplicate analyses. (Validation Reason Code: FD).

- All positive results reported with concentrations between the laboratory’s reported MDLs and LOQs were flagged “J” by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

C. Conclusions

The analytical data are acceptable for use as reported by the laboratory with the following qualifications. Several organic results were qualified as “unusable” due to very low MS/MSD recoveries or severe chromatographic interference. In addition, several organic results were qualified as estimated due to chromatographic interference, calibration issues, low internal standard recoveries, out-of-specification pre-extraction internal standard recoveries, out-of-specification MS/MSD recoveries, MS/MSD imprecision, a high LCS recovery, and reported positive results between the MDL and LOQ. Several inorganic and wet chemistry results were qualified as “not-detected” due to blank contamination. In addition, several inorganic and wet chemistry results were qualified as estimated due to out-of-specification MS and MSD recoveries, MS/MSD imprecision, laboratory duplicate imprecision, field duplicate imprecision, and reported positive results between the MDL and LOQ. In order to use any of the data, the data user should understand the qualifications and limitations as specified in this DUSR. Organic Data Support Documentation is included in Section 5 of this report. Inorganic and Wet Chemistry Data Support Documentation is included in in Section 6 of this report, and the Laboratory Case Narratives and Project Chain-of-Custody Records are included in Section 7.

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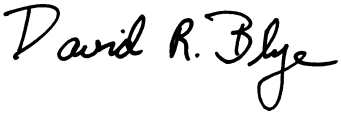

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SECTION 2

VALIDATED DATA SUMMARY TABLES

Validation Qualifier and Reason Code Definitions

Table 1. Validation Qualifiers and Definitions

Validation Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analyte has been “tentatively identified” or considered “presumptively” present.
UJ	The analyte was analyzed for, but was not detected. The reported MDL and limit of quantitation (LOQ) are approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
UB	The Analyte was not detected substantially above the level reported in the associated laboratory, equipment, field, or trip blank.

Table 2. Validation Reason Codes and Descriptions

Validation Reason Code	Description
CI	Chromatographic interference
CR	Calculated result in which one or more of the components has been qualified, potential bias indeterminate
CRH	Calculated result in which one or more of the components has been qualified, potential high bias
CRL	Calculated result in which one or more of the components has been qualified potential low bias
CV	Continuing calibration verification evaluation criteria not met, potential bias indeterminate
CVH	Continuing calibration verification evaluation criteria not met, potential high bias
CVL	Continuing calibration verification evaluation criteria not met, potential low bias
DC	Reporting limit exceeds decision criteria (for non-detects)
DL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the detection limit.
DT	Dissolved metals concentration exceeded total metals concentration in the sample above the acceptance criteria
DV	Missing Deliverables
EB	Equipment blank contamination
EC	Result exceeds the calibration range, potential bias indeterminate
ECH	Result exceeds the calibration range, potential high bias
ECL	Result exceeds the calibration range, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
EP	Estimated Maximum Possible Concentration (EMPC)
FB	Field blank contamination
FD	Field duplicate imprecision, potential bias indeterminate
FP	Potential false positives
FR	Field replicate imprecision, potential bias indeterminate
HA	Holding time - preparation to analysis, potential bias indeterminate
HAH	Holding time - preparation to analysis, potential high bias
HAL	Holding time - preparation to analysis, potential low bias
HC	Holding time - collection to analysis, potential bias indeterminate
HCH	Holding time - collection to analysis, potential high bias
HCL	Holding time - collection to analysis, potential low bias
HP	Holding time - collection to preparation, potential bias indeterminate
HPH	Holding time - collection to preparation, potential high bias
HPL	Holding time - collection to preparation, potential low bias
HV	Headspace present in volatile vials, potential bias indeterminate
HVL	Headspace present in volatile vials, potential low bias
IB	Instrument (including initial calibration or continuing calibration) blank contamination
IC	Initial calibration evaluation criteria not met, potential bias indeterminate
ICH	Initial calibration evaluation criteria not met, potential high bias
ICL	Initial calibration evaluation criteria not met, potential low bias
ID	Target compound identification criteria not met
IN	Elevated detection limit due to interference (i.e., laboratory, chemical, and/or matrix)
IR	Interference check standard recovery criteria not met, potential bias indeterminate
IRH	Interference check standard recovery criteria not met, potential high bias
IRL	Interference check standard recovery criteria not met, potential low bias
IS	Internal standard evaluation criteria not met, potential bias indeterminate
ISH	Internal standard evaluation criteria not met, potential high bias
ISL	Internal standard evaluation criteria not met, potential low bias
LA	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential bias indeterminate
LAH	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential high bias
LAL	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
LD	Laboratory duplicate precision criteria not met, potential bias indeterminate
LM	The PFK lock mass SICPs indicate that ion suppression evident
LP	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential bias indeterminate
LPH	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential high bias
LPL	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential low bias
LR	Linear range exceeded, potential bias indeterminate
MA	Matrix spike (MS &/or MSD) recovery criteria not met, potential bias indeterminate
MAH	Matrix spike (MS &/or MSD) recovery criteria not met, potential high bias
MAL	Matrix spike (MS &/or MSD) recovery criteria not met, potential low bias
MB	Method blank or preparation blank contamination
MP	Matrix spike (MS/MSD) or laboratory duplicate precision criteria not met, potential bias indeterminate
NB	Elevated detection limit or estimated result due to instrument drift (i.e., negative ICB or CCB result with an absolute value > 2× the MDL)
PD	Post-digestion spike recovery outside acceptance range, potential bias indeterminate
PDH	Post-digestion spike recovery outside acceptance range, potential high bias
PDL	Post-digestion spike recovery outside acceptance range, potential low bias
PJ	Professional judgment, potential bias indeterminate
PJH	Professional judgment, potential high bias
PJL	Professional judgment, potential low bias
PM	Performance evaluation mixture criteria not met, potential bias indeterminate
PMH	Performance evaluation mixture criteria not met, potential high bias
PML	Performance evaluation mixture criteria not met, potential low bias
PR	Peak(s) not adequately resolved, potential bias indeterminate
PRH	Peak(s) not adequately resolved, potential high bias
PRL	Peak(s) not adequately resolved, potential low bias
PS	Low percent solids could affect accuracy, potential bias indeterminate
PT	Chromatographic pattern in sample does not match pattern of calibration standard
RA	Reference material recovery criteria not met, potential bias indeterminate

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
RAH	Reference material recovery criteria not met, potential high bias
RAL	Reference material recovery criteria not met, potential low bias
RB	Rinsate blank contamination
RL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the quantitation or reporting limit, potential bias indeterminate
SA	Method of standard additions correction coefficient <0.995, potential bias indeterminate
SC	RPD Between two columns exceeds criteria, potential bias indeterminate
SD	Serial dilution results did not meet evaluation criteria, potential bias indeterminate
SDH	Serial dilution results did not meet evaluation criteria, potential high bias
SDL	Serial dilution results did not meet evaluation criteria, potential low bias
SP	Sample Preservation / Cooler Temperature, potential bias indeterminate
SPH	Sample Preservation / Cooler Temperature, potential high bias
SPL	Sample Preservation / Cooler Temperature, potential low bias
SR	Surrogate recovery outside acceptance range, potential bias indeterminate
SRH	Surrogate recovery outside acceptance range, potential high bias
SRL	Surrogate recovery outside acceptance range, potential low bias
SS	Second source evaluation criteria not met, potential bias indeterminate
SSH	Second source evaluation criteria not met, potential high bias
SSL	Second source evaluation criteria not met, potential low bias
ST	Compound not quantitated against an authentic standard, potential bias indeterminate
TB	Trip blank contamination
TD	Result for dissolved constituent significantly exceeded result for total constituent, potential bias indeterminate
TIC	Tentative identification, quantified using an assumed calibration factor, potential bias indeterminate.
TIR	Tentative identification and was observed in an associated laboratory, equipment, field, or trip blank.
TN	Instrument performance (tuning) criteria not met
YH	Due to a high y-intercept in the calibration curve, the sample result quantitated to a value greater than the MDL. Since the response ratio in the sample was less than the response ratio in the associated MDL standard, the reported result was changed to not-detected.

A. SDG SBN12

Sample ID	SG3a-WP19-D
Sample Date	3/30/2018 12:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536701
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP19-D
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	5.2	2.0	6.0	J	Y		5.2	6.0	UB	N	RL,EB	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	8.0	2.0	6.0		Y	8.0	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	4.7	2.0	6.0	J	Y	4.7	2.0	6.0	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	51	2.0	6.0		Y	51	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	26	2.0	6.0		Y	26	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	7.7	2.0	6.0		Y	7.7	2.0	6.0		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	9.9	3.0	9.0		Y	9.9	3.0	9.0	J	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	4000	20	60		Y	4000	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	5.1	2.0	6.0	J	Y	5.1	2.0	6.0	J	Y	RL	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	3.4	2.0	6.0	J	Y	3.4	2.0	6.0	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	2.8	2.0	6.0	J	Y	2.8	2.0	6.0	J	Y	RL,LAH	Yes

Sample ID	SG3a-WP19-D5.5
Sample Date	3/30/2018 12:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536702
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP19-D5.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	4.7	2.0	6.0	J	Y		4.7	6.0	UB	N	RL,EB	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	4.8	2.0	6.0	J	Y	4.8	2.0	6.0	J	Y	RL	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	3.6	2.0	6.0	J	Y	3.6	2.0	6.0	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	28	2.0	6.0		Y	28	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	13	2.0	6.0		Y	13	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	3.4	2.0	6.0	J	Y	3.4	2.0	6.0	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10		3.0	9.0	U	N		3.0	9.0	UJ	N	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	3400	20	60		Y	3400	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	2.8	2.0	6.0	J	Y	2.8	2.0	6.0	J	Y	RL	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	2.7	2.0	6.0	J	Y	2.7	2.0	6.0	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	2.4	2.0	6.0	J	Y	2.4	2.0	6.0	J	Y	RL,LAH	Yes

Sample ID	SG3a-WP20-D
Sample Date	3/30/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536703
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP20-D
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	19	2.0	6.0		Y	19	2.0	6.0		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	9.2	2.0	6.0		Y	9.2	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	4.4	2.0	6.0	J	Y	4.4	2.0	6.0	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	130	2.0	6.0		Y	130	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	90	2.0	6.0		Y	90	2.0	6.0	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	8.9	2.0	6.0		Y	8.9	2.0	6.0		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	4.6	3.0	9.0	J	Y	4.6	3.0	9.0	J	Y	RL	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	9200	20	60		Y	9200	20	60		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	18	2.0	6.0		Y	18	2.0	6.0		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	2.3	2.0	6.0	J	Y	2.3	2.0	6.0	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	3.7	2.0	6.0	J	Y	3.7	2.0	6.0	J	Y	RL,LAH	Yes

Sample ID	SG3a-WP20-D5.5
Sample Date	3/30/2018 12:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536704
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP20-D5.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	230	20	60		Y	230	20	60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	52	20	60	J	Y	52	20	60	J	Y	RL	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	1000	20	60		Y	1000	20	60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	750	20	60		Y	750	20	60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	68	20	60		Y	68	20	60		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	39000	200	600		Y	39000	200	600		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	180	20	60		Y	180	20	60		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100		20	60	U	N		20	60	U	N		Yes

Sample ID	SG3a-WP21-D5.5
Sample Date	3/30/2018 12:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536705
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP21-D5.5
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	100	100	20	60		Y	100	20	60		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	100	39	20	60	J	Y	39	20	60	J	Y	RL	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	100	550	20	60		Y	550	20	60	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	100		20	60	U	N		20	60	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	100	340	20	60		Y	340	20	60	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	100	47	20	60	J	Y	47	20	60	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	100		30	90	U	N		30	90	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	30000	200	600		Y	30000	200	600		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	100	66	20	60		Y	66	20	60		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	100		20	60	U	N		20	60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	100		20	60	U	N		20	60	U	N		Yes

Sample ID	SG3a-WP22-E
Sample Date	3/30/2018 1:15:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536706
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP22-E
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10		3.0	9.0	U	N		3.0	9.0	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	10	88	2.0	6.0		Y		88	88	UB	N	EB	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes

Sample ID	SG3a-WP23-F5.0
Sample Date	3/30/2018 1:20:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536707
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP23-F5.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	6.8	2.0	6.0		Y	6.8	2.0	6.0		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	4.5	2.0	6.0	J	Y	4.5	2.0	6.0	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	12	2.0	6.0		Y	12	2.0	6.0	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	2.5	2.0	6.0	J	Y	2.5	2.0	6.0	J	Y	RL,IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	3.0	2.0	6.0	J	Y	3.0	2.0	6.0	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	7.0	3.0	9.0	J	Y	7.0	3.0	9.0	JN	Y	RL,CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	10	1400	2.0	6.0		Y	1400	2.0	6.0		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	2.0	2.0	6.0	J	Y	2.0	2.0	6.0	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10		2.0	6.0	U	N		2.0	6.0	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	2.1	2.0	6.0	J	Y	2.1	2.0	6.0	J	Y	RL,LAH	Yes

Sample ID	SG3a-WP24-F3.0
Sample Date	3/30/2018 1:25:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536708
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP24-F3.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.34	0.20	0.60	J	Y		0.34	0.60	UB	N	RL,EB	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	0.67	0.20	0.60		Y	0.67	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	0.31	0.20	0.60	J	Y	0.31	0.20	0.60	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	1.6	0.20	0.60		Y		1.6	1.6	UB	N	EB	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	0.70	0.20	0.60		Y	0.70	0.20	0.60		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	0.29	0.20	0.60	J	Y	0.29	0.20	0.60	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	6.5	0.30	0.90		Y	6.5	0.30	0.90	R	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	110	0.20	0.60		Y		110	110	UB	N	EB	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	0.21	0.20	0.60	J	Y	0.21	0.20	0.60	J	Y	RL,LAH	Yes

Sample ID	SG3a-WP25-E
Sample Date	3/30/2018 1:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536709
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP25-E
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	1.2	0.20	0.60		Y		1.2	1.2	UB	N	EB	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	1.2	0.20	0.60		Y	1.2	0.20	0.60		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	0.82	0.20	0.60		Y	0.82	0.20	0.60		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	1.8	0.20	0.60		Y		1.8	1.8	UB	N	EB	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	2.9	0.20	0.60		Y	2.9	0.20	0.60		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	0.51	0.20	0.60	J	Y	0.51	0.20	0.60	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	7.0	0.30	0.90		Y	7.0	0.30	0.90	R	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	180	0.20	0.60		Y		180	180	UB	N	EB	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	1.9	0.20	0.60		Y	1.9	0.20	0.60		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	0.78	0.20	0.60		Y	0.78	0.20	0.60		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	0.40	0.20	0.60	J	Y	0.40	0.20	0.60	J	Y	RL	Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	0.38	0.20	0.60	J	Y	0.38	0.20	0.60	J	Y	RL,LAH	Yes

Sample ID	SG3a-WP26-F5.0
Sample Date	3/30/2018 1:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SW
Lab Sample ID	9536710
Analytical Method	E537M
Result Unit	ng/wipe
Fraction	T
Location/Depth	WP26-F5.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.32	0.20	0.60	J	Y		0.32	0.60	UB	N	EB	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	0.31	0.20	0.60	J	Y	0.31	0.20	0.60	J	Y	RL	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	0.23	0.20	0.60	J	Y	0.23	0.20	0.60	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	0.80	0.20	0.60		Y		0.80	0.80	UB	N	EB	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	0.42	0.20	0.60	J	Y	0.42	0.20	0.60	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	6.1	0.30	0.90		Y	6.1	0.30	0.90	R	Y	CI	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	56	0.20	0.60		Y		56	56	UB	N	EB	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.20	0.60	U	N		0.20	0.60	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	0.26	0.20	0.60	J	Y	0.26	0.20	0.60	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.20	0.60	U	N		0.20	0.60	U	N		Yes

B. SDG SBN13

Sample ID	SG3a-SLUDGE18-02-180405
Sample Date	4/5/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546280
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.19	0.57	U	N		0.19	0.57	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		0.19	0.57	U	N		0.19	0.57	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.19	0.57	U	N		0.19	0.57	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.19	0.57	U	N		0.19	0.57	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.19	0.57	U	N		0.19	0.57	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.19	0.57	U	N		0.19	0.57	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.19	0.57	U	N		0.19	0.57	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.19	0.57	U	N		0.19	0.57	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.29	0.86	U	N		0.29	0.86	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.43	0.19	0.57	J	Y	0.43	0.19	0.57	J	Y	RL	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.19	0.57	U	N		0.19	0.57	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.19	0.57	U	N		0.19	0.57	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.19	0.57	U	N		0.19	0.57	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.19	0.57	U	N		0.19	0.57	U	N		Yes

Sample ID	SG3a-SLUDGE18-03-180405
Sample Date	4/5/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546281
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SLUDGE18-03
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.20	0.61	U	N		0.20	0.61	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		0.20	0.61	U	N		0.20	0.61	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.20	0.61	U	N		0.20	0.61	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	0.49	0.20	0.61	J	Y	0.49	0.20	0.61	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.20	0.61	U	N		0.20	0.61	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.20	0.61	U	N		0.20	0.61	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.20	0.61	U	N		0.20	0.61	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.20	0.61	U	N		0.20	0.61	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.31	0.92	U	N		0.31	0.92	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	5.2	0.20	0.61		Y	5.2	0.20	0.61	J	Y	MP	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.20	0.61	U	N		0.20	0.61	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	0.55	0.20	0.61	J	Y	0.55	0.20	0.61	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	0.28	0.20	0.61	J	Y	0.28	0.20	0.61	J	Y	RL	Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.20	0.61	U	N		0.20	0.61	U	N		Yes

Sample ID	SG3a-SLUDGE18-04-180405
Sample Date	4/5/2018 1:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546285
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SLUDGE18-04
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.25	0.76	U	N		0.25	0.76	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	1.2	0.25	0.76		Y	1.2	0.25	0.76		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	6.0	0.25	0.76		Y	6.0	0.25	0.76		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	2.7	0.25	0.76		Y	2.7	0.25	0.76		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	8.8	0.25	0.76		Y	8.8	0.25	0.76		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.25	0.76	U	N		0.25	0.76	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	21	0.25	0.76		Y	21	0.25	0.76		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	4.5	0.25	0.76		Y	4.5	0.25	0.76	J	Y	IS	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	4.8	0.38	1.1		Y	4.8	0.38	1.1		Y		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	10	960	2.5	7.6		Y	960	2.5	7.6		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	6.5	0.25	0.76		Y	6.5	0.25	0.76		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	1.2	0.25	0.76		Y	1.2	0.25	0.76		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	0.72	0.25	0.76	J	Y	0.72	0.25	0.76	J	Y	RL	Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	1.6	0.25	0.76		Y	1.6	0.25	0.76		Y		Yes

Sample ID	SG3a-FD01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SLUDGE18-02-180405
Sample Matrix	SL
Lab Sample ID	9546286
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.16	0.49	U	N		0.16	0.49	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		0.16	0.49	U	N		0.16	0.49	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.16	0.49	U	N		0.16	0.49	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.16	0.49	U	N		0.16	0.49	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.16	0.49	U	N		0.16	0.49	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.16	0.49	U	N		0.16	0.49	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.16	0.49	U	N		0.16	0.49	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.16	0.49	U	N		0.16	0.49	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.24	0.73	U	N		0.24	0.73	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.49	0.16	0.49		Y	0.49	0.16	0.49		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.16	0.49	U	N		0.16	0.49	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.16	0.49	U	N		0.16	0.49	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.16	0.49	U	N		0.16	0.49	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.16	0.49	U	N		0.16	0.49	U	N		Yes

Sample ID	SG3a-EB01-180405
Sample Date	4/5/2018 2:00:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546287
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.29	0.96	U	N		0.29	0.96	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		1.9	5.7	U	N		1.9	5.7	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.96	1.9	U	N		0.96	1.9	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.29	0.96	U	N		0.29	0.96	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.29	0.96	U	N		0.29	0.96	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	4.4	0.29	0.96		Y	4.4	0.29	0.96		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		1.9	5.7	U	N		1.9	5.7	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.29	0.96	U	N		0.29	0.96	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.29	0.96	U	N		0.29	0.96	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes

Sample ID	SG3a-FTB01-180405
Sample Date	4/5/2018 2:10:00 PM
Sample Type	FB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546288
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.29	0.95	U	N		0.29	0.95	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		1.9	5.7	U	N		1.9	5.7	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.95	1.9	U	N		0.95	1.9	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.29	0.95	U	N		0.29	0.95	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.29	0.95	U	N		0.29	0.95	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.29	0.95	U	N		0.29	0.95	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		1.9	5.7	U	N		1.9	5.7	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.29	0.95	U	N		0.29	0.95	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.29	0.95	U	N		0.29	0.95	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes

Sample ID	SG3a-LTB01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546289
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		1.9	5.7	U	N		1.9	5.7	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.94	1.9	U	N		0.94	1.9	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		1.9	5.7	U	N		1.9	5.7	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes

Sample ID	SG3a-SLUDGE18-02-180405
Sample Date	4/5/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546280
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	5.1	0.50	0.50		Y	5.1	0.50	0.50	J	Y	FD	Yes

Sample ID	SG3a-SLUDGE18-03-180405
Sample Date	4/5/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546281
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SLUDGE18-03
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	14.2	0.50	0.50		Y	14.2	0.50	0.50		Y		Yes

Sample ID	SG3a-SLUDGE18-04-180405
Sample Date	4/5/2018 1:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546285
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SLUDGE18-04
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	24.4	0.50	0.50		Y	24.4	0.50	0.50		Y		Yes

Sample ID	SG3a-FD01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SLUDGE18-02-180405
Sample Matrix	SL
Lab Sample ID	9546286
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	2.3	0.50	0.50		Y	2.3	0.50	0.50	J	Y	FD	Yes

Sample ID	SG3a-EB01-180405
Sample Date	4/5/2018 2:00:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546287
Analytical Method	SM 2550 B
Result Unit	deg c
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Temperature	TEMP	T	1	22.8	0.010	0.010		Y	22.8	0.010	0.010		Y		Yes

Sample ID	SG3a-EB01-180405
Sample Date	4/5/2018 2:00:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546287
Analytical Method	SM 4500-H+B
Result Unit	ph units
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	6.6	0.010	0.010		Y	6.6	0.010	0.010	J	Y	HCL	Yes

Sample ID	SG3a-SLUDGE18-02-180405
Sample Date	4/5/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546280
Analytical Method	SM5310B
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	T	1	50200	1900	5710		Y	50200	1900	5710	J	Y	LD	Yes

Sample ID	SG3a-SLUDGE18-03-180405
Sample Date	4/5/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546281
Analytical Method	SM5310B
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-03
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	T	1	35600	1370	4110		Y	35600	1370	4110	J	Y	LD	Yes

Sample ID	SG3a-SLUDGE18-04-180405
Sample Date	4/5/2018 1:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546285
Analytical Method	SM5310B
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-04
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	T	1	19800	1000	3010		Y	19800	1000	3010	J	Y	LD	Yes

Sample ID	SG3a-FD01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SLUDGE18-02-180405
Sample Matrix	SL
Lab Sample ID	9546286
Analytical Method	SM5310B
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	T	1	65800	1560	4670		Y	65800	1560	4670	J	Y	LD	Yes

Sample ID	SG3a-EB01-180405
Sample Date	4/5/2018 2:00:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546287
Analytical Method	SM5310C
Result Unit	mg/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	T	1	0.64	0.50	1.0	J	Y	0.64	0.50	1.0	J	Y	RL	Yes

Sample ID	SG3a-SLUDGE18-02-180405
Sample Date	4/5/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546280
Analytical Method	SW6010C
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Aluminum	7429-90-5	T	1	3870	8.12	36.3		Y	3870	8.12	36.3	J	Y	LD	Yes
	Calcium	7440-70-2	T	5	65700	15.1	182		Y	65700	15.1	182	J	Y	MP,FD	Yes
	Iron	7439-89-6	T	1	8460	7.31	36.3		Y	8460	7.31	36.3	J	Y	MP	Yes
	Magnesium	7439-95-4	T	1	27400	2.21	18.2		Y	27400	2.21	18.2	J	Y	MP,LD	Yes
	Manganese	7439-96-5	T	1	149	0.0754	0.908		Y	149	0.0754	0.908		Y		Yes
	Potassium	7440-09-7	T	1	459	15.2	90.8		Y	459	15.2	90.8	J	Y	MAH	Yes
	Sodium	7440-23-5	T	1	44.4	15.2	182	J	Y	44.4	15.2	182	J	Y	RL	Yes
	Zinc	7440-66-6	T	1	22.9	0.218	3.63		Y	22.9	0.218	3.63	J	Y	MAH	Yes

Sample ID	SG3a-SLUDGE18-03-180405
Sample Date	4/5/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546281
Analytical Method	SW6010C
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-03
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Aluminum	7429-90-5	T	1	1400	8.47	37.9		Y	1400	8.47	37.9	J	Y	LD	Yes
	Calcium	7440-70-2	T	5	154000	15.8	190		Y	154000	15.8	190	J	Y	MP	Yes
	Iron	7439-89-6	T	1	7200	7.63	37.9		Y	7200	7.63	37.9	J	Y	MP	Yes
	Magnesium	7439-95-4	T	5	55600	11.5	94.8		Y	55600	11.5	94.8	J	Y	MP,LD	Yes
	Manganese	7439-96-5	T	1	234	0.0786	0.948		Y	234	0.0786	0.948		Y		Yes
	Potassium	7440-09-7	T	1	449	15.8	94.8		Y	449	15.8	94.8	J	Y	MAH	Yes
	Sodium	7440-23-5	T	1	64.1	15.8	190	J	Y	64.1	15.8	190	J	Y	RL	Yes
	Zinc	7440-66-6	T	1	68.9	0.227	3.79		Y	68.9	0.227	3.79	J	Y	MAH	Yes

Sample ID	SG3a-SLUDGE18-04-180405
Sample Date	4/5/2018 1:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546285
Analytical Method	SW6010C
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-04
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Aluminum	7429-90-5	T	1	8140	10.1	45.2		Y	8140	10.1	45.2	J	Y	LD	Yes
	Calcium	7440-70-2	T	1	31900	3.76	45.2		Y	31900	3.76	45.2	J	Y	MP	Yes
	Iron	7439-89-6	T	5	43600	45.5	226		Y	43600	45.5	226	J	Y	MP	Yes
	Magnesium	7439-95-4	T	1	9730	2.75	22.6		Y	9730	2.75	22.6	J	Y	MP,LD	Yes
	Manganese	7439-96-5	T	1	1960	0.0938	1.13		Y	1960	0.0938	1.13		Y		Yes
	Potassium	7440-09-7	T	1	979	18.9	113		Y	979	18.9	113	J	Y	MAH	Yes
	Sodium	7440-23-5	T	1	173	18.9	226	J	Y	173	18.9	226	J	Y	RL	Yes
	Zinc	7440-66-6	T	1	1030	0.271	4.52		Y	1030	0.271	4.52	J	Y	MAH	Yes

Sample ID	SG3a-FD01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SLUDGE18-02-180405
Sample Matrix	SL
Lab Sample ID	9546286
Analytical Method	SW6010C
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Aluminum	7429-90-5	T	1	2890	8.80	39.4		Y	2890	8.80	39.4	J	Y	LD	Yes
	Calcium	7440-70-2	T	5	142000	16.4	197		Y	142000	16.4	197	J	Y	MP,FD	Yes
	Iron	7439-89-6	T	1	6960	7.92	39.4		Y	6960	7.92	39.4	J	Y	MP	Yes
	Magnesium	7439-95-4	T	1	41000	2.39	19.7		Y	41000	2.39	19.7	J	Y	MP,LD	Yes
	Manganese	7439-96-5	T	1	155	0.0817	0.984		Y	155	0.0817	0.984		Y		Yes
	Potassium	7440-09-7	T	1	552	16.4	98.4		Y	552	16.4	98.4	J	Y	MAH	Yes
	Sodium	7440-23-5	T	1	46.3	16.4	197	J	Y	46.3	16.4	197	J	Y	RL	Yes
	Zinc	7440-66-6	T	1	28.3	0.236	3.94		Y	28.3	0.236	3.94	J	Y	MAH	Yes

Sample ID	SG3a-EB01-180405
Sample Date	4/5/2018 2:00:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546287
Analytical Method	SW6010C
Result Unit	mg/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Aluminum	7429-90-5	T	1		0.0894	0.400	U	N		0.0894	0.400	U	N		Yes
	Calcium	7440-70-2	T	1		0.0600	0.400	U	N		0.0600	0.400	U	N		Yes
	Iron	7439-89-6	T	1		0.0805	0.400	U	N		0.0805	0.400	U	N		Yes
	Magnesium	7439-95-4	T	1		0.0374	0.200	U	N		0.0374	0.200	U	N		Yes
	Manganese	7439-96-5	T	1		0.0016	0.0100	U	N		0.0016	0.0100	U	N		Yes
	Potassium	7440-09-7	T	1		0.179	1.00	U	N		0.179	1.00	U	N		Yes
	Sodium	7440-23-5	T	1		0.321	2.00	U	N		0.321	2.00	U	N		Yes
	Zinc	7440-66-6	T	1		0.0065	0.0400	U	N		0.0065	0.0400	U	N		Yes

Sample ID	SG3a-SLUDGE18-02-180405
Sample Date	4/5/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546280
Analytical Method	SW6020A
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Antimony	7440-36-0	T	2		0.0847	0.363	U	N		0.0847	0.363	U	N		Yes
	Arsenic	7440-38-2	T	2	1.28	0.116	0.727		Y	1.28	0.116	0.727	J	Y	MAH	Yes
	Barium	7440-39-3	T	2	7.50	0.165	0.727		Y	7.50	0.165	0.727	J	Y	MAL,MP,LD	Yes
	Beryllium	7440-41-7	T	2	0.0931	0.0095	0.182	J	Y	0.0931	0.0095	0.182	J	Y	RL	Yes
	Cadmium	7440-43-9	T	2	0.0692	0.0312	0.182	J	Y	0.0692	0.0312	0.182	J	Y	RL	Yes
	Chromium, Total	7440-47-3	T	2	4.30	0.158	0.727		Y	4.30	0.158	0.727		Y		Yes
	Cobalt	7440-48-4	T	2	2.33	0.0283	0.182		Y	2.33	0.0283	0.182		Y		Yes
	Copper	7440-50-8	T	2	4.82	0.0974	0.727		Y	4.82	0.0974	0.727	J	Y	MAL	Yes
	Lead	7439-92-1	T	2	3.76	0.0202	0.363		Y	3.76	0.0202	0.363	J	Y	MAH	Yes
	Nickel	7440-02-0	T	2	5.65	0.181	0.727		Y	5.65	0.181	0.727		Y		Yes
	Selenium	7782-49-2	T	2		0.0908	0.727	U	N		0.0908	0.727	U	N		Yes
	Silver	7440-22-4	T	2		0.0265	0.182	U	N		0.0265	0.182	U	N		Yes
	Thallium	7440-28-0	T	2		0.0227	0.182	U	N		0.0227	0.182	U	N		Yes
	Vanadium	7440-62-2	T	2	4.77	0.0387	0.182		Y	4.77	0.0387	0.182		Y		Yes

Sample ID	SG3a-SLUDGE18-03-180405
Sample Date	4/5/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546281
Analytical Method	SW6020A
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-03
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Antimony	7440-36-0	T	2	0.158	0.0883	0.379	J	Y		0.158	0.379	UB	N	RL,IB	Yes
	Arsenic	7440-38-2	T	2	3.28	0.121	0.758		Y	3.28	0.121	0.758	J	Y	MAH	Yes
	Barium	7440-39-3	T	2	21.3	0.172	0.758		Y	21.3	0.172	0.758	J	Y	MAL,MP,LD	Yes
	Beryllium	7440-41-7	T	2	0.109	0.0099	0.190	J	Y		0.109	0.190	UB	N	RL,IB	Yes
	Cadmium	7440-43-9	T	2	0.232	0.0326	0.190		Y	0.232	0.0326	0.190		Y		Yes
	Chromium, Total	7440-47-3	T	2	6.30	0.165	0.758		Y	6.30	0.165	0.758		Y		Yes
	Cobalt	7440-48-4	T	2	4.58	0.0296	0.190		Y	4.58	0.0296	0.190		Y		Yes
	Copper	7440-50-8	T	2	9.53	0.102	0.758		Y	9.53	0.102	0.758	J	Y	MAL	Yes
	Lead	7439-92-1	T	2	12.2	0.0210	0.379		Y	12.2	0.0210	0.379	J	Y	MAH	Yes
	Nickel	7440-02-0	T	2	6.36	0.189	0.758		Y	6.36	0.189	0.758		Y		Yes
	Selenium	7782-49-2	T	2		0.0948	0.758	U	N		0.0948	0.758	U	N		Yes
	Silver	7440-22-4	T	2	0.0628	0.0277	0.190	J	Y	0.0628	0.0277	0.190	J	Y	RL	Yes
	Thallium	7440-28-0	T	2	0.0352	0.0237	0.190	J	Y		0.0352	0.190	UB	N	RL,IB	Yes
	Vanadium	7440-62-2	T	2	5.79	0.0404	0.190		Y	5.79	0.0404	0.190		Y		Yes

Sample ID	SG3a-SLUDGE18-04-180405
Sample Date	4/5/2018 1:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546285
Analytical Method	SW6020A
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-04
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Antimony	7440-36-0	T	2	0.615	0.105	0.452		Y	0.615	0.105	0.452		Y		Yes
	Arsenic	7440-38-2	T	2	9.08	0.145	0.904		Y	9.08	0.145	0.904	J	Y	MAH	Yes
	Barium	7440-39-3	T	2	173	0.205	0.904		Y	173	0.205	0.904	J	Y	MAL,MP,LD	Yes
	Beryllium	7440-41-7	T	2	0.785	0.0118	0.226		Y	0.785	0.0118	0.226		Y		Yes
	Cadmium	7440-43-9	T	2	2.67	0.0389	0.226		Y	2.67	0.0389	0.226		Y		Yes
	Chromium, Total	7440-47-3	T	2	117	0.197	0.904		Y	117	0.197	0.904		Y		Yes
	Cobalt	7440-48-4	T	2	62.0	0.0353	0.226		Y	62.0	0.0353	0.226		Y		Yes
	Copper	7440-50-8	T	2	212	0.121	0.904		Y	212	0.121	0.904	J	Y	MAL	Yes
	Lead	7439-92-1	T	2	83.3	0.0251	0.452		Y	83.3	0.0251	0.452	J	Y	MAH	Yes
	Nickel	7440-02-0	T	2	114	0.225	0.904		Y	114	0.225	0.904		Y		Yes
	Selenium	7782-49-2	T	2	0.754	0.113	0.904	J	Y	0.754	0.113	0.904	J	Y	RL	Yes
	Silver	7440-22-4	T	2	6.29	0.0330	0.226		Y	6.29	0.0330	0.226		Y		Yes
	Thallium	7440-28-0	T	2	0.133	0.0283	0.226	J	Y	0.133	0.0283	0.226	J	Y	RL	Yes
	Vanadium	7440-62-2	T	2	21.6	0.0482	0.226		Y	21.6	0.0482	0.226		Y		Yes

Sample ID	SG3a-FD01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SLUDGE18-02-180405
Sample Matrix	SL
Lab Sample ID	9546286
Analytical Method	SW6020A
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Antimony	7440-36-0	T	2		0.0917	0.394	U	N		0.0917	0.394	U	N		Yes
	Arsenic	7440-38-2	T	2	1.99	0.126	0.787		Y	1.99	0.126	0.787	J	Y	MAH	Yes
	Barium	7440-39-3	T	2	9.98	0.179	0.787		Y	9.98	0.179	0.787	J	Y	MAL,MP,LD	Yes
	Beryllium	7440-41-7	T	2	0.100	0.0103	0.197	J	Y	0.100	0.0103	0.197	J	Y	RL	Yes
	Cadmium	7440-43-9	T	2	0.0967	0.0339	0.197	J	Y	0.0967	0.0339	0.197	J	Y	RL	Yes
	Chromium, Total	7440-47-3	T	2	3.66	0.171	0.787		Y	3.66	0.171	0.787		Y		Yes
	Cobalt	7440-48-4	T	2	2.82	0.0307	0.197		Y	2.82	0.0307	0.197		Y		Yes
	Copper	7440-50-8	T	2	3.89	0.106	0.787		Y	3.89	0.106	0.787	J	Y	MAL	Yes
	Lead	7439-92-1	T	2	4.64	0.0218	0.394		Y	4.64	0.0218	0.394	J	Y	MAH	Yes
	Nickel	7440-02-0	T	2	4.70	0.196	0.787		Y	4.70	0.196	0.787		Y		Yes
	Selenium	7782-49-2	T	2		0.0984	0.787	U	N		0.0984	0.787	U	N		Yes
	Silver	7440-22-4	T	2		0.0287	0.197	U	N		0.0287	0.197	U	N		Yes
	Thallium	7440-28-0	T	2		0.0246	0.197	U	N		0.0246	0.197	U	N		Yes
	Vanadium	7440-62-2	T	2	5.91	0.0419	0.197		Y	5.91	0.0419	0.197		Y		Yes

Sample ID	SG3a-EB01-180405
Sample Date	4/5/2018 2:00:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546287
Analytical Method	SW6020A
Result Unit	mg/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Antimony	7440-36-0	T	1		0.00045	0.0020	U	N		0.00045	0.0020	U	N		Yes
	Arsenic	7440-38-2	T	1		0.00072	0.0040	U	N		0.00072	0.0040	U	N		Yes
	Barium	7440-39-3	T	1		0.00072	0.0040	U	N		0.00072	0.0040	U	N		Yes
	Beryllium	7440-41-7	T	1		0.000071	0.0010	U	N		0.000071	0.0010	U	N		Yes
	Cadmium	7440-43-9	T	1		0.00015	0.0010	U	N		0.00015	0.0010	U	N		Yes
	Chromium, Total	7440-47-3	T	1		0.00087	0.0040	U	N		0.00087	0.0040	U	N		Yes
	Cobalt	7440-48-4	T	1		0.00016	0.0010	U	N		0.00016	0.0010	U	N		Yes
	Copper	7440-50-8	T	1	0.00096	0.00054	0.0040	J	Y	0.00096	0.00054	0.0040	J	Y	RL	Yes
	Lead	7439-92-1	T	1		0.00011	0.0020	U	N		0.00011	0.0020	U	N		Yes
	Nickel	7440-02-0	T	1		0.0010	0.0040	U	N		0.0010	0.0040	U	N		Yes
	Selenium	7782-49-2	T	1		0.00050	0.0040	U	N		0.00050	0.0040	U	N		Yes
	Silver	7440-22-4	T	1		0.00015	0.0010	U	N		0.00015	0.0010	U	N		Yes
	Thallium	7440-28-0	T	1		0.00012	0.0010	U	N		0.00012	0.0010	U	N		Yes
	Vanadium	7440-62-2	T	1		0.00021	0.0010	U	N		0.00021	0.0010	U	N		Yes

Sample ID	SG3a-EB01-180405
Sample Date	4/5/2018 2:00:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546287
Analytical Method	SW7470A
Result Unit	mg/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	1		0.000050	0.00020	U	N		0.000050	0.00020	U	N		Yes

Sample ID	SG3a-SLUDGE18-02-180405
Sample Date	4/5/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546280
Analytical Method	SW7471B
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	1		0.0104	0.104	U	N		0.0104	0.104	U	N		Yes

Sample ID	SG3a-SLUDGE18-03-180405
Sample Date	4/5/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546281
Analytical Method	SW7471B
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-03
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	1		0.0113	0.113	U	N		0.0113	0.113	U	N		Yes

Sample ID	SG3a-SLUDGE18-04-180405
Sample Date	4/5/2018 1:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546285
Analytical Method	SW7471B
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-04
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	1	0.191	0.0124	0.124		Y	0.191	0.0124	0.124		Y		Yes

Sample ID	SG3a-FD01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SLUDGE18-02-180405
Sample Matrix	SL
Lab Sample ID	9546286
Analytical Method	SW7471B
Result Unit	mg/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	1		0.0099	0.0991	U	N		0.0099	0.0991	U	N		Yes

Sample ID	SG3a-SLUDGE18-02-180405
Sample Date	4/5/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546280
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	0.98		1	5	U	N		1	5	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	0.98		1	5	U	N		1	5	U	N		Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	0.98		2	10	U	N		2	10	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	0.98		1	5	U	N		1	5	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	0.98		1	5	U	N		1	5	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	0.98		1	5	U	N		1	5	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	0.98		1	5	U	N		1	5	U	N		Yes
	1,2,4-Trichlorobenzene	120-82-1	T	0.98		1	5	U	N		1	5	U	N		Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	0.98		2	5	U	N		2	5	U	N		Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	0.98		1	5	U	N		1	5	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	0.98		1	5	U	N		1	5	U	N		Yes
	1,2-Dichloroethane	107-06-2	T	0.98		1	5	U	N		1	5	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	0.98		1	5	U	N		1	5	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	0.98		1	5	U	N		1	5	U	N		Yes
	1,4-Dichlorobenzene	106-46-7	T	0.98		1	5	U	N		1	5	U	N		Yes
	2-Hexanone	591-78-6	T	0.98		3	10	U	N		3	10	U	N		Yes
	Acetone	67-64-1	T	0.98	22	7	21		Y	22	7	21		Y		Yes
	Benzene	71-43-2	T	0.98		0.5	5	U	N		0.5	5	U	N		Yes
	Bromochloromethane	74-97-5	T	0.98		1	5	U	N		1	5	U	N		Yes
	Bromodichloromethane	75-27-4	T	0.98		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-SLUDGE18-02-180405
Sample Date	4/5/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546280
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	0.98		1	5	U	N		1	5	U	N		Yes
	Bromomethane	74-83-9	T	0.98		2	5	U	N		2	5	U	N		Yes
	Carbon Disulfide	75-15-0	T	0.98		1	5	U	N		1	5	U	N		Yes
	Carbon Tetrachloride	56-23-5	T	0.98		1	5	U	N		1	5	U	N		Yes
	Chlorobenzene	108-90-7	T	0.98		1	5	U	N		1	5	U	N		Yes
	Chloroethane	75-00-3	T	0.98		2	5	U	N		2	5	U	N		Yes
	Chloroform	67-66-3	T	0.98		1	5	U	N		1	5	U	N		Yes
	Chloromethane	74-87-3	T	0.98		2	5	U	N		2	5	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	0.98		1	5	U	N		1	5	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	0.98		1	5	U	N		1	5	U	N		Yes
	Cyclohexane	110-82-7	T	0.98		1	5	U	N		1	5	U	N		Yes
	Dibromochloromethane	124-48-1	T	0.98		1	5	U	N		1	5	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	0.98		2	5	U	N		2	5	U	N		Yes
	Ethylbenzene	100-41-4	T	0.98		1	5	U	N		1	5	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	0.98		1	5	U	N		1	5	U	N		Yes
	m,p-Xylene	179601-23-1	T	0.98		1	5	U	N		1	5	U	N		Yes
	Methyl Acetate	79-20-9	T	0.98		2	5	U	N		2	5	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	0.98		4	10	U	N		4	10	U	N		Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	0.98		3	10	U	N		3	10	U	N		Yes
	Methylcyclohexane	108-87-2	T	0.98		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-SLUDGE18-02-180405
Sample Date	4/5/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546280
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	0.98		2	5	U	N		2	5	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	0.98		1	5	U	N		1	5	U	N		Yes
	Styrene	100-42-5	T	0.98		1	5	U	N		1	5	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	0.98		0.5	5	U	N		0.5	5	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	0.98		1	5	U	N		1	5	U	N		Yes
	Toluene	108-88-3	T	0.98		1	5	U	N		1	5	U	N		Yes
	Trans-1,2-Dichloroethene	156-60-5	T	0.98		1	5	U	N		1	5	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	0.98		1	5	U	N		1	5	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	0.98		1	5	U	N		1	5	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	0.98		2	5	U	N		2	5	U	N		Yes
	Vinyl Chloride	75-01-4	T	0.98		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-SLUDGE18-03-180405
Sample Date	4/5/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546281
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-03
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	0.79		0.9	5	U	N		0.9	5	UJ	N	IS	Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	0.79		2	9	U	N		2	9	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	0.79		0.9	5	U	N		0.9	5	UJ	N	IS,MAL	Yes
	1,2,4-Trichlorobenzene	120-82-1	T	0.79		0.9	5	U	N		0.9	5	UJ	N	IS,MAL	Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	0.79		2	5	U	N		2	5	UJ	N	IS	Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	0.79		0.9	5	U	N		0.9	5	UJ	N	IS	Yes
	1,2-Dichloroethane	107-06-2	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	0.79		0.9	5	U	N		0.9	5	UJ	N	IS	Yes
	1,4-Dichlorobenzene	106-46-7	T	0.79		0.9	5	U	N		0.9	5	UJ	N	IS	Yes
	2-Hexanone	591-78-6	T	0.79		3	9	U	N		3	9	U	N		Yes
	Acetone	67-64-1	T	0.79	92	6	19		Y	92	6	19	J	Y	MAH,CVH	Yes
	Benzene	71-43-2	T	0.79		0.5	5	U	N		0.5	5	U	N		Yes
	Bromochloromethane	74-97-5	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Bromodichloromethane	75-27-4	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes

Sample ID	SG3a-SLUDGE18-03-180405
Sample Date	4/5/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546281
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-03
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Bromomethane	74-83-9	T	0.79		2	5	U	N		2	5	U	N		Yes
	Carbon Disulfide	75-15-0	T	0.79	1	0.9	5	J	Y	1	0.9	5	J	Y	RL,CVH	Yes
	Carbon Tetrachloride	56-23-5	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Chlorobenzene	108-90-7	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Chloroethane	75-00-3	T	0.79		2	5	U	N		2	5	U	N		Yes
	Chloroform	67-66-3	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Chloromethane	74-87-3	T	0.79		2	5	U	N		2	5	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Cyclohexane	110-82-7	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Dibromochloromethane	124-48-1	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	0.79		2	5	U	N		2	5	U	N		Yes
	Ethylbenzene	100-41-4	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	m,p-Xylene	179601-23-1	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Methyl Acetate	79-20-9	T	0.79		2	5	U	N		2	5	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	0.79	12	4	9		Y	12	4	9	J	Y	MAH,CVH	Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	0.79		3	9	U	N		3	9	U	N		Yes
	Methylcyclohexane	108-87-2	T	0.79		0.9	5	U	N		0.9	5	UJ	N	MAL	Yes

Sample ID	SG3a-SLUDGE18-03-180405
Sample Date	4/5/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546281
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-03
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	0.79		2	5	U	N		2	5	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Styrene	100-42-5	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	0.79		0.5	5	U	N		0.5	5	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Toluene	108-88-3	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Trans-1,2-Dichloroethene	156-60-5	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	0.79		2	5	U	N		2	5	U	N		Yes
	Vinyl Chloride	75-01-4	T	0.79		0.9	5	U	N		0.9	5	U	N		Yes

Sample ID	SG3a-SLUDGE18-04-180405
Sample Date	4/5/2018 1:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546285
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-04
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	40.26		53	270	U	N		53	270	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	40.26		53	270	U	N		53	270	U	N		Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	40.26		110	530	U	N		110	530	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	40.26		53	270	U	N		53	270	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	40.26		53	270	U	N		53	270	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	40.26		53	270	U	N		53	270	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	40.26		53	270	U	N		53	270	U	N		Yes
	1,2,4-Trichlorobenzene	120-82-1	T	40.26		53	270	U	N		53	270	U	N		Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	40.26		110	270	U	N		110	270	U	N		Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	40.26		53	270	U	N		53	270	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	40.26		53	270	U	N		53	270	U	N		Yes
	1,2-Dichloroethane	107-06-2	T	40.26		53	270	U	N		53	270	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	40.26		53	270	U	N		53	270	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	40.26		53	270	U	N		53	270	U	N		Yes
	1,4-Dichlorobenzene	106-46-7	T	40.26		53	270	U	N		53	270	U	N		Yes
	2-Hexanone	591-78-6	T	40.26		160	530	U	N		160	530	U	N		Yes
	Acetone	67-64-1	T	40.26		370	1100	U	N		370	1100	U	N		Yes
	Benzene	71-43-2	T	40.26		27	270	U	N		27	270	U	N		Yes
	Bromochloromethane	74-97-5	T	40.26		53	270	U	N		53	270	U	N		Yes
	Bromodichloromethane	75-27-4	T	40.26		53	270	U	N		53	270	U	N		Yes

Sample ID	SG3a-SLUDGE18-04-180405
Sample Date	4/5/2018 1:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546285
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-04
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	40.26		53	270	U	N		53	270	U	N		Yes
	Bromomethane	74-83-9	T	40.26		110	270	U	N		110	270	U	N		Yes
	Carbon Disulfide	75-15-0	T	40.26		53	270	U	N		53	270	U	N		Yes
	Carbon Tetrachloride	56-23-5	T	40.26		53	270	U	N		53	270	U	N		Yes
	Chlorobenzene	108-90-7	T	40.26		53	270	U	N		53	270	U	N		Yes
	Chloroethane	75-00-3	T	40.26		110	270	U	N		110	270	U	N		Yes
	Chloroform	67-66-3	T	40.26		53	270	U	N		53	270	U	N		Yes
	Chloromethane	74-87-3	T	40.26		110	270	U	N		110	270	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	40.26		53	270	U	N		53	270	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	40.26		53	270	U	N		53	270	U	N		Yes
	Cyclohexane	110-82-7	T	40.26		53	270	U	N		53	270	U	N		Yes
	Dibromochloromethane	124-48-1	T	40.26		53	270	U	N		53	270	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	40.26		110	270	U	N		110	270	U	N		Yes
	Ethylbenzene	100-41-4	T	40.26	58	53	270	J	Y	58	53	270	J	Y	RL	Yes
	Isopropylbenzene (Cumene)	98-82-8	T	40.26		53	270	U	N		53	270	U	N		Yes
	m,p-Xylene	179601-23-1	T	40.26	250	53	270	J	Y	250	53	270	J	Y	RL	Yes
	Methyl Acetate	79-20-9	T	40.26	170	110	270	J	Y	170	110	270	J	Y	RL	Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	40.26		210	530	U	N		210	530	U	N		Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	40.26		160	530	U	N		160	530	U	N		Yes
	Methylcyclohexane	108-87-2	T	40.26	340	53	270		Y	340	53	270		Y		Yes

Sample ID	SG3a-SLUDGE18-04-180405
Sample Date	4/5/2018 1:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546285
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-04
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	40.26		110	270	U	N		110	270	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	40.26	62	53	270	J	Y	62	53	270	J	Y	RL	Yes
	Styrene	100-42-5	T	40.26		53	270	U	N		53	270	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	40.26		27	270	U	N		27	270	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	40.26		53	270	U	N		53	270	U	N		Yes
	Toluene	108-88-3	T	40.26	970	53	270		Y	970	53	270		Y		Yes
	Trans-1,2-Dichloroethene	156-60-5	T	40.26		53	270	U	N		53	270	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	40.26		53	270	U	N		53	270	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	40.26		53	270	U	N		53	270	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	40.26		110	270	U	N		110	270	U	N		Yes
	Vinyl Chloride	75-01-4	T	40.26		53	270	U	N		53	270	U	N		Yes

Sample ID	SG3a-FD01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SLUDGE18-02-180405
Sample Matrix	SL
Lab Sample ID	9546286
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	0.83		2	9	U	N		2	9	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	1,2,4-Trichlorobenzene	120-82-1	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	0.83		2	4	U	N		2	4	U	N		Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dichloroethane	107-06-2	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	1,4-Dichlorobenzene	106-46-7	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	2-Hexanone	591-78-6	T	0.83		3	9	U	N		3	9	U	N		Yes
	Acetone	67-64-1	T	0.83	29	6	17		Y	29	6	17		Y		Yes
	Benzene	71-43-2	T	0.83		0.4	4	U	N		0.4	4	U	N		Yes
	Bromochloromethane	74-97-5	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Bromodichloromethane	75-27-4	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes

Sample ID	SG3a-FD01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SLUDGE18-02-180405
Sample Matrix	SL
Lab Sample ID	9546286
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Bromomethane	74-83-9	T	0.83		2	4	U	N		2	4	U	N		Yes
	Carbon Disulfide	75-15-0	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Carbon Tetrachloride	56-23-5	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Chlorobenzene	108-90-7	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Chloroethane	75-00-3	T	0.83		2	4	U	N		2	4	U	N		Yes
	Chloroform	67-66-3	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Chloromethane	74-87-3	T	0.83		2	4	U	N		2	4	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Cyclohexane	110-82-7	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Dibromochloromethane	124-48-1	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	0.83		2	4	U	N		2	4	U	N		Yes
	Ethylbenzene	100-41-4	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	m,p-Xylene	179601-23-1	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Methyl Acetate	79-20-9	T	0.83		2	4	U	N		2	4	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	0.83	4	3	9	J	Y	4	3	9	J	Y	RL	Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	0.83		3	9	U	N		3	9	U	N		Yes
	Methylcyclohexane	108-87-2	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes

Sample ID	SG3a-FD01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SLUDGE18-02-180405
Sample Matrix	SL
Lab Sample ID	9546286
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	0.83		2	4	U	N		2	4	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Styrene	100-42-5	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	0.83		0.4	4	U	N		0.4	4	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Toluene	108-88-3	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Trans-1,2-Dichloroethene	156-60-5	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	0.83		2	4	U	N		2	4	U	N		Yes
	Vinyl Chloride	75-01-4	T	0.83		0.9	4	U	N		0.9	4	U	N		Yes

Sample ID	SG3a-EB01-180405
Sample Date	4/5/2018 2:00:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546287
Analytical Method	SW8260C
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	1		2	10	U	N		2	10	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	1		1	5	U	N		1	5	U	N		Yes
	1,2,4-Trichlorobenzene	120-82-1	T	1		1	5	U	N		1	5	U	N		Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	1		2	5	U	N		2	5	U	N		Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	1		1	5	U	N		1	5	U	N		Yes
	1,2-Dichloroethane	107-06-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	1		1	5	U	N		1	5	U	N		Yes
	1,4-Dichlorobenzene	106-46-7	T	1		1	5	U	N		1	5	U	N		Yes
	2-Hexanone	591-78-6	T	1		3	10	U	N		3	10	U	N		Yes
	Acetone	67-64-1	T	1		6	20	U	N		6	20	U	N		Yes
	Benzene	71-43-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Bromochloromethane	74-97-5	T	1		1	5	U	N		1	5	U	N		Yes
	Bromodichloromethane	75-27-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes

Sample ID	SG3a-EB01-180405
Sample Date	4/5/2018 2:00:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546287
Analytical Method	SW8260C
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	1		0.5	4	U	N		0.5	4	U	N		Yes
	Bromomethane	74-83-9	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Carbon Disulfide	75-15-0	T	1		1	5	U	N		1	5	U	N		Yes
	Carbon Tetrachloride	56-23-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chlorobenzene	108-90-7	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chloroethane	75-00-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chloroform	67-66-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chloromethane	74-87-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Cyclohexane	110-82-7	T	1		2	5	U	N		2	5	U	N		Yes
	Dibromochloromethane	124-48-1	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Ethylbenzene	100-41-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	1		1	5	U	N		1	5	U	N		Yes
	m,p-Xylene	179601-23-1	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Methyl Acetate	79-20-9	T	1		1	5	U	N		1	5	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	1		3	10	U	N		3	10	U	N		Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	1		3	10	U	N		3	10	U	N		Yes
	Methylcyclohexane	108-87-2	T	1		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-EB01-180405
Sample Date	4/5/2018 2:00:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546287
Analytical Method	SW8260C
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Styrene	100-42-5	T	1		1	5	U	N		1	5	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Toluene	108-88-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trans-1,2-Dichloroethene	156-60-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Vinyl Chloride	75-01-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes

Sample ID	SG3a-LTB01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546289
Analytical Method	SW8260C
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TIC	Total TIC, Volatile	ARC-TOTTIC-VOC	T	1				U	N				U	N		Yes
TRG	1,1,1-Trichloroethane	71-55-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	1		2	10	U	N		2	10	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	1		1	5	U	N		1	5	U	N		Yes
	1,2,4-Trichlorobenzene	120-82-1	T	1		1	5	U	N		1	5	U	N		Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	1		2	5	U	N		2	5	U	N		Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	1		1	5	U	N		1	5	U	N		Yes
	1,2-Dichloroethane	107-06-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	1		1	5	U	N		1	5	U	N		Yes
	1,4-Dichlorobenzene	106-46-7	T	1		1	5	U	N		1	5	U	N		Yes
	2-Hexanone	591-78-6	T	1		3	10	U	N		3	10	U	N		Yes
	Acetone	67-64-1	T	1		6	20	U	N		6	20	U	N		Yes
	Benzene	71-43-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Bromochloromethane	74-97-5	T	1		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-LTB01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546289
Analytical Method	SW8260C
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromodichloromethane	75-27-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Bromoform	75-25-2	T	1		0.5	4	U	N		0.5	4	U	N		Yes
	Bromomethane	74-83-9	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Carbon Disulfide	75-15-0	T	1		1	5	U	N		1	5	U	N		Yes
	Carbon Tetrachloride	56-23-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chlorobenzene	108-90-7	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chloroethane	75-00-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chloroform	67-66-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chloromethane	74-87-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Cyclohexane	110-82-7	T	1		2	5	U	N		2	5	U	N		Yes
	Dibromochloromethane	124-48-1	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Ethylbenzene	100-41-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	1		1	5	U	N		1	5	U	N		Yes
	m,p-Xylene	179601-23-1	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Methyl Acetate	79-20-9	T	1		1	5	U	N		1	5	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	1		3	10	U	N		3	10	U	N		Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	1		3	10	U	N		3	10	U	N		Yes

Sample ID	SG3a-LTB01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546289
Analytical Method	SW8260C
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylcyclohexane	108-87-2	T	1		1	5	U	N		1	5	U	N		Yes
	Methylene Chloride	75-09-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Styrene	100-42-5	T	1		1	5	U	N		1	5	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Toluene	108-88-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trans-1,2-Dichloroethene	156-60-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Vinyl Chloride	75-01-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes

Sample ID	SG3a-SLUDGE18-02-180405
Sample Date	4/5/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546280
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	T	5		87	170	U	N		87	170	U	N		Yes
	1,4-Dioxane (P-Dioxane)	123-91-1	T	5		520	1700	U	N		520	1700	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	T	5		350	870	U	N		350	870	U	N		Yes
	2,4,5-Trichlorophenol	95-95-4	T	5		87	170	U	N		87	170	U	N		Yes
	2,4,6-Trichlorophenol	88-06-2	T	5		87	170	U	N		87	170	U	N		Yes
	2,4-Dichlorophenol	120-83-2	T	5		87	170	U	N		87	170	U	N		Yes
	2,4-Dimethylphenol	105-67-9	T	5		87	170	U	N		87	170	U	N		Yes
	2,4-Dinitrophenol	51-28-5	T	5		1600	5200	U	N		1600	5200	U	N		Yes
	2,4-Dinitrotoluene	121-14-2	T	5		350	870	U	N		350	870	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	T	5		87	170	U	N		87	170	U	N		Yes
	2-Chloronaphthalene	91-58-7	T	5		35	170	U	N		35	170	U	N		Yes
	2-Chlorophenol	95-57-8	T	5		87	170	U	N		87	170	U	N		Yes
	2-Methylnaphthalene	91-57-6	T	5		17	89	U	N		17	89	U	N		Yes
	2-Methylphenol (O-Cresol)	95-48-7	T	5		87	170	U	N		87	170	U	N		Yes
	2-Nitroaniline	88-74-4	T	5		87	170	U	N		87	170	U	N		Yes
	2-Nitrophenol	88-75-5	T	5		87	170	U	N		87	170	U	N		Yes
	3,3'-Dichlorobenzidine	91-94-1	T	5		520	1700	U	N		520	1700	U	N		Yes
	3-Nitroaniline	99-09-2	T	5		350	870	U	N		350	870	U	N		Yes
	4,6-Dinitro-2-Methylphenol	534-52-1	T	5		870	2600	U	N		870	2600	U	N		Yes
	4-Bromophenyl Phenyl Ether	101-55-3	T	5		87	170	U	N		87	170	U	N		Yes

Sample ID	SG3a-SLUDGE18-02-180405
Sample Date	4/5/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546280
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	4-Chloro-3-Methylphenol	59-50-7	T	5		87	170	U	N		87	170	U	N		Yes
	4-Chloroaniline	106-47-8	T	5		170	350	U	N		170	350	U	N		Yes
	4-Chlorophenyl Phenyl Ether	7005-72-3	T	5		87	170	U	N		87	170	U	N		Yes
	4-Methylphenol (P-Cresol)	106-44-5	T	5		87	170	U	N		87	170	U	N		Yes
	4-Nitroaniline	100-01-6	T	5		350	870	U	N		350	870	U	N		Yes
	4-Nitrophenol	100-02-7	T	5		870	2600	U	N		870	2600	U	N		Yes
	Acenaphthene	83-32-9	T	5		17	89	U	N		17	89	U	N		Yes
	Acenaphthylene	208-96-8	T	5		17	89	U	N		17	89	U	N		Yes
	Acetophenone	98-86-2	T	5		87	170	U	N		87	170	U	N		Yes
	Anthracene	120-12-7	T	5		17	89	U	N		17	89	U	N		Yes
	Atrazine	1912-24-9	T	5		170	870	U	N		170	870	U	N		Yes
	Benzaldehyde	100-52-7	T	5		350	870	U	N		350	870	U	N		Yes
	Benzo(A)Anthracene	56-55-3	T	5		17	89	U	N		17	89	U	N		Yes
	Benzo(A)Pyrene	50-32-8	T	5	28	17	89	J	Y	28	17	89	J	Y	RL	Yes
	Benzo(B)Fluoranthene	205-99-2	T	5	30	17	89	J	Y	30	17	89	J	Y	RL	Yes
	Benzo(G,H,I)Perylene	191-24-2	T	5	43	17	89	J	Y	43	17	89	J	Y	RL	Yes
	Benzo(K)Fluoranthene	207-08-9	T	5	21	17	89	J	Y	21	17	89	J	Y	RL	Yes
	Benzyl Butyl Phthalate	85-68-7	T	5		350	870	U	N		350	870	U	N		Yes
	Biphenyl (Diphenyl)	92-52-4	T	5		87	170	U	N		87	170	U	N		Yes
	Bis(2-Chloroethoxy) Methane	111-91-1	T	5		87	170	U	N		87	170	U	N		Yes

Sample ID	SG3a-SLUDGE18-02-180405
Sample Date	4/5/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546280
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	T	5		87	170	U	N		87	170	U	N		Yes
	Bis(2-Chloroisopropyl) Ether	108-60-1	T	5		87	170	U	N		87	170	U	N		Yes
	Bis(2-Ethylhexyl) Phthalate	117-81-7	T	5		350	890	U	N		350	890	U	N		Yes
	Caprolactam	105-60-2	T	5		170	870	U	N		170	870	U	N		Yes
	Carbazole	86-74-8	T	5		87	170	U	N		87	170	U	N		Yes
	Chrysene	218-01-9	T	5	30	17	89	J	Y	30	17	89	J	Y	RL	Yes
	Dibenz(A,H)Anthracene	53-70-3	T	5		17	89	U	N		17	89	U	N		Yes
	Dibenzofuran	132-64-9	T	5		87	170	U	N		87	170	U	N		Yes
	Diethyl Phthalate	84-66-2	T	5		350	870	U	N		350	870	U	N		Yes
	Dimethyl Phthalate	131-11-3	T	5		350	870	U	N		350	870	U	N		Yes
	Di-N-Butyl Phthalate	84-74-2	T	5		350	870	U	N		350	870	U	N		Yes
	Di-N-Octylphthalate	117-84-0	T	5		350	870	U	N		350	870	U	N		Yes
	Fluoranthene	206-44-0	T	5	19	17	89	J	Y	19	17	89	J	Y	RL	Yes
	Fluorene	86-73-7	T	5		17	89	U	N		17	89	U	N		Yes
	Hexachlorobenzene	118-74-1	T	5		17	89	U	N		17	89	U	N		Yes
	Hexachlorobutadiene	87-68-3	T	5		87	170	U	N		87	170	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	T	5		870	2600	U	N		870	2600	U	N		Yes
	Hexachloroethane	67-72-1	T	5		170	870	U	N		170	870	U	N		Yes
	Indeno(1,2,3-C,D)Pyrene	193-39-5	T	5		17	89	U	N		17	89	U	N		Yes
	Isophorone	78-59-1	T	5		87	170	U	N		87	170	U	N		Yes

Sample ID	SG3a-SLUDGE18-02-180405
Sample Date	4/5/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546280
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Naphthalene	91-20-3	T	5		17	89	U	N		17	89	U	N		Yes
	Nitrobenzene	98-95-3	T	5		87	170	U	N		87	170	U	N		Yes
	N-Nitrosodi-N-Propylamine	621-64-7	T	5		87	170	U	N		87	170	U	N		Yes
	N-Nitrosodiphenylamine	86-30-6	T	5		87	170	U	N		87	170	U	N		Yes
	Pentachlorophenol	87-86-5	T	5		170	890	U	N		170	890	U	N		Yes
	Phenanthrene	85-01-8	T	5	21	17	89	J	Y	21	17	89	J	Y	RL	Yes
	Phenol	108-95-2	T	5		87	170	U	N		87	170	U	N		Yes
	Pyrene	129-00-0	T	5	25	17	89	J	Y	25	17	89	J	Y	RL	Yes

Sample ID	SG3a-SLUDGE18-03-180405
Sample Date	4/5/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546281
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-03
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	T	5		96	190	U	N		96	190	U	N		Yes
	1,4-Dioxane (P-Dioxane)	123-91-1	T	5		570	1900	U	N		570	1900	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	T	5		380	960	U	N		380	960	UJ	N	MAL	Yes
	2,4,5-Trichlorophenol	95-95-4	T	5		96	190	U	N		96	190	U	N		Yes
	2,4,6-Trichlorophenol	88-06-2	T	5		96	190	U	N		96	190	U	N		Yes
	2,4-Dichlorophenol	120-83-2	T	5		96	190	U	N		96	190	U	N		Yes
	2,4-Dimethylphenol	105-67-9	T	5		96	190	U	N		96	190	U	N		Yes
	2,4-Dinitrophenol	51-28-5	T	5		1700	5700	U	N		1700	5700	UJ	N	MAL	Yes
	2,4-Dinitrotoluene	121-14-2	T	5		380	960	U	N		380	960	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	T	5		96	190	U	N		96	190	U	N		Yes
	2-Chloronaphthalene	91-58-7	T	5		38	190	U	N		38	190	U	N		Yes
	2-Chlorophenol	95-57-8	T	5		96	190	U	N		96	190	U	N		Yes
	2-Methylnaphthalene	91-57-6	T	5		19	98	U	N		19	98	U	N		Yes
	2-Methylphenol (O-Cresol)	95-48-7	T	5		96	190	U	N		96	190	U	N		Yes
	2-Nitroaniline	88-74-4	T	5		96	190	U	N		96	190	U	N		Yes
	2-Nitrophenol	88-75-5	T	5		96	190	U	N		96	190	U	N		Yes
	3,3'-Dichlorobenzidine	91-94-1	T	5		570	1900	U	N		570	1900	U	N		Yes
	3-Nitroaniline	99-09-2	T	5		380	960	U	N		380	960	U	N		Yes
	4,6-Dinitro-2-Methylphenol	534-52-1	T	5		960	2900	U	N		960	2900	U	N		Yes
	4-Bromophenyl Phenyl Ether	101-55-3	T	5		96	190	U	N		96	190	U	N		Yes

Sample ID	SG3a-SLUDGE18-03-180405
Sample Date	4/5/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546281
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-03
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	4-Chloro-3-Methylphenol	59-50-7	T	5		96	190	U	N		96	190	U	N		Yes
	4-Chloroaniline	106-47-8	T	5		190	380	U	N		190	380	U	N		Yes
	4-Chlorophenyl Phenyl Ether	7005-72-3	T	5		96	190	U	N		96	190	U	N		Yes
	4-Methylphenol (P-Cresol)	106-44-5	T	5		96	190	U	N		96	190	U	N		Yes
	4-Nitroaniline	100-01-6	T	5		380	960	U	N		380	960	U	N		Yes
	4-Nitrophenol	100-02-7	T	5		960	2900	U	N		960	2900	U	N		Yes
	Acenaphthene	83-32-9	T	5		19	98	U	N		19	98	U	N		Yes
	Acenaphthylene	208-96-8	T	5		19	98	U	N		19	98	U	N		Yes
	Acetophenone	98-86-2	T	5		96	190	U	N		96	190	U	N		Yes
	Anthracene	120-12-7	T	5	33	19	98	J	Y	33	19	98	J	Y	RL	Yes
	Atrazine	1912-24-9	T	5		190	960	U	N		190	960	U	N		Yes
	Benzaldehyde	100-52-7	T	5		380	960	U	N		380	960	U	N		Yes
	Benzo(A)Anthracene	56-55-3	T	5	120	19	98		Y	120	19	98		Y		Yes
	Benzo(A)Pyrene	50-32-8	T	5	160	19	98		Y	160	19	98		Y		Yes
	Benzo(B)Fluoranthene	205-99-2	T	5	240	19	98		Y	240	19	98		Y		Yes
	Benzo(G,H,I)Perylene	191-24-2	T	5	140	19	98		Y	140	19	98		Y		Yes
	Benzo(K)Fluoranthene	207-08-9	T	5	80	19	98	J	Y	80	19	98	J	Y	RL	Yes
	Benzyl Butyl Phthalate	85-68-7	T	5		380	960	U	N		380	960	U	N		Yes
	Biphenyl (Diphenyl)	92-52-4	T	5		96	190	U	N		96	190	U	N		Yes
	Bis(2-Chloroethoxy) Methane	111-91-1	T	5		96	190	U	N		96	190	U	N		Yes

Sample ID	SG3a-SLUDGE18-03-180405
Sample Date	4/5/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546281
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-03
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	T	5		96	190	U	N		96	190	U	N		Yes
	Bis(2-Chloroisopropyl) Ether	108-60-1	T	5		96	190	U	N		96	190	U	N		Yes
	Bis(2-Ethylhexyl) Phthalate	117-81-7	T	5		380	980	U	N		380	980	U	N		Yes
	Caprolactam	105-60-2	T	5		190	960	U	N		190	960	U	N		Yes
	Carbazole	86-74-8	T	5		96	190	U	N		96	190	U	N		Yes
	Chrysene	218-01-9	T	5	150	19	98		Y	150	19	98		Y		Yes
	Dibenz(A,H)Anthracene	53-70-3	T	5	46	19	98	J	Y	46	19	98	J	Y	RL	Yes
	Dibenzofuran	132-64-9	T	5		96	190	U	N		96	190	U	N		Yes
	Diethyl Phthalate	84-66-2	T	5		380	960	U	N		380	960	U	N		Yes
	Dimethyl Phthalate	131-11-3	T	5		380	960	U	N		380	960	U	N		Yes
	Di-N-Butyl Phthalate	84-74-2	T	5		380	960	U	N		380	960	U	N		Yes
	Di-N-Octylphthalate	117-84-0	T	5		380	960	U	N		380	960	U	N		Yes
	Fluoranthene	206-44-0	T	5	310	19	98		Y	310	19	98		Y		Yes
	Fluorene	86-73-7	T	5		19	98	U	N		19	98	U	N		Yes
	Hexachlorobenzene	118-74-1	T	5		19	98	U	N		19	98	U	N		Yes
	Hexachlorobutadiene	87-68-3	T	5		96	190	U	N		96	190	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	T	5		960	2900	U	N		960	2900	R	N	MAL	Yes
	Hexachloroethane	67-72-1	T	5		190	960	U	N		190	960	U	N		Yes
	Indeno(1,2,3-C,D)Pyrene	193-39-5	T	5	110	19	98		Y	110	19	98		Y		Yes
	Isophorone	78-59-1	T	5		96	190	U	N		96	190	U	N		Yes

Sample ID	SG3a-SLUDGE18-03-180405
Sample Date	4/5/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546281
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-03
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Naphthalene	91-20-3	T	5		19	98	U	N		19	98	U	N		Yes
	Nitrobenzene	98-95-3	T	5		96	190	U	N		96	190	U	N		Yes
	N-Nitrosodi-N-Propylamine	621-64-7	T	5		96	190	U	N		96	190	U	N		Yes
	N-Nitrosodiphenylamine	86-30-6	T	5		96	190	U	N		96	190	U	N		Yes
	Pentachlorophenol	87-86-5	T	5		190	980	U	N		190	980	UJ	N	CVL	Yes
	Phenanthrene	85-01-8	T	5	160	19	98		Y	160	19	98		Y		Yes
	Phenol	108-95-2	T	5		96	190	U	N		96	190	U	N		Yes
	Pyrene	129-00-0	T	5	270	19	98		Y	270	19	98		Y		Yes

Sample ID	SG3a-SLUDGE18-04-180405
Sample Date	4/5/2018 1:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546285
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-04
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	T	5		110	220	U	N		110	220	U	N		Yes
	1,4-Dioxane (P-Dioxane)	123-91-1	T	5		660	2200	U	N		660	2200	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	T	5		440	1100	U	N		440	1100	U	N		Yes
	2,4,5-Trichlorophenol	95-95-4	T	5		110	220	U	N		110	220	U	N		Yes
	2,4,6-Trichlorophenol	88-06-2	T	5		110	220	U	N		110	220	U	N		Yes
	2,4-Dichlorophenol	120-83-2	T	5		110	220	U	N		110	220	U	N		Yes
	2,4-Dimethylphenol	105-67-9	T	5		110	220	U	N		110	220	U	N		Yes
	2,4-Dinitrophenol	51-28-5	T	5		2000	6600	U	N		2000	6600	U	N		Yes
	2,4-Dinitrotoluene	121-14-2	T	5		440	1100	U	N		440	1100	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	T	5		110	220	U	N		110	220	U	N		Yes
	2-Chloronaphthalene	91-58-7	T	5		44	220	U	N		44	220	U	N		Yes
	2-Chlorophenol	95-57-8	T	5		110	220	U	N		110	220	U	N		Yes
	2-Methylnaphthalene	91-57-6	T	5	360	22	110		Y	360	22	110		Y		Yes
	2-Methylphenol (O-Cresol)	95-48-7	T	5		110	220	U	N		110	220	U	N		Yes
	2-Nitroaniline	88-74-4	T	5		110	220	U	N		110	220	U	N		Yes
	2-Nitrophenol	88-75-5	T	5		110	220	U	N		110	220	U	N		Yes
	3,3'-Dichlorobenzidine	91-94-1	T	5		660	2200	U	N		660	2200	U	N		Yes
	3-Nitroaniline	99-09-2	T	5		440	1100	U	N		440	1100	U	N		Yes
	4,6-Dinitro-2-Methylphenol	534-52-1	T	5		1100	3300	U	N		1100	3300	U	N		Yes
	4-Bromophenyl Phenyl Ether	101-55-3	T	5		110	220	U	N		110	220	U	N		Yes

Sample ID	SG3a-SLUDGE18-04-180405
Sample Date	4/5/2018 1:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546285
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-04
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	4-Chloro-3-Methylphenol	59-50-7	T	5		110	220	U	N		110	220	U	N		Yes
	4-Chloroaniline	106-47-8	T	5		220	440	U	N		220	440	U	N		Yes
	4-Chlorophenyl Phenyl Ether	7005-72-3	T	5		110	220	U	N		110	220	U	N		Yes
	4-Methylphenol (P-Cresol)	106-44-5	T	5	160	110	220	J	Y	160	110	220	J	Y	RL	Yes
	4-Nitroaniline	100-01-6	T	5		440	1100	U	N		440	1100	U	N		Yes
	4-Nitrophenol	100-02-7	T	5		1100	3300	U	N		1100	3300	U	N		Yes
	Acenaphthene	83-32-9	T	5	68	22	110	J	Y	68	22	110	J	Y	RL	Yes
	Acenaphthylene	208-96-8	T	5	110	22	110		Y	110	22	110		Y		Yes
	Acetophenone	98-86-2	T	5		110	220	U	N		110	220	U	N		Yes
	Anthracene	120-12-7	T	5	220	22	110		Y	220	22	110		Y		Yes
	Atrazine	1912-24-9	T	5		220	1100	U	N		220	1100	U	N		Yes
	Benzaldehyde	100-52-7	T	5	750	440	1100	J	Y	750	440	1100	J	Y	RL	Yes
	Benzo(A)Anthracene	56-55-3	T	5	750	22	110		Y	750	22	110		Y		Yes
	Benzo(A)Pyrene	50-32-8	T	5	720	22	110		Y	720	22	110		Y		Yes
	Benzo(B)Fluoranthene	205-99-2	T	5	1000	22	110		Y	1000	22	110		Y		Yes
	Benzo(G,H,I)Perylene	191-24-2	T	5	480	22	110		Y	480	22	110		Y		Yes
	Benzo(K)Fluoranthene	207-08-9	T	5	450	22	110		Y	450	22	110		Y		Yes
	Benzyl Butyl Phthalate	85-68-7	T	5		440	1100	U	N		440	1100	U	N		Yes
	Biphenyl (Diphenyl)	92-52-4	T	5		110	220	U	N		110	220	U	N		Yes
	Bis(2-Chloroethoxy) Methane	111-91-1	T	5		110	220	U	N		110	220	U	N		Yes

Sample ID	SG3a-SLUDGE18-04-180405
Sample Date	4/5/2018 1:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546285
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-04
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	T	5		110	220	U	N		110	220	U	N		Yes
	Bis(2-Chloroisopropyl) Ether	108-60-1	T	5		110	220	U	N		110	220	U	N		Yes
	Bis(2-Ethylhexyl) Phthalate	117-81-7	T	5	740	440	1100	J	Y	740	440	1100	J	Y	RL	Yes
	Caprolactam	105-60-2	T	5		220	1100	U	N		220	1100	U	N		Yes
	Carbazole	86-74-8	T	5	110	110	220	J	Y	110	110	220	J	Y	RL	Yes
	Chrysene	218-01-9	T	5	750	22	110		Y	750	22	110		Y		Yes
	Dibenz(A,H)Anthracene	53-70-3	T	5	160	22	110		Y	160	22	110		Y		Yes
	Dibenzofuran	132-64-9	T	5		110	220	U	N		110	220	U	N		Yes
	Diethyl Phthalate	84-66-2	T	5		440	1100	U	N		440	1100	U	N		Yes
	Dimethyl Phthalate	131-11-3	T	5		440	1100	U	N		440	1100	U	N		Yes
	Di-N-Butyl Phthalate	84-74-2	T	5	550	440	1100	J	Y	550	440	1100	J	Y	RL	Yes
	Di-N-Octylphthalate	117-84-0	T	5		440	1100	U	N		440	1100	U	N		Yes
	Fluoranthene	206-44-0	T	5	1300	22	110		Y	1300	22	110		Y		Yes
	Fluorene	86-73-7	T	5	79	22	110	J	Y	79	22	110	J	Y	RL	Yes
	Hexachlorobenzene	118-74-1	T	5		22	110	U	N		22	110	U	N		Yes
	Hexachlorobutadiene	87-68-3	T	5		110	220	U	N		110	220	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	T	5		1100	3300	U	N		1100	3300	U	N		Yes
	Hexachloroethane	67-72-1	T	5		220	1100	U	N		220	1100	U	N		Yes
	Indeno(1,2,3-C,D)Pyrene	193-39-5	T	5	440	22	110		Y	440	22	110		Y		Yes
	Isophorone	78-59-1	T	5		110	220	U	N		110	220	U	N		Yes

Sample ID	SG3a-SLUDGE18-04-180405
Sample Date	4/5/2018 1:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546285
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-04
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Naphthalene	91-20-3	T	5	170	22	110		Y	170	22	110		Y		Yes
	Nitrobenzene	98-95-3	T	5		110	220	U	N		110	220	U	N		Yes
	N-Nitrosodi-N-Propylamine	621-64-7	T	5		110	220	U	N		110	220	U	N		Yes
	N-Nitrosodiphenylamine	86-30-6	T	5		110	220	U	N		110	220	U	N		Yes
	Pentachlorophenol	87-86-5	T	5		220	1100	U	N		220	1100	U	N		Yes
	Phenanthrene	85-01-8	T	5	650	22	110		Y	650	22	110		Y		Yes
	Phenol	108-95-2	T	5		110	220	U	N		110	220	U	N		Yes
	Pyrene	129-00-0	T	5	1200	22	110		Y	1200	22	110		Y		Yes

Sample ID	SG3a-FD01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SLUDGE18-02-180405
Sample Matrix	SL
Lab Sample ID	9546286
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	T	5		85	170	U	N		85	170	U	N		Yes
	1,4-Dioxane (P-Dioxane)	123-91-1	T	5		510	1700	U	N		510	1700	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	T	5		340	850	U	N		340	850	U	N		Yes
	2,4,5-Trichlorophenol	95-95-4	T	5		85	170	U	N		85	170	U	N		Yes
	2,4,6-Trichlorophenol	88-06-2	T	5		85	170	U	N		85	170	U	N		Yes
	2,4-Dichlorophenol	120-83-2	T	5		85	170	U	N		85	170	U	N		Yes
	2,4-Dimethylphenol	105-67-9	T	5		85	170	U	N		85	170	U	N		Yes
	2,4-Dinitrophenol	51-28-5	T	5		1500	5100	U	N		1500	5100	U	N		Yes
	2,4-Dinitrotoluene	121-14-2	T	5		340	850	U	N		340	850	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	T	5		85	170	U	N		85	170	U	N		Yes
	2-Chloronaphthalene	91-58-7	T	5		34	170	U	N		34	170	U	N		Yes
	2-Chlorophenol	95-57-8	T	5		85	170	U	N		85	170	U	N		Yes
	2-Methylnaphthalene	91-57-6	T	5		17	87	U	N		17	87	U	N		Yes
	2-Methylphenol (O-Cresol)	95-48-7	T	5		85	170	U	N		85	170	U	N		Yes
	2-Nitroaniline	88-74-4	T	5		85	170	U	N		85	170	U	N		Yes
	2-Nitrophenol	88-75-5	T	5		85	170	U	N		85	170	U	N		Yes
	3,3'-Dichlorobenzidine	91-94-1	T	5		510	1700	U	N		510	1700	U	N		Yes
	3-Nitroaniline	99-09-2	T	5		340	850	U	N		340	850	U	N		Yes
	4,6-Dinitro-2-Methylphenol	534-52-1	T	5		850	2600	U	N		850	2600	U	N		Yes
	4-Bromophenyl Phenyl Ether	101-55-3	T	5		85	170	U	N		85	170	U	N		Yes

Sample ID	SG3a-FD01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SLUDGE18-02-180405
Sample Matrix	SL
Lab Sample ID	9546286
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	4-Chloro-3-Methylphenol	59-50-7	T	5		85	170	U	N		85	170	U	N		Yes
	4-Chloroaniline	106-47-8	T	5		170	340	U	N		170	340	U	N		Yes
	4-Chlorophenyl Phenyl Ether	7005-72-3	T	5		85	170	U	N		85	170	U	N		Yes
	4-Methylphenol (P-Cresol)	106-44-5	T	5		85	170	U	N		85	170	U	N		Yes
	4-Nitroaniline	100-01-6	T	5		340	850	U	N		340	850	U	N		Yes
	4-Nitrophenol	100-02-7	T	5		850	2600	U	N		850	2600	U	N		Yes
	Acenaphthene	83-32-9	T	5		17	87	U	N		17	87	U	N		Yes
	Acenaphthylene	208-96-8	T	5		17	87	U	N		17	87	U	N		Yes
	Acetophenone	98-86-2	T	5		85	170	U	N		85	170	U	N		Yes
	Anthracene	120-12-7	T	5		17	87	U	N		17	87	U	N		Yes
	Atrazine	1912-24-9	T	5		170	850	U	N		170	850	U	N		Yes
	Benzaldehyde	100-52-7	T	5		340	850	U	N		340	850	U	N		Yes
	Benzo(A)Anthracene	56-55-3	T	5		17	87	U	N		17	87	U	N		Yes
	Benzo(A)Pyrene	50-32-8	T	5	37	17	87	J	Y	37	17	87	J	Y	RL	Yes
	Benzo(B)Fluoranthene	205-99-2	T	5	50	17	87	J	Y	50	17	87	J	Y	RL	Yes
	Benzo(G,H,I)Perylene	191-24-2	T	5	48	17	87	J	Y	48	17	87	J	Y	RL	Yes
	Benzo(K)Fluoranthene	207-08-9	T	5	25	17	87	J	Y	25	17	87	J	Y	RL	Yes
	Benzyl Butyl Phthalate	85-68-7	T	5		340	850	U	N		340	850	U	N		Yes
	Biphenyl (Diphenyl)	92-52-4	T	5		85	170	U	N		85	170	U	N		Yes
	Bis(2-Chloroethoxy) Methane	111-91-1	T	5		85	170	U	N		85	170	U	N		Yes

Sample ID	SG3a-FD01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SLUDGE18-02-180405
Sample Matrix	SL
Lab Sample ID	9546286
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	T	5		85	170	U	N		85	170	U	N		Yes
	Bis(2-Chloroisopropyl) Ether	108-60-1	T	5		85	170	U	N		85	170	U	N		Yes
	Bis(2-Ethylhexyl) Phthalate	117-81-7	T	5		340	870	U	N		340	870	U	N		Yes
	Caprolactam	105-60-2	T	5		170	850	U	N		170	850	U	N		Yes
	Carbazole	86-74-8	T	5		85	170	U	N		85	170	U	N		Yes
	Chrysene	218-01-9	T	5	41	17	87	J	Y	41	17	87	J	Y	RL	Yes
	Dibenz(A,H)Anthracene	53-70-3	T	5	20	17	87	J	Y	20	17	87	J	Y	RL	Yes
	Dibenzofuran	132-64-9	T	5		85	170	U	N		85	170	U	N		Yes
	Diethyl Phthalate	84-66-2	T	5		340	850	U	N		340	850	U	N		Yes
	Dimethyl Phthalate	131-11-3	T	5		340	850	U	N		340	850	U	N		Yes
	Di-N-Butyl Phthalate	84-74-2	T	5		340	850	U	N		340	850	U	N		Yes
	Di-N-Octylphthalate	117-84-0	T	5		340	850	U	N		340	850	U	N		Yes
	Fluoranthene	206-44-0	T	5	35	17	87	J	Y	35	17	87	J	Y	RL	Yes
	Fluorene	86-73-7	T	5		17	87	U	N		17	87	U	N		Yes
	Hexachlorobenzene	118-74-1	T	5		17	87	U	N		17	87	U	N		Yes
	Hexachlorobutadiene	87-68-3	T	5		85	170	U	N		85	170	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	T	5		850	2600	U	N		850	2600	U	N		Yes
	Hexachloroethane	67-72-1	T	5		170	850	U	N		170	850	U	N		Yes
	Indeno(1,2,3-C,D)Pyrene	193-39-5	T	5	34	17	87	J	Y	34	17	87	J	Y	RL	Yes
	Isophorone	78-59-1	T	5		85	170	U	N		85	170	U	N		Yes

Sample ID	SG3a-FD01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SLUDGE18-02-180405
Sample Matrix	SL
Lab Sample ID	9546286
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Naphthalene	91-20-3	T	5		17	87	U	N		17	87	U	N		Yes
	Nitrobenzene	98-95-3	T	5		85	170	U	N		85	170	U	N		Yes
	N-Nitrosodi-N-Propylamine	621-64-7	T	5		85	170	U	N		85	170	U	N		Yes
	N-Nitrosodiphenylamine	86-30-6	T	5		85	170	U	N		85	170	U	N		Yes
	Pentachlorophenol	87-86-5	T	5		170	870	U	N		170	870	U	N		Yes
	Phenanthrene	85-01-8	T	5		17	87	U	N		17	87	U	N		Yes
	Phenol	108-95-2	T	5		85	170	U	N		85	170	U	N		Yes
	Pyrene	129-00-0	T	5	37	17	87	J	Y	37	17	87	J	Y	RL	Yes

Sample ID	SG3a-EB01-180405
Sample Date	4/5/2018 2:00:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546287
Analytical Method	SW8270D
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,4-Dioxane (P-Dioxane)	123-91-1	T	1		1	5	U	N		1	5	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2,4,5-Trichlorophenol	95-95-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2,4,6-Trichlorophenol	88-06-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2,4-Dichlorophenol	120-83-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2,4-Dimethylphenol	105-67-9	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2,4-Dinitrophenol	51-28-5	T	1		10	31	U	N		10	31	U	N		Yes
	2,4-Dinitrotoluene	121-14-2	T	1		1	5	U	N		1	5	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2-Chloronaphthalene	91-58-7	T	1		0.4	1	U	N		0.4	1	U	N		Yes
	2-Chlorophenol	95-57-8	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2-Methylnaphthalene	91-57-6	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	2-Methylphenol (O-Cresol)	95-48-7	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2-Nitroaniline	88-74-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2-Nitrophenol	88-75-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	3,3'-Dichlorobenzidine	91-94-1	T	1		2	5	U	N		2	5	U	N		Yes
	3-Nitroaniline	99-09-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	4,6-Dinitro-2-Methylphenol	534-52-1	T	1		5	15	U	N		5	15	U	N		Yes
	4-Bromophenyl Phenyl Ether	101-55-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes

Sample ID	SG3a-EB01-180405
Sample Date	4/5/2018 2:00:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546287
Analytical Method	SW8270D
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	4-Chloro-3-Methylphenol	59-50-7	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	4-Chloroaniline	106-47-8	T	1		2	4	U	N		2	4	U	N		Yes
	4-Chlorophenyl Phenyl Ether	7005-72-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	4-Methylphenol (P-Cresol)	106-44-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	4-Nitroaniline	100-01-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	4-Nitrophenol	100-02-7	T	1		10	31	U	N		10	31	U	N		Yes
	Acenaphthene	83-32-9	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Acenaphthylene	208-96-8	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Acetophenone	98-86-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Anthracene	120-12-7	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Atrazine	1912-24-9	T	1		2	5	U	N		2	5	U	N		Yes
	Benzaldehyde	100-52-7	T	1		1	5	U	N		1	5	U	N		Yes
	Benzo(A)Anthracene	56-55-3	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Benzo(A)Pyrene	50-32-8	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Benzo(B)Fluoranthene	205-99-2	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Benzo(G,H,I)Perylene	191-24-2	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Benzo(K)Fluoranthene	207-08-9	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Benzyl Butyl Phthalate	85-68-7	T	1		2	5	U	N		2	5	U	N		Yes
	Biphenyl (Diphenyl)	92-52-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Bis(2-Chloroethoxy) Methane	111-91-1	T	1		0.5	1	U	N		0.5	1	U	N		Yes

Sample ID	SG3a-EB01-180405
Sample Date	4/5/2018 2:00:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546287
Analytical Method	SW8270D
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Bis(2-Chloroisopropyl) Ether	108-60-1	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Bis(2-Ethylhexyl) Phthalate	117-81-7	T	1		2	5	U	N		2	5	U	N		Yes
	Caprolactam	105-60-2	T	1		5	15	U	N		5	15	U	N		Yes
	Carbazole	86-74-8	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chrysene	218-01-9	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Dibenz(A,H)Anthracene	53-70-3	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Dibenzofuran	132-64-9	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Diethyl Phthalate	84-66-2	T	1		2	5	U	N		2	5	U	N		Yes
	Dimethyl Phthalate	131-11-3	T	1		2	5	U	N		2	5	U	N		Yes
	Di-N-Butyl Phthalate	84-74-2	T	1		2	5	U	N		2	5	U	N		Yes
	Di-N-Octylphthalate	117-84-0	T	1		2	5	U	N		2	5	U	N		Yes
	Fluoranthene	206-44-0	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Fluorene	86-73-7	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Hexachlorobenzene	118-74-1	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Hexachlorobutadiene	87-68-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	T	1		5	15	U	N		5	15	U	N		Yes
	Hexachloroethane	67-72-1	T	1		1	5	U	N		1	5	U	N		Yes
	Indeno(1,2,3-C,D)Pyrene	193-39-5	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Isophorone	78-59-1	T	1		0.5	1	U	N		0.5	1	U	N		Yes

Sample ID	SG3a-EB01-180405
Sample Date	4/5/2018 2:00:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9546287
Analytical Method	SW8270D
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Naphthalene	91-20-3	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Nitrobenzene	98-95-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	N-Nitrosodi-N-Propylamine	621-64-7	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	N-Nitrosodiphenylamine	86-30-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Pentachlorophenol	87-86-5	T	1		1	5	U	N		1	5	U	N		Yes
	Phenanthrene	85-01-8	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Phenol	108-95-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Pyrene	129-00-0	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes

Sample ID	SG3a-SLUDGE18-02-180405
Sample Date	4/5/2018 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546280
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.90	0.0100	0.0100		Y	8.90	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SLUDGE18-03-180405
Sample Date	4/5/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546281
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SLUDGE18-03
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	7.92	0.0100	0.0100		Y	7.92	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SLUDGE18-04-180405
Sample Date	4/5/2018 1:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SL
Lab Sample ID	9546285
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SLUDGE18-04
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	7.53	0.0100	0.0100		Y	7.53	0.0100	0.0100		Y		Yes

Sample ID	SG3a-FD01-180405
Sample Date	4/5/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SLUDGE18-02-180405
Sample Matrix	SL
Lab Sample ID	9546286
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SLUDGE18-02
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	9.18	0.0100	0.0100		Y	9.18	0.0100	0.0100		Y		Yes

SECTION 3

LABORATORY CALIBRATION AND QUALITY CONTROL ACCEPTANCE CRITERIA

Initial Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
1. Initial Calibration: Minimum of five calibration standards. 2. Analyze MDL standard to ensure all compounds detected at MDL level 3. Analyze a technical grade branched/linear chained standard for PFOA/PFOS/PFHxS.	1. Initially and the after continuing calibration fails. 2. Analyzed with each initial calibration. 3. Run with each initial calibration.	1. Back calculated concentration of each calibration point should be within ±30% (or 70-130%) of true. The level 1 calibration standard back calculated concentrations should be ±50% (or 50-150%) of true value. $R^2 \geq 0.99$ for each analyte. 2. All compounds detected. 3. Qualitative use only to assist chemists in the integration of these compounds.	1. If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the initial calibration can be used. In those cases, the data will be reported with a qualifying comment. 2. If compound not detected in MDL standard, the source of the problem should be determined and the system recalibrated.

Continuing Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Analyze every 10 samples and at the end of the analysis sequence. Concentrations alternate between low, mid, and high levels of the calibration curve. The CCV ran after ICAL must be at CAL3 level. Opening CCV for sequence **should** be at CAL1 level and must be within 50-150%.	Occurs every 10 samples and at the end of the analysis sequence.	Calculated amount for the native analytes should be within ±30% of the true value. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. The calculated amount for the isotopically labeled extraction standards should be within the advisory window of 70-130%	If criteria are not met, the source of the problem **should** be determined, corrected and the system recalibrated. Situations may exist where the continuing calibration can be used. In those cases, the data will be reported with a qualifying comment.

Initial Calibration Verification

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Second source standard analyzed at the end of each initial calibration.	Analyzed with each initial calibration	1. Calculated amount for each native analytes should be within 70-130% of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration.	1. If criteria are not met, the source of the problem should be determined and corrected. Situations may exist where the initial calibration verification can be used. In those cases, the data will be reported with a qualifying comment.

QC Acceptance Criteria

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Method Blanks	1 per 20 field samples	1. No positive detections above the MDL. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	1. Report if the analyte present in the method blank is not detected in the sample or the analyte detected in the sample at greater than 10x's the amount in the method blank. If analyte detected in blank and sample at approximately the sample concentration sample will be RX'd. 2. Blank will be reinjected. Blank data may be qualified and reported. 3. If extraction standards are outside the advisory window and there are positive detections in the blank, the blank may be reinjected. If after reinjection, extraction standards are still out data may be reported and qualified due to the advisory nature of the windows.
LCS	1 per 20 field samples	1. Advisory QC limits of 70-130%, RPD<30% 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	1. Reextract LCS and associated samples. Analytes that fail high and are ND in the samples can be reported. Due to the advisory nature of the acceptance limits, situations may exist where LCS can be used. In those cases, the data will be reported with a qualifying comment. 2. If all native recoveries are within QC limits, data can be reported. 3. If all native recoveries are within QC limits, data can be reported.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
MS/MSD	MS is routinely prepared with each extraction batch. If limited sample volume exists, an LCS/LCSD will be prepared.	1. Advisory QC limits of 70-130%, RPD<30%. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	Evaluate in conjunction with LCS.
Isotopically labeled internal standards	Per sample (including MS/MSD, LCS, and Blanks)	The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration.	Reinject samples as necessary. Report data with qualifying comment.
Isotopically labeled extraction standards	Per sample (including MS/MSD, LCS, and Blanks)	The percent difference for the isotopically labeled extraction standards should be within the advisory QC window of 70-130% or laboratory-generated control limits, if available.	Reinject samples as necessary. Report data with qualifying comment.

SECTION 4

ENVIRONMENTAL STANDARDS, INC., STANDARD OPERATING PROCEDURE

1.0 OBJECTIVES

This standard operating procedure (SOP) describes procedures that the Environmental Standards data reviewers will use to validate Perfluorinated and Polyfluorinated Alkyl Substance (PFAS) data for solid samples generated by Eurofins SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins Document Reference T-PFAS-WI12031, Version 2) and aqueous samples generated by Eurofins SOP "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Using LC/MS/MS" (Eurofins Document Reference T-PFAS-WI14355, Version 2) for various Saint-Gobain Performance Plastics Corporation (Saint-Gobain) sites. Validation will be performed to assess compliance of the sample data to these Eurofins SOPs and any applicable Work Plans and/or Quality Assurance Project Plans (QAPPs). In addition, the usability of the PFAS data provided by the analytical laboratory will be determined based on the general guidance provided in the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016) and "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016). It should be noted that the National Functional Guidelines apply strictly to data generated by the Contract Laboratory Program (CLP) protocol and are not directly applicable to validation of data generated by Modified EPA Method 537; therefore, this SOP presents the specific data qualification actions that will be used for validation.

The validation findings will be presented in a quality assurance review (QAR) that will be prepared for one or more sample delivery groups (SDGs). Copies of annotated analytical results summaries (Form I's), including any changes to the analytical results and data qualifier codes, or a data summary spreadsheet of the qualified analytical results, will be included in the support documentation of the QAR.

2.0 EVALUATION TOOLS

- field duplicate form (DVF_DUP_SG_ELLE.xlsm)

Chemistry Applications:

- Curve fitting software (DVF_CAL.xlsm)
- Methods Database

3.0 REFERENCE DOCUMENTS

- "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016)

- "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016).

- Eurofins Document Reference T-PFAS-WI12031.

- Eurofins Document Reference T-PFAS-WI14355.

- US EPA Method 537, Version 1.1 (September 2009).

- Guidance for Labelling Externally Validated Laboratory Analytical Data for Superfund Use (EPA 540-R-08-005, 2009).

4.0 PROCEDURE

4.1 EVALUATION OF METHOD COMPLIANCE

The data reviewer will assess the method compliance of the PFAS data based on an evaluation of information presented in the data package deliverables. Compliance to the aforementioned SOPs (and Work Plan and/or QAPP when applicable) will be evaluated as part of the assessment. In addition, the deliverables will be evaluated for reporting errors and inconsistencies. The findings of the compliance assessment will be described in terms of comments/deficiencies about the data/deliverables and presented in two subdivisions (*i.e.*, Reporting Issues and Procedural Issues) of the Organic Data Evaluation Section of the QAR. Each issue discussed in the QAR will indicate any subsequent impact on the usability of the data or will identify aspect(s) of the data that could not be evaluated due to the deficiency.

The data reviewer may contact the project laboratory to request the correction of deficiencies prior to submittal of the QAR (if feasible and sanctioned by Saint Gobain). At a minimum, corrections required to allow for a full evaluation of the usability of the data should be requested. Such correctable deficiencies may include sample result errors, missing data deliverables, or calculation errors that would require a significant amount of the data reviewer's time to correct. Any laboratory resubmittals as a result of such requests will be discussed in the Reporting Issue subdivision of the QAR and included as an attachment to the QAR.

4.2 DETERMINATION OF DATA USABILITY

The data reviewer will determine the usability of the PFAS data based on an evaluation of the information presented in the data package deliverables. The findings of the PFAS data usability assessment will be presented in terms of data qualifications that the project team should consider in order to best utilize the data; these qualifications will be presented in the Organic Data Qualifier subsection of the QAR. Each qualification discussed in the QAR will indicate that the affected sample result(s) has been flagged with a representative qualifier code(s) in the data tables to provide, at a glance, an indication of the quantitative and qualitative reliability of each analytical result. In general, the qualifier statements will be presented in the QAR in the following order: blank contamination (UB), unusable results (R/UR), estimated results (J/UJ), tentative identifications of target compound results (N), and a general qualifier for all results reported below the limit of quantitation (if applicable). In addition, a Validation Reason Code will be presented on the data tables to indicate the reason that a qualifier code has been applied.

The data reviewer's criteria for evaluating the usability of the PFAS data and the resultant qualifications and reason codes will be as stipulated on the attached Table for the Validation of PFAS Data Generated. Additional qualifications and reason codes will be assigned based on professional judgement. It should be noted that the project manager should be consulted when "professional judgement" use is indicated on the attached table.

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Temperature Upon Receipt	≤6°C	If temperature is <2°C, no action is required unless samples were frozen/broken and then professional judgment should be used. If temperature is >6°C but ≤20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SPL") If temperature is > 20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SPL") Note time of collection relative to receipt at laboratory. Professional judgement should be used if < 8 hours has elapsed from collection to receipt at the laboratory to determine if qualification due to elevated temperature applies.
Technical Holding Time	Solid samples should be extracted within 28 days of sample collection and aqueous samples should be extracted within 14 days of collection. All extracts should be analyzed within 28 days after extraction.	If a holding time is exceeded, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively) If a holding time is grossly exceeded (*i.e.*, > twice the holding time), qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively)

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Initial Calibration (See Note #1 for additional information.)	Back calculated concentration of each calibration point should be within 70-130% of true value. The level 1 (lowest) calibration standard back calculated concentrations should be within 50-150% of true value. $r^2 \geq 0.99$ for each analyte.	**When evaluating initial calibration, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS(s).** If the low point or consecutive points at the low end of the curve are below the lower recovery criteria, qualify positive results < lowest compliant point as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "ICL") If the low point or consecutive points at the low end of the curve are above the upper recovery criteria, qualify positive results < lowest compliant point as estimated ("J"). (Validation Reason Code "ICH") If a point in the middle of the curve or non-consecutive points (beside the low point) quantitate outside of criteria, qualify positive results as estimated ("J"). If the high point or consecutive points at the upper end of the curve quantitates outside of criteria, qualify positive results > highest compliant point as estimated ("J"). (Validation Reason Code "ICL," "ICH," or "IC," are to be used based on whether direction of bias can be determined in these situations) Professional judgement should be used to qualify "not-detected" results as estimated ("UJ") if low recoveries are observed for standards other than the lowest calibration point. (Validation Reason Code "ICL") If the $r^2 \geq 0.99$ for any analyte, qualify positive results as estimated ("J"). (Validation Reason Code "IC")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Second Source Initial Calibration Verification (ICV)	1. Calculated amount for each compound should be within 70-130% (±30%) of the true value. 2. The isotopically labeled injection and/or extraction standards should be within criteria.	**Qualification is for all samples associated with initial calibration being verified.** **When evaluating ICV, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS.** If target PFAS has %D>30% with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "SSH") If target PFAS has %D>30% but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SSL") If target PFAS has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SSL")
Continuing Calibration Verification (See Note #2 for additional information.)	Calculated amount should be within ±30% of the true value. The isotopically labeled injection and/or extraction standards should be within criteria. The CCV ran after ICAL must be at CAL3 level. Opening CCV for sequence **should** be at CAL1 level and must be within 50-150%.	**Qualification is for all samples on both sides of the out-of-criteria calibration verification standards**. **When evaluating calibration verification, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS.** If target PFAS has %D>30% (50% for CAL1 CCV) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "CVH") If target PFAS has %D>30% (50% for CAL1 CCV) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "CVL") If target PFAS has %D>90% with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "CVL")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Blanks (See Note #3 for additional information.)	Summarize all results greater than the method detection limit (MDL) present in the blanks. The highest positive result associated with a sample should be utilized for evaluation of contamination.	If a target PFAS is found in the blank but not in the associated sample(s), no action is required. If a sample result is ≤5× the blank result, qualify the positive result as "not detected" ("UB") and raise the method detection limit (MDL) and/or limit of quantitation (LOQ) (if lower than original reported positive result) to the value of the original result. (Validation Reason Code(s) "EB," FB," "IB," "MB," and or "TB," as appropriate). If a sample result is >5× blank result, qualification is not required. Professional judgement should be used to evaluate whether an aqueous blank should be used to qualify a solid sample.
Injection/Internal Standards (Labelled Analytes, spiked prior to injection and used as internal standards for extraction standards)	The response for each internal standard in the original sample must be within ±%50 of the average initial calibration response.	If an internal response is outside of criteria, use professional judgment to determine the potential impact on the quantitation of the extraction standard recoveries and whether qualification due to out-of-criteria extraction standard recoveries (see directly below) should be modified.
Extraction Standards (Labelled Analytes, spiked prior to extraction and used as internal standards for target compounds)	The response for each ES in the original sample must be within the advisory limits of 70-130% recovery or laboratory-generated control limits, if available.	If an ES response or recovery is outside of criteria but ≥10%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ") for PFASs quantitated using that ES. (Validation Reason Code "IS") If an ES response is < 10%, qualify positive results for the associated PFASs as estimated ("J") and qualify "not-detected" results for the associated PFASs as estimated ("UJ") or unusable ("R") using professional judgment (based on the approximate signal-to-noise ratio for the ES and the expected response for the target PFAS at the LOQ). (Validation Reason Code "IS")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Laboratory Control Samples (LCS)/ Laboratory Control Sample Duplicates (LCSD)	%R within 70-130%, RPD ≤ 30%.	**The LCS qualification will be applied to all samples in the preparation batch.** If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). (Validation Reason Code "LAL") If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "LAL") If the precision between recoveries exceeds the RPD criterion, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LP")
Matrix Spike/Matrix Spike Duplicate (MS/MSD) (If performed)	%R within 70-130%, RPD ≤ 30%.	**The MS/MSD qualification will be applied to the unspiked parent sample.** Data should not be qualified due to %Rs (or RPDs calculated on %Rs) that are outside of criteria if the original concentration of a PFAS is >4× the spiking level for that compound. In such cases, RPDs calculated using MS/MSD results can be used to evaluate precision. If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "MAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "MAL") If the precision between recoveries exceeds the RPD criterion, qualify the positive result in the native sample as estimated ("J") and do not qualify the "not-detected" result. (Validation Reason Code "MP")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Field/Laboratory Duplicate (See Note #4 for additional information)	The RPD should be ≤30% when both results are >5× the sample-specific LOQ (RL). The difference between results should be ≤ 1.5×LOQ when at least one result is ≤5× the LOQ.	**If both results are <LOQ, a quantitative assessment of duplicate precision is not performed.** If the criteria are not met, qualify positive results for the out-of-criteria PFASs in the original sample and its duplicate as estimated ("J"). (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate) Use the MDL as a numerical value for any "not-detected" result in the difference calculation. Qualify "not-detected" results as estimated ("UJ") if the difference between the results is outside of criteria. (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate)
Percent Solids	Solid samples with less than 30% solid content require qualification.	If a solid sample has a percent solid content <30%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code of "PS") Use professional judgment to qualified "not-detected" results as unusable ("R") if a solid sample has a percent solids content <10%. (Validation Reason Code of "PS")
Compound Quantitation and Qualitative Identification (See Notes #5 for additional information.)	Samples with results that exceed the instrument calibration range should be reanalyzed at a dilution or re-extracted with a lower volume.	If a target PFAS result exceeds the instrument calibration range, qualify positive result as estimated ("J"). (Validation Reason Code "EC") Use professional judgment to determine whether sample reanalyses and dilutions should be compared to the original analyses. If criteria (see field duplicate usability) between the original sample results and the reanalysis sample results are not met, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "LD") If a target PFAS is <LOQ but ≥MDL, qualify positive results as estimated ("J"). (Validation Reason Code "RL") Use professional judgment to determine whether quantitation and qualitative identifications are accurate and whether data qualification is necessary.
System Performance	Professional judgement should be used when assessing the degradation of system performance during analyses.	Use professional judgment to qualify the data if it is determined that system performance degraded during sample analyses.

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Overall Assessment of Data	Assess overall quality of the data. Review available materials to assess the quality, keeping in mind the additive nature of the analytical problems.	Use professional judgment to determine the need to qualify data not qualified based on the QC previously discussed. Write a brief narrative to give the user an indication of the analytical limitations of the data. If sufficient information on the intended use and required quality of the data is available, include the assessment of the usability of the data within the given context.

Validation Notes

1. Use professional judgment when evaluating the response intercept of a calibration curve. If the response intercept is positive, the samples should be evaluated for false positives. If the response intercept is negative, the sample should be evaluated for false negatives.

2. If instrument instability (*i.e.*, several calibration verification standards with PFASs exhibiting both increasing and decreasing sensitivity throughout an analytical sequence) is observed in the analysis of sequential calibration verification standards, "not-detected" results may be qualified as estimated ("UJ") due to instrument sensitivity of a continuing calibration standard response that is greater than the initial calibration standard response (increase in instrument sensitivity).

3. The frequency of equipment/rinse blanks is determined during the sampling event. The results of an equipment/rinse blank should be applied to all collected in the same day by the same techniques, unless only one blank was collected for a several-day sampling event. In instances where more than one blank is associated with a given sample, qualification should be based upon a comparison with the associated blank having the highest concentration of a contaminant. Professional judgement should be used to evaluate whether an aqueous blank should be used to directly qualify a solid sample.

   Method blank contamination should be applied to samples in the preparation batch.

   Instrument blank contamination should be applied to samples bracketing the contaminated instrument blank.

   Blanks should also be evaluated using professional judgment for non-target interference.

Validation Notes

4. Duplicate samples may be collected and analyzed as an indication of overall precision. Field duplicate analyses measure both field and laboratory precision; therefore, the results may have more variability than laboratory duplicates that measure only laboratory performance. Laboratory duplicate results and field duplicate results apply only to the original sample and the laboratory/field duplicate. Solid duplicate results are expected to have greater variance than aqueous duplicate results.

5. If a sample result exceeds the instrument calibration range (lower dilution analysis) or is less than the LOQ (secondary dilution), do not utilize this result when comparing an original analysis and a diluted reanalysis.

   Poor chromatographic performance may affect qualitative identification and/or quantitation. Indications of substandard performance include:

   - High background levels
   - Extraneous peaks
   - Loss of resolution

- Peak tailing or peak splitting that may result in inaccurate quantitation
- The laboratory analyzes a Cal3 level standard that contains linear and branch chained isomers of PFOA, PFOS, and PFHxS for analyses. The analysis of this standard is used to demonstrate where the branch chained isomers elute and is not included in the calibration curve. This will assist the chemist in the integration of branched isomers of these compounds in samples.

SECTION 5

ORGANIC DATA SUPPORT DOCUMENTATION

A. SDG SBN12

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	St. Gobain	Reviewed by:	Allison Felix
Sample Collection Dates:	3/30/18	Approved by:	MAW
Job Number:	20167391.NBEN	Completion Date:	5/18
Project Manager:	Meg Michell		
Laboratory:	ELLE	Applicable Sample No's (X)	Refer to Table 1 in the Quality Assurance Review

			Sample No.	Lab Control No.
Deliverable:	CLP (Full)	( )		
SBN12	Level IV (Full)	(X)	All	All
	Limited	( )		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail Check (√) if Yes or Footnote Letter for Comments Below					Problems Identified Check (√) if Yes or Footnote Letter for Comments Below					Support Documentation Attachments Check (√) if Yes or Footnote Letter for Comments Below				
	EPA 537					EPA 537					EPA 537				
Holding Times	X										X				
Blank Analysis: Target Cmpds	X										X				
Sys Montr Cmps/Surrogates	X					x					X				
Matrix Spike/Matrix Spike Duplicate															
Blank Spike	X					x					X				
Duplicate Analysis () Field (X) Lab	X										X				
Detection Limit/Sensitivity	X										X				
Qualitative Identification: Target Cmpds	X										X				
Qualitative Identification: TICs															
DFTPP & BFB Mass Tuning															
GC Instrument Performance															
Initial Calibrations	X										X				
Continuing Calibrations	X										X				
Quantitation of Results	X										X				
DDT/Endrin Breakdown															
Surrogate Retention Time Shifts															
Internal Standards Performance															
Resolution Check Standards															
Analytical Sequence	X										X				
Florisil Cartridge & GPC Calibration															
GC Column Agreement															
Condition Upon Receipt	X										X				
Percent Solids															
Others:															

Comments: _____

ENVIRONMENTAL STANDARDS

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample Number	Contaminant	Concentration (ng/wipe)	Qualification limit 5×	Qualification limit 10×	
pfc	Wipe	MB	BLK094017	None present		0	0	
		EB	SG3a-EB02-18330	PFBA	0.28	1.4	0	
		EB		PFHpA	0.28	1.4	0	
				PFOA	3.3	16.5	0	
			SG3a-EB03-18330	PFBA	2.9	14.5	0	*
				PFHpA	2.0	10	0	*
				PFOA	220	1100	0	*
						0	0	
						0	0	
						0	0	
						0	0	
						0	0	
						0	0	

1 - V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: _____

2 - MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes: _____

Sample Description: SG3a-EB02-180330 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 10:00
SDG#: SBN10-17EB

C. T. Male Associates
ELLE Sample #: WP 9536675
ELLE Group #: 1926425
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/wipe**	**ng/wipe**	**ng/wipe**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.28 JB**	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.28 J**	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.20 U	0.20	0.60	1
14027	Perfluorononanoic acid	375-95-1	0.20 U	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**4.0** R	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**33**	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank as noted on the QC summary.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094001	04/09/2018 18:26	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094001	04/04/2018 06:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-EB03-180330 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 12:15
SDG#: SBN11-19EB

C. T. Male Associates
ELLE Sample #: WP 9536699
ELLE Group #: 1926426
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**2.9 JB**	2.0	6.0	10
14027	Perfluorodecanoic acid	335-76-2	2.0 U	2.0	6.0	10
14027	Perfluorododecanoic acid	307-55-1	2.0 U	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**2.0 J**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	Perfluorohexanoic acid	307-24-4	2.0 U	2.0	6.0	10
14027	Perfluorononanoic acid	375-95-1	2.0 U	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**60** R	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**220**	2.0	6.0	10
14027	Perfluoropentanoic acid	2706-90-3	2.0 U	2.0	6.0	10
14027	Perfluorotetradecanoic acid	376-06-7	2.0 U	2.0	6.0	10
14027	Perfluorotridecanoic acid	72629-94-8	2.0 U	2.0	6.0	10
14027	Perfluoroundecanoic acid	2058-94-8	2.0 U	2.0	6.0	10

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were deteted in the method blank associated with this sample. Sufficient sample was not available to repeat the analysis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094013	04/08/2018 21:06	Jason W Knight	10
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094013	04/04/2018 15:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Sample Reference List for SDG Number SBN12 with a Data Package Type of I

37191 - C. T. Male Associates

Project: SGPP - Bennington

Lab Sample Number	Client Sample ID	Collection Date	Date Received
9536701	SG3a-WP19-D	03/30/2018 12:35	03/31/2018 09:55
9536702	SG3a-WP19-D5.5	03/30/2018 12:40	03/31/2018 09:55
9536703	SG3a-WP20-D	03/30/2018 12:45	03/31/2018 09:55
9536704	SG3a-WP20-D5.5	03/30/2018 12:50	03/31/2018 09:55
9536705	SG3a-WP21-D5.5	03/30/2018 12:55	03/31/2018 09:55
9536706	SG3a-WP22-E	03/30/2018 13:15	03/31/2018 09:55
9536707	SG3a-WP23-F5.0	03/30/2018 13:20	03/31/2018 09:55
9536708	SG3a-WP24-F3.0	03/30/2018 13:25	03/31/2018 09:55
9536709	SG3a-WP25-E	03/30/2018 13:35	03/31/2018 09:55
9536710	SG3a-WP26-F5.0	03/30/2018 13:40	03/31/2018 09:55

All HT met, all samples.

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Analysis Report

Sample Description: SG3a-WP19-D Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 12:35
SDG#: SBN12-01

C. T. Male Associates
ELLE Sample #: WP 9536701
ELLE Group #: 1926427
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**5.2 J**	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**8.0**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**4.7 J**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**51**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**26**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**7.7**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**9.9**	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**4,000**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**5.1 J**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**3.4 J**	2.0	6.0	10
14027	Perfluorotridecanoic acid	72629-94-8	2.0 U	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.8 J**	2.0	6.0	10

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094017	04/09/2018 21:20	Jason W Knight	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094017	04/10/2018 22:33	Devon M Whooley	10
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094017	04/05/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/11/2018 3:48:30 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

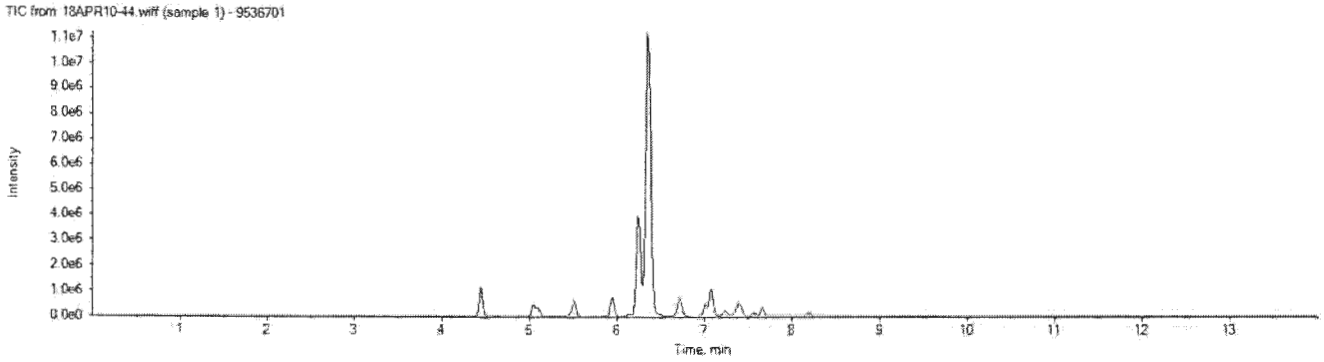
Analyte Quantitation Peak Table

Sample Name: 9536701 **Instrument Name:** LM24960 **File Name:** 18APR10-44.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	77481.4	A	13C4-PFBA	4.44	1712841.1	0.045	5.163
PFPeA	5.04	1.000	67619.4	M	13C5-PFPeA	5.05	1344419.4	0.050	5.111
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	862688.9	N/A	
PFHxA	5.51	1.000	376797.8	M	13C5-PFHxA	5.51	1559457.1	0.242	26.289
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	591406.7	N/A	
PFHpA	5.95	1.000	628160.4	M	13C4-PFHpA	5.95	1188150.2	0.529	51.216
PFOA	6.36	1.000	28048306.7	M	13C8-PFOA	6.36	646378.4	43.393	4661.168
PFOS	6.71	1.000	71187.9	M	13C8-PFOS	6.71	682161.2	0.104	9.931
PFNA	6.73	1.000	85548.8	M	13C9-PFNA	6.73	1038879.9	0.082	7.690
PFDA	7.08	1.000	101001.5	A	13C6-PFDA	7.07	1495871.9	0.068	8.011
PFUnDA	7.38	1.000	24715.8	M	13C7-PFUnDA	7.38	808033.5	0.031	2.752
PFDoDA	7.66	1.000	40454.5	M	13C2-PFDoDA	7.66	962451.8	0.042	4.690
PFTrDA	7.92	1.030	11548.2	M	13C2-PFDoDA	7.66	962451.8	0.012	1.380
PFTeDA	8.19	1.000	17569.7	M	13C2-PFTeDA	8.20	568934.7	0.031	3.418

Total Ion Chromatogram

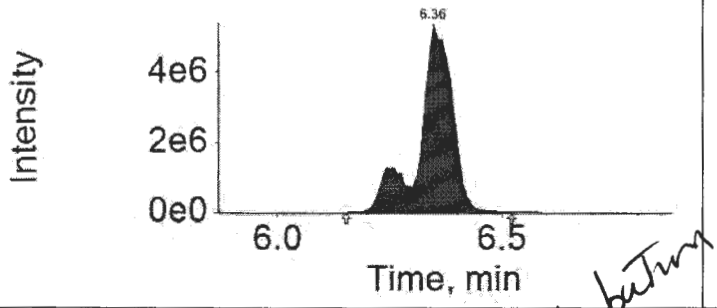


APPROVED
By DMW at 4:08 pm, 4/11/18

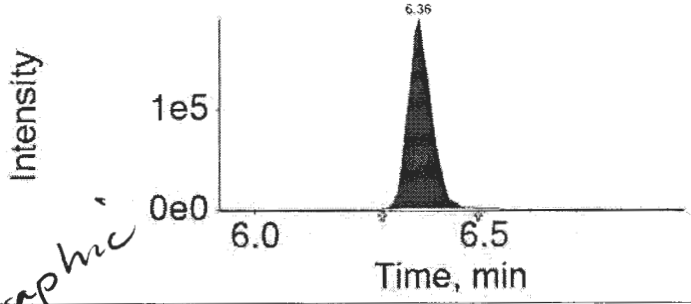
REVIEWED

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/11/2018 3:48:30 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

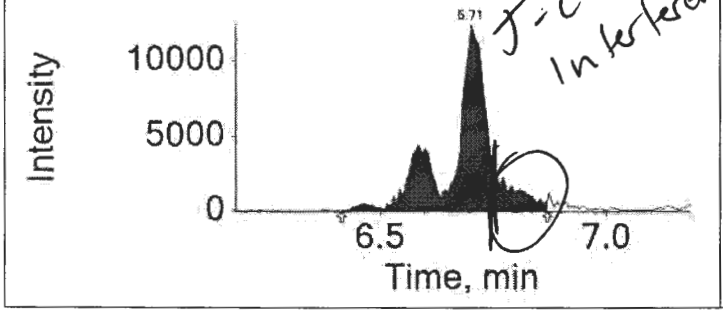
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

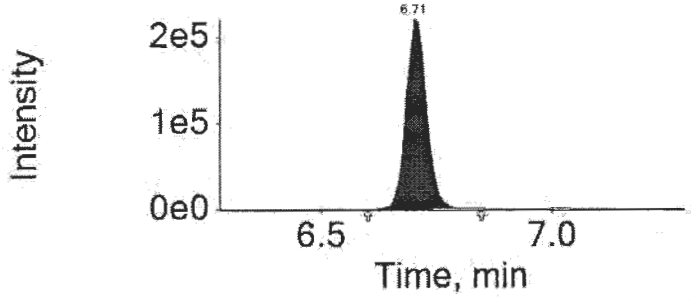


Analyte: PFOS
499.0 / 80.0

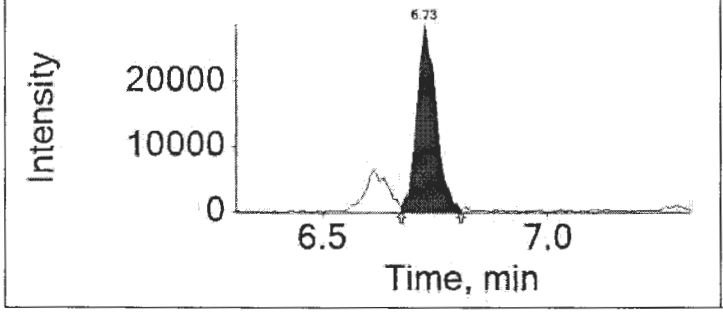


Contributing for chromatographic Interference

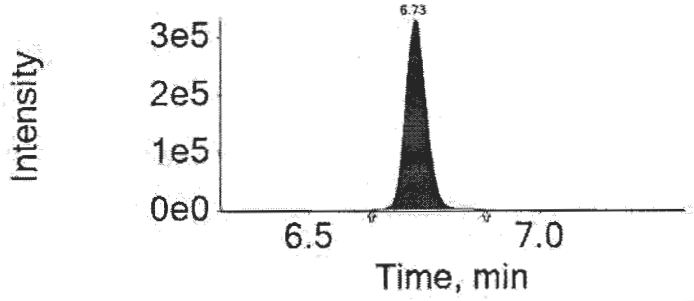
Extraction Standard: 13C8-PFOS
507.0 / 80.0



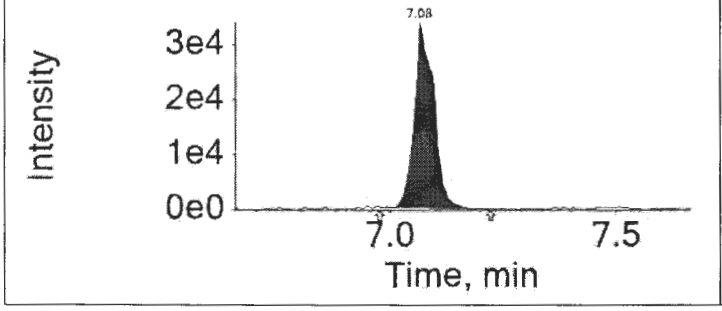
Analyte: PFNA
463.0 / 419.0



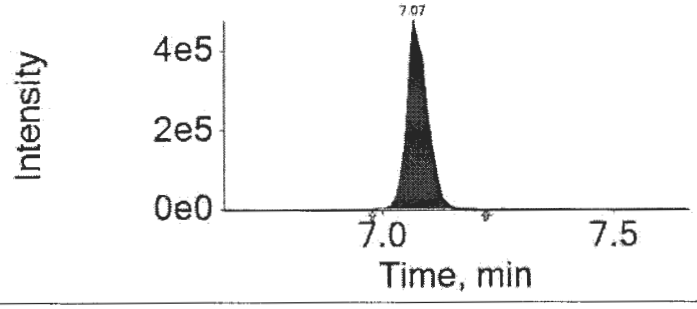
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 4:08 pm, 4/11/18

REVIEWED

Sample Description: SG3a-WP19-D5.5 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 12:40
SDG#: SBN12-02

C. T. Male Associates
ELLE Sample #: WP 9536702
ELLE Group #: 1926427
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**4.7 J**	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**4.8 J**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**3.6 J**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**28**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**13**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**3.4 J**	2.0	6.0	10
14027	Perfluoro-octanesulfonate	1763-23-1	3.0 U	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**3,400**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**2.8 J**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**2.7 J**	2.0	6.0	10
14027	Perfluorotridecanoic acid	72629-94-8	2.0 U	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.4 J**	2.0	6.0	10

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094017	04/09/2018 21:35	Jason W Knight	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094017	04/10/2018 22:47	Devon M Whooley	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094017	04/05/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

Printed: 4/10/2018 1:05:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/10/2018 12:58:53 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

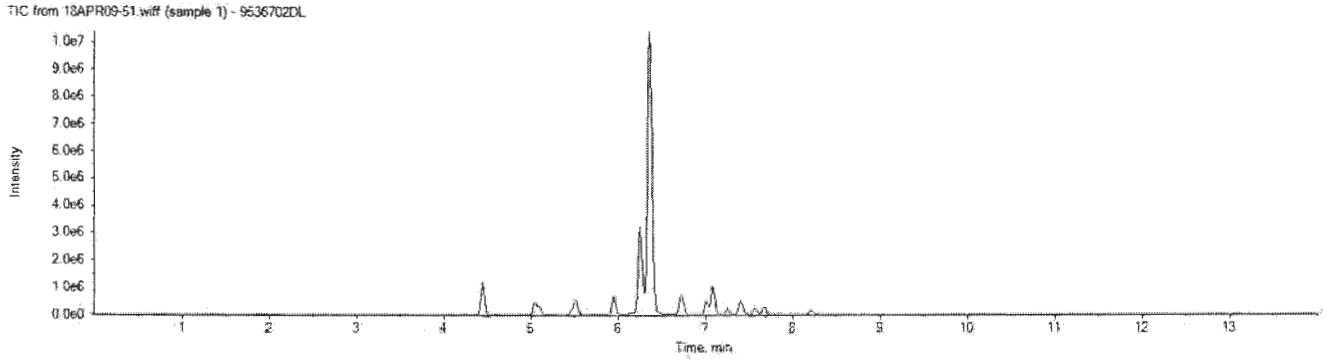
Analyte Quantitation Peak Table

Sample Name: 9536702 **Instrument Name:** LM24960 **File Name:** 18APR09-51.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	71399.9	A	13C4-PFBA	4.45	1718744.9	0.042	4.742
PFPeA	5.05	1.000	36204.0	M	13C5-PFPeA	5.05	1315069.2	0.028	2.797
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	830243.9	N/A	
PFHxA	5.51	1.000	190233.5	M	13C5-PFHxA	5.51	1544393.2	0.123	13.402
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.95	599203.3	N/A	
PFHpA	5.95	1.000	339090.0	M	13C4-PFHpA	5.95	1193181.0	0.284	27.530
PFOA	6.36	1.000	22488297.1	M	13C8-PFOA	6.36	881212.5	25.520	2741.264
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.71	686038.8	N/A	
PFNA	6.74	1.000	38722.6	M	13C9-PFNA	6.74	1058951.2	0.037	3.415
PFDA	7.08	1.000	63085.7	M	13C6-PFDA	7.08	1556913.0	0.041	4.808
PFUnDA	7.39	1.000	20767.7	A	13C7-PFUnDA	7.39	783454.4	0.027	2.385
PFDoDA	7.67	1.000	27030.0	A	13C2-PFDoDA	7.67	842733.8	0.032	3.579
PFTrDA	7.94	1.040	8789.0	M	13C2-PFDoDA	7.67	842733.8	0.010	1.199
PFTeDA	8.21	1.000	12227.0	M	13C2-PFTeDA	8.22	493921.3	0.025	2.740

Total Ion Chromatogram

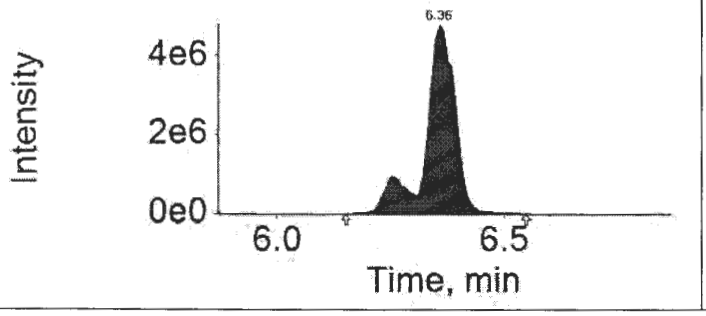


APPROVED
By DMW at 4:04 pm, 4/11/18

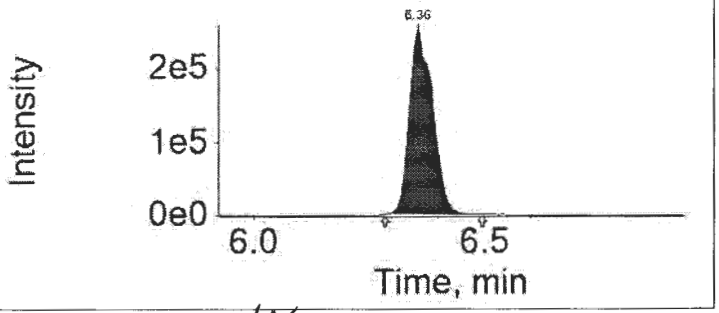
REVIEWED

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/10/2018 12:58:53 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

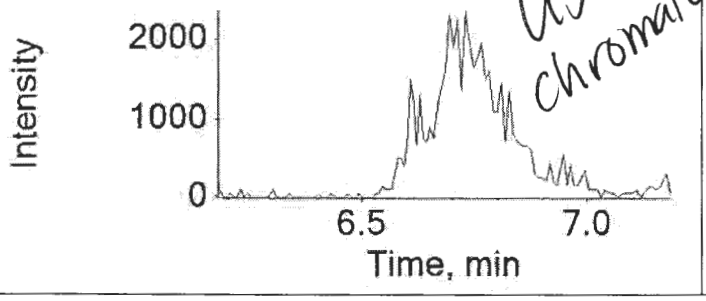
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

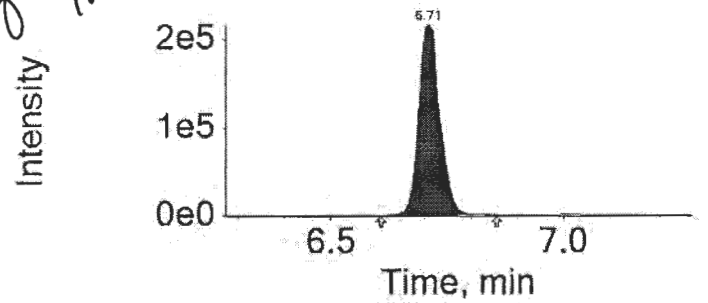


Analyte: PFOS
499.0 / 80.0

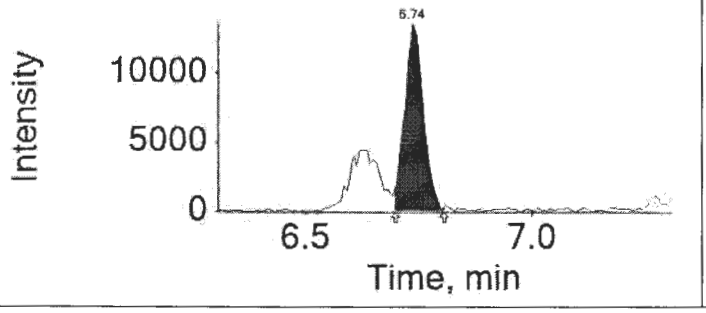


UJ chromatographic interference

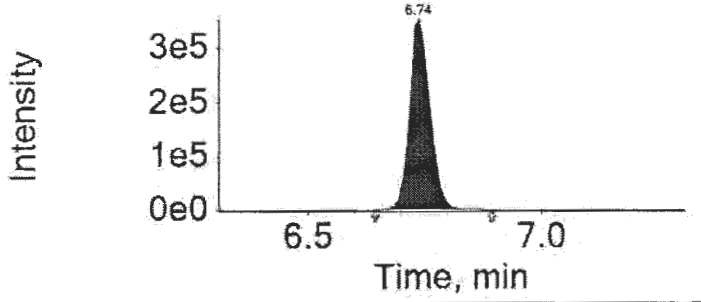
Extraction Standard: 13C8-PFOS
507.0 / 80.0



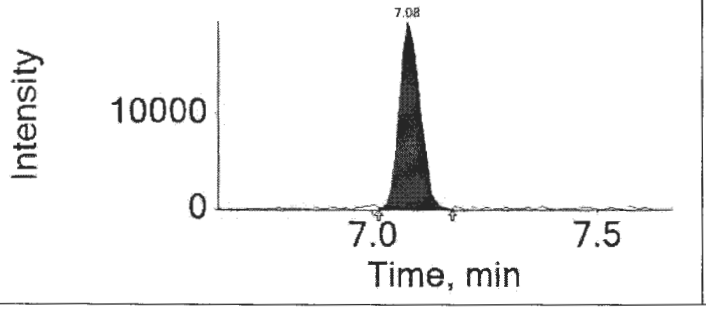
Analyte: PFNA
463.0 / 419.0



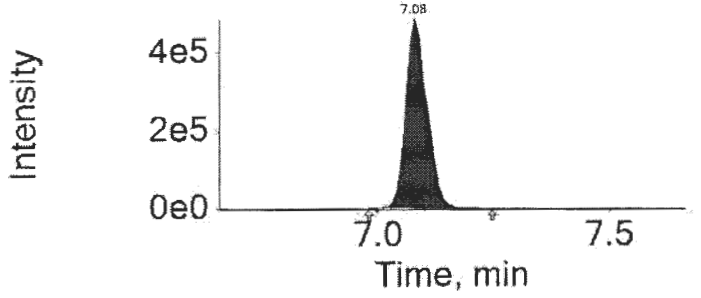
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



Sample Description: SG3a-WP20-D Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 12:45
SDG#: SBN12-03

C. T. Male Associates
ELLE Sample #: WP 9536703
ELLE Group #: 1926427
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/wipe**	**ng/wipe**	**ng/wipe**	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	**Perfluorobutanoic acid**	375-22-4	**19**	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**9.2**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**4.4 J**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**130**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**90**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**8.9**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**4.6 J**	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**9,200**	20	60	100
14027	**Perfluoropentanoic acid**	2706-90-3	**18**	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**2.3 J**	2.0	6.0	10
14027	Perfluorotridecanoic acid	72629-94-8	2.0 U	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**3.7 J**	2.0	6.0	10

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094017	04/09/2018 22:18	Jason W Knight	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094017	04/10/2018 23:02	Devon M Whooley	100
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094017	04/05/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/10/2018 12:58:53 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

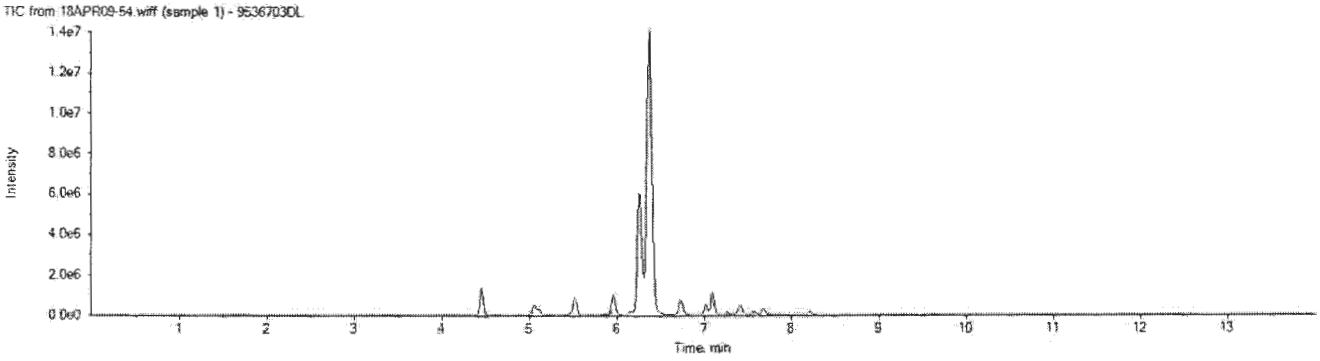
Analyte Quantitation Peak Table

Sample Name: 9536703 **Instrument Name:** LM24960 **File Name:** 18APR09-54.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.45	1.000	282745.6	A	13C4-PFBA	4.45	1729334.7	0.163	18.663
PFPeA	5.05	1.000	230601.4	M	13C5-PFPeA	5.05	1293673.4	0.178	18.113
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.11	839055.9	N/A	
PFHxA	5.52	1.000	1208346.8	M	13C5-PFHxA	5.52	1459283.3	0.828	90.094
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.95	609296.8	N/A	
PFHpA	5.96	1.000	1506021.3	M	13C4-PFHpA	5.96	1132692.4	1.330	128.802
PFOA	6.37	1.000	37032775.5	M	13C8-PFOA	6.37	492513.7	75.191	8076.866
PFOS	6.72	1.000	33079.3	M	13C8-PFOS	6.72	688204.5	0.048	4.574
PFNA	6.75	1.000	101404.1	M	13C9-PFNA	6.74	1064784.6	0.095	8.893
PFDA	7.09	1.000	111957.3	M	13C6-PFDA	7.09	1446028.5	0.077	9.186
PFUnDA	7.40	1.000	32396.6	M	13C7-PFUnDA	7.40	795779.0	0.041	3.663
PFDoDA	7.68	1.000	35347.0	A	13C2-PFDoDA	7.68	899885.3	0.039	4.383
PFTrDA	7.95	1.040	13252.0	A	13C2-PFDoDA	7.68	899885.3	0.015	1.693
PFTeDA	8.22	1.000	11927.1	M	13C2-PFTeDA	8.22	581655.5	0.021	2.270

Total Ion Chromatogram

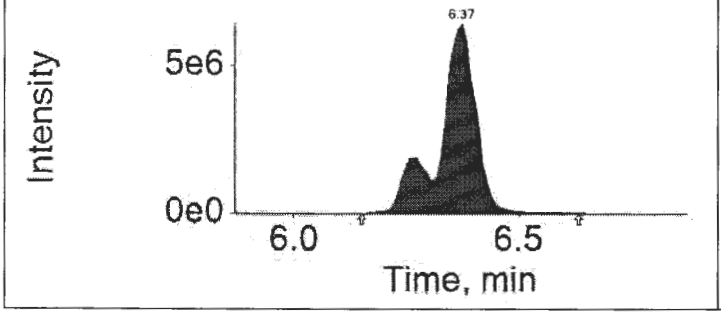


APPROVED
By DMW at 4:04 pm, 4/11/18

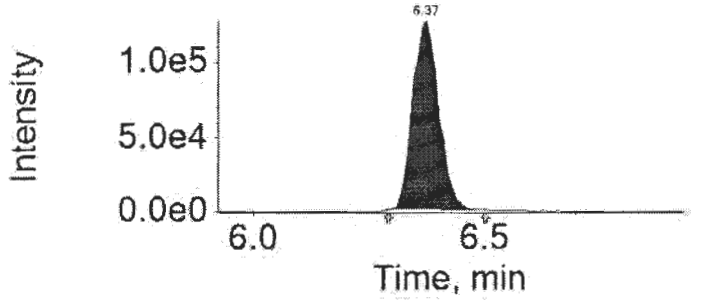
REVIEWED

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/10/2018 12:58:53 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

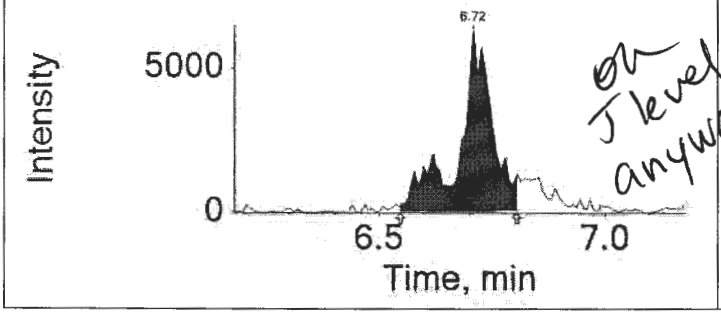
Analyte: PFOA
413.0 / 369.0



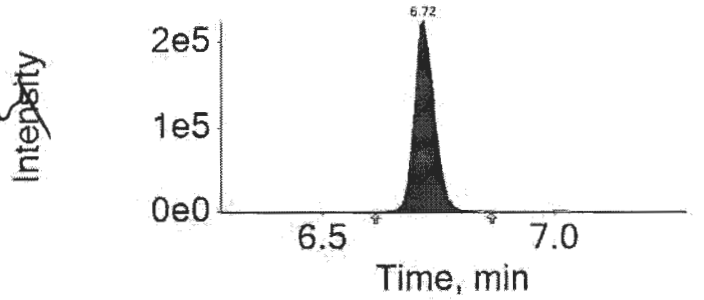
Extraction Standard: 13C8-PFOA
421.0 / 376.0



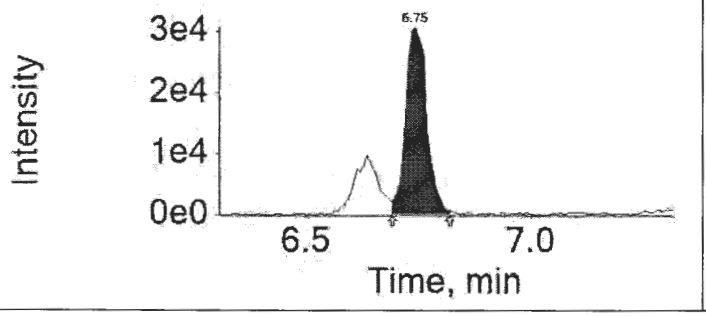
Analyte: PFOS
499.0 / 80.0



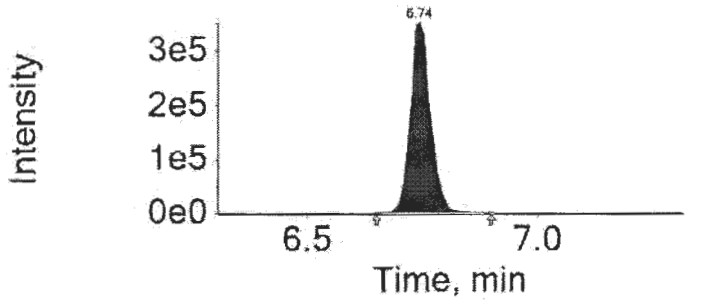
Extraction Standard: 13C8-PFOS
507.0 / 80.0



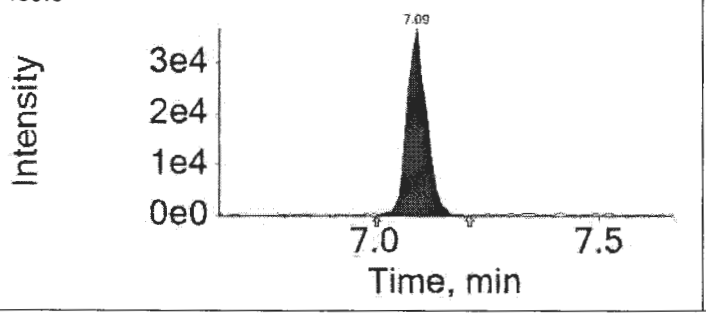
Analyte: PFNA
463.0 / 419.0



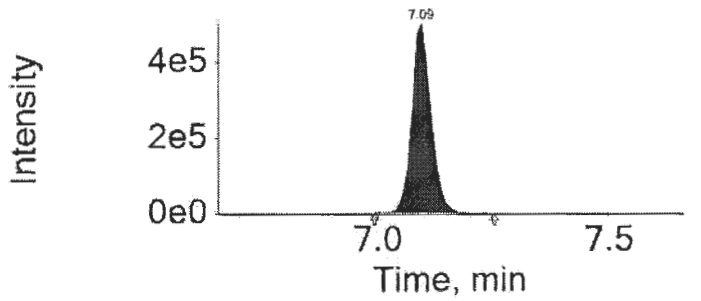
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 4:04 pm, 4/11/18

REVIEWED

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Sample Description: SG3a-WP20-D5.5 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 12:50
SDG#: SBN12-04

C. T. Male Associates
ELLE Sample #: WP 9536704
ELLE Group #: 1926427
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/wipe**	**ng/wipe**	**ng/wipe**	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	**Perfluorobutanoic acid**	375-22-4	**230**	20	60	100
14027	**Perfluorodecanoic acid**	335-76-2	**52 J**	20	60	100
14027	Perfluorododecanoic acid	307-55-1	20 U	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**1,000**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**750**	20	60	100
14027	**Perfluorononanoic acid**	375-95-1	**68**	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**39,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**180**	20	60	100
14027	Perfluorotetradecanoic acid	376-06-7	20 U	20	60	100
14027	Perfluorotridecanoic acid	72629-94-8	20 U	20	60	100
14027	Perfluoroundecanoic acid	2058-94-8	20 U	20	60	100

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094017	04/09/2018 22:33	Jason W Knight	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094017	04/10/2018 23:16	Devon M Whooley	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094017	04/05/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/10/2018 12:58:53 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

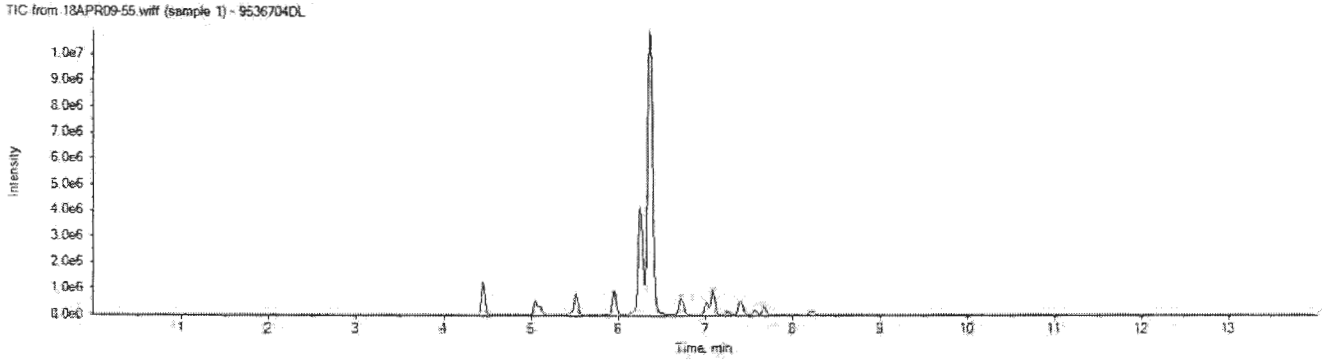
Analyte Quantitation Peak Table

Sample Name: 9536704 **Instrument Name:** LM24960 **File Name:** 18APR09-55.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	340911.8	A	13C4-PFBA	4.45	1718022.2	0.198	226.504
PFPeA	5.05	1.000	225840.1	M	13C5-PFPeA	5.05	1310804.3	0.172	175.070
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	852894.0	N/A	
PFHxA	5.51	1.000	1034783.2	M	13C5-PFHxA	5.51	1496295.0	0.692	752.446
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.95	602950.4	N/A	
PFHpA	5.95	1.000	1176017.5	M	13C4-PFHpA	5.96	1143878.3	1.028	995.953
PFOA	6.37	1.000	27393214.8	M	13C8-PFOA	6.36	607931.5	45.060	48401.999
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.71	685521.9	N/A	
PFNA	6.74	1.000	67533.3	M	13C9-PFNA	6.74	926395.0	0.073	68.075
PFDA	7.08	1.000	68954.8	A	13C6-PFDA	7.08	1565846.3	0.044	52.249
PFUnDA	7.39	1.000	13630.6	M	13C7-PFUnDA	7.39	950148.1	0.014	12.908
PFDoDA	7.67	1.000	12738.8	M	13C2-PFDoDA	7.68	991751.7	0.013	14.332
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	991751.7	N/A	
PFTeDA	8.21	1.000	4247.2	M	13C2-PFTeDA	8.22	584649.4	0.007	8.040

Total Ion Chromatogram



APPROVED
By DMW at 4:04 pm, 4/11/18

REVIEWED

Sample Description: SG3a-WP21-D5.5 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 12:55
SDG#: SBN12-05

C. T. Male Associates
ELLE Sample #: WP 9536705
ELLE Group #: 1926427
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	20 U	20	60	100
14027	**Perfluorobutanoic acid**	375-22-4	**100**	20	60	100
14027	**Perfluorodecanoic acid**	335-76-2	**39 J**	20	60	100
14027	Perfluorododecanoic acid	307-55-1	20 U	20	60	100
14027	**Perfluoroheptanoic acid**	375-85-9	**550**	20	60	100
14027	Perfluorohexanesulfonate	355-46-4	20 U	20	60	100
14027	**Perfluorohexanoic acid**	307-24-4	**340**	20	60	100
14027	**Perfluorononanoic acid**	375-95-1	**47 J**	20	60	100
14027	Perfluoro-octanesulfonate	1763-23-1	30 U	30	90	100
14027	**Perfluorooctanoic acid**	335-67-1	**30,000**	200	600	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**66**	20	60	100
14027	Perfluorotetradecanoic acid	376-06-7	20 U	20	60	100
14027	Perfluorotridecanoic acid	72629-94-8	20 U	20	60	100
14027	Perfluoroundecanoic acid	2058-94-8	20 U	20	60	100

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094017	04/09/2018 22:47	Jason W Knight	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094017	04/10/2018 23:31	Devon M Whooley	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094017	04/05/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/10/2018 12:58:53 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

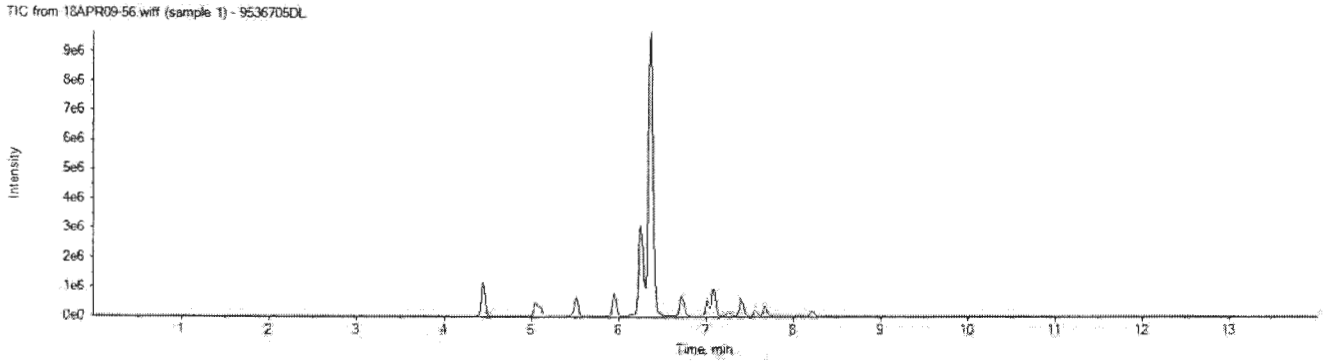
Analyte Quantitation Peak Table

Sample Name: 9536705 **Instrument Name:** LM24960 **File Name:** 18APR09-56.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	100.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/wipe)
PFBA	4.44	1.000	160028.3	A	13C4-PFBA	4.45	1762991.3	0.091	103.612
PFPeA	5.05	1.000	87297.4	M	13C5-PFPeA	5.05	1343382.2	0.065	66.031
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	868803.7	N/A	
PFHxA	5.51	1.000	474635.7	M	13C5-PFHxA	5.52	1524461.8	0.311	338.756
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.95	627655.3	N/A	
PFHpA	5.95	1.000	657117.8	M	13C4-PFHpA	5.95	1151462.0	0.571	552.839
PFOA	6.36	1.000	21998486.5	M	13C8-PFOA	6.36	724526.2	30.363	32614.720
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.71	702386.0	N/A	
PFNA	6.74	1.000	48774.6	M	13C9-PFNA	6.74	969775.4	0.050	46.967
PFDA	7.08	1.000	51555.3	A	13C6-PFDA	7.08	1588350.0	0.032	38.512
PFUnDA	7.39	1.000	14218.2	M	13C7-PFUnDA	7.39	889571.9	0.016	14.381
PFDoDA	7.67	1.000	16000.8	M	13C2-PFDoDA	7.68	1041011.0	0.015	17.151
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.68	1041011.0	N/A	
PFTeDA	8.22	1.000	7442.1	M	13C2-PFTeDA	8.22	623837.2	0.012	13.204

Total Ion Chromatogram



APPROVED
By DMW at 4:04 pm, 4/11/18

REVIEWED

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Sample Description: SG3a-WP22-E Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 13:15
SDG#: SBN12-06

C. T. Male Associates
ELLE Sample #: WP 9536706
ELLE Group #: 1926427
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/wipe**	**ng/wipe**	**ng/wipe**	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	Perfluorobutanoic acid	375-22-4	2.0 U	2.0	6.0	10
14027	Perfluorodecanoic acid	335-76-2	2.0 U	2.0	6.0	10
14027	Perfluorododecanoic acid	307-55-1	2.0 U	2.0	6.0	10
14027	Perfluoroheptanoic acid	375-85-9	2.0 U	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	Perfluorohexanoic acid	307-24-4	2.0 U	2.0	6.0	10
14027	Perfluorononanoic acid	375-95-1	2.0 U	2.0	6.0	10
14027	Perfluoro-octanesulfonate	1763-23-1	3.0 U	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**88**	2.0	6.0	10
14027	Perfluoropentanoic acid	2706-90-3	2.0 U	2.0	6.0	10
14027	Perfluorotetradecanoic acid	376-06-7	2.0 U	2.0	6.0	10
14027	Perfluorotridecanoic acid	72629-94-8	2.0 U	2.0	6.0	10
14027	Perfluoroundecanoic acid	2058-94-8	2.0 U	2.0	6.0	10

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094017	04/10/2018 23:45	Devon M Whooley	10
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094017	04/05/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/11/2018 3:48:30 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

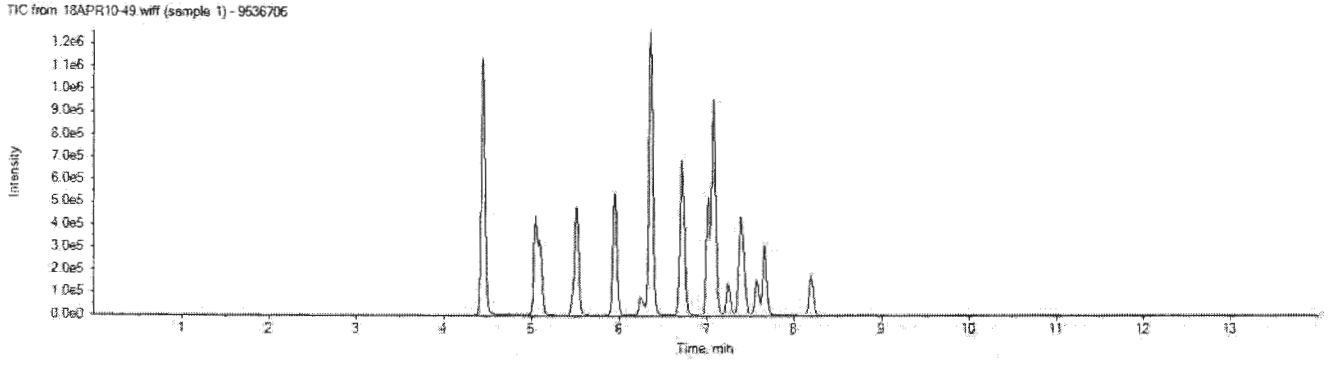
Analyte Quantitation Peak Table

Sample Name: 9536706 **Instrument Name:** LM24960 **File Name:** 18APR10-49.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.45	1708514.1	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.05	1287254.4	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	845006.7	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.51	1480744.7	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	612569.8	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.95	1125391.9	N/A	
PFOA	6.36	1.000	937333.6	M	13C8-PFOA	6.36	1142555.1	0.820	88.124
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.71	674386.4	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	984637.3	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.07	1501082.2	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.38	884893.5	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	926211.2	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	926211.2	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.20	593084.7	N/A	

Total Ion Chromatogram



APPROVED
By DMW at 4:08 pm, 4/11/18

REVIEWED

Sample Description: SG3a-WP23-F5.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 13:20
SDG#: SBN12-07

C. T. Male Associates
ELLE Sample #: WP 9536707
ELLE Group #: 1926427
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/wipe**	**ng/wipe**	**ng/wipe**	
14027	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	6.0	10
14027	Perfluorobutanoic acid	375-22-4	2.0 U	2.0	6.0	10
14027	**Perfluorodecanoic acid**	335-76-2	**6.8**	2.0	6.0	10
14027	**Perfluorododecanoic acid**	307-55-1	**4.5 J**	2.0	6.0	10
14027	**Perfluoroheptanoic acid**	375-85-9	**12**	2.0	6.0	10
14027	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	6.0	10
14027	**Perfluorohexanoic acid**	307-24-4	**2.5 J**	2.0	6.0	10
14027	**Perfluorononanoic acid**	375-95-1	**3.0 J**	2.0	6.0	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**7.0 J**	3.0	9.0	10
14027	**Perfluorooctanoic acid**	335-67-1	**1,400**	2.0	6.0	10
14027	Perfluoropentanoic acid	2706-90-3	2.0 U	2.0	6.0	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**2.0 J**	2.0	6.0	10
14027	Perfluorotridecanoic acid	72629-94-8	2.0 U	2.0	6.0	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.1 J**	2.0	6.0	10

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094017	04/11/2018 00:00	Devon M Whooley	10
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094017	04/05/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/11/2018 3:48:30 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

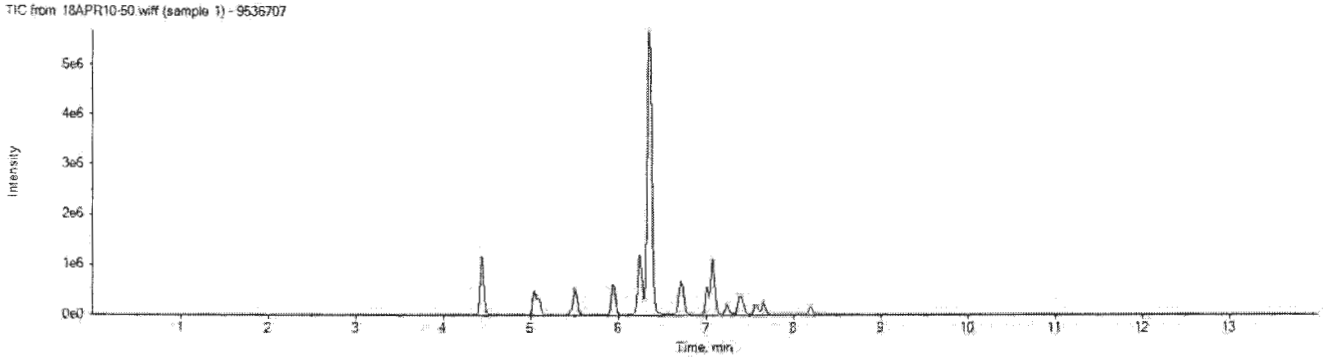
Analyte Quantitation Peak Table

Sample Name: 9536707 **Instrument Name:** LM24960 **File Name:** 18APR10-50.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1744895.5	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.04	1340526.2	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	858467.2	N/A	
PFHxA	5.51	1.000	35213.6	M	13C5-PFHxA	5.51	1547592.7	0.023	2.476
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	601983.6	N/A	
PFHpA	5.94	1.000	147189.2	M	13C4-PFHpA	5.95	1210907.2	0.122	11.775
PFOA	6.35	1.000	11394892.8	M	13C8-PFOA	6.35	888905.6	12.819	1376.986
PFOS	6.70	1.000	49547.4	M	13C8-PFOS	6.70	671454.7	0.074	7.022
PFNA	6.73	1.000	35603.4	M	13C9-PFNA	6.73	1114006.7	0.032	2.984
PFDA	7.07	1.000	90316.2	A	13C6-PFDA	7.07	1569610.7	0.058	6.827
PFUnDA	7.37	1.000	18228.5	M	13C7-PFUnDA	7.38	789030.4	0.023	2.079
PFDoDA	7.66	1.000	29319.3	A	13C2-PFDoDA	7.66	721884.2	0.041	4.532
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	721884.2	N/A	
PFTeDA	8.19	1.000	8651.7	M	13C2-PFTeDA	8.19	474854.6	0.018	2.017

Total Ion Chromatogram

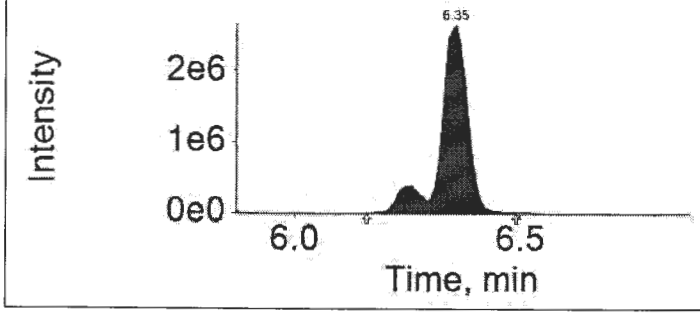


APPROVED
By DMW at 4:08 pm, 4/11/18

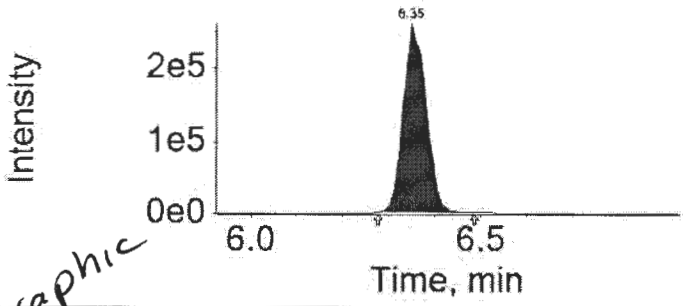
REVIEWED

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/11/2018 3:48:30 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

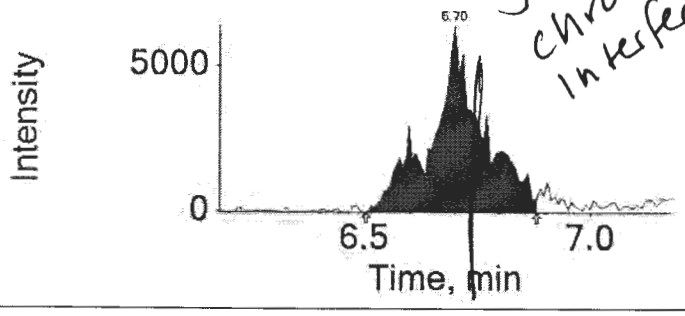
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

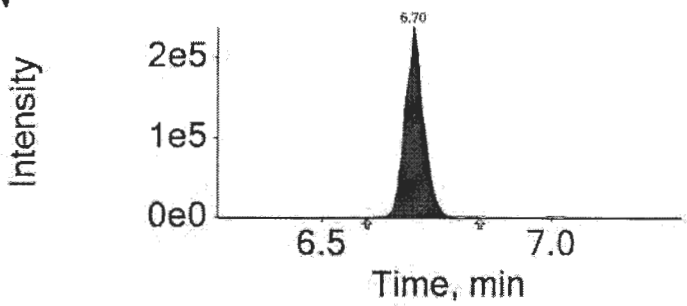


Analyte: PFOS
499.0 / 80.0

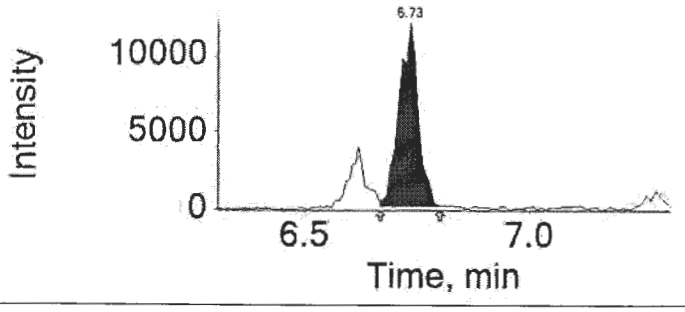


JN – chromatographic interference

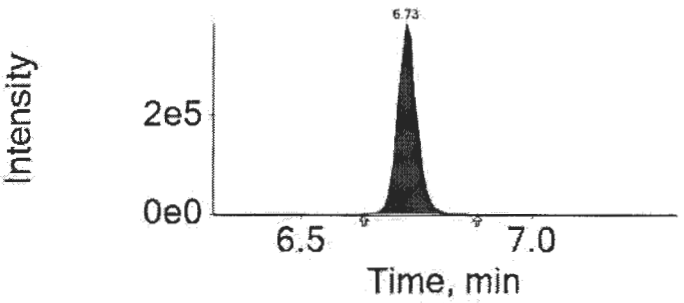
Extraction Standard: 13C8-PFOS
500 / 80.0



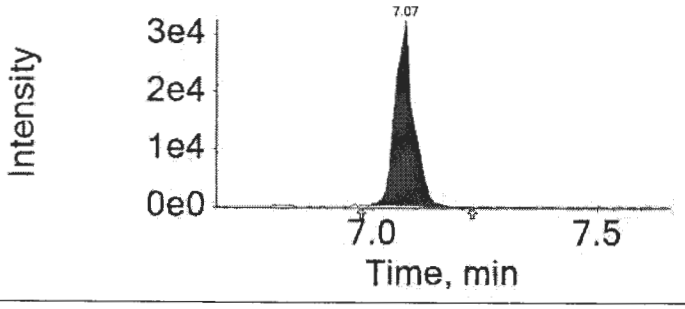
Analyte: PFNA
463.0 / 419.0



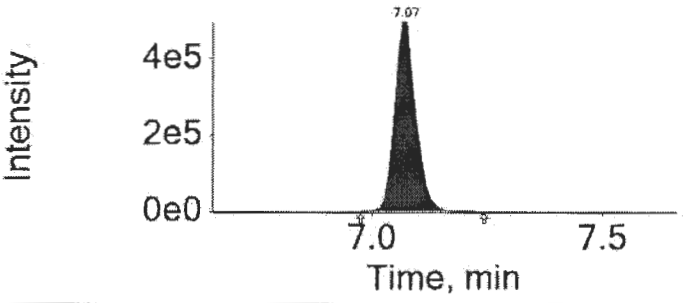
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 4:08 pm, 4/11/18

REVIEWED

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Analysis Report

Sample Description: SG3a-WP24-F3.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 13:25
SDG#: SBN12-08

C. T. Male Associates
ELLE Sample #: WP 9536708
ELLE Group #: 1926427
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/wipe**	**ng/wipe**	**ng/wipe**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.34 J**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.67**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.31 J**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.6**	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.70**	0.20	0.60	1
14027	**Perfluorononanoic acid**	375-95-1	**0.29 J**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**6.5**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**110**	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.21 J**	0.20	0.60	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094017	04/11/2018 00:44	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094017	04/05/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/11/2018 3:48:30 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

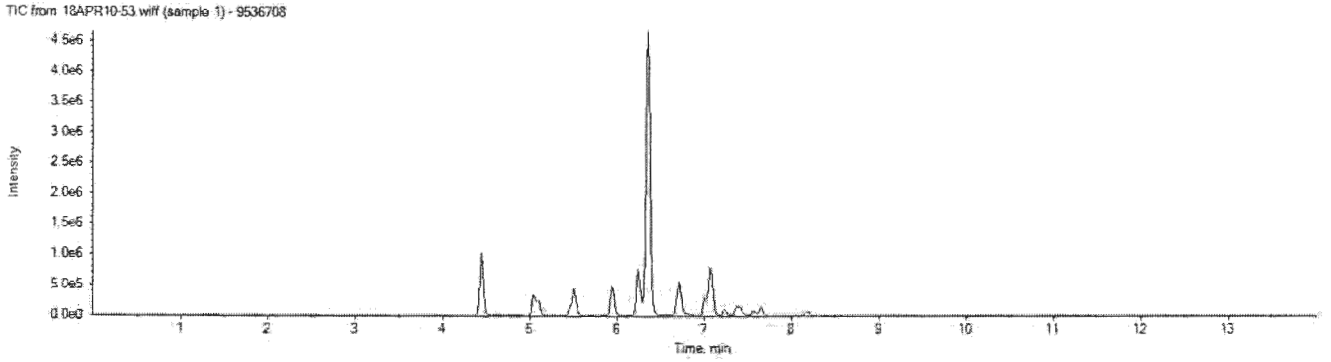
Analyte Quantitation Peak Table

Sample Name: 9536708 **Instrument Name:** LM24960 **File Name:** 18APR10-53.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	40754.2	M	13C4-PFBA	4.44	1348485.5	0.030	0.345
PFPeA	5.04	1.000	16039.3	M	13C5-PFPeA	5.04	1023243.9	0.016	0.159
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	656334.6	N/A	
PFHxA	5.51	1.000	74967.9	M	13C5-PFHxA	5.51	1161457.1	0.065	0.702
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	467978.2	N/A	
PFHpA	5.95	1.000	143450.6	M	13C4-PFHpA	5.95	885935.1	0.162	1.569
PFOA	6.36	1.000	7938022.6	M	13C8-PFOA	6.36	770591.7	10.301	110.653
PFOS	6.71	1.000	328983.9	M	13C8-PFOS	6.70	484220.4	0.679	6.466
PFNA	6.73	1.000	20997.0	M	13C9-PFNA	6.73	684027.2	0.031	0.287
PFDA	7.07	1.000	59889.0	M	13C6-PFDA	7.07	1059028.8	0.057	0.671
PFUnDA	7.37	1.000	9038.5	M	13C7-PFUnDA	7.37	385872.7	0.023	0.211
PFDoDA	7.65	1.000	9802.7	M	13C2-PFDoDA	7.65	349698.5	0.028	0.313
PFTrDA	7.92	1.040	4109.0	M	13C2-PFDoDA	7.65	349698.5	0.012	0.135
PFTeDA	8.18	1.000	4059.2	M	13C2-PFTeDA	8.18	239129.3	0.017	0.188

Total Ion Chromatogram

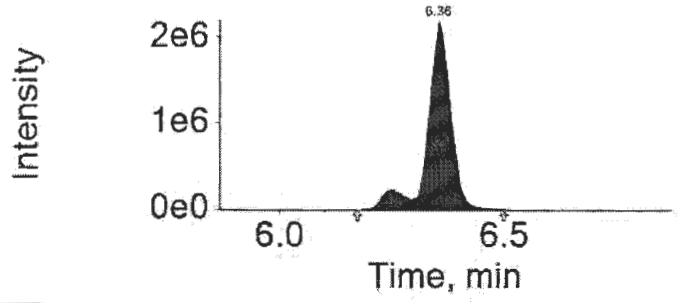


APPROVED
By DMW at 4:08 pm, 4/11/18

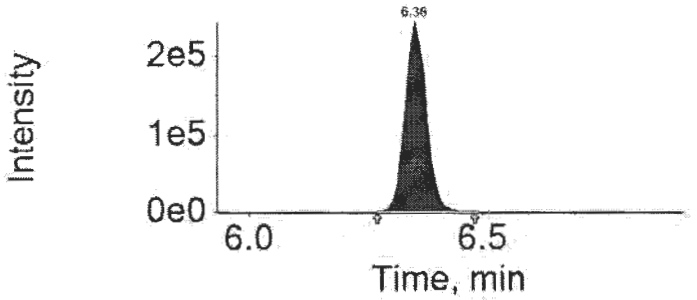
REVIEWED

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/11/2018 3:48:30 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

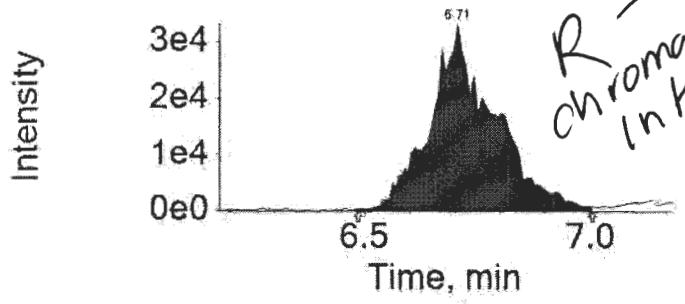
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

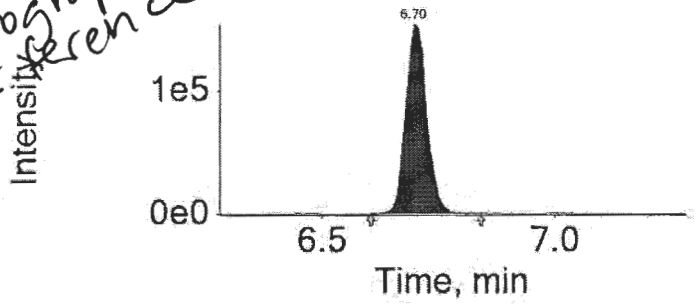


Analyte: PFOS
499.0 / 80.0

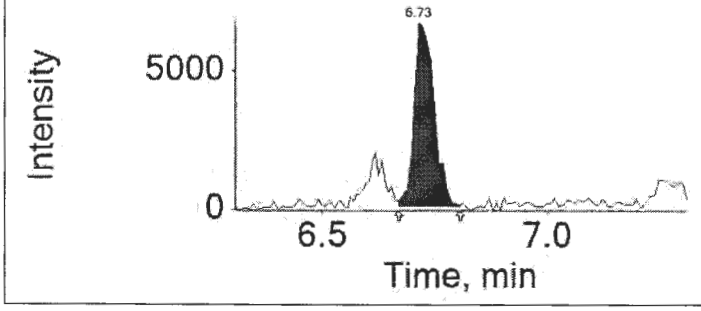


R – Chromatographic Interference

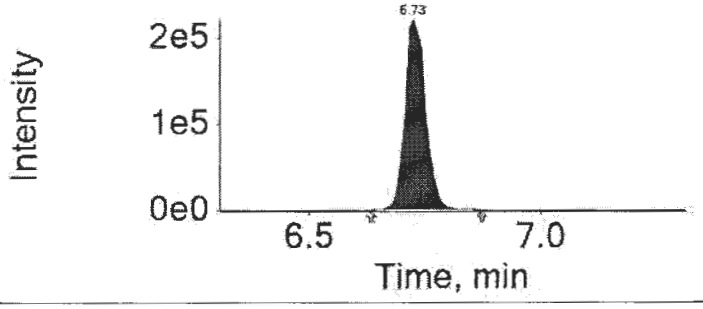
Extraction Standard: 13C8-PFOS
507.0 / 80.0



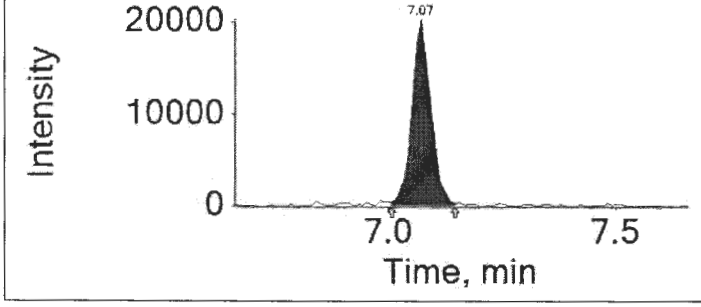
Analyte: PFNA
463.0 / 419.0



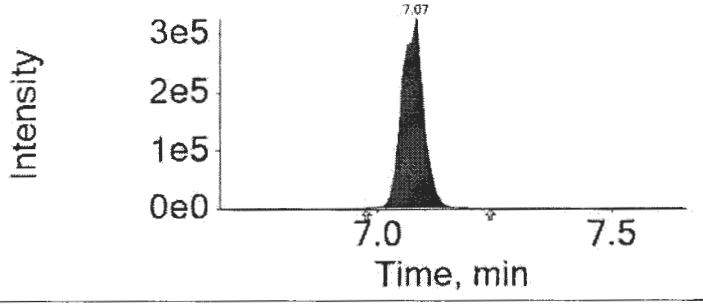
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 4:08 pm, 4/11/18

REVIEWED

Sample Description: SG3a-WP25-E Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 13:35
SDG#: SBN12-09

C. T. Male Associates
ELLE Sample #: WP 9536709
ELLE Group #: 1926427
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.2**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.2**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.82**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.8**	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**2.9**	0.20	0.60	1
14027	**Perfluorononanoic acid**	375-95-1	**0.51 J**	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**7.0**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**180**	0.20	0.60	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.9**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**0.78**	0.20	0.60	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**0.40 J**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.38 J**	0.20	0.60	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094017	04/11/2018 00:58	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094017	04/05/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/11/2018 3:48:30 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

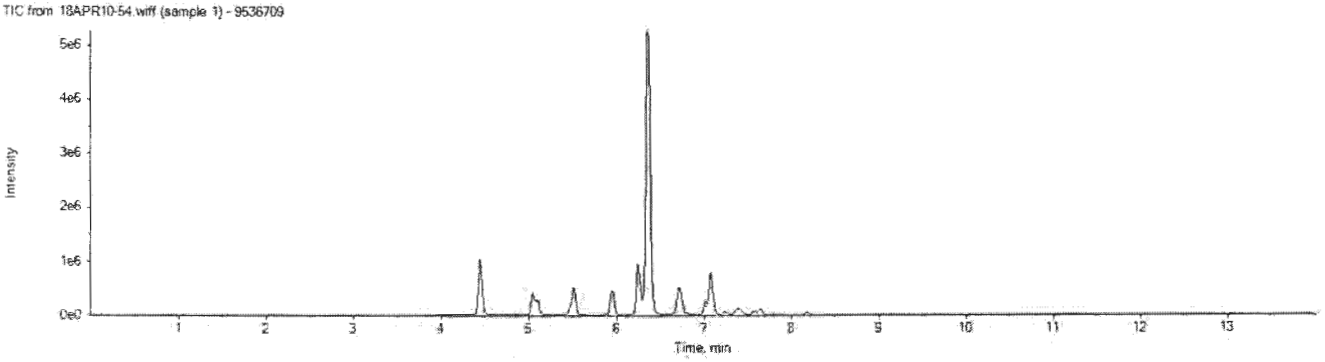
Analyte Quantitation Peak Table

Sample Name: 9536709 **Instrument Name:** LM24960 **File Name:** 18APR10-54.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.45	1.000	133176.0	M	13C4-PFBA	4.45	1316357.8	0.101	1.155
PFPeA	5.05	1.000	184593.2	M	13C5-PFPeA	5.05	963376.8	0.192	1.947
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	690460.5	N/A	
PFHxA	5.51	1.000	307449.5	M	13C5-PFHxA	5.51	1137725.8	0.270	2.940
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	457805.4	N/A	
PFHpA	5.95	1.000	166125.0	M	13C4-PFHpA	5.95	871547.6	0.191	1.846
PFOA	6.36	1.000	10304552.6	M	13C8-PFOA	6.36	625695.0	16.469	176.906
PFOS	6.71	1.000	352535.8	M	13C8-PFOS	6.70	481840.5	0.732	6.963
PFNA	6.73	1.000	34513.6	M	13C9-PFNA	6.73	638006.6	0.054	0.505
PFDA	7.07	1.000	99571.3	M	13C6-PFDA	7.07	998517.2	0.100	1.183
PFUnDA	7.37	1.000	13241.4	M	13C7-PFUnDA	7.37	310350.1	0.043	0.384
PFDoDA	7.65	1.000	19046.0	M	13C2-PFDoDA	7.65	260062.3	0.073	0.817
PFTrDA	7.91	1.030	9057.9	M	13C2-PFDoDA	7.65	260062.3	0.035	0.401
PFTeDA	8.18	1.000	11930.8	M	13C2-PFTeDA	8.18	168910.5	0.071	0.782

Total Ion Chromatogram

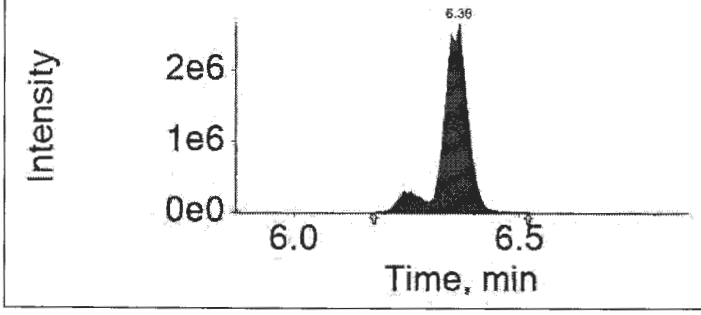


APPROVED
By DMW at 4:08 pm, 4/11/18

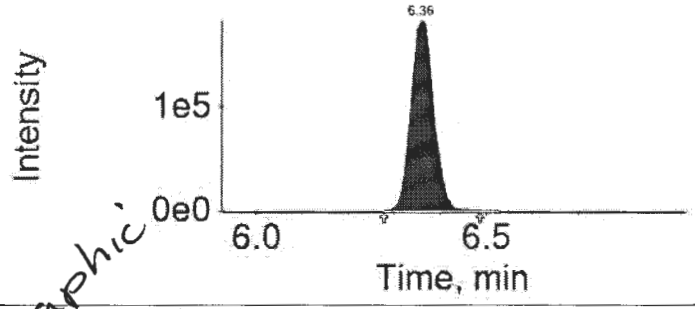
REVIEWED

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/11/2018 3:48:30 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

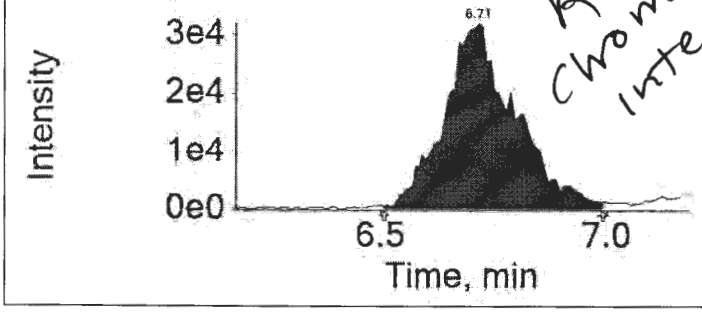
Analyte: PFOA
413.0 / 369.0



Extraction Standard: 13C8-PFOA
421.0 / 376.0

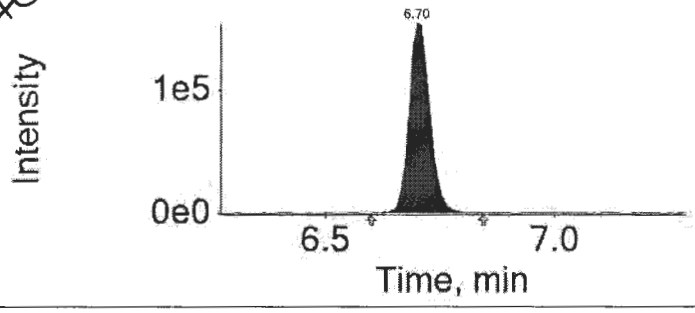


Analyte: PFOS
499.0 / 80.0

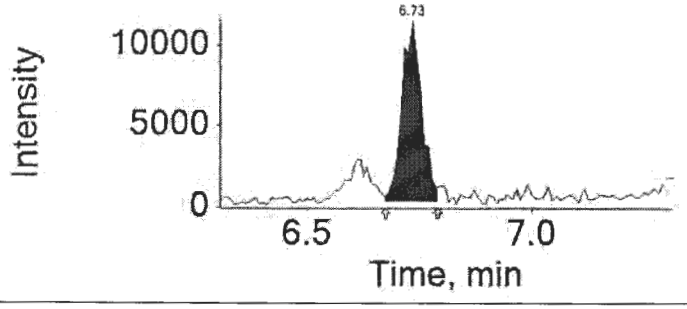


R - Chromatographic interference

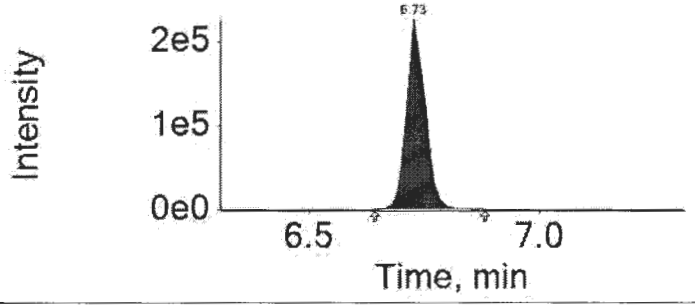
Extraction Standard: 13C8-PFOS
507.0 / 80.0



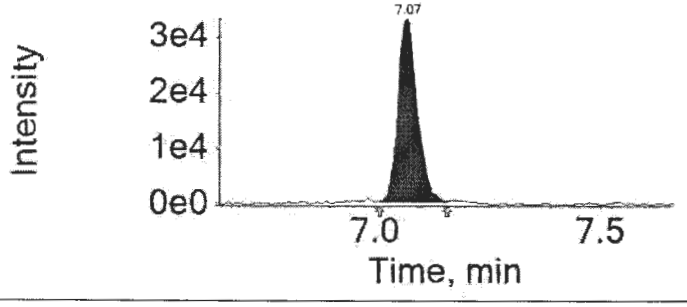
Analyte: PFNA
463.0 / 419.0



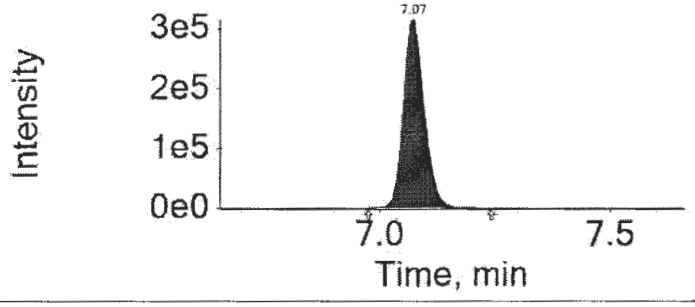
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 4:08 pm, 4/11/18

REVIEWED

Sample Description: SG3a-WP26-F5.0 Grab Wipe
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/31/2018 09:55
Collection Date/Time: 03/30/2018 13:40
SDG#: SBN12-10

C. T. Male Associates
ELLE Sample #: WP 9536710
ELLE Group #: 1926427
Matrix: Wipe

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/wipe	ng/wipe	ng/wipe	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.32 J**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.31 J**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.23 J**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.80**	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.42 J**	0.20	0.60	1
14027	Perfluorononanoic acid	375-95-1	0.20 U	0.20	0.60	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**6.1**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**56**	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**0.26 J**	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18094017	04/11/2018 01:13	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18094017	04/05/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/11/2018 3:48:30 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

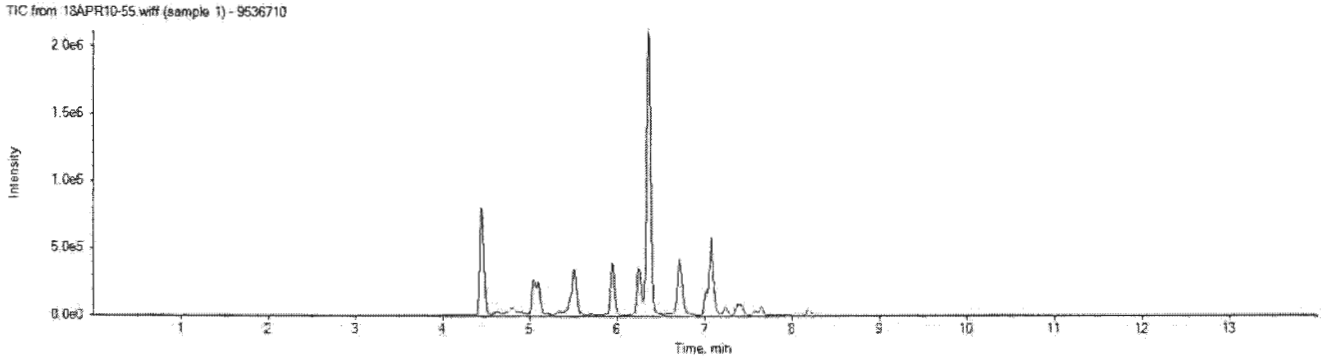
Analyte Quantitation Peak Table

Sample Name: 9536710 **Instrument Name:** LM24960 **File Name:** 18APR10-55.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	31407.9	M	13C4-PFBA	4.45	1122705.5	0.028	0.319
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.05	784421.0	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.10	608090.0	N/A	
PFHxA	5.51	1.000	38142.9	M	13C5-PFHxA	5.51	979342.6	0.039	0.424
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.94	398286.3	N/A	
PFHpA	5.95	1.000	60347.9	M	13C4-PFHpA	5.95	733401.1	0.082	0.797
PFOA	6.36	1.000	3152934.5	M	13C8-PFOA	6.36	600917.6	5.247	56.361
PFOS	6.71	1.000	258655.0	M	13C8-PFOS	6.71	401943.7	0.644	6.124
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.73	455754.7	N/A	
PFDA	7.06	1.000	16763.0	M	13C6-PFDA	7.07	632694.5	0.026	0.314
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.37	187894.8	N/A	
PFDoDA	7.64	1.000	3185.5	M	13C2-PFDoDA	7.65	151698.6	0.021	0.234
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.65	151698.6	N/A	
PFTeDA	8.19	1.000	3332.1	M	13C2-PFTeDA	8.19	141388.3	0.024	0.261

Total Ion Chromatogram

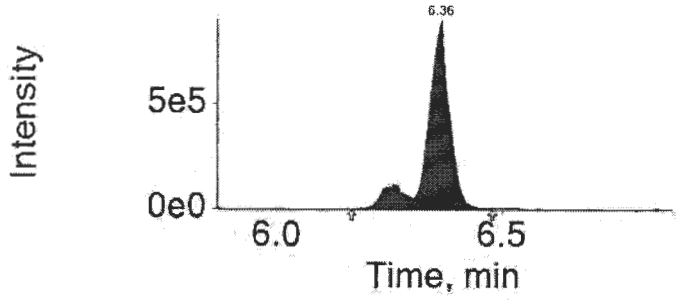


APPROVED
By DMW at 4:08 pm, 4/11/18

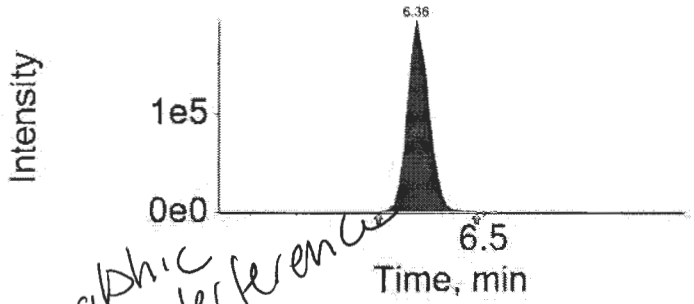
REVIEWED

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/11/2018 3:48:30 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

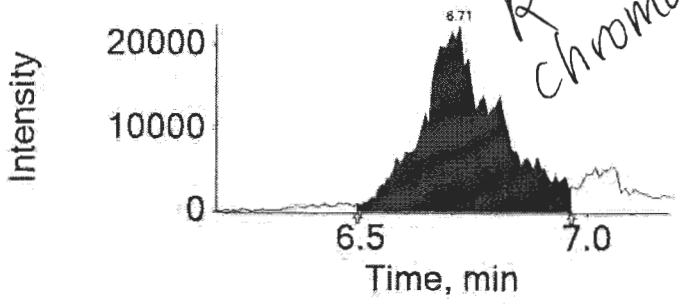
Analyte: PFOA
413.0 / 369.0



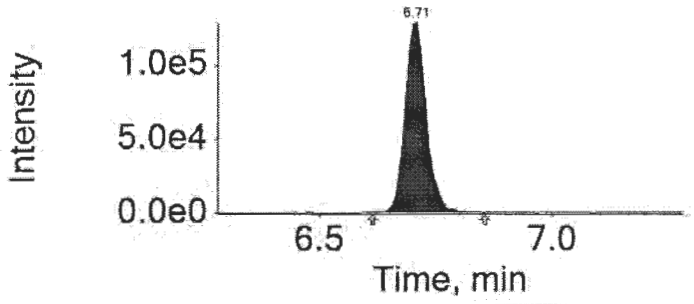
Extraction Standard: 13C8-PFOA
421.0 / 376.0



Analyte: PFOS
499.0 / 80.0

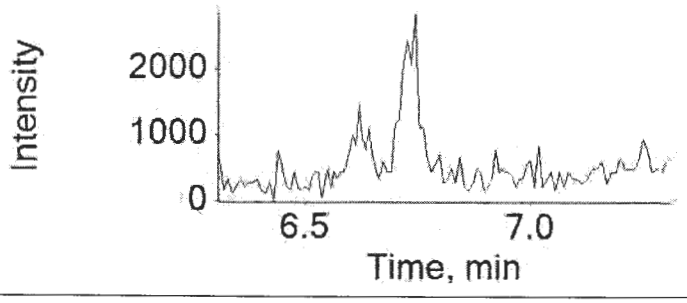


Extraction Standard: 13C8-PFOS
507.0 / 80.0

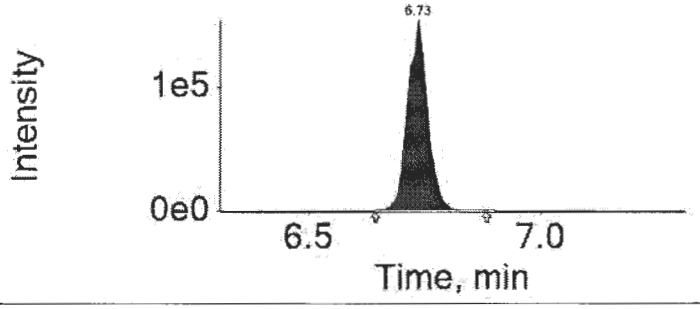


R — chromatographic interference

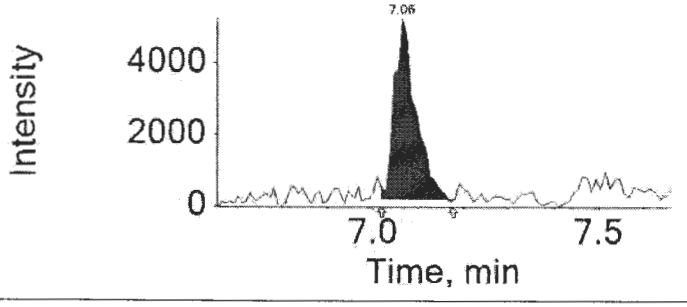
Analyte: PFNA
463.0 / 419.0



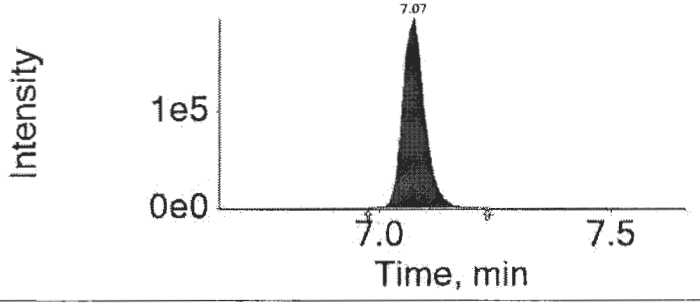
Extraction Standard: 13C9-PFNA
472.0 / 427.0



Analyte: PFDA
513.0 / 469.0



Extraction Standard: 13C6-PFDA
519.0 / 474.0



APPROVED
By DMW at 4:08 pm, 4/11/18

REVIEWED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 22:19

Group Number: 1926427

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/wipe	MDL** ng/wipe	LOQ ng/wipe
Batch number: 18094017	Sample number(s): 9536701-9536710		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.20 U	0.20	0.60
Perfluorononanoic acid	0.20 U	0.20	0.60
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60

No detects.

LCS/LCSD

Analysis Name	LCS Spike Added ng/wipe	LCS Conc ng/wipe	LCSD Spike Added ng/wipe	LCSD Conc ng/wipe	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18094017	Sample number(s): 9536701-9536710								
Perfluorobutanesulfonate	1.20	1.33	1.20	1.29	110	107	70-130	3	30
Perfluorobutanoic acid	1.36	1.75	1.36	1.68	129	123	70-130	4	30
Perfluorodecanoic acid	1.36	1.48	1.36	1.48	109	109	70-130	0	30
Perfluorododecanoic acid	1.36	1.48	1.36	1.45	109	107	70-130	2	30
Perfluoroheptanoic acid	1.36	1.52	1.36	1.58	112	116	70-130	4	30
Perfluorohexanesulfonate	1.29	1.34	1.29	1.47	104	114	70-130	9	30
Perfluorohexanoic acid	1.36	1.50	1.36	1.47	110	108	70-130	2	30
Perfluorononanoic acid	1.36	1.71	1.36	1.56	126	115	70-130	9	30
Perfluoro-octanesulfonate	1.30	1.35	1.30	1.38	104	106	70-130	2	30
Perfluorooctanoic acid	1.36	1.60	1.36	1.56	117	115	70-130	3	30
Perfluoropentanoic acid	1.36	1.57	1.36	1.52	116	112	70-130	3	30
Perfluorotetradecanoic acid	1.36	1.49	1.36	1.52	110	112	70-130	2	30
Perfluorotridecanoic acid	1.36	1.25	1.36	1.15	92	85	70-130	8	30
Perfluoroundecanoic acid	1.36	1.89	1.36	1.65	139*	121	70-130	14	30

Qualify PFUnDA detects J.
No impact to NDs.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 22:19

Group Number: 1926427

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18094017

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9536701	93	94	89	179*	155*	180*
9536702	91	89	83	125*	111	128*
9536703	91	87	83	196*	188*	202*
9536704	95	93	89	168*	155*	170*
9536705	98	96	92	162*	153*	162*
9536706	92	89	86	101	95	101
9536707	94	93	88	124*	111	129*
9536708	75	73	69	87	80	88
9536709	77	72	76	105	97	106
9536710	71	63* UJ	72	85	79	84
Blank	95	94	86	107	100	107
LCS	81	81	75	91	85	94
LCSD	87	86	81	91	82	92
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

← Reported from 2° DLs in many samples – see Form 2

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9536701	93 NA	93	96	80	72	77
9536702	90 NA	92	96	89	75	72
9536703	84 NA	94	98	85	78	79
9536704	86 NA	97	88	95	97	90
9536705	97 NA	99	92	96	90	94
9536706	98	92	90	91	89	84
9536707	90	95	106	91	76	62
9536708	73	75	71	67	41	33
9536709	73	80	71	69	36	27
9536710	65	70	54	61	30	22
Blank	101	97	83	106	96	103
LCS	82	82	72	91	78	86
LCSD	86	86	85	89	87	80
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9536701	57
9536702	53
9536703	63
9536704	66
9536705	70
9536706	66

Qualify PFHxa, PFHxS, and PFHpA in noted samples J/UJ.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/23/2018 22:19

Group Number: 1926427

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18094017

	13C2-PFTeDA
9536707	51
9536708	28
9536709	22
9536710	25
Blank	77
LCS	68
LCSD	56
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN12
Matrix: SOIL

18094017		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery
LCS094017	04/09/18 19:38	82	82	72
LCSDA	04/09/18 20:08	86	86	85
BLK094017	04/09/18 20:51	101	97	83
9536701DL	04/09/18 21:20	91	92	92
9536702	04/09/18 21:35	90	92	96
9536703	04/09/18 22:18	84	94	98
9536704	04/09/18 22:33	86	97	88
9536705	04/09/18 22:47	97	99	92
9536701	04/10/18 22:33	93	93	96
9536702DL	04/10/18 22:47	87	88	82
9536703DL	04/10/18 23:02	104	94	89
9536704DL	04/10/18 23:16	103	94	85
9536705DL	04/10/18 23:31	99	96	81
9536706	04/10/18 23:45	98	92	90
9536707	04/11/18 00:00	90	95	106
9536708	04/11/18 00:44	73	75	71
9536709	04/11/18 00:58	73	80	71
9536710	04/11/18 01:13	65	70	54

* Outside QC Limits

not reported on Analysis Report.

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Quality Control Reference List
PFAS Group

CLIENT: C. T. Male Associates
SDG: SBN12

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
14 PFCs	18094017	BLK094017	04/09/2018 20:51:00
		LCS094017	04/09/2018 19:38:00
		LCSDA	04/09/2018 20:08:00
		9536701	04/09/2018 21:20:00
		9536701	04/10/2018 22:33:00
		9536702	04/09/2018 21:35:00
		9536702	04/10/2018 22:47:00
		9536703	04/09/2018 22:18:00
		9536703	04/10/2018 23:02:00
		9536704	04/09/2018 22:33:00
		9536704	04/10/2018 23:16:00
		9536705	04/09/2018 22:47:00
		9536705	04/10/2018 23:31:00
		9536706	04/10/2018 23:45:00
		9536707	04/11/2018 00:00:00
		9536708	04/11/2018 00:44:00
		9536709	04/11/2018 00:58:00
		9536710	04/11/2018 01:13:00

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Quality Control Summary
Method Blank
PFAS Group
SDG: SBN12
Matrix: SOLID

Fraction: PFAS by LC/MS/MS

18094017 / BLK094017B Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorononanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorodecanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluoroundecanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorododecanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorotridecanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorotetradecanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluoroheptanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorobutanesulfonate	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluorohexanesulfonate	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluoro-octanesulfonate	04/09/18	N.D.	ng/wipe	0.30	0.90
Perfluorobutanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60
Perfluoropentanoic acid	04/09/18	N.D.	ng/wipe	0.20	0.60

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN12

ICAL for all samples.
Previously validated in SBN09.

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.246	23.2	±50
CAL2	0.111	0.60	0.631	5.1	±30
CAL3	0.365	2.00	2.085	4.3	±30
CAL4	1.477	8.00	8.430	5.4	±30
CAL5	3.977	20.00	22.700	13.5	±30
CAL6	8.762	50.00	50.008	0.0	±30
CAL7	16.943	100.00	96.700	-3.3	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.20	0.226	13.1	±50
CAL2	0.124	0.60	0.631	5.1	±30
CAL3	0.418	2.00	2.122	6.1	±30
CAL4	1.661	8.00	8.439	5.5	±30
CAL5	4.461	20.00	22.667	13.3	±30
CAL6	9.781	50.00	49.695	-0.6	±30
CAL7	19.096	100.00	97.020	-3.0	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.17	0.195	14.8	±50
CAL2	0.116	0.53	0.532	0.4	±30
CAL3	0.390	1.77	1.781	0.6	±30
CAL4	1.621	7.08	7.409	4.6	±30
CAL5	4.221	17.69	19.288	9.0	±30
CAL6	9.442	44.22	43.149	-2.4	±30
CAL7	19.160	88.45	87.556	-1.0	±30

4:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.118	0.58	0.632	9.0	±50
CAL2	0.403	1.98	2.161	9.1	±30
CAL3 NT	0.994	4.90	5.335	8.9	±30
CAL4	1.789	10.04	9.604	-4.3	±30
CAL5	2.284	12.49	12.257	-1.9	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.224	12.0	±50
CAL2	0.112	0.60	0.611	1.8	±30
CAL3	0.406	2.00	2.207	10.4	±30
CAL4	1.562	8.00	8.496	6.2	±30
CAL5	4.215	20.00	22.928	14.6	±30
CAL6	9.015	50.00	49.041	-1.9	±30
CAL7	17.884	100.00	97.293	-2.7	±30

Perfluoropentanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.019	0.19	0.213	11.9	±50
CAL2	0.053	0.56	0.596	6.4	±30
CAL3	0.180	1.88	2.039	8.5	±30
CAL4 NT	0.746	7.50	8.456	12.8	±30
CAL5	1.844	18.76	20.894	11.4	±30
CAL6	3.997	46.90	45.281	-3.5	±30
CAL7	8.130	93.80	92.111	-1.8	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.19	0.196	3.1	±50
CAL2	0.116	0.57	0.546	-4.2	±30
CAL3	0.405	1.89	1.902	0.6	±30
CAL4	1.643	7.56	7.723	2.2	±30
CAL5	4.346	18.91	20.427	8.0	±30
CAL6	9.919	47.28	46.616	-1.4	±30
CAL7	19.902	94.55	93.540	-1.1	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.050	0.20	0.240	20.0	±50
CAL2	0.126	0.60	0.612	1.9	±30
CAL3	0.446	2.00	2.158	7.9	±30
CAL4	1.770	8.00	8.573	7.2	±30
CAL5	4.669	20.00	22.613	13.1	±30
CAL6	10.171	50.00	49.265	-1.5	±30
CAL7	20.096	100.00	97.340	-2.7	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

6:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.272	1.30	1.405	8.1	±50
CAL2	0.414	2.09	2.143	2.5	±30
CAL3 NT	1.028	5.21	5.318	2.1	±30
CAL4	2.010	10.43	10.397	-0.3	±30
CAL5	2.476	13.04	12.807	-1.8	±30

Perfluoroheptanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.19	0.199	4.9	±50
CAL2	0.116	0.57	0.568	-0.4	±30
CAL3	0.374	1.90	1.830	-3.7	±30
CAL4 NT	1.538	7.61	7.535	-1.0	±30
CAL5	4.155	19.03	20.359	7.0	±30
CAL6	9.661	47.58	47.338	-0.5	±30
CAL7	19.225	95.15	94.200	-1.0	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.236	18.2	±50
CAL2	0.120	0.60	0.647	7.8	±30
CAL3	0.395	2.00	2.119	6.0	±30
CAL4	1.581	8.00	8.493	6.2	±30
CAL5	4.038	20.00	21.687	8.4	±30
CAL6	9.302	50.00	49.962	-0.1	±30
CAL7	18.182	100.00	97.656	-2.3	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.19	0.199	4.6	±50
CAL2	0.116	0.57	0.553	-3.0	±30
CAL3	0.397	1.91	1.887	-1.2	±30
CAL4	1.620	7.65	7.706	0.7	±30
CAL5	4.454	19.12	21.192	10.8	±30
CAL6	10.080	47.80	47.963	0.3	±30
CAL7	19.616	95.60	93.340	-2.4	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.052	0.20	0.245	22.5	±50
CAL2	0.143	0.60	0.667	11.2	±30
CAL3	0.475	2.00	2.218	10.9	±30
CAL4	1.820	8.00	8.497	6.2	±30
CAL5	4.808	20.00	22.450	12.2	±30
CAL6	10.824	50.00	50.541	1.1	±30
CAL7	20.599	100.00	96.182	-3.8	±30

Perfluorooctanesulfonamide	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.210	5.1	±50
CAL2	0.121	0.60	0.657	9.5	±30
CAL3	0.408	2.00	2.216	10.8	±30
CAL4 NT	1.570	8.00	8.520	6.5	±30
CAL5	1.901	10.00	10.321	3.2	±30
CAL6	9.449	50.00	51.295	2.6	±30
CAL7	17.975	100.00	97.579	-2.4	±30

Perfluorononanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.033	0.19	0.207	8.9	±50
CAL2	0.083	0.58	0.519	-10.4	±30
CAL3	0.290	1.92	1.823	-5.1	±30
CAL4 NT	1.173	7.68	7.371	-4.0	±30
CAL5	3.331	19.20	20.928	9.0	±30
CAL6	7.910	48.00	49.693	3.5	±30
CAL7	14.808	96.00	93.030	-3.1	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.232	15.8	±50
CAL2	0.105	0.60	0.624	4.0	±30
CAL3	0.353	2.00	2.096	4.8	±30
CAL4	1.475	8.00	8.751	9.4	±30
CAL5	3.836	20.00	22.757	13.8	±30
CAL6	8.402	50.00	49.847	-0.3	±30
CAL7	16.265	100.00	96.493	-3.5	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

8:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.304	1.32	1.570	19.0	±50
CAL2	0.451	2.11	2.329	10.4	±30
CAL3 NT	1.120	5.27	5.788	9.8	±30
CAL4	1.987	10.54	10.263	-2.6	±30
CAL5	2.412	13.17	12.460	-5.4	±30

NMePFOSAE	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.213	6.4	±50
CAL2	0.129	0.60	0.601	0.2	±30
CAL3	0.450	2.00	2.102	5.1	±30
CAL4 NT	1.598	8.00	7.465	-6.7	±30
CAL5	2.115	10.00	9.878	-1.2	±30
CAL6	10.877	50.00	50.797	1.6	±30
CAL7	21.357	100.00	99.744	-0.3	±30

NMePFOSA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.048	0.20	0.224	12.1	±50
CAL2	0.136	0.60	0.637	6.2	±30
CAL3	0.417	2.00	1.952	-2.4	±30
CAL4 NT	1.694	8.00	7.937	-0.8	±30
CAL5	2.120	10.00	9.929	-0.7	±30
CAL6	10.809	50.00	50.634	1.3	±30
CAL7	21.237	100.00	99.487	-0.5	±30

NMeFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.209	4.7	±50
CAL2	0.139	0.60	0.677	12.8	±30
CAL3	0.426	2.00	2.072	3.6	±30
CAL4 NT	1.699	8.00	8.255	3.2	±30
CAL5	2.079	10.00	10.104	1.0	±30
CAL6	9.780	50.00	47.522	-5.0	±30
CAL7	20.984	100.00	101.960	2.0	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

NEtPFOSAE	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.211	5.5	±50
CAL2	0.136	0.60	0.621	3.6	±30
CAL3	0.501	2.00	2.291	14.5	±30
CAL4	1.724	8.00	7.890	-1.4	±30
CAL5	2.183	10.00	9.989	-0.1	±30
CAL6	11.463	50.00	52.460	4.9	±30
CAL7	21.269	100.00	97.338	-2.7	±30

NT

NEtPFOSA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.205	2.4	±50
CAL2	0.118	0.60	0.617	2.9	±30
CAL3	0.403	2.00	2.107	5.4	±30
CAL4	1.567	8.00	8.193	2.4	±30
CAL5	1.834	10.00	9.592	-4.1	±30
CAL6	9.304	50.00	48.662	-2.7	±30
CAL7	19.392	100.00	101.424	1.4	±30

NT

Perfluorodecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.019	0.19	0.158	-17.0	±50
CAL2	0.062	0.58	0.525	-9.5	±30
CAL3	0.202	1.93	1.709	-11.5	±30
CAL4	0.876	7.70	7.410	-3.8	±30
CAL5	2.413	19.26	20.424	6.0	±30
CAL6	5.849	48.15	49.499	2.8	±30
CAL7	11.153	96.30	94.385	-2.0	±30

NT

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.056	0.20	0.254	26.8	±50
CAL2	0.168	0.60	0.756	25.9	±30
CAL3	0.512	2.00	2.303	15.2	±30
CAL4	2.108	8.00	9.484	18.5	±30
CAL5	5.215	20.00	23.460	17.3	±30
CAL6	11.267	50.00	50.689	1.4	±30
CAL7	20.862	100.00	93.855	-6.1	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

NEtFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.179	-10.4	±50
CAL2	0.118	0.60	0.552	-8.0	±30
CAL3	0.438	2.00	2.055	2.7	±30
CAL4	1.568	8.00	7.351	-8.1	±30
CAL5	1.975	10.00	9.262	-7.4	±30
CAL6	10.396	50.00	48.750	-2.5	±30
CAL7	21.891	100.00	102.652	2.7	±30

NT

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.230	15.0	±50
CAL2	0.110	0.60	0.615	2.5	±30
CAL3	0.389	2.00	2.171	8.6	±30
CAL4	1.563	8.00	8.720	9.0	±30
CAL5	4.165	20.00	23.235	16.2	±30
CAL6	9.123	50.00	50.897	1.8	±30
CAL7	17.016	100.00	94.931	-5.1	±30

10:2-fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.200	1.33	1.353	1.7	±50
CAL2	0.308	2.12	2.079	-2.0	±30
CAL3	0.827	5.30	5.585	5.4	±30
CAL4	1.510	10.60	10.193	-3.8	±30
CAL5	1.985	13.26	13.401	1.1	±30

NT

Perfluorododecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.011	0.19	0.204	7.3	±50
CAL2	0.027	0.58	0.485	-16.5	±30
CAL3	0.101	1.94	1.831	-5.6	±30
CAL4	0.392	7.74	7.130	-7.9	±30
CAL5	1.128	19.36	20.512	6.0	±30
CAL6	2.717	48.40	49.424	2.1	±30
CAL7	5.246	96.80	95.425	-1.4	±30

NT

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Lab File Names: CAL1= 18APR07MCAL-19.WIFF; CAL2= 18APR07MCAL-20.WIFF; CAL3= 18APR07MCAL-21.WIFF;
CAL4= 18APR07MCAL-22.WIFF; CAL5= 18APR07MCAL-23.WIFF; CAL6= 18APR07MCAL-24.WIFF;
CAL7= 18APR07MCAL-25.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.035	0.20	0.200	-0.1	±50
CAL2	0.092	0.60	0.530	-11.6	±30
CAL3	0.335	2.00	1.929	-3.6	±30
CAL4	1.312	8.00	7.541	-5.7	±30
CAL5	3.583	20.00	20.600	3.0	±30
CAL6	7.024	50.00	40.386	-19.2	±30
CAL7	13.477	100.00	77.485	-22.5	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.224	12.2	±50
CAL2	0.114	0.60	0.629	4.8	±30
CAL3	0.400	2.00	2.216	10.8	±30
CAL4	1.503	8.00	8.315	3.9	±30
CAL5	3.976	20.00	22.006	10.0	±30
CAL6	8.847	50.00	48.959	-2.1	±30
CAL7	17.790	100.00	98.452	-1.5	±30

Perfluorohexadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.024	0.20	0.193	-3.4	±50
CAL2	0.062	0.60	0.502	-16.3	±30
CAL3	0.215	2.00	1.733	-13.3	±30
CAL4 NT	0.822	8.00	6.613	-17.3	±30
CAL5	2.405	20.00	19.354	-3.2	±30
CAL6	5.592	50.00	45.001	-10.0	±30
CAL7	13.346	100.00	107.403	7.4	±30

Perfluorooctadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.015	0.20	0.171	-14.3	±50
CAL2	0.042	0.60	0.484	-19.3	±30
CAL3	0.151	2.00	1.753	-12.3	±30
CAL4 NT	0.610	8.00	7.097	-11.3	±30
CAL5	1.754	20.00	20.409	2.0	±30
CAL6	4.374	50.00	50.885	1.8	±30
CAL7	11.008	100.00	128.076	28.1	±30

* Outside QC Limits

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18APR07MCAL-19.wiff	4/8/2018 2:28:00 AM	CALMOD11833A	CAL1
18APR07MCAL-20.wiff	4/8/2018 2:42:33 AM	CALMOD21833A	CAL2
18APR07MCAL-21.wiff	4/8/2018 2:57:03 AM	CALMOD31833A	CAL3
18APR07MCAL-22.wiff	4/8/2018 3:11:34 AM	CALMOD41833A	CAL4
18APR07MCAL-23.wiff	4/8/2018 3:26:06 AM	CALMOD51833A	CAL5
18APR07MCAL-24.wiff	4/8/2018 3:40:39 AM	CALMOD61833A	CAL6
18APR07MCAL-25.wiff	4/8/2018 3:55:12 AM	CALMOD71833A	CAL7

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	1798469.8	1589581.0
CAL2	I13C3-PFBA	True	1765778.6	1589581.0
CAL3	I13C3-PFBA	True	1941504.0	1589581.0
CAL4	I13C3-PFBA	True	1777572.1	1589581.0
CAL5	I13C3-PFBA	True	1524315.7	1589581.0
CAL6	I13C3-PFBA	True	1301256.8	1589581.0
CAL7	I13C3-PFBA	True	1018169.7	1589581.0
CAL1	I13C2-PFOA	True	1106995.2	979042.1
CAL2	I13C2-PFOA	True	1069381.6	979042.1
CAL3	I13C2-PFOA	True	1223181.5	979042.1
CAL4	I13C2-PFOA	True	1098579.4	979042.1
CAL5	I13C2-PFOA	True	941808.6	979042.1
CAL6	I13C2-PFOA	True	767793.5	979042.1
CAL7	I13C2-PFOA	True	645555.1	979042.1
CAL1	I13C4-PFOS	True	798459.3	723191.7
CAL2	I13C4-PFOS	True	776185.9	723191.7
CAL3	I13C4-PFOS	True	888258.8	723191.7
CAL4	I13C4-PFOS	True	813584.4	723191.7
CAL5	I13C4-PFOS	True	699879.3	723191.7
CAL6	I13C4-PFOS	True	601867.3	723191.7
CAL7	I13C4-PFOS	True	484106.7	723191.7
CAL1	I13C2-PFDA	True	1165819.0	1007241.2
CAL2	I13C2-PFDA	True	1147160.8	1007241.2
CAL3	I13C2-PFDA	True	1145668.9	1007241.2
CAL4	I13C2-PFDA	True	1100677.4	1007241.2
CAL5	I13C2-PFDA	True	939029.8	1007241.2
CAL6	I13C2-PFDA	True	864778.0	1007241.2
CAL7	I13C2-PFDA	True	687554.3	1007241.2

APPROVED
By DMW at 12:15 pm, 4/8/18

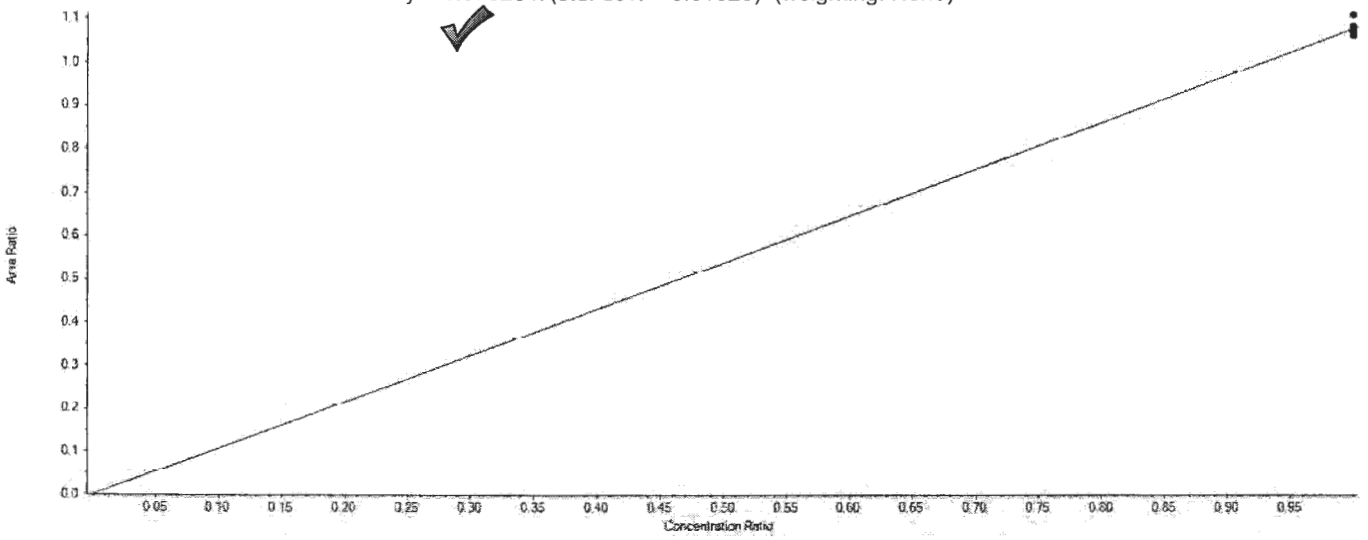
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C4-PFBA

y = 1.07826 x (std. dev. = 0.01525) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1924849.9	1798469.8	True	5.00	1.070	4.47	1.000	5.000	4.963	-0.7	50.0	
CAL2	1959719.2	1765778.6	True	5.00	1.110	4.46	1.000	5.000	5.146	2.9	30.0	
CAL3	2084812.5	1941504.0	True	5.00	1.074	4.46	1.000	5.000	4.979	-0.4	30.0	
CAL4	1924087.3	1777572.1	True	5.00	1.082	4.46	1.000	5.000	5.019	0.4	30.0	
CAL5	1641151.9	1524315.7	True	5.00	1.077	4.46	1.000	5.000	4.993	-0.1	30.0	
CAL6	1381898.4	1301256.8	True	5.00	1.062	4.46	1.000	5.000	4.924	-1.5	30.0	
CAL7	1092348.9	1018169.7	True	5.00	1.073	4.46	1.000	5.000	4.975	-0.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

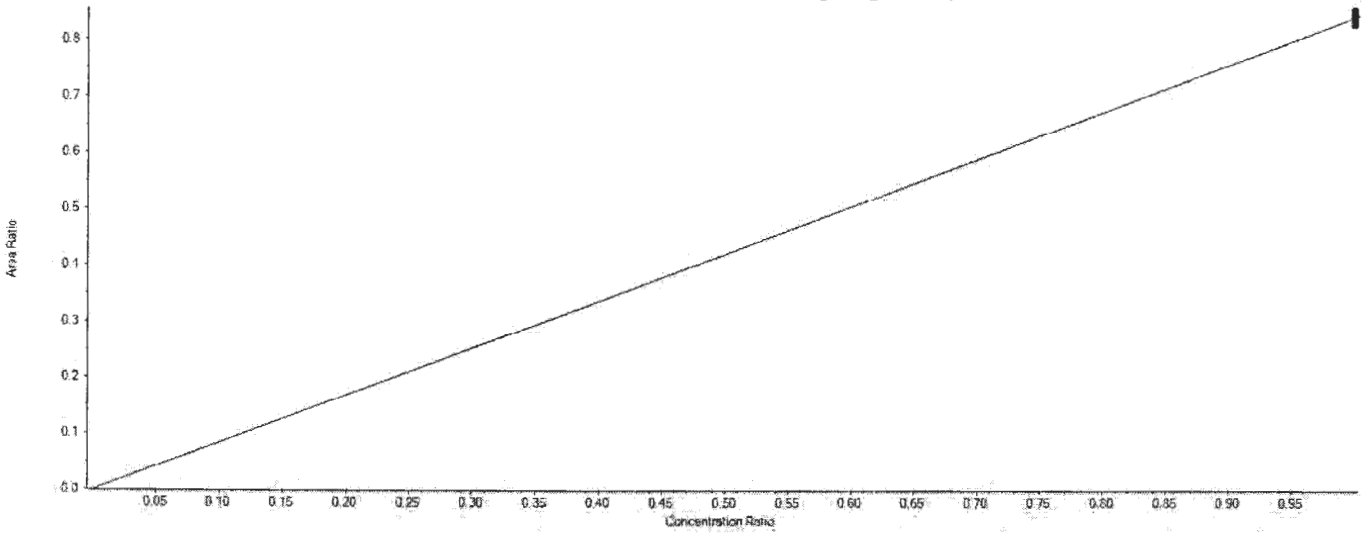
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C5-PFPeA

y = 0.84174 x (std. dev. = 0.00889) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1501835.6	1798469.8	True	5.00	0.835	5.08	1.140	5.000	4.960	-0.8	50.0	
CAL2	1510101.8	1765778.6	True	5.00	0.855	5.07	1.140	5.000	5.080	1.6	30.0	
CAL3	1644584.0	1941504.0	True	5.00	0.847	5.07	1.140	5.000	5.032	0.6	30.0	
CAL4	1506387.3	1777572.1	True	5.00	0.847	5.07	1.140	5.000	5.034	0.7	30.0	
CAL5	1277613.6	1524315.7	True	5.00	0.838	5.07	1.140	5.000	4.979	-0.4	30.0	
CAL6	1093978.3	1301256.8	True	5.00	0.841	5.07	1.140	5.000	4.994	-0.1	30.0	
CAL7	843605.3	1018169.7	True	5.00	0.829	5.06	1.140	5.000	4.922	-1.6	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

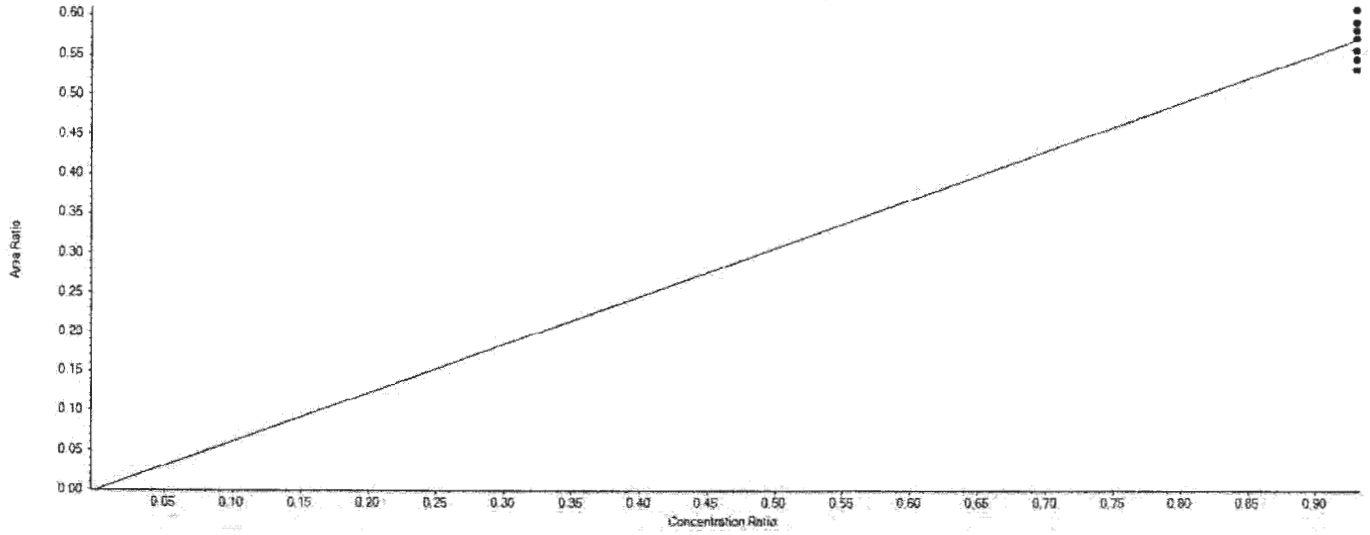
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C3-PFBS

y = 0.61362 x (std. dev. = 0.02819) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	958872.4	1798469.8	True	5.00	0.533	5.13	1.150	4.650	4.344	-6.6	50.0	
CAL2	1011369.7	1765778.6	True	5.00	0.573	5.13	1.150	4.650	4.667	0.4	30.0	
CAL3	1084316.8	1941504.0	True	5.00	0.558	5.12	1.150	4.650	4.551	-2.1	30.0	
CAL4	972984.8	1777572.1	True	5.00	0.547	5.13	1.150	4.650	4.460	-4.1	30.0	
CAL5	887408.7	1524315.7	True	5.00	0.582	5.12	1.150	4.650	4.744	2.0	30.0	
CAL6	770851.5	1301256.8	True	5.00	0.592	5.13	1.150	4.650	4.827	3.8	30.0	
CAL7	619353.5	1018169.7	True	5.00	0.608	5.12	1.150	4.650	4.957	6.6	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

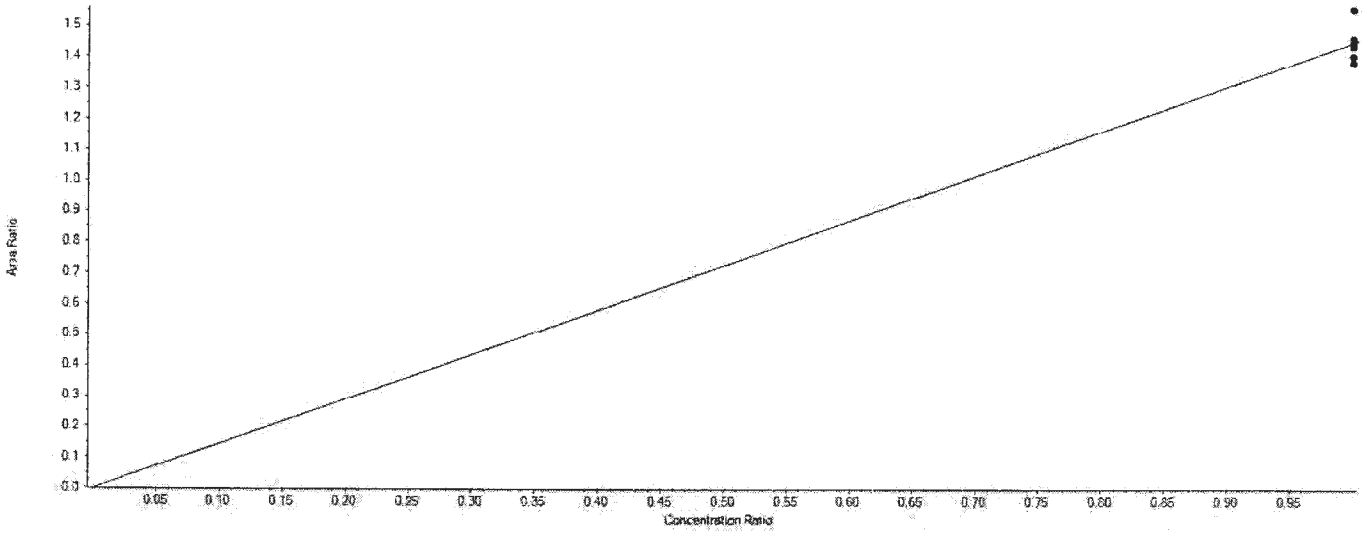
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C5-PFHxA

y = 1.45259 x (std. dev. = 0.05470) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1594435.8	1106995.2	True	5.00	1.440	5.55	0.870	5.000	4.958	-0.8	50.0	
CAL2	1666616.8	1069381.6	True	5.00	1.558	5.55	0.870	5.000	5.365	7.3	30.0	
CAL3	1720911.0	1223181.5	True	5.00	1.407	5.54	0.870	5.000	4.843	-3.1	30.0	
CAL4	1598976.8	1098579.4	True	5.00	1.455	5.55	0.870	5.000	5.010	0.2	30.0	
CAL5	1369998.3	941808.6	True	5.00	1.455	5.54	0.870	5.000	5.007	0.1	30.0	
CAL6	1125149.6	767793.5	True	5.00	1.465	5.54	0.870	5.000	5.044	0.9	30.0	
CAL7	895283.9	645555.1	True	5.00	1.387	5.54	0.860	5.000	4.774	-4.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

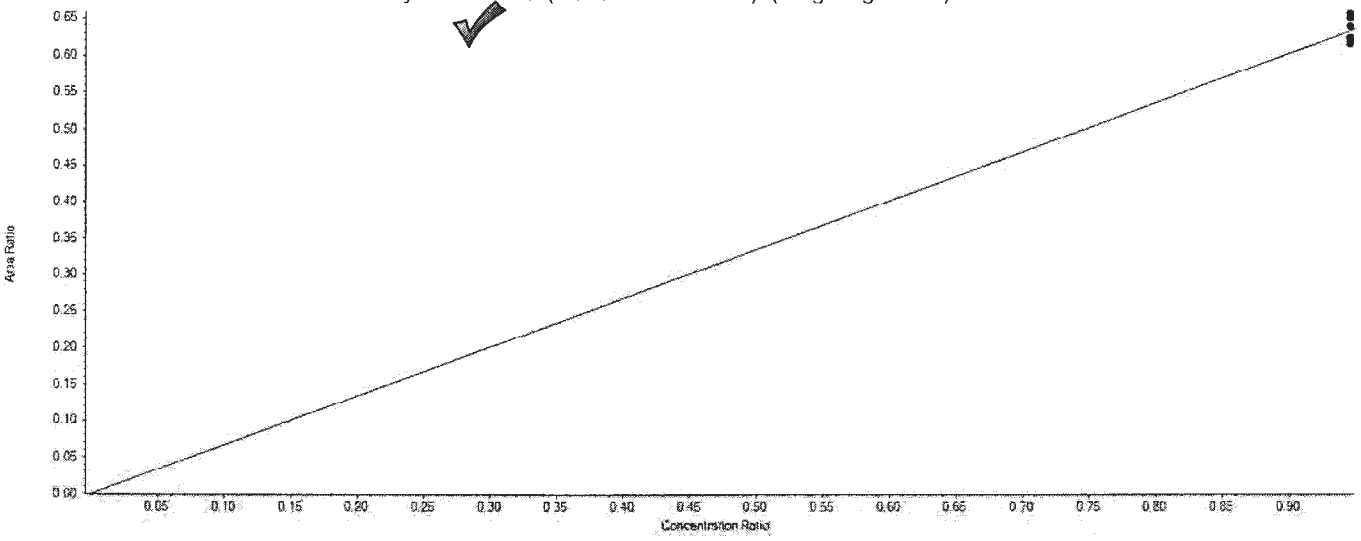
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C3-PFHxS

y = 0.67048 x (std. dev. = 0.01652) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	691939.8	1106995.2	True	5.00	0.625	5.99	0.930	4.730	4.661	-1.5	50.0	
CAL2	696545.9	1069381.6	True	5.00	0.651	5.98	0.930	4.730	4.857	2.7	30.0	
CAL3	754864.9	1223181.5	True	5.00	0.617	5.98	0.930	4.730	4.602	-2.7	30.0	
CAL4	683609.2	1098579.4	True	5.00	0.622	5.98	0.930	4.730	4.640	-1.9	30.0	
CAL5	602855.5	941808.6	True	5.00	0.640	5.98	0.930	4.730	4.773	0.9	30.0	
CAL6	505030.5	767793.5	True	5.00	0.658	5.98	0.930	4.730	4.905	3.7	30.0	
CAL7	404260.0	645555.1	True	5.00	0.626	5.97	0.930	4.730	4.670	-1.3	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

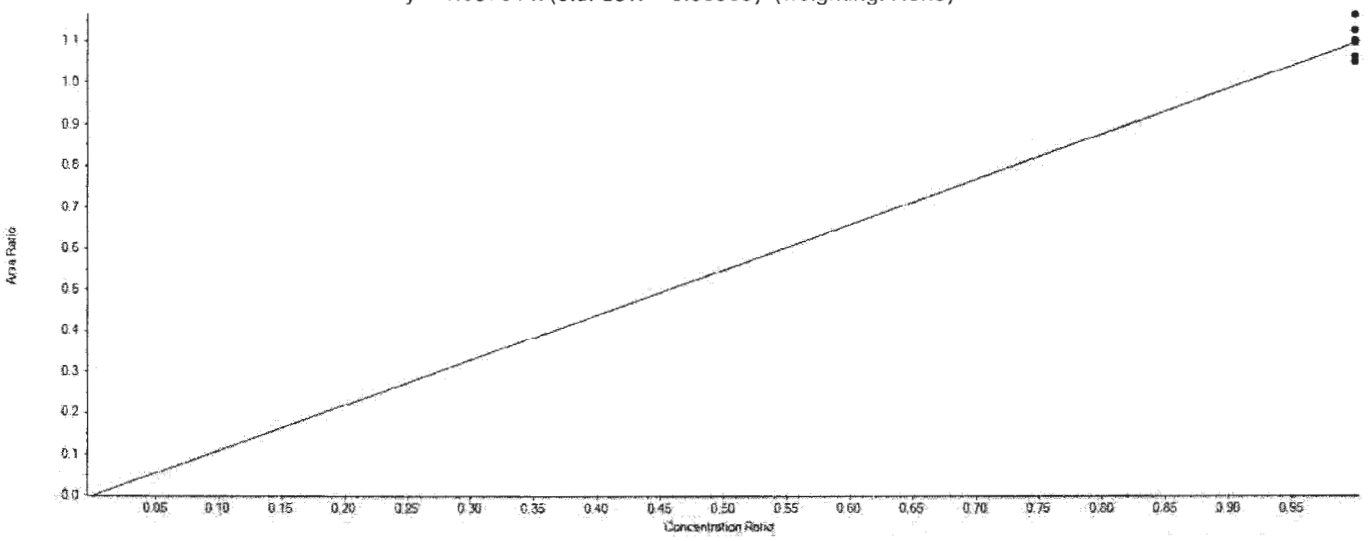
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C4-PFHpA

y = 1.09761 x (std. dev. = 0.03939) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1166383.1	1106995.2	True	5.00	1.054	6.00	0.940	5.000	4.800	-4.0	50.0	
CAL2	1246208.3	1069381.6	True	5.00	1.165	5.99	0.940	5.000	5.309	6.2	30.0	
CAL3	1306089.2	1223181.5	True	5.00	1.068	5.99	0.940	5.000	4.864	-2.7	30.0	
CAL4	1213654.2	1098579.4	True	5.00	1.105	5.99	0.940	5.000	5.033	0.7	30.0	
CAL5	1033263.3	941808.6	True	5.00	1.097	5.99	0.940	5.000	4.998	0.0	30.0	
CAL6	865825.4	767793.5	True	5.00	1.128	5.99	0.940	5.000	5.137	2.7	30.0	
CAL7	688769.4	645555.1	True	5.00	1.067	5.98	0.930	5.000	4.860	-2.8	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

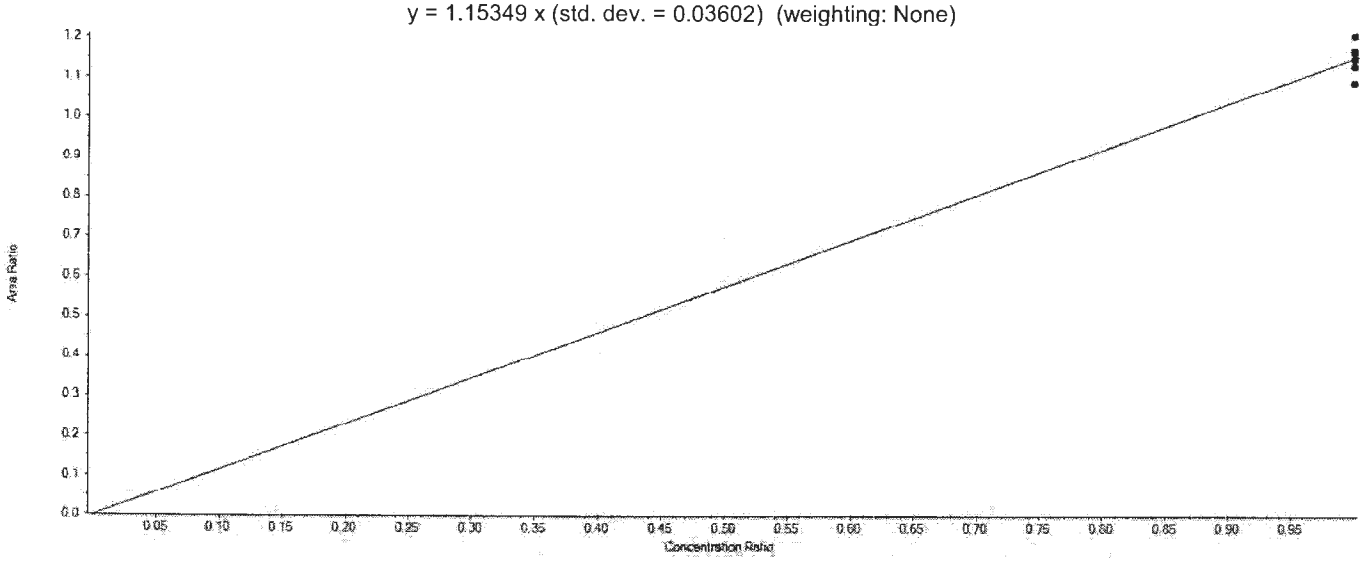
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C8-PFOA

y = 1.15349 x (std. dev. = 0.03602) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1292482.0	1106995.2	True	5.00	1.168	6.41	1.000	5.000	5.061	1.2	50.0	
CAL2	1292042.1	1069381.6	True	5.00	1.208	6.41	1.000	5.000	5.237	4.7	30.0	
CAL3	1405592.8	1223181.5	True	5.00	1.149	6.40	1.000	5.000	4.981	-0.4	30.0	
CAL4	1245323.0	1098579.4	True	5.00	1.134	6.40	1.000	5.000	4.914	-1.7	30.0	
CAL5	1103424.0	941808.6	True	5.00	1.172	6.40	1.000	5.000	5.079	1.6	30.0	
CAL6	885176.7	767793.5	True	5.00	1.153	6.41	1.000	5.000	4.997	-0.1	30.0	
CAL7	704601.2	645555.1	True	5.00	1.091	6.40	1.000	5.000	4.731	-5.4	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

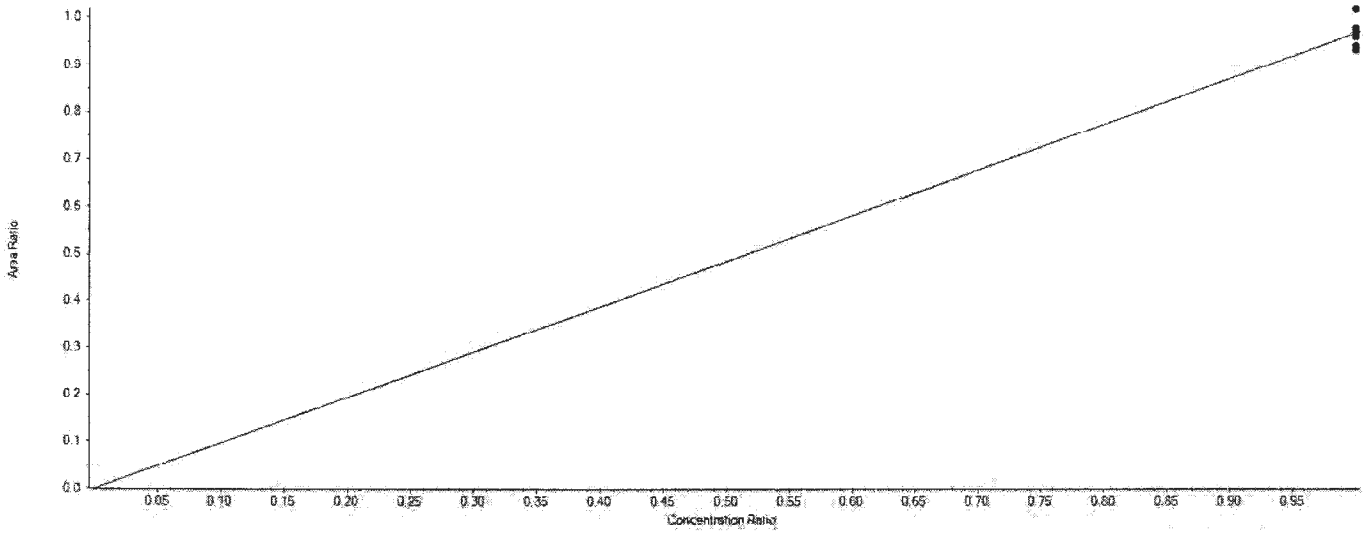
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C8-PFOS

y = 0.96949 x (std. dev. = 0.02815) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	782097.5	798459.3	True	4.78	0.980	6.76	1.000	4.780	4.829	1.0	50.0	
CAL2	791217.4	776185.9	True	4.78	1.019	6.76	1.000	4.780	5.026	5.1	30.0	
CAL3	838024.6	888258.8	True	4.78	0.943	6.75	1.000	4.780	4.652	-2.7	30.0	
CAL4	788939.6	813584.4	True	4.78	0.970	6.76	1.000	4.780	4.781	0.0	30.0	
CAL5	673644.0	699879.3	True	4.78	0.963	6.75	1.000	4.780	4.746	-0.7	30.0	
CAL6	561417.6	601867.3	True	4.78	0.933	6.75	1.000	4.780	4.599	-3.8	30.0	
CAL7	473989.6	484106.7	True	4.78	0.979	6.75	1.000	4.780	4.827	1.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

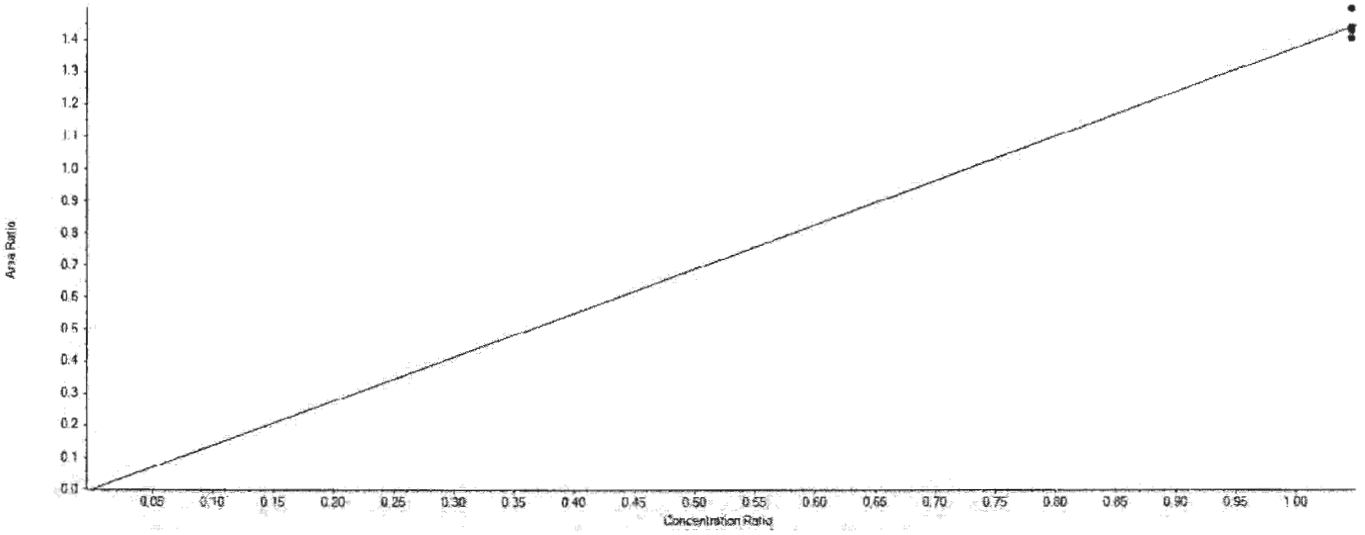
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C9-PFNA

y = 1.37835 x (std. dev. = 0.02646) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1142124.6	798459.3	True	4.78	1.430	6.79	1.000	5.000	4.961	-0.8	50.0	
CAL2	1162956.4	776185.9	True	4.78	1.498	6.78	1.000	5.000	5.196	3.9	30.0	
CAL3	1279709.6	888258.8	True	4.78	1.441	6.78	1.000	5.000	4.996	-0.1	30.0	
CAL4	1171820.5	813584.4	True	4.78	1.440	6.78	1.000	5.000	4.995	-0.1	30.0	
CAL5	1008795.0	699879.3	True	4.78	1.441	6.78	1.000	5.000	4.999	0.0	30.0	
CAL6	846767.8	601867.3	True	4.78	1.407	6.78	1.000	5.000	4.879	-2.4	30.0	
CAL7	694471.9	484106.7	True	4.78	1.435	6.78	1.010	5.000	4.975	-0.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

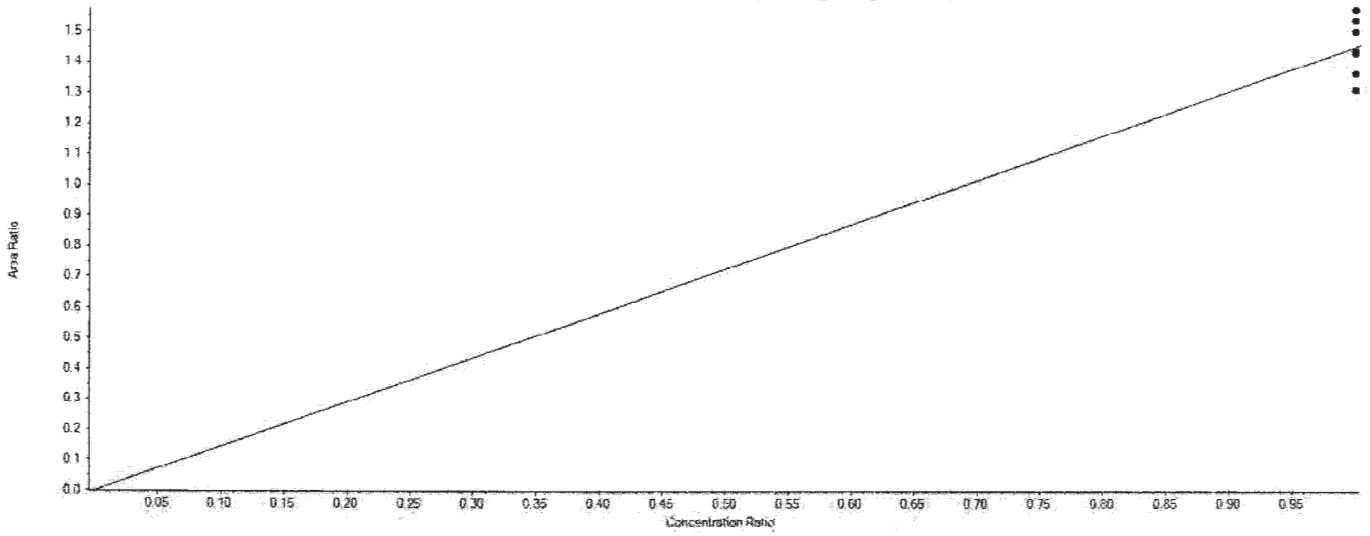
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C6-PFDA

y = 1.45412 x (std. dev. = 0.09291) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1673534.9	1165819.0	True	5.00	1.436	7.14	1.000	5.000	4.936	-1.3	50.0	
CAL2	1766826.2	1147160.8	True	5.00	1.540	7.13	1.000	5.000	5.296	5.9	30.0	
CAL3	1803035.3	1145668.9	True	5.00	1.574	7.13	1.000	5.000	5.411	8.2	30.0	
CAL4	1656227.7	1100677.4	True	5.00	1.505	7.13	1.000	5.000	5.174	3.5	30.0	
CAL5	1354179.2	939029.8	True	5.00	1.442	7.13	1.000	5.000	4.959	-0.8	30.0	
CAL6	1183910.8	864778.0	True	5.00	1.369	7.13	1.000	5.000	4.707	-5.9	30.0	
CAL7	903084.3	687554.3	True	5.00	1.313	7.13	1.000	5.000	4.516	-9.7	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

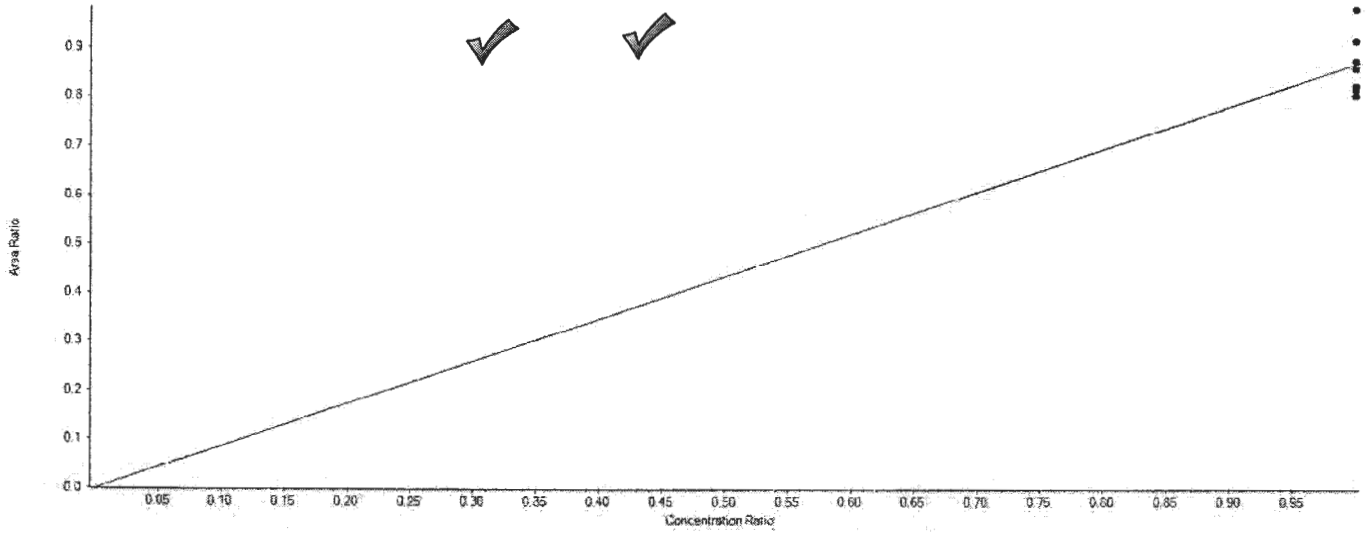
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C7-PFUnDA

y = 0.87014 x (std. dev. = 0.06281) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	% Diff	%D Limit	%D OOS
CAL1	953923.1	1165819.0	True	5.00	0.818	7.46	1.040	5.000	4.702	-6.0	50.0	
CAL2	988706.2	1147160.8	True	5.00	0.862	7.45	1.040	5.000	4.952	-1.0	30.0	
CAL3	1124860.5	1145668.9	True	5.00	0.982	7.45	1.040	5.000	5.642	12.8	30.0	
CAL4	1011445.6	1100677.4	True	5.00	0.919	7.45	1.040	5.000	5.280	5.6	30.0	
CAL5	824102.9	939029.8	True	5.00	0.878	7.44	1.040	5.000	5.043	0.9	30.0	
CAL6	697523.3	864778.0	True	5.00	0.807	7.45	1.040	5.000	4.635	-7.3	30.0	
CAL7	567844.0	687554.3	True	5.00	0.826	7.44	1.040	5.000	4.746	-5.1	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

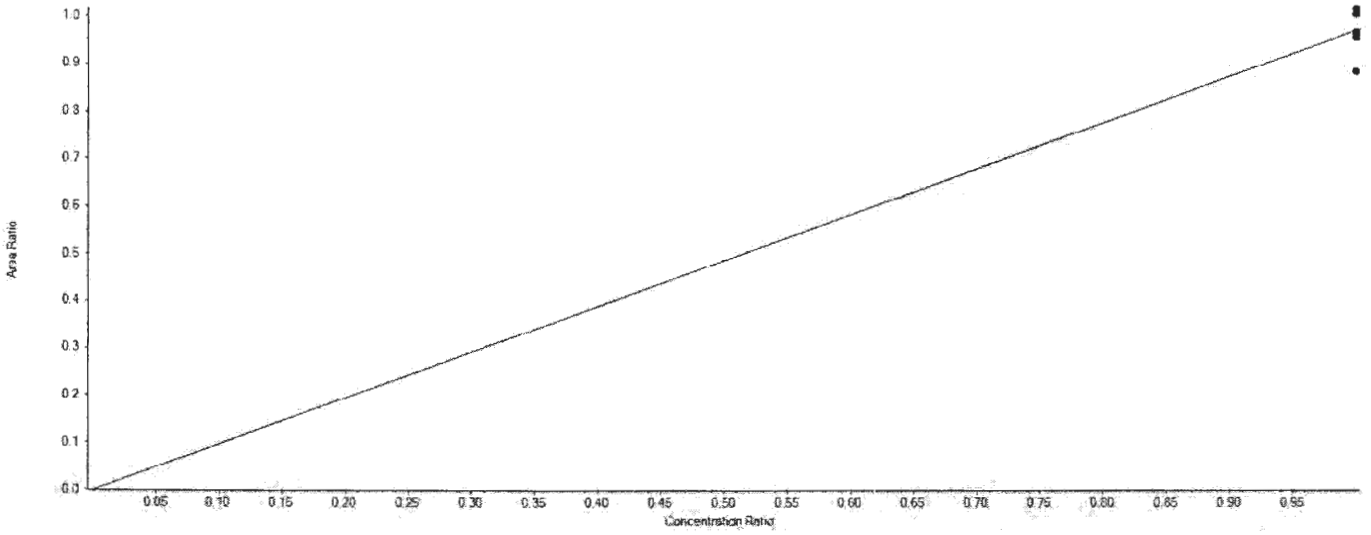
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C2-PFDoDA

y = 0.97223 x (std. dev. = 0.04464) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1032784.2	1165819.0	True	5.00	0.886	7.75	1.090	5.000	4.556	-8.9	50.0	
CAL2	1096813.9	1147160.8	True	5.00	0.956	7.75	1.090	5.000	4.917	-1.7	30.0	
CAL3	1164562.2	1145668.9	True	5.00	1.016	7.74	1.080	5.000	5.228	4.6	30.0	
CAL4	1063138.1	1100677.4	True	5.00	0.966	7.74	1.080	5.000	4.967	-0.7	30.0	
CAL5	944759.6	939029.8	True	5.00	1.006	7.74	1.090	5.000	5.174	3.5	30.0	
CAL6	838692.0	864778.0	True	5.00	0.970	7.74	1.080	5.000	4.988	-0.2	30.0	
CAL7	691174.2	687554.3	True	5.00	1.005	7.73	1.080	5.000	5.170	3.4	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

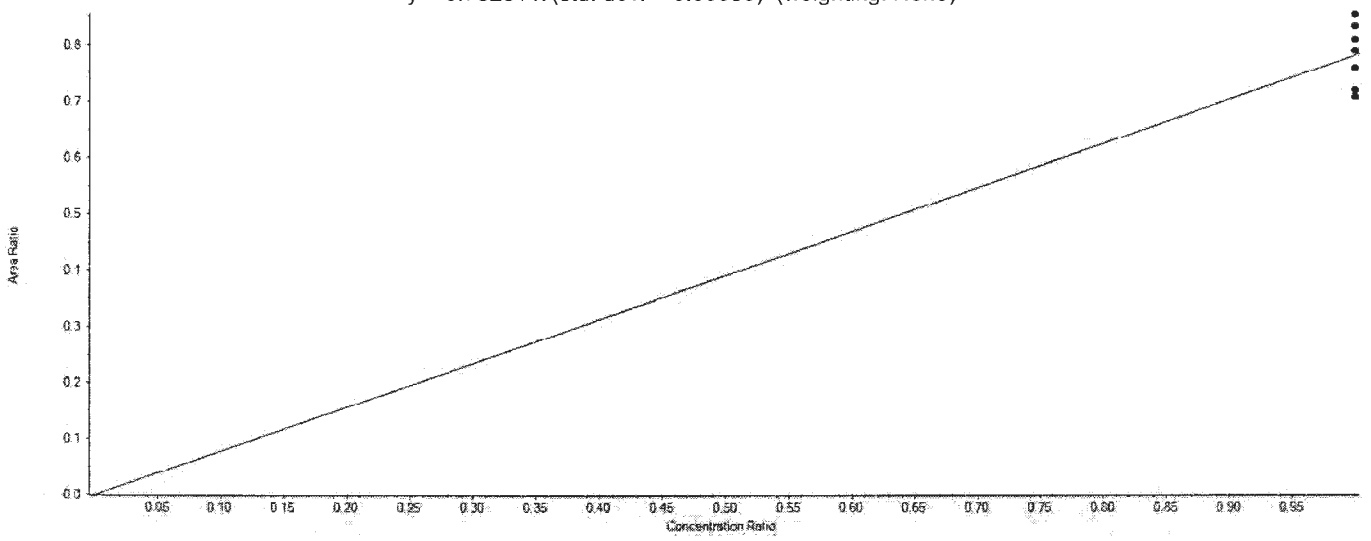
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

E13C2-PFTeDA

y = 0.78281 x (std. dev. = 0.05535) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	826907.4	1165819.0	True	5.00	0.709	8.34	1.170	5.000	4.530	-9.4	50.0	
CAL2	872521.9	1147160.8	True	5.00	0.761	8.33	1.170	5.000	4.858	-2.8	30.0	
CAL3	927708.5	1145668.9	True	5.00	0.810	8.33	1.170	5.000	5.172	3.4	30.0	
CAL4	917389.5	1100677.4	True	5.00	0.833	8.32	1.170	5.000	5.324	6.5	30.0	
CAL5	802888.6	939029.8	True	5.00	0.855	8.32	1.170	5.000	5.461	9.2	30.0	
CAL6	684222.1	864778.0	True	5.00	0.791	8.32	1.170	5.000	5.054	1.1	30.0	
CAL7	495239.1	687554.3	True	5.00	0.720	8.31	1.170	5.000	4.601	-8.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

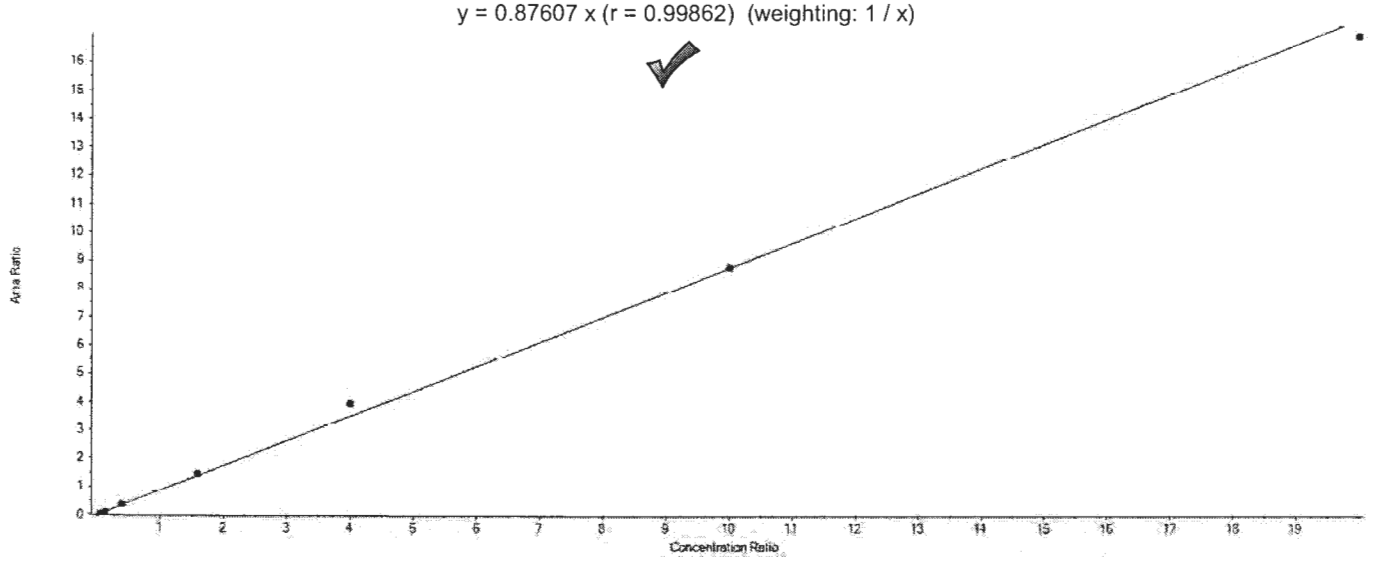
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFBA

y = 0.87607 x (r = 0.99862) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	83072.0	1924849.9	True	5.00	0.043	4.47	1.000	0.200	0.246	23.2	50.0	
CAL2	216601.6	1959719.2	True	5.00	0.111	4.46	1.000	0.600	0.631	5.1	30.0	
CAL3	761685.4	2084812.5	True	5.00	0.365	4.46	1.000	2.000	2.085	4.3	30.0	
CAL4	2841977.1	1924087.3	True	5.00	1.477	4.46	1.000	8.000	8.430	5.4	30.0	
CAL5	6527313.4	1641151.9	True	5.00	3.977	4.46	1.000	20.000	22.700	13.5	30.0	
CAL6	12108277.7	1381898.4	True	5.00	8.762	4.46	1.000	50.000	50.008	0.0	30.0	
CAL7	18507815.1	1092348.9	True	5.00	16.943	4.46	1.000	100.000	96.700	-3.3	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

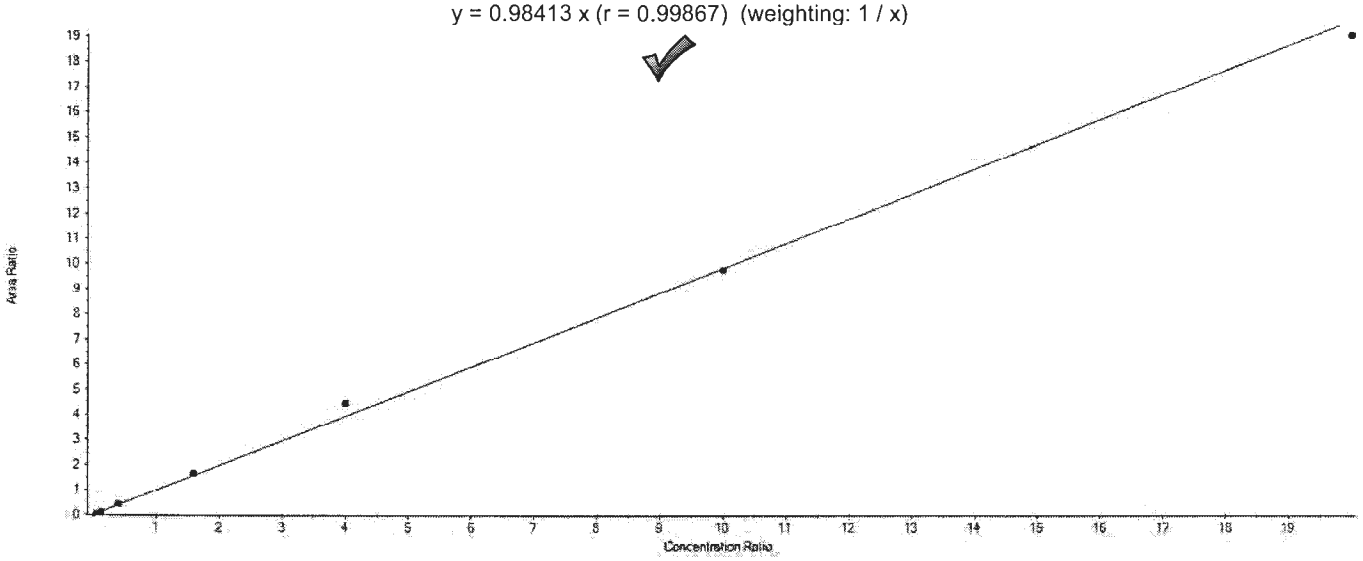
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFPeA

y = 0.98413 x (r = 0.99867) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	66857.1	1501835.6	True	5.00	0.045	5.08	1.000	0.200	0.226	13.1	50.0	
CAL2	187488.5	1510101.8	True	5.00	0.124	5.07	1.000	0.600	0.631	5.1	30.0	
CAL3	686846.3	1644584.0	True	5.00	0.418	5.07	1.000	2.000	2.122	6.1	30.0	
CAL4	2502106.0	1506387.3	True	5.00	1.661	5.07	1.000	8.000	8.439	5.5	30.0	
CAL5	5700049.7	1277613.6	True	5.00	4.461	5.07	1.000	20.000	22.667	13.3	30.0	
CAL6	10700451.2	1093978.3	True	5.00	9.781	5.07	1.000	50.000	49.695	-0.6	30.0	
CAL7	16109519.0	843605.3	True	5.00	19.096	5.06	1.000	100.000	97.020	-3.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

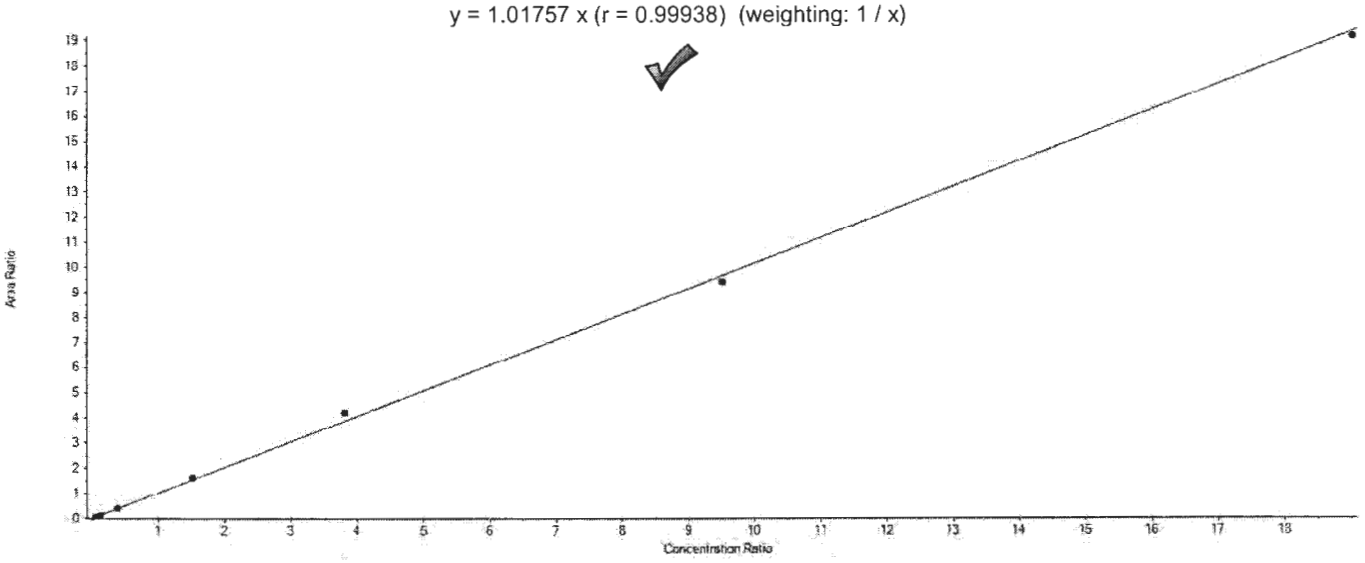
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFBS

y = 1.01757 x (r = 0.99938) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	40942.7	958872.4	True	4.65	0.043	5.13	1.000	0.170	0.195	14.8	50.0	
CAL2	117789.3	1011369.7	True	4.65	0.116	5.13	1.000	0.530	0.532	0.4	30.0	
CAL3	422494.5	1084316.8	True	4.65	0.390	5.12	1.000	1.770	1.781	0.6	30.0	
CAL4	1577527.4	972984.8	True	4.65	1.621	5.13	1.000	7.080	7.409	4.6	30.0	
CAL5	3745599.0	887408.7	True	4.65	4.221	5.12	1.000	17.690	19.288	9.0	30.0	
CAL6	7278697.6	770851.5	True	4.65	9.442	5.13	1.000	44.220	43.149	-2.4	30.0	
CAL7	11866779.1	619353.5	True	4.65	19.160	5.12	1.000	88.450	87.556	-1.0	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

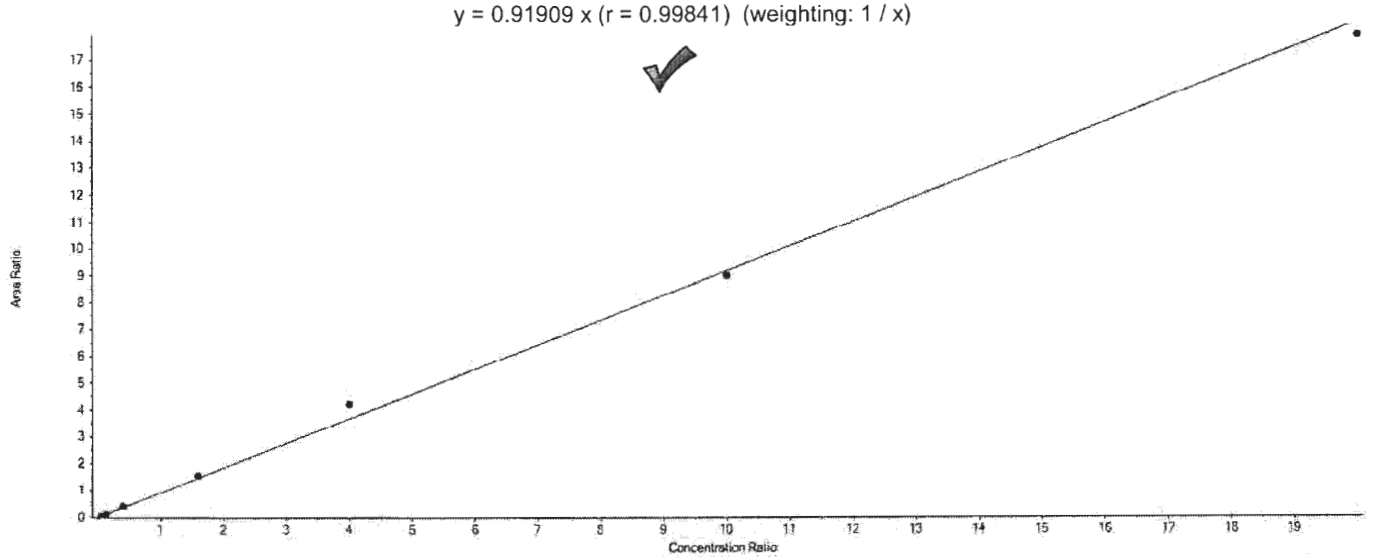
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFHxA

y = 0.91909 x (r = 0.99841) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65636.1	1594435.8	True	5.00	0.041	5.55	1.000	0.200	0.224	12.0	50.0	
CAL2	187046.3	1666616.8	True	5.00	0.112	5.55	1.000	0.600	0.611	1.8	30.0	
CAL3	698160.9	1720911.0	True	5.00	0.406	5.54	1.000	2.000	2.207	10.4	30.0	
CAL4	2497067.6	1598976.8	True	5.00	1.562	5.55	1.000	8.000	8.496	6.2	30.0	
CAL5	5774072.1	1369998.3	True	5.00	4.215	5.54	1.000	20.000	22.928	14.6	30.0	
CAL6	10142715.2	1125149.6	True	5.00	9.015	5.54	1.000	50.000	49.041	-1.9	30.0	
CAL7	16011473.0	895283.9	True	5.00	17.884	5.54	1.000	100.000	97.293	-2.7	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

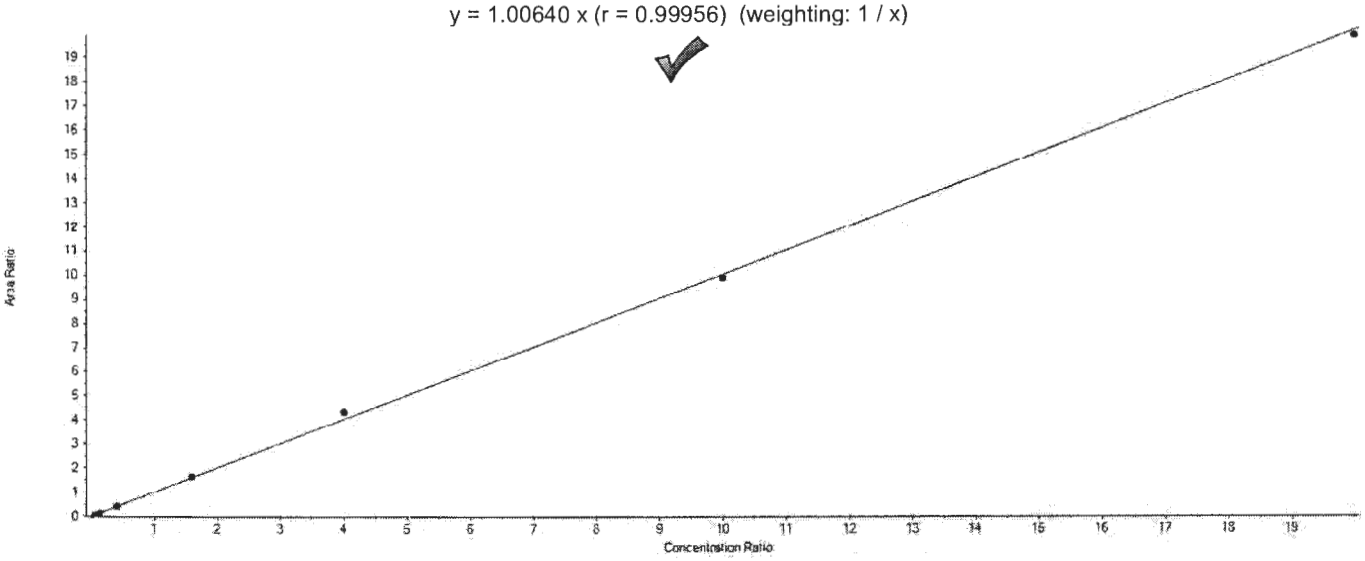
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFHxS

y = 1.00640 x (r = 0.99956) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	28849.5	691939.8	True	4.73	0.042	5.99	1.000	0.190	0.196	3.1	50.0	
CAL2	80965.4	696545.9	True	4.73	0.116	5.98	1.000	0.570	0.546	-4.2	30.0	
CAL3	305439.8	754864.9	True	4.73	0.405	5.98	1.000	1.890	1.902	0.6	30.0	
CAL4	1123264.2	683609.2	True	4.73	1.643	5.98	1.000	7.560	7.723	2.2	30.0	
CAL5	2620134.3	602855.5	True	4.73	4.346	5.98	1.000	18.910	20.427	8.0	30.0	
CAL6	5009170.1	505030.5	True	4.73	9.919	5.98	1.000	47.280	46.616	-1.4	30.0	
CAL7	8045768.3	404260.0	True	4.73	19.902	5.97	1.000	94.550	93.540	-1.1	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

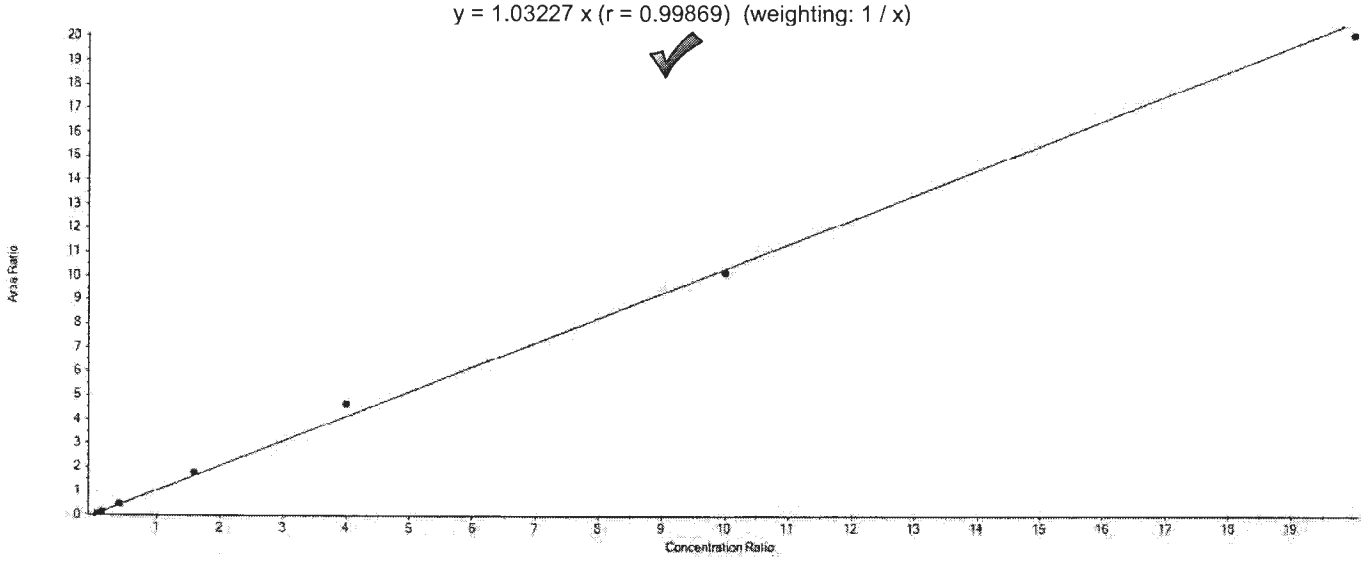
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFHpA

y = 1.03227 x (r = 0.99869) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	57780.5	1166383.1	True	5.00	0.050	6.00	1.000	0.200	0.240	20.0	50.0	
CAL2	157349.1	1246208.3	True	5.00	0.126	5.99	1.000	0.600	0.612	1.9	30.0	
CAL3	581970.3	1306089.2	True	5.00	0.446	5.99	1.000	2.000	2.158	7.9	30.0	
CAL4	2148078.3	1213654.2	True	5.00	1.770	5.99	1.000	8.000	8.573	7.2	30.0	
CAL5	4823800.2	1033263.3	True	5.00	4.669	5.99	1.000	20.000	22.613	13.1	30.0	
CAL6	8806314.7	865825.4	True	5.00	10.171	5.99	1.000	50.000	49.265	-1.5	30.0	
CAL7	13841660.8	688769.4	True	5.00	20.096	5.99	1.000	100.000	97.340	-2.7	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

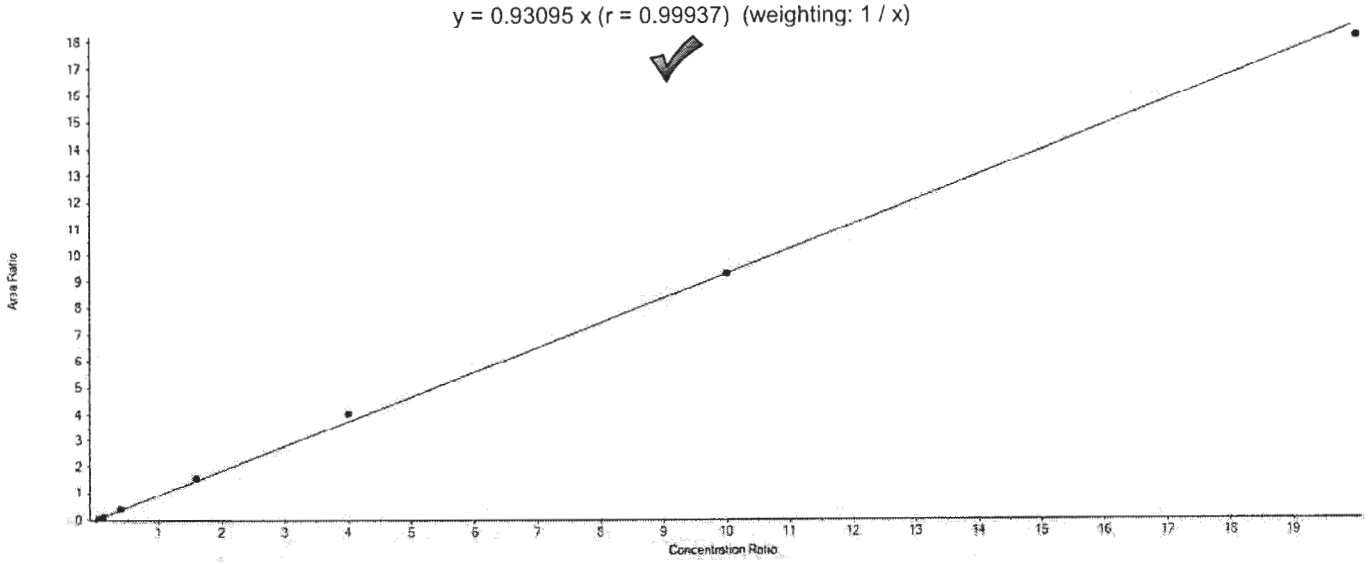
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFOA

y = 0.93095 x (r = 0.99937) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	56876.5	1292482.0	True	5.00	0.044	6.41	1.000	0.200	0.236	18.2	50.0	
CAL2	155637.0	1292042.1	True	5.00	0.120	6.40	1.000	0.600	0.647	7.8	30.0	
CAL3	554673.5	1405592.8	True	5.00	0.395	6.40	1.000	2.000	2.119	6.0	30.0	
CAL4	1969234.2	1245323.0	True	5.00	1.581	6.40	1.000	8.000	8.493	6.2	30.0	
CAL5	4455480.3	1103424.0	True	5.00	4.038	6.40	1.000	20.000	21.687	8.4	30.0	
CAL6	8234235.6	885176.7	True	5.00	9.302	6.41	1.000	50.000	49.962	-0.1	30.0	
CAL7	12811364.5	704601.2	True	5.00	18.182	6.40	1.000	100.000	97.656	-2.3	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

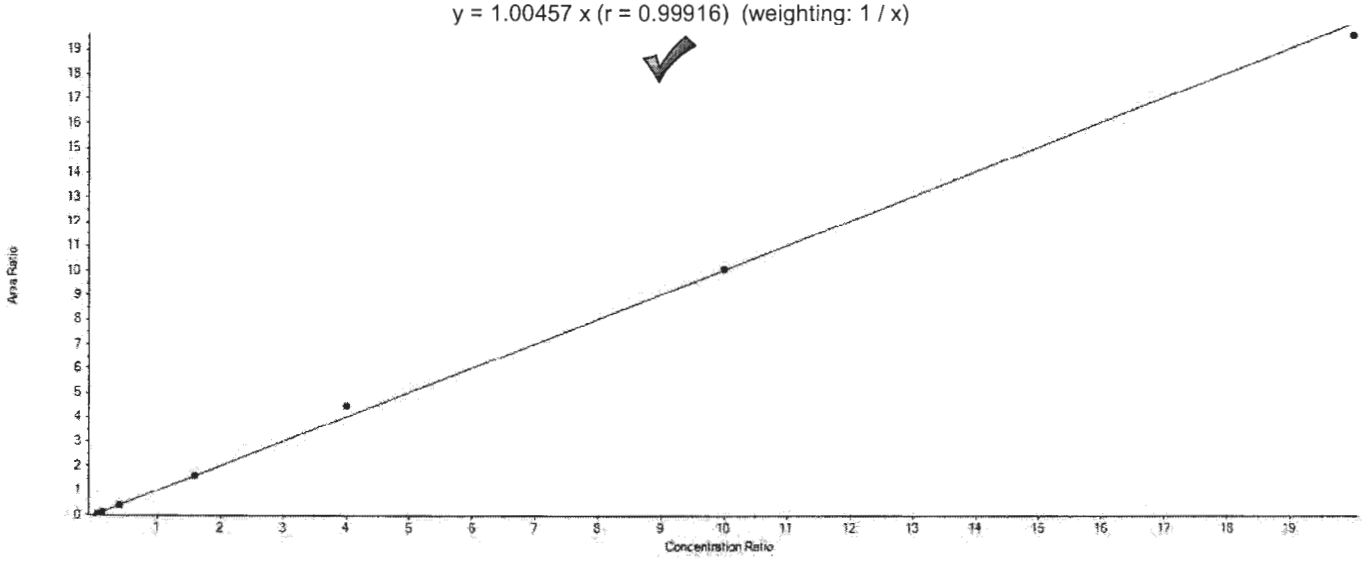
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFOS

y = 1.00457 x (r = 0.99916) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	32660.6	782097.5	True	4.78	0.042	6.76	1.000	0.190	0.199	4.6	50.0	
CAL2	91967.1	791217.4	True	4.78	0.116	6.76	1.000	0.570	0.553	-3.0	30.0	
CAL3	332396.7	838024.6	True	4.78	0.397	6.75	1.000	1.910	1.887	-1.2	30.0	
CAL4	1277739.2	788939.6	True	4.78	1.620	6.76	1.000	7.650	7.706	0.7	30.0	
CAL5	3000207.0	673644.0	True	4.78	4.454	6.75	1.000	19.120	21.192	10.8	30.0	
CAL6	5659042.1	561417.6	True	4.78	10.080	6.75	1.000	47.800	47.963	0.3	30.0	
CAL7	9297922.2	473989.6	True	4.78	19.616	6.74	1.000	95.600	93.340	-2.4	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

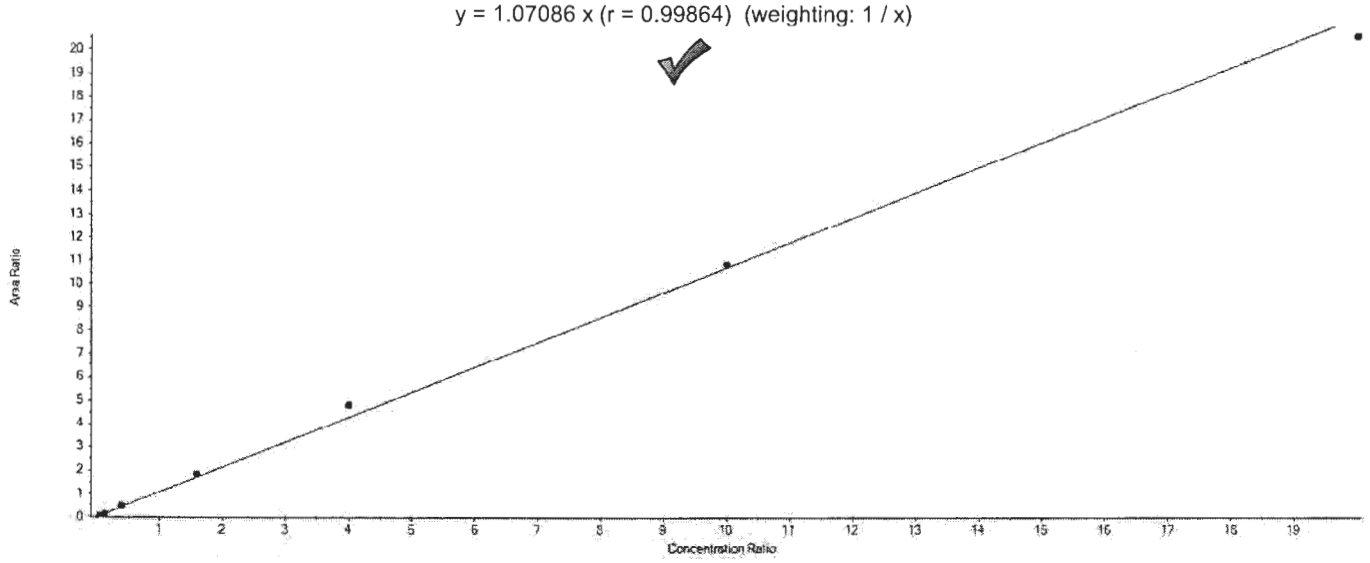
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFNA

y = 1.07086 x (r = 0.99864) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	59919.0	1142124.6	True	5.00	0.052	6.79	1.000	0.200	0.245	22.5	50.0	
CAL2	166200.5	1162956.4	True	5.00	0.143	6.78	1.000	0.600	0.667	11.2	30.0	
CAL3	607863.8	1279709.6	True	5.00	0.475	6.78	1.000	2.000	2.218	10.9	30.0	
CAL4	2132461.7	1171820.5	True	5.00	1.820	6.78	1.000	8.000	8.497	6.2	30.0	
CAL5	4850412.8	1008795.0	True	5.00	4.808	6.78	1.000	20.000	22.450	12.2	30.0	
CAL6	9165821.6	846767.8	True	5.00	10.824	6.78	1.000	50.000	50.541	1.1	30.0	
CAL7	14305765.2	694471.9	True	5.00	20.599	6.78	1.000	100.000	96.182	-3.8	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

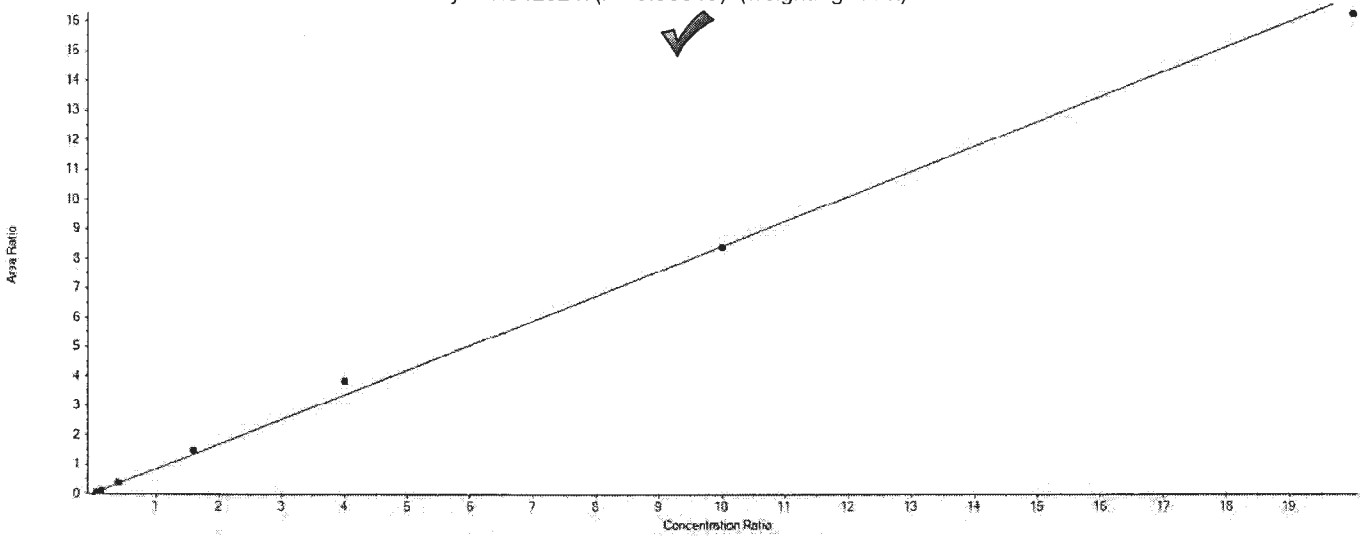
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFDA

y = 0.84282 x (r = 0.99840) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	65331.0	1673534.9	True	5.00	0.039	7.14	1.000	0.200	0.232	15.8	50.0	
CAL2	185820.6	1766826.2	True	5.00	0.105	7.14	1.000	0.600	0.624	4.0	30.0	
CAL3	637049.8	1803035.3	True	5.00	0.353	7.13	1.000	2.000	2.096	4.8	30.0	
CAL4	2443005.6	1656227.7	True	5.00	1.475	7.14	1.000	8.000	8.751	9.4	30.0	
CAL5	5194694.3	1354179.2	True	5.00	3.836	7.13	1.000	20.000	22.757	13.8	30.0	
CAL6	9947778.2	1183910.8	True	5.00	8.402	7.13	1.000	50.000	49.847	-0.3	30.0	
CAL7	14688971.5	903084.3	True	5.00	16.265	7.13	1.000	100.000	96.493	-3.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

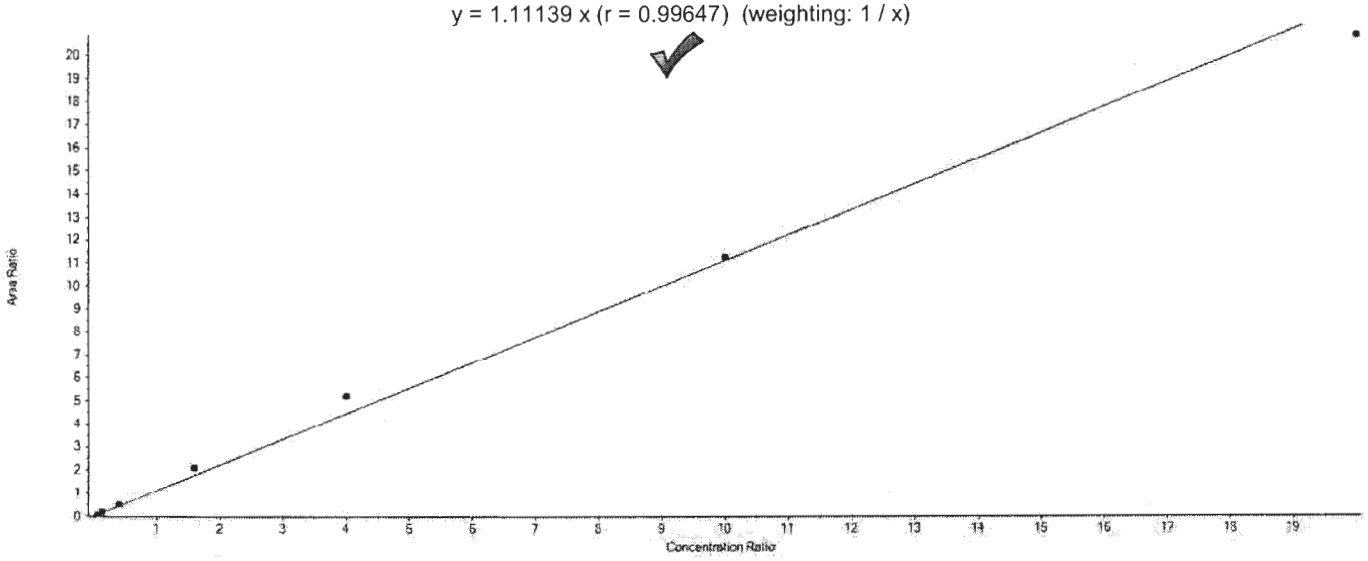
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFUnDA

y = 1.11139 x (r = 0.99647) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	53783.1	953923.1	True	5.00	0.056	7.46	1.000	0.200	0.254	26.8	50.0	
CAL2	166077.8	988706.2	True	5.00	0.168	7.45	1.000	0.600	0.756	26.0	30.0	
CAL3	575865.8	1124860.5	True	5.00	0.512	7.45	1.000	2.000	2.303	15.2	30.0	
CAL4	2132174.6	1011445.6	True	5.00	2.108	7.45	1.000	8.000	9.484	18.5	30.0	
CAL5	4297346.1	824102.9	True	5.00	5.215	7.44	1.000	20.000	23.460	17.3	30.0	
CAL6	7858951.3	697523.3	True	5.00	11.267	7.45	1.000	50.000	50.689	1.4	30.0	
CAL7	11846326.9	567844.0	True	5.00	20.862	7.44	1.000	100.000	93.855	-6.1	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

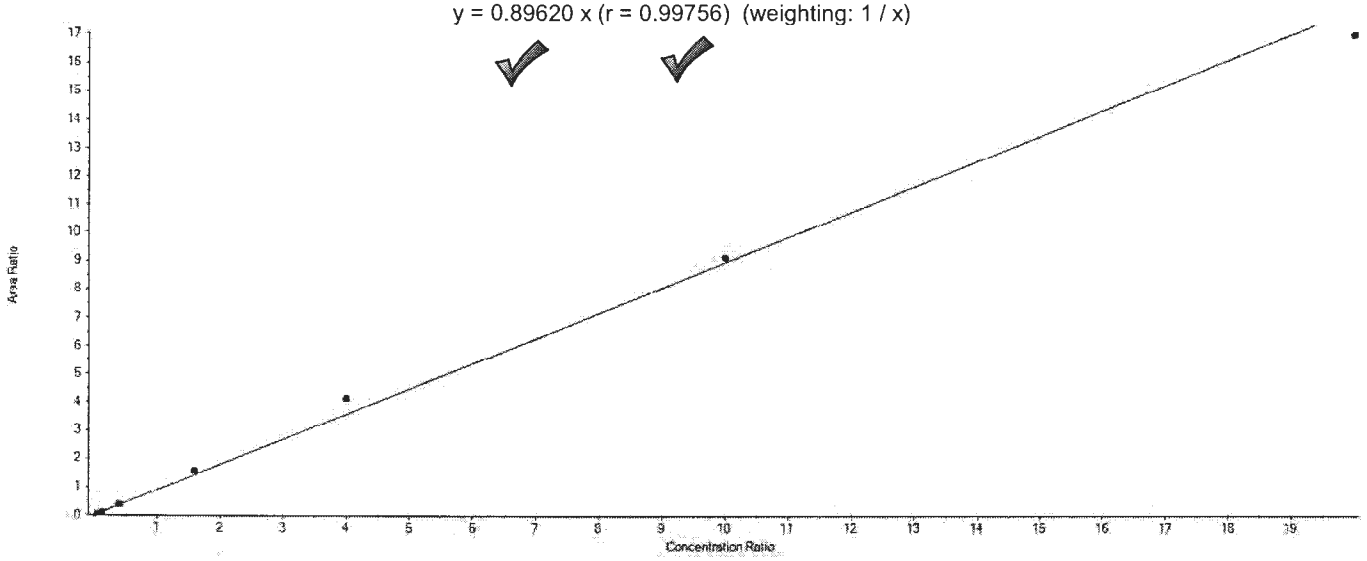
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFDoDA

y = 0.89620 x (r = 0.99756) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	42566.8	1032784.2	True	5.00	0.041	7.75	1.000	0.200	0.230	15.0	50.0	
CAL2	120934.1	1096813.9	True	5.00	0.110	7.75	1.000	0.600	0.615	2.5	30.0	
CAL3	453251.3	1164562.2	True	5.00	0.389	7.74	1.000	2.000	2.171	8.6	30.0	
CAL4	1661667.3	1063138.1	True	5.00	1.563	7.74	1.000	8.000	8.720	9.0	30.0	
CAL5	3934621.1	944759.6	True	5.00	4.165	7.73	1.000	20.000	23.235	16.2	30.0	
CAL6	7651287.6	838692.0	True	5.00	9.123	7.74	1.000	50.000	50.897	1.8	30.0	
CAL7	11760698.5	691174.2	True	5.00	17.016	7.73	1.000	100.000	94.931	-5.1	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

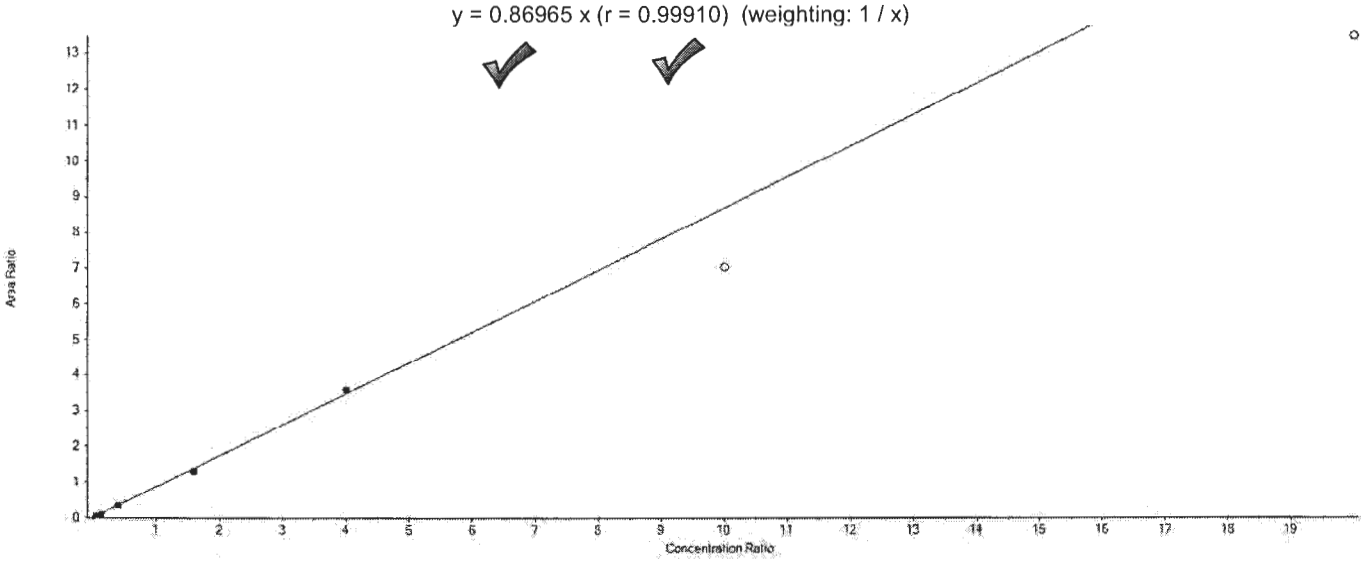
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFTrDA

y = 0.86965 x (r = 0.99910) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	35878.4	1032784.2	True	5.00	0.035	8.04	1.040	0.200	0.200	-0.1	50.0	
CAL2	101163.0	1096813.9	True	5.00	0.092	8.04	1.040	0.600	0.530	-11.6	30.0	
CAL3	390633.2	1164562.2	True	5.00	0.335	8.03	1.040	2.000	1.929	-3.6	30.0	
CAL4	1394459.0	1063138.1	True	5.00	1.312	8.03	1.040	8.000	7.541	-5.7	30.0	
CAL5	3385095.1	944759.6	True	5.00	3.583	8.02	1.040	20.000	20.600	3.0	30.0	
CAL6	5891260.9	838692.0	False	5.00	7.024	8.03	1.040	50.000	40.386	-19.2	30.0	
CAL7	9315016.2	691174.2	False	5.00	13.477	8.02	1.040	100.000	77.485	-22.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

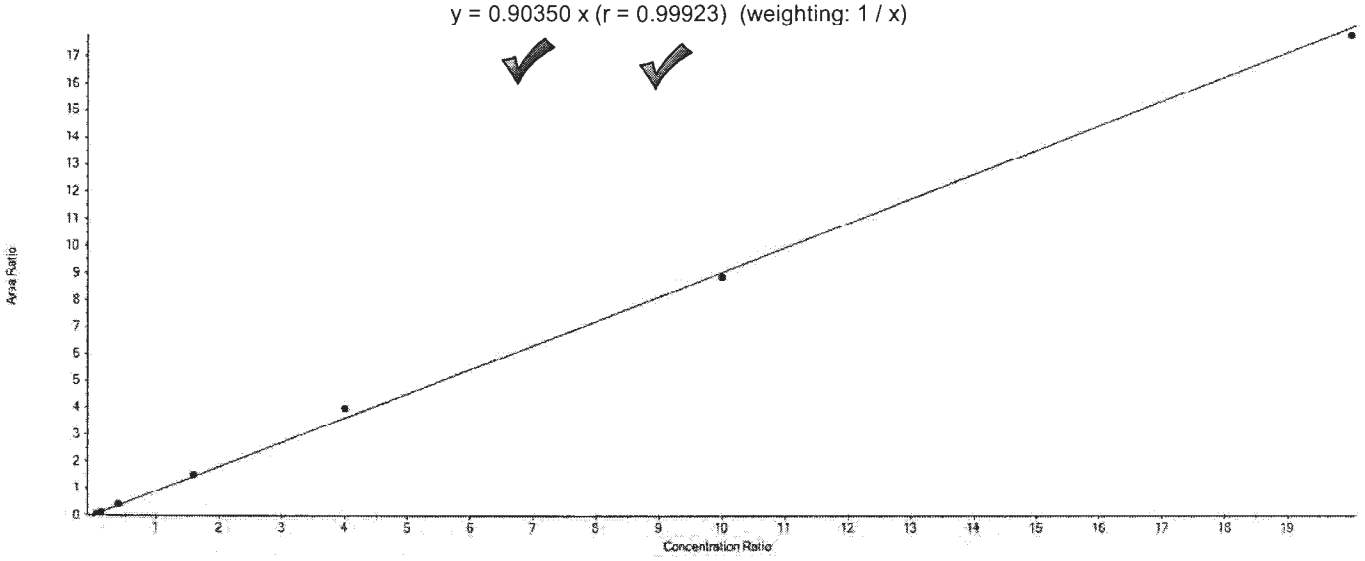
REVIEWED
By umar at 3:49 pm, 4/10/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

PFTeDA

y = 0.90350 x (r = 0.99923) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	33544.7	826907.4	True	5.00	0.041	8.34	1.000	0.200	0.224	12.2	50.0	
CAL2	99126.0	872521.9	True	5.00	0.114	8.33	1.000	0.600	0.629	4.8	30.0	
CAL3	371414.0	927708.5	True	5.00	0.400	8.32	1.000	2.000	2.216	10.8	30.0	
CAL4	1378385.7	917389.5	True	5.00	1.503	8.32	1.000	8.000	8.315	3.9	30.0	
CAL5	3192627.0	802888.6	True	5.00	3.976	8.31	1.000	20.000	22.006	10.0	30.0	
CAL6	6053232.5	684222.1	True	5.00	8.847	8.32	1.000	50.000	48.959	-2.1	30.0	
CAL7	8810464.7	495239.1	True	5.00	17.790	8.30	1.000	100.000	98.452	-1.5	30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:49 pm, 4/10/18

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LC-MS/MS Analysis Report

Printed: 4/8/2018 12:05:00 PM
Template: MQ-ICAL-16NOV21.docx

ICV all samples

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18APR07MCAL **QMethod Name:** SF-PFCMOD-18MAR29
Result Table: 18APR07MCAL4/8/2018 12:04:09 PM **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR07MCAL-27.wiff	4/8/2018 4:24:18 AM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	631732.5	13C4-PFBA	1858582.4	5.00	0.340	4.46	1.00	2.000	1.940	-3.0	30.0	
PFPeA	554763.9	13C5-PFPeA	1426714.6	5.00	0.389	5.07	1.00	2.000	1.976	-1.2	30.0	
PFBS	343338.3	13C3-PFBS	913208.7	4.65	0.376	5.12	1.00	1.770	1.718	-2.9	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	156022.8	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	575037.3	13C5-PFHxA	1554783.0	5.00	0.370	5.54	1.00	2.000	2.012	0.6	30.0	
PFPeS	N/A	13C3-PFBS	913208.7	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	252512.2	13C3-PFHxS	663064.4	4.73	0.381	5.98	1.00	1.890	1.790	-5.3	30.0	
PFHpA	490721.9	13C4-PFHpA	1208658.9	5.00	0.406	5.99	1.00	2.000	1.967	-1.7	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	123524.3	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	238017.5	13C3-PFHxS	663064.4	4.73	0.359	6.38	1.07	1.900	1.759	-7.4	30.0	
PFOA	452731.8	13C8-PFOA	1200833.7	5.00	0.377	6.40	1.00	2.000	2.025	1.2	30.0	
PFOS	268048.4	13C8-PFOS	733611.0	4.78	0.365	6.75	1.00	1.910	1.739	-9.0	30.0	
PFNA	491999.6	13C9-PFNA	1153598.9	5.00	0.426	6.78	1.00	2.000	1.991	-0.4	30.0	
PFOSA	N/A	13C8-PFOSA	1791867.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	733611.0	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	547826.1	13C6-PFDA	1639995.7	5.00	0.334	7.13	1.00	2.000	1.982	-0.9	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	224551.0	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	383774.6	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	183524.5	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	154163.7	d3-NMeFOSAA	364501.6	5.00	0.423	7.30	1.00	2.000	2.055	2.8	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	538967.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	176152.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	149152.3	13C8-PFOS	733611.0	4.78	0.203	7.40	1.10	1.930	1.721	-10.8	30.0	
PFUnDA	486150.5	13C7-PFUnDA	951029.4	5.00	0.511	7.44	1.00	2.000	2.300	15.0	30.0	
NEtFOSAA	137893.5	d5-NEtFOSAA	351466.1	5.00	0.392	7.47	1.00	2.000	1.840	-8.0	30.0	
PFDoDA	364384.5	13C2-PFDoDA	1056526.4	5.00	0.345	7.73	1.00	2.000	1.924	-3.8	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	224551.0	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	733611.0	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	296804.7	13C2-PFDoDA	1056526.4	5.00	0.281	8.02	1.04	2.000	1.615	-19.2	30.0	
PFTeDA	279594.4	13C2-PFTeDA	775730.9	5.00	0.360	8.31	1.00	2.000	1.995	-0.3	30.0	
PFHxDA	N/A	13C2-PFTeDA	775730.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	775730.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:49 pm, 4/10/18

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LC-MS/MS Analysis Report

Printed: 4/8/2018 12:10:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample Name:	ICV			**Data File:**		18APR07MCAL-27.wiff
Sample ID:	ICVMODX1833B			**Acquis Date:**		2018-04-08T04:24:18
Sample Type:	Quality Control			**Instrument:**		LM24960
Vial Position:	10			**Acquis Method:**		PFC-32 18APR08_divert.dam
Injection Vol:	5.00			**Result Table:**		18APR07MCAL
QMethod File:	SF-PFCMOD-18MAR29			**ICAL Name:**		18APR07MCAL
Batch Number:	18APR04MCAL			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	1660367.5	1589581.0	4.5	50.0	
I13C2-PFOA	5.0	987349.6	979042.1	0.8	50.0	
I13C4-PFOS	4.8	765053.9	723191.7	5.8	50.0	
I13C2-PFDA	5.0	1039609.0	1007241.2	3.2	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS
E13C4-PFBA	1858582.4	13C3-PFBA	1660367.5	1.119	1.078	5.000	5.191	103.8	70.0-130.0	
E13C5-PFPeA	1426714.6	13C3-PFBA	1660367.5	0.859	0.842	5.000	5.104	102.1	70.0-130.0	
E13C3-PFBS	913208.7	13C3-PFBA	1660367.5	0.550	0.571	4.650	4.482	96.4	70.0-130.0	
E13C2-4:2-FTS	156022.8	13C2-PFOA	987349.6	0.158	0.173	4.670	4.267	91.4	70.0-130.0	
E13C5-PFHxA	1554783.0	13C2-PFOA	987349.6	1.575	1.453	5.000	5.420	108.4	70.0-130.0	
E13C3-PFHxS	663064.4	13C2-PFOA	987349.6	0.672	0.634	4.730	5.008	105.9	70.0-130.0	
E13C4-PFHpA	1208658.9	13C2-PFOA	987349.6	1.224	1.098	5.000	5.576	111.5	70.0-130.0	
E13C2-6:2-FTS	123524.3	13C2-PFOA	987349.6	0.125	0.133	4.750	4.479	94.3	70.0-130.0	
E13C8-PFOA	1200833.7	13C2-PFOA	987349.6	1.216	1.153	5.000	5.272	105.4	70.0-130.0	
E13C8-PFOS	733611.0	13C4-PFOS	765053.9	0.959	0.969	4.780	4.728	98.9	70.0-130.0	
E13C9-PFNA	1153598.9	13C4-PFOS	765053.9	1.508	1.442	5.000	5.229	104.6	70.0-130.0	
E13C8-PFOSA	1791867.7	13C2-PFDA	1039609.0	1.724	1.706	5.000	5.052	101.0	70.0-130.0	
E13C6-PFDA	1639995.7	13C2-PFDA	1039609.0	1.578	1.454	5.000	5.424	108.5	70.0-130.0	
E13C2-8:2-FTS	224551.0	13C2-PFDA	1039609.0	0.216	0.223	4.790	4.644	97.0	70.0-130.0	
Ed7-NMePFOSAE	383774.6	13C2-PFDA	1039609.0	0.369	0.417	5.000	4.429	88.6	70.0-130.0	
Ed3-NMePFOSA	183524.5	13C2-PFDA	1039609.0	0.177	0.170	5.000	5.197	103.9	70.0-130.0	
Ed3-NMeFOSAA	364501.6	13C2-PFDA	1039609.0	0.351	0.367	5.000	4.778	95.6	70.0-130.0	
Ed9-NEtPFOSAE	538967.7	13C2-PFDA	1039609.0	0.518	0.560	5.000	4.630	92.6	70.0-130.0	
Ed5-NEtPFOSA	176152.7	13C2-PFDA	1039609.0	0.169	0.172	5.000	4.921	98.4	70.0-130.0	
E13C7-PFUnDA	951029.4	13C2-PFDA	1039609.0	0.915	0.870	5.000	5.257	105.1	70.0-130.0	
Ed5-NEtFOSAA	351466.1	13C2-PFDA	1039609.0	0.338	0.312	5.000	5.418	108.4	70.0-130.0	
E13C2-PFDoDA	1056526.4	13C2-PFDA	1039609.0	1.016	0.972	5.000	5.227	104.5	70.0-130.0	
E13C2-PFTeDA	775730.9	13C2-PFDA	1039609.0	0.746	0.783	5.000	4.766	95.3	70.0-130.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:50 pm, 4/10/18

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

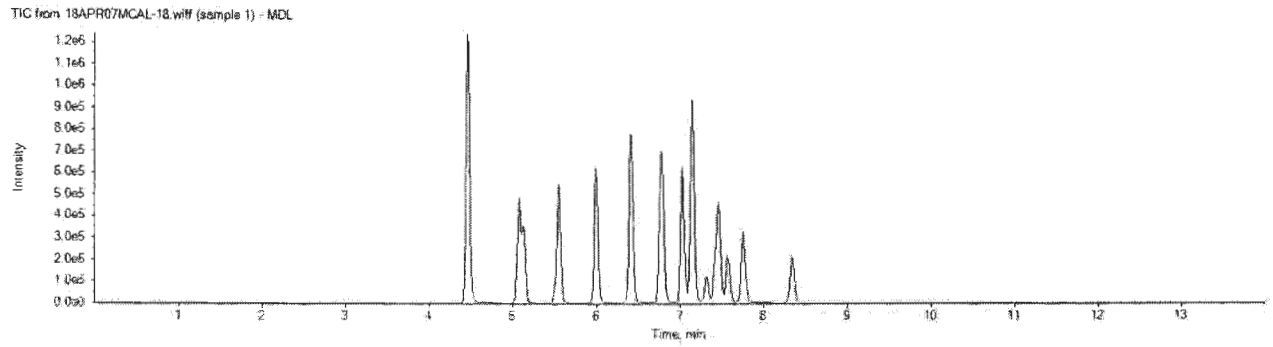
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24960 **File Name:** 18APR07MCAL-18.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	4.46	1.000	39077.4	M	13C4-PFBA	4.46	1822986.2	0.021	0.122
PFPeA	5.07	1.000	34150.3	M	13C5-PFPeA	5.08	1408868.8	0.024	0.123
PFBS	5.13	1.000	19598.5	A	13C3-PFBS	5.13	955478.9	0.021	0.094
4:2-FTS	5.50	1.000	16973.5	M	13C2-4:2-FTS	5.51	177534.7	0.096	0.513
PFHxA	5.55	1.000	33334.5	M	13C5-PFHxA	5.55	1572144.7	0.021	0.115
PFPeS	5.57	1.080	7849.8	M	13C3-PFBS	5.13	955478.9	0.008	0.093
PFHxS	5.99	1.000	14949.4	M	13C3-PFHxS	5.99	661360.0	0.023	0.106
PFHpA	5.99	1.000	26922.9	M	13C4-PFHpA	6.00	1170836.4	0.023	0.111
6:2-FTS	6.40	1.000	12495.8	M	13C2-6:2-FTS	6.40	124292.0	0.101	0.520
PFHpS	6.39	1.070	13201.7	M	13C3-PFHxS	5.99	661360.0	0.020	0.098
PFOA	6.41	1.000	30000.2	M	13C8-PFOA	6.41	1220875.9	0.025	0.132
PFOS	6.76	1.000	16697.5	M	13C8-PFOS	6.76	745709.1	0.022	0.107
PFNA	6.79	1.000	26542.0	M	13C9-PFNA	6.79	1112339.4	0.024	0.111
PFOSA	7.03	1.000	36753.7	M	13C8-PFOSA	7.02	1765843.1	0.021	0.113
PFNS	7.11	1.050	11830.1	M	13C8-PFOS	6.76	745709.1	0.016	0.100
PFDA	7.14	1.000	31528.1	M	13C6-PFDA	7.14	1674611.3	0.019	0.112
8:2-FTS	7.15	1.000	23986.8	M	13C2-8:2-FTS	7.16	249614.1	0.096	0.496
NMePFOSAE	7.43	1.000	9871.4	M	d7-NMePFOSAE	7.41	404203.3	0.024	0.114
NMePFOSA	7.44	1.000	4421.4	M	d3-NMePFOSA	7.44	187191.6	0.024	0.111
NMeFOSAA	7.32	1.000	9025.0	M	d3-NMeFOSAA	7.32	385084.8	0.023	0.114
NEtPFOSAE	7.57	1.000	13166.4	M	d9-NEtPFOSAE	7.56	533740.7	0.025	0.113
NEtPFOSA	7.60	1.000	3700.9	M	d5-NEtPFOSA	7.59	175172.0	0.021	0.111
PFDS	7.42	1.100	9905.8	M	13C8-PFOS	6.76	745709.1	0.013	0.112
PFUnDA	7.46	1.000	28780.4	M	13C7-PFUnDA	7.46	981039.7	0.029	0.132
NEtFOSAA	7.49	1.000	8622.0	M	d5-NEtFOSAA	7.48	386725.5	0.022	0.105
PFDoDA	7.75	1.000	21549.4	M	13C2-PFDoDA	7.75	1023118.2	0.021	0.118
10:2-FTS	7.79	1.090	17267.1	M	13C2-8:2-FTS	7.16	249614.1	0.069	0.467
PFDoS	8.00	1.180	3030.6	M	13C8-PFOS	6.76	745709.1	0.004	0.074
PFTrDA	8.04	1.040	16594.5	M	13C2-PFDoDA	7.75	1023118.2	0.016	0.093
PFTeDA	8.34	1.000	16025.6	M	13C2-PFTeDA	8.34	749062.8	0.021	0.118
PFHxDA	8.99	1.080	9731.8	M	13C2-PFTeDA	8.34	749062.8	0.013	0.105
PFODA	9.76	1.170	6097.8	M	13C2-PFTeDA	8.34	749062.8	0.008	0.095

Total Ion Chromatogram



APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:50 pm, 4/10/18

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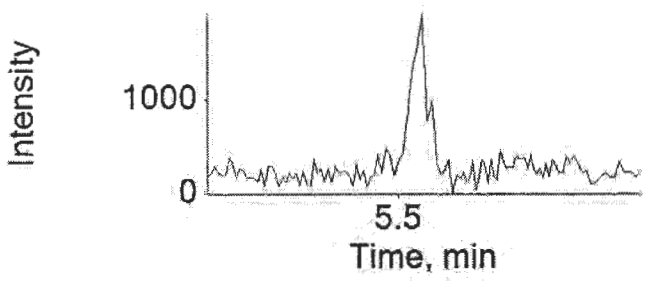
LC-MS/MS Analysis Report

Printed: 4/8/2018 12:10:00 PM
Template: REG-Sample-17MAY15.docx

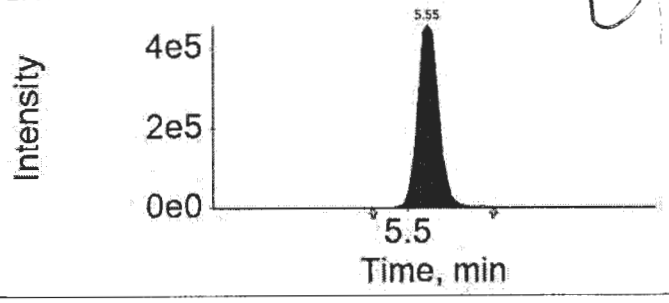
ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

L/B

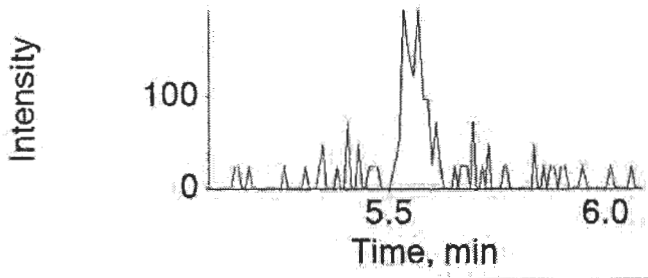
Analyte: PFHxA
313.0 / 269.0



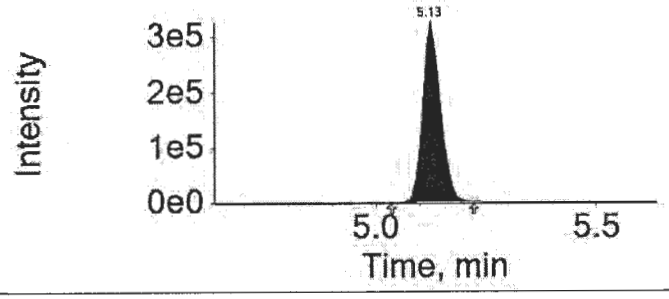
Extraction Standard: 13C5-PFHxA
318.0 / 273.0



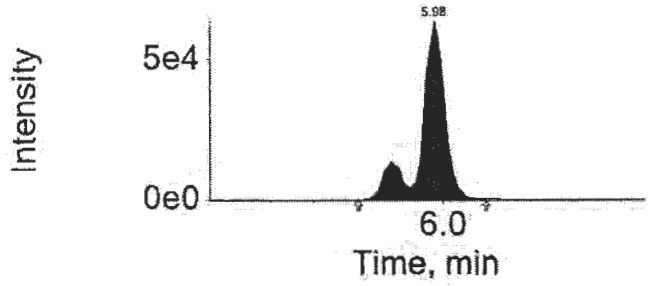
Analyte: PFPeS
349.0 / 80.0



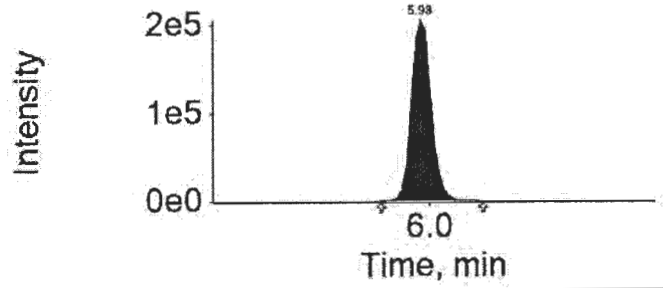
Extraction Standard: 13C3-PFBS
302.0 / 80.0



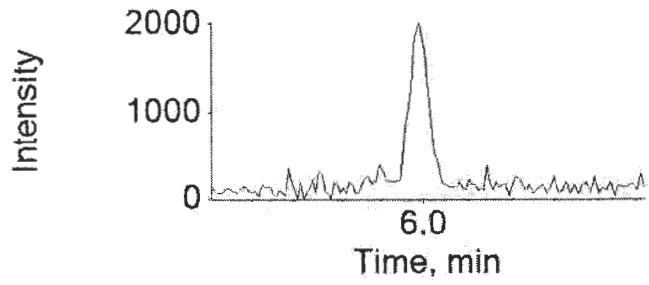
Analyte: PFHxS
399.0 / 80.0



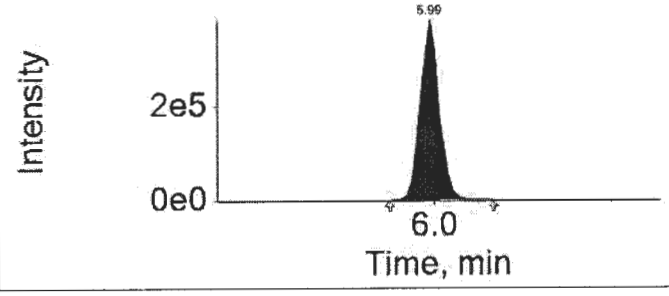
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0

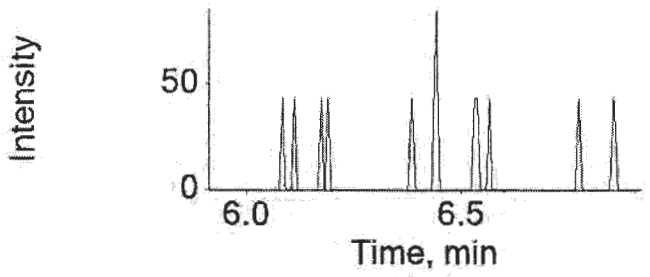


APPROVED
By DMW at 12:15 pm, 4/8/18

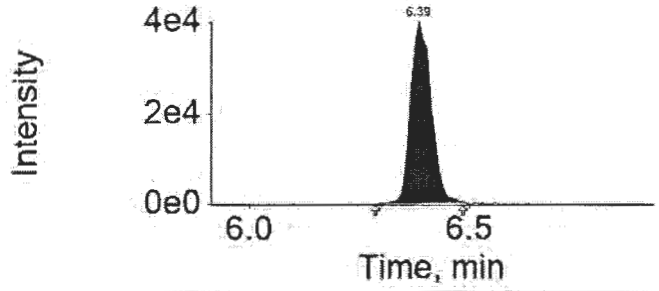
REVIEWED
By umar at 3:50 pm, 4/10/18

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

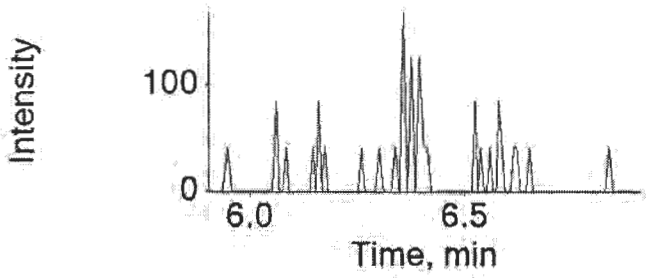
Analyte: 6:2-FTS
427.0 / 407.0



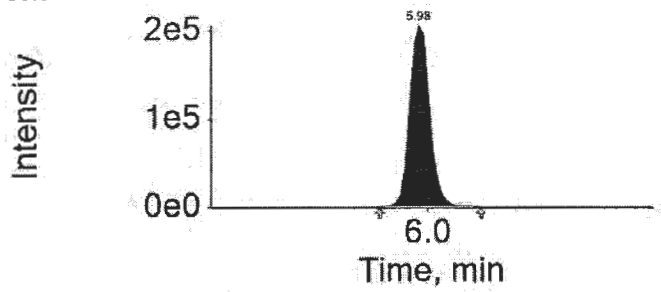
Extraction Standard: 13C2-6:2-FTS
429.0 / 409.0



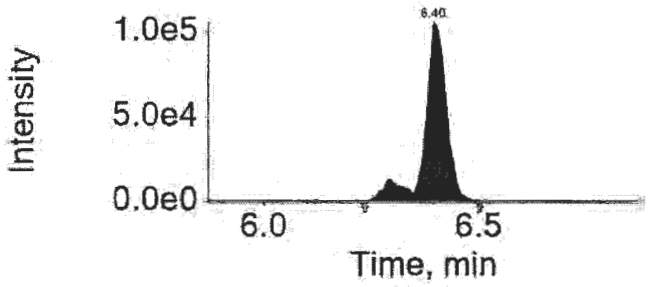
Analyte: PFHpS
449.0 / 80.0



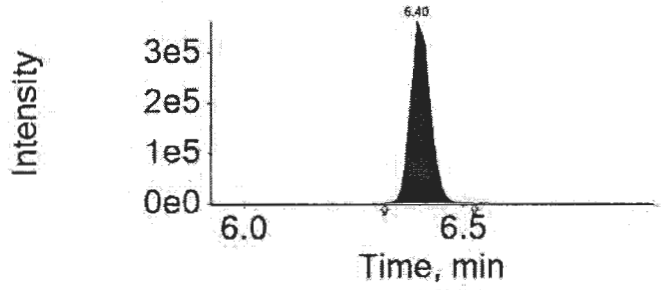
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



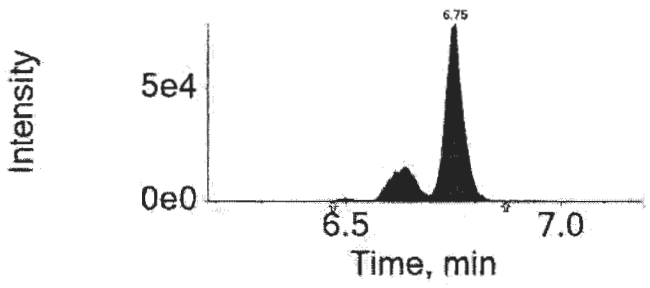
Analyte: PFOA
413.0 / 369.0



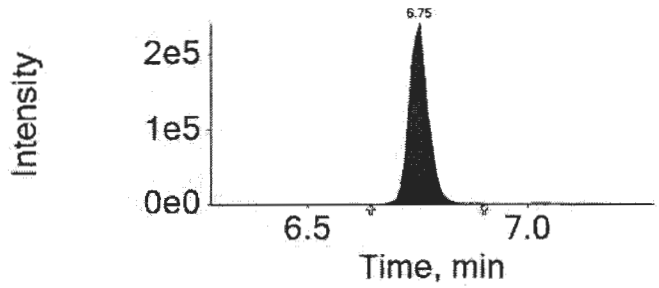
Extraction Standard: 13C8-PFOA
421.0 / 376.0



Analyte: PFOS
499.0 / 80.0



Extraction Standard: 13C8-PFOS
507.0 / 80.0



APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:50 pm, 4/10/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960 Lab File ID: 18APR07MCAL-29.WIFF

Date/Time Analyzed: 04/08/2018 04:53 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.10	5.03	±30
Perfluoropentanoic acid	2.00	2.09	4.47	±30
Perfluorobutanesulfonate	1.77	1.77	0.17	±30
4:2 fluorotelomersulfonate	4.90	5.24	6.99	±30
Perfluorohexanoic acid	2.00	2.10	4.78	±30
Perfluoropentanesulfonate	1.88	2.00	6.55	±30
Perfluorohexanesulfonate	1.89	1.88	-0.43	±30
Perfluoroheptanoic acid	2.00	2.10	4.80	±30
6:2 fluorotelomersulfonate	5.21	5.72	9.75	±30
Perfluoroheptanesulfonate	1.90	1.81	-4.74	±30
Perfluorooctanoic acid	2.00	2.26	12.78	±30
Perfluoro-octanesulfonate	1.91	1.92	0.52	±30
Perfluorononanoic acid	2.00	2.24	11.81	±30
Perfluorooctanesulfonamide	2.00	2.24	11.87	±30
Perfluorononanesulfonate	1.92	1.72	-10.66	±30
Perfluorodecanoic acid	2.00	2.21	10.62	±30
8:2 fluorotelomersulfonate	5.27	5.57	5.68	±30
NMePFOSAE	2.00	2.18	9.19	±30
NMePFOSA	2.00	2.06	2.77	±30
NMeFOSAA	2.00	2.28	13.80	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960 Lab File ID: 18APR07MCAL-29.WIFF

Date/Time Analyzed: 04/08/2018 04:53 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	2.00	2.24	11.78	±30
NEtPFOSA	2.00	2.05	2.36	±30
Perfluorodecanesulfonate	1.93	1.80	-6.56	±30
Perfluoroundecanoic acid	2.00	2.40	19.78	±30
NEtFOSAA	2.00	1.92	-3.79	±30
Perfluorododecanoic acid	2.00	2.15	7.26	±30
10:2-fluorotelomersulfonate	5.30	5.34	0.70	±30
Perfluorododecanesulfonate	1.94	1.67	-14.10	±30
Perfluorotridecanoic acid	2.00	1.84	-7.92	±30
Perfluorotetradecanoic acid	2.00	2.11	5.55	±30
Perfluorohexadecanoic acid	2.00	1.70	-15.16	±30
Perfluorooctadecanoic acid	2.00	1.76	-11.79	±30

* Outside QC Limits.

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LC-MS/MS Analysis Report

Printed: 4/8/2018 12:10:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR07MCAL **Result Table:** 18APR07MCAL 4/8/2018 12:04:09 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample Name:	CCV1_CAL3			**Data File:**		18APR07MCAL-29.wiff
Sample ID:	CALMOD31833A			**Acquis Date:**		2018-04-08T04:53:27
Sample Type:	Quality Control			**Instrument:**		LM24960
Vial Position:	5			**Acquis Method:**		PFC-32 18APR08_divert.dam
Injection Vol:	5.00			**Result Table:**		18APR07MCAL
QMethod File:	SF-PFCMOD-18MAR29			**ICAL Name:**		18APR07MCAL
Batch Number:	18APR04MCAL			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	1897055.8	1589581.0	19.3	50.0	
I13C2-PFOA	5.0	1183116.4	979042.1	20.8	50.0	
I13C4-PFOS	4.8	896204.7	723191.7	23.9	50.0	
I13C2-PFDA	5.0	1187728.4	1007241.2	17.9	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS
E13C4-PFBA	2047719.8	13C3-PFBA	1897055.8	1.079	1.078	5.000	5.005	100.1	70.0-130.0	
E13C5-PFPeA	1597747.1	13C3-PFBA	1897055.8	0.842	0.842	5.000	5.003	100.1	70.0-130.0	
E13C3-PFBS	1051281.0	13C3-PFBA	1897055.8	0.554	0.571	4.650	4.516	97.1	70.0-130.0	
E13C2-4:2-FTS	202525.7	13C2-PFOA	1183116.4	0.171	0.173	4.670	4.622	99.0	70.0-130.0	
E13C5-PFHxA	1704251.5	13C2-PFOA	1183116.4	1.440	1.453	5.000	4.958	99.2	70.0-130.0	
E13C3-PFHxS	769138.8	13C2-PFOA	1183116.4	0.650	0.634	4.730	4.848	102.5	70.0-130.0	
E13C4-PFHpA	1298234.5	13C2-PFOA	1183116.4	1.097	1.098	5.000	4.999	100.0	70.0-130.0	
E13C2-6:2-FTS	155435.3	13C2-PFOA	1183116.4	0.131	0.133	4.750	4.703	99.0	70.0-130.0	
E13C8-PFOA	1340090.2	13C2-PFOA	1183116.4	1.133	1.153	5.000	4.910	98.2	70.0-130.0	
E13C8-PFOS	864903.9	13C4-PFOS	896204.7	0.965	0.969	4.780	4.758	99.5	70.0-130.0	
E13C9-PFNA	1217814.3	13C4-PFOS	896204.7	1.359	1.442	5.000	4.712	94.2	70.0-130.0	
E13C8-PFOSA	1990368.1	13C2-PFDA	1187728.4	1.676	1.706	5.000	4.912	98.2	70.0-130.0	
E13C6-PFDA	1768552.3	13C2-PFDA	1187728.4	1.489	1.454	5.000	5.120	102.4	70.0-130.0	
E13C2-8:2-FTS	275543.3	13C2-PFDA	1187728.4	0.232	0.223	4.790	4.988	104.1	70.0-130.0	
Ed7-NMePFOSAE	449209.1	13C2-PFDA	1187728.4	0.378	0.417	5.000	4.538	90.8	70.0-130.0	
Ed3-NMePFOSA	204752.6	13C2-PFDA	1187728.4	0.172	0.170	5.000	5.075	101.5	70.0-130.0	
Ed3-NMeFOSAA	433031.7	13C2-PFDA	1187728.4	0.365	0.367	5.000	4.969	99.4	70.0-130.0	
Ed9-NEtPFOSAE	577435.7	13C2-PFDA	1187728.4	0.486	0.560	5.000	4.342	86.8	70.0-130.0	
Ed5-NEtPFOSA	188692.8	13C2-PFDA	1187728.4	0.159	0.172	5.000	4.614	92.3	70.0-130.0	
E13C7-PFUnDA	1046188.4	13C2-PFDA	1187728.4	0.881	0.870	5.000	5.061	101.2	70.0-130.0	
Ed5-NEtFOSAA	407781.1	13C2-PFDA	1187728.4	0.343	0.312	5.000	5.502	110.0	70.0-130.0	
E13C2-PFDoDA	1113807.8	13C2-PFDA	1187728.4	0.938	0.972	5.000	4.823	96.5	70.0-130.0	
E13C2-PFTeDA	893480.9	13C2-PFDA	1187728.4	0.752	0.783	5.000	4.805	96.1	70.0-130.0	

APPROVED
By DMW at 12:15 pm, 4/8/18

REVIEWED
By umar at 3:50 pm, 4/10/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960 Lab File ID: 18APR09-39.WIFF

Date/Time Analyzed: 04/09/2018 18:40 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.09	4.44	±30
Perfluoropentanoic acid	2.00	2.05	2.60	±30
Perfluorobutanesulfonate	1.77	1.82	2.83	±30
4:2 fluorotelomersulfonate	4.90	5.10	4.17	±30
Perfluorohexanoic acid	2.00	2.07	3.72	±30
Perfluoropentanesulfonate	1.88	1.92	2.05	±30
Perfluorohexanesulfonate	1.89	1.97	4.19	±30
Perfluoroheptanoic acid	2.00	2.16	8.19	±30
6:2 fluorotelomersulfonate	5.21	5.73	9.89	±30
Perfluoroheptanesulfonate	1.90	1.91	0.55	±30
Perfluorooctanoic acid	2.00	2.11	5.73	±30
Perfluoro-octanesulfonate	1.91	2.02	5.58	±30
Perfluorononanoic acid	2.00	2.13	6.69	±30
Perfluorooctanesulfonamide	2.00	2.25	12.46	±30
Perfluorononanesulfonate	1.92	1.78	-7.54	±30
Perfluorodecanoic acid	2.00	2.07	3.47	±30
8:2 fluorotelomersulfonate	5.27	5.51	4.47	±30
NMePFOSAE	2.00	2.11	5.66	±30
NMePFOSA	2.00	2.17	8.41	±30
NMeFOSAA	2.00	2.29	14.57	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960 Lab File ID: 18APR09-39.WIFF

Date/Time Analyzed: 04/09/2018 18:40 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	2.00	2.28	14.02	±30
NEtPFOSA	2.00	2.04	2.04	±30
Perfluorodecanesulfonate	1.93	1.84	-4.64	±30
Perfluoroundecanoic acid	2.00	2.27	13.46	±30
NEtFOSAA	2.00	2.06	3.04	±30
Perfluorododecanoic acid	2.00	2.03	1.49	±30
10:2-fluorotelomersulfonate	5.30	6.99	31.94 *	NT ±30
Perfluorododecanesulfonate	1.94	1.82	-6.32	±30
Perfluorotridecanoic acid	2.00	1.50	-25.08	±30
Perfluorotetradecanoic acid	2.00	1.96	-2.00	±30
Perfluorohexadecanoic acid	2.00	1.76	-11.84	±30
Perfluorooctadecanoic acid	2.00	1.23	-38.30 *	NT ±30

* Outside QC Limits.

ICAL Name: 18APR07MCAL **Result Table:** 18APR09CCV1-4 4/9/2018 9:06:02 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample Name:	CCV4_CAL3			**Data File:**		18APR09-39.wiff
Sample ID:	CALMOD31833A			**Acquis Date:**		2018-04-09T18:40:42
Sample Type:	Quality Control			**Instrument:**		LM24960
Vial Position:	5			**Acquis Method:**		PFC-32 18APR08_divert.dam
Injection Vol:	5.00			**Result Table:**		18APR09CCV1-4
QMethod File:	SF-PFCMOD-18MAR29			**ICAL Name:**		18APR07MCAL
Batch Number:	NA			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	1773053.1	1589581.0	11.5	50.0	
I13C2-PFOA	5.0	1050229.9	979042.1	7.3	50.0	
I13C4-PFOS	4.8	791632.0	723191.7	9.5	50.0	
I13C2-PFDA	5.0	1213877.4	1007241.2	20.5	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS	
E13C4-PFBA	1895828.6	13C3-PFBA	1773053.1	1.069	1.078	5.000	4.958	99.2	70.0-130.0		
E13C5-PFPeA	1463380.9	13C3-PFBA	1773053.1	0.825	0.842	5.000	4.903	98.1	70.0-130.0		
E13C3-PFBS	951132.4	13C3-PFBA	1773053.1	0.536	0.571	4.650	4.371	94.0	70.0-130.0		
E13C2-4:2-FTS	191120.8	13C2-PFOA	1050229.9	0.182	0.173	4.670	4.914	105.2	70.0-130.0		
E13C5-PFHxA	1613548.0	13C2-PFOA	1050229.9	1.536	1.453	5.000	5.288	105.8	70.0-130.0		
E13C3-PFHxS	651792.6	13C2-PFOA	1050229.9	0.621	0.634	4.730	4.628	97.8	70.0-130.0		
E13C4-PFHpA	1171763.6	13C2-PFOA	1050229.9	1.116	1.098	5.000	5.083	101.7	70.0-130.0		
E13C2-6:2-FTS	169370.8	13C2-PFOA	1050229.9	0.161	0.133	4.750	5.773	121.5	70.0-130.0		
E13C8-PFOA	1230665.0	13C2-PFOA	1050229.9	1.172	1.153	5.000	5.079	101.6	70.0-130.0		
E13C8-PFOS	758400.4	13C4-PFOS	791632.0	0.958	0.969	4.780	4.723	98.8	70.0-130.0		
E13C9-PFNA	1165509.1	13C4-PFOS	791632.0	1.472	1.442	5.000	5.106	102.1	70.0-130.0		
E13C8-PFOSA	1770529.8	13C2-PFDA	1213877.4	1.459	1.706	5.000	4.276	85.5	70.0-130.0		
E13C6-PFDA	1821190.5	13C2-PFDA	1213877.4	1.500	1.454	5.000	5.159	103.2	70.0-130.0		
E13C2-8:2-FTS	536896.8	13C2-PFDA	1213877.4	0.442	0.223	4.790	9.509	198.5	70.0-130.0	OOS	NT
Ed7-NMePFOSAE	431880.1	13C2-PFDA	1213877.4	0.356	0.417	5.000	4.269	85.4	70.0-130.0		
Ed3-NMePFOSA	188673.9	13C2-PFDA	1213877.4	0.155	0.170	5.000	4.576	91.5	70.0-130.0		
Ed3-NMeFOSAA	655560.1	13C2-PFDA	1213877.4	0.540	0.367	5.000	7.360	147.2	70.0-130.0	OOS	NT
Ed9-NEtPFOSAE	575742.6	13C2-PFDA	1213877.4	0.474	0.560	5.000	4.236	84.7	70.0-130.0		
Ed5-NEtPFOSA	175317.8	13C2-PFDA	1213877.4	0.144	0.172	5.000	4.195	83.9	70.0-130.0		
E13C7-PFUnDA	1168649.5	13C2-PFDA	1213877.4	0.963	0.870	5.000	5.532	110.6	70.0-130.0		
Ed5-NEtFOSAA	702969.6	13C2-PFDA	1213877.4	0.579	0.312	5.000	9.280	185.6	70.0-130.0	OOS	NT
E13C2-PFDoDA	1101812.5	13C2-PFDA	1213877.4	0.908	0.972	5.000	4.668	93.4	70.0-130.0		
E13C2-PFTeDA	692094.5	13C2-PFDA	1213877.4	0.570	0.783	5.000	3.642	72.8	70.0-130.0		

APPROVED
By DMW at 9:15 pm, 4/9/18

REVIEWED
By uild at 11:27 am, 4/11/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960 Lab File ID: 18APR09-52.WIFF

Date/Time Analyzed: 04/09/2018 21:49 Lab Sample ID: CCV5_CAL4

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.33	4.12	±30
Perfluoropentanoic acid	8.00	8.50	6.25	±30
Perfluorobutanesulfonate	7.08	7.52	6.28	±30
4:2 fluorotelomersulfonate	10.04	9.93	-1.10	±30
Perfluorohexanoic acid	8.00	8.09	1.12	±30
Perfluoropentanesulfonate	7.50	7.81	4.20	±30
Perfluorohexanesulfonate	7.56	7.99	5.62	±30
Perfluoroheptanoic acid	8.00	8.51	6.35	±30
6:2 fluorotelomersulfonate	10.43	11.20	7.34	±30
Perfluoroheptanesulfonate	7.61	8.24	8.30	±30
Perfluorooctanoic acid	8.00	8.74	9.27	±30
Perfluoro-octanesulfonate	7.65	7.59	-0.82	±30
Perfluorononanoic acid	8.00	9.17	14.56	±30
Perfluorooctanesulfonamide	8.00	8.45	5.67	±30
Perfluorononanesulfonate	7.68	7.07	-7.91	±30
Perfluorodecanoic acid	8.00	9.21	15.12	±30
8:2 fluorotelomersulfonate	10.54	10.31	-2.18	±30
NMePFOSAE	8.00	8.48	6.01	±30
NMePFOSA	8.00	7.89	-1.40	±30
NMeFOSAA	8.00	7.83	-2.10	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960 Lab File ID: 18APR09-52.WIFF

Date/Time Analyzed: 04/09/2018 21:49 Lab Sample ID: CCV5_CAL4

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	8.00	8.22	2.71	±30
NEtPFOSA	8.00	8.11	1.36	±30
Perfluorodecanesulfonate	7.70	7.15	-7.10	±30
Perfluoroundecanoic acid	8.00	8.91	11.37	±30
NEtFOSAA	8.00	7.53	-5.88	±30
Perfluorododecanoic acid	8.00	8.82	10.27	±30
10:2-fluorotelomersulfonate	10.60	16.14	52.27 *	NT ±30
Perfluorododecanesulfonate	7.74	7.07	-8.60	±30
Perfluorotridecanoic acid	8.00	6.61	-17.37	±30
Perfluorotetradecanoic acid	8.00	8.55	6.87	±30
Perfluorohexadecanoic acid	8.00	6.17	-22.84	±30
Perfluorooctadecanoic acid	8.00	7.36	-8.04	±30

* Outside QC Limits.

ICAL Name: 18APR07MCAL **Result Table:** 18APR09CCV5-7 4/10/2018 6:08:36 AM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample Name:	CCV5_CAL4			**Data File:**		18APR09-52.wiff
Sample ID:	CALMOD41833A			**Acquis Date:**		2018-04-09T21:49:48
Sample Type:	Quality Control			**Instrument:**		LM24960
Vial Position:	6			**Acquis Method:**		PFC-32 18APR08_divert.dam
Injection Vol:	5.00			**Result Table:**		18APR09CCV5-7
QMethod File:	SF-PFCMOD-18MAR29			**ICAL Name:**		18APR07MCAL
Batch Number:	NA			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	1608071.7	1589581.0	1.2	50.0	
I13C2-PFOA	5.0	902665.3	979042.1	-7.8	50.0	
I13C4-PFOS	4.8	729345.6	723191.7	0.9	50.0	
I13C2-PFDA	5.0	922512.3	1007241.2	-8.4	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS	
E13C4-PFBA	1735272.0	13C3-PFBA	1608071.7	1.079	1.078	5.000	5.004	100.1	70.0-130.0		
E13C5-PFPeA	1316400.2	13C3-PFBA	1608071.7	0.819	0.842	5.000	4.863	97.3	70.0-130.0		
E13C3-PFBS	849474.3	13C3-PFBA	1608071.7	0.528	0.571	4.650	4.304	92.6	70.0-130.0		
E13C2-4:2-FTS	173212.0	13C2-PFOA	902665.3	0.192	0.173	4.670	5.181	111.0	70.0-130.0		
E13C5-PFHxA	1450237.4	13C2-PFOA	902665.3	1.607	1.453	5.000	5.530	110.6	70.0-130.0		
E13C3-PFHxS	566318.7	13C2-PFOA	902665.3	0.627	0.634	4.730	4.679	98.9	70.0-130.0		
E13C4-PFHpA	1068053.4	13C2-PFOA	902665.3	1.183	1.098	5.000	5.390	107.8	70.0-130.0		
E13C2-6:2-FTS	126789.9	13C2-PFOA	902665.3	0.140	0.133	4.750	5.028	105.9	70.0-130.0		
E13C8-PFOA	1055041.8	13C2-PFOA	902665.3	1.169	1.153	5.000	5.066	101.3	70.0-130.0		
E13C8-PFOS	709245.5	13C4-PFOS	729345.6	0.972	0.969	4.780	4.795	100.3	70.0-130.0		
E13C9-PFNA	915361.4	13C4-PFOS	729345.6	1.255	1.442	5.000	4.352	87.0	70.0-130.0		
E13C8-PFOSA	1607969.7	13C2-PFDA	922512.3	1.743	1.706	5.000	5.109	102.2	70.0-130.0		
E13C6-PFDA	1401735.0	13C2-PFDA	922512.3	1.519	1.454	5.000	5.225	104.5	70.0-130.0		
E13C2-8:2-FTS	267549.0	13C2-PFDA	922512.3	0.290	0.223	4.790	6.235	130.2	70.0-130.0	OOS	NT
Ed7-NMePFOSAE	349628.2	13C2-PFDA	922512.3	0.379	0.417	5.000	4.547	90.9	70.0-130.0		
Ed3-NMePFOSA	173526.3	13C2-PFDA	922512.3	0.188	0.170	5.000	5.538	110.8	70.0-130.0		
Ed3-NMeFOSAA	433281.7	13C2-PFDA	922512.3	0.470	0.367	5.000	6.401	128.0	70.0-130.0		
Ed9-NEtPFOSAE	457211.8	13C2-PFDA	922512.3	0.496	0.560	5.000	4.426	88.5	70.0-130.0		
Ed5-NEtPFOSA	156044.1	13C2-PFDA	922512.3	0.169	0.172	5.000	4.913	98.3	70.0-130.0		
E13C7-PFUnDA	959640.7	13C2-PFDA	922512.3	1.040	0.870	5.000	5.977	119.5	70.0-130.0		
Ed5-NEtFOSAA	390591.8	13C2-PFDA	922512.3	0.423	0.312	5.000	6.785	135.7	70.0-130.0	OOS	NT
E13C2-PFDoDA	966746.0	13C2-PFDA	922512.3	1.048	0.972	5.000	5.389	107.8	70.0-130.0		
E13C2-PFTeDA	616869.5	13C2-PFDA	922512.3	0.669	0.783	5.000	4.271	85.4	70.0-130.0		

APPROVED
By JWK at 6:15 am, 4/10/18

REVIEWED
By uild at 11:28 am, 4/11/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960 Lab File ID: 18APR09-65.WIFF

Date/Time Analyzed: 04/10/2018 00:58 Lab Sample ID: CCV6_CAL5

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.29	11.43	±30
Perfluoropentanoic acid	20.00	23.06	15.32	±30
Perfluorobutanesulfonate	17.69	18.85	6.57	±30
4:2 fluorotelomersulfonate	12.49	11.77	-5.73	±30
Perfluorohexanoic acid	20.00	21.78	8.92	±30
Perfluoropentanesulfonate	18.76	20.75	10.62	±30
Perfluorohexanesulfonate	18.91	21.06	11.35	±30
Perfluoroheptanoic acid	20.00	22.51	12.56	±30
6:2 fluorotelomersulfonate	13.04	12.54	-3.85	±30
Perfluoroheptanesulfonate	19.03	19.90	4.58	±30
Perfluorooctanoic acid	20.00	22.81	14.05	±30
Perfluoro-octanesulfonate	19.12	19.40	1.49	±30
Perfluorononanoic acid	20.00	23.90	19.50	±30
Perfluorooctanesulfonamide	10.00	10.01	0.07	±30
Perfluorononanesulfonate	19.20	18.87	-1.70	±30
Perfluorodecanoic acid	20.00	24.13	20.63	±30
8:2 fluorotelomersulfonate	13.17	12.75	-3.17	±30
NMePFOSAE	10.00	10.25	2.48	±30
NMePFOSA	10.00	9.87	-1.28	±30
NMeFOSAA	10.00	9.67	-3.34	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960 Lab File ID: 18APR09-65.WIFF

Date/Time Analyzed: 04/10/2018 00:58 Lab Sample ID: CCV6_CAL5

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	10.00	10.15	1.46	±30
NEtPFOSA	10.00	9.52	-4.78	±30
Perfluorodecanesulfonate	19.26	20.36	5.71	±30
Perfluoroundecanoic acid	20.00	24.99	24.93	±30
NEtFOSAA	10.00	8.65	-13.54	±30
Perfluorododecanoic acid	20.00	22.84	14.18	±30
10:2-fluorotelomersulfonate	13.26	13.97	5.36	±30
Perfluorododecanesulfonate	19.36	19.75	2.02	±30
Perfluorotridecanoic acid	20.00	17.29	-13.55	±30
Perfluorotetradecanoic acid	20.00	22.80	13.98	±30
Perfluorohexadecanoic acid	20.00	22.02	10.11	±30
Perfluorooctadecanoic acid	20.00	24.88	24.39	±30

* Outside QC Limits.

ICAL Name: 18APR07MCAL **Result Table:** 18APR09CCV5-7 4/10/2018 6:08:36 AM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample Name:	CCV6_CAL5			**Data File:**		18APR09-65.wiff
Sample ID:	CALMOD51833A			**Acquis Date:**		2018-04-10T00:58:52
Sample Type:	Quality Control			**Instrument:**		LM24960
Vial Position:	7			**Acquis Method:**		PFC-32 18APR08_divert.dam
Injection Vol:	5.00			**Result Table:**		18APR09CCV5-7
QMethod File:	SF-PFCMOD-18MAR29			**ICAL Name:**		18APR07MCAL
Batch Number:	N\A			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	1411602.3	1589581.0	-11.2	50.0	
I13C2-PFOA	5.0	756154.7	979042.1	-22.8	50.0	
I13C4-PFOS	4.8	615250.6	723191.7	-14.9	50.0	
I13C2-PFDA	5.0	771695.0	1007241.2	-23.4	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS
E13C4-PFBA	1531571.2	13C3-PFBA	1411602.3	1.085	1.078	5.000	5.031	100.6	70.0-130.0	
E13C5-PFPeA	1166491.4	13C3-PFBA	1411602.3	0.826	0.842	5.000	4.909	98.2	70.0-130.0	
E13C3-PFBS	782150.3	13C3-PFBA	1411602.3	0.554	0.571	4.650	4.515	97.1	70.0-130.0	
E13C2-4:2-FTS	155509.9	13C2-PFOA	756154.7	0.206	0.173	4.670	5.553	118.9	70.0-130.0	
E13C5-PFHxA	1258523.4	13C2-PFOA	756154.7	1.664	1.453	5.000	5.729	114.6	70.0-130.0	
E13C3-PFHxS	533777.8	13C2-PFOA	756154.7	0.706	0.634	4.730	5.264	111.3	70.0-130.0	
E13C4-PFHpA	932667.7	13C2-PFOA	756154.7	1.233	1.098	5.000	5.619	112.4	70.0-130.0	
E13C2-6:2-FTS	101372.8	13C2-PFOA	756154.7	.134	0.133	4.750	.799	01.0	70.0-130.0	
E13C8-PFOA	923392.9	13C2-PFOA	756154.7	1.221	1.153	5.000	5.293	105.9	70.0-130.0	
E13C8-PFOS	627232.4	13C4-PFOS	615250.6	1.019	0.969	4.780	5.026	105.2	70.0-130.0	
E13C9-PFNA	776334.8	13C4-PFOS	615250.6	1.262	1.442	5.000	4.376	87.5	70.0-130.0	
E13C8-PFOSA	1406283.2	13C2-PFDA	771695.0	1.822	1.706	5.000	5.342	106.8	70.0-130.0	
E13C6-PFDA	1098397.4	13C2-PFDA	771695.0	1.423	1.454	5.000	4.894	97.9	70.0-130.0	
E13C2-8:2-FTS	175617.8	13C2-PFDA	771695.0	0.228	0.223	4.790	4.893	102.1	70.0-130.0	
Ed7-NMePFOSAE	321404.1	13C2-PFDA	771695.0	0.416	0.417	5.000	4.997	99.9	70.0-130.0	
Ed3-NMePFOSA	159349.1	13C2-PFDA	771695.0	0.206	0.170	5.000	6.079	121.6	70.0-130.0	
Ed3-NMeFOSAA	353636.5	13C2-PFDA	771695.0	0.458	0.367	5.000	6.245	124.9	70.0-130.0	
Ed9-NEtPFOSAE	415781.3	13C2-PFDA	771695.0	0.539	0.560	5.000	4.812	96.2	70.0-130.0	
Ed5-NEtPFOSA	155035.8	13C2-PFDA	771695.0	0.201	0.172	5.000	5.835	116.7	70.0-130.0	
E13C7-PFUnDA	712519.2	13C2-PFDA	771695.0	0.923	0.870	5.000	5.306	106.1	70.0-130.0	
Ed5-NEtFOSAA	305710.3	13C2-PFDA	771695.0	0.396	0.312	5.000	6.348	127.0	70.0-130.0	
E13C2-PFDoDA	807601.7	13C2-PFDA	771695.0	.047	0.972	5.000	5.382	07.6	70.0-130.0	
E13C2-PFTeDA	555778.3	13C2-PFDA	771695.0	0.720	0.783	5.000	4.600	92.0	70.0-130.0	

APPROVED
By JWK at 6:15 am, 4/10/18

REVIEWED
By uild at 10:43 am, 4/12/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960 Lab File ID: 18APR10-39.WIFF

Date/Time Analyzed: 04/10/2018 21:20 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.05	2.73	±30
Perfluoropentanoic acid	2.00	2.17	8.74	±30
Perfluorobutanesulfonate	1.77	1.76	-0.79	±30
4:2 fluorotelomersulfonate	4.90	5.37	9.51	±30
Perfluorohexanoic acid	2.00	2.13	6.45	±30
Perfluoropentanesulfonate	1.88	1.87	-0.58	±30
Perfluorohexanesulfonate	1.89	1.89	0.03	±30
Perfluoroheptanoic acid	2.00	2.13	6.64	±30
6:2 fluorotelomersulfonate	5.21	5.58	7.03	±30
Perfluoroheptanesulfonate	1.90	1.82	-4.06	±30
Perfluorooctanoic acid	2.00	2.05	2.45	±30
Perfluoro-octanesulfonate	1.91	1.98	3.79	±30
Perfluorononanoic acid	2.00	2.19	9.58	±30
Perfluorooctanesulfonamide	2.00	2.25	12.67	±30
Perfluorononanesulfonate	1.92	1.95	1.44	±30
Perfluorodecanoic acid	2.00	2.18	8.79	±30
8:2 fluorotelomersulfonate	5.27	5.90	12.05	±30
NMeFOSAA	2.00	2.20	10.09	±30
Perfluorodecanesulfonate	1.93	1.77	-8.14	±30
Perfluoroundecanoic acid	2.00	2.60	29.91	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960 Lab File ID: 18APR10-39.WIFF

Date/Time Analyzed: 04/10/2018 21:20 Lab Sample ID: CCV4_CAL3

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	1.93	-3.58	±30
Perfluorododecanoic acid	2.00	2.16	8.10	±30
10:2-fluorotelomersulfonate	5.30	6.14	15.88	±30
Perfluorododecanesulfonate	1.94	1.79	-7.53	±30
Perfluorotridecanoic acid	2.00	1.62	-18.76	±30
Perfluorotetradecanoic acid	2.00	2.04	1.90	±30
Perfluorohexadecanoic acid	2.00	2.06	3.09	±30
Perfluorooctadecanoic acid	2.00	1.95	-2.40	±30

* Outside QC Limits.

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LC-MS/MS Analysis Report

Printed: 4/11/2018 7:53:00 AM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR07MCAL **Result Table:** 18APR11CCV4-7 4/11/2018 7:46:36 AM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample Name:	CCV4_CAL3			**Data File:**		18APR10-39.wiff
Sample ID:	CALMOD31833A			**Acquis Date:**		2018-04-10T21:20:26
Sample Type:	Quality Control			**Instrument:**		LM24960
Vial Position:	5			**Acquis Method:**		PFC-32 18APR08_divert.dam
Injection Vol:	5.00			**Result Table:**		18APR11CCV4-7
QMethod File:	SF-PFCMOD-18MAR29			**ICAL Name:**		18APR07MCAL
Batch Number:	N\A			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	1719012.1	1589581.0	8.1	50.0	
I13C2-PFOA	5.0	974417.3	979042.1	-0.5	50.0	
I13C4-PFOS	4.8	757881.5	723191.7	4.8	50.0	
I13C2-PFDA	5.0	1014130.2	1007241.2	0.7	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS
E13C4-PFBA	1838277.7	13C3-PFBA	1719012.1	1.069	1.078	5.000	4.959	99.2	70.0-130.0	
E13C5-PFPeA	1414425.8	13C3-PFBA	1719012.1	0.823	0.842	5.000	4.888	97.8	70.0-130.0	
E13C3-PFBS	950610.9	13C3-PFBA	1719012.1	0.553	0.571	4.650	4.506	96.9	70.0-130.0	
E13C2-4:2-FTS	158528.6	13C2-PFOA	974417.3	0.163	0.173	4.670	4.393	94.1	70.0-130.0	
E13C5-PFHxA	1524625.0	13C2-PFOA	974417.3	1.565	1.453	5.000	5.386	107.7	70.0-130.0	
E13C3-PFHxS	652310.4	13C2-PFOA	974417.3	0.669	0.634	4.730	4.992	105.5	70.0-130.0	
E13C4-PFHpA	1126691.6	13C2-PFOA	974417.3	1.156	1.098	5.000	5.267	105.3	70.0-130.0	
E13C2-6:2-FTS	126203.1	13C2-PFOA	974417.3	0.130	0.133	4.750	4.637	97.6	70.0-130.0	
E13C8-PFOA	1155785.4	13C2-PFOA	974417.3	1.186	1.153	5.000	5.141	102.8	70.0-130.0	
E13C8-PFOS	722837.1	13C4-PFOS	757881.5	0.954	0.969	4.780	4.702	98.4	70.0-130.0	
E13C9-PFNA	939469.4	13C4-PFOS	757881.5	1.240	1.442	5.000	4.299	86.0	70.0-130.0	
E13C8-PFOSA	1633131.6	13C2-PFDA	1014130.2	1.610	1.706	5.000	4.721	94.4	70.0-130.0	
E13C6-PFDA	1417816.4	13C2-PFDA	1014130.2	1.398	1.454	5.000	4.807	96.1	70.0-130.0	
E13C2-8:2-FTS	199621.5	13C2-PFDA	1014130.2	0.197	0.223	4.790	4.232	88.4	70.0-130.0	
Ed7-NMePFOSAE	381773.8	13C2-PFDA	1014130.2	0.376	0.417	5.000	4.517	90.3	70.0-130.0	
Ed3-NMePFOSA	188934.5	13C2-PFDA	1014130.2	0.186	0.170	5.000	5.485	109.7	70.0-130.0	
Ed3-NMeFOSAA	382774.6	13C2-PFDA	1014130.2	0.377	0.367	5.000	5.144	102.9	70.0-130.0	
Ed9-NEtPFOSAE	485117.2	13C2-PFDA	1014130.2	0.478	0.560	5.000	4.272	85.4	70.0-130.0	
Ed5-NEtPFOSA	159692.7	13C2-PFDA	1014130.2	0.157	0.172	5.000	4.574	91.5	70.0-130.0	
E13C7-PFUnDA	883024.1	13C2-PFDA	1014130.2	0.871	0.870	5.000	5.003	100.1	70.0-130.0	
Ed5-NEtFOSAA	407446.1	13C2-PFDA	1014130.2	0.402	0.312	5.000	6.438	128.8	70.0-130.0	
E13C2-PFDoDA	964073.7	13C2-PFDA	1014130.2	0.951	0.972	5.000	4.889	97.8	70.0-130.0	
E13C2-PFTeDA	646519.2	13C2-PFDA	1014130.2	0.638	0.783	5.000	4.072	81.4	70.0-130.0	

APPROVED
By JWK at 8:05 am, 4/11/18

REVIEWED
By UMJS at 1:22 pm, 4/15/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960 Lab File ID: 18APR10-51.WIFF

Date/Time Analyzed: 04/11/2018 00:14 Lab Sample ID: CCV5_CAL4

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.30	3.72	±30
Perfluoropentanoic acid	8.00	8.54	6.74	±30
Perfluorobutanesulfonate	7.08	7.22	1.95	±30
4:2 fluorotelomersulfonate	10.04	9.85	-1.88	±30
Perfluorohexanoic acid	8.00	8.14	1.81	±30
Perfluoropentanesulfonate	7.50	7.53	0.46	±30
Perfluorohexanesulfonate	7.56	7.88	4.25	±30
Perfluoroheptanoic acid	8.00	8.37	4.68	±30
6:2 fluorotelomersulfonate	10.43	10.67	2.32	±30
Perfluoroheptanesulfonate	7.61	7.78	2.21	±30
Perfluorooctanoic acid	8.00	8.61	7.58	±30
Perfluoro-octanesulfonate	7.65	7.72	0.91	±30
Perfluorononanoic acid	8.00	8.94	11.75	±30
Perfluorooctanesulfonamide	8.00	9.02	12.77	±30
Perfluorononanesulfonate	7.68	7.55	-1.75	±30
Perfluorodecanoic acid	8.00	8.20	2.53	±30
8:2 fluorotelomersulfonate	10.54	11.11	5.41	±30
NMeFOSAA	8.00	7.48	-6.48	±30
Perfluorodecanesulfonate	7.70	7.43	-3.57	±30
Perfluoroundecanoic acid	8.00	9.61	20.19	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960 Lab File ID: 18APR10-51.WIFF

Date/Time Analyzed: 04/11/2018 00:14 Lab Sample ID: CCV5_CAL4

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	8.00	7.42	-7.28	±30
Perfluorododecanoic acid	8.00	8.05	0.66	±30
10:2-fluorotelomersulfonate	10.60	14.19	33.90 *	NT ±30
Perfluorododecanesulfonate	7.74	7.28	-5.94	±30
Perfluorotridecanoic acid	8.00	6.67	-16.61	±30
Perfluorotetradecanoic acid	8.00	8.02	0.19	±30
Perfluorohexadecanoic acid	8.00	6.78	-15.30	±30
Perfluorooctadecanoic acid	8.00	7.28	-9.04	±30

* Outside QC Limits.

ICAL Name: 18APR07MCAL **Result Table:** 18APR11CCV4-7 4/11/2018 7:46:36 AM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample Name:	CCV5_CAL4			**Data File:**		18APR10-51.wiff
Sample ID:	CALMOD41833A			**Acquis Date:**		2018-04-11T00:14:59
Sample Type:	Quality Control			**Instrument:**		LM24960
Vial Position:	6			**Acquis Method:**		PFC-32 18APR08_divert.dam
Injection Vol:	5.00			**Result Table:**		18APR11CCV4-7
QMethod File:	SF-PFCMOD-18MAR29			**ICAL Name:**		18APR07MCAL
Batch Number:	N\A			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	1516435.0	1589581.0	-4.6	50.0	
I13C2-PFOA	5.0	814277.2	979042.1	-16.8	50.0	
I13C4-PFOS	4.8	665569.8	723191.7	-8.0	50.0	
I13C2-PFDA	5.0	843229.8	1007241.2	-16.3	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS
E13C4-PFBA	1677452.8	13C3-PFBA	1516435.0	1.106	1.078	5.000	5.129	102.6	70.0-130.0	
E13C5-PFPeA	1274831.1	13C3-PFBA	1516435.0	0.841	0.842	5.000	4.994	99.9	70.0-130.0	
E13C3-PFBS	837780.3	13C3-PFBA	1516435.0	0.552	0.571	4.650	4.502	96.8	70.0-130.0	
E13C2-4:2-FTS	158843.2	13C2-PFOA	814277.2	0.195	0.173	4.670	5.267	112.8	70.0-130.0	
E13C5-PFHxA	1396548.1	13C2-PFOA	814277.2	1.715	1.453	5.000	5.904	118.1	70.0-130.0	
E13C3-PFHxS	572003.7	13C2-PFOA	814277.2	0.702	0.634	4.730	5.239	110.8	70.0-130.0	
E13C4-PFHpA	1059951.0	13C2-PFOA	814277.2	1.302	1.098	5.000	5.930	118.6	70.0-130.0	
E13C2-6:2-FTS	116937.8	13C2-PFOA	814277.2	0.144	0.133	4.750	5.141	108.2	70.0-130.0	
E13C8-PFOA	1014074.5	13C2-PFOA	814277.2	1.245	1.153	5.000	5.398	108.0	70.0-130.0	
E13C8-PFOS	659142.9	13C4-PFOS	665569.8	0.990	0.969	4.780	4.883	102.2	70.0-130.0	
E13C9-PFNA	829811.2	13C4-PFOS	665569.8	1.247	1.442	5.000	4.324	86.5	70.0-130.0	
E13C8-PFOSA	1347441.5	13C2-PFDA	843229.8	1.598	1.706	5.000	4.684	93.7	70.0-130.0	
E13C6-PFDA	1335572.1	13C2-PFDA	843229.8	1.584	1.454	5.000	5.446	108.9	70.0-130.0	
E13C2-8:2-FTS	200877.8	13C2-PFDA	843229.8	0.238	0.223	4.790	5.122	106.9	70.0-130.0	
Ed7-NMePFOSAE	353377.9	13C2-PFDA	843229.8	0.419	0.417	5.000	5.028	100.6	70.0-130.0	
Ed3-NMePFOSA	167028.7	13C2-PFDA	843229.8	0.198	0.170	5.000	5.832	116.6	70.0-130.0	
Ed3-NMeFOSAA	385432.0	13C2-PFDA	843229.8	0.457	0.367	5.000	6.229	124.6	70.0-130.0	
Ed9-NEtPFOSAE	425519.8	13C2-PFDA	843229.8	0.505	0.560	5.000	4.507	90.1	70.0-130.0	
Ed5-NEtPFOSA	156291.0	13C2-PFDA	843229.8	0.185	0.172	5.000	5.383	107.7	70.0-130.0	
E13C7-PFUnDA	758202.1	13C2-PFDA	843229.8	0.899	0.870	5.000	5.167	103.3	70.0-130.0	
Ed5-NEtFOSAA	338673.5	13C2-PFDA	843229.8	0.402	0.312	5.000	6.436	128.7	70.0-130.0	
E13C2-PFDoDA	882828.4	13C2-PFDA	843229.8	1.047	0.972	5.000	5.384	107.7	70.0-130.0	
E13C2-PFTeDA	634195.5	13C2-PFDA	843229.8	0.752	0.783	5.000	4.804	96.1	70.0-130.0	

APPROVED
By JWK at 8:05 am, 4/11/18

REVIEWED
By uild at 1:38 pm, 4/12/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960 Lab File ID: 18APR10-65.WIFF

Date/Time Analyzed: 04/11/2018 03:38 Lab Sample ID: CCV6_CAL5

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	21.98	9.92	±30
Perfluoropentanoic acid	20.00	23.98	19.91	±30
Perfluorobutanesulfonate	17.69	19.55	10.52	±30
4:2 fluorotelomersulfonate	12.49	12.11	-3.01	±30
Perfluorohexanoic acid	20.00	21.36	6.80	±30
Perfluoropentanesulfonate	18.76	20.10	7.13	±30
Perfluorohexanesulfonate	18.91	20.65	9.22	±30
Perfluoroheptanoic acid	20.00	22.13	10.67	±30
6:2 fluorotelomersulfonate	13.04	12.43	-4.68	±30
Perfluoroheptanesulfonate	19.03	20.60	8.24	±30
Perfluorooctanoic acid	20.00	22.72	13.58	±30
Perfluoro-octanesulfonate	19.12	19.68	2.93	±30
Perfluorononanoic acid	20.00	23.38	16.90	±30
Perfluorooctanesulfonamide	10.00	10.62	6.25	±30
Perfluorononanesulfonate	19.20	18.90	-1.58	±30
Perfluorodecanoic acid	20.00	21.96	9.80	±30
8:2 fluorotelomersulfonate	13.17	12.43	-5.62	±30
NMeFOSAA	10.00	9.50	-4.99	±30
Perfluorodecanesulfonate	19.26	19.71	2.36	±30
Perfluoroundecanoic acid	20.00	24.37	21.85	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN12

Instrument ID: 24960 Lab File ID: 18APR10-65.WIFF

Date/Time Analyzed: 04/11/2018 03:38 Lab Sample ID: CCV6_CAL5

Init. Calib. Date/Times: 04/08/2018 02:28 04/08/2018 03:55

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	10.00	9.15	-8.48	±30
Perfluorododecanoic acid	20.00	22.65	13.26	±30
10:2-fluorotelomersulfonate	13.26	13.37	0.83	±30
Perfluorododecanesulfonate	19.36	19.19	-0.88	±30
Perfluorotridecanoic acid	20.00	18.94	-5.32	±30
Perfluorotetradecanoic acid	20.00	22.11	10.55	±30
Perfluorohexadecanoic acid	20.00	24.13	20.65	±30
Perfluorooctadecanoic acid	20.00	27.36	36.79 *	NT ±30

* Outside QC Limits.

ICAL Name: 18APR07MCAL **Result Table:** 18APR11CCV4-7 4/11/2018 7:46:36 AM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample Name:	CCV6_CAL5			**Data File:**		18APR10-65.wiff
Sample ID:	CALMOD51833A			**Acquis Date:**		2018-04-11T03:38:26
Sample Type:	Quality Control			**Instrument:**		LM24960
Vial Position:	7			**Acquis Method:**		PFC-32 18APR08_divert.dam
Injection Vol:	5.00			**Result Table:**		18APR11CCV4-7
QMethod File:	SF-PFCMOD-18MAR29			**ICAL Name:**		18APR07MCAL
Batch Number:	N\A			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	1339933.3	1589581.0	-15.7	50.0	
I13C2-PFOA	5.0	753498.5	979042.1	-23.0	50.0	
I13C4-PFOS	4.8	585741.2	723191.7	-19.0	50.0	
I13C2-PFDA	5.0	734975.2	1007241.2	-27.0	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS
E13C4-PFBA	1479306.8	13C3-PFBA	1339933.3	1.104	1.078	5.000	5.119	102.4	70.0-130.0	
E13C5-PFPeA	1084375.3	13C3-PFBA	1339933.3	0.809	0.842	5.000	4.807	96.1	70.0-130.0	
E13C3-PFBS	746607.9	13C3-PFBA	1339933.3	0.557	0.571	4.650	4.540	97.6	70.0-130.0	
E13C2-4:2-FTS	147335.2	13C2-PFOA	753498.5	0.196	0.173	4.670	5.280	113.1	70.0-130.0	
E13C5-PFHxA	1225935.9	13C2-PFOA	753498.5	1.627	1.453	5.000	5.600	112.0	70.0-130.0	
E13C3-PFHxS	507315.1	13C2-PFOA	753498.5	0.673	0.634	4.730	5.021	106.2	70.0-130.0	
E13C4-PFHpA	933450.0	13C2-PFOA	753498.5	1.239	1.098	5.000	5.643	112.9	70.0-130.0	
E13C2-6:2-FTS	98119.2	13C2-PFOA	753498.5	0.130	0.133	4.750	4.662	98.1	70.0-130.0	
E13C8-PFOA	877005.3	13C2-PFOA	753498.5	1.164	1.153	5.000	5.045	100.9	70.0-130.0	
E13C8-PFOS	601941.2	13C4-PFOS	585741.2	1.028	0.969	4.780	5.067	106.0	70.0-130.0	
E13C9-PFNA	784488.4	13C4-PFOS	585741.2	1.339	1.442	5.000	4.645	92.9	70.0-130.0	
E13C8-PFOSA	1277668.9	13C2-PFDA	734975.2	1.738	1.706	5.000	5.096	101.9	70.0-130.0	
E13C6-PFDA	1077995.0	13C2-PFDA	734975.2	1.467	1.454	5.000	5.043	100.9	70.0-130.0	
E13C2-8:2-FTS	167498.6	13C2-PFDA	734975.2	0.228	0.223	4.790	4.900	102.3	70.0-130.0	
Ed7-NMePFOSAE	306899.4	13C2-PFDA	734975.2	0.418	0.417	5.000	5.010	100.2	70.0-130.0	
Ed3-NMePFOSA	163448.7	13C2-PFDA	734975.2	0.222	0.170	5.000	6.547	130.9	70.0-130.0	OOS
Ed3-NMeFOSAA	337127.9	13C2-PFDA	734975.2	0.459	0.367	5.000	6.251	125.0	70.0-130.0	
Ed9-NEtPFOSAE	407459.8	13C2-PFDA	734975.2	0.554	0.560	5.000	4.951	99.0	70.0-130.0	
Ed5-NEtPFOSA	144506.7	13C2-PFDA	734975.2	0.197	0.172	5.000	5.711	114.2	70.0-130.0	
E13C7-PFUnDA	696480.3	13C2-PFDA	734975.2	0.948	0.870	5.000	5.445	108.9	70.0-130.0	
Ed5-NEtFOSAA	296144.8	13C2-PFDA	734975.2	0.403	0.312	5.000	6.457	129.1	70.0-130.0	
E13C2-PFDoDA	677482.2	13C2-PFDA	734975.2	0.922	0.972	5.000	4.741	94.8	70.0-130.0	
E13C2-PFTeDA	513187.1	13C2-PFDA	734975.2	0.698	0.783	5.000	4.460	89.2	70.0-130.0	

NT

APPROVED
By JWK at 8:05 am, 4/11/18

REVIEWED
By uild at 1:38 pm, 4/12/18

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN12
Matrix: SOIL

18094017		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1007241	979042	1589581	723192
UPPER LIMIT		1510862	1468563	2384372	1084788
LOWER LIMIT		503621	489521	794791	361596
LAB SAMPLE ID	**DATE ANALYZED**				
LCS094017	04/09/18 19:38	962357	963276	1674776	738619
LCSDA	04/09/18 20:08	1164899	989647	1629043	742917
BLK094017	04/09/18 20:51	962650	919611	1636065	724865
9536701DL	04/09/18 21:20	1252272	955997	1655087	750280
9536702	04/09/18 21:35	1197331	848635	1750943	766233
9536703	04/09/18 22:18	1170166	511288	1762900	754781
9536704	04/09/18 22:33	1129910	614366	1683061	728076
9536705	04/09/18 22:47	1134463	647694	1660210	730569
9536701	04/10/18 22:33	1282337	600196	1704931	753555
9536702DL	04/10/18 22:47	1138427	1028598	1710097	784719
9536703DL	04/10/18 23:02	1157667	803868	1694406	746312
9536704DL	04/10/18 23:16	983774	869029	1672431	748623
9536705DL	04/10/18 23:31	1002356	888407	1692954	737812
9536706	04/10/18 23:45	1139357	1012417	1723185	759954
9536707	04/11/18 00:00	1189597	857419	1714563	730196
9536708	04/11/18 00:44	1083635	918054	1671025	668032
9536709	04/11/18 00:58	991121	746232	1590453	619499
9536710	04/11/18 01:13	717259	795832	1476878	588514

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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LC-MS/MS Sample Run Log

Printed: 4/11/2018 6:15:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24960

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR07MCAL-18.wiff	MDL	18APR04MCAL	4/8/2018 2:13:27 AM
18APR07MCAL-19.wiff	CAL1	18APR04MCAL	4/8/2018 2:28:00 AM
18APR07MCAL-20.wiff	CAL2	18APR04MCAL	4/8/2018 2:42:33 AM
18APR07MCAL-21.wiff	CAL3	18APR04MCAL	4/8/2018 2:57:03 AM
18APR07MCAL-22.wiff	CAL4	18APR04MCAL	4/8/2018 3:11:34 AM
18APR07MCAL-23.wiff	CAL5	18APR04MCAL	4/8/2018 3:26:06 AM
18APR07MCAL-24.wiff	CAL6	18APR04MCAL	4/8/2018 3:40:39 AM
18APR07MCAL-25.wiff	CAL7	18APR04MCAL	4/8/2018 3:55:12 AM
18APR07MCAL-26.wiff	Instrument Blank	18APR04MCAL	4/8/2018 4:09:45 AM
18APR07MCAL-27.wiff	ICV	18APR04MCAL	4/8/2018 4:24:18 AM
18APR07MCAL-28.wiff	L+B CAL3	18APR04MCAL	4/8/2018 4:38:51 AM
18APR07MCAL-29.wiff	CCV1_CAL3	18APR04MCAL	4/8/2018 4:53:27 AM
18APR09-01.wiff	CCV1_CAL3	NA	4/9/2018 9:28:15 AM
18APR09-02.wiff	solvent	NA	4/9/2018 9:42:44 AM
18APR09-03.wiff	LCS094019	18094019	4/9/2018 9:57:17 AM
18APR09-04.wiff	LCSDA	18094019	4/9/2018 10:11:51 AM
18APR09-05.wiff	solvent	NA	4/9/2018 10:26:24 AM
18APR09-06.wiff	BLK094019	18094019	4/9/2018 10:40:57 AM
18APR09-07.wiff	9539754	18094019	4/9/2018 10:55:27 AM
18APR09-08.wiff	9539755	18094019	4/9/2018 11:09:57 AM
18APR09-09.wiff	9539756	18094019	4/9/2018 11:24:30 AM
18APR09-10.wiff	9539757	18094019	4/9/2018 11:39:00 AM
18APR09-11.wiff	9539758	18094019	4/9/2018 11:53:33 AM
18APR09-12.wiff	9539760	18094019	4/9/2018 12:08:03 PM
18APR09-13.wiff	9539761	18094019	4/9/2018 12:22:36 PM
18APR09-14.wiff	CCV2_CAL4	NA	4/9/2018 12:37:09 PM
18APR09-15.wiff	solvent	NA	4/9/2018 12:51:42 PM
18APR09-16.wiff	9539762	18094019	4/9/2018 1:06:15 PM
18APR09-17.wiff	9539763	18094019	4/9/2018 1:20:48 PM
18APR09-18.wiff	9539764	18094019	4/9/2018 1:35:21 PM
18APR09-19.wiff	Filtered LCS test 1	N\A	4/9/2018 1:49:54 PM
18APR09-20.wiff	Filtered LCS test 2	N\A	4/9/2018 2:04:24 PM
18APR09-21.wiff	LCS094001	18094001	4/9/2018 2:18:54 PM
18APR09-22.wiff	LCS094001	18094001	4/9/2018 2:33:27 PM
18APR09-23.wiff	LCSDA	18094001	4/9/2018 2:48:00 PM
18APR09-24.wiff	LCSDB	18094001	4/9/2018 3:02:36 PM
18APR09-25.wiff	solvent	NA	4/9/2018 3:17:09 PM
18APR09-26.wiff	BLK094001	18094001	4/9/2018 3:31:42 PM
18APR09-27.wiff	CCV3_CAL5	NA	4/9/2018 3:46:15 PM
18APR09-28.wiff	solvent	NA	4/9/2018 4:00:48 PM
18APR09-29.wiff	BLK094001	18094001	4/9/2018 4:15:24 PM
18APR09-30.wiff	9536659DL	18094001	4/9/2018 4:29:57 PM
18APR09-31.wiff	9536660DL	18094001	4/9/2018 4:44:30 PM
18APR09-32.wiff	9536662DL	18094001	4/9/2018 4:59:03 PM
18APR09-33.wiff	9536663DL	18094001	4/9/2018 5:13:36 PM
18APR09-34.wiff	9536668DL	18094001	4/9/2018 5:28:06 PM
18APR09-35.wiff	9536669DL	18094001	4/9/2018 5:42:39 PM
18APR09-36.wiff	9536672DL	18094001	4/9/2018 5:57:09 PM
18APR09-37.wiff	9536673DL	18094001	4/9/2018 6:11:39 PM
18APR09-38.wiff	9536675	18094001	4/9/2018 6:26:09 PM
18APR09-39.wiff	CCV4_CAL3	NA	4/9/2018 6:40:42 PM
18APR09-40.wiff	solvent	NA	4/9/2018 6:55:15 PM
18APR09-41.wiff	9536679DL	18094001	4/9/2018 7:09:48 PM
18APR09-42.wiff	9536680DL	18094001	4/9/2018 7:24:21 PM
18APR09-43.wiff	LCS094017	18094017	4/9/2018 7:38:54 PM
18APR09-44.wiff	LCS094017	18094017	4/9/2018 7:53:27 PM
18APR09-45.wiff	LCSDA	18094017	4/9/2018 8:08:00 PM

APPROVED
By DMW at 6:25 pm, 4/11/18

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LC-MS/MS Sample Run Log

Printed: 4/11/2018 6:15:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24960

18APR09-46.wiff	LCSDB	18094017	4/9/2018 8:22:33 PM
18APR09-47.wiff	solvent	NA	4/9/2018 8:37:06 PM
18APR09-48.wiff	BLK094017	18094017	4/9/2018 8:51:39 PM
18APR09-49.wiff	BLK094017	18094017	4/9/2018 9:06:12 PM
18APR09-50.wiff	9536701DL PFOA only	18094017	4/9/2018 9:20:45 PM
18APR09-51.wiff	9536702DL All but PFOA	18094017	4/9/2018 9:35:18 PM
18APR09-52.wiff	CCV5_CAL4	NA	4/9/2018 9:49:48 PM
18APR09-53.wiff	solvent	NA	4/9/2018 10:04:18 PM
18APR09-54.wiff	9536703DL All but PFOA	18094017	4/9/2018 10:18:51 PM
18APR09-55.wiff	9536704DL All but PFOA	18094017	4/9/2018 10:33:24 PM
18APR09-56.wiff	9536705DL All but PFOA	18094017	4/9/2018 10:47:54 PM
18APR09-57.wiff	9536706DL Not reported	18094017	4/9/2018 11:02:25 PM
18APR09-58.wiff	9536707DL	18094017	4/9/2018 11:16:58 PM
18APR09-59.wiff	9536708DL	18094017	4/9/2018 11:31:28 PM
18APR09-60.wiff	9536709DL	18094017	4/9/2018 11:46:01 PM
18APR09-61.wiff	9536710DL	18094017	4/10/2018 12:00:33 AM
18APR09-62.wiff	solvent	N\A	4/10/2018 12:15:06 AM
18APR09-63.wiff	LCSDA	18089005	4/10/2018 12:29:40 AM
18APR09-64.wiff	9530907DL	18089005	4/10/2018 12:44:15 AM
18APR09-65.wiff	CCV6_CAL5	N\A	4/10/2018 12:58:52 AM
18APR09-66.wiff	solvent	N\A	4/10/2018 1:13:24 AM
18APR09-67.wiff	BLK096003	18096003	4/10/2018 1:27:57 AM
18APR09-68.wiff	LCS096003	18096003	4/10/2018 1:42:34 AM
18APR09-69.wiff	9543515RE	18096003	4/10/2018 1:57:07 AM
18APR09-70.wiff	9543510RE	18096003	4/10/2018 2:11:40 AM
18APR09-71.wiff	9543510DL	18096003	4/10/2018 2:26:09 AM
18APR09-72.wiff	9536245RE	18093007	4/10/2018 2:40:39 AM
18APR09-73.wiff	LCS098002	18098002	4/10/2018 2:55:13 AM
18APR09-74.wiff	LCSDA	18098002	4/10/2018 3:09:43 AM
18APR09-75.wiff	solvent	N\A	4/10/2018 3:24:13 AM
18APR09-76.wiff	BLK098002	18098002	4/10/2018 3:38:45 AM
18APR09-77.wiff	9517099RE	18098002	4/10/2018 3:53:16 AM
18APR09-78.wiff	CCV7_CAL3	N\A	4/10/2018 4:07:46 AM
18APR09-79.wiff	solvent	N\A	4/10/2018 4:22:16 AM
18APR09-80.wiff	9542886	18098002	4/10/2018 4:36:49 AM
18APR09-81.wiff	9542887	18098002	4/10/2018 4:51:22 AM
18APR09-82.wiff	9542888	18098002	4/10/2018 5:05:55 AM
18APR09-83.wiff	9542889	18098002	4/10/2018 5:20:28 AM
18APR09-84.wiff	9542890	18098002	4/10/2018 5:35:01 AM
18APR09-85.wiff	9542891	18098002	4/10/2018 5:49:34 AM
18APR09-86.wiff	9542898	18098002	4/10/2018 6:04:07 AM
18APR09-87.wiff	9542899	18098002	4/10/2018 6:18:43 AM
18APR09-88.wiff	9542901	18098002	4/10/2018 6:33:16 AM
18APR09-89.wiff	9547412	18098002	4/10/2018 6:47:49 AM
18APR09-90.wiff	CCV8_CAL4	N\A	4/10/2018 7:02:22 AM
18APR09-91.wiff	solvent	N\A	4/10/2018 7:16:55 AM
18APR09-92.wiff	9547412DL	18098002	4/10/2018 7:31:28 AM
18APR09-93.wiff	9547413	18098002	4/10/2018 7:46:01 AM
18APR09-94.wiff	9547413DL	18098002	4/10/2018 8:00:31 AM
18APR09-95.wiff	9547414	18098002	4/10/2018 8:15:04 AM
18APR09-96.wiff	9547414DL	18098002	4/10/2018 8:29:34 AM
18APR09-97.wiff	9547415	18098002	4/10/2018 8:44:04 AM
18APR09-98.wiff	9547416	18098002	4/10/2018 8:58:34 AM
18APR09-99.wiff	9547417	18098002	4/10/2018 9:13:04 AM
18APR09-100.wiff	9547418	18098002	4/10/2018 9:27:37 AM
18APR09-101.wiff	9547419	18098002	4/10/2018 9:42:10 AM
18APR09-102.wiff	CCV9_CAL5	N\A	4/10/2018 9:56:43 AM
18APR09-103.wiff	solvent	N\A	4/10/2018 10:11:16 AM

APPROVED
By DMW at 6:25 pm, 4/11/18

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LC-MS/MS Sample Run Log

Printed: 4/11/2018 6:26:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24960

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR07MCAL-18.wiff	MDL	18APR04MCAL	4/8/2018 2:13:27 AM
18APR07MCAL-19.wiff	CAL1	18APR04MCAL	4/8/2018 2:28:00 AM
18APR07MCAL-20.wiff	CAL2	18APR04MCAL	4/8/2018 2:42:33 AM
18APR07MCAL-21.wiff	CAL3	18APR04MCAL	4/8/2018 2:57:03 AM
18APR07MCAL-22.wiff	CAL4	18APR04MCAL	4/8/2018 3:11:34 AM
18APR07MCAL-23.wiff	CAL5	18APR04MCAL	4/8/2018 3:26:06 AM
18APR07MCAL-24.wiff	CAL6	18APR04MCAL	4/8/2018 3:40:39 AM
18APR07MCAL-25.wiff	CAL7	18APR04MCAL	4/8/2018 3:55:12 AM
18APR07MCAL-26.wiff	Instrument Blank	18APR04MCAL	4/8/2018 4:09:45 AM
18APR07MCAL-27.wiff	ICV	18APR04MCAL	4/8/2018 4:24:18 AM
18APR07MCAL-28.wiff	L+B CAL3	18APR04MCAL	4/8/2018 4:38:51 AM
18APR07MCAL-29.wiff	CCV1_CAL3	18APR04MCAL	4/8/2018 4:53:27 AM
18APR10-01.wiff	CCV1_CAL3	18APR04MCAL	4/10/2018 12:07:40 PM
18APR10-02.wiff	solvent	N\A	4/10/2018 12:22:13 PM
18APR10-03.wiff	LCS094021	18094021	4/10/2018 12:36:46 PM
18APR10-04.wiff	LCSDA	18094021	4/10/2018 12:51:19 PM
18APR10-05.wiff	solvent	NA	4/10/2018 1:05:52 PM
18APR10-06.wiff	BLK094021	18094021	4/10/2018 1:20:25 PM
18APR10-07.wiff	9540926	18094021	4/10/2018 1:34:58 PM
18APR10-08.wiff	9540926DL	18094021	4/10/2018 1:49:31 PM
18APR10-09.wiff	9540927	18094021	4/10/2018 2:04:04 PM
18APR10-10.wiff	LCS098003	18098003	4/10/2018 2:18:34 PM
18APR10-11.wiff	LCSDA	18098003	4/10/2018 2:33:04 PM
18APR10-12.wiff	solvent	NA	4/10/2018 2:47:38 PM
18APR10-13.wiff	BLK098003	18098003	4/10/2018 3:02:10 PM
18APR10-14.wiff	9547780	18098003	4/10/2018 3:16:43 PM
18APR10-15.wiff	CCV2_CAL4	NA	4/10/2018 3:31:16 PM
18APR10-16.wiff	solvent	NA	4/10/2018 3:45:49 PM
18APR10-17.wiff	9547781	18098003	4/10/2018 4:00:22 PM
18APR10-18.wiff	9547782	18098003	4/10/2018 4:14:55 PM
18APR10-19.wiff	BLK089005	18089005	4/10/2018 4:29:28 PM
18APR10-20.wiff	9536659DL	18094001	4/10/2018 4:43:59 PM
18APR10-21.wiff	9536660DL	18094001	4/10/2018 4:58:32 PM
18APR10-22.wiff	9536662DL	18094001	4/10/2018 5:13:05 PM
18APR10-23.wiff	9536669DL	18094001	4/10/2018 5:27:38 PM
18APR10-24.wiff	9536672DL	18094001	4/10/2018 5:42:11 PM
18APR10-25.wiff	9536673DL	18094001	4/10/2018 5:56:47 PM
18APR10-26.wiff	9536680DL	18094001	4/10/2018 6:11:20 PM
18APR10-27.wiff	CCV3_CAL5	N\A	4/10/2018 6:25:53 PM
18APR10-28.wiff	solvent	N\A	4/10/2018 6:40:26 PM
18APR10-29.wiff	9536682DL	18094013	4/10/2018 6:54:59 PM
18APR10-30.wiff	9536683DL	18094013	4/10/2018 7:09:32 PM
18APR10-31.wiff	9536685DL	18094013	4/10/2018 7:24:05 PM
18APR10-32.wiff	9536689DL	18094013	4/10/2018 7:38:38 PM
18APR10-33.wiff	9536690DL	18094013	4/10/2018 7:53:11 PM
18APR10-34.wiff	9536691DL	18094013	4/10/2018 8:07:44 PM
18APR10-35.wiff	9536692DL	18094013	4/10/2018 8:22:17 PM
18APR10-36.wiff	9536693DL	18094013	4/10/2018 8:36:50 PM
18APR10-37.wiff	9536695DL	18094013	4/10/2018 8:51:20 PM
18APR10-38.wiff	9536696DL	18094013	4/10/2018 9:05:53 PM
18APR10-39.wiff	CCV4_CAL3	N\A	4/10/2018 9:20:26 PM
18APR10-40.wiff	solvent	N\A	4/10/2018 9:34:59 PM
18APR10-41.wiff	9536697DL	18094013	4/10/2018 9:49:29 PM
18APR10-42.wiff	9536698DL	18094013	4/10/2018 10:04:02 PM
18APR10-43.wiff	9536700DL	18094013	4/10/2018 10:18:35 PM
18APR10-44.wiff	9536701 All but PFOA	18094017	4/10/2018 10:33:08 PM
18APR10-45.wiff	9536702DL PFOA only	18094017	4/10/2018 10:47:41 PM

APPROVED
By DMW at 6:27 pm, 4/11/18

Instrument Name: LM24960

18APR10-46.wiff	9536703DL PFOA only	18094017	4/10/2018 11:02:14 PM
18APR10-47.wiff	9536704DL PFOA only	18094017	4/10/2018 11:16:47 PM
18APR10-48.wiff	9536705DL PFOA only	18094017	4/10/2018 11:31:20 PM
18APR10-49.wiff	9536706 All targets	18094017	4/10/2018 11:45:53 PM
18APR10-50.wiff	9536707 All targets	18094017	4/11/2018 12:00:26 AM
18APR10-51.wiff	CCV5_CAL4	N\A	4/11/2018 12:14:59 AM
18APR10-52.wiff	solvent	N\A	4/11/2018 12:29:32 AM
18APR10-53.wiff	9536708 All targets	18094017	4/11/2018 12:44:05 AM
18APR10-54.wiff	9536709 All targets	18094017	4/11/2018 12:58:38 AM
18APR10-55.wiff	9536710 All targets	18094017	4/11/2018 1:13:11 AM
18APR10-56.wiff	9547414DL	18098002	4/11/2018 1:27:44 AM
18APR10-57.wiff	solvent	N\A	4/11/2018 1:42:17 AM
18APR10-58.wiff	LCS096009	18096009	4/11/2018 1:56:47 AM
18APR10-59.wiff	9525204MS	18096009	4/11/2018 2:11:20 AM
18APR10-60.wiff	9525205MSD	18096009	4/11/2018 2:25:50 AM
18APR10-61.wiff	solvent	N\A	4/11/2018 2:40:20 AM
18APR10-62.wiff	BLK096009	18096009	4/11/2018 2:54:50 AM
18APR10-63.wiff	9525201BKG	18096009	4/11/2018 3:09:20 AM
18APR10-64.wiff	9525206	18096009	4/11/2018 3:23:53 AM
18APR10-65.wiff	CCV6_CAL5	N\A	4/11/2018 3:38:26 AM
18APR10-66.wiff	solvent	N\A	4/11/2018 3:52:59 AM
18APR10-67.wiff	9525207	18096009	4/11/2018 4:07:32 AM
18APR10-68.wiff	9525208	18096009	4/11/2018 4:22:05 AM
18APR10-69.wiff	9525209	18096009	4/11/2018 4:36:38 AM
18APR10-70.wiff	9525210	18096009	4/11/2018 4:51:11 AM
18APR10-71.wiff	solvent	NA	4/11/2018 5:05:44 AM
18APR10-72.wiff	BLK094021	18094021	4/11/2018 5:20:17 AM
18APR10-73.wiff	CCV7_CAL3	N\A	4/11/2018 5:34:47 AM
18APR10-74.wiff	solvent	N\A	4/11/2018 5:49:17 AM
18APR10-75.wiff	solvent	N\A	4/11/2018 6:26:08 AM
18APR10-76.wiff	solvent	N\A	4/11/2018 6:40:41 AM
18APR10-77.wiff	solvent	N\A	4/11/2018 6:55:14 AM

Ammonium Acetate: 1026204071833B
Methanol: DT149-US

APPROVED
By DMW at 6:27 pm, 4/11/18

ICAL Name: 18APR07MCAL **Result Table:** 18094017 4/10/2018 12:58:53 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-32 18APR08_divert.dam

Sample Name:	BLK094017			**Data File:**		18APR09-48.wiff
Sample ID:	EPA 537 Version 1.1 Modified 18094017			**Acquis Date:**		2018-04-09T20:51:39
Sample Type:	Unknown			**Instrument:**		LM24960
Vial Position:	35			**Acquis Method:**		PFC-32 18APR08_divert.dam
Injection Vol:	5.00			**Result Table:**		18094017
QMethod File:	SF-PFCMOD-18MAR29			**ICAL Name:**		18APR07MCAL
Batch Number:	18094017			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		2.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	1636065.3	1589581.0	2.9	50.0	
I13C2-PFOA	5.0	919611.2	979042.1	-6.1	50.0	
I13C4-PFOS	4.8	724865.5	723191.7	0.2	50.0	
I13C2-PFDA	5.0	962650.1	1007241.2	-4.4	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS
E13C4-PFBA	1668157.1	13C3-PFBA	1636065.3	1.020	1.078	10.000	9.456	94.6	37.0-107.0	
E13C5-PFPeA	1289752.9	13C3-PFBA	1636065.3	0.788	0.842	10.000	9.365	93.7	70.0-130.0	
E13C3-PFBS	799294.9	13C3-PFBA	1636065.3	0.489	0.571	9.300	7.962	85.6	34.0-118.0	
E13C5-PFHxA	1424561.4	13C2-PFOA	919611.2	1.549	1.453	10.000	10.664	106.6	43.0-115.0	
E13C3-PFHxS	584349.7	13C2-PFOA	919611.2	0.635	0.634	9.460	9.477	100.2	32.0-125.0	
E13C4-PFHpA	1078074.8	13C2-PFOA	919611.2	1.172	1.098	10.000	10.681	106.8	45.0-114.0	
E13C8-PFOA	1073815.4	13C2-PFOA	919611.2	1.168	1.153	10.000	10.123	101.2	44.0-115.0	
E13C8-PFOS	678214.3	13C4-PFOS	724865.5	0.936	0.969	9.560	9.226	96.5	42.0-118.0	
E13C9-PFNA	870673.2	13C4-PFOS	724865.5	1.201	1.442	10.000	8.331	83.3	37.0-124.0	
E13C6-PFDA	1476834.4	13C2-PFDA	962650.1	1.534	1.454	10.000	10.550	105.5	36.0-121.0	
E13C7-PFUnDA	802135.6	13C2-PFDA	962650.1	0.833	0.870	10.000	9.576	95.8	25.0-134.0	
E13C2-PFDoDA	963805.4	13C2-PFDA	962650.1	1.001	0.972	10.000	10.298	103.0	15.0-135.0	
E13C2-PFTeDA	577537.5	13C2-PFDA	962650.1	0.600	0.783	10.000	7.664	76.6	20.0-127.0	

APPROVED
By DMW at 4:04 pm, 4/11/18

REVIEWED
By UMJS at 9:41 pm, 4/23/18

Organic Extraction Batchlog Assigned to: 25478 Danielle McCully Reviewed by: JWK9524 Start Date: 4/5/18 Start time: 12③14:30 DDM254778 4/5/18

18094017 Tech 1: DDM254778 Tech 2: _____

Analyses on Batch: PFAS in Soil by LC/MS/MS

Dept: 33 Prep Analysis: 14090 PFAS Solid Prep

Port #	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
	BLANKA	BLK094017	1.00	SSMODX1833X	.05			1ml	20		
	BLANKB	BLK094017	1.00	SSMODX1833X	.05						wipe
	LCSA	LCS094017	1.00	SSMODX1833X	.05	MSMODX1833K	.04				
	LCSB	LCS094017	1.00	SSMODX1833X	.05	MSMODX1833K	.04				wipe
	LCSDA	LCSD094017	1.00	SSMODX1833X	.05	MSMODX1833K	.04				
	LCSDB	LCSD094017	1.00	SSMODX1833X	.05	MSMODX1833K	.04				wipe

Spike Solutions: Witness: ACP26543 Instrument: LM24960

MSMODX1833K PFAS 537 Native Spike

SSMODX1833X PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18APR07MOD-18APR09/18APR10

Port#	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
1	9536701	BN121	1.00	SSMODX1833X	.05	1 mL	20		DL100, DL10	14027	04/11/2018	S
2	9536702	BN122	1.00	SSMODX1833X	.05				DL10, DL106	14027	04/11/2018	S
3	9536703	BN123	1.00	SSMODX1833X	.05				DL10, DL100	14027	04/11/2018	S
4	9536704	BN124	1.00	SSMODX1833X	.05				DL100, DL1000	14027	04/11/2018	S
5	9536705	BN125	1.00	SSMODX1833X	.05				DL100, DL1000	14027	04/11/2018	S
6	9536706	BN126	1.00	SSMODX1833X	.05				DL100, DL16	14027	04/11/2018	S
7	9536707	BN127	1.00	SSMODX1833X	.05				DL100, DL10	14027	04/11/2018	S
8	9536708	BN128	1.00	SSMODX1833X	.05				~~DL10~~ ②DMW12762 not needed	14027	04/11/2018	S
9	9536709	BN129	1.00	SSMODX1833X	.05				DL100, 4/11/18	14027	04/11/2018	S
10	9536710	BN120	1.00	SSMODX1833X	.05				~~DL100~~	14027	04/11/2018	S

SBN12 Page 775 of 776

PJR9213 4/6/18

Balance #	B629704122	Sonic Bath ID	5300	N-evap	30°C	SPE Manifold		18094017

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
1:1 MeOH:ACN	265430404183 3A
Auto-pipette (dilutions)	P100-2, P1000-1
Auto-pipette (extract vialin	P1000-1
Internal Standard	IS18096 33A
Methanol	DT632-US
Sand	MKBW7349V
Syringe (IS)	PFAS 4
Syringe (MS)	PFAS 10
Syringe (SS)	PFAS 13

DL10: 100µL sample extract combined w/ 877µL MeOH (DT149-US) and 22.5µL surrogate (SSMODX1833X), then vortexed to mix, 400µL of this solution was mixed w/ 20µL internal (IS18096 33A) and vortexed prior to injection, JPT 12262 4/9/18

DL100: 10µL sample extract combined w/ 965µL ~~MeOH~~ MeOH (DT149-US) and 25µL surrogate (SSMODX1833X), then vortexed to mix 400µL of this solution was mixed w/ 20µL internal (IS18096 33A) and vortexed prior to injection. JPT 12262 4/9/18 JPT 12262 4/9/18

DL1000 - D10 performed on D100 DMW102602 4/10/18

B. SDG SBN13

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	St. Gobain	Reviewed by:	Allison Felix
Sample Collection Dates:	3/30/18	Approved by:	MAM
Job Number:	20167391.NBEN	Completion Date:	5/18
Project Manager:	Meg Michell		
Laboratory:	ELLE	Applicable Sample No's (X)	Refer to Table 1 in the Quality Assurance Review

			Sample No.	Lab Control No.
Deliverable:	CLP (Full)	( )		
SBN13	Level IV (Full)	(X)	All	All
	Limited	( )		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail Check (√) if Yes or Footnote Letter for Comments Below					Problems Identified Check (√) if Yes or Footnote Letter for Comments Below					Support Documentation Attachments Check (√) if Yes or Footnote Letter for Comments Below				
	EPA 537	8260	8270			EPA 537	8260	8270			EPA 537	8260	8270		
Holding Times	X	X	X								X	X	X		
Blank Analysis: Target Cmpds	X	X	X								X	X	X		
Sys Montr Cmps/Surrogates	X	X	X			X					X	X	X		
Matrix Spike/Matrix Spike Duplicate	X	X	X			X	X	X			X	X	X		
Blank Spike	X	X	X								X	X	X		
Duplicate Analysis (X) Field () Lab															
Detection Limit/Sensitivity	X	X	X								X	X	X		
Qualitative Identification: Target Cmpds	X	X	X								X	X	X		
Qualitative Identification: TICs															
DFTPP & BFB Mass Tuning	X	X									X	X			
GC Instrument Performance															
Initial Calibrations	X	X	X								X	X	X		
Continuing Calibrations	X	X	X								X	X	X		
Quantitation of Results	X	X	X								X	X	X		
DDT/Endrin Breakdown															
Surrogate Retention Time Shifts															
Internal Standards Performance	X	X	X								X	X	X		
Resolution Check Standards															
Analytical Sequence	X	X	X								X	X	X		
Florisil Cartridge & GPC Calibration															
GC Column Agreement															
Condition Upon Receipt															
Percent Solids	X	X	X								X	X	X		
Others:															

Comments: VOC samples preserved with MeOH or NaHSO4- 14 day HT for both.

ENVIRONMENTAL STANDARDS

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample Number	Contaminant	(mg/Kg-Soil, ug/L, Aq, ng/L, PFAS)	Qualification limit	
						5×	10×
V	S	MB	R180982AA	None present		0	0
V	S	MB	X181051AA	None present		0	0
V	S	MB	X181061AA	None present		0	0
V	Aq	MB	L181051AA	None present		0	0
SV	S	MB	18099SLA026	None present		0	0
SV	Aq	MB	18099WAI026	None present		0	0
PFAS	S	MB	18099003	None present		0	0
PFAS	Aq	MB	18098004	None present		0	0
V,SV	Aq	EB	SG3-EB01-180405	None present		0	0
V	Aq	TB	SG3a-LTB01-180405	None present		0	0
PFAS	Aq	EB	SG3-EB01-180405	PFOA	4.4 ✓	22	44
PFAS	Aq	FB	SG3-FB01-180405	None present		0	0
PFAS	Aq	TB	SG3a-LTB01-180405	None present		0	0

1 - V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: _____

2 - MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes: Aqueous blank results are not applied to solid sample results.

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Effective Date: 11/23/2015
Revision: 0

Matrix: ○ Aqueous ◉ Non-aq.
Reporting Level: ◉ MDL ○ QL
Units: mg/kg, ng/g

PRECISION OBJECTIVES:
If Both Results ≥ 5 × Their QL, RPD ≤: 40
If Either Result < 5 × Its QL, Dif. ≤: 2 × Highest QL

30 PFOA
1.5

Sample ID:	SG3a-SLUDGE18-02-180405				Duplicate Sample ID:						
Analyte	Sample Concentration	Qual	QL	MDL	Duplicate Concentration	Qual	QL	MDL	Difference	RPD	Flag
Acetone	22		21	7	29		17	6	7	NA	
Methyl ethyl Ketone	10	U	10	4	4	J	9	3	NA	NA	
Benzo(a)pyrene	28	J	89	17	37	J	87	17	NA	NA	
Benzo(b)fluoranthene	30	J	89	17	50	J	87	17	NA	NA	
Benzo(g,h,i)perylene	43	J	89	17	48	J	87	17	NA	NA	
Benzo(k)fluoranthene	21	J	89	17	25	J	87	17	NA	NA	
Chrysene	30	J	89	17	41	J	87	17	NA	NA	
Fluoranthene	19	J	89	17	35	J	87	17	NA	NA	
Phenanthrene	21	J	89	17	87	U	87	17	NA	NA	
Pyrene	25	J	89	17	37	J	87	17	NA	NA	
Dibenzo(a,h)anthracene	89	U	89	17	20	J	87	17	NA	NA	
Indeno(1,2,3-cd)pyrene	89	U	89	17	34	J	87	17	NA	NA	
PFOA	0.43 ✓	J	0.57	0.19	0.49 ✓	J	0.49	0.16	0.06	NA	
pH	8.9		0.5	0.5	9.18		0.5	0.5	NA	3%	
Percent moisture	5.1		0.5	0.5	2.3		0.5	0.5	2.8	NA	J
TOC	50200		5710	1900	65800		4670	1560	NA	27%	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Effective Date: 11/23/2015
Revision: 0

Matrix: ○ Aqueous ◉ Non-aq.
Reporting Level: ◉ MDL ○ QL
Units: mg/kg, ng/g

PRECISION OBJECTIVES:
If Both Results ≥ 5 × Their QL, RPD ≤: 40
If Either Result < 5 × Its QL, Dif. ≤: 2 **× Highest QL**

Sample ID:	SG3a-SLUDGE18-02-180405				**Duplicate Sample ID:**						
Analyte	**Sample Concentration**	**Qual**	**QL**	**MDL**	**Duplicate Concentration**	**Qual**	**QL**	**MDL**	**Difference**	**RPD**	**Flag**
Hg	0.104	U	0.104	0.0104	0.0991	U	0.0991	0.0099	NA	NA	
Al	3870		36.3	8.12	2890		39.4	8.8	NA	29%	
Ca	65700		182	15.1	142000		197	16.4	NA	73%	J
Fe	8460		26.3	7.31	6960		39.4	7.92	NA	19%	
Mg	27400		18.2	2.21	41000		19.7	2.39	NA	40%	
Mn	149		0.908	0.0754	155		0.984	0.0817	NA	4%	
K	459		90.8	15.2	552		98.4	16.4	NA	18%	
Na	44.4	J	182	15.2	46.3		197	16.4	NA	NA	
Zn	22.9		3.63	0.218	28.3		3.94	0.236	NA	21%	
Sb	0.363	U	0.363	0.0847	0.394	U	0.394	0.0917	NA	NA	
As	1.28		0.727	0.116	1.99		0.787	0.126	0.71	NA	
Ba	7.5		0.727	0.165	9.98		0.787	0.179	NA	28%	
Be	0.0931	J	0.182	0.0095	0.1	J	0.197	0.0103	NA	NA	
Cd	0.0692	J	0.182	0.0312	0.0967	J	0.197	0.0339	NA	NA	
Cr	4.3		0.727	0.158	3.66		0.787	0.171	0.64	NA	
Co	2.33		0.182	0.0283	2.82		0.197	0.0307	NA	19%	
Cu	4.82		0.727	0.0974	3.89		0.787	0.106	0.93	NA	
Pb	3.76		0.363	0.0202	4.64		0.394	0.0218	NA	21%	
Ni	5.65		0.727	0.181	4.7		0.787	0.196	NA	18%	
Se	0.727	U	0.727	0.0908	0.787	U	0.787	0.0984	NA	NA	
Ag	0.182	U	0.182	0.0265	0.197	U	0.197	0.0287	NA	NA	
Tl	0.182	U	0.182	0.0227	0.197	U	0.197	0.0246	NA	NA	
V	4.77		0.182	0.0387	5.91		0.197	0.0419	NA	21%	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ug/kg		ug/kg	ug/kg
Batch number: R180982AA	Sample number(s): 9546285			
Acetone	350	U	350	1,000
Benzene	25	U	25	250
Bromochloromethane	50	U	50	250
Bromodichloromethane	50	U	50	250
Bromoform	50	U	50	250
Bromomethane	100	U	100	250
2-Butanone	200	U	200	500
Carbon Disulfide	50	U	50	250
Carbon Tetrachloride	50	U	50	250
Chlorobenzene	50	U	50	250
Chloroethane	100	U	100	250
Chloroform	50	U	50	250
Chloromethane	100	U	100	250
Cyclohexane	50	U	50	250
1,2-Dibromo-3-chloropropane	100	U	100	250
Dibromochloromethane	50	U	50	250
1,2-Dibromoethane	50	U	50	250
1,2-Dichlorobenzene	50	U	50	250
1,3-Dichlorobenzene	50	U	50	250
1,4-Dichlorobenzene	50	U	50	250
Dichlorodifluoromethane	100	U	100	250
1,1-Dichloroethane	50	U	50	250
1,2-Dichloroethane	50	U	50	250
1,1-Dichloroethene	50	U	50	250
cis-1,2-Dichloroethene	50	U	50	250
trans-1,2-Dichloroethene	50	U	50	250
1,2-Dichloropropane	50	U	50	250
cis-1,3-Dichloropropene	50	U	50	250
trans-1,3-Dichloropropene	50	U	50	250
Ethylbenzene	50	U	50	250
Freon 113	100	U	100	500
2-Hexanone	150	U	150	500
Isopropylbenzene	50	U	50	250
Methyl Acetate	100	U	100	250
Methyl Tertiary Butyl Ether	25	U	25	250
4-Methyl-2-pentanone	150	U	150	500
Methylcyclohexane	50	U	50	250
Methylene Chloride	100	U	100	250
Styrene	50	U	50	250

No detects.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ug/kg		ug/kg	ug/kg
1,1,2,2-Tetrachloroethane	50	U	50	250
Tetrachloroethene	50	U	50	250
Toluene	50	U	50	250
1,2,3-Trichlorobenzene	50	U	50	250
1,2,4-Trichlorobenzene	50	U	50	250
1,1,1-Trichloroethane	50	U	50	250
1,1,2-Trichloroethane	50	U	50	250
Trichloroethene	50	U	50	250
Trichlorofluoromethane	100	U	100	250
Vinyl Chloride	50	U	50	250
m+p-Xylene	50	U	50	250
o-Xylene	50	U	50	250
Batch number: X181051AA	Sample number(s): 9546280-9546283			
Acetone	7	U	7	20
Benzene	0.5	U	0.5	5
Bromochloromethane	1	U	1	5
Bromodichloromethane	1	U	1	5
Bromoform	1	U	1	5
Bromomethane	2	U	2	5
2-Butanone	4	U	4	10
Carbon Disulfide	1	U	1	5
Carbon Tetrachloride	1	U	1	5
Chlorobenzene	1	U	1	5
Chloroethane	2	U	2	5
Chloroform	1	U	1	5
Chloromethane	2	U	2	5
Cyclohexane	1	U	1	5
1,2-Dibromo-3-chloropropane	2	U	2	5
Dibromochloromethane	1	U	1	5
1,2-Dibromoethane	1	U	1	5
1,2-Dichlorobenzene	1	U	1	5
1,3-Dichlorobenzene	1	U	1	5
1,4-Dichlorobenzene	1	U	1	5
Dichlorodifluoromethane	2	U	2	5
1,1-Dichloroethane	1	U	1	5
1,2-Dichloroethane	1	U	1	5
1,1-Dichloroethene	1	U	1	5
cis-1,2-Dichloroethene	1	U	1	5
trans-1,2-Dichloroethene	1	U	1	5
1,2-Dichloropropane	1	U	1	5
cis-1,3-Dichloropropene	1	U	1	5
trans-1,3-Dichloropropene	1	U	1	5
Ethylbenzene	1	U	1	5
Freon 113	2	U	2	10

No detects

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(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/kg	ug/kg	ug/kg
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	2 U	2	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	5
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	2 U	2	5
Styrene	1 U	1	5
1,1,2,2-Tetrachloroethane	1 U	1	5
Tetrachloroethene	1 U	1	5
Toluene	1 U	1	5
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	1 U	1	5
1,1,2-Trichloroethane	1 U	1	5
Trichloroethene	1 U	1	5
Trichlorofluoromethane	2 U	2	5
Vinyl Chloride	1 U	1	5
m+p-Xylene	1 U	1	5
o-Xylene	1 U	1	5
Batch number: X181061AA	Sample number(s): 9546286		
Acetone	7 U	7	20
Benzene	0.5 U	0.5	5
Bromochloromethane	1 U	1	5
Bromodichloromethane	1 U	1	5
Bromoform	1 U	1	5
Bromomethane	2 U	2	5
2-Butanone	4 U	4	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	1 U	1	5
Chlorobenzene	1 U	1	5
Chloroethane	2 U	2	5
Chloroform	1 U	1	5
Chloromethane	2 U	2	5
Cyclohexane	1 U	1	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	1 U	1	5
1,2-Dibromoethane	1 U	1	5
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	2 U	2	5
1,1-Dichloroethane	1 U	1	5
1,2-Dichloroethane	1 U	1	5

No detects.

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/kg	ug/kg	ug/kg
1,1-Dichloroethene	1 U	1	5
cis-1,2-Dichloroethene	1 U	1	5
trans-1,2-Dichloroethene	1 U	1	5
1,2-Dichloropropane	1 U	1	5
cis-1,3-Dichloropropene	1 U	1	5
trans-1,3-Dichloropropene	1 U	1	5
Ethylbenzene	1 U	1	5
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	2 U	2	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	5
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	2 U	2	5
Styrene	1 U	1	5
1,1,2,2-Tetrachloroethane	1 U	1	5
Tetrachloroethene	1 U	1	5
Toluene	1 U	1	5
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	1 U	1	5
1,1,2-Trichloroethane	1 U	1	5
Trichloroethene	1 U	1	5
Trichlorofluoromethane	2 U	2	5
Vinyl Chloride	1 U	1	5
m+p-Xylene	1 U	1	5
o-Xylene	1 U	1	5
	ug/l	ug/l	ug/l
Batch number: L181051AA	Sample number(s): 9546287,9546289		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5

No detects

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
	ug/kg	ug/kg	ug/kg
Batch number: 18099SLA026	Sample number(s): 9546280-9546283,9546285-9546286		
Acenaphthene	3 U	3	17
Acenaphthylene	3 U	3	17
Acetophenone	17 U	17	33
Anthracene	3 U	3	17
Atrazine	33 U	33	170

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Method Blank (continued)

Analysis Name	Result ug/kg	MDL** ug/kg	LOQ ug/kg
Benzaldehyde	67 U	67	170
Benzo(a)anthracene	3 U	3	17
Benzo(a)pyrene	3 U	3	17
Benzo(b)fluoranthene	3 U	3	17
Benzo(g,h,i)perylene	3 U	3	17
Benzo(k)fluoranthene	3 U	3	17
1,1'-Biphenyl	17 U	17	33
4-Bromophenyl-phenylether	17 U	17	33
Butylbenzylphthalate	67 U	67	170
Di-n-butylphthalate	67 U	67	170
Caprolactam	33 U	33	170
Carbazole	17 U	17	33
4-Chloro-3-methylphenol	17 U	17	33
4-Chloroaniline	33 U	33	67
bis(2-Chloroethoxy)methane	17 U	17	33
bis(2-Chloroethyl)ether	17 U	17	33
2-Chloronaphthalene	7 U	7	33
2-Chlorophenol	17 U	17	33
4-Chlorophenyl-phenylether	17 U	17	33
2,2'-oxybis(1-Chloropropane)	17 U	17	33
Chrysene	3 U	3	17
Dibenz(a,h)anthracene	3 U	3	17
Dibenzofuran	17 U	17	33
3,3'-Dichlorobenzidine	100 U	100	330
2,4-Dichlorophenol	17 U	17	33
Diethylphthalate	67 U	67	170
2,4-Dimethylphenol	17 U	17	33
Dimethylphthalate	67 U	67	170
4,6-Dinitro-2-methylphenol	170 U	170	500
2,4-Dinitrophenol	300 U	300	1,000
2,4-Dinitrotoluene	67 U	67	170
2,6-Dinitrotoluene	17 U	17	33
1,4-Dioxane	100 U	100	330
bis(2-Ethylhexyl)phthalate	67 U	67	170
Fluoranthene	3 U	3	17
Fluorene	3 U	3	17
Hexachlorobenzene	3 U	3	17
Hexachlorobutadiene	17 U	17	33
Hexachlorocyclopentadiene	170 U	170	500
Hexachloroethane	33 U	33	170
Indeno(1,2,3-cd)pyrene	3 U	3	17
Isophorone	17 U	17	33
2-Methylnaphthalene	3 U	3	17
2-Methylphenol	17 U	17	33
4-Methylphenol	17 U	17	33

No detects

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/kg	ug/kg	ug/kg
Naphthalene	3 U	3	17
2-Nitroaniline	17 U	17	33
3-Nitroaniline	67 U	67	170
4-Nitroaniline	67 U	67	170
Nitrobenzene	17 U	17	33
2-Nitrophenol	17 U	17	33
4-Nitrophenol	170 U	170	500
N-Nitroso-di-n-propylamine	17 U	17	33
N-Nitrosodiphenylamine	17 U	17	33
Di-n-octylphthalate	67 U	67	170
Pentachlorophenol	33 U	33	170
Phenanthrene	3 U	3	17
Phenol	17 U	17	33
Pyrene	3 U	3	17
1,2,4,5-Tetrachlorobenzene	17 U	17	33
2,3,4,6-Tetrachlorophenol	67 U	67	170
2,4,5-Trichlorophenol	17 U	17	33
2,4,6-Trichlorophenol	17 U	17	33
	ug/l	ug/l	ug/l
Batch number: 18099WAI026	Sample number(s): 9546287		
Acenaphthene	0.1 U	0.1	0.5
Acenaphthylene	0.1 U	0.1	0.5
Acetophenone	0.5 U	0.5	1
Anthracene	0.1 U	0.1	0.5
Atrazine	2 U	2	5
Benzaldehyde	1 U	1	5
Benzo(a)anthracene	0.1 U	0.1	0.5
Benzo(a)pyrene	0.1 U	0.1	0.5
Benzo(b)fluoranthene	0.1 U	0.1	0.5
Benzo(g,h,i)perylene	0.1 U	0.1	0.5
Benzo(k)fluoranthene	0.1 U	0.1	0.5
1,1'-Biphenyl	0.5 U	0.5	1
4-Bromophenyl-phenylether	0.5 U	0.5	1
Butylbenzylphthalate	2 U	2	5
Di-n-butylphthalate	2 U	2	5
Caprolactam	5 U	5	15
Carbazole	0.5 U	0.5	1
4-Chloro-3-methylphenol	0.5 U	0.5	1
4-Chloroaniline	2 U	2	4
bis(2-Chloroethoxy)methane	0.5 U	0.5	1
bis(2-Chloroethyl)ether	0.5 U	0.5	1
2-Chloronaphthalene	0.4 U	0.4	1
2-Chlorophenol	0.5 U	0.5	1
4-Chlorophenyl-phenylether	0.5 U	0.5	1

No detects

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
2,2'-oxybis(1-Chloropropane)	0.5 U	0.5	1
Chrysene	0.1 U	0.1	0.5
Dibenz(a,h)anthracene	0.1 U	0.1	0.5
Dibenzofuran	0.5 U	0.5	1
3,3'-Dichlorobenzidine	2 U	2	5
2,4-Dichlorophenol	0.5 U	0.5	1
Diethylphthalate	2 U	2	5
2,4-Dimethylphenol	0.5 U	0.5	1
Dimethylphthalate	2 U	2	5
4,6-Dinitro-2-methylphenol	5 U	5	15
2,4-Dinitrophenol	10 U	10	30
2,4-Dinitrotoluene	1 U	1	5
2,6-Dinitrotoluene	0.5 U	0.5	1
1,4-Dioxane	1 U	1	5
bis(2-Ethylhexyl)phthalate	2 U	2	5
Fluoranthene	0.1 U	0.1	0.5
Fluorene	0.1 U	0.1	0.5
Hexachlorobenzene	0.1 U	0.1	0.5
Hexachlorobutadiene	0.5 U	0.5	1
Hexachlorocyclopentadiene	5 U	5	15
Hexachloroethane	1 U	1	5
Indeno(1,2,3-cd)pyrene	0.1 U	0.1	0.5
Isophorone	0.5 U	0.5	1
2-Methylnaphthalene	0.1 U	0.1	0.5
2-Methylphenol	0.5 U	0.5	1
4-Methylphenol	0.5 U	0.5	1
Naphthalene	0.1 U	0.1	0.5
2-Nitroaniline	0.5 U	0.5	1
3-Nitroaniline	0.5 U	0.5	1
4-Nitroaniline	0.5 U	0.5	1
Nitrobenzene	0.5 U	0.5	1
2-Nitrophenol	0.5 U	0.5	1
4-Nitrophenol	10 U	10	30
N-Nitroso-di-n-propylamine	0.5 U	0.5	1
N-Nitrosodiphenylamine	0.5 U	0.5	1
Di-n-octylphthalate	2 U	2	5
Pentachlorophenol	1 U	1	5
Phenanthrene	0.1 U	0.1	0.5
Phenol	0.5 U	0.5	1
Pyrene	0.1 U	0.1	0.5
1,2,4,5-Tetrachlorobenzene	0.5 U	0.5	1
2,3,4,6-Tetrachlorophenol	0.5 U	0.5	1
2,4,5-Trichlorophenol	0.5 U	0.5	1
2,4,6-Trichlorophenol	0.5 U	0.5	1

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ	
	ng/g	ng/g	ng/g	
Batch number: 18099003	Sample number(s): 9546280-9546283,9546285-9546286			
Perfluorobutanesulfonate	0.20 U	0.20	0.60	
Perfluorobutanoic acid	0.20 U	0.20	0.60	
Perfluorodecanoic acid	0.20 U	0.20	0.60	
Perfluorododecanoic acid	0.20 U	0.20	0.60	
Perfluoroheptanoic acid	0.20 U	0.20	0.60	
Perfluorohexanesulfonate	0.20 U	0.20	0.60	
Perfluorohexanoic acid	0.20 U	0.20	0.60	
Perfluorononanoic acid	0.20 U	0.20	0.60	
Perfluoro-octanesulfonate	0.30 U	0.30	0.90	
Perfluorooctanoic acid	0.20 U	0.20	0.60	No detects
Perfluoropentanoic acid	0.20 U	0.20	0.60	
Perfluorotetradecanoic acid	0.20 U	0.20	0.60	
Perfluorotridecanoic acid	0.20 U	0.20	0.60	
Perfluoroundecanoic acid	0.20 U	0.20	0.60	
	ng/l	ng/l	ng/l	
Batch number: 18098004	Sample number(s): 9546287-9546289			
Perfluorobutanesulfonate	0.30 U	0.30	1.0	
Perfluorobutanoic acid	2.0 U	2.0	6.0	
Perfluorodecanoic acid	1.0 U	1.0	2.0	
Perfluorododecanoic acid	0.30 U	0.30	1.0	
Perfluoroheptanoic acid	0.30 U	0.30	1.0	
Perfluorohexanesulfonate	0.40 U	0.40	2.0	
Perfluorohexanoic acid	0.40 U	0.40	2.0	
Perfluorononanoic acid	0.40 U	0.40	2.0	No detects
Perfluoro-octanesulfonate	0.40 U	0.40	2.0	
Perfluorooctanoic acid	0.30 U	0.30	1.0	
Perfluoropentanoic acid	2.0 U	2.0	6.0	
Perfluorotetradecanoic acid	0.30 U	0.30	1.0	
Perfluorotridecanoic acid	0.30 U	0.30	1.0	
Perfluoroundecanoic acid	0.40 U	0.40	2.0	
	mg/kg	mg/kg	mg/kg	
Batch number: 180991063702	Sample number(s): 9546280-9546286			
Aluminum	8.94 U	8.94	40.0	All Ca, Mn, and Zn sample results >>5x.
Calcium	3.67 J	3.33	40.0	No impact.
Iron	8.05 U	8.05	40.0	
Magnesium	2.43 U	2.43	20.0	
Manganese	0.162 J	0.0830	1.00	
Potassium	16.7 U	16.7	100	
Sodium	16.7 U	16.7	200	
Zinc	0.669 J	0.240	4.00	
Batch number: 180991063702A	Sample number(s): 9546280-9546286			
Antimony	0.0932 U	0.0932	0.400	

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Batch number: 181001063901B	Sample number(s): 9546287		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 181001063901D	Sample number(s): 9546287		
Barium	0.00072 U	0.00072	0.0040
	mg/kg	mg/kg	mg/kg
Batch number: 18103667631B	Sample number(s): 9546280-9546282,9546284-9546286		
TOC	100 U	100	300
	mg/l	mg/l	mg/l
Batch number: 18101667607A	Sample number(s): 9546287		
Total Organic Carbon	0.50 U	0.50	1.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: R180982AA	Sample number(s): 9546285		Limited validation						
Acetone	7500	5359.7	7500	6228.63	71	83	55-131	15	30
Benzene	1000	962.06	1000	1037.76	96	104	80-120	8	30
Bromochloromethane	1000	945.14	1000	1023.52	95	102	80-120	8	30
Bromodichloromethane	1000	923.7	1000	1017.32	92	102	70-120	10	30
Bromoform	1000	831.66	1000	924.02	83	92	51-127	11	30
Bromomethane	1000	895.55	1000	931.77	90	93	50-136	4	30
2-Butanone	7500	5531.97	7500	6393.79	74	85	57-128	14	30
Carbon Disulfide	1000	852.11	1000	1004.73	85	100	64-133	16	30
Carbon Tetrachloride	1000	928.82	1000	942.31	93	94	64-134	1	30
Chlorobenzene	1000	924.4	1000	1031.77	92	103	80-120	11	30
Chloroethane	1000	856.99	1000	891.91	86	89	50-131	4	30
Chloroform	1000	936.42	1000	1008.95	94	101	80-120	7	30
Chloromethane	1000	597.25	1000	617.63	60	62	56-120	3	30
Cyclohexane	1000	890.85	1000	914.83	89	91	58-126	3	30
1,2-Dibromo-3-chloropropane	1000	841.65	1000	947.95	84	95	36-144	12	30
Dibromochloromethane	1000	945.8	1000	1050.3	95	105	65-120	10	30
1,2-Dibromoethane	1000	908.81	1000	1014.42	91	101	74-120	11	30
1,2-Dichlorobenzene	1000	926.7	1000	1055.67	93	106	80-120	13	30
1,3-Dichlorobenzene	1000	896.85	1000	1037.8	90	104	80-120	15	30
1,4-Dichlorobenzene	1000	937.58	1000	1069.34	94	107	80-120	13	30
Dichlorodifluoromethane	1000	385.14	1000	385.76	39	39	16-136	0	30
1,1-Dichloroethane	1000	916.99	1000	1006	92	101	77-120	9	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,2-Dichloroethane	1000	965.1	1000	1027.64	97	103	71-128	6	30
1,1-Dichloroethene	1000	945.44	1000	986.84	95	99	73-129	4	30
cis-1,2-Dichloroethene	1000	958.83	1000	1042.33	96	104	80-120	8	30
trans-1,2-Dichloroethene	1000	946.61	1000	1025.38	95	103	80-125	8	30
1,2-Dichloropropane	1000	968.29	1000	1037.71	97	104	76-120	7	30
cis-1,3-Dichloropropene	1000	937.25	1000	1051.19	94	105	66-120	11	30
trans-1,3-Dichloropropene	1000	886.99	1000	999.3	89	100	63-124	12	30
Ethylbenzene	1000	881.9	1000	989.63	88	99	74-120	12	30
Freon 113	1000	958.88	1000	1023.39	96	102	64-135	7	30
2-Hexanone	5000	3997.4	5000	4554.33	80	91	54-140	13	30
Isopropylbenzene	1000	924.11	1000	1053.8	92	105	69-123	13	30
Methyl Acetate	1000	912.07	1000	919.37	91	92	59-134	1	30
Methyl Tertiary Butyl Ether	1000	935	1000	1017.05	94	102	66-123	8	30
4-Methyl-2-pentanone	5000	4187.46	5000	4749.52	84	95	61-135	13	30
Methylcyclohexane	1000	992.76	1000	1095.05	99	110	61-124	10	30
Methylene Chloride	1000	942.28	1000	997.17	94	100	76-122	6	30
Styrene	1000	901.41	1000	1026.35	90	103	76-120	13	30
1,1,2,2-Tetrachloroethane	1000	855.45	1000	994.25	86	99	61-131	15	30
Tetrachloroethene	1000	899.59	1000	1045.38	90	105	73-120	15	30
Toluene	1000	913.11	1000	1006.68	91	101	80-120	10	30
1,2,3-Trichlorobenzene	1000	890.45	1000	1081.91	89	108	44-155	19	30
1,2,4-Trichlorobenzene	1000	903.56	1000	1086.29	90	109	56-130	18	30
1,1,1-Trichloroethane	1000	913.44	1000	981.92	91	98	69-123	7	30
1,1,2-Trichloroethane	1000	938.63	1000	1082	94	108	80-120	14	30
Trichloroethene	1000	932.14	1000	1023.65	93	102	80-120	9	30
Trichlorofluoromethane	1000	823.74	1000	861.73	82	86	55-134	5	30
Vinyl Chloride	1000	712.27	1000	705.33	71	71	59-120	1	30
m+p-Xylene	2000	1830.6	2000	2036.43	92	102	80-120	11	30
o-Xylene	1000	903.85	1000	1024.4	90	102	75-120	13	30
Batch number: X181051AA	Sample number(s): 9546280-9546283			Full validation					
Acetone	150	180.98	150	184.65	121	123	55-131	2	30
Benzene	20	20.89	20	21.02	104	105	80-120	1	30
Bromochloromethane	20	20.08	20	20.85	100	104	80-120	4	30
Bromodichloromethane	20	19.68	20	20	98	100	70-120	2	30
Bromoform	20	17.09	20	16.98	85	85	51-127	1	30
Bromomethane	20	18.84	20	18.97	94	95	50-136	1	30
2-Butanone	150	161.23	150	164.18	107	109	57-128	2	30
Carbon Disulfide	20	23.03	20	23.42	115	117	64-133	2	30
Carbon Tetrachloride	20	20.06	20	20.13	100	101	64-134	0	30
Chlorobenzene	20	20.82	20	21.05	104	105	80-120	1	30
Chloroethane	20	18.42	20	19.01	92	95	50-131	3	30
Chloroform	20	20.35	20	20.77	102	104	80-120	2	30
Chloromethane	20	18.35	20	18.68	92	93	56-120	2	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Cyclohexane	20	18.35	20	18.71	92	94	58-126	2	30
1,2-Dibromo-3-chloropropane	20	16.48	20	16.77	82	84	36-144	2	30
Dibromochloromethane	20	20.09	20	20.31	100	102	65-120	1	30
1,2-Dibromoethane	20	19.16	20	19.6	96	98	74-120	2	30
1,2-Dichlorobenzene	20	19.81	20	19.87	99	99	80-120	0	30
1,3-Dichlorobenzene	20	19.57	20	19.64	98	98	80-120	0	30
1,4-Dichlorobenzene	20	19.72	20	19.98	99	100	80-120	1	30
Dichlorodifluoromethane	20	14.56	20	14.5	73	72	16-136	0	30
1,1-Dichloroethane	20	20.72	20	21.05	104	105	77-120	2	30
1,2-Dichloroethane	20	19.28	20	19.49	96	97	71-128	1	30
1,1-Dichloroethene	20	22.46	20	22.83	112	114	73-129	2	30
cis-1,2-Dichloroethene	20	21.46	20	21.46	107	107	80-120	0	30
trans-1,2-Dichloroethene	20	21.9	20	22.02	109	110	80-125	1	30
1,2-Dichloropropane	20	20.54	20	20.97	103	105	76-120	2	30
cis-1,3-Dichloropropene	20	18.78	20	19.16	94	96	66-120	2	30
trans-1,3-Dichloropropene	20	19.35	20	19.52	97	98	63-124	1	30
Ethylbenzene	20	20.65	20	20.72	103	104	74-120	0	30
Freon 113	20	20.55	20	20.76	103	104	64-135	1	30
2-Hexanone	100	91.19	100	90.9	91	91	54-140	0	30
Isopropylbenzene	20	19.74	20	20	99	100	69-123	1	30
Methyl Acetate	20	17.47	20	17.67	87	88	59-134	1	30
Methyl Tertiary Butyl Ether	20	18.06	20	18.62	90	93	66-123	3	30
4-Methyl-2-pentanone	100	87.29	100	88.58	87	89	61-135	1	30
Methylcyclohexane	20	18.33	20	18.6	92	93	61-124	1	30
Methylene Chloride	20	20.69	20	21.08	103	105	76-122	2	30
Styrene	20	18.77	20	18.82	94	94	76-120	0	30
1,1,2,2-Tetrachloroethane	20	19.79	20	20.13	99	101	61-131	2	30
Tetrachloroethene	20	19.99	20	19.78	100	99	73-120	1	30
Toluene	20	21.09	20	21.37	105	107	80-120	1	30
1,2,3-Trichlorobenzene	20	17.99	20	18.55	90	93	44-155	3	30
1,2,4-Trichlorobenzene	20	17.17	20	17.62	86	88	56-130	3	30
1,1,1-Trichloroethane	20	21.6	20	22	108	110	69-123	2	30
1,1,2-Trichloroethane	20	20.86	20	21.39	104	107	80-120	3	30
Trichloroethene	20	19.93	20	20.11	100	101	80-120	1	30
Trichlorofluoromethane	20	18.49	20	18.58	92	93	55-134	0	30
Vinyl Chloride	20	18.42	20	18.66	92	93	59-120	1	30
m+p-Xylene	40	40.8	40	41.12	102	103	80-120	1	30
o-Xylene	20	19.67	20	19.85	98	99	75-120	1	30
Batch number: X181061AA	Sample number(s): 9546286		Limited validation						
Acetone	150	176.6	150	192.9	118	129	55-131	9	30
Benzene	20	17.9	20	20.26	90	101	80-120	12	30
Bromochloromethane	20	18.89	20	21.65	94	108	80-120	14	30
Bromodichloromethane	20	17.11	20	19.76	86	99	70-120	14	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Bromoform	20	15.34	20	18.22	77	91	51-127	17	30
Bromomethane	20	20.43	20	23.04	102	115	50-136	12	30
2-Butanone	150	160.79	150	178.52	107	119	57-128	10	30
Carbon Disulfide	20	20.9	20	23.18	104	116	64-133	10	30
Carbon Tetrachloride	20	17.17	20	19.38	86	97	64-134	12	30
Chlorobenzene	20	18.04	20	20.49	90	102	80-120	13	30
Chloroethane	20	19.43	20	21.97	97	110	50-131	12	30
Chloroform	20	17.86	20	20.18	89	101	80-120	12	30
Chloromethane	20	19	20	20.68	95	103	56-120	8	30
Cyclohexane	20	15.49	20	17.59	77	88	58-126	13	30
1,2-Dibromo-3-chloropropane	20	14.26	20	17.4	71	87	36-144	20	30
Dibromochloromethane	20	17.93	20	20.79	90	104	65-120	15	30
1,2-Dibromoethane	20	17.14	20	20.1	86	100	74-120	16	30
1,2-Dichlorobenzene	20	17.01	20	19.45	85	97	80-120	13	30
1,3-Dichlorobenzene	20	16.72	20	19.01	84	95	80-120	13	30
1,4-Dichlorobenzene	20	16.95	20	19.28	85	96	80-120	13	30
Dichlorodifluoromethane	20	16.63	20	18.24	83	91	16-136	9	30
1,1-Dichloroethane	20	17.65	20	19.86	88	99	77-120	12	30
1,2-Dichloroethane	20	16.85	20	19.59	84	98	71-128	15	30
1,1-Dichloroethene	20	19.74	20	22.02	99	110	73-129	11	30
cis-1,2-Dichloroethene	20	18.36	20	20.96	92	105	80-120	13	30
trans-1,2-Dichloroethene	20	18.99	20	21.24	95	106	80-125	11	30
1,2-Dichloropropane	20	17.56	20	20.47	88	102	76-120	15	30
cis-1,3-Dichloropropene	20	15.67	20	18.51	78	93	66-120	17	30
trans-1,3-Dichloropropene	20	16.24	20	19.35	81	97	63-124	17	30
Ethylbenzene	20	17.46	20	19.75	87	99	74-120	12	30
Freon 113	20	18.7	20	20.69	94	103	64-135	10	30
2-Hexanone	100	78.99	100	99.23	79	99	54-140	23	30
Isopropylbenzene	20	16.53	20	18.9	83	94	69-123	13	30
Methyl Acetate	20	15.97	20	18.88	80	94	59-134	17	30
Methyl Tertiary Butyl Ether	20	16.3	20	19.43	81	97	66-123	18	30
4-Methyl-2-pentanone	100	76.25	100	94.45	76	94	61-135	21	30
Methylcyclohexane	20	15.66	20	17.98	78	90	61-124	14	30
Methylene Chloride	20	18.42	20	20.78	92	104	76-122	12	30
Styrene	20	16.45	20	18.75	82	94	76-120	13	30
1,1,2,2-Tetrachloroethane	20	17.45	20	20.46	87	102	61-131	16	30
Tetrachloroethene	20	16.88	20	19.16	84	96	73-120	13	30
Toluene	20	18.13	20	20.36	91	102	80-120	12	30
1,2,3-Trichlorobenzene	20	16.05	20	18.01	80	90	44-155	12	30
1,2,4-Trichlorobenzene	20	14.69	20	16.7	73	83	56-130	13	30
1,1,1-Trichloroethane	20	18.34	20	20.88	92	104	69-123	13	30
1,1,2-Trichloroethane	20	18.64	20	21.39	93	107	80-120	14	30
Trichloroethene	20	17.13	20	19.44	86	97	80-120	13	30
Trichlorofluoromethane	20	18.12	20	20.28	91	101	55-134	11	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Vinyl Chloride	20	19.22	20	21.15	96	106	59-120	10	30
m+p-Xylene	40	35.01	40	39.5	88	99	80-120	12	30
o-Xylene	20	16.47	20	18.88	82	94	75-120	14	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: L181051AA	Sample number(s): 9546287,9546289 Limited validation								
Acetone	150	152.63			102		54-157		
Benzene	20	20.65			103		80-120		
Bromochloromethane	20	20.78			104		80-120		
Bromodichloromethane	20	21.1			105		71-120		
Bromoform	20	18.35			92		59-120		
Bromomethane	20	19.31			97		58-130		
2-Butanone	150	160.84			107		59-135		
Carbon Disulfide	20	20.22			101		65-128		
Carbon Tetrachloride	20	22.74			114		64-134		
Chlorobenzene	20	19.05			95		80-120		
Chloroethane	20	18.04			90		61-123		
Chloroform	20	21.39			107		80-120		
Chloromethane	20	16.5			82		63-120		
Cyclohexane	20	21.44			107		67-121		
1,2-Dibromo-3-chloropropane	20	20.8			104		53-128		
Dibromochloromethane	20	20.07			100		71-120		
1,2-Dibromoethane	20	20.26			101		75-120		
1,2-Dichlorobenzene	20	20.03			100		80-120		
1,3-Dichlorobenzene	20	20.15			101		80-120		
1,4-Dichlorobenzene	20	20.11			101		80-120		
Dichlorodifluoromethane	20	18.58			93		47-124		
1,1-Dichloroethane	20	20.76			104		80-120		
1,2-Dichloroethane	20	21.25			106		73-124		
1,1-Dichloroethene	20	22.94			115		80-131		
cis-1,2-Dichloroethene	20	21.36			107		80-120		
trans-1,2-Dichloroethene	20	21.83			109		80-120		
1,2-Dichloropropane	20	19.98			100		80-120		
cis-1,3-Dichloropropene	20	20.72			104		75-120		
trans-1,3-Dichloropropene	20	20.41			102		76-120		
Ethylbenzene	20	20.52			103		80-120		
Freon 113	20	23.11			116		68-137		
2-Hexanone	100	100.02			100		50-141		
Isopropylbenzene	20	21.04			105		80-120		
Methyl Acetate	20	20.19			101		64-130		
Methyl Tertiary Butyl Ether	20	20.45			102		75-120		
4-Methyl-2-pentanone	100	100.53			101		62-133		
Methylcyclohexane	20	22.24			111		67-121		
Methylene Chloride	20	20.61			103		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Styrene	20	20.9			104		80-120		
1,1,2,2-Tetrachloroethane	20	19.03			95		72-120		
Tetrachloroethene	20	20.92			105		80-120		
Toluene	20	20.2			101		80-120		
1,2,3-Trichlorobenzene	20	19.8			99		66-120		
1,2,4-Trichlorobenzene	20	19.74			99		70-120		
1,1,1-Trichloroethane	20	21.33			107		67-126		
1,1,2-Trichloroethane	20	20.22			101		80-120		
Trichloroethene	20	21.12			106		80-120		
Trichlorofluoromethane	20	20.15			101		60-136		
Vinyl Chloride	20	17.49			87		68-120		
m+p-Xylene	40	41.31			103		80-120		
o-Xylene	20	20.02			100		80-120		
	ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: 18099SLA026	Sample number(s): 9546280-9546283,9546285-9546286						Full validation		
Acenaphthene	1666.67	1706.36			102		78-119		
Acenaphthylene	1666.67	1837.96			110		45-149		
Acetophenone	1666.67	1651.58			99		68-115		
Anthracene	1666.67	1654.18			99		82-113		
Atrazine	1666.67	1659.68			100		58-126		
Benzaldehyde	1666.67	1666.24			100		18-123		
Benzo(a)anthracene	1666.67	1516.04			91		76-119		
Benzo(a)pyrene	1666.67	1669.2			100		77-112		
Benzo(b)fluoranthene	1666.67	1670.37			100		78-120		
Benzo(g,h,i)perylene	1666.67	1529.46			92		76-111		
Benzo(k)fluoranthene	1666.67	1590.38			95		78-119		
1,1'-Biphenyl	1666.67	1638.07			98		78-115		
4-Bromophenyl-phenylether	1666.67	1563.71			94		81-116		
Butylbenzylphthalate	1666.67	1679.75			101		81-118		
Di-n-butylphthalate	1666.67	1735.23			104		77-121		
Caprolactam	1666.67	1776.85			107		63-121		
Carbazole	1666.67	1673.68			100		74-118		
4-Chloro-3-methylphenol	1666.67	1832.5			110		70-128		
4-Chloroaniline	1666.67	1333.21			80		10-117		
bis(2-Chloroethoxy)methane	1666.67	1647.87			99		72-117		
bis(2-Chloroethyl)ether	1666.67	1648.93			99		68-115		
2-Chloronaphthalene	1666.67	1775.6			107		51-150		
2-Chlorophenol	1666.67	1705.95			102		75-124		
4-Chlorophenyl-phenylether	1666.67	1490.96			89		79-112		
2,2'-oxybis(1-Chloropropane)	1666.67	1685.01			101		61-120		
Chrysene	1666.67	1499.06			90		78-115		
Dibenz(a,h)anthracene	1666.67	1588.87			95		79-117		
Dibenzofuran	1666.67	1620.7			97		79-114		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
3,3'-Dichlorobenzidine	1666.67	1421.43			85		33-117		
2,4-Dichlorophenol	1666.67	1745.82			105		79-125		
Diethylphthalate	1666.67	1689.45			101		74-120		
2,4-Dimethylphenol	1666.67	1596.1			96		56-107		
Dimethylphthalate	1666.67	1625.22			98		77-116		
4,6-Dinitro-2-methylphenol	1666.67	1713.2			103		73-127		
2,4-Dinitrophenol	3333.33	3288.26			99		51-139		
2,4-Dinitrotoluene	1666.67	1703.05			102		78-123		
2,6-Dinitrotoluene	1666.67	1757.02			105		80-120		
1,4-Dioxane	1666.67	902.61			54		37-87		
bis(2-Ethylhexyl)phthalate	1666.67	1688.66			101		78-118		
Fluoranthene	1666.67	1559.89			94		76-115		
Fluorene	1666.67	1621.97			97		80-112		
Hexachlorobenzene	1666.67	1532			92		77-114		
Hexachlorobutadiene	1666.67	1484.66			89		75-115		
Hexachlorocyclopentadiene	3333.33	3435.25			103		10-172		
Hexachloroethane	1666.67	1651.13			99		72-111		
Indeno(1,2,3-cd)pyrene	1666.67	1521.95			91		78-113		
Isophorone	1666.67	1733.77			104		65-120		
2-Methylnaphthalene	1666.67	1612.64			97		77-116		
2-Methylphenol	1666.67	1857.17			111		74-128		
4-Methylphenol	1666.67	1761.93			106		66-121		
Naphthalene	1666.67	1570.17			94		81-111		
2-Nitroaniline	1666.67	1855.49			111		81-126		
3-Nitroaniline	1666.67	1755.58			105		68-124		
4-Nitroaniline	1666.67	1531.6			92		50-112		
Nitrobenzene	1666.67	1689.62			101		70-122		
2-Nitrophenol	1666.67	1727.11			104		77-129		
4-Nitrophenol	1666.67	1265.71			76		44-131		
N-Nitroso-di-n-propylamine	1666.67	1736.32			104		60-123		
N-Nitrosodiphenylamine	1666.67	1721.15			103		83-118		
Di-n-octylphthalate	1666.67	1928.68			116		81-134		
Pentachlorophenol	1666.67	1059.04			64		54-131		
Phenanthrene	1666.67	1579.42			95		81-109		
Phenol	1666.67	1745.95			105		68-123		
Pyrene	1666.67	1542.32			93		80-107		
1,2,4,5-Tetrachlorobenzene	1666.67	1530.72			92		76-116		
2,3,4,6-Tetrachlorophenol	1666.67	1566.02			94		73-127		
2,4,5-Trichlorophenol	1666.67	1735.12			104		84-122		
2,4,6-Trichlorophenol	1666.67	1671.36			100		81-123		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 18099WAI026	Sample number(s): 9546287		Limited validation						
Acenaphthene	50	49.26			99		49-123		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Acenaphthylene	50	52.97			106		67-111		
Acetophenone	50	48.59			97		53-118		
Anthracene	50	50.21			100		55-126		
Atrazine	50	51.58			103		65-126		
Benzaldehyde	50	41.48			83		49-110		
Benzo(a)anthracene	50	50.8			102		63-124		
Benzo(a)pyrene	50	50.98			102		50-128		
Benzo(b)fluoranthene	50	51.09			102		58-127		
Benzo(g,h,i)perylene	50	49.29			99		51-124		
Benzo(k)fluoranthene	50	50.51			101		63-123		
1,1'-Biphenyl	50	47.78			96		45-118		
4-Bromophenyl-phenylether	50	47.26			95		53-127		
Butylbenzylphthalate	50	45.21			90		40-131		
Di-n-butylphthalate	50	49.17			98		58-119		
Caprolactam	50	14.02			28		13-37		
Carbazole	50	53.66			107		65-123		
4-Chloro-3-methylphenol	50	50.12			100		50-130		
4-Chloroaniline	50	46.11			92		33-106		
bis(2-Chloroethoxy)methane	50	47.37			95		54-127		
bis(2-Chloroethyl)ether	50	44.1			88		48-119		
2-Chloronaphthalene	50	43.46			87		41-123		
2-Chlorophenol	50	43.71			87		47-116		
4-Chlorophenyl-phenylether	50	45.98			92		45-124		
2,2'-oxybis(1-Chloropropane)	50	44.33			89		40-117		
Chrysene	50	50.51			101		65-124		
Dibenz(a,h)anthracene	50	51.75			104		53-132		
Dibenzofuran	50	48.26			97		50-124		
3,3'-Dichlorobenzidine	50	41.63			83		32-106		
2,4-Dichlorophenol	50	48.78			98		53-126		
Diethylphthalate	50	45.9			92		42-124		
2,4-Dimethylphenol	50	43.91			88		41-103		
Dimethylphthalate	50	38.15			76		19-119		
4,6-Dinitro-2-methylphenol	50	50.6			101		50-132		
2,4-Dinitrophenol	100	98.64			99		19-140		
2,4-Dinitrotoluene	50	49.92			100		56-128		
2,6-Dinitrotoluene	50	50.73			101		57-131		
1,4-Dioxane	50	20.93			42		18-67		
bis(2-Ethylhexyl)phthalate	50	50.08			100		52-132		
Fluoranthene	50	51.52			103		61-123		
Fluorene	50	48.53			97		48-124		
Hexachlorobenzene	50	47.33			95		57-123		
Hexachlorobutadiene	50	34.57			69		16-119		
Hexachlorocyclopentadiene	100	54.22			54		10-104		
Hexachloroethane	50	30.65			61		19-105		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Indeno(1,2,3-cd)pyrene	50	48.42			97		52-127		
Isophorone	50	49.31			99		49-129		
2-Methylnaphthalene	50	45.36			91		42-120		
2-Methylphenol	50	42.68			85		46-113		
4-Methylphenol	50	40.99			82		42-115		
Naphthalene	50	44.2			88		44-114		
2-Nitroaniline	50	51.68			103		54-133		
3-Nitroaniline	50	49.62			99		41-123		
4-Nitroaniline	50	46.1			92		46-114		
Nitrobenzene	50	45.99			92		43-128		
2-Nitrophenol	50	48.3			97		58-125		
4-Nitrophenol	50	28.22			56		10-96		
N-Nitroso-di-n-propylamine	50	46.96			94		48-128		
N-Nitrosodiphenylamine	50	49.93			100		55-128		
Di-n-octylphthalate	50	51.15			102		51-134		
Pentachlorophenol	50	54.6			109		50-127		
Phenanthrene	50	49.96			100		54-122		
Phenol	50	25.61			51		10-92		
Pyrene	50	48.79			98		54-123		
1,2,4,5-Tetrachlorobenzene	50	40.3			81		30-117		
2,3,4,6-Tetrachlorophenol	50	51.53			103		60-128		
2,4,5-Trichlorophenol	50	51.88			104		59-129		
2,4,6-Trichlorophenol	50	50.9			102		61-130		
	ng/g	ng/g	ng/g	ng/g					
Batch number: 18099003	Sample number(s): 9546280-9546283,9546285-9546286						Full validation		
Perfluorobutanesulfonate	1.20	1.00			83		70-130		
Perfluorobutanoic acid	1.36	1.30			95		70-130		
Perfluorodecanoic acid	1.36	1.16			85		70-130		
Perfluorododecanoic acid	1.36	1.30			95		70-130		
Perfluoroheptanoic acid	1.36	1.32			97		70-130		
Perfluorohexanesulfonate	1.29	1.10			85		70-130		
Perfluorohexanoic acid	1.36	1.23			91		70-130		
Perfluorononanoic acid	1.36	1.33			98		70-130		
Perfluoro-octanesulfonate	1.30	1.21			93		70-130		
Perfluorooctanoic acid	1.36	1.14			84		70-130		
Perfluoropentanoic acid	1.36	1.19			88		70-130		
Perfluorotetradecanoic acid	1.36	1.25			92		70-130		
Perfluorotridecanoic acid	1.36	1.39			103		70-130		
Perfluoroundecanoic acid	1.36	1.44			106		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 18098004	Sample number(s): 9546287-9546289				Full validation				
Perfluorobutanesulfonate	4.81	4.11	4.81	4.36	85	91	73-128	6	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorobutanoic acid	5.44	5.13	5.44	5.32	94	98	74-142	4	30
Perfluorodecanoic acid	5.44	4.87	5.44	5.04	90	93	69-148	3	30
Perfluorododecanoic acid	5.44	5.16	5.44	5.59	95	103	75-136	8	30
Perfluoroheptanoic acid	5.44	5.27	5.44	5.25	97	96	76-140	0	30
Perfluorohexanesulfonate	5.14	4.19	5.14	4.65	82	90	71-131	10	30
Perfluorohexanoic acid	5.44	5.17	5.44	5.14	95	94	75-135	1	30
Perfluorononanoic acid	5.44	5.43	5.44	6.22	100	114	72-148	14	30
Perfluoro-octanesulfonate	5.20	4.61	5.20	4.99	89	96	67-138	8	30
Perfluorooctanoic acid	5.44	4.81	5.44	5.20	88	96	72-138	8	30
Perfluoropentanoic acid	5.44	4.89	5.44	4.96	90	91	74-134	2	30
Perfluorotetradecanoic acid	5.44	5.33	5.44	5.70	98	105	74-135	7	30
Perfluorotridecanoic acid	5.44	5.93	5.44	6.10	109	112	61-145	3	30
Perfluoroundecanoic acid	5.44	5.63	5.44	5.56	104	102	75-146	1	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 180991063702	Sample number(s): 9546280-9546286						See inorganic support doc		
Aluminum	200	197.13			99		80-120		
Calcium	400	405.7			101		80-120		
Iron	100	99.21			99		80-120		
Magnesium	200	202.51			101		80-120		
Manganese	50	50.45			101		80-120		
Potassium	1000	989.11			99		80-120		
Sodium	1000	997.2			100		80-120		
Zinc	50	50.88			102		80-120		
Batch number: 180991063702A	Sample number(s): 9546280-9546286								
Antimony	0.600	0.593			99		86-120		
Arsenic	1.00	1.05			105		80-120		
Beryllium	0.400	0.415			104		80-120		
Cadmium	0.500	0.547			109		80-120		
Chromium	5.00	5.38			108		86-120		
Cobalt	25	24.88			100		80-120		
Copper	5.00	4.99			100		80-120		
Lead	1.50	1.54			103		80-120		
Nickel	5.00	5.00			100		86-120		
Silver	5.00	5.15			103		88-120		
Thallium	0.200	0.178			89		80-120		
Vanadium	5.00	4.98			100		86-120		
Batch number: 180991063702B	Sample number(s): 9546280-9546286								
Selenium	1.00	1.02			102		80-120		
Batch number: 180991063702D	Sample number(s): 9546280-9546286								
Barium	5.00	5.44			109		80-120		

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(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18101039401B	Sample number(s): 9546280-9546281,9546284-9546286								
pH	7.00	6.99			100		95-105		
Batch number: 18102003102A	Sample number(s): 9546287								
pH	7.00	7.06			101		95-105		
	%	%	%	%					
Batch number: 18099820002A	Sample number(s): 9546280-9546286								
Moisture	89.5	89.39			100		99-101		
Moisture	89.5	89.39			100		99-101		
Moisture Duplicate	89.5	89.39			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

	Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max	
	Batch number: X181051AA	Sample number(s): 9546280-9546283 UNSPK: 9546281										
1	Acetone	78.65	143.96	290.42	114.68	208.55	147*	113	55-131	33*	30	25
	Benzene	0.4 U	19.19	20.74	15.29	17.32	108	113	80-120	18	30	
	Bromochloromethane	0.8 U	19.19	19.32	15.29	16.25	101	106	80-120	17	30	
	Bromodichloromethane	0.8 U	19.19	19.36	15.29	16.21	101	106	70-120	18	30	
	Bromoform	0.8 U	19.19	17.68	15.29	13.38	92	87	51-127	28	30	
	Bromomethane	2 U	19.19	18.68	15.29	16.29	97	107	50-136	14	30	
1	2-Butanone	10.4	143.96	202.77	114.68	153.01	134*	124	57-128	28	30	
	Carbon Disulfide	0.899	19.19	21.52	15.29	18.35	107	114	64-133	16	30	
	Carbon Tetrachloride	0.8 U	19.19	17.47	15.29	15.53	91	102	64-134	12	30	
	Chlorobenzene	0.8 U	19.19	20.21	15.29	16.27	105	106	80-120	22	30	
	Chloroethane	2 U	19.19	16.57	15.29	14.86	86	97	50-131	11	30	
	Chloroform	0.8 U	19.19	19.54	15.29	16.65	102	109	80-120	16	30	
	Chloromethane	2 U	19.19	22.07	15.29	17.37	115	114	56-120	24	30	
	Cyclohexane	0.8 U	19.19	13.59	15.29	13.04	71	85	58-126	4	30	
	1,2-Dibromo-3-chloropropane	2 U	19.19	25.29	15.29	17.28	132	113	36-144	38*	30	16
	Dibromochloromethane	0.8 U	19.19	22.9	15.29	17.57	119	115	65-120	26	30	
2	1,2-Dibromoethane	0.8 U	19.19	24.56	15.29	18	128*	118	74-120	31*	30	10
	1,2-Dichlorobenzene	0.8 U	19.19	17.29	15.29	14.04	90	92	80-120	21	30	
	1,3-Dichlorobenzene	0.8 U	19.19	18.26	15.29	14.72	95	96	80-120	21	30	
	1,4-Dichlorobenzene	0.8 U	19.19	18.96	15.29	15.04	99	98	80-120	23	30	
	Dichlorodifluoromethane	2 U	19.19	19.27	15.29	14.5	100	95	16-136	28	30	
	1,1-Dichloroethane	0.8 U	19.19	20.31	15.29	16.55	106	108	77-120	20	30	

Note: >10% difference between MS/MSD initial aliquots. Base RPD on %Rs.

1. MS %R high, parent detect. Quality J.
2. MS %R high, parent ND. No impact.

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

	Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max	RPD from %Rs
	1,2-Dichloroethane	0.8 U	19.19	20.5	15.29	16.75	107	110	71-128	20	30	
	1,1-Dichloroethene	0.8 U	19.19	21.58	15.29	18.53	112	121	73-129	15	30	
	cis-1,2-Dichloroethene	0.8 U	19.19	19.95	15.29	16.89	104	110	80-120	17	30	
	trans-1,2-Dichloroethene	0.8 U	19.19	20.21	15.29	17.43	105	114	80-125	15	30	
	1,2-Dichloropropane	0.8 U	19.19	20.6	15.29	17.02	107	111	76-120	19	30	
	cis-1,3-Dichloropropene	0.8 U	19.19	17.94	15.29	15.04	93	98	66-120	18	30	
	trans-1,3-Dichloropropene	0.8 U	19.19	21.89	15.29	16.87	114	110	63-124	26	30	
	Ethylbenzene	0.8 U	19.19	18.1	15.29	15.26	94	100	74-120	17	30	
	Freon 113	2 U	19.19	19.26	15.29	17.41	100	114	64-135	10	30	
2	2-Hexanone	2 U	95.97	183.22	76.45	127.16	191*	166*	54-140	36*	30	14
	Isopropylbenzene	0.8 U	19.19	13.15	15.29	11.37	69	74	69-123	15	30	
	Methyl Acetate	2 U	19.19	24.43	15.29	18.27	127	119	59-134	29	30	
	Methyl Tertiary Butyl Ether	0.4 U	19.19	18.41	15.29	15.6	96	102	66-123	17	30	
3	4-Methyl-2-pentanone	2 U	95.97	143.01	76.45	110	149*	144*	61-135	26	30	
4	Methylcyclohexane	0.8 U	19.19	9.38	15.29	8.95	49*	59*	61-124	5	30	
	Methylene Chloride	2 U	19.19	19.18	15.29	16.6	100	109	76-122	14	30	
	Styrene	0.8 U	19.19	16.35	15.29	13.42	85	88	76-120	20	30	
3	1,1,2,2-Tetrachloroethane	0.8 U	19.19	34.25	15.29	25.18	178*	165*	61-131	31*	30	8
	Tetrachloroethene	0.8 U	19.19	17.96	15.29	14.95	94	98	73-120	18	30	
	Toluene	0.8 U	19.19	23.06	15.29	17.94	120	117	80-120	25	30	
4	1,2,3-Trichlorobenzene	0.8 U	19.19	6.01	15.29	4.35	31*	28*	44-155	32*	30	10
4	1,2,4-Trichlorobenzene	0.8 U	19.19	6.02	15.29	4.70	31*	31*	56-130	25	30	
	1,1,1-Trichloroethane	0.8 U	19.19	19.33	15.29	16.94	101	111	69-123	13	30	
	1,1,2-Trichloroethane	0.8 U	19.19	25.81	15.29	19.49	134*	127*	80-120	28	30	
	Trichloroethene	0.8 U	19.19	19.15	15.29	16.29	100	107	80-120	16	30	
	Trichlorofluoromethane	2 U	19.19	20.81	15.29	17.79	108	116	55-134	16	30	
	Vinyl Chloride	0.8 U	19.19	22.2	15.29	18.18	116	119	59-120	20	30	
	m+p-Xylene	0.8 U	38.39	35.13	30.58	29.4	92	96	80-120	18	30	
	o-Xylene	0.8 U	19.19	15.67	15.29	13.42	82	88	75-120	15	30	
	Batch number: X181061AA	Sample number(s): 9546286 UNSPK: P546186										
	Acetone	7.25	110.46	114.54			97		55-131			Batch QC.
	Benzene	0.4 U	14.73	16.52			112		80-120			Applies to
	Bromochloromethane	0.7 U	14.73	16.43			112		80-120			parent only.
	Bromodichloromethane	0.7 U	14.73	15.62			106		70-120			
	Bromoform	0.7 U	14.73	15.48			105		51-127			
	Bromomethane	1 U	14.73	12.79			87		50-136			
	2-Butanone	3 U	110.46	102.28			93		57-128			
	Carbon Disulfide	0.7 U	14.73	19.57			133		64-133			
	Carbon Tetrachloride	0.7 U	14.73	16.96			115		64-134			
	Chlorobenzene	0.7 U	14.73	15			102		80-120			
	Chloroethane	1 U	14.73	12.65			86		50-131			
	Chloroform	0.7 U	14.73	16.37			111		80-120			

2. MS %R high, parent ND. No impact.
3. MS and MSD %R high, parent ND. No impact.
4. MS and MSD %R low, parent ND. Qualify UJ.

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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Chloromethane	1 U	14.73	14.88			101		56-120		
Cyclohexane	0.7 U	14.73	16.39			111		58-126		
1,2-Dibromo-3-chloropropane	1 U	14.73	18.31			124		36-144		
Dibromochloromethane	0.7 U	14.73	16.64			113		65-120		
1,2-Dibromoethane	0.7 U	14.73	16.8			114		74-120		
1,2-Dichlorobenzene	0.7 U	14.73	12.94			88		80-120		
1,3-Dichlorobenzene	0.7 U	14.73	12.51			85		80-120		
1,4-Dichlorobenzene	0.7 U	14.73	12.45			85		80-120		
Dichlorodifluoromethane	1 U	14.73	14.64			99		16-136		
1,1-Dichloroethane	0.7 U	14.73	16.45			112		77-120		
1,2-Dichloroethane	0.7 U	14.73	15.87			108		71-128		
1,1-Dichloroethene	0.7 U	14.73	20.19			137*		73-129		
cis-1,2-Dichloroethene	0.7 U	14.73	16.94			115		80-120		
trans-1,2-Dichloroethene	0.7 U	14.73	17.98			122		80-125		
1,2-Dichloropropane	0.7 U	14.73	16.12			109		76-120		
cis-1,3-Dichloropropene	0.7 U	14.73	14.37			98		66-120		
trans-1,3-Dichloropropene	0.7 U	14.73	15.15			103		63-124		
Ethylbenzene	0.7 U	14.73	14.63			99		74-120		
Freon 113	1 U	14.73	19.44			132		64-135		
2-Hexanone	2 U	73.64	106.94			145*		54-140		
Isopropylbenzene	0.7 U	14.73	13.83			94		69-123		
Methyl Acetate	1 U	14.73	16.78			114		59-134		
Methyl Tertiary Butyl Ether	0.4 U	14.73	15.63			106		66-123		
4-Methyl-2-pentanone	2 U	73.64	102.01			139*		61-135		
Methylcyclohexane	0.7 U	14.73	15.68			106		61-124		
Methylene Chloride	1 U	14.73	17.13			116		76-122		
Styrene	0.7 U	14.73	13.35			91		76-120		
1,1,2,2-Tetrachloroethane	0.7 U	14.73	18.25			124		61-131		
Tetrachloroethene	0.7 U	14.73	15.4			105		73-120		
Toluene	0.7 U	14.73	16.14			110		80-120		
1,2,3-Trichlorobenzene	0.7 U	14.73	11.25			76		44-155		
1,2,4-Trichlorobenzene	0.7 U	14.73	10.25			70		56-130		
1,1,1-Trichloroethane	0.7 U	14.73	18.59			126*		69-123		
1,1,2-Trichloroethane	0.7 U	14.73	17.69			120		80-120		
Trichloroethene	0.7 U	14.73	15.9			108		80-120		
Trichlorofluoromethane	1 U	14.73	16.62			113		55-134		
Vinyl Chloride	0.7 U	14.73	16.17			110		59-120		
m+p-Xylene	0.7 U	29.46	28.87			98		80-120		
o-Xylene	0.7 U	14.73	13.52			92		75-120		
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: L181051AA	Sample number(s): 9546287,9546289 UNSPK: P547954					Batch QC for field blanks. Not eval.				
Acetone	6 U	150	150.65	150	137.93	100	92	54-157	9	30

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P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Benzene	0.5 U	20	21.53	20	21.64	108	108	80-120	0	30
Bromochloromethane	1 U	20	20.91	20	21.12	105	106	80-120	1	30
Bromodichloromethane	0.5 U	20	21.04	20	21.54	105	108	71-120	2	30
Bromoform	0.5 U	20	17.63	20	17.38	88	87	59-120	1	30
Bromomethane	0.5 U	20	20.21	20	20.09	101	100	58-130	1	30
2-Butanone	3 U	150	149.08	150	150.02	99	100	59-135	1	30
Carbon Disulfide	1 U	20	21.29	20	21.4	106	107	65-128	1	30
Carbon Tetrachloride	0.5 U	20	24.36	20	24.44	122	122	64-134	0	30
Chlorobenzene	0.5 U	20	19.44	20	19.85	97	99	80-120	2	30
Chloroethane	0.5 U	20	19.33	20	18.82	97	94	61-123	3	30
Chloroform	0.5 U	20	22.13	20	22.64	111	113	80-120	2	30
Chloromethane	0.5 U	20	17.16	20	17.31	86	87	63-120	1	30
Cyclohexane	2 U	20	23.82	20	24.15	119	121	67-121	1	30
1,2-Dibromo-3-chloropropane	2 U	20	19.46	20	19.33	97	97	53-128	1	30
Dibromochloromethane	0.5 U	20	19.99	20	19.79	100	99	71-120	1	30
1,2-Dibromoethane	0.5 U	20	20.24	20	20.3	101	102	75-120	0	30
1,2-Dichlorobenzene	1 U	20	19.9	20	20.34	99	102	80-120	2	30
1,3-Dichlorobenzene	1 U	20	20.38	20	20.47	102	102	80-120	0	30
1,4-Dichlorobenzene	1 U	20	20.2	20	20.62	101	103	80-120	2	30
Dichlorodifluoromethane	0.5 U	20	21.58	20	20.96	108	105	47-124	3	30
1,1-Dichloroethane	0.5 U	20	21.33	20	21.81	107	109	80-120	2	30
1,2-Dichloroethane	0.5 U	20	21.49	20	22.05	107	110	73-124	3	30
1,1-Dichloroethene	0.5 U	20	24.99	20	24.8	125	124	80-131	1	30
cis-1,2-Dichloroethene	0.5 U	20	22.31	20	22.23	112	111	80-120	0	30
trans-1,2-Dichloroethene	0.5 U	20	22.65	20	23.09	113	115	80-120	2	30
1,2-Dichloropropane	0.5 U	20	20.39	20	20.84	102	104	80-120	2	30
cis-1,3-Dichloropropene	0.5 U	20	20.32	20	20.56	102	103	75-120	1	30
trans-1,3-Dichloropropene	0.5 U	20	19.67	20	19.99	98	100	76-120	2	30
Ethylbenzene	0.5 U	20	21.38	20	21.57	107	108	80-120	1	30
Freon 113	2 U	20	26.02	20	26.7	130	134	68-137	3	30
2-Hexanone	3 U	100	95.54	100	95.06	96	95	50-141	0	30
Isopropylbenzene	1 U	20	21.93	20	22.13	110	111	80-120	1	30
Methyl Acetate	1 U	20	19.07	20	19.2	95	96	64-130	1	30
Methyl Tertiary Butyl Ether	0.5 U	20	20.06	20	20.6	100	103	75-120	3	30
4-Methyl-2-pentanone	3 U	100	96.83	100	98.01	97	98	62-133	1	30
Methylcyclohexane	1 U	20	25.06	20	25.34	125*	127*	67-121	1	30
Methylene Chloride	0.5 U	20	21.34	20	21.31	107	107	80-120	0	30
Styrene	1 U	20	21.26	20	21.38	106	107	80-120	1	30
1,1,2,2-Tetrachloroethane	0.5 U	20	18.31	20	18.2	92	91	72-120	1	30
Tetrachloroethene	0.5 U	20	22.38	20	22.28	112	111	80-120	0	30
Toluene	0.5 U	20	21.21	20	21.32	106	107	80-120	1	30
1,2,3-Trichlorobenzene	1 U	20	18.74	20	19.74	94	99	66-120	5	30
1,2,4-Trichlorobenzene	1 U	20	18.98	20	19.83	95	99	70-120	4	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,1,1-Trichloroethane	0.5 U	20	22.47	20	22.8	112	114	67-126	1	30
1,1,2-Trichloroethane	0.5 U	20	19.88	20	20.21	99	101	80-120	2	30
Trichloroethene	0.5 U	20	21.9	20	22.04	109	110	80-120	1	30
Trichlorofluoromethane	0.5 U	20	22.82	20	23.44	114	117	60-136	3	30
Vinyl Chloride	0.5 U	20	18.73	20	18.78	94	94	68-120	0	30
m+p-Xylene	0.5 U	40	42.76	40	42.96	107	107	80-120	0	30
o-Xylene	0.5 U	20	20.92	20	20.87	105	104	80-120	0	30
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	✓	✓		✓	
Batch number: 18099SLA026	Sample number(s): 9546280-9546283,9546285-9546286 UNSPK: 9546281									
Acenaphthene	16 U	1654.53	1704.78	1655.08	1568.78	103	95	78-119	8	30
Acenaphthylene	16 U	1654.53	1848.35	1655.08	1711.64	112	103	45-149	8	30
Acetophenone	82 U	1654.53	1676.93	1655.08	1553.42	101	94	68-115	8	30
Anthracene	28.58	1654.53	1705.12	1655.08	1545.18	101	92	82-113	10	30
Atrazine	160 U	1654.53	1792.01	1655.08	1729.98	108	105	58-126	4	30
Benzaldehyde	330 U	1654.53	1818.09	1655.08	1845.05	110	111	18-123	1	30
Benzo(a)anthracene	100.07	1654.53	1665.18	1655.08	1529.42	95	86	76-119	8	30
Benzo(a)pyrene	136.47	1654.53	1820.33	1655.08	1638.24	102	91	77-112	11	30
Benzo(b)fluoranthene	202.03	1654.53	2046.19	1655.08	1787.75	111	96	78-120	13	30
Benzo(g,h,i)perylene	116.87	1654.53 ✓	1752.22	1655.08 ✓	1688.82 ✓	99 ✓	95 ✓	76-111 ✓	4	30
Benzo(k)fluoranthene	69.03	1654.53	1627.79	1655.08	1509.96	94	87	78-119	8	30
1,1'-Biphenyl	82 U	1654.53	1684.13	1655.08	1604.66	102	97	78-115	5	30
4-Bromophenyl-phenylether	82 U	1654.53	1550.43	1655.08	1515.89	94	92	81-116	2	30
Butylbenzylphthalate	330 U	1654.53	1828.76	1655.08	1558.65	111	94	81-118	16	30
Di-n-butylphthalate	330 U	1654.53	1676.3	1655.08	1547.39	101	93	77-121	8	30
Caprolactam	160 U	1654.53	1687.28	1655.08	1530.53	102	92	63-121	10	30
Carbazole	82 U	1654.53	1696.13	1655.08	1599.41	103	97	74-118	6	30
4-Chloro-3-methylphenol	82 U	1654.53	1696.97	1655.08	1524.25	103	92	70-128	11	30
4-Chloroaniline	160 U	1654.53	1170.55	1655.08	1029.06	71	62	10-117	13	30
bis(2-Chloroethoxy)methane	82 U	1654.53	1630.68	1655.08	1567.56	99	95	72-117	4	30
bis(2-Chloroethyl)ether	82 U	1654.53	1684.25	1655.08	1591.54	102	96	68-115	6	30
2-Chloronaphthalene	33 U	1654.53	1828.17	1655.08	1397.06	110	84	51-150	27	30
2-Chlorophenol	82 U	1654.53 ✓	1676.92	1655.08 ✓	1591.85 ✓	101 ✓	96 ✓	75-124 ✓	5	30
4-Chlorophenyl-phenylether	82 U	1654.53	1520.91	1655.08	1432.05	92	87	79-112	6	30
2,2'-oxybis(1-Chloropropane)	82 U	1654.53	1684.04	1655.08	1603.29	102	97	61-120	5	30
Chrysene	131.03	1654.53	1706.83	1655.08	1492.9	95	82	78-115	13	30
Dibenz(a,h)anthracene	39.14	1654.53	1700.13	1655.08	1593.8	100	94	79-117	6	30
Dibenzofuran	82 U	1654.53	1607.25	1655.08	1502.09	97	91	79-114	7	30
3,3'-Dichlorobenzidine	490 U	1654.53	1183.33	1655.08	1141.25	72	69	33-117	4	30
2,4-Dichlorophenol	82 U	1654.53	1671.81	1655.08	1546.14	101	93	79-125	8	30
Diethylphthalate	330 U	1654.53	1579.46	1655.08	1483.79	95	90	74-120	6	30
2,4-Dimethylphenol	82 U	1654.53 ✓	1551.24	1655.08 ✓	1519.22 ✓	94 ✓	92 ✓	56-107 ✓	2	30
Dimethylphthalate	330 U	1654.53	1582.08	1655.08	1514.68	96	92	77-116	4	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

	Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	4,6-Dinitro-2-methylphenol	820 U	1654.53	1288.52	1655.08	1204.2	78	73	73-127	7	30
2.	2,4-Dinitrophenol	1,500 U	3309.07	1745.79	3310.16	1632.56	53	49*	51-139	7	30
	2,4-Dinitrotoluene	330 U	1654.53	1559.95	1655.08	1456.06	94	88	78-123	7	30
	2,6-Dinitrotoluene	82 U	1654.53	1651.82	1655.08	1548.91	100	94	80-120	6	30
	1,4-Dioxane	490 U	1654.53	844.56	1655.08	831.52	51	50	37-87	2	30
3.	bis(2-Ethylhexyl)phthalate	330 U	1654.53	1886.12	1655.08	1990.31	114	120*	78-118	5	30
	Fluoranthene	264.74	1654.53	2076.46	1655.08	1723.52	110	88	76-115	19	30
	Fluorene	16 U	1654.53	1620.52	1655.08	1462.77	98	88	80-112	10	30
	Hexachlorobenzene	16 U	1654.53	1462.5	1655.08	1485.82	88	90	77-114	2	30
	Hexachlorobutadiene	82 U	1654.53	1528.64	1655.08	1488.08	92	90	75-115	3	30
1.	Hexachlorocyclopentadiene	820 U	3309.07	830 U	3310.16	830 U	0*	0*	10-172	0	30
	Hexachloroethane	160 U	1654.53	1284.93	1655.08	1476.61	78	89	72-111	14	30
	Indeno(1,2,3-cd)pyrene	92.05	1654.53	1696.69	1655.08	1613.11	97	92	78-113	5	30
	Isophorone	82 U	1654.53	1699.09	1655.08	1653.59	103	100	65-120	3	30
	2-Methylnaphthalene	16 U	1654.53	1598.84	1655.08	1327.26	97	80	77-116	19	30
	2-Methylphenol	82 U	1654.53	1810.24	1655.08	1669.99	109	101	74-128	8	30
	4-Methylphenol	82 U	1654.53	1691.35	1655.08	1602.14	102	97	66-121	5	30
	Naphthalene	16 U	1654.53	1575.97	1655.08	1523.21	95	92	81-111	3	30
	2-Nitroaniline	82 U	1654.53	1785.07	1655.08	1656.32	108	100	81-126	7	30
	3-Nitroaniline	330 U	1654.53	1579.51	1655.08	1354.49	95	82	68-124	15	30
	4-Nitroaniline	330 U	1654.53	1430.44	1655.08	1299.35	86	79	50-112	10	30
	Nitrobenzene	82 U	1654.53	1706.43	1655.08	1653.26	103	100	70-122	3	30
	2-Nitrophenol	82 U	1654.53	1669.48	1655.08	1589.25	101	96	77-129	5	30
	4-Nitrophenol	820 U	1654.53	1473	1655.08	1256.55	89	76	44-131	16	30
	N-Nitroso-di-n-propylamine	82 U	1654.53	1700.67	1655.08	1609.98	103	97	60-123	5	30
	N-Nitrosodiphenylamine	82 U	1654.53	1736.93	1655.08	1606.32	105	97	83-118	8	30
	Di-n-octylphthalate	330 U	1654.53	2017.45	1655.08	1812.35	122	110	81-134	11	30
	Pentachlorophenol	160 U	1654.53	964.31	1655.08	899.34	58	54	54-131	7	30
	Phenanthrene	133.55	1654.53	1927.81	1655.08	1653.62	108	92	81-109	15	30
	Phenol	82 U	1654.53	1740.84	1655.08	1616.93	105	98	68-123	7	30
	Pyrene	229.08	1654.53	1979.01	1655.08	1664.68	106	87	80-107	17	30
	1,2,4,5-Tetrachlorobenzene	82 U	1654.53	1613.02	1655.08	1542.82	97	93	76-116	4	30
2.	2,3,4,6-Tetrachlorophenol	330 U	1654.53	1314.77	1655.08	1129.06	79	68*	73-127	15	30
	2,4,5-Trichlorophenol	82 U	1654.53	1575.63	1655.08	1492.18	95	90	84-122	5	30
	2,4,6-Trichlorophenol	82 U	1654.53	1525.13	1655.08	1381.48	92	83	81-123	10	30
		ug/l	ug/l	ug/l	ug/l	ug/l					
	Batch number: 18099WAI026	Sample number(s): 9546287 UNSPK: P547954					Batch QC for field blanks. Not eval.				
	Acenaphthene	0.1 U	51.23	49.21	52.52	47.39	96	90	49-123	4	30
	Acenaphthylene	0.1 U	51.23	52.86	52.52	51.4	103	98	67-111	3	30
	Acetophenone	0.5 U	51.23	48.31	52.52	45.88	94	87	53-118	5	30
	Anthracene	0.1 U	51.23	49.03	52.52	48.27	96	92	55-126	2	30
	Atrazine	2 U	51.23	51.34	52.52	51.22	100	98	65-126	0	30

1. MS and MS %R <10%. Parent ND. Qualify R, MAL.
2. MS/MSD %R low. Parent ND. Qualify UJ, MAL.
3. MS/MSD %R high. Parent ND. No impact.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l		MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Benzaldehyde	1	U	51.23	42.45	52.52	40.01	83	76	49-110	6	30
Benzo(a)anthracene	0.1	U	51.23	48.93	52.52	47.13	96	90	63-124	4	30
Benzo(a)pyrene	0.1	U	51.23	49.82	52.52	48.27	97	92	50-128	3	30
Benzo(b)fluoranthene	0.1	U	51.23	48.39	52.52	47.74	94	91	58-127	1	30
Benzo(g,h,i)perylene	0.1	U	51.23	46.93	52.52	45.37	92	86	51-124	3	30
Benzo(k)fluoranthene	0.1	U	51.23	49.68	52.52	48.89	97	93	63-123	2	30
1,1'-Biphenyl	0.5	U	51.23	47.34	52.52	46.04	92	88	45-118	3	30
4-Bromophenyl-phenylether	0.5	U	51.23	46.31	52.52	44.71	90	85	53-127	4	30
Butylbenzylphthalate	2	U	51.23	46.06	52.52	44.48	90	85	40-131	3	30
Di-n-butylphthalate	2	U	51.23	48.51	52.52	47.85	95	91	58-119	1	30
Caprolactam	5	U	51.23	12.43	52.52	13.25	24	25	13-37	6	30
Carbazole	0.5	U	51.23	53.23	52.52	51.57	104	98	65-123	3	30
4-Chloro-3-methylphenol	0.5	U	51.23	49.75	52.52	47.83	97	91	50-130	4	30
4-Chloroaniline	2	U	51.23	40.78	52.52	38.49	80	73	33-106	6	30
bis(2-Chloroethoxy)methane	0.5	U	51.23	47.72	52.52	46.28	93	88	54-127	3	30
bis(2-Chloroethyl)ether	0.5	U	51.23	43.88	52.52	42.54	86	81	48-119	3	30
2-Chloronaphthalene	0.4	U	51.23	44.45	52.52	43.43	87	83	41-123	2	30
2-Chlorophenol	0.5	U	51.23	43.81	52.52	43.27	86	82	47-116	1	30
4-Chlorophenyl-phenylether	0.5	U	51.23	45.14	52.52	43.46	88	83	45-124	4	30
2,2'-oxybis(1-Chloropropane)	0.5	U	51.23	44.25	52.52	41.82	86	80	40-117	6	30
Chrysene	0.1	U	51.23	48.1	52.52	47.06	94	90	65-124	2	30
Dibenz(a,h)anthracene	0.1	U	51.23	49.45	52.52	48.19	97	92	53-132	3	30
Dibenzofuran	0.5	U	51.23	47.68	52.52	46.58	93	89	50-124	2	30
3,3'-Dichlorobenzidine	2	U	51.23	36.51	52.52	35.78	71	68	32-106	2	30
2,4-Dichlorophenol	0.5	U	51.23	49.06	52.52	46.83	96	89	53-126	5	30
Diethylphthalate	2	U	51.23	46.16	52.52	44.75	90	85	42-124	3	30
2,4-Dimethylphenol	0.5	U	51.23	44.17	52.52	42.54	86	81	41-103	4	30
Dimethylphthalate	2	U	51.23	42.92	52.52	41.2	84	78	19-119	4	30
4,6-Dinitro-2-methylphenol	5	U	51.23	47.3	52.52	40.64	92	77	50-132	15	30
2,4-Dinitrophenol	10	U	102.46	82.39	105.04	62.75	80	60	19-140	27	30
2,4-Dinitrotoluene	1	U	51.23	47.67	52.52	45.4	93	86	56-128	5	30
2,6-Dinitrotoluene	0.5	U	51.23	49.81	52.52	47.44	97	90	57-131	5	30
1,4-Dioxane	1	U	51.23	19.56	52.52	19.25	38	37	18-67	2	30
bis(2-Ethylhexyl)phthalate	2	U	51.23	48.1	52.52	46.65	94	89	52-132	3	30
Fluoranthene	0.1	U	51.23	50.09	52.52	49.51	98	94	61-123	1	30
Fluorene	0.1	U	51.23	47.89	52.52	46.58	93	89	48-124	3	30
Hexachlorobenzene	0.1	U	51.23	46.48	52.52	44.91	91	86	57-123	3	30
Hexachlorobutadiene	0.5	U	51.23	31.21	52.52	33.22	61	63	16-119	6	30
Hexachlorocyclopentadiene	5	U	102.46	62.87	105.04	61.59	61	59	10-104	2	30
Hexachloroethane	1	U	51.23	28.68	52.52	29.81	56	57	19-105	4	30
Indeno(1,2,3-cd)pyrene	0.1	U	51.23	46.64	52.52	56.61	91	108	52-127	19	30
Isophorone	0.5	U	51.23	49.23	52.52	47.39	96	90	49-129	4	30
2-Methylnaphthalene	0.1	U	51.23	44.67	52.52	43.33	87	83	42-120	3	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
2-Methylphenol	0.5 U	51.23	43.53	52.52	43.28	85	82	46-113	1	30
4-Methylphenol	0.5 U	51.23	42.32	52.52	42.05	83	80	42-115	1	30
Naphthalene	0.1 U	51.23	44.51	52.52	42.78	87	81	44-114	4	30
2-Nitroaniline	0.5 U	51.23	49.94	52.52	47.47	97	90	54-133	5	30
3-Nitroaniline	0.5 U	51.23	46.64	52.52	46.27	91	88	41-123	1	30
4-Nitroaniline	0.5 U	51.23	42.9	52.52	43.18	84	82	46-114	1	30
Nitrobenzene	0.5 U	51.23	45.68	52.52	43.5	89	83	43-128	5	30
2-Nitrophenol	0.5 U	51.23	47.98	52.52	44.14	94	84	58-125	8	30
4-Nitrophenol	10 U	51.23	27.89	52.52	28.41	54	54	10-96	2	30
N-Nitroso-di-n-propylamine	0.5 U	51.23	46.9	52.52	45.17	92	86	48-128	4	30
N-Nitrosodiphenylamine	0.5 U	51.23	49.65	52.52	48.56	97	92	55-128	2	30
Di-n-octylphthalate	2 U	51.23	48.87	52.52	48.37	95	92	51-134	1	30
Pentachlorophenol	1 U	51.23	44.34	52.52	46.38	87	88	50-127	4	30
Phenanthrene	0.1 U	51.23	49.18	52.52	47.88	96	91	54-122	3	30
Phenol	0.5 U	51.23	26.63	52.52	27.83	52	53	10-92	4	30
Pyrene	0.1 U	51.23	47.29	52.52	45.84	92	87	54-123	3	30
1,2,4,5-Tetrachlorobenzene	0.5 U	51.23	38.9	52.52	38.84	76	74	30-117	0	30
2,3,4,6-Tetrachlorophenol	0.5 U	51.23	48.97	52.52	49.54	96	94	60-128	1	30
2,4,5-Trichlorophenol	0.5 U	51.23	52.62	52.52	50.59	103	96	59-129	4	30
2,4,6-Trichlorophenol	0.5 U	51.23	50.27	52.52	48.54	98	92	61-130	3	30
	ng/g	**ng/g**	**ng/g**	**ng/g**	**ng/g**					
Batch number: 18099003	Sample number(s): 9546280-9546283,9546285-9546286 UNSPK: 9546281									
Perfluorobutanesulfonate	0.18 U	0.940	0.790	0.955	0.853	84	89	70-130	8	30
Perfluorobutanoic acid	0.18 U	1.06	1.11	1.08	1.08	105	100	70-130	3	30
Perfluorodecanoic acid	0.18 U	1.06	1.01	1.08	0.934	95	87	70-130	8	30
Perfluorododecanoic acid	0.417	1.06	1.51	1.08	1.42	103	93	70-130	6	30
Perfluoroheptanoic acid	0.18 U	1.06	1.06	1.08	1.12	100	104	70-130	5	30
Perfluorohexanesulfonate	0.18 U	1.01	0.915	1.02	0.922	91	90	70-130	1	30
Perfluorohexanoic acid	0.18 U	1.06	0.952	1.08	1.11	90	103	70-130	15	30
Perfluorononanoic acid	0.18 U	1.06	0.992	1.08	1.09	93	101	70-130	10	30
Perfluoro-octanesulfonate	0.26 U	1.02	0.999	1.03	0.949	98	92	70-130	5	30
1. Perfluorooctanoic acid >4x spike	4.47	1.06	3.61	1.08	6.72	-80 (2)	209 (2)	70-130	60*	30
Perfluoropentanoic acid	0.18 U	1.06	0.991	1.08	1.06	93	98	70-130	7	30
Perfluorotetradecanoic acid	0.468	1.06	1.58	1.08	1.77	105	121	70-130	11	30
Perfluorotridecanoic acid	0.243	1.06	1.41	1.08	1.32	110	100	70-130	7	30
Perfluoroundecanoic acid	0.18 U	1.06	1.04	1.08	1.02	98	94	70-130	2	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 180991063702	Sample number(s): 9546280-9546286 UNSPK: 9546281					See Inorganic support doc				
Aluminum >4x spike	1202.34	198.02	3422.12	190.48	3527.98	1121 (2)	1221 (2)	75-125	3	20

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

1. High RPD, parent detect. Qualify J.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	%	%		
Moisture	14.2	13.91	2	5
Moisture Duplicate	14.2	13.91	2	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SOM02.2 Volatiles
Batch number: L181051AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9546287	103	100	96	100
9546289	103	99	96	100
Blank	✓ 101	✓ 100	✓ 97	99
LCS	103	98	98	✓ 101
MS	104	99	98	100
MSD	103	101	98	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: SOM02.2 Volatiles
Batch number: R180982AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9546285	70	72	69	71
Blank	✓ 94	✓ 95	✓ 89	✓ 91
LCS	✓ 97	98	90	90
LCSD	103	106	102	101
Limits:	50-141	54-135	52-141	50-131

Analysis Name: SOM02.2 Volatiles
Batch number: X181051AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9546280	100	110	104	88
9546281	✓ 102	✓ 113	✓ 115	✓ 77
9546282	✓ 96	107	✓ 117	84
9546283	✓ 98	109	✓ 112	87
Blank	99	102	104	95
LCS	99	100	105	101
LCSD	98	100	105	100
MS	96	107	117	84
MSD	98	109	112	87

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SOM02.2 Volatiles
Batch number: X181051AA

Limits:	50-141	54-135	52-141	50-131

Analysis Name: SOM02.2 Volatiles
Batch number: X181061AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9546286	98	109	100	96
Blank	102	104	103	94
LCS	100	101	105	100
LCSD	101	103	105	100
MS	102	111	103	101
Limits:	50-141	54-135	52-141	50-131

Analysis Name: TCL Semivolatiles
Batch number: 18099SLA026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
9546280	91	89	73	90	86	83
9546281	79	77	47	73	68	62
9546282	98	96	71	96	93	87
9546283	91	91	63	93	88	82
9546285	94	93	53	96	87	80
9546286	90	91	69	92	88	82
Blank	90	93	90	95	87	90
LCS	99	97	87	96	90	88
MS	98	96	71	96	93	87
MSD	91	91	63	93	88	82
Limits:	46-125	51-123	27-137	49-118	57-116	55-118

Analysis Name: TCL Semivolatiles
Batch number: 18099WAI026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
9546287	28	39	84	73	77	86
Blank	32	42	87	73	75	94
LCS	44	57	94	86	86	92
MS	46	57	89	84	84	82
MSD	48	59	86	77	78	79
Limits:	10-71	10-82	21-134	30-111	39-105	27-116

Analysis Name: 14 PFAS Compounds
Batch number: 18098004

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFAS Compounds
Batch number: 18098004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9546287	86	84	79	90	84	84
9546288	88	88	83	95	85	91
9546289	87	85	81	90	86	84
Blank	90	90	87	92	90	90
LCS	82	79	76	85	85	84
LCSD	82	80	79	84	80	85
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9546287	88	77	87	81	82	85
9546288	89	83	89	78	94	85
9546289	86	82	93	96	88	94
Blank	88	86	86	83	92	89
LCS	85	80	80	74	88	80
LCSD	83	76	80	87	97	84
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9546287	85
9546288	89
9546289	84
Blank	86
LCS	83
LCSD	83
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 18099003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9546280	85	85	85	86	88	91
9546281	79	79	77	75	81	85
9546282	105	108	111	101	101	103
9546283	94	97	90	96	92	96
9546285	86	84	88	109	107	110
9546286	88	87	83	79	79	81
Blank	80	85	85	93	88	89
LCS	87	83	77	83	87	85
MS	105	108	111	101	101	103
MSD	94	97	90	96	92	96

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18099003

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
Limits:	37-107	70-130	34-118	43-115	32-125	45-114
9546280	84	84	92	91	✓ 103	103
9546281	76	✓ 82	80	80	✓ 99	77
9546282	107	108	✓ 128*	111	117	✓ 99
9546283	✓ 96	88	82	89	102	✓ 85
9546285	76	77	86	83	102	88
9546286	86	86	✓ 92	80	95	86
Blank	85	80	74	88	92	84
LCS	85	82	82	87	86	88
MS	107	108	128*	111	✓ 117	99
MSD	96	88	82	89	102	✓ 85
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9546280	95
9546281	78
9546282	98
9546283	✓ 83
9546285	80
9546286	78
Blank	81
LCS	87
MS	98
MSD	83
Limits:	20-127

High %R in MS. Does not impact sample results.

NA, not from DL → see Form 2

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

ICAL for samples 280, 281, and 286.

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: xf23t10.d BFB Injection Date: 02/23/18

Instrument ID: HP09193 BFB Injection Time: 19:29

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.37
75	30.0 - 60.0% of mass 95	47.52
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.57
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	87.04
175	5.0 - 9.0% of mass 174	6.28 (7.21)1
176	Greater than 95.0%, but less than 101.0% of mass 174	83.97 (96.48)1
177	5.0 - 9.0% of mass 176	5.40 (6.43)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD300	xf23i51.d	02/23/18	20:09
02	VSTD100	xf23i52.d	02/23/18	20:33
03	VSTD50	xf23i53.d	02/23/18	20:57
04	VSTD20	xf23i54.d	02/23/18	21:21
05	VSTD10	xf23i55.d	02/23/18	21:51
06	VSTD4	xf23i56.d	02/23/18	22:18
07	VSTD1	xf23i57.d	02/23/18	22:41
08	0.5MDL - VSTD0.5	xf23m50.d	02/23/18	23:11
09	LCSXICV	xf23v50.d	02/23/18	23:34

< 12 hours

FORM V VOA

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Full validation for sample 281

RRF > method minimum, RSD <20%.

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date(s): 02/23/18 02/23/18

Heated Purge: (Y/N) Y Calibration Times: 20:09 22:41

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF 1 = xf23i57.d RRF 4 = xf23i56.d RRF 10= xf23i55.d
RRF 20= xf23i54.d RRF 50= xf23i53.d RRF100= xf23i52.d RRF300= xf23i51.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD	
Dichlorodifluoromethane	#0.2587	0.3760	0.4275	0.3850	0.4883	0.4130	0.3583	0.3867	18	AVG	#
Chloromethane	#0.3409	0.3597	0.3736	0.3284	0.4161	0.3645	0.3182	0.3573	9	AVG	#
Vinyl Chloride	#0.2830	0.3556	0.3815	0.3357	0.4272	0.3703	0.3129	0.3523	13	AVG	#
Bromomethane	#0.2558	0.2776	0.2971	0.2608	0.3320	0.2805	0.2107	0.2735	14	AVG	#
Chloroethane	#0.1613	0.1956	0.2159	0.1924	0.2487	0.2091	0.1706	0.1991	15	AVG	#
Dichlorofluoromethane	0.5039	0.5235	0.5748	0.4700	0.5611	0.5377	0.4513	0.5175	9	AVG	
Trichlorofluoromethane	#0.3542	0.4700	0.5159	0.4699	0.5893	0.5003	0.4344	0.4763	15	AVG	#
Ethanol	0.2010	0.1373	0.1397	0.1302	0.1256	0.1153	0.1392	0.1412	20	AVG	
Freon 123a	0.2863	0.3008	0.3241	0.2880	0.3100	0.2562	0.2533	0.2884	9	AVG	
Acrolein	2.2497	1.8013	2.1566	1.7104	1.8821	1.8225	1.9448	1.9382	10	AVG	
1,1-Dichloroethene	#0.1621	0.2064	0.2188	0.2049	0.2228	0.1937	0.1945	0.2004	10	AVG	#
Acetone	#0.8122	0.8834	0.9353	0.7601	0.8731	0.8196	0.8448	0.8469	7	AVG	#
Freon 113	#0.1531	0.2314	0.2482	0.2299	0.2516	0.2087	0.2111	0.2191	15	AVG	#
2-Propanol	0.7149	0.6775	0.7857	0.6887	0.7513	0.7493	0.7390	0.7295	5	AVG	
Methyl Iodide	0.3261	0.4173	0.4465	0.4156	0.4564	0.4239	0.4014	0.4124	10	AVG	
Carbon Disulfide	#0.5187	0.6619	0.7112	0.6659	0.7389	0.6564	0.6453	0.6569	11	AVG	#
Methyl Acetate	#0.1954	0.1728	0.1733	0.1397	0.1656	0.1604	0.1494	0.1652	11	AVG	#
Allyl Chloride	0.4074	0.3608	0.3608	0.3223	0.3621	0.3424	0.3246	0.3544	8	AVG	
Methylene Chloride	#0.2479	0.2502	0.2691	0.2472	0.2699	0.2600	0.2418	0.2551	4	AVG	#
t-Butyl alcohol	1.2087	1.1685	1.3359	1.1642	1.3316	1.3209	1.3025	1.2617	6	AVG	
Acrylonitrile	0.0622	0.0775	0.0885	0.0759	0.0876	0.0799	0.0773	0.0784	11	AVG	NT
Methyl Tertiary Butyl Ether	#0.6439	0.6975	0.7697	0.7224	0.8058	0.7845	0.7262	0.7357	8	AVG	#
trans-1,2-Dichloroethene	#0.1887	0.2462	0.2625	0.2462	0.2686	0.2463	0.2426	0.2430	11	AVG	#
n-Hexane	0.3447	0.3853	0.4011	0.3725	0.4019	0.3404	0.3296	0.3679	8	AVG	
1,1-Dichloroethane	#0.3422	0.4092	0.4476	0.4165	0.4533	0.4235	0.4063	0.4141	9	AVG	#
di-Isopropyl ether	0.6483	0.6891	0.7643	0.7118	0.7805	0.7582	0.7084	0.7229	7	AVG	
2-Chloro-1,3-butadiene	0.2800	0.3657	0.3924	0.3668	0.4057	0.3564	0.3543	0.3602	11	AVG	
Ethyl t-butyl ether	0.6523	0.7163	0.7927	0.7411	0.8157	0.7966	0.7348	0.7499	8	AVG	
2-Butanone	#4.9421	4.1102	4.7160	3.9099	4.3680	4.1377	4.3085	4.3561	8	AVG	#
cis-1,2-Dichloroethene	#0.2299	0.2746	0.2996	0.2771	0.3078	0.2937	0.2841	0.2809	9	AVG	#
2,2-Dichloropropane	0.3064	0.3780	0.4042	0.3817	0.4153	0.3786	0.3747	0.3770	9	AVG	
Propionitrile	1.1961	1.2096	1.3569	1.2115	1.3759	1.4061	1.3954	1.3074	7	AVG	
Methacrylonitrile	0.0902	0.0957	0.1041	0.0958	0.1101	0.1070	0.0993	0.1003	7	AVG	
Bromochloromethane	0.1122	0.1316	0.1461	0.1328	0.1553	0.1526	0.1436	0.1392	11	AVG	
Tetrahydrofuran	1.2248	1.2078	1.3722	1.1326	1.3206	1.2518	1.3108	1.2601	6	AVG	
Chloroform	#0.3772	0.4283	0.4674	0.4374	0.4789	0.4549	0.4313	0.4393	8	AVG	#
1,1,1-Trichloroethane	#0.3070	0.4042	0.4326	0.4000	0.4318	0.3859	0.3804	0.3917	11	AVG	#
Cyclohexane	#0.3543	0.4388	0.4592	0.4193	0.4526	0.3830	0.3846	0.4131	10	AVG	#
Cyclohexane(2)	#0.3132	0.3970	0.4142	0.3800	0.4117	0.3503	0.3517	0.3740	10	AVG	#
Cyclohexane(3)	#0.0978	0.1397	0.1488	0.1352	0.1475	0.1249	0.1275	0.1316	13	AVG	#
1,1-Dichloropropene	0.2665	0.3509	0.3696	0.3454	0.3746	0.3310	0.3328	0.3387	11	AVG	
Carbon Tetrachloride	#0.2455	0.3274	0.3570	0.3356	0.3726	0.3304	0.3402	0.3298	12	AVG	#
Isobutyl Alcohol	0.4560	0.3659	0.4097	0.3587	0.4004	0.3920	0.3889	0.3959	8	AVG	
Benzene	#0.9176	1.0201	1.0924	1.0186	1.0999	1.0250	0.9729	1.0209	6	AVG	#
1,2-Dichloroethane	#0.3390	0.3233	0.3490	0.3285	0.3563	0.3482	0.3232	0.3382	4	AVG	#
1,2-Dichloroethane(2)	#0.0190	0.0307	0.0331	0.0312	0.0345	0.0338	0.0322	0.0307	17	AVG	#<-not used
t-Amyl methyl ether	0.6171	0.6852	0.7633	0.7168	0.8005	0.7792	0.7179	0.7257	9	AVG	
n-Heptane	0.4004	0.3914	0.4112	0.3826	0.4126	0.3555	0.3394	0.3847	7	AVG	
n-Butanol	0.3265	0.3105	0.3593	0.3192	0.3748	0.3641	0.3648	0.3456	8	AVG	
Trichloroethene	#0.2299	0.2722	0.2925	0.2738	0.2990	0.2748	0.2708	0.2733	8	AVG	#
Methylcyclohexane	#0.3662	0.4847	0.5052	0.4660	0.5277	0.4741	0.4717	0.4708	11	AVG	#
1,2-Dichloropropane	#0.2119	0.2444	0.2660	0.2498	0.2768	0.2706	0.2635	0.2547	9	AVG	#

Compounds with required minimum RRF.
All compounds must meet a maximum %RSD of 20.

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date(s): 02/23/18 02/23/18

Heated Purge: (Y/N) Y Calibration Times: 20:09 22:41

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF 1 = xf23i57.d RRF 4 = xf23i56.d RRF 10= xf23i55.d
RRF 20= xf23i54.d RRF 50= xf23i53.d RRF100= xf23i52.d RRF300= xf23i51.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Methyl Methacrylate	0.1548	0.1616	0.1904	0.1762	0.2046	0.1996	0.1867	0.1820	10	AVG
1,4-Dioxane	0.1056	0.1120	0.1314	0.1240	0.1481	0.1422	0.1530	0.1309	14	AVG
Dibromomethane	0.1398	0.1460	0.1643	0.1547	0.1743	0.1712	0.1626	0.1590	8	AVG
Bromodichloromethane	#0.2702	0.3047	0.3415	0.3298	0.3735	0.3675	0.3532	0.3343	11	AVG #
2-Nitropropane	2.8413	2.4505	2.8612	2.3442	2.7415	2.6469	2.8040	2.6699	8	AVG
cis-1,3-Dichloropropene	#0.3320	0.3787	0.4333	0.4093	0.4673	0.4588	0.4356	0.4164	11	AVG #
4-Methyl-2-pentanone	#0.2127	0.2101	0.2474	0.2056	0.2428	0.2203	0.2127	0.2216	8	AVG #
Toluene	#0.7108	0.8503	0.9003	0.8430	0.9087	0.8463	0.7965	0.8365	8	AVG #
trans-1,3-Dichloropropene	#0.3526	0.4040	0.4678	0.4546	0.5167	0.5107	0.4778	0.4549	13	AVG #
Ethyl Methacrylate	0.3501	0.3790	0.4387	0.4212	0.4807	0.4664	0.4285	0.4235	11	AVG
1,1,2-Trichloroethane	#0.2530	0.2790	0.3005	0.2855	0.3153	0.3071	0.2849	0.2893	7	AVG #
Tetrachloroethene	#0.3090	0.3876	0.4165	0.3913	0.4243	0.3780	0.3738	0.3829	10	AVG #
1,3-Dichloropropane	0.4264	0.4456	0.4943	0.4666	0.5180	0.4997	0.4605	0.4730	7	AVG
2-Hexanone	#0.1841	0.1840	0.2196	0.1858	0.2157	0.1942	0.1834	0.1953	8	AVG #
Dibromochloromethane	#0.2432	0.2793	0.3256	0.3203	0.3724	0.3721	0.3530	0.3237	15	AVG #
1,2-Dibromoethane	#0.2586	0.2728	0.3154	0.2971	0.3297	0.3220	0.2977	0.2991	9	AVG #
1-Chlorohexane	0.5043	0.5062	0.5156	0.4770	0.5206	0.4629	0.4615	0.4926	5	AVG
Chlorobenzene	#0.8688	0.9672	1.0399	0.9760	1.0652	1.0174	0.9523	0.9838	7	AVG #
1,1,1,2-Tetrachloroethane	0.2638	0.3046	0.3414	0.3277	0.3778	0.3751	0.3617	0.3360	12	AVG
Ethylbenzene	#1.3756	1.6160	1.7407	1.6343	1.7885	1.6711	1.5176	1.6205	9	AVG #
m+p-Xylene	#0.5749	0.6580	0.7133	0.6726	0.7348	0.6890	0.6267	0.6670	8	AVG #
o-Xylene	#0.5554	0.6380	0.7008	0.6587	0.7254	0.6962	0.6453	0.6600	9	AVG #
Styrene	#0.8651	1.0236	1.1329	1.0908	1.2137	1.1754	1.0596	1.0802	11	AVG #
Bromoform	#	0.1681	0.2063	0.2048	0.2483	0.2529	0.2470	0.2212	15	AVG #
Isopropylbenzene	#1.4981	1.6924	1.8011	1.6810	1.8200	1.6649	1.5121	1.6671	8	AVG #
Cyclohexanone	0.3263	0.3036	0.3381	0.3260	0.3483	0.3334	0.3757	0.3359	7	AVG
1,1,2,2-Tetrachloroethane	#0.6189	0.6560	0.7429	0.7012	0.7988	0.7736	0.7104	0.7145	9	AVG #
Bromobenzene	0.7508	0.7987	0.8543	0.8015	0.8843	0.8847	0.8636	0.8340	6	AVG
trans-1,4-Dichloro-2-butene	0.1494	0.1690	0.1917	0.1769	0.2067	0.2035	0.1791	0.1823	11	AVG
1,2,3-Trichloropropane	0.1868	0.2019	0.2239	0.2086	0.2375	0.2294	0.2187	0.2153	8	AVG
n-Propylbenzene	3.2211	3.5741	3.7855	3.5518	3.8246	3.4920	3.1119	3.5087	8	AVG
2-Chlorotoluene	0.6517	0.7502	0.7862	0.7404	0.8147	0.7754	0.7631	0.7545	7	AVG
1,3,5-Trimethylbenzene	2.6744	2.6377	2.8362	2.6486	2.8962	2.7380	2.5040	2.7050	5	AVG
4-Chlorotoluene	0.6890	0.7719	0.8371	0.7806	0.8587	0.8308	0.8015	0.7957	7	AVG
tert-Butylbenzene	0.5649	0.5694	0.6074	0.5652	0.6334	0.5912	0.5857	0.5882	4	AVG
Pentachloroethane	0.3579	0.3993	0.4605	0.4374	0.5339	0.5553	0.5404	0.4692	16	AVG
1,2,4-Trimethylbenzene	2.9073	2.7081	2.9158	2.7359	3.0316	2.8984	2.5605	2.8225	6	AVG
sec-Butylbenzene	3.6194	3.3991	3.5828	3.3548	3.6511	3.3480	2.9765	3.4188	7	AVG
1,3-Dichlorobenzene	#1.5121	1.5427	1.6712	1.5623	1.7500	1.7081	1.5120	1.6083	6	AVG #
p-Isopropyltoluene	3.2553	2.9159	3.1714	2.9990	3.3397	3.1316	2.6402	3.0647	8	AVG
1,4-Dichlorobenzene	#1.6228	1.6238	1.6995	1.6015	1.7951	1.7479	1.5413	1.6617	5	AVG #
1,2,3-Trimethylbenzene	2.8403	2.7291	2.8604	2.6203	3.0180	2.9714	2.5391	2.7969	6	AVG
Benzyl Chloride		0.2418	0.3124	0.3140	0.3818	0.3821	0.3797	0.3353	17	AVG
1,3-Diethylbenzene	1.9952	1.6977	1.8233	1.6852	1.9294	1.8567	1.6946	1.8117	7	AVG
1,4-Diethylbenzene	2.1194	1.7802	1.9172	1.7600	2.0282	1.9344	1.7445	1.8977	8	AVG
n-Butylbenzene	1.8199	1.4308	1.5512	1.4720	1.6378	1.5247	1.3886	1.5464	9	AVG
1,2-Dichlorobenzene	#1.4411	1.4638	1.5745	1.4743	1.6649	1.6277	1.5015	1.5354	6	AVG #
1,2-Diethylbenzene	1.7099	1.4521	1.5214	1.3967	1.6230	1.5625	1.4289	1.5278	7	AVG
1,2-Dibromo-3-chloropropane	#0.1182	0.1171	0.1414	0.1295	0.1556	0.1521	0.1470	0.1373	12	AVG #
1,3,5-Trichlorobenzene		1.1849	1.2952	1.2052	1.3434	1.3150	1.2407	1.2641	5	AVG
1,2,4-Trichlorobenzene	#	1.0880	1.1949	1.1316	1.2529	1.2389	1.1715	1.1796	5	AVG #
Hexachlorobutadiene	0.8579	0.5441	0.5866	0.5511	0.6174	0.5777	0.5666	0.6145	18	AVG

Compounds with required minimum RRF.
All compounds must meet a maximum %RSD of 20.

FORM VI VOA

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date(s): 02/23/18 02/23/18

Heated Purge: (Y/N) Y Calibration Times: 20:09 22:41

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF 1 = xf23i57.d RRF 4 = xf23i56.d RRF 10= xf23i55.d
RRF 20= xf23i54.d RRF 50= xf23i53.d RRF100= xf23i52.d RRF300= xf23i51.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Naphthalene	3.1390	2.4959	2.8067	2.6146	2.9811	2.8707	2.5619	2.7814	8	AVG
1,2,3-Trichlorobenzene		1.0112	1.1019	1.0353	1.1565	1.1302	1.0699	1.0841	5	AVG
2-Methylnaphthalene		1.5004	1.7434	1.5920	1.8953	1.8581	1.6581	1.7079	9	AVG
Dibromofluoromethane	0.2413	0.2421	0.2437	0.2424	0.2415	0.2398	0.2368	0.2411	1	AVG
Dibromofluoromethane(2)	0.2467	0.2459	0.2465	0.2463	0.2466	0.2439	0.2416	0.2453	1	AVG
1,2-Dichloroethane-d4	0.0563	0.0567	0.0571	0.0569	0.0570	0.0570	0.0553	0.0566	1	AVG
1,2-Dichloroethane-d4(2)	0.2692	0.2715	0.2672	0.2653	0.2670	0.2631	0.2587	0.2660	2	AVG
1,2-Dichloroethane-d4(3)	0.0364	0.0361	0.0367	0.0362	0.0369	0.0363	0.0353	0.0363	1	AVG
Toluene-d8	1.2618	1.2619	1.2644	1.2673	1.2390	1.2336	1.1810	1.2441	2	AVG
Toluene-d8(2)	0.8198	0.8195	0.8260	0.8280	0.8092	0.8042	0.7700	0.8109	2	AVG
4-Bromofluorobenzene	0.4740	0.4730	0.4772	0.4775	0.4765	0.4671	0.4531	0.4712	2	AVG
4-Bromofluorobenzene(2)	0.4207	0.4196	0.4216	0.4239	0.4215	0.4104	0.3981	0.4165	2	AVG

Average %RSD 9

Compounds with required minimum RRF.
All compounds must meet a maximum %RSD of 20.

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP09193.i/18feb23a.b/xf23i51.d	VSTD300
/chem2/HP09193.i/18feb23a.b/xf23i52.d	VSTD100
/chem2/HP09193.i/18feb23a.b/xf23i53.d	VSTD050
/chem2/HP09193.i/18feb23a.b/xf23i54.d	VSTD020
/chem2/HP09193.i/18feb23a.b/xf23i55.d	VSTD010
/chem2/HP09193.i/18feb23a.b/xf23i56.d	VSTD004
/chem2/HP09193.i/18feb23a.b/xf23i57.d	VSTD001

Area Summary

File ID:

Internal Standard Name	xf23i51.d	xf23i52.d	xf23i53.d	xf23i54.d	xf23i55.d	xf23i56.d	xf23i57.d	Avg. Area	%RSD	In Spec
t-Butyl alcohol-d10	129343	137815	143271	137157	132083	133326	125428 ✓	134060	4	Yes
Fluorobenzene	1166037	1162099	1143297	1116042	1101131	1084184	1073162 ✓	1120850	3	Yes
Chlorobenzene-d5	969002	947760	928636	895675	887156	873303	867070 ✓	909800	4	Yes
1,4-Dichlorobenzene-d4	531246	522909	514593	497303	491043	475828	473284 ✓	500887	5	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	xf23i51.d	xf23i52.d	xf23i53.d	xf23i54.d	xf23i55.d	xf23i56.d	xf23i57.d	Avg. RT ✓

ICV.
RRF > method minimum.
%D <30%

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 ICV Date: 02/23/18 Time: 23:34

Lab File ID: xf23v50.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
# Dichlorodifluoromethane	0.3867	0.4070	21.05	20	5	#
# Chloromethane	0.3573	0.3913	21.90	20	9	#
# Vinyl Chloride	0.3523	0.4008	22.75	20	14	#
# Bromomethane	0.2735	0.3137	22.94	20	15	#
# Chloroethane	0.1991	0.2275	22.85	20	14	#
Dichlorofluoromethane	0.5175	0.5212	20.14	20	1	
# Trichlorofluoromethane	0.4763	0.5476	23.00	20	15	#
Ethanol	0.1412	0.1386	981.26	1000	-2	
Freon 123a	0.2884	0.3009	20.87	20	4	
Acrolein	1.9382	1.5540	120.27	150	-20	NT
# 1,1-Dichloroethene	0.2004	0.2322	23.16	20	16	#
# Acetone	0.8469	0.7827	138.63	150	-8	#
# Freon 113	0.2191	0.2395	21.86	20	9	#
2-Propanol	0.7295	0.7528	154.79	150	3	
Methyl Iodide	0.4124	0.4288	20.80	20	4	
# Carbon Disulfide	0.6569	0.6700	20.40	20	2	#
# Methyl Acetate	0.1652	0.1424	17.24	20	-14	#
Allyl Chloride	0.3544	0.3376	19.05	20	-5	
# Methylene Chloride	0.2551	0.2598	20.37	20	2	#
t-Butyl alcohol	1.2617	1.3113	207.86	200	4	
Acrylonitrile	0.0784	0.0677	86.33	100	-14	
# Methyl Tertiary Butyl Ether	0.7357	0.7012	19.06	20	-5	#
# trans-1,2-Dichloroethene	0.2430	0.2637	21.70	20	9	#
n-Hexane	0.3679	0.3745	20.36	20	2	
# 1,1-Dichloroethane	0.4141	0.4249	20.52	20	3	#
di-Isopropyl ether	0.7229	0.7312	20.23	20	1	
2-Chloro-1,3-butadiene	0.3602	0.3658	20.31	20	2	
Ethyl t-butyl ether	0.7499	0.7260	19.36	20	-3	
# 2-Butanone	4.3561	3.8476	132.49	150	-12	#
# cis-1,2-Dichloroethene	0.2809	0.2924	20.82	20	4	#
2,2-Dichloropropane	0.3770	0.3924	20.82	20	4	
Propionitrile	1.3074	1.2799	146.85	150	-2	
Methacrylonitrile	0.1003	0.0922	137.94	150	-8	
Bromochloromethane	0.1392	0.1359	19.53	20	-2	
Tetrahydrofuran	1.2601	1.1989	95.15	100	-5	
# Chloroform	0.4393	0.4410	20.07	20	0	#

Compounds with required minimum RRF.
Maximum % Drift = 30 %

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 ICV Date: 02/23/18 Time: 23:34

Lab File ID: xf23v50.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
#	1,1,1-Trichloroethane	0.3917	0.4383	22.38	20	12	#
#	Cyclohexane	0.4131	0.4196	20.31	20	2	#
	1,1-Dichloropropene	0.3387	0.3420	20.20	20	1	
#	Carbon Tetrachloride	0.3298	0.3420	20.74	20	4	#
	Isobutyl Alcohol	0.3959	0.3920	495.05	500	-1	
#	Benzene	1.0209	1.0225	20.03	20	0	#
#	1,2-Dichloroethane	0.3382	0.3209	18.98	20	-5	#
	t-Amyl methyl ether	0.7257	0.7077	19.50	20	-2	
	n-Heptane	0.3847	0.3782	19.66	20	-2	
	n-Butanol	0.3456	0.3428	991.90	1000	-1	
#	Trichloroethene	0.2733	0.2755	20.17	20	1	#
#	Methylcyclohexane	0.4708	0.4749	20.18	20	1	#
#	1,2-Dichloropropane	0.2547	0.2532	19.88	20	-1	#
	Methyl Methacrylate	0.1820	0.1654	18.17	20	-9	
	1,4-Dioxane	0.1309	0.1225	467.77	500	-6	
	Dibromomethane	0.1590	0.1514	19.05	20	-5	
#	Bromodichloromethane	0.3343	0.3223	19.28	20	-4	#
	2-Nitropropane	2.6699	2.4263	18.17	20	-9	
#	cis-1,3-Dichloropropene	0.4164	0.4037	19.39	20	-3	#
#	4-Methyl-2-pentanone	0.2216	0.1977	89.21	100	-11	#
#	Toluene	0.8365	0.8515	20.36	20	2	#
#	trans-1,3-Dichloropropene	0.4549	0.4313	18.96	20	-5	#
	Ethyl Methacrylate	0.4235	0.4029	19.03	20	-5	
#	1,1,2-Trichloroethane	0.2893	0.2861	19.77	20	-1	#
#	Tetrachloroethene	0.3829	0.3870	20.21	20	1	#
	1,3-Dichloropropane	0.4730	0.4568	19.31	20	-3	
#	2-Hexanone	0.1953	0.1742	89.20	100	-11	#
#	Dibromochloromethane	0.3237	0.3121	19.28	20	-4	#
#	1,2-Dibromoethane	0.2991	0.2854	19.08	20	-5	#
	1-Chlorohexane	0.4926	0.4770	19.37	20	-3	
#	Chlorobenzene	0.9838	0.9685	19.69	20	-2	#
	1,1,1,2-Tetrachloroethane	0.3360	0.3287	19.57	20	-2	
#	Ethylbenzene	1.6205	1.6265	20.07	20	0	#
#	m+p-Xylene	0.6670	0.6707	40.22	40	1	#
#	o-Xylene	0.6600	0.6473	19.62	20	-2	#
#	Styrene	1.0802	1.0790	19.98	20	0	#

Compounds with required minimum RRF.
Maximum % Drift = 30 %

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 ICV Date: 02/23/18 Time: 23:34

Lab File ID: xf23v50.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
#	Bromoform	0.2212	0.1870	16.90	20	-15	#
#	Isopropylbenzene	1.6671	1.6949	20.33	20	2	#
	Cyclohexanone	0.3359	0.3536	526.29	500	5	
#	1,1,2,2-Tetrachloroethane	0.7145	0.6603	18.48	20	-8	#
	Bromobenzene	0.8340	0.7956	19.08	20	-5	
	trans-1,4-Dichloro-2-butene	0.1823	0.1974	108.25	100	8	
	1,2,3-Trichloropropane	0.2153	0.2013	18.70	20	-7	
	n-Propylbenzene	3.5087	3.5521	20.25	20	1	
	2-Chlorotoluene	0.7545	0.7505	19.89	20	-1	
	1,3,5-Trimethylbenzene	2.7050	2.6317	19.46	20	-3	
	4-Chlorotoluene	0.7957	0.7757	19.50	20	-3	
	tert-Butylbenzene	0.5882	0.5725	19.47	20	-3	
	Pentachloroethane	0.4692	0.4459	19.01	20	-5	
	1,2,4-Trimethylbenzene	2.8225	2.7162	19.25	20	-4	
	sec-Butylbenzene	3.4188	3.4059	19.92	20	0	
#	1,3-Dichlorobenzene	1.6083	1.5250	18.96	20	-5	#
	p-Isopropyltoluene	3.0647	3.0327	19.79	20	-1	
#	1,4-Dichlorobenzene	1.6617	1.5861	19.09	20	-5	#
	1,2,3-Trimethylbenzene	2.7969	2.7485	19.65	20	-2	
	Benzyl Chloride	0.3353	0.2912	17.37	20	-13	
	1,3-Diethylbenzene	1.8117	1.7320	19.12	20	-4	
	1,4-Diethylbenzene	1.8977	1.8166	19.14	20	-4	
	n-Butylbenzene	1.5464	1.4721	19.04	20	-5	
#	1,2-Dichlorobenzene	1.5354	1.4588	19.00	20	-5	#
	1,2-Diethylbenzene	1.5278	1.4670	19.20	20	-4	
#	1,2-Dibromo-3-chloropropane	0.1373	0.1197	17.44	20	-13	#
	1,3,5-Trichlorobenzene	1.2641	1.2184	19.28	20	-4	
#	1,2,4-Trichlorobenzene	1.1796	1.0980	18.62	20	-7	#
	Hexachlorobutadiene	0.6145	0.5679	18.48	20	-8	
	Naphthalene	2.7814	2.4823	17.85	20	-11	
	1,2,3-Trichlorobenzene	1.0841	1.0224	18.86	20	-6	
	2-Methylnaphthalene	1.7079	1.4911	17.46	20	-13	

Average %Drift 5

Compounds with required minimum RRF.
Maximum % Drift = 30 %

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Samples 280 and 281

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_SBN13___

Lab File ID: xa15t11.d BFB Injection Date: 04/15/18

Instrument ID: HP09193 BFB Injection Time: 08:49

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.21
75	30.0 - 60.0% of mass 95	48.02
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.14
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	87.13
175	5.0 - 9.0% of mass 174	6.18 (7.09)1
176	Greater than 95.0%, but less than 101.0% of mass 174	84.04 (96.45)1
177	5.0 - 9.0% of mass 176	5.42 (6.45)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	xa15c10.d	04/15/18	09:13
02	LCSX91	xa15110.d	04/15/18	09:56
03	LCDX91	xa15111.d	04/15/18	10:19
04	VBLKX91	xa15b10.d	04/15/18	11:05
05	9540759	xa15s11.d	04/15/18	11:41
06	9540765	xa15s12.d	04/15/18	12:05
07	9546281	xa15s13.d	04/15/18	12:28
08	9546282MS	xa15s14.d	04/15/18	12:51
09	9546283MSD	xa15s15.d	04/15/18	13:14
10	9546280	xa15s16.d	04/15/18	14:01
11	9547832	xa15s18.d	04/15/18	14:47
12	9547837	xa15s19.d	04/15/18	15:10
13	9547841	xa15s20.d	04/15/18	15:33
14	9547842	xa15s21.d	04/15/18	15:56
15	9547843	xa15s22.d	04/15/18	16:19
16	9547847	xa15s24.d	04/15/18	17:06
17	9547848	xa15s25.d	04/15/18	17:29
18	9547850	xa15s26.d	04/15/18	17:52
19	9547852	xa15s27.d	04/15/18	18:15
20	9547853	xa15s28.d	04/15/18	18:39
21	9547854	xa15s29.d	04/15/18	19:02
22	9547840	xa15s30.d	04/15/18	19:25

< 12 hours

FORM V VOA

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP09193.i/18feb23a.b/xf23i57.d
/chem2/HP09193.i/18feb23a.b/xf23i56.d
/chem2/HP09193.i/18feb23a.b/xf23i55.d
/chem2/HP09193.i/18feb23a.b/xf23i54.d
/chem2/HP09193.i/18feb23a.b/xf23i53.d
/chem2/HP09193.i/18feb23a.b/xf23i52.d
/chem2/HP09193.i/18feb23a.b/xf23i51.d

File /chem2/HP09193.i/18feb23a.b/xf23i53.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09193.i/18apr15a.b/xa15c10.d

RT Summary

Internal Standard Name	File ID: xa15c10.d	ICAL RT	In Spec
t-Butyl alcohol-d10	4.110	4.110	Yes
Fluorobenzene	7.620	7.620	Yes
Chlorobenzene-d5	11.130	11.130	Yes
1,4-Dichlorobenzene-d4	13.022	13.022	Yes

A "No" indicates the retention time is greater than 10 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: xa15c10.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl alcohol-d10	83042	143271	71636	286542	Yes
Fluorobenzene	1016406	1143297	571648	2286594	Yes
Chlorobenzene-d5	811486	928636	464318	1857272	Yes
1,4-Dichlorobenzene-d4	446912	514593	257296	1029186	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

7A

VOLATILE CONTINUING CALIBRATION CHECK

CCV for samples 280 and 281.
Full validation for this CCV.
RRF > method minimum,

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: <20% D

Instrument ID: HP09193 Calibration Date: 04/15/18 Time: 09:13

Lab File ID: xa15c10.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	# Dichlorodifluoromethane	0.3867	0.4155	53.72	50	7 #	
	# Chloromethane	0.3573	0.4100	57.37	50	15 #	
	# Vinyl Chloride	0.3523	0.4130	58.62	50	17 #	
	# Bromomethane	0.2735	0.3251	59.43	50	19 #	
1	# Chloroethane	0.1991	0.2402	60.32	50	21 #	<-
	# Trichlorofluoromethane	0.4763	0.5259	55.20	50	10 #	
	| Ethanol	0.1412	0.1326	2347.31	2500	-6 |	
	| Freon 123a	0.2884	0.3235	56.09	50	12 |	
	| Acrolein	1.9382	2.6725	689.43	500	38 |	<- NT
	# 1,1-Dichloroethene	0.2004	0.2373	59.19	50	18 #	
1	# Acetone	0.8469	1.1531	136.15	100	36 #	<-
	# Freon 113	0.2191	0.2608	59.51	50	19 #	
	| 2-Propanol	0.7295	0.7570	259.43	250	4 |	
	| Methyl Iodide	0.4124	0.4713	57.13	50	14 |	
1	# Carbon Disulfide	0.6569	0.8927	67.94	50	36 #	<-
	# Methyl Acetate	0.1652	0.1523	46.09	50	-8 #	
	| Allyl Chloride	0.3544	0.3714	52.41	50	5 |	
	# Methylene Chloride	0.2551	0.2829	55.44	50	11 #	
	| t-Butyl alcohol	1.2617	1.3087	259.31	250	4 |	
	| Acrylonitrile	0.0784	0.0793	50.58	50	1 |	
	# Methyl Tertiary Butyl Ether	0.7357	0.7329	49.81	50	0 #	
	# trans-1,2-Dichloroethene	0.2430	0.2892	59.51	50	19 #	
	| n-Hexane	0.3679	0.3825	51.98	50	4 |	
	# 1,1-Dichloroethane	0.4141	0.4809	58.06	50	16 #	
	| di-Isopropyl ether	0.7229	0.7975	55.16	50	10 |	
	| 2-Chloro-1,3-butadiene	0.3602	0.4058	56.32	50	13 |	
	| Ethyl t-butyl ether	0.7499	0.7561	50.41	50	1 |	
1	# 2-Butanone	4.3561	5.6647	130.04	100	30 #	<-
	# cis-1,2-Dichloroethene	0.2809	0.3237	57.63	50	15 #	
	| 2,2-Dichloropropane	0.3770	0.4288	56.88	50	14 |	
	| Propionitrile	1.3074	1.8323	350.38	250	40 |	<- NT
	| Methacrylonitrile	0.1003	0.0995	124.00	125	-1 |	
	| Bromochloromethane	0.1392	0.1570	56.41	50	13 |	
	| Tetrahydrofuran	1.2601	1.7254	136.93	100	37 |	<- NT
	# Chloroform	0.4393	0.5042	57.38	50	15 #	
	# 1,1,1-Trichloroethane	0.3917	0.4519	57.68	50	15 #	

Compounds with required minimum RRF.
All compounds must meet a maximum % Drift of 20.

1. > 20% D with positive bias. Qualify detects J,CVH. No impact to NDs.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date: 04/15/18 Time: 09:13

Lab File ID: xa15c10.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
# Cyclohexane	0.4131	0.4540	54.95	50	10 #	
# Cyclohexane(2)	0.3740	0.4134	55.26	50	11 #	
# Cyclohexane(3)	0.1316	0.1466	55.69	50	11 #	
1,1-Dichloropropene	0.3387	0.3940	58.17	50	16	
# Carbon Tetrachloride	0.3298	0.3793	57.50	50	15 #	
Isobutyl Alcohol	0.3959	0.4798	757.40	625	21	<- NT
# Benzene	1.0209	1.1975	58.65	50	17 #	
# 1,2-Dichloroethane	0.3382	0.3609	53.36	50	7 #	
# 1,2-Dichloroethane(2)	0.0307	0.0347	56.52	50	13 #	<-
t-Amyl methyl ether	0.7257	0.7345	50.60	50	1	
n-Heptane	0.3847	0.3973	51.64	50	3	
n-Butanol	0.3456	0.3856	1394.85	1250	12	
# Trichloroethene	0.2733	0.3133	57.32	50	15 #	
# Methylcyclohexane	0.4708	0.5207	55.30	50	11 #	
# 1,2-Dichloropropane	0.2547	0.2994	58.78	50	18 #	
Methyl Methacrylate	0.1820	0.1757	48.26	50	-3	
1,4-Dioxane	0.1309	0.1594	760.98	625	22	<- NT
Dibromomethane	0.1590	0.1763	55.45	50	11	
# Bromodichloromethane	0.3343	0.3880	58.02	50	16 #	
2-Nitropropane	2.6699	3.7550	140.64	100	41	<- NT
# cis-1,3-Dichloropropene	0.4164	0.4683	56.23	50	12 #	
# 4-Methyl-2-pentanone	0.2216	0.2116	95.48	100	-5 #	
# Toluene	0.8365	0.9850	58.87	50	18 #	
# trans-1,3-Dichloropropene	0.4549	0.5101	56.07	50	12 #	
Ethyl Methacrylate	0.4235	0.4324	51.04	50	2	
# 1,1,2-Trichloroethane	0.2893	0.3221	55.67	50	11 #	
# Tetrachloroethene	0.3829	0.4280	55.88	50	12 #	
1,3-Dichloropropane	0.4730	0.5343	56.48	50	13	
# 2-Hexanone	0.1953	0.1927	98.67	100	-1 #	
# Dibromochloromethane	0.3237	0.3722	57.49	50	15 #	
# 1,2-Dibromoethane	0.2991	0.3212	53.71	50	7 #	
1-Chlorohexane	0.4926	0.5273	53.52	50	7	
# Chlorobenzene	0.9838	1.1476	58.32	50	17 #	
1,1,1,2-Tetrachloroethane	0.3360	0.3980	59.23	50	18	
# Ethylbenzene	1.6205	1.9398	59.85	50	20 #	19.7% ok.
# m+p-Xylene	0.6670	0.7888	118.25	100	18 #	

Compounds with required minimum RRF.
All compounds must meet a maximum % Drift of 20.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date: 04/15/18 Time: 09:13

Lab File ID: xa15c10.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
#	o-Xylene	0.6600	0.7618	57.72	50	15	#
#	Styrene	1.0802	1.2294	56.91	50	14	#
#	Bromoform	0.2212	0.2326	52.57	50	5	#
#	Isopropylbenzene	1.6671	1.9127	57.37	50	15	#
	Cyclohexanone	0.3359	0.3752	698.18	625	12	
#	1,1,2,2-Tetrachloroethane	0.7145	0.7801	54.59	50	9	#
	Bromobenzene	0.8340	0.9125	54.70	50	9	
	trans-1,4-Dichloro-2-butene	0.1823	0.1712	117.41	125	-6	
	1,2,3-Trichloropropane	0.2153	0.2299	53.40	50	7	
	n-Propylbenzene	3.5087	4.1215	58.73	50	17	
	2-Chlorotoluene	0.7545	0.8620	57.12	50	14	
	1,3,5-Trimethylbenzene	2.7050	3.0768	56.87	50	14	
	4-Chlorotoluene	0.7957	0.9136	57.41	50	15	
	tert-Butylbenzene	0.5882	0.6568	55.83	50	12	
	Pentachloroethane	0.4692	0.5611	59.79	50	20	NT
	1,2,4-Trimethylbenzene	2.8225	3.2120	56.90	50	14	
	sec-Butylbenzene	3.4188	3.8800	56.74	50	13	
#	1,3-Dichlorobenzene	1.6083	1.8131	56.37	50	13	#
	p-Isopropyltoluene	3.0647	3.4915	56.96	50	14	
#	1,4-Dichlorobenzene	1.6617	1.8514	55.71	50	11	#
	1,2,3-Trimethylbenzene	2.7969	3.2934	58.87	50	18	
	Benzyl Chloride	0.3353	0.3598	53.66	50	7	
	1,3-Diethylbenzene	1.8117	2.0444	56.42	50	13	
	1,4-Diethylbenzene	1.8977	2.1436	56.48	50	13	
	n-Butylbenzene	1.5464	1.7345	56.08	50	12	
#	1,2-Dichlorobenzene	1.5354	1.7097	55.68	50	11	#
	1,2-Diethylbenzene	1.5278	1.7567	57.49	50	15	
#	1,2-Dibromo-3-chloropropane	0.1373	0.1314	47.88	50	-4	#
	1,3,5-Trichlorobenzene	1.2641	1.3345	52.79	50	6	
#	1,2,4-Trichlorobenzene	1.1796	1.2309	52.17	50	4	#
	Hexachlorobutadiene	0.6145	0.6127	49.85	50	0	
	Naphthalene	2.7814	2.8144	50.59	50	1	
	1,2,3-Trichlorobenzene	1.0841	1.1334	52.27	50	5	
	2-Methylnaphthalene	1.7079	1.6723	48.96	50	-2	
	Dibromofluoromethane	0.2411	0.2365	49.04	50	-2	

Compounds with required minimum RRF.
All compounds must meet a maximum % Drift of 20.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date: 04/15/18 Time: 09:13

Lab File ID: xa15c10.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dibromofluoromethane(2)	0.2453	0.2416	49.24	50	-2
1,2-Dichloroethane-d4	0.0566	0.0576	50.88	50	2
1,2-Dichloroethane-d4(2)	0.2660	0.2634	49.51	50	-1
1,2-Dichloroethane-d4(3)	0.0363	0.0363	49.98	50	0
Toluene-d8	1.2441	1.2783	51.37	50	3
Toluene-d8(2)	0.8109	0.8285	51.08	50	2
4-Bromofluorobenzene	0.4712	0.4708	49.96	50	0
4-Bromofluorobenzene(2)	0.4165	0.4035	48.43	50	-3

Average %Drift 12

Compounds with required minimum RRF.
All compounds must meet a maximum % Drift of 20.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_SBN13___

Lab File ID (Standard): xa15c10.d Date Analyzed: 04/15/18

Instrument ID: HP09193 Time Analyzed: 09:13

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA)		IS2(FBZ)		IS3(CBZ)		IS4(DCB)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	83042	4.110	1016406	7.620	811486	11.130	446912	13.022
UPPER LIMIT	166084	4.610	2032812	8.120	1622972	11.630	893824	13.522
LOWER LIMIT	41521	3.610	508203	7.120	405743	10.630	223456	12.522
LAB SAMPLE ID								
01 LCSX91	100877	4.104	1088699	7.614	850597	11.124	463931	13.022
02 LCDX91	97717	4.116	1063592	7.620	836285	11.130	454552	13.022
03 VBLKX91	95384	4.109	1014571	7.620	792162	11.130	410724	13.022
04 9540759	106454	4.097	923784	7.620	670219	11.130	256408	13.022
05 9540765	94392	4.104	913294	7.614	662125	11.130	266308	13.022
06 9546281	82119	4.091	676033	7.614	439578	11.130	134118	* 13.022
07 9546282MS	98733	4.092	733936	7.614	495273	11.124	160169	* 13.022
08 9546283MSD	113705	4.097	848674	7.614	618526	11.130	205469	* 13.022
09 9546280	85350	4.092	752908	7.614	586359	11.124	257466	13.022
10 9547832	76022	4.116	880198	7.620	653893	11.130	247813	13.022
11 9547837	92602	4.098	917159	7.620	703379	11.130	324454	13.022
12 9547841	78956	4.116	875721	7.620	683546	11.130	346907	13.022
13 9547842	84191	4.110	872006	7.620	642292	11.130	238874	13.022
14 9547843	81735	4.116	870878	7.620	698911	11.130	360283	13.022
15 9547847	96900	4.116	865289	7.620	678047	11.130	344240	13.022
16 9547848	77578	4.116	861068	7.620	670307	11.130	344488	13.022
17 9547850	88404	4.110	924834	7.620	687362	11.130	271074	13.022
18 9547852	84218	4.122	891434	7.620	619313	11.130	210558	* 13.022
19 9547853	80382	4.116	918770	7.620	700999	11.130	330848	13.022
20 9547854	84956	4.116	882671	7.620	675028	11.130	292110	13.022
21 9547840	68988	4.110	858276	7.620	623466	11.130	211506	* 13.022
22 9547846	76444	4.110	877718	7.620	709595	11.130	364838	13.022

281 DCB 30%R.
Qualify associated sample results J/UJ,IS.

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM VIII VOA

Quant Report

Target Revision 3.5

Data File: /chem2/HP09193.i/18apr15a.b/xa15c10.d Instrument ID: HP09193.i
Injection date and time: 15-APR-2018 09:13 Analyst ID: scn10072

Method used: /chem2/HP09193.i/18apr15a.b/na8260c.m Sublist used: 8260S-2C
Calibration date and time: 15-APR-2018 09:35
Date, time and analyst ID of latest file update: 15-Apr-2018 09:37 scn10072

Sample Name: VSTD050 Lab Sample ID: VSTD050

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
103) Dibromochloromethane	(3)	10.583	129	302040	57.491
104) 1,2-Dibromoethane	(3)	10.698	107	260674	53.708
105)*Chlorobenzene-d5	(3)	11.130	117	811486	50.000
106) 1-Chlorohexane	(3)	11.136	91	427902	53.524
107) Chlorobenzene	(3)	11.155	112	931268	58.323
109) Ethylbenzene	(3)	11.240	91	1574107	59.850
108) 1,1,1,2-Tetrachloroethane	(3)	11.240	131	322990	59.230
110) m+p-Xylene	(3)	11.355	106	1280218	118.255
111) o-Xylene	(3)	11.690	106	618221	57.718
113) Styrene	(3)	11.702	104	997664	56.910
114) Bromoform	(3)	11.866	173	188763	52.569
115) Isopropylbenzene	(3)	11.988	105	1552101	57.366
118) Cyclohexanone	(1)	12.067	55	77902M	698.182
119)$4-Bromofluorobenzene	(3)	12.140	95	382085	49.962
119)$4-Bromofluorobenzene	(3)	12.140	174	327441	48.435
120) 1,1,2,2-Tetrachloroethane	(4)	12.237	83	348645M	54.589
121) Bromobenzene NT	(4)	12.256	156	407799	54.705
122) trans-1,4-Dichloro-2-butene NT	(4)	12.262	53	191333	117.411
123) 1,2,3-Trichloropropane NT	(4)	12.286	110	102751M	53.404
124) n-Propylbenzene NT	(4)	12.323	91	1841948	58.732
126) 2-Chlorotoluene NT	(4)	12.396	126	385236	57.122
129) 1,3,5-Trimethylbenzene NT	(4)	12.457	105	1375043	56.872
130) 4-Chlorotoluene NT	(4)	12.493	126	408314	57.413
133) tert-Butylbenzene NT	(4)	12.700	134	293516M	55.831
134) Pentachloroethane NT	(4)	12.736	167	250769	59.789
135) 1,2,4-Trimethylbenzene NT	(4)	12.742	105	1435503	56.900
136) sec-Butylbenzene NT	(4)	12.864	105	1734005	56.744
138) 1,3-Dichlorobenzene	(4)	12.968	146	810290	56.366
139) p-Isopropyltoluene NT	(4)	12.974	119	1560402	56.963
140)*1,4-Dichlorobenzene-d4	(4)	13.022	152	446912	50.000
141) 1,4-Dichlorobenzene	(4)	13.041	146	827430	55.709
142) 1,2,3-Trimethylbenzene NT	(4)	13.047	105	1471852	58.875
143) Benzyl Chloride NT	(4)	13.114	126	160818	53.661
144) 1,3-Diethylbenzene NT	(4)	13.174	119	913673	56.422
145) 1,4-Diethylbenzene NT	(4)	13.247	119	957980	56.477
146) n-Butylbenzene NT	(4)	13.266	92	775172	56.080
147) 1,2-Dichlorobenzene	(4)	13.296	146	764091	55.677
148) 1,2-Diethylbenzene NT	(4)	13.320	119	785092	57.491

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.

Digitally signed by Stephen C. Nolte

Quant Report

Target Revision 3.5

Data File: /chem2/HP09193.i/18apr15a.b/xa15c10.d Instrument ID: HP09193.i
Injection date and time: 15-APR-2018 09:13 Analyst ID: scn10072

Method used: /chem2/HP09193.i/18apr15a.b/na8260c.m Sublist used: 8260S-2C
Calibration date and time: 15-APR-2018 09:35
Date, time and analyst ID of latest file update: 15-Apr-2018 09:37 scn10072

Sample Name: VSTD050 Lab Sample ID: VSTD050

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
151) 1,2-Dibromo-3-chloropropane	(4)	13.844	75	58743	47.881
152) 1,3,5-Trichlorobenzene NT	(4)	13.971	180	596404	52.786
153) 1,2,4-Trichlorobenzene	(4)	14.391	180	550107	52.173
154) Hexachlorobutadiene NT	(4)	14.476	225	273821	49.853
155) Naphthalene NT	(4)	14.574	128	1257807	50.594
156) 1,2,3-Trichlorobenzene	(4)	14.713	180	506508	52.269
157) 2-Methylnaphthalene NT	(4)	15.340	142	747380	48.959

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Quality Control Reference List
GC/MS Volatiles

CLIENT: C. T. Male Associates
SDG: SBN13

Fraction: Volatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
SOM02.2 Volatiles	L181051AA	VBLKL58	04/15/2018 20:20:00
		LCSL58	04/15/2018 19:58:00
		9546287	04/15/2018 22:31:00
		9546289	04/15/2018 22:09:00
SOM02.2 Volatiles	R180982AA	VBLKR22	04/08/2018 11:41:00
		LCSR22	04/08/2018 10:26:00
		LCDR22	04/08/2018 10:51:00
		9546285	04/08/2018 14:44:00
SOM02.2 Volatiles	X181051AA	VBLKX91	04/15/2018 11:05:00
		LCSX91	04/15/2018 09:56:00
		LCDX91	04/15/2018 10:19:00
		9546280	04/15/2018 14:01:00
		9546281 UNSPK	04/15/2018 12:28:00
		9546282 MS	04/15/2018 12:51:00
		9546283 MSD	04/15/2018 13:14:00
SOM02.2 Volatiles	X181061AA	VBLKX92	04/16/2018 13:36:00
		LCSX92	04/16/2018 12:50:00
		LCDX92	04/16/2018 13:13:00
		9546286	04/16/2018 15:28:00

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Sample pH Log

SDG: SBN13

LLI Sample Number	Bottle Code	Actual pH	Exp. pH	pH Check Code	Adj. pH	Adjusted Date	Adjusted Time	Preservative Added	Preservative Lot #	LLI Supplied Bottle?	Sulfide Present?	Corrective Substance	CS Lot #	Res. Cl. Present?	Corrective Substance	CS Lot #	Record Date	Employee
9546287	008A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/9/2018 12:43:42AM	24788
9546287	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2018 11:37:54AM	895
9546287	091A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/6/2018 11:37:06PM	1201
9546287	091B	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/6/2018 11:37:02PM	1201
9546289	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	4/16/2018 11:37:49AM	895

Check Code Key
PK = Original container checked - pH is within the correct range. (No preservative was added)
PA = Original container checked - pH adjusted to correct range. (Preservative was added)
PV = Volatile container checked
PC = pH checked (unpreserved container)
SPK = Subsampled from an original container. Original container checked - pH is within correct range
SPA = Subsampled from an original container. Subsample container checked - pH adjusted to correct range.
SPC = Subsampled from an original container. pH checked (unpreserved container).
SUP = Subsampled from original container. Unable to be preserved due to the matrix of the sample.
UP = Unable to preserve due to matrix of the sample.
NA = Not applicable

VBLKX91 — Lancaster Laboratories — Analysis Summary for GC/MS Volatiles — VBLKX91

Data file: /chem2/HP09193.i/18apr15a.b/xa15b10.d
Injection date and time: **15-APR-2018 11:05**
Data file Sample Info. Line: VBLKX91;VBLKX91;2;3;;;;;;
Instrument ID: **HP09193.i** Batch: **X181051AA**
Date, time and analyst ID of latest file update: 15-Apr-2018 11:24 scn10072

Blank Data file reference: **/chem2/HP09193.i/18apr15a.b/xa15b10.d**

Method used: /chem2/HP09193.i/18apr15a.b/na8260c.m Sublist used: **8260S-D2C**
Calibration date and time (Last Method Edit): 15-APR-2018 10:10
Mid Level Daily Calibration Standard Reference: **/chem2/HP09193.i/18apr15a.b/xa15c10.d**

Bottle Code: Matrix: SOIL Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/Kg

Sample Concentration Formula: On-Column Amount * (Vt/Ws) VOA Prep Factor: **1.00**

Volume Purged (Vt): 5 ml Sample Weight (Ws): 5 g

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
30) t-Butyl alcohol-d10	4.109(0.000)	416	65	95384 (15)	250.00	
70) Fluorobenzene	7.620(0.000)	993	96	1014571 (0)	50.00	
105) Chlorobenzene-d5	11.130(0.000)	1570	117	792162 (-2)	50.00	
140) 1,4-Dichlorobenzene-d4	13.022(0.000)	1881	152	410724 (-8)	50.00	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
56) Dibromofluoromethane	(2)	6.719(0.000)	113	242863	49.647	99%		50 - 141
63) 1,2-Dichloroethane-d4	(2)	7.182(0.001)	102	58463	50.906	102%		54 - 135
91) Toluene-d8	(3)	9.652(0.000)	98	1022043	51.851	104%		52 - 141
119) 4-Bromofluorobenzene	(3)	12.140(0.000)	95	353856	47.399	95%		50 - 131

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ (in sample)
2) Dichlorodifluoromethane	(2)			Not Detected					2	5
4) Chloromethane	(2)			Not Detected					2	5
5) Vinyl Chloride	(2)			Not Detected					1	5
9) Bromomethane	(2)			Not Detected					2	5
10) Chloroethane	(2)			Not Detected					2	5
13) Trichlorofluoromethane	(2)			Not Detected					2	5
15) Ethanol	(1)			Not Detected					100	500
17) Freon 123a	(2)			Not Detected					2	5
18) Acrolein	(1)			Not Detected					20	100
19) 1,1-Dichloroethene	(2)			Not Detected					1	5
20) Acetone	(1)			Not Detected					7	20
22) Freon 113	(2)			Not Detected					2	10
23) 2-Propanol	(1)			Not Detected					60	100
24) Methyl Iodide	(2)			Not Detected					3	5
25) Carbon Disulfide	(2)			Not Detected					1	5
27) Methyl Acetate	(2)			Not Detected					2	5
29) Allyl Chloride	(2)			Not Detected					1	5
31) Methylene Chloride	(2)			Not Detected					2	5
32) t-Butyl alcohol	(1)			Not Detected					20	100
33) Acrylonitrile	(2)			Not Detected					4	20
34) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.5	5
35) trans-1,2-Dichloroethene	(2)			Not Detected					1	5
38) n-Hexane	(2)			Not Detected					1	5
40) 1,1-Dichloroethane	(2)			Not Detected					1	5
41) di-Isopropyl ether	(2)			Not Detected					1	5
42) 2-Chloro-1,3-butadiene	(2)			Not Detected					1	5
43) Ethyl t-butyl ether	(2)			Not Detected					1	5
44) 2-Butanone	(1)			Not Detected					4	10
45) cis-1,2-Dichloroethene	(2)			Not Detected					1	5
46) 1,2-Dichloroethene (Total)	(2)			Not Detected					1	5

VBLKX91 Lancaster Laboratories Analysis Summary for GC/MS Volatiles VBLKX91

Data file: /chem2/HP09193.i/18apr15a.b/xa15b10.d Injection date and time: **15-APR-2018 11:05**
Data file Sample Info. Line: VBLKX91;VBLKX91;2;3;;;;;; Instrument ID: **HP09193.i** Batch: **X181051AA**
Date, time and analyst ID of latest file update: 15-Apr-2018 11:24 scn10072

Blank Data file reference: **/chem2/HP09193.i/18apr15a.b/xa15b10.d**

Method used: /chem2/HP09193.i/18apr15a.b/na8260c.m Sublist used: **8260S-D2C**
Calibration date and time (Last Method Edit): 15-APR-2018 10:10
Mid Level Daily Calibration Standard Reference: **/chem2/HP09193.i/18apr15a.b/xa15c10.d**

Bottle Code: Matrix: SOIL Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/Kg

Sample Concentration Formula: On-Column Amount * (Vt/Ws) VOA Prep Factor: **1.00**

Volume Purged (Vt): 5 ml Sample Weight (Ws): 5 g

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ (in sample)
47) 2,2-Dichloropropane	(2)			Not Detected					1	5
49) Propionitrile	(1)			Not Detected					30	100
51) Methacrylonitrile	(2)			Not Detected					5	50
52) Bromochloromethane	(2)			Not Detected					1	5
53) Tetrahydrofuran	(1)			Not Detected					4	8
54) Chloroform	(2)			Not Detected					1	5
57) 1,1,1-Trichloroethane	(2)			Not Detected					1	5
58) Cyclohexane	(2)			Not Detected					1	5
60) 1,1-Dichloropropene	(2)			Not Detected					1	5
61) Carbon Tetrachloride	(2)			Not Detected					1	5
62) Isobutyl Alcohol	(1)			Not Detected					100	250
64) Benzene	(2)			Not Detected					0.5	5
67) 1,2-Dichloroethane	(2)			Not Detected					1	5
68) t-Amyl methyl ether	(2)			Not Detected					1	5
72) n-Heptane	(2)			Not Detected					3	5
73) n-Butanol	(1)			Not Detected					110	250
75) Trichloroethene	(2)			Not Detected					1	5
76) Methylcyclohexane	(2)			Not Detected					1	5
77) 1,2-Dichloropropane	(2)			Not Detected					1	5
79) Methyl Methacrylate	(2)			Not Detected					1	5
80) 1,4-Dioxane	(1)			Not Detected					70	250
81) Dibromomethane	(2)			Not Detected					1	5
84) Bromodichloromethane	(2)			Not Detected					1	5
85) 2-Nitropropane	(1)			Not Detected					3	10
89) cis-1,3-Dichloropropene	(2)			Not Detected					1	5
90) 4-Methyl-2-pentanone	(2)			Not Detected					3	10
92) Toluene	(3)			Not Detected					1	5
93) trans-1,3-Dichloropropene	(3)			Not Detected					1	5
95) Ethyl Methacrylate	(3)			Not Detected					1	5
96) 1,1,2-Trichloroethane	(3)			Not Detected					1	5
98) Tetrachloroethene	(3)			Not Detected					1	5
99) 1,3-Dichloropropane	(3)			Not Detected					1	5
101) 2-Hexanone	(3)			Not Detected					3	10
103) Dibromochloromethane	(3)			Not Detected					1	5
104) 1,2-Dibromoethane	(3)			Not Detected					1	5
106) 1-Chlorohexane	(3)			Not Detected					1	5
107) Chlorobenzene	(3)			Not Detected					1	5
108) 1,1,1,2-Tetrachloroethane	(3)			Not Detected					1	5
109) Ethylbenzene	(3)			Not Detected					1	5
110) m+p-Xylene	(3)			Not Detected					1	5
111) o-Xylene	(3)			Not Detected					1	5
112) Xylene (Total)	(3)			Not Detected					1	5
113) Styrene	(3)			Not Detected					1	5
114) Bromoform	(3)			Not Detected					1	5
115) Isopropylbenzene	(3)			Not Detected					1	5
118) Cyclohexanone	(1)			Not Detected					25	250
120) 1,1,2,2-Tetrachloroethane	(4)			Not Detected					1	5
121) Bromobenzene	(4)			Not Detected					1	5
122) trans-1,4-Dichloro-2-butene	(4)			Not Detected					10	50
123) 1,2,3-Trichloropropane	(4)			Not Detected					1	5
124) n-Propylbenzene	(4)			Not Detected					1	5
126) 2-Chlorotoluene	(4)			Not Detected					1	5
129) 1,3,5-Trimethylbenzene	(4)			Not Detected					1	5

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

VBLKX91

Data file: /chem2/HP09193.i/18apr15a.b/xa15b10.d
Injection date and time: **15-APR-2018 11:05**
Data file Sample Info. Line: VBLKX91;VBLKX91;2;3;;;;;;
Instrument ID: **HP09193.i** Batch: **X181051AA**
Date, time and analyst ID of latest file update: 15-Apr-2018 11:24 scn10072

Blank Data file reference: **/chem2/HP09193.i/18apr15a.b/xa15b10.d**

Method used: /chem2/HP09193.i/18apr15a.b/na8260c.m Sublist used: **8260S-D2C**
Calibration date and time (Last Method Edit): 15-APR-2018 10:10
Mid Level Daily Calibration Standard Reference: **/chem2/HP09193.i/18apr15a.b/xa15c10.d**

Bottle Code: Matrix: SOIL Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/Kg

Sample Concentration Formula: On-Column Amount * (Vt/Ws) VOA Prep Factor: **1.00**

Volume Purged (Vt): 5 ml Sample Weight (Ws): 5 g

Target Compounds	I.S. Ref.	RT	(+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
130) 4-Chlorotoluene	(4)				Not Detected					1	5
133) tert-Butylbenzene	(4)				Not Detected					1	5
134) Pentachloroethane	(4)				Not Detected					1	5
135) 1,2,4-Trimethylbenzene	(4)				Not Detected					1	5
136) sec-Butylbenzene	(4)				Not Detected					1	5
138) 1,3-Dichlorobenzene	(4)				Not Detected					1	5
139) p-Isopropyltoluene	(4)				Not Detected					1	5
141) 1,4-Dichlorobenzene	(4)				Not Detected					1	5
142) 1,2,3-Trimethylbenzene	(4)				Not Detected					1	5
143) Benzyl Chloride	(4)				Not Detected					1	4
144) 1,3-Diethylbenzene	(4)				Not Detected					1	5
145) 1,4-Diethylbenzene	(4)				Not Detected					1	5
146) n-Butylbenzene	(4)				Not Detected					1	5
147) 1,2-Dichlorobenzene	(4)				Not Detected					1	5
148) 1,2-Diethylbenzene	(4)				Not Detected					1	5
151) 1,2-Dibromo-3-chloropropane	(4)				Not Detected					2	5
152) 1,3,5-Trichlorobenzene	(4)				Not Detected					1	5
153) 1,2,4-Trichlorobenzene	(4)				Not Detected					1	5
154) Hexachlorobutadiene	(4)				Not Detected					2	5
155) Naphthalene	(4)				Not Detected					1	5
156) 1,2,3-Trichlorobenzene	(4)				Not Detected					1	5
157) 2-Methylnaphthalene	(4)				Not Detected					2	5

Total number of targets = 105

Digitally signed by Stephen C. Nolte on 04/15/2018 at 11:26. Target 3.5 esignature user ID: scn10072

Secondary review performed and digitally signed by Paul P. Cormier on 04/16/2018 at 10:11. PARALLAX ID: ppc00685

Quant Report

Target Revision 3.5

Data File: /chem2/HP09193.i/18apr15a.b/xa15b10.d Instrument ID: HP09193.i
Injection date and time: 15-APR-2018 11:05 Analyst ID: scn10072

Method used: /chem2/HP09193.i/18apr15a.b/na8260c.m Sublist used: 8260S-D2C
Calibration date and time: 15-APR-2018 10:10
Date, time and analyst ID of latest file update: 15-Apr-2018 11:24 scn10072

Sample Name: VBLKX91 Lab Sample ID: VBLKX91

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
30)*t-Butyl alcohol-d10	(1)	4.109	65	95384	250.000
56)$Dibromofluoromethane	(2)	6.719	113	242863	49.647
63)$1,2-Dichloroethane-d4	(2)	7.182	102	58463	50.906
70)*Fluorobenzene	(2)	7.620	96	1014571	50.000
91)$Toluene-d8	(3)	9.652	98	1022043	51.851
105)*Chlorobenzene-d5	(3)	11.130	117	792162	50.000
119)$4-Bromofluorobenzene	(3)	12.140	95	353856	47.399
140)*1,4-Dichlorobenzene-d4	(4)	13.022	152	410724	50.000

* = Compound is an internal standard.
$ = Compound is a surrogate standard.

Digitally signed by Stephen C. Nolte
on 04/15/2018 at 11:26.
Target 3.5 esignature user ID: scn10072

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

VBLKL58

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Matrix: (soil/water) WATER Lab Sample ID: VBLKL58

Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09915.i/18apr15a.b/la15b01.d

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 04/15/18

Column: (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	VOCTIC	Total VOC TICs		0	U
2.					
3.					
4.					
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FORM I VOA-TIC

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VOA Prep Summary by SDG: SBN13

21 - GC/MS Volatiles

Sample Number	Bottle Code	Prep Analysis#	Vial ID	Used for Analysis?	Collected	Prepared	Initial Weight	Final Weight	Net soil weight	Weight requirement	Meets require-ments?	Preserv. lot #	Preservative (volume)	Final Extraction Vol (mL)	Problem Codes
9546280	014A	07579	18792127	N	04/05/18 12:00	04/05/18 12:00	29.17 g	34.23 g	5.06 g	4.50 g - 5.50 g	Y	17070285	MeOH (5 mL)	5.000	
9546280	093A	02392	18792133	N	04/05/18 12:00	04/05/18 12:00	33.19 g	38.28 g	5.09 g	4.50 g - 5.50 g	Y	2GG0015	NaHSO4 (5 mL)	5.000	
9546280	093B	02392	18792134	Y	04/05/18 12:00	04/05/18 12:00	32.77 g	37.85 g	5.08 g	4.50 g - 5.50 g	Y	2GG0015	NaHSO4 (5 mL)	5.000	
9546281	014A	07579	18792128	N	04/05/18 12:45	04/05/18 12:45	29.65 g	36.45 g	6.80 g	4.50 g - 5.50 g	N	17070285	MeOH (5 mL)	5.000	A
9546281	093A	02392	18792135	Y	04/05/18 12:45	04/05/18 12:45	32.97 g	39.27 g	6.30 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9546281	093B	02392	18792136	N	04/05/18 12:45	04/05/18 12:45	32.79 g	39.58 g	6.79 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9546282	014A	07579	18792129	N	04/05/18 12:45	04/05/18 12:45	29.63 g	36.60 g	6.97 g	4.50 g - 5.50 g	N	17070285	MeOH (5 mL)	5.000	A
9546282	093A	02392	18792137	Y	04/05/18 12:45	04/05/18 12:45	33.20 g	38.41 g	5.21 g	4.50 g - 5.50 g	Y	2GG0015	NaHSO4 (5 mL)	5.000	
9546282	093B	02392	18792138	N	04/05/18 12:45	04/05/18 12:45	33.43 g	40.31 g	6.88 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9546283	014A	07579	18792130	N	04/05/18 12:45	04/05/18 12:45	29.59 g	36.85 g	7.26 g	4.50 g - 5.50 g	N	17070285	MeOH (5 mL)	5.000	A
9546283	093A	02392	18792139	Y	04/05/18 12:45	04/05/18 12:45	33.10 g	39.64 g	6.54 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9546283	093B	02392	18792140	N	04/05/18 12:45	04/05/18 12:45	32.92 g	39.56 g	6.64 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9546285	014A	07579	18792131	Y	04/05/18 13:30	04/05/18 13:30	29.67 g	35.88 g	6.21 g	4.50 g - 5.50 g	N	17070285	MeOH (5 mL)	5.000	A
9546285	093A	02392	18792141	N	04/05/18 13:30	04/05/18 13:30	32.81 g	39.43 g	6.62 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9546285	093B	02392	18792142	N	04/05/18 13:30	04/05/18 13:30	32.98 g	39.67 g	6.69 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9546286	014A	07579	18792132	N	04/05/18 00:00	04/05/18 00:00	29.66 g	34.61 g	4.95 g	4.50 g - 5.50 g	Y	17070285	MeOH (5 mL)	5.000	
9546286	093A	02392	18792143	N	04/05/18 00:00	04/05/18 00:00	33.38 g	38.70 g	5.32 g	4.50 g - 5.50 g	Y	2GG0015	NaHSO4 (5 mL)	5.000	
9546286	093B	02392	18792144	Y	04/05/18 00:00	04/05/18 00:00	33.15 g	39.17 g	6.02 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9546186	014A	07579	18792047	N	04/03/18 16:30	04/03/18 16:30	29.47 g	36.07 g	6.60 g	4.50 g - 5.50 g	N	17070285	MeOH (5 mL)	5.000	A
9546186	093A	02392	18792040	N	04/03/18 16:30	04/03/18 16:30	33.37 g	40.41 g	7.04 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9546186	093B	02392	18792041	Y	04/03/18 16:30	04/03/18 16:30	33.33 g	40.06 g	6.73 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9546187	014A	07579	18792049	N	04/03/18 16:30	04/03/18 16:30	29.63 g	37.36 g	7.73 g	4.50 g - 5.50 g	N	17070285	MeOH (5 mL)	5.000	A
9546187	093A	02392	18792044	Y	04/03/18 16:30	04/03/18 16:30	33.39 g	40.18 g	6.79 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9546187	093B	02392	18792045	N	04/03/18 16:30	04/03/18 16:30	33.22 g	40.68 g	7.46 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A

Final Extraction Vol (mL) = Preservative Vol + Added MeOH (if applicable)

KEY to problem codes:

A = wt. does not meet requirements B = vial leaked C# where # = volume of MeOH added in mL due to sample not covered/matrix (lot #)
D = sampler not full E = effervescence observed F = pH >= 2 G = headspace in container

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

ICAL for all sludges

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: gc0880.d DFTPP Injection Date: 03/23/18

Instrument ID: HP11165 DFTPP Injection Time: 00:31

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	48.6
68	Less than 2.0% of mass 69	0.54 (1.0)1
69	Mass 69 relative abundance	54.0
70	Less than 2.0% of mass 69	0.34 (0.63)1
127	10.0 - 80.00% of mass 198	54.5
197	Less than 2.0% of mass 198	0.61
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.65
275	10.0 - 60.0% of mass 198	24.3
365	Greater than 1.00% of mass 198	2.38
441	Present, and less than mass 443	7.48
442	Greater than 50.00% of mass 198	51.2
443	15.00 - 24.00% of mass 442	10.4 (20.2)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD0788 - SSTD30	gc0881a.d	03/23/18	01:19
02	STD0788 - SSTD120	gc0882.d	03/23/18	01:45
03	STD0788 - SSTD80	gc0883.d	03/23/18	02:10
04	STD0788 - SSTD50	gc0884.d	03/23/18	02:35
05	STD0788 - SSTD15	gc0885.d	03/23/18	03:01
06	STD0788 - SSTD5	gc0886.d	03/23/18	03:26
07	STD0788 - SSTD1	gc0887.d	03/23/18	03:51
08	STD0788 - SSTD.5	gc0888.d	03/23/18	04:16
09	8270MDL0788 - SSTD0.50	gc0889.d	03/23/18	04:41
10	MDLPAH0788 - SSTD0.10	gc0890.d	03/23/18	05:07
11	ICV0648 - SSTD050	gc0891.d	03/23/18	05:32
12	BAS0778 - SSTD50	gc0892.d	03/23/18	05:57
13	BAS0778 - SSTD120	gc0893.d	03/23/18	06:22
14	BAS0778 - SSTD80	gc0894.d	03/23/18	06:48
15	BAS0778 - SSTD30	gc0895.d	03/23/18	07:13
16	BAS0778 - SSTD15	gc0896.d	03/23/18	07:38
17	BAS0778 - SSTD5	gc0897.d	03/23/18	08:03
18	BASMDL0778 - SSTD001	gc0898.d	03/23/18	08:29

< 12 hours.

FORM V SV

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: gc0880.d DFTPP Injection Date: 03/23/18

Instrument ID: HP11165 DFTPP Injection Time: 00:31

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	48.6
68	Less than 2.0% of mass 69	0.54 (1.0)1
69	Mass 69 relative abundance	54.0
70	Less than 2.0% of mass 69	0.34 (0.63)1
127	10.0 - 80.00% of mass 198	54.5
197	Less than 2.0% of mass 198	0.61
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.65
275	10.0 - 60.0% of mass 198	24.3
365	Greater than 1.00% of mass 198	2.38
441	Present, and less than mass 443	7.48
442	Greater than 50.00% of mass 198	51.2
443	15.00 - 24.00% of mass 442	10.4 (20.2)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
19	BASICV0648 - SSTD050	gc0899.d	03/23/18	08:54

FORM V SV

ICAL for all sludges.
Full validation.
RRF > method minimum,
< 20% RSD.

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date(s): 03/23/18 03/23/18

Calibration Times: 01:19 04:16

LAB FILE ID:RRF0.5 = gc0888.d RRF1 = gc0887.d RRF5 = gc0886.d RRF15 = gc0885.d
RRF30 = gc0881a.d RRF50 = gc0884.d RRF80 = gc0883.d RRF120 = gc0882.d

COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	RRF	% RSD	CAL. METHOD
1,4-Dioxane			0.674	0.720	0.727	0.695	0.664	0.697	0.696	4	AVG
N-Nitrosodimethylamine			1.007	1.079	1.200	1.187	1.159	1.220	1.142	7	AVG
Pyridine			1.779	1.881	1.966	1.964	1.962	2.062	1.936	5	AVG
2-Picoline			1.854	2.015	2.081	2.038	2.035	2.093	2.019	4	AVG
N-Nitrosomethylethylamine			0.943	0.890	0.957	0.940	0.910	0.953	0.932	3	AVG
Methyl methanesulfonate			0.985	1.016	1.044	1.057	1.036	1.063	1.033	3	AVG
N-Nitrosodiethylamine		0.801	0.886	0.921	0.962	0.958	0.932	0.962	0.917	6	AVG
Ethyl methanesulfonate		0.876	0.931	0.907	0.943	0.937	0.904	0.916	0.916	3	AVG
Phenol		2.311	2.312	2.418	2.770	2.737	2.651	2.709	2.558	8	AVG
Aniline		2.839	2.821	3.040	3.189	3.141	3.040	3.092	3.023	5	AVG
a-methylstyrene			0.624	0.641	0.637	0.627	0.622	0.642	0.632	1	AVG
bis(2-Chloroethyl)ether		1.843	1.885	1.887	1.911	1.929	1.855	1.897	1.887	2	AVG
2-Chlorophenol		1.680	1.590	1.631	1.704	1.705	1.662	1.732	1.672	3	AVG
1,3-Dichlorobenzene		1.750	1.588	1.615	1.617	1.610	1.581	1.630	1.627	3	AVG
1,4-Dichlorobenzene		1.646	1.582	1.595	1.602	1.670	1.607	1.656	1.623	2	AVG
Benzyl alcohol		1.146	1.147	1.263	1.283	1.287	1.263	1.251	1.234	5	AVG
1,2-Dichlorobenzene		1.679	1.540	1.555	1.588	1.589	1.546	1.575	1.582	3	AVG
Indene			2.375	2.437	2.527	2.499	2.457	2.469	2.461	2	AVG
2-Methylphenol	1.276	1.668	1.586	1.768	1.809	1.789	1.761	1.778	1.679	11	AVG
2,2'-oxybis(1-Chloropropane)		2.289	2.345	2.304	2.396	2.370	2.285	2.329	2.331	2	AVG
bis(2-Chloroisopropyl)ether		2.289	2.345	2.304	2.396	2.370	2.285	2.329	2.331	2	AVG
N-Nitrosopyrrolidine		0.662	0.972	1.023	1.079	1.099	1.065	1.045	0.992	15	AVG
Acetophenone		2.392	2.472	2.630	2.683	2.602	2.549	2.531	2.551	4	AVG
4-Methylphenol		1.824	1.803	1.927	2.027	1.973	1.927	2.113	1.942	6	AVG
Total Cresols		1.746	1.694	1.848	1.918	1.881	1.844	1.946	1.840	5	AVG
N-Nitroso-di-n-propylamine		1.547	1.567	1.625	1.681	1.647	1.590	1.573	1.604	3	AVG
N-Nitrosomorpholine			1.232	1.283	1.298	1.278	1.220	1.218	1.255	3	AVG
o-Toluidine		2.784	2.921	3.069	3.108	3.078	3.023	2.978	2.994	4	AVG
Hexachloroethane			0.591	0.617	0.638	0.641	0.632	0.655	0.629	4	AVG
Nitrobenzene		0.410	0.457	0.448	0.472	0.452	0.460	0.470	0.453	5	AVG
N-Nitrosopiperidine		0.190	0.206	0.205	0.216	0.208	0.211	0.212	0.207	4	AVG
Isophorone		0.802	0.833	0.843	0.897	0.857	0.855	0.874	0.851	4	AVG
2-Nitrophenol		0.159	0.187	0.186	0.198	0.197	0.204	0.209	0.191	9	AVG
2,4-Dimethylphenol	0.401	0.357	0.405	0.392	0.417	0.400	0.406	0.411	0.399	5	AVG
O,O,O-Triethylphosphorothioate			0.158	0.154	0.155	0.149	0.148	0.151	0.153	2	AVG
bis(2-Chloroethoxy)methane		0.552	0.516	0.512	0.529	0.506	0.513	0.509	0.520	3	AVG
Benzoic acid			0.328	0.335	0.351	0.351	0.348	0.359	0.345	3	AVG
2,4-Dichlorophenol		0.243	0.283	0.281	0.293	0.287	0.286	0.290	0.280	6	AVG
1,2,4-Trichlorobenzene			0.277	0.272	0.272	0.271	0.275	0.278	0.274	1	AVG
Naphthalene	1.174	1.123	1.143	1.120	1.170	1.119	1.118	1.134	1.138	2	AVG
4-Chloroaniline		0.479	0.469	0.482	0.509	0.485	0.484	0.485	0.485	2	AVG
2,6-Dichlorophenol		0.267	0.271	0.281	0.278	0.286	0.280	0.289	0.279	3	AVG
Hexachloropropene			0.117	0.123	0.128	0.130	0.136	0.138	0.129	6	AVG
Hexachlorobutadiene	0.155	0.118	0.117	0.111	0.113	0.117	0.115	0.118	0.120	12	AVG
Quinoline			0.816	0.761	0.782	0.762	0.761	0.755	0.773	3	AVG
Caprolactam			0.141	0.162	0.160	0.157	0.154	0.152	0.154	5	AVG
N-Nitrosodi-n-butylamine		0.429	0.422	0.417	0.438	0.411	0.332	0.323	0.396	12	AVG
4-Chloro-3-methylphenol		0.350	0.377	0.372	0.378	0.368	0.369	0.372	0.369	3	AVG
Safrole			0.281	0.277	0.288	0.279	0.282	0.283	0.282	1	AVG
2-Methylnaphthalene	0.722	0.773	0.793	0.786	0.800	0.774	0.779	0.793	0.778	3	AVG
1-Methylnaphthalene	0.686	0.702	0.733	0.713	0.731	0.714	0.703	0.713	0.712	2	AVG
Hexachlorocyclopentadiene			0.173	0.199	0.215	0.228	0.233	0.233	0.213	11	AVG

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date(s): 03/23/18 03/23/18

Calibration Times: 01:19 04:16

LAB FILE ID:RRF0.5 = gc0888.d RRF1 = gc0887.d RRF5 = gc0886.d RRF15 = gc0885.d
RRF30 = gc0881a.d RRF50 = gc0884.d RRF80 = gc0883.d RRF120 = gc0882.d

COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	RRF	% RSD	CAL. METHOD	
1,2,4,5-Tetrachlorobenzene		0.476	0.455	0.479	0.475	0.481	0.487	0.499	0.479	3	AVG	
cis-Isosafrole			0.608	0.581	0.626	0.613	0.573	0.602	0.600	3	AVG	
2,4,6-Trichlorophenol		0.306	0.336	0.357	0.381	0.381	0.381	0.391	0.362	9	AVG	
2,4,5-Trichlorophenol		0.327	0.366	0.388	0.390	0.399	0.388	0.411	0.381	7	AVG	
trans-Isosafrole			0.575	0.634	0.666	0.661	0.662	0.682	0.646	6	AVG	
Isosafrole			0.580	0.625	0.660	0.653	0.647	0.668	0.639	5	AVG	
1,1'-Biphenyl		1.570	1.733	1.794	1.773	1.760	1.768	1.787	1.741	4	AVG	
2-Chloronaphthalene		1.581	1.153	1.518	1.334	1.255	1.400	1.294	1.362	11	AVG	
1-Chloronaphthalene		1.177	1.332	1.232	1.244	1.308	1.147	1.337	1.254	6	AVG	
Diphenyl ether		0.898	0.874	0.877	0.893	0.895	0.889	0.912	0.891	1	AVG	
2-Nitroaniline		0.355	0.452	0.472	0.508	0.511	0.518	0.526	0.478	13	AVG	
1,4-Naphthoquinone			0.530	0.571	0.585	0.583	0.588	0.583	0.573	4	AVG	
1,4-Dinitrobenzene			0.175	0.218	0.237	0.248	0.257	0.269	0.234	14	AVG	
Dimethylphthalate			1.540	1.578	1.564	1.553	1.549	1.595	1.563	1	AVG	
1,3-Dinitrobenzene			0.224	0.279	0.277	0.290	0.292	0.300	0.277	10	AVG	
2,6-Dinitrotoluene		0.244	0.336	0.364	0.376	0.370	0.376	0.396	0.352	14	AVG	
Acenaphthylene	1.727	1.851	1.914	2.063	2.101	2.086	2.094	2.166	2.000	8	AVG	
3-Nitroaniline		0.319	0.396	0.431	0.462	0.452	0.457	0.470	0.427	13	AVG	
Acenaphthene	1.414	1.394	1.373	1.377	1.405	1.379	1.394	1.444	1.397	2	AVG	
2,4-Dinitrophenol			0.154	0.190	0.209	0.226	0.230	0.247	0.209	16	AVG	
4-Nitrophenol			0.242	0.244	0.251	0.251	0.246	0.282	0.252	6	AVG	
Pentachlorobenzene		0.431	0.418	0.401	0.408	0.401	0.417	0.415	0.413	3	AVG	
2,4-Dinitrotoluene			0.429	0.469	0.496	0.485	0.503	0.525	0.484	7	AVG	
2,4_2,6-Dinitrotoluenes			0.382	0.417	0.436	0.428	0.440	0.460	0.427	6	AVG	
Dibenzofuran		2.068	1.942	1.928	1.954	1.927	1.929	1.993	1.963	3	AVG	
1-Naphthylamine			1.602	1.669	1.713	1.696	1.695	1.713	1.682	2	AVG	
2,3,4,6-Tetrachlorophenol		0.340	0.285	0.289	0.298	0.299	0.299	0.304	0.302	6	AVG	
2-Naphthylamine			1.550	1.626	1.714	1.651	1.648	1.642	1.638	3	AVG	
Diethylphthalate			1.504	1.595	1.612	1.574	1.554	1.628	1.578	3	AVG	
Thionazin			0.280	0.290	0.304	0.304	0.300	0.314	0.299	4	AVG	
Fluorene	1.570	1.579	1.615	1.645	1.682	1.660	1.671	1.706	1.641	3	AVG	
4-Chlorophenyl-phenylether		0.753	0.723	0.718	0.683	0.670	0.670	0.690	0.701	4	AVG	
5-Nitro-o-toluidine		0.455	0.464	0.541	0.510	0.519	0.509	0.534	0.505	7	AVG	
4-Nitroaniline		0.385	0.499	0.524	0.519	0.482	0.483	0.494	0.484	10	AVG	
4,6-Dinitro-2-methylphenol			0.112	0.125	0.137	0.154	0.157	0.157	0.140	14	AVG	
N-Nitrosodiphenylamine (1)	0.644	0.714	0.710	0.746	0.758	0.758	0.776	0.778	0.735	6	AVG	
NDPA as diphenylamine	0.644	0.714	0.710	0.746	0.758	0.758	0.776	0.778	0.735	6	AVG	
1,2-Diphenylhydrazine		0.904	1.000	1.057	1.129	1.102	1.127	1.140	1.066	8	AVG	
Tetraethyldithiopyrophosphate			0.148	0.153	0.158	0.160	0.161	0.165	0.158	4	AVG	
1,3,5-Trinitrobenzene			0.053	0.066	0.082	0.087	0.096	0.097	0.080	22	1STDEG	NT
Diallate (peak 1)			0.487	0.508	0.532	0.526	0.537	0.536	0.521	4	AVG	
Phorate		0.479	0.620	0.658	0.710	0.702	0.723	0.757	0.664	14	AVG	
Phenacetin		0.408	0.497	0.518	0.544	0.534	0.549	0.551	0.514	10	AVG	
4-Bromophenyl-phenylether			0.185	0.186	0.189	0.190	0.192	0.188	0.188	1	AVG	
Diallate (peak 2)			0.465	0.400	0.424	0.417	0.432	0.433	0.428	5	AVG	
Diallate trans/cis			0.483	0.490	0.514	0.508	0.519	0.518	0.505	3	AVG	
Hexachlorobenzene	0.164	0.168	0.167	0.165	0.158	0.169	0.171	0.174	0.167	3	AVG	
Dimethoate			0.383	0.417	0.450	0.432	0.438	0.433	0.425	5	AVG	
Pentachlorophenol			0.108	0.114	0.116	0.124	0.127	0.127	0.119	7	AVG	
4-Aminobiphenyl		0.731	0.794	0.831	0.799	1.279	0.754	0.662	0.836	24	AVG	NT
Pentachloronitrobenzene			0.064	0.071	0.071	0.072	0.075	0.075	0.071	5	AVG	
Pronamide		0.235	0.305	0.343	0.350	0.356	0.366	0.379	0.333	15	AVG	

(1) Cannot be separated from Diphenylamine

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date(s): 03/23/18 03/23/18

Calibration Times: 01:19 04:16

LAB FILE ID:RRF0.5 = gc0888.d RRF1 = gc0887.d RRF5 = gc0886.d RRF15 = gc0885.d
RRF30 = gc0881a.d RRF50 = gc0884.d RRF80 = gc0883.d RRF120 = gc0882.d

COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	RRF	% RSD	CAL. METHOD	
Dinoseb			0.118	0.163	0.180	0.206	0.221	0.222	0.185	22	1STDEG	NT
Phenanthrene	1.366	1.307	1.291	1.263	1.254	1.263	1.265	1.267	1.285	3	AVG	
Anthracene	1.172	1.171	1.247	1.284	1.293	1.291	1.326	1.317	1.263	5	AVG	
Carbazole		1.140	1.203	1.216	1.245	1.222	1.245	1.243	1.216	3	AVG	
Methyl parathion			0.223	0.278	0.318	0.311	0.323	0.318	0.295	13	AVG	
Di-n-butylphthalate			1.307	1.446	1.528	1.522	1.542	1.486	1.472	6	AVG	
Parathion			0.136	0.166	0.194	0.197	0.208	0.212	0.185	16	AVG	
4-Nitroquinoline-1-oxide			0.050	0.082	0.109	0.123	0.139	0.139	0.107	33	1STDEG	NT
Octachlorostyrene			0.057	0.063	0.056	0.058	0.061	0.060	0.059	5	AVG	
Isodrin		0.113	0.115	0.123	0.119	0.126	0.127	0.129	0.122	5	AVG	
Fluoranthene	1.108	1.149	1.229	1.264	1.242	1.277	1.295	1.302	1.233	6	AVG	
Benzidine			0.774	0.915	0.981	1.193	1.012	0.903	0.963	14	AVG	
Pyrene	1.600	1.616	1.434	1.421	1.457	1.451	1.478	1.480	1.492	5	AVG	
p-Dimethylaminoazobenzene		0.164	0.210	0.225	0.250	0.246	0.258	0.259	0.230	15	AVG	
Chlorobenzilate		0.352	0.438	0.462	0.494	0.480	0.500	0.508	0.462	12	AVG	
3,3'-Dimethylbenzidine			0.593	0.707	0.820	0.891	0.868	0.839	0.786	14	AVG	
Butylbenzylphthalate			0.674	0.750	0.775	0.757	0.781	0.790	0.755	6	AVG	
2-Acetylaminofluorene			0.457	0.553	0.612	0.617	0.645	0.652	0.589	12	AVG	
3,3'-Dichlorobenzidine			0.361	0.397	0.416	0.418	0.435	0.442	0.412	7	AVG	
4,4'-Methylenebis(2-chloroanil			0.205	0.223	0.242	0.242	0.253	0.256	0.237	8	AVG	
Benzo(a)anthracene	1.078	1.062	1.144	1.221	1.214	1.205	1.246	1.269	1.180	7	AVG	
Chrysene	1.187	1.145	1.231	1.189	1.177	1.175	1.185	1.189	1.185	2	AVG	
bis(2-Ethylhexyl)phthalate			0.901	0.997	1.063	1.043	1.085	1.082	1.028	7	AVG	
6-Methylchrysene			0.781	0.808	0.809	0.832	0.858	0.868	0.826	4	AVG	
Di-n-octylphthalate			1.641	1.904	2.135	2.150	2.255	2.380	2.078	13	AVG	
Benzo(b)fluoranthene	1.039	1.114	1.290	1.235	1.279	1.357	1.411	1.474	1.275	11	AVG	
7,12-Dimethylbenz[a]anthracene		0.469	0.578	0.615	0.640	0.637	0.657	0.692	0.613	12	AVG	
Benzo(k)fluoranthene	1.171	1.229	1.321	1.417	1.408	1.310	1.336	1.453	1.331	7	AVG	
Benzo(a)pyrene	0.985	1.121	1.216	1.199	1.210	1.250	1.270	1.358	1.201	9	AVG	
3-Methylcholanthrene		0.487	0.536	0.562	0.586	0.601	0.622	0.662	0.579	10	AVG	
Dibenz(a,h)acridine			0.758	0.839	0.866	0.883	0.929	0.959	0.872	8	AVG	
Dibenz(a,j)acridine			0.941	1.004	0.977	1.021	1.004	1.037	0.997	3	AVG	
Indeno(1,2,3-cd)pyrene	1.129	1.127	1.247	1.308	1.309	1.335	1.341	1.385	1.273	8	AVG	
Dibenz(a,h)anthracene	0.938	0.928	1.066	1.083	1.121	1.093	1.105	1.141	1.059	8	AVG	
Benzo(g,h,i)perylene	0.919	0.945	1.023	1.076	1.070	1.100	1.082	1.125	1.043	7	AVG	
Total PAHs	1.202	1.228	1.289	1.328	1.386	1.392	1.438	1.545	1.351	8	AVG	
2-Fluorophenol			1.533	1.587	1.660	1.629	1.611	1.674	1.616	3	AVG	
Phenol-d6			2.208	2.308	2.387	2.366	2.310	2.313	2.315	3	AVG	
Nitrobenzene-d5			0.429	0.431	0.468	0.445	0.445	0.462	0.447	4	AVG	
2-Fluorobiphenyl			1.450	1.457	1.472	1.473	1.469	1.479	1.467	1	AVG	
2,4,6-Tribromophenol			0.119	0.116	0.118	0.121	0.121	0.124	0.120	2	AVG	
Terphenyl-d14			0.873	0.877	0.887	0.892	0.928	0.950	0.901	3	AVG	

Average %RSD 7

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.
Benzidine Levels in the 5,15,30,50,80,120 standards are 15,45,90,150,240,360 ng/ul, respectively.
Benzoic acid and 2,4-Dinitrophenol are at 15 ng/ul, 30 ng/ul,40 ng/ul in the 5,15,30 standards.

Internal Standard
Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP11165.i/18mar22a.b/gc0881a.d SSTD030
/chem/HP11165.i/18mar22a.b/gc0882.d SSTD120
/chem/HP11165.i/18mar22a.b/gc0883.d SSTD080
/chem/HP11165.i/18mar22a.b/gc0884.d SSTD050
/chem/HP11165.i/18mar22a.b/gc0885.d SSTD015
/chem/HP11165.i/18mar22a.b/gc0886.d SSTD005
/chem/HP11165.i/18mar22a.b/gc0887.d SSTD001
/chem/HP11165.i/18mar22a.b/gc0888.d SSTD0.50

Area Summary

	File ID:									
Internal Standard Name	gc0881a.d	gc0882.d	gc0883.d	gc0884.d	gc0885.d	gc0886.d	gc0887.d	gc0888.d	Avg. Area	%RSD	In Spec
1,4-Dichlorobenzene-d4	188518	208960	204725	200575	189203	195687	184398	199145	196401	4	Yes
Naphthalene-d8	873190	961524	955256	965986	894560	880669	825200	841676	899758	6	Yes
Acenaphthene-d10	449628	470406	481696	491039	465318	480812	445049	457279	467653	3	Yes
Phenanthrene-d10	835753	857469	861312	898595	880129	908018	901347	898098	880090	3	Yes
Pyrene-d10	738837	755965	759793	805477	806109	833037	799749	830569	791192	4	Yes
Perylene-d12	609457	571002	615686	656749	672361	704089	679204	699799	651043	7	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

	File ID:								
Internal Standard Name	gc0881a.d	gc0882.d	gc0883.d	gc0884.d	gc0885.d	gc0886.d	gc0887.d	gc0888.d	Avg. RT
1,4-Dichlorobenzene-d4	5.757	5.763	5.757	5.757	5.757	5.757	5.757	5.757	5.758
Naphthalene-d8	6.992	6.998	6.998	6.998	6.992	6.992	6.993	6.992	6.995
Acenaphthene-d10	8.710	8.716	8.716	8.716	8.710	8.710	8.710	8.710	8.712
Phenanthrene-d10	10.175	10.174	10.174	10.175	10.169	10.169	10.169	10.169	10.172
Pyrene-d10	11.569	11.574	11.568	11.569	11.563	11.563	11.563	11.563	11.566
Perylene-d12	14.257	14.262	14.257	14.257	14.251	14.257	14.251	14.251	14.255

ICV for all sludges.

Full validation

< 30% D

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP11165

Method: SW-846 8270D File ID: gc0891.d

ICV SAMPLE ID: ICV0648 BATCH: 18MAR22A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	50.00	60.54	21	30	YES
N-Nitrosodimethylamine	50.00	47.13	-6	30	YES
Pyridine	50.00	47.33	-5	30	YES
2-Picoline	50.00	46.97	-6	30	YES
N-Nitrosomethylethylamine	50.00	45.63	-9	30	YES
Methyl methanesulfonate	50.00	47.25	-5	30	YES
N-Nitrosodiethylamine	50.00	45.98	-8	30	YES
Ethyl methanesulfonate	50.00	46.63	-7	30	YES
Phenol	50.00	48.01	-4	30	YES
Aniline	50.00	46.28	-7	30	YES
bis(2-Chloroethyl)ether	50.00	45.17	-10	30	YES
2-Chlorophenol	50.00	46.57	-7	30	YES
1,3-Dichlorobenzene	50.00	46.53	-7	30	YES
1,4-Dichlorobenzene	50.00	47.67	-5	30	YES
Benzyl alcohol	50.00	49.42	-1	30	YES
1,2-Dichlorobenzene	50.00	46.66	-7	30	YES
Indene	50.00	55.56	11	30	YES
2-Methylphenol	50.00	48.79	-2	30	YES
2,2'-oxybis(1-Chloropropane	50.00	44.86	-10	30	YES
bis(2-Chloroisopropyl)ether	50.00	44.86	-10	30	YES
N-Nitrosopyrrolidine	50.00	47.77	-4	30	YES
Acetophenone	50.00	46.03	-8	30	YES
4-Methylphenol	50.00	45.58	-9	30	YES
N-Nitroso-di-n-propylamine	50.00	45.51	-9	30	YES
N-Nitrosomorpholine	50.00	45.24	-10	30	YES
o-Toluidine	50.00	45.58	-9	30	YES
Total Cresols	100.00	94.37	-6	30	YES
Hexachloroethane	50.00	46.30	-7	30	YES
Nitrobenzene	50.00	45.51	-9	30	YES
N-Nitrosopiperidine	50.00	46.16	-8	30	YES
Isophorone	50.00	47.54	-5	30	YES
2-Nitrophenol	50.00	47.72	-5	30	YES
2,4-Dimethylphenol	50.00	41.80	-16	30	YES
bis(2-Chloroethoxy)methane	50.00	46.48	-7	30	YES
Benzoic acid	100.00	126.73	27	30	YES
O,O,O-Triethylphosphorothio	50.00	47.63	-5	30	YES
2,4-Dichlorophenol	50.00	49.26	-1	30	YES

NC = Could not calculate

Comments: _____

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP11165

Method: SW-846 8270D File ID: gc0891.d

ICV SAMPLE ID: ICV0648 BATCH: 18MAR22A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,2,4-Trichlorobenzene	50.00	48.25	-3	30	YES
Naphthalene	50.00	46.43	-7	30	YES
4-Chloroaniline	50.00	48.70	-3	30	YES
2,6-Dichlorophenol	50.00	48.22	-4	30	YES
Hexachloropropene	50.00	51.23	2	30	YES
Hexachlorobutadiene	50.00	46.61	-7	30	YES
Quinoline	50.00	47.14	-6	30	YES
N-Nitrosodi-n-butylamine	50.00	37.14	-26	30	YES
4-Chloro-3-methylphenol	50.00	47.37	-5	30	YES
Safrole	50.00	47.03	-6	30	YES
2-Methylnaphthalene	50.00	47.17	-6	30	YES
1-Methylnaphthalene	50.00	48.47	-3	30	YES
Hexachlorocyclopentadiene	100.00	105.43	5	30	YES
1,2,4,5-Tetrachlorobenzene	50.00	45.89	-8	30	YES
cis-Isosafrole	6.00	5.79	-3	30	YES
2,4,6-Trichlorophenol	50.00	46.96	-6	30	YES
2,4,5-Trichlorophenol	50.00	50.05	0	30	YES
trans-Isosafrole	44.00	43.05	-2	30	YES
1,1'-Biphenyl	50.00	47.58	-5	30	YES
2-Chloronaphthalene	50.00	43.69	-13	30	YES
Isosafrole	50.00	48.84	-2	30	YES
1-Chloronaphthalene	50.00	60.02	20	30	YES
Diphenyl ether	50.00	60.67	21	30	YES
2-Nitroaniline	50.00	47.98	-4	30	YES
1,4-Naphthoquinone	62.50	57.68	-8	30	YES
1,4-Dinitrobenzene	50.00	45.90	-8	30	YES
Dimethylphthalate	50.00	45.52	-9	30	YES
1,3-Dinitrobenzene	50.00	46.99	-6	30	YES
2,6-Dinitrotoluene	50.00	47.76	-4	30	YES
Acenaphthylene	50.00	52.21	4	30	YES
3-Nitroaniline	50.00	48.63	-3	30	YES
Acenaphthene	50.00	48.10	-4	30	YES
2,4-Dinitrophenol	100.00	97.29	-3	30	YES
4-Nitrophenol	50.00	50.08	0	30	YES
Pentachlorobenzene	50.00	46.38	-7	30	YES
2,4-Dinitrotoluene	50.00	46.42	-7	30	YES
Dibenzofuran	50.00	46.01	-8	30	YES

NC = Could not calculate

Comments: _____

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS | LAB CODE: LANCAS | INSTRUMENT: HP11165

Method: SW-846 8270D | File ID: gc0891.d

ICV SAMPLE ID: ICV0648 | BATCH: 18MAR22A026 | Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	✔ % DRIFT	%D window	INSPEC
2,4_2,6-Dinitrotoluenes	100.00	94.19	-6	30	YES
1-Naphthylamine	100.00	88.87	-11	30	YES
2,3,4,6-Tetrachlorophenol	50.00	60.45	21	30	YES
2-Naphthylamine	100.00	92.13	-8	30	YES
Diethylphthalate	50.00	45.41	-9	30	YES
Thionazin	50.00	47.11	-6	30	YES
Fluorene	50.00	46.31	-7	30	YES
4-Chlorophenyl-phenylether	50.00	43.50	-13	30	YES
5-Nitro-o-toluidine	50.00	46.07	-8	30	YES
4-Nitroaniline	50.00	45.54	-9	30	YES
4,6-Dinitro-2-methylphenol	50.00	47.82	-4	30	YES
N-Nitrosodiphenylamine	50.00	47.86	-4	30	YES
NDPA as diphenylamine	50.00	47.86	-4	30	YES
1,2-Diphenylhydrazine	50.00	47.81	-4	30	YES
Tetraethyldithiopyrophospha	50.00	45.31	-9	30	YES
1,3,5-Trinitrobenzene	50.00	47.81	-4	30	YES
Diallate (peak 1)	37.50	31.57	-16	30	YES
Phorate	50.00	47.53	-5	30	YES
Phenacetin	50.00	46.15	-8	30	YES
4-Bromophenyl-phenylether	50.00	44.80	-10	30	YES
Diallate (peak 2)	12.50	12.22	-2	30	YES
Hexachlorobenzene	50.00	✔ 46.37	✔ -7	30	YES
Diallate trans/cis	50.00	43.79	-12	30	YES
Dimethoate	50.00	45.45	-9	30	YES
Pentachlorophenol	50.00	49.77	0	30	YES
4-Aminobiphenyl	50.00	53.83	8	30	YES
Pentachloronitrobenzene	50.00	47.68	-5	30	YES
Pronamide	50.00	48.16	-4	30	YES
Dinoseb	50.00	46.48	-7	30	YES
Phenanthrene	50.00	45.06	-10	30	YES
Anthracene	50.00	46.63	-7	30	YES
Carbazole	50.00	47.08	-6	30	YES
Methyl parathion	50.00	49.42	-1	30	YES
Di-n-butylphthalate	50.00	47.28	-5	30	YES
Parathion	50.00	48.64	-3	30	YES
4-Nitroquinoline-1-oxide	600.00	843.52	41 NT	30	NO*
Isodrin	50.00	47.76	-4	30	YES

NC = Could not calculate

Comments: *Run under valid ICV ECM10340 3/23/18

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS | LAB CODE: LANCAS | INSTRUMENT: HP11165

Method: SW-846 8270D | File ID: gc0891.d

ICV SAMPLE ID: ICV0648 | BATCH: 18MAR22A026 | Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Fluoranthene	50.00	46.45	-7	30	YES
Benzidine	250.00	240.80	-4	30	YES
Pyrene	50.00	45.36	-9	30	YES
p-Dimethylaminoazobenzene	50.00	57.59	15	30	YES
Chlorobenzilate	50.00	49.79	0	30	YES
3,3'-Dimethylbenzidine	100.00	97.57	-2	30	YES
Butylbenzylphthalate	50.00	47.34	-5	30	YES
2-Acetylaminofluorene	50.00	48.12	-4	30	YES
3,3'-Dichlorobenzidine	50.00	46.77	-6	30	YES
Benzo(a)anthracene	50.00	47.84	-4	30	YES
Chrysene	50.00	46.05	-8	30	YES
4,4'-Methylenebis(2-chloroa	50.00	44.65	-11	30	YES
bis(2-Ethylhexyl)phthalate	50.00	47.59	-5	30	YES
6-Methylchrysene	50.00	47.58	-5	30	YES
Di-n-octylphthalate	50.00	47.61	-5	30	YES
Benzo(b)fluoranthene	50.00	48.74	-3	30	YES
7,12-Dimethylbenz[a]anthrac	50.00	49.42	-1	30	YES
Benzo(k)fluoranthene	50.00	48.33	-3	30	YES
Benzo(a)pyrene	50.00	48.65	-3	30	YES
3-Methylcholanthrene	50.00	51.83	4	30	YES
Dibenz(a,h)acridine	50.00	47.39	-5	30	YES
Dibenz(a,j)acridine	50.00	42.55	-15	30	YES
Indeno(1,2,3-cd)pyrene	50.00	47.72	-5	30	YES
Dibenz(a,h)anthracene	50.00	48.68	-3	30	YES
Benzo(g,h,i)perylene	50.00	47.15	-6	30	YES
Total PAHs	900.00	855.35	-5	30	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS | LAB CODE: LANCAS | INSTRUMENT: HP11165

Method: SW-846 8270D | File ID: gc0899.d

ICV SAMPLE ID: BASICV0648 | BATCH: 18MAR22A026 | Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	✔	% DRIFT	%D window	INSPEC
Benzaldehyde	50.00	50.51		1	30	YES
Caprolactam	50.00	47.39	✔	-5	30	YES
Atrazine	50.00	49.99		0	30	YES

NC = Could not calculate

Comments: _____

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date(s): 03/23/18 03/23/18

Calibration Times: 05:57 08:03

LAB FILE ID: RRF5 = gc0897.d RRF15 = gc0896.d

RRF30 = gc0895.d RRF50 = gc0892.d RRF80 = gc0894.d RRF120 = gc0893.d

COMPOUND	RRF	RRF	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	RRF	% RSD	CAL. METHOD
Benzaldehyde			1.379	1.317	1.450	1.571	1.510	1.534	1.460	7	AVG
Atrazine			0.152	0.179	0.192	0.211	0.208	0.225	0.195	14	AVG

Average %RSD 326

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.
Benzidine Levels in the 5,15,30,50,80,120 standards are 15,45,90,150,240,360 ng/ul, respectively.
Benzoic acid and 2,4-Dinitrophenol are at 15 ng/ul, 30 ng/ul,40 ng/ul in the 5,15,30 standards.

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP11165.i/18mar22a.b/gc0892.d SSTD050
/chem/HP11165.i/18mar22a.b/gc0893.d SSTD120
/chem/HP11165.i/18mar22a.b/gc0894.d SSTD080
/chem/HP11165.i/18mar22a.b/gc0895.d SSTD030
/chem/HP11165.i/18mar22a.b/gc0896.d SSTD015
/chem/HP11165.i/18mar22a.b/gc0897.d SSTD005

Area Summary

Internal Standard Name	File ID: gc0892.d	gc0893.d	gc0894.d	gc0895.d	gc0896.d	gc0897.d	Avg. Area	%RSD	In Spec
1,4-Dichlorobenzene-d4	195727	200955	205949	214719	219327	211177	207976	4	Yes
Naphthalene-d8	831453	871907	866248	889366	887052	879993	871003	2	Yes
Acenaphthene-d10	430813	440229	446406	472280	458145	467746	452603	4	Yes
Phenanthrene-d10	873949	896950	943410	982490	956450	964202	936242	4	Yes
Pyrene-d10	761743	793688	833693	855874	852108	875964	828845	5	Yes
Perylene-d12	636849	660780	697718	726118	699576	717748	689798	5	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

Internal Standard Name	File ID: gc0892.d	gc0893.d	gc0894.d	gc0895.d	gc0896.d	gc0897.d	Avg. RT
1,4-Dichlorobenzene-d4	5.757	5.757	5.757	5.757	5.757	5.757	5.757
Naphthalene-d8	6.992	6.993	6.992	6.992	6.992	6.992	6.992
Acenaphthene-d10	8.710	8.710	8.710	8.710	8.710	8.710	8.710
Phenanthrene-d10	10.169	10.169	10.169	10.168	10.169	10.169	10.169
Pyrene-d10	11.563	11.563	11.563	11.563	11.563	11.563	11.563
Perylene-d12	14.251	14.257	14.257	14.256	14.257	14.257	14.256

Comments: _____

_____

Report generated on 03/23/2018 at 09:56

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

All solid samples.

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: gd0410a.d DFTPP Injection Date: 04/10/18

Instrument ID: HP11165 DFTPP Injection Time: 09:05

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	44.5
68	Less than 2.0% of mass 69	0.66 (1.32)1
69	Mass 69 relative abundance	50.0
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	10.0 - 80.00% of mass 198	54.5
197	Less than 2.0% of mass 198	0.49
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	7.26
275	10.0 - 60.0% of mass 198	24.9
365	Greater than 1.00% of mass 198	2.73
441	Present, and less than mass 443	8.02
442	Greater than 50.00% of mass 198	58.7
443	15.00 - 24.00% of mass 442	11.5 (19.6)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD0788 - SSTD30	gd0411.d	04/10/18	09:30
02	BAS0778 - SSTD50	gd0412.d	04/10/18	10:28
03	SBLKLA099	gd0413.d	04/10/18	11:59
04	099LALCS	gd0414.d	04/10/18	12:23
05	9546281	gd0415.d	04/10/18	12:46
06	9546282MS	gd0416.d	04/10/18	13:09
07	9546283MSD	gd0417.d	04/10/18	13:32
08	9546648	gd0418.d	04/10/18	13:56
09	9546649	gd0419.d	04/10/18	14:19
10	9546650	gd0420.d	04/10/18	14:42
11	9546651	gd0421.d	04/10/18	15:06
12	9546652	gd0422.d	04/10/18	15:29
13	9546653	gd0423.d	04/10/18	15:53
14	9546654	gd0424.d	04/10/18	16:16
15	9546655	gd0425.d	04/10/18	16:40
16	9546656	gd0426.d	04/10/18	17:03
17	9546657	gd0427.d	04/10/18	17:26
18	9546658	gd0428.d	04/10/18	17:49

< 12 hours

FORM V SV

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

CCV for all sludges
Full validation
RRF > method minimum
< 20% D

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date: 04/10/18 Time: 09:30

Lab File ID: gd0411.d Init. Calib. Date(s): 03/23/18 03/23/18

Init. Calib. Times(s): 01:19 04:16

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT	
1,4-Dioxane	0.696	0.573	24.670	30.0	-18	
N-Nitrosodimethylamine	1.142	1.057	27.780	30.0	-7	
Pyridine	1.936	1.635	25.350	30.0	-16	
2-Picoline	2.019	1.768	26.260	30.0	-12	
N-Nitrosomethylethylamine	0.932	0.993	31.960	30.0	7	
Methyl methanesulfonate	1.033	1.122	32.570	30.0	9	
N-Nitrosodiethylamine	0.917	1.014	33.150	30.0	11	
Ethyl methanesulfonate	0.916	0.993	32.520	30.0	8	
Phenol	2.558	2.728	31.990	30.0	7	
Aniline	3.023	3.280	32.550	30.0	9	
a-methylstyrene	0.632	0.673	31.950	30.0	6	
bis(2-Chloroethyl)ether	1.887	2.065	32.840	30.0	9	
2-Chlorophenol	1.672	1.750	31.400	30.0	5	
1,3-Dichlorobenzene	1.627	1.626	29.980	30.0	0	
1,4-Dichlorobenzene	1.623	1.655	30.600	30.0	2	
Benzyl alcohol	1.234	1.356	32.950	30.0	10	
1,2-Dichlorobenzene	1.582	1.612	30.560	30.0	2	
Indene	2.461	2.670	32.550	30.0	8	
2-Methylphenol	1.679	1.939	34.640	30.0	15	
2,2'-oxybis(1-Chloropropane)	2.331	2.610	33.580	30.0	12	
bis(2-Chloroisopropyl)ether	2.331	2.610	33.580	30.0	12	
N-Nitrosopyrrolidine	0.992	1.225	37.060	30.0	24	NT
Acetophenone	2.551	2.787	32.770	30.0	9	
4-Methylphenol	1.942	2.101	32.460	30.0	8	
Total Cresols	1.839	2.020	67.100	60.0	12	
N-Nitroso-di-n-propylamine	1.604	1.846	34.510	30.0	15	
N-Nitrosomorpholine	1.255	1.443	34.490	30.0	15	
o-Toluidine	2.994	3.317	33.230	30.0	11	
Hexachloroethane	0.629	0.721	34.390	30.0	15	
Nitrobenzene	0.453	0.492	32.570	30.0	9	
N-Nitrosopiperidine	0.207	0.217	31.520	30.0	5	
Isophorone	0.851	0.924	32.560	30.0	9	
2-Nitrophenol	0.191	0.203	31.870	30.0	6	
2,4-Dimethylphenol	0.399	0.435	32.730	30.0	9	
O,O,O-Triethylphosphorothioate	0.153	0.147	28.790	30.0	-4	
bis(2-Chloroethoxy)methane	0.520	0.542	31.280	30.0	4	

FORM VII SV-1

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date: 04/10/18 Time: 09:30

Lab File ID: gd0411.d Init. Calib. Date(s): 03/23/18 03/23/18

Init. Calib. Times(s): 01:19 04:16

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Benzoic acid	0.345	0.303	35.080	40.0	-12
2,4-Dichlorophenol	0.280	0.289	30.950	30.0	3
1,2,4-Trichlorobenzene	0.274	0.265	28.990	30.0	-3
Naphthalene	1.138	1.145	30.210	30.0	1
4-Chloroaniline	0.485	0.501	31.010	30.0	3
2,6-Dichlorophenol	0.279	0.290	31.240	30.0	4
Hexachloropropene	0.129	0.134	31.240	30.0	4
Hexachlorobutadiene	0.120	0.111	27.560	30.0	-8
Quinoline	0.773	0.797	30.950	30.0	3
Caprolactam	0.154	0.176	34.170	30.0	14
N-Nitrosodi-n-butylamine	0.396	0.367	27.760	30.0	-7
4-Chloro-3-methylphenol	0.369	0.406	32.950	30.0	10
Safrole	0.282	0.280	29.800	30.0	-1
2-Methylnaphthalene	0.778	0.786	30.320	30.0	1
1-Methylnaphthalene	0.712	0.728	30.660	30.0	2
Hexachlorocyclopentadiene	0.213	0.172	24.190	30.0	-19
1,2,4,5-Tetrachlorobenzene	0.479	0.466	29.170	30.0	-3
cis-Isosafrole	0.600	0.598	5.080	5.1	0
2,4,6-Trichlorophenol	0.362	0.371	30.750	30.0	3
2,4,5-Trichlorophenol	0.381	0.394	30.980	30.0	3
trans-Isosafrole	0.646	0.700	26.950	24.9	8
Isosafrole	0.639	0.682	32.030	30.0	7
1,1'-Biphenyl	1.741	1.795	30.940	30.0	3
2-Chloronaphthalene	1.362	1.213	26.720	30.0	-11
1-Chloronaphthalene	1.254	1.283	30.690	30.0	2
Diphenyl ether	0.891	0.902	30.360	30.0	1
2-Nitroaniline	0.478	0.546	34.280	30.0	14
1,4-Naphthoquinone	0.573	0.558	29.210	30.0	-3
1,4-Dinitrobenzene	0.234	0.264	33.900	30.0	13
Dimethylphthalate	1.563	1.596	30.620	30.0	2
1,3-Dinitrobenzene	0.277	0.303	32.870	30.0	10
2,6-Dinitrotoluene	0.352	0.391	33.310	30.0	11
Acenaphthylene	2.000	2.174	32.610	30.0	9
3-Nitroaniline	0.427	0.481	33.820	30.0	13
Acenaphthene	1.397	1.435	30.800	30.0	3
2,4-Dinitrophenol	0.209	0.210	40.170	40.0	0

7C cont

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date: 04/10/18 Time: 09:30

Lab File ID: gd0411.d Init. Calib. Date(s): 03/23/18 03/23/18

Init. Calib. Times(s): 01:19 04:16

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	4-Nitrophenol	0.252	0.245	29.120	30.0	-3	
	Pentachlorobenzene	0.413	0.399	28.990	30.0	-3	
	2,4-Dinitrotoluene	0.484	0.518	32.110	30.0	7	
	2,4_2,6-Dinitrotoluenes	0.427	0.455	65.430	60.0	9	
	Dibenzofuran	1.963	1.933	29.530	30.0	-2	
	1-Naphthylamine	1.681	1.711	30.530	30.0	2	
	2,3,4,6-Tetrachlorophenol	0.302	0.272	27.040	30.0	-10	
	2-Naphthylamine	1.638	1.621	29.690	30.0	-1	
	Diethylphthalate	1.578	1.654	31.440	30.0	5	
	Thionazin	0.299	0.387	38.830	30.0	29	NT
	Fluorene	1.641	1.682	30.750	30.0	3	
	4-Chlorophenyl-phenylether	0.701	0.667	28.560	30.0	-5	
	5-Nitro-o-toluidine	0.505	0.527	31.340	30.0	4	
	4-Nitroaniline	0.484	0.508	31.520	30.0	5	
	4,6-Dinitro-2-methylphenol	0.140	0.142	30.330	30.0	1	
	N-Nitrosodiphenylamine (1)	0.735	0.761	31.040	30.0	3	
	NDPA as diphenylamine	0.735	0.761	31.040	30.0	3	
	1,2-Diphenylhydrazine	1.066	1.196	33.670	30.0	12	
	Tetraethyldithiopyrophosphate	0.158	0.174	33.180	30.0	11	
	1,3,5-Trinitrobenzene	0.080	0.084	29.640	30.0	-1	
	Diallate (peak 1)	0.521	0.559	26.710	24.9	7	
	Phorate	0.664	0.761	34.390	30.0	15	
	Phenacetin	0.514	0.564	32.890	30.0	10	
	4-Bromophenyl-phenylether	0.188	0.175	27.870	30.0	-7	
	Diallate (peak 2)	0.428	0.444	5.280	5.1	4	
	Diallate trans/cis	0.505	0.539	31.990	30.0	7	
	Hexachlorobenzene	0.167	0.157	28.180	30.0	-6	
	Dimethoate	0.425	0.477	33.630	30.0	12	
1.	Pentachlorophenol	0.119	0.087	21.750	30.0	-27	
	4-Aminobiphenyl	0.836	0.696	25.000	30.0	-17	
	Pentachloronitrobenzene	0.071	0.075	31.500	30.0	5	
	Pronamide	0.333	0.372	33.490	30.0	12	
	Dinoseb	0.185	0.193	29.540	30.0	-2	
	Phenanthrene	1.285	1.249	29.170	30.0	-3	
	Anthracene	1.263	1.322	31.410	30.0	5	
	Carbazole	1.217	1.239	30.560	30.0	2	

(1) Cannot be Separated from Diphenylamine

1. CCV > 20% D with low bias. All sample results ND. Qualify UJ,CVL.

Full validation only.

7C cont

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date: 04/10/18 Time: 09:30

Lab File ID: gd0411.d Init. Calib. Date(s): 03/23/18 03/23/18

Init. Calib. Times(s): 01:19 04:16

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT	
Methyl parathion	0.295	0.346	35.120	30.0	17	
Di-n-butylphthalate	1.472	1.573	32.060	30.0	7	
Parathion	0.185	0.227	36.840	30.0	23	NT
4-Nitroquinoline-1-oxide	0.107	0.092	24.690	30.0	-18	
Octachlorostyrene	0.059	0.058	29.210	30.0	-3	
Isodrin	0.122	0.133	32.790	30.0	9	
Fluoranthene	1.234	1.248	30.360	30.0	1	
Benzidine	0.963	0.778	72.730	90.0	-19	
Pyrene	1.492	1.473	29.620	30.0	-1	
p-Dimethylaminoazobenzene	0.230	0.240	31.260	30.0	4	
Chlorobenzilate	0.462	0.523	33.940	30.0	13	
3,3'-Dimethylbenzidine	0.786	0.742	28.320	30.0	-6	
Butylbenzylphthalate	0.755	0.809	32.180	30.0	7	
2-Acetylaminofluorene	0.589	0.670	34.120	30.0	14	
3,3'-Dichlorobenzidine	0.412	0.397	28.940	30.0	-4	
4,4'-Methylenebis(2-chloroanil	0.237	0.238	30.180	30.0	1	
Benzo(a)anthracene	1.180	1.193	30.330	30.0	1	
Chrysene	1.185	1.137	28.800	30.0	-4	
bis(2-Ethylhexyl)phthalate	1.028	1.113	32.480	30.0	8	
6-Methylchrysene	0.826	0.813	29.540	30.0	-2	
Di-n-octylphthalate	2.078	2.410	34.800	30.0	16	
Benzo(b)fluoranthene	1.275	1.285	30.240	30.0	1	
7,12-Dimethylbenz[a]anthracene	0.613	0.635	31.090	30.0	4	
Benzo(k)fluoranthene	1.331	1.350	30.430	30.0	1	
Benzo(a)pyrene	1.201	1.231	30.760	30.0	3	
3-Methylcholanthrene	0.579	0.611	31.630	30.0	5	
Dibenz(a,h)acridine	0.872	0.910	31.300	30.0	4	
Dibenz(a,j)acridine	0.997	0.967	29.090	30.0	-3	
Indeno(1,2,3-cd)pyrene	1.273	1.287	30.350	30.0	1	
Dibenz(a,h)anthracene	1.059	1.096	31.040	30.0	3	
Benzo(g,h,i)perylene	1.043	1.070	30.780	30.0	3	
Total PAHs	1.351	1.422	548.620	540.0	2	
2-Fluorophenol	1.616	1.675	62.200	60.0	4	
Phenol-d6	2.315	2.486	64.420	60.0	7	
Nitrobenzene-d5	0.447	0.484	65.080	60.0	8	

FORM VII SV-1

7C cont
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date: 04/10/18 Time: 09:30

Lab File ID: gd0411.d Init. Calib. Date(s): 03/23/18 03/23/18

Init. Calib. Times(s): 01:19 04:16

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
2-Fluorobiphenyl	1.467	1.466	59.950	60.0	0
2,4,6-Tribromophenol	0.120	0.114	56.830	60.0	-5
Terphenyl-d14	0.901	0.877	58.400	60.0	-3
			Average %Drift:		7

Continuing Calibration
Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP11165.i/18mar22a.b/gc0881a.d **
/chem/HP11165.i/18mar22a.b/gc0882.d
/chem/HP11165.i/18mar22a.b/gc0883.d
/chem/HP11165.i/18mar22a.b/gc0884.d
/chem/HP11165.i/18mar22a.b/gc0885.d
/chem/HP11165.i/18mar22a.b/gc0886.d
/chem/HP11165.i/18mar22a.b/gc0887.d
/chem/HP11165.i/18mar22a.b/gc0888.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP11165.i/18apr10.b/gd0411.d

Area Summary

File ID:

Internal Standard Name	gd0411.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	230458	188518	94259	377036	Yes
Naphthalene-d8	1137115	873190	436595	1746380	Yes
Acenaphthene-d10	591626	449628	224814	899256	Yes
Phenanthrene-d10	1119428	835753	417876	1671506	Yes
Pyrene-d10	974762	738837	369418	1477674	Yes
Perylene-d12	773162	609457	304728	1218914	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

Internal Standard Name	gd0411.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	4.663	5.757	No
Naphthalene-d8	5.898	6.992	No
Acenaphthene-d10	7.592	8.710	No
Phenanthrene-d10	9.016	10.175	No
Pyrene-d10	10.374	11.569	No
Perylene-d12	12.892	14.257	No

(8)

A "No" indicates the retention time is greater than 10 seconds from the RT of the referenced standard.

(8)

Comments: Column ✔ maintenance EDL/0340

4/10 4/10/18

(3) EDL/0340

Report generated on 04/10/2018 at 10:22

4/10/18

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date: 04/10/18 Time: 10:28

Lab File ID: gd0412.d Init. Calib. Date(s): 03/23/18 03/23/18

Init. Calib. Times(s): 05:57 08:03

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Benzaldehyde	1.460	1.811	62.000	50.0	24
Atrazine	0.195	0.233	59.820	50.0	20
			Average %Drift:		22

Benzaldehyde > 20% D with positive bias.
Qualify detects J,CVH.
No impact to NDs.

FORM VII SV-1

page 1 of 1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): gd0411.d Date Analyzed: 04/10/18

Instrument ID: HP11165 Time Analyzed: 09:30

	IS1(DCB)		IS2(NPT)		IS3(ANT)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	230458	4.663	1137115	5.898	591626	7.592
UPPER LIMIT	460916	5.163	2274230	6.398	1183252	8.092
LOWER LIMIT	115229	4.163	568558	5.398	295813	7.092
LLI SAMPLE NO.						
01 SBLKLA099	221613	4.657	984654	5.892	509233	7.586
02 099LALCS	222222	4.657	1064640	5.898	551779	7.587
03 9546281	234049	4.657	1154864	5.892	617110	7.586
04 9546282MS	273156	4.657	1290595	5.892	634471	7.587
05 9546283MSD	288828	4.657	1326502	5.892	588472	7.586
06 9546648	242594	4.663	1080077	5.892	508269	7.586
07 9546649	232688	4.657	1072588	5.892	484585	7.586
08 9546650	230755	4.657	1059181	5.892	514762	7.586
09 9546651	227582	4.657	1040353	5.892	524778	7.586
10 9546652	245392	4.657	1183383	5.892	572345	7.586
11 9546653	216395	4.657	980490	5.893	518920	7.587
12 9546654	240505	4.657	1136621	5.892	563954	7.587
13 9546655	228826	4.657	1038427	5.892	526823	7.586
14 9546656	233605	4.663	1111254	5.892	567520	7.586
15 9546657	232566	4.663	1054641	5.892	545761	7.586
16 9546658	223865	4.663	1036148	5.892	542038	7.586
17 9546659	219125	4.657	1057166	5.892	540014	7.586

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): gd0411.d Date Analyzed: 04/10/18

Instrument ID: HP11165 Time Analyzed: 09:30

	IS4(PHN)		IS5(PYR)		IS6(PRY)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR ST	1119428	9.016	974762	10.374	773162	12.892
UPPER LIMIT	2238856	9.516	1949524	10.874	1546324	13.392
LOWER LIMIT	559714	8.516	487381	9.874	386581	12.392
LLI SAMPLE NO.						
01 SBLKLA099	1030787	9.010	884906	10.368	703739	12.886
02 099LALCS	1007088	9.016	846462	10.375	615665	12.886
03 9546281	1093373	9.010	922959	10.369	630828	12.886
04 9546282MS	1113392	9.010	926523	10.375	657642	12.886
05 9546283MSD	1004388	9.016	833956	10.374	619160	12.886
06 9546648	851356	9.010	703505	10.375	539128	12.886
07 9546649	865134	9.010	716614	10.375	553419	12.886
08 9546650	857645	9.010	718905	10.374	546150	12.886
09 9546651	969254	9.010	810592	10.374	568944	12.886
10 9546652	886257	9.010	711756	10.374	512131	12.886
11 9546653	899271	9.010	786416	10.375	563190	12.886
12 9546654	958359	9.010	727762	10.375	525685	12.886
13 9546655	925241	9.010	746652	10.374	523672	12.886
14 9546656	892133	9.016	697659	10.374	511796	12.886
15 9546657	953785	9.016	752594	10.374	550154	12.886
16 9546658	909468	9.016	728657	10.374	526465	12.886
17 9546659	863585	9.016	687251	10.374	506231	12.892

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

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Quality Control Reference List
GC/MS Semivolatiles

CLIENT: C. T. Male Associates
SDG: SBN13

Fraction: Semivolatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
TCL Semivolatiles	18099SLA026	SBLKLA099	04/10/2018 11:59:00
		099LALCS	04/10/2018 12:23:00
		9546280	04/10/2018 19:24:00
		9546281 UNSPK	04/10/2018 12:46:00
		9546282 MS	04/10/2018 13:09:00
		9546283 MSD	04/10/2018 13:32:00
		9546285	04/10/2018 19:47:00
		9546286	04/10/2018 20:10:00
TCL Semivolatiles	18099WAI026	SBLKWI099	04/11/2018 20:09:00
		099WILCS	04/11/2018 20:37:00
		9546287	04/11/2018 21:05:00

Or ...ic Extraction Batchlog Assigned to: 24470 Elizabeth Donovan Reviewed by: EDM10340 Start Date: April 9, 2018 Start time: 16:45

18099SLA026

Tech 1: EO24470 Tech 2: _____

Dept: 26 Prep Analysis: 10813 BNA Soil Microwave APP IX SVOA 8270D (microwave)

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
9546282MS	BNN02 ✓	30.22	SS1808526B	1.0	MS1807126B MS1807826A ~~MS1809626A~~ (8A)	1.0 1.0 1.0	1	Z	Z	~~036a~~ 301a	③ EO24470 4/9/18 Soil;Gritty;Wet;Rocks;Brown
9546283MSD	BNN02 ✓	30.21	SS1808526B	1.0	MS1807126B MS1807826A ~~MS1809626A~~ (8A)	1.0 1.0 1.0	1	Z	Z	~~036a~~ 301a	③ EO24470 4/9/18 Soil;Gritty;Wet;Rocks;Brown
BLANKA	SBLKLA099	30.0	SS1808526B	1.0			1	Z	Z		/ Na2SO4
LCSA	099LALCS	30.0	SS1808526B	1.0	MS1807126B MS1807826A ~~MS1809626A~~ (8A)	1.0 1.0 1.0	1	Z	Z		/ Na2SO4

(8A) MS1809626A EO24470 4/9/18

Solvent Used	Lot No.
1:1 Methylene Chloride/Acetone	98740421&A
Methylene Chloride	181347
Sodium Sulfate	18095A

Spike Solutions: Witness: _____

~~MS1809626A~~ (8A)	APPIX MIX #1
MS1807826A	LCS SPIKE MIX #1
MS1807126B	LCS SPIKE MIX #2
SS1808526B	BNA SURROGATE STANDARD

Sample #	Sample Code	Amt (g) ✓	SS/IS Sol.	Amt (mL) ✓	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1 9546280	BNN01	30.22	SS1808526B	1.0	1	Z	Z	~~036a~~ 301a	③ EO24470 4/9/18 Soil;Gritty;Wet;Rocks;Black;Brown	10726	19143	04/17/2018	S
2 9546281BKG	BNN02 ✓	30.46	SS1808526B	1.0	1	Z	Z	~~036a~~ 301a	③ EO24470 4/9/18 Other-grab;sand;Wet;Rocks;Gritty;Brown	10726	19143	04/17/2018	S
3 9546285	BNN03	30.19	SS1808526B	1.0	1	Z	Z	~~036a~~ 301a	③ EO24470 4/9/18 Other-grab;sand;Wet;Rocks;Gritty;Brown	10726	19143	04/17/2018	S
4 9546286	BNN04	30.10	SS1808526B	1.0	1	Z	Z	~~036a~~ 301a	③ EO24470 4/9/18 Soil;Gritty;Wet;Rocks;Black;Brown	10726	19143	04/17/2018	S
5 9546648	B2401	30.07	SS1808526B	1.0	1	Z	Z	301A	Soil;Wet;Sandy;Brown	10726	1858	04/13/2018	S
6 9546649	B2402	30.44	SS1808526B	1.0	1	Z	Z	301A	Soil;Wet;Sandy;Brown	10726	1858	04/13/2018	S
7 9546650	B2403	30.22	SS1808526B	1.0	1	Z	Z	301A	Soil;Wet;Brown	10726	1858	04/13/2018	S
8 9546651	B2404	30.18	SS1808526B	1.0	1	Z	Z	301A	Soil;Wet;Sandy;Brown	10726	1858	04/13/2018	S
9 9546652	B2405	30.12	SS1808526B	1.0	1	Z	Z	301A	Soil;Wet;Sandy;Brown	10726	1858	04/13/2018	S
10 9546653	B2406	30.35	SS1808526B	1.0	1	Z	Z	301A	Soil;Wet;Sandy;Brown	10726	1858	04/13/2018	S
11 9546654	B2407	30.31	SS1808526B	1.0	1	Z	Z	301A	Soil;Wet;Sandy;Brown	10726	1858	04/13/2018	S
12 9546655	B2408	30.32	SS1808526B	1.0	1	Z	Z	301A	Soil;Wet;Brown	10726	1858	04/13/2018	S
13 9546656	B2409	30.42	SS1808526B	1.0	1	Z	Z	301A	Soil;Wet;Sandy;Brown	10726	1858	04/13/2018	S
14 9546657	B2410	30.34	SS1808526B	1.0	1	Z	Z	301A	Soil;Wet;Sandy;Brown	10726	1858	04/13/2018	S

SBN13 Page 1886 of 3040

Bench#	Bench#	Bench#			
Rack ID:		Work Station	Micro: 1724	Micro Temp 100?	✓
Internal Standard	40131880	Balance #	17609		

R-VAP ID	C	R-VAP ID	C	R-VAP ID	C			
S-bath ID S	94 C	S-bath ID	C	N-Evap	C	M-vap	C	18099SLA026

DF = Dilution Factor FV = Final Volume Page 1 of 2 Documented temps are NIST corrected.

Sample #	Sample Code	Amt 9	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
15 9546658	B2411	30.40	SS1808526B	1.0	1	Z	Z	301A	Soil;Wet;Sandy;Brown	10726	1858	04/13/2018	S
16 9546659	B2412	30.05	SS1808526B	1.0	1	Z	Z	301a	Soil;Wet;Sandy;Brown	10726	1858	04/13/2018	S
17 9546660	B2413	30.21	SS1808526B	1.0	1	Z	Z	301A	Soil;Wet;Sandy;Brown	10726	1858	04/13/2018	S
18 9546661	B2414	30.15	SS1808526B	1.0	1	Z	Z	301A	Soil;Wet;Sandy;Brown	10726	1858	04/13/2018	S

NA C824470

Bench#	Bench#	Bench#		
Rack ID:		Work Station	Micro i7424	Micro Temp 100? ✓
Internal Standard		Balance #	17609	

DF = Dilution Factor FV = Final Volume

R-VAP ID	C	R-VAP ID	C	R-VAP ID	C			
S-bath ID 5	94 C	S-bath ID	C	N-Evap	C	M-vap	C	18099SLA026

Documented temps are NIST corrected.

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Quality Control Reference List
PFAS Group

CLIENT: C. T. Male Associates
SDG: SBN13

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
14 PFAS Compounds	18098004	BLK098004	04/12/2018 05:35:00
		LCS098004	04/12/2018 04:48:00
		LCSDA	04/12/2018 05:03:00
		9546287	04/12/2018 05:50:00
		9546288	04/12/2018 06:37:00
		9546289	04/12/2018 06:52:00
14 PFCs	18099003	BLK099003	04/12/2018 08:10:00
		LCS099003	04/12/2018 07:08:00
		9546280	04/12/2018 08:25:00
		9546281 UNSPK	04/12/2018 08:41:00
		9546282 MS	04/12/2018 07:23:00
		9546283 MSD	04/12/2018 07:39:00
		9546285	04/12/2018 08:56:00
		9546285	04/13/2018 09:36:00
		9546286	04/12/2018 09:12:00

FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN13
Matrix: WATER

18098004		13C2-PFDODA	13C2-PFTEDA	13C3-PFBS	13C3-PFHXS	13C4-PFBA
	Limits	28-127	26-119	26-148	34-126	33-123
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS098004	04/12/18 04:48	80	83	76	85	82
LCSDA	04/12/18 05:03	84	83	79	80	82
BLK098004	04/12/18 05:35	89	86	87	90	90
9546287	04/12/18 05:50	85	85	79	84	86
9546288	04/12/18 06:37	85	89	83	85	88
9546289	04/12/18 06:52	94	84	81	86	87

* Outside QC Limits

FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN13
Matrix: WATER

18098004		13C4-PFHPA	13C5-PFHXA	13C5-PFPEA	13C6-PFDA	13C7-PFUNDA
	Limits	35-126	31-128	39-135	40-115	30-128
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS098004	04/12/18 04:48	84	85	79	74	88
LCSDA	04/12/18 05:03	85	84	80	87	97
BLK098004	04/12/18 05:35	90	92	90	83	92
9546287	04/12/18 05:50	84	90	84	81	82
9546288	04/12/18 06:37	91	95	88	78	94
9546289	04/12/18 06:52	84	90	85	96	88

* Outside QC Limits

FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN13
Matrix: WATER

18098004		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	43-112	43-115	32-134
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery
LCS098004	04/12/18 04:48	85	80	80
LCSDA	04/12/18 05:03	83	76	80
BLK098004	04/12/18 05:35	88	86	86
9546287	04/12/18 05:50	88	77	87
9546288	04/12/18 06:37	89	83	89
9546289	04/12/18 06:52	86	82	93

* Outside QC Limits

FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN13
Matrix: WATER

18099003		13C2-PFDODA	13C2-PFTEDA	13C3-PFBS	13C3-PFHXS	13C4-PFBA
	Limits	15-135	20-127	34-118	32-125	37-107
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS099003	04/12/18 07:08	88	87	77	87	87
9546282MS	04/12/18 07:23	99	98	111	101	105
9546283MSD	04/12/18 07:39	85	83	90	92	94
BLK099003	04/12/18 08:10	84	81	85	88	80
9546280	04/12/18 08:25	103	95	85	88	85
9546281	04/12/18 08:41	77	78	77	81	79
9546285	04/12/18 08:56	88	80	88	107	86
9546286	04/12/18 09:12	86	78	83	79	88
9546285DL	04/13/18 09:36	99	93	92	86	90

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN13
Matrix: WATER

18099003		13C4-PFHPA	13C5-PFHXA	13C5-PFPEA	13C6-PFDA	13C7-PFUNDA
	Limits	45-114	43-115	70-130	36-121	25-134
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS099003	04/12/18 07:08	85	83	83	87	86
9546282MS	04/12/18 07:23	103	101	108	111	117
9546283MSD	04/12/18 07:39	96	96	97	89	102
BLK099003	04/12/18 08:10	89	93	85	88	92
9546280	04/12/18 08:25	91	86	85	91	103
9546281	04/12/18 08:41	85	75	79	80	99
9546285	04/12/18 08:56	110	109	84	83	102
9546286	04/12/18 09:12	81	79	87	80	95
9546285DL	04/13/18 09:36	92	90	93	97	110

* Outside QC Limits

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Lancaster Laboratories Environmental

FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN13
Matrix: WATER

18099003		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery
LCS099003	04/12/18 07:08	85	82	82
9546282MS	04/12/18 07:23	107	108	128 *
9546283MSD	04/12/18 07:39	96	88	82
BLK099003	04/12/18 08:10	85	80	74
9546280	04/12/18 08:25	84	84	92
9546281	04/12/18 08:41	76	82	80
9546285	04/12/18 08:56	76	77	86
9546286	04/12/18 09:12	86	86	92
9546285DL	04/13/18 09:36	87	88	93

* Outside QC Limits

not included on analysis Report.

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Quality Control Summary
Method Blank
PFAS Group
SDG: SBN13
Matrix: LIQUID

Fraction: PFAS by LC/MS/MS

18098004 / BLK098004 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	04/12/18	N.D.	ng/l	0.30	1.0
Perfluorononanoic acid	04/12/18	N.D.	ng/l	0.40	2.0
Perfluorodecanoic acid	04/12/18	N.D.	ng/l	1.0	2.0
Perfluoroundecanoic acid	04/12/18	N.D.	ng/l	0.40	2.0
Perfluorododecanoic acid	04/12/18	N.D.	ng/l	0.30	1.0
Perfluorotridecanoic acid	04/12/18	N.D.	ng/l	0.30	1.0
Perfluorotetradecanoic acid	04/12/18	N.D.	ng/l	0.30	1.0
Perfluorohexanoic acid	04/12/18	N.D.	ng/l	0.40	2.0
Perfluoroheptanoic acid	04/12/18	N.D.	ng/l	0.30	1.0
Perfluorobutanesulfonate	04/12/18	N.D.	ng/l	0.30	1.0
Perfluorohexanesulfonate	04/12/18	N.D.	ng/l	0.40	2.0
Perfluoro-octanesulfonate	04/12/18	N.D.	ng/l	0.40	2.0
Perfluorobutanoic acid	04/12/18	N.D.	ng/l	2.0	6.0
Perfluoropentanoic acid	04/12/18	N.D.	ng/l	2.0	6.0

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Sample Description: SG3a-Sludge18-02-180405 Grab Sediment
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/06/2018 10:00
Collection Date/Time: 04/05/2018 12:00
SDG#: SBN13-01

C. T. Male Associates
ELLE Sample #: SW 9546280
ELLE Group #: 1928759
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**	**ug/kg**	**ug/kg**	
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10726	Di-n-octylphthalate	117-84-0	350 U	350	870	5
10726	Pentachlorophenol	87-86-5	170 U	170	890	5
10726	**Phenanthrene**	85-01-8	**21 J**	17	89	5
10726	Phenol	108-95-2	87 U	87	170	5
10726	**Pyrene**	129-00-0	**25 J**	17	89	5
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	87 U	87	170	5
10726	2,3,4,6-Tetrachlorophenol	58-90-2	350 U	350	870	5
10726	2,4,5-Trichlorophenol	95-95-4	87 U	87	170	5
10726	2,4,6-Trichlorophenol	88-06-2	87 U	87	170	5
	Reporting limits were raised due to interference from the sample matrix.					
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.19 U	0.19	0.57	1
14027	Perfluorononanoic acid	375-95-1	0.19 U	0.19	0.57	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.86	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.43 J**	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,870**	8.12	36.3	1
01650	**Calcium**	7440-70-2	**65,700**	15.1	182	5
01654	**Iron**	7439-89-6	**8,460**	7.31	36.3	1
01657	**Magnesium**	7439-95-4	**27,400**	2.21	18.2	1
06958	**Manganese**	7439-96-5	**149**	0.0754	0.908	1
01662	**Potassium**	7440-09-7	**459**	15.2	90.8	1
01667	**Sodium**	7440-23-5	**44.4 J**	15.2	182	1
06972	**Zinc**	7440-66-6	**22.9**	0.218	3.63	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR10MCAL **Result Table:** 18099003 4/12/2018 9:26:49 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

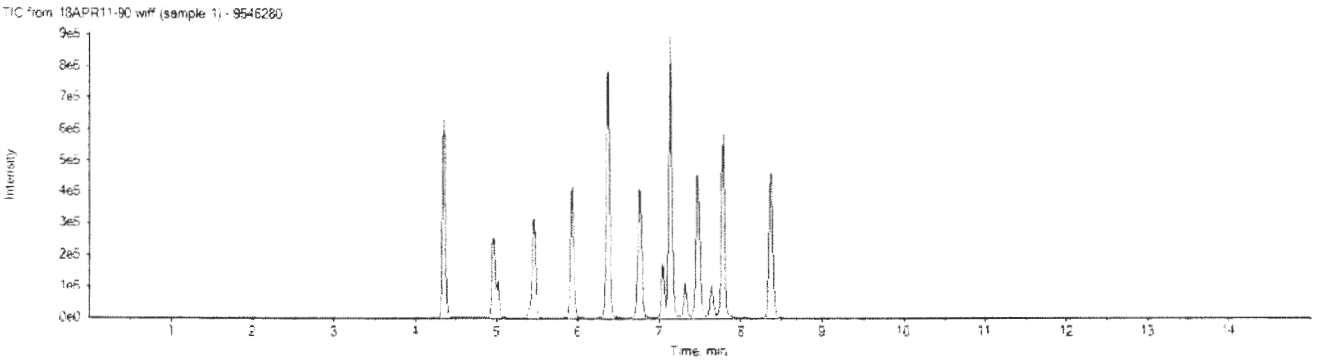
Analyte Quantitation Peak Table

Sample Name: 9546280 **Instrument Name:** LM26719 **File Name:** 18APR11-90.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.10000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.35	725848.6	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	4.95	692298.1	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.01	265925.2	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.45	907056.3	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.92	192413.8	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.92	919828.2	N/A	
PFOA	6.36	1.000	43204.0	M	13C8-PFOA	6.36	989157.6	0.044	0.413
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.74	180091.5	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.76	916991.9	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.13	1231879.3	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.46	939577.8	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.78	1559236.6	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.78	1559236.6	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.37	1489168.7	N/A	

Total Ion Chromatogram



APPROVED
By DMW at 9:33 pm, 4/12/18

REVIEWED
By umar at 12:22 pm, 4/17/18

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Sample Description: SG3a-Sludge18-03-180405 Grab Sediment
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/06/2018 10:00
Collection Date/Time: 04/05/2018 12:45
SDG#: SBN13-02BKG

C. T. Male Associates
ELLE Sample #: SW 9546281
ELLE Group #: 1928759
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**		**ug/kg**	**ug/kg**	
10726	4-Nitrophenol	100-02-7	960	U	960	2,900	5
10726	N-Nitroso-di-n-propylamine	621-64-7	96	U	96	190	5
10726	N-Nitrosodiphenylamine	86-30-6	96	U	96	190	5
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10726	Di-n-octylphthalate	117-84-0	380	U	380	960	5
10726	Pentachlorophenol	87-86-5	190	U	190	980	5
10726	**Phenanthrene**	85-01-8	**160**		19	98	5
10726	Phenol	108-95-2	96	U	96	190	5
10726	**Pyrene**	129-00-0	**270**		19	98	5
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	96	U	96	190	5
10726	2,3,4,6-Tetrachlorophenol	58-90-2	380	U	380	960	5
10726	2,4,5-Trichlorophenol	95-95-4	96	U	96	190	5
10726	2,4,6-Trichlorophenol	88-06-2	96	U	96	190	5
	Reporting limits were raised due to interference from the sample matrix.						
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.49**	**J**	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.20	U	0.20	0.61	1
14027	Perfluorononanoic acid	375-95-1	0.20	U	0.20	0.61	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.92	1
14027	**Perfluorooctanoic acid**	335-67-1	**5.2**		0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**0.55**	**J**	0.20	0.61	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**0.28**	**J**	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**1,400**		8.47	37.9	1
01650	**Calcium**	7440-70-2	**154,000**		15.8	190	5
01654	**Iron**	7439-89-6	**7,200**		7.63	37.9	1
01657	**Magnesium**	7439-95-4	**55,600**		11.5	94.8	5
06958	**Manganese**	7439-96-5	**234**		0.0786	0.948	1
01662	**Potassium**	7440-09-7	**449**		15.8	94.8	1
01667	**Sodium**	7440-23-5	**64.1**	**J**	15.8	190	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR10MCAL **Result Table:** 18099003 4/12/2018 9:26:49 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

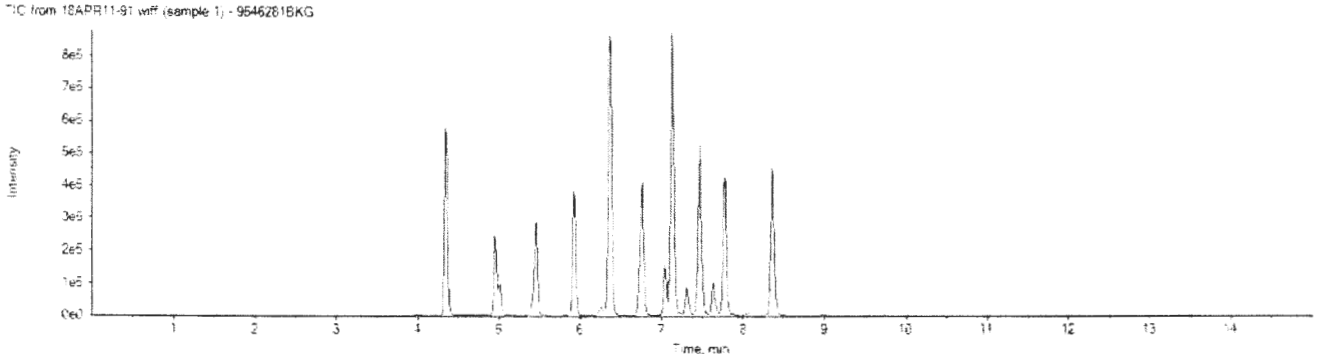
Analyte Quantitation Peak Table

Sample Name: 9546281BKG **Instrument Name:** LM26719 **File Name:** 18APR11-91.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.14000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.34	642321.0	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	4.95	617765.3	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.01	231596.5	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.45	793483.7	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.92	178066.9	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.92	853599.3	N/A	
PFOA	6.36	1.000	440484.6	M	13C8-PFOA	6.36	899331.4	0.490	4.467
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.73	190882.4	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.76	875065.7	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.13	1105592.7	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.46	930079.2	N/A	
PFDoDA	7.77	1.000	49452.9	M	13C2-PFDoDA	7.77	1208486.8	0.041	0.417
PFTrDA	8.07	1.040	29064.9	M	13C2-PFDoDA	7.77	1208486.8	0.024	0.243
PFTeDA	8.36	1.000	55677.8	M	13C2-PFTeDA	8.36	1269882.8	0.044	0.468

Total Ion Chromatogram



APPROVED
By DMW at 9:32 pm, 4/12/18

REVIEWED
By umar at 12:19 pm, 4/17/18

Sample Description: SG3a-Sludge18-04-180405 Grab Sediment
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/06/2018 10:00
Collection Date/Time: 04/05/2018 13:30
SDG#: SBN13-03

C. T. Male Associates
ELLE Sample #: SW 9546285
ELLE Group #: 1928759
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**	**ug/kg**	**ug/kg**	
10726	Phenol	108-95-2	110 U	110	220	5
10726	**Pyrene**	129-00-0	**1,200**	22	110	5
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	110 U	110	220	5
10726	2,3,4,6-Tetrachlorophenol	58-90-2	440 U	440	1,100	5
10726	2,4,5-Trichlorophenol	95-95-4	110 U	110	220	5
10726	2,4,6-Trichlorophenol	88-06-2	110 U	110	220	5
Reporting limits were raised due to interference from the sample matrix.						
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25 U	0.25	0.76	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.2**	0.25	0.76	1
14027	**Perfluorodecanoic acid**	335-76-2	**6.0**	0.25	0.76	1
14027	**Perfluorododecanoic acid**	307-55-1	**2.7**	0.25	0.76	1
14027	**Perfluoroheptanoic acid**	375-85-9	**8.8**	0.25	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.25 U	0.25	0.76	1
14027	**Perfluorohexanoic acid**	307-24-4	**21**	0.25	0.76	1
14027	**Perfluorononanoic acid**	375-95-1	**4.5**	0.25	0.76	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**4.8**	0.38	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**960**	2.5	7.6	10
14027	**Perfluoropentanoic acid**	2706-90-3	**6.5**	0.25	0.76	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.2**	0.25	0.76	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**0.72 J**	0.25	0.76	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.6**	0.25	0.76	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,140**	10.1	45.2	1
01650	**Calcium**	7440-70-2	**31,900**	3.76	45.2	1
01654	**Iron**	7439-89-6	**43,600**	45.5	226	5
01657	**Magnesium**	7439-95-4	**9,730**	2.75	22.6	1
06958	**Manganese**	7439-96-5	**1,960**	0.0938	1.13	1
01662	**Potassium**	7440-09-7	**979**	18.9	113	1
01667	**Sodium**	7440-23-5	**173 J**	18.9	226	1
06972	**Zinc**	7440-66-6	**1,030**	0.271	4.52	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.615**	0.105	0.452	2
06125	**Arsenic**	7440-38-2	**9.08**	0.145	0.904	2
06126	**Barium**	7440-39-3	**173**	0.205	0.904	2
06127	**Beryllium**	7440-41-7	**0.785**	0.0118	0.226	2
06128	**Cadmium**	7440-43-9	**2.67**	0.0389	0.226	2
06131	**Chromium**	7440-47-3	**117**	0.197	0.904	2

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR10MCAL **Result Table:** 18099003 4/12/2018 9:26:49 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

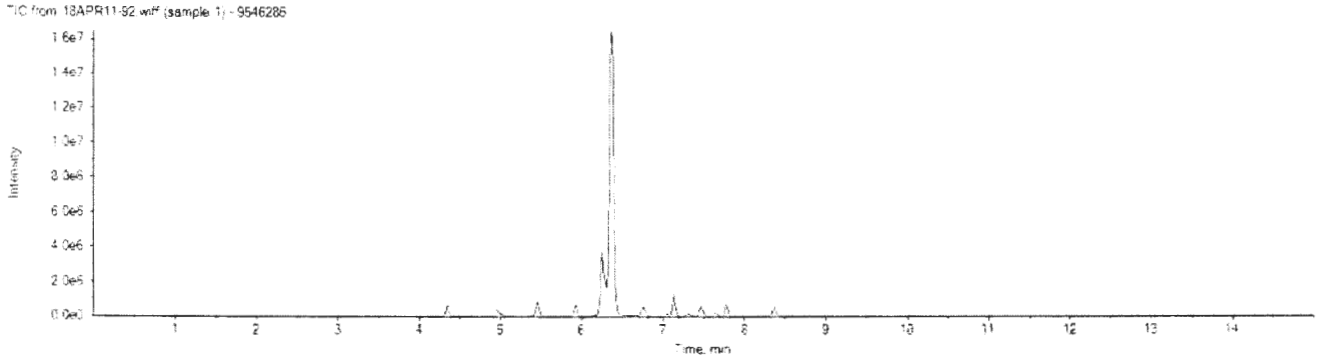
Analyte Quantitation Peak Table

Sample Name: 9546285 **Instrument Name:** LM26719 **File Name:** 18APR11-92.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.05000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.34	1.000	57599.8	A	13C4-PFBA	4.34	695051.1	0.083	0.882
PFPeA	4.95	1.000	320046.8	A	13C5-PFPeA	4.95	655026.4	0.489	4.912
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.01	262606.9	N/A	
PFHxA	5.45	1.000	1338327.1	A	13C5-PFHxA	5.45	886795.7	1.509	16.207
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.92	179079.7	N/A	
PFHpA	5.92	1.000	632412.0	M	13C4-PFHpA	5.92	843237.6	0.750	6.631
PFOA	6.36	1.000	47386524.8	M	13C8-PFOA	6.36	680093.1	69.677	689.877
PFOS	6.73	1.000	73823.6	M	13C8-PFOS	6.73	183045.5	0.403	3.620
PFNA	6.76	1.000	345704.5	M	13C9-PFNA	6.76	950518.8	0.364	3.388
PFDA	7.13	1.000	595893.8	A	13C6-PFDA	7.13	1272293.1	0.468	4.569
PFUnDA	7.46	1.000	149720.3	M	13C7-PFUnDA	7.46	1044915.2	0.143	1.212
PFDoDA	7.77	1.000	277946.2	A	13C2-PFDoDA	7.77	1504759.9	0.185	2.042
PFTrDA	8.07	1.040	74322.7	M	13C2-PFDoDA	7.77	1504759.9	0.049	0.541
PFTeDA	8.36	1.000	109349.5	M	13C2-PFTeDA	8.36	1418376.3	0.077	0.894

Total Ion Chromatogram



Sample Description: SG3a-FD01-180405 Grab Sediment
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/06/2018 10:00
Collection Date/Time: 04/05/2018
SDG#: SBN13-04FD

C. T. Male Associates
ELLE Sample #: SW 9546286
ELLE Group #: 1928759
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**	**ug/kg**	**ug/kg**	
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10726	Di-n-octylphthalate	117-84-0	340 U	340	850	5
10726	Pentachlorophenol	87-86-5	170 U	170	870	5
10726	Phenanthrene	85-01-8	17 U	17	87	5
10726	Phenol	108-95-2	85 U	85	170	5
10726	**Pyrene**	129-00-0	**37 J**	17	87	5
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	85 U	85	170	5
10726	2,3,4,6-Tetrachlorophenol	58-90-2	340 U	340	850	5
10726	2,4,5-Trichlorophenol	95-95-4	85 U	85	170	5
10726	2,4,6-Trichlorophenol	88-06-2	85 U	85	170	5
	Reporting limits were raised due to interference from the sample matrix.					
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.49	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.49	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.49	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.49	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.49	1
14027	Perfluorohexanoic acid	307-24-4	0.16 U	0.16	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.16 U	0.16	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24 U	0.24	0.73	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.49**	0.16	0.49	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.49	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.49	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.49	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.49	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,890**	8.80	39.4	1
01650	**Calcium**	7440-70-2	**142,000**	16.4	197	5
01654	**Iron**	7439-89-6	**6,960**	7.92	39.4	1
01657	**Magnesium**	7439-95-4	**41,000**	2.39	19.7	1
06958	**Manganese**	7439-96-5	**155**	0.0817	0.984	1
01662	**Potassium**	7440-09-7	**552**	16.4	98.4	1
01667	**Sodium**	7440-23-5	**46.3 J**	16.4	197	1
06972	**Zinc**	7440-66-6	**28.3**	0.236	3.94	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR10MCAL **Result Table:** 18099003 4/12/2018 9:26:49 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

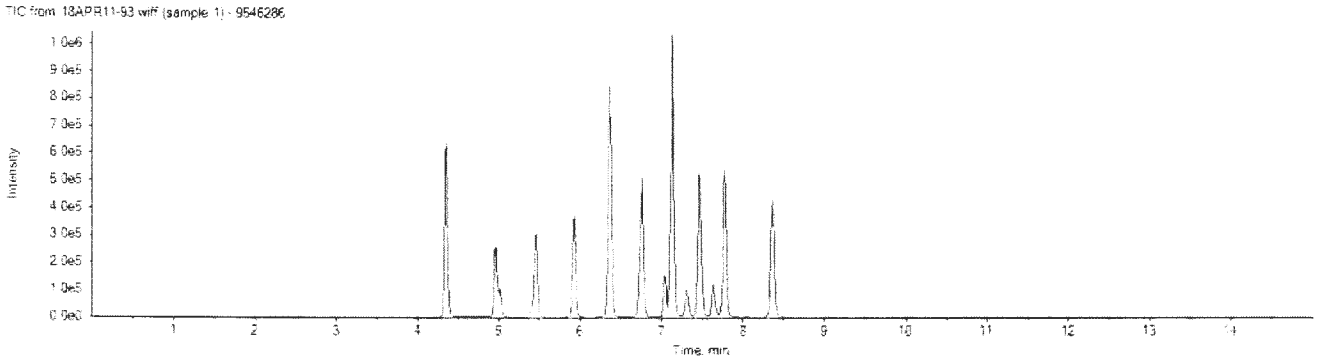
Analyte Quantitation Peak Table

Sample Name: 9546286 **Instrument Name:** LM26719 **File Name:** 18APR11-93.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.26000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.35	1.000	9926.9	M	13C4-PFBA	4.35	714717.7	0.014	0.123
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	4.95	668547.5	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.01	245602.0	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.45	853516.3	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.92	175309.6	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.92	830637.8	N/A	
PFOA	6.36	1.000	60245.5	M	13C8-PFOA	6.36	1031561.2	0.058	0.482
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.73	201840.6	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.76	1008003.6	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.13	1218074.5	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.46	981041.1	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.77	1484666.3	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.77	1484666.3	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.36	1399668.2	N/A	

Total Ion Chromatogram



APPROVED
By DMW at 9:33 pm, 4/12/18

REVIEWED
By umar at 12:21 pm, 4/17/18

Sample Description: SG3a-EB01-180405 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/06/2018 10:00
Collection Date/Time: 04/05/2018 14:00
SDG#: SBN13-05EB

C. T. Male Associates
ELLE Sample #: WW 9546287
ELLE Group #: 1928759
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/l**	**ug/l**	**ug/l**	
14242	Phenol	108-95-2	0.5 U	0.5	1	1
14242	Pyrene	129-00-0	0.1 U	0.1	0.5	1
14242	1,2,4,5-Tetrachlorobenzene	95-94-3	0.5 U	0.5	1	1
14242	2,3,4,6-Tetrachlorophenol	58-90-2	0.5 U	0.5	1	1
14242	2,4,5-Trichlorophenol	95-95-4	0.5 U	0.5	1	1
14242	2,4,6-Trichlorophenol	88-06-2	0.5 U	0.5	1	1
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.29 U	0.29	0.96	1
14473	Perfluorobutanoic acid	375-22-4	1.9 U	1.9	5.7	1
14473	Perfluorodecanoic acid	335-76-2	0.96 U	0.96	1.9	1
14473	Perfluorododecanoic acid	307-55-1	0.29 U	0.29	0.96	1
14473	Perfluoroheptanoic acid	375-85-9	0.29 U	0.29	0.96	1
14473	Perfluorohexanesulfonate	355-46-4	0.38 U	0.38	1.9	1
14473	Perfluorohexanoic acid	307-24-4	0.38 U	0.38	1.9	1
14473	Perfluorononanoic acid	375-95-1	0.38 U	0.38	1.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.38 U	0.38	1.9	1
14473	**Perfluorooctanoic acid**	335-67-1	**4.4**	0.29	0.96	1
14473	Perfluoropentanoic acid	2706-90-3	1.9 U	1.9	5.7	1
14473	Perfluorotetradecanoic acid	376-06-7	0.29 U	0.29	0.96	1
14473	Perfluorotridecanoic acid	72629-94-8	0.29 U	0.29	0.96	1
14473	Perfluoroundecanoic acid	2058-94-8	0.38 U	0.38	1.9	1
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
01750	Calcium	7440-70-2	0.0600 U	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.0374 U	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0016 U	0.0016	0.0100	1
01762	Potassium	7440-09-7	0.179 U	0.179	1.00	1
01767	Sodium	7440-23-5	0.321 U	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	Barium	7440-39-3	0.00072 U	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	Cobalt	7440-48-4	0.00016 U	0.00016	0.0010	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR10MCAL **Result Table:** 18098004 4/12/2018 10:38:17 AM
QMethod Name: SF-PFCMOD-18APR10 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

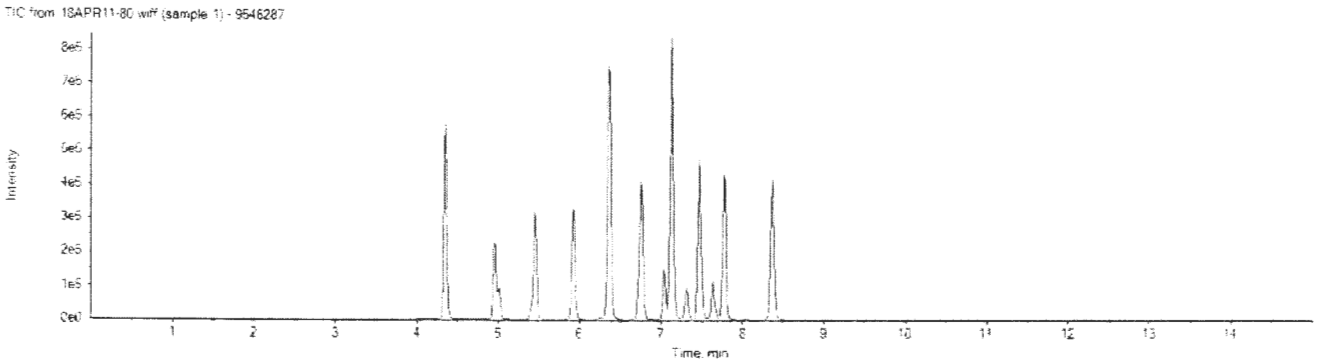
Analyte Quantitation Peak Table

Sample Name: 9546287 **Instrument Name:** LM26719 **File Name:** 18APR11-80.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.26123	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	4.35	1.000	8667.6	M	13C4-PFBA	4.35	649098.2	0.013	0.286
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	4.95	603136.9	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.01	220480.1	N/A	
PFHxA	5.45	1.000	12869.3	M	13C5-PFHxA	5.45	862029.8	0.015	0.322
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.91	166662.1	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.92	763164.6	N/A	
PFOA	6.36	1.000	207656.9	M	13C8-PFOA	6.36	935146.9	0.222	4.419
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.73	174288.4	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.76	910667.9	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.13	1043094.6	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.46	716009.0	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.78	1232925.3	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.78	1232925.3	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.36	1277208.8	N/A	

Total Ion Chromatogram



APPROVED
By MSM at 10:52 am, 4/12/18

REVIEWED
By umar at 1:44 pm, 4/17/18

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Analysis Report

Sample Description: SG3a-FTB01-180405 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/06/2018 10:00
Collection Date/Time: 04/05/2018 14:10
SDG#: SBN13-06TB

C. T. Male Associates
ELLE Sample #: WW 9546288
ELLE Group #: 1928759
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.29 U	0.29	0.95	1
14473	Perfluorobutanoic acid	375-22-4	1.9 U	1.9	5.7	1
14473	Perfluorodecanoic acid	335-76-2	0.95 U	0.95	1.9	1
14473	Perfluorododecanoic acid	307-55-1	0.29 U	0.29	0.95	1
14473	Perfluoroheptanoic acid	375-85-9	0.29 U	0.29	0.95	1
14473	Perfluorohexanesulfonate	355-46-4	0.38 U	0.38	1.9	1
14473	Perfluorohexanoic acid	307-24-4	0.38 U	0.38	1.9	1
14473	Perfluorononanoic acid	375-95-1	0.38 U	0.38	1.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.38 U	0.38	1.9	1
14473	Perfluorooctanoic acid	335-67-1	0.29 U	0.29	0.95	1
14473	Perfluoropentanoic acid	2706-90-3	1.9 U	1.9	5.7	1
14473	Perfluorotetradecanoic acid	376-06-7	0.29 U	0.29	0.95	1
14473	Perfluorotridecanoic acid	72629-94-8	0.29 U	0.29	0.95	1
14473	Perfluoroundecanoic acid	2058-94-8	0.38 U	0.38	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18098004	04/12/2018 06:37	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18098004	04/09/2018 07:40	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR10MCAL **Result Table:** 18098004 4/12/2018 10:38:17 AM
QMethod Name: SF-PFCMOD-18APR10 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

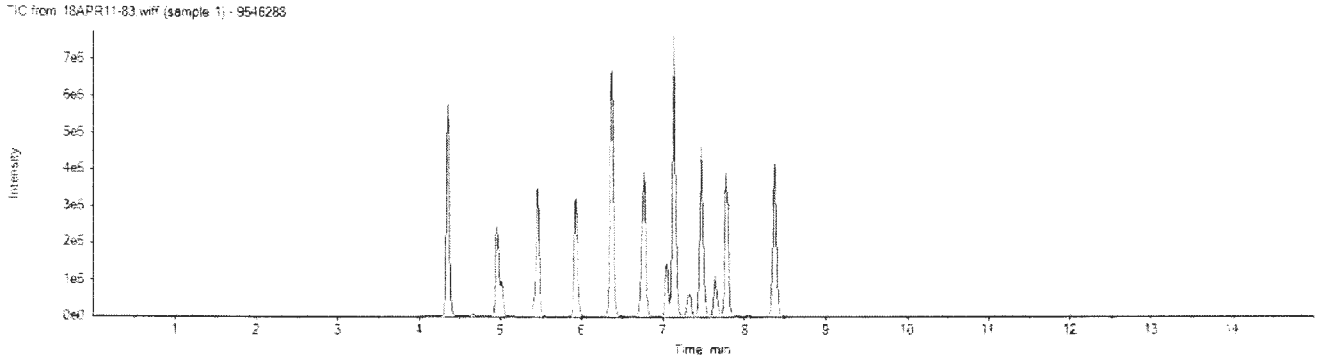
Analyte Quantitation Peak Table

Sample Name: 9546288 **Instrument Name:** LM26719 **File Name:** 18APR11-83.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.26272	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	4.35	1.000	8384.8	M	13C4-PFBA	4.35	664352.3	0.013	0.268
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	4.95	631227.2	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.01	230371.3	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.45	876746.1	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.92	160810.2	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.93	791768.5	N/A	
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.37	904684.0	N/A	
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.74	177073.0	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.77	885484.0	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.13	934855.5	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.47	761038.3	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.78	1143992.9	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.78	1143992.9	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.37	1247025.2	N/A	

Total Ion Chromatogram



APPROVED
By MSM at 10:53 am, 4/12/18

REVIEWED
By umar at 1:44 pm, 4/17/18

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Analysis Report

Sample Description: SG3a-LTB01-180405 Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/06/2018 10:00
Collection Date/Time: 04/05/2018
SDG#: SBN13-07TB

C. T. Male Associates
ELLE Sample #: WW 9546289
ELLE Group #: 1928759
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1

00882 VOA Library Search

The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined at the end of the report.

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.28 U	0.28	0.94	1
14473	Perfluorobutanoic acid	375-22-4	1.9 U	1.9	5.7	1
14473	Perfluorodecanoic acid	335-76-2	0.94 U	0.94	1.9	1
14473	Perfluorododecanoic acid	307-55-1	0.28 U	0.28	0.94	1
14473	Perfluoroheptanoic acid	375-85-9	0.28 U	0.28	0.94	1
14473	Perfluorohexanesulfonate	355-46-4	0.38 U	0.38	1.9	1
14473	Perfluorohexanoic acid	307-24-4	0.38 U	0.38	1.9	1
14473	Perfluorononanoic acid	375-95-1	0.38 U	0.38	1.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.38 U	0.38	1.9	1
14473	Perfluorooctanoic acid	335-67-1	0.28 U	0.28	0.94	1
14473	Perfluoropentanoic acid	2706-90-3	1.9 U	1.9	5.7	1
14473	Perfluorotetradecanoic acid	376-06-7	0.28 U	0.28	0.94	1
14473	Perfluorotridecanoic acid	72629-94-8	0.28 U	0.28	0.94	1
14473	Perfluoroundecanoic acid	2058-94-8	0.38 U	0.38	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L181051AA	04/15/2018 22:09	Don V Viray	1

*=This limit was used in the evaluation of the final result

ICAL Name: 18APR10MCAL **Result Table:** 18098004 4/12/2018 10:38:17 AM
QMethod Name: SF-PFCMOD-18APR10 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

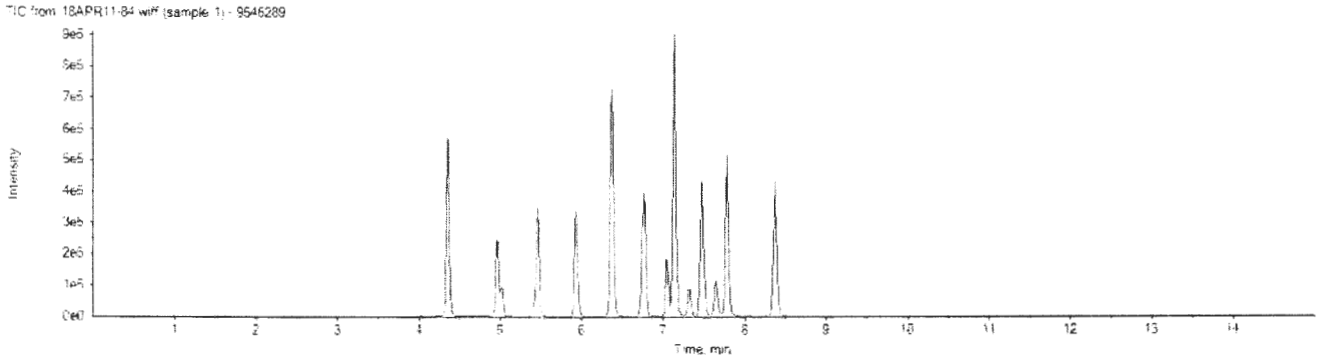
Analyte Quantitation Peak Table

Sample Name: 9546289 **Instrument Name:** LM26719 **File Name:** 18APR11-84.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.26493	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.35	664106.5	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	4.96	621422.7	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.01	226860.6	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.46	891369.3	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.92	175444.7	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.93	786219.5	N/A	
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.37	940526.8	N/A	
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.74	173811.0	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.77	926556.6	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.14	1176290.0	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.47	734189.5	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.78	1292884.1	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.78	1292884.1	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.37	1205187.8	N/A	

Total Ion Chromatogram



APPROVED
By MSM at 10:53 am, 4/13/18

REVIEWED
By umar at 1:44 pm, 4/17/18

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN13

Instrument ID: 26719

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Lab File Names: CAL1= 18APR10MCAL-14.WIFF; CAL2= 18APR10MCAL-15.WIFF; CAL3= 18APR10MCAL-16.WIFF;
CAL4= 18APR10MCAL-17.WIFF; CAL5= 18APR10MCAL-18.WIFF; CAL6= 18APR10MCAL-19.WIFF;
CAL7= 18APR10MCAL-20.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.20	0.251	25.3	±50
CAL2	0.116	0.60	0.650	8.4	±30
CAL3	0.383	2.00	2.138	6.9	±30
CAL4	1.522	8.00	8.501	6.3	±30
CAL5	3.923	20.00	21.914	9.6	±30
CAL6	8.852	50.00	49.456	-1.1	±30
CAL7	17.522	100.00	97.890	-2.1	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.234	16.8	±50
CAL2	0.119	0.60	0.629	4.8	±30
CAL3	0.388	2.00	2.049	2.4	±30
CAL4	1.569	8.00	8.278	3.5	±30
CAL5	4.239	20.00	22.370	11.9	±30
CAL6	9.755	50.00	51.481	3.0	±30
CAL7	18.145	100.00	95.759	-4.2	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.17	0.194	14.0	±50
CAL2	0.117	0.53	0.534	0.8	±30
CAL3	0.397	1.77	1.805	2.0	±30
CAL4	1.664	7.08	7.571	6.9	±30
CAL5	4.043	17.69	18.393	4.0	±30
CAL6	9.169	44.22	41.711	-5.7	±30
CAL7	19.719	88.45	89.703	1.4	±30

4:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.121	0.58	0.687	18.5	±50
CAL2	0.402	1.98	2.283	15.3	±30
CAL3	0.881	4.90	5.010	2.2	±30
CAL4	1.601	10.04	9.100	-9.4	±30
CAL5	2.272	12.49	12.910	3.4	±30

NT

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN13

Instrument ID: 26719

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

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CAL4= 18APR10MCAL-17.WIFF; CAL5= 18APR10MCAL-18.WIFF; CAL6= 18APR10MCAL-19.WIFF;
CAL7= 18APR10MCAL-20.WIFF;

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.20	0.234	17.2	±50
CAL2	0.112	0.60	0.633	5.5	±30
CAL3	0.366	2.00	2.062	3.1	±30
CAL4	1.454	8.00	8.198	2.5	±30
CAL5	3.973	20.00	22.397	12.0	±30
CAL6	8.980	50.00	50.632	1.3	±30
CAL7	17.141	100.00	96.643	-3.4	±30

Perfluoropentanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.020	0.19	0.224	17.8	±50
CAL2	0.045	0.56	0.503	-10.2	±30
CAL3	0.161	1.88	1.814	-3.5	±30
CAL4	0.715	7.50	8.043	7.2	±30
CAL5	1.901	18.76	21.384	14.0	±30
CAL6	4.204	46.90	47.292	0.8	±30
CAL7	8.030	93.80	90.330	-3.7	±30

NT

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.19	0.199	4.8	±50
CAL2	0.132	0.57	0.610	6.9	±30
CAL3	0.419	1.89	1.940	2.6	±30
CAL4	1.728	7.56	8.004	5.9	±30
CAL5	4.290	18.91	19.867	5.1	±30
CAL6	10.766	47.28	49.860	5.5	±30
CAL7	19.535	94.55	90.471	-4.3	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.237	18.5	±50
CAL2	0.141	0.60	0.655	9.2	±30
CAL3	0.456	2.00	2.115	5.8	±30
CAL4	1.819	8.00	8.444	5.5	±30
CAL5	4.914	20.00	22.811	14.1	±30
CAL6	10.889	50.00	50.543	1.1	±30
CAL7	20.681	100.00	95.996	-4.0	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN13

Instrument ID: 26719

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Lab File Names: CAL1= 18APR10MCAL-14.WIFF; CAL2= 18APR10MCAL-15.WIFF; CAL3= 18APR10MCAL-16.WIFF;
CAL4= 18APR10MCAL-17.WIFF; CAL5= 18APR10MCAL-18.WIFF; CAL6= 18APR10MCAL-19.WIFF;
CAL7= 18APR10MCAL-20.WIFF;

6:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.267	1.30	1.330	2.3	±50
CAL2	0.445	2.09	2.219	6.2	±30
CAL3 NT	1.111	5.21	5.539	6.3	±30
CAL4	1.972	10.43	9.832	-5.7	±30
CAL5	2.638	13.04	13.149	0.8	±30

Perfluoroheptanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.036	0.19	0.178	-6.5	±50
CAL2	0.117	0.57	0.574	0.8	±30
CAL3	0.412	1.90	2.025	6.6	±30
CAL4 NT	1.579	7.61	7.755	1.9	±30
CAL5	4.329	19.03	21.266	11.7	±30
CAL6	9.546	47.58	46.892	-1.4	±30
CAL7	19.001	95.15	93.340	-1.9	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.047	0.20	0.242	21.2	±50
CAL2	0.111	0.60	0.579	-3.5	±30
CAL3	0.426	2.00	2.213	10.7	±30
CAL4	1.622	8.00	8.429	5.4	±30
CAL5	4.465	20.00	23.207	16.0	±30
CAL6	9.278	50.00	48.226	-3.5	±30
CAL7	18.834	100.00	97.903	-2.1	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.19	0.217	14.5	±50
CAL2	0.113	0.57	0.531	-6.8	±30
CAL3	0.408	1.91	1.923	0.7	±30
CAL4	1.670	7.65	7.869	2.9	±30
CAL5	4.308	19.12	20.296	6.2	±30
CAL6	10.368	47.80	48.850	2.2	±30
CAL7	19.770	95.60	93.152	-2.6	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN13

Instrument ID: 26719

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Lab File Names: CAL1= 18APR10MCAL-14.WIFF; CAL2= 18APR10MCAL-15.WIFF; CAL3= 18APR10MCAL-16.WIFF;
CAL4= 18APR10MCAL-17.WIFF; CAL5= 18APR10MCAL-18.WIFF; CAL6= 18APR10MCAL-19.WIFF;
CAL7= 18APR10MCAL-20.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.249	24.7	±50
CAL2	0.133	0.60	0.648	8.0	±30
CAL3	0.430	2.00	2.101	5.1	±30
CAL4	1.975	8.00	9.657	20.7	±30
CAL5	4.389	20.00	21.463	7.3	±30
CAL6	10.922	50.00	53.416	6.8	±30
CAL7	19.071	100.00	93.266	-6.7	±30

Perfluorooctanesulfonamide	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.20	0.203	1.3	±50
CAL2	0.134	0.60	0.650	8.4	±30
CAL3	0.465	2.00	2.255	12.7	±30
CAL4 NT	1.647	8.00	7.990	-0.1	±30
CAL5	2.224	10.00	10.792	7.9	±30
CAL6	10.011	50.00	48.576	-2.8	±30
CAL7	20.678	100.00	100.334	0.3	±30

Perfluorononanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.026	0.19	0.184	-3.4	±50
CAL2	0.076	0.58	0.526	-9.3	±30
CAL3	0.281	1.92	1.956	1.9	±30
CAL4 NT	1.222	7.68	8.516	10.9	±30
CAL5	2.763	19.20	19.249	0.3	±30
CAL6	6.718	48.00	46.798	-2.5	±30
CAL7	13.831	96.00	96.342	0.4	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.192	-3.8	±50
CAL2	0.110	0.60	0.562	-6.3	±30
CAL3	0.368	2.00	1.887	-5.6	±30
CAL4	1.511	8.00	7.738	-3.3	±30
CAL5	4.441	20.00	22.748	13.7	±30
CAL6	9.308	50.00	47.672	-4.7	±30
CAL7	15.959	100.00	81.739	-18.3	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN13

Instrument ID: 26719

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Lab File Names: CAL1= 18APR10MCAL-14.WIFF; CAL2= 18APR10MCAL-15.WIFF; CAL3= 18APR10MCAL-16.WIFF;
CAL4= 18APR10MCAL-17.WIFF; CAL5= 18APR10MCAL-18.WIFF; CAL6= 18APR10MCAL-19.WIFF;
CAL7= 18APR10MCAL-20.WIFF;

8:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.336	1.32	1.498	13.5	±50
CAL2	0.475	2.11	2.117	0.3	±30
CAL3 NT	1.227	5.27	5.472	3.8	±30
CAL4	2.155	10.54	9.613	-8.8	±30
CAL5	2.691	13.17	12.002	-8.9	±30

NMePFOSAE	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.049	0.20	0.229	14.5	±50
CAL2	0.132	0.60	0.615	2.6	±30
CAL3	0.448	2.00	2.091	4.5	±30
CAL4 NT	1.586	8.00	7.409	-7.4	±30
CAL5	2.173	10.00	10.151	1.5	±30
CAL6	10.744	50.00	50.194	0.4	±30
CAL7	21.429	100.00	100.111	0.1	±30

NMePFOSA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.033	0.20	0.174	-12.8	±50
CAL2	0.131	0.60	0.681	13.5	±30
CAL3	0.418	2.00	2.177	8.8	±30
CAL4 NT	1.603	8.00	8.358	4.5	±30
CAL5	1.902	10.00	9.918	-0.8	±30
CAL6	9.923	50.00	51.735	3.5	±30
CAL7	18.749	100.00	97.756	-2.2	±30

NMeFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.050	0.20	0.234	16.8	±50
CAL2	0.139	0.60	0.653	8.9	±30
CAL3	0.421	2.00	1.973	-1.3	±30
CAL4 NT	1.766	8.00	8.269	3.4	±30
CAL5	1.947	10.00	9.119	-8.8	±30
CAL6	10.628	50.00	49.770	-0.5	±30
CAL7	21.520	100.00	100.783	0.8	±30

FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN13

Instrument ID: 26719

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Lab File Names: CAL1= 18APR10MCAL-14.WIFF; CAL2= 18APR10MCAL-15.WIFF; CAL3= 18APR10MCAL-16.WIFF;
CAL4= 18APR10MCAL-17.WIFF; CAL5= 18APR10MCAL-18.WIFF; CAL6= 18APR10MCAL-19.WIFF;
CAL7= 18APR10MCAL-20.WIFF;

NEtPFOSAE	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.049	0.20	0.235	17.5	±50
CAL2	0.134	0.60	0.640	6.7	±30
CAL3	0.439	2.00	2.094	4.7	±30
CAL4 NT	1.744	8.00	8.323	4.0	±30
CAL5	2.058	10.00	9.822	-1.8	±30
CAL6	10.690	50.00	51.009	2.0	±30
CAL7	20.680	100.00	98.677	-1.3	±30

NEtPFOSA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.20	0.221	10.3	±50
CAL2	0.124	0.60	0.645	7.5	±30
CAL3	0.416	2.00	2.165	8.3	±30
CAL4 NT	1.684	8.00	8.765	9.6	±30
CAL5	1.883	10.00	9.805	-2.0	±30
CAL6	9.326	50.00	48.552	-2.9	±30
CAL7	19.334	100.00	100.648	0.6	±30

Perfluorodecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.021	0.19	0.178	-6.4	±50
CAL2	0.059	0.58	0.502	-13.5	±30
CAL3	0.194	1.93	1.650	-14.5	±30
CAL4 NT	0.944	7.70	8.043	4.5	±30
CAL5	2.253	19.26	19.205	-0.3	±30
CAL6	5.730	48.15	48.838	1.4	±30
CAL7	11.228	96.30	95.695	-0.6	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.060	0.20	0.267	33.6	±50
CAL2	0.152	0.60	0.676	12.7	±30
CAL3	0.512	2.00	2.276	13.8	±30
CAL4	1.879	8.00	8.346	4.3	±30
CAL5	5.429	20.00	24.117	20.6	±30
CAL6	11.381	50.00	50.556	1.1	±30
CAL7	21.288	100.00	94.561	-5.4	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN13

Instrument ID: 26719

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Lab File Names: CAL1= 18APR10MCAL-14.WIFF; CAL2= 18APR10MCAL-15.WIFF; CAL3= 18APR10MCAL-16.WIFF;
CAL4= 18APR10MCAL-17.WIFF; CAL5= 18APR10MCAL-18.WIFF; CAL6= 18APR10MCAL-19.WIFF;
CAL7= 18APR10MCAL-20.WIFF;

NEtFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.181	-9.5	±50
CAL2	0.110	0.60	0.507	-15.4	±30
CAL3 NT	0.452	2.00	2.092	4.6	±30
CAL4	1.667	8.00	7.717	-3.5	±30
CAL5	2.037	10.00	9.428	-5.7	±30
CAL6	9.638	50.00	44.615	-10.8	±30
CAL7	22.955	100.00	106.259	6.3	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.236	18.0	±50
CAL2	0.115	0.60	0.668	11.4	±30
CAL3	0.396	2.00	2.296	14.8	±30
CAL4	1.457	8.00	8.457	5.7	±30
CAL5	3.852	20.00	22.357	11.8	±30
CAL6	8.912	50.00	51.722	3.4	±30
CAL7	16.379	100.00	95.063	-4.9	±30

10:2-fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.355	1.33	1.491	12.1	±50
CAL2	0.541	2.12	2.270	7.1	±30
CAL3 NT	1.287	5.30	5.400	1.9	±30
CAL4	2.571	10.60	10.783	1.7	±30
CAL5	3.020	13.26	12.667	-4.5	±30

Perfluorododecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.011	0.19	0.189	-0.6	±50
CAL2	0.029	0.58	0.512	-11.8	±30
CAL3	0.100	1.94	1.739	-10.3	±30
CAL4 NT	0.441	7.74	7.675	-0.8	±30
CAL5	1.108	19.36	19.292	-0.3	±30
CAL6	2.739	48.40	47.675	-1.5	±30
CAL7	5.625	96.80	97.928	1.2	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN13

Instrument ID: 26719

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Lab File Names: CAL1= 18APR10MCAL-14.WIFF; CAL2= 18APR10MCAL-15.WIFF; CAL3= 18APR10MCAL-16.WIFF;
CAL4= 18APR10MCAL-17.WIFF; CAL5= 18APR10MCAL-18.WIFF; CAL6= 18APR10MCAL-19.WIFF;
CAL7= 18APR10MCAL-20.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.230	14.8	±50
CAL2	0.118	0.60	0.677	12.9	±30
CAL3	0.396	2.00	2.282	14.1	±30
CAL4	1.531	8.00	8.810	10.1	±30
CAL5	3.969	20.00	22.840	14.2	±30
CAL6	9.029	50.00	51.960	3.9	±30
CAL7	16.335	100.00	94.001	-6.0	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.20	0.254	26.9	±50
CAL2	0.107	0.60	0.653	8.9	±30
CAL3	0.369	2.00	2.248	12.4	±30
CAL4	1.517	8.00	9.233	15.4	±30
CAL5	3.969	20.00	24.156	20.8	±30
CAL6	8.298	50.00	50.497	1.0	±30
CAL7	15.406	100.00	93.759	-6.2	±30

Perfluorohexadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.024	0.20	0.250	24.9	±50
CAL2	0.058	0.60	0.616	2.6	±30
CAL3	0.180	2.00	1.895	-5.3	±30
CAL4 NT	0.806	8.00	8.485	6.1	±30
CAL5	2.087	20.00	21.977	9.9	±30
CAL6	4.840	50.00	50.973	1.9	±30
CAL7	9.172	100.00	96.605	-3.4	±30

Perfluorooctadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.027	0.20	0.205	2.4	±50
CAL2	0.083	0.60	0.623	3.8	±30
CAL3	0.236	2.00	1.772	-11.4	±30
CAL4 NT	1.101	8.00	8.259	3.2	±30
CAL5	2.697	20.00	20.231	1.2	±30
CAL6	7.019	50.00	52.650	5.3	±30
CAL7	12.939	100.00	97.061	-2.9	±30

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18APR10MCAL-14.wiff	4/10/2018 3:23:14 AM	CALMOD11833A	CAL1
18APR10MCAL-15.wiff	4/10/2018 3:38:45 AM	CALMOD21833A	CAL2
18APR10MCAL-16.wiff	4/10/2018 3:54:14 AM	CALMOD31833A	CAL3
18APR10MCAL-17.wiff	4/10/2018 4:09:45 AM	CALMOD41833A	CAL4
18APR10MCAL-18.wiff	4/10/2018 4:25:15 AM	CALMOD51833A	CAL5
18APR10MCAL-19.wiff	4/10/2018 4:40:45 AM	CALMOD61833A	CAL6
18APR10MCAL-20.wiff	4/10/2018 4:56:14 AM	CALMOD71833A	CAL7

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	707006.3	671428.9
CAL2	I13C3-PFBA	True	713244.8	671428.9
CAL3	I13C3-PFBA	True	674942.2	671428.9
CAL4	I13C3-PFBA	True	708220.1	671428.9
CAL5	I13C3-PFBA	True	667480.0	671428.9
CAL6	I13C3-PFBA	True	641746.1	671428.9
CAL7	I13C3-PFBA	True	587362.9	671428.9
CAL1	I13C2-PFOA	True	946304.8	896964.1
CAL2	I13C2-PFOA	True	963919.3	896964.1
CAL3	I13C2-PFOA	True	942296.2	896964.1
CAL4	I13C2-PFOA	True	893245.3	896964.1
CAL5	I13C2-PFOA	True	871481.9	896964.1
CAL6	I13C2-PFOA	True	862678.9	896964.1
CAL7	I13C2-PFOA	True	798822.6	896964.1
CAL1	I13C4-PFOS	True	217358.2	207208.0
CAL2	I13C4-PFOS	True	222464.1	207208.0
CAL3	I13C4-PFOS	True	215042.6	207208.0
CAL4	I13C4-PFOS	True	220227.3	207208.0
CAL5	I13C4-PFOS	True	196182.2	207208.0
CAL6	I13C4-PFOS	True	193289.3	207208.0
CAL7	I13C4-PFOS	True	185892.3	207208.0
CAL1	I13C2-PFDA	True	895907.7	882180.8
CAL2	I13C2-PFDA	True	943493.6	882180.8
CAL3	I13C2-PFDA	True	942697.1	882180.8
CAL4	I13C2-PFDA	True	865951.7	882180.8
CAL5	I13C2-PFDA	True	855161.2	882180.8
CAL6	I13C2-PFDA	True	883033.3	882180.8
CAL7	I13C2-PFDA	True	789020.8	882180.8

APPROVED
By MSM at 10:02 am, 4/10/18

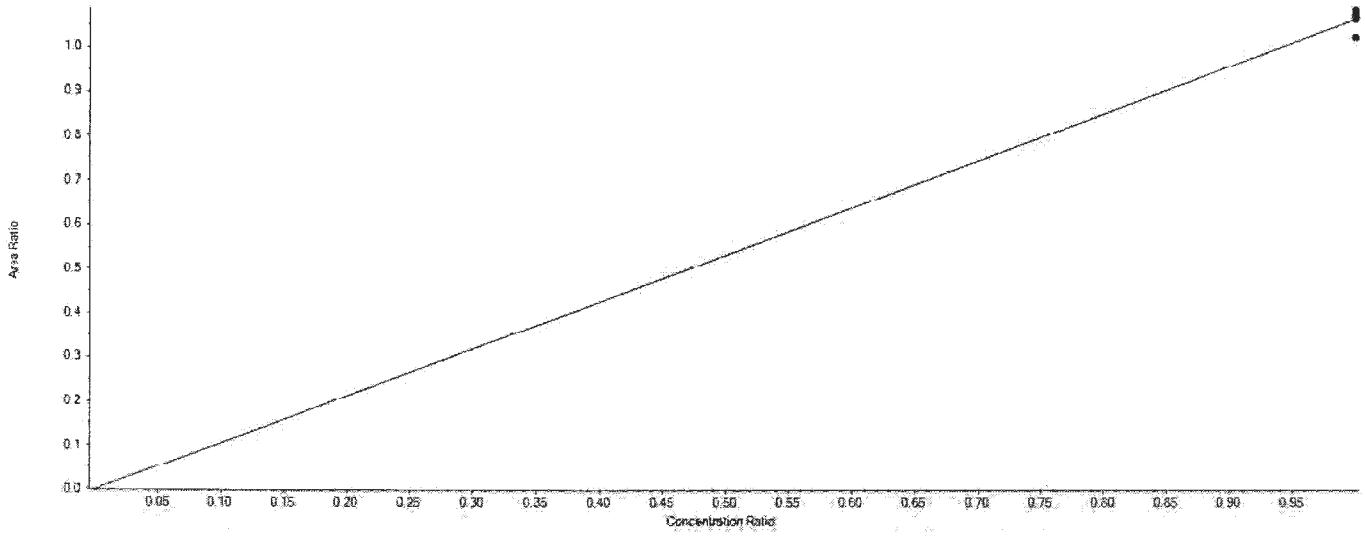
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

E13C4-PFBA

y = 1.06504 x (std. dev. = 0.01965) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	754897.3	707006.3	True	5.00	1.068	4.35	1.000	5.000	5.013	0.3	50.0	
CAL2	761308.2	713244.8	True	5.00	1.067	4.35	1.000	5.000	5.011	0.2	30.0	
CAL3	719588.4	674942.2	True	5.00	1.066	4.35	1.000	5.000	5.005	0.1	30.0	
CAL4	724451.9	708220.1	True	5.00	1.023	4.36	1.000	5.000	4.802	-4.0	30.0	
CAL5	724226.4	667480.0	True	5.00	1.085	4.35	1.000	5.000	5.094	1.9	30.0	
CAL6	689326.5	641746.1	True	5.00	1.074	4.35	1.000	5.000	5.043	0.9	30.0	
CAL7	629620.6	587362.9	True	5.00	1.072	4.35	1.000	5.000	5.032	0.6	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

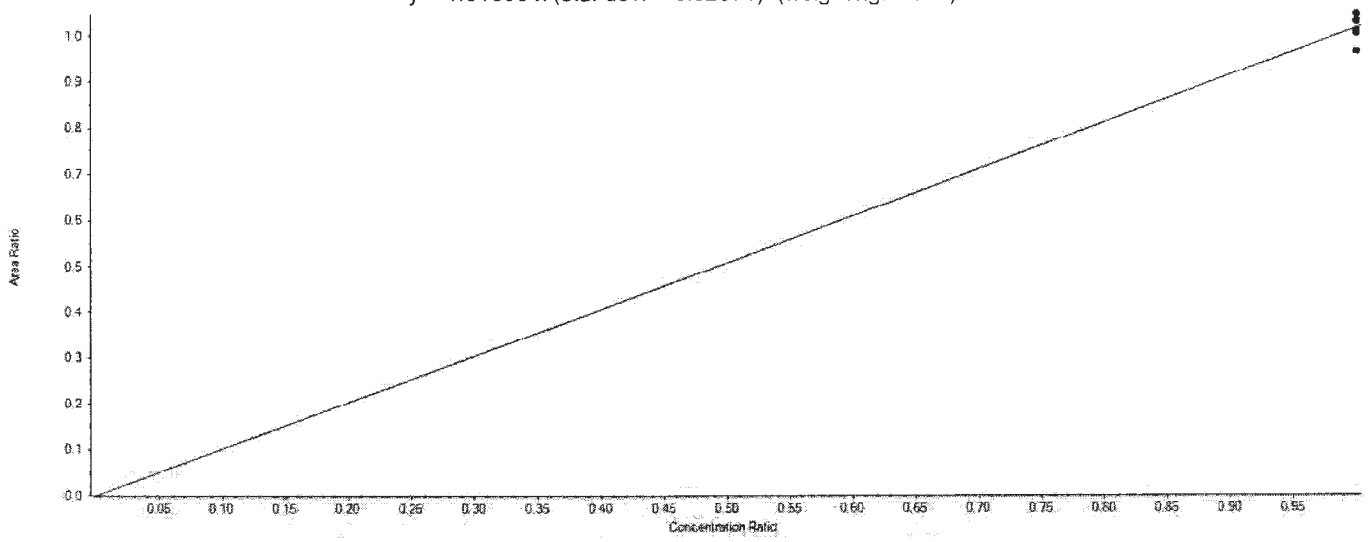
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

E13C5-PFPeA

y = 1.01690 x (std. dev. = 0.02671) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	728525.6	707006.3	True	5.00	1.030	4.96	1.140	5.000	5.067	1.3	50.0	
CAL2	716500.3	713244.8	True	5.00	1.005	4.96	1.140	5.000	4.939	-1.2	30.0	
CAL3	694881.6	674942.2	True	5.00	1.030	4.96	1.140	5.000	5.062	1.2	30.0	
CAL4	714931.6	708220.1	True	5.00	1.009	4.96	1.140	5.000	4.964	-0.7	30.0	
CAL5	688978.5	667480.0	True	5.00	1.032	4.96	1.140	5.000	5.075	1.5	30.0	
CAL6	619710.0	641746.1	True	5.00	0.966	4.96	1.140	5.000	4.748	-5.0	30.0	
CAL7	614604.8	587362.9	True	5.00	1.046	4.96	1.140	5.000	5.145	2.9	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

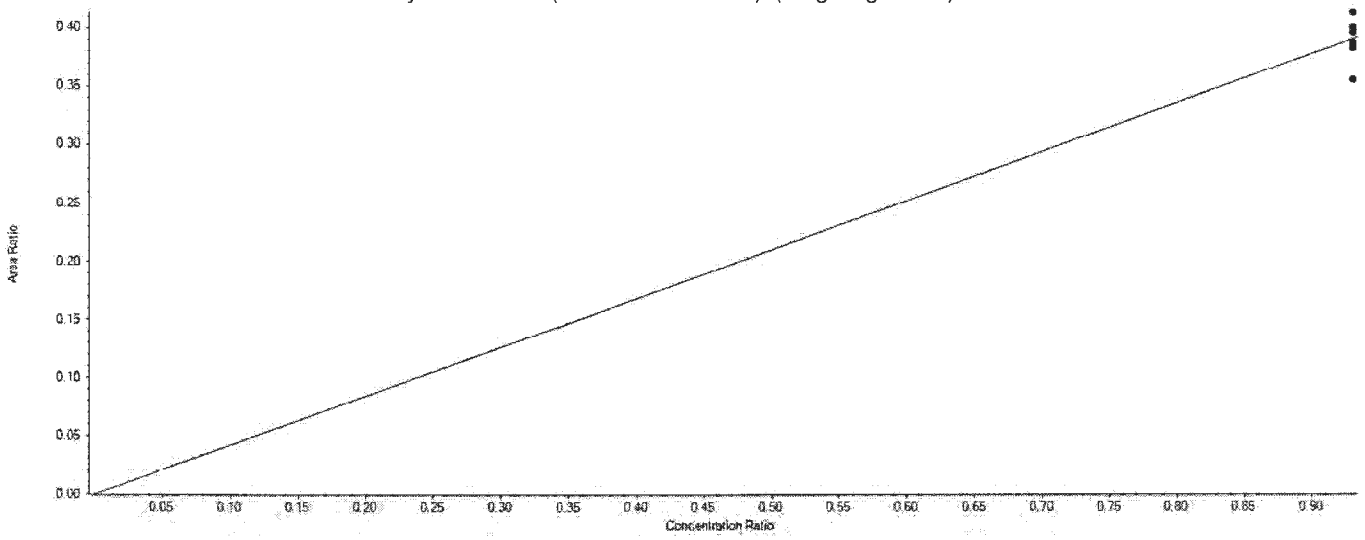
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

E13C3-PFBS

y = 0.42036 x (std. dev. = 0.01960) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	274031.4	707006.3	True	5.00	0.388	5.02	1.150	4.650	4.610	-0.9	50.0	
CAL2	273585.4	713244.8	True	5.00	0.384	5.02	1.150	4.650	4.562	-1.9	30.0	
CAL3	270326.3	674942.2	True	5.00	0.401	5.02	1.150	4.650	4.764	2.5	30.0	
CAL4	251971.8	708220.1	True	5.00	0.356	5.02	1.150	4.650	4.232	-9.0	30.0	
CAL5	266911.1	667480.0	True	5.00	0.400	5.01	1.150	4.650	4.756	2.3	30.0	
CAL6	254137.0	641746.1	True	5.00	0.396	5.01	1.150	4.650	4.710	1.3	30.0	
CAL7	242692.7	587362.9	True	5.00	0.413	5.01	1.150	4.650	4.915	5.7	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

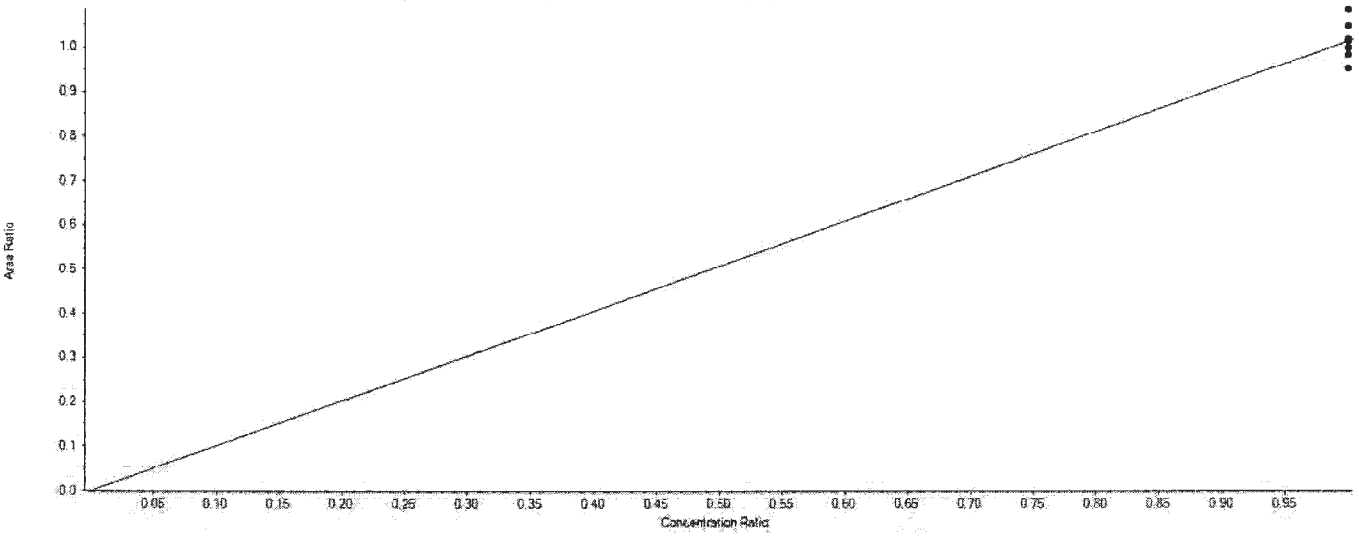
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

E13C5-PFHxA

y = 1.01502 x (std. dev. = 0.04265) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	961011.4	946304.8	True	5.00	1.016	5.46	0.860	5.000	5.003	0.1	50.0	
CAL2	919032.8	963919.3	True	5.00	0.953	5.46	0.860	5.000	4.697	-6.1	30.0	
CAL3	961051.1	942296.2	True	5.00	1.020	5.46	0.860	5.000	5.024	0.5	30.0	
CAL4	969152.6	893245.3	True	5.00	1.085	5.46	0.860	5.000	5.345	6.9	30.0	
CAL5	912652.6	871481.9	True	5.00	1.047	5.46	0.860	5.000	5.159	3.2	30.0	
CAL6	849552.4	862678.9	True	5.00	0.985	5.46	0.860	5.000	4.851	-3.0	30.0	
CAL7	798234.5	798822.6	True	5.00	0.999	5.46	0.860	5.000	4.922	-1.6	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

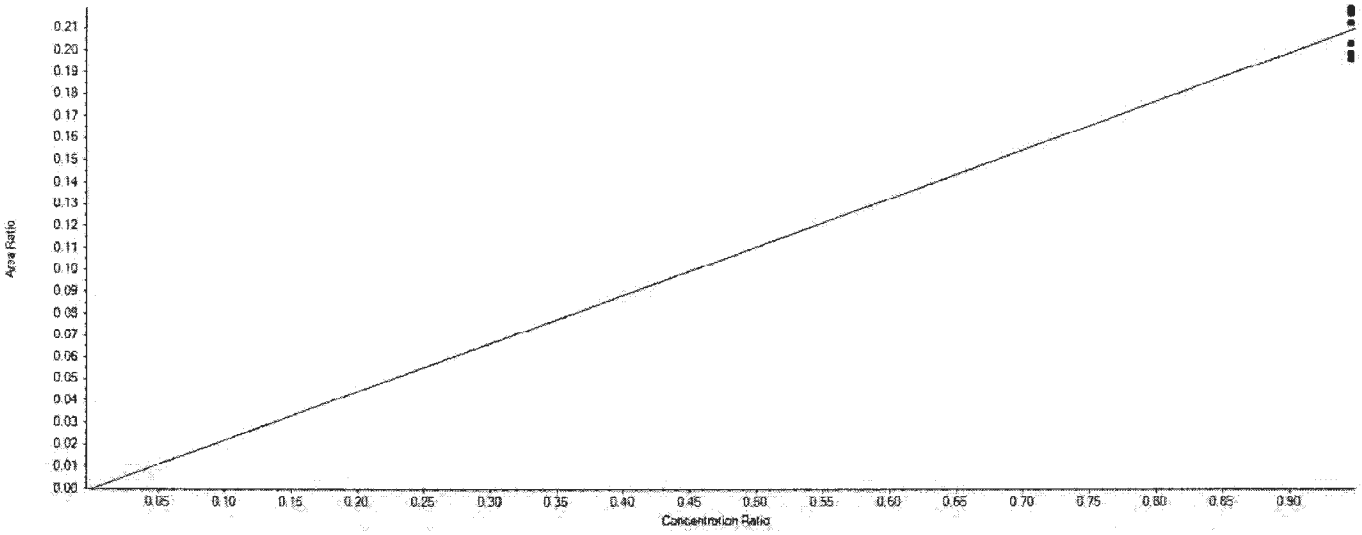
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

E13C3-PFHxS

y = 0.22110 x (std. dev. = 0.01023) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	207342.3	946304.8	True	5.00	0.219	5.93	0.930	4.730	4.955	4.8	50.0	
CAL2	195922.8	963919.3	True	5.00	0.203	5.93	0.930	4.730	4.596	-2.8	30.0	
CAL3	187350.2	942296.2	True	5.00	0.199	5.93	0.930	4.730	4.496	-4.9	30.0	
CAL4	193737.9	893245.3	True	5.00	0.217	5.93	0.930	4.730	4.905	3.7	30.0	
CAL5	189880.1	871481.9	True	5.00	0.218	5.92	0.930	4.730	4.927	4.2	30.0	
CAL6	169015.6	862678.9	True	5.00	0.196	5.93	0.930	4.730	4.431	-6.3	30.0	
CAL7	169560.3	798822.6	True	5.00	0.212	5.92	0.930	4.730	4.800	1.5	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

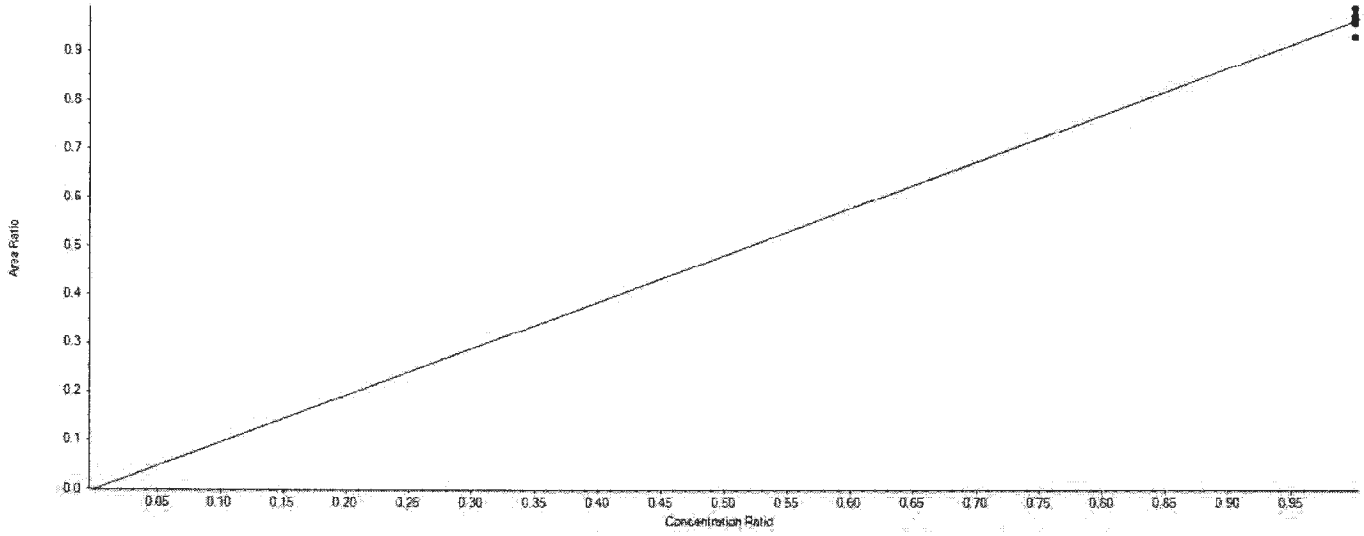
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

E13C4-PFHpA

y = 0.96421 x (std. dev. = 0.01781) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	913288.9	946304.8	True	5.00	0.965	5.93	0.930	5.000	5.005	0.1	50.0	
CAL2	896990.1	963919.3	True	5.00	0.931	5.93	0.930	5.000	4.826	-3.5	30.0	
CAL3	907396.4	942296.2	True	5.00	0.963	5.94	0.930	5.000	4.994	-0.1	30.0	
CAL4	883762.5	893245.3	True	5.00	0.989	5.94	0.930	5.000	5.131	2.6	30.0	
CAL5	849353.3	871481.9	True	5.00	0.975	5.93	0.930	5.000	5.054	1.1	30.0	
CAL6	828025.5	862678.9	True	5.00	0.960	5.93	0.930	5.000	4.977	-0.5	30.0	
CAL7	772488.7	798822.6	True	5.00	0.967	5.93	0.930	5.000	5.015	0.3	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

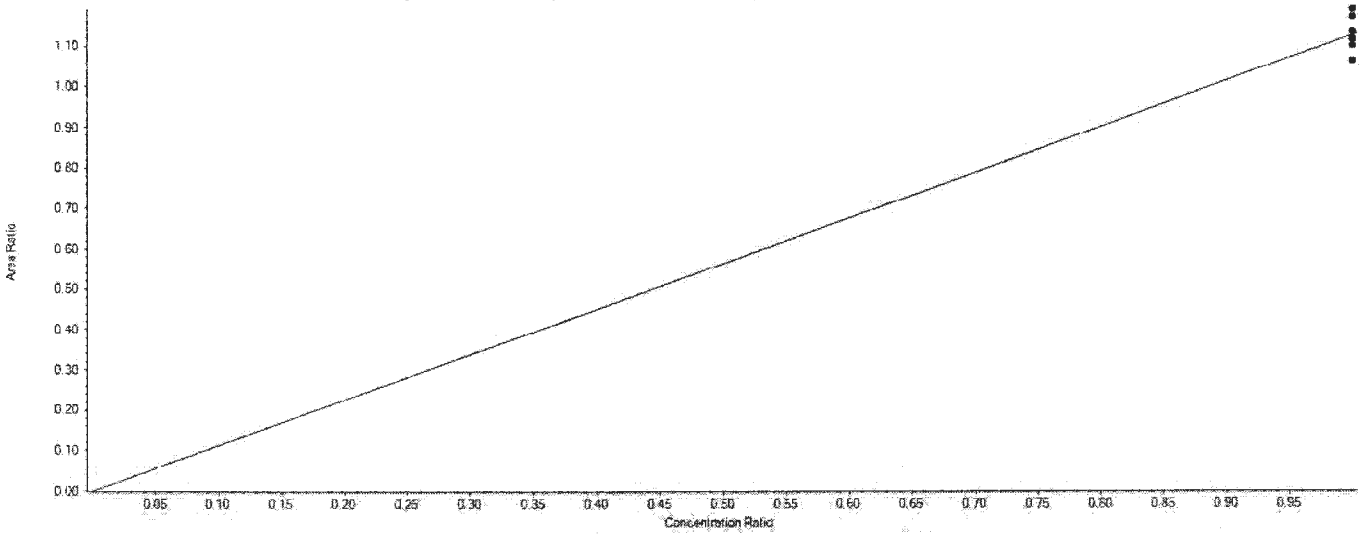
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

E13C8-PFOA

y = 1.12773 x (std. dev. = 0.04240) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1073739.9	946304.8	True	5.00	1.135	6.37	1.000	5.000	5.031	0.6	50.0	
CAL2	1078444.6	963919.3	True	5.00	1.119	6.38	1.000	5.000	4.960	-0.8	30.0	
CAL3	1051457.1	942296.2	True	5.00	1.116	6.38	1.000	5.000	4.947	-1.1	30.0	
CAL4	1045296.9	893245.3	True	5.00	1.170	6.37	1.000	5.000	5.188	3.8	30.0	
CAL5	1037219.9	871481.9	True	5.00	1.190	6.37	1.000	5.000	5.277	5.5	30.0	
CAL6	949327.3	862678.9	True	5.00	1.100	6.37	1.000	5.000	4.879	-2.4	30.0	
CAL7	849905.3	798822.6	True	5.00	1.064	6.37	1.000	5.000	4.717	-5.7	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

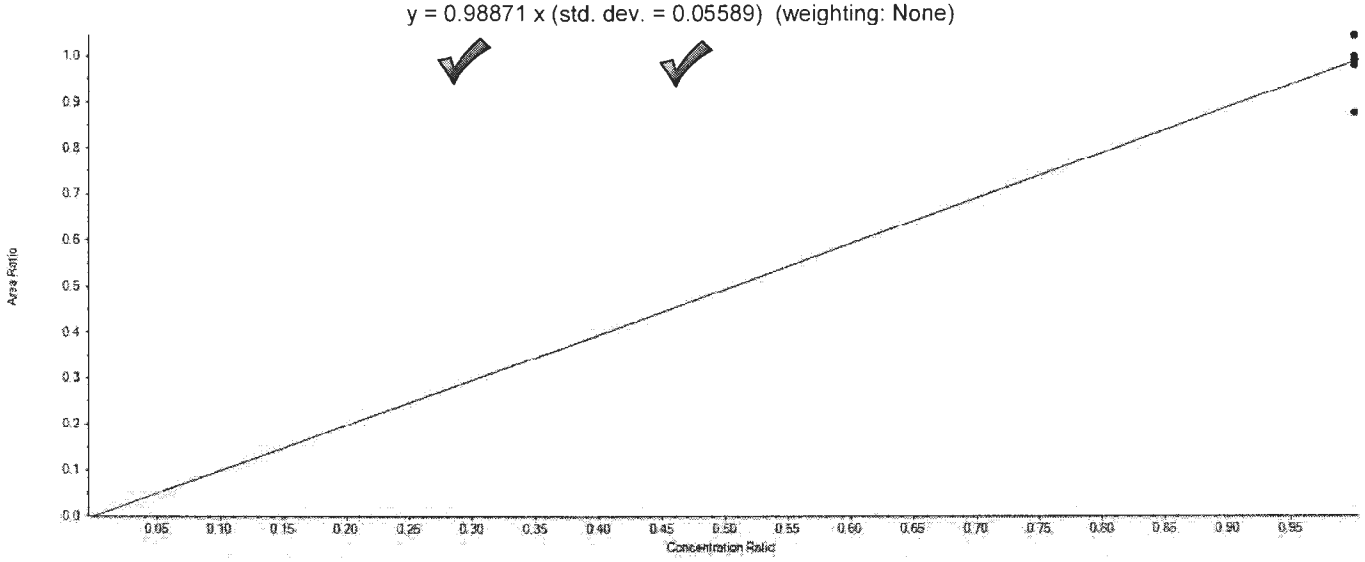
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

E13C8-PFOS

y = 0.98871 x (std. dev. = 0.05589) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	% Diff	%D Limit	%D OOS
CAL1	217143.2	217358.2	True	4.78	0.999	6.75	1.000	4.780	4.830	1.0	50.0	
CAL2	231875.1	222464.1	True	4.78	1.042	6.75	1.000	4.780	5.039	5.4	30.0	
CAL3	212821.9	215042.6	True	4.78	0.990	6.75	1.000	4.780	4.785	0.1	30.0	
CAL4	193126.9	220227.3	True	4.78	0.877	6.75	1.000	4.780	4.240	-11.3	30.0	
CAL5	205084.4	196182.2	True	4.78	1.045	6.75	1.000	4.780	5.054	5.7	30.0	
CAL6	189634.9	193289.3	True	4.78	0.981	6.75	1.000	4.780	4.743	-0.8	30.0	
CAL7	183391.9	185892.3	True	4.78	0.987	6.74	1.000	4.780	4.770	-0.2	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

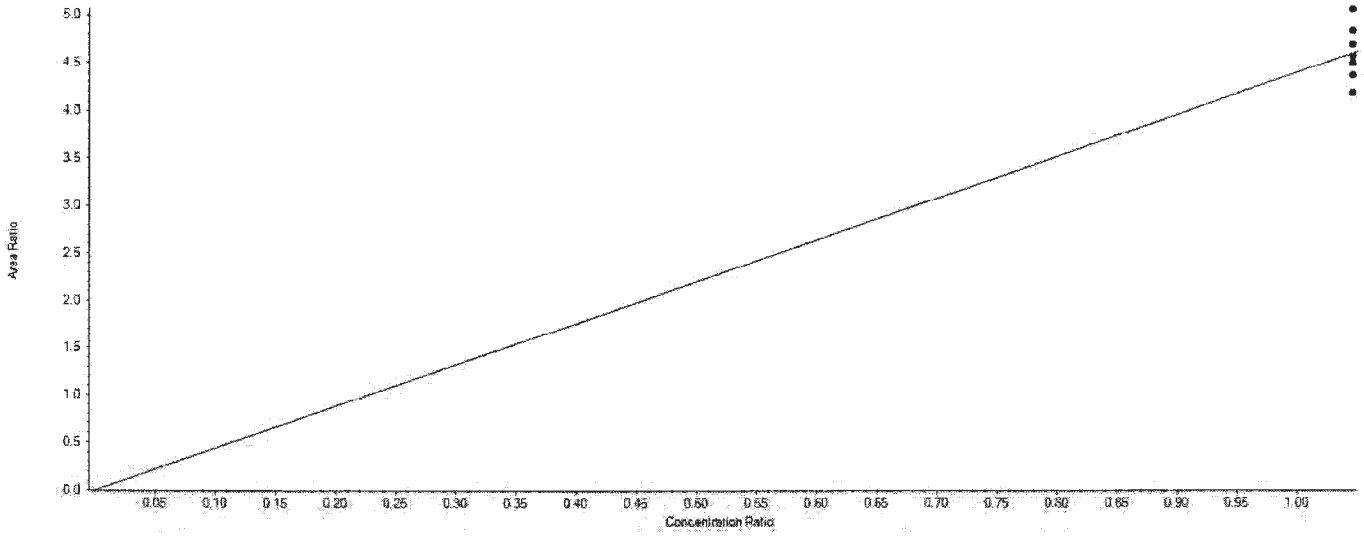
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

E13C9-PFNA

y = 4.40478 x (std. dev. = 0.28142) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	950059.8	217358.2	True	4.78	4.371	6.78	1.000	5.000	4.743	-5.1	50.0	
CAL2	1045038.4	222464.1	True	4.78	4.698	6.78	1.000	5.000	5.098	2.0	30.0	
CAL3	984697.5	215042.6	True	4.78	4.579	6.78	1.000	5.000	4.969	-0.6	30.0	
CAL4	921640.9	220227.3	True	4.78	4.185	6.78	1.000	5.000	4.541	-9.2	30.0	
CAL5	993972.1	196182.2	True	4.78	5.067	6.78	1.000	5.000	5.498	10.0	30.0	
CAL6	871570.2	193289.3	True	4.78	4.509	6.78	1.000	5.000	4.893	-2.1	30.0	
CAL7	900520.8	185892.3	True	4.78	4.844	6.77	1.000	5.000	5.257	5.1	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

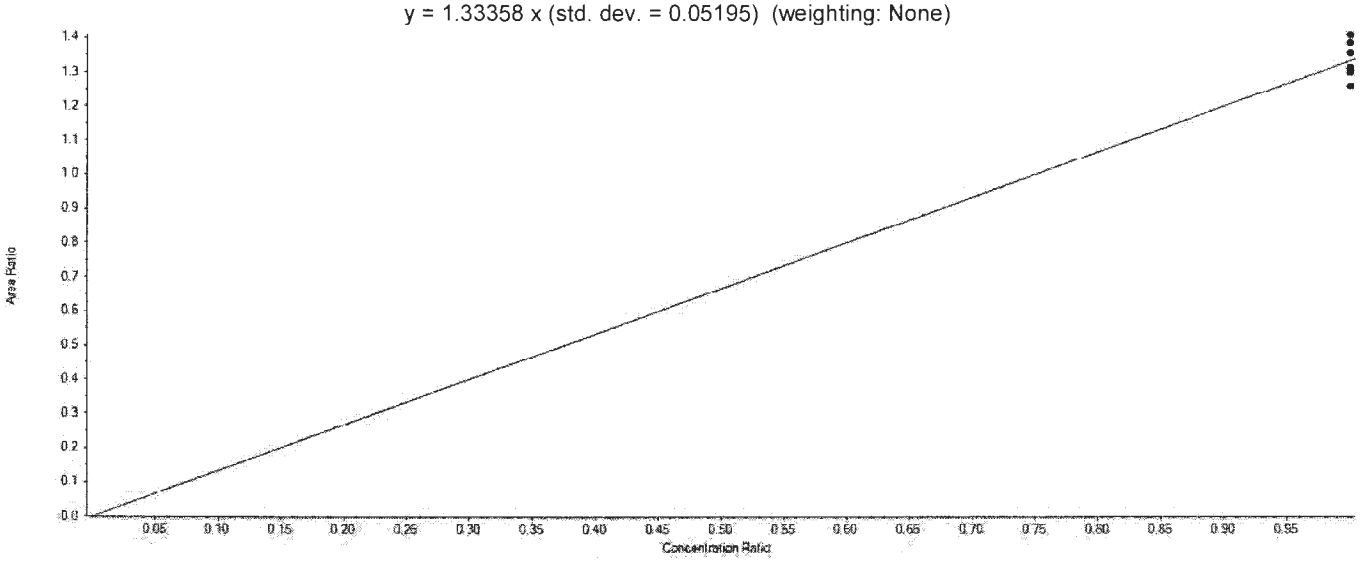
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

E13C6-PFDA

y = 1.33358 x (std. dev. = 0.05195) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1240446.9	895907.7	True	5.00	1.385	7.15	1.000	5.000	5.191	3.8	50.0	
CAL2	1328005.3	943493.6	True	5.00	1.408	7.15	1.000	5.000	5.277	5.5	30.0	
CAL3	1239290.6	942697.1	True	5.00	1.315	7.15	1.000	5.000	4.929	-1.4	30.0	
CAL4	1175731.1	865951.7	True	5.00	1.358	7.15	1.000	5.000	5.091	1.8	30.0	
CAL5	1111941.5	855161.2	True	5.00	1.300	7.14	1.000	5.000	4.875	-2.5	30.0	
CAL6	1111653.3	883033.3	True	5.00	1.259	7.15	1.000	5.000	4.720	-5.6	30.0	
CAL7	1034731.0	789020.8	True	5.00	1.311	7.14	1.000	5.000	4.917	-1.7	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

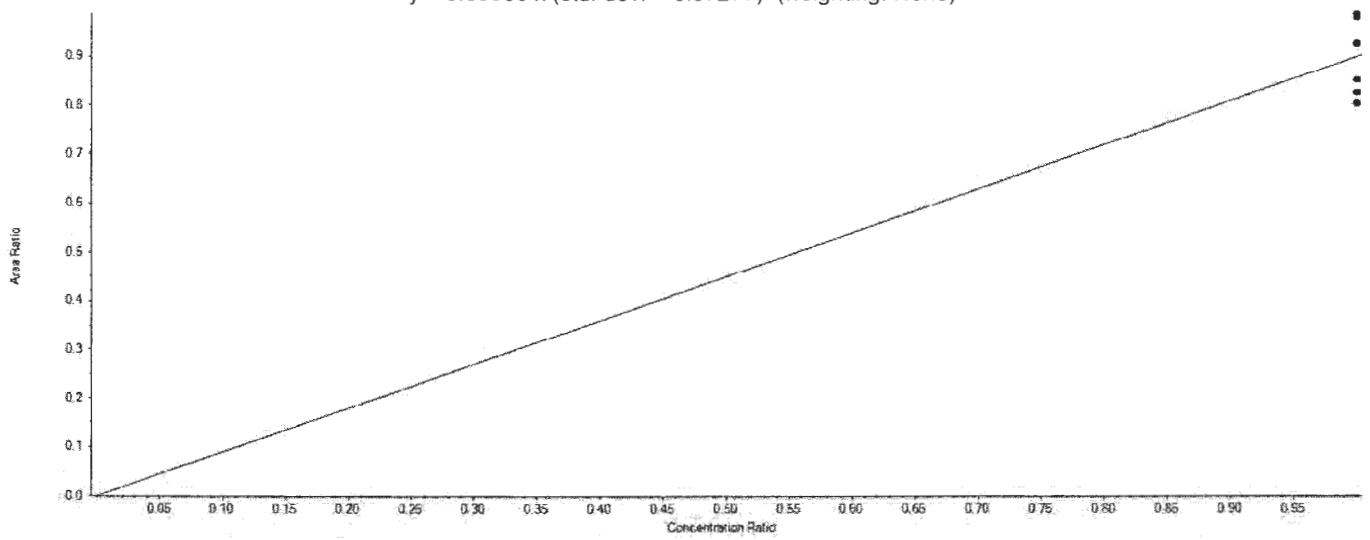
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

E13C7-PFUnDA

y = 0.89963 x (std. dev. = 0.07277) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	876503.5	895907.7	True	5.00	0.978	7.48	1.050	5.000	5.437	8.7	50.0	
CAL2	872565.6	943493.6	True	5.00	0.925	7.49	1.050	5.000	5.140	2.8	30.0	
CAL3	803237.9	942697.1	True	5.00	0.852	7.49	1.050	5.000	4.736	-5.3	30.0	
CAL4	852934.6	865951.7	True	5.00	0.985	7.49	1.050	5.000	5.474	9.5	30.0	
CAL5	793183.3	855161.2	True	5.00	0.928	7.48	1.050	5.000	5.155	3.1	30.0	
CAL6	709696.1	883033.3	True	5.00	0.804	7.48	1.050	5.000	4.467	-10.7	30.0	
CAL7	651735.0	789020.8	True	5.00	0.826	7.48	1.050	5.000	4.591	-8.2	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

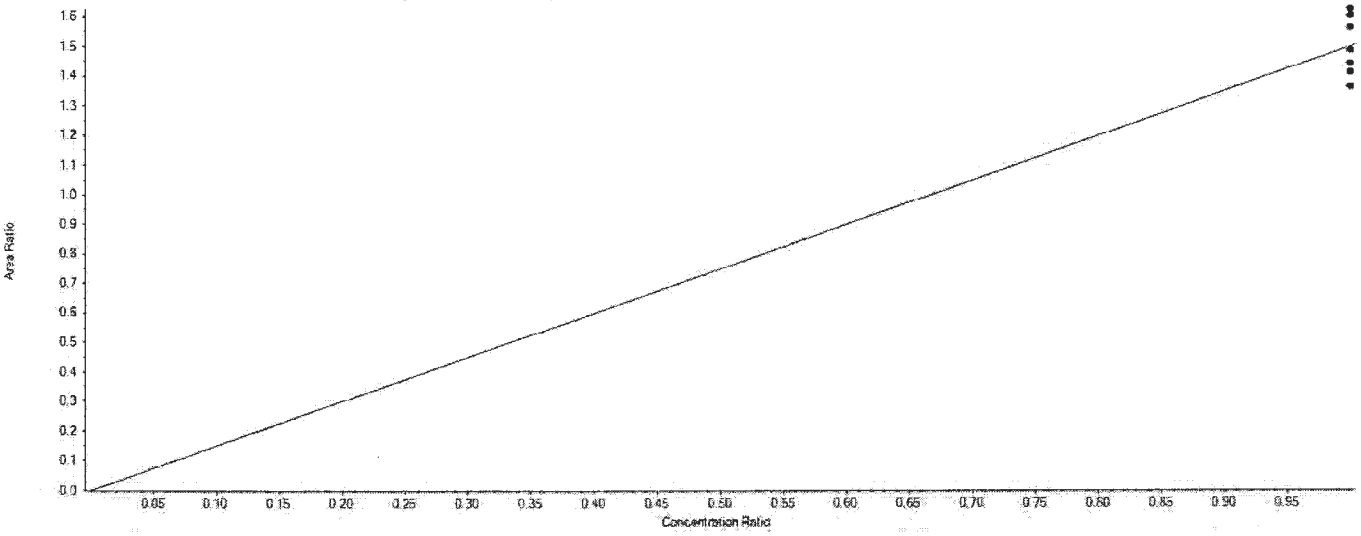
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

E13C2-PFDoDA

y = 1.49899 x (std. dev. = 0.10059) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1455905.8	895907.7	True	5.00	1.625	7.80	1.090	5.000	5.421	8.4	50.0	
CAL2	1403482.1	943493.6	True	5.00	1.488	7.80	1.090	5.000	4.962	-0.8	30.0	
CAL3	1283709.4	942697.1	True	5.00	1.362	7.81	1.090	5.000	4.542	-9.2	30.0	
CAL4	1354000.7	865951.7	True	5.00	1.564	7.81	1.090	5.000	5.215	4.3	30.0	
CAL5	1370316.0	855161.2	True	5.00	1.602	7.80	1.090	5.000	5.345	6.9	30.0	
CAL6	1246800.2	883033.3	True	5.00	1.412	7.80	1.090	5.000	4.710	-5.8	30.0	
CAL7	1136699.6	789020.8	True	5.00	1.441	7.80	1.090	5.000	4.805	-3.9	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

REVIEWED
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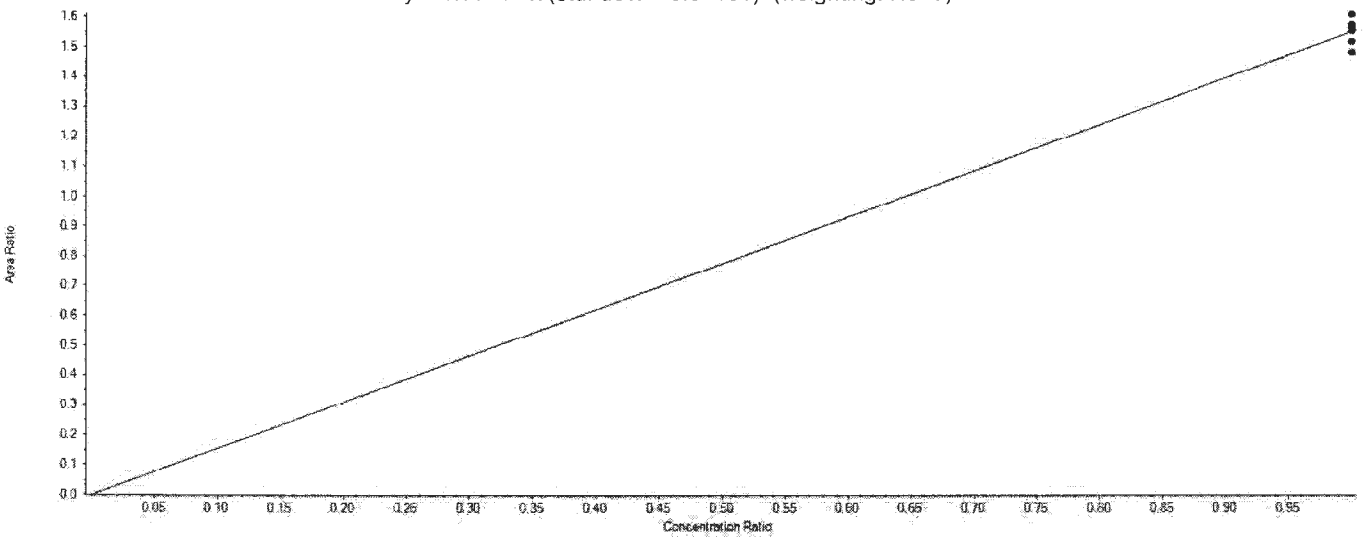
Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

E13C2-PFTeDA

y = 1.55312 x (std. dev. = 0.04101) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1414995.5	895907.7	True	5.00	1.579	8.41	1.180	5.000	5.085	1.7	50.0	
CAL2	1469218.9	943493.6	True	5.00	1.557	8.41	1.180	5.000	5.013	0.3	30.0	
CAL3	1398077.0	942697.1	True	5.00	1.483	8.41	1.180	5.000	4.774	-4.5	30.0	
CAL4	1317515.0	865951.7	True	5.00	1.521	8.41	1.180	5.000	4.898	-2.0	30.0	
CAL5	1337965.2	855161.2	True	5.00	1.565	8.40	1.180	5.000	5.037	0.7	30.0	
CAL6	1373359.4	883033.3	True	5.00	1.555	8.41	1.180	5.000	5.007	0.1	30.0	
CAL7	1271014.4	789020.8	True	5.00	1.611	8.40	1.180	5.000	5.186	3.7	30.0	

APPROVED
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REVIEWED
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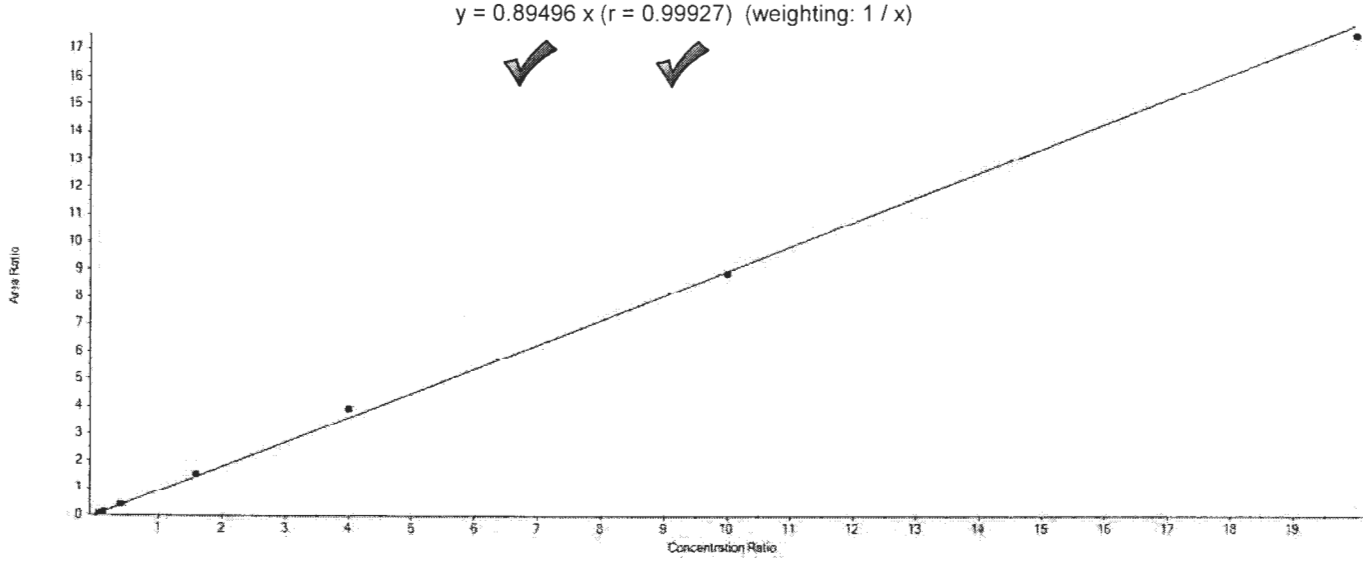
Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

PFBA

y = 0.89496 x (r = 0.99927) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	33851.7	754897.3	True	5.00	0.045	4.35	1.000	0.200	0.251	25.3	50.0	
CAL2	88590.9	761308.2	True	5.00	0.116	4.35	1.000	0.600	0.650	8.4	30.0	
CAL3	275404.8	719588.4	True	5.00	0.383	4.35	1.000	2.000	2.138	6.9	30.0	
CAL4	1102358.7	724451.9	True	5.00	1.522	4.35	1.000	8.000	8.501	6.3	30.0	
CAL5	2840794.4	724226.4	True	5.00	3.923	4.35	1.000	20.000	21.914	9.6	30.0	
CAL6	6102118.4	689326.5	True	5.00	8.852	4.35	1.000	50.000	49.456	-1.1	30.0	
CAL7	11031916.4	629620.6	True	5.00	17.522	4.35	1.000	100.000	97.890	-2.1	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

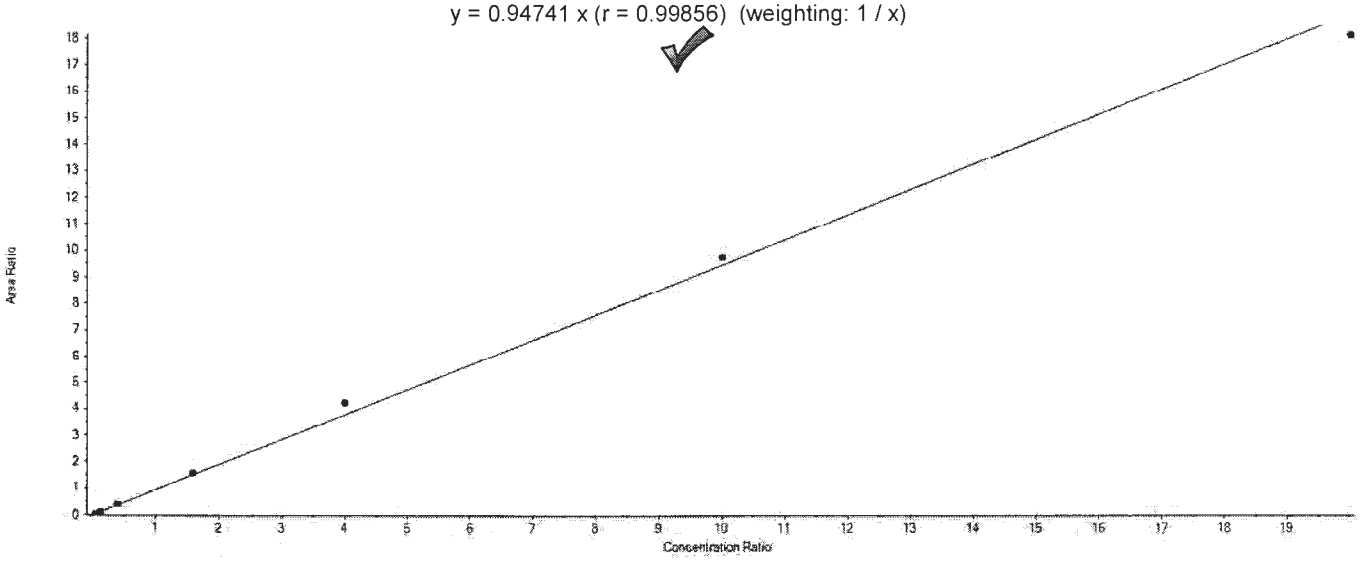
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

PFPeA

y = 0.94741 x (r = 0.99856) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	32243.3	728525.6	True	5.00	0.044	4.96	1.000	0.200	0.234	16.8	50.0	
CAL2	85357.8	716500.3	True	5.00	0.119	4.96	1.000	0.600	0.629	4.8	30.0	
CAL3	269739.1	694881.6	True	5.00	0.388	4.96	1.000	2.000	2.049	2.4	30.0	
CAL4	1121427.5	714931.6	True	5.00	1.569	4.96	1.000	8.000	8.278	3.5	30.0	
CAL5	2920386.7	688978.5	True	5.00	4.239	4.96	1.000	20.000	22.370	11.9	30.0	
CAL6	6045157.6	619710.0	True	5.00	9.755	4.96	1.000	50.000	51.481	3.0	30.0	
CAL7	11151827.7	614604.8	True	5.00	18.145	4.96	1.000	100.000	95.759	-4.2	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

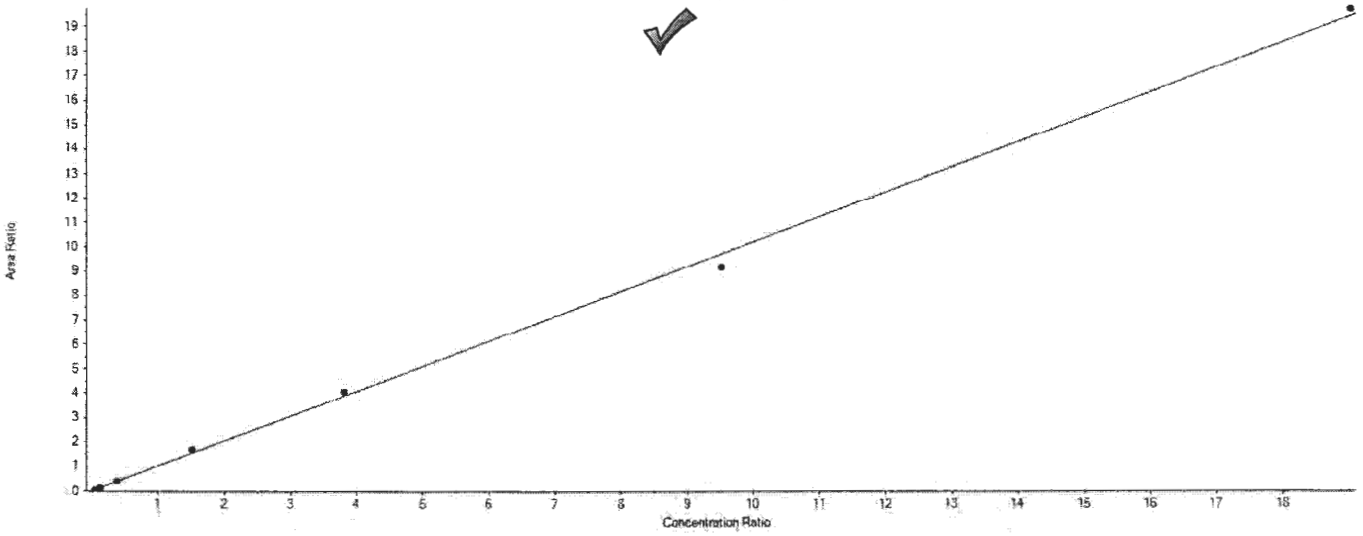
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

PFBS

y = 1.02218 x (r = 0.99929) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	11673.7	274031.4	True	4.65	0.043	5.01	1.000	0.170	0.194	14.0	50.0	
CAL2	32129.6	273585.4	True	4.65	0.117	5.02	1.000	0.530	0.534	0.8	30.0	
CAL3	107233.8	270326.3	True	4.65	0.397	5.02	1.000	1.770	1.805	2.0	30.0	
CAL4	419333.1	251971.8	True	4.65	1.664	5.02	1.000	7.080	7.571	6.9	30.0	
CAL5	1079168.1	266911.1	True	4.65	4.043	5.01	1.000	17.690	18.393	4.0	30.0	
CAL6	2330219.0	254137.0	True	4.65	9.169	5.01	1.000	44.220	41.711	-5.7	30.0	
CAL7	4785621.1	242692.7	True	4.65	19.719	5.01	1.000	88.450	89.703	1.4	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

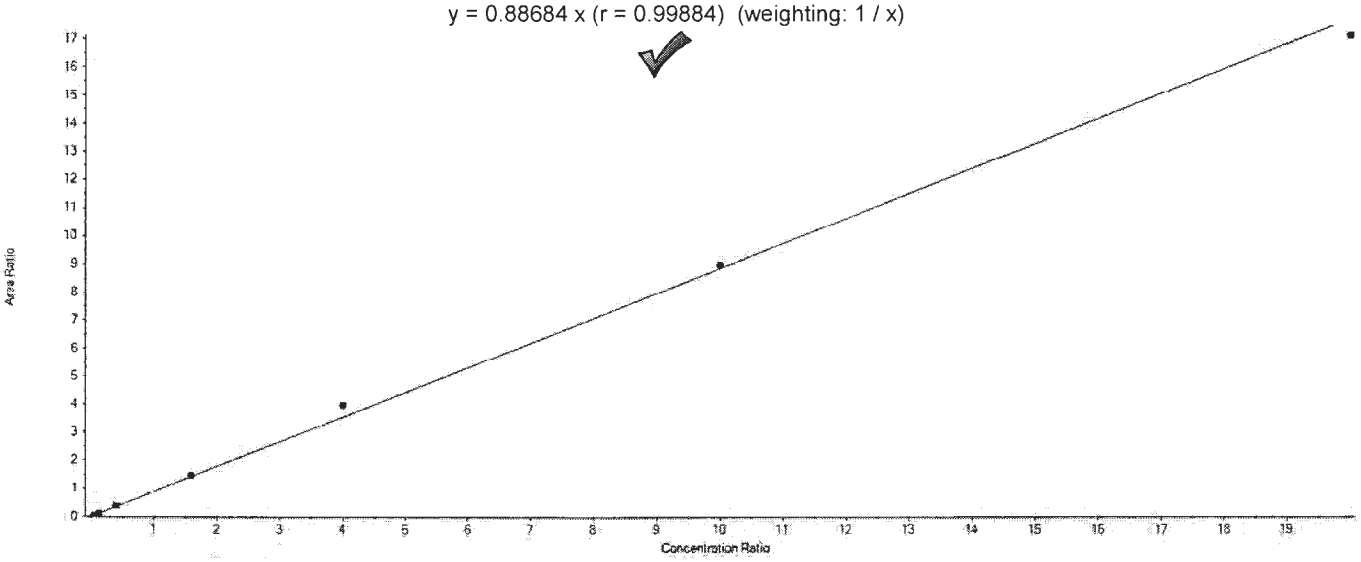
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

PFHxA

y = 0.88684 x (r = 0.99884) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	39958.3	961011.4	True	5.00	0.042	5.46	1.000	0.200	0.234	17.2	50.0	
CAL2	103208.9	919032.8	True	5.00	0.112	5.46	1.000	0.600	0.633	5.5	30.0	
CAL3	351558.3	961051.1	True	5.00	0.366	5.46	1.000	2.000	2.062	3.1	30.0	
CAL4	1409172.1	969152.6	True	5.00	1.454	5.47	1.000	8.000	8.198	2.5	30.0	
CAL5	3625596.8	912652.6	True	5.00	3.973	5.46	1.000	20.000	22.397	12.0	30.0	
CAL6	7629353.0	849552.4	True	5.00	8.980	5.46	1.000	50.000	50.632	1.3	30.0	
CAL7	13682925.4	798234.5	True	5.00	17.141	5.46	1.000	100.000	96.643	-3.4	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

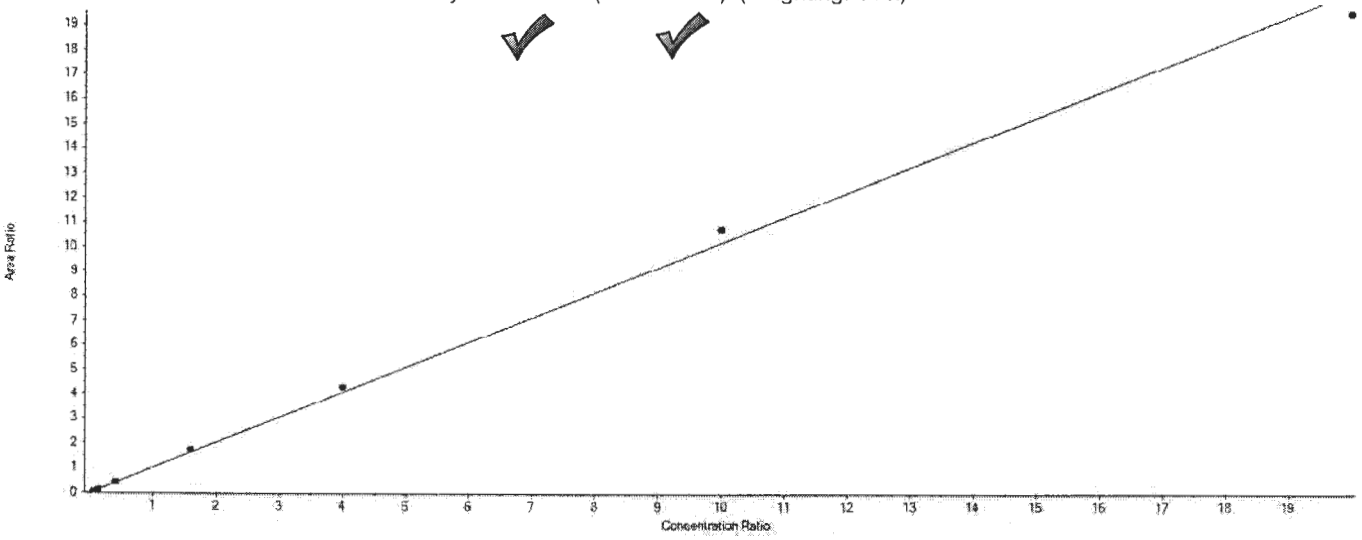
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

PFHxS

y = 1.02131 x (r = 0.99883) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	% Diff	%D Limit	%D OOS
CAL1	8913.2	207342.3	True	4.73	0.043	5.93	1.000	0.190	0.199	4.8	50.0	
CAL2	25788.0	195922.8	True	4.73	0.132	5.93	1.000	0.570	0.610	6.9	30.0	
CAL3	78459.4	187350.2	True	4.73	0.419	5.93	1.000	1.890	1.940	2.6	30.0	
CAL4	334817.9	193737.9	True	4.73	1.728	5.93	1.000	7.560	8.004	5.9	30.0	
CAL5	814535.8	189880.1	True	4.73	4.290	5.93	1.000	18.910	19.867	5.1	30.0	
CAL6	1819590.3	169015.6	True	4.73	10.766	5.93	1.000	47.280	49.860	5.5	30.0	
CAL7	3312322.0	169560.3	True	4.73	19.535	5.92	1.000	94.550	90.471	-4.3	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

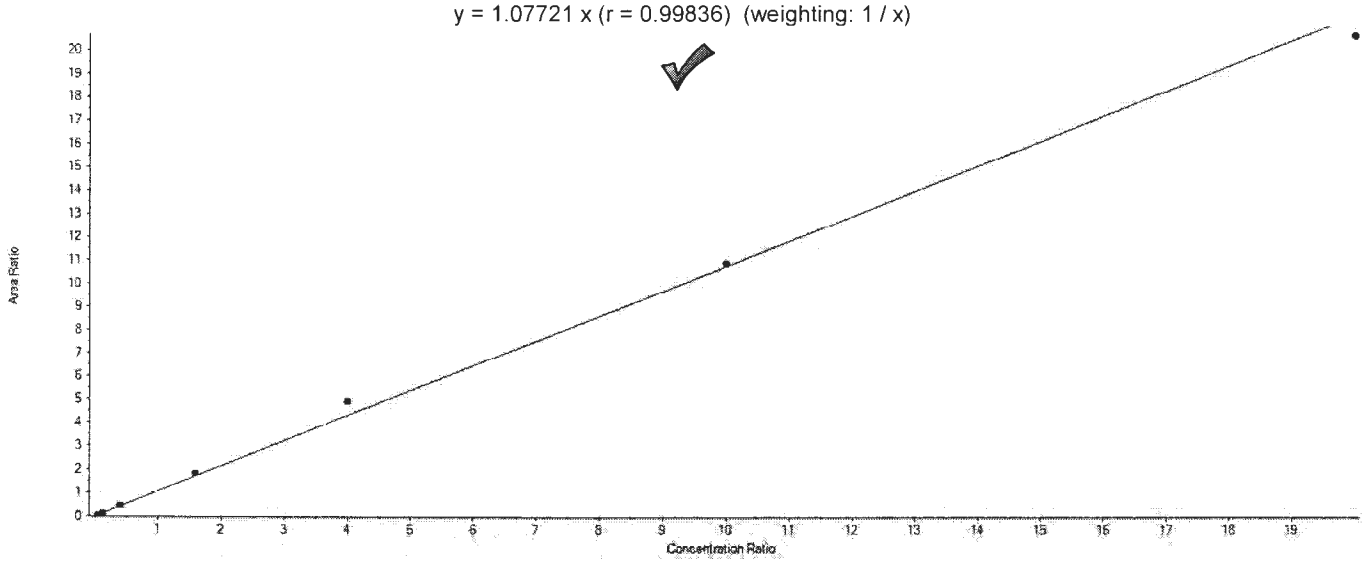
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

PFHpA

y = 1.07721 x (r = 0.99836) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	46626.9	913288.9	True	5.00	0.051	5.93	1.000	0.200	0.237	18.5	50.0	
CAL2	126582.6	896990.1	True	5.00	0.141	5.93	1.000	0.600	0.655	9.2	30.0	
CAL3	413511.0	907396.4	True	5.00	0.456	5.94	1.000	2.000	2.115	5.8	30.0	
CAL4	1607646.2	883762.5	True	5.00	1.819	5.94	1.000	8.000	8.444	5.5	30.0	
CAL5	4174097.7	849353.3	True	5.00	4.914	5.93	1.000	20.000	22.811	14.1	30.0	
CAL6	9016368.1	828025.5	True	5.00	10.889	5.93	1.000	50.000	50.543	1.1	30.0	
CAL7	15976186.6	772488.7	True	5.00	20.681	5.93	1.000	100.000	95.996	-4.0	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

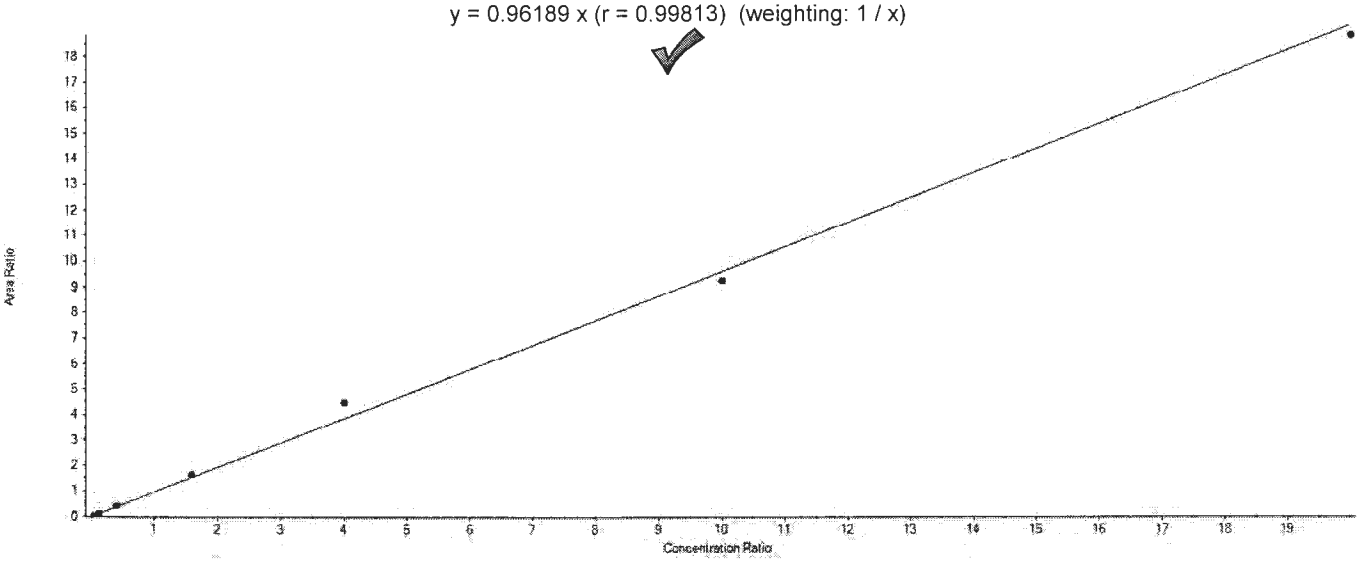
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

PFOA

y = 0.96189 x (r = 0.99813) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	50090.1	1073739.9	True	5.00	0.047	6.37	1.000	0.200	0.242	21.2	50.0	
CAL2	120131.0	1078444.6	True	5.00	0.111	6.37	1.000	0.600	0.579	-3.5	30.0	
CAL3	447695.8	1051457.1	True	5.00	0.426	6.38	1.000	2.000	2.213	10.7	30.0	
CAL4	1694969.4	1045296.9	True	5.00	1.622	6.38	1.000	8.000	8.429	5.4	30.0	
CAL5	4630732.9	1037219.9	True	5.00	4.465	6.37	1.000	20.000	23.207	16.0	30.0	
CAL6	8807577.0	949327.3	True	5.00	9.278	6.37	1.000	50.000	48.226	-3.5	30.0	
CAL7	16007419.3	849905.3	True	5.00	18.834	6.37	1.000	100.000	97.903	-2.1	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

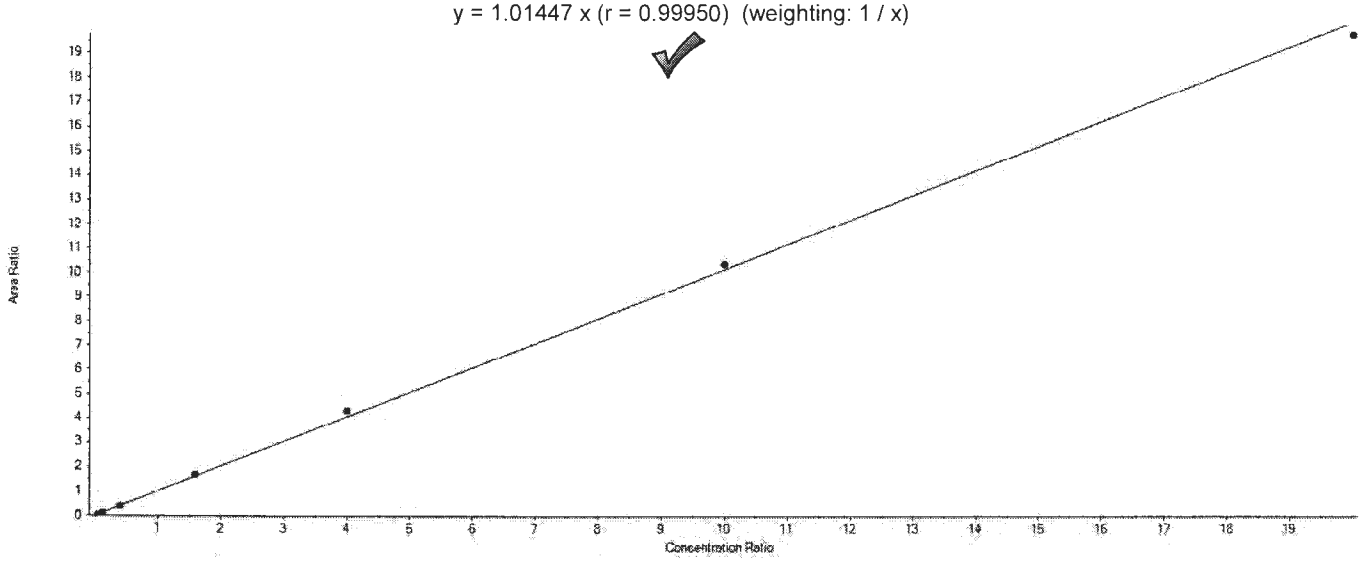
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

PFOS

y = 1.01447 x (r = 0.99950) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	10022.6	217143.2	True	4.78	0.046	6.75	1.000	0.190	0.217	14.5	50.0	
CAL2	26154.5	231875.1	True	4.78	0.113	6.75	1.000	0.570	0.531	-6.8	30.0	
CAL3	86845.3	212821.9	True	4.78	0.408	6.75	1.000	1.910	1.923	0.7	30.0	
CAL4	322539.3	193126.9	True	4.78	1.670	6.75	1.000	7.650	7.869	2.9	30.0	
CAL5	883418.3	205084.4	True	4.78	4.308	6.75	1.000	19.120	20.296	6.2	30.0	
CAL6	1966075.9	189634.9	True	4.78	10.368	6.75	1.000	47.800	48.850	2.2	30.0	
CAL7	3625660.2	183391.9	True	4.78	19.770	6.74	1.000	95.600	93.152	-2.6	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

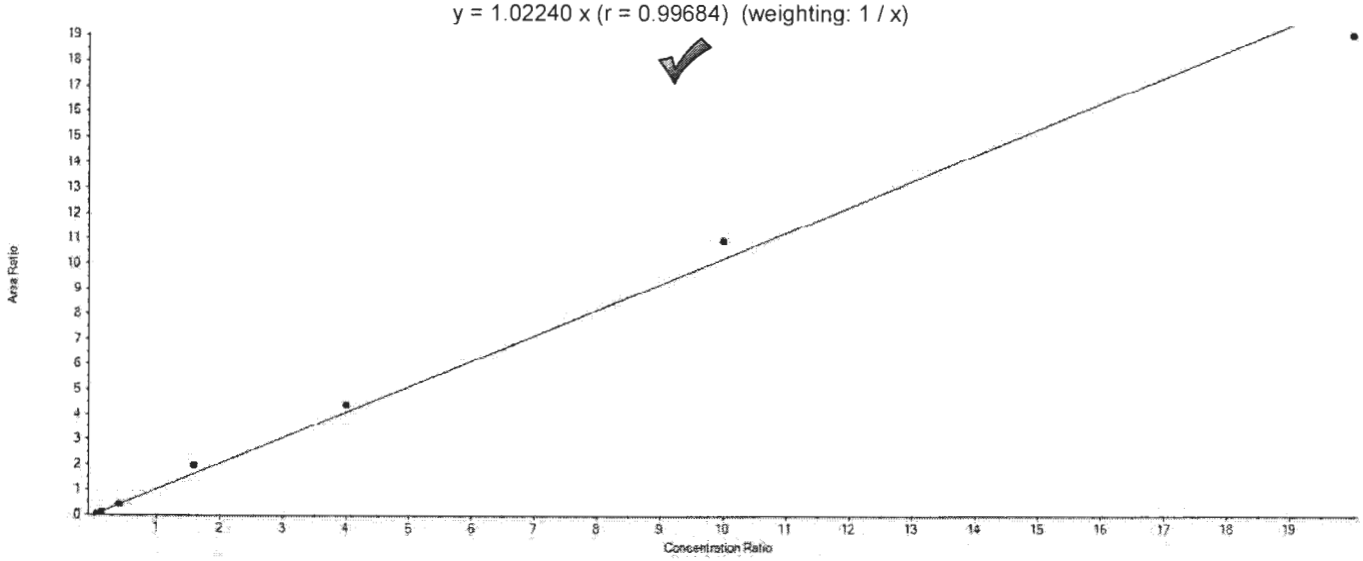
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

PFNA

y = 1.02240 x (r = 0.99684) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	48455.0	950059.8	True	5.00	0.051	6.78	1.000	0.200	0.249	24.7	50.0	
CAL2	138522.6	1045038.4	True	5.00	0.133	6.78	1.000	0.600	0.648	8.0	30.0	
CAL3	423131.9	984697.5	True	5.00	0.430	6.78	1.000	2.000	2.101	5.1	30.0	
CAL4	1819878.6	921640.9	True	5.00	1.975	6.78	1.000	8.000	9.657	20.7	30.0	
CAL5	4362261.2	993972.1	True	5.00	4.389	6.78	1.000	20.000	21.463	7.3	30.0	
CAL6	9519650.3	871570.2	True	5.00	10.922	6.78	1.000	50.000	53.416	6.8	30.0	
CAL7	17173745.5	900520.8	True	5.00	19.071	6.77	1.000	100.000	93.266	-6.7	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

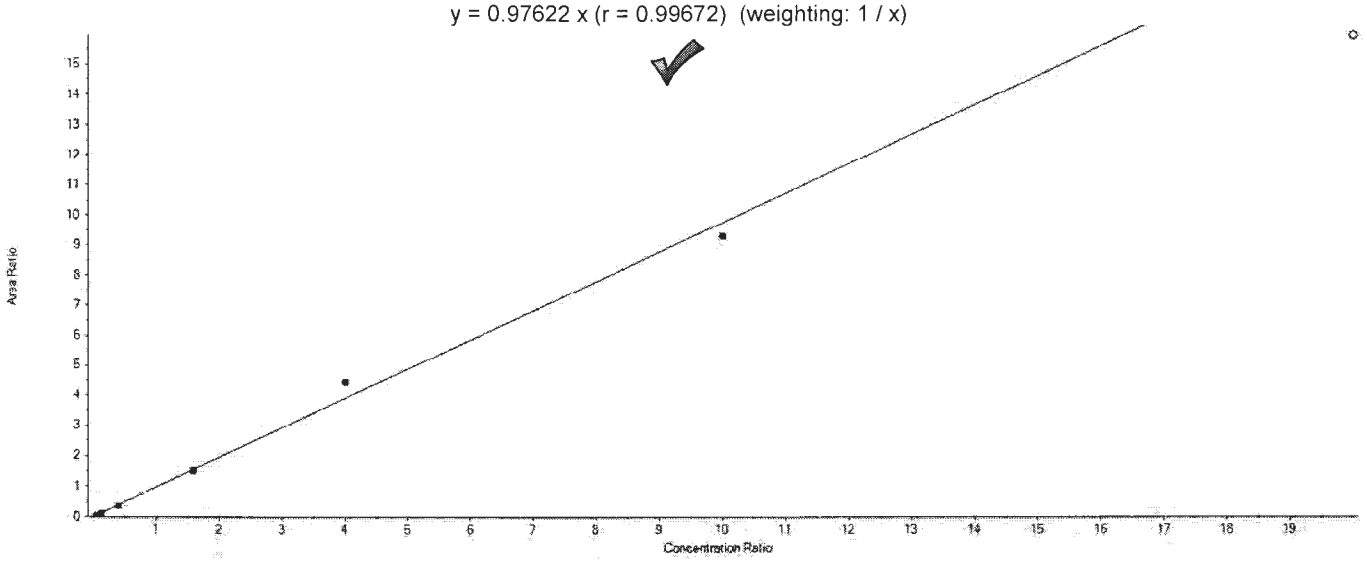
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

PFDA

y = 0.97622 x (r = 0.99672) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	46588.1	1240446.9	True	5.00	0.038	7.15	1.000	0.200	0.192	-3.8	50.0	
CAL2	145819.5	1328005.3	True	5.00	0.110	7.15	1.000	0.600	0.562	-6.3	30.0	
CAL3	456646.2	1239290.6	True	5.00	0.368	7.15	1.000	2.000	1.887	-5.6	30.0	
CAL4	1776389.9	1175731.1	True	5.00	1.511	7.15	1.000	8.000	7.738	-3.3	30.0	
CAL5	4938575.1	1111941.5	True	5.00	4.441	7.14	1.000	20.000	22.748	13.7	30.0	
CAL6	10346913.7	1111653.3	True	5.00	9.308	7.15	1.000	50.000	47.672	-4.7	30.0	
CAL7	16513490.8	1034731.0	False	5.00	15.959	7.14	1.000	100.000	81.739	-18.3	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

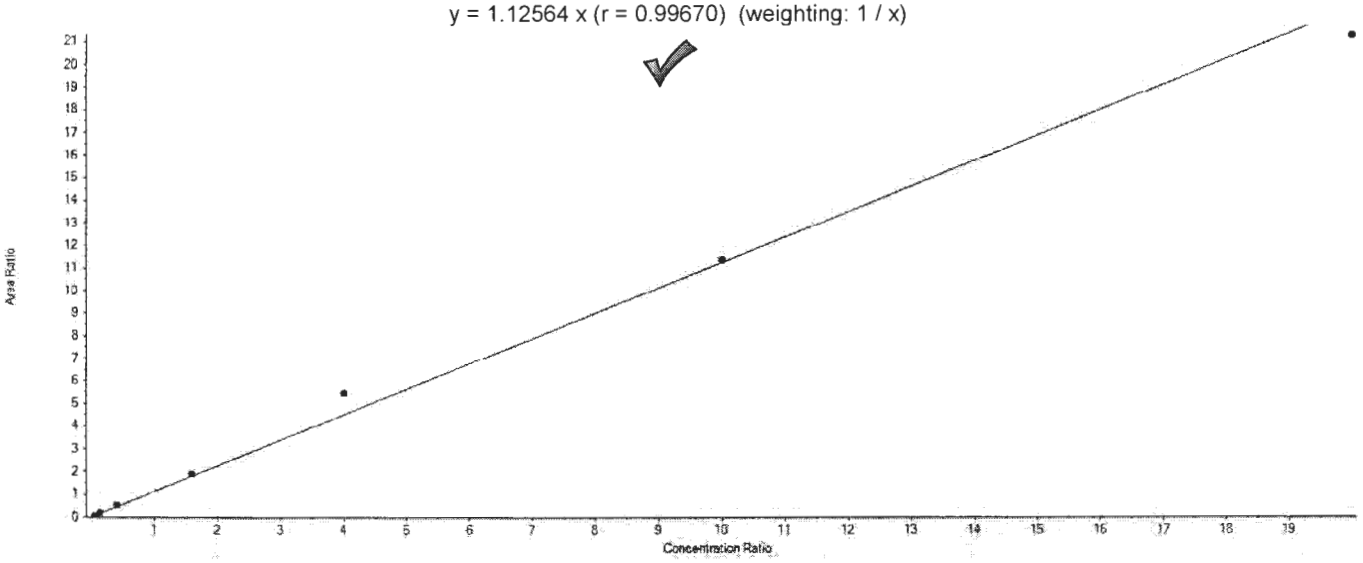
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

PFUnDA

y = 1.12564 x (r = 0.99670) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	52718.1	876503.5	True	5.00	0.060	7.49	1.000	0.200	0.267	33.6	50.0	
CAL2	132886.5	872565.6	True	5.00	0.152	7.49	1.000	0.600	0.676	12.7	30.0	
CAL3	411647.7	803237.9	True	5.00	0.512	7.48	1.000	2.000	2.276	13.8	30.0	
CAL4	1602665.3	852934.6	True	5.00	1.879	7.49	1.000	8.000	8.346	4.3	30.0	
CAL5	4306559.6	793183.3	True	5.00	5.429	7.48	1.000	20.000	24.117	20.6	30.0	
CAL6	8077370.5	709696.1	True	5.00	11.381	7.48	1.000	50.000	50.556	1.1	30.0	
CAL7	13874281.6	651735.0	True	5.00	21.288	7.48	1.000	100.000	94.561	-5.4	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

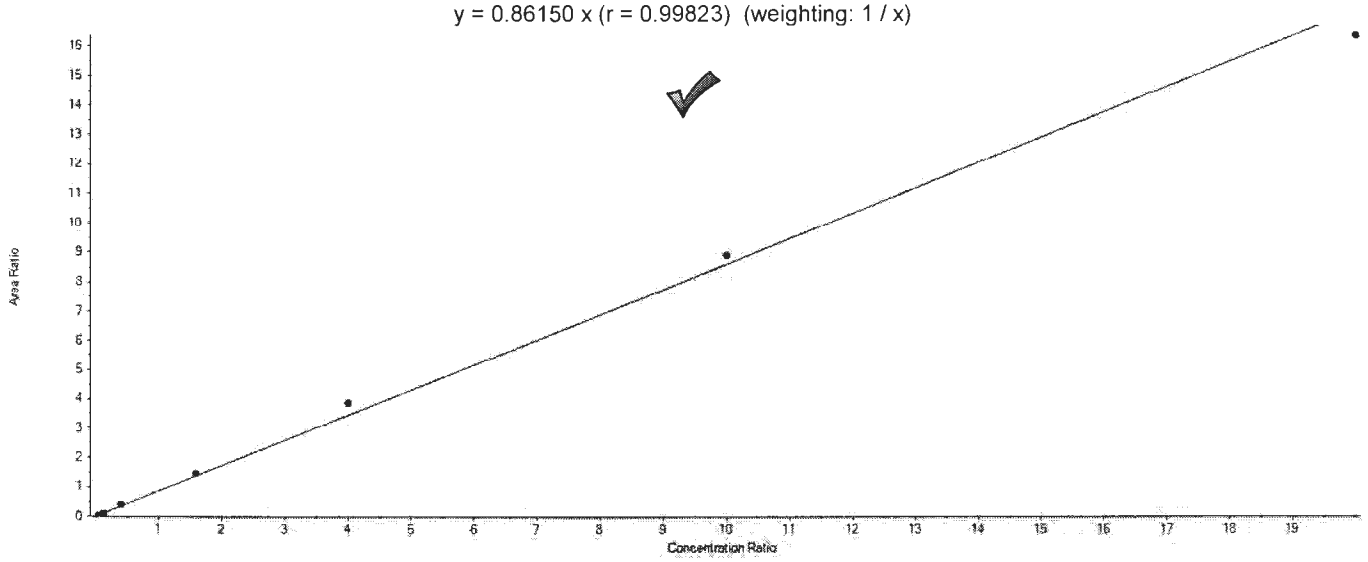
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

PFDoDA

y = 0.86150 x (r = 0.99823) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	59209.2	1455905.8	True	5.00	0.041	7.80	1.000	0.200	0.236	18.0	50.0	
CAL2	161575.1	1403482.1	True	5.00	0.115	7.80	1.000	0.600	0.668	11.4	30.0	
CAL3	507880.4	1283709.4	True	5.00	0.396	7.80	1.000	2.000	2.296	14.8	30.0	
CAL4	1972965.3	1354000.7	True	5.00	1.457	7.81	1.000	8.000	8.457	5.7	30.0	
CAL5	5278656.3	1370316.0	True	5.00	3.852	7.80	1.000	20.000	22.357	11.8	30.0	
CAL6	11111162.7	1246800.2	True	5.00	8.912	7.80	1.000	50.000	51.722	3.4	30.0	
CAL7	18618325.0	1136699.6	True	5.00	16.379	7.80	1.000	100.000	95.063	-4.9	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

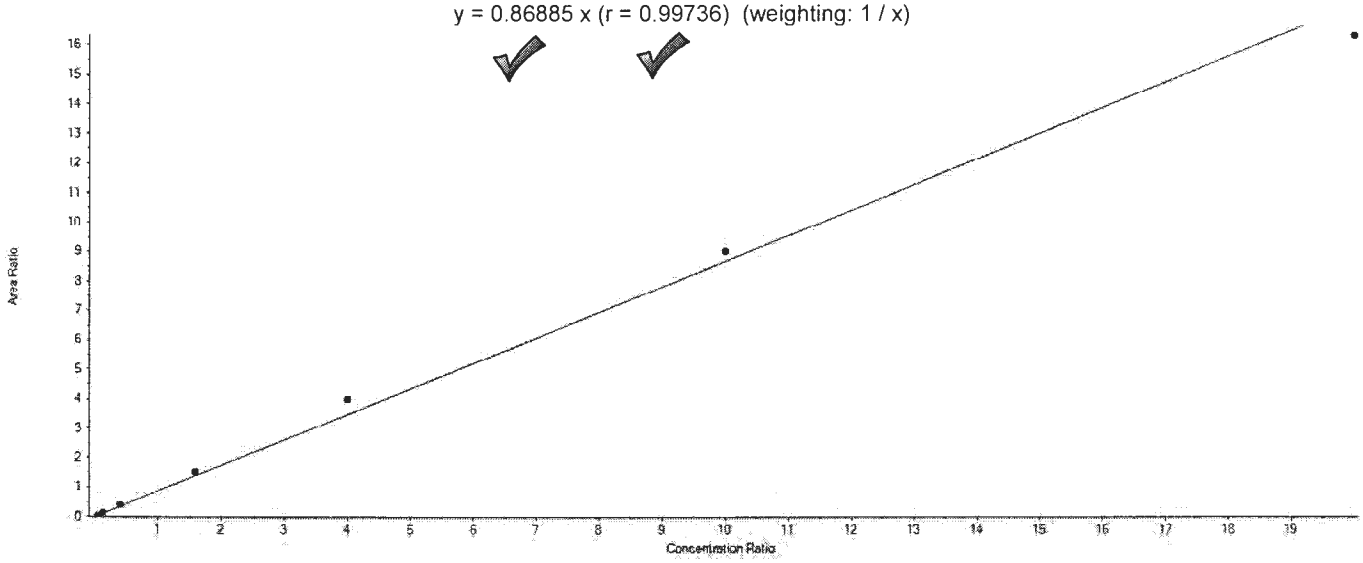
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

PFTrDA

y = 0.86885 x (r = 0.99736) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	% Diff	%D Limit	%D OOS
CAL1	58068.4	1455905.8	True	5.00	0.040	8.11	1.040	0.200	0.230	14.8	50.0	
CAL2	165189.3	1403482.1	True	5.00	0.118	8.11	1.040	0.600	0.677	12.9	30.0	
CAL3	508942.9	1283709.4	True	5.00	0.396	8.11	1.040	2.000	2.282	14.1	30.0	
CAL4	2072786.5	1354000.7	True	5.00	1.531	8.11	1.040	8.000	8.810	10.1	30.0	
CAL5	5438754.4	1370316.0	True	5.00	3.969	8.10	1.040	20.000	22.840	14.2	30.0	
CAL6	11257486.9	1246800.2	True	5.00	9.029	8.11	1.040	50.000	51.960	3.9	30.0	
CAL7	18567558.5	1136699.6	True	5.00	16.335	8.10	1.040	100.000	94.001	-6.0	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

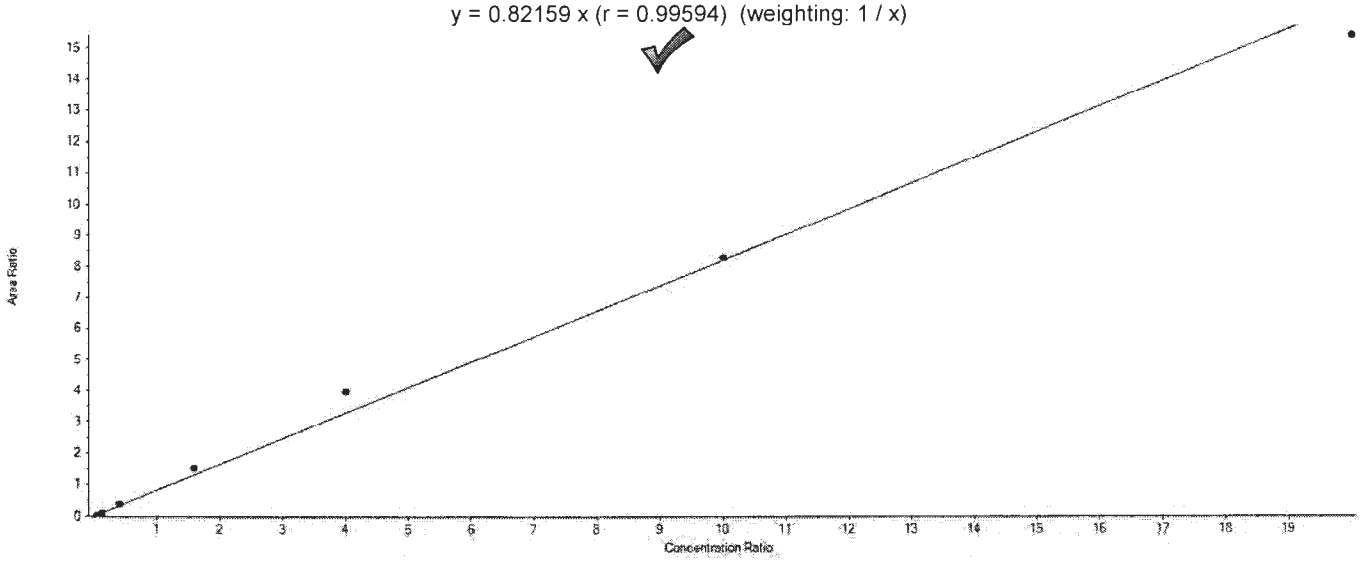
REVIEWED
By umar at 10:03 am, 4/12/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

PFTeDA

y = 0.82159 x (r = 0.99594) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	59007.6	1414995.5	True	5.00	0.042	8.41	1.000	0.200	0.254	26.9	50.0	
CAL2	157729.3	1469218.9	True	5.00	0.107	8.41	1.000	0.600	0.653	8.9	30.0	
CAL3	516343.5	1398077.0	True	5.00	0.369	8.41	1.000	2.000	2.248	12.4	30.0	
CAL4	1998899.0	1317515.0	True	5.00	1.517	8.41	1.000	8.000	9.233	15.4	30.0	
CAL5	5310725.1	1337965.2	True	5.00	3.969	8.40	1.000	20.000	24.156	20.8	30.0	
CAL6	11395593.4	1373359.4	True	5.00	8.298	8.40	1.000	50.000	50.497	1.0	30.0	
CAL7	19581565.1	1271014.4	True	5.00	15.406	8.40	1.000	100.000	93.759	-6.2	30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

REVIEWED
By umar at 10:03 am, 4/12/18

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LC-MS/MS Analysis Report

Printed: 4/10/2018 10:01:00 AM
Template: MQ-ICAL-16NOV21.docx

ICV all samples.
< 30% D.

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18APR10MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18APR10MCAL 32 Compounds4/10/2018 9:53:57 AM **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18APR10MCAL-22.wiff	4/10/2018 5:27:18 AM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	248915.3	13C4-PFBA	735732.6	5.00	0.338	4.35	1.00	2.000	1.890	-5.5	30.0	
PFPeA	247224.0	13C5-PFPeA	717140.3	5.00	0.345	4.96	1.00	2.000	1.819	-9.0	30.0	
PFBS	99532.3	13C3-PFBS	264439.1	4.65	0.376	5.02	1.00	1.770	1.712	-3.3	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	87883.7	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	319332.4	13C5-PFHxA	897095.9	5.00	0.356	5.46	1.00	2.000	2.007	0.3	30.0	
PFPeS	N/A	13C3-PFBS	264439.1	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	68628.3	13C3-PFHxS	186141.1	4.73	0.369	5.93	1.00	1.890	1.708	-9.7	30.0	
PFHpA	364009.2	13C4-PFHpA	894065.3	5.00	0.407	5.94	1.00	2.000	1.890	-5.5	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	75097.5	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	62801.1	13C3-PFHxS	186141.1	4.73	0.337	6.36	1.07	1.900	1.657	-12.8	30.0	
PFOA	389586.2	13C8-PFOA	986872.7	5.00	0.395	6.37	1.00	2.000	2.052	2.6	30.0	
PFOS	76763.9	13C8-PFOS	189756.6	4.78	0.405	6.75	1.00	1.910	1.906	-0.2	30.0	
PFNA	405814.4	13C9-PFNA	891201.0	5.00	0.455	6.78	1.00	2.000	2.227	11.3	30.0	
PFOSA	N/A	13C8-PFOSA	471066.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	189756.6	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	400924.2	13C6-PFDA	1169767.2	5.00	0.343	7.14	1.00	2.000	1.755	-12.2	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	98393.2	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	273932.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	80908.2	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	89796.7	d3-NMeFOSAA	222782.4	5.00	0.403	7.33	1.00	2.000	1.888	-5.6	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	326209.5	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	366.2	d5-NEtPFOSA	70118.3	5.00	0.005	7.66	1.00	0.000	0.027		30.0	
PFDS	40984.9	13C8-PFOS	189756.6	4.78	0.216	7.44	1.10	1.930	1.841	-4.6	30.0	
PFUnDA	363438.5	13C7-PFUnDA	737387.8	5.00	0.493	7.48	1.00	2.000	2.189	9.5	30.0	
NEtFOSAA	92870.6	d5-NEtFOSAA	225413.6	5.00	0.412	7.51	1.00	2.000	1.907	-4.6	30.0	
PFDoDA	436752.4	13C2-PFDoDA	1276867.4	5.00	0.342	7.80	1.00	2.000	1.985	-0.7	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	98393.2	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	972.1	13C8-PFOS	189756.6	4.78	0.005	8.05	1.19	0.000	0.089		30.0	
PFTrDA	498139.7	13C2-PFDoDA	1276867.4	5.00	0.390	8.11	1.04	2.000	2.245	12.3	30.0	
PFTeDA	473078.6	13C2-PFTeDA	1351552.5	5.00	0.350	8.40	1.00	2.000	2.130	6.5	30.0	
PFHxDA	N/A	13C2-PFTeDA	1351552.5	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	1351552.5	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By MSM at 10:02 am, 4/10/18

REVIEWED
By umar at 10:03 am, 4/12/18

ICAL Name: 18APR10MCAL **Result Table:** 18APR10MCAL 32 Compounds 4/10/2018 9:18:18 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

Sample Name:	ICV			**Data File:**		18APR10MCAL-22.wiff
Sample ID:	ICVMODX1833B			**Acquis Date:**		2018-04-10T05:27:18
Sample Type:	Quality Control			**Instrument:**		LM26719
Vial Position:	10			**Acquis Method:**		PFC-MOD-18APR03-Divert.dam
Injection Vol:	2.00			**Result Table:**		18APR10MCAL 32 Compounds
QMethod File:	SF-PFCMOD-18MAR26			**ICAL Name:**		18APR10MCAL
Batch Number:	N/A			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	646548.4	671428.9	-3.7	50.0	
I13C2-PFOA	5.0	814674.3	896964.1	-9.2	50.0	
I13C4-PFOS	4.8	202586.1	207208.0	-2.2	50.0	
I13C2-PFDA	5.0	872850.1	882180.8	-1.1	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS
E13C4-PFBA	735732.6	13C3-PFBA	646548.4	1.138	1.065	5.000	5.342	106.8	70.0-130.0	
E13C5-PFPeA	717140.3	13C3-PFBA	646548.4	1.109	1.017	5.000	5.454	109.1	70.0-130.0	
E13C3-PFBS	264439.1	13C3-PFBA	646548.4	0.409	0.391	4.650	4.865	104.6	70.0-130.0	
E13C2-4:2-FTS	87883.7	13C2-PFOA	814674.3	0.108	0.110	4.670	4.571	97.9	70.0-130.0	
E13C5-PFHxA	897095.9	13C2-PFOA	814674.3	1.101	1.015	5.000	5.424	108.5	70.0-130.0	
E13C3-PFHxS	186141.1	13C2-PFOA	814674.3	0.228	0.209	4.730	5.167	109.2	70.0-130.0	
E13C4-PFHpA	894065.3	13C2-PFOA	814674.3	1.097	0.964	5.000	5.691	113.8	70.0-130.0	
E13C2-6:2-FTS	75097.5	13C2-PFOA	814674.3	0.092	0.088	4.750	4.954	104.3	70.0-130.0	
E13C8-PFOA	986872.7	13C2-PFOA	814674.3	1.211	1.128	5.000	5.371	107.4	70.0-130.0	
E13C8-PFOS	189756.6	13C4-PFOS	202586.1	0.937	0.989	4.780	4.528	94.7	70.0-130.0	
E13C9-PFNA	891201.0	13C4-PFOS	202586.1	4.399	4.608	5.000	4.774	95.5	70.0-130.0	
E13C8-PFOSA	471066.7	13C2-PFDA	872850.1	0.540	0.564	5.000	4.782	95.6	70.0-130.0	
E13C6-PFDA	1169767.2	13C2-PFDA	872850.1	1.340	1.334	5.000	5.025	100.5	70.0-130.0	
E13C2-8:2-FTS	98393.2	13C2-PFDA	872850.1	0.113	0.132	4.790	4.076	85.1	70.0-130.0	
Ed7-NMePFOSAE	273932.7	13C2-PFDA	872850.1	0.314	0.329	5.000	4.763	95.3	70.0-130.0	
Ed3-NMePFOSA	80908.2	13C2-PFDA	872850.1	0.093	0.102	5.000	4.541	90.8	70.0-130.0	
Ed3-NMeFOSAA	222782.4	13C2-PFDA	872850.1	0.255	0.275	5.000	4.635	92.7	70.0-130.0	
Ed9-NEtPFOSAE	326209.5	13C2-PFDA	872850.1	0.374	0.395	5.000	4.726	94.5	70.0-130.0	
Ed5-NEtPFOSA	70118.3	13C2-PFDA	872850.1	0.080	0.087	5.000	4.593	91.9	70.0-130.0	
E13C7-PFUnDA	737387.8	13C2-PFDA	872850.1	0.845	0.900	5.000	4.695	93.9	70.0-130.0	
Ed5-NEtFOSAA	225413.6	13C2-PFDA	872850.1	0.258	0.260	5.000	4.960	99.2	70.0-130.0	
E13C2-PFDoDA	1276867.4	13C2-PFDA	872850.1	1.463	1.499	5.000	4.880	97.6	70.0-130.0	
E13C2-PFTeDA	1351552.5	13C2-PFDA	872850.1	1.548	1.553	5.000	4.985	99.7	70.0-130.0	

APPROVED
By MSM at 9:42 am, 4/10/18

REVIEWED
By umar at 10:03 am, 4/12/18

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LC-MS/MS Analysis Report

Printed: 4/10/2018 9:24:00 AM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR10MCAL **Result Table:** 18APR10MCAL 32 Compounds 4/10/2018 9:18:18 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

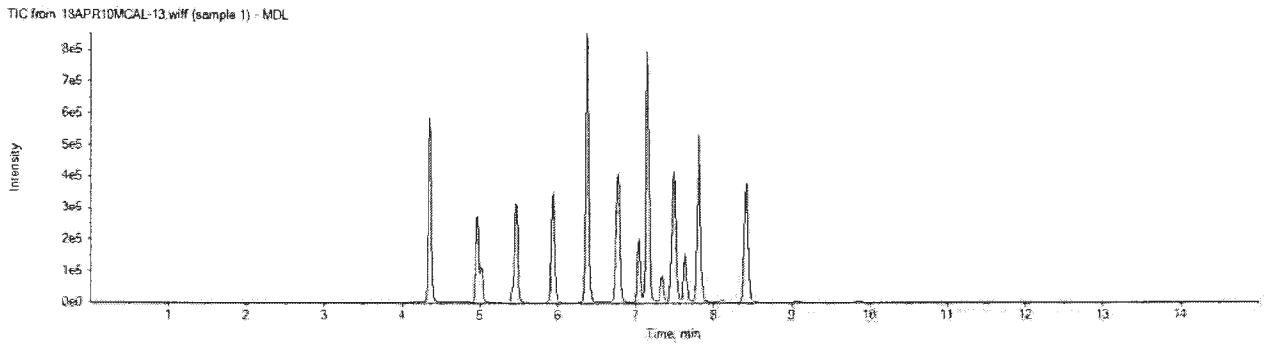
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM26719 **File Name:** 18APR10MCAL-13.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.35	1.000	16214.0	M	13C4-PFBA	4.35	726679.5	0.022	0.125
PFPeA	4.96	1.000	13888.1	M	13C5-PFPeA	4.96	698312.0	0.020	0.105
PFBS	5.02	1.000	5545.8	M	13C3-PFBS	5.02	265151.0	0.021	0.095
4:2-FTS	5.41	1.000	8594.6	A	13C2-4:2-FTS	5.42	95763.4	0.090	0.510
PFHxA	5.46	1.000	18248.7	M	13C5-PFHxA	5.46	873430.5	0.021	0.118
PFPeS	5.48	1.090	1946.7	M	13C3-PFBS	5.02	265151.0	0.007	0.083
PFHxS	5.92	1.000	3716.1	A	13C3-PFHxS	5.93	177857.6	0.021	0.097
PFHpA	5.94	1.000	21522.2	M	13C4-PFHpA	5.94	826835.2	0.026	0.121
6:2-FTS	6.37	1.000	7236.0	M	13C2-6:2-FTS	6.36	79810.2	0.091	0.452
PFHpS	6.35	1.070	3998.3	M	13C3-PFHxS	5.93	177857.6	0.022	0.110
PFOA	6.38	1.000	24160.1	M	13C8-PFOA	6.37	1100347.8	0.022	0.114
PFOS	6.74	1.000	4512.2	M	13C8-PFOS	6.75	208582.6	0.022	0.102
PFNA	6.77	1.000	23254.7	M	13C9-PFNA	6.78	967062.7	0.024	0.118
PFOSA	7.04	1.000	10600.8	A	13C8-PFOSA	7.04	494077.3	0.021	0.104
PFNS	7.12	1.060	2764.9	M	13C8-PFOS	6.75	208582.6	0.013	0.092
PFDA	7.15	1.000	24540.7	M	13C6-PFDA	7.15	1198219.7	0.020	0.105
8:2-FTS	7.16	1.000	12519.4	A	13C2-8:2-FTS	7.16	109556.9	0.114	0.510
NMePFOSAE	7.47	1.000	7759.5	M	d7-NMePFOSAE	7.46	297628.0	0.026	0.122
NMePFOSA	7.49	1.000	1707.9	M	d3-NMePFOSA	7.48	88603.4	0.019	0.101
NMeFOSAA	7.33	1.000	5929.4	A	d3-NMeFOSAA	7.33	247662.4	0.024	0.112
NEtPFOSAE	7.64	1.000	8154.4	M	d9-NEtPFOSAE	7.63	344171.5	0.024	0.113
NEtPFOSA	7.66	1.000	1468.8	M	d5-NEtPFOSA	7.65	72972.7	0.020	0.105
PFDS	7.44	1.100	1920.2	M	13C8-PFOS	6.75	208582.6	0.009	0.078
PFUnDA	7.49	1.000	24378.4	M	13C7-PFUnDA	7.49	822477.2	0.030	0.132
NEtFOSAA	7.51	1.000	6383.7	A	d5-NEtFOSAA	7.51	260052.2	0.025	0.114
PFDoDA	7.81	1.000	23791.0	A	13C2-PFDoDA	7.81	1292587.9	0.018	0.107
10:2-FTS	7.84	1.090	15618.9	M	13C2-8:2-FTS	7.16	109556.9	0.143	0.598
PFDoS	8.05	1.190	1304.0	A	13C8-PFOS	6.75	208582.6	0.006	0.109
PFTrDA	8.11	1.040	27444.4	M	13C2-PFDoDA	7.81	1292587.9	0.021	0.122
PFTeDA	8.41	1.000	27623.6	M	13C2-PFTeDA	8.41	1265373.4	0.022	0.133
PFHxDA	9.06	1.080	15840.8	M	13C2-PFTeDA	8.41	1265373.4	0.013	0.132
PFODA	9.85	1.170	18044.5	M	13C2-PFTeDA	8.41	1265373.4	0.014	0.107

Total Ion Chromatogram



APPROVED
By MSM at 9:42 am, 4/10/18

REVIEWED
By umar at 10:04 am, 4/12/18

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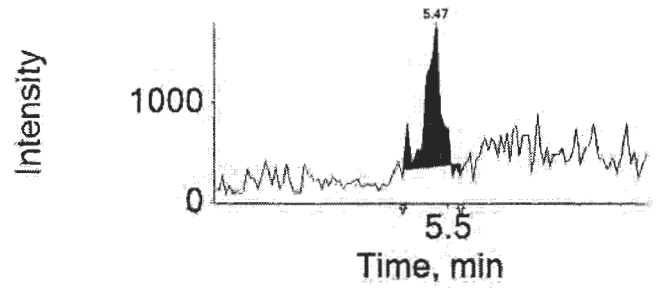
LC-MS/MS Analysis Report

Printed: 4/10/2018 9:28:00 AM
Template: REG-Sample-17MAY15.docx

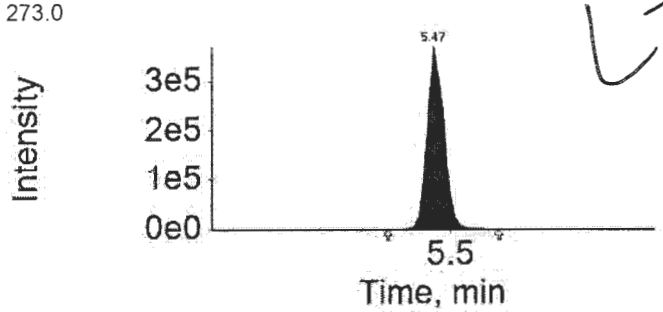
ICAL Name: 18APR10MCAL **Result Table:** 18APR10MCAL 32 Compounds 4/10/2018 9:18:18 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

L+B

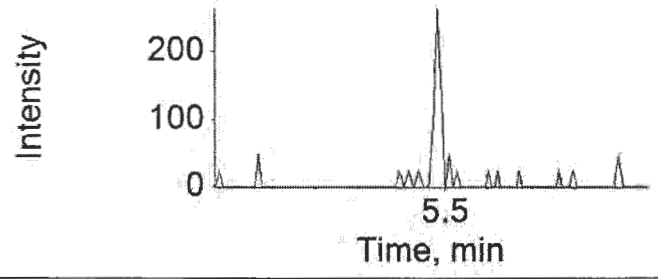
Analyte: PFHxA
313.0 / 269.0



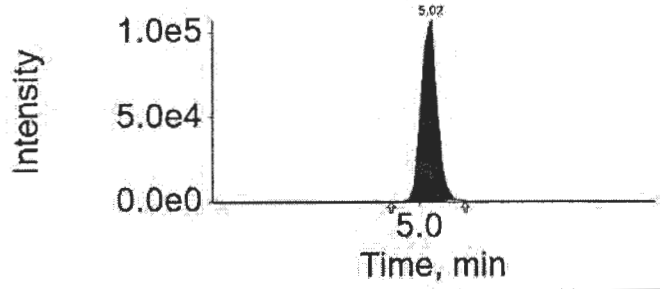
Extraction Standard: 13C5-PFHxA
318.0 / 273.0



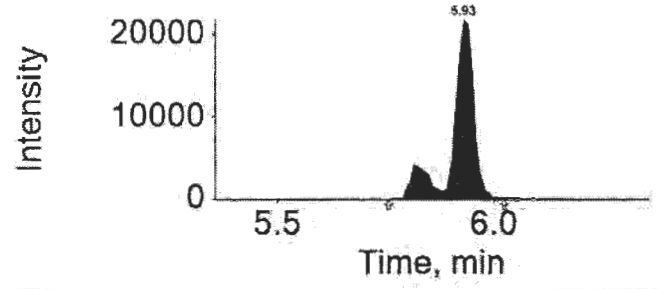
Analyte: PFPeS
349.0 / 80.0



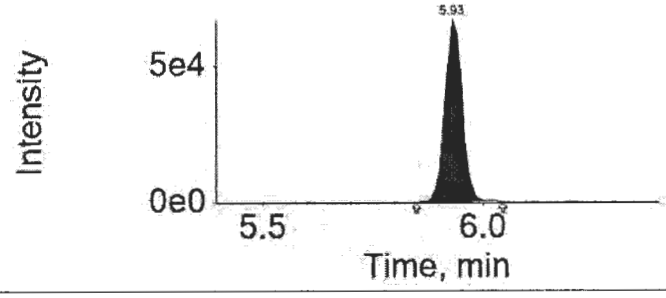
Extraction Standard: 13C3-PFBS
302.0 / 80.0



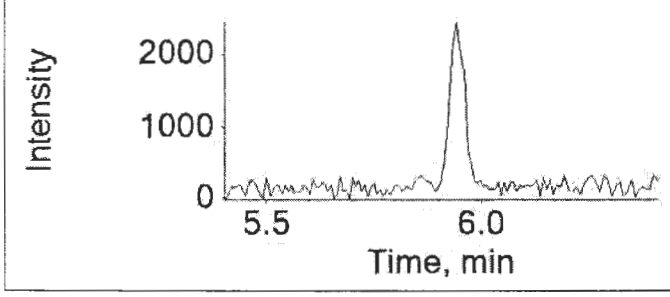
Analyte: PFHxS
399.0 / 80.0



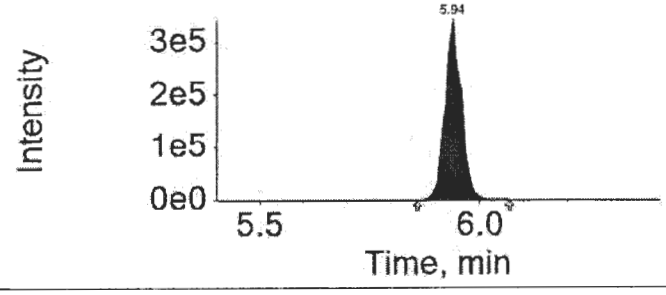
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0

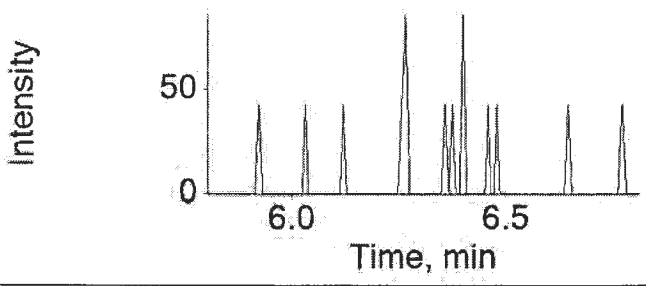


APPROVED
By MSM at 9:42 am, 4/10/18

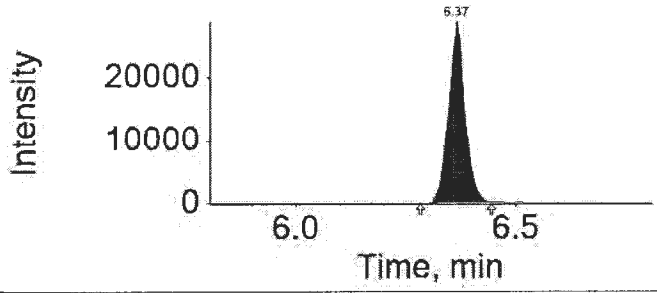
REVIEWED
By umar at 10:04 am, 4/12/18

ICAL Name: 18APR10MCAL **Result Table:** 18APR10MCAL 32 Compounds 4/10/2018 9:18:18 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

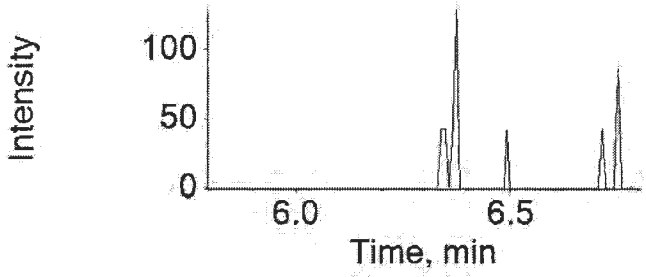
Analyte: 6:2-FTS
427.0 / 407.0



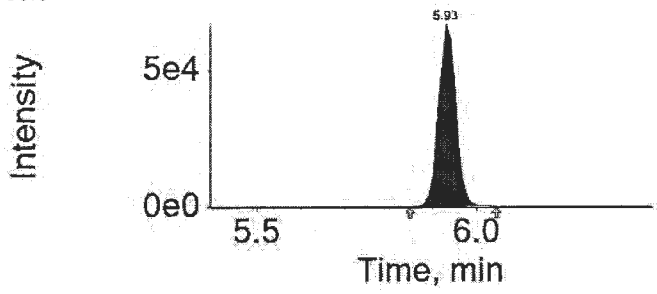
Extraction Standard: 13C2-6:2-FTS
429.0 / 409.0



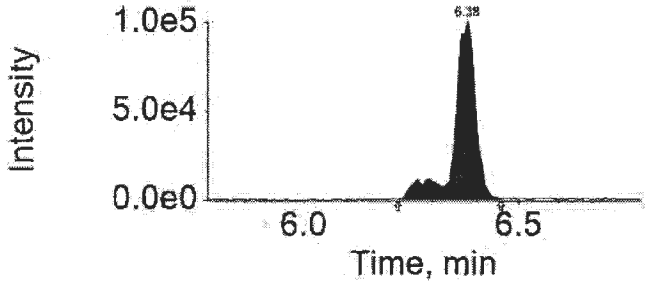
Analyte: PFHpS
449.0 / 80.0



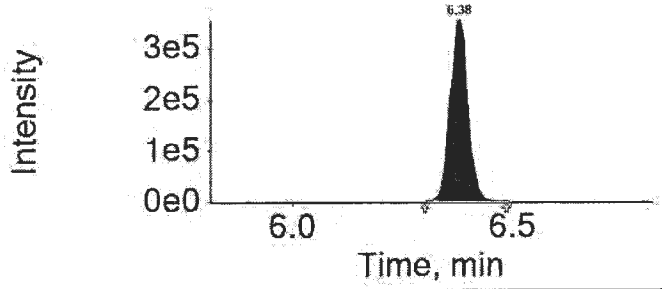
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



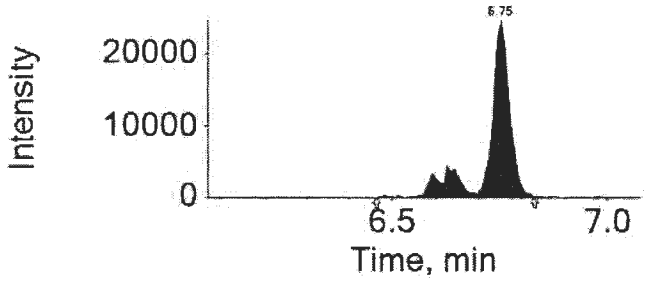
Analyte: PFOA
413.0 / 369.0



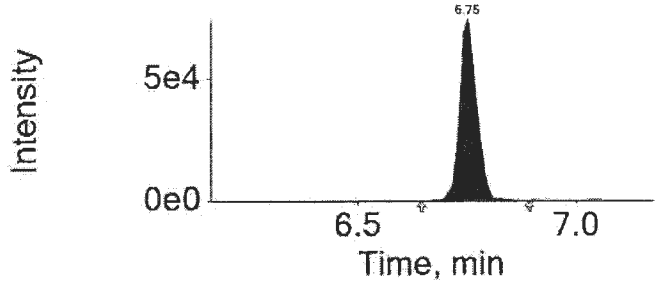
Extraction Standard: 13C8-PFOA
421.0 / 376.0



Analyte: PFOS
499.0 / 80.0



Extraction Standard: 13C8-PFOS
507.0 / 80.0



APPROVED
By MSM at 9:42 am, 4/10/18

REVIEWED
By umar at 10:04 am, 4/12/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

CCV does not bracket samples.
Limited validation.

SDG No.: SBN13

Instrument ID: 26719 Lab File ID: 18APR10MCAL-24.WIFF

Date/Time Analyzed: 04/10/2018 05:58 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.01	0.73	±30
Perfluoropentanoic acid	2.00	2.09	4.68	±30
Perfluorobutanesulfonate	1.77	1.72	-2.61	±30
4:2 fluorotelomersulfonate	4.90	5.26	7.25	±30
Perfluorohexanoic acid	2.00	2.11	5.66	±30
Perfluoropentanesulfonate	1.88	1.79	-4.86	±30
Perfluorohexanesulfonate	1.89	1.84	-2.68	±30
Perfluoroheptanoic acid	2.00	2.05	2.74	±30
6:2 fluorotelomersulfonate	5.21	5.59	7.36	±30
Perfluoroheptanesulfonate	1.90	1.82	-4.23	±30
Perfluorooctanoic acid	2.00	2.04	2.00	±30
Perfluoro-octanesulfonate	1.91	1.83	-4.02	±30
Perfluorononanoic acid	2.00	2.28	13.93	±30
Perfluorooctanesulfonamide	2.00	2.03	1.45	±30
Perfluorononanesulfonate	1.92	1.71	-11.18	±30
Perfluorodecanoic acid	2.00	2.13	6.74	±30
8:2 fluorotelomersulfonate	5.27	5.47	3.83	±30
NMePFOSAE	2.00	2.13	6.35	±30
NMePFOSA	2.00	2.31	15.63	±30
NMeFOSAA	2.00	2.17	8.36	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN13

Instrument ID: 26719 Lab File ID: 18APR10MCAL-24.WIFF

Date/Time Analyzed: 04/10/2018 05:58 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtPFOSAE	2.00	2.19	9.27	±30
NEtPFOSA	2.00	2.12	5.80	±30
Perfluorodecanesulfonate	1.93	1.75	-9.49	±30
Perfluoroundecanoic acid	2.00	2.24	12.18	±30
NEtFOSAA	2.00	1.99	-0.37	±30
Perfluorododecanoic acid	2.00	2.13	6.25	±30
10:2-fluorotelomersulfonate	5.30	5.75	8.42	±30
Perfluorododecanesulfonate	1.94	1.77	-8.69	±30
Perfluorotridecanoic acid	2.00	2.17	8.73	±30
Perfluorotetradecanoic acid	2.00	2.26	13.11	±30
Perfluorohexadecanoic acid	2.00	2.16	8.03	±30
Perfluorooctadecanoic acid	2.00	1.81	-9.74	±30

* Outside QC Limits.

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LC-MS/MS Analysis Report

Printed: 4/10/2018 9:28:00 AM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR10MCAL **Result Table:** 18APR10MCAL 32 Compounds 4/10/2018 9:18:18 AM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

Sample Name:	CCV1_CAL3			**Data File:**		18APR10MCAL-24.wiff
Sample ID:	CALMOD31833A			**Acquis Date:**		2018-04-10T05:58:21
Sample Type:	Quality Control			**Instrument:**		LM26719
Vial Position:	5			**Acquis Method:**		PFC-MOD-18APR03-Divert.dam
Injection Vol:	2.00			**Result Table:**		18APR10MCAL 32 Compounds
QMethod File:	SF-PFCMOD-18MAR26			**ICAL Name:**		18APR10MCAL
Batch Number:	N/A			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	671645.0	671428.9	0.0	50.0	
I13C2-PFOA	5.0	877184.1	896964.1	-2.2	50.0	
I13C4-PFOS	4.8	196978.8	207208.0	-4.9	50.0	
I13C2-PFDA	5.0	795982.9	882180.8	-9.8	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS
E13C4-PFBA	730324.0	13C3-PFBA	671645.0	1.087	1.065	5.000	5.105	102.1	70.0-130.0	
E13C5-PFPeA	681964.7	13C3-PFBA	671645.0	1.015	1.017	5.000	4.992	99.8	70.0-130.0	
E13C3-PFBS	262591.8	13C3-PFBA	671645.0	0.391	0.391	4.650	4.650	100.0	70.0-130.0	
E13C2-4:2-FTS	99732.1	13C2-PFOA	877184.1	0.114	0.110	4.670	4.817	103.2	70.0-130.0	
E13C5-PFHxA	912625.6	13C2-PFOA	877184.1	1.040	1.015	5.000	5.125	102.5	70.0-130.0	
E13C3-PFHxS	195463.8	13C2-PFOA	877184.1	0.223	0.209	4.730	5.039	106.5	70.0-130.0	
E13C4-PFHpA	835271.2	13C2-PFOA	877184.1	0.952	0.964	5.000	4.938	98.8	70.0-130.0	
E13C2-6:2-FTS	82335.3	13C2-PFOA	877184.1	0.094	0.088	4.750	5.044	106.2	70.0-130.0	
E13C8-PFOA	1040590.0	13C2-PFOA	877184.1	1.186	1.128	5.000	5.260	105.2	70.0-130.0	
E13C8-PFOS	206562.0	13C4-PFOS	196978.8	1.049	0.989	4.780	5.070	106.1	70.0-130.0	
E13C9-PFNA	910631.6	13C4-PFOS	196978.8	4.623	4.608	5.000	5.017	100.3	70.0-130.0	
E13C8-PFOSA	532554.4	13C2-PFDA	795982.9	0.669	0.564	5.000	5.928	118.6	70.0-130.0	
E13C6-PFDA	1076783.2	13C2-PFDA	795982.9	1.353	1.334	5.000	5.072	101.4	70.0-130.0	
E13C2-8:2-FTS	121752.7	13C2-PFDA	795982.9	0.153	0.132	4.790	5.531	115.5	70.0-130.0	
Ed7-NMePFOSAE	286747.4	13C2-PFDA	795982.9	0.360	0.329	5.000	5.467	109.3	70.0-130.0	
Ed3-NMePFOSA	86880.2	13C2-PFDA	795982.9	0.109	0.102	5.000	5.347	106.9	70.0-130.0	
Ed3-NMeFOSAA	240435.0	13C2-PFDA	795982.9	0.302	0.275	5.000	5.485	109.7	70.0-130.0	
Ed9-NEtPFOSAE	339781.0	13C2-PFDA	795982.9	0.427	0.395	5.000	5.398	108.0	70.0-130.0	
Ed5-NEtPFOSA	78620.2	13C2-PFDA	795982.9	0.099	0.087	5.000	5.648	113.0	70.0-130.0	
E13C7-PFUnDA	760707.1	13C2-PFDA	795982.9	0.956	0.900	5.000	5.312	106.2	70.0-130.0	
Ed5-NEtFOSAA	239840.6	13C2-PFDA	795982.9	0.301	0.260	5.000	5.787	115.7	70.0-130.0	
E13C2-PFDoDA	1358766.9	13C2-PFDA	795982.9	1.707	1.499	5.000	5.694	113.9	70.0-130.0	
E13C2-PFTeDA	1327068.8	13C2-PFDA	795982.9	1.667	1.553	5.000	5.367	107.3	70.0-130.0	

APPROVED
By MSM at 9:42 am, 4/10/18

REVIEWED
By umar at 10:03 am, 4/12/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

CCV brackets EB, FB, and TB only.
Limited validation.

SDG No.: SBN13

Instrument ID: 26719
Lab File ID: 18APR11-67.WIFF
Date/Time Analyzed: 04/12/2018 02:28
Lab Sample ID: CCV9_CAL3
Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	1.96	-2.19	±30
Perfluoropentanoic acid	2.00	2.00	0.15	±30
Perfluorobutanesulfonate	1.77	1.61	-8.80	±30
4:2 fluorotelomersulfonate	4.90	5.40	10.12	±30
Perfluorohexanoic acid	2.00	2.06	2.99	±30
Perfluoropentanesulfonate	1.88	1.82	-3.41	±30
Perfluorohexanesulfonate	1.89	2.00	6.06	±30
Perfluoroheptanoic acid	2.00	2.14	6.92	±30
6:2 fluorotelomersulfonate	5.21	5.45	4.65	±30
Perfluoroheptanesulfonate	1.90	1.96	3.08	±30
Perfluorooctanoic acid	2.00	2.02	0.94	±30
Perfluoro-octanesulfonate	1.91	1.89	-1.11	±30
Perfluorononanoic acid	2.00	2.17	8.55	±30
Perfluorooctanesulfonamide	2.00	2.14	6.99	±30
Perfluorononanesulfonate	1.92	1.81	-5.99	±30
Perfluorodecanoic acid	2.00	1.95	-2.62	±30
8:2 fluorotelomersulfonate	5.27	5.97	13.37	±30
NMeFOSAA	2.00	2.04	1.86	±30
Perfluorodecanesulfonate	1.93	1.68	-13.12	±30
Perfluoroundecanoic acid	2.00	2.32	15.77	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN13

Instrument ID: 26719 Lab File ID: 18APR11-67.WIFF

Date/Time Analyzed: 04/12/2018 02:28 Lab Sample ID: CCV9_CAL3

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	1.85	-7.34	±30
Perfluorododecanoic acid	2.00	2.04	2.12	±30
10:2-fluorotelomersulfonate	5.30	5.75	8.52	±30
Perfluorododecanesulfonate	1.94	1.74	-10.42	±30
Perfluorotridecanoic acid	2.00	2.25	12.63	±30
Perfluorotetradecanoic acid	2.00	2.21	10.64	±30
Perfluorohexadecanoic acid	2.00	2.06	2.88	±30
Perfluorooctadecanoic acid	2.00	1.69	-15.70	±30

* Outside QC Limits.

ICAL Name: 18APR10MCAL **Result Table:** 18APR11CCV9-10 4/12/2018 8:35:20 AM
QMethod Name: SF-PFCMOD-18APR10 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

Sample Name:	CCV9_CAL3			**Data File:**		18APR11-67.wiff
Sample ID:	CALMOD31833A			**Acquis Date:**		2018-04-12T02:28:41
Sample Type:	Quality Control			**Instrument:**		LM26719
Vial Position:	5			**Acquis Method:**		PFC-MOD-18APR03-Divert.dam
Injection Vol:	2.00			**Result Table:**		18APR11CCV9-10
QMethod File:	SF-PFCMOD-18APR10			**ICAL Name:**		18APR10MCAL
Batch Number:	N\A			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	602074.2	671428.9	-10.3	50.0	
I13C2-PFOA	5.0	782002.2	896964.1	-12.8	50.0	
I13C4-PFOS	4.8	174068.9	207208.0	-16.0	50.0	
I13C2-PFDA	5.0	746284.9	882180.8	-15.4	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS
E13C4-PFBA	648445.2	13C3-PFBA	602074.2	1.077	1.065	5.000	5.056	101.1	70.0-130.0	
E13C5-PFPeA	605344.1	13C3-PFBA	602074.2	1.005	1.017	5.000	4.944	98.9	70.0-130.0	
E13C3-PFBS	228964.8	13C3-PFBA	602074.2	0.380	0.391	4.650	4.523	97.3	70.0-130.0	
E13C2-4:2-FTS	87010.8	13C2-PFOA	782002.2	0.111	0.110	4.670	4.714	100.9	70.0-130.0	
E13C5-PFHxA	802745.0	13C2-PFOA	782002.2	1.027	1.015	5.000	5.057	101.1	70.0-130.0	
E13C3-PFHxS	159107.4	13C2-PFOA	782002.2	0.203	0.209	4.730	4.601	97.3	70.0-130.0	
E13C4-PFHpA	776336.0	13C2-PFOA	782002.2	0.993	0.964	5.000	5.148	103.0	70.0-130.0	
E13C2-6:2-FTS	76219.5	13C2-PFOA	782002.2	0.097	0.088	4.750	5.238	110.3	70.0-130.0	
E13C8-PFOA	945352.6	13C2-PFOA	782002.2	1.209	1.128	5.000	5.360	107.2	70.0-130.0	
E13C8-PFOS	173563.8	13C4-PFOS	174068.9	0.997	0.989	4.780	4.821	100.8	70.0-130.0	
E13C9-PFNA	771741.3	13C4-PFOS	174068.9	4.434	4.608	5.000	4.811	96.2	70.0-130.0	
E13C8-PFOSA	438709.9	13C2-PFDA	746284.9	0.588	0.564	5.000	5.208	104.2	70.0-130.0	
E13C6-PFDA	1007453.3	13C2-PFDA	746284.9	1.350	1.334	5.000	5.061	101.2	70.0-130.0	
E13C2-8:2-FTS	99316.2	13C2-PFDA	746284.9	0.133	0.132	4.790	4.812	100.5	70.0-130.0	
Ed7-NMePFOSAE	265770.9	13C2-PFDA	746284.9	0.356	0.329	5.000	5.405	108.1	70.0-130.0	
Ed3-NMePFOSA	82361.4	13C2-PFDA	746284.9	0.110	0.102	5.000	5.406	108.1	70.0-130.0	
Ed3-NMeFOSAA	223563.5	13C2-PFDA	746284.9	0.300	0.275	5.000	5.440	108.8	70.0-130.0	
Ed9-NEtPFOSAE	303442.1	13C2-PFDA	746284.9	0.407	0.395	5.000	5.141	102.8	70.0-130.0	
Ed5-NEtPFOSA	71073.9	13C2-PFDA	746284.9	0.095	0.087	5.000	5.445	108.9	70.0-130.0	
E13C7-PFUnDA	703876.1	13C2-PFDA	746284.9	0.943	0.900	5.000	5.242	104.8	70.0-130.0	
Ed5-NEtFOSAA	217950.3	13C2-PFDA	746284.9	0.292	0.260	5.000	5.609	112.2	70.0-130.0	
E13C2-PFDoDA	1185574.7	13C2-PFDA	746284.9	1.589	1.499	5.000	5.299	106.0	70.0-130.0	
E13C2-PFTeDA	1153745.6	13C2-PFDA	746284.9	1.546	1.553	5.000	4.977	99.5	70.0-130.0	

APPROVED
By MSM at 9:03 am, 4/12/18

REVIEWED
By umar at 1:13 pm, 4/12/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

CCV brackets sludges and aq. blanks.
Full validation.

SDG No.: SBN13

Instrument ID: 26719 Lab File ID: 18APR11-81.WIFF

Date/Time Analyzed: 04/12/2018 06:06 Lab Sample ID: CCV10_CAL4

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.29	3.64	±30
Perfluoropentanoic acid	8.00	8.25	3.15	±30
Perfluorobutanesulfonate	7.08	7.37	4.08	±30
4:2 fluorotelomersulfonate	10.04	10.64	5.97	±30
Perfluorohexanoic acid	8.00	8.50	6.30	±30
Perfluoropentanesulfonate	7.50	7.47	-0.43	±30
Perfluorohexanesulfonate	7.56	7.40	-2.15	±30
Perfluoroheptanoic acid	8.00	8.33	4.18	±30
6:2 fluorotelomersulfonate	10.43	10.65	2.07	±30
Perfluoroheptanesulfonate	7.61	7.25	-4.72	±30
Perfluorooctanoic acid	8.00	8.14	1.74	±30
Perfluoro-octanesulfonate	7.65	7.85	2.57	±30
Perfluorononanoic acid	8.00	9.65	20.68	±30
Perfluorooctanesulfonamide	8.00	7.46	-6.76	±30
Perfluorononanesulfonate	7.68	8.06	4.92	±30
Perfluorodecanoic acid	8.00	8.11	1.39	±30
8:2 fluorotelomersulfonate	10.54	10.29	-2.32	±30
NMeFOSAA	8.00	8.10	1.20	±30
Perfluorodecanesulfonate	7.70	6.71	-12.91	±30
Perfluoroundecanoic acid	8.00	8.23	2.92	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN13

Instrument ID: 26719 Lab File ID: 18APR11-81.WIFF

Date/Time Analyzed: 04/12/2018 06:06 Lab Sample ID: CCV10_CAL4

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	8.00	7.83	-2.16	±30
Perfluorododecanoic acid	8.00	8.91	11.31	±30
10:2-fluorotelomersulfonate	10.60	10.68	0.74	±30
Perfluorododecanesulfonate	7.74	7.29	-5.86	±30
Perfluorotridecanoic acid	8.00	9.38	17.21	±30
Perfluorotetradecanoic acid	8.00	9.16	14.50	±30
Perfluorohexadecanoic acid	8.00	9.20	14.95	±30
Perfluorooctadecanoic acid	8.00	7.09	-11.43	±30

* Outside QC Limits.

ICAL Name: 18APR10MCAL **Result Table:** 18APR11CCV9-10 4/12/2018 8:35:20 AM
QMethod Name: SF-PFCMOD-18APR10 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

Sample Name:	CCV10_CAL4			**Data File:**		18APR11-81.wiff
Sample ID:	CALMOD41833A			**Acquis Date:**		2018-04-12T06:06:09
Sample Type:	Quality Control			**Instrument:**		LM26719
Vial Position:	6			**Acquis Method:**		PFC-MOD-18APR03-Divert.dam
Injection Vol:	2.00			**Result Table:**		18APR11CCV9-10
QMethod File:	SF-PFCMOD-18APR10			**ICAL Name:**		18APR10MCAL
Batch Number:	N\A			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	625608.3	671428.9	-6.8	50.0	
I13C2-PFOA	5.0	852195.9	896964.1	-5.0	50.0	
I13C4-PFOS	4.8	177745.3	207208.0	-14.2	50.0	
I13C2-PFDA	5.0	739991.9	882180.8	-16.1	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS
E13C4-PFBA	662475.6	13C3-PFBA	625608.3	1.059	1.065	5.000	4.971	99.4	70.0-130.0	
E13C5-PFPeA	604814.3	13C3-PFBA	625608.3	0.967	1.017	5.000	4.753	95.1	70.0-130.0	
E13C3-PFBS	226223.0	13C3-PFBA	625608.3	0.362	0.391	4.650	4.301	92.5	70.0-130.0	
E13C2-4:2-FTS	89413.5	13C2-PFOA	852195.9	0.105	0.110	4.670	4.445	95.2	70.0-130.0	
E13C5-PFHxA	837707.2	13C2-PFOA	852195.9	0.983	1.015	5.000	4.842	96.8	70.0-130.0	
E13C3-PFHxS	171929.5	13C2-PFOA	852195.9	0.202	0.209	4.730	4.562	96.5	70.0-130.0	
E13C4-PFHpA	781887.9	13C2-PFOA	852195.9	0.917	0.964	5.000	4.758	95.2	70.0-130.0	
E13C2-6:2-FTS	74213.5	13C2-PFOA	852195.9	0.087	0.088	4.750	4.680	98.5	70.0-130.0	
E13C8-PFOA	946804.0	13C2-PFOA	852195.9	1.111	1.128	5.000	4.926	98.5	70.0-130.0	
E13C8-PFOS	171462.6	13C4-PFOS	177745.3	0.965	0.989	4.780	4.664	97.6	70.0-130.0	
E13C9-PFNA	748904.0	13C4-PFOS	177745.3	4.213	4.608	5.000	4.572	91.4	70.0-130.0	
E13C8-PFOSA	456469.7	13C2-PFDA	739991.9	0.617	0.564	5.000	5.465	109.3	70.0-130.0	
E13C6-PFDA	970678.2	13C2-PFDA	739991.9	1.312	1.334	5.000	4.918	98.4	70.0-130.0	
E13C2-8:2-FTS	109664.3	13C2-PFDA	739991.9	0.148	0.132	4.790	5.359	111.9	70.0-130.0	
Ed7-NMePFOSAE	285856.3	13C2-PFDA	739991.9	0.386	0.329	5.000	5.863	117.3	70.0-130.0	
Ed3-NMePFOSA	86948.2	13C2-PFDA	739991.9	0.117	0.102	5.000	5.756	115.1	70.0-130.0	
Ed3-NMeFOSAA	218076.5	13C2-PFDA	739991.9	0.295	0.275	5.000	5.352	107.0	70.0-130.0	
Ed9-NEtPFOSAE	322887.9	13C2-PFDA	739991.9	0.436	0.395	5.000	5.517	110.3	70.0-130.0	
Ed5-NEtPFOSA	69661.0	13C2-PFDA	739991.9	0.094	0.087	5.000	5.383	107.7	70.0-130.0	
E13C7-PFUnDA	740042.5	13C2-PFDA	739991.9	1.000	0.900	5.000	5.558	111.2	70.0-130.0	
Ed5-NEtFOSAA	220813.9	13C2-PFDA	739991.9	0.298	0.260	5.000	5.731	114.6	70.0-130.0	
E13C2-PFDoDA	1153245.0	13C2-PFDA	739991.9	1.558	1.499	5.000	5.198	104.0	70.0-130.0	
E13C2-PFTeDA	1188388.9	13C2-PFDA	739991.9	1.606	1.553	5.000	5.170	103.4	70.0-130.0	

APPROVED
By MSM at 9:03 am, 4/12/18

REVIEWED
By umar at 1:13 pm, 4/12/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

CCV brackets sludges.
Full validation.

SDG No.: SBN13

Instrument ID: 26719 Lab File ID: 18APR11-94.WIFF

Date/Time Analyzed: 04/12/2018 09:27 Lab Sample ID: CCV11_CAL5

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	21.50	7.52	±30
Perfluoropentanoic acid	20.00	21.60	8.02	±30
Perfluorobutanesulfonate	17.69	18.90	6.82	±30
4:2 fluorotelomersulfonate	12.49	13.44	7.62	±30
Perfluorohexanoic acid	20.00	22.12	10.59	±30
Perfluoropentanesulfonate	18.76	19.19	2.29	±30
Perfluorohexanesulfonate	18.91	22.51	19.04	±30
Perfluoroheptanoic acid	20.00	21.99	9.93	±30
6:2 fluorotelomersulfonate	13.04	12.40	-4.89	±30
Perfluoroheptanesulfonate	19.03	18.92	-0.60	±30
Perfluorooctanoic acid	20.00	22.97	14.85	±30
Perfluoro-octanesulfonate	19.12	20.59	7.66	±30
Perfluorononanoic acid	20.00	23.12	15.61	±30
Perfluorooctanesulfonamide	10.00	9.33	-6.69	±30
Perfluorononanesulfonate	19.20	20.94	9.04	±30
Perfluorodecanoic acid	20.00	20.16	0.80	±30
8:2 fluorotelomersulfonate	13.17	11.22	-14.80	±30
NMeFOSAA	10.00	9.82	-1.82	±30
Perfluorodecanesulfonate	19.26	17.86	-7.29	±30
Perfluoroundecanoic acid	20.00	22.95	14.76	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN13

Instrument ID: 26719 Lab File ID: 18APR11-94.WIFF

Date/Time Analyzed: 04/12/2018 09:27 Lab Sample ID: CCV11_CAL5

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	10.00	9.19	-8.14	±30
Perfluorododecanoic acid	20.00	23.25	16.24	±30
10:2-fluorotelomersulfonate	13.26	16.98	28.08	±30
Perfluorododecanesulfonate	19.36	19.45	0.44	±30
Perfluorotridecanoic acid	20.00	24.70	23.50	±30
Perfluorotetradecanoic acid	20.00	23.58	17.91	±30
Perfluorohexadecanoic acid	20.00	22.10	10.52	±30
Perfluorooctadecanoic acid	20.00	19.34	-3.28	±30

* Outside QC Limits.

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LC-MS/MS Analysis Report

Printed: 4/12/2018 11:50:00 AM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18APR10MCAL **Result Table:** 18APR11CCV11 4/12/2018 11:48:19 AM
QMethod Name: SF-PFCMOD-18APR10 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

Sample Name:	CCV11_CAL5			**Data File:**		18APR11-94.wiff
Sample ID:	CALMOD51833A			**Acquis Date:**		2018-04-12T09:27:42
Sample Type:	Quality Control			**Instrument:**		LM26719
Vial Position:	7			**Acquis Method:**		PFC-MOD-18APR03-Divert.dam
Injection Vol:	2.00			**Result Table:**		18APR11CCV11
QMethod File:	SF-PFCMOD-18APR10			**ICAL Name:**		18APR10MCAL
Batch Number:	N\A			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	577820.3	671428.9	-13.9	50.0	
I13C2-PFOA	5.0	744383.0	896964.1	-17.0	50.0	
I13C4-PFOS	4.8	177211.8	207208.0	-14.5	50.0	
I13C2-PFDA	5.0	736186.5	882180.8	-16.5	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS	
E13C4-PFBA	645038.3	13C3-PFBA	577820.3	1.116	1.065	5.000	5.241	104.8	70.0-130.0		
E13C5-PFPeA	612901.2	13C3-PFBA	577820.3	1.061	1.017	5.000	5.215	104.3	70.0-130.0		
E13C3-PFBS	226352.2	13C3-PFBA	577820.3	0.392	0.391	4.650	4.660	100.2	70.0-130.0		
E13C2-4:2-FTS	87070.8	13C2-PFOA	744383.0	0.117	0.110	4.670	4.956	106.1	70.0-130.0		
E13C5-PFHxA	784266.0	13C2-PFOA	744383.0	1.054	1.015	5.000	5.190	103.8	70.0-130.0		
E13C3-PFHxS	158348.7	13C2-PFOA	744383.0	0.213	0.209	4.730	4.811	101.7	70.0-130.0		
E13C4-PFHpA	755977.4	13C2-PFOA	744383.0	1.016	0.964	5.000	5.266	105.3	70.0-130.0		
E13C2-6:2-FTS	73286.3	13C2-PFOA	744383.0	0.098	0.088	4.750	5.291	111.4	70.0-130.0		
E13C8-PFOA	896585.1	13C2-PFOA	744383.0	1.204	1.128	5.000	5.340	106.8	70.0-130.0		
E13C8-PFOS	174356.0	13C4-PFOS	177211.8	0.984	0.989	4.780	4.757	99.5	70.0-130.0		
E13C9-PFNA	837238.8	13C4-PFOS	177211.8	4.725	4.608	5.000	5.127	102.5	70.0-130.0		
E13C8-PFOSA	455016.6	13C2-PFDA	736186.5	0.618	0.564	5.000	5.476	109.5	70.0-130.0		
E13C6-PFDA	1081774.5	13C2-PFDA	736186.5	1.469	1.334	5.000	5.509	110.2	70.0-130.0		
E13C2-8:2-FTS	132687.4	13C2-PFDA	736186.5	0.180	0.132	4.790	6.517	136.1	70.0-130.0	OOS	NT
Ed7-NMePFOSAE	289546.8	13C2-PFDA	736186.5	0.393	0.329	5.000	5.969	119.4	70.0-130.0		
Ed3-NMePFOSA	83152.2	13C2-PFDA	736186.5	0.113	0.102	5.000	5.533	110.7	70.0-130.0		
Ed3-NMeFOSAA	265888.2	13C2-PFDA	736186.5	0.361	0.275	5.000	6.559	131.2	70.0-130.0	OOS	NT
Ed9-NEtPFOSAE	347088.4	13C2-PFDA	736186.5	0.471	0.395	5.000	5.962	119.2	70.0-130.0		
Ed5-NEtPFOSA	70827.5	13C2-PFDA	736186.5	0.096	0.087	5.000	5.501	110.0	70.0-130.0		
E13C7-PFUnDA	762060.8	13C2-PFDA	736186.5	1.035	0.900	5.000	5.753	115.1	70.0-130.0		
Ed5-NEtFOSAA	245843.7	13C2-PFDA	736186.5	0.334	0.260	5.000	6.414	128.3	70.0-130.0		
E13C2-PFDoDA	1198901.8	13C2-PFDA	736186.5	1.629	1.499	5.000	5.432	108.6	70.0-130.0		
E13C2-PFTeDA	1285373.8	13C2-PFDA	736186.5	1.746	1.553	5.000	5.621	112.4	70.0-130.0		

APPROVED
By MSM at 11:52 am, 4/12/18

REVIEWED
By umar at 12:12 pm, 4/17/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN13

CCV brackets sample 285DL.
PFOA only

Instrument ID: 26719 Lab File ID: 18APR13-01.WIFF

Date/Time Analyzed: 04/13/2018 08:50 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.05	2.38	±30
Perfluoropentanoic acid	2.00	2.12	6.15	±30
Perfluorobutanesulfonate	1.77	1.70	-3.95	±30
4:2 fluorotelomersulfonate	4.90	5.44	11.11	±30
Perfluorohexanoic acid	2.00	1.99	-0.57	±30
Perfluoropentanesulfonate	1.88	1.70	-9.73	±30
Perfluorohexanesulfonate	1.89	1.89	0.23	±30
Perfluoroheptanoic acid	2.00	2.23	11.68	±30
6:2 fluorotelomersulfonate	5.21	5.48	5.11	±30
Perfluoroheptanesulfonate	1.90	1.85	-2.45	±30
Perfluorooctanoic acid	2.00	2.14	6.75	±30
Perfluoro-octanesulfonate	1.91	1.89	-1.26	±30
Perfluorononanoic acid	2.00	2.00	0.10	±30
Perfluorooctanesulfonamide	2.00	2.06	3.03	±30
Perfluorononanesulfonate	1.92	1.79	-6.70	±30
Perfluorodecanoic acid	2.00	2.08	3.80	±30
8:2 fluorotelomersulfonate	5.27	5.92	12.41	±30
NMeFOSAA	2.00	1.95	-2.69	±30
Perfluorodecanesulfonate	1.93	1.65	-14.54	±30
Perfluoroundecanoic acid	2.00	2.28	14.16	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN13

Instrument ID: 26719 Lab File ID: 18APR13-01.WIFF

Date/Time Analyzed: 04/13/2018 08:50 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.11	5.46	±30
Perfluorododecanoic acid	2.00	2.27	13.57	±30
10:2-fluorotelomersulfonate	5.30	5.44	2.57	±30
Perfluorododecanesulfonate	1.94	1.69	-12.98	±30
Perfluorotridecanoic acid	2.00	2.37	18.42	±30
Perfluorotetradecanoic acid	2.00	2.17	8.43	±30
Perfluorohexadecanoic acid	2.00	2.11	5.29	±30
Perfluorooctadecanoic acid	2.00	1.65	-17.33	±30

* Outside QC Limits.

ICAL Name: 18APR10MCAL **Result Table:** 18APR13CCV1-2, 4-5 4/16/2018 5:13:28 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

Sample Name:	CCV1_CAL3			**Data File:**		18APR13-01.wiff
Sample ID:	CALMOD31833A			**Acquis Date:**		2018-04-13T08:50:17
Sample Type:	Quality Control			**Instrument:**		LM26719
Vial Position:	5			**Acquis Method:**		PFC-MOD-18APR03-Divert.dam
Injection Vol:	2.00			**Result Table:**		18APR13CCV1-2, 4-5
QMethod File:	SF-PFCMOD-18MAR29			**ICAL Name:**		18APR10MCAL
Batch Number:	N\A			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	602165.4	671428.9	-10.3	50.0	
I13C2-PFOA	5.0	826787.7	896964.1	-7.8	50.0	
I13C4-PFOS	4.8	192932.8	207208.0	-6.9	50.0	
I13C2-PFDA	5.0	752745.2	882180.8	-14.7	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS
E13C4-PFBA	636584.8	13C3-PFBA	602165.4	1.057	1.065	5.000	4.963	99.3	70.0-130.0	
E13C5-PFPeA	606975.7	13C3-PFBA	602165.4	1.008	1.017	5.000	4.956	99.1	70.0-130.0	
E13C3-PFBS	229775.8	13C3-PFBA	602165.4	0.382	0.391	4.650	4.539	97.6	70.0-130.0	
E13C2-4:2-FTS	89454.6	13C2-PFOA	826787.7	0.108	0.110	4.670	4.584	98.2	70.0-130.0	
E13C5-PFHxA	886996.8	13C2-PFOA	826787.7	1.073	1.015	5.000	5.285	105.7	70.0-130.0	
E13C3-PFHxS	155621.4	13C2-PFOA	826787.7	0.188	0.209	4.730	4.256	90.0	70.0-130.0	
E13C4-PFHpA	768181.0	13C2-PFOA	826787.7	0.929	0.964	5.000	4.818	96.4	70.0-130.0	
E13C2-6:2-FTS	79680.5	13C2-PFOA	826787.7	0.096	0.088	4.750	4.179	88.0	70.0-130.0	
E13C8-PFOA	905971.0	13C2-PFOA	826787.7	1.096	1.128	5.000	4.858	97.2	70.0-130.0	
E13C8-PFOS	174593.4	13C4-PFOS	192932.8	0.905	0.989	4.780	4.375	91.5	70.0-130.0	
E13C9-PFNA	899882.7	13C4-PFOS	192932.8	4.664	4.608	5.000	5.062	101.2	70.0-130.0	
E13C8-PFOSA	432879.8	13C2-PFDA	752745.2	0.575	0.564	5.000	5.095	101.9	70.0-130.0	
E13C6-PFDA	1034592.4	13C2-PFDA	752745.2	1.374	1.334	5.000	5.153	103.1	70.0-130.0	
E13C2-8:2-FTS	119571.6	13C2-PFDA	752745.2	0.159	0.132	4.790	5.744	119.9	70.0-130.0	
Ed7-NMePFOSAE	253843.5	13C2-PFDA	752745.2	0.337	0.329	5.000	5.118	102.4	70.0-130.0	
Ed3-NMePFOSA	80918.9	13C2-PFDA	752745.2	0.107	0.102	5.000	5.266	105.3	70.0-130.0	
Ed3-NMeFOSAA	226480.4	13C2-PFDA	752745.2	0.301	0.275	5.000	5.464	109.3	70.0-130.0	
Ed9-NEtPFOSAE	308244.7	13C2-PFDA	752745.2	0.409	0.395	5.000	5.178	103.6	70.0-130.0	
Ed5-NEtPFOSA	67823.3	13C2-PFDA	752745.2	0.090	0.087	5.000	5.152	103.0	70.0-130.0	
E13C7-PFUnDA	765877.6	13C2-PFDA	752745.2	1.017	0.900	5.000	5.655	113.1	70.0-130.0	
Ed5-NEtFOSAA	206150.7	13C2-PFDA	752745.2	0.274	0.260	5.000	5.260	105.2	70.0-130.0	
E13C2-PFDoDA	1125552.9	13C2-PFDA	752745.2	1.495	1.499	5.000	4.988	99.8	70.0-130.0	
E13C2-PFTeDA	1145053.3	13C2-PFDA	752745.2	1.521	1.553	5.000	4.897	97.9	70.0-130.0	

APPROVED
By DMW at 5:17 pm, 4/16/18

REVIEWED
By umar at 12:27 pm, 4/17/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

CCV brackets sample 285DL.
PFOA only

SDG No.: SBN13

Instrument ID: 26719 Lab File ID: 18APR13-05.WIFF

Date/Time Analyzed: 04/13/2018 09:52 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.24	3.03	±30
Perfluoropentanoic acid	8.00	7.86	-1.77	±30
Perfluorobutanesulfonate	7.08	6.79	-4.06	±30
4:2 fluorotelomersulfonate	10.04	10.23	1.90	±30
Perfluorohexanoic acid	8.00	8.30	3.78	±30
Perfluoropentanesulfonate	7.50	7.72	2.97	±30
Perfluorohexanesulfonate	7.56	7.45	-1.52	±30
Perfluoroheptanoic acid	8.00	8.16	1.96	±30
6:2 fluorotelomersulfonate	10.43	10.58	1.47	±30
Perfluoroheptanesulfonate	7.61	7.79	2.38	±30
Perfluorooctanoic acid	8.00	8.67	8.36	±30
Perfluoro-octanesulfonate	7.65	7.29	-4.65	±30
Perfluorononanoic acid	8.00	9.00	12.56	±30
Perfluorooctanesulfonamide	8.00	7.69	-3.85	±30
Perfluorononanesulfonate	7.68	7.84	2.12	±30
Perfluorodecanoic acid	8.00	8.19	2.35	±30
8:2 fluorotelomersulfonate	10.54	9.87	-6.35	±30
NMeFOSAA	8.00	7.58	-5.24	±30
Perfluorodecanesulfonate	7.70	7.27	-5.59	±30
Perfluoroundecanoic acid	8.00	9.08	13.55	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN13

Instrument ID: 26719 Lab File ID: 18APR13-05.WIFF

Date/Time Analyzed: 04/13/2018 09:52 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 04/10/2018 03:23 04/10/2018 04:56

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	8.00	7.56	-5.48	±30
Perfluorododecanoic acid	8.00	8.41	5.17	±30
10:2-fluorotelomersulfonate	10.60	11.24	6.08	±30
Perfluorododecanesulfonate	7.74	7.32	-5.43	±30
Perfluorotridecanoic acid	8.00	8.60	7.46	±30
Perfluorotetradecanoic acid	8.00	9.02	12.79	±30
Perfluorohexadecanoic acid	8.00	8.46	5.72	±30
Perfluorooctadecanoic acid	8.00	7.04	-12.01	±30

* Outside QC Limits.

ICAL Name: 18APR10MCAL **Result Table:** 18APR13CCV1-2, 4-5 4/16/2018 5:13:28 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

Sample Name:	CCV2_CAL4			**Data File:**		18APR13-05.wiff
Sample ID:	CALMOD41833A			**Acquis Date:**		2018-04-13T09:52:20
Sample Type:	Quality Control			**Instrument:**		LM26719
Vial Position:	6			**Acquis Method:**		PFC-MOD-18APR03-Divert.dam
Injection Vol:	2.00			**Result Table:**		18APR13CCV1-2, 4-5
QMethod File:	SF-PFCMOD-18MAR29			**ICAL Name:**		18APR10MCAL
Batch Number:	N\A			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	606431.5	671428.9	-9.7	50.0	
I13C2-PFOA	5.0	859679.6	896964.1	-4.2	50.0	
I13C4-PFOS	4.8	191762.6	207208.0	-7.5	50.0	
I13C2-PFDA	5.0	877482.1	882180.8	-0.5	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS
E13C4-PFBA	665106.9	13C3-PFBA	606431.5	1.097	1.065	5.000	5.149	103.0	70.0-130.0	
E13C5-PFPeA	633258.1	13C3-PFBA	606431.5	1.044	1.017	5.000	5.134	102.7	70.0-130.0	
E13C3-PFBS	241442.0	13C3-PFBA	606431.5	0.398	0.391	4.650	4.736	101.8	70.0-130.0	
E13C2-4:2-FTS	105054.4	13C2-PFOA	859679.6	0.122	0.110	4.670	5.178	110.9	70.0-130.0	
E13C5-PFHxA	845727.9	13C2-PFOA	859679.6	0.984	1.015	5.000	4.846	96.9	70.0-130.0	
E13C3-PFHxS	169636.7	13C2-PFOA	859679.6	0.197	0.209	4.730	4.462	94.3	70.0-130.0	
E13C4-PFHpA	826351.8	13C2-PFOA	859679.6	0.961	0.964	5.000	4.985	99.7	70.0-130.0	
E13C2-6:2-FTS	84047.5	13C2-PFOA	859679.6	0.098	0.088	4.750	5.254	110.6	70.0-130.0	
E13C8-PFOA	951090.9	13C2-PFOA	859679.6	1.106	1.128	5.000	4.905	98.1	70.0-130.0	
E13C8-PFOS	178347.3	13C4-PFOS	191762.6	0.930	0.989	4.780	4.496	94.1	70.0-130.0	
E13C9-PFNA	865106.7	13C4-PFOS	191762.6	4.511	4.608	5.000	4.896	97.9	70.0-130.0	
E13C8-PFOSA	446564.5	13C2-PFDA	877482.1	0.509	0.564	5.000	4.509	90.2	70.0-130.0	
E13C6-PFDA	1112562.3	13C2-PFDA	877482.1	1.268	1.334	5.000	4.754	95.1	70.0-130.0	
E13C2-8:2-FTS	150939.1	13C2-PFDA	877482.1	0.172	0.132	4.790	6.220	129.9	70.0-130.0	
Ed7-NMePFOSAE	269723.9	13C2-PFDA	877482.1	0.307	0.329	5.000	4.665	93.3	70.0-130.0	
Ed3-NMePFOSA	83607.4	13C2-PFDA	877482.1	0.095	0.102	5.000	4.668	93.4	70.0-130.0	
Ed3-NMeFOSAA	214319.0	13C2-PFDA	877482.1	0.244	0.275	5.000	4.435	88.7	70.0-130.0	
Ed9-NEtPFOSAE	330363.5	13C2-PFDA	877482.1	0.376	0.395	5.000	4.761	95.2	70.0-130.0	
Ed5-NEtPFOSA	69591.8	13C2-PFDA	877482.1	0.079	0.087	5.000	4.535	90.7	70.0-130.0	
E13C7-PFUnDA	819306.2	13C2-PFDA	877482.1	0.934	0.900	5.000	5.189	103.8	70.0-130.0	
Ed5-NEtFOSAA	227010.1	13C2-PFDA	877482.1	0.259	0.260	5.000	4.969	99.4	70.0-130.0	
E13C2-PFDoDA	1319969.3	13C2-PFDA	877482.1	1.504	1.499	5.000	5.018	100.4	70.0-130.0	
E13C2-PFTeDA	1302145.1	13C2-PFDA	877482.1	1.484	1.553	5.000	4.777	95.5	70.0-130.0	

APPROVED
By DMW at 5:17 pm, 4/16/18

REVIEWED
By umar at 12:27 pm, 4/17/18

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

Aq. blanks. Limited validation.

SDG No.: SBN13
Matrix: WATER

18098004		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		882181	896964	671429	207208
UPPER LIMIT		1323272	1345446	1007144	310812
LOWER LIMIT		441091	448482	335715	103604
LAB SAMPLE ID	**DATE ANALYZED**				
LCS098004	04/12/18 04:48	882749	896715	711550	214263
LCSDA	04/12/18 05:03	841201	929417	710261	199225
BLK098004	04/12/18 05:35	906687	916643	693488	212182
9546287	04/12/18 05:50	965269	943120	710016	227629
9546288	04/12/18 06:37	898093	906436	708553	215242
9546289	04/12/18 06:52	922285	974639	715530	215084

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

Full validation of sample 281, MS and MSD.

SDG No.: SBN13
Matrix: WATER

18099003		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		882181	896964	671429	207208
UPPER LIMIT		1323272	1345446	1007144	310812
LOWER LIMIT		441091	448482	335715	103604
LAB SAMPLE ID	**DATE ANALYZED**				
LCS099003	04/12/18 07:08	902218	981146	725405	215842
9546282MS	04/12/18 07:23	1195515	1099866	766414	238825
9546283MSD	04/12/18 07:39	1127737	977514	732375	248337
BLK099003	04/12/18 08:10	1027046	982357	774346	259344
9546280	04/12/18 08:25	1012685	1043549	803152	216003
9546281	04/12/18 08:41	1042142	1046665	767134	236294
9546285	04/12/18 08:56	1142680	798464	762901	239185
9546286	04/12/18 09:12	1148668	1060115	759119	237074
9546285DL	04/13/18 09:36	1145618	1101059	807349	251508

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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Quality Control Reference List
PFAS Group

CLIENT: C. T. Male Associates
SDG: SBN13

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
14 PFAS Compounds	18098004	BLK098004	04/12/2018 05:35:00
		LCS098004	04/12/2018 04:48:00
		LCSDA	04/12/2018 05:03:00
		9546287	04/12/2018 05:50:00
		9546288	04/12/2018 06:37:00
		9546289	04/12/2018 06:52:00
14 PFCs	18099003	BLK099003	04/12/2018 08:10:00
		LCS099003	04/12/2018 07:08:00
		9546280	04/12/2018 08:25:00
		9546281 UNSPK	04/12/2018 08:41:00
		9546282 MS	04/12/2018 07:23:00
		9546283 MSD	04/12/2018 07:39:00
		9546285	04/12/2018 08:56:00
		9546285	04/13/2018 09:36:00
		9546286	04/12/2018 09:12:00

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LC-MS/MS Sample Run Log

Printed: 4/12/2018 2:53:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM26719

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR10MCAL-13.wiff	MDL	N/A	4/10/2018 3:07:44 AM
18APR10MCAL-14.wiff	CAL1	N/A	4/10/2018 3:23:14 AM
18APR10MCAL-15.wiff	CAL2	N/A	4/10/2018 3:38:45 AM
18APR10MCAL-16.wiff	CAL3	N/A	4/10/2018 3:54:14 AM
18APR10MCAL-17.wiff	CAL4	N/A	4/10/2018 4:09:45 AM
18APR10MCAL-18.wiff	CAL5	N/A	4/10/2018 4:25:15 AM
18APR10MCAL-19.wiff	CAL6	N/A	4/10/2018 4:40:45 AM
18APR10MCAL-20.wiff	CAL7	N/A	4/10/2018 4:56:14 AM
18APR10MCAL-21.wiff	Instrument Blank	N/A	4/10/2018 5:11:45 AM
18APR10MCAL-22.wiff	ICV	N/A	4/10/2018 5:27:18 AM
18APR10MCAL-23.wiff	L+B CAL3	N/A	4/10/2018 5:42:48 AM
18APR10MCAL-24.wiff	CCV1_CAL3	N/A	4/10/2018 5:58:21 AM
18APR11-01.wiff	CCV1_CAL1	N/A	4/11/2018 9:25:07 AM
18APR11-02.wiff	Instrument Blank	N/A	4/11/2018 9:40:37 AM
18APR11-03.wiff	LCS099010	18099010	4/11/2018 9:56:07 AM
18APR11-04.wiff	LCSDA	18099010	4/11/2018 10:11:37 AM
18APR11-05.wiff	LCS099016	18099016	4/11/2018 10:27:07 AM
18APR11-06.wiff	LCSDA	18099016	4/11/2018 10:42:37 AM
18APR11-07.wiff	solvent	N\A	4/11/2018 10:58:07 AM
18APR11-08.wiff	BLK099010	18099010	4/11/2018 11:13:37 AM
18APR11-09.wiff	9548585	18099010	4/11/2018 11:29:07 AM
18APR11-10.wiff	9548585DL	18099010	4/11/2018 11:44:37 AM
18APR11-11.wiff	9548586	18099010	4/11/2018 12:00:10 PM
18APR11-12.wiff	9548586DL	18099010	4/11/2018 12:15:43 PM
18APR11-13.wiff	CCV2_CAL3	N\A	4/11/2018 12:31:16 PM
18APR11-14.wiff	solvent	N\A	4/11/2018 12:46:46 PM
18APR11-15.wiff	BLK099016	18099016	4/11/2018 1:02:19 PM
18APR11-16.wiff	9548587	18099016	4/11/2018 1:17:49 PM
18APR11-17.wiff	9548587DL	18099016	4/11/2018 1:33:19 PM
18APR11-18.wiff	9548589	18099016	4/11/2018 1:48:49 PM
18APR11-19.wiff	9548589DL	18099016	4/11/2018 2:04:19 PM
18APR11-20.wiff	CCV3_CAL4	N\A	4/11/2018 2:19:49 PM
18APR11-21.wiff	solvent	N\A	4/11/2018 2:35:19 PM
18APR11-22.wiff	CCV4_CAL1	N\A	4/11/2018 2:50:52 PM
18APR11-23.wiff	Instrument blank	N\A	4/11/2018 3:06:22 PM
18APR11-24.wiff	LCS096008	18096008	4/11/2018 3:21:53 PM
18APR11-25.wiff	LCSDA	18096008	4/11/2018 3:37:23 PM
18APR11-26.wiff	Solvent	NA	4/11/2018 3:52:52 PM
18APR11-27.wiff	BLK096008	18096008	4/11/2018 4:08:26 PM
18APR11-28.wiff	9519804RE	18096008	4/11/2018 4:23:55 PM
18APR11-29.wiff	9519805RE	18096008	4/11/2018 4:39:25 PM
18APR11-30.wiff	9519806RE	18096008	4/11/2018 4:54:56 PM
18APR11-31.wiff	9519807RE	18096008	4/11/2018 5:10:26 PM
18APR11-32.wiff	9519808RE	18096008	4/11/2018 5:25:56 PM
18APR11-33.wiff	9519809RE	18096008	4/11/2018 5:41:26 PM
18APR11-34.wiff	9519811RE	18096008	4/11/2018 5:56:56 PM
18APR11-35.wiff	CCV5_CAL2	NA	4/11/2018 6:12:26 PM
18APR11-36.wiff	Solvent	NA	4/11/2018 6:27:56 PM
18APR11-37.wiff	9519812RE	18096008	4/11/2018 6:43:26 PM
18APR11-38.wiff	LCS093016	18093016	4/11/2018 6:58:56 PM
18APR11-39.wiff	LCSDA	18093016	4/11/2018 7:14:26 PM
18APR11-40.wiff	Solvent	NA	4/11/2018 7:29:56 PM
18APR11-41.wiff	BLK093016	18093016	4/11/2018 7:45:26 PM
18APR11-42.wiff	9519810RE	18093016	4/11/2018 8:00:59 PM
18APR11-43.wiff	CCV6_CAL3	NA	4/11/2018 8:16:32 PM
18APR11-44.wiff	Solvent	NA	4/11/2018 8:32:02 PM
18APR11-45.wiff	LCS099002	18099002	4/11/2018 8:47:32 PM

APPROVED
By MSM at 2:57 pm, 4/12/18

Instrument Name: LM26719

18APR11-46.wiff	9515972REMS	18099002	4/11/2018 9:03:02 PM
18APR11-47.wiff	9515973REMSD	18099002	4/11/2018 9:18:32 PM
18APR11-48.wiff	solvent	N\A	4/11/2018 9:34:05 PM
18APR11-49.wiff	BLK099002	18099002	4/11/2018 9:49:38 PM
18APR11-50.wiff	9515970RE	18099002	4/11/2018 10:05:08 PM
18APR11-51.wiff	9515971REBKG	18099002	4/11/2018 10:20:41 PM
18APR11-52.wiff	9515974RE	18099002	4/11/2018 10:36:11 PM
18APR11-53.wiff	9515975RE	18099002	4/11/2018 10:51:41 PM
18APR11-54.wiff	9515976RE	18099002	4/11/2018 11:07:11 PM
18APR11-55.wiff	9515977RE	18099002	4/11/2018 11:22:41 PM
18APR11-56.wiff	CCV7_CAL1	N\A	4/11/2018 11:38:11 PM
18APR11-57.wiff	Instrument blank	N\A	4/11/2018 11:53:41 PM
18APR11-58.wiff	9515978RE	18099002	4/12/2018 12:09:11 AM
18APR11-59.wiff	LCS096007	18096007	4/12/2018 12:24:41 AM
18APR11-60.wiff	9509938MS	18096007	4/12/2018 12:40:11 AM
18APR11-61.wiff	solvent	N\A	4/12/2018 12:55:41 AM
18APR11-62.wiff	BLK096007	18096007	4/12/2018 1:11:11 AM
18APR11-63.wiff	9509938REBKG	18096007	4/12/2018 1:26:41 AM
18APR11-64.wiff	9509940RE	18096007	4/12/2018 1:42:11 AM
18APR11-65.wiff	CCV8_CAL2	N\A	4/12/2018 1:57:41 AM
18APR11-66.wiff	Instrument blank	N\A	4/12/2018 2:13:11 AM
18APR11-67.wiff	CCV9_CAL3	N\A	4/12/2018 2:28:41 AM
18APR11-68.wiff	solvent	N\A	4/12/2018 2:44:13 AM
18APR11-69.wiff	LCS100012	18100012	4/12/2018 2:59:46 AM
18APR11-70.wiff	LCSDA	18100012	4/12/2018 3:15:19 AM
18APR11-71.wiff	solvent	N\A	4/12/2018 3:30:52 AM
18APR11-72.wiff	BLK100012	18100012	4/12/2018 3:46:24 AM
18APR11-73.wiff	9543513	18100012	4/12/2018 4:01:56 AM
18APR11-74.wiff	9543514	18100012	4/12/2018 4:17:26 AM
18APR11-75.wiff	9543515	18100012	4/12/2018 4:32:56 AM
18APR11-76.wiff	LCS098004	18098004	4/12/2018 4:48:27 AM
18APR11-77.wiff	LCSDA	18098004	4/12/2018 5:03:59 AM
18APR11-78.wiff	solvent	N\A	4/12/2018 5:19:32 AM
18APR11-79.wiff	BLK098004	18098004	4/12/2018 5:35:06 AM
18APR11-80.wiff	9546287	18098004	4/12/2018 5:50:38 AM
18APR11-81.wiff	CCV10_CAL4	N\A	4/12/2018 6:06:09 AM
18APR11-82.wiff	solvent	N\A	4/12/2018 6:21:39 AM
18APR11-83.wiff	9546288	18098004	4/12/2018 6:37:09 AM
18APR11-84.wiff	9546289	18098004	4/12/2018 6:52:42 AM
18APR11-85.wiff	LCS099003	18099003	4/12/2018 7:08:12 AM
18APR11-86.wiff	9546282MS	18099003	4/12/2018 7:23:42 AM
18APR11-87.wiff	9546283MSD	18099003	4/12/2018 7:39:12 AM
18APR11-88.wiff	solvent	N\A	4/12/2018 7:54:42 AM
18APR11-89.wiff	BLK099003	18099003	4/12/2018 8:10:12 AM
18APR11-90.wiff	9546280	18099003	4/12/2018 8:25:42 AM
18APR11-91.wiff	9546281BKG	18099003	4/12/2018 8:41:12 AM
18APR11-92.wiff	9546285 All but PFOA	18099003	4/12/2018 8:56:42 AM
18APR11-93.wiff	9546286	18099003	4/12/2018 9:12:12 AM
18APR11-94.wiff	CCV11_CAL5	N\A	4/12/2018 9:27:42 AM
18APR11-95.wiff	solvent	N\A	4/12/2018 9:43:12 AM
18APR11-96.wiff	solvent	N/A	4/12/2018 9:58:42 AM
18APR11-97.wiff	solvent	N/A	4/12/2018 10:14:12 AM
18APR11-98.wiff	solvent	N/A	4/12/2018 10:29:42 AM
18APR11-99.wiff	solvent	N/A	4/12/2018 10:45:12 AM

APPROVED
By MSM at 2:57 pm, 4/12/18

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LC-MS/MS
Sample Run Log

Printed: 4/16/2018 6:41:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM26719

Data File Name	Sample ID	Batch No	Analysis Date/Time
18APR10MCAL-13.wiff	MDL	N/A	4/10/2018 3:07:44 AM
18APR10MCAL-14.wiff	CAL1	N/A	4/10/2018 3:23:14 AM
18APR10MCAL-15.wiff	CAL2	N/A	4/10/2018 3:38:45 AM
18APR10MCAL-16.wiff	CAL3	N/A	4/10/2018 3:54:14 AM
18APR10MCAL-17.wiff	CAL4	N/A	4/10/2018 4:09:45 AM
18APR10MCAL-18.wiff	CAL5	N/A	4/10/2018 4:25:15 AM
18APR10MCAL-19.wiff	CAL6	N/A	4/10/2018 4:40:45 AM
18APR10MCAL-20.wiff	CAL7	N/A	4/10/2018 4:56:14 AM
18APR10MCAL-21.wiff	Instrument Blank	N/A	4/10/2018 5:11:45 AM
18APR10MCAL-22.wiff	ICV	N/A	4/10/2018 5:27:18 AM
18APR10MCAL-23.wiff	L+B CAL3	N/A	4/10/2018 5:42:48 AM
18APR10MCAL-24.wiff	CCV1_CAL3	N/A	4/10/2018 5:58:21 AM
18APR13-01.wiff	CCV1_CAL3	N\A	4/13/2018 8:50:17 AM
18APR13-02.wiff	solvent	N\A	4/13/2018 9:05:47 AM
18APR13-03.wiff	9546282MS	18099003	4/13/2018 9:21:20 AM
18APR13-04.wiff	9546285DL PFOA only	18099003	4/13/2018 9:36:50 AM
18APR13-05.wiff	CCV2_CAL4	N\A	4/13/2018 9:52:20 AM
18APR13-06.wiff	solvent	N\A	4/13/2018 10:07:50 AM
18APR13-07.wiff	solvent	N/A	4/13/2018 10:23:20 AM
18APR13-08.wiff	solvent	N/A	4/13/2018 10:38:50 AM
18APR13-09.wiff	CCV3_CAL1	N\A	4/13/2018 10:54:20 AM
18APR13-10.wiff	Instrument blank	N\A	4/13/2018 11:09:50 AM
18APR13-11.wiff	LCS100004	18100004	4/13/2018 11:33:32 AM
18APR13-12.wiff	LCSDA	18100004	4/13/2018 11:49:02 AM
18APR13-13.wiff	Solvent	NA	4/13/2018 12:04:35 PM
18APR13-14.wiff	BLK100004	18100004	4/13/2018 12:20:08 PM
18APR13-15.wiff	9546197	18100004	4/13/2018 12:35:38 PM
18APR13-16.wiff	9546198	18100004	4/13/2018 12:51:08 PM
18APR13-17.wiff	9546199	18100004	4/13/2018 1:06:38 PM
18APR13-18.wiff	9546200	18100004	4/13/2018 1:22:08 PM
18APR13-19.wiff	LCS102003	18102003	4/13/2018 1:37:38 PM
18APR13-20.wiff	LCSDA	18102003	4/13/2018 1:53:11 PM
18APR13-21.wiff	Solvent	NA	4/13/2018 2:08:44 PM
18APR13-22.wiff	BLK102003	18102003	4/13/2018 2:24:17 PM
18APR13-23.wiff	Solvent	NA	4/13/2018 2:39:47 PM
18APR13-24.wiff	CCV4_CAL3	NA	4/13/2018 2:55:17 PM
18APR13-25.wiff	Solvent	NA	4/13/2018 3:10:47 PM
18APR13-26.wiff	9551162	18102003	4/13/2018 3:26:20 PM
18APR13-27.wiff	LCS102002	18102002	4/13/2018 3:41:50 PM
18APR13-28.wiff	LCSDA	18102002	4/13/2018 3:57:20 PM
18APR13-29.wiff	Solvent	NA	4/13/2018 4:12:50 PM
18APR13-30.wiff	BLK102002	18102002	4/13/2018 4:28:20 PM
18APR13-31.wiff	9540641RE	18102002	4/13/2018 4:43:50 PM
18APR13-32.wiff	9540642RE	18102002	4/13/2018 4:59:20 PM
18APR13-33.wiff	9548020	18102002	4/13/2018 5:14:50 PM
18APR13-34.wiff	9548022	18102002	4/13/2018 5:30:20 PM
18APR13-35.wiff	CCV5_CAL4	NA	4/13/2018 5:45:50 PM
18APR13-36.wiff	Solvent	NA	4/13/2018 6:01:20 PM
18APR13-37.wiff	solvent	N/A	4/13/2018 6:16:50 PM
18APR13-38.wiff	solvent	N/A	4/13/2018 6:32:23 PM
18APR13-39.wiff	solvent	N/A	4/13/2018 6:47:53 PM
18APR13-40.wiff	solvent	N/A	4/13/2018 7:03:23 PM
18APR13-43.wiff	ISA	N/A	4/14/2018 6:20:06 PM

Ammonium Acetate: 2615704121833A
Methanol: DT632-US

APPROVED
By DMW at 6:42 pm, 4/16/18

ICAL Name: 18APR10MCAL **Result Table:** 18098004 4/12/2018 10:38:17 AM
QMethod Name: SF-PFCMOD-18APR10 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

Sample Name:	BLK098004			**Data File:**		18APR11-79.wiff
Sample ID:	EPA 537 Version 1.1 Modified 18098004			**Acquis Date:**		2018-04-12T05:35:06
Sample Type:	Unknown			**Instrument:**		LM26719
Vial Position:	43			**Acquis Method:**		PFC-MOD-18APR03-Divert.dam
Injection Vol:	2.00			**Result Table:**		18098004
QMethod File:	SF-PFCMOD-18APR10			**ICAL Name:**		18APR10MCAL
Batch Number:	18098004			**Operator:**		Not calculated
Sample Wt.:	0.25000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	693487.6	671428.9	3.3	50.0	
I13C2-PFOA	5.0	916642.6	896964.1	2.2	50.0	
I13C4-PFOS	4.8	212182.4	207208.0	2.4	50.0	
I13C2-PFDA	5.0	906687.5	882180.8	2.8	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS
E13C4-PFBA	663127.5	13C3-PFBA	693487.6	0.956	1.065	20.000	17.956	89.8	33.0-123.0	
E13C5-PFPeA	637051.5	13C3-PFBA	693487.6	0.919	1.017	20.000	18.067	90.3	39.0-135.0	
E13C3-PFBS	235748.3	13C3-PFBA	693487.6	0.340	0.391	18.600	16.174	87.0	26.0-148.0	
E13C5-PFHxA	854473.1	13C2-PFOA	916642.6	0.932	1.015	20.000	18.368	91.8	31.0-128.0	
E13C3-PFHxS	171900.3	13C2-PFOA	916642.6	0.188	0.209	18.920	16.963	89.7	34.0-126.0	
E13C4-PFHpA	798754.0	13C2-PFOA	916642.6	0.871	0.964	20.000	18.075	90.4	35.0-126.0	
E13C8-PFOA	907750.6	13C2-PFOA	916642.6	0.990	1.128	20.000	17.563	87.8	43.0-112.0	
E13C8-PFOS	179658.5	13C4-PFOS	212182.4	0.847	0.989	19.120	16.374	85.6	43.0-115.0	
E13C9-PFNA	837368.4	13C4-PFOS	212182.4	3.946	4.608	20.000	17.131	85.7	32.0-134.0	
E13C6-PFDA	1007663.2	13C2-PFDA	906687.5	1.111	1.334	20.000	16.667	83.3	40.0-115.0	
E13C7-PFUnDA	747352.9	13C2-PFDA	906687.5	0.824	0.900	20.000	18.325	91.6	30.0-128.0	
E13C2-PFDoDA	1205186.2	13C2-PFDA	906687.5	1.329	1.499	20.000	17.735	88.7	28.0-127.0	
E13C2-PFTeDA	1212182.9	13C2-PFDA	906687.5	1.337	1.553	20.000	17.216	86.1	26.0-119.0	

APPROVED
By MSM at 10:53 am, 4/12/18

REVIEWED
By umar at 1:44 pm, 4/17/18

ICAL Name: 18APR10MCAL **Result Table:** 18098004 4/12/2018 10:38:17 AM
QMethod Name: SF-PFCMOD-18APR10 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

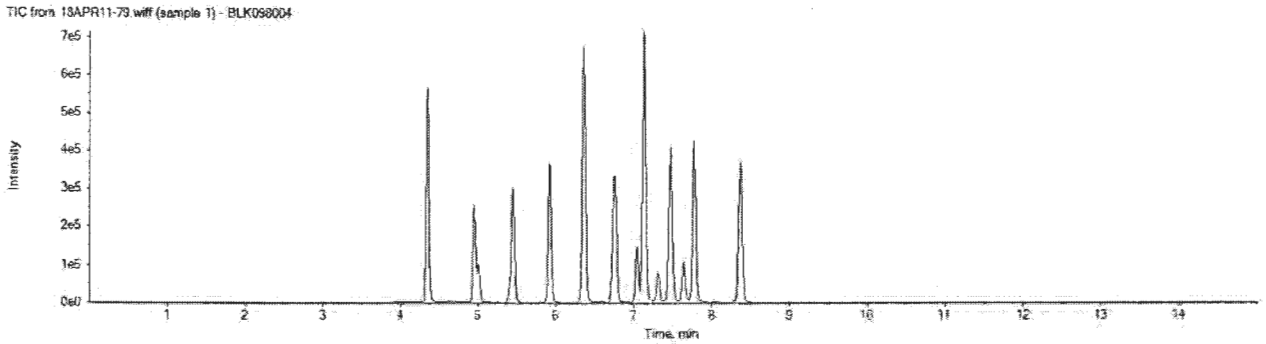
Analyte Quantitation Peak Table

Sample Name: BLK098004 **Instrument Name:** LM26719 **File Name:** 18APR11-79.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.25000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)	
PFBA	4.35	1.000	11958.0	M	13C4-PFBA	4.35	663127.5	0.018	0.403	< MDL
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	4.95	637051.5	N/A		
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.01	235748.3	N/A		
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.45	854473.1	N/A		
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.91	171900.3	N/A		
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.92	798754.0	N/A		
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.36	907750.6	N/A		
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.73	179658.5	N/A		
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.76	837368.4	N/A		
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.13	1007663.2	N/A		
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.46	747352.9	N/A		
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.77	1205186.2	N/A		
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.77	1205186.2	N/A		
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.36	1212182.9	N/A		

Total Ion Chromatogram



APPROVED
By MSM at 10:53 am, 4/12/18

REVIEWED
By umar at 1:44 pm, 4/17/18

ICAL Name: 18APR10MCAL **Result Table:** 18099003 4/12/2018 9:26:49 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

Sample Name:	BLK099003			**Data File:**		18APR11-89.wiff
Sample ID:	EPA 537 Version 1.1 Modified 18099003			**Acquis Date:**		2018-04-12T08:10:12
Sample Type:	Unknown			**Instrument:**		LM26719
Vial Position:	51			**Acquis Method:**		PFC-MOD-18APR03-Divert.dam
Injection Vol:	2.00			**Result Table:**		18099003
QMethod File:	SF-PFCMOD-18MAR29			**ICAL Name:**		18APR10MCAL
Batch Number:	18099003			**Operator:**		Not calculated
Sample Wt.:	1.00000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		2.000

Injection Standard Peak Table

Injection Standard Name	Inj Std Conc	Injection Std Peak Area	ICAL Injection Standard AVG	Injection Std %Diff	Injection Std %Diff Limit	Injection Std %Diff OOS
I13C3-PFBA	5.0	774346.3	671428.9	15.3	50.0	
I13C2-PFOA	5.0	982357.3	896964.1	9.5	50.0	
I13C4-PFOS	4.8	259344.3	207208.0	25.2	50.0	
I13C2-PFDA	5.0	1027046.2	882180.8	16.4	50.0	

Extraction Standard Peak Table

Extraction Standard Name	Ext Std Area	Inj Std Name	Inj Std Area	Area Ratio	AVG Area Ratio	Ext Std Conc	Ext Std Result	Ext Std %REC	Ext Std %REC Limit	Ext Std OOS
E13C4-PFBA	659712.7	13C3-PFBA	774346.3	0.852	1.065	10.000	7.999	80.0	37.0-107.0	
E13C5-PFPeA	667213.4	13C3-PFBA	774346.3	0.862	1.017	10.000	8.473	84.7	70.0-130.0	
E13C3-PFBS	258567.7	13C3-PFBA	774346.3	0.334	0.391	9.300	7.944	85.4	34.0-118.0	
E13C5-PFHxA	925992.0	13C2-PFOA	982357.3	0.943	1.015	10.000	9.287	92.9	43.0-115.0	
E13C3-PFHxS	180136.4	13C2-PFOA	982357.3	0.183	0.209	9.460	8.293	87.7	32.0-125.0	
E13C4-PFHpA	842240.4	13C2-PFOA	982357.3	0.857	0.964	10.000	8.892	88.9	45.0-114.0	
E13C8-PFOA	945684.7	13C2-PFOA	982357.3	0.963	1.128	10.000	8.536	85.4	44.0-115.0	
E13C8-PFOS	205018.9	13C4-PFOS	259344.3	0.791	0.989	9.560	7.644	80.0	42.0-118.0	
E13C9-PFNA	883413.2	13C4-PFOS	259344.3	3.406	4.608	10.000	7.393	73.9	37.0-124.0	
E13C6-PFDA	1200582.9	13C2-PFDA	1027046.2	1.169	1.334	10.000	8.766	87.7	36.0-121.0	
E13C7-PFUnDA	846776.7	13C2-PFDA	1027046.2	0.824	0.900	10.000	9.165	91.6	25.0-134.0	
E13C2-PFDoDA	1295247.7	13C2-PFDA	1027046.2	1.261	1.499	10.000	8.413	84.1	15.0-135.0	
E13C2-PFTeDA	1296966.5	13C2-PFDA	1027046.2	1.263	1.553	10.000	8.131	81.3	20.0-127.0	

APPROVED
By DMW at 9:33 pm, 4/12/18

REVIEWED
By umar at 12:17 pm, 4/17/18

ICAL Name: 18APR10MCAL **Result Table:** 18099003 4/12/2018 9:26:49 PM
QMethod Name: SF-PFCMOD-18MAR29 **Acquisition Method:** PFC-MOD-18APR03-Divert.dam

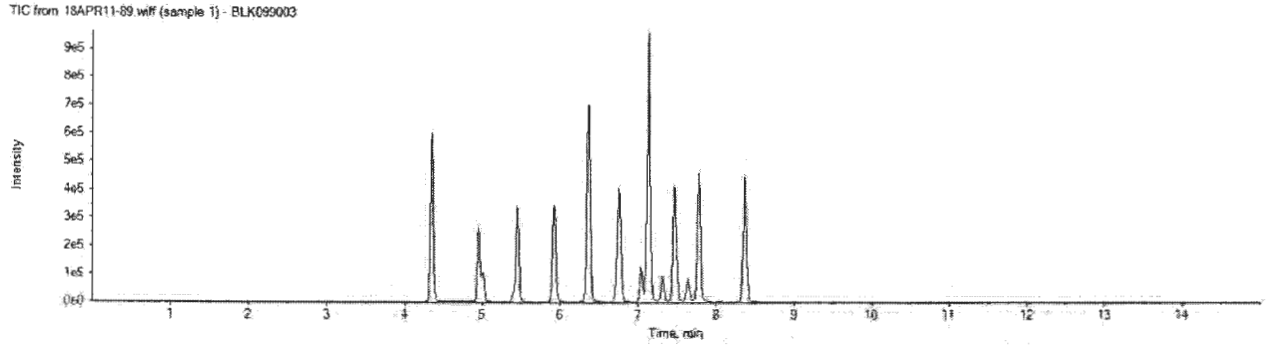
Analyte Quantitation Peak Table

Sample Name: BLK099003 **Instrument Name:** LM26719 **File Name:** 18APR11-89.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)	
PFBA	4.34	1.000	8699.2	M	13C4-PFBA	4.35	659712.7	0.013	0.147	< MDL
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	4.95	667213.4	N/A		
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.01	258567.7	N/A		
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.45	925992.0	N/A		
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	5.91	180136.4	N/A		
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.92	842240.4	N/A		
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.36	945684.7	N/A		
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.73	205018.9	N/A		
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.76	883413.2	N/A		
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.13	1200582.9	N/A		
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.46	846776.7	N/A		
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.77	1295247.7	N/A		
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.77	1295247.7	N/A		
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.36	1296966.5	N/A		

Total Ion Chromatogram



APPROVED
By DMW at 9:33 pm, 4/12/18

REVIEWED
By umar at 12:17 pm, 4/17/18

Organic Extraction Batchlog Assigned to: 9213 Pamela Rothharpt Reviewed by: MSM26157 Start Date: 4/9/18 Start time: 7:40

18098004 Tech 1: PJR9213 Tech 2: _____

Analyses on Batch: PFAS in Water by LC/MS/MS

Dept: 33 Prep Analysis: 14091 PFAS Water Prep

Port#	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS amt (uL)	BC	Comments
7	BLANKA	BLK098004	250	SSMODX1833X	0.025	———	———	1ml.	20	7	
8	LCSA	LCS098004	↓	SSMODX1833X	0.025	MSMODX1833L	0.04	↓	↓	L	
9	LCSDA	LCSD098004	↓	SSMODX1833X	0.025	MSMODX1833L	0.04	↓	↓	L	

Spike Solutions: Witness: MSM26157 Instrument: LM26719

MSMODX1833L PFAS 537 Native Spike

SSMODX1833X PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18APR10MOD - 18APR11

Port#	Sample #	Sample Code	Amt (g) ✓	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
10	1 9546287	EB BNNC	241.23	SSMODX1833X	0.025	1ml.	20	173a		14473	04/17/2018	S
11	2 9546288	TB BNNC	242.72	SSMODX1833X	0.025	↓	↓	173a		14473	04/17/2018	S
12	3 9546289	TB BNNC	244.93	SSMODX1833X	0.025	↓	↓	173a		14473	04/17/2018	S

ACP 26543 4/9/18

Balance #	BL297L4122	SPE Manifold	7	N-evap	30 C

18098004

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
0.3% NH4OH:MeOH	92130404183A
1:1 ACN:MeOH	26543040418334
Auto-pipette (dilutions)	
Auto-pipette (extract vialin	A000-3
Internal Standard	IS1809633C
Methanol	DT032-US
Milli-Q H2O	inUSE A223
SPE Cartridge #1	6387380-09
Sodium Thiosulfate	———
Syringe (IS)	PFAS 4
Syringe (MS)	PFAS 10
Syringe (SS)	PFAS 9
Trizma	———

Organic Extraction Batchlog Assigned to: 26543 Anthony Polaski Reviewed by: JWW102662 Start Date: 4/9/18 Start time: 16:00

18099003 Tech 1: ACP26543 Tech 2: _____

Analyses on Batch: PFAS in Soil by LC/MS/MS

Dept: 33 Prep Analysis: 14090 PFAS Solid Prep

Port #	QC	Sample Code	Amt ( )	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
	9546282MS	BNN02	1.28	SSMODX1833X	.05	MSMODX1833L	.04	1ml			rocks in water
	9546283MSD	BNN02	1.26	SSMODX1833X	.05	MSMODX1833L	.04				rocks in ~~water~~ ③
	BLANKA	BLK099003	1.00	SSMODX1833X	.05						
	LCSA	LCS099003	1.00	SSMODX1833X	.05	MSMODX1833L	.04				

③ "water" ACP26543 4/9/18

Spike Solutions: Witness: DDM25478 Instrument: LM24719

MSMODX1833L PFAS 537 Native Spike

SSMODX1833X PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18APR10MOD-18APR11/18APR13

Port#	Sample #	Sample Code	Amt ( )	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
1	9546280	BNN01	1.10	SSMODX1833X	.05	1ml		170a	rocks	14027	04/17/2018	S
2	9546281	BKG BNN02	1.14	SSMODX1833X	.05			170a	rocks in water	14027	04/17/2018	S
3	9546285	BNN03	1.05	SSMODX1833X	.05			170a	dirt ↓ 10	14027	04/17/2018	S
4	9546286	FD BNN04	1.26	SSMODX1833X	.05			170a	rocks	14027	04/17/2018	S

SBN13 Page 2542 of 3040

~~HH~~ ③ DDM25478 4/10/18 4/10/18 DDM25478

Balance #	BG29764122	Sonic Bath ID	5806	N-evap	28C	SPE Manifold		18099003

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
1:1 MeOH:ACN	[illegible]304091833A
Auto-pipette (dilutions)	P1000-3
Auto-pipette (extract vialin	P1000-3
Internal Standard	1518091633C
Methanol	DT632-US
Sand	MXBW7349V
Syringe (IS)	PFAS 4
Syringe (MS)	PFAS 10
Syringe (SS)	PFAS 13

ALIQ - 877uL MeOH (DT632-US) + 22.5uL Surrogate (SSMOAx1833Y) + 100uL Sample

SECTION 6

INORGANIC AND WET CHEMISTRY DATA SUPPORT DOCUMENTATION

ENVIRONMENTAL STANDARDS

INORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: St. Gobain
Sample Collection Dates: 3/30/18
Job Number: 20167391.NBEN
Project Manager: Meg Michell
Laboratory: ELLE

Reviewed by: Allison Felix
Approved by: MAM
Completion Date: 5/18

Applicable Sample No's (✓)

Refer to Table 1 in the Quality Assurance Review

			Sample No.	Lab Control No.
Deliverable:	CLP (Full)	( )		
SBN13	Level IV (Full)	(X)		
	Limited	(X)	All others	
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	6010/6020	7470/7471	5310	2540G	pH	6010/6020	7470/7471	5310	2540G	pH	6010/6020	7470/7471	5310	2540G	pH
Holding Times	X	X	X	X	X						X	X	X	X	X
Blank Analysis Results	X	X	X	X		X					X	X	X	X	
Matrix Spike (Predigestion) Results	X	X	X			X					X	X	X		
Duplicate Analysis: (X) Field (x) Lab	X	X	X	X	X	X		X			X	X	X	X	X
Quantitation of Results	X	X	X	X	X						X	X	X	X	X
Detection Limit/Sensitivity	X	X	X	X	X						X	X	X	X	X
Initial Calibrations	X	X	X								X	X	X		
Continuing Calibrations	X	X	X		X						X	X	X		X
Laboratory Control Standard (LCS)	X	X	X	X	X						X	X	X	X	X
ICP Linear Range Analysis															
ICP Interference Checks															
ICP Serial Dilutions	X										X				
ICP Post-Digestion Spike	X										X				
GFAA Post Digestion Spikes															
GFAA Duplicate Injections															
ICP Multiple Exposures															
GFAA Standard Additions															
CRDL Standards	X	X									X	X			
Condition on Receipt	X	X	X	X	X						X	X	X	X	X
Percent Solids	X	X	X	X	X						X	X	X	X	X
Others: ICP-MS IS AND TUNES	X										X				

Comments:

ENVIRONMENTAL STANDARDS

BLANK ANALYSIS RESULTS FOR INORGANIC PARAMETERS

	Blank Type									
	Method									
Matrix (Aq., S.)	ICB	CCB	Prep.	Trip	Equip	Field	Blank Sample Number	Contaminant	Concentration (mg/kg or mg/L)	Qualification limit (5×)
S			X				180991063702 (ICP)	Ca	3.67	18.35
S			X				180991063702 (ICP)	Mn	0.162	0.81
S			X				180991063702 (ICP)	Zn	0.669	3.345
S			X				180991063702A (ICP-MS)	Cr	0.388	1.94
S			X				180991063702A (ICP-MS)	Pb	0.0756	0.378
S			X				180991063702B (ICP-MS)	None present		0
S			X				180991063702D (ICP-MS)	None present		0
S			X				180991063802 (Hg)	None present		0
Aq			X				180990571304 (Hg)	None present		0
Aq			X				180991063504 (ICP)	None present		0
Aq			X				180991063504A (ICP-MS)	None present		0
Aq			X				180991063504B (ICP-MS)	None present		0
Aq			X				180991063504D (ICP-MS)	None present		0
S			X				18103667631B (TOC)	None present		0
Aq			X				18101667607A (TOC)	None present		0
Aq					X		SG3-EB01-180405	Cu	0.00096	0.0048
Aq					X		SG3-EB01-180405	TOC	0.64	3.2
S	X	x					ICP ICB/CCB	Al	0.102	0.51
S	X	x					ICP ICB/CCB	Ca	0.138	0.69
S	X	x					ICP ICB/CCB	Fe	0.068	0.34
S	X	x					ICP ICB/CCB	Mg	0.0598	0.299
S	X	x					ICP ICB/CCB	Mn	0.0012	0.006
S	X	x					ICP ICB/CCB	K	0.241	1.205
S	X	x					ICP-MS ICB/CCB	Sb	0.35	1.75
S	X	x					ICP-MS ICB/CCB	As	0.73	3.65
S	X	x					ICP-MS ICB/CCB	Be	0.039	0.195
S	X	x					ICP-MS ICB/CCB	Co	0.18	0.9
S	X	x					ICP-MS ICB/CCB	Pb	0.033	0.165
S	X	x					ICP-MS ICB/CCB	Tl	0.18	0.9
										0
										0
										0
										0
										0
										0
										0
										0

NA

x2 DL

Aq = Aqueous; S = Solid

Notes: Aqueous Blank results are not applied to solid sample results.

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Sample Reference List for SDG Number SBN13 with a Data Package Type of I

37191 - C. T. Male Associates

Project: SGPP - Bennington

Lab Sample Number	Client Sample ID	Collection Date	Date Received
9546280	SG3a-Sludge18-02-180405	04/05/2018 12:00	04/06/2018 10:00
9546281	SG3a-Sludge18-03-180405	04/05/2018 12:45	04/06/2018 10:00
9546282	SG3a-Sludge18-03-180405 MS	04/05/2018 12:45	04/06/2018 10:00
9546283	SG3a-Sludge18-03-180405 MSD	04/05/2018 12:45	04/06/2018 10:00
9546284	SG3a-Sludge18-03-180405 Dupl	04/05/2018 12:45	04/06/2018 10:00
9546285	SG3a-Sludge18-04-180405	04/05/2018 13:30	04/06/2018 10:00
9546286	SG3a-FD01-180405	04/05/2018 00:00	04/06/2018 10:00
9546287	SG3a-EB01-180405	04/05/2018 14:00	04/06/2018 10:00
9546288	SG3a-FTB01-180405	04/05/2018 14:10	04/06/2018 10:00
9546289	SG3a-LTB01-180405	04/05/2018 00:00	04/06/2018 10:00

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ	
	ng/g	ng/g	ng/g	
Batch number: 18099003	Sample number(s): 9546280-9546283,9546285-9546286			
Perfluorobutanesulfonate	0.20 U	0.20	0.60	
Perfluorobutanoic acid	0.20 U	0.20	0.60	
Perfluorodecanoic acid	0.20 U	0.20	0.60	
Perfluorododecanoic acid	0.20 U	0.20	0.60	
Perfluoroheptanoic acid	0.20 U	0.20	0.60	
Perfluorohexanesulfonate	0.20 U	0.20	0.60	
Perfluorohexanoic acid	0.20 U	0.20	0.60	
Perfluorononanoic acid	0.20 U	0.20	0.60	
Perfluoro-octanesulfonate	0.30 U	0.30	0.90	
Perfluorooctanoic acid	0.20 U	0.20	0.60	No detects
Perfluoropentanoic acid	0.20 U	0.20	0.60	
Perfluorotetradecanoic acid	0.20 U	0.20	0.60	
Perfluorotridecanoic acid	0.20 U	0.20	0.60	See Organic Support Doc
Perfluoroundecanoic acid	0.20 U	0.20	0.60	
	ng/l	ng/l	ng/l	
Batch number: 18098004	Sample number(s): 9546287-9546289			
Perfluorobutanesulfonate	0.30 U	0.30	1.0	
Perfluorobutanoic acid	2.0 U	2.0	6.0	
Perfluorodecanoic acid	1.0 U	1.0	2.0	
Perfluorododecanoic acid	0.30 U	0.30	1.0	
Perfluoroheptanoic acid	0.30 U	0.30	1.0	
Perfluorohexanesulfonate	0.40 U	0.40	2.0	
Perfluorohexanoic acid	0.40 U	0.40	2.0	
Perfluorononanoic acid	0.40 U	0.40	2.0	No detects
Perfluoro-octanesulfonate	0.40 U	0.40	2.0	
Perfluorooctanoic acid	0.30 U	0.30	1.0	
Perfluoropentanoic acid	2.0 U	2.0	6.0	
Perfluorotetradecanoic acid	0.30 U	0.30	1.0	
Perfluorotridecanoic acid	0.30 U	0.30	1.0	
Perfluoroundecanoic acid	0.40 U	0.40	2.0	
	mg/kg	mg/kg	mg/kg	
Batch number: 180991063702	Sample number(s): 9546280-9546286			
Aluminum	8.94 U	8.94	40.0	
Calcium	3.67 J	3.33	40.0	All Ca, Mn, and Zn sample results >>5x.
Iron	8.05 U	8.05	40.0	No impact.
Magnesium	2.43 U	2.43	20.0	
Manganese	0.162 J	0.0830	1.00	
Potassium	16.7 U	16.7	100	
Sodium	16.7 U	16.7	200	
Zinc	0.669 J	0.240	4.00	
Batch number: 180991063702A	Sample number(s): 9546280-9546286			
Antimony	0.0932 U	0.0932	0.400	

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ	
	mg/kg	mg/kg	mg/kg	
Arsenic	0.128 U	0.128	0.800	
Beryllium	0.0105 U	0.0105	0.200	
Cadmium	0.0344 U	0.0344	0.200	
Chromium	0.388 J	0.174	0.800	All Cr and Pb samples results >>5x MB. No impact.
Cobalt	0.0312 U	0.0312	0.200	
Copper	0.107 U	0.107	0.800	
Lead	0.0756 J	0.0222	0.400	
Nickel	0.199 U	0.199	0.800	
Silver	0.0292 U	0.0292	0.200	
Thallium	0.0250 U	0.0250	0.200	
Vanadium	0.0426 U	0.0426	0.200	
Batch number: 180991063702B	Sample number(s): 9546280-9546286			
Selenium	0.100 U	0.100	0.800	
Batch number: 180991063702D	Sample number(s): 9546280-9546286			
Barium	0.182 U	0.182	0.800	
Batch number: 180991063802	Sample number(s): 9546280-9546286			
Mercury	0.0100 U	0.0100	0.100	
	mg/l	mg/l	mg/l	
Batch number: 180990571304	Sample number(s): 9546287			
Mercury	0.000050 U	0.000050	0.00020	
Batch number: 180991063504	Sample number(s): 9546287			
Aluminum	0.0894 U	0.0894	0.400	
Calcium	0.0600 U	0.0600	0.400	
Iron	0.0805 U	0.0805	0.400	No detects
Magnesium	0.0374 U	0.0374	0.200	
Manganese	0.0016 U	0.0016	0.0100	
Potassium	0.179 U	0.179	1.00	
Sodium	0.321 U	0.321	2.00	
Zinc	0.0065 U	0.0065	0.0400	
Batch number: 181001063901A	Sample number(s): 9546287			
Antimony	0.00045 U	0.00045	0.0020	
Arsenic	0.00072 U	0.00072	0.0040	
Beryllium	0.000071 U	0.000071	0.0010	
Cadmium	0.00015 U	0.00015	0.0010	
Chromium	0.00087 U	0.00087	0.0040	
Cobalt	0.00016 U	0.00016	0.0010	No detects
Copper	0.00054 U	0.00054	0.0040	
Lead	0.00011 U	0.00011	0.0020	
Nickel	0.0010 U	0.0010	0.0040	
Silver	0.00015 U	0.00015	0.0010	
Thallium	0.00012 U	0.00012	0.0010	
Vanadium	0.00021 U	0.00021	0.0010	

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Batch number: 181001063901B	Sample number(s): 9546287		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 181001063901D	Sample number(s): 9546287		
Barium	0.00072 U	0.00072	0.0040
	mg/kg	mg/kg	mg/kg
Batch number: 18103667631B	Sample number(s): 9546280-9546282,9546284-9546286		
TOC	100 U	100	300
	mg/l	mg/l	mg/l
Batch number: 18101667607A	Sample number(s): 9546287		
Total Organic Carbon	0.50 U	0.50	1.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: R180982AA	Sample number(s): 9546285								
Acetone	7500	5359.7	7500	6228.63	71	83	55-131	15	30
Benzene	1000	962.06	1000	1037.76	96	104	80-120	8	30
Bromochloromethane	1000	945.14	1000	1023.52	95	102	80-120	8	30
Bromodichloromethane	1000	923.7	1000	1017.32	92	102	70-120	10	30
Bromoform	1000	831.66	1000	924.02	83	92	51-127	11	30
Bromomethane	1000	895.55	1000	931.77	90	93	50-136	4	30
2-Butanone	7500	5531.97	7500	6393.79	74	85	57-128	14	30
Carbon Disulfide	1000	852.11	1000	1004.73	85	100	64-133	16	30
Carbon Tetrachloride	1000	928.82	1000	942.31	93	94	64-134	1	30
Chlorobenzene	1000	924.4	1000	1031.77	92	103	80-120	11	30
Chloroethane	1000	856.99	1000	891.91	86	89	50-131	4	30
Chloroform	1000	936.42	1000	1008.95	94	101	80-120	7	30
Chloromethane	1000	597.25	1000	617.63	60	62	56-120	3	30
Cyclohexane	1000	890.85	1000	914.83	89	91	58-126	3	30
1,2-Dibromo-3-chloropropane	1000	841.65	1000	947.95	84	95	36-144	12	30
Dibromochloromethane	1000	945.8	1000	1050.3	95	105	65-120	10	30
1,2-Dibromoethane	1000	908.81	1000	1014.42	91	101	74-120	11	30
1,2-Dichlorobenzene	1000	926.7	1000	1055.67	93	106	80-120	13	30
1,3-Dichlorobenzene	1000	896.85	1000	1037.8	90	104	80-120	15	30
1,4-Dichlorobenzene	1000	937.58	1000	1069.34	94	107	80-120	13	30
Dichlorodifluoromethane	1000	385.14	1000	385.76	39	39	16-136	0	30
1,1-Dichloroethane	1000	916.99	1000	1006	92	101	77-120	9	30

See Org. Support Doc.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorobutanoic acid	5.44	5.13	5.44	5.32	94	98	74-142	4	30
Perfluorodecanoic acid	5.44	4.87	5.44	5.04	90	93	69-148	3	30
Perfluorododecanoic acid	5.44	5.16	5.44	5.59	95	103	75-136	8	30
Perfluoroheptanoic acid	5.44	5.27	5.44	5.25	97	96	76-140	0	30
Perfluorohexanesulfonate	5.14	4.19	5.14	4.65	82	90	71-131	10	30
Perfluorohexanoic acid	5.44	5.17	5.44	5.14	95	94	75-135	1	30
Perfluorononanoic acid	5.44	5.43	5.44	6.22	100	114	72-148	14	30
Perfluoro-octanesulfonate	5.20	4.61	5.20	4.99	89	96	67-138	8	30
Perfluorooctanoic acid	5.44	4.81	5.44	5.20	88	96	72-138	8	30
Perfluoropentanoic acid	5.44	4.89	5.44	4.96	90	91	74-134	2	30
Perfluorotetradecanoic acid	5.44	5.33	5.44	5.70	98	105	74-135	7	30
Perfluorotridecanoic acid	5.44	5.93	5.44	6.10	109	112	61-145	3	30
Perfluoroundecanoic acid	5.44	5.63	5.44	5.56	104	102	75-146	1	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 180991063702	Sample number(s): 9546280-9546286								
Aluminum	200	197.13			99		80-120		
Calcium	400	405.7			101		80-120		
Iron	100	99.21			99		80-120		
Magnesium	200	202.51			101		80-120		
Manganese	50	50.45			101		80-120		
Potassium	1000	989.11			99		80-120		
Sodium	1000	997.2			100		80-120		
Zinc	50	50.88			102		80-120		
Batch number: 180991063702A	Sample number(s): 9546280-9546286								
Antimony	0.600	0.593			99		80-120		
Arsenic	1.00	1.05			105		80-120		
Beryllium	0.400	0.415			104		80-120		
Cadmium	0.500	0.547			109		80-120		
Chromium	5.00	5.38			108		86-120		
Cobalt	25	24.88			100		80-120		
Copper	5.00	4.99			100		80-120		
Lead	1.50	1.54			103		80-120		
Nickel	5.00	5.00			100		86-120		
Silver	5.00	5.15			103		88-120		
Thallium	0.200	0.178			89		80-120		
Vanadium	5.00	4.98			100		86-120		
Batch number: 180991063702B	Sample number(s): 9546280-9546286								
Selenium	1.00	1.02			102		80-120		
Batch number: 180991063702D	Sample number(s): 9546280-9546286								
Barium	5.00	5.44			109		80-120		

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P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 180991063802	Sample number(s): 9546280-9546286								
Mercury	0.100	0.0821			82		80-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 180990571304	Sample number(s): 9546287								
Mercury	0.00100	0.000813			81		80-114		
Batch number: 180991063504	Sample number(s): 9546287								
Aluminum	2.00	1.89			94		80-120		
Calcium	4.00	4.16			104		88-112		
Iron	1.00	1.04			104		80-114		
Magnesium	2.00	2.08			104		88-114		
Manganese	0.500	0.533			107		90-112		
Potassium	10	10.41			104		88-112		
Sodium	10	10.54			105		87-112		
Zinc	0.500	0.524			105		89-111		
Batch number: 181001063901A	Sample number(s): 9546287								
Antimony	0.00600	0.00649			108		80-120		
Arsenic	0.0100	0.0102			102		80-120		
Beryllium	0.00400	0.00413			103		90-112		
Cadmium	0.00500	0.00486			97		84-120		
Chromium	0.0500	0.0512			102		90-112		
Cobalt	0.250	0.254			101		86-113		
Copper	0.0500	0.0521			104		89-120		
Lead	0.0150	0.0153			102		90-110		
Nickel	0.0500	0.0517			103		90-114		
Silver	0.0500	0.0503			101		88-113		
Thallium	0.00200	0.00202			101		80-120		
Vanadium	0.0500	0.0504			101		90-112		
Batch number: 181001063901B	Sample number(s): 9546287								
Selenium	0.0100	0.0103			103		90-113		
Batch number: 181001063901D	Sample number(s): 9546287								
Barium	0.0500	0.0485			97		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 18103667631B	Sample number(s): 9546280-9546282,9546284-9546286								
TOC	7150	6493.6			91		47-143		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 18101667607A	Sample number(s): 9546287								
Total Organic Carbon	25	25.54			102		91-113		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18101039401B	Sample number(s): 9546280-9546281,9546284-9546286								
pH	7.00	6.99			100		95-105		
Batch number: 18102003102A	Sample number(s): 9546287								
pH	7.00	7.06			101		95-105		
	%	%	%	%					
Batch number: 18099820002A	Sample number(s): 9546280-9546286								
Moisture	89.5	89.39			100		99-101		
Moisture	89.5	89.39			100		99-101		
Moisture Duplicate	89.5	89.39			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

	Analysis Name See Org. Support Doc.	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max	RPD from %Rs
	Batch number: X181051AA	Sample number(s): 9546280-9546283 UNSPK: 9546281										
1	Acetone	78.65	143.96	290.42	114.68	208.55	147*	113	55-131	33*	30	25
	Benzene	0.4 U	19.19	20.74	15.29	17.32	108	113	80-120	18	30	
	Bromochloromethane	0.8 U	19.19	19.32	15.29	16.25	101	106	80-120	17	30	
	Bromodichloromethane	0.8 U	19.19	19.36	15.29	16.21	101	106	70-120	18	30	
	Bromoform	0.8 U	19.19	17.68	15.29	13.38	92	87	51-127	28	30	
	Bromomethane	2 U	19.19	18.68	15.29	16.29	97	107	50-136	14	30	
1	2-Butanone	10.4	143.96	202.77	114.68	153.01	134*	124	57-128	28	30	
	Carbon Disulfide	0.899	19.19	21.52	15.29	18.35	107	114	64-133	16	30	
	Carbon Tetrachloride	0.8 U	19.19	17.47	15.29	15.53	91	102	64-134	12	30	
	Chlorobenzene	0.8 U	19.19	20.21	15.29	16.27	105	106	80-120	22	30	
	Chloroethane	2 U	19.19	16.57	15.29	14.86	86	97	50-131	11	30	
	Chloroform	0.8 U	19.19	19.54	15.29	16.65	102	109	80-120	16	30	
	Chloromethane	2 U	19.19	22.07	15.29	17.37	115	114	56-120	24	30	
	Cyclohexane	0.8 U	19.19	13.59	15.29	13.04	71	85	58-126	4	30	
	1,2-Dibromo-3-chloropropane	2 U	19.19	25.29	15.29	17.28	132	113	36-144	38*	30	16
	Dibromochloromethane	0.8 U	19.19	22.9	15.29	17.57	119	115	65-120	26	30	
2	1,2-Dibromoethane	0.8 U	19.19	24.56	15.29	18	128*	118	74-120	31*	30	10
	1,2-Dichlorobenzene	0.8 U	19.19	17.29	15.29	14.04	90	92	80-120	21	30	
	1,3-Dichlorobenzene	0.8 U	19.19	18.26	15.29	14.72	95	96	80-120	21	30	
	1,4-Dichlorobenzene	0.8 U	19.19	18.96	15.29	15.04	99	98	80-120	23	30	
	Dichlorodifluoromethane	2 U	19.19	19.27	15.29	14.5	100	95	16-136	28	30	
	1,1-Dichloroethane	0.8 U	19.19	20.31	15.29	16.55	106	108	77-120	20	30	

Note: >10% difference between MS/MSD initial aliquots. Base RPD on %Rs.

1. MS %R high, parent detect. Quality J.
2. MS %R high, parent ND. No impact.

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
2-Methylphenol	0.5 U	51.23	43.53	52.52	43.28	85	82	46-113	1	30
4-Methylphenol	0.5 U	51.23	42.32	52.52	42.05	83	80	42-115	1	30
Naphthalene	0.1 U	51.23	44.51	52.52	42.78	87	81	44-114	4	30
2-Nitroaniline	0.5 U	51.23	49.94	52.52	47.47	97	90	54-133	5	30
3-Nitroaniline	0.5 U	51.23	46.64	52.52	46.27	91	88	41-123	1	30
4-Nitroaniline	0.5 U	51.23	42.9	52.52	43.18	84	82	46-114	1	30
Nitrobenzene	0.5 U	51.23	45.68	52.52	43.5	89	83	43-128	5	30
2-Nitrophenol	0.5 U	51.23	47.98	52.52	44.14	94	84	58-125	8	30
4-Nitrophenol	10 U	51.23	27.89	52.52	28.41	54	54	10-96	2	30
N-Nitroso-di-n-propylamine	0.5 U	51.23	46.9	52.52	45.17	92	86	48-128	4	30
N-Nitrosodiphenylamine	0.5 U	51.23	49.65	52.52	48.56	97	92	55-128	2	30
Di-n-octylphthalate	2 U	51.23	48.87	52.52	48.37	95	92	51-134	1	30
Pentachlorophenol	1 U	51.23	44.34	52.52	46.38	87	88	50-127	4	30
Phenanthrene	0.1 U	51.23	49.18	52.52	47.88	96	91	54-122	3	30
Phenol	0.5 U	51.23	26.63	52.52	27.83	52	53	10-92	4	30
Pyrene	0.1 U	51.23	47.29	52.52	45.84	92	87	54-123	3	30
1,2,4,5-Tetrachlorobenzene	0.5 U	51.23	38.9	52.52	38.84	76	74	30-117	0	30
2,3,4,6-Tetrachlorophenol	0.5 U	51.23	48.97	52.52	49.54	96	94	60-128	1	30
2,4,5-Trichlorophenol	0.5 U	51.23	52.62	52.52	50.59	103	96	59-129	4	30
2,4,6-Trichlorophenol	0.5 U	51.23	50.27	52.52	48.54	98	92	61-130	3	30
	ng/g	**ng/g**	**ng/g**	**ng/g**	**ng/g**					
Batch number: 18099003	Sample number(s): 9546280-9546283,9546285-9546286 UNSPK: 9546281						See Org. Support Doc.			
Perfluorobutanesulfonate	0.18 U	0.940	0.790	0.955	0.853	84	89	70-130	8	30
Perfluorobutanoic acid	0.18 U	1.06	1.11	1.08	1.08	105	100	70-130	3	30
Perfluorodecanoic acid	0.18 U	1.06	1.01	1.08	0.934	95	87	70-130	8	30
Perfluorododecanoic acid	0.417	1.06	1.51	1.08	1.42	103	93	70-130	6	30
Perfluoroheptanoic acid	0.18 U	1.06	1.06	1.08	1.12	100	104	70-130	5	30
Perfluorohexanesulfonate	0.18 U	1.01	0.915	1.02	0.922	91	90	70-130	1	30
Perfluorohexanoic acid	0.18 U	1.06	0.952	1.08	1.11	90	103	70-130	15	30
Perfluorononanoic acid	0.18 U	1.06	0.992	1.08	1.09	93	101	70-130	10	30
Perfluoro-octanesulfonate	0.26 U	1.02	0.999	1.03	0.949	98	92	70-130	5	30
1. Perfluorooctanoic acid >4x spike	4.47	1.06	3.61	1.08	6.72	-80 (2)	209 (2)	70-130	60*	30
Perfluoropentanoic acid	0.18 U	1.06	0.991	1.08	1.06	93	98	70-130	7	30
Perfluorotetradecanoic acid	0.468	1.06	1.58	1.08	1.77	105	121	70-130	11	30
Perfluorotridecanoic acid	0.243	1.06	1.41	1.08	1.32	110	100	70-130	7	30
Perfluoroundecanoic acid	0.18 U	1.06	1.04	1.08	1.02	98	94	70-130	2	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 180991063702	Sample number(s): 9546280-9546286 UNSPK: 9546281									
Aluminum >4x spike	1202.34	198.02	3422.12	190.48	3527.98	1121 (2)	1221 (2)	75-125	3	20

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1. High RPD, parent detect. Qualify J.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

	Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1	Calcium >4x spike	132560.87	396.04	67436.81	380.95	92545.97	-16444 (2)	-10504 (2)	75-125	31*	20
1	Iron >4x spike	6175.66	99.01	9712.93	95.24	21473.01	3573 (2)	16062 (2)	75-125	75*	20
1	Magnesium >4x spike	47712.54	198.02	21723.93	190.48	29688.21	-13124 (2)	-9463 (2)	75-125	31*	20
	Manganese >4x spike	200.72	49.5	258.99	47.62	309.48	118 (2)	228 (2)	75-125	18	20
2	Potassium	385.15	990.1	2001.1	952.38	2096.26	163*	180*	75-125	5	20
	Sodium	55.03	990.1	1151.49	952.38	1091.36	111	109	75-125	5	20
2	Zinc	59.11	49.5	142.36	47.62	120.25	168*	128*	75-125	17	20
	Batch number: 180991063702A	Sample number(s): 9546280-9546286 UNSPK: 9546281									
	Antimony	0.135	1.19	1.19	1.14	1.11	89	85	75-125	7	20
2	Arsenic	2.81	1.98	4.79	1.90	5.30	100	130*	75-125	10	20
	Beryllium	0.0931	0.792	0.820	0.762	0.886	92	104	75-125	8	20
	Cadmium	0.199	0.990	0.993	0.952	1.05	80	90	75-125	6	20
	Chromium	5.40	9.90	15.53	9.52	16.48	102	116	75-125	6	20
	Cobalt	3.93	49.5	49.82	47.62	48.38	93	93	75-125	3	20
3	Copper	8.17	9.90	14.52	9.52	16.53	64*	88	75-125	13	20
2	Lead	10.47	2.97	18.61	2.86	16.23	274*	201*	75-125	14	20
	Nickel	5.46	9.90	14.01	9.52	14.24	86	92	75-125	2	20
	Silver	0.0539	9.90	9.01	9.52	9.18	90	96	75-125	2	20
	Thallium	0.0302	0.396	0.443	0.381	0.409	104	100	75-125	8	20
	Vanadium	4.96	9.90	16.55	9.52	15.32	117	109	75-125	8	20
	Batch number: 180991063702B	Sample number(s): 9546280-9546286 UNSPK: 9546281									
	Selenium	0.0813 U	1.98	1.79	1.90	1.82	91	96	75-125	2	20
	Batch number: 180991063702D	Sample number(s): 9546280-9546286 UNSPK: 9546281									
4	Barium	18.26	9.90	18.11	9.52	29.03	-2*	113	75-125	46*	20
	Batch number: 180991063802	Sample number(s): 9546280-9546286 UNSPK: 9546281									
	Mercury	0.0097 U	0.154	0.144	0.161	0.135	94	84	80-120	6	20
		mg/l	mg/l	mg/l	mg/l	mg/l					
	Batch number: 180990571304	Sample number(s): 9546287 UNSPK: P541411					Batch QC for field blanks. Not eval.				
	Mercury	0.000050 U	0.00100	0.000761	0.00100	0.000706	76*	71*	80-120	7	20
	Batch number: 180991063504	Sample number(s): 9546287 UNSPK: P543326					Batch QC for field blanks. Not eval.				
	Aluminum	0.0894 U	2.00	1.89	2.00	1.87	94	93	75-125	1	20
	Calcium	51.68	4.00	55.83	4.00	56.61	104 (2)	123 (2)	75-125	1	20
	Iron	0.0805 U	1.00	1.09	1.00	1.09	109	109	75-125	1	20
	Magnesium	50.78	2.00	52.92	2.00	53.15	107 (2)	118 (2)	75-125	0	20
	Manganese	0.0016 U	0.500	0.528	0.500	0.520	106	104	75-125	1	20

1. MS/MSD RPD high. Qualify all results J,MP.
2. MS/MSD %R high. Qualify all results J, MAH.
3. MS/MSD %R low. Qualify all results J/UJ,MAL.
4. MS %R very low, RPD high. Qualify results J, MAL,MP.

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Not evaluated

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Potassium	3.22	10	13.68	10	13.67	105	104	75-125	0	20
Sodium	124.75	10	135.18	10	136.85	104 (2)	121 (2)	75-125	1	20
Zinc	0.0065 U	0.500	0.523	0.500	0.518	105	104	75-125	1	20
Batch number: 181001063901A	Sample number(s): 9546287 UNSPK: P547954					Batch QC for field blanks- not evaluated				
Antimony	0.000731	0.00600	0.00646	0.00600	0.00733	96	110	75-125	13	20
Arsenic	0.00072 U	0.0100	0.0110	0.0100	0.0112	110	112	75-125	3	20
Beryllium	0.000071 U	0.00400	0.00428	0.00400	0.00430	107	107	75-125	0	20
Cadmium	0.00015 U	0.00500	0.00473	0.00500	0.00520	95	104	75-125	9	20
Chromium	0.00087 U	0.0500	0.0525	0.0500	0.0512	105	102	75-125	2	20
Cobalt	0.00016 U	0.250	0.251	0.250	0.255	100	102	75-125	2	20
Copper	0.00116	0.0500	0.0511	0.0500	0.0519	100	101	75-125	2	20
Lead	0.000378	0.0150	0.0157	0.0150	0.0164	102	107	75-125	4	20
Nickel	0.0010 U	0.0500	0.0519	0.0500	0.0518	104	104	75-125	0	20
Silver	0.00015 U	0.0500	0.0502	0.0500	0.0497	100	99	75-125	1	20
Thallium	0.00012 U	0.00200	0.00198	0.00200	0.00216	99	108	75-125	9	20
Vanadium	0.00021 U	0.0500	0.0531	0.0500	0.0531	106	106	75-125	0	20
Batch number: 181001063901B	Sample number(s): 9546287 UNSPK: P547954					Batch QC for field blanks- not evaluated				
Selenium	0.00050 U	0.0100	0.0104	0.0100	0.0106	104	106	75-125	2	20
Batch number: 181001063901D	Sample number(s): 9546287 UNSPK: P547954					Batch QC for field blanks- not evaluated				
Barium	0.0311	0.0500	0.0837	0.0500	0.0824	105	103	75-125	2	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 18103667631B	Sample number(s): 9546280-9546282,9546284-9546286 UNSPK: 9546281									
TOC	30575.79	97710	✓115016.29	121470	✓134655.87	✓ 86	✓ 86	47-143	✓ 16	20
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 18101667607A	Sample number(s): 9546287 UNSPK: P546522					Batch QC for field blanks- not evaluated				
Total Organic Carbon	2.01	10	12.14			101		91-113		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max

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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

	Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max			
	Batch number: 180991063702	Sample number(s): 9546280-9546286 BKG: 9546281				ABs. Diff	<2xRL?	
1	Aluminum	✓ 1202.34	✓ 1671.42	✓ (33*)	20			
	Calcium	132560.87	108736.66	20	20			
	Iron	6175.66	7059.31	13	20			
1	Magnesium	✓ 47712.54	✓ 28105.31	✓ (52*)	20			
	Manganese	200.72	189.25	6	20			
	Potassium	385.15	295.81	26* (1)	20	89.34	Y	oh
	Sodium	55.03	44.95	20 (1)	20	10.13	Y	oh
	Zinc	59.11	70.2	17	20			
	Batch number: 180991063702A	Sample number(s): 9546280-9546286 BKG: 9546281						
	Antimony	0.135	0.124	9 (1)	20	.011	Y	
	Arsenic	2.81	3.10	10 (1)	20	0.29	Y	
	Beryllium	0.0931	0.0856	8 (1)	20	0.0075	Y	
	Cadmium	0.199	0.162	21* (1)	20	0.037	Y	
	Chromium	5.40	5.29	2	20			
	Cobalt	✓ 3.93	✓ 3.51	✓ 11	20			
	Copper	8.17	8.75	7	20			
	Lead	10.47	11	5	20			
	Nickel	5.46	6.11	11	20			
	Silver	0.0539	0.0397	30* (1)	20	0.0142	Y	
	Thallium	0.0302	0.0825	93* (1)	20	0.0523	Y	
	Vanadium	✓ 4.96	✓ 4.87	2	20			
	Batch number: 180991063702B	Sample number(s): 9546280-9546286 BKG: 9546281						
	Selenium	0.0813 U	0.0725 U	0 (1) N/A	20			
	Batch number: 180991063702D	Sample number(s): 9546280-9546286 BKG: 9546281						
1	Barium	✓ 18.26	✓ 13.21	✓ (32*)	20			
	Batch number: 180991063802	Sample number(s): 9546280-9546286 BKG: 9546281						
	Mercury	0.0097 U	0.0094 U	0 (1)	20			
		mg/l	mg/l					
	Batch number: 180990571304	Sample number(s): 9546287 BKG: P541411		Batch QC for field blanks- not evaluated				
	Mercury	✓ 0.000050 U	✓ 0.000050 U	0 (1)	20			
	Batch number: 180991063504	Sample number(s): 9546287 BKG: P543326		Batch QC for field blanks- not evaluated				
	Aluminum	0.0894 U	0.0894 U	0 (1)	20			
	Calcium	51.68	52.04	1	20			
	Iron	0.0805 U	0.0805 U	0 (1)	20			
	Magnesium	50.78	51.3	1	20			
	Manganese	0.0016 U	0.0016 U	0 (1)	20			
	Potassium	3.22	3.21	0 (1)	20			
	Sodium	124.75	125.83	1	20			

All RPD <20% or results <5x LOQ and diff. between results <2x LOQ.

1. RPD >20% and results >5x LOQ. Qualify all results J,LD.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max	
	mg/l	mg/l			
Zinc	0.0065 U	0.0065 U	0 (1)	20	
Batch number: 181001063901A	Sample number(s): 9546287 BKG: P547954		Batch QC for field blanks- not evaluated		
Antimony	0.000731	0.000657	11 (1)	20	
Arsenic	0.00072 U	0.00072 U	0 (1)	20	
Beryllium	0.000071 U	0.000071 U	0 (1)	20	
Cadmium	0.00015 U	0.00015 U	0 (1)	20	
Chromium	0.00087 U	0.00087 U	0 (1)	20	
Cobalt	0.00016 U	0.00016 U	0 (1)	20	
Copper	0.00116	0.00107	8 (1)	20	
Lead	0.000378	0.000381	1 (1)	20	
Nickel	0.0010 U	0.0010 U	0 (1)	20	
Silver	0.00015 U	0.00015 U	0 (1)	20	
Thallium	0.00012 U	0.00012 U	0 (1)	20	
Vanadium	0.00021 U	0.00021 U	0 (1)	20	
Batch number: 181001063901B	Sample number(s): 9546287 BKG: P547954		Batch QC for field blanks- not evaluated		
Selenium	0.00050 U	0.00050 U	0 (1)	20	
Batch number: 181001063901D	Sample number(s): 9546287 BKG: P547954		Batch QC for field blanks- not evaluated		
Barium	0.0311	0.0356	13	20	
	mg/kg	mg/kg			
Batch number: 18103667631B	Sample number(s): 9546280-9546282,9546284-9546286 BKG: 9546281				Qualify TOC results J,LD.
TOC	✓ 30575.79	✓ 22789.42	✓ (29*)	7	
	mg/l	mg/l			
Batch number: 18101667607A	Sample number(s): 9546287 BKG: P546522		Batch QC for field blanks- not evaluated		
Total Organic Carbon	2.01	1.99	1 (1)	9	
	Degrees C	Degrees C			
Batch number: 18102003102A	Sample number(s): 9546287 BKG: P550392		Batch QC- could not determine parent.		
Temperature of pH	22.64	22.67	0	5	
	Std. Units	Std. Units			
Batch number: 18101039401B	Sample number(s): 9546280-9546281,9546284-9546286 BKG: 9546281				
pH	✓ 7.92	✓ 7.92	0	3	
Batch number: 18102003102A	Sample number(s): 9546287 BKG: P550392		Batch QC- could not determine parent.		
pH	7.67	7.81	2	4	
	%	%			
Batch number: 18099820002A	Sample number(s): 9546280-9546286 BKG: 9546281, P546281				
Moisture	✓ 14.2	✓ 13.91	✓ 2	5	

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/20/2018 10:09

Group Number: 1928759

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Moisture	14.2	13.91	2	5
Moisture Duplicate	14.2	13.91	2	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SOM02.2 Volatiles
Batch number: L181051AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9546287	103	100	96	100
9546289	103	99	96	100
Blank	✓ 101	✓ 100	✓ 97	99
LCS	103	98	98	✓ 101
MS	104	99	98	100
MSD	103	101	98	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: SOM02.2 Volatiles
Batch number: R180982AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9546285	70	72	69	71
Blank	✓ 94	✓ 95	✓ 89	✓ 91
LCS	✓ 97	98	90	90
LCSD	103	106	102	101
Limits:	50-141	54-135	52-141	50-131

Analysis Name: SOM02.2 Volatiles
Batch number: X181051AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9546280	100	110	104	88
9546281	✓ 102	✓ 113	✓ 115	✓ 77
9546282	✓ 96	107	✓ 117	84
9546283	✓ 98	109	✓ 112	87
Blank	99	102	104	95
LCS	99	100	105	101
LCSD	98	100	105	100
MS	96	107	117	84
MSD	98	109	112	87

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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QUALITY CONTROL REFERENCE LIST

SDG No.: SBN13
Matrix: WATER

SEE QC SUMMARY for BATCH QC.

Analyte	Batch Number	Lab Sample ID
Aluminum	180991063504	9546287
Calcium		P09963DB
Iron		P09963DQ
Magnesium		
Manganese		
Potassium		
Sodium		
Zinc		

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY CONTROL REFERENCE LIST

SDG No.: SBN13
Matrix: SOIL

Analyte	Batch Number	Lab Sample ID
Aluminum	180991063702	9546280
Calcium		9546281BKG
Iron		9546282MS
Magnesium		9546283MSD
Manganese		9546284DUP
Potassium		9546285
Sodium		9546286
Zinc		P09963BB
		P09963BQ

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY CONTROL REFERENCE LIST

SDG No.: SBN13
Matrix: SOIL

Analyte	Batch Number	Lab Sample ID
Antimony	180991063702	9546280
Arsenic		9546281BKG
Barium		9546282MS
Beryllium		9546283MSD
Cadmium		9546284DUP
Chromium		9546285
Cobalt		9546286
Copper		P09963BB
Lead		P09963BQ
Nickel		
Selenium		
Silver		
Thallium		
Vanadium		

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY CONTROL REFERENCE LIST

SDG No.: SBN13
Matrix: SOIL

Analyte	Batch Number	Lab Sample ID
Mercury	180991063802	9546280
		9546281BKG
		9546282MS
		9546283MSD
		9546284DUP
		9546285
		9546286
		P09963BB
		P09963BQ

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SBN13

Method: P
Run Name: 1810503T72
Calibration Date(s): 04/15/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration			Continuing Calibration					
		True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Aluminum		30000.0	31073.50	103.6	25000.0	25204.67	100.8	25000.0	25043.97	100.2
Calcium		30000.0	31616.82	105.4	25000.0	25252.21	101.0	25000.0	24939.32	99.8
Iron		30000.0	29828.41	99.4	25000.0	24464.75	97.9	25000.0	23841.40	95.4
Magnesium		30000.0	31089.86	103.6	25000.0	25190.69	100.8	25000.0	24478.49	97.9
Manganese		600.0	602.50	100.4	500.0	505.58	101.1	500.0	514.74	102.9
Potassium		30000.0	30448.99	101.5	25000.0	25441.40	101.8	25000.0	26293.31	105.2
Sodium		30000.0	29800.20	99.3	25000.0	25299.20	101.2	25000.0	26265.73	105.1
Zinc		600.0	602.45	100.4	500.0	507.85	101.6	500.0	506.13	101.2
			9:14			9:32			10:12	

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SBN13

Method: P
Run Name: 1810503T72
Calibration Date(s): 04/15/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Aluminum					25000.0	24633.34	98.5	25000.0	24703.94	98.8
Calcium					25000.0	24548.86	98.2	25000.0	24552.84	98.2
Iron					25000.0	23214.36	92.9	25000.0	23081.44	92.3
Magnesium					25000.0	23970.18	95.9	25000.0	23939.00	95.8
Manganese					500.0	511.63	102.3	500.0	506.31	101.3
Potassium					25000.0	26559.10	106.2	25000.0	26631.06	106.5
Sodium					25000.0	26340.75	105.4	25000.0	26549.07	106.2
Zinc					500.0	511.99	102.4	500.0	512.44	102.5
					10:53			11:33		

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SBN13

Method: P
Run Name: 1810503T72
Calibration Date(s): 04/15/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Aluminum					25000.0	24634.77	98.5			
Calcium					25000.0	24828.00	99.3			
Iron					25000.0	23329.29	93.3			
Magnesium					25000.0	24185.39	96.7			
Manganese					500.0	520.47	104.1			
Potassium					25000.0	27086.39	108.3			
Sodium					25000.0	27094.28	108.4			
Zinc					500.0	508.18	101.6			

11:49

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SBN13

Method: MS
Run Name: 1810309E03
Calibration Date(s): 4/13/2018 - 04/14/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration			Continuing Calibration					
		True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Antimony	121	50.0	54.06	108.1	25.0	25.88	103.5	25.0	25.95	103.8
Arsenic	75	500.0	511.90	102.4	250.0	255.40	102.2	250.0	253.90	101.6
Barium	137	500.0	525.70	105.1	250.0	263.20	105.3	250.0	263.30	105.3
Beryllium	9	50.0	51.34	102.7	25.0	24.73	98.9	25.0	25.39	101.6
Cadmium	111	50.0	52.30	104.6	25.0	27.15	108.6	25.0	26.24	105.0
Chromium	52	500.0	515.90	103.2	250.0	259.00	103.6	250.0	263.70	105.5
Cobalt	59	500.0	498.80	99.8	250.0	256.00	102.4	250.0	254.80	101.9
Copper	63	500.0	496.00	99.2	250.0	254.90	102.0	250.0	257.20	102.9
Lead	208	50.0	51.68	103.4	25.0	25.52	102.1	25.0	25.45	101.8
Nickel	60	500.0	489.90	98.0	250.0	250.30	100.1	250.0	253.20	101.3
Selenium	78	50.0	51.57	103.1	25.0	27.03	108.1	25.0	25.55	102.2
Silver	107	50.0	53.40	106.8	25.0	26.85	107.4	25.0	26.85	107.4
Thallium	203	50.0	50.78	101.6	25.0	25.16	100.6	25.0	25.31	101.2
Vanadium	51	500.0	501.40	100.3	250.0	253.90	101.6	250.0	257.00	102.8
			21:46			22:05			22:42	

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SBN13

Method: MS
Run Name: 1810309E03
Calibration Date(s): 4/13/2018 - 04/14/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Antimony	121				25.0	26.48	105.9			
Arsenic	75				250.0	255.90	102.4			
Barium	137				250.0	262.00	104.8			
Beryllium	9				25.0	25.47	101.9			
Cadmium	111				25.0	25.73	102.9			
Chromium	52				250.0	259.60	103.8			
Cobalt	59				250.0	258.30	103.3			
Copper	63				250.0	256.00	102.4			
Lead	208				25.0	25.33	101.3			
Nickel	60				250.0	250.20	100.1			
Selenium	78				25.0	25.75	103.0			
Silver	107				25.0	26.34	105.4			
Thallium	203				25.0	25.27	101.1			
Vanadium	51				250.0	255.20	102.1			

23:19

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SBN13

Method: CV
Run Name: 1810101M08
Calibration Date(s): 04/11/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Mercury		2.5	✓ 2.35	✓ 94.0	1.0	✓ 0.98	✓ 98.0	1.0	✓ 0.95	✓ 95.0
			6:01			6:07			6:43	

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SBN13

Method: CV
Run Name: 1810101M08
Calibration Date(s): 04/11/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Mercury					1.0	0.97	97.0	1.0	0.96	96.0
						7:09			7:27	

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: SBN13

Method: P
Run Name: 1810503T72
Calibration Date(s): 04/15/2018
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Aluminum		400.0	383.40	95.9	420.18	105.0
Calcium		400.0	✓ 434.55	✓ 108.6	438.66	109.7
Iron		400.0	422.29	105.6	✓ 374.68	✓ 93.7
Magnesium		200.0	219.59	109.8	213.62	106.8
Manganese		10.0	10.83	108.3	11.34	113.4
Potassium		1000.0	✓ 1199.99	✓ 120.0	1213.44	121.3
Sodium		2000.0	✓ 2147.14	✓ 107.4	2192.27	109.6
Zinc		40.0	42.10	105.3	✓ 42.06	✓ 105.2

9:21 11:39

Control limits: 70% - 130%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: SBN13

Method: MS
Run Name: 1810309E03
Calibration Date(s): 4/13/2018 - 04/14/2018
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Antimony	121	2.0	1.97	98.5	1.92	96.0
Arsenic	75	4.0	4.16	104.0	5.05	126.3
Barium	137	4.0	5.17	129.3	4.76	119.0
Beryllium	9	1.0	1.03	103.0	1.02	102.0
Cadmium	111	1.0	0.94	94.0	0.99	99.0
Chromium	52	4.0	4.43	110.8	4.57	114.3
Cobalt	59	1.0	1.00	100.0	1.13	113.0
Copper	63	4.0	3.83	95.8	3.45	86.3
Lead	208	2.0	2.05	102.5	2.09	104.5
Nickel	60	4.0	4.55	113.8	4.26	106.5
Selenium	78	4.0	4.39	109.8	4.32	108.0
Silver	107	1.0	1.06	106.0	1.10	110.0
Thallium	203	1.0	0.96	96.0	0.94	94.0
Vanadium	51	1.0	1.08	108.0	1.09	109.0
			21:52		23:07	

Control limits: 70% - 130%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: SBN13

Method: CV
Run Name: 1810101M08
Calibration Date(s): 04/11/2018
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Mercury		0.2	0.19	95.0		

6:05

Control limits: 70% - 130%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: SBN13

Method: P
Run Name: 1810503T72
Calibration Date(s): 04/15/2018
Preparation Blank Matrix: SOIL

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Mass	Preparation Blank (MG/KG)	C	Batch Number
Aluminum		91.3	U	91.3	U	91.3	U	91.3	U		8.900	U	180991063702
Calcium		33.4	U	33.4	U	138	B	65.4	B		3.674	B	180991063702
Iron		33.4	U	33.4	U	68.0	B	33.4	U		8.100	U	180991063702
Magnesium		16.7	U	16.7	U	59.8	B	16.7	U		2.400	U	180991063702
Manganese		0.83	U	0.83	U	1.2	B	0.83	U		0.162	B	180991063702
Potassium		193	B	199	B	241	B	127	U		16.700	U	180991063702
Sodium		167	U	167	U	167	U	167	U		16.700	U	180991063702
Zinc		2.0	U	2.0	U	2.0	U	2.0	U		0.669	B	180991063702
		9:17		9:35		10:15		11:04					

Highest value blank used for evaluation.

All raw sample results >> 5x highest blank for all analytes. No impact. (See Inorg Blank summary)

Post

Ca

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: SBN13

Method: P
Run Name: 1810503T72
Calibration Date(s): 04/15/2018

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (MG/KG) Mass		C	Batch Number
Aluminum				91.3	U	102	B						
Calcium				55.9	B	58.3	B						
Iron				33.4	U	39.4	B						
Magnesium				16.7	U	36.0	B						
Manganese				0.83	U	0.83	U						
Potassium				127	U	185	B						
Sodium				167	U	167	U						
Zinc				2.0	U	2.0	U						
				11:36		11:52							

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: SBN13

Method: MS
Run Name: 1810309E03
Calibration Date(s): 04/13/2018 - 04/14/2018
Preparation Blank Matrix: SOIL

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (MG/KG) Mass		C	Batch Number
Antimony	121	0.35	B	0.34	U	0.34	U	0.34	U	121	0.093	U	180991063702A
Arsenic	75	0.45	U	0.45	U	0.45	U	0.73	B	75	0.130	U	180991063702A
Barium	137	0.63	U	0.63	U	0.63	U	0.63	U	137	0.180	U	180991063702A
Beryllium	9	0.021	B	0.019	U	0.039	B	0.038	B	9	0.010	U	180991063702A
Cadmium	111	-0.13	B	-0.15	B	-0.14	B	0.13	U	111	0.034	U	180991063702A
Chromium	52	0.50	U	0.50	U	0.50	U	0.50	U	52	0.388	B	180991063702A
Cobalt	59	0.10	U	0.10	U	0.10	U	0.18	B	59	0.031	U	180991063702A
Copper	63	0.40	U	-0.48	B	-0.40	B	-0.40	B	63	0.110	U	180991063702A
Lead	208	0.031	U	0.031	U	0.031	U	0.033	B	208	0.076	B	180991063702A
Nickel	60	0.42	U	0.42	U	0.42	U	0.42	U	60	0.200	U	180991063702A
Selenium	78	0.50	U	0.50	U	0.50	U	0.50	U	78	0.100	U	180991063702A
Silver	107	0.084	U	0.084	U	0.084	U	0.084	U	107	0.029	U	180991063702A
Thallium	203	0.18	B	0.097	U	0.16	B	0.13	B	203	0.025	U	180991063702A
Vanadium	51	0.15	U	0.15	U	0.15	U	0.15	U	51	0.043	U	180991063702A
		21:49		22:08		22:45		23:22			See QC Summary for evaluation.		

Absolute values of Cd and Cu < 2x IDL. Meet acceptance criteria.

Highest value blank used for evaluation. See Inorg. Blank Summary.

Qualify Sb and Tl UB,IB in samples 281 and 285. All other Sb and Tl results ND. No impact.
All other results >5x highest blank. No impact.

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: SBN13

Method: CV
Run Name: 1810101M08
Calibration Date(s): 04/11/2018
Preparation Blank Matrix: SOIL

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)								Preparation Blank (MG/KG)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Batch Number
Mercury		-0.080	B	-0.051	B	0.050	U	0.050	U		0.010	U	180991063802
		6:03		6:09		6:45		7:11		See QC summary for evaluation.			

Absolute value of negative results <x IDL. Meet criteria.

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: SBN13

Method: CV
Run Name: 1810101M08
Calibration Date(s): 04/11/2018

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (MG/KG) Mass		C	Batch Number
Mercury				0.050	U								

7:29

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: SBN13

Instrument ID: 16417
Run Name: 1810503T72
Concentration Units: ug/L

Analyte	True		Initial Found				Final Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R	Sol. A	%R	Sol. AB	%R
Aluminum	500000	500000	526435	105.3	516986.9	103.4	503883	100.8	498506.3	99.7
Calcium	500000	500000	523331	104.7	512396.9	102.5	502299	100.5	492882.5	98.6
Iron	200000	200000	209757	104.9	203582.6	101.8	190501	95.3	188302.2	94.2
Magnesium	500000	500000	500208	100.0	486660.7	97.3	467079	93.4	458256.8	91.7
Manganese	0	500	5		490.8	98.2	5		495.0	99.0
Potassium	0	0	309		123.5		207		246.6	
Sodium	0	0	86		106.2		79		56.3	
Zinc	0	1000	-3		1025.4	102.5	-1		1044.4	104.4

Control Limits: All Metals 80%-120%
Unspiked and ICSA- <2x RL.

Apply to all samples.

Analyte	MDL
Mn	0.83
K	167
Na	167
Zn	2.4

Mn ICSA >2x MDL.

5x Mn ICSA = 0.025 mg/L. All raw sample results >5x ICSA. No impact.

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QUALITY ASSURANCE SUMMARY
FORM 4B
ICP-MS INTERFERENCE CHECK SAMPLE
SDG No.: SBN13

Instrument ID: 11332
Run Name: 1810309E03
Concentration Units: ug/L

ICP-MS ICS not evaluated.

Analyte	Mass	True		Found			
		Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R
Aluminum	27	100000	100000	104300	104.3	102400.0	102.4
Antimony	121	0	0	1		1.0	
Arsenic	75	0	100	1		96.4	96.4
Barium	137	0	0	1		0.9	
Beryllium	9	0	0	0		0.0	
Cadmium	111	0	100	0		91.3	91.3
Calcium	44	300000	300000	314600	104.9	304500.0	101.5
Carbon	13	20000	20000	NA		NA	
Chloride	37	100000	100000	NA		NA	
Chromium	52	0	200	2		227.2	113.6
Cobalt	59	0	205	1		192.5	93.9
Copper	63	0	200	0		185.1	92.6
Iron	57	250000	250000	266400	106.6	256900.0	102.8
Lead	208	0	0	0		0.2	
Magnesium	24	100000	100000	107400	107.4	102700.0	102.7
Molybdenum	98	2000	2000	2097	104.9	2060.0	103.0
Nickel	60	0	200	1		183.7	91.9
Phosphorus	31	10000	10000	NA		NA	
Potassium	39	100000	100000	109200	109.2	104900.0	104.9
Selenium	78	0	100	0		87.9	87.9
Silver	107	0	50	0		47.8	95.6
Sodium	23	250000	250000	272000	108.8	262600.0	105.0
Sulfur	34	10000	10000	NA		NA	
Thallium	203	0	0	0		0.1	
Titanium	47	2000	2000	2399	120.0	2299.0	115.0
Vanadium	51	0	200	0		233.5	116.8

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4B
ICP-MS INTERFERENCE CHECK SAMPLE
SDG No.: SBN13

Instrument ID: 11332
Run Name: 1810309E03
Concentration Units: ug/L

ICP-MS ICS not evaluated.

Analyte	Mass	True		Found			
		Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R
Aluminum	27	100000	100000	105700	105.7	100200.0	100.2
Antimony	121	0	0	1		1.0	
Arsenic	75	0	100	1		98.4	98.4
Barium	137	0	0	1		1.5	
Beryllium	9	0	0	0		0.0	
Cadmium	111	0	100	0		91.7	91.7
Calcium	44	300000	300000	310200	103.4	297900.0	99.3
Carbon	13	20000	20000	NA		NA	
Chloride	37	100000	100000	NA		NA	
Chromium	52	0	200	2		220.7	110.4
Cobalt	59	0	205	1		196.0	95.6
Copper	63	0	200	0		187.9	94.0
Iron	57	250000	250000	262000	104.8	254700.0	101.9
Lead	208	0	0	0		0.3	
Magnesium	24	100000	100000	105400	105.4	101500.0	101.5
Molybdenum	98	2000	2000	2120	106.0	2056.0	102.8
Nickel	60	0	200	1		183.5	91.8
Phosphorus	31	10000	10000	NA		NA	
Potassium	39	100000	100000	106500	106.5	103900.0	103.9
Selenium	78	0	100	0		90.0	90.0
Silver	107	0	50	0		47.6	95.2
Sodium	23	250000	250000	267100	106.8	256800.0	102.7
Sulfur	34	10000	10000	NA		NA	
Thallium	203	0	0	0		0.1	
Titanium	47	2000	2000	2334	116.7	2262.0	113.1
Vanadium	51	0	200	0		226.5	113.3

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 5B
POST DIGEST SPIKE SAMPLE RECOVERY
SDG No.: SBN13
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 9546281BKG

Analyte	Mass	Sample Result(SR)	C	Spike Added(SA)	Spiked Sample Result(SSR)	C	SRR %R	Spiked Sample Duplicate(SSD)	C	SSD %R	M
Arsenic	75	17.3100		4.0000	21.6400		108	NA	U	NA	MS
Barium	137	112.3000		4.0000	105.2000		-178	NA	U	NA	MS
Copper	63	50.2700		4.0000	51.0900		21	NA	U	NA	MS
Lead	208	64.4200		2.0000	62.1300		-115	NA	U	NA	MS
Potassium		4737.3800		2000.0000	6760.1800		101	NA	U	NA	P
Zinc		727.0500		120.0000	823.0300		80	NA	U	NA	P

Comments: All sample results >4x spike added. %Rs N/A.

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 9
SERIAL DILUTIONS
SDG No.: SBN13
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 9546281BKG Serial Dilution Lab Sample ID: 9546281L
Batch Number(s): 180991063702
Concentration Units: UG/L

Analyte	Mass	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Diff.	Q	M
Aluminum		✓ 14788.8200		✓ 14682.6500		✓ 1		P
Antimony	121	<100x MDL 0.8316	B	2.3300	U	100		MS
Arsenic	75	17.3100		15.7150	B	9		MS
Barium	137	112.3000		100.7500		10		MS
Beryllium	9	0.5726	B	0.5505	B	4		MS
Cadmium	111	<100x MDL 1.2260		0.8600	U	100		MS
Calcium		326099.7500		319985.0000		2		P
Chromium	52	✓ 33.2400		✓ 31.2250		✓ 6		MS
Cobalt	59	24.1500		22.6400		6		MS
Copper	63	50.2700		46.4250		8		MS
Iron		75960.6600		73326.5000		3		P
Lead	208	64.4200		58.9000		9		MS
Magnesium		✓ 117372.8600		✓ 118289.3500		✓ 1		P
Manganese		2468.8900		2522.1000		2		P
Nickel	60	33.5700		30.5000		9		MS
Potassium		4737.3800		4994.3000	B	5		P
Selenium	78	0.5000	U	2.5000	U			MS
Silver	107	<100x MDL 0.3313	B	0.7300	U	100		MS
Sodium		<100x MDL 676.8300	B	835.0000	U	100		P
Thallium	203	<100x MDL 0.1856	B	0.6250	U	100		MS
Vanadium	51	✓ 30.5300		✓ 27.9100		✓ 9		MS
Zinc		727.0500		704.7000		3		P

NOTE: An E in column Q indicates the presence of a chemical or physical interference in the matrix when the % difference is greater than 10%. This applies only when (I) is greater than or equal to 50x MDL for ICP, 100x MDL for ICP-MS (6020), 50x MDL for ICP-MS (200.8), or 25x MDL for GFAA.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ
FLAGS:
E = Matrix Effects exist as proven by Serial Dilution or Spiked Dilution

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: SBN13

Method: P
Instrument ID: 16417
Date: 04/2018

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Aluminum	308.21		91.3
Calcium	317.93		33.4
Iron	261.19		33.4
Magnesium	285.21		16.7
Manganese	257.61		0.83
Potassium	766.49		127
Sodium	589.59		167
Zinc	213.86		2.0

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: SBN13

Method: MS
Instrument ID: 11332
Date: 01/2018

Analyte	MASS (amu)	Background	IDL (UG/L)
Antimony	121		0.34
Arsenic	75		0.45
Barium	137		0.63
Beryllium	9		0.019
Cadmium	111		0.13
Chromium	52		0.50
Cobalt	59		0.10
Copper	63		0.40
Lead	208		0.031
Nickel	60		0.42
Selenium	78		0.50
Silver	107		0.084
Thallium	203		0.097
Vanadium	51		0.15

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: SBN13

Method: CV
Instrument ID: 19302
Date: 01/2018

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Mercury			0.050

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: SBN13
Matrix: SOIL

Method: P
Date: 06/2017

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Aluminum	308.21		400	89.4
Calcium	317.93		400	33.3
Iron	261.19		400	80.5
Magnesium	285.21		200	24.3
Manganese	257.61		10.0	0.83
Potassium	766.49		1000	167
Sodium	589.59		2000	167
Zinc	213.86		40.0	2.4

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: SBN13
Matrix: SOIL

Method: MS
Date: 06/2017

Analyte	Mass	Background	LOQ (UG/L)	MDL (UG/L)
Antimony	121		2.0	0.47
Arsenic	75		4.0	0.64
Barium	137		4.0	0.91
Beryllium	9		1.0	0.052
Cadmium	111		1.0	0.17
Chromium	52		4.0	0.87
Cobalt	59		1.0	0.16
Copper	63		4.0	0.54
Lead	208		2.0	0.11
Nickel	60		4.0	1.0
Selenium	78		4.0	0.50
Silver	107		1.0	0.15
Thallium	203		1.0	0.13
Vanadium				

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: SBN13
Matrix: SOIL

Method: MS
Date: 08/2017

Analyte	Mass	Background	LOQ (UG/L)	MDL (UG/L)
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Chromium				
Cobalt				
Copper				
Lead				
Nickel				
Selenium				
Silver				
Thallium				
Vanadium	51		1.0	0.21

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: SBN13
Matrix: SOIL

Method: CV
Date: 06/2017

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Mercury			0.60	0.060

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: SBN13

Instrument ID: 16417
Date: 03/2018

Analyte	Wavelength (nm)	Interelement Correction Factor for: AL	CA	FE	MG	CU
Aluminum	308.21	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Calcium	317.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Iron	261.19	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Magnesium	285.21	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.86	0.0000000	0.0000000	0.0000960	0.0000000	0.0016990

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: SBN13

Instrument ID: 16417
Date: 03/2018

Analyte	Wavelength (nm)	Interelement Correction Factor for: MO	NI	TH	V	--
Aluminum	308.21	0.0205000	0.0000000	0.0937470	0.0000000	
Calcium	317.93	0.0000000	0.0000000	-0.0155900	0.0000000	
Iron	261.19	0.0000000	0.0000000	0.0000000	0.0000000	
Magnesium	285.21	0.0000000	0.0000000	0.0000000	0.0000000	
Zinc	213.86	0.0000000	0.0054500	0.0000000	0.0000000	

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 12
LINEAR RANGES
SDG No.: SBN13

Method: P
Instrument ID: 16417
Date: 04/2018

Analyte	Wavelength (nm)	Integration Time (Sec.)	Concentration (ug/L)
Aluminum	308.21	10.00	600000.0
Calcium	317.93	10.00	600000.0
Iron	261.19	10.00	300000.0
Magnesium	285.21	10.00	600000.0
Manganese	257.61	10.00	20000.0
Potassium	766.49	10.00	500000.0
Sodium	589.59	10.00	500000.0
Zinc	213.86	10.00	20000.0

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: SBN13

Method: P
Batch Number: 180991063702

Lab Sample ID	Date	Sample Weight(gram)	Final Volume(ml)
9546280	04/10/2018	1.16	100
9546285	04/10/2018	1.17	100
9546286	04/10/2018	1.04	100
9546281BKG	04/10/2018	1.23	100
9546284DUP	04/10/2018	1.38	100
9546283MSD	04/10/2018	1.05	100
9546282MS	04/10/2018	1.01	100
P09963BB	04/10/2018	1.00	100
P09963BQ	04/10/2018	1.00	100

METHODS:	LEGEND:
P = ICP Atomic Emission Spectrometer	BKG = Background
MS = ICP Mass Spectrometry	DUP = Duplicate
CV = Cold Vapor	MS = Matrix Spike
AF = Cold Vapor Atomic Fluorescence	MSD = Matrix Spike Duplicate
	B = Blank
	Q = Laboratory Control Sample
	Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: SBN13

Method: MS
Batch Number: 180991063702

Lab Sample ID	Date	Sample Weight(gram)	Final Volume(ml)
9546280	04/10/2018	1.16	100
9546285	04/10/2018	1.17	100
9546286	04/10/2018	1.04	100
9546281BKG	04/10/2018	1.23	100
9546284DUP	04/10/2018	1.38	100
9546283MSD	04/10/2018	1.05	100
9546282MS	04/10/2018	1.01	100
P09963BB	04/10/2018	1.00	100
P09963BQ	04/10/2018	1.00	100

METHODS:	LEGEND:
P = ICP Atomic Emission Spectrometer	BKG = Background
MS = ICP Mass Spectrometry	DUP = Duplicate
CV = Cold Vapor	MS = Matrix Spike
AF = Cold Vapor Atomic Fluorescence	MSD = Matrix Spike Duplicate
	B = Blank
	Q = Laboratory Control Sample
	Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: SBN13

Method: CV
Batch Number: 180991063802

Lab Sample ID	Date	Sample Weight(gram)	Final Volume(ml)
9546280	04/11/2018	0.61	100
9546285	04/11/2018	0.64	100
9546286	04/11/2018	0.62	100
9546281BKG	04/11/2018	0.62	100
9546284DUP	04/11/2018	0.64	100
9546283MSD	04/11/2018	0.62	100
9546282MS	04/11/2018	0.65	100
P09963BB	04/11/2018	0.60	100
P09963BQ	04/11/2018	1.00	100

METHODS:	LEGEND:
P = ICP Atomic Emission Spectrometer	BKG = Background
MS = ICP Mass Spectrometry	DUP = Duplicate
CV = Cold Vapor	MS = Matrix Spike
AF = Cold Vapor Atomic Fluorescence	MSD = Matrix Spike Duplicate
	B = Blank
	Q = Laboratory Control Sample
	Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: SBN13

Method: P
Instrument ID: 16417
Run Name: 1810503T72

Run Start Date: 04/15/2018
Run End Date: 04/15/2018

Lab Sample ID	D/F	Time	Analytes																													
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN								
S0	1.00	09:01	X						X				X		X	X			X			X			X								
S	1.00	09:04	X						X				X		X				X			X											
S	1.00	09:07														X									X								
S	1.00	09:11																															
ICV	1.00	09:14	X						X				X		X	X			X			X			X								
ICB	1.00	09:17	X						X				X		X	X			X			X			X								
LLC	1.00	09:21	X						X				X		X	X			X			X			X								
ICSA	1.00	09:24	X						X				X		X	X			X			X			X								
ICSAB	1.00	09:27	X						X				X		X	X			X			X			X								
CCV	1.00	09:32	X						X				X		X	X			X			X			X								
CCB	1.00	09:35	X						X				X		X	X			X			X			X								
P09963BB	1.00	09:39	X						X				X		X	X			X			X			X								
P09963BQ	1.00	09:42	X						X				X		X	X			X			X			X								
9546281BKG	1.00	09:45	X										X			X			X			X			X								
9546281A	1.00	09:49																	X						X								
9546284DUP	1.00	09:52	X										X		X	X			X			X			X								
9546282MS	1.00	09:55	X										X		X	X			X			X			X								
9546283MSD	1.00	09:58	X										X		X	X			X			X			X								
9546281L	5.00	10:02	X										X			X			X			X			X								
ZZZZZZ	1.00	10:05																															
ZZZZZZ	1.00	10:09																															
CCV	1.00	10:12	X						X				X		X	X			X			X			X								
CCB	1.00	10:15	X						X				X		X	X			X			X			X								
ZZZZZZ	1.00	10:19																															
ZZZZZZ	1.00	10:22																															
9546280	1.00	10:25	X										X		X	X			X			X			X								
9546285	1.00	10:28	X						X						X	X			X			X			X								
9546286	1.00	10:33	X										X		X	X			X			X			X								
9546281BKG	5.00	10:36							X						X																		
9546281A	5.00	10:39																															
9546284DUP	5.00	10:42							X																								
9546282MS	5.00	10:46							X																								
9546283MSD	5.00	10:49							X																								
CCV	1.00	10:53	X						X				X		X	X			X			X			X								
CCB	1.00	11:04	X						X				X		X	X			X			X			X								
9546281L	25.00	11:07							X						X																		
ZZZZZZ	5.00	11:10																															
ZZZZZZ	5.00	11:13																															

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: SBN13

Method: P
Instrument ID: 16417
Run Name: 1810503T72

Run Start Date: 04/15/2018
Run End Date: 04/15/2018

Lab Sample ID	D/F	Time	Analytes																												
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN							
ZZZZZZ	5.00	11:17																													
ZZZZZZ	5.00	11:20																													
9546280	5.00	11:23							X																						
9546285	5.00	11:26											X																		
9546286	5.00	11:30							X																						
CCV	1.00	11:33	X						X				X		X	X			X			X			X						
CCB	1.00	11:36	X						X				X		X	X			X			X			X						
LLC	1.00	11:39	X						X				X		X	X			X			X			X						
ICSA	1.00	11:43	X						X				X		X	X			X			X			X						
ICSAB	1.00	11:46	X						X				X		X	X			X			X			X						
CCV	1.00	11:49	X						X				X		X	X			X			X			X						
CCB	1.00	11:52	X						X				X		X	X			X			X			X						

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: SBN13

Method: MS
Instrument ID: 11332
Run Name: 1810309E03

Run Start Date: 04/13/2018
Run End Date: 04/14/2018

Lab Sample ID	D/F	Time	Analytes																														
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN								
S0	1.00	21:34		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
S	1.00	21:37		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
CCS	1.00	21:40		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
CCS	1.00	21:43		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
ICV	1.00	21:46		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
ICB	1.00	21:49		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
LLC	1.00	21:52		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
ICSA	1.00	21:55		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
ICSAB	1.00	21:59		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
ZZZZZZ	1.00	22:02																															
CCV	1.00	22:05		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
CCB	1.00	22:08		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
P09963BB	2.00	22:11		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
P09963BQ	2.00	22:14		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
9546281BKG	2.00	22:17		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
9546281A	2.00	22:20			X	X						X		X																			
9546284DUP	2.00	22:23		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
9546282MS	2.00	22:27		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
9546283MSD	2.00	22:30		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
9546281L	10.00	22:33		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
ZZZZZZ	2.00	22:36																															
ZZZZZZ	2.00	22:39																															
CCV	1.00	22:42		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
CCB	1.00	22:45		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
ZZZZZZ	2.00	22:48																															
ZZZZZZ	2.00	22:51																															
9546280	2.00	22:54		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
9546285	2.00	22:58		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
9546286	2.00	23:01		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
9546286	20.00	23:04																															
LLC	1.00	23:07		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
ICSA	1.00	23:10		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
ICSAB	1.00	23:13		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
ZZZZZZ	1.00	23:16																															
CCV	1.00	23:19		X	X	X	X	X		X	X	X		X				X		X	X		X	X									
CCB	1.00	23:22		X	X	X	X	X		X	X	X		X				X		X	X		X	X									

METHODS:	LEGEND:
P = ICP Atomic Emission Spectrometer	BKG = Background
MS = ICP Mass Spectrometry	DUP = Duplicate
CV = Cold Vapor	MS = Matrix Spike
AF = Cold Vapor Atomic Fluorescence	MSD = Matrix Spike Duplicate
	A = Post Digest Spike
	L = Serial Dilution
	B = Blank
	Q = Laboratory Control Sample
	Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: SBN13

Method: CV
Instrument ID: 19302
Run Name: 1810101M08

Run Start Date: 04/11/2018
Run End Date: 04/11/2018

Lab Sample ID	D/F	Time	Analytes																																
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN										
S0	1.00	05:49															X																		
S0.2	1.00	05:51															X																		
S0.5	1.00	05:53															X																		
S1.0	1.00	05:55															X																		
S2.5	1.00	05:57															X																		
S5.0	1.00	05:59															X																		
ICV	1.00	06:01															X																		
ICB	1.00	06:03															X																		
CRA	1.00	06:05															X																		
CCV	1.00	06:07															X																		
CCB	1.00	06:09															X																		
ZZZZZZ	1.00	06:23																																	
ZZZZZZ	1.00	06:25																																	
ZZZZZZ	1.00	06:27																																	
ZZZZZZ	1.00	06:29																																	
ZZZZZZ	1.00	06:31																																	
ZZZZZZ	1.00	06:33																																	
ZZZZZZ	1.00	06:35																																	
ZZZZZZ	1.00	06:37																																	
ZZZZZZ	1.00	06:39																																	
ZZZZZZ	1.00	06:41																																	
CCV	1.00	06:43															X																		
CCB	1.00	06:45															X																		
ZZZZZZ	1.00	06:47																																	
ZZZZZZ	10.00	06:51																																	
P09963BB	1.00	06:53															X																		
P09963BQ	1.00	06:55															X																		
9546281BKG	1.00	06:57															X																		
9546281A	1.00	06:59																																	
9546284DUP	1.00	07:01															X																		
9546282MS	1.00	07:03															X																		
9546283MSD	1.00	07:05															X																		
ZZZZZZ	1.00	07:07																																	
CCV	1.00	07:09															X																		
CCB	1.00	07:11															X																		
ZZZZZZ	1.00	07:13																																	
ZZZZZZ	1.00	07:15																																	
ZZZZZZ	1.00	07:17																																	

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: SBN13

Method: CV
Instrument ID: 19302
Run Name: 1810101M08

Run Start Date: 04/11/2018
Run End Date: 04/11/2018

Lab Sample ID	D/F	Time	Analytes																													
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN							
9546280	1.00	07:19															X															
9546285	1.00	07:21															X															
9546286	1.00	07:23															X															
CCV	1.00	07:27															X															
CCB	1.00	07:29															X															

METHODS:	LEGEND:
P = ICP Atomic Emission Spectrometer	BKG = Background
MS = ICP Mass Spectrometry	DUP = Duplicate
CV = Cold Vapor	MS = Matrix Spike
AF = Cold Vapor Atomic Fluorescence	MSD = Matrix Spike Duplicate
	A = Post Digest Spike
	L = Serial Dilution
	B = Blank
	Q = Laboratory Control Sample
	Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 15
ICP-MS TUNE
SDG No.: SBN13
Matrix: SOIL

Instrument ID: 11332
Date: 04/13/2018

+/- 0.1

<0.9 @ 10%

Analyte	Mass	Avg. Measured Mass (amu)	Avg. Peak Width at 5% Peak Height (amu)	%RSD
Lithium	6.000	6.10	0.70	3.5
Magnesium	24.000	24.00	0.70	1.4
Rhodium	103.000	103.05	0.65	1.2
Indium	115.000	115.05	0.60	2.1
Cerium	140.000	140.05	0.60	1.6
Lead	208.000	208.05	0.65	1.9
Uranium	238.000	238.05	0.65	0.6

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 16
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
SDG No.: SBN13

Instrument ID: 11332
Run Name: 1810309E03

Start Date: 04/13/2018
End Date: 04/14/2018

Standard	Elements Applies to	Standard	Elements Applies to
BI-2-209	PB,TL	GE-2-72	AS,CO,CU,NI
IN-1-115	SE	IN-2-115	AG,BA,CD,SB
SC-2-45	CR,V	SC-3-45	BE

Lab Sample ID	Time	Internal Standards %RI for: Element SC-2-45	Q	Element SC-3-45	Q	Element GE-2-72	Q	Element IN-1-115	Q	Element IN-2-115	Q	Element BI-2-209	Q	Element	Q
S0	21:34	100		100		100		100		100		100			
S	21:37	98		102		95		103		97		99			
CCS	21:40	93		100		94		95		97		98			
CCS	21:43	98		100		98		98		98		101			
ICV	21:46	98		102		97		100		95		99			
ICB	21:49	98		98		97		100		98		102			
LLC	21:52	98		102		97		97		97		101			
ICSA	21:55	79		83		86		87		86		83			
ICSAB	21:59	78		80		86		89		85		83			
ZZZZZZ	22:02														
CCV	22:05	99		107		97		101		96		102			
CCB	22:08	94		99		96		97		98		101			
P09963BB	22:11	94		98		97		96		96		101			
P09963BQ	22:14	96		102		97		101		97		101			
9546281BKG	22:17	87		89		87		89		88		86			
9546281A	22:20	84		89		86		87		86		84			
9546284DUP	22:23	88		93		87		90		88		87			
9546282MS	22:27	82		89		84		85		86		82			
9546283MSD	22:30	87		91		88		87		86		87			
9546281L	22:33	96		101		95		92		96		96			
ZZZZZZ	22:36														
ZZZZZZ	22:39														
CCV	22:42	93		102		93		91		92		97			
CCB	22:45	96		100		97		93		98		100			
ZZZZZZ	22:48														
ZZZZZZ	22:51														
9546280	22:54	86		94		87		85		89		88			
9546285	22:58	85		95		89		88		87		106			
9546286	23:01	79		89		84		84		83		83			
9546286	23:04														
LLC	23:07	93		96		94		92		92		98			
Ref. Counts:		42613.9		2265790		98766		138283		41953		107814			

LEGEND:
- BKG = Background
- DUP = Duplicate
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike

FLAG:
- R = Internal Standard Relative Intensity OOS

INTERNAL STANDARD ELEMENTS:
- BE = Beryllium
- BI = Bismuth
- GE = Germanium
- HO = Holmium
- IN = Indium
- LI = Lithium
- SC = Scandium
- TB = Terbium
- Y = Yttrium

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QUALITY ASSURANCE SUMMARY
FORM 16
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
SDG No.: SBN13

Instrument ID: 11332
Run Name: 1810309E03

Start Date: 04/13/2018
End Date: 04/14/2018

Standard	Elements Applies to	Standard	Elements Applies to
BI-2-209	PB,TL	GE-2-72	AS,CO,CU,NI
IN-1-115	SE	IN-2-115	AG,BA,CD,SB
SC-2-45	CR,V	SC-3-45	BE

Lab Sample ID	Time	Internal Standards %RI For: Element SC-2-45	Q	Element SC-3-45	Q	Element GE-2-72	Q	Element IN-1-115	Q	Element IN-2-115	Q	Element BI-2-209	Q	Element	Q
ICSA	23:10	77		82		84		84		83		81			
ICSAB	23:13	79		81		84		83		85		82			
ZZZZZZ	23:16														
CCV	23:19	93		98		92		93		92		98			
CCB	23:22	91		98		92		92		91		97			

LEGEND:
BKG = Background
DUP = Duplicate
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
FLAG:
R = Internal Standard Relative Intensity OOS

INTERNAL STANDARD ELEMENTS:
BE = Beryllium
BI = Bismuth
GE = Germanium
HO = Holmium
IN = Indium
LI = Lithium
SC = Scandium
TB = Terbium
Y = Yttrium

LLENS Worksheet for 0637 SW846 (IV) ICP/ICP MS Digest

Batch# 18 099 10637 02

Start Time: 4/10/18 22:45 **End Time:** 4/11/18 3:45 **Hot Block:** 6

Pipette ID: 23041058 /2000 I43551C /1000

Spike/Reagent	Lot#	Volume Added(mL)
1:1 HNO3	P18-082D	10.00
30% H2O2	175412	4.00
HCL	186764	10.00
HNO3	191695	5.00
ICP Spike 1A	1804014#16	2.00
ICP Spike 1B	1804016#16	2.00
ICP/MS Spike	1804017#3	2.00
LCS A1	1804014#16	2.00
LCS B1	1804016#16	2.00
LCSW2	1804017#3	1.00

Method Ref:

	SampleID	Date Due	ST	P	H	Balance	PH<2	BC	Vessel Lot#	Location ID	Comments
1)	PBS	.				10685			1712272		1.05 teflon chips lot 23293963
2)	LCSW	.				10685			1712272		1.00 teflon chips lot 23293963
3)	LCSW2	.				10685			1712272		1.01 teflon chips lot 23293963
4)	9546138	04/18/18 10:00	SW	N8		10685		620A	1712272	MET12/E8	
5)	9546139	04/18/18 10:00	SW	N8		10685		620A	1712272	MET12/A8	
6)	9546142	04/18/18 10:00	SW	N8		10685		620A	1712272	MET12/C3	
7)	9546143	04/18/18 10:00	SW	N8		10685		620A	1712272	MET12/D4	
8)	9546280	04/17/18 10:00	SW	S7		10685		620A	1712272	MET12/C4	
9)	**9546281U**	04/17/18 10:00	SW	S7		10685		620A	1712272	MET12/F3	
10)	**9546282R**	04/17/18 10:00	SW	S7		10685		620A	1712272	MET12/C8	
11)	**9546282R**	04/17/18 10:00	SW	S7		10685		036a	1712272	E00851/	
12)	**9546283M**	04/17/18 10:00	SW	S7		10685		620A	1712272	MET12/B3	
13)	**9546283M**	04/17/18 10:00	SW	S7		10685		036a	1712272	E00851/	
14)	**9546284D**	04/17/18 10:00	SW	S7		10685		620A	1712272	MET12/E3	
15)	9546285	04/17/18 10:00	SW	S7		10685		620A	1712272	MET12/B2	
16)	9546286FD	04/17/18 10:00	SW	S7		10685		620A	1712272	MET12/B8	

Prep Employee:277 D/I _____

4/11/2018

v 1.1.0

Batch# 18 099 1063 702

LLENS Batch Chronology and Change Log - SW846 (IV) ICP/ICP MS Digest

	Operation	Instrument	Operation Date	ANALYST
1)	Batch Creation		4/9/18 14:42	277
2)	Sample Wt		4/10/18 18:29	8853
3)	Sample Wt		4/10/18 20:24	8853
4)	Final Vol	10685	4/10/18 20:24	8853
5)	Trial		4/10/18 20:24	8853
6)	Sample Wt		4/10/18 21:28	8853
7)	Upload Prep	US19PCC0681	4/11/18 4:17	277

Sample ID	Analysis	D	Operation	Measurement	Original Entry Date/Time	Data	Units	Analyst	Data Changed Date/Time	Analyst	Reason

Analysis: 0637 SW846 (IV) ICP/ICP MS Digest Batch# 18 099 1063 702

Sample ID	Due Date	P	EPA#	SDG#	Sample Wt	Final Volume	Trial
PBS					1.0000	100.0000	1
LCSW					1.0000	100.0000	1
LCSW2					1.0000	100.0000	1
9546138	04/18/18	N8	L16-5	SLB16-05	1.3200	100.0000	1
9546139	04/18/18	N8	L16-6	SLB16-06	1.2100	100.0000	1
9546142	04/18/18	N8	L16-9	SLB16-09	1.1600	100.0000	1
9546143	04/18/18	N8	16-10	SLB16-10	1.1800	100.0000	1
9546280	04/17/18	S7	BNN01	SBN13-01	1.1600	100.0000	1
9546281U	04/17/18	S7	BNN02	SBN13-02BKG	1.2300	100.0000	1
9546282R	04/17/18	S7	BNN02	SBN13-02MS	1.0100	100.0000	1
9546282R	04/17/18	S7	BNN02	SBN13-02MS	1.0300	100.0000	1
9546283M	04/17/18	S7	BNN02	SBN13-02MSD	1.0500	100.0000	1
9546283M	04/17/18	S7	BNN02	SBN13-02MSD	1.0700	100.0000	1
9546284D	04/17/18	S7	BNN02	SBN13-02DUP	1.3800	100.0000	1
9546285	04/17/18	S7	BNN03	SBN13-03	1.1700	100.0000	1
9546286FD	04/17/18	S7	BNN04	SBN13-04FD	1.0400	100.0000	1

LLENS Worksheet for 0637 SW846 (IV) ICP/ICP MS Digest

Batch# 18 099 10637 02

Start Time: 4/10/18 22:45 **End Time:** 4/11/18 3:45 **Hot Block:** 6

Pipette ID: 23041058 /2000 I43551C /1000

Spike/Reagent	Lot#	Volume Added(mL)
1:1 HNO3	P18-082D	10.00
30% H2O2	175412	4.00
HCL	186764	10.00
HNO3	191695	5.00
ICP Spike 1A	1804014#16	2.00
ICP Spike 1B	1804016#16	2.00
ICP/MS Spike	1804017#3	2.00
LCS A1	1804014#16	2.00
LCS B1	1804016#16	2.00
LCSW2	1804017#3	1.00

Method Ref:

	SampleID	Date Due	ST	P	H	Balance	PH<2	BC	Vessel Lot#	Location ID	Comments
1)	PBS	.				10685			1712272		1.05 teflon chips lot 23293963
2)	LCSW	.				10685			1712272		1.00 teflon chips lot 23293963
3)	LCSW2	.				10685			1712272		1.01 teflon chips lot 23293963
4)	9546138	04/18/18 10:00	SW	N8		10685		620A	1712272	MET12/E8	
5)	9546139	04/18/18 10:00	SW	N8		10685		620A	1712272	MET12/A8	
6)	9546142	04/18/18 10:00	SW	N8		10685		620A	1712272	MET12/C3	
7)	9546143	04/18/18 10:00	SW	N8		10685		620A	1712272	MET12/D4	
8)	9546280	04/17/18 10:00	SW	S7		10685		620A	1712272	MET12/C4	
9)	**9546281U**	04/17/18 10:00	SW	S7		10685		620A	1712272	MET12/F3	
10)	**9546282R**	04/17/18 10:00	SW	S7		10685		620A	1712272	MET12/C8	
11)	**9546282R**	04/17/18 10:00	SW	S7		10685		036a	1712272	E00851/	
12)	**9546283M**	04/17/18 10:00	SW	S7		10685		620A	1712272	MET12/B3	
13)	**9546283M**	04/17/18 10:00	SW	S7		10685		036a	1712272	E00851/	
14)	**9546284D**	04/17/18 10:00	SW	S7		10685		620A	1712272	MET12/E3	
15)	9546285	04/17/18 10:00	SW	S7		10685		620A	1712272	MET12/B2	
16)	9546286FD	04/17/18 10:00	SW	S7		10685		620A	1712272	MET12/B8	

Prep Employee:277 D/I _____

4/11/2018

v 1.1.0

Batch# 18 099 1063 702

LLENS Batch Chronology and Change Log - SW846 (IV) ICP/ICP MS Digest

	Operation	Instrument	Operation Date	ANALYST
1)	Batch Creation		4/9/18 14:42	277
2)	Sample Wt		4/10/18 18:29	8853
3)	Sample Wt		4/10/18 20:24	8853
4)	Final Vol	10685	4/10/18 20:24	8853
5)	Trial		4/10/18 20:24	8853
6)	Sample Wt		4/10/18 21:28	8853
7)	Upload Prep	US19PCC06813	4/11/18 4:17	277

Sample ID	Analysis	D	Operation	Measurement	Original Entry				Data Changed		
					Date/Time	Data	Units	Analyst	Date/Time	Analyst	Reason

Analysis: 0637 SW846 (IV) ICP/ICP MS Digest Batch# 18 099 1063 702

Sample ID	Due Date	P	EPA#	SDG#	Sample Wt	Final Volume	Trial
PBS					1.0000	100.0000	1
LCSW					1.0000	100.0000	1
LCSW2					1.0000	100.0000	1
9546138	04/18/18	N8	L16-5	SLB16-05	1.3200	100.0000	1
9546139	04/18/18	N8	L16-6	SLB16-06	1.2100	100.0000	1
9546142	04/18/18	N8	L16-9	SLB16-09	1.1600	100.0000	1
9546143	04/18/18	N8	16-10	SLB16-10	1.1800	100.0000	1
9546280	04/17/18	S7	BNN01	SBN13-01	1.1600	100.0000	1
9546281U	04/17/18	S7	BNN02	SBN13-02BKG	1.2300	100.0000	1
9546282R	04/17/18	S7	BNN02	SBN13-02MS	1.0100	100.0000	1
9546282R	04/17/18	S7	BNN02	SBN13-02MS	1.0300	100.0000	1
9546283M	04/17/18	S7	BNN02	SBN13-02MSD	1.0500	100.0000	1
9546283M	04/17/18	S7	BNN02	SBN13-02MSD	1.0700	100.0000	1
9546284D	04/17/18	S7	BNN02	SBN13-02DUP	1.3800	100.0000	1
9546285	04/17/18	S7	BNN03	SBN13-03	1.1700	100.0000	1
9546286FD	04/17/18	S7	BNN04	SBN13-04FD	1.0400	100.0000	1

LLENS Worksheet for 0638 SW SW846 Hg Digest

Batch# 18 099 10638 02

Start Time: 4/11/18 1:15 **End Time:** 4/11/18 1:45 **Hot Block:** 1

Pipette ID: I43551C /1000

Spike/Reagent	Lot#	Volume Added(mL)
5%KMnO4	P18-088F	15.00
Aqua Regia	P18-101A	1.00
LCS 100 ppb Hg	P18-100A	1.00
NaCl/NH20H.HCL	P18-086D	6.00
Spike 100 ppb Hg	P18-100A	1.00

Method Ref:

	SampleID	Date Due	ST	P	H	Balance	PH<2	BC	Vessel Lot#	Location ID	Comments
1)	PBS	.				10685			1712272		0.60 teflon chips lot 23293963
2)	LCSW	.				10685			1712272		0.62 teflon chips lot 23293963
3)	9546138	04/18/18 10:00	SW	N8		10685		621A	1712272	HG20/A5	
4)	9546139	04/18/18 10:00	SW	N8		10685		621A	1712272	HG20/C6	
5)	9546142	04/18/18 10:00	SW	N8		10685		621A	1712272	HG20/D3	
6)	9546143	04/18/18 10:00	SW	N8		10685		621A	1712272	HG20/C4	
7)	9546280	04/17/18 10:00	SW	S7		10685		621A	1712272	HG20/D6	
8)	**9546281U**	04/17/18 10:00	SW	S7		10685		621A	1712272	HG20/C2	
9)	**9546282R**	04/17/18 10:00	SW	S7		10685		621A	1712272	HG20/B6	
10)	**9546283M**	04/17/18 10:00	SW	S7		10685		621A	1712272	HG20/D4	
11)	**9546284D**	04/17/18 10:00	SW	S7		10685		621A	1712272	HG20/B2	
12)	9546285	04/17/18 10:00	SW	S7		10685		621A	1712272	HG20/D2	
13)	9546286FD	04/17/18 10:00	SW	S7		10685		621A	1712272	HG20/B5	

Prep Employee:277

D/I _____

4/11/2018

v 1.1.0

Batch# 18 099 1063 802

LLENS Batch Chronology and Change Log - SW SW846 Hg Digest

	Operation	Instrument	Operation Date	ANALYST
1)	Batch Creation		4/9/18 14:40	277
2)	Sample Wt	10685	4/10/18 18:13	8853
3)	Final Vol	10685	4/10/18 18:13	8853
4)	Trial		4/10/18 18:13	8853
5)	Sample Wt		4/10/18 18:14	8853
6)	Sample Wt	10685	4/10/18 18:16	8853
7)	Upload Prep	US19PCC0681	4/11/18 2:38	277

					Original Entry				Data Changed		
Sample ID	Analysis	D	Operation	Measurement	Date/Time	Data	Units	Analyst	Date/Time	Analyst	Reason
PBS	10638	1	Sample Wt	Sample Wt	4/10/18 18:14	1	(g)	8853	4/10/18 18:16	8853	Wrong entry

Analysis: 0638 SW SW846 Hg Digest

Batch# 18 099 1063 802

Sample ID	Due Date	P	EPA#	SDG#	Sample Wt	Final Volume	Trial
PBS					.6000	100.0000	1
LCSW					1.0000	100.0000	1
9546138	04/18/18	N8	L16-5	SLB16-05	.6200	100.0000	1
9546139	04/18/18	N8	L16-6	SLB16-06	.6000	100.0000	1
9546142	04/18/18	N8	L16-9	SLB16-09	.6400	100.0000	1
9546143	04/18/18	N8	16-10	SLB16-10	.6300	100.0000	1
9546280	04/17/18	S7	BNN01	SBN13-01	.6100	100.0000	1
9546281U	04/17/18	S7	BNN02	SBN13-02BKG	.6200	100.0000	1
9546282R	04/17/18	S7	BNN02	SBN13-02MS	.6500	100.0000	1
9546283M	04/17/18	S7	BNN02	SBN13-02MSD	.6200	100.0000	1
9546284D	04/17/18	S7	BNN02	SBN13-02DUP	.6400	100.0000	1
9546285	04/17/18	S7	BNN03	SBN13-03	.6400	100.0000	1
9546286FD	04/17/18	S7	BNN04	SBN13-04FD	.6200	100.0000	1

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Document Title: Standard/Reagent Preparation Logbook		
Eurofins Document Reference : T-MET-FRM9079	Revision: 3	Historical Reference: 1-P-QM-FOR-9009818; Form 1105
Effective date : 02 Feb 2017	Effective	

	Standard/Reagent Prepared		Standards/Reagents Used					HNO_3 Used		
	Name	Lot #	Identification	M•	Expire Date (MM/YY)	Lot #	Init. Wt/Vol (Write g or mL)	Vol (mL)	M•	Lot #
1	Th W Spike	P18-081A	1000 ppm W	16	1-19-19	155288-10	1mL			
2	Aqua Regia	P18-081B						15	6	191695
3	100 ppb Hg	P18-082A	10 ppm Hg	16	12-17-18	m2-HG657392	2	0.3	6	191685
4	Aqua Regia	P18-082B						14	6	191685
5	Aqua Regia	P18-082C						27.5	6	191685
6	1:1 HNO3	P18-082D						12,000	6	191685
7	40 ppb Hg	P18-083A	10ppm Hg	16	10-17-18	m2-HG657392	0.8	0.5	6	191695
8	Aqua Regia	P18-083B						44	6	191695
9	Aqua Regia	~~P18-084A~~	~~HG666~~ BL8853 @					14	6	191695
10	Aqua Regia	P18-085C						25	6	191693
11	12% Hydroxylamine HCl	P18-086A	NH2OH. HCl	6	2-23-19	190903#7	240.04			
12		↓	NaCl		12-4-18	177150-#1	240.18			
13		P18-086B	NH2OH - HCl		2-22-19	190903#7	240.03			
14		↓	NaCl		12-4-18	177150#1	240.13			
15		P18-086C	NH2OH. HCl		2-23-19	190903#7	240.02			
16		↓	NaCl		12-4-18	177150#1	240.09			
17		P18-086D	NH2OH . HCl		2-23-19	190903#8	240.02			
18	↓	↓	NaCl	↓	12-4-18	177150#1	240.04			
19	16.8% Resv. Soln.	P18-086E						168	6	191695
20	↓	P18-086F						↓	↓	↓

Key – Manufacturer (M•)

1 – Aldrich Chemical
2 – Conostan Specialty Products
3 – EM Science
4 – Fisher Scientific
5 – High-Purity Standards
6 – J. T. Baker
7 – Johnson Matthey
8 – Leeman Labs
9 – Mallinckrodt
10 – Plasma Pure
11 – Solutions Plus
12 – SPEX Industries
13 – VWR Scientific
14 – EMD
15 – Prepared in house
16-Inorganic Ventures
XX – Other (footnote Manuf.)

LANCASTER LABORATORIES

Run Name: 1810101M08

Analyst ID: 354.00

Instrument ID: 19302

CV Element: Hg

1 Burn Date/Time: 04/11/2018 05:49

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
S0		1	1	1.00

AVG (ppb)	Intensity
0.0000	136.0

2 Burn Date/Time: 04/11/2018 05:51

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
S0.2		1	1	1.00

AVG (ppb)	Intensity
0.0000	2137.0

3 Burn Date/Time: 04/11/2018 05:53

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
S0.5		1	1	1.00

AVG (ppb)	Intensity
0.0000	4883.0

4 Burn Date/Time: 04/11/2018 05:55

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
S1.0		1	1	1.00

AVG (ppb)	Intensity
0.0000	9424.0

5 Burn Date/Time: 04/11/2018 05:57

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
S2.5		1	1	1.00

AVG (ppb)	Intensity
0.0000	23692.0

6 Burn Date/Time: 04/11/2018 05:59

Sample Number	Class	Initial Vol / Wt	Final Vol	DF
S5.0		1	1	1.00

AVG (ppb)	Intensity
0.0000	45846.0

CorrelationCoefficient = 1.00000
Slope = 9152.1862600000
Y-Intercept = 319.6477400000

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Quality Control Reference List
Instrumental Water Quality

CLIENT: C. T. Male Associates
SDG: SBN13

Fraction: Instrumental Wet Chemistry

Analysis	Batch Number	Sample Number	Analysis Date
TOC	18103667631A	P181031B	04/13/2018 13:19:00
		P181031Q	04/13/2018 13:32:00
TOC	18103667631B	9546280	04/19/2018 12:17:00
		9546281 UNSPK/BKG, MSD	04/16/2018 16:28:00
		9546281 MSD	04/16/2018 16:53:00
		9546282 MS	04/16/2018 16:40:00
		9546284 DUP	04/16/2018 17:06:00
		9546285	04/16/2018 17:19:00
		9546286	04/19/2018 12:29:00
Total Organic Carbon	18101667607A	P10167GB	04/12/2018 06:18:00
		P10167GQ	04/12/2018 06:03:00
		9546287	04/12/2018 08:12:00

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Quality Control Summary
Initial And Continuing Calibration
Instrumental Analysis/TOC

SDG: SBN13

Instrument ID: 08742
Calibration Date: 04/02/2018

Analysis	AUTO CAL1	AUTO CAL2	AUTO CAL3	AUTO CAL4	AUTO CAL5	AUTO CAL6	CC
TOC	7606	48749	65162	162658	324313	659817	1.0000

Acceptance Range:
ICV/CCV: 90%-110%
ICB/CCB: < LOQ

Concentration units: mg/L

Batch Numbers: 18101667607A
Run Start Dates: 04/11/2018
Run Names: 1810101G05

ICAL and ICV/CCV for EB.
Limited validation.

Sample	TOC True	TOC Result	TOC %Rec
ICV	25	24.606	98
ICB	0	ND	NA
CCV2	25	25.515	102
CCB	0	ND	NA
CCV2	25	25.510	102
CCB	0	ND	NA
CCV2	25	25.665	103
CCB	0	ND	NA

* = Out of Specification are immediately followed by two acceptable CCVs

Method:	TC	Run Start Date:	4/5/2018 9:23:10 AM
Run Name:	18095-CAL	Run End Date:	4/5/2018 11:12:21 AM
Analyst:	6676	Device ID:	17171

Sample ID	Result mg C abs	Weight (mg)	Peak Area	Description	Result Flag	Analysed Date and time
SYNC	7.3	25	3923992.185		O	4/5/2018 9:23:30 AM
Blank	0.065	0	0		L	4/5/2018 9:36:12 AM
0.3 STD	0.365	1	162190.98		N	4/5/2018 9:49:07 AM
0.9 STD	0.935	3	471463.19		N	4/5/2018 10:02:03 AM
3.0 STD	2.818	10	1493260.41		N	4/5/2018 10:14:59 AM
6.0 STD	6.082	20	3263600.06		N	4/5/2018 10:27:55 AM
ICV 3.0	2.813	10	1490074.63		N	4/5/2018 10:40:51 AM 94% ±5
ICB	0.065	0	0		L	4/5/2018 10:53:47 AM

Drew Gerhart
Chemist

APR 05 2018

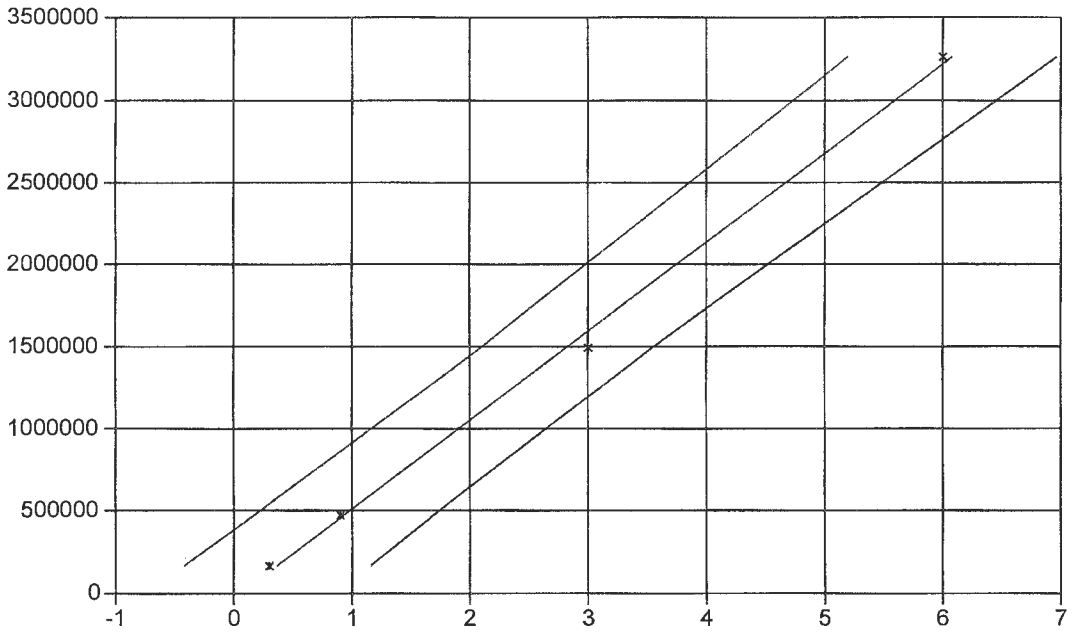
Nicole M. Veety
Senior Chemist/Group Leader

APR 10 2018

SBN13 Page 3000 of 3040

Run Name:	18095-CAL	Analyst:	6676
Instrument:	17171	Run Start Date:	4/5/2018 9:23:10 AM
Method:	TC	Run End Date:	4/5/2018 11:12:21 AM

SNAccess
Method Name : TC Calibration Type : ISO First order Group : 1
a = -35517.93269230730000 **b** = 542410.42850678700000 **r** = 0.99886851703682 **R-Squared** = 0.99773831432734



Drew Gerhart
Chemist

APR 05 2018

Nicole M. Veety
Senior Chemist/Group Leader

APR 10 2018

Method: TC
Run Name: 18106-1
Analyst: 6676

Run Start Date: 4/16/2018 3:23:45 PM
Run End Date: 4/16/2018 8:39:15 PM
Device ID: 17171

Sample ID	Result mg C abs	Weight (mg)	Peak Area	Description	Result Flag	Analysed Date and time	
SYNC	0.881	148.2	442196.8		N	4/16/2018 3:36:26 PM	✓
SOLID STD	0.801	137.2	398757.56		N	4/16/2018 3:49:15 PM	TV=7150 5838.19 82% IS ✓
CCB	0.065	0	0		L	4/16/2018 4:02:11 PM	
9546280	7.129	162.9	3831152.23	18103667631B	O	4/16/2018 4:15:06 PM	Repeat
9546281-U	2.602	85.1	1375645.18	18103667631B	N	4/16/2018 4:28:02 PM	✓
9546282-R	3.531	30.7	1879861.65	18103667631B	N	4/16/2018 4:40:58 PM	SA=97710 115016.29 86% ✓
9546282-M	3.326	24.7	1768357.46	18103667631B	N	4/16/2018 4:53:54 PM	SA=121476 134655.87 86% ✓
9546284-D	2.067	90.7	1085897.53	18103667631B	N	4/16/2018 5:06:50 PM	✓
9546285	1.979	131.9	1038100.805	18103667631B	N	4/16/2018 5:19:46 PM	–
9546286	6.445	146.6	3460066.06	18103667631B	O	4/16/2018 5:32:41 PM	Repeat
9547958	4.195	203	2239734.02	18103667632A	N	4/16/2018 5:45:37 PM	–
9547959	1.502	97.4	779393.98	18103667632A	N	4/16/2018 5:58:33 PM	–
9547967	1.883	98.2	985574.29	18103667632A	N	4/16/2018 6:11:22 PM	– ✓
SOLID STD	0.838	139.7	419053.935		N	4/16/2018 6:24:18 PM	TV=7150 5998.57 84% IS ✓
CCB	0.065	0	0		L	4/16/2018 6:37:14 PM	
9547969	1.792	94.6	936386.14	18103667632A	N	4/16/2018 6:50:10 PM	–
PBS	0.065	0	0	18106667631A	L	4/16/2018 7:03:06 PM	–
LCSS	0.758	138.8	375452.935	18106667631A	N	4/16/2018 7:16:01 PM	TV=7150 5461.30 76% IS
9552603-U	5.918	90.5	3174464.495	18106667631A	N	4/16/2018 7:28:57 PM	–
9552603-R	5.079	31.4	2719208.14	18106667631A	N	4/16/2018 7:41:53 PM	SA=95550 161751.59 101%
9552603-D	5.811	89.4	3116271.98	18106667631A	N	4/16/2018 7:54:49 PM	–
SOLID STD	0.838	140.3	419002.945		N	4/16/2018 8:07:45 PM	TV=7150 5972.92 84% IS
CCB	0.065	0	0		L	4/16/2018 8:20:41 PM	

SBN 43 Page 30 of 3040

Drew Gerhart
Chemist

APR 17 2018

Sandra J. Miller
Chemist

APR 17 2018

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Quality Control Reference List
Water Quality

CLIENT: C. T. Male Associates
SDG: SBN13

Fraction: Wet Chemistry

Batch Number	Sample Number	Analysis Date	pH	Temperature of pH
18101039401A	P101039Q	04/11/2018 19:35:00	X	
18101039401B	9546280	04/11/2018 19:35:00	X	
	9546281 BKG	04/11/2018 19:35:00	X	
	9546284 DUP	04/11/2018 19:35:00	X	
	9546285	04/11/2018 19:35:00	X	
	9546286	04/11/2018 19:35:00	X	
18102003102A	9546287	04/13/2018 01:22:00	X	X
	P003102Q	04/13/2018 00:40:00	X	

eurofins | Lancaster Laboratories Environmental	Document Title: Raw Data Logbook Solid pH (Analysis #0394) Corrosivity (Analysis #0496)		
	Eurofins Document Reference : T-WC-FRM11560	Revision: 4.1	Historical Reference: 1-P-QM-FOR-9010004; Form 2670
	Effective date : 28 Dec 2016	Effective	

pH Buffer Reference: F348-03 Balance ID#: 12071

Batch # 1 8 1 0 1 | 0 3 9 | 4 0 1 A

Date: 4-11-18 Inst. #: 16390

Time: 19:35 Analyst: FLB/25420

	Sample Number	Sample Wt. (g)	DI H_2O Wt. (g)	✓ Reading	Temp (°C)	Std. True Value	QC#	Batch Letter	Bottle Code	Comments
1	LCS 7.00	—	—	✓ 6.99	17.6	7.00	1	—	—	100%
2	pH 2	—	—	✓ 2.11	17.6	—	—	—	—	
3	pH 12	—	—	✓ 12.09	17.8	—	—	—	—	
4	9548831	28.10	28.0	7.52	18.8	—		A	190A	} 496
5	9548831	28.10	28.0	7.52	18.8	—		A	190A	
6	9548831	28.10	28.0	7.52	18.8	—		A	190A	
7	~~9544750~~	~~25.32~~	~~28.0~~	⑧		—	⑧	~~A~~	~~20B~~	} 496 ⑧
8	~~9544750~~	~~25.32~~	~~28.0~~			—		~~A~~	~~20B~~	
9	~~9544750D~~	~~28.32~~	~~28.0~~			—		~~A~~	~~20B~~	
10	~~9544750D~~	~~28.04~~	~~28.0~~			—		~~A~~	~~20A~~	R=
11	9538579	28.12	28.0	9.22	19.2	—		A	312D	
12	9539650	28.28	28.0	6.75	19.2	—		A	99A	
13	9544609	28.30	28.0	5.58	19.2	—		A	21A	
14	CCV 7.00	—	—	7.04	17.5	7.00		—	—	
15	9546138	28.11	28.0	7.94	19.3	—		A	36A	
16	9546139	28.04	28.0	7.61	19.1	—		A	36A	
17	9546142	28.07	28.0	7.81	19.0	—		A	36A	
18	9546143	28.29	28.0	7.73	19.4	—		A	36A	
19	9546237	28.04	28.0	✓ 8.03	19.3	—		A	20A	
20	9546280	28.08	28.0	✓ 8.90	19.2	—		B	36A	
21	9546281 D	28.19	28.0	✓ 7.92	19.3	—		B	36A	
22	9546284 D	28.07	28.0	7.92	19.4	—		B	36A	R=0
23	9546285	28.09	28.0	✓ 7.53	19.4	—		B	36A	
24	9546286	28.01	28.0	✓ 9.18	19.4	—		B	36A	
25	CCV 7.00	—	—	✓ 7.02	17.3	7.00		—	—	
26	9547958	28.22	28.0	7.88	19.5	—		B	36A	
27	9547959	28.10	28.0	7.91	19.4	—		B	36A	
28	9547962 D	28.00	28.0	7.84	19.3	—		③ C A	36A	③ FLB/25420/4-11-18
29	9547965 D	28.40	25.0	7.97	19.2	—		③ C A	36A	R=2
30	9547969	28.09	28.0	7.16	19.4	—		B	36A	
31	9549662	28.02	50.0	6.57	19.3	—		B	21A	

⑧ Sample not analyzed, due to a Hold Analysis. FLB/25420/4-11-18

Verified by: MLG/1124 Date: 4/13/18

Bicarbonate	319.88	319.88	Y	Y
Carbonate	0.00	0.00	Y	Y
Hydroxide	0.00	0.00		
Phenolphthalein Alkalinity	0.00	0.00		
pH	7.90	7.90		
Total Alkalinity	319.88	319.88	Y	Y
Temperature of pH	22.74	22.74		

Sample	Index	QC Type	Batch	Dilution	Run Date:
CCVPH2	**145934**	CCV		1.00	04/12/2018 23:51

Analysis Name	Raw Result	CalcResult	Verified	QC Review Notes
pH	7.06	7.06		
Temperature of pH	22.60	22.60		

Sample	Index	QC Type	Batch	Dilution	Run Date:
CCB	**145935**	CCB		1.00	04/12/2018 23:56

Analysis Name	Raw Result	CalcResult	Verified	QC Review Notes
Bicarbonate	1.47	1.47		
Carbonate	0.00	0.00		
Hydroxide	0.00	0.00		
Phenolphthalein Alkalinity	0.00	0.00		
pH	6.65	6.65		
Total Alkalinity	1.47	1.47		
Temperature of pH	22.66	22.66		

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
9552578	**145936**		18102003101A	1.00	332A	04/13/2018 0:04

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
Bicarbonate	106.35	106.35	Y	Y		
Carbonate	0.00	0.00	Y	Y		
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	7.96	7.96				
Total Alkalinity	106.35	106.35	Y	Y		
Temperature of pH	22.92	22.92				

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
9552582	**145937**		18102003101A	1.00	332A	04/13/2018 0:11

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
Bicarbonate	325.76	325.76	Y	Y		
Carbonate	0.00	0.00	Y	Y		
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	7.60	7.60				
Total Alkalinity	325.76	325.76	Y	Y		
Temperature of pH	22.90	22.90				

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
9552471	**145938**		18102003101A	1.00	332A	04/13/2018 0:18

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
Bicarbonate	5.53	5.53				
Carbonate	0.00	0.00				
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	6.77	6.77				
Total Alkalinity	5.53	5.53	Y	Y		
Temperature of pH	22.92	22.92				

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
9554438	**145939**		18102003101A	1.00	332A	04/13/2018 0:23

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
Bicarbonate	1.16	1.16				
Carbonate	0.00	0.00				

Hydroxide	0.00	0.00		
Phenolphthalein Alkalinity	0.00	0.00	Y	Y
pH	6.38	6.38		
Total Alkalinity	1.16	1.16	Y	Y
Temperature of pH	22.81	22.81		

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:	
9552376	145940		18102003101A	5.00	070A	04/13/2018	0:36

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
Bicarbonate	925.82	4 629.10				
Carbonate	0.00	0.00				
Hydroxide	0.00	0.00				
Phenolphthalein Alkalinity	0.00	0.00				
pH	5.61	28.05				
Total Alkalinity	925.82	4 629.10	Y	Y		
Temperature of pH	22.64	113.20				

Sample	Index	QC Type	Batch	Dilution	Run Date:	
LCSPH	145941	Q	18102003102A	1.00	04/13/2018	0:40

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	7.06	7.06	Y	Y		
Temperature of pH	22.77	22.77				

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:	
9550392	145942	U	18102003102A	1.00	070A	04/13/2018	0:45

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	7.67	7.67	Y	Y		
Temperature of pH	22.64	22.64	Y	Y		

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:	
9550392	145943	D	18102003102A	1.00	070A	04/13/2018	0:49

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	7.81	7.81	Y	Y		
Temperature of pH	22.67	22.67	Y	Y		

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:	
9550393	145944	U	18102003102B	1.00	070A	04/13/2018	0:54

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	8.24	8.24	Y	Y		
Temperature of pH	22.66	22.66	Y	Y		

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:	
9550393	145945	D	18102003102B	1.00	070A	04/13/2018	0:58

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	8.30	8.30	Y	Y		
Temperature of pH	22.67	22.67	Y	Y		

Sample	Index	QC Type	Batch	Dilution	Run Date:	
CCVPH2	145946	CCV		1.00	04/13/2018	1:02

Analysis Name	Raw Result	CalcResult	Verified	QC Review Notes
pH	7.06	7.06		
Temperature of pH	22.86	22.86		

Sample	Index	QC Type	Batch	Dilution	Run Date:	
CCB	145947	CCB		1.00	04/13/2018	1:08

Analysis Name	Raw Result	CalcResult	Verified	QC Review Notes
Bicarbonate	3.26	3.26		
Carbonate	0.00	0.00		
Hydroxide	0.00	0.00		
Phenolphthalein Alkalinity	0.00	0.00		
pH	6.78	6.78		
Total Alkalinity	3.26	3.26		
Temperature of pH	22.93	22.93		

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
9549796	145948		18102003102A	1.00	005B	04/13/2018 1:12

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	7.28	7.28	Y	Y		
Temperature of pH	22.90	22.90	Y	Y		

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
9545499	145949		18102003102A	1.00	005A	04/13/2018 1:17

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	7.71	7.71	Y	Y		
Temperature of pH	22.81	22.81	Y	Y		

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
9546287	145950		18102003102A	1.00	070A	04/13/2018 1:22

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	6.64	6.64	Y	Y		
Temperature of pH	22.77	22.77	Y	Y		

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
9547332	145951		18102003102A	1.00	070A	04/13/2018 1:26

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	8.41	8.41	Y	Y		
Temperature of pH	22.67	22.67	Y	Y		

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
9547333	145952		18102003102A	1.00	070A	04/13/2018 1:29

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	8.35	8.35	Y	Y		
Temperature of pH	22.60	22.60	Y	Y		

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
9546205	145953		18102003102A	1.00	070A	04/13/2018 1:34

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	7.55	7.55	Y	Y		
Temperature of pH	22.66	22.66	Y	Y		

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
9546206	145954		18102003102A	1.00	070A	04/13/2018 1:38

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	7.61	7.61	Y	Y		
Temperature of pH	22.80	22.80	Y	Y		

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
9548722	145955		18102003102A	1.00	070A	04/13/2018 1:42

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	8.46	8.46	Y	Y		
Temperature of pH	22.72	22.72	Y	Y		

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
9551090	145956		18102003102A	1.00	070A	04/13/2018 1:47

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	8.34	8.34	Y	Y		
Temperature of pH	23.07	23.07	Y	Y		

Sample	Index	QC Type	Batch	Dilution	Bottle	Run Date:
9550130	145957		18102003102A	1.00	070A	04/13/2018 1:51

Analysis Name	Raw Result	CalcResult	Uploaded?	Verified	QC Review Notes	Selection Reason
pH	8.68	8.68	Y	Y		
Temperature of pH	22.92	22.92	Y	Y		

Sample	Index	QC Type	Batch	Dilution	Run Date:
CCVPH2	145958	CCV		1.00	04/13/2018 1:54

Analysis Name	Raw Result	CalcResult	Verified	QC Review Notes
pH	7.06	7.06		

MOISTURE

SAMPLE NUMBERS:

Sample #	Sample Code
9546280	BNN01
9546281	BNN02BKG
9546282	BNN02MS
9546283	BNN02MSD
9546284	BNN02DUP
9546285	BNN03
9546286	BNN04FD

COMMENTS:

Method defined actions are taken for any failed matrix QC.

Laboratory Compliance Quality Control

Analysis Name	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18099820002A	Sample number(s): 9546280-9546286				
Moisture	100		99-101		
Moisture	100		99-101		
Moisture Duplicate	100		99-101		

Sample Matrix Quality Control

Analysis Name	BKG Conc	DUP Conc	RPD	RPD Max
Batch number: 18099820002A	Sample number(s): 9546280-9546286			
Moisture	14.2	13.9	2	5
Moisture	14.2	13.9	2	5
Moisture Duplicate	14.2	13.9	2	5

* - Outside of specification

(1) - The result for one or both determinations was less than five times the LOQ.

Moisture Data Report

Batch #: 18099820002

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
9546280	A	00111	1.1204	5.9851	6.8000	5.10	4/ 9/18 (835/LEB)	4/10/18 (236/CW)
9546281BKG	A	00111	1.0870	5.7415	6.0134	14.20	4/ 9/18 (835/LEB)	4/10/18 (236/CW)
9546282MS	A	00118				14.20	4/ 9/18 (835/LEB)	4/10/18 (236/CW)
9546283MSD	A	00118				14.20	4/ 9/18 (835/LEB)	4/10/18 (236/CW)
9546284DUP	A	00118				14.20	4/ 9/18 (835/LEB)	4/10/18 (236/CW)
9546284DUP	A	00121	1.1116	5.5991	5.9320	13.91	4/ 9/18 (835/LEB)	4/10/18 (236/CW)
9546285	A	00111	1.1058	5.2089	5.0427	24.42	4/ 9/18 (835/LEB)	4/10/18 (236/CW)
9546286FD	A	00111	1.1081	5.4860	6.4703	2.26	4/ 9/18 (835/LEB)	4/10/18 (236/CW)
LCS 89.5% Std.		00111	1.1240	5.0084	1.6553	89.39	4/ 9/18 (835/LEB)	4/10/18 (236/CW)

SECTION 7

LABORATORY CASE NARRATIVES AND

PROJECT CHAIN-OF-CUSTODY RECORDS

Project Name: SGPP - Bennington
ELLE Group #: 1926427

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous

Sample #s: 9536708, 9536709, 9536710

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9536706

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9536701, 9536702, 9536703, 9536704, 9536705, 9536707

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Batch #: 18094017 (Sample number(s): 9536701-9536710)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluoroundecanoic acid Qualify detects J,LAH

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9536701, 9536702, 9536703, 9536704, 9536705, 9536707 Qualify associated results J/UJ,IS

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9536710
Qualify associated results J/UJ,IS.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1926427 Sample # 9536701-10

COC # 541141

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP-Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: JD, DK, CB, CO	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Tissue ☐ Sediment ☑ Water ☐ Ground ☑ Surface ☐ NPDES ☐ Other: Rinse Water

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

5 of 5

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	14 PFAS (EPA 533 mod)
SG3a-WP19-D	3/30/18	12:35	✓		1	✓
SG3a-WP19-DS.5		12:40	✓		1	✓
SG3a-WP20-D		12:45	✓		1	✓
SG3a-WP20-DS.5		12:50	✓		1	✓
SG3a-WP21-DS.5		12:55	✓		1	✓
SG3a-WP22-E		13:15	✓		1	✓
SG3a-WP23-FS.0		13:20	✓		1	✓
SG3a-WP24-FB.0		13:25	✓		1	✓
SG3a-WP25-E		13:35	✓		1	✓
SG3a-WP26-FS.0	↓	13:40	✓		1	✓

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: k.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

(NYSDEC Category A or B) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	3/30/18	15:40			
				3-31-18	955

EDD Required? Yes No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____

✓ Temperature upon receipt 1.4-2.0 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 212542

Group Number(s): 1926427

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/31/2018 9:55
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm: ✓	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed: ✓	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 4-250 mL plastic bottles (unpre)

Unpacked by Melvin Sanchez (8943) at 14:31 on 03/31/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp ✓	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	2.0	DT	Wet	Y	Bagged	N
2	DT131	1.4	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17601-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Project Name: SGPP - Bennington
ELLE Group #: 1928759

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Sample #s: 9546285

Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9546281

The recovery for the sample internal standard is outside the QC acceptance limits. The following action was taken: The sample was re-analyzed and the QC is again outside of the acceptance limits, indicating a matrix effect. The data is reported from the initial trial.

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The reported concentration in the associated sample(s) is considered to be estimated. Therefore the result for the following analyte(s) is estimated:
acetone, carbon disulfide and 2-butanone.

Sample #s: 9546286

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The reported concentration in the associated sample(s) is considered to be estimated. Therefore the result for the following analyte(s) is estimated:
acetone and 2-butanone.

Sample #s: 9546280

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The reported concentration in the associated sample(s) is considered to be estimated. Therefore the result for the following analyte(s) is estimated:
acetone.

Batch #: L181051AA (Sample number(s): 9546287, 9546289 UNSPK: P547954)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Methylcyclohexane

Batch #: X181051AA (Sample number(s): 9546280-9546283 UNSPK: 9546281)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: 1,1,2-Trichloroethane, 1,1,2,2-Tetrachloroethane, 4-Methyl-2-pentanone, 2-Hexanone, 1,2-Dibromoethane, Acetone, 2-Butanone

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Methylcyclohexane, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: 1,2-Dibromoethane, 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane, 1,2,3-Trichlorobenzene, Acetone, 2-Hexanone

Batch #: X181061AA (Sample number(s): 9546286 UNSPK: P546186)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: 1,1-Dichloroethene, 1,1,1-Trichloroethane, 4-Methyl-2-pentanone, 2-Hexanone

SW-846 8270D, GC/MS Semivolatiles

Sample #s: 9546280, 9546281, 9546282, 9546283, 9546285, 9546286

Reporting limits were raised due to interference from the sample matrix.

Batch #: 18099SLA026 (Sample number(s): 9546280-9546283, 9546285-9546286 UNSPK: 9546281)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: bis(2-Ethylhexyl)phthalate

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: 2,4-Dinitrophenol, Hexachlorocyclopentadiene, 2,3,4,6-Tetrachlorophenol

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9546282

The recovery for labeled compound used as extraction standard 13C9-PFNA is outside of QC acceptance limits as noted on the QC Summary.

Batch #: 18099003 (Sample number(s): 9546280-9546283, 9546285-9546286 UNSPK: 9546281)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorooctanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9546282, MS

SW-846 6010C, Metals

Batch #: 180991063702 (Sample number(s): 9546280-9546286 UNSPK: 9546281 BKG: 9546281)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window

indicating a positive bias: Aluminum, Iron, Potassium, Manganese, Zinc

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Magnesium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Calcium, Iron, Magnesium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum, Magnesium, Potassium

SW-846 6020A, Metals

Batch #: 180991063702A (Sample number(s): 9546280-9546286 UNSPK: 9546281 BKG: 9546281)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Lead

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Copper

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Cadmium, Silver, Thallium

Batch #: 180991063702D (Sample number(s): 9546280-9546286 UNSPK: 9546281 BKG: 9546281)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SW-846 7470A, Metals

Batch #: 180990571304 (Sample number(s): 9546287 UNSPK: P541411 BKG: P541411)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Mercury

SM 5310 B modified-2011, Wet Chemistry

Batch #: 18103667631B (Sample number(s): 9546280-9546282, 9546284-9546286 UNSPK: 9546281 BKG: 9546281)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9546280

The pH was measured in water at 19.2 C.

Sample #s: 9546281

The pH was measured in water at 19.3 C.

Sample #s: 9546284, 9546285, 9546286

The pH was measured in water at 19.4 C.

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1928759 Sample #: 9546280-89 COC#: 18874

Client:	C.T. Male Associates
Project Name/#:	SGPP - Bennington
Site ID:	
Project Manager:	Kirk Moline
P.O. #:	16.6131
Sampler:	CO, DA
Phone #:	
Quote #:	219169
State where sample(s) were collected:	VT

For Lab Use Only
SF#: 271284
SCR#: 222397

Matrix: Sediment [X], Ground, Surface, Soil, Water (Potable, NPDES), Other: DI water

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other: DI water	Total # of Containers	TCL VOAs (8260C)	TAL Metals + Hg	TCL SVs (8270D)	TOC (5310 B)	pH (9045D)	14 PFAS (EPA 537 mod.)	Moisture (2540 G)	Remarks
SG3a-Sludge 18-02-180405	4/5/18	1200	X		X			6	X	X	X	X	X	X	X	
SG3a-Sludge 18-03-180405	4/5/18	1245	X		X			18	X	X	X	X	X	X	X	MS/MSD
SG3a-Sludge 18-04-180405	4/5/18	1330	X		X			6	X	X	X	X	X	X	X	
SG3a-FD01-180405	4/5/18	—	X		X			6	X	X	X	X	X	X	X	
SG3a-EB01-180405	4/5/18	1400	X				X	10	X	X	X	X	X	X		
SG3a-FTB01-180405	4/5/18	1410	X				X	2						X		
SG3a-LTB01-180405	4/5/18	—					X	4	X					X		

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results:

Data Package Options (please check if required)
Type I (Validation/non-CLP) [✓] MA MCP [ ] TX TRRP - 13 [ ]
Type III (Reduced non-CLP) [ ] CT RCP [ ]
Type IV (CLP SOW) [ ] ASP Type A [ ]
Type VI (Raw Data Only) [ ] ASP Type B [ ]
EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	4/5/18	1545			
			[signature]	4.6.18	1000

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx X Other ______

Temperature upon receipt 0.6 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 213024

Group Number(s): 1908759

Client: C.T. Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/06/2018 10:00
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed: ✔	Yes	Sample IDs on COC match Containers: ✔	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 11:06 on 04/06/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp ✔	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.6	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17601-2425
T : 717-656-2300
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ENVIRONMENTAL® STANDARDS

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DATA USABILITY SUMMARY REPORT

ANALYSIS OF PERFLUORINATED ALKYL SUBSTANCES

IN SOLID SAMPLES

1030 WATER STREET, VILLAGE OF NORTH BENNINGTON,

BENNINGTON COUNTY, VERMONT, VTDEC SMS SITE # 20164630

SAMPLE DELIVERY GROUP: SBN17

May 24, 2018

Prepared for:

C.T. MALE ASSOCIATES
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Latham, NY 12110

Prepared by:

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TABLE OF CONTENTS

Introduction

Section 1 **Quality Assurance Review**

A. Organic Data Review

B. Conclusions

Section 2 **Validated Data Summary Tables**

Section 3 **Laboratory Calibration and Quality Control Acceptance Criteria**

Section 4 **Environmental Standards, Inc., Standard Operating Procedure**

Section 5 **Organic Data Support Documentation**

Section 6 **Laboratory Case Narrative and Project Chain-of-Custody Record**

Introduction

This Data Usability Summary Report (DUSR) was based upon an examination of the data generated from samples that were collected on April 23, 2018, as part of the 1030 Water Street, Village of North Bennington, Vermont project based on the "Initial Site Characterization Investigation Work Plan Saint-Gobain Performance Plastics Site 1030 Water Street, Village of North Bennington, Bennington County, Vermont" (Work Plan, April 2016). The analyses of the samples (and associated quality control [QC] sample) listed on the table below were performed by Eurofins Lancaster Laboratories Environmental (ELLE) of Lancaster, Pennsylvania. Solid samples were analyzed for perfluorinated and polyfluorinated alkyl substances (PFASs) according to ELLE's internal standard operating procedure (SOP) "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3). The Analytical Services Protocol (ASP) Category B data deliverables were prepared by the laboratory and were reviewed by Environmental Standards, Inc. (Environmental Standards). The samples that have undergone a Full quality assurance (QA) review are listed on Table 1. Table 1 also presents the laboratory sample number, laboratory Sample Delivery Group (SDG), matrix, collection date, and parameter analyzed and reviewed for the samples.

The reported analytical results are presented on the validated data summary tables included in Section 2. These validated data summary tables were generated from electronic data deliverables (EDDs) provided by the laboratory and have been edited by the data reviewer to include all final data validation qualifiers and results. The "Lab Result," "Lab MDL" (*i.e.*, the method detection limit [MDL]), "Lab LOQ" (*i.e.*, the limit of quantitation [LOQ]), "Lab Qualifier," and "Lab Detect Flag" fields presented on the validated data summary tables were derived directly from the laboratory-provided EDD. Errors in the "Lab Result," "Lab MDL," "Lab LOQ," and "Lab Detect Flag" fields noted during validation have been corrected, and the corrections are reflected in the "Final Result," "Final MDL," "Final LOQ," and "Final Detect Flag" fields, respectively, on the validated data summary tables. Validation qualifier codes have been placed in the "Final Qualifier" fields on the data tables to enable the data user to quickly assess the qualitative and/or quantitative reliability of a result based on the criteria evaluated during this QA review. Finally, the "Validation Reason Code" field has been populated with codes that indicate the reason for the validation qualifiers. Definitions of the validation qualifiers and reason codes are presented with the validated data summary tables.

This QA review has been performed with guidance from the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016), and the "National Functional Guidelines for High Resolution Superfund Methods Data Review" (US EPA, April 2016); however, these validation guidance documents specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocol performed by the laboratory for these samples. Environmental Standards used professional judgment to determine the usability of the analytical results and compliance relative to the requirements specified in the Work Plan and ELLE's internal SOP for PFAS analysis. US EPA Method 537 is written strictly for drinking water samples, and no approved US EPA method currently exists for

other sample matrices. Although ELLE's internal SOP references US EPA Method 537 for PFAS analysis, the procedure is really an "in-house" procedure that is also considered "Confidential Information"; therefore, a summary of the Calibration and QC Requirements used by ELLE for PFAS analysis has been included in Section 3. In addition, the SOP used by Environmental Standards to validate data generated under the ELLE PFAS SOP is provided in Section 4. Details of this QA review are presented in Section 1 of this DUSR.

This DUSR identifies data quality issues for specific samples and specific evaluation criteria. The data qualifications allow the data end-user to best understand the usability of the analysis results. Data not qualified in this report should be considered valid based on the QC criteria that have been reviewed.

Section 5 of the report presents the Organic Data Support Documentation for this DUSR, and the Laboratory Case Narrative and Project Chain-of-Custody Record is presented in Section 6.

TABLE 1 – SUMMARY OF SAMPLES REVIEWED

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter Examined
SG3a-BL01-A5.0	9573887	SBN17	S	4/23/18	F	PFAS
SG3a-BL01-A5.0MS (Matrix Spike)	9573887MS	SBN17	S	4/23/18	F	PFAS
SG3a-BL02-A5.0	9573888	SBN17	S	4/23/18	F	PFAS
SG3a-BL04-A5.0	9573889	SBN17	S	4/23/18	F	PFAS
SG3a-BL05-A5.0	9573890	SBN17	S	4/23/18	F	PFAS
SG3a-BL07-A5.0	9573891	SBN17	S	4/23/18	F	PFAS
SG3a-BL09-A5.0	9573892	SBN17	S	4/23/18	F	PFAS

NOTES:

PFAS - Perfluorinated and polyfluorinated Alkyl Substances (PFASs) according to ELLE's SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3). (7 Full analyses)

F - Full QA Review (refer to Section 1).

S - Solid.

Section 1 Quality Assurance Review

A. Organic Data Review

The organic analyses of seven (including one QC sample) solid samples collected on April 23, 2018, as part of the 1030 Water Street, Village of North Bennington, Vermont project were performed by ELLE. Solid samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3). Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data reviewed were presented in an ASP Category B data deliverables.

The findings offered in this report for analyses that underwent a Full QA review were based upon a rigorous review of all tabulated QC summary forms and all raw data, including the following QC measures:

- Sample and extract holding times
- Blank analysis results
- Second-source initial calibration verification (ICV) recoveries
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Labeled pre-extraction internal standard recoveries
- Qualitative identification
- Analytical sequence
- Sample condition upon laboratory receipt
- Initial calibrations
- Continuing calibration verification (CCV) recoveries
- Matrix spike (MS) results
- Pre-injection internal standard responses
- Quantitation of results

The analytical results for the organic target compounds are presented on the validated data summary tables in Section 2 of this DUSR. The validated data summary tables include the full names of the target analytes along with their associated acronyms, which are used throughout the text of this DUSR. A summary of ELLE's Calibration and QC Requirements has been included in Section 3. The SOP used by Environmental Standards to validate data generated under the ELLE SOP is provided in Section 4. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, and other documentation needed to support the findings in this DUSR in the Organic Data Support Documentation provided in Section 5, and Laboratory Case Narrative and Project Chain-of-Custody Record in Section 6. The data reviewer has also manually edited the laboratory-reported data and QC summary forms included in this section based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Usability issues are addressed in the subsequent Organic Data Qualifiers section. Reporting issues regard the completeness and accuracy of the laboratory data

deliverables provided. Procedural issues regard the evaluation of compliance with the analytical methods performed and the ELLE internal SOP.

Reporting Issue

- The results for PFOA in all project samples were reported from analyses performed at secondary dilutions; however, the laboratory reported the recoveries of the associated labeled pre-extraction internal standard from the primary dilution analyses in the Surrogate Quality Control section of the Analysis Report. The data reviewer assessed the pre-extraction internal standard recoveries from the Form 02A's and raw data.

Procedural Issues

1. US EPA Method 537 is listed as the reference method in the title of the ELLE SOP; however, US EPA Method 537 is written specifically for the analysis of drinking water samples. As a result, the laboratory has made modifications to the extraction procedure to accommodate preparation of non-aqueous samples (ultrasonic extraction for an hour with 1:1 acetonitrile/methanol mixture vs. solid-phase extraction). In addition, the laboratory has made other modifications, including, but not limited to, the following:

    - The laboratory utilized additional labeled analogs of the target PFASs, where available for use, as pre-extraction internal standards (all target PFASs except PFTriA), which generally should normalize any extraction inefficiency and provide greater accuracy in quantitation. For dilution analyses, the pre-extraction internal standards were refortified after extraction and prior to dilution. In addition, the laboratory spiked the extracts with yet additional labeled analogs of the target PFASs post extraction and used these labeled analogs as the internal standards for the pre-extraction internal standards.
    - As the labeled internal standards were added prior to extractions, additional labeled surrogate compounds were not used.
    - A holding time of 28 days from collection to extraction was used for solid samples.
    - The laboratory did not control the relative percent difference (RPD) between the high and low areas for each internal standard in the initial calibration (must be < 20% by US EPA Method 537, Version 1.1).
    - The laboratory did not calculate the peak asymmetry factor.
    - The laboratory did not rotate the concentration used for the LCS.
    - The calibration standards only included the linear PFAS isomers; however, available branched/linear standards were analyzed for qualitative purposes.
    - Alternate ion transitions were used for PFBS and $^{13}C_8$-PFOS (299→99 instead of 299→80 for PFBS and 503→99 instead of 503→80 for $^{13}C_8$-PFOS) - the fragment represented by *m/z* 80 is the sulfonate group; whereas, the fragment represented by *m/z* 99 is the fluorinated sulfonate group.

2. The laboratory analyzed a qualitative standard that included both branched and linear isomers for PFHxS, PFOA, and PFOS. Where transition ion peaks were observed and deemed by laboratory personnel to represent branched isomers in samples based on

the analysis of this standard, the responses for such peaks were included in the response for the analyte and used to quantitate the results for PFHxS, PFOA, and PFOS in samples relative to the linear isomer calibration standards. The laboratory did not integrate peaks other than the peak representative of the linear isomer (based on calibration standards) for target analytes other than PFHxS, PFOA, and PFOS in samples.

3. The laboratory noted a high (> 130%) recovery for PFBA in the LCSD associated with all project samples; however, the laboratory did not re-extract the LCSD and associated samples in accordance with the Laboratory Calibration and Quality Control Acceptance Criteria (Section 3). Qualification of the data due to the high LCSD recovery is addressed in the subsequent Organic Data Qualifiers section.

Data Evaluation

With respect to data usability, the principal areas of concern are a high LCSD recovery, high pre-extraction internal standard recoveries, and results reported between the MDL and the LOQ. Based on a review of the data provided, the following data qualifiers are offered. The following data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical method used for analysis. Accordingly, the following data usability issues should not be construed as an indication of laboratory performance.

Organic Data Qualifiers

- The reported positive results for PFBA in all project samples should be considered estimated and have been flagged “J” on the data tables. A high recovery (%R > 130%) was observed for PFBA in the associated LCSD analysis (see Procedural Issue No. 3). (Validation Reason Code: LAH)

- The MDLs and LOQs for the compounds listed on the table below may be higher than reported, and the “not-detected” results have been flagged “UJ” on the data tables. In addition, the reported positive results for the compounds listed on the table below should be considered estimated and have been flagged “J” on the data tables. High recoveries (> upper laboratory acceptance limits) were observed for the pre-extraction internal standards used to quantitate these compounds in the analyses of these samples. (Validation Reason Code: IS)

Samples	SDG	Compound With Estimated MDLs and LOQs (“UJ”)	Compound(s) With Estimated Results (“J”)
SG3a-BL04-A5.0, SG3a-BL05-A5.0, and SG3a-BL09-A5.0	SBN17	PFHxS	PFHpA and PFHxA
SG3a-BL02-A5.0, SG3a-BL04-A5.0, SG3a-BL05-A5.0, and SG3a-BL07-A5.0	SBN17	-	PFNA

- All positive results reported with concentrations between the laboratory's reported MDLs and LOQs were flagged "J" by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

B. Conclusions

The analytical data are acceptable for use as reported by the laboratory with the following qualifications. Several organic results were qualified as estimated due to a high LCSD recovery, high pre-extraction internal standard recoveries, and results reported between the MDL and the LOQ. In order to use any of the data, the data user should understand the qualifications and limitations as specified in this DUSR.

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SECTION 2

VALIDATED DATA SUMMARY TABLES

Validation Qualifier and Reason Code Definitions

Table 1. Validation Qualifiers and Definitions

Validation Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analyte has been “tentatively identified” or considered “presumptively” present.
UJ	The analyte was analyzed for, but was not detected. The reported MDL and limit of quantitation (LOQ) are approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
UB	The Analyte was not detected substantially above the level reported in the associated laboratory, equipment, field, or trip blank.

Table 2. Validation Reason Codes and Descriptions

Validation Reason Code	Description
CI	Chromatographic interference
CR	Calculated result in which one or more of the components has been qualified, potential bias indeterminate
CRH	Calculated result in which one or more of the components has been qualified, potential high bias
CRL	Calculated result in which one or more of the components has been qualified potential low bias
CV	Continuing calibration verification evaluation criteria not met, potential bias indeterminate
CVH	Continuing calibration verification evaluation criteria not met, potential high bias
CVL	Continuing calibration verification evaluation criteria not met, potential low bias
DC	Reporting limit exceeds decision criteria (for non-detects)
DL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the detection limit.
DT	Dissolved metals concentration exceeded total metals concentration in the sample above the acceptance criteria
DV	Missing Deliverables
EB	Equipment blank contamination
EC	Result exceeds the calibration range, potential bias indeterminate
ECH	Result exceeds the calibration range, potential high bias
ECL	Result exceeds the calibration range, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
EP	Estimated Maximum Possible Concentration (EMPC)
FB	Field blank contamination
FD	Field duplicate imprecision, potential bias indeterminate
FP	Potential false positives
FR	Field replicate imprecision, potential bias indeterminate
HA	Holding time - preparation to analysis, potential bias indeterminate
HAH	Holding time - preparation to analysis, potential high bias
HAL	Holding time - preparation to analysis, potential low bias
HC	Holding time - collection to analysis, potential bias indeterminate
HCH	Holding time - collection to analysis, potential high bias
HCL	Holding time - collection to analysis, potential low bias
HP	Holding time - collection to preparation, potential bias indeterminate
HPH	Holding time - collection to preparation, potential high bias
HPL	Holding time - collection to preparation, potential low bias
HV	Headspace present in volatile vials, potential bias indeterminate
HVL	Headspace present in volatile vials, potential low bias
IB	Instrument (including initial calibration or continuing calibration) blank contamination
IC	Initial calibration evaluation criteria not met, potential bias indeterminate
ICH	Initial calibration evaluation criteria not met, potential high bias
ICL	Initial calibration evaluation criteria not met, potential low bias
ID	Target compound identification criteria not met
IN	Elevated detection limit due to interference (i.e., laboratory, chemical, and/or matrix)
IR	Interference check standard recovery criteria not met, potential bias indeterminate
IRH	Interference check standard recovery criteria not met, potential high bias
IRL	Interference check standard recovery criteria not met, potential low bias
IS	Internal standard evaluation criteria not met, potential bias indeterminate
ISH	Internal standard evaluation criteria not met, potential high bias
ISL	Internal standard evaluation criteria not met, potential low bias
LA	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential bias indeterminate
LAH	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential high bias
LAL	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
LD	Laboratory duplicate precision criteria not met, potential bias indeterminate
LM	The PFK lock mass SICPs indicate that ion suppression evident
LP	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential bias indeterminate
LPH	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential high bias
LPL	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential low bias
LR	Linear range exceeded, potential bias indeterminate
MA	Matrix spike (MS &/or MSD) recovery criteria not met, potential bias indeterminate
MAH	Matrix spike (MS &/or MSD) recovery criteria not met, potential high bias
MAL	Matrix spike (MS &/or MSD) recovery criteria not met, potential low bias
MB	Method blank or preparation blank contamination
MP	Matrix spike (MS/MSD) or laboratory duplicate precision criteria not met, potential bias indeterminate
NB	Elevated detection limit or estimated result due to instrument drift (i.e., negative ICB or CCB result with an absolute value > 2× the MDL)
PD	Post-digestion spike recovery outside acceptance range, potential bias indeterminate
PDH	Post-digestion spike recovery outside acceptance range, potential high bias
PDL	Post-digestion spike recovery outside acceptance range, potential low bias
PJ	Professional judgment, potential bias indeterminate
PJH	Professional judgment, potential high bias
PJL	Professional judgment, potential low bias
PM	Performance evaluation mixture criteria not met, potential bias indeterminate
PMH	Performance evaluation mixture criteria not met, potential high bias
PML	Performance evaluation mixture criteria not met, potential low bias
PR	Peak(s) not adequately resolved, potential bias indeterminate
PRH	Peak(s) not adequately resolved, potential high bias
PRL	Peak(s) not adequately resolved, potential low bias
PS	Low percent solids could affect accuracy, potential bias indeterminate
PT	Chromatographic pattern in sample does not match pattern of calibration standard
RA	Reference material recovery criteria not met, potential bias indeterminate

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
RAH	Reference material recovery criteria not met, potential high bias
RAL	Reference material recovery criteria not met, potential low bias
RB	Rinsate blank contamination
RL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the quantitation or reporting limit, potential bias indeterminate
SA	Method of standard additions correction coefficient <0.995, potential bias indeterminate
SC	RPD Between two columns exceeds criteria, potential bias indeterminate
SD	Serial dilution results did not meet evaluation criteria, potential bias indeterminate
SDH	Serial dilution results did not meet evaluation criteria, potential high bias
SDL	Serial dilution results did not meet evaluation criteria, potential low bias
SP	Sample Preservation / Cooler Temperature, potential bias indeterminate
SPH	Sample Preservation / Cooler Temperature, potential high bias
SPL	Sample Preservation / Cooler Temperature, potential low bias
SR	Surrogate recovery outside acceptance range, potential bias indeterminate
SRH	Surrogate recovery outside acceptance range, potential high bias
SRL	Surrogate recovery outside acceptance range, potential low bias
SS	Second source evaluation criteria not met, potential bias indeterminate
SSH	Second source evaluation criteria not met, potential high bias
SSL	Second source evaluation criteria not met, potential low bias
ST	Compound not quantitated against an authentic standard, potential bias indeterminate
TB	Trip blank contamination
TD	Result for dissolved constituent significantly exceeded result for total constituent, potential bias indeterminate
TIC	Tentative identification, quantified using an assumed calibration factor, potential bias indeterminate.
TIR	Tentative identification and was observed in an associated laboratory, equipment, field, or trip blank.
TN	Instrument performance (tuning) criteria not met
YH	Due to a high y-intercept in the calibration curve, the sample result quantitated to a value greater than the MDL. Since the response ratio in the sample was less than the response ratio in the associated MDL standard, the reported result was changed to not-detected.

Sample ID	SG3a-BL01-A5.0
Sample Date	4/23/2018 10:20:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9573887
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL01-A5.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10	4.8	1.9	5.8	J	Y	4.8	1.9	5.8	J	Y	RL	Yes
	Perfluorobutanoic Acid	375-22-4	T	10	34	1.9	5.8		Y	34	1.9	5.8	J	Y	LAH	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	44	1.9	5.8		Y	44	1.9	5.8		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	41	1.9	5.8		Y	41	1.9	5.8		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	210	1.9	5.8		Y	210	1.9	5.8		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		1.9	5.8	U	N		1.9	5.8	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	120	1.9	5.8		Y	120	1.9	5.8		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	25	1.9	5.8		Y	25	1.9	5.8		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	5.2	2.9	8.7	J	Y	5.2	2.9	8.7	J	Y	RL	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	10000	19	58		Y	10000	19	58		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	46	1.9	5.8		Y	46	1.9	5.8		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	31	1.9	5.8		Y	31	1.9	5.8		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	11	1.9	5.8		Y	11	1.9	5.8		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	12	1.9	5.8		Y	12	1.9	5.8		Y		Yes

Sample ID	SG3a-BL02-A5.0
Sample Date	4/23/2018 10:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9573888
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL02-A5.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10	13	1.9	5.6		Y	13	1.9	5.6		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	8.2	1.9	5.6		Y	8.2	1.9	5.6	J	Y	LAH	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	9.5	1.9	5.6		Y	9.5	1.9	5.6		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	16	1.9	5.6		Y	16	1.9	5.6		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	49	1.9	5.6		Y	49	1.9	5.6		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		1.9	5.6	U	N		1.9	5.6	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	32	1.9	5.6		Y	32	1.9	5.6		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	5.0	1.9	5.6	J	Y	5.0	1.9	5.6	J	Y	RL,IS	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	7.2	2.8	8.3	J	Y	7.2	2.8	8.3	J	Y	RL	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	3600	19	56		Y	3600	19	56		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	10	1.9	5.6		Y	10	1.9	5.6		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	52	1.9	5.6		Y	52	1.9	5.6		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	12	1.9	5.6		Y	12	1.9	5.6		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	4.5	1.9	5.6	J	Y	4.5	1.9	5.6	J	Y	RL	Yes

Sample ID	SG3a-BL04-A5.0
Sample Date	4/23/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9573889
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL04-A5.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10	9.6	1.8	5.5		Y	9.6	1.8	5.5		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	21	1.8	5.5		Y	21	1.8	5.5	J	Y	LAH	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	42	1.8	5.5		Y	42	1.8	5.5		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	48	1.8	5.5		Y	48	1.8	5.5		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	180	1.8	5.5		Y	180	1.8	5.5	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		1.8	5.5	U	N		1.8	5.5	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	89	1.8	5.5		Y	89	1.8	5.5	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	23	1.8	5.5		Y	23	1.8	5.5	J	Y	IS	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	12	2.8	8.3		Y	12	2.8	8.3		Y		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	15000	18	55		Y	15000	18	55		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	23	1.8	5.5		Y	23	1.8	5.5		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	120	1.8	5.5		Y	120	1.8	5.5		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	26	1.8	5.5		Y	26	1.8	5.5		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	14	1.8	5.5		Y	14	1.8	5.5		Y		Yes

Sample ID	SG3a-BL05-A5.0
Sample Date	4/23/2018 10:35:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9573890
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL05-A5.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10		1.9	5.6	U	N		1.9	5.6	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	83	1.9	5.6		Y	83	1.9	5.6	J	Y	LAH	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	80	1.9	5.6		Y	80	1.9	5.6		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	68	1.9	5.6		Y	68	1.9	5.6		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	840	1.9	5.6		Y	840	1.9	5.6	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		1.9	5.6	U	N		1.9	5.6	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	480	1.9	5.6		Y	480	1.9	5.6	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	49	1.9	5.6		Y	49	1.9	5.6	J	Y	IS	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10		2.8	8.3	U	N		2.8	8.3	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1000	33000	190	560		Y	33000	190	560		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	110	1.9	5.6		Y	110	1.9	5.6		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	36	1.9	5.6		Y	36	1.9	5.6		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	17	1.9	5.6		Y	17	1.9	5.6		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	25	1.9	5.6		Y	25	1.9	5.6		Y		Yes

Sample ID	SG3a-BL07-A5.0
Sample Date	4/23/2018 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9573891
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL07-A5.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10	2.9	1.9	5.8	J	Y	2.9	1.9	5.8	J	Y	RL	Yes
	Perfluorobutanoic Acid	375-22-4	T	10	5.9	1.9	5.8		Y	5.9	1.9	5.8	J	Y	LAH	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	12	1.9	5.8		Y	12	1.9	5.8		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	21	1.9	5.8		Y	21	1.9	5.8		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	56	1.9	5.8		Y	56	1.9	5.8		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		1.9	5.8	U	N		1.9	5.8	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	37	1.9	5.8		Y	37	1.9	5.8		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	6.5	1.9	5.8		Y	6.5	1.9	5.8	J	Y	IS	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	3.5	2.9	8.7	J	Y	3.5	2.9	8.7	J	Y	RL	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	3300	19	58		Y	3300	19	58		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	9.9	1.9	5.8		Y	9.9	1.9	5.8		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	40	1.9	5.8		Y	40	1.9	5.8		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	11	1.9	5.8		Y	11	1.9	5.8		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	4.6	1.9	5.8	J	Y	4.6	1.9	5.8	J	Y	RL	Yes

Sample ID	SG3a-BL09-A5.0
Sample Date	4/23/2018 10:45:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SN
Lab Sample ID	9573892
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	BL09-A5.0
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	10	5.7	1.9	5.6		Y	5.7	1.9	5.6		Y		Yes
	Perfluorobutanoic Acid	375-22-4	T	10	21	1.9	5.6		Y	21	1.9	5.6	J	Y	LAH	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	10	41	1.9	5.6		Y	41	1.9	5.6		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	10	33	1.9	5.6		Y	33	1.9	5.6		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	10	200	1.9	5.6		Y	200	1.9	5.6	J	Y	IS	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	10		1.9	5.6	U	N		1.9	5.6	UJ	N	IS	Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	10	130	1.9	5.6		Y	130	1.9	5.6	J	Y	IS	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	10	24	1.9	5.6		Y	24	1.9	5.6		Y		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	10	5.8	2.8	8.4	J	Y	5.8	2.8	8.4	J	Y	RL	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	100	16000	19	56		Y	16000	19	56		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	10	27	1.9	5.6		Y	27	1.9	5.6		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	10	36	1.9	5.6		Y	36	1.9	5.6		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	10	11	1.9	5.6		Y	11	1.9	5.6		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	10	11	1.9	5.6		Y	11	1.9	5.6		Y		Yes

SECTION 3

LABORATORY CALIBRATION AND QUALITY CONTROL ACCEPTANCE CRITERIA

Initial Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
1. Initial Calibration: Minimum of five calibration standards. 2. Analyze MDL standard to ensure all compounds detected at MDL level 3. Analyze a technical grade branched/linear chained standard for PFOA/PFOS/PFHxS.	1. Initially and the after continuing calibration fails. 2. Analyzed with each initial calibration. 3. Run with each initial calibration.	1. Back calculated concentration of each calibration point should be within ±30% (or 70-130%) of true. The level 1 calibration standard back calculated concentrations should be ±50% (or 50-150%) of true value. $R^2 \geq 0.99$ for each analyte. 2. All compounds detected. 3. Qualitative use only to assist chemists in the integration of these compounds.	1. If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the initial calibration can be used. In those cases, the data will be reported with a qualifying comment. 2. If compound not detected in MDL standard, the source of the problem should be determined and the system recalibrated.

Continuing Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Analyze every 10 samples and at the end of the analysis sequence. Concentrations alternate between low, mid, and high levels of the calibration curve. The CCV ran after ICAL must be at CAL3 level. Opening CCV for sequence **should** be at CAL1 level and must be within 50-150%.	Occurs every 10 samples and at the end of the analysis sequence.	Calculated amount for the native analytes should be within ±30% of the true value. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. The calculated amount for the isotopically labeled extraction standards should be within the advisory window of 70-130%	If criteria are not met, the source of the problem **should** be determined, corrected and the system recalibrated. Situations may exist where the continuing calibration can be used. In those cases, the data will be reported with a qualifying comment.

Initial Calibration Verification

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Second source standard analyzed at the end of each initial calibration.	Analyzed with each initial calibration	1. Calculated amount for each native analytes should be within 70-130% of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration.	1. If criteria are not met, the source of the problem should be determined and corrected. Situations may exist where the initial calibration verification can be used. In those cases, the data will be reported with a qualifying comment.

QC Acceptance Criteria

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Method Blanks	1 per 20 field samples	1. No positive detections above the MDL. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	1. Report if the analyte present in the method blank is not detected in the sample or the analyte detected in the sample at greater than 10x's the amount in the method blank. If analyte detected in blank and sample at approximately the sample concentration sample will be RX'd. 2. Blank will be reinjected. Blank data may be qualified and reported. 3. If extraction standards are outside the advisory window and there are positive detections in the blank, the blank may be reinjected. If after reinjection, extraction standards are still out data may be reported and qualified due to the advisory nature of the windows.
LCS	1 per 20 field samples	1. Advisory QC limits of 70-130%, RPD<30% 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	1. Reextract LCS and associated samples. Analytes that fail high and are ND in the samples can be reported. Due to the advisory nature of the acceptance limits, situations may exist where LCS can be used. In those cases, the data will be reported with a qualifying comment. 2. If all native recoveries are within QC limits, data can be reported. 3. If all native recoveries are within QC limits, data can be reported.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
MS/MSD	MS is routinely prepared with each extraction batch. If limited sample volume exists, an LCS/LCSD will be prepared.	1. Advisory QC limits of 70-130%, RPD<30%. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	Evaluate in conjunction with LCS.
Isotopically labeled internal standards	Per sample (including MS/MSD, LCS, and Blanks)	The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration.	Reinject samples as necessary. Report data with qualifying comment.
Isotopically labeled extraction standards	Per sample (including MS/MSD, LCS, and Blanks)	The percent difference for the isotopically labeled extraction standards should be within the advisory QC window of 70-130% or laboratory-generated control limits, if available.	Reinject samples as necessary. Report data with qualifying comment.

SECTION 4

ENVIRONMENTAL STANDARDS, INC., STANDARD OPERATING PROCEDURE

1.0 OBJECTIVES

This standard operating procedure (SOP) describes procedures that the Environmental Standards data reviewers will use to validate Perfluorinated and Polyfluorinated Alkyl Substance (PFAS) data for solid samples generated by Eurofins SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins Document Reference T-PFAS-WI12031, Version 2) and aqueous samples generated by Eurofins SOP "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Using LC/MS/MS" (Eurofins Document Reference T-PFAS-WI14355, Version 2) for various Saint-Gobain Performance Plastics Corporation (Saint-Gobain) sites. Validation will be performed to assess compliance of the sample data to these Eurofins SOPs and any applicable Work Plans and/or Quality Assurance Project Plans (QAPPs). In addition, the usability of the PFAS data provided by the analytical laboratory will be determined based on the general guidance provided in the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016) and "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016). It should be noted that the National Functional Guidelines apply strictly to data generated by the Contract Laboratory Program (CLP) protocol and are not directly applicable to validation of data generated by Modified EPA Method 537; therefore, this SOP presents the specific data qualification actions that will be used for validation.

The validation findings will be presented in a quality assurance review (QAR) that will be prepared for one or more sample delivery groups (SDGs). Copies of annotated analytical results summaries (Form I's), including any changes to the analytical results and data qualifier codes, or a data summary spreadsheet of the qualified analytical results, will be included in the support documentation of the QAR.

2.0 EVALUATION TOOLS

- field duplicate form (DVF_DUP_SG_ELLE.xlsm)

Chemistry Applications:

- Curve fitting software (DVF_CAL.xlsm)
- Methods Database

3.0 REFERENCE DOCUMENTS

- "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016)

- "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016).

- Eurofins Document Reference T-PFAS-WI12031.

- Eurofins Document Reference T-PFAS-WI14355.

- US EPA Method 537, Version 1.1 (September 2009).

- Guidance for Labelling Externally Validated Laboratory Analytical Data for Superfund Use (EPA 540-R-08-005, 2009).

4.0 PROCEDURE

4.1 EVALUATION OF METHOD COMPLIANCE

The data reviewer will assess the method compliance of the PFAS data based on an evaluation of information presented in the data package deliverables. Compliance to the aforementioned SOPs (and Work Plan and/or QAPP when applicable) will be evaluated as part of the assessment. In addition, the deliverables will be evaluated for reporting errors and inconsistencies. The findings of the compliance assessment will be described in terms of comments/deficiencies about the data/deliverables and presented in two subdivisions (*i.e.*, Reporting Issues and Procedural Issues) of the Organic Data Evaluation Section of the QAR. Each issue discussed in the QAR will indicate any subsequent impact on the usability of the data or will identify aspect(s) of the data that could not be evaluated due to the deficiency.

The data reviewer may contact the project laboratory to request the correction of deficiencies prior to submittal of the QAR (if feasible and sanctioned by Saint Gobain). At a minimum, corrections required to allow for a full evaluation of the usability of the data should be requested. Such correctable deficiencies may include sample result errors, missing data deliverables, or calculation errors that would require a significant amount of the data reviewer's time to correct. Any laboratory resubmittals as a result of such requests will be discussed in the Reporting Issue subdivision of the QAR and included as an attachment to the QAR.

4.2 DETERMINATION OF DATA USABILITY

The data reviewer will determine the usability of the PFAS data based on an evaluation of the information presented in the data package deliverables. The findings of the PFAS data usability assessment will be presented in terms of data qualifications that the project team should consider in order to best utilize the data; these qualifications will be presented in the Organic Data Qualifier subsection of the QAR. Each qualification discussed in the QAR will indicate that the affected sample result(s) has been flagged with a representative qualifier code(s) in the data tables to provide, at a glance, an indication of the quantitative and qualitative reliability of each analytical result. In general, the qualifier statements will be presented in the QAR in the following order: blank contamination (UB), unusable results (R/UR), estimated results (J/UJ), tentative identifications of target compound results (N), and a general qualifier for all results reported below the limit of quantitation (if applicable). In addition, a Validation Reason Code will be presented on the data tables to indicate the reason that a qualifier code has been applied.

The data reviewer's criteria for evaluating the usability of the PFAS data and the resultant qualifications and reason codes will be as stipulated on the attached Table for the Validation of PFAS Data Generated. Additional qualifications and reason codes will be assigned based on professional judgement. It should be noted that the project manager should be consulted when "professional judgement" use is indicated on the attached table.

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Temperature Upon Receipt	≤6°C	If temperature is <2°C, no action is required unless samples were frozen/broken and then professional judgment should be used. If temperature is >6°C but ≤20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SPL") If temperature is > 20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SPL") Note time of collection relative to receipt at laboratory. Professional judgement should be used if < 8 hours has elapsed from collection to receipt at the laboratory to determine if qualification due to elevated temperature applies.
Technical Holding Time	Solid samples should be extracted within 28 days of sample collection and aqueous samples should be extracted within 14 days of collection. All extracts should be analyzed within 28 days after extraction.	If a holding time is exceeded, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively) If a holding time is grossly exceeded (*i.e.*, > twice the holding time), qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively)

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Initial Calibration (See Note #1 for additional information.)	Back calculated concentration of each calibration point should be within 70-130% of true value. The level 1 (lowest) calibration standard back calculated concentrations should be within 50-150% of true value. $r^2 \geq 0.99$ for each analyte.	**When evaluating initial calibration, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS(s).** If the low point or consecutive points at the low end of the curve are below the lower recovery criteria, qualify positive results < lowest compliant point as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "ICL") If the low point or consecutive points at the low end of the curve are above the upper recovery criteria, qualify positive results < lowest compliant point as estimated ("J"). (Validation Reason Code "ICH") If a point in the middle of the curve or non-consecutive points (beside the low point) quantitate outside of criteria, qualify positive results as estimated ("J"). If the high point or consecutive points at the upper end of the curve quantitates outside of criteria, qualify positive results > highest compliant point as estimated ("J"). (Validation Reason Code "ICL," "ICH," or "IC," are to be used based on whether direction of bias can be determined in these situations) Professional judgement should be used to qualify "not-detected" results as estimated ("UJ") if low recoveries are observed for standards other than the lowest calibration point. (Validation Reason Code "ICL") If the $r^2 \geq 0.99$ for any analyte, qualify positive results as estimated ("J"). (Validation Reason Code "IC")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Second Source Initial Calibration Verification (ICV)	1. Calculated amount for each compound should be within 70-130% (±30%) of the true value. 2. The isotopically labeled injection and/or extraction standards should be within criteria.	**Qualification is for all samples associated with initial calibration being verified.** **When evaluating ICV, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS.** If target PFAS has %D>30% with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "SSH") If target PFAS has %D>30% but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SSL") If target PFAS has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SSL")
Continuing Calibration Verification (See Note #2 for additional information.)	Calculated amount should be within ±30% of the true value. The isotopically labeled injection and/or extraction standards should be within criteria. The CCV ran after ICAL must be at CAL3 level. Opening CCV for sequence **should** be at CAL1 level and must be within 50-150%.	**Qualification is for all samples on both sides of the out-of-criteria calibration verification standards**. **When evaluating calibration verification, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS.** If target PFAS has %D>30% (50% for CAL1 CCV) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "CVH") If target PFAS has %D>30% (50% for CAL1 CCV) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "CVL") If target PFAS has %D>90% with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "CVL")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Blanks (See Note #3 for additional information.)	Summarize all results greater than the method detection limit (MDL) present in the blanks. The highest positive result associated with a sample should be utilized for evaluation of contamination.	If a target PFAS is found in the blank but not in the associated sample(s), no action is required. If a sample result is ≤5× the blank result, qualify the positive result as "not detected" ("UB") and raise the method detection limit (MDL) and/or limit of quantitation (LOQ) (if lower than original reported positive result) to the value of the original result. (Validation Reason Code(s) "EB," FB," "IB," "MB," and or "TB," as appropriate). If a sample result is >5× blank result, qualification is not required. Professional judgement should be used to evaluate whether an aqueous blank should be used to qualify a solid sample.
Injection/Internal Standards (Labelled Analytes, spiked prior to injection and used as internal standards for extraction standards)	The response for each internal standard in the original sample must be within ±%50 of the average initial calibration response.	If an internal response is outside of criteria, use professional judgment to determine the potential impact on the quantitation of the extraction standard recoveries and whether qualification due to out-of-criteria extraction standard recoveries (see directly below) should be modified.
Extraction Standards (Labelled Analytes, spiked prior to extraction and used as internal standards for target compounds)	The response for each ES in the original sample must be within the advisory limits of 70-130% recovery or laboratory-generated control limits, if available.	If an ES response or recovery is outside of criteria but ≥10%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ") for PFASs quantitated using that ES. (Validation Reason Code "IS") If an ES response is < 10%, qualify positive results for the associated PFASs as estimated ("J") and qualify "not-detected" results for the associated PFASs as estimated ("UJ") or unusable ("R") using professional judgment (based on the approximate signal-to-noise ratio for the ES and the expected response for the target PFAS at the LOQ). (Validation Reason Code "IS")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Laboratory Control Samples (LCS)/ Laboratory Control Sample Duplicates (LCSD)	%R within 70-130%, RPD ≤ 30%.	**The LCS qualification will be applied to all samples in the preparation batch.** If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). (Validation Reason Code "LAL") If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "LAL") If the precision between recoveries exceeds the RPD criterion, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LP")
Matrix Spike/Matrix Spike Duplicate (MS/MSD) (If performed)	%R within 70-130%, RPD ≤ 30%.	**The MS/MSD qualification will be applied to the unspiked parent sample.** Data should not be qualified due to %Rs (or RPDs calculated on %Rs) that are outside of criteria if the original concentration of a PFAS is >4× the spiking level for that compound. In such cases, RPDs calculated using MS/MSD results can be used to evaluate precision. If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "MAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "MAL") If the precision between recoveries exceeds the RPD criterion, qualify the positive result in the native sample as estimated ("J") and do not qualify the "not-detected" result. (Validation Reason Code "MP")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Field/Laboratory Duplicate (See Note #4 for additional information)	The RPD should be ≤30% when both results are >5× the sample-specific LOQ (RL). The difference between results should be ≤ 1.5×LOQ when at least one result is ≤5× the LOQ.	**If both results are <LOQ, a quantitative assessment of duplicate precision is not performed.** If the criteria are not met, qualify positive results for the out-of-criteria PFASs in the original sample and its duplicate as estimated ("J"). (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate) Use the MDL as a numerical value for any "not-detected" result in the difference calculation. Qualify "not-detected" results as estimated ("UJ") if the difference between the results is outside of criteria. (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate)
Percent Solids	Solid samples with less than 30% solid content require qualification.	If a solid sample has a percent solid content <30%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code of "PS") Use professional judgment to qualified "not-detected" results as unusable ("R") if a solid sample has a percent solids content <10%. (Validation Reason Code of "PS")
Compound Quantitation and Qualitative Identification (See Notes #5 for additional information.)	Samples with results that exceed the instrument calibration range should be reanalyzed at a dilution or re-extracted with a lower volume.	If a target PFAS result exceeds the instrument calibration range, qualify positive result as estimated ("J"). (Validation Reason Code "EC") Use professional judgment to determine whether sample reanalyses and dilutions should be compared to the original analyses. If criteria (see field duplicate usability) between the original sample results and the reanalysis sample results are not met, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "LD") If a target PFAS is <LOQ but ≥MDL, qualify positive results as estimated ("J"). (Validation Reason Code "RL") Use professional judgment to determine whether quantitation and qualitative identifications are accurate and whether data qualification is necessary.
System Performance	Professional judgement should be used when assessing the degradation of system performance during analyses.	Use professional judgment to qualify the data if it is determined that system performance degraded during sample analyses.

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Overall Assessment of Data	Assess overall quality of the data. Review available materials to assess the quality, keeping in mind the additive nature of the analytical problems.	Use professional judgment to determine the need to qualify data not qualified based on the QC previously discussed. Write a brief narrative to give the user an indication of the analytical limitations of the data. If sufficient information on the intended use and required quality of the data is available, include the assessment of the usability of the data within the given context.

Validation Notes

1. Use professional judgment when evaluating the response intercept of a calibration curve. If the response intercept is positive, the samples should be evaluated for false positives. If the response intercept is negative, the sample should be evaluated for false negatives.

2. If instrument instability (*i.e.*, several calibration verification standards with PFASs exhibiting both increasing and decreasing sensitivity throughout an analytical sequence) is observed in the analysis of sequential calibration verification standards, "not-detected" results may be qualified as estimated ("UJ") due to instrument sensitivity of a continuing calibration standard response that is greater than the initial calibration standard response (increase in instrument sensitivity).

3. The frequency of equipment/rinse blanks is determined during the sampling event. The results of an equipment/rinse blank should be applied to all collected in the same day by the same techniques, unless only one blank was collected for a several-day sampling event. In instances where more than one blank is associated with a given sample, qualification should be based upon a comparison with the associated blank having the highest concentration of a contaminant. Professional judgement should be used to evaluate whether an aqueous blank should be used to directly qualify a solid sample.

   Method blank contamination should be applied to samples in the preparation batch.

   Instrument blank contamination should be applied to samples bracketing the contaminated instrument blank.

   Blanks should also be evaluated using professional judgment for non-target interference.

Validation Notes

4. Duplicate samples may be collected and analyzed as an indication of overall precision. Field duplicate analyses measure both field and laboratory precision; therefore, the results may have more variability than laboratory duplicates that measure only laboratory performance. Laboratory duplicate results and field duplicate results apply only to the original sample and the laboratory/field duplicate. Solid duplicate results are expected to have greater variance than aqueous duplicate results.

5. If a sample result exceeds the instrument calibration range (lower dilution analysis) or is less than the LOQ (secondary dilution), do not utilize this result when comparing an original analysis and a diluted reanalysis.

   Poor chromatographic performance may affect qualitative identification and/or quantitation. Indications of substandard performance include:

   - High background levels
   - Extraneous peaks
   - Loss of resolution

- Peak tailing or peak splitting that may result in inaccurate quantitation
- The laboratory analyzes a Cal3 level standard that contains linear and branch chained isomers of PFOA, PFOS, and PFHxS for analyses. The analysis of this standard is used to demonstrate where the branch chained isomers elute and is not included in the calibration curve. This will assist the chemist in the integration of branched isomers of these compounds in samples.

SECTION 5

ORGANIC DATA SUPPORT DOCUMENTATION

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	Saint Gobain Vermont	Reviewed by:	JA 5/21/18
Sample Collection Dates:	4/23/18	Approved by:	THW
Job Number:	20167391.NBEN	Completion Date:	5/2018
Project Manager:	Meg Michell		
Laboratory:	ELLE	Applicable Sample No's (X)	Refer to Table 1 in the Quality Assurance Review

			Sample No.	Lab Control No.
Deliverable:	CLP (Full)	( )	SBN17	
	Level IV (Full)	(X)		
	Limited	( )		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail Check (√) if Yes or Footnote Letter for Comments Below					Problems Identified Check (√) if Yes or Footnote Letter for Comments Below					Support Documentation Attachments Check (√) if Yes or Footnote Letter for Comments Below				
	PFAS					PFAS					PFAS				
Holding Times	X										X				
Blank Analysis: Target Cmpds	X										X				
Sys Montr Cmps/Surrogates															
Matrix Spike/Matrix Spike Duplicate	X										X				
Blank Spike	X					X					X				
Duplicate Analysis ( ) Field ( ) Lab															
Detection Limit/Sensitivity	X										X				
Qualitative Identification: Target Cmpds	X										X				
Qualitative Identification: TICs															
DFTPP & BFB Mass Tuning															
GC Instrument Performance															
Initial Calibrations	X										X				
Continuing Calibrations	X										X				
Quantitation of Results	X										X				
DDT/Endrin Breakdown															
Surrogate Retention Time Shifts															
Internal Standards Performance	X					X					X				
Resolution Check Standards															
Analytical Sequence	X										X				
Florisil Cartridge & GPC Calibration															
GC Column Agreement															
Condition Upon Receipt	X										X				
Percent Solids															
Others:															

Comments: _____

ENVIRONMENTAL STANDARDS

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample / batch ID	Contaminant	Concentration ng/g, ng/L	Qualification limit	
						5×	10×
O	S	MB	18116015	None			
O	Aq	TB	SG3-LTB01-180423	None			
O	Aq	FB	SG3-FTB01-180423	None			

1 - V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: PFAS

2 - MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; RB = Rinse Blank

Notes:

** Columns G and H contains formulas

Sample Description: SG3a-BL01-A5.0 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018 10:20
SDG#: SBN17-01

C. T. Male Associates
ELLE Sample #: SW 9573887
ELLE Group #: 1935273
Matrix: Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**4.8** J	1.9	5.8	10
14027	**Perfluorobutanoic acid**	375-22-4	**34**	1.9	5.8	10
14027	**Perfluorodecanoic acid**	335-76-2	**44**	1.9	5.8	10
14027	**Perfluorododecanoic acid**	307-55-1	**41**	1.9	5.8	10
14027	**Perfluoroheptanoic acid**	375-85-9	**210**	1.9	5.8	10
14027	Perfluorohexanesulfonate	355-46-4	1.9 U	1.9	5.8	10
14027	**Perfluorohexanoic acid**	307-24-4	**120**	1.9	5.8	10
14027	**Perfluorononanoic acid**	375-95-1	**25**	1.9	5.8	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**5.2** J	2.9	8.7	10
14027	**Perfluorooctanoic acid**	335-67-1	**10,000**	19	58	100
14027	**Perfluoropentanoic acid**	2706-90-3	**46**	1.9	5.8	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**31**	1.9	5.8	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**11**	1.9	5.8	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**12**	1.9	5.8	10

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the method blank. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the LCS/LCSD. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18116015	05/02/2018 19:04	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18116015	05/03/2018 10:05	Marissa C Drexinger	10

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-BL01-A5.0 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018 10:20
SDG#: SBN17-01

C. T. Male Associates
ELLE Sample #: SW 9573887
ELLE Group #: 1935273
Matrix: Solid

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18116015	05/01/2018 13:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-BL02-A5.0 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018 10:25
SDG#: SBN17-02

C. T. Male Associates
ELLE Sample #: SW 9573888
ELLE Group #: 1935273
Matrix: Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**13**	1.9	5.6	10
14027	**Perfluorobutanoic acid**	375-22-4	**8.2**	1.9	5.6	10
14027	**Perfluorodecanoic acid**	335-76-2	**9.5** ✓	1.9	5.6	10
14027	**Perfluorododecanoic acid**	307-55-1	**16**	1.9	5.6	10
14027	**Perfluoroheptanoic acid**	375-85-9	**49**	1.9	5.6	10
14027	Perfluorohexanesulfonate	355-46-4	1.9 U	1.9	5.6	10
14027	**Perfluorohexanoic acid**	307-24-4	**32**	1.9	5.6	10
14027	**Perfluorononanoic acid**	375-95-1	**5.0 J**	1.9	5.6	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**7.2 J** ✓	2.8	8.3	10
14027	**Perfluorooctanoic acid**	335-67-1	**3,600** ✓	19	56	100
14027	**Perfluoropentanoic acid**	2706-90-3	**10** ✓	1.9	5.6	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**52**	1.9	5.6	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**12**	1.9	5.6	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**4.5 J**	1.9	5.6	10

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the method blank. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the LCS/LCSD. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

Reporting limits were raised due to interference from the sample matrix.

The recovery for labeled compound used as extraction standard 13C9-PFNA is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-BL02-A5.0 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018 10:25
SDG#: SBN17-02

C. T. Male Associates
ELLE Sample #: SW 9573888
ELLE Group #: 1935273
Matrix: Solid

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18116015	05/02/2018 19:19	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18116015	05/03/2018 10:21	Marissa C Drexinger	10
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18116015	05/01/2018 13:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-BL04-A5.0 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018 10:30
SDG#: SBN17-03

C. T. Male Associates
ELLE Sample #: SW 9573889
ELLE Group #: 1935273
Matrix: Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**9.6** ✓	1.8	5.5	10
14027	**Perfluorobutanoic acid**	375-22-4	**21**	1.8	5.5	10
14027	**Perfluorodecanoic acid**	335-76-2	**42**	1.8	5.5	10
14027	**Perfluorododecanoic acid**	307-55-1	**48**	1.8	5.5	10
14027	**Perfluoroheptanoic acid**	375-85-9	**180**	1.8	5.5	10
14027	Perfluorohexanesulfonate	355-46-4	1.8 U	1.8	5.5	10
14027	**Perfluorohexanoic acid**	307-24-4	**89**	1.8	5.5	10
14027	**Perfluorononanoic acid**	375-95-1	**23** ✓	1.8	5.5	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**12**	2.8	8.3	10
14027	**Perfluorooctanoic acid**	335-67-1	**15,000** ✓	18	55	100
14027	**Perfluoropentanoic acid**	2706-90-3	**23**	1.8	5.5	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**120**	1.8	5.5	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**26**	1.8	5.5	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**14**	1.8	5.5	10

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the method blank. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the LCS/LCSD. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

Reporting limits were raised due to interference from the sample matrix.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-BL04-A5.0 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018 10:30
SDG#: SBN17-03

C. T. Male Associates
ELLE Sample #: SW 9573889
ELLE Group #: 1935273
Matrix: Solid

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18116015	05/02/2018 19:35	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18116015	05/03/2018 10:36	Marissa C Drexinger	10
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18116015	05/01/2018 13:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-BL05-A5.0 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018 10:35
SDG#: SBN17-04

C. T. Male Associates
ELLE Sample #: SW 9573890
ELLE Group #: 1935273
Matrix: Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	1.9 U	1.9	5.6	10
14027	**Perfluorobutanoic acid**	375-22-4	**83**	1.9	5.6	10
14027	**Perfluorodecanoic acid**	335-76-2	**80**	1.9	5.6	10
14027	**Perfluorododecanoic acid**	307-55-1	**68**	1.9	5.6	10
14027	**Perfluoroheptanoic acid**	375-85-9	**840**	1.9	5.6	10
14027	Perfluorohexanesulfonate	355-46-4	1.9 U	1.9	5.6	10
14027	**Perfluorohexanoic acid**	307-24-4	**480**	1.9	5.6	10
14027	**Perfluorononanoic acid**	375-95-1	**49**	1.9	5.6	10
14027	Perfluoro-octanesulfonate	1763-23-1	2.8 U	2.8	8.3	10
14027	**Perfluorooctanoic acid**	335-67-1	**33,000**	190	560	1000
14027	**Perfluoropentanoic acid**	2706-90-3	**110**	1.9	5.6	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**36**	1.9	5.6	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**17**	1.9	5.6	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**25**	1.9	5.6	10

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the method blank. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the LCS/LCSD. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

Reporting limits were raised due to interference from the sample matrix.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-BL05-A5.0 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018 10:35
SDG#: SBN17-04

C. T. Male Associates
ELLE Sample #: SW 9573890
ELLE Group #: 1935273
Matrix: Solid

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18116015	05/03/2018 10:52	Marissa C Drexinger	10
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18116015	05/03/2018 11:54	Marissa C Drexinger	1000
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18116015	05/01/2018 13:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-BL07-A5.0 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018 10:40
SDG#: SBN17-05

C. T. Male Associates
ELLE Sample #: SW 9573891
ELLE Group #: 1935273
Matrix: Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**2.9 J**	1.9	5.8	10
14027	**Perfluorobutanoic acid**	375-22-4	**5.9**	1.9	5.8	10
14027	**Perfluorodecanoic acid**	335-76-2	**12**	1.9	5.8	10
14027	**Perfluorododecanoic acid**	307-55-1	**21**	1.9	5.8	10
14027	**Perfluoroheptanoic acid**	375-85-9	**56** ✓	1.9	5.8	10
14027	Perfluorohexanesulfonate	355-46-4	1.9 U	1.9	5.8	10
14027	**Perfluorohexanoic acid**	307-24-4	**37**	1.9	5.8	10
14027	**Perfluorononanoic acid**	375-95-1	**6.5**	1.9	5.8	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**3.5 J** ✓	2.9	8.7	10
14027	**Perfluorooctanoic acid**	335-67-1	**3,300** ✓	19	58	100
14027	**Perfluoropentanoic acid**	2706-90-3	**9.9**	1.9	5.8	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**40**	1.9	5.8	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**11** ✓	1.9	5.8	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**4.6 J**	1.9	5.8	10

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the method blank. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the LCS/LCSD. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

Reporting limits were raised due to interference from the sample matrix.

The recovery for labeled compound used as extraction standard 13C9-PFNA is outside of QC acceptance limits due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-BL07-A5.0 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018 10:40
SDG#: SBN17-05

C. T. Male Associates
ELLE Sample #: SW 9573891
ELLE Group #: 1935273
Matrix: Solid

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18116015	05/02/2018 20:06	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18116015	05/03/2018 11:07	Marissa C Drexinger	10
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18116015	05/01/2018 13:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-BL09-A5.0 Grab Solid
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018 10:45
SDG#: SBN17-06

C. T. Male Associates
ELLE Sample #: SW 9573892
ELLE Group #: 1935273
Matrix: Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**5.7**	1.9	5.6	10
14027	**Perfluorobutanoic acid**	375-22-4	**21**	1.9	5.6	10
14027	**Perfluorodecanoic acid**	335-76-2	**41**	1.9	5.6	10
14027	**Perfluorododecanoic acid**	307-55-1	**33**	1.9	5.6	10
14027	**Perfluoroheptanoic acid**	375-85-9	**200**	1.9	5.6	10
14027	Perfluorohexanesulfonate	355-46-4	1.9 U	1.9	5.6	10
14027	**Perfluorohexanoic acid**	307-24-4	**130**	1.9	5.6	10
14027	**Perfluorononanoic acid**	375-95-1	**24** ✓	1.9	5.6	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	**5.8 J** ✓	2.8	8.4	10
14027	**Perfluorooctanoic acid**	335-67-1	**16,000** ✓	19	56	100
14027	**Perfluoropentanoic acid**	2706-90-3	**27**	1.9	5.6	10
14027	**Perfluorotetradecanoic acid**	376-06-7	**36** ✓	1.9	5.6	10
14027	**Perfluorotridecanoic acid**	72629-94-8	**11**	1.9	5.6	10
14027	**Perfluoroundecanoic acid**	2058-94-8	**11**	1.9	5.6	10

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the method blank. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the LCS/LCSD. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

Reporting limits were raised due to interference from the sample matrix.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description:	**SG3a-BL09-A5.0 Grab Solid** **SGPP - Bennington**	**C. T. Male Associates** **ELLE Sample #:**	**SW 9573892**
		ELLE Group #:	**1935273**
Project Name:	**SGPP - Bennington**	**Matrix: Solid**	
Submittal Date/Time:	04/24/2018 10:05		
Collection Date/Time:	04/23/2018 10:45		
SDG#:	SBN17-06		

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18116015	05/02/2018 20:22	Joshua P Trost	100
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18116015	05/03/2018 11:23	Marissa C Drexinger	10
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18116015	05/01/2018 13:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/09/2018 11:45

Group Number: 1935273

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/g	MDL** ng/g	LOQ ng/g
Batch number: 18116015	Sample number(s): 9573887-9573892		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.20 U	0.20	0.60
Perfluorononanoic acid	0.20 U	0.20	0.60
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18116015	Sample number(s): 9573887-9573892								
Perfluorobutanesulfonate	1.20	1.34	1.20	1.40	112	~~116~~	70-130	4	30
Perfluorobutanoic acid	1.36	1.58	1.36	1.82	116	134*	70-130	14	30
Perfluorodecanoic acid	1.36	1.68	1.36	1.75	124	129	70-130	4	30
Perfluorododecanoic acid	1.36	1.73	1.36	1.64	127	121	70-130	5	30
Perfluoroheptanoic acid	1.36	1.66	1.36	1.63	122	120	70-130	2	30
Perfluorohexanesulfonate	1.29	1.39	1.29	1.30	108	101	70-130	6	30
Perfluorohexanoic acid	1.36	1.71	1.36	1.67	126	123	70-130	2	30
Perfluorononanoic acid	1.36	1.70	1.36	1.62	125	119	70-130	5	30
Perfluoro-octanesulfonate	1.30	1.47	1.30	1.41	113	109	70-130	4	30
Perfluorooctanoic acid	1.36	1.70	1.36	1.72	125	127	70-130	1	30
Perfluoropentanoic acid	1.36	1.64	1.36	1.57	120	116	70-130	4	30
Perfluorotetradecanoic acid	1.36	1.68	1.36	1.63	123	120	70-130	3	30
Perfluorotridecanoic acid	1.36	1.58	1.36	1.62	116	119	70-130	2	30
Perfluoroundecanoic acid	1.36	1.60	1.36	1.40	117	103	70-130	13	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/09/2018 11:45

Group Number: 1935273

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18116015	Sample number(s): 9573887-9573892 UNSPK: 9573887									
Perfluorobutanesulfonate	4.84	1.14	7.64			245 (2)		70-130		
Perfluorobutanoic acid	34.23	1.30	26.92			-564 (2)		70-130		
Perfluorodecanoic acid	43.81	1.30	22.42			-1651 (2)		70-130		
Perfluorododecanoic acid	41.26	1.30	36.16			-393 (2)		70-130		
Perfluoroheptanoic acid	206.04	1.30	93.3			-8705 (2)		70-130		
Perfluorohexanesulfonate	1.9 U	1.22	2.09			171*	No ⊗	70-130		
Perfluorohexanoic acid	118.33	1.30	71.12			-3645 (2)		70-130		
Perfluorononanoic acid	25.41	1.30	10.56			-1146 (2)		70-130		
Perfluoro-octanesulfonate	5.16	1.24	7.53			192 (2)		70-130		
Perfluorooctanoic acid	10008.36	1.30	4651.88			-413627 (2)		70-130		
Perfluoropentanoic acid	46.49	1.30	35.55			-843 (2)		70-130		
Perfluorotetradecanoic acid	30.57	1.30	33.33			213 (2)		70-130		
Perfluorotridecanoic acid	10.89	1.30	12.67			137 (2)		70-130		
Perfluoroundecanoic acid	11.9	1.30	8.85			-235 (2)		70-130		

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18116015

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9573887	86	81	84	107	112	112
9573888	93	92	99	101	101	107
9573889	95	90	91	131* J JS	133* JS JS	144* J JS
9573890	92	87	94	136* ↓	149* ↓	149* ↓
9573891	92	91	90	92	100	94
9573892	92	92	90	123* ↓	133* ↓	145* ↓
Blank	69	69* QC	71	60	61	65
LCS	69	70	68	63	64	64
LCSD	71	71	71	65	68	68
MS	88	80	86	95	92	105
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/09/2018 11:45

Group Number: 1935273

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18116015

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9573887	72	85	110	70	74	65
9573888	82	98	126* J, JS	76	94	73
9573889	77	102	138*	78	99	77
9573890	65	95	127*	75	89	73
9573891	85	99	132*	80	96	76
9573892	76	101	120	76	98	76
Blank	66	74	96	59	62	48
LCS	66	66	76	61	64	58
LCSD	68	77	89	57	52	49
MS	74	91	110	75	79	64
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9573887	54
9573888	62
9573889	63
9573890	61
9573891	63
9573892	64
Blank	50
LCS	57
LCSD	49
MS	51
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Reference List
PFAS Group

CLIENT: C. T. Male Associates
SDG: SBN17

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
14 PFCs	18116015	BLK116015B	05/02/2018 18:02:00
		LCS116015Q	05/03/2018 09:19:00
		LCSDAY	05/03/2018 09:34:00
		9573887 UNSPK	05/02/2018 19:04:00
		9573887 MS	05/03/2018 09:50:00
		9573887 UNSPK	05/03/2018 10:05:00
		9573888	05/02/2018 19:19:00
		9573888	05/03/2018 10:21:00
		9573889	05/02/2018 19:35:00
		9573889	05/03/2018 10:36:00
		9573890	05/03/2018 10:52:00
		9573890	05/03/2018 11:54:00
		9573891	05/02/2018 20:06:00
		9573891	05/03/2018 11:07:00
		9573892	05/02/2018 20:22:00
		9573892	05/03/2018 11:23:00

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Quality Control Summary
Method Blank
PFAS Group
SDG: SBN17
Matrix: SOLID

Fraction: PFAS by LC/MS/MS

18116015 / BLK116015B Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	05/02/18	N.D.	ng/g	0.20	0.60
Perfluorononanoic acid	05/02/18	N.D.	ng/g	0.20	0.60
Perfluorodecanoic acid	05/02/18	N.D.	ng/g	0.20	0.60
Perfluoroundecanoic acid	05/02/18	N.D.	ng/g	0.20	0.60
Perfluorododecanoic acid	05/02/18	N.D.	ng/g	0.20	0.60
Perfluorotridecanoic acid	05/02/18	N.D.	ng/g	0.20	0.60
Perfluorotetradecanoic acid	05/02/18	N.D.	ng/g	0.20	0.60
Perfluorohexanoic acid	05/02/18	N.D.	ng/g	0.20	0.60
Perfluoroheptanoic acid	05/02/18	N.D.	ng/g	0.20	0.60
Perfluorobutanesulfonate	05/02/18	N.D.	ng/g	0.20	0.60
Perfluorohexanesulfonate	05/02/18	N.D.	ng/g	0.20	0.60
Perfluoro-octanesulfonate	05/02/18	N.D.	ng/g	0.30	0.90
Perfluorobutanoic acid	05/02/18	N.D.	ng/g	0.20	0.60
Perfluoropentanoic acid	05/02/18	N.D.	ng/g	0.20	0.60

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN17
Matrix: SOIL

18116015		13C2-PFDODA	13C2-PFTEDA	13C3-PFBS	13C3-PFHXS	13C4-PFBA
	Limits	15-135	20-127	34-118	32-125	37-107
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
BLK116015	05/02/18 18:02	48	50	71	61	69
9573887DL	05/02/18 19:04	83	63	92	98	92
9573888DL	05/02/18 19:19	81	65	86	86	88
9573889DL	05/02/18 19:35	83	63	92	97	90
9573891DL	05/02/18 20:06	79	63	92	91	93
9573892DL	05/02/18 20:22	80	64	91	98	92
LCS116015	05/03/18 09:19	58	57	68	64	69
LCSDA	05/03/18 09:34	49	49	71	68	71
9573887MS	05/03/18 09:50	64	51	86	92	88
9573887	05/03/18 10:05	65	54	84	112	86
9573888	05/03/18 10:21	73	62	99	101	93
9573889	05/03/18 10:36	77	63	91	133 *	95
9573890	05/03/18 10:52	73	61	94	149 *	92
9573891	05/03/18 11:07	76	63	90	100	92
9573892	05/03/18 11:23	76	64	90	133 *	92
9573890DL	05/03/18 11:54	77	68	90	103	90

05,35
↓
↓

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN17
Matrix: SOIL

18116015		13C4-PFHPA	13C5-PFHXA	13C5-PFPEA	13C6-PFDA	13C7-PFUNDA
	Limits	45-114	43-115	70-130	36-121	25-134
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
BLK116015	05/02/18 18:02	65	60	69 *	59	62
9573887DL	05/02/18 19:04	90	91	89	90	105
9573888DL	05/02/18 19:19	85	85	86	86	93
9573889DL	05/02/18 19:35	100	98	90	94	107
9573891DL	05/02/18 20:06	87	92	87	94	94
9573892DL	05/02/18 20:22	97	96	91	90	101
LCS116015	05/03/18 09:19	64	63	70	61	64
LCSDA	05/03/18 09:34	68	65	71	57	52
9573887MS	05/03/18 09:50	105	95	80	75	79
9573887	05/03/18 10:05	112	107	81	70	74
9573888	05/03/18 10:21	107	101	92	76	94
9573889	05/03/18 10:36	144 *	131 *	90	78	99
9573890	05/03/18 10:52	149 *	136 *	87	75	89
9573891	05/03/18 11:07	94	92	91	80	96
9573892	05/03/18 11:23	145 *	123 *	92	76	98
9573890DL	05/03/18 11:54	94	96	92	92	90

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SBN17
Matrix: SOIL

18116015		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery
BLK116015	05/02/18 18:02	66	74	96
9573887DL	05/02/18 19:04	91	95	104
9573888DL	05/02/18 19:19	84	89	98
9573889DL	05/02/18 19:35	89	96	102
9573891DL	05/02/18 20:06	90	98	97
9573892DL	05/02/18 20:22	89	93	104
LCS116015	05/03/18 09:19	66	66	76
LCSDA	05/03/18 09:34	68	77	89
9573887MS	05/03/18 09:50	74	91	110
9573887	05/03/18 10:05	72	85	110
9573888	05/03/18 10:21	82	98	126 *
9573889	05/03/18 10:36	77	102	138 *
9573890	05/03/18 10:52	65	95	127 *
9573891	05/03/18 11:07	85	99	132 *
9573892	05/03/18 11:23	76	101	120
9573890DL	05/03/18 11:54	94	97	96

J, JS

* Outside QC Limits

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SBN17
Matrix: SOLID

PFAS Group
Fraction: PFAS by LC/MS/MS

UNSPK: 9573887 MS: 9573887 Analyte	Batch: **18116015** (Sample number(s): 9573887-9573892)								
	Spike Added ng/g	**Unspiked Conc ng/g**	**MS Conc ng/g**	**MSD Conc ng/g**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.30	10008.36	4651.88	NA	-413627 (2)	NA	70-130	NA	NA
Perfluorononanoic acid	1.30	25.41	10.56	NA	-1146 (2)	NA	70-130	NA	NA
Perfluorodecanoic acid	1.30	43.81	22.42	NA	-1651 (2)	NA	70-130	NA	NA
Perfluoroundecanoic acid	1.30	11.9	8.85	NA	-235 (2)	NA	70-130	NA	NA
Perfluorododecanoic acid	1.30	41.26	36.16	NA	-393 (2)	NA	70-130	NA	NA
Perfluorotridecanoic acid	1.30	10.89	12.67	NA	137 (2)	NA	70-130	NA	NA
Perfluorotetradecanoic acid	1.30	30.57	33.33	NA	213 (2)	NA	70-130	NA	NA
Perfluorohexanoic acid	1.30	118.33	71.12	NA	-3645 (2)	NA	70-130	NA	NA
Perfluoroheptanoic acid	1.30	206.04	93.3	NA	-8705 (2)	NA	70-130	NA	NA
Perfluorobutanesulfonate	1.14	4.84 J	7.64	NA	245 (2)	NA	70-130	NA	NA
Perfluorohexanesulfonate	1.22	N.D.	2.09 J	NA	171 *	NA	70-130	NA	NA
Perfluoro-octanesulfonate	1.24	5.16 J	7.53 J	NA	192 (2)	NA	70-130	NA	NA
Perfluorobutanoic acid	1.30	34.23	26.92	NA	-564 (2)	NA	70-130	NA	NA
Perfluoropentanoic acid	1.30	46.49	35.55	NA	-843 (2)	NA	70-130	NA	NA

reportable
No ltxs in parent
∴ no qual.

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SBN17
Matrix: SOLID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCS116015Q LCSD: LCSDAY Analyte	Batch: **18116015** (Sample number(s): 9573887-9573892)							
	Spike Added ng/g	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	1.70 ✓	1.72 ✓	125 ✓	127 ✓	70-130	1 ✓	30
Perfluorononanoic acid	1.36	1.70	1.62	125	119	70-130	5	30
Perfluorodecanoic acid	1.36	1.68	1.75	124	129	70-130	4	30
Perfluoroundecanoic acid	1.36	1.60	1.40	117	103	70-130	13	30
Perfluorododecanoic acid	1.36	1.73	1.64	127	121	70-130	5	30
Perfluorotridecanoic acid	1.36	1.58	1.62	116	119	70-130	2	30
Perfluorotetradecanoic acid	1.36	1.68	1.63	123	120	70-130	3	30
Perfluorohexanoic acid	1.36	1.71	1.67	126	123	70-130	2	30
Perfluoroheptanoic acid	1.36	1.66	1.63	122	120	70-130	2	30
Perfluorobutanesulfonate	1.20	1.34	1.40	112	116	70-130	4	30
Perfluorohexanesulfonate	1.29	1.39	1.30	108	101	70-130	6	30
Perfluoro-octanesulfonate	1.30	1.47 ✓	1.41 ✓	113 ✓	109 ✓	70-130	4	30
Perfluorobutanoic acid	1.36	1.58 ✓	1.82 ✓	116 ✓	134 * ✓	70-130	14 ✓	30
Perfluoropentanoic acid	1.36	1.64	1.57	120	116 ✓	70-130	4	30

PFBA ⊕'s J, LAH

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN17

Instrument ID: 24743

Init. Calib. Date/Times: 05/02/2018 09:29 05/02/2018 11:02

Lab File Names: CAL1= 18MAY02MCAL-10.WIFF; CAL2= 18MAY02MCAL-11.WIFF; CAL3= 18MAY02MCAL-12.WIFF;
CAL4= 18MAY02MCAL-13.WIFF; CAL5= 18MAY02MCAL-14.WIFF; CAL6= 18MAY02MCAL-15.WIFF;
CAL7= 18MAY02MCAL-16.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.251	25.6	±50
CAL2	0.110	0.60	0.676	12.7	±30
CAL3	0.369	2.00	2.269	13.5	±30
CAL4	1.329	8.00	8.182	2.3	±30
CAL5	3.519	20.00	21.667	8.3	±30
CAL6	7.990	50.00	49.199	-1.6	±30
CAL7	16.006	100.00	98.555	-1.4	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.048	0.20	0.248	24.2	±50
CAL2	0.130	0.60	0.680	13.3	±30
CAL3	0.439	2.00	2.288	14.4	±30
CAL4	1.600	8.00	8.342	4.3	±30
CAL5	4.148	20.00	21.624	8.1	±30
CAL6	9.509	50.00	49.569	-0.9	±30
CAL7	18.810	100.00	98.049	-2.0	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.17	0.214	26.0	±50
CAL2	0.111	0.53	0.556	4.9	±30
CAL3	0.380	1.77	1.912	8.0	±30
CAL4	1.428	7.08	7.178	1.4	±30
CAL5	3.761	17.69	18.909	6.9	±30
CAL6	8.530	44.22	42.882	-3.0	±30
CAL7	17.557	88.45	88.259	-0.2	±30

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.244	22.0	±50
CAL2	0.119	0.60	0.678	13.0	±30
CAL3	0.380	2.00	2.158	7.9	±30
CAL4	1.515	8.00	8.593	7.4	±30
CAL5	3.706	20.00	21.022	5.1	±30
CAL6	8.731	50.00	49.529	-0.9	±30
CAL7	17.376	100.00	98.576	-1.4	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN17

Instrument ID: 24743

Init. Calib. Date/Times: 05/02/2018 09:29 05/02/2018 11:02

Lab File Names: CAL1= 18MAY02MCAL-10.WIFF; CAL2= 18MAY02MCAL-11.WIFF; CAL3= 18MAY02MCAL-12.WIFF;
CAL4= 18MAY02MCAL-13.WIFF; CAL5= 18MAY02MCAL-14.WIFF; CAL6= 18MAY02MCAL-15.WIFF;
CAL7= 18MAY02MCAL-16.WIFF;

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.19	0.229	20.8	±50
CAL2	0.120	0.57	0.618	8.4	±30
CAL3	0.445	1.89	2.295	21.4	±30
CAL4	1.510	7.56	7.785	3.0	±30
CAL5	3.626	18.91	18.691	-1.2	±30
CAL6	8.835	47.28	45.539	-3.7	±30
CAL7	18.585	94.55	95.793	1.3	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.049	0.20	0.235	17.6	±50
CAL2	0.154	0.60	0.742	23.6	±30
CAL3	0.526	2.00	2.536	26.8	±30
CAL4	1.919	8.00	9.248	15.6	±30
CAL5	4.841	20.00	23.329	16.6	±30
CAL6	9.991	50.00	48.147	-3.7	±30
CAL7	20.039	100.00	96.564	-3.4	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.252	26.2	±50
CAL2	0.120	0.60	0.663	10.6	±30
CAL3	0.407	2.00	2.251	12.5	±30
CAL4	1.602	8.00	8.864	10.8	±30
CAL5	4.030	20.00	22.297	11.5	±30
CAL6	9.221	50.00	51.020	2.0	±30
CAL7	17.252	100.00	95.453	-4.5	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.19	0.235	23.6	±50
CAL2	0.136	0.57	0.697	22.2	±30
CAL3	0.403	1.91	2.061	7.9	±30
CAL4	1.471	7.65	7.517	-1.7	±30
CAL5	4.166	19.12	21.280	11.3	±30
CAL6	9.357	47.80	47.804	0.0	±30
CAL7	18.252	95.60	93.246	-2.5	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN17

Instrument ID: 24743

Init. Calib. Date/Times: 05/02/2018 09:29 05/02/2018 11:02

Lab File Names: CAL1= 18MAY02MCAL-10.WIFF; CAL2= 18MAY02MCAL-11.WIFF; CAL3= 18MAY02MCAL-12.WIFF;
CAL4= 18MAY02MCAL-13.WIFF; CAL5= 18MAY02MCAL-14.WIFF; CAL6= 18MAY02MCAL-15.WIFF;
CAL7= 18MAY02MCAL-16.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.055	0.20	0.254	27.0	±50
CAL2	0.159	0.60	0.736	22.7	±30
CAL3	0.553	2.00	2.555	27.7	±30
CAL4	2.038	8.00	9.421	17.8	±30
CAL5	5.038	20.00	23.290	16.4	±30
CAL6	10.859	50.00	50.197	0.4	±30
CAL7	20.411	100.00	94.348	-5.7	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.250	25.0	±50
CAL2	0.125	0.60	0.717	19.4	±30
CAL3	0.390	2.00	2.236	11.8	±30
CAL4	1.523	8.00	8.730	9.1	±30
CAL5	3.702	20.00	21.219	6.1	±30
CAL6	8.624	50.00	49.437	-1.1	±30
CAL7	17.134	100.00	98.212	-1.8	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.063	0.20	0.238	18.8	±50
CAL2	0.180	0.60	0.683	13.9	±30
CAL3	0.659	2.00	2.499	25.0	±30
CAL4	2.237	8.00	8.483	6.0	±30
CAL5	5.298	20.00	20.093	0.5	±30
CAL6	12.870	50.00	48.804	-2.4	±30
CAL7	24.026	100.00	91.111	-8.9	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.20	0.253	26.7	±50
CAL2	0.122	0.60	0.684	14.1	±30
CAL3	0.416	2.00	2.331	16.5	±30
CAL4	1.589	8.00	8.904	11.3	±30
CAL5	4.062	20.00	22.766	13.8	±30
CAL6	9.023	50.00	50.570	1.1	±30
CAL7	17.003	100.00	95.292	-4.7	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SBN17

Instrument ID: 24743

Init. Calib. Date/Times: 05/02/2018 09:29 05/02/2018 11:02

Lab File Names: CAL1= 18MAY02MCAL-10.WIFF; CAL2= 18MAY02MCAL-11.WIFF; CAL3= 18MAY02MCAL-12.WIFF;
CAL4= 18MAY02MCAL-13.WIFF; CAL5= 18MAY02MCAL-14.WIFF; CAL6= 18MAY02MCAL-15.WIFF;
CAL7= 18MAY02MCAL-16.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.242	21.1	±50
CAL2	0.124	0.60	0.740	23.3	±30
CAL3	0.400	2.00	2.386	19.3	±30
CAL4	1.554	8.00	9.274	15.9	±30
CAL5	3.840	20.00	22.916	14.6	±30
CAL6	8.554	50.00	51.046	2.1	±30
CAL7	15.785	100.00	94.195	-5.8	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.259	29.3	±50
CAL2	0.105	0.60	0.673	12.2	±30
CAL3	0.367	2.00	2.341	17.1	±30
CAL4	1.364	8.00	8.707	8.8	±30
CAL5	3.473	20.00	22.174	10.9	±30
CAL6	7.626	50.00	48.693	-2.6	±30
CAL7	15.340	100.00	97.952	-2.0	±30

* Outside QC Limits

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18MAY02MCAL-10.wiff	5/2/2018 9:29:24 AM	CALMOD11833B	CAL1
18MAY02MCAL-11.wiff	5/2/2018 9:44:57 AM	CALMOD21833B	CAL2
18MAY02MCAL-12.wiff	5/2/2018 10:00:30 AM	CALMOD31833B	CAL3
18MAY02MCAL-13.wiff	5/2/2018 10:16:00 AM	CALMOD41833B	CAL4
18MAY02MCAL-14.wiff	5/2/2018 10:31:30 AM	CALMOD51833B	CAL5
18MAY02MCAL-15.wiff	5/2/2018 10:47:00 AM	CALMOD61833B	CAL6
18MAY02MCAL-16.wiff	5/2/2018 11:02:30 AM	CALMOD71833B	CAL7

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	1066680.1	1013461.6
CAL2	I13C3-PFBA	True	1067885.1	1013461.6
CAL3	I13C3-PFBA	True	1128748.3	1013461.6
CAL4	I13C3-PFBA	True	1059485.3	1013461.6
CAL5	I13C3-PFBA	True	1046302.3	1013461.6
CAL6	I13C3-PFBA	True	900899.4	1013461.6
CAL7	I13C3-PFBA	True	824230.8	1013461.6
CAL1	I13C2-PFOA	True	1476800.0	1434408.6
CAL2	I13C2-PFOA	True	1525893.8	1434408.6
CAL3	I13C2-PFOA	True	1613274.7	1434408.6
CAL4	I13C2-PFOA	True	1412430.3	1434408.6
CAL5	I13C2-PFOA	True	1432028.8	1434408.6
CAL6	I13C2-PFOA	True	1368416.1	1434408.6
CAL7	I13C2-PFOA	True	1212016.5	1434408.6
CAL1	I13C4-PFOS	True	381849.8	353288.1
CAL2	I13C4-PFOS	True	357884.8	353288.1
CAL3	I13C4-PFOS	True	403481.4	353288.1
CAL4	I13C4-PFOS	True	366949.0	353288.1
CAL5	I13C4-PFOS	True	352845.3	353288.1
CAL6	I13C4-PFOS	True	316816.9	353288.1
CAL7	I13C4-PFOS	True	293189.5	353288.1
CAL1	I13C2-PFDA	True	1224290.1	1161375.2
CAL2	I13C2-PFDA	True	1207588.8	1161375.2
CAL3	I13C2-PFDA	True	1337192.0	1161375.2
CAL4	I13C2-PFDA	True	1171253.9	1161375.2
CAL5	I13C2-PFDA	True	1078311.5	1161375.2
CAL6	I13C2-PFDA	True	1094579.2	1161375.2
CAL7	I13C2-PFDA	True	1016411.0	1161375.2

APPROVED
By MCD at 5:14 pm, 5/2/18

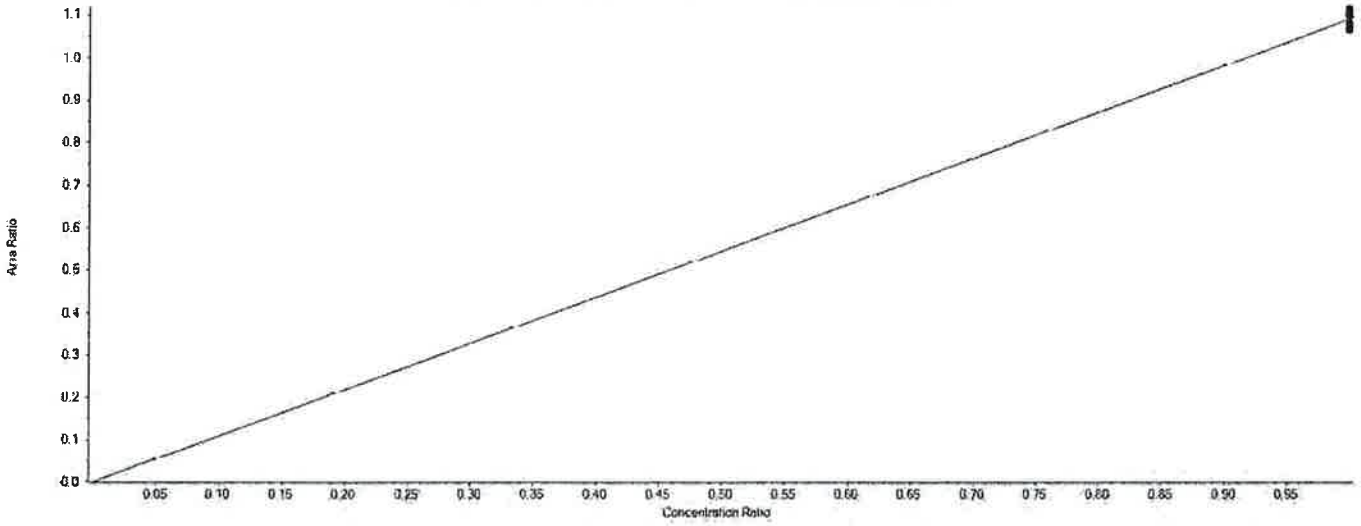
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFBA

y = 1.09042 x (std. dev. = 0.01793) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1143656.0	1066680.1	True	5.00	1.072	4.44	1.000	5.000	4.916	-1.7	50.0	
CAL2	1154407.2	1067885.1	True	5.00	1.081	4.44	1.000	5.000	4.957	-0.9	30.0	
CAL3	1202938.6	1128748.3	True	5.00	1.066	4.43	1.000	5.000	4.887	-2.3	30.0	
CAL4	1170321.3	1059485.3	True	5.00	1.105	4.43	1.000	5.000	5.065	1.3	30.0	
CAL5	1149536.3	1046302.3	True	5.00	1.099	4.44	1.000	5.000	5.038	0.8	30.0	
CAL6	1004401.1	900899.4	True	5.00	1.115	4.44	1.000	5.000	5.112	2.2	30.0	
CAL7	903253.5	824230.8	True	5.00	1.096	4.43	1.000	5.000	5.025	0.5	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

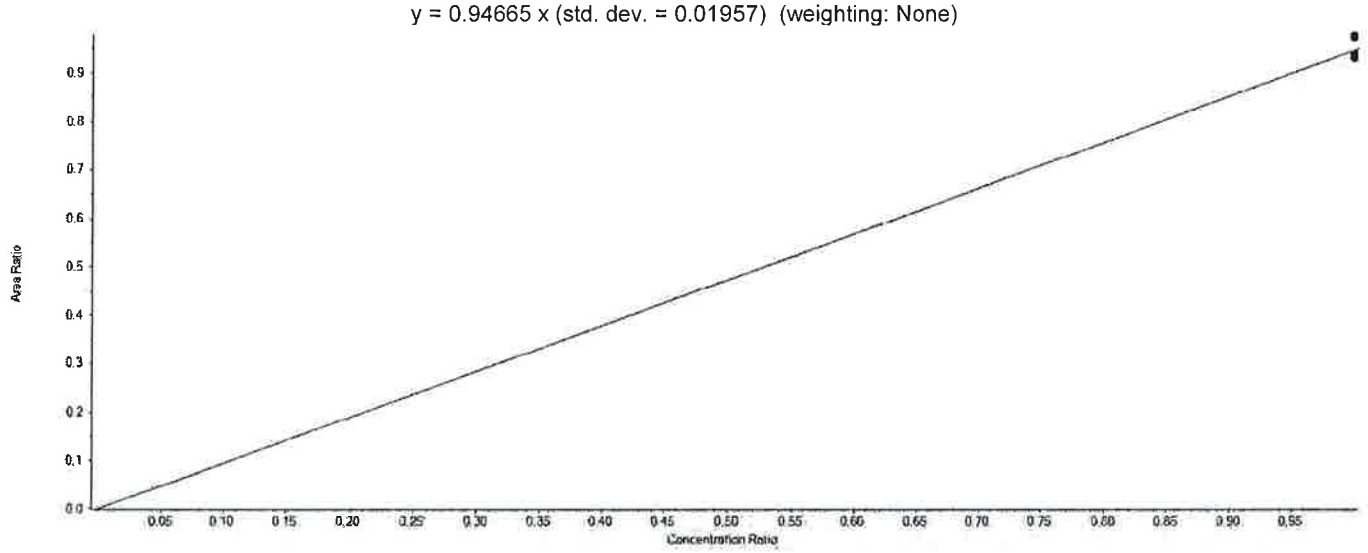
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFPeA

y = 0.94665 x (std. dev. = 0.01957) (weighting: None)



Extraction Standard Calibration Verification

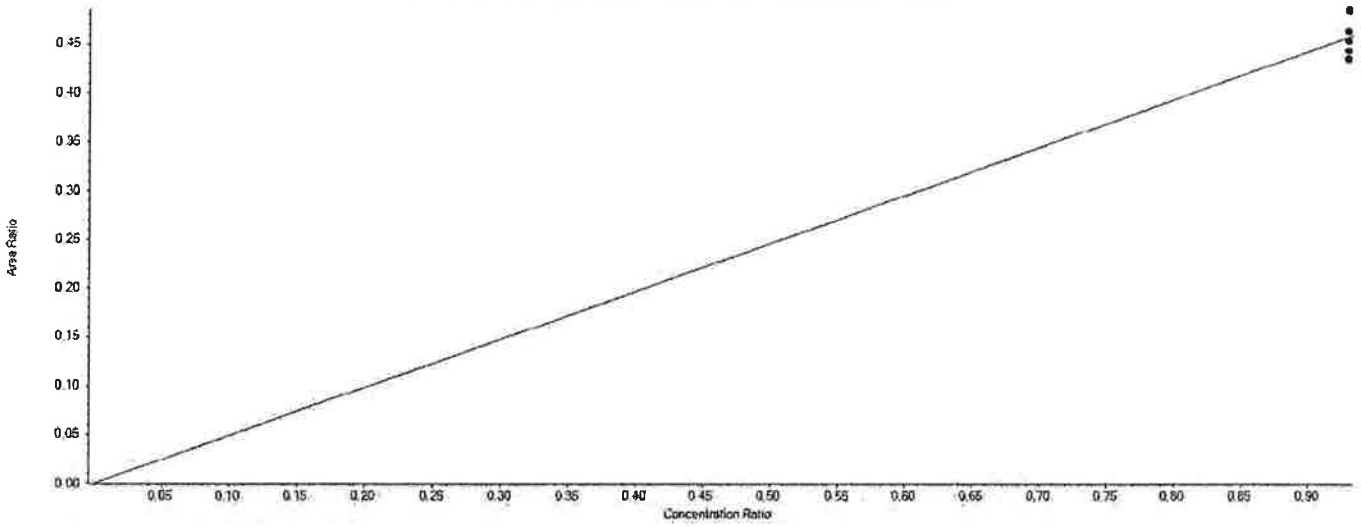
Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	992519.2	1066680.1	True	5.00	0.930	5.01	1.130	5.000	4.915	-1.7	50.0	
CAL2	1002755.6	1067885.1	True	5.00	0.939	5.01	1.130	5.000	4.960	-0.8	30.0	
CAL3	1059008.6	1128748.3	True	5.00	0.938	5.01	1.130	5.000	4.955	-0.9	30.0	
CAL4	995927.3	1059485.3	True	5.00	0.940	5.01	1.130	5.000	4.965	-0.7	30.0	
CAL5	972742.1	1046302.3	True	5.00	0.930	5.02	1.130	5.000	4.910	-1.8	30.0	
CAL6	875425.8	900899.4	True	5.00	0.972	5.01	1.130	5.000	5.132	2.6	30.0	
CAL7	805600.5	824230.8	True	5.00	0.977	5.01	1.130	5.000	5.162	3.2	30.0	

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFBS

y = 0.49175 x (std. dev. = 0.02234) (weighting: None)



Extraction Standard Calibration Verification

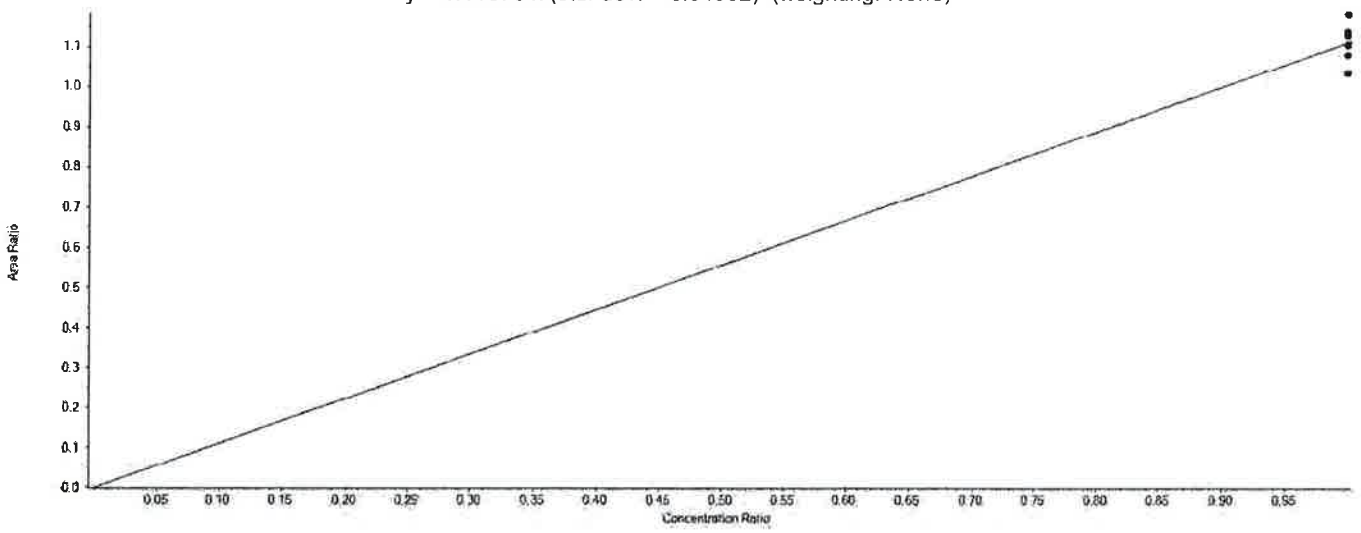
Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	463867.8	1066680.1	True	5.00	0.435	5.07	1.140	4.650	4.422	-4.9	50.0	
CAL2	474465.0	1067885.1	True	5.00	0.444	5.07	1.140	4.650	4.518	-2.8	30.0	
CAL3	512261.2	1128748.3	True	5.00	0.454	5.06	1.140	4.650	4.614	-0.8	30.0	
CAL4	491396.2	1059485.3	True	5.00	0.464	5.07	1.140	4.650	4.716	1.4	30.0	
CAL5	456680.9	1046302.3	True	5.00	0.436	5.07	1.140	4.650	4.438	-4.6	30.0	
CAL6	435146.4	900899.4	True	5.00	0.483	5.06	1.140	4.650	4.911	5.6	30.0	
CAL7	399754.1	824230.8	True	5.00	0.485	5.06	1.140	4.650	4.931	6.1	30.0	

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C5-PFHxA

y = 1.11070 x (std. dev. = 0.04552) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1635435.4	1476800.0	True	5.00	1.107	5.48	0.860	5.000	4.985	-0.3	50.0	
CAL2	1735999.2	1525893.8	True	5.00	1.138	5.48	0.860	5.000	5.121	2.4	30.0	
CAL3	1819960.8	1613274.7	True	5.00	1.128	5.48	0.860	5.000	5.078	1.6	30.0	
CAL4	1667378.1	1412430.3	True	5.00	1.181	5.48	0.860	5.000	5.314	6.3	30.0	
CAL5	1581495.0	1432028.8	True	5.00	1.104	5.49	0.860	5.000	4.972	-0.6	30.0	
CAL6	1479077.9	1368416.1	True	5.00	1.081	5.48	0.860	5.000	4.866	-2.7	30.0	
CAL7	1255591.5	1212016.5	True	5.00	1.036	5.48	0.860	5.000	4.663	-6.7	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

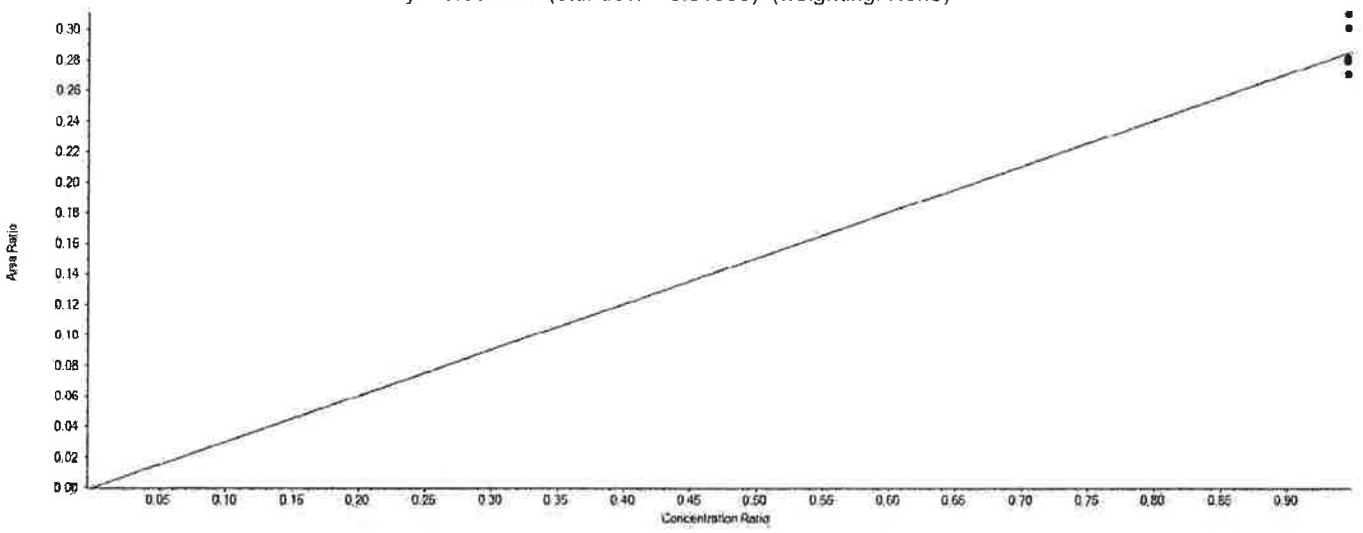
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C3-PFHxS

y = 0.30117 x (std. dev. = 0.01603) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	416498.4	1476800.0	True	5.00	0.282	5.92	0.930	4.730	4.682	-1.0	50.0	
CAL2	426955.6	1525893.8	True	5.00	0.280	5.92	0.930	4.730	4.645	-1.8	30.0	
CAL3	436630.0	1613274.7	True	5.00	0.271	5.92	0.930	4.730	4.493	-5.0	30.0	
CAL4	426014.6	1412430.3	True	5.00	0.302	5.92	0.930	4.730	5.008	5.9	30.0	
CAL5	444055.2	1432028.8	True	5.00	0.310 ✓	5.93	0.930	4.730	5.148 ✓	8.8 ✓	30.0	
CAL6	382085.5	1368416.1	True	5.00	0.279	5.92	0.930	4.730	4.636	-2.0	30.0	
CAL7	328350.7	1212016.5	True	5.00	0.271	5.92	0.930	4.730	4.498	-4.9	30.0	

✓

APPROVED
By MCD at 5:14 pm, 5/2/18

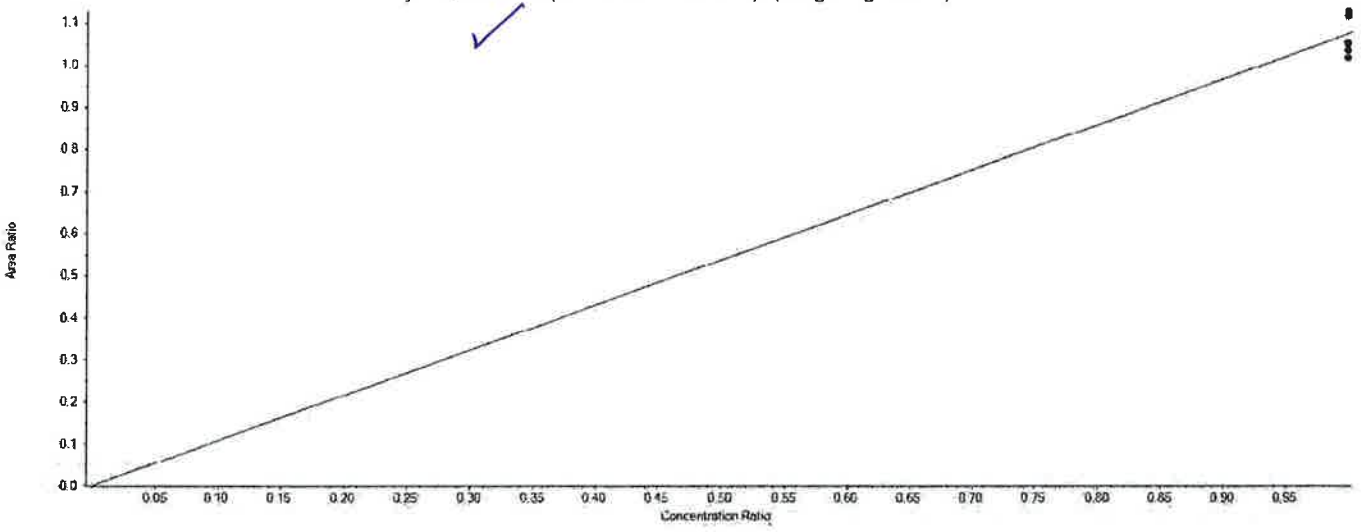
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C4-PFHpA

y = 1.07405 x (std. dev. = 0.04411) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1645603.7	1476800.0	True	5.00	1.114	5.93	0.930	5.000	5.187	3.7	50.0	
CAL2	1609366.7	1525893.8	True	5.00	1.055	5.93	0.940	5.000	4.910	-1.8	30.0	
CAL3	1642722.6	1613274.7	True	5.00	1.018	5.93	0.930	5.000	4.740	-5.2	30.0	
CAL4	1591238.4	1412430.3	True	5.00	1.127	5.93	0.930	5.000	5.245	4.9	30.0	
CAL5	1599343.9	1432028.8	True	5.00	1.117	5.93	0.930	5.000	5.199	4.0	30.0	
CAL6	1440279.2	1368416.1	True	5.00	1.053	5.93	0.930	5.000	4.900	-2.0	30.0	
CAL7	1254624.5	1212016.5	True	5.00	1.035	5.93	0.930	5.000	4.819	-3.6	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

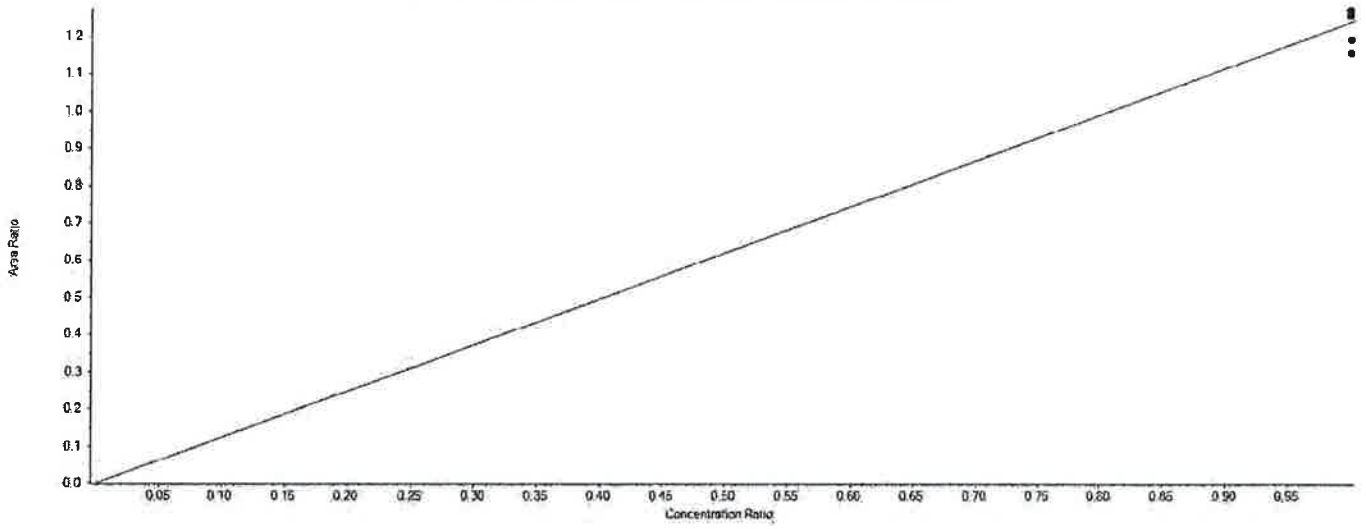
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOA

y = 1.24034 x (std. dev. = 0.04607) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1855998.6	1476800.0	True	5.00	1.257	6.34	1.000	5.000	5.066	1.3	50.0	
CAL2	1937290.9	1525893.8	True	5.00	1.270	6.34	1.000	5.000	5.118	2.4	30.0	
CAL3	2036767.4	1613274.7	True	5.00	1.263	6.34	1.000	5.000	5.089	1.8	30.0	
CAL4	1793959.7	1412430.3	True	5.00	1.270	6.34	1.000	5.000	5.120	2.4	30.0	
CAL5	1823339.2	1432028.8	True	5.00	1.273	6.35	1.000	5.000	5.133	2.7	30.0	
CAL6	1583821.8	1368416.1	True	5.00	1.157	6.34	1.000	5.000	4.666	-6.7	30.0	
CAL7	1445580.4	1212016.5	True	5.00	1.193	6.34	1.000	5.000	4.808	-3.8	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

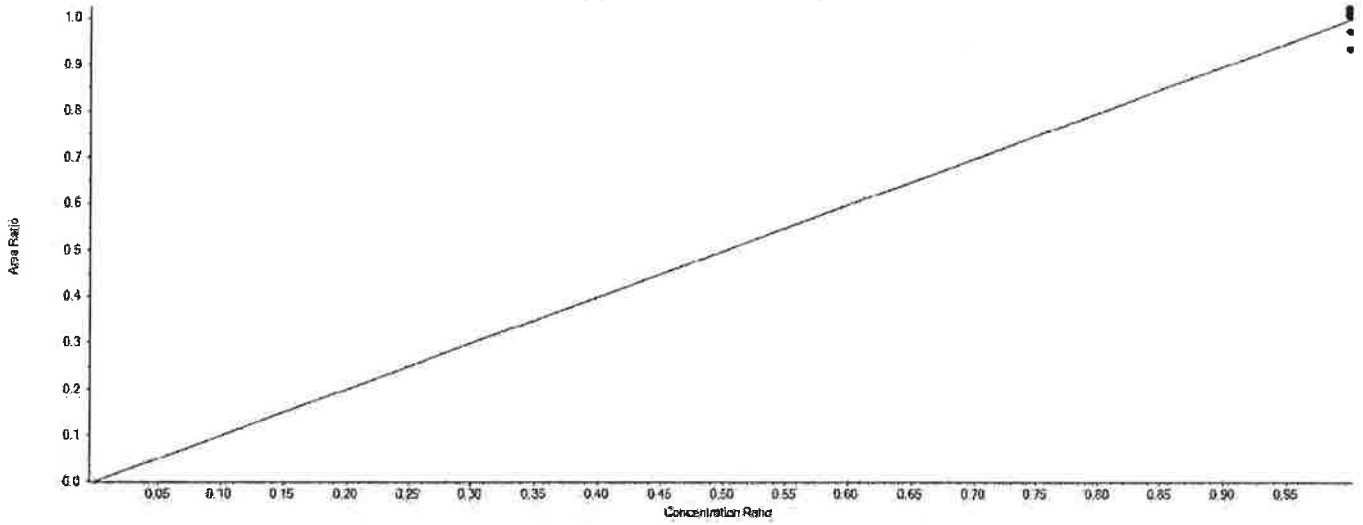
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C8-PFOS

y = 0.99575 x (std. dev. = 0.03070) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	357244.9	381849.8	True	4.78	0.936	6.69	1.000	4.780	4.491	-6.0	50.0	
CAL2	362132.4	357884.8	True	4.78	1.012	6.69	1.000	4.780	4.857	1.6	30.0	
CAL3	392701.1	403481.4	True	4.78	0.973	6.69	1.000	4.780	4.672	-2.3	30.0	
CAL4	374919.4	366949.0	True	4.78	1.022	6.69	1.000	4.780	4.905	2.6	30.0	
CAL5	354892.1	352845.3	True	4.78	1.006	6.70	1.000	4.780	4.828	1.0	30.0	
CAL6	321487.3	316816.9	True	4.78	1.015	6.69	1.000	4.780	4.871	1.9	30.0	
CAL7	295319.1	293189.5	True	4.78	1.007	6.69	1.000	4.780	4.835	1.2	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

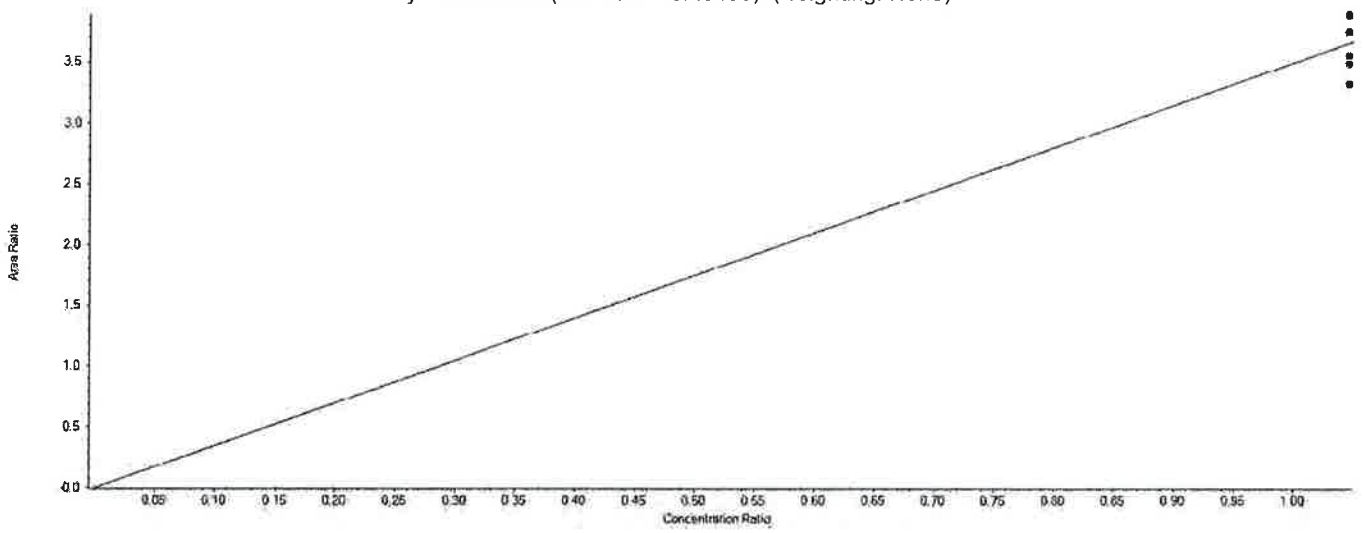
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C9-PFNA

y = 3.49598 x (std. dev. = 0.20453) (weighting: None)



Extraction Standard Calibration Verification

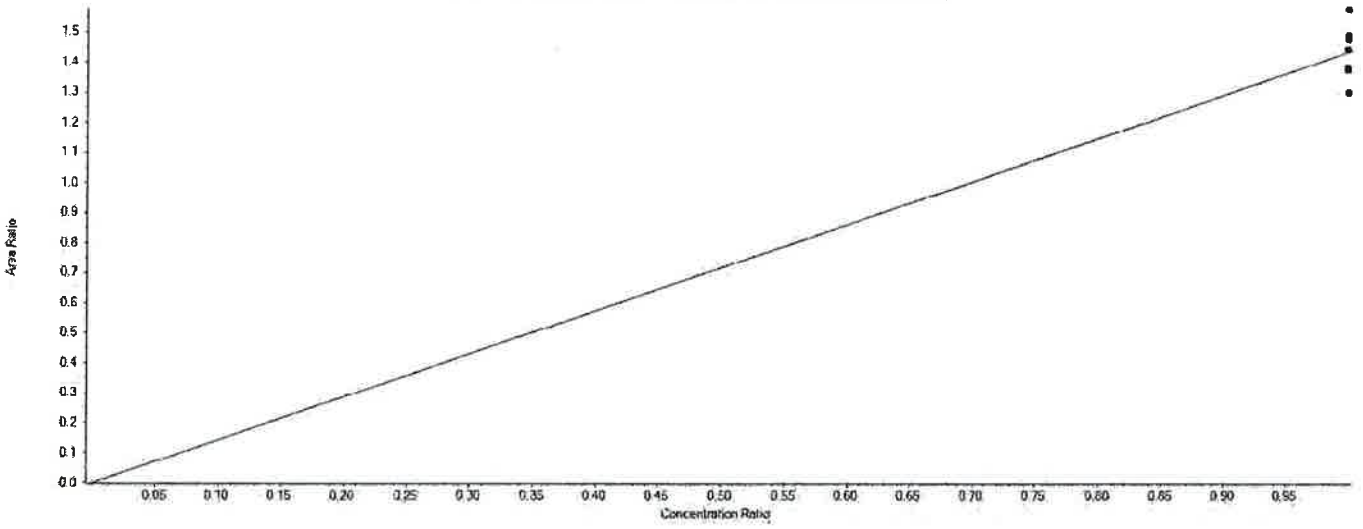
Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1330944.8	381849.8	True	4.78	3.486	6.72	1.000	5.000	4.766	-4.7	50.0	
CAL2	1337304.4	357884.8	True	4.78	3.737	6.72	1.000	5.000	5.109	2.2	30.0	
CAL3	1336916.6	403481.4	True	4.78	3.313	6.72	1.000	5.000	4.530	-9.4	30.0	
CAL4	1303219.2	366949.0	True	4.78	3.551	6.72	1.000	5.000	4.856	-2.9	30.0	
CAL5	1321743.5	352845.3	True	4.78	3.746	6.72	1.000	5.000	5.122	2.4	30.0	
CAL6	1228112.3	316816.9	True	4.78	3.876	6.72	1.000	5.000	5.300	6.0	30.0	
CAL7	1140106.0	293189.5	True	4.78	3.889	6.71	1.000	5.000	5.317	6.3	30.0	

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C6-PFDA

y = 1.43419 x (std. dev. = 0.09074) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1822315.8	1224290.1	True	5.00	1.488	7.06	1.000	5.000	5.189	3.8	50.0	
CAL2	1670234.5	1207588.8	True	5.00	1.383	7.06	1.000	5.000	4.822	-3.6	30.0	
CAL3	1931291.0	1337192.0	True	5.00	1.444	7.06	1.000	5.000	5.035	0.7	30.0	
CAL4	1729159.1	1171253.9	True	5.00	1.476	7.07	1.000	5.000	5.147	2.9	30.0	
CAL5	1698009.9	1078311.5	True	5.00	1.575	7.07	1.000	5.000	5.490	9.8	30.0	
CAL6	1505138.6	1094579.2	True	5.00	1.375	7.06	1.000	5.000	4.794	-4.1	30.0	
CAL7	1318619.2	1016411.0	True	5.00	1.297	7.06	1.000	5.000	4.523	-9.5	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

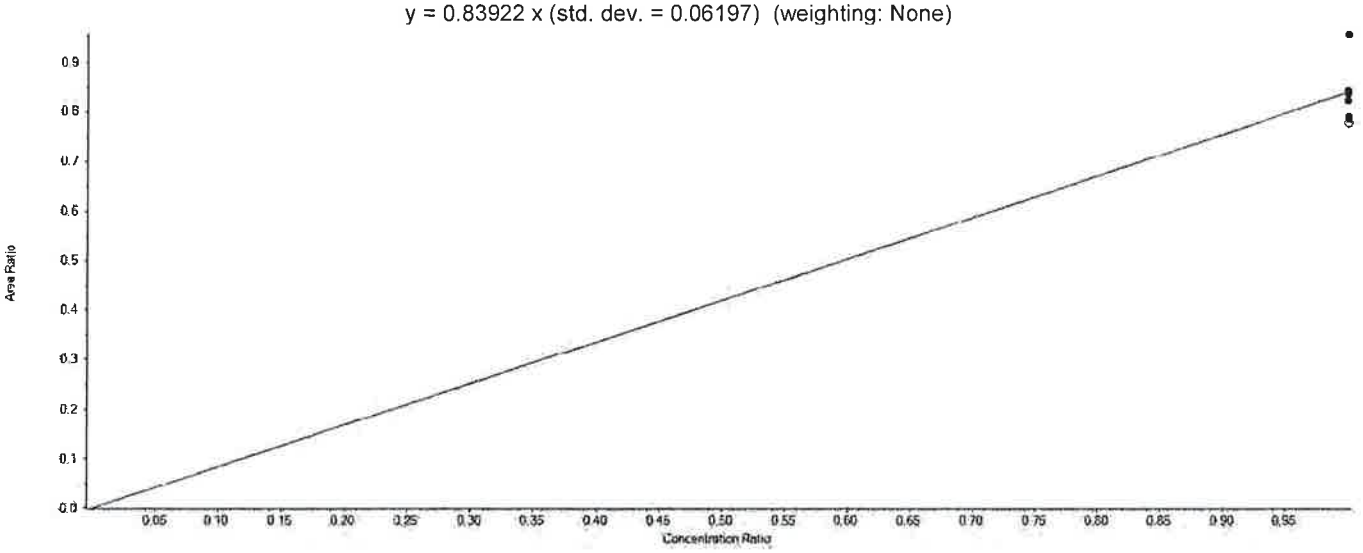
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C7-PFUnDA

y = 0.83922 x (std. dev. = 0.06197) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	961993.4	1224290.1	True	5.00	0.786	7.37	1.040	5.000	4.681	-6.4	50.0	
CAL2	1010922.0	1207588.8	True	5.00	0.837	7.37	1.040	5.000	4.988	-0.2	30.0	
CAL3	1056394.9	1337192.0	True	5.00	0.790	7.37	1.040	5.000	4.707	-5.9	30.0	
CAL4	989177.4	1171253.9	True	5.00	0.845	7.37	1.040	5.000	5.032	0.6	30.0	
CAL5	1030674.4	1078311.5	True	5.00	0.956	7.37	1.040	5.000	5.695	13.9	30.0	
CAL6	899785.7	1094579.2	True	5.00	0.822	7.37	1.040	5.000	4.898	-2.0	30.0	
CAL7	790575.5	1016411.0	False	5.00	0.778	7.37	1.040	5.000	4.634	-7.3	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

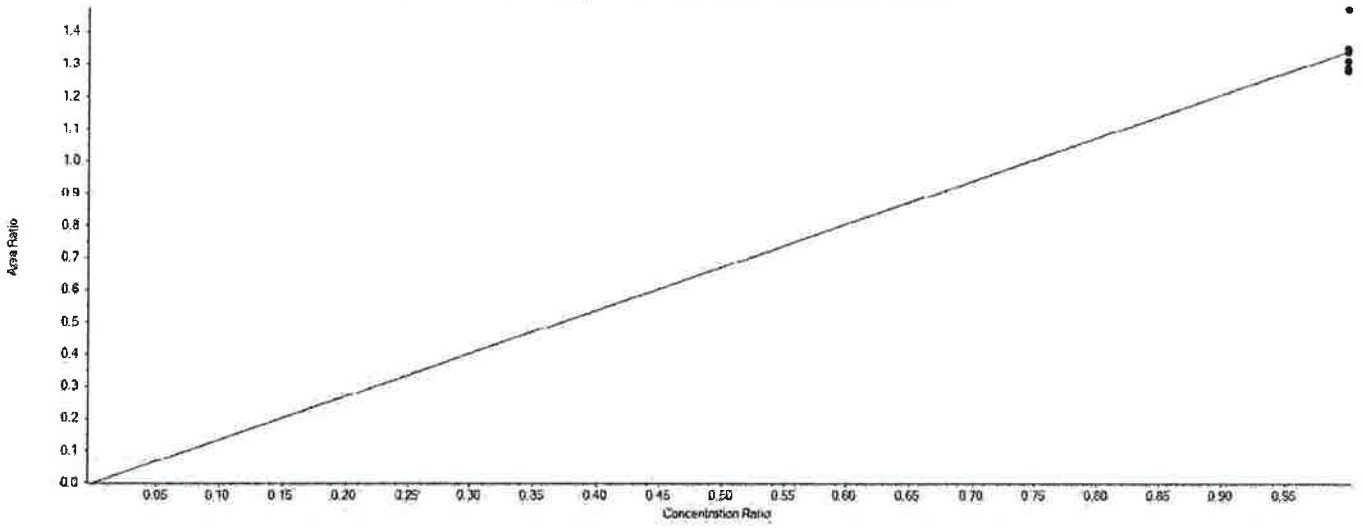
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFDoDA

y = 1.34107 x (std. dev. = 0.06270) (weighting: None)



Extraction Standard Calibration Verification

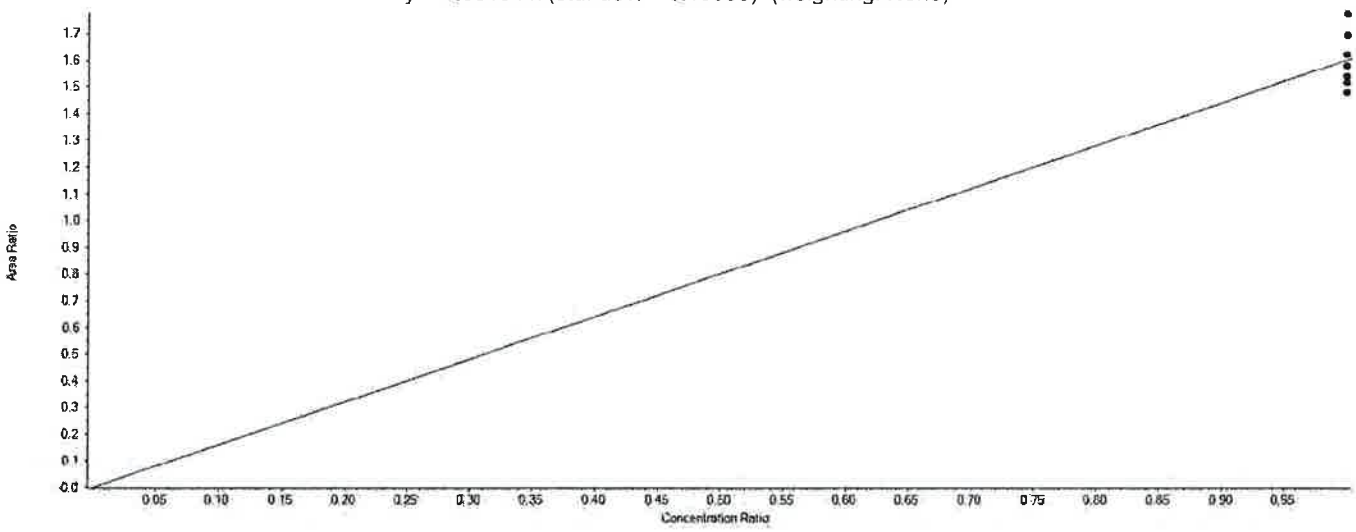
Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1655640.1	1224290.1	True	5.00	1.352	7.66	1.080	5.000	5.042	0.8	50.0	
CAL2	1618087.8	1207588.8	True	5.00	1.340	7.66	1.080	5.000	4.996	-0.1	30.0	
CAL3	1729783.9	1337192.0	True	5.00	1.294	7.65	1.080	5.000	4.823	-3.5	30.0	
CAL4	1567939.3	1171253.9	True	5.00	1.339	7.66	1.080	5.000	4.991	-0.2	30.0	
CAL5	1585437.2	1078311.5	True	5.00	1.470	7.66	1.080	5.000	5.482	9.6	30.0	
CAL6	1436144.1	1094579.2	True	5.00	1.312	7.66	1.080	5.000	4.892	-2.2	30.0	
CAL7	1301607.5	1016411.0	True	5.00	1.281	7.65	1.080	5.000	4.775	-4.5	30.0	

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

E13C2-PFTeDA

y = 1.60184 x (std. dev. = 0.10350) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1857601.1	1224290.1	True	5.00	1.517	8.21	1.160	5.000	4.736	-5.3	50.0	
CAL2	1960508.8	1207588.8	True	5.00	1.623	8.21	1.160	5.000	5.068	1.4	30.0	
CAL3	2062373.3	1337192.0	True	5.00	1.542	8.21	1.160	5.000	4.814	-3.7	30.0	
CAL4	1985381.0	1171253.9	True	5.00	1.695	8.21	1.160	5.000	5.291	5.8	30.0	
CAL5	1912418.4	1078311.5	True	5.00	1.774	8.21	1.160	5.000	5.536	10.7	30.0	
CAL6	1728812.5	1094579.2	True	5.00	1.579	8.21	1.160	5.000	4.930	-1.4	30.0	
CAL7	1506014.9	1016411.0	True	5.00	1.482	8.21	1.160	5.000	4.625	-7.5	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

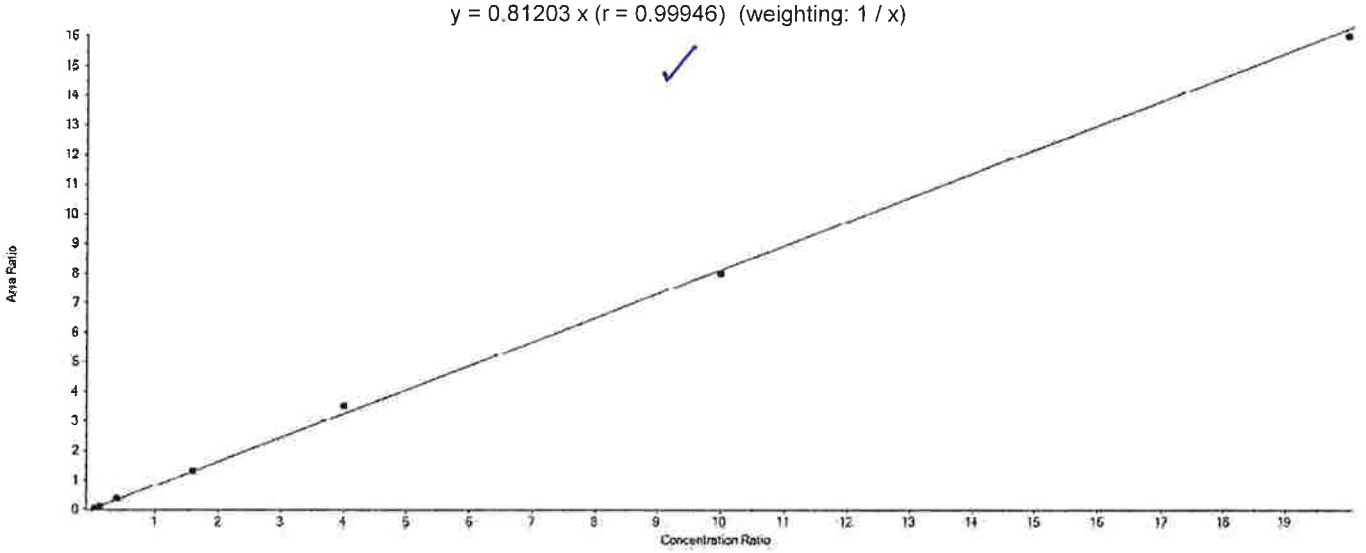
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBA

y = 0.81203 x (r = 0.99946) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	46654.8	1143656.0	True	5.00	0.041	4.43	1.000	0.200	0.251	25.6	50.0	
CAL2	126825.4	1154407.2	True	5.00	0.110	4.43	1.000	0.600	0.676	12.7	30.0	
CAL3	443347.8	1202938.6	True	5.00	0.369	4.43	1.000	2.000	2.269	13.5	30.0	
CAL4	1555117.2	1170321.3	True	5.00	1.329	4.43	1.000	8.000	8.182	2.3	30.0	
CAL5	4044972.0	1149536.3	True	5.00	3.519	4.44	1.000	20.000	21.667	8.3	30.0	
CAL6	8025387.6	1004401.1	True	5.00	7.990	4.44	1.000	50.000	49.199	-1.6	30.0	
CAL7	14457315.3	903253.5	True	5.00	16.006	4.43	1.000	100.000	98.555	-1.4	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

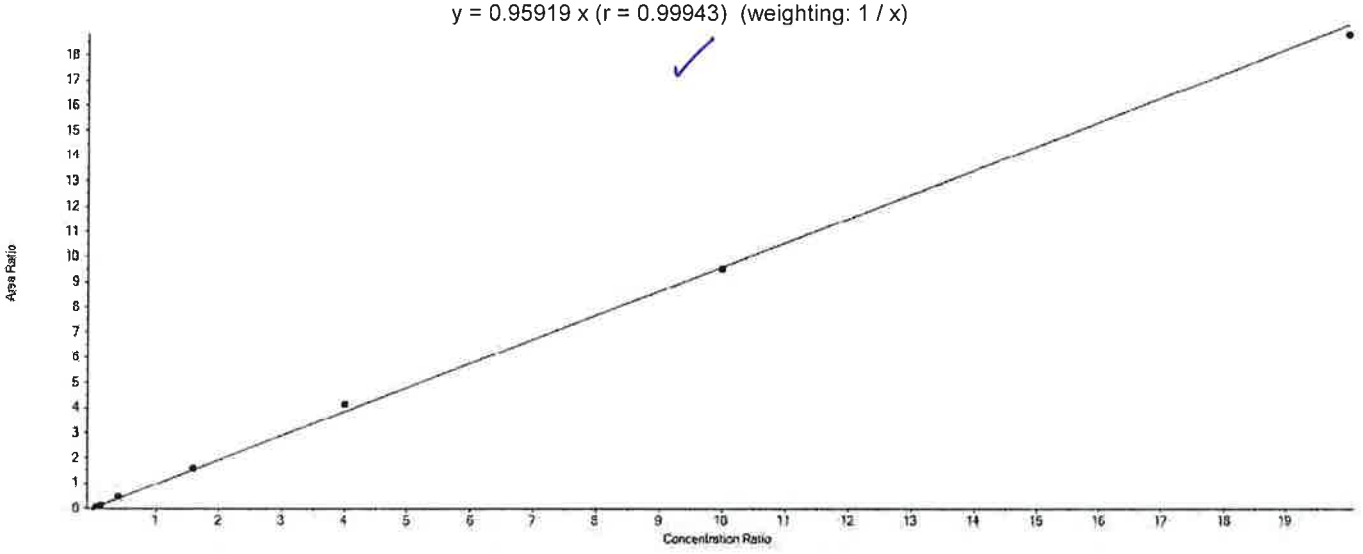
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFPeA

y = 0.95919 x (r = 0.99943) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	47311.3	992519.2	True	5.00	0.048	5.02	1.000	0.200	0.248	24.2	50.0	
CAL2	130783.6	1002755.6	True	5.00	0.130	5.02	1.000	0.600	0.680	13.3	30.0	
CAL3	464804.0	1059008.6	True	5.00	0.439	5.01	1.000	2.000	2.288	14.4	30.0	
CAL4	1593767.0	995927.3	True	5.00	1.600	5.01	1.000	8.000	8.342	4.3	30.0	
CAL5	4035271.2	972742.1	True	5.00	4.148	5.02	1.000	20.000	21.624	8.1	30.0	
CAL6	8324589.4	875425.8	True	5.00	9.509	5.01	1.000	50.000	49.569	-0.9	30.0	
CAL7	15153072.1	805600.5	True	5.00	18.810	5.01	1.000	100.000	98.049	-2.0	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

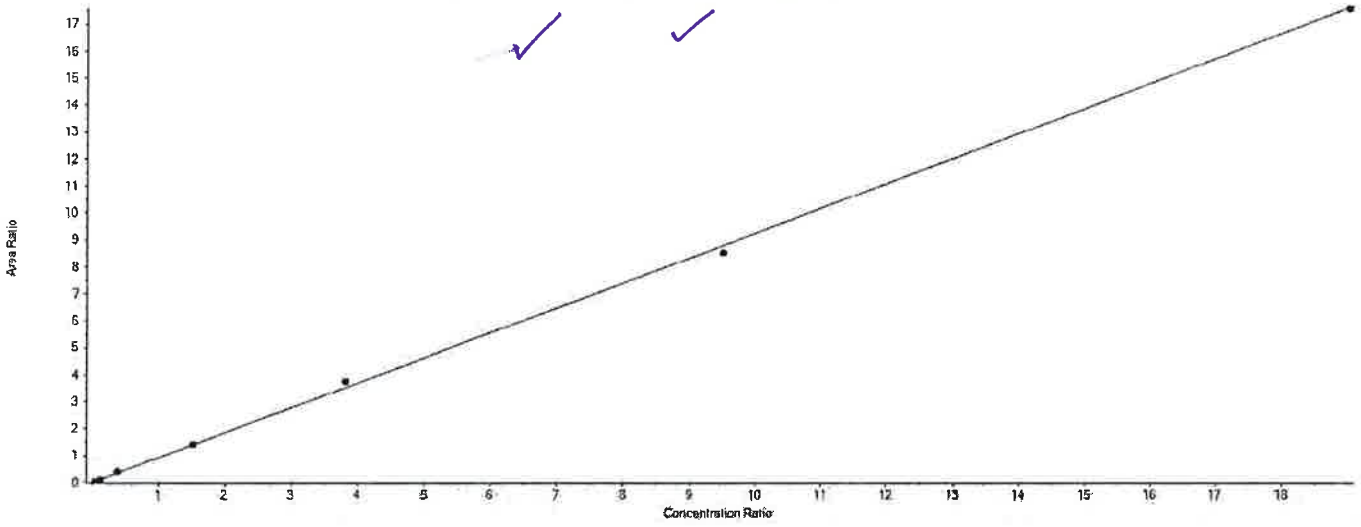
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFBS

y = 0.92500 x (r = 0.99959) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	19771.9	463867.8	True	4.65	0.043	5.07	1.000	0.170	0.214	26.0	50.0	
CAL2	52476.4	474465.0	True	4.65	0.111	5.06	1.000	0.530	0.556	4.9	30.0	
CAL3	194876.6	512261.2	True	4.65	0.380	5.06	1.000	1.770	1.912	8.0	30.0	
CAL4	701656.9	491396.2	True	4.65	1.428	5.07	1.000	7.080	7.178	1.4	30.0	
CAL5	1717749.7	456680.9	True	4.65	3.761	5.07	1.000	17.690	18.909	6.9	30.0	
CAL6	3711920.5	435146.4	True	4.65	8.530	5.07	1.000	44.220	42.882	-3.0	30.0	
CAL7	7018424.8	399754.1	True	4.65	17.557	5.06	1.000	88.450	88.259	-0.2	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

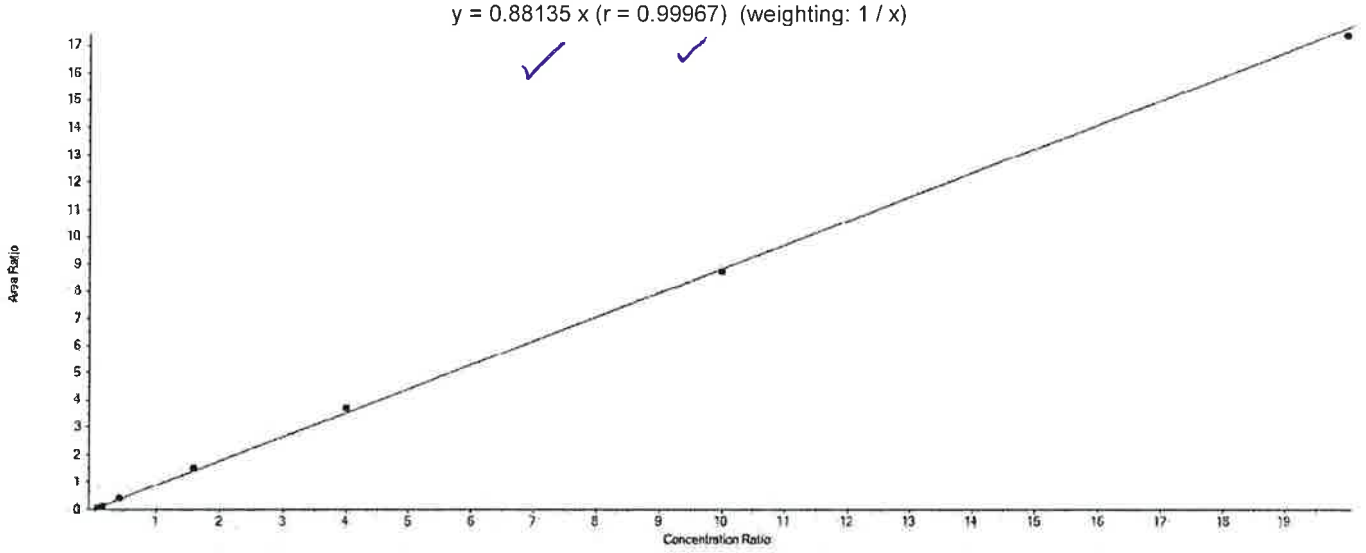
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxA

y = 0.88135 x (r = 0.99967) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	70334.5	1635435.4	True	5.00	0.043	5.48	1.000	0.200	0.244	22.0	50.0	
CAL2	207431.4	1735999.2	True	5.00	0.119	5.48	1.000	0.600	0.678	13.0	30.0	
CAL3	692240.6	1819960.8	True	5.00	0.380	5.48	1.000	2.000	2.158	7.9	30.0	
CAL4	2525594.2	1667378.1	True	5.00	1.515	5.48	1.000	8.000	8.593	7.4	30.0	
CAL5	5860395.8	1581495.0	True	5.00	3.706	5.49	1.000	20.000	21.022	5.1	30.0	
CAL6	12913237.9	1479077.9	True	5.00	8.731	5.48	1.000	50.000	49.529	-0.9	30.0	
CAL7	21817128.3	1255591.5	True	5.00	17.376	5.48	1.000	100.000	98.576	-1.4	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

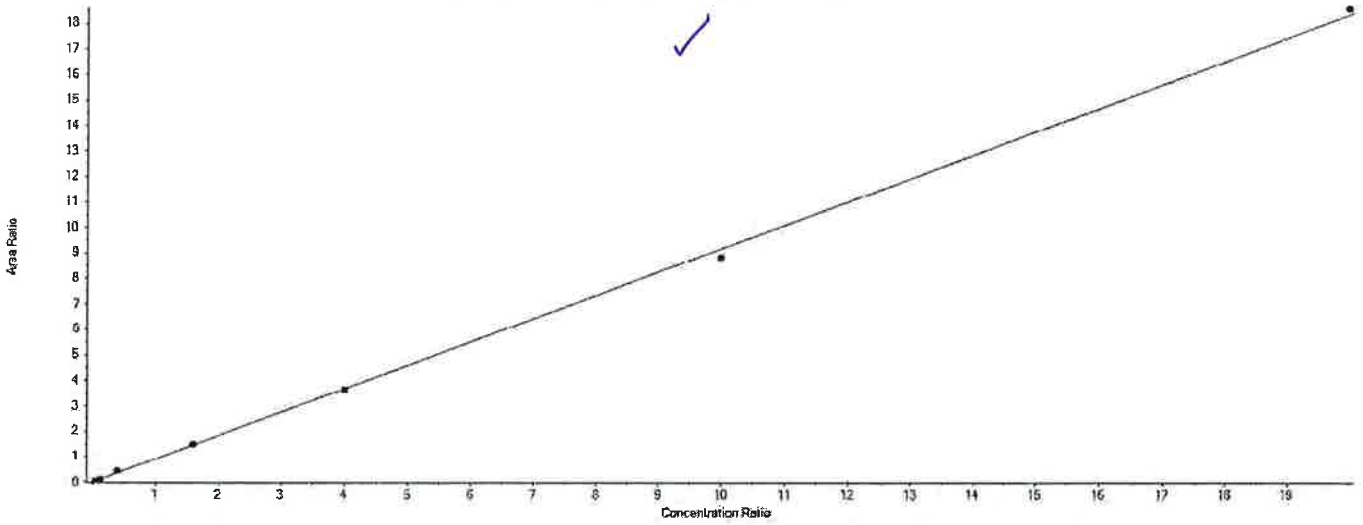
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHxS

y = 0.91770 x (r = 0.99953) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	18545.2	416498.4	True	4.73	0.045	5.92	1.000	0.190	0.229	20.8	50.0	
CAL2	51186.6	426955.6	True	4.73	0.120	5.92	1.000	0.570	0.618	8.4	30.0	
CAL3	194408.4	436630.0	True	4.73	0.445	5.92	1.000	1.890	2.295	21.4	30.0	
CAL4	643461.4	426014.6	True	4.73	1.510	5.92	1.000	7.560	7.785	3.0	30.0	
CAL5	1610306.8	444055.2	True	4.73	3.626	5.92	1.000	18.910	18.691	-1.2	30.0	
CAL6	3375849.3	382085.5	True	4.73	8.835	5.92	1.000	47.280	45.539	-3.7	30.0	
CAL7	6102524.9	328350.7	True	4.73	18.585	5.92	1.000	94.550	95.793	1.3	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

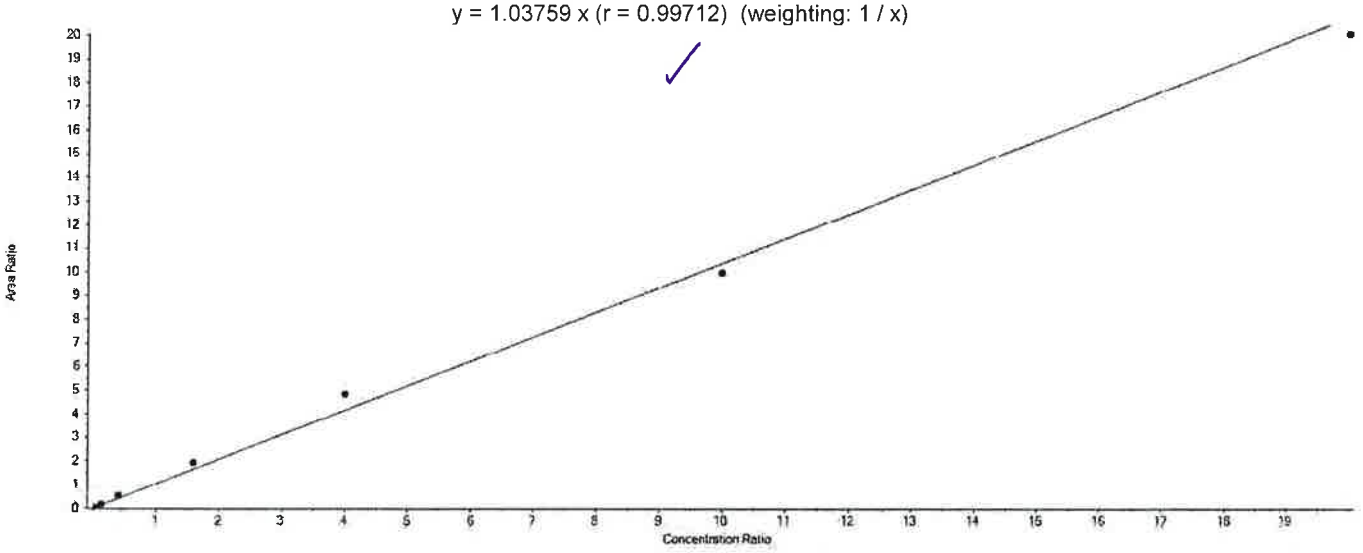
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFHpA

y = 1.03759 x (r = 0.99712) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	80287.7	1645603.7	True	5.00	0.049	5.93	1.000	0.200	0.235	17.6	50.0	
CAL2	247734.1	1609366.7	True	5.00	0.154	5.93	1.000	0.600	0.742	23.6	30.0	
CAL3	864490.5	1642722.6	True	5.00	0.526	5.93	1.000	2.000	2.536	26.8	30.0	
CAL4	3053676.3	1591238.4	True	5.00	1.919	5.93	1.000	8.000	9.248	15.6	30.0	
CAL5	7742597.8	1599343.9	True	5.00	4.841	5.93	1.000	20.000	23.329	16.6	30.0	
CAL6	14390352.8	1440279.2	True	5.00	9.991	5.93	1.000	50.000	48.147	-3.7	30.0	
CAL7	25141190.4	1254624.5	True	5.00	20.039	5.93	1.000	100.000	96.564	-3.4	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

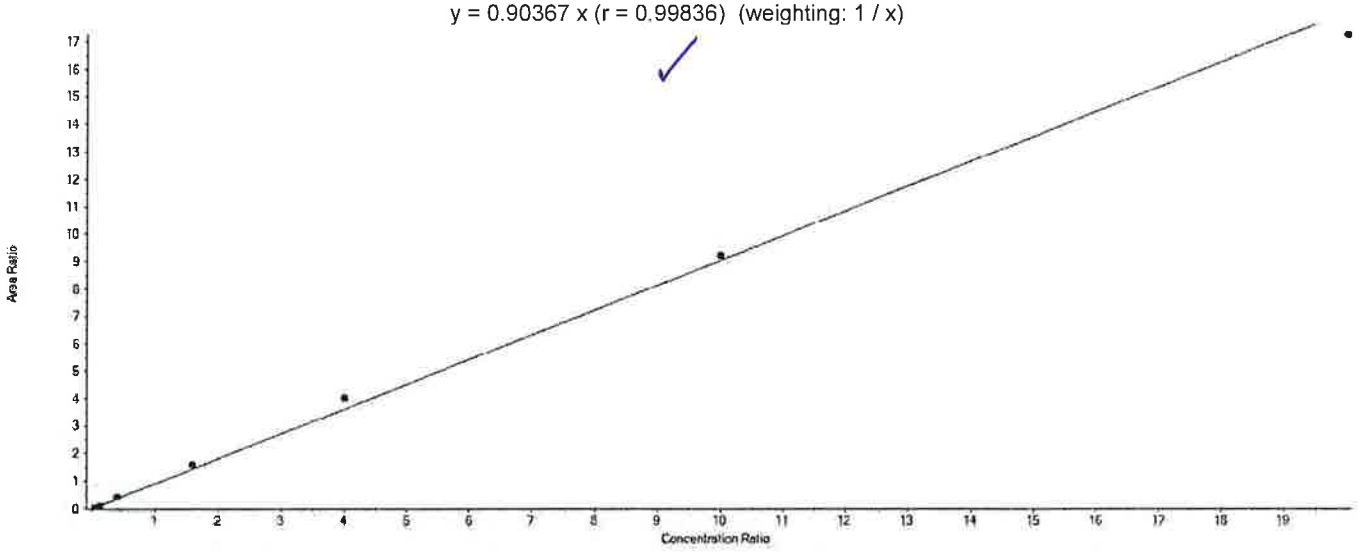
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOA

y = 0.90367 x (r = 0.99836) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	84663.2	1855998.6	True	5.00	0.046	6.34	1.000	0.200	0.252	26.2	50.0	
CAL2	232261.0	1937290.9	True	5.00	0.120	6.34	1.000	0.600	0.663	10.6	30.0	
CAL3	828542.2	2036767.4	True	5.00	0.407	6.34	1.000	2.000	2.251	12.5	30.0	
CAL4	2873982.4	1793959.7	True	5.00	1.602	6.34	1.000	8.000	8.864	10.8	30.0	
CAL5	7347660.4	1823339.2	True	5.00	4.030	6.35	1.000	20.000	22.297	11.5	30.0	
CAL6	14604446.3	1583821.8	True	5.00	9.221	6.34	1.000	50.000	51.020	2.0	30.0	
CAL7	24938465.2	1445580.4	True	5.00	17.252	6.34	1.000	100.000	95.453	-4.5	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

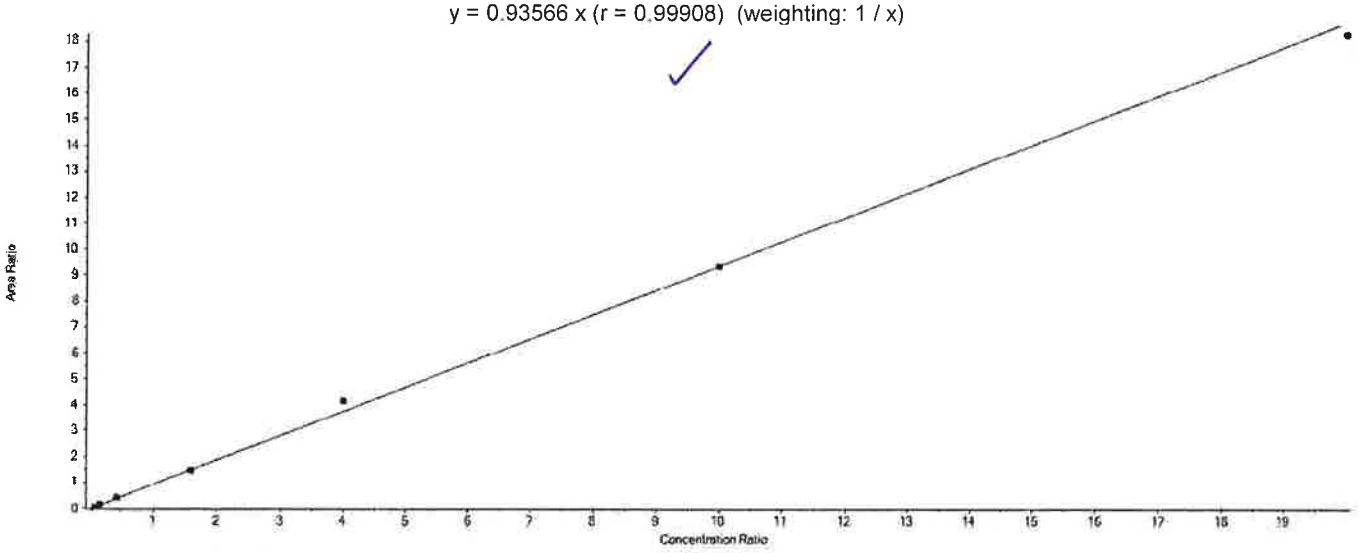
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFOS

y = 0.93566 x (r = 0.99908) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	16425.2	357244.9	True	4.78	0.046	6.69	1.000	0.190	0.235	23.6	50.0	
CAL2	49387.6	362132.4	True	4.78	0.136	6.69	1.000	0.570	0.697	22.2	30.0	
CAL3	158402.9	392701.1	True	4.78	0.403	6.69	1.000	1.910	2.061	7.9	30.0	
CAL4	551652.5	374919.4	True	4.78	1.471	6.69	1.000	7.650	7.517	-1.7	30.0	
CAL5	1478312.0	354892.1	True	4.78	4.166	6.70	1.000	19.120	21.280	11.3	30.0	
CAL6	3008296.8	321487.3	True	4.78	9.357	6.69	1.000	47.800	47.804	0.0	30.0	
CAL7	5390271.5	295319.1	True	4.78	18.252	6.69	1.000	95.600	93.246	-2.5	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

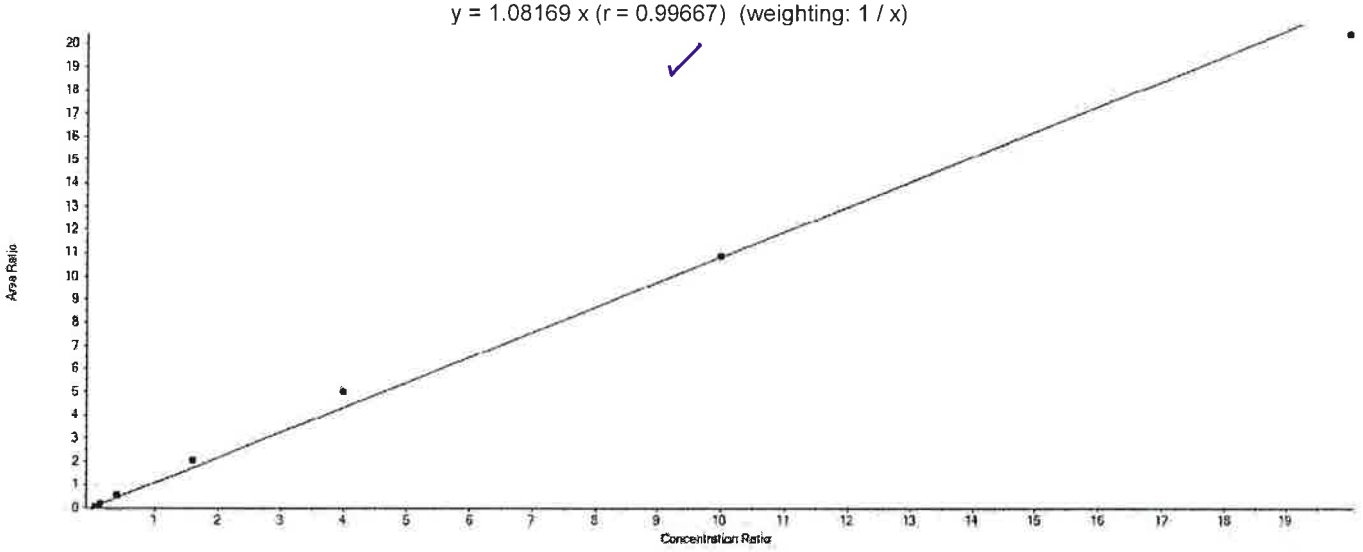
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFNA

y = 1.08169 x (r = 0.99667) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	73154.7	1330944.8	True	5.00	0.055	6.72	1.000	0.200	0.254	27.0	50.0	
CAL2	212927.7	1337304.4	True	5.00	0.159	6.72	1.000	0.600	0.736	22.7	30.0	
CAL3	738900.2	1336916.6	True	5.00	0.553	6.72	1.000	2.000	2.555	27.7	30.0	
CAL4	2656136.9	1303219.2	True	5.00	2.038	6.72	1.000	8.000	9.421	17.8	30.0	
CAL5	6659488.9	1321743.5	True	5.00	5.038	6.72	1.000	20.000	23.290	16.4	30.0	
CAL6	13336548.3	1228112.3	True	5.00	10.859	6.72	1.000	50.000	50.197	0.4	30.0	
CAL7	23270655.1	1140106.0	True	5.00	20.411	6.72	1.000	100.000	94.348	-5.7	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

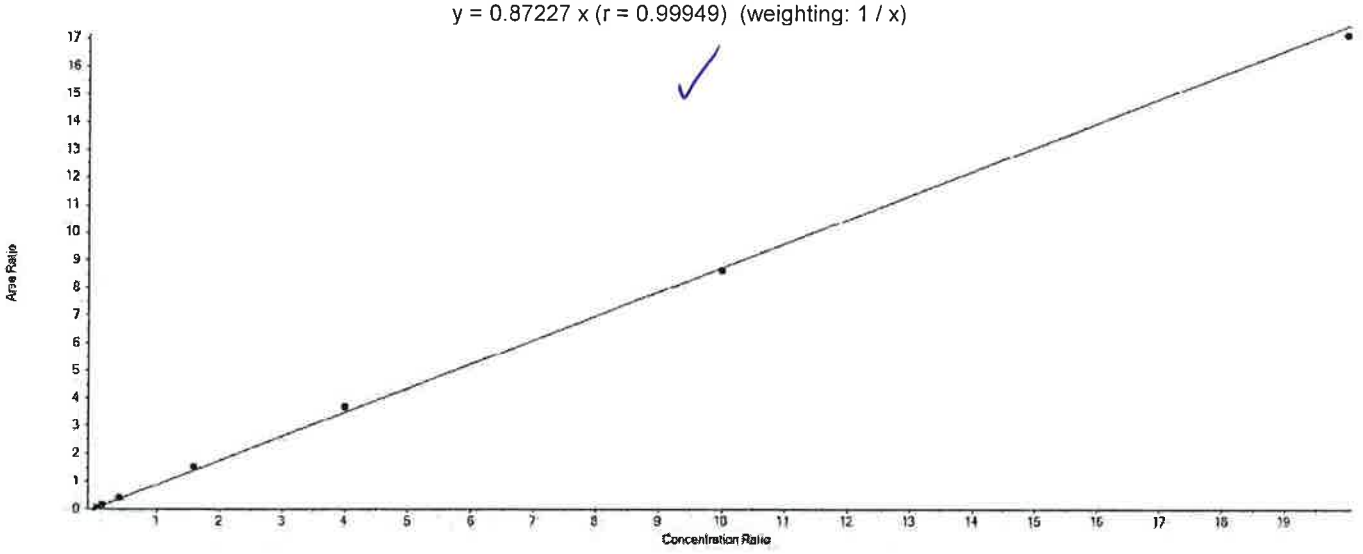
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDA

y = 0.87227 x (r = 0.99949) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	79455.5	1822315.8	True	5.00	0.044	7.06	1.000	0.200	0.250	25.0	50.0	
CAL2	208827.4	1670234.5	True	5.00	0.125	7.06	1.000	0.600	0.717	19.4	30.0	
CAL3	753329.7	1931291.0	True	5.00	0.390	7.06	1.000	2.000	2.236	11.8	30.0	
CAL4	2633406.2	1729159.1	True	5.00	1.523	7.06	1.000	8.000	8.730	9.1	30.0	
CAL5	6285526.4	1698009.9	True	5.00	3.702	7.07	1.000	20.000	21.219	6.1	30.0	
CAL6	12981002.4	1505138.6	True	5.00	8.624	7.06	1.000	50.000	49.437	-1.1	30.0	
CAL7	22592656.7	1318619.2	True	5.00	17.134	7.06	1.000	100.000	98.212	-1.8	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

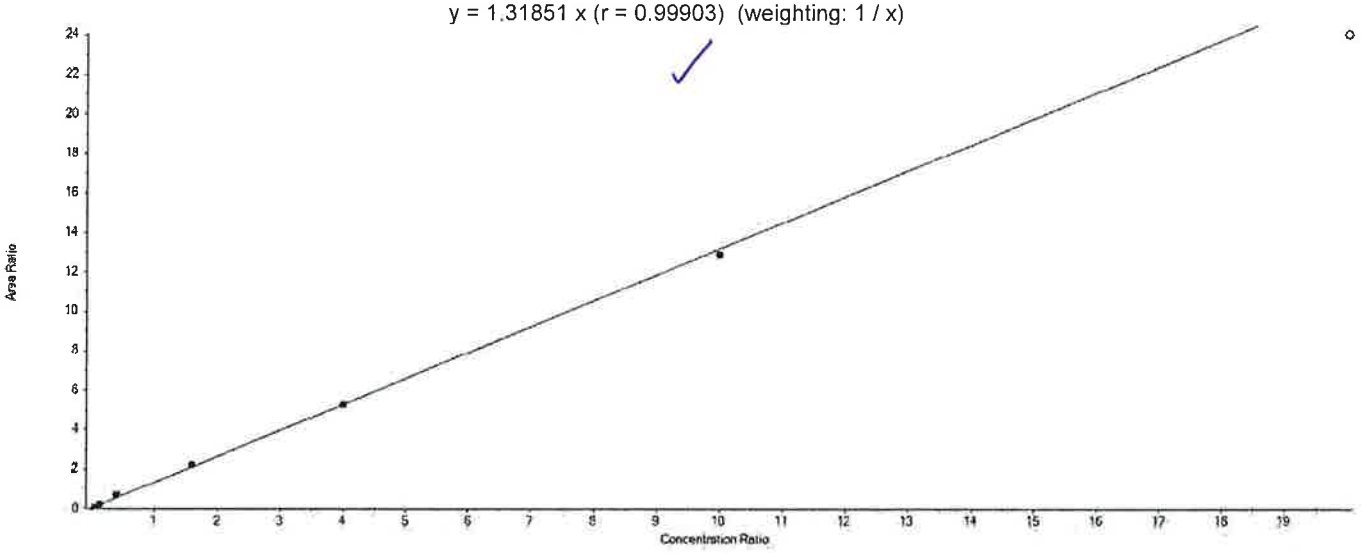
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFUnDA

y = 1.31851 x (r = 0.99903) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	60294.4	961993.4	True	5.00	0.063	7.37	1.000	0.200	0.238	18.8	50.0	
CAL2	182158.8	1010922.0	True	5.00	0.180	7.37	1.000	0.600	0.683	13.9	30.0	
CAL3	696216.4	1056394.9	True	5.00	0.659	7.37	1.000	2.000	2.499	25.0	30.0	
CAL4	2212770.5	989177.4	True	5.00	2.237	7.37	1.000	8.000	8.483	6.0	30.0	
CAL5	5461015.0	1030674.4	True	5.00	5.298	7.37	1.000	20.000	20.093	0.5	30.0	
CAL6	11580002.9	899785.7	True	5.00	12.870	7.37	1.000	50.000	48.804	-2.4	30.0	
CAL7	18994502.2	790575.5	False	5.00	24.026	7.37	1.000	100.000	91.111	-8.9	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

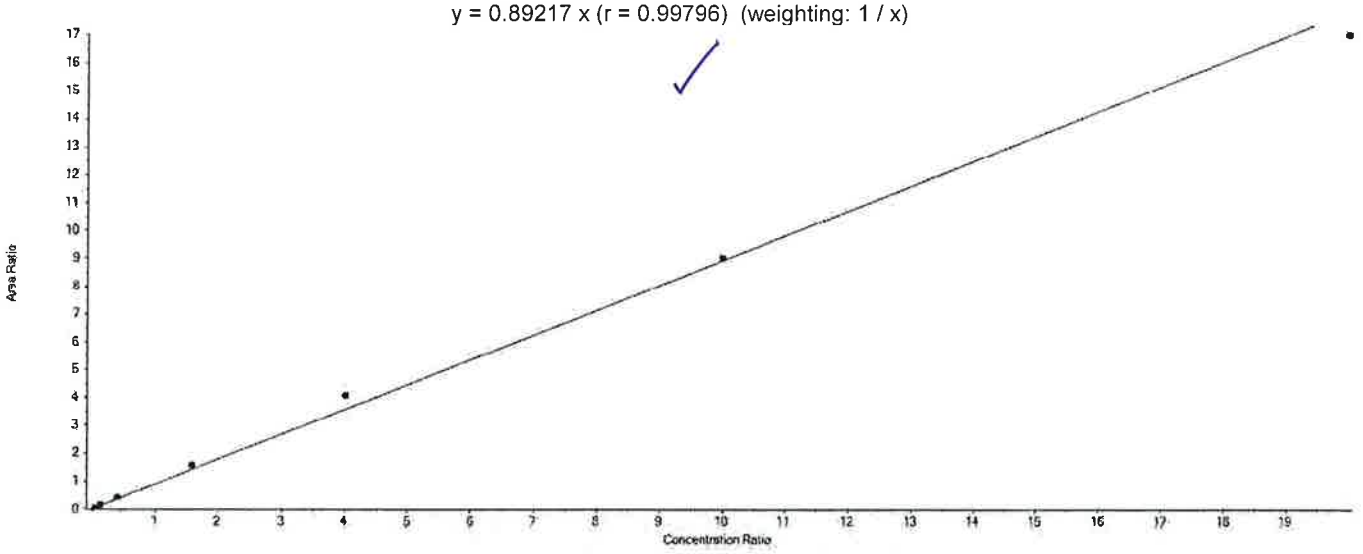
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFDoDA

y = 0.89217 x (r = 0.99796) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	74878.2	1655640.1	True	5.00	0.045	7.66	1.000	0.200	0.253	26.7	50.0	
CAL2	197621.3	1618087.8	True	5.00	0.122	7.66	1.000	0.600	0.684	14.1	30.0	
CAL3	719350.0	1729783.9	True	5.00	0.416	7.66	1.000	2.000	2.331	16.5	30.0	
CAL4	2491034.3	1567939.3	True	5.00	1.589	7.66	1.000	8.000	8.904	11.3	30.0	
CAL5	6440466.2	1585437.2	True	5.00	4.062	7.66	1.000	20.000	22.766	13.8	30.0	
CAL6	12958804.6	1436144.1	True	5.00	9.023	7.66	1.000	50.000	50.570	1.1	30.0	
CAL7	22131529.5	1301607.5	True	5.00	17.003	7.65	1.000	100.000	95.292	-4.7	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

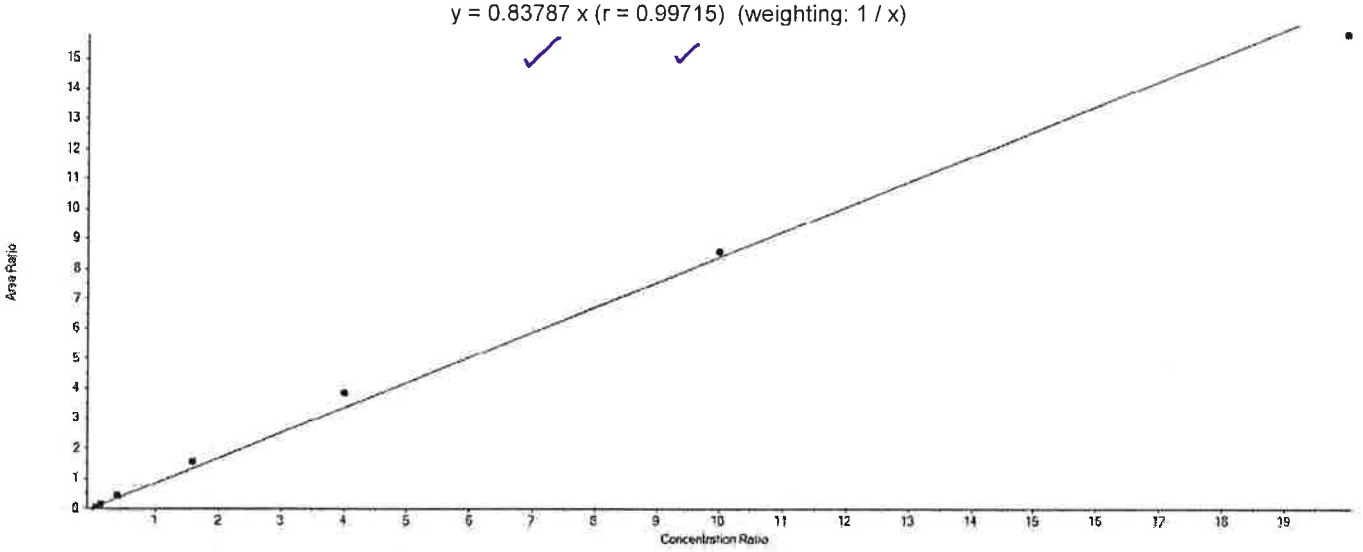
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTrDA

y = 0.83787 x (r = 0.99715) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	67199.1	1655640.1	True	5.00	0.041	7.93	1.040	0.200	0.242	21.1	50.0	
CAL2	200648.3	1618087.8	True	5.00	0.124	7.93	1.040	0.600	0.740	23.3	30.0	
CAL3	691616.8	1729783.9	True	5.00	0.400	7.93	1.040	2.000	2.386	19.3	30.0	
CAL4	2436755.1	1567939.3	True	5.00	1.554	7.93	1.040	8.000	9.274	15.9	30.0	
CAL5	6088298.5	1585437.2	True	5.00	3.840	7.94	1.040	20.000	22.916	14.6	30.0	
CAL6	12284855.0	1436144.1	True	5.00	8.554	7.93	1.040	50.000	51.046	2.1	30.0	
CAL7	20545408.3	1301607.5	True	5.00	15.785	7.93	1.040	100.000	94.195	-5.8	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

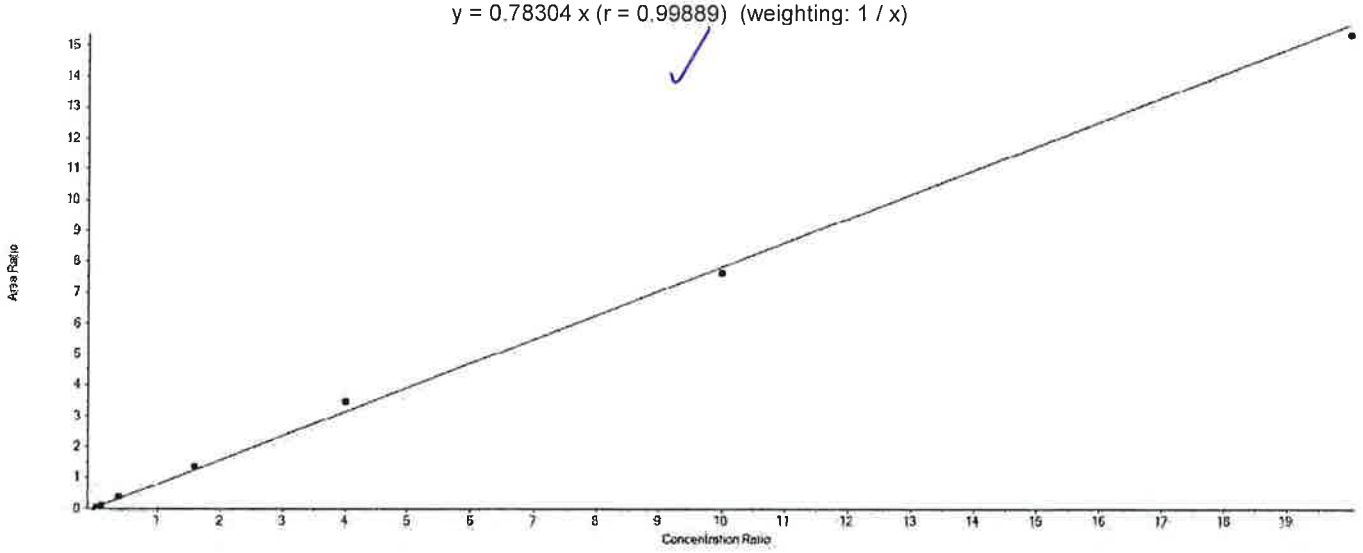
REVIEWED
By uild at 9:33 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

PFTeDA

y = 0.78304 x (r = 0.99889) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	75219.5	1857601.1	True	5.00	0.040	8.21	1.000	0.200	0.259	29.3	50.0	
CAL2	206721.1	1960508.8	True	5.00	0.105	8.21	1.000	0.600	0.673	12.2	30.0	
CAL3	756259.4	2062373.3	True	5.00	0.367	8.20	1.000	2.000	2.341	17.1	30.0	
CAL4	2707326.6	1985381.0	True	5.00	1.364	8.21	1.000	8.000	8.707	8.8	30.0	
CAL5	6641265.9	1912418.4	True	5.00	3.473	8.21	1.000	20.000	22.174	10.9	30.0	
CAL6	13183341.6	1728812.5	True	5.00	7.626	8.21	1.000	50.000	48.693	-2.6	30.0	
CAL7	23102444.8	1506014.9	True	5.00	15.340	8.20	1.000	100.000	97.952	-2.0	30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

REVIEWED
By uild at 9:33 am, 5/4/18

ICAL Name: 18MAY02MCAL **Result Table:** 18MAY02MCAL_MOD 5/2/2018 4:32:34 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

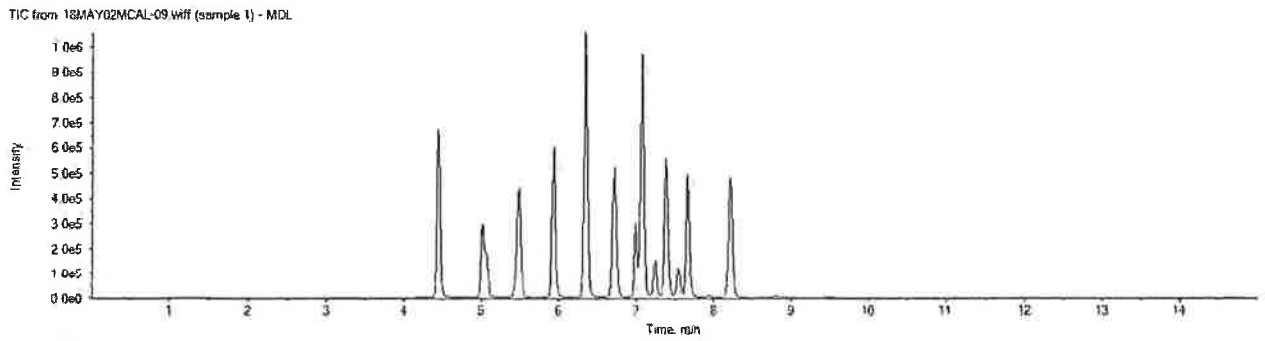
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24743 **File Name:** 18MAY02MCAL-09.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.44	1.000	23919.8	M	13C4-PFBA	4.44	1034282.3	0.023	0.142
PFPeA	5.02	1.000	21630.4	M	13C5-PFPeA	5.02	877637.7	0.025	0.128
PFBS	5.07	1.000	9792.1	A	13C3-PFBS	5.07	433967.9	0.023	0.113
4:2-FTS	5.44	1.000	17810.5	A	13C2-4:2-FTS	5.44	187015.5	0.095	0.519
PFHxA	5.49	1.000	34969.0	M	13C5-PFHxA	5.48	1427210.8	0.025	0.139
PFPeS	5.50	1.090	5294.3	A	13C3-PFBS	5.07	433967.9	0.012	0.128
PFHxS	5.92	1.000	8542.3	M	13C3-PFHxS	5.92	354646.0	0.024	0.124
PFHpA	5.93	1.000	40717.9	M	13C4-PFHpA	5.93	1446682.0	0.028	0.136
6:2-FTS	6.33	1.000	17230.3	A	13C2-6:2-FTS	6.33	150971.5	0.114	0.530
PFHpS	6.32	1.070	7499.4	M	13C3-PFHxS	5.92	354646.0	0.021	0.125
PFOA	6.35	1.000	42412.3	M	13C8-PFOA	6.35	1672934.2	0.025	0.140
PFOS	6.69	1.000	8155.1	M	13C8-PFOS	6.69	332431.0	0.025	0.125
PFNA	6.72	1.000	33802.5	M	13C9-PFNA	6.72	1144111.5	0.030	0.137
PFOSA	6.99	1.000	18134.0	M	13C8-PFOSA	6.98	817073.6	0.022	0.109
PFNS	7.03	1.050	4786.3	M	13C8-PFOS	6.69	332431.0	0.014	0.099
PFDA	7.06	1.000	39361.5	M	13C6-PFDA	7.07	1617872.7	0.024	0.139
8:2-FTS	7.08	1.000	17844.2	A	13C2-8:2-FTS	7.08	182081.2	0.098	0.536
NMePFOSAE	7.39	1.000	8513.0	M	d7-NMePFOSAE	7.38	222398.8	0.038	0.137
NMePFOSA	7.41	1.000	2981.2	M	d3-NMePFOSA	7.41	154144.2	0.019	0.111
NMeFOSAA	7.24	1.000	10028.1	M	d3-NMeFOSAA	7.24	481425.4	0.021	0.109
NEtPFOSAE	7.54	1.000	7036.7	M	d9-NEtPFOSAE	7.54	261734.9	0.027	0.113
NEtPFOSA	7.57	1.000	2400.7	M	d5-NEtPFOSA	7.56	119524.6	0.020	0.096
PFDS	7.34	1.100	3980.7	M	13C8-PFOS	6.69	332431.0	0.012	0.110
PFUnDA	7.37	1.000	30647.5	M	13C7-PFUnDA	7.37	919962.5	0.033	0.126
NEtFOSAA	7.40	1.000	10021.3	A	d5-NEtFOSAA	7.39	462605.2	0.022	0.120
PFDoDA	7.66	1.000	34125.9	M	13C2-PFDoDA	7.66	1468840.6	0.023	0.130
10:2-FTS	7.70	1.090	31689.9	A	13C2-8:2-FTS	7.08	182081.2	0.174	0.562
PFDoS	7.88	1.180	1985.1	A	13C8-PFOS	6.69	332431.0	0.006	0.118
PFTrDA	7.94	1.040	35216.0	M	13C2-PFDoDA	7.66	1468840.6	0.024	0.143
PFTeDA	8.21	1.000	36792.8	A	13C2-PFTeDA	8.21	1746762.9	0.021	0.134
PFHxDA	8.80	1.070	36042.8	A	13C2-PFTeDA	8.21	1746762.9	0.021	0.153
PFODA	9.48	1.150	31897.0	A	13C2-PFTeDA	8.21	1746762.9	0.018	0.120

Total Ion Chromatogram



APPROVED
By MCD at 5:14 pm, 5/2/18

REVIEWED
By uild at 9:35 am, 5/4/18

ICAL Name: 18MAY02MCAL **Result Table:** 18MAY02MCAL_MOD 5/2/2018 4:32:34 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

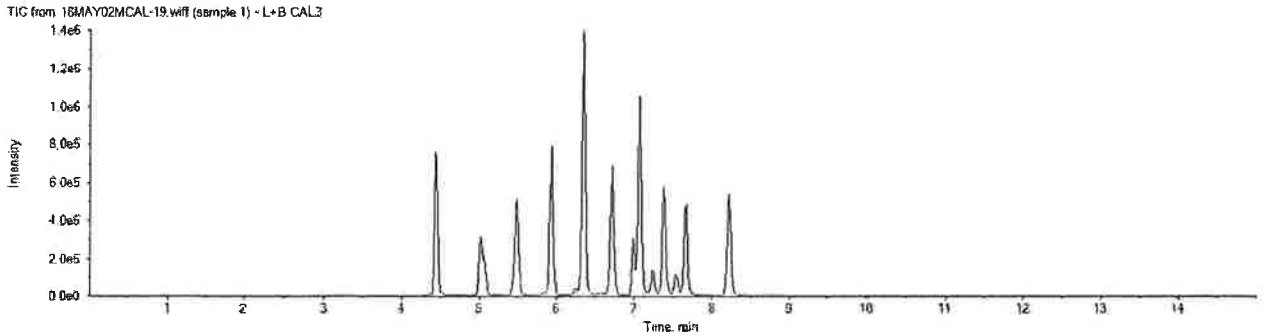
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM24743 **File Name:** 18MAY02MCAL-19.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.44	1134558.2	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.02	994214.0	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	467023.8	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.44	204416.3	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.48	1590824.1	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.07	467023.8	N/A	
PFHxS	5.92	1.000	212677.1	M	13C3-PFHxS	5.93	412098.0	0.516	2.660
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	5.93	1610805.7	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.34	155119.6	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	5.93	412098.0	N/A	
PFOA	6.35	1.000	554708.2	M	13C8-PFOA	6.35	1875469.9	0.296	1.636
PFOS	6.69	1.000	113176.7	M	13C8-PFOS	6.69	360233.2	0.314	1.605
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.72	1336049.4	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	6.99	854009.7	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.69	360233.2	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.07	1768651.0	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.08	182412.6	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.38	212772.3	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.41	145664.6	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.23	454121.9	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.53	250671.8	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.56	116182.9	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.69	360233.2	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.37	1047911.5	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.39	405037.2	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1576051.7	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.08	182412.6	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.69	360233.2	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.66	1576051.7	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.21	1878698.2	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.21	1878698.2	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.21	1878698.2	N/A	

Total Ion Chromatogram

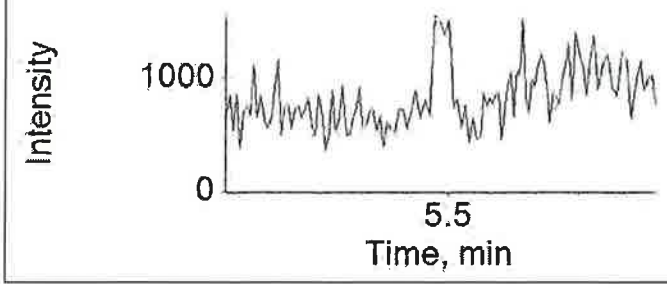


APPROVED
By MCD at 5:14 pm, 5/2/18

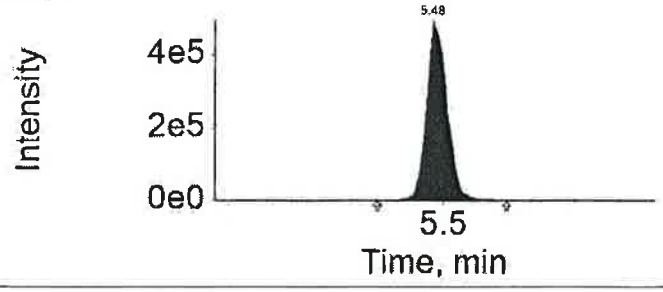
REVIEWED
By uild at 9:35 am, 5/4/18

ICAL Name: 18MAY02MCAL **Result Table:** 18MAY02MCAL_MOD 5/2/2018 4:32:34 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

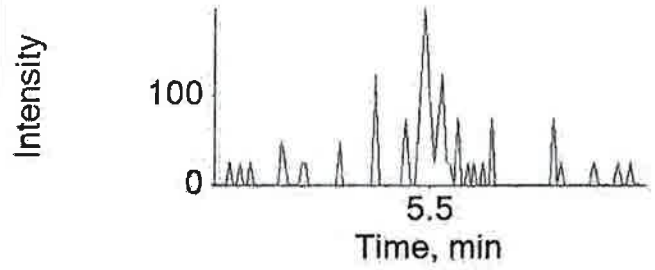
Analyte: PFHxA
313.0 / 269.0



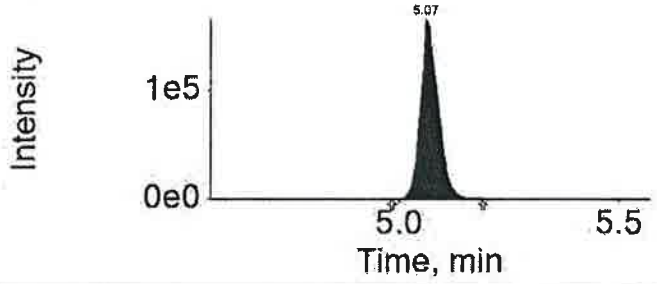
Extraction Standard: 13C5-PFHxA
318.0 / 273.0



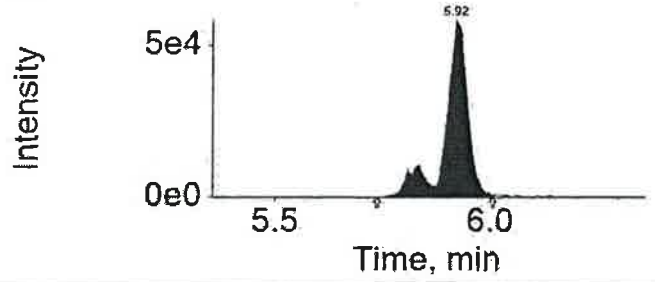
Analyte: PFPeS
349.0 / 80.0



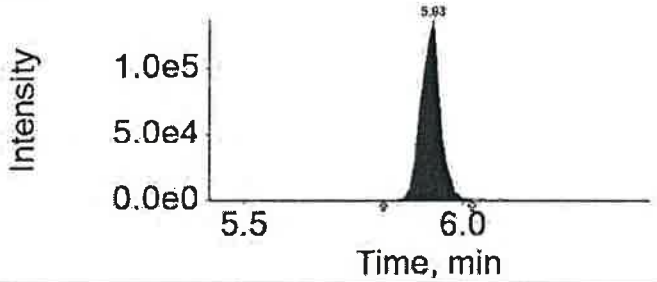
Extraction Standard: 13C3-PFBS
302.0 / 80.0



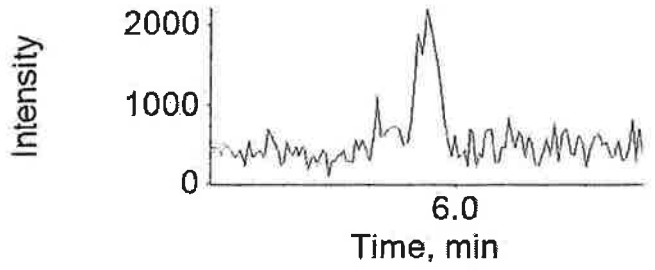
Analyte: PFHxS
399.0 / 80.0



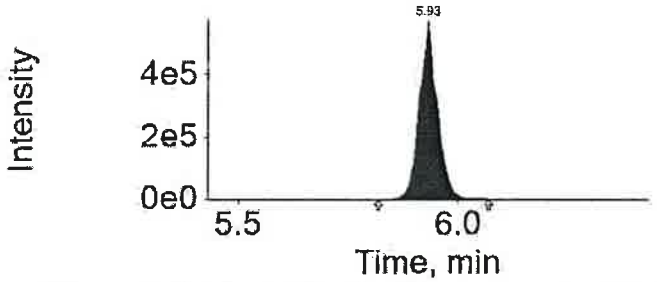
Extraction Standard: 13C3-PFHxS
402.0 / 80.0



Analyte: PFHpA
363.0 / 319.0



Extraction Standard: 13C4-PFHpA
367.0 / 322.0



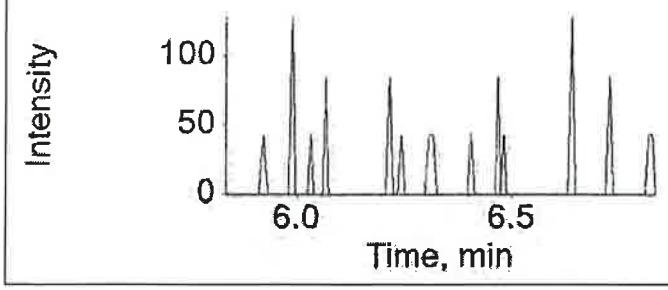
APPROVED
By MCD at 5:14 pm, 5/2/18

REVIEWED
By uild at 9:35 am, 5/4/18

ICAL Name: 18MAY02MCAL **Result Table:** 18MAY02MCAL_MOD 5/2/2018 4:32:34 PM
QMethod Name: SF-PFCMOD-18MAR26 **Acquisition Method:** PFC-32-18APR03-Divert.dam

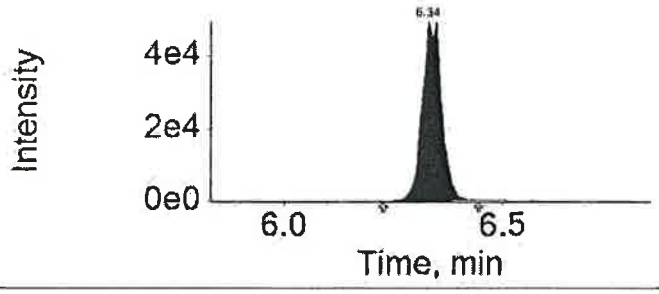
Analyte: 6:2-FTS

427.0 / 407.0



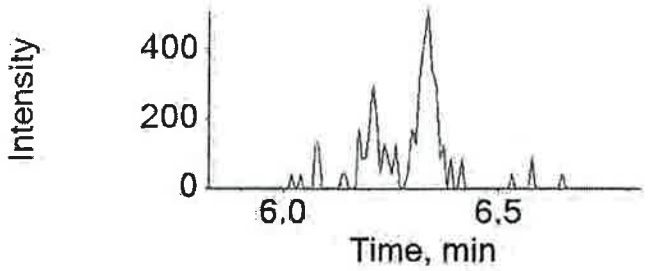
Extraction Standard: 13C2-6:2-FTS

429.0 / 409.0



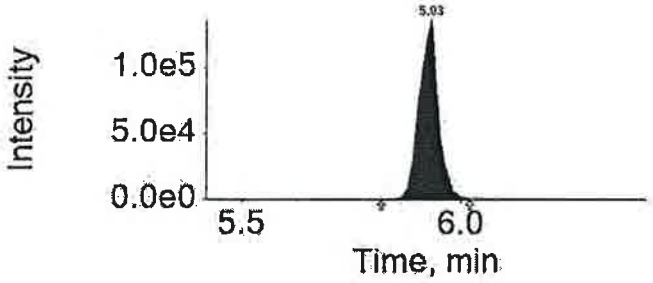
Analyte: PFHpS

449.0 / 80.0



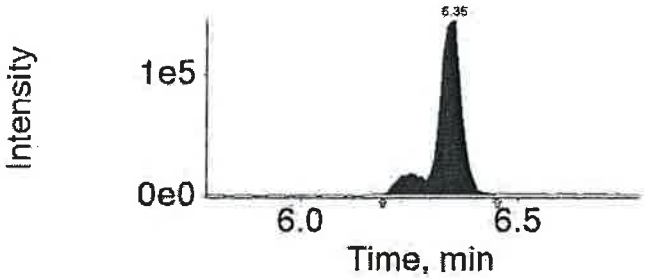
Extraction Standard: 13C3-PFHxS

402.0 / 80.0



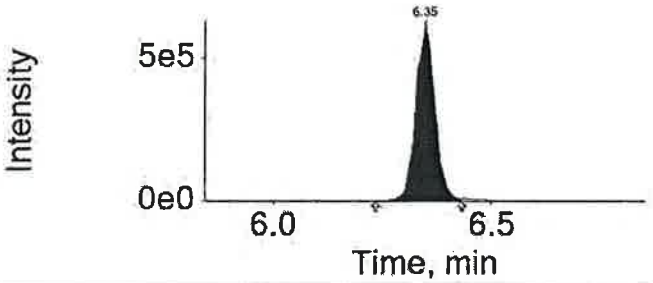
Analyte: PFOA

413.0 / 369.0



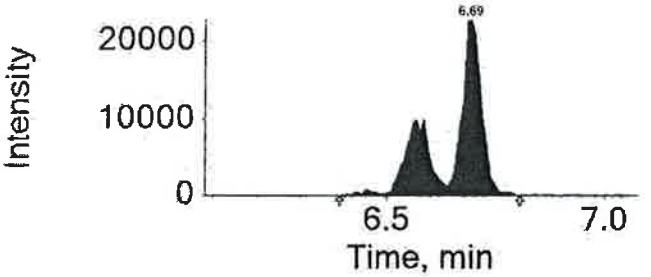
Extraction Standard: 13C8-PFOA

421.0 / 376.0



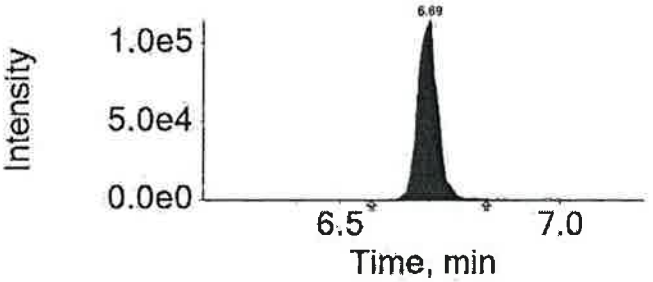
Analyte: PFOS

499.0 / 80.0



Extraction Standard: 13C8-PFOS

507.0 / 80.0



APPROVED
By MCD at 5:14 pm, 5/2/18

REVIEWED
By uild at 9:35 am, 5/4/18

Initial Calibration Verification

Instrument ID: LM24743 **ICAL Name:** 18MAY02MCAL **QMethod Name:** SF-PFCMOD-18MAR26
Result Table: 18MAY02MCAL_MOD5/2/2018 4:32:34 PM **Acquisition Method:** PFC-32-18APR03-Divert.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833C	18MAY02MCAL-18.wiff	5/2/2018 11:33:30 AM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	354381.0	13C4-PFBA	1076577.8	5.00	0.329	4.43	1.00	2.000	2.027	1.3	30.0	
PFPeA	363307.5	13C5-PFPeA	942086.5	5.00	0.386	5.01	1.00	2.000	2.010	0.5	30.0	
PFBS	160691.0	13C3-PFBS	434719.2	4.65	0.370	5.06	1.00	1.770	1.858	5.0	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	199889.6	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	583271.6	13C5-PFHxA	1547560.2	5.00	0.377	5.48	1.00	2.000	2.138	6.9	30.0	
PFPeS	N/A	13C3-PFBS	434719.2	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	150079.1	13C3-PFHxS	398920.8	4.73	0.376	5.92	1.00	1.890	1.939	2.6	30.0	
PFHpA	676434.9	13C4-PFHpA	1474743.4	5.00	0.459	5.93	1.00	2.000	2.210	10.5	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	151580.1	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	128374.8	13C3-PFHxS	398920.8	4.73	0.322	6.32	1.07	1.900	1.905	0.3	30.0	
PFOA	676870.5	13C8-PFOA	1766436.1	5.00	0.383	6.34	1.00	2.000	2.120	6.0	30.0	
PFOS	125693.8	13C8-PFOS	338717.2	4.78	0.371	6.69	1.00	1.910	1.896	-0.7	30.0	
PFNA	591402.2	13C9-PFNA	1242471.2	5.00	0.476	6.71	1.00	2.000	2.200	10.0	30.0	
PFOSA	N/A	13C8-PFOSA	764847.2	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	338717.2	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	616755.2	13C6-PFDA	1756608.9	5.00	0.351	7.06	1.00	2.000	2.013	0.6	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	180974.1	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	203676.1	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	141456.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	190073.0	d3-NMeFOSAA	421309.1	5.00	0.451	7.24	1.00	2.000	2.356	17.8	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	243731.6	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	114435.3	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	66890.2	13C8-PFOS	338717.2	4.78	0.197	7.33	1.10	1.930	1.821	-5.7	30.0	
PFUnDA	497923.7	13C7-PFUnDA	905756.1	5.00	0.550	7.37	1.00	2.000	2.085	4.2	30.0	
NEtFOSAA	174867.3	d5-NEtFOSAA	439235.5	5.00	0.398	7.39	1.00	2.000	2.212	10.6	30.0	
PFDoDA	554934.2	13C2-PFDoDA	1461992.7	5.00	0.380	7.65	1.00	2.000	2.127	6.4	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	180974.1	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	338717.2	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	537021.2	13C2-PFDoDA	1461992.7	5.00	0.367	7.93	1.04	2.000	2.192	9.6	30.0	
PFTeDA	578159.8	13C2-PFTeDA	1747321.7	5.00	0.331	8.21	1.00	2.000	2.113	5.6	30.0	
PFHxDA	N/A	13C2-PFTeDA	1747321.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	1747321.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By MCD at 5:14 pm, 5/2/18

REVIEWED
By uild at 9:33 am, 5/4/18

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN17

Instrument ID: 24743 Lab File ID: 18MAY02MCAL-20.WIFF

Date/Time Analyzed: 05/02/2018 12:04 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 05/02/2018 09:29 05/02/2018 11:02

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.22	11.20	±30
Perfluoropentanoic acid	2.00	2.22	10.99	±30
Perfluorobutanesulfonate	1.77	1.91	8.13	±30
Perfluorohexanoic acid	2.00	2.35	17.46	±30
Perfluorohexanesulfonate	1.89	2.17	15.08	±30
Perfluoroheptanoic acid	2.00	2.44	22.10	±30
Perfluorooctanoic acid	2.00	2.32	15.86	±30
Perfluoro-octanesulfonate	1.91	2.14	12.06	±30
Perfluorononanoic acid	2.00	2.41	20.47	±30
Perfluorodecanoic acid	2.00	2.40	20.18	±30
Perfluoroundecanoic acid	2.00	2.26	13.22	±30
Perfluorododecanoic acid	2.00	2.38	18.96	±30
Perfluorotridecanoic acid	2.00	2.35	17.41	±30
Perfluorotetradecanoic acid	2.00	2.37	18.52	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN17

Instrument ID: 24743 Lab File ID: 18MAY02-05.WIFF

Date/Time Analyzed: 05/02/2018 17:46 Lab Sample ID: CCV3_CAL3

Init. Calib. Date/Times: 05/02/2018 09:29 05/02/2018 11:02

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.24	12.23	±30
Perfluoropentanoic acid	2.00	2.28	13.87	±30
Perfluorobutanesulfonate	1.77	1.96	10.74	±30
Perfluorohexanoic acid	2.00	2.35	17.33	±30
Perfluorohexanesulfonate	1.89	2.22	17.55	±30
Perfluoroheptanoic acid	2.00	2.44	21.85	±30
Perfluorooctanoic acid	2.00	2.33	16.64	±30
Perfluoro-octanesulfonate	1.91	2.10	10.02	±30
Perfluorononanoic acid	2.00	2.44	21.90	±30
Perfluorodecanoic acid	2.00	2.27	13.30	±30
Perfluoroundecanoic acid	2.00	2.27	13.63	±30
Perfluorododecanoic acid	2.00	2.35	17.38	±30
Perfluorotridecanoic acid	2.00	2.41	20.72	±30
Perfluorotetradecanoic acid	2.00	2.36	17.84	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN17

Instrument ID: 24743 Lab File ID: 18MAY02-16.WIFF

Date/Time Analyzed: 05/02/2018 20:37 Lab Sample ID: CCV4_CAL4

Init. Calib. Date/Times: 05/02/2018 09:29 05/02/2018 11:02

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.45	5.67	±30
Perfluoropentanoic acid	8.00	8.49	6.11	±30
Perfluorobutanesulfonate	7.08	7.28	2.86	±30
Perfluorohexanoic acid	8.00	9.25	15.66	±30
Perfluorohexanesulfonate	7.56	8.40	11.11	±30
Perfluoroheptanoic acid	8.00	9.05	13.16	±30
Perfluorooctanoic acid	8.00	8.20	2.52	±30
Perfluoro-octanesulfonate	7.65	8.01	4.76	±30
Perfluorononanoic acid	8.00	9.87	23.38	±30
Perfluorodecanoic acid	8.00	8.23	2.84	±30
Perfluoroundecanoic acid	8.00	8.25	3.15	±30
Perfluorododecanoic acid	8.00	8.38	4.74	±30
Perfluorotridecanoic acid	8.00	8.91	11.33	±30
Perfluorotetradecanoic acid	8.00	8.67	8.32	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN17

Instrument ID: 24743 Lab File ID: 18MAY03-01.WIFF

Date/Time Analyzed: 05/03/2018 08:48 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 05/02/2018 09:29 05/02/2018 11:02

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.21	10.50	±30
Perfluoropentanoic acid	2.00	2.19	9.49	±30
Perfluorobutanesulfonate	1.77	1.93	9.28	±30
Perfluorohexanoic acid	2.00	2.29	14.65	±30
Perfluorohexanesulfonate	1.89	2.06	9.03	±30
Perfluoroheptanoic acid	2.00	2.37	18.65	±30
Perfluorooctanoic acid	2.00	2.24	12.07	±30
Perfluoro-octanesulfonate	1.91	2.25	18.00	±30
Perfluorononanoic acid	2.00	2.56	28.10	±30
Perfluorodecanoic acid	2.00	2.18	9.05	±30
Perfluoroundecanoic acid	2.00	2.28	13.82	±30
Perfluorododecanoic acid	2.00	2.48	24.10	±30
Perfluorotridecanoic acid	2.00	2.46	22.78	±30
Perfluorotetradecanoic acid	2.00	2.31	15.65	±30

* Outside QC Limits.

FORM 07 - EPA 537 Version 1.1 Modified

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN17

Instrument ID: 24743 Lab File ID: 18MAY03-12.WIFF

Date/Time Analyzed: 05/03/2018 11:38 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 05/02/2018 09:29 05/02/2018 11:02

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.22	2.70	±30
Perfluoropentanoic acid	8.00	8.16	2.01	±30
Perfluorobutanesulfonate	7.08	7.34	3.68	±30
Perfluorohexanoic acid	8.00	8.35	4.35	±30
Perfluorohexanesulfonate	7.56	7.67	1.51	±30
Perfluoroheptanoic acid	8.00	8.61	7.56	±30
Perfluorooctanoic acid	8.00	8.41	5.18	±30
Perfluoro-octanesulfonate	7.65	8.18	6.92	±30
Perfluorononanoic acid	8.00	9.12	14.03	±30
Perfluorodecanoic acid	8.00	8.02	0.25	±30
Perfluoroundecanoic acid	8.00	7.05	-11.92	±30
Perfluorododecanoic acid	8.00	8.61	7.66	±30
Perfluorotridecanoic acid	8.00	9.37	17.13	±30
Perfluorotetradecanoic acid	8.00	8.53	6.60	±30

* Outside QC Limits.

FORM 07 - EPA 537 Version 1.1 Modified

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SBN17

Instrument ID: 24743 Lab File ID: 18MAY03-15.WIFF

Date/Time Analyzed: 05/03/2018 12:09 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 05/02/2018 09:29 05/02/2018 11:02

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	21.11	5.54	±30
Perfluoropentanoic acid	20.00	22.34	11.70	±30
Perfluorobutanesulfonate	17.69	18.40	4.04	±30
Perfluorohexanoic acid	20.00	22.23	11.16	±30
Perfluorohexanesulfonate	18.91	20.40	7.87	±30
Perfluoroheptanoic acid	20.00	23.36	16.79	±30
Perfluorooctanoic acid	20.00	21.36	6.80	±30
Perfluoro-octanesulfonate	19.12	21.52	12.56	±30
Perfluorononanoic acid	20.00	23.06	15.30	±30
Perfluorodecanoic acid	20.00	22.23	11.13	±30
Perfluoroundecanoic acid	20.00	20.88	4.38	±30
Perfluorododecanoic acid	20.00	22.01	10.05	±30
Perfluorotridecanoic acid	20.00	22.00	9.98	±30
Perfluorotetradecanoic acid	20.00	21.53	7.64	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SBN17
Matrix: SOIL

18116015		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1161375	1434409	1013462	353288
UPPER LIMIT		1742063	2151614	1520193	529932
LOWER LIMIT		580688	717205	506731	176644
LAB SAMPLE ID	DATE ANALYZED				
BLK116015	05/02/18 18:02	1979576 *	1935361	1180324	370237
9573887DL	05/02/18 19:04	1449475	1705342	1189738	402366
9573888DL	05/02/18 19:19	1474583	1757630	1211556	410568
9573889DL	05/02/18 19:35	1580588	1604849	1179854	434669
9573891DL	05/02/18 20:06	1509450	1727405	1182169	404457
9573892DL	05/02/18 20:22	1499708	1605750	1194402	416458
LCS116015	05/03/18 09:19	1817949 *	1967194	1225473	452205
LCSDA	05/03/18 09:34	2103390 *	1976235	1221210	420698
9573887MS	05/03/18 09:50	1661532	1526140	1143535	396810
9573887	05/03/18 10:05	1651802	1254613	1120575	394206
9573888	05/03/18 10:21	1609084	1510727	1061531	377328
9573889	05/03/18 10:36	1468920	1141159	1069834	363372
9573890	05/03/18 10:52	1567357	1000135	1112191	382660
9573891	05/03/18 11:07	1550893	1556490	1100352	364967
9573892	05/03/18 11:23	1515329	1153003	1104867	369933
9573890DL	05/03/18 11:54	1298374	1554773	1137123	374292

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

No pre-inj qual

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LC-MS/MS Sample Run Log

Printed: 5/3/2018 12:05:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24743

Data File Name	Sample ID	Batch No	Analysis Date/Time
18MAY02MCAL-09.wiff	MDL	N/A	5/2/2018 9:13:51 AM
18MAY02MCAL-10.wiff	CAL1	N/A	5/2/2018 9:29:24 AM
18MAY02MCAL-11.wiff	CAL2	N/A	5/2/2018 9:44:57 AM
18MAY02MCAL-12.wiff	CAL3	N/A	5/2/2018 10:00:30 AM
18MAY02MCAL-13.wiff	CAL4	N/A	5/2/2018 10:16:00 AM
18MAY02MCAL-14.wiff	CAL5	N/A	5/2/2018 10:31:30 AM
18MAY02MCAL-15.wiff	CAL6	N/A	5/2/2018 10:47:00 AM
18MAY02MCAL-16.wiff	CAL7	N/A	5/2/2018 11:02:30 AM
18MAY02MCAL-17.wiff	Instrument Blank	N/A	5/2/2018 11:18:00 AM
18MAY02MCAL-18.wiff	ICV	N/A	5/2/2018 11:33:30 AM
18MAY02MCAL-19.wiff	L+B CAL3	N/A	5/2/2018 11:49:03 AM
18MAY02MCAL-20.wiff	CCV1_CAL3	N/A	5/2/2018 12:04:36 PM
18MAY02-01.wiff	CCV1_CAL1	N/A	5/2/2018 4:44:18 PM
18MAY02-02.wiff	Instrument Blank	N/A	5/2/2018 4:59:51 PM
18MAY02-03.wiff	9564416RE	18109006	5/2/2018 5:15:25 PM
18MAY02-04.wiff	CCV2_CAL2	N/A	5/2/2018 5:30:58 PM
18MAY02-05.wiff	CCV3_CAL3	N/A	5/2/2018 5:46:31 PM
18MAY02-06.wiff	BLK116015	18116015	5/2/2018 6:02:03 PM
18MAY02-07.wiff	LCS116015	18116015	5/2/2018 6:17:39 PM
18MAY02-08.wiff	LCSDA	18116015	5/2/2018 6:33:16 PM
18MAY02-09.wiff	9573887MS	18116015	5/2/2018 6:48:49 PM
18MAY02-10.wiff	9573887DL	18116015	5/2/2018 7:04:22 PM
18MAY02-11.wiff	9573888DL	18116015	5/2/2018 7:19:55 PM
18MAY02-12.wiff	9573889DL	18116015	5/2/2018 7:35:28 PM
18MAY02-13.wiff	9573890	18116015	5/2/2018 7:50:58 PM
18MAY02-14.wiff	9573891DL	18116015	5/2/2018 8:06:31 PM
18MAY02-15.wiff	9573892DL	18116015	5/2/2018 8:22:04 PM
18MAY02-16.wiff	CCV4_CAL4	N/A	5/2/2018 8:37:37 PM
18MAY02-17.wiff	solvent	N/A	5/2/2018 8:53:10 PM
18MAY02-18.wiff	9573897RE	18120004	5/2/2018 9:08:46 PM
18MAY02-19.wiff	9576413RE	18120005	5/2/2018 9:24:19 PM
18MAY02-20.wiff	9576414RE	18120005	5/2/2018 9:39:52 PM
18MAY02-21.wiff	9576413DL	18120005	5/2/2018 9:55:25 PM
18MAY02-22.wiff	9576414DL	18120005	5/2/2018 10:10:58 PM
18MAY02-23.wiff	CCV5_CAL5	N/A	5/2/2018 10:26:28 PM
18MAY02-24.wiff	BLK A	N/A	5/2/2018 10:41:58 PM
18MAY02-25.wiff	BLK B	N/A	5/2/2018 10:57:31 PM
18MAY02-26.wiff	Methanol	N/A	5/2/2018 11:13:01 PM
18MAY02-27.wiff	MeOH Check 1	N/A	5/2/2018 11:28:34 PM
18MAY02-28.wiff	MeOH Check 2	N/A	5/2/2018 11:44:04 PM
18MAY02-29.wiff	MS Test	N/A	5/2/2018 11:59:34 PM
18MAY02-30.wiff	CCV6_CAL3	N/A	5/3/2018 12:15:07 AM
18MAY02-31.wiff	solvent	N/A	5/3/2018 12:30:43 AM
18MAY02-32.wiff	solvent	N/A	5/3/2018 12:46:16 AM
18MAY02-33.wiff	solvent	N/A	5/3/2018 1:01:49 AM
18MAY02-34.wiff	solvent	N/A	5/3/2018 1:17:22 AM
18MAY02-35.wiff	solvent	N/A	5/3/2018 1:32:55 AM
18MAY02-36.wiff	solvent	N/A	5/3/2018 1:48:28 AM
18MAY02-37.wiff	solvent	N/A	5/3/2018 2:04:01 AM
18MAY02-38.wiff	solvent	N/A	5/3/2018 2:19:34 AM
18MAY02-39.wiff	solvent	N/A	5/3/2018 2:35:07 AM
18MAY02-40.wiff	solvent	N/A	5/3/2018 2:50:40 AM
18MAY02-41.wiff	solvent	N/A	5/3/2018 3:06:13 AM
18MAY02-42.wiff	solvent	N/A	5/3/2018 3:21:46 AM
18MAY02-43.wiff	solvent	N/A	5/3/2018 3:37:19 AM
18MAY02-44.wiff	solvent	N/A	5/3/2018 3:52:53 AM
18MAY02-45.wiff	solvent	N/A	5/3/2018 4:08:26 AM

PFOA ONLY

APPROVED
By JPT at 12:07 pm, 5/3/18

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LC-MS/MS Sample Run Log

Printed: 5/3/2018 10:44:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24743

Data File Name	Sample ID	Batch No	Analysis Date/Time
18MAY02MCAL-09.wiff	MDL	N/A	5/2/2018 9:13:51 AM
18MAY02MCAL-10.wiff	CAL1	N/A	5/2/2018 9:29:24 AM
18MAY02MCAL-11.wiff	CAL2	N/A	5/2/2018 9:44:57 AM
18MAY02MCAL-12.wiff	CAL3	N/A	5/2/2018 10:00:30 AM
18MAY02MCAL-13.wiff	CAL4	N/A	5/2/2018 10:16:00 AM
18MAY02MCAL-14.wiff	CAL5	N/A	5/2/2018 10:31:30 AM
18MAY02MCAL-15.wiff	CAL6	N/A	5/2/2018 10:47:00 AM
18MAY02MCAL-16.wiff	CAL7	N/A	5/2/2018 11:02:30 AM
18MAY02MCAL-17.wiff	Instrument Blank	N/A	5/2/2018 11:18:00 AM
18MAY02MCAL-18.wiff	ICV	N/A	5/2/2018 11:33:30 AM
18MAY02MCAL-19.wiff	L+B CAL3	N/A	5/2/2018 11:49:03 AM
18MAY02MCAL-20.wiff	CCV1_CAL3	N/A	5/2/2018 12:04:36 PM
18MAY03-01.wiff	CCV1_CAL3	N/A	5/3/2018 8:48:02 AM
18MAY03-02.wiff	BLK116015	18116015	5/3/2018 9:03:32 AM
18MAY03-03.wiff	LCS116015	18116015	5/3/2018 9:19:02 AM
18MAY03-04.wiff	LCSDA	18116015	5/3/2018 9:34:32 AM
18MAY03-05.wiff	9573887MS	18116015	5/3/2018 9:50:05 AM
18MAY03-06.wiff	9573887	18116015	5/3/2018 10:05:38 AM
18MAY03-07.wiff	9573888	18116015	5/3/2018 10:21:11 AM
18MAY03-08.wiff	9573889	18116015	5/3/2018 10:36:44 AM
18MAY03-09.wiff	9573890	18116015	5/3/2018 10:52:17 AM
18MAY03-10.wiff	9573891	18116015	5/3/2018 11:07:50 AM
18MAY03-11.wiff	9573892	18116015	5/3/2018 11:23:20 AM
18MAY03-12.wiff	CCV2_CAL4	N/A	5/3/2018 11:38:50 AM
18MAY03-14.wiff	9573890DL	18116015	5/3/2018 11:54:23 AM
18MAY03-15.wiff	CCV3_CAL5	N/A	5/3/2018 12:09:53 PM
18MAY03-16.wiff	solvent	N/A	5/3/2018 12:25:23 PM
18MAY03-17.wiff	CCV4_CAL4	N/A	5/3/2018 12:40:57 PM
18MAY03-18.wiff	BLK122007	18122007	5/3/2018 12:56:29 PM
18MAY03-19.wiff	LCS122007	18122007	5/3/2018 1:11:59 PM
18MAY03-20.wiff	LCSDA	18122007	5/3/2018 1:27:29 PM
18MAY03-21.wiff	9585517	18122007	5/3/2018 1:42:59 PM
18MAY03-22.wiff	9585518	18122007	5/3/2018 1:58:29 PM
18MAY03-23.wiff	9585519	18122007	5/3/2018 2:14:02 PM
18MAY03-24.wiff	9585520	18122007	5/3/2018 2:29:35 PM
18MAY03-25.wiff	9585521	18122007	5/3/2018 2:45:08 PM
18MAY03-26.wiff	9585522	18122007	5/3/2018 3:00:41 PM
18MAY03-27.wiff	CCV5_CAL4	N/A	5/3/2018 3:16:14 PM
18MAY03-28.wiff	solvent	N/A	5/3/2018 3:31:44 PM
18MAY03-29.wiff	solvent	N/A	5/3/2018 3:47:14 PM
18MAY03-30.wiff	solvent	N/A	5/3/2018 4:02:47 PM
18MAY03-31.wiff	solvent	N/A	5/3/2018 4:18:17 PM
18MAY03-32.wiff	solvent	N/A	5/3/2018 4:33:50 PM
18MAY03-33.wiff	SS Test 1	N/A	5/3/2018 4:49:23 PM
18MAY03-34.wiff	SS Test 2	N/A	5/3/2018 5:04:56 PM

20 mM Ammonium Acetate in H2O: 782405031833A
Methanol: DT632-US

APPROVED
By MCD at 10:44 pm, 5/3/18

Organic Extraction Batchlog Assigned to: 26543 Anthony Polaski Reviewed by: JPT12262 Start Date: 5-1-18 Start time: 13:30

18116015 Tech 1: RGB/375 Tech 2: _____

<126 days

Analyses on Batch: PFAS in Soil by LC/MS/MS

Dept: 33 Prep Analysis: 14090 PFAS Solid Prep

Port #	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
	9573887MS	BL-01MS	1.05	~~SSMODX1833AC~~ (8)	.05	MSMODX1833O	.04	1ml.	20		(3A) Dil0 Dl00 Dl000
	BLANKA	BLK116015	1.00	SSMODX1833AC	.05						
	LCSA	LCS116015	1.00	SSMODX1833AC	.05	MSMODX1833O	.04				
	LCSDA	LCSD116015	1.00	~~SSMODX1833AC~~	.05	MSMODX1833O	.04				

Spike Solutions: Witness: ODM25478 Instrument: LM24743

MSMODX1833O PFAS 537 Native Spike

~~SSMODX1833AC~~ (8) PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18MAY02MOD/18MAY02 & 18MAY03

(3) mg 5/3/18 5/8/18

Port#		Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
	1	9573887	BL-01	1.03	~~SSMODX1833AC~~ (8)	.05	1ml.	20	170a	(3A) Dil0 Dl00 Dl000 Insulation	14027	~~05/03/2018~~	S
	2	9573888	BL-02	1.08	SSMODX1833AC	.05			170a	(3A) Dil0 Dl00 Dl000	14027	05/03/2018	S
	3	9573889	BL-04	1.09	SSMODX1833AC	.05			170a	(3A) Dil0 Dl00 Dl000	14027	05/03/2018	S
	4	9573890	BL-05	1.08	SSMODX1833AC	.05			170a	(3A) Dil0 Dl00 Dl000	14027	05/03/2018	S
	5	9573891	BL-07	1.04	SSMODX1833AC	.05			170a	(3A) Dil0 Dl00 Dl000	14027	05/03/2018	S
	6	9573892	BL-09	1.07	~~SSMODX1833AC~~	.05			170a	(3A) Dil0 Dl00 Dl000	14027	~~05/03/2018~~	S

(8) SSMODX1833AE DDM25478 5/1/18

(3A) Injected at an initial dilution factor of 100. JPT12262 5/2/18 (3) mg 5/2/18

all samples + QC: 8 ml extraction fluid (1:1)

Concentrated 4ml → 1ml

Final 1ml was treated with ENVI-carb and filtered through 0.20 µm Acrodisc GHP filter

ACP26543 5/1/18

Balance #	B620499094	Sonic Bath ID	5800	N-evap	30°C	SPE Manifold		18116015

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
1:1 MeOH:ACN	265430430 1833A
Auto-pipette (dilutions)	P1000-3, P100-2
Auto-pipette (extract vialin	P100-2
Internal Standard	IS1812133A
Methanol	DT632-US
Sand	MKBW7349V
Syringe (IS)	PFAS4
Syringe (MS)	PFAS10
Syringe (SS)	PFAS13

Fmi Carb 971224

D10: 877 µL MeOH (DT632-US) combined w/ 22.5µL surrogate (SSMODX1833AE) and 100 µL sample extract; vortexed to mix.
D100: 877 µL MeOH (DT632-US) combined w/ 22.5µL surrogate (SSMODX1833AE) and 100µL D10 dilution; vortexed to mix.
D1000: 877 µL MeOH (DT632-US) combined w/ 22.5µL surrogate (SSMODX1833AE) and 100µL D100 dilution; vortexed to mix.

D100 dilution was vialed with 20µL internal (IS1812133A) combined w/ 400 µL D100 solution and vortexed prior to injection.

D10 dilution vialed w/ 20µL internal (IS1812133A) plus 400 µL D10 solution; vortexed prior to injection. JPT12262 5/2/18

D1000 dilution vialed w/ 20µL internal (IS1812133A) plus 400 µL D1000 solution; vortexed prior to injection. JPT12262 5/3/18

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LOQ/MDL Summary
PFAS Group

SDG: SBN17

Fraction: PFAS by LC/MS/MS

14027: 14 PFCs Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.20	0.60	ng/g
Perfluorononanoic acid	0.20	0.60	ng/g
Perfluorodecanoic acid	0.20	0.60	ng/g
Perfluoroundecanoic acid	0.20	0.60	ng/g
Perfluorododecanoic acid	0.20	0.60	ng/g
Perfluorotridecanoic acid	0.20	0.60	ng/g
Perfluorotetradecanoic acid	0.20	0.60	ng/g
Perfluorohexanoic acid	0.20	0.60	ng/g
Perfluoroheptanoic acid	0.20	0.60	ng/g
Perfluorobutanesulfonate	0.20	0.60	ng/g
Perfluorohexanesulfonate	0.20	0.60	ng/g
Perfluoro-octanesulfonate	0.30	0.90	ng/g
Perfluorobutanoic acid	0.20	0.60	ng/g
Perfluoropentanoic acid	0.20	0.60	ng/g

SECTION 6

LABORATORY CASE NARRATIVE AND

PROJECT CHAIN-OF-CUSTODY RECORD

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3a-BL01-A5.0 Grab Solid	04/23/2018 10:20	9573887
SG3a-BL02-A5.0 Grab Solid	04/23/2018 10:25	9573888
SG3a-BL04-A5.0 Grab Solid	04/23/2018 10:30	9573889
SG3a-BL05-A5.0 Grab Solid	04/23/2018 10:35	9573890
SG3a-BL07-A5.0 Grab Solid	04/23/2018 10:40	9573891
SG3a-BL09-A5.0 Grab Solid	04/23/2018 10:45	9573892

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - Bennington
ELLE Group #: 1935273

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous

Sample #s: 9573887

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the method blank. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the LCS/LCSD. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9573891

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the method blank. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the LCS/LCSD. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is

reported.

Reporting limits were raised due to interference from the sample matrix.

The recovery for labeled compound used as extraction standard 13C9-PFNA is outside of QC acceptance limits due to the matrix of the sample.

Sample #s: 9573888

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the method blank. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the LCS/LCSD. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

Reporting limits were raised due to interference from the sample matrix.

The recovery for labeled compound used as extraction standard 13C9-PFNA is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample #s: 9573889

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the method blank. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the LCS/LCSD. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

Reporting limits were raised due to interference from the sample matrix.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample #s: 9573890, 9573892

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the method blank. Since the result is high and the recovery for the native compounds used as

extraction standards is within QC acceptance limits, the data is reported.

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the LCS/LCSD. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

Reporting limits were raised due to interference from the sample matrix.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Batch #: 18116015 (Sample number(s): 9573887-9573892 UNSPK: 9573887)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorobutanoic acid

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorodecanoic acid, Perfluoroundecanoic acid, Perfluorododecanoic acid, Perfluorohexanoic acid, Perfluoroheptanoic acid, Perfluorobutanoic acid, Perfluoropentanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9573888, 9573889, 9573890, 9573891, 9573892

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) Blank

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SBN17

PFAS Group

Fraction: PFAS by LC/MS/MS

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
9573887	SG3a-BL01-A5.0		X	10; 100	
9573888	SG3a-BL02-A5.0		X	10; 100	
9573889	SG3a-BL04-A5.0		X	10; 100	
9573890	SG3a-BL05-A5.0		X	10; 1000	
9573891	SG3a-BL07-A5.0		X	10; 100	
9573892	SG3a-BL09-A5.0		X	10; 100	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Method Blank

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the method blank. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is

LCS/LCSD

(Sample number(s): 9573887-9573892: Analysis: 14027)
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SBN17

PFAS Group

Fraction: PFAS by LC/MS/MS

The recovery for the sample injection internal standard 13C2-PFDA is outside of QC acceptance limits in the LCS/LCSD. Since the result is high and the recovery for the native compounds used as extraction standards is within QC acceptance limits, the data is reported.

Batch#: 18116015 (Sample number(s): 9573887-9573892, UNSPK: 9573887)
The recovery(ies) for the following analyte(s) in the LCSD exceeded the acceptance window indicating a positive bias: Perfluorobutanoic acid

MS/MSD

Batch#: 18116015 (Sample number(s): 9573887-9573892, UNSPK: 9573887)
The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Perfluorobutanoic acid, Perfluorodecanoic acid, Perfluorododecanoic acid, Perfluoroheptanoic acid, Perfluorohexanoic acid, Perfluorononanoic acid, Perfluorooctanoic acid, Perfluoropentanoic acid, Perfluoroundecanoic acid

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluoro-octanesulfonate, Perfluorotetradecanoic acid, Perfluorotridecanoic acid

Surrogate

Surrogate recoveries that are noncompliant are confirmed unless attributed to a dilution or otherwise noted.

(Sample number(s): 9573887-9573892: Analysis: 14027)
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch#: 18116015 (Sample number(s): 9573887-9573892, UNSPK: 9573887)
The recovery(ies) for the following surrogate(s) exceeded the acceptance window:
13C3-PFHxS (9573889, 9573890, 9573892), 13C4-PFHpA (9573889, 9573890, 9573892), 13C5-PFHxA (9573889, 9573890, 9573892), 13C9-PFNA (9573888, 9573889, 9573890, 9573891)

The recovery(ies) for the following surrogate(s) were below the acceptance window:
13C5-PFPeA (BLK116015B)

SAMPLE ANALYSIS:

(Sample number(s): 9573887: Analysis: 14027)
Reporting limits were raised due to interference from the sample matrix

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SBN17

PFAS Group

Fraction: PFAS by LC/MS/MS

(Sample number(s): 9573888: Analysis: 14027)
Reporting limits were raised due to interference from the sample matrix.

The recovery for labeled compound used as extraction standard 13C9-PFNA is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

(Sample number(s): 9573889-9573890, 9573892: Analysis: 14027)
Reporting limits were raised due to interference from the sample matrix.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

(Sample number(s): 9573891: Analysis: 14027)
Reporting limits were raised due to interference from the sample matrix.

The recovery for labeled compound used as extraction standard 13C9-PFNA is outside of QC acceptance limits due to the matrix of the sample.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1935273 Sample # 9573887-92

COC # 545248

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: SGPP Bennington	PWSID #:
Project Manager: Kirk Muline	P.O. #: 16.6131
Sampler: CB	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Soil/Sediment ☐ Tissue ☐ | Water ☒ Ground ☐ Potable ☐ Surface ☐ NPDES ☐ | Other: Rinse Water

Analysis Requested / Preservation Codes

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil/Sediment	Water	Other	Total # of Containers	PFAS TAP Assay	14 PFAS (EPA 537 mod.)	Remarks
SG3-LTB01-180423	4/23/18	—					X	3	X	X	
SG3-FTB01-180423		0930	X				X	3	X	X	
SG3a-BL01-A5.0		1020	X		X			1		X	Insulation
SG3a-BL02-A5.0		1025	X		X			1		X	
SG3a-BL04-A5.0		1030	X		X			1		X	
SG3a-BL05-A5.0		1035	X		X			1		X	
SG3a-BL07-A5.0		1040	X		X			1		X	
SG3a-BL09-A5.0		1045	X		X			1		X	
SG3-MW07S-180423	↓	1435	X			X		4	X		Insulation
SG3-FB01-180423	4/23/18	—	X			X		4	X		

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.muline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	4/23/18	1645			
			Felix Gonzalez	4/24/18	10:05

EDD Required? Yes No
If yes, format: _____
Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx ✓ Other _____
Temperature upon receipt 0.1 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 214487

Group Number(s): 1935273

Client: CT Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/24/2018 10:05
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	3
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved

Unpacked by Felix Gonzalez (13783) at 11:27 on 04/24/2018

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	0.7	DT	Wet	Y	Bagged	N

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DATA USABILITY SUMMARY REPORT

ANALYSIS OF VARIOUS ANALYTES

IN AQUEOUS AND SOLID SAMPLES

1030 WATER STREET, VILLAGE OF NORTH BENNINGTON,

BENNINGTON COUNTY, VERMONT, VTDEC SMS SITE # 20164630

SAMPLE DELIVERY GROUPS: SBN18, SBN19, AND SBN20

June 12, 2018

Prepared for:

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

Prepared by:

ENVIRONMENTAL STANDARDS, INC.
1140 Valley Forge Road
P.O. Box 810
Valley Forge, PA 19482-0810

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TABLE OF CONTENTS

Introduction

Section 1 Quality Assurance Review

A. Organic Data Review

B. Inorganic and Wet Chemistry Data Review

C. Conclusions

Section 2 Validated Data Summary Tables

A. SDG SBN18

B. SDG SBN19

C. SDG SBN20

Section 3 Laboratory Calibration and Quality Control Acceptance Criteria

Section 4 Environmental Standards, Inc., Standard Operating Procedure

Section 5 Data Support Documentation

A. SDG SBN18

B. SDG SBN19

C. SDG SBN20

Section 6 Project Correspondence

Introduction

This Data Usability Summary Report (DUSR) was based upon an examination of the data generated from samples that were collected on April 25, 2018, and May 2, 3, and 18, 2018, as part of the 1030 Water Street, Village of North Bennington, Vermont project based on the "Initial Site Characterization Investigation Work Plan Saint-Gobain Performance Plastics Site 1030 Water Street, Village of North Bennington, Bennington County, Vermont" (Work Plan, April 2016). The analyses of the samples (and associated quality control [QC] samples) listed on the table below were performed by Eurofins Lancaster Laboratories Environmental (ELLE) of Lancaster, Pennsylvania. Aqueous samples were analyzed for perfluorinated and polyfluorinated alkyl substances (PFASs) according to ELLE's internal standard operating procedure (SOP) "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI14355, Version 3). Solid samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3). All other analyses were performed in accordance with US EPA, Standard Method (SM), or SW-846 methods. The Analytical Services Protocol (ASP) Category A data deliverables were prepared by the laboratory and were reviewed by Environmental Standards, Inc. (Environmental Standards). The samples that have undergone a Limited quality assurance (QA) review are listed on Table 1. Table 1 also presents the laboratory sample number, laboratory Sample Delivery Group (SDG), matrix, collection date, and parameter(s) analyzed and reviewed for the samples.

The reported analytical results are presented on the validated data summary tables included in Section 2. These validated data summary tables were generated from electronic data deliverables (EDDs) provided by Barr Engineering, Inc. or by the laboratory and have been edited by the data reviewer to include all final data validation qualifiers and results. The "Lab Result" or "ORIG RESULT VALUE", "Lab MDL" or "ORIG METHOD DETECTION LIMIT" (*i.e.*, the method detection limit [MDL]), "Lab LOQ" or "ORIG QUANTITATION LIMIT" (*i.e.*, the limit of quantitation [LOQ]), "Lab Qualifier" or "LAB QUAL", and "Lab Detect Flag" or "ORIG DETECT FLAG" fields presented on the validated data summary tables were derived directly from the laboratory-provided EDD. Errors in the "Lab Result" or "ORIG RESULT VALUE", "Lab MDL" or "ORIG METHOD DETECTION LIMIT", "Lab LOQ" or "ORIG QUANTITATION LIMIT", "Lab Qualifier" or "LAB QUAL", and "Lab Detect Flag" or "ORIG DETECT FLAG" fields noted during validation have been corrected, and the corrections are reflected in the "Final Result" or "RESULT VALUE", "Final MDL" or "METHOD DETECTION LIMIT", "Final LOQ" or "QUANT LIMIT", and "Final Detect Flag" or "DETECT FLAG" fields, respectively, on the validated data summary tables. Validation qualifier codes have been placed in the "Final Qualifier" or "VALIDATED QUALIFIERS" fields on the data tables to enable the data user to quickly assess the qualitative and/or quantitative reliability of a result based on the criteria evaluated during this QA review. Finally, the "Validation Reason Code" or "RESULT COMMENT (REASON)" field has been populated with codes that indicate the reason for the validation qualifiers. Definitions of the validation qualifiers and reason codes are presented with the validated data summary tables.

This QA review has been performed with guidance from the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016), the "National Functional Guidelines for High Resolution Superfund Methods Data Review" (US EPA, April 2016), and the "National Functional Guidelines for Inorganic Superfund Data Review" (US EPA,

September 2016); however, these validation guidance documents specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocol performed by the laboratory for these samples. Environmental Standards used professional judgment to determine the usability of the analytical results and compliance relative to the requirements specified in the Work Plan, ELLE's internal SOPs for PFAS analysis, US EPA methods, SM analyses, and SW-846 methods. US EPA Method 537 is written strictly for drinking water samples, and no approved US EPA method currently exists for other sample matrices. Although ELLE's internal SOPs reference US EPA Method 537 for PFAS analysis, the procedures are really "in-house" procedures that are also considered "Confidential Information"; therefore, a summary of the Calibration and QC Requirements used by ELLE for PFAS analysis has been included in Section 3. In addition, the SOP used by Environmental Standards to validate data generated under the ELLE PFAS SOPs is provided in Section 4. Details of this QA review are presented in Section 1 of this DUSR.

This DUSR identifies data quality issues for specific samples and specific evaluation criteria. The data qualifications allow the data end-user to best understand the usability of the analysis results. Data not qualified in this report should be considered valid based on the QC criteria that have been reviewed.

Section 5 of the report presents the Data Support Documentation for this DUSR. Project Correspondence is presented in Section 6.

TABLE 1 – SUMMARY OF SAMPLES REVIEWED

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3-WASTECHAR-CH-FRAC	9581516	SBN18	Aq	4/25/18	L2	M, Hg
SG3-WASTECHAR-CH-FRAC MS (Matrix Spike)	9581516MS	SBN18	Aq	4/25/18	L2	M, Hg
SG3-WASTECHAR-CH-FRAC MSD (Matrix Spike Duplicate)	9581516MSD	SBN18	Aq	4/25/18	L2	M, Hg
SG3-WASTECHAR-CH-FRAC DUP (Laboratory Duplicate)	9581516D	SBN18	Aq	4/25/18	L2	M, Hg
SG3-LTB01-180502 (Trip Blank)	9593391	SBN19	Aq	5/2/18	L2	PFAS
SG3-FTB01-180502 (Field Blank)	9593392	SBN19	Aq	5/2/18	L2	PFAS
SG3-IDW-TRTD-01-180502	9593393	SBN19	Aq	5/2/18	L2	PFAS
SG3-IDW-TRTD-02-180503	9593394	SBN19	Aq	5/3/18	L2	PFAS
SG3-IDW-TRTD-03-180503	9593395	SBN19	Aq	5/3/18	L2	PFAS
SG3a-FTB01-180518 (Trip Blank)	9618549	SBN20	Aq	5/18/18	L2	PFAS
SG3a-LTB01-180518 (Field Blank)	9618550	SBN20	Aq	5/18/18	L2	PFAS
SG3a-SLUDGE18-01	9618551	SBN20	S	5/18/18	L2	PFAS, V, SV, M, M[1], Hg[1], TOC, pH, Mois
SG3a-SLUDGE18-01MS (Matrix Spike)	9618551MS	SBN20	S	5/18/18	L2	PFAS, SV, M, M[1], Hg[1]
SG3a-SLUDGE18-01MSD (Matrix Spike Duplicate)	9618551MSD	SBN20	S	5/18/18	L2	SV, M, M[1], Hg[1]
SG3a-SLUDGE18-01DUP (Laboratory Duplicate)	9618551D	SBN20	S	5/18/18	L2	M, M[1], Hg[1]
SG3a-SW18-01-180518	9618552	SBN20	Aq	5/18/18	L2	PFAS

NOTES:

PFAS - Perfluorinated and Polyfluorinated Alkyl Substances (PFASs) according to ELLE's SOP "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI14355, Version 3), and according to ELLE's internal SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3) for solids samples. (10 Limited analyses)

V - Volatile Organic Compounds by SW-846 Method 8260C. (1 Limited analysis)

SV - Semivolatile Organic Compounds by SW-846 Method 8270D. (3 Limited analyses)

M - Total Metals by SW-846 Method 6010C. (8 Limited analyses)

TABLE 1 (Cont.)

NOTES: (Cont.):

M[1]	-	Total Metals by SW-846 Method 6020A. (4 Limited analyses)
Hg	-	Mercury by SW-846 Method 7470A. (4 Limited analyses)
Hg[1]	-	Mercury by SW-846 Method 7471B. (4 Limited analyses)
TOC	-	Total Organic Carbon by SM 5310B. (1 Limited analysis)
pH	-	pH by SW-846 Method 9045D (modified). (1 Limited analysis)
Mois	-	Percent Moisture by SM 2540G. (1 Limited analysis)
L2	-	Limited QA Review (refer to Section 1).
Aq	-	Aqueous.
S	-	Solid.

Section 1 Quality Assurance Review

A. Organic Data Review

The organic analyses of eight aqueous and three solid samples (including QC samples) collected on May 2, 3, and 18, 2018, as part of the 1030 Water Street, Village of North Bennington, Vermont project were performed by ELLE. Aqueous samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances in Aqueous Samples by Method 537 Revision 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI14355, Version 3). Solid samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3). Solid samples were collectively analyzed for volatile organic compounds (VOCs) by SW-846 Method 8260C and semivolatile organic compounds (SVOCs) by SW-846 Method 8270D. Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data reviewed were presented in ASP Category A data deliverables.

The findings offered in this report for analyses that underwent a Limited QA review are based upon a review of tabulated QC summary forms, including the following QC measures:

- Sample and extract holding times
- Blank analysis results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Sample condition upon laboratory receipt
- Labeled pre-extraction internal standard recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results

The analytical results for the organic target compounds are presented on the validated data summary tables in Section 2 of this DUSR. The validated data summary tables include the full names of the target analytes along with their associated acronyms, which are used throughout the text of this DUSR. A summary of ELLE's Calibration and QC Requirements has been included in Section 3. The SOP used by Environmental Standards to validate data generated under the ELLE SOPs is provided in Section 4. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, and other documentation needed to support the findings in this DUSR in the Data Support Documentation provided in Section 5. The data reviewer has also manually edited the laboratory-reported data and QC summary forms included in this section based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Usability issues are addressed in the subsequent Organic Data Qualifiers section. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the analytical methods performed and the ELLE internal SOPs.

Reporting Issue

- In SDG SBN20, the laboratory sample identifications (IDs) did not match the Chain-of-Custody (COC) for samples SG3a-FTB01-180518, SG3a-LTB01-180518, and SG3a-SW18-01-180518. Upon request, the laboratory corrected the sample IDs, and provided a revised data package and EDD (refer to Project Correspondence).

Procedural Issues

1. US EPA Method 537 is listed as the reference method in the title of the ELLE SOPs; however, US EPA Method 537 is written specifically for the analysis of drinking water samples. As a result, the laboratory has made modifications to the extraction procedure to accommodate preparation of non-aqueous samples (ultrasonic extraction for an hour with 1:1 acetonitrile/water mixture vs. solid-phase extraction). In addition, the laboratory has made other modifications, including, but not limited to, the following:

   - For aqueous samples, Agilent SampliQ Weak Anion Exchange ("WAX") solid-phase extraction cartridges were used instead of polystyrenedivinylbenzene.
   - The laboratory utilized additional labeled analogs of the target PFASs, where available for use, as pre-extraction internal standards (all target PFASs except PFTriA), which generally should normalize any extraction inefficiency and provide greater accuracy in quantitation. For dilution analyses, the pre-extraction internal standards were refortified after extraction and prior to dilution. In addition, the laboratory spiked the extracts with yet additional labeled analogs of the target PFASs post extraction and used these labeled analogs as the internal standards for the pre-extraction internal standards.
   - As the labeled internal standards were added prior to extractions, additional labeled surrogate compounds were not used.
   - A holding time of 28 days from collection to extraction was used for solid samples.
   - The laboratory did not control the relative percent difference (RPD) between the high and low areas for each internal standard in the initial calibration (must be < 20% by US EPA Method 537, Version 1.1).
   - The laboratory did not calculate the peak asymmetry factor.
   - The laboratory did not rotate the concentration used for the LCS.
   - The calibration standards only included the linear PFAS isomers; however, available branched/linear standards were analyzed for qualitative purposes.
   - Alternate ion transitions were used for PFBS and $^{13}C_8$-PFOS (299→99 instead of 299→80 for PFBS and 503→99 instead of 503→80 for $^{13}C_8$-PFOS) - the fragment represented by *m/z* 80 is the sulfonate group; whereas, the fragment represented by *m/z* 99 is the fluorinated sulfonate group.

2. The laboratory analyzed a qualitative standard that included both branched and linear isomers for PFHxS, PFOA, and PFOS. Where transition ion peaks were observed and deemed by laboratory personnel to represent branched isomers in samples based on the analysis of this standard, the responses for such peaks were included in the response for the analyte and used to quantitate the results for PFHxS, PFOA, and PFOS in samples relative to the linear isomer calibration standards. The laboratory did not

integrate peaks other than the peak representative of the linear isomer (based on calibration standards) for target analytes other than PFHxS, PFOA, and PFOS in samples.

Data Evaluation

With respect to data usability, the principal areas of concern are very low and low MS/MSD recoveries, MS/MSD imprecision, a low surrogate recovery, low pre-extraction internal standard recoveries, and results reported between the MDL and LOQ. Based on a review of the data provided, the following data qualifiers are offered. The following data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical method used for analysis. Accordingly, the following data usability issues should not be construed as an indication of laboratory performance.

Organic Data Qualifiers

- The analysis for hexachlorocyclopentadiene in SDG SBN20 sample SG3a-SLUDGE18-01 should be considered unusable, and the "not-detected" result has been flagged "R" on the data tables. Very low recoveries (0%) were observed for hexachloropentadiene in the associated MS and MSD analyses. (Validation Reason Code: MAL)

- The MDLs and LOQs for 4,6-dinitro-2-methylphenol; 2,4-dinitrophenol; hexachloroethane; 3-nitroaniline; 2-nitrophenol; 2,3,4,6-tetrachlorophenol; and 2,4,6-trichlorophenol in SDG SBN20 sample SG3a-SLUDGE18-01 may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. In addition, the reported positive results for anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, phenanthrene, and pyrene should be considered estimated and have been flagged "J" on the data tables. Low recoveries (< lower laboratory acceptance limits) were observed for these compounds in the associated MS and/or MSD analyses. (Validation Reason Code: MAL)

- The reported positive results for fluoranthene and pyrene in SDG SBN20 sample SG3a-SLUDGE18-01 should be considered estimated and have been flagged "J" on the data tables. Large discrepancies (RPDs > laboratory acceptance limit) were observed for these compounds in the associated MS/MSD analyses. (Validation Reason Code: MP)

- The MDLs and LOQs for all acid fraction SVOCs except 4-methylphenol in SDG SBN20 sample SG3a-SLUDGE18-01 may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. In addition, the reported positive result for 4-methylphenol should be considered estimated, and has been flagged "J" on the data tables. A low recovery (< lower laboratory acceptance limit) was observed for surrogate 2,4,6-tribromophenol in the analysis of this sample. (Validation Reason Code: SRL)

- The MDLs and LOQs for the compounds listed on the table below may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. Low recoveries (< advisory limit of 70% or < lower laboratory acceptance limits when available) were observed for the pre-extraction internal standards used to quantitate these compounds in the analyses of these samples. (Validation Reason Code: IS)

Sample	SDG	Compound(s) With Estimated MDLs and LOQs ("UJ")
SG3-FTB01-180502	SBN19	PFTA and PFOSA
SG3-IDW-TRTD-01-180502	SBN19	PFOSA
SG3a-FTB01-051818, SG3a-LTB01-051818, and SG3a-SW18-01-051818	SBN20	PFOSA

- All positive results reported with concentrations between the laboratory's reported MDLs and LOQs were flagged "J" by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

B. Inorganic and Wet Chemistry Data Review

The inorganic and wet chemistry analyses of four aqueous and four solid samples (including QC samples) collected as part of the 1030 Water Street, Village of North Bennington, Vermont project on April 25, 2018, and May 18, 2018, were performed by ELLE. The samples were collectively analyzed for total metals by SW-846 Methods 6010C and 6020A, total mercury by SW-846 Methods 7470A/7471B, total organic carbon (TOC) by SM 5310B, pH by SM 5310B (modified), and for percent moisture by SM 2540G. Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data reviewed were presented in ASP Category A data deliverables.

The findings offered in this report for analyses that underwent a Limited QA review are based upon a review of tabulated QC summary forms including the following QC measures:

- Sample holding times
- Blank analysis results
- MS/MSD results
- Sample condition upon laboratory receipt
- LCS results
- Laboratory duplicate precision

The analytical results for the target compounds are presented on the data tables in Section 2 of this DUSR. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, and other documentation needed to support the findings in this DUSR in the Data Support Documentation (Section 5). The data reviewer has also manually edited the laboratory-reported data and QC summary forms included in this section based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the analytical methods performed.

Reporting Issue

- In SDG SBN20, the laboratory sample IDs did not match the COC for samples SG3a-FTB01-180518, SG3a-LTB01-180518, and SG3a-SW18-01-180518. Upon request, the laboratory corrected the sample IDs, and provided a revised data package and EDD (refer to Project Correspondence).

Procedural Issue

- Procedural issues were not identified during this QA review.

Data Evaluation

With respect to data usability, the principal areas of concern were out-of-criteria MS/MSD recoveries, MS/MSD imprecision, laboratory duplicate imprecision, and results reported between the MDL and LOQ. Based on a review of the data provided, the following data qualifiers are offered. The following data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical method used for analysis. Accordingly, the following data usability issues should not be construed as an indication of laboratory performance.

Inorganic and Wet Chemistry Data Qualifiers

- The reported positive result for mercury in SDG SBN20 sample SG3a-SLUDGE18-01 should be considered estimated and has been flagged “J” on the data tables. Low recoveries (< 80%) were observed for mercury in the associated MS and MSD analyses. (Validation Reason Code: MAL)

- The reported positive results for nickel, silver, and vanadium in SDG SBN20 sample SG3a-SLUDGE18-01 should be considered estimated and have been flagged “J” on the data tables. High recoveries (> 125%) were observed for these analytes in the associated MS and/or MSD analyses. (Validation Reason Code: MAH)

- The reported positive result for zinc in SDG SBN20 sample SG3a-SLUDGE18-01 should be considered estimated and has been flagged “J” on the data tables. A low recovery (< 75%) was observed for zinc in the MS analysis and a high recovery (> 125%) was observed for zinc in the associated MSD analysis. (Validation Reason Code: MA)

- The reported positive results for calcium, iron, magnesium, manganese, zinc, and lead in SDG SBN20 sample SG3a-SLUDGE18-01 should be considered estimated and have been flagged “J” on the data tables. Large discrepancies (RPDs > laboratory acceptance limit) were observed for these analytes in the associated MS/MSD analyses. (Validation Reason Code: MP)

- The reported positive results for aluminum, calcium, iron, magnesium, manganese, zinc, arsenic, barium, copper, and nickel in SDG SBN20 sample SG3a-SLUDGE18-01 should be considered estimated and have been flagged “J” on the data tables. Large discrepancies (RPDs > the laboratory acceptance limit when both results were ≥ 5× the LOQ) were observed between the results for these analytes in the associated laboratory duplicate analyses. (Validation Reason Code: LD)

- All positive results reported with concentrations between the laboratory’s reported MDLs and LOQs were flagged “J” by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

C. Conclusions

The analytical data are acceptable for use as reported by the laboratory with the following exception and qualification. One organic result was qualified as unusable due to a very low MS recovery. Several organic results were qualified as estimated due to low MS/MSD recoveries, MS/MSD imprecision, a low surrogate recovery, low pre-extraction internal standard recoveries, and results reported between the MDL and LOQ. Several inorganic results were qualified as estimated due to out-of-criteria MS/MSD recoveries, MS/MSD imprecision, laboratory duplicate imprecision, and results reported between the MDL and LOQ. In order to use any of the data, the data user should understand the qualifications and limitations as specified in this DUSR. Data Support Documentation is included in Section 5 of this report.

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SECTION 2

VALIDATED DATA SUMMARY TABLES

Validation Qualifier and Reason Code Definitions

Table 1. Validation Qualifiers and Definitions

Validation Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analyte has been “tentatively identified” or considered “presumptively” present.
UJ	The analyte was analyzed for, but was not detected. The reported MDL and limit of quantitation (LOQ) are approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
UB	The Analyte was not detected substantially above the level reported in the associated laboratory, equipment, field, or trip blank.

Table 2. Validation Reason Codes and Descriptions

Validation Reason Code	Description
CI	Chromatographic interference
CR	Calculated result in which one or more of the components has been qualified, potential bias indeterminate
CRH	Calculated result in which one or more of the components has been qualified, potential high bias
CRL	Calculated result in which one or more of the components has been qualified potential low bias
CV	Continuing calibration verification evaluation criteria not met, potential bias indeterminate
CVH	Continuing calibration verification evaluation criteria not met, potential high bias
CVL	Continuing calibration verification evaluation criteria not met, potential low bias
DC	Reporting limit exceeds decision criteria (for non-detects)
DL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the detection limit.
DT	Dissolved metals concentration exceeded total metals concentration in the sample above the acceptance criteria
DV	Missing Deliverables
EB	Equipment blank contamination
EC	Result exceeds the calibration range, potential bias indeterminate
ECH	Result exceeds the calibration range, potential high bias
ECL	Result exceeds the calibration range, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
EP	Estimated Maximum Possible Concentration (EMPC)
FB	Field blank contamination
FD	Field duplicate imprecision, potential bias indeterminate
FP	Potential false positives
FR	Field replicate imprecision, potential bias indeterminate
HA	Holding time - preparation to analysis, potential bias indeterminate
HAH	Holding time - preparation to analysis, potential high bias
HAL	Holding time - preparation to analysis, potential low bias
HC	Holding time - collection to analysis, potential bias indeterminate
HCH	Holding time - collection to analysis, potential high bias
HCL	Holding time - collection to analysis, potential low bias
HP	Holding time - collection to preparation, potential bias indeterminate
HPH	Holding time - collection to preparation, potential high bias
HPL	Holding time - collection to preparation, potential low bias
HV	Headspace present in volatile vials, potential bias indeterminate
HVL	Headspace present in volatile vials, potential low bias
IB	Instrument (including initial calibration or continuing calibration) blank contamination
IC	Initial calibration evaluation criteria not met, potential bias indeterminate
ICH	Initial calibration evaluation criteria not met, potential high bias
ICL	Initial calibration evaluation criteria not met, potential low bias
ID	Target compound identification criteria not met
IN	Elevated detection limit due to interference (i.e., laboratory, chemical, and/or matrix)
IR	Interference check standard recovery criteria not met, potential bias indeterminate
IRH	Interference check standard recovery criteria not met, potential high bias
IRL	Interference check standard recovery criteria not met, potential low bias
IS	Internal standard evaluation criteria not met, potential bias indeterminate
ISH	Internal standard evaluation criteria not met, potential high bias
ISL	Internal standard evaluation criteria not met, potential low bias
LA	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential bias indeterminate
LAH	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential high bias
LAL	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
LD	Laboratory duplicate precision criteria not met, potential bias indeterminate
LM	The PFK lock mass SICPs indicate that ion suppression evident
LP	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential bias indeterminate
LPH	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential high bias
LPL	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential low bias
LR	Linear range exceeded, potential bias indeterminate
MA	Matrix spike (MS &/or MSD) recovery criteria not met, potential bias indeterminate
MAH	Matrix spike (MS &/or MSD) recovery criteria not met, potential high bias
MAL	Matrix spike (MS &/or MSD) recovery criteria not met, potential low bias
MB	Method blank or preparation blank contamination
MP	Matrix spike (MS/MSD) or laboratory duplicate precision criteria not met, potential bias indeterminate
NB	Elevated detection limit or estimated result due to instrument drift (i.e., negative ICB or CCB result with an absolute value > 2× the MDL)
PD	Post-digestion spike recovery outside acceptance range, potential bias indeterminate
PDH	Post-digestion spike recovery outside acceptance range, potential high bias
PDL	Post-digestion spike recovery outside acceptance range, potential low bias
PJ	Professional judgment, potential bias indeterminate
PJH	Professional judgment, potential high bias
PJL	Professional judgment, potential low bias
PM	Performance evaluation mixture criteria not met, potential bias indeterminate
PMH	Performance evaluation mixture criteria not met, potential high bias
PML	Performance evaluation mixture criteria not met, potential low bias
PR	Peak(s) not adequately resolved, potential bias indeterminate
PRH	Peak(s) not adequately resolved, potential high bias
PRL	Peak(s) not adequately resolved, potential low bias
PS	Low percent solids could affect accuracy, potential bias indeterminate
PT	Chromatographic pattern in sample does not match pattern of calibration standard
RA	Reference material recovery criteria not met, potential bias indeterminate

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
RAH	Reference material recovery criteria not met, potential high bias
RAL	Reference material recovery criteria not met, potential low bias
RB	Rinsate blank contamination
RL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the quantitation or reporting limit, potential bias indeterminate
SA	Method of standard additions correction coefficient <0.995, potential bias indeterminate
SC	RPD Between two columns exceeds criteria, potential bias indeterminate
SD	Serial dilution results did not meet evaluation criteria, potential bias indeterminate
SDH	Serial dilution results did not meet evaluation criteria, potential high bias
SDL	Serial dilution results did not meet evaluation criteria, potential low bias
SP	Sample Preservation / Cooler Temperature, potential bias indeterminate
SPH	Sample Preservation / Cooler Temperature, potential high bias
SPL	Sample Preservation / Cooler Temperature, potential low bias
SR	Surrogate recovery outside acceptance range, potential bias indeterminate
SRH	Surrogate recovery outside acceptance range, potential high bias
SRL	Surrogate recovery outside acceptance range, potential low bias
SS	Second source evaluation criteria not met, potential bias indeterminate
SSH	Second source evaluation criteria not met, potential high bias
SSL	Second source evaluation criteria not met, potential low bias
ST	Compound not quantitated against an authentic standard, potential bias indeterminate
TB	Trip blank contamination
TD	Result for dissolved constituent significantly exceeded result for total constituent, potential bias indeterminate
TIC	Tentative identification, quantified using an assumed calibration factor, potential bias indeterminate.
TIR	Tentative identification and was observed in an associated laboratory, equipment, field, or trip blank.
TN	Instrument performance (tuning) criteria not met
YH	Due to a high y-intercept in the calibration curve, the sample result quantitated to a value greater than the MDL. Since the response ratio in the sample was less than the response ratio in the associated MDL standard, the reported result was changed to not-detected.

A. SDG SBN18

Sample ID	SG3-WASTECHAR-CH-FRAC
Sample Date	4/25/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	WW
Lab Sample ID	9581516
Analytical Method	SW6010C
Result Unit	mg/l
Fraction	T
Location/Depth	WASTE_CHAR
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Arsenic	7440-38-2	T	1		0.0096	0.0400	U	N		0.0096	0.0400	U	N		Yes
	Barium	7440-39-3	T	1	0.0351	0.00085	0.0100		Y	0.0351	0.00085	0.0100		Y		Yes
	Cadmium	7440-43-9	T	1		0.0018	0.0100	U	N		0.0018	0.0100	U	N		Yes
	Chromium, Total	7440-47-3	T	1		0.0033	0.0300	U	N		0.0033	0.0300	U	N		Yes
	Lead	7439-92-1	T	1		0.0060	0.0300	U	N		0.0060	0.0300	U	N		Yes
	Selenium	7782-49-2	T	1		0.0093	0.0400	U	N		0.0093	0.0400	U	N		Yes
	Silver	7440-22-4	T	1		0.0024	0.0100	U	N		0.0024	0.0100	U	N		Yes

Sample ID	SG3-WASTECHAR-CH-FRAC
Sample Date	4/25/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	WW
Lab Sample ID	9581516
Analytical Method	SW7470A
Result Unit	mg/l
Fraction	T
Location/Depth	WASTE_CHAR
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	1		0.000050	0.00020	U	N		0.000050	0.00020	U	N		Yes

B. SDG SBN19

SYS SAMPLE CODE	SG3-LTB01-180502_05022018_TB
SAMPLE NAME	SG3-LTB01-180502
SAMPLE DATE	5/2/2018 00:00:00
SAMPLE TYPE CODE	TB
PARENT SAMPLE CODE	
LAB SAMPLE ID	9593391
LAB ANL METHOD NAME	E537
RESULT UNIT	ng/l
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	6:2 Fluorotelomer sulfonate (6:2 FTS)	27619-97-2	1		0.89	1.8	U	N		0.89	1.8	U	N		Yes
	8:2 Fluorotelomer sulfonate (8:2 FTS)	39108-34-4	1		1.8	5.4	U	N		1.8	5.4	U	N		Yes
	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	2991-50-6	1		0.89	2.7	U	N		0.89	2.7	U	N		Yes
	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	1		0.89	2.7	U	N		0.89	2.7	U	N		Yes
	Perfluorobutane sulfonate (PFBS)	375-73-5	1		0.27	0.89	U	N		0.27	0.89	U	N		Yes
	Perfluorobutanoic acid (PFBA)	375-22-4	1		1.8	5.4	U	N		1.8	5.4	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	1		0.89	1.8	U	N		0.89	1.8	U	N		Yes
	Perfluorododecanoic acid (PFDoA / PFDoDA)	307-55-1	1		0.27	0.89	U	N		0.27	0.89	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.27	0.89	U	N		0.27	0.89	U	N		Yes
	Perfluorohexane sulfonate (PFHxS)	355-46-4	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	1		0.36	1.8	UZ	N		0.36	1.8	U	N		Yes
	Perfluorooctanesulfonamide (PFOSA / FOSA)	754-91-6	1		0.89	2.7	U	N		0.89	2.7	U	N		Yes
	Perfluorooctanesulfonate (PFOS)	1763-23-1	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	1		0.27	0.89	U	N		0.27	0.89	U	N		Yes
	Perfluoropentanoic acid (PFPeA)	2706-90-3	1		1.8	5.4	U	N		1.8	5.4	U	N		Yes
	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	376-06-7	1		0.27	0.89	U	N		0.27	0.89	U	N		Yes
	Perfluorotridecanoic acid (PFTrDA / PFTriA)	72629-94-8	1		0.27	0.89	U	N		0.27	0.89	U	N		Yes
	Perfluoroundecanoic acid (PFUnA / PFUnDA)	2058-94-8	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes

SYS SAMPLE CODE	SG3-FTB01-180502_05022018_FB
SAMPLE NAME	SG3-FTB01-180502
SAMPLE DATE	5/2/2018 15:05:00
SAMPLE TYPE CODE	FB
PARENT SAMPLE CODE	
LAB SAMPLE ID	9593392
LAB ANL METHOD NAME	E537
RESULT UNIT	ng/l
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	6:2 Fluorotelomer sulfonate (6:2 FTS)	27619-97-2	1		0.89	1.8	U	N		0.89	1.8	U	N		Yes
	8:2 Fluorotelomer sulfonate (8:2 FTS)	39108-34-4	1		1.8	5.3	U	N		1.8	5.3	U	N		Yes
	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	2991-50-6	1		0.89	2.7	U	N		0.89	2.7	U	N		Yes
	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	1		0.89	2.7	U	N		0.89	2.7	U	N		Yes
	Perfluorobutane sulfonate (PFBS)	375-73-5	1		0.27	0.89	U	N		0.27	0.89	U	N		Yes
	Perfluorobutanoic acid (PFBA)	375-22-4	1		1.8	5.3	U	N		1.8	5.3	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	1		0.89	1.8	U	N		0.89	1.8	U	N		Yes
	Perfluorododecanoic acid (PFDoA / PFDoDA)	307-55-1	1		0.27	0.89	U	N		0.27	0.89	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.27	0.89	U	N		0.27	0.89	U	N		Yes
	Perfluorohexane sulfonate (PFHxS)	355-46-4	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes
	Perfluorooctanesulfonamide (PFOSA / FOSA)	754-91-6	1		0.89	2.7	U	N		0.89	2.7	UJ	N	IS	Yes
	Perfluorooctanesulfonate (PFOS)	1763-23-1	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	1		0.27	0.89	U	N		0.27	0.89	U	N		Yes
	Perfluoropentanoic acid (PFPeA)	2706-90-3	1		1.8	5.3	U	N		1.8	5.3	U	N		Yes
	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	376-06-7	1		0.27	0.89	U	N		0.27	0.89	UJ	N	IS	Yes
	Perfluorotridecanoic acid (PFTrDA / PFTriA)	72629-94-8	1		0.27	0.89	U	N		0.27	0.89	U	N		Yes
	Perfluoroundecanoic acid (PFUnA / PFUnDA)	2058-94-8	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes

SYS SAMPLE CODE	SG3-IDW-TRTD-01_0-0_05032018
SAMPLE NAME	SG3-IDW-TRTD-01-180502
SAMPLE DATE	5/2/2018 15:25:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9593393
LAB ANL METHOD NAME	E537
RESULT UNIT	ng/l
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	6:2 Fluorotelomer sulfonate (6:2 FTS)	27619-97-2	1		0.90	1.8	U	N		0.90	1.8	U	N		Yes
	8:2 Fluorotelomer sulfonate (8:2 FTS)	39108-34-4	1		1.8	5.4	U	N		1.8	5.4	U	N		Yes
	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	2991-50-6	1		0.90	2.7	U	N		0.90	2.7	U	N		Yes
	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	1		0.90	2.7	U	N		0.90	2.7	U	N		Yes
	Perfluorobutane sulfonate (PFBS)	375-73-5	1		0.27	0.90	U	N		0.27	0.90	U	N		Yes
	Perfluorobutanoic acid (PFBA)	375-22-4	1		1.8	5.4	U	N		1.8	5.4	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	1		0.90	1.8	U	N		0.90	1.8	U	N		Yes
	Perfluorododecanoic acid (PFDoA / PFDoDA)	307-55-1	1		0.27	0.90	U	N		0.27	0.90	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.27	0.90	U	N		0.27	0.90	U	N		Yes
	Perfluorohexane sulfonate (PFHxS)	355-46-4	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes
	Perfluorooctanesulfonamide (PFOSA / FOSA)	754-91-6	1		0.90	2.7	U	N		0.90	2.7	UJ	N	IS	Yes
	Perfluorooctanesulfonate (PFOS)	1763-23-1	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	1		0.27	0.90	U	N		0.27	0.90	U	N		Yes
	Perfluoropentanoic acid (PFPeA)	2706-90-3	1		1.8	5.4	U	N		1.8	5.4	U	N		Yes
	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	376-06-7	1		0.27	0.90	U	N		0.27	0.90	U	N		Yes
	Perfluorotridecanoic acid (PFTrDA / PFTriA)	72629-94-8	1		0.27	0.90	U	N		0.27	0.90	U	N		Yes
	Perfluoroundecanoic acid (PFUnA / PFUnDA)	2058-94-8	1		0.36	1.8	U	N		0.36	1.8	U	N		Yes

SYS SAMPLE CODE	SG3-IDW-TRTD-02_0-0_05032018
SAMPLE NAME	SG3-IDW-TRTD-02-180503
SAMPLE DATE	5/3/2018 08:55:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9593394
LAB ANL METHOD NAME	E537
RESULT UNIT	ng/l
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	6:2 Fluorotelomer sulfonate (6:2 FTS)	27619-97-2	1		0.94	1.9	U	N		0.94	1.9	U	N		Yes
	8:2 Fluorotelomer sulfonate (8:2 FTS)	39108-34-4	1		1.9	5.6	U	N		1.9	5.6	U	N		Yes
	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	2991-50-6	1		0.94	2.8	U	N		0.94	2.8	U	N		Yes
	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	1		0.94	2.8	U	N		0.94	2.8	U	N		Yes
	Perfluorobutane sulfonate (PFBS)	375-73-5	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluorobutanoic acid (PFBA)	375-22-4	1		1.9	5.6	U	N		1.9	5.6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	1		0.94	1.9	U	N		0.94	1.9	U	N		Yes
	Perfluorododecanoic acid (PFDoA / PFDoDA)	307-55-1	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluorohexane sulfonate (PFHxS)	355-46-4	1		0.37	1.9	U	N		0.37	1.9	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.37	1.9	U	N		0.37	1.9	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	1		0.37	1.9	U	N		0.37	1.9	U	N		Yes
	Perfluorooctanesulfonamide (PFOSA / FOSA)	754-91-6	1		0.94	2.8	U	N		0.94	2.8	U	N		Yes
	Perfluorooctanesulfonate (PFOS)	1763-23-1	1		0.37	1.9	U	N		0.37	1.9	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluoropentanoic acid (PFPeA)	2706-90-3	1		1.9	5.6	U	N		1.9	5.6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	376-06-7	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluorotridecanoic acid (PFTrDA / PFTriA)	72629-94-8	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluoroundecanoic acid (PFUnA / PFUnDA)	2058-94-8	1		0.37	1.9	U	N		0.37	1.9	U	N		Yes

SYS SAMPLE CODE	SG3-IDW-TRTD-03_0-0_05032018
SAMPLE NAME	SG3-IDW-TRTD-03-180503
SAMPLE DATE	5/3/2018 12:00:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9593395
LAB ANL METHOD NAME	E537
RESULT UNIT	ng/l
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	6:2 Fluorotelomer sulfonate (6:2 FTS)	27619-97-2	1		0.88	1.8	U	N		0.88	1.8	U	N		Yes
	8:2 Fluorotelomer sulfonate (8:2 FTS)	39108-34-4	1		1.8	5.3	U	N		1.8	5.3	U	N		Yes
	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	2991-50-6	1		0.88	2.6	U	N		0.88	2.6	U	N		Yes
	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	1		0.88	2.6	U	N		0.88	2.6	U	N		Yes
	Perfluorobutane sulfonate (PFBS)	375-73-5	1		0.26	0.88	U	N		0.26	0.88	U	N		Yes
	Perfluorobutanoic acid (PFBA)	375-22-4	1		1.8	5.3	U	N		1.8	5.3	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	1		0.88	1.8	U	N		0.88	1.8	U	N		Yes
	Perfluorododecanoic acid (PFDoA / PFDoDA)	307-55-1	1		0.26	0.88	U	N		0.26	0.88	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.26	0.88	U	N		0.26	0.88	U	N		Yes
	Perfluorohexane sulfonate (PFHxS)	355-46-4	1		0.35	1.8	U	N		0.35	1.8	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.35	1.8	U	N		0.35	1.8	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	1		0.35	1.8	UZ	N		0.35	1.8	U	N		Yes
	Perfluorooctanesulfonamide (PFOSA / FOSA)	754-91-6	1		0.88	2.6	U	N		0.88	2.6	U	N		Yes
	Perfluorooctanesulfonate (PFOS)	1763-23-1	1		0.35	1.8	U	N		0.35	1.8	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	1		0.26	0.88	U	N		0.26	0.88	U	N		Yes
	Perfluoropentanoic acid (PFPeA)	2706-90-3	1		1.8	5.3	U	N		1.8	5.3	U	N		Yes
	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	376-06-7	1		0.26	0.88	U	N		0.26	0.88	U	N		Yes
	Perfluorotridecanoic acid (PFTrDA / PFTriA)	72629-94-8	1		0.26	0.88	U	N		0.26	0.88	U	N		Yes
	Perfluoroundecanoic acid (PFUnA / PFUnDA)	2058-94-8	1		0.35	1.8	U	N		0.35	1.8	U	N		Yes

C. SDG SBN20

SYS SAMPLE CODE	SG3A-SLUDGE1801_05182018
SAMPLE NAME	SG3a-SLUDGE18-01
SAMPLE DATE	5/18/2018 09:15:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618551
LAB ANL METHOD NAME	CALCULATION
RESULT UNIT	%
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	Moisture	MOIST	1	19.7	0.50	0.50		Y	19.7	0.50	0.50		Y		Yes

SYS SAMPLE CODE	SG3A-FTB01-180518_05182018_FB
SAMPLE NAME	SG3a-FTB01-180518
SAMPLE DATE	5/18/2018 09:25:00
SAMPLE TYPE CODE	FB
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618549
LAB ANL METHOD NAME	E537
RESULT UNIT	ng/l
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	6:2 Fluorotelomer sulfonate (6:2 FTS)	27619-97-2	1		0.93	1.9	U	N		0.93	1.9	U	N		Yes
	8:2 Fluorotelomer sulfonate (8:2 FTS)	39108-34-4	1		1.9	5.6	U	N		1.9	5.6	U	N		Yes
	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	2991-50-6	1		0.93	2.8	U	N		0.93	2.8	U	N		Yes
	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	1		0.93	2.8	U	N		0.93	2.8	U	N		Yes
	Perfluorobutane sulfonate (PFBS)	375-73-5	1		0.28	0.93	U	N		0.28	0.93	U	N		Yes
	Perfluorobutanoic acid (PFBA)	375-22-4	1		1.9	5.6	U	N		1.9	5.6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	1		0.93	1.9	U	N		0.93	1.9	U	N		Yes
	Perfluorododecanoic acid (PFDoA / PFDoDA)	307-55-1	1		0.28	0.93	U	N		0.28	0.93	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.28	0.93	U	N		0.28	0.93	U	N		Yes
	Perfluorohexane sulfonate (PFHxS)	355-46-4	1		0.37	1.9	U	N		0.37	1.9	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.37	1.9	U	N		0.37	1.9	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	1		0.37	1.9	U	N		0.37	1.9	U	N		Yes
	Perfluorooctanesulfonamide (PFOSA / FOSA)	754-91-6	1		0.93	2.8	U	N		0.93	2.8	UJ	N	IS	Yes
	Perfluorooctanesulfonate (PFOS)	1763-23-1	1		0.37	1.9	U	N		0.37	1.9	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	1		0.28	0.93	U	N		0.28	0.93	U	N		Yes
	Perfluoropentanoic acid (PFPeA)	2706-90-3	1		1.9	5.6	U	N		1.9	5.6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	376-06-7	1		0.28	0.93	U	N		0.28	0.93	U	N		Yes
	Perfluorotridecanoic acid (PFTrDA / PFTriA)	72629-94-8	1		0.28	0.93	U	N		0.28	0.93	U	N		Yes
	Perfluoroundecanoic acid (PFUnA / PFUnDA)	2058-94-8	1		0.37	1.9	U	N		0.37	1.9	U	N		Yes

SYS SAMPLE CODE	SG3A-LTB01-180518_05182018_TB
SAMPLE NAME	SG3a-LTB01-180518
SAMPLE DATE	5/18/2018 00:00:00
SAMPLE TYPE CODE	TB
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618550
LAB ANL METHOD NAME	E537
RESULT UNIT	ng/l
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	6:2 Fluorotelomer sulfonate (6:2 FTS)	27619-97-2	1		0.94	1.9	U	N		0.94	1.9	U	N		Yes
	8:2 Fluorotelomer sulfonate (8:2 FTS)	39108-34-4	1		1.9	5.6	U	N		1.9	5.6	U	N		Yes
	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	2991-50-6	1		0.94	2.8	U	N		0.94	2.8	U	N		Yes
	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	1		0.94	2.8	U	N		0.94	2.8	U	N		Yes
	Perfluorobutane sulfonate (PFBS)	375-73-5	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluorobutanoic acid (PFBA)	375-22-4	1		1.9	5.6	U	N		1.9	5.6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	1		0.94	1.9	U	N		0.94	1.9	U	N		Yes
	Perfluorododecanoic acid (PFDoA / PFDoDA)	307-55-1	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluorohexane sulfonate (PFHxS)	355-46-4	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorooctanesulfonamide (PFOSA / FOSA)	754-91-6	1		0.94	2.8	U	N		0.94	2.8	UJ	N	IS	Yes
	Perfluorooctanesulfonate (PFOS)	1763-23-1	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluoropentanoic acid (PFPeA)	2706-90-3	1		1.9	5.6	U	N		1.9	5.6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	376-06-7	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluorotridecanoic acid (PFTrDA / PFTriA)	72629-94-8	1		0.28	0.94	U	N		0.28	0.94	U	N		Yes
	Perfluoroundecanoic acid (PFUnA / PFUnDA)	2058-94-8	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes

SYS SAMPLE CODE	SG3A-SLUDGE1801_05182018
SAMPLE NAME	SG3a-SLUDGE18-01
SAMPLE DATE	5/18/2018 09:15:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618551
LAB ANL METHOD NAME	E537
RESULT UNIT	ng/g
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	Perfluorobutane sulfonate (PFBS)	375-73-5	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorobutanoic acid (PFBA)	375-22-4	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorododecanoic acid (PFDoA / PFDoDA)	307-55-1	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorohexane sulfonate (PFHxS)	355-46-4	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorooctanesulfonate (PFOS)	1763-23-1	1		0.37	1.1	U	N		0.37	1.1	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	1	1.4	0.25	0.74		Y	1.4	0.25	0.74		Y		Yes
	Perfluoropentanoic acid (PFPeA)	2706-90-3	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	376-06-7	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorotridecanoic acid (PFTrDA / PFTriA)	72629-94-8	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluoroundecanoic acid (PFUnA / PFUnDA)	2058-94-8	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes

SYS SAMPLE CODE	SG3A-SW1801_05182018
SAMPLE NAME	SG3a-SW18-01-180518
SAMPLE DATE	5/18/2018 08:45:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618552
LAB ANL METHOD NAME	E537
RESULT UNIT	ng/l
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	6:2 Fluorotelomer sulfonate (6:2 FTS)	27619-97-2	1		0.95	1.9	U	N		0.95	1.9	U	N		Yes
	8:2 Fluorotelomer sulfonate (8:2 FTS)	39108-34-4	1		1.9	5.7	U	N		1.9	5.7	U	N		Yes
	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	2991-50-6	1		0.95	2.9	U	N		0.95	2.9	U	N		Yes
	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	1		0.95	2.9	U	N		0.95	2.9	U	N		Yes
	Perfluorobutane sulfonate (PFBS)	375-73-5	1	0.49	0.29	0.95	J	Y	0.49	0.29	0.95	J	Y	RL	Yes
	Perfluorobutanoic acid (PFBA)	375-22-4	1		1.9	5.7	U	N		1.9	5.7	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	1		0.95	1.9	U	N		0.95	1.9	U	N		Yes
	Perfluorododecanoic acid (PFDoA / PFDoDA)	307-55-1	1		0.29	0.95	U	N		0.29	0.95	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	1	1.1	0.29	0.95		Y	1.1	0.29	0.95		Y		Yes
	Perfluorohexane sulfonate (PFHxS)	355-46-4	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	1	0.73	0.38	1.9	J	Y	0.73	0.38	1.9	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes
	Perfluorooctanesulfonamide (PFOSA / FOSA)	754-91-6	1		0.95	2.9	U	N		0.95	2.9	UJ	N	IS	Yes
	Perfluorooctanesulfonate (PFOS)	1763-23-1	1	0.92	0.38	1.9	J	Y	0.92	0.38	1.9	J	Y	RL	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	1	28	0.29	0.95		Y	28	0.29	0.95		Y		Yes
	Perfluoropentanoic acid (PFPeA)	2706-90-3	1		1.9	5.7	U	N		1.9	5.7	U	N		Yes
	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	376-06-7	1		0.29	0.95	U	N		0.29	0.95	U	N		Yes
	Perfluorotridecanoic acid (PFTrDA / PFTriA)	72629-94-8	1		0.29	0.95	U	N		0.29	0.95	U	N		Yes
	Perfluoroundecanoic acid (PFUnA / PFUnDA)	2058-94-8	1		0.38	1.9	U	N		0.38	1.9	U	N		Yes

SYS SAMPLE CODE	SG3A-SLUDGE1801_05182018
SAMPLE NAME	SG3a-SLUDGE18-01
SAMPLE DATE	5/18/2018 09:15:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618551
LAB ANL METHOD NAME	SM5310B
RESULT UNIT	mg/kg
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	Carbon, total organic	TOC	1	14800	2700	8100		Y	14800	2700	8100		Y		Yes

SYS SAMPLE CODE	SG3A-SLUDGE1801_05182018
SAMPLE NAME	SG3a-SLUDGE18-01
SAMPLE DATE	5/18/2018 09:15:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618551
LAB ANL METHOD NAME	SW6010C
RESULT UNIT	mg/kg
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	Aluminum	7429-90-5	1	5890	9.20	41.2		Y	5890	9.20	41.2	J	Y	LD	Yes
	Calcium	7440-70-2	5	91100	17.1	206		Y	91100	17.1	206	J	Y	LD,MP	Yes
	Iron	7439-89-6	1	18800	8.29	41.2		Y	18800	8.29	41.2	J	Y	LD,MP	Yes
	Magnesium	7439-95-4	1	43100	2.50	20.6		Y	43100	2.50	20.6	J	Y	LD,MP	Yes
	Manganese	7439-96-5	1	958	0.0854	1.03		Y	958	0.0854	1.03	J	Y	LD,MP	Yes
	Potassium	7440-09-7	1	612	17.2	103		Y	612	17.2	103		Y		Yes
	Sodium	7440-23-5	1	105	17.2	206	J	Y	105	17.2	206	J	Y	RL	Yes
	Zinc	7440-66-6	1	133	0.247	4.12		Y	133	0.247	4.12	J	Y	MA,MP,LD	Yes

SYS SAMPLE CODE	SG3A-SLUDGE1801_05182018
SAMPLE NAME	SG3a-SLUDGE18-01
SAMPLE DATE	5/18/2018 09:15:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618551
LAB ANL METHOD NAME	SW6020A
RESULT UNIT	mg/kg
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	Antimony	7440-36-0	2	0.306	0.0959	0.412	J	Y	0.306	0.0959	0.412	J	Y	RL	Yes
	Arsenic	7440-38-2	2	6.50	0.132	0.823		Y	6.50	0.132	0.823	J	Y	LD	Yes
	Barium	7440-39-3	2	99.9	0.187	0.823		Y	99.9	0.187	0.823	J	Y	LD	Yes
	Beryllium	7440-41-7	2	0.372	0.0108	0.206		Y	0.372	0.0108	0.206		Y		Yes
	Cadmium	7440-43-9	2	0.474	0.0354	0.206		Y	0.474	0.0354	0.206		Y		Yes
	Chromium	7440-47-3	2	13.6	0.179	0.823		Y	13.6	0.179	0.823		Y		Yes
	Cobalt	7440-48-4	2	13.2	0.0321	0.206		Y	13.2	0.0321	0.206		Y		Yes
	Copper	7440-50-8	2	66.0	0.110	0.823		Y	66.0	0.110	0.823	J	Y	LD	Yes
	Lead	7439-92-1	2	50.2	0.0228	0.412		Y	50.2	0.0228	0.412		Y	MP	Yes
	Nickel	7440-02-0	2	28.7	0.205	0.823		Y	28.7	0.205	0.823	J	Y	MAH,LD	Yes
	Selenium	7782-49-2	2	0.156	0.103	0.823	J	Y	0.156	0.103	0.823	J	Y	RL	Yes
	Silver	7440-22-4	2	0.585	0.0301	0.206		Y	0.585	0.0301	0.206	J	Y	MAH	Yes
	Thallium	7440-28-0	2	0.0704	0.0257	0.206	J	Y	0.0704	0.0257	0.206	J	Y	RL	Yes
	Vanadium	7440-62-2	2	17.6	0.0438	0.206		Y	17.6	0.0438	0.206	J	Y	MAH	Yes

SYS SAMPLE CODE	SG3A-SLUDGE1801_05182018
SAMPLE NAME	SG3a-SLUDGE18-01
SAMPLE DATE	5/18/2018 09:15:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618551
LAB ANL METHOD NAME	SW7471B
RESULT UNIT	mg/kg
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	Mercury	7439-97-6	1	0.280	0.0115	0.115		Y	0.280	0.0115	0.115	J	Y	MAL	Yes

SYS SAMPLE CODE	SG3A-SLUDGE1801_05182018
SAMPLE NAME	SG3a-SLUDGE18-01
SAMPLE DATE	5/18/2018 09:15:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618551
LAB ANL METHOD NAME	SW8260C
RESULT UNIT	ug/kg
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	1,1,1-Trichloroethane	71-55-6	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,1-Dichloroethane	75-34-3	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,1-Dichloroethylene	75-35-4	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,2,4-Trichlorobenzene	120-82-1	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	0.72		2	4	U	N		2	4	U	N		Yes
	1,2-Dibromoethane (EDB)	106-93-4	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dichloroethane	107-06-2	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dichloroethylene, cis	156-59-2	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dichloroethylene, trans	156-60-5	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dichloropropane	78-87-5	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,3-Dichloropropene, cis	10061-01-5	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,3-Dichloropropene, trans	10061-02-6	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	1,4-Dichlorobenzene	106-46-7	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	2-Hexanone	591-78-6	0.72		3	9	U	N		3	9	U	N		Yes
	Acetone	67-64-1	0.72	23	6	18		Y	23	6	18		Y		Yes
	Benzene	71-43-2	0.72		0.4	4	U	N		0.4	4	U	N		Yes

SYS SAMPLE CODE	SG3A-SLUDGE1801_05182018
SAMPLE NAME	SG3a-SLUDGE18-01
SAMPLE DATE	5/18/2018 09:15:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618551
LAB ANL METHOD NAME	SW8260C
RESULT UNIT	ug/kg
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	Bromochloromethane	74-97-5	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Bromodichloromethane	75-27-4	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Bromoform	75-25-2	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Bromomethane	74-83-9	0.72		2	4	U	N		2	4	U	N		Yes
	Carbon disulfide	75-15-0	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Carbon tetrachloride	56-23-5	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Chlorobenzene	108-90-7	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Chlorodibromomethane	124-48-1	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Chloroethane	75-00-3	0.72		2	4	U	N		2	4	U	N		Yes
	Chloroform	67-66-3	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Chloromethane	74-87-3	0.72		2	4	U	N		2	4	U	N		Yes
	Cumene (isopropyl benzene)	98-82-8	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Cyclohexane	110-82-7	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Dichlorodifluoromethane (Freon-12)	75-71-8	0.72		2	4	U	N		2	4	U	N		Yes
	Ethyl benzene	100-41-4	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Methyl acetate	79-20-9	0.72		2	4	U	N		2	4	U	N		Yes
	Methyl ethyl ketone (2-butanone)	78-93-3	0.72	4	4	9	J	Y	4	4	9	J	Y	RL	Yes
	Methyl isobutyl ketone (MIBK)	108-10-1	0.72		3	9	U	N		3	9	U	N		Yes
	Methyl tertiary butyl ether (MTBE)	1634-04-4	0.72		0.4	4	U	N		0.4	4	U	N		Yes
	Methylcyclohexane	108-87-2	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Methylene chloride	75-09-2	0.72		2	4	U	N		2	4	U	N		Yes

SYS SAMPLE CODE	SG3A-SLUDGE1801_05182018
SAMPLE NAME	SG3a-SLUDGE18-01
SAMPLE DATE	5/18/2018 09:15:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618551
LAB ANL METHOD NAME	SW8260C
RESULT UNIT	ug/kg
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	Styrene	100-42-5	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Tetrachloroethylene	127-18-4	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Toluene	108-88-3	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Trichlorofluoromethane (Freon-11)	75-69-4	0.72		2	4	U	N		2	4	U	N		Yes
	Trichlorotrifluoroethane (Freon 113)	76-13-1	0.72		2	9	U	N		2	9	U	N		Yes
	Vinyl chloride	75-01-4	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Xylene, m & p	MPXYL	0.72		0.9	4	U	N		0.9	4	U	N		Yes
	Xylene, o	95-47-6	0.72		0.9	4	U	N		0.9	4	U	N		Yes

SYS SAMPLE CODE	SG3A-SLUDGE1801_05182018
SAMPLE NAME	SG3a-SLUDGE18-01
SAMPLE DATE	5/18/2018 09:15:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618551
LAB ANL METHOD NAME	SW8270D
RESULT UNIT	ug/kg
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	1		21	45	U	N		21	45	U	N		Yes
	1,4-Dioxane	123-91-1	1		120	410	U	N		120	410	U	N		Yes
	2,2'-oxybis (1-chloropropane)	108-60-1	1		21	45	U	N		21	45	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	1		82	210	U	N		82	210	UJ	N	MAL,SRL	Yes
	2,4,5-Trichlorophenol	95-95-4	1		25	62	U	N		25	62	UJ	N	SRL	Yes
	2,4,6-Trichlorophenol	88-06-2	1		25	62	U	N		25	62	UJ	N	MAL,SRL	Yes
	2,4-Dichlorophenol	120-83-2	1		21	45	U	N		21	45	UJ	N	SRL	Yes
	2,4-Dimethylphenol	105-67-9	1		21	45	U	N		21	45	UJ	N	SRL	Yes
	2,4-Dinitrophenol	51-28-5	1		450	1200	U	N		450	1200	UJ	N	MAL,SRL	Yes
	2,4-Dinitrotoluene	121-14-2	1		82	210	U	N		82	210	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	1		25	62	U	N		25	62	U	N		Yes
	2-Chloronaphthalene	91-58-7	1		8	41	U	N		8	41	U	N		Yes
	2-Chlorophenol	95-57-8	1		21	45	U	N		21	45	UJ	N	SRL	Yes
	2-Methyl-4,6-dinitrophenol	534-52-1	1		210	620	U	N		210	620	UJ	N	MAL,SRL	Yes
	2-Methylnaphthalene	91-57-6	1	66	12	41		Y	66	12	41		Y		Yes
	2-Methylphenol (o-cresol)	95-48-7	1		33	82	U	N		33	82	UJ	N	SRL	Yes
	2-Nitroaniline	88-74-4	1		25	62	U	N		25	62	U	N		Yes
	2-Nitrophenol	88-75-5	1		21	45	U	N		21	45	UJ	N	MAL,SRL	Yes
	3,3`-Dichlorobenzidine	91-94-1	1		120	410	U	N		120	410	U	N		Yes
	3-Nitroaniline	99-09-2	1		82	210	U	N		82	210	UJ	N	MAL	Yes
	4-Bromophenyl phenyl ether	101-55-3	1		25	62	U	N		25	62	U	N		Yes

SYS SAMPLE CODE	SG3A-SLUDGE1801_05182018
SAMPLE NAME	SG3a-SLUDGE18-01
SAMPLE DATE	5/18/2018 09:15:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618551
LAB ANL METHOD NAME	SW8270D
RESULT UNIT	ug/kg
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	4-Chloro-3-methylphenol	59-50-7	1		21	41	U	N		21	41	UJ	N	SRL	Yes
	4-Chloroaniline	106-47-8	1		41	210	U	N		41	210	U	N		Yes
	4-Chlorophenyl phenyl ether	7005-72-3	1		21	45	U	N		21	45	U	N		Yes
	4-Methylphenol (p-cresol)	106-44-5	1	31	25	62	J	Y	31	25	62	J	Y	SRL,RL	Yes
	4-Nitroaniline	100-01-6	1		82	210	U	N		82	210	U	N		Yes
	4-Nitrophenol	100-02-7	1		210	620	U	N		210	620	UJ	N	SRL	Yes
	Acenaphthene	83-32-9	1	160	4	21		Y	160	4	21		Y		Yes
	Acenaphthylene	208-96-8	1	95	4	21		Y	95	4	21		Y		Yes
	Acetophenone	98-86-2	1	50	29	62	J	Y	50	29	62	J	Y	RL	Yes
	Anthracene	120-12-7	1	510	4	21		Y	510	4	21	J	Y	MAL	Yes
	Atrazine	1912-24-9	1		41	210	U	N		41	210	U	N		Yes
	Benz(a)anthracene	56-55-3	1	1100	4	21		Y	1100	4	21	J	Y	MAL	Yes
	Benzaldehyde	100-52-7	1	170	82	210	J	Y	170	82	210	J	Y	RL	Yes
	Benzo(a)pyrene	50-32-8	1	970	8	21		Y	970	8	21	J	Y	MAL	Yes
	Benzo(b)fluoranthene	205-99-2	1	1200	4	21		Y	1200	4	21	J	Y	MAL	Yes
	Benzo(g,h,i)perylene	191-24-2	1	580	8	21		Y	580	8	21		Y		Yes
	Benzo(k)fluoranthene	207-08-9	1	630	4	21		Y	630	4	21	J	Y	MAL	Yes
	Biphenyl	92-52-4	1	23	21	45	J	Y	23	21	45	J	Y	RL	Yes
	Bis(2-chloroethoxy)methane	111-91-1	1		21	45	U	N		21	45	U	N		Yes
	Bis(2-chloroethyl)ether	111-44-4	1		29	62	U	N		29	62	U	N		Yes
	Bis(2-ethylhexyl)phthalate	117-81-7	1		82	210	U	N		82	210	U	N		Yes

SYS SAMPLE CODE	SG3A-SLUDGE1801_05182018
SAMPLE NAME	SG3a-SLUDGE18-01
SAMPLE DATE	5/18/2018 09:15:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618551
LAB ANL METHOD NAME	SW8270D
RESULT UNIT	ug/kg
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	Butyl benzyl phthalate	85-68-7	1		82	210	U	N		82	210	U	N		Yes
	Caprolactam	105-60-2	1		41	210	U	N		41	210	U	N		Yes
	Carbazole	86-74-8	1	260	21	45		Y	260	21	45		Y		Yes
	Chrysene	218-01-9	1	1100	4	21		Y	1100	4	21	J	Y	MAL	Yes
	Dibenz(a,h)anthracene	53-70-3	1	180	4	21		Y	180	4	21		Y		Yes
	Dibenzofuran	132-64-9	1	140	21	45		Y	140	21	45		Y		Yes
	Diethyl phthalate	84-66-2	1		82	210	U	N		82	210	U	N		Yes
	Dimethyl phthalate	131-11-3	1		82	210	U	N		82	210	U	N		Yes
	Di-n-butyl phthalate	84-74-2	1		82	210	U	N		82	210	U	N		Yes
	Di-n-octyl phthalate	117-84-0	1		82	210	U	N		82	210	U	N		Yes
	Fluoranthene	206-44-0	1	2300	4	21		Y	2300	4	21	J	Y	MAL,MP	Yes
	Fluorene	86-73-7	1	170	4	21		Y	170	4	21		Y		Yes
	Hexachlorobenzene	118-74-1	1		4	21	U	N		4	21	U	N		Yes
	Hexachlorobutadiene	87-68-3	1		25	62	U	N		25	62	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	1		210	620	U	N		210	620	R	N	MAL	Yes
	Hexachloroethane	67-72-1	1		41	210	U	N		41	210	UJ	N	MAL	Yes
	Indeno(1,2,3-cd)pyrene	193-39-5	1	590	8	21		Y	590	8	21		Y		Yes
	Isophorone	78-59-1	1		21	45	U	N		21	45	U	N		Yes
	Naphthalene	91-20-3	1	140	8	21		Y	140	8	21		Y		Yes
	Nitrobenzene	98-95-3	1		33	82	U	N		33	82	U	N		Yes
	n-Nitrosodi-n-propylamine	621-64-7	1		25	62	U	N		25	62	U	N		Yes

SYS SAMPLE CODE	SG3A-SLUDGE1801_05182018
SAMPLE NAME	SG3a-SLUDGE18-01
SAMPLE DATE	5/18/2018 09:15:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618551
LAB ANL METHOD NAME	SW8270D
RESULT UNIT	ug/kg
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	n-Nitrosodiphenylamine	86-30-6	1		21	45	U	N		21	45	U	N		Yes
	Pentachlorophenol	87-86-5	1		45	210	U	N		45	210	UJ	N	SRL	Yes
	Phenanthrene	85-01-8	1	2000	4	21		Y	2000	4	21	J	Y	MAL	Yes
	Phenol	108-95-2	1		29	62	U	N		29	62	UJ	N	SRL	Yes
	Pyrene	129-00-0	1	2000	4	21		Y	2000	4	21	J	Y	MAL,MP	Yes

SYS SAMPLE CODE	SG3A-SLUDGE1801_05182018
SAMPLE NAME	SG3a-SLUDGE18-01
SAMPLE DATE	5/18/2018 09:15:00
SAMPLE TYPE CODE	N
PARENT SAMPLE CODE	
LAB SAMPLE ID	9618551
LAB ANL METHOD NAME	SW9045D_GP
RESULT UNIT	pH units
FRACTION	NA
VALIDATED?	Y
VALIDATION LEVEL	CATEGORY A

RESULT TYPE CODE	CHEMICAL NAME	CAS RN	DF	ORIG RESULT VALUE	ORIG METHOD DETECTION LIMIT	ORIG QUANITATION LIMIT	LAB QUAL	ORIG DETECT FLAG	RESULT VALUE	METHOD DETECTION LIMIT	QUANT LIMIT	VALIDATOR QUALIFIERS	DETECT FLAG	RESULT COMMENT (REASON)	REPORT-ABLE RESULT
TRG	pH	PH	1	7.81	0.0100	0.0100		Y	7.81	0.0100	0.0100		Y		Yes

SECTION 3

LABORATORY CALIBRATION AND QUALITY CONTROL ACCEPTANCE CRITERIA

Initial Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
1. Initial Calibration: Minimum of five calibration standards. 2. Analyze MDL standard to ensure all compounds detected at MDL level 3. Analyze a technical grade branched/linear chained standard for PFOA/PFOS/PFHxS.	1. Initially and the after continuing calibration fails. 2. Analyzed with each initial calibration. 3. Run with each initial calibration.	1. Back calculated concentration of each calibration point should be within ±30% (or 70-130%) of true. The level 1 calibration standard back calculated concentrations should be ±50% (or 50-150%) of true value. $R^2 \geq 0.99$ for each analyte. 2. All compounds detected. 3. Qualitative use only to assist chemists in the integration of these compounds.	1. If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the initial calibration can be used. In those cases, the data will be reported with a qualifying comment. 2. If compound not detected in MDL standard, the source of the problem should be determined and the system recalibrated.

Continuing Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Analyze every 10 samples and at the end of the analysis sequence. Concentrations alternate between low, mid, and high levels of the calibration curve. The CCV ran after ICAL must be at CAL3 level. Opening CCV for sequence **should** be at CAL1 level and must be within 50-150%.	Occurs every 10 samples and at the end of the analysis sequence.	Calculated amount for the native analytes should be within ±30% of the true value. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. The calculated amount for the isotopically labeled extraction standards should be within the advisory window of 70-130%	If criteria are not met, the source of the problem **should** be determined, corrected and the system recalibrated. Situations may exist where the continuing calibration can be used. In those cases, the data will be reported with a qualifying comment.

Initial Calibration Verification

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Second source standard analyzed at the end of each initial calibration.	Analyzed with each initial calibration	1. Calculated amount for each native analytes should be within 70-130% of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration.	1. If criteria are not met, the source of the problem should be determined and corrected. Situations may exist where the initial calibration verification can be used. In those cases, the data will be reported with a qualifying comment.

QC Acceptance Criteria

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Method Blanks	1 per 20 field samples	1. No positive detections above the MDL. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	1. Report if the analyte present in the method blank is not detected in the sample or the analyte detected in the sample at greater than 10x's the amount in the method blank. If analyte detected in blank and sample at approximately the sample concentration sample will be RX'd. 2. Blank will be reinjected. Blank data may be qualified and reported. 3. If extraction standards are outside the advisory window and there are positive detections in the blank, the blank may be reinjected. If after reinjection, extraction standards are still out data may be reported and qualified due to the advisory nature of the windows.
LCS	1 per 20 field samples	1. Advisory QC limits of 70-130%, RPD<30% 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	1. Reextract LCS and associated samples. Analytes that fail high and are ND in the samples can be reported. Due to the advisory nature of the acceptance limits, situations may exist where LCS can be used. In those cases, the data will be reported with a qualifying comment. 2. If all native recoveries are within QC limits, data can be reported. 3. If all native recoveries are within QC limits, data can be reported.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
MS/MSD	MS is routinely prepared with each extraction batch. If limited sample volume exists, an LCS/LCSD will be prepared.	1. Advisory QC limits of 70-130%, RPD<30%. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	Evaluate in conjunction with LCS.
Isotopically labeled internal standards	Per sample (including MS/MSD, LCS, and Blanks)	The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration.	Reinject samples as necessary. Report data with qualifying comment.
Isotopically labeled extraction standards	Per sample (including MS/MSD, LCS, and Blanks)	The percent difference for the isotopically labeled extraction standards should be within the advisory QC window of 70-130% or laboratory-generated control limits, if available.	Reinject samples as necessary. Report data with qualifying comment.

SECTION 4

ENVIRONMENTAL STANDARDS, INC., STANDARD OPERATING PROCEDURE

1.0 OBJECTIVES

This standard operating procedure (SOP) describes procedures that the Environmental Standards data reviewers will use to validate Perfluorinated and Polyfluorinated Alkyl Substance (PFAS) data for solid samples generated by Eurofins SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins Document Reference T-PFAS-WI12031, Version 2) and aqueous samples generated by Eurofins SOP "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Using LC/MS/MS" (Eurofins Document Reference T-PFAS-WI14355, Version 2) for various Saint-Gobain Performance Plastics Corporation (Saint-Gobain) sites. Validation will be performed to assess compliance of the sample data to these Eurofins SOPs and any applicable Work Plans and/or Quality Assurance Project Plans (QAPPs). In addition, the usability of the PFAS data provided by the analytical laboratory will be determined based on the general guidance provided in the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016) and "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016). It should be noted that the National Functional Guidelines apply strictly to data generated by the Contract Laboratory Program (CLP) protocol and are not directly applicable to validation of data generated by Modified EPA Method 537; therefore, this SOP presents the specific data qualification actions that will be used for validation.

The validation findings will be presented in a quality assurance review (QAR) that will be prepared for one or more sample delivery groups (SDGs). Copies of annotated analytical results summaries (Form I's), including any changes to the analytical results and data qualifier codes, or a data summary spreadsheet of the qualified analytical results, will be included in the support documentation of the QAR.

2.0 EVALUATION TOOLS

- field duplicate form (DVF_DUP_SG_ELLE.xlsm)

Chemistry Applications:

- Curve fitting software (DVF_CAL.xlsm)
- Methods Database

3.0 REFERENCE DOCUMENTS

- "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016)

- "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016).

- Eurofins Document Reference T-PFAS-WI12031.

- Eurofins Document Reference T-PFAS-WI14355.

- US EPA Method 537, Version 1.1 (September 2009).

- Guidance for Labelling Externally Validated Laboratory Analytical Data for Superfund Use (EPA 540-R-08-005, 2009).

4.0 PROCEDURE

4.1 EVALUATION OF METHOD COMPLIANCE

The data reviewer will assess the method compliance of the PFAS data based on an evaluation of information presented in the data package deliverables. Compliance to the aforementioned SOPs (and Work Plan and/or QAPP when applicable) will be evaluated as part of the assessment. In addition, the deliverables will be evaluated for reporting errors and inconsistencies. The findings of the compliance assessment will be described in terms of comments/deficiencies about the data/deliverables and presented in two subdivisions (*i.e.*, Reporting Issues and Procedural Issues) of the Organic Data Evaluation Section of the QAR. Each issue discussed in the QAR will indicate any subsequent impact on the usability of the data or will identify aspect(s) of the data that could not be evaluated due to the deficiency.

The data reviewer may contact the project laboratory to request the correction of deficiencies prior to submittal of the QAR (if feasible and sanctioned by Saint Gobain). At a minimum, corrections required to allow for a full evaluation of the usability of the data should be requested. Such correctable deficiencies may include sample result errors, missing data deliverables, or calculation errors that would require a significant amount of the data reviewer's time to correct. Any laboratory resubmittals as a result of such requests will be discussed in the Reporting Issue subdivision of the QAR and included as an attachment to the QAR.

4.2 DETERMINATION OF DATA USABILITY

The data reviewer will determine the usability of the PFAS data based on an evaluation of the information presented in the data package deliverables. The findings of the PFAS data usability assessment will be presented in terms of data qualifications that the project team should consider in order to best utilize the data; these qualifications will be presented in the Organic Data Qualifier subsection of the QAR. Each qualification discussed in the QAR will indicate that the affected sample result(s) has been flagged with a representative qualifier code(s) in the data tables to provide, at a glance, an indication of the quantitative and qualitative reliability of each analytical result. In general, the qualifier statements will be presented in the QAR in the following order: blank contamination (UB), unusable results (R/UR), estimated results (J/UJ), tentative identifications of target compound results (N), and a general qualifier for all results reported below the limit of quantitation (if applicable). In addition, a Validation Reason Code will be presented on the data tables to indicate the reason that a qualifier code has been applied.

The data reviewer's criteria for evaluating the usability of the PFAS data and the resultant qualifications and reason codes will be as stipulated on the attached Table for the Validation of PFAS Data Generated. Additional qualifications and reason codes will be assigned based on professional judgement. It should be noted that the project manager should be consulted when "professional judgement" use is indicated on the attached table.

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Temperature Upon Receipt	≤6°C	If temperature is <2°C, no action is required unless samples were frozen/broken and then professional judgment should be used. If temperature is >6°C but ≤20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SPL") If temperature is > 20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SPL") Note time of collection relative to receipt at laboratory. Professional judgement should be used if < 8 hours has elapsed from collection to receipt at the laboratory to determine if qualification due to elevated temperature applies.
Technical Holding Time	Solid samples should be extracted within 28 days of sample collection and aqueous samples should be extracted within 14 days of collection. All extracts should be analyzed within 28 days after extraction.	If a holding time is exceeded, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively) If a holding time is grossly exceeded (*i.e.*, > twice the holding time), qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively)

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Initial Calibration (See Note #1 for additional information.)	Back calculated concentration of each calibration point should be within 70-130% of true value. The level 1 (lowest) calibration standard back calculated concentrations should be within 50-150% of true value. $r^2 \geq 0.99$ for each analyte.	**When evaluating initial calibration, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS(s).** If the low point or consecutive points at the low end of the curve are below the lower recovery criteria, qualify positive results < lowest compliant point as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "ICL") If the low point or consecutive points at the low end of the curve are above the upper recovery criteria, qualify positive results < lowest compliant point as estimated ("J"). (Validation Reason Code "ICH") If a point in the middle of the curve or non-consecutive points (beside the low point) quantitate outside of criteria, qualify positive results as estimated ("J"). If the high point or consecutive points at the upper end of the curve quantitates outside of criteria, qualify positive results > highest compliant point as estimated ("J"). (Validation Reason Code "ICL," "ICH," or "IC," are to be used based on whether direction of bias can be determined in these situations) Professional judgement should be used to qualify "not-detected" results as estimated ("UJ") if low recoveries are observed for standards other than the lowest calibration point. (Validation Reason Code "ICL") If the $r^2 \geq 0.99$ for any analyte, qualify positive results as estimated ("J"). (Validation Reason Code "IC")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Second Source Initial Calibration Verification (ICV)	1. Calculated amount for each compound should be within 70-130% (±30%) of the true value. 2. The isotopically labeled injection and/or extraction standards should be within criteria.	**Qualification is for all samples associated with initial calibration being verified.** **When evaluating ICV, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS.** If target PFAS has %D>30% with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "SSH") If target PFAS has %D>30% but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SSL") If target PFAS has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SSL")
Continuing Calibration Verification (See Note #2 for additional information.)	Calculated amount should be within ±30% of the true value. The isotopically labeled injection and/or extraction standards should be within criteria. The CCV ran after ICAL must be at CAL3 level. Opening CCV for sequence **should** be at CAL1 level and must be within 50-150%.	**Qualification is for all samples on both sides of the out-of-criteria calibration verification standards**. **When evaluating calibration verification, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS.** If target PFAS has %D>30% (50% for CAL1 CCV) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "CVH") If target PFAS has %D>30% (50% for CAL1 CCV) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "CVL") If target PFAS has %D>90% with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "CVL")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Blanks (See Note #3 for additional information.)	Summarize all results greater than the method detection limit (MDL) present in the blanks. The highest positive result associated with a sample should be utilized for evaluation of contamination.	If a target PFAS is found in the blank but not in the associated sample(s), no action is required. If a sample result is ≤5× the blank result, qualify the positive result as "not detected" ("UB") and raise the method detection limit (MDL) and/or limit of quantitation (LOQ) (if lower than original reported positive result) to the value of the original result. (Validation Reason Code(s) "EB," FB," "IB," "MB," and or "TB," as appropriate). If a sample result is >5× blank result, qualification is not required. Professional judgement should be used to evaluate whether an aqueous blank should be used to qualify a solid sample.
Injection/Internal Standards (Labelled Analytes, spiked prior to injection and used as internal standards for extraction standards)	The response for each internal standard in the original sample must be within ±%50 of the average initial calibration response.	If an internal response is outside of criteria, use professional judgment to determine the potential impact on the quantitation of the extraction standard recoveries and whether qualification due to out-of-criteria extraction standard recoveries (see directly below) should be modified.
Extraction Standards (Labelled Analytes, spiked prior to extraction and used as internal standards for target compounds)	The response for each ES in the original sample must be within the advisory limits of 70-130% recovery or laboratory-generated control limits, if available.	If an ES response or recovery is outside of criteria but ≥10%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ") for PFASs quantitated using that ES. (Validation Reason Code "IS") If an ES response is < 10%, qualify positive results for the associated PFASs as estimated ("J") and qualify "not-detected" results for the associated PFASs as estimated ("UJ") or unusable ("R") using professional judgment (based on the approximate signal-to-noise ratio for the ES and the expected response for the target PFAS at the LOQ). (Validation Reason Code "IS")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Laboratory Control Samples (LCS)/ Laboratory Control Sample Duplicates (LCSD)	%R within 70-130%, RPD ≤ 30%.	**The LCS qualification will be applied to all samples in the preparation batch.** If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). (Validation Reason Code "LAL") If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "LAL") If the precision between recoveries exceeds the RPD criterion, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LP")
Matrix Spike/Matrix Spike Duplicate (MS/MSD) (If performed)	%R within 70-130%, RPD ≤ 30%.	**The MS/MSD qualification will be applied to the unspiked parent sample.** Data should not be qualified due to %Rs (or RPDs calculated on %Rs) that are outside of criteria if the original concentration of a PFAS is >4× the spiking level for that compound. In such cases, RPDs calculated using MS/MSD results can be used to evaluate precision. If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "MAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "MAL") If the precision between recoveries exceeds the RPD criterion, qualify the positive result in the native sample as estimated ("J") and do not qualify the "not-detected" result. (Validation Reason Code "MP")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Field/Laboratory Duplicate (See Note #4 for additional information)	The RPD should be ≤30% when both results are >5× the sample-specific LOQ (RL). The difference between results should be ≤ 1.5×LOQ when at least one result is ≤5× the LOQ.	**If both results are <LOQ, a quantitative assessment of duplicate precision is not performed.** If the criteria are not met, qualify positive results for the out-of-criteria PFASs in the original sample and its duplicate as estimated ("J"). (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate) Use the MDL as a numerical value for any "not-detected" result in the difference calculation. Qualify "not-detected" results as estimated ("UJ") if the difference between the results is outside of criteria. (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate)
Percent Solids	Solid samples with less than 30% solid content require qualification.	If a solid sample has a percent solid content <30%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code of "PS") Use professional judgment to qualified "not-detected" results as unusable ("R") if a solid sample has a percent solids content <10%. (Validation Reason Code of "PS")
Compound Quantitation and Qualitative Identification (See Notes #5 for additional information.)	Samples with results that exceed the instrument calibration range should be reanalyzed at a dilution or re-extracted with a lower volume.	If a target PFAS result exceeds the instrument calibration range, qualify positive result as estimated ("J"). (Validation Reason Code "EC") Use professional judgment to determine whether sample reanalyses and dilutions should be compared to the original analyses. If criteria (see field duplicate usability) between the original sample results and the reanalysis sample results are not met, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "LD") If a target PFAS is <LOQ but ≥MDL, qualify positive results as estimated ("J"). (Validation Reason Code "RL") Use professional judgment to determine whether quantitation and qualitative identifications are accurate and whether data qualification is necessary.
System Performance	Professional judgement should be used when assessing the degradation of system performance during analyses.	Use professional judgment to qualify the data if it is determined that system performance degraded during sample analyses.

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Overall Assessment of Data	Assess overall quality of the data. Review available materials to assess the quality, keeping in mind the additive nature of the analytical problems.	Use professional judgment to determine the need to qualify data not qualified based on the QC previously discussed. Write a brief narrative to give the user an indication of the analytical limitations of the data. If sufficient information on the intended use and required quality of the data is available, include the assessment of the usability of the data within the given context.

Validation Notes

1. Use professional judgment when evaluating the response intercept of a calibration curve. If the response intercept is positive, the samples should be evaluated for false positives. If the response intercept is negative, the sample should be evaluated for false negatives.

2. If instrument instability (*i.e.*, several calibration verification standards with PFASs exhibiting both increasing and decreasing sensitivity throughout an analytical sequence) is observed in the analysis of sequential calibration verification standards, "not-detected" results may be qualified as estimated ("UJ") due to instrument sensitivity of a continuing calibration standard response that is greater than the initial calibration standard response (increase in instrument sensitivity).

3. The frequency of equipment/rinse blanks is determined during the sampling event. The results of an equipment/rinse blank should be applied to all collected in the same day by the same techniques, unless only one blank was collected for a several-day sampling event. In instances where more than one blank is associated with a given sample, qualification should be based upon a comparison with the associated blank having the highest concentration of a contaminant. Professional judgement should be used to evaluate whether an aqueous blank should be used to directly qualify a solid sample.

   Method blank contamination should be applied to samples in the preparation batch.

   Instrument blank contamination should be applied to samples bracketing the contaminated instrument blank.

   Blanks should also be evaluated using professional judgment for non-target interference.

Validation Notes

4. Duplicate samples may be collected and analyzed as an indication of overall precision. Field duplicate analyses measure both field and laboratory precision; therefore, the results may have more variability than laboratory duplicates that measure only laboratory performance. Laboratory duplicate results and field duplicate results apply only to the original sample and the laboratory/field duplicate. Solid duplicate results are expected to have greater variance than aqueous duplicate results.

5. If a sample result exceeds the instrument calibration range (lower dilution analysis) or is less than the LOQ (secondary dilution), do not utilize this result when comparing an original analysis and a diluted reanalysis.

   Poor chromatographic performance may affect qualitative identification and/or quantitation. Indications of substandard performance include:

   - High background levels
   - Extraneous peaks
   - Loss of resolution

- Peak tailing or peak splitting that may result in inaccurate quantitation
- The laboratory analyzes a Cal3 level standard that contains linear and branch chained isomers of PFOA, PFOS, and PFHxS for analyses. The analysis of this standard is used to demonstrate where the branch chained isomers elute and is not included in the calibration curve. This will assist the chemist in the integration of branched isomers of these compounds in samples.

SECTION 5

DATA SUPPORT DOCUMENTATION

A. SDG SBN18

ENVIRONMENTAL STANDARDS

INORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: Saint Gobain Bennington
Sample Collection Dates: 4/25/18
Job Number: 20167391.NBEN
Project Manager: Meg Michell
Laboratory: ELLE

Reviewed by: JA 5/31/18
Approved by: MAM
Completion Date: 6/18

Applicable Sample No's (X)

Refer to Table 1 in the Quality Assurance Review

Deliverable:
CLP (Full) ( )
Level IV (Full) ( )
Limited (X)
Other:

Sample No.	Lab Control No.
SBN18	

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	Metals					Metals					Metals				
Holding Times	X										X				
Blank Analysis Results	X										X				
Matrix Spike (Predigestion) Results	X										X				
Duplicate Analysis: ( ) Field (X) Lab	X										X				
Quantitation of Results															
Detection Limit/Sensitivity															
Initial Calibrations															
Continuing Calibrations															
Laboratory Control Standard (LCS)	X										X				
ICP Linear Range Analysis															
ICP Interference Checks															
ICP Serial Dilutions															
ICP Post-Digestion Spike															
GFAA Post Digestion Spikes															
GFAA Duplicate Injections															
ICP Multiple Exposures															
GFAA Standard Additions															
CRDL Standards															
Condition on Receipt	X										X				
Percent Solids															
Others:															

Comments:

BLANK ANALYSIS RESULTS FOR INORGANIC PARAMETERS

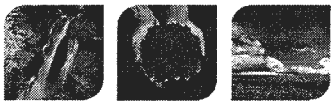
Analysis Type	Matrix (Aq, S)	Blank Type (2)	Blank Sample Number / Batch Number	Contaminant	Concentration (mg/l)	Qualif Limit
			SDG: SBN18			5X
			All L2 blanks	None		

2: MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes: _____

_____

_____



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-WASTECHAR-CH-FRAC Grab Wastewater ✓	04/25/2018 14:40 ✓	9581516

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1937093

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1937093 Sample # 9581516

COC # 547833

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: SGM - Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: J. Dippert	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#:

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil ☐ Sediment ☐ Tissue ☐ / Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: Waste Water	Total # of Containers	Analysis Requested: Preservation Codes: RCRA8 metals
~~Sect~~ SG3 - WasteWater - CH - FRAC	4/25/18	1440	X		X	1	X

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Page 1 of 1

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: k.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	4/26/18	1500			
				4/27/18	0900

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx ✓ Other _____

Temperature upon receipt 0.6 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 214896

Group Number(s): 1937093

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/27/2018 10:00 ✓
Number of Packages:	2	Number of Projects:	2
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes ✓
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact: ✓	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wyatt Shiffler (12792) at 14:24 on 04/27/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	1.8	DT	Wet	Y	Bagged	N
2	32170023	0.6 ✓	IR	Wet	Y	Bagged	N

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Analysis Report

Sample Description: SG3-WASTECHAR-CH-FRAC Grab Wastewater
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/27/2018 10:00
Collection Date/Time: 04/25/2018 14:40
SDG#: SBN18-01

C. T. Male Associates
ELLE Sample #: WW 9581516
ELLE Group #: 1937093
Matrix: Wastewater

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals		**SW-846 6010C**	mg/l	mg/l	mg/l	
07035	Arsenic	7440-38-2	0.0096 U	0.0096	0.0400	1
07046	**Barium**	7440-39-3	**0.0351**	0.00085	0.0100	1
07049	Cadmium	7440-43-9	0.0018 U	0.0018	0.0100	1
07051	Chromium	7440-47-3	0.0033 U	0.0033	0.0300	1
07055	Lead	7439-92-1	0.0060 U	0.0060	0.0300	1
07036	Selenium	7782-49-2	0.0093 U	0.0093	0.0400	1
07066	Silver	7440-22-4	0.0024 U	0.0024	0.0100	1
		SW-846 7470A	mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07035	Arsenic	SW-846 6010C	1	181241063601	05/05/2018 16:16	Elaine F Stoltzfus	1
07046	Barium	SW-846 6010C	1	181241063601	05/05/2018 16:16	Elaine F Stoltzfus	1
07049	Cadmium	SW-846 6010C	1	181241063601	05/05/2018 16:16	Elaine F Stoltzfus	1
07051	Chromium	SW-846 6010C	1	181241063601	05/05/2018 16:16	Elaine F Stoltzfus	1
07055	Lead	SW-846 6010C	1	181241063601	05/05/2018 16:16	Elaine F Stoltzfus	1
07036	Selenium	SW-846 6010C	1	181241063601	05/05/2018 16:16	Elaine F Stoltzfus	1
07066	Silver	SW-846 6010C	1	181241063601	05/05/2018 16:16	Elaine F Stoltzfus	1
00259	Mercury	SW-846 7470A	1	181210571305	05/04/2018 08:33	Damary Valentin	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181241063601	05/04/2018 16:50	Barbara A Kane	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	181210571305	05/03/2018 18:40 ✓	Barbara A Kane	1

✓

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/07/2018 10:05

Group Number: 1937093

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result mg/l	MDL** mg/l	LOQ mg/l
Batch number: 181210571305	Sample number(s): 9581516		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 181241063601	Sample number(s): 9581516		
Arsenic	0.0096 U	0.0096	0.0400
Barium	0.00085 U	0.00085	0.0100
Cadmium	0.0018 U	0.0018	0.0100
Chromium	0.0033 U	0.0033	0.0300
Lead	0.0060 U	0.0060	0.0300
Selenium	0.0093 U	0.0093	0.0400
Silver	0.0024 U	0.0024	0.0100

LCS/LCSD

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 181210571305	Sample number(s): 9581516								
Mercury	0.00100	0.000911			91		80-114		
Batch number: 181241063601	Sample number(s): 9581516								
Arsenic	0.150	0.147			98		80-120		
Barium	2.00	2.06			103		87-111		
Cadmium	0.0500	0.0514			103		90-111		
Chromium	0.200	0.195			98		87-110		
Lead	0.150	0.145			97		87-113		
Selenium	0.150	0.145			97		80-120		
Silver	0.0500	0.0469			94		80-120		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/07/2018 10:05

Group Number: 1937093

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 181210571305	Sample number(s): 9581516 UNSPK: 9581516									
Mercury	0.000050 U	0.00100	0.000869	0.00100	0.000875	87 ✓	87 ✓	80-120	1 ✓	20
Batch number: 181241063601	Sample number(s): 9581516 UNSPK: 9581516									
Arsenic	0.0096 U	0.150	0.151	0.150	0.153	101	102	75-125	1	20
Barium	0.0351	2.00	2.12	2.00	2.12	104	104	75-125	0	20
Cadmium	0.0018 U	0.0500	0.0519	0.0500	0.0533	104	107	75-125	3	20
Chromium	0.0033 U	0.200	0.202	0.200	0.202	101	101	75-125	0	20
Lead	0.0060 U	0.150	0.147	0.150	0.157	98	105	75-125	7	20
Selenium	0.0093 U	0.150	0.150	0.150	0.154	100	103	75-125	3	20
Silver	0.0024 U	0.0500	0.0494	0.0500	0.0502	99	100	75-125	2	20
						✓	✓		✓	

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max	
Batch number: 181210571305	Sample number(s): 9581516 BKG: 9581516				
Mercury	0.000050 U	0.000050 U	0 (1)	20	
			✓		
Batch number: 181241063601	Sample number(s): 9581516 BKG: 9581516				
Arsenic	0.0096 U	0.0096 U	0 (1)	20	LOQ / 0.01
Barium	0.0351	0.0336	5 (1) ✓	20	
Cadmium	0.0018 U	0.0018 U	0 (1)	20	
Chromium	0.0033 U	0.0033 U	0 (1)	20	
Lead	0.0060 U	0.0060 U	0 (1)	20	
Selenium	0.0093 U	0.0093 U	0 (1)	20	
Silver	0.0024 U	0.0024 U	0 (1)	20	
			✓		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

B. SDG SBN19

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	Saint Gobain Vermont	Reviewed by:	JA 5/31/18
Sample Collection Dates:	5/2/18 – 5/3/18	Approved by:	
Job Number:	20167391.NBEN	Completion Date:	6/1/18
Project Manager:	Meg Michell		
Laboratory:	ELLE	Applicable Sample No's (X)	Refer to Table 1 in the Quality Assurance Review

			Sample No.	Lab Control No.
Deliverable:	CLP (Full)	( )	SBN19	
	Level IV (Full)	( )		
	Limited	(X)		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail Check (√) if Yes or Footnote Letter for Comments Below					Problems Identified Check (√) if Yes or Footnote Letter for Comments Below					Support Documentation Attachments Check (√) if Yes or Footnote Letter for Comments Below				
	PFAS					PFAS					PFAS				
Holding Times	X										X				
Blank Analysis: Target Cmpds	X										X				
Sys Montr Cmps/Surrogates															
Matrix Spike/Matrix Spike Duplicate															
Blank Spike	X										X				
Duplicate Analysis ( ) Field ( ) Lab															
Detection Limit/Sensitivity															
Qualitative Identification: Target Cmpds															
Qualitative Identification: TICs															
DFTPP & BFB Mass Tuning															
GC Instrument Performance															
Initial Calibrations															
Continuing Calibrations															
Quantitation of Results															
DDT/Endrin Breakdown															
Surrogate Retention Time Shifts															
Internal Standards Performance	X					X					X				
Resolution Check Standards															
Analytical Sequence															
Florisil Cartridge & GPC Calibration															
GC Column Agreement															
Condition Upon Receipt	X										X				
Percent Solids															
Others:															

Comments: _____

ENVIRONMENTAL STANDARDS

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

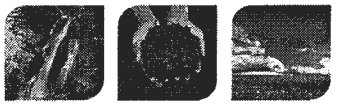
Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample / batch ID	Contaminant	Concentration ng/g, ng/L	Qualification limit	
						5×	10×
			All L2 blanks	None			

1 - V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: PFAS

2 - MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; RB = Rinse Blank

Notes: SBN19

** Columns G and H contains formulas



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB01-180502 Blank Water	05/02/2018	9593391
SG3-FTB01-180502 Grab Blank Water	05/02/2018 15:05	9593392
SG3-IDW-TRTD-01-180502 Grab Groundwater	05/02/2018 15:25	9593393
SG3-IDW-TRTD-02-180503 Grab Groundwater	05/03/2018 08:55	9593394
SG3-IDW-TRTD-03-180503 Grab Groundwater	05/03/2018 12:00	9593395

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1939832

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous

Sample #s: 9593392

The recovery for sample labeled compound(s) used as extraction standards in the Method Blanka and Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

The recovery for sample labeled compound(s) used as extraction standards in this sample is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9593393

The recovery for sample labeled compound(s) used as extraction standards in the Method Blanka and Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9593391, 9593395

The recovery for sample labeled compound(s) used as extraction standards in the Method Blanka and Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

Z=The response for a target analyte(s) in the opening continuing calibration verification standard is outside the QC acceptance limits. Since the response is high indicating increased sensitivity, and the target analyte(s) is not detected in the

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sample, the data is reported.

Sample #s: 9593394

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries of the extraction standard E13C2-8:2-FTS and Ed5-NEtFOSAA were outside QC acceptance criteria in the closing CCV associated with this sample. Since the recoveries of these extraction standards are within acceptance criteria in the sample, the data is reported.

Batch #: 18125001 (Sample number(s): 9593391-9593393, 9593395)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) Blank, LCS, LCSD

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9593392, 9593393, Blank, LCS, LCSD

Batch #: 18130010 (Sample number(s): 9593394)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) Blank, LCSD

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1939832 Sample #: 9593391-95 COC#: 18952

Client: C.T. Male Associates, Bennington			
Project Name/#: SGPP - ~~Liberty Street~~ (DA)	Site ID:		
Project Manager: Kirk Moline	P.O. #: ~~16.6132~~ (DA) 16.6131		
Sampler: DA			
Phone #: 518-786-7400	Quote #: 214135		
State where sample(s) were collected: ~~NY~~ VT (DA)			

Matrix: Soil ☐ Sediment ☐ Water ☒ Ground ☐ Surface ☐ Potable ☐ NPDES ☐ Other: IDW

Analyses Requested — Preservation Codes

Sample Identification	Collection Date	Collection Time	Grab	Composite	Total # of Containers	H	N					P	B				
						TCL VOAs (8260C) + TICs	TAL Metals	TCL Pesticides (8081B)	PCBs (8082A)	TCL SVs (8270D) + TICs	Cl-, SO4- (300.0)	TOC (5310 C)	CN (9012A)	Alk, Bicarb, Carb. (2320 B)	PFAS (EPA 537 mod.) 18		
SG3-LTB01-180502	5/2/2018	—	X		2										X		
SG3-FTB01-180502	5/2/2018	1505	X		2										X		
SG3-IDW-TRTD-01-180502	5/2/2018	1525	X		2										X		10,000 Gallon
SG3 IDW-TRTD-02-180503	5/3/2018	0855	X		2										X		20,000 Gallon
SG3-IDW-TRTD-03-180503	5/3/2018	1200	X		2										X		27,650 Gallon

For Lab Use Only
SF#: 305108
SCR#: 223123

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Remarks

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moline@tmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☒ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☐ (DA)

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
	5/3/2018	1320		5/3/18	1320
	5/3/18	~~1600~~ 1900 (DA)			
				5/4/18	0955

Airbill No.:
Relinquished by Commercial Carrier:
UPS _____ FedEx X Other _____

Temperature upon receipt 1.0 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 215555

Group Number(s): 1939832

Client: C.T. Male Associates, Inc.

SGPP - Bennington

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	05/04/2018 9:55
Number of Packages:	5	Number of Projects:	3
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 2 Unpreserved

Unpacked by Nicole Reiff (25684) at 14:03 on 05/04/2018

Samples Chilled Details: SGPP - Bennington

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
4	DT146	1.2	DT	Wet	Y	Bagged	N

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Sample Description: SG3-LTB01-180502 Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/04/2018 09:55
Collection Date/Time: 05/02/2018
SDG#: SBN19-01TB

C. T. Male Associates
ELLE Sample #: WW 9593391
ELLE Group #: 1939832
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	0.89 U	0.89	1.8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.4	1
14473	NEtFOSAA	2991-50-6	0.89 U	0.89	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.89 U	0.89	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.27 U	0.27	0.89	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.4	1
14473	Perfluorodecanoic acid	335-76-2	0.89 U	0.89	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.89	1
14473	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.89	1
14473	Perfluorohexanesulfonate	355-46-4	0.36 U	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	0.36 U	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.36 UZ	0.36	1.8	1
14473	Perfluorooctanesulfonamide	754-91-6	0.89 U	0.89	2.7	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	0.27 U	0.27	0.89	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.4	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.89	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.89	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

The recovery for sample labeled compound(s) used as extraction standards in the Method Blanka and Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality. ✓

Z=The response for a target analyte(s) in the opening continuing calibration verification standard is outside the QC acceptance limits. Since the response is high indicating increased sensitivity, and the target analyte(s) is not detected in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18125001	05/08/2018 09:23	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB01-180502 Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/04/2018 09:55
Collection Date/Time: 05/02/2018
SDG#: SBN19-01TB

C. T. Male Associates
ELLE Sample #: WW 9593391
ELLE Group #: 1939832
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18125001	05/06/2018 08:15	✓	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FTB01-180502 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/04/2018 09:55
Collection Date/Time: 05/02/2018 15:05
SDG#: SBN19-02TB

C. T. Male Associates
ELLE Sample #: WW 9593392
ELLE Group #: 1939832
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	0.89 U	0.89	1.8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.3	1
14473	NEtFOSAA	2991-50-6	0.89 U	0.89	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.89 U	0.89	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.27 U	0.27	0.89	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.3	1
14473	Perfluorodecanoic acid	335-76-2	0.89 U	0.89	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.89	1
14473	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.89	1
14473	Perfluorohexanesulfonate	355-46-4	0.36 U	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	0.36 U	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14473	Perfluorooctanesulfonamide	754-91-6	0.89 U	0.89	2.7	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	0.27 U	0.27	0.89	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.3	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.89	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.89	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

The recovery for sample labeled compound(s) used as extraction standards in the Method Blanka and Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

The recovery for sample labeled compound(s) used as extraction standards in this sample is outside the QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18125001	05/06/2018 22:53	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FTB01-180502 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/04/2018 09:55
Collection Date/Time: 05/02/2018 15:05
SDG#: SBN19-02TB

C. T. Male Associates
ELLE Sample #: WW 9593392
ELLE Group #: 1939832
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18125001	05/06/2018 08:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3-IDW-TRTD-01-180502 Grab Groundwater
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/04/2018 09:55
Collection Date/Time: 05/02/2018 15:25
SDG#: SBN19-03

C. T. Male Associates
ELLE Sample #: GW 9593393
ELLE Group #: 1939832
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	0.90 U	0.90	1.8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.4	1
14473	NEtFOSAA	2991-50-6	0.90 U	0.90	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.90 U	0.90	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.27 U	0.27	0.90	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.4	1
14473	Perfluorodecanoic acid	335-76-2	0.90 U	0.90	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.90	1
14473	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.90	1
14473	Perfluorohexanesulfonate	355-46-4	0.36 U	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	0.36 U	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14473	Perfluorooctanesulfonamide	754-91-6	0.90 U	0.90	2.7	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	0.27 U	0.27	0.90	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.4	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.90	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.90	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

The recovery for sample labeled compound(s) used as extraction standards in the Method Blanka and Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18125001	05/06/2018 23:08	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18125001	05/06/2018 08:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-IDW-TRTD-02-180503 Grab Groundwater
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/04/2018 09:55
Collection Date/Time: 05/03/2018 08:55
SDG#: SBN19-04

C. T. Male Associates
ELLE Sample #: GW 9593394
ELLE Group #: 1939832
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	0.94 U	0.94	1.9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1.9 U	1.9	5.6	1
14473	NEtFOSAA	2991-50-6	0.94 U	0.94	2.8	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.94 U	0.94	2.8	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.28 U	0.28	0.94	1
14473	Perfluorobutanoic acid	375-22-4	1.9 U	1.9	5.6	1
14473	Perfluorodecanoic acid	335-76-2	0.94 U	0.94	1.9	1
14473	Perfluorododecanoic acid	307-55-1	0.28 U	0.28	0.94	1
14473	Perfluoroheptanoic acid	375-85-9	0.28 U	0.28	0.94	1
14473	Perfluorohexanesulfonate	355-46-4	0.37 U	0.37	1.9	1
14473	Perfluorohexanoic acid	307-24-4	0.37 U	0.37	1.9	1
14473	Perfluorononanoic acid	375-95-1	0.37 U	0.37	1.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.94 U	0.94	2.8	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.37 U	0.37	1.9	1
14473	Perfluorooctanoic acid	335-67-1	0.28 U	0.28	0.94	1
14473	Perfluoropentanoic acid	2706-90-3	1.9 U	1.9	5.6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.28 U	0.28	0.94	1
14473	Perfluorotridecanoic acid	72629-94-8	0.28 U	0.28	0.94	1
14473	Perfluoroundecanoic acid	2058-94-8	0.37 U	0.37	1.9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries of the extraction standard E13C2-8:2-FTS and Ed5-NEtFOSAA were outside QC acceptance criteria in the closing CCV associated with this sample. Since the recoveries of these extraction standards are within acceptance criteria in the sample, the data is reported.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18130010	05/11/2018 09:13	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	18130010	05/10/2018 15:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-IDW-TRTD-03-180503 Grab Groundwater
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/04/2018 09:55
Collection Date/Time: 05/03/2018 12:00
SDG#: SBN19-05

C. T. Male Associates
ELLE Sample #: GW 9593395
ELLE Group #: 1939832
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	0.88 U	0.88	1.8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.3	1
14473	NEtFOSAA	2991-50-6	0.88 U	0.88	2.6	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.88 U	0.88	2.6	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.26 U	0.26	0.88	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.3	1
14473	Perfluorodecanoic acid	335-76-2	0.88 U	0.88	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.26 U	0.26	0.88	1
14473	Perfluoroheptanoic acid	375-85-9	0.26 U	0.26	0.88	1
14473	Perfluorohexanesulfonate	355-46-4	0.35 U	0.35	1.8	1
14473	Perfluorohexanoic acid	307-24-4	0.35 U	0.35	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.35 UZ	0.35	1.8	1
14473	Perfluorooctanesulfonamide	754-91-6	0.88 U	0.88	2.6	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.35 U	0.35	1.8	1
14473	Perfluorooctanoic acid	335-67-1	0.26 U	0.26	0.88	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.3	1
14473	Perfluorotetradecanoic acid	376-06-7	0.26 U	0.26	0.88	1
14473	Perfluorotridecanoic acid	72629-94-8	0.26 U	0.26	0.88	1
14473	Perfluoroundecanoic acid	2058-94-8	0.35 U	0.35	1.8	1

The recovery for sample labeled compound(s) used as extraction standards in the Method Blanka and Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

Z=The response for a target analyte(s) in the opening continuing calibration verification standard is outside the QC acceptance limits. Since the response is high indicating increased sensitivity, and the target analyte(s) is not detected in the sample, the data is reported.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-IDW-TRTD-03-180503 Grab Groundwater
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/04/2018 09:55
Collection Date/Time: 05/03/2018 12:00
SDG#: SBN19-05

C. T. Male Associates
ELLE Sample #: GW 9593395
ELLE Group #: 1939832
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18125001	05/08/2018 09:37	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18125001	05/06/2018 08:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/14/2018 14:26

Group Number: 1939832

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 18125001	Sample number(s): 9593391-9593393,9593395		
6:2 fluorotelomersulfonate	1.0 U	1.0	2.0
8:2 fluorotelomersulfonate	2.0 U	2.0	6.0
NEtFOSAA	1.0 U	1.0	3.0
NMeFOSAA	1.0 U	1.0	3.0
Perfluorobutanesulfonate	0.30 U	0.30	1.0
Perfluorobutanoic acid	2.0 U	2.0	6.0
Perfluorodecanoic acid	1.0 U	1.0	2.0
Perfluorododecanoic acid	0.30 U	0.30	1.0
Perfluoroheptanoic acid	0.30 U	0.30	1.0
Perfluorohexanesulfonate	0.40 U	0.40	2.0
Perfluorohexanoic acid	0.40 U	0.40	2.0
Perfluorononanoic acid	0.40 U	0.40	2.0
Perfluorooctanesulfonamide	1.0 U	1.0	3.0
Perfluoro-octanesulfonate	0.40 U	0.40	2.0
Perfluorooctanoic acid	0.30 U	0.30	1.0
Perfluoropentanoic acid	2.0 U	2.0	6.0
Perfluorotetradecanoic acid	0.30 U	0.30	1.0
Perfluorotridecanoic acid	0.30 U	0.30	1.0
Perfluoroundecanoic acid	0.40 U	0.40	2.0
Batch number: 18130010	Sample number(s): 9593394		
6:2 fluorotelomersulfonate	1.0 U	1.0	2.0
8:2 fluorotelomersulfonate	2.0 U	2.0	6.0
NEtFOSAA	1.0 U	1.0	3.0
NMeFOSAA	1.0 U	1.0	3.0
Perfluorobutanesulfonate	0.30 U	0.30	1.0
Perfluorobutanoic acid	2.0 U	2.0	6.0
Perfluorodecanoic acid	1.0 U	1.0	2.0
Perfluorododecanoic acid	0.30 U	0.30	1.0
Perfluoroheptanoic acid	0.30 U	0.30	1.0
Perfluorohexanesulfonate	0.40 U	0.40	2.0
Perfluorohexanoic acid	0.40 U	0.40	2.0
Perfluorononanoic acid	0.40 U	0.40	2.0
Perfluorooctanesulfonamide	1.0 U	1.0	3.0
Perfluoro-octanesulfonate	0.40 U	0.40	2.0
Perfluorooctanoic acid	0.30 U	0.30	1.0
Perfluoropentanoic acid	2.0 U	2.0	6.0
Perfluorotetradecanoic acid	0.30 U	0.30	1.0
Perfluorotridecanoic acid	0.30 U	0.30	1.0

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/14/2018 14:26

Group Number: 1939832

Method Blank (continued)

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Perfluoroundecanoic acid	0.40 U	0.40	2.0

LCS/LCSD

CAAP 70-130%

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18125001	Sample number(s): 9593391-9593393,9593395								
6:2 fluorotelomersulfonate	15.17	14.93	15.17	13.7	98	90	66-155	9	30
8:2 fluorotelomersulfonate	15.33	17.79	15.33	18.17	116	119	66-148	2	30
NEtFOSAA	5.44	5.27	5.44	5.37	97	99	55-169	2	30
NMeFOSAA	5.44	5.27	5.44	5.32	97	98	62-167	1	30
Perfluorobutanesulfonate	4.81	5.09	4.81	5.24	106	109	73-128	3	30
Perfluorobutanoic acid	5.44	6.09	5.44	6.44	112	118	74-142	6	30
Perfluorodecanoic acid	5.44	6.49	5.44	6.72	119	124	69-148	3	30
Perfluorododecanoic acid	5.44	6.54	5.44	6.38	120	117	75-136	2	30
Perfluoroheptanoic acid	5.44	6.05	5.44	6.47	111	119	76-140	7	30
Perfluorohexanesulfonate	5.14	5.15	5.14	5.40	100	105	71-131	5	30
Perfluorohexanoic acid	5.44	6.41	5.44	6.45	118	119	75-135	1	30
Perfluorononanoic acid	5.44	5.91	5.44	6.35	109	117	72-148	7	30
Perfluorooctanesulfonamide	5.44	4.99	5.44	5.65	92	104	65-164	12	30
Perfluoro-octanesulfonate	5.20	5.58	5.20	5.72	107	110	67-138	3	30
Perfluorooctanoic acid	5.44	5.92	5.44	6.24	109	115	72-138	5	30
Perfluoropentanoic acid	5.44	6.03	5.44	6.37	111	117	74-134	5	30
Perfluorotetradecanoic acid	5.44	6.09	5.44	6.16	112	113	74-135	1	30
Perfluorotridecanoic acid	5.44	6.88	5.44	6.69	126	123	61-145	3	30
Perfluoroundecanoic acid	5.44	5.90	5.44	5.99	108	110	75-146	2	30
Batch number: 18130010	Sample number(s): 9593394								
6:2 fluorotelomersulfonate	15.17	15.51	15.17	16.73	102	110	66-155	8	30
8:2 fluorotelomersulfonate	15.33	18.39	15.33	18.19	120	119	66-148	1	30
NEtFOSAA	5.44	5.97	5.44	5.40	110	99	55-169	10	30
NMeFOSAA	5.44	5.35	5.44	5.36	98	99	62-167	0	30
Perfluorobutanesulfonate	4.81	5.33	4.81	5.55	111	115	73-128	4	30
Perfluorobutanoic acid	5.44	6.78	5.44	6.81	125	125	74-142	0	30
Perfluorodecanoic acid	5.44	6.76	5.44	6.75	124	124	69-148	0	30
Perfluorododecanoic acid	5.44	6.41	5.44	7.21	118	133	75-136	12	30
Perfluoroheptanoic acid	5.44	6.78	5.44	7.19	125	132	76-140	6	30
Perfluorohexanesulfonate	5.14	6.02	5.14	5.48	117	106	71-131	9	30
Perfluorohexanoic acid	5.44	6.53	5.44	6.67	120	123	75-135	2	30
Perfluorononanoic acid	5.44	6.83	5.44	6.48	126	119	72-148	5	30
Perfluorooctanesulfonamide	5.44	6.10	5.44	6.36	112	117	65-164	4	30

NO (4)

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

All Samples ND

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/14/2018 14:26

Group Number: 1939832

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	5.20	5.94	5.20	5.98	114	115	67-138	1	30
Perfluorooctanoic acid	5.44	6.75	5.44	7.19	124	132	72-138	6	30
Perfluoropentanoic acid	5.44	6.52	5.44	6.56	120	121	74-134	1	30
Perfluorotetradecanoic acid	5.44	6.40	5.44	6.46	118	119	74-135	1	30
Perfluorotridecanoic acid	5.44	6.43	5.44	6.70	118	123	61-145	4	30
Perfluoroundecanoic acid	5.44	6.28	5.44	6.49	115	119	75-146	3	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 19 PFAS Compounds
Batch number: 18125001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9593391	97	98	97	105	97	100
9593392	82	84	79	92	84	90
9593393	80	79	76	84	81	77
9593395	98	100	94	100	100	99
Blank	95	95	97	89	85	93
LCS	98	101	95	91	88	96
LCSD	100	102	101	99	96	103
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9593391	126	100	95	103	99	117
9593392	116	85	77	102	80	108
9593393	107	79	77	82	78	106
9593395	130	104	104	105	99	124
Blank	158*	93	95	105	87	131
LCS	172*	90	99	114	91	154*
LCSD	198*	104	103	121	90	139*
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9593391	86	92	107	93	85	70
9593392	68	62	71	50	13*	47*
9593393	70	73	76	73	64	63*
9593395	90	89	91	89	78	70
Blank	80	78	89	78	74	57*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/14/2018 14:26

Group Number: 1939832

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 19 PFAS Compounds
Batch number: 18125001

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	81	82	81	76	71	59*] QC
LCSD	85	85	90	83	75	68*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 18130010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9593394	76	73	67	80	76	76
Blank	76	74	69	79	78	81 ✓
LCS	82	83	78	76	77	79
LCSD	88	85	80	91	93	92
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9593394	80	75	75	76	80	82
Blank	79	72	80	79	84	81 ✓
LCS	74	76	85	90	82	82
LCSD	90	89	88	89	90	88
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9593394	83	80	97	84	81	74
Blank	80	77	95	80	77	66*] QC ✓
LCS	82	84	93	83	82	71
LCSD	89	89	94	86	85	67*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

C. SDG SBN20

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	Saint Gobain Vermont	Reviewed by:	JA 6/5/18
Sample Collection Dates:	5/18/18	Approved by:	
Job Number:	20167391.NBEN	Completion Date:	6/18
Project Manager:	Meg Michell		
Laboratory:	ELLE	Applicable Sample No's (X)	Refer to Table 1 in the Quality Assurance Review

			Sample No.	Lab Control No.
Deliverable:	CLP (Full)	( )	SBN20	
	Level IV (Full)	( )		
	Limited	(X)		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	PFAS	VOC	SVOC			PFAS	VOC	SVOC			PFAS	VOC	SVOC		
Holding Times	X	X	X								X	X	X		
Blank Analysis: Target Cmpds	X	X	X								X	X	X		
Sys Montr Cmps/Surrogates		X	X					X				X	X		
Matrix Spike/Matrix Spike Duplicate	X		X					X			X		X		
Blank Spike	X	X	X								X	X	X		
Duplicate Analysis ( ) Field ( ) Lab															
Detection Limit/Sensitivity															
Qualitative Identification: Target Cmpds															
Qualitative Identification: TICs															
DFTPP & BFB Mass Tuning															
GC Instrument Performance															
Initial Calibrations															
Continuing Calibrations															
Quantitation of Results															
DDT/Endrin Breakdown															
Surrogate Retention Time Shifts															
Internal Standards Performance	X					X					X				
Resolution Check Standards															
Analytical Sequence															
Florisil Cartridge & GPC Calibration															
GC Column Agreement															
Condition Upon Receipt	X	X	X								X	X	X		
Percent Solids															
Others:															

Comments: _____

ENVIRONMENTAL STANDARDS

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample / batch ID	Contaminant	Concentration	Qualification limit	
						5×	10×
			All L2 blanks	None			

1 - V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: PFAS

2 - MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; RB = Rinse Blank

Notes:

** Columns G and H contains formulas

ENVIRONMENTAL STANDARDS

INORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: Saint Gobain Vermont
Sample Collection Dates: 5/18/18
Job Number: 20167391.NBEN
Project Manager: Meg Michell
Laboratory: ELLE

Reviewed by: JA 6/5/18
Approved by: MAM
Completion Date: 6/18

Applicable Sample No's (X)

Refer to Table 1 in the Quality Assurance Review

Deliverable:		Sample No.	Lab Control No.
	CLP (Full) ( )	SBN20	
	Level IV (Full) ( )		
	Limited (X)		
	Other:		

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	Metals	TOC	pH	Mois		Metals	TOC	pH	Mois		Metals	TOC	pH	Mois	
Holding Times	X	X	X	X							X	X	X	X	
Blank Analysis Results	X	X		X							X	X		X	
Matrix Spike (Predigestion) Results	X					X					X				
Duplicate Analysis: ( ) Field (X) Lab	X					X					X				
Quantitation of Results	X										X				
Detection Limit/Sensitivity															
Initial Calibrations															
Continuing Calibrations															
Laboratory Control Standard (LCS)	X	X	X	X							X	X	X	X	
ICP Linear Range Analysis															
ICP Interference Checks															
ICP Serial Dilutions															
ICP Post-Digestion Spike															
GFAA Post Digestion Spikes															
GFAA Duplicate Injections															
ICP Multiple Exposures															
GFAA Standard Additions															
CRDL Standards															
Condition on Receipt	X	X	X	X							X	X	X	X	
Percent Solids															
Others:															

Comments:

BLANK ANALYSIS RESULTS FOR INORGANIC PARAMETERS

Analysis Type	Matrix (Aq, S)	Blank Type (2)	Blank Sample Number / Batch Number SDG: SBN20	Contaminant	Concentration (mg/kg)	Qualif Limit 5X
M	S	MB	181411063701	Al	10.5	52.5
				Ca	13.2	66.0
				Mn	0.087	0.435

2: MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes: _____

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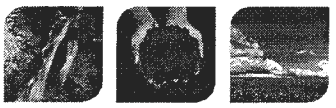
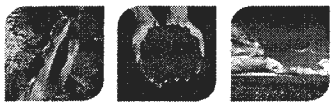


REVISED

SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3a-FTB01-180518 Grab Water	05/18/2018 09:25	9618549
SG3a-LTB01-180518 Water	05/18/2018	9618550
SG3a-SLUDGE18-01 Grab Sediment	05/18/2018 09:15	9618551
SG3a-SW18-01-180518 Grab Surface Water	05/18/2018 08:45	9618552

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3a-FTB01-051818 Grab Water	05/18/2018 09:25	9618549
SG3a-LTB01-051818 Water	05/18/2018	9618550
SG3a-SLUDGE18-01 Grab Sediment	05/18/2018 09:15	9618551
SG3a-SW18-01-051818 Grab Surface Water	05/18/2018 08:45	9618552

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1945483

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8270D, GC/MS Semivolatiles

Sample #s: 9618551

The GC/MS semivolatile surrogate recoveries were outside of QC limits. The matrix spike and matrix spike duplicate samples were analyzed and surrogate recoveries were within QC limits but were again low, indicating a matrix effect.

Batch #: 18144SLE026 (Sample number(s): 9618551 UNSPK: 9618551)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: bis(2-Chloroethyl)ether, 2-Nitroaniline

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Pyrene, 2-Nitrophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol, Hexachloroethane, Hexachlorocyclopentadiene, Phenanthrene, Anthracene, Fluoranthene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, 2,3,4,6-Tetrachlorophenol, 3-Nitroaniline

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Pyrene, bis(2-Chloroethyl)ether, Fluoranthene

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9618551

EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous

Sample #s: 9618549, 9618550, 9618552

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18141019 (Sample number(s): 9618549-9618550, 9618552)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9618549, 9618550, 9618552, Blank, LCS, LCSD

Batch #: 18142016 (Sample number(s): 9618551 UNSPK: 9618551)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

SW-846 6010C, Metals

Batch #: 181411063701 (Sample number(s): 9618551 UNSPK: 9618551 BKG: 9618551)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Iron, Zinc

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Aluminum, Calcium, Magnesium, Manganese, Iron, Zinc

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Calcium, Iron, Magnesium, Manganese, Zinc

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum, Calcium, Iron, Magnesium, Sodium, Manganese, Zinc

SW-846 6020A, Metals

Batch #: 181411063701A (Sample number(s): 9618551 UNSPK: 9618551 BKG: 9618551)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Lead, Nickel, Silver, Vanadium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Copper

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Lead

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Arsenic, Beryllium, Cadmium, Copper, Nickel, Silver, Thallium

Batch #: 181411063701B (Sample number(s): 9618551 UNSPK: 9618551 BKG: 9618551)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Selenium

Batch #: 181411063701D (Sample number(s): 9618551 UNSPK: 9618551 BKG: 9618551)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SW-846 7471B, Metals

Batch #: 181421063801 (Sample number(s): 9618551 UNSPK: 9618551 BKG: 9618551)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Mercury

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Mercury

SM 5310 B modified-2011, Wet Chemistry

Batch #: 18149667631B (Sample number(s): 9618551 UNSPK: P620989 BKG: P620989)

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The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9618551

The pH was measured in water at 19.7 C.

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1945483 Sample #: 9618549-52 COC#: 18741

Client: C.T. Male Associates
Project Name/#: SGPP - Bennington Site ID:
Project Manager: Kirk Moline P.O. #: 16.6131
Sampler: JD, BK
Phone #: 518-786-7400 Quote #: 219169
State where sample(s) were collected: VT

Matrix: Sediment [X] Soil [ ] Water: Ground [ ] Surface [X] Potable [ ] NPDES [ ] Other: Rinse Water

Analyses Requested / Preservation Codes

For Lab Use Only: SF#: 271157 SCR#: 221048

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other: Rinse Water	Total # of Containers	TCL VOAs (8260C)	TAL Metals + Hg	TCL SVs (8270D)	TOC (5310 B)	pH (9045D)	18 PFAS (EPA 537 mod.)	Moisture (2540 G)	14 PFAS (EPA 537 mod)	Remarks
SG3A - FTB01 - 180518	5/18/18	0925	X				X	2						X			
SG3A - LTB01 - 180518	5/18/18	—					X	2						X			
SG3A - SLUDGE18-01	5/18/18	0915	X		X			7	X	X	X	X	X		X	X	SEDIMENT
SG3A - SW18-01-180518	5/18/18	0845	X			X		2						X			

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results: K.moline@ctmale.com

Data Package Options (please check if required)
Type I (Validation/non-CLP) [X] MA MCP [ ] TX TRRP - 13 [ ]
Type III (Reduced non-CLP) [ ] CT RCP [ ]
Type IV (CLP SOW) [ ] ASP Type A [ ]
Type VI (Raw Data Only) [ ] ASP Type B [ ]
EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by	Date	Time	Received by	Date	Time
[signature]	5/18/18	1545			
			[signature]	5/19/18	1000

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ✓ Other ______

Temperature upon receipt 2.8-3.1 °C

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Issued by Dept. 40 Management

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Sample Administration Receipt Documentation Log

Doc Log ID: 216904

Group Number(s): 1945483

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	05/19/2018 10:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved

Unpacked by Simon Nies (25112) at 10:57 on 05/19/2018

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	2.8	DT	Wet	Y	Bagged	N
2	DT42-02	3.1	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ug/kg		ug/kg	ug/kg
Batch number: B181511AA	Sample number(s): 9618551			
Acetone	7	U	7	20
Benzene	0.5	U	0.5	5
Bromochloromethane	1	U	1	5
Bromodichloromethane	1	U	1	5
Bromoform	1	U	1	5
Bromomethane	2	U	2	5
2-Butanone	4	U	4	10
Carbon Disulfide	1	U	1	5
Carbon Tetrachloride	1	U	1	5
Chlorobenzene	1	U	1	5
Chloroethane	2	U	2	5
Chloroform	1	U	1	5
Chloromethane	2	U	2	5
Cyclohexane	1	U	1	5
1,2-Dibromo-3-chloropropane	2	U	2	5
Dibromochloromethane	1	U	1	5
1,2-Dibromoethane	1	U	1	5
1,2-Dichlorobenzene	1	U	1	5
1,3-Dichlorobenzene	1	U	1	5
1,4-Dichlorobenzene	1	U	1	5
Dichlorodifluoromethane	2	U	2	5
1,1-Dichloroethane	1	U	1	5
1,2-Dichloroethane	1	U	1	5
1,1-Dichloroethene	1	U	1	5
cis-1,2-Dichloroethene	1	U	1	5
trans-1,2-Dichloroethene	1	U	1	5
1,2-Dichloropropane	1	U	1	5
cis-1,3-Dichloropropene	1	U	1	5
trans-1,3-Dichloropropene	1	U	1	5
Ethylbenzene	1	U	1	5
Freon 113	2	U	2	10
2-Hexanone	3	U	3	10
Isopropylbenzene	1	U	1	5
Methyl Acetate	2	U	2	5
Methyl Tertiary Butyl Ether	0.5	U	0.5	5
4-Methyl-2-pentanone	3	U	3	10
Methylcyclohexane	1	U	1	5
Methylene Chloride	2	U	2	5
Styrene	1	U	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/kg	ug/kg	ug/kg
1,1,2,2-Tetrachloroethane	1 U	1	5
Tetrachloroethene	1 U	1	5
Toluene	1 U	1	5
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	1 U	1	5
1,1,2-Trichloroethane	1 U	1	5
Trichloroethene	1 U	1	5
Trichlorofluoromethane	2 U	2	5
Vinyl Chloride	1 U	1	5
m+p-Xylene	1 U	1	5
o-Xylene	1 U	1	5
Batch number: 18144SLE026	Sample number(s): 9618551		
Acenaphthene	3 U	3	17
Acenaphthylene	3 U	3	17
Acetophenone	23 U	23	50
Anthracene	3 U	3	17
Atrazine	33 U	33	170
Benzaldehyde	67 U	67	170
Benzo(a)anthracene	3 U	3	17
Benzo(a)pyrene	7 U	7	17
Benzo(b)fluoranthene	3 U	3	17
Benzo(g,h,i)perylene	7 U	7	17
Benzo(k)fluoranthene	3 U	3	17
1,1'-Biphenyl	17 U	17	37
4-Bromophenyl-phenylether	20 U	20	50
Butylbenzylphthalate	67 U	67	170
Di-n-butylphthalate	67 U	67	170
Caprolactam	33 U	33	170
Carbazole	17 U	17	37
4-Chloro-3-methylphenol	17 U	17	33
4-Chloroaniline	33 U	33	170
bis(2-Chloroethoxy)methane	17 U	17	37
bis(2-Chloroethyl)ether	23 U	23	50
2-Chloronaphthalene	7 U	7	33
2-Chlorophenol	17 U	17	37
4-Chlorophenyl-phenylether	17 U	17	37
2,2'-oxybis(1-Chloropropane)	17 U	17	37
Chrysene	3 U	3	17
Dibenz(a,h)anthracene	3 U	3	17
Dibenzofuran	17 U	17	37
3,3'-Dichlorobenzidine	100 U	100	330
2,4-Dichlorophenol	17 U	17	37
Diethylphthalate	67 U	67	170

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/kg	ug/kg	ug/kg
2,4-Dimethylphenol	17 U	17	37
Dimethylphthalate	67 U	67	170
4,6-Dinitro-2-methylphenol	170 U	170	500
2,4-Dinitrophenol	370 U	370	1,000
2,4-Dinitrotoluene	67 U	67	170
2,6-Dinitrotoluene	20 U	20	50
1,4-Dioxane	100 U	100	330
bis(2-Ethylhexyl)phthalate	67 U	67	170
Fluoranthene	3 U	3	17
Fluorene	3 U	3	17
Hexachlorobenzene	3 U	3	17
Hexachlorobutadiene	20 U	20	50
Hexachlorocyclopentadiene	170 U	170	500
Hexachloroethane	33 U	33	170
Indeno(1,2,3-cd)pyrene	7 U	7	17
Isophorone	17 U	17	37
2-Methylnaphthalene	10 U	10	33
2-Methylphenol	27 U	27	67
4-Methylphenol	20 U	20	50
Naphthalene	7 U	7	17
2-Nitroaniline	20 U	20	50
3-Nitroaniline	67 U	67	170
4-Nitroaniline	67 U	67	170
Nitrobenzene	27 U	27	67
2-Nitrophenol	17 U	17	37
4-Nitrophenol	170 U	170	500
N-Nitroso-di-n-propylamine	20 U	20	50
N-Nitrosodiphenylamine	17 U	17	37
Di-n-octylphthalate	67 U	67	170
Pentachlorophenol	37 U	37	170
Phenanthrene	3 U	3	17
Phenol	23 U	23	50
Pyrene	3 U	3	17
1,2,4,5-Tetrachlorobenzene	17 U	17	37
2,3,4,6-Tetrachlorophenol	67 U	67	170
2,4,5-Trichlorophenol	20 U	20	50
2,4,6-Trichlorophenol	20 U	20	50
	ng/g ✓	ng/g	ng/g
Batch number: 18142016	Sample number(s): 9618551		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U ✓	0.20	0.60

*- Outside of specification
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P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.20 U	0.20	0.60
Perfluorononanoic acid	0.20 U	0.20	0.60
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l ✓	ng/l	ng/l
Batch number: 18141019	Sample number(s): 9618549-9618550,9618552		
6:2 fluorotelomersulfonate	1.0 U	1.0	2.0
8:2 fluorotelomersulfonate	2.0 U	2.0	6.0
NEtFOSAA	1.0 U	1.0	3.0
NMeFOSAA	1.0 U	1.0	3.0
Perfluorobutanesulfonate	0.30 U	0.30	1.0
Perfluorobutanoic acid	2.0 U	2.0	6.0
Perfluorodecanoic acid	1.0 U	1.0	2.0
Perfluorododecanoic acid	0.30 U	0.30	1.0
Perfluoroheptanoic acid	0.30 U	0.30	1.0
Perfluorohexanesulfonate	0.40 U	0.40	2.0
Perfluorohexanoic acid	0.40 U	0.40	2.0
Perfluorononanoic acid	0.40 U	0.40	2.0
Perfluorooctanesulfonamide	1.0 U	1.0	3.0
Perfluoro-octanesulfonate	0.40 U	0.40	2.0
Perfluorooctanoic acid	0.30 U	0.30	1.0
Perfluoropentanoic acid	2.0 U	2.0	6.0
Perfluorotetradecanoic acid	0.30 U	0.30	1.0
Perfluorotridecanoic acid	0.30 U	0.30	1.0
Perfluoroundecanoic acid	0.40 U ✓	0.40	2.0
	mg/kg ✓	mg/kg	mg/kg
Batch number: 181411063701	Sample number(s): 9618551		
Aluminum	10.5 J *	8.94	40.0
Calcium	13.2 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.0870 J -	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.240 U ✓	0.240	4.00
Batch number: 181411063701A	Sample number(s): 9618551		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
	✓		

Sample results
7 5x blank
:- No qual

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
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P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

Method Blank (continued)

Analysis Name	Result mg/kg	MDL** mg/kg	LOQ mg/kg
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 181411063701B	Sample number(s): 9618551		
Selenium	0.100 U	0.100	0.800
Batch number: 181411063701D	Sample number(s): 9618551		
Barium	0.182 U	0.182	0.800
Batch number: 181421063801	Sample number(s): 9618551		
Mercury	0.0100 U	0.0100	0.100
Batch number: 18149667631B	Sample number(s): 9618551		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: B181511AA	Sample number(s): 9618551								
Acetone	150	106.39	150	120.43	71	80	55-131	12	30
Benzene	20	20.68	20	20.94	103	105	80-120	1	30
Bromochloromethane	20	19.35	20	19.65	97	98	80-120	2	30
Bromodichloromethane	20	22.16	20	22.36	111	112	70-120	1	30
Bromoform	20	19.03	20	18.84	95	94	51-127	1	30
Bromomethane	20	20.98	20	21.16	105	106	50-136	1	30
2-Butanone	150	118.83	150	134.92	79	90	57-128	13	30
Carbon Disulfide	20	21.49	20	21.94	107	110	64-133	2	30
Carbon Tetrachloride	20	22.88	20	22.86	114	114	64-134	0	30
Chlorobenzene	20	19.66	20	20.15	98	101	80-120	2	30
Chloroethane	20	21.01	20	21.01	105	105	50-131	0	30
Chloroform	20	22.21	20	22.56	111	113	80-120	2	30
Chloromethane	20	21.7	20	21.65	108	108	56-120	0	30
Cyclohexane	20	20.26	20	20.8	101	104	58-126	3	30
1,2-Dibromo-3-chloropropane	20	23.56	20	22.8	118	114	36-144	3	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Dibromochloromethane	20	20.13	20	20.14	101	101	65-120	0	30
1,2-Dibromoethane	20	20.47	20	20.81	102	104	74-120	2	30
1,2-Dichlorobenzene	20	19.18	20	19.32	96	97	80-120	1	30
1,3-Dichlorobenzene	20	19.1	20	19.43	95	97	80-120	2	30
1,4-Dichlorobenzene	20	19.04	20	19.28	95	96	80-120	1	30
Dichlorodifluoromethane	20	18.16	20	18.14	91	91	16-136	0	30
1,1-Dichloroethane	20	22.5	20	23.11	113	116	77-120	3	30
1,2-Dichloroethane	20	24.18	20	24.41	121	122	71-128	1	30
1,1-Dichloroethene	20	22.32	20	22.52	112	113	73-129	1	30
cis-1,2-Dichloroethene	20	21.14	20	21.56	106	108	80-120	2	30
trans-1,2-Dichloroethene	20	21.18	20	21.38	106	107	80-125	1	30
1,2-Dichloropropane	20	21.93	20	21.76	110	109	76-120	1	30
cis-1,3-Dichloropropene	20	22.17	20	22.53	111	113	66-120	2	30
trans-1,3-Dichloropropene	20	21.31	20	21.83	107	109	63-124	2	30
Ethylbenzene	20	20.71	20	21.07	104	105	74-120	2	30
Freon 113	20	20.93	20	21.29	105	106	64-135	2	30
2-Hexanone	100	110.4	100	108.77	110	109	54-140	1	30
Isopropylbenzene	20	20.14	20	20.32	101	102	69-123	1	30
Methyl Acetate	20	20.01	20	20.3	100	102	59-134	1	30
Methyl Tertiary Butyl Ether	20	21.93	20	21.94	110	110	66-123	0	30
4-Methyl-2-pentanone	100	110.05	100	108.8	110	109	61-135	1	30
Methylcyclohexane	20	18.44	20	18.54	92	93	61-124	1	30
Methylene Chloride	20	21.21	20	21.32	106	107	76-122	1	30
Styrene	20	20.89	20	20.91	104	105	76-120	0	30
1,1,2,2-Tetrachloroethane	20	20.79	20	20.81	104	104	61-131	0	30
Tetrachloroethene	20	18.28	20	18.6	91	93	73-120	2	30
Toluene	20	19.8	20	20.02	99	100	80-120	1	30
1,2,3-Trichlorobenzene	20	19.18	20	18.96	96	95	44-155	1	30
1,2,4-Trichlorobenzene	20	17.92	20	17.92	90	90	56-130	0	30
1,1,1-Trichloroethane	20	22.15	20	22.34	111	112	69-123	1	30
1,1,2-Trichloroethane	20	20.83	20	21.45	104	107	80-120	3	30
Trichloroethene	20	20.29	20	20.21	101	101	80-120	0	30
Trichlorofluoromethane	20	20.37	20	20.38	102	102	55-134	0	30
Vinyl Chloride	20	18.67	20	19.52	93	98	59-120	4	30
m+p-Xylene	40	40.45	40	40.97	101	102	80-120	1	30
o-Xylene	20	19.15	20	19.31	96	97	75-120	1	30
	ug/kg	ug/kg	ug/kg	ug/kg	✓	✓		✓	
Batch number: 18144SLE026	Sample number(s): 9618551								
Acenaphthene	1666.67	1781.2			107		78-119		
Acenaphthylene	1666.67	1933.67			116		45-149		
Acetophenone	1666.67	1707.3			102		68-115		
Anthracene	1666.67	1679.34			101		82-113		
Atrazine	1666.67	1675.15			101		58-126		

✓

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzaldehyde	1666.67	1306.44			78		18-123		
Benzo(a)anthracene	1666.67	1550.35			93		76-119		
Benzo(a)pyrene	1666.67	1729.28			104		77-112		
Benzo(b)fluoranthene	1666.67	1792.54			108		78-120		
Benzo(g,h,i)perylene	1666.67	1539.5			92		76-111		
Benzo(k)fluoranthene	1666.67	1596.25			96		78-119		
1,1'-Biphenyl	1666.67	1845.49			111		78-115		
4-Bromophenyl-phenylether	1666.67	1677.94			101		81-116		
Butylbenzylphthalate	1666.67	1702.26			102		81-118		
Di-n-butylphthalate	1666.67	1692.72			102		77-121		
Caprolactam	1666.67	1710.85			103		63-121		
Carbazole	1666.67	1663.95			100		74-118		
4-Chloro-3-methylphenol	1666.67	1774.83			106		70-128		
4-Chloroaniline	1666.67	659.69			40		10-117		
bis(2-Chloroethoxy)methane	1666.67	1756.07			105		72-117		
bis(2-Chloroethyl)ether	1666.67	1599.86			96		68-115		
2-Chloronaphthalene	1666.67	1701.02			102		51-150		
2-Chlorophenol	1666.67	1791.17			107		75-124		
4-Chlorophenyl-phenylether	1666.67	1673.81			100		79-112		
2,2'-oxybis(1-Chloropropane)	1666.67	1655.5			99		61-120		
Chrysene	1666.67	1502.7			90		78-115		
Dibenz(a,h)anthracene	1666.67	1622.77			97		79-117		
Dibenzofuran	1666.67	1741.38			104		79-114		
3,3'-Dichlorobenzidine	1666.67	1430.13			86		33-117		
2,4-Dichlorophenol	1666.67	1824.55			109		79-125		
Diethylphthalate	1666.67	1677.82			101		74-120		
2,4-Dimethylphenol	1666.67	1487.3			89		56-107		
Dimethylphthalate	1666.67	1706.49			102		77-116		
4,6-Dinitro-2-methylphenol	1666.67	1844.61			111		73-127		
2,4-Dinitrophenol	3333.33	3636.63			109		51-139		
2,4-Dinitrotoluene	1666.67	1739.17			104		78-123		
2,6-Dinitrotoluene	1666.67	1785.26			107		80-120		
1,4-Dioxane	1666.67	1060.25			64		37-87		
bis(2-Ethylhexyl)phthalate	1666.67	1691.08			101		78-118		
Fluoranthene	1666.67	1576.79			95		76-115		
Fluorene	1666.67	1769.99			106		80-112		
Hexachlorobenzene	1666.67	1621.94			97		77-114		
Hexachlorobutadiene	1666.67	1775.37			107		75-115		
Hexachlorocyclopentadiene	3333.33	4121.41			124		10-172		
Hexachloroethane	1666.67	1589.39			95		72-111		
Indeno(1,2,3-cd)pyrene	1666.67	1602.17			96		78-113		
Isophorone	1666.67	1758.23			105		65-120		
2-Methylnaphthalene	1666.67	1734.2			104		77-116		
2-Methylphenol	1666.67	1807.2			108		74-128		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
4-Methylphenol	1666.67	1673.17			100		66-121		
Naphthalene	1666.67	1700.48			102		81-111		
2-Nitroaniline	1666.67	1860.1			112		81-126		
3-Nitroaniline	1666.67	1639.93			98		68-124		
4-Nitroaniline	1666.67	1306.63			78		50-112		
Nitrobenzene	1666.67	1718.59			103		70-122		
2-Nitrophenol	1666.67	1876.3			113		77-129		
4-Nitrophenol	1666.67	1730.89			104		44-131		
N-Nitroso-di-n-propylamine	1666.67	1675.88			101		60-123		
N-Nitrosodiphenylamine	1666.67	1773.7			106		83-118		
Di-n-octylphthalate	1666.67	1989.82			119		81-134		
Pentachlorophenol	1666.67	1740.27			104		54-131		
Phenanthrene	1666.67	1658.79			100		81-109		
Phenol	1666.67	1682.7			101		68-123		
Pyrene	1666.67	1592.31			96		80-107		
1,2,4,5-Tetrachlorobenzene	1666.67	1685.14			101		76-116		
2,3,4,6-Tetrachlorophenol	1666.67	1723.25			103		73-127		
2,4,5-Trichlorophenol	1666.67	1858.34			112		84-122		
2,4,6-Trichlorophenol	1666.67	1815.17			109 ✓		81-123		
	ng/g	ng/g	ng/g	ng/g					
Batch number: 18142016	Sample number(s): 9618551								
Perfluorobutanesulfonate	1.20	1.27	1.20	1.21	106	101	70-130	5	30
Perfluorobutanoic acid	1.36	1.44	1.36	1.46	106	107	70-130	1	30
Perfluorodecanoic acid	1.36	1.66	1.36	1.41	122	104	70-130	16	30
Perfluorododecanoic acid	1.36	1.53	1.36	1.50	112	110	70-130	2	30
Perfluoroheptanoic acid	1.36	1.59	1.36	1.61	117	118	70-130	1	30
Perfluorohexanesulfonate	1.29	1.40	1.29	1.44	109	112	70-130	3	30
Perfluorohexanoic acid	1.36	1.47	1.36	1.47	108	108	70-130	0	30
Perfluorononanoic acid	1.36	1.54	1.36	1.40	113	103	70-130	10	30
Perfluoro-octanesulfonate	1.30	1.48	1.30	1.32	114	101	70-130	11	30
Perfluorooctanoic acid	1.36	1.49	1.36	1.52	110	112	70-130	2	30
Perfluoropentanoic acid	1.36	1.51	1.36	1.48	111	109	70-130	2	30
Perfluorotetradecanoic acid	1.36	1.50	1.36	1.47	~~111~~	~~108~~	70-130	2	30
Perfluorotridecanoic acid	1.36	1.86	1.36	1.95	137*	143*	70-130	5	30
Perfluoroundecanoic acid	1.36	1.64	1.36	1.53	120	112	70-130	7	30
	ng/l	ng/l	ng/l	ng/l	✓	✓		✓	
Batch number: 18141019	Sample number(s): 9618549-9618550,9618552								
6:2 fluorotelomersulfonate	15.17	11.83	15.17	11.98	78	79	66-155	1	30
8:2 fluorotelomersulfonate	15.33	13.42	15.33	15.18	88	99	66-148	12	30
NEtFOSAA	5.44	5.37	5.44	5.05	99	93	55-169	6	30
NMeFOSAA	5.44	4.45	5.44	5.66	82	104	62-167	24	30
Perfluorobutanesulfonate	4.81	4.42	4.81	4.25	92	88	73-128	4	30
					✓	✓		✓	

No ⊕ ∴ No Qual

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorobutanoic acid	5.44	5.04	5.44	4.97	93	91	74-142	1	30
Perfluorodecanoic acid	5.44	4.24	5.44	4.79	78	88	69-148	12	30
Perfluorododecanoic acid	5.44	4.85	5.44	5.17	89	95	75-136	6	30
Perfluoroheptanoic acid	5.44	4.80	5.44	5.35	88	98	76-140	11	30
Perfluorohexanesulfonate	5.14	4.19	5.14	4.31	81	84	71-131	3	30
Perfluorohexanoic acid	5.44	4.89	5.44	4.70	90	86	75-135	4	30
Perfluorononanoic acid	5.44	5.10	5.44	5.13	94	94	72-148	1	30
Perfluorooctanesulfonamide	5.44	4.42	5.44	4.47	81	82	65-164	1	30
Perfluoro-octanesulfonate	5.20	4.26	5.20	4.77	82	92	67-138	11	30
Perfluorooctanoic acid	5.44	5.08	5.44	5.23	93	96	72-138	3	30
Perfluoropentanoic acid	5.44	4.48	5.44	5.05	82	93	74-134	12	30
Perfluorotetradecanoic acid	5.44	4.83	5.44	5.18	89	95	74-135	7	30
Perfluorotridecanoic acid	5.44	4.62	5.44	4.93	85	91	61-145	6	30
Perfluoroundecanoic acid	5.44	4.62	5.44	4.77	85	88	75-146	3	30
	mg/kg	mg/kg	mg/kg	mg/kg	✓	✓			
Batch number: 181411063701	Sample number(s): 9618551								
Aluminum	200	217.98			109		80-120		
Calcium	400	428.01			107		80-120		
Iron	100	102.8			103		80-120		
Magnesium	200	208.68			104		80-120		
Manganese	50	50.95			102		80-120		
Potassium	1000	1021.58			102		80-120		
Sodium	1000	1030.22			103		80-120		
Zinc	50	51.73			103		80-120		
					✓				
Batch number: 181411063701A	Sample number(s): 9618551								
Antimony	0.600	0.645			108		86-120		
Arsenic	1.00	1.13			113		80-120		
Beryllium	0.400	0.441			110		80-120		
Cadmium	0.500	0.540			108		80-120		
Chromium	5.00	5.72			114		86-120		
Cobalt	25	25.23			101		80-120		
Copper	5.00	5.43			109		80-120		
Lead	1.50	1.64			109		80-120		
Nickel	5.00	5.69			114		86-120		
Silver	5.00	5.35			107		88-120		
Thallium	0.200	0.198			99		80-120		
Vanadium	5.00	5.49			110		86-120		
					✓				
Batch number: 181411063701B	Sample number(s): 9618551								
Selenium	1.00	1.09			109		80-120		
					✓				
Batch number: 181411063701D	Sample number(s): 9618551								
Barium	5.00	5.21			104		80-120		
					✓				

a/so meet 70-130%.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 181421063801	Sample number(s): 9618551								
Mercury	0.100	0.0885			89		80-110		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 18149667631B	Sample number(s): 9618551								
TOC	7150	6407.49			90		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 18150039401A	Sample number(s): 9618551								
pH	7.00	6.95	7.00	6.95	99	99	95-105	0	3
	%	%	%	%					
Batch number: 18141820006B	Sample number(s): 9618551								
Moisture	89.5	89.42			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18144SLE026	Sample number(s): 9618551 UNSPK: 9618551									
Acenaphthene	126.29	1661.13	1794.64	1661.13	1750.5	100	98	78-119	2	30
Acenaphthylene	76.59	1661.13	1942.45	1661.13	1882.35	112	109	45-149	3	30
Acetophenone	39.81	1661.13	1702.29	1661.13	1663.12	100	98	68-115	2	30
Anthracene	407.46	1661.13	1893.44	1661.13	1735.9	89	80*	82-113	9	30
Atrazine	33 U	1661.13	1454.3	1661.13	1342.04	88	81	58-126	8	30
Benzaldehyde	138.88	1661.13	1699.04	1661.13	1684.03	94	93	18-123	1	30
Benzo(a)anthracene	882.44	1661.13	2319.31	1661.13	1772.67	86	54*	76-119	27	30
Benzo(a)pyrene	776.51	1661.13	2299.18	1661.13	1844.29	92	64*	77-112	22	30
Benzo(b)fluoranthene	957.14	1661.13	2245.6	1661.13	1785.44	78	50*	78-120	23	30
Benzo(g,h,i)perylene	465.99	1661.13	2023.06	1661.13	1758.1	94	78	76-111	14	30
Benzo(k)fluoranthene	506.99	1661.13	1939.42	1661.13	1653.82	86	69*	78-119	16	30
1,1'-Biphenyl	18.61	1661.13	1818.23	1661.13	1858.22	108	111	78-115	2	30
4-Bromophenyl-phenylether	20 U	1661.13	1701.49	1661.13	1728.09	102	104	81-116	2	30
Butylbenzylphthalate	66 U	1661.13	1782.24	1661.13	1739.17	107	105	81-118	2	30
Di-n-butylphthalate	66 U	1661.13	1706.36	1661.13	1782.73	103	107	77-121	4	30
Caprolactam	33 U	1661.13	1575.89	1661.13	1595.14	95	96	63-121	1	30
Carbazole	208.6	1661.13	1648.79	1661.13	1557.38	87	81	74-118	6	30
4-Chloro-3-methylphenol	16 U	1661.13	1613.75	1661.13	1615.98	97	97	70-128	0	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
4-Chloroaniline	33 U	1661.13	644.7	1661.13	477.68	39	29	10-117	30	30
bis(2-Chloroethoxy)methane	16 U	1661.13	1588.27	1661.13	1657.49	96	100	72-117	4	30
bis(2-Chloroethyl)ether	23 U	1661.13	1644.55	1661.13	2626.42	99	158* UJ	68-115	46*	30
2-Chloronaphthalene	7 U	1661.13	1547.28	1661.13	1514.83	93	91	51-150	2	30
2-Chlorophenol	16 U	1661.13	1730.44	1661.13	1729.92	104	104	75-124	0	30
4-Chlorophenyl-phenylether	16 U	1661.13	1563.86	1661.13	1565.76	94	94	79-112	0	30
2,2'-oxybis(1-Chloropropane)	16 U	1661.13	1684.48	1661.13	1662.18	101	100 J	61-120	1	30
Chrysene	843.24	1661.13	2190.46	1661.13	1717.09	81	53*	78-115	24	30
Dibenz(a,h)anthracene	146.05	1661.13	1787.9	1661.13	1741.76	99	96	79-117	3	30
Dibenzofuran	111.24	1661.13	1730.19	1661.13	1681.22	97	95	79-114	3	30
3,3'-Dichlorobenzidine	99 U	1661.13	730.86	1661.13	760.94	44	46	33-117	4	30
2,4-Dichlorophenol	16 U	1661.13	1649	1661.13	1636.9	99	99	79-125	1	30
Diethylphthalate	66 U	1661.13	1572.75	1661.13	1580.8	95	95	74-120	1	30
2,4-Dimethylphenol	16 U	1661.13	1394.17	1661.13	1405.89	84	85	56-107	1	30
Dimethylphthalate	66 U	1661.13	1583.71	1661.13	1616.02	95	97	77-116	2	30
4,6-Dinitro-2-methylphenol	160 U	1661.13	1151.15	1661.13	1192.6	69*	72* UJ	73-127	4	30
2,4-Dinitrophenol	360 U	3322.26	1215.53	3322.26	1342.9	37*	40* UJ	51-139	10	30
2,4-Dinitrotoluene	66 U	1661.13	1422.03	1661.13	1514.24	86	91	78-123	6	30
2,6-Dinitrotoluene	20 U	1661.13	1601.86	1661.13	1662.33	96	100	80-120	4	30
1,4-Dioxane	99 U	1661.13	1044.57	1661.13	1056.19	63	64	37-87	1	30
bis(2-Ethylhexyl)phthalate	66 U	1661.13	1809.83	1661.13	1775.3	109	107	78-118	2	30
Fluoranthene	1852.53	1661.13	2602.43	1661.13	1861.79	45* J	1*	76-115	33* MP	30
Fluorene	138.63	1661.13	1690.81	1661.13	1647.62	93	91	80-112	3	30
Hexachlorobenzene	3 U	1661.13	1672.12	1661.13	1681.54	101	101	77-114	1	30
Hexachlorobutadiene	20 U	1661.13	1659.86	1661.13	1656.28	100	100	75-115	0	30
Hexachlorocyclopentadiene	160 U	3322.26	170 U	3322.26	170 U	0*	0*	10-172	0	30
Hexachloroethane	33 U	1661.13	946.48	1661.13	1061.06	57*	64* UJ	72-111	11	30
Indeno(1,2,3-cd)pyrene	470.04	1661.13	2063.03	1661.13	1809.18	96	81	78-113	13	30
Isophorone	16 U	1661.13	1688.6	1661.13	1699.08	102	102	65-120	1	30
2-Methylnaphthalene	52.75	1661.13	1634.6	1661.13	1630.27	95	95	77-116	0	30
2-Methylphenol	26 U	1661.13	1754.08	1661.13	1728.09	106	104	74-128	1	30
4-Methylphenol	24.88	1661.13	1683.44	1661.13	1630.29	100	97	66-121	3	30
Naphthalene	115.92	1661.13	1767.15	1661.13	1694.17	99	95	81-111	4	30
2-Nitroaniline	20 U	1661.13	2240.77	1661.13	2220.74	135*	134*	81-126	1	30
3-Nitroaniline	66 U	1661.13	992.4	1661.13	982.52	60*	59* UJ	68-124	1	30
4-Nitroaniline	66 U	1661.13	1552.02	1661.13	1517.49	93	91	50-112	2	30
Nitrobenzene	26 U	1661.13	1622.77	1661.13	1630.17	98	98	70-122	0	30
2-Nitrophenol	16 U	1661.13	811.34	1661.13	974.34	49*	59* UJ	77-129	18	30
4-Nitrophenol	160 U	1661.13	1678.63	1661.13	1688.28	101	102	44-131	1	30
N-Nitroso-di-n-propylamine	20 U	1661.13	1648.55	1661.13	1615.43	99	97	60-123	2	30
N-Nitrosodiphenylamine	16 U	1661.13	1789.3	1661.13	1815.2	108	109	83-118	1	30
Di-n-octylphthalate	66 U	1661.13	1799.57	1661.13	1837.27	108	111	81-134	2	30
Pentachlorophenol	36 U	1661.13	1127.35	1661.13	1033.41	68	62	54-131	9	30

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(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Phenanthrene	1589.24	1661.13	2427.58	1661.13	1880.79	50*	18* J	81-109	25	30
Phenol	23 U	1661.13	1657.15	1661.13	1605.16	100	97	68-123	3	30
Pyrene	1566.47	1661.13	2722.52	1661.13	1958.85	70*	24* J	80-107	33* MP	30 J
1,2,4,5-Tetrachlorobenzene	16 U	1661.13	1709.48	1661.13	1724.27	103	104	76-116	1	30
2,3,4,6-Tetrachlorophenol	66 U	1661.13	889.85	1661.13	854.54	54*	51* UJ	73-127	4	30
2,4,5-Trichlorophenol	20 U	1661.13	1485.78	1661.13	1533.56	89	92	84-122	3	30
2,4,6-Trichlorophenol	20 U	1661.13	1041.76	1661.13	975.18	63*	59* UJ	81-123	7	30
	ng/g	ng/g	ng/g	ng/g	ng/g					
Batch number: 18142016	Sample number(s): 9618551 UNSPK: 9618551									
Perfluorobutanesulfonate	0.20 U	1.17	1.21			104		70-130		
Perfluorobutanoic acid	0.20 U	1.32	1.50			114		70-130		
Perfluorodecanoic acid	0.20 U	1.32	1.62			123		70-130		
Perfluorododecanoic acid	0.20 U	1.32	1.48			112		70-130		
Perfluoroheptanoic acid	0.20 U	1.32	1.49			113		70-130		
Perfluorohexanesulfonate	0.20 U	1.25	1.36			109		70-130		
Perfluorohexanoic acid	0.20 U	1.32	1.37			104		70-130		
Perfluorononanoic acid	0.20 U	1.32	1.44			109		70-130		
Perfluoro-octanesulfonate	0.30 U	1.26	1.50			119		70-130		
Perfluorooctanoic acid	1.16	1.32	2.42			96		70-130		
Perfluoropentanoic acid	0.20 U	1.32	1.50			113		70-130		
Perfluorotetradecanoic acid	0.20 U	1.32	1.48			112		70-130		
Perfluorotridecanoic acid	0.20 U	1.32	1.86			141*	No ①	70-130		
Perfluoroundecanoic acid	0.20 U	1.32	1.51			115		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 181411063701	Sample number(s): 9618551 UNSPK: 9618551									
Aluminum	~~4731~~	170.94	4869.97	190.48	4774.6	81 (2)	23 (2)	75-125	2	20
Calcium	73190.96 5XDF	341.88	20893.34	380.95	14251.09	-15297 (2)	-15472 (2)	75-125	38*	20
Iron	15061.05	85.47	13749.77	95.24	49713.63	-1534 (2)	36385 (2)	75-125	113*	20
Magnesium	34621.35	170.94	5955.1	190.48	4312.07	-16770 (2)	-15912 (2)	75-125	32*	20
Manganese	769.61	42.74	276.53	47.62	469.7	-1154 (2)	-630 (2)	75-125	52*	20
Potassium	491.59	854.7	1493.73	952.38	1486.31	117	104	75-125	0	20
Sodium	84.15	854.7	1024.12	952.38	1044.58	110	101	75-125	2	20
Zinc	106.86	42.74	136.72	47.62	403.35	70*	623* J, MA, MP	75-125	99*	20
Batch number: 181411063701A	Sample number(s): 9618551 UNSPK: 9618551									
Antimony	0.246	1.03	1.33	1.14	1.61	105	119	75-125	19	20
Arsenic	5.22	1.71	6.80	1.90	7.34	92	111	75-125	8	20
Beryllium	0.299	0.684	1.05	0.762	1.14	110	111	75-125	8	20
Cadmium	0.380	0.855	1.41	0.952	1.46	121	114	75-125	4	20

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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added. Not evaluated
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Chromium	10.92	8.55	21.27	9.52	22.09	121	117	75-125	4	20
Cobalt	10.62	42.74	63.25	47.62	67.41	123	119	75-125	6	20
Copper	53.02	8.55	48.91	9.52	54.22	-48 (2)	13 (2)	75-125	10	20
Lead	40.29	2.56	56.53	2.86	44.14	634 (2)	135 (2)	75-125	25*	20
Nickel	23.05	8.55	42.75	9.52	46.2	230*	243*	75-125	6	20
Silver	0.470	8.55	11.32	9.52	12.17	127*	123	75-125	7	20
Thallium	0.0565	0.342	0.460	0.381	0.450	118	103	75-125	2	20
Vanadium	14.14	8.55	28.56	9.52	24.98	169*	114	75-125	13	20
Batch number: 181411063701B	Sample number(s): 9618551 UNSPK: 9618551									
Selenium	0.125	1.71	1.71	1.90	1.91	93	94	75-125	11	20
Batch number: 181411063701D	Sample number(s): 9618551 UNSPK: 9618551									
Barium	80.23	8.55	68.69	9.52	57.24	-135 (2)	-241 (2)	75-125	18	20
Batch number: 181421063801	Sample number(s): 9618551 UNSPK: 9618551									
Mercury	0.225	0.167	0.282	0.159	0.294	34*	44*	80-120	4	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 18149667631B	Sample number(s): 9618551 UNSPK: P620989									
TOC	35581.68	76740	90716.11			72		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 181411063701	Sample number(s): 9618551 BKG: 9618551			
Aluminum	4731	6228.31	27*	20
Calcium	73190.96	19642.16	115*	20
Iron	15061.05	35911.37	82*	20
Magnesium	34621.35	7623.89	128*	20
Manganese	769.61	611.63	23*	20
Potassium	491.59	417.32	16 (1)	20
Sodium	84.15	46.07	58* (1)	20
Zinc	106.86	139.81	27*	20
Batch number: 181411063701A	Sample number(s): 9618551 BKG: 9618551			
Antimony	0.246	0.255	3 (1)	20
Arsenic	5.22	19.14	114*	20

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P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD		DUP RPD Max
	mg/kg	mg/kg			
Beryllium	0.299	0.372	22* (1)	✓	20
Cadmium	0.380	0.293	26* (1)	✓	20
Chromium	10.92	13.21	19		20
Cobalt	10.62	12.64	17		20
Copper	53.02	42.24	23*	J	20
Lead	40.29	45.08	11		20
Nickel	23.05	34.48	40*	J	20
Silver	0.470	0.772	~~49*~~ (1)	✓	20
Thallium	0.0565	0.0409	32* (1)	✓	20
Vanadium	14.14	14.69	4		20
Batch number: 181411063701B	Sample number(s): 9618551 BKG: 9618551				
Selenium	0.125	0.235	61* (1)	✓	20
Batch number: 181411063701D	Sample number(s): 9618551 BKG: 9618551				
Barium	80.23	61.04	27*	J	20
Batch number: 181421063801	Sample number(s): 9618551 BKG: 9618551				
Mercury	0.225	0.0800	95* (1)	✓	20
	mg/kg	mg/kg			
Batch number: 18149667631B	Sample number(s): 9618551 BKG: P620989				
TOC	35581.68	25569.62	33*		7
	Std. Units	Std. Units			
Batch number: 18150039401A	Sample number(s): 9618551 BKG: P618714				
pH	7.63	7.58	1	✓	3
	%	%			
Batch number: 18141820006B	Sample number(s): 9618551 BKG: P618785				
Moisture	43.2	43.94	2	✓	5

LD qual

LOQ
0.2 ↓ > Δ<LOQ (x2)

0.206 2x 0.412
Ag Δ < 2x LOQ
No qual.

0.8 Δ<2xLOQ

0.115 2x 0.230

Non Prox site, Not evaluated

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SOM02.2 Volatiles
Batch number: B181511AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9618551	109	105	101	98
Blank	106	103	99	98

✓

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SOM02.2 Volatiles
Batch number: B181511AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
LCS	104	99	102	107
LCSD	103	101	102	106
Limits:	50-141	54-135	52-141	50-131

Analysis Name: TCL Semivolatiles
Batch number: 18144SLE026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
9618551	92	98	24* UJ IS	90	97	99
Blank	90	96	99 SRL	94	99	106
LCS	96	101	97 acid	97	100	103 ✓
MS	94	101	40	94	100	99
MSD	93	100	36	94	100	102
Limits:	46-125	51-123	27-137	49-118	57-116	55-118

Analysis Name: 19 PFAS Compounds
Batch number: 18141019

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9618549	83	87	85	86	91	91
9618550	83	82	79	81	76	84
9618552	87	102	111	79	83	92
Blank	86	90	88	81	86	92 ✓
LCS	91	93	83	83	86	85
LCSD	90	89	93	91	85	93
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9618549	97	88	92	91	80	93
9618550	92	80	88	90	76	94
9618552	94	84	98	92	78	85
Blank	95	91	90	86	87	97 ✓
LCS	100	86	97	88	85	102
LCSD	108	89	92	93	84	95
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9618549	76	76	73	76	75	62* UJ, IS
9618550	67	72	64	70	71	63*
9618552	69	78	73	71	66	60*

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/31/2018 17:20

Group Number: 1945483

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 19 PFAS Compounds
Batch number: 18141019

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
Blank	64	77	73	76	74	61*
LCS	73	82	71	77	76	68*
LCSD	72	83	72	76	75	64*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

QC No Qual.

Analysis Name: 14 PFCs
Batch number: 18142016

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9618551	79	77	72	82	81	86
Blank	82	88	80	85	79	86
LCS	77	79	74	80	73	85
LCSD	82	82	80	81	72	82
MS	73	73	72	81	76	80
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9618551	79	84	96	71	71	68
Blank	83	84	88	81	79	76
LCS	77	74	81	67	68	67
LCSD	82	83	87	89	82	78
MS	75	75	84	67	67	61
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9618551	70
Blank	74
LCS	69
LCSD	77
MS	65
Limits:	20-127

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P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Sample Description: SG3a-FTB01-180518 Grab Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 09:25
SDG#: SBN20-01TB

C. T. Male Associates
ELLE Sample #: WW 9618549
ELLE Group #: 1945483
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	0.93 U	0.93	1.9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1.9 U	1.9	5.6	1
14473	NEtFOSAA	2991-50-6	0.93 U	0.93	2.8	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.93 U	0.93	2.8	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.28 U	0.28	0.93	1
14473	Perfluorobutanoic acid	375-22-4	1.9 U	1.9	5.6	1
14473	Perfluorodecanoic acid	335-76-2	0.93 U	0.93	1.9	1
14473	Perfluorododecanoic acid	307-55-1	0.28 U	0.28	0.93	1
14473	Perfluoroheptanoic acid	375-85-9	0.28 U	0.28	0.93	1
14473	Perfluorohexanesulfonate	355-46-4	0.37 U	0.37	1.9	1
14473	Perfluorohexanoic acid	307-24-4	0.37 U	0.37	1.9	1
14473	Perfluorononanoic acid	375-95-1	0.37 U	0.37	1.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.93 U	0.93	2.8	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.37 U	0.37	1.9	1
14473	Perfluorooctanoic acid	335-67-1	0.28 U	0.28	0.93	1
14473	Perfluoropentanoic acid	2706-90-3	1.9 U	1.9	5.6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.28 U	0.28	0.93	1
14473	Perfluorotridecanoic acid	72629-94-8	0.28 U	0.28	0.93	1
14473	Perfluoroundecanoic acid	2058-94-8	0.37 U	0.37	1.9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18141019	05/25/2018 05:31	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18141019	05/21/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-FTB01-051818 Grab Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 09:25
SDG#: SBN20-01TB

C. T. Male Associates
ELLE Sample #: WW 9618549
ELLE Group #: 1945483
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	0.93 U	0.93	1.9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1.9 U	1.9	5.6	1
14473	NEtFOSAA	2991-50-6	0.93 U	0.93	2.8	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.93 U	0.93	2.8	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.28 U	0.28	0.93	1
14473	Perfluorobutanoic acid	375-22-4	1.9 U	1.9	5.6	1
14473	Perfluorodecanoic acid	335-76-2	0.93 U	0.93	1.9	1
14473	Perfluorododecanoic acid	307-55-1	0.28 U	0.28	0.93	1
14473	Perfluoroheptanoic acid	375-85-9	0.28 U	0.28	0.93	1
14473	Perfluorohexanesulfonate	355-46-4	0.37 U	0.37	1.9	1
14473	Perfluorohexanoic acid	307-24-4	0.37 U	0.37	1.9	1
14473	Perfluorononanoic acid	375-95-1	0.37 U	0.37	1.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.93 U	0.93	2.8	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.37 U	0.37	1.9	1
14473	Perfluorooctanoic acid	335-67-1	0.28 U	0.28	0.93	1
14473	Perfluoropentanoic acid	2706-90-3	1.9 U	1.9	5.6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.28 U	0.28	0.93	1
14473	Perfluorotridecanoic acid	72629-94-8	0.28 U	0.28	0.93	1
14473	Perfluoroundecanoic acid	2058-94-8	0.37 U	0.37	1.9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18141019	05/25/2018 05:31	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18141019	05/21/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3a-LTB01-180518 Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018
SDG#: SBN20-02TB

C. T. Male Associates
ELLE Sample #: WW 9618550
ELLE Group #: 1945483
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	0.94 U	0.94	1.9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1.9 U	1.9	5.6	1
14473	NEtFOSAA	2991-50-6	0.94 U	0.94	2.8	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.94 U	0.94	2.8	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.28 U	0.28	0.94	1
14473	Perfluorobutanoic acid	375-22-4	1.9 U	1.9	5.6	1
14473	Perfluorodecanoic acid	335-76-2	0.94 U	0.94	1.9	1
14473	Perfluorododecanoic acid	307-55-1	0.28 U	0.28	0.94	1
14473	Perfluoroheptanoic acid	375-85-9	0.28 U	0.28	0.94	1
14473	Perfluorohexanesulfonate	355-46-4	0.38 U	0.38	1.9	1
14473	Perfluorohexanoic acid	307-24-4	0.38 U	0.38	1.9	1
14473	Perfluorononanoic acid	375-95-1	0.38 U	0.38	1.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.94 U	0.94	2.8	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.38 U	0.38	1.9	1
14473	Perfluorooctanoic acid	335-67-1	0.28 U	0.28	0.94	1
14473	Perfluoropentanoic acid	2706-90-3	1.9 U	1.9	5.6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.28 U	0.28	0.94	1
14473	Perfluorotridecanoic acid	72629-94-8	0.28 U	0.28	0.94	1
14473	Perfluoroundecanoic acid	2058-94-8	0.38 U	0.38	1.9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18141019	05/25/2018 05:46	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18141019	05/21/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-LTB01-051818 Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018
SDG#: SBN20-02TB

C. T. Male Associates
ELLE Sample #: WW 9618550
ELLE Group #: 1945483
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	0.94 U	0.94	1.9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1.9 U	1.9	5.6	1
14473	NEtFOSAA	2991-50-6	0.94 U	0.94	2.8	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.94 U	0.94	2.8	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.28 U	0.28	0.94	1
14473	Perfluorobutanoic acid	375-22-4	1.9 U	1.9	5.6	1
14473	Perfluorodecanoic acid	335-76-2	0.94 U	0.94	1.9	1
14473	Perfluorododecanoic acid	307-55-1	0.28 U	0.28	0.94	1
14473	Perfluoroheptanoic acid	375-85-9	0.28 U	0.28	0.94	1
14473	Perfluorohexanesulfonate	355-46-4	0.38 U	0.38	1.9	1
14473	Perfluorohexanoic acid	307-24-4	0.38 U	0.38	1.9	1
14473	Perfluorononanoic acid	375-95-1	0.38 U	0.38	1.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.94 U	0.94	2.8	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.38 U	0.38	1.9	1
14473	Perfluorooctanoic acid	335-67-1	0.28 U	0.28	0.94	1
14473	Perfluoropentanoic acid	2706-90-3	1.9 U	1.9	5.6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.28 U	0.28	0.94	1
14473	Perfluorotridecanoic acid	72629-94-8	0.28 U	0.28	0.94	1
14473	Perfluoroundecanoic acid	2058-94-8	0.38 U	0.38	1.9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18141019	05/25/2018 05:46	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18141019	05/21/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SLUDGE18-01 Grab Sediment
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 09:15
SDG#: SBN20-03

C. T. Male Associates
ELLE Sample #: SW 9618551
ELLE Group #: 1945483
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	**Acetone**	67-64-1	**23**	6	18	0.72
11995	Benzene	71-43-2	0.4 U	0.4	4	0.72
11995	Bromochloromethane	74-97-5	0.9 U	0.9	4	0.72
11995	Bromodichloromethane	75-27-4	0.9 U	0.9	4	0.72
11995	Bromoform	75-25-2	0.9 U	0.9	4	0.72
11995	Bromomethane	74-83-9	2 U	2	4	0.72
11995	**2-Butanone**	78-93-3	**4 J**	4	9	0.72
11995	Carbon Disulfide	75-15-0	0.9 U	0.9	4	0.72
11995	Carbon Tetrachloride	56-23-5	0.9 U	0.9	4	0.72
11995	Chlorobenzene	108-90-7	0.9 U	0.9	4	0.72
11995	Chloroethane	75-00-3	2 U	2	4	0.72
11995	Chloroform	67-66-3	0.9 U	0.9	4	0.72
11995	Chloromethane	74-87-3	2 U	2	4	0.72
11995	Cyclohexane	110-82-7	0.9 U	0.9	4	0.72
11995	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	4	0.72
11995	Dibromochloromethane	124-48-1	0.9 U	0.9	4	0.72
11995	1,2-Dibromoethane	106-93-4	0.9 U	0.9	4	0.72
11995	1,2-Dichlorobenzene	95-50-1	0.9 U	0.9	4	0.72
11995	1,3-Dichlorobenzene	541-73-1	0.9 U	0.9	4	0.72
11995	1,4-Dichlorobenzene	106-46-7	0.9 U	0.9	4	0.72
11995	Dichlorodifluoromethane	75-71-8	2 U	2	4	0.72
11995	1,1-Dichloroethane	75-34-3	0.9 U	0.9	4	0.72
11995	1,2-Dichloroethane	107-06-2	0.9 U	0.9	4	0.72
11995	1,1-Dichloroethene	75-35-4	0.9 U	0.9	4	0.72
11995	cis-1,2-Dichloroethene	156-59-2	0.9 U	0.9	4	0.72
11995	trans-1,2-Dichloroethene	156-60-5	0.9 U	0.9	4	0.72
11995	1,2-Dichloropropane	78-87-5	0.9 U	0.9	4	0.72
11995	cis-1,3-Dichloropropene	10061-01-5	0.9 U	0.9	4	0.72
11995	trans-1,3-Dichloropropene	10061-02-6	0.9 U	0.9	4	0.72
11995	Ethylbenzene	100-41-4	0.9 U	0.9	4	0.72
11995	Freon 113	76-13-1	2 U	2	9	0.72
11995	2-Hexanone	591-78-6	3 U	3	9	0.72
11995	Isopropylbenzene	98-82-8	0.9 U	0.9	4	0.72
11995	Methyl Acetate	79-20-9	2 U	2	4	0.72
11995	Methyl Tertiary Butyl Ether	1634-04-4	0.4 U	0.4	4	0.72
11995	4-Methyl-2-pentanone	108-10-1	3 U	3	9	0.72
11995	Methylcyclohexane	108-87-2	0.9 U	0.9	4	0.72
11995	Methylene Chloride	75-09-2	2 U	2	4	0.72
11995	Styrene	100-42-5	0.9 U	0.9	4	0.72
11995	1,1,2,2-Tetrachloroethane	79-34-5	0.9 U	0.9	4	0.72
11995	Tetrachloroethene	127-18-4	0.9 U	0.9	4	0.72

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SLUDGE18-01 Grab Sediment
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 09:15
SDG#: SBN20-03

C. T. Male Associates
ELLE Sample #: SW 9618551
ELLE Group #: 1945483
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	Toluene	108-88-3	0.9 U	0.9	4	0.72
11995	1,2,3-Trichlorobenzene	87-61-6	0.9 U	0.9	4	0.72
11995	1,2,4-Trichlorobenzene	120-82-1	0.9 U	0.9	4	0.72
11995	1,1,1-Trichloroethane	71-55-6	0.9 U	0.9	4	0.72
11995	1,1,2-Trichloroethane	79-00-5	0.9 U	0.9	4	0.72
11995	Trichloroethene	79-01-6	0.9 U	0.9	4	0.72
11995	Trichlorofluoromethane	75-69-4	2 U	2	4	0.72
11995	Vinyl Chloride	75-01-4	0.9 U	0.9	4	0.72
11995	m+p-Xylene	179601-23-1	0.9 U	0.9	4	0.72
11995	o-Xylene	95-47-6	0.9 U	0.9	4	0.72
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
10726	**Acenaphthene**	83-32-9	**160**	4	21	1
10726	**Acenaphthylene**	208-96-8	**95**	4	21	1
10726	**Acetophenone**	98-86-2	**50 J**	29	62	1
10726	**Anthracene**	120-12-7	**510**	4	21	1
10726	Atrazine	1912-24-9	41 U	41	210	1
10726	**Benzaldehyde**	100-52-7	**170 J**	82	210	1
10726	**Benzo(a)anthracene**	56-55-3	**1,100**	4	21	1
10726	**Benzo(a)pyrene**	50-32-8	**970**	8	21	1
10726	**Benzo(b)fluoranthene**	205-99-2	**1,200**	4	21	1
10726	**Benzo(g,h,i)perylene**	191-24-2	**580**	8	21	1
10726	**Benzo(k)fluoranthene**	207-08-9	**630**	4	21	1
10726	**1,1'-Biphenyl**	92-52-4	**23 J**	21	45	1
10726	4-Bromophenyl-phenylether	101-55-3	25 U	25	62	1
10726	Butylbenzylphthalate	85-68-7	82 U	82	210	1
10726	Di-n-butylphthalate	84-74-2	82 U	82	210	1
10726	Caprolactam	105-60-2	41 U	41	210	1
10726	**Carbazole**	86-74-8	**260**	21	45	1
10726	4-Chloro-3-methylphenol	59-50-7	21 U	21	41	1
10726	4-Chloroaniline	106-47-8	41 U	41	210	1
10726	bis(2-Chloroethoxy)methane	111-91-1	21 U	21	45	1
10726	bis(2-Chloroethyl)ether	111-44-4	29 U	29	62	1
10726	2-Chloronaphthalene	91-58-7	8 U	8	41	1
10726	2-Chlorophenol	95-57-8	21 U	21	45	1
10726	4-Chlorophenyl-phenylether	7005-72-3	21 U	21	45	1
10726	2,2'-oxybis(1-Chloropropane)	108-60-1	21 U	21	45	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.					
10726	**Chrysene**	218-01-9	**1,100**	4	21	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SLUDGE18-01 Grab Sediment
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 09:15
SDG#: SBN20-03

C. T. Male Associates
ELLE Sample #: SW 9618551
ELLE Group #: 1945483
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg		ug/kg	ug/kg	
10726	**Dibenz(a,h)anthracene**	53-70-3	**180**		4	21	1
10726	**Dibenzofuran**	132-64-9	**140**		21	45	1
10726	3,3'-Dichlorobenzidine	91-94-1	120	U	120	410	1
10726	2,4-Dichlorophenol	120-83-2	21	U	21	45	1
10726	Diethylphthalate	84-66-2	82	U	82	210	1
10726	2,4-Dimethylphenol	105-67-9	21	U	21	45	1
10726	Dimethylphthalate	131-11-3	82	U	82	210	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	620	1
10726	2,4-Dinitrophenol	51-28-5	450	U	450	1,200	1
10726	2,4-Dinitrotoluene	121-14-2	82	U	82	210	1
10726	2,6-Dinitrotoluene	606-20-2	25	U	25	62	1
10726	1,4-Dioxane	123-91-1	120	U	120	410	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	210	1
10726	**Fluoranthene**	206-44-0	**2,300**		4	21	1
10726	**Fluorene**	86-73-7	**170**		4	21	1
10726	Hexachlorobenzene	118-74-1	4	U	4	21	1
10726	Hexachlorobutadiene	87-68-3	25	U	25	62	1
10726	Hexachlorocyclopentadiene	77-47-4	210	U	210	620	1
10726	Hexachloroethane	67-72-1	41	U	41	210	1
10726	**Indeno(1,2,3-cd)pyrene**	193-39-5	**590**		8	21	1
10726	Isophorone	78-59-1	21	U	21	45	1
10726	**2-Methylnaphthalene**	91-57-6	**66**		12	41	1
10726	2-Methylphenol	95-48-7	33	U	33	82	1
10726	**4-Methylphenol**	106-44-5	**31**	**J**	25	62	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10726	**Naphthalene**	91-20-3	**140**		8	21	1
10726	2-Nitroaniline	88-74-4	25	U	25	62	1
10726	3-Nitroaniline	99-09-2	82	U	82	210	1
10726	4-Nitroaniline	100-01-6	82	U	82	210	1
10726	Nitrobenzene	98-95-3	33	U	33	82	1
10726	2-Nitrophenol	88-75-5	21	U	21	45	1
10726	4-Nitrophenol	100-02-7	210	U	210	620	1
10726	N-Nitroso-di-n-propylamine	621-64-7	25	U	25	62	1
10726	N-Nitrosodiphenylamine	86-30-6	21	U	21	45	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10726	Di-n-octylphthalate	117-84-0	82	U	82	210	1
10726	Pentachlorophenol	87-86-5	45	U	45	210	1
10726	**Phenanthrene**	85-01-8	**2,000**		4	21	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SLUDGE18-01 Grab Sediment
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 09:15
SDG#: SBN20-03

C. T. Male Associates
ELLE Sample #: SW 9618551
ELLE Group #: 1945483
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
10726	Phenol	108-95-2	29 U	29	62	1
10726	**Pyrene**	129-00-0	**2,000**	4	21	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	21 U	21	45	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	82 U	82	210	1
10726	2,4,5-Trichlorophenol	95-95-4	25 U	25	62	1
10726	2,4,6-Trichlorophenol	88-06-2	25 U	25	62	1
	The GC/MS semivolatile surrogate recoveries were outside of QC limits. The matrix spike and matrix spike duplicate samples were analyzed and surrogate recoveries were within QC limits but were again low, indicating a matrix effect.					
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.25 U	0.25	0.74	1
14027	Perfluorobutanoic acid	375-22-4	0.25 U	0.25	0.74	1
14027	Perfluorodecanoic acid	335-76-2	0.25 U	0.25	0.74	1
14027	Perfluorododecanoic acid	307-55-1	0.25 U	0.25	0.74	1
14027	Perfluoroheptanoic acid	375-85-9	0.25 U	0.25	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.25 U	0.25	0.74	1
14027	Perfluorohexanoic acid	307-24-4	0.25 U	0.25	0.74	1
14027	Perfluorononanoic acid	375-95-1	0.25 U	0.25	0.74	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.37 U	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.4**	0.25	0.74	1
14027	Perfluoropentanoic acid	2706-90-3	0.25 U	0.25	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25 U	0.25	0.74	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25 U	0.25	0.74	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25 U	0.25	0.74	1
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**5,890**	9.20	41.2	1
01650	**Calcium**	7440-70-2	**91,100**	17.1	206	5
01654	**Iron**	7439-89-6	**18,800**	8.29	41.2	1
01657	**Magnesium**	7439-95-4	**43,100**	2.50	20.6	1
06958	**Manganese**	7439-96-5	**958**	0.0854	1.03	1
01662	**Potassium**	7440-09-7	**612**	17.2	103	1
01667	**Sodium**	7440-23-5	**105** J	17.2	206	1
06972	**Zinc**	7440-66-6	**133**	0.247	4.12	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.306** J	0.0959	0.412	2
06125	**Arsenic**	7440-38-2	**6.50**	0.132	0.823	2
06126	**Barium**	7440-39-3	**99.9**	0.187	0.823	2
06127	**Beryllium**	7440-41-7	**0.372**	0.0108	0.206	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SLUDGE18-01 Grab Sediment
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 09:15
SDG#: SBN20-03

C. T. Male Associates
ELLE Sample #: SW 9618551
ELLE Group #: 1945483
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06128	**Cadmium**	7440-43-9	**0.474**	0.0354	0.206	2
06131	**Chromium**	7440-47-3	**13.6**	0.179	0.823	2
06132	**Cobalt**	7440-48-4	**13.2**	0.0321	0.206	2
06133	**Copper**	7440-50-8	**66.0**	0.110	0.823	2
06135	**Lead**	7439-92-1	**50.2**	0.0228	0.412	2
06139	**Nickel**	7440-02-0	**28.7**	0.205	0.823	2
06141	**Selenium**	7782-49-2	**0.156 J**	0.103	0.823	2
06142	**Silver**	7440-22-4	**0.585**	0.0301	0.206	2
06145	**Thallium**	7440-28-0	**0.0704 J**	0.0257	0.206	2
06148	**Vanadium**	7440-62-2	**17.6**	0.0438	0.206	2
	SW-846 7471B		**mg/kg**	**mg/kg**	**mg/kg**	
00159	**Mercury**	7439-97-6	**0.280**	0.0115	0.115	1
Wet Chemistry	**SM 5310 B modified-2011**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**14,800**	2,700	8,100	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.81**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**19.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
11995	SOM02.2 Volatiles	SW-846 8260C	1	B181511AA	05/31/2018 11:26	✓	Stephen C Nolte	0.72
06176	GC/MS - LL Water Prep	SW-846 5035A	1	201813949946	05/19/2018 19:52	✓	Rebecca Williams	1
06176	GC/MS - LL Water Prep	SW-846 5035A	2	201813949946	05/19/2018 19:52	✓	Rebecca Williams	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201813949946	05/18/2018 09:15	✓	Client Supplied	1
10726	TCL Semivolatiles	SW-846 8270D	1	18144SLE026	05/30/2018 03:49		Brandon K Cordova	1
10813	BNA Soil Microwave APP IX	SW-846 3546	1	18144SLE026	05/25/2018 00:20	✓	Samantha M Metzgar	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SLUDGE18-01 Grab Sediment
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 09:15
SDG#: SBN20-03

C. T. Male Associates
ELLE Sample #: SW 9618551
ELLE Group #: 1945483
Matrix: Sediment

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18142016	05/25/2018	12:53	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18142016	05/22/2018	15:00	Anthony C Polaski	1
01643	Aluminum	SW-846 6010C	1	181411063701	05/22/2018	05:03	Xavier Arroyo	1
01650	Calcium	SW-846 6010C	1	181411063701	05/23/2018	14:00	Eric L Eby	5
01654	Iron	SW-846 6010C	1	181411063701	05/22/2018	05:03	Xavier Arroyo	1
01657	Magnesium	SW-846 6010C	1	181411063701	05/22/2018	05:03	Xavier Arroyo	1
06958	Manganese	SW-846 6010C	1	181411063701	05/22/2018	05:03	Xavier Arroyo	1
01662	Potassium	SW-846 6010C	1	181411063701	05/22/2018	05:03	Xavier Arroyo	1
01667	Sodium	SW-846 6010C	1	181411063701	05/22/2018	05:03	Xavier Arroyo	1
06972	Zinc	SW-846 6010C	1	181411063701	05/22/2018	05:03	Xavier Arroyo	1
06124	Antimony	SW-846 6020A	1	181411063701A	05/24/2018	05:28	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	181411063701A	05/24/2018	05:28	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	181411063701D	05/24/2018	05:28	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	181411063701A	05/24/2018	05:28	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	181411063701A	05/24/2018	05:28	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	181411063701A	05/24/2018	05:28	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	181411063701A	05/24/2018	05:28	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	181411063701A	05/24/2018	05:28	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	181411063701A	05/24/2018	05:28	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	181411063701A	05/24/2018	05:28	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	181411063701B	05/24/2018	05:28	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	181411063701A	05/24/2018	05:28	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	181411063701A	05/24/2018	05:28	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	181411063701A	05/24/2018	05:28	Choon Y Tian	2
00159	Mercury	SW-846 7471B	1	181421063801	05/23/2018	07:46	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	181411063701	05/21/2018	16:40	Barbara A Kane	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	181421063801	05/22/2018	18:05	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2011	1	18149667631B	05/29/2018	19:34	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	18150039401A	05/30/2018	16:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18141820006B	05/21/2018	16:47	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3a-SW18-01-180518 Grab Surface Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 08:45
SDG#: SBN20-04

C. T. Male Associates
ELLE Sample #: GW 9618552
ELLE Group #: 1945483
Matrix: Surface Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	0.95 U	0.95	1.9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1.9 U	1.9	5.7	1
14473	NEtFOSAA	2991-50-6	0.95 U	0.95	2.9	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.95 U	0.95	2.9	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.49 J**	0.29	0.95	1
14473	Perfluorobutanoic acid	375-22-4	1.9 U	1.9	5.7	1
14473	Perfluorodecanoic acid	335-76-2	0.95 U	0.95	1.9	1
14473	Perfluorododecanoic acid	307-55-1	0.29 U	0.29	0.95	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1.1**	0.29	0.95	1
14473	Perfluorohexanesulfonate	355-46-4	0.38 U	0.38	1.9	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.73 J**	0.38	1.9	1
14473	Perfluorononanoic acid	375-95-1	0.38 U	0.38	1.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.95 U	0.95	2.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**0.92 J**	0.38	1.9	1
14473	**Perfluorooctanoic acid**	335-67-1	**28**	0.29	0.95	1
14473	Perfluoropentanoic acid	2706-90-3	1.9 U	1.9	5.7	1
14473	Perfluorotetradecanoic acid	376-06-7	0.29 U	0.29	0.95	1
14473	Perfluorotridecanoic acid	72629-94-8	0.29 U	0.29	0.95	1
14473	Perfluoroundecanoic acid	2058-94-8	0.38 U	0.38	1.9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18141019	05/25/2018 06:02	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18141019	05/21/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SW18-01-051818 Grab Surface Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 08:45
SDG#: SBN20-04

C. T. Male Associates
ELLE Sample #: GW 9618552
ELLE Group #: 1945483
Matrix: Surface Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	0.95 U	0.95	1.9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1.9 U	1.9	5.7	1
14473	NEtFOSAA	2991-50-6	0.95 U	0.95	2.9	1
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14473	NMeFOSAA	2355-31-9	0.95 U	0.95	2.9	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
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14473	Perfluorododecanoic acid	307-55-1	0.29 U	0.29	0.95	1
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14473	Perfluorohexanesulfonate	355-46-4	0.38 U	0.38	1.9	1
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14473	Perfluoropentanoic acid	2706-90-3	1.9 U	1.9	5.7	1
14473	Perfluorotetradecanoic acid	376-06-7	0.29 U	0.29	0.95	1
14473	Perfluorotridecanoic acid	72629-94-8	0.29 U	0.29	0.95	1
14473	Perfluoroundecanoic acid	2058-94-8	0.38 U	0.38	1.9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18141019	05/25/2018 06:02	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18141019	05/21/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

SECTION 6

PROJECT CORRESPONDENCE

Meg Michell

From: Nancy Bornholm <NancyBornholm@eurofinsUS.com>
Sent: Tuesday, June 5, 2018 1:55 PM
To: Meg Michell
Cc: Michael D. Dupay; Lauren Brady; 'edietrich@barr.com'; David Blye; StGobain; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: SBN20 requests

Just put through the reprint request.

Nancy
Direct dial: 717-556-7250
Main number: 717-656-2300 X 1310

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Tuesday, June 05, 2018 12:54 PM
To: Nancy Bornholm
Cc: Michael D. Dupay; Lauren Brady; 'edietrich@barr.com'; David Blye; StGobain; Moline, Kirk (k.moline@ctmale.com)
Subject: FW: SBN20 requests

EXTERNAL EMAIL*

Hi-
Could you address the following?
Thanks!!

From: Jared K. Acker
Sent: Tuesday, June 5, 2018 12:49 PM
To: Meg Michell <mmichell@envstd.com>
Subject: SBN20 requests

Hi

Only one request for this SDG; the sample ID's do not match between the data and the COC for samples SG3a-FTB01-**051818**, SG3a-LTB01-**051818**, and SG3a-SW18-01-**051818**. The dates should be in the YYMMDD format as on the COC (**180518**).

We will also need data tables from Barr once the EDD is revised.

Thanks

Jared Acker
Staff Chemist II
Environmental Standards, Inc.
1140 Valley Forge Road • PO Box 810 • Valley Forge, PA 19482
610.935.5577 x403 • www.envstd.com • jacker@envstd.com

Emergency Response Quality Assurance Hotline: 855.374.7272

ENVIRONMENTAL® STANDARDS

DATA USABILITY SUMMARY REPORT

ANALYSIS OF PERFLUORINATED COMPOUNDS

IN SOIL SAMPLES AND AQUEOUS BLANKS

1030 WATER STREET, VILLAGE OF NORTH BENNINGTON,

BENNINGTON COUNTY VERMONT, VTDEC SMS SITE # 20164630

SAMPLE DELIVERY GROUP: SGP93

June 21, 2017

Prepared for:

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

Prepared by:

ENVIRONMENTAL STANDARDS, INC.
1140 Valley Forge Road
P.O. Box 810
Valley Forge, PA 19482-0810

In conjunction with:

BARR ENGINEERING COMPANY
4300 MarketPointe Drive
Minneapolis, MN 55435

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TABLE OF CONTENTS

Introduction

Section 1 **Quality Assurance Review**

A. Organic Data Review

B. General Parameter Data Review

C. Conclusions

Section 2 **Validated Data Summary Tables**

Section 3 **Laboratory Calibration and Quality Control Acceptance Criteria**

Section 4 **Environmental Standards, Inc., Standard Operating Procedure**

Section 5 **Organic Data Support Documentation**

Section 6 **General Parameter Data Support Documentation**

Section 7 **Laboratory Case Narratives and Project Chain-of-Custody Record**

Section 8 **Project Correspondence**

Introduction

This Data Usability Summary Report (DUSR) was based upon an examination of the data generated from samples that were collected on June 8, 13, and 14, 2016, as part of the 1030 Water Street, Village of North Bennington, Vermont project based on the "Initial Site Characterization Investigation Work Plan Saint-Gobain Performance Plastics Site 1030 Water Street, Village of North Bennington, Bennington County, Vermont" (Work Plan, April 2016). The analyses of the samples (and associated quality control [QC] samples) listed on the table below were performed by Eurofins Lancaster Laboratories Environmental (ELLE) of Lancaster, Pennsylvania. Soil samples were analyzed for perfluorinated compounds (PFCs) according to ELLE's internal standard operating procedure (SOP) "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins document reference 1-P-QM-WI-9035864, Rev. 2), total organic carbon (TOC) according to Standard Method (SM) 5310B, and percent moisture according to SM 2540G. Aqueous blank samples were analyzed for PFCs according to ELLE's internal SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins document reference 1-P-QM-WI -9012802, Rev. 5). Comprehensive data deliverables were prepared by the laboratory and were reviewed by Barr Engineering Company (Barr) and Environmental Standards, Inc. (Environmental Standards). The samples that have undergone a quality assurance (QA) review are listed on Table 1. Table 1 also presents the laboratory sample number, laboratory Sample Delivery Group (SDG), matrix, collection date, parameters analyzed and reviewed, and review type for the samples.

The reported analytical results are presented on the validated data summary tables included in Section 2. These validated data summary tables were generated from electronic data deliverables (EDDs) provided by the laboratory and have been edited by the data reviewer to include all final data validation qualifiers and results. The "Lab Result," "Lab MDL" (*i.e.*, the method detection limit [MDL]), "Lab LOQ" (*i.e.*, the limit of quantitation [LOQ]), "Lab Qualifier," and "Lab Detect Flag" fields presented on the validated data summary tables were derived directly from the laboratory-provided EDD. Errors in the "Lab Result," "Lab MDL," "Lab LOQ," and "Lab Detect Flag" fields noted during validation have been corrected, and the corrections are reflected in the "Final Result," "Final MDL," "Final LOQ," and "Final Detect Flag" fields, respectively, on the validated data summary tables. Validation qualifier codes have been placed in the "Validation Qualifier" fields on the data tables to enable the data user to quickly assess the qualitative and/or quantitative reliability of a result based on the criteria evaluated during this QA review. Finally, the "Validation Reason Code" field has been populated with codes that indicate the reason for the validation qualifiers. Definitions of the validation qualifier and reason codes are presented with the validated data summary tables.

This DUSR has been performed with guidance from the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016), and the "National Functional Guidelines for High Resolution Superfund Methods Data Review" (US EPA, April 2016) for the PFC analyses and from the "National Functional Guidelines for Inorganic Superfund Data

Review" (US EPA, September 2016) for TOC and percent moisture analyses; however, these validation guidance documents specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocol performed by the laboratory for these samples. Environmental Standards used professional judgment to determine the usability of the analytical results and compliance relative to the requirements specified in the Work Plan, US EPA Method 537, ELLE's internal SOPs for PFC analysis, SM 5310B for TOC analysis, and SM 2540G for percent moisture analysis. US EPA Method 537 is written strictly for drinking water samples and no approved US EPA method currently exists for other sample matrices. Although ELLE's internal SOPs reference US EPA Method 537 for PFC analysis, the procedures are really "in-house" procedures that are also considered "Confidential Information"; therefore, a summary of the Calibration and QC Requirements used by ELLE for PFC analysis has been included in Section 3. In addition, the SOP used by Environmental Standards to validate data generated under the ELLE PFC SOPs is provided in Section 4. Details of this QA review are presented in Section 1 of this DUSR.

This DUSR identifies data quality issues for specific samples and specific evaluation criteria. The data qualifications allow the data end-user to best understand the usability of the analysis results. Data not qualified in this report should be considered valid based on the QC criteria that have been reviewed.

Section 5 of the report presents the Organic Data Support Documentation for this DUSR, and Section 6 of the report presents the General Parameter Data Support Documentation for this DUSR. Section 7 presents copies of the Laboratory Case Narratives and Project Chain-of-Custody (COC) Record. Section 8 presents the Project Correspondence.

TABLE 1 – SUMMARY OF SAMPLES REVIEWED

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3-LTB-20160613 (Trip Blank)	8427012	SGP93	Aq	6/8/16**	F*	PFC
SG3-LTB-20160613MS (Matrix Spike)	8427012MS	SGP93	Aq	6/8/16**	F*	PFC
SG3-FTB-20160613 (Field Blank)	8427013	SGP93	Aq	6/13/16	F*	PFC
SG3-MW07-00.0	8427014	SGP93	Soil	6/13/16	F* L	PFC TOC, Mois
SG3-MW07-00.0RE (Re-extraction)	8427014	SGP93	Soil	6/13/16	F*	PFC
SG3-MW07-00.0MS (Matrix Spike)	8427015	SGP93	Soil	6/13/16	F* L	PFC TOC
SG3-MW07-00.0MSRE (Matrix Spike Re-extraction)	8427015	SGP93	Soil	6/13/16	F*	PFC
SG3-MW07-00.0MSD (Matrix Spike Duplicate)	8427016	SGP93	Soil	6/13/16	F*	PFC
SG3-MW07-00.0MSDRE (Matrix Spike Duplicate Re-extraction)	8427016	SGP93	Soil	6/13/16	F*	PFC
SG3-MW07-00.0DUP (Laboratory Duplicate)	8427014DUP	SGP93	Soil	6/13/16	L	TOC, Mois
SG3-MW07-00.5	8427017	SGP93	Soil	6/13/16	F* L	PFC TOC, Mois
SG3-MW07-00.5RE (Re-extraction)	8427017	SGP93	Soil	6/13/16	F*	PFC
SG3-MW07-01.0	8427018	SGP93	Soil	6/13/16	F* L	PFC TOC, Mois
SG3-MW07-01.0RE (Re-extraction)	8427018	SGP93	Soil	6/13/16	F*	PFC
SG3-MW07-01.5	8427019	SGP93	Soil	6/13/16	F* L	PFC TOC, Mois
SG3-MW07-01.5RE (Re-extraction)	8427019	SGP93	Soil	6/13/16	F* L	PFC TOC, Mois
SG3-FD01-20160613 (Field Duplicate of SG3-MW07-00.5)	8427020	SGP93	Soil	6/13/16	F*	PFC

TABLE 1 (Cont.)

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3-FD01-20160613 (Re-extraction)	8427020	SGP93	Soil	6/13/16	F* L	PFC Mois
SG3-MW07-02.5	8427021	SGP93	Soil	6/14/16	F* L	PFC TOC, Mois
SG3-MW07-02.5RE (Re-extraction)	8427021	SGP93	Soil	6/14/16	F* L	PFC TOC, Mois
SG3-MW05-00.0	8427022	SGP93	Soil	6/14/16	F* L	PFC TOC, Mois
SG3-MW05-00.0RE (Re-extraction)	8427022	SGP93	Soil	6/14/16	F*	PFC
SG3-MW05-00.5	8427023	SGP93	Soil	6/14/16	F* L	PFC TOC, Mois
SG3-MW05-00.5RE (Re-extraction)	8427023	SGP93	Soil	6/14/16	F*	PFC
SG3-MW05-01.0	8427024	SGP93	Soil	6/14/16	F* L	PFC TOC, Mois
SG3-MW05-01.0RE (Re-extraction)	8427024	SGP93	Soil	6/14/16	F*	PFC
SG3-MW05-01.5	8427025	SGP93	Soil	6/14/16	F* L	PFC TOC, Mois
SG3-MW05-01.5RE (Re-extraction)	8427025	SGP93	Soil	6/14/16	F*	PFC
SG3-MW05-03.0	8427026	SGP93	Soil	6/14/16	F* L	PFC TOC, Mois
SG3-MW05-03.0RE (Re-extraction)	8427026	SGP93	Soil	6/14/16	F*	PFC
SG3-RB01-20160614 (Rinse Blank)	8427027	SGP93	Aq	6/14/16	F*	PFC
SG3-RB02-20160614 (Rinse Blank)	8427028	SGP93	Aq	6/14/16	F*	PFC
SG3-MW06-00.0	8427029	SGP93	Soil	6/14/16	F* L	PFC TOC, Mois
SG3-MW06-00.0RE (Re-extraction)	8427029	SGP93	Soil	6/14/16	F*	PFC
SG3-MW06-00.5	8427030	SGP93	Soil	6/14/16	F* L	PFC TOC, Mois
SG3-MW06-00.5RE (Re-extraction)	8427030	SGP93	Soil	6/14/16	F*	PFC

TABLE 1 (Cont.)

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3-MW06-00.5MS (Matrix Spike)	8427030MS	SGP93	Soil	6/14/16	L	TOC
SG3-MW06-00.5DUP (Laboratory Duplicate)	8427030DUP	SGP93	Soil	6/14/16	L	TOC
SG3-MW06-01.0	8427031	SGP93	Soil	6/14/16	F* L	PFC TOC, Mois
SG3-MW06-01.0RE (Re-extraction)	8427031	SGP93	Soil	6/14/16	F*	PFC
SG3-MW06-01.5	8427032	SGP93	Soil	6/14/16	F* L	PFC TOC, Mois
SG3-MW06-01.5RE (Re-extraction)	8427032	SGP93	Soil	6/14/16	F*	PFC
SG3-RB03-20160614 (Rinse Blank)	8427033	SGP93	Aq	6/14/16	F*	PFC
SG3-MW07-09.5	8427034	SGP93	Soil	6/14/16	F* L	PFC TOC, Mois
SG3-MW07-09.5RE (Re-extraction)	8427034	SGP93	Soil	6/14/16	F*	PFC
SG3-MW07-12.0	8427035	SGP93	Soil	6/14/16	F* L	PFC TOC, Mois
SG3-MW07-12.0RE (Re-extraction)	8427035	SGP93	Soil	6/14/16	F*	PFC
SG3-MW07-12.0DUP (Laboratory Duplicate)	8427035DUP	SGP93	Soil	6/14/16	L	Mois
SG3-MW07-22.0	8427036	SGP93	Soil	6/14/16	F* L	PFC TOC, Mois
SG3-MW07-22.0RE (Re-extraction)	8427036	SGP93	Soil	6/14/16	F*	PFC

NOTES:

PFC - Perfluorinated Compounds (PFCs) according to ELLE's SOP "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins document reference 1-P-QM-WI-9035864, Rev. 2) for soil samples or ELLE's SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins document reference 1-P-QM-WI -9012802, Rev. 5) for aqueous blank samples. (46 Full analyses)

TOC - Total Organic Carbon by Standard Method 5310B. (21 Limited analyses)

Mois - Percent Moisture by Standard Method 2540G. (20 Limited analyses)

Aq - Aqueous.

F* - Full QA Review (performed in association with Barr personnel).

TABLE 1 (Cont.)

NOTES (Cont.):

L - Limited QA Review.
** - This collection date was recorded on the COC Record for the trip blank and pre-dates the collection date of the associated field samples. The data reviewer used the earliest collection date of the associated samples in order to evaluate holding time for the trip blank.

Section 1 Quality Assurance Review

A. Organic Data Review

The organic analyses of 40 soil samples and six aqueous blanks (including QC samples and re-extractions) collected as part of the 1030 Water Street, Village of North Bennington, Vermont project on June 8, 13, and 14, 2016, were performed by ELLE. Soil samples were analyzed for PFCs according to ELLE's internal SOP "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins document reference 1-P-QM-WI-9035864, Rev. 2). Aqueous blank samples were analyzed for PFCs according to ELLE's internal SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins document reference 1-P-QM-WI -9012802, Rev. 5). Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data were presented in comprehensive data deliverables.

Barr personnel performed the initial data review, and Environmental Standards personnel conducted a secondary peer review and prepared this report. The findings offered in this report are based upon a review of all tabulated QC summary forms and raw data including the following QC measures:

- Sample and extract holding times
- Blank analysis results
- Second-source initial calibration verification (ICV) recoveries
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Labeled compound responses
- Analytical sequence
- Quantitation of results
- Sample condition upon laboratory receipt
- Initial calibrations
- Continuing calibration verification (CCV) recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate precision
- Qualitative identification

The analytical results for the organic target compounds are presented on the validated data summary tables in Section 2 of this report. The validated data summary tables include the full names of the target analytes along with their associated acronyms, which are used throughout the text of this DUSR. A summary of ELLE's Calibration and QC Requirements has been included in Section 3. The SOP used by Environmental Standards to validate data generated under the ELLE SOP is provided in Section 4. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, relevant raw data, and other documentation needed to support the findings in this DUSR in the Organic Data Support Documentation (Section 5), Laboratory Case Narratives and Project Chain-of-Custody Record (Section 7), and Project Correspondence

(Section 8). The data reviewer has also manually edited the laboratory-reported data, and QC summary forms included in these sections based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Usability issues are addressed in the subsequent Organic Data Qualifiers section. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the ELLE internal SOPs and the reference method, US EPA Method 537, Revision 1.1.

Reporting Issues

1. The MDLs and LOQs reported by the laboratory for PFCs for the soil samples and their associated batch QC (method blank, LCS, and MS/MSD) were calculated based on a sample weight of 5.00 g in the original data package and EDD provided. The actual sample weight, as recorded on the extraction log, was between 4.50 g and 5.50 g for soil samples. Upon inquiry, the laboratory revised the MDLs and LOQs to reflect the actual sample weights as used for the positive results (refer to Project Correspondence). All results, MDLs, and LOQs reported by the laboratory for PFCs in aqueous blank samples and their associated batch QC (method blank, LCS, and MS/MSD) were calculated based on a sample weight of 100.00 g and assuming a sample density equivalent to water density of 1.00 g/mL. All results for PFCs in the non-reported re-extracts of the soil samples and their associated batch QC (method blank, LCS, and MS/MSD) were calculated based on a sample weight of 5.00 g. The actual sample weight, as recorded on the extraction log, was between 99.50 g and 100.50 g for aqueous samples; therefore, the reported results, MDLs, and LOQs may be minimally off (± 0.5%) from the actual measured values. The actual sample weight, as recorded on the extraction log, was between 4.50 g and 5.50 g for soil samples; therefore, the wet-weight results reported in the raw data may be up to ± 10% off from the actual measured values. The laboratory has since begun using the actual sample weights in all these calculations.

2. The instrument systems used for the PFC analysis were not compatible with the laboratory information management system (LIMS) at the time of the analysis of the samples included in this DUSR. As a result, the laboratory entered 100% of the data (samples, QC, and calibration results) into LIMS manually. The laboratory review process included 100% verification (secondary-level review) of the information presented on the “Analysis Report” section of the data package. The “Analysis Report” section includes sample and batch QC results. All forms presented in the “Quality Control and Calibration Summary Forms” section of the data package were only spot-checked during the secondary level review performed at the laboratory.

   The data reviewer noted frequent errors on the forms presented in the “Quality Control and Calibration Summary Forms” section of the data package; however, these errors did not have a direct impact on sample results because the results were also manually entered into LIMS and not calculated based on the information presented on these forms. Much of the information presented on the forms in “Quality Control and

Calibration Summary Forms" section was repeated, either in the "Analysis Report" (method blank, LCS, and MS/MSD) or on a summary generated directly from the instrument (with 100% electronic transfer) and presented in the "Standards Data" section of the data package. Where an alternate form was provided in the "Analysis Report" or "Standards Data" sections of the data package, the data reviewer did not verify the information also presented in the "Quality Control and Calibration Summary Forms" section.

The only information in the "Quality Control and Calibration Summary Forms" section that is not in a summary in the "Analysis Report" or "Standards Data" sections is the "Quality Control Summary" for "Internal Standards." The data reviewer verified the information presented on the Internal Standard summary forms and has indicated the presence of any errors (including errors in flagging internal standards outside of limits) in the Organic Data Support Documentation section of this DUSR. The data reviewer used the corrected values to evaluate internal standard performance.

3. In some cases, the criteria presented on various calibration and QC summary forms included in the data packages were disparate with the criteria presented in ELLE's internal SOPs. In addition, the laboratory noted exceedances in the Case Narratives that were sometimes not consistent with the SOP criteria. Upon request for clarification, ELLE provided a summary of the Calibration and QC Requirements relevant to the PFC analyses performed, which has been included in Section 3. Some of the criteria provided were different than that presented in either the internal ELLE SOPs or presented in the data packages. The data reviewer evaluated the data based on the criteria presented in Section 3 as detailed in the data validation SOP in Section 4.

4. According to laboratory personnel (refer to Project Correspondence), initial calibrations were processed on a batch basis, such that disparities were observed between separate versions of the same initial calibration in different data sets. These disparities could include minor differences in peak integrations (and responses) and differences in the internal standards utilized for PFBS, PFTA, and PFTriA, which do not have exact labeled internal standards. Where the initial calibration was common amongst multiple SDGs (including aforementioned processing factors), it was validated only once; therefore, the support documentation will include copies of forms (including Internal Standard summary forms) from the SDG in which it was validated.

5. The laboratory incorrectly identified the internal standard $^{18}O_2$-PFHxS as ^{13}C-PFHxS in the raw data associated with the aqueous blank samples and the non-reported analyses for the soil samples (refer to Project Correspondence). The internal standard has been correctly referred to as $^{18}O_2$-PFHxS in this report.

6. The laboratory reported a positive result of 0.84 ng/g and 0.89 for PFBS on the Analysis Reports and in the EDD for the samples SG3-MW06-00.0 and SG3-MW06-00.5 in the original data package provided. A review of the initial calibration curve used to quantitate the result revealed a *y*-intercept equivalent to 0.80 ng/g. Upon inquiry, the laboratory

revised the Analysis Reports and EDD to reflect a "not-detected" result for PFBS in the samples (refer to Project Correspondence).

7. Sample SG3-MW07-01.5 appeared to have two peaks for PFNA at two different retention times (RTs; reflecting branched and linear isomers); however, only the peak for the linear isomer was integrated for these samples. Upon Environmental Standards' inquiry, the laboratory confirmed that both peaks should be integrated and provided revised report and EDD to reflect the corrected result (refer to Project Correspondence).

Procedural Issues

1. US EPA Method 537 is listed as the reference method in the title of the ELLE SOPs; however, US EPA Method 537 is written specifically for the analysis of drinking water samples. As a result, the laboratory has made modifications to the extraction procedure to accommodate preparation of non-aqueous samples (ultrasonic extraction for an hour with 4:1 acetonitrile/water mixture vs. solid-phase extraction). In addition, the laboratory has made other modifications, including, but not limited to, the following:

   - For aqueous blank samples, 100 mL was subsampled for extraction instead of using the entire container contents (250 mL), and Sep-Pak C18 solid-phase extraction cartridges were used instead of polystyrenedivinylbenzene.
   - The laboratory utilized additional labeled analogs of the target PFCs where available for use as pre-extraction internal standards (all target PFCs except PFBS, PFTA, and PFTriA), which generally should normalize any extraction inefficiency and provide greater accuracy in quantitation.
   - As the labeled internal standards were added prior to extractions, additional labeled surrogate compounds were not used.
   - A holding time of 28 days from collection to extraction was used for soils.
   - The calibration and QC requirements that were used are presented in Section 3 and are less restrictive than US EPA Method 537 in some cases.
   - The laboratory did not control the relative percent difference (RPD) between the high and low areas for each internal standard in the initial calibration (must be < 20% by US EPA Method 537, Version 1.1).
   - The laboratory did not calculate the peak asymmetry factor.
   - The laboratory did not use the lowest and highest standards from the initial calibration in the CCV standard rotation.
   - The laboratory did not rotate the concentration used for the LCS.
   - The calibration standards only included the linear PFC isomers and available branched/linear standards were not analyzed for qualitative or quantitative purposes.
   - The calibration curves were not always forced through zero.
   - Alternate ion transitions were used for PFBS, PFHxS, PFOS, and ^{13}C-PFOS (299→99 instead of 299→80 for PFBS, 399→99 instead of 399→80 for PFHxS, 499→99 instead of 499→80 for PFOS, and 503→99 instead of 503→80 for ^{13}C-PFOS) - the fragment represented by *m/z* 80 is the sulfonate group; whereas,

the fragment represented by *m/z* 99 is the fluorinated sulfonate group (refer to Procedural Issue No. 3 for exceptions).

US EPA Method 537 requires the use of 499→80 for PFOS and 399→80 for PFHxS. Studies[1] have shown that quantifying with a linear standard using the 499→99 transition may underestimate the PFOS concentration because many of the branched isomers have a lower response than the linear isomer. Conversely, using only the 499→80 transition could overestimate PFOS if branched isomers are quantitated based on a linear standard. It is unknown whether the same potential biases are present for the 399→99 and 399→80 transitions for PFHxS and 299→99 and 299→80 transitions for PFBS.

2. Where transition ion peaks were observed and deemed by laboratory personnel to represent branched isomers in samples, the responses for such peaks were included in the response for the analyte and used to quantitate the sample results. The laboratory did not analyze standards that included both branched and linear isomers, and the laboratory's SOP did not specify RT criteria for determining whether peaks other than the peak representative of the linear isomer (based on calibration standards) should be included.

3. In some cases, multiple ion transitions were monitored and used for qualitative identification and quantitation. In these cases, the response for the compound represents a sum of the responses for the multiple ion transitions in the calibration standard, QC, and sample analyses. For the aqueous blank samples and the non-reported soil sample analyses, multiple ion transitions were used for PFBS (299→80 and 399→99), PFHxS (**399→80** and 399→99), PFOS (**499→80** and 499→99), and PFOA (413→169, 413→219, and 413→369) and the associated labeled internal standards $^{18}O_2$-PFHxS (403→84 and 403→103), $^{13}C_4$-PFOS (503→80 and 503→99), and $^{13}C_4$-PFOA (417→169 and 417→372). The response for the compounds in the aforementioned analyses may represent the response for one ion transition or multiple ion transitions (in any ratio), as separate responses were not acquired by the instrument. The use of summed multiple ion transitions for qualitative identification and quantitation is not described in the reference method (US EPA 537) and should be considered a non-standard technique. As a result, any impact to qualitative identification and quantitation caused by the use of this technique is unknown. As only one of the multiple ion transitions have to be present at the expected RT to generate a response, there may be a greater chance for a co-eluting interferent to create a false positive or provide positive bias. Quantitation may also be impacted by a different ratio of the ion transitions in the calibration standards than in the samples (as may be caused by the presence of branched isomers). The soil sample results were reported from analyses that did not use multiple ion transitions; therefore, the reported results were not impacted by this

[1] See Riddell, N. *et al.* Branched Perfluorooctane Sulfonate Isomer Quantification and Characterization in Blood Serum Samples by HPLC/ESI-MS(/MS). *Environ. Sci. Technol.* **2009**, 43, 7902-7908.

issue. Various PFCs were detected in the aqueous blank samples; however, no unusual chromatography was observed. There is no impact to "not-detected" results.

4. The internal standards the laboratory used for quantitation of PFBS, PFTA, and PFTriA vary, but were consistent within an analytical sequence under the same initial calibration. The internal standards that were used for PFBS include $^{13}C_2$-PFHxA, $^{18}O_2$-PFHxS, and $^{13}C_4$-PFOS. The internal standards that were used for PFTA and PFTriA include $^{13}C_2$-PFUnA and $^{13}C_2$-PFDoA. If the samples and associated QC samples within an extraction batch were reported from different analytical sequences, different internal standards may have been used for PFBS, PFTA, and PFTriA within the extraction batch. The laboratory began to use consistent internal standards for some of the analyses included in this data set (PFBS using $^{18}O_2$-PFHxS and PFTA and PFTriA using $^{13}C_2$-PFDoA for the reported soil sample results).

5. High recoveries were observed for several compounds in the LCS analysis associated with the initial analysis of the soil samples. The laboratory performed corrective action by re-extracting and reanalyzing the samples. The LCS recoveries associated with the re-extracted samples were within acceptance limits; however, the samples were re-extracted beyond the 28-day holding time from sample collection to extraction. The laboratory reported the data from the initial analysis. According to the Case Narrative, the QC limits are only advisory until sufficient data points can be obtained to calculate statistical limits. The advisory limits of 70-130% are consistent with US EPA Method 537. The data reviewer has qualified results due to the out-of-criteria LCS/LCSD recoveries as addressed in the subsequent Organic Data Qualifiers section.

   Upon comparison of the original and re-extracted soil sample results, with respect to the PFOA results in particular, it was concluded that several samples were likely misidentified within either the original analysis data set or within the re-extraction and reanalysis data set (refer to Project Correspondence). It appears that samples SG3-MW05-00.5, SG3-MW05-01.0, SG3-MW05-01.5, SG3-MW05-03.0, SG3-MW06-01.0, SG3-MW06-01.5, SG3-MW07-09.5, and SG3-MW07-12.0 were misidentified/switched either during the extraction process or when loading the samples onto the instrument for one of the two data sets. In addition, it could not be concluded whether or not samples SG3-MW05-00.0, SG3-MW06-00.0, and SG3-MW06-00.5 were part of the sample switching based on a comparison of the original and re-extract results. Any remaining volume for the samples were discarded prior to the data reviewer questioning the discrepancies and the laboratory was not able to take any additional action in an attempt to clarify the issue. The original results for the remaining samples were confirmed by the re-extraction results. Data for both the original and re-extracted analyses are included in Section 5 and a comparison of the PFOA results is included in Section 8 of this DUSR. Since it is not possible to resolve whether the samples were misidentified during the original extraction, the reported results for samples SG3-MW05-00.0, SG3-MW06-00.0, SG3-MW06-00.5, SG3-MW05-00.5, SG3-MW05-01.0, SG3-MW05-01.5, SG3-MW05-03.0, SG3-MW06-01.0, SG3-MW06-01.5, SG3-MW07-09.5, and SG3-MW07-12.0 have been rejected as addressed in the subsequent Organic Data Qualifier section.

6. The laboratory performed an MS analysis on sample SG3-LTB-20160613, which is a laboratory trip blank. Using a laboratory trip blank for an MS analysis generally provides no useful information on the "matrix" of field samples; however, all associated samples were field-generated blanks. The data reviewer applied qualification of data due to low PFTA, PFTriA, and PFBS recoveries in the MS of the trip blank to all associated blanks similar to an LCS, as addressed in the subsequent Organic Data Qualifiers section.

Data Evaluation

With respect to data usability, the principal areas of concern are a possible sample switch, out-of-criteria MS/MSD recoveries, low LCS recoveries, out-of-criteria internal standard responses, and quantitation below the LOQs. Based on a rigorous review of the data provided, the following data qualifiers are offered. The following data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical SOP used for analysis. Accordingly, the following data usability issues should not be construed as an indication of laboratory performance.

Organic Data Qualifiers

- The PFC analyses for samples SG3-MW05-00.0, SG3-MW05-00.5, SG3-MW05-01.0, SG3-MW05-01.5, SG3-MW05-03.0, SG3-MW06-00.0, SG3-MW06-00.5, SG3-MW06-01.0, SG3-MW06-01.5, SG3-MW07-09.5, and SG3-MW07-12.0 are unusable and all results have been flagged "R" on the data tables. The samples were possibly switched in the extraction or analysis of these samples (refer to Procedural Issue No. 5). (Validation Reason Code: PJ)

- The reported positive results for PFDA, PFHxA, PFUnA, PFDoA, and PFTA in sample SG3-MW07-00.0 should be considered estimated and have been flagged "J" on the data tables. High recoveries (> 130%) were observed for these compounds in the associated MS and/or MSD analysis. (Validation Reason Code: MAH)

- The MDLs and LOQs for PFBS in all aqueous samples and for PFTriA and PFTA in samples SG3-LTB-20160613, SG3-FTB-20160613, SG3-RB01-20160614, and SG3-RB03-20160614 may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. In addition, the reported positive results for PFTriA and PFTA in sample SG3-RB02-20160614 should be considered estimated and have been flagged "J" on the data tables. Low recoveries (30% ≤ %R < 70%) were observed for these compounds in the associated MS analysis (refer to Procedural Issue No. 6). (Validation Reason Code: MAL)

- The reported positive results for PFDA, PFHxA, PFUnA, PFDoA, and PFTA in sample SG3-MW07-00.0; for PFHxA in samples SG3-MW07-00.5, SG3-MW07-01.0 and SG3-FD1-20160613; and for PFDA in samples SG3-MW05-00.0, SG-MW05-01.5, and SG3-MW06-00.0 should be considered estimated and have been flagged "J" (unless previously flagged "R") on the data tables. High recoveries (> 130%) were observed for these compounds in the associated LCS analysis. (Validation Reason Code: LAH)

- The MDL and LOQ for PFDoA in sample SG3-LTB-20160613 may be higher than reported, and the "not-detected" result has been flagged "UJ" on the data tables. In addition, the reported positive result for PFHxA in sample SG3-RB02-20160614 should be considered estimated and has been flagged "J" on the data tables. Low responses (< 50% of the associated initial calibration average response) were observed for the labeled isotopes used to quantitate these compounds in the analyses of these samples. (Validation Reason Code: IS)

- The MDLs and LOQs for the following compounds in the samples listed below may be higher than reported, and the "not-detected" results have been flagged "UJ" (unless previously flagged "R") on the data tables. In addition, the reported positive results for the following compounds should be considered estimated and have been flagged "J" (unless previously flagged "R") on the data tables. High responses (> 150% of the associated initial calibration average response) were observed for the labeled isotopes used to quantitate these compounds in the analyses of these samples. (Validation Reason Code: IS)

Sample	Compound(s) With Estimated Positive Results ("J")	Compound(s) With Estimated MDLs and LOQs ("UJ")
SG3-MW07-01.0	PFOA and PFNA	PFBS, PFHxS, and PFDA
SG3-FD01-20160613	-	PFHpA
SG3-MW05-01.5	PFOA	PFBS, PFHxS, PFOS, and PFNA
SG3-MW06-00.0	PFOS	PFBS, PFHxS, and PFNA
SG3-MW06-00.5	-	PFOS
SG3-MW06-01.5	PFOA	PFBS, PFHxS, PFOS, PFNA, and PFDA
SG3-MW07-12.0	-	PFBS, PFHxS, and PFNA

- All positive results reported with concentrations between the laboratory's reported MDLs and LOQs were flagged "J" by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

B. General Parameter Data Review

The general parameter analyses of 23 soil samples (including QC samples) collected as part of the 1030 Water Street, Village of North Bennington, Vermont project on June 13 and 14, 2016, were performed by ELLE. The samples were analyzed for TOC by SM 5310B and for percent moisture by SM 2540G. Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data were presented in comprehensive data deliverable.

The findings offered in this report are based upon a review of all tabulated QC summary forms including the following QC measures:

- Sample holding times
- Blank analysis results
- Continuing calibration check recoveries
- MS results
- Analytical sequence
- Sample condition upon laboratory receipt
- Initial calibrations
- LCS results
- Laboratory duplicate precision
- Field duplicate precision

The analytical results for the target compounds are presented on the data tables in Section 2 of this DUSR. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, and other documentation needed to support the findings in this DUSR in the General Parameter Data Support Documentation (Section 6), Laboratory Case Narratives and Project Chain-of-Custody Record (Section 7), and Project Correspondence (Section 8). The data reviewer has also manually edited the laboratory-reported data and QC summary forms included in these sections based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the analytical methods performed.

Reporting Issue

- The laboratory did not include the TOC preparation log for the samples analyzed in Run #161762 on 6/24/16, in the data package provided. Upon request, the laboratory revised the data package to include these data (refer to Project Correspondence).

Procedural Issue

- Procedural issues were not identified during this DUSR.

Data Evaluation

With respect to data usability, the principal area of concern is laboratory duplicate imprecision. Based on a review of the data provided, the following data qualifier is offered. The following data usability issue represents an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical method used for analysis. Accordingly, the following data usability issue should not be construed as an indication of laboratory performance.

General Parameter Data Qualifier

- The MDL and LOQ for TOC in sample SG3-MW05-00.5 may be higher than reported, and the "not-detected" result has been flagged "UJ" on the data tables. In addition, the reported positive results for TOC in samples SG3-MW07-00.0, SG3-MW07-00.5, SG3-MW07-01.0, SG3-MW07-01.5, SG3-MW07-02.5, and SG3-MW05-00.0 should be considered estimated and have been flagged "J" on the data tables. A high RPD (> the laboratory acceptance limit) was observed for TOC in the associated laboratory duplicate analysis. (Validation Reason Code: LD)

C. Conclusions

The PFC results in several samples were qualified as unusable due to a possible sample switch. The remaining analytical data are acceptable for use as reported by the laboratory with the following qualifications. Several organic results were qualified as estimated due to out-of-criteria MS/MSD recoveries, low LCS recoveries, out-of-criteria internal standard responses, and quantitation below the LOQs. Several general parameter results were qualified as estimated due to laboratory duplicate imprecision. In order to use any of the data, the data user should understand the qualifications and limitations as specified in this DUSR. The Laboratory Case Narratives and Project Chain-of-Custody Record are presented in Section 7 of this report. Project Correspondence is presented in Section 8.

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SECTION 2

VALIDATED DATA SUMMARY TABLES

Validation Qualifier and Reason Code Definitions

Table 1. Validation Qualifiers and Definitions

Validation Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analyte has been “tentatively identified” or considered “presumptively” present.
UJ	The analyte was analyzed for, but was not detected. The reported MDL and limit of quantitation (LOQ) are approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
UB	The Analyte was not detected substantially above the level reported in the associated laboratory, equipment, field, or trip blank.

Table 2. Validation Reason Codes and Descriptions

Validation Reason Code	Description
CI	Chromatographic interference
CR	Calculated result in which one or more of the components has been qualified, potential bias indeterminate
CRH	Calculated result in which one or more of the components has been qualified, potential high bias
CRL	Calculated result in which one or more of the components has been qualified potential low bias
CV	Continuing calibration verification evaluation criteria not met, potential bias indeterminate
CVH	Continuing calibration verification evaluation criteria not met, potential high bias
CVL	Continuing calibration verification evaluation criteria not met, potential low bias
DC	Reporting limit exceeds decision criteria (for non-detects)
DL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the detection limit.
DT	Dissolved metals concentration exceeded total metals concentration in the sample above the acceptance criteria
DV	Missing Deliverables
EB	Equipment blank contamination
EC	Result exceeds the calibration range, potential bias indeterminate
ECH	Result exceeds the calibration range, potential high bias
ECL	Result exceeds the calibration range, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
EP	Estimated Maximum Possible Concentration (EMPC)
FB	Field blank contamination
FD	Field duplicate imprecision, potential bias indeterminate
FP	Potential false positives
FR	Field replicate imprecision, potential bias indeterminate
HA	Holding time - preparation to analysis, potential bias indeterminate
HAH	Holding time - preparation to analysis, potential high bias
HAL	Holding time - preparation to analysis, potential low bias
HC	Holding time - collection to analysis, potential bias indeterminate
HCH	Holding time - collection to analysis, potential high bias
HCL	Holding time - collection to analysis, potential low bias
HP	Holding time - collection to preparation, potential bias indeterminate
HPH	Holding time - collection to preparation, potential high bias
HPL	Holding time - collection to preparation, potential low bias
HV	Headspace present in volatile vials, potential bias indeterminate
HVL	Headspace present in volatile vials, potential low bias
IB	Instrument (including initial calibration or continuing calibration) blank contamination
IC	Initial calibration evaluation criteria not met, potential bias indeterminate
ICH	Initial calibration evaluation criteria not met, potential high bias
ICL	Initial calibration evaluation criteria not met, potential low bias
ID	Target compound identification criteria not met
IN	Elevated detection limit due to interference (i.e., laboratory, chemical, and/or matrix)
IR	Interference check standard recovery criteria not met, potential bias indeterminate
IRH	Interference check standard recovery criteria not met, potential high bias
IRL	Interference check standard recovery criteria not met, potential low bias
IS	Internal standard evaluation criteria not met, potential bias indeterminate
ISH	Internal standard evaluation criteria not met, potential high bias
ISL	Internal standard evaluation criteria not met, potential low bias
LA	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential bias indeterminate
LAH	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential high bias
LAL	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
LD	Laboratory duplicate precision criteria not met, potential bias indeterminate
LM	The PFK lock mass SICPs indicate that ion suppression evident
LP	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential bias indeterminate
LPH	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential high bias
LPL	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential low bias
LR	Linear range exceeded, potential bias indeterminate
MA	Matrix spike (MS &/or MSD) recovery criteria not met, potential bias indeterminate
MAH	Matrix spike (MS &/or MSD) recovery criteria not met, potential high bias
MAL	Matrix spike (MS &/or MSD) recovery criteria not met, potential low bias
MB	Method blank or preparation blank contamination
MP	Matrix spike (MS/MSD) or laboratory duplicate precision criteria not met, potential bias indeterminate
NB	Elevated detection limit or estimated result due to instrument drift (i.e., negative ICB or CCB result with an absolute value > 2× the MDL)
PD	Post-digestion spike recovery outside acceptance range, potential bias indeterminate
PDH	Post-digestion spike recovery outside acceptance range, potential high bias
PDL	Post-digestion spike recovery outside acceptance range, potential low bias
PJ	Professional judgment, potential bias indeterminate
PJH	Professional judgment, potential high bias
PJL	Professional judgment, potential low bias
PM	Performance evaluation mixture criteria not met, potential bias indeterminate
PMH	Performance evaluation mixture criteria not met, potential high bias
PML	Performance evaluation mixture criteria not met, potential low bias
PR	Peak(s) not adequately resolved, potential bias indeterminate
PRH	Peak(s) not adequately resolved, potential high bias
PRL	Peak(s) not adequately resolved, potential low bias
PS	Low percent solids could affect accuracy, potential bias indeterminate
PT	Chromatographic pattern in sample does not match pattern of calibration standard
RA	Reference material recovery criteria not met, potential bias indeterminate

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
RAH	Reference material recovery criteria not met, potential high bias
RAL	Reference material recovery criteria not met, potential low bias
RB	Rinsate blank contamination
RL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the quantitation or reporting limit, potential bias indeterminate
SA	Method of standard additions correction coefficient <0.995, potential bias indeterminate
SC	RPD Between two columns exceeds criteria, potential bias indeterminate
SD	Serial dilution results did not meet evaluation criteria, potential bias indeterminate
SDH	Serial dilution results did not meet evaluation criteria, potential high bias
SDL	Serial dilution results did not meet evaluation criteria, potential low bias
SP	Sample Preservation / Cooler Temperature, potential bias indeterminate
SPH	Sample Preservation / Cooler Temperature, potential high bias
SPL	Sample Preservation / Cooler Temperature, potential low bias
SR	Surrogate recovery outside acceptance range, potential bias indeterminate
SRH	Surrogate recovery outside acceptance range, potential high bias
SRL	Surrogate recovery outside acceptance range, potential low bias
SS	Second source evaluation criteria not met, potential bias indeterminate
SSH	Second source evaluation criteria not met, potential high bias
SSL	Second source evaluation criteria not met, potential low bias
ST	Compound not quantitated against an authentic standard, potential bias indeterminate
TB	Trip blank contamination
TD	Result for dissolved constituent significantly exceeded result for total constituent, potential bias indeterminate
TIC	Tentative identification, quantified using an assumed calibration factor, potential bias indeterminate.
TIR	Tentative identification and was observed in an associated laboratory, equipment, field, or trip blank.
TN	Instrument performance (tuning) criteria not met
YH	Due to a high y-intercept in the calibration curve, the sample result quantitated to a value greater than the MDL. Since the response ratio in the sample was less than the response ratio in the associated MDL standard, the reported result was changed to not-detected.

Facility:Bennington

SDG:SGP93

Sample ID	SG3-FD01-20160613
Sample Date	6/13/2016 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3-MW07-00.5_06/13/2016
Sample Matrix	SO
Lab Sample ID	8427020
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.60	1.9	U	N		0.60	1.9	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.24	0.48	U	N		0.24	0.48	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.48	0.95	U	N		0.48	0.95	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.36	0.71	U	N		0.36	0.71	UJ	N	IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.60	1.9	U	N		0.60	1.9	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	0.31	0.24	0.48	J	Y	0.31	0.24	0.48	J	Y	RL,LAH
Perfluorononanoic acid (PFNA)	375-95-1	1	0.61	0.24	0.48		Y	0.61	0.24	0.48		Y	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.83	1.9	U	N		0.83	1.9	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	5.0	0.36	0.71		Y	5.0	0.36	0.71		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.36	0.95	U	N		0.36	0.95	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.71	1.4	U	N		0.71	1.4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.36	0.71	U	N		0.36	0.71	U	N	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-FTB-20160613
Sample Date	6/13/2016 3:10:00 PM
Sample Type	FB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8427013
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1	1	1	2	J	Y	1	1	2	J	Y	RL
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	2	1	2		Y	2	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-LTB-20160613
Sample Date	6/8/2016 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8427012
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	UJ	N	IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	1	1	2	J	Y	1	1	2	J	Y	RL
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1	8	4	10	J	Y	8	4	10	J	Y	RL
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	2	1	2	J	Y	2	1	2	J	Y	RL
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW05-00.0
Sample Date	6/14/2016 8:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427022
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.52	1.7	U	N		0.52	1.7	R	N	PJ
Perfluorodecanoic acid (PFDA)	335-76-2	1	0.24	0.21	0.42	J	Y	0.24	0.21	0.42	R	Y	RL,LAH,PJ
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.42	0.84	U	N		0.42	0.84	R	N	PJ
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.31	0.63	U	N		0.31	0.63	R	N	PJ
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.52	1.7	U	N		0.52	1.7	R	N	PJ
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.21	0.42	U	N		0.21	0.42	R	N	PJ
Perfluorononanoic acid (PFNA)	375-95-1	1		0.21	0.42	U	N		0.21	0.42	R	N	PJ
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.73	1.7	U	N		0.73	1.7	R	N	PJ
Perfluorooctanoic acid (PFOA)	335-67-1	1	0.54	0.31	0.63	J	Y	0.54	0.31	0.63	R	Y	RL,PJ
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.31	0.84	U	N		0.31	0.84	R	N	PJ
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.63	1.3	U	N		0.63	1.3	R	N	PJ
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.31	0.63	U	N		0.31	0.63	R	N	PJ

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW05-00.5
Sample Date	6/14/2016 8:33:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427023
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.51	1.6	U	N		0.51	1.6	R	N	PJ
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.20	0.41	U	N		0.20	0.41	R	N	PJ
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.41	0.81	U	N		0.41	0.81	R	N	PJ
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.31	0.61	U	N		0.31	0.61	R	N	PJ
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.51	1.6	U	N		0.51	1.6	R	N	PJ
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.20	0.41	U	N		0.20	0.41	R	N	PJ
Perfluorononanoic acid (PFNA)	375-95-1	1		0.20	0.41	U	N		0.20	0.41	R	N	PJ
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.71	1.6	U	N		0.71	1.6	R	N	PJ
Perfluorooctanoic acid (PFOA)	335-67-1	1	5.2	0.31	0.61		Y	5.2	0.31	0.61	R	Y	PJ
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.31	0.81	U	N		0.31	0.81	R	N	PJ
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.61	1.2	U	N		0.61	1.2	R	N	PJ
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.31	0.61	U	N		0.31	0.61	R	N	PJ

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW05-01.0
Sample Date	6/14/2016 8:41:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427024
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.55	1.8	U	N		0.55	1.8	R	N	PJ
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.22	0.44	U	N		0.22	0.44	R	N	PJ
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.44	0.88	U	N		0.44	0.88	R	N	PJ
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.33	0.66	U	N		0.33	0.66	R	N	PJ
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.55	1.8	U	N		0.55	1.8	R	N	PJ
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.22	0.44	U	N		0.22	0.44	R	N	PJ
Perfluorononanoic acid (PFNA)	375-95-1	1		0.22	0.44	U	N		0.22	0.44	R	N	PJ
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.77	1.8	U	N		0.77	1.8	R	N	PJ
Perfluorooctanoic acid (PFOA)	335-67-1	1	4.7	0.33	0.66		Y	4.7	0.33	0.66	R	Y	PJ
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.33	0.88	U	N		0.33	0.88	R	N	PJ
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.66	1.3	U	N		0.66	1.3	R	N	PJ
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.33	0.66	U	N		0.33	0.66	R	N	PJ

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW05-01.5
Sample Date	6/14/2016 8:46:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427025
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.59	1.9	U	N		0.59	1.9	R	N	IS,PJ
Perfluorodecanoic acid (PFDA)	335-76-2	1	0.36	0.24	0.47	J	Y	0.36	0.24	0.47	R	Y	RL,LAH,PJ
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.47	0.94	U	N		0.47	0.94	R	N	PJ
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.35	0.71	U	N		0.35	0.71	R	N	PJ
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.59	1.9	U	N		0.59	1.9	R	N	IS,PJ
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.24	0.47	U	N		0.24	0.47	R	N	PJ
Perfluorononanoic acid (PFNA)	375-95-1	1		0.24	0.47	U	N		0.24	0.47	R	N	IS,PJ
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.83	1.9	U	N		0.83	1.9	R	N	IS,PJ
Perfluorooctanoic acid (PFOA)	335-67-1	1	0.62	0.35	0.71	J	Y	0.62	0.35	0.71	R	Y	RL,IS.PJ
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.35	0.94	U	N		0.35	0.94	R	N	PJ
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.71	1.4	U	N		0.71	1.4	R	N	PJ
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.35	0.71	U	N		0.35	0.71	R	N	PJ

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW05-03.0
Sample Date	6/14/2016 9:03:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427026
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.61	1.9	U	N		0.61	1.9	R	N	PJ
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.24	0.49	U	N		0.24	0.49	R	N	PJ
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.49	0.97	U	N		0.49	0.97	R	N	PJ
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.36	0.73	U	N		0.36	0.73	R	N	PJ
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.61	1.9	U	N		0.61	1.9	R	N	PJ
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.24	0.49	U	N		0.24	0.49	R	N	PJ
Perfluorononanoic acid (PFNA)	375-95-1	1		0.24	0.49	U	N		0.24	0.49	R	N	PJ
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.85	1.9	U	N		0.85	1.9	R	N	PJ
Perfluorooctanoic acid (PFOA)	335-67-1	1		0.36	0.73	U	N		0.36	0.73	R	N	PJ
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.36	0.97	U	N		0.36	0.97	R	N	PJ
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.73	1.5	U	N		0.73	1.5	R	N	PJ
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.36	0.73	U	N		0.36	0.73	R	N	PJ

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW06-00.0
Sample Date	6/14/2016 10:17:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427029
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.51	1.6	U	N		0.51	1.6	R	N	IS,PJ
Perfluorodecanoic acid (PFDA)	335-76-2	1	0.50	0.20	0.41		Y	0.50	0.20	0.41	R	Y	LAH,PJ
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.41	0.81	U	N		0.41	0.81	R	N	PJ
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.30	0.61	U	N		0.30	0.61	R	N	PJ
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.51	1.6	U	N		0.51	1.6	R	N	IS,PJ
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.20	0.41	U	N		0.20	0.41	R	N	PJ
Perfluorononanoic acid (PFNA)	375-95-1	1		0.20	0.41	U	N		0.20	0.41	R	N	IS,PJ
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1	0.76	0.71	1.6	J	Y	0.76	0.71	1.6	R	Y	RL,IS,PJ
Perfluorooctanoic acid (PFOA)	335-67-1	1	0.53	0.30	0.61	J	Y	0.53	0.30	0.61	R	Y	RL,PJ
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.30	0.81	U	N		0.30	0.81	R	N	PJ
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.61	1.2	U	N		0.61	1.2	R	N	PJ
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.30	0.61	U	N		0.30	0.61	R	N	PJ

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW06-00.5
Sample Date	6/14/2016 10:22:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427030
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.54	1.7	U	N		0.54	1.7	R	N	PJ
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.21	0.43	U	N		0.21	0.43	R	N	PJ
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.43	0.86	U	N		0.43	0.86	R	N	PJ
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.32	0.64	U	N		0.32	0.64	R	N	PJ
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.54	1.7	U	N		0.54	1.7	R	N	PJ
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.21	0.43	U	N		0.21	0.43	R	N	PJ
Perfluorononanoic acid (PFNA)	375-95-1	1	0.22	0.21	0.43	J	Y	0.22	0.21	0.43	R	Y	RL,PJ
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.75	1.7	U	N		0.75	1.7	R	N	IS,PJ
Perfluorooctanoic acid (PFOA)	335-67-1	1	0.56	0.32	0.64	J	Y	0.56	0.32	0.64	R	Y	RL,PJ
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.32	0.86	U	N		0.32	0.86	R	N	PJ
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.64	1.3	U	N		0.64	1.3	R	N	PJ
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.32	0.64	U	N		0.32	0.64	R	N	PJ

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW06-01.0
Sample Date	6/14/2016 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427031
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.53	1.7	U	N		0.53	1.7	R	N	PJ
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.21	0.42	U	N		0.21	0.42	R	N	PJ
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.42	0.84	U	N		0.42	0.84	R	N	PJ
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.32	0.63	U	N		0.32	0.63	R	N	PJ
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.53	1.7	U	N		0.53	1.7	R	N	PJ
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.21	0.42	U	N		0.21	0.42	R	N	PJ
Perfluorononanoic acid (PFNA)	375-95-1	1		0.21	0.42	U	N		0.21	0.42	R	N	PJ
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.74	1.7	U	N		0.74	1.7	R	N	PJ
Perfluorooctanoic acid (PFOA)	335-67-1	1	3.9	0.32	0.63		Y	3.9	0.32	0.63	R	Y	PJ
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.32	0.84	U	N		0.32	0.84	R	N	PJ
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.63	1.3	U	N		0.63	1.3	R	N	PJ
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.32	0.63	U	N		0.32	0.63	R	N	PJ

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW06-01.5
Sample Date	6/14/2016 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427032
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.55	1.8	U	N		0.55	1.8	R	N	IS,PJ
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.22	0.44	U	N		0.22	0.44	R	N	IS,PJ
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.44	0.88	U	N		0.44	0.88	R	N	PJ
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.33	0.66	U	N		0.33	0.66	R	N	PJ
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.55	1.8	U	N		0.55	1.8	R	N	IS,PJ
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.22	0.44	U	N		0.22	0.44	R	N	PJ
Perfluorononanoic acid (PFNA)	375-95-1	1		0.22	0.44	U	N		0.22	0.44	R	N	IS,PJ
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.77	1.8	U	N		0.77	1.8	R	N	IS,PJ
Perfluorooctanoic acid (PFOA)	335-67-1	1	3.9	0.33	0.66		Y	3.9	0.33	0.66	R	Y	IS,PJ
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.33	0.88	U	N		0.33	0.88	R	N	PJ
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.66	1.3	U	N		0.66	1.3	R	N	PJ
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.33	0.66	U	N		0.33	0.66	R	N	PJ

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-00.0
Sample Date	6/13/2016 2:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427014
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.64	2.1	U	N		0.64	2.1	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1	2.0	0.26	0.51		Y	2.0	0.26	0.51	J	Y	LAH,MAH
Perfluorododecanoic acid (PFDoA)	307-55-1	1	0.68	0.51	1.0	J	Y	0.68	0.51	1.0	J	Y	RL,LAH,MAH
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.39	0.77	U	N		0.39	0.77	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.64	2.1	U	N		0.64	2.1	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	0.30	0.26	0.51	J	Y	0.30	0.26	0.51	J	Y	RL,LAH,MAH
Perfluorononanoic acid (PFNA)	375-95-1	1	1.3	0.26	0.51		Y	1.3	0.26	0.51		Y	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1	1.1	0.90	2.1	J	Y	1.1	0.90	2.1	J	Y	RL
Perfluorooctanoic acid (PFOA)	335-67-1	1	4.1	0.39	0.77		Y	4.1	0.39	0.77		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	0.44	0.39	1.0	J	Y	0.44	0.39	1.0	J	Y	RL,LAH,MAH
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.77	1.5	U	N		0.77	1.5	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	0.83	0.39	0.77		Y	0.83	0.39	0.77	J	Y	LAH,MAH

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-00.5
Sample Date	6/13/2016 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427017
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.64	2.0	U	N		0.64	2.0	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.25	0.51	U	N		0.25	0.51	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.51	1.0	U	N		0.51	1.0	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.38	0.76	U	N		0.38	0.76	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.64	2.0	U	N		0.64	2.0	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	0.26	0.25	0.51	J	Y	0.26	0.25	0.51	J	Y	RL,LAH
Perfluorononanoic acid (PFNA)	375-95-1	1	0.65	0.25	0.51		Y	0.65	0.25	0.51		Y	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.89	2.0	U	N		0.89	2.0	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	5.3	0.38	0.76		Y	5.3	0.38	0.76		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.38	1.0	U	N		0.38	1.0	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.76	1.5	U	N		0.76	1.5	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.38	0.76	U	N		0.38	0.76	U	N	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-01.0
Sample Date	6/13/2016 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427018
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.57	1.8	U	N		0.57	1.8	UJ	N	IS
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.23	0.46	U	N		0.23	0.46	UJ	N	IS
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.46	0.91	U	N		0.46	0.91	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.34	0.69	U	N		0.34	0.69	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.57	1.8	U	N		0.57	1.8	UJ	N	IS
Perfluorohexanoic acid (PFHxA)	307-24-4	1	0.55	0.23	0.46		Y	0.55	0.23	0.46	J	Y	LAH
Perfluorononanoic acid (PFNA)	375-95-1	1	0.23	0.23	0.46	J	Y	0.23	0.23	0.46	J	Y	RL,IS
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.80	1.8	U	N		0.80	1.8	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	6.9	0.34	0.69		Y	6.9	0.34	0.69	J	Y	IS
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.34	0.91	U	N		0.34	0.91	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.69	1.4	U	N		0.69	1.4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.34	0.69	U	N		0.34	0.69	U	N	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-01.5
Sample Date	6/13/2016 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427019
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.60	1.9	U	N		0.60	1.9	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.24	0.48	U	N		0.24	0.48	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.48	0.95	U	N		0.48	0.95	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.36	0.71	U	N		0.36	0.71	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.60	1.9	U	N		0.60	1.9	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.24	0.48	U	N		0.24	0.48	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.24	0.48	U	N		0.24	0.48	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.83	1.9	U	N		0.83	1.9	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	8.5	0.36	0.71		Y	8.5	0.36	0.71		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.36	0.95	U	N		0.36	0.95	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.71	1.4	U	N		0.71	1.4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.36	0.71	U	N		0.36	0.71	U	N	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-02.5
Sample Date	6/14/2016 8:00:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427021
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.62	2.0	U	N		0.62	2.0	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.25	0.50	U	N		0.25	0.50	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.50	0.99	U	N		0.50	0.99	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.37	0.75	U	N		0.37	0.75	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.62	2.0	U	N		0.62	2.0	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.25	0.50	U	N		0.25	0.50	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.25	0.50	U	N		0.25	0.50	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.87	2.0	U	N		0.87	2.0	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	6.9	0.37	0.75		Y	6.9	0.37	0.75		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.37	0.99	U	N		0.37	0.99	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.75	1.5	U	N		0.75	1.5	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.37	0.75	U	N		0.37	0.75	U	N	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-09.5
Sample Date	6/14/2016 12:20:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427034
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.53	1.7	U	N		0.53	1.7	R	N	PJ
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.21	0.43	U	N		0.21	0.43	R	N	PJ
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.43	0.85	U	N		0.43	0.85	R	N	PJ
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.32	0.64	U	N		0.32	0.64	R	N	PJ
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.53	1.7	U	N		0.53	1.7	R	N	PJ
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.21	0.43	U	N		0.21	0.43	R	N	PJ
Perfluorononanoic acid (PFNA)	375-95-1	1		0.21	0.43	U	N		0.21	0.43	R	N	PJ
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.75	1.7	U	N		0.75	1.7	R	N	PJ
Perfluorooctanoic acid (PFOA)	335-67-1	1		0.32	0.64	U	N		0.32	0.64	R	N	PJ
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.32	0.85	U	N		0.32	0.85	R	N	PJ
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.64	1.3	U	N		0.64	1.3	R	N	PJ
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.32	0.64	U	N		0.32	0.64	R	N	PJ

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-12.0
Sample Date	6/14/2016 12:23:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427035
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.53	1.7	U	N		0.53	1.7	R	N	PJ,IS
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.21	0.42	U	N		0.21	0.42	R	N	PJ
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.42	0.85	U	N		0.42	0.85	R	N	PJ
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.32	0.64	U	N		0.32	0.64	R	N	PJ
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.53	1.7	U	N		0.53	1.7	R	N	PJ,IS
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.21	0.42	U	N		0.21	0.42	R	N	PJ
Perfluorononanoic acid (PFNA)	375-95-1	1		0.21	0.42	U	N		0.21	0.42	R	N	PJ,IS
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.74	1.7	U	N		0.74	1.7	R	N	PJ
Perfluorooctanoic acid (PFOA)	335-67-1	1		0.32	0.64	U	N		0.32	0.64	R	N	PJ
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.32	0.85	U	N		0.32	0.85	R	N	PJ
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.64	1.3	U	N		0.64	1.3	R	N	PJ
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.32	0.64	U	N		0.32	0.64	R	N	PJ

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-22.0
Sample Date	6/14/2016 12:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427036
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.59	1.9	U	N		0.59	1.9	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.23	0.47	U	N		0.23	0.47	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.47	0.94	U	N		0.47	0.94	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.35	0.70	U	N		0.35	0.70	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.59	1.9	U	N		0.59	1.9	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.23	0.47	U	N		0.23	0.47	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.23	0.47	U	N		0.23	0.47	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.82	1.9	U	N		0.82	1.9	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		0.35	0.70	U	N		0.35	0.70	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.35	0.94	U	N		0.35	0.94	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.70	1.4	U	N		0.70	1.4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.35	0.70	U	N		0.35	0.70	U	N	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-RB01-20160614
Sample Date	6/14/2016 10:00:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8427027
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-RB02-20160614
Sample Date	6/14/2016 10:05:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8427028
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1	4	1	2		Y	4	1	2		Y	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	11	1	2		Y	11	1	2		Y	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	30	1	2		Y	30	1	2	J	Y	IS
Perfluorononanoic acid (PFNA)	375-95-1	1	8	1	2		Y	8	1	2		Y	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	10	1	2		Y	10	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	3	3	5	J	Y	3	3	5	J	Y	RL,MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	2	2	4	J	Y	2	2	4	J	Y	RL,MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	3	2	4	J	Y	3	2	4	J	Y	RL

Facility:Bennington

SDG:SGP93

Sample ID	SG3-RB03-20160614
Sample Date	6/14/2016 11:00:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8427033
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	5	1	2		Y	5	1	2		Y	
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	5	1	2		Y	5	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-FD01-20160613
Sample Date	6/13/2016 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3-MW07-00.5_06/13/2016
Sample Matrix	SO
Lab Sample ID	8427020
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	19.9	0.50	0.50		Y	19.9	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW05-00.0
Sample Date	6/14/2016 8:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427022
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	5.0	0.50	0.50		Y	5.0	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW05-00.5
Sample Date	6/14/2016 8:33:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427023
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	7.9	0.50	0.50		Y	7.9	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW05-01.0
Sample Date	6/14/2016 8:41:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427024
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	11.0	0.50	0.50		Y	11.0	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW05-01.5
Sample Date	6/14/2016 8:46:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427025
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	15.0	0.50	0.50		Y	15.0	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW05-03.0
Sample Date	6/14/2016 9:03:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427026
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	21.4	0.50	0.50		Y	21.4	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW06-00.0
Sample Date	6/14/2016 10:17:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427029
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	6.5	0.50	0.50		Y	6.5	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW06-00.5
Sample Date	6/14/2016 10:22:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427030
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	3.8	0.50	0.50		Y	3.8	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW06-01.0
Sample Date	6/14/2016 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427031
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	5.8	0.50	0.50		Y	5.8	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW06-01.5
Sample Date	6/14/2016 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427032
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	9.4	0.50	0.50		Y	9.4	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-00.0
Sample Date	6/13/2016 2:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427014
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	26.5	0.50	0.50		Y	26.5	0.50	0.50		Y	

Sample ID	SG3-MW07-00.5
Sample Date	6/13/2016 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427017
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	23.0	0.50	0.50		Y	23.0	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-01.0
Sample Date	6/13/2016 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427018
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	18.3	0.50	0.50		Y	18.3	0.50	0.50		Y	

Sample ID	SG3-MW07-01.5
Sample Date	6/13/2016 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427019
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	16.2	0.50	0.50		Y	16.2	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-02.5
Sample Date	6/14/2016 8:00:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427021
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	18.5	0.50	0.50		Y	18.5	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-09.5
Sample Date	6/14/2016 12:20:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427034
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	5.5	0.50	0.50		Y	5.5	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-12.0
Sample Date	6/14/2016 12:23:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427035
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	10.4	0.50	0.50		Y	10.4	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-22.0
Sample Date	6/14/2016 12:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427036
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	14.7	0.50	0.50		Y	14.7	0.50	0.50		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW05-00.0
Sample Date	6/14/2016 8:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427022
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	3560	488	1470		Y	3560	488	1470	J	Y	LD

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW05-00.5
Sample Date	6/14/2016 8:33:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427023
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1		109	326	U	N		109	326	UJ	N	LD

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW05-01.0
Sample Date	6/14/2016 8:41:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427024
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	9040	537	1610		Y	9040	537	1610		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW05-01.5
Sample Date	6/14/2016 8:46:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427025
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	97300	2860	8570		Y	97300	2860	8570		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW05-03.0
Sample Date	6/14/2016 9:03:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427026
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	15500	879	2640		Y	15500	879	2640		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW06-00.0
Sample Date	6/14/2016 10:17:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427029
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	22100	400	1200		Y	22100	400	1200		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW06-00.5
Sample Date	6/14/2016 10:22:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427030
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	6740	399	1200		Y	6740	399	1200		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW06-01.0
Sample Date	6/14/2016 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427031
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	8030	572	1720		Y	8030	572	1720		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW06-01.5
Sample Date	6/14/2016 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427032
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	9060	625	1870		Y	9060	625	1870		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-00.0
Sample Date	6/13/2016 2:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427014
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	35000	914	2740		Y	35000	914	2740	J	Y	LD

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-00.5
Sample Date	6/13/2016 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427017
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	18300	594	1780		Y	18300	594	1780	J	Y	LD

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-01.0
Sample Date	6/13/2016 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427018
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	16700	671	2010		Y	16700	671	2010	J	Y	LD

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-01.5
Sample Date	6/13/2016 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427019
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	14200	723	2170		Y	14200	723	2170	J	Y	LD

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-02.5
Sample Date	6/14/2016 8:00:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427021
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	3980	568	1700		Y	3980	568	1700	J	Y	LD

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-09.5
Sample Date	6/14/2016 12:20:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427034
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	1330	106	317		Y	1330	106	317		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-12.0
Sample Date	6/14/2016 12:23:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427035
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	19500	602	1800		Y	19500	602	1800		Y	

Facility:Bennington

SDG:SGP93

Sample ID	SG3-MW07-22.0
Sample Date	6/14/2016 12:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8427036
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	15700	660	1980		Y	15700	660	1980		Y	

SECTION 3

LABORATORY CALIBRATION AND QUALITY CONTROL ACCEPTANCE CRITERIA

Initial Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
1. Initial Calibration: Minimum of five calibration standards spanning at least a 20-fold concentration range. 2. Analyze MDL standard to ensure all compounds detected at MDL level	1. Initially and the after continuing calibration falls. 2. Analyzed with each initial calibration.	1. Back calculated concentration of each calibration point should be within ±70-130% of true. The level 1 calibration standard back calculated concentrations should be ±50-150% of true value. Analytes without a labeled internal standard back calculated concentrations should be within ±40-160% of true value. 2. All compounds detected.	1. If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the initial calibration can be used. In those cases, the data will be reported with a qualifying comment. 2. If compound not detected in MDL standard, the source of the problem should be determined and the system recalibrated.

Continuing Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Analyze every 10 samples and at the end of the analysis sequence. Concentrations alternate between low, mid, and high levels of the calibration curve.	Occurs every 10 samples and at the end of the analysis sequence.	Calculated amount should be within ±30% of the true value. Compounds without labeled internal standards should have calculated amounts within ±40% of the true value. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the continuing calibration can be used. In those cases, the data will be reported with a qualifying comment.

Initial Calibration Verification

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Second source standard analyzed at the end of each initial calibration.	Analyzed with each initial calibration	1. Calculated amount for each compound should be within ±70-130% of the true value. Analytes without a labeled internal standard should have calculated amounts within ±40% of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	1. If criteria are not met, the source of the problem should be determined and corrected. Situations may exist where the initial calibration verification can be used. In those cases, the data will be reported with a qualifying comment.

QC Acceptance Criteria

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Method Blanks	1 per 20 field samples	No positive detections above the MDL.	Reextract to confirm detection or report if the analyte present in the method blank is not detected in the sample.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
LCS	1 per 20 field samples	1. Advisory QC limits of 70-130%, RPD<30% 2. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	Reextract LCS and associated samples. Analytes that fail high and are ND in the samples can be reported. Due to the advisory nature of the acceptance limits, situations may exist where LCS can be used. In those cases, the data will be reported with a qualifying comment.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
MS/MSD	MS is routinely prepared with each extraction batch. If limited sample volume exists, an LCS/LCSD will be prepared.	1. Advisory QC limits of 70-130%, RPD<30%. 2. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	Evaluate in conjunction with LCS.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Isotopically labeled internal standards	Per sample (including MS/MSD, LCS, and Blanks)	The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	Reinject samples as necessary. Report data with qualifying comment.

SECTION 4

ENVIRONMENTAL STANDARDS, INC., STANDARD OPERATING PROCEDURE

1.0 OBJECTIVES

This standard operating procedure (SOP) describes procedures that the Environmental Standards data reviewers will use to validate Perfluorinated Compound (PFC) data for solid samples generated by Eurofins SOP "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins Document Reference 1-P-QM-WI-9035864) or "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537.1 Modified Using LC/MS/MS" (Eurofins Document Reference 1-P-QM-WI-9039643) and aqueous samples generated by Eurofins SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins Document Reference 1-P-QM-WI -9012802) or "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537.1 Modified Using LC/MS/MS" (Eurofins Document Reference 1-P-QM-WI -9039651), for various Saint-Gobain Performance Plastics Corporation (Saint-Gobain) sites. Validation will be performed to assess compliance of the sample data to these Eurofins SOPs and any applicable Work Plans and/or Quality Assurance Project Plans (QAPPs). In addition, the usability of the PFC data provided by the analytical laboratory will be determined based on the general guidance provided in the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016) and "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016). It should be noted that the National Functional Guidelines apply strictly to data generated by the Contract Laboratory Program (CLP) protocol and are not directly applicable to validation of data generated by Modified EPA Method 537; therefore, this SOP presents the specific data qualification actions that will be used for validation.

The validation findings will be presented in a quality assurance review (QAR) that will be prepared for one or more sample delivery groups (SDGs). Copies of annotated analytical results summaries (Form I's), including any changes to the analytical results and data qualifier codes, or

a data summary spreadsheet of the qualified analytical results, will be included in the support documentation of the QAR.

2.0 EVALUATION TOOLS

- field duplicate form (DVF_DUP_SG_ELLE.xlsm)

Chemistry Applications:

- Curve fitting software (DVF_CAL.xlsm)
- Methods Database

3.0 REFERENCE DOCUMENTS

- "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016)
- "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016).
- Eurofins Document Reference 1-P-QM-WI -9035864.
- Eurofins Document Reference 1-P-QM-WI -9012802.
- Eurofins Document Reference 1-P-QM-WI -9039643.

- Eurofins Document Reference 1-P-QM-WI -9039651.

- US EPA Method 537, Version 1.1 (September 2009).

- Guidance for Labelling Externally Validated Laboratory Analytical Data for Superfund Use (EPA 540-R-08-005, 2009).

4.0 PROCEDURE

4.1 EVALUATION OF METHOD COMPLIANCE

The data reviewer will assess the method compliance of the PFC data based on an evaluation of information presented in the data package deliverables. Compliance to the aforementioned SOPs (and Work Plan and/or QAPP when applicable) will be evaluated as part of the assessment. In addition, the deliverables will be evaluated for reporting errors and inconsistencies. The findings of the compliance assessment will be described in terms of comments/deficiencies about the data/deliverables and presented in two subdivisions (*i.e.*, Reporting Issues and Procedural Issues) of the Organic Data Evaluation Section of the QAR. Each issue discussed in the QAR will indicate any subsequent impact on the usability of the data or will identify aspect(s) of the data that could not be evaluated due to the deficiency.

The data reviewer may contact the project laboratory to request the correction of deficiencies prior to submittal of the QAR (if feasible and sanctioned by Saint Gobain). At a minimum, corrections required to allow for a full evaluation of the usability of the data should be requested. Such correctable deficiencies may include sample result errors,

missing data deliverables, or calculation errors that would require a significant amount of the data reviewer's time to correct. Any laboratory resubmittals as a result of such requests will be discussed in the Reporting Issue subdivision of the QAR and included as an attachment to the QAR.

4.2 DETERMINATION OF DATA USABILITY

The data reviewer will determine the usability of the PFC data based on an evaluation of the information presented in the data package deliverables. The findings of the PFC data usability assessment will be presented in terms of data qualifications that the project team should consider in order to best utilize the data; these qualifications will be presented in the Organic Data Qualifier subsection of the QAR. Each qualification discussed in the QAR will indicate that the affected sample result(s) has been flagged with a representative qualifier code(s) in the data tables to provide, at a glance, an indication of the quantitative and qualitative reliability of each analytical result. In general, the qualifier statements will be presented in the QAR in the following order: blank contamination (UB), unusable results (R/UR), estimated results (J/UJ), tentative identifications of target compound results (N), and a general qualifier for all results reported below the limit of quantitation (if applicable). In addition, a Validation Reason Code will be presented on the data tables to indicate the reason that a qualifier code has been applied.

The data reviewer's criteria for evaluating the usability of the PFC data and the resultant qualifications and reason codes will be as stipulated on the attached Table for the Validation of PFC Data Generated. Additional qualifications and reason codes will be assigned based on professional judgement. It should be noted that the project manager

should be consulted when "professional judgement" use is indicated on the attached table.

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Temperature Upon Receipt	≤6°C	If temperature is <2°C, no action is required unless samples were frozen/broken and then professional judgment should be used. If temperature is >6°C but ≤20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SPL") If temperature is > 20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SPL") Note time of collection relative to receipt at laboratory. Professional judgement should be used if < 8 hours has elapsed from collection to receipt at the laboratory to determine if qualification due to elevated temperature applies.
Technical Holding Time	Solid samples should be extracted within 28 days of sample collection and aqueous samples should be extracted within 14 days of collection. All extracts should be analyzed within 28 days after extraction.	If a holding time is exceeded, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively) If a holding time is grossly exceeded (*i.e.*, > twice the holding time), qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively)

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Initial Calibration (See Note #1 for additional information.)	Back calculated concentration of each calibration point should be within 70-130% of true. The level 1 (lowest) calibration standard back calculated concentrations should be within 50-150% of true value. Analytes without a labeled internal standard back calculated concentrations should be within 60-140% of true value.	When evaluating initial calibration, use professional judgment to first assess impact of any out-of-criteria labeled PFC on the corresponding target PFC(s). If the low point or consecutive points at the low end of the curve are below the lower recovery criteria, qualify positive results < lowest compliant point as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "ICL") If the low point or consecutive points at the low end of the curve are above the upper recovery criteria, qualify positive results < lowest compliant point as estimated ("J"). If a point in the middle of the curve or non-consecutive points (beside the low point) quantitate outside of criteria, qualify positive results as estimated ("J"). If the high point or consecutive points at the upper end of the curve quantitates outside of criteria, qualify positive results > highest compliant point as estimated ("J"). (Validation Reason Code "ICL," "ICH," or "IC," are to be used based on whether direction of bias can be determined in these situations) Professional judgement should be used to qualify "not-detected" results as estimated ("UJ") if low recoveries are observed for standards other than the lowest calibration point. (Validation Reason Code "ICL")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Second Source Initial Calibration Verification (ICV)	1. Calculated amount for each compound should be within 70-130% (±30%) of the true value. Analytes without a labeled internal standard should have calculated amounts within 60-140% (±40%) of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within 50-150% of the average areas measured during the initial calibration.	**Qualification is for all samples associated with initial calibration being verified.** **When evaluating ICV, use professional judgment to first assess impact of any out-of-criteria labeled PFC on the corresponding target PFC.** If target PFC has %D>30% (or >40% for compounds without labeled internal standards) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "SSH") If target PFC has %D>30% (or >40% for compounds without labeled internal standards) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SSL") If target PFC has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SSL")
Daily Calibration Verification (See Note #2 for additional information.)	Calculated amount should be within ±30% of the true value. Compounds without labeled internal standards should have calculated amounts within ±40% of the true value. The absolute areas of the isotopically labeled internal standards should be within 50-150% of the average areas measured during the initial calibration.	**Qualification is for all samples on both sides of the out-of-criteria calibration verification standards.** **When evaluating calibration verification, use professional judgment to first assess impact of any out-of-criteria labeled PFC on the corresponding target PFC.** If target PFC has %D>30% (or >40% for compounds without labeled internal standards) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "CVH") If target PFC has %D>30% (or >40% for compounds without labeled internal standards) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "CVL") If target PFC has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "CVL")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Blanks (See Note #3 for additional information.)	Summarize all results greater than the method detection limit (MDL) present in the blanks. The highest positive result associated with a sample should be utilized for evaluation of contamination.	If a target PFC is found in the blank but not in the associated sample(s), no action is required. If a sample result is ≤5× the blank result, qualify the positive result as "not detected" ("UB") and raise the method detection limit (MDL) and/or limit of quantitation (LOQ) (if lower than original reported positive result) to the value of the original result. (Validation Reason Code(s) "EB," FB," "IB," "MB," and or "TB," as appropriate). If a sample result is >5× blank result, qualification is not required. Professional judgement should be used to evaluate whether an aqueous blank should be used to qualify a solid sample.
Internal Standards (Labelled Analytes, spiked prior to extraction)	The response for each IS in the original sample (prior to dilutions) must be within ±%50 of the average initial calibration response.	If an IS response is outside of 50-150% but ≥10%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ") for PFCs quantitated using that IS. (Validation Reason Code "IS") If an IS response is < 10%, qualify positive results for the associated PFCs as estimated ("J") and qualify "not-detected" results for the associated PFCs as estimated ("UJ") or unusable ("R") using professional judgment (based on the approximate signal-to-noise ratio for the IS and the expected response for the target PFC at the LOQ). (Validation Reason Code "IS")
Laboratory Control Samples (LCS)/ Laboratory Control Sample Duplicates (LCSD)	%R within 70-130%, RPD ≤ 30%.	The LCS qualification will be applied to all samples in the preparation batch. If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). (Validation Reason Code "LAL") If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "LAL") If the precision between recoveries exceeds the RPD criterion, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LP")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Matrix Spike/Matrix Spike Duplicate (MS/MSD) (If performed)	%R within 70-130%, RPD ≤ 30%.	Data should not be qualified due to %Rs (or RPDs calculated on %Rs) that are outside of criteria if the original concentration of a PFC is >4× the spiking level for that compound. RPDs calculated using MS/MSD results can be used to evaluate precision. If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "MAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "MAL") If the precision between recoveries exceeds the RPD criterion, qualify the positive result in the native sample as estimated ("J") and do not qualify the "not-detected" result. (Validation Reason Code "MP")
Field/Laboratory Duplicate (See Note #4 for additional information)	RPD ≤ 30% when PFCs are detected in one sample ≥ sample-specific LOQ (RL). The RPD should be ≤30% for results >5× the sample-specific LOQ (RL). The difference between results should be ≤ 1.5×LOQ when at least one result is ≤5× the LOQ.	If both results are <LOQ, a quantitative assessment of duplicate precision is not performed. If the criteria are not met, qualify positive results for the out-of-criteria PFCs in the original sample and its duplicate as estimated ("J"). (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate) Use the MDL as a numerical value for any "not-detected" result in the difference calculation. Qualify "not-detected" results as estimated ("UJ") if the difference between the results is outside of criteria. (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate)
Percent Solids	Solid samples with less than 30% solid content require qualification.	If a solid sample has a percent solid content <30%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code of "PS") Use professional judgment if a solid sample has a percent solids content <10%. (Validation Reason Code of "PS")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Compound Quantitation and Qualitative Identification (See Notes #5 for additional information.)	Samples with results that exceed the instrument calibration range should be reanalyzed at a dilution or re-extracted with a lower volume.	If a target PFC result exceeds the instrument calibration range, qualify positive result as estimated ("J"). (Validation Reason Code "EC") Use professional judgment to determine whether sample reanalyses and dilutions should be compared to the original analyses. If criteria (see field duplicate usability) between the original sample results and the reanalysis sample results are not met, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "LD") If a target PFC is <LOQ but ≥MDL, qualify positive results as estimated ("J"). (Validation Reason Code "RL") Use professional judgment to determine whether quantitation and qualitative identifications are accurate and whether data qualification is necessary.
System Performance	Professional judgement should be used when assessing the degradation of system performance during analyses.	Use professional judgment to qualify the data if it is determined that system performance degraded during sample analyses.
Overall Assessment of Data	Assess overall quality of the data. Review available materials to assess the quality, keeping in mind the additive nature of the analytical problems.	Use professional judgment to determine the need to qualify data not qualified based on the QC previously discussed. Write a brief narrative to give the user an indication of the analytical limitations of the data. If sufficient information on the intended use and required quality of the data is available, include the assessment of the usability of the data within the given context.

Validation Notes

1. Use professional judgment when evaluating the response intercept of a calibration curve. If the response intercept is positive, the samples should be evaluated for false positives. If the response intercept is negative, the sample should be evaluated for false negatives.

2. If instrument instability (*i.e.*, several calibration verification standards with PFCs exhibiting both increasing and decreasing sensitivity throughout an analytical sequence) is observed in the analysis of sequential calibration verification standards, "not-detected" results may be qualified as estimated ("UJ") due to instrument sensitivity of a continuing calibration standard response that is greater than the initial calibration standard response (increase in instrument sensitivity).

3. The frequency of equipment/rinse blanks is determined during the sampling event. The results of an equipment/rinse blank should be applied to all samples collected in the same day by the same techniques, unless only one blank was collected for a several-day sampling event. In instances where more than one blank is associated with a given sample, qualification should be based upon a comparison with the associated blank having the highest concentration of a contaminant.

   Method blank contamination should be applied to samples in the preparation batch.

   Instrument blank contamination should be applied to samples bracketing the contaminated instrument blank.

   Blanks should also be evaluated using professional judgment for non-target interference.

Validation Notes

4. Duplicate samples may be collected and analyzed as an indication of overall precision. Field duplicate analyses measure both field and laboratory precision; therefore, the results may have more variability than laboratory duplicates that measure only laboratory performance. Laboratory duplicate results and field duplicate results apply only to the original sample and the laboratory/field duplicate. Solid duplicate results are expected to have greater variance than aqueous duplicate results.

5. If a sample result exceeds the instrument calibration range (lower dilution analysis) or is less than the LOQ (secondary dilution), do not utilize this result when comparing an original analysis and a diluted reanalysis.

Poor chromatographic performance may affect qualitative identification and/or quantitation. Indications of substandard performance include:

- High background levels
- Extraneous peaks
- Loss of resolution
- Peak tailing or peak splitting that may result in inaccurate quantitation
- The laboratory analyzes a Cal3 level standard that contains linear and branch chained isomers of PFOA, PFOS, and PFHxS for analyses by Eurofins Document References 1-P-QM-WI-9039643 and 1-P-QM-WI -9039651. The analysis of this standard is used to demonstrate where the branch chained isomers elute and is not included in the calibration curve. This will assist the chemist in the integration of branched isomers of these compounds in samples.

SECTION 5

ORGANIC DATA SUPPORT DOCUMENTATION

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	Saint Gobain Bennington		Reviewed by:	TAO
Sample Collection Dates:	06/13/16 and 06/14/16		Approved by:	MAM
Job Number:	20167391.NBEN		Completion Date:	5/2017
Project Manager:	MAM			
Laboratory:	ELLE		Applicable Sample No's (√)	Refer to Table 1 in the Quality Assurance Review

Deliverable:			Sample No.	Lab Control No.
	CLP (Full)	( )		
	Level IV (Full)	(√)	SGP93	
	Limited	( )		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail Check (√) if Yes or Footnote Letter for Comments Below					Problems Identified Check (√) if Yes or Footnote Letter for Comments Below					Support Documentation Attachments Check (√) if Yes or Footnote Letter for Comments Below				
	PFC					PFC					PFC				
Holding Times	√										√				
Blank Analysis: Target Cmpds	√					√ (2)					√				
Sys Montr Cmps/Surrogates	NA														
Matrix Spike/Matrix Spike Duplicate	√					√ (3)					√				
Blank Spike	√					√ (4)					√				
Duplicate Analysis (√) Field ( ) Lab	√										√				
Detection Limit/Sensitivity	√										√				
Qualitative Identification: Target Cmpds	√										√				
Qualitative Identification: TICs	NA														
DFTPP & BFB Mass Tuning	NA														
GC Instrument Performance	NA														
Initial Calibrations	√					√					√				
Continuing Calibrations	√					√ (5)					√				
Quantitation of Results	√					√ (6) (8) (9)					√				
DDT/Endrin Breakdown	NA														
Surrogate Retention Time Shifts	NA														
Internal Standards Performance	√					√ (7)					√				
Resolution Check Standards	NA														
Analytical Sequence	√										√				
Florisil Cartridge & GPC Calibration	NA														
GC Column Agreement	NA														
Condition Upon Receipt	√										√				
Percent Solids	√ (1)														
Others:															

[illegible] performed.

Comments: (1) Checked % solids but did not perform Level IV review; (2) LTB, FTB, and 2/3 EB w/detections, MBs < MDLs; (3) 8 of 12 soil MS and /or MSD %Rs and 4 of 12 water MS/MSD %Rs out; (4)7 of 12 soil LCS %Rs out, water LCS OK; (5) 1 soil and 2 water CCVs outside criteria; (6) lab checking some peak integrations; (7) ISTD responses out for some target analytes. (8) MDLs & LOQs were not adjusted for exact wt - lab revised

(6) → lab made revisions

(9) possible sample switch led to rejection of results - see report

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample Number	Contaminant	Concentration (ng/L)	Qualification limit	
						5×	10×
PFC	Aq	TB	SG3-LTB-20160613	Perfluorooctanoic acid (PFOA)	2 ✓		
PFC	Aq	TB	SG3-LTB-20160613	Perfluoroheptanoic acid (PFHpA)	1 ✓		
PFC	Aq	TB	SG3-LTB-20160613	Perfluorohexanesulfonate (PFHxS)	8 ✓		
PFC	Aq	FB	SG3-FTB-20160613	Perfluorononanoic acid (PFNA)	1 ✓		
PFC	Aq	FB	SG3-FTB-20160613	Perfluorooctanoic acid (PFOA)	2 ✓		
PFC	Aq	EB	SG3-RB01-20160614	All ND			
PFC	Aq	EB	SG3-RB02-20160614	Perfluorotridecanoic Acid (PFTrDA)	2 ✓		
PFC	Aq	EB	SG3-RB02-20160614	Perfluoroundecanoic Acid (PFUnA)	3 ✓		
PFC	Aq	EB	SG3-RB02-20160614	Perfluorooctanoic acid (PFOA)	10 ✓		
PFC	Aq	EB	SG3-RB02-20160614	Perfluoroheptanoic acid (PFHpA)	11 ✓		
PFC	Aq	EB	SG3-RB02-20160614	Perfluorononanoic acid (PFNA)	8 ✓		
PFC	Aq	EB	SG3-RB02-20160614	Perfluorotetradecanoic acid (PFTeDA)	3 ✓		
PFC	Aq	EB	SG3-RB02-20160614	Perfluorohexanoic acid (PFOA)	30 ✓		
PFC	Aq	EB	SG3-RB02-20160614	Perfluorodecanoic acid (PFDA)	4 ✓		
PFC	Aq	EB	SG3-RB03-20160614	Perfluorohexanoic acid (PFHxA)	5 ✓		
PFC	Aq	EB	SG3-RB03-20160614	Perfluorooctanoic acid (PFOA)	5 ✓		
PFC	S	MB	16181004 BLK	All ND			
PFC	Aq	MB	16172001 BLK	All ND			

1 – V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: _____

2 – MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes: No impact on soil samples from Aq blank results

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Effective Date: 11/23/2015
Revision: 0

Matrix: ○ Aqueous ◉ Non-aq.
Reporting Level: ◉ MDL ○ QL
Units: ng/g

PRECISION OBJECTIVES:
If Both Results ≥ 5 × Their QL, RPD ≤: 30
If Either Result < 5 × Its QL, Dif. ≤: 1.5 **× Highest QL**

Sample ID:	SG3-MW07-00.5				**Duplicate Sample ID:**		SG3-FD01-20160613				
Analyte	**Sample Concentration**	**Qual**	**QL**	**MDL**	**Duplicate Concentration**	**Qual**	**QL**	**MDL**	**Difference**	**RPD**	**Flag**
PFHxA	0.26	J	0.51	0.25	0.31	J	0.48	0.24	NA	NA	
PFOA	5.3		0.76	0.38	5.0		0.71	0.36	NA	6%	
PFNA	0.65		0.51	0.25	0.61		0.48	0.24	0.04	NA	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

	8427014		8427017		8427018		8427019		8427020		8427021	
	Sample Result	Calculated Amount	Sample Result	Calculated Amount	Sample Result	Calculated Amount	Sample Result	Calculated Amount	Sample Result	Calculated Amount	Sample Result	Calculated Amount
PFBS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PFDA	1.444	1.512	0.116	N/A	0.095	N/A	0.136	N/A	0.125	N/A	0.061	N/A
PFDoDA	0.503	0.45	<0	N/A	<0	N/A	<0	N/A	<0	N/A	<0	N/A
PFHpA	0.216	0.446	0.238	0.276	0.249	0.295	0.241	0.25	0.226	0.346	0.163	N/A
PFHxA	0.22	N/A	0.197	0.098	0.451	0.834	0.156	0.125	0.246	0.255	0.045	N/A
PFHxS	0.29	N/A	0.282	N/A	0.268	N/A	0.317	N/A	0.294	N/A	0.323	N/A
PFNA	0.935	1.004	0.504	0.311	0.189	N/A	0.149	0.116	0.491	0.277	0.078	N/A
PFOA	3.044	2.799	4.054	2.914	5.664	4.792	7.141	5.821	4.003	3.786	5.627	4.662
PFOS	0.786	N/A	0.518	N/A	0.607	N/A	0.482	N/A	0.555	N/A	0.476	N/A
PFTeDA	0.321	0.426	<0	N/A	<0	N/A	<0	N/A	<0	0.195	<0	N/A
PFTrDA	0.091	N/A	<0	N/A	<0	N/A	<0	0.279	N/A	N/A	<0	N/A
PFUndA	0.613	0.539	0.027	N/A	0.028	N/A	0.028	N/A	0.033	N/A	0.001	N/A

Sample result = original run
Calculated amount = reextraction
Results are instrument values, no correction for % solids
False positive

14027: Full List PFC's Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.30	0.60	ng/g
Perfluorononanoic acid	0.20	0.40	ng/g
Perfluorodecanoic acid	0.20	0.40	ng/g
Perfluoroundecanoic acid	0.30	0.60	ng/g
Perfluorododecanoic acid	0.40	0.80	ng/g
Perfluorotridecanoic acid	0.60	1.2	ng/g
Perfluorotetradecanoic acid	0.30	0.80	ng/g
Perfluorohexanoic acid	0.20	0.40	ng/g
Perfluoroheptanoic acid	0.30	0.60	ng/g
Perfluorobutanesulfonate	0.50	1.6	ng/g
Perfluorohexanesulfonate	0.50	1.6	ng/g
Perfluoro-octanesulfonate	0.70	1.6	ng/g

	8427022		8427023		8427024		8427025		8427026		8427029	
	Sample Result	Calculated Amount	Sample Result	Calculated Amount	Sample Result	Calculated Amount	Sample Result	Calculated Amount	Sample Result	Calculated Amount	Sample Result	Calculated Amount
PFBS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.786	N/A
PFDA	0.226	N/A	0.096	N/A	0.089	0.057	0.309	N/A	0.191	N/A	0.47	N/A
PFDoDA	<0	N/A	<0	N/A	<0	N/A	<0	N/A	<0	N/A	<0	0.022
PFHpA	0.13	N/A	0.172	N/A	0.271	0.246	0.112	N/A	0.102	N/A	0.158	N/A
PFHxA	0.084	N/A	N/A	N/A	0.083	0.106	0.016	N/A	<0	N/A	0.065	N/A
PFHxS	0.293	N/A	0.277	N/A	0.306	N/A	0.281	N/A	0.274	N/A	0.298	N/A
PFNA	0.127	N/A	0.169	N/A	0.103	N/A	0.153	0.16	0.116	N/A	0.175	0.17
PFOA	0.511	N/A	4.756	N/A	4.178	0.436	0.528	4.656	0.265	4.105	0.498	0.281
PFOS	0.509	N/A	0.439	N/A	0.441	N/A	0.581	N/A	0.468	N/A	0.713	N/A
PFTeDA	<0	0.207	<0	N/A	<0	N/A	<0	N/A	<0	N/A	<0	N/A
PFTrDA	<0	N/A	<0	N/A	<0	N/A	<0	N/A	<0	N/A	<0	N/A
PFUndA	0.04	-0.041	0.036	N/A	0.01	N/A	0.077	N/A	0	N/A	0.031	N/A

Sample result
Calculated an
Results are in

	8427030		8427031		8427032		8427034		8427035		8427036	
	Sample Result	Calculated Amount	Sample Result	Calculated Amount	Sample Result	Calculated Amount	Sample Result	Calculated Amount	Sample Result	Calculated Amount	Sample Result	Calculated Amount
PFBS	0.856	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PFDA	0.19	0.239	0.06	0.038	0.056	0.097	0.075	0.073	0.111	N/A	0.091	N/A
PFDoDA	<0	N/A	<0	N/A	<0	N/A	<0	N/A	<0	N/A	<0	N/A
PFHpA	0.143	N/A	0.108	N/A	0.094	N/A	0.101	N/A	0.124	N/A	0.112	0.096
PFHxA	0.08	N/A	0.057	N/A	0.045	N/A	0.04	N/A	0.016	N/A	0.035	N/A
PFHxS	0.296	N/A	0.268	N/A	0.262	N/A	0.283	N/A	0.282	N/A	0.284	0.15
PFNA	0.216	0.158	0.074	N/A	0.076	N/A	0.086	N/A	0.096	N/A	0.083	N/A
PFOA	0.535	0.341	3.68	0.184	3.576	0.408	0.206	2.584	0.051	2.965	0.068	0.076
PFOS	0.562	N/A	0.43	N/A	0.423	N/A	0.449	N/A	0.437	N/A	0.458	N/A
PFTeDA	<0	0.221	<0	N/A	<0	N/A	N/A	N/A	<0	N/A	<0	N/A
PFTrDA	<0	N/A	N/A	N/A	<0	N/A	<0	N/A	<0	N/A	N/A	N/A
PFUndA	<0	N/A	0.01	N/A	<0	N/A	0.015	N/A	0.047	N/A	0.058	N/A

Sample result
Calculated an
Results are in

ISTD responses outside criteria are detailed in Table 1 for all samples.

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Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: SG3-LTB-20160613 Water
SGPP - Bennington

Project Name: SGPP - Bennington

Collected: 06/08/2016

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

LL Sample # WW 8427012
LL Group # 1672230
Account # 37191

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3TB SDG#: SGP93-01TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	2	J	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	UJ, Low MS	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	UJ, Low MS	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	J	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	UJ, Low MS	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	8	J	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 07:25	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

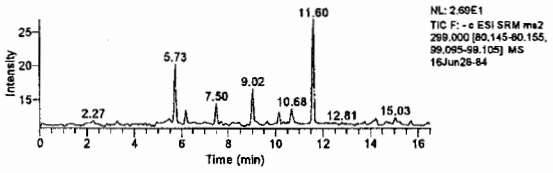
Sample Name:	8427012 BKG	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8427012 BKG	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16Jun28-84		M\HWell_16.5minutes
Acquisition Date:	06/29/16 07:25:52 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:20	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

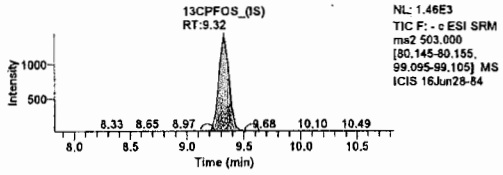
Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.36	155091.98	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	123690.72	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.86	100116.18	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.64	72105.65	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.74	134014.47	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.46	56267.99	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	19133.59	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	8841.92	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.67	91542.58	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	7.807	8.75	586.39	19133.59	0.031	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	1.537	9.00	1118.41	123690.72	0.009	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	1.007	8.74	381.90	134014.47	0.003	ng/L

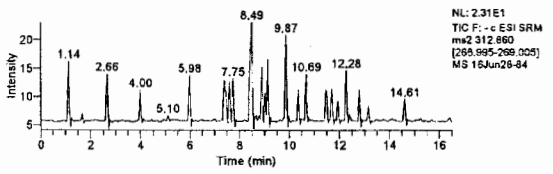
7 1/2 MDL std

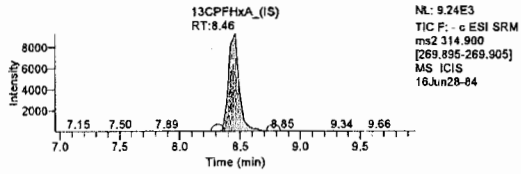
Component Name: PFBS





Component Name: PFHxA





Component Name: PFhpA

Michele J Smith

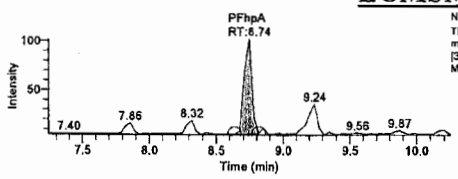
JUN 30 2016

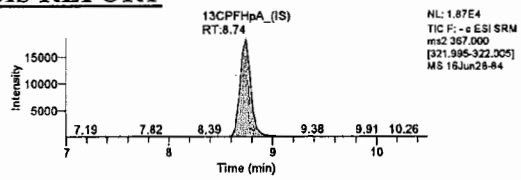
Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

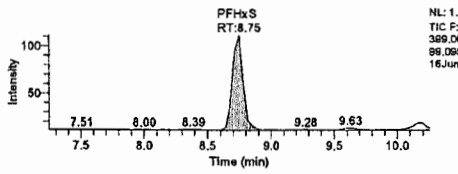
JUN 29 2016

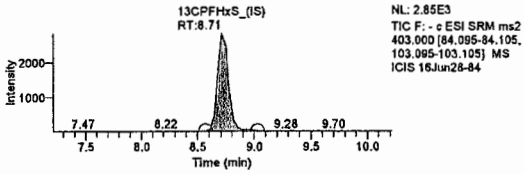
LCMSMS ANALYSIS REPORT





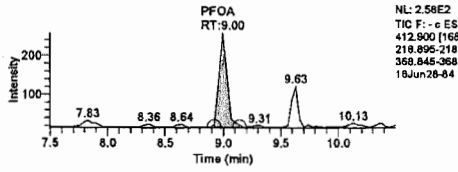
Component Name: PFHxS

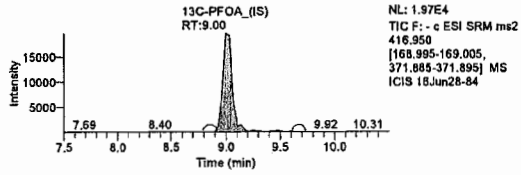




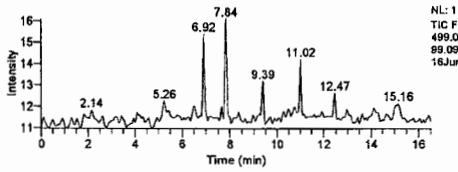
Lab checking integration — integration on MAny 5/18/17

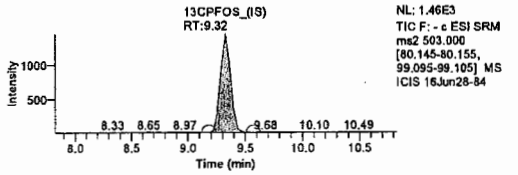
Component Name: PFOA





Component Name: PFOS





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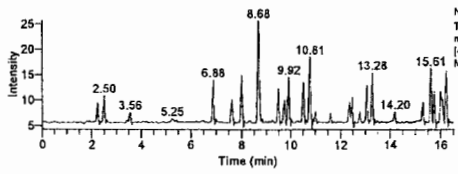

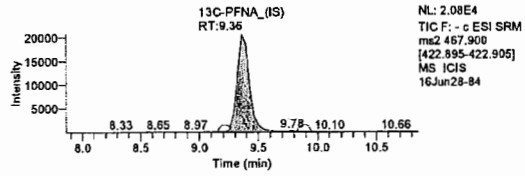

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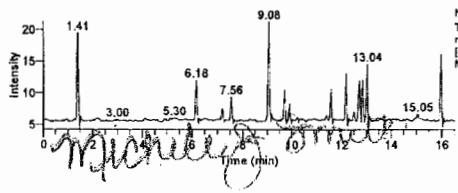
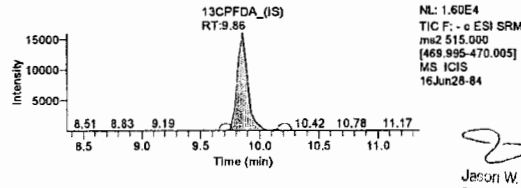




Jason W. Knight
Senior Chemist

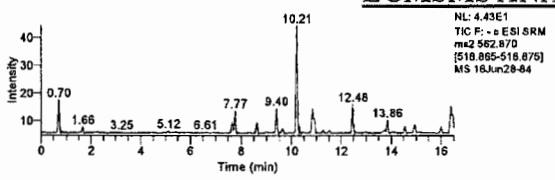
JUN 29 2016

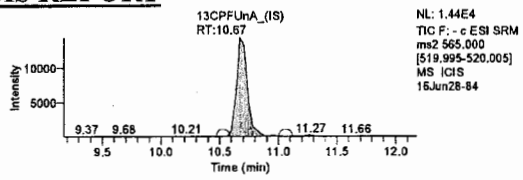
JUN 30 2016

Component Name: PFUdA

Michele J. Smith
Senior Specialist

LCMSMS ANALYSIS REPORT





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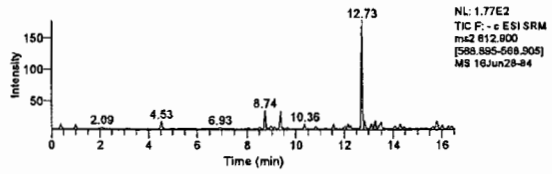

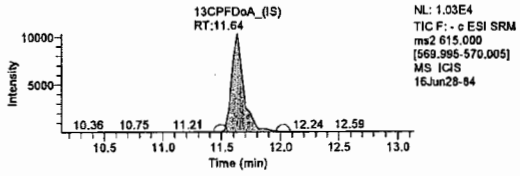

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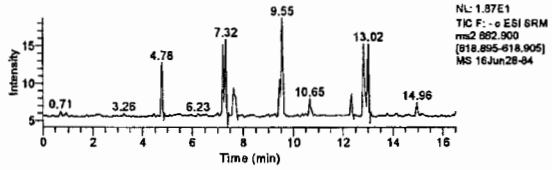
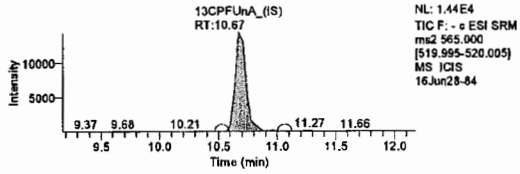
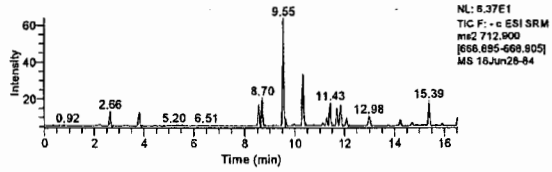
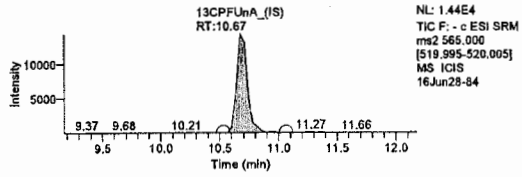




Component Name: PFTeDA





Michele J Smith

JUN 30 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

Sample Description: SG3-FTB-20160613 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8427013
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/13/2016 15:10 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3FB SDG#: SGP93-02FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	2		1	2	1
10954	Perfluorononanoic acid	375-95-1	1	J	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	UJ, Low MS	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	UJ, Low MS	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	UJ, Low MS	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 01:41	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

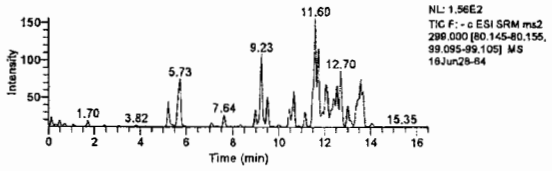
LCMSMS ANALYSIS REPORT

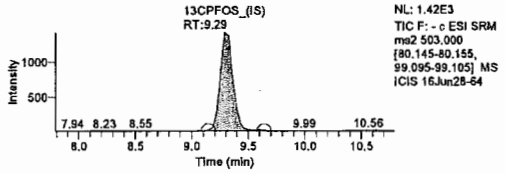
Sample Name:	8427013	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8427013	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-64		
Acquisition Date:	06/29/16 01:41:05 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:4	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

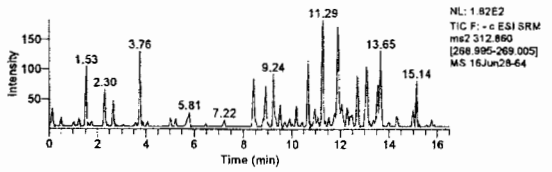
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.32	189823.33	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.96	146615.57	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.79	114593.68	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.46	87215.43	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.67	144103.51	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	59555.02	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.67	18140.37	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.29	11063.75	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.39	102178.54	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	1.356	9.35	2788.71	189823.33	0.015	ng/L
PFOA	2.020	8.96	3333.30	146615.57	0.023	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

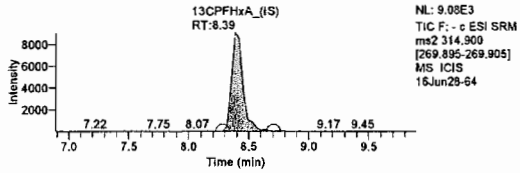
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHxS

Michele J. Smith
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JUN 30 2016

Jason W. Knight
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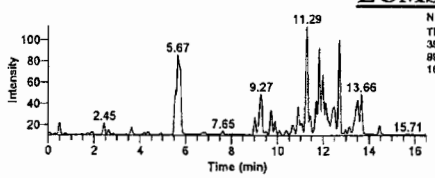
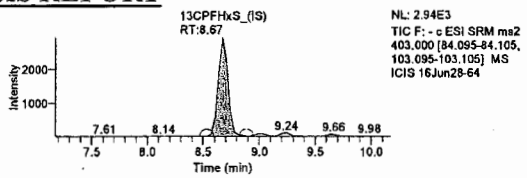
JUN 29 2016

LCMSMS ANALYSIS REPORT





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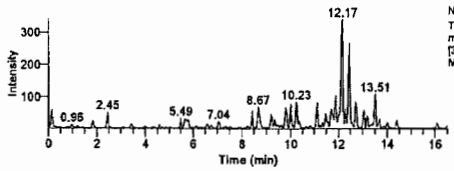
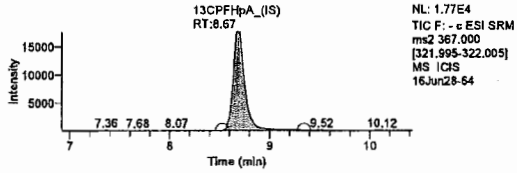
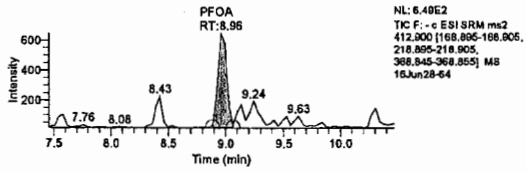
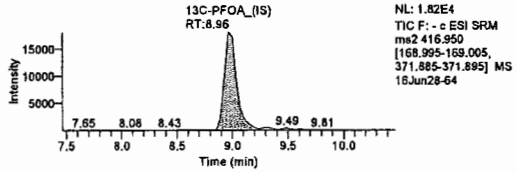


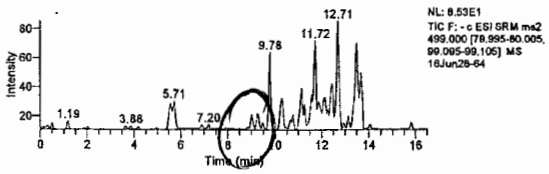


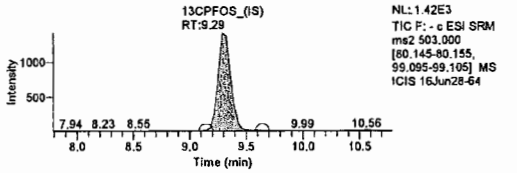
Component Name: PFOA





Component Name: PFOS





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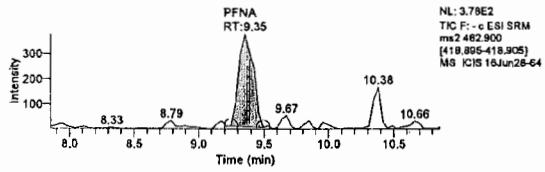

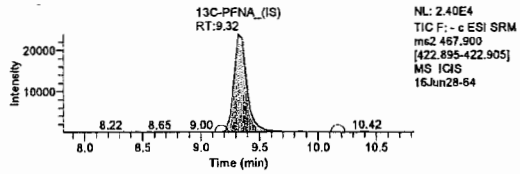

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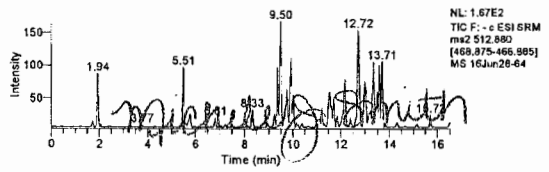

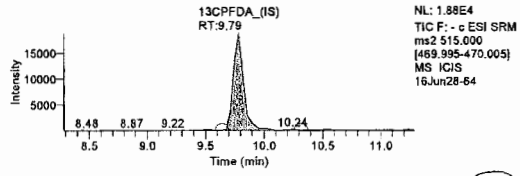

JUN 30 2016

Michele J. Smith
Senior Specialist

Component Name: PFUdA

Jason W Knight
Senior Chemist

JUN 29 2016

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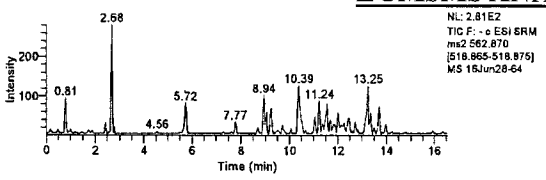
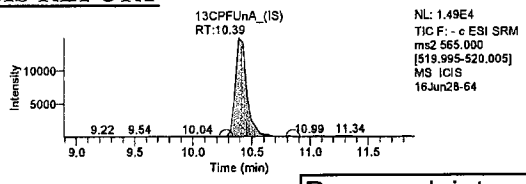
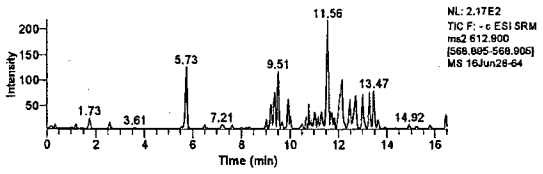
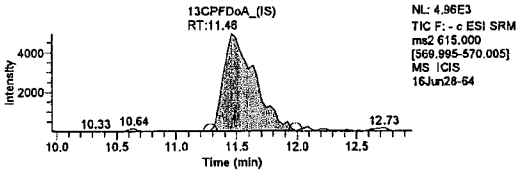




Poor peak integration, sample result < MDL

Component Name: PFDoA





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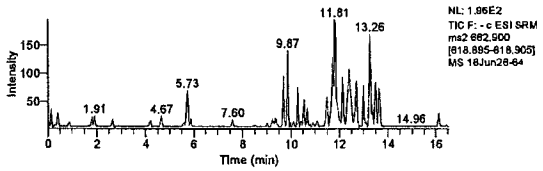
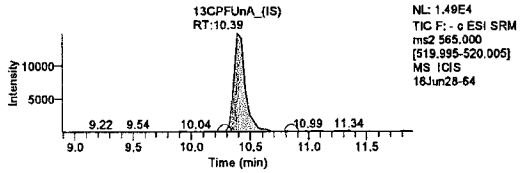
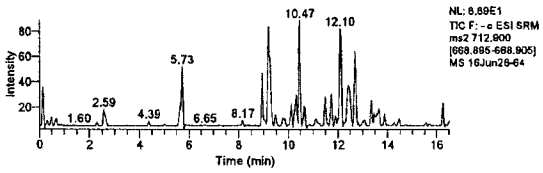
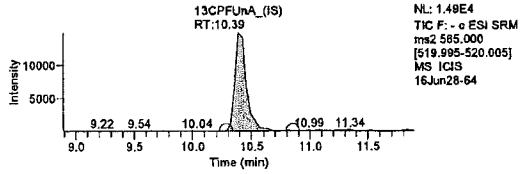




Component Name: PFTeDA





Michele J Smith

JUN 3 0 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

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Analysis Report

Sample Description: SG3-MW07-00.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427014
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/13/2016 14:30 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Original

SG371 SDG#: SGP93-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.68	U	0.68	2.2	1
14027	Perfluorodecanoic acid	335-76-2	2.0	J, High LCS and MS	1.27	0.54	1
14027	Perfluorododecanoic acid	307-55-1	0.68	JJ, High LCS and MS	0.54	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.41	U	0.41	0.82	1
14027	Perfluorohexanesulfonate	355-46-4	0.68	U	0.68	2.2	1
14027	Perfluorohexanoic acid	307-24-4	0.30	JJ, High LCS and MS	0.27	0.54	1
14027	Perfluorononanoic acid	375-95-1	1.3		0.27	0.54	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.1	J	0.95	2.2	1
14027	Perfluorooctanoic acid	335-67-1	4.1		0.41	0.82	1
14027	Perfluorotetradecanoic acid	376-06-7	0.44	JJ, High CCV, LCS, MS		1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.82	U	0.82	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.83	J, High LCS, MS	0.41	0.82	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was detected at 30 ng/g. PFOA was detected in the re-extraction of the sample at 3 ng/g.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC		n.a.		35,000	914	2,740	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture		n.a.		26.5	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 19:44	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176298731A	06/24/2016 09:47	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW07-00.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427014
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/13/2016 14:30 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Rinsed

SG371 SDG#: SGP93-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.1	1
14027	**Perfluorodecanoic acid**	335-76-2	**2.0**		0.26	0.51	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.68**	**J**	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.39	U	0.39	0.77	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.1	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.30**	**J**	0.26	0.51	1
14027	**Perfluorononanoic acid**	375-95-1	**1.3**		0.26	0.51	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.1**	**J**	0.90	2.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**4.1**		0.39	0.77	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**0.44**	**J**	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.77	U	0.77	1.5	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.83**		0.39	0.77	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was detected at 4.1 ng/g. PFOA was detected below the MDL in the re-extraction of the sample.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	**35,000**		914	2,740	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**26.5**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 19:44	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW07-00.0 Grab Soil	**Data File:**		16JUL14-35.wiff
Sample ID:	8427014BKG	**Acquis Date:**		7/14/2016 7:44:12 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	13	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	5.290	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

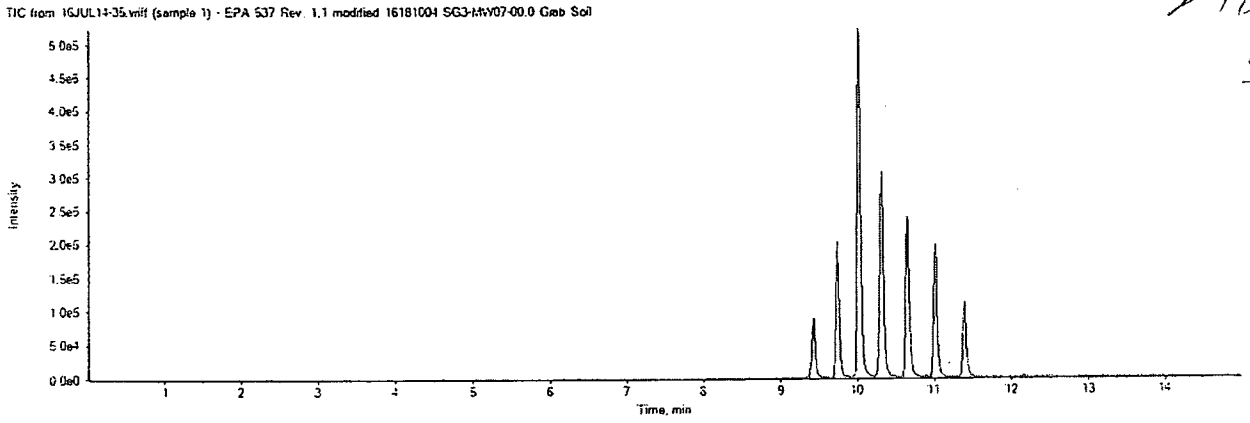
Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.74	204658.1	N/A	N/A	
PFHxA	9.43	3657.3	13C2-PFHxA	9.42	267786.7	0.014	0.220	
PFHpA	9.75	3693.4	13C4-PFHpA	9.74	404235.6	0.009	0.216	
PFHxS	9.74	990.8	18O2-PFHxS	9.74	204658.1	0.005	0.290	
PFOA	10.02	185316.7	13C4-PFOA	10.02	1418200.1	0.131	3.044	
PFNA	10.32	98291.6	13C5-PFNA	10.32	826230.8	0.119	0.935	
PFOS	10.29	4156.4	13C4-PFOS	10.29	96228.9	0.043	0.786	
PFDA	10.65	94756.8	13C2-PFDA	10.65	702300.6	0.135	1.444	
PFUndA	11.00	23345.9	13C2-PFUnDA	11.01	568814.8	0.041	0.613	
PFDoDA	11.39	11448.6	13C2-PFDoDA	11.39	340926.5	0.034	0.503	
PFTrDA	11.77	2561.5	13C2-PFDoDA	11.39	340926.5	0.008	0.091	
PFTeDA	12.14	6329.5	13C2-PFDoDA	11.39	340926.5	0.019	0.321	

> 1/2 MRL Std

Total Ion Chromatogram

8427014BKG



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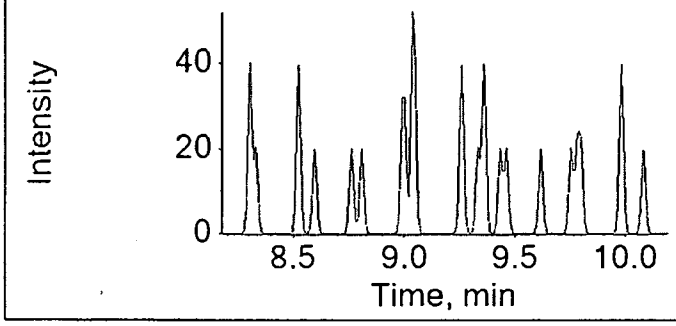
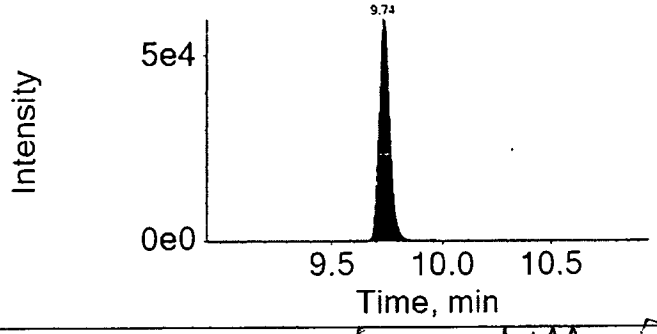
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

403.0 / 103.0

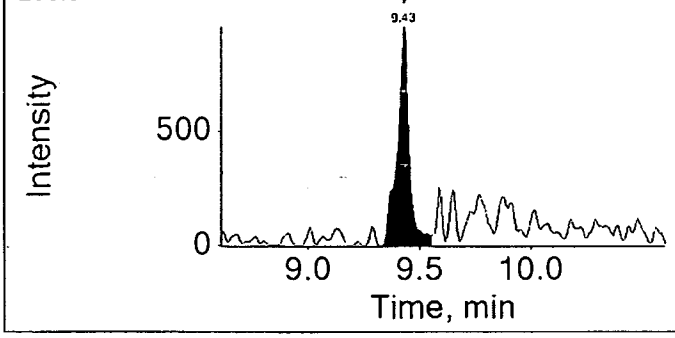


Lab checking integration — ok, minor 7/18/17

16JUL14-35.wiff

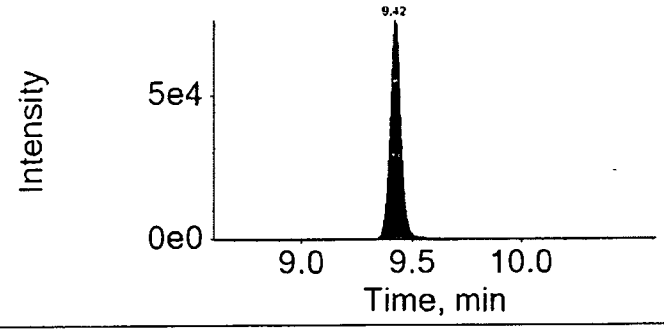
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

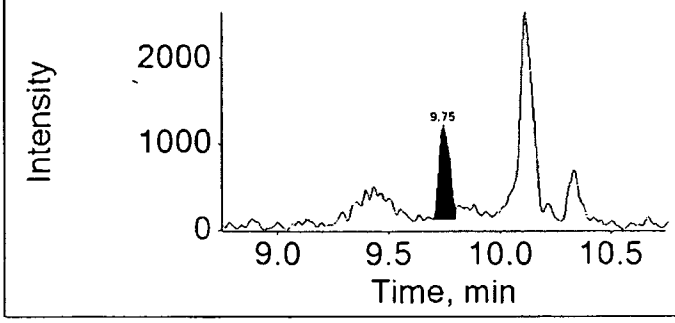
314.9 / 270.0



16JUL14-35.wiff

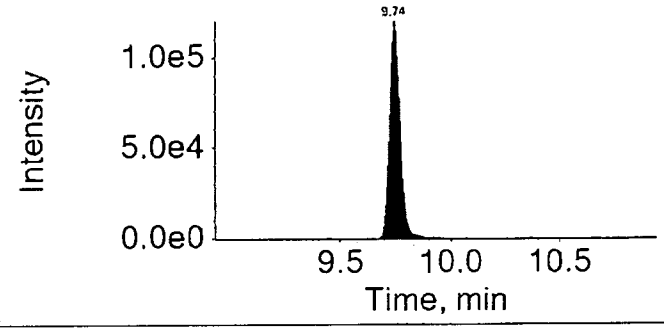
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

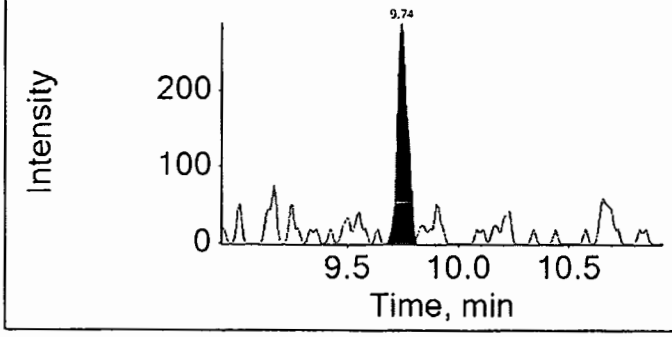
367.0 / 322.0



16JUL14-35.wiff

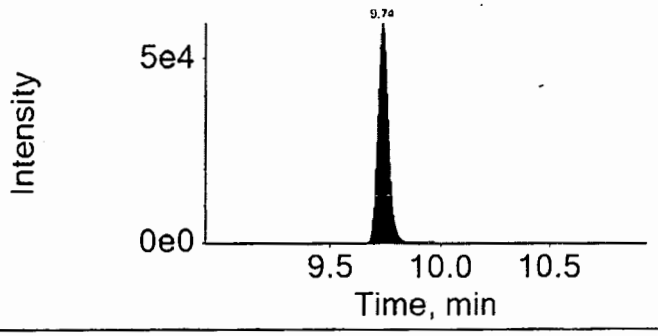
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

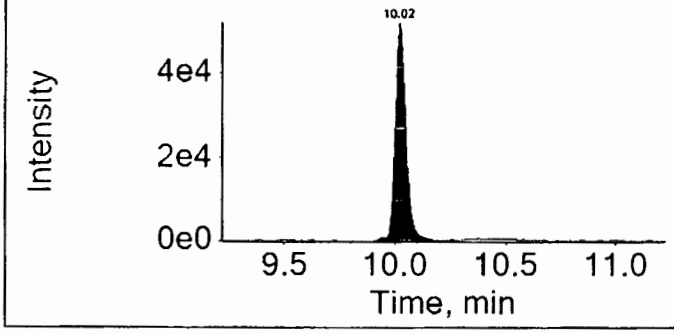
403.0 / 103.0



16JUL14-35.wiff

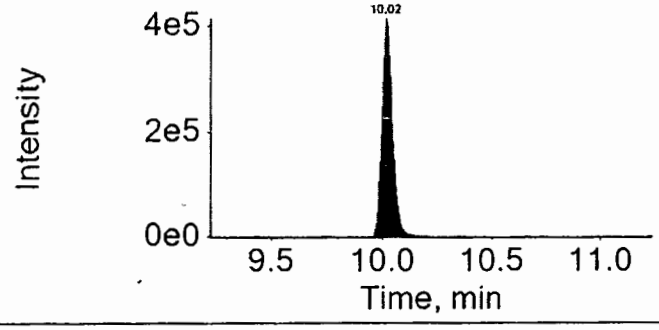
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

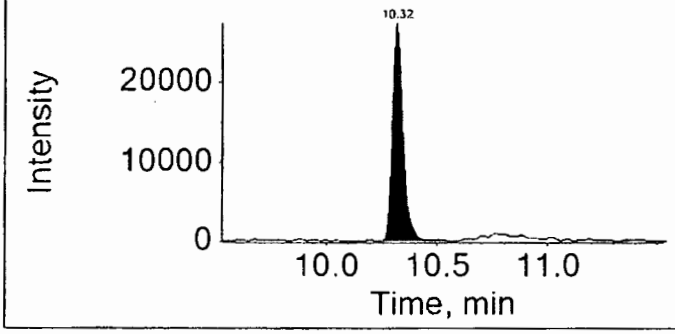
417.0 / 372.0



16JUL14-35.wiff

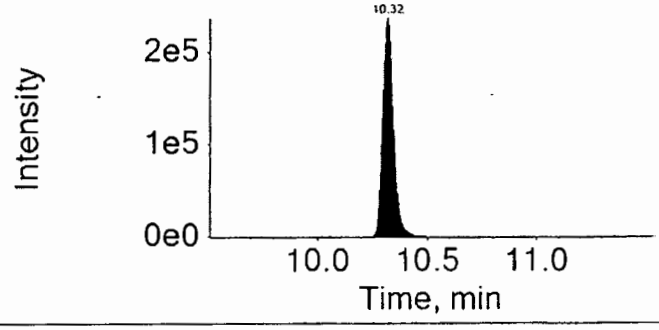
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



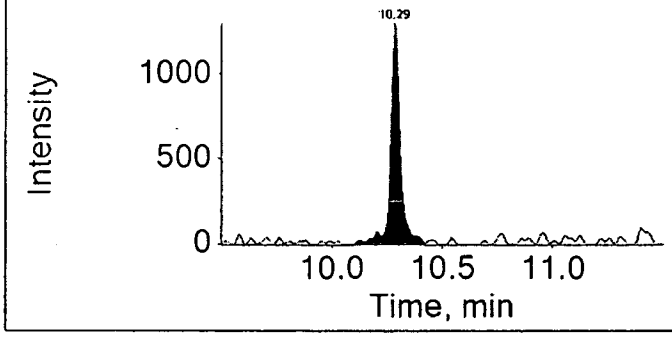
Lab checking integration

minor MAM 5/18/17

16JUL14-35.wiff

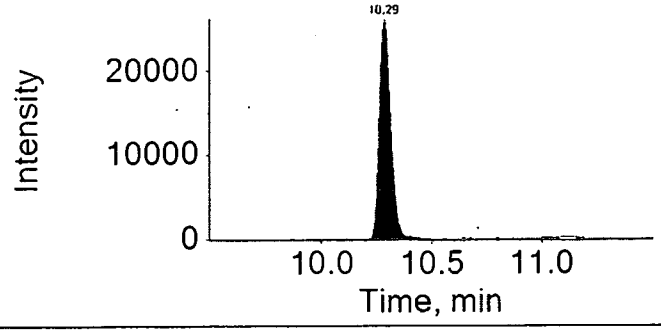
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

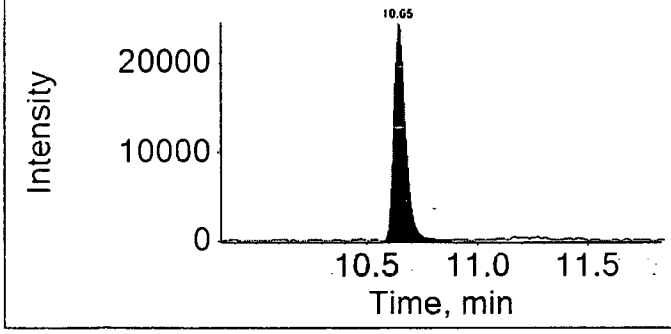
503.0 / 99.0



16JUL14-35.wiff

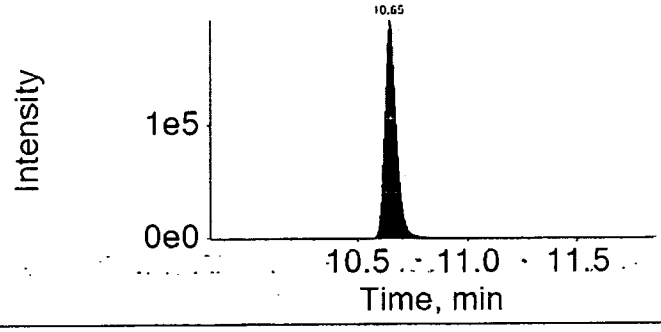
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

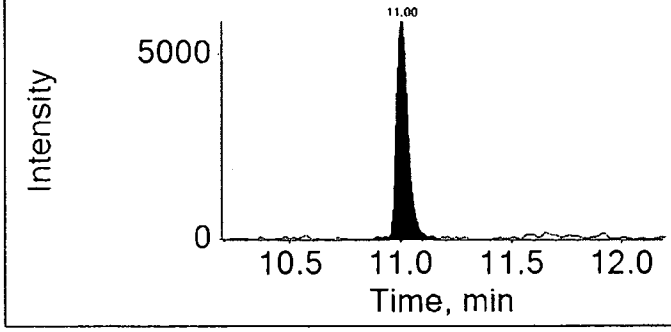
515.0 / 470.0



16JUL14-35.wiff

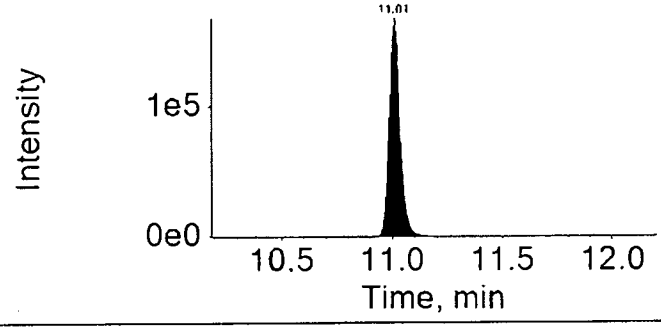
Analyte: PFUndA

562.9 / 518.9

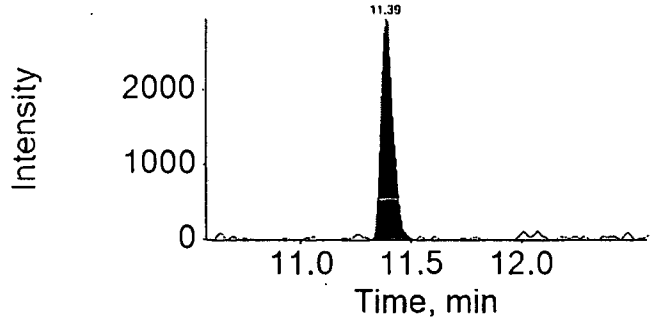


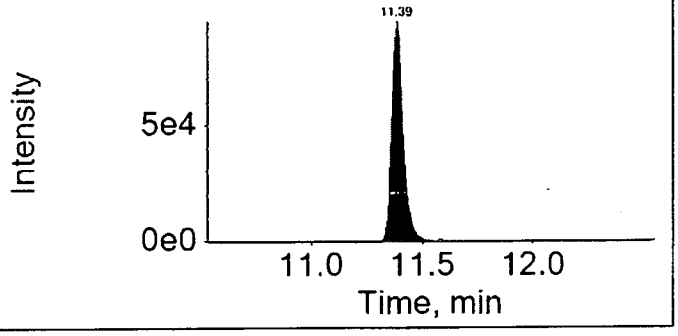
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

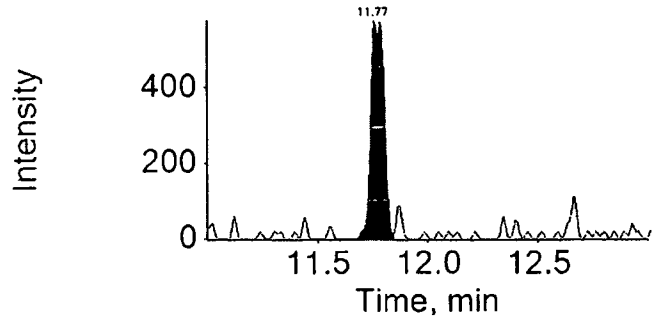


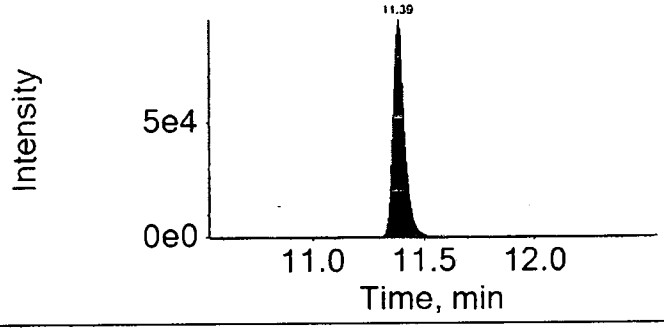
16JUL14-35.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0





16JUL14-35.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





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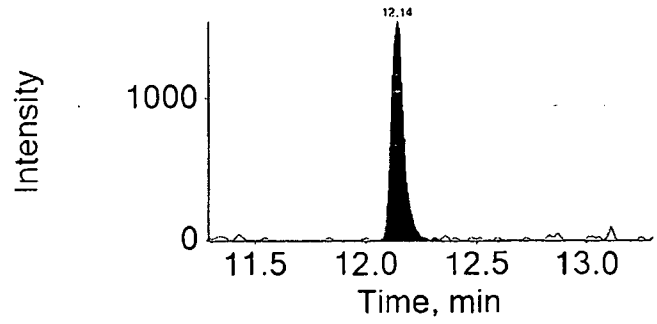
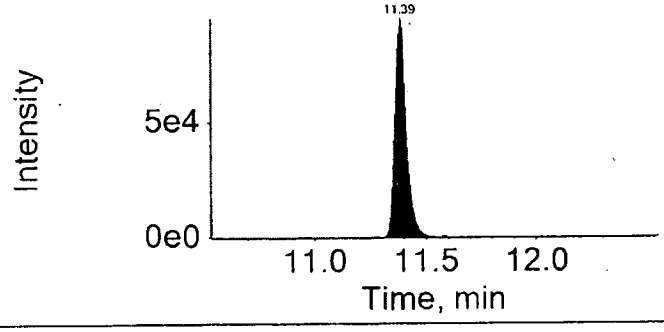
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





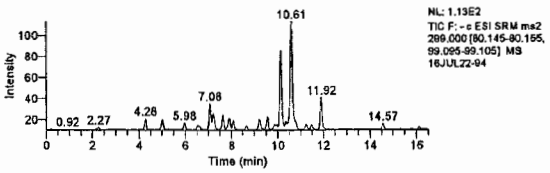
LCMSMS ANALYSIS REPORT

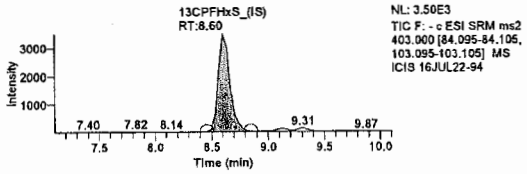
Sample Name:	8427014 BKG RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427014 BKG RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL22-94		
Acquisition Date:	07/23/16 11:07:31 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:38	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

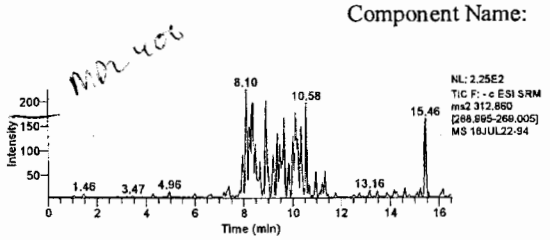
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.25	224869.49	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.92	197831.56	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.64	182141.61	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.85	132762.23	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.63	204937.25	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	106667.52	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.60	24853.62	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.18	18179.85	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.18	159415.28	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	1.512	9.64	19058.67	182141.61	0.105	ng/g
PFDoA	0.450	10.85	6331.48	132762.23	0.048	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	1.004	9.25	16011.67	224869.49	0.071	ng/g
PFOA	2.799	8.92	56422.01	197831.56	0.285	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	0.426	12.62	3398.89	159415.28	0.021	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	0.539	10.17	8578.88	159415.28	0.054	ng/g
PFHpA	0.446	8.63	6081.70	204937.25	0.030	ng/g

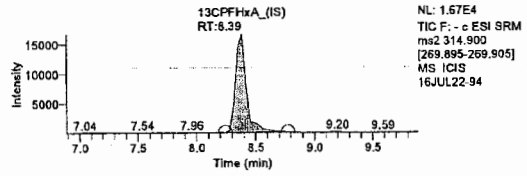
Component Name: PFBS





Component Name: PFHxA



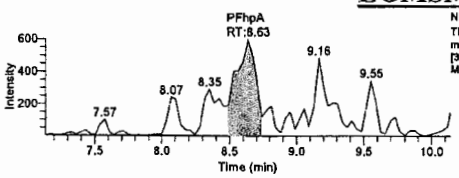


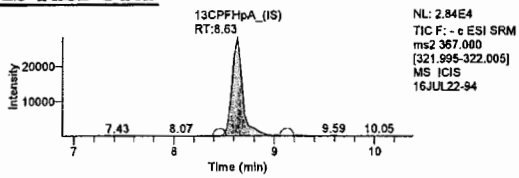
Component Name: PFHpA

Jason W. Knight
Senior Chemist

JUL 25 2016

LCMSMS ANALYSIS REPORT





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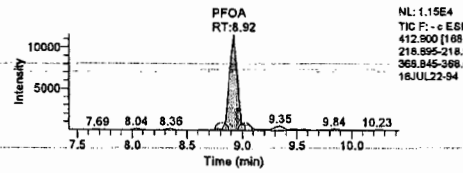
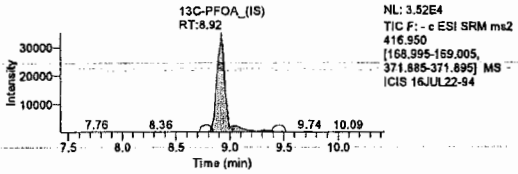
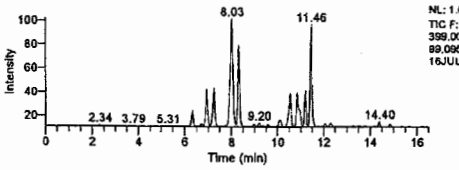
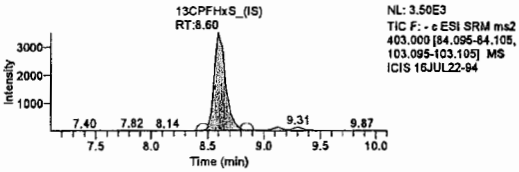




Component Name: PFHxS





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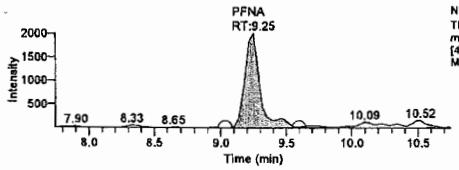
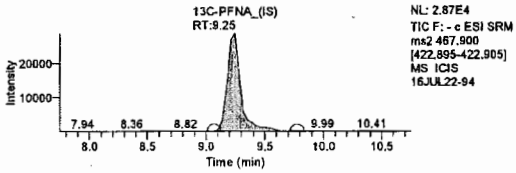
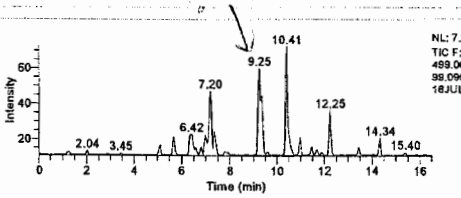
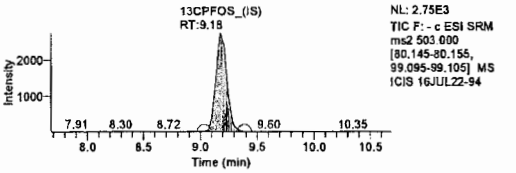




Component Name: PFOS





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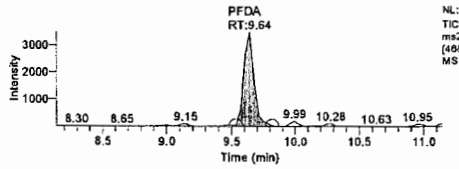

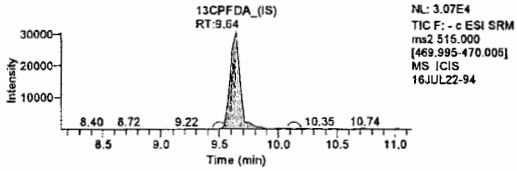

Component Name: PFUdA

Jason W. Knight
Senior Chemist

JUL 25 2016

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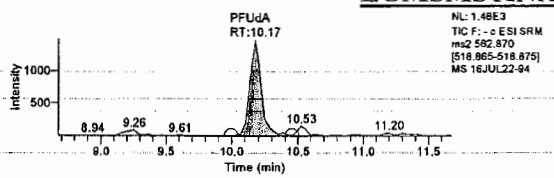
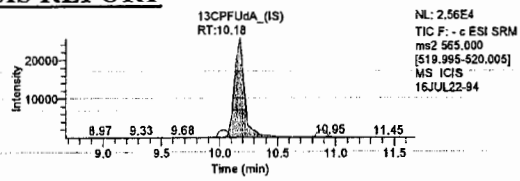
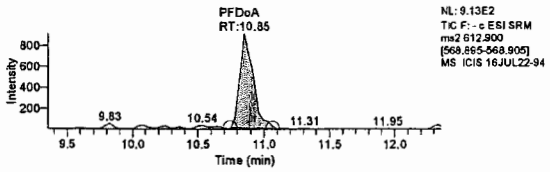
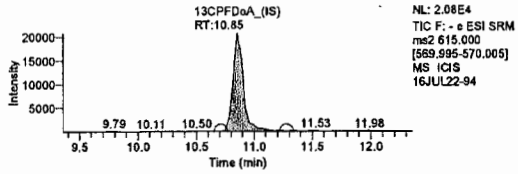


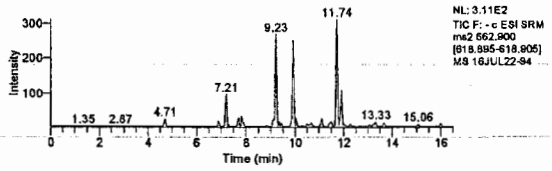


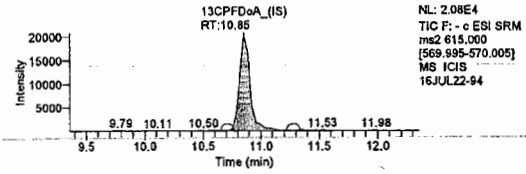
Component Name: PFDoA



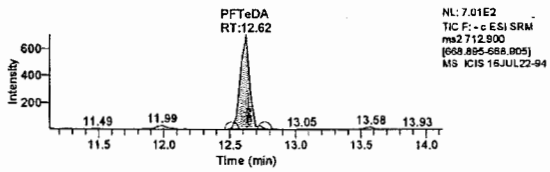


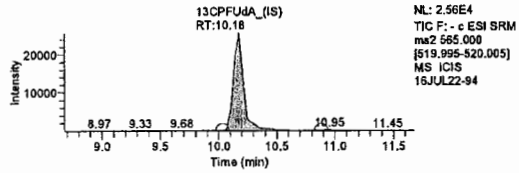
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 26 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

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Analysis Report

Sample Description: SG3-MW07-00.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8427017
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/13/2016 14:40 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

SG372 SDG#: SGP93-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.65	U	0.65	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.52	U	0.52	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.39	U	0.39	0.78	1
14027	Perfluorohexanesulfonate	355-46-4	0.65	U	0.65	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.26	U	0.26	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.65		0.26	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.91	U	0.91	2.1	1
14027	Perfluorooctanoic acid	335-67-1	5.3		0.39	0.78	1
14027	Perfluorotetradecanoic acid	376-06-7	0.39	U	0.39	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.78	U	0.78	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.39	U	0.39	0.78	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	18,300		594	1,780	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	23.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 20:42	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176298731A	06/24/2016 12:27	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW07-00.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8427017
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/13/2016 14:40 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG372 SDG#: SGP93-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.0	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.26**	**J**	0.25	0.51	1
14027	**Perfluorononanoic acid**	375-95-1	**0.65**		0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.89	U	0.89	2.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**5.3**		0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.76	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**18,300**		594	1,780	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**23.0**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 20:42	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176298731A	06/24/2016 12:27	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

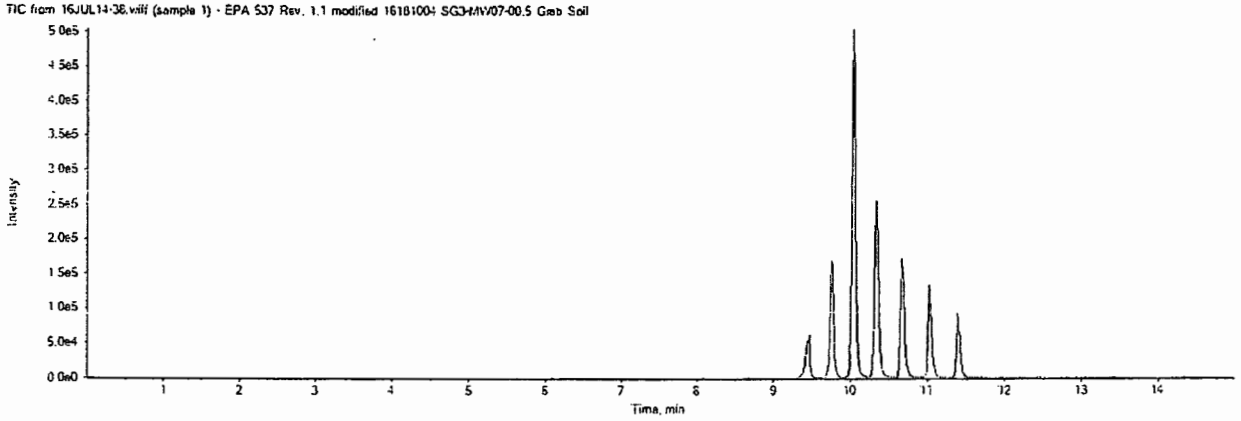
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW07-00.5 Grab Soil	**Data File:**		16JUL14-38.wiff
Sample ID:	8427017	**Acquis Date:**		7/14/2016 8:42:24 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	16	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	5.100	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.76	197107.2	N/A	N/A	
PFHxA	9.45	2847.0	13C2-PFHxA	9.45	238601.3	0.012	0.197	
PFHpA	9.76	3463.8	13C4-PFHpA	9.76	347773.0	0.010	0.238	
PFHxS	9.76	660.5	18O2-PFHxS	9.76	197107.2	0.003	0.282	
PFOA	10.04	226799.1	13C4-PFOA	10.04	1353454.6	0.168	4.054	
PFNA	10.34	46161.3	13C5-PFNA	10.34	795510.4	0.058	0.504	
PFOS	10.30	1043.2	13C4-PFOS	10.31	93063.4	0.011	0.518	
PFDA	10.68	4106.6	13C2-PFDA	10.67	590125.1	0.007	0.116	
PFUndA	11.03	1778.8	13C2-PFUnDA	11.03	426555.8	0.004	0.027	
PFDoDA	11.41	631.3	13C2-PFDoDA	11.39	284281.7	0.002	< 0	
PFTrDA	11.77	302.8	13C2-PFDoDA	11.39	284281.7	0.001	< 0	
PFTeDA	12.12	216.2	13C2-PFDoDA	11.39	284281.7	0.001	< 0	

Total Ion Chromatogram

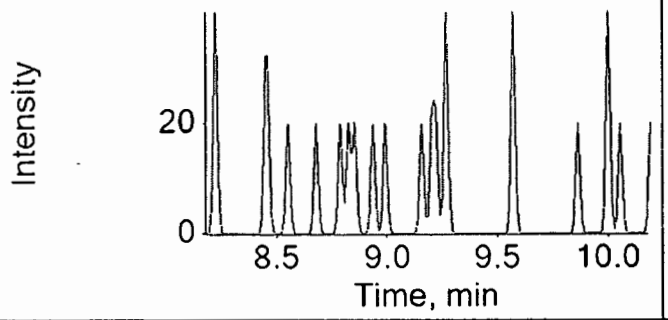
8427017



16JUL14-38.wiff

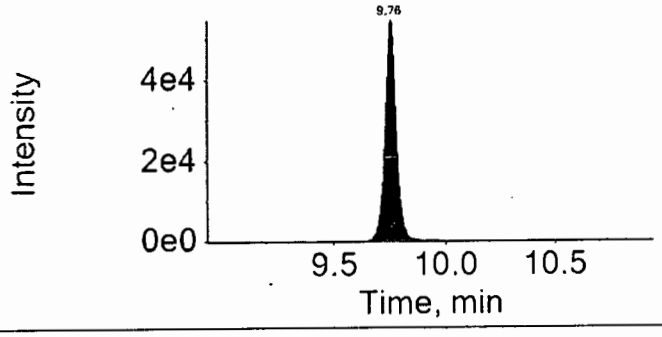
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

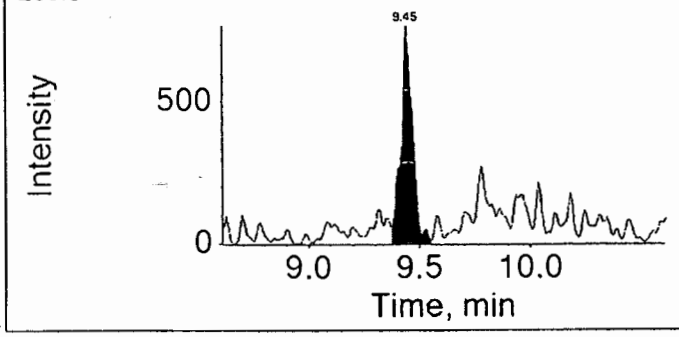
403.0 / 103.0



16JUL14-38.wiff

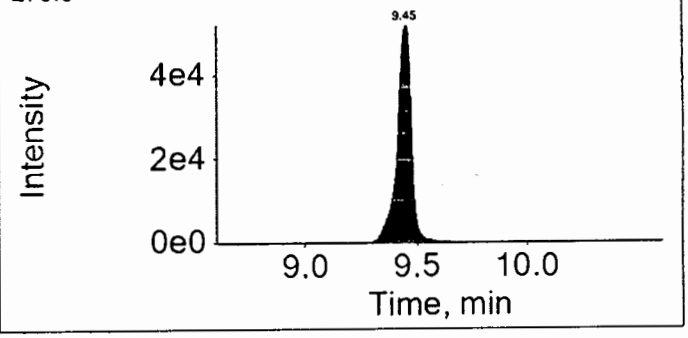
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

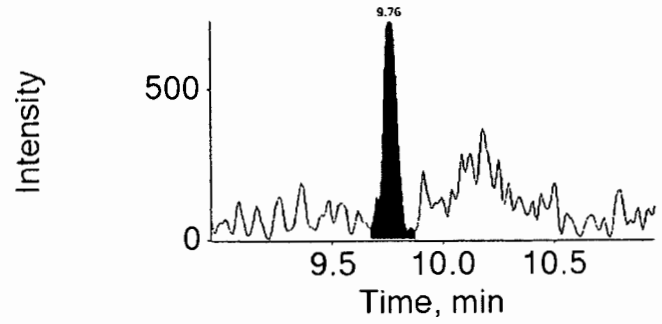
314.9 / 270.0



16JUL14-38.wiff

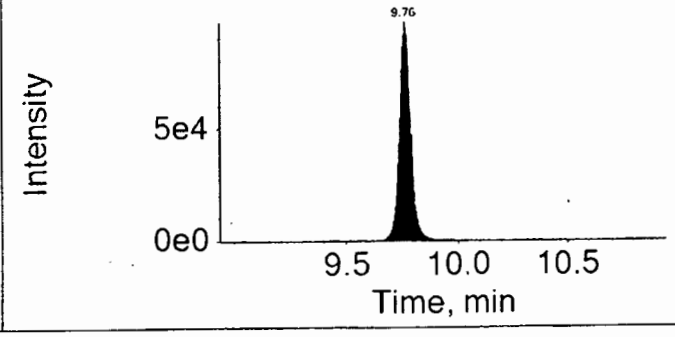
Analyte: PFHpA

362.9 / 318.9

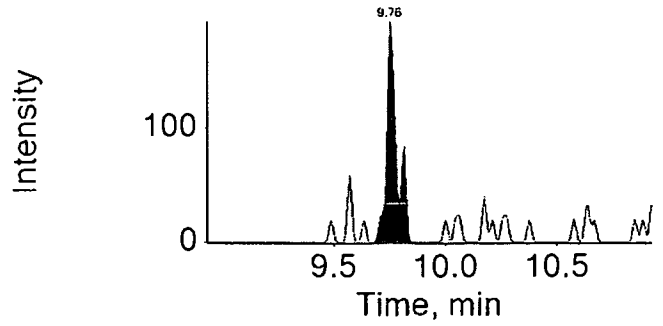


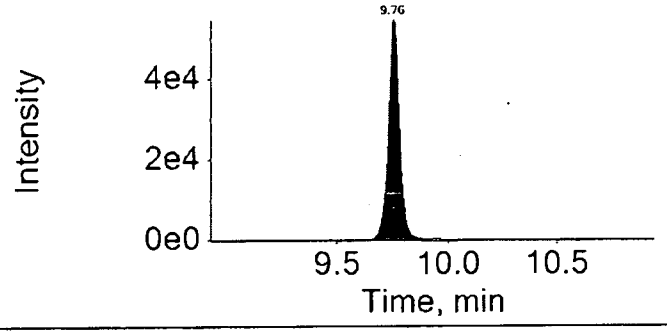
Internal Standard: 13C4-PFHpA

367.0 / 322.0

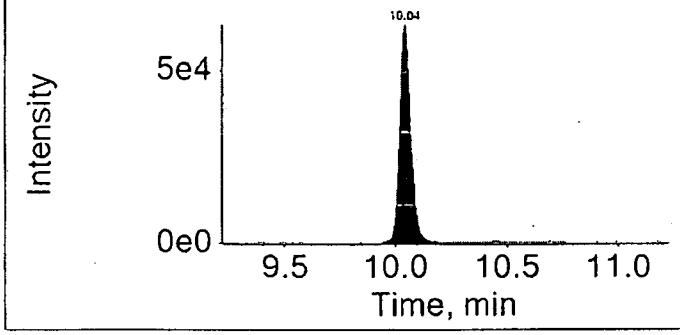


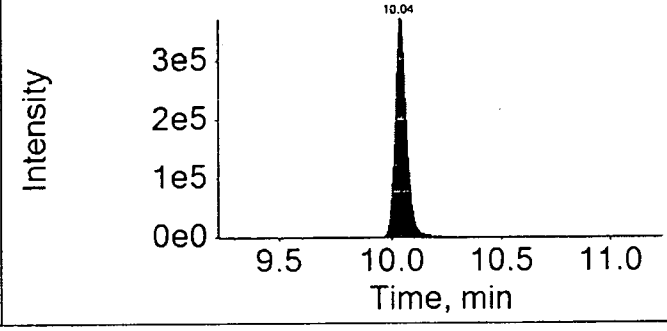
16JUL14-38.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



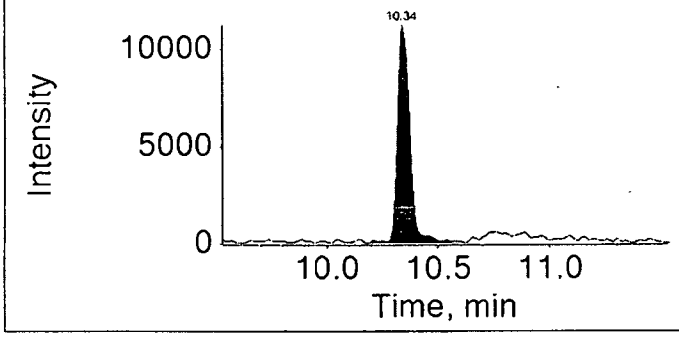


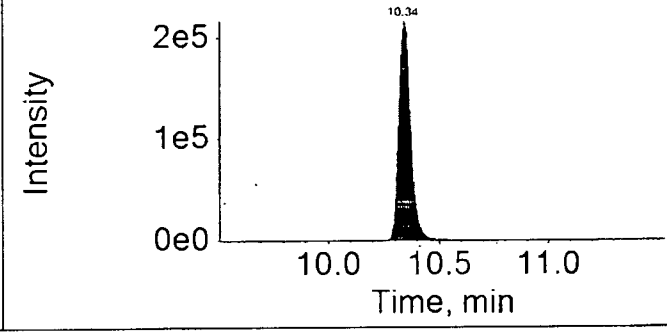
16JUL14-38.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



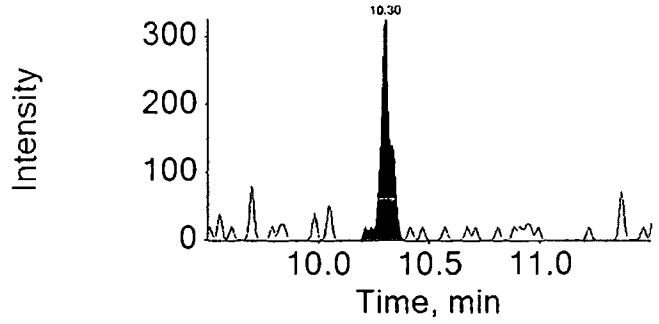


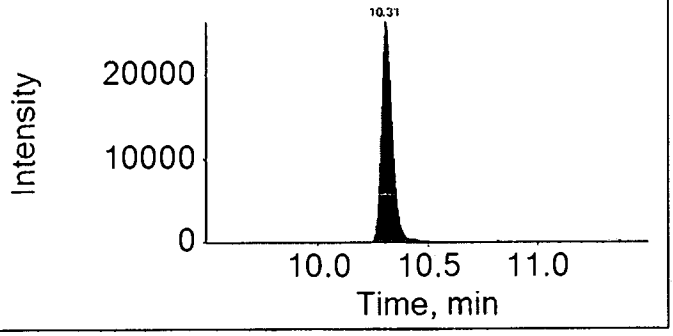
16JUL14-38.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



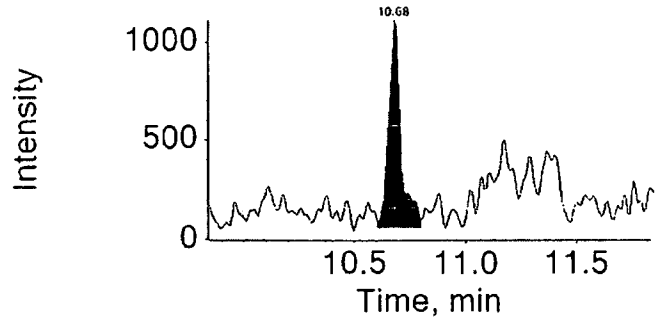


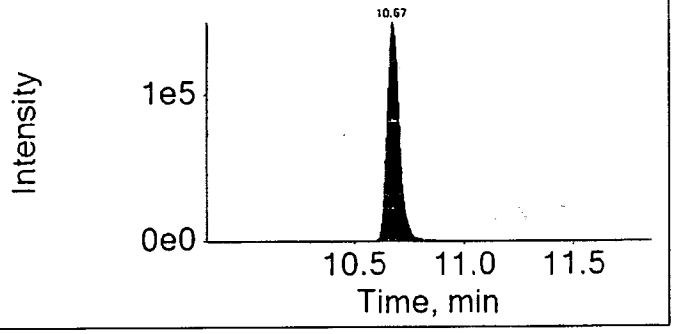
16JUL14-38.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



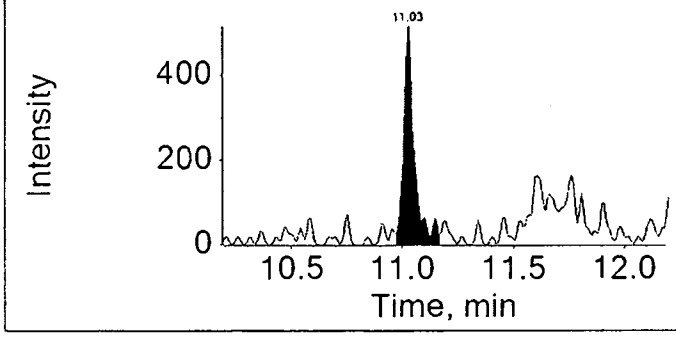


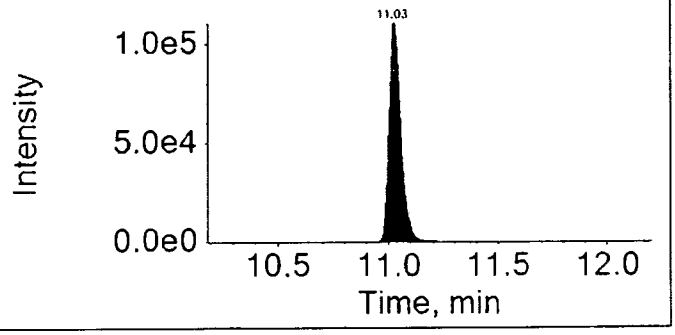
16JUL14-38.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



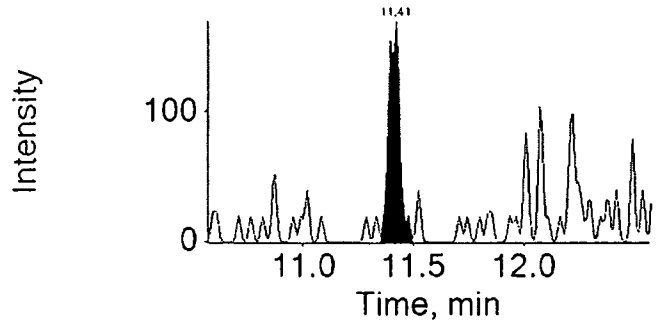


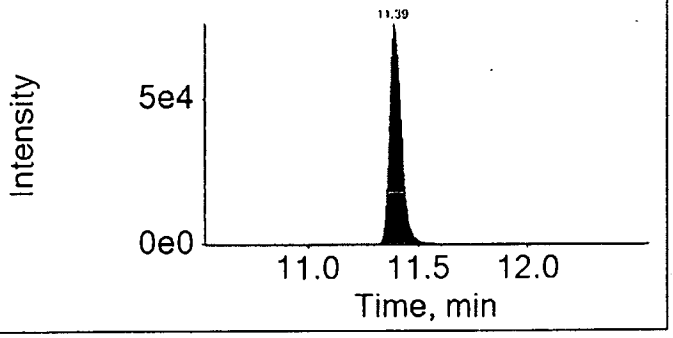
16JUL14-38.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



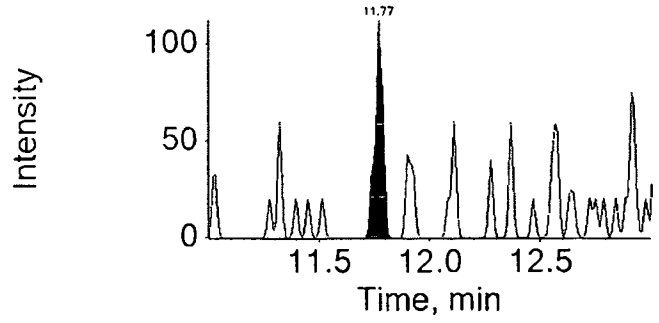


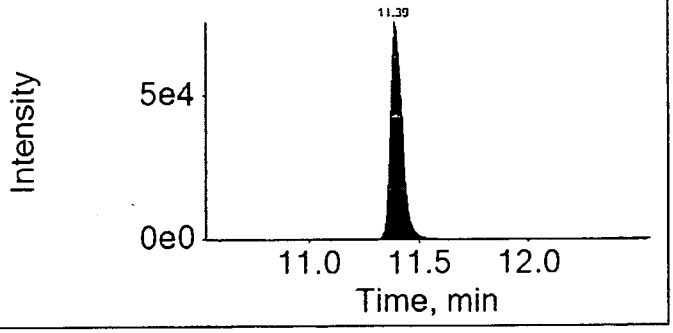
16JUL14-38.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



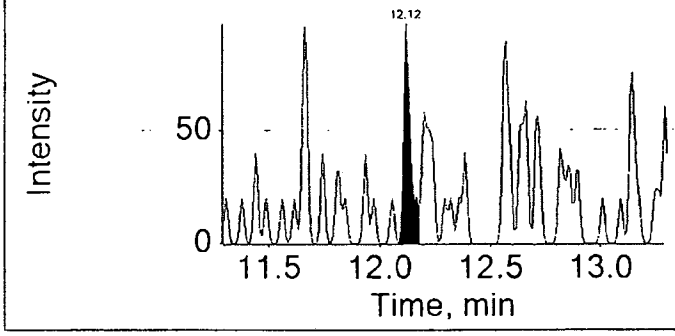


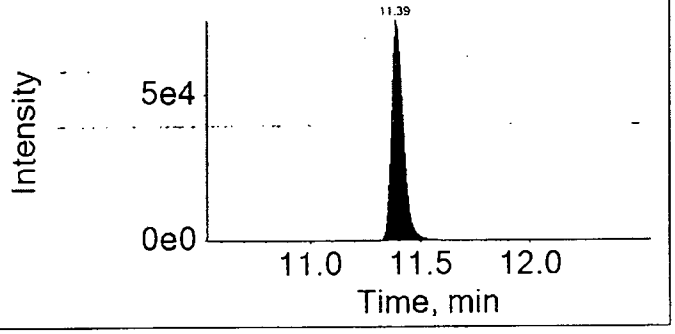
16JUL14-38.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL14-38.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





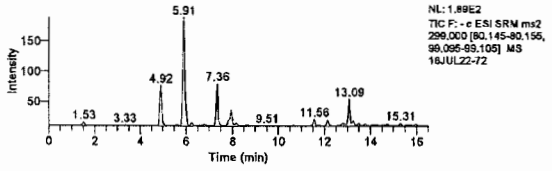
LCMSMS ANALYSIS REPORT

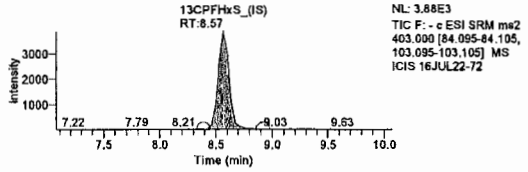
Sample Name:	8427017 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427017 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL22-72		
Acquisition Date:	07/23/16 04:48:13 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:21	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

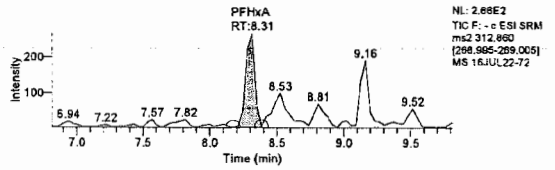
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.18	208238.28	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.85	177816.84	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.57	196615.27	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.89	118375.46	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.60	198039.52	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.32	118883.11	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.57	25990.11	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.14	16897.45	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.14	149342.27	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	0.098	8.31	1248.30	118883.11	0.011	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.311	9.18	3844.52	208238.28	0.018	ng/g
PFOA	2.914	8.89	52814.52	177816.84	0.297	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	0.276	8.56	3207.54	198039.52	0.016	ng/g

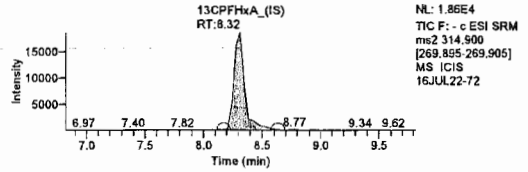
Component Name: PFBS





Component Name: PFHxA



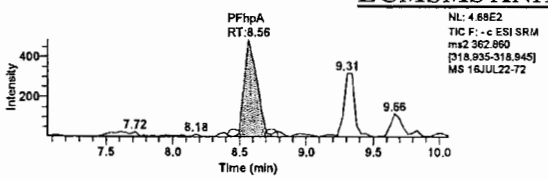


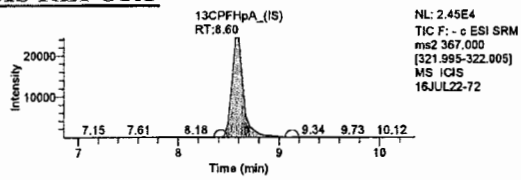
Component Name: PFhpA

Jason W. Knight
Senior Chemist

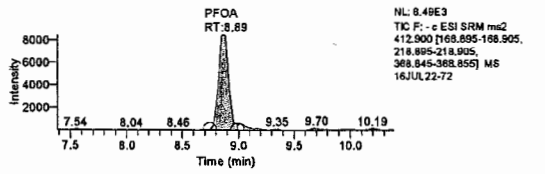
JUL 25 2016

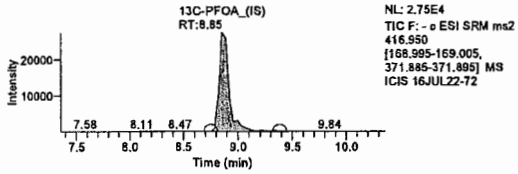
LCMSMS ANALYSIS REPORT



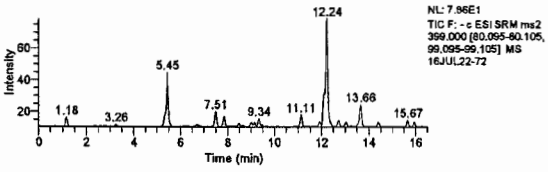


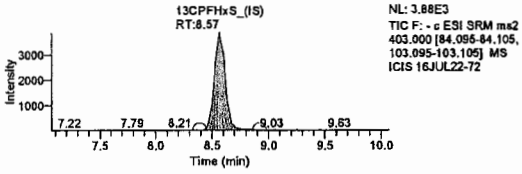
Component Name: PFOA



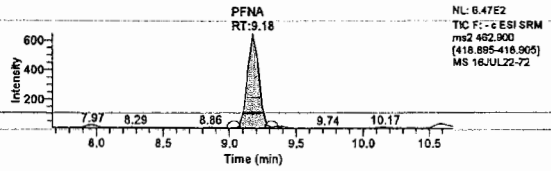


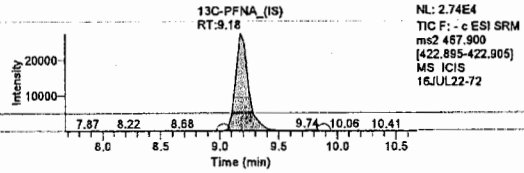
Component Name: PFHxS



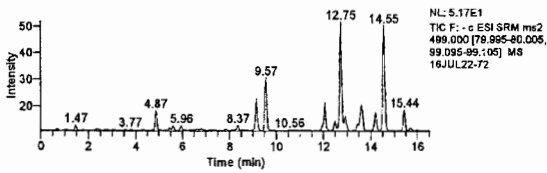


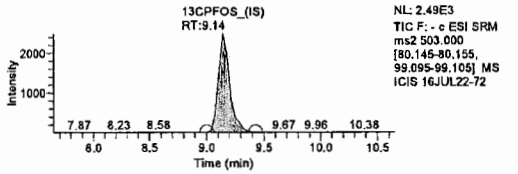
Component Name: PFNA



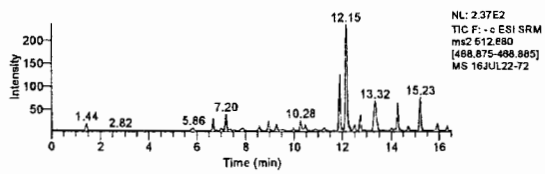


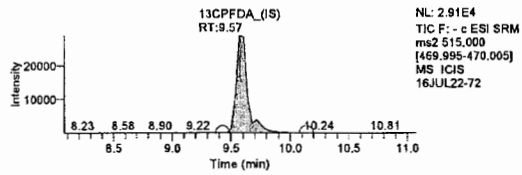
Component Name: PFOS





Component Name: PFDA





Jason W. Knight
Senior Chemist

Component Name: PFUdA

JUL 25 2016

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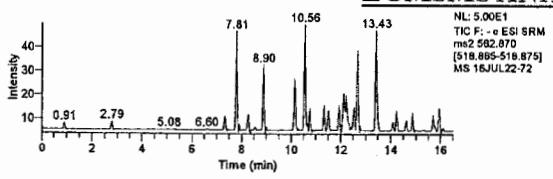
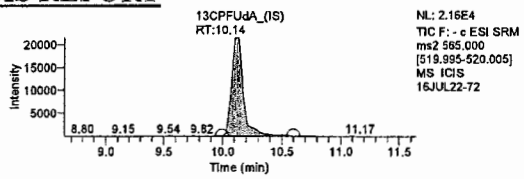
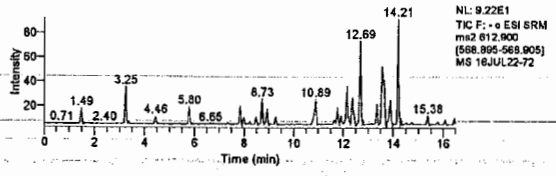
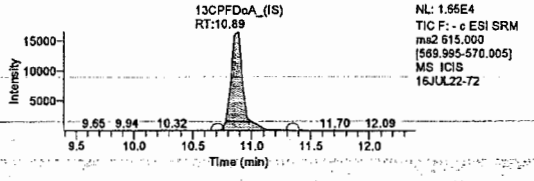


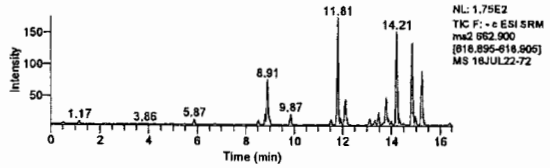


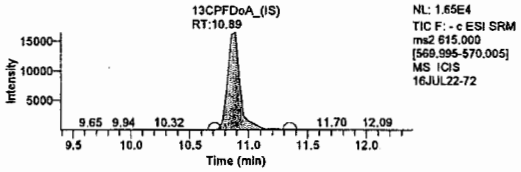
Component Name: PFDoA



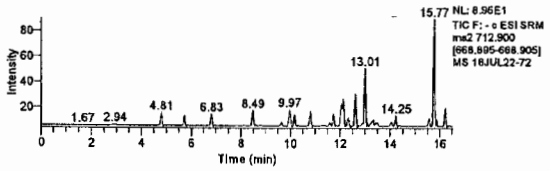


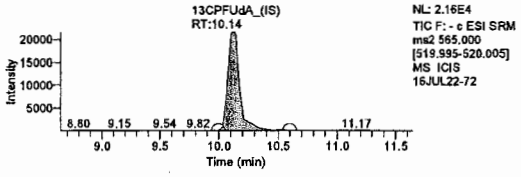
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 26 2016

Jason W. Knight
Senior Chemist

Lynn Dodd
Principal Specialist

JUL 25 2016

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Analysis Report

Sample Description: SG3-MW07-01.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427018
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/13/2016 14:50 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

SG373 SDG#: SGP93-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.98	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.55	J, High LCS	0.24	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.86	U	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	6.9		0.37	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.98	1
14027	Perfluorotridecanoic acid	72629-94-8	0.73	U	0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.73	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	TOC	n.a.	16,700	671	2,010	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	18.3	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 21:01	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176298731A	06/24/2016 13:05	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW07-01.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427018
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/13/2016 14:50 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG373 SDG#: SGP93-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.46	U	0.46	0.91	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.55**		0.23	0.46	1
14027	**Perfluorononanoic acid**	375-95-1	**0.23**	**J**	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.80	U	0.80	1.8	1
14027	**Perfluorooctanoic acid**	335-67-1	**6.9**		0.34	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.91	1
14027	Perfluorotridecanoic acid	72629-94-8	0.69	U	0.69	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.69	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**16,700**	671	2,010	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**18.3**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 21:01	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176298731A	06/24/2016 13:05	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

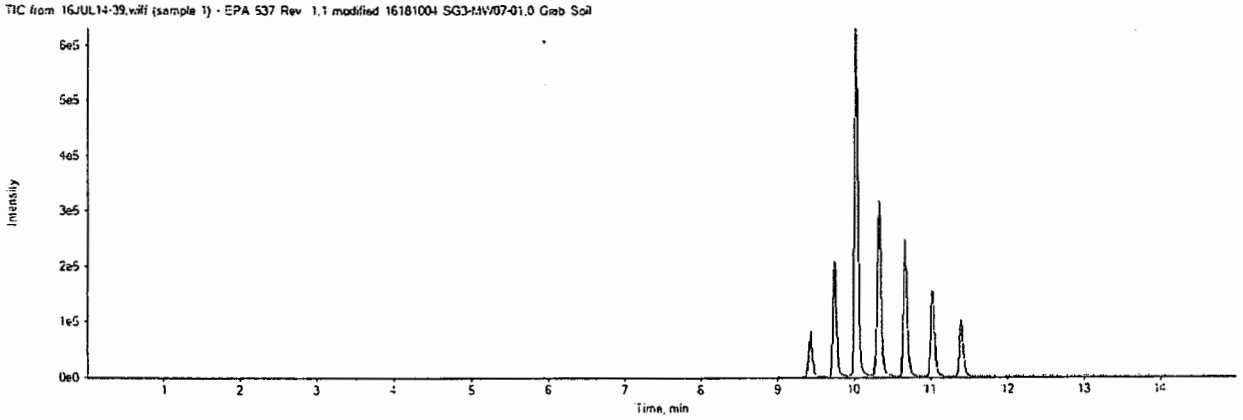
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW07-01.0 Grab Soil	**Data File:**		16JUL14-39.wiff
Sample ID:	8427018	**Acquis Date:**		7/14/2016 9:01:43 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	17	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	5.360	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

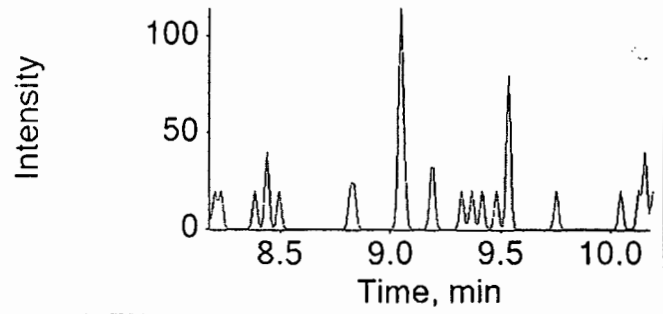
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.74	228733.1	N/A	N/A	
PFHxA	9.43	6966.5	13C2-PFHxA	9.43	254620.4	0.027	0.451	
PFHpA	9.75	4763.4	13C4-PFHpA	9.75	420841.5	0.011	0.249	
PFHxS	9.74	770.7	18O2-PFHxS	9.74	228733.1	0.003	0.268	
PFOA	10.03	380103.0	13C4-PFOA	10.02	1547065.7	0.246	5.664	
PFNA	10.33	17435.4	13C5-PFNA	10.33	964298.7	0.018	0.189	
PFOS	10.29	2517.7	13C4-PFOS	10.29	104317.5	0.024	0.607	
PFDA	10.67	4388.4	13C2-PFDA	10.66	808588.0	0.005	0.095	
PFUndA	11.03	2231.7	13C2-PFUnDA	11.02	522057.1	0.004	0.028	
PFDoDA	11.39	437.4	13C2-PFDoDA	11.39	345919.0	0.001	< 0	
PFTrDA	11.74	136.2	13C2-PFDoDA	11.39	345919.0	0.000	< 0	
PFTeDA	12.12	384.6	13C2-PFDoDA	11.39	345919.0	0.001	< 0	

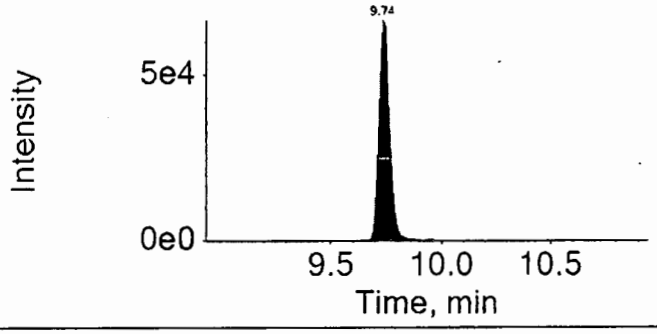
Total Ion Chromatogram

8427018

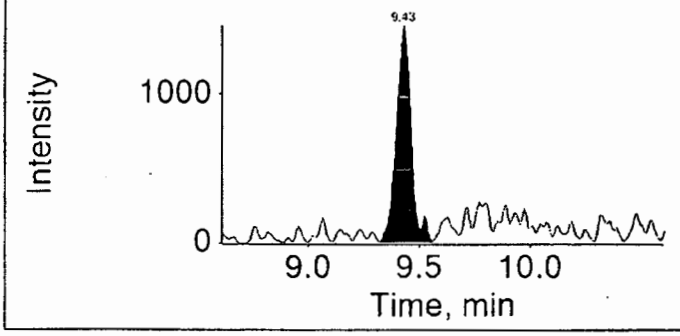


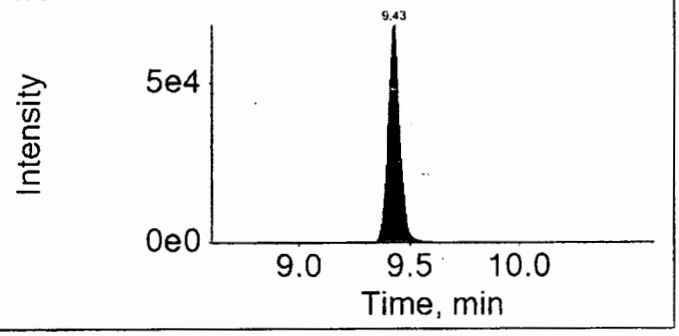
16JUL14-39.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



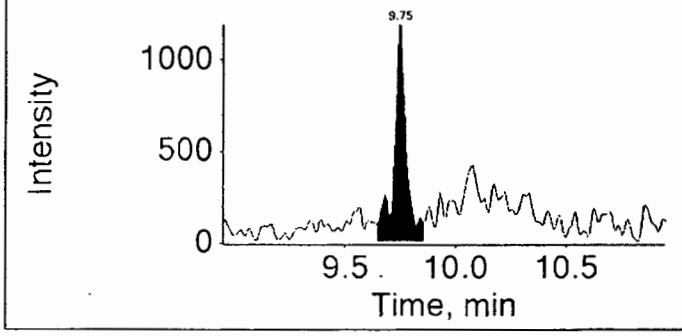


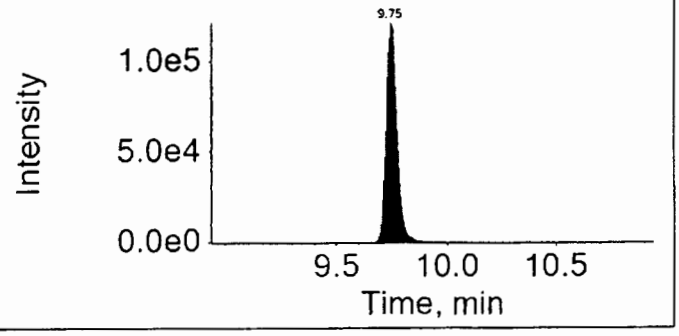
16JUL14-39.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16JUL14-39.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0





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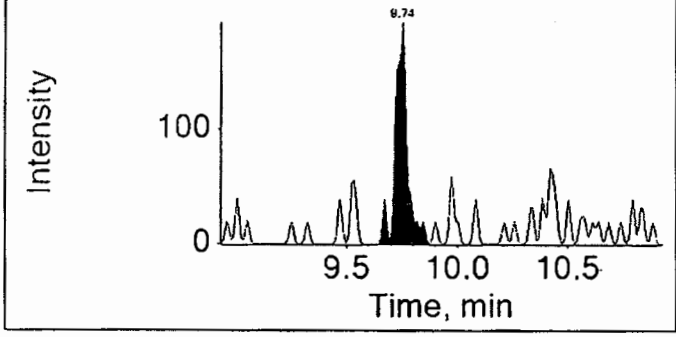
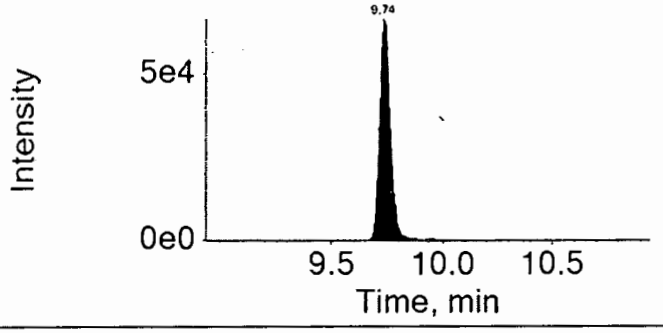
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

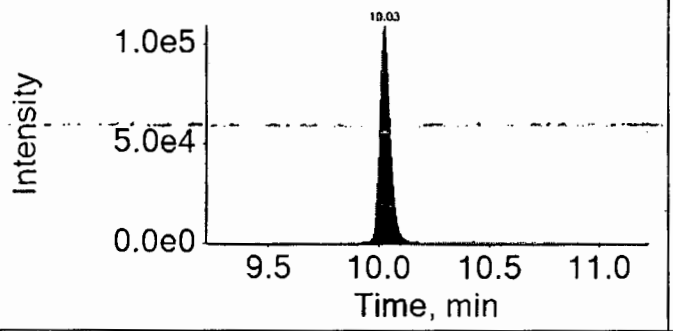
403.0 / 103.0



16JUL14-39.wiff

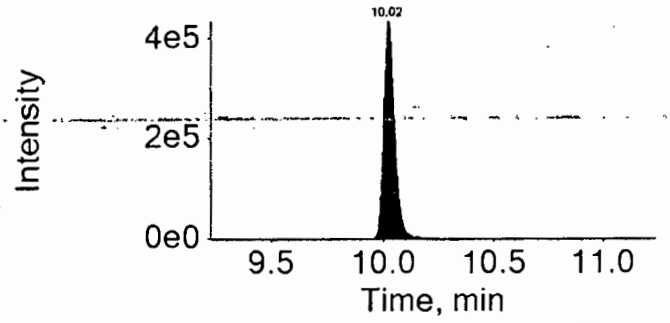
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

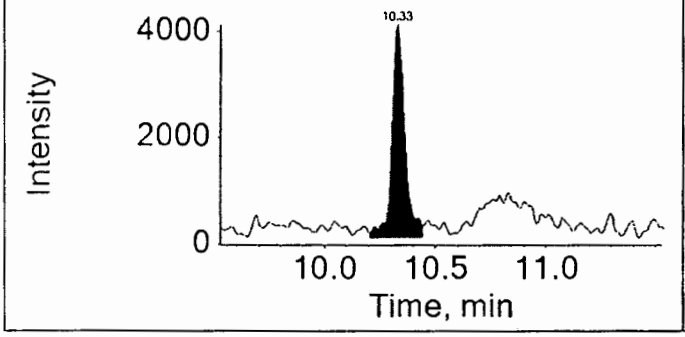
417.0 / 372.0



16JUL14-39.wiff

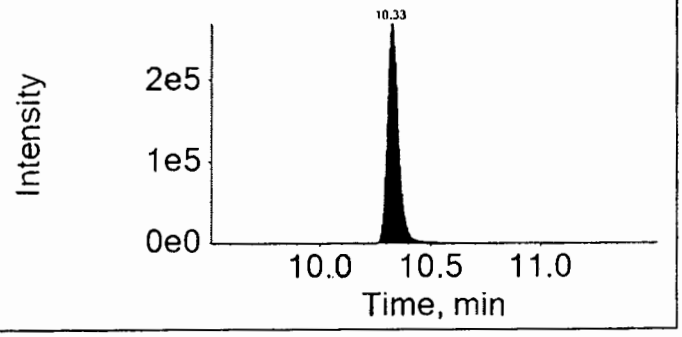
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

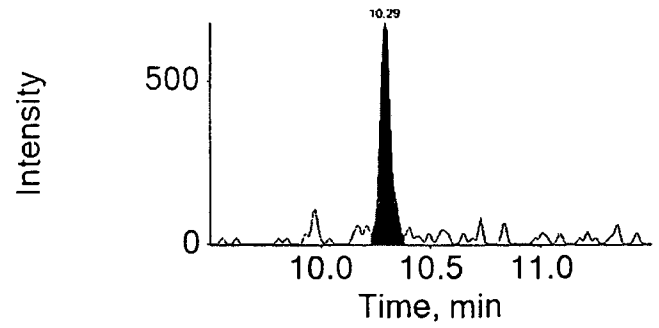
468.0 / 423.0



16JUL14-39.wiff

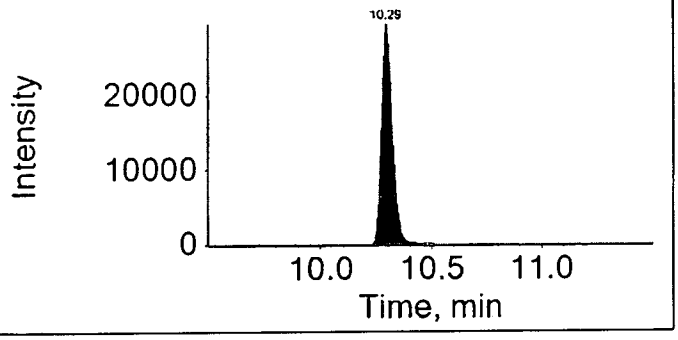
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

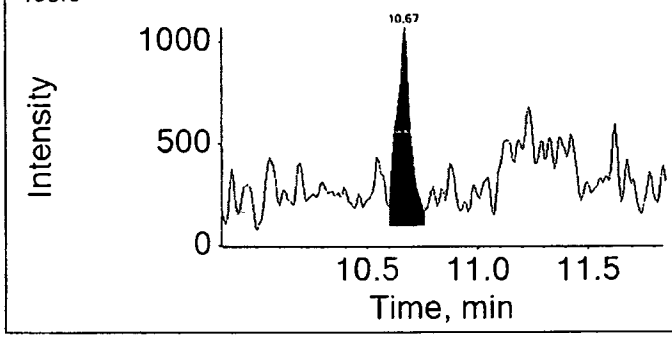
503.0 / 99.0



16JUL14-39.wiff

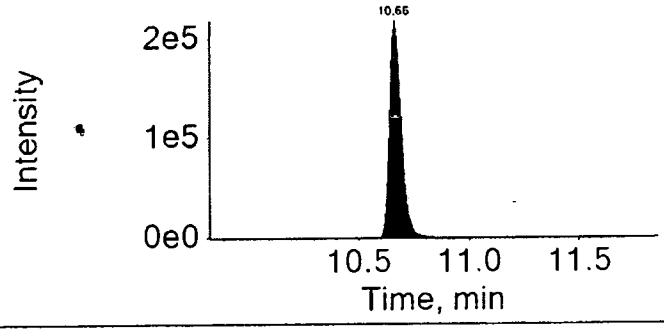
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

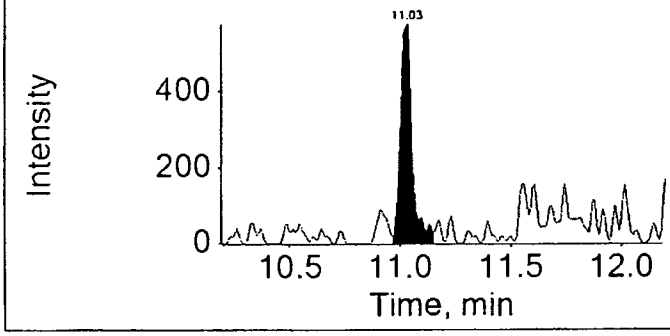
515.0 / 470.0



16JUL14-39.wiff

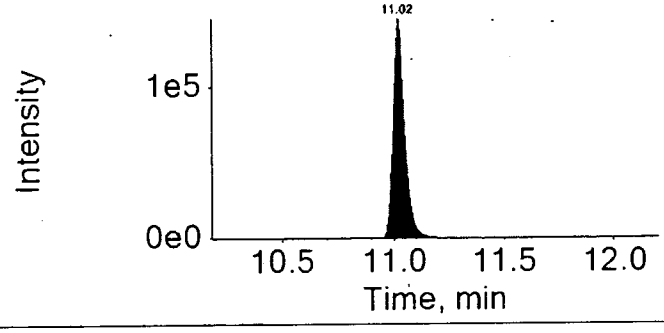
Analyte: PFUndA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



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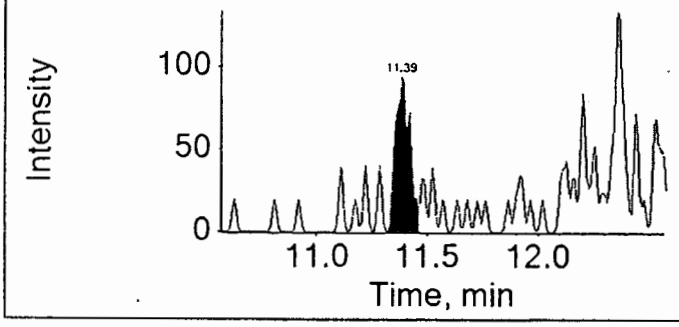
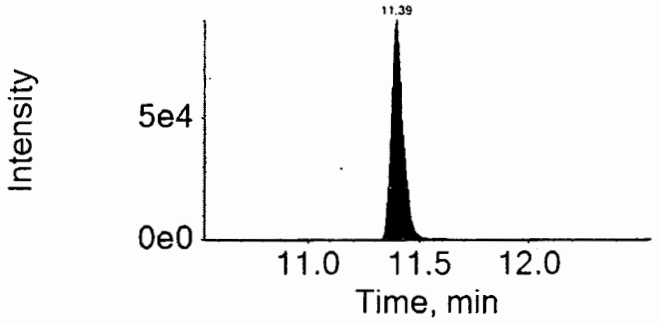
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

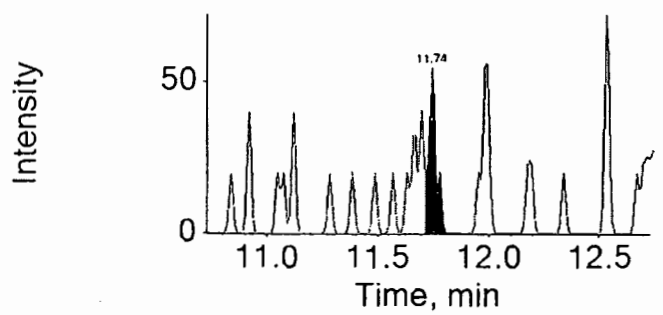
615.0 / 570.0



16JUL14-39.wiff

Analyte: PFTrDA

662.9 / 618.9



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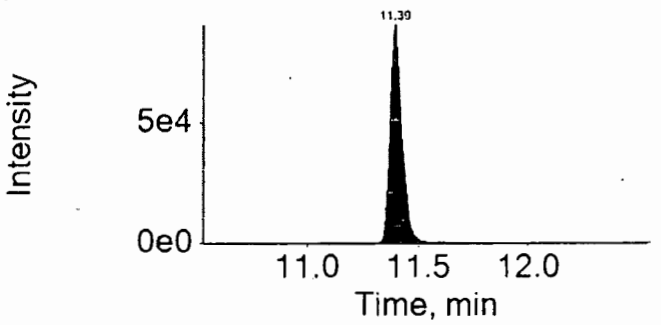
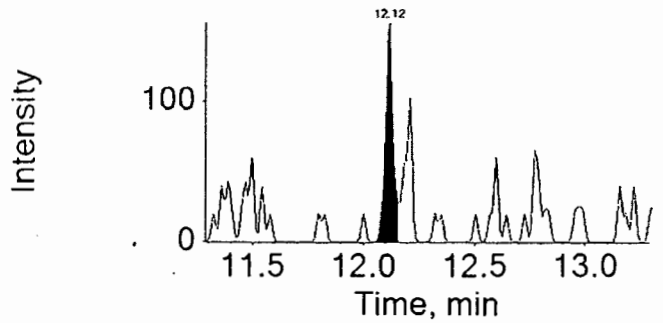
615.0 / 570.0



16JUL14-39.wiff

Analyte: PFTeDA

712.9 / 668.9



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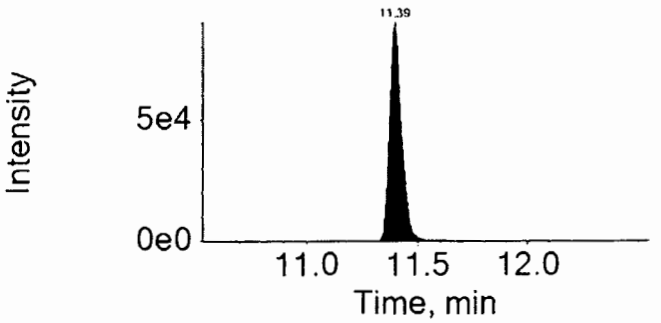
615.0 / 570.0



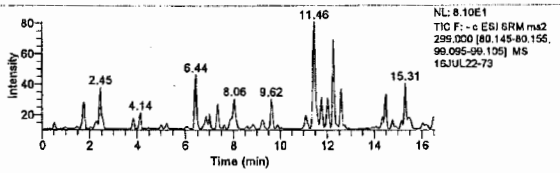
LCMSMS ANALYSIS REPORT

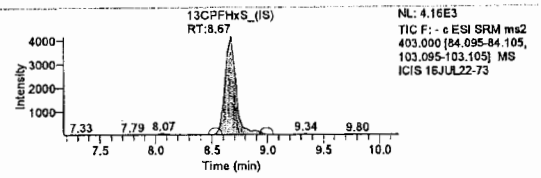
Sample Name:	8427018 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427018 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-73		M\HWell_16.5minutes
Acquisition Date:	07/23/16 05:05:28 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:22	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

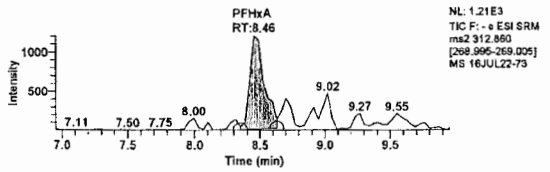
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.21	253600.92	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.92	203772.68	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.61	217596.87	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.85	145899.86	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.67	212080.25	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.49	101047.09	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.67	28419.21	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.18	17416.36	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.14	157840.75	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	0.834	8.46	9384.04	101047.09	0.093	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	4.792	8.92	99659.24	203772.68	0.489	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	0.295	8.67	3756.26	212080.25	0.018	ng/g

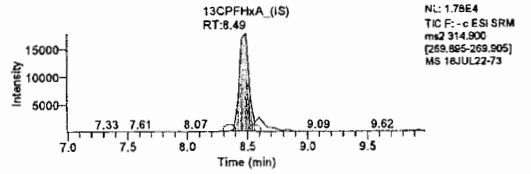
Component Name: PFBS





Component Name: PFHxA





Component Name: PFhpA

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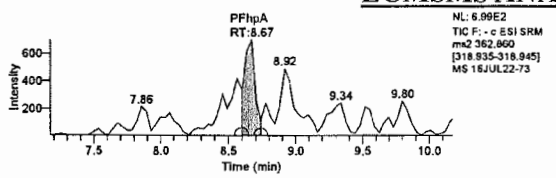
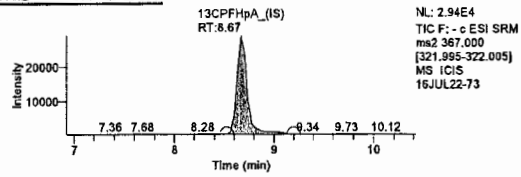
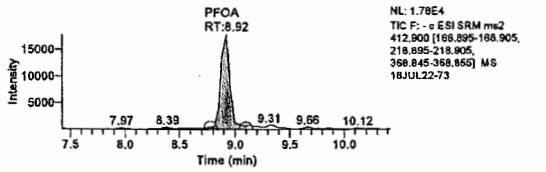
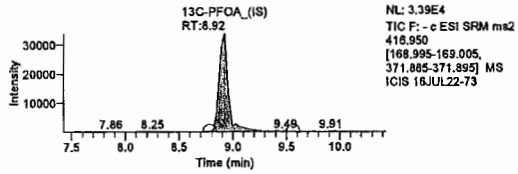


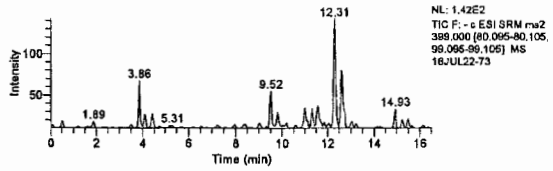


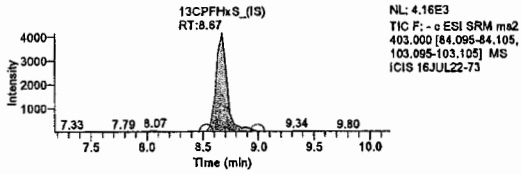
Component Name: PFOA



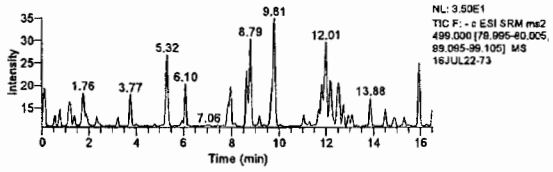


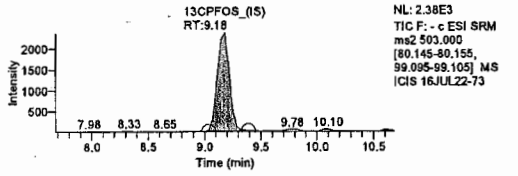
Component Name: PFHxS



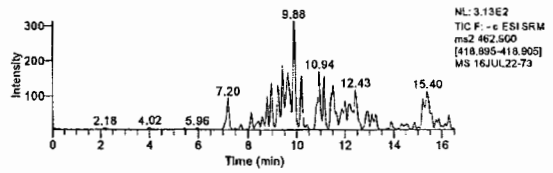


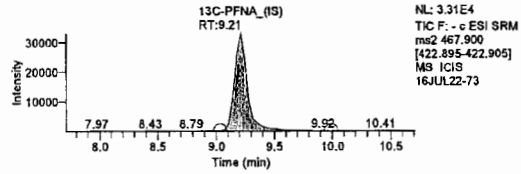
Component Name: PFOS



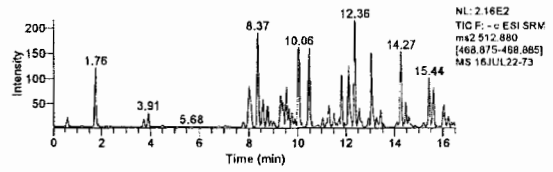


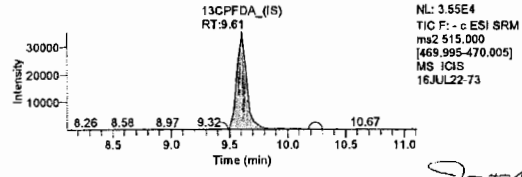
Component Name: PFNA





Component Name: PFDA





Jason W. Knight
Senior Chemist

Component Name: PFUdA

JUL 25 2016

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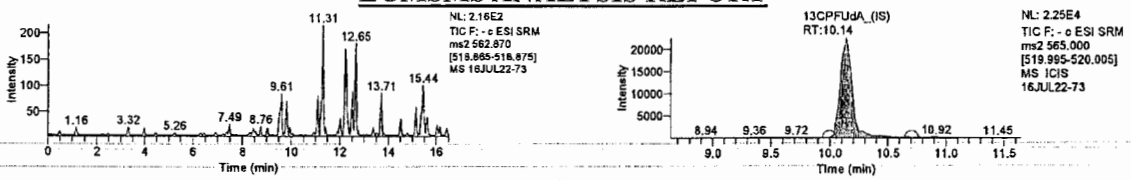
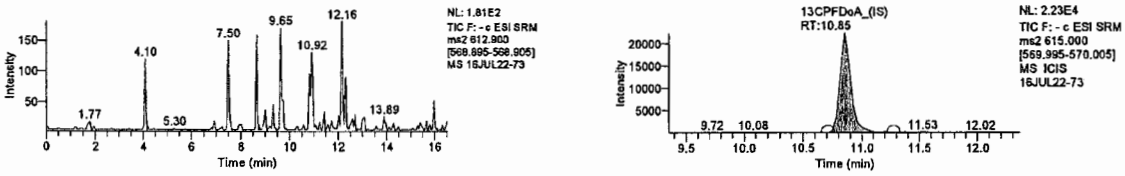
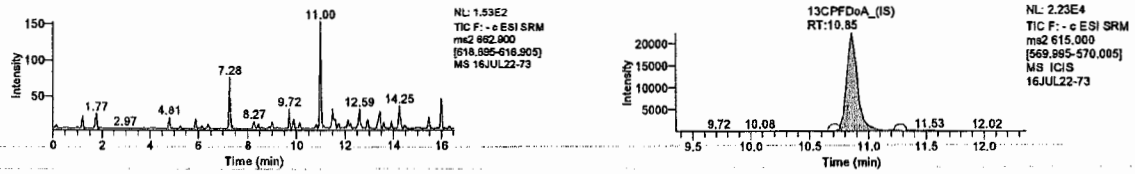


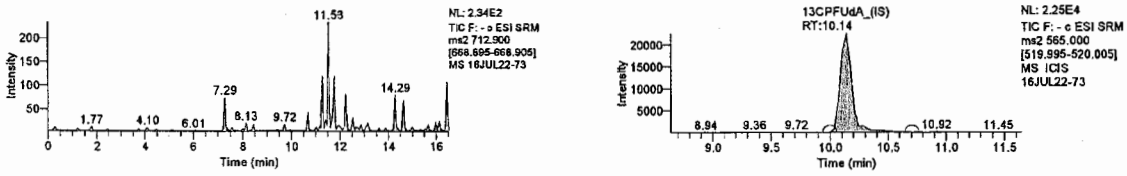
Component Name: PFDoA



Component Name: PFTrDA



Component Name: PFTeDA



Lynn Dodd
JUL 26 2016

Jason W. Knight
Senior Chemist

JUL 25 2016

Lynn Dodd
Principal Specialist

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Analysis Report

Sample Description: SG3-MW07-01.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8427019
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/13/2016 14:55 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG374 SDG#: SGP93-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.95	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	8.5		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.95	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Original

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	14,200		723	2,170	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	16.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 21:21	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176298731A	06/24/2016 14:01	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW07-01.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8427019
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/13/2016 14:55 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG374 SDG#: SGP93-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.95	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.83	U	0.83	1.9	1
14027	**Perfluorooctanoic acid**	335-67-1	**8.5**		0.36	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.95	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71 Revised	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.71	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**14,200**	723	2,170	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**16.2**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 21:21	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176298731A	06/24/2016 14:01	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

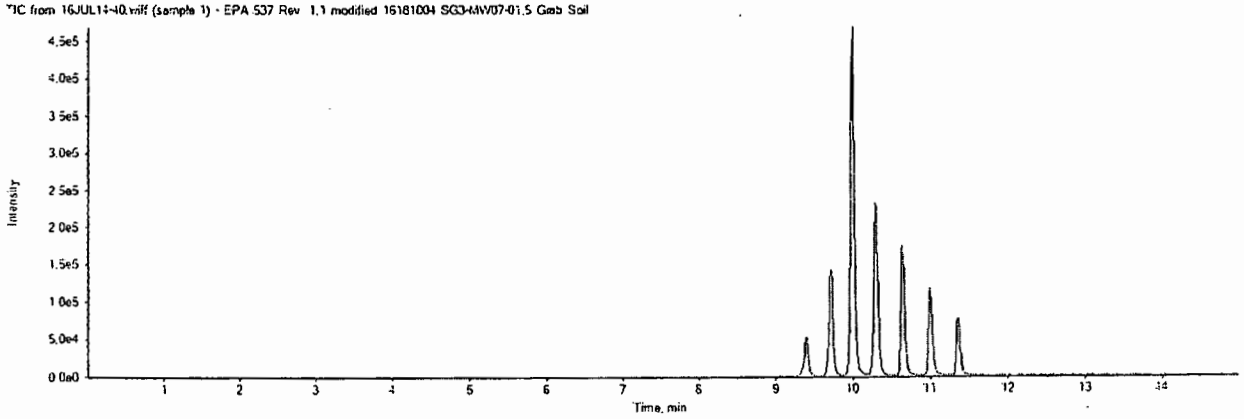
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW07-01.5 Grab Soil	**Data File:**		16JUL14-40.wiff
Sample ID:	8427019	**Acquis Date:**		7/14/2016 9:21:05 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	18	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	5.010	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.71	172149.7	N/A	N/A	
PFHxA	9.39	1854.2	13C2-PFHxA	9.39	195026.8	0.010	0.156	
PFHpA	9.72	3403.0	13C4-PFHpA	9.72	343912.0	0.010	0.241	
PFHxS	9.72	963.3	18O2-PFHxS	9.71	172149.7	0.006	0.317	
PFOA	9.99	347142.4	13C4-PFOA	9.99	1199666.0	0.289	7.141	
PFNA	10.29	8044.6	13C5-PFNA	10.29	721794.8	0.011	0.149	
PFOS	10.26	561.3	13C4-PFOS	10.26	87047.5	0.006	0.482	
PFDA	10.64	5083.1	13C2-PFDA	10.64	593417.4	0.009	0.136	
PFUndA	11.00	1623.9	13C2-PFUnDA	10.99	385446.4	0.004	0.028	
PFDoDA	11.35	302.1	13C2-PFDoDA	11.35	266090.0	0.001	< 0	
PFTrDA	11.91	192.7	13C2-PFDoDA	11.35	266090.0	0.001	< 0	
PFTeDA	12.07	357.8	13C2-PFDoDA	11.35	266090.0	0.001	< 0	

Total Ion Chromatogram

8427019



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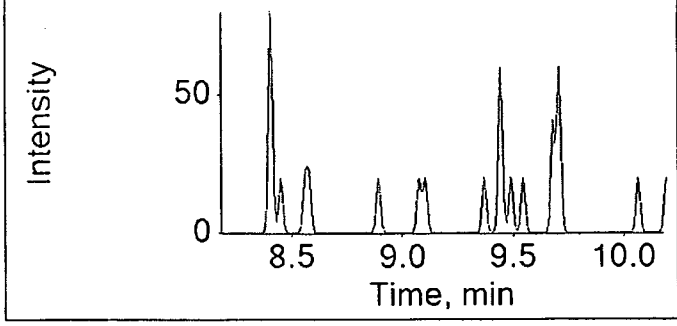
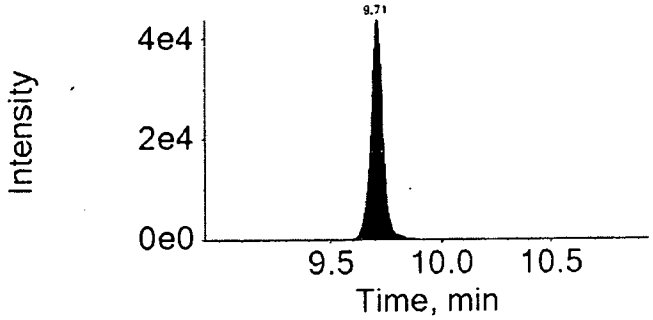
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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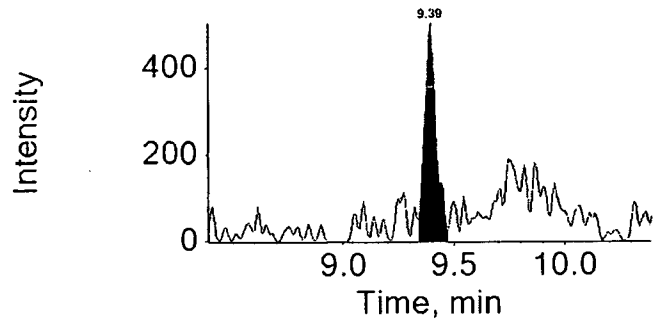
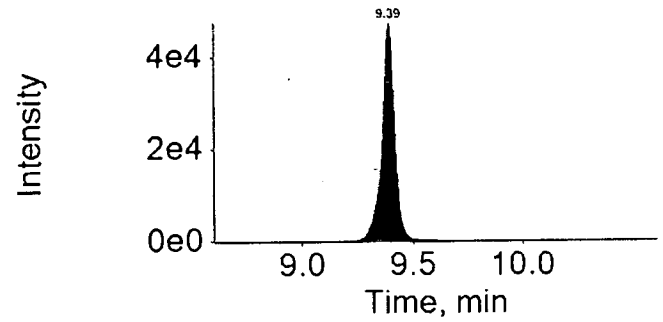
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





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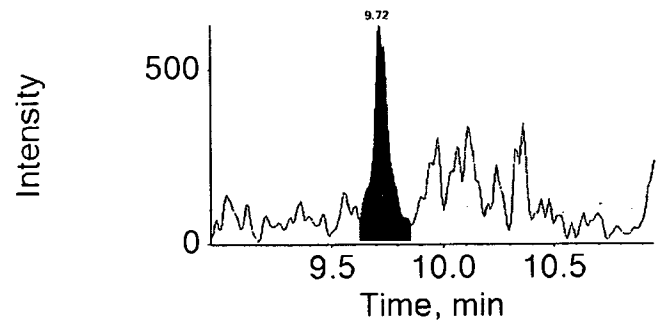
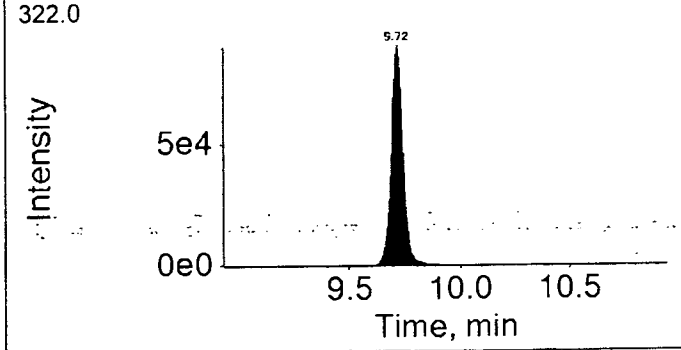
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

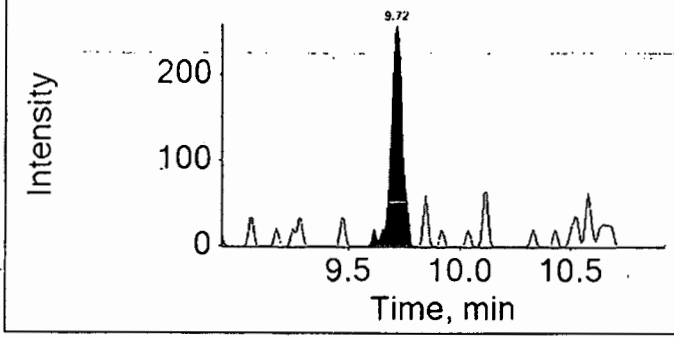




16JUL14-40.wiff

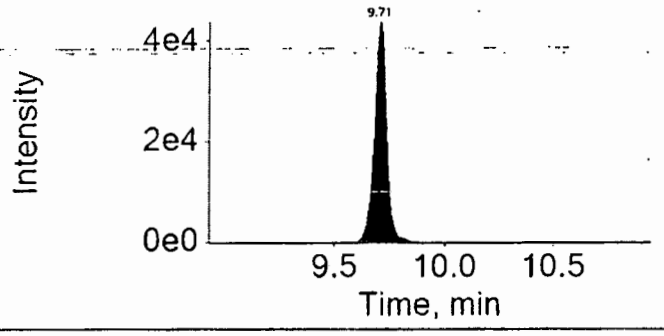
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

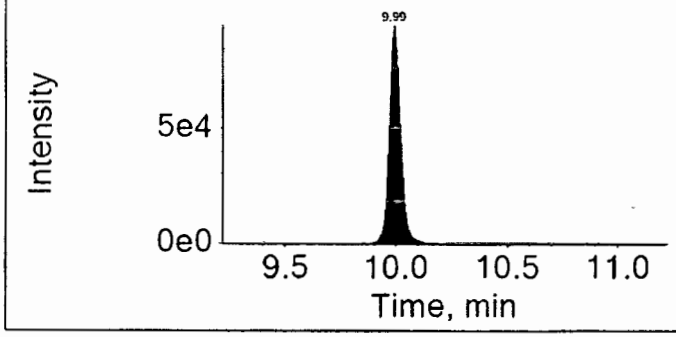
403.0 / 103.0



16JUL14-40.wiff

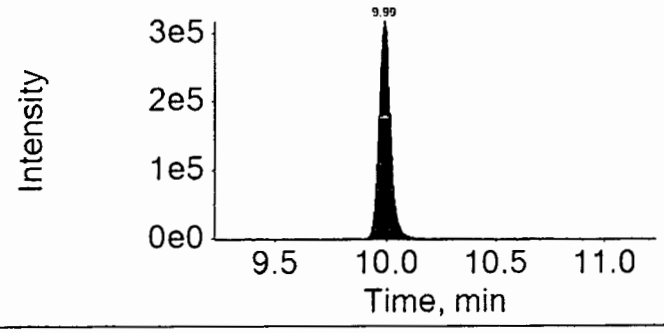
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

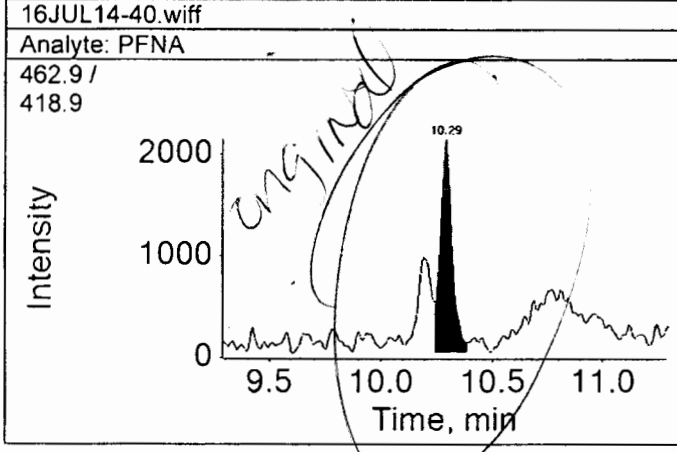
417.0 / 372.0



16JUL14-40.wiff

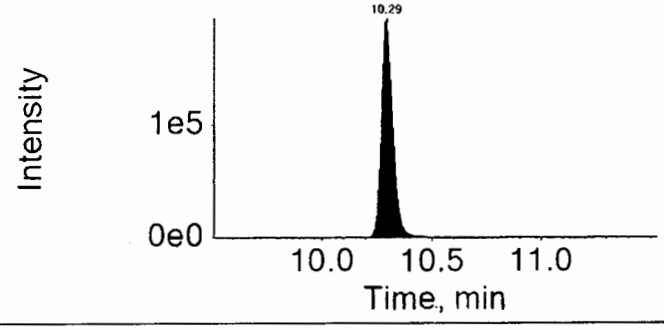
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

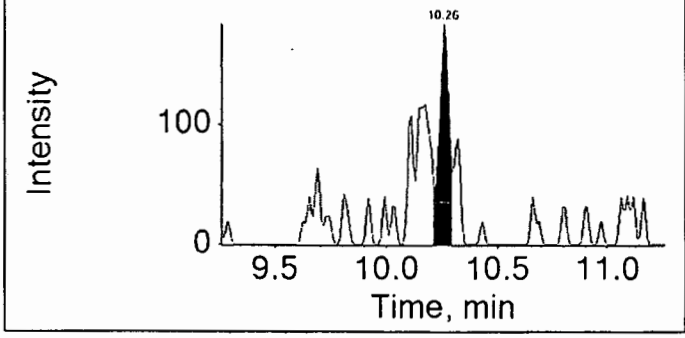
468.0 / 423.0



16JUL14-40.wiff

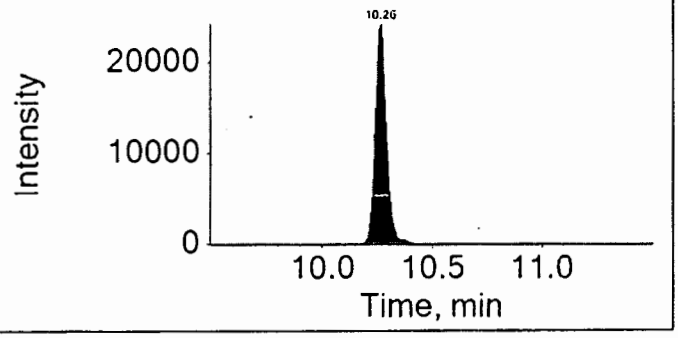
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

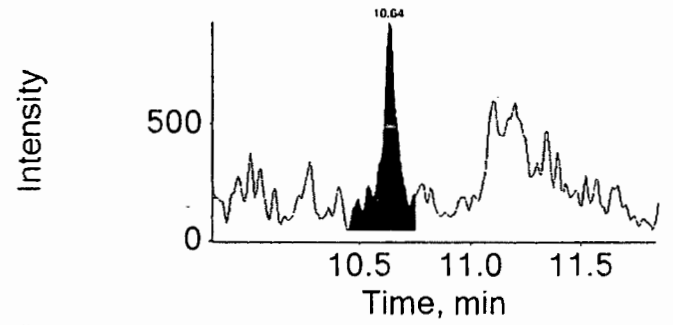
503.0 / 99.0



16JUL14-40.wiff

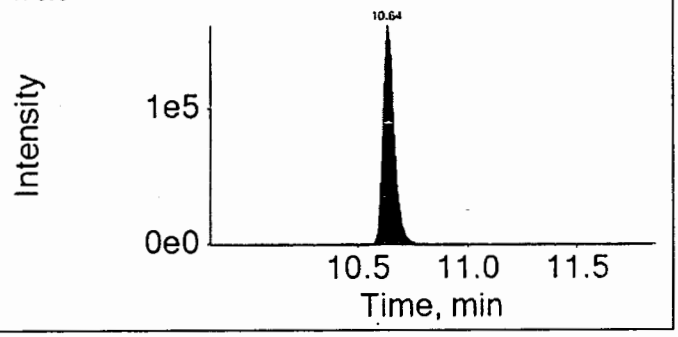
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

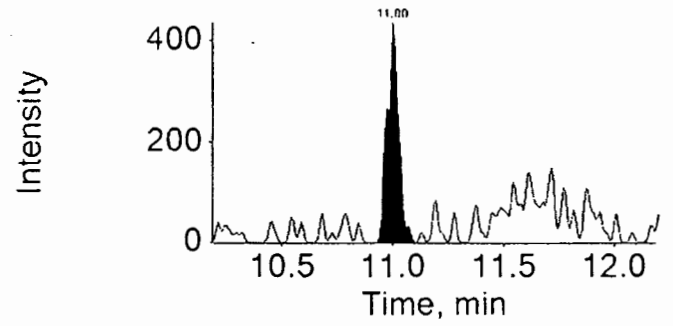
515.0 / 470.0



16JUL14-40.wiff

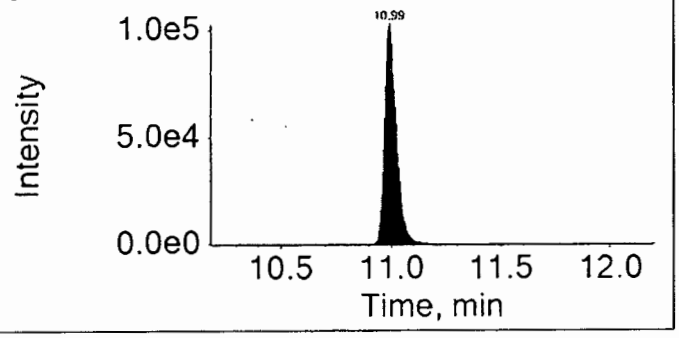
Analyte: PFUndA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

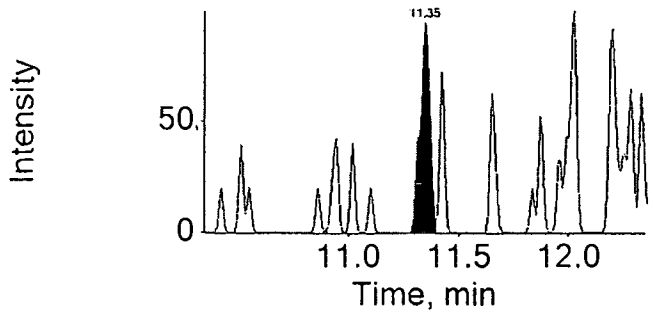
565.0 / 520.0



16JUL14-40.wiff

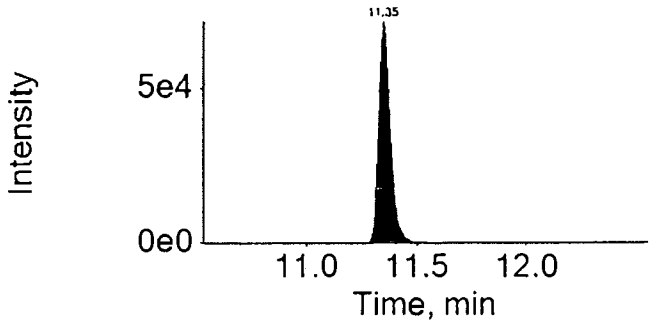
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

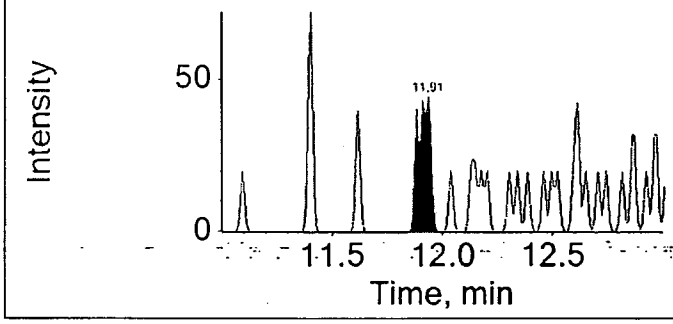
615.0 / 570.0



16JUL14-40.wiff

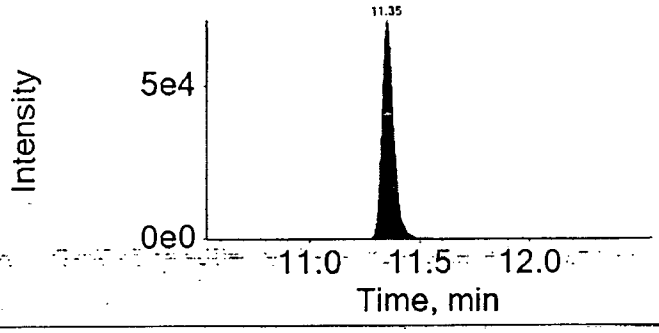
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

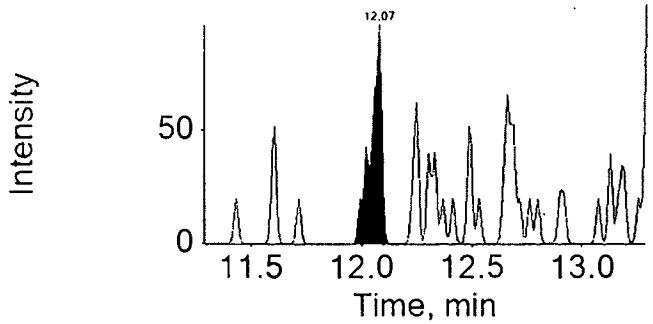
615.0 / 570.0



16JUL14-40.wiff

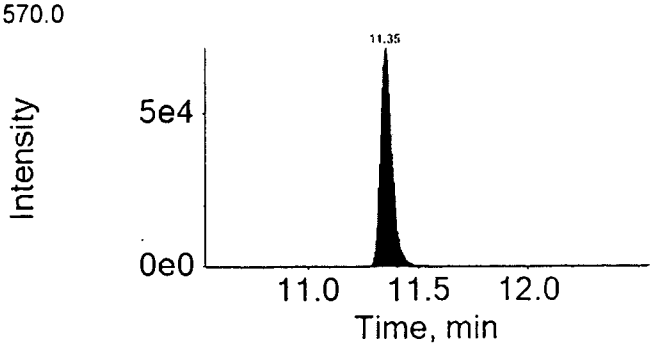
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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LC-MS/MS Analysis Report

Printed: 5/30/2017 2:47:00 PM

Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW07-01.5 Grab Soil			**Data File:**		16JUL14-40.wiff
Sample ID:	8427019			**Acquis Date:**		2016-07-14T21:21:05
Sample Type:	Unknown			**Instrument:**		API 4000
Vial Position:	18			**Acquis Method:**		PFC 16JUL08.dam
Injection Vol:	10.00			**Result Table:**		MQ 16181004
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS07959\4000
Sample Wt.:	5.010			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

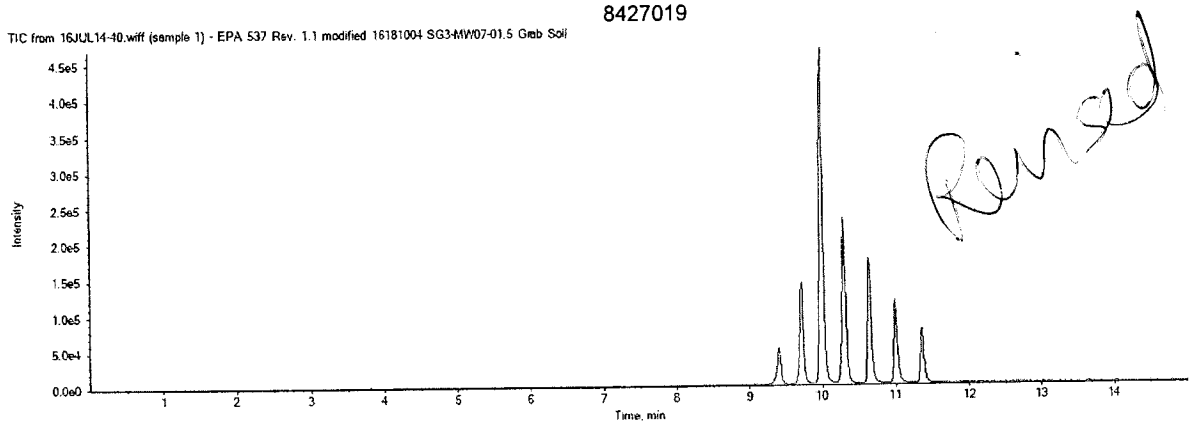
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	9.71	172149.7	N/A	N/A
PFHxA	9.39	1.000	1854.2	A	13C2-PFHxA	9.39	195026.8	0.010	0.156
PFHpA	9.72	1.000	3403.0	A	13C4-PFHpA	9.72	343912.0	0.010	0.241
PFHxS	9.72	1.000	963.3	A	18O2-PFHxS	9.71	172149.7	0.006	0.317
PFOA	9.99	1.000	347142.4	A	13C4-PFOA	9.99	1199666.0	0.289	7.141
PFNA	10.29	1.000	11040.4	M	13C5-PFNA	10.29	721794.8	0.015	0.181
PFOS	10.26	1.000	561.3	A	13C4-PFOS	10.26	87047.5	0.006	0.482
PFDA	10.64	1.000	5083.1	A	13C2-PFDA	10.64	593417.4	0.009	0.136
PFUndA	11.00	1.000	1623.9	A	13C2-PFUnDA	10.99	385446.4	0.004	0.028
PFDoDA	11.35	1.000	302.1	A	13C2-PFDoDA	11.35	266090.0	0.001	< 0
PFTrDA	11.91	1.050	192.7	A	13C2-PFDoDA	11.35	266090.0	0.001	< 0
PFTeDA	12.07	1.060	357.8	A	13C2-PFDoDA	11.35	266090.0	0.001	< 0

Reran STD Final no change

Total Ion Chromatogram

8427019



Reran

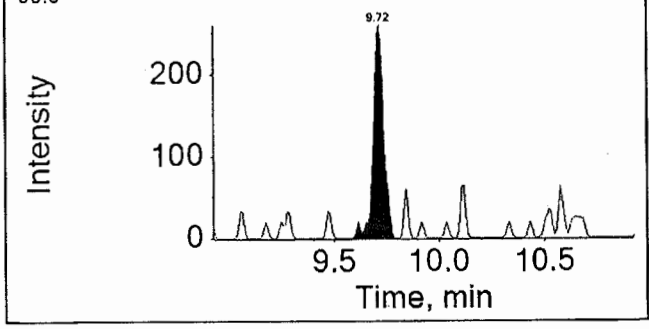
APPROVED
By MCD at 2:53 pm, 5/30/17

REVIEWED
By ucmr at 1:26 pm, 6/3/17

16JUL14-40.wiff

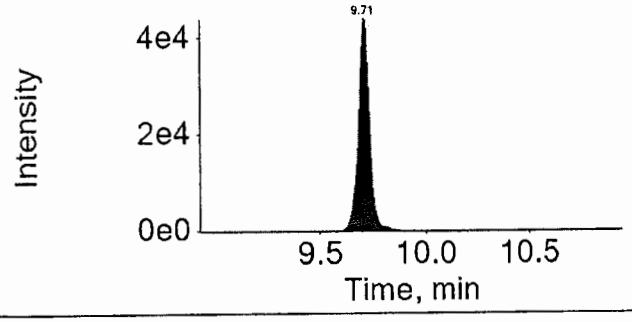
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

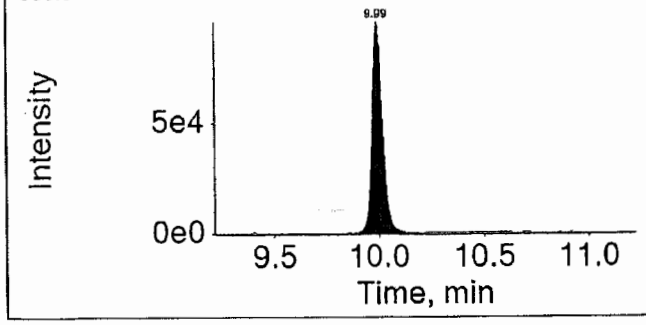
403.0 / 103.0



16JUL14-40.wiff

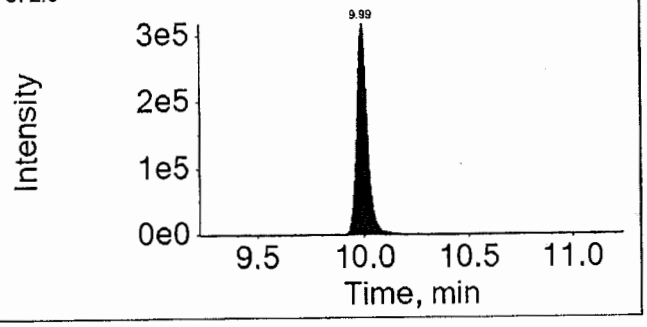
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

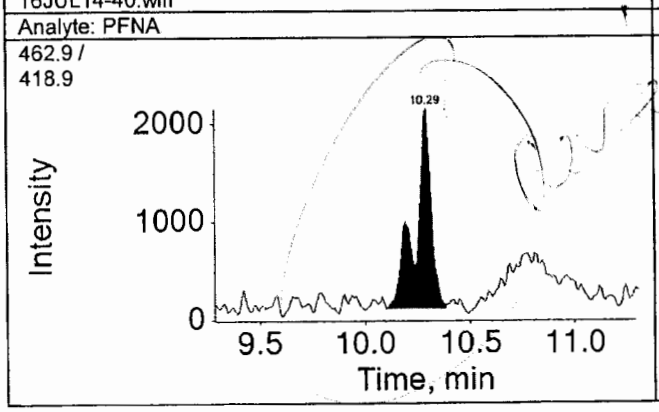
417.0 / 372.0



16JUL14-40.wiff

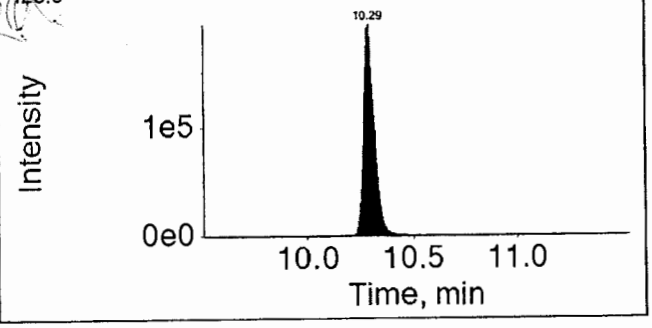
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 2:53 pm, 5/30/17

REVIEWED
By ucmr at 1:26 pm, 6/3/17

LCMSMS ANALYSIS REPORT

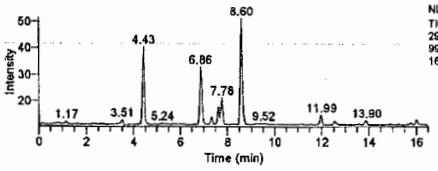
Sample Name:	8427019 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427019 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-74		M\HWell_16.5minutes
Acquisition Date:	07/23/16 05:22:42 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:23	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

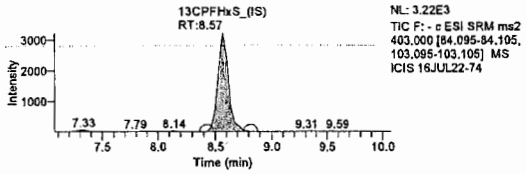
Extracted Ion Chromatogram

Quan Peak Table

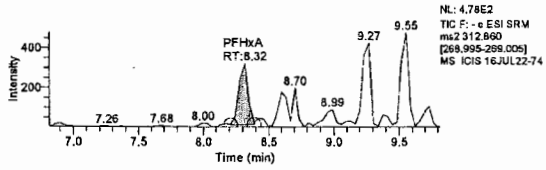
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.21	179936.61	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.89	156574.04	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.61	159546.77	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.93	116383.51	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.57	173025.85	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.32	109182.37	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.57	21120.20	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.15	11645.97	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.14	143871.03	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	0.125	8.32	1475.01	109182.37	0.014	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.116	9.18	651.63	179936.61	0.004	ng/g
PFOA	5.821	8.89	93048.08	156574.04	0.594	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	0.279	12.70	373.78	116383.51	0.003	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	0.250	8.60	2448.84	173025.85	0.014	ng/g

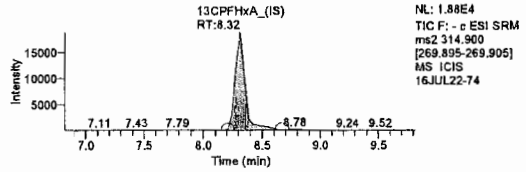
Component Name: PFBS





Component Name: PFHxA



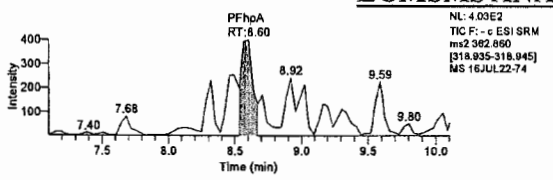


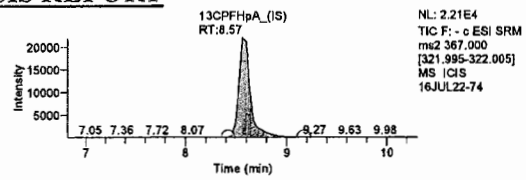
Component Name: PFhpA

Jason W. Knight
Senior Chemist

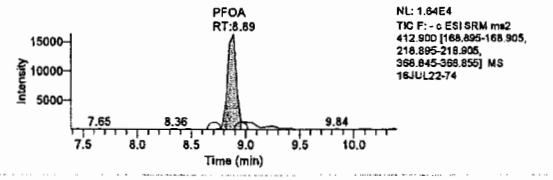
JUL 25 2016

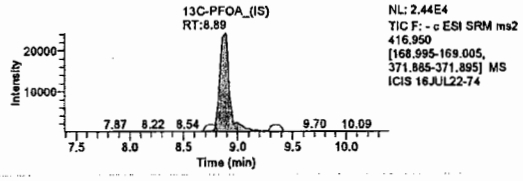
LCMSMS ANALYSIS REPORT



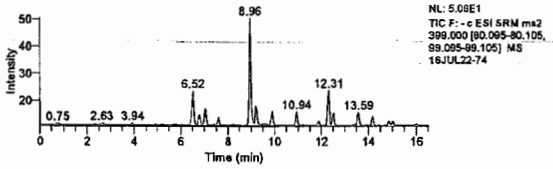


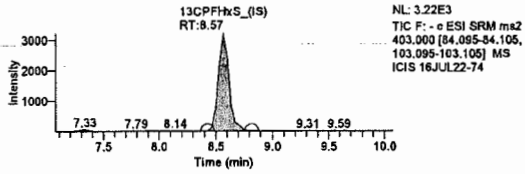
Component Name: PFOA



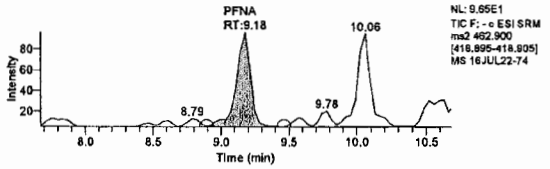


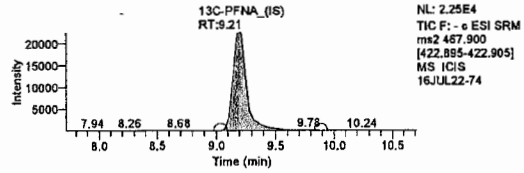
Component Name: PFHxS



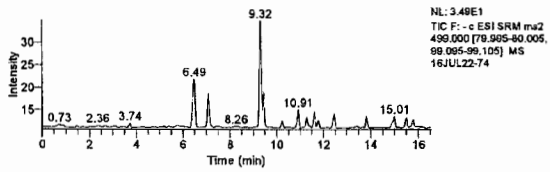


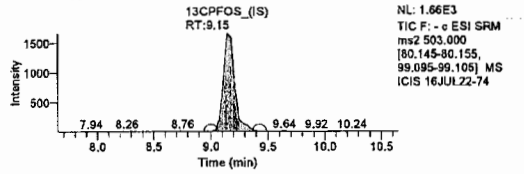
Component Name: PFNA



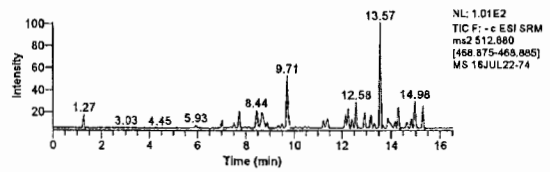


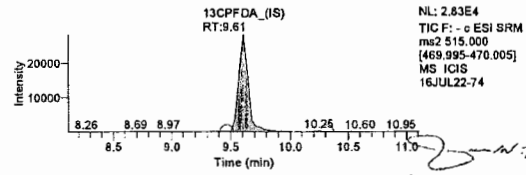
Component Name: PFOS





Component Name: PFDA





Jason W. Knight
Senior Chemist

Component Name: PFUdA

JUL 25 2016

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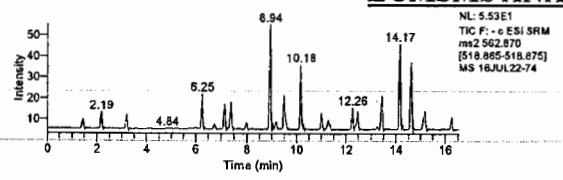
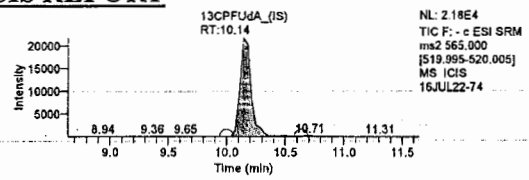
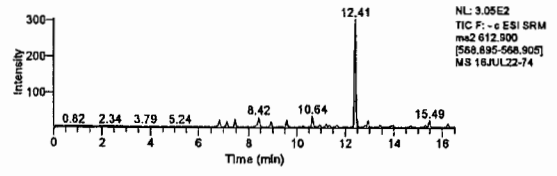
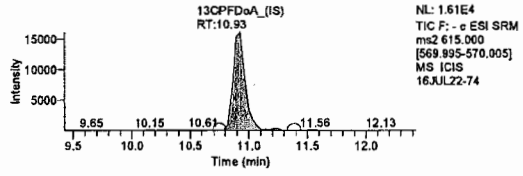


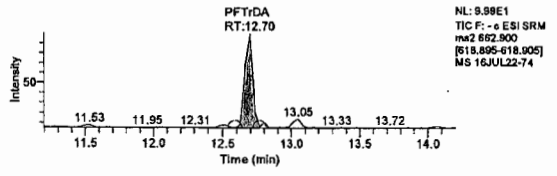


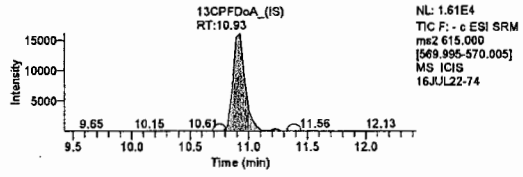
Component Name: PFDoA



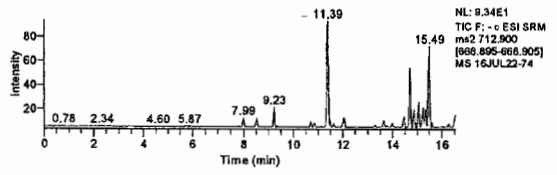


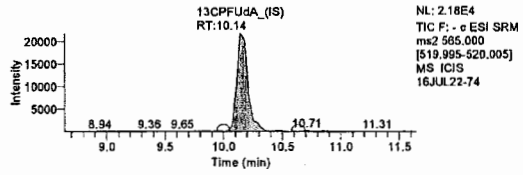
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd

JUL 2 6 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

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Analysis Report

Sample Description: SG3-FD01-20160613 Grab Soil
SGPP - Bennington

LL Sample # SW 8427020
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/13/2016 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3FD SDG#: SGP93-07FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.50	U	0.50	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.31	JJ, High LCS	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.61		0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.87	U	0.87	2.0	1
14027	Perfluorooctanoic acid	335-67-1	5.0		0.37	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.75	U	0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.75	1
	The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.						
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	19.9		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 21:40	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-FD01-20160613 Grab Soil
SGPP - Bennington

LL Sample # SW 8427020
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/13/2016 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG3FD SDG#: SGP93-07FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.95	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.31**	J	0.24	0.48	1
14027	**Perfluorononanoic acid**	375-95-1	**0.61**		0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.83	U	0.83	1.9	1
14027	**Perfluorooctanoic acid**	335-67-1	**5.0**		0.36	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.95	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.71	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**19.9**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 21:40	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

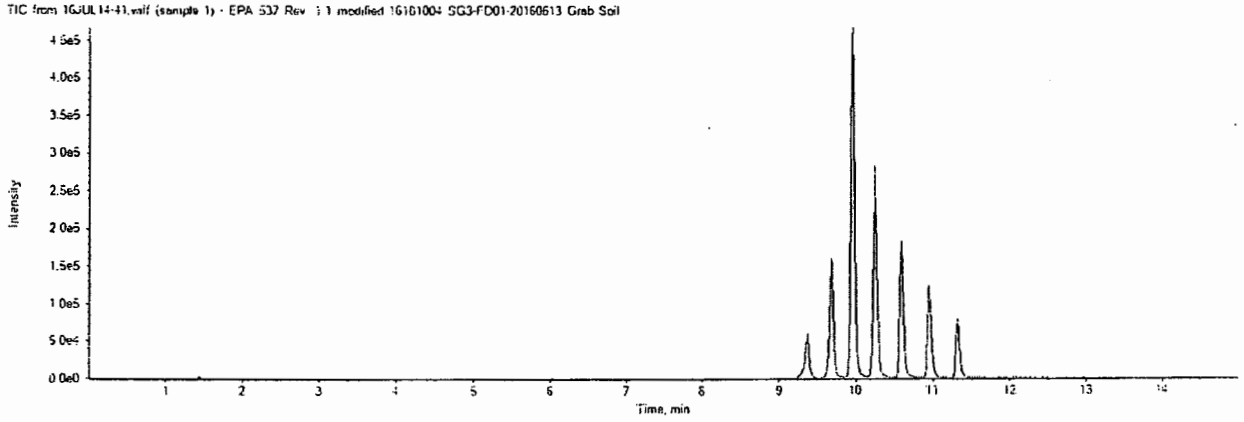
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-FD01-20160613 Grab Soil	**Data File:**		16JUL14-41.wiff
Sample ID:	8427020	**Acquis Date:**		7/14/2016 9:40:34 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	19	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	5.240	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.68	197210.6	N/A	N/A	
PFHxA	9.37	3325.4	13C2-PFHxA	9.37	221168.3	0.015	0.246	
PFHpA	9.70	3457.2	13C4-PFHpA	9.69	358520.2	0.010	0.226	
PFHxS	9.68	963.2	18O2-PFHxS	9.68	197210.6	0.005	0.294	
PFOA	9.96	225341.3	13C4-PFOA	9.96	1325855.8	0.170	4.003	
PFNA	10.26	44681.3	13C5-PFNA	10.26	770700.9	0.058	0.491	
PFOS	10.21	1497.6	13C4-PFOS	10.22	89063.2	0.017	0.555	
PFDA	10.59	4961.9	13C2-PFDA	10.59	614994.1	0.008	0.125	
PFUndA	10.95	1926.8	13C2-PFUnDA	10.95	419070.5	0.005	0.033	
PFDoDA	11.33	629.1	13C2-PFDoDA	11.32	265371.9	0.002	< 0	
PFTrDA	N/A	N/A	13C2-PFDoDA	11.32	265371.9	N/A	N/A	
PFTeDA	12.06	356.7	13C2-PFDoDA	11.32	265371.9	0.001	< 0	

Total Ion Chromatogram

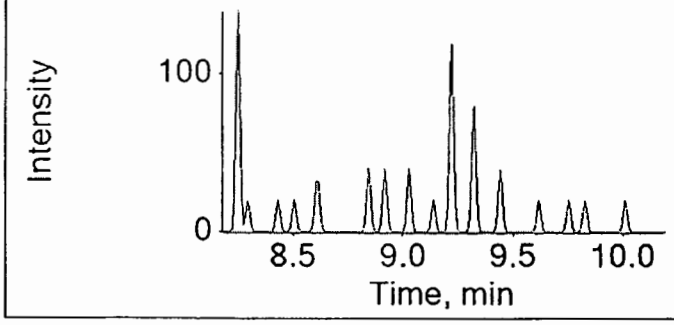
8427020



16JUL14-41.wiff

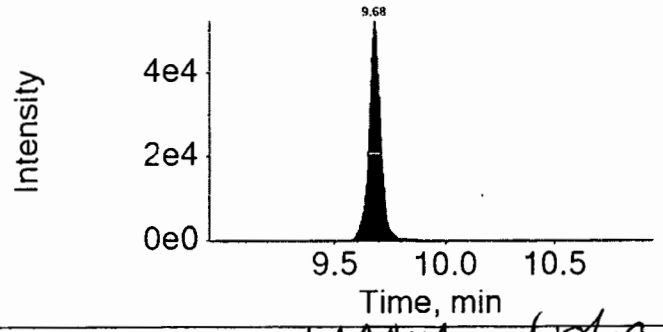
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

403.0 / 103.0

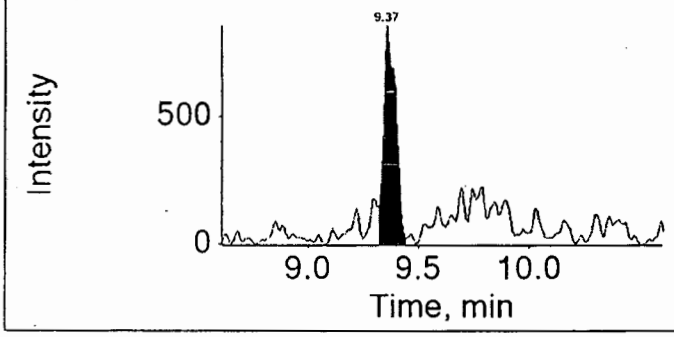


16JUL14-41.wiff

Lab checking integration — minor MMAM 5/18/17

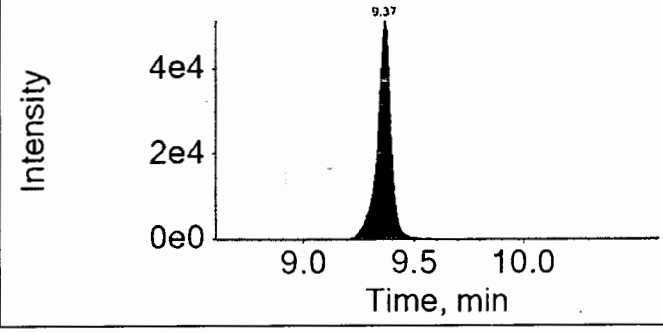
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

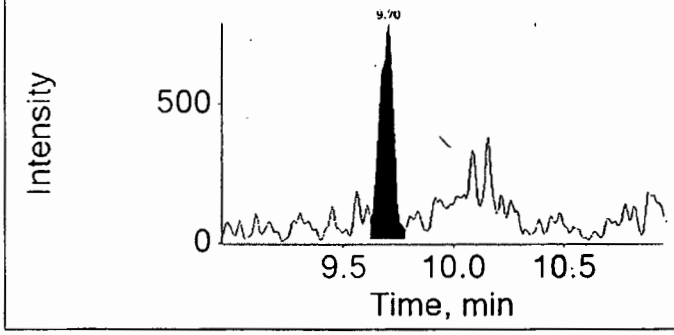
314.9 / 270.0



16JUL14-41.wiff

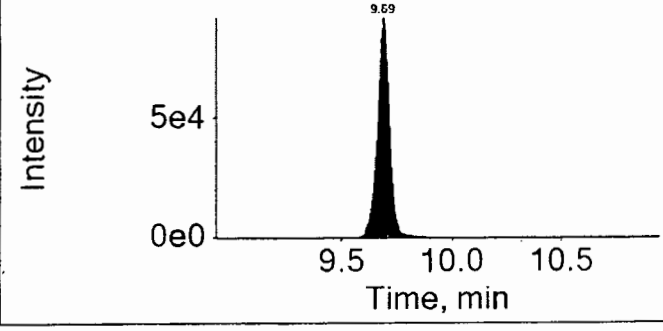
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

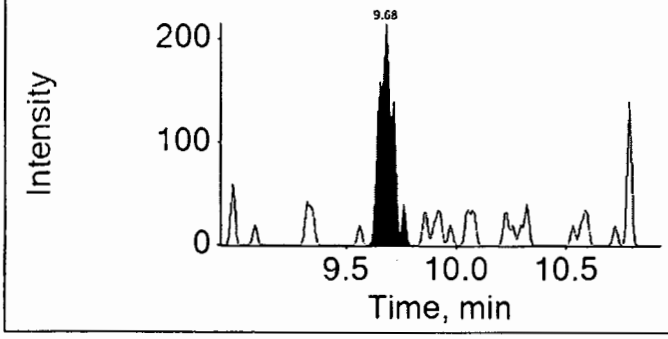
367.0 / 322.0



16JUL14-41.wiff

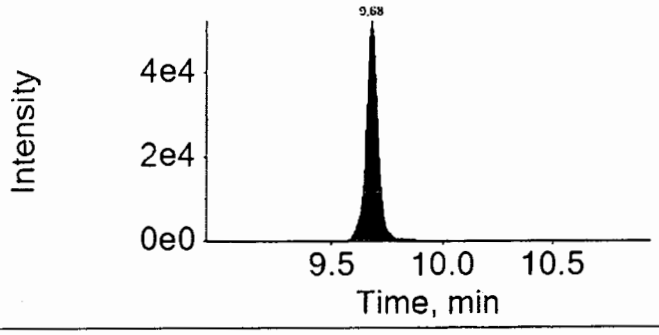
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

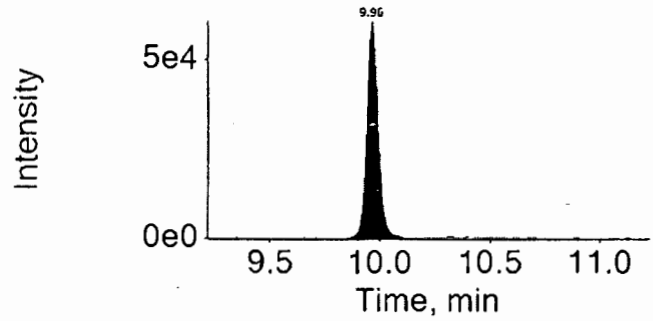
403.0 / 103.0



16JUL14-41.wiff

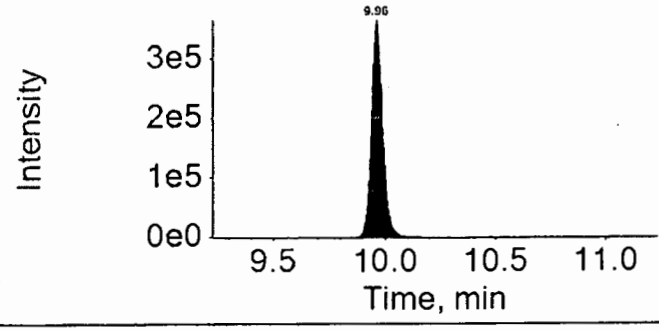
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

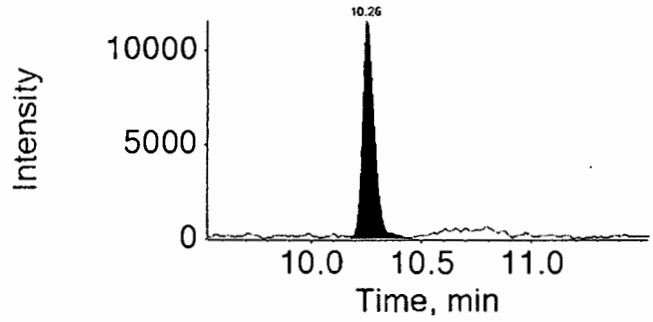
417.0 / 372.0



16JUL14-41.wiff

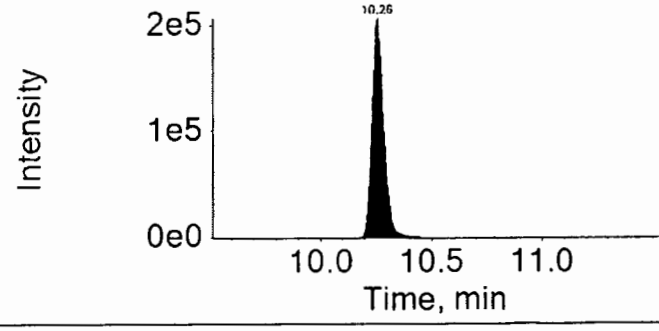
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

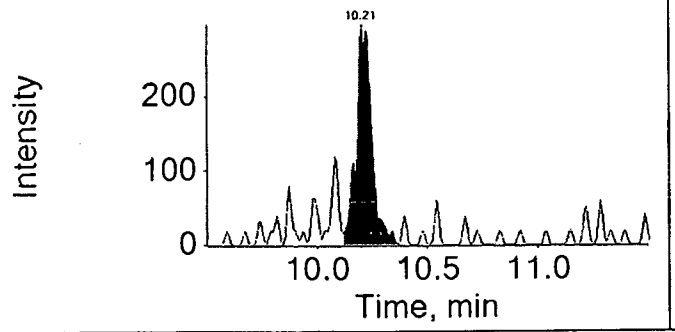
468.0 / 423.0



16JUL14-41.wiff

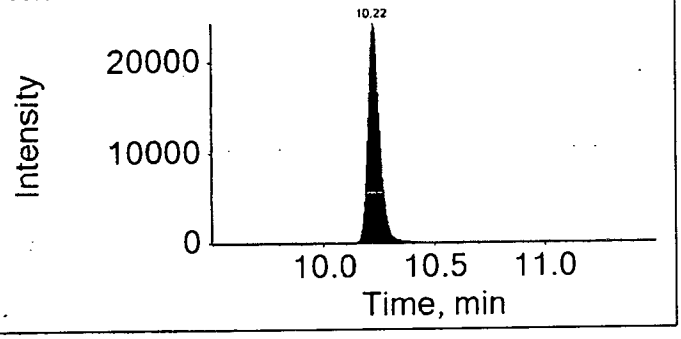
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

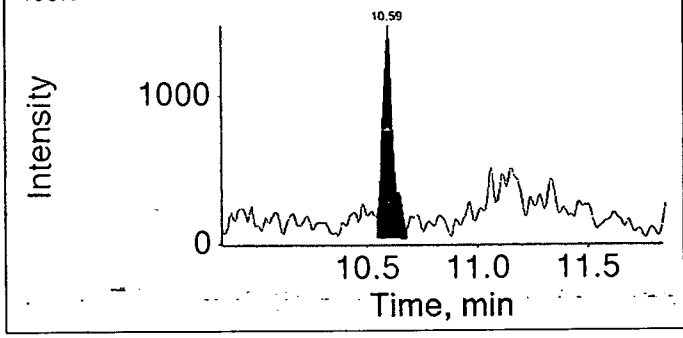
503.0 / 99.0



16JUL14-41.wiff

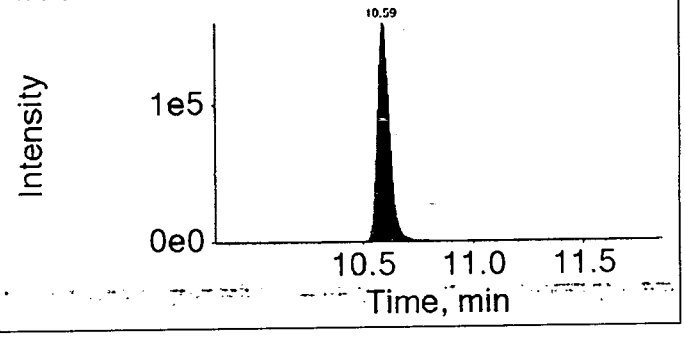
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

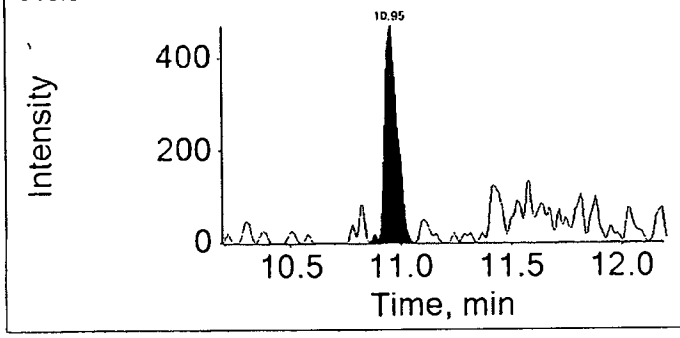
515.0 / 470.0



16JUL14-41.wiff

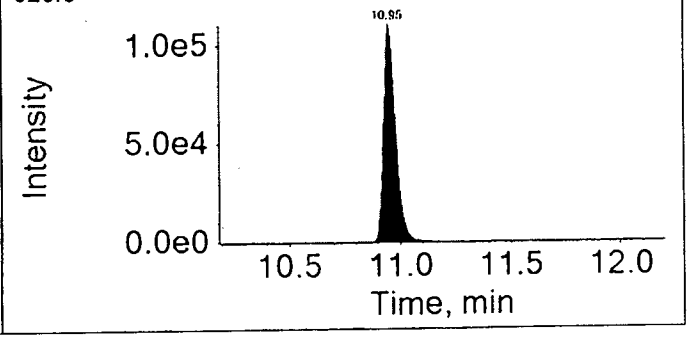
Analyte: PFUndA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

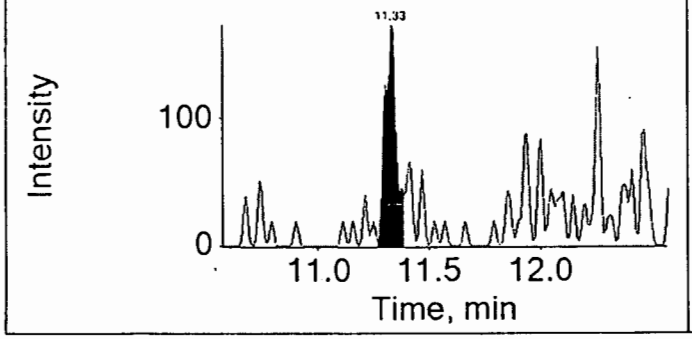
565.0 / 520.0



16JUL14-41.wiff

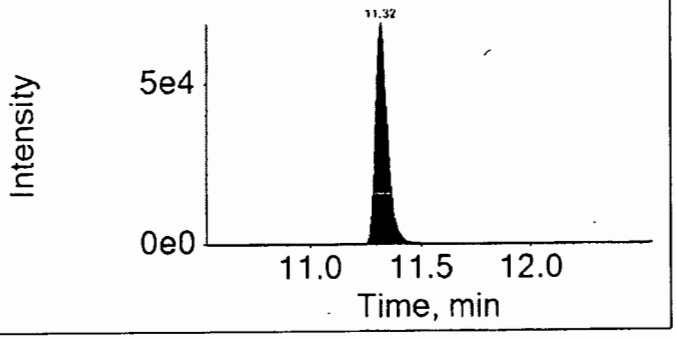
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

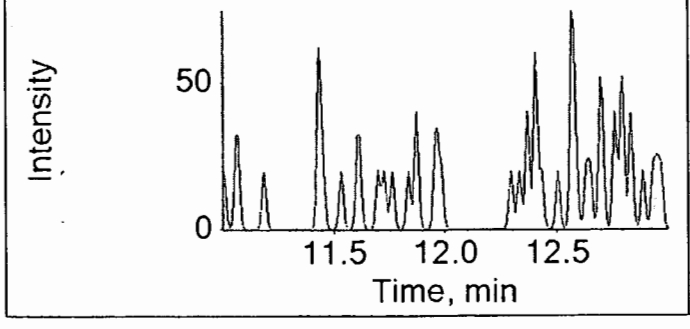
615.0 / 570.0



16JUL14-41.wiff

Analyte: PFTrDA

662.9 / 618.9



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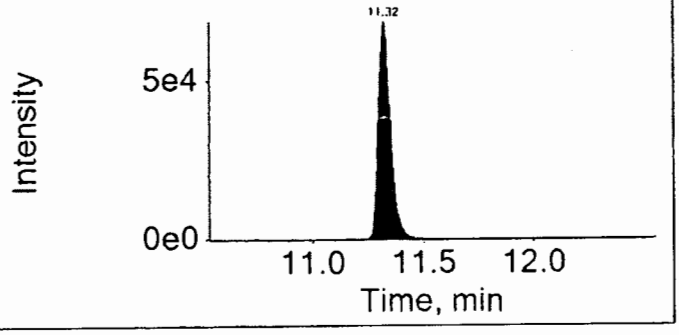
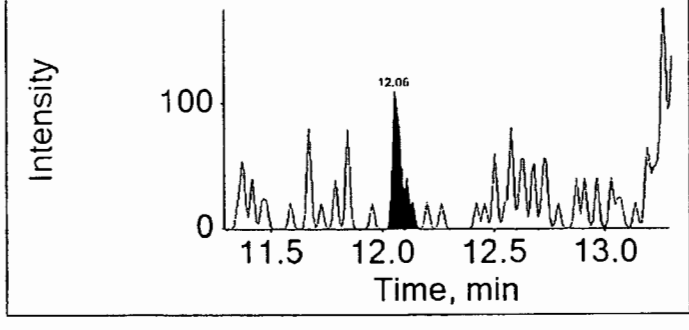
615.0 / 570.0



16JUL14-41.wiff

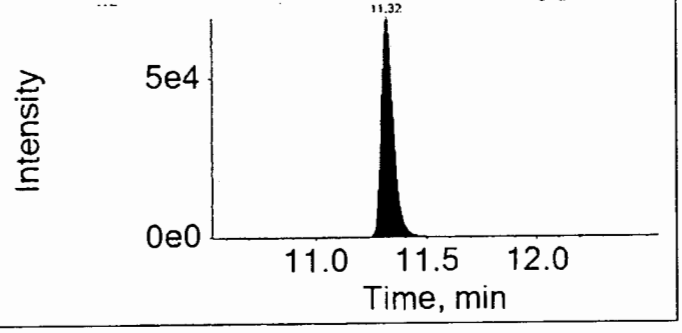
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



LCMSMS ANALYSIS REPORT

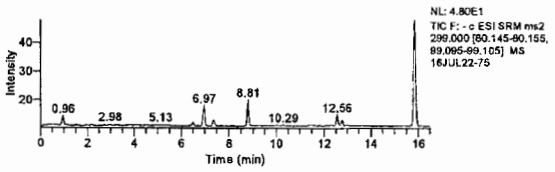
Sample Name:	8427020 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427020 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-75		M\HWell_16.5minutes
Acquisition Date:	07/23/16 05:39:56 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:24	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

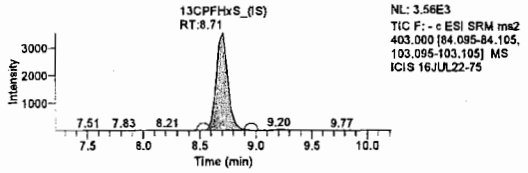
Extracted Ion Chromatogram

Quan Peak Table

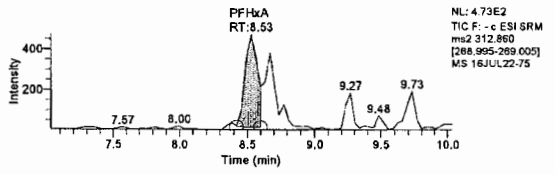
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.21	199085.50	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.93	162458.00	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.71	168266.46	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.07	105584.31	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	195828.10	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.53	100671.81	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	25272.73	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.18	12613.28	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.28	142720.91	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	0.255	8.53	2826.57	100671.81	0.028	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.277	9.21	3155.76	199085.50	0.016	ng/g
PFOA	3.786	8.92	62731.02	162458.00	0.386	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	0.195	12.52	346.73	142720.91	0.002	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	0.346	8.71	4260.68	195828.10	0.022	ng/g

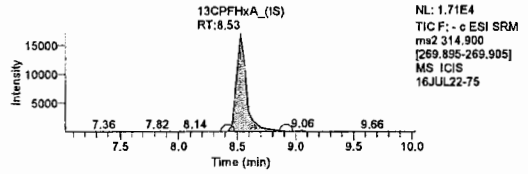
Component Name: PFBS





Component Name: PFHxA





Component Name: PFhpA

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JUL 25 2016

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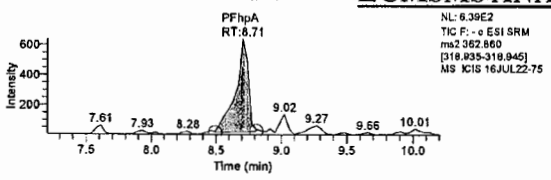

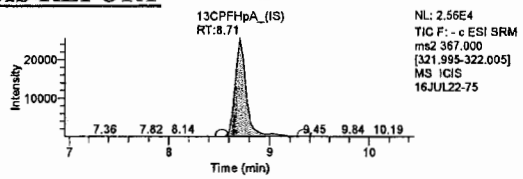

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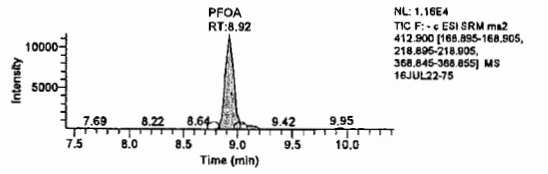
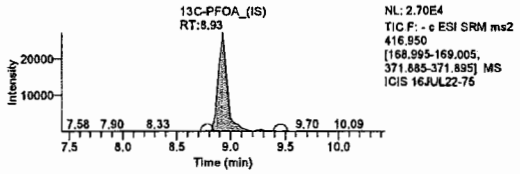
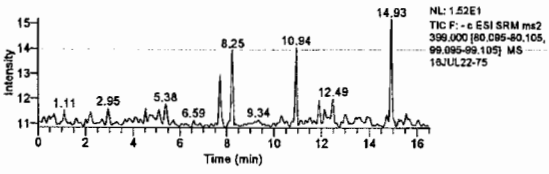
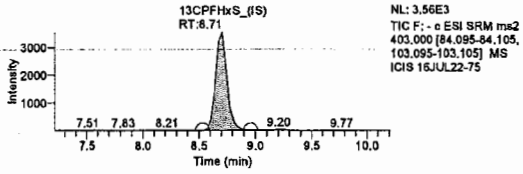


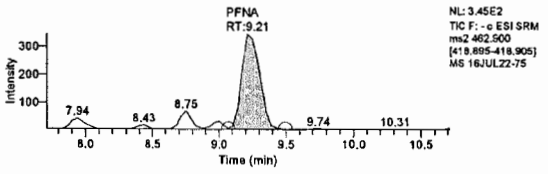


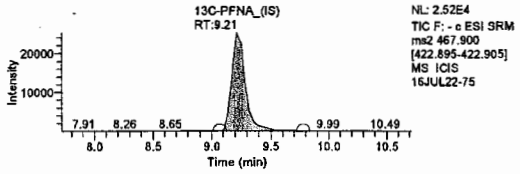
Component Name: PFHxS



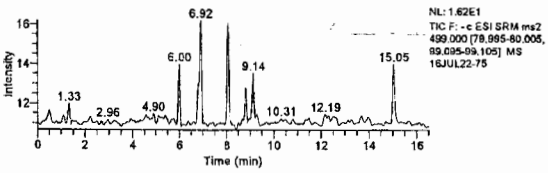


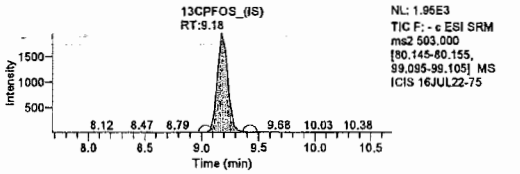
Component Name: PFNA



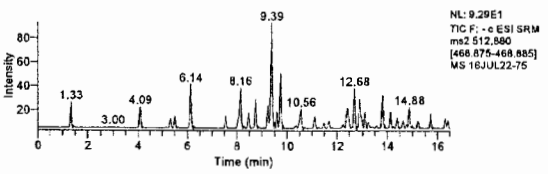


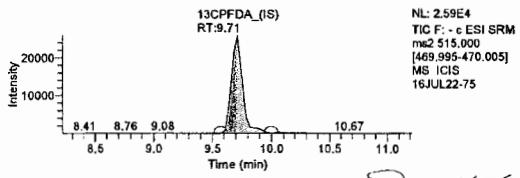
Component Name: PFOS





Component Name: PFDA





Jason W. Knight
Senior Chemist

Component Name: PFUdA

JUL 25 2016

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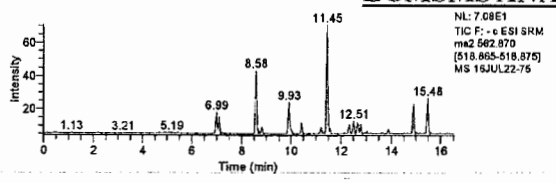
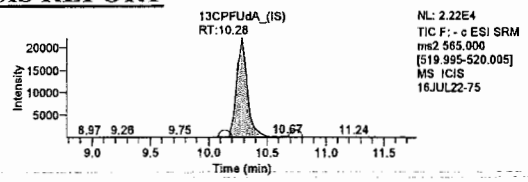
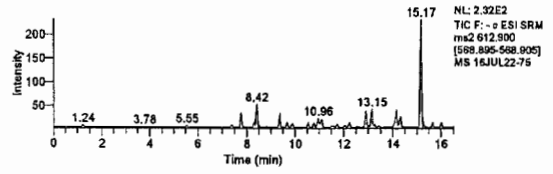
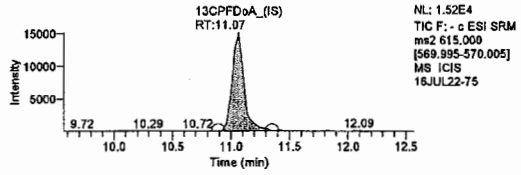


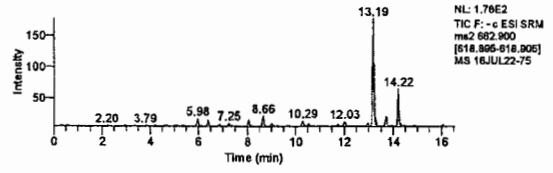


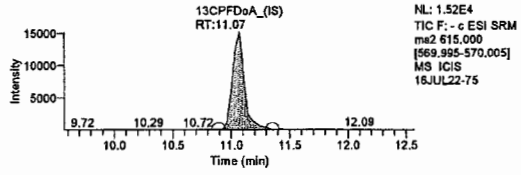
Component Name: PFDoA



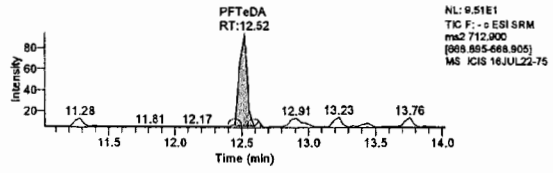


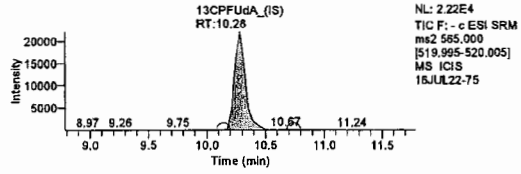
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd

JUL 26 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

eurofins | Lancaster Laboratories Environmental

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Analysis Report

Sample Description: SG3-MW07-02.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8427021
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 08:00 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL

SG375 SDG#: SGP93-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.98	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.86	U	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	6.9		0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.98	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.74	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	3,980		568	1,700	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	18.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 22:00	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176298731A	06/24/2016 14:47	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MW07-02.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8427021
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 08:00 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG375 SDG#: SGP93-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.50	U	0.50	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.87	U	0.87	2.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**6.9**		0.37	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.75	U	0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.75	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**3,980**	568	1,700	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**18.5**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 22:00	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176298731A	06/24/2016 14:47	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

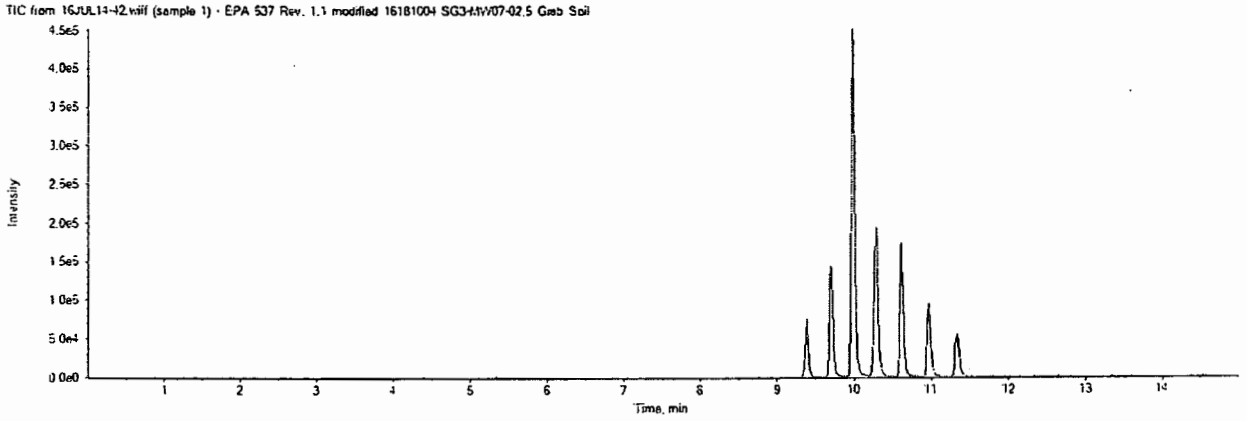
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW07-02.5 Grab Soil	**Data File:**		16JUL14-42.wiff
Sample ID:	8427021	**Acquis Date:**		7/14/2016 10:00:00 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	20	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	4.940	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

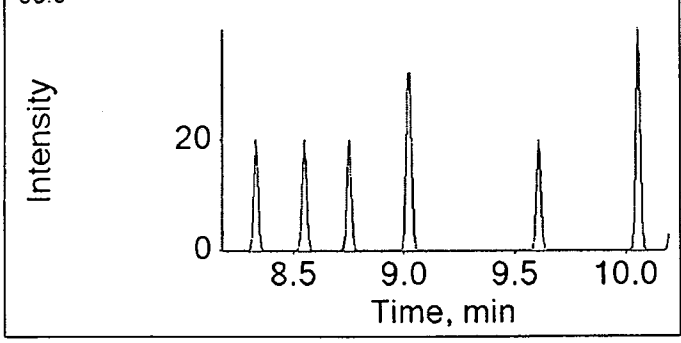
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.70	176275.5	N/A	N/A	
PFHxA	9.40	650.2	13C2-PFHxA	9.38	191832.8	0.003	0.045	
PFHpA	9.71	1537.8	13C4-PFHpA	9.70	286913.2	0.005	0.163	
PFHxS	9.71	1018.5	18O2-PFHxS	9.70	176275.5	0.006	0.323	
PFOA	9.99	242575.4	13C4-PFOA	9.98	1078035.7	0.225	5.627	
PFNA	10.28	1149.4	13C5-PFNA	10.29	599886.0	0.002	0.078	
PFOS	10.21	412.0	13C4-PFOS	10.25	80703.9	0.005	0.476	
PFDA	10.62	830.5	13C2-PFDA	10.61	513381.2	0.002	0.061	
PFUndA	10.96	825.9	13C2-PFUnDA	10.96	321288.1	0.003	0.001	
PFDoDA	11.34	247.6	13C2-PFDoDA	11.33	212066.4	0.001	< 0	
PFTrDA	11.72	192.7	13C2-PFDoDA	11.33	212066.4	0.001	< 0	
PFTeDA	12.04	83.8	13C2-PFDoDA	11.33	212066.4	0.000	< 0	

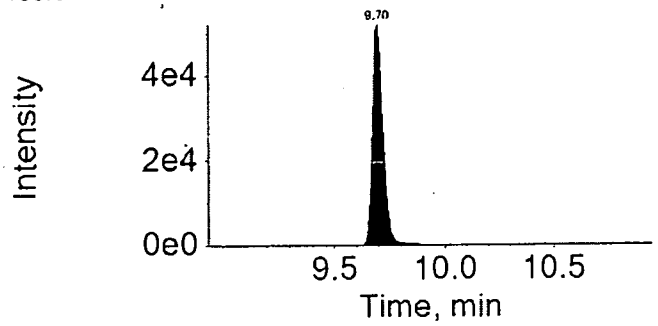
Total Ion Chromatogram

8427021



16JUL14-42.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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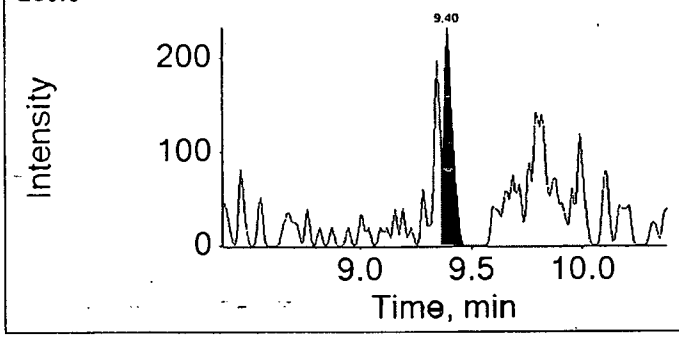
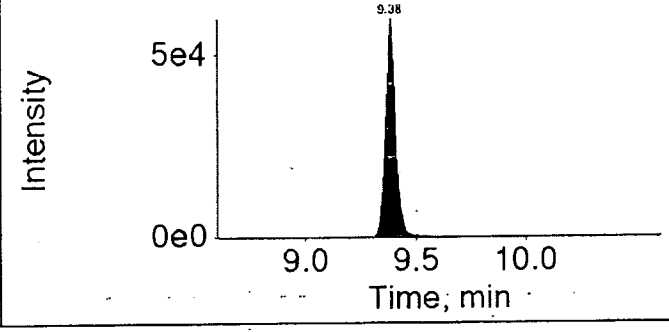
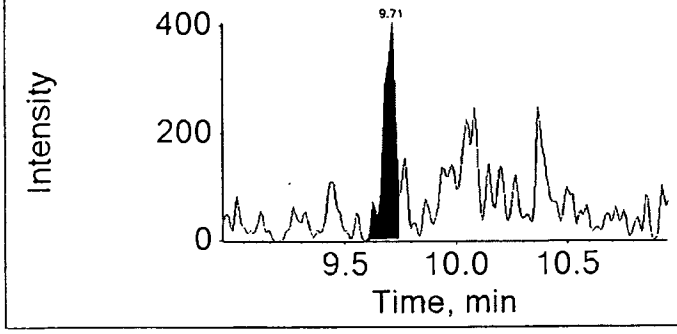
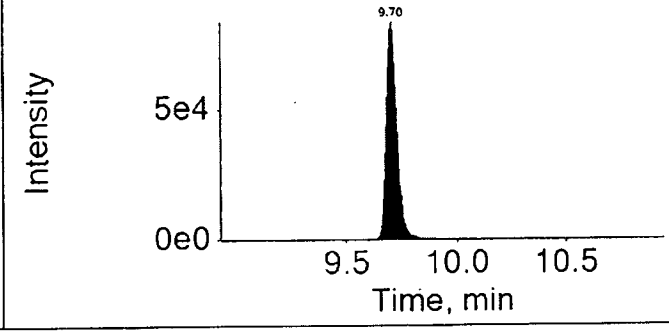
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



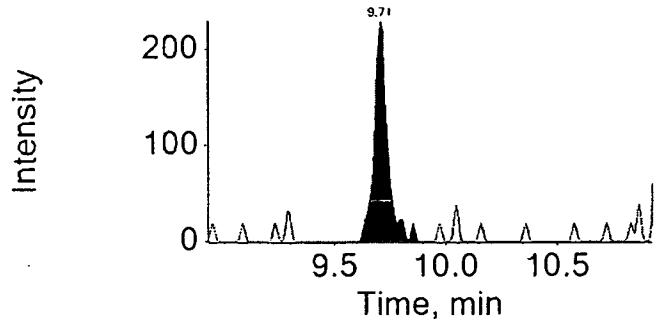


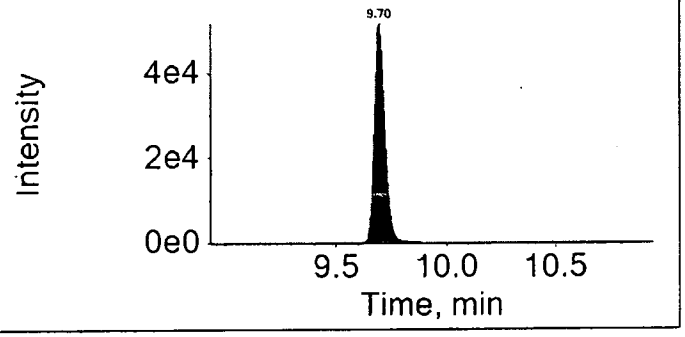
16JUL14-42.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



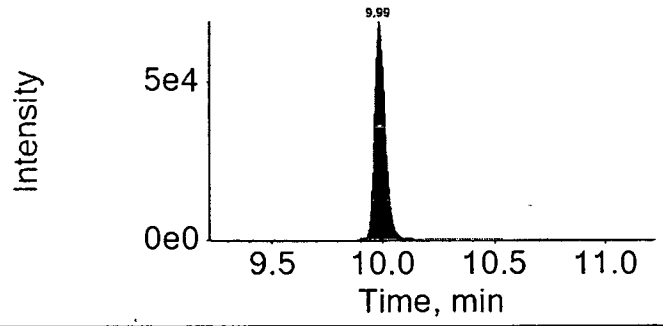


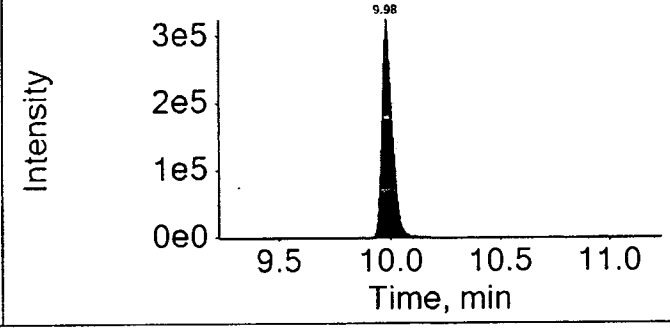
16JUL14-42.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



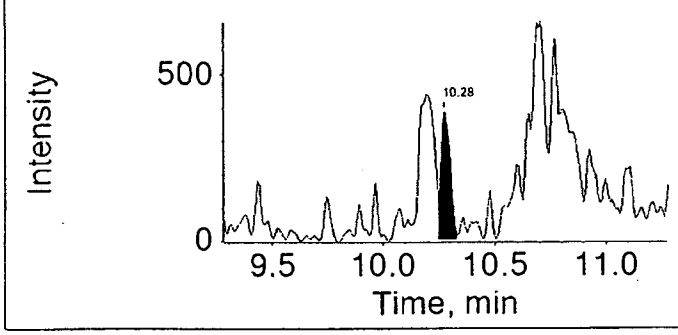


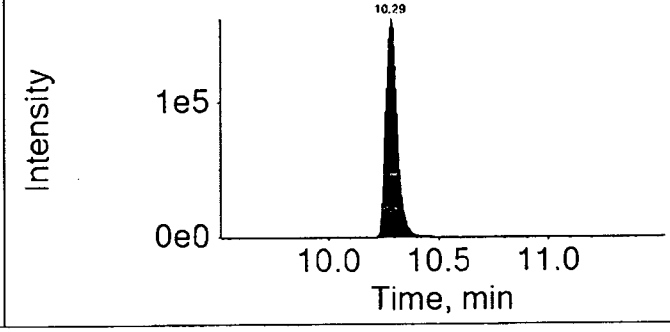
16JUL14-42.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



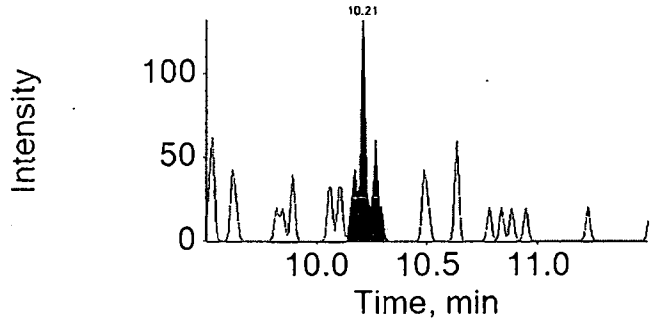


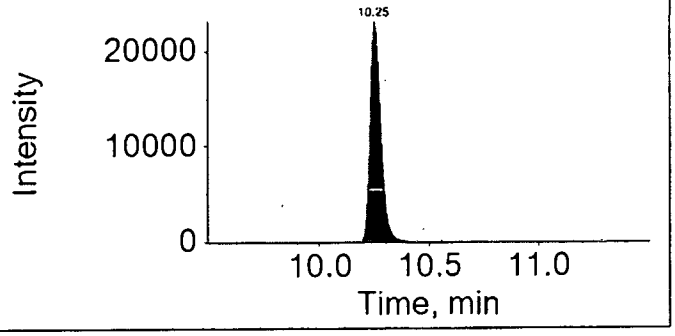
16JUL14-42.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



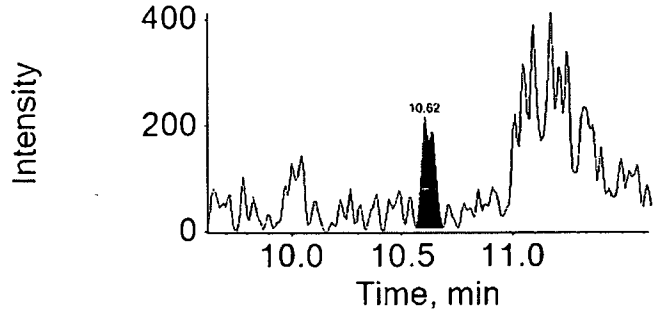


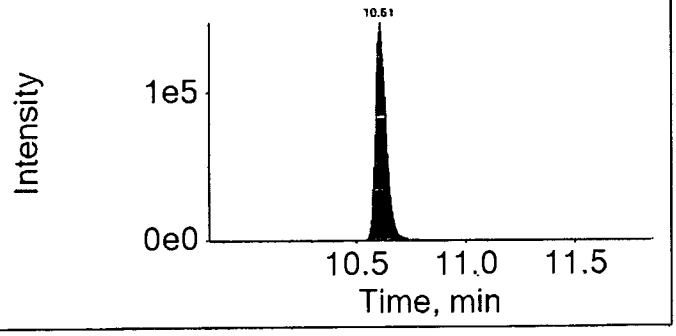
16JUL14-42.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



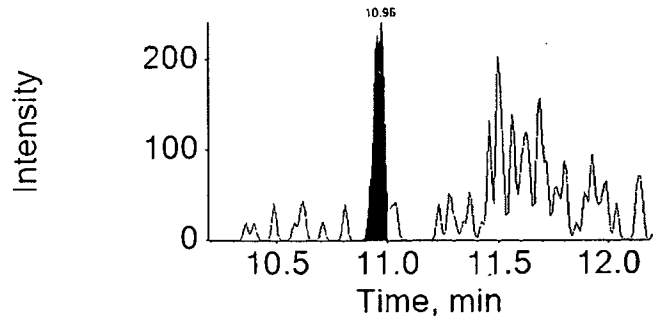


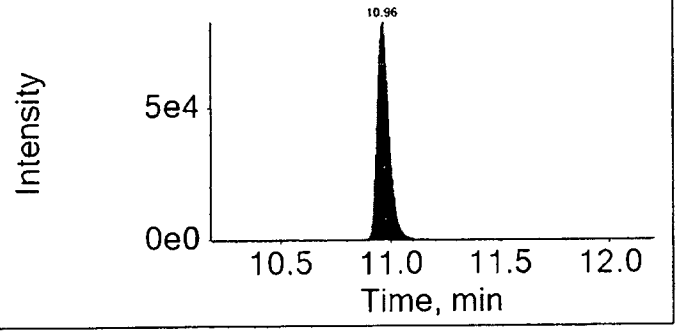
16JUL14-42.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



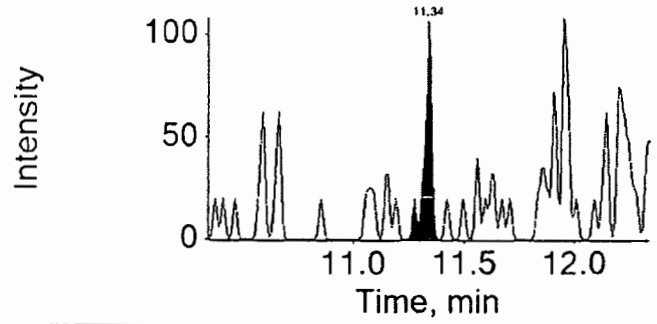


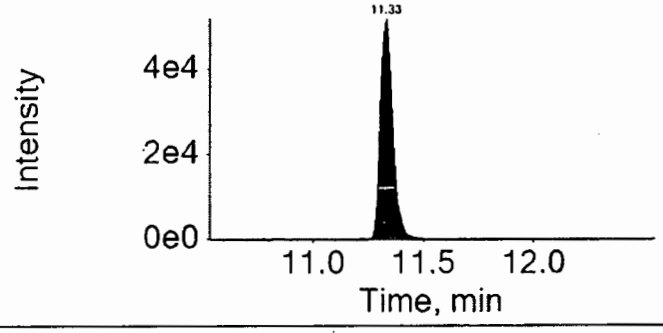
16JUL14-42.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



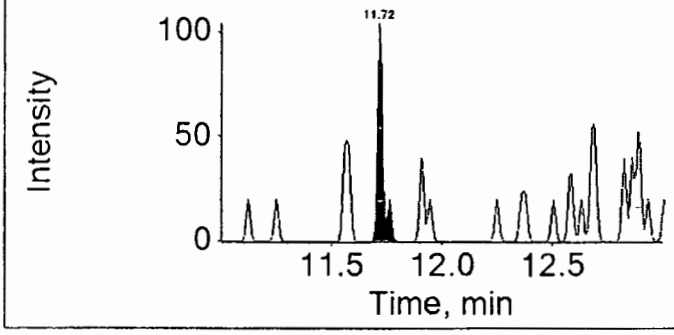


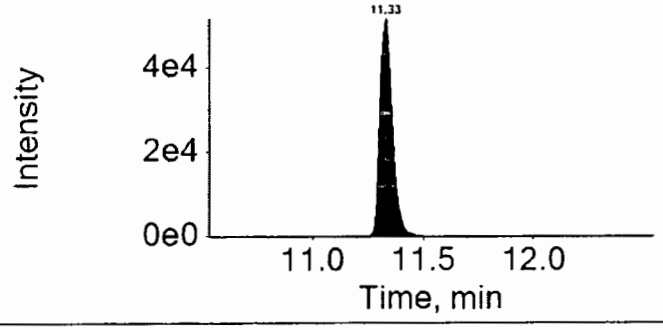
16JUL14-42.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



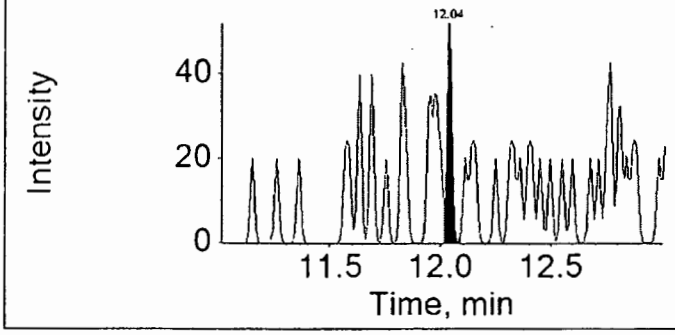


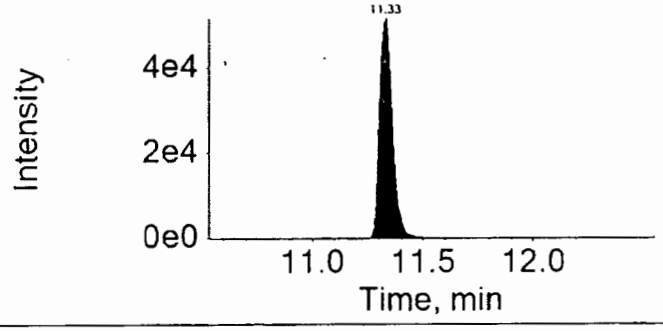
16JUL14-42.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL14-42.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





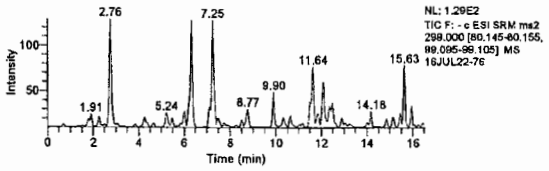
LCMSMS ANALYSIS REPORT

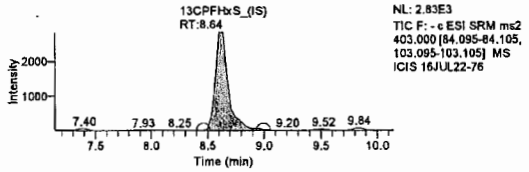
Sample Name:	8427021 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427021 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-76		M\HWell_16.5minutes
Acquisition Date:	07/23/16 05:57:10 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:25	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

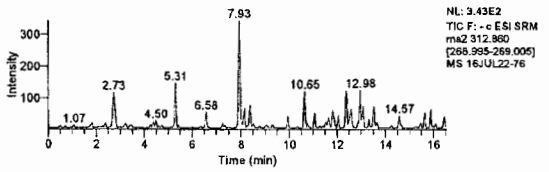
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.25	213582.12	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.93	182815.13	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.68	193822.39	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.03	116705.14	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.64	190341.55	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.35	101943.17	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.64	22783.21	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.22	14951.15	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.25	152787.85	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	4.662	8.92	86973.86	182815.13	0.476	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHpA	N/A	N/A	N/A	N/A	N/A	ng/g

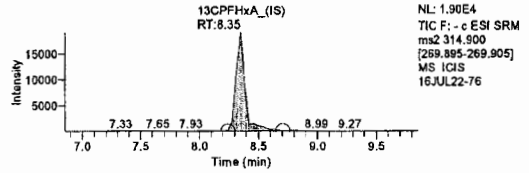
Component Name: PFBS





Component Name: PFHxA





Component Name: PFOA

Jason W. Knight
Senior Chemist

JUL 25 2016

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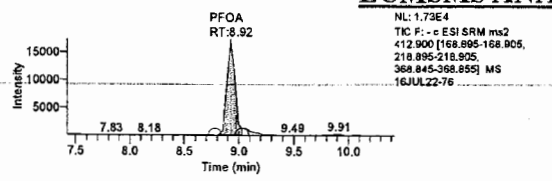

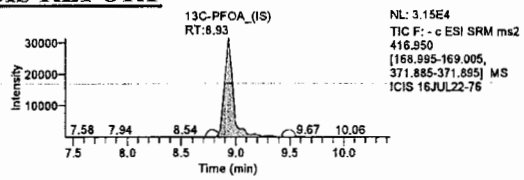

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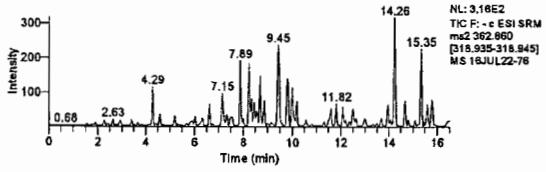

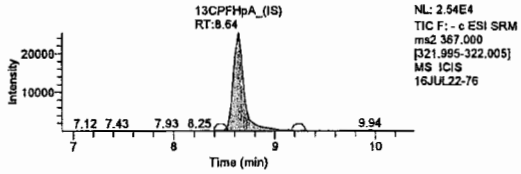

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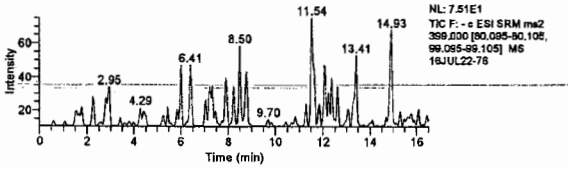
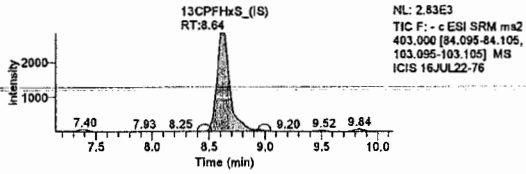
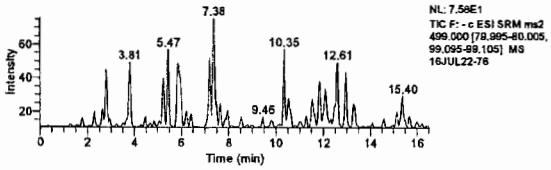
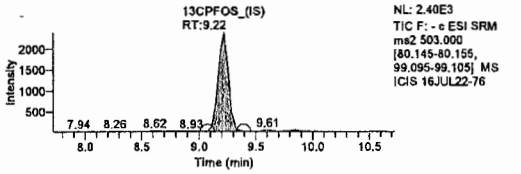




Component Name: PFOS





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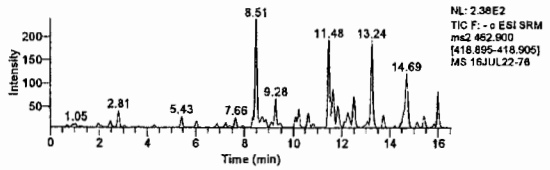
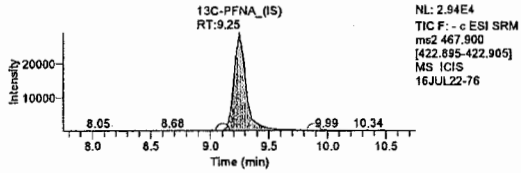
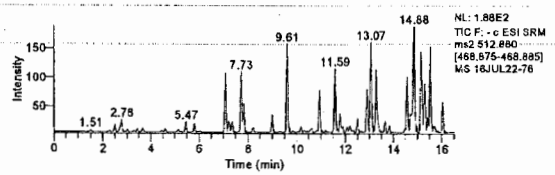
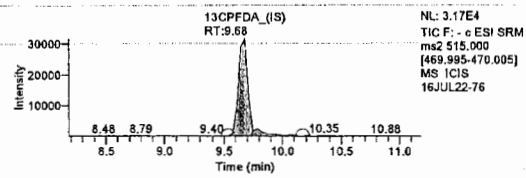




Component Name: PFDA





Component Name: PFUdA

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JUL 25 2016

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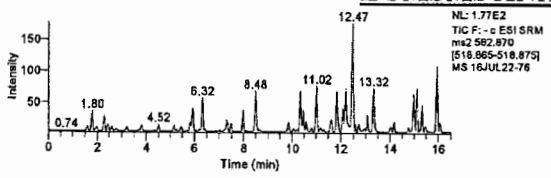
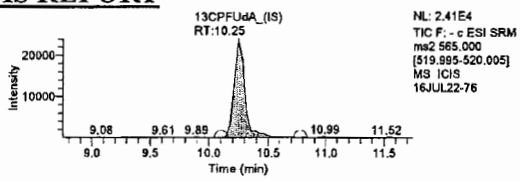
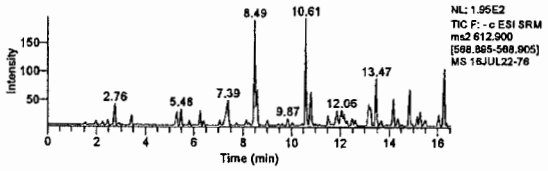
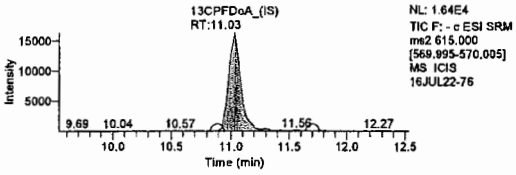


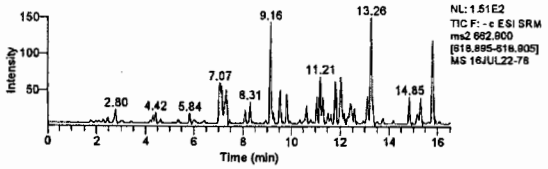


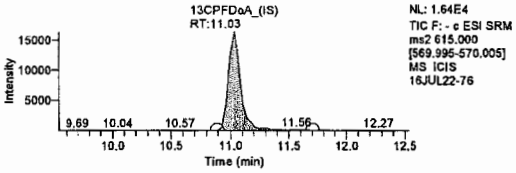
Component Name: PFDoA



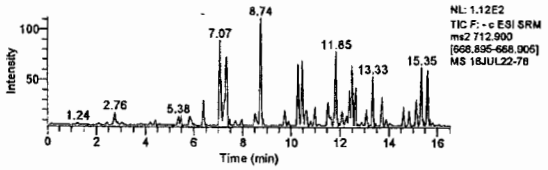


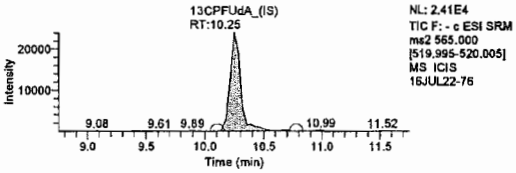
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 26 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

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Analysis Report

Sample Description: SG3-MW05-00.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427022
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 08:30 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

revised

SG351 SDG#: SGP93-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.24	J J, High LCS	0.21	0.42	1
14027	Perfluorododecanoic acid	307-55-1	0.42	U	0.42	0.84	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.74	U	0.74	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.54	J	0.32	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.84	1
14027	Perfluorotridecanoic acid	72629-94-8	0.63	U	0.63	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.63	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	3,560		488	1,470	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	5.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 22:38	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176298731A	06/24/2016 14:57	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW05-00.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427022
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 08:30 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG351 SDG#: SGP93-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.52	U	0.52	1.7	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.24**	**J**	0.21	0.42	1
14027	Perfluorododecanoic acid	307-55-1	0.42	U	0.42	0.84	1
14027	Perfluoroheptanoic acid	375-85-9	0.31	U	0.31	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.52	U	0.52	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.73	U	0.73	1.7	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.54**	**J**	0.31	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.31	U	0.31	0.84	1
14027	Perfluorotridecanoic acid	72629-94-8	0.63	U	0.63	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.31	U	0.31	0.63	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,560**		488	1,470	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**5.0**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 22:38	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176298731A	06/24/2016 14:57	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

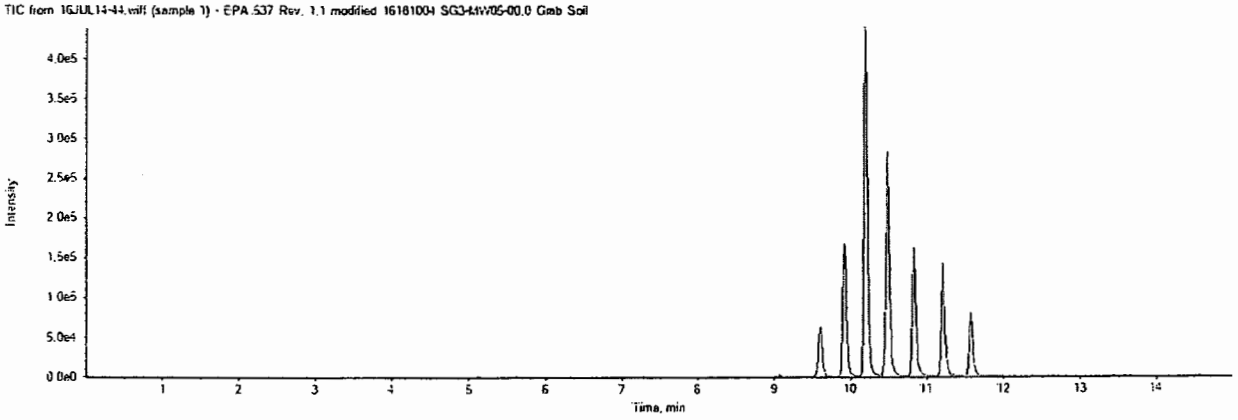
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW05-00.0 Grab Soil	**Data File:**		16JUL14-44.wiff
Sample ID:	8427022	**Acquis Date:**		7/14/2016 10:38:44 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	21	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	5.020	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.91	206840.9	N/A	N/A	
PFHxA	9.62	1267.5	13C2-PFHxA	9.60	229427.1	0.006	0.084	
PFHpA	9.92	1303.0	13C4-PFHpA	9.92	357406.8	0.004	0.130	
PFHxS	9.92	798.2	18O2-PFHxS	9.91	206840.9	0.004	0.293	
PFOA	10.20	29826.7	13C4-PFOA	10.20	1391554.0	0.021	0.511	
PFNA	10.49	6533.2	13C5-PFNA	10.48	777313.8	0.008	0.127	
PFOS	10.46	935.8	13C4-PFOS	10.45	99806.8	0.009	0.509	
PFDA	10.83	9114.3	13C2-PFDA	10.82	542947.5	0.017	0.226	
PFUndA	11.21	1982.4	13C2-PFUnDA	11.20	406155.5	0.005	0.040	
PFDoDA	11.56	575.2	13C2-PFDoDA	11.56	265126.1	0.002	< 0	
PFTrDA	11.91	192.6	13C2-PFDoDA	11.56	265126.1	0.001	< 0	
PFTeDA	12.29	523.6	13C2-PFDoDA	11.56	265126.1	0.002	< 0	

Total Ion Chromatogram

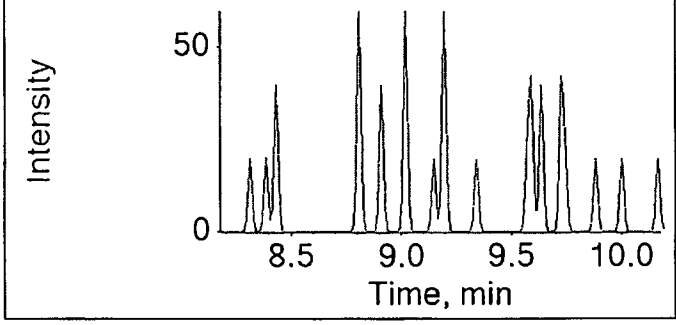
8427022



16JUL14-44.wiff

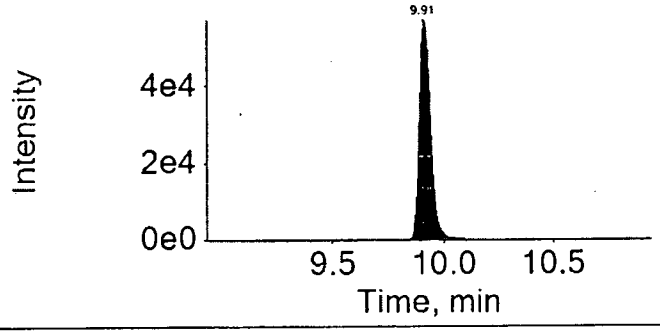
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

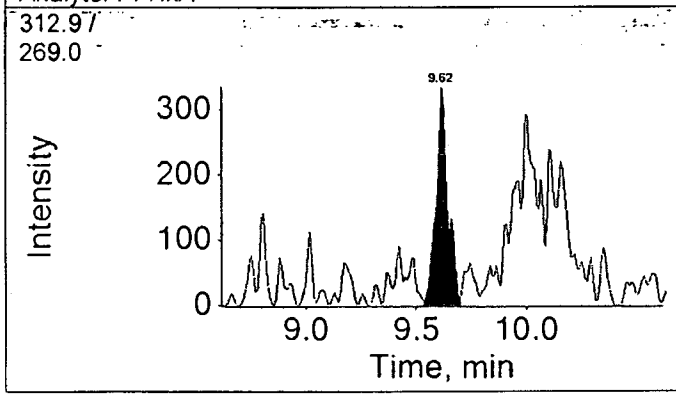
403.0 / 103.0



16JUL14-44.wiff

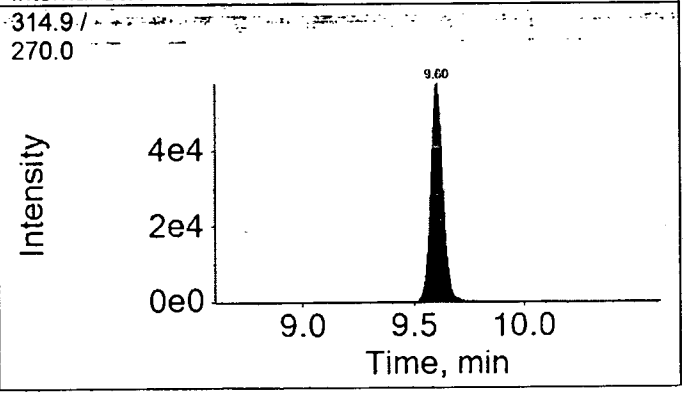
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

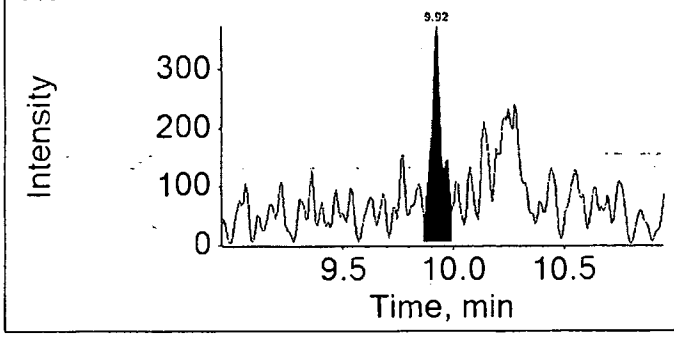
314.9 / 270.0



16JUL14-44.wiff

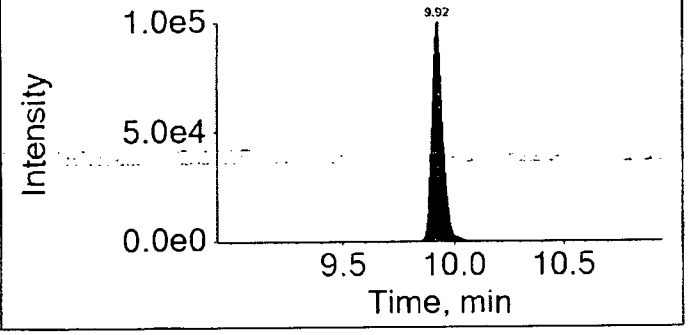
Analyte: PFHpA

362.9 / 318.9

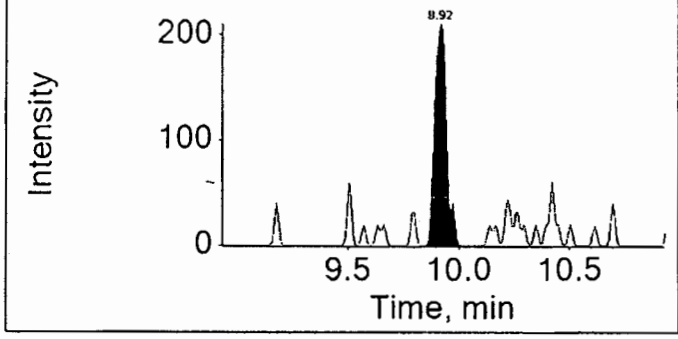


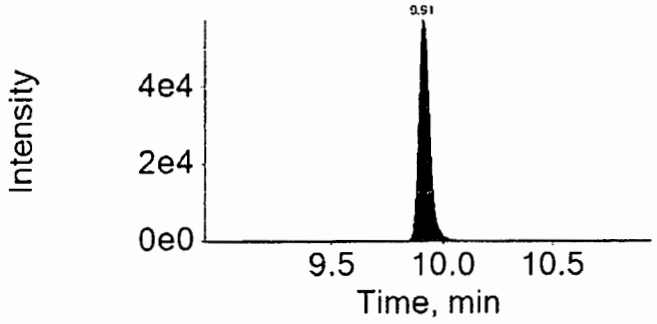
Internal Standard: 13C4-PFHpA

367.0 / 322.0

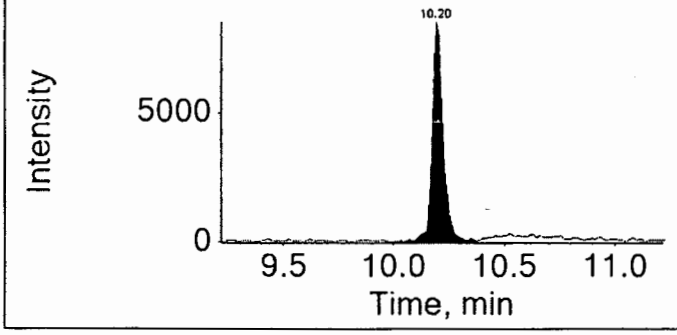


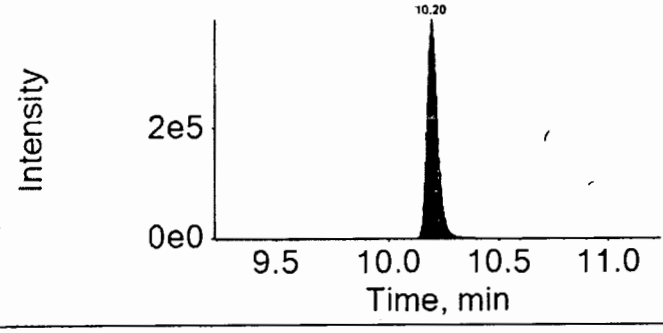
16JUL14-44.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



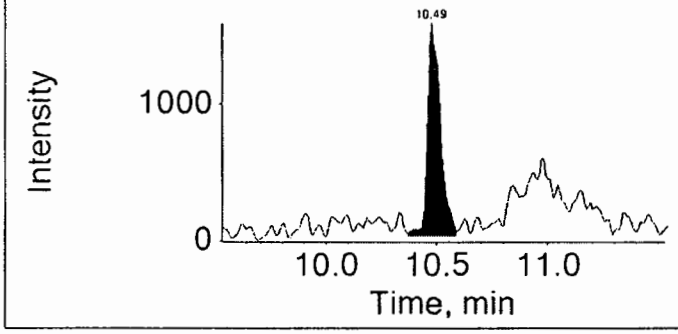


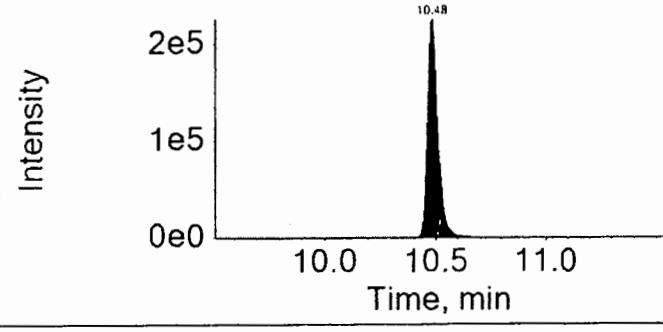
16JUL14-44.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





16JUL14-44.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0

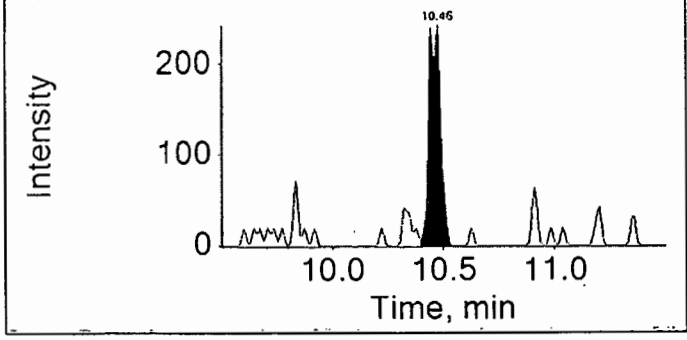




16JUL14-44.wiff

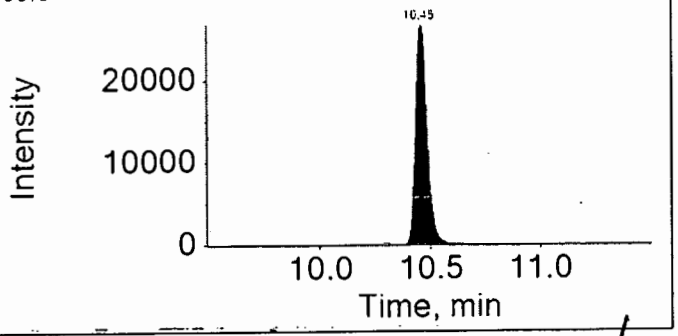
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

503.0 / 99.0

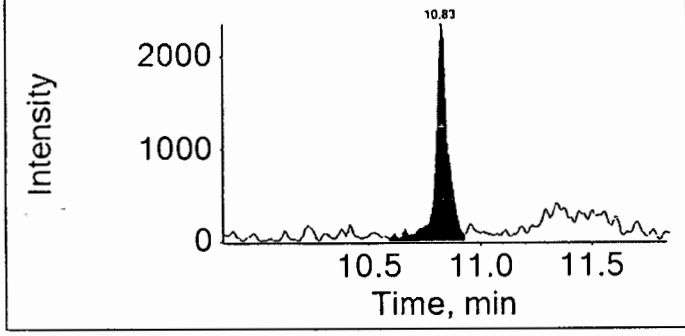


16JUL14-44.wiff

Lab checking integration — minor MMM 5/18/16

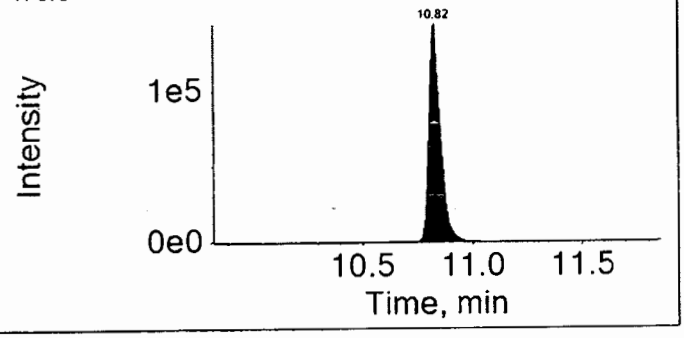
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

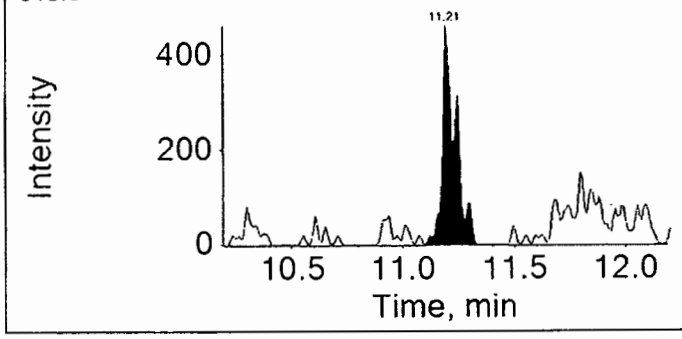
515.0 / 470.0



16JUL14-44.wiff

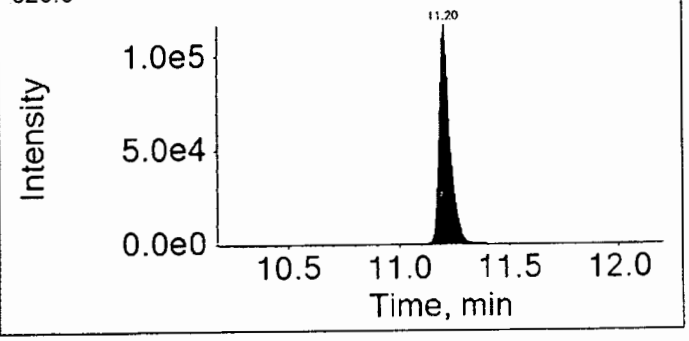
Analyte: PFUnDA

562.9 / 518.9

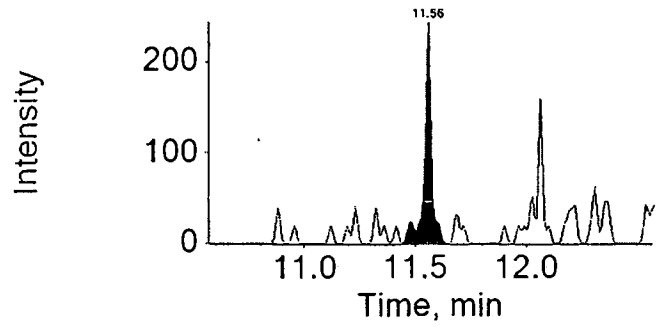


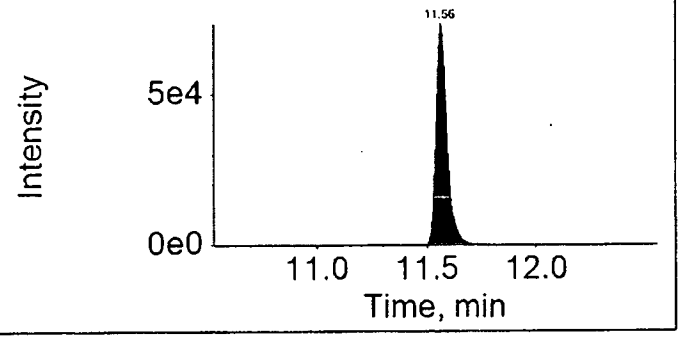
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

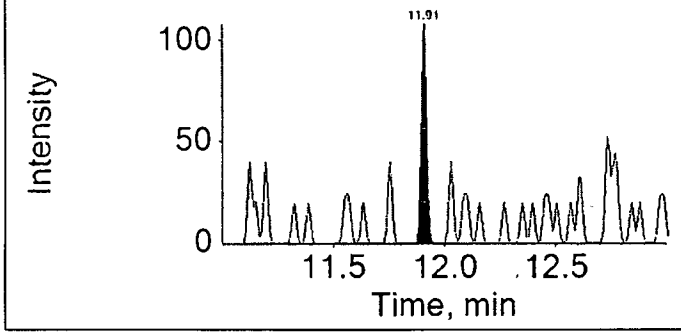


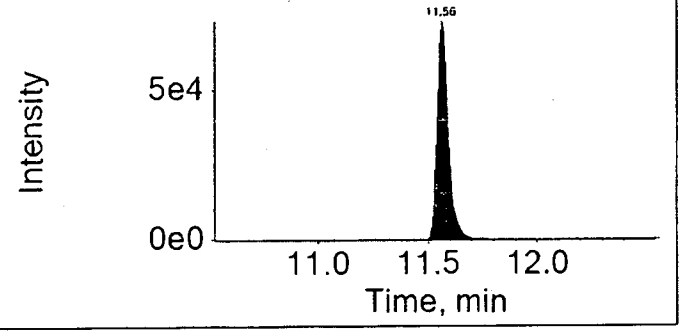
16JUL14-44.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



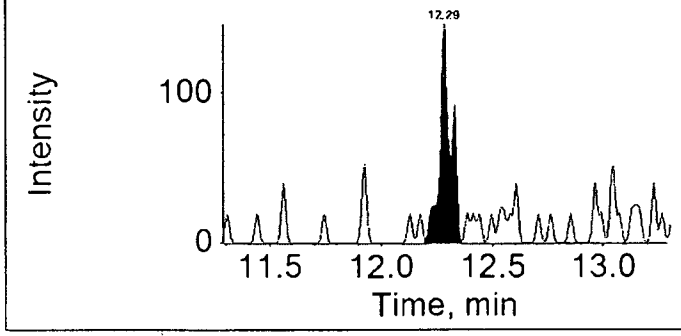


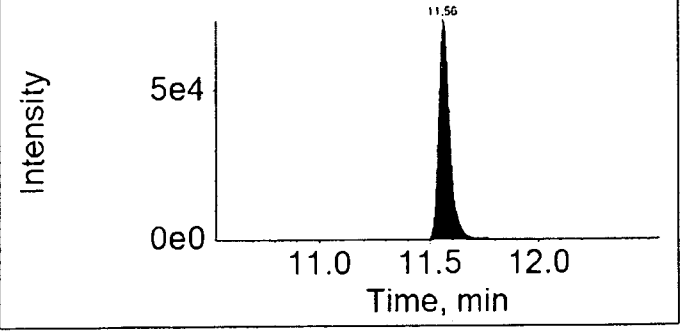
16JUL14-44.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL14-44.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





LCMSMS ANALYSIS REPORT

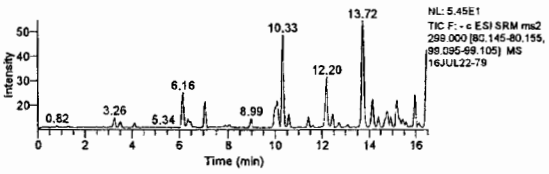
Sample Name:	8427022 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427022 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-79		M\HWell_16.5minutes
Acquisition Date:	07/23/16 06:48:53 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:26	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

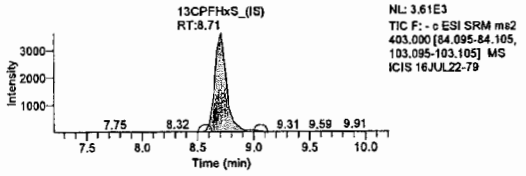
Extracted Ion Chromatogram

Quan Peak Table

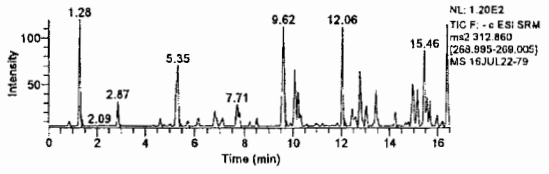
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.18	228926.12	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.96	185862.87	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.54	174895.94	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.79	115695.64	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	183739.79	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.46	110849.85	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	26173.00	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.15	17691.81	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.07	168140.21	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	0.207	12.87	565.53	168140.21	0.003	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	-0.041	10.07	716.41	168140.21	0.004	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

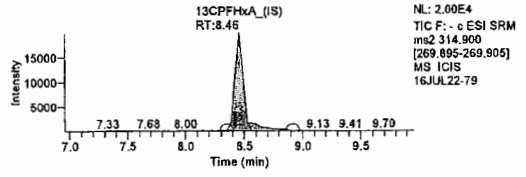
Component Name: PFBS





Component Name: PFHxA





Component Name: PFOA

Jason W. Knight
Senior Chemist

JUL 25 2016

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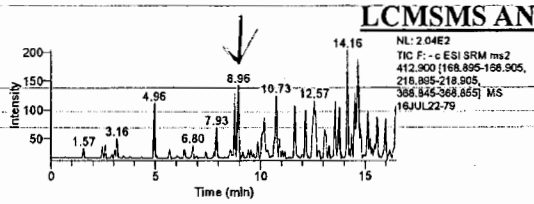
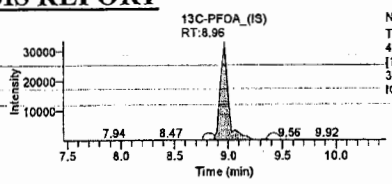
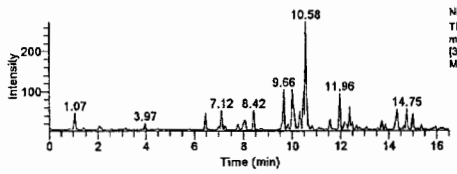
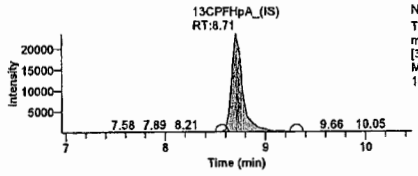
mpl. sed
ccc



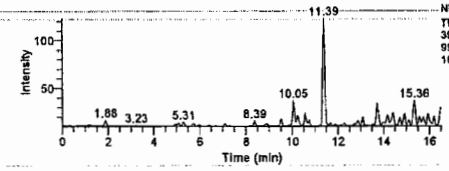


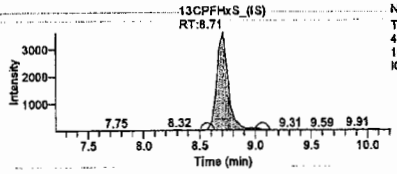
Component Name: PFhpA



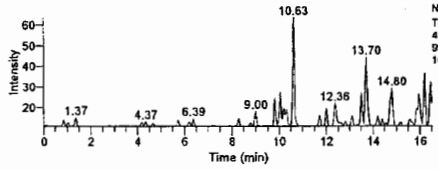


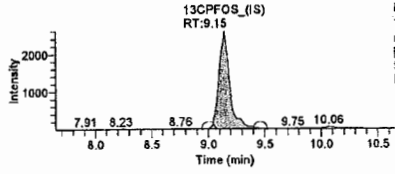
Component Name: PFHxS



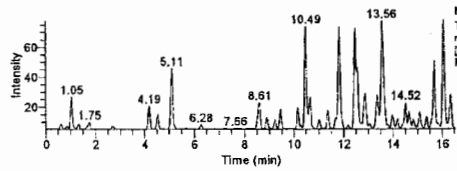


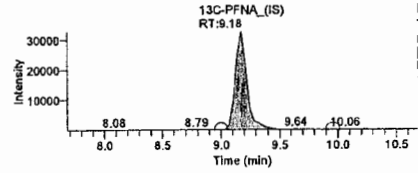
Component Name: PFOS



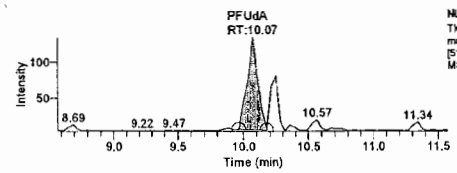


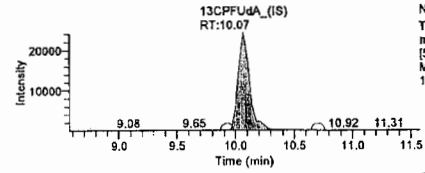
Component Name: PFNA





Component Name: PFUdA





Jason W. Knight
Senior Chemist

Component Name: PFDA

JUL 25 2016

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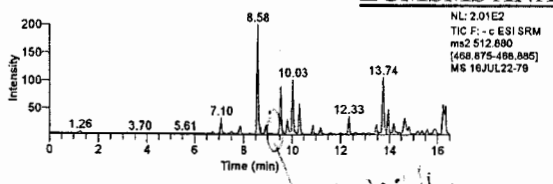
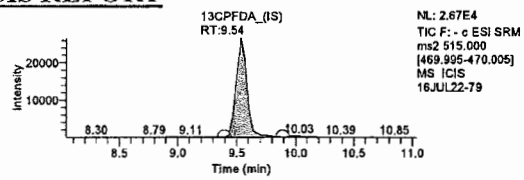
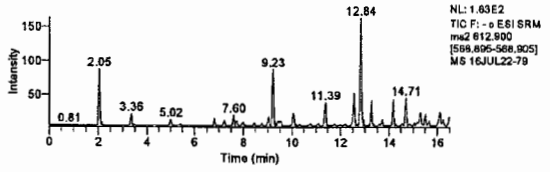
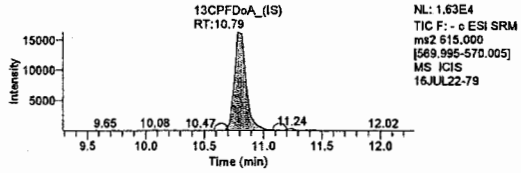


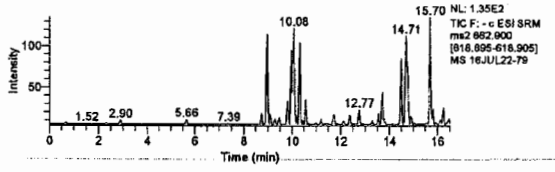


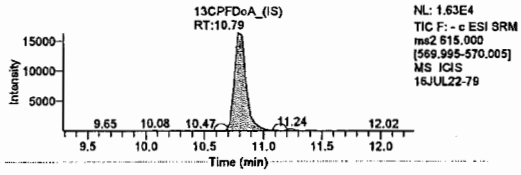
Component Name: PFDoA



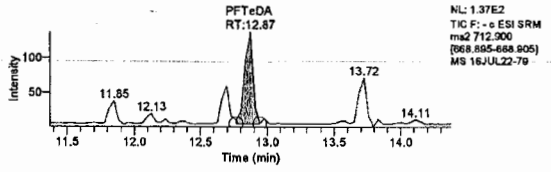


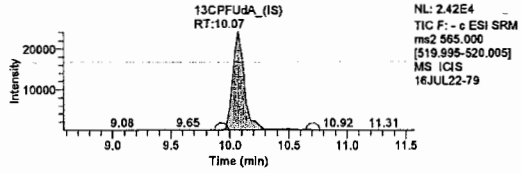
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd

JUL 26 2016

Jason W. Knight
Senior Chemist

Lynn Dodd
Principal Specialist

JUL 25 2016

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Analysis Report

Sample Description: SG3-MW05-00.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8427023
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 08:33 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL

SG352 SDG#: SGP93-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.54	U	0.54	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.43	1
14027	Perfluorododecanoic acid	307-55-1	0.43	U	0.43	0.87	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.54	U	0.54	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.76	U	0.76	1.7	1
14027	Perfluorooctanoic acid	335-67-1	5.2		0.33	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.87	1
14027	Perfluorotridecanoic acid	72629-94-8	0.65	U	0.65	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.65	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 5 ng/g. PFOA was not detected in the re-extraction of the sample.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	109	U	109	326	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	7.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 22:57	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176298731A	06/24/2016 19:48	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW05-00.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8427023
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 08:33 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG352 SDG#: SGP93-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.51	U	0.51	1.6	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.41	1
14027	Perfluorododecanoic acid	307-55-1	0.41	U	0.41	0.81	1
14027	Perfluoroheptanoic acid	375-85-9	0.31	U	0.31	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.51	U	0.51	1.6	1
14027	Perfluorohexanoic acid	307-24-4	0.20	U	0.20	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.20	U	0.20	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.71	U	0.71	1.6	1
14027	**Perfluorooctanoic acid**	335-67-1	**5.2**		0.31	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.31	U	0.31	0.81	1
14027	Perfluorotridecanoic acid	72629-94-8	0.61	U	0.61	1.2	1
14027	Perfluoroundecanoic acid	2058-94-8	0.31	U	0.31	0.61	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 5 ng/g. PFOA was not detected in the re-extraction of the sample.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	109	U	109	326	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**7.9**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 22:57	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176298731A	06/24/2016 19:48	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

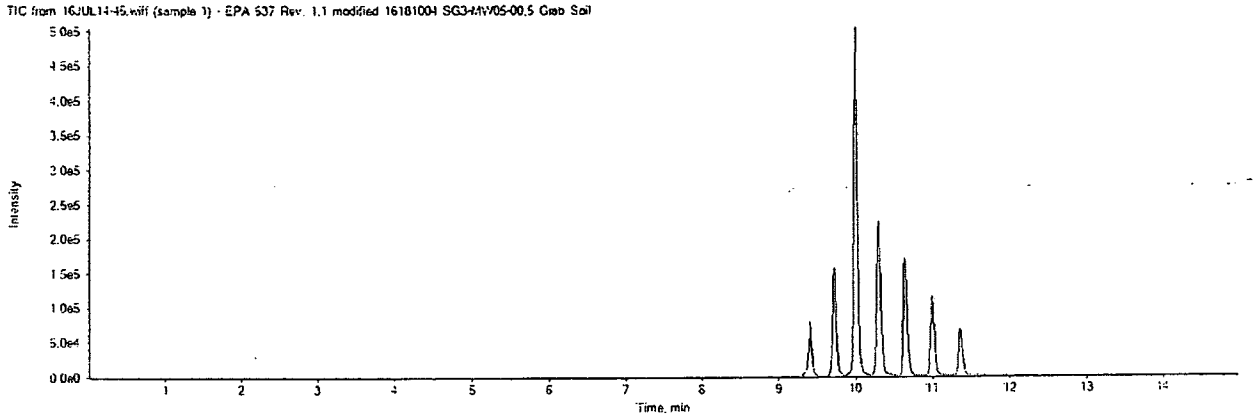
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW05-00.5 Grab Soil	**Data File:**		16JUL14-45.wiff
Sample ID:	8427023	**Acquis Date:**		7/14/2016 10:57:59 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	22	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	5.330	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.72	188755.0	N/A	N/A	
PFHxA	N/A	N/A	13C2-PFHxA	9.40	226552.4	N/A	N/A	
PFHpA	9.72	2148.4	13C4-PFHpA	9.73	325265.0	0.007	0.172	
PFHxS	9.71	740.9	18O2-PFHxS	9.72	188755.0	0.004	0.277	
PFOA	10.00	259332.0	13C4-PFOA	10.00	1263409.7	0.205	4.756	
PFNA	10.30	10476.7	13C5-PFNA	10.30	693353.8	0.015	0.169	
PFOS	10.27	446.1	13C4-PFOS	10.27	92562.5	0.005	0.439	
PFDA	10.64	3274.3	13C2-PFDA	10.64	597942.3	0.005	0.096	
PFUndA	10.98	1871.7	13C2-PFUnDA	10.99	391871.4	0.005	0.036	
PFDoDA	11.35	440.5	13C2-PFDoDA	11.35	239720.3	0.002	< 0	
PFTrDA	11.72	247.7	13C2-PFDoDA	11.35	239720.3	0.001	< 0	
PFTeDA	12.11	301.6	13C2-PFDoDA	11.35	239720.3	0.001	< 0	

Total Ion Chromatogram

8427023



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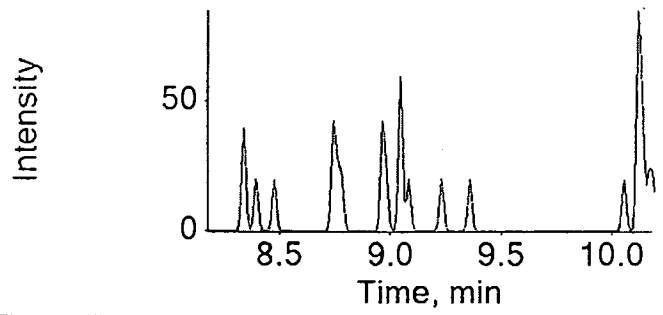
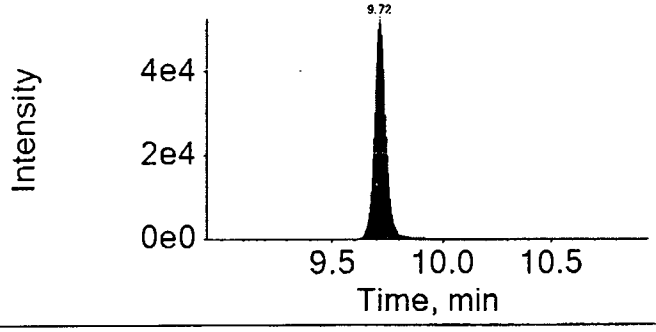
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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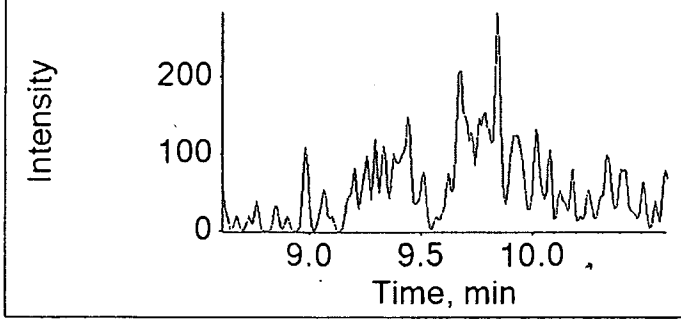
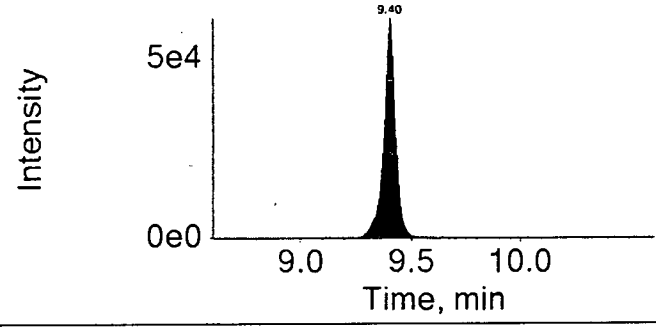
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





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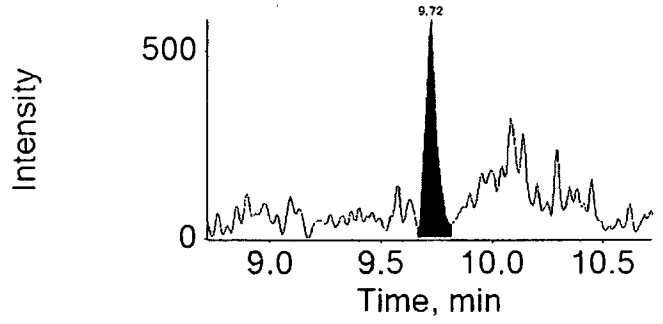
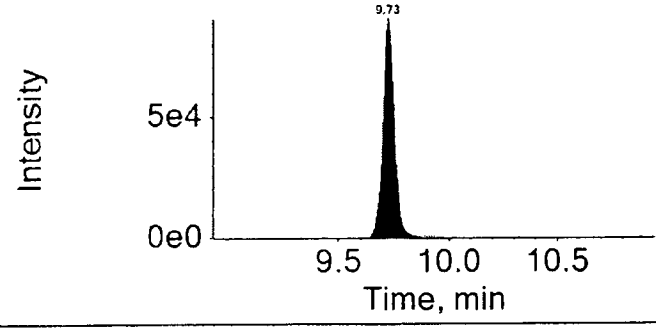
362.9 / 318.9	367.0 / 322.0





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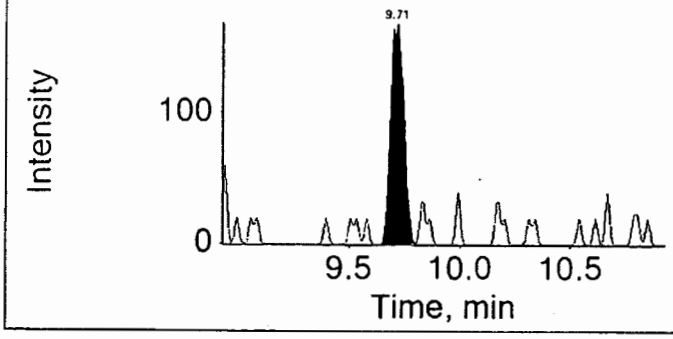
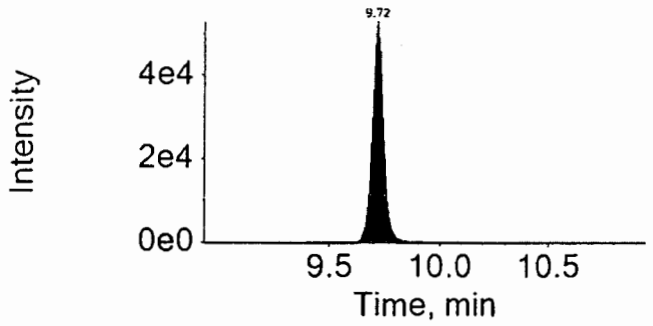
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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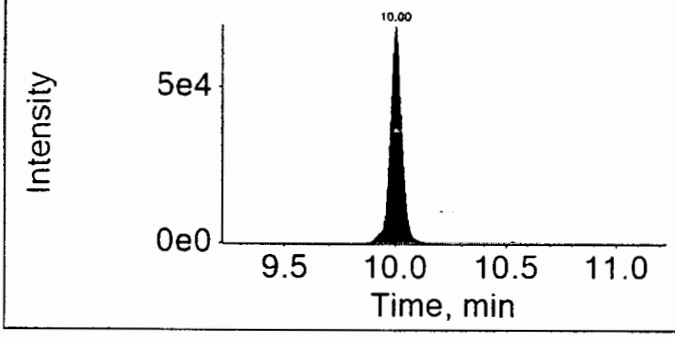
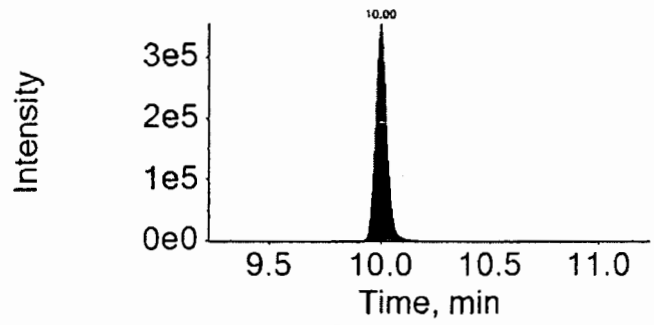
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

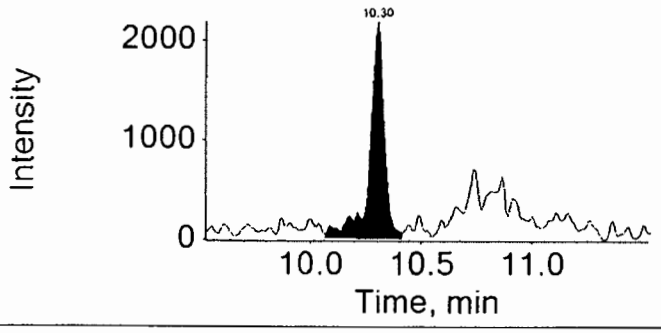
417.0 / 372.0



16JUL14-45.wiff

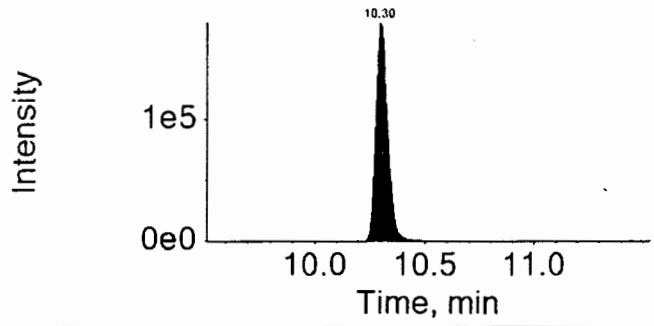
Analyte: PFNA

462.9 / 418.9

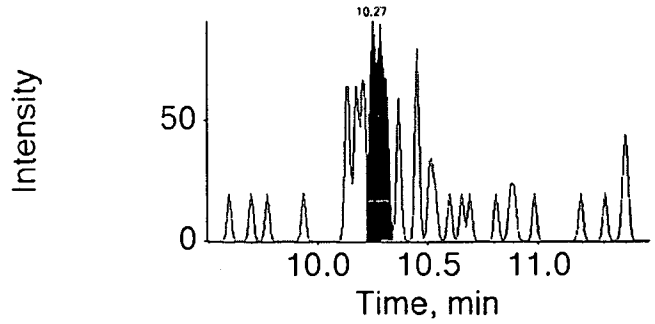


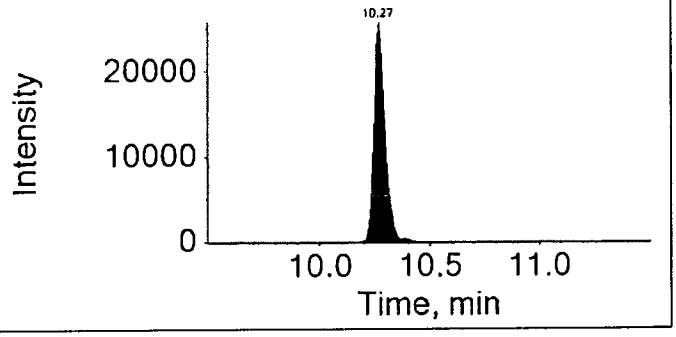
Internal Standard: 13C5-PFNA

468.0 / 423.0

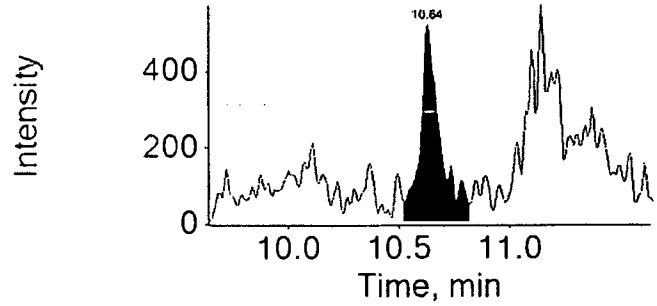


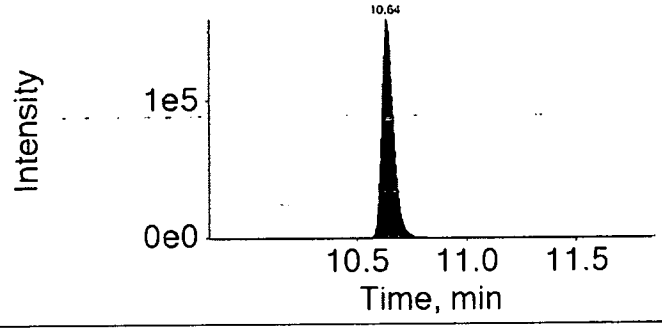
16JUL14-45.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0





16JUL14-45.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





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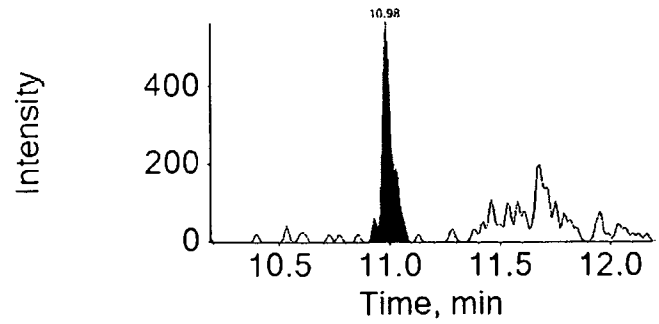
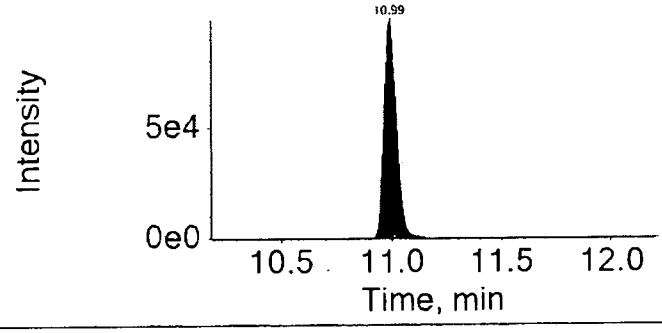
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0





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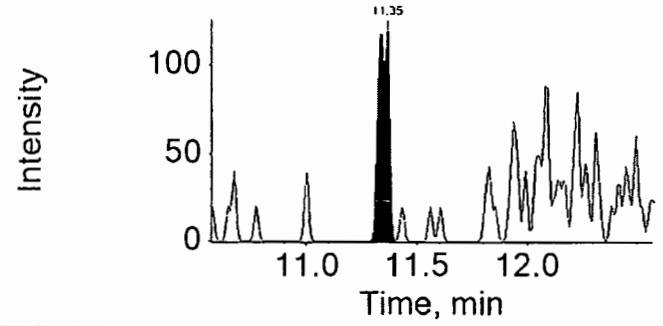
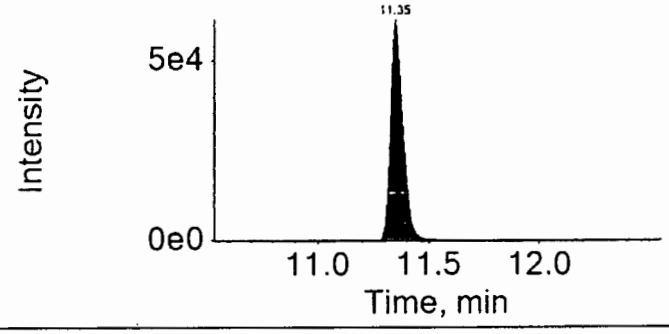
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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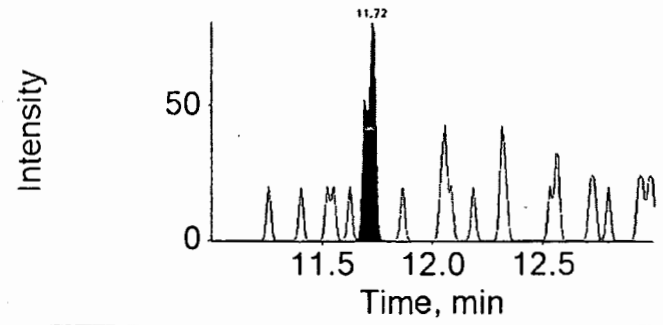
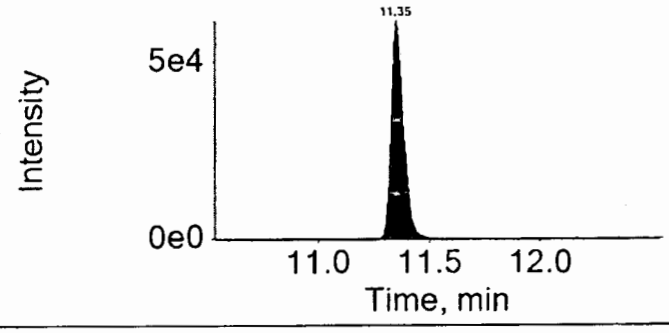
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

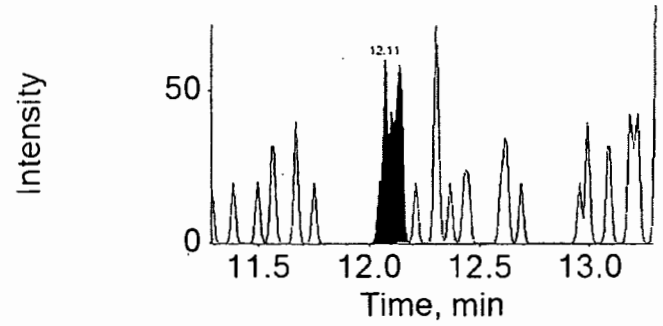
615.0 / 570.0



16JUL14-45.wiff

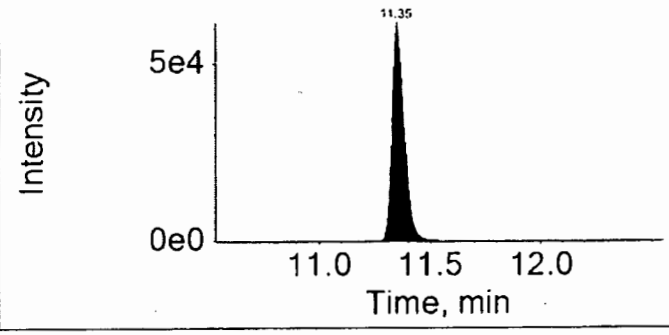
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



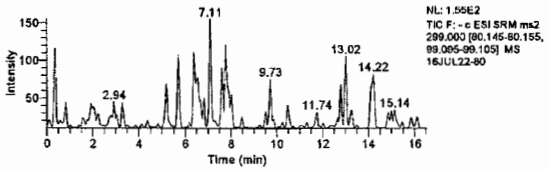
LCMSMS ANALYSIS REPORT

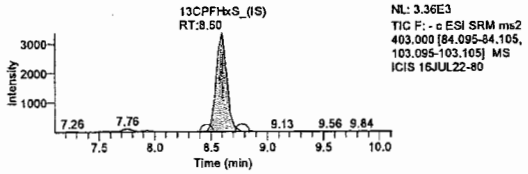
Sample Name:	8427023 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427023 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-80		M\HWell_16.5minutes
Acquisition Date:	07/23/16 07:06:07 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:27	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

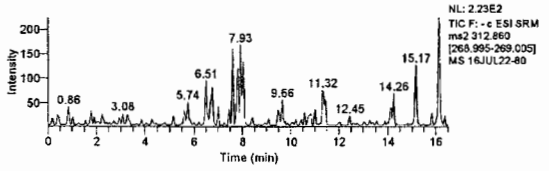
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.25	170005.49	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.89	170413.16	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.71	137789.53	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.03	108260.35	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.60	189251.42	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.32	99258.40	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.60	22106.88	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.22	9170.03	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.28	137506.45	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

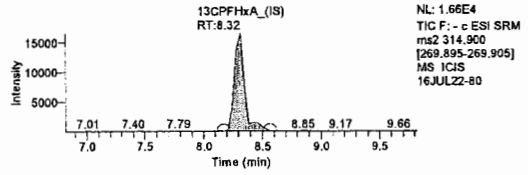
Component Name: PFBS





Component Name: PFHxA



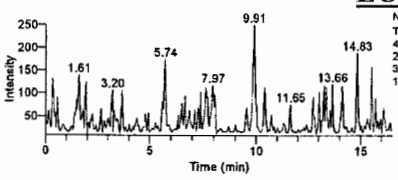


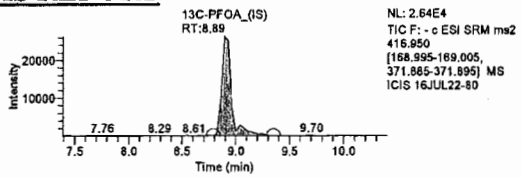
Component Name: PFOA

Jason W. Knight
Senior Chemist

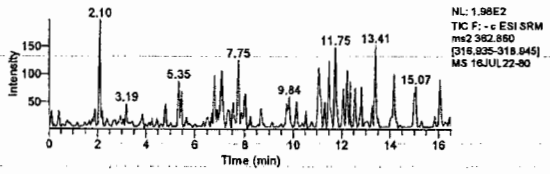
JUL 25 2016

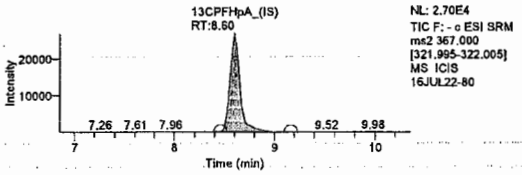
LCMSMS ANALYSIS REPORT



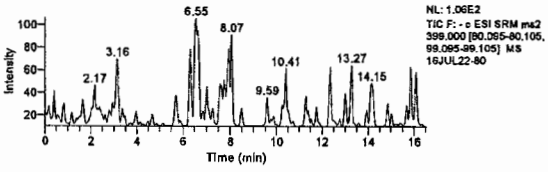


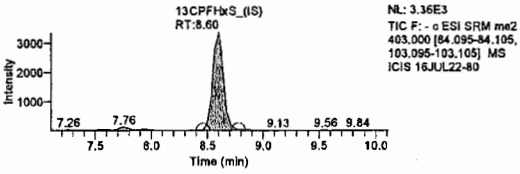
Component Name: PFhpA



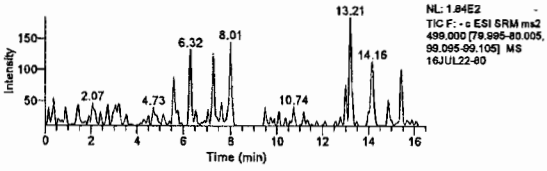


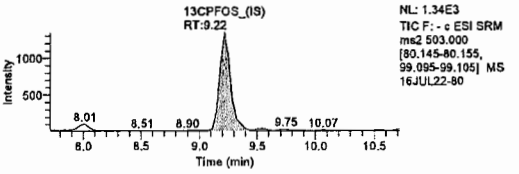
Component Name: PFHxS





Component Name: PFOS





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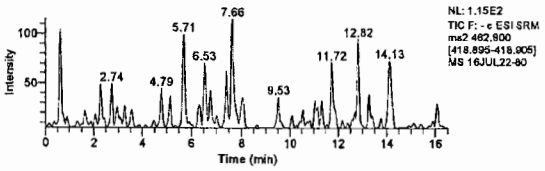

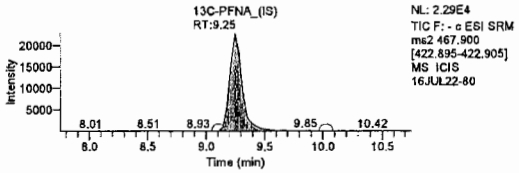

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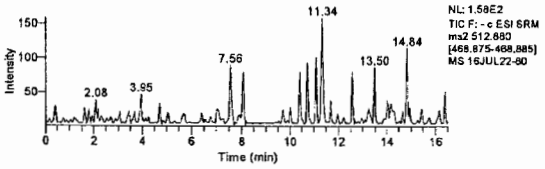

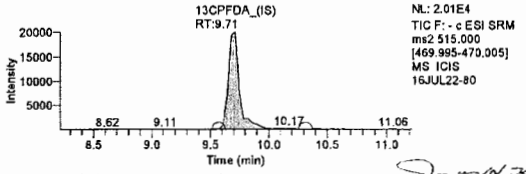

Jason W. Knight
Senior Chemist

Component Name: PFUdA

JUL 25 2016

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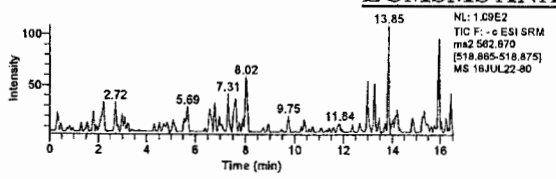

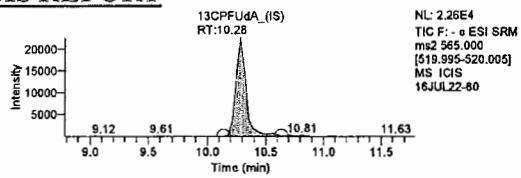

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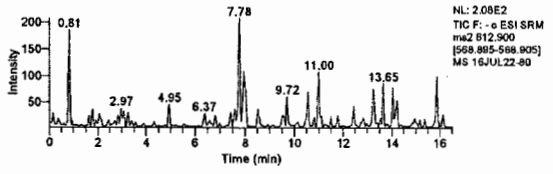

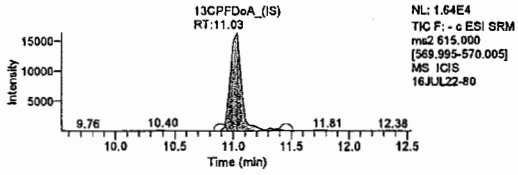

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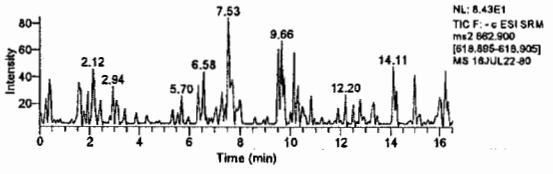
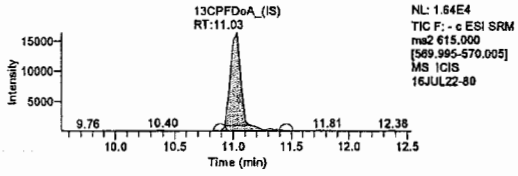
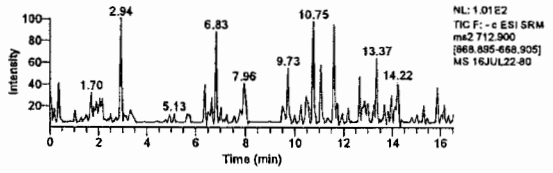
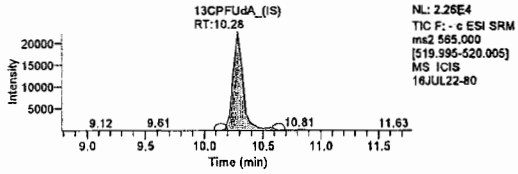




Component Name: PFTeDA





Lynn Dodd

JUL 26 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

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Analysis Report

Sample Description: SG3-MW05-01.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427024
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 08:41 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG353 SDG#: SGP93-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.56	U	0.56	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.45	1
14027	Perfluorododecanoic acid	307-55-1	0.45	U	0.45	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.56	U	0.56	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.79	U	0.79	1.8	1
14027	Perfluorooctanoic acid	335-67-1	4.7		0.34	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	0.67	U	0.67	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.67	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 4 ng/g. PFOA was detected in the re-extraction of the sample at 0.4 ng/g.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	9,040		537	1,610	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	11.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 23:17	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 17:42	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW05-01.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427024
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 08:41 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG353 SDG#: SGP93-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.55	U	0.55	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.44	U	0.44	0.88	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.55	U	0.55	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.77	U	0.77	1.8	1
14027	**Perfluorooctanoic acid**	335-67-1	**4.7**		0.33	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.88	1
14027	Perfluorotridecanoic acid	72629-94-8	0.66	U	0.66	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.66	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 4 ng/g. PFOA was detected in the re-extraction of the sample at 0.4 ng/g.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	**9,040**		537	1,610	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**11.0**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 23:17	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 17:42	James S Mathiot	1

*=This limit was used in the evaluation of the final result

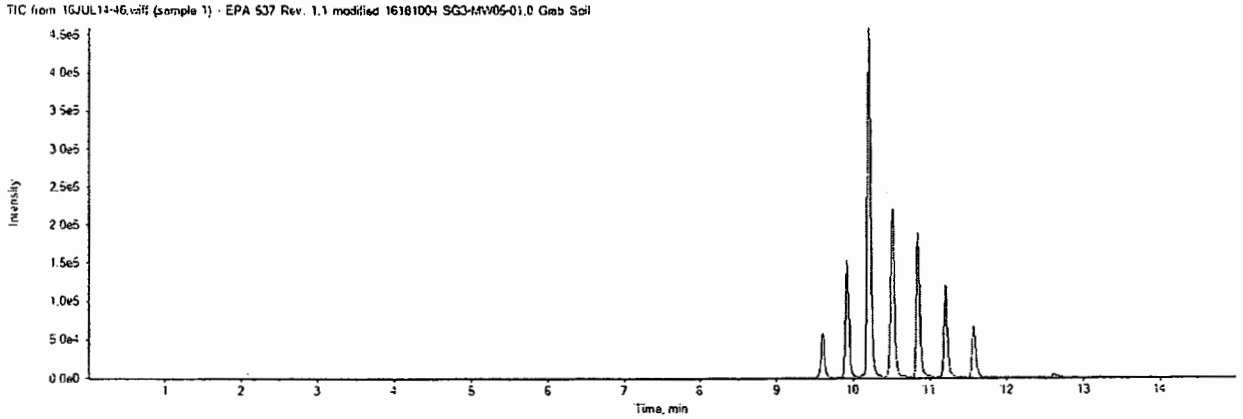
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW05-01.0 Grab Soil	**Data File:**		16JUL14-46.wiff
Sample ID:	8427024	**Acquis Date:**		7/14/2016 11:17:18 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	23	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	5.120	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

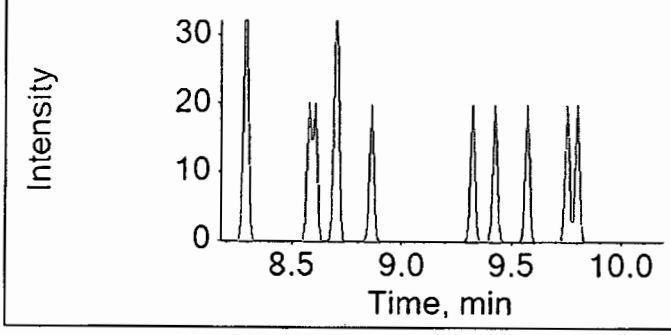
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.92	160318.9	N/A	N/A	
PFHxA	9.60	1044.0	13C2-PFHxA	9.60	187761.7	0.006	0.083	
PFHpA	9.92	3746.5	13C4-PFHpA	9.93	315331.5	0.012	0.271	
PFHxS	9.92	853.2	18O2-PFHxS	9.92	160318.9	0.005	0.306	
PFOA	10.21	207528.1	13C4-PFOA	10.20	1197420.2	0.173	4.178	
PFNA	10.51	3746.1	13C5-PFNA	10.51	670573.2	0.006	0.103	
PFOS	10.45	220.3	13C4-PFOS	10.48	71477.2	0.003	0.441	
PFDA	10.84	2526.2	13C2-PFDA	10.84	573764.2	0.004	0.089	
PFUndA	11.20	1100.3	13C2-PFUnDA	11.20	348496.1	0.003	0.010	
PFDoDA	11.55	550.5	13C2-PFDoDA	11.56	212380.4	0.003	< 0	
PFTrDA	11.70	82.6	13C2-PFDoDA	11.56	212380.4	0.000	< 0	
PFTeDA	12.30	467.9	13C2-PFDoDA	11.56	212380.4	0.002	< 0	

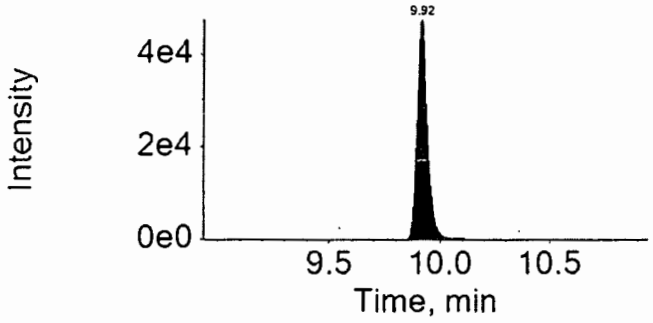
Total Ion Chromatogram

8427024



16JUL14-46.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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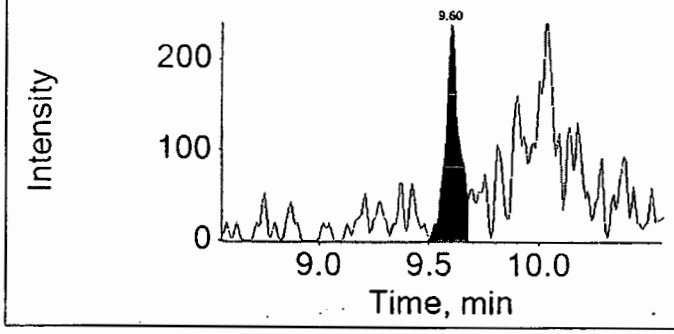
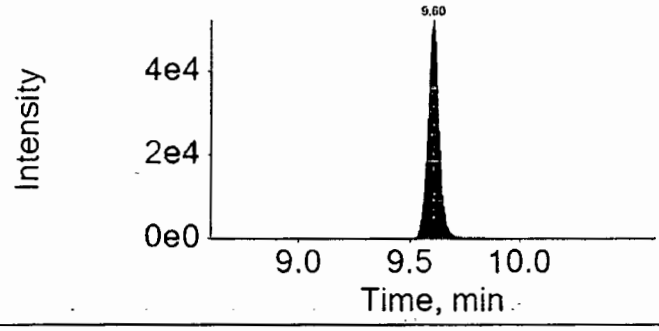
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





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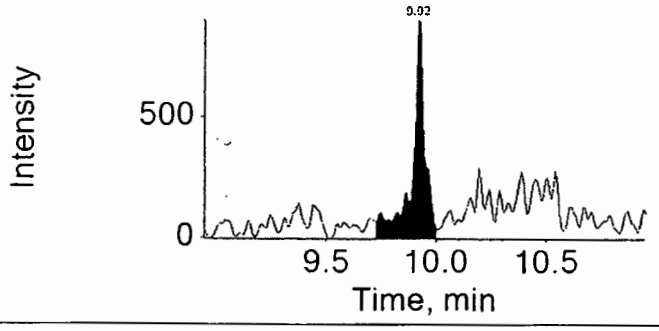
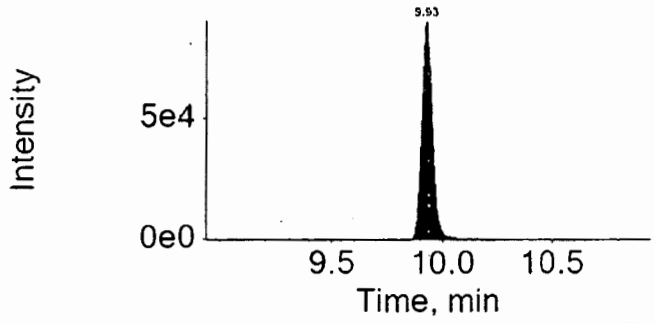
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

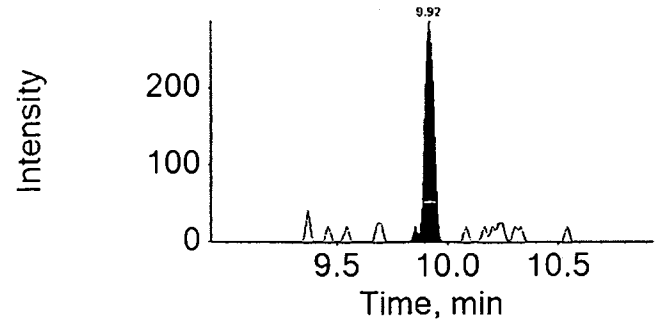




16JUL14-46.wiff

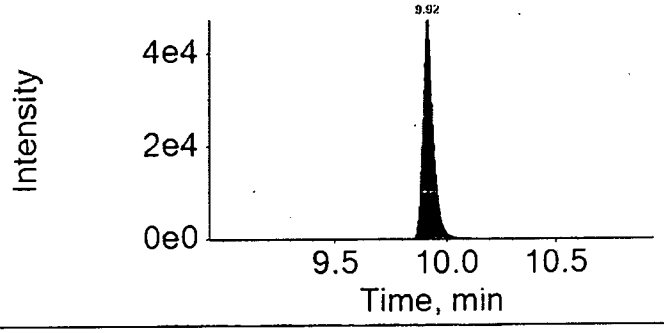
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

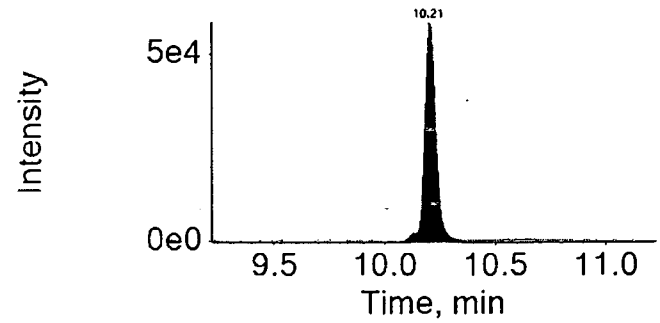
403.0 / 103.0



16JUL14-46.wiff

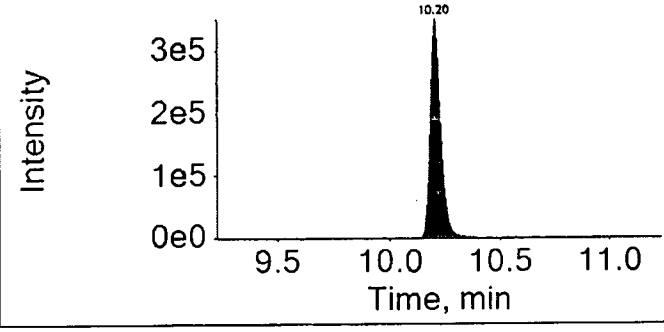
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

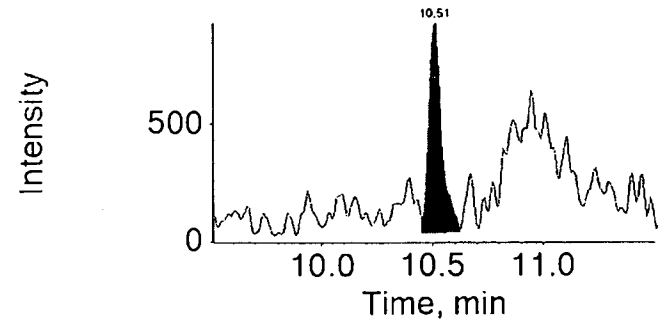
417.0 / 372.0



16JUL14-46.wiff

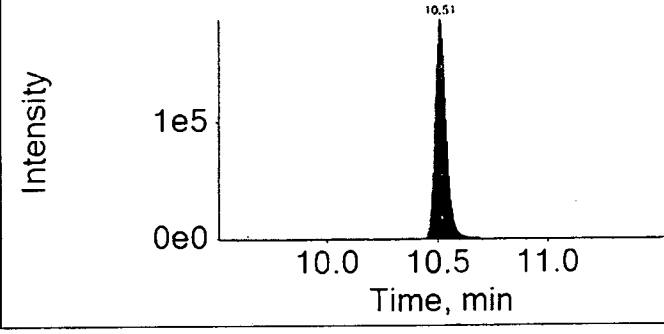
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

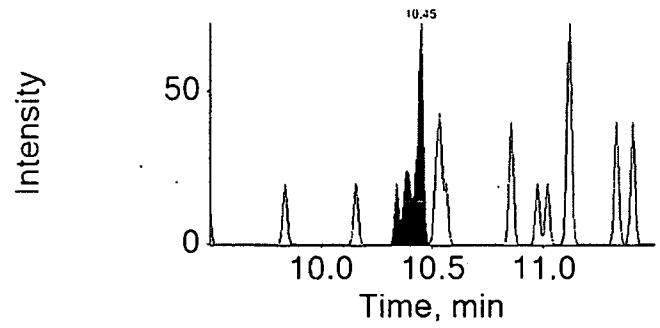
468.0 / 423.0



16JUL14-46.wiff

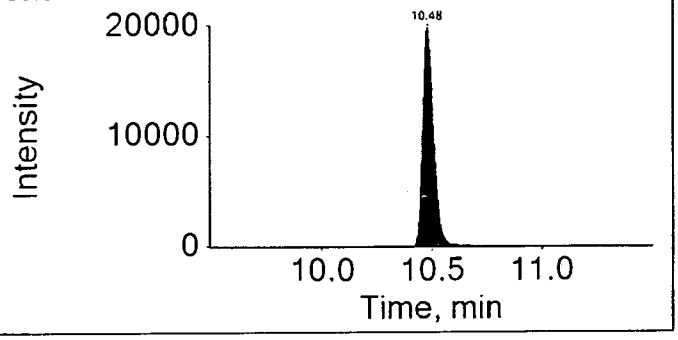
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

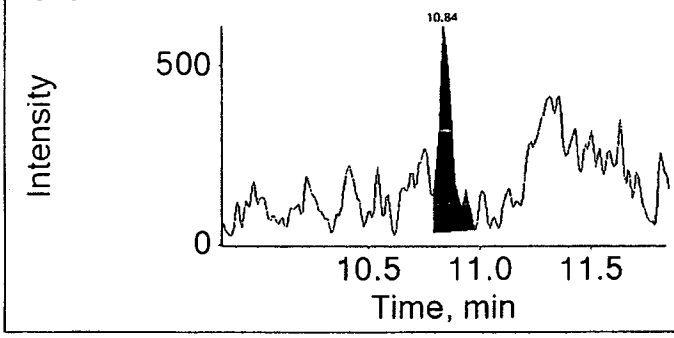
503.0 / 99.0



16JUL14-46.wiff

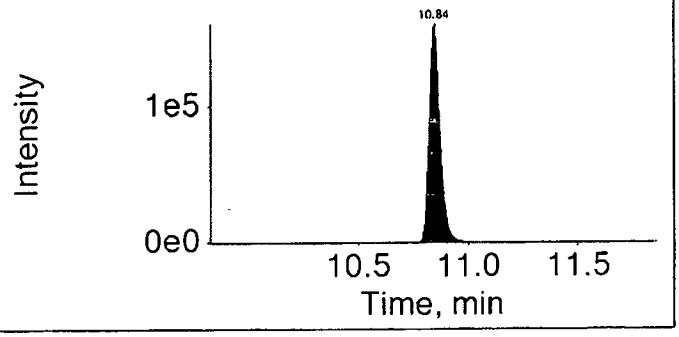
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

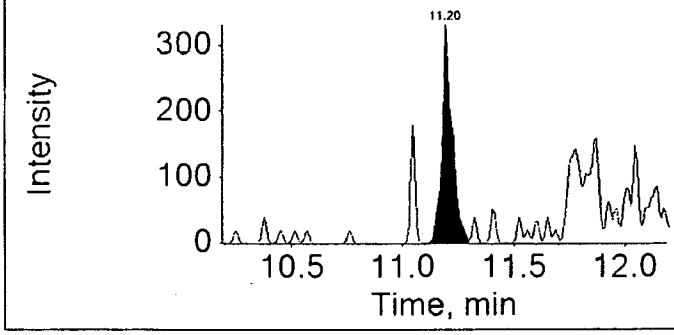
515.0 / 470.0



16JUL14-46.wiff

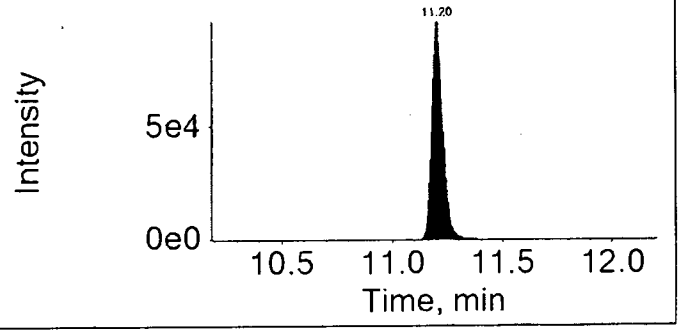
Analyte: PFUndA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



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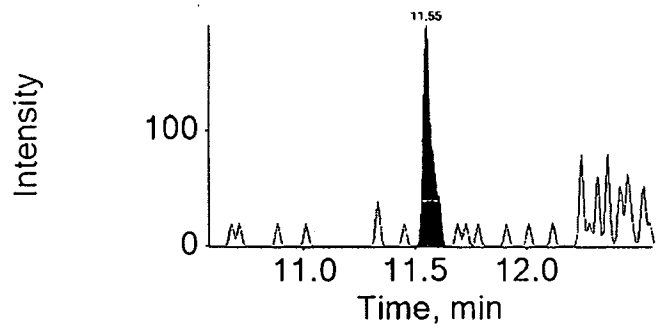
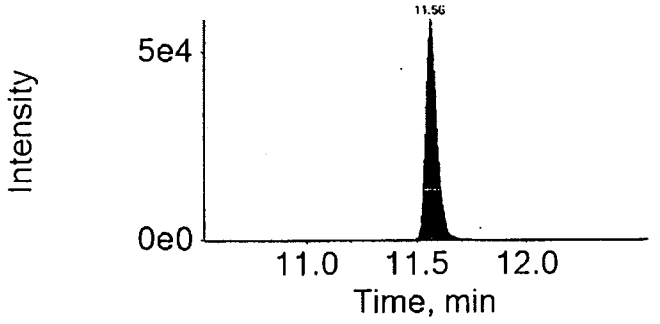
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

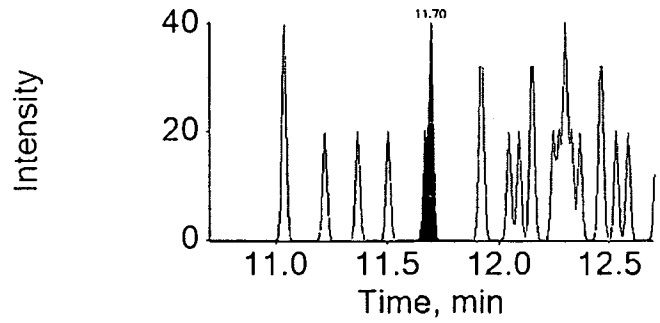
615.0 / 570.0



16JUL14-46.wiff

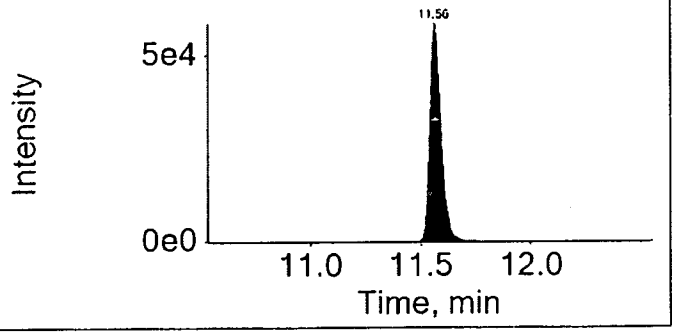
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

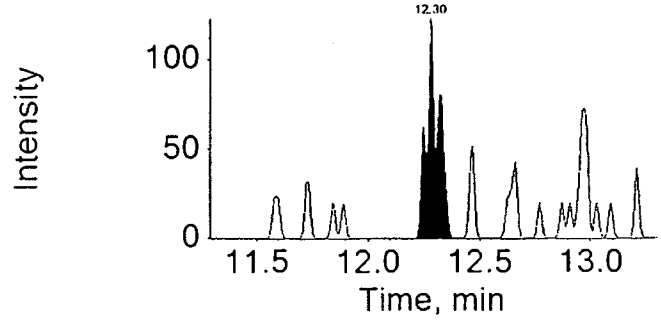
615.0 / 570.0



16JUL14-46.wiff

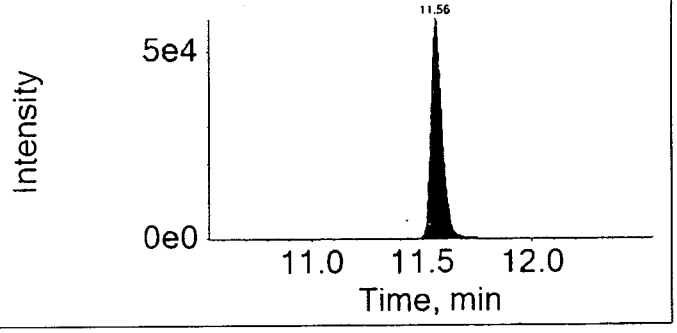
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



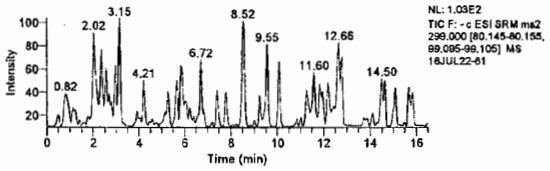
LCMSMS ANALYSIS REPORT

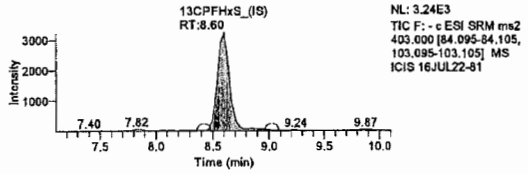
Sample Name:	8427024 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427024 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-81		M\HWell_16.5minutes
Acquisition Date:	07/23/16 07:23:22 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:28	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

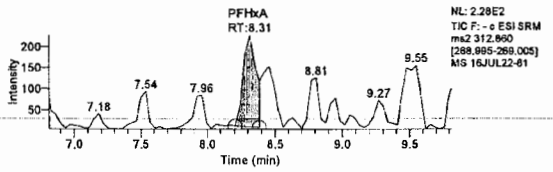
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.18	213325.09	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.89	197694.21	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.61	193930.93	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.96	122747.76	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.60	211576.09	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.38	121550.99	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.60	24760.49	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.14	18543.09	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.18	153693.71	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	0.057	9.64	1042.60	193930.93	0.005	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	0.106	8.31	1376.26	121550.99	0.011	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	0.436	8.89	8618.47	197694.21	0.044	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	0.246	8.60	2923.48	211576.09	0.014	ng/g

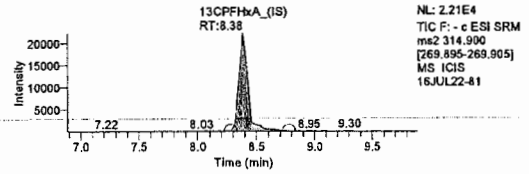
Component Name: PFBS





Component Name: PFHxA



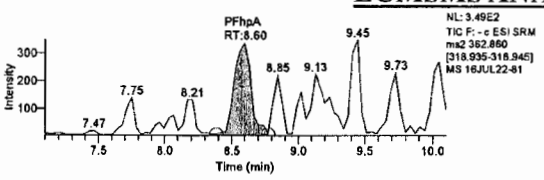


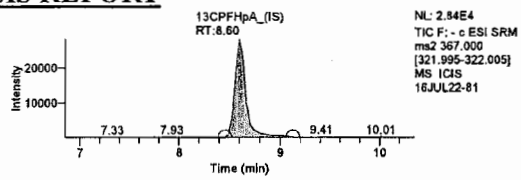
Component Name: PFhpA

Jason W. Knight
Senior Chemist

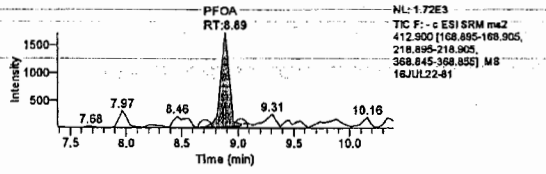
JUL 25 2016

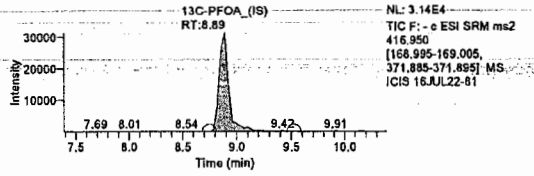
LCMSMS ANALYSIS REPORT



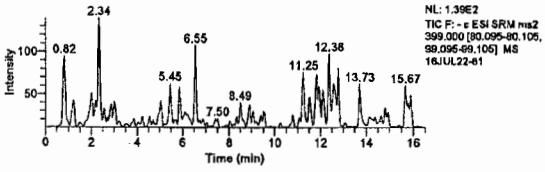


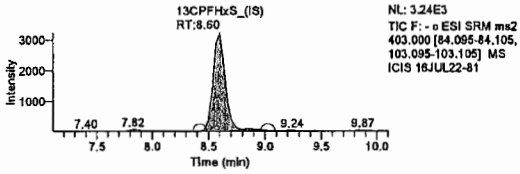
Component Name: PFOA



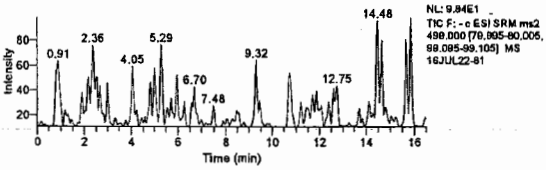


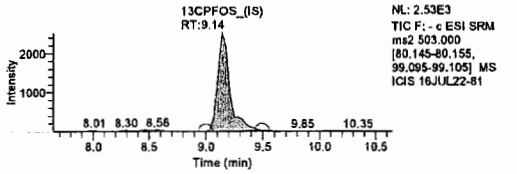
Component Name: PFHxS



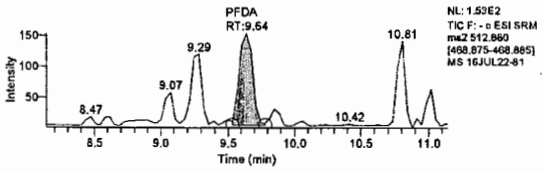


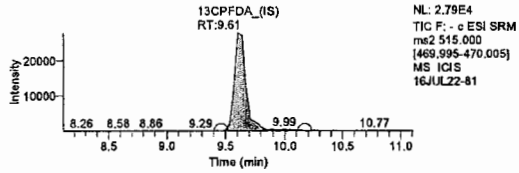
Component Name: PFOS



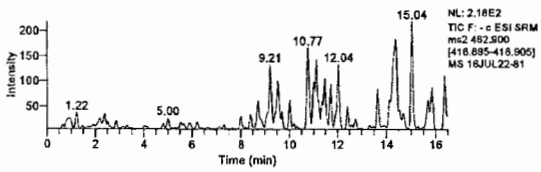


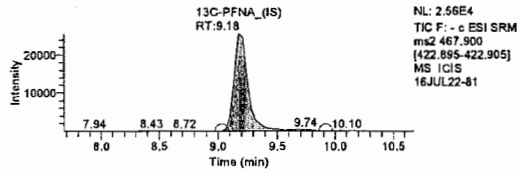
Component Name: PFDA





Component Name: PFNA





Jason W. Knight
Senior Chemist

Component Name: PFUdA

JUL 25 2016

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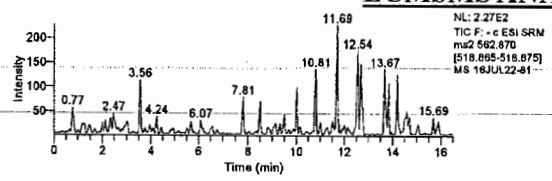
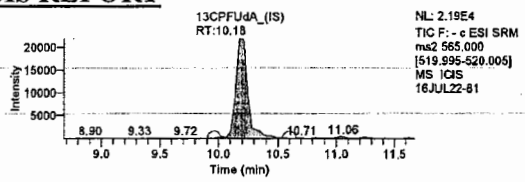
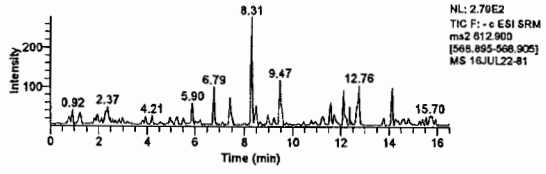
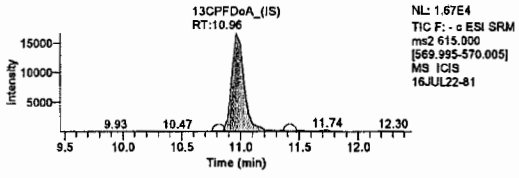


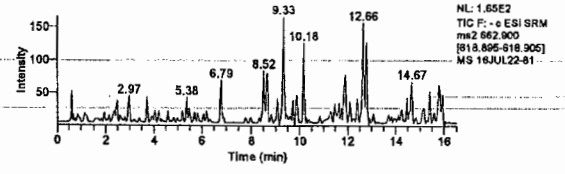


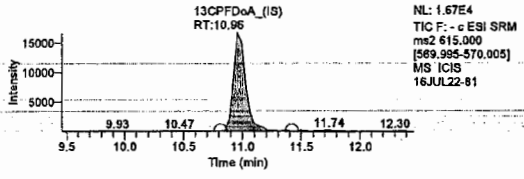
Component Name: PFDoA



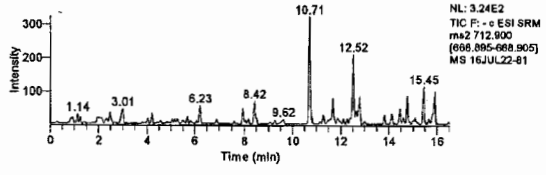


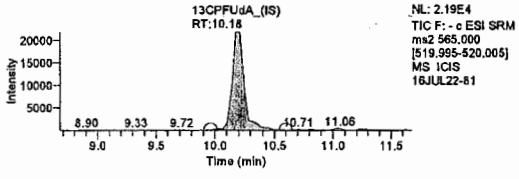
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 26 2016

Jason W. Knight
Senior Chemist

Lynn Dodd
Principal Specialist

JUL 25 2016

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Analysis Report

Sample Description: SG3-MW05-01.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Collected: 06/14/2016 08:46 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

LL Sample # SW 8427025
LL Group # 1672230
Account # 37191

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG354 SDG#: SGP93-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.36	JJ, High LCS	0.24	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.82	U	0.82	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.62	J	0.35	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.71	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 0.5 ng/g. PFOA was detected in the re-extraction of the sample at 5 ng/g.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	97,300		2,860	8,570	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	15.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 23:36	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 17:51	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16173820009A	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW05-01.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8427025
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 08:46 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG354 SDG#: SGP93-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.36**	**J**	0.24	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.83	U	0.83	1.9	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.62**	**J**	0.35	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.71	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 0.5 ng/g. PFOA was detected in the re-extraction of the sample at 5 ng/g.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	**97,300**		2,860	8,570	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**15.0**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 23:36	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 17:51	James S Mathiot	1

*=This limit was used in the evaluation of the final result

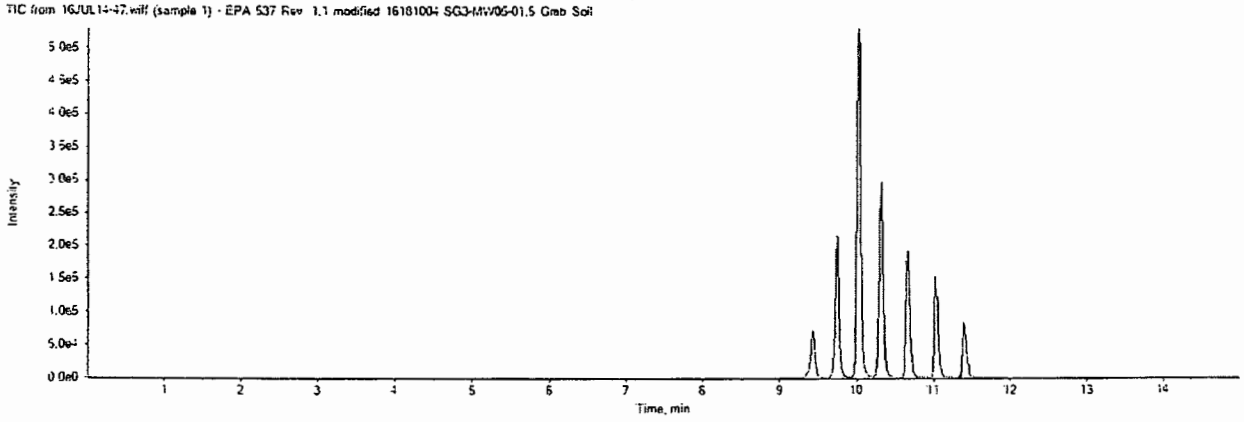
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW05-01.5 Grab Soil	**Data File:**		16JUL14-47.wiff
Sample ID:	8427025	**Acquis Date:**		7/14/2016 11:36:30 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	24	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	4.980	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

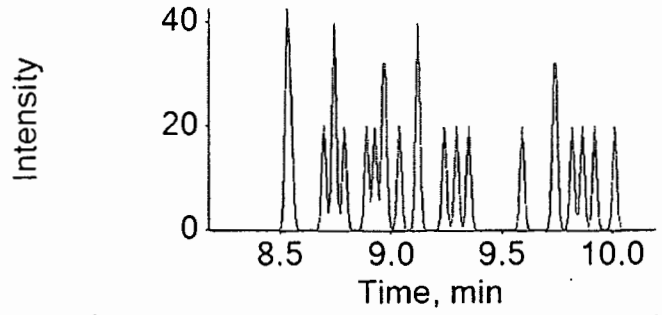
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.74	285339.9	N/A	N/A	
PFHxA	9.43	496.4	13C2-PFHxA	9.43	273688.8	0.002	0.016	
PFHpA	9.76	1135.1	13C4-PFHpA	9.75	445608.0	0.003	0.112	
PFHxS	9.74	798.2	18O2-PFHxS	9.74	285339.9	0.003	0.281	
PFOA	10.03	39342.0	13C4-PFOA	10.03	1790628.2	0.022	0.528	
PFNA	10.32	10536.1	13C5-PFNA	10.32	906276.7	0.012	0.153	
PFOS	10.28	2064.3	13C4-PFOS	10.29	124880.3	0.017	0.581	
PFDA	10.66	16526.7	13C2-PFDA	10.66	683944.9	0.024	0.309	
PFUndA	11.03	3605.2	13C2-PFUnDA	11.03	510298.3	0.007	0.077	
PFDoDA	11.39	1100.9	13C2-PFDoDA	11.39	288850.1	0.004	< 0	
PFTrDA	11.75	385.3	13C2-PFDoDA	11.39	288850.1	0.001	< 0	
PFTeDA	12.12	1241.8	13C2-PFDoDA	11.39	288850.1	0.004	< 0	

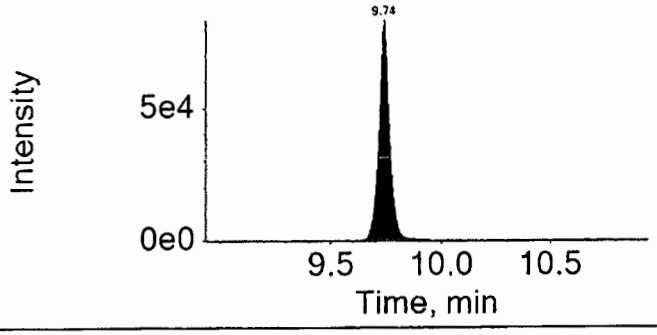
Total Ion Chromatogram

8427025

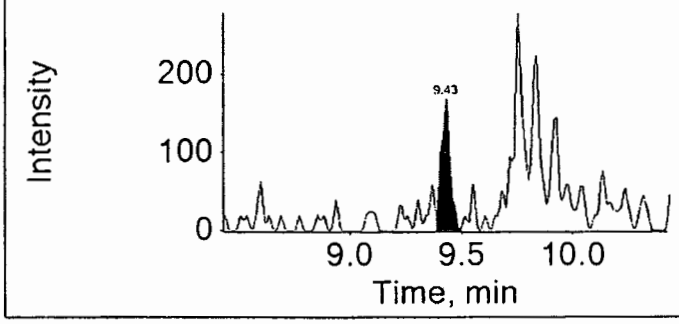


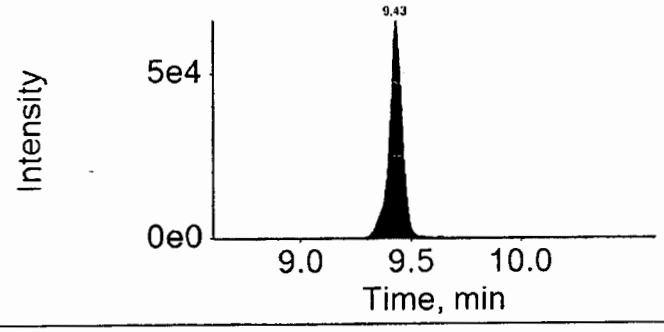
16JUL14-47.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



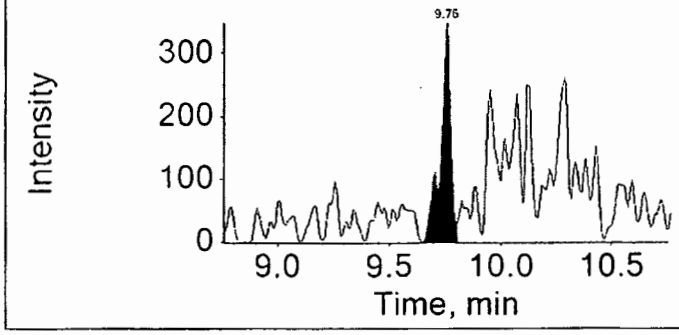


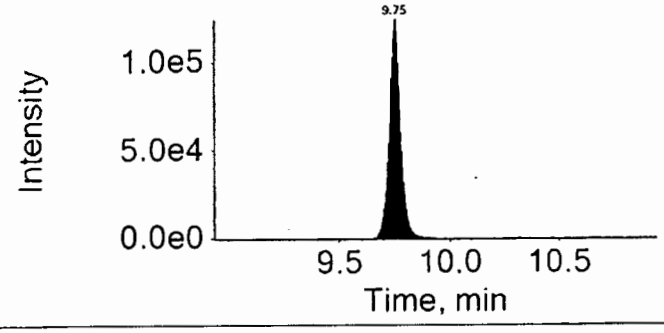
16JUL14-47.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16JUL14-47.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

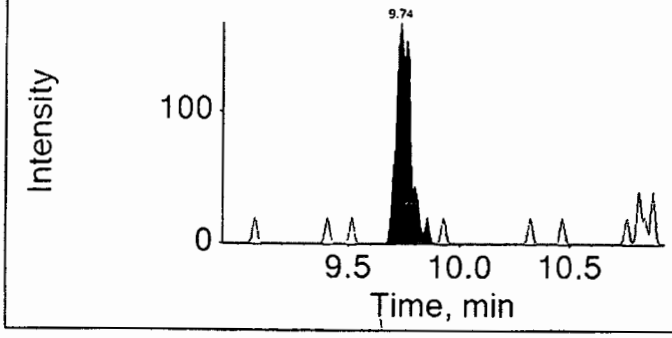




16JUL14-47.wiff

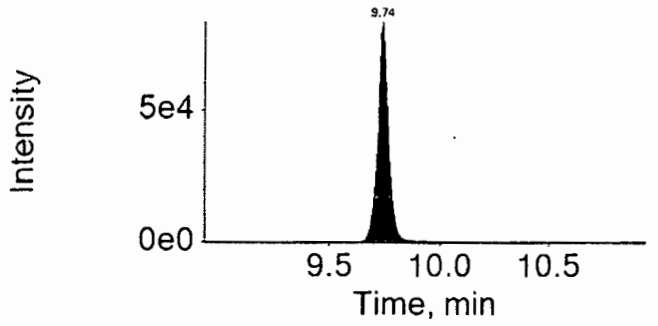
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

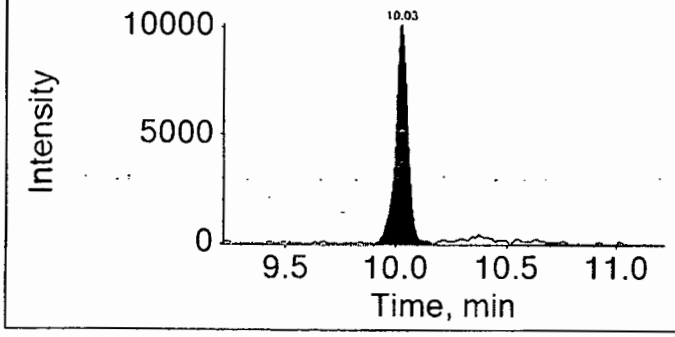
403.0 / 103.0



16JUL14-47.wiff

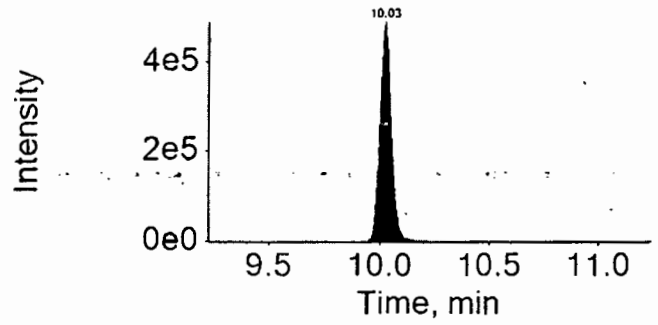
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

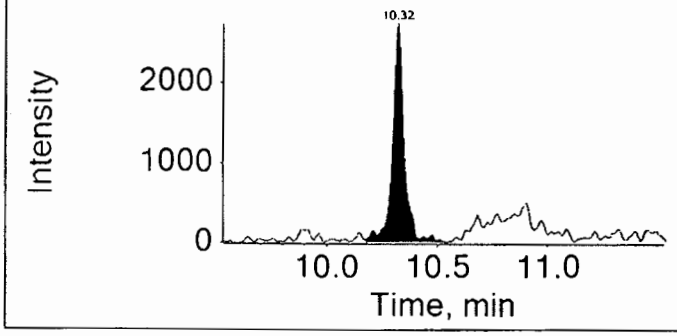
417.0 / 372.0



16JUL14-47.wiff

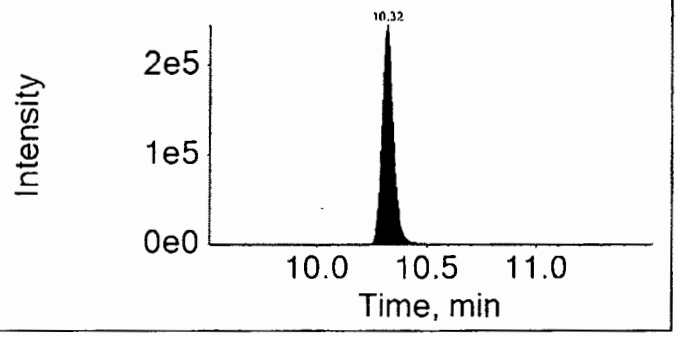
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

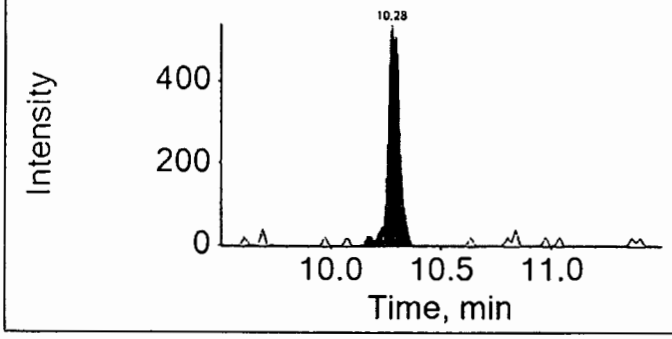
468.0 / 423.0



16JUL14-47.wiff

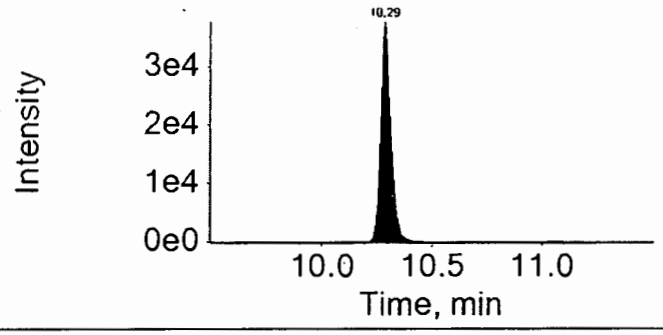
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

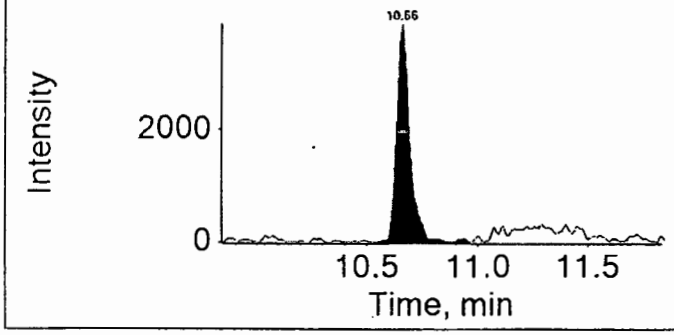
503.0 / 99.0



16JUL14-47.wiff

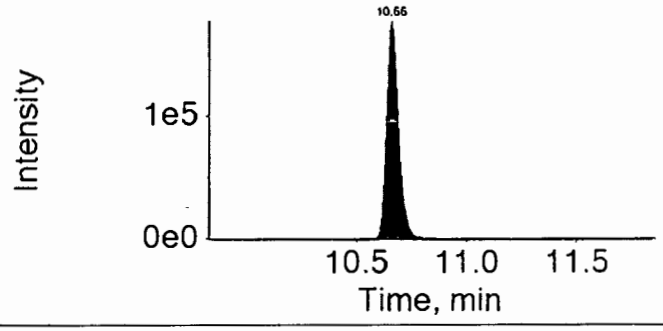
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

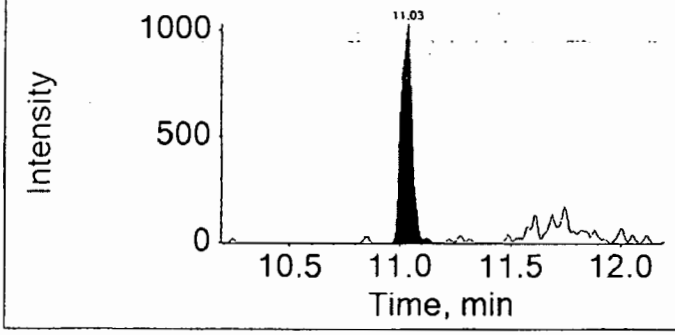
515.0 / 470.0



16JUL14-47.wiff

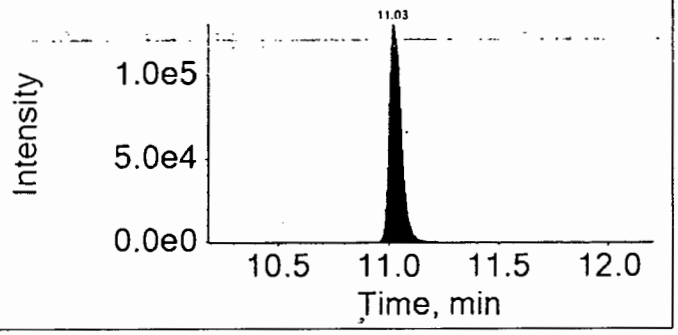
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

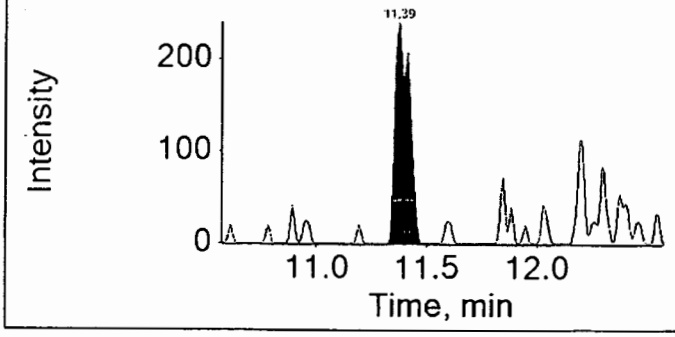
565.0 / 520.0



16JUL14-47.wiff

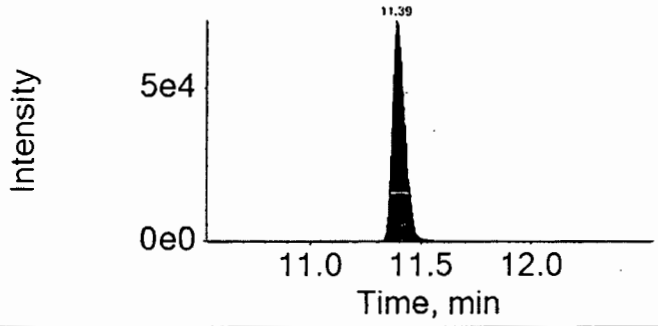
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

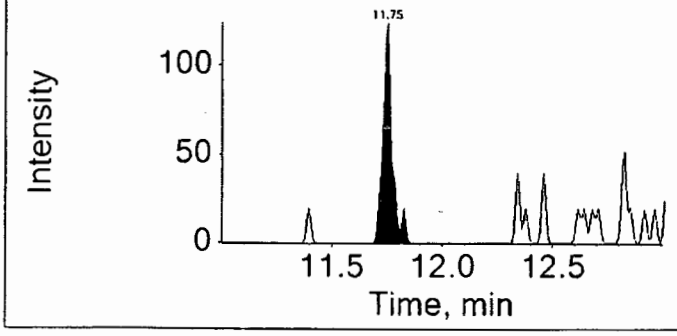
615.0 / 570.0



16JUL14-47.wiff

Analyte: PFTrDA

662.9 / 618.9



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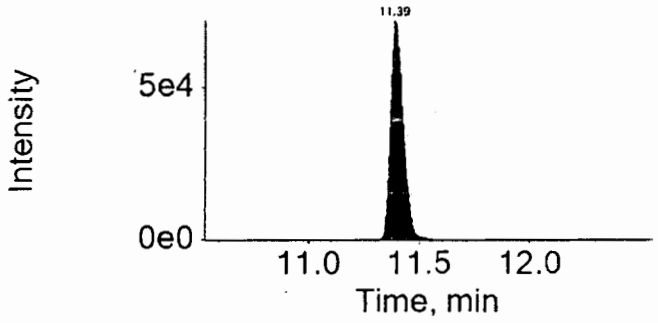
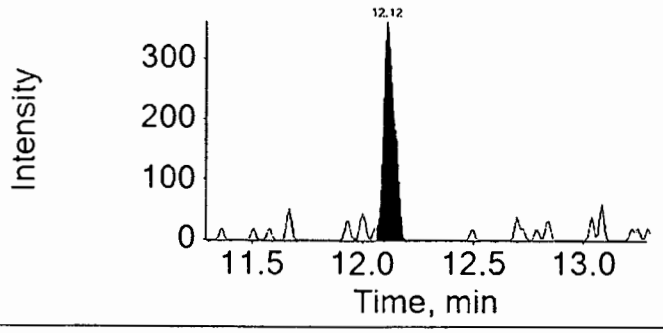
615.0 / 570.0



16JUL14-47.wiff

Analyte: PFTeDA

712.9 / 668.9



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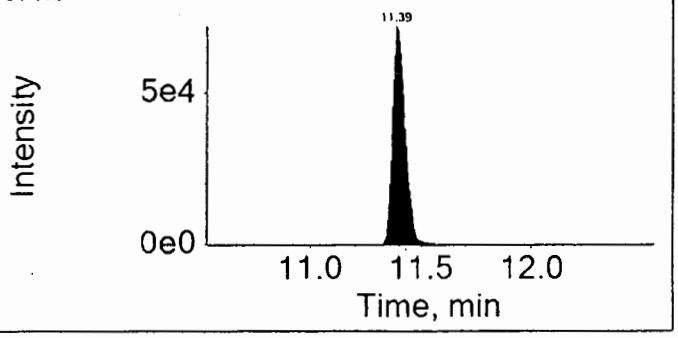
615.0 / 570.0



LCMSMS ANALYSIS REPORT

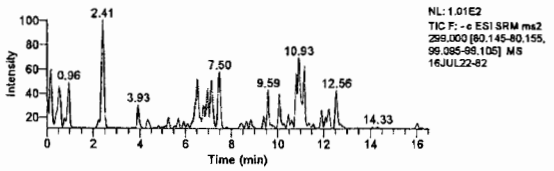
Sample Name:	8427025 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427025 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-82		M\HWell_16.5minutes
Acquisition Date:	07/23/16 07:40:36 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:29	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

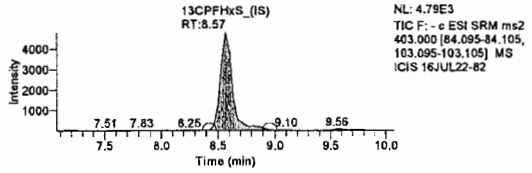
Extracted Ion Chromatogram

Quan Peak Table

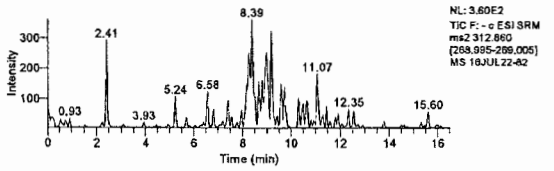
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.21	271288.96	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.89	231025.29	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.68	224427.49	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.03	185358.38	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.57	234452.72	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.28	112256.02	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.57	35029.62	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.18	18558.52	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.28	194375.88	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.160	9.21	1900.99	271288.96	0.007	ng/g
PFOA	4.656	8.89	109775.65	231025.29	0.475	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

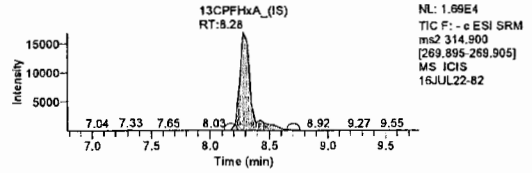
Component Name: PFBS





Component Name: PFHxA





Component Name: PFOA

Jason W. Knight
Senior Chemist

JUL 25 2016

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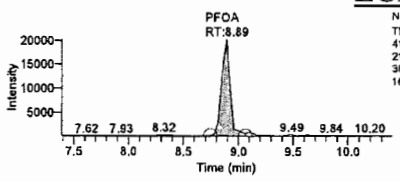
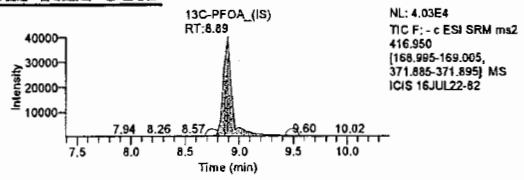
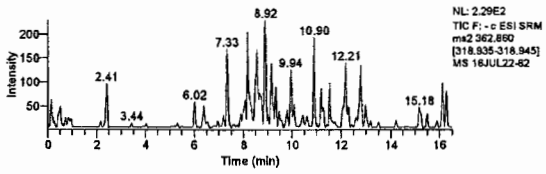
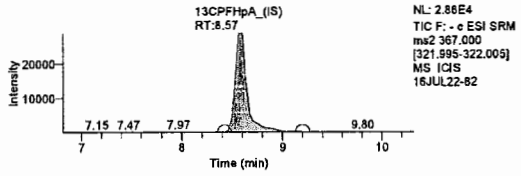


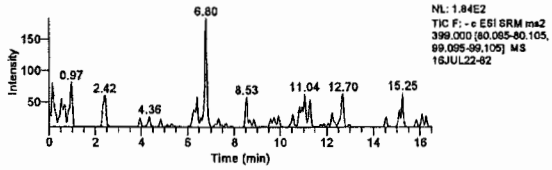


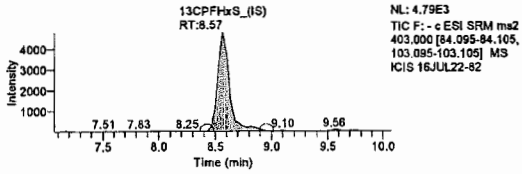
Component Name: PFhpA



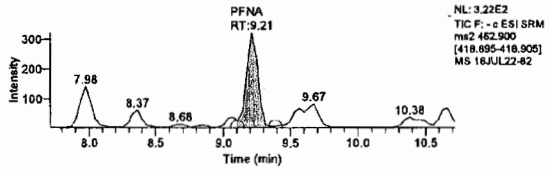


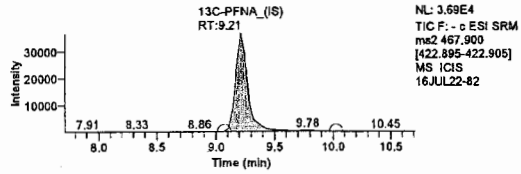
Component Name: PFHxS



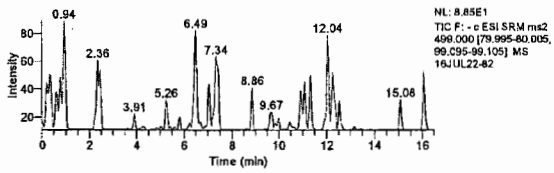


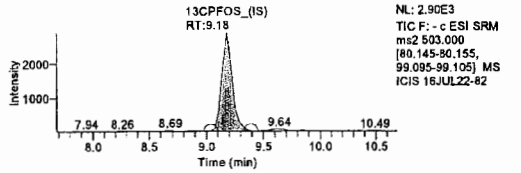
Component Name: PFNA



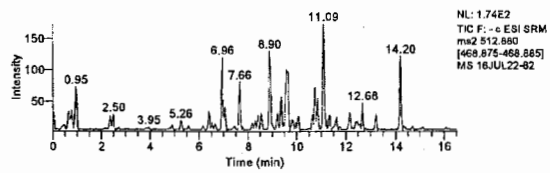


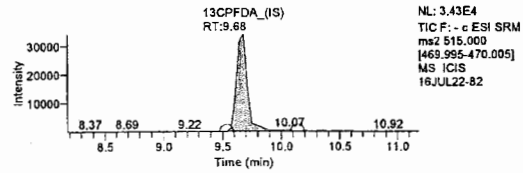
Component Name: PFOS





Component Name: PFDA





Component Name: PFUdA

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JUL 25 2016

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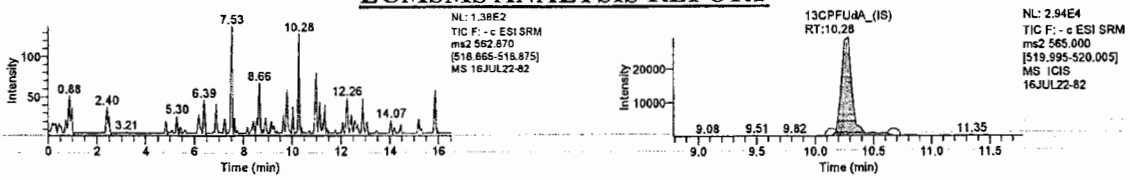
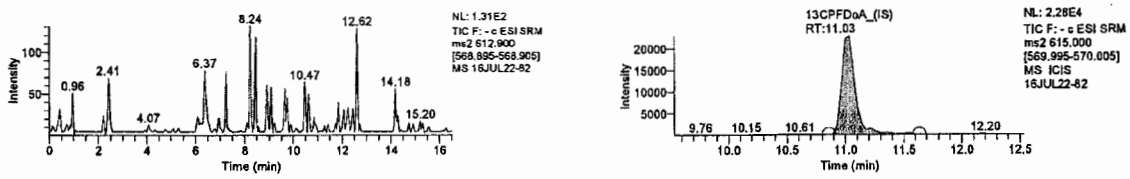
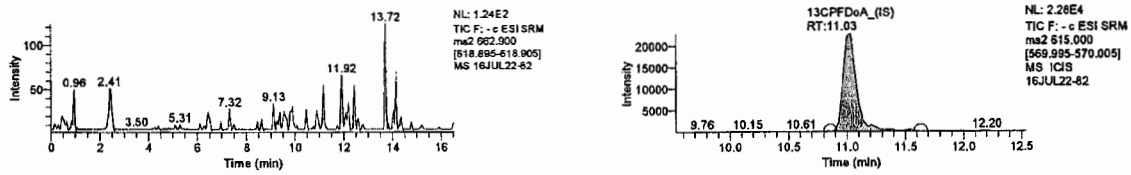


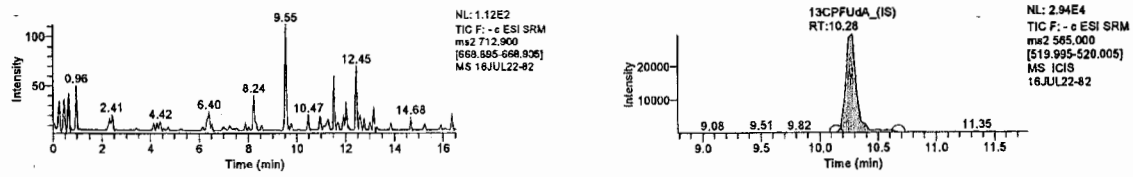
Component Name: PFDoA



Component Name: PFTrDA



Component Name: PFTeDA



Lynn Dodd

JUL 26 2016

Jason W. Knight
Senior Chemist

Lynn Dodd
Principal Specialist

JUL 25 2016

Sample Description: SG3-MW05-03.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427026
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 09:03 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

SG355 SDG#: SGP93-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.64	U	0.64	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.51	U	0.51	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.64	U	0.64	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.89	U	0.89	2.0	1
14027	Perfluorooctanoic acid	335-67-1	0.38	U	0.38	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.76	U	0.76	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.76	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 0.3 ng/g. PFOA was detected in the re-extraction of the sample at 4 ng/g.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	15,500		879	2,640	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 23:55	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 13:14	Nicole M Veety	1
00111	Moisture	SM 2540 G-1997	1	16173820009B	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW05-03.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427026
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 09:03 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG355 SDG#: SGP93-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.97	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.85	U	0.85	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.36	U	0.36	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	0.73	U	0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.73	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 0.3 ng/g. PFOA was detected in the re-extraction of the sample at 4 ng/g.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**15,500**		879	2,640	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**21.4**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 23:55	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 13:14	Nicole M Veety	1
00111	Moisture	SM 2540 G-1997	1	16173820009B	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

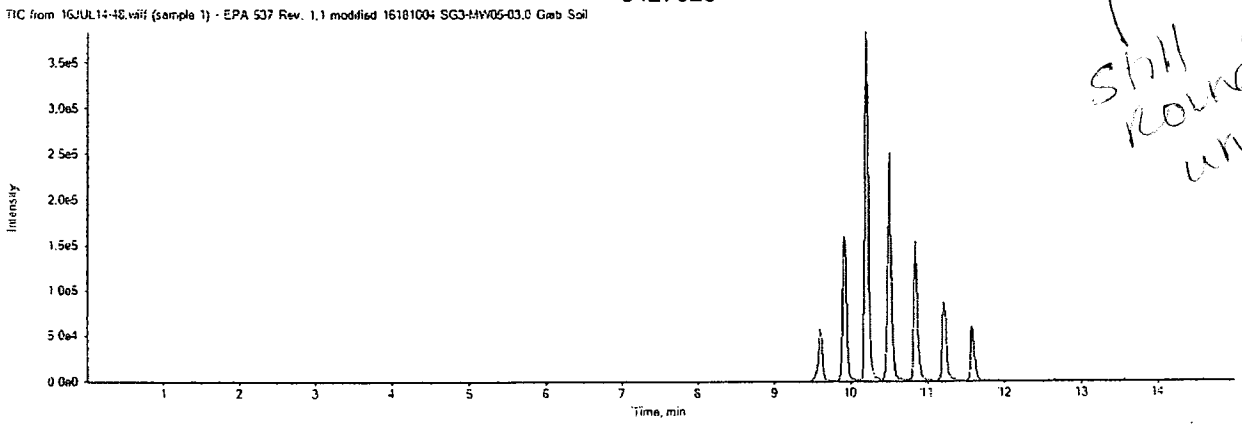
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW05-03.0 Grab Soil	**Data File:**		16JUL14-48.wiff
Sample ID:	8427026	**Acquis Date:**		7/14/2016 11:55:58 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	25	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	5.230	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.91	216313.9	N/A	N/A	
PFHxA	9.62	194.8	13C2-PFHxA	9.60	210765.6	0.001	< 0	
PFHpA	9.93	815.1	13C4-PFHpA	9.93	355918.1	0.002	0.102	
PFHxS	9.91	717.2	18O2-PFHxS	9.91	216313.9	0.003	0.274	
PFOA	10.21	14476.4	13C4-PFOA	10.21	1213500.4	0.012	0.265	
PFNA	10.50	5172.7	13C5-PFNA	10.50	682493.7	0.008	0.116	
PFOS	10.48	743.1	13C4-PFOS	10.47	104370.6	0.007	0.468	
PFDA	10.84	7115.3	13C2-PFDA	10.84	497745.0	0.014	0.191	
PFUndA	11.20	798.2	13C2-PFUnDA	11.21	315123.6	0.003	0.000	
PFDoDA	11.56	166.6	13C2-PFDoDA	11.57	199576.2	0.001	< 0	
PFTrDA	11.93	82.6	13C2-PFDoDA	11.57	199576.2	0.000	< 0	
PFTeDA	12.29	330.9	13C2-PFDoDA	11.57	199576.2	0.002	< 0	

Total Ion Chromatogram

8427026

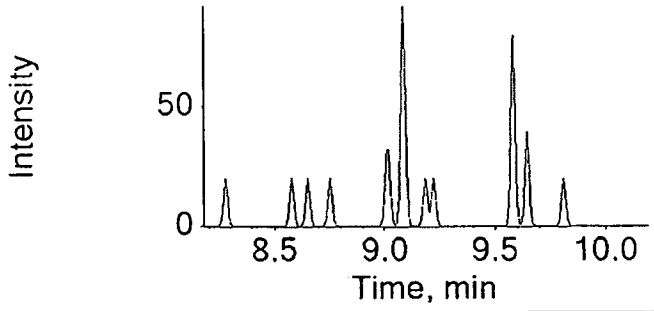


still round under 5%

16JUL14-48.wiff

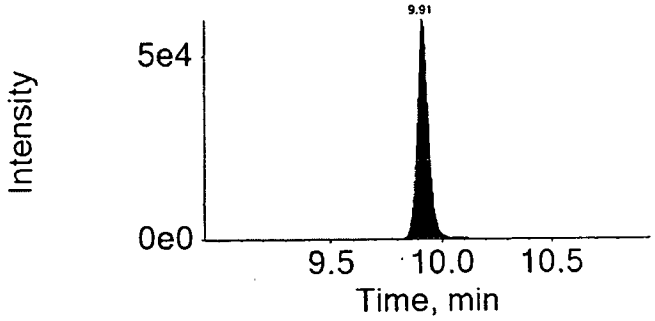
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

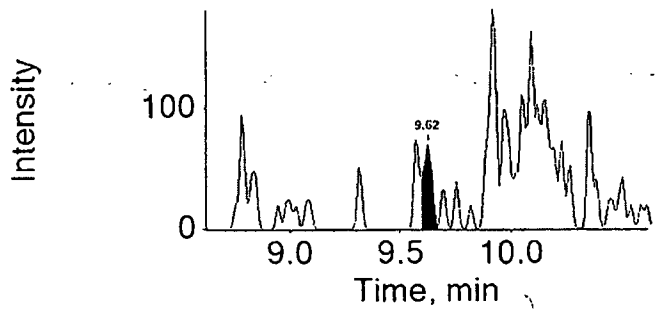
403.0 / 103.0



16JUL14-48.wiff

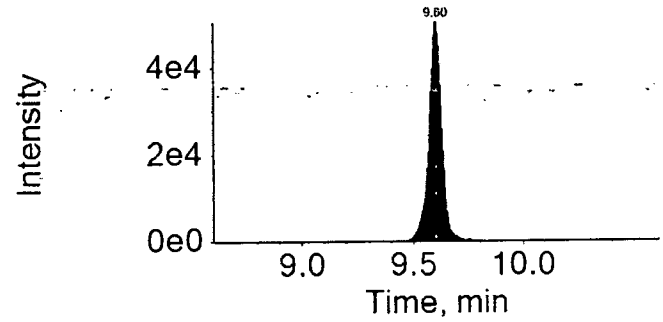
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

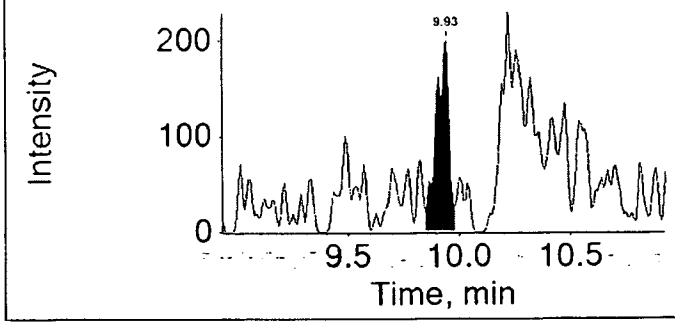
314.9 / 270.0



16JUL14-48.wiff

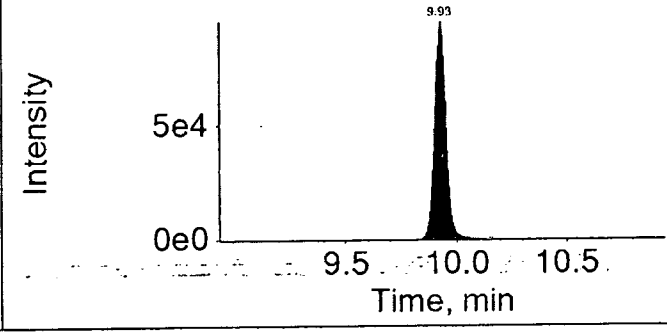
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

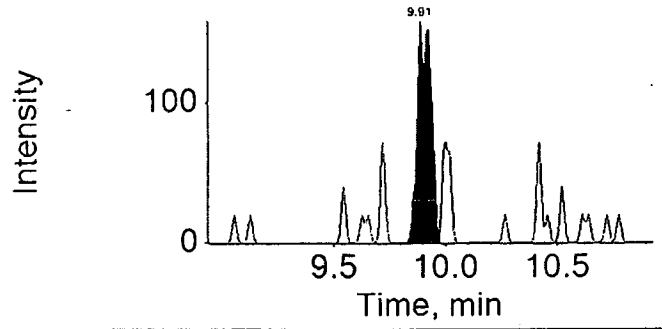
367.0 / 322.0



16JUL14-48.wiff

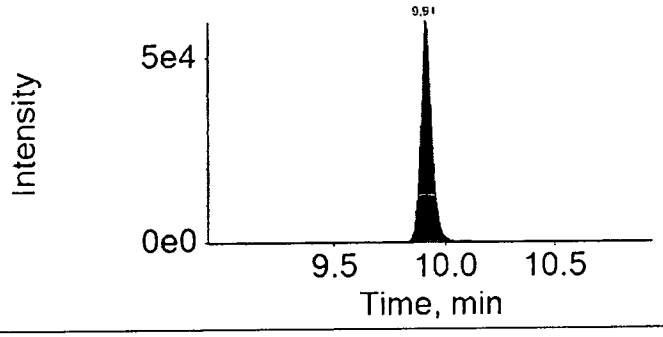
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

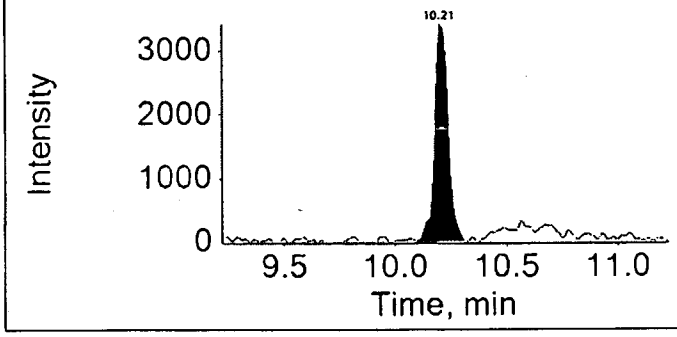
403.0 / 103.0



16JUL14-48.wiff

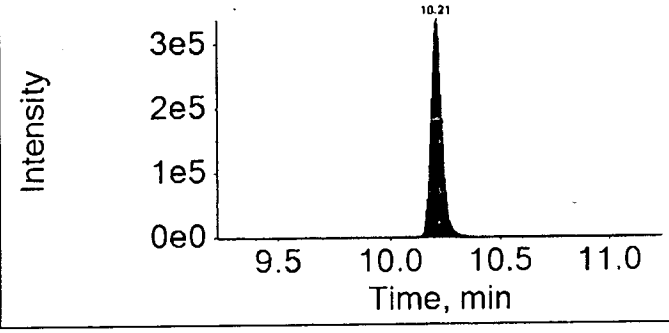
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

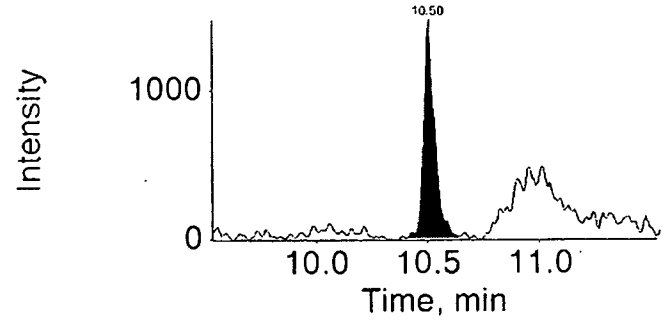
417.0 / 372.0



16JUL14-48.wiff

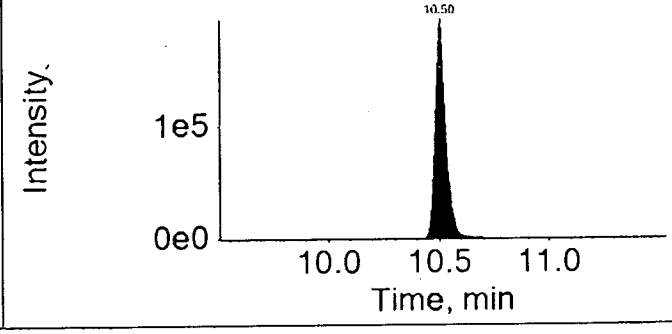
Analyte: PFNA

462.9 / 418.9

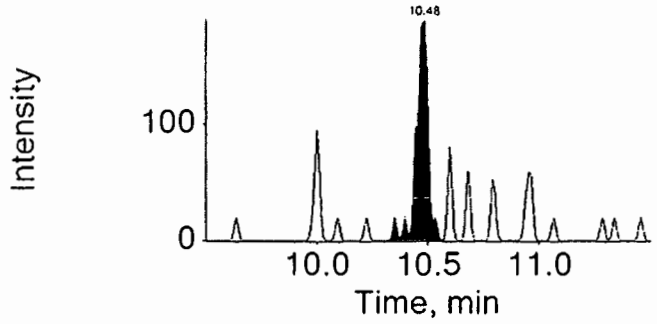


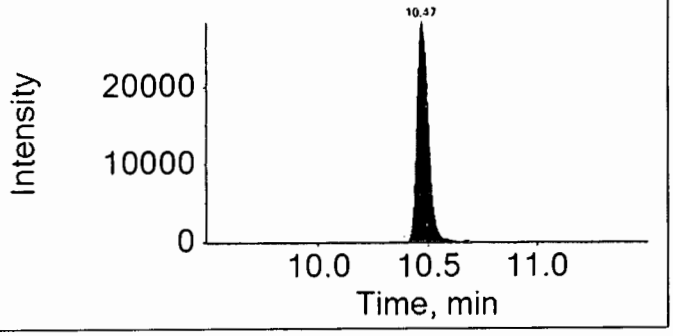
Internal Standard: 13C5-PFNA

468.0 / 423.0

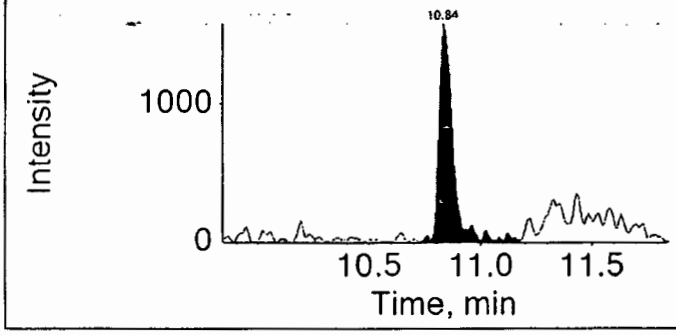


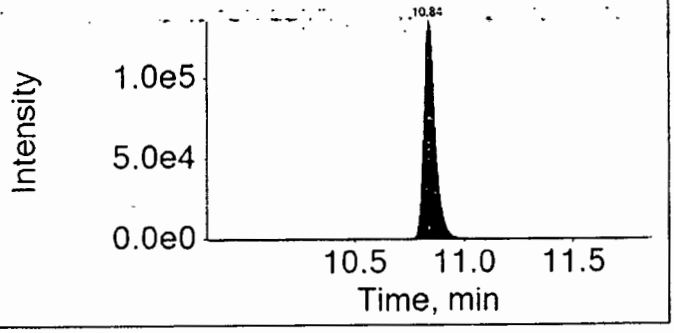
16JUL14-48.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



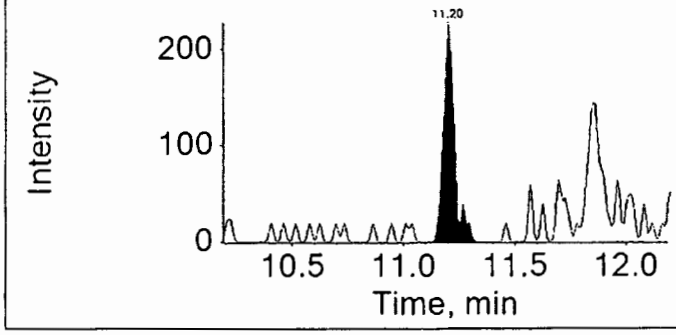


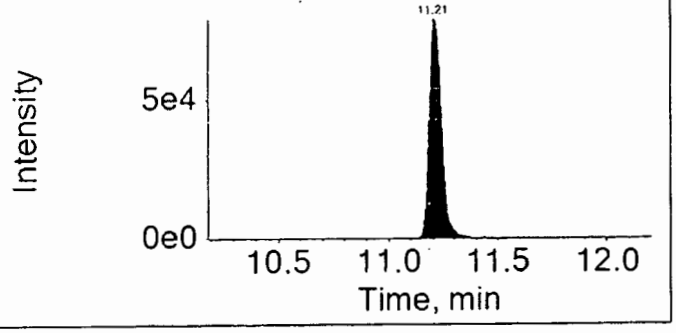
16JUL14-48.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16JUL14-48.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0





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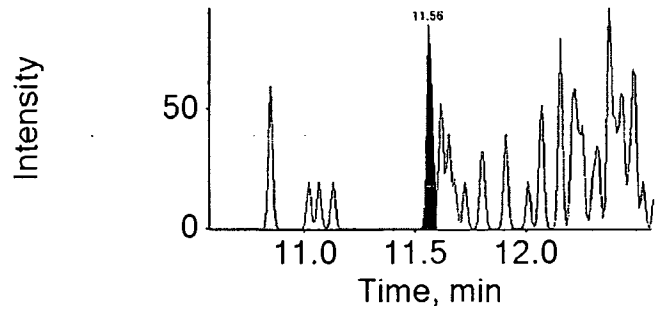
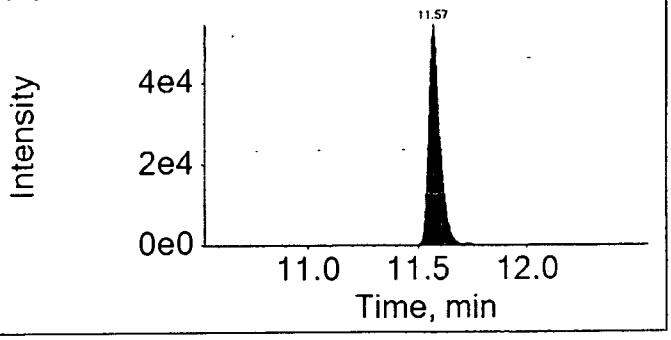
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

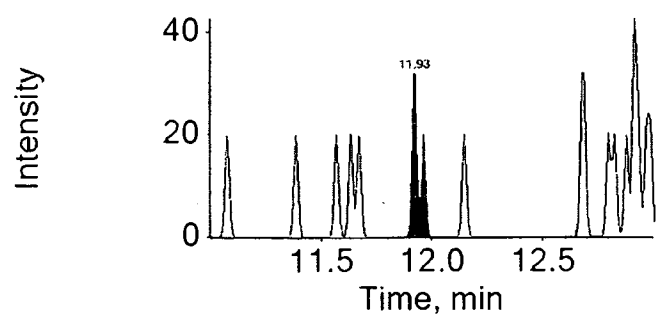
615.0 / 570.0



16JUL14-48.wiff

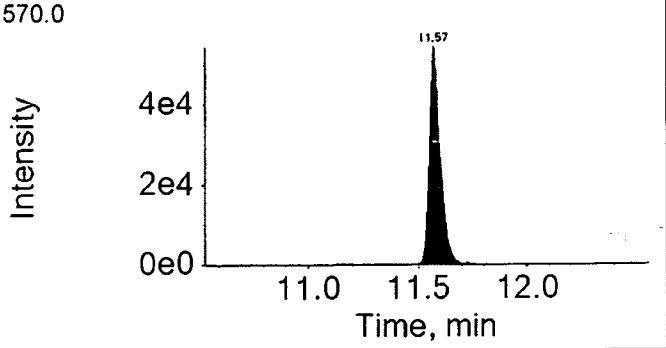
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

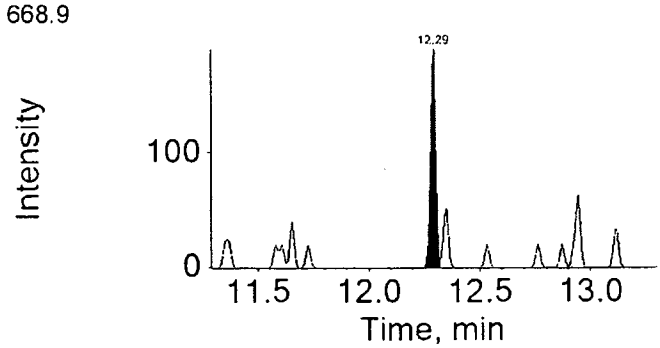
615.0 / 570.0



16JUL14-48.wiff

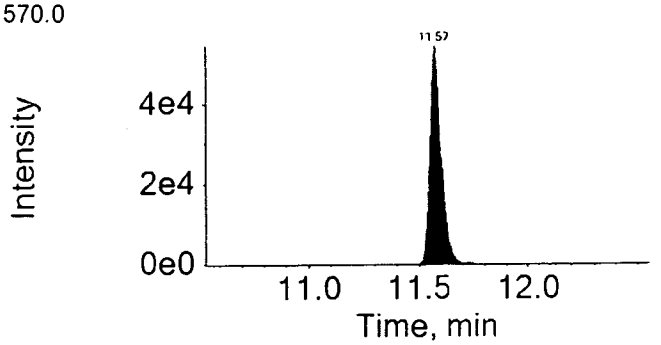
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



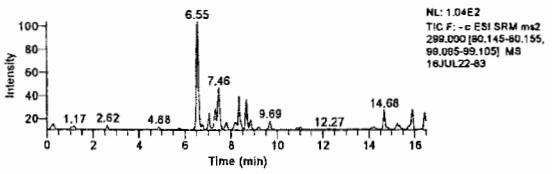
LCMSMS ANALYSIS REPORT

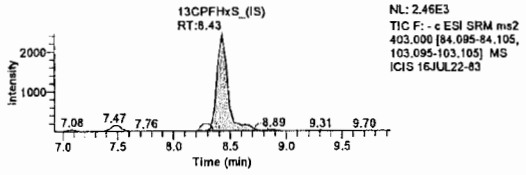
Sample Name:	8427026 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427026 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-83		M\HWell_16.5minutes
Acquisition Date:	07/23/16 07:57:51 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:30	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	8.86	183420.71	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.64	115521.07	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.04	130982.85	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	9.55	94383.77	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.42	159358.49	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.17	73461.83	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.43	16613.55	N/A	N/A	N/A
13CPFOS_(IS)	N/A	8.83	9489.38	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	9.26	114394.56	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	4.105	8.64	48380.36	115521.07	0.419	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

Component Name: PFBS





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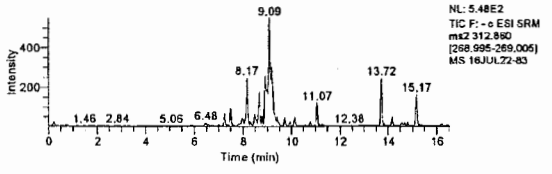

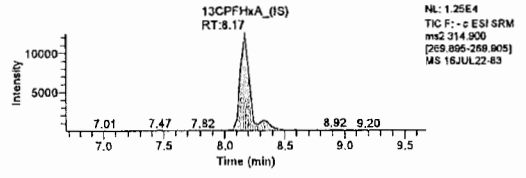

Component Name: PFOA

Jason W. Knight
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JUL 25 2016

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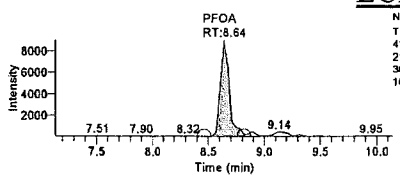

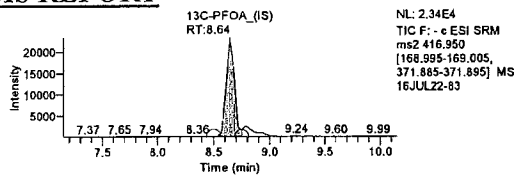

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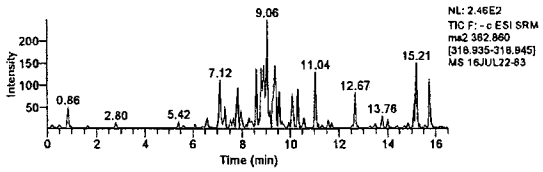

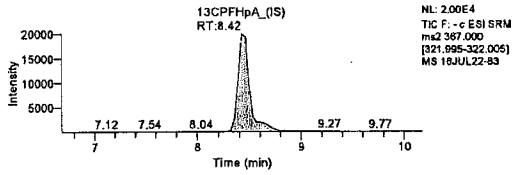

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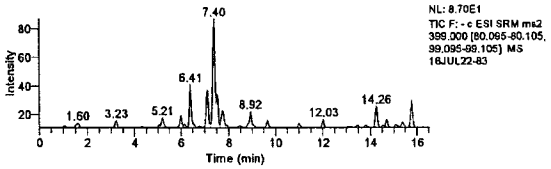

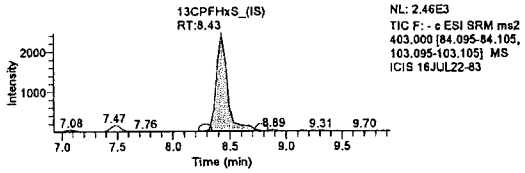

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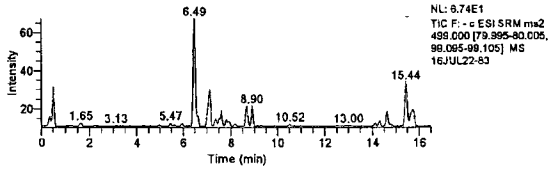

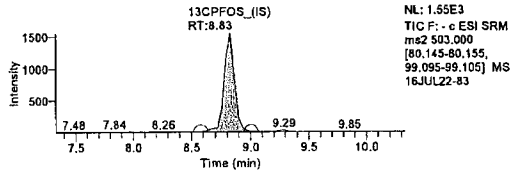

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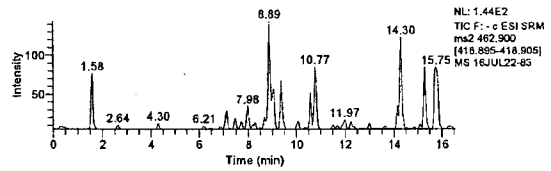

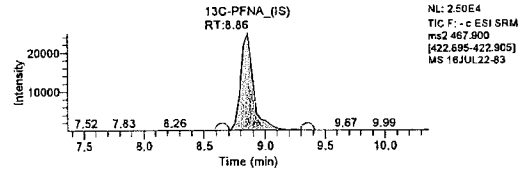

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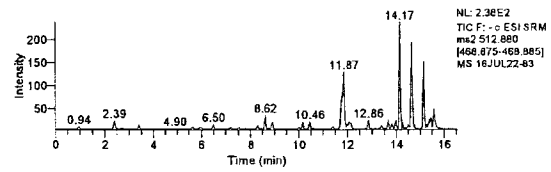

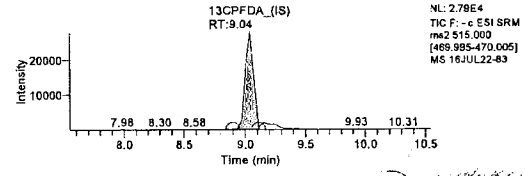

Jason W. Knight
Senior Chemist

Component Name: PFUdA

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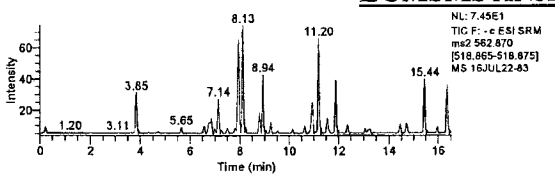

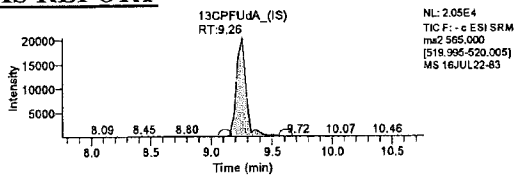

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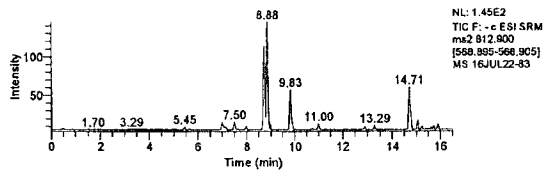

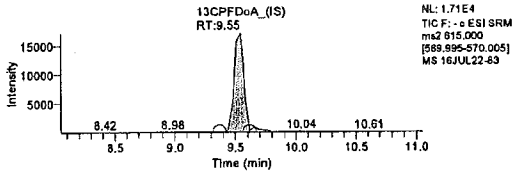

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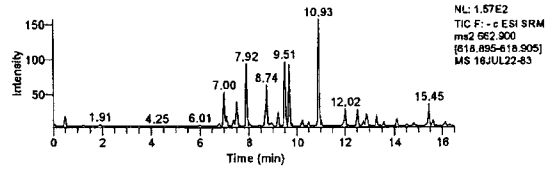
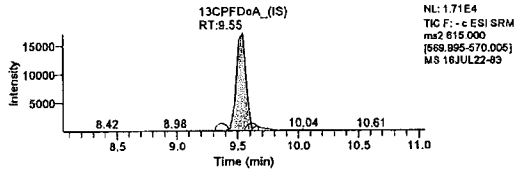
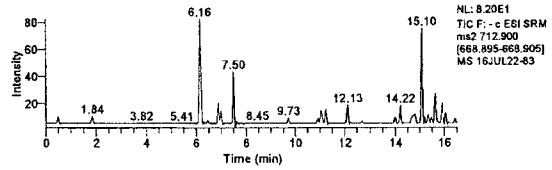
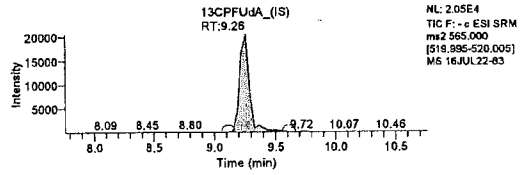




Component Name: PFTeDA





Jason W. Knight
Senior Chemist

JUL 25 2016

JUL 26 2016

Lynn Dodd
Principal Specialist

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Analysis Report

Sample Description: SG3-RB01-20160614 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8427027
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 10:00 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3R1 SDG#: SGP93-14RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	UJ, Low MS	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	UJ, Low MS	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	UJ, Low MS	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 01:58	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

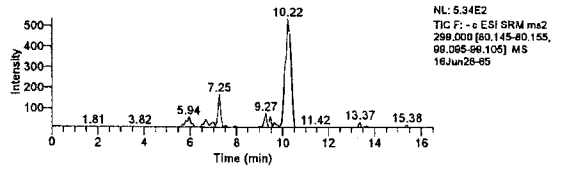
LCMSMS ANALYSIS REPORT

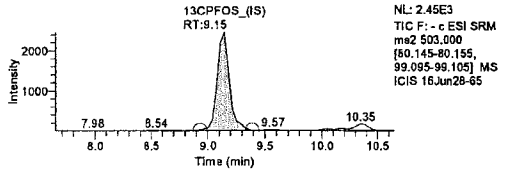
Sample Name:	8427027	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8427027	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-65		
Acquisition Date:	06/29/16 01:58:19 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:5	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.18	221678.92	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.89	118465.71	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.61	137324.82	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.10	98835.85	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	170661.27	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.53	80650.63	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.67	25058.94	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.15	18341.72	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.21	120187.84	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	0.791	9.18	1170.97	221678.92	0.005	ng/L
PFOA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

Component Name: PFBS





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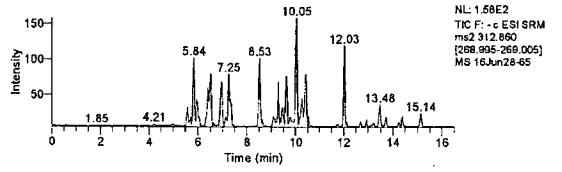

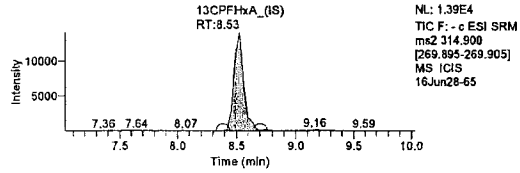

Component Name: PFHxS

Michele J. Smith

JUN 30 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

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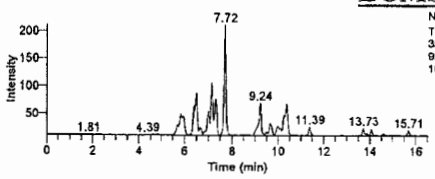

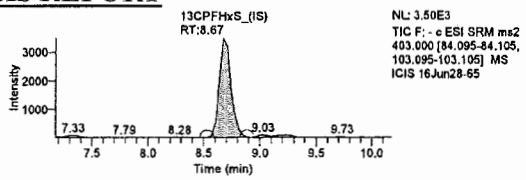

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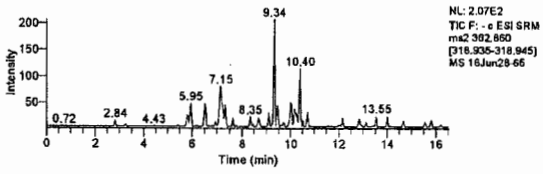

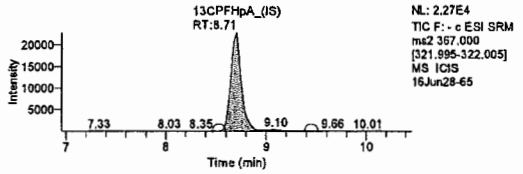

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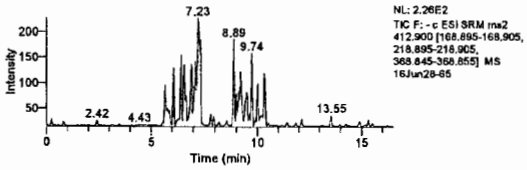

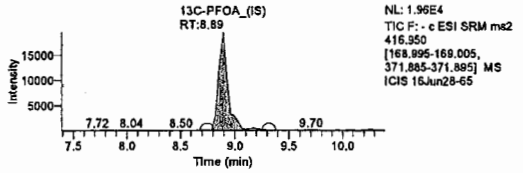

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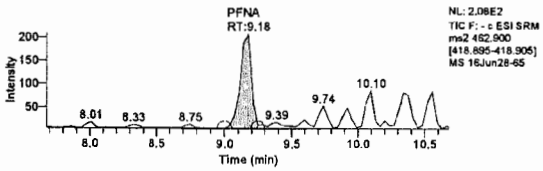

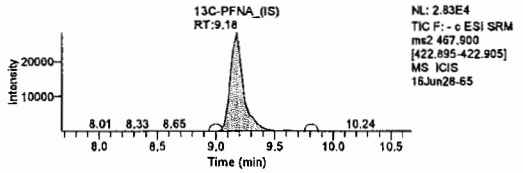

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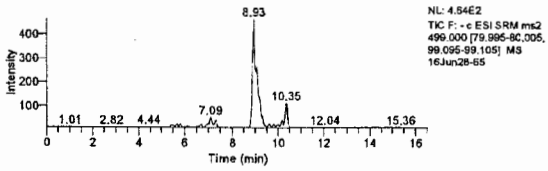

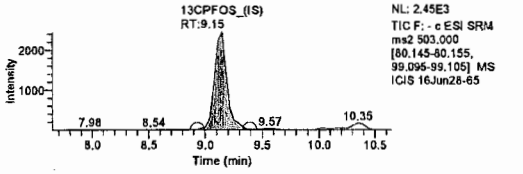

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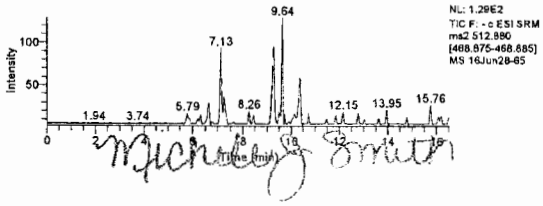

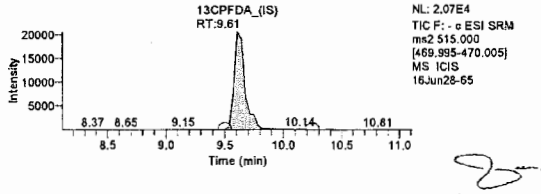

Jason W. Knight
Senior Chemist

JUN 30 2016

Component Name: PFUdA

JUN 29 2016

Michele J. Smith
Senior Specialist

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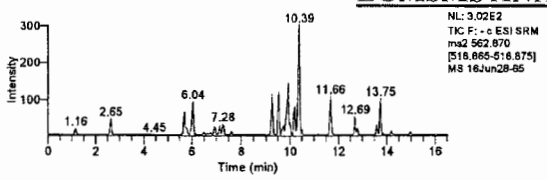

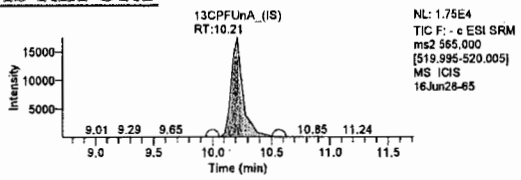

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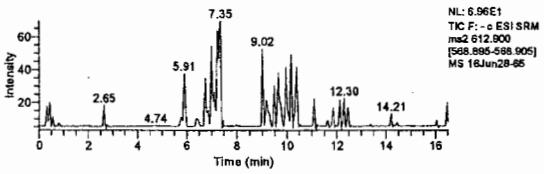

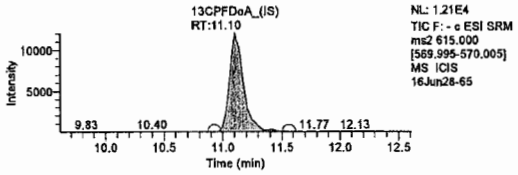

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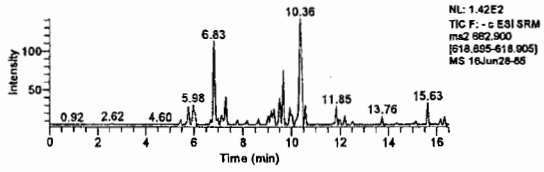
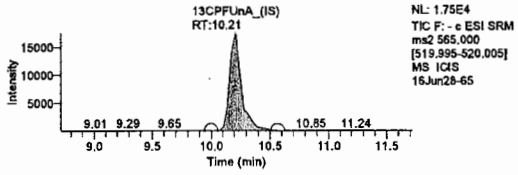
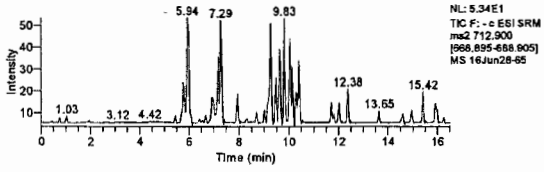
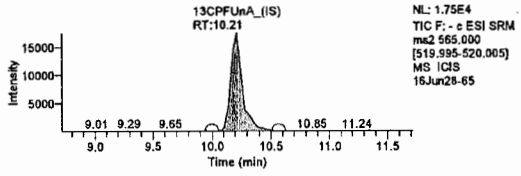




Component Name: PFTeDA





Michele J Smith

JUN 30 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SG3-RB02-20160614 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8427028
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 10:05 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3R2 SDG#: SGP93-15RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	10		1	2	1
10954	Perfluorononanoic acid	375-95-1	8		1	2	1
10954	Perfluorodecanoic acid	335-76-2	4		1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	3	J	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	JJ, Low MS	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	JJ, Low MS	3	5	1
10954	Perfluorohexanoic acid	307-24-4	30		1	2	1
10954	Perfluoroheptanoic acid	375-85-9	11		1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	UJ, Low MS	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 02:15	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

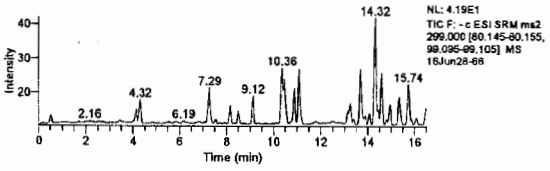
LCMSMS ANALYSIS REPORT

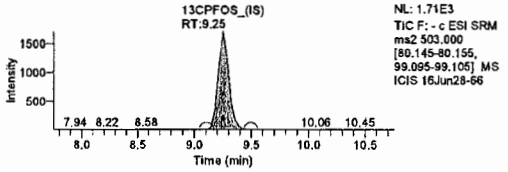
Sample Name:	8427028	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8427028	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-66		
Acquisition Date:	06/29/16 02:15:33 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:6	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

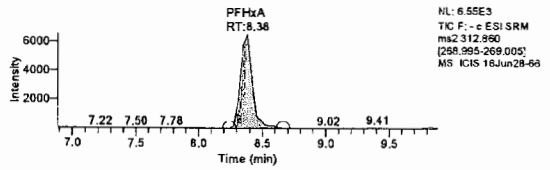
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.28	204673.26	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.96	137314.18	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.71	134820.52	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.28	105016.04	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	164378.45	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.38	47895.56	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.67	22490.56	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.25	10987.23	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.35	121122.42	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	3.809	9.75	11860.85	134820.52	0.088	ng/L
PFDoA	2.572	11.28	3457.78	105016.04	0.033	ng/L
PFHxA	30.414	8.38	41004.20	47895.56	0.856	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	7.656	9.28	24490.56	204673.26	0.120	ng/L
PFOA	9.917	8.96	33912.81	137314.18	0.247	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	3.019	14.07	2139.94	121122.42	0.018	ng/L
PFTrDA	2.473	12.45	1693.42	121122.42	0.014	ng/L
PFUdA	3.366	10.35	7185.65	121122.42	0.059	ng/L
PFhpA	10.920	8.70	43779.10	164378.45	0.266	ng/L

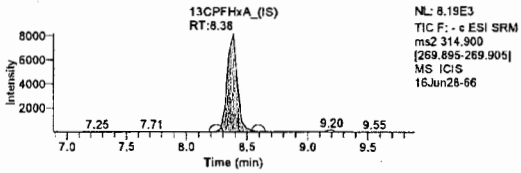
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHpA

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JUN 30 2016
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Senior Chemist
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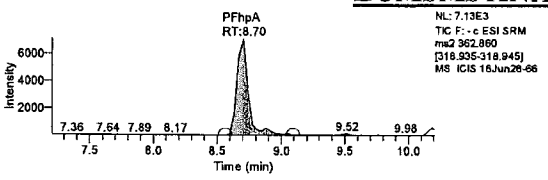
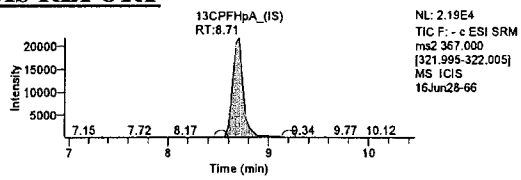
LCMSMS ANALYSIS REPORT





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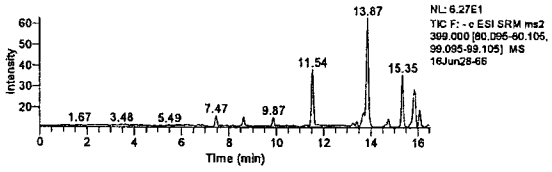

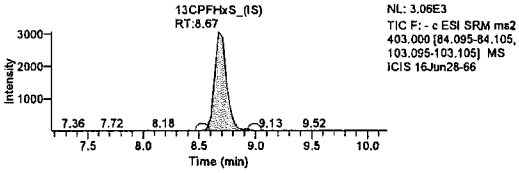

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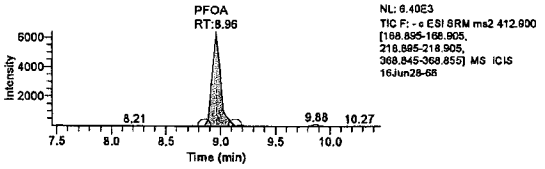
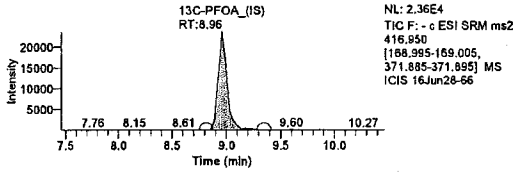
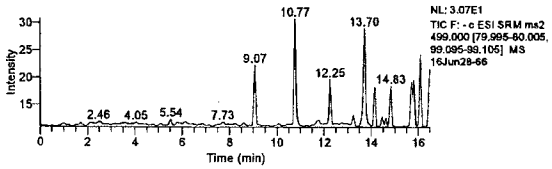
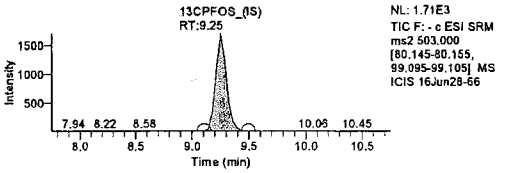




Component Name: PFOS





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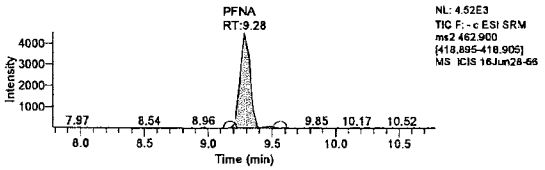
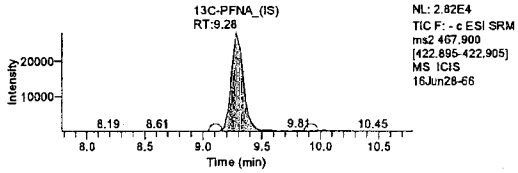
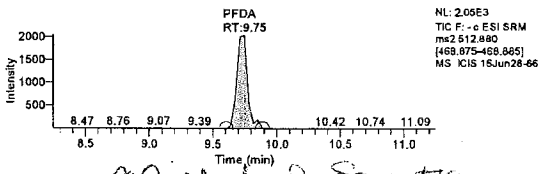
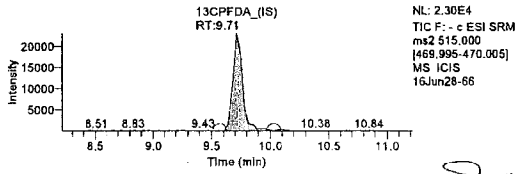




Component Name: PFDA





Michele J Smith

JUN 3 0 2016

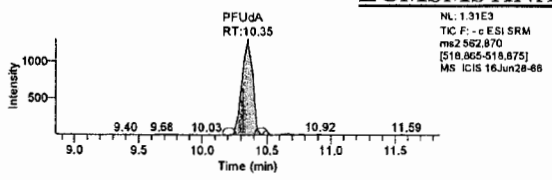
Michele J. Smith
Senior Specialist

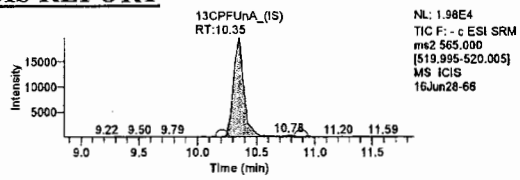
Jason W. Knight
Senior Chemist

JUN 29 2016

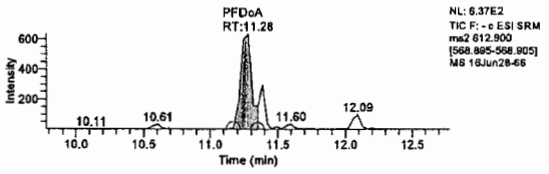
Component Name: PFUdA

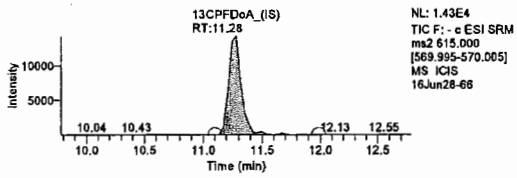
LCMSMS ANALYSIS REPORT



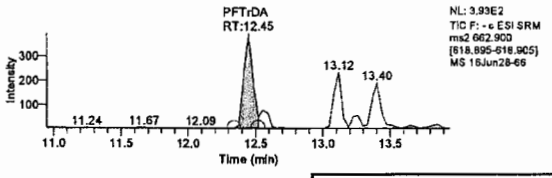


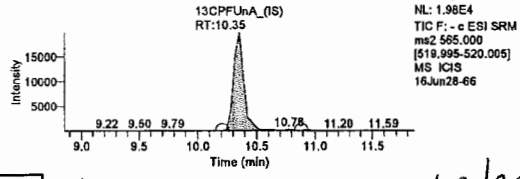
Component Name: PFDoA





Component Name: PFTrDA

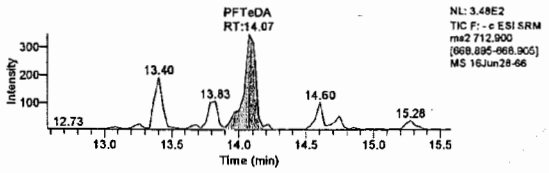


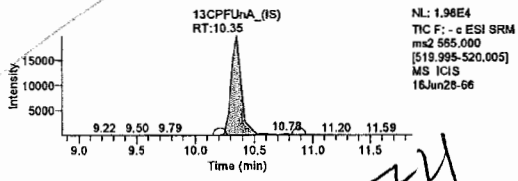


Lab checking integration

RT ok, minor integration
MAM
5/18/17

Component Name: PFTeDA





CCVs 14.36/10.74
14.25/10.32

CAL 1 14.27/10.33
2 14.15/10.43
3 14.28/10.42
4 14.24/10.42
5 14.04/10.31
6 14.29/10.60

Michele J. Smith

JUN 30 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

Sample Description: SG3-MW06-00.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Collected: 06/14/2016 10:17 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

LL Sample # SW 8427029
LL Group # 1672230
Account # 37191

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL

SG361 SDG#: SGP93-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.84	J	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.50	J, High LCS	0.21	0.43	1
14027	Perfluorododecanoic acid	307-55-1	0.43	U	0.43	0.86	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.76	J	0.75	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.53	J	0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.86	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	22,100		400	1,200	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	6.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 12:15	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 13:28	Nicole M Veety	1
00111	Moisture	SM 2540 G-1997	1	16173820009B	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW06-00.0 Grab Soil	**Data File:**		16JUL14-49.wiff
Sample ID:	8427029	**Acquis Date:**		7/15/2016 12:15:12 AM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	26	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	5.270	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

original

Quantitation Peak Table

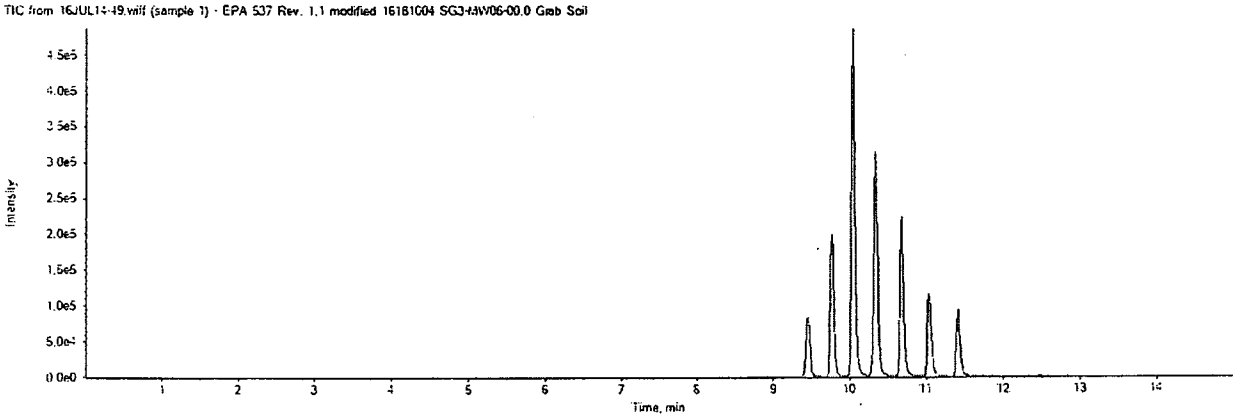
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	9.06	412.9	18O2-PFHxS	9.76	265774.6	0.002	0.786	
PFHxA	9.45	1402.2	13C2-PFHxA	9.45	300793.4	0.005	0.065	
PFHpA	9.77	2326.2	13C4-PFHpA	9.77	409277.0	0.006	0.158	
PFHxS	9.76	1431.3	18O2-PFHxS	9.76	265774.6	0.005	0.298	
PFOA	10.04	32642.0	13C4-PFOA	10.04	1487798.7	0.022	0.498	
PFNA	10.34	14315.4	13C5-PFNA	10.34	915308.3	0.016	0.175	
PFOS	10.31	4018.8	13C4-PFOS	10.31	115518.8	0.035	0.713	
PFDA	10.68	27980.9	13C2-PFDA	10.68	679594.6	0.041	0.470	
PFUndA	11.03	1926.5	13C2-PFUnDA	11.03	429154.7	0.004	0.031	
PFDoDA	11.41	415.2	13C2-PFDoDA	11.41	313054.6	0.001	< 0	
PFTrDA	11.85	219.9	13C2-PFDoDA	11.41	313054.6	0.001	< 0	
PFTeDA	12.15	412.8	13C2-PFDoDA	11.41	313054.6	0.001	< 0	

Failed

cinDL

Total Ion Chromatogram

8427029

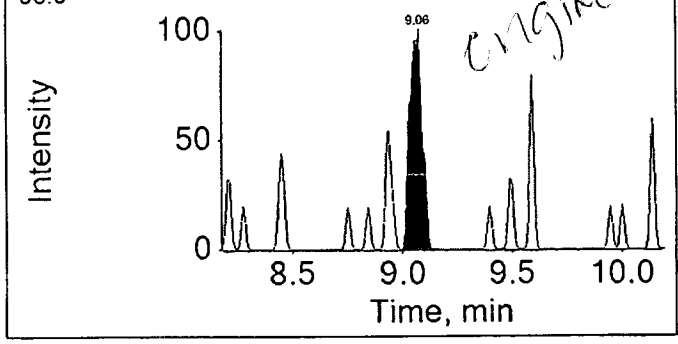


Lab checking integration

16JUL14-49.wiff

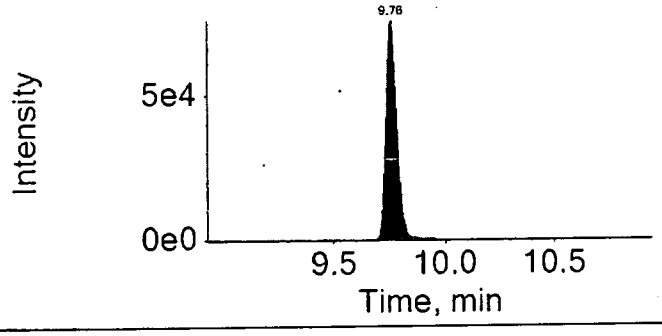
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

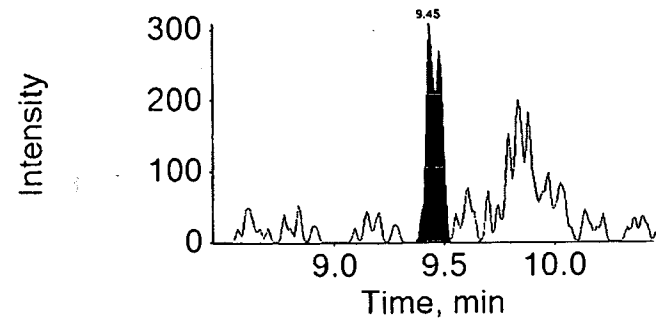
403.0 / 103.0



16JUL14-49.wiff

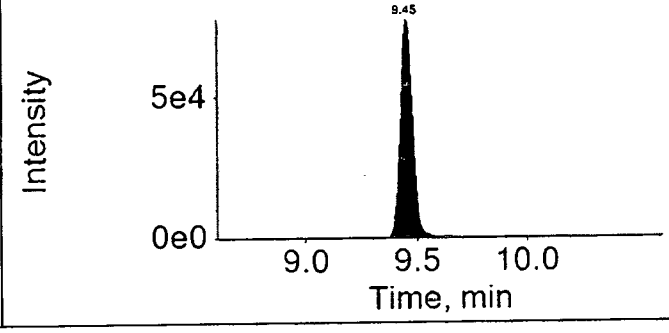
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

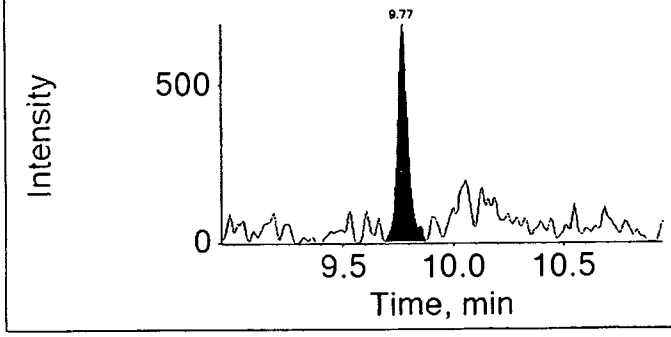
314.9 / 270.0



16JUL14-49.wiff

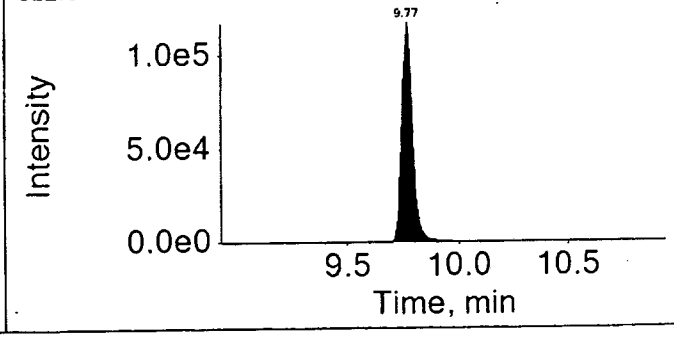
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

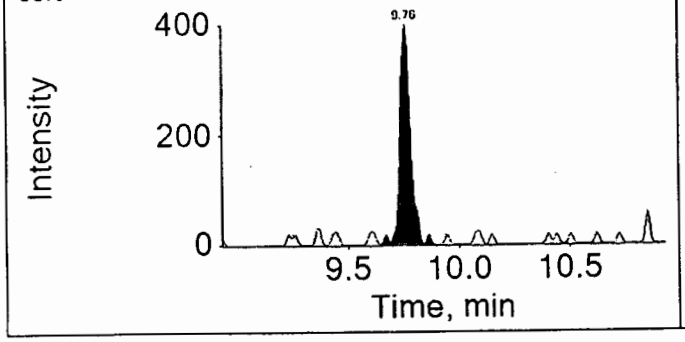
367.0 / 322.0



16JUL14-49.wiff

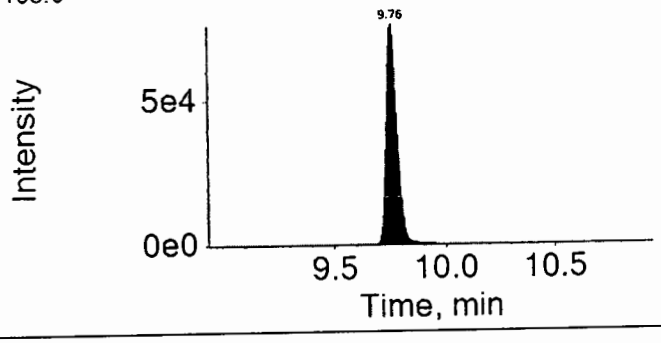
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

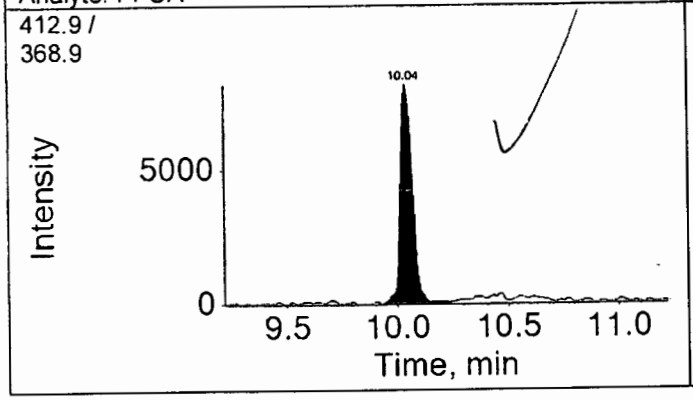
403.0 / 103.0



16JUL14-49.wiff

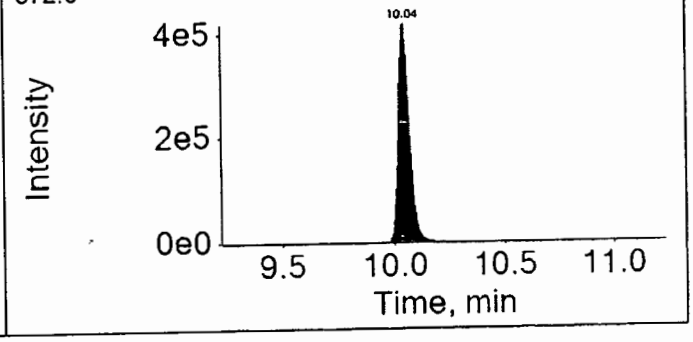
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

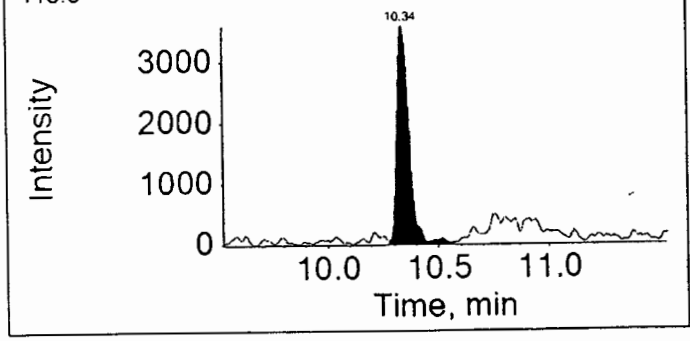
417.0 / 372.0



16JUL14-49.wiff

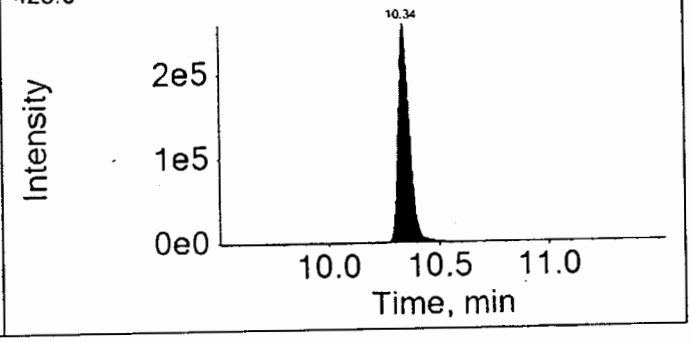
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

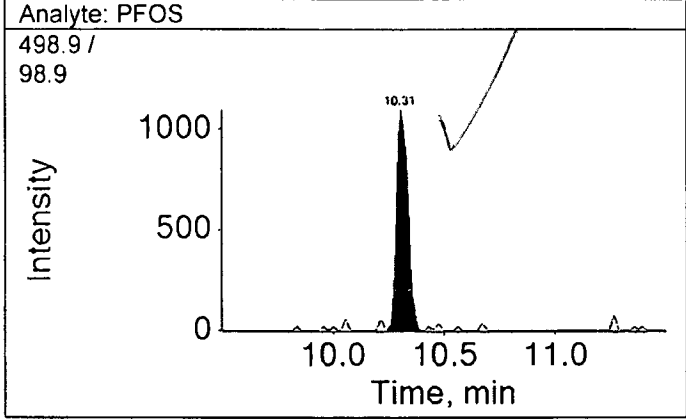
468.0 / 423.0



16JUL14-49.wiff

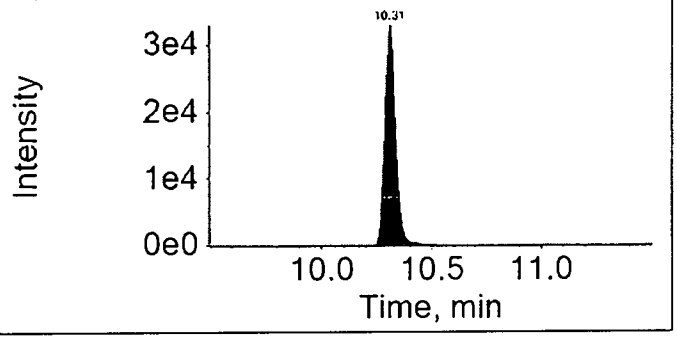
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

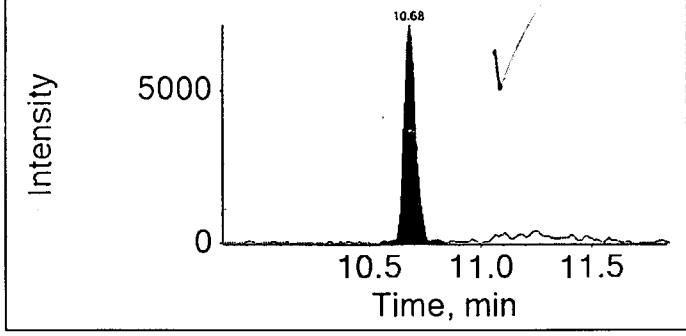
503.0 / 99.0



16JUL14-49.wiff

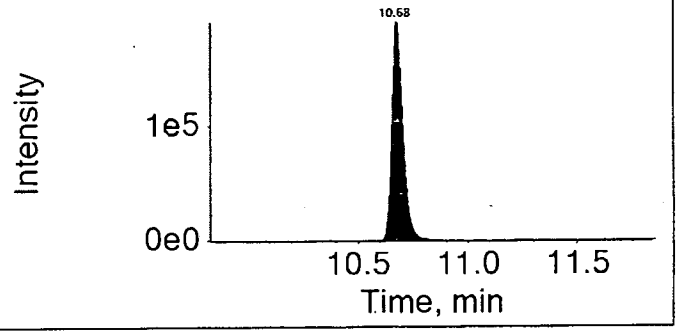
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

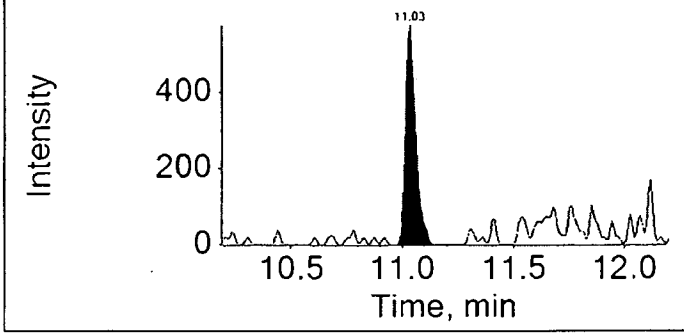
515.0 / 470.0



16JUL14-49.wiff

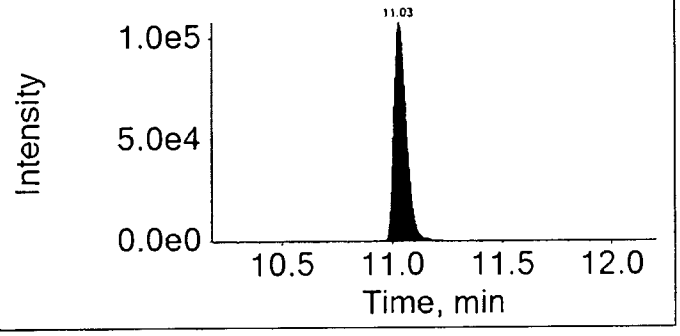
Analyte: PFUndA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

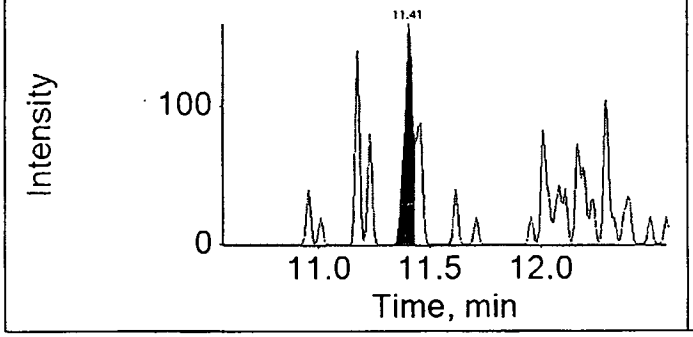
565.0 / 520.0



16JUL14-49.wiff

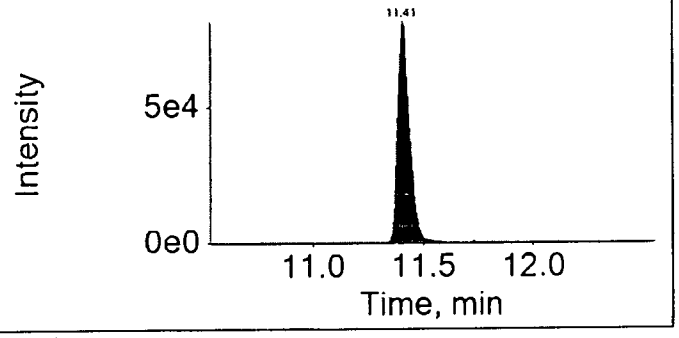
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

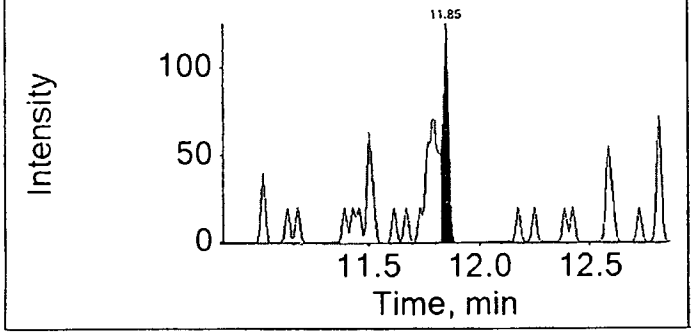
615.0 / 570.0



16JUL14-49.wiff

Analyte: PFTrDA

662.9 / 618.9



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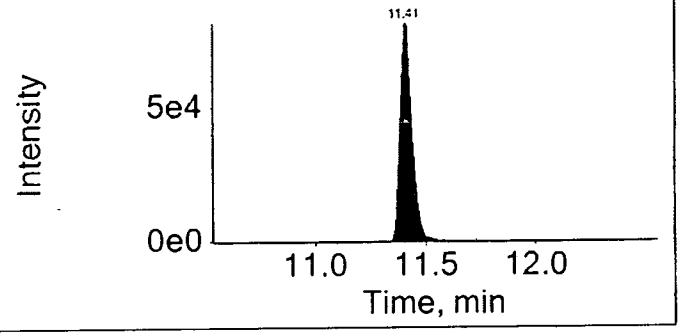
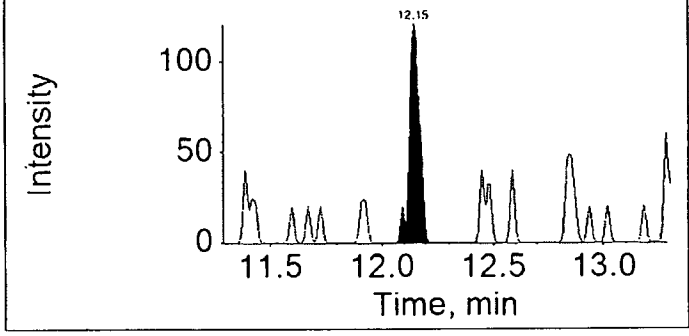
615.0 / 570.0



16JUL14-49.wiff

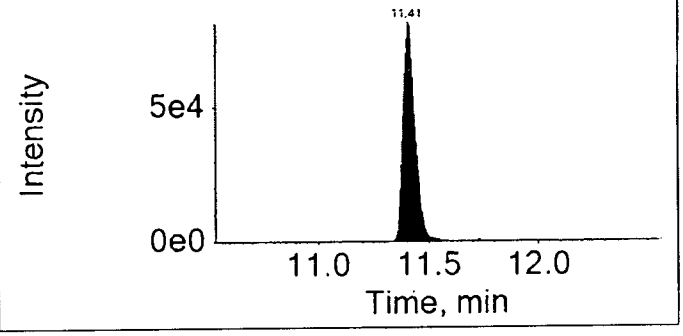
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



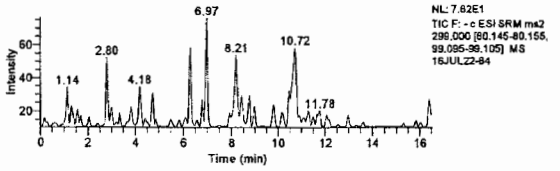
LCMSMS ANALYSIS REPORT

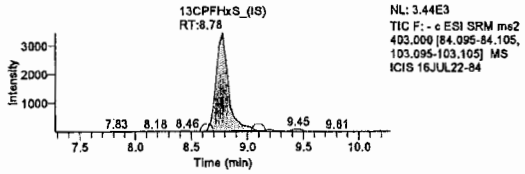
Sample Name:	8427029 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427029 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL22-84		
Acquisition Date:	07/23/16 08:15:07 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:31	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

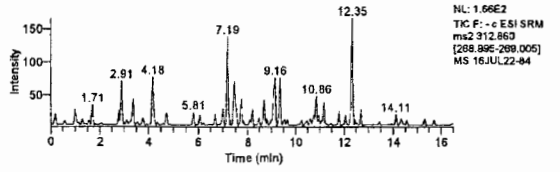
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.32	201576.38	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.07	173683.81	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.72	154003.53	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.89	113322.76	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.78	162808.91	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	99954.44	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.78	26049.77	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.29	15738.18	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.21	162921.40	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	0.022	10.89	503.87	113322.76	0.004	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.170	9.32	1561.25	201576.38	0.008	ng/g
PFOA	0.281	9.07	4804.33	173683.81	0.028	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

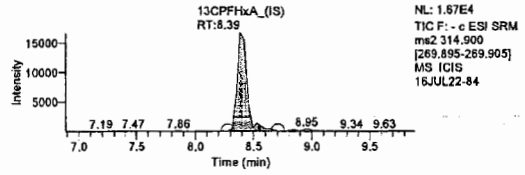
Component Name: PFBS





Component Name: PFHxA





Component Name: PFOA

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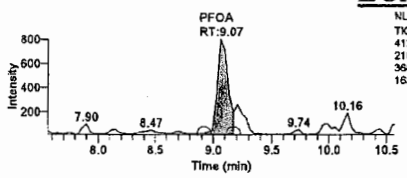
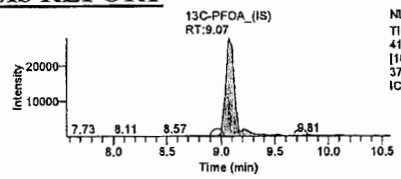
Senior Chemist

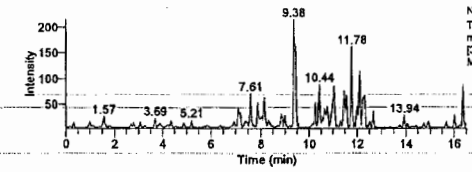
JUL 25 2016

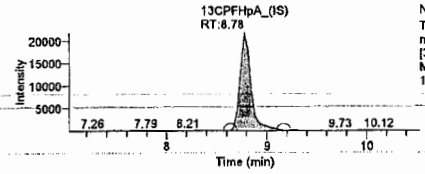
LCMSMS ANALYSIS REPORT



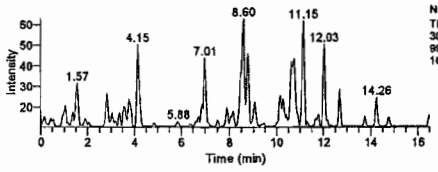


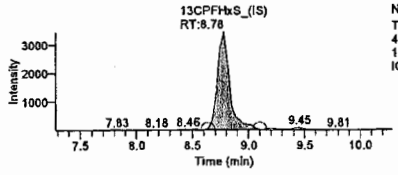
Component Name: PFhpA



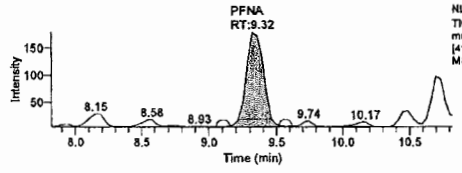


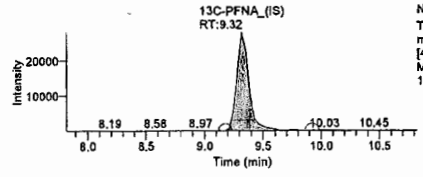
Component Name: PFHxS



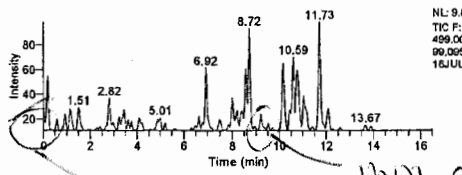


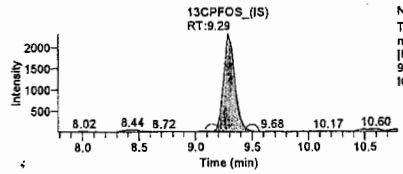
Component Name: PFNA





Component Name: PFOS

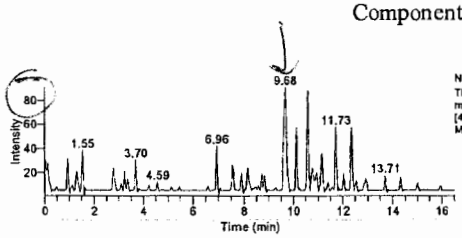


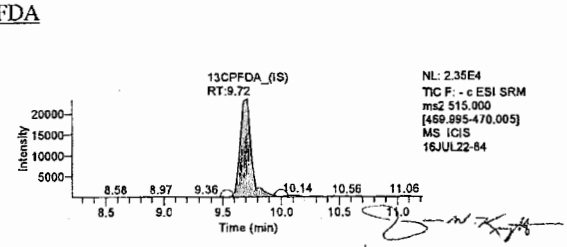


MDL std 10C

Component Name: PFDA

MDL std 4CC





Jason W. Knight
Senior Chemist

Component Name: PFUdA

JUL 25 2016

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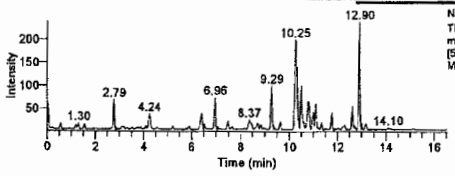
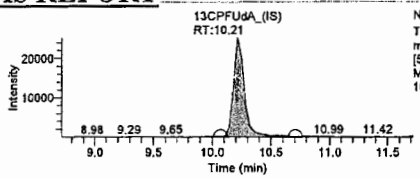
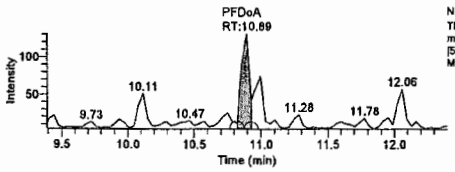
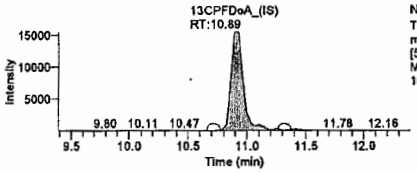


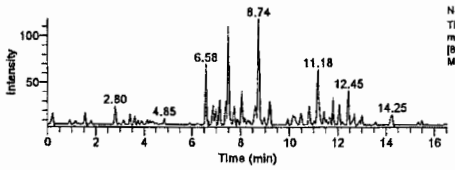


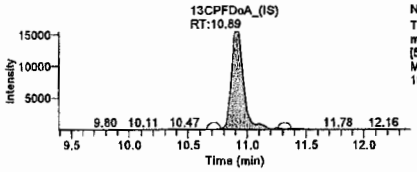
Component Name: PFDoA



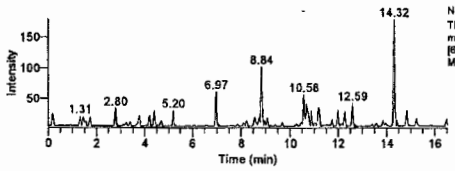


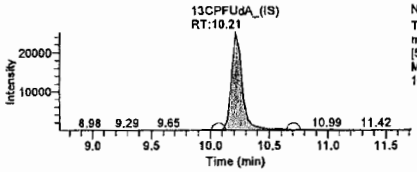
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd

JUL 2 6 2016

Lynn Dodd
Principal Specialist

Jason W Knight
Senior Chemist

JUL 2 5 2016

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Analysis Report

REVISED

Sample Description: SG3-MW06-00.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427029
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 10:17 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Rev. Sccd

SG361 SDG#: SGP93-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.51	U	0.51	1.6	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.50**		0.20	0.41	1
14027	Perfluorododecanoic acid	307-55-1	0.41	U	0.41	0.81	1
14027	Perfluoroheptanoic acid	375-85-9	0.30	U	0.30	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.51	U	0.51	1.6	1
14027	Perfluorohexanoic acid	307-24-4	0.20	U	0.20	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.20	U	0.20	0.41	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.76**	**J**	0.71	1.6	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.53**	**J**	0.30	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.30	U	0.30	0.81	1
14027	Perfluorotridecanoic acid	72629-94-8	0.61	U	0.61	1.2	1
14027	Perfluoroundecanoic acid	2058-94-8	0.30	U	0.30	0.61	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	**22,100**		400	1,200	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**6.5**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 12:15	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 13:28	Nicole M Veety	1
00111	Moisture	SM 2540 G-1997	1	16173820009B	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 6/5/2017 6:31:00 PM

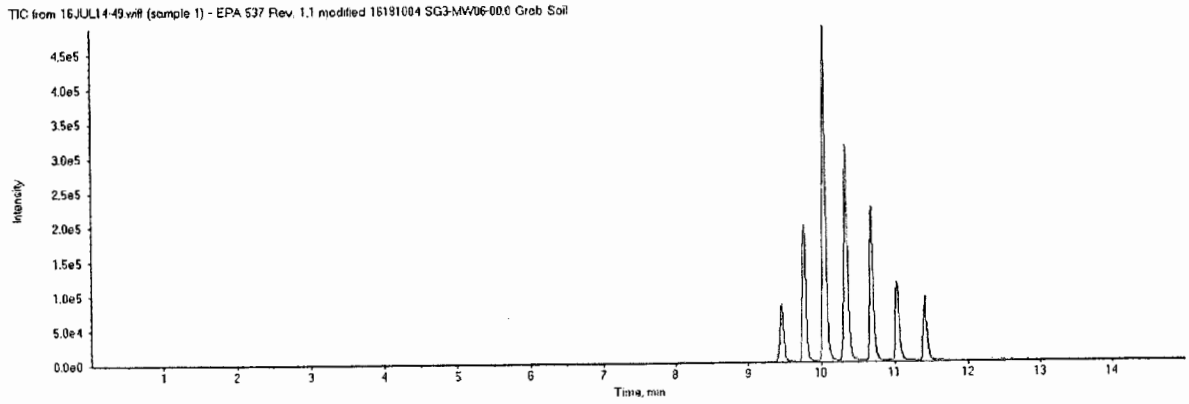
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW06-00.0 Grab Soil			**Data File:**		16JUL14-49.wiff
Sample ID:	8427029			**Acquis Date:**		2016-07-15T00:15:12
Sample Type:	Unknown			**Instrument:**		API 4000
Vial Position:	26			**Acquis Method:**		PFC 16JUL08.dam
Injection Vol:	10.00			**Result Table:**		MQ 16181004
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS07959\4000
Sample Wt.:	5.270			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	9.76	265774.6	N/A	N/A
PFHxA	9.45	1.000	1402.2	A	13C2-PFHxA	9.45	300793.4	0.005	0.065
PFHpA	9.77	1.000	2326.2	A	13C4-PFHpA	9.77	409277.0	0.006	0.158
PFHxS	9.76	1.000	1431.3	A	18O2-PFHxS	9.76	265774.6	0.005	0.298
PFOA	10.04	1.000	32642.0	A	13C4-PFOA	10.04	1487798.7	0.022	0.498
PFNA	10.34	1.000	14315.4	A	13C5-PFNA	10.34	915308.3	0.016	0.175
PFOS	10.31	1.000	4018.8	A	13C4-PFOS	10.31	115518.8	0.035	0.713
PFDA	10.68	1.000	27980.9	A	13C2-PFDA	10.68	679594.6	0.041	0.470
PFUndA	11.03	1.000	1926.5	A	13C2-PFUnDA	11.03	429154.7	0.004	0.031
PFDoDA	11.41	1.000	415.2	A	13C2-PFDoDA	11.41	313054.6	0.001	< 0
PFTrDA	11.85	1.040	219.9	A	13C2-PFDoDA	11.41	313054.6	0.001	< 0
PFTeDA	12.15	1.060	412.8	A	13C2-PFDoDA	11.41	313054.6	0.001	< 0

Total Ion Chromatogram

8427029



APPROVED
By MCD at 6:43 pm, 6/5/17

REVIEWED
By ucmr at 1:22 pm, 6/6/17

did not integrate for revision

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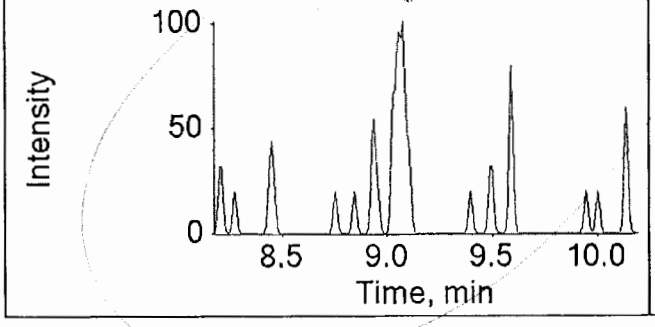
LC-MS/MS Analysis Report

Printed: 6/5/2017 6:31:00 PM

16JUL14-49.wiff

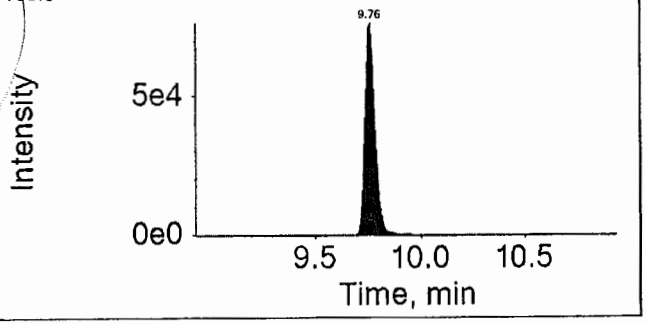
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

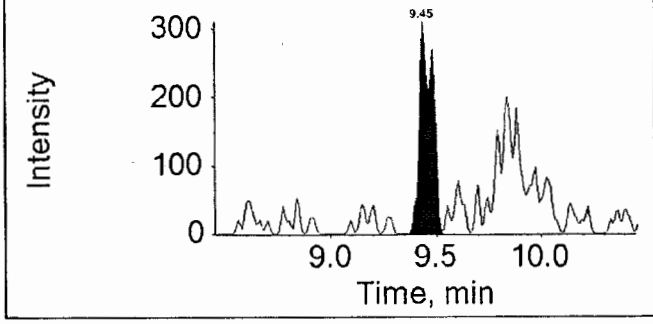
403.0 / 103.0



16JUL14-49.wiff

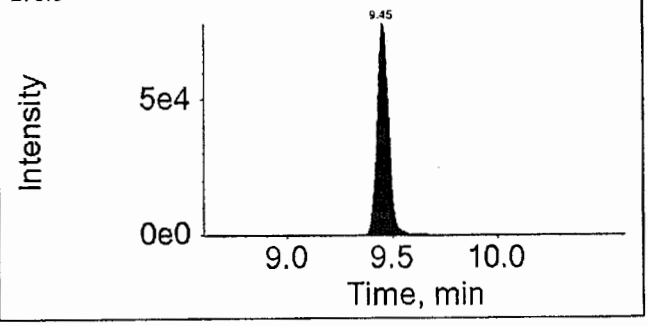
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

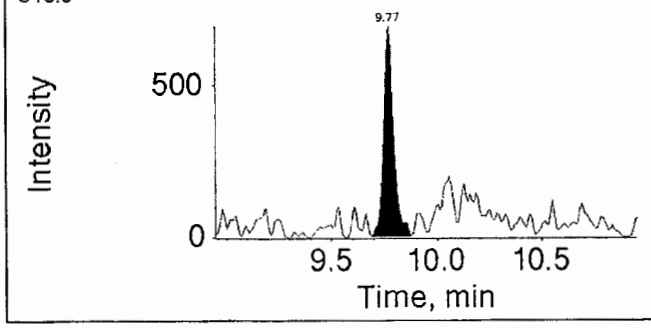
314.9 / 270.0



16JUL14-49.wiff

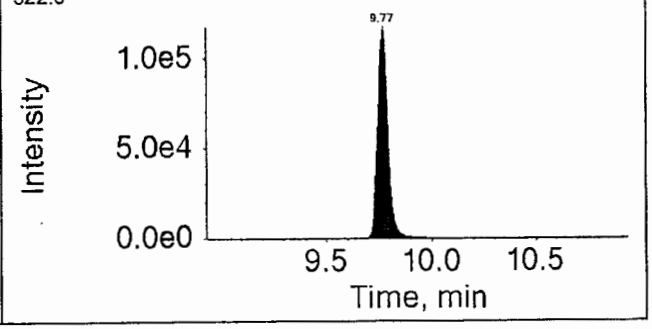
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



APPROVED
By MCD at 6:43 pm, 6/5/17

REVIEWED
By ucmr at 1:22 pm, 6/6/17

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SG3-MW06-00.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8427030
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 10:22 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL

SG362 SDG#: SGP93-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.89	J	0.52	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.42	1
14027	Perfluorododecanoic acid	307-55-1	0.42	U	0.42	0.83	1
14027	Perfluoroheptanoic acid	375-85-9	0.31	U	0.31	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.52	U	0.52	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.22	J	0.21	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.73	U	0.73	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.56	J	0.31	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.31	U	0.31	0.83	1
14027	Perfluorotridecanoic acid	72629-94-8	0.62	U	0.62	1.2	1
14027	Perfluoroundecanoic acid	2058-94-8	0.31	U	0.31	0.62	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	6,740		399	1,200	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	3.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 12:34	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	2	16176113031A	06/24/2016 18:01	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16173820009B	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW06-00.5 Grab Soil	**Data File:**		16JUL14-50.wiff
Sample ID:	8427030	**Acquis Date:**		7/15/2016 12:34:34 AM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	27	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	4.850	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

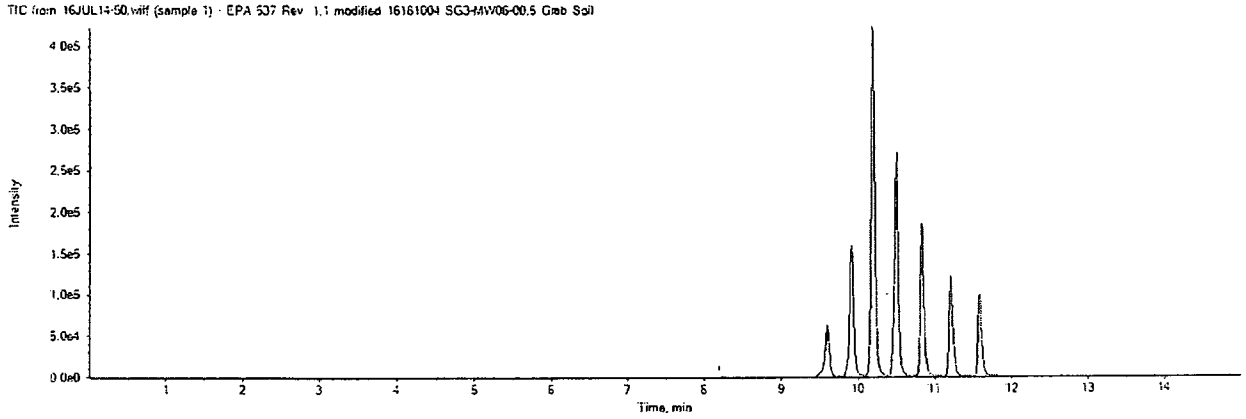
ORIGINAL

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	9.21	357.8	18O2-PFHxS	9.91	213520.1	0.002	0.856	
PFHxA	9.59	1270.1	13C2-PFHxA	9.60	246065.9	0.005	0.080	
PFHpA	9.92	1562.2	13C4-PFHpA	9.92	381670.9	0.004	0.143	
PFHxS	9.92	715.6	18O2-PFHxS	9.91	213520.1	0.003	0.296	
PFOA	10.20	29909.0	13C4-PFOA	10.20	1379728.5	0.022	0.535	
PFNA	10.49	14773.8	13C5-PFNA	10.50	783492.7	0.019	0.216	
PFOS	10.46	1432.0	13C4-PFOS	10.46	110536.2	0.013	0.562	
PFDA	10.83	7783.7	13C2-PFDA	10.83	604552.1	0.013	0.190	
PFUndA	11.22	991.0	13C2-PFUnDA	11.20	419597.6	0.002	< 0	
PFDoDA	11.59	89.7	13C2-PFDoDA	11.58	336088.9	0.000	< 0	
PFTrDA	11.92	110.1	13C2-PFDoDA	11.58	336088.9	0.000	< 0	
PFTeDA	12.32	385.3	13C2-PFDoDA	11.58	336088.9	0.001	< 0	

Total Ion Chromatogram

8427030

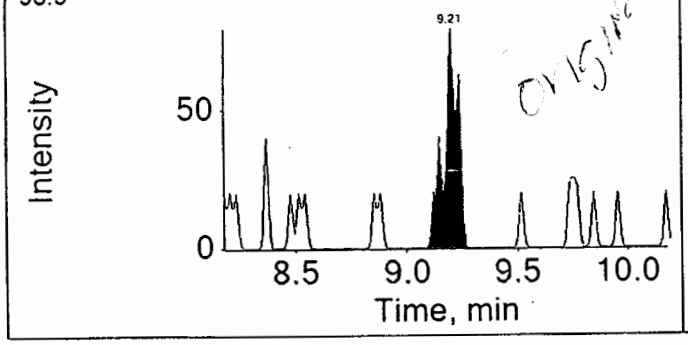


Lab checking integration

16JUL14-50.wiff

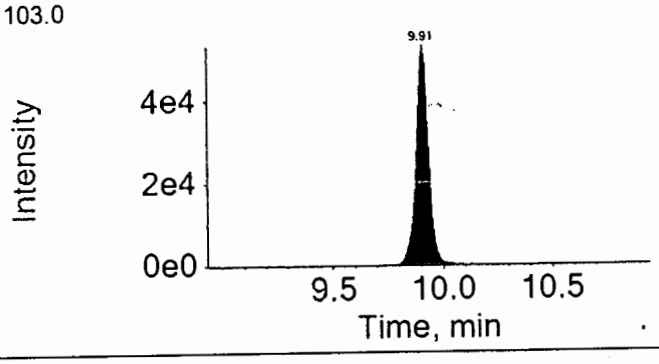
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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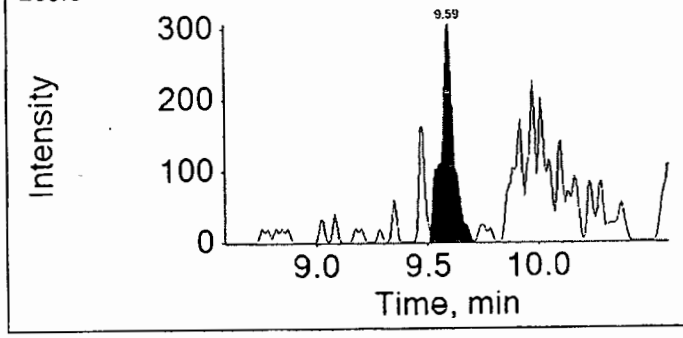
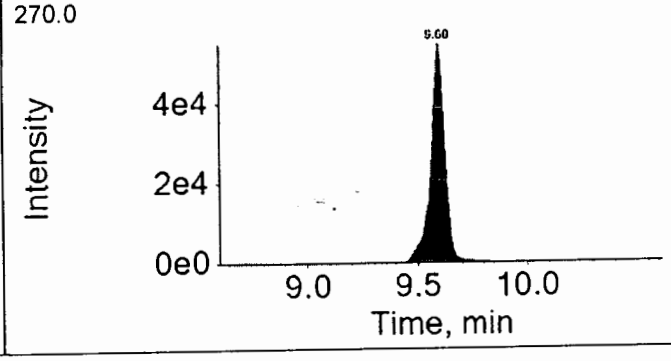
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

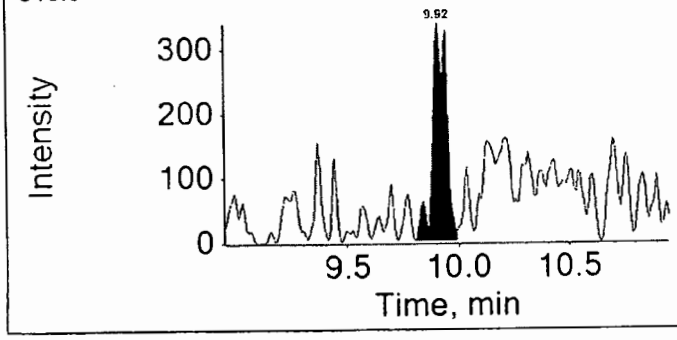
314.9 / 270.0



16JUL14-50.wiff

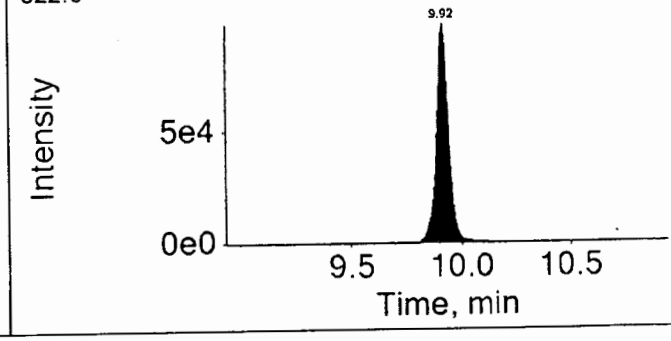
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



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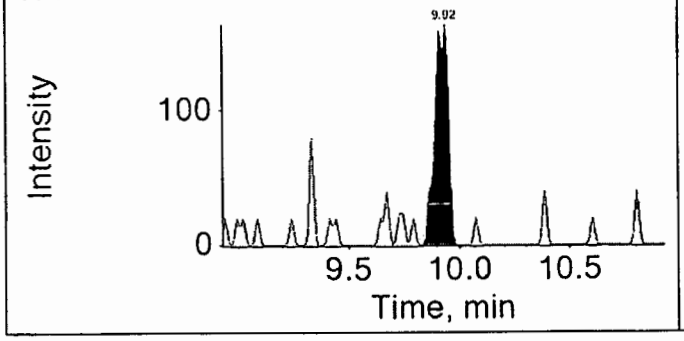
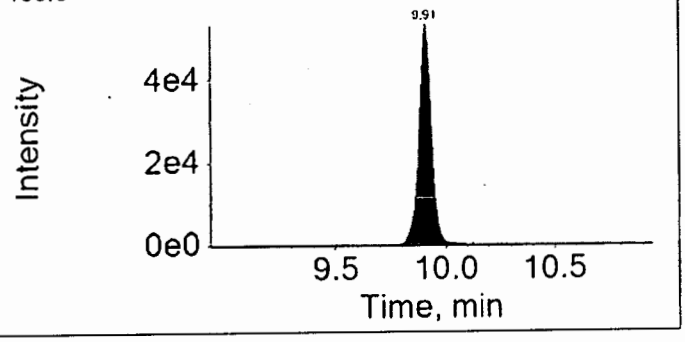
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

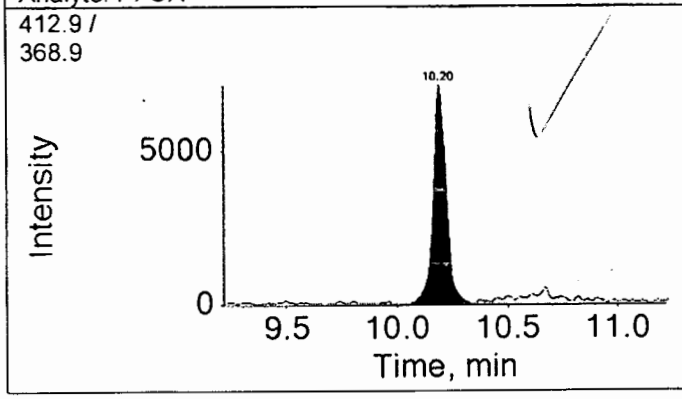
403.0 / 103.0



16JUL14-50.wiff

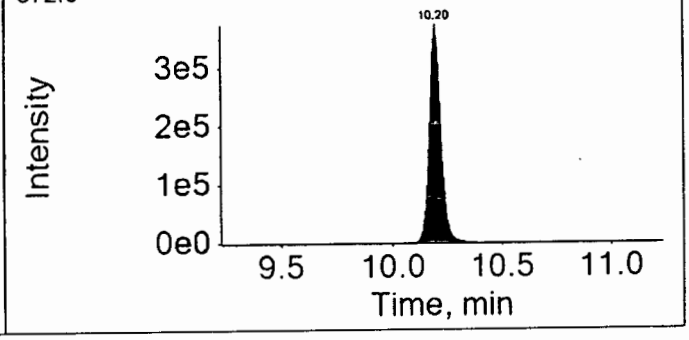
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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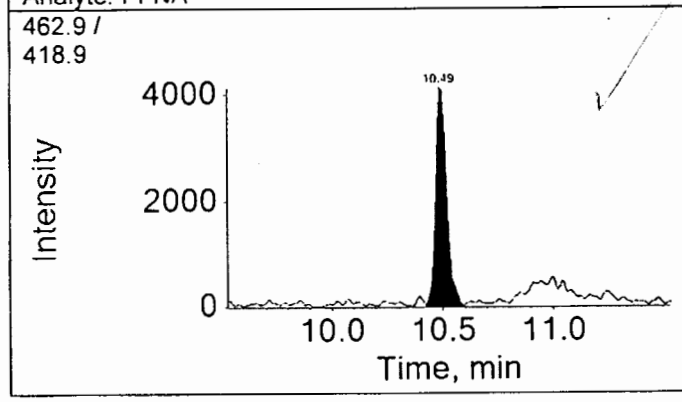
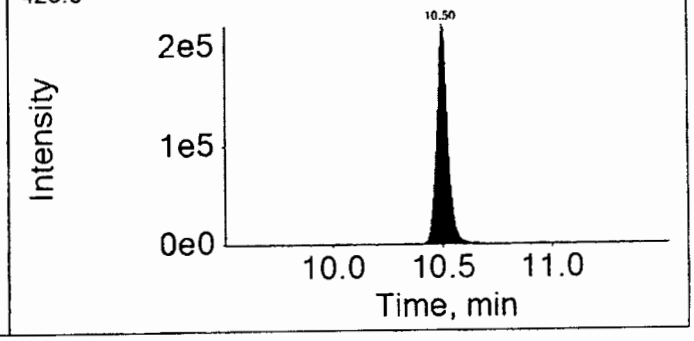
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

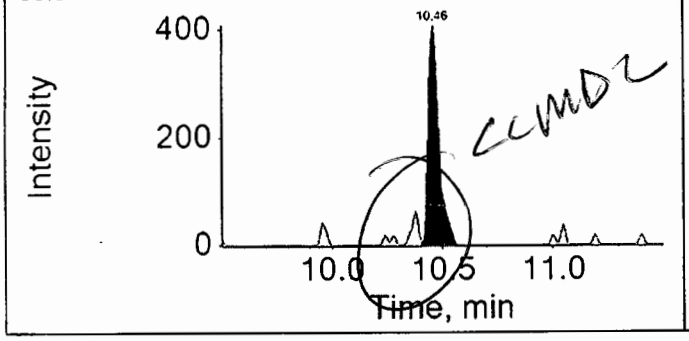
468.0 / 423.0



16JUL14-50.wiff

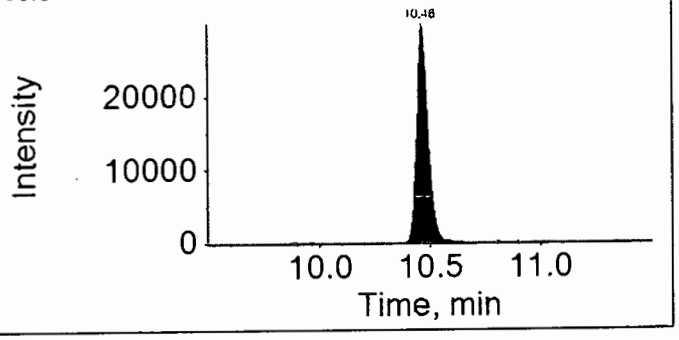
Analyte: PFOS

498.9 /
98.9



Internal Standard: 13C4-PFOS

503.0 /
99.0



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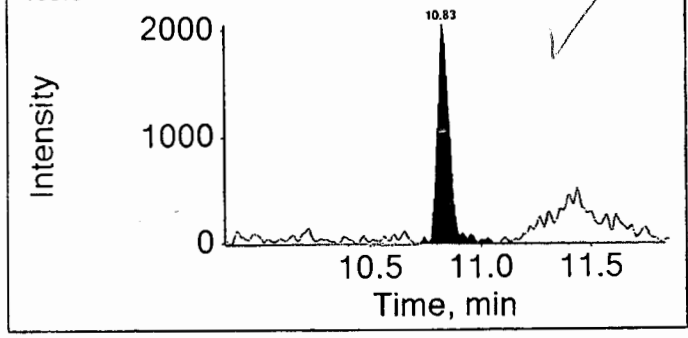
Analyte: PFDA

512.9 /
469.0



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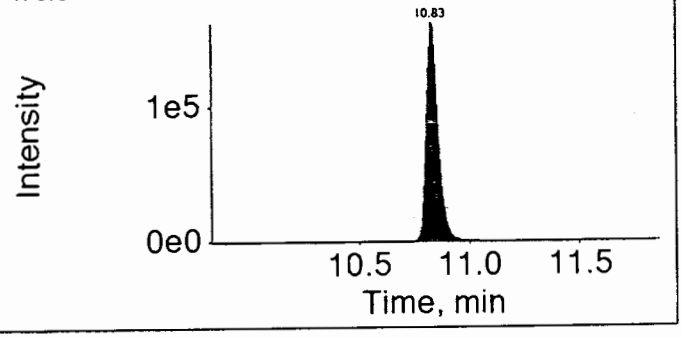
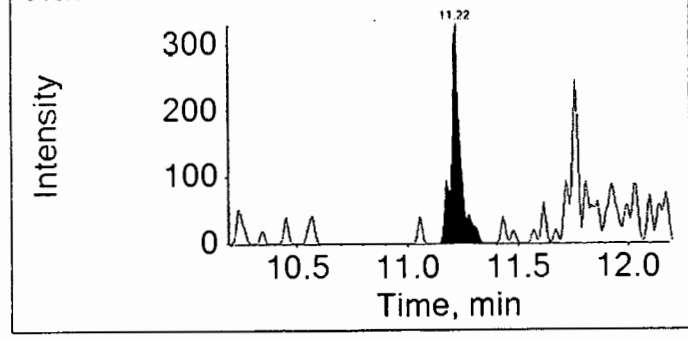
515.0 /
470.0



16JUL14-50.wiff

Analyte: PFUndA

562.9 /
518.9



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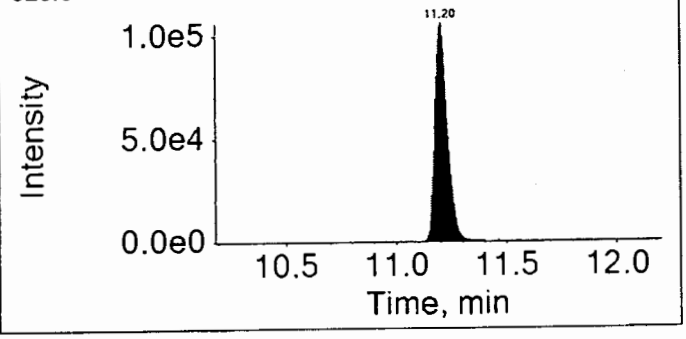
565.0 /
520.0



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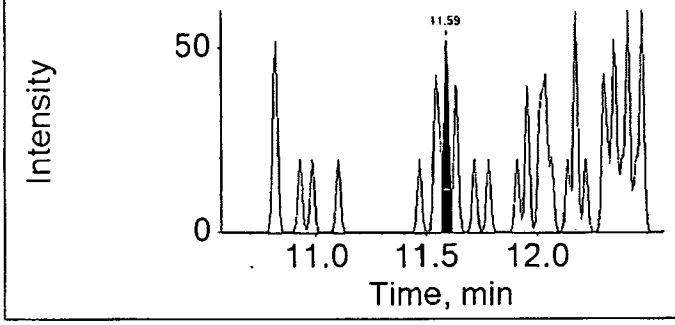
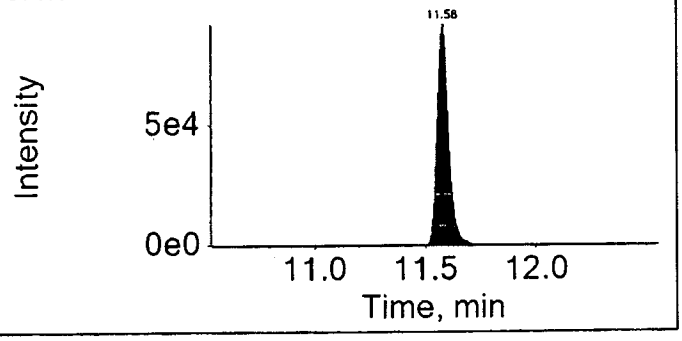
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

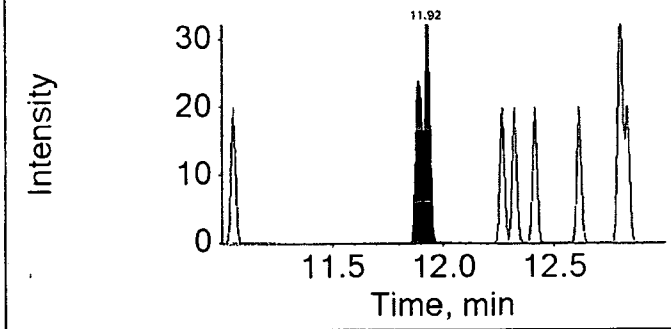
615.0 / 570.0



16JUL14-50.wiff

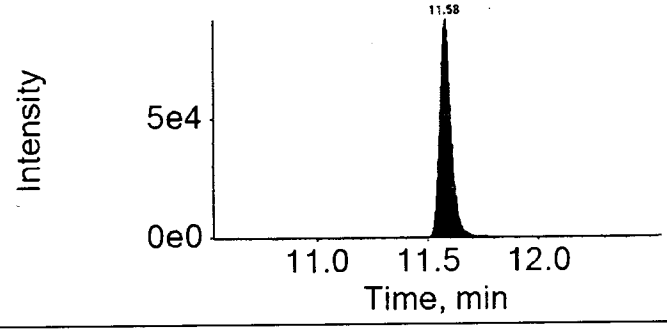
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

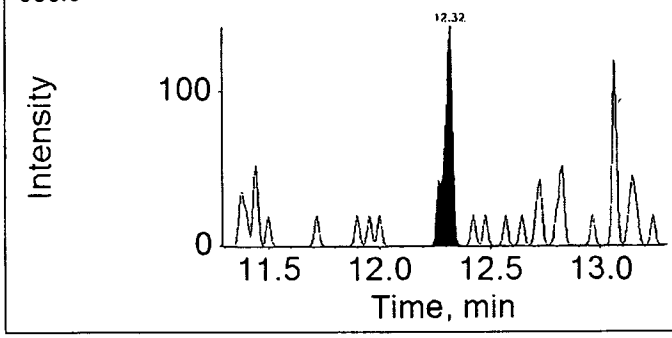
615.0 / 570.0



16JUL14-50.wiff

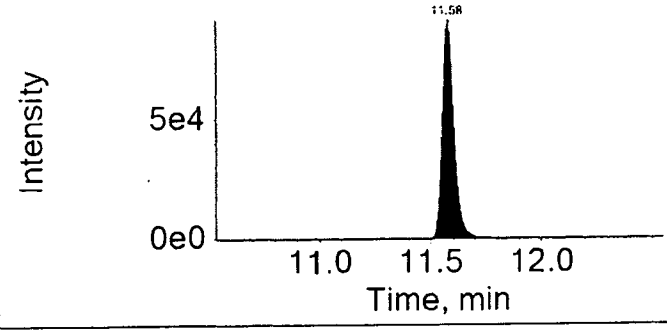
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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Analysis Report

REVISED

Sample Description: SG3-MW06-00.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

LL Sample # SW 8427030
LL Group # 1672230
Account # 37191

Collected: 06/14/2016 10:22 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG362 SDG#: SGP93-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.54	U	0.54	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.43	1
14027	Perfluorododecanoic acid	307-55-1	0.43	U	0.43	0.86	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.54	U	0.54	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.43	1
14027	**Perfluorononanoic acid**	375-95-1	**0.22**	**J**	0.21	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.75	U	0.75	1.7	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.56**	**J**	0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.86	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	**6,740**		399	1,200	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**3.8**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 12:34	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	2	16176113031A	06/24/2016 18:01	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16173820009B	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 6/5/2017 6:31:00 PM

Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW06-00.5 Grab Soil			**Data File:**		16JUL14-50.wiff
Sample ID:	8427030			**Acquis Date:**		2016-07-15T00:34:34
Sample Type:	Unknown			**Instrument:**		API 4000
Vial Position:	27			**Acquis Method:**		PFC 16JUL08.dam
Injection Vol:	10.00			**Result Table:**		MQ 16181004
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS07959\4000
Sample Wt.:	4.850			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

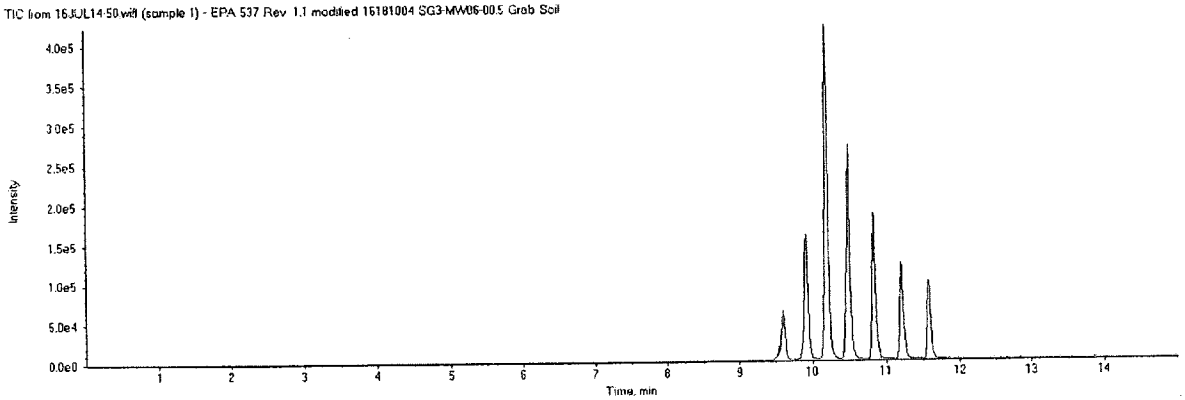
revised

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	9.91	213520.1	N/A	N/A
PFHxA	9.59	1.000	1270.1	A	13C2-PFHxA	9.60	246065.9	0.005	0.080
PFHpA	9.92	1.000	1562.2	A	13C4-PFHpA	9.92	381670.9	0.004	0.143
PFHxS	9.92	1.000	715.6	A	18O2-PFHxS	9.91	213520.1	0.003	0.296
PFOA	10.20	1.000	29909.0	A	13C4-PFOA	10.20	1379728.5	0.022	0.535
PFNA	10.49	1.000	14773.8	A	13C5-PFNA	10.50	783492.7	0.019	0.216
PFOS	10.46	1.000	1432.0	A	13C4-PFOS	10.46	110536.2	0.013	0.562
PFDA	10.83	1.000	7783.7	A	13C2-PFDA	10.83	604552.1	0.013	0.190
PFUndA	11.22	1.000	991.0	A	13C2-PFUnDA	11.20	419597.6	0.002	< 0
PFDoDA	11.59	1.000	89.7	M	13C2-PFDoDA	11.58	336088.9	0.000	< 0
PFTrDA	11.92	1.030	110.1	A	13C2-PFDoDA	11.58	336088.9	0.000	< 0
PFTeDA	12.32	1.060	385.3	A	13C2-PFDoDA	11.58	336088.9	0.001	< 0

Total Ion Chromatogram

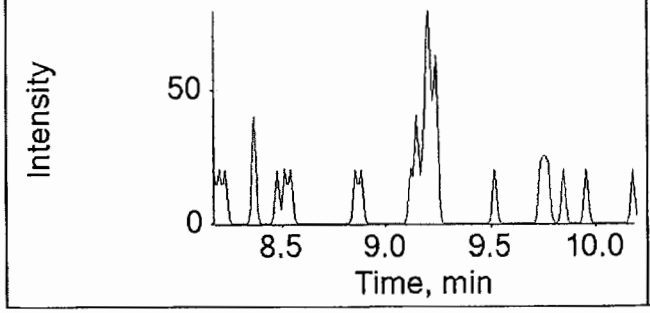
8427030

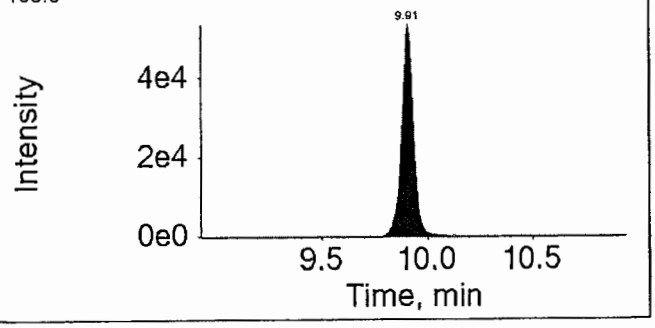


APPROVED
By MCD at 6:43 pm, 6/5/17

REVIEWED
By ucmr at 1:22 pm, 6/6/17

16JUL14-50.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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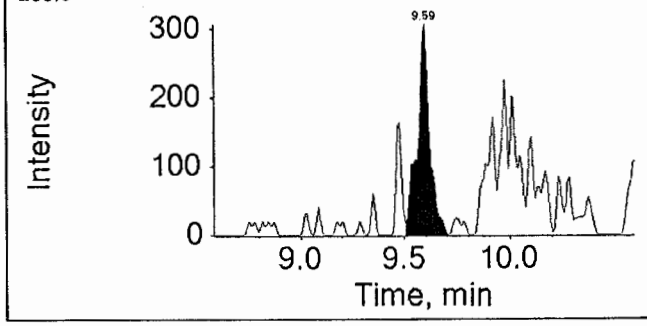
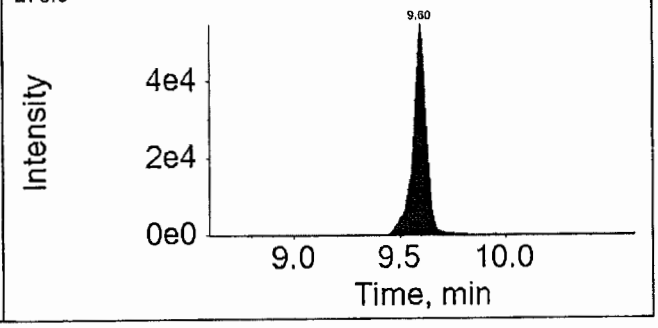
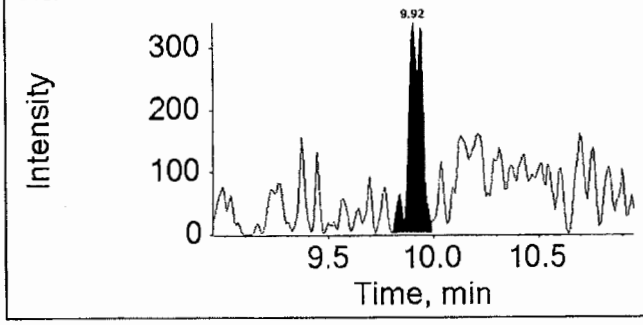
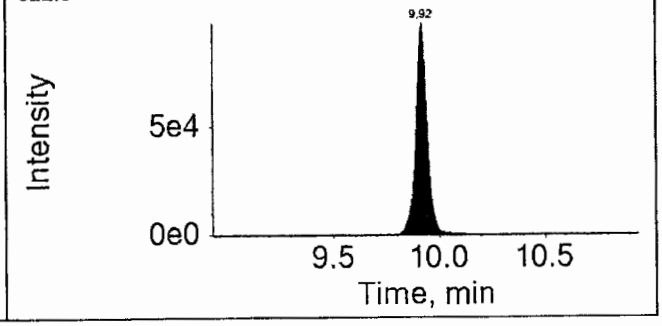
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16JUL14-50.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0





APPROVED
By MCD at 6:43 pm, 6/5/17

REVIEWED
By ocmr at 1:22 pm, 6/6/17

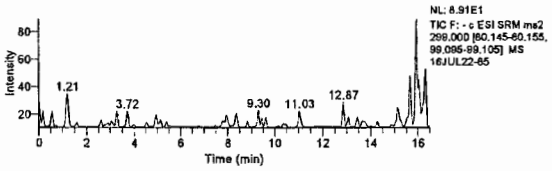
LCMSMS ANALYSIS REPORT

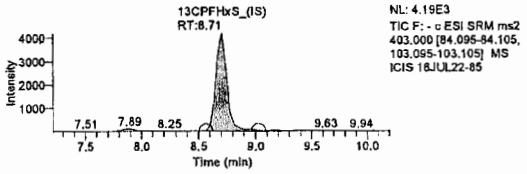
Sample Name:	8427030 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427030 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-85		M\HWell_16.5minutes
Acquisition Date:	07/23/16 08:32:22 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:32	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

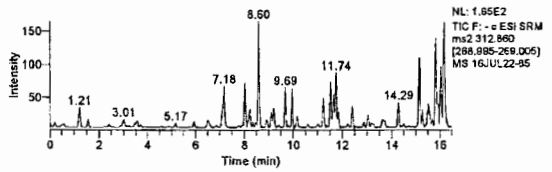
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.25	190714.18	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.96	166828.25	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.64	157332.83	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.89	105933.73	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.70	166316.05	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.49	109571.17	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	28026.19	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.21	16728.33	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.17	131223.96	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	0.239	9.64	2805.66	157332.83	0.018	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.158	9.25	1303.20	190714.18	0.007	ng/g
PFOA	0.341	8.96	5647.35	166828.25	0.034	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	0.221	12.87	594.49	131223.96	0.005	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

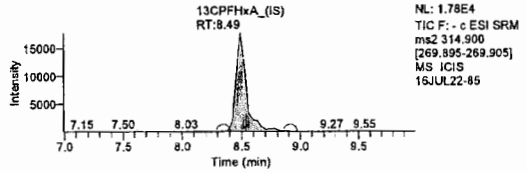
Component Name: PFBS





Component Name: PFHxA



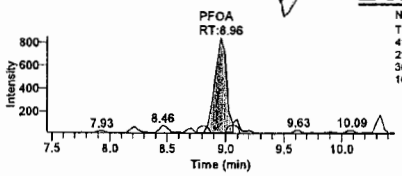


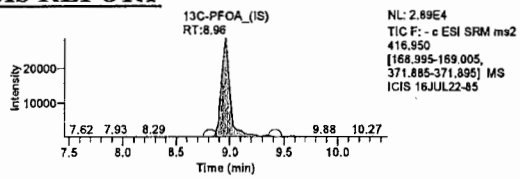
Component Name: PFOA

Jason W. Knight
Senior Chemist

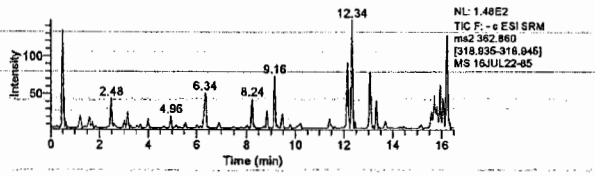
JUL 25 2016

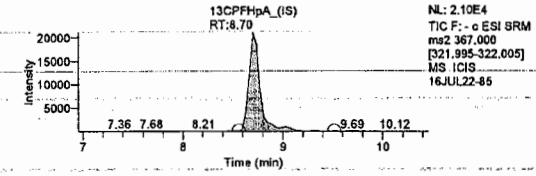
LCMSMS ANALYSIS REPORT



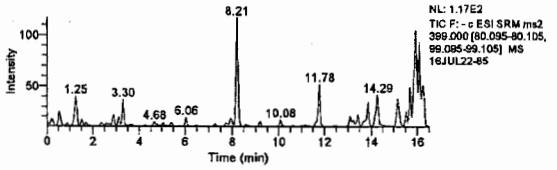


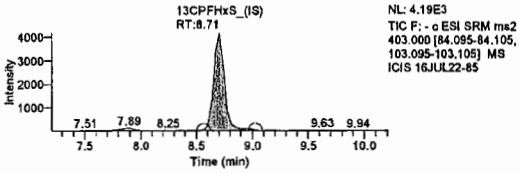
Component Name: PFhpA



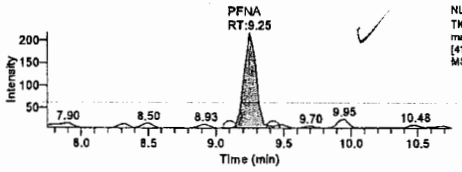


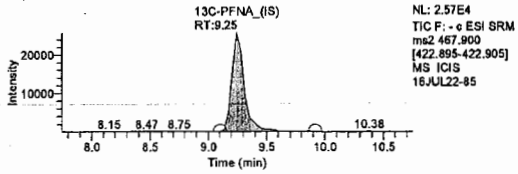
Component Name: PFHxS



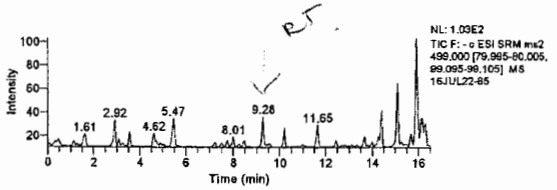


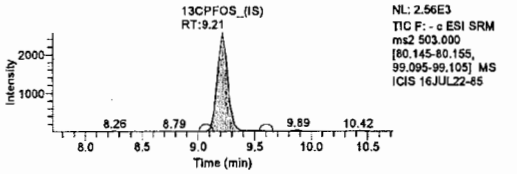
Component Name: PFNA



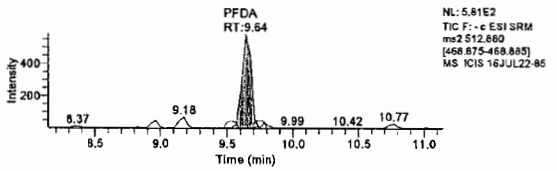


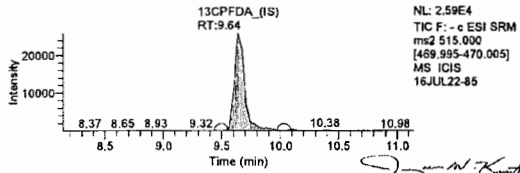
Component Name: PFOS





Component Name: PFDA



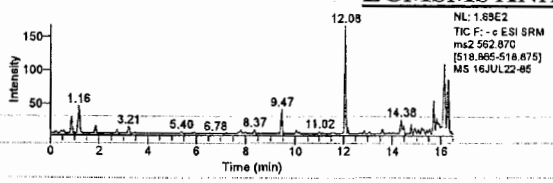


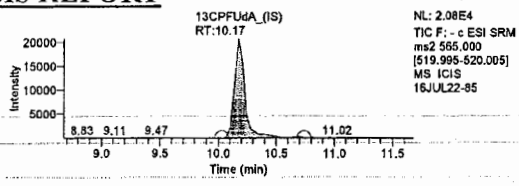
Jason W. Knight
Senior Chemist

Component Name: PFUdA

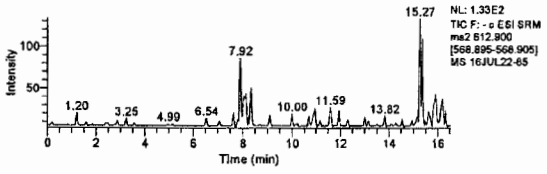
JUL 25 2016

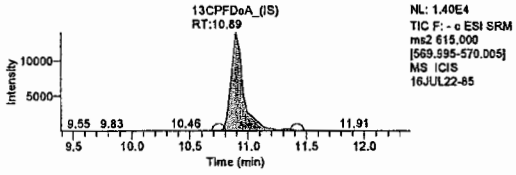
LCMSMS ANALYSIS REPORT



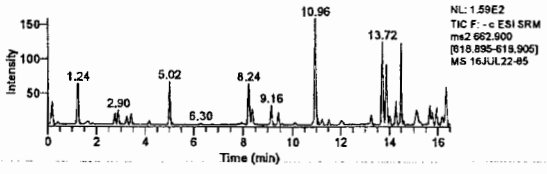


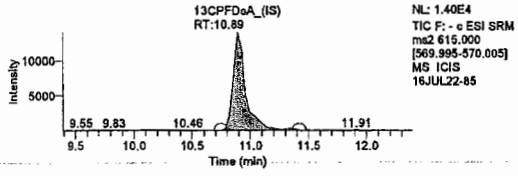
Component Name: PFDoA



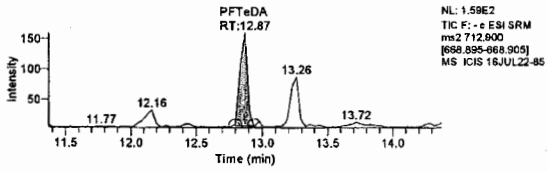


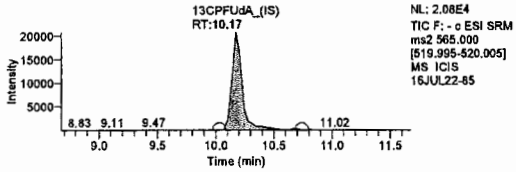
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 26 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

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Analysis Report

Sample Description: SG3-MW06-01.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427031
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 10:30 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL

SG363 SDG#: SGP93-18

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.42	1
14027	Perfluorododecanoic acid	307-55-1	0.42	U	0.42	0.85	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.74	U	0.74	1.7	1
14027	Perfluorooctanoic acid	335-67-1	3.9		0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.85	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 4 ng/g. PFOA was not detected in the re-extraction of the sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	8,030		572	1,720	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	5.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 12:53	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 14:02	Nicole M Veety	1
00111	Moisture	SM 2540 G-1997	1	16173820009B	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW06-01.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427031
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 10:30 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

-REVISED

SG363 SDG#: SGP93-18

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.42	1
14027	Perfluorododecanoic acid	307-55-1	0.42	U	0.42	0.84	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.74	U	0.74	1.7	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.9**		0.32	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.84	1
14027	Perfluorotridecanoic acid	72629-94-8	0.63	U	0.63	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.63	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 4 ng/g. PFOA was not detected in the re-extraction of the sample.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	**8,030**		572	1,720	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**5.8**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/14/2016 12:53	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 14:02	Nicole M Veety	1

*=This limit was used in the evaluation of the final result

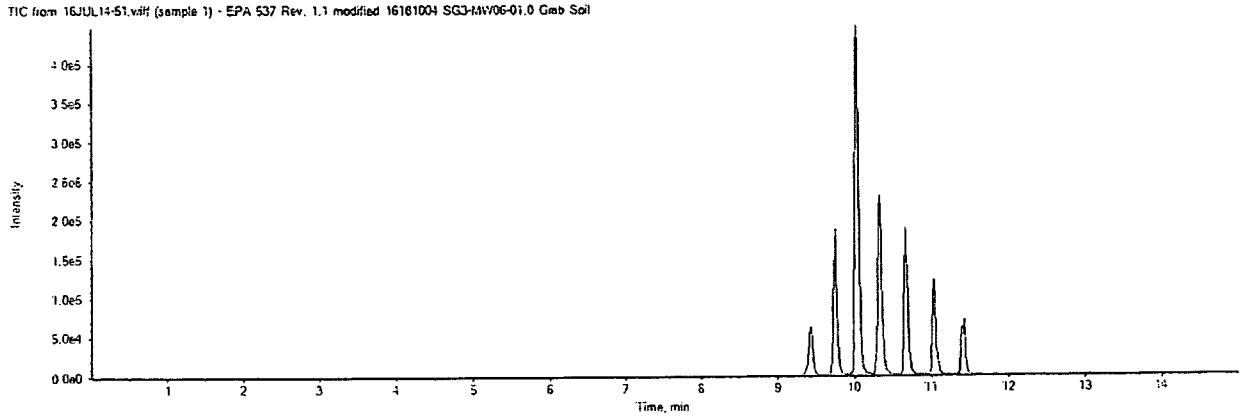
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW06-01.0 Grab Soil	**Data File:**		16JUL14-51.wiff
Sample ID:	8427031	**Acquis Date:**		7/15/2016 12:53:45 AM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	28	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	5.040	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.74	202446.1	N/A	N/A	
PFHxA	9.42	986.7	13C2-PFHxA	9.43	241613.5	0.004	0.057	
PFHpA	9.77	861.8	13C4-PFHpA	9.75	360206.1	0.002	0.108	
PFHxS	9.74	412.9	18O2-PFHxS	9.74	202446.1	0.002	0.268	
PFOA	10.03	200619.7	13C4-PFOA	10.03	1333918.9	0.150	3.680	
PFNA	10.32	1203.0	13C5-PFNA	10.33	755531.0	0.002	0.074	
PFOS	10.30	110.1	13C4-PFOS	10.30	92914.7	0.001	0.430	
PFDA	10.65	1025.8	13C2-PFDA	10.66	626863.5	0.002	0.060	
PFUndA	11.02	1183.5	13C2-PFUnDA	11.02	376261.7	0.003	0.010	
PFDoDA	11.41	137.6	13C2-PFDoDA	11.40	254686.7	0.001	< 0	
PFTrDA	N/A	N/A	13C2-PFDoDA	11.40	254686.7	N/A	N/A	
PFTeDA	12.13	247.7	13C2-PFDoDA	11.40	254686.7	0.001	< 0	

Total Ion Chromatogram

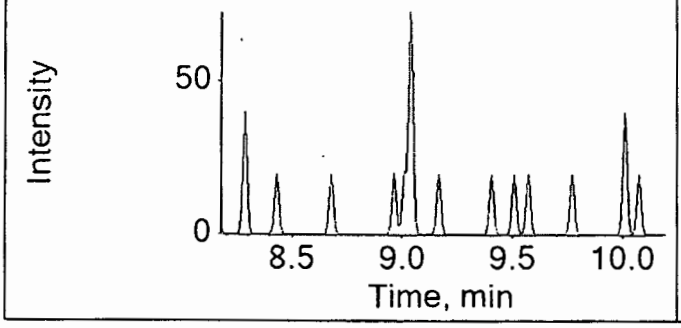
8427031



16JUL14-51.wiff

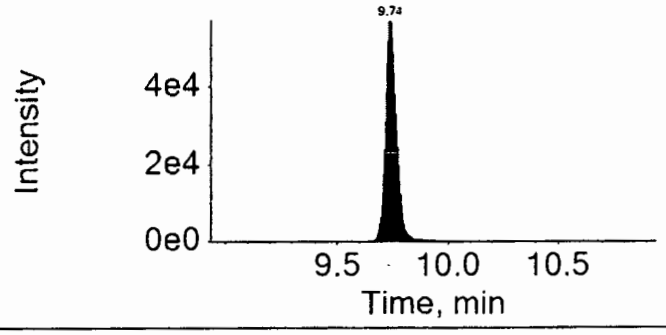
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

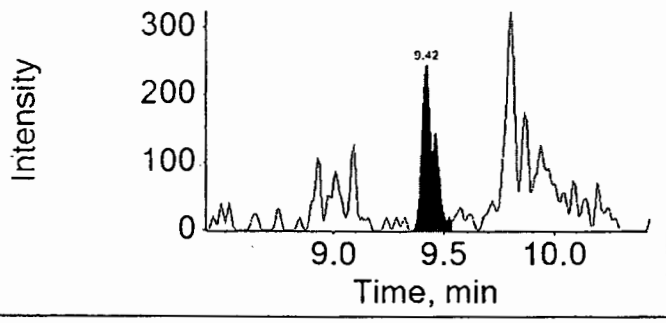
403.0 / 103.0



16JUL14-51.wiff

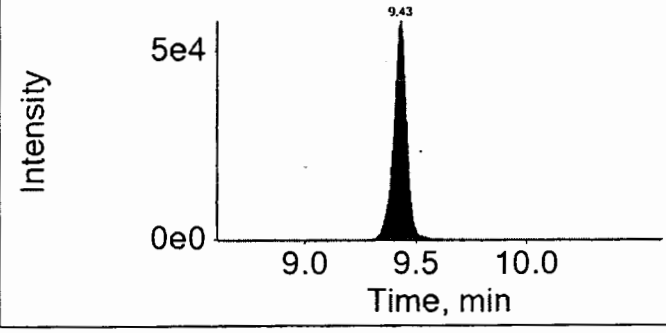
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

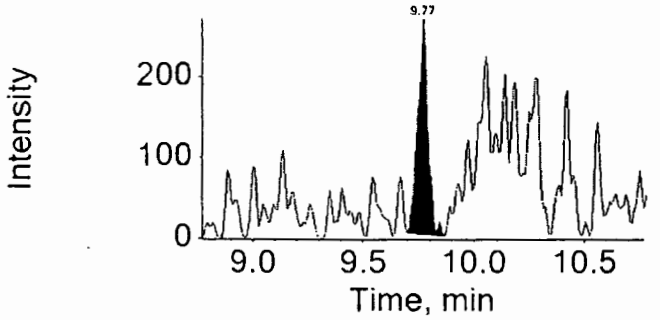
314.9 / 270.0



16JUL14-51.wiff

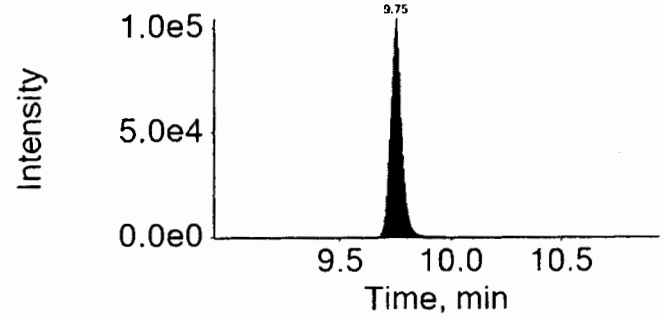
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

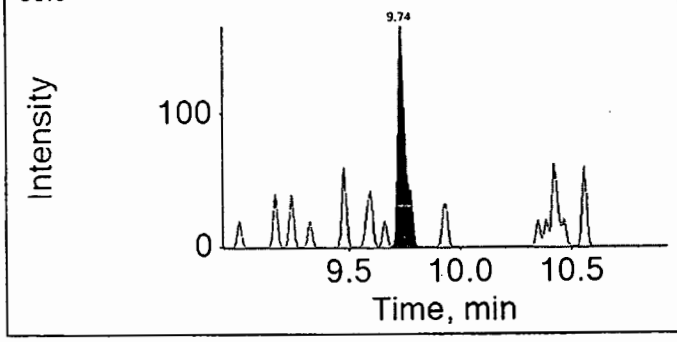
367.0 / 322.0



16JUL14-51.wiff

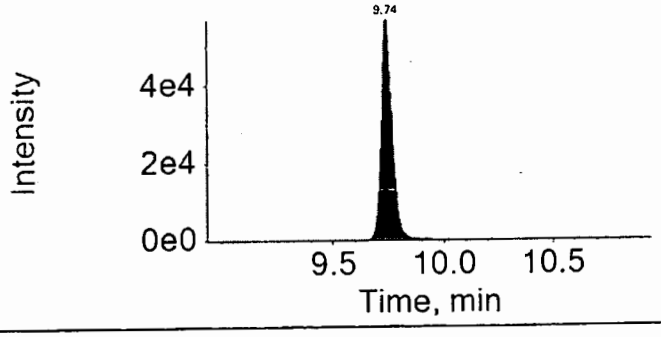
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

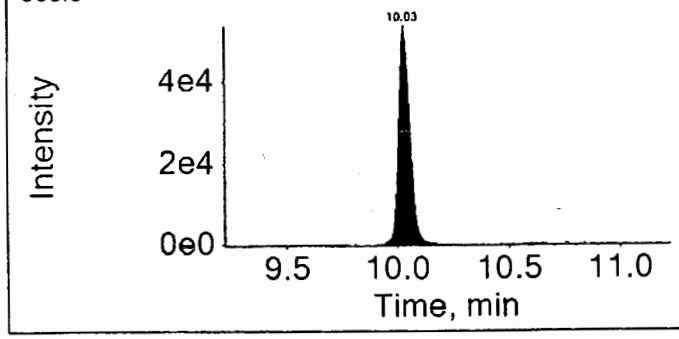
403.0 / 103.0



16JUL14-51.wiff

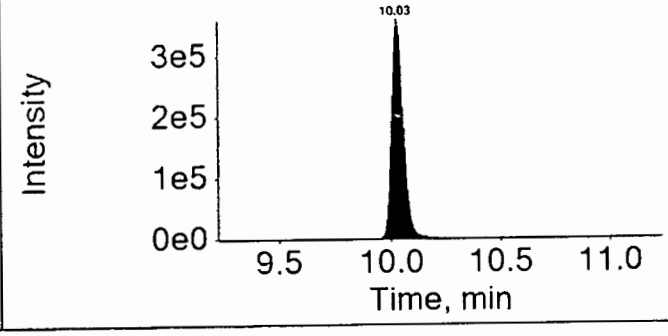
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

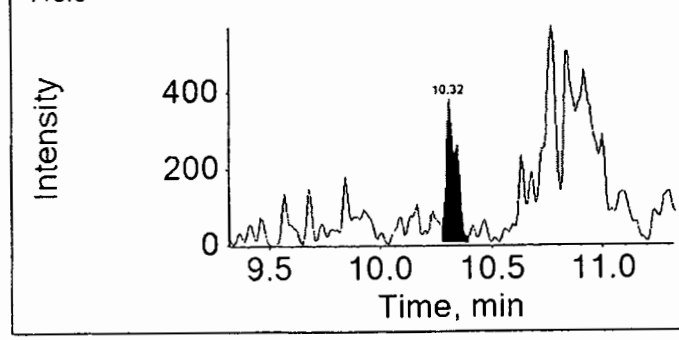
417.0 / 372.0



16JUL14-51.wiff

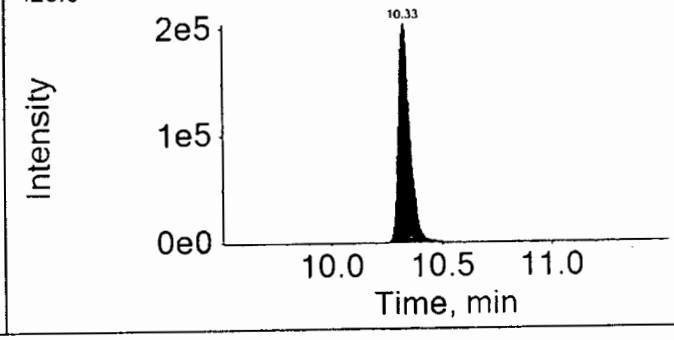
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

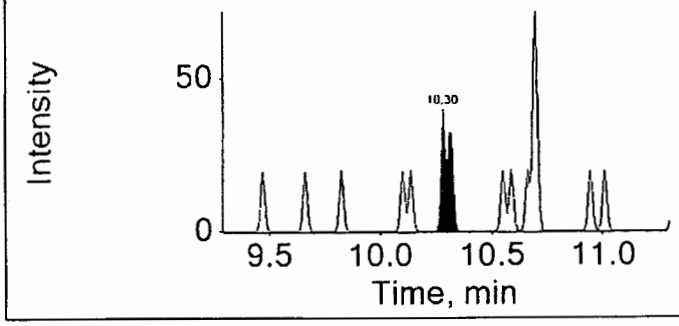
468.0 / 423.0



16JUL14-51.wiff

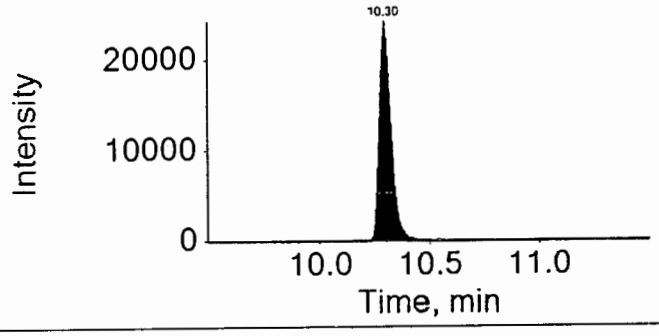
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

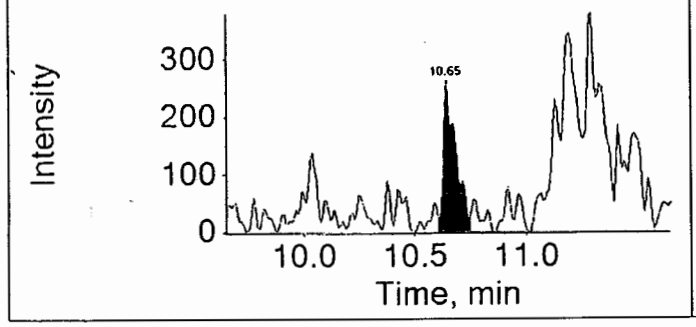
503.0 / 99.0



16JUL14-51.wiff

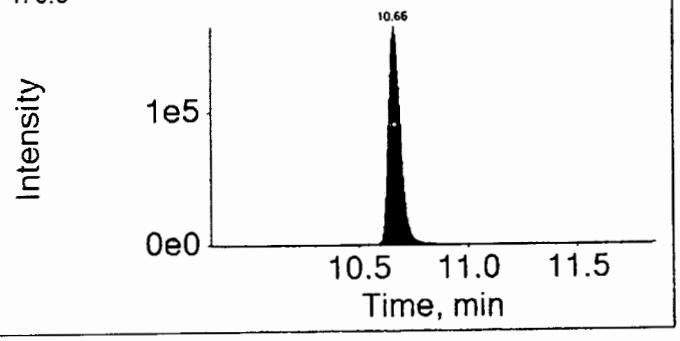
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

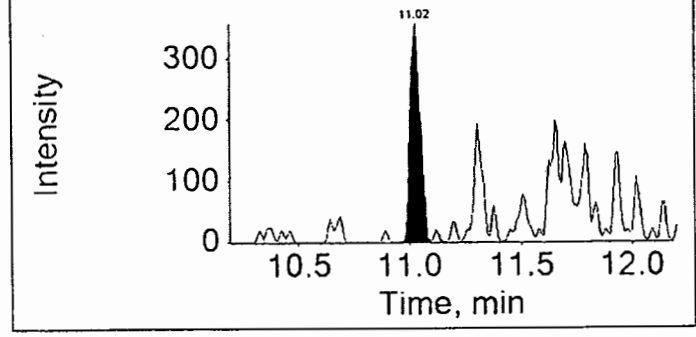
515.0 / 470.0



16JUL14-51.wiff

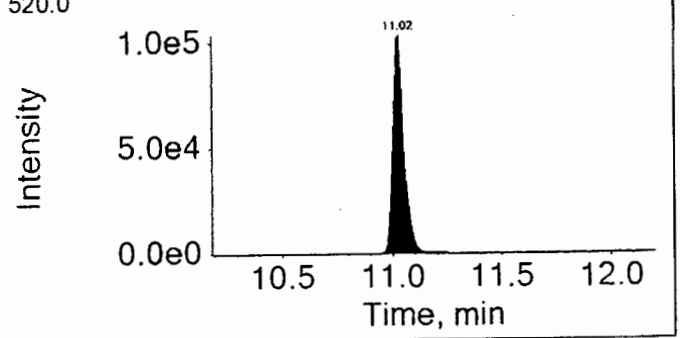
Analyte: PFUndA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



LCMSMS ANALYSIS REPORT

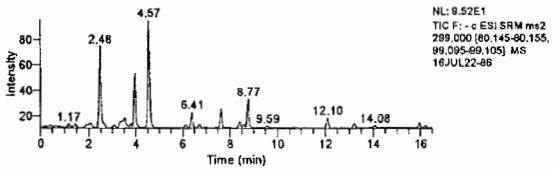
Sample Name:	8427031 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427031 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL22-86		
Acquisition Date:	07/23/16 08:49:36 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:33	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

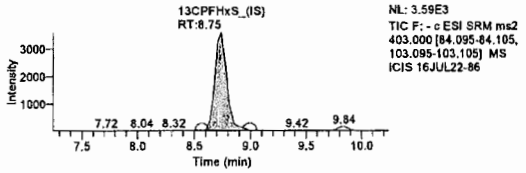
Extracted Ion Chromatogram

Quan Peak Table

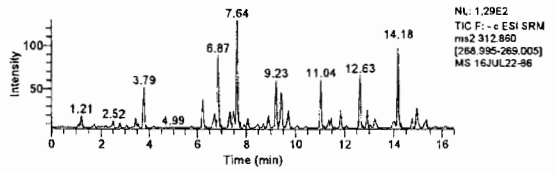
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.36	182687.28	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.14	170749.82	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.68	151840.91	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.86	111808.30	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.74	160960.60	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.42	94920.76	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.75	26464.66	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	11768.94	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.18	131270.14	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	0.038	9.64	620.26	151840.91	0.004	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	0.184	9.14	3043.36	170749.82	0.018	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

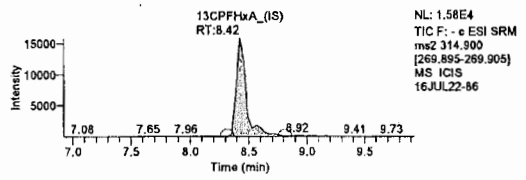
Component Name: PFBS





Component Name: PFHxA

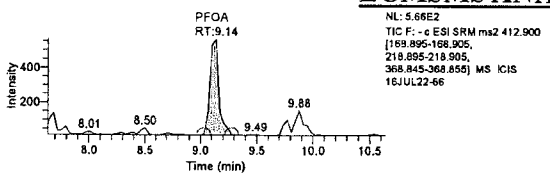


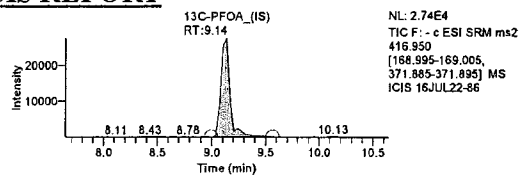


Component Name: PFOA

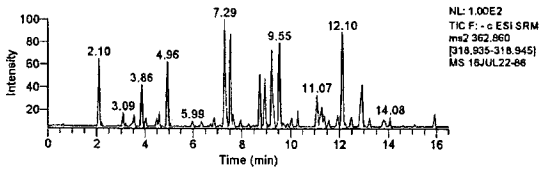
JWK 9524 7/26/16

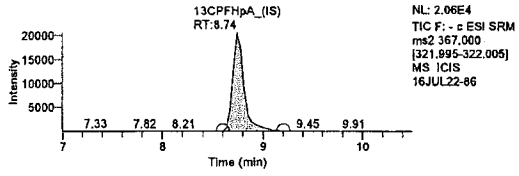
LCMSMS ANALYSIS REPORT



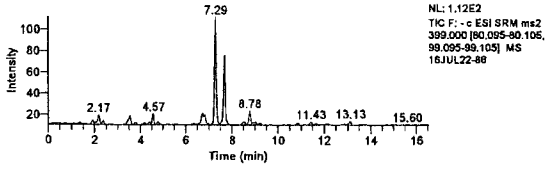


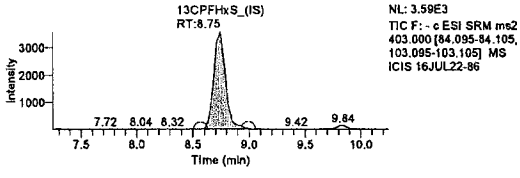
Component Name: PFhpA



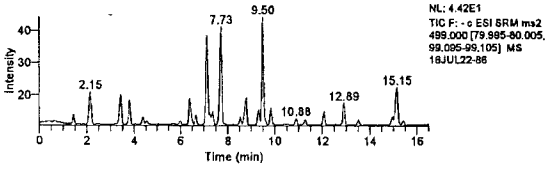


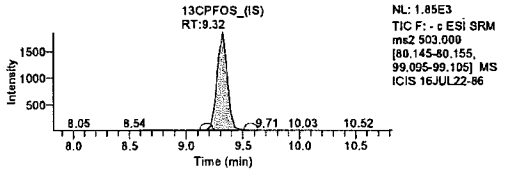
Component Name: PFHxS





Component Name: PFOS





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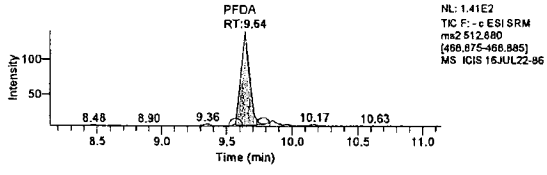

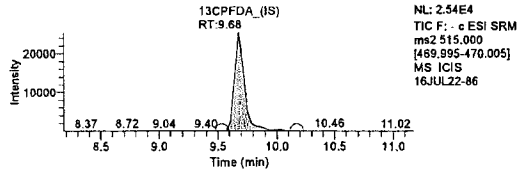

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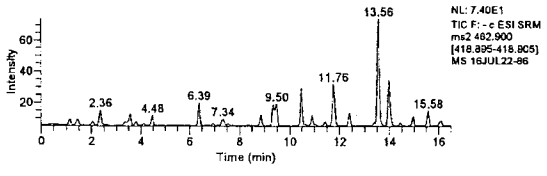
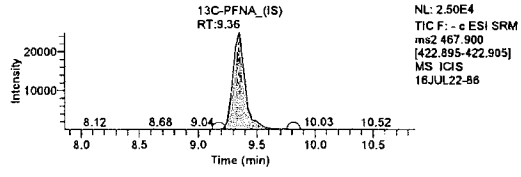
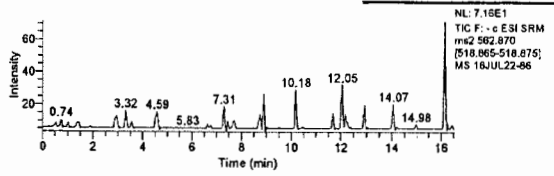


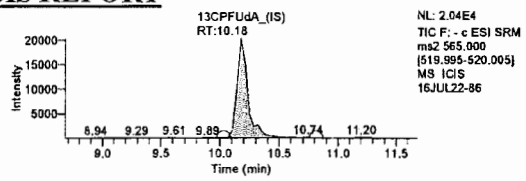


JWK 7/26/16

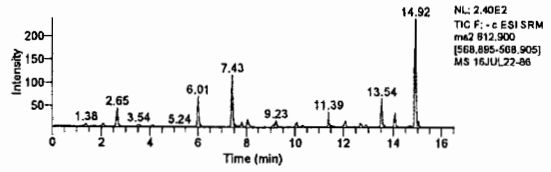
Component Name: PFUdA

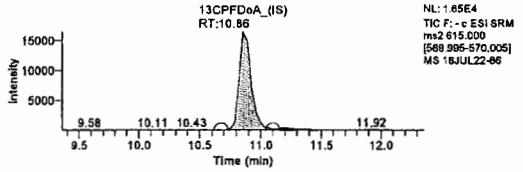
LCMSMS ANALYSIS REPORT



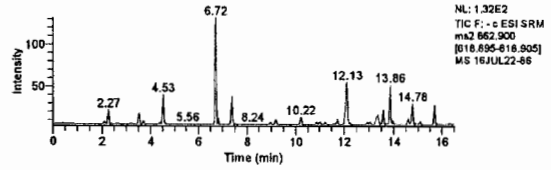


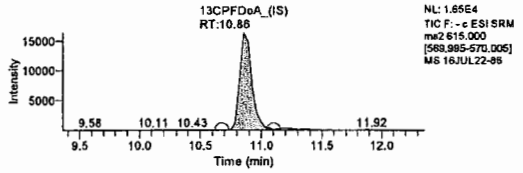
Component Name: PFDoA



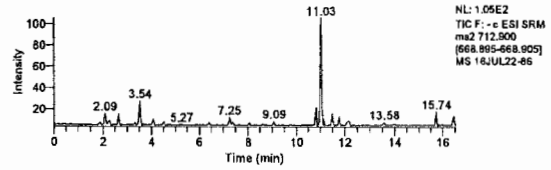


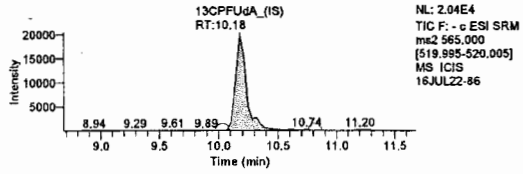
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 26 2016

Lynn Dodd
Principal Specialist

JWK9524
7/26/16

Sample Description: SG3-MW06-01.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8427032
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 10:50 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL

SG364 SDG#: SGP93-19

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.55	U	0.55	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.44	U	0.44	0.88	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.55	U	0.55	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.77	U	0.77	1.8	1
14027	Perfluorooctanoic acid	335-67-1	3.9		0.33	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.88	1
14027	Perfluorotridecanoic acid	72629-94-8	0.66	U	0.66	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.66	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 4 ng/g. PFOA was not detected in the re-extraction of the sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	9,060		625	1,870	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	9.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/15/2016 01:13	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 14:28	Nicole M Veety	1
00111	Moisture	SM 2540 G-1997	1	16173820009B	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW06-01.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8427032
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 10:50 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Rev'd SOD no change in result CTM

SG364 SDG#: SGP93-19

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.55	U	0.55	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.44	U	0.44	0.88	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.55	U	0.55	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.77	U	0.77	1.8	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.9**		0.33	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.88	1
14027	Perfluorotridecanoic acid	72629-94-8	0.66	U	0.66	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.66	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 4 ng/g. PFOA was not detected in the re-extraction of the sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,060**		625	1,870	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.4**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/15/2016 01:13	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 14:28	Nicole M Veety	1

*=This limit was used in the evaluation of the final result

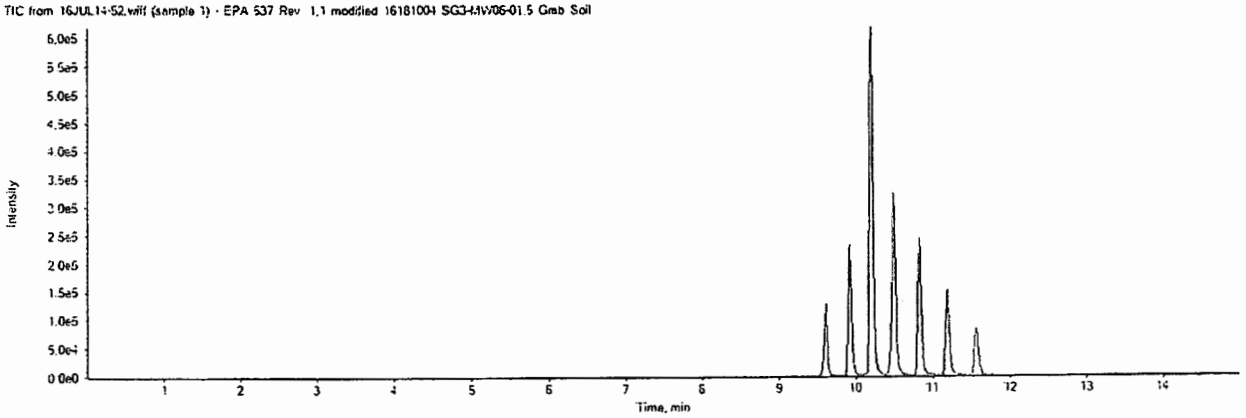
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW06-01.5 Grab Soil	**Data File:**		16JUL14-52.wiff
Sample ID:	8427032	**Acquis Date:**		7/15/2016 1:13:11 AM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	29	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	5.040	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

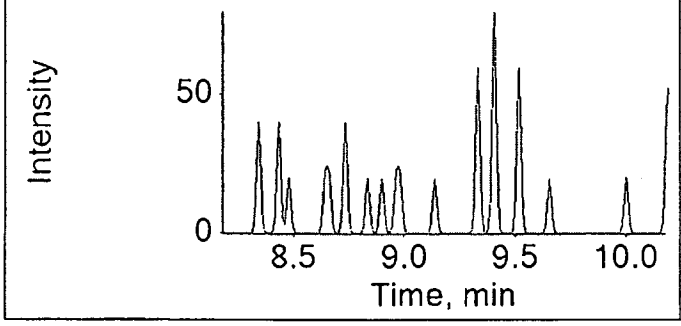
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.91	269648.0	N/A	N/A	
PFHxA	9.60	1183.2	13C2-PFHxA	9.60	345848.1	0.003	0.045	
PFHpA	9.92	725.2	13C4-PFHpA	9.92	448980.5	0.002	0.094	
PFHxS	9.92	440.4	18O2-PFHxS	9.91	269648.0	0.002	0.262	
PFOA	10.20	247970.4	13C4-PFOA	10.20	1696522.6	0.146	3.576	
PFNA	10.49	1659.8	13C5-PFNA	10.49	907163.8	0.002	0.076	
PFOS	10.47	55.0	13C4-PFOS	10.45	123197.8	0.000	0.423	
PFDA	10.80	1007.3	13C2-PFDA	10.82	797311.2	0.001	0.056	
PFUndA	11.17	1017.6	13C2-PFUnDA	11.18	510271.4	0.002	< 0	
PFDoDA	11.57	110.1	13C2-PFDoDA	11.55	304225.5	0.000	< 0	
PFTrDA	11.93	192.5	13C2-PFDoDA	11.55	304225.5	0.001	< 0	
PFTeDA	12.30	330.3	13C2-PFDoDA	11.55	304225.5	0.001	< 0	

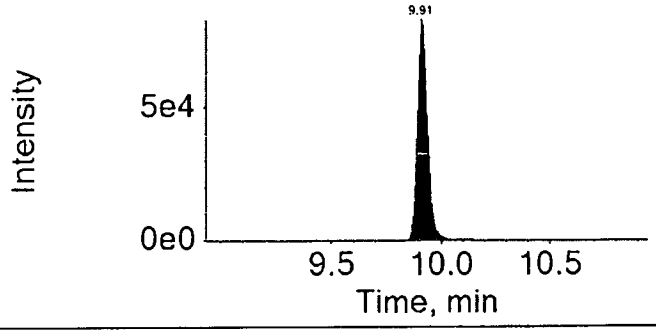
Total Ion Chromatogram

8427032



16JUL14-52.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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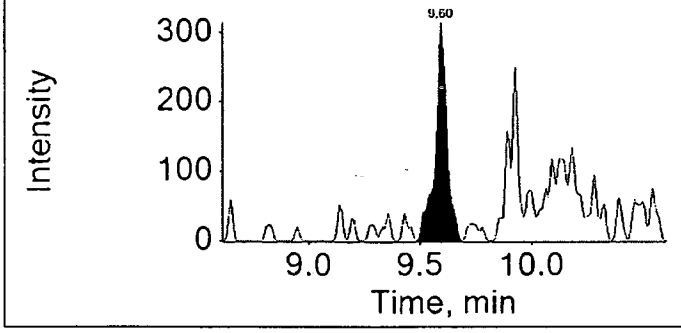
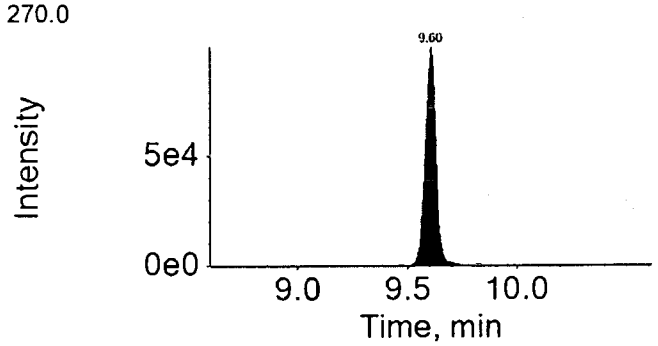
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





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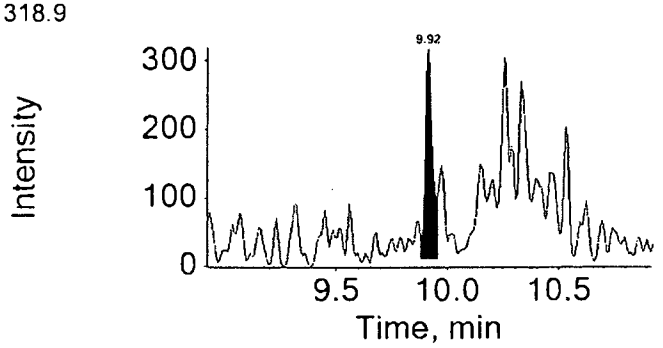
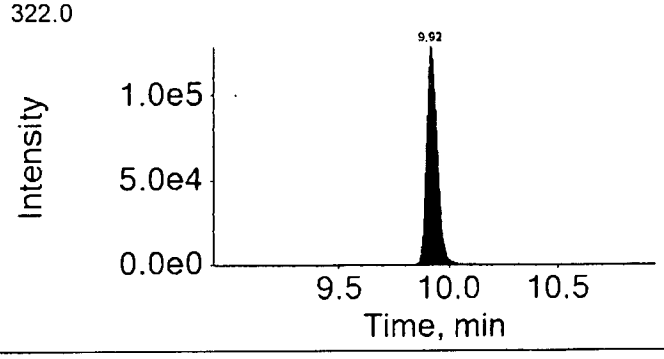
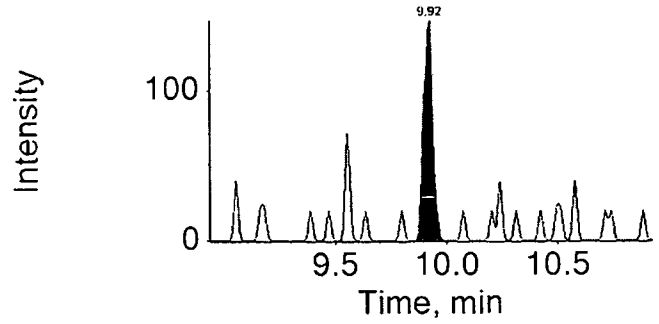
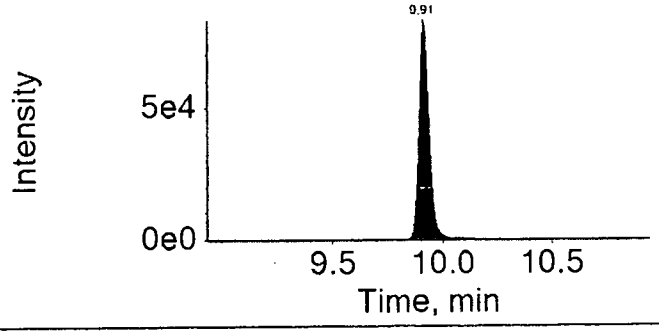
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0





16JUL14-52.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0





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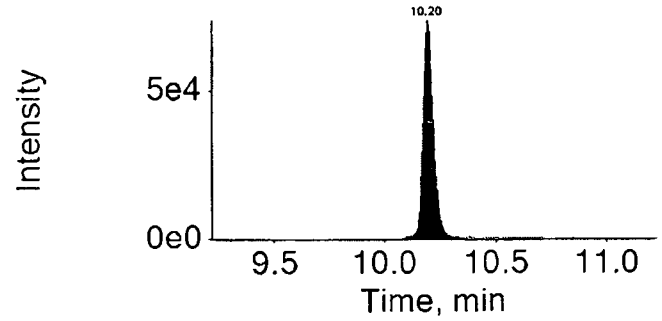
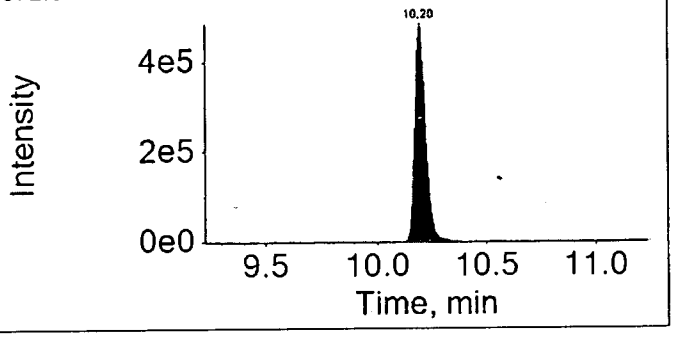
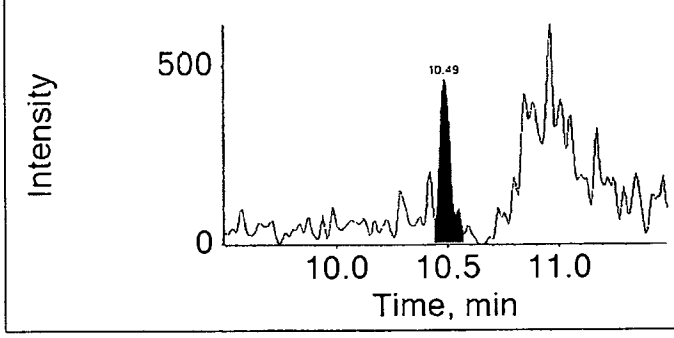
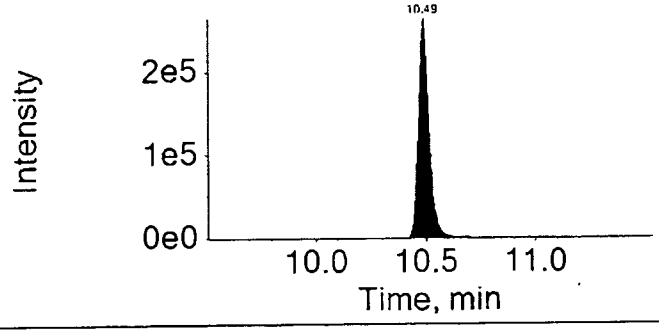
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



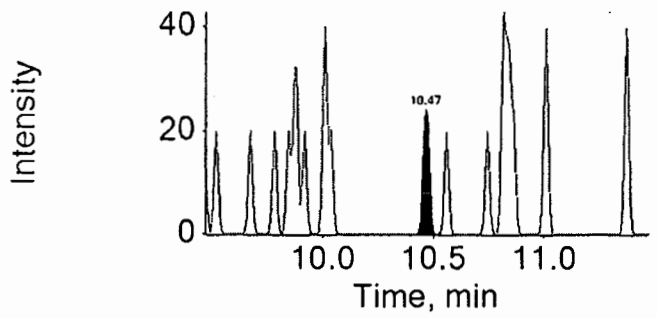


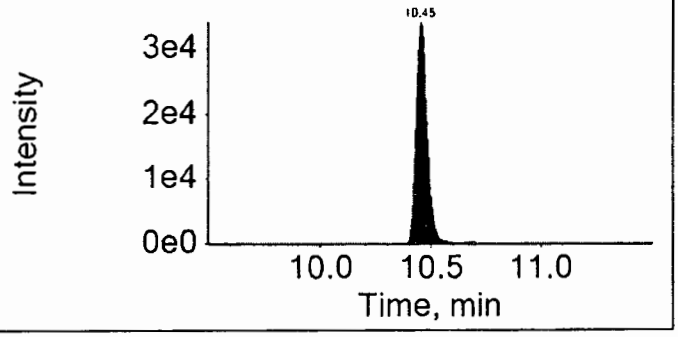
16JUL14-52.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



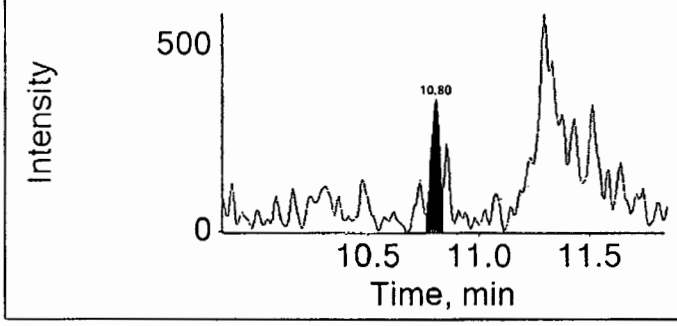


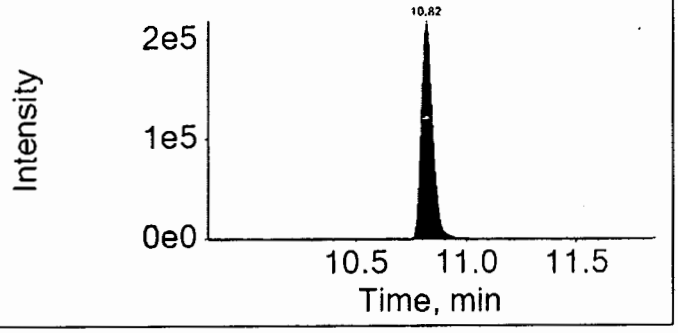
16JUL14-52.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



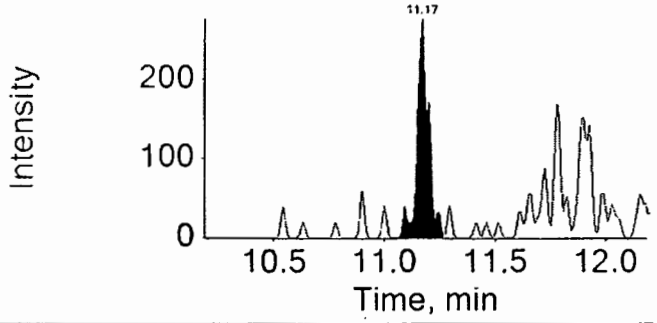


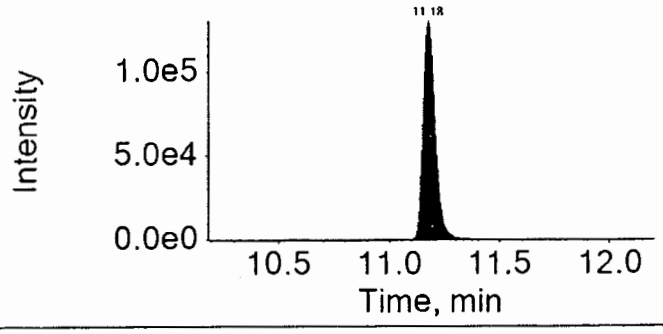
16JUL14-52.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16JUL14-52.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

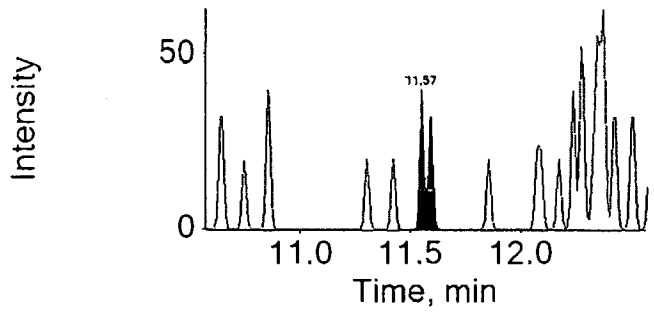




16JUL14-52.wiff

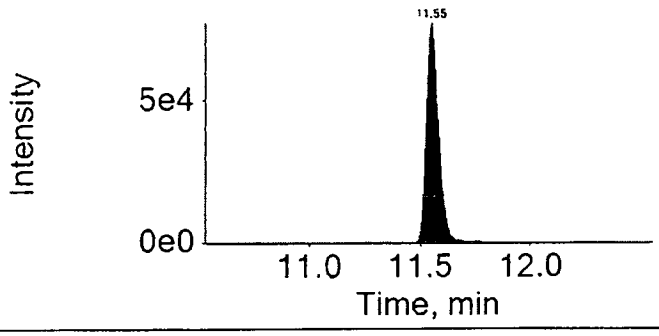
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

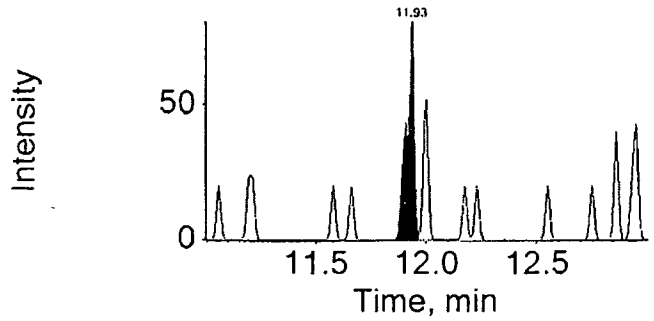
615.0 / 570.0



16JUL14-52.wiff

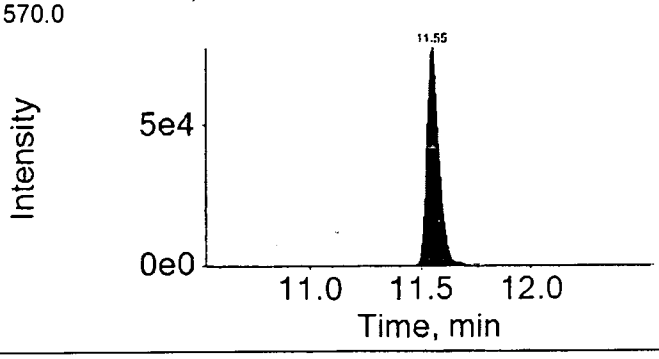
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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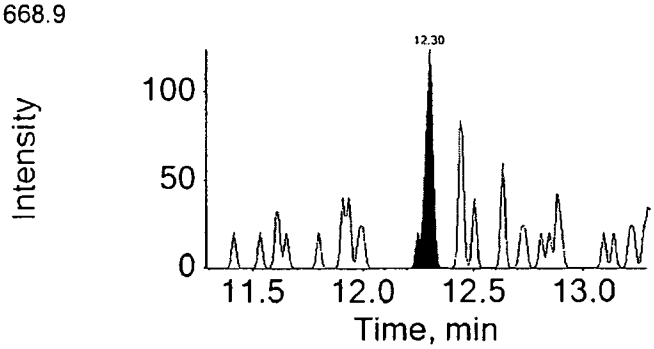
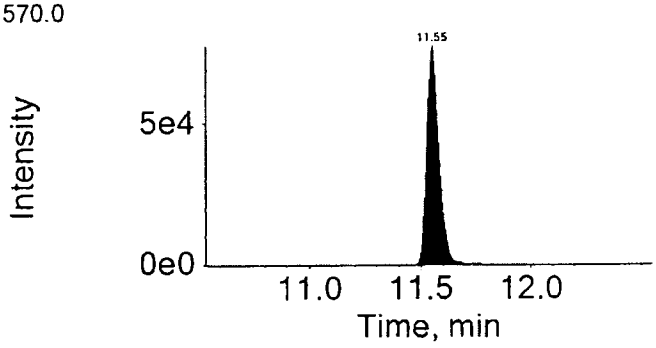
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



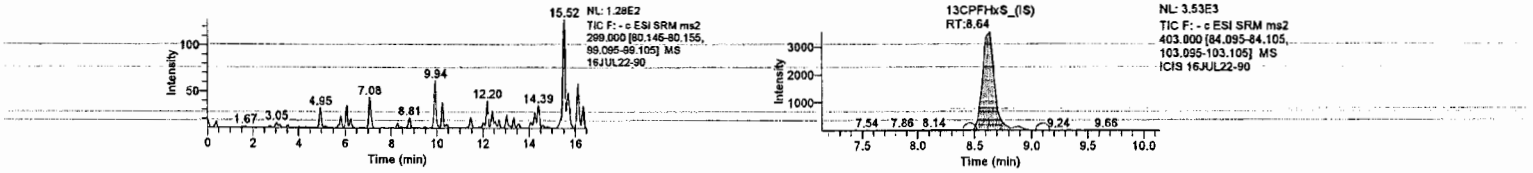
LCMSMS ANALYSIS REPORT

Sample Name:	8427032 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427032 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-90		M\HWell_16.5minutes
Acquisition Date:	07/23/16 09:58:33 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:34	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

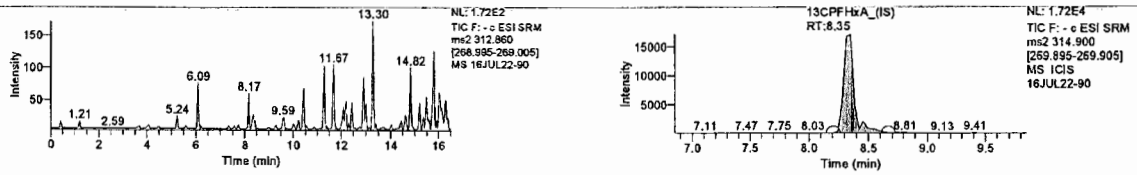
Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.28	184861.73	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.93	162078.80	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.71	157372.31	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.10	131135.61	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.64	182887.13	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.35	104971.46	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.64	26464.20	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.25	15145.67	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.32	135993.57	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	0.097	9.71	1273.75	157372.31	0.008	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	0.408	8.92	6595.00	162078.80	0.041	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

Component Name: PFBS



Component Name: PFHxA

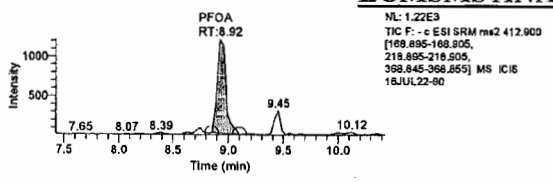


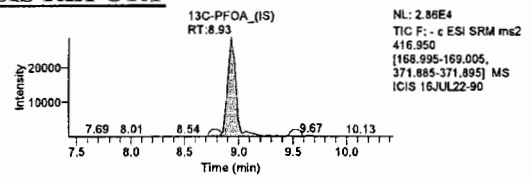
Component Name: PFOA

Jason W. Knight
Senior Chemist

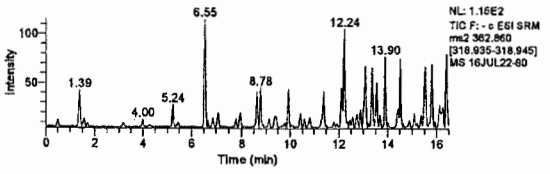
JUL 25 2016

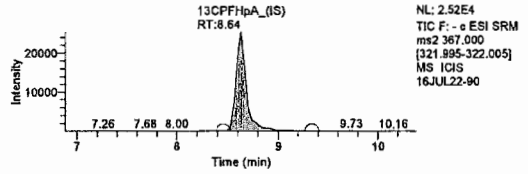
LCMSMS ANALYSIS REPORT



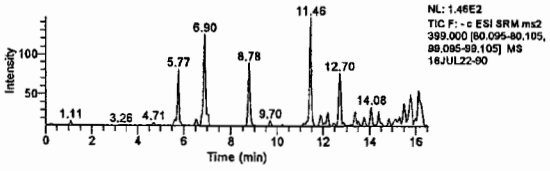


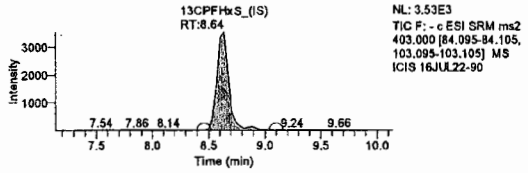
Component Name: PFhpA



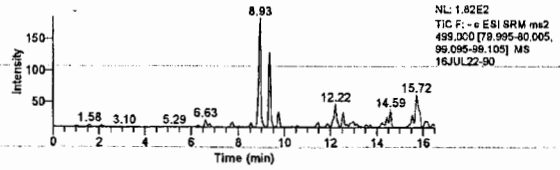


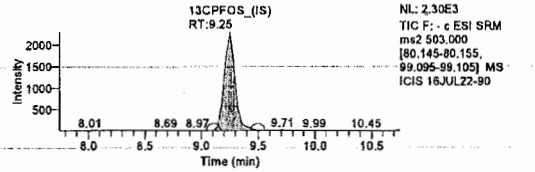
Component Name: PFHxS



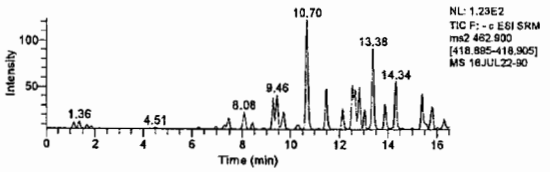


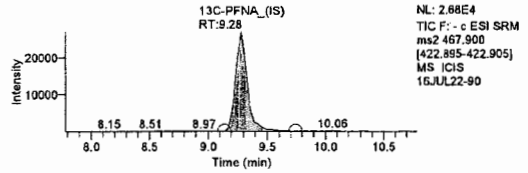
Component Name: PFOS



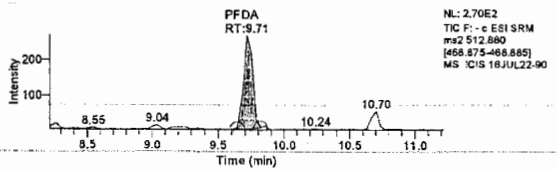


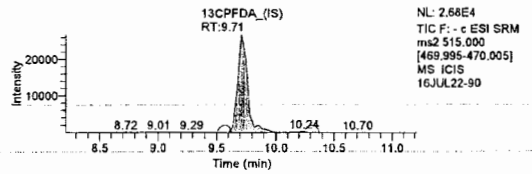
Component Name: PFNA





Component Name: PFDA



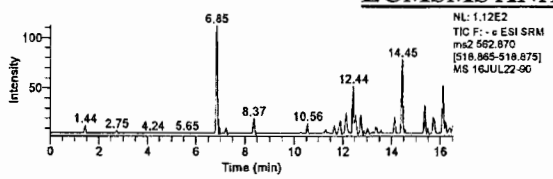


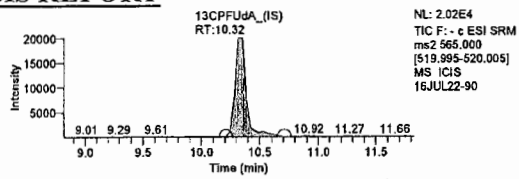
Component Name: PFUdA

Jason W. Knight
Senior Chemist

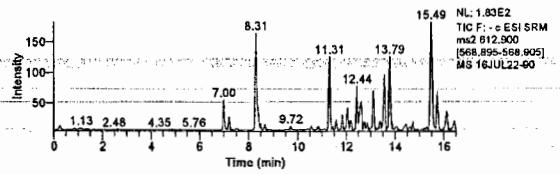
JUL 25 2016

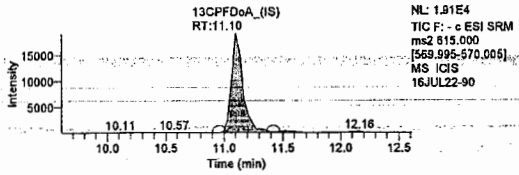
LCMSMS ANALYSIS REPORT



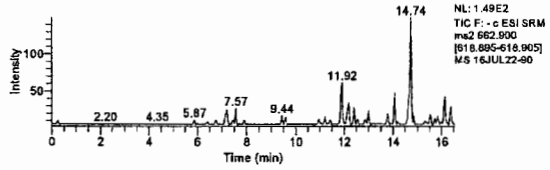


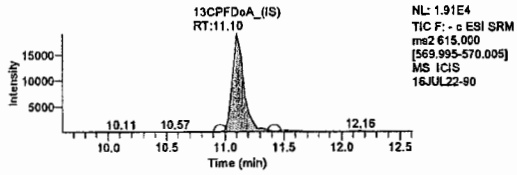
Component Name: PFDoA



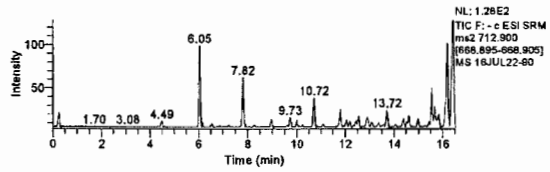


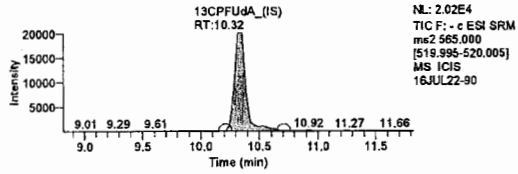
Component Name: PFTrDA





Component Name: PFTeDA





JUL 26 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

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Analysis Report

Sample Description: SG3-RB03-20160614 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8427033
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 11:00 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3R3 SDG#: SGP93-20RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	5		1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	UJ, Low MS	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	UJ, Low MS	3	5	1
10954	Perfluorohexanoic acid	307-24-4	5		1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	UJ, Low MS	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 02:32	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

Sample Name:	8427033	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8427033	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-67		
Acquisition Date:	06/29/16 02:32:48 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:7	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

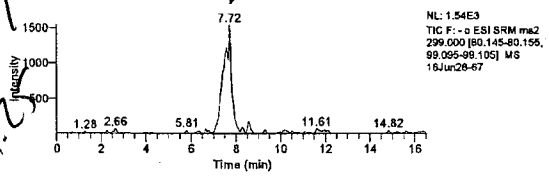
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.54	218361.58	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.28	149946.76	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.93	140975.20	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.43	115263.16	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.82	164737.60	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.53	60436.46	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.82	29497.90	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.50	10290.68	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.53	138421.60	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	5.020	8.53	7185.33	60436.46	0.119	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	0.758	9.53	1031.96	218361.58	0.005	ng/L
PFOA	5.059	9.25	16351.17	149946.76	0.109	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

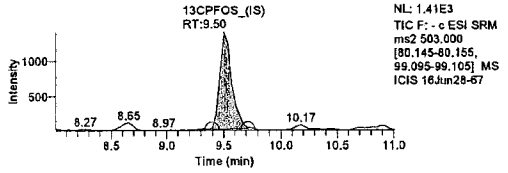
CCVs
8.10/9.39
8.14/9.28
8.03/9.27

Lab checking integration, w/in 0.06 RRT of MDL

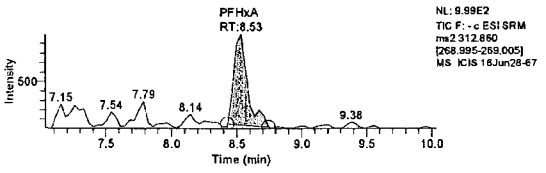
OR RT does not match MAM 5/18/17

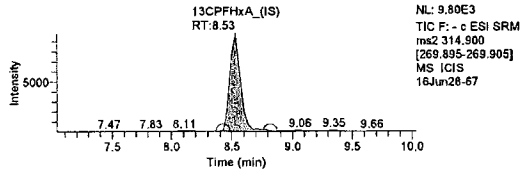
Component Name: PFBS





Component Name: PFHxA



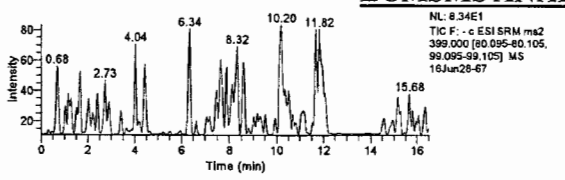


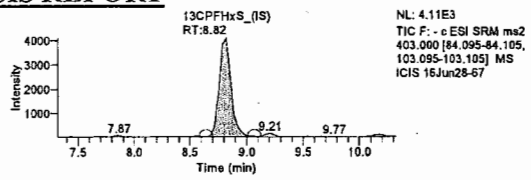
Component Name: PFHxS

Michele J. Smith
JUN 30 2016
Michele J. Smith
Senior Specialist

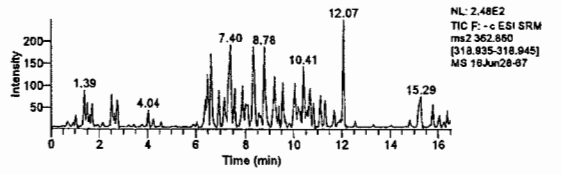
Jason W. Knight
Senior Chemist
JUN 29 2016

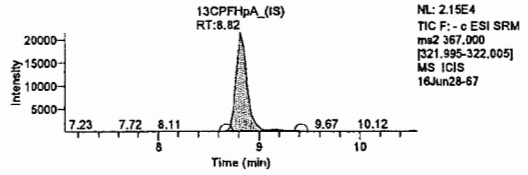
LCMSMS ANALYSIS REPORT



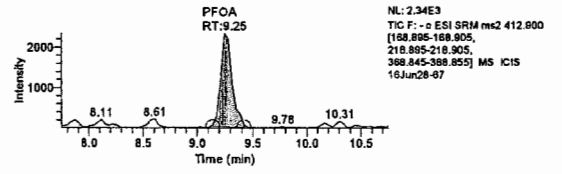


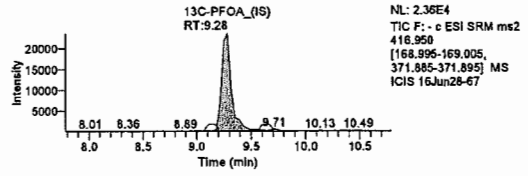
Component Name: PFhpA



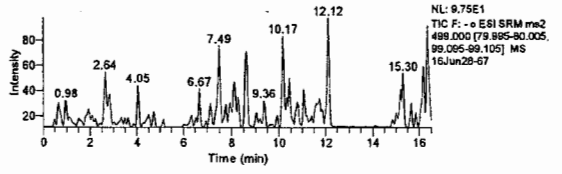


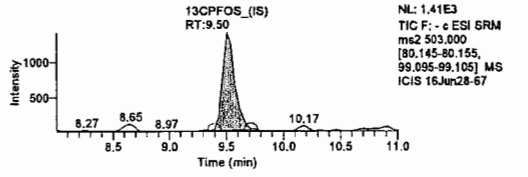
Component Name: PFOA





Component Name: PFOS





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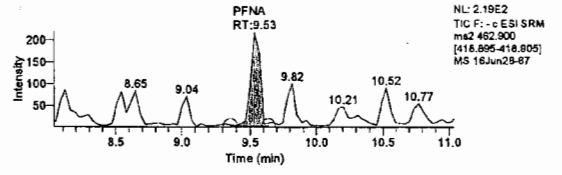

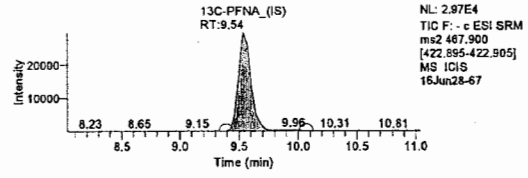

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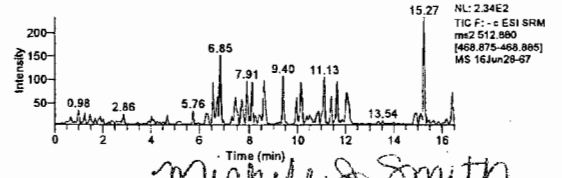
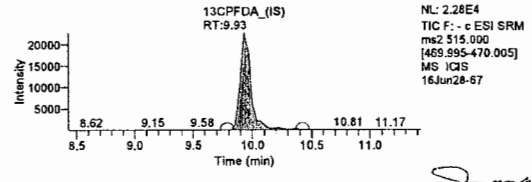




Michele J. Smith

JUN 30 2016

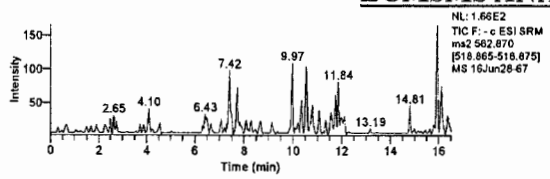
Michele J. Smith
Senior Specialist

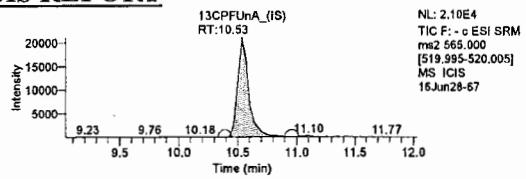
Component Name: PFUdA

Jason W. Knight
Senior Chemist

JUN 29 2016

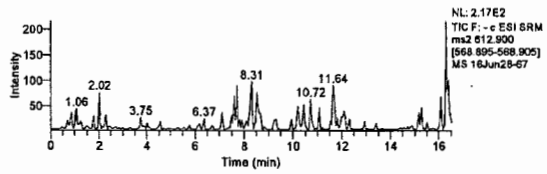
LCMSMS ANALYSIS REPORT

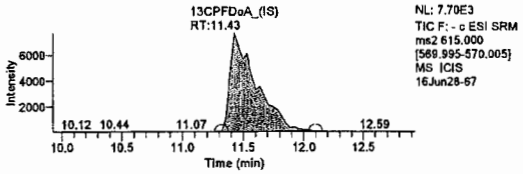




Component Name: PFDoA

Poor integration of peak, result < MDL, NQ





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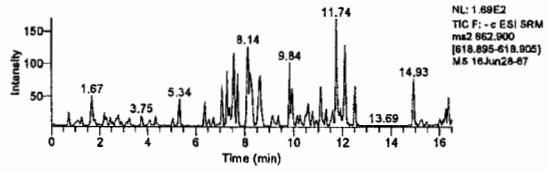
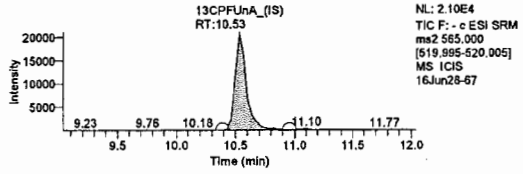
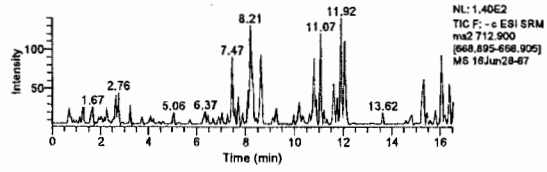
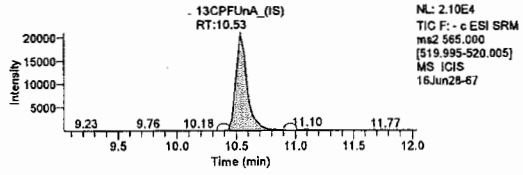




Component Name: PFTeDA





Michele J Smith

JUN 3 0 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

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Analysis Report

Sample Description: SG3-MW07-09.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8427034
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 12:20 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL

SG376 SDG#: SGP93-21

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.42	1
14027	Perfluorododecanoic acid	307-55-1	0.42	U	0.42	0.85	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.74	U	0.74	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.32	U	0.32	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.85	1
14027	Perfluorotridecanoic acid	72629-94-8	0.63	U	0.63	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.63	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was not detected. PFOA was detected in the re-extraction of the sample at 3 ng/g.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	1,330		106	317	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	5.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/15/2016 01:32	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	2	16176113031A	06/24/2016 19:02	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16173820009B	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MW07-09.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8427034
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 12:20 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG376 SDG#: SGP93-21

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.43	1
14027	Perfluorododecanoic acid	307-55-1	0.43	U	0.43	0.85	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.75	U	0.75	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.32	U	0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.85	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was not detected. PFOA was detected in the re-extraction of the sample at 3 ng/g.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,330**		106	317	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**5.5**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/15/2016 01:32	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	2	16176113031A	06/24/2016 19:02	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16173820009B	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

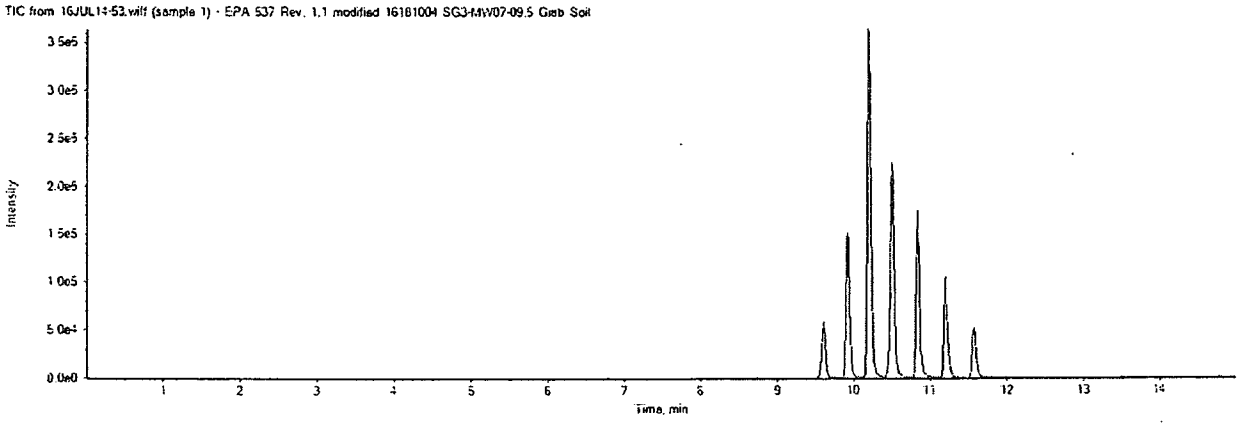
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW07-09.5 Grab Soil	**Data File:**		16JUL14-53.wiff
Sample ID:	8427034	**Acquis Date:**		7/15/2016 1:32:24 AM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	30	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	4.970	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

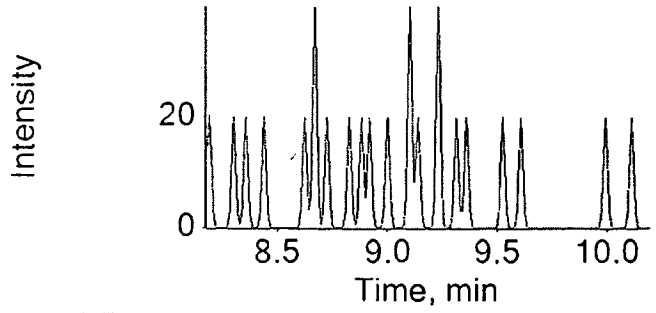
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.91	170919.0	N/A	N/A	
PFHxA	9.60	633.8	13C2-PFHxA	9.60	204297.9	0.003	0.040	
PFHpA	9.96	637.3	13C4-PFHpA	9.92	326011.8	0.002	0.101	
PFHxS	9.91	495.4	18O2-PFHxS	9.91	170919.0	0.003	0.283	
PFOA	10.20	10432.2	13C4-PFOA	10.20	1157822.4	0.009	0.206	
PFNA	10.49	2112.1	13C5-PFNA	10.50	709206.9	0.003	0.086	
PFOS	10.46	220.2	13C4-PFOS	10.47	85756.8	0.003	0.449	
PFDA	10.83	1505.3	13C2-PFDA	10.83	510506.9	0.003	0.075	
PFUndA	11.19	1101.1	13C2-PFUnDA	11.19	322999.9	0.003	0.015	
PFDoDA	11.56	165.2	13C2-PFDoDA	11.56	186393.9	0.001	< 0	
PFTrDA	11.91	110.2	13C2-PFDoDA	11.56	186393.9	0.001	< 0	
PFTeDA	N/A	N/A	13C2-PFDoDA	11.56	186393.9	N/A	N/A	

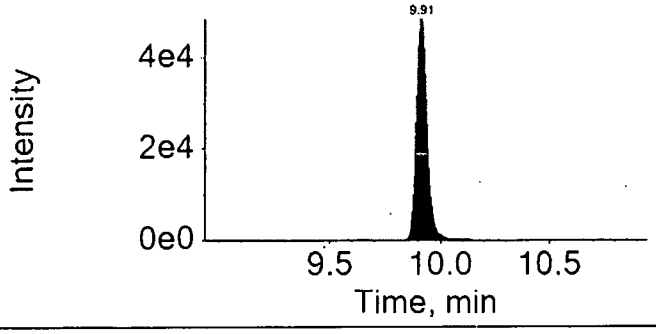
Total Ion Chromatogram

8427034



16JUL14-53.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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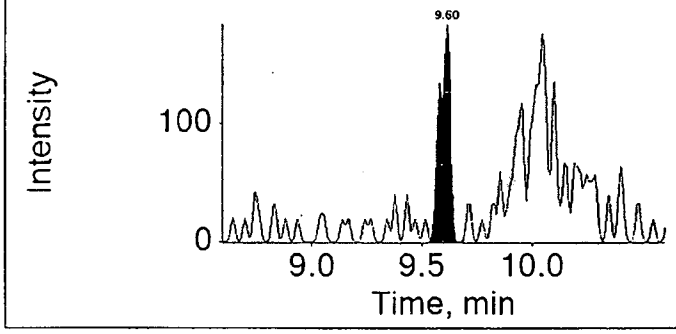
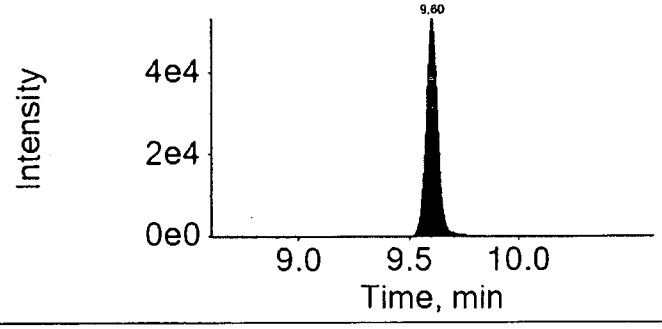
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





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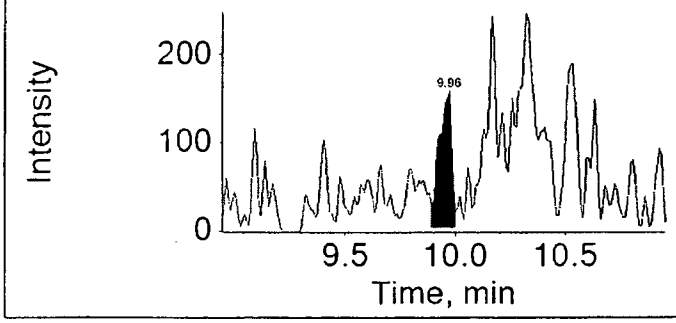
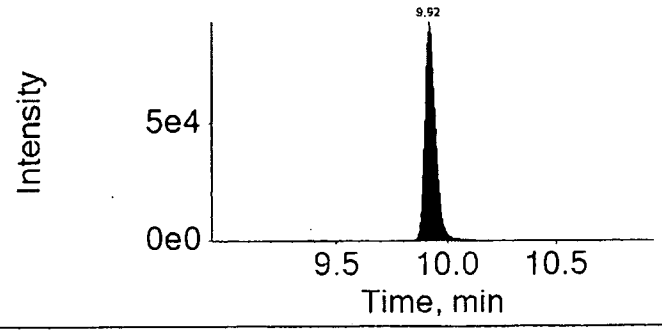
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

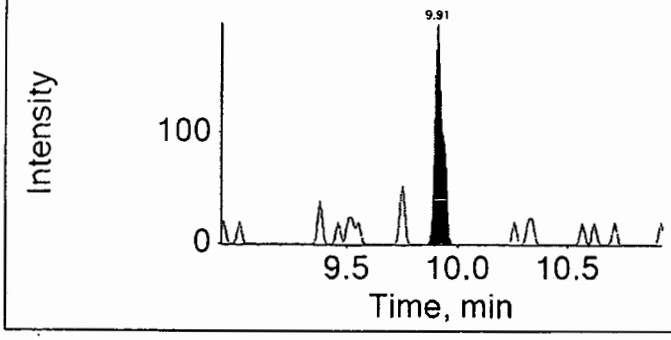




16JUL14-53.wiff

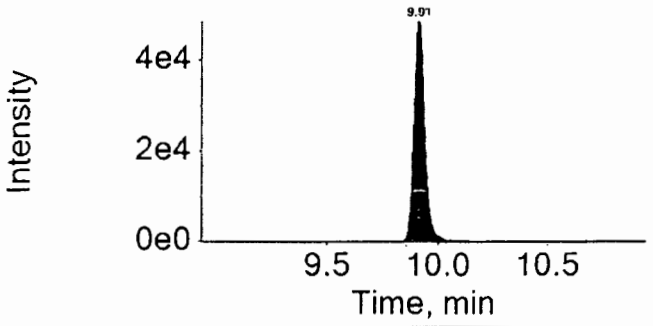
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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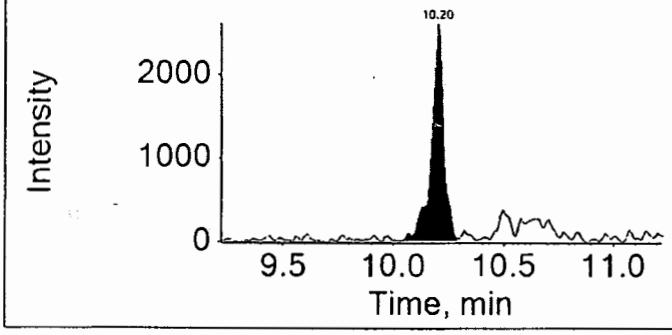
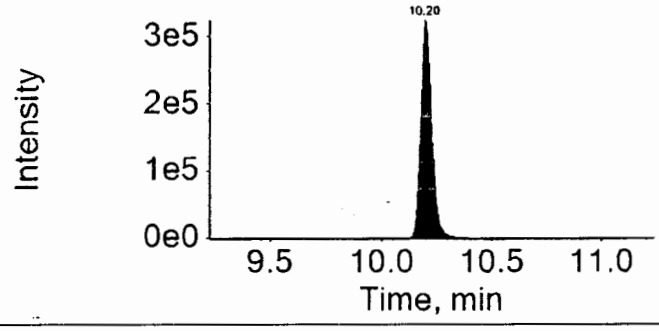
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

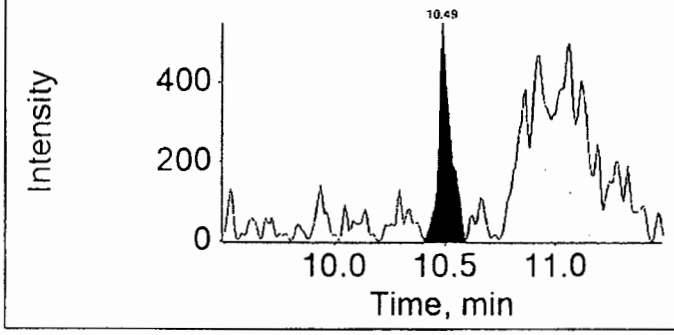
417.0 / 372.0



16JUL14-53.wiff

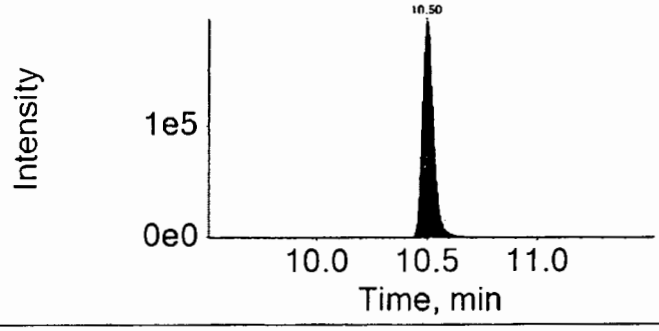
Analyte: PFNA

462.9 / 418.9

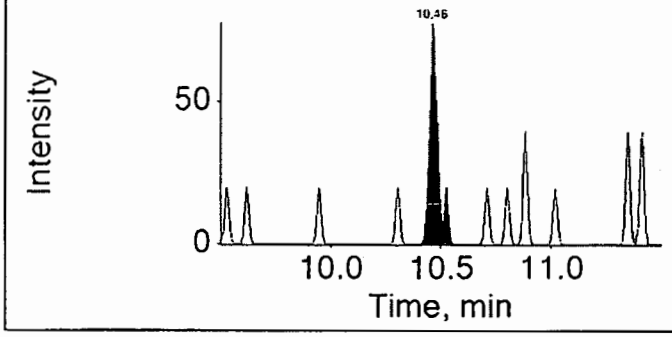


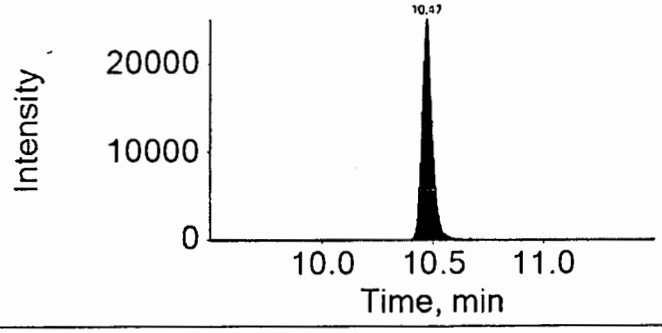
Internal Standard: 13C5-PFNA

468.0 / 423.0

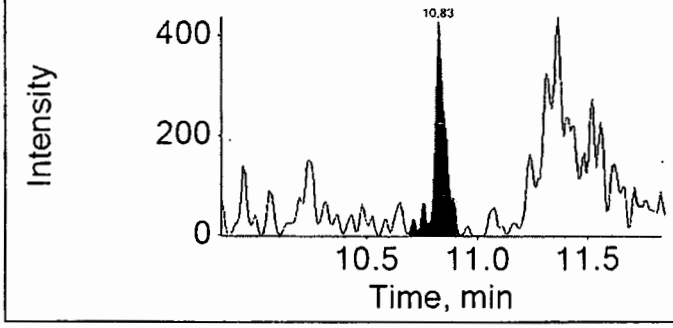


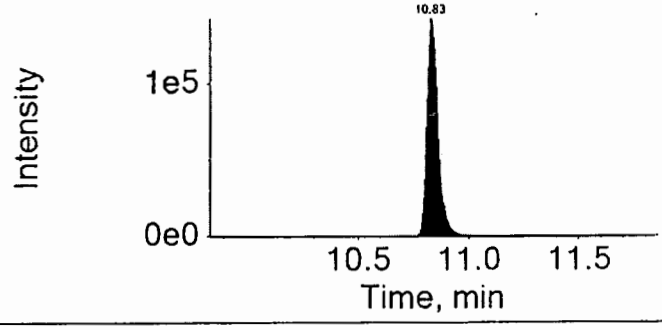
16JUL14-53.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



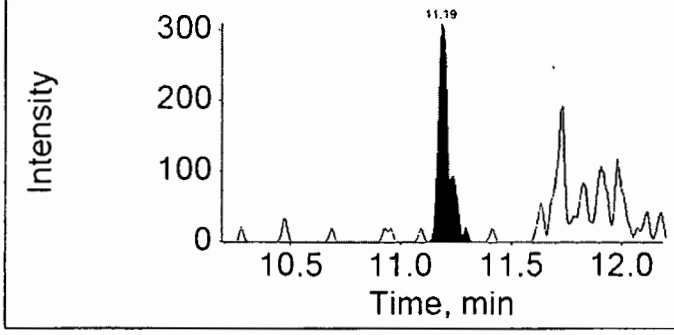


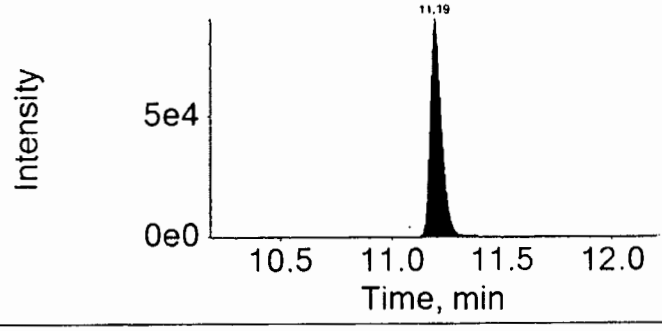
16JUL14-53.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16JUL14-53.wiff	
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

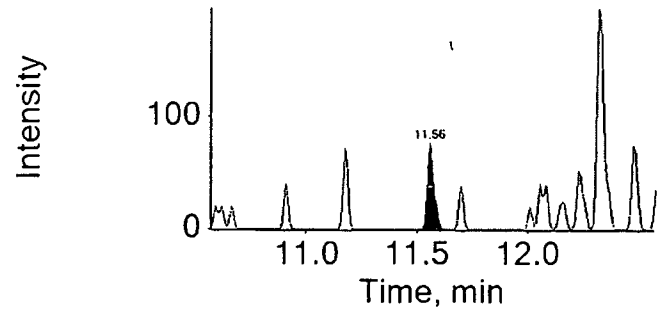




16JUL14-53.wiff

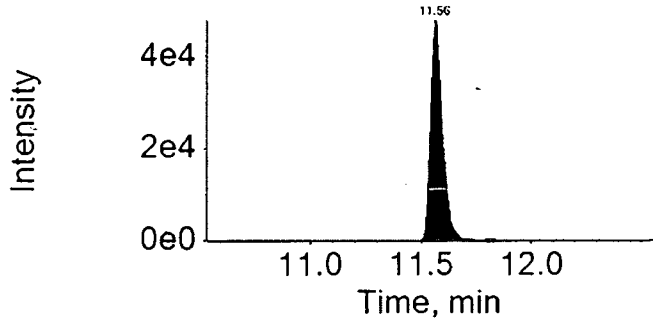
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

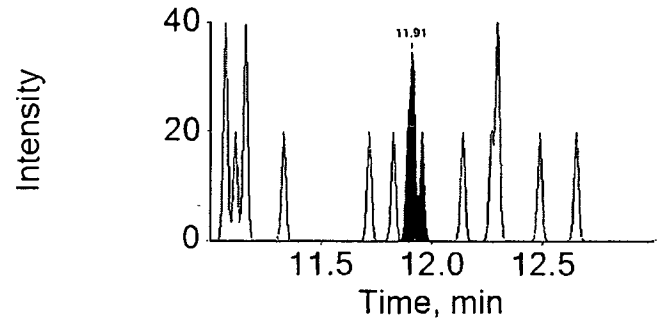
615.0 / 570.0



16JUL14-53.wiff

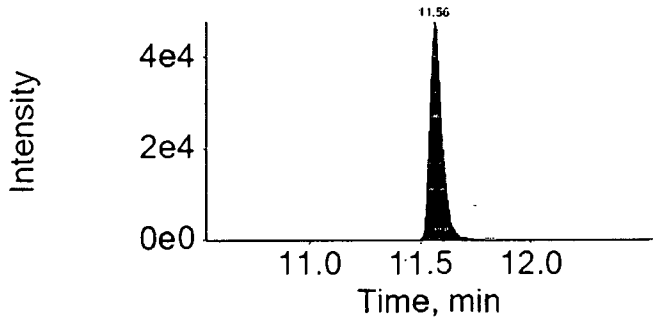
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

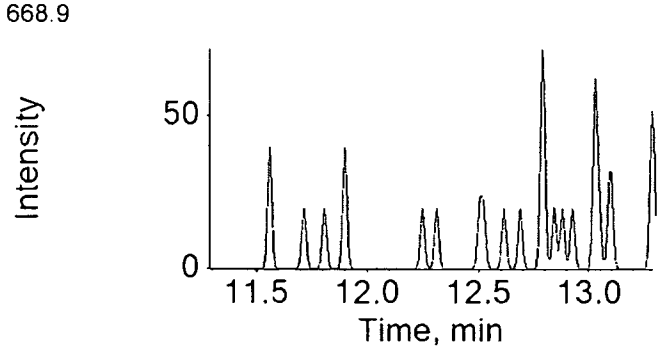
615.0 / 570.0



16JUL14-53.wiff

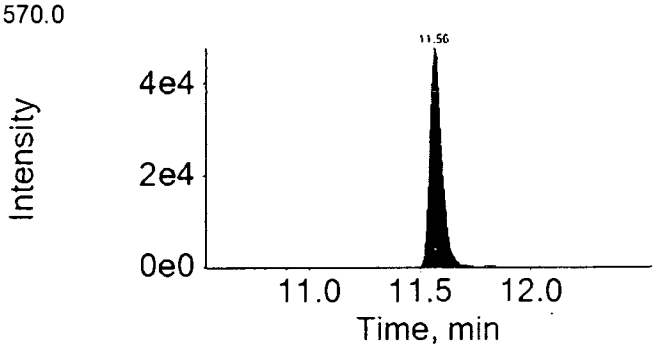
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



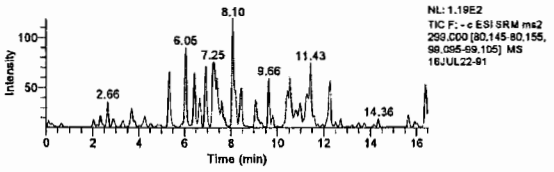
LCMSMS ANALYSIS REPORT

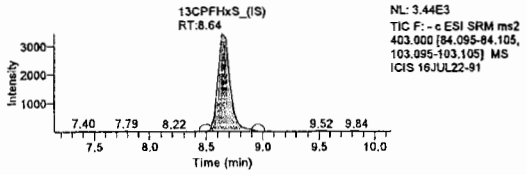
Sample Name:	8427034 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427034 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-91		M\HWell_16.5minutes
Acquisition Date:	07/23/16 10:15:48 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:35	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

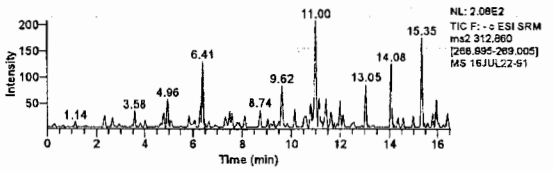
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.28	172852.82	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.96	161563.85	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.71	156933.28	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.96	96858.63	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.67	174798.42	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	94184.96	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.64	25543.44	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.25	16251.70	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.25	118508.68	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	0.073	9.54	1015.31	156933.28	0.006	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	2.584	8.96	42532.30	161563.85	0.263	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

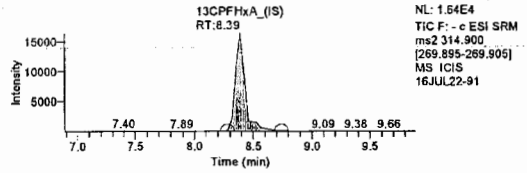
Component Name: PFBS





Component Name: PFHxA



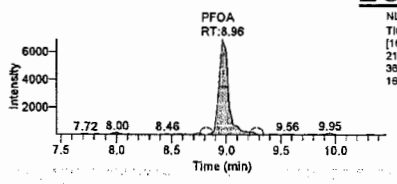


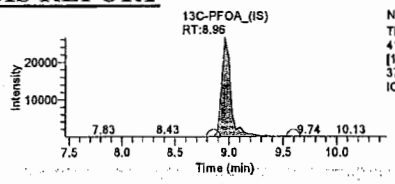
Component Name: PFOA

Jason W. Knight
Senior Chemist

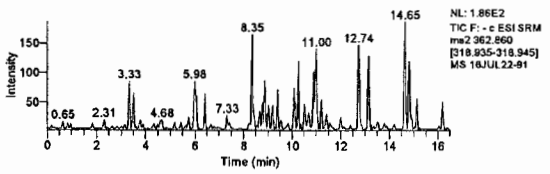
JUL 25 2016

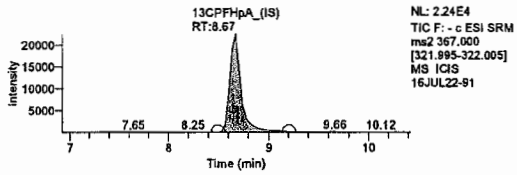
LCMSMS ANALYSIS REPORT



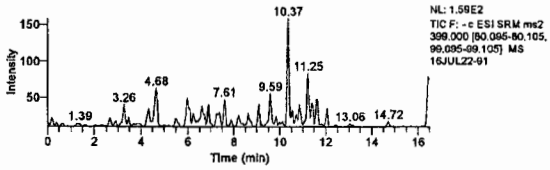


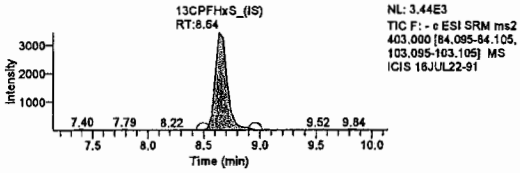
Component Name: PFhpA



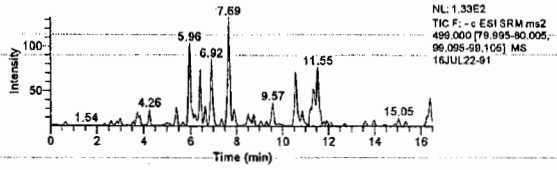


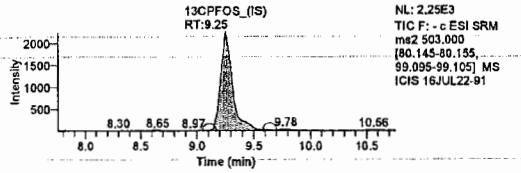
Component Name: PFHxS



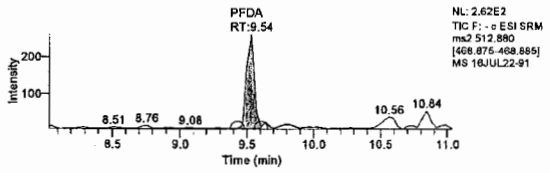


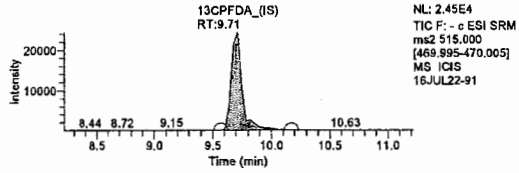
Component Name: PFOS



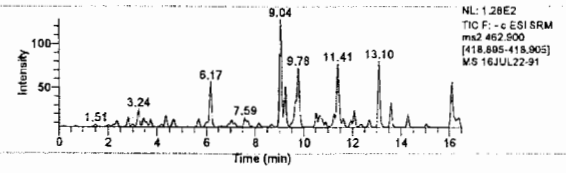


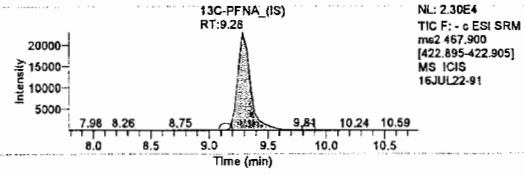
Component Name: PFDA





Component Name: PFNA





Component Name: PFUdA

Jason W. Knight
Senior Chemist

JUL 25 2016

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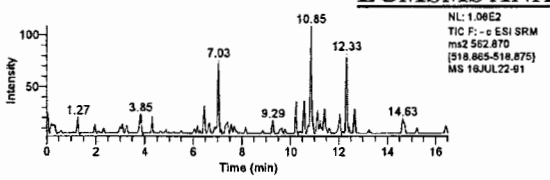
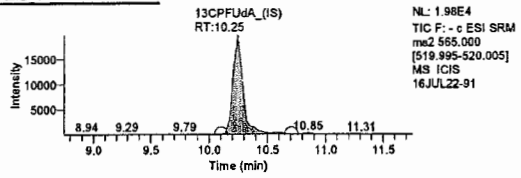
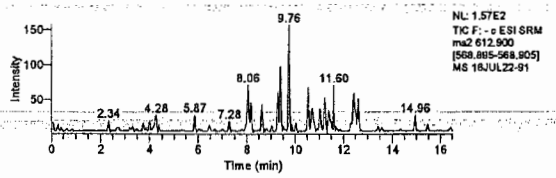
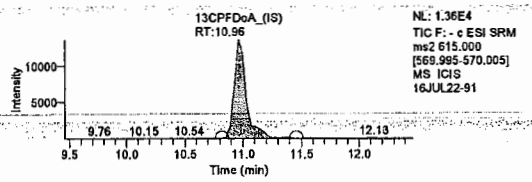


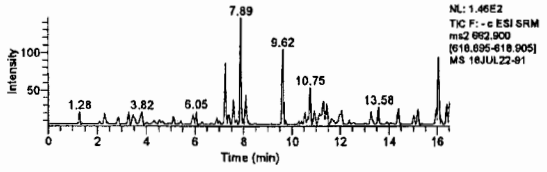


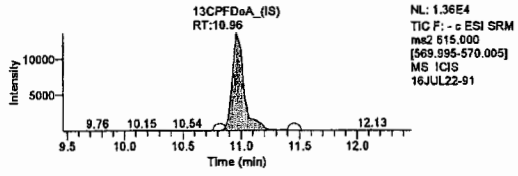
Component Name: PFDoA



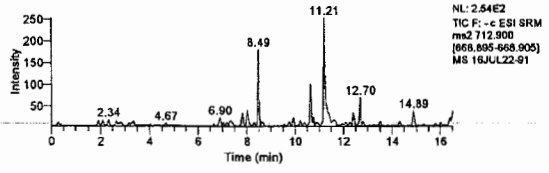


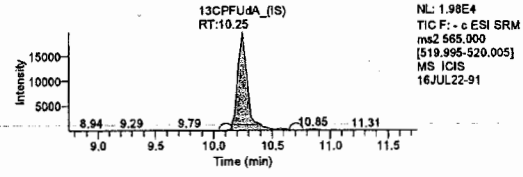
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd

JUL 26 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

Sample Description: SG3-MW07-12.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427035
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 12:23 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Original

SG377 SDG#: SGP93-22

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.56	U	0.56	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.45	1
14027	Perfluorododecanoic acid	307-55-1	0.45	U	0.45	0.89	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.56	U	0.56	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.78	U	0.78	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.33	U	0.33	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.89	1
14027	Perfluorotridecanoic acid	72629-94-8	0.67	U	0.67	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.67	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was not detected. PFOA was detected in the re-extraction of the sample at 3 ng/g.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	19,500		602	1,800	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	10.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/15/2016 02:10	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 14:45	Nicole M Veety	1
00111	Moisture	SM 2540 G-1997	1	16173820009B	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW07-12.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427035
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 12:23 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG377 SDG#: SGP93-22

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.42	1
14027	Perfluorododecanoic acid	307-55-1	0.42	U	0.42	0.85	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.74	U	0.74	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.32	U	0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.85	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was not detected. PFOA was detected in the re-extraction of the sample at 3 ng/g.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**19,500**		602	1,800	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.4**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/15/2016 02:10	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 14:45	Nicole M Veety	1
00111	Moisture	SM 2540 G-1997	1	16173820009B	06/21/2016 20:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

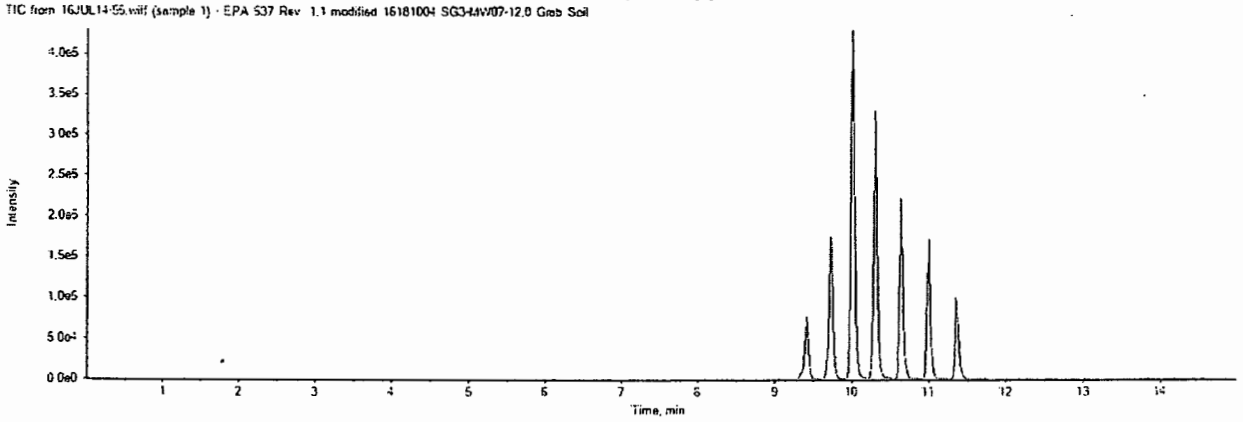
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW07-12.0 Grab Soil	**Data File:**		16JUL14-55.wiff
Sample ID:	8427035	**Acquis Date:**		7/15/2016 2:10:53 AM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	31	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	5.270	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

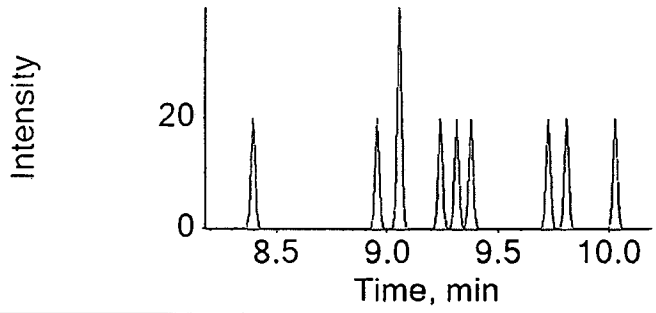
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.72	223122.8	N/A	N/A	
PFHxA	9.41	521.3	13C2-PFHxA	9.41	281325.9	0.002	0.016	
PFHpA	9.74	1491.6	13C4-PFHpA	9.73	408438.8	0.004	0.124	
PFHxS	9.72	907.4	18O2-PFHxS	9.72	223122.8	0.004	0.282	
PFOA	10.01	4243.2	13C4-PFOA	10.01	1459297.7	0.003	0.051	
PFNA	10.31	4564.4	13C5-PFNA	10.31	915161.1	0.005	0.096	
PFOS	10.28	412.9	13C4-PFOS	10.28	103466.2	0.004	0.437	
PFDA	10.63	4666.4	13C2-PFDA	10.64	691323.3	0.007	0.111	
PFUndA	11.00	2779.9	13C2-PFUnDA	10.99	508699.4	0.005	0.047	
PFDoDA	11.37	1236.2	13C2-PFDoDA	11.36	306903.3	0.004	< 0	
PFTrDA	11.79	633.0	13C2-PFDoDA	11.36	306903.3	0.002	< 0	
PFTeDA	12.16	521.6	13C2-PFDoDA	11.36	306903.3	0.002	< 0	

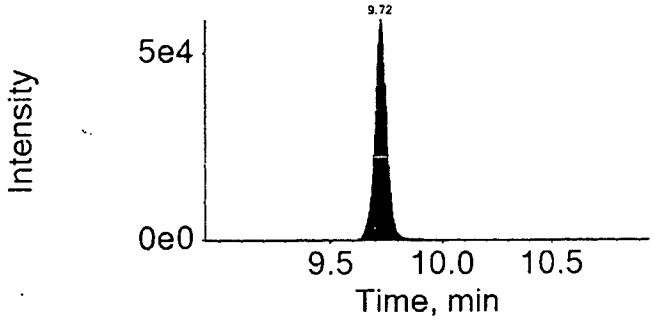
Total Ion Chromatogram

8427035

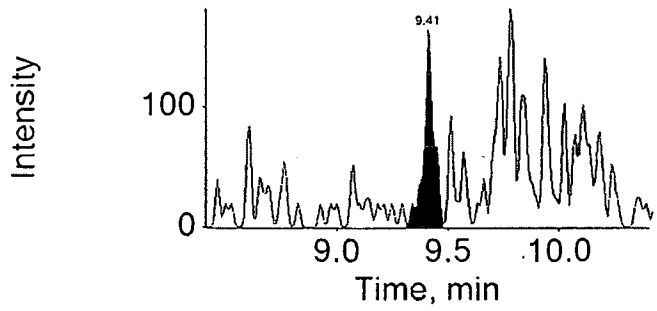


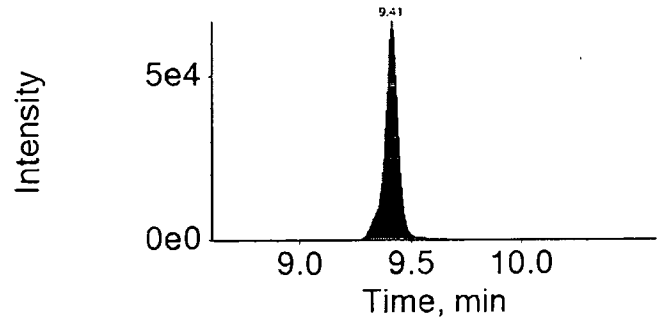
16JUL14-55.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



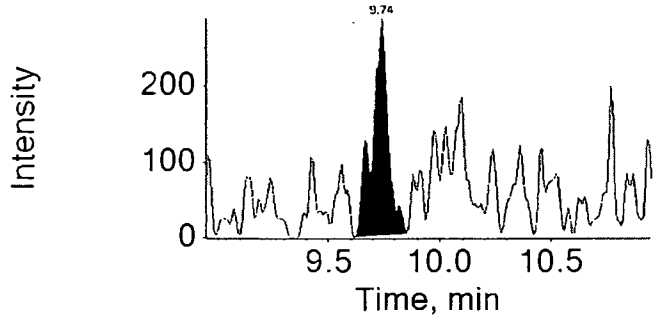


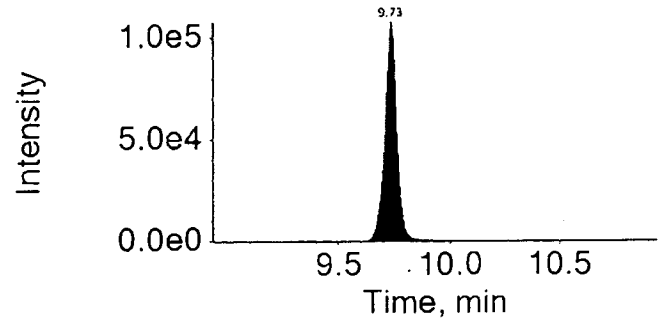
16JUL14-55.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



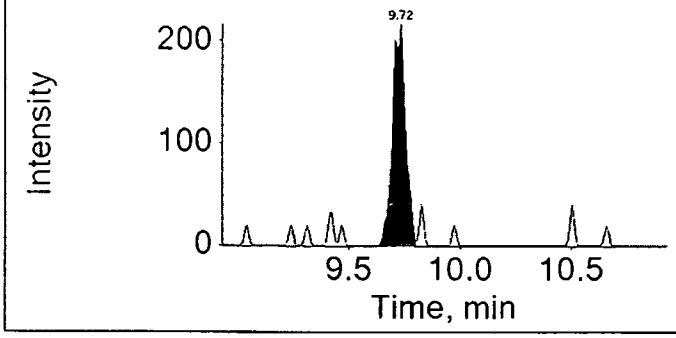


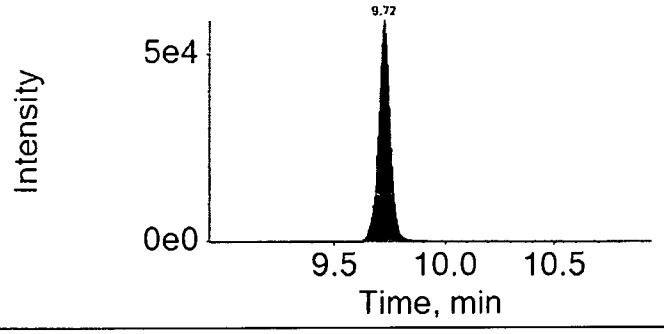
16JUL14-55.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



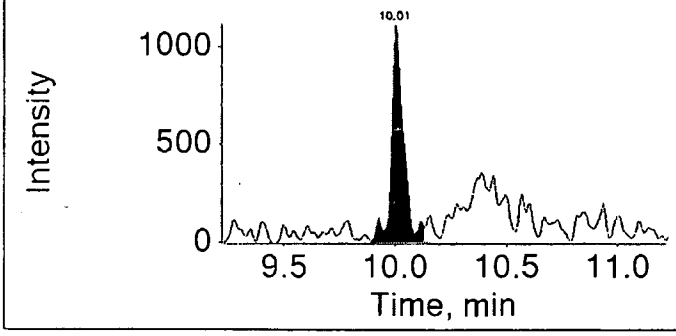


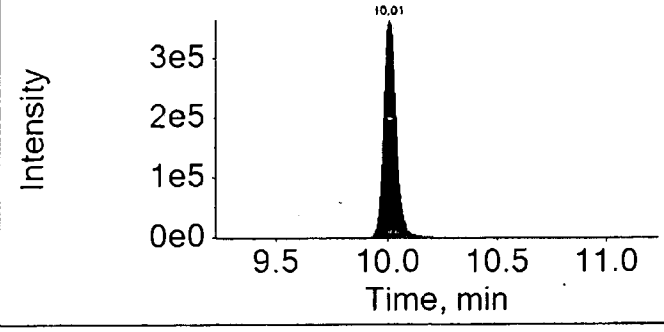
16JUL14-55.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



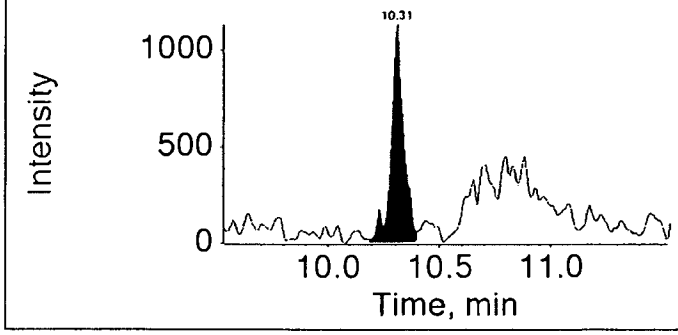


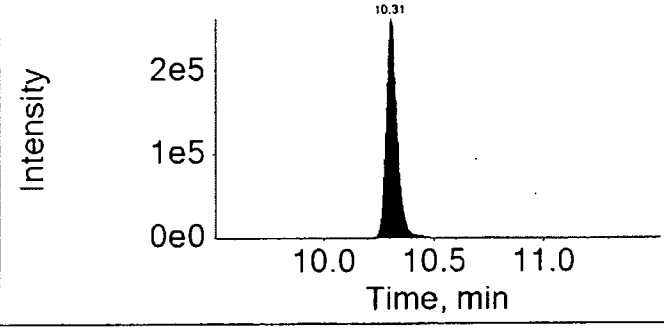
16JUL14-55.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





16JUL14-55.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0

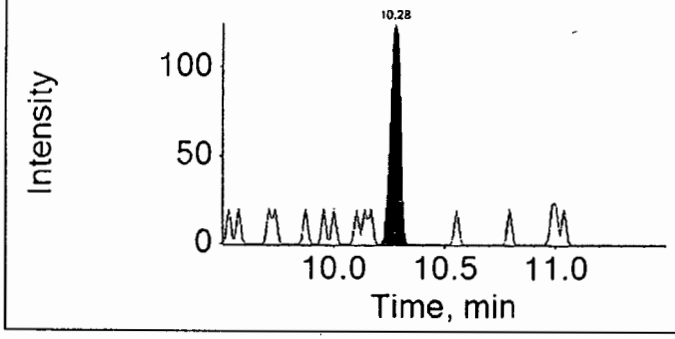




16JUL14-55.wiff

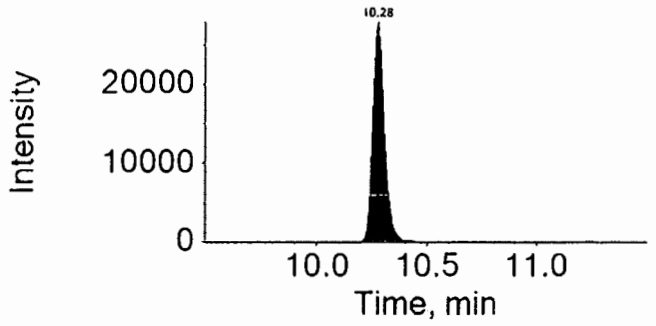
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

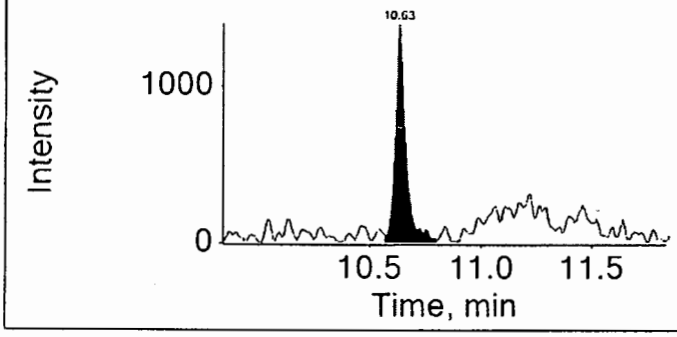
503.0 / 99.0



16JUL14-55.wiff

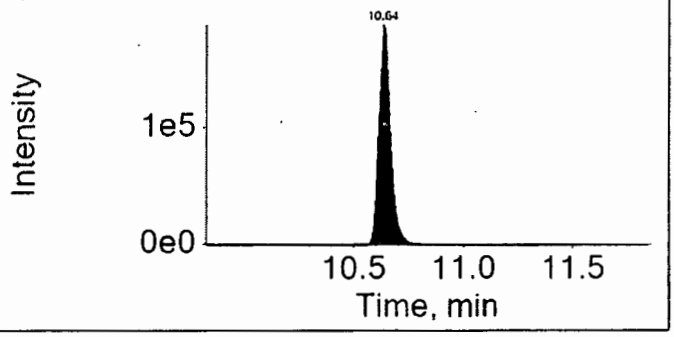
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

515.0 / 470.0



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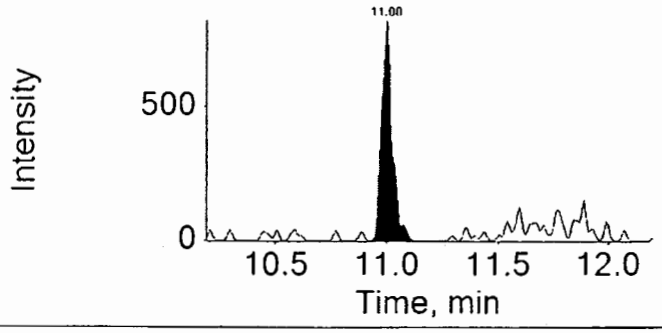
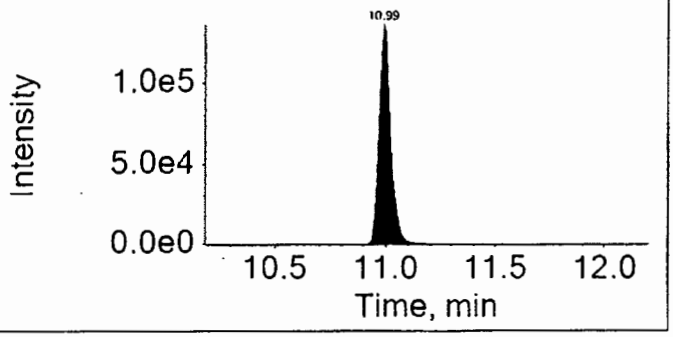
Analyte: PFUndA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



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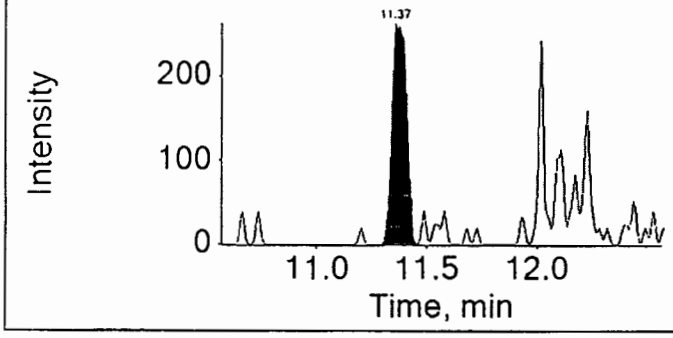
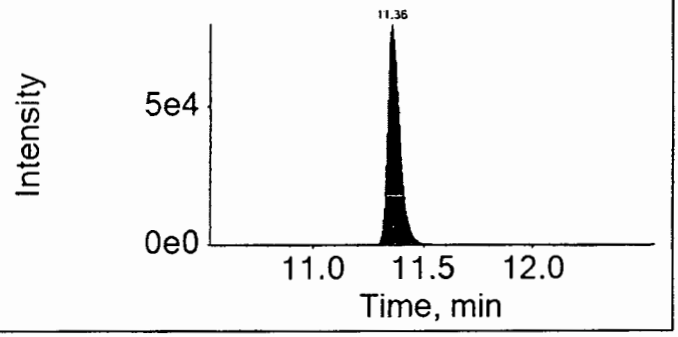
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

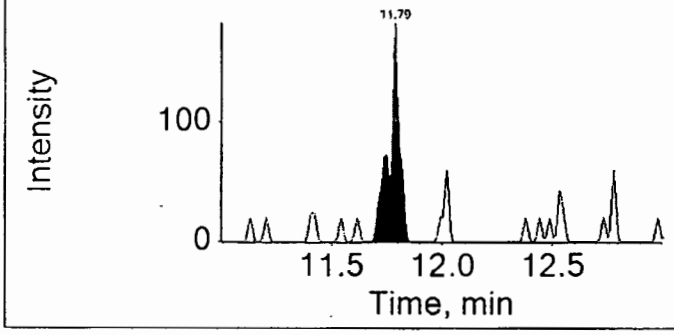
615.0 / 570.0



16JUL14-55.wiff

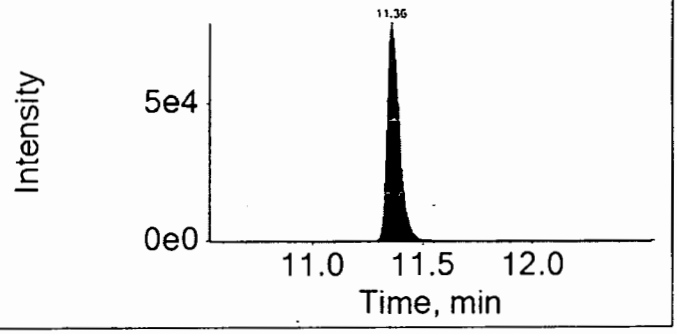
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

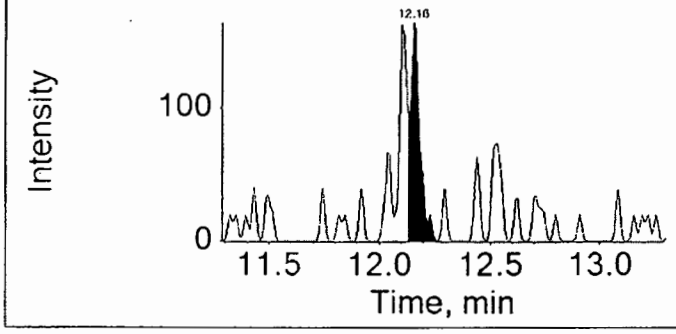
615.0 / 570.0



16JUL14-55.wiff

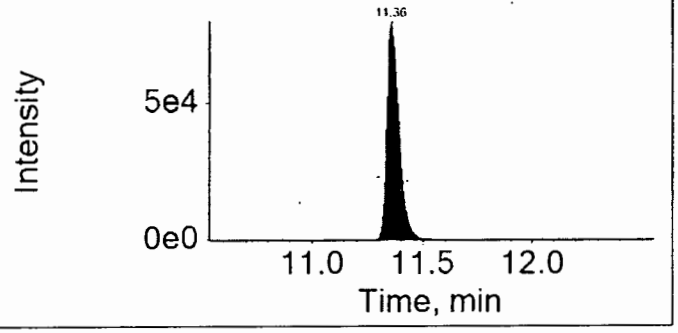
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



LCMSMS ANALYSIS REPORT

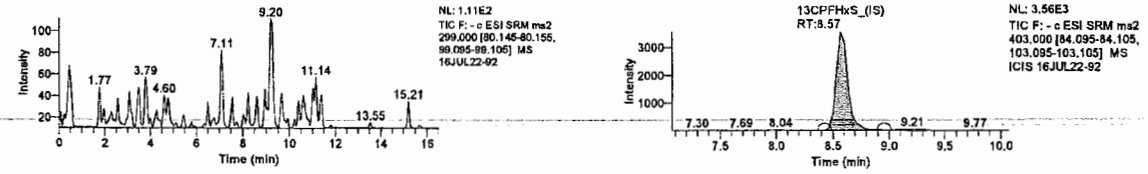
Sample Name:	8427035 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427035 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL22-92		
Acquisition Date:	07/23/16 10:33:02 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:36	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram

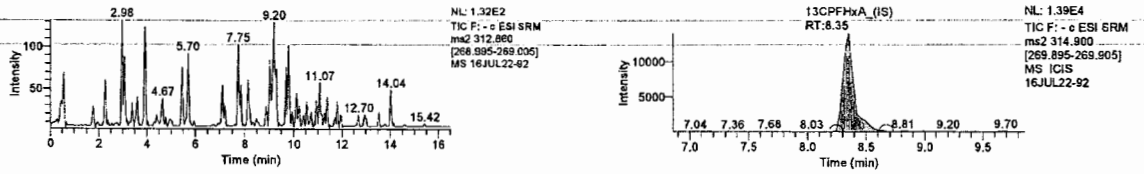
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.21	170658.85	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.89	144050.22	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.64	144590.93	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.96	101254.07	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.60	166814.81	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.35	91395.72	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.57	25532.09	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.18	14411.80	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.21	130715.16	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	2.965	8.89	43535.52	144050.22	0.302	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

Component Name: PFBS



Component Name: PFHxA



Component Name: PFOA

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JUL 25 2016

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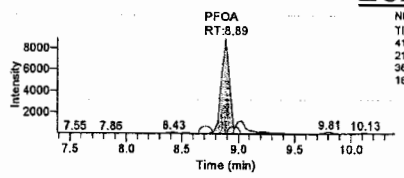
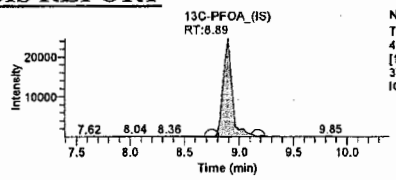
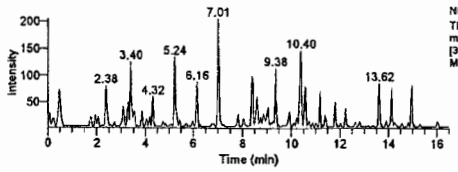
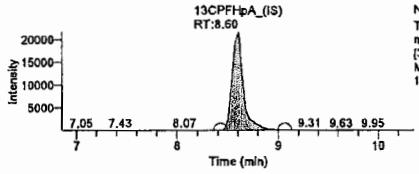


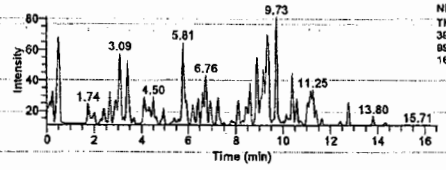


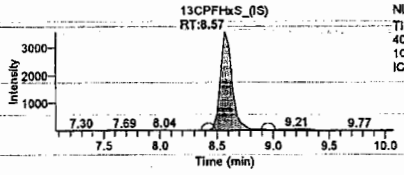
Component Name: PFhpA



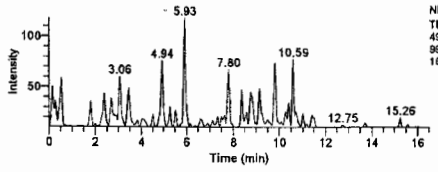


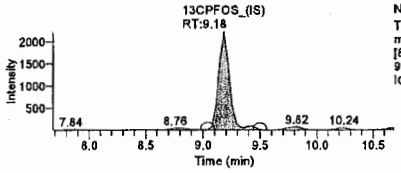
Component Name: PFHxS



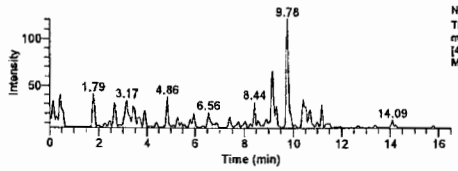


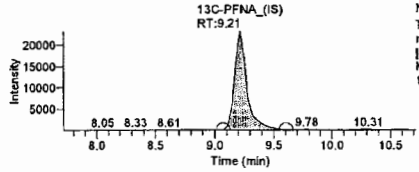
Component Name: PFOS



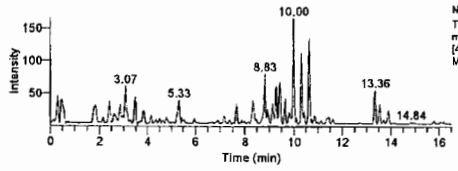


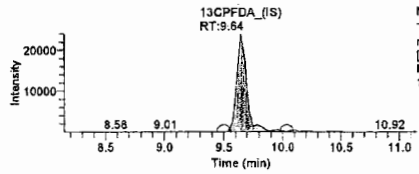
Component Name: PFNA





Component Name: PFDA





Component Name: PFUdA

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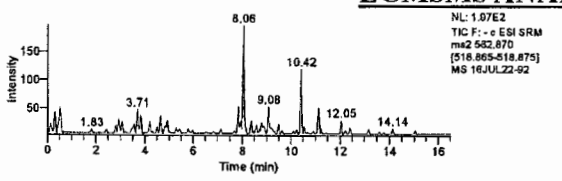

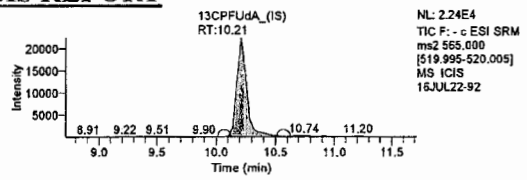

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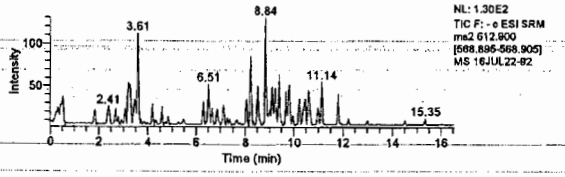
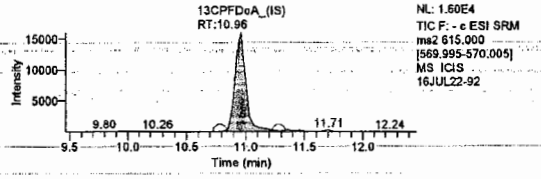
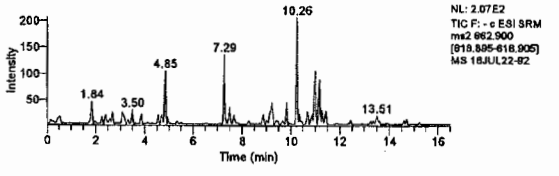
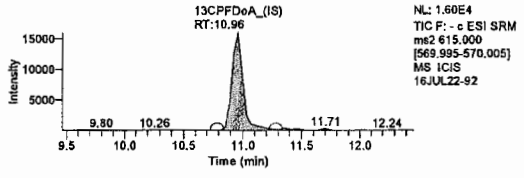


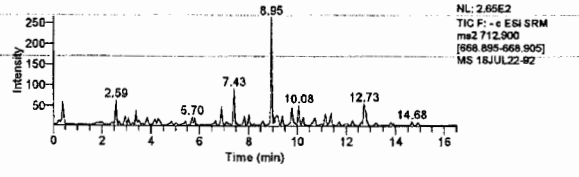


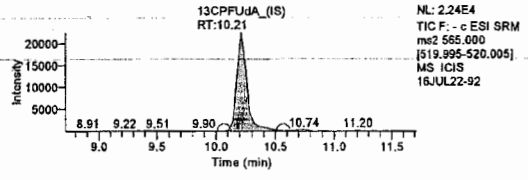
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd

JUL 26 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

Sample Description: SG3-MW07-22.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Collected: 06/14/2016 12:30 by JD

Submitted: 06/15/2016 09:30
Reported: 07/26/2016 13:06

LL Sample # SW 8427036
LL Group # 1672230
Account # 37191

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG378 SDG#: SGP93-23

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.82	U	0.82	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.35	U	0.35	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.70	U	0.70	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.70	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	15,700		660	1,980	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	14.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/15/2016 02:30	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 18:19	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16174820010A	06/22/2016 18:00	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW07-22.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8427036
LL Group # 1672230
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/14/2016 12:30 by JD

Submitted: 06/15/2016 09:30
Reported: 06/06/2017 16:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

(4.99)
small wt diff
no change

SG378 SDG#: SGP93-23

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
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14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.82	U	0.82	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.35	U	0.35	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.70	U	0.70	1.4	1
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The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

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02079	**TOC**	n.a.	**15,700**		660	1,980	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**14.7**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16181004	07/15/2016 02:30	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16181004	06/30/2016 09:40	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16176113031A	06/24/2016 18:19	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16174820010A	06/22/2016 18:00	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

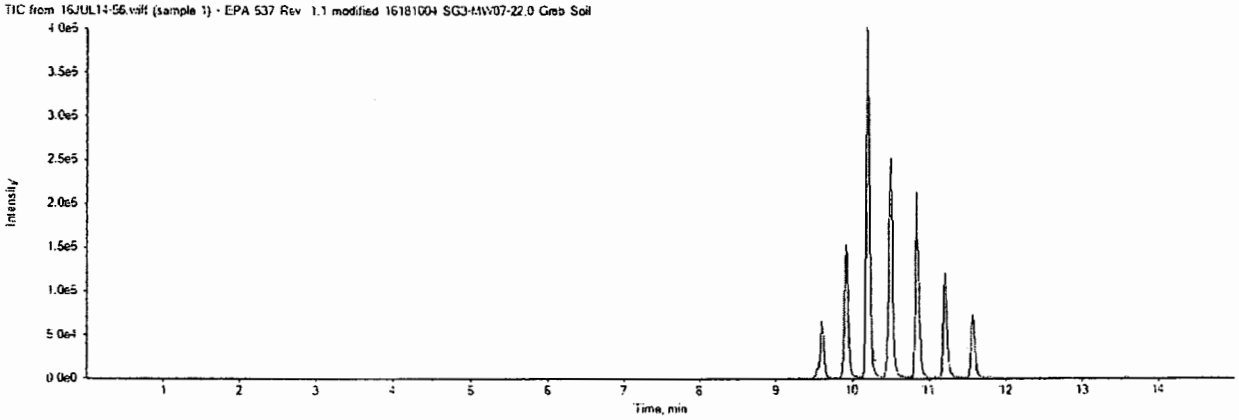
Sample Name:	EPA 537 Rev. 1.1 modified 16181004 SG3-MW07-22.0 Grab Soil	**Data File:**		16JUL14-56.wiff
Sample ID:	8427036	**Acquis Date:**		7/15/2016 2:30:13 AM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	32	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	4.990	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.91	188399.2	N/A	N/A	
PFHxA	9.61	657.5	13C2-PFHxA	9.60	229255.7	0.003	0.035	
PFHpA	9.92	849.3	13C4-PFHpA	9.92	329156.5	0.003	0.112	
PFHxS	9.92	575.3	18O2-PFHxS	9.91	188399.2	0.003	0.284	
PFOA	10.19	4313.8	13C4-PFOA	10.20	1233682.0	0.003	0.068	
PFNA	10.49	2046.5	13C5-PFNA	10.50	751119.5	0.003	0.083	
PFOS	10.45	357.9	13C4-PFOS	10.46	96648.5	0.004	0.458	
PFDA	10.84	2695.6	13C2-PFDA	10.84	609907.5	0.004	0.091	
PFUndA	11.20	2366.8	13C2-PFUnDA	11.20	395604.2	0.006	0.058	
PFDoDA	11.56	688.0	13C2-PFDoDA	11.56	252038.8	0.003	< 0	
PFTrDA	N/A	N/A	13C2-PFDoDA	11.56	252038.8	N/A	N/A	
PFTeDA	12.36	141.7	13C2-PFDoDA	11.56	252038.8	0.001	< 0	

Total Ion Chromatogram

8427036



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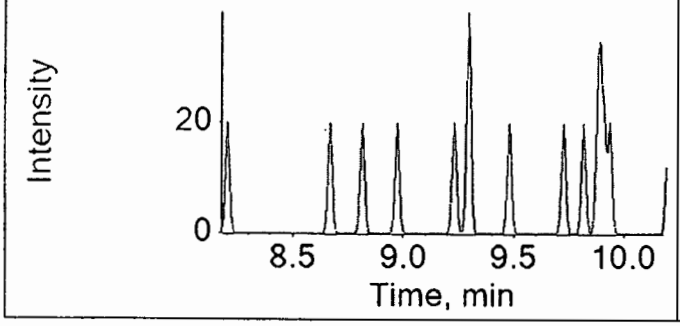
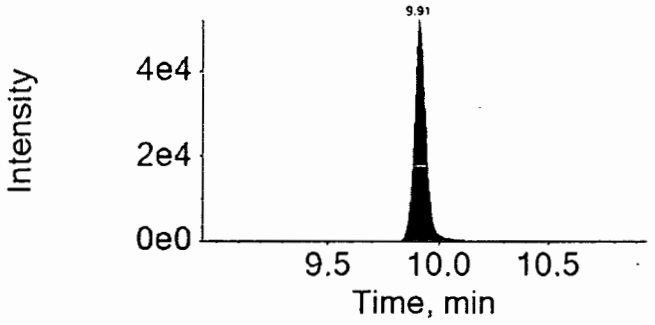
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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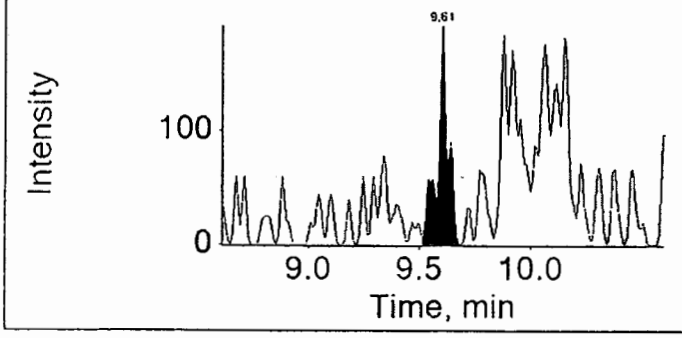
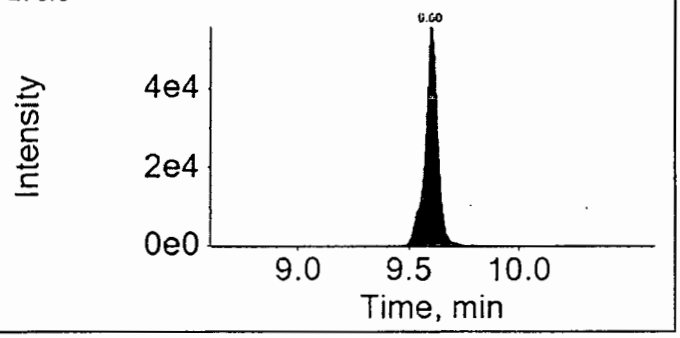
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

314.9 / 270.0



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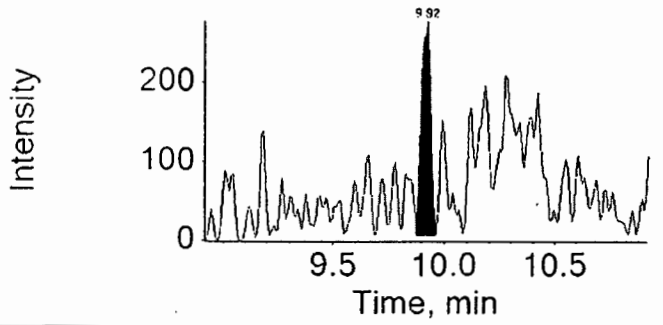
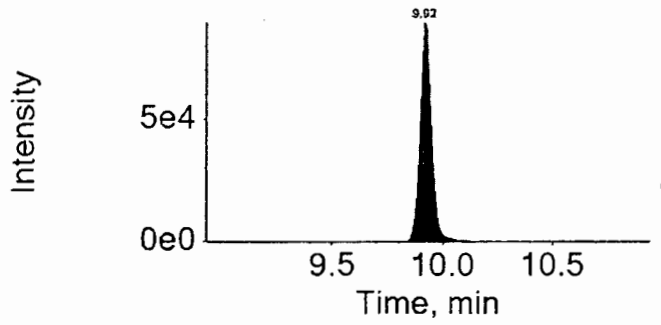
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

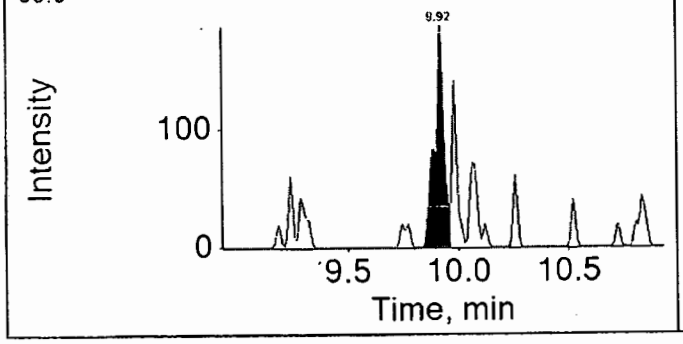
367.0 / 322.0



16JUL14-56.wiff

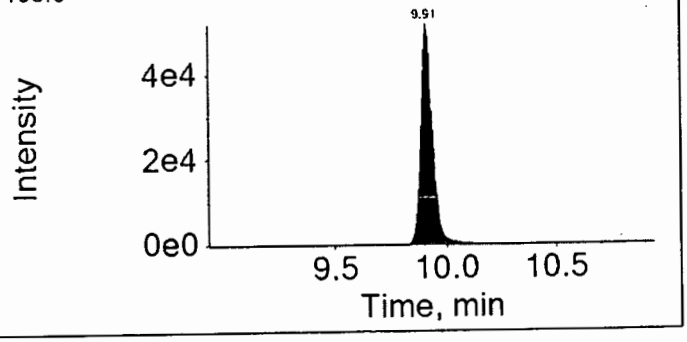
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

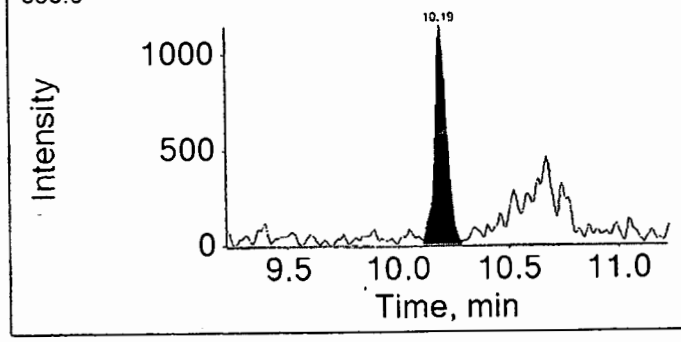
403.0 / 103.0



16JUL14-56.wiff

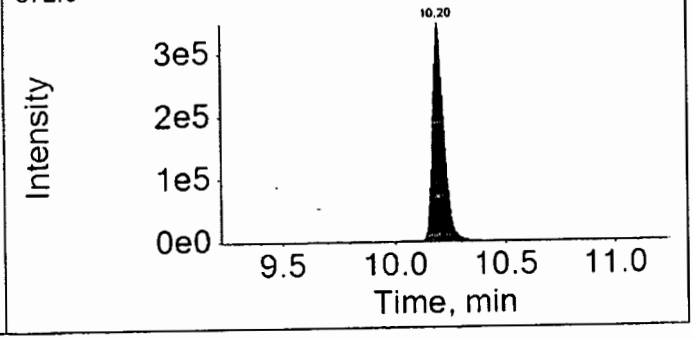
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

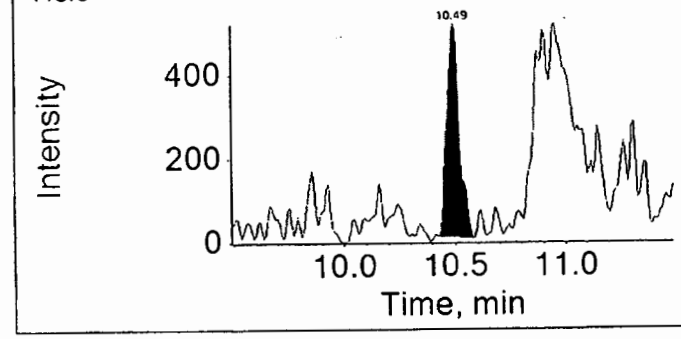
417.0 / 372.0



16JUL14-56.wiff

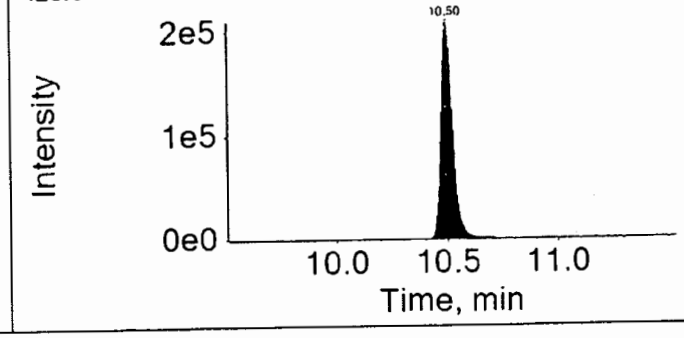
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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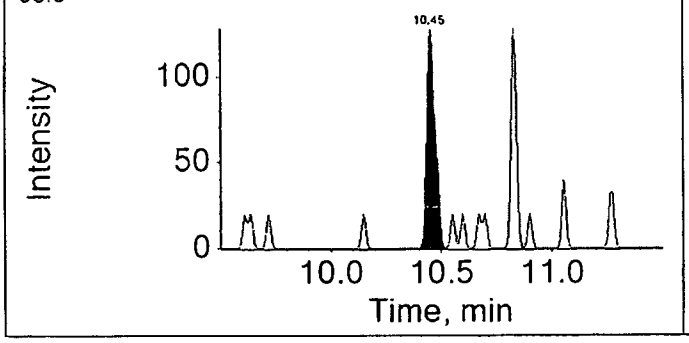
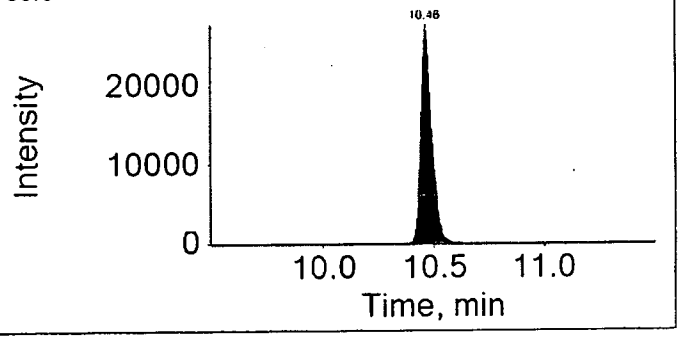
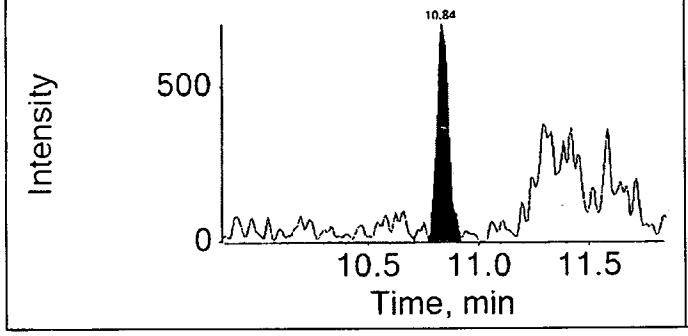
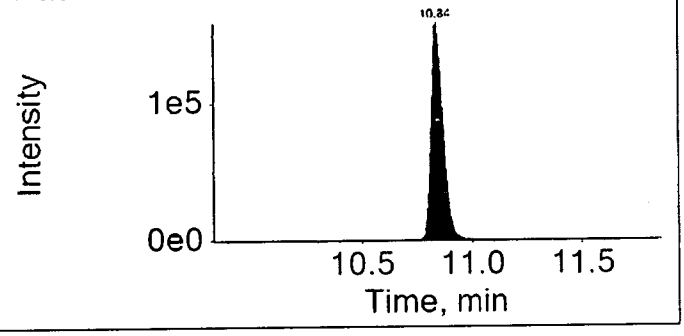
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



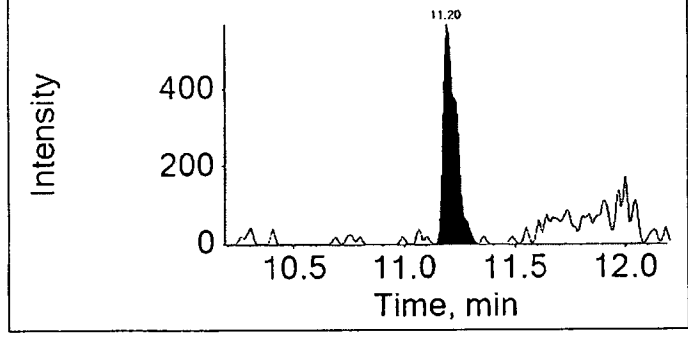


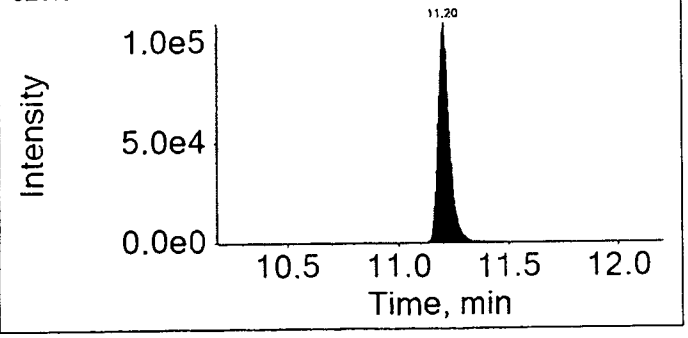
16JUL14-56.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16JUL14-56.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0





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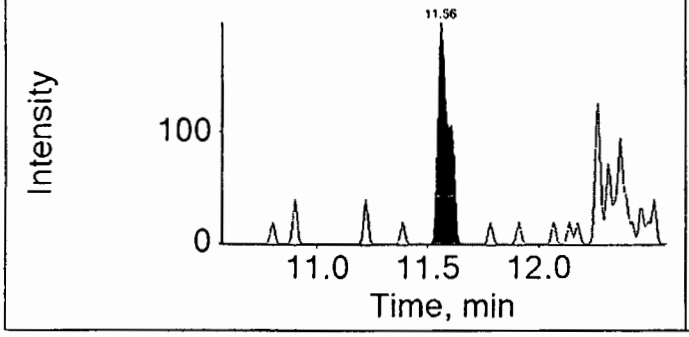
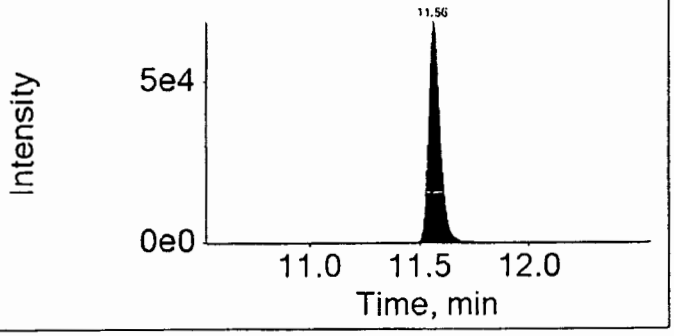
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

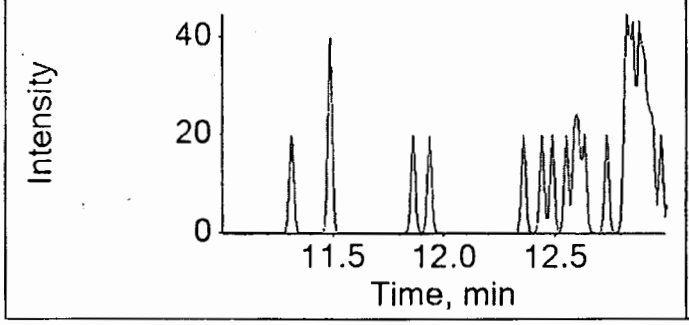
615.0 / 570.0



16JUL14-56.wiff

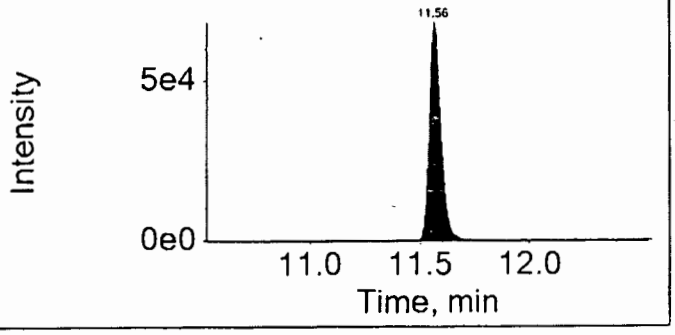
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

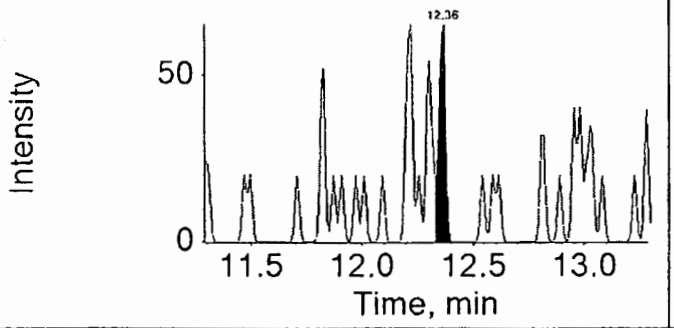
615.0 / 570.0



16JUL14-56.wiff

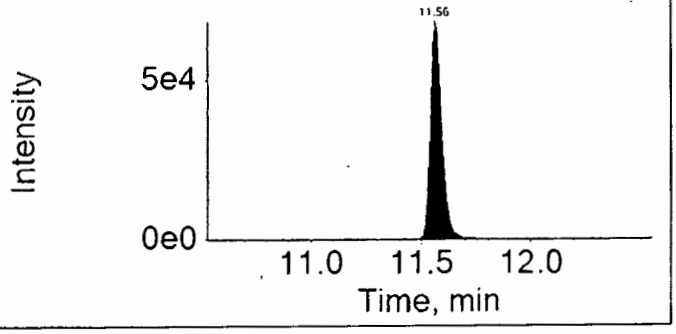
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



LCMSMS ANALYSIS REPORT

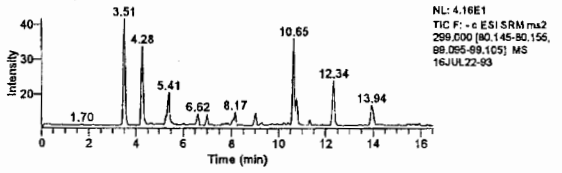
Sample Name:	8427036 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8427036 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-93		M\HWell_16.5minutes
Acquisition Date:	07/23/16 10:50:17 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:37	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

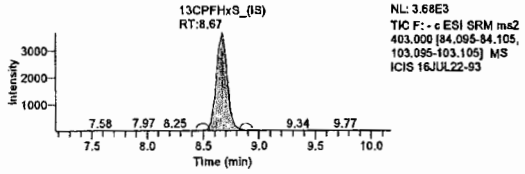
Extracted Ion Chromatogram

Quan Peak Table

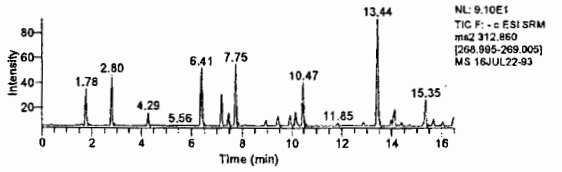
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.28	171874.36	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	145089.51	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.71	124842.62	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.93	100140.40	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.67	160048.83	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	86544.43	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.67	25145.82	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.25	10476.56	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.25	113104.12	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	0.150	8.67	277.28	25145.82	0.011	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	0.076	8.96	971.66	145089.51	0.007	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	0.096	8.67	313.32	160048.83	0.002	ng/g

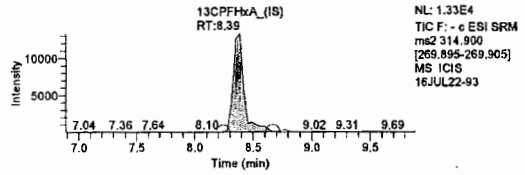
Component Name: PFBS





Component Name: PFHxA





Component Name: PFhpA

Jason W. Knight
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JUL 25 2016

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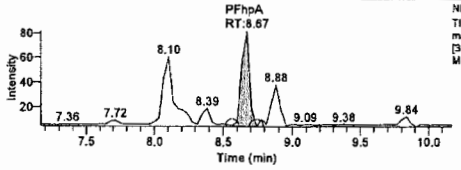
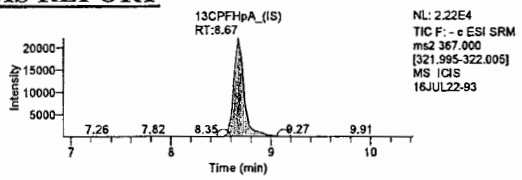
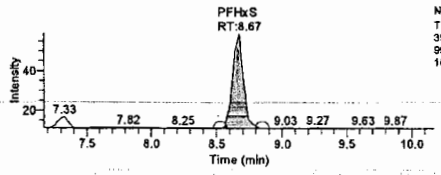
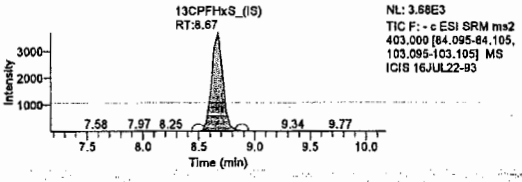


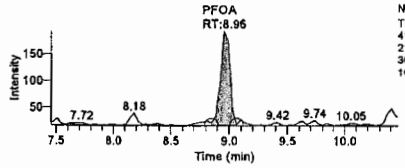


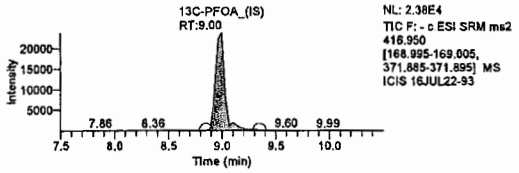
Component Name: PFHxS



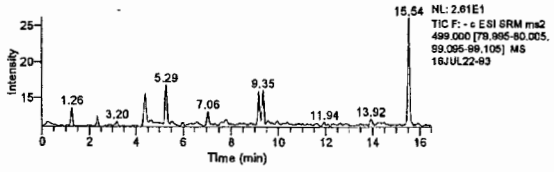


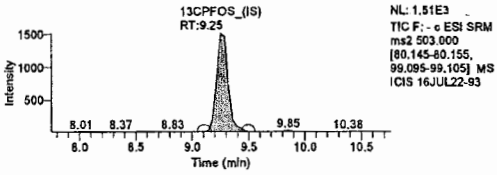
Component Name: PFOA





Component Name: PFOS





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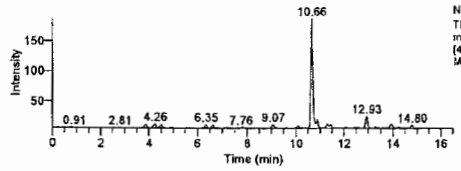
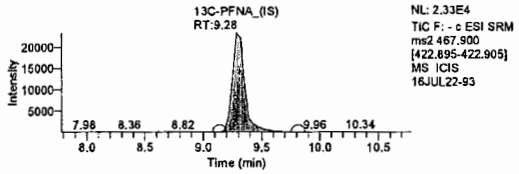
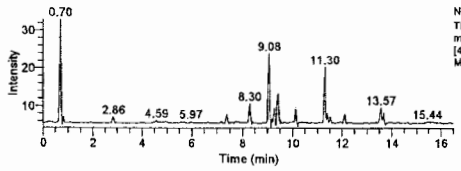
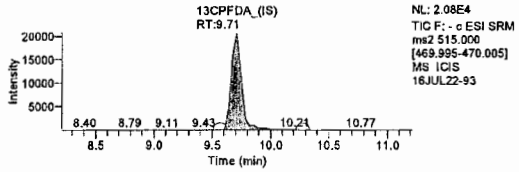




Component Name: PFDA





Component Name: PFUdA

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JUL 25 2016

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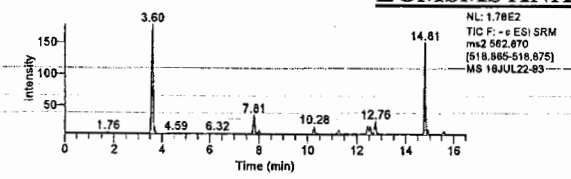
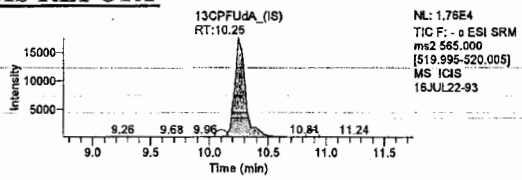
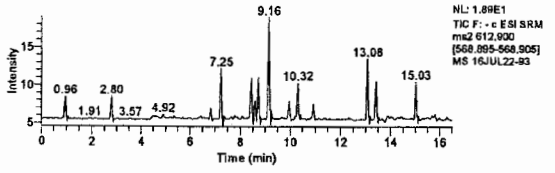
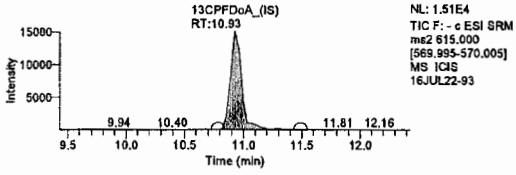


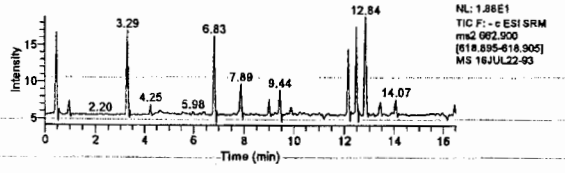


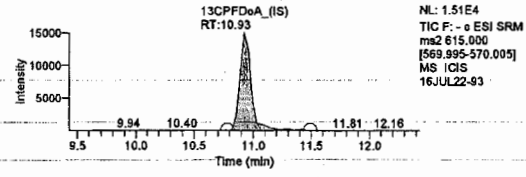
Component Name: PFDoA



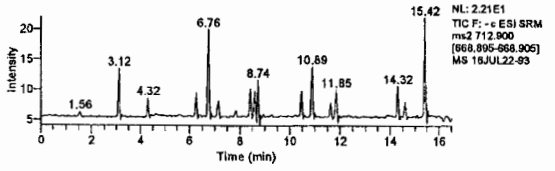


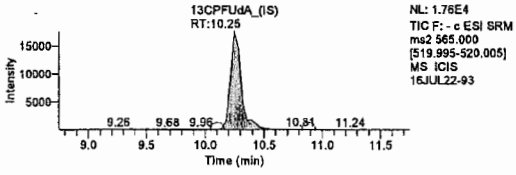
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 26 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1672230
Reported: 07/26/2016 13:06

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16181004	Sample number(s): 8427014-8427026,8427029-8427032,8427034-8427036			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16172001	Sample number(s): 8427012-8427013,8427027-8427028,8427033			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16176113031A	Sample number(s): 8427024-8427026,8427029-8427032,8427034-8427036			
TOC	100	U	100	300
Batch number: 16176298731A	Sample number(s): 8427014,8427017-8427019,8427021-8427023			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 07/26/2016 13:06

Group Number: 1672230

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16181004	Sample number(s): 8427014-8427026,8427029-8427032,8427034-8427036								
Perfluorobutanesulfonate	17.8	15.67			88		70-130		
Perfluorodecanoic acid	20	32.23			161*		70-130		
Perfluorododecanoic acid	20	29.62			148*		70-130		
Perfluoroheptanoic acid	20	26.3			131*		70-130		
Perfluorohexanesulfonate	18.92	23.79			126		70-130		
Perfluorohexanoic acid	20	26.97			135*		70-130		
Perfluorononanoic acid	20	23.27			116		70-130		
Perfluoro-octanesulfonate	19.12	23.79			124		70-130		
Perfluorooctanoic acid	20	23.69			118		70-130		
Perfluorotetradecanoic acid	20	51.36			257*		70-130		
Perfluorotridecanoic acid	20	34.3			172*		70-130		
Perfluoroundecanoic acid	20	33.01			165*		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16172001	Sample number(s): 8427012-8427013,8427027-8427028,8427033								
Perfluorooctanoic acid	200	189.69	200	182.7	95	91	70-130	4	30
Perfluorononanoic acid	200	195.42	200	211.39	98	106	70-130	8	30
Perfluorodecanoic acid	200	187.49	200	212.82	94	106	70-130	13	30
Perfluoroundecanoic acid	200	209.31	200	201.1	105	101	70-130	4	30
Perfluorododecanoic acid	200	216.26	200	194.7	108	97	70-130	10	30
Perfluorotridecanoic acid	200	188.15	200	181.79	94	91	70-130	3	30
Perfluorotetradecanoic acid	200	181.46	200	171.69	91	86	70-130	6	30
Perfluorohexanoic acid	200	208.47	200	214.01	104	107	70-130	3	30
Perfluoroheptanoic acid	200	184.47	200	174.02	92	87	70-130	6	30
Perfluorobutanesulfonate	176.8	205.19	176.8	198.72	116	112	70-130	3	30
Perfluorohexanesulfonate	189.2	159.21	189.2	142.98	84	76	70-130	11	30
Perfluoro-octanesulfonate	191.2	220.06	191.2	221.04	115	116	70-130	0	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16176113031A	Sample number(s): 8427024-8427026,8427029-8427032,8427034-8427036								
TOC	5430	4136.07			76		22-139		
Batch number: 16176298731A	Sample number(s): 8427014,8427017-8427019,8427021-8427023								
TOC	5430	4499.45			83		47-143		
	%	%	%	%					
Batch number: 16173820009A	Sample number(s): 8427014-8427025								
Moisture	89.5	89.48			100		99-101		
Moisture	89.5	89.48			100		99-101		
Moisture Duplicate	89.5	89.48			100		99-101		
Batch number: 16173820009B	Sample number(s): 8427026,8427029-8427032,8427034-8427035								
Moisture	89.5	89.48			100		99-101		
Batch number: 16174820010A	Sample number(s): 8427036								
Moisture	89.5	89.47			100		99-101		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 07/26/2016 13:06

Group Number: 1672230

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16181004	Sample number(s): 8427014-8427026,8427029-8427032,8427034-8427036 UNSPK: 8427014										
Perfluorobutanesulfonate	0.50	U	17.8	17.05	17.8	16.47	96	93	70-130	3	30
Perfluorodecanoic acid	1.44		20	30.49	20	27.29	145*	129	70-130	11	30
Perfluorododecanoic acid	0.503		20	29.27	20	30.48	144*	150*	70-130	4	30
Perfluoroheptanoic acid	0.30	U	20	27.28	20	26.28	136*	131*	70-130	4	30
Perfluorohexanesulfonate	0.50	U	18.92	25.23	18.92	23.61	133*	125	70-130	7	30
Perfluorohexanoic acid	0.220		20	27.28	20	24.84	135*	123	70-130	9	30
Perfluorononanoic acid	0.935		20	26.02	20	25.63	125	123	70-130	2	30
Perfluoro-octanesulfonate	0.786		19.12	24.01	19.12	23.16	121	117	70-130	4	30
Perfluorooctanoic acid	3.04		20	26.64	20	25.24	118	111	70-130	5	30
Perfluorotetradecanoic acid	0.321		20	26.45	20	28.16	131*	139*	70-130	6	30
Perfluorotridecanoic acid	0.60	U	20	28.39	20	30.01	142*	150*	70-130	6	30
Perfluoroundecanoic acid	0.613		20	31.19	20	29.15	153*	143*	70-130	7	30
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 16172001	Sample number(s): 8427012-8427013,8427027-8427028,8427033 UNSPK: 8427012										
Perfluorooctanoic acid	1.54		200	207.84			103		70-130		
Perfluorononanoic acid	1	U	200	201.27			101		70-130		
Perfluorodecanoic acid	1	U	200	198.88			99		70-130		
Perfluoroundecanoic acid	2	U	200	187.55			94		70-130		
Perfluorododecanoic acid	3	U	200	237.24			119		70-130		
Perfluorotridecanoic acid	2	U	200	120.97			60*		70-130		
Perfluorotetradecanoic acid	3	U	200	89.3			45*		70-130		
Perfluorohexanoic acid	1	U	200	203.76			102		70-130		
Perfluoroheptanoic acid	1.01		200	179.31			89		70-130		
Perfluorobutanesulfonate	4	U	176.8	79.42			45*		70-130		
Perfluorohexanesulfonate	7.81		189.2	177.92			90		70-130		
Perfluoro-octanesulfonate	5	U	191.2	282.44			148*		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16176113031A	Sample number(s): 8427024-8427026,8427029-8427032,8427034-8427036 UNSPK: 8427030										
TOC	6482.33		48000	54208			99		47-143		
Batch number: 16176298731A	Sample number(s): 8427014,8427017-8427019,8427021-8427023 UNSPK: 8427014										
TOC	25708.53		34770	51552.72			74		47-143		

J, High CCV

J, High CCV

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16176113031A	Sample number(s): 8427024-8427026,8427029-8427032,8427034-8427036 BKG: 8427030			
TOC	6482.33	6381.28	2	7

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SGP93
Matrix: SOLID

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

UNSPK: 8427014 MS: 8427015 MSD: 8427016 **Analyte**	Batch: **16181004** (Sample number(s): 8427014-8427026, 8427029-8427032, 8427034-8427036)								
	Spike Added ng/g	**Unspiked Conc ng/g**	**MS Conc ng/g**	**MSD Conc ng/g**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	20	3.04	26.64	25.24	118	111	70-130	5	30
Perfluorononanoic acid	20	0.935	26.02	25.63	125	123	70-130	2	30
Perfluorodecanoic acid	20	1.44	30.49	27.29	145 *	129	70-130	11	30
Perfluoroundecanoic acid	20	0.613	31.19	29.15	153 *	143 *	70-130	7	30
Perfluorododecanoic acid	20	0.503	29.27	30.48	144 *	150 *	70-130	4	30
Perfluorotridecanoic acid	20	N.D.	28.39	30.01	142 *	150 *	70-130	6	30
Perfluorotetradecanoic acid	20	0.321	26.45	28.16	131 *	139 *	70-130	6	30
Perfluorohexanoic acid	20	0.220	27.28	24.84	135 *	123	70-130	9	30
Perfluoroheptanoic acid	20	N.D.	27.28	26.28	136 *	131 *	70-130	4	30
Perfluorobutanesulfonate	17.8	N.D.	17.05	16.47	96	93	70-130	3	30
Perfluorohexanesulfonate	18.92	N.D.	25.23	23.6	133 *	125	70-130	7	30
Perfluoro-octanesulfonate	19.12	0.786	24.01	23.16	121	117	70-130	4	30

J ⊕

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

10/19/2016 8:14:48 PM

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SGP93
Matrix: LIQUID

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

UNSPK: 8427012 ~ MS: 8427012 TB	Batch: **16172001** (Sample number(s): 8427012-8427013, 8427027-8427028, 8427033)								
Analyte	**Spike Added ng/l**	**Unspiked Conc ng/l**	**MS Conc ng/l**	**MSD Conc ng/l**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	200	1.54	207.84	NA	103	NA	70-130	NA	NA
Perfluorononanoic acid	200	N.D.	201.27	NA	101	NA	70-130	NA	NA
Perfluorodecanoic acid	200	N.D.	198.88	NA	99	NA	70-130	NA	NA
Perfluoroundecanoic acid	200	N.D.	187.55	NA	94	NA	70-130	NA	NA
Perfluorododecanoic acid	200	N.D.	237.24	NA	119	NA	70-130	NA	NA
Perfluorotridecanoic acid	200	N.D.	120.97	NA	60 *	NA	70-130	NA	NA
Perfluorotetradecanoic acid	200	N.D.	89.3	NA	45 *	NA	70-130	NA	NA
Perfluorohexanoic acid	200	N.D.	203.76	NA	102	NA	70-130	NA	NA
Perfluoroheptanoic acid	200	1.01	179.31	NA	89	NA	70-130	NA	NA
Perfluorobutanesulfonate	176.8	N.D.	79.42	NA	45 *	NA	70-130	NA	NA
Perfluorohexanesulfonate	189.2	7.81	177.92	NA	90	NA	70-130	NA	NA
Perfluoro-octanesulfonate	191.2	N.D.	282.44	NA	148 *	NA	70-130	NA	NA

L No ⊕

MS on TB, evaluate as LCS for Aq

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP93
Matrix: SOLID

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

LCS: LCS	Batch: **16181004** (Sample number(s): 8427014-8427026, 8427029-8427032, 8427034-8427036)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	20	23.69	NA	118	NA	70-130	NA	NA
Perfluorononanoic acid	20	23.27	NA	116	NA	70-130	NA	NA
Perfluorodecanoic acid	20	32.22	NA	161 *	NA	70-130	NA	NA
Perfluoroundecanoic acid	20	33.01	NA	165 *	NA	70-130	NA	NA
Perfluorododecanoic acid	20	29.62	NA	148 *	NA	70-130	NA	NA
Perfluorotridecanoic acid	20	34.3	NA	172 *	NA	70-130	NA	NA
Perfluorotetradecanoic acid	20	51.36	NA	257 *	NA	70-130	NA	NA
Perfluorohexanoic acid	20	26.97	NA	135 *	NA	70-130	NA	NA
Perfluoroheptanoic acid	20	26.3	NA	131 *	NA	70-130	NA	NA
Perfluorobutanesulfonate	17.8	15.67	NA	88	NA	70-130	NA	NA
Perfluorohexanesulfonate	18.92	23.79	NA	126	NA	70-130	NA	NA
Perfluoro-octanesulfonate	19.12	23.79	NA	124	NA	70-130	NA	NA

J ⊕
soils

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP93
Matrix: Solid

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

LCS: LCS	Batch: **162002004** (Sample number(s): 8427014RE-8427026RE, 8427029RE-8427032RE, 8427034RE – 8427036RE)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	20	26.88	NA	134 *	NA	70-130	NA	NA
Perfluorononanoic acid	20	20.03	NA	100	NA	70-130	NA	NA
Perfluorodecanoic acid	20	29.07	NA	145 *	NA	70-130	NA	NA
Perfluoroundecanoic acid	20	24.25	NA	121	NA	70-130	NA	NA
Perfluorododecanoic acid	20	22.17	NA	111	NA	70-130	NA	NA
Perfluorotridecanoic acid	20	13.02	NA	65 *	NA	70-130	NA	NA
Perfluorotertadecanoic acid	20	18.80	NA	94	NA	70-130	NA	NA
Perfluorohexanoic acid	20	20.23	NA	101	NA	70-130	NA	NA
Perfluoroheptanoic acid	20	25.15	NA	126	NA	70-130	NA	NA
Perfluorobutanesulfonate	17.68	17.60	NA	100	NA	70-130	NA	NA
Perfluorohexanesulfonate	18.92	21.10	NA	112	NA	70-130	NA	NA
Perfluoro-octanesulfonate	19.12	19.32	NA	101	NA	70-130	NA	NA

assoc. w/ REs that were not reported due to extract past HT

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP93
Matrix: LIQUID

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

LCS: LCS LCSD: LCSD	Batch: **16172001** (Sample number(s): 8427012-8427013, 8427027-8427028, 8427033)							
Analyte	**Spike Added ng/l**	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	200	189.68	182.7	95	91	70-130	4	30
Perfluorononanoic acid	200	195.42	211.39	98	106	70-130	8	30
Perfluorodecanoic acid	200	187.49	212.82	94	106	70-130	13	30
Perfluoroundecanoic acid	200	209.3	201.1	105	101	70-130	4	30
Perfluorododecanoic acid	200	216.26	194.7	108	97	70-130	10	30
Perfluorotridecanoic acid	200	188.15	181.79	94	91	70-130	3	30
Perfluorotetradecanoic acid	200	181.46	171.69	91	86	70-130	6	30
Perfluorohexanoic acid	200	208.47	214.01	104	107	70-130	3	30
Perfluoroheptanoic acid	200	184.47	174.02	92	87	70-130	6	30
Perfluorobutanesulfonate	176.8	205.19	198.72	116	112	70-130	3	30
Perfluorohexanesulfonate	189.2	159.21	142.98	84	76	70-130	11	30
Perfluoro-octanesulfonate	191.2	220.06	221.04	115	116	70-130	0	30

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP93
Matrix: SOLID

Fraction: PFAAs by LC/MS/MS

16181004 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	07/14/16	N.D.	ng/g	0.30	0.60
Perfluorononanoic acid	07/14/16	N.D.	ng/g	0.20	0.40
Perfluorodecanoic acid	07/14/16	N.D.	ng/g	0.20	0.40
Perfluoroundecanoic acid	07/14/16	N.D.	ng/g	0.30	0.60
Perfluorododecanoic acid	07/14/16	N.D.	ng/g	0.40	0.80
Perfluorotridecanoic acid	07/14/16	N.D.	ng/g	0.60	1.2
Perfluorotetradecanoic acid	07/14/16	N.D.	ng/g	0.30	0.80
Perfluorohexanoic acid	07/14/16	N.D.	ng/g	0.20	0.40
Perfluoroheptanoic acid	07/14/16	N.D.	ng/g	0.30	0.60
Perfluorobutanesulfonate	07/14/16	N.D.	ng/g	0.50	1.6
Perfluorohexanesulfonate	07/14/16	N.D.	ng/g	0.50	1.6
Perfluoro-octanesulfonate	07/14/16	N.D.	ng/g	0.70	1.6

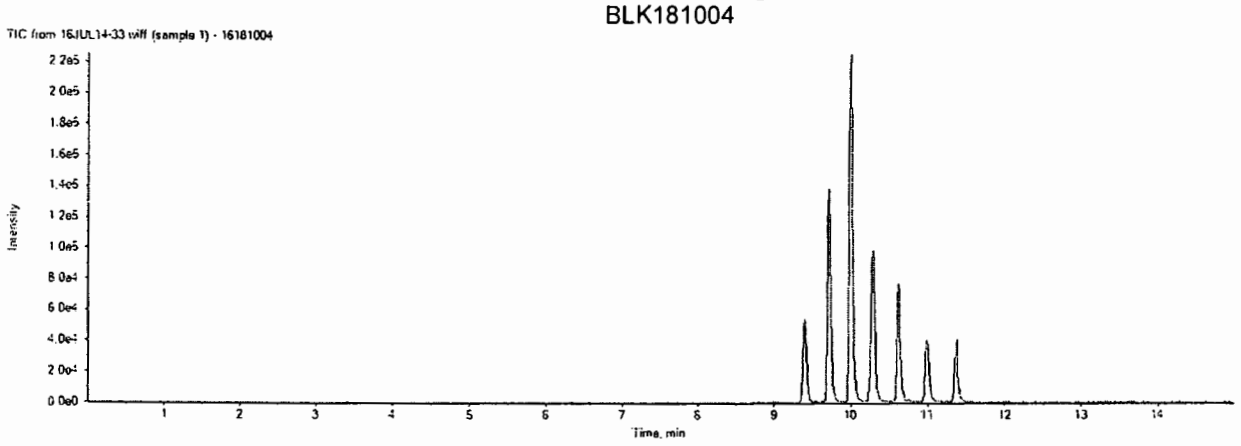
Sample Name:	16181004	**Data File:**		16JUL14-33.wiff
Sample ID:	BLK181004	**Acquis Date:**		7/14/2016 7:05:36 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	11	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	5.000	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.72	155525.4	N/A	N/A	
PFHxA	9.40	1017.4	13C2-PFHxA	9.40	180331.2	0.006	0.086	
PFHpA	9.72	666.7	13C4-PFHpA	9.72	249103.0	0.003	0.114	
PFHxS	9.73	743.1	18O2-PFHxS	9.72	155525.4	0.005	0.306	
PFOA	9.99	2023.3	13C4-PFOA	10.00	683549.8	0.003	0.055	
PFNA	10.30	1619.4	13C5-PFNA	10.29	295654.4	0.005	0.105	
PFOS	10.25	110.1	13C4-PFOS	10.26	58076.0	0.002	0.440	
PFDA	10.61	825.8	13C2-PFDA	10.62	225150.0	0.004	0.083	
PFUndA	10.99	444.9	13C2-PFUnDA	10.99	146731.4	0.003	0.009	
PFDoDA	N/A	N/A	13C2-PFDoDA	11.36	116765.9	N/A	N/A	
PFTrDA	N/A	N/A	13C2-PFDoDA	11.36	116765.9	N/A	N/A	
PFTeDA	12.07	137.6	13C2-PFDoDA	11.36	116765.9	0.001	< 0	

Total Ion Chromatogram

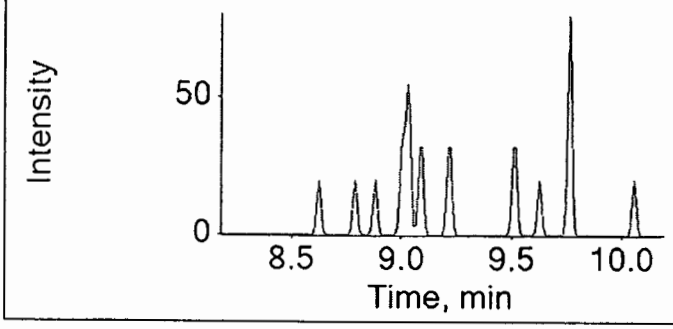
BLK181004



16JUL14-33.wiff

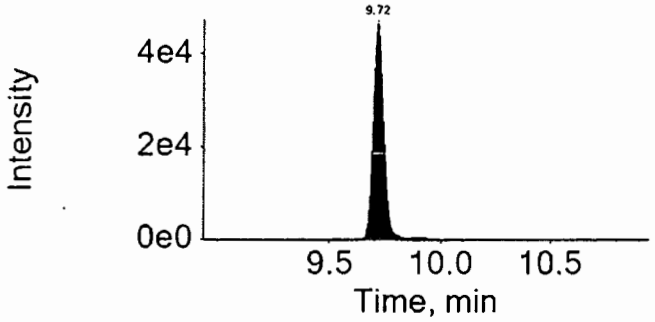
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

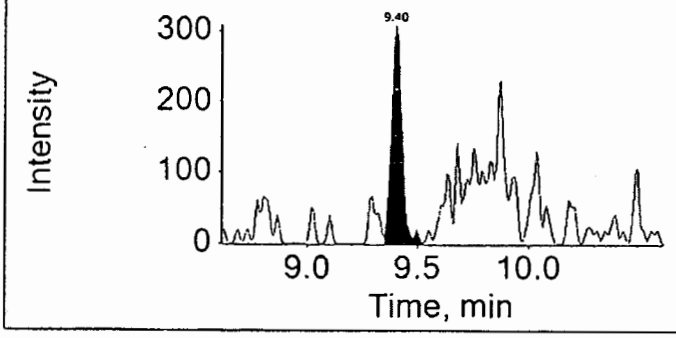
403.0 / 103.0



16JUL14-33.wiff

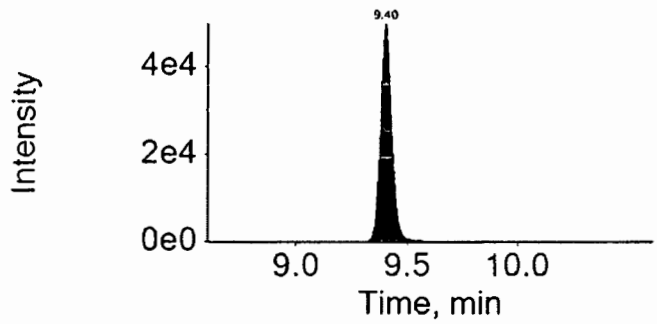
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

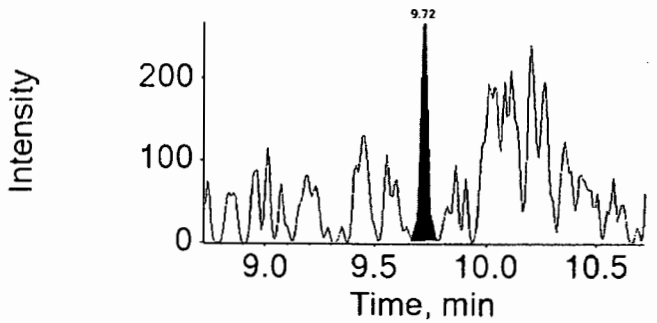
314.9 / 270.0



16JUL14-33.wiff

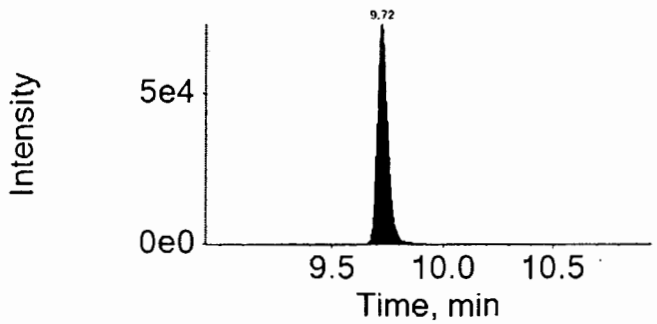
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

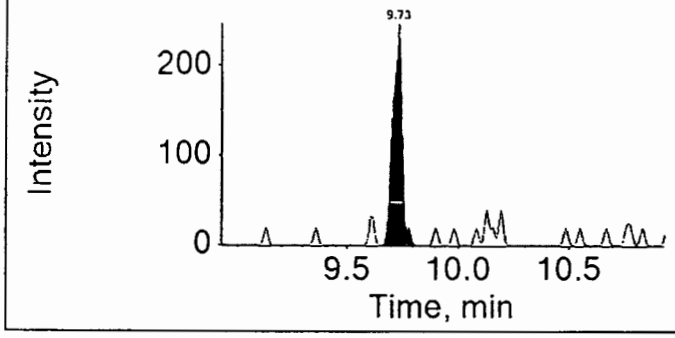
367.0 / 322.0



16JUL14-33.wiff

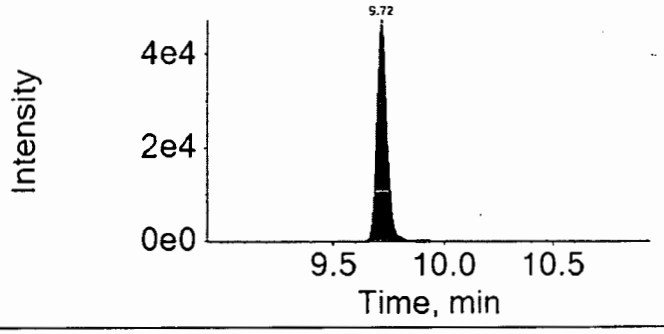
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

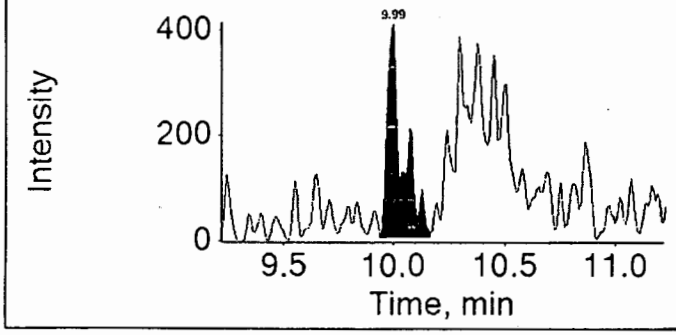
403.0 / 103.0



16JUL14-33.wiff

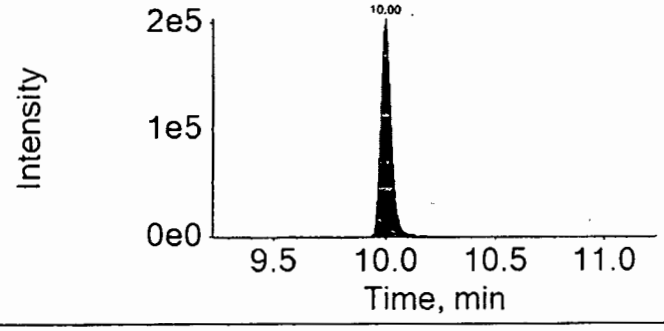
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

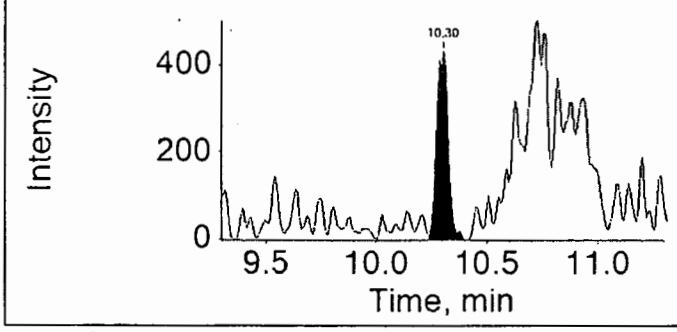
417.0 / 372.0



16JUL14-33.wiff

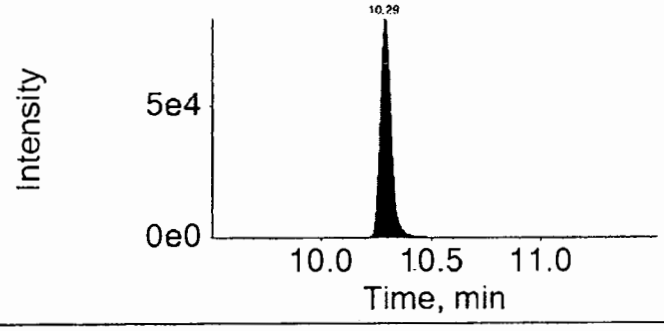
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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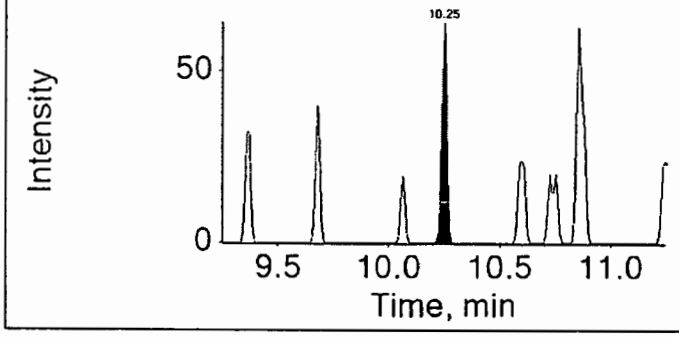
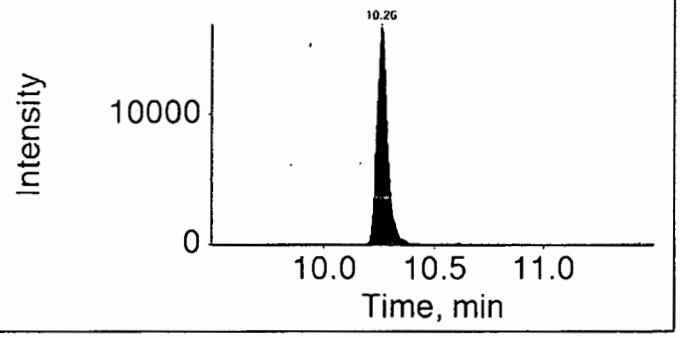
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

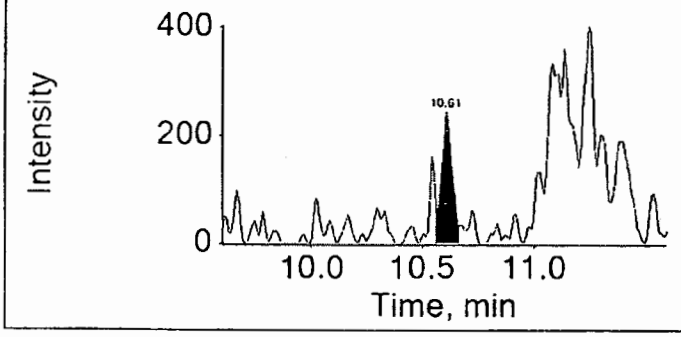
503.0 / 99.0



16JUL14-33.wiff

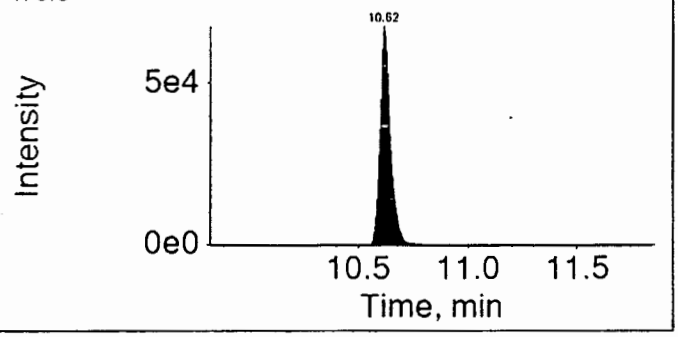
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

515.0 / 470.0



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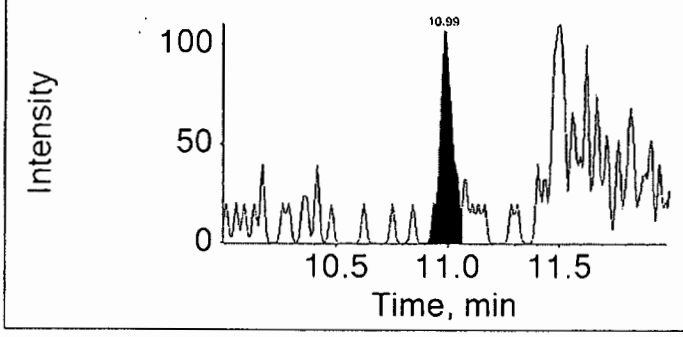
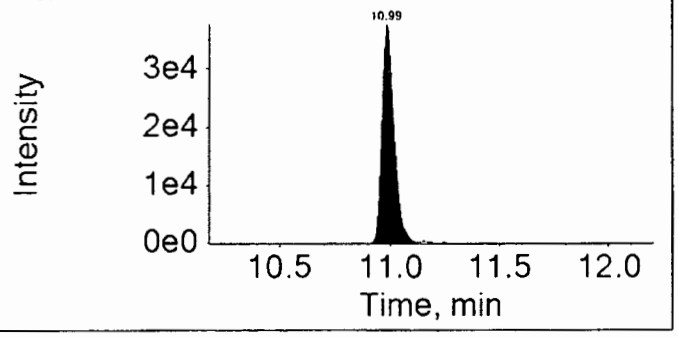
Analyte: PFUndA

562.9 / 518.9

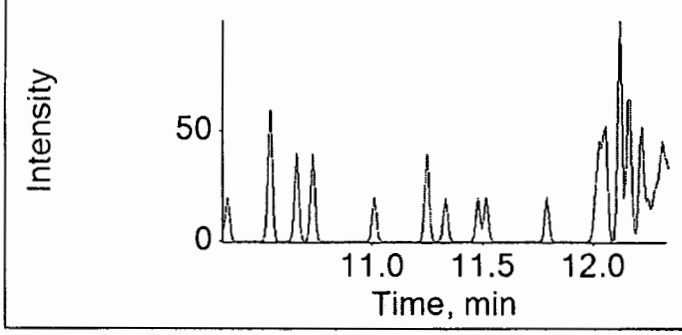


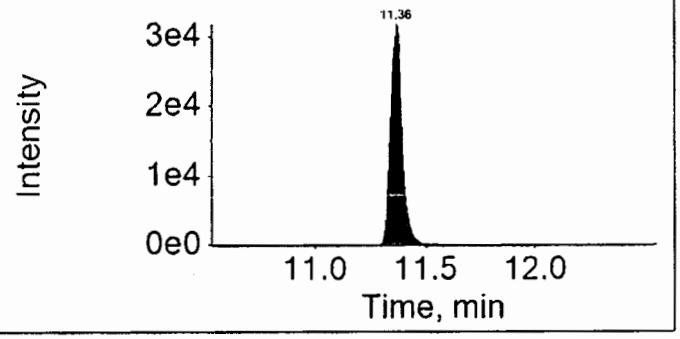
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

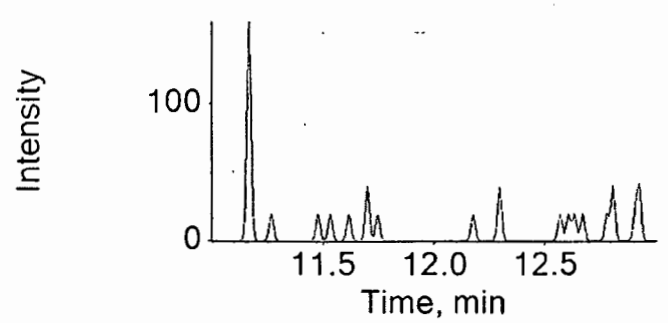


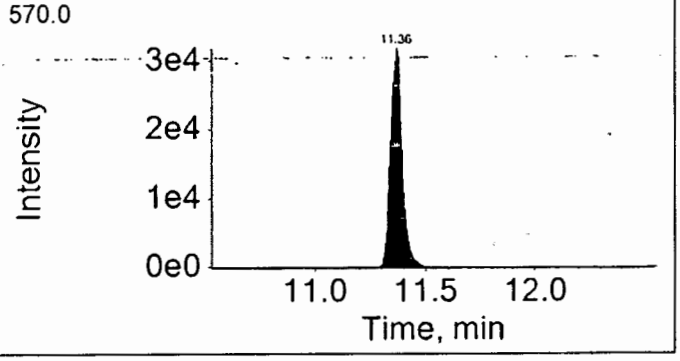
16JUL14-33.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



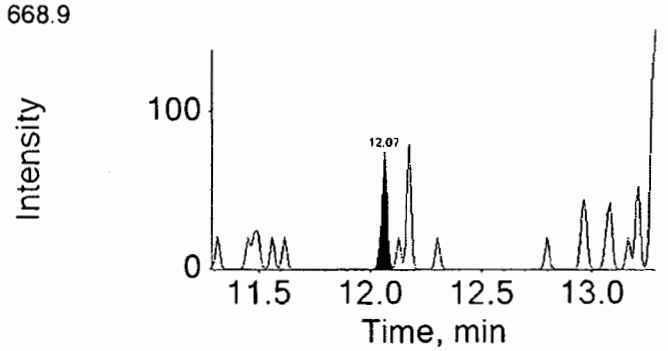


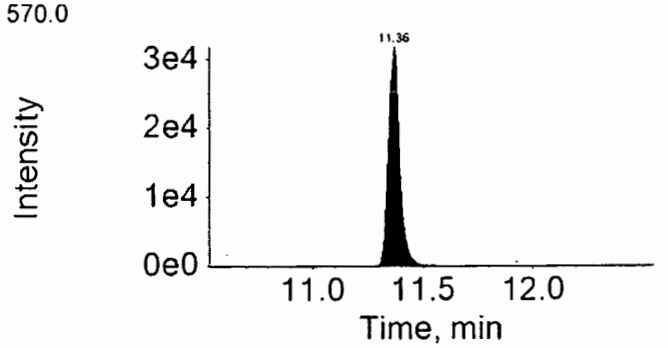
16JUL14-33.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL14-33.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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Form 4
Method Blank Summary
LC/MS/MS

SDG: SGP93

Matrix: Soil
Water Sample Prep: Sonc
Sample vol: 5.00 grams
Instrument ID: 23282

Lab Sample ID: BLK181004
Lab File ID: 16JUL14-33
Date Analyzed: 07/14/2016 19:05

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
LCS181004	16JUL14-34	07/14/2016 19:25
8427014	16JUL14-35	07/14/2016 19:44
8427015MS	16JUL14-36	07/14/2016 20:04
8427016MSD	16JUL14-37	07/14/2016 20:22
8427017	16JUL14-38	07/14/2016 20:42
8427018	16JUL14-39	07/14/2016 21:01
8427019	16JUL14-40	07/14/2016 21:21
8427020	16JUL14-41	07/14/2016 21:40
8427021	16JUL14-42	07/14/2016 22:00
8427022	16JUL14-44	07/14/2016 22:38
8427023	16JUL14-45	07/14/2016 22:57
8427024	16JUL14-46	07/14/2016 23:17
8427025	16JUL14-47	07/14/2016 23:36
8427026	16JUL14-48	07/14/2016 23:55
8427029	16JUL15-49	07/15/2016 00:15
8427030	16JUL15-50	07/15/2016 00:34
8427031	16JUL15-51	07/15/2016 00:53
8427032	16JUL15-52	07/15/2016 01:13
8427034	16JUL15-53	07/15/2016 01:32
8427035	16JUL15-55	07/15/2016 02:10
8427036	16JUL15-56	07/15/2016 02:30

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP93
Matrix: Solid

Fraction: PFAAs by LC/MS/MS

16202004 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	07/23/2016	N.D.	ng/g	0.3	0.6
Perfluorononanoic acid	07/23/2016	N.D.	ng/g	0.2	0.4
Perfluorodecanoic acid	07/23/2016	N.D.	ng/g	0.2	0.4
Perfluoroundecanoic acid	07/23/2016	N.D.	ng/g	0.3	0.6
Perfluorododecanoic acid	07/23/2016	N.D.	ng/g	0.4	0.8
Perfluorotridecanoic acid	07/23/2016	N.D.	ng/g	0.6	1.2
Perfluorotertadecanoic acid	07/23/2016	N.D.	ng/g	0.3	0.8
Perfluorohexanoic acid	07/23/2016	N.D.	ng/g	0.2	0.4
Perfluoroheptanoic acid	07/23/2016	N.D.	ng/g	0.3	0.6
Perfluorobutanesulfonate	07/23/2016	N.D.	ng/g	0.5	1.6
Perfluorohexanesulfonate	07/23/2016	N.D.	ng/g	0.5	1.6
Perfluoro-octanesulfonate	07/23/2016	N.D.	ng/g	0.7	1.6

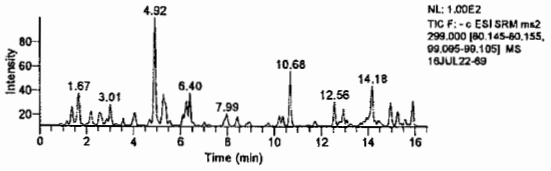
LCMSMS ANALYSIS REPORT

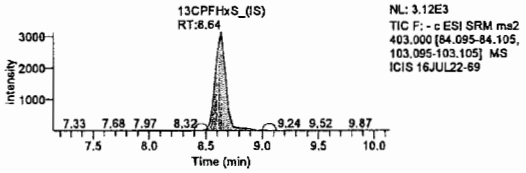
Sample Name:	MB 16202004	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	MB 16202004	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-69		M\HWell_16.5minutes
Acquisition Date:	07/23/16 03:56:30 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:19	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

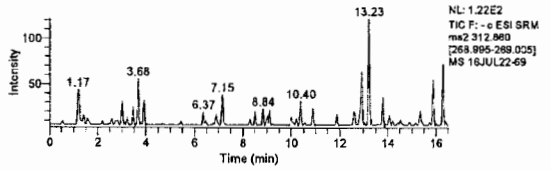
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.25	160681.80	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.92	132667.31	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.64	129892.46	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.82	102425.97	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.63	175112.29	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.31	108711.40	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.64	20957.86	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.21	13517.70	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.18	115565.72	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	0.090	8.96	1085.03	132667.31	0.008	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	-0.005	10.21	850.75	115565.72	0.007	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

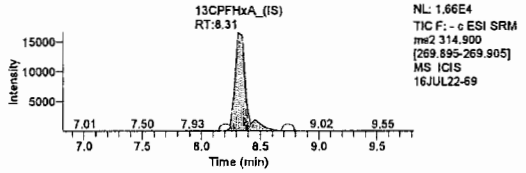
Component Name: PFBS





Component Name: PFHxA





Component Name: PFOA

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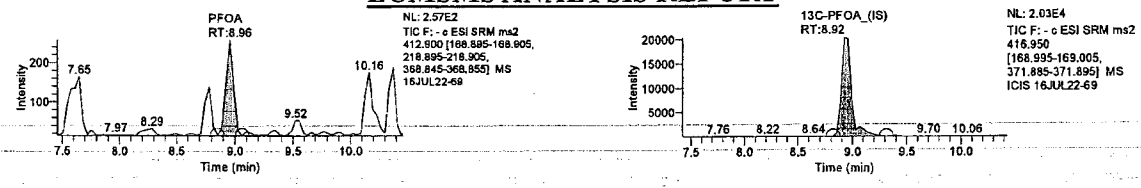

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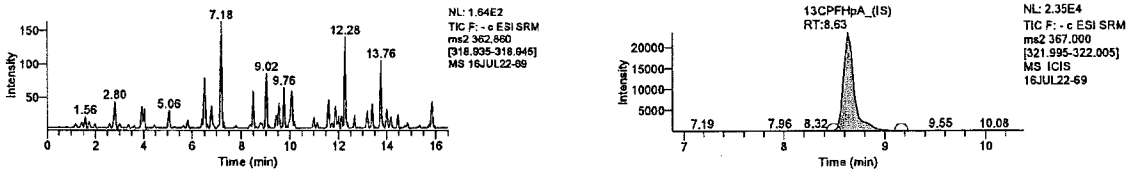

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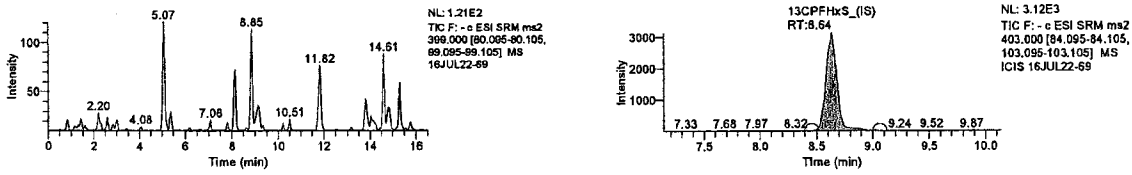
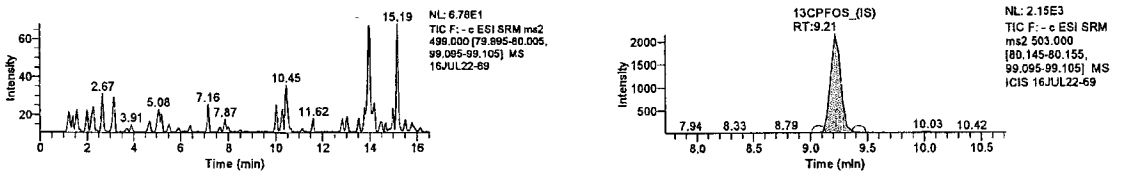
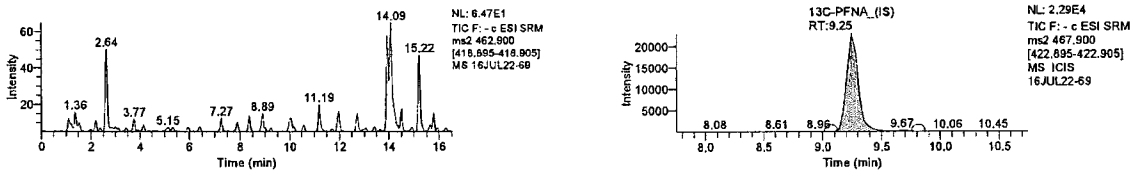


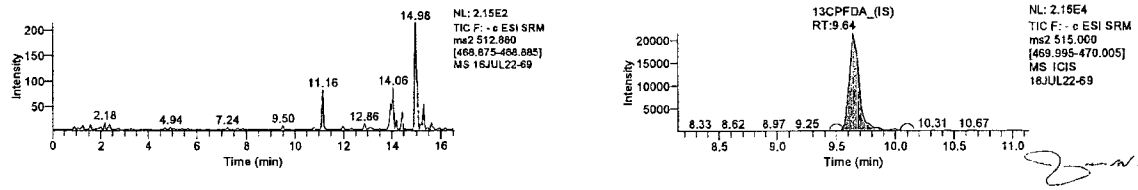
Component Name: PFOS



Component Name: PFNA



Component Name: PFDA

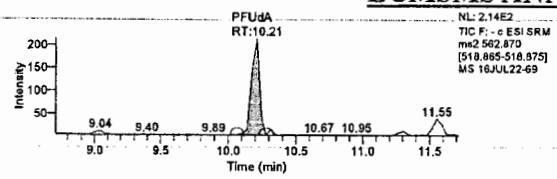


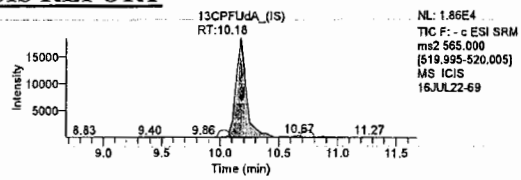
Jason W. Knight
Senior Chemist

Component Name: PFUdA

JUL 25 2016

LCMSMS ANALYSIS REPORT





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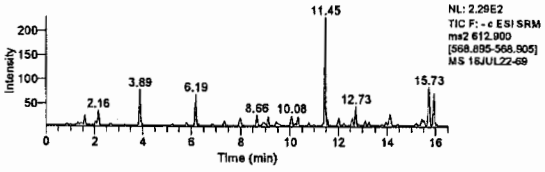

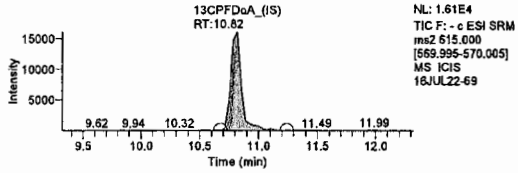

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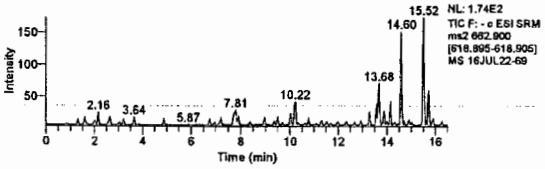
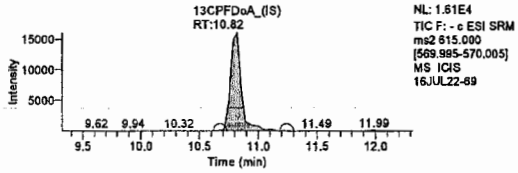
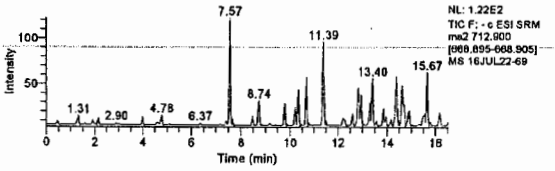
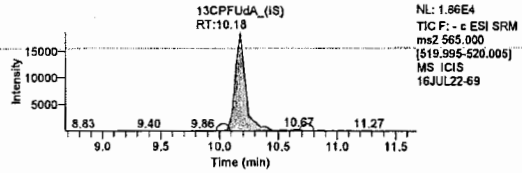




Component Name: PFTeDA





Lynn Dodd
JUL 26 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

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Form 4
Method Blank Summary
LC/MS/MS

SDG: SGP93

Matrix: Soil
Water Sample Prep: Sonc
Sample vol: 5.00 grams
Instrument ID: 18881

Lab Sample ID: MB16202004
Lab File ID: 16JUL22-69
Date Analyzed: 07/23/2016 03:56

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
LCS16202004	16JUL22-70	07/23/2016 04:13
8427017 RE	16JUL22-72	07/23/2016 04:48
8427018 RE	16JUL22-73	07/23/2016 05:05
8427019 RE	16JUL22-74	07/23/2016 05:22
8427020 RE	16JUL22-75	07/23/2016 05:39
8427021 RE	16JUL22-76	07/23/2016 05:57
8427022 RE	16JUL22-79	07/23/2016 06:48
8427023 RE	16JUL22-80	07/23/2016 07:06
8427024 RE	16JUL22-81	07/23/2016 07:23
8427025 RE	16JUL22-82	07/23/2016 07:40
8427026 RE	16JUL22-83	07/23/2016 07:57
8427029 RE	16JUL22-84	07/23/2016 08:15
8427030 RE	16JUL22-85	07/23/2016 08:32
8427031 RE	16JUL22-86	07/23/2016 08:49
8427032 RE	16JUL22-90	07/23/2016 09:58
8427034 RE	16JUL22-91	07/23/2016 10:15
8427035 RE	16JUL22-92	07/23/2016 10:33
8427036 RE	16JUL22-93	07/23/2016 10:50
8427014 RE	16JUL22-94	07/23/2016 11:07
8427015MS RE	16JUL22-95	07/23/2016 11:24
8427016MSD RE	16JUL22-96	07/23/2016 11:42

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP93
Matrix: LIQUID

Fraction: PFAAs by LC/MS/MS

16172001 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	06/29/16	N.D.	ng/l	1	2
Perfluorononanoic acid	06/29/16	N.D.	ng/l	1	2
Perfluorodecanoic acid	06/29/16	N.D.	ng/l	1	2
Perfluoroundecanoic acid	06/29/16	N.D.	ng/l	2	4
Perfluorododecanoic acid	06/29/16	N.D.	ng/l	3	5
Perfluorotridecanoic acid	06/29/16	N.D.	ng/l	2	4
Perfluorotetradecanoic acid	06/29/16	N.D.	ng/l	3	5
Perfluorohexanoic acid	06/29/16	N.D.	ng/l	1	2
Perfluoroheptanoic acid	06/29/16	N.D.	ng/l	1	2
Perfluorobutanesulfonate	06/29/16	N.D.	ng/l	4	10
Perfluorohexanesulfonate	06/29/16	N.D.	ng/l	4	10
Perfluoro-octanesulfonate	06/29/16	N.D.	ng/l	5	10

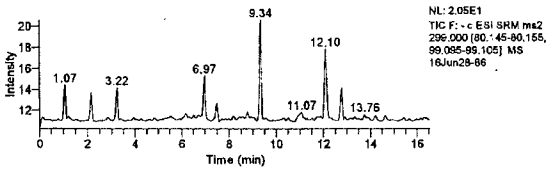
LCMSMS ANALYSIS REPORT

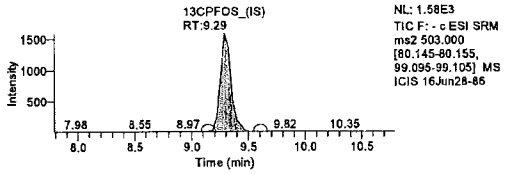
Sample Name:	MB 16172001	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	MB 16172001	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-86		
Acquisition Date:	06/29/16 08:00:26 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:1	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

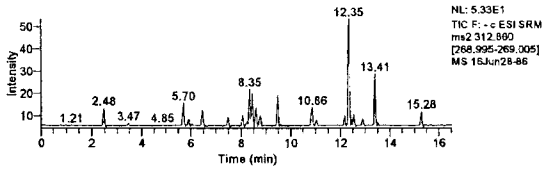
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.36	205967.12	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	147436.26	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.79	146407.23	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.39	115897.53	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	136036.49	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	102257.06	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.68	24867.93	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.29	10450.69	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.43	145103.23	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

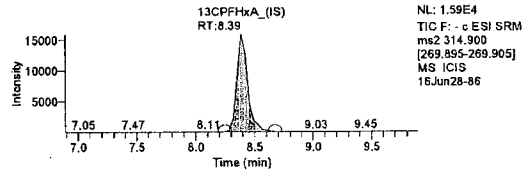
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHxS

JUN 30 2016

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Jason W. Knight
Senior Chemist

JUN 29 2016

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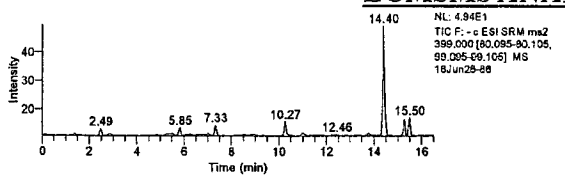

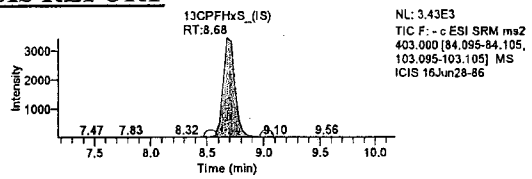

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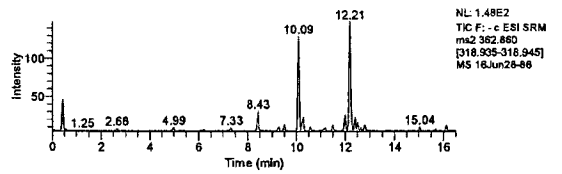
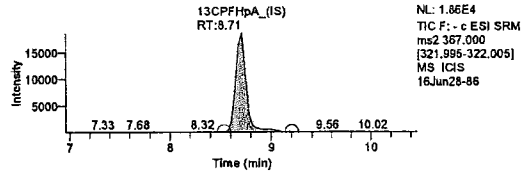
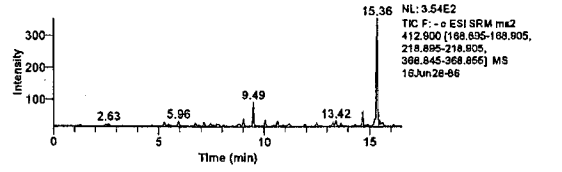
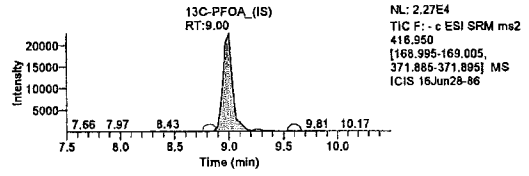


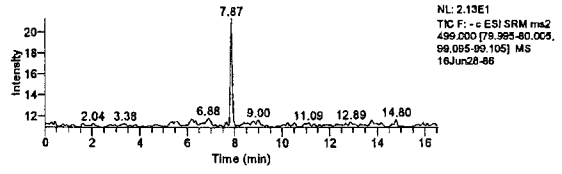


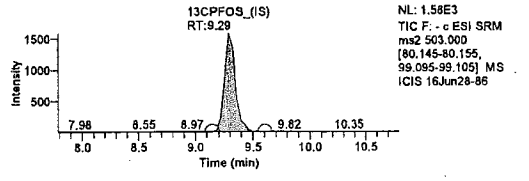
Component Name: PFOA



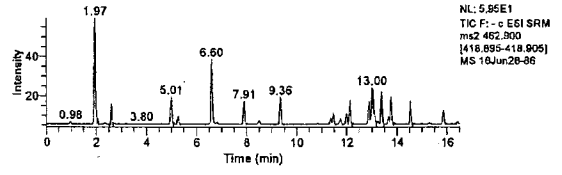


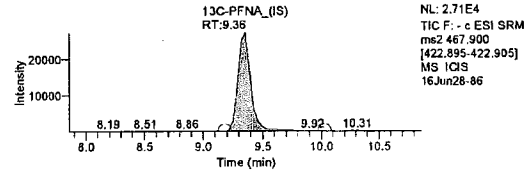
Component Name: PFOS



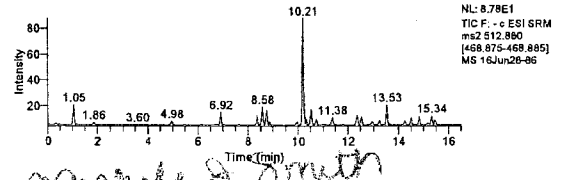


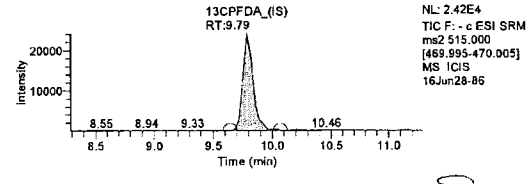
Component Name: PFNA





Component Name: PFDA





Component Name: PFUdA

Michele J. Smith

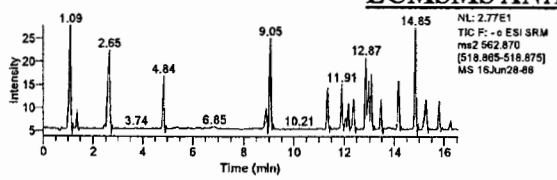
JUN 30 2016

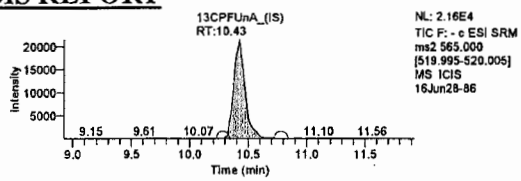
Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

LCMSMS ANALYSIS REPORT





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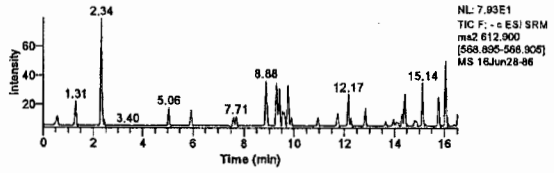

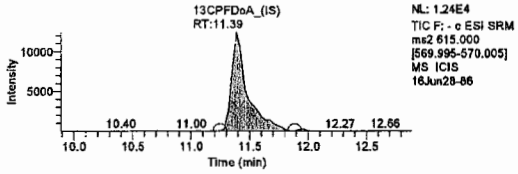

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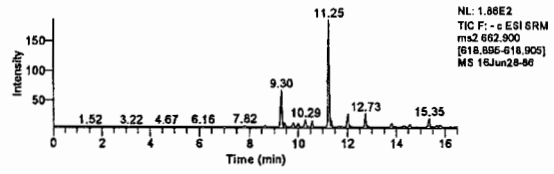

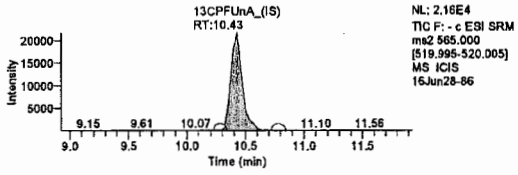

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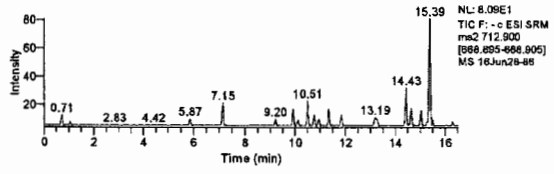

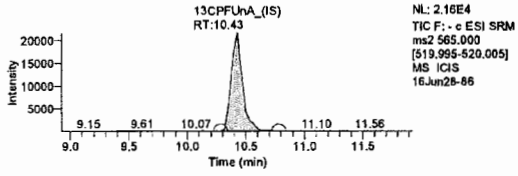

Michele J Smith

JUN 3 0 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

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Form 4
Method Blank Summary
LC/MS/MS

SDG No.: SGP93

Matrix: WATER
Water Sample Prep: SPE
Sample vol: 100.00 mL
Instrument ID: 18881

Lab Sample ID: MB16172001
Lab File ID: 16Jun28-86
Date Analyzed: 06/29/2016 08:00

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
LCS16172001	16JUN28-61	06/29/2016 00:49
LCSD16172001	16JUN28-62	06/29/2016 01:06
8427013	16JUN28-64	06/29/2016 01:41
8427027	16JUN28-65	06/29/2016 01:58
8427028	16JUN28-66	06/29/2016 02:15
8427033	16JUN28-67	06/29/2016 02:32
8427012MS	16JUN28-83	06/29/2016 07:08
8427012	16JUN28-84	06/29/2016 07:25

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LOQ/MDL Summary
Specialty Services Group

SDG: SGP93

Fraction: PFAAs by LC/MS/MS

10954: Full List PFC's Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	1	2	ng/l
Perfluorononanoic acid	1	2	ng/l
Perfluorodecanoic acid	1	2	ng/l
Perfluoroundecanoic acid	2	4	ng/l
Perfluorododecanoic acid	3	5	ng/l
Perfluorotridecanoic acid	2	4	ng/l
Perfluorotetradecanoic acid	3	5	ng/l
Perfluorohexanoic acid	1	2	ng/l
Perfluoroheptanoic acid	1	2	ng/l
Perfluorobutanesulfonate	4	10	ng/l
Perfluorohexanesulfonate	4	10	ng/l
Perfluoro-octanesulfonate	5	10	ng/l

14027: Full List PFC's Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.30	0.60	ng/g
Perfluorononanoic acid	0.20	0.40	ng/g
Perfluorodecanoic acid	0.20	0.40	ng/g
Perfluoroundecanoic acid	0.30	0.60	ng/g
Perfluorododecanoic acid	0.40	0.80	ng/g
Perfluorotridecanoic acid	0.60	1.2	ng/g
Perfluorotetradecanoic acid	0.30	0.80	ng/g
Perfluorohexanoic acid	0.20	0.40	ng/g
Perfluoroheptanoic acid	0.30	0.60	ng/g
Perfluorobutanesulfonate	0.50	1.6	ng/g
Perfluorohexanesulfonate	0.50	1.6	ng/g
Perfluoro-octanesulfonate	0.70	1.6	ng/g

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LC-MS/MS Sequence Report

Printed: 07/15/2016 11:38:00 AM

Instrument	Acquisition Date	File Name	Sample ID	Vial Position	Samp Wt	Samp Vol	DF
API 4000	7/13/2016 4:36:17 PM	16JUL12t3CAL-04.wiff	MDL	2	1.00	1.00	1.00
API 4000	7/13/2016 4:55:25 PM	16JUL12t3CAL-05.wiff	CAL1	3	1.00	1.00	1.00
API 4000	7/13/2016 5:14:54 PM	16JUL12t3CAL-06.wiff	CAL2	4	1.00	1.00	1.00
API 4000	7/13/2016 5:34:17 PM	16JUL12t3CAL-07.wiff	CAL3	5	1.00	1.00	1.00
API 4000	7/13/2016 5:53:37 PM	16JUL12t3CAL-08.wiff	CAL4	6	1.00	1.00	1.00
API 4000	7/13/2016 6:12:52 PM	16JUL12t3CAL-09.wiff	CAL5	7	1.00	1.00	1.00
API 4000	7/13/2016 6:32:14 PM	16JUL12t3CAL-10.wiff	CAL6	8	1.00	1.00	1.00
API 4000	7/13/2016 6:51:37 PM	16JUL12t3CAL-11.wiff	solvent	1	1.00	1.00	1.00
API 4000	7/13/2016 7:10:57 PM	16JUL12t3CAL-12.wiff	ICV1	9	1.00	1.00	1.00
API 4000	7/13/2016 7:30:26 PM	16JUL12t3CAL-13.wiff	CCV1	5	1.00	1.00	1.00
API 4000	7/14/2016 6:46:25 PM	16JUL14-32.wiff	CCV1	5	1.00	1.00	1.00
API 4000	7/14/2016 7:05:36 PM	16JUL14-33.wiff	BLK181004	11	5.00	1.00	1.00
API 4000	7/14/2016 7:25:01 PM	16JUL14-34.wiff	LCS181004	12	5.00	1.00	1.00
API 4000	7/14/2016 7:44:12 PM	16JUL14-35.wiff	8427014BKG	13	5.29	1.00	1.00
API 4000	7/14/2016 8:03:40 PM	16JUL14-36.wiff	8427015MS	14	5.02	1.00	1.00
API 4000	7/14/2016 8:22:59 PM	16JUL14-37.wiff	8427016MSD	15	5.39	1.00	1.00
API 4000	7/14/2016 8:42:24 PM	16JUL14-38.wiff	8427017	16	5.10	1.00	1.00
API 4000	7/14/2016 9:01:43 PM	16JUL14-39.wiff	8427018	17	5.36	1.00	1.00
API 4000	7/14/2016 9:21:05 PM	16JUL14-40.wiff	8427019	18	5.01	1.00	1.00
API 4000	7/14/2016 9:40:34 PM	16JUL14-41.wiff	8427020	19	5.24	1.00	1.00
API 4000	7/14/2016 10:00:00 PM	16JUL14-42.wiff	8427021	20	4.94	1.00	1.00
API 4000	7/14/2016 10:19:23 PM	16JUL14-43.wiff	CCV2 PFTnA	6	1.00	1.00	1.00
API 4000	7/14/2016 10:38:44 PM	16JUL14-44.wiff	8427022	21	5.02	1.00	1.00
API 4000	7/14/2016 10:57:59 PM	16JUL14-45.wiff	8427023	22	5.33	1.00	1.00
API 4000	7/14/2016 11:17:18 PM	16JUL14-46.wiff	8427024	23	5.12	1.00	1.00
API 4000	7/14/2016 11:36:30 PM	16JUL14-47.wiff	8427025	24	4.98	1.00	1.00
API 4000	7/14/2016 11:55:58 PM	16JUL14-48.wiff	8427026	25	5.23	1.00	1.00
API 4000	7/15/2016 12:15:12 AM	16JUL14-49.wiff	8427029	26	5.27	1.00	1.00
API 4000	7/15/2016 12:34:34 AM	16JUL14-50.wiff	8427030	27	4.85	1.00	1.00
API 4000	7/15/2016 12:53:45 AM	16JUL14-51.wiff	8427031	28	5.04	1.00	1.00
API 4000	7/15/2016 1:13:11 AM	16JUL14-52.wiff	8427032	29	5.04	1.00	1.00
API 4000	7/15/2016 1:32:24 AM	16JUL14-53.wiff	8427034	30	4.97	1.00	1.00
API 4000	7/15/2016 1:51:40 AM	16JUL14-54.wiff	CCV3	7	1.00	1.00	1.00
API 4000	7/15/2016 2:10:53 AM	16JUL14-55.wiff	8427035	31	5.27	1.00	1.00
API 4000	7/15/2016 2:30:13 AM	16JUL14-56.wiff	8427036	32	4.99	1.00	1.00
API 4000	7/15/2016 2:49:24 AM	16JUL14-57.wiff	CCV4	5	1.00	1.00	1.00

MCD 7824 10/17/16

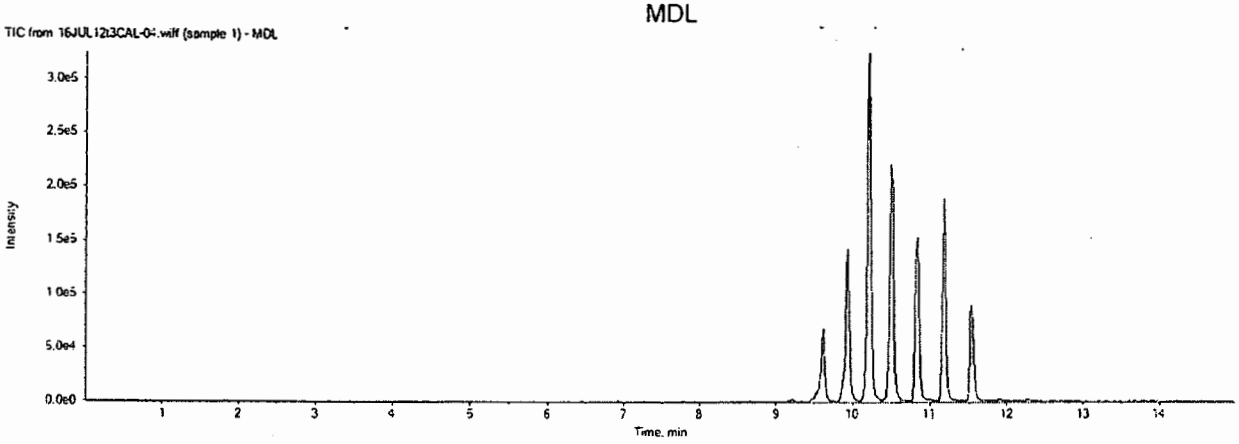
Sample Name:	MDL	**Data File:**		16JUL12t3CAL-04.wiff
Sample ID:	MDL	**Acquis Date:**		7/13/2016 4:36:17 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	2	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16181004
Batch Number:	16181004	**Operator:**		US19INS07959\4000
Sample Wt.:	1.000	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		1.000

Quantitation Peak Table

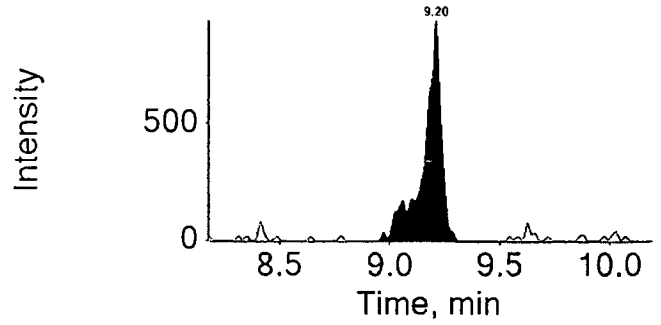
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	9.20	5284.7	18O2-PFHxS	9.92	156685.7	0.034	0.689	
PFHxA	9.62	2871.2	13C2-PFHxA	9.61	260046.6	0.011	0.018	
PFHpA	9.94	4824.0	13C4-PFHpA	9.93	350741.0	0.014	0.031	
PFHxS	9.93	7045.0	18O2-PFHxS	9.92	156685.7	0.045	0.084	
PFOA	10.21	9771.2	13C4-PFOA	10.21	1070250.8	0.009	0.021	
PFNA	10.50	15560.3	13C5-PFNA	10.50	669053.7	0.023	0.024	
PFOS	10.47	4733.3	13C4-PFOS	10.47	75648.6	0.063	0.101	
PFDA	10.83	10704.3	13C2-PFDA	10.83	532012.8	0.020	0.026	
PFUndA	11.18	5779.6	13C2-PFUnDA	11.18	512175.3	0.011	0.015	
PFDoDA	11.54	6114.5	13C2-PFDoDA	11.54	304814.5	0.020	0.028	
PFTrDA	11.91	3743.1	13C2-PFDoDA	11.54	304814.5	0.012	0.029	
PFTeDA	12.27	4595.9	13C2-PFDoDA	11.54	304814.5	0.015	0.025	

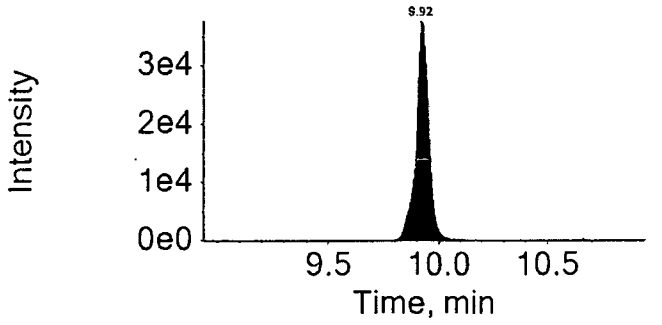
Total Ion Chromatogram

MDL

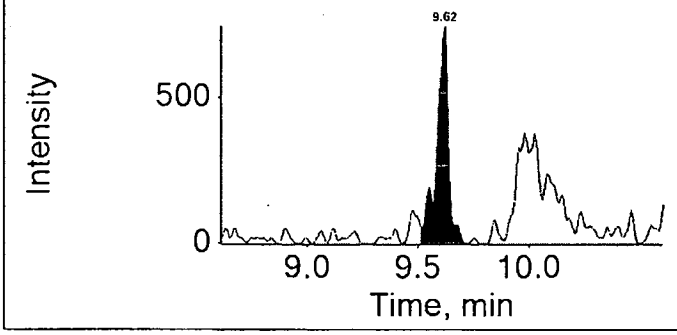


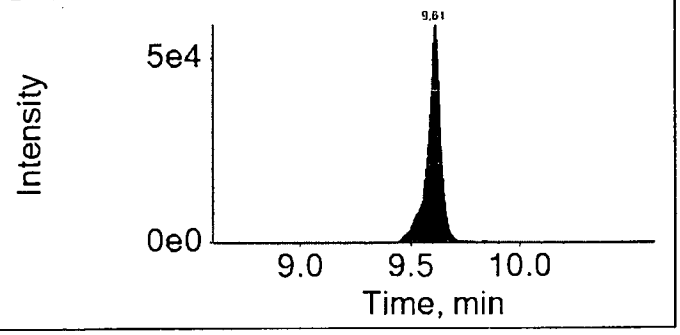
16JUL12t3CAL-04.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





16JUL12t3CAL-04.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





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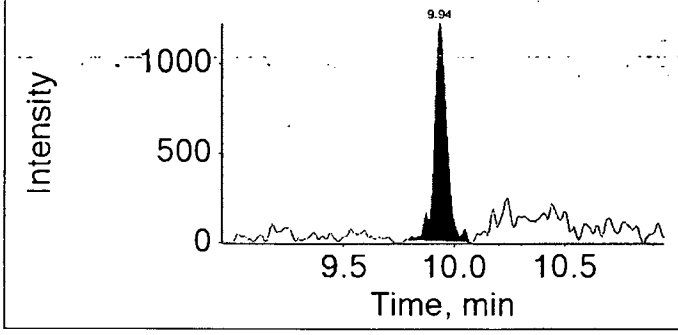
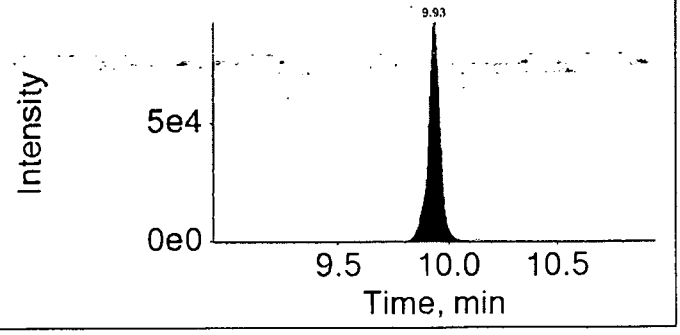
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

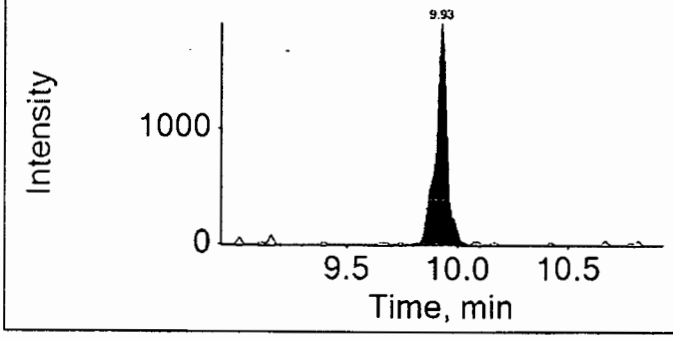




16JUL12t3CAL-04.wiff

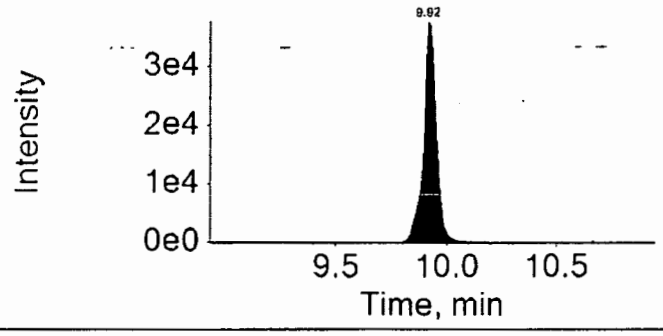
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

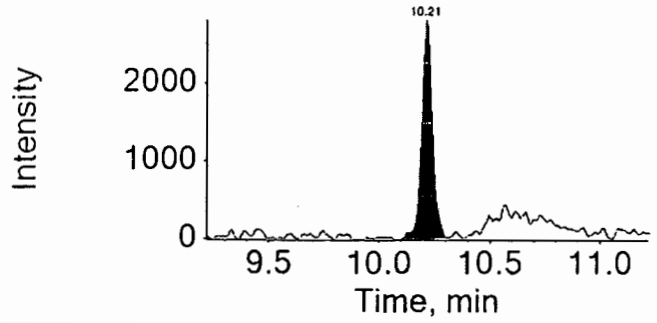
403.0 / 103.0



16JUL12t3CAL-04.wiff

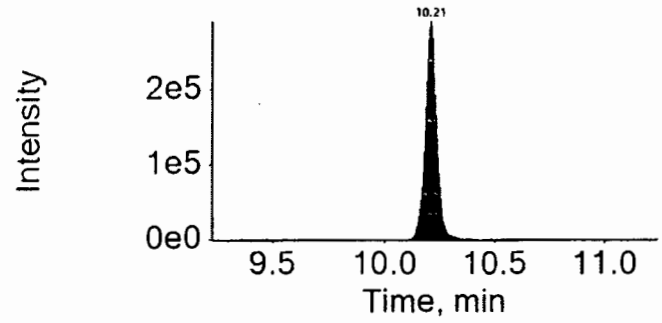
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

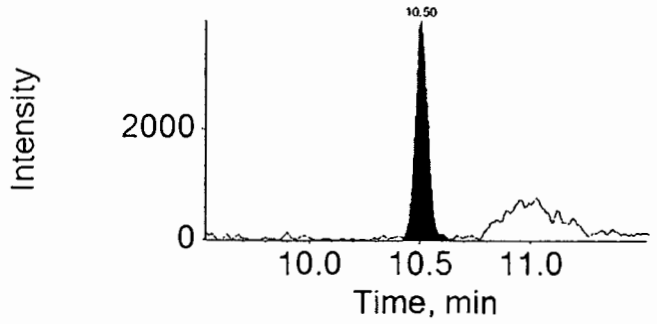
417.0 / 372.0



16JUL12t3CAL-04.wiff

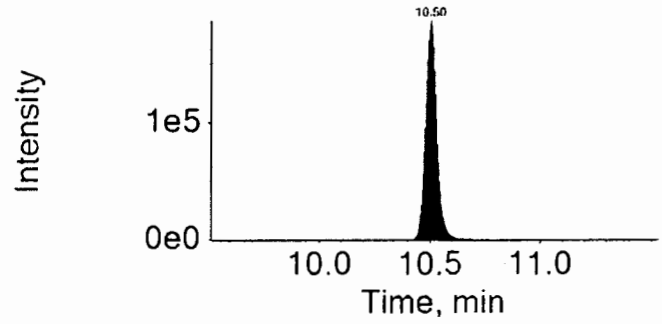
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

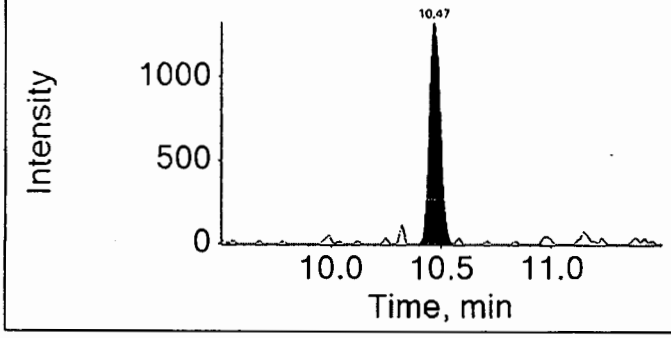
468.0 / 423.0



16JUL12t3CAL-04.wiff

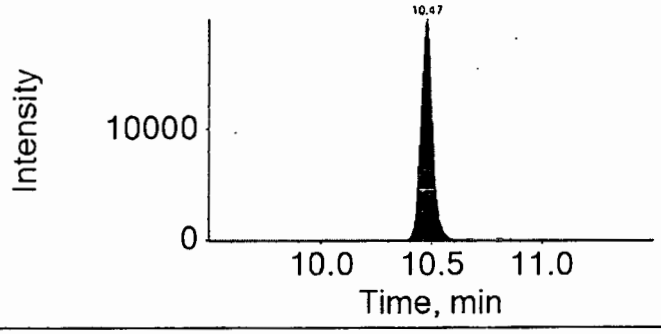
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

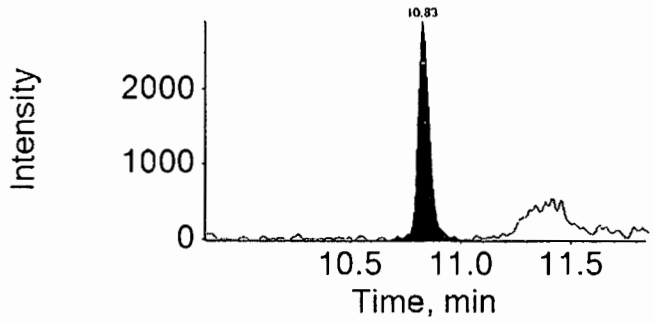
503.0 / 99.0



16JUL12t3CAL-04.wiff

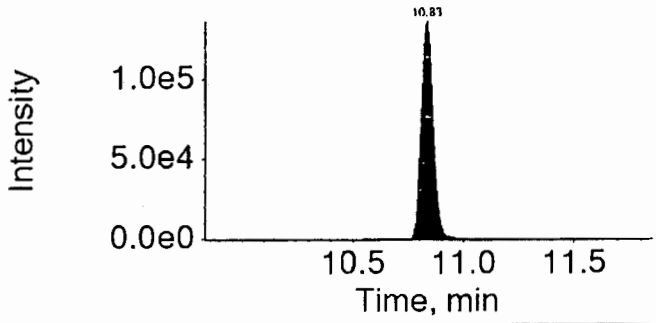
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

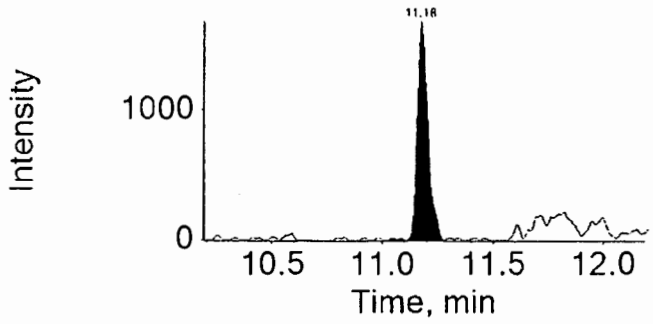
515.0 / 470.0



16JUL12t3CAL-04.wiff

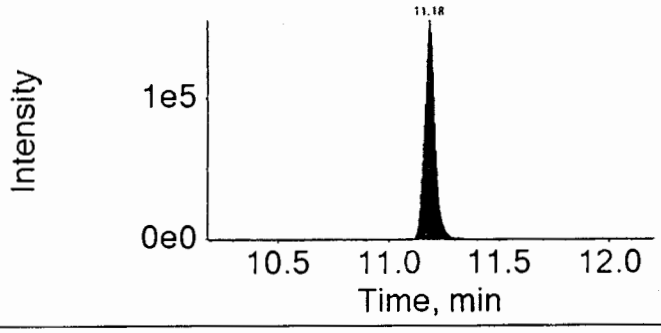
Analyte: PFUnDA

562.9 / 518.9

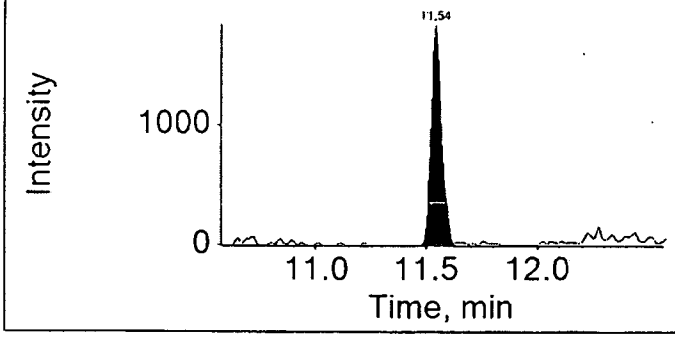


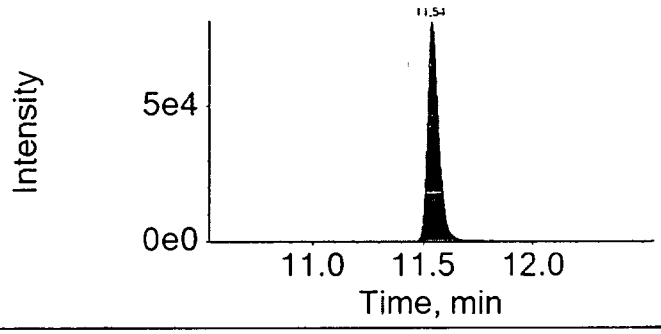
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

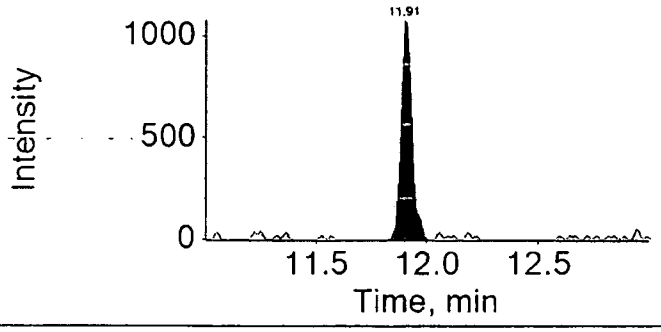


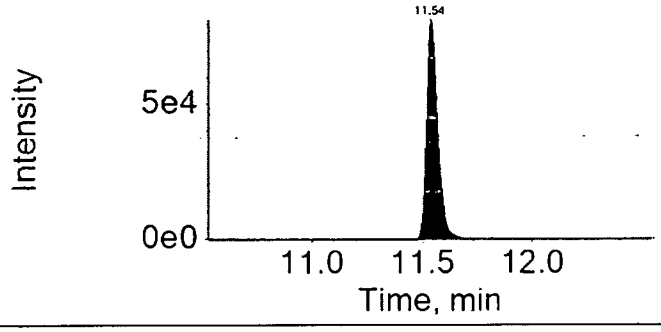
16JUL12t3CAL-04.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



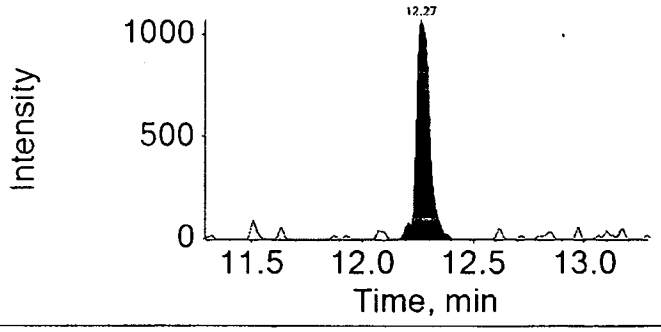


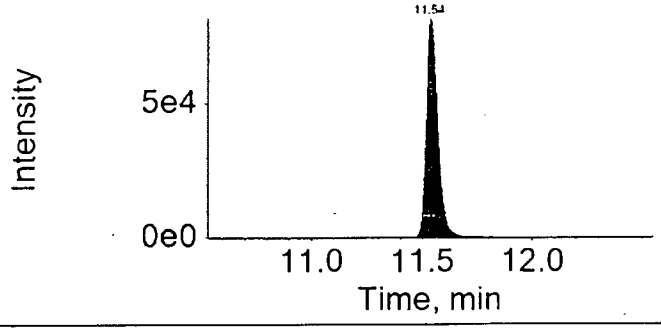
16JUL12t3CAL-04.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL12t3CAL-04.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0

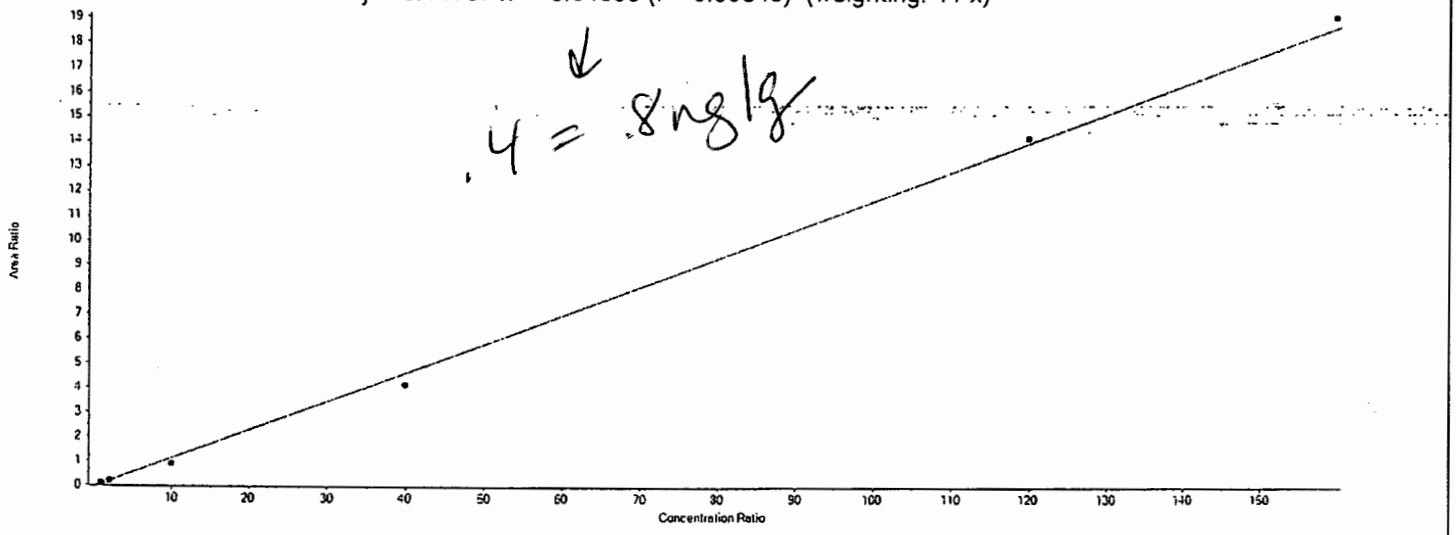




Initial Calibration

Results Table Name: MQ 16181004 7/15/2016 11:34:16 AM

PFBS
y = 0.11707 x + -0.04693 (r = 0.99846) (weighting: 1 / x)

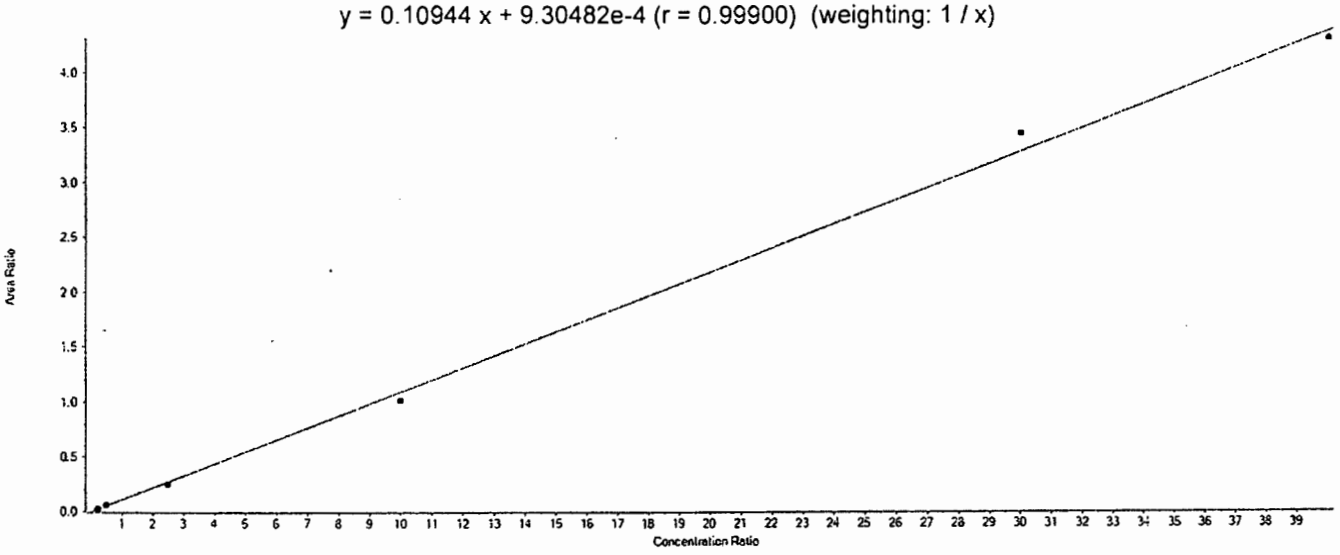


Calibration Verification

File Name	Sample Name	PFBS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	11918.0	162517.3	1.00	0.073	8.99	0.800	1.030	28.75
16JUL12t3CAL-06.wiff	CAL2	29259.0	163371.9	1.00	0.179	9.04	2.000	1.930	-3.5
16JUL12t3CAL-07.wiff	CAL3	129668.5	144043.1	1.00	0.900	8.99	9.990	8.090	-19.02
16JUL12t3CAL-08.wiff	CAL4	612631.3	147502.7	1.00	4.153	8.95	39.960	35.880	-10.21
16JUL12t3CAL-09.wiff	CAL5	1914291.6	134663.1	1.00	14.220	9.11	119.870	121.820	1.63
16JUL12t3CAL-10.wiff	CAL6	2364637.9	123690.1	1.00	19.120	9.02	159.830	163.690	2.42

Does not match CAL std results from inst. - true for all analytes.

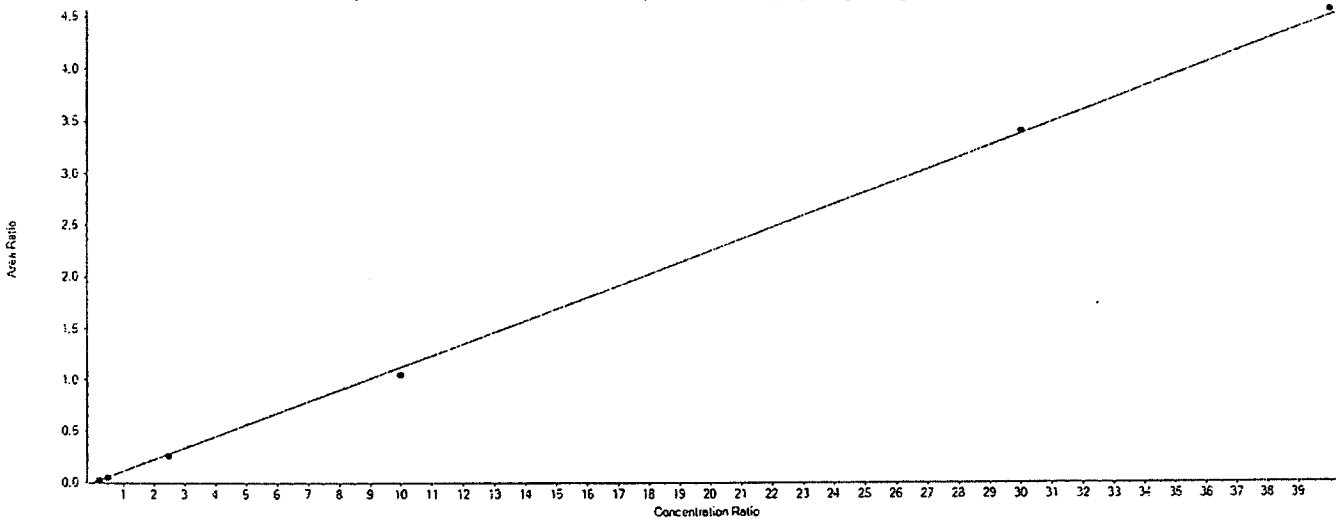
PFHxA
y = 0.10944 x + 9.30482e-4 (r = 0.99900) (weighting: 1 / x)



Calibration Verification

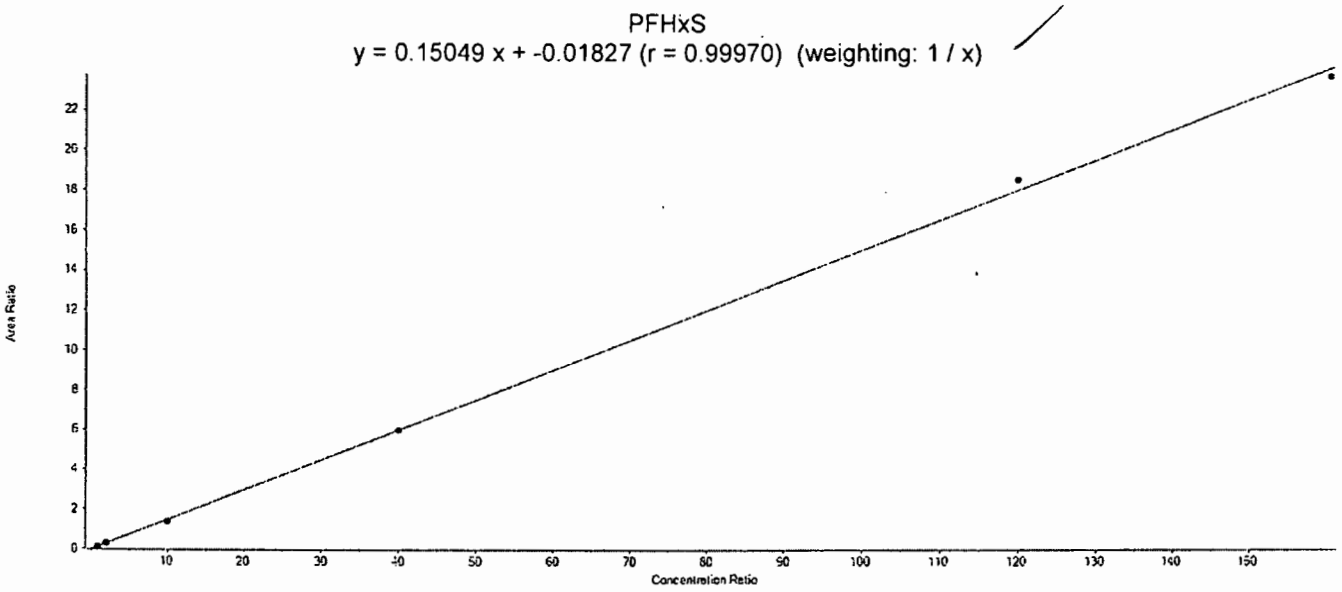
File Name	Sample Name	PFHxA Area	13C2-PFHxA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	6486.9	273080.3	1.00	0.024	9.38	0.200	0.210	5
16JUL12t3CAL-06.wiff	CAL2	15564.8	258933.6	1.00	0.060	9.44	0.500	0.540	8
16JUL12t3CAL-07.wiff	CAL3	58810.2	234580.9	1.00	0.251	9.40	2.500	2.280	-8.8
16JUL12t3CAL-08.wiff	CAL4	252230.6	248064.9	1.00	1.017	9.39	10.000	9.280	-7.2
16JUL12t3CAL-09.wiff	CAL5	860450.4	249574.3	1.00	3.448	9.50	30.000	31.490	4.97
16JUL12t3CAL-10.wiff	CAL6	1030940.1	239084.6	1.00	4.312	9.46	40.000	39.390	-1.52

PFHpA
y = 0.11268 x + -0.00373 (r = 0.99957) (weighting: 1 / x)



Calibration Verification

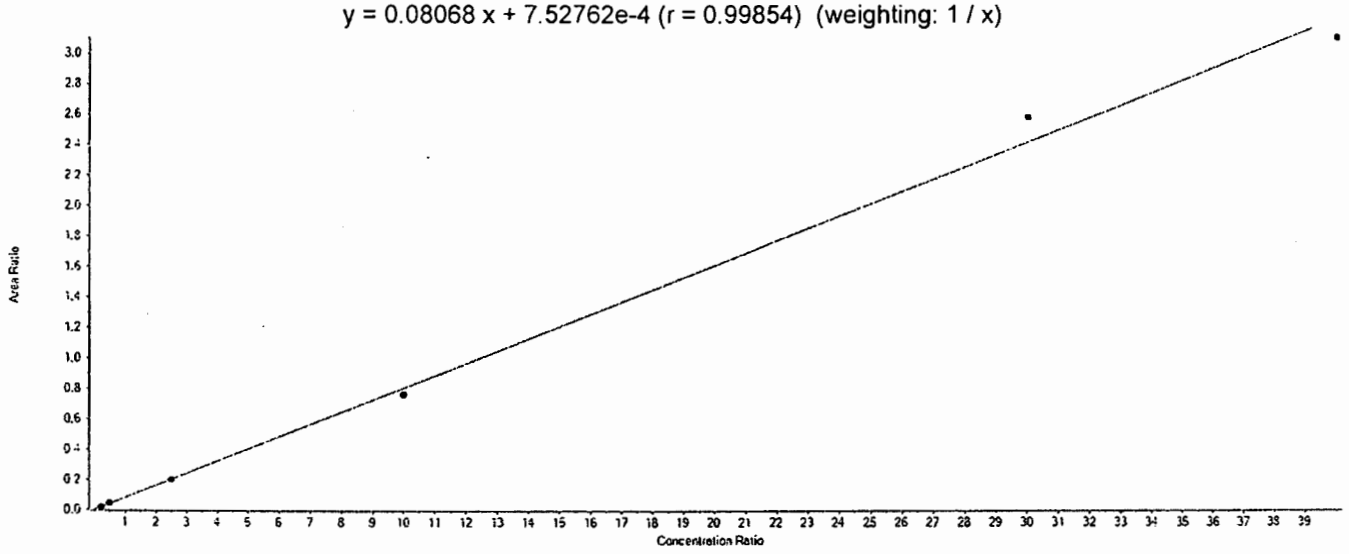
File Name	Sample Name	PFHpA Area	13C4-PFHpA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	7911.0	345755.3	1.00	0.023	9.70	0.200	0.240	20
16JUL12t3CAL-06.wiff	CAL2	16993.1	351911.2	1.00	0.048	9.76	0.500	0.460	-8
16JUL12t3CAL-07.wiff	CAL3	77522.1	298062.6	1.00	0.260	9.73	2.500	2.340	-6.4
16JUL12t3CAL-08.wiff	CAL4	330270.1	313580.0	1.00	1.053	9.74	10.000	9.380	-6.2
16JUL12t3CAL-09.wiff	CAL5	964620.3	283275.7	1.00	3.405	9.83	30.000	30.250	0.83
16JUL12t3CAL-10.wiff	CAL6	1143753.2	250671.8	1.00	4.563	9.80	40.000	40.530	1.33



Calibration Verification

File Name	Sample Name	PFHxS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	17890.7	162517.3	1.00	0.110	9.69	0.800	0.850	6.25
16JUL12t3CAL-06.wiff	CAL2	45824.0	163371.9	1.00	0.281	9.75	2.010	1.990	-1
16JUL12t3CAL-07.wiff	CAL3	201157.6	144043.1	1.00	1.397	9.72	10.000	9.400	-6
16JUL12t3CAL-08.wiff	CAL4	879531.2	147502.7	1.00	5.963	9.73	40.020	39.740	-0.7
16JUL12t3CAL-09.wiff	CAL5	2501450.9	134663.1	1.00	18.580	9.82	120.050	123.550	2.92
16JUL12t3CAL-10.wiff	CAL6	2938265.6	123690.1	1.00	23.760	9.79	160.630	157.970	-1.66

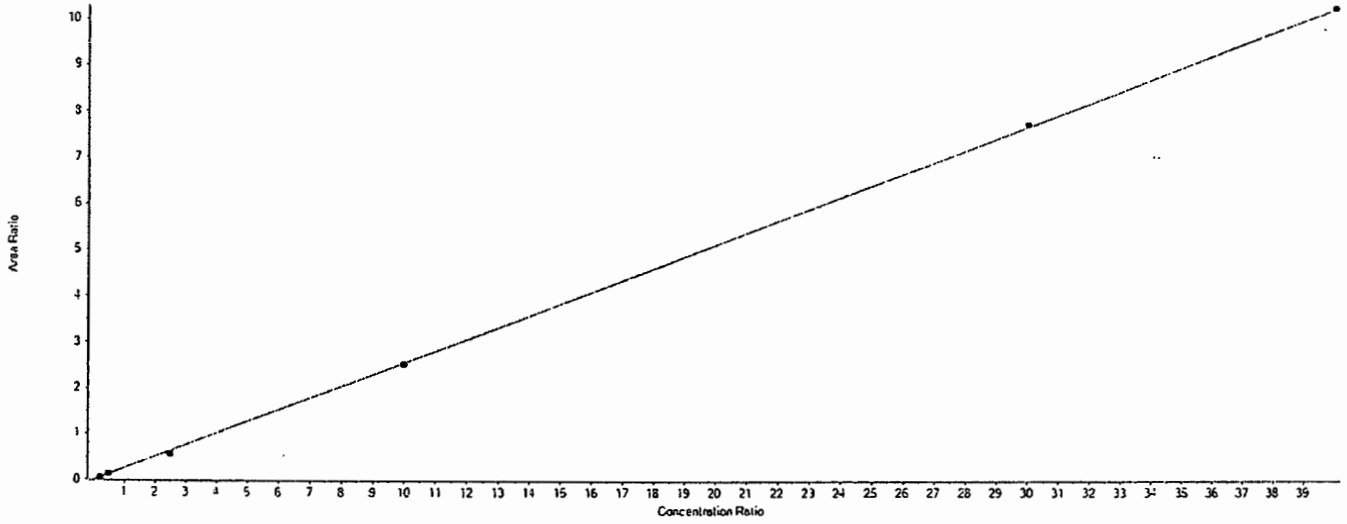
PFOA
y = 0.08068 x + 7.52762e-4 (r = 0.99854) (weighting: 1 / x)



Calibration Verification

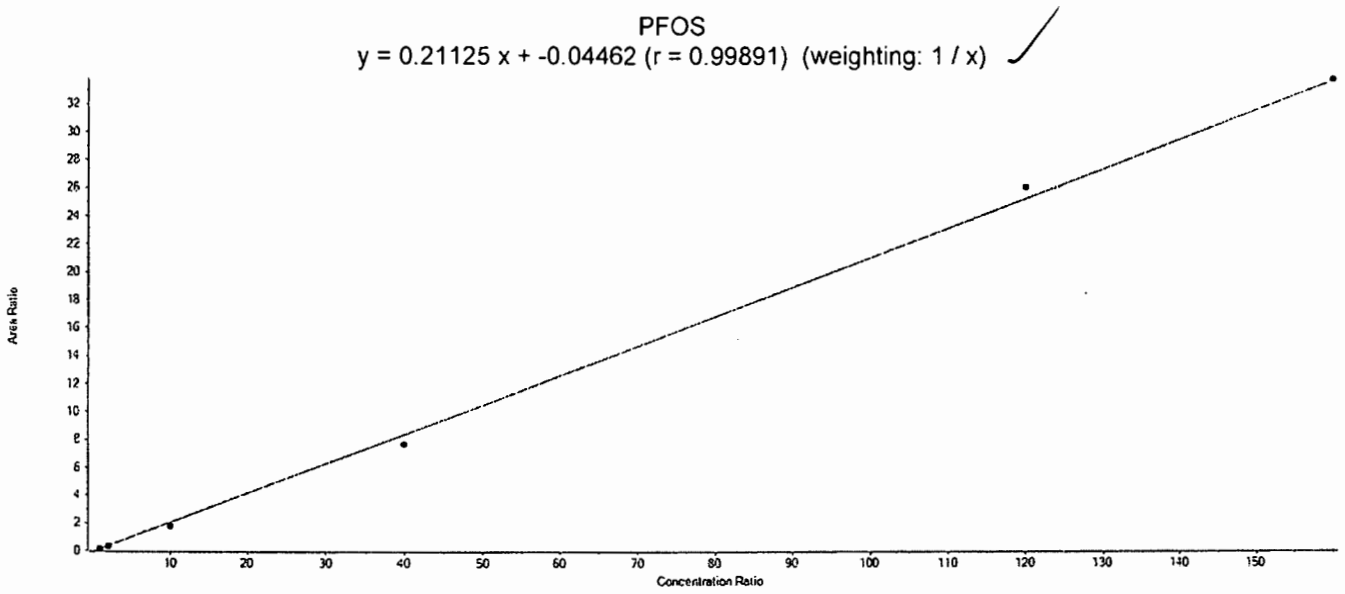
File Name	Sample Name	PFOA Area	13C4-PFOA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	18495.1	1080832.7	1.00	0.017	9.98	0.200	0.200	0
16JUL12t3CAL-06.wiff	CAL2	41526.4	1003761.8	1.00	0.041	10.04	0.500	0.500	0
16JUL12t3CAL-07.wiff	CAL3	188575.7	928852.2	1.00	0.203	10.01	2.500	2.510	0.4
16JUL12t3CAL-08.wiff	CAL4	789398.2	1033323.7	1.00	0.764	10.02	10.000	9.460	-5.4
16JUL12t3CAL-09.wiff	CAL5	2514129.2	971724.2	1.00	2.587	10.10	30.000	32.060	6.87
16JUL12t3CAL-10.wiff	CAL6	3064489.7	987254.0	1.00	3.104	10.08	40.000	38.470	-3.83

PFNA
y = 0.25653 x + -0.00796 (r = 0.99972) (weighting: 1 / x)



Calibration Verification

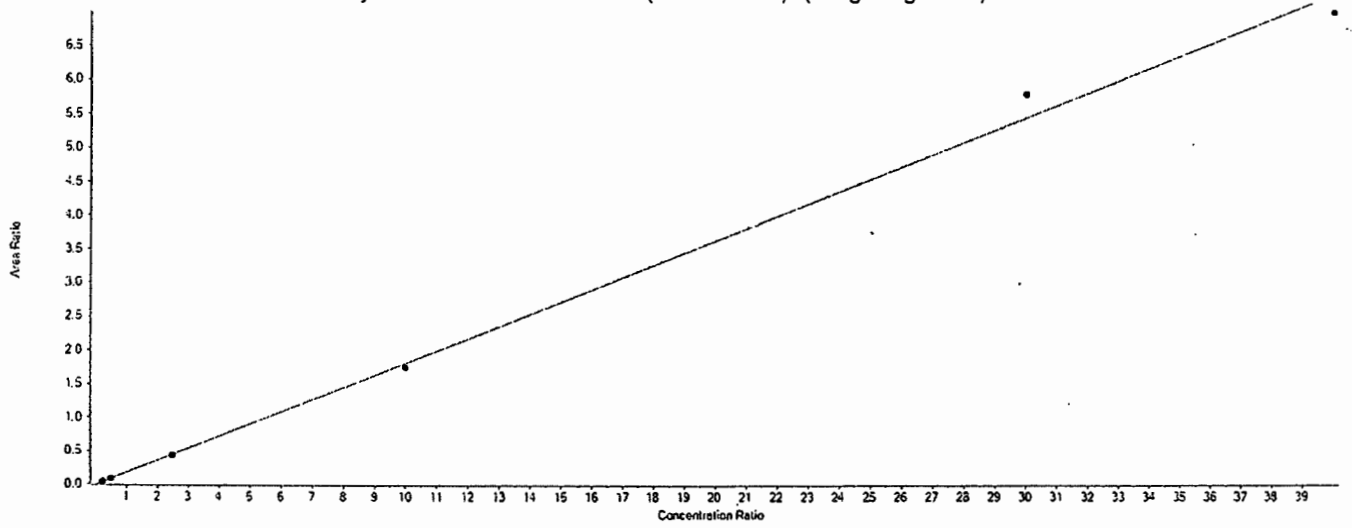
File Name	Sample Name	PFNA Area	13C5-PFNA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	32901.0	675696.7	1.00	0.049	10.27	0.200	0.220	10
16JUL12t3CAL-06.wiff	CAL2	80552.6	658034.0	1.00	0.122	10.33	0.500	0.510	2
16JUL12t3CAL-07.wiff	CAL3	318486.7	573965.2	1.00	0.555	10.31	2.500	2.190	-12.4
16JUL12t3CAL-08.wiff	CAL4	1463582.2	578067.3	1.00	2.532	10.30	10.000	9.900	-1
16JUL12t3CAL-09.wiff	CAL5	4013652.7	517388.7	1.00	7.758	10.39	30.000	30.270	0.9
16JUL12t3CAL-10.wiff	CAL6	4852155.3	471991.4	1.00	10.280	10.37	40.000	40.100	0.25



Calibration Verification

File Name	Sample Name	PFOS Area	13C4-PFOS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	13459.0	79871.6	1.00	0.169	10.23	0.800	1.010	26.25
16JUL12t3CAL-06.wiff	CAL2	29368.8	84333.2	1.00	0.348	10.31	2.000	1.860	-7
16JUL12t3CAL-07.wiff	CAL3	123413.9	70691.0	1.00	1.746	10.28	9.990	8.480	-15.12
16JUL12t3CAL-08.wiff	CAL4	582037.7	75269.2	1.00	7.733	10.27	39.960	36.820	-7.86
16JUL12t3CAL-09.wiff	CAL5	1623667.3	62093.6	1.00	26.150	10.36	119.880	123.990	3.43
16JUL12t3CAL-10.wiff	CAL6	1941964.0	57412.9	1.00	33.820	10.34	159.840	160.320	0.3

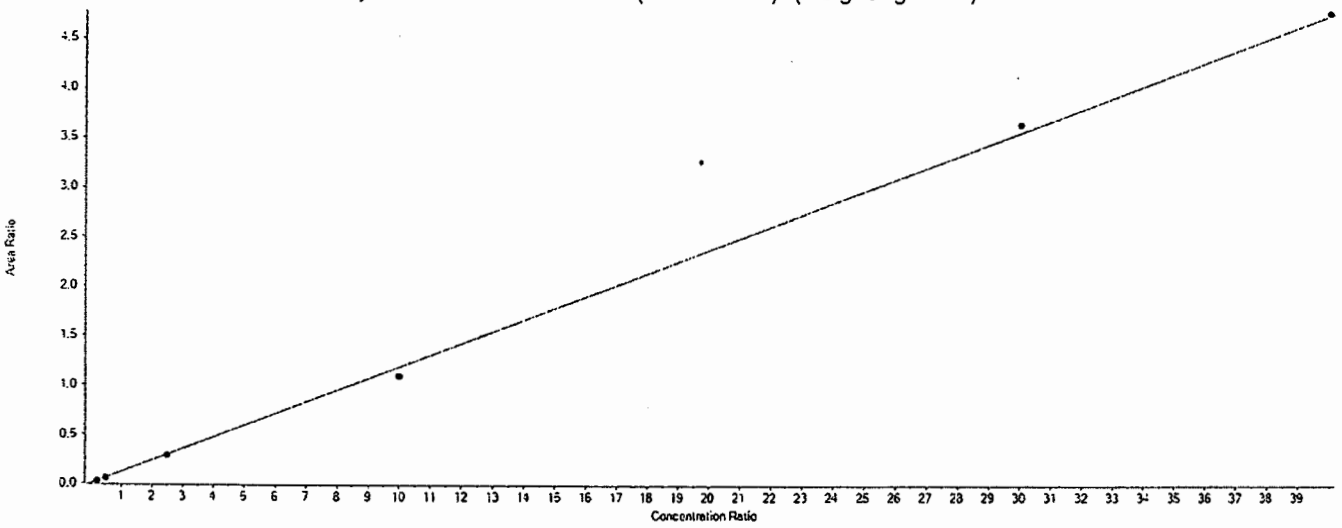
PFDA
y = 0.18167 x + -0.00383 (r = 0.99868) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFDA Area	13C2-PFDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	20342.2	537597.2	1.00	0.038	10.59	0.200	0.230	15
16JUL12t3CAL-06.wiff	CAL2	42214.0	539847.2	1.00	0.078	10.67	0.500	0.450	-10
16JUL12t3CAL-07.wiff	CAL3	202494.4	469269.7	1.00	0.432	10.62	2.500	2.400	-4
16JUL12t3CAL-08.wiff	CAL4	919397.6	526725.7	1.00	1.745	10.60	10.000	9.630	-3.7
16JUL12t3CAL-09.wiff	CAL5	2870901.1	494900.0	1.00	5.801	10.69	30.000	31.950	6.5
16JUL12t3CAL-10.wiff	CAL6	3428952.5	489980.2	1.00	6.998	10.67	40.000	38.540	-3.65

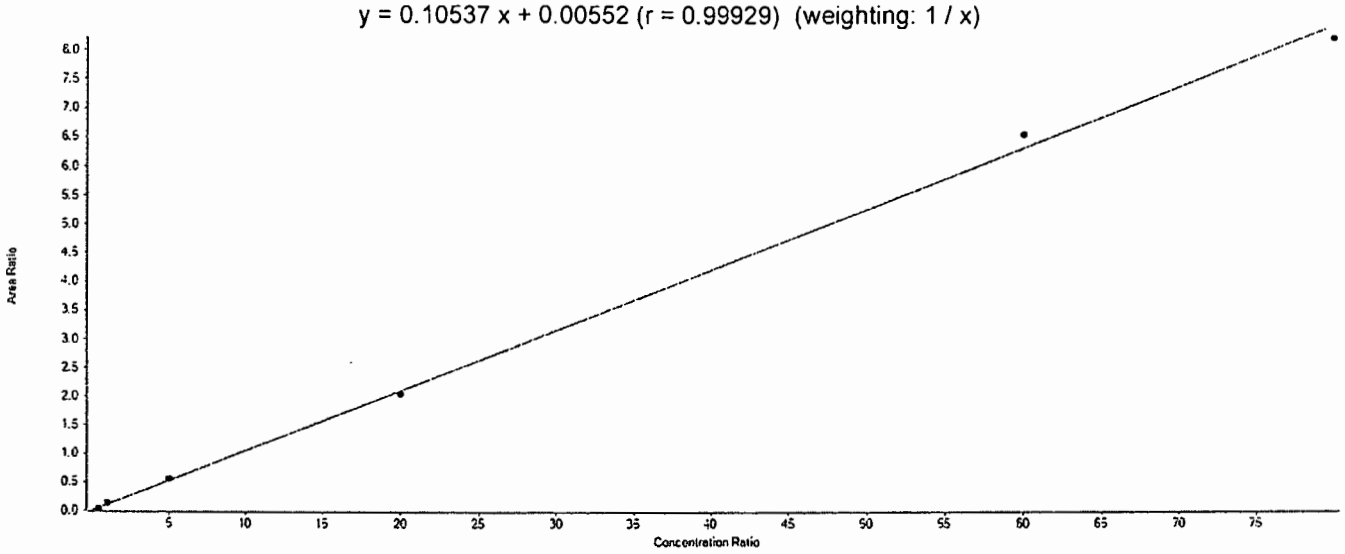
PFUndA
y = 0.11877 x + 0.00252 (r = 0.99945) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFUndA Area	13C2-PFUnDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	12578.0	431038.4	1.00	0.029	10.94	0.200	0.220	10
16JUL12t3CAL-06.wiff	CAL2	27165.8	451728.2	1.00	0.060	11.02	0.500	0.490	-2
16JUL12t3CAL-07.wiff	CAL3	108716.6	378741.7	1.00	0.287	10.96	2.500	2.400	-4
16JUL12t3CAL-08.wiff	CAL4	443233.2	404103.4	1.00	1.097	10.92	10.000	9.210	-7.9
16JUL12t3CAL-09.wiff	CAL5	1412307.7	387355.0	1.00	3.646	11.01	30.000	30.680	2.27
16JUL12t3CAL-10.wiff	CAL6	1813729.1	379664.6	1.00	4.777	10.99	40.000	40.200	0.5

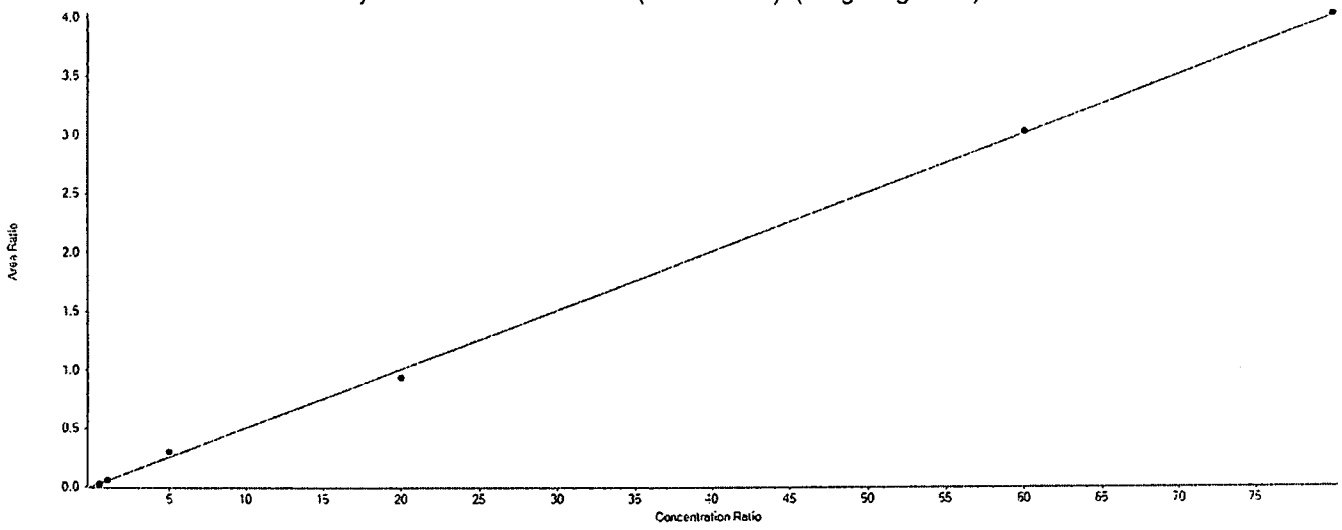
PFDoDA
y = 0.10537 x + 0.00552 (r = 0.99929) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFDoDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	12191.4	316942.8	1.00	0.038	11.31	0.400	0.310	-22.5
16JUL12t3CAL-06.wiff	CAL2	35746.7	277591.1	1.00	0.129	11.41	1.000	1.170	17
16JUL12t3CAL-07.wiff	CAL3	136208.5	239922.4	1.00	0.568	11.31	5.000	5.340	6.8
16JUL12t3CAL-08.wiff	CAL4	570837.4	278463.7	1.00	2.050	11.25	20.000	19.400	-3
16JUL12t3CAL-09.wiff	CAL5	1703047.9	259571.7	1.00	6.561	11.35	60.000	62.210	3.68
16JUL12t3CAL-10.wiff	CAL6	2061989.0	250834.2	1.00	8.221	11.33	80.000	77.960	-2.55

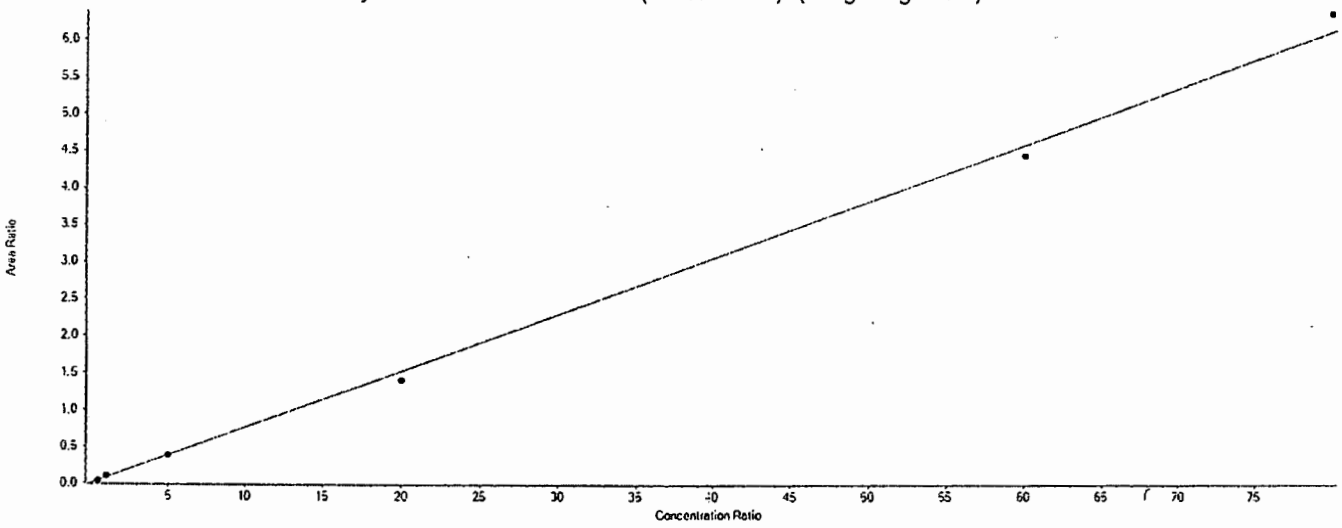
PFTrDA
y = 0.05018 x + 0.00510 (r = 0.99911) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFTrDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	6798.5	316942.8	1.00	0.021	11.68	0.400	0.330	-17.5
16JUL12t3CAL-06.wiff	CAL2	16459.2	277591.1	1.00	0.059	11.78	1.000	1.080	8
16JUL12t3CAL-07.wiff	CAL3	71689.7	239922.4	1.00	0.299	11.66	5.000	5.850	17
16JUL12t3CAL-08.wiff	CAL4	260121.4	278463.7	1.00	0.934	11.58	20.000	18.510	-7.45
16JUL12t3CAL-09.wiff	CAL5	787202.3	259571.7	1.00	3.033	11.68	60.000	60.330	0.55
16JUL12t3CAL-10.wiff	CAL6	1012005.2	250834.2	1.00	4.035	11.66	80.000	80.300	0.37

PFTeDA
y = 0.07654 x + 0.00556 (r = 0.99892) (weighting: 1 / x)

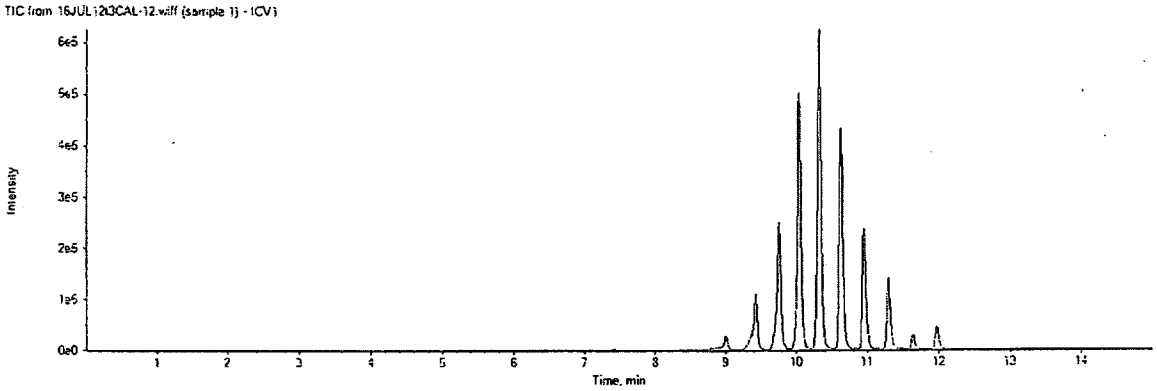


Calibration Verification

File Name	Sample Name	PFTeDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	10404.6	316942.8	1.00	0.033	12.05	0.400	0.360	-10
16JUL12t3CAL-06.wiff	CAL2	26934.3	277591.1	1.00	0.097	12.16	1.000	1.200	20
16JUL12t3CAL-07.wiff	CAL3	91237.9	239922.4	1.00	0.380	12.02	5.000	4.900	-2
16JUL12t3CAL-08.wiff	CAL4	395317.6	278463.7	1.00	1.420	11.91	20.000	18.480	-7.6
16JUL12t3CAL-09.wiff	CAL5	1159029.2	259571.7	1.00	4.465	12.00	60.000	58.270	-2.88
16JUL12t3CAL-10.wiff	CAL6	1598923.8	250834.2	1.00	6.374	12.00	80.000	83.210	4.01

Initial Calibration Verification

Sample ID: ICV1
Sample File: 16JUL12t3CAL-12.wiff



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amount	Calc Amount	% Diff
PFBS	137447.6	18O2-PFHxS	149726.7	1.00	0.918	9.00	10.00	8.24	-17.6
PFHxA	263950.1	13C2-PFHxA	223057.8	1.00	1.183	9.42	10.00	10.80	8
PFHpA	344903.6	13C4-PFHpA	309219.4	1.00	1.115	9.76	10.00	9.93	-0.7
PFHxS	205339.4	18O2-PFHxS	149726.7	1.00	1.371	9.75	10.00	9.23	-7.7
PFOA	779263.8	13C4-PFOA	934317.6	1.00	0.834	10.04	10.00	10.33	3.3
PFNA	1456280.3	13C5-PFNA	581509.7	1.00	2.504	10.32	10.00	9.79	-2.1
PFOS	142845.8	13C4-PFOS	74449.2	1.00	1.919	10.29	10.00	9.29	-7.1
PFDA	1087926.7	13C2-PFDA	476459.0	1.00	2.283	10.63	10.00	12.59	25.9
PFUndA	468437.2	13C2-PFUnDA	368287.1	1.00	1.272	10.95	10.00	10.69	6.9
PFDoDA	242939.0	13C2-PFDoDA	228620.3	1.00	1.063	11.29	10.00	10.03	0.3
PFTrDA	94816.4	13C2-PFDoDA	228620.3	1.00	0.415	11.63	10.00	8.16	-18.4
PFTeDA	162939.4	13C2-PFDoDA	228620.3	1.00	0.713	11.97	10.00	9.24	-7.6

Lynn Dodd
JUL 20 2016

Lynn Dodd
Principal Specialist

MCP 7824
10/7/16

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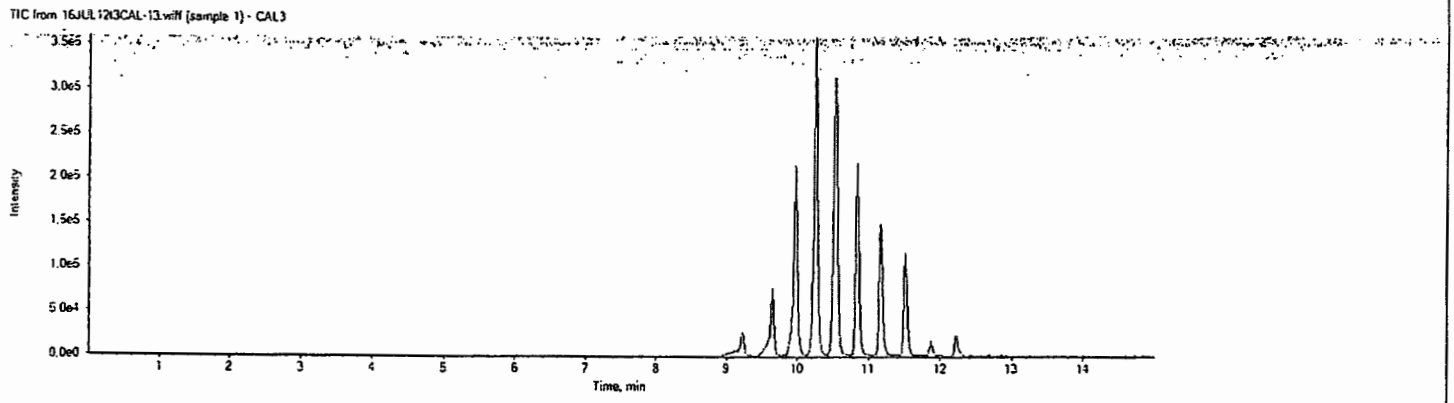
LC-MS/MS Analysis Report

Printed: 7/15/2016 11:40:00 AM

Continuing Calibration Verification

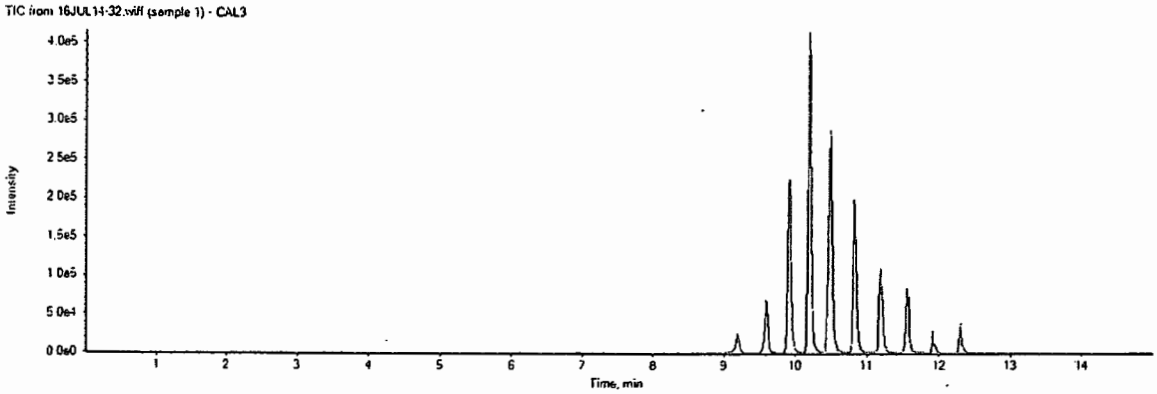
MQ 16181004

Sample ID: CCV1
Sample Name: CAL3
Sample File: 16JUL12t3CAL-13.wiff
Acquisition Date: 7/13/2016 7:30:26 PM



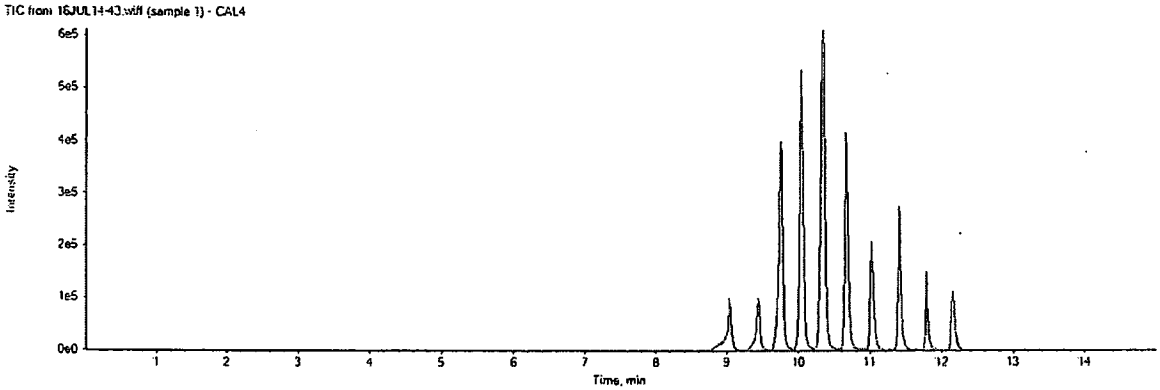
Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	146503.0	18O2-PFHxS	162874.8	1.00	0.900	9.22	9.99	8.080	-19.1	
PFHxA	70486.0	13C2-PFHxA	256151.5	1.00	0.275	9.64	2.50	2.510	0.2	
PFHpA	85160.3	13C4-PFHpA	342127.7	1.00	0.249	9.98	2.50	2.240	-10.3	
PFHxS	227027.6	18O2-PFHxS	162874.8	1.00	1.394	9.97	10.00	9.380	-6.2	
PFOA	189763.6	13C4-PFOA	1030920.4	1.00	0.184	10.26	2.50	2.270	-9.1	
PFNA	380416.6	13C5-PFNA	643222.8	1.00	0.591	10.54	2.50	2.340	-6.5	
PFOS	148734.8	13C4-PFOS	83056.1	1.00	1.791	10.51	9.99	8.690	-13.0	
PFDA	225055.2	13C2-PFDA	524009.7	1.00	0.430	10.84	2.50	2.390	-4.6	
PFUndA	113607.5	13C2-PFUnDA	400739.3	1.00	0.284	11.16	2.50	2.370	-5.4	
PFDoDA	130622.7	13C2-PFDoDA	263046.5	1.00	0.497	11.51	5.00	4.660	-6.8	
PFTrDA	53343.5	13C2-PFDoDA	263046.5	1.00	0.203	11.87	5.00	3.940	-21.2	
PFTeDA	83314.7	13C2-PFDoDA	263046.5	1.00	0.317	12.22	5.00	4.070	-18.7	

Sample ID: CCV1
Sample Name: CAL3
Sample File: 16JUL14-32.wiff
Acquisition Date: 7/14/2016 6:46:25 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	107800.3	18O2-PFHxS	163101.2	1.00	0.661	9.19	9.99	6.050	-39.5	
PFHxA	46047.2	13C2-PFHxA	180759.6	1.00	0.255	9.59	2.50	2.320	-7.2	
PFHpA	76111.4	13C4-PFHpA	286766.1	1.00	0.265	9.92	2.50	2.390	-4.5	
PFHxS	227544.4	18O2-PFHxS	163101.2	1.00	1.395	9.91	10.00	9.390	-6.1	
PFOA	197560.9	13C4-PFOA	1042260.7	1.00	0.190	10.19	2.50	2.340	-6.4	
PFNA	328230.7	13C5-PFNA	535961.9	1.00	0.612	10.49	2.50	2.420	-3.3	
PFOS	147888.0	13C4-PFOS	81280.4	1.00	1.819	10.46	9.99	8.820	-11.7	
PFDA	189187.4	13C2-PFDA	438021.1	1.00	0.432	10.82	2.50	2.400	-4.1	
PFUndA	83360.4	13C2-PFUnDA	301852.7	1.00	0.276	11.19	2.50	2.300	-7.8	
PFDoDA	85376.7	13C2-PFDoDA	200567.0	1.00	0.426	11.55	5.00	3.990	-20.3	
PFTrDA	60606.8	13C2-PFDoDA	200567.0	1.00	0.302	11.91	5.00	5.920	18.4	
PFTeDA	91954.7	13C2-PFDoDA	200567.0	1.00	0.459	12.29	5.00	5.920	18.3	

Sample ID: CCV2
Sample Name: CAL4
Sample File: 16JUL14-43.wiff
Acquisition Date: 7/14/2016 10:19:23 PM

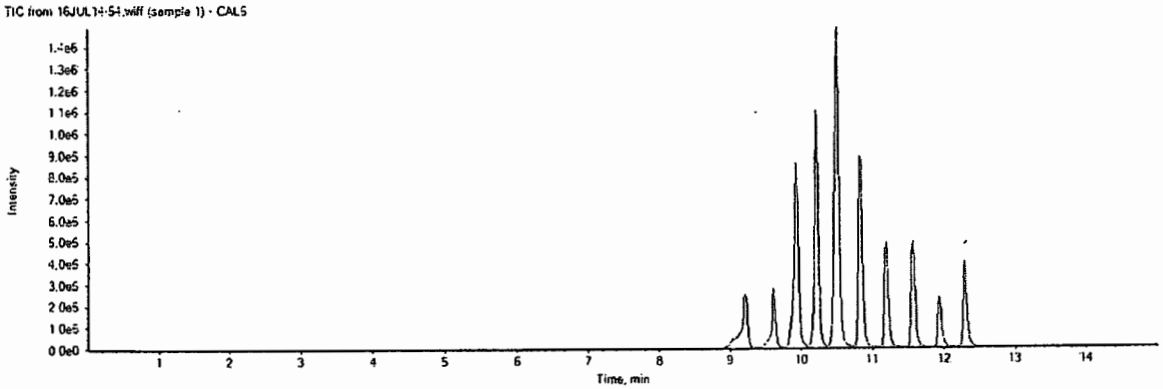


Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	460118.6	18O2-PFHxS	148637.0	1.00	3.096	9.04	39.96	26.840	-32.8	
PFHxA	212821.9	13C2-PFHxA	178185.7	1.00	1.194	9.44	10.00	10.900	9.0	
PFHpA	282816.9	13C4-PFHpA	294895.1	1.00	0.959	9.76	10.00	8.540	-14.6	
PFHxS	859822.3	18O2-PFHxS	148637.0	1.00	5.785	9.75	40.02	38.560	-3.6	
PFOA	708705.4	13C4-PFOA	1004878.0	1.00	0.705	10.04	10.00	8.730	-12.7	
PFNA	1401599.7	13C5-PFNA	564190.5	1.00	2.484	10.34	10.00	9.720	-2.8	
PFOS	569042.3	13C4-PFOS	75059.7	1.00	7.581	10.31	39.96	36.100	-9.7	
PFDA	819108.1	13C2-PFDA	477402.0	1.00	1.716	10.67	10.00	9.470	-5.3	
PFUndA	369441.2	13C2-PFUnDA	325748.6	1.00	1.134	11.02	10.00	9.530	-4.7	
PFDoDA	515723.4	13C2-PFDoDA	200133.0	1.00	2.577	11.40	20.00	24.400	22.0	
PFTrDA	285622.2	13C2-PFDoDA	200133.0	1.00	1.427	11.78	20.00	28.340	41.7	
PFTeDA	409922.8	13C2-PFDoDA	200133.0	1.00	2.048	12.15	20.00	26.690	33.4	

±40

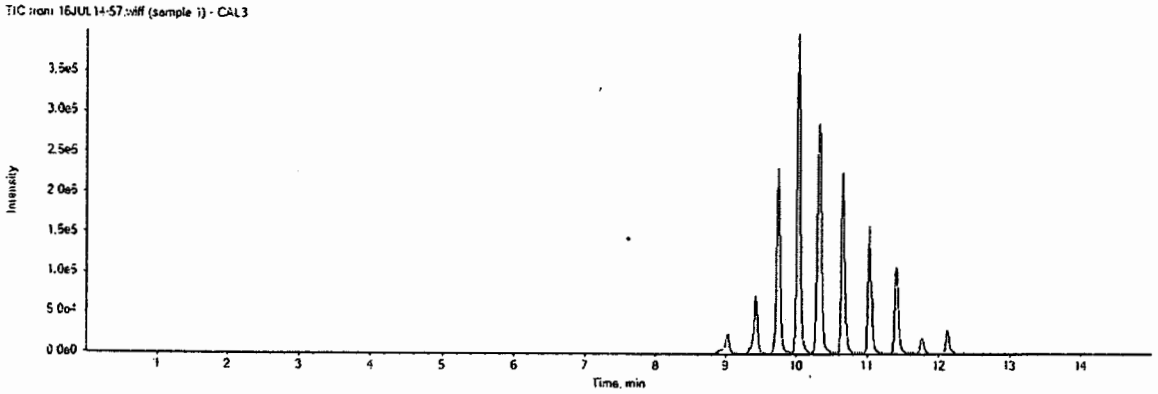
no impact

Sample ID: CCV3
Sample Name: CAL5
Sample File: 16JUL14-54.wiff
Acquisition Date: 7/15/2016 1:51:40 AM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	1615968.8	18O2-PFHxS	130533.3	1.00	12.380	9.21	119.87	106.140	-11.5	
PFHxA	816094.8	13C2-PFHxA	235194.0	1.00	3.470	9.61	30.00	31.700	5.7	
PFHpA	926424.4	13C4-PFHpA	275474.4	1.00	3.363	9.94	30.00	29.880	-0.4	
PFHxS	2456541.1	18O2-PFHxS	130533.3	1.00	18.820	9.93	120.05	125.170	4.3	
PFOA	2635102.4	13C4-PFOA	1089700.4	1.00	2.418	10.21	30.00	29.960	-0.1	
PFNA	4401428.9	13C5-PFNA	530618.9	1.00	8.295	10.51	30.00	32.370	7.9	
PFOS	1657932.7	13C4-PFOS	66602.6	1.00	24.890	10.47	119.88	118.050	-1.5	
PFDA	3006818.8	13C2-PFDA	535580.7	1.00	5.614	10.83	30.00	30.920	3.1	
PFUndA	1470381.0	13C2-PFUnDA	399322.4	1.00	3.682	11.19	30.00	30.980	3.3	
PFDoDA	1690708.3	13C2-PFDoDA	247539.4	1.00	6.830	11.56	60.00	64.770	7.9	
PFTrDA	875839.2	13C2-PFDoDA	247539.4	1.00	3.538	11.93	60.00	70.400	17.3	
PFTeDA	1428856.4	13C2-PFDoDA	247539.4	1.00	5.772	12.29	60.00	75.340	25.6	

Sample ID: CCV4
Sample Name: CAL3
Sample File: 16JUL14-57.wiff
Acquisition Date: 7/15/2016 2:49:24 AM



x40

Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	118127.5	18O2-PFHxS	161227.5	1.00	0.733	9.02	9.99	6.660	-33.3	✓
PFHxA	62006.3	13C2-PFHxA	214578.4	1.00	0.289	9.43	2.50	2.630	5.3	
PFHpA	78716.7	13C4-PFHpA	314487.6	1.00	0.250	9.75	2.50	2.250	-9.8	
PFHxS	224529.2	18O2-PFHxS	161227.5	1.00	1.393	9.74	10.00	9.380	-6.3	
PFOA	189018.0	13C4-PFOA	1106921.9	1.00	0.171	10.03	2.50	2.110	-15.7	
PFNA	370815.6	13C5-PFNA	598020.9	1.00	0.620	10.32	2.50	2.450	-2.1	✓
PFOS	149180.6	13C4-PFOS	81691.3	1.00	1.826	10.29	9.99	8.860	-11.4	
PFDA	221053.6	13C2-PFDA	521328.9	1.00	0.424	10.65	2.50	2.360	-5.8	
PFUndA	113317.1	13C2-PFUnDA	393754.7	1.00	0.288	11.03	2.50	2.400	-3.9	
PFDoDA	144226.9	13C2-PFDoDA	239972.2	1.00	0.601	11.40	5.00	5.650	13.0	
PFTrDA	67351.5	13C2-PFDoDA	239972.2	1.00	0.281	11.76	5.00	5.490	9.8	
PFTeDA	99965.6	13C2-PFDoDA	239972.2	1.00	0.417	12.12	5.00	5.370	7.4	

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP93
Matrix: Soil

Fraction: PFAAs by LC/MS/MS

PFBS

16181004	13C-PFHxA	13C-PFHpA	13C-PFHxS	13C-PFOA
	Area	Area	Area	Area
Average ICAL Response	250553	307209	145965	1000958
Upper Limit	375830	460814	218947	1501437
Lower Limit	125277	153605	72982	500479
Sample				
BLK181004	180331	249103	155525	683550
LCS181004	134868	131843 *	205036	286685 *
8427014	267787	404236	204658	1418200
8427015MS	216893	329102	175258	1192425
8427016MSD	213528	340482	182719	1244254
8427017	238601	347773	197107	1353455
8427018	254620	420842	228733 *	1547066 *
8427019	195027	343912	172150	1199666
8427020	221168	531196 *	197211	1325856
8427021	191833	286913	176276	1078036
8427022	229427	357407	206841	1391554
8427023	226552	325265	188755	1263410
8427024	187762	315332	160319	1197420
8427025	273689	445608	285340 *	1790628
8427026	210766	355918	216314	1213500
8427029	300793	409277	265775 *	1487799
8427030	246066	381671	213520	1379729
8427031	241614	360206	202446	1333919
8427032	345848	448981	269648 *	1696523 *
8427034	204298	326012	170919	1157822
8427035	281326	408439	223123 *	1469298
8427036	229256	329157	188399	1233682

QC

J/UJ

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP93
Matrix: Soil

Fraction: PFAAs by LC/MS/MS

16181004	13C-PFOS	13C-PFNA	13C-PFDA	13C-PFUdA
	Area	Area	Area	Area
Average ICAL Response	71612	579191	509720	405439
Upper Limit	107418	868786	764580	608158
Lower Limit	35806	289595	254860	202719
Sample				
BLK181004	58076	295654	225150	146731 *
LCS181004	90054	148878 *	158312 *	151122 *
8427014	96229	826231	702301	568815
8427015MS	86314	675764	583031	411404
8427016MSD	87391	687433	636699	438794
8427017	93063	795510	590125	426556
8427018	104318	964299 *	808588 *	522057
8427019	87048	721795	593417	385446
8427020	89063	770701	614994	419071
8427021	80704	599886	513381	321288
8427022	99807	777314	542948	406156
8427023	92563	693354	597942	391871
8427024	71477	670573	573764	348496
8427025	124880 *	906277 *	683945	510298
8427026	104371	682494	497745	315124
8427029	115519 *	915308 *	679595	429155
8427030	110536 *	783493	604552	419598
8427031	92915	755531	626864	376262
8427032	123198 *	907164 *	797311 *	510271
8427034	85757	709207	510507	323000
8427035	103466	915161 *	691323	508699
8427036	96649	751120	609908	395604

SJJ

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

Fraction: PFAAs by LC/MS/MS

16181004	13C-PFDoA
	Area
Average ICAL Response	270554
Upper Limit	405831
Lower Limit	135277
Sample	
BLK181004	116766
LCS181004	124245
8427014	340927
8427015MS	272672
8427016MSD	289896
8427017	284282
8427018	345919
8427019	266090
8427020	265372
8427021	212066
8427022	265126
8427023	239720
8427024	212380
8427025	288850
8427026	199576
8427029	313055
8427030	336089
8427031	254687
8427032	304226
8427034	186394
8427035	306903
8427036	252039

Qualified as out by lab but w/in ± 50%, NQ for ISTD

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

4000_071316_1655_ISCheck.xlsx

Measure	13CPFNA	13CPFOA	13CPFDA	13CPFDoA	13CPFHpA	13CPFHxA	13CPFHxS	13CPFOS	13CPFUnA
Average	579191	1000958	509720	270554	307209	250553	145965	71612	405439
Upper	868786	1501437	764580	405831	460814	375830	218947	107418	608158
Lower	289595	500479	254860	135277	153605	125277	72982	35806	202719

Organic Extraction Batchlog Assigned to: 375 Robert Brown

Reviewed by: jdl 1415 Start Date: 6/30/16 Start time: 09:40

16181004

Tech 1: RAS/375 Tech 2: DW 102762

Dept: 37	Prep Analysis: 14090 PFC Solid Prep								PFC s in Soil by LC/MS/MS		
QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
8427015MS	SG371	5.02	235002-23A	0.20			1	Z	Z	170a	
8427016MSD	SG371	5.34	↓	0.20			1	Z	Z	170a	
BLANKA	BLK181004	5.00		0.20	N/A	N/A	1	Z	Z		
LCSA	OPR181004	5.00	↓	0.20			1	Z	Z		

Solvent Used	Lot No.
80% ACN : H_2O	

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1 8427014BKG	SG371	5.29	235002-23A	0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
2 8427017	SG372	5.10	↓	0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
3 8427018	SG373	5.36		0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
4 8427019	SG374	5.01		0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
5 8427020	SG3FD	5.24		0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
6 8427021	SG375	4.94		0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
7 8427022	SG351	5.02		0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
8 8427023	SG352	5.33		0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
9 8427024	SG353	5.17		0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
10 8427025	SG354	4.98		0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
11 8427026	SG355	5.23		0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
12 8427029	SG361	5.27		0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
13 8427030	SG362	4.85		0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
14 8427031	SG363	5.04		0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
15 8427032	SG364	5.04		0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
16 8427034	SG376	4.97		0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
17 8427035	SG377	5.27		0.20	1	Z	Z	170a		14027	18151	06/27/2016	N
18 8427036	SG378	4.99	↓	0.20	1	Z	Z	170a		14027	18151	06/27/2016	N

SS/IS sol. and MS sol. names and volumes are entered incorrectly in tables above

SS/IS sol. = 235002-20A (0.25 mL)

MS sol. = 235002-23A (0.20 mL)

mCD 7824 7/15/16

Rack ID:		Work Station		Micro Temp 100?	
Internal Standard		Balance #			

S-bath ID		C	S-bath ID		C	N-Evap		C	M-vap		C	16181004

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

Sequence Table

File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16JUL22-09	MDL	N/A	N/A	a:2	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-12	CAL3	N/A	3	A:5	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-14	CAL5	N/A	5	A:7	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-15	CAL6	N/A	6	A:8	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-16	CAL2	N/A	2	A:4	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-17	CAL4	N/A	4	A:6	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-18	CAL1	N/A	1	A:3	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-19_160722133431	solvent	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-20	ICV1	N/A	ICV1	a:9	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-66	CCV3	N/A	3	a:7	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-67	solvent	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-68	solvent	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-69	MB 16202004	N/A	N/A	c:19	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-70	LCS 16202004	N/A	N/A	c:20	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-71	solvent	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-72	8427017 RE	N/A	N/A	c:21	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-73	8427018 RE	N/A	N/A	c:22	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-74	8427019 RE	N/A	N/A	c:23	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-75	8427020 RE	N/A	N/A	c:24	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-76	8427021 RE	N/A	N/A	c:25	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-77	CCV2	N/A	2	a:6	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-78	solvent	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils

Jason W. Knight
Senior Chemist

(*) assoc. w/ REs that were not reported due to extract past HT

JUL 25 2016

File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16JUL22-79	8427022 RE	N/A	N/A	c:26	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-80	8427023 RE	N/A	N/A	c:27	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-81	8427024 RE	N/A	N/A	c:28	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-82	8427025 RE	N/A	N/A	c:29	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-83	8427026 RE	N/A	N/A	c:30	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-84	8427029 RE	N/A	N/A	c:31	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-85	8427030 RE	N/A	N/A	c:32	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-86	8427031 RE	N/A	N/A	c:33	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-87	CCV3	N/A	3	a:7	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-88	solvent	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-89	solvent	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-90	8427032 RE	N/A	N/A	c:34	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-91	8427034 RE	N/A	N/A	c:35	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-92	8427035 RE	N/A	N/A	c:36	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-93	8427036 RE	N/A	N/A	c:37	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-94	8427014 BKG RE	N/A	N/A	c:38	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-95	8427015 MS RE	N/A	N/A	c:39	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-96	8427016 MSD RE	N/A	N/A	c:40	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-97	CCV2	N/A	2	a:6	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils

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JUL 26 2016
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JUL 25 2016

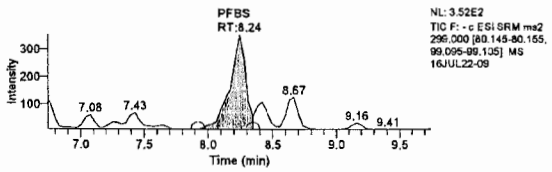
LCMSMS ANALYSIS REPORT

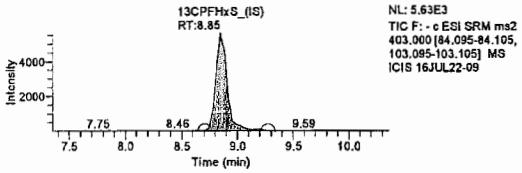
Sample Name:	MDL	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	MDL	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-09		M\HWell_16.5minutes
Acquisition Date:	07/22/16 10:39:37 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:2	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

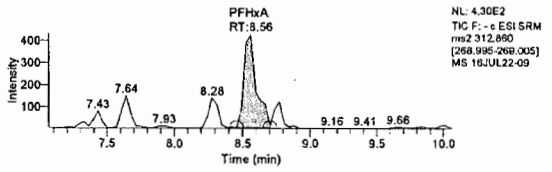
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.71	251850.29	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.21	228617.18	N/A	N/A	N/A
13CPFDA_(IS)	N/A	10.42	232389.72	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	12.16	166209.08	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.88	252785.77	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.56	146370.30	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.85	39710.13	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.68	22104.76	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	11.24	198741.84	N/A	N/A	N/A
PFBS	0.134	8.24	2890.09	39710.13	0.073	ng/g
PFDA	0.096	10.42	1874.52	232389.72	0.008	ng/g
PFDoA	0.249	12.16	4544.47	166209.08	0.027	ng/g
PFHxA	0.171	8.56	2734.86	146370.30	0.019	ng/g
PFHxS	0.369	8.85	1342.46	39710.13	0.034	ng/g
PFNA	0.208	9.71	2680.85	251850.29	0.011	ng/g
PFOA	0.156	9.24	3412.99	228617.18	0.015	ng/g
PFOS	0.385	9.67	563.58	22104.76	0.025	ng/g
PFTeDA	0.222	13.54	917.24	198741.84	0.005	ng/g
PFTrDA	0.432	13.37	3775.07	166209.08	0.023	ng/g
PFUdA	0.065	11.27	2647.29	198741.84	0.013	ng/g
PFhpA	0.225	8.85	3073.10	252785.77	0.012	ng/g

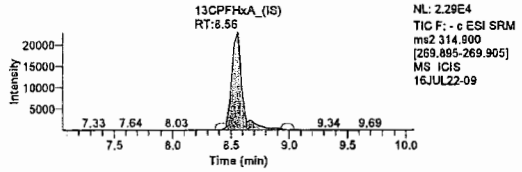
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHpA

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JUL 25 2016

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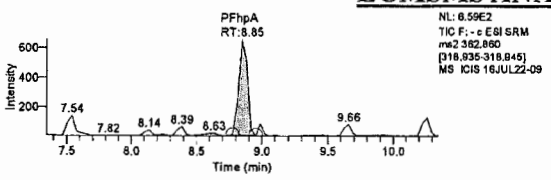
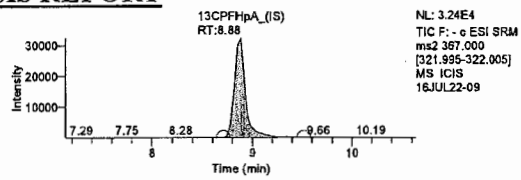
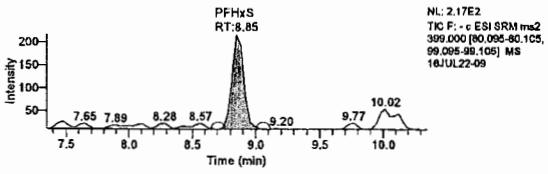
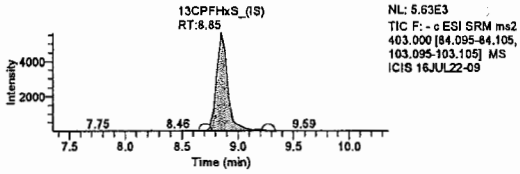


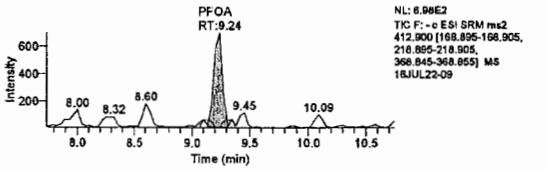


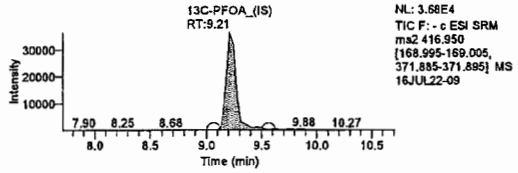
Component Name: PFHxS



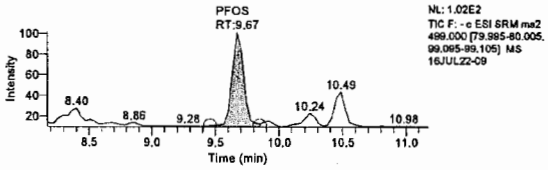


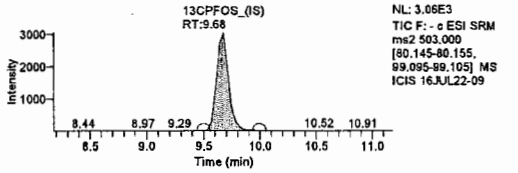
Component Name: PFOA



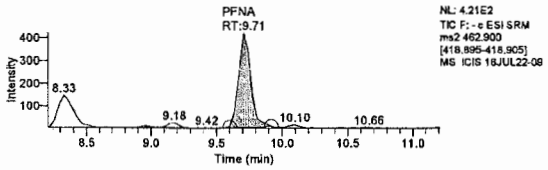


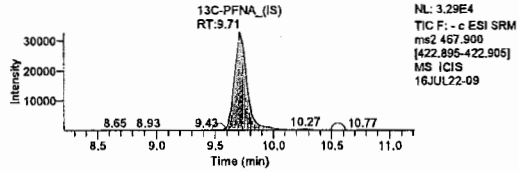
Component Name: PFOS



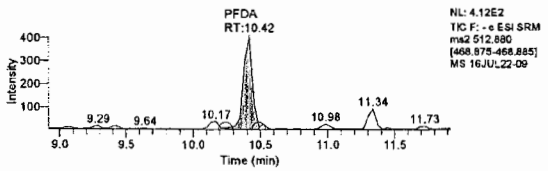


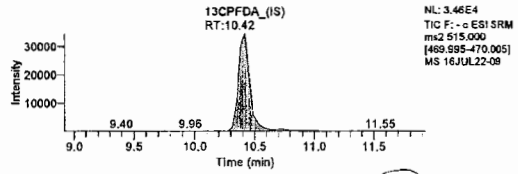
Component Name: PFNA





Component Name: PFDA





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Component Name: PFUdA

JUL 25 2016

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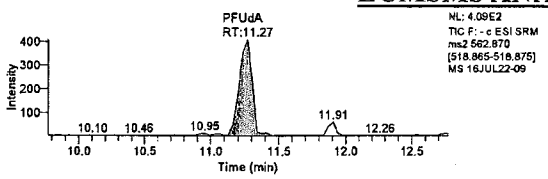
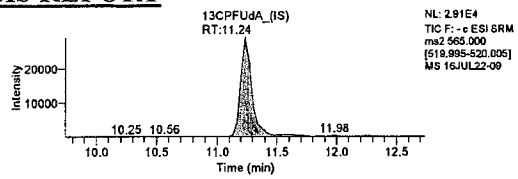
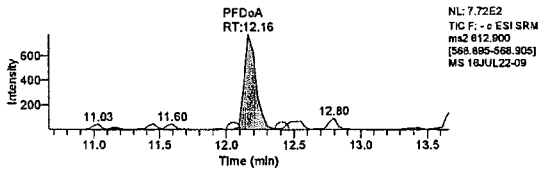
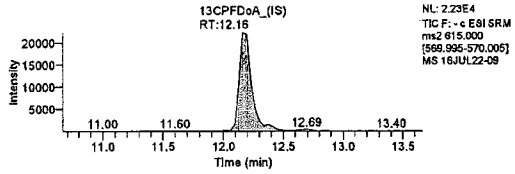


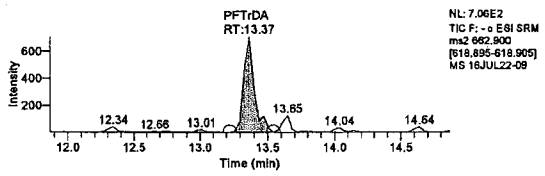


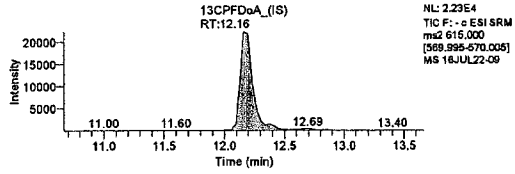
Component Name: PFDoA



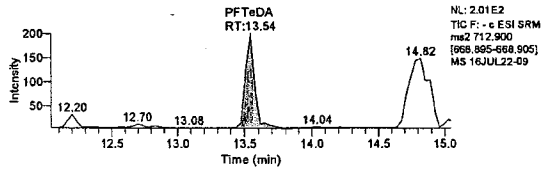


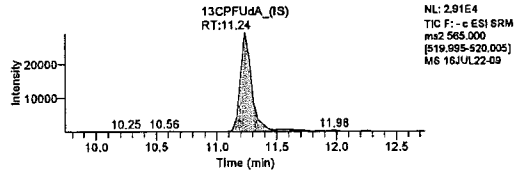
Component Name: PFTrDA





Component Name: PFTeDA





JUL 2 6 2016

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JUL 25 2016

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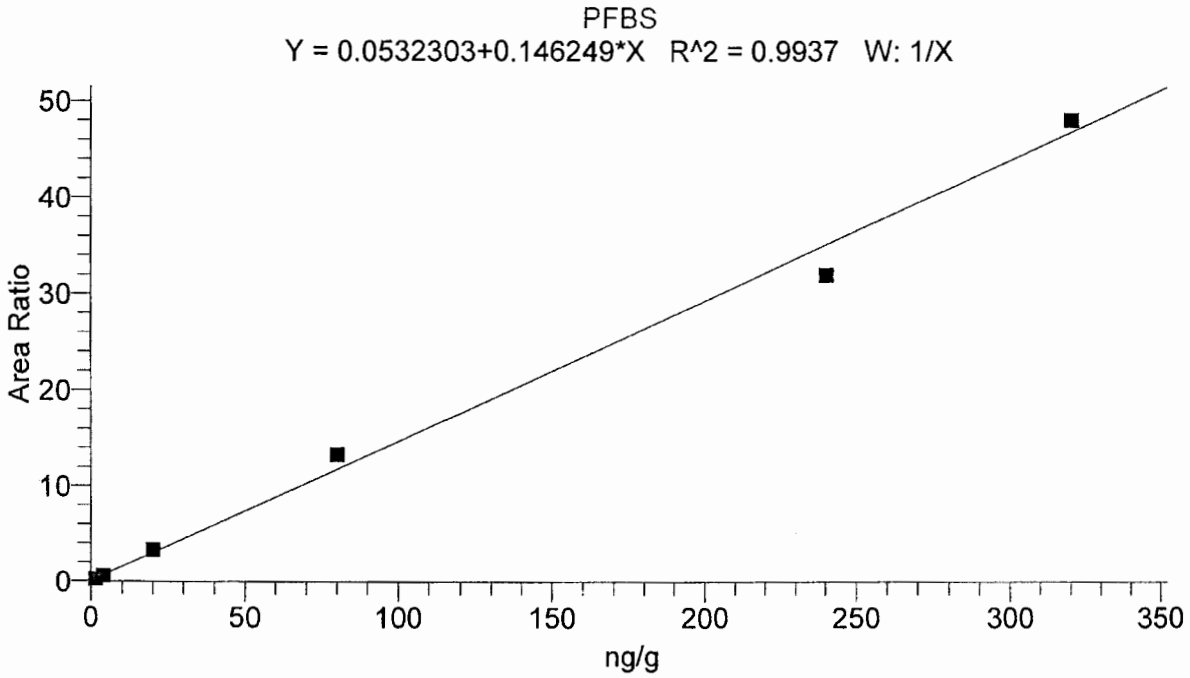
Component Name: **PFBS**



Identification		Component Name:	PFBS
Filter:	- c ESI SRM ms2 299.00 [80.14-80.16, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.17000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	20.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 25 2016

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Component Cal Level Table

Cal Level	Amount
1	1.600
2	4.000
3	20.000
4	80.000
5	240.000
6	320.000

Component QC Level Table

QC Level	Amount
ICV2	40.000
ICV1	20.000
1	20.000
2	80.000
3	240.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	22.219	92053.10	27871.46	3.303	11.10
CAL5	16JUL22-14	218.437	860219.57	26882.39	31.999	-8.98
CAL6	16JUL22-15	329.019	912923.23	18951.35	48.172	2.82
CAL2	16JUL22-16	3.625	17961.79	30790.90	0.583	-9.38
CAL4	16JUL22-17	90.846	353947.71	26534.07	13.339	13.56
CAL1	16JUL22-18	1.454	7736.85	29094.66	0.266	-9.11
ICV1	16JUL22-20	16.886	71634.15	28394.09	2.523	-15.57
CCV3	16JUL22-66	263.368	804991.29	20870.61	38.571	9.74
CCV2	16JUL22-77	84.473	324393.81	26145.44	12.407	5.59
CCV3	16JUL22-87	268.567	774372.58	19688.68	39.331	11.90
CCV2	16JUL22-97	87.739	317886.14	24671.11	12.885	9.67

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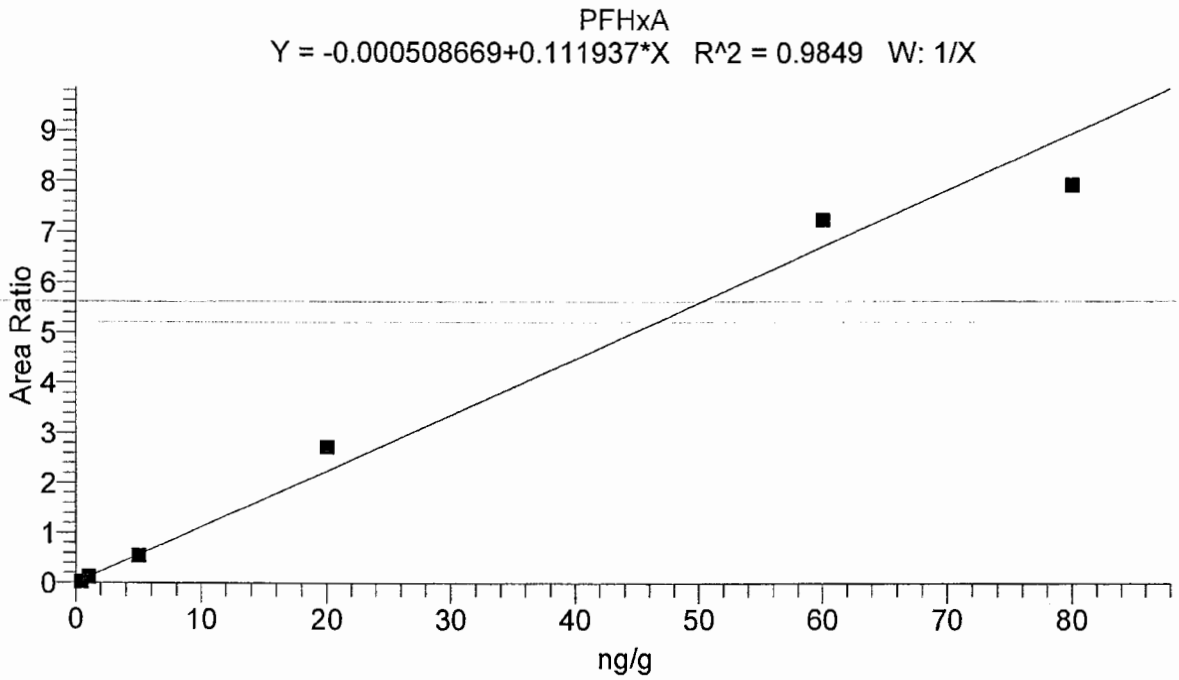
JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFHxA**



Identification		Component Name:	PFHxA
Filter:	- c ESI SRM ms2 312.86 [269.00-269.01]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.49000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	4.859	64127.10	118017.65	0.543	-2.82
CAL5	16JUL22-14	64.795	789205.73	108818.74	7.252	7.99
CAL6	16JUL22-15	70.968	863473.86	108702.00	7.943	-11.29
CAL2	16JUL22-16	1.072	12760.35	106826.16	0.119	7.17
CAL4	16JUL22-17	24.398	271707.24	99506.28	2.731	21.99
CAL1	16JUL22-18	0.308	4194.90	123551.83	0.034	-23.03
ICV1	16JUL22-20	18.380	245036.20	119128.94	2.057	-8.10
CCV3	16JUL22-66	52.053	729794.31	125261.82	5.826	-13.25
CCV2	16JUL22-77	20.391	279331.11	122409.05	2.282	1.95
CCV3	16JUL22-87	71.348	807872.09	101161.34	7.986	18.91
CCV2	16JUL22-97	20.621	287961.42	124781.27	2.308	3.10

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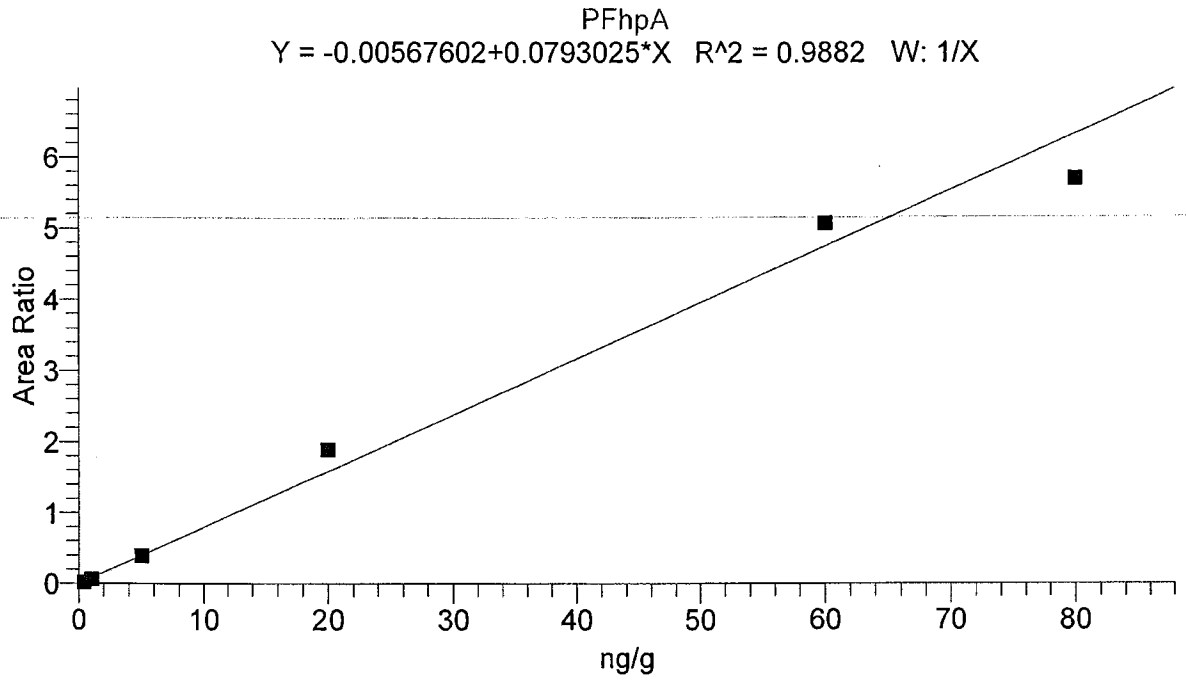
LCMSMS ANALYSIS REPORT

Component Name: **PFhpA**



Identification		Component Name:	PFhpA
Filter:	- c ESI SRM ms2 362.86 [318.94-318.94]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.17000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHpA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	5.001	79384.30	203076.50	0.391	0.02
CAL5	16JUL22-14	64.108	826552.49	162764.56	5.078	6.85
CAL6	16JUL22-15	72.070	882608.59	154581.14	5.710	-9.91
CAL2	16JUL22-16	0.872	14426.16	227205.61	0.063	-12.78
CAL4	16JUL22-17	23.965	324570.26	171294.57	1.895	19.83
CAL1	16JUL22-18	0.384	5901.00	238172.48	0.025	-4.00
ICV1	16JUL22-20	21.375	345362.13	204428.42	1.689	6.87
CCV3	16JUL22-66	52.864	709956.10	169578.65	4.187	-11.89
CCV2	16JUL22-77	23.029	334179.10	183554.63	1.821	15.15
CCV3	16JUL22-87	65.428	836548.83	161404.38	5.183	9.05
CCV2	16JUL22-97	21.527	316506.43	186021.30	1.701	7.63

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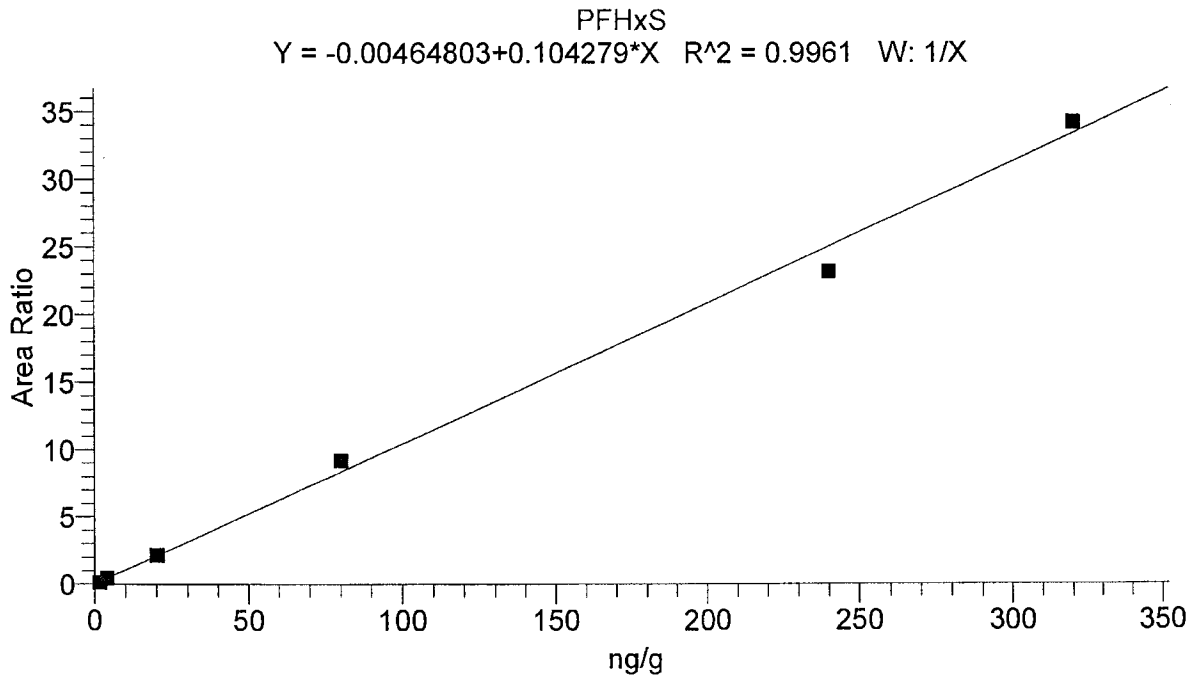
JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFHxS**



Identification		Component Name:	PFHxS
Filter:	- c ESI SRM ms2 399.00 [80.09-80.11, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.17000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	20.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	1.600
2	4.000
3	20.000
4	80.000
5	240.000
6	320.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	20.000
2	80.000
3	240.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	20.636	59846.99	27871.46	2.147	3.18
CAL5	16JUL22-14	222.588	623849.06	26882.39	23.207	-7.26
CAL6	16JUL22-15	328.258	648625.73	18951.35	34.226	2.58
CAL2	16JUL22-16	4.302	13670.71	30790.90	0.444	7.56
CAL4	16JUL22-17	88.483	244704.12	26534.07	9.222	10.60
CAL1	16JUL22-18	1.333	3910.17	29094.66	0.134	-16.66
ICV1	16JUL22-20	19.454	57469.01	28394.09	2.024	-2.73
CCV3	16JUL22-66	252.932	550377.29	20870.61	26.371	5.39
CCV2	16JUL22-77	88.184	240306.59	26145.44	9.191	10.23
CCV3	16JUL22-87	265.714	545451.67	19688.68	27.704	10.71
CCV2	16JUL22-97	91.717	235844.11	24671.11	9.560	14.65

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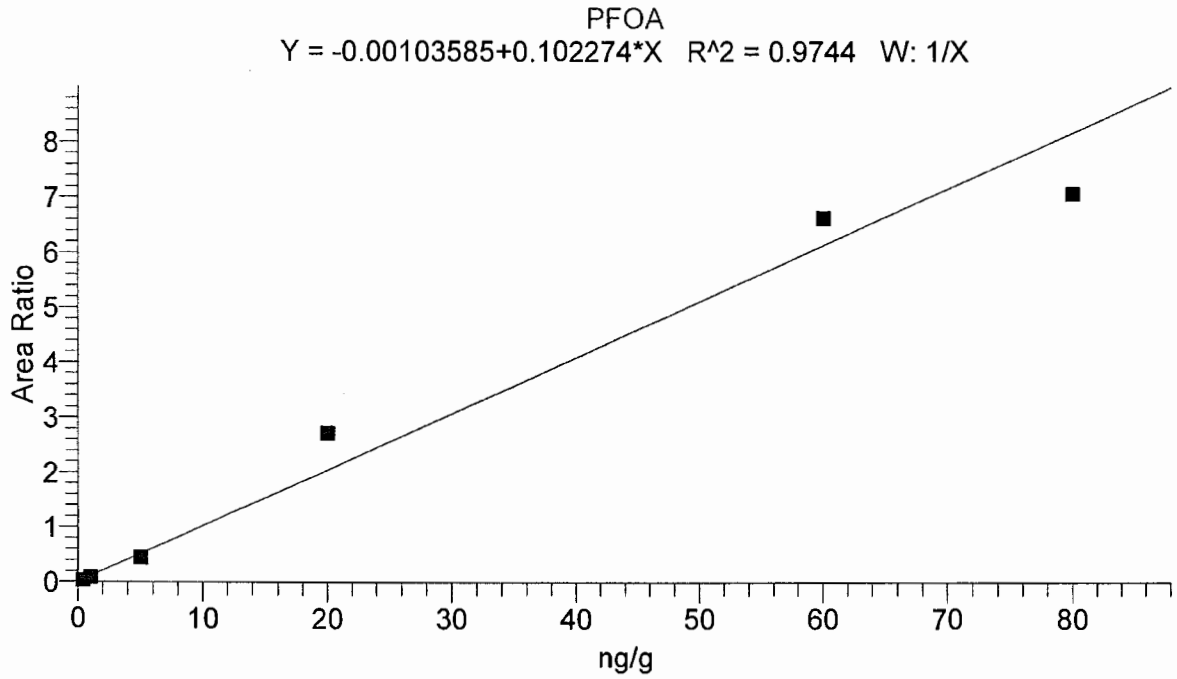
JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFOA**



Identification		Component Name:	PFOA
Filter:	- c ESI SRM ms2 412.90 [168.90-168.91, 218.90-218.91, 368.85-368.86]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.13000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	15
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFOA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	4.395	88290.46	196869.11	0.448	-12.10
CAL5	16JUL22-14	64.890	1224911.41	184599.46	6.636	8.15
CAL6	16JUL22-15	69.237	1356815.59	191637.38	7.080	-13.45
CAL2	16JUL22-16	0.880	20361.29	228742.57	0.089	-11.95
CAL4	16JUL22-17	26.612	447216.37	164375.16	2.721	33.06
CAL1	16JUL22-18	0.385	7957.47	207458.63	0.038	-3.71
ICV1	16JUL22-20	20.593	385350.68	183060.00	2.105	2.96
CCV3	16JUL22-66	58.713	1110648.11	184992.33	6.004	-2.15
CCV2	16JUL22-77	21.997	448595.37	199488.48	2.249	9.99
CCV3	16JUL22-87	61.449	1048646.28	166885.88	6.284	2.42
CCV2	16JUL22-97	20.910	402343.56	188232.11	2.137	4.55

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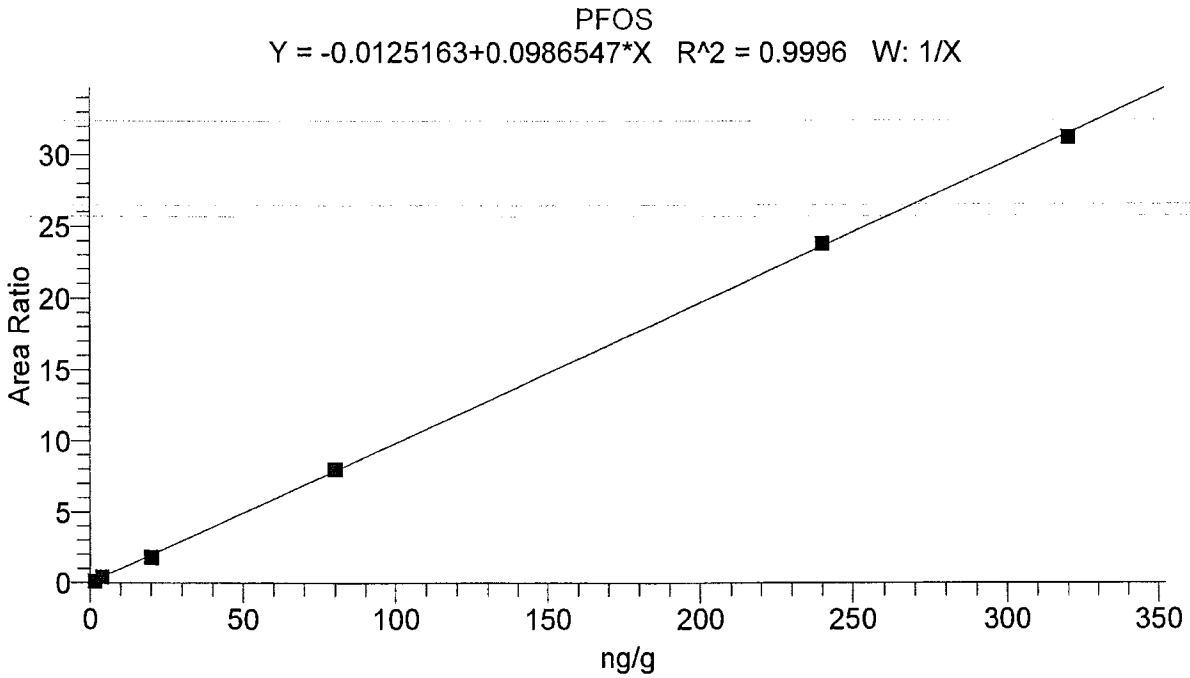
JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFOS**



Identification		Component Name:	PFOS
Filter:	- c ESI SRM ms2 499.00 [80.00-80.00, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.46000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	20.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFOS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	1.600
2	4.000
3	20.000
4	80.000
5	240.000
6	320.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	20.000
2	80.000
3	240.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	18.447	35443.94	19611.25	1.807	-7.77
CAL5	16JUL22-14	242.261	393075.01	16455.13	23.888	0.94
CAL6	16JUL22-15	317.524	418361.34	13360.74	31.313	-0.77
CAL2	16JUL22-16	4.470	8615.18	20107.39	0.428	11.75
CAL4	16JUL22-17	81.392	151689.08	18920.48	8.017	1.74
CAL1	16JUL22-18	1.506	3120.63	22939.72	0.136	-5.89
ICV1	16JUL22-20	19.772	35076.05	18098.28	1.938	-1.14
CCV3	16JUL22-66	308.454	368647.21	12119.40	30.418	28.52
CCV2	16JUL22-77	92.006	141078.93	15564.28	9.064	15.01
CCV3	16JUL22-87	307.103	340777.20	11252.48	30.285	27.96
CCV2	16JUL22-97	90.065	169792.09	19136.16	8.873	12.58

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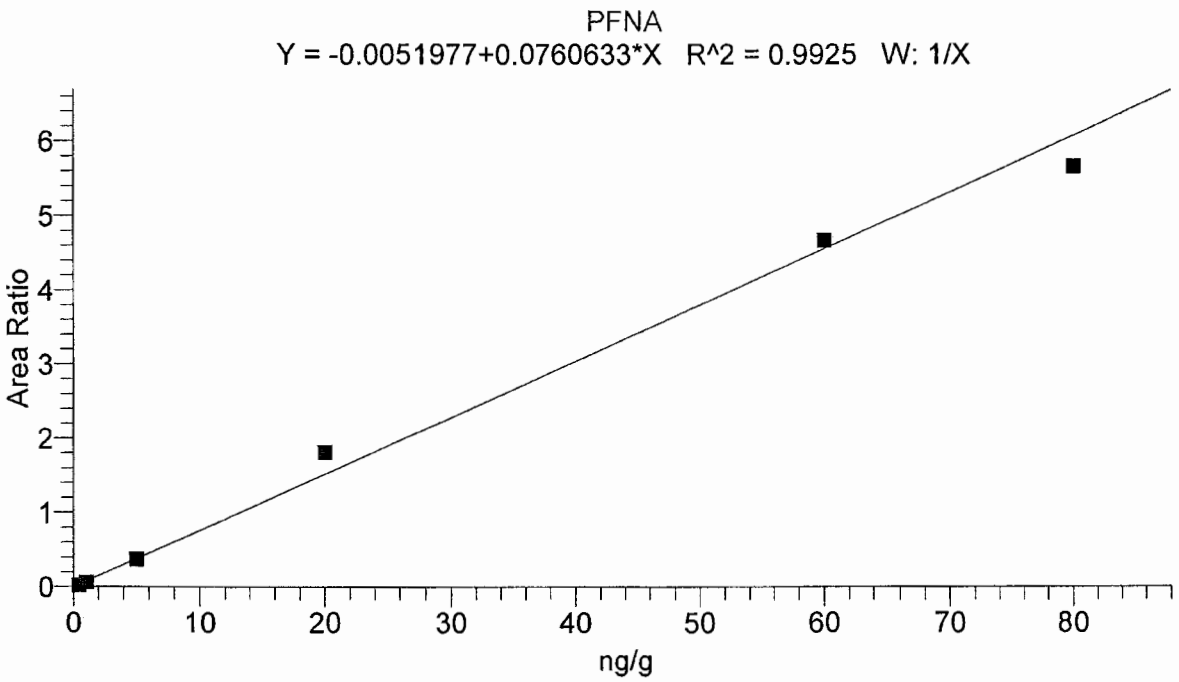
JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFNA**



Identification		Component Name:	PFNA
Filter:	- c ESI SRM ms2 462.90 [418.89-418.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.67000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFNA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	5.006	81641.34	217368.57	0.376	0.12
CAL5	16JUL22-14	61.526	909922.41	194648.78	4.675	2.54
CAL6	16JUL22-15	74.646	993720.89	175178.72	5.673	-6.69
CAL2	16JUL22-16	0.902	15717.74	247872.61	0.063	-9.80
CAL4	16JUL22-17	23.943	376138.34	207122.85	1.816	19.72
CAL1	16JUL22-18	0.376	6475.72	276321.73	0.023	-5.89
ICV1	16JUL22-20	20.140	359563.30	235508.38	1.527	0.70
CCV3	16JUL22-66	60.004	843964.31	185124.04	4.559	0.01
CCV2	16JUL22-77	21.809	353349.22	213672.13	1.654	9.05
CCV3	16JUL22-87	60.282	841614.38	183756.16	4.580	0.47
CCV2	16JUL22-97	23.981	346687.14	190604.32	1.819	19.91

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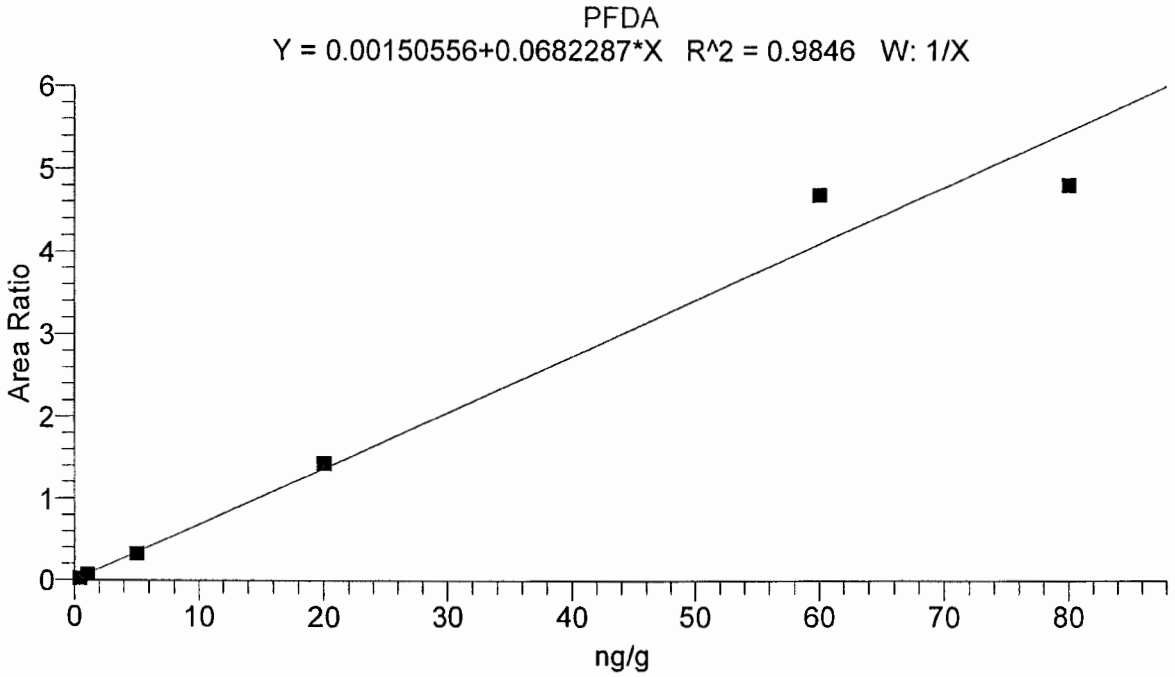
JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFDA**



Identification		Component Name:	PFDA
Filter:	- c ESI SRM ms2 512.88 [468.88-468.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	10.10000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

Jason W. Knight
Senior Chemist

JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	4.806	59653.12	181088.54	0.329	-3.88
CAL5	16JUL22-14	68.736	872553.45	185995.53	4.691	14.56
CAL6	16JUL22-15	70.490	1042830.38	216762.24	4.811	-11.89
CAL2	16JUL22-16	1.042	16971.26	233786.66	0.073	4.19
CAL4	16JUL22-17	20.957	320449.98	223872.20	1.431	4.79
CAL1	16JUL22-18	0.369	7291.88	273342.70	0.027	-7.77
ICV1	16JUL22-20	25.949	383465.85	216407.82	1.772	29.74
CCV3	16JUL22-66	65.282	880704.13	197660.47	4.456	8.80
CCV2	16JUL22-77	25.319	320557.04	185400.26	1.729	26.60
CCV3	16JUL22-87	59.681	785932.21	192938.77	4.073	-0.53
CCV2	16JUL22-97	24.417	288799.56	173199.35	1.667	22.08

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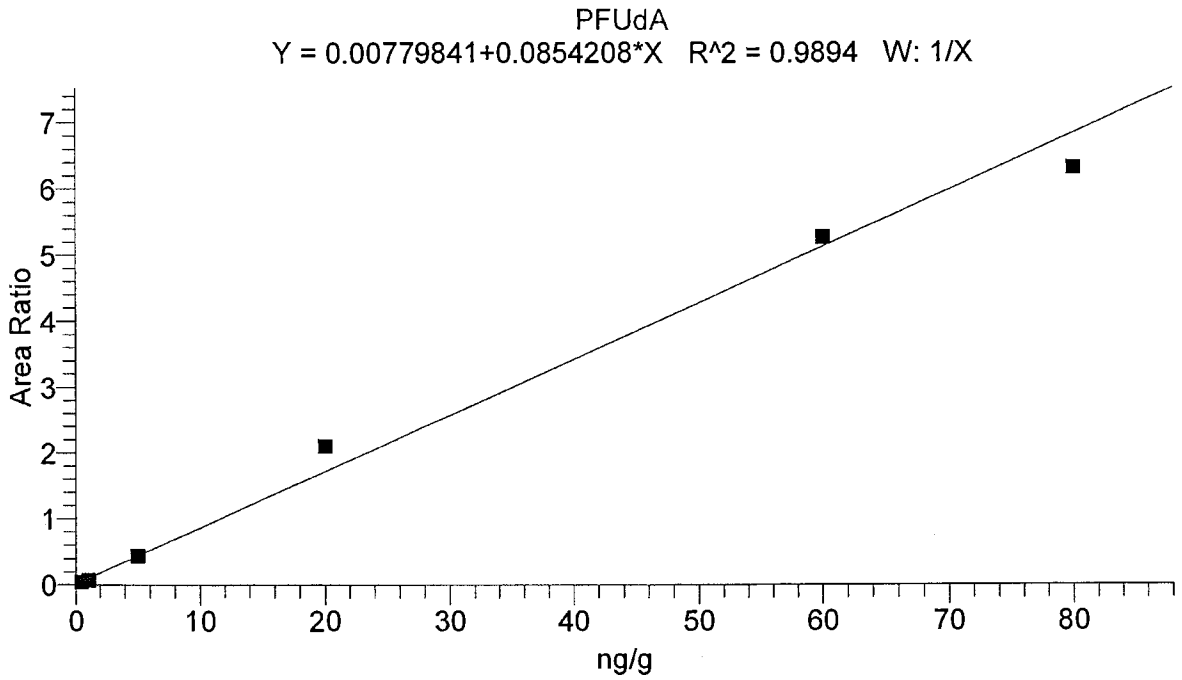
LCMSMS ANALYSIS REPORT

Component Name: **PFUdA**



Identification		Component Name:	PFUdA
Filter:	- c ESI SRM ms2 562.87 [518.87-518.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	10.71000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUdA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

Jason W. Knight
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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	4.997	62038.82	142738.68	0.435	-0.06
CAL5	16JUL22-14	61.666	868276.63	164592.19	5.275	2.78
CAL6	16JUL22-15	73.932	1024153.52	161970.19	6.323	-7.59
CAL2	16JUL22-16	0.702	10376.38	153093.05	0.068	-29.78
CAL4	16JUL22-17	24.658	345085.55	163228.50	2.114	23.29
CAL1	16JUL22-18	0.445	11248.94	245343.57	0.046	11.36
ICV1	16JUL22-20	25.553	349190.43	159407.59	2.191	27.76
CCV3	16JUL22-66	63.643	807496.01	148320.84	5.444	6.07
CCV2	16JUL22-77	22.263	317457.42	166246.67	1.910	11.32
CCV3	16JUL22-87	60.568	854224.48	164858.92	5.182	0.95
CCV2	16JUL22-97	23.129	328345.86	165537.33	1.984	15.65

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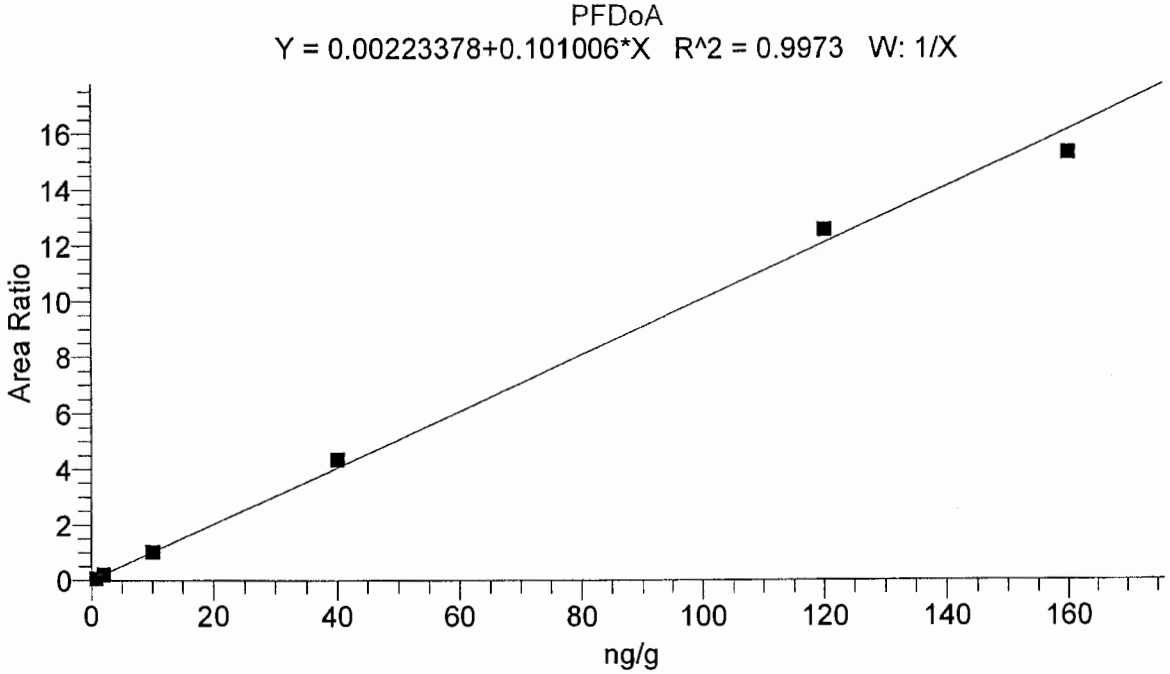
LCMSMS ANALYSIS REPORT

Component Name: **PFDoA**



Identification		Component Name:	PFDoA
Filter:	- c ESI SRM ms2 612.90 [568.89-568.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	11.49000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDoA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.800
2	2.000
3	10.000
4	40.000
5	120.000
6	160.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	10.000
2	40.000
3	120.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	10.113	137635.93	134444.36	1.024	1.13
CAL5	16JUL22-14	124.700	1391786.67	110480.36	12.598	3.92
CAL6	16JUL22-15	151.977	2272174.38	147997.38	15.353	-5.01
CAL2	16JUL22-16	2.053	38718.09	184749.57	0.210	2.64
CAL4	16JUL22-17	43.243	672193.10	153819.53	4.370	8.11
CAL1	16JUL22-18	0.714	12716.70	171089.61	0.074	-10.78
ICV1	16JUL22-20	23.030	345310.90	148303.81	2.328	15.15
CCV3	16JUL22-66	130.535	1755060.02	133090.40	13.187	8.78
CCV2	16JUL22-77	45.194	617646.46	135238.43	4.567	12.99
CCV3	16JUL22-87	120.499	1460769.53	119997.71	12.173	0.42
CCV2	16JUL22-97	47.391	618316.01	129112.79	4.789	18.48

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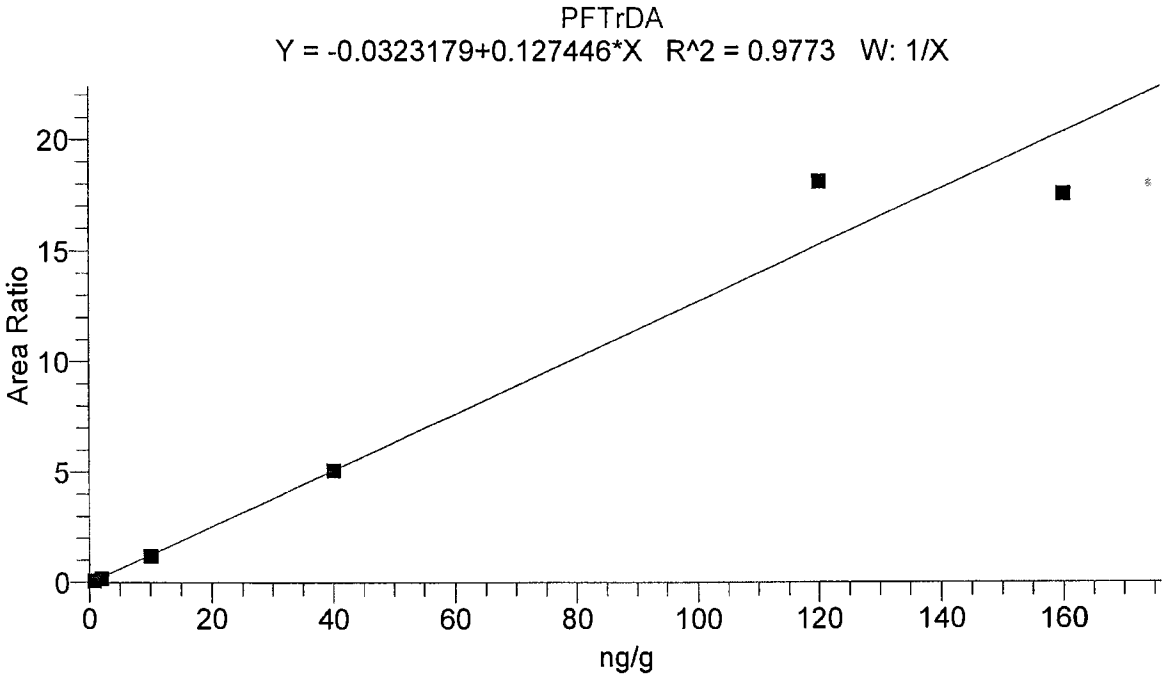
LCMSMS ANALYSIS REPORT

Component Name: **PFTrDA**



Identification		Component Name:	PFTrDA
Filter:	- c ESI SRM ms2 662.90 [618.89-618.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	12.41000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDoA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

Jason W. Knight
Senior Chemist

JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.800
2	2.000
3	10.000
4	40.000
5	120.000
6	160.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	10.000
2	40.000
3	120.000

ICV & CCV Result Table

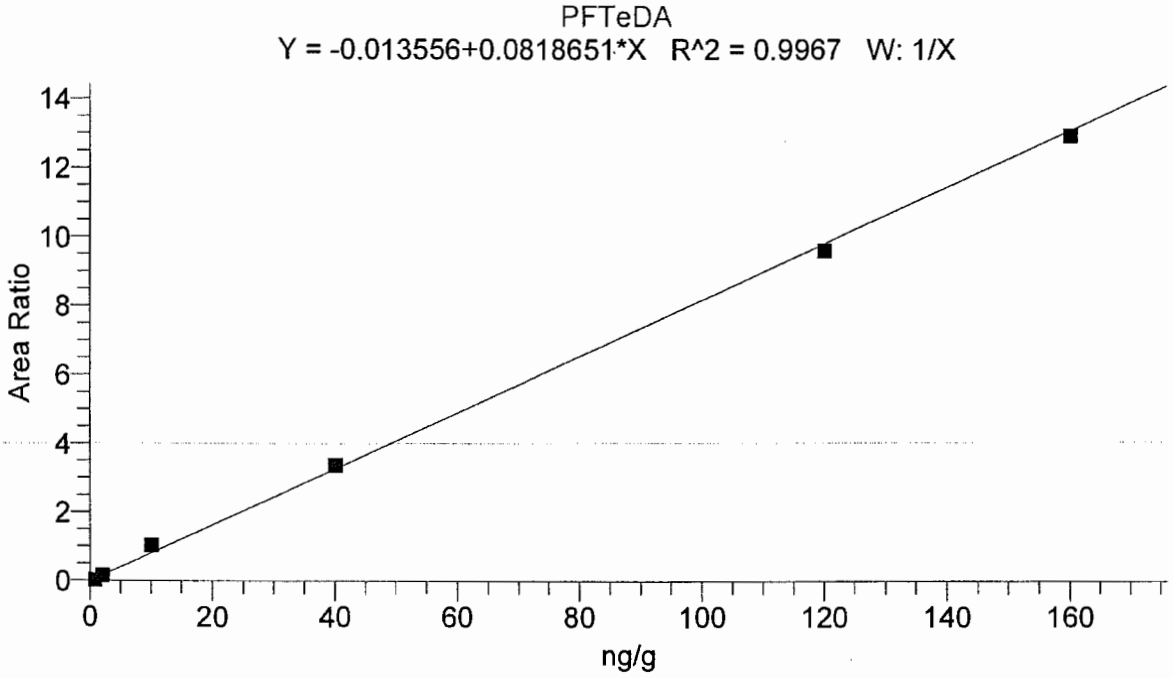
Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	9.642	160867.21	134444.36	1.197	-3.58
CAL5	16JUL22-14	142.441	2002038.70	110480.36	18.121	18.70
CAL6	16JUL22-15	138.038	2598856.35	147997.38	17.560	-13.73
CAL2	16JUL22-16	1.708	34235.55	184749.57	0.185	-14.62
CAL4	16JUL22-17	40.067	780486.21	153819.53	5.074	0.17
CAL1	16JUL22-18	0.904	14192.33	171089.61	0.083	13.06
ICV1	16JUL22-20	18.846	351406.25	148303.81	2.370	-5.77
CCV3	16JUL22-66	97.188	1644190.15	133090.40	12.354	-19.01
CCV2	16JUL22-77	43.621	747471.73	135238.43	5.527	9.05
CCV3	16JUL22-87	121.879	1860043.10	119997.71	15.501	1.57
CCV2	16JUL22-97	43.506	711708.17	129112.79	5.512	8.76

Jason W. Knight
Senior Chemist

JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFTeDA**



Identification		Component Name:	PFTeDA
Filter:	- c ESI SRM ms2 712.90 [668.89-668.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	13.33000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUdA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

Jason W. Knight
Senior Chemist

JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.800
2	2.000
3	10.000
4	40.000
5	120.000
6	160.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	10.000
2	40.000
3	120.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff	
CAL3	16JUL22-12	12.854	148270.65	142738.68	1.039	28.54	
CAL5	16JUL22-14	117.568	1581928.52	164592.19	9.611	-2.03	
CAL6	16JUL22-15	158.339	2097332.76	161970.19	12.949	-1.04	
CAL2	16JUL22-16	2.142	24773.09	153093.05	0.162	7.11	
CAL4	16JUL22-17	41.385	550797.95	163228.50	3.374	3.46	
CAL1	16JUL22-18	0.512	6949.61	245343.57	0.028	-36.05	ok
ICV1	16JUL22-20	22.192	287448.26	159407.59	1.803	10.96	
CCV3	16JUL22-66	123.782	1500985.53	148320.84	10.120	3.15	
CCV2	16JUL22-77	38.714	524635.59	166246.67	3.156	-3.22	
CCV3	16JUL22-87	110.047	1482975.95	164858.92	8.995	-8.29	
CCV2	16JUL22-97	41.253	556803.25	165537.33	3.364	3.13	

Lynn Dodd
JUL 26 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP93
Matrix: ~~Water~~ Soil

Fraction: PFAAs by LC/MS/MS

16202004	13C-PFNA	13C-PFOA	13C-PFDA	13C-PFDoA
	Area	Area	Area	Area
Average ICAL Response	219752 ✓	195614 ✓	219141 ✓	150430 ✓
Upper Limit	329628 ✓	293421 ✓	328712 ✓	225645 ✓
Lower Limit	109876 ✓	97807 ✓	109571 ✓	75215 ✓
Sample				
MB16202004	160682	132667	129892	102426
LCS16202004	188548	139904	139880	113789
8427017 RE	208238	177817	196615	118375
8427018 RE	253601	203773	217597	145900
8427019 RE	179937	156574	159547	116384
8427020 RE	199086	162458	168266	105584
8427021 RE	213582	182815	193822	116705
8427022 RE	228926	185863	174896	115696
8427023 RE	170005	170413	137790	108260
8427024 RE	213325	197694	193931	122748
8427025 RE	271289	231025	224427	185358
8427026 RE	183421	115521	130983	94384
8427029 RE	201576	173684	154004	113323
8427030 RE	190714	166828	157333	105934
8427031 RE	182687	170750	151841	111808
8427032 RE	184862	162079	157372	131136
8427034 RE	172853	161564	156933	96859
8427035 RE	170659	144050	144591	101254
8427036 RE	171874	145090	124843	100140
8427014 RE	224869	197832	182142	132762
8427015MS RE	204617	167115	164897	135089
8427016MSD RE	179870	168153	164371	122295

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP93
Matrix: ~~Water~~ Soil

Fraction: PFAAs by LC/MS/MS

16202004	13C-PFHpA	13C-PFHxA	~~13C-PFxS~~ 13C-PFHxS	13C-PFOS
	Area	Area	Area	Area
Average ICAL Response	192849 ✓	110904 ✓	26687 ✓	18566 ✓
Upper Limit	289274 ✓	166356 ✓	40031 ✓	27849 ✓
Lower Limit	96425 ✓	55452 ✓	13344 ✓	9283 ✓
Sample				
MB16202004	175112	108711	20958	13518
LCS16202004	166015	97502	22605	15166
8427017 RE	198040	118883	25990	16897
8427018 RE	212080	101047	28419	17416
8427019 RE	173026	109182	21120	11646
8427020 RE	195828	100672	25273	12613
8427021 RE	190342	101943	22783	14951
8427022 RE	183740	110850	26173	17692
8427023 RE	189251	99258	22107	9170 *
8427024 RE	211576	121551	24760	18543
8427025 RE	234453	112256	35030	18559
8427026 RE	159358	73462	16614	9489
8427029 RE	162809	99954	26050	15738
8427030 RE	166316	106571	28026	16728
8427031 RE	160961	94921	26465	11769
8427032 RE	182887	104971	26464	15146
8427034 RE	174798	94185	25543	16252
8427035 RE	166815	91396	25532	14412
8427036 RE	160049	86544	25146	10477
8427014 RE	204937	106668	24854	18180
8427015MS RE	176888	107965	23068	15034
8427016MSD RE	182276	98164	25130	15438

Qualified as out but w/in ± 50%, NQ for ISTD

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP93
Matrix: ~~Water~~ Soil

Fraction: PFAAs by LC/MS/MS

16202004	13C-PFUnA
	Area
Average ICAL Response	171828 ✓
Upper Limit	257742 ✓
Lower Limit	85914 ✓
Sample	
MB16202004	115566
LCS16202004	126813
8427017 RE	149342
8427018 RE	157841
8427019 RE	143871
8427020 RE	142721
8427021 RE	152788
8427022 RE	168140
8427023 RE	137506
8427024 RE	153694
8427025 RE	194376
8427026 RE	114395
8427029 RE	162921
8427030 RE	131224
8427031 RE	131270
8427032 RE	135994
8427034 RE	118509
8427035 RE	130715
8427036 RE	113104
8427014 RE	159415
8427015MS RE	148046
8427016MSD RE	153674

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

Organic Extraction Batchlog

16202004

Assigned to: 1026 Devon Whooley

Reviewed by: [illegible] 4/15

Start Date: 7/21/16

Start time: 09:45

Tech 1: DW 10262

Tech 2:

> 28 days

Analyses on Batch: PFC s in Soil by LC/MS/MS

Dept: 37	Prep Analysis: 14090 PFC Solid Prep									
QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	S Amt (uL)	BC	Comments
8427015MS	SG371	5.17	LCSPFCX1637B ~~235002-53A~~	0.250	235002-53A	0.20			170a	
8427016MSD	SG371	5.36	↓	0.250	235002-53A	0.20			170a	
BLANKA	BLK202004	5.00	↓	0.250	N/A	N/A				
LCSA	OPR202004	5.00	↓	0.250	235002-53A	0.20				

Reagent	Lot No.
80% ACN:H2O	1026207191637A
96% MeOH:H2O	159749
Sand	MKBV8012 ✓

Spike Solutions: Witness: JWK9524 Instrument: THERMO QUANTUM

Sequence:

	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
1	8427014 R	SG371	5.10	LCSPFCX1637B ~~235002-53A~~	0.250			170a		14027	06/27/2016	N
2	8427017 R	SG372	5.29	↓	0.250			170a		14027	06/27/2016	N
3	8427018 R	SG373	5.15	↓	0.250			170a		14027	06/27/2016	N
4	8427019 R	SG374	5.18	↓	0.250			170a		14027	06/27/2016	N
5	8427020 R	SG3FD	5.46	↓	0.250			170a		14027	06/27/2016	N
6	8427021 R	SG375	5.02	↓	0.250			170a		14027	06/27/2016	N
7	8427022 R	SG351	5.33	↓	0.250			170a		14027	06/27/2016	N
8	8427023 R	SG352	5.00	↓	0.250			170a		14027	06/27/2016	N
9	8427024 R	SG353	5.29	↓	0.250			170a		14027	06/27/2016	N
10	8427025 R	SG354	5.06	↓	0.250			170a		14027	06/27/2016	N
11	8427026 R	SG355	5.18	↓	0.250			170a		14027	06/27/2016	N
12	8427029 R	SG361	5.11	↓	0.250			170a		14027	06/27/2016	N
13	8427030 R	SG362	5.37	↓	0.250			170a		14027	06/27/2016	N
14	8427031 R	SG363	5.02	↓	0.250			170a		14027	06/27/2016	N
15	8427032 R	SG364	5.08	↓	0.250			170a		14027	06/27/2016	N
16	8427034 R	SG376	4.94	↓	0.250			170a		14027	06/27/2016	N

Balance #	121111212

Sonic Bath ID	

N-evap	C

16202004

	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
17	8427035 R	SG377	5.33	LCSPFCx16037B	0.250			170u		14027	06/27/2016	N
18	8427036 R	SG378	4.89	LCSPFCx16037B	0.250			170u		14027	06/27/2016	N

Balance #		Sonic Bath ID		N-evap	C	16202004

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Sequence Table

File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16Jun28-30	MDL	N/A	N/A	c:2	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_17.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-31	CAL1	N/A	1	c:3	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_17.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-32	CAL2	N/A	2	c:4	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_17.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-33	CAL3	N/A	3	c:5	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-34	CAL4	N/A	4	c:6	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-35	CAL5	N/A	5	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-36	CAL6	N/A	6	c:8	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-37	recon	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-39	ICV1	N/A	ICV1	c:9	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-57	CCV1	N/A	1	c:5	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-61	LCS 16172001	N/A	N/A	a:2	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-62	LCSD 16172001	N/A	N/A	a:3	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-64	8427013	N/A	N/A	A:4	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-65	8427027	N/A	N/A	A:5	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-66	8427028	N/A	N/A	A:6	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-67	8427033	N/A	N/A	A:7	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-68	8432116	N/A	N/A	A:8	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-69	CCV2	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-71	8432117	N/A	N/A	A:9	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-72	8432127	N/A	N/A	A:10	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-73	8432128	N/A	N/A	A:11	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-74	8432130	N/A	N/A	A:12	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale

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File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16Jun28-75	8432140	N/A	N/A	A:13	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-76	8433348	N/A	N/A	A:14	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-77	8433349	N/A	N/A	A:15	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-78	8433350	N/A	N/A	A:16	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-79	8433351	N/A	N/A	A:17	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-80	CCV3	N/A	3	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-82	8433352	N/A	N/A	A:18	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-83	8427012 MS	N/A	N/A	A:19	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-84	8427012 BKG	N/A	N/A	A:20	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-86	MB 16172001	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-87	CCV1	N/A	1	c:5	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale

Michele J Smith

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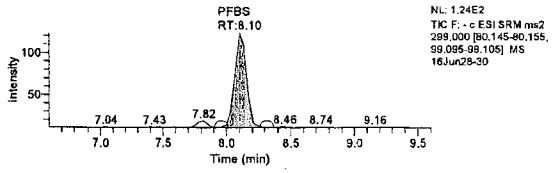
LCMSMS ANALYSIS REPORT

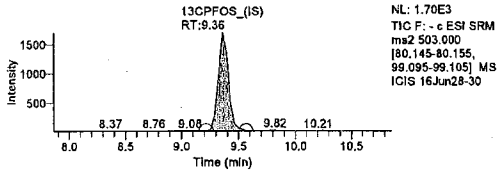
Sample Name:	MDL	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	MDL	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16Jun28-30		M\HWell_17.5minutes
Acquisition Date:	06/28/16 03:46:56 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:2	Instrument Software Version:	2.5.0.1311
Run Time(min):	17.50	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.39	209018.93	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.07	149262.03	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.89	162578.76	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.49	130845.40	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.78	139261.07	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.49	89825.18	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.78	24105.45	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.36	10735.64	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.67	143805.94	N/A	N/A	N/A
PFBS	6.184	8.10	720.97	10735.64	0.067	ng/L
PFDA	0.730	9.89	2402.31	162578.76	0.015	ng/L
PFDoA	2.449	11.49	3962.57	130845.40	0.030	ng/L
PFHxA	1.449	8.49	1367.97	89825.18	0.015	ng/L
PFHxS	6.852	8.74	137.26	24105.45	0.006	ng/L
PFNA	1.561	9.43	3784.86	209018.93	0.018	ng/L
PFOA	2.116	9.07	3803.11	149262.03	0.025	ng/L
PFOS	5.274	9.39	120.86	10735.64	0.011	ng/L
PFTeDA	3.194	14.39	2981.74	143805.94	0.021	ng/L
PFTrDA	2.492	12.66	2061.86	143805.94	0.014	ng/L
PFUdA	1.327	10.67	1516.18	143805.94	0.011	ng/L
PFhpA	1.623	8.78	2675.43	139261.07	0.019	ng/L

Component Name: PFBS





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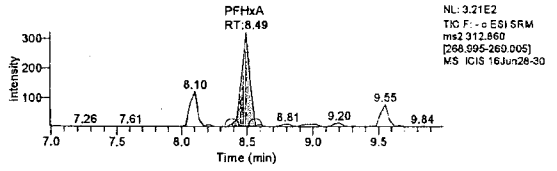

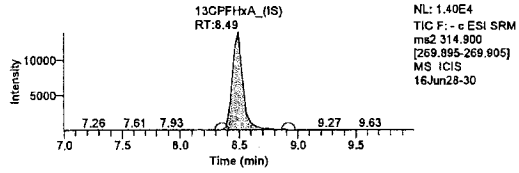

Component Name: PFHxS

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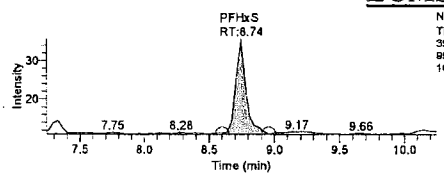
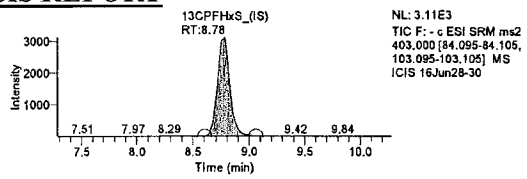
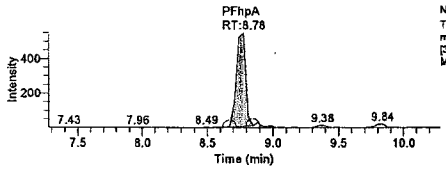
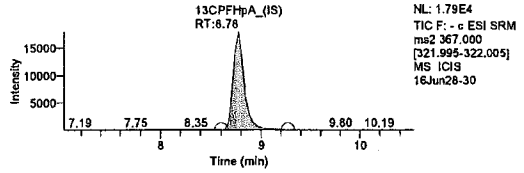


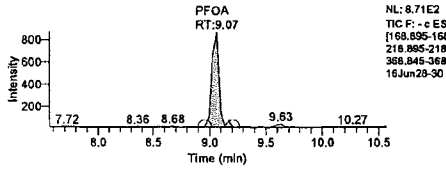


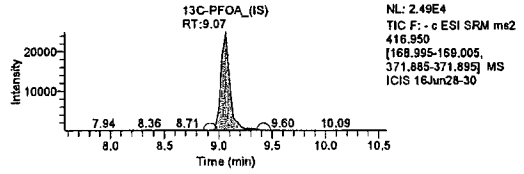
Component Name: PFhpA



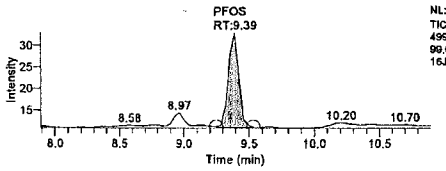


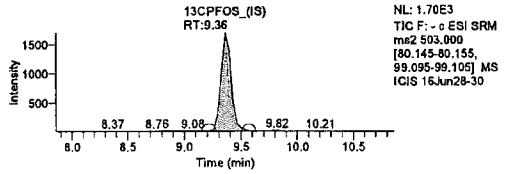
Component Name: PFOA



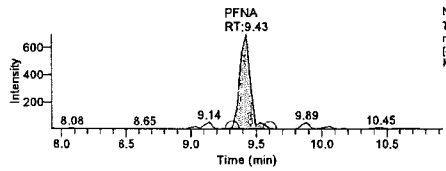


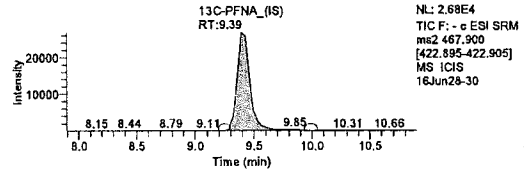
Component Name: PFOS



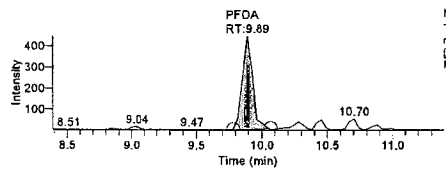


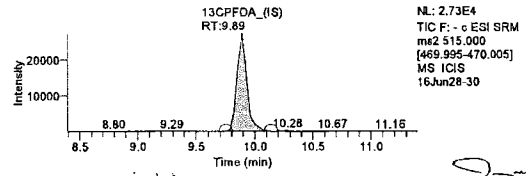
Component Name: PFNA





Component Name: PFDA





Component Name: PFUdA

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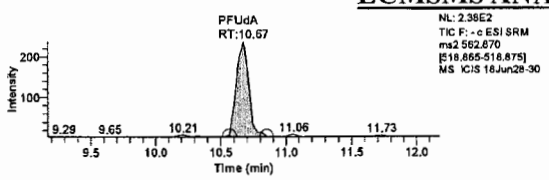
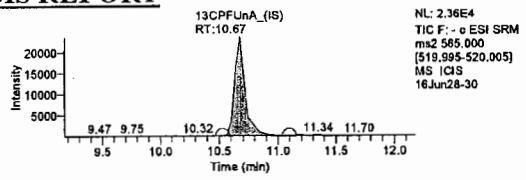
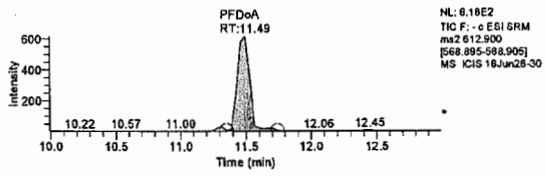
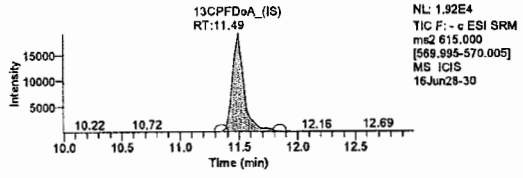


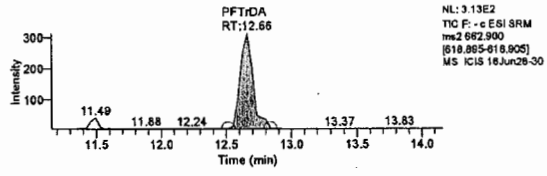


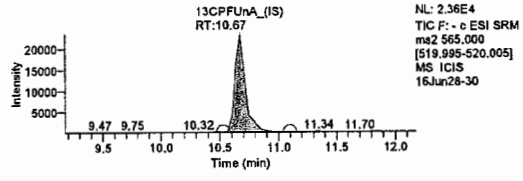
Component Name: PFDoA



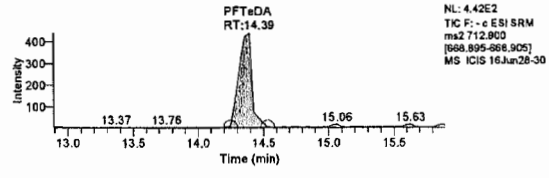


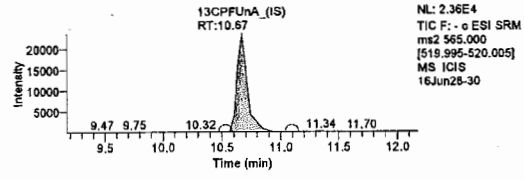
Component Name: PFTrDA





Component Name: PFTeDA





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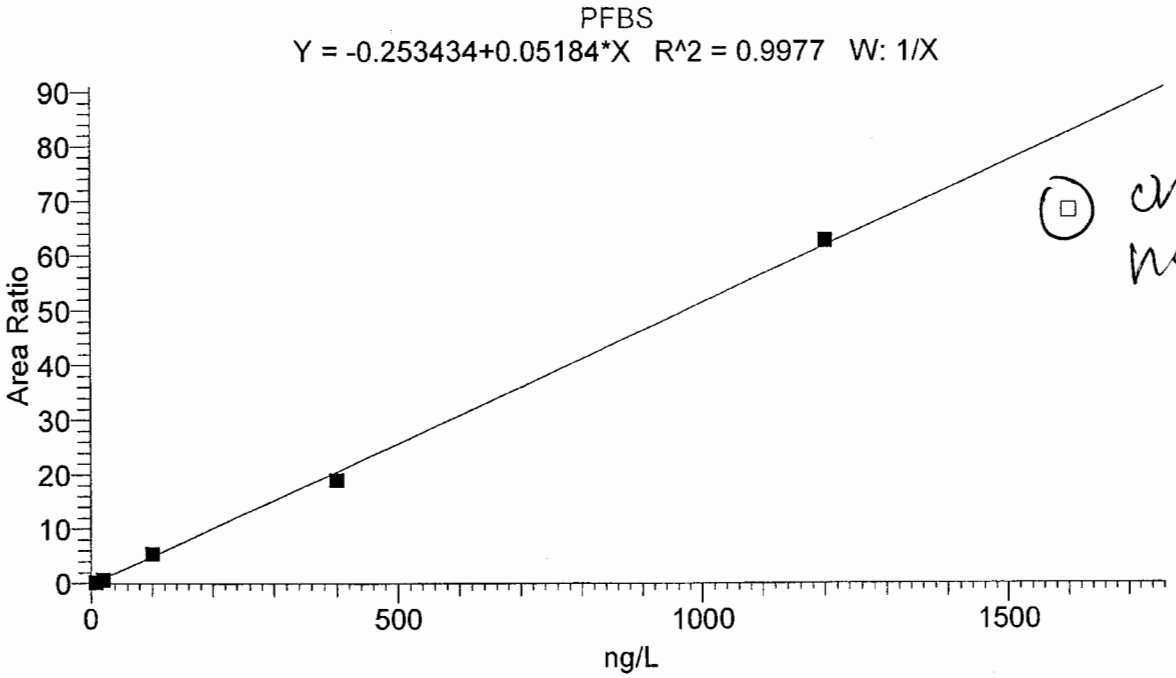
LCMSMS ANALYSIS REPORT

Component Name: **PFBS**



Identification		Component Name:	PFBS
Filter:	- c ESI SRM ms2 299.00 [80.14-80.16, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.25000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	100.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFOS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	8.000
2	20.000
3	100.000
4	400.000
5	1200.000
6	1600.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	100.000
2	400.000
3	1200.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	8.582	2388.65	12475.93	0.191	7.28
CAL2	16Jun28-32	17.491	9308.33	14247.69	0.653	-12.54
CAL3	16Jun28-33	110.544	81025.90	14793.39	5.477	10.54
CAL4	16Jun28-34	372.646	304031.77	15947.51	19.065	-6.84
CAL5	16Jun28-35	1218.737	787373.41	12512.72	62.926	1.56
(8) CAL6	16Jun28-36	1323.840	831925.07	12167.20	68.374	-17.26
ICV1	16Jun28-39	88.712	64409.56	14822.48	4.345	-11.29
CCV1	16Jun28-57	119.640	72670.54	12216.20	5.949	19.64
CCV2	16Jun28-69	385.867	311655.00	15780.08	19.750	-3.53
CCV3	16Jun28-80	1122.569	744050.42	12841.62	57.941	-6.45
CCV1	16Jun28-87	141.650	84210.29	11877.82	7.090	41.65

(8) Removed from calibration
MJP 1758 6/29/16

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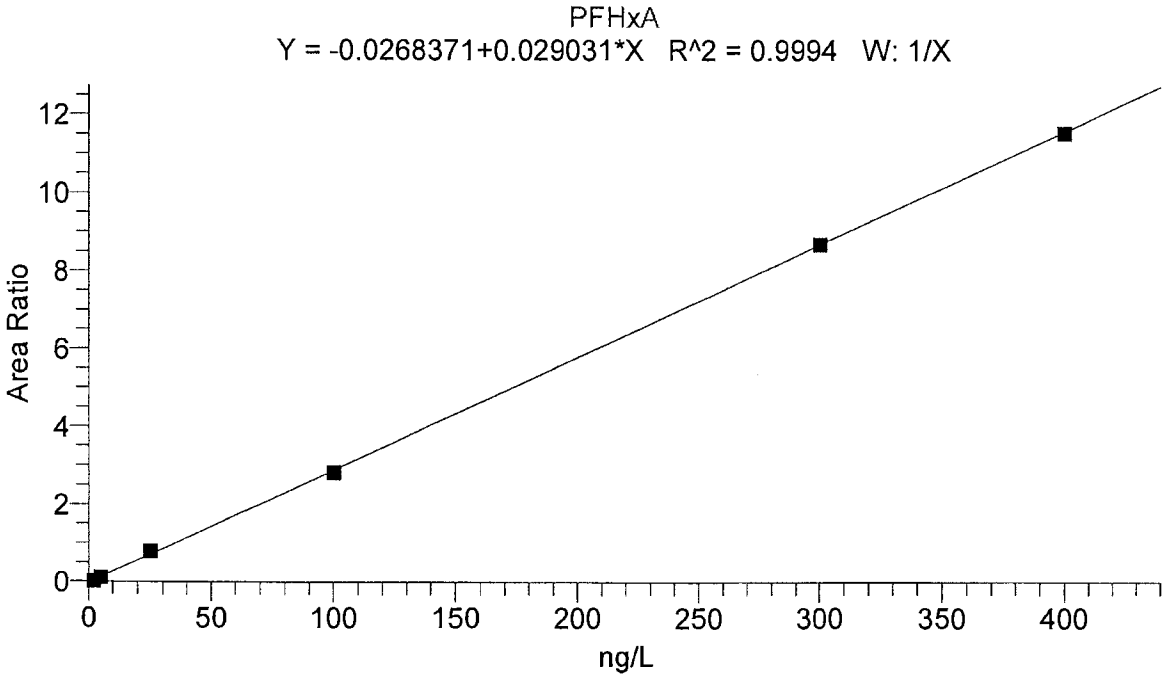
LCMSMS ANALYSIS REPORT

Component Name: **PFHxA**



Identification		Component Name:	PFHxA
Filter:	- c ESI SRM ms2 312.86 [269.00-269.01]	1st Trace Type:	TIC
2nd Trace Type:	N/A		
Mass Range 2 (m/z):		Mass Range 1 (m/z):	
Base Peak(BP):		Wavelength Range 2 (nm):	N/A
Retention Time			
Window (sec):	50.00000	Expected RT (min):	8.50000
RT Reference:	No	View Width (min):	3.00000
Adjust Using:	N/A	Adjust Expected RT:	No
Detection Options			
		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters			
		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	1.889	2821.93	100754.17	0.028	-5.54
CAL2	16Jun28-32	4.749	12174.22	109660.34	0.111	-5.03
CAL3	16Jun28-33	28.170	79339.46	100308.36	0.791	12.68
CAL4	16Jun28-34	98.095	303708.73	107661.22	2.821	-1.90
CAL5	16Jun28-35	300.267	858213.47	98756.32	8.690	0.09
CAL6	16Jun28-36	398.831	991110.93	85798.26	11.552	-0.29
ICV1	16Jun28-39	94.340	278136.82	102559.72	2.712	-5.66
CCV1	16Jun28-57	22.832	63977.39	100593.25	0.636	-8.67
CCV2	16Jun28-69	94.455	302646.46	111460.01	2.715	-5.54
CCV3	16Jun28-80	323.869	900622.65	96062.10	9.375	7.96
CCV1	16Jun28-87	21.537	70712.57	118170.40	0.598	-13.85

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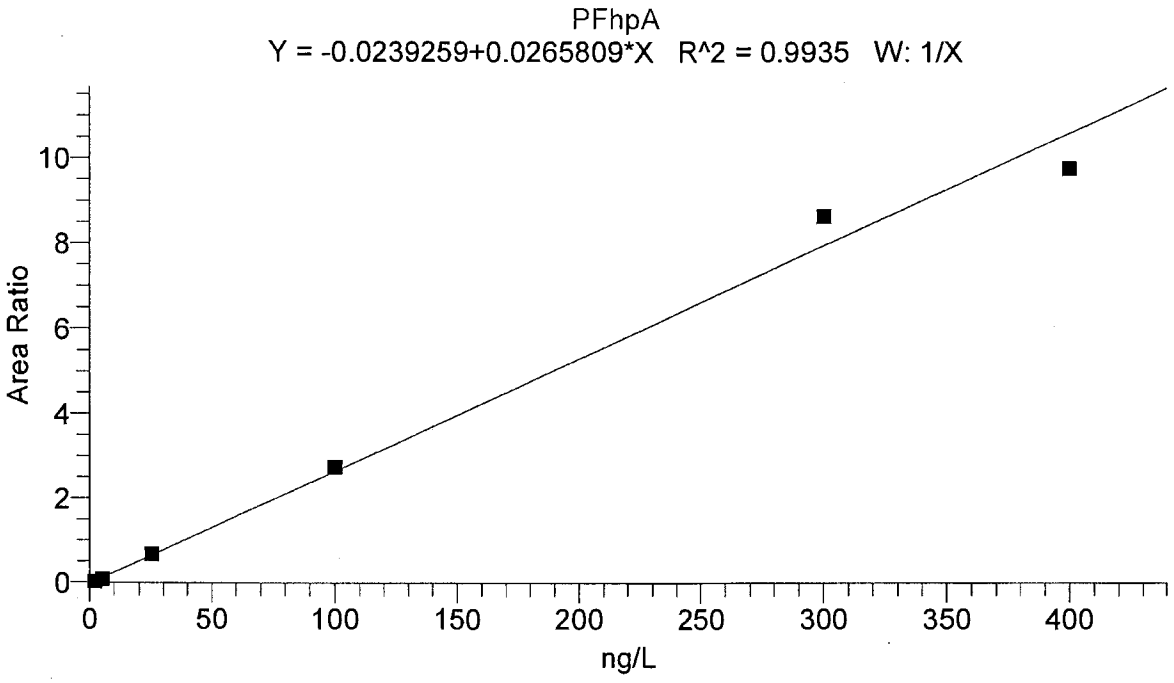
LCMSMS ANALYSIS REPORT

Component Name: **PFhpA**



Identification		Component Name:	PFhpA
Filter:	- c ESI SRM ms2 362.86 [318.94-318.94]	1st Trace Type:	TIC
2nd Trace Type:	N/A		
Mass Range 2 (m/z):		Mass Range 1 (m/z):	
Base Peak(BP):		Wavelength Range 2 (nm):	N/A
Retention Time			
Window (sec):	50.00000	Expected RT (min):	8.76000
RT Reference:	No	View Width (min):	3.00000
Adjust Using:	N/A	Adjust Expected RT:	No
Detection Options			
		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection			
ICIS Minimum Peak Height (S/N):	10.0	ICIS Identify By:	Nearest RT
ICIS Window %:		ICIS Ion Ratio Confirmation:	Disabled
		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters			
Minimum Peak Width:	3	Noise Method:	Incos
Area Tail Extension:	5	Multiplet Resolution:	10
		Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHpA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	2.180	5362.43	157632.04	0.034	9.00
CAL2	16Jun28-32	4.052	14635.29	174693.45	0.084	-18.96
CAL3	16Jun28-33	26.181	104392.20	155351.17	0.672	4.72
CAL4	16Jun28-34	104.198	396645.27	144458.58	2.746	4.20
CAL5	16Jun28-35	326.380	819865.85	94765.33	8.652	8.79
CAL6	16Jun28-36	369.010	914897.79	93502.87	9.785	-7.75
ICV1	16Jun28-39	83.402	344523.25	157102.87	2.193	-16.60
CCV1	16Jun28-57	27.292	93818.19	133736.04	0.702	9.17
CCV2	16Jun28-69	93.257	369349.45	150452.81	2.455	-6.74
CCV3	16Jun28-80	326.775	883261.20	101969.06	8.662	8.93
CCV1	16Jun28-87	26.261	109193.27	161982.73	0.674	5.04

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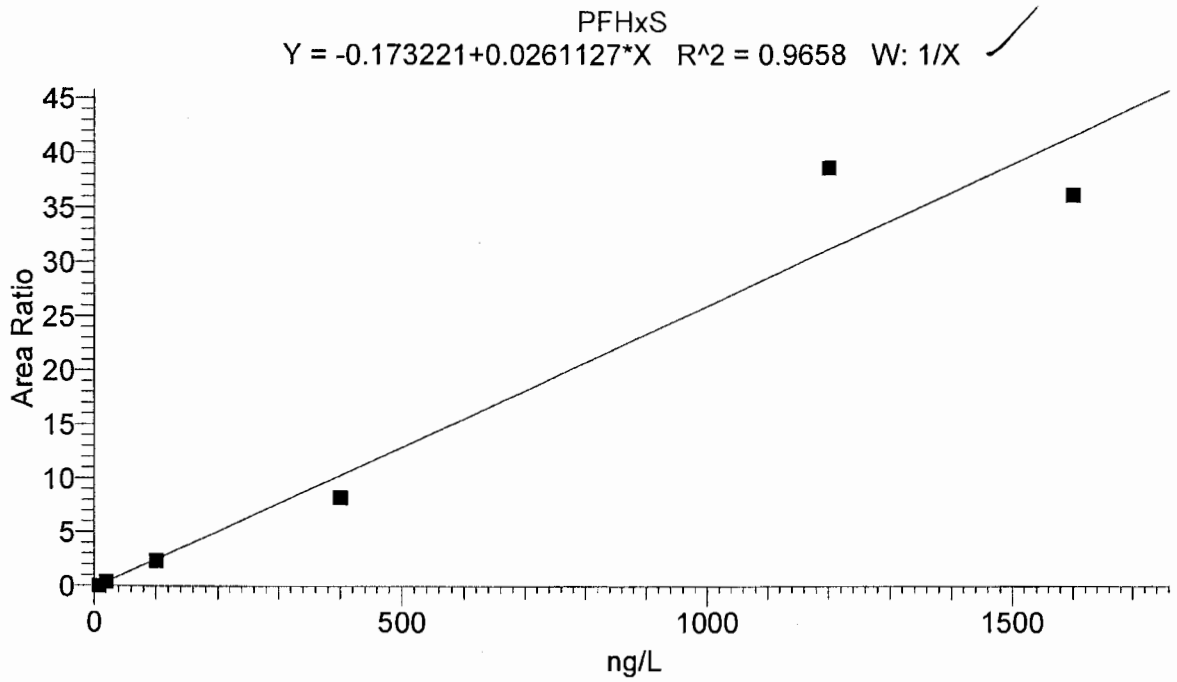
LCMSMS ANALYSIS REPORT

Component Name: **PFHxS**



Identification		Component Name:	PFHxS
Filter:	- c ESI SRM ms2 399.00 [80.09-80.11, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.73000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	100.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	8.000
2	20.000
3	100.000
4	400.000
5	1200.000
6	1600.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	100.000
2	400.000
3	1200.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	8.462	1061.90	22237.74	0.048	5.78
CAL2	16Jun28-32	21.211	11431.83	30032.05	0.381	6.05
CAL3	16Jun28-33	96.669	64885.10	27598.25	2.351	-3.33
CAL4	16Jun28-34	322.181	238866.08	28989.28	8.240	-19.45
CAL5	16Jun28-35	1487.325	618009.51	15983.74	38.665	23.94
CAL6	16Jun28-36	1392.152	612732.43	16935.82	36.180	-12.99
ICV1	16Jun28-39	81.989	55389.22	28148.56	1.968	-18.01
CCV1	16Jun28-57	124.565	60461.79	19633.51	3.080	24.57
CCV2	16Jun28-69	384.667	230078.08	23307.34	9.871	-3.83
CCV3	16Jun28-80	1267.697	533521.04	16201.76	32.930	5.64
CCV1	16Jun28-87	82.051	56919.53	28902.62	1.969	-17.95

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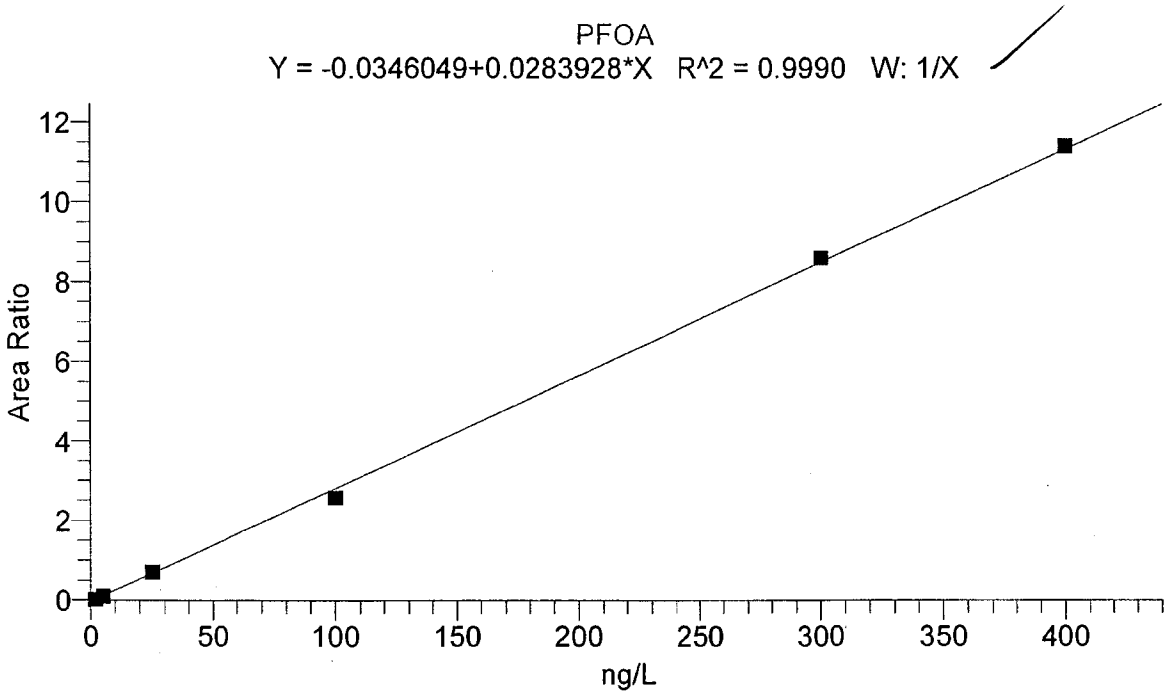
Component Name: **PFOA**



Identification		Component Name:	PFOA
Filter:	- c ESI SRM ms2 412.90 [168.90-168.91, 218.90-218.91, 368.85-368.86]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.02000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	15
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	5.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFOA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	2.177	4803.03	176578.12	0.027	8.84
CAL2	16Jun28-32	4.639	16696.29	171915.40	0.097	-7.21
CAL3	16Jun28-33	26.073	113468.87	160794.34	0.706	4.29
CAL4	16Jun28-34	91.956	479078.21	185957.72	2.576	-8.04
CAL5	16Jun28-35	304.036	1399185.53	162737.26	8.598	1.35
CAL6	16Jun28-36	403.119	1594472.40	139730.47	11.411	0.78
ICV1	16Jun28-39	80.446	391280.99	173943.19	2.249	-19.55
CCV1	16Jun28-57	24.442	109209.03	165627.70	0.659	-2.23
CCV2	16Jun28-69	106.777	471635.85	157363.96	2.997	6.78
CCV3	16Jun28-80	302.809	1366250.16	159553.24	8.563	0.94
CCV1	16Jun28-87	25.059	111166.93	164230.11	0.677	0.24

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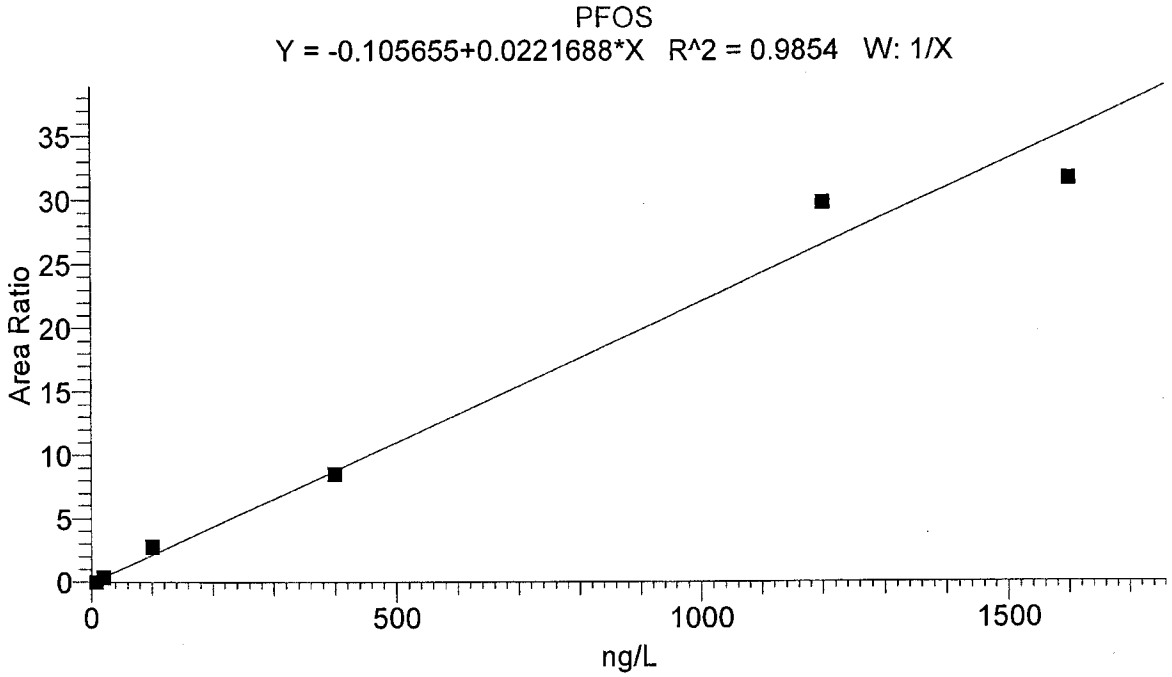
LCMSMS ANALYSIS REPORT

Component Name: **PFOS**



Identification		Component Name:	PFOS
Filter:	- c ESI SRM ms2 499.00 [80.00-80.00, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.25000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	100.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFOS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	8.000
2	20.000
3	100.000
4	400.000
5	1200.000
6	1600.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	100.000
2	400.000
3	1200.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	5.426	182.50	12475.93	0.015	-32.18
CAL2	16Jun28-32	20.494	4967.79	14247.69	0.349	2.47
CAL3	16Jun28-33	130.428	41211.00	14793.39	2.786	30.43
CAL4	16Jun28-34	388.949	135822.87	15947.51	8.517	-2.76
CAL5	16Jun28-35	1349.878	373122.56	12512.72	29.819	12.49
CAL6	16Jun28-36	1432.824	385192.62	12167.20	31.658	-10.45
ICV1	16Jun28-39	90.313	28110.52	14822.48	1.896	-9.69
CCV1	16Jun28-57	109.872	28464.66	12216.20	2.330	9.87
CCV2	16Jun28-69	348.024	120080.12	15780.08	7.610	-12.99
CCV3	16Jun28-80	1373.092	389539.03	12841.62	30.334	14.42
CCV1	16Jun28-87	140.756	35808.50	11877.82	3.015	40.76

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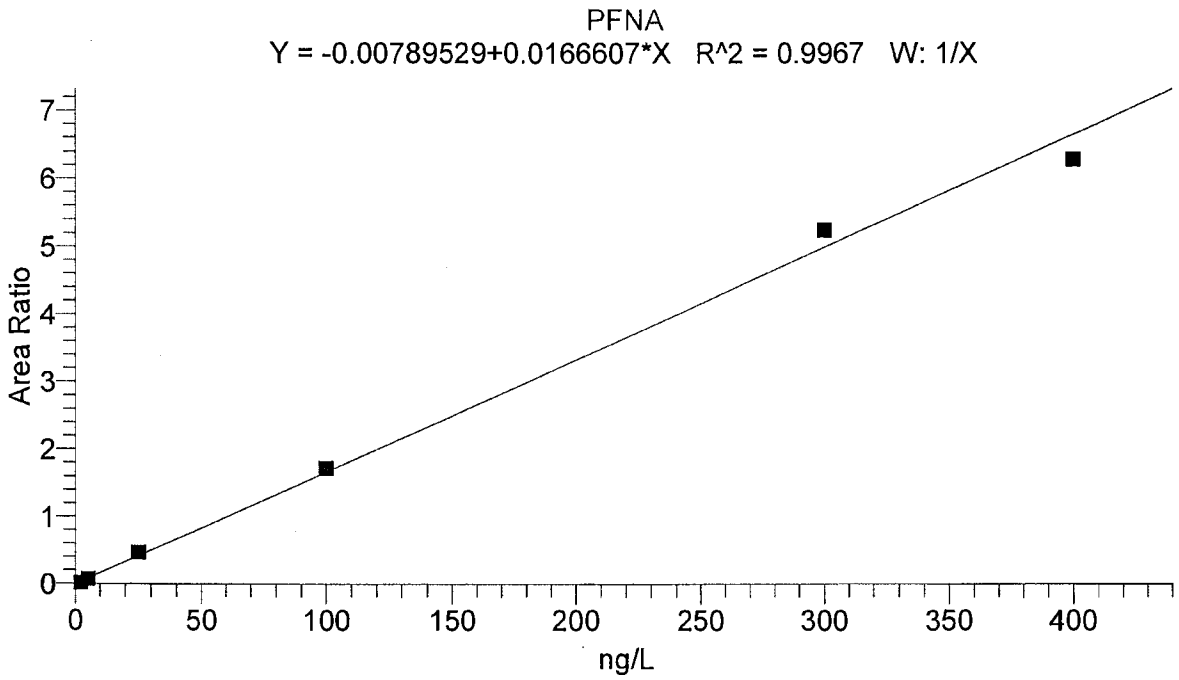
Component Name: **PFNA**



Identification		Component Name:	PFNA
Filter:	- c ESI SRM ms2 462.90 [418.89-418.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.28000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	10.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFNA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	1.712	4615.63	223826.72	0.021	-14.42
CAL2	16Jun28-32	4.885	16979.72	231017.61	0.073	-2.29
CAL3	16Jun28-33	28.367	108738.90	233985.70	0.465	13.47
CAL4	16Jun28-34	103.614	393115.67	228769.49	1.718	3.61
CAL5	16Jun28-35	315.258	1020389.71	194562.55	5.245	5.09
CAL6	16Jun28-36	378.163	1039360.23	165172.58	6.293	-5.46
ICV1	16Jun28-39	92.534	339262.57	221192.38	1.534	-7.47
CCV1	16Jun28-57	23.881	88369.73	226597.63	0.390	-4.47
CCV2	16Jun28-69	109.273	368197.96	203124.25	1.813	9.27
CCV3	16Jun28-80	309.952	983662.60	190775.43	5.156	3.32
CCV1	16Jun28-87	25.537	97073.52	232472.59	0.418	2.15

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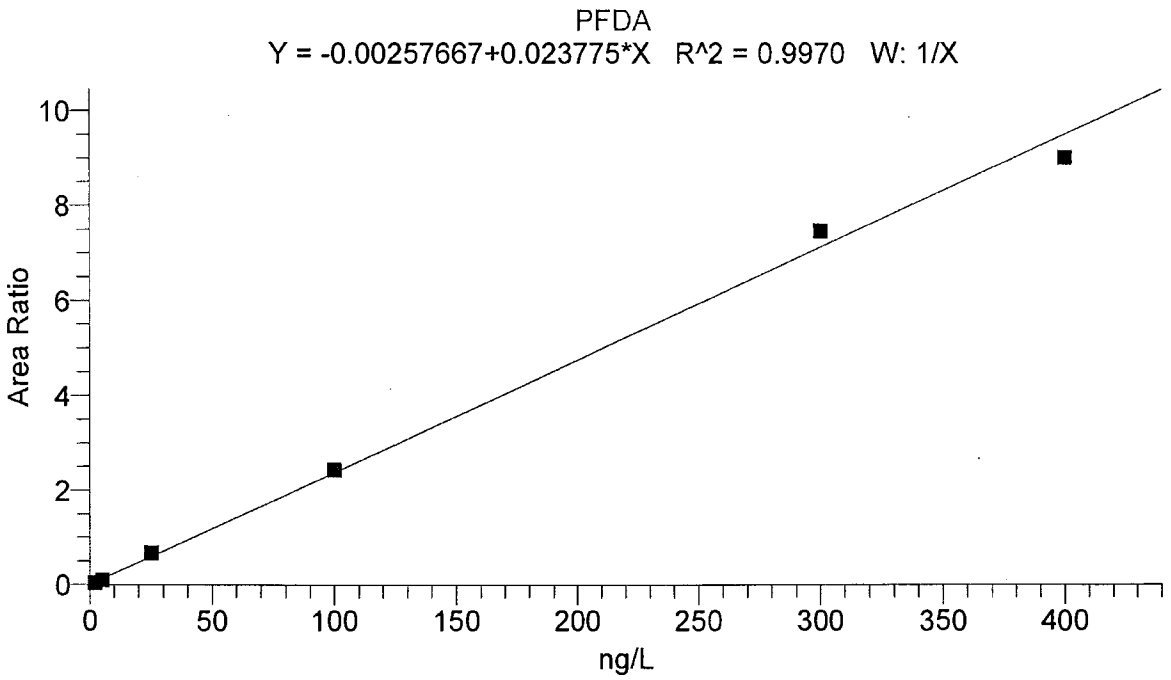
Component Name: **PFDA**



Identification		Component Name:	PFDA
Filter:	- c ESI SRM ms2 512.88 [468.88-468.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.57000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	3.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	1.856	6410.24	154300.79	0.042	-7.21
CAL2	16Jun28-32	4.506	20143.10	192639.55	0.105	-9.87
CAL3	16Jun28-33	28.631	109946.92	162133.90	0.678	14.52
CAL4	16Jun28-34	102.807	403239.71	165149.94	2.442	2.81
CAL5	16Jun28-35	314.443	1221942.01	163507.54	7.473	4.81
CAL6	16Jun28-36	379.757	1348843.31	149437.08	9.026	-5.06
ICV1	16Jun28-39	91.247	345683.46	159535.43	2.167	-8.75
CCV1	16Jun28-57	27.171	94998.96	147650.52	0.643	8.68
CCV2	16Jun28-69	115.858	427438.14	155322.52	2.752	15.86
CCV3	16Jun28-80	326.929	1131424.54	145611.38	7.770	8.98
CCV1	16Jun28-87	27.031	99393.44	155279.50	0.640	8.13

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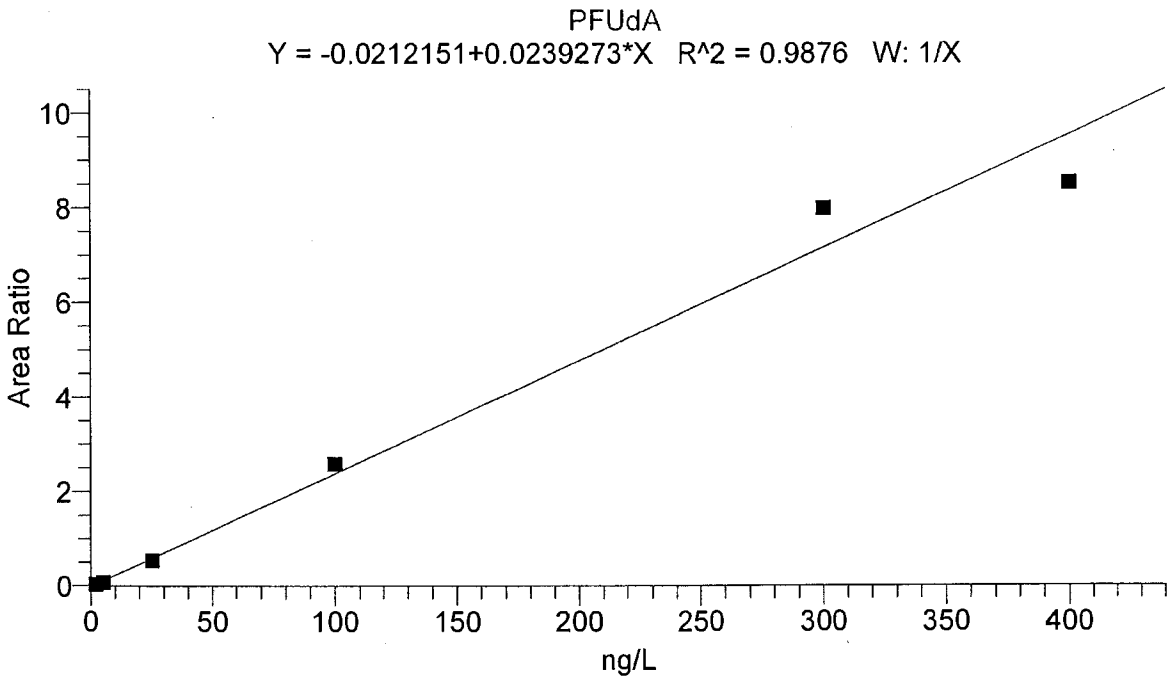
Component Name: **PFUdA**



Identification		Component Name:	PFUdA
Filter:	- c ESI SRM ms2 562.87 [518.87-518.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.99000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUnA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	2.355	5500.71	156535.00	0.035	17.76
CAL2	16Jun28-32	3.924	12026.25	165451.69	0.073	-21.51
CAL3	16Jun28-33	23.350	99068.44	184315.88	0.537	-6.60
CAL4	16Jun28-34	109.075	420926.31	162604.47	2.589	9.07
CAL5	16Jun28-35	335.352	1242640.54	155274.87	8.003	11.78
CAL6	16Jun28-36	357.943	1250775.27	146402.77	8.543	-10.51
ICV1	16Jun28-39	96.678	354865.67	154826.74	2.292	-3.32
CCV1	16Jun28-57	25.327	94826.63	162156.46	0.585	1.31
CCV2	16Jun28-69	110.033	402504.03	154123.34	2.612	10.03
CCV3	16Jun28-80	320.309	1141283.95	149325.92	7.643	6.77
CCV1	16Jun28-87	24.637	93815.06	165086.51	0.568	-1.45

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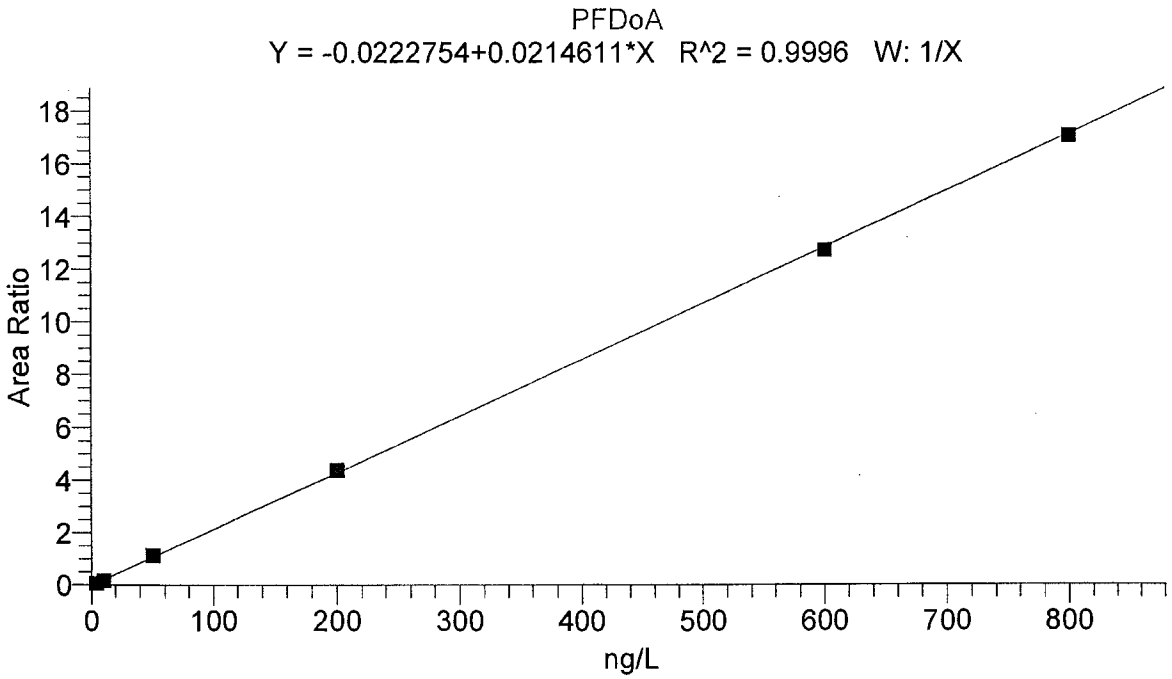
Component Name: **PFDoA**



Identification		Component Name:	PFDoA
Filter:	- c ESI SRM ms2 612.90 [568.89-568.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	11.30000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDoA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	4.000
2	10.000
3	50.000
4	200.000
5	600.000
6	800.000

Component QC Level Table

QC Level	Amount
ICV2	200.000
ICV1	100.000
1	50.000
2	200.000
3	600.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	4.213	10052.85	147554.87	0.068	5.31
CAL2	16Jun28-32	8.593	26241.65	161843.86	0.162	-14.07
CAL3	16Jun28-33	53.573	158676.92	140738.01	1.127	7.15
CAL4	16Jun28-34	205.612	694928.37	158284.44	4.390	2.81
CAL5	16Jun28-35	595.273	2200125.55	172519.03	12.753	-0.79
CAL6	16Jun28-36	796.736	2235678.74	130920.94	17.077	-0.41
ICV1	16Jun28-39	93.365	277780.82	140191.85	1.981	-6.64
CCV1	16Jun28-57	55.186	160482.42	138100.78	1.162	10.37
CCV2	16Jun28-69	217.753	715803.22	153904.90	4.651	8.88
CCV3	16Jun28-80	588.015	1801158.15	142981.18	12.597	-2.00
CCV1	16Jun28-87	56.558	165935.30	139264.02	1.192	13.12

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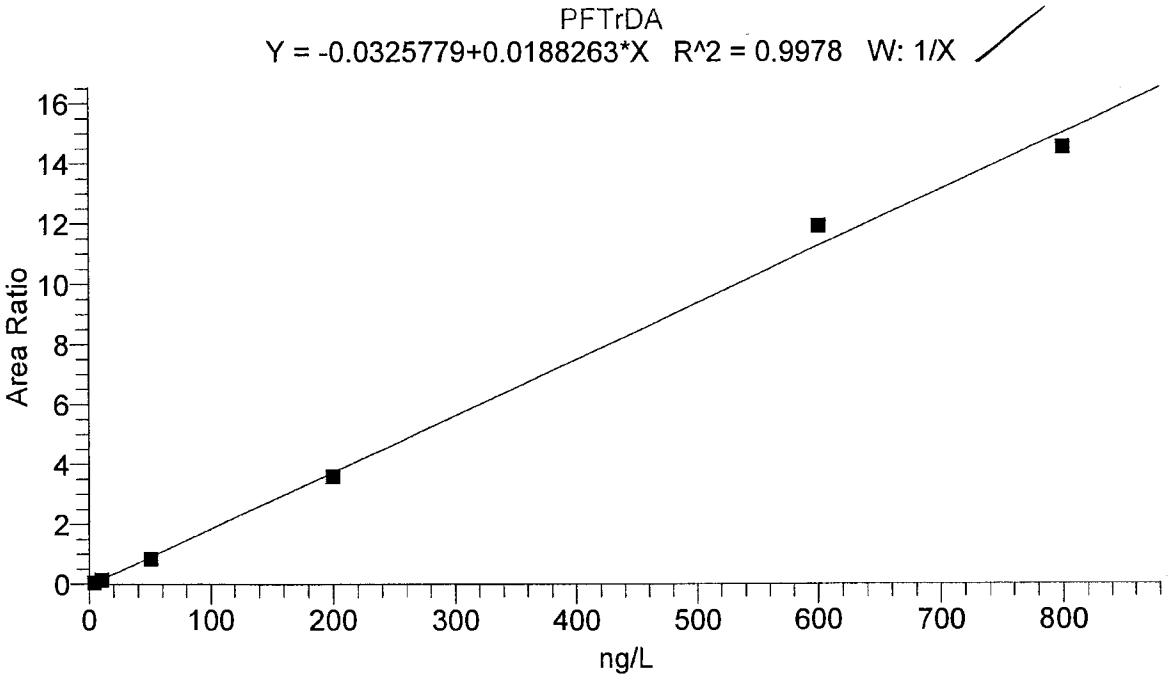
LCMSMS ANALYSIS REPORT

Component Name: **PFTrDA**



Identification		Component Name:	PFTrDA
Filter:	- c ESI SRM ms2 662.90 [618.89-618.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	12.50000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	5.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUnA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	4.000
2	10.000
3	50.000
4	200.000
5	600.000
6	800.000

Component QC Level Table

QC Level	Amount
ICV2	200.000
ICV1	100.000
1	50.000
2	200.000
3	600.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	4.484	8114.11	156535.00	0.052	12.10
CAL2	16Jun28-32	9.515	24248.42	165451.69	0.147	-4.85
CAL3	16Jun28-33	46.673	155948.77	184315.88	0.846	-6.65
CAL4	16Jun28-34	193.377	586675.16	162604.47	3.608	-3.31
CAL5	16Jun28-35	635.387	1852336.86	155274.87	11.929	5.90
CAL6	16Jun28-36	774.564	2130100.38	146402.77	14.550	-3.18
ICV1	16Jun28-39	85.162	243186.74	154826.74	1.571	-14.84
CCV1	16Jun28-57	48.272	142080.78	162156.46	0.876	-3.46
CCV2	16Jun28-69	201.543	579770.79	154123.34	3.762	0.77
CCV3	16Jun28-80	592.637	1661188.88	149325.92	11.125	-1.23
CCV1	16Jun28-87	46.494	139123.79	165086.51	0.843	-7.01

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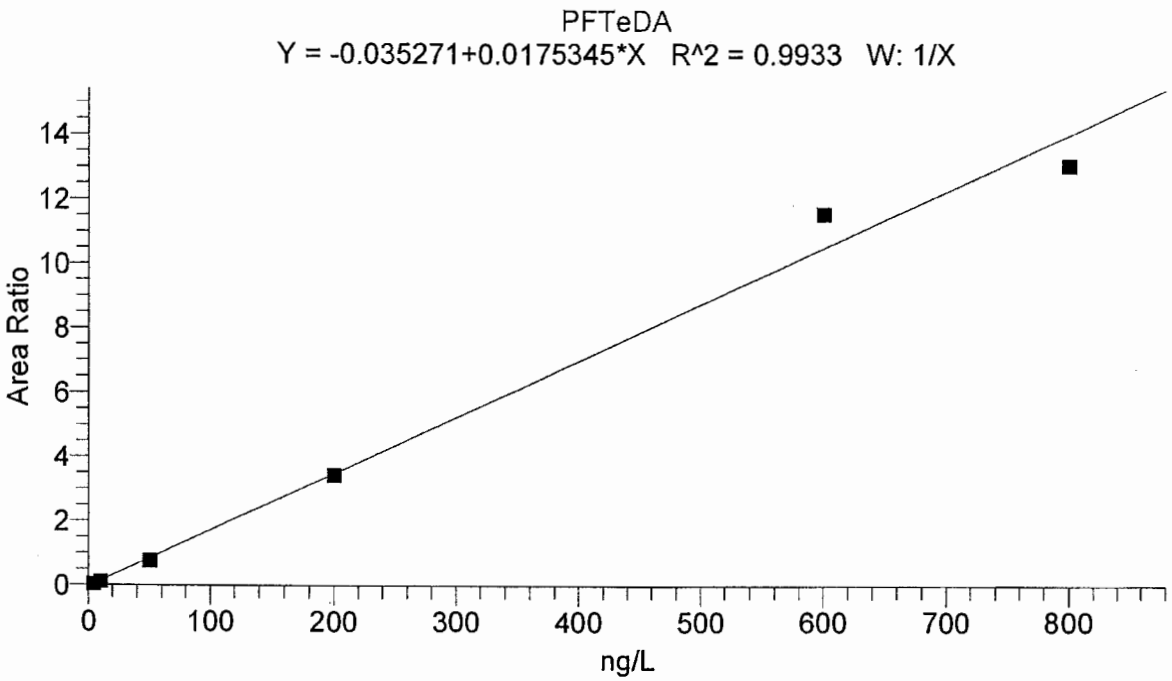
LCMSMS ANALYSIS REPORT

Component Name: **PFTeDA**



Identification		Component Name:	PFTeDA
Filter:	- c ESI SRM ms2 712.90 [668.89-668.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	13.70000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	5.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUnA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

Michele J. Smith
JUN 30 2016
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Senior Specialist

Jason W. Knight
Senior Chemist
JUN 29 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	4.000
2	10.000
3	50.000
4	200.000
5	600.000
6	800.000

Component QC Level Table

QC Level	Amount
ICV2	200.000
ICV1	100.000
1	50.000
2	200.000
3	600.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	4.880	7872.70	156535.00	0.050	21.99
CAL2	16Jun28-32	8.439	18645.75	165451.69	0.113	-15.61
CAL3	16Jun28-33	45.663	141077.32	184315.88	0.765	-8.67
CAL4	16Jun28-34	197.673	557867.88	162604.47	3.431	-1.16
CAL5	16Jun28-35	660.902	1793938.00	155274.87	11.553	10.15
CAL6	16Jun28-36	746.442	1911025.41	146402.77	13.053	-6.69
ICV1	16Jun28-39	93.947	249586.70	154826.74	1.612	-6.05
CCV1	16Jun28-57	49.186	134132.71	162156.46	0.827	-1.63
CCV2	16Jun28-69	201.511	539142.44	154123.34	3.498	0.76
CCV3	16Jun28-80	613.120	1600096.43	149325.92	10.715	2.19
CCV1	16Jun28-87	45.481	125831.39	165086.51	0.762	-9.04

Michele J Smith

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SPG93
Matrix: Water

Fraction: Miscellaneous Specialty Services

16172001	13C-PFHxA	13C-PFHpA	13C-PFHxS	13C-PFOA
	Area	Area	Area	Area
Average ICAL Response	100490	136734	23629	166286
Upper Limit	150735	205101	35444	249428
Lower Limit	50245	68367	11815	83143
Sample				
MB16172001	102257	136036	24868	147436
LCS16172001	85045	139612	24661	137974
LCSD16172001	86696	154122	25221	158366
8427012~~MS~~	56268	134014	19134	123691
8427012 MS	42286 *	106485	~~67449~~ 15080	~~131596~~ 96080
8427013	59555	144104	18140	146616
8427027	80651	170661	25059	118466
8427028	47896 *	164378	22491	137314
8427033	60436	164738	29498	149947

J

Background sample and MS responses were switched

THW 5/16/17

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SPG93
Matrix: Water

Fraction: Miscellaneous Specialty Services

16172001	13C-PFOS	13C-PFNA	13C-PFDA	13C-PFUdA
	Area	Area	Area	Area
Average ICAL Response	13691	212889	164528	161764
Upper Limit	20536	319334	246792	242646
Lower Limit	6845	106445	82264	80882
Sample				
MB16172001	10451	205967	146407	145103
LCS16172001	11801	183403	132871	120676
LCSD16172001	11669	192639	135272	125115
8427012MS	8842	155092	100116	91543
8427012 MS	5867 *	122084	78723 *	73617 *
8427013	11064	189823	114594	102179
8427027	18342	221679	137325	120188
8427028	10987	204673	134821	121122
8427033	10291	218362	140975	138421

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SPG93
Matrix: Water

Fraction: Miscellaneous Specialty Services

16172001	13C-PFDoA
	Area
Average ICAL Response	151977
Upper Limit	227965
Lower Limit	75988
Sample	
MB16172001	115898
LCS16172001	121495
LCSD16172001	120584
8427012MS	72106 *
8427012 MS	48954 *
8427013	87215
8427027	98836
8427028	105016
8427033	115263

JJ

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

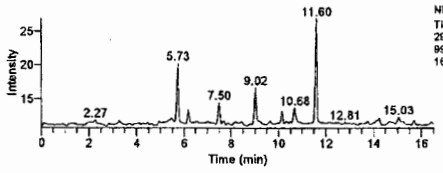
LCMSMS ANALYSIS REPORT

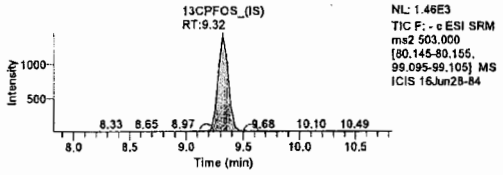
Sample Name:	8427012 BKG	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8427012 BKG	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-84		
Acquisition Date:	06/29/16 07:25:52 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:20	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

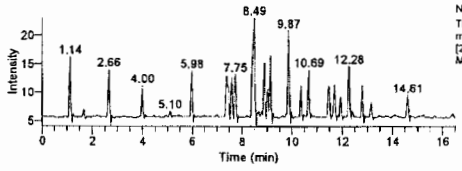
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.36	155091.98	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	123690.72	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.86	100116.18	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.64	72105.65	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.74	134014.47	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.46	56267.99	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	19133.59	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	8841.92	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.67	91542.58	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	7.807	8.75	586.39	19133.59	0.031	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	1.537	9.00	1118.41	123690.72	0.009	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	1.007	8.74	381.90	134014.47	0.003	ng/L

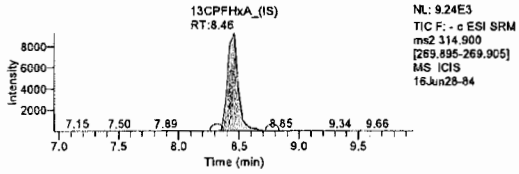
Component Name: PFBS





Component Name: PFHxA





Component Name: PFhpA

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LCMSMS ANALYSIS REPORT

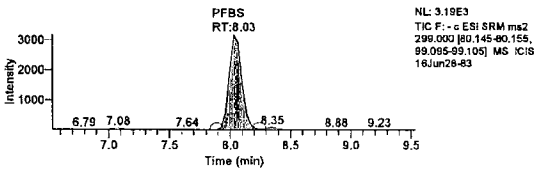
Sample Name:	8427012 MS	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8427012 MS	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-83		
Acquisition Date:	06/29/16 07:08:38 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:19	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

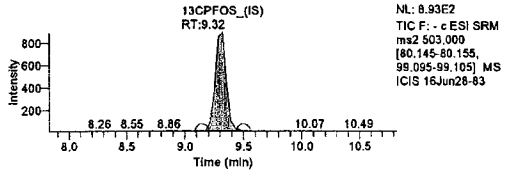
Extracted Ion Chromatogram

Quan Peak Table

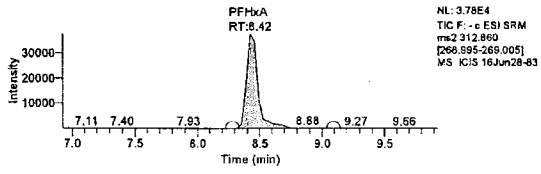
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.36	122083.53	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	96080.24	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.82	78723.32	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.46	48953.67	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.74	106484.91	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.42	42286.01	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	15080.14	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	5866.73	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.50	73617.13	N/A	N/A	N/A
PFBS	79.420	8.03	22667.29	5866.73	3.864	ng/L
PFDA	198.879	9.82	372028.27	78723.32	4.726	ng/L
PFDoA	237.241	11.46	248155.00	48953.67	5.069	ng/L
PFHxA	203.760	8.42	249002.83	42286.01	5.889	ng/L
PFHxS	177.918	8.71	67448.99	15080.14	4.473	ng/L
PFNA	201.267	9.35	408412.60	122083.53	3.345	ng/L
PFOA	207.836	9.00	563648.10	96080.24	5.866	ng/L
PFOS	282.443	9.32	36114.13	5866.73	6.156	ng/L
PFTeDA	89.302	14.36	112678.00	73617.13	1.531	ng/L
PFTrDA	120.971	12.77	165259.99	73617.13	2.245	ng/L
PFUdA	187.552	10.50	328802.73	73617.13	4.466	ng/L
PFhpA	179.314	8.74	504994.95	106484.91	4.742	ng/L

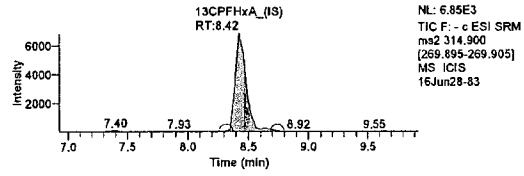
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHxS

JUN 30 2016

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JUN 29 2016

Organic Extraction Batchlog Assigned to: 9524 Jason Knight Reviewed by: MQP1758 Start Date: 06/20/16 Start time: 10:35

16172001 Tech 1: JWK9524 Tech 2: DW 102662

Dept: 37	Prep Analysis: 14091 PFAA Water Prep				PFAAs in Water by LC/MS/MS						
QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
8427012MS	SG3TBMS	99.90	235002-13A	0.025	235002-2A	0.04	1			085a	
BLANKA	BLK172001	100.00	↓	0.025	N/A	N/A	1				
LCSA	OPR172001	100.00	↓	0.025	235002-2A	0.04	1				
LCSDA		100.00	↓	0.025	↓	0.04	1				

Solvent Used	Lot No.
MeOH/WATER 96:4	159749

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1 8427012	SG3TB	99.83	235002-13A	0.025	1			085a		10954	18262	06/27/2016	N
2 8427013	SG3FB	100.20	↓	0.025	1			085a		10954	18262	06/27/2016	N
3 8427027	SG3R1	99.74	↓	0.025	1			085a		10954	18262	06/27/2016	N
4 8427028	SG3R2	100.32	↓	0.025	1			085a		10954	18262	06/27/2016	N
5 8427033	SG3R3	99.79	↓	0.025	1			085a		10954	18262	06/27/2016	N
6 8432116	SG-TB	100.15	↓	0.025	1			085a		10954	18262	06/29/2016	N
7 8432117	SG-R1	100.00	↓	0.025	1			085a		10954	18262	06/29/2016	N
8 8432127	SG-R2	100.10	↓	0.025	1			085a		10954	18262	06/29/2016	N
9 8432128	SG-FB	100.02	↓	0.025	1			085a		10954	18262	06/29/2016	N
10 8432130	SG-R3	99.64	↓	0.025	1			085a		10954	18262	06/29/2016	N
11 8432140	SGR16	100.17	↓	0.025	1			085a		10954	18262	06/29/2016	N
12 8433348	LTB17	99.65	↓	0.025	1			085a		10954	18262	06/30/2016	N
13 8433349	FTB17	100.34	↓	0.025	1			085a		10954	18262	06/30/2016	N
14 8433350	RB117	99.74	↓	0.025	1			085a		10954	18262	06/30/2016	N
15 8433351	RB217	100.18	↓	0.025	1			085a		10954	18262	06/30/2016	N
16 8433352	RB317	99.55	↓	0.025	1			085a		10954	18262	06/30/2016	N

Rack ID:		Work Station		Micro Temp 100?	
Internal Standard		Balance #	1121111212		

S-bath ID	C	S-bath ID	C	N-Evap	C	M-vap	C	16172001

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

SECTION 6

GENERAL PARAMETER DATA SUPPORT DOCUMENTATION

ENVIRONMENTAL STANDARDS

INORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: Saint Gobain Bennington
Sample Collection Dates: 6/13 & 6/14/16
Job Number: 20167391
Project Manager: Meg Michell
Laboratory: ELLE

Reviewed by: THW
Approved by: MAM
Completion Date: 5/2017

Applicable Sample No's (x)

Refer to Table 1 in the Quality Assurance Review

Deliverable:
CLP (Full) ( )
Level IV (Full) ( )
Limited (x)
Other:

Sample No.	Lab Control No.
SGP93	

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	5310B	2540G				5310B	2540G				5310B	2540G			
Holding Times	x	x									x	x			
Blank Analysis Results	x										x				
Matrix Spike (Predigestion) Results	x										x				
Duplicate Analysis: ( ) Field (x) Lab	x	x				x					x	x			
Quantitation of Results															
Detection Limit/Sensitivity	x	x									x	x			
Initial Calibrations	x										x				
Continuing Calibrations	x										x				
Laboratory Control Standard (LCS)	x	x									x	x			
ICP Linear Range Analysis															
ICP Interference Checks															
ICP Serial Dilutions															
ICP Post-Digestion Spike															
GFAA Post Digestion Spikes															
GFAA Duplicate Injections															
ICP Multiple Exposures															
GFAA Standard Additions															
CRDL Standards															
Condition on Receipt	x	x									x	x			
Percent Solids															
Others:															

Comments:

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Effective Date: 11/23/2015
Revision: 0

Matrix: ○ Aqueous ◉ Non-aq.
Reporting Level: ◉ MDL ○ QL
Units: %

PRECISION OBJECTIVES:
If Both Results ≥ 5 × Their QL, RPD ≤: 40
If Either Result < 5 × Its QL, Dif. ≤: 2.0 × Highest QL

Sample ID: SG3-MW07-00.5 Duplicate Sample ID: SG3-FD01-20160613

Analyte	Sample Concentration	Qual	QL	MDL	Duplicate Concentration	Qual	QL	MDL	Difference	RPD	Flag
% moisture	23.00		0.5	0.5	29.9		0.5	0.5	NA	26%	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

REVISED

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1672230
Reported: 06/06/2017 16:46

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16181004	Sample number(s): 8427014-8427026,8427029-8427032,8427034-8427036			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16172001	Sample number(s): 8427012-8427013,8427027-8427028,8427033			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16176113031A	Sample number(s): 8427024-8427026,8427029-8427032,8427034-8427036			
TOC	100	U	100	300
Batch number: 16176298731A	Sample number(s): 8427014,8427017-8427019,8427021-8427023			
TOC	100	U	100	300

LCS/LCSD

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1672230
Reported: 06/06/2017 16:46

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16181004	Sample number(s): 8427014-8427026,8427029-8427032,8427034-8427036								
Perfluorobutanesulfonate	17.8	15.67			88		70-130		
Perfluorodecanoic acid	20	32.23			161*		70-130		
Perfluorododecanoic acid	20	29.62			148*		70-130		
Perfluoroheptanoic acid	20	26.3			131*		70-130		
Perfluorohexanesulfonate	18.92	23.79			126		70-130		
Perfluorohexanoic acid	20	26.97			135*		70-130		
Perfluorononanoic acid	20	23.27			116		70-130		
Perfluoro-octanesulfonate	19.12	23.79			124		70-130		
Perfluorooctanoic acid	20	23.69			118		70-130		
Perfluorotetradecanoic acid	20	51.36			257*		70-130		
Perfluorotridecanoic acid	20	34.3			172*		70-130		
Perfluoroundecanoic acid	20	33.01			165*		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16172001	Sample number(s): 8427012-8427013,8427027-8427028,8427033								
Perfluorooctanoic acid	200	189.69	200	182.7	95	91	70-130	4	30
Perfluorononanoic acid	200	195.42	200	211.39	98	106	70-130	8	30
Perfluorodecanoic acid	200	187.49	200	212.82	94	106	70-130	13	30
Perfluoroundecanoic acid	200	209.31	200	201.1	105	101	70-130	4	30
Perfluorododecanoic acid	200	216.26	200	194.7	108	97	70-130	10	30
Perfluorotridecanoic acid	200	188.15	200	181.79	94	91	70-130	3	30
Perfluorotetradecanoic acid	200	181.46	200	171.69	91	86	70-130	6	30
Perfluorohexanoic acid	200	208.47	200	214.01	104	107	70-130	3	30
Perfluoroheptanoic acid	200	184.47	200	174.02	92	87	70-130	6	30
Perfluorobutanesulfonate	176.8	205.19	176.8	198.72	116	112	70-130	3	30
Perfluorohexanesulfonate	189.2	159.21	189.2	142.98	84	76	70-130	11	30
Perfluoro-octanesulfonate	191.2	220.06	191.2	221.04	115	116	70-130	0	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16176113031A	Sample number(s): 8427024-8427026,8427029-8427032,8427034-8427036								
TOC	5430	4136.07			76		22-139		
Batch number: 16176298731A	Sample number(s): 8427014,8427017-8427019,8427021-8427023								
TOC	5430	4499.45			83		47-143		
	%	%	%	%					
Batch number: 16173820009A	Sample number(s): 8427014-8427025								
Moisture	89.5	89.48			100		99-101		
Moisture	89.5	89.48			100		99-101		
Moisture Duplicate	89.5	89.48			100		99-101		
Batch number: 16173820009B	Sample number(s): 8427026,8427029-8427032,8427034-8427035								
Moisture	89.5	89.48			100		99-101		
Batch number: 16174820010A	Sample number(s): 8427036								
Moisture	89.5	89.47			100		99-101		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/06/2017 16:46

Group Number: 1672230

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16181004	Sample number(s): 8427014-8427026,8427029-8427032,8427034-8427036 UNSPK: 8427014										
Perfluorobutanesulfonate	0.47	U	17.8	17.05	17.8	16.47	96	93	70-130	3	30
Perfluorodecanoic acid	1.44		20	30.49	20	27.29	145*	129	70-130	11	30
Perfluorododecanoic acid	0.503		20	29.27	20	30.48	144*	150*	70-130	4	30
Perfluoroheptanoic acid	0.28	U	20	27.28	20	26.28	136*	131*	70-130	4	30
Perfluorohexanesulfonate	0.47	U	18.92	25.23	18.92	23.61	133*	125	70-130	7	30
Perfluorohexanoic acid	0.220		20	27.28	20	24.84	135*	123	70-130	9	30
Perfluorononanoic acid	0.935		20	26.02	20	25.63	125	123	70-130	2	30
Perfluoro-octanesulfonate	0.786		19.12	24.01	19.12	23.16	121	117	70-130	4	30
Perfluorooctanoic acid	3.04		20	26.64	20	25.24	118	111	70-130	5	30
Perfluorotetradecanoic acid	0.321		20	26.45	20	28.16	131*	139*	70-130	6	30
Perfluorotridecanoic acid	0.57	U	20	28.39	20	30.01	142*	150*	70-130	6	30
Perfluoroundecanoic acid	0.613		20	31.19	20	29.15	153*	143*	70-130	7	30
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 16172001	Sample number(s): 8427012-8427013,8427027-8427028,8427033 UNSPK: 8427012										
Perfluorooctanoic acid	1.54		200	207.84			103		70-130		
Perfluorononanoic acid	1	U	200	201.27			101		70-130		
Perfluorodecanoic acid	1	U	200	198.88			99		70-130		
Perfluoroundecanoic acid	2	U	200	187.55			94		70-130		
Perfluorododecanoic acid	3	U	200	237.24			119		70-130		
Perfluorotridecanoic acid	2	U	200	120.97			60*		70-130		
Perfluorotetradecanoic acid	3	U	200	89.3			45*		70-130		
Perfluorohexanoic acid	1	U	200	203.76			102		70-130		
Perfluoroheptanoic acid	1.01		200	179.31			89		70-130		
Perfluorobutanesulfonate	4	U	176.8	79.42			45*		70-130		
Perfluorohexanesulfonate	7.81		189.2	177.92			90		70-130		
Perfluoro-octanesulfonate	5	U	191.2	282.44			148*		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16176113031A	Sample number(s): 8427024-8427026,8427029-8427032,8427034-8427036 UNSPK: 8427030										
TOC	6482.33		48000	54208			99		47-143		
Batch number: 16176298731A	Sample number(s): 8427014,8427017-8427019,8427021-8427023 UNSPK: 8427014										
TOC	25708.53		34770	51552.72			74		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/06/2017 16:46

Group Number: 1672230

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16176113031A	Sample number(s): 8427024-8427026,8427029-8427032,8427034-8427036 BKG: 8427030			
TOC	6482.33	6381.28	2	7
Batch number: 16176298731A	Sample number(s): 8427014,8427017-8427019,8427021-8427023 BKG: 8427014			
TOC	25708.53	20954.71	20*	7
	%	%		
Batch number: 16173820009A	Sample number(s): 8427014-8427025 BKG: 8427014, P427014			
Moisture	26.53	25.58	4	5
Moisture	26.53	25.58	4	5
Moisture Duplicate	26.53	25.58	4	5
Batch number: 16173820009B	Sample number(s): 8427026,8427029-8427032,8427034-8427035 BKG: 8427035			
Moisture	10.42	10.1	3	5
Batch number: 16174820010A	Sample number(s): 8427036 BKG: P435825			
Moisture	15.17	10.91	33*	5

JLT

batch QC on sample not associated with project — not evaluated

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SGP93
Matrix: SOLID

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

UNSPK: 8427030 MS: 8427030	Batch: **16176113031A** (Sample number(s): 8427024-8427026, 8427029-8427032, 8427034-8427036)									
Parameter	**ME**	**Spike Added mg/kg**	**Unspiked Conc mg/kg**	**MS Conc mg/kg**	**MSD Conc mg/kg**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	48000	6482.33	54208.	NA	99	NA	47-143	NA	NA

UNSPK: 8427014 MS: 8427014	Batch: **16176298731A** (Sample number(s): 8427014, 8427017-8427019, 8427021-8427023)									
Parameter	**ME**	**Spike Added mg/kg**	**Unspiked Conc mg/kg**	**MS Conc mg/kg**	**MSD Conc mg/kg**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	34770	25708.53	51552.72	NA	74	NA	47-143	NA	NA

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Duplicate

SDG: SGP93
Matrix: SOLID

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

BKG: 8427030 DUP: 8427030	Batch: **16176113031A** (Sample number(s): 8427024-8427026, 8427029-8427032, 8427034-8427036)				
Parameter	**ME**	**Unspiked Conc mg/kg**	**DUP Conc mg/kg**	**%RPD**	**%RPD Limits**
TOC	TOC	6482.33	6381.28	2	7

BKG: 8427014 DUP: 8427014	Batch: **16176298731A** (Sample number(s): 8427014, 8427017-8427019, 8427021-8427023)				
Parameter	**ME**	**Unspiked Conc mg/kg**	**DUP Conc mg/kg**	**%RPD**	**%RPD Limits**
TOC	TOC	25708.53	20954.71	20*	7

J/UJ

Comments:
(1) The sample and/or duplicate result is less than five times the LOQ.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP93
Matrix: SOLID

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

LCS: 16176QQ	Batch: **16176113031A** (Sample number(s): 8427024-8427026, 8427029-8427032, 8427034-8427036)								
Parameter	**ME**	**Spike Added mg/kg**	**LCS Conc mg/kg**	**LCSD Conc mg/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	5430	4136.07	NA	76	NA	22-139	NA	NA

LCS: 161761QQ	Batch: **16176298731A** (Sample number(s): 8427014, 8427017-8427019, 8427021-8427023)								
Parameter	**ME**	**Spike Added mg/kg**	**LCS Conc mg/kg**	**LCSD Conc mg/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	5430	4499.45	NA	83	NA	47-143	NA	NA

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Quality Control Summary
Method Blank
Instrumental Water Quality
SDG: SGP93
Matrix: SOLID

Fraction: Instrumental Wet Chemistry

16176113031A / 16176BB Parameter	ME	Analysis Date	Blank Results	Units	MDL	LOQ
TOC	TOC	06/24/16	N.D.	mg/kg	100	300

16176298731A / 161761BB Parameter	ME	Analysis Date	Blank Results	Units	MDL	LOQ
TOC	TOC	06/24/16	N.D.	mg/kg	100	300

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LOQ/MDL Summary
Instrumental Water Quality

SDG: SGP93

Fraction: Instrumental Wet Chemistry

02079: TOC Analyte Name	Default MDL	Default LOQ	Units
TOC	100	300	mg/kg

#0001 08:54:36 TC STD#03 003.000 mgC 0012549 cts

CALIBRATION RESULTS:
STD TYPE = TC
STD#1 = 00.300 mgC 1 reps Avg Area = 2330.0 cts %rsd = 0.00
STD#2 = 00.900 mgC 1 reps Avg Area = 4675.0 cts %rsd = 0.00
STD#3 = 03.000 mgC 1 reps Avg Area = 12549.0 cts %rsd = 0.00
STD#4 = 06.000 mgC 1 reps Avg Area = 24635.0 cts %rsd = 0.00
RF = 257.946 ugC/k-cts
R2 = 0.9997
OFFSET = 1161 cts (-0.300 mgC)

OI Analytical
TOC Solids V3.0
Analysis Date: Wed Jun 22 08:55:04 2016

#0001 09:03:13 TC STD#04 006.000 mgC 0022903 cts

CALIBRATION RESULTS:
STD TYPE = TC
STD#1 = 00.300 mgC 1 reps Avg Area = 2330.0 cts %rsd = 0.00
STD#2 = 00.900 mgC 1 reps Avg Area = 4675.0 cts %rsd = 0.00
STD#3 = 03.000 mgC 1 reps Avg Area = 12549.0 cts %rsd = 0.00
STD#4 = 06.000 mgC 1 reps Avg Area = 22903.0 cts %rsd = 0.00
RF = 273.104 ugC/k-cts
R2 = 0.9993
OFFSET = 1277 cts (-0.349 mgC)

OI Analytical
TOC Solids V3.0
Analysis Date: Wed Jun 22 09:03:37 2016

#0001 09:18:52 TC SPL#01 3.000 mg 0011911 cts 002.904 mgC 96.80 %C

OI Analytical
TOC Solids V3.0
Analysis Date: Wed Jun 22 09:19:58 2016

#0001 09:27:44 TC SPL#01 0.000 mg 0000269 cts -000.275 mgC 0.00 %C

Sandra J. Miller
Chemist

JUN 23 2016

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 6-22-16

Instrument #: 76837

R^2: 0.9993 r=0.9996

Analyst: CWZ97

Sucrose Soln Lot #: 012015 E: 1-20-18

Run #: 1 6 1 7 4 1 CAL

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	TEST	2.620	0.2mL				7:52				
2	CAL0	~~03 007~~ -.302	0.0				8:02		Blank		
3	CAL1	2330 cts	1 µL				8:19		0.3 STD		
4	CAL2	4675 cts	3 µL				8:41		0.9 STD		
5	CAL3	12549 cts	10 µL				8:54		3.0 STD		
6	CAL4	22903 cts	20 µL				9:03		6.0 STD		
7	ICV	2.904	10 µL	IS			9:18	97%	3.0		
8	ICB	-0.275	0.0				9:27				

Verified by: BM 6/23

Date: 6/23/16

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 6-24-16 — Instrument #: 76837

R^2: 0.9993 r=0.9996 — Analyst: CW298

Sucrose Soln Lot #: 012015 E: 1-20-18

Run #: 1 6 1 7 6 1

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	CCV	3.219	10µL	(IS)			8:20		107%		
2	CCB	-0.349	0.0				8:28				
3	LCSS	0.818	181.8	4499.4	5.50	1650	9:08	160176298731A	FV=5130 %rec=83		
4	PBS	-0.303	0.0	0.0	1	300	9:32				
5	8427014-4	3.828	148.9	25708.5	6.72	2016	9:47				
6	8427014-2	4.449	86.3	515527	11.59	3477	10:04		SA=34470 %rec=74		
7	8427014-1	3.424	163.4	20954.7	6.12	1836	10:50				
8	8423436	-0.098	109.8	0	9.11	2731	11:17		Repres higher		
9	8423437	-0.292	108.9	0	9.18	2751	11:27		Repres higher		
10	8423438	-0.311	112.2	0	8.91	2673	12:01		Repres higher		
11	~~8427017~~ ~~8427018~~ 8427017	3.077	218.7	140609.5	4.57	1371	12:27				
12	8427018	2.491	182.6	13641.8	5.48	1644	13:05				
13	CCV	3.165	10µL	(IS)			13:29		106%		
14	CCB	-0.349	0.0				13:45				

CW 6/27/16 0-2446

SGP93 Page 579 of 617

Verified by: SM 3-47 — Date: 6/27/16

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 6-24-16

Instrument #: 76857

R^2: 0.9993 ≥0.9996

Analyst: CW2987 / SM1347

Sucrose Soln Lot #: 012015 Exp 1-20-18

Run #: 1 6 1 7 6 1 — 1 7 — — — — (3) CW 2987 6-24-16

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
15	8427019	1.965	165.1	11901.9	6.06	1818	14:01	16176298731A			
16	8427021	0.701	216.1	3243.9	4.63	1389	14:47				
17	8427022	0.725	215.3	~~3097.09~~ 3381 (3) SM 6/24/16	4.64	1392	14:57				
18	8427023	-0.291	235.0	0	4.26	1276	15:05		Repeat higher		
19	CCV	3.122	10mL			(FS)	15:22		104%		
20	CCB	-0.349	0.0				15:30				
21	8423436	3.639	743.7	~~3644.55~~ 4893.1	~~1.34~~ 1.00 (3) SM 6.24.16	402	1908	16176298731A			
22	8423437	-.274	999.3	0	1.00	300	1921				
23	8423438	.866	998.7	867.13	1.00	300	1934				
24	8427023	-.242	998.0	0	1.00	300	1948				SGP93
25	CCV 3.0	3.035	0.2 mL	(FS)			2000		101%		
26	CCB	-.349	0.0	↓			2008				

SGP93 Page 580 of 617

Verified by: SM1347 Date: 6/27/16

OI Corporation TOC Reporter 06-21-2016 04:35 PM

Instrument ID: E724730166 Wet - Chemistry

User ID:toc	Name:Total Organic Carbon
Title:Mr	Dept:OIC-TOC

Run# 161732

Calibration - Quick View -TC

Revision: 5-SOLIDS 9-17-2015 - Sep 17, 2015; 02-08-08 AM
Modified By: toc
Date Created: 2015/09/17; 02:11 AM
Last Modified: 2015/09/21; 09:12 PM
Last Calibrated: 2016/06/21; 12:17 PM

RF(mgC/k-cnt): 0.0141 ✓
R2: 0.9935
Reagent Blank(cts): 0
Offset Area(cts): 23,393
Offset Mass(mgC): -0.33 /

Std #	Mass (mgC)	Volume (mL)	# Reps	Area	Std. Dev	%RSD	Date Analysed
RW	0.000	0.000	0	0	0	0.00	2015-09-21; 11:00AM
1	0.300	8.000	1	26,706	0	0.00	2016-06-21; 11:35AM
2	0.900	8.000	1	104,307	0	0.00	2016-06-21; 11:44AM
3	3.000	8.000	1	241,093	0	0.00	2016-06-21; 11:54AM
4	6.000	8.000	1	444,561	0	0.00	2016-06-21; 12:17PM

Sandra J. Miller
Chemist

JUN 23 2016

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 6/21/16

Instrument #: 15610

R^2: 0.9935 R= 0.997

Analyst: MM 1120

Sucrose Soln Lot #: 012015 exp. 1/20/18

Run #: 161732

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	Blank	0.00	0.00				1100				
2	0.3 Std	26,706cts	1.0 ml				1135				
3	0.9 Std	104,307cts	3.0 ml				1144				
4	3.0 Std.	241,090cts	10.0 ml				1154				
5	6.0 Std.	444,901cts	20.0 ml				1217				
6	ICV	2.955	10.0 ml	(15)			1229		99%		
7	ICB	0.00	0.00				1237				

Verified by: SM 1347 Date: 6/23/16

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 6/24/16

Instrument #: 15610

R^2: 0.9935 0.997

Analyst: [signature]

1617761 (2) [signature] 6/24/16

Sucrose Soln Lot #: 012015 exp: 1/20/18

Run #: 1 6 1 6 7 1

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	CCV	2.747	3.0	(15)			1210		92%		
2	CCB	0.00	0.0				1219				
3	PDS	0.00	0.0	0.00	1.00	300	1227	161761130314			
4	LCSS	0.845	204.3	4136.1	4.895	1470	1236		TN-5430		
5	8427024	6.053	243.6	OR	4.11		1245				SGP93
6	8427025	11.774	161.0	OR	6.21		1255				
7	8427026	1.761	144.7	12170.0	6.91	2073	1314				
8	8427029	5.524	267.2	20675.7	3.74	1122	1328				
9	8427030-A	0.154	155.7	989.1	6.42	1926	1336				
10	8427030-D	1.237	184.4		5.36		1345				
11	8427030-L	3.388	62.5	54208.	16.00	4800	1353		SA=48000 99%		
12	8427031	1.403	185.5	7563.3	5.39	1617	1402				
13	CCV	2.886	3.0	(15)			1410		96%		
14	CCB	0.00	0.0				1420				

Verified by: SM 3/7

Date: 6/27/14

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 6/24/16 Instrument #: 152610

R^2: 0.9955 0.997 Analyst: Nalin

Sucrose Soln Lot #: 012015 exp: 1/20/18

Run #: 161761

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
15	842702	1.451	176.8	8207.0	5.66	1698	1428	160611302A			SGP93
16	842703	0.217	223.4	971.4	4.48	1344	1437				
17	842703	3.243	185.5	17482.5	5.39	1617	1445				
18	842703	7.191	479.1	OR	—	—	1459				
19	842908-1	7.948	125.5	OR	—	—	1507	160611302B			KJM74
20	842908-D	0.600	132.3	OR	—	—	1516				
21	842908-M	3.871	12.2		81.9		1524				
22	842931	3.343	76.1	43929.0	13.14	3942	1533				
23	842931	0.216	111.2	OR	—	—	1541				
24	842931	4.922	96.9	50794.6	10.32	3096	1550				
25	CCV	2.946	3.0	(18)			1558		rec.=95%		
26	CCB	0.000	0.0				1608				

Verified by: SM 6/27 Date: 6/27/16

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Raw Data Notebook
Total Organic Carbon Solids Module

(3) SM 6.24.16

Date: 6.24.16

Instrument #: ~~76837~~ 15610

R^2: .9935 R=.997

Analyst: SM

Sucrose Soln Lot #: 012015 exp. 1.20.18

Run #: 161762

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	CCV 3.0	2.778	~~0.2 mL~~ 3.0	(IS)			1723		93%		
2	CCB	0.000	(3) SM 6.24.16 0.0	↓			1732				
3	8427024	1.682	209.0	8047.85	4.78	1434	1742	161761130318			SGP93
4	8427025	3.409	41.2	82742.72	24.27	7281	1751				
5	8427030-u	1.688	260.4	6482.33	3.84	1152	1801				
6	8427030-D	1.677	262.8	6381.28	3.81	1143	1810		R=2		
7	8427036	2.365	177.1	13354.04	5.63	1689	1819				
8	8429308-u	1.789	29.9	59832.78	33.44	10032	1830	161761130318			KJM74
9	-D	1.075	20.5	52439.02	48.78	14634	1840				
10	-R	3.246	10.7	303364.49	93.46	28038	1850		~~SA=280374~~ 87% (IS)		
11	8427034	1.258	998.0	1260.52	1.00	300	1902	161761130318			SGP93
12	8429315	2.509	52.2	48065.13	19.16	5748	1911	161761130318			KJM74
13	CCV 3.0	2.821	3.0	(IS)			1922		94%		
14	CCB	0.000	0.0	↓			1934				

SGP93 Page 611 of 617

Verified by: SM 6/27

Date: 6/27/16

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Combustion TOC Prep Log
Analysis #2079, #0383

Phosphoric Lot #_____

Oven ID# 1887

Oven Temperature (°C) 75

Tray #: 30 Balance ID: B352614 Time In: 0930 Time Out: 0945

Position	Date	Analyst	Sample #	Weight (mg)	Batch Number	Comments
A1	6-24-16	AW2987	LCSS	181.8	160176 2987-31A	
A2			PBS	0.0		
A3			8427014-4	148.9		
A4			8427014-R	86.3		
A5			8427014-D	163.4		
A6			8423436	109.8		reprep higher
A7			8423437	108.9		reprep higher
A8			8423438	112.2		reprep higher
B1			8427017	218.7		
B2			8427018	182.6		
B3			8427019	165.1		
B4			8427021	216.1		
B5			8427022	215.3		
B6		↓	8427023	235.0	↓	reprep higher
B7		Osmmar	8423436	743.7		
B8			8423437	999.3		
C1			8423438	998.7		
C2	↓	↓	8427023	998.0	↓	
C3						
C4						
C5						
C6						
C7						
C8						

Verified by: SM/347 Date: 6/27/16

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Combustion TOC Prep Log
Analysis #2079, #0383

Phosphoric Lot #062216 exp: 12/22/16

Oven ID# 1887

Oven Temperature (°C) 75°

Tray #: 1 Balance ID: B356014 Time In: 1130 Time Out: 1150

Position	Date	Analyst	Sample #	Weight (mg)	Batch Number	Comments
A1	6/24/16		PBS	0.00	161761130531A	
A2			LCS	204.3		
A3			8427024	243.6		
A4			8427025	161.0		
A5			8427026	144.7		
A6			8427029	267.2		
A7			8427030-U	155.7		
A8			8427030-D	186.4		
B1			8427030-R	62.5		
B2			8427031	185.5		
B3			8427032	176.8		
B4			8427034	223.4		
B5			8427035	185.5		
B6			8427036	479.1		
B7			8429308-U	125.5	161761130531B	
B8			8429308-D	132.3		
C1			8429308-R	12.2		
C2			8429313	76.1		
C3			8429315	111.2		
C4			8429317	96.9		
C5			8429319	102.3		8429328-220.8
C6			8429322	201.0	A1	8429478-208.2
C7			8429324	169.2		
C8			8429326	133.9		

Verified by: SM/347 Date: 6/27/16

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Combustion TOC Prep Log
Analysis #2079, #0383

provided upon request

Phosphoric Lot # 062216 exp: 12/22/16 16

Oven ID# 1887

Oven Temperature (°C) 75°

Tray #: 2 Balance ID: D33614 Time In: 1520 Time Out: 1535

Position	Date	Analyst	Sample #	Weight (mg)	Batch Number	Comments
A1	6/24/16	[illegible]	8427024	209.0	161761130 31A	100 -
A2			8427025	41.2		50 -
A3			8427030-U	260.4		180 -
A4			8427030-D	262.8		
A5			8427036	177.1		
A6			8429308-U	29.9	161761130331B	
A7			8429308-D	20.5		
A8			8429308-R	10.7		
B1		QSM 4.9.5	8427034	998.0	161761130 31A	
B2			8429315	52.2	161761130 31D	
B3						
B4						
B5						
B6					N/A	
B7					QSM 4.9.5	
B8						
C1					6.24.16	
C2						
C3						
C4						
C5						
C6						
C7						
C8						

Verified by: SM/347 Date: 6/27/16

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CLIENT: C. T. Male Associates
SDG: SGP93

MOISTURE

SAMPLE NUMBERS:

Sample #	Sample Code
8427014	SG371BKG
8427015	SG371MS
8427016	SG371MSD
8427017	SG372
8427018	SG373
8427019	SG374
8427020	SG3FDFD
8427021	SG375
8427022	SG351
8427023	SG352
8427024	SG353
8427025	SG354
8427026	SG355
8427029	SG361
8427030	SG362
8427031	SG363
8427032	SG364
8427034	SG376
8427035	SG377
8427036	SG378

COMMENTS:

Method defined actions are taken for any failed matrix QC.

Laboratory Compliance Quality Control

Analysis Name	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 16173820009A	Sample number(s): 8427014-8427025				
Moisture	100		99-101		
Moisture	100		99-101		
Moisture Duplicate	100		99-101		
Batch number: 16173820009B	Sample number(s): 8427026, 8427029-8427032, 8427034-8427035				
Moisture	100		99-101		
Batch number: 16174820010A	Sample number(s): 8427036				
Moisture	100		99-101		

MOISTURE

Sample Matrix Quality Control

Analysis Name	BKG Conc	DUP Conc	RPD	RPD Max
Batch number: 16173820009A	Sample number(s):		8427014-8427025	
Moisture	26.5	25.6	4	5
Moisture	26.5	25.6	4	5
Moisture Duplicate	26.5	25.6	4	5
Batch number: 16173820009B	Sample number(s):		8427026, 8427029-8427032, 8427034-8427035	
Moisture	10.4	10.1	3	5
Batch number: 16174820010A	Sample number(s):		8427036	
Moisture	15.2	10.9	33*	5

Batch

* - Outside of specification

(1) - The result for one or both determinations was less than five times the LOQ.

Moisture Data Report

Batch #: 16173820009

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
8427014BKG	A	00111	1.1255	6.6298	5.9965	26.53	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427015MS	A	00118				26.53	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427016MSD	A	00118				26.53	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427016MSD	A	00121	1.1057	6.1084	5.6516	25.58	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427017	A	00111	1.0690	7.8655	7.1245	23.01	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427018	A	00111	1.0731	6.5823	6.4479	18.34	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427019	A	00111	1.0720	7.4442	7.3116	16.18	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427020FD	A	00111	1.0908	7.5203	7.1152	19.89	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427021	A	00111	1.0772	9.3520	8.6964	18.53	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427022	A	00111	1.1169	9.6640	10.3018	4.96	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427023	A	00111	1.0913	8.1492	8.5943	7.93	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427024	A	00111	1.0731	7.6838	7.9110	11.01	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427025	A	00111	1.0929	6.5932	6.6945	15.04	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427026	B	00111	1.0941	6.8580	6.4876	21.35	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427029	B	00111	1.1053	7.9660	8.5531	6.51	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427030	B	00111	1.0931	6.8436	7.6790	3.77	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427031	B	00111	1.0962	8.1320	8.7531	5.84	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427032	B	00111	1.0924	9.2233	9.4444	9.45	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427034	B	00111	1.0806	8.3645	8.9833	5.52	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427035BKG	B	00111	1.0961	8.9316	9.0967	10.42	6/21/16 (1201/SWF)	6/22/16 (236/CW)
8427035DUP	B	00111	1.0908	8.4883	8.7215	10.10	6/21/16 (1201/SWF)	6/22/16 (236/CW)
LCS 89.5% Std.		00111	1.0933	5.0095	1.6202	89.48	6/21/16 (1201/SWF)	6/22/16 (236/CW)

Batch #: 16174820010

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
8427036	A	00111	1.0932	8.9379	8.7156	14.72	6/22/16 (1201/SWF)	6/23/16 (236/CW)
P435825BKG	A	00111	1.0882	6.2106	6.3566	15.17	6/22/16 (1201/SWF)	6/23/16 (236/CW)
P435825DUP	A	00111	1.0799	6.1509	6.5600	10.91	6/22/16 (1201/SWF)	6/23/16 (236/CW)
LCS 89.5% Std.		00111	1.0716	5.0289	1.6013	89.47	6/22/16 (1201/SWF)	6/23/16 (236/CW)

SECTION 7

LABORATORY CASE NARRATIVES AND

PROJECT CHAIN-OF-CUSTODY RECORD

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Sample Reference List for SDG Number SGP93 with a Data Package Type of I

37191 - C. T. Male Associates

Project: SGPP - Bennington

Lab Sample Number	Client Sample ID	Collection Date	Date Received
8427012	SG3-LTB-20160613	06/08/2016 00:00	06/15/2016 09:30
8427013	SG3-FTB-20160613	06/13/2016 15:10	06/15/2016 09:30
8427014	SG3-MW07-00.0	06/13/2016 14:30	06/15/2016 09:30
8427015	SG3-MW07-00.0 MS	06/13/2016 14:30	06/15/2016 09:30
8427016	SG3-MW07-00.0 MSD	06/13/2016 14:30	06/15/2016 09:30
8427017	SG3-MW07-00.5	06/13/2016 14:40	06/15/2016 09:30
8427018	SG3-MW07-01.0	06/13/2016 14:50	06/15/2016 09:30
8427019	SG3-MW07-01.5	06/13/2016 14:55	06/15/2016 09:30
8427020	SG3-FD01-20160613	06/13/2016 00:00	06/15/2016 09:30
8427021	SG3-MW07-02.5	06/14/2016 08:00	06/15/2016 09:30
8427022	SG3-MW05-00.0	06/14/2016 08:30	06/15/2016 09:30
8427023	SG3-MW05-00.5	06/14/2016 08:33	06/15/2016 09:30
8427024	SG3-MW05-01.0	06/14/2016 08:41	06/15/2016 09:30
8427025	SG3-MW05-01.5	06/14/2016 08:46	06/15/2016 09:30
8427026	SG3-MW05-03.0	06/14/2016 09:03	06/15/2016 09:30
8427027	SG3-RB01-20160614	06/14/2016 10:00	06/15/2016 09:30
8427028	SG3-RB02-20160614	06/14/2016 10:05	06/15/2016 09:30
8427029	SG3-MW06-00.0	06/14/2016 10:17	06/15/2016 09:30
8427030	SG3-MW06-00.5	06/14/2016 10:22	06/15/2016 09:30
8427031	SG3-MW06-01.0	06/14/2016 10:30	06/15/2016 09:30
8427032	SG3-MW06-01.5	06/14/2016 10:50	06/15/2016 09:30
8427033	SG3-RB03-20160614	06/14/2016 11:00	06/15/2016 09:30
8427034	SG3-MW07-09.5	06/14/2016 12:20	06/15/2016 09:30
8427035	SG3-MW07-12.0	06/14/2016 12:23	06/15/2016 09:30
8427036	SG3-MW07-22.0	06/14/2016 12:30	06/15/2016 09:30

Project Name: SGPP - Bennington
LL Group #: 1672230

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8427015, 8427016, 8427017, 8427018, 8427019, 8427020, 8427021, 8427022, 8427029, 8427030, 8427036

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

Sample #s: 8427026

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 0.3 ng/g. PFOA was detected in the re-extraction of the sample at 4 ng/g.

Sample #s: 8427025

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 0.5 ng/g. PFOA was detected in the re-extraction of the sample at 5 ng/g.

Sample #s: 8427024

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 4 ng/g. PFOA was detected in the re-extraction of the sample at 0.4 ng/g.

Sample #s: 8427031, 8427032

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 4 ng/g. PFOA was not detected in the re-extraction of the sample.

Sample #s: 8427023

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 5 ng/g. PFOA was not detected in the re-extraction of the sample.

Sample #s: 8427014

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included
inthe data package.
In the initial extraction of this sample, the result for PFOA was detected at 30
ng/g. PFOA was detected in the re-extraction of the sample at 3 ng/g.

Sample #s: 8427034, 8427035

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included
inthe data package.
In the initial extraction of this sample, the result for PFOA was not detected.
PFOA was detected in the re-extraction of the sample at 3 ng/g.

Batch #: 16172001 (Sample number(s): 8427012-8427013, 8427027-8427028, 8427033 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluorobutanesulfonate, Perfluoro-octanesulfonate

Batch #: 16181004 (Sample number(s): 8427014-8427026, 8427029-8427032, 8427034-8427036 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid, Perfluoroundecanoic acid, Perfluorododecanoic acid, Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluoroheptanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluoroundecanoic acid, Perfluorododecanoic acid, Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluoroheptanoic acid, Perfluorodecanoic acid, Perfluorohexanoic acid, Perfluorohexanesulfonate

SM 5310 B modified-2000, Wet Chemistry

Batch #: 16176298731A (Sample number(s): 8427014, 8427017-8427019, 8427021-8427023 UNSPK: 8427014 BKG: 8427014)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16174820010A (Sample number(s): 8427036 BKG: P435825)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP93

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8427012	SG3-LTB-20160613	X		1	Trip Blank
8427013	SG3-FTB-20160613	X		1	Field Blank
8427014	SG3-MW07-00.0		X	1	Unspiked
8427015	SG3-MW07-00.0 MS		X	1	Matrix Spike
8427016	SG3-MW07-00.0 MSD		X	1	Matrix Spike Duplicate
8427017	SG3-MW07-00.5		X	1	
8427018	SG3-MW07-01.0		X	1	
8427019	SG3-MW07-01.5		X	1	
8427020	SG3-FD01-20160613		X	1	Field Duplicate Sample
8427021	SG3-MW07-02.5		X	1	
8427022	SG3-MW05-00.0		X	1	
8427023	SG3-MW05-00.5		X	1	
8427024	SG3-MW05-01.0		X	1	
8427025	SG3-MW05-01.5		X	1	
8427026	SG3-MW05-03.0		X	1	
8427027	SG3-RB01-20160614	X		1	Material Rinse Blank
8427028	SG3-RB02-20160614	X		1	Material Rinse Blank
8427029	SG3-MW06-00.0		X	1	
8427030	SG3-MW06-00.5		X	1	
8427031	SG3-MW06-01.0		X	1	
8427032	SG3-MW06-01.5		X	1	
8427033	SG3-RB03-20160614	X		1	Material Rinse Blank
8427034	SG3-MW07-09.5		X	1	
8427035	SG3-MW07-12.0		X	1	
8427036	SG3-MW07-22.0		X	1	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP93

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

CALIBRATION/STANDARDIZATION:

(Sample number(s): 8427012: Analysis: 10954)
The recoveries for perfluorobutanesulfonate (PFBS) and perfluoro-octanesulfonate (PFOS) were outside of QC acceptance limits in the ending continuing calibration verification standard (CCV) associated with this sample. Since the recoveries are high, indicating increased sensitivity, and PFBS and PFOS were not detected, the data is reported.

The internal standard response for perfluoroheptanoic acid (PFHpA) in the continuing calibration standards (CCVs) was less than 50% of the average area measured during the initial calibration.

(Sample number(s): 8427013, 8427027-8427028, 8427033: Analysis: 10954)
The internal standard response for perfluoroheptanoic acid (PFHpA) in the continuing calibration standards (CCVs) was less than 50% of the average area measured during the initial calibration.

(Sample number(s): 8427014-8427026, 8427029-8427032, 8427034-8427036: Analysis: 14027)
The response for perfluorobutanesulfonate (PFBS) in the opening calibration verification (CCV) standard was outside QC acceptance limits at 39.5%. Since the response is high, indicating increased sensitivity, any results should be considred biased low.

The response for perfluorobutanesulfonate (PFBS) in the closing calibration verification (CCV) standard was outside QC acceptance limits at 32.8%. Since the response is high, indicating increased sensitivity, any results should be considred biased low.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Method Blank

(Sample number(s): 8427012-8427013, 8427027-8427028, 8427033: Analysis: 10954)
The internal standard response for perfluoroheptanoic acid (PFHpA) in the method blank associated with this sample was less than 50% of the average area measured during the initial calibration.

(Sample number(s): 8427014-8427026, 8427029-8427032, 8427034-8427036: Analysis: 14027)
The internal standard responses for several compounds in the method blank and LCS were less than 50% of the average area measured during the initial calibration. Since the response is low, any result should be considered biased high.

LCS/LCSD

(Sample number(s): 8427012-8427013, 8427027-8427028, 8427033: Analysis: 10954)
The internal standard response for perfluoroheptanoic acid (PFHpA) in this sample was less than 50% of the average area measured during the initial calibration. The recovery

Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP93

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

of PFHpA in the LCS/LCSD was within QC acceptance criteria therefore the data is reported.

(Sample number(s): 8427014: Analysis: 14027)
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was detected at 30 ng/g. PFOA was detected in the re-extraction of the sample at 3 ng/g.

(Sample number(s): 8427015-8427022, 8427029-8427030, 8427036: Analysis: 14027)
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.

(Sample number(s): 8427023: Analysis: 14027)
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 5 ng/g. PFOA was not detected in the re-extraction of the sample.

(Sample number(s): 8427024: Analysis: 14027)
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 4 ng/g. PFOA was detected in the re-extraction of the sample at 0.4 ng/g.

(Sample number(s): 8427025: Analysis: 14027)
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 0.5 ng/g. PFOA was detected in the re-extraction of the sample at 5 ng/g.

Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP93

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

(Sample number(s): 8427026: Analysis: 14027)
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 0.3 ng/g. PFOA was detected in the re-extraction of the sample at 4 ng/g.

(Sample number(s): 8427031-8427032: Analysis: 14027)
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was 4 ng/g. PFOA was not detected in the re-extraction of the sample.

(Sample number(s): 8427034-8427035: Analysis: 14027)
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The samples were re-extracted outside of the required holding time. Both sets of data are included inthe data package.
In the initial extraction of this sample, the result for PFOA was not detected. PFOA was detected in the re-extraction of the sample at 3 ng/g.

Batch#: 16181004 (Sample number(s): 8427014-8427026, 8427029-8427032, 8427034-8427036, UNSPK: 8427014)
The recovery(ies) for the following analyte(s) in the LCS exceeds the acceptance window indicating a positive bias: Perfluorodecanoic acid, Perfluorododecanoic acid, Perfluoroheptanoic acid, Perfluorohexanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid, Perfluoroundecanoic acid

MS/MSD

Please note that US EPA Methods for organic compounds do not require action by the laboratory based on out-of-specification MS/MSD results.

Batch#: 16172001 (Sample number(s): 8427012-8427013, 8427027-8427028, 8427033, UNSPK: 8427012)
The recovery(ies) for the following analyte(s) in the MS is outside the acceptance window: Perfluorobutanesulfonate, Perfluoro-octanesulfonate, Perfluorotetradecanoic acid, Perfluorotridecanoic acid

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP93

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

Batch#: 16181004 (Sample number(s): 8427014-8427026, 8427029-8427032, 8427034-8427036, UNSPK: 8427014)
The recovery(ies) for the following analyte(s) in the MS is outside the acceptance window: Perfluorodecanoic acid, Perfluorohexanesulfonate, Perfluorohexanoic acid

The recovery(ies) for the following analyte(s) in the MS and MSD is outside the acceptance window: Perfluorododecanoic acid, Perfluoroheptanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid, Perfluoroundecanoic acid
Refer to the QC Summary forms for more information.

SAMPLE ANALYSIS:

(Sample number(s): 8427013: Analysis: 10954)
The internal standard response for perfluoroheptanoic acid (PFHpA) in this sample was less than 50% of the average area measured during the initial calibration.

(Sample number(s): 8427018, 8427025, 8427029, 8427032, 8427035: Analysis: 14027)
The internal standard responses for several compounds in this sample were greater than 50% of the average area measured during the initial calibration. Since the response is high, any result should be considered biased low.

(Sample number(s): 8427020: Analysis: 14027)
The internal standard response for PFHpA in this sample was greater than 50% of the average area measured during the initial calibration. Since the response is high, any result should be considered biased low.

(Sample number(s): 8427028: Analysis: 10954)
The internal standard response for perfluorohexanoic acid (PFHxA) in this sample was less than 50% of the average area measured during the initial calibration. The result for PFHxA should be considered biased high.

The internal standard response for perfluoroheptanoic acid (PFHpA) in this sample was less than 50% of the average area measured during the initial calibration. The result for PFHpA should be considered biased high.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP93

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP93

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8427014	SG3-MW07-00.0		X	1	
8427017	SG3-MW07-00.5		X	1	
8427018	SG3-MW07-01.0		X	1	
8427019	SG3-MW07-01.5		X	1	
8427021	SG3-MW07-02.5		X	1	
8427022	SG3-MW05-00.0		X	1	
8427023	SG3-MW05-00.5		X	1	
8427024	SG3-MW05-01.0		X	1	
8427025	SG3-MW05-01.5		X	1	
8427026	SG3-MW05-03.0		X	1	
8427029	SG3-MW06-00.0		X	1	
8427030	SG3-MW06-00.5		X	1	
8427031	SG3-MW06-01.0		X	1	
8427032	SG3-MW06-01.5		X	1	
8427034	SG3-MW07-09.5		X	1	
8427035	SG3-MW07-12.0		X	1	
8427036	SG3-MW07-22.0		X	1	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP93

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Sample Duplicate

Method defined actions are taken for any failed matrix QC.

Batch#: 16176298731A (Sample number(s): 8427014, 8427017-8427019, 8427021-8427023, UNSPK: 8427014, BKG: 8427014)
The duplicate RPD for the following analyte(s) is outside the acceptance window: TOC

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

Abbreviation Key

U = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
R = Matrix Spike (MS)	MDL = Method Detection Limit
M = Matrix Spike Duplicate (MSD)	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	NA = Not Applicable
HS = High Spike	ME = Method
LS = Low Spike	CO = Colorimetric
SS = Soluble Spike	G = Gravimetric
IS = Insoluble Spike	IR = Infrared Spectrophotometry
ISD = Insoluble Spike Duplicate	MTR = Meter
PDS = Post Digestion Spike	OD = Oven Dried
* = Out of Specification	TI = Titration
V = Visual	TOC = Total Organic Carbon
AK = Alpkem	IC = Ion Chromatography
TC = Total Carbon	RA = Rapid Analyzer

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1672230 Sample #: 8427012-36 COC#: 14770

Client:	C.T. Male Associates
Project Name/#:	SGPP - Bennington
Site ID:	
Project Manager:	Kirk Moline
P.O. #:	16.6131
Sampler:	Jonathan Dippert
Phone #:	518-786-7400
Quote #:	214135
State where sample(s) were collected:	VT

For Lab Use Only: SF#: 271157 SCR#: 189860

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Matrix: Sediment; Soil [X]; Water (Ground / Surface / Potable / NPDES); Other: Blank Water

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other: Blank Water	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-LTB-20160613	6/13/16	—					X	1		X		
SG3-FTB-20160613	6/13/16	1510	X				X	1		X		
SG3-MW07-00.0	↓	1430	X		X			3		X		MS/MSD
SG3-MW07-00.5	↓	1440	X		X			1		X		
SG3-MW07-01.0	↓	1450	X		X			1		X		
SG3-MW07-01.5	↓	1455	X		X			1		X		
SG3-FD01-20160613	6/13/16	—	X		X			1		X		
SG3-MW07-02.5	6/14/16	0800	X		X			1		X		
SG3-MW05-00.0	↓	0830	X		X			1		X		
SG3-MW05-00.5	↓	0833	X		X			1		X		

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	[ ]	MA MCP	[ ]	TX TRRP - 13	[ ]
Type III (Reduced non-CLP)	[ ]	CT RCP	[ ]		
Type IV (CLP SOW)	[ ]	ASP Type A	[ ]		
Type VI (Raw Data Only)	[ ]	ASP Type B	[✓]		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	6/14/16	1800			
			[signature]	6.15.16	930

Airbill No.:
Relinquished by Commercial Carrier: UPS ___ FedEx X Other ___

Temperature upon receipt 2.1 °C

eurofins Lancaster Laboratories

Environmental Services Analysis Request/Chain of Custody

Page 2 of 3

Acct. #: 37191 Group #: 1672230 Sample #: 8427012-36 COC#: 14770

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Jonathan Dippet	
Phone #: 518 786 7400	Quote #: 214135
State where sample(s) were collected: VT	

For Lab Use Only: SF#: 271157 SCR#: 189860

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil/Sediment	Water (Potable/NPDES, Ground/Surface)	Other: Blank Water	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.) (O)	TOC (5310 B)	Remarks
SG3-MW05-01.0	6/14/16	0841	X		X			1		X		
SG3-MW05-01.5	↓	0846	X		X			1		X		
SG3-MW05-03.0		0903	X		X			1		X		
SG3-RB01-20160614		1000	X		~~X~~	~~X~~	X	1		X		
SG3-RB02-20160614		1005	X			~~X~~	X	1		X		
SG3-MW06-00.0		1017	X		X			1		X		
SG3-MW06-00.5		1022	X		X			1		X		
SG3-MW06-01.0		1030	X		X			1		X		
SG3-MW06-01.5		1050	X		X			1		X		
SG3-RB03-20160614	↓	1100	X				X	1		X		

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@ctmale.com

Relinquished by	Date	Time	Received by	Date	Time
[signature]	6/14/16	1800			
			[signature]	6-15-16	930

Data Package Options (please check if required)

- Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐
- Type III (Reduced non-CLP) ☐ CT RCP ☐
- Type IV (CLP SOW) ☐ ASP Type A ☐
- Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Airbill No.:
Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 2.1 °C

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Environmental Services Analysis Request/Chain of Custody

Page 3 of 3

Acct. #: 37191 Group #: 1672230 Sample #: 8427012-36 COC#: 14770

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Jonathan Dippert	
Phone #: 518 786 7400	Quote #: 214135
State where sample(s) were collected: VT	

Matrix: Sediment ☐ / Soil ☒; Water: Ground ☐ Surface ☐ Potable ☐ NPDES ☐; Other: Blank Water

Analyses Requested / Preservation Codes

For Lab Use Only: SF#: 271157 SCR#: 189860

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other: Blank Water	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.) (O)	TOC (5310 B)								Remarks
SG3-MW07-09.5	6/14/16	1220	X		X					X									
SG3-MW07-12.0	↓	1223	X		X					X									
SG3-MW07-22.0	↓	1230	X		X					X									

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: kmoline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☑		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	6/14/16	1800			
			[signature]	6-15-16	930

Airbill No.:

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ ____ Other ____

Temperature upon receipt 2.1 °C

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1672230 Sample #: 8427912-36 COC#: 14770

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: 16.6131

Sampler: Jonathan Diggert

Phone #: 518-786-7400 Quote #: 214135

State where sample(s) were collected: VT

For Lab Use Only: SF#: 271157 SCR#: 189860

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Matrix: Soil [X] Sediment; Water: Ground, Surface, Potable, NPDES; Other

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW07-00.0	6/13/16	1430	X		X			1	X		X	
SG3-MW07-00.5	↓	1440	X		X			1	X		X	
SG3-MW07-01.0	↓	1450	X		X			1	X		X	
SG3-MW07-01.5	6/13/16	1455	X		X			1	X		X	
SG3-MW07-02.5	6/14/16	0800	X		X			1	X		X	
SG3-MW05-00.0	↓	0830	X		X			1	X		X	
SG3-MW05-00.5	↓	0833	X		X			1	X		X	
SG3-MW05-01.0	↓	0841	X		X			1	X		X	
SG3-MW05-01.5	↓	0846	X		X			1	X		X	
SG3-MW05-03.0	6/14/16	0903	X		X			1	X		X	

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) [ ]	MA MCP [ ]	TX TRRP - 13 [ ]
Type III (Reduced non-CLP) [ ]	CT RCP [ ]	
Type IV (CLP SOW) [ ]	ASP Type A [ ]	
Type VI (Raw Data Only) [ ]	ASP Type B [✓]	

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by	Date	Time	Received by	Date	Time
[signature]	6/8/16	1421	[signature]	6/13/16	0730
[signature]	6/14/16	1800			
			[signature]	6-15-16	930

Airbill No.:

Relinquished by Commercial Carrier: UPS ____ FedEx X ____ Other ____

Temperature upon receipt 1.9 °C

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1672230 Sample #: 8427012-36 COC#: 14770

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: 16.6131

Sampler: Jonathan Dippert

Phone #: 518 786 7400 Quote #: 214135

State where sample(s) were collected: VT

Matrix: Sediment ☐ Ground ☐ Surface ☐ Potable ☐ NPDES ☐ Soil ☒ Water Other:

For Lab Use Only: SF#: 271157 SCR#: 189860

Preservation Codes: H = HCl; T - Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW06-00.0	6/14/16	1017	X		X			1	X		X	
SG3-MW06-00.5	↓	1022	X		X			1	X		X	
SG3-MW06-01.0	↓	1030	X		X			1	X		X	
SG3-MW06-01.5	↓	1050	X		X			1	X		X	
SG3-MW07-09.5	↓	1220	X		X			1	X		X	
SG3-MW07-12.0	↓	1223	X		X			1	X		X	
SG3-MW07-22.0	↓	1230	X		X			1	X		X	

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐

Type III (Reduced non-CLP) ☐ CT RCP ☐

Type IV (CLP SOW) ☐ ASP Type A ☐

Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by	Date	Time	Received by	Date	Time
[signature]	6/14/16	1800			
			[signature]	6-15-16	930

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ______ Other ______

Temperature upon receipt 1.9 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 150457
Group Number(s): 1672230

Client: CT Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	06/15/2016 9:30
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	Unpre.
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Joseph Huber (7831) at 13:42 on 06/15/2016

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	1.9 ✓	DT	Wet	Y	Bagged	N
2	DT121	2.1	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T 717-656-2300
F 717-656-2681
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SECTION 8

PROJECT CORRESPONDENCE

Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Monday, September 26, 2016 4:28 PM
To: Meg Michell; Charles Neslund
Cc: David Blye; Al Tordini; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: Revised (II) Questions on ELLI calibration procedures

Meg,
The 06/14/2016 ICAL was initially processed for samples from extraction batch 16141004 (SGP47). The analyst then reprocessed the 06/14/2016 ICAL for samples in batch 16141003 (SGP45). PFDA and PFTeDA were manually integrated and when the ICAL was reprocessed, the integrations would have differed slightly thus the slight variations in response. The analyst was thinking in terms of making each extraction batch a stand-alone product. At the time these samples were generated, we did not have a way to show the manual integrations/original integrations on paper. They can be viewed electronically on the data system. Going forward, we now have a way to show the manual integrations/original integrations. Those will be sent in subsequent data packages as available.

The PFTeDA curve in SGP45 being a linear curve and in SGP47 being a quadratic curve is not incorrect. The SOP and method 537.1 allow for the use of either curve fit. Quite possibly the analysts was thinking DoD criteria for other samples they were running and chose to use a quadratic but I am not sure. The analyst is no longer employed by ELLE and not available to ask. Again, the quadratic curve fit is permitted by the method and SOP.

We agree that this isn't a best practice and is isolated to this analyst who is no longer with us.

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Manager
Specialty Services

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From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Wednesday, September 21, 2016 5:54 PM
To: Charles Neslund; Christine Ratcliff
Cc: David Blye; Al Tordini; Moline, Kirk (k.moline@ctmale.com)
Subject: FW: Revised (II) Questions on ELLI calibration procedures

Hi Chuck and Christine-

As noted below, we recently came across the issue described below while conducting our review. Could you look into this and get back to us as soon as possible? Depending on the reasoning, it could impact our review process as we have been assuming that the same calibration would not vary amongst data sets.

Thanks for your help!

From: Al Tordini
Sent: Wednesday, September 21, 2016 5:24 PM
To: Meg Michell <mmichell@envstd.com>
Cc: Andrew Piasecki <apiasecki@envstd.com>
Subject: Revised (II) Questions on ELLI calibration procedures

Meg:

While reviewing the calibrations for SDGs SGP45 and SGP47, we came across a calibration common to both for which some questions have developed. The calibration in question is on Instrument 4000, with CAL1 acquisition at 6/14/2016 15:11.

1. The responses shown for PFTeDA and PFDA in CAL1 are slightly different in the two data packages (PFTeDA= 44928 in SGP45 and 44883 in SGP47; PFDA = 29479 in SGP45 and 29189 in SGP47). We need to understand the reason for these differences.
2. In the same initial calibration, PFTeDA in SGP45 was based on an (apparently) 1/x weighted linear curve. PFTeDA in SGP47 was based on an (apparently) weighted quadratic curve. We need to understand the reasoning behind using different models for the same calibration in different data packages.

We have not examined either package exhaustively, so there may be more instances of one or both of these issues. Before devoting additional time to the evaluation, we would like to understand the laboratory's reasoning.

Thanks.

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Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Monday, September 26, 2016 8:15 PM
To: Meg Michell; Charles Neslund
Cc: David Blye
Subject: RE: IS question

Meg,
These samples were acquired under two different acquisition methods (one for wipes and one for soils) using two different labeled analogues for C13 and C14. At the point these samples were acquired, we had not made the decision to use C13-PFDoDA for the C13 and C14 compounds.

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From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Friday, September 16, 2016 4:56 PM
To: Charles Neslund; Christine Ratcliff
Cc: David Blye
Subject: IS question

Hi-
As we try to understand the internal standards for the non-isotope dilution analytes, we keep coming across new scenarios that make me realize that I do not fully understand it.

As I understood it, the IS is selected on the basis of the initial calibration curve fit. However, I came across data where different internal standards were used for the same initial calibration for different sample sets. The calibration was performed on 5/13/16 (CAL1 at 12:52:59) and there are 2 calibration files – the first in ng/g for soil, 16126001S.rdb, and uses the labeled C11 for C13 and C14 – the second in ng/ml for wipes, 1612600Wipe.rdb, and uses the labeled C12 for C13 and C14. There are a few exceedances for CAL4, LCS, and/or CCVs when the labeled C12 is used. The wipes are all in SGP15 and the soils are in various packages (e.g., SGP18). There are positive results.

What other factors besides the initial calibration fit impact the IS selected?

Thanks!

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Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Tuesday, October 4, 2016 3:10 PM
To: Meg Michell; Charles Neslund
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: 18O2-PFHxS as IS

Hi Meg,
18O2-PFHxS is not a new internal standard. When the method was initially set up, 18O2-PFHxS was misnamed as 13C-PFHxS. The same labeled compound has been used for all samples but now we are using the correct naming for this compound. This has been corrected in the revised SOPs.

I signed off on the revisions of the SOPs yesterday. I will see where they are in the process so that we can get them to you. I am confused by the water QC table? Chuck had sent Dave a table a few days after you both visited with all our acceptance criteria. Is that what you are referring to?

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Specialty Services

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ChristineRatcliff@eurofinsUS.com

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Monday, October 03, 2016 4:53 PM
To: Christine Ratcliff; Charles Neslund
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: FW: 18O2-PFHxS as IS

Hi-
In reviewing some more recent data, we are noting that a new IS was introduced. We have not looked closely at the data yet. Before we did, I wanted to understand if this is under the same SOP or if there are other differences that we should be aware of. This IS was not covered in the previous version of the SOP that we received.

Also, how are you coming on the SOP revisions and water QC table?

Thanks!!

From: Andrew Piasecki
Sent: Monday, October 3, 2016 4:16 PM
To: Meg Michell <mmichell@envstd.com>
Subject: 18O2-PFHxS as IS

Meg,

In SDGs SGP82, SGP87, and SGP88, the ICAL started on 7/11/16 at 15:25 on instrument API 4000 used 18O2-PFHxS as an internal

Andrew L. Piasecki
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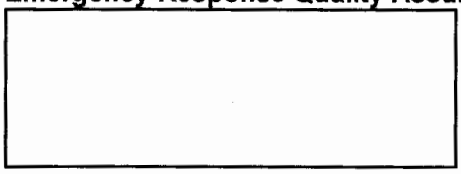

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Meg Michell

From: Charles Neslund <CharlesNeslund@eurofinsUS.com>
Sent: Monday, October 17, 2016 6:18 PM
To: Meg Michell; Christine Ratcliff
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: multiple transitions listed

Hi Meg,

Please see below.

Charles J. Neslund
Technical Director, Environmental Sciences

Eurofins Lancaster Laboratories Environmental, LLC
2425 New Holland Pike
Lancaster, PA 17601
office 717-556-7231
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CharlesNeslund@eurofinsUS.com

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Monday, October 17, 2016 12:28 PM
To: Christine Ratcliff; Charles Neslund
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: multiple transitions listed

Hi-
I wanted to check in on the response to this email and also the outstanding revisions for the sensitive soil data. Do you have an update?
Thanks!

From: Meg Michell
Sent: Thursday, October 13, 2016 10:36 AM
To: 'Christine Ratcliff' <ChristineRatcliff@eurofinsUS.com>; Charles Neslund <CharlesNeslund@eurofinsUS.com>
Cc: David Blye <DBLYE@envstd.com>; Moline, Kirk (k.moline@ctmale.com) <k.moline@ctmale.com>
Subject: multiple transitions listed

Hi-
We talked about this on the day that we met with you, but I want to make sure that we are clear on this issue so that we can explain it properly in our reports. On the one instrument, multiple transitions (see below) are listed. What does this mean in terms of:

- Are multiple transitions monitored?
  Yes, multiple transitions are monitored. In the examples below, for PFBS the transition 299 to 80 and the transition 299 to 99 are being monitored.
- Which transition(s) is/are used for quantitation? If only one transition is used for quantitation, how do we know which one it is?
  In the examples below, both transitions that are listed are used for quantitation. The transitions are summed. The use of the acronym TIC in the upper right indicates Total Ion or the sum of the ion transitions. If only one transitions is used, then only one is displayed, numerically and graphically.

- Which transition(s) is/are reflected by the ion trace? If only one transition is reflected in the ion trace, how do we know which it is?

  Where it is listed as TIC, the ion trace, the peak/chromatogram is the summed responses for the transitions used for quantitation.

- If only one is used for quantitation and/or shown in the trace, where is the data stored/presented for the 2nd (and/or 3rd) transition?

  I think this is answered by the response to the last bullet. They both are used.

Thanks!!

Identification
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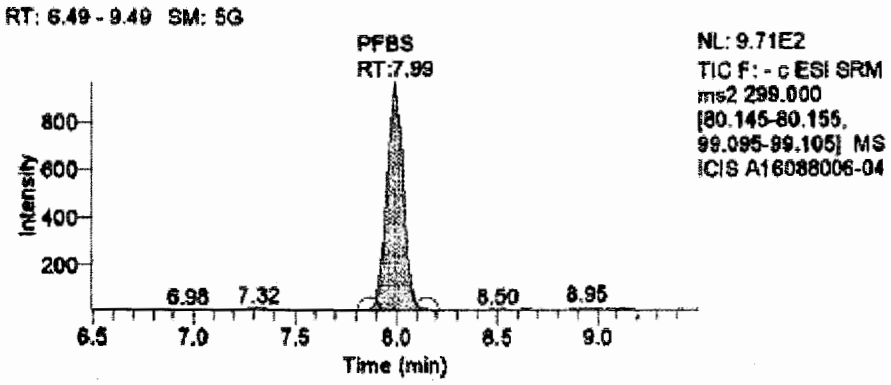

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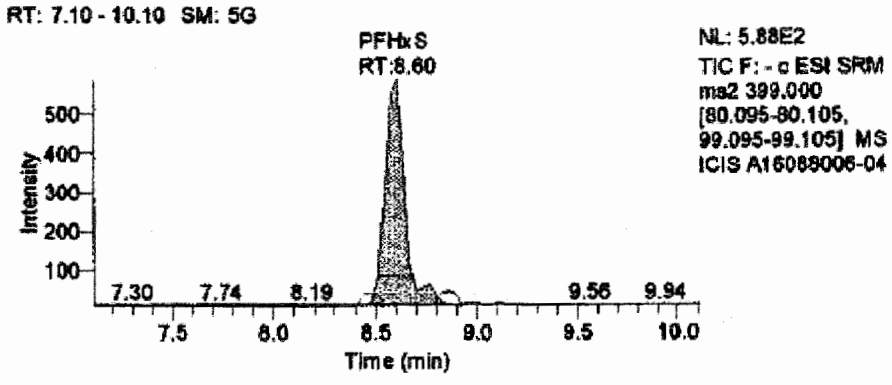

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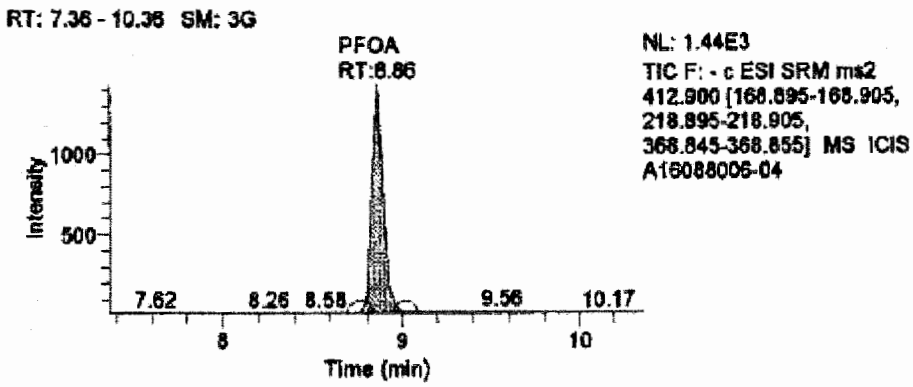

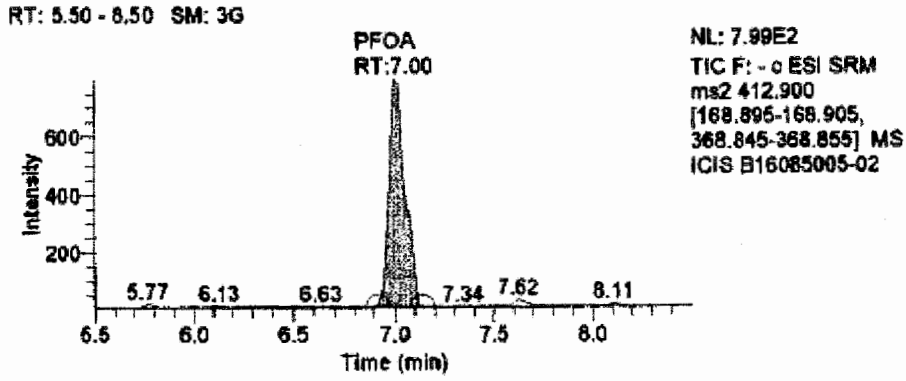

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Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Tuesday, June 6, 2017 1:41 PM
To: Meg Michell; Nancy Bornholm
Cc: Charles Neslund; David Blye; Moline, Kirk (k.moline@ctmale.com); 'mtreanor@barr.com'; Ward Swanson (WSwanson@barr.com); Terri A. Olson; StGobain; Steve Zeiner; Tom Weinmann
Subject: RE: SGP93_PFOA_Results_Comparison_042017.xlsx

Meg,
The correction for the PFAS work has been made. A revised package and EDD will be issued.

Thanks

Christine Ratcliff
Manager
HRMS Group/PFAS Group

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From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Friday, May 19, 2017 7:02 PM
To: Christine Ratcliff; Nancy Bornholm
Cc: Charles Neslund; David Blye; Moline, Kirk (k.moline@ctmale.com); 'mtreanor@barr.com'; Ward Swanson (WSwanson@barr.com); Terri A. Olson; StGobain; Steve Zeiner; Tom Weinmann
Subject: RE: SGP93_PFOA_Results_Comparison_042017.xlsx

Here are a few additional requests for this SDG:

- All soil samples: the results for these were adjusted for exact weight but not the MDLs/LOQs – please update as in the past. There are a few cases where ND results will become positive results once this is done (e.g., PFHxA in 8427017, PFNA in 8427018, PFDA in 8427026) – please review the data for this.
- Samples 8427029, 8427030: The equation for PFBS is y= 0.1107x + -0.04693. When y is 0, x=0.8 ng/g, which is at the aqueous MDL. A small peak quantitated above the MDL in these samples.
- Sample 8427019: PFNA appears to have a branched peak that was not integrated
- The TOC prep log is missing for Run #161762

Thanks!!

From: Christine Ratcliff [mailto:ChristineRatcliff@eurofinsUS.com]
Sent: Monday, May 1, 2017 11:48 AM

To: Meg Michell <mmichell@envstd.com>; Nancy Bornholm <NancyBornholm@eurofinsUS.com>
Cc: Charles Neslund <CharlesNeslund@eurofinsUS.com>; David Blye <DBLYE@envstd.com>; Moline, Kirk (k.moline@ctmale.com) <k.moline@ctmale.com>; 'mtreanor@barr.com' <mtreanor@barr.com>; Ward Swanson (WSwanson@barr.com) <WSwanson@barr.com>; Terri A. Olson <TOlson@barr.com>; StGobain <StGobain@envstd.com>; Steve Zeiner <szeiner@envstd.com>; Tom Weinmann <tweinmann@envstd.com>
Subject: RE: SGP93_PFOA_Results_Comparison_042017.xlsx

Meg,
From reviewing the data, it appears to me that 8427023-24 were possibly switched with 8427025-26 and 8427031-32 were possibly switched with 8427034-35. Based on the sequence file, it appears things were set up correctly. However it is possible the samples were switched when they were loaded on this instrument. It is also possible that something was switched during the extraction process as well. I checked with Nancy and we do not have any extended storage on the samples and they have been discarded. Unfortunately we cannot re-extract this to try and shed any light on what may have happened. The issue with the case narrative appears to be a typographical error. I can correct and re-issue the case narrative but should I wait until the final review is completed with this package?

There is a statement in the Case Narrative that the original result for PFOA in sample 8427014 was 30 ng/g and the reextraction result was 3 ng/g. This disparity was not observed in the data provided. Is there any additional information that would explain this statement?

Thanks!

Christine Ratcliff
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HRMS Group/PFAS Group

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From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Monday, April 24, 2017 3:07 PM
To: Nancy Bornholm
Cc: Christine Ratcliff; Charles Neslund; David Blye; Moline, Kirk (k.moline@ctmale.com); 'mtreanor@barr.com'; Ward Swanson (WSwanson@barr.com); Terri A. Olson; StGobain; Steve Zeiner; Tom Weinmann
Subject: FW: SGP93_PFOA_Results_Comparison_042017.xlsx

Hi-
We are still in the initial review phase of this Vermont SDG but we would like your input before we get too far. All the soil samples in this SDG were reextracted due to various high LCS recoveries in the original extraction. Attached is a summary of the PFOA results in the original extraction and reextraction batches (all in terms of wet-weight). We were

wondering if you had any additional information regarding these samples that might help us understand the disparity between the original and reextraction results. Please note:

- The PFOA results for 4 samples are high (~3-5 ng/g) in the original batch and low (<MDL of 0.3 ng/g or J values) in the reextractions. The PFOA results for a different 4 samples are low (<MDL or J values) in the original batch and high (~3-5 ng/g) in the reextractions. So, often ~10-fold differences, with 4 higher and 4 lower in the reextraction.
- There is a statement in the Case Narrative that the original result for PFOA in sample 8427014 was 30 ng/g and the reextraction result was 3 ng/g. This disparity was not observed in the data provided. Is there any additional information that would explain this statement?
- There are a few other PFAAs detected that either compare well between extractions or are J-values that were not detected in the reextraction (please note that the positive PFBS results in samples 8427029 and 8427030 appear to be elevated due to y-intercept issues)
- PFOA was within LCS limits in the original extraction batch (118%) and slightly high in the reextraction batch (134%). This does not seem to explain the above differences.
- The reextraction was performed 9-10 days beyond the 28-day holding time for extraction of soils. This does not seem to explain the above differences.
- The MB was ND in both batches and the MS/MSD was in limits in both batches. In addition, there were not any ICAL or CCV excursions that seem to explain the above differences.
- Field duplicates generally have compared much better than this.

We are still reviewing this package, so we may have additional questions and we get further along.
Thanks for your help!!

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From: Terri A. Olson [mailto:TOlson@barr.com]
Sent: Thursday, April 20, 2017 11:00 AM
To: Meg Michell <mmichell@envstd.com>
Cc: Dana B. Pasi <DPasi@barr.com>
Subject: SGP93_PFOA_Results_Comparison_042017.xlsx

Hi Meg,

Attached is the table comparison of original vs. reextracted PFOA results that I had mentioned previously. In the original batch, 7 of the 12 compounds had LCS %Rs > 130%. In the reextraction, 3 of the 12 compounds were outside criteria (70-130%) – 2 high, 1 low. PFOA was acceptable in the original batch at 118% and was above criteria at 134% in the reextraction. The lab reported the original analysis results.

Wondering what you have done in the past. Don't want to waste time evaluating the reextraction if not used but definitely something odd with the results between the two.

Let me know if you would like to discuss via a phone call. Dana had sent an email previously also so let us know if easier for you to have just one phone call and we can both be available.

Thank-you,

Terri A. Olson
Senior Data Quality Specialist
Minneapolis, MN office: 952.842.3578
TOlson@barr.com
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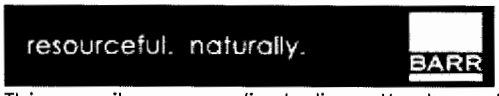

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DATA USABILITY SUMMARY REPORT

ANALYSIS OF PERFLUORINATED COMPOUNDS

IN SOIL SAMPLES AND AQUEOUS BLANKS

1030 WATER STREET, VILLAGE OF NORTH BENNINGTON,

BENNINGTON COUNTY VERMONT, VTDEC SMS SITE # 20164630

SAMPLE DELIVERY GROUP: SGP94

June 8, 2017

Prepared for:

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

Prepared by:

ENVIRONMENTAL STANDARDS, INC.
1140 Valley Forge Road
P.O. Box 810
Valley Forge, PA 19482-0810

In conjunction with:

BARR ENGINEERING COMPANY
4300 MarketPointe Drive
Minneapolis, MN 55435

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TABLE OF CONTENTS

Introduction

Section 1 **Quality Assurance Review**

A. Organic Data Review

B. General Parameter Data Review

C. Conclusions

Section 2 **Validated Data Summary Tables**

Section 3 **Laboratory Calibration and Quality Control Acceptance Criteria**

Section 4 **Environmental Standards, Inc., Standard Operating Procedure**

Section 5 **Organic Data Support Documentation**

Section 6 **General Parameter Data Support Documentation**

Section 7 **Laboratory Case Narrative and Project Chain-of-Custody Record**

Section 8 **Project Correspondence**

Introduction

This Data Usability Summary Report (DUSR) was based upon an examination of the data generated from samples that were collected on June 8, 15, and 16, 2016, as part of the 1030 Water Street, Village of North Bennington, Vermont project based on the "Initial Site Characterization Investigation Work Plan Saint-Gobain Performance Plastics Site 1030 Water Street, Village of North Bennington, Bennington County, Vermont" (Work Plan, April 2016). The analyses of the samples (and associated quality control [QC] samples) listed on the table below were performed by Eurofins Lancaster Laboratories Environmental (ELLE) of Lancaster, Pennsylvania. Soil samples were analyzed for perfluorinated compounds (PFCs) according to ELLE's internal standard operating procedure (SOP) "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins document reference 1-P-QM-WI-9035864, Rev. 2), total organic carbon (TOC) according to Standard Method (SM) 5310B, and percent moisture according to SM 2540G. Aqueous blank samples were analyzed for PFCs according to ELLE's internal SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins document reference 1-P-QM-WI -9012802, Rev. 5). Comprehensive data deliverables were prepared by the laboratory and were reviewed by Barr Engineering Company (Barr) and Environmental Standards, Inc. (Environmental Standards). The samples that have undergone a quality assurance (QA) review are listed on Table 1. Table 1 also presents the laboratory sample number, laboratory Sample Delivery Group (SDG), matrix, collection date, parameters analyzed and reviewed, and review type for the samples.

The reported analytical results are presented on the validated data summary tables included in Section 2. These validated data summary tables were generated from electronic data deliverables (EDDs) provided by the laboratory and have been edited by the data reviewer to include all final data validation qualifiers and results. The "Lab Result," "Lab MDL" (*i.e.*, the method detection limit [MDL]), "Lab LOQ" (*i.e.*, the limit of quantitation [LOQ]), "Lab Qualifier," and "Lab Detect Flag" fields presented on the validated data summary tables were derived directly from the laboratory-provided EDD. Errors in the "Lab Result," "Lab MDL," "Lab LOQ," and "Lab Detect Flag" fields noted during validation have been corrected, and the corrections are reflected in the "Final Result," "Final MDL," "Final LOQ," and "Final Detect Flag" fields, respectively, on the validated data summary tables. Validation qualifier codes have been placed in the "Validation Qualifier" fields on the data tables to enable the data user to quickly assess the qualitative and/or quantitative reliability of a result based on the criteria evaluated during this QA review. Finally, the "Validation Reason Code" field has been populated with codes that indicate the reason for the validation qualifiers. Definitions of the validation qualifier and reason codes are presented with the validated data summary tables.

This DUSR has been performed with guidance from the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016), and the "National Functional Guidelines for High Resolution Superfund Methods Data Review" (US EPA, April 2016) for the PFC analyses and from the "National Functional Guidelines for Inorganic Superfund Data

Review" (US EPA, September 2016) for TOC and percent moisture analyses; however, these validation guidance documents specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocol performed by the laboratory for these samples. Environmental Standards used professional judgment to determine the usability of the analytical results and compliance relative to the requirements specified in the Work Plan, US EPA Method 537, ELLE's internal SOPs for PFC analysis, SM 5310B for TOC analysis, and SM 2540G for percent moisture analysis. US EPA Method 537 is written strictly for drinking water samples and no approved US EPA method currently exists for other sample matrices. Although ELLE's internal SOPs reference US EPA Method 537 for PFC analysis, the procedures are really "in-house" procedures that are also considered "Confidential Information"; therefore, a summary of the Calibration and QC Requirements used by ELLE for PFC analysis has been included in Section 3. In addition, the SOP used by Environmental Standards to validate data generated under the ELLE PFC SOPs is provided in Section 4. Details of this QA review are presented in Section 1 of this DUSR.

This DUSR identifies data quality issues for specific samples and specific evaluation criteria. The data qualifications allow the data end-user to best understand the usability of the analysis results. Data not qualified in this report should be considered valid based on the QC criteria that have been reviewed.

Section 5 of the report presents the Organic Data Support Documentation for this DUSR and Section 6 of the report presents the General Parameter Data Support Documentation for this DUSR. Section 7 presents copies of the Laboratory Case Narrative and Project Chain-of-Custody (COC) Record. Section 8 presents the Project Correspondence.

TABLE 1 – SUMMARY OF SAMPLES REVIEWED

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3-LTB01-20160615 (Trip Blank)	8432116	SGP94	Aq	6/8/16**	F*	PFC
SG3-RB01-20160615 (Rinse Blank)	8432117	SGP94	Aq	6/15/16	F*	PFC
SG3-MW05-05.0	8432118	SGP94	Soil	6/15/16	F* L	PFC TOC, Mois
SG3-MW05-09.0	8432119	SGP94	Soil	6/15/16	F* L	PFC TOC, Mois
SG3-MW03-00.0	8432120	SGP94	Soil	6/15/16	F* L	PFC TOC, Mois
SG3-MW03-00.5	8432121	SGP94	Soil	6/15/16	F* L	PFC TOC, Mois
SG3-MW03-00.5MS (Matrix Spike)	8432121MS	SGP94	Soil	6/15/16	L	TOC
SG3-MW03-00.5DUP (Laboratory Duplicate)	8432121DUP	SGP94	Soil	6/15/16	L	TOC, Mois
SG3-MW03-00.5MS (Matrix Spike)	8432122	SGP94	Soil	6/15/16	F*	PFC
SG3-MW03-00.5MSD (Matrix Spike Duplicate)	8432123	SGP94	Soil	6/15/16	F*	PFC
SG3-MW03-01.0	8432124	SGP94	Soil	6/15/16	F* L	PFC TOC, Mois
SG3-FD01-20160615 (Field Duplicate of SG3-MW03-01.0)	8432125	SGP94	Soil	6/15/16	F* L	PFC Mois
SG3-MW03-01.5	8432126	SGP94	Soil	6/15/16	F* L	PFC TOC, Mois
SG3-RB02-20160615 (Rinse Blank)	8432127	SGP94	Aq	6/15/16	F*	PFC
SG3-FTB01-20160615 (Field Blank)	8432128	SGP94	Aq	6/15/16	F*	PFC
SG3-MW03-03.5	8432129	SGP94	Soil	6/15/16	F* L	PFC TOC, Mois

TABLE 1 (Cont.)

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3-RB03-20160615 (Rinse Blank)	8432130	SGP94	Aq	6/15/16	F*	PFC
SG3-MW03-06.0	8432131	SGP94	Soil	6/15/16	F* L	PFC TOC, Mois
SG3-MW03-09.5	8432132	SGP94	Soil	6/15/16	F* L	PFC TOC, Mois
SG3-MW04-00.0	8432133	SGP94	Soil	6/16/16	F* L	PFC TOC, Mois
SG3-MW04-00.5	8432134	SGP94	Soil	6/16/16	F* L	PFC TOC, Mois
SG3-MW04-00.5MS (Matrix Spike)	8432134MS	SGP94	Soil	6/16/16	L	TOC
SG3-MW04-00.5DUP (Laboratory Duplicate)	8432134DUP	SGP94	Soil	6/16/16	L	TOC
SG3-MW03-17.0	8432135	SGP94	Soil	6/15/16	F* L	PFC TOC, Mois
SG3-MW04-01.0	8432136	SGP94	Soil	6/16/16	F* L	PFC TOC, Mois
SG3-MW04-01.5	8432137	SGP94	Soil	6/16/16	F* L	PFC TOC, Mois
SG3-MW03-11.0	8432138	SGP94	Soil	6/16/16	F* L	PFC TOC, Mois
SG3-MW04-4.5	8432139	SGP94	Soil	6/16/16	F* L	PFC TOC, Mois
SG3-RB01-20160616 (Rinse Blank)	8432140	SGP94	Aq	6/16/16	F*	PFC
SG3-MW02-00.0	8432141	SGP94	Soil	6/16/16	F* L	PFC TOC, Mois
SG3-MW02-00.5	8432142	SGP94	Soil	6/16/16	F* L	PFC TOC, Mois
SG3-MW02-01.0	8432143	SGP94	Soil	6/16/16	F* L	PFC TOC, Mois
SG3-MW02-01.5	8432144	SGP94	Soil	6/16/16	F* L	PFC TOC, Mois

TABLE 1 (Cont.)

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3-MW02-01.5MS (Matrix Spike)	8432144MS	SGP94	Soil	6/16/16	F*	PFC
SG3-MW04-08.0	8432145	SGP94	Soil	6/16/16	F* L	PFC TOC, Mois
SG3-MW04-09.5	8432146	SGP94	Soil	6/16/16	F* L	PFC TOC, Mois
SG3-MW04-12.5	8432147	SGP94	Soil	6/16/16	F* L	PFC TOC, Mois

NOTES:

PFC - Perfluorinated Compounds (PFCs) according to ELLE's SOP "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins document reference 1-P-QM-WI-9035864, Rev. 2) for soil samples or ELLE's SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins document reference 1-P-QM-WI -9012802, Rev. 5) for aqueous blank samples. (33 Full analyses)

TOC - Total Organic Carbon by Standard Method 5310B. (27 Limited analyses)

Mois - Percent Moisture by Standard Method 2540G. (25 Limited analyses)

Aq - Aqueous.

F* - Full QA Review (performed in association with Barr personnel).

L - Limited QA Review.

** - This collection date was recorded on the Chain-of-Custody Record for the trip blank and pre-dates the collection date of the associated field samples. The data reviewer used the earliest collection date of the associated samples in order to evaluate holding time for the trip blank.

Section 1 Quality Assurance Review

A. Organic Data Review

The organic analyses of 27 soil samples (including QC samples) and six aqueous blanks collected as part of the 1030 Water Street, Village of North Bennington, Vermont project on June 8, 15, and 16, 2016, were performed by ELLE. Soil samples were analyzed for PFCs according to ELLE's internal SOP "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins document reference 1-P-QM-WI-9035864, Rev. 2). Aqueous blank samples were analyzed for PFCs according to ELLE's internal SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins document reference 1-P-QM-WI-9012802, Rev. 5). Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data were presented in comprehensive data deliverables.

Barr personnel performed the initial data review and Environmental Standards personnel conducted a secondary peer review and prepared this report. The findings offered in this report are based upon a review of all tabulated QC summary forms and raw data including the following QC measures:

- Sample and extract holding times
- Blank analysis results
- Second-source initial calibration verification (ICV) recoveries
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Labeled compound responses
- Analytical sequence
- Quantitation of results
- Sample condition upon laboratory receipt
- Initial calibrations
- Continuing calibration verification (CCV) recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate precision
- Qualitative identification

The analytical results for the organic target compounds are presented on the validated data summary tables in Section 2 of this report. The validated data summary tables include the full names of the target analytes along with their associated acronyms, which are used throughout the text of this DUSR. A summary of ELLE's Calibration and QC Requirements has been included in Section 3. The SOP used by Environmental Standards to validate data generated under the ELLE SOP is provided in Section 4. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, relevant raw data, and other documentation needed to support the findings in this DUSR in the Organic Data Support Documentation (Section 5), Laboratory Case Narrative and Project Chain-of-Custody Record (Section 7), and Project Correspondence

(Section 8). The data reviewer has also manually edited the laboratory-reported data, and QC summary forms included in these sections based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Usability issues are addressed in the subsequent Organic Data Qualifiers section. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the ELLE internal SOPs and the reference method, US EPA Method 537, Revision 1.1.

Reporting Issues

1. All results, MDLs, and LOQs reported by the laboratory for PFCs in all soil samples except samples SG3-MW02-01.5, SG3-MW04-08.0, SG3-MW04-09.5, and SG3-MW04-12.5 and their associated batch QC (method blank, LCS, and MS/MSD) were calculated based on a sample weight of 5.00 g. All results, MDLs, and LOQs reported by the laboratory for PFCs in aqueous blank samples and their associated batch QC (method blank, LCS, and MS/MSD) were calculated based on a sample weight of 100.00 g and assuming a sample density equivalent to water density of 1.00 g/mL. The actual sample weight, as recorded on the extraction log, was between 4.50 g and 5.50 g for soil samples; therefore, the reported results, MDLs, and LOQs may be up to ± 10% off from the actual measured values. The actual sample weight, as recorded on the extraction log, was between 99.50 g and 100.50 g for aqueous samples; therefore, the reported results, MDLs, and LOQs may be minimally off (± 0.5%) from the actual measured values. The laboratory has since begun using the actual sample weights in these calculations.

2. The MDLs and LOQs reported by the laboratory for PFCs in samples SG3-MW02-01.5, SG3-MW04-08.0, SG3-MW04-09.5, and SG3-MW04-12.5 and their associated batch QC (method blank, LCS, and MS) were calculated based on a sample weight of 5.00 g in the original data package and EDD provided. The actual sample weight, as recorded on the extraction log, was between 4.50 g and 5.50 g for soil samples. Upon inquiry, the laboratory revised the MDLs and LOQs to reflect the actual sample weights as used for the positive results (refer to Project Correspondence).

3. The instrument systems used for the PFC analysis were not compatible with the laboratory information management system (LIMS) at the time of the analysis of the samples included in this DUSR. As a result, the laboratory entered 100% of the data (samples, QC, and calibration results) into LIMS manually. The laboratory review process included 100% verification (secondary-level review) of the information presented on the “Analysis Report” section of the data package. The “Analysis Report” section includes sample and batch QC results. All forms presented in the “Quality Control and Calibration Summary Forms” section of the data package were only spot-checked during the secondary level review performed at the laboratory.

The data reviewer noted frequent errors on the forms presented in the "Quality Control and Calibration Summary Forms" section of the data package; however, these errors did not have a direct impact on sample results because the results were also manually entered into LIMS and not calculated based on the information presented on these forms. Much of the information presented on the forms in "Quality Control and Calibration Summary Forms" section was repeated, either in the "Analysis Report" (method blank, LCS, and MS/MSD) or on a summary generated directly from the instrument (with 100% electronic transfer) and presented in the "Standards Data" section of the data package. Where an alternate form was provided in the "Analysis Report" or "Standards Data" sections of the data package, the data reviewer did not verify the information also presented in the "Quality Control and Calibration Summary Forms" section.

The only information in the "Quality Control and Calibration Summary Forms" section that is not in a summary in the "Analysis Report" or "Standards Data" sections is the "Quality Control Summary" for "Internal Standards." The data reviewer verified the information presented on the Internal Standard summary forms and has indicated the presence of any errors (including errors in flagging internal standards outside of limits) in the Organic Data Support Documentation section of this DUSR. The data reviewer used the corrected values to evaluate internal standard performance.

4. In some cases, the criteria presented on various calibration and QC summary forms included in the data packages were disparate with the criteria presented in ELLE's internal SOPs. In addition, the laboratory noted exceedances in the Case Narrative that were sometimes not consistent with the SOP criteria. Upon request for clarification, ELLE provided a summary of the Calibration and QC Requirements relevant to the PFC analyses performed, which has been included in Section 3. Some of the criteria provided was different than that presented in either the internal ELLE SOPs or presented in the data packages. The data reviewer evaluated the data based on the criteria presented in Section 3 as detailed in the data validation SOP in Section 4.

5. According to laboratory personnel (refer to Project Correspondence), initial calibrations were processed on a batch basis (see exception in Procedural Issue No. 4), such that disparities were observed between separate versions of the same initial calibration in different data sets. These disparities could include minor differences in peak integrations (and responses) and differences in the internal standards utilized for PFBS, PFTA, and PFTriA, which did always not have exact labeled internal standards. Where the initial calibration was common amongst multiple SDGs (including aforementioned processing factors), it was validated only once; therefore, the support documentation will include copies of forms (including Internal Standard summary forms) from the SDG in which it was validated.

6. The laboratory incorrectly identified the internal standard $^{18}O_2$-PFHxS as ^{13}C-PFHxS in the raw data associated with the majority of the sample analyses (refer to Project Correspondence). The internal standard has been correctly referred to as $^{18}O_2$-PFHxS in this report.

7. The laboratory reported aqueous MDLs and LOQs on the Sample Data Summary forms (Form 1's) for solid method blanks BLK16203007 and BLK16215005. Upon request, the laboratory provided a revised data package including revised Form 1's that reflected the correct MDLs and LOQs (refer to Project Correspondence). It should be noted that these method blanks were associated with reanalyses that were not reported due to the extractions being performed past the required holding time.

8. Incorrect values for the "Spike Added" were reported for PFBS, PFHxS, and PFOS on the Quality Control Summary for the MSD of sample SG3-MW03-00.5 in the original data package submitted. Upon request, the laboratory revised the Quality Control Summary to reflect the corrected spike added and recoveries (refer to Project Correspondence). The data reviewer used the corrected forms to evaluate MS/MSD performance.

9. Several samples appeared to have two peaks for PFOA at two different retention times (RTs) (reflecting branched and linear isomers); however, only the peak for the linear isomer was integrated for these samples. Upon Environmental Standards' inquiry, the laboratory confirmed that both peaks should be integrated and provided revised reports and EDDs to reflect the corrected results (refer to Project Correspondence).

10. The laboratory reported positive results of 2 ng/L (rounded from 1.5 - 1.7 ng/L) for PFOA on the Analysis Reports for the blank samples SG3-LTB01-20160615, SG3-RB01-20160615, SG3-RB02-20160615, and SG3-RB01-20160616. A review of the initial calibration curve used to quantitate the result revealed a *y*-intercept equivalent to 1.2 ng/L. Upon inquiry, the laboratory revised the Analysis Reports and EDD to reflect "not-detected" results for PFOA in these blank sample (refer to Project Correspondence).

11. The laboratory recorded the final volume as 1 µL on the organic extraction log for batches 16203007 and 16215005. The correct final volume was 1 mL. Upon inquiry, the laboratory provided a revised data package that included updated organic extraction logs (refer to Project Correspondence).

12. The CAL3 standard level for PFOS, PFNA, and PFDA was dropped from the initial calibration curves for the initial calibration performed on 7/19/16 on instrument 18881. Upon Environmental Standards' inquiry, the laboratory revised the data package to include calibration curves with the CAL3 standard included (refer to Project Correspondence). It should be noted that the error did not impact the reported results as these compounds were not detected in the associated sample. Data were not qualified due to this issue.

13. The initial calibration curves and raw data associated with the analytical sequence performed on 7/14/16 was not included in the original data package provided. Upon request, the laboratory provided the missing information (refer to Project Correspondence).

Procedural Issues

1. US EPA Method 537 is listed as the reference method in the title of the ELLE SOPs; however, US EPA Method 537 is written specifically for the analysis of drinking water samples. As a result, the laboratory has made modifications to the extraction procedure to accommodate preparation of non-aqueous samples (ultrasonic extraction for an hour with 4:1 acetonitrile/water mixture vs. solid-phase extraction). In addition, the laboratory has made other modifications, including, but not limited to, the following:

   - For aqueous blank samples, 100 mL was subsampled for extraction instead of using the entire container contents (250 mL), and Sep-Pak C18 solid-phase extraction cartridges were used instead of polystyrenedivinylbenzene.
   - The laboratory utilized additional labeled analogs of the target PFCs, where available for use, as pre-extraction internal standards (all target PFCs except PFBS, PFTA, and PFTriA), which generally should normalize any extraction inefficiency and provide greater accuracy in quantitation.
   - As the labeled internal standards were added prior to extractions, additional labeled surrogate compounds were not used.
   - A holding time of 28 days from collection to extraction was used for soils.
   - The calibration and QC requirements that were used are presented in Section 3 and are less restrictive than US EPA Method 537 in some cases.
   - The laboratory did not control the relative percent difference (RPD) between the high and low areas for each internal standard in the initial calibration (must be < 20% by US EPA Method 537, Version 1.1).
   - The laboratory did not calculate the peak asymmetry factor.
   - The laboratory did not use the lowest and highest standards from the initial calibration in the CCV standard rotation.
   - The laboratory did not rotate the concentration used for the LCS.
   - The calibration standards only included the linear PFC isomers and available branched/linear standards were not analyzed for qualitative or quantitative purposes.
   - The calibration curves were not always forced through zero.
   - Alternate ion transitions were used for PFBS, PFHxS, PFOS, and ^{13}C-PFOS (299→99 instead of 299→80 for PFBS, 399→99 instead of 399→80 for PFHxS, 499→99 instead of 499→80 for PFOS, and 503→99 instead of 503→80 for ^{13}C-PFOS) - the fragment represented by *m/z* 80 is the sulfonate group; whereas, the fragment represented by *m/z* 99 is the fluorinated sulfonate group (refer to Procedural Issue No. 3 for exceptions).

     US EPA Method 537 requires the use of 499→80 for PFOS and 399→80 for PFHxS. Studies[1] have shown that quantifying with a linear standard using the 499→99 transition may underestimate the PFOS concentration because many of the branched isomers have a lower response than the linear isomer. Conversely, using

[1] See Riddell, N. *et al.* Branched Perfluorooctane Sulfonate Isomer Quantification and Characterization in Blood Serum Samples by HPLC/ESI-MS(/MS). *Environ. Sci. Technol.* **2009**, 43, 7902-7908.

only the 499→80 transition could overestimate PFOS if branched isomers are quantitated based on a linear standard. It is unknown whether the same potential biases are present for the 399→99 and 399→80 transitions for PFHxS and 299→99 and 299→80 transitions for PFBS.

2. Where transition ion peaks were observed and deemed by laboratory personnel to represent branched isomers in samples, the responses for such peaks were included in the response for the analyte and used to quantitate the sample results. The laboratory did not analyze standards that included both branched and linear isomers, and the laboratory's SOP did not specify RT criteria for determining whether peaks other than the peak representative of the linear isomer (based on calibration standards) should be included.

3. In some cases, multiple ion transitions were monitored and used for qualitative identification and quantitation. In these cases, the response for the compound represents a sum of the responses for the multiple ion transitions in the calibration standard, QC, and sample analyses. For the aqueous blank samples and all soil sample except samples SG3-MW02-01.5, SG3-MW04-08.0, SG3-MW04-09.5, and SG3-MW04-12.5, multiple ion transitions were used for PFBS (299→80 and 399→99), PFHxS (**399→80** and 399→99), PFOS (**499→80** and 499→99), and PFOA (413→169, 413→219, and 413→369) and the associated labeled internal standards $^{18}O_2$-PFHxS (403→84 and 403→103), $^{13}C_4$-PFOS (503→80 and 503→99), and $^{13}C_4$-PFOA (417→169 and 417→372). The response for the compounds in the aforementioned analyses may represent the response for one ion transition or multiple ion transitions (in any ratio), as separate responses were not acquired by the instrument. The use of summed multiple ion transitions for qualitative identification and quantitation is not described in the reference method (US EPA 537) and should be considered a non-standard technique. As a result, any impact to qualitative identification and quantitation caused by the use of this technique is unknown. As only one of the multiple ion transitions have to be present at the expected RT to generate a response, there may be a greater chance for a co-eluting interferent to create a false positive or provide positive bias. Quantitation may also be impacted by a different ratio of the ion transitions in the calibration standards than in the samples (as may be caused by the presence of branched isomers). Various PFCs were detected in the samples; however, no unusual chromatographic interference was observed. There is no impact to "not-detected" results.

4. The internal standards the laboratory used for quantitation of PFBS, PFTA, and PFTriA vary, but were consistent within an analytical sequence under the same initial calibration. The internal standards that were used for PFBS include $^{13}C_2$-PFHxA, $^{18}O_2$-PFHxS, and $^{13}C_4$-PFOS. The internal standards that were used for PFTA and PFTriA include $^{13}C_2$-PFUnA and $^{13}C_2$-PFDoA. If the samples and associated QC samples within an extraction batch were reported from different analytical sequences, different internal standards may have been used for PFBS, PFTA, and PFTriA within the extraction batch. The laboratory began to use consistent internal standards for some of the analyses

included in this data set (PFBS using $^{18}O_2$-PFHxS and PFTA and PFTriA using $^{13}C_2$-PFDoA for the reported results for samples SG3-MW02-01.5, SG3-MW04-08.0, SG3-MW04-09.5, and SG3-MW04-12.5).

5. Out-of-criteria recoveries were observed for several compounds in the LCS/LCSD analyses associated with the soil samples. The laboratory re-extracted and reanalyzed a portion of the samples, but not all associated samples as specified in ELLE's Calibration and QC Requirements that have been included in Section 3. It should be noted that acceptable recoveries were observed in the LCS/LCSD analyses associated with the re-extracted samples; however, the re-extractions were performed past the required holding time and, as a result, the original analyses of all soil samples were reported. According to the Case Narrative, the QC limits are only advisory until sufficient data points can be obtained to calculate statistical limits. The advisory limits of 70-130% are consistent with US EPA Method 537. The data reviewer has qualified results due to the out-of-criteria LCS/LCSD recoveries as addressed in the subsequent Organic Data Qualifiers section.

6. The laboratory performed a MS analysis on SDG SGP93 sample SG3-LTB-20160613, which is a laboratory trip blank. Using a laboratory trip blank for an MS analysis generally provides no useful information on the "matrix" of field samples; however, all associated samples were field-generated blanks. The data reviewer applied qualification of data due to low PFTA, PFTriA, and PFBS recoveries in the MS of the trip blank to all associated blanks similar to an LCS, as addressed in the subsequent Organic Data Qualifiers section.

Data Evaluation

With respect to data usability, the principal areas of concern are low MS recoveries, out-of-criteria LCS/LCSD recoveries, out-of-criteria internal standard responses, and quantitation below the LOQs. Based on a rigorous review of the data provided, the following data qualifiers are offered. The following data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical SOP used for analysis. Accordingly, the following data usability issues should not be construed as an indication of laboratory performance.

Organic Data Qualifiers

- The MDL and LOQ for PFHpA in sample SG3-MW02-01.5 may be higher than reported, and the "not-detected" result has been flagged "UJ" on the data tables. A low recovery (30% ≤ %R < 70%) was observed for PFHpA in the associated MS analysis. (Validation Reason Code: MAL)

- The MDLs and LOQs for PFBS and PFTA in all aqueous samples and for PFTriA in all aqueous samples except sample SG3-FTB01-20160615 may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. In addition, the

reported positive result for PFTriA in sample SG3-FTB01-20160615 should be considered estimated and has been flagged "J" on the data tables. Low recoveries (30% ≤ %R < 70%) were observed for these compounds in the associated MS analysis (refer to Procedural Issue No. 6). (Validation Reason Code: MAL)

- The MDLs and LOQs for PFHpA in samples SG3-MW02-01.5, SG3-MW04-08.0, SG3-MW04-09.5, and SG3-MW04-12.5 may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. Low recoveries (30% ≤ %R < 70%) were observed for PFHpA in the associated LCS/LCSD analyses. (Validation Reason Code: LAL)

- The reported positive results for PFUnA in samples SG3-MW03-06.0, SG3-MW04-00.5, and SG3-MW02-01.0; for PFTA in samples SG3-MW02-00.0, SG3-MW02-00.5, SG3-MW02-01.0, and SG3-MW02-01.5; for PFHxA in samples SG3-MW04-00.5 and SG3-MW02-01.0; and for PFHpA in sample SG3-MW04-00.5 should be considered estimated and have been flagged "J" on the data tables. High recoveries (> 130%) were observed for these compounds in the associated LCS analyses. (Validation Reason Code: LAH)

- The MDLs and LOQs for the following compounds in the samples listed below may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. In addition, the reported positive results for the following compounds should be considered estimated and have been flagged "J" on the data tables. Low responses (< 50% of the associated initial calibration average response) were observed for the labeled isotopes used to quantitate these compounds in the analyses of these samples. (Validation Reason Code: IS)

Sample	Compound With Estimated Positive Results ("J")	Compound(s) With Estimated MDLs and LOQs ("UJ")
SG3-RB01-20160615	-	PFHxA
SG3-FTB01-20160615	PFHxA	-
SG3-RB01-20160616	-	PFDoA and PFHxA

- The MDLs and LOQs for the following compounds in the samples listed below may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. In addition, the reported positive results for the following compounds should be considered estimated and have been flagged "J" on the data tables. High responses (> 150% of the associated initial calibration average response) were observed for the labeled isotopes used to quantitate these compounds in the analyses of these samples. (Validation Reason Code: IS)

Sample	Compound With Estimated Positive Results ("J")	Compound(s) With Estimated MDLs and LOQs ("UJ")
SG3-FD01-20160615	PFOA	PFNA, PFHpA, PFHxA, PFHxS, PFBS, PFOS, PFTA, and PFUnA
SG3-MW03-01.5	-	PFHxS and PFBS
SG3-MW03-03.5	-	PFHxS, PFBS, and PFOS
SG3-MW02-01.5	-	PFHpA
SG3-MW04-08.0	-	PFHpA and PFNA
SG3-MW04-09.5	PFOA	PFDA, PFDoA, PFTriA, PFTDA, PFHxA, PFUnA, PFHpA, PFOS, PFNA, PFHxS, and PFBS
SG3-MW04-12.5	PFOA	PFDA, PFHxA, PFUnA, PFHpA, PFOS, PFNA, PFHxS, and PFBS

- All positive results reported with concentrations between the laboratory's reported MDLs and LOQs were flagged "J" by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

B. General Parameter Data Review

The general parameter analyses of 27 soil samples (including QC samples) collected as part of the 1030 Water Street, Village of North Bennington, Vermont project on June 15 and 16, 2016, were performed by ELLE. The samples were analyzed for TOC by SM 5310B and for percent moisture by SM 2540G. Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data were presented in comprehensive data deliverable.

The findings offered in this report are based upon a review of all tabulated QC summary forms including the following QC measures:

- Sample holding times
- Blank analysis results
- Continuing calibration check recoveries
- MS results
- Analytical sequence
- Sample condition upon laboratory receipt
- Initial calibrations
- LCS results
- Laboratory duplicate precision
- Field duplicate precision

The analytical results for the target compounds are presented on the data tables in Section 2 of this DUSR. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, and other documentation needed to support the findings in this DUSR in the General Parameter Data Support Documentation (Section 6), Laboratory Case Narrative and Project Chain-of-Custody Record (Section 7), and Project Correspondence (Section 8). The data reviewer has also manually edited the laboratory-reported data and QC summary forms included in these sections based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the analytical methods performed.

Reporting Issue

- Reporting issues were not identified during this DUSR.

Procedural Issue

- Procedural issues were not identified during this DUSR.

Data Evaluation

With respect to data usability, the principal area of concern is quantitation below the LOQ. Based on a review of the data provided, the following data qualifier is offered. The following data usability issue represents an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical method used for analysis. Accordingly, the following data usability issue should not be construed as an indication of laboratory performance.

General Parameter Data Qualifier

- All positive results reported with concentrations between the laboratory's reported MDLs and LOQs were flagged "J" by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

C. Conclusions

The analytical data are acceptable for use as reported by the laboratory with the following qualifications. Several organic results were qualified as estimated due to low MS recoveries, out-of-criteria LCS/LCSD recoveries, and out-of-criteria internal standard responses. Several organic and general chemistry results were qualified as estimated due to quantitation below the LOQs. In order to use any of the data, the data user should understand the qualifications and limitations as specified in this DUSR. The Laboratory Case Narrative and Project Chain-of-Custody Record are presented in Section 7 of this report. Project Correspondence is presented in Section 8.

Report prepared by:

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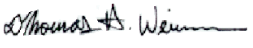

Thomas H. Weinmann
Senior Quality Assurance Chemist
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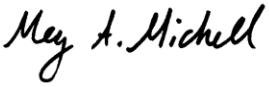
Report reviewed and approved by:



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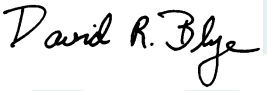

David R. Blye, CEAC
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Date: 6/8/17

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SECTION 2

VALIDATED DATA SUMMARY TABLES

Validation Qualifier and Reason Code Definitions

Table 1. Validation Qualifiers and Definitions

Validation Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analyte has been “tentatively identified” or considered “presumptively” present.
UJ	The analyte was analyzed for, but was not detected. The reported MDL and limit of quantitation (LOQ) are approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
UB	The Analyte was not detected substantially above the level reported in the associated laboratory, equipment, field, or trip blank.

Table 2. Validation Reason Codes and Descriptions

Validation Reason Code	Description
CI	Chromatographic interference
CR	Calculated result in which one or more of the components has been qualified, potential bias indeterminate
CRH	Calculated result in which one or more of the components has been qualified, potential high bias
CRL	Calculated result in which one or more of the components has been qualified potential low bias
CV	Continuing calibration verification evaluation criteria not met, potential bias indeterminate
CVH	Continuing calibration verification evaluation criteria not met, potential high bias
CVL	Continuing calibration verification evaluation criteria not met, potential low bias
DC	Reporting limit exceeds decision criteria (for non-detects)
DL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the detection limit.
DT	Dissolved metals concentration exceeded total metals concentration in the sample above the acceptance criteria
DV	Missing Deliverables
EB	Equipment blank contamination
EC	Result exceeds the calibration range, potential bias indeterminate
ECH	Result exceeds the calibration range, potential high bias
ECL	Result exceeds the calibration range, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
EP	Estimated Maximum Possible Concentration (EMPC)
FB	Field blank contamination
FD	Field duplicate imprecision, potential bias indeterminate
FP	Potential false positives
FR	Field replicate imprecision, potential bias indeterminate
HA	Holding time - preparation to analysis, potential bias indeterminate
HAH	Holding time - preparation to analysis, potential high bias
HAL	Holding time - preparation to analysis, potential low bias
HC	Holding time - collection to analysis, potential bias indeterminate
HCH	Holding time - collection to analysis, potential high bias
HCL	Holding time - collection to analysis, potential low bias
HP	Holding time - collection to preparation, potential bias indeterminate
HPH	Holding time - collection to preparation, potential high bias
HPL	Holding time - collection to preparation, potential low bias
HV	Headspace present in volatile vials, potential bias indeterminate
HVL	Headspace present in volatile vials, potential low bias
IB	Instrument (including initial calibration or continuing calibration) blank contamination
IC	Initial calibration evaluation criteria not met, potential bias indeterminate
ICH	Initial calibration evaluation criteria not met, potential high bias
ICL	Initial calibration evaluation criteria not met, potential low bias
ID	Target compound identification criteria not met
IN	Elevated detection limit due to interference (i.e., laboratory, chemical, and/or matrix)
IR	Interference check standard recovery criteria not met, potential bias indeterminate
IRH	Interference check standard recovery criteria not met, potential high bias
IRL	Interference check standard recovery criteria not met, potential low bias
IS	Internal standard evaluation criteria not met, potential bias indeterminate
ISH	Internal standard evaluation criteria not met, potential high bias
ISL	Internal standard evaluation criteria not met, potential low bias
LA	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential bias indeterminate
LAH	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential high bias
LAL	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
LD	Laboratory duplicate precision criteria not met, potential bias indeterminate
LM	The PFK lock mass SICPs indicate that ion suppression evident
LP	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential bias indeterminate
LPH	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential high bias
LPL	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential low bias
LR	Linear range exceeded, potential bias indeterminate
MA	Matrix spike (MS &/or MSD) recovery criteria not met, potential bias indeterminate
MAH	Matrix spike (MS &/or MSD) recovery criteria not met, potential high bias
MAL	Matrix spike (MS &/or MSD) recovery criteria not met, potential low bias
MB	Method blank or preparation blank contamination
MP	Matrix spike (MS/MSD) or laboratory duplicate precision criteria not met, potential bias indeterminate
NB	Elevated detection limit or estimated result due to instrument drift (i.e., negative ICB or CCB result with an absolute value > 2× the MDL)
PD	Post-digestion spike recovery outside acceptance range, potential bias indeterminate
PDH	Post-digestion spike recovery outside acceptance range, potential high bias
PDL	Post-digestion spike recovery outside acceptance range, potential low bias
PJ	Professional judgment, potential bias indeterminate
PJH	Professional judgment, potential high bias
PJL	Professional judgment, potential low bias
PM	Performance evaluation mixture criteria not met, potential bias indeterminate
PMH	Performance evaluation mixture criteria not met, potential high bias
PML	Performance evaluation mixture criteria not met, potential low bias
PR	Peak(s) not adequately resolved, potential bias indeterminate
PRH	Peak(s) not adequately resolved, potential high bias
PRL	Peak(s) not adequately resolved, potential low bias
PS	Low percent solids could affect accuracy, potential bias indeterminate
PT	Chromatographic pattern in sample does not match pattern of calibration standard
RA	Reference material recovery criteria not met, potential bias indeterminate

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
RAH	Reference material recovery criteria not met, potential high bias
RAL	Reference material recovery criteria not met, potential low bias
RB	Rinsate blank contamination
RL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the quantitation or reporting limit, potential bias indeterminate
SA	Method of standard additions correction coefficient <0.995, potential bias indeterminate
SC	RPD Between two columns exceeds criteria, potential bias indeterminate
SD	Serial dilution results did not meet evaluation criteria, potential bias indeterminate
SDH	Serial dilution results did not meet evaluation criteria, potential high bias
SDL	Serial dilution results did not meet evaluation criteria, potential low bias
SP	Sample Preservation / Cooler Temperature, potential bias indeterminate
SPH	Sample Preservation / Cooler Temperature, potential high bias
SPL	Sample Preservation / Cooler Temperature, potential low bias
SR	Surrogate recovery outside acceptance range, potential bias indeterminate
SRH	Surrogate recovery outside acceptance range, potential high bias
SRL	Surrogate recovery outside acceptance range, potential low bias
SS	Second source evaluation criteria not met, potential bias indeterminate
SSH	Second source evaluation criteria not met, potential high bias
SSL	Second source evaluation criteria not met, potential low bias
ST	Compound not quantitated against an authentic standard, potential bias indeterminate
TB	Trip blank contamination
TD	Result for dissolved constituent significantly exceeded result for total constituent, potential bias indeterminate
TIC	Tentative identification, quantified using an assumed calibration factor, potential bias indeterminate.
TIR	Tentative identification and was observed in an associated laboratory, equipment, field, or trip blank.
TN	Instrument performance (tuning) criteria not met
YH	Due to a high y-intercept in the calibration curve, the sample result quantitated to a value greater than the MDL. Since the response ratio in the sample was less than the response ratio in the associated MDL standard, the reported result was changed to not-detected.

Facility:Bennington

SDG:SGP94

Sample ID	SG3-FD01-20160615
Sample Date	6/15/2016 11:28:00 AM
Sample Type	FD
Parent Sample ID	SG3-MW03-01.0_06/15/2016
Sample Matrix	SO
Lab Sample ID	8432125
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.53	1.7	U	N		0.53	1.7	UJ	N	IS
Perfluorodecanoic acid (PFDA)	335-76-2	1	0.29	0.21	0.42	J	Y	0.29	0.21	0.42	J	Y	RL
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.42	0.85	U	N		0.42	0.85	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.32	0.64	U	N		0.32	0.64	UJ	N	IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.53	1.7	U	N		0.53	1.7	UJ	N	IS
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.21	0.42	U	N		0.21	0.42	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		0.21	0.42	U	N		0.21	0.42	UJ	N	IS
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.74	1.7	U	N		0.74	1.7	UJ	N	IS
Perfluorooctanoic acid (PFOA)	335-67-1	1	0.61	0.32	0.64	J	Y	0.61	0.32	0.64	J	Y	RL,IS
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.32	0.85	U	N		0.32	0.85	UJ	N	IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.64	1.3	U	N		0.64	1.3	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.32	0.64	U	N		0.32	0.64	UJ	N	IS

Facility:Bennington

SDG:SGP94

Sample ID	SG3-FTB01-20160615
Sample Date	6/15/2016 12:10:00 PM
Sample Type	FB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8432128
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1	2	1	2		Y	2	1	2		Y	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	3	1	2		Y	3	1	2		Y	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	4	1	2		Y	4	1	2	J	Y	IS
Perfluorononanoic acid (PFNA)	375-95-1	1	3	1	2		Y	3	1	2		Y	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	4	1	2		Y	4	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	2	2	4	J	Y	2	2	4	J	Y	RL,MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	3	2	4	J	Y	3	2	4	J	Y	RL

Facility:Bennington

SDG:SGP94

Sample ID	SG3-LTB01-20160615
Sample Date	6/8/2016 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8432116
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW02-00.0
Sample Date	6/16/2016 1:02:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432141
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.54	1.7	U	N		0.54	1.7	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.22	0.44	U	N		0.22	0.44	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1	1.3	0.44	0.87		Y	1.3	0.44	0.87		Y	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.33	0.65	U	N		0.33	0.65	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.54	1.7	U	N		0.54	1.7	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.22	0.44	U	N		0.22	0.44	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.22	0.44	U	N		0.22	0.44	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.76	1.7	U	N		0.76	1.7	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	1.6	0.33	0.65		Y	1.6	0.33	0.65		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	74	0.33	0.87		Y	74	0.33	0.87	J	Y	LAH
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	6.6	0.65	1.3		Y	6.6	0.65	1.3		Y	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.33	0.65	U	N		0.33	0.65	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW02-00.5
Sample Date	6/16/2016 1:05:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432142
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.54	1.7	U	N		0.54	1.7	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.22	0.43	U	N		0.22	0.43	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1	1.6	0.43	0.86		Y	1.6	0.43	0.86		Y	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.32	0.65	U	N		0.32	0.65	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.54	1.7	U	N		0.54	1.7	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.22	0.43	U	N		0.22	0.43	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.22	0.43	U	N		0.22	0.43	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.75	1.7	U	N		0.75	1.7	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	1.8	0.32	0.65		Y	1.8	0.32	0.65		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	93	0.32	0.86		Y	93	0.32	0.86	J	Y	LAH
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	15	0.65	1.3		Y	15	0.65	1.3		Y	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.32	0.65	U	N		0.32	0.65	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW02-01.0
Sample Date	6/16/2016 1:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432143
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.55	1.8	U	N		0.55	1.8	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1	0.33	0.22	0.44	J	Y	0.33	0.22	0.44	J	Y	RL
Perfluorododecanoic acid (PFDoA)	307-55-1	1	10	0.44	0.88		Y	10	0.44	0.88		Y	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.33	0.66	U	N		0.33	0.66	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.55	1.8	U	N		0.55	1.8	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	0.23	0.22	0.44	J	Y	0.23	0.22	0.44	J	Y	RL,LAH
Perfluorononanoic acid (PFNA)	375-95-1	1		0.22	0.44	U	N		0.22	0.44	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.77	1.8	U	N		0.77	1.8	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	7.1	0.33	0.66		Y	7.1	0.33	0.66		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	40	0.33	0.88		Y	40	0.33	0.88	J	Y	LAH
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	15	0.66	1.3		Y	15	0.66	1.3		Y	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	1.0	0.33	0.66		Y	1.0	0.33	0.66	J	Y	LAH

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW02-01.5
Sample Date	6/16/2016 1:13:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432144
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.58	1.9	U	N		0.58	1.9	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1	0.74	0.23	0.47		Y	0.74	0.23	0.47		Y	
Perfluorododecanoic acid (PFDoA)	307-55-1	1	16	0.47	0.93		Y	16	0.47	0.93		Y	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.35	0.70	U	N		0.35	0.70	UJ	N	MAL,LAL,IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.58	1.9	U	N		0.58	1.9	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.23	0.47	U	N		0.23	0.47	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.23	0.47	U	N		0.23	0.47	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.82	1.9	U	N		0.82	1.9	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	7.8	0.35	0.70		Y	7.8	0.35	0.70		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	11	0.35	0.93		Y	11	0.35	0.93	J	Y	LAH
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	6.5	0.70	1.4		Y	6.5	0.70	1.4		Y	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	1.8	0.35	0.70		Y	1.8	0.35	0.70		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-00.0
Sample Date	6/15/2016 11:20:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432120
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.53	1.7	U	N		0.53	1.7	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.21	0.43	U	N		0.21	0.43	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.43	0.85	U	N		0.43	0.85	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.32	0.64	U	N		0.32	0.64	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.53	1.7	U	N		0.53	1.7	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.21	0.43	U	N		0.21	0.43	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.21	0.43	U	N		0.21	0.43	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.75	1.7	U	N		0.75	1.7	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		0.32	0.64	U	N		0.32	0.64	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.32	0.85	U	N		0.32	0.85	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.64	1.3	U	N		0.64	1.3	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.32	0.64	U	N		0.32	0.64	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-00.5
Sample Date	6/15/2016 11:22:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432121
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.53	1.7	U	N		0.53	1.7	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.21	0.42	U	N		0.21	0.42	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.42	0.85	U	N		0.42	0.85	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.32	0.63	U	N		0.32	0.63	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.53	1.7	U	N		0.53	1.7	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.21	0.42	U	N		0.21	0.42	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.21	0.42	U	N		0.21	0.42	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.74	1.7	U	N		0.74	1.7	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		0.32	0.63	U	N		0.32	0.63	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.32	0.85	U	N		0.32	0.85	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.63	1.3	U	N		0.63	1.3	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.32	0.63	U	N		0.32	0.63	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-01.0
Sample Date	6/15/2016 11:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432124
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.54	1.7	U	N		0.54	1.7	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1	0.34	0.21	0.43	J	Y	0.34	0.21	0.43	J	Y	RL
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.43	0.86	U	N		0.43	0.86	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.32	0.64	U	N		0.32	0.64	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.54	1.7	U	N		0.54	1.7	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.21	0.43	U	N		0.21	0.43	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.21	0.43	U	N		0.21	0.43	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.75	1.7	U	N		0.75	1.7	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	0.76	0.32	0.64		Y	0.76	0.32	0.64		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.32	0.86	U	N		0.32	0.86	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.64	1.3	U	N		0.64	1.3	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.32	0.64	U	N		0.32	0.64	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-01.5
Sample Date	6/15/2016 11:37:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432126
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.54	1.7	U	N		0.54	1.7	UJ	N	IS
Perfluorodecanoic acid (PFDA)	335-76-2	1	0.34	0.22	0.43	J	Y	0.34	0.22	0.43	J	Y	RL
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.43	0.86	U	N		0.43	0.86	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.32	0.65	U	N		0.32	0.65	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.54	1.7	U	N		0.54	1.7	UJ	N	IS
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.22	0.43	U	N		0.22	0.43	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.22	0.43	U	N		0.22	0.43	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.76	1.7	U	N		0.76	1.7	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	1.1	0.32	0.65		Y	1.1	0.32	0.65		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.32	0.86	U	N		0.32	0.86	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.65	1.3	U	N		0.65	1.3	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.32	0.65	U	N		0.32	0.65	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-03.5
Sample Date	6/15/2016 1:05:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432129
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.57	1.8	U	N		0.57	1.8	UJ	N	IS
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.23	0.45	U	N		0.23	0.45	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.45	0.90	U	N		0.45	0.90	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.34	0.68	U	N		0.34	0.68	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.57	1.8	U	N		0.57	1.8	UJ	N	IS
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.23	0.45	U	N		0.23	0.45	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1	0.44	0.23	0.45	J	Y	0.44	0.23	0.45	J	Y	RL
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.79	1.8	U	N		0.79	1.8	UJ	N	IS
Perfluorooctanoic acid (PFOA)	335-67-1	1	7.6	0.34	0.68		Y	7.6	0.34	0.68		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.34	0.90	U	N		0.34	0.90	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.68	1.4	U	N		0.68	1.4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.34	0.68	U	N		0.34	0.68	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-06.0
Sample Date	6/15/2016 2:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432131
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.62	2.0	U	N		0.62	2.0	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.25	0.50	U	N		0.25	0.50	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.50	1.0	U	N		0.50	1.0	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.37	0.75	U	N		0.37	0.75	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.62	2.0	U	N		0.62	2.0	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.25	0.50	U	N		0.25	0.50	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1	0.26	0.25	0.50	J	Y	0.26	0.25	0.50	J	Y	RL
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.87	2.0	U	N		0.87	2.0	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	11	0.37	0.75		Y	11	0.37	0.75		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.37	1.0	U	N		0.37	1.0	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.75	1.5	U	N		0.75	1.5	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	0.37	0.37	0.75	J	Y	0.37	0.37	0.75	J	Y	RL,LAH

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-09.5
Sample Date	6/15/2016 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432132
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.63	2.0	U	N		0.63	2.0	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.25	0.50	U	N		0.25	0.50	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.50	1.0	U	N		0.50	1.0	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.38	0.75	U	N		0.38	0.75	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.63	2.0	U	N		0.63	2.0	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.25	0.50	U	N		0.25	0.50	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.25	0.50	U	N		0.25	0.50	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.88	2.0	U	N		0.88	2.0	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	23	0.38	0.75		Y	23	0.38	0.75		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.38	1.0	U	N		0.38	1.0	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.75	1.5	U	N		0.75	1.5	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.38	0.75	U	N		0.38	0.75	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-11.0
Sample Date	6/16/2016 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432138
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.63	2.0	U	N		0.63	2.0	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1	0.30	0.25	0.50	J	Y	0.30	0.25	0.50	J	Y	RL
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.50	1.0	U	N		0.50	1.0	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.38	0.75	U	N		0.38	0.75	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.63	2.0	U	N		0.63	2.0	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.25	0.50	U	N		0.25	0.50	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.25	0.50	U	N		0.25	0.50	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.88	2.0	U	N		0.88	2.0	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	3.6	0.38	0.75		Y	3.6	0.38	0.75		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.38	1.0	U	N		0.38	1.0	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.75	1.5	U	N		0.75	1.5	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.38	0.75	U	N		0.38	0.75	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-17.0
Sample Date	6/15/2016 3:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432135
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.61	1.9	U	N		0.61	1.9	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.24	0.49	U	N		0.24	0.49	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.49	0.97	U	N		0.49	0.97	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.36	0.73	U	N		0.36	0.73	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.61	1.9	U	N		0.61	1.9	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.24	0.49	U	N		0.24	0.49	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.24	0.49	U	N		0.24	0.49	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.85	1.9	U	N		0.85	1.9	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	1.0	0.36	0.73		Y	1.0	0.36	0.73		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.36	0.97	U	N		0.36	0.97	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.73	1.5	U	N		0.73	1.5	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.36	0.73	U	N		0.36	0.73	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-00.0
Sample Date	6/16/2016 8:55:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432133
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.53	1.7	U	N		0.53	1.7	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.21	0.42	U	N		0.21	0.42	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.42	0.84	U	N		0.42	0.84	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.32	0.63	U	N		0.32	0.63	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.53	1.7	U	N		0.53	1.7	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.21	0.42	U	N		0.21	0.42	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.21	0.42	U	N		0.21	0.42	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.74	1.7	U	N		0.74	1.7	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	2.0	0.32	0.63		Y	2.0	0.32	0.63		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.32	0.84	U	N		0.32	0.84	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.63	1.3	U	N		0.63	1.3	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.32	0.63	U	N		0.32	0.63	U	N	

Sample ID	SG3-MW04-00.5
Sample Date	6/16/2016 9:00:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432134
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1	1.6	0.56	1.8	J	Y	1.6	0.56	1.8	J	Y	RL
Perfluorodecanoic acid (PFDA)	335-76-2	1	0.92	0.22	0.44		Y	0.92	0.22	0.44		Y	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.44	0.89	U	N		0.44	0.89	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	1.1	0.33	0.67		Y	1.1	0.33	0.67	J	Y	LAH
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1	1.6	0.56	1.8	J	Y	1.6	0.56	1.8	J	Y	RL
Perfluorohexanoic acid (PFHxA)	307-24-4	1	1.4	0.22	0.44		Y	1.4	0.22	0.44	J	Y	LAH
Perfluorononanoic acid (PFNA)	375-95-1	1	1.2	0.22	0.44		Y	1.2	0.22	0.44		Y	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1	0.85	0.78	1.8	J	Y	0.85	0.78	1.8	J	Y	RL
Perfluorooctanoic acid (PFOA)	335-67-1	1	3.8	0.33	0.67		Y	3.8	0.33	0.67		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.33	0.89	U	N		0.33	0.89	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.67	1.3	U	N		0.67	1.3	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	0.61	0.33	0.67	J	Y	0.61	0.33	0.67	J	Y	RL,LAH

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-01.0
Sample Date	6/16/2016 9:05:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432136
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.53	1.7	U	N		0.53	1.7	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.21	0.43	U	N		0.21	0.43	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.43	0.86	U	N		0.43	0.86	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.32	0.64	U	N		0.32	0.64	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.53	1.7	U	N		0.53	1.7	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.21	0.43	U	N		0.21	0.43	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1	0.22	0.21	0.43	J	Y	0.22	0.21	0.43	J	Y	RL
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.75	1.7	U	N		0.75	1.7	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	4.0	0.32	0.64		Y	4.0	0.32	0.64		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.32	0.86	U	N		0.32	0.86	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.64	1.3	U	N		0.64	1.3	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.32	0.64	U	N		0.32	0.64	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-01.5
Sample Date	6/16/2016 9:10:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432137
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.53	1.7	U	N		0.53	1.7	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.21	0.43	U	N		0.21	0.43	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.43	0.85	U	N		0.43	0.85	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.32	0.64	U	N		0.32	0.64	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.53	1.7	U	N		0.53	1.7	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.21	0.43	U	N		0.21	0.43	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1	0.22	0.21	0.43	J	Y	0.22	0.21	0.43	J	Y	RL
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.75	1.7	U	N		0.75	1.7	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	3.2	0.32	0.64		Y	3.2	0.32	0.64		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.32	0.85	U	N		0.32	0.85	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.64	1.3	U	N		0.64	1.3	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.32	0.64	U	N		0.32	0.64	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-08.0
Sample Date	6/16/2016 1:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432145
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.60	1.9	U	N		0.60	1.9	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.24	0.48	U	N		0.24	0.48	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.48	0.95	U	N		0.48	0.95	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.36	0.72	U	N		0.36	0.72	UJ	N	LAL,IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.60	1.9	U	N		0.60	1.9	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.24	0.48	U	N		0.24	0.48	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.24	0.48	U	N		0.24	0.48	UJ	N	IS
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.84	1.9	U	N		0.84	1.9	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	7.2	0.36	0.72		Y	7.2	0.36	0.72		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.36	0.95	U	N		0.36	0.95	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.72	1.4	U	N		0.72	1.4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.36	0.72	U	N		0.36	0.72	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-09.5
Sample Date	6/16/2016 1:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432146
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.53	1.7	U	N		0.53	1.7	UJ	N	IS
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.21	0.42	U	N		0.21	0.42	UJ	N	IS
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.42	0.85	U	N		0.42	0.85	UJ	N	IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.32	0.64	U	N		0.32	0.64	UJ	N	LAL,IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.53	1.7	U	N		0.53	1.7	UJ	N	IS
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.21	0.42	U	N		0.21	0.42	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		0.21	0.42	U	N		0.21	0.42	UJ	N	IS
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.74	1.7	U	N		0.74	1.7	UJ	N	IS
Perfluorooctanoic acid (PFOA)	335-67-1	1	2.8	0.32	0.64		Y	2.8	0.32	0.64	J	Y	IS
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.32	0.85	U	N		0.32	0.85	UJ	N	IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.64	1.3	U	N		0.64	1.3	UJ	N	IS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.32	0.64	U	N		0.32	0.64	UJ	N	IS

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-12.5
Sample Date	6/16/2016 1:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432147
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.60	1.9	U	N		0.60	1.9	UJ	N	IS
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.24	0.48	U	N		0.24	0.48	UJ	N	IS
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.48	0.95	U	N		0.48	0.95	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.36	0.72	U	N		0.36	0.72	UJ	N	LAL,IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.60	1.9	U	N		0.60	1.9	UJ	N	IS
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.24	0.48	U	N		0.24	0.48	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		0.24	0.48	U	N		0.24	0.48	UJ	N	IS
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.83	1.9	U	N		0.83	1.9	UJ	N	IS
Perfluorooctanoic acid (PFOA)	335-67-1	1	0.80	0.36	0.72		Y	0.80	0.36	0.72	J	Y	IS
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.36	0.95	U	N		0.36	0.95	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.72	1.4	U	N		0.72	1.4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.36	0.72	U	N		0.36	0.72	UJ	N	IS

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-4.5
Sample Date	6/16/2016 12:05:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432139
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.62	2.0	U	N		0.62	2.0	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.25	0.49	U	N		0.25	0.49	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.49	0.99	U	N		0.49	0.99	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.37	0.74	U	N		0.37	0.74	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.62	2.0	U	N		0.62	2.0	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.25	0.49	U	N		0.25	0.49	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.25	0.49	U	N		0.25	0.49	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.86	2.0	U	N		0.86	2.0	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	2.8	0.37	0.74		Y	2.8	0.37	0.74		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.37	0.99	U	N		0.37	0.99	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.74	1.5	U	N		0.74	1.5	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.37	0.74	U	N		0.37	0.74	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW05-05.0
Sample Date	6/15/2016 10:05:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432118
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.62	2.0	U	N		0.62	2.0	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.25	0.49	U	N		0.25	0.49	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.49	0.99	U	N		0.49	0.99	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.37	0.74	U	N		0.37	0.74	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.62	2.0	U	N		0.62	2.0	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.25	0.49	U	N		0.25	0.49	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.25	0.49	U	N		0.25	0.49	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.86	2.0	U	N		0.86	2.0	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	2.4	0.37	0.74		Y	2.4	0.37	0.74		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.37	0.99	U	N		0.37	0.99	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.74	1.5	U	N		0.74	1.5	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.37	0.74	U	N		0.37	0.74	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW05-09.0
Sample Date	6/15/2016 10:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432119
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.60	1.9	U	N		0.60	1.9	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.24	0.48	U	N		0.24	0.48	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.48	0.97	U	N		0.48	0.97	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.36	0.73	U	N		0.36	0.73	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.60	1.9	U	N		0.60	1.9	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.24	0.48	U	N		0.24	0.48	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.24	0.48	U	N		0.24	0.48	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.85	1.9	U	N		0.85	1.9	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		0.36	0.73	U	N		0.36	0.73	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.36	0.97	U	N		0.36	0.97	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.73	1.5	U	N		0.73	1.5	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.36	0.73	U	N		0.36	0.73	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-RB01-20160615
Sample Date	6/15/2016 9:05:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8432117
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-RB01-20160616
Sample Date	6/16/2016 12:20:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8432140
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	UJ	N	IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	1	1	2	J	Y	1	1	2	J	Y	RL
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-RB02-20160615
Sample Date	6/15/2016 11:25:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8432127
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	1	1	2	J	Y	1	1	2	J	Y	RL
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-RB03-20160615
Sample Date	6/15/2016 2:05:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8432130
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	2	1	2	J	Y	2	1	2	J	Y	RL
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	2	1	2		Y	2	1	2		Y	
Perfluorononanoic acid (PFNA)	375-95-1	1	1	1	2	J	Y	1	1	2	J	Y	RL
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	2	1	2		Y	2	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-FD01-20160615
Sample Date	6/15/2016 11:28:00 AM
Sample Type	FD
Parent Sample ID	SG3-MW03-01.0_06/15/2016
Sample Matrix	SO
Lab Sample ID	8432125
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	5.8	0.50	0.50		Y	5.8	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW02-00.0
Sample Date	6/16/2016 1:02:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432141
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	8.2	0.50	0.50		Y	8.2	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW02-00.5
Sample Date	6/16/2016 1:05:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432142
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	7.0	0.50	0.50		Y	7.0	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW02-01.0
Sample Date	6/16/2016 1:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432143
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	8.6	0.50	0.50		Y	8.6	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW02-01.5
Sample Date	6/16/2016 1:13:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432144
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	14.3	0.50	0.50		Y	14.3	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-00.0
Sample Date	6/15/2016 11:20:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432120
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	6.2	0.50	0.50		Y	6.2	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-00.5
Sample Date	6/15/2016 11:22:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432121
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	5.4	0.50	0.50		Y	5.4	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-01.0
Sample Date	6/15/2016 11:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432124
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	6.7	0.50	0.50		Y	6.7	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-01.5
Sample Date	6/15/2016 11:37:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432126
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	7.4	0.50	0.50		Y	7.4	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-03.5
Sample Date	6/15/2016 1:05:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432129
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	11.6	0.50	0.50		Y	11.6	0.50	0.50		Y	

Sample ID	SG3-MW03-06.0
Sample Date	6/15/2016 2:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432131
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	19.7	0.50	0.50		Y	19.7	0.50	0.50		Y	

Sample ID	SG3-MW03-09.5
Sample Date	6/15/2016 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432132
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	20.4	0.50	0.50		Y	20.4	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-11.0
Sample Date	6/16/2016 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432138
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	20.3	0.50	0.50		Y	20.3	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-17.0
Sample Date	6/15/2016 3:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432135
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	17.8	0.50	0.50		Y	17.8	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-00.0
Sample Date	6/16/2016 8:55:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432133
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	5.3	0.50	0.50		Y	5.3	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-00.5
Sample Date	6/16/2016 9:00:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432134
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	10.0	0.50	0.50		Y	10.0	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-01.0
Sample Date	6/16/2016 9:05:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432136
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	6.5	0.50	0.50		Y	6.5	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-01.5
Sample Date	6/16/2016 9:10:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432137
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	6.4	0.50	0.50		Y	6.4	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-08.0
Sample Date	6/16/2016 1:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432145
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	19.1	0.50	0.50		Y	19.1	0.50	0.50		Y	

Sample ID	SG3-MW04-09.5
Sample Date	6/16/2016 1:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432146
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	11.1	0.50	0.50		Y	11.1	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-12.5
Sample Date	6/16/2016 1:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432147
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	19.5	0.50	0.50		Y	19.5	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-4.5
Sample Date	6/16/2016 12:05:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432139
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	18.9	0.50	0.50		Y	18.9	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW05-05.0
Sample Date	6/15/2016 10:05:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432118
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	18.8	0.50	0.50		Y	18.8	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW05-09.0
Sample Date	6/15/2016 10:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432119
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	17.3	0.50	0.50		Y	17.3	0.50	0.50		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW02-00.0
Sample Date	6/16/2016 1:02:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432141
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	1410	154	461		Y	1410	154	461		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW02-00.5
Sample Date	6/16/2016 1:05:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432142
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1		169	506	U	N		169	506	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW02-01.0
Sample Date	6/16/2016 1:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432143
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	1610	269	807		Y	1610	269	807		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW02-01.5
Sample Date	6/16/2016 1:13:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432144
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	8230	688	2070		Y	8230	688	2070		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-00.0
Sample Date	6/15/2016 11:20:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432120
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	1800	297	892		Y	1800	297	892		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-00.5
Sample Date	6/15/2016 11:22:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432121
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	1860	204	612		Y	1860	204	612		Y	

Sample ID	SG3-MW03-01.0
Sample Date	6/15/2016 11:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432124
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	434	234	701	J	Y	434	234	701	J	Y	RL

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-01.5
Sample Date	6/15/2016 11:37:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432126
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	2380	202	606		Y	2380	202	606		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-03.5
Sample Date	6/15/2016 1:05:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432129
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	6210	242	726		Y	6210	242	726		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-06.0
Sample Date	6/15/2016 2:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432131
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	5050	446	1340		Y	5050	446	1340		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW03-09.5
Sample Date	6/15/2016 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432132
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	10500	648	1940		Y	10500	648	1940		Y	

Sample ID	SG3-MW03-11.0
Sample Date	6/16/2016 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432138
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	5740	169	508		Y	5740	169	508		Y	

Sample ID	SG3-MW03-17.0
Sample Date	6/15/2016 3:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432135
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1		159	478	U	N		159	478	U	N	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-00.0
Sample Date	6/16/2016 8:55:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432133
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	1480	235	706		Y	1480	235	706		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-00.5
Sample Date	6/16/2016 9:00:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432134
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	4290	466	1400		Y	4290	466	1400		Y	

Sample ID	SG3-MW04-01.0
Sample Date	6/16/2016 9:05:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432136
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	2770	316	947		Y	2770	316	947		Y	

Sample ID	SG3-MW04-01.5
Sample Date	6/16/2016 9:10:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432137
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	2450	311	933		Y	2450	311	933		Y	

Sample ID	SG3-MW04-08.0
Sample Date	6/16/2016 1:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432145
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	1480	363	1090		Y	1480	363	1090		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-09.5
Sample Date	6/16/2016 1:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432146
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	4210	388	1160		Y	4210	388	1160		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW04-12.5
Sample Date	6/16/2016 1:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432147
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1		124	373	U	N		124	373	U	N	

Sample ID	SG3-MW04-4.5
Sample Date	6/16/2016 12:05:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432139
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	1000	171	514		Y	1000	171	514		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW05-05.0
Sample Date	6/15/2016 10:05:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432118
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	5610	385	1160		Y	5610	385	1160		Y	

Facility:Bennington

SDG:SGP94

Sample ID	SG3-MW05-09.0
Sample Date	6/15/2016 10:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8432119
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1		177	530	U	N		177	530	U	N	

SECTION 3

LABORATORY CALIBRATION AND QUALITY CONTROL ACCEPTANCE CRITERIA

Initial Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
1. Initial Calibration: Minimum of five calibration standards spanning at least a 20-fold concentration range. 2. Analyze MDL standard to ensure all compounds detected at MDL level	1. Initially and the after continuing calibration fails. 2. Analyzed with each initial calibration.	1. Back calculated concentration of each calibration point should be within ±70-130% of true. The level 1 calibration standard back calculated concentrations should be ±50-150% of true value. Analytes without a labeled internal standard back calculated concentrations should be within ±40-160% of true value. 2. All compounds detected.	1. If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the initial calibration can be used. In those cases, the data will be reported with a qualifying comment. 2. If compound not detected in MDL standard, the source of the problem should be determined and the system recalibrated.

Continuing Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Analyze every 10 samples and at the end of the analysis sequence. Concentrations alternate between low, mid, and high levels of the calibration curve.	Occurs every 10 samples and at the end of the analysis sequence.	Calculated amount should be within ±30% of the true value. Compounds without labeled internal standards should have calculated amounts within ±40% of the true value. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the continuing calibration can be used. In those cases, the data will be reported with a qualifying comment.

Initial Calibration Verification

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Second source standard analyzed at the end of each initial calibration.	Analyzed with each initial calibration	1. Calculated amount for each compound should be within ±70-130% of the true value. Analytes without a labeled internal standard should have calculated amounts within ±40% of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	1. If criteria are not met, the source of the problem should be determined and corrected. Situations may exist where the initial calibration verification can be used. In those cases, the data will be reported with a qualifying comment.

QC Acceptance Criteria

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Method Blanks	1 per 20 field samples	No positive detections above the MDL.	Reextract to confirm detection or report if the analyte present in the method blank is not detected in the sample.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
LCS	1 per 20 field samples	1. Advisory QC limits of 70-130%, RPD<30% 2. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	Reextract LCS and associated samples. Analytes that fail high and are ND in the samples can be reported. Due to the advisory nature of the acceptance limits, situations may exist where LCS can be used. In those cases, the data will be reported with a qualifying comment.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
MS/MSD	MS is routinely prepared with each extraction batch. If limited sample volume exists, an LCS/LCSD will be prepared.	1. Advisory QC limits of 70-130%, RPD<30%. 2. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	Evaluate in conjunction with LCS.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Isotopically labeled internal standards	Per sample (including MS/MSD, LCS, and Blanks)	The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	Reinject samples as necessary. Report data with qualifying comment.

SECTION 4

ENVIRONMENTAL STANDARDS, INC., STANDARD OPERATING PROCEDURE

1.0 OBJECTIVES

This standard operating procedure (SOP) describes procedures that the Environmental Standards data reviewers will use to validate Perfluorinated Compound (PFC) data for solid samples generated by Eurofins SOP "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins Document Reference 1-P-QM-WI-9035864) or "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537.1 Modified Using LC/MS/MS" (Eurofins Document Reference 1-P-QM-WI-9039643) and aqueous samples generated by Eurofins SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins Document Reference 1-P-QM-WI -9012802) or "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537.1 Modified Using LC/MS/MS" (Eurofins Document Reference 1-P-QM-WI -9039651), for various Saint-Gobain Performance Plastics Corporation (Saint-Gobain) sites. Validation will be performed to assess compliance of the sample data to these Eurofins SOPs and any applicable Work Plans and/or Quality Assurance Project Plans (QAPPs). In addition, the usability of the PFC data provided by the analytical laboratory will be determined based on the general guidance provided in the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016) and "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016). It should be noted that the National Functional Guidelines apply strictly to data generated by the Contract Laboratory Program (CLP) protocol and are not directly applicable to validation of data generated by Modified EPA Method 537; therefore, this SOP presents the specific data qualification actions that will be used for validation.

The validation findings will be presented in a quality assurance review (QAR) that will be prepared for one or more sample delivery groups (SDGs). Copies of annotated analytical results summaries (Form I's), including any changes to the analytical results and data qualifier codes, or

a data summary spreadsheet of the qualified analytical results, will be included in the support documentation of the QAR.

2.0 EVALUATION TOOLS

- field duplicate form (DVF_DUP_SG_ELLE.xlsm)

Chemistry Applications:

- Curve fitting software (DVF_CAL.xlsm)
- Methods Database

3.0 REFERENCE DOCUMENTS

- "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016)
- "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016).
- Eurofins Document Reference 1-P-QM-WI -9035864.
- Eurofins Document Reference 1-P-QM-WI -9012802.
- Eurofins Document Reference 1-P-QM-WI -9039643.

- Eurofins Document Reference 1-P-QM-WI -9039651.
- US EPA Method 537, Version 1.1 (September 2009).
- Guidance for Labelling Externally Validated Laboratory Analytical Data for Superfund Use (EPA 540-R-08-005, 2009).

4.0 PROCEDURE

4.1 EVALUATION OF METHOD COMPLIANCE

The data reviewer will assess the method compliance of the PFC data based on an evaluation of information presented in the data package deliverables. Compliance to the aforementioned SOPs (and Work Plan and/or QAPP when applicable) will be evaluated as part of the assessment. In addition, the deliverables will be evaluated for reporting errors and inconsistencies. The findings of the compliance assessment will be described in terms of comments/deficiencies about the data/deliverables and presented in two subdivisions (*i.e.*, Reporting Issues and Procedural Issues) of the Organic Data Evaluation Section of the QAR. Each issue discussed in the QAR will indicate any subsequent impact on the usability of the data or will identify aspect(s) of the data that could not be evaluated due to the deficiency.

The data reviewer may contact the project laboratory to request the correction of deficiencies prior to submittal of the QAR (if feasible and sanctioned by Saint Gobain). At a minimum, corrections required to allow for a full evaluation of the usability of the data should be requested. Such correctable deficiencies may include sample result errors,

missing data deliverables, or calculation errors that would require a significant amount of the data reviewer's time to correct. Any laboratory resubmittals as a result of such requests will be discussed in the Reporting Issue subdivision of the QAR and included as an attachment to the QAR.

4.2 DETERMINATION OF DATA USABILITY

The data reviewer will determine the usability of the PFC data based on an evaluation of the information presented in the data package deliverables. The findings of the PFC data usability assessment will be presented in terms of data qualifications that the project team should consider in order to best utilize the data; these qualifications will be presented in the Organic Data Qualifier subsection of the QAR. Each qualification discussed in the QAR will indicate that the affected sample result(s) has been flagged with a representative qualifier code(s) in the data tables to provide, at a glance, an indication of the quantitative and qualitative reliability of each analytical result. In general, the qualifier statements will be presented in the QAR in the following order: blank contamination (UB), unusable results (R/UR), estimated results (J/UJ), tentative identifications of target compound results (N), and a general qualifier for all results reported below the limit of quantitation (if applicable). In addition, a Validation Reason Code will be presented on the data tables to indicate the reason that a qualifier code has been applied.

The data reviewer's criteria for evaluating the usability of the PFC data and the resultant qualifications and reason codes will be as stipulated on the attached Table for the Validation of PFC Data Generated. Additional qualifications and reason codes will be assigned based on professional judgement. It should be noted that the project manager

should be consulted when "professional judgement" use is indicated on the attached table.

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Temperature Upon Receipt	≤6°C	If temperature is <2°C, no action is required unless samples were frozen/broken and then professional judgment should be used. If temperature is >6°C but ≤20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SPL") If temperature is > 20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SPL") Note time of collection relative to receipt at laboratory. Professional judgement should be used if < 8 hours has elapsed from collection to receipt at the laboratory to determine if qualification due to elevated temperature applies.
Technical Holding Time	Solid samples should be extracted within 28 days of sample collection and aqueous samples should be extracted within 14 days of collection. All extracts should be analyzed within 28 days after extraction.	If a holding time is exceeded, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively) If a holding time is grossly exceeded (*i.e.*, > twice the holding time), qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively)

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Initial Calibration (See Note #1 for additional information.)	Back calculated concentration of each calibration point should be within 70-130% of true. The level 1 (lowest) calibration standard back calculated concentrations should be within 50-150% of true value. Analytes without a labeled internal standard back calculated concentrations should be within 60-140% of true value.	When evaluating initial calibration, use professional judgment to first assess impact of any out-of-criteria labeled PFC on the corresponding target PFC(s). If the low point or consecutive points at the low end of the curve are below the lower recovery criteria, qualify positive results < lowest compliant point as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "ICL") If the low point or consecutive points at the low end of the curve are above the upper recovery criteria, qualify positive results < lowest compliant point as estimated ("J"). If a point in the middle of the curve or non-consecutive points (beside the low point) quantitate outside of criteria, qualify positive results as estimated ("J"). If the high point or consecutive points at the upper end of the curve quantitates outside of criteria, qualify positive results > highest compliant point as estimated ("J"). (Validation Reason Code "ICL," "ICH," or "IC," are to be used based on whether direction of bias can be determined in these situations) Professional judgement should be used to qualify "not-detected" results as estimated ("UJ") if low recoveries are observed for standards other than the lowest calibration point. (Validation Reason Code "ICL")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Second Source Initial Calibration Verification (ICV)	1. Calculated amount for each compound should be within 70-130% (±30%) of the true value. Analytes without a labeled internal standard should have calculated amounts within 60-140% (±40%) of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within 50-150% of the average areas measured during the initial calibration.	**Qualification is for all samples associated with initial calibration being verified.** **When evaluating ICV, use professional judgment to first assess impact of any out-of-criteria labeled PFC on the corresponding target PFC.** If target PFC has %D>30% (or >40% for compounds without labeled internal standards) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "SSH") If target PFC has %D>30% (or >40% for compounds without labeled internal standards) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SSL") If target PFC has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SSL")
Daily Calibration Verification (See Note #2 for additional information.)	Calculated amount should be within ±30% of the true value. Compounds without labeled internal standards should have calculated amounts within ±40% of the true value. The absolute areas of the isotopically labeled internal standards should be within 50-150% of the average areas measured during the initial calibration.	**Qualification is for all samples on both sides of the out-of-criteria calibration verification standards.** **When evaluating calibration verification, use professional judgment to first assess impact of any out-of-criteria labeled PFC on the corresponding target PFC.** If target PFC has %D>30% (or >40% for compounds without labeled internal standards) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "CVH") If target PFC has %D>30% (or >40% for compounds without labeled internal standards) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "CVL") If target PFC has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "CVL")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Blanks (See Note #3 for additional information.)	Summarize all results greater than the method detection limit (MDL) present in the blanks. The highest positive result associated with a sample should be utilized for evaluation of contamination.	If a target PFC is found in the blank but not in the associated sample(s), no action is required. If a sample result is ≤5× the blank result, qualify the positive result as "not detected" ("UB") and raise the method detection limit (MDL) and/or limit of quantitation (LOQ) (if lower than original reported positive result) to the value of the original result. (Validation Reason Code(s) "EB," FB," "IB," "MB," and or "TB," as appropriate). If a sample result is >5× blank result, qualification is not required. Professional judgement should be used to evaluate whether an aqueous blank should be used to qualify a solid sample.
Internal Standards (Labelled Analytes, spiked prior to extraction)	The response for each IS in the original sample (prior to dilutions) must be within ±%50 of the average initial calibration response.	If an IS response is outside of 50-150% but ≥10%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ") for PFCs quantitated using that IS. (Validation Reason Code "IS") If an IS response is < 10%, qualify positive results for the associated PFCs as estimated ("J") and qualify "not-detected" results for the associated PFCs as estimated ("UJ") or unusable ("R") using professional judgment (based on the approximate signal-to-noise ratio for the IS and the expected response for the target PFC at the LOQ). (Validation Reason Code "IS")
Laboratory Control Samples (LCS)/ Laboratory Control Sample Duplicates (LCSD)	%R within 70-130%, RPD ≤ 30%.	The LCS qualification will be applied to all samples in the preparation batch. If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). (Validation Reason Code "LAL") If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "LAL") If the precision between recoveries exceeds the RPD criterion, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LP")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Matrix Spike/Matrix Spike Duplicate (MS/MSD) (If performed)	%R within 70-130%, RPD ≤ 30%.	Data should not be qualified due to %Rs (or RPDs calculated on %Rs) that are outside of criteria if the original concentration of a PFC is >4× the spiking level for that compound. RPDs calculated using MS/MSD results can be used to evaluate precision. If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "MAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "MAL") If the precision between recoveries exceeds the RPD criterion, qualify the positive result in the native sample as estimated ("J") and do not qualify the "not-detected" result. (Validation Reason Code "MP")
Field/Laboratory Duplicate (See Note #4 for additional information)	RPD ≤ 30% when PFCs are detected in one sample ≥ sample-specific LOQ (RL). The RPD should be ≤30% for results >5× the sample-specific LOQ (RL). The difference between results should be ≤ 1.5×LOQ when at least one result is ≤5× the LOQ.	If both results are <LOQ, a quantitative assessment of duplicate precision is not performed. If the criteria are not met, qualify positive results for the out-of-criteria PFCs in the original sample and its duplicate as estimated ("J"). (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate) Use the MDL as a numerical value for any "not-detected" result in the difference calculation. Qualify "not-detected" results as estimated ("UJ") if the difference between the results is outside of criteria. (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate)
Percent Solids	Solid samples with less than 30% solid content require qualification.	If a solid sample has a percent solid content <30%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code of "PS") Use professional judgment if a solid sample has a percent solids content <10%. (Validation Reason Code of "PS")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Compound Quantitation and Qualitative Identification (See Notes #5 for additional information.)	Samples with results that exceed the instrument calibration range should be reanalyzed at a dilution or re-extracted with a lower volume.	If a target PFC result exceeds the instrument calibration range, qualify positive result as estimated ("J"). (Validation Reason Code "EC") Use professional judgment to determine whether sample reanalyses and dilutions should be compared to the original analyses. If criteria (see field duplicate usability) between the original sample results and the reanalysis sample results are not met, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "LD") If a target PFC is <LOQ but ≥MDL, qualify positive results as estimated ("J"). (Validation Reason Code "RL") Use professional judgment to determine whether quantitation and qualitative identifications are accurate and whether data qualification is necessary.
System Performance	Professional judgement should be used when assessing the degradation of system performance during analyses.	Use professional judgment to qualify the data if it is determined that system performance degraded during sample analyses.
Overall Assessment of Data	Assess overall quality of the data. Review available materials to assess the quality, keeping in mind the additive nature of the analytical problems.	Use professional judgment to determine the need to qualify data not qualified based on the QC previously discussed. Write a brief narrative to give the user an indication of the analytical limitations of the data. If sufficient information on the intended use and required quality of the data is available, include the assessment of the usability of the data within the given context.

Validation Notes

1. Use professional judgment when evaluating the response intercept of a calibration curve. If the response intercept is positive, the samples should be evaluated for false positives. If the response intercept is negative, the sample should be evaluated for false negatives.

2. If instrument instability (*i.e.*, several calibration verification standards with PFCs exhibiting both increasing and decreasing sensitivity throughout an analytical sequence) is observed in the analysis of sequential calibration verification standards, "not-detected" results may be qualified as estimated ("UJ") due to instrument sensitivity of a continuing calibration standard response that is greater than the initial calibration standard response (increase in instrument sensitivity).

3. The frequency of equipment/rinse blanks is determined during the sampling event. The results of an equipment/rinse blank should be applied to all samples collected in the same day by the same techniques, unless only one blank was collected for a several-day sampling event. In instances where more than one blank is associated with a given sample, qualification should be based upon a comparison with the associated blank having the highest concentration of a contaminant.

   Method blank contamination should be applied to samples in the preparation batch.

   Instrument blank contamination should be applied to samples bracketing the contaminated instrument blank.

   Blanks should also be evaluated using professional judgment for non-target interference.

Validation Notes

4. Duplicate samples may be collected and analyzed as an indication of overall precision. Field duplicate analyses measure both field and laboratory precision; therefore, the results may have more variability than laboratory duplicates that measure only laboratory performance. Laboratory duplicate results and field duplicate results apply only to the original sample and the laboratory/field duplicate. Solid duplicate results are expected to have greater variance than aqueous duplicate results.

5. If a sample result exceeds the instrument calibration range (lower dilution analysis) or is less than the LOQ (secondary dilution), do not utilize this result when comparing an original analysis and a diluted reanalysis.

Poor chromatographic performance may affect qualitative identification and/or quantitation. Indications of substandard performance include:

- High background levels
- Extraneous peaks
- Loss of resolution
- Peak tailing or peak splitting that may result in inaccurate quantitation
- The laboratory analyzes a Cal3 level standard that contains linear and branch chained isomers of PFOA, PFOS, and PFHxS for analyses by Eurofins Document References 1-P-QM-WI-9039643 and 1-P-QM-WI -9039651. The analysis of this standard is used to demonstrate where the branch chained isomers elute and is not included in the calibration curve. This will assist the chemist in the integration of branched isomers of these compounds in samples.

SECTION 5

ORGANIC DATA SUPPORT DOCUMENTATION

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	Saint Gobain Bennington	Reviewed by:	Dana Pasi (DLB)
Sample Collection Dates:	06/15/16 – 06/16/2016	Approved by:	MAM
Job Number:	Group #1641935	Completion Date:	5/2017
Project Manager:	MAM		
Laboratory:	ELLE	Applicable Sample No's (√)	Refer to Table 1 in the Quality Assurance Review

Deliverable:			Sample No.	Lab Control No.
	CLP (Full)	( )		
	Level IV (Full)	(√)	SGP94	
	Limited	( )		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail Check (√) if Yes or Footnote Letter for Comments Below					Problems Identified Check (√) if Yes or Footnote Letter for Comments Below					Support Documentation Attachments Check (√) if Yes or Footnote Letter for Comments Below				
	PFC					PFC					PFC				
Holding Times	√										√				
Blank Analysis: Target Cmpds	√										√				
Sys Montr Cmps/Surrogates	NA														
Matrix Spike/Matrix Spike Duplicate	√					√ (2)					√				
Blank Spike	√					√ (3)					√				
Duplicate Analysis (X) Field ( ) Lab	√														
Detection Limit/Sensitivity	√										√				
Qualitative Identification: Target Cmpds	√					(7)					√				
Qualitative Identification: TICs	NA														
DFTPP & BFB Mass Tuning	NA														
GC Instrument Performance	NA														
Initial Calibrations	√					√ (4)					√				
Continuing Calibrations	√										√				
Quantitation of Results	√					(6)					√				
DDT/Endrin Breakdown	NA														
Surrogate Retention Time Shifts	NA														
Internal Standards Performance	√					√ (5)					√				
Resolution Check Standards	NA														
Analytical Sequence	√										√				
Florisil Cartridge & GPC Calibration	NA														
GC Column Agreement	NA														
Condition Upon Receipt	√										√				
Percent Solids	√ (1)														
Others:						ESI performed									

Comments: (1) Checked % solids but did not perform Level IV review; (2) 16182008 soil batch: PFDA and PFDoA MS and MSD Recoveries both exceeded limits but source sample ND resulting in no qualification; 16190006 soil batch: PFHpA low MS (67%); (3) 16182008 soil batch: PFHpA, PFHxA, PFTeDA, PFUDA high LCS; 16190006 soil batch PFHpA low LCS and LCSD, PFTeDA high LCS; (4) PFOS, PFNA, PFDA soil ICAL had 3rd level dropped; (5) ISTD responses low for some target analytes. (6) Updated MDLs/LOQs for exact wt. & integrated branched PFOA for 5432144-47 (7) Several samples had false P for PFOA lab addressed

See Report Text

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample Number	Contaminant	Concentration (ng/l)	Qualification limit	
						5×	10×
PFC	Aq	FB	SG3-FTB01-20160615	Perfluorodecanoic acid (PFDA)	2 ✓		
PFC	Aq	FB	SG3-FTB01-20160615	Perfluoroheptanoic acid (PFHpA)	3 ✓		
PFC	Aq	FB	SG3-FTB01-20160615	Perfluorohexanoic acid (PFHxA)	4 ✓		
PFC	Aq	FB	SG3-FTB01-20160615	Perfluorononanoic acid (PFNA)	3 ✓		
PFC	Aq	FB	SG3-FTB01-20160615	Perfluorooctanoic acid (PFOA)	4 ✓		
PFC	Aq	FB	SG3-FTB01-20160615	Perfluorotridecanoic Acid (PFTriA)	2 ✓		
PFC	Aq	FB	SG3-FTB01-20160615	Perfluoroundecanoic Acid (PFUnA)	3 ✓		
PFC	Aq	TB	SG3-LTB01-20160615	Perfluorooctanoic acid (PFOA)	2 ✓ X		
PFC	Aq	EB	SG3-RB01-20160615	Perfluorooctanoic acid (PFOA)	2 ✓ X		
PFC	Aq	EB	SG3-RB01-20160616	Perfluoroheptanoic acid (PFHpA)	1 ✓		
PFC	Aq	EB	SG3-RB01-20160616	Perfluorooctanoic acid (PFOA)	2 ✓ X		
PFC	Aq	EB	SG3-RB02-20160615	Perfluoroheptanoic acid (PFHpA)	1 ✓		
PFC	Aq	EB	SG3-RB02-20160615	Perfluorooctanoic acid (PFOA)	2 ✓ X		
PFC	Aq	EB	SG3-RB03-20160615	Perfluoroheptanoic acid (PFHpA)	2 ✓		
PFC	Aq	EB	SG3-RB03-20160615	Perfluorohexanoic acid (PFHxA)	2 ✓		
PFC	Aq	EB	SG3-RB03-20160615	Perfluorononanoic acid (PFNA)	1 ✓		
PFC	Aq	EB	SG3-RB03-20160615	Perfluorooctanoic acid (PFOA)	2 ✓		
PFC	S	MB	16182008 BLK	All ND	PFC		
PFC	S	MB	16190006 BLK	All ND	PFC		
PFC	Aq	MB	16172001 BLK	All ND	PFC		

1 – V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: _____

2 – MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes: _____

X = False +'s Revised by Lab to ND

No impact (all soils)

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Effective Date: 11/23/2015
Revision: 0

Matrix: ○ Aqueous ◉ Non-aq.
Reporting Level: ◉ MDL ○ QL
Units: ng/g

PRECISION OBJECTIVES:
If Both Results ≥ 5 × Their QL, RPD ≤: 30
If Either Result < 5 × Its QL, Dif. ≤: 1.5 **× Highest QL**

Sample ID:	SG3-MW03-01.0				**Duplicate Sample ID:**	SG3-FD01-20160615					
Analyte	**Sample Concentration**	**Qual**	**QL**	**MDL**	**Duplicate Concentration**	**Qual**	**QL**	**MDL**	**Difference**	**RPD**	**Flag**
Perfluorodecanoic acid	0.34	J	0.43	0.21	0.29	J	0.42	0.21	NA	NA	
Perfluorooctanoic acid	0.76		0.64	0.32	0.61	J	0.64	0.32	0.15	NA	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

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Analysis Report

Sample Description: SG3-LTB01-20160615 Blank Water
SGPP - Bennington

LL Sample # WW 8432116
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/08/2016

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

SG-TB SDG#: SGP94-01TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	2	J	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 02:50	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

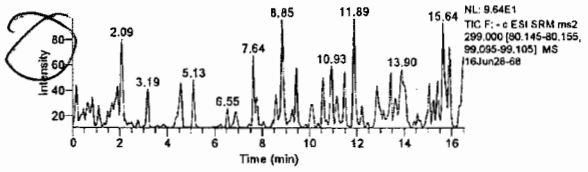
LCMSMS ANALYSIS REPORT

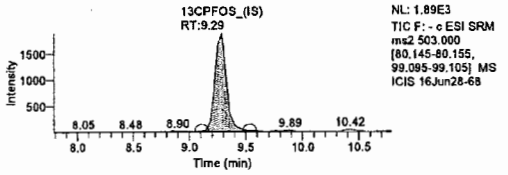
Sample Name:	8432116	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8432116	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-68		
Acquisition Date:	06/29/16 02:50:02 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:8	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.32	190910.63	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	134830.59	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.75	124347.20	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.39	117321.27	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	132140.62	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.42	56867.72	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	24042.35	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.29	13142.40	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.43	116064.98	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	1.610	9.03	1498.70	134830.59	0.011	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	1.441 < MDL	10.43	1540.39	116064.98	0.013	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

Component Name: PFBS





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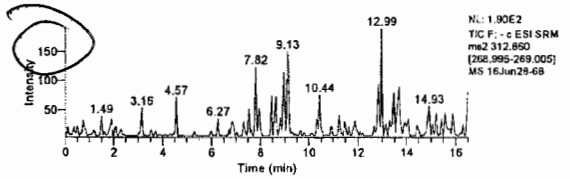

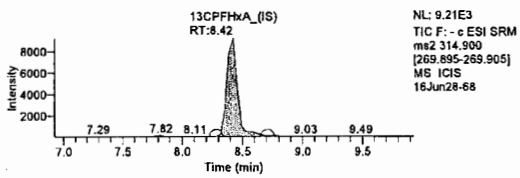

Component Name: PFHxS

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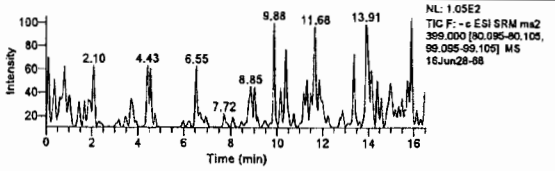
Senior Specialist

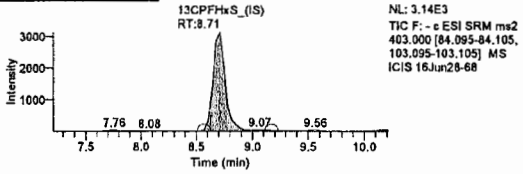
JUN 30 2016

Jason W. Knight
Senior Chemist

JUN 29 2016

LCMSMS ANALYSIS REPORT





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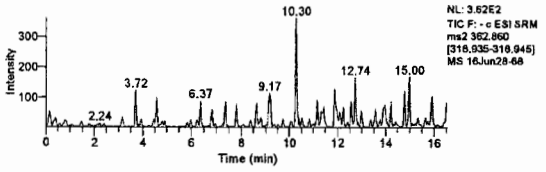
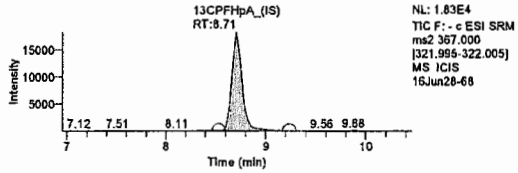
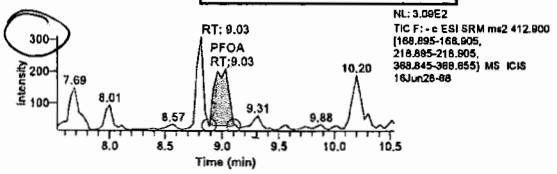


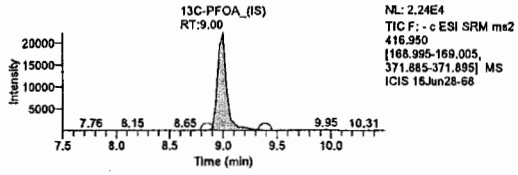


Component Name: PFOA

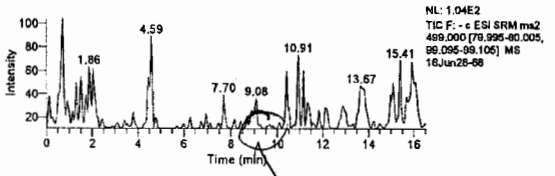
MDL sld 800.

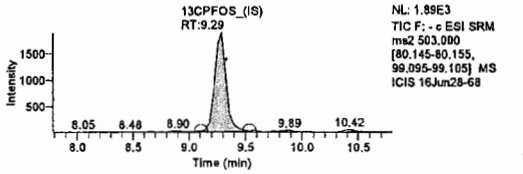
Lab check integration





Component Name: PFOS





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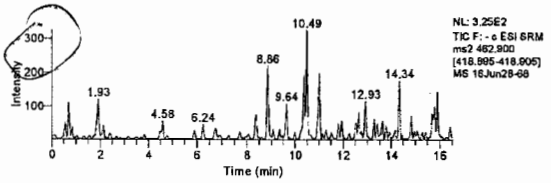

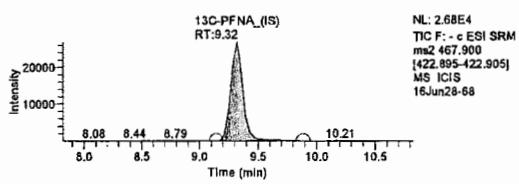

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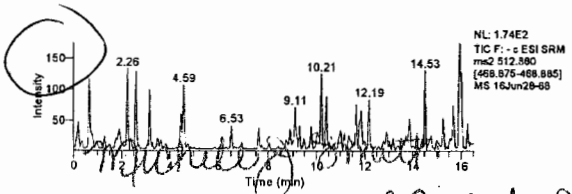
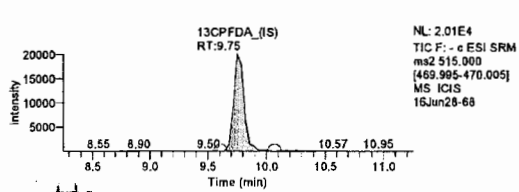




JUN 3 0 2016

Michele J. Smith
Senior Specialist

Component Name: PFUdA

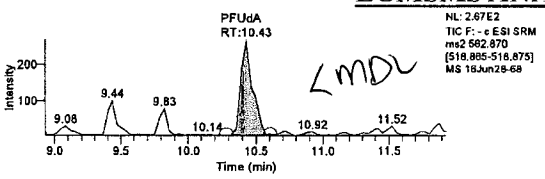
JUN 3 0 2016

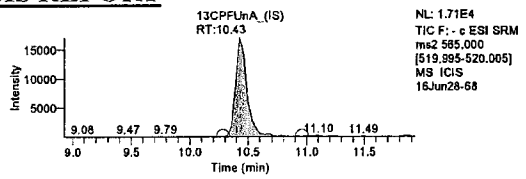
Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

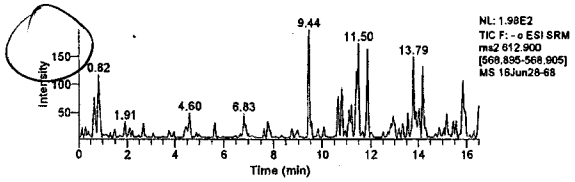
JUN 29 2016

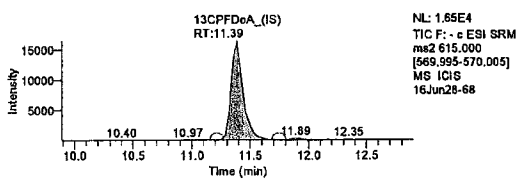
LCMSMS ANALYSIS REPORT





Component Name: PFDoA





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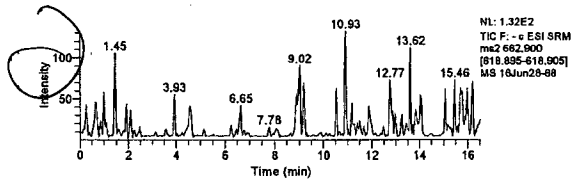
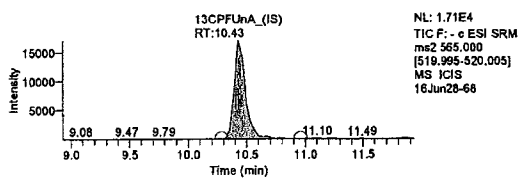
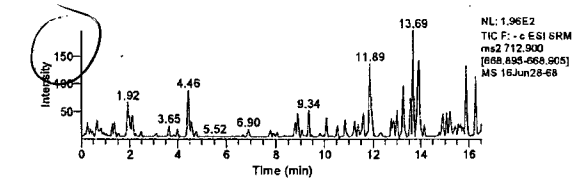
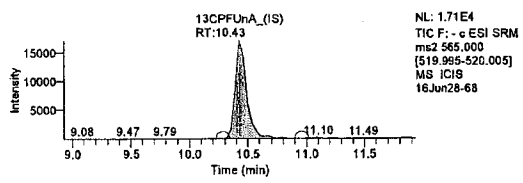




Component Name: PFTeDA





Michele J Smith

JUN 3 0 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
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JUN 29 2016

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Analysis Report

REVISED

Sample Description: SG3-LTB01-20160615 Blank Water
SGPP - Bennington

LL Sample # WW 8432116
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/08/2016

Submitted: 06/17/2016 09:40
Reported: 05/30/2017 08:38

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG-TB SDG#: SGP94-01TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
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10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 02:50	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

Sample Name:	8432116	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8432116	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16Jun28-68		M\HWell_16.5minutes
Acquisition Date:	06/29/16 02:50:02 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:8	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

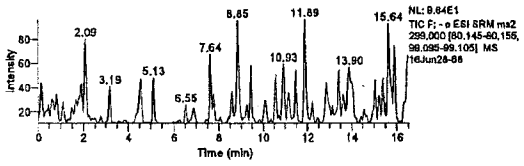
Extracted Ion Chromatogram

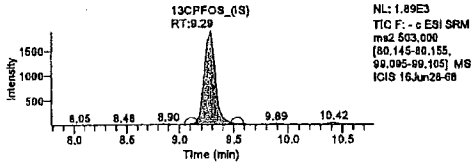
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.32	190910.63	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	134830.59	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.75	124347.20	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.39	117321.27	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	132140.62	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.42	56867.72	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	24042.35	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.29	13142.40	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.43	116064.98	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
* PFOA	1.610	9.03	1498.70	134830.59	0.011	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	1.441	10.43	1540.39	116064.98	0.013	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

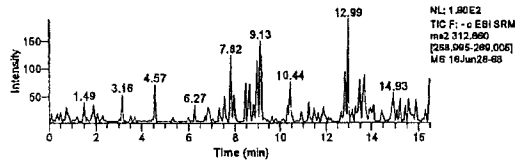
Revised

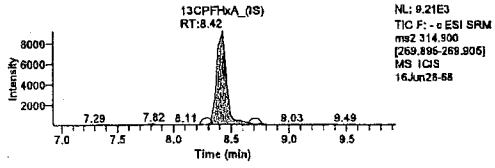
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHxS

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JUN 29 2016

* y-intercept inflating result. False positive 6ma/SGP94 5/27/16

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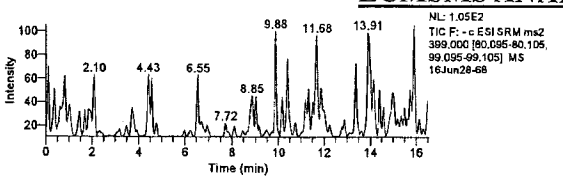

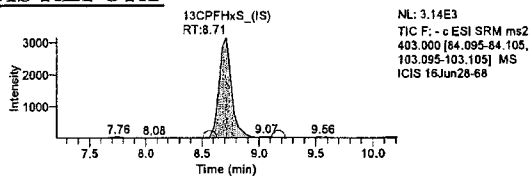

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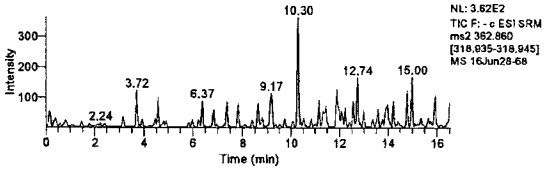

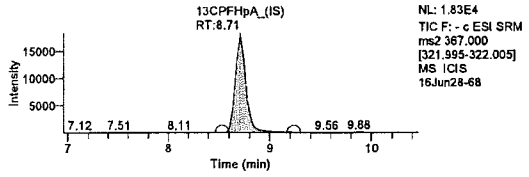

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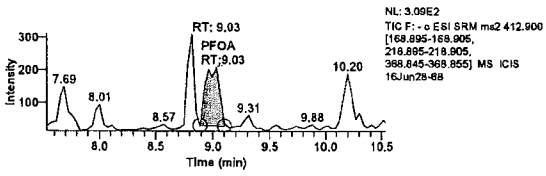

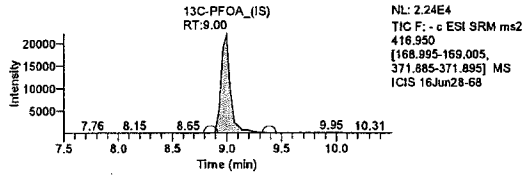

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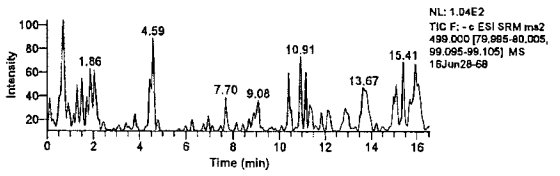

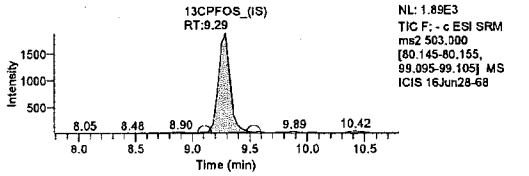

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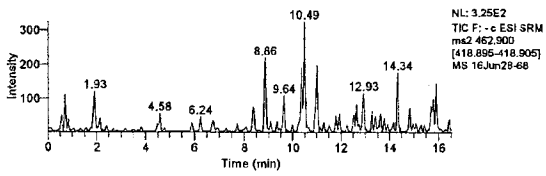

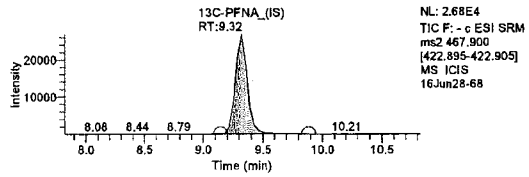

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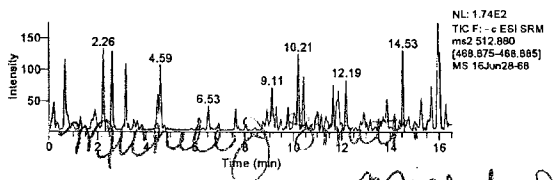

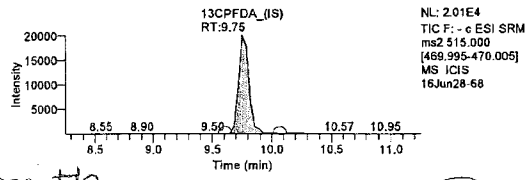

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JUN 3 0 2016

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Component Name: PFUdA

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Jason W. Knight
Senior Chemist

JUN 2 9 2016

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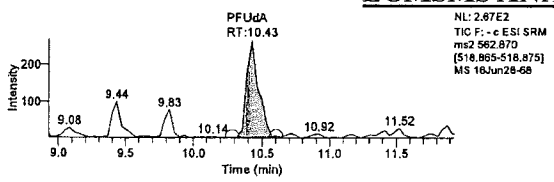

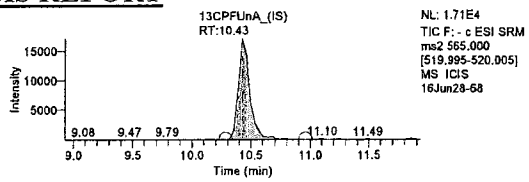

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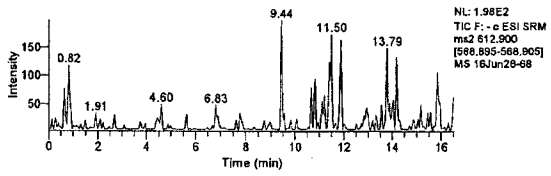

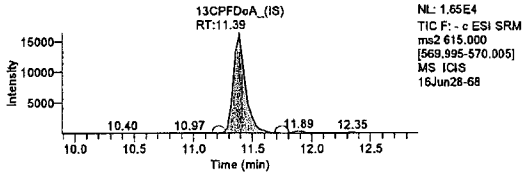

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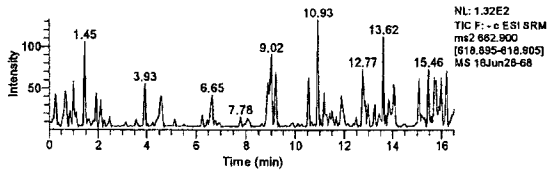
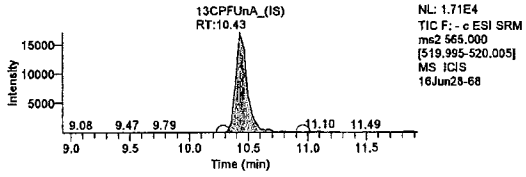
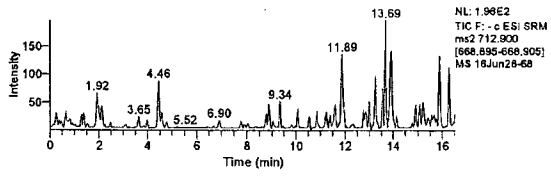
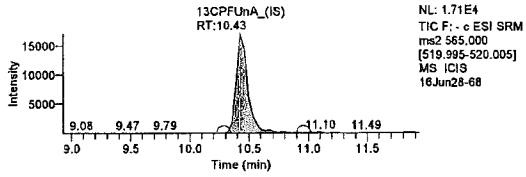




Component Name: PFTeDA





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JUN 29 2016

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Analysis Report

Sample Description: SG3-RB01-20160615 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8432117
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/15/2016 09:05 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

SG-R1 SDG#: SGP94-02RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	EPA 537 Rev. 1.1 modified		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	2	J	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 03:41	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

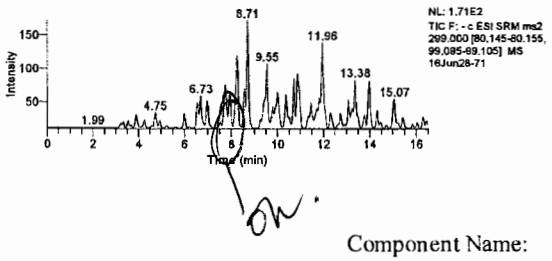
LCMSMS ANALYSIS REPORT

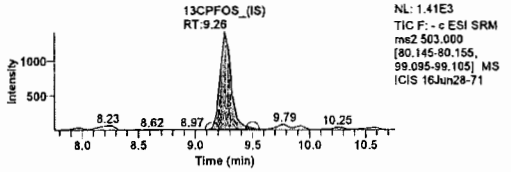
Sample Name:	8432117	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8432117	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16Jun28-71		M\HWell_16.5minutes
Acquisition Date:	06/29/16 03:41:45 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:9	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.29	175639.95	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.97	128557.75	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.75	114783.62	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.39	90673.80	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	133240.24	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	45217.81	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.68	21523.42	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.26	9333.30	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.43	92328.55	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	1.644	9.00	1553.70	128557.75	0.012	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

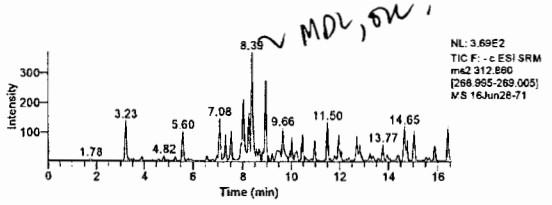
Component Name: PFBS

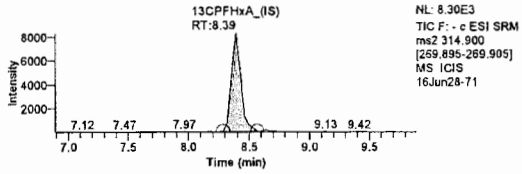




Component Name: PFHxA

MDL, SW





Component Name: PFHxS

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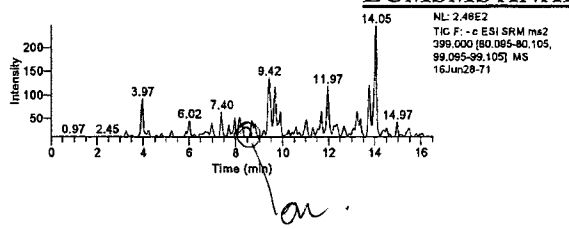

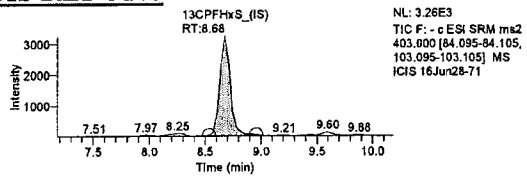

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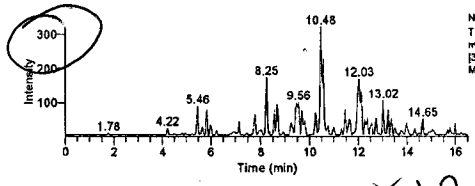
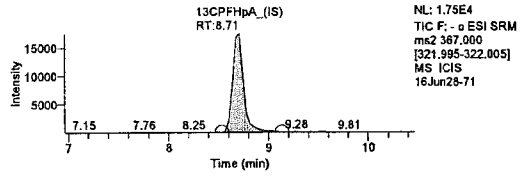
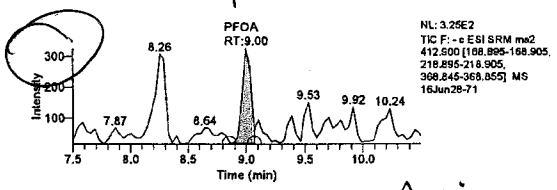
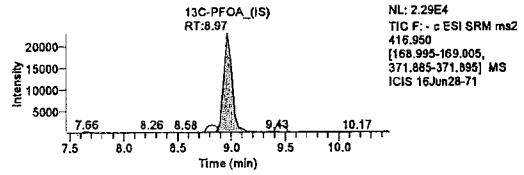




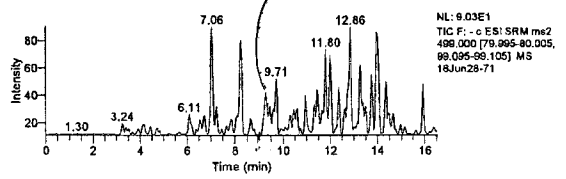
1mpl std
y- Intercept 1.2.

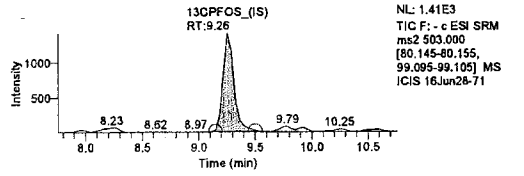
Component Name: PFOA





Component Name: PFOS





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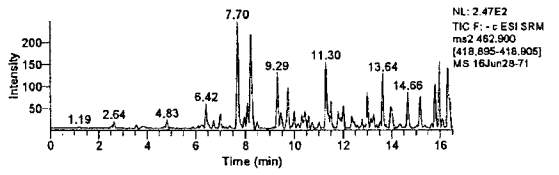
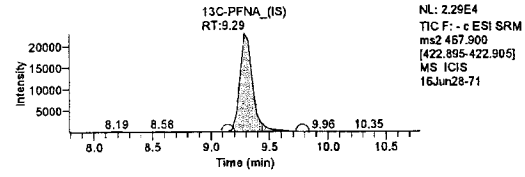
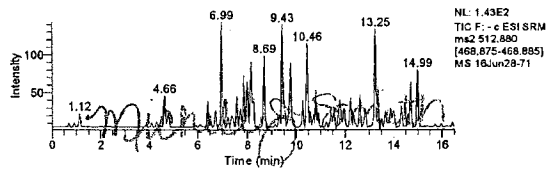
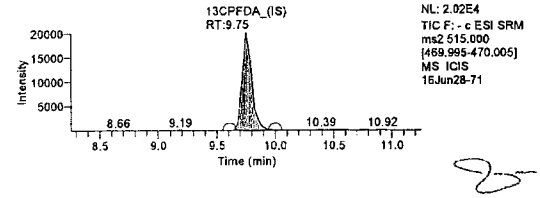




Component Name: PFDA





JUN 30 2016

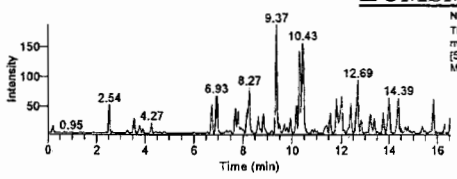
Michele J. Smith
Senior Specialist

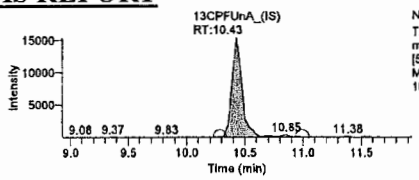
Component Name: PFUdA

Jason W. Knight
Senior Chemist

JUN 29 2016

LCMSMS ANALYSIS REPORT





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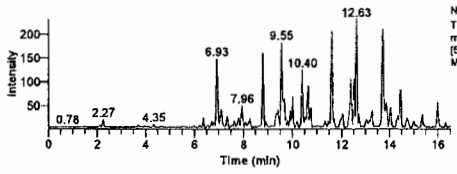

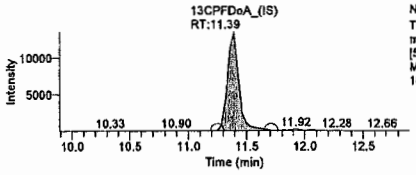

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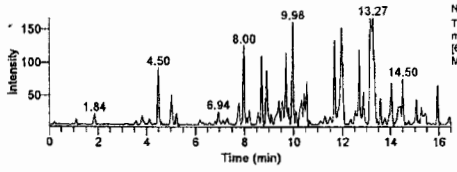
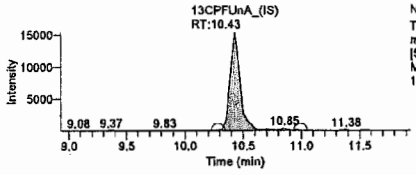
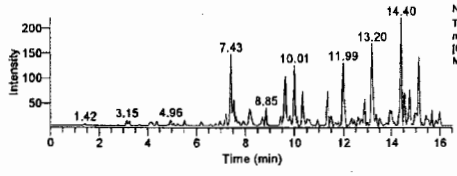
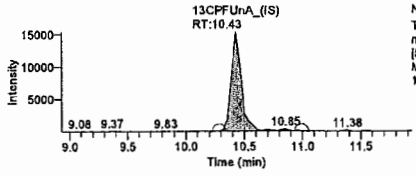




Component Name: PFTeDA





Michele J Smith

JUN 30 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

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Analysis Report

REVISED

Sample Description: SG3-RB01-20160615 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8432117
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/15/2016 09:05 by JD

Submitted: 06/17/2016 09:40
Reported: 05/30/2017 08:38

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG-R1 SDG#: SGP94-02RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 03:41	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

Sample Name:	8432117	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8432117	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-71		
Acquisition Date:	06/29/16 03:41:45 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:9	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

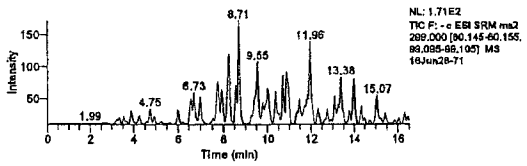
Extracted Ion Chromatogram

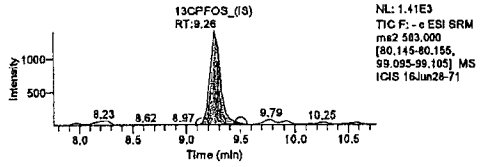
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.29	175639.95	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.97	128557.75	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.75	114783.62	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.39	90673.80	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	133240.24	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	45217.81	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.68	21523.42	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.26	9333.30	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.43	92328.55	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
* PFOA	1.644	9.00	1553.70	128557.75	0.012	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

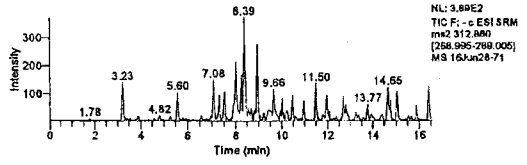
Revised

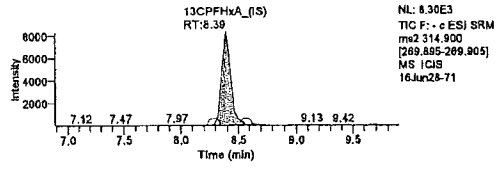
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHxS

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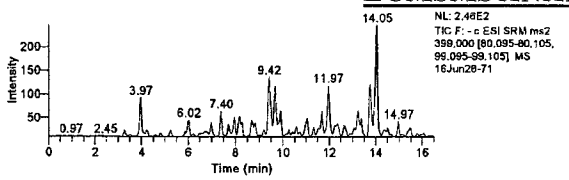
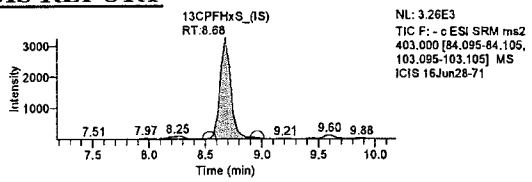
Jason W. Knight
Senior Chemist
JUN 29 2016

* y-intercept inflating result. False positive.

LCMSMS ANALYSIS REPORT





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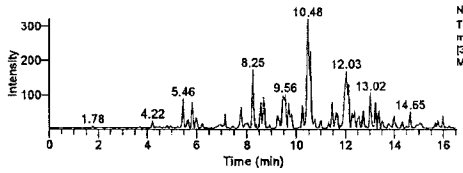

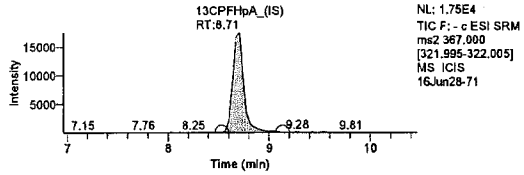

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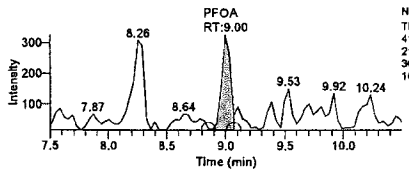
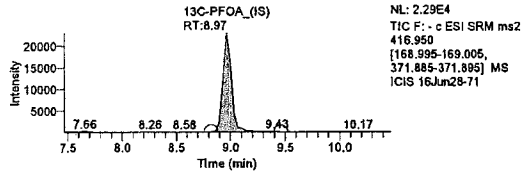
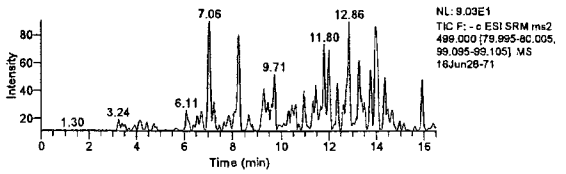
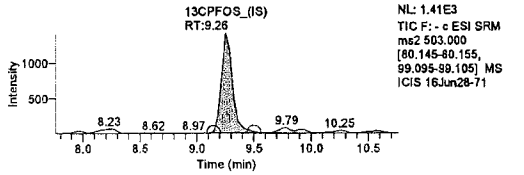




Component Name: PFOS





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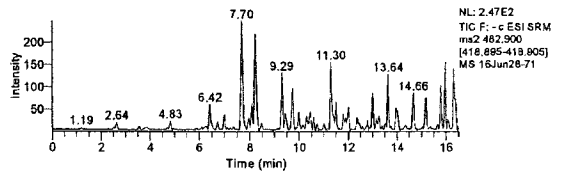

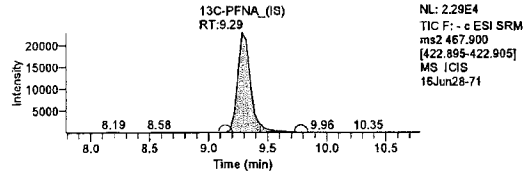

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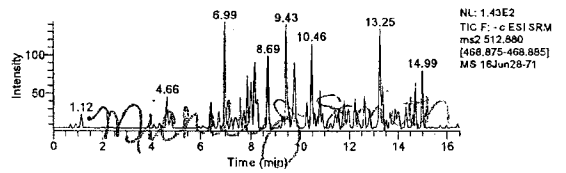
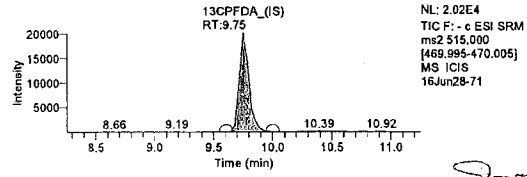




JUN 3 0 2016

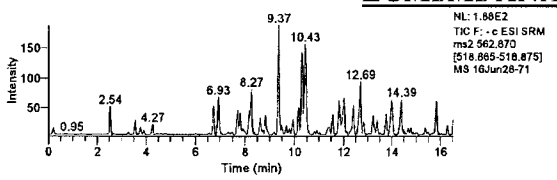
Michele J. Smith
Senior Specialist

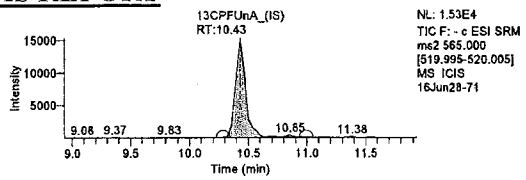
Component Name: PFUdA

Jason W. Knight
Senior Chemist

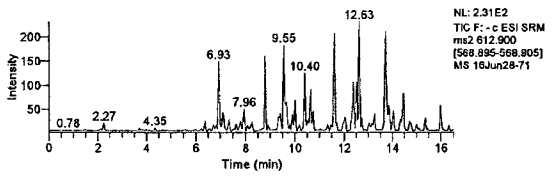
JUN 2 9 2016

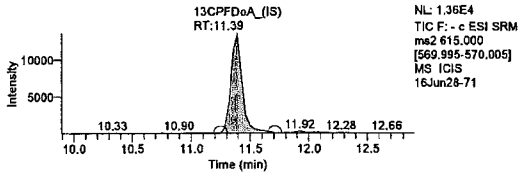
LCMSMS ANALYSIS REPORT





Component Name: PFDoA





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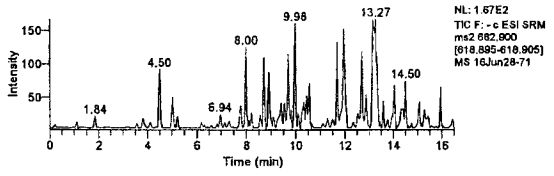
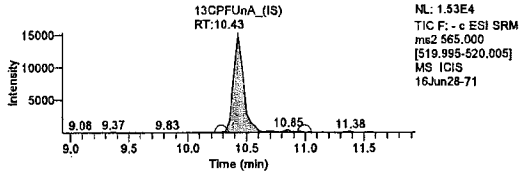
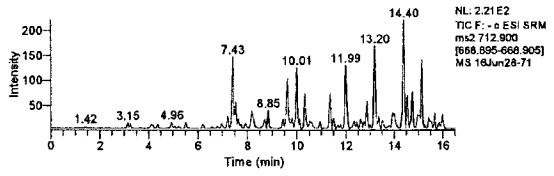
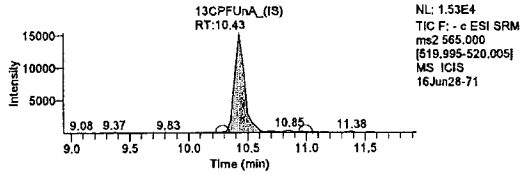




Component Name: PFTeDA





Michele J. Smith

JUN 30 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

Sample Description: SG3-MW05-05.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8432118
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/15/2016 10:05 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-51 SDG#: SGP94-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.86	U	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	2.4		0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.74	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	5,610		385	1,160	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.8		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 13:00	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16180298731D	06/28/2016 11:56	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

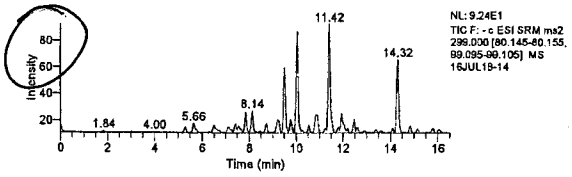
LCMSMS ANALYSIS REPORT

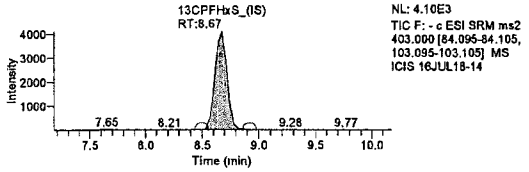
Sample Name:	8432118	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432118	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL18-14		M\HWell_16.5minutes
Acquisition Date:	07/18/16 01:00:37 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:3	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

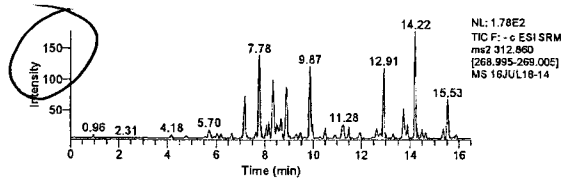
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.25	178492.39	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.96	159868.33	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.57	130313.60	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.71	136526.77	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.67	168650.84	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	87936.19	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.67	30705.58	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.22	18886.00	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.04	134238.20	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	1.931	8.96	37106.58	159868.33	0.232	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	0.197	8.64	1270.38	168650.84	0.008	ng/g

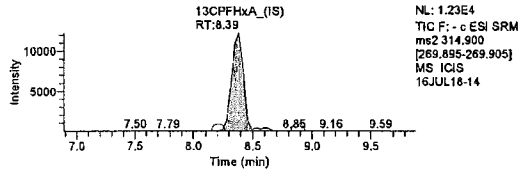
Component Name: PFBS





Component Name: PFHxA





Component Name: PFhpA

Jason W. Knight
Senior Chemist

JUL 20 2016

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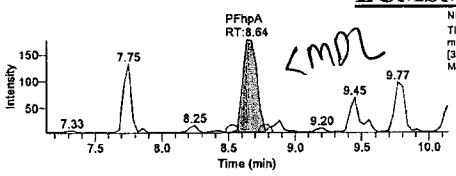

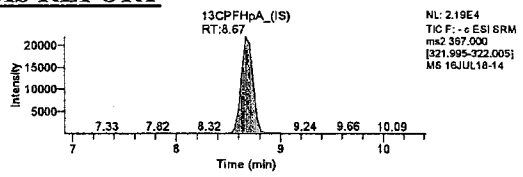

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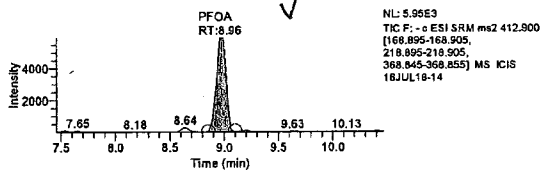

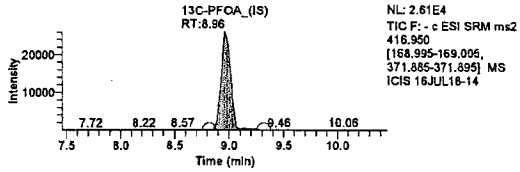

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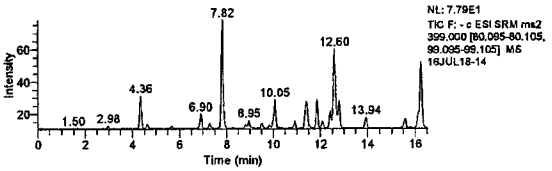
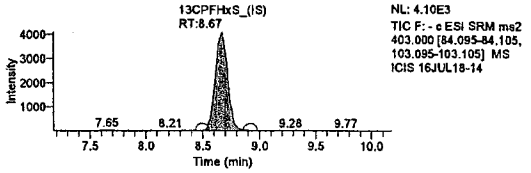
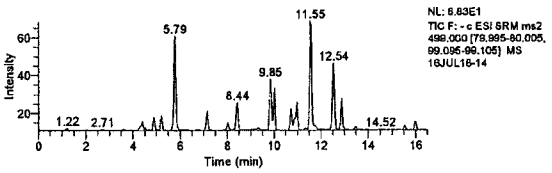
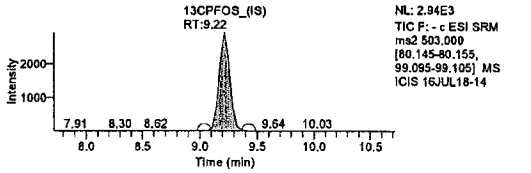




Component Name: PFOS





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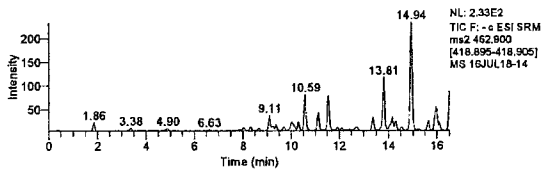
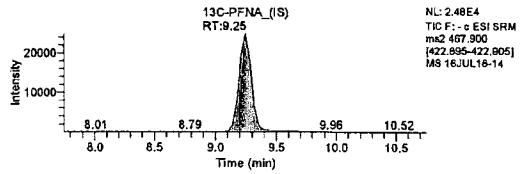
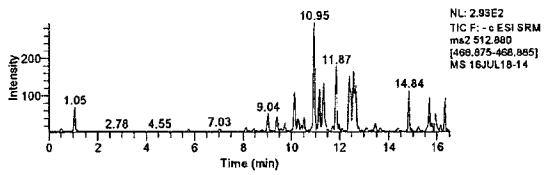
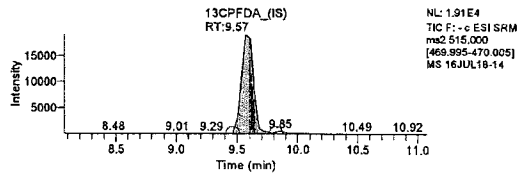




Component Name: PFDA





Component Name: PFUdA

Jason W. Knight
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JUL 20 2016

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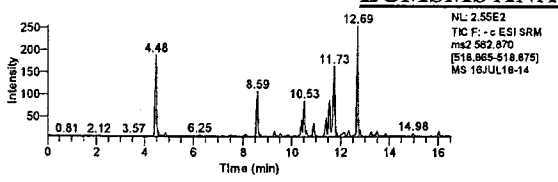

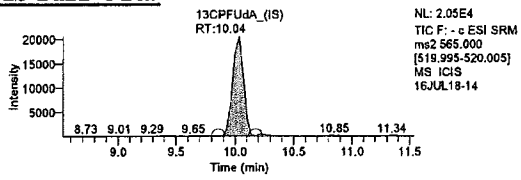

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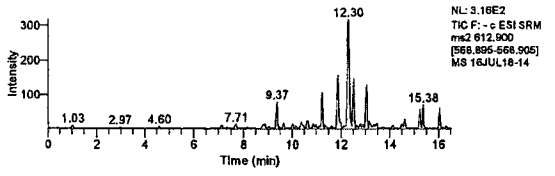
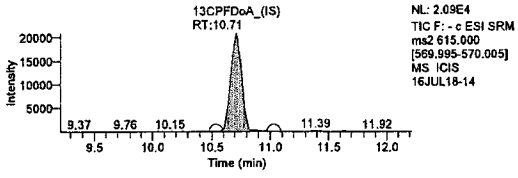
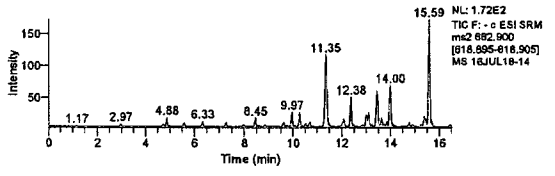
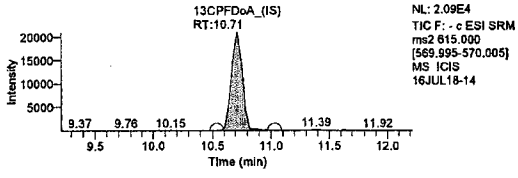


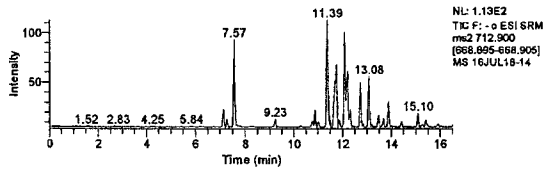


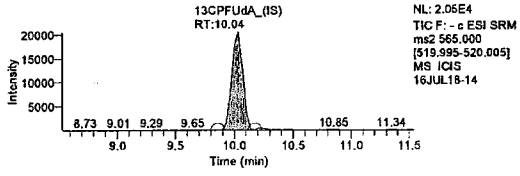
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 20 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 20 2016

Sample Description: SG3-MW05-09.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Collected: 06/15/2016 10:25 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

LL Sample # SW 8432119
LL Group # 1673381
Account # 37191

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-52 SDG#: SGP94-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.97	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.85	U	0.85	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.36	U	0.36	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	0.73	U	0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.73	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	177	U	177	530	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	17.3		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 13:17	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16180298731D	06/28/2016 12:03	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

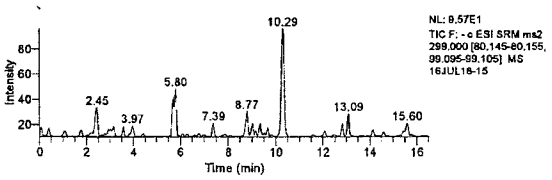
LCMSMS ANALYSIS REPORT

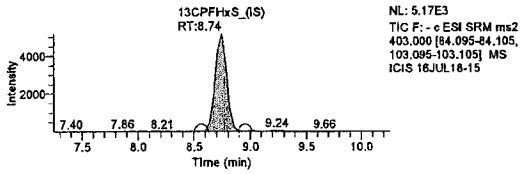
Sample Name:	8432119	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432119	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL18-15		M\HWell_16.5minutes
Acquisition Date:	07/18/16 01:17:51 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:4	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

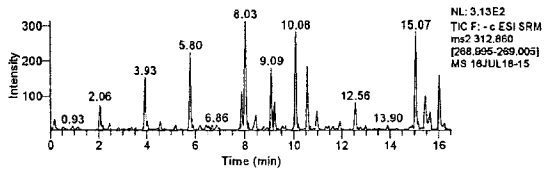
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.32	272828.11	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.03	224466.09	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.68	182541.87	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.89	195429.25	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.74	232135.61	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.46	134686.13	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.74	36325.02	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.29	19669.65	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.11	197037.47	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	0.180	9.03	3461.25	224466.09	0.015	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	0.208	10.18	1095.24	197037.47	0.006	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

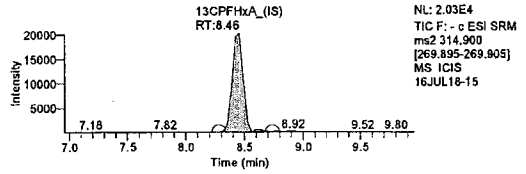
Component Name: PFBS





Component Name: PFHxA





Component Name: PFOA

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JUL 20 2016

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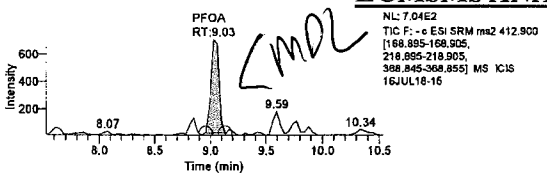
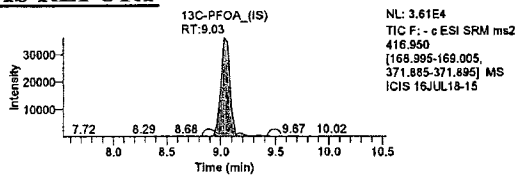
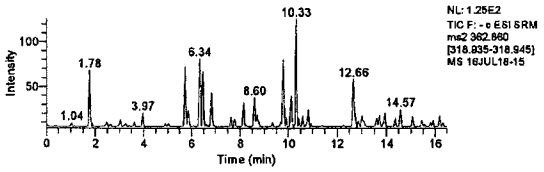
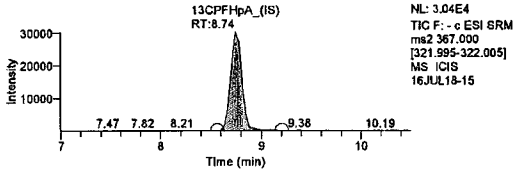


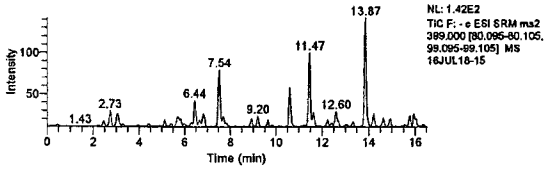


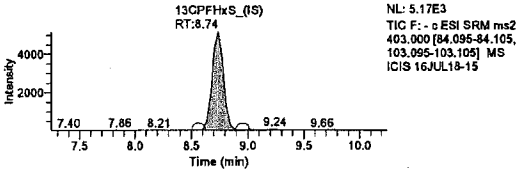
Component Name: PFhpA



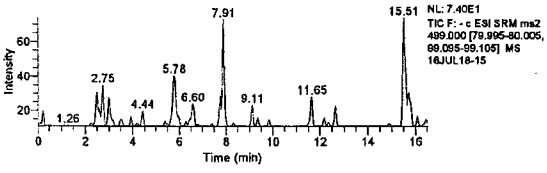


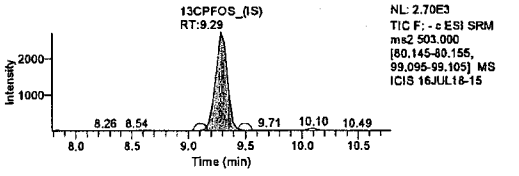
Component Name: PFHxS





Component Name: PFOS





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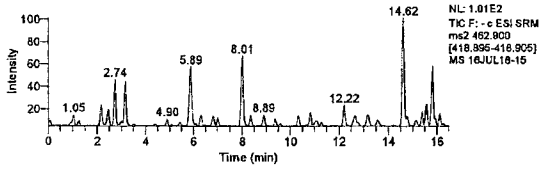
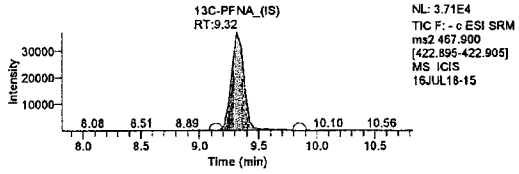
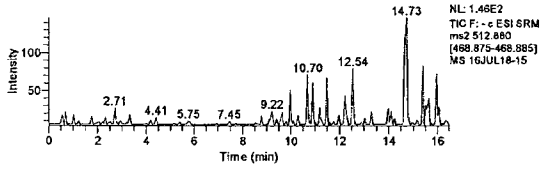
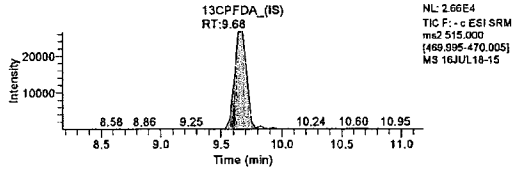




Component Name: PFDA





Component Name: PFUdA

Jason W. Knight
Senior Chemist

JUL 20 2016

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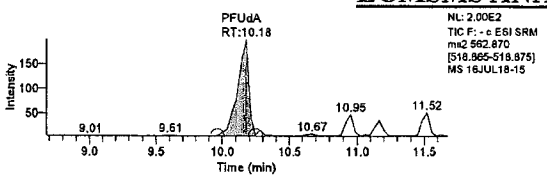
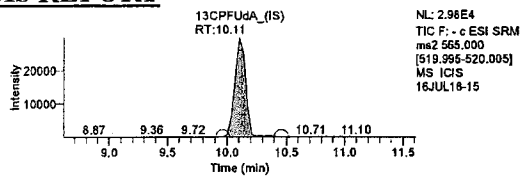
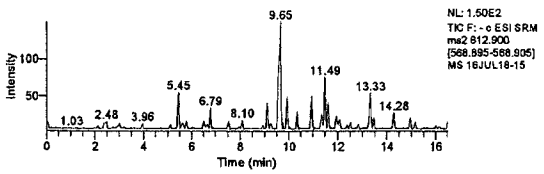
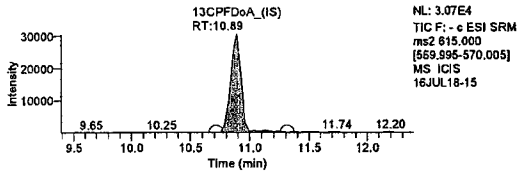




Component Name: PFDoA





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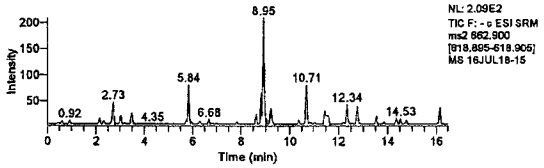
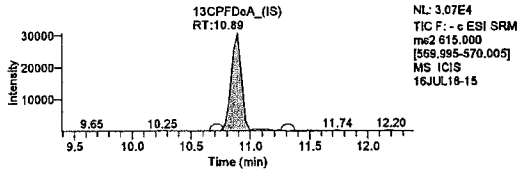
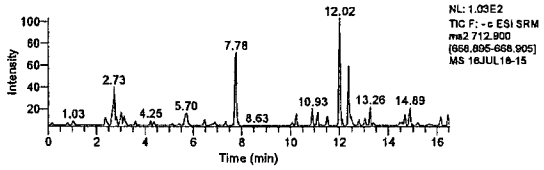
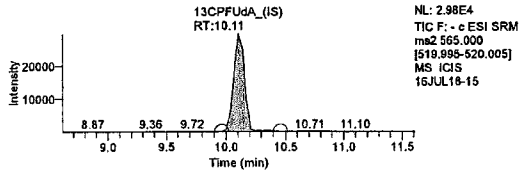




Component Name: PFTeDA





Lynn Dodd

JUL 20 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 20 2016

Sample Description: SG3-MW03-00.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8432120
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/15/2016 11:20 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-31 SDG#: SGP94-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.43	1
14027	Perfluorododecanoic acid	307-55-1	0.43	U	0.43	0.85	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.75	U	0.75	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.32	U	0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.85	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	1,800		297	892	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	6.2		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 13:35	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16180298731D	06/28/2016 12:17	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

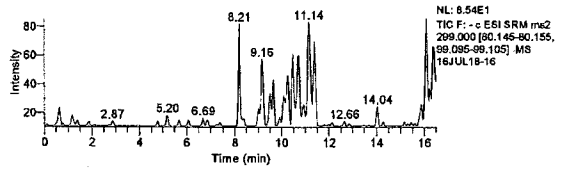
LCMSMS ANALYSIS REPORT

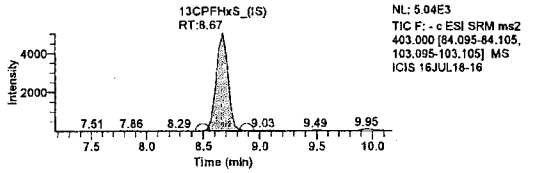
Sample Name:	8432120	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432120	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL18-16		M\HWell_16.5minutes
Acquisition Date:	07/18/16 01:35:06 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:5	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

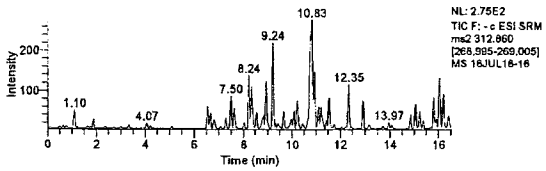
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.28	237083.11	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	214723.39	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.68	153940.25	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.79	170780.07	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.67	204382.72	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.35	136458.25	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.67	36133.46	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.25	21430.41	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.21	159635.36	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	0.111	8.99	1494.61	214723.39	0.007	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

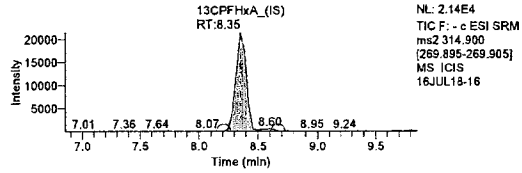
Component Name: PFBS





Component Name: PFHxA





Component Name: PFOA

Jason W. Knight
Senior Chemist

JUL 20 2016

LMDL

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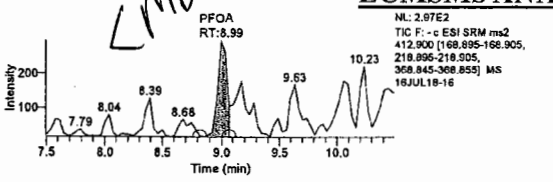
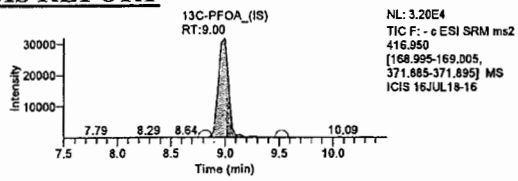
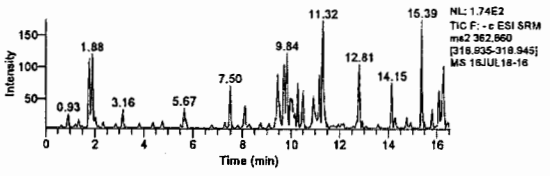
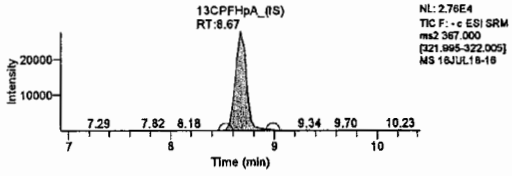


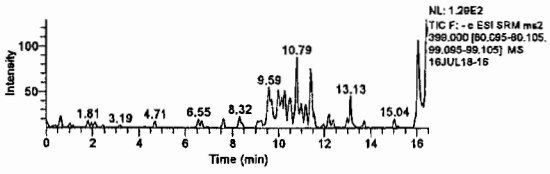


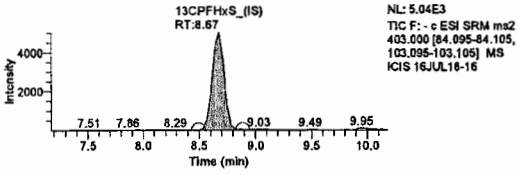
Component Name: PFhpA



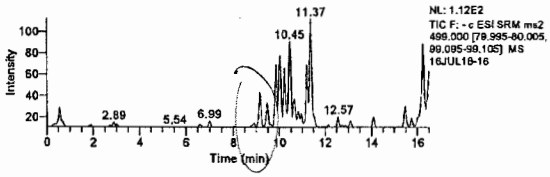


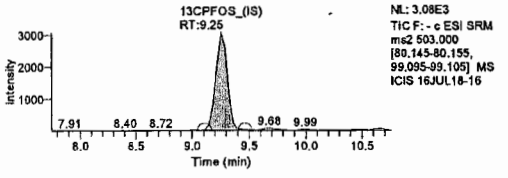
Component Name: PFHxS





Component Name: PFOS





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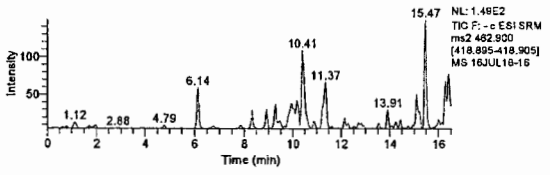
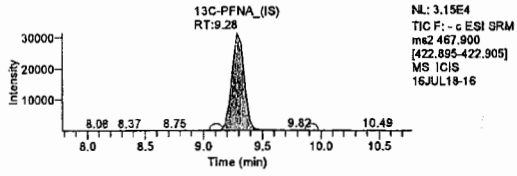
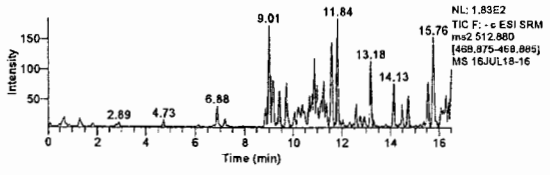
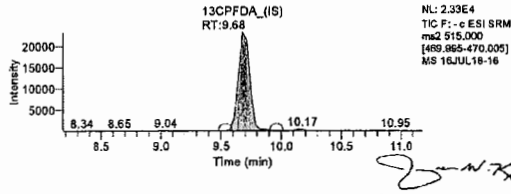




Component Name: PFDA





Jason W. Knight
Senior Chemist

Component Name: PFUdA

JUL 20 2016

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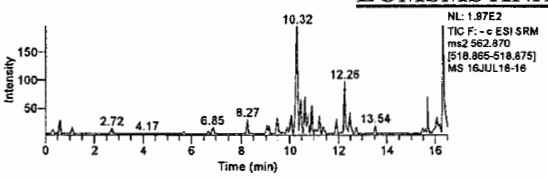
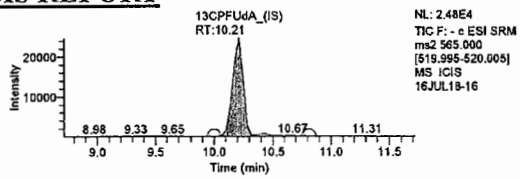
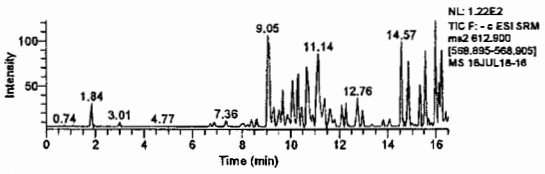
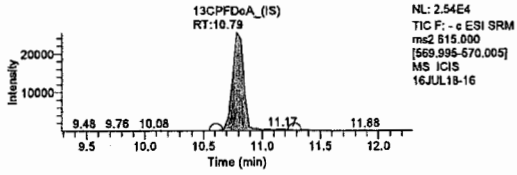


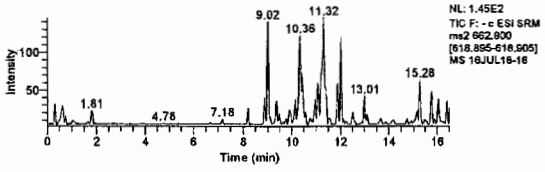


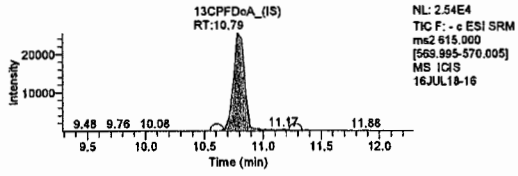
Component Name: PFDoA



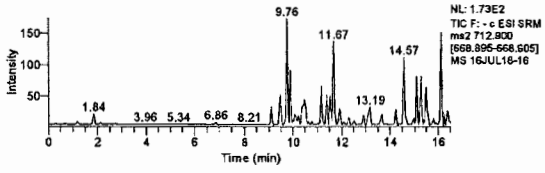


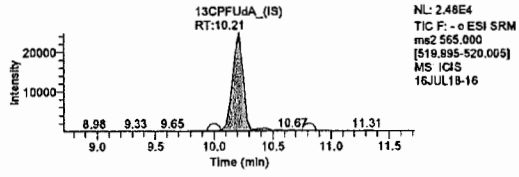
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 20 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 20 2016

Sample Description: SG3-MW03-00.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8432121
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/15/2016 11:22 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-32 SDG#: SGP94-06BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.42	1
14027	Perfluorododecanoic acid	307-55-1	0.42	U	0.42	0.85	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.74	U	0.74	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.32	U	0.32	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.85	1
14027	Perfluorotridecanoic acid	72629-94-8	0.63	U	0.63	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	1,860		204	612	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	5.4		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 19:37	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16180298731D	06/28/2016 11:03	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

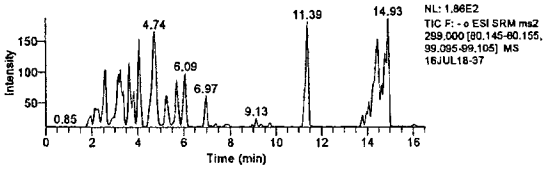
LCMSMS ANALYSIS REPORT

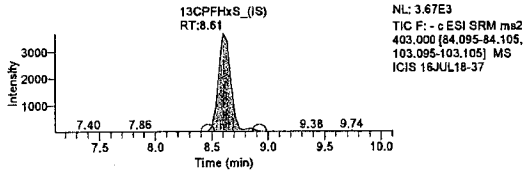
Sample Name:	8432121 BKG	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432121 BKG	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL18-37		M\HWell_16.5minutes
Acquisition Date:	07/18/16 07:37:11 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:22	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.11	247383.07	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.89	209399.29	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.36	167441.65	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.22	128761.16	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.64	173218.19	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.35	120146.11	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.61	28237.93	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.08	18527.05	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	9.68	147940.91	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	0.267	8.89	5500.66	209399.29	0.026	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

Component Name: PFBS





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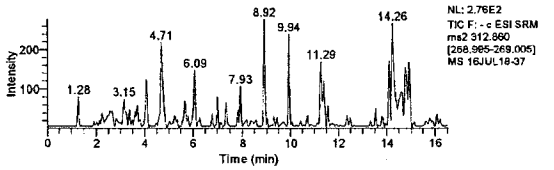

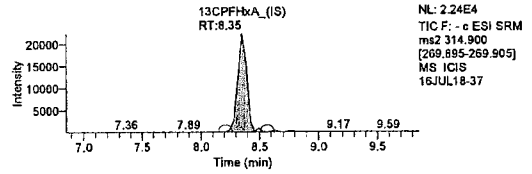

Component Name: PFOA

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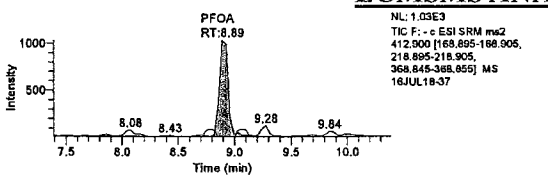

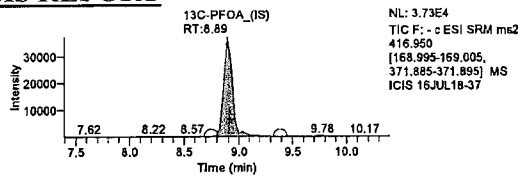

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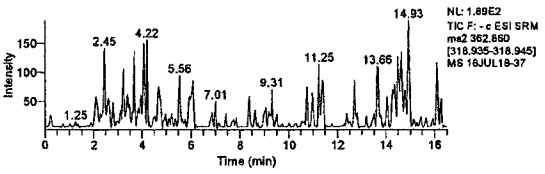

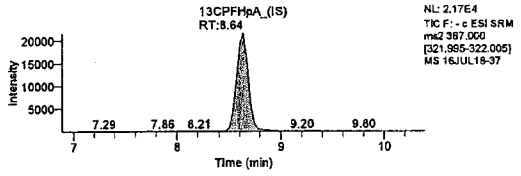

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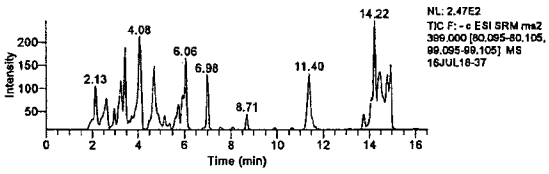
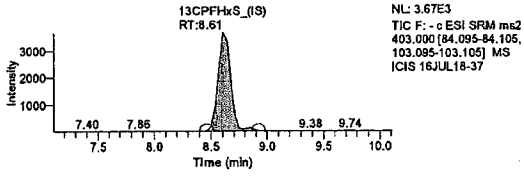
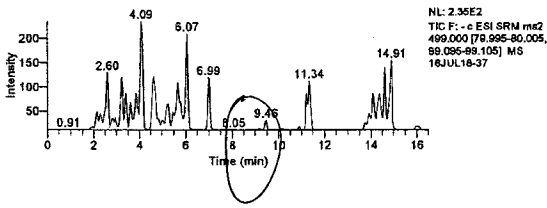
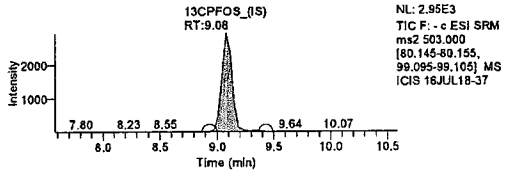




Component Name: PFOS





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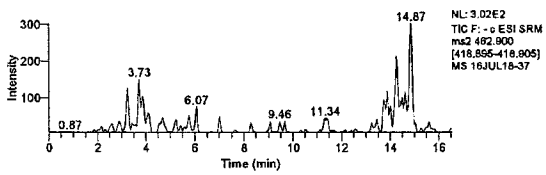
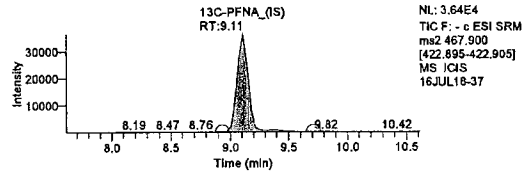
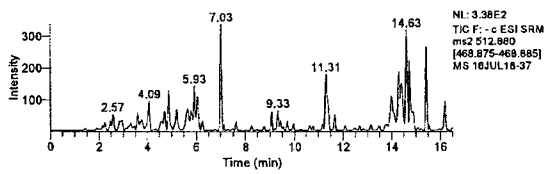
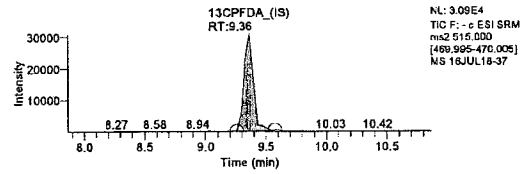




Component Name: PFDA





Component Name: PFUdA

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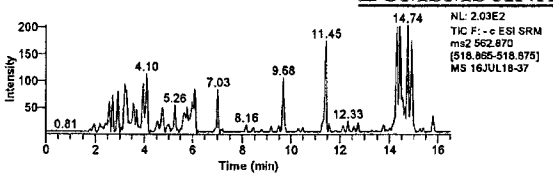

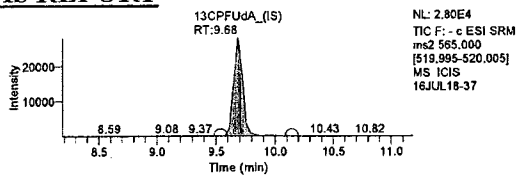

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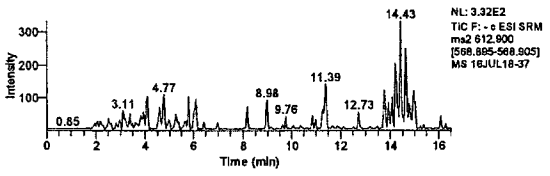
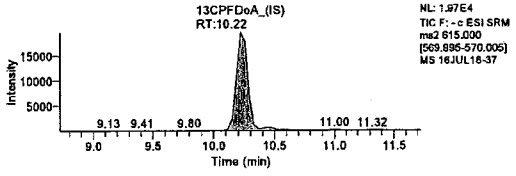
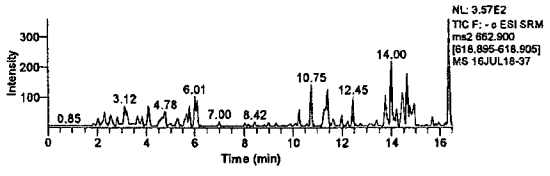
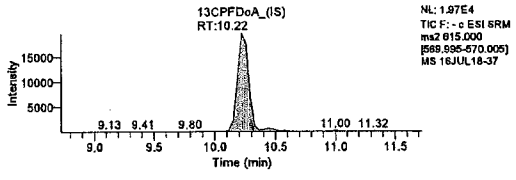


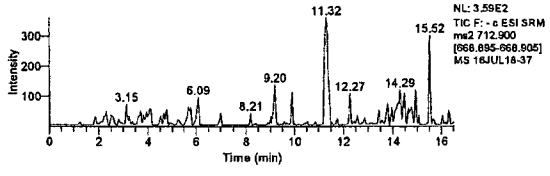


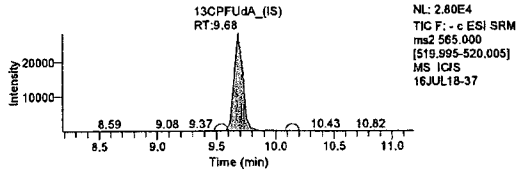
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 20 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 20 2016

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Analysis Report

Sample Description: SG3-MW03-01.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

LL Sample # SW 8432124
LL Group # 1673381
Account # 37191

Collected: 06/15/2016 11:30 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-33 SDG#: SGP94-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.54	U	0.54	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.34	J	0.21	0.43	1
14027	Perfluorododecanoic acid	307-55-1	0.43	U	0.43	0.86	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.54	U	0.54	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.75	U	0.75	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.76		0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.86	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	434	J	234	701	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	6.7		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 13:52	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16180298731D	06/28/2016 12:39	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

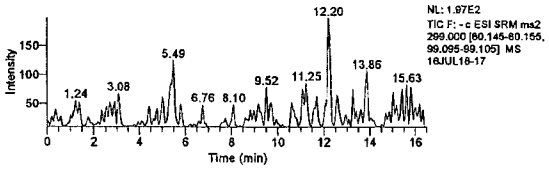
Sample Name:	8432124	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432124	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL18-17		M\HWell_16.5minutes
Acquisition Date:	07/18/16 01:52:20 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:6	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

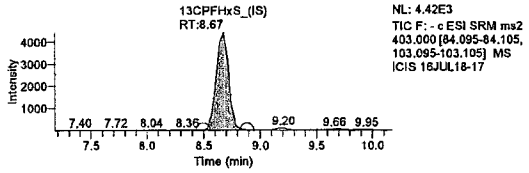
Extracted Ion Chromatogram

Quan Peak Table

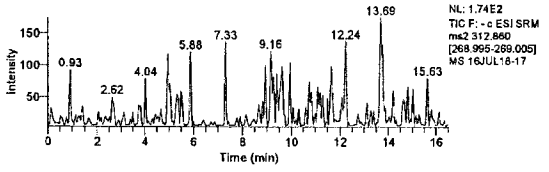
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.25	229227.09	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.96	181618.16	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.57	147145.55	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.64	132229.03	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.67	206227.42	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	110337.78	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.67	34011.83	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.22	20508.99	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.04	138094.73	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	0.314	9.57	3193.76	147145.55	0.022	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	0.713	8.96	14783.84	181618.16	0.081	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

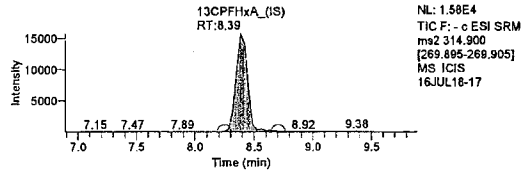
Component Name: PFBS





Component Name: PFHxA





Component Name: PFOA

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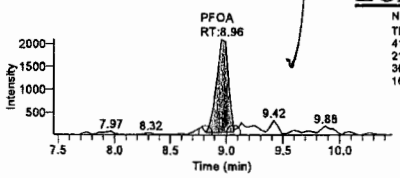

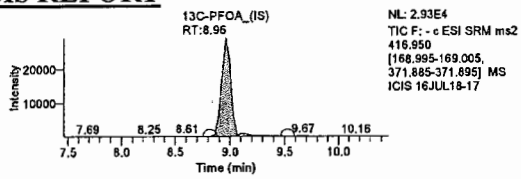

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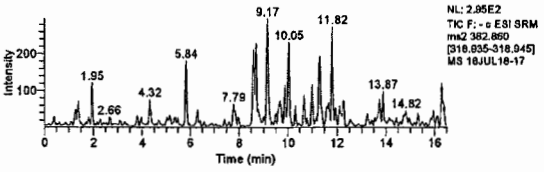
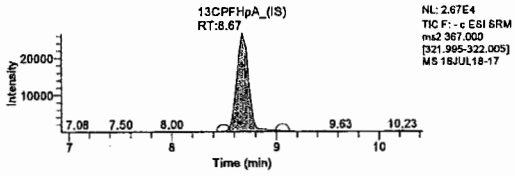
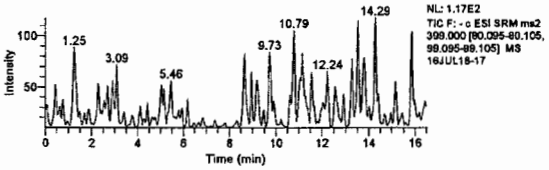
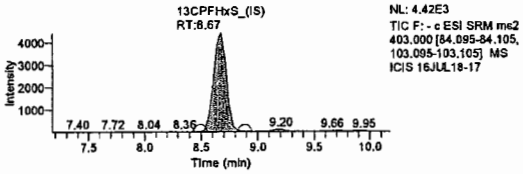


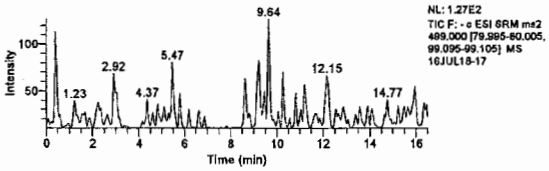


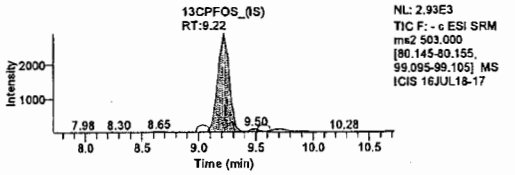
Component Name: PFHxS





Component Name: PFOS





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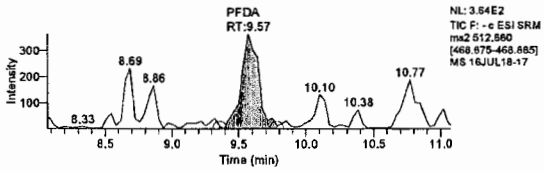
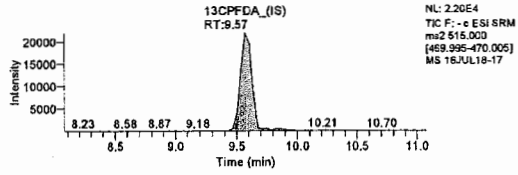
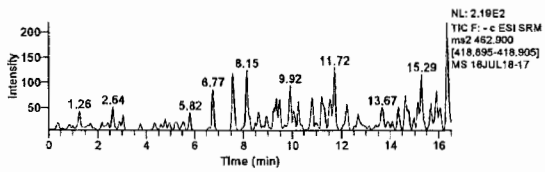
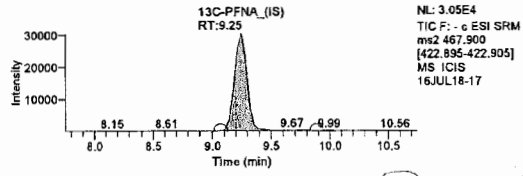




Component Name: PFNA





Jason W. Knight
Senior Chemist

Component Name: PFUdA

JUL 20 2016

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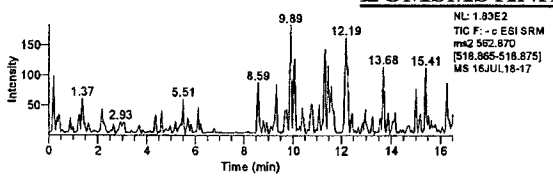
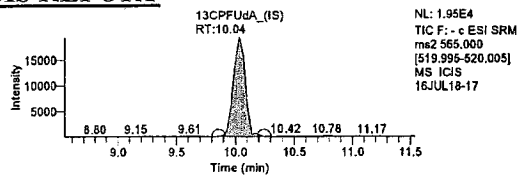
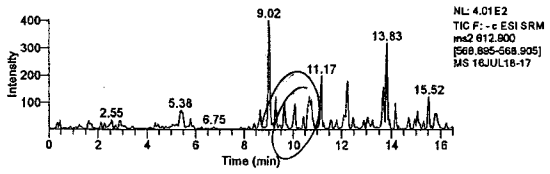
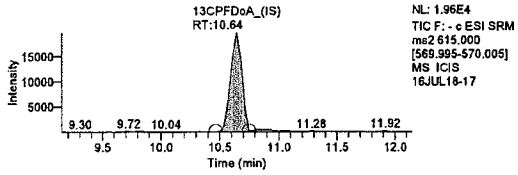




Component Name: PFDoA





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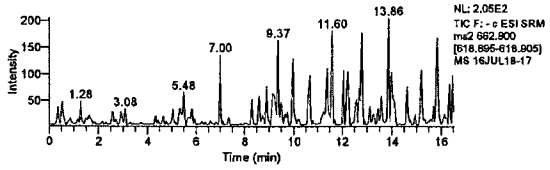
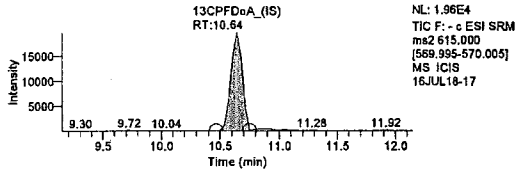
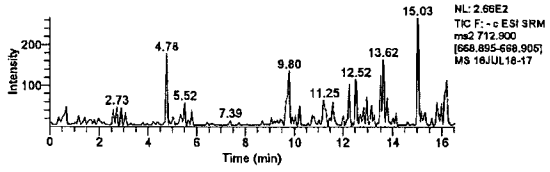
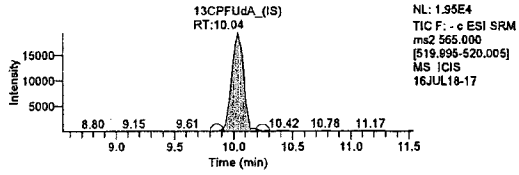




Component Name: PFTeDA





Lynn Dodd

JUL 20 2016

Jason W. Knight
Senior Chemist

JUL 20 2016

Lynn Dodd
Principal Specialist

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SG3-FD01-20160615 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

LL Sample # SW 8432125
LL Group # 1673381
Account # 37191

Collected: 06/15/2016 11:28 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-FD SDG#: SGP94-08FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.29	J	0.21	0.42	1
14027	Perfluorododecanoic acid	307-55-1	0.42	U	0.42	0.85	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.74	U	0.74	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.61	J	0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.85	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	5.8		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 14:09	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

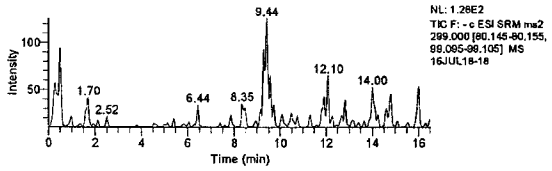
LCMSMS ANALYSIS REPORT

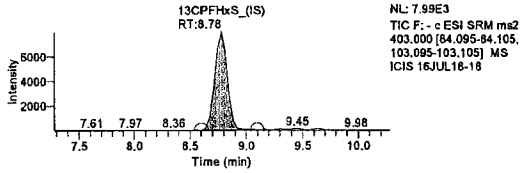
Sample Name:	8432125	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432125	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL18-18		M\HWell_16.5minutes
Acquisition Date:	07/18/16 02:09:34 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:7	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

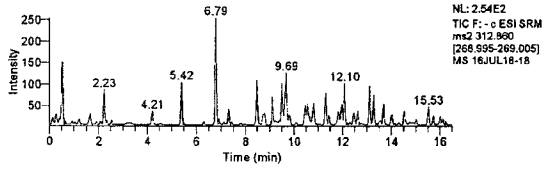
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.35	398402.28	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.07	313176.75	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.71	259019.30	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.78	253035.01	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.78	318376.48	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.46	203397.52	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.78	61536.49	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	31144.69	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.18	273257.89	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	0.273	9.71	4764.12	259019.30	0.018	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.168 <MDL	9.35	1867.55	398402.28	0.005	ng/g
PFOA	0.575	9.06	20152.60	313176.75	0.064	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	0.239 <MDL	10.21	2280.07	273257.89	0.008	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

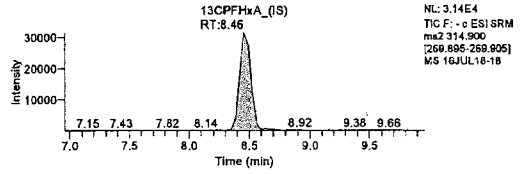
Component Name: PFBS





Component Name: PFHxA





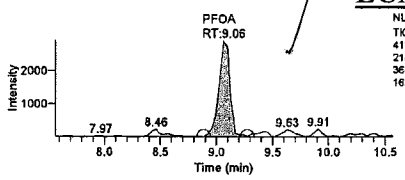
Component Name: PFOA

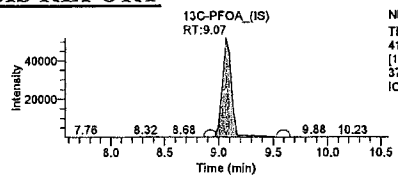
Jason W. Knight
Senior Chemist

JUL 20 2016

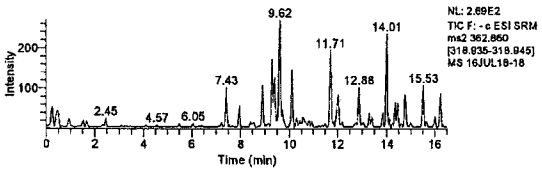
Tuesday, July 19, 2016, 07:42:03

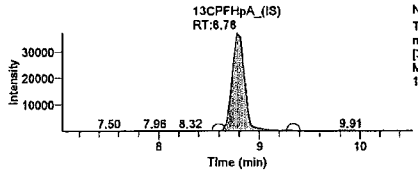
LCMSMS ANALYSIS REPORT



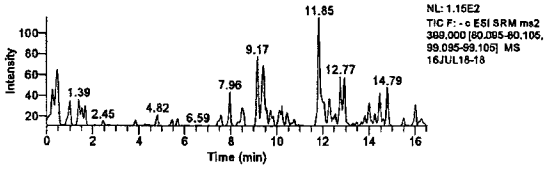


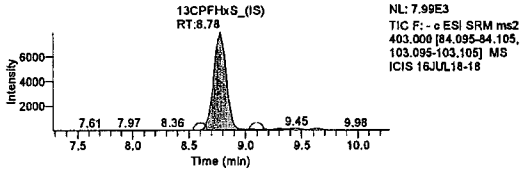
Component Name: PFhpA



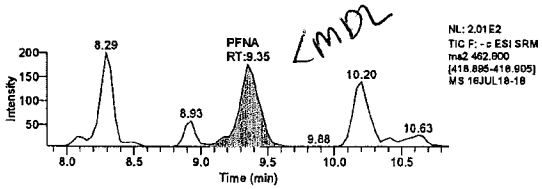


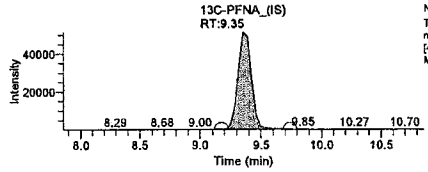
Component Name: PFHxS





Component Name: PFNA





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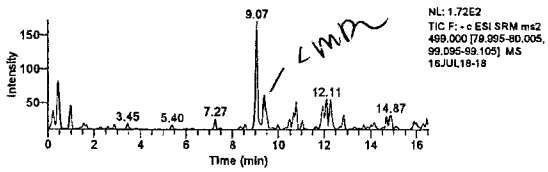
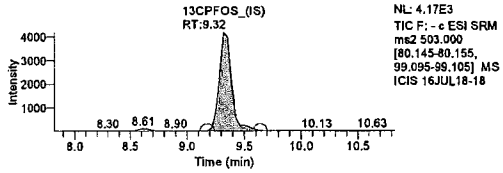
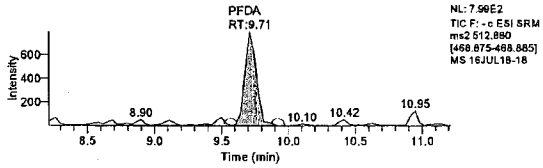
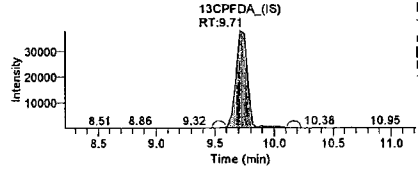




Component Name: PFDA



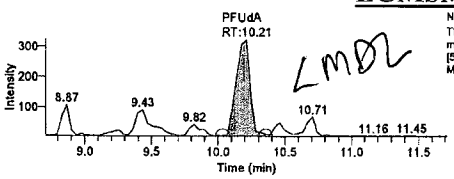


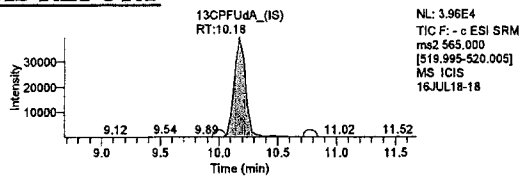
Component Name: PFUdA

Jason W. Knight
Senior Chemist

JUL 20 2016

LCMSMS ANALYSIS REPORT





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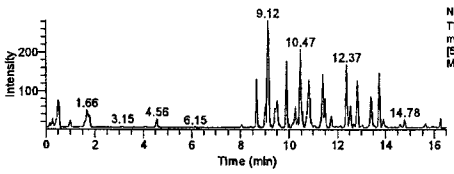
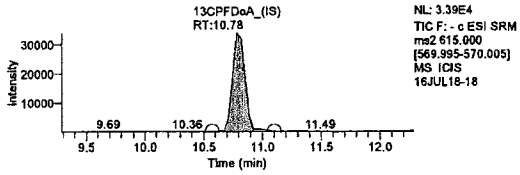
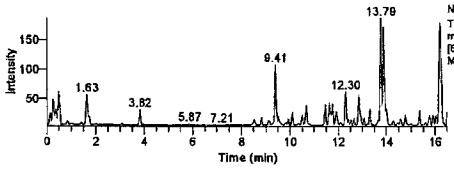
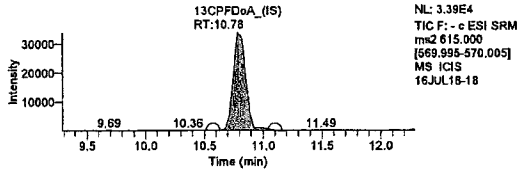


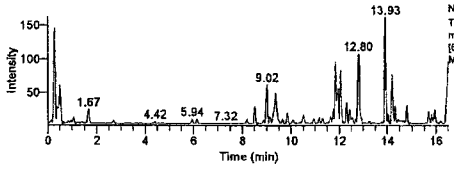


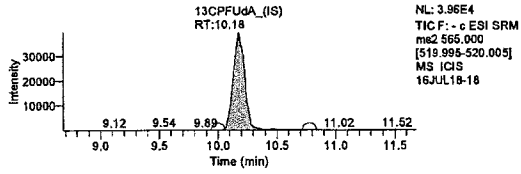
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 20 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 20 2016

Sample Description: SG3-MW03-01.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

LL Sample # SW 8432126
LL Group # 1673381
Account # 37191

Collected: 06/15/2016 11:37 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-34 SDG#: SGP94-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.54	U	0.54	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.34	J	0.22	0.43	1
14027	Perfluorododecanoic acid	307-55-1	0.43	U	0.43	0.86	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.54	U	0.54	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.76	U	0.76	1.7	1
14027	Perfluorooctanoic acid	335-67-1	1.1		0.32	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.86	1
14027	Perfluorotridecanoic acid	72629-94-8	0.65	U	0.65	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.65	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	2,380		202	606	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	7.4		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 14:26	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16180298731D	06/28/2016 13:10	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

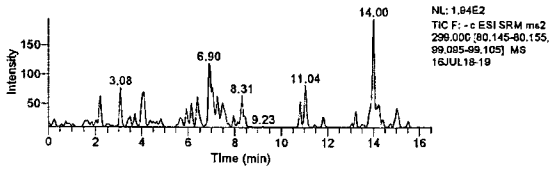
LCMSMS ANALYSIS REPORT

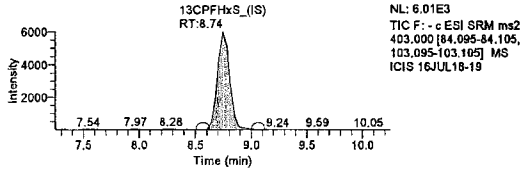
Sample Name:	8432126	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432126	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL18-19		M\HWell_16.5minutes
Acquisition Date:	07/18/16 02:26:49 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:8	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

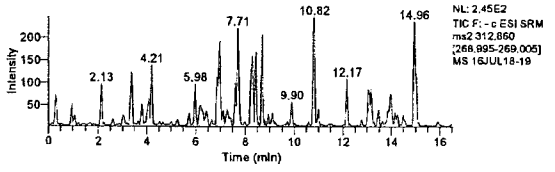
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.35	299070.97	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.07	234892.34	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.82	211537.47	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.75	192099.05	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.78	261803.16	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.42	162535.59	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.74	46079.10	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	25778.73	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.18	209858.88	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	0.315	9.82	4603.65	211537.47	0.022	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.170	9.35	1444.75	299070.97	0.005	ng/g
PFOA	1.050	9.06	28912.16	234892.34	0.123	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

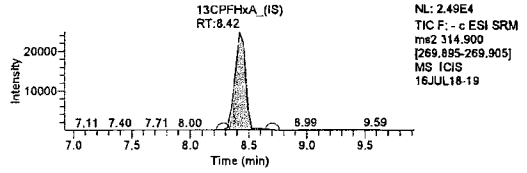
Component Name: PFBS





Component Name: PFHxA





Component Name: PFOA

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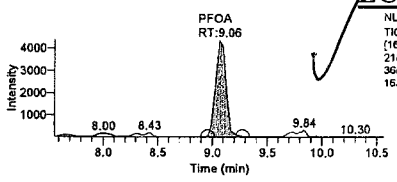

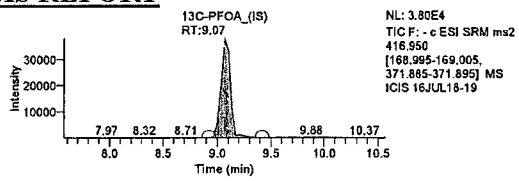

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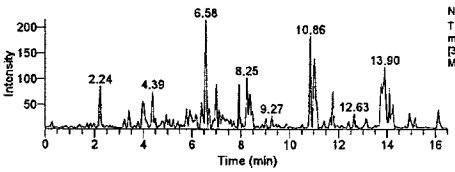

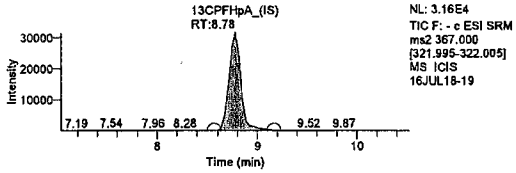

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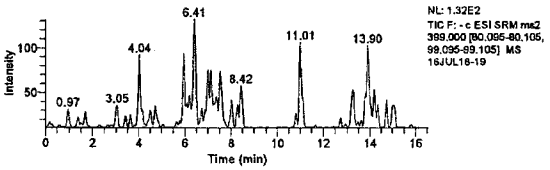

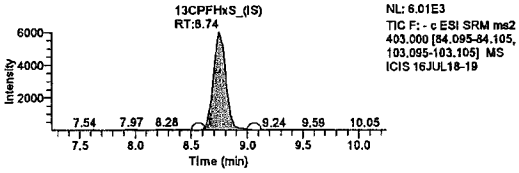

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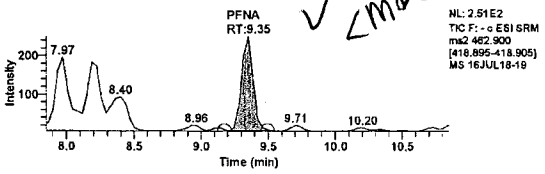
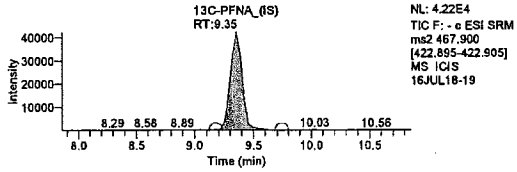
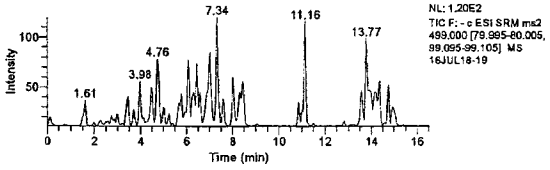
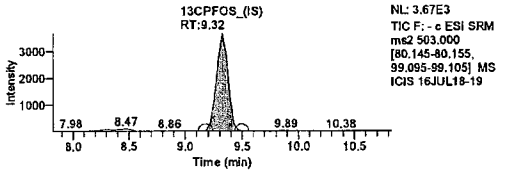


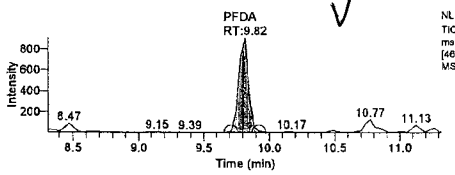


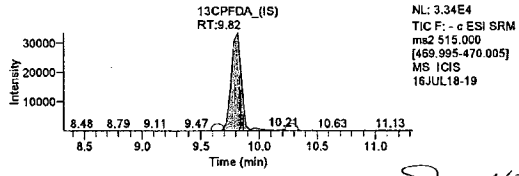
Component Name: PFOS





Component Name: PFDA





Jason W. Knight
Senior Chemist

Component Name: PFUdA

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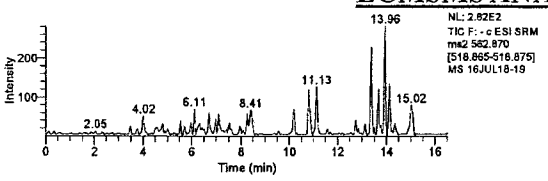
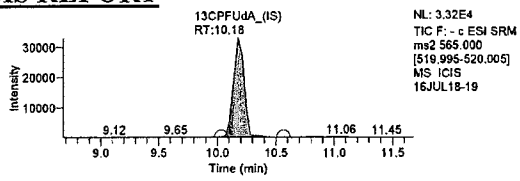
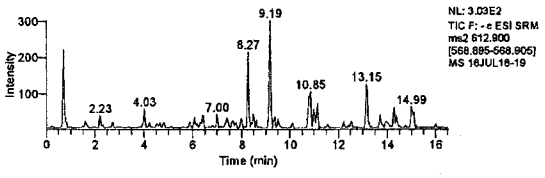
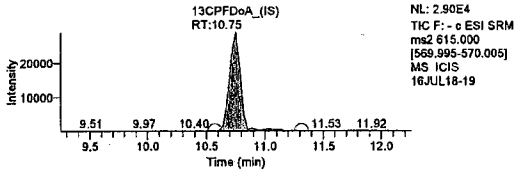


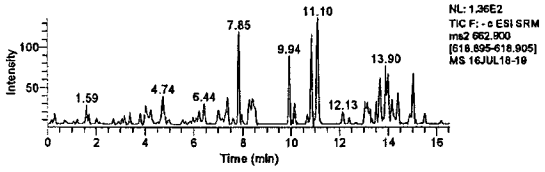


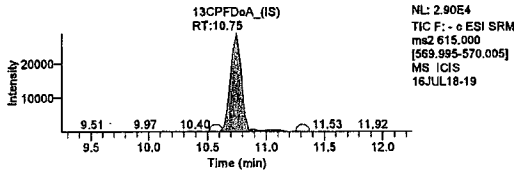
Component Name: PFDoA



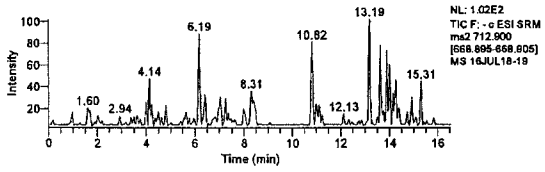


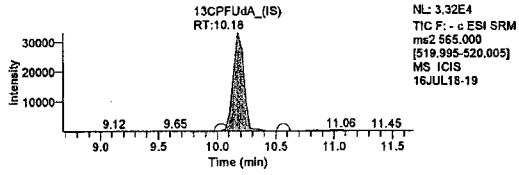
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 20 2016

Jason W. Knight
Senior Chemist

JUL 20 2016

Lynn Dodd
Principal Specialist

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Analysis Report

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Sample Description: SG3-RB02-20160615 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8432127
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/15/2016 11:25 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL

SG-R2 SDG#: SGP94-10RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	2	J	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	J	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 03:58	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

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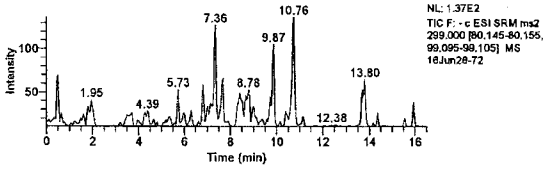
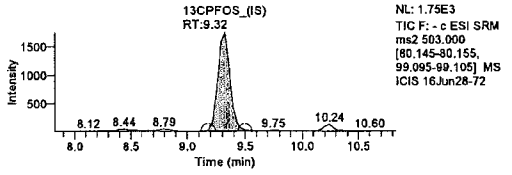
Sample Name:	8432127	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8432127	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-72		
Acquisition Date:	06/29/16 03:58:59 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:10	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

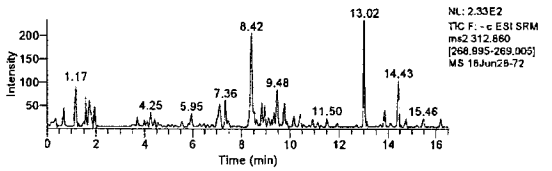
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.36	178834.49	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	136576.12	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.82	110259.14	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.49	100143.27	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	153050.35	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.42	57359.36	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.68	22977.95	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	12488.78	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.50	111719.13	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	1.744	9.00	2036.58	136576.12	0.015	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHpA	1.184	8.67	1152.96	153050.35	0.008	ng/L

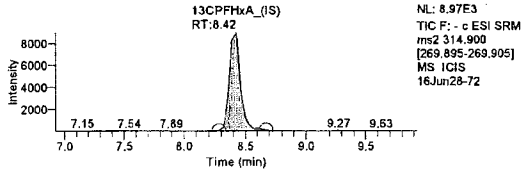
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHpA

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Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

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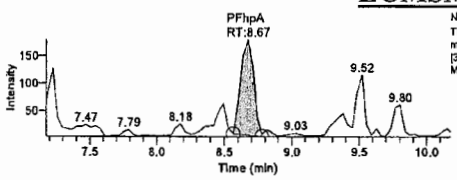
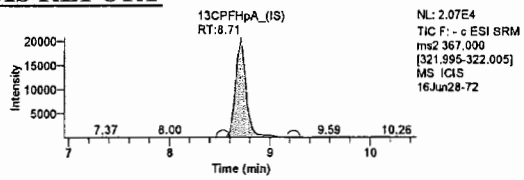
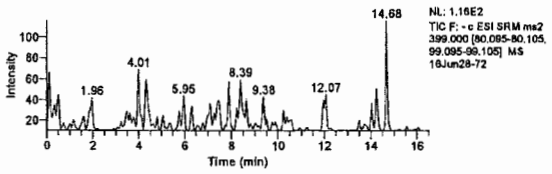
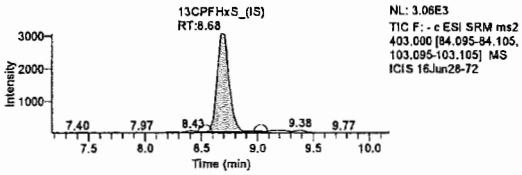




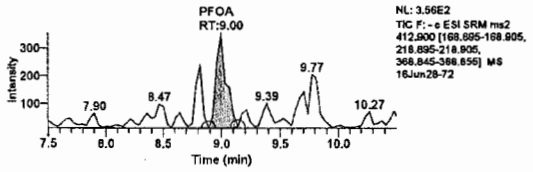
Component Name: PFHxS

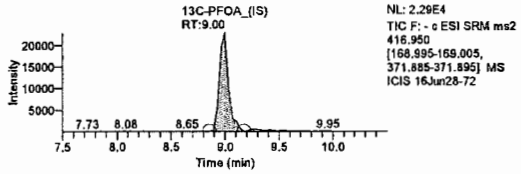




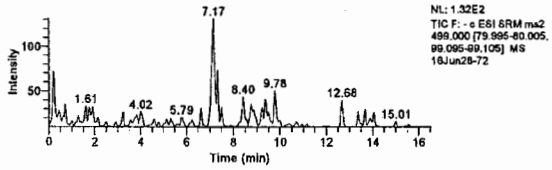
Component Name: PFOA

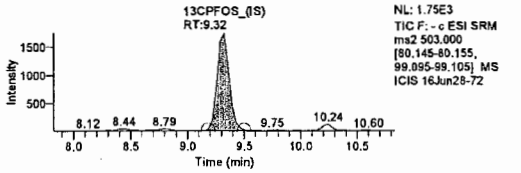
Lab check integration



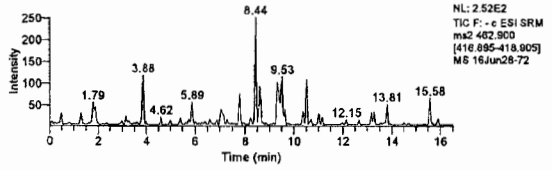


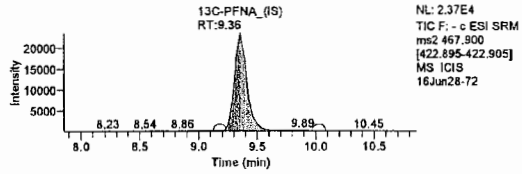
Component Name: PFOS





Component Name: PFNA





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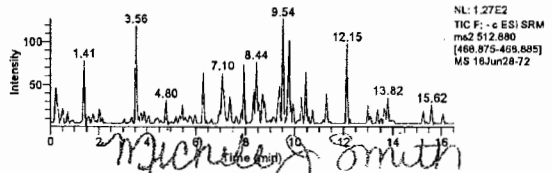

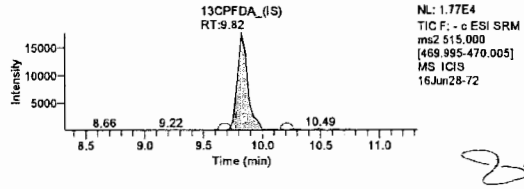

Michele J. Smith

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Component Name: PFUdA

Jason W. Knight
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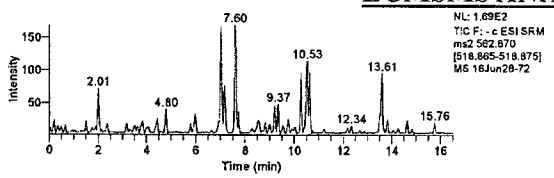
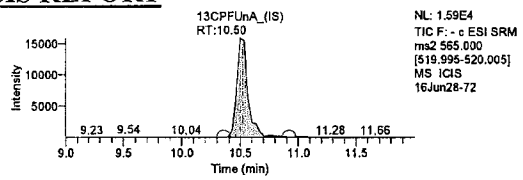
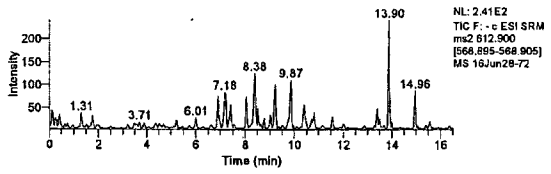
Michele J. Smith
Senior Specialist

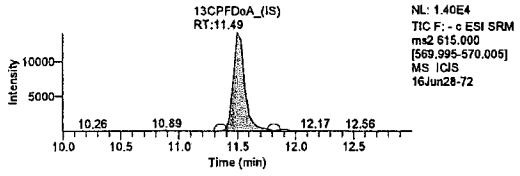
LCMSMS ANALYSIS REPORT





Component Name: PFDoA





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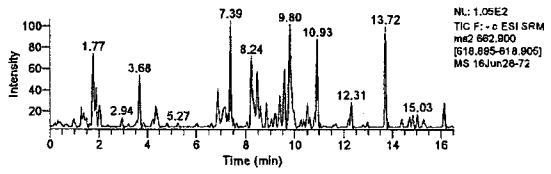

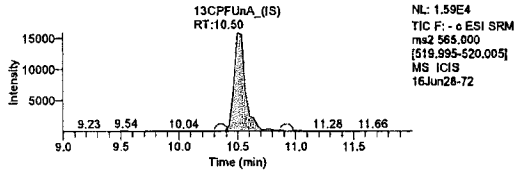

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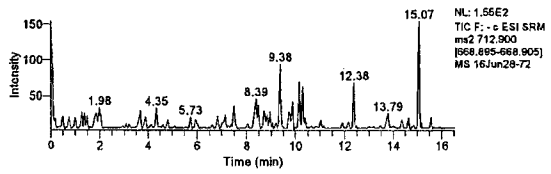

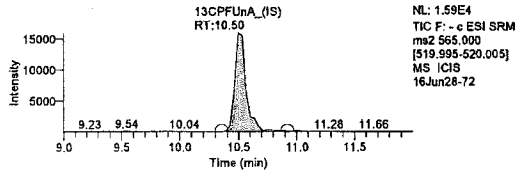

Michele J. Smith

JUN 30 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

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Analysis Report

REVISED

Sample Description: SG3-RB02-20160615 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8432127
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/15/2016 11:25 by JD

Submitted: 06/17/2016 09:40
Reported: 05/30/2017 08:38

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG-R2 SDG#: SGP94-10RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**1**	**J**	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 03:58	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

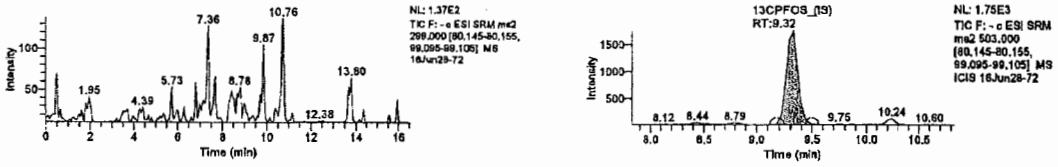
Sample Name:	8432127	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8432127	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-72		
Acquisition Date:	06/29/16 03:58:59 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:10	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram

Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.36	178834.49	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	136576.12	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.82	110259.14	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.49	100143.27	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	153050.35	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.42	57359.36	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.68	22977.95	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	12488.78	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.50	111719.13	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
* PFOA	1.744	9.00	2036.58	136576.12	0.015	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	1.184	8.67	1152.96	153050.35	0.008	ng/L

Component Name: PFBS



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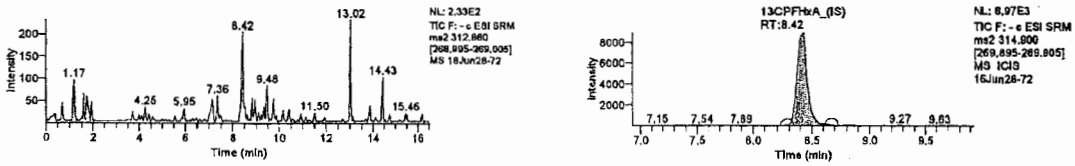

Component Name: PFhpA

Michele J Smith

JUN 30 2016

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Senior Specialist

Jason W. Knight
Senior Chemist

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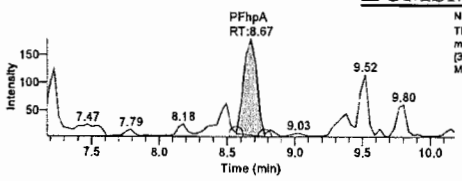
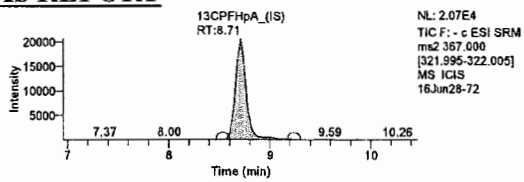
* y-intercept inflating result. False pos.

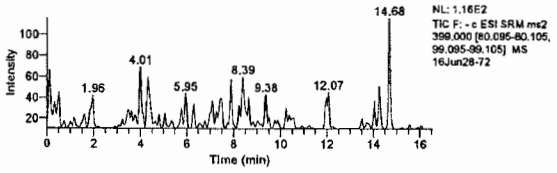
SGH94 Page 251 of 909

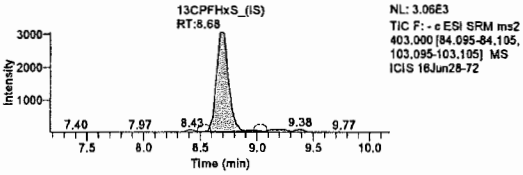
LCMSMS ANALYSIS REPORT



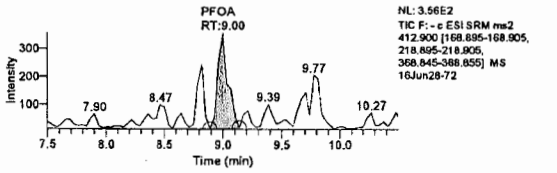


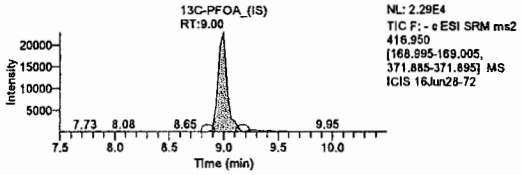
Component Name: PFHxS



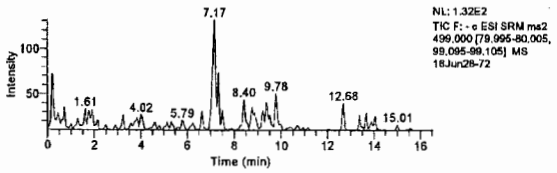


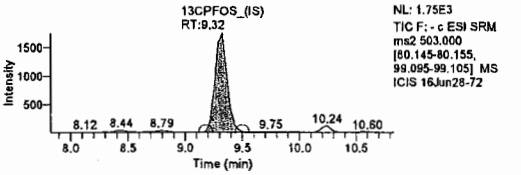
Component Name: PFOA



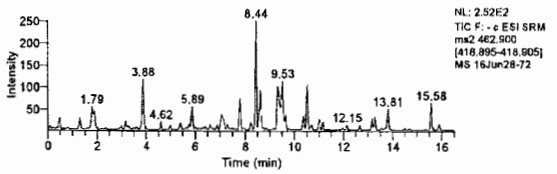


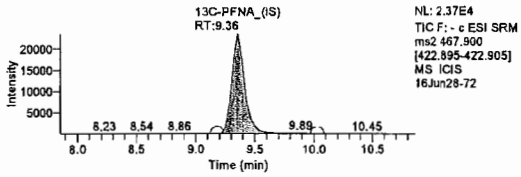
Component Name: PFOS



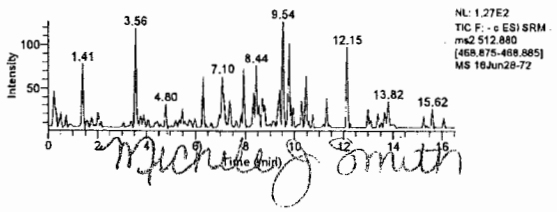


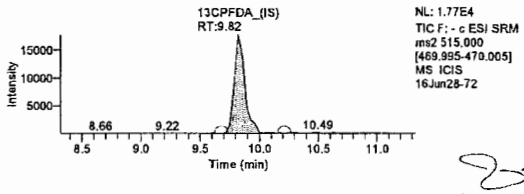
Component Name: PFNA





Component Name: PFDA





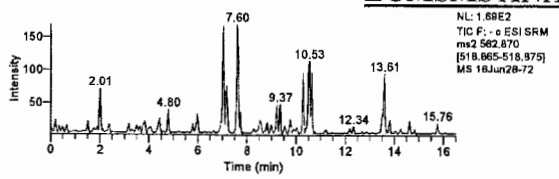
Jason W. Knight
Senior Chemist

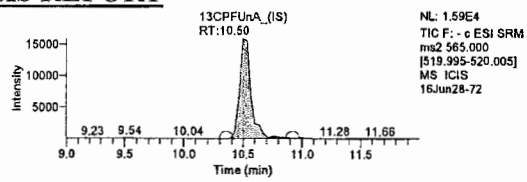
JUN 29 2016

JUN 30 2016 Component Name: PFUdA

Michele J. Smith
Senior Specialist

LCMSMS ANALYSIS REPORT





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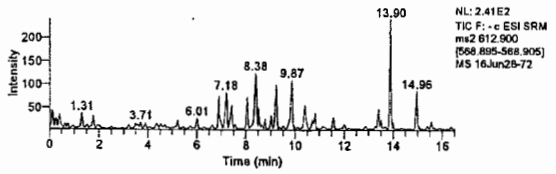
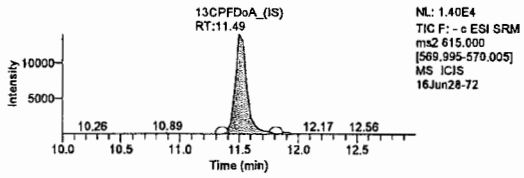
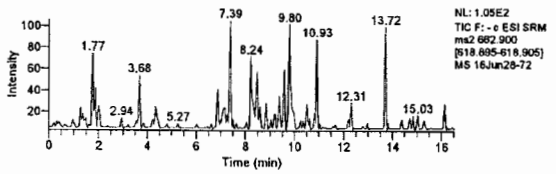
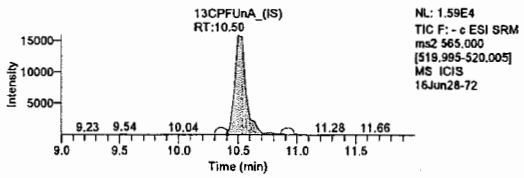


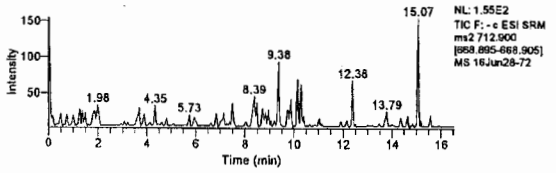


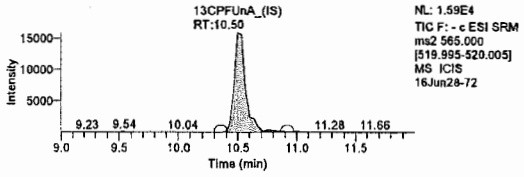
Component Name: PFTrDA





Component Name: PFTeDA





Michele J Smith

JUN 30 2016

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JUN 29 2016

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Analysis Report

Sample Description: SG3-FTB01-20160615 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8432128
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/15/2016 12:10 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-FB SDG#: SGP94-11FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	4		1	2	1
10954	Perfluorononanoic acid	375-95-1	3		1	2	1
10954	Perfluorodecanoic acid	335-76-2	2		1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	3	J	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	J	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	4		1	2	1
10954	Perfluoroheptanoic acid	375-85-9	3		1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 04:16	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

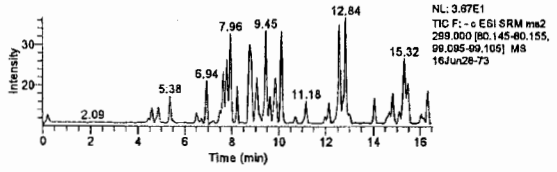
LCMSMS ANALYSIS REPORT

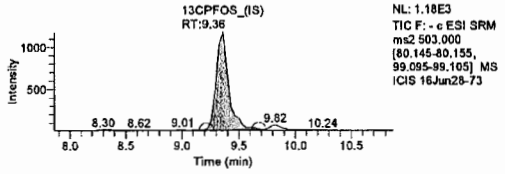
Sample Name:	8432128	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8432128	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-73		
Acquisition Date:	06/29/16 04:16:14 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:11	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.39	174964.80	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	120304.62	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.86	108790.94	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.71	89698.45	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	138601.00	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.43	50152.52	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	23043.51	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.36	8888.09	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.57	109903.17	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	2.452	9.86	6060.69	108790.94	0.056	ng/L
PFDoA	2.329	11.71	2484.65	89698.45	0.028	ng/L
PFHxA	3.996	8.42	4472.21	50152.52	0.089	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	2.730	9.39	6575.62	174964.80	0.038	ng/L
PFOA	4.453	9.00	11047.71	120304.62	0.092	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	2.102	12.88	768.90	109903.17	0.007	ng/L
PFUdA	2.692	10.57	4748.64	109903.17	0.043	ng/L
PFhpA	2.632	8.71	6379.37	138601.00	0.046	ng/L

Component Name: PFBS





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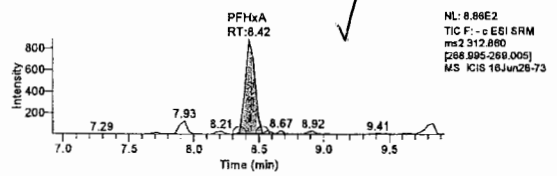

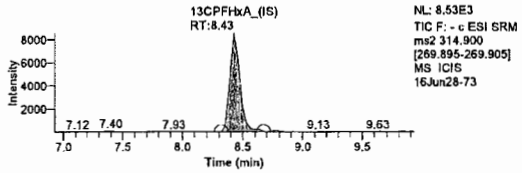

Component Name: PFhpA

Michele J. Smith

JUN 3 0 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

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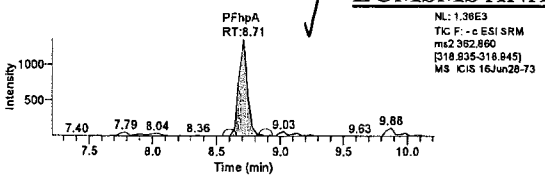

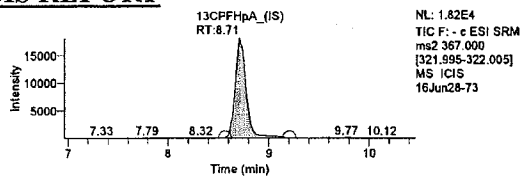

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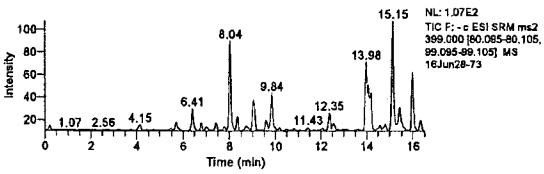

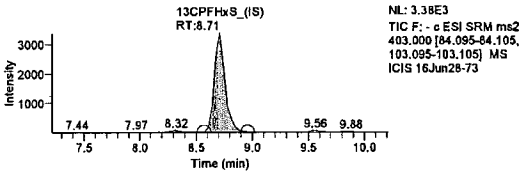

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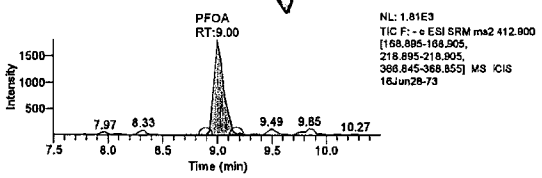
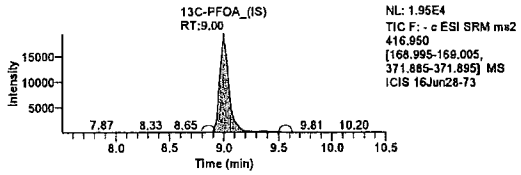
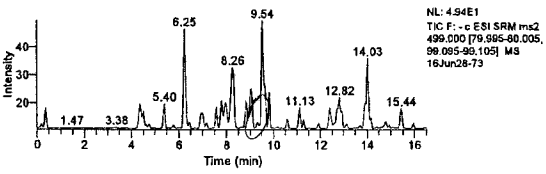
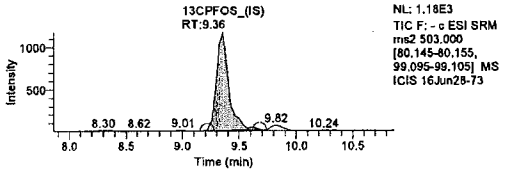




Component Name: PFOS





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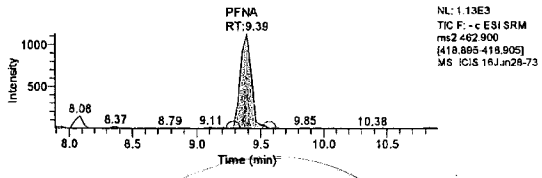
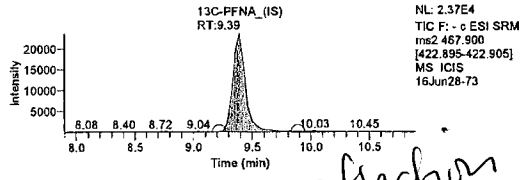
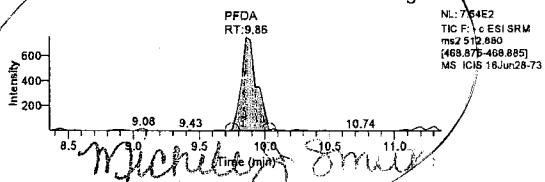
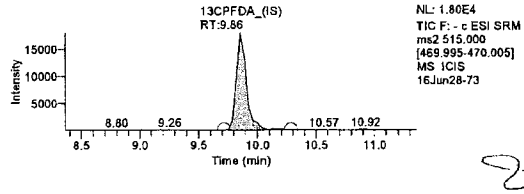




Component Name: PFDA

Lab check integration





Component Name: PFUdA

no inflection pt to change integration will still round to 2 ng/L

Jason W. Knight
Senior Chemist

JUN 29 2016

JUN 30 2016

Michele J. Smith
Senior Specialist

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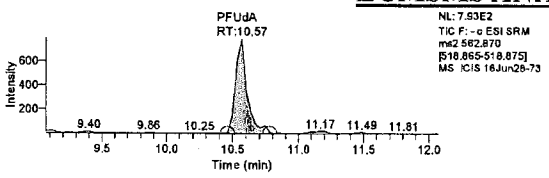

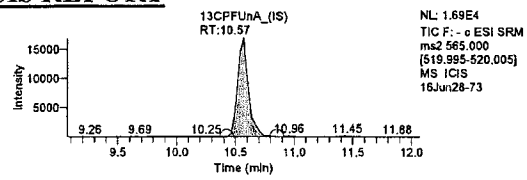

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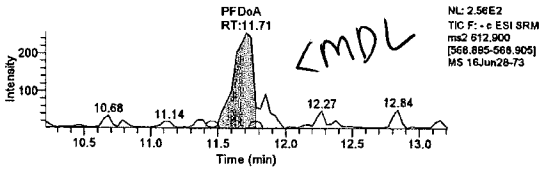
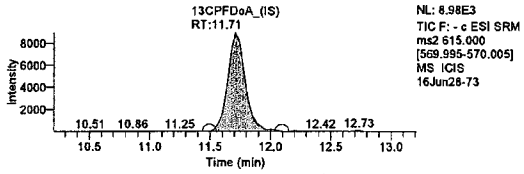
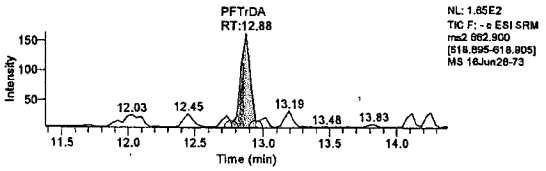
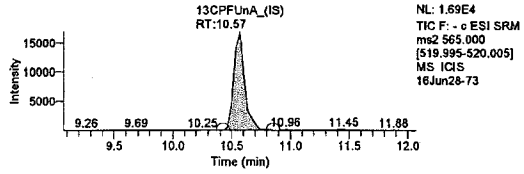




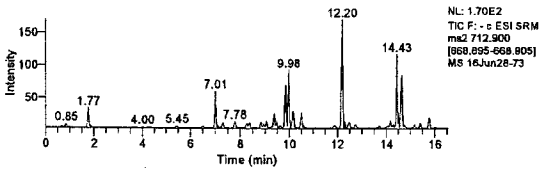
12.88/10.57
=1.22

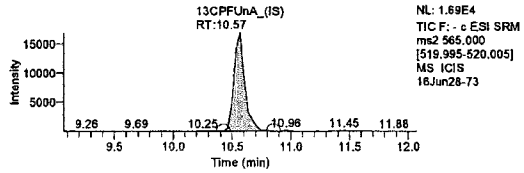
Component Name: PFTrDA





Component Name: PFTeDA





Bracketing CCVs 12.48/10.32 1.21
12.66/10.39 1.22
RT good ✓

Michele J Smith

JUN 30 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

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Analysis Report

Sample Description: SG3-MW03-03.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8432129
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/15/2016 13:05 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-35 SDG#: SGP94-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.45	1
14027	Perfluorododecanoic acid	307-55-1	0.45	U	0.45	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.44	J	0.23	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.79	U	0.79	1.8	1
14027	Perfluorooctanoic acid	335-67-1	7.6		0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	0.68	U	0.68	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	6,210		242	726	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	11.6		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 15:18	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16180298731D	06/28/2016 13:45	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

Sample Name:	8432129	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432129	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL18-22		M\HWell_16.5minutes
Acquisition Date:	07/18/16 03:18:32 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:9	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

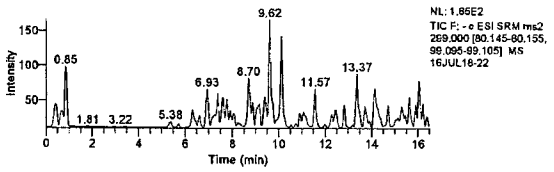
Extracted Ion Chromatogram
Quan Peak Table

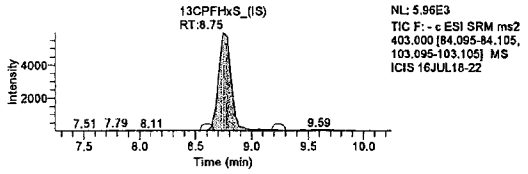
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.32	297113.55	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.03	229911.14	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.64	201997.96	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.79	153476.24	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.78	277168.02	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.46	147276.51	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.75	46800.34	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.29	28878.51	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.11	197113.09	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	0.138	9.64	1529.65	201997.96	0.008	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.389	9.32	6845.50	297113.55	0.023	ng/g
PFOA	6.703	9.07	189078.44	229911.14	0.822	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	0.157	11.39	2008.77	153476.24	0.013	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	0.194	8.78	2012.30	277168.02	0.007	ng/g

LMDL

LMDL

Component Name: PFBS





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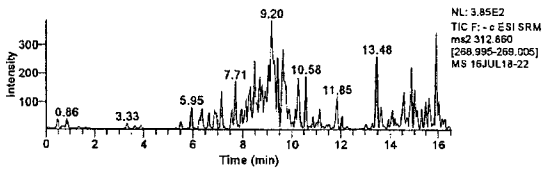

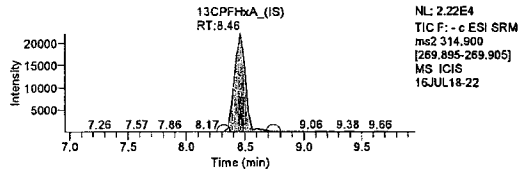

Component Name: PFhpA

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Senior Chemist

JUL 20 2016

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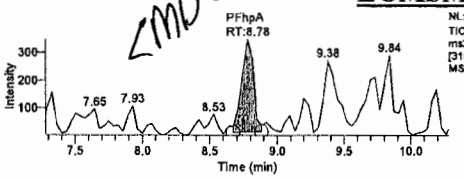

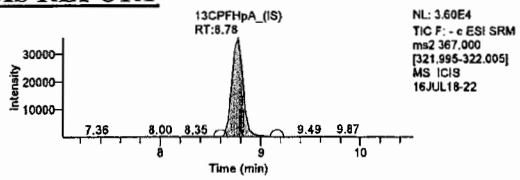

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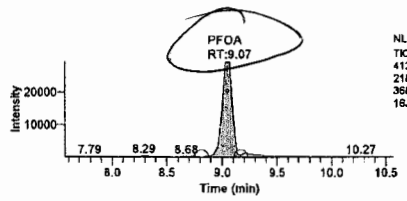
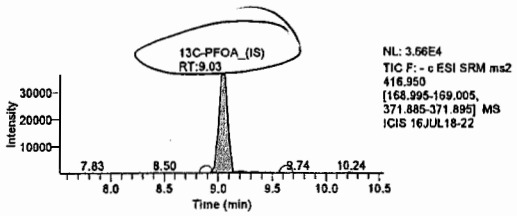
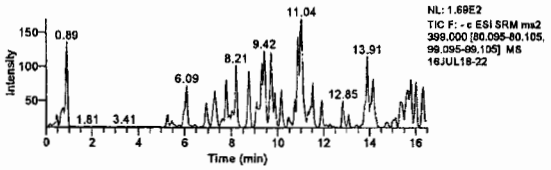
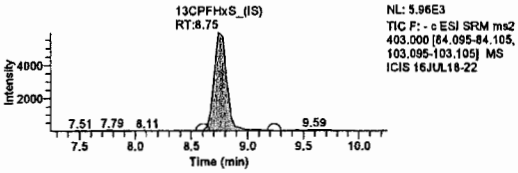


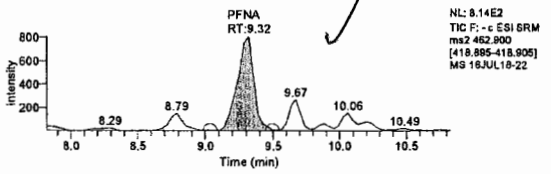


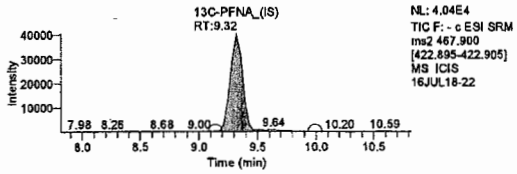
Component Name: PFHxS





Component Name: PFNA





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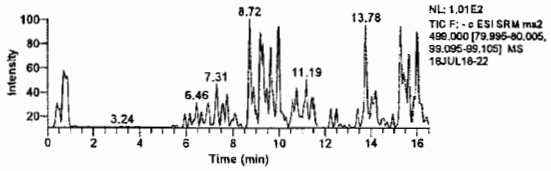

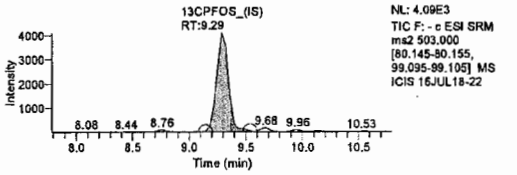

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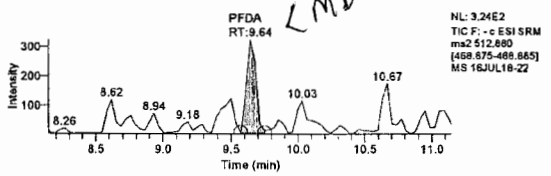

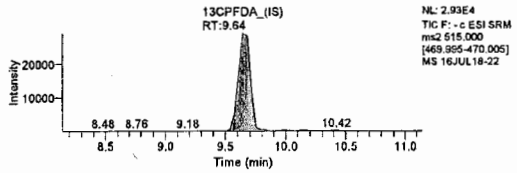

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Component Name: PFUdA

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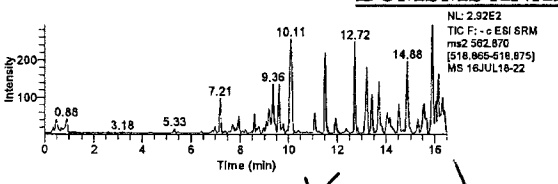
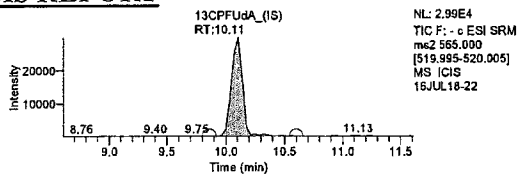
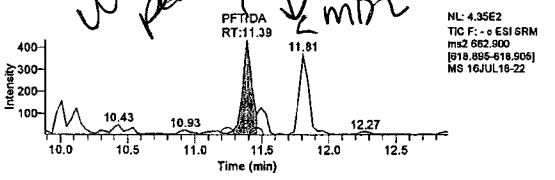
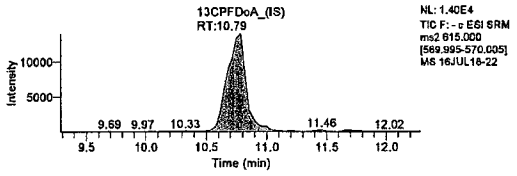




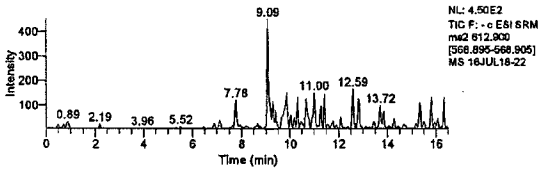
wrong peak but smaller & MDL

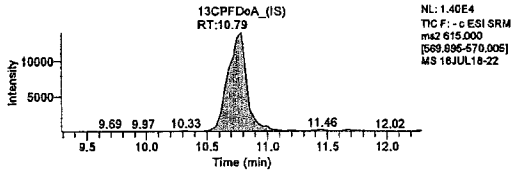
Component Name: PFTrDA



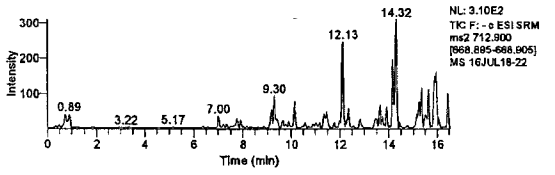


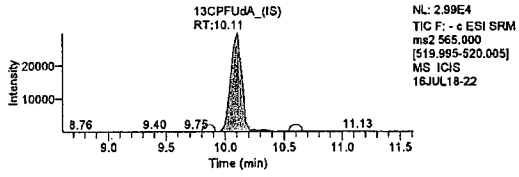
Component Name: PFDoA





Component Name: PFTeDA





Lynn Dodd
JUL 20 2016

Jason W. Knight
Senior Chemist

JUL 20 2016

Lynn Dodd
Principal Specialist

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SG3-RB03-20160615 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8432130
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/15/2016 14:05 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-R3 SDG#: SGP94-13RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	2		1	2	1
10954	Perfluorononanoic acid	375-95-1	1	J	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	2		1	2	1
10954	Perfluoroheptanoic acid	375-85-9	2	J	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 04:33	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

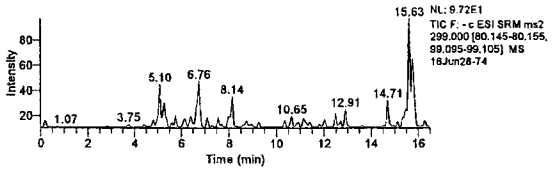
LCMSMS ANALYSIS REPORT

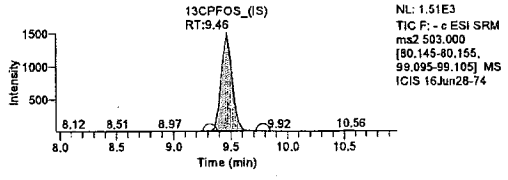
Sample Name:	8432130	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8432130	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-74		
Acquisition Date:	06/29/16 04:33:28 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:12	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

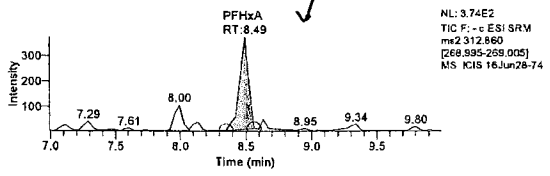
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.50	205874.26	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.21	145779.23	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.93	128912.04	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.60	105209.78	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.81	150892.74	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.49	52183.54	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.78	24447.65	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.46	9900.33	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.60	129216.26	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	0.481	9.93	1143.21	128912.04	0.009	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	2.071	8.49	1736.78	52183.54	0.033	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	1.084	9.50	2093.10	205874.26	0.010	ng/L
PFOA	2.460	9.21	5137.28	145779.23	0.035	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	2.581	14.46	1291.21	129216.26	0.010	ng/L
PFTrDA	1.969	12.87	581.00	129216.26	0.004	ng/L
PFUdA	1.711	10.60	2548.34	129216.26	0.020	ng/L
PFHpA	1.610	8.81	2845.55	150892.74	0.019	ng/L

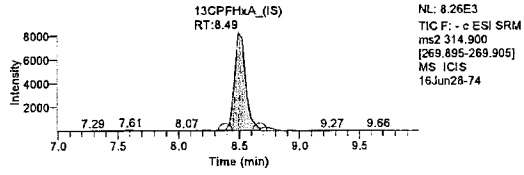
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHxS

Michele J. Smith

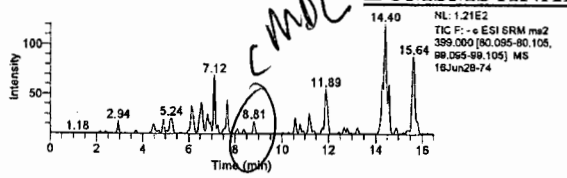
JUN 30 2016

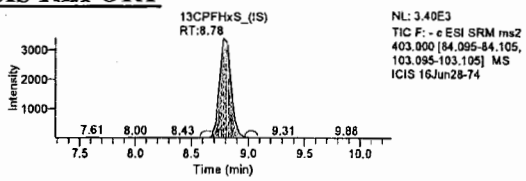
Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

LCMSMS ANALYSIS REPORT





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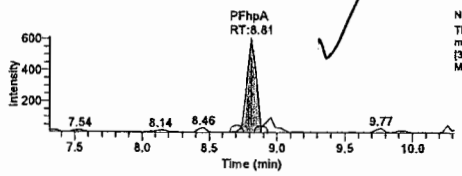
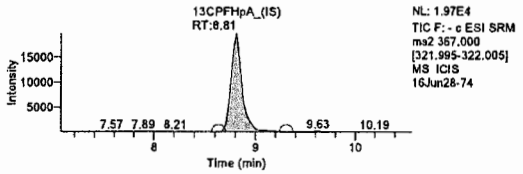
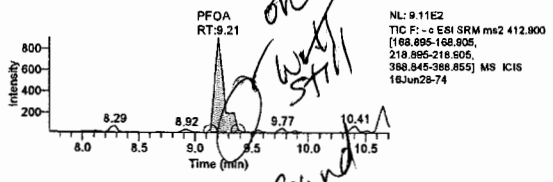
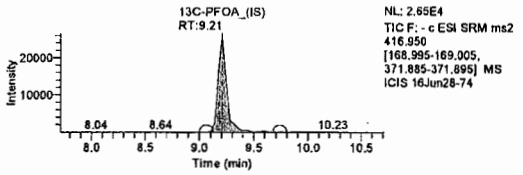




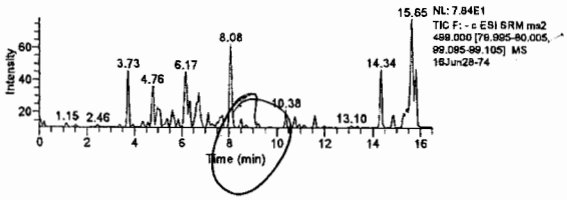
Component Name: PFOA

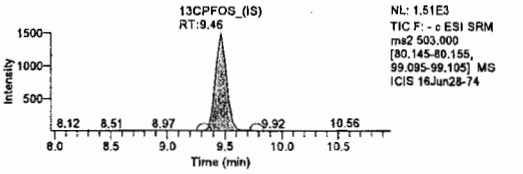
Lab check integration on wet ST/I Round to 2



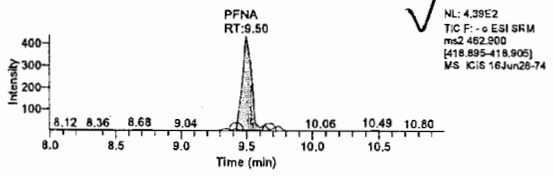


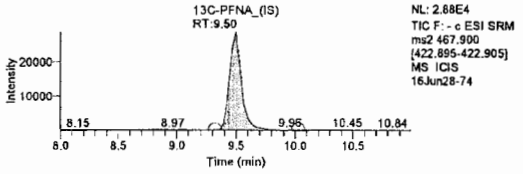
Component Name: PFOS



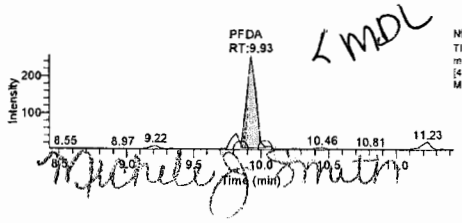


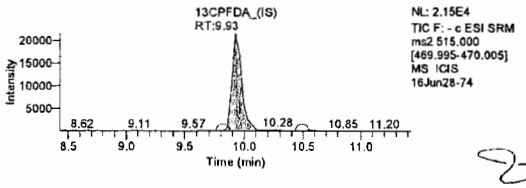
Component Name: PFNA





Component Name: PFDA





< MDL

Michele J. Smith

JUN 30 2016

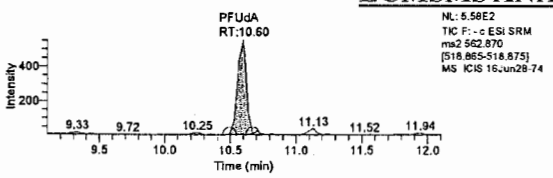
Jason W. Knight
Senior Chemist

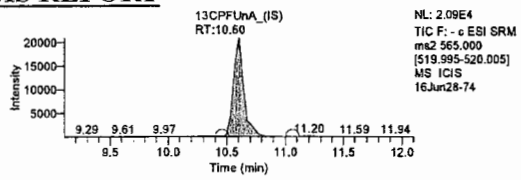
JUN 29 2016

Component Name: PFUdA

Michele J. Smith
Senior Specialist

LCMSMS ANALYSIS REPORT





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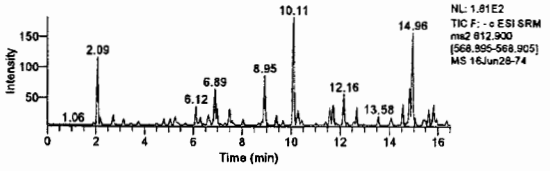

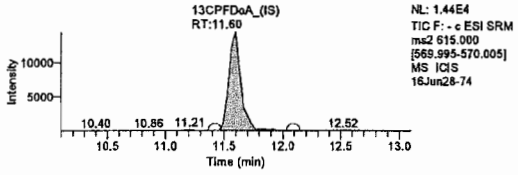

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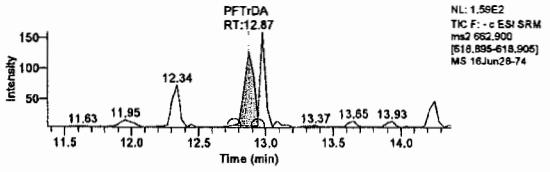
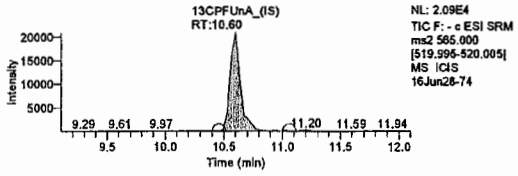
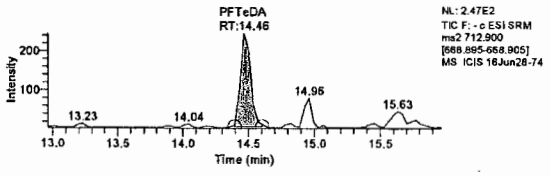
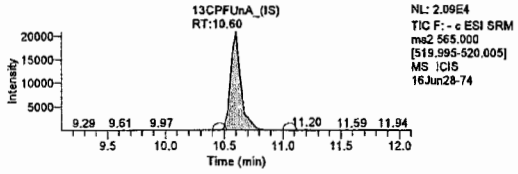




Component Name: PFTeDA





all < MDL

Michele J. Smith

JUN 30 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

Sample Description: SG3-MW03-06.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Collected: 06/15/2016 14:30 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

LL Sample # SW 8432131
LL Group # 1673381
Account # 37191

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-36 SDG#: SGP94-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.50	U	0.50	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.26	J	0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.87	U	0.87	2.0	1
14027	Perfluorooctanoic acid	335-67-1	11		0.37	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.75	U	0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	J	0.37	0.75	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	5,050		446	1,340	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	19.7		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 15:35	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16180298731D	06/28/2016 14:22	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

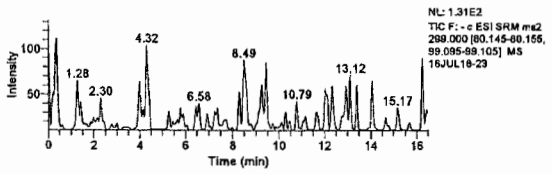
LCMSMS ANALYSIS REPORT

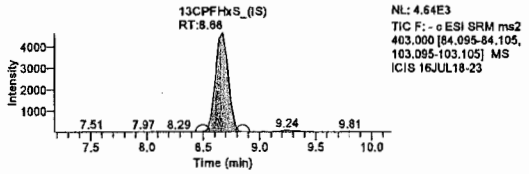
Sample Name:	8432131	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432131	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL18-23		M\HWell_16.5minutes
Acquisition Date:	07/18/16 03:35:46 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:10	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

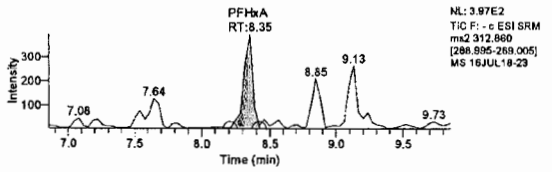
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.36	191232.20	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.03	160508.88	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.75	118738.60	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.86	133824.86	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.67	177127.36	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.35	108874.82	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.68	37164.13	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	18067.71	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.25	106650.68	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	0.172	8.35	1808.79	108874.82	0.017	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.211	9.36	1570.05	191232.20	0.008	ng/g
PFOA	9.220	9.03	181991.26	160508.88	1.134	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	0.301	10.28	1498.05	106650.68	0.014	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

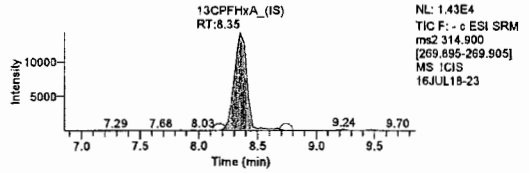
Component Name: PFBS





Component Name: PFHxA





Component Name: PFOA

Jason W. Knight
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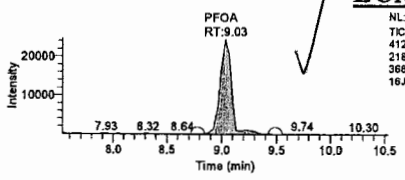

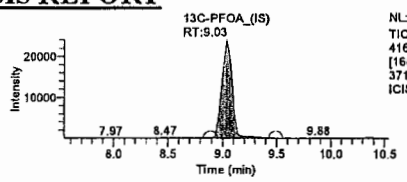

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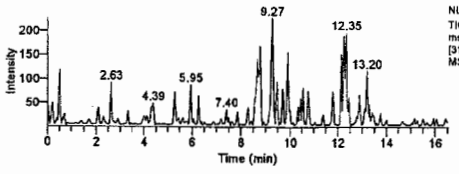

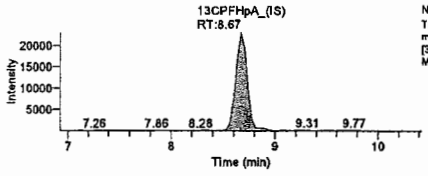

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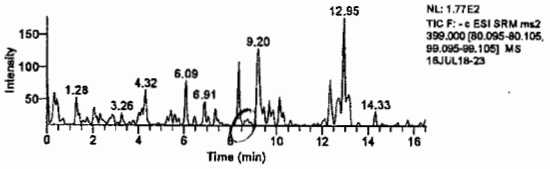

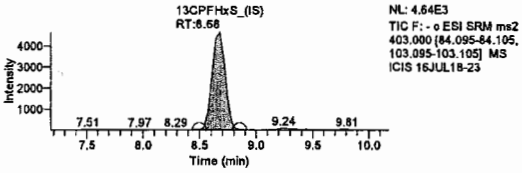

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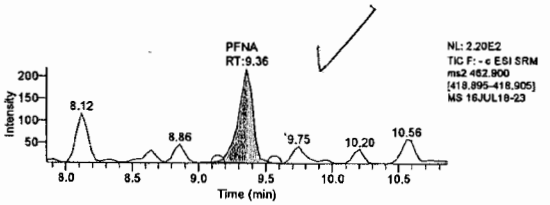

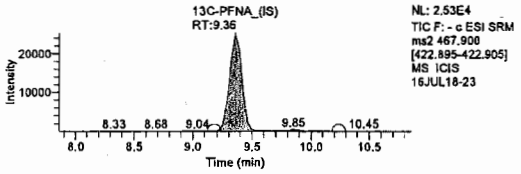

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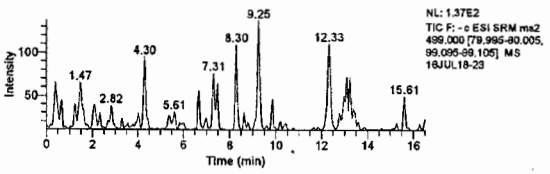

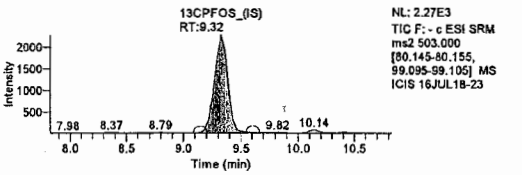

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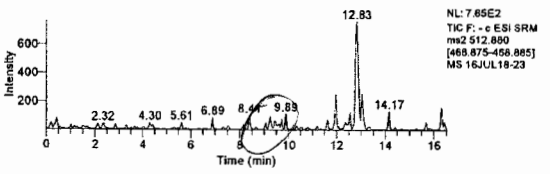

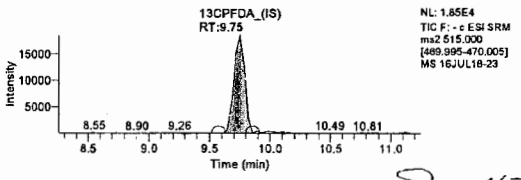

Jason W. Knight
Senior Chemist

Component Name: PFUdA

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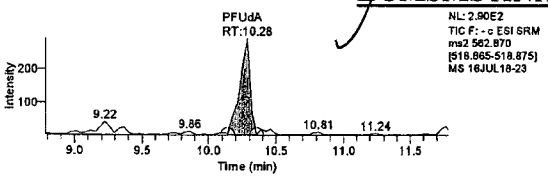

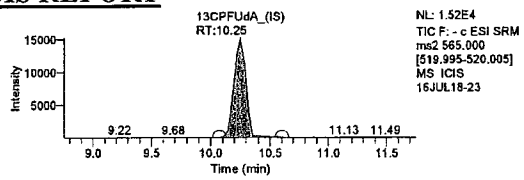

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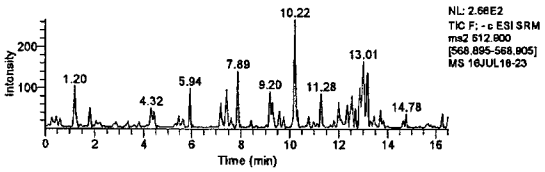

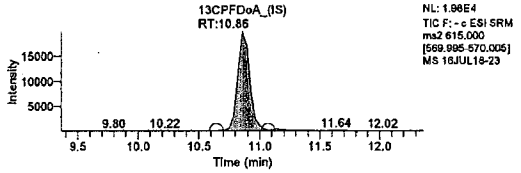

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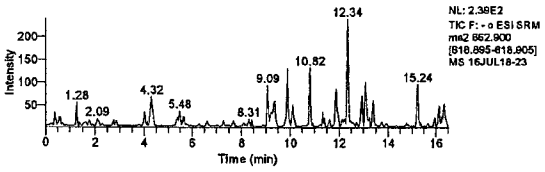

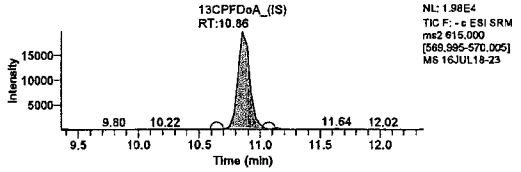

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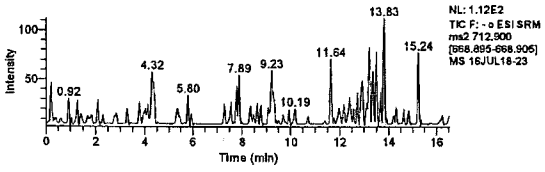

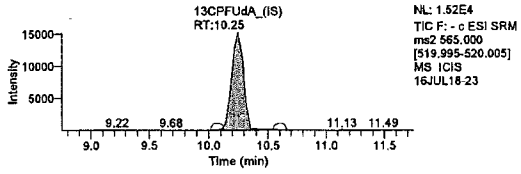

Lynn Dodd
JUL 20 2016

Jason W. Knight
Senior Chemist

JUL 20 2016

Lynn Dodd
Principal Specialist

Sample Description: SG3-MW03-09.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

LL Sample # SW 8432132
LL Group # 1673381
Account # 37191

Collected: 06/15/2016 14:45 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-37 SDG#: SGP94-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.63	U	0.63	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.50	U	0.50	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.63	U	0.63	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.88	U	0.88	2.0	1
14027	Perfluorooctanoic acid	335-67-1	23		0.38	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.75	U	0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.75	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	10,500		648	1,940	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	20.4		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/21/2016 07:54	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16180298731D	06/28/2016 14:50	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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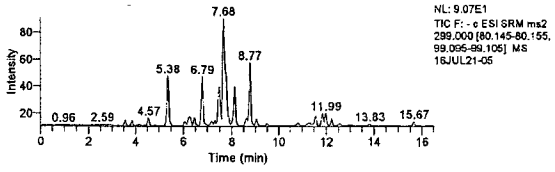
Sample Name:	8432132	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432132	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL21-05		
Acquisition Date:	07/21/16 07:54:32 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	B:29	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

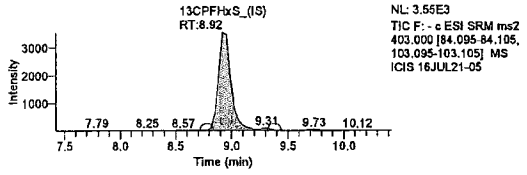
Extracted Ion Chromatogram

Quan Peak Table

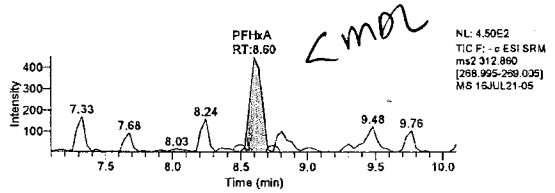
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.71	202372.87	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.28	194182.69	N/A	N/A	N/A
13CPFDA_(IS)	N/A	10.42	194314.61	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	12.02	141046.66	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.95	226684.35	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.63	127328.04	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.92	28564.62	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.68	15101.87	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	11.13	173610.16	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	0.039	10.42	1481.31	194314.61	0.008	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	0.193	8.60	2749.56	127328.04	0.022	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	18.497	9.28	366566.62	194182.69	1.888	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	0.165	8.92	2741.93	226684.35	0.012	ng/g

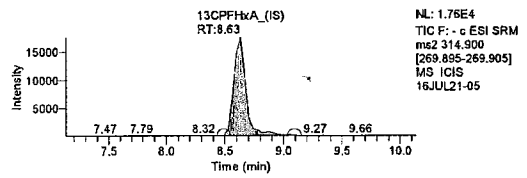
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHpA

Christine Ratcliff
Manager

JUL 21 2016

Jason W. Knight
Senior Chemist

JUL 20 2016

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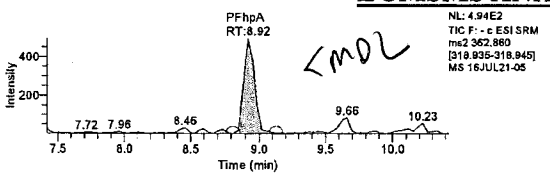

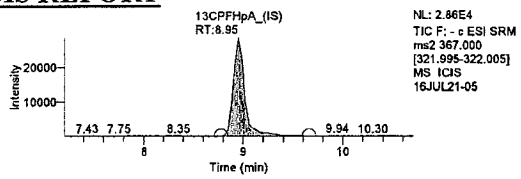

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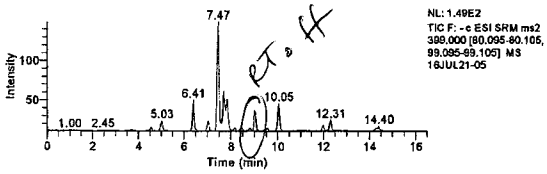

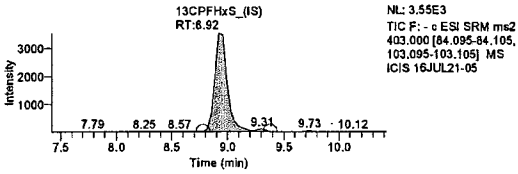

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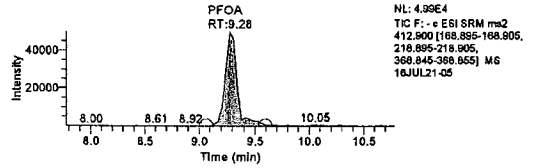

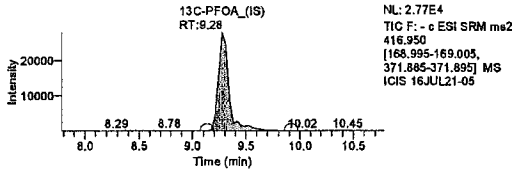

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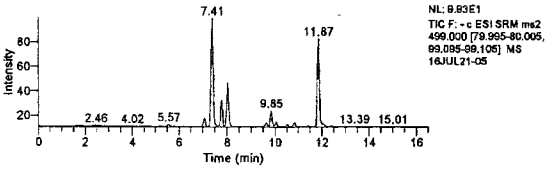

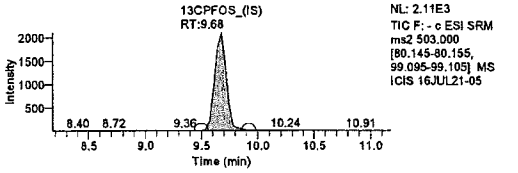

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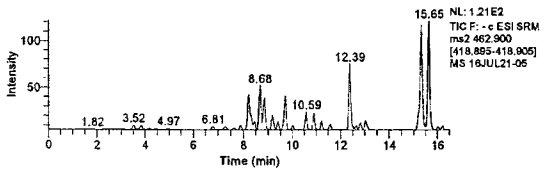

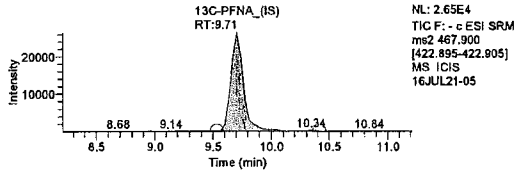

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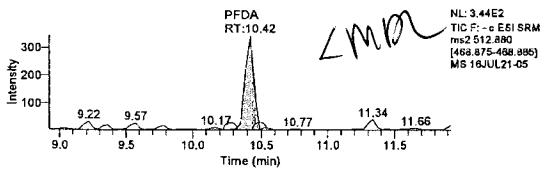

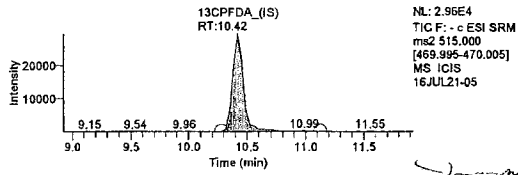

Component Name: PFUdA

Christine Ratcliff
Manager

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Jason W. Knight
Senior Chemist

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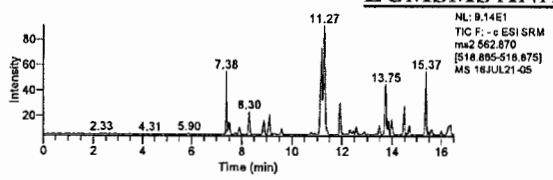
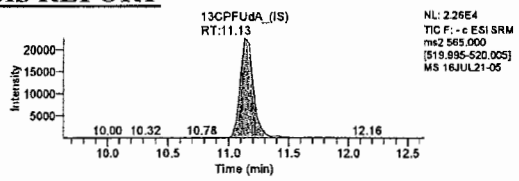
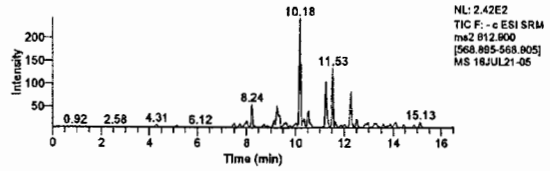
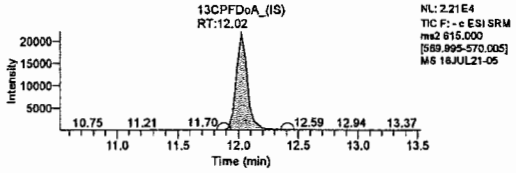


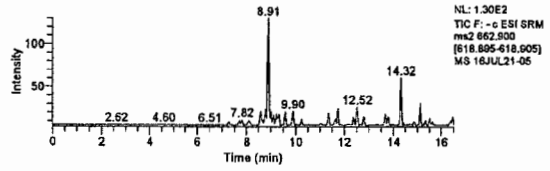


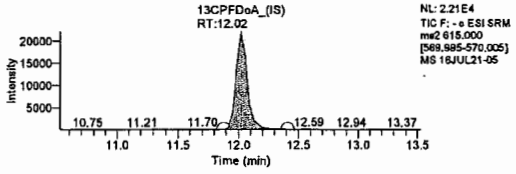
Component Name: PFDoA



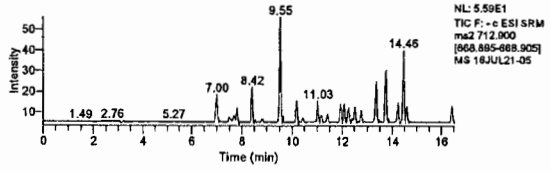


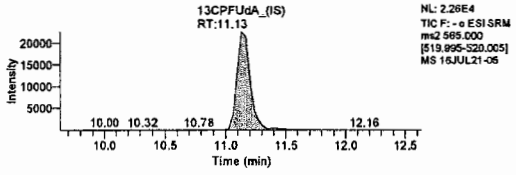
Component Name: PFTrDA





Component Name: PFTeDA





all < MDL

Christine Ratcliff
Manager

JUL 21 2016

Jason W. Knight
Senior Chemist

JUL 20 2016

LCMSMS ANALYSIS REPORT

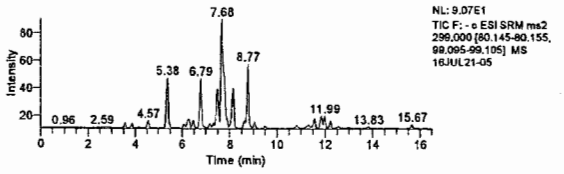
Sample Name:	8432132	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432132	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL21-05		
Acquisition Date:	07/21/16 07:54:32 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	B:29	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

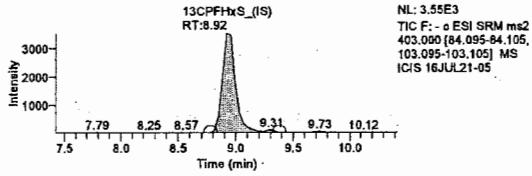
Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.71	202372.87	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.28	194182.69	N/A	N/A	N/A
13CPFDA_(IS)	N/A	10.42	194314.61	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	12.02	141046.66	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.95	226684.35	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.63	127328.04	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.92	28564.62	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.68	15101.87	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	11.13	173610.16	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	0.020	10.42	1481.31	194314.61	0.008	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	0.193	8.60	2749.56	127328.04	0.022	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	18.497	9.28	366566.62	194182.69	1.888	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHpA	0.165	8.92	2741.93	226684.35	0.012	ng/g

Revised no change in result

Component Name: PFBS





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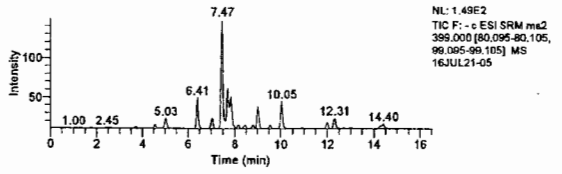
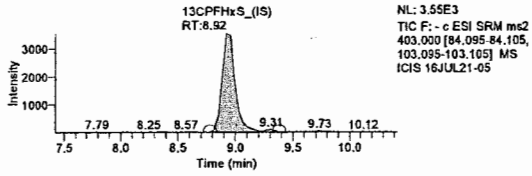
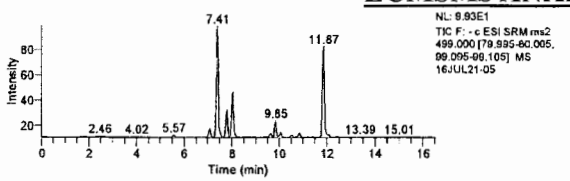
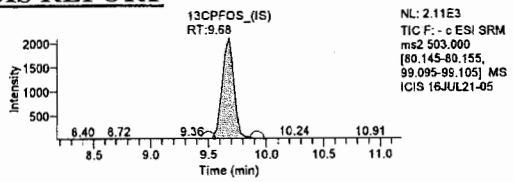




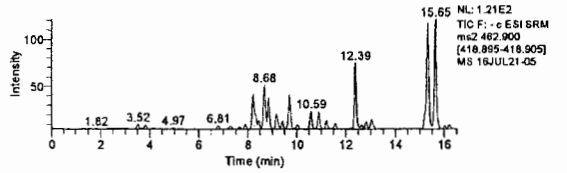
Component Name: PFOS

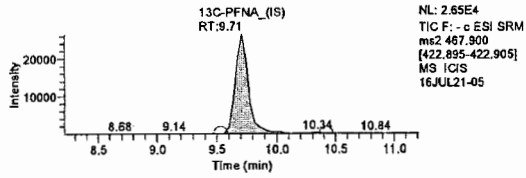
LCMSMS ANALYSIS REPORT



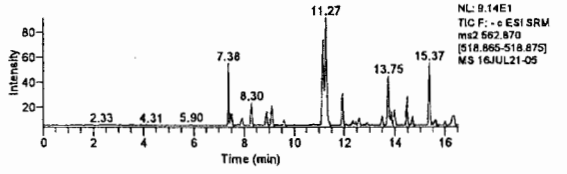


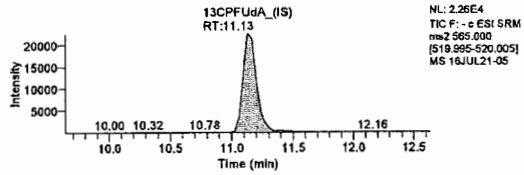
Component Name: PFNA



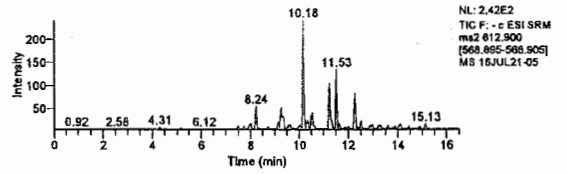


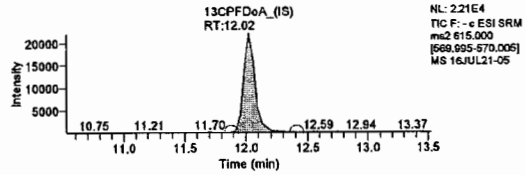
Component Name: PFUdA



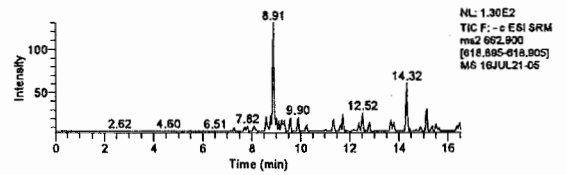


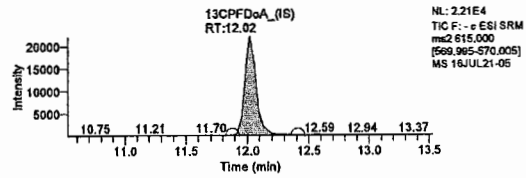
Component Name: PFDoA



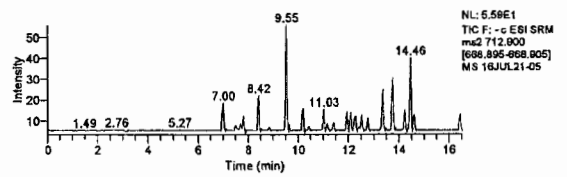


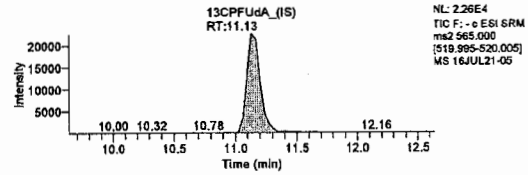
Component Name: PFTrDA





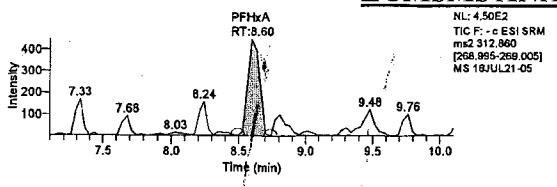
Component Name: PFTeDA

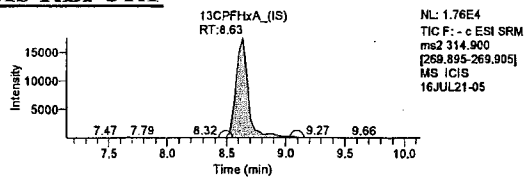




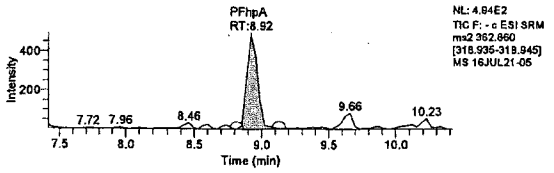
Component Name: PFHxA

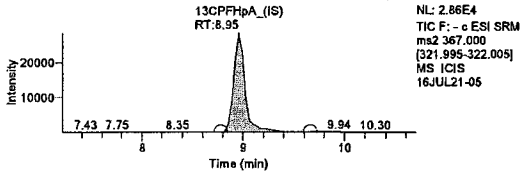
LCMSMS ANALYSIS REPORT



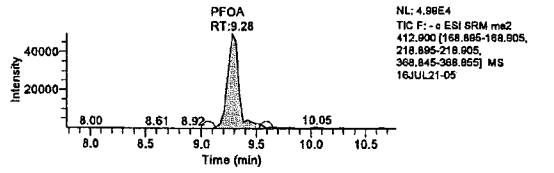


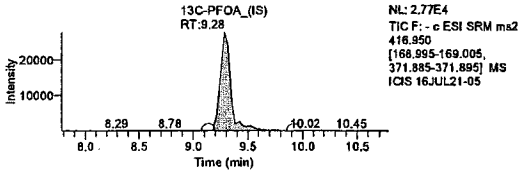
Component Name: PFhpA



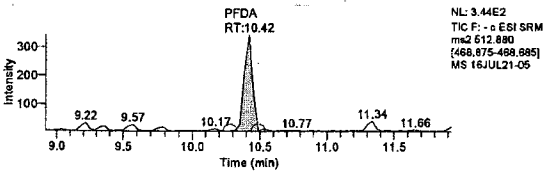


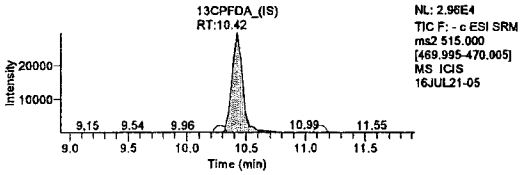
Component Name: PFOA





Component Name: PFDA





Jason W. Knight
Senior Chemist

MAY 24 2017

5/27/17

Sample Description: SG3-MW04-00.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8432133
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 08:55 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-41 SDG#: SGP94-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.42	1
14027	Perfluorododecanoic acid	307-55-1	0.42	U	0.42	0.84	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.74	U	0.74	1.7	1
14027	Perfluorooctanoic acid	335-67-1	2.0		0.32	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.84	1
14027	Perfluorotridecanoic acid	72629-94-8	0.63	U	0.63	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	1,480		235	706	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	5.3		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 16:10	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16180298731D	06/28/2016 15:09	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

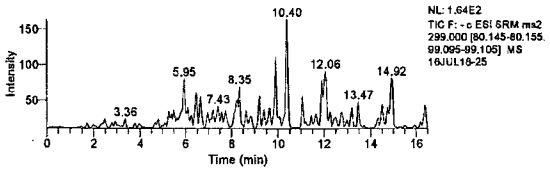
LCMSMS ANALYSIS REPORT

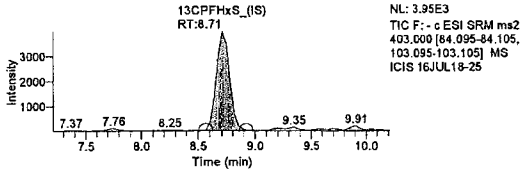
Sample Name:	8432133	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432133	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL18-25		
Acquisition Date:	07/18/16 04:10:15 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:12	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

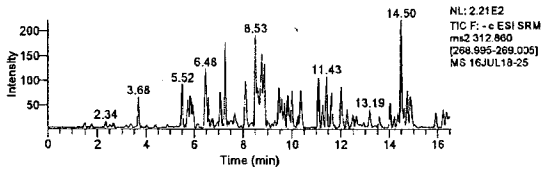
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.28	218718.91	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	168598.39	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.64	126028.57	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.64	120009.42	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	179869.71	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	104506.25	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	31584.47	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.25	18782.74	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.07	129645.55	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	0.150	9.64	1076.55	126028.57	0.009	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	1.884	9.03	38150.60	168598.39	0.226	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

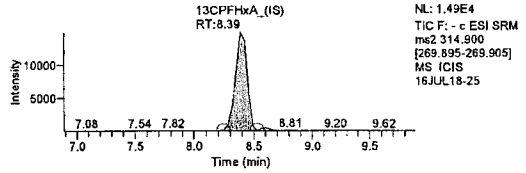
Component Name: PFBS





Component Name: PFHxA



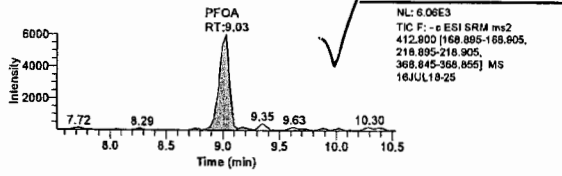


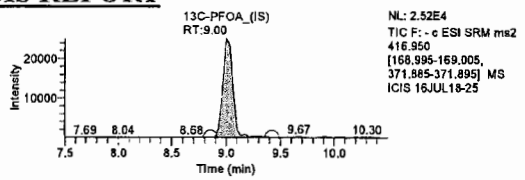
Component Name: PFOA

Jason W. Knight
Senior Chemist

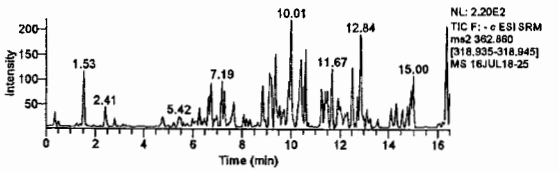
JUL 20 2016

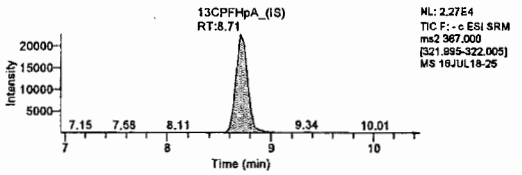
LCMSMS ANALYSIS REPORT



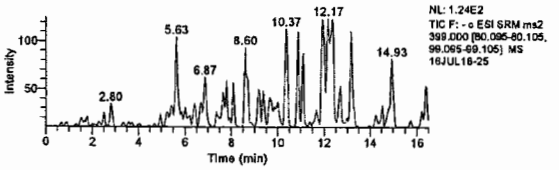


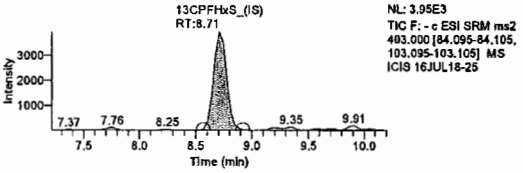
Component Name: PFhpA





Component Name: PFHxS





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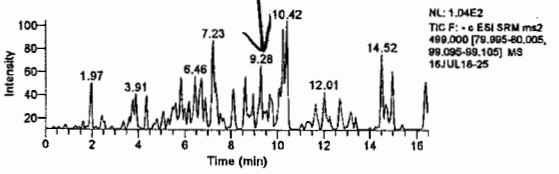

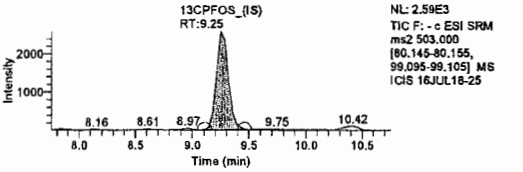

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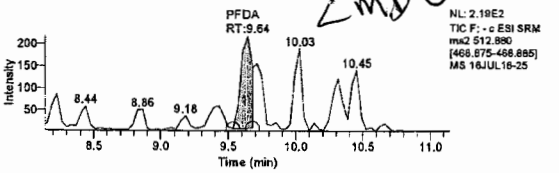

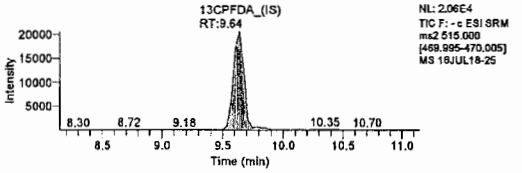

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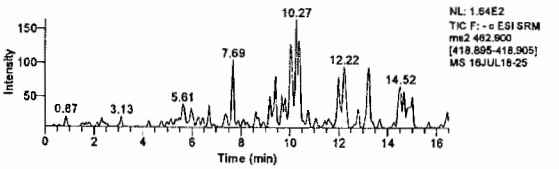

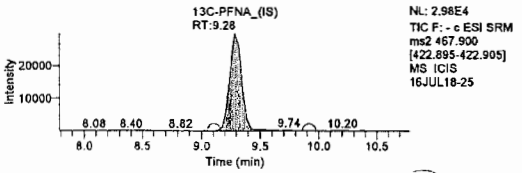

Jason W. Knight
Senior Chemist

Component Name: PFUdA

JUL 20 2016

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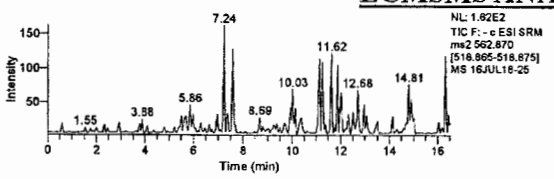
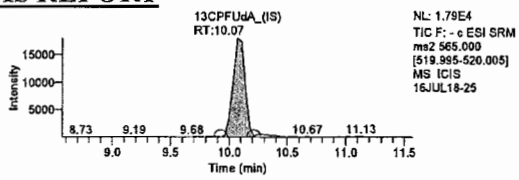
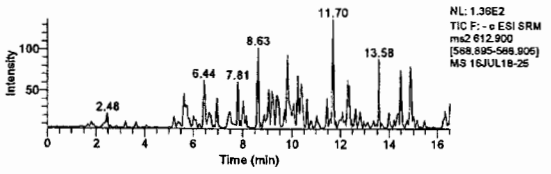
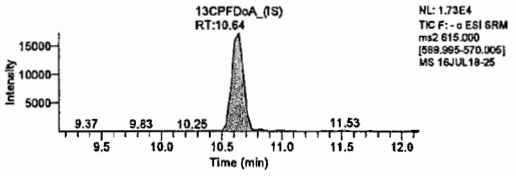




Component Name: PFDoA





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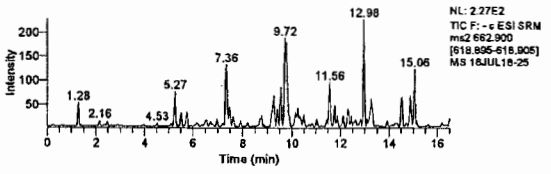
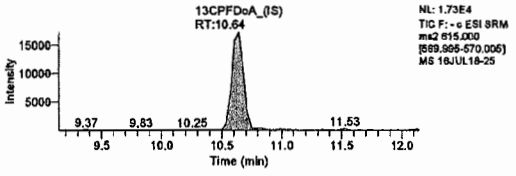
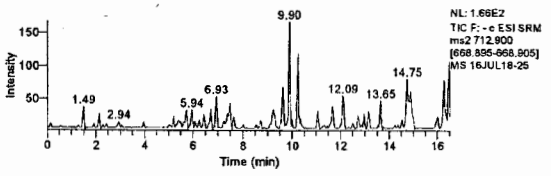
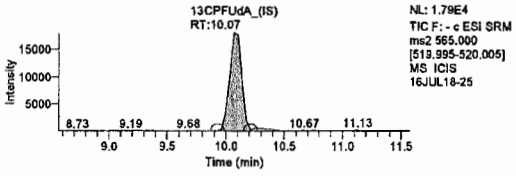




Component Name: PFTeDA





all < MDL

Lynn Dodd
JUL 20 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 20 2016

Sample Description: SG3-MW04-00.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Collected: 06/16/2016 09:00 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

LL Sample # SW 8432134
LL Group # 1673381
Account # 37191

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-42 SDG#: SGP94-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	1.6	J	0.56	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.92		0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.44	U	0.44	0.89	1
14027	Perfluoroheptanoic acid	375-85-9	1.1		0.33	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	1.6	J	0.56	1.8	1
14027	Perfluorohexanoic acid	307-24-4	1.4		0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	1.2		0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.85	J	0.78	1.8	1
14027	Perfluorooctanoic acid	335-67-1	3.8		0.33	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.89	1
14027	Perfluorotridecanoic acid	72629-94-8	0.67	U	0.67	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.61	J	0.33	0.67	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	4,290		466	1,400	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	10.0		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 16:27	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16181298731A	06/29/2016 11:35	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

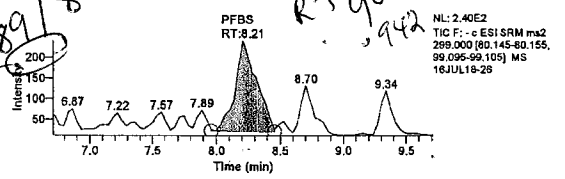
LCMSMS ANALYSIS REPORT

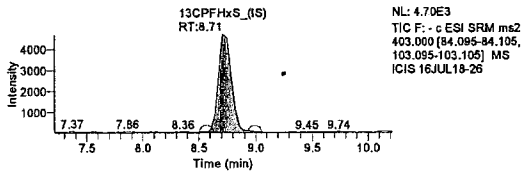
Sample Name:	8432134	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432134	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL18-26		
Acquisition Date:	07/18/16 04:27:29 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:13	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

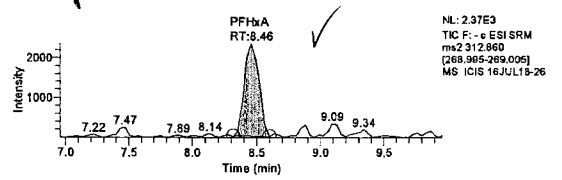
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.25	260751.12	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.03	223767.75	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.54	177681.08	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.47	199817.04	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.74	220882.60	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.46	140779.48	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	37119.21	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.22	20130.82	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	9.93	185026.59	N/A	N/A	N/A
PFBS	1.459	8.21	2577.65	37119.21	0.069	ng/g
PFDA	0.832	9.54	11256.12	177681.08	0.063	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	1.300	8.46	18683.03	140779.48	0.133	ng/g
PFHxS	1.399	8.74	4025.75	37119.21	0.108	ng/g
PFNA	1.046	9.25	20233.41	260751.12	0.078	ng/g
PFOA	3.444	9.03	93831.00	223767.75	0.419	ng/g
PFOS	0.764	9.22	1013.30	20130.82	0.050	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	0.136	11.18	2224.81	199817.04	0.011	ng/g
PFUdA	0.548	9.93	6774.69	185026.59	0.037	ng/g
PFhpA	1.004	8.74	16474.12	220882.60	0.075	ng/g

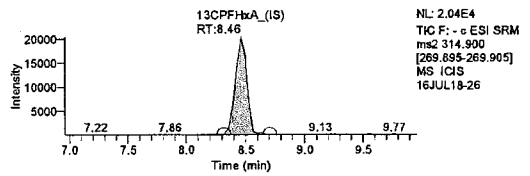
Component Name: PFBS





Component Name: PFHxA



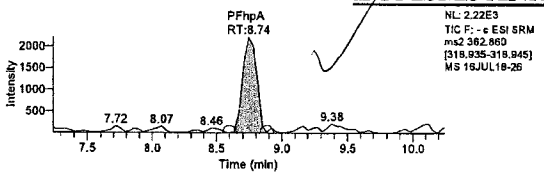


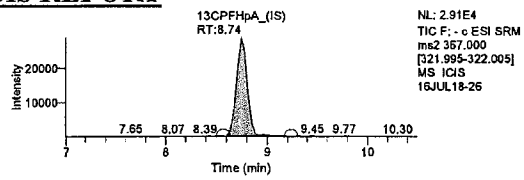
Component Name: PFHpA

Jason W. Knight
Senior Chemist

JUL 20 2016

LCMSMS ANALYSIS REPORT





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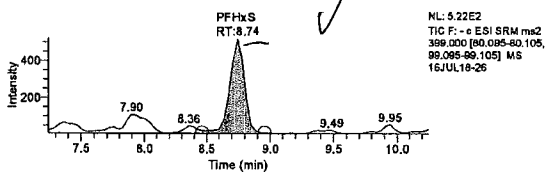

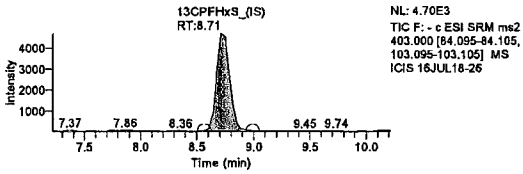

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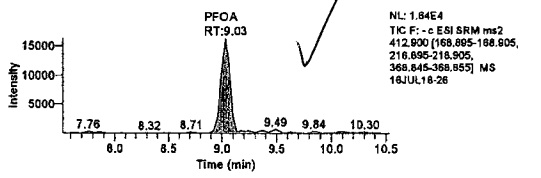
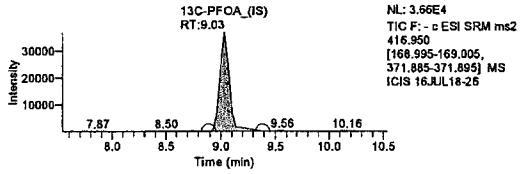
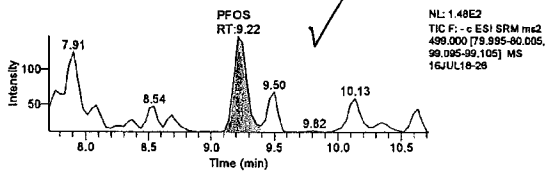
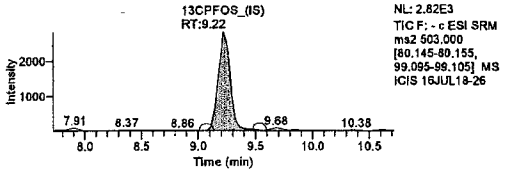




Component Name: PFOS





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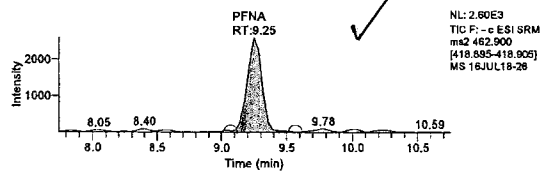

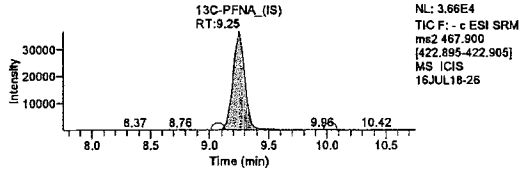

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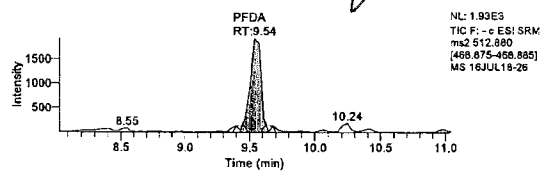

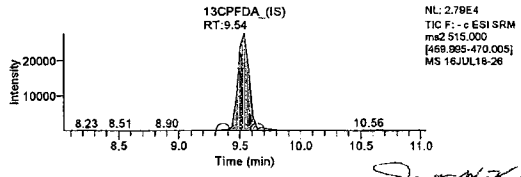

Jason W. Knight
Senior Chemist

Component Name: PFUdA

JUL 20 2016

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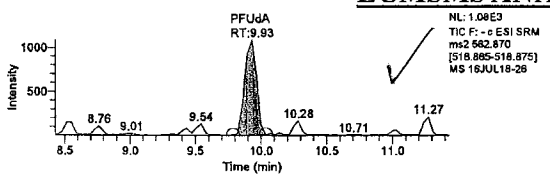
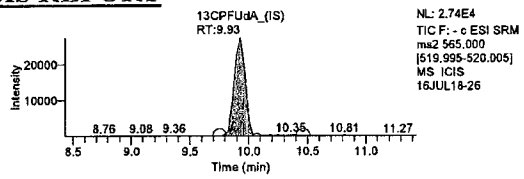
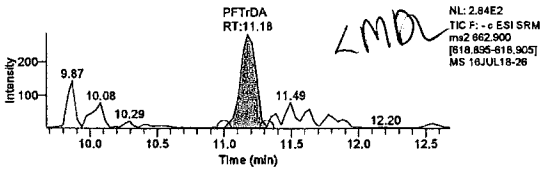
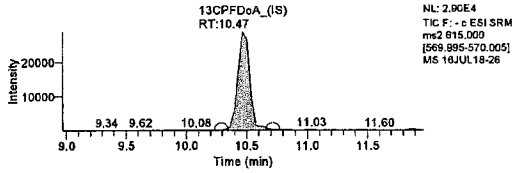


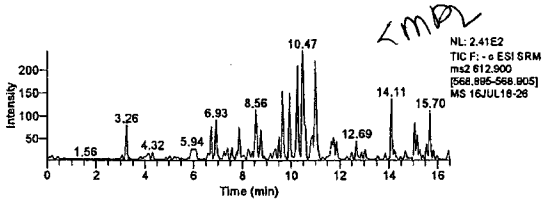


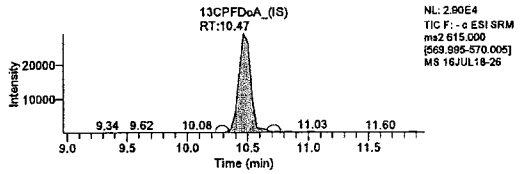
Component Name: PFTrDA



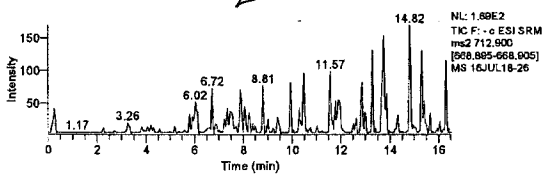


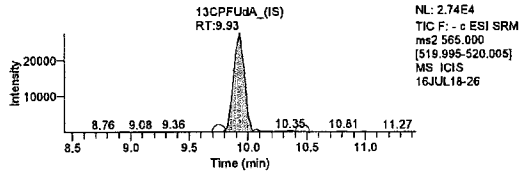
Component Name: PFDoA





Component Name: PFTeDA





Lynn Dodd
JUL 20 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 20 2016

Tuesday, July 19, 2016, 07:42:12

Sample Description: SG3-MW03-17.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

LL Sample # SW 8432135
LL Group # 1673381
Account # 37191

Collected: 06/15/2016 15:10 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-38 SDG#: SGP94-18

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.97	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.85	U	0.85	1.9	1
14027	Perfluorooctanoic acid	335-67-1	1.0		0.36	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	0.73	U	0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.73	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	159	U	159	478	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	17.8		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 16:44	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16181298731A	06/29/2016 12:43	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

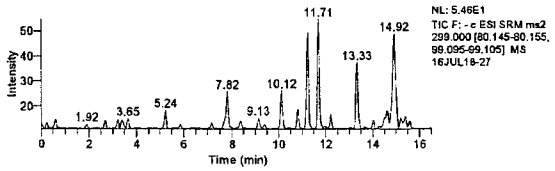
LCMSMS ANALYSIS REPORT

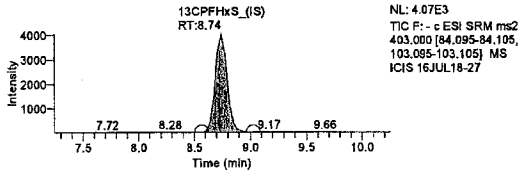
Sample Name:	8432135	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432135	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL18-27		M\HWell_16.5minutes
Acquisition Date:	07/18/16 04:44:43 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:14	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

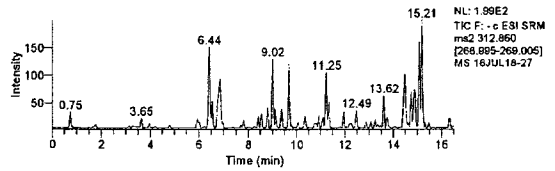
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.35	178921.85	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.07	160965.59	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.85	123000.14	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.75	123642.20	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.74	173194.52	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.42	101031.93	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.74	29559.93	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	20708.69	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.25	120067.64	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	0.849	9.06	15808.23	160965.59	0.098	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

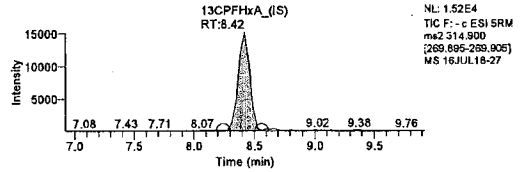
Component Name: PFBS





Component Name: PFHxA





Component Name: PFOA

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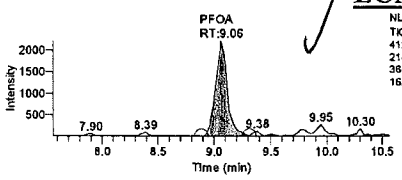

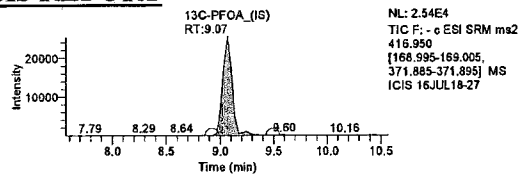

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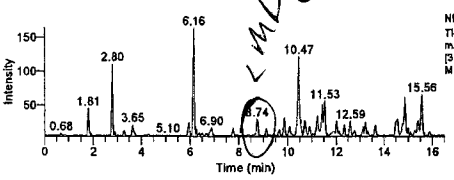

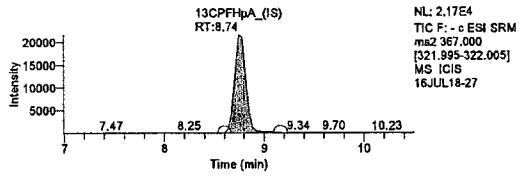

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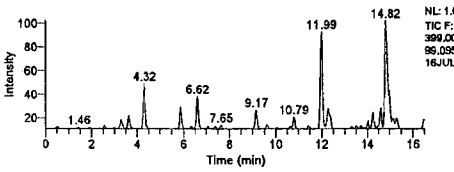

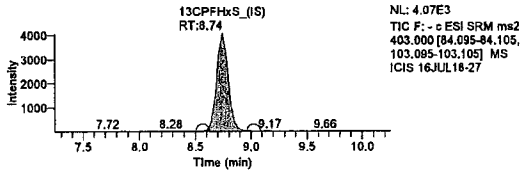

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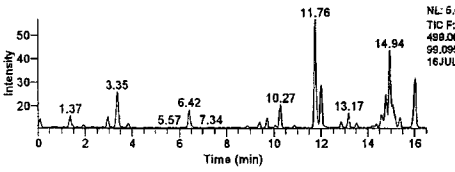

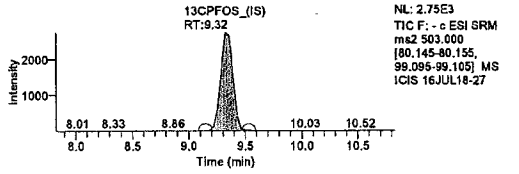

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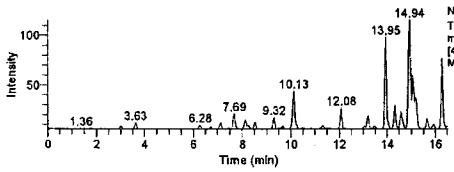
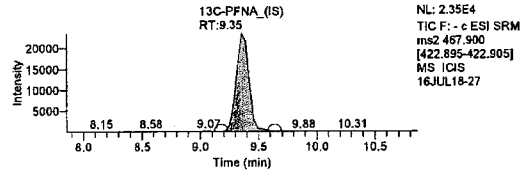
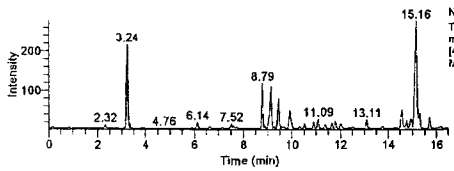
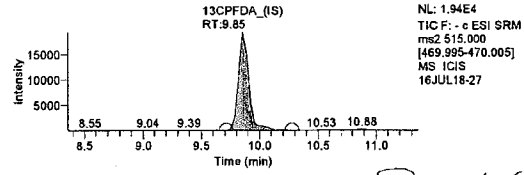




Component Name: PFDA





Jason W. Knight
Senior Chemist

Component Name: PFUdA

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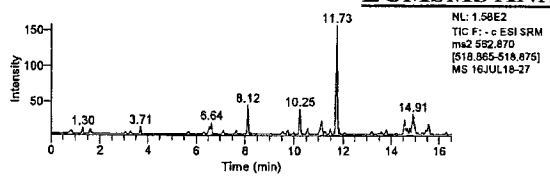
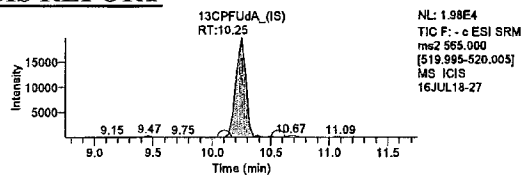
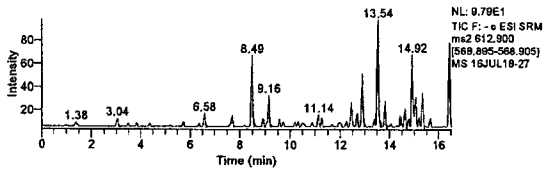
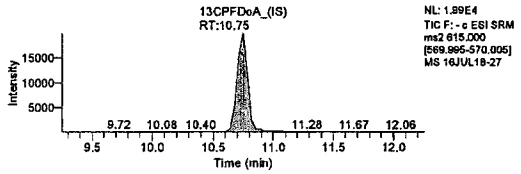


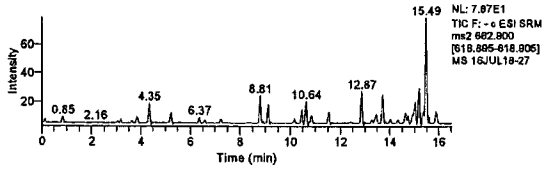


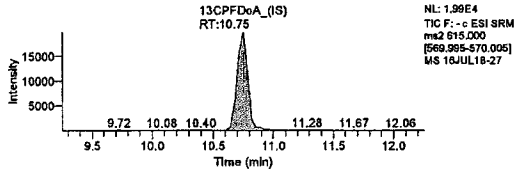
Component Name: PFDoA



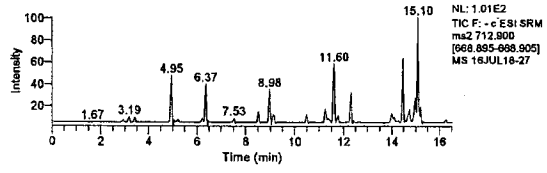


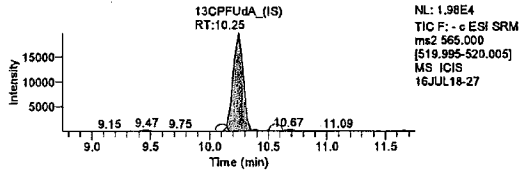
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 20 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 20 2016

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Analysis Report

Sample Description: SG3-MW04-01.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8432136
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 09:05 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-43 SDG#: SGP94-19

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.43	1
14027	Perfluorododecanoic acid	307-55-1	0.43	U	0.43	0.86	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.22	J	0.21	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.75	U	0.75	1.7	1
14027	Perfluorooctanoic acid	335-67-1	4.0		0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.86	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	2,770		316	947	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	6.5		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 17:01	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16181298731A	06/29/2016 13:02	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

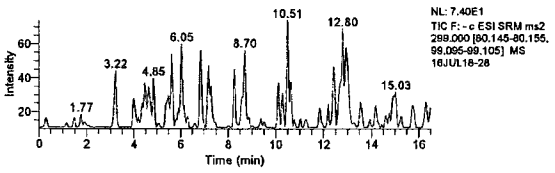
LCMSMS ANALYSIS REPORT

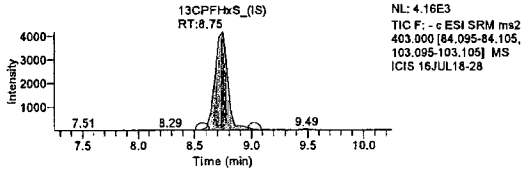
Sample Name:	8432136	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432136	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL18-28		M\HWell_16.5minutes
Acquisition Date:	07/18/16 05:01:58 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:15	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

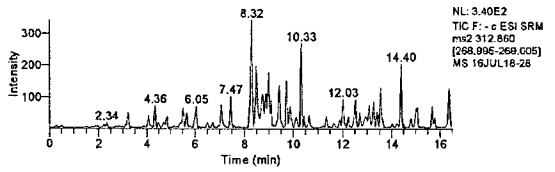
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.21	212650.13	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.96	162247.22	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.50	156182.55	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.43	159452.93	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.74	188686.26	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.53	96937.61	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.75	32443.23	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.18	17290.94	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	9.93	167461.22	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.207	9.21	1677.79	212650.13	0.008	ng/g
PFOA	3.751	8.96	74193.78	162247.22	0.457	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

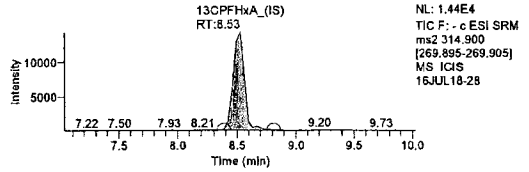
Component Name: PFBS





Component Name: PFHxA





Component Name: PFOA

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Senior Chemist

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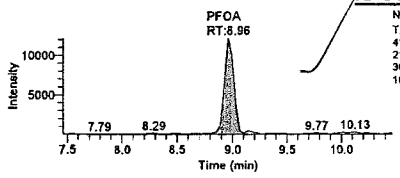
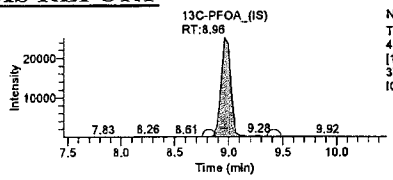
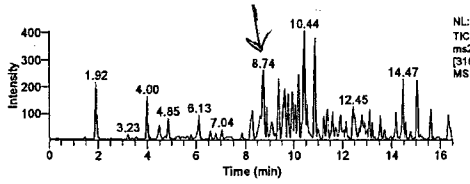
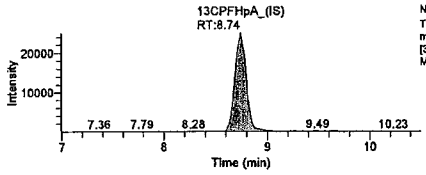




Component Name: PFhpA





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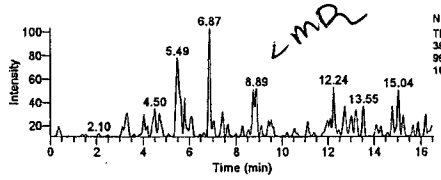

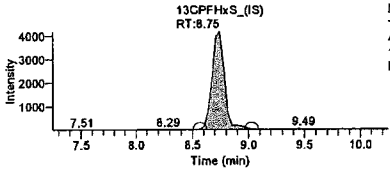

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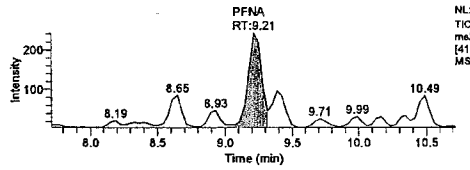

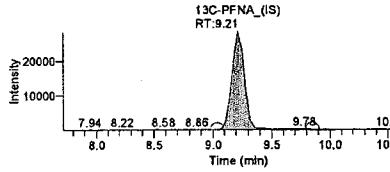

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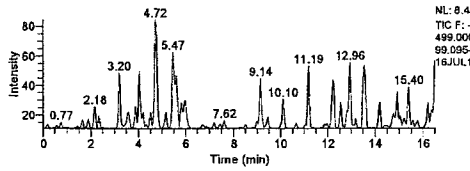
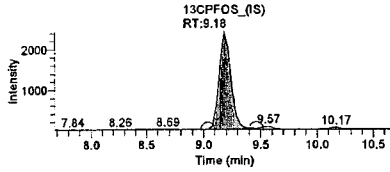
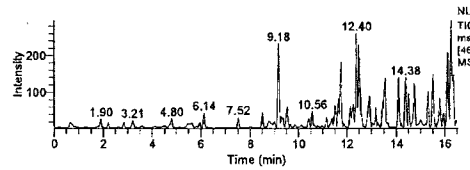
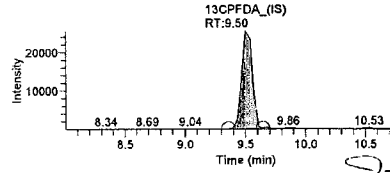




Component Name: PFDA





Jason W. Knight
Senior Chemist

Component Name: PFUdA

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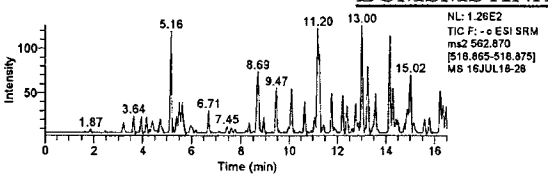

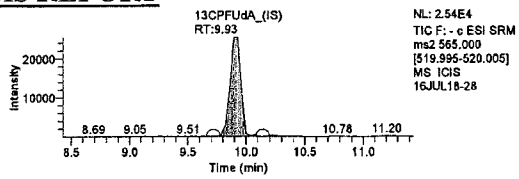

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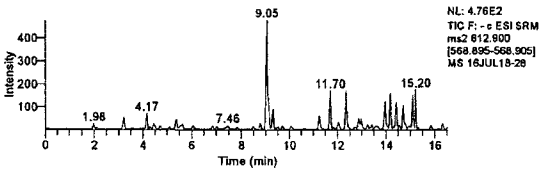

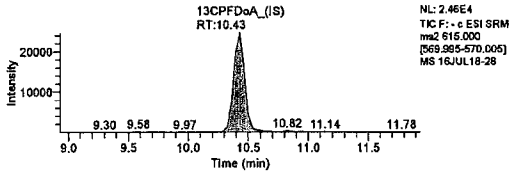

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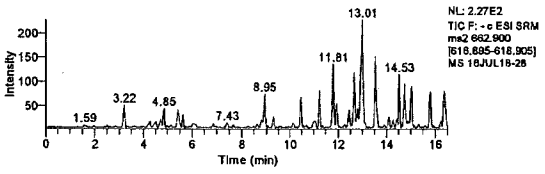
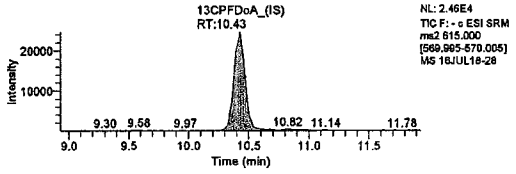
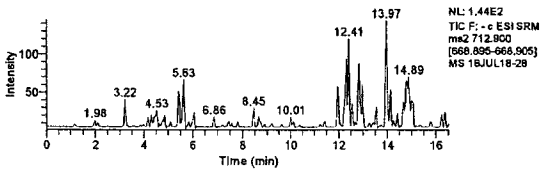
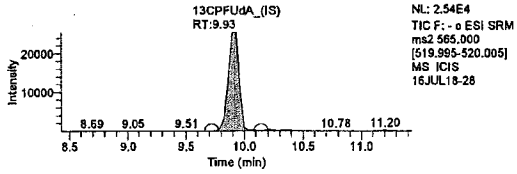




Component Name: PFTeDA





JUL 2 0 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 2 0 2016

Sample Description: SG3-MW04-01.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

LL Sample # SW 8432137
LL Group # 1673381
Account # 37191

Collected: 06/16/2016 09:10 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-44 SDG#: SGP94-20

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.43	1
14027	Perfluorododecanoic acid	307-55-1	0.43	U	0.43	0.85	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.22	J	0.21	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.75	U	0.75	1.7	1
14027	Perfluorooctanoic acid	335-67-1	3.2		0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.85	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	2,450		311	933	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	6.4		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 17:19	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16181298731A	06/29/2016 13:29	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

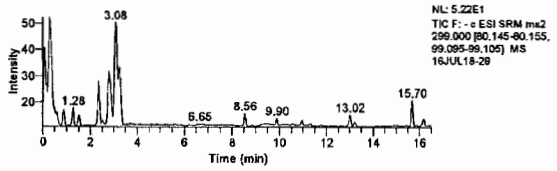
LCMSMS ANALYSIS REPORT

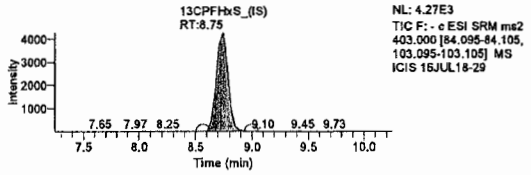
Sample Name:	8432137	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432137	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL18-29		
Acquisition Date:	07/18/16 05:19:12 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:16	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

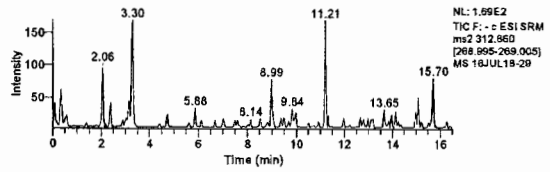
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.32	182607.22	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	204413.35	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.61	162204.73	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.33	134243.55	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.74	195520.87	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.42	140697.66	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.75	30524.27	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.25	18500.66	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	9.89	148127.07	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.206	9.28	1431.97	182607.22	0.008	ng/g
PFOA	3.026	8.99	75136.91	204413.35	0.368	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	0.172	9.89	331.85	148127.07	0.002	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

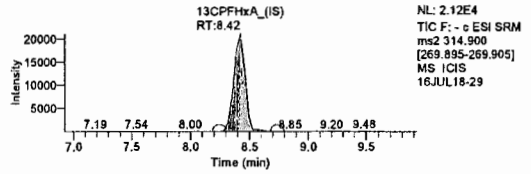
Component Name: PFBS





Component Name: PFHxA





Component Name: PFOA

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Senior Chemist

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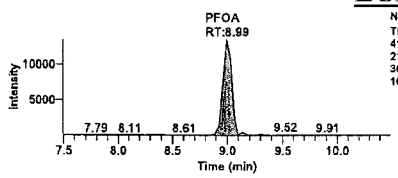

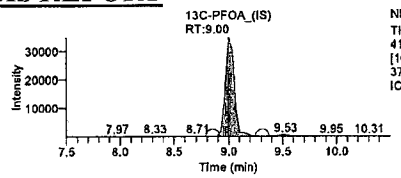

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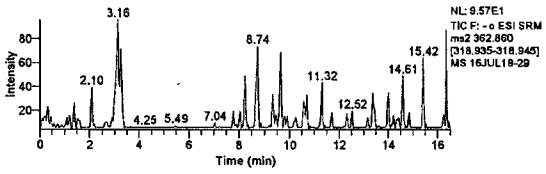
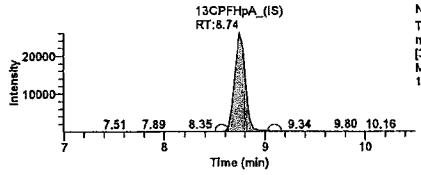
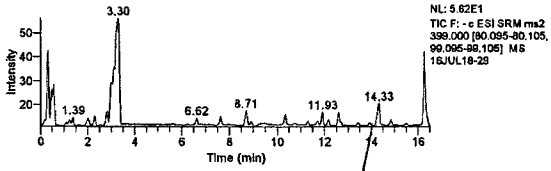
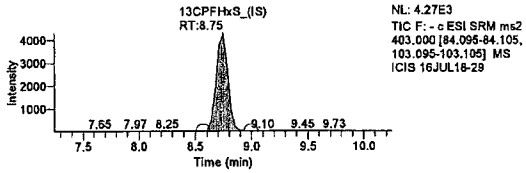


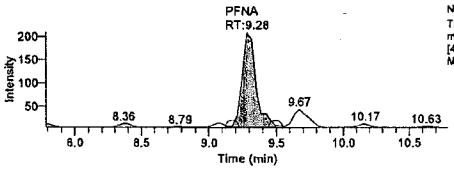


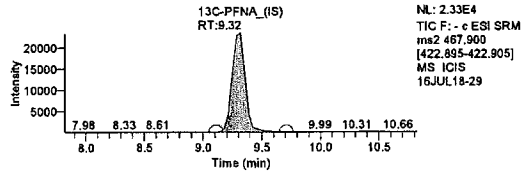
Component Name: PFHxS





Component Name: PFNA





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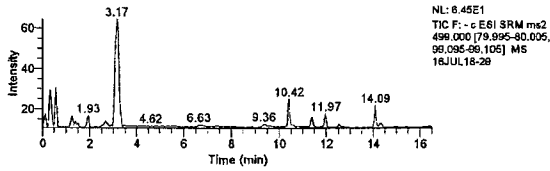
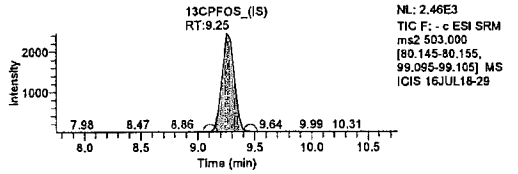
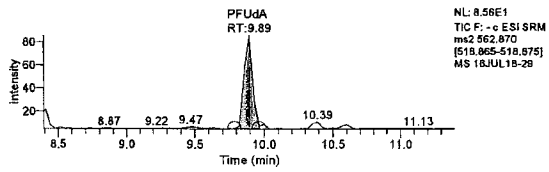
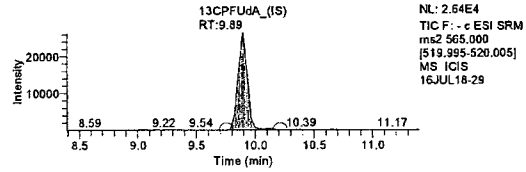




Component Name: PFUdA





Component Name: PFDA

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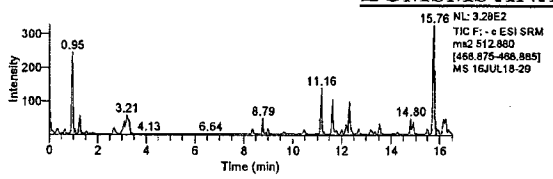
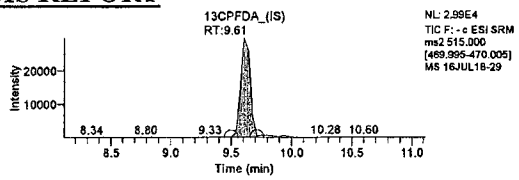
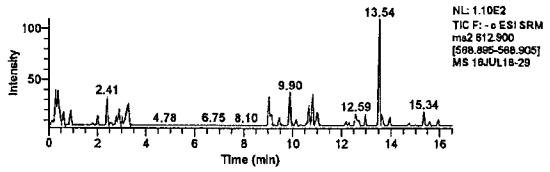
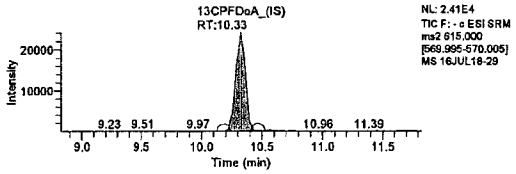


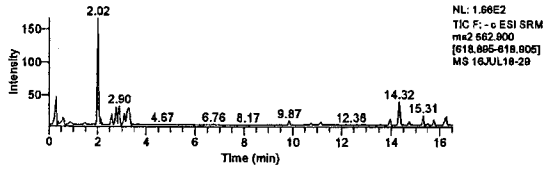


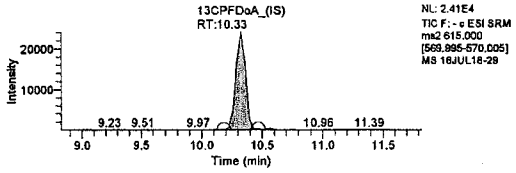
Component Name: PFDoA



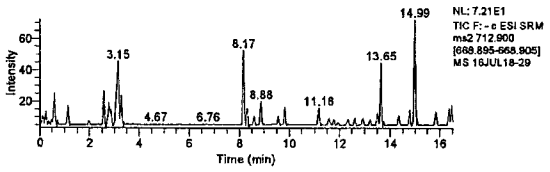


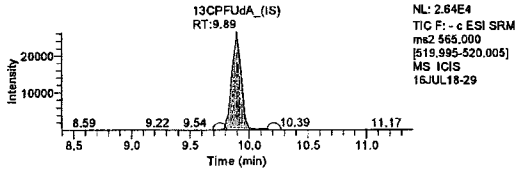
Component Name: PFTrDA





Component Name: PFTeDA





JUL 2 0 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 2 0 2016

Sample Description: SG3-MW03-11.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8432138
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 10:40 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-39 SDG#: SGP94-21

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.63	U	0.63	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.30	J	0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.50	U	0.50	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.38	U	0.38	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.63	U	0.63	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.88	U	0.88	2.0	1
14027	Perfluorooctanoic acid	335-67-1	3.6		0.38	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.38	U	0.38	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.75	U	0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.38	U	0.38	0.75	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	5,740		169	508	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	20.3		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 17:36	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16181298731A	07/01/2016 09:41	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

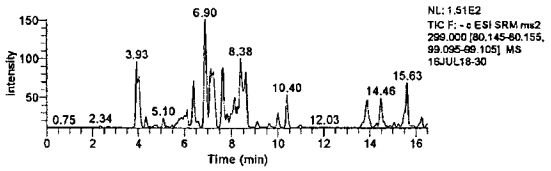
LCMSMS ANALYSIS REPORT

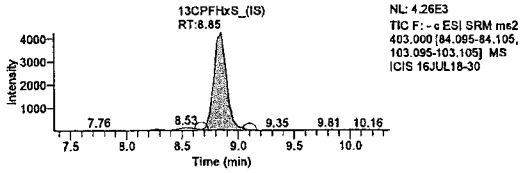
Sample Name:	8432138	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432138	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL18-30		M\HWell_16.5minutes
Acquisition Date:	07/18/16 05:36:26 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:17	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.28	274062.84	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.10	206769.36	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.50	178609.80	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.26	135396.96	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.85	180271.82	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.42	120377.00	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.85	33333.08	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.25	18186.07	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	9.93	155597.05	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	0.241	9.54	2834.67	178609.80	0.016	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	2.848	9.10	71436.87	206769.36	0.345	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	0.291	9.93	2040.97	155597.05	0.013	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

Component Name: PFBS





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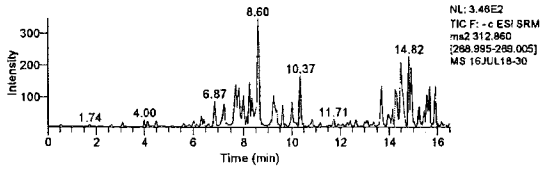

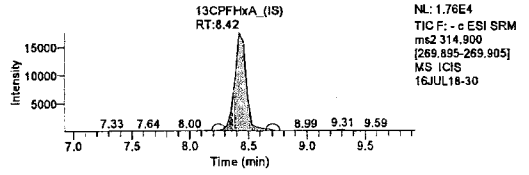

Component Name: PFOA

Jason W. Knight
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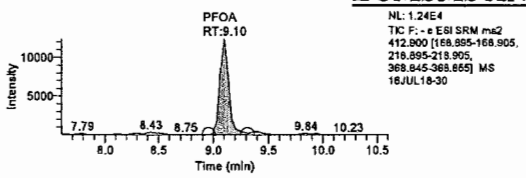
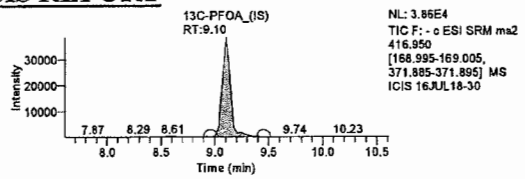
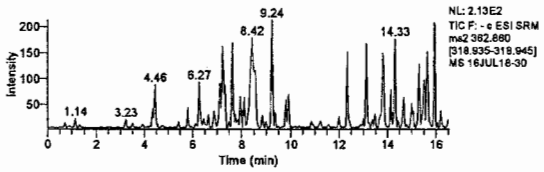
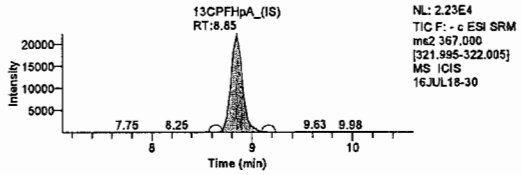




Component Name: PFhpA





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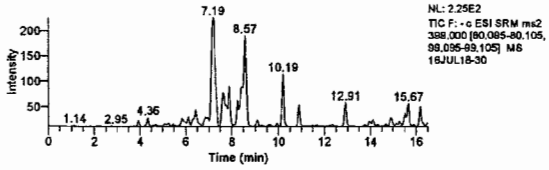
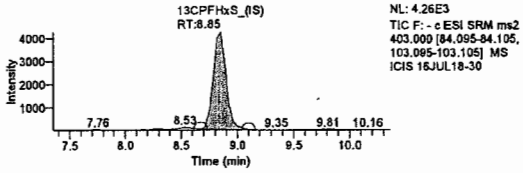
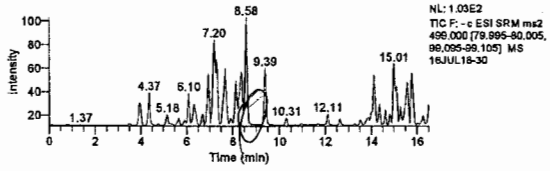
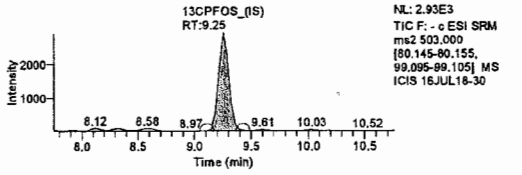


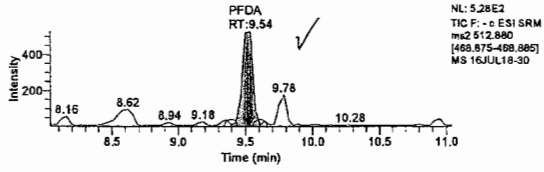


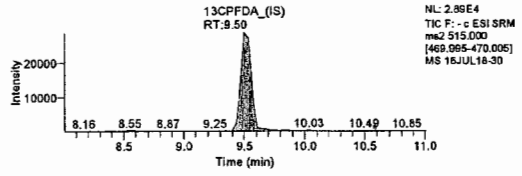
Component Name: PFOS



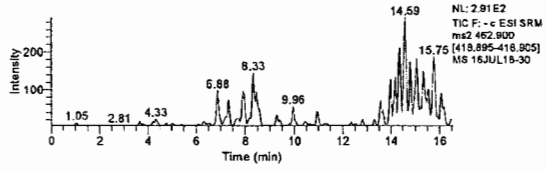


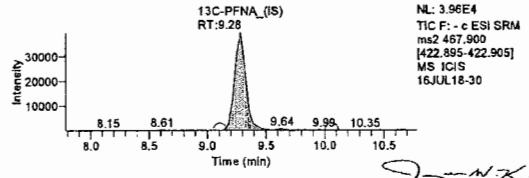
Component Name: PFDA





Component Name: PFNA





Jason W. Knight
Senior Chemist

Component Name: PFUdA

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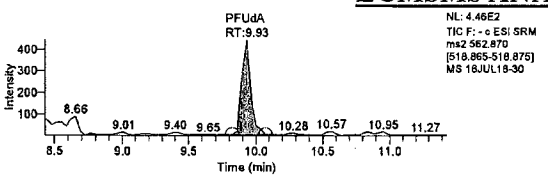
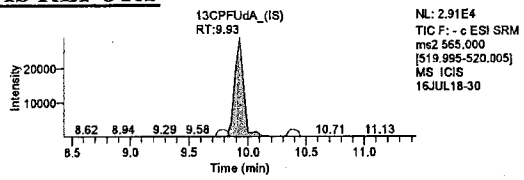
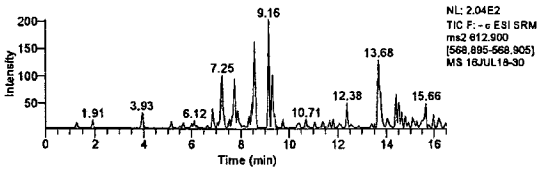
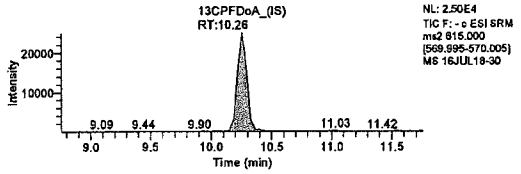




Component Name: PFDoA





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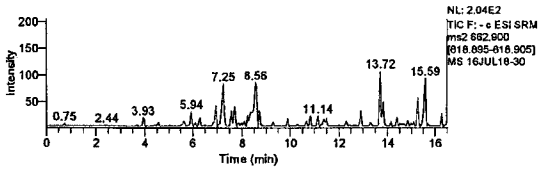
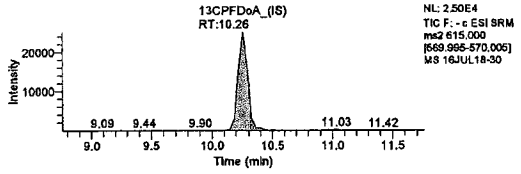
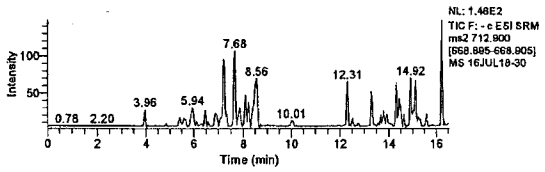
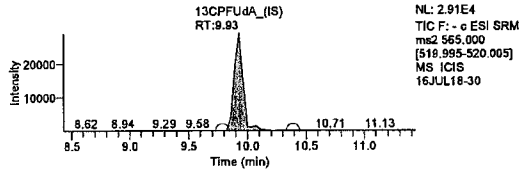




Component Name: PFTeDA





Lynn Dodd
JUL 20 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 20 2016

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Analysis Report

Sample Description: SG3-MW04-4.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8432139
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 12:05 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-45 SDG#: SGP94-22

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.86	U	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	2.8		0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.74	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	1,000		171	514	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.9		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/18/2016 18:28	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16181298731A	07/01/2016 09:53	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

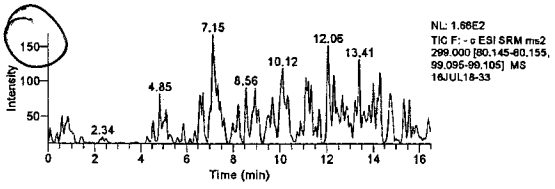
LCMSMS ANALYSIS REPORT

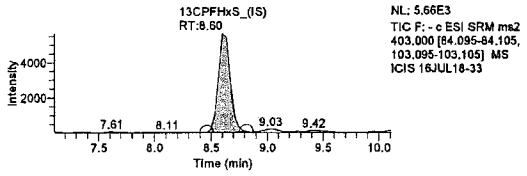
Sample Name:	8432139	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8432139	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL18-33		M\HWell_16.5minutes
Acquisition Date:	07/18/16 06:28:09 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:18	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

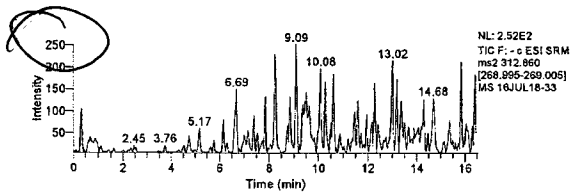
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.29	231128.95	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.93	232435.18	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.47	181290.62	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.26	119334.59	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.64	197124.15	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.32	129519.46	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.60	42175.19	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.25	24929.82	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	9.75	113046.16	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	2.303	8.92	64651.54	232435.18	0.278	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	0.251	8.60	2363.27	197124.15	0.012	ng/g

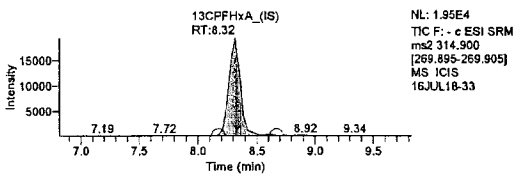
Component Name: PFBS





Component Name: PFHxA





Component Name: PFhpA

Jason W. Knight
Senior Chemist

JUL 20 2016

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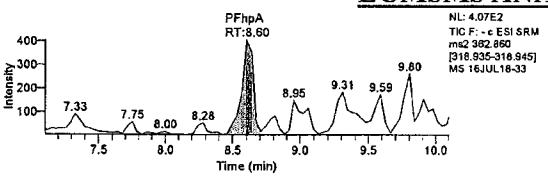
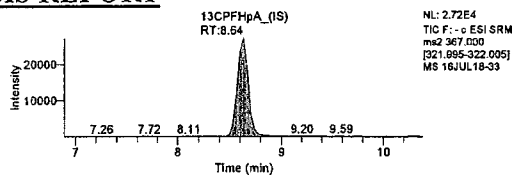
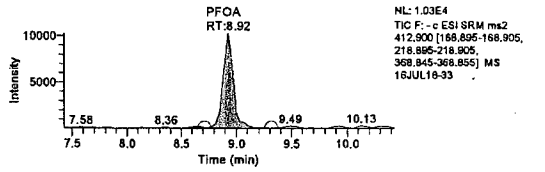
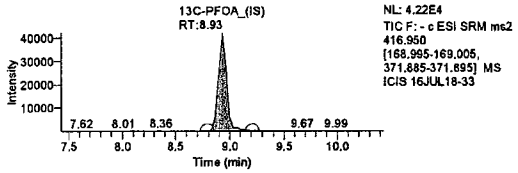




Component Name: PFOA





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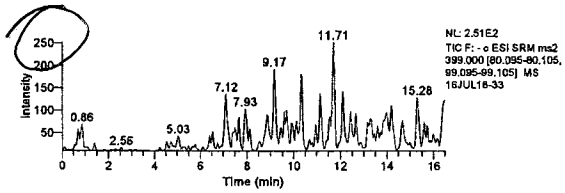

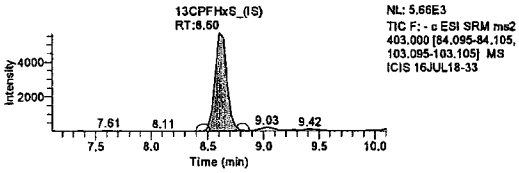

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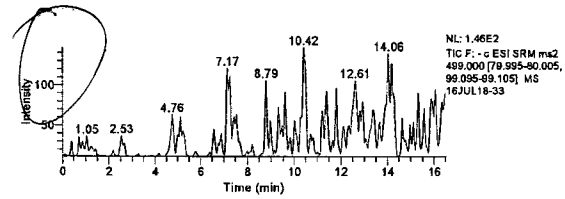

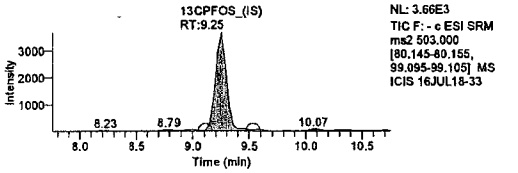

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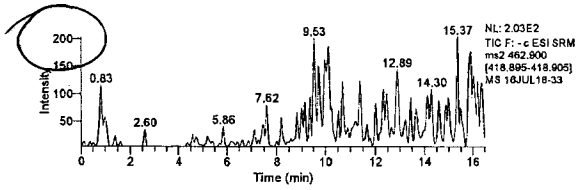

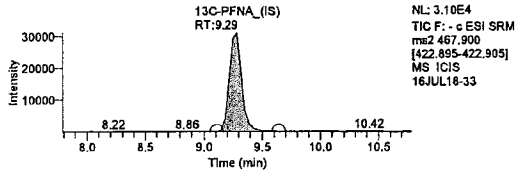

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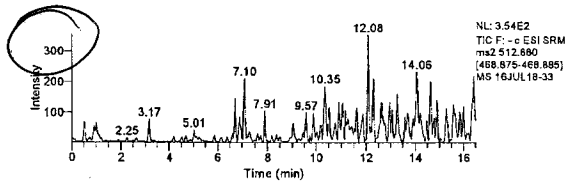
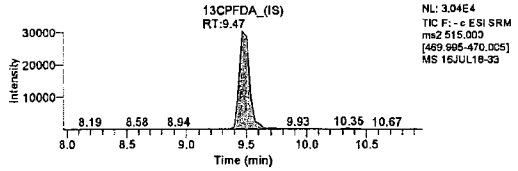


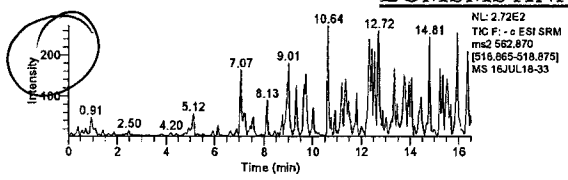


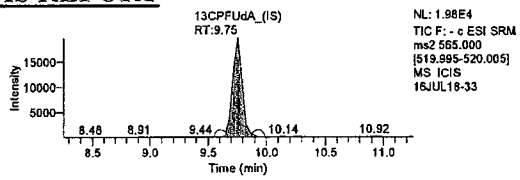
Component Name: PFUdA

Jason W. Knight
Senior Chemist

JUL 20 2016

LCMSMS ANALYSIS REPORT





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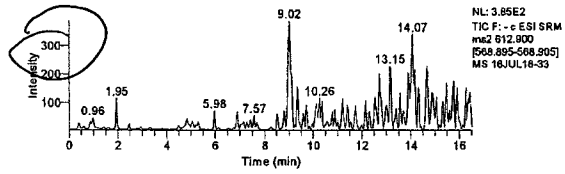

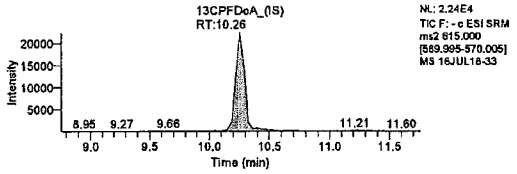

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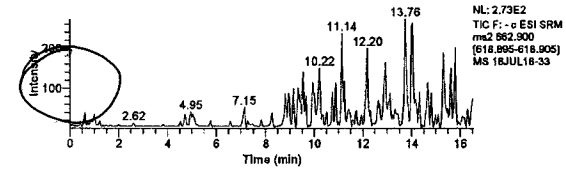
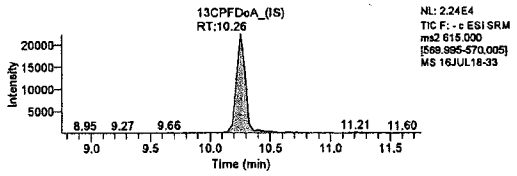
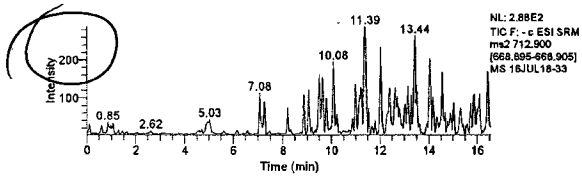
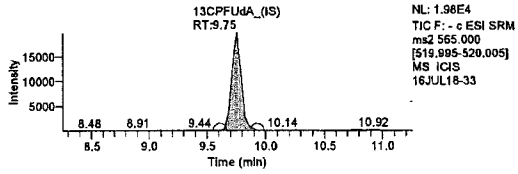




Component Name: PFTeDA





Lynn Dodd
JUL 20 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 20 2016

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Analysis Report

Sample Description: SG3-RB01-20160616 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8432140
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 12:20 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

SGR16 SDG#: SGP94-23RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	2	J	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	J	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 04:50	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

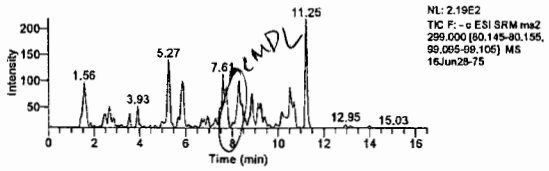
Sample Name:	8432140	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8432140	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-75		
Acquisition Date:	06/29/16 04:50:41 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:13	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

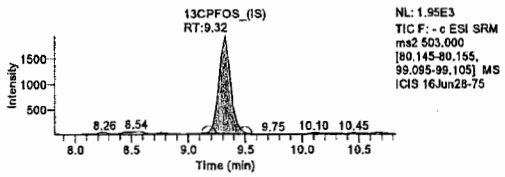
Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.35	167406.93	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	129152.73	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.85	103439.77	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.49	71206.26	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	141263.89	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	41259.61	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	21392.27	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	13525.09	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.53	98450.09	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	0.936	9.39	1288.04	167406.93	0.008	ng/L
PFOA	1.575	8.99	1306.84	129152.73	0.010	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	2.366	14.07	612.08	98450.09	0.006	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	1.351	10.56	1094.77	98450.09	0.011	ng/L
PFHpA	1.339	8.71	1646.21	141263.89	0.012	ng/L

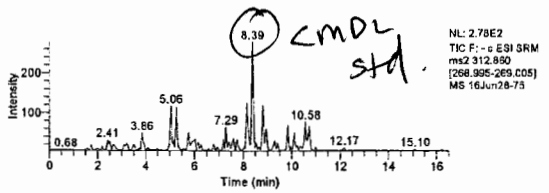
< ½ MDL Std. ongoing

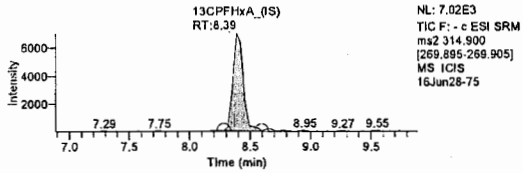
Component Name: PFBS





Component Name: PFHxA





< MDL Std.

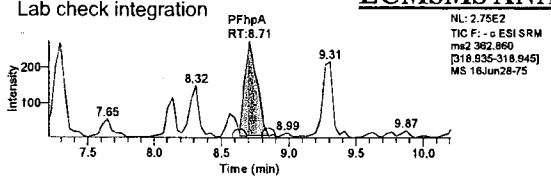
Component Name: PFHpA

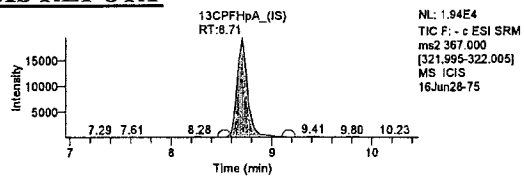
Michele J. Smith
JUN 30 2016
Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist
JUN 29 2016

LCMSMS ANALYSIS REPORT

Lab check integration ✓





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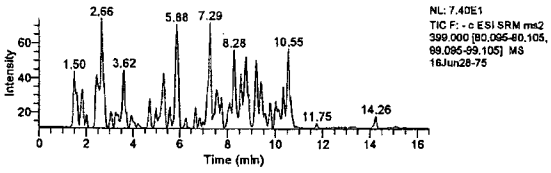

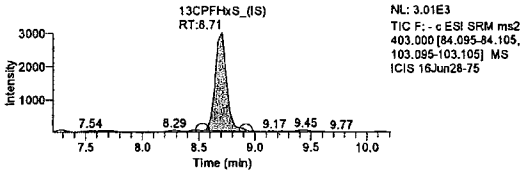

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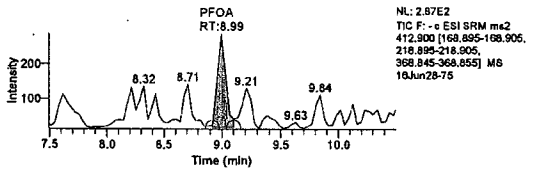

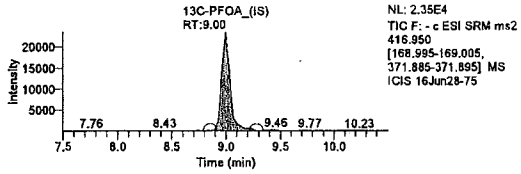

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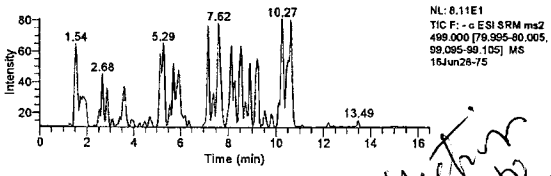

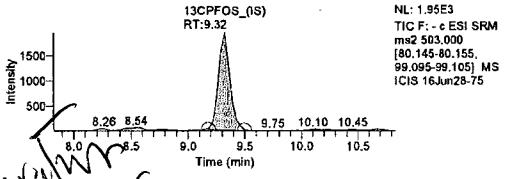

no interior pt to change integration per lab

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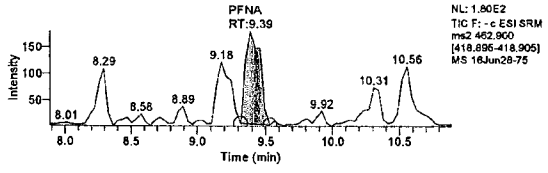

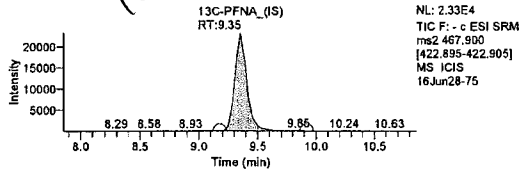

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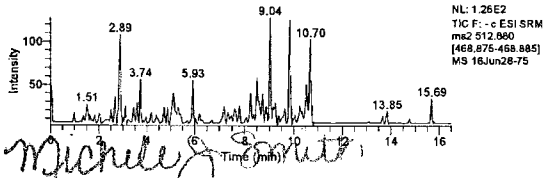
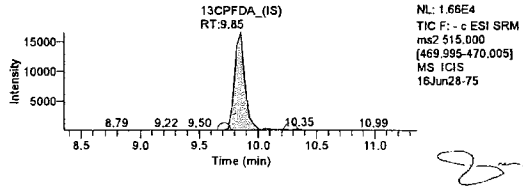




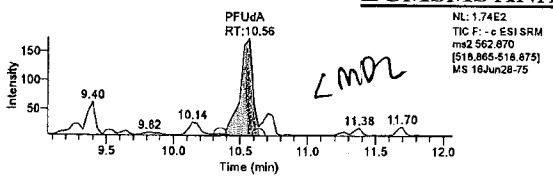
Michele J. Smith
JUN 30 2016

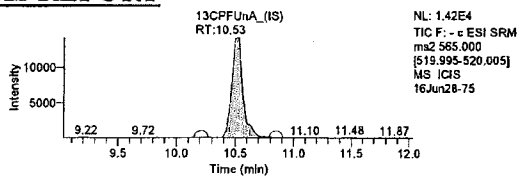
Jason W. Knight
Senior Chemist
JUN 29 2016

Component Name: PFUdA

Michele J. Smith
Senior Specialist

LCMSMS ANALYSIS REPORT





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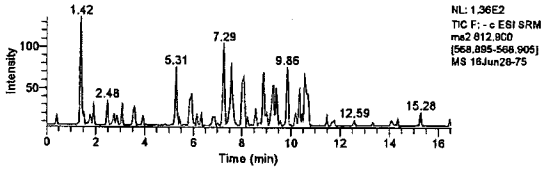

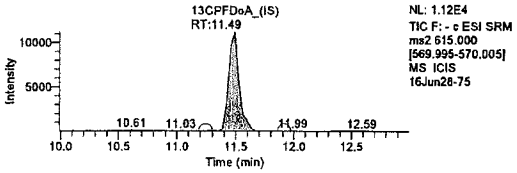

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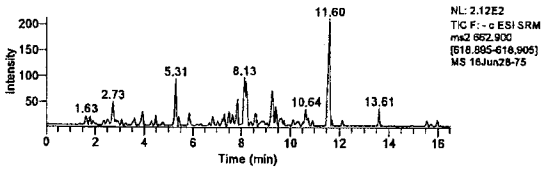
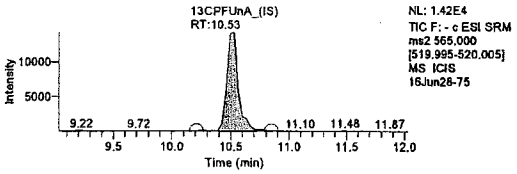
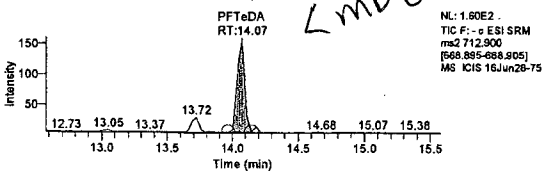
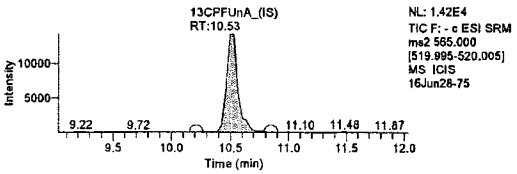




Component Name: PFTeDA





Michele J. Smith

JUN 3 0 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

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Analysis Report

REVISED

Sample Description: SG3-RB01-20160616 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8432140
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 12:20 by JD

Submitted: 06/17/2016 09:40
Reported: 05/30/2017 08:38

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SGR16 SDG#: SGP94-23RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**1**	**J**	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 04:50	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

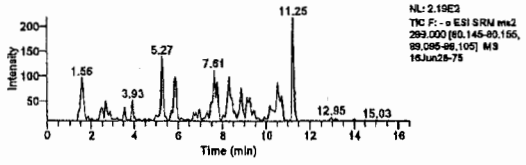
Sample Name:	8432140	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8432140	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-75		
Acquisition Date:	06/29/16 04:50:41 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:13	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

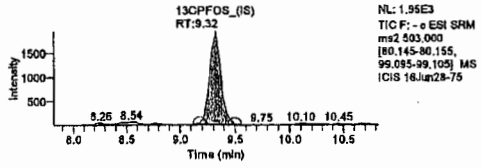
Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.35	167406.93	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	129152.73	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.85	103439.77	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.49	71206.26	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	141263.89	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	41259.61	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	21392.27	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	13525.09	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.53	98450.09	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	0.936	9.39	1288.04	167406.93	0.008	ng/L
* PFOA	1.575	8.99	1306.84	129152.73	0.010	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	2.366	14.07	612.08	98450.09	0.006	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	1.351	10.56	1094.77	98450.09	0.011	ng/L
PFhpA	1.339	8.71	1646.21	141263.89	0.012	ng/L

Revised

Component Name: PFBS





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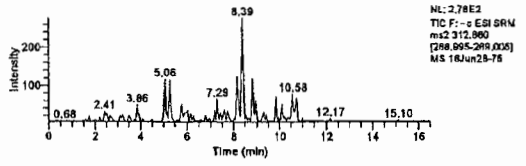
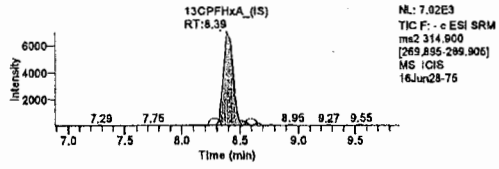




Component Name: PFHpA

Michele J. Smith

JUN 30 2016

Michele J. Smith
Senior Specialist

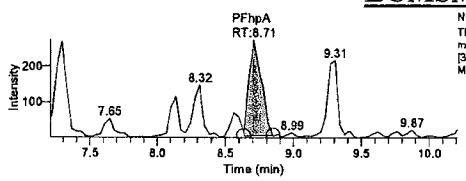
Jason W. Knight
Senior Chemist

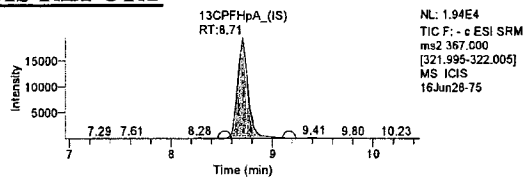
JUN 29 2016

* Y-intercept inflating result. False pos.

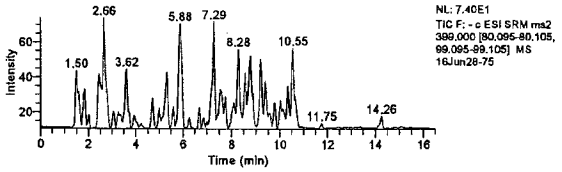
SGP94 Page 290 of 909

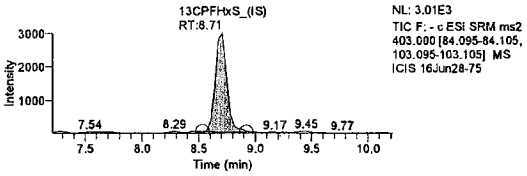
LCMSMS ANALYSIS REPORT





Component Name: PFHxS





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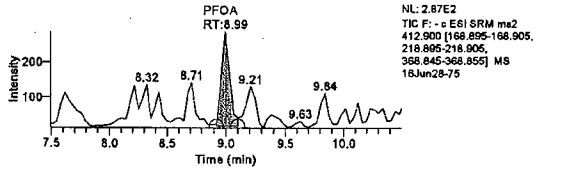
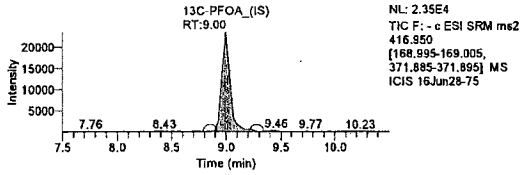
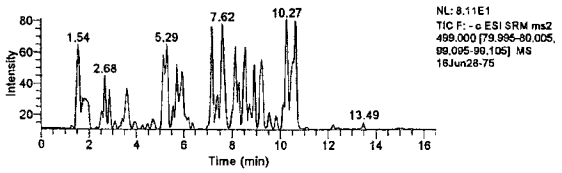
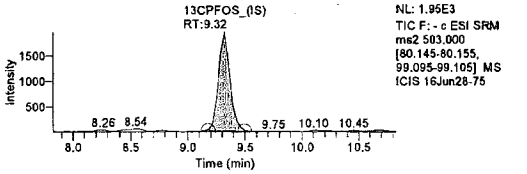




Component Name: PFOS





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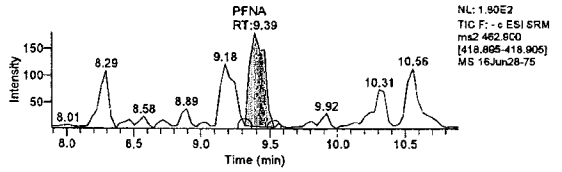

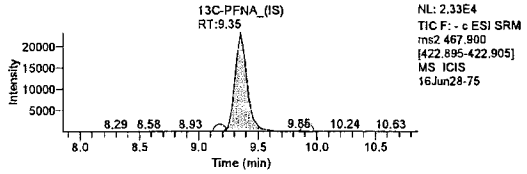

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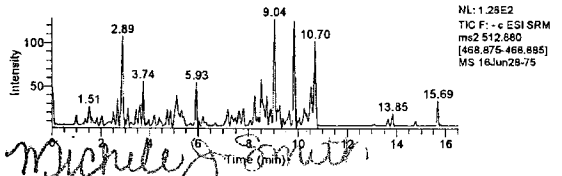
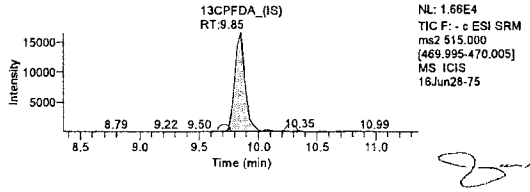




Jason W. Knight
Senior Chemist

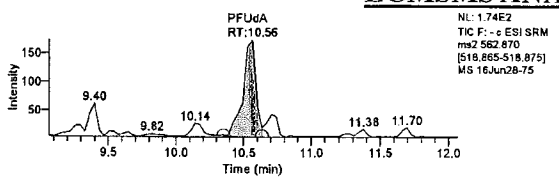
JUN 29 2016

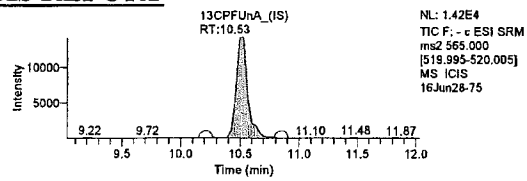
JUN 30 2016

Component Name: PFUdA

Michele J. Smith
Senior Specialist

LCMSMS ANALYSIS REPORT





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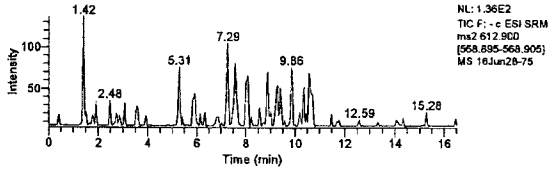

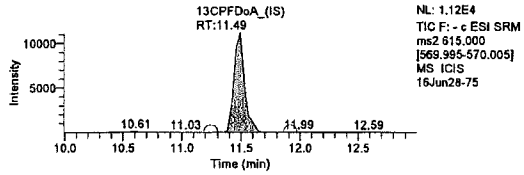

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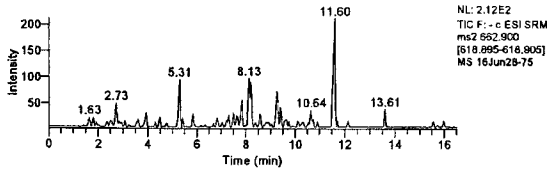
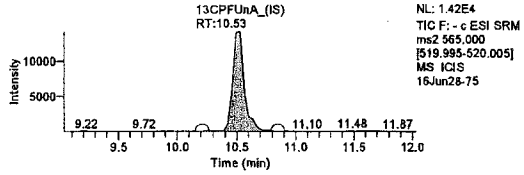
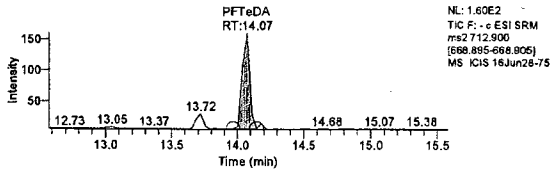
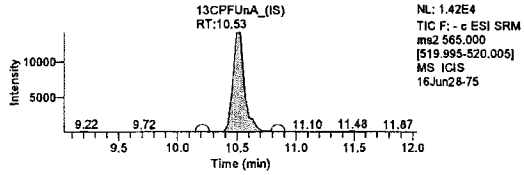




Component Name: PFTeDA





Michele J. Smith

JUN 3 0 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

Sample Description: SG3-MW02-00.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

LL Sample # SW 8432141
LL Group # 1673381
Account # 37191

Collected: 06/16/2016 13:02 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-21 SDG#: SGP94-24

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.54	U	0.54	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	1.3		0.44	0.87	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.54	U	0.54	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.76	U	0.76	1.7	1
14027	Perfluorooctanoic acid	335-67-1	1.6		0.33	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	74		0.33	0.87	1
14027	Perfluorotridecanoic acid	72629-94-8	6.6		0.65	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.65	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside of the required holding time and the Laboratory Control Spike(s) was within the QC acceptance limits.
Both sets of data are provided in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	TOC	n.a.	1,410	154	461	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	8.2	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/20/2016 03:39	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1

*=This limit was used in the evaluation of the final result

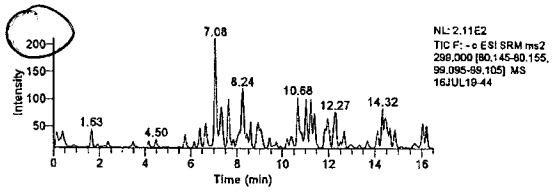
LCMSMS ANALYSIS REPORT

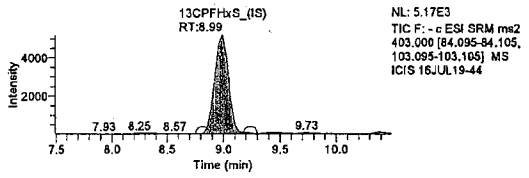
Sample Name:	8432141	Original Data Path:	C:\XCALIBUR\PFC\2016\16JUL11
Sample ID:	8432141	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL19-44		
Acquisition Date:	07/20/16 03:39:32 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	b:12	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

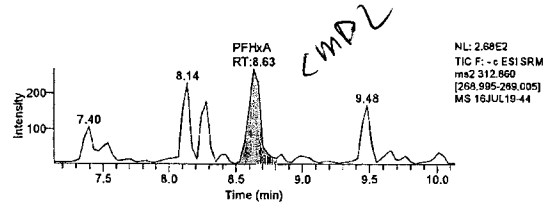
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.96	247381.09	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.42	304728.01	N/A	N/A	N/A
13CPFDA_(IS)	N/A	10.84	211789.00	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	13.05	136673.80	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.99	286722.44	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.60	145929.31	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.99	44071.92	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.92	22601.58	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	11.91	175329.92	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	0.174 LMQL	10.84	3792.54	211789.00	0.018	ng/g
PFDoA	1.233	13.05	19747.13	136673.80	0.144	ng/g
PFHxA	0.119 LMQL	8.63	1787.41	145929.31	0.012	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	1.500	9.42	47187.84	304728.01	0.155	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	67.723	15.95	972445.85	175329.92	5.546	ng/g
PFTrDA	6.025 LMQL	14.32	106872.18	136673.80	0.782	ng/g
PFUdA	0.292	11.87	4165.15	175329.92	0.024	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

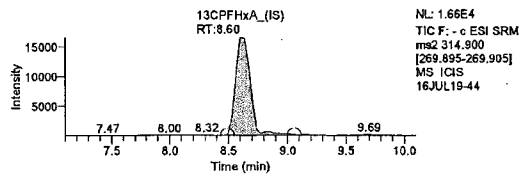
Component Name: PFBS





Component Name: PFHxA





Component Name: PFhpA

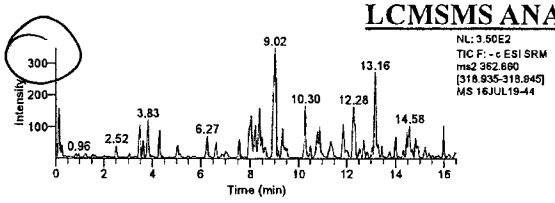
Christine Ratcliff
Manager

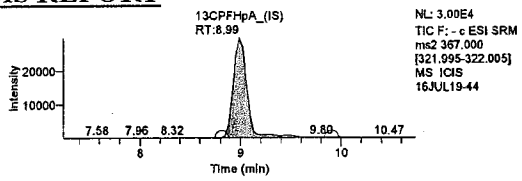
JUL 20 2016

Jason W. Knight
Senior Chemist

JUL 20 2016

LCMSMS ANALYSIS REPORT





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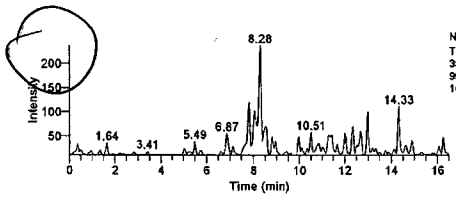
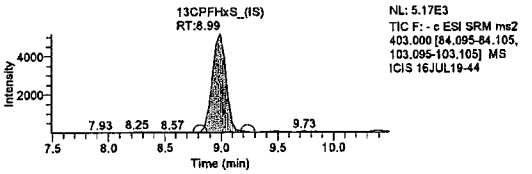
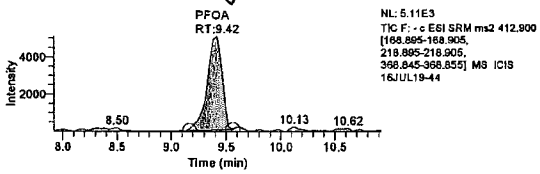
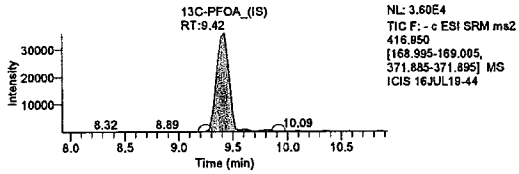


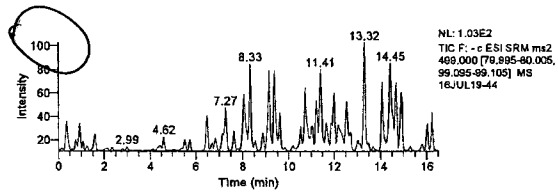


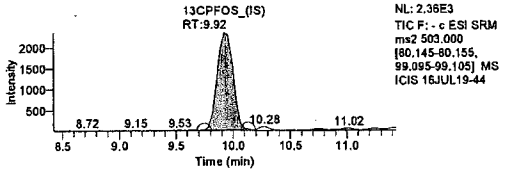
Component Name: PFOA



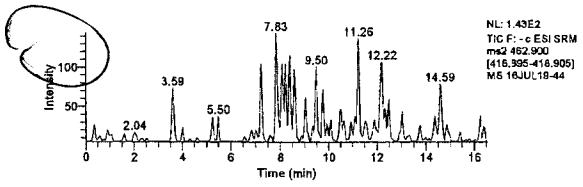


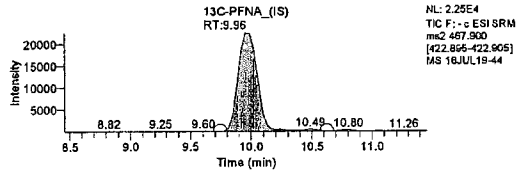
Component Name: PFOS





Component Name: PFNA





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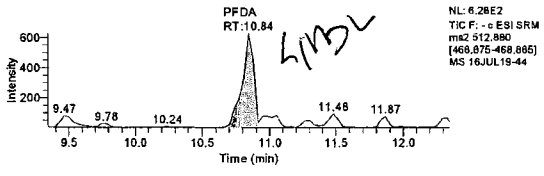
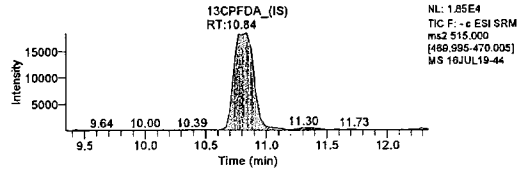




Component Name: PFUdA

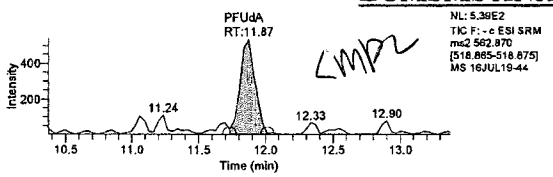
Christine Ratcliff
Manager

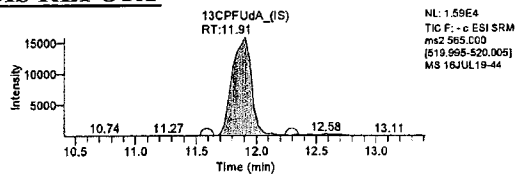
Jason W. Knight
Senior Chemist

JUL 20 2016

JUL 20 2016

LCMSMS ANALYSIS REPORT





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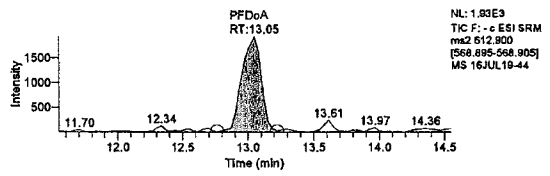
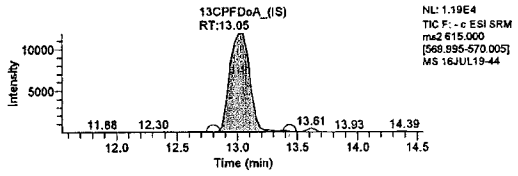
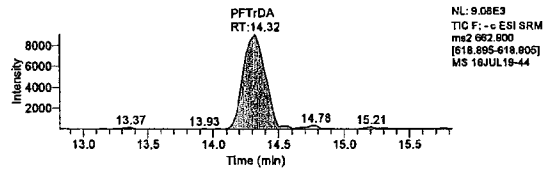
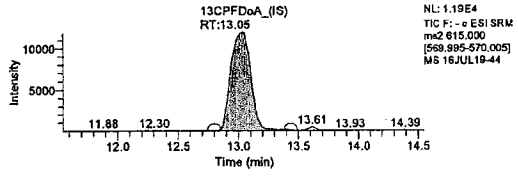


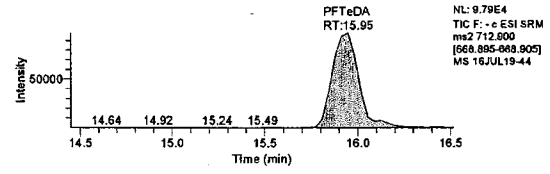


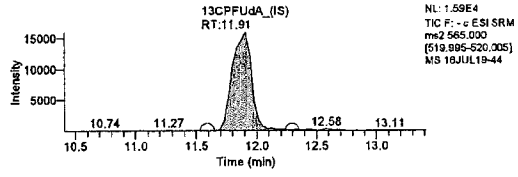
Component Name: PFTrDA





Component Name: PFTeDA





Christine Ratcliff
Manager

JUL 20 2016

Jason W. Knight
Senior Chemist

JUL 20 2016

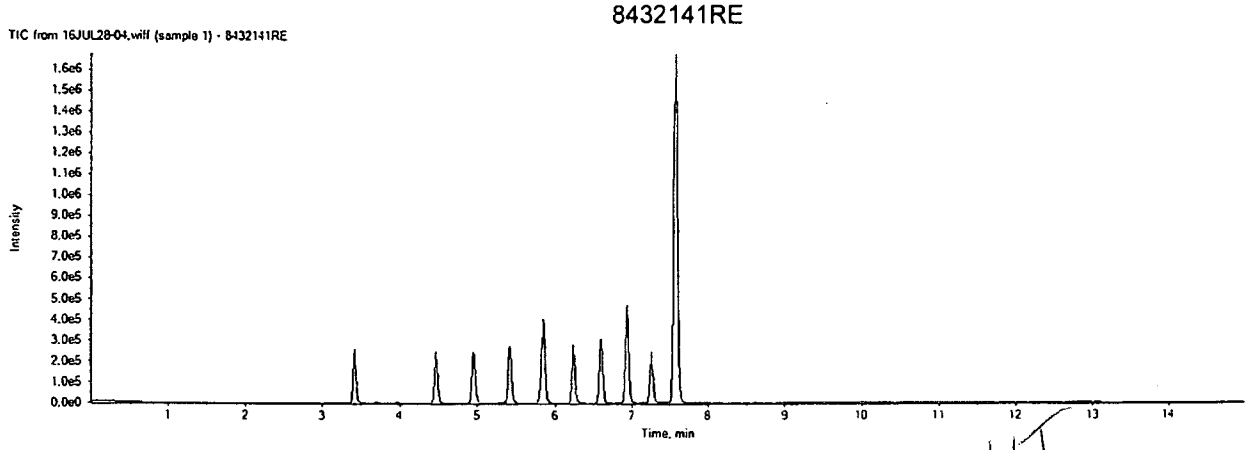
Sample Name:	8432141RE	**Data File:**		16JUL28-04.wiff
Sample ID:	8432141RE	**Acquis Date:**		7/28/2016 7:45:35 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	64	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16203007
Batch Number:	16203007	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.160	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.01	563.8	18O2-PFHxS	4.94	243123.8	0.002	0.016	
PFHxA	4.46	5096.7	13C2-PFHxA	4.47	695322.1	0.007	0.138	
PFHpA	4.96	5774.1	13C4-PFHpA	4.95	464533.8	0.012	0.087	
PFHxS	4.94	2407.9	18O2-PFHxS	4.94	243123.8	0.010	0.081	
PFOA	5.42	135838.5	13C4-PFOA	5.42	693354.3	0.196	1.513	
PFNA	5.84	8210.1	13C5-PFNA	5.85	1025226.2	0.008	0.067	
PFOS	5.82	913.3	13C4-PFOS	5.82	231708.3	0.004	0.032	
PFDA	6.24	23898.6	13C2-PFDA	6.24	747857.2	0.032	0.227	
PFUndA	6.60	22168.7	13C2-PFUnDA	6.60	884142.0	0.025	0.218	
PFDoDA	6.94	138979.5	13C2-PFDoDA	6.94	1191772.9	0.117	1.313	
PFTrDA	7.26	685112.6	13C2-PFDoDA	6.94	1191772.9	0.575	5.246	
PFTeDA	7.57	5660562.7	13C2-PFDoDA	6.94	1191772.9	4.750	40.118	

Total Ion Chromatogram

8432141RE

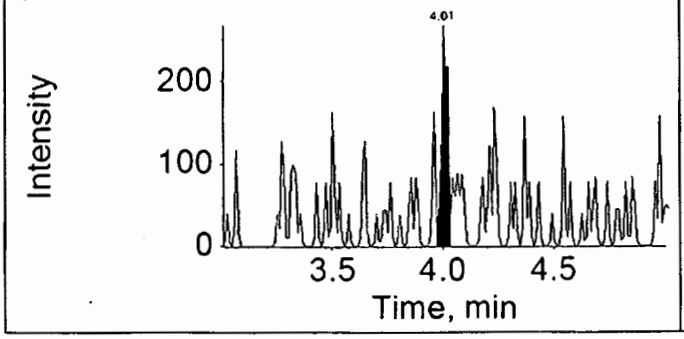


Not Reported — Re-extracted out of HT.

16JUL28-04.wiff

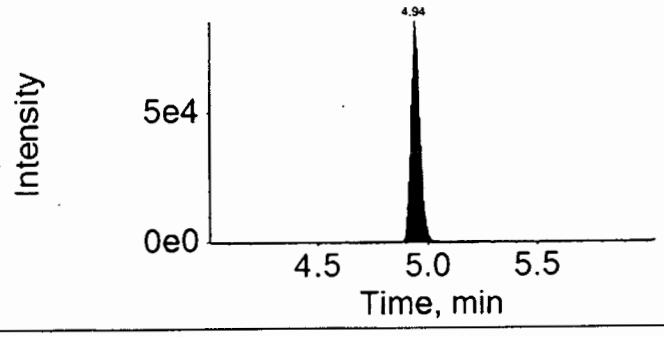
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

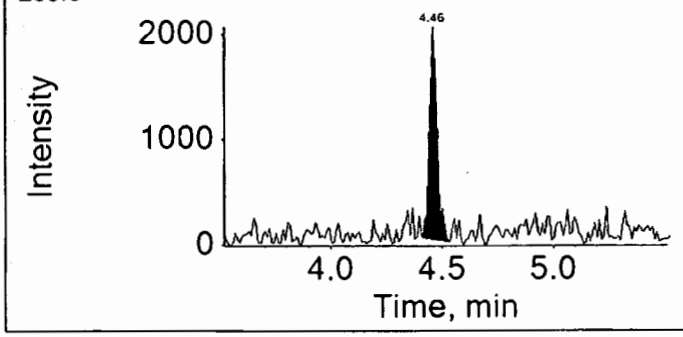
403.0 / 103.0



16JUL28-04.wiff

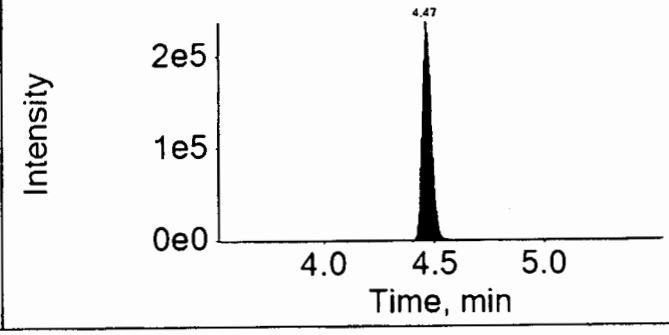
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

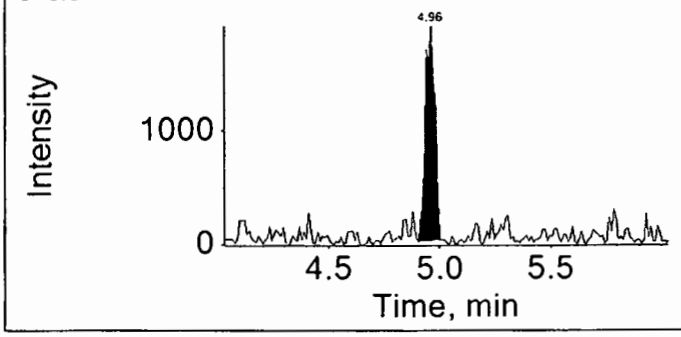
314.9 / 270.0



16JUL28-04.wiff

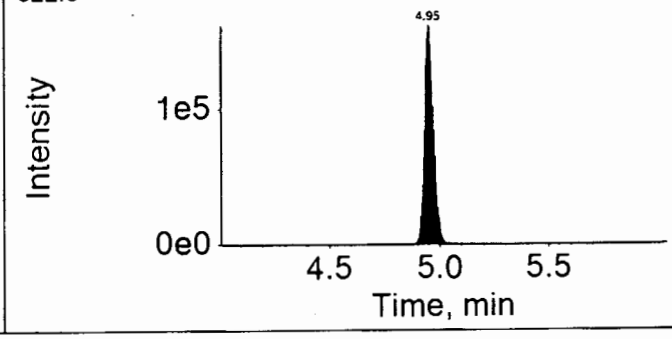
Analyte: PFHpA

362.9 / 318.9

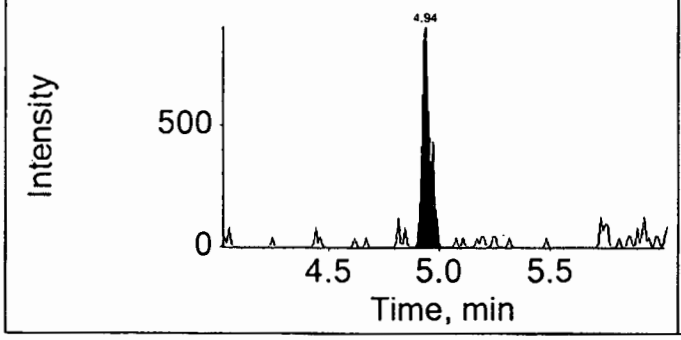


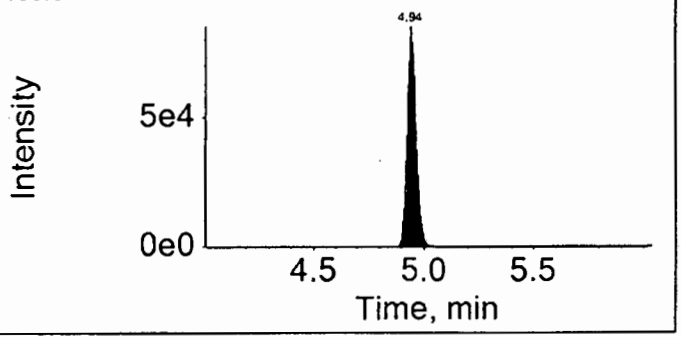
Internal Standard: 13C4-PFHpA

367.0 / 322.0

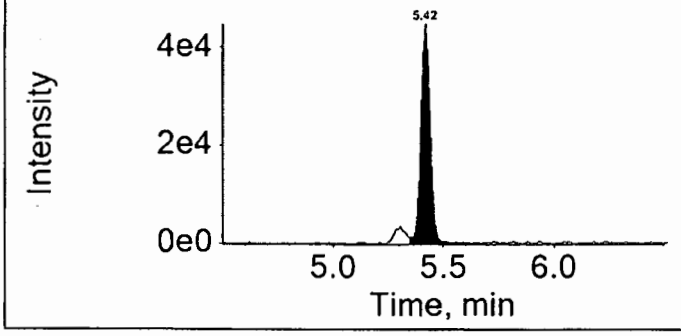


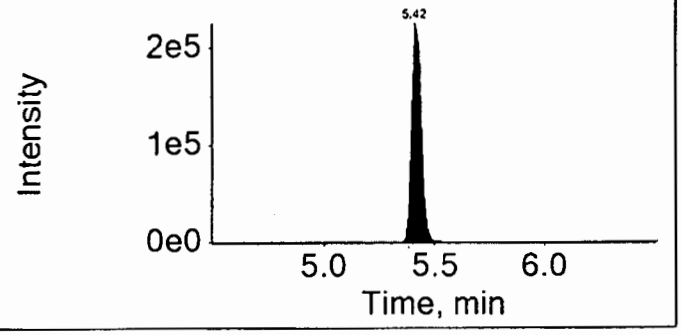
16JUL28-04.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



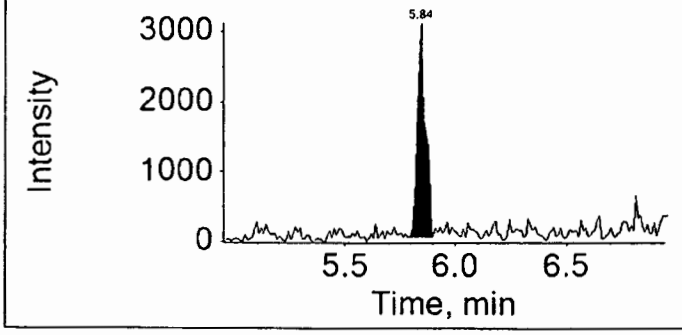


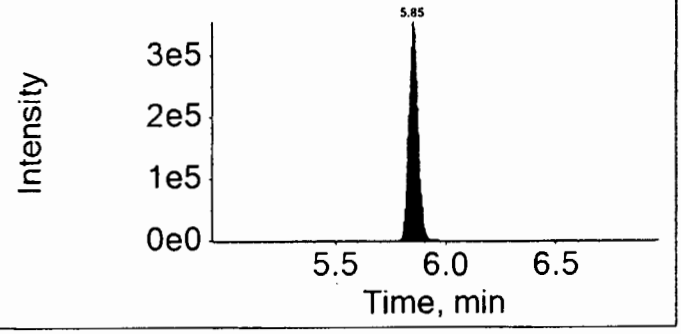
16JUL28-04.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





16JUL28-04.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0

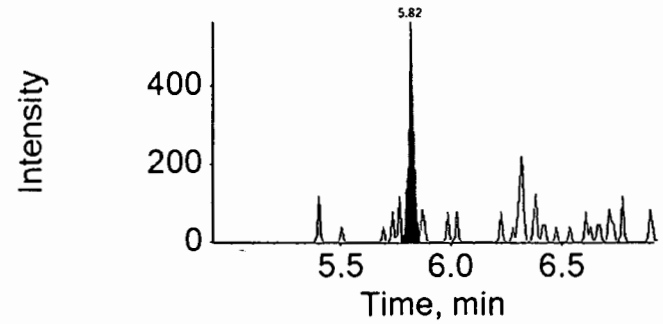




16JUL28-04.wiff

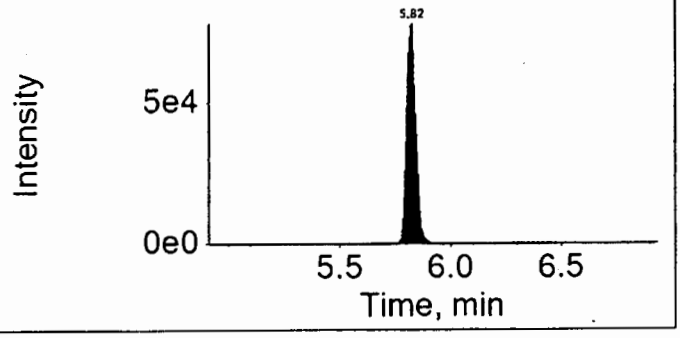
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

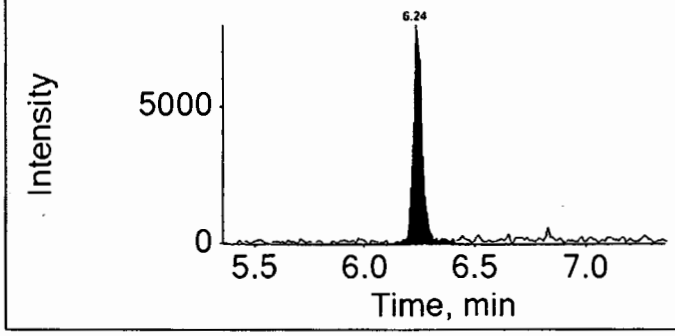
503.0 / 99.0



16JUL28-04.wiff

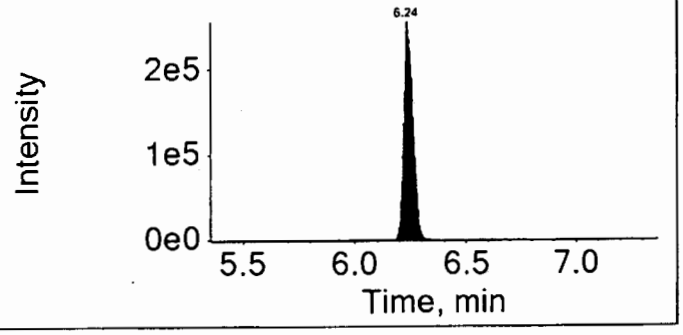
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

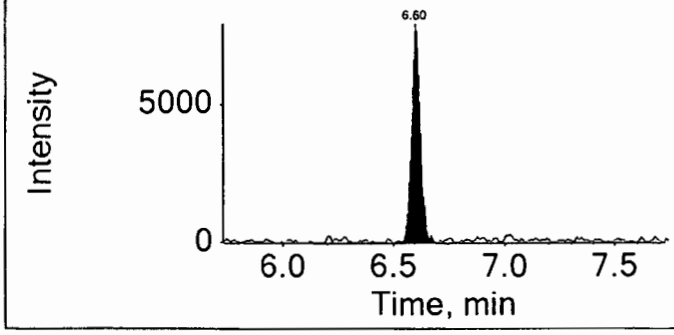
515.0 / 470.0



16JUL28-04.wiff

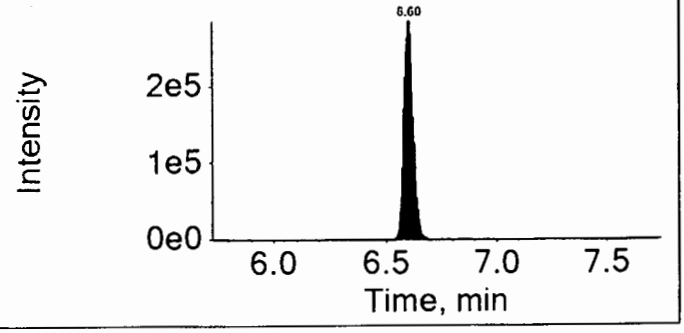
Analyte: PFUndA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

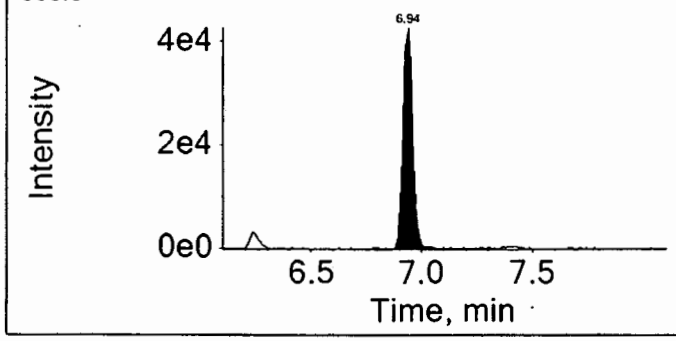
565.0 / 520.0



16JUL28-04.wiff

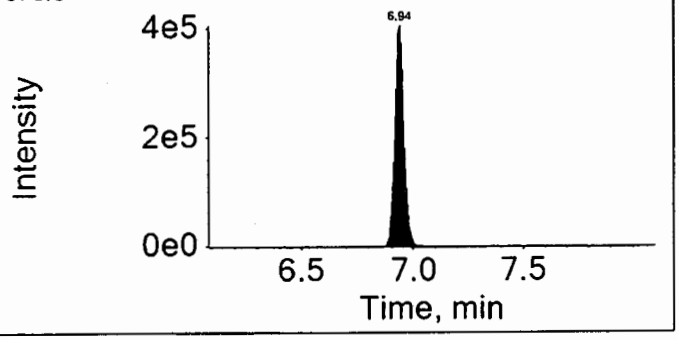
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

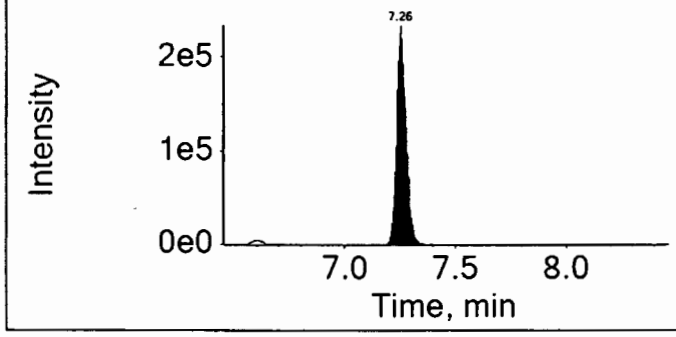
615.0 / 570.0



16JUL28-04.wiff

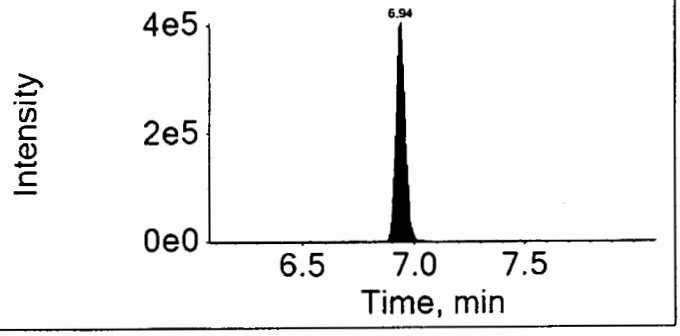
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

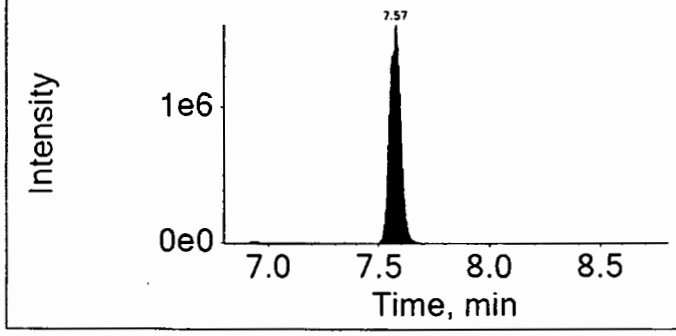
615.0 / 570.0



16JUL28-04.wiff

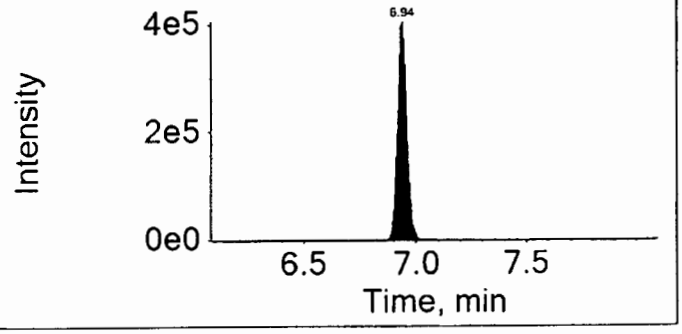
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Sample Description: SG3-MW02-00.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8432142
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 13:05 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-22 SDG#: SGP94-25

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.54	U	0.54	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.43	1
14027	Perfluorododecanoic acid	307-55-1	1.6		0.43	0.86	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.54	U	0.54	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.75	U	0.75	1.7	1
14027	Perfluorooctanoic acid	335-67-1	1.8		0.32	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	93		0.32	0.86	1
14027	Perfluorotridecanoic acid	72629-94-8	15		0.65	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.65	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside of the required holding time and the Laboratory Control Spike(s) was within the QC acceptance limits.
Both sets of data are provided in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	169	U	169	506	1

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	7.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3-MW02-00.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8432142
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 13:05 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-22 SDG#: SGP94-25

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/20/2016 03:56	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16181298731A	07/01/2016 10:16	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820001B	06/27/2016 12:22	William C Schwebel	1

*=This limit was used in the evaluation of the final result

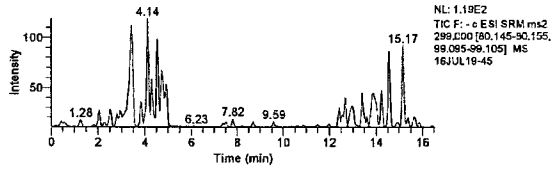
LCMSMS ANALYSIS REPORT

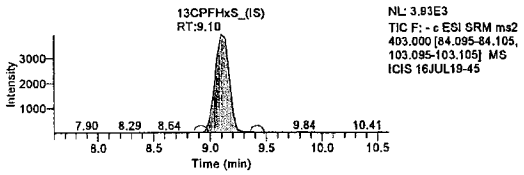
Sample Name:	8432142	Original Data Path:	C:\XCALIBUR\PFC\2016\16JUL11
Sample ID:	8432142	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL19-45		
Acquisition Date:	07/20/16 03:56:47 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	b:13	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

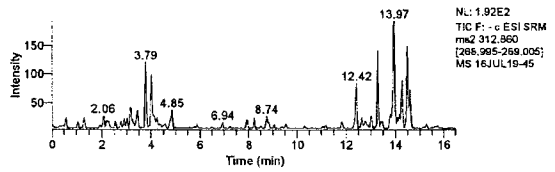
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	10.20	189361.12	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.56	226461.92	N/A	N/A	N/A
13CPFDA_(IS)	N/A	10.99	162226.30	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	13.01	119913.12	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	9.10	248423.51	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.74	125681.70	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	9.10	34190.19	N/A	N/A	N/A
13CPFOS_(IS)	N/A	10.14	18125.05	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	11.94	131522.65	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	1.520	13.01	21432.52	119913.12	0.179	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	1.698	9.56	39628.48	226461.92	0.175	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	86.586	15.88	933228.70	131522.65	7.096	ng/g
PFTrDA	13.603	14.25	216426.88	119913.12	1.805	ng/g
PFUdA	0.138	11.91	1289.47	131522.65	0.010	ng/g
PFhpA	0.079	9.17	1245.82	248423.51	0.005	ng/g

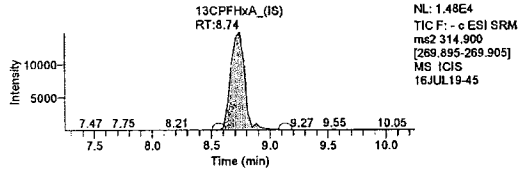
Component Name: PFBS





Component Name: PFHxA





Component Name: PFhpA

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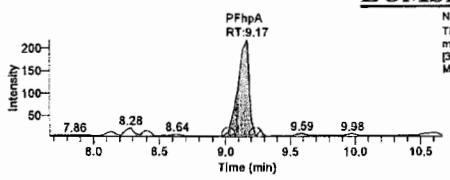
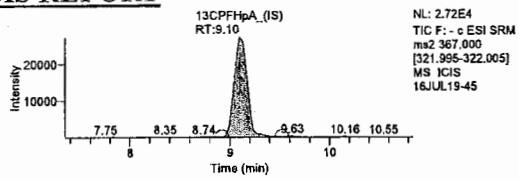
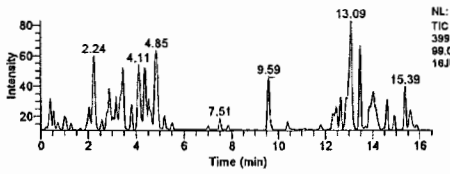
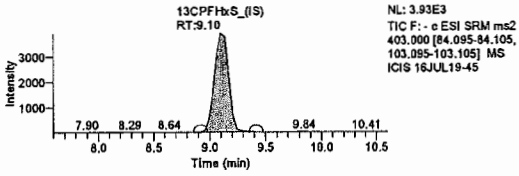


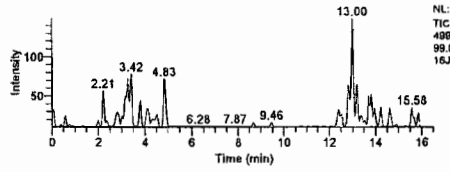


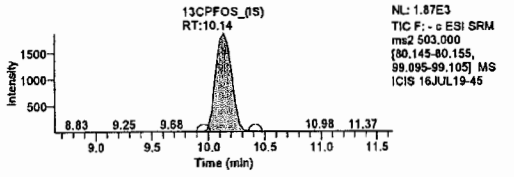
Component Name: PFHxS



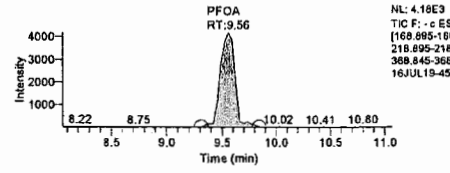


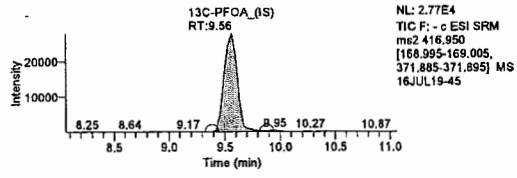
Component Name: PFOS



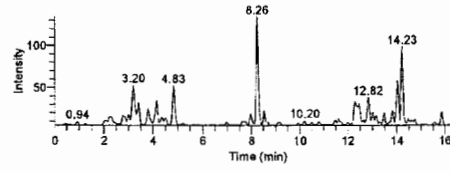


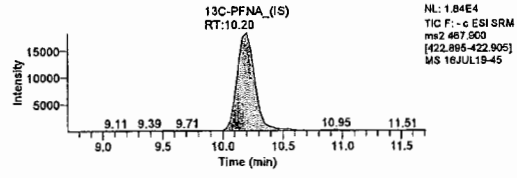
Component Name: PFOA



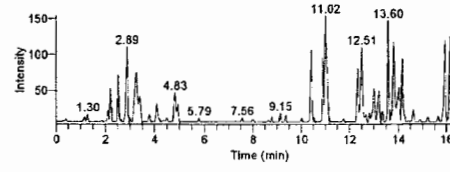


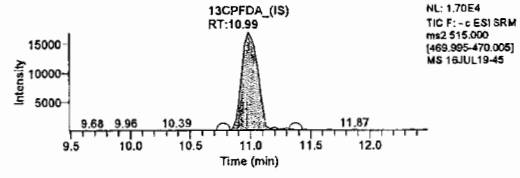
Component Name: PFNA





Component Name: PFDA





Component Name: PFUdA

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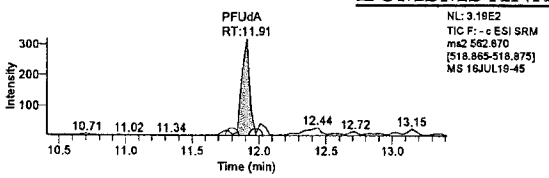
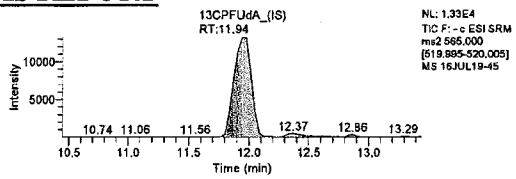
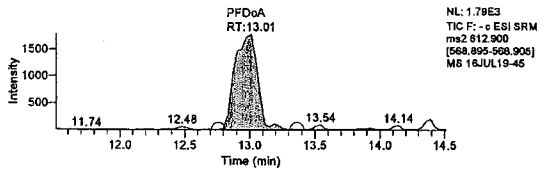
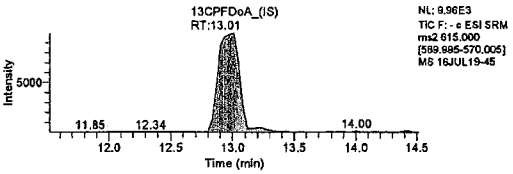


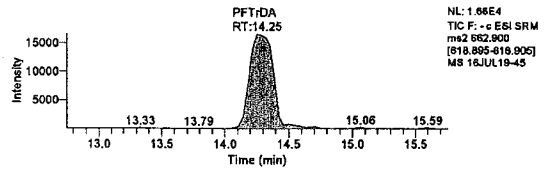


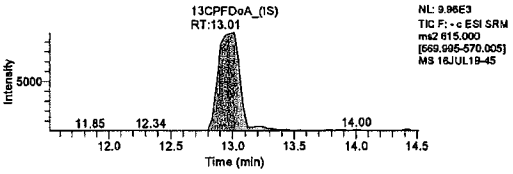
Component Name: PFDoA



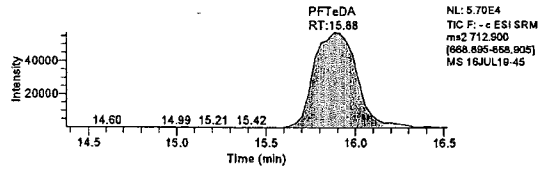


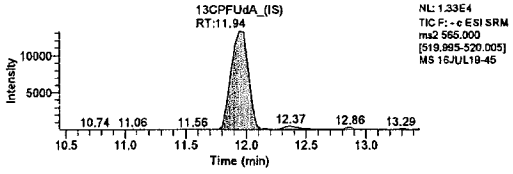
Component Name: PFTrDA





Component Name: PFTeDA





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Jason W. Knight
Senior Chemist

JUL 20 2016

Sample Name:	8432142RE	**Data File:**		16JUL28-05.wiff
Sample ID:	8432142RE	**Acquis Date:**		7/28/2016 8:01:17 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	65	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16203007
Batch Number:	16203007	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.360	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

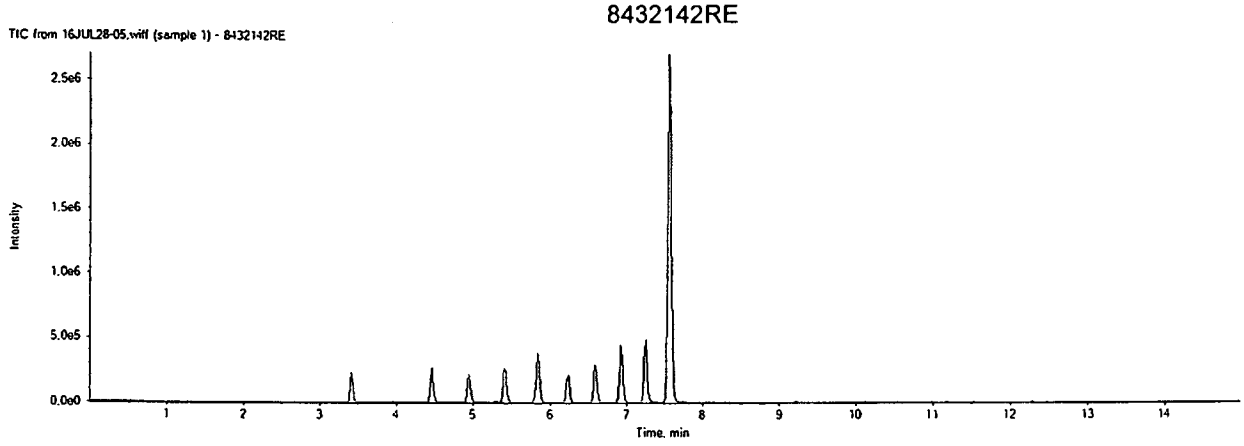
Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.01	2720.7	18O2-PFHxS	4.93	211170.4	0.013	0.085	
PFHxA	4.46	7407.3	13C2-PFHxA	4.46	671768.6	0.011	0.199	
PFHpA	4.94	6049.4	13C4-PFHpA	4.94	420801.5	0.014	0.097	
PFHxS	4.94	1813.8	18O2-PFHxS	4.93	211170.4	0.009	0.068	
PFOA	5.41	131061.0	13C4-PFOA	5.41	667797.2	0.196	1.460	
PFNA	5.84	9274.9	13C5-PFNA	5.84	956824.9	0.010	0.078	
PFOS	5.82	1094.2	13C4-PFOS	5.81	222355.2	0.005	0.039	
PFDA	6.23	20574.6	13C2-PFDA	6.24	612296.8	0.034	0.229	
PFUndA	6.59	18784.7	13C2-PFUnDA	6.59	812974.4	0.023	0.193	
PFDoDA	6.93	140567.5	13C2-PFDoDA	6.93	1086179.4	0.129	1.402	
PFTrDA	7.25	1499987.8	13C2-PFDoDA	6.93	1086179.4	1.381	12.133	
PFTeDA	7.56	8520901.5	13C2-PFDoDA	6.93	1086179.4	7.845	63.789	

1.7
1.5
14
87

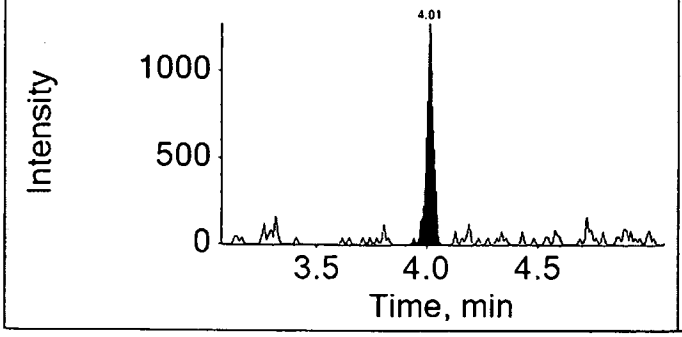
Total Ion Chromatogram

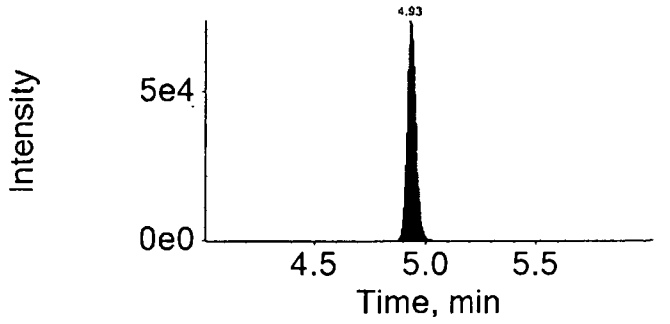
8432142RE



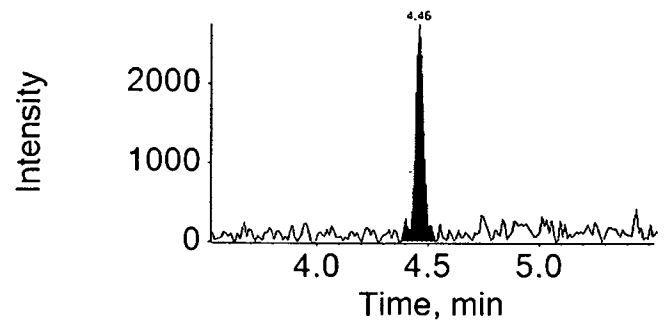
Not Reported - Reextracted out at HT.

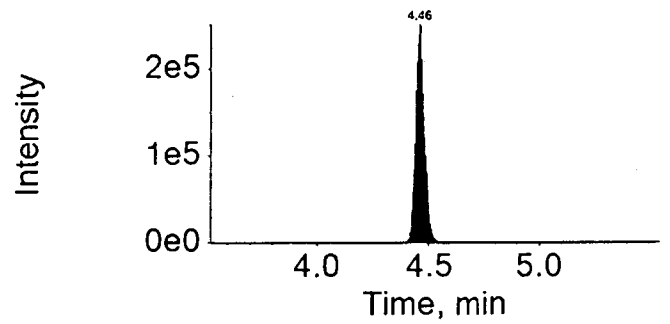
16JUL28-05.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





16JUL28-05.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





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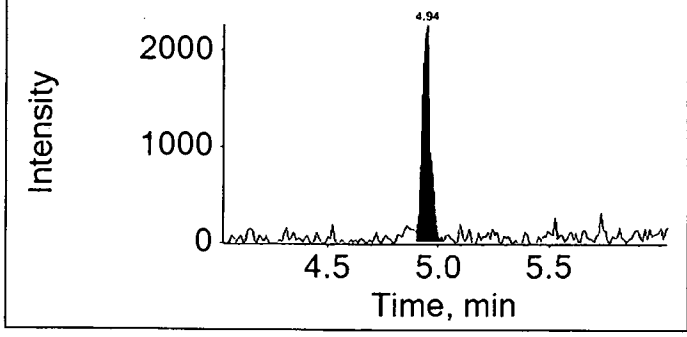
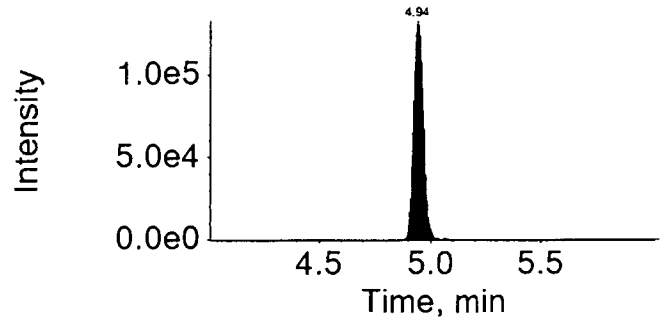
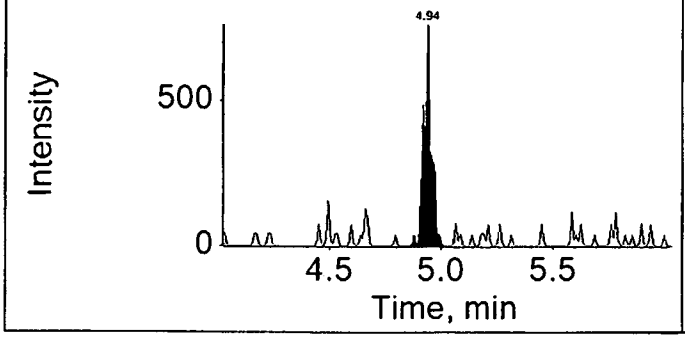
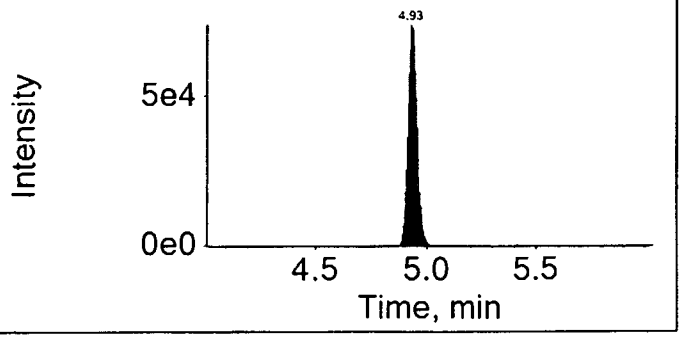
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0





16JUL28-05.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0





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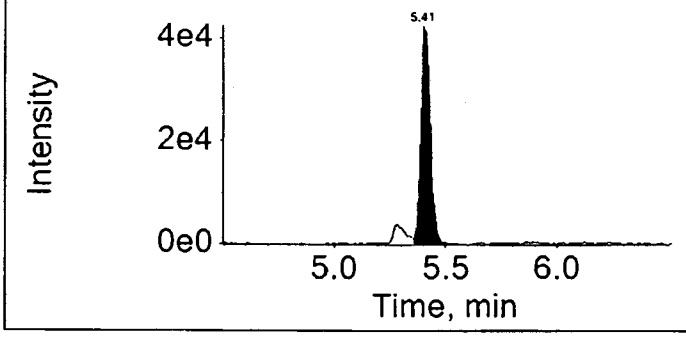
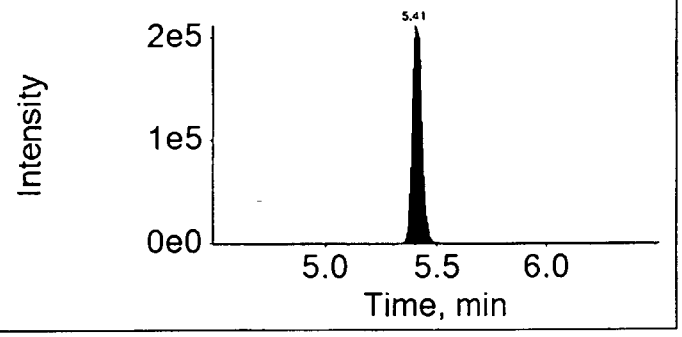
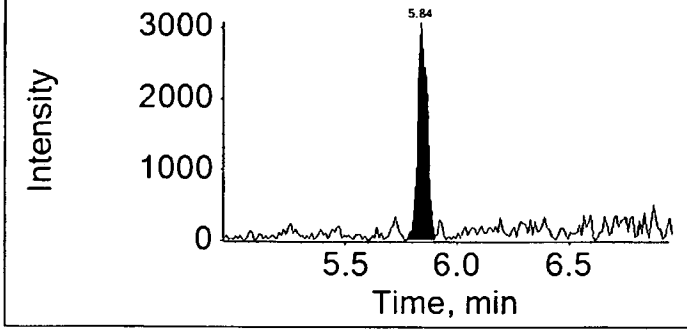
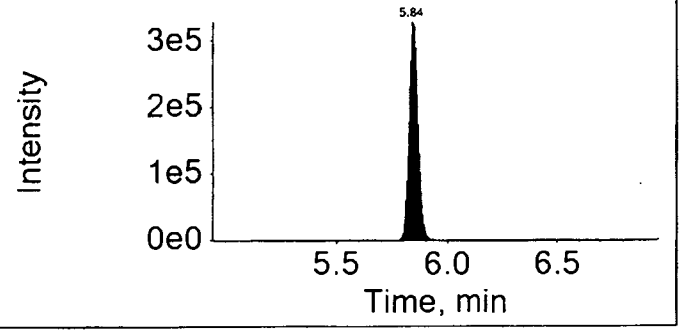
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





16JUL28-05.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0

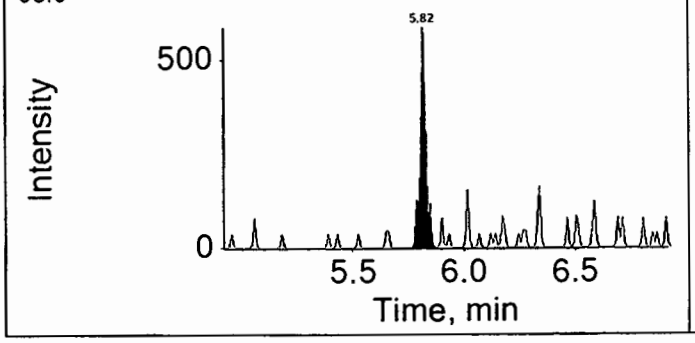




16JUL28-05.wiff

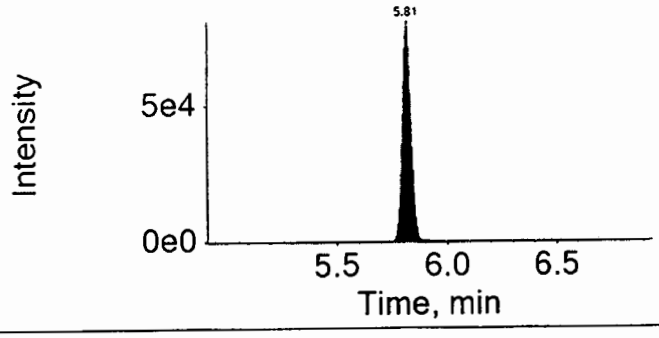
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

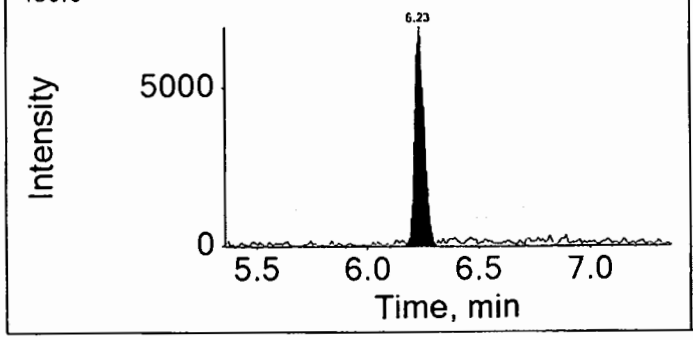
503.0 / 99.0



16JUL28-05.wiff

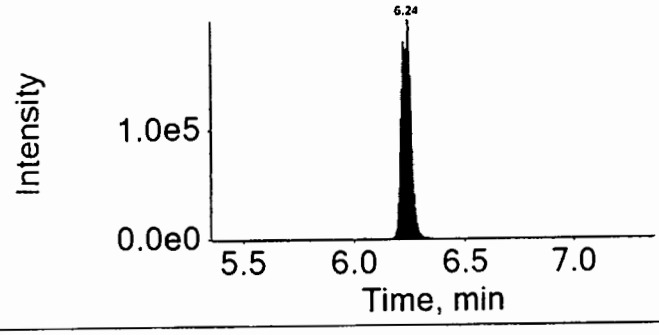
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

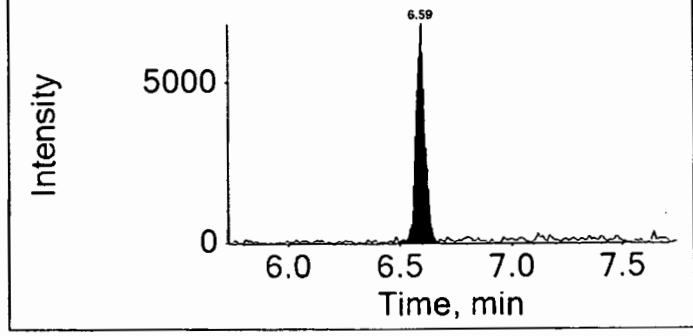
515.0 / 470.0



16JUL28-05.wiff

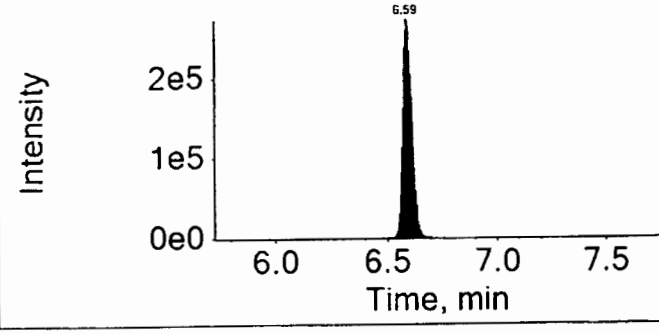
Analyte: PFUndA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

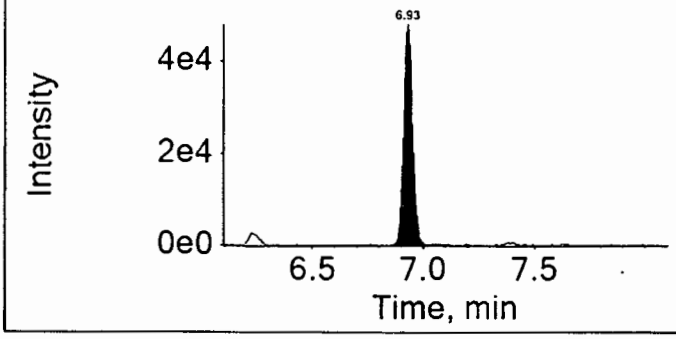
565.0 / 520.0



16JUL28-05.wiff

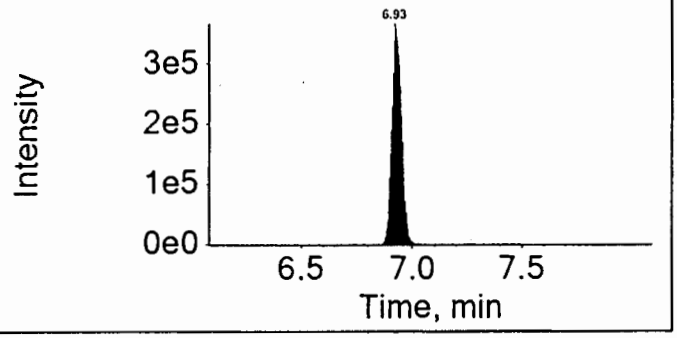
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

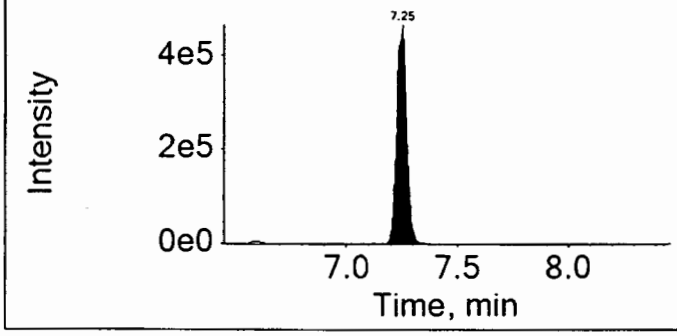
615.0 / 570.0



16JUL28-05.wiff

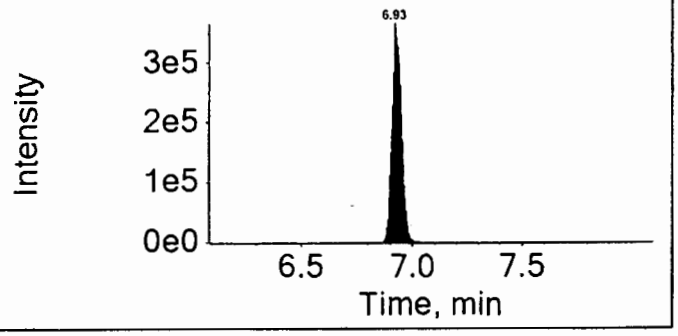
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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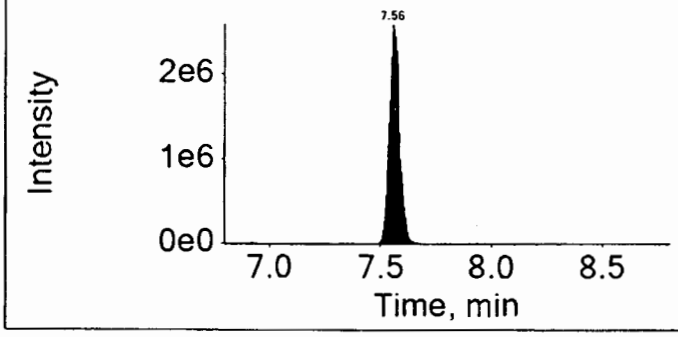
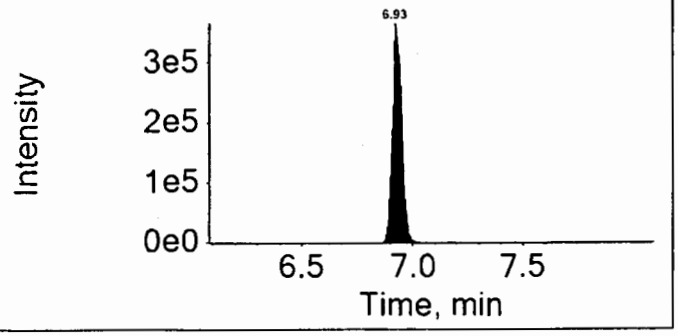
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Sample Description: SG3-MW02-01.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8432143
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 13:10 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-23 SDG#: SGP94-26

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.55	U	0.55	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.33	J	0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	10		0.44	0.88	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.55	U	0.55	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	J	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.77	U	0.77	1.8	1
14027	Perfluorooctanoic acid	335-67-1	7.1		0.33	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	40		0.33	0.88	1
14027	Perfluorotridecanoic acid	72629-94-8	15		0.66	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	1.0		0.33	0.66	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside of the required holding time and the Laboratory Control Spike(s) was within the QC acceptance limits.
Both sets of data are provided in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	TOC	n.a.	1,610	269	807	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	8.6	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16182008	07/20/2016 04:14	Jason W Knight	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16182008	07/01/2016 10:30	Robert Brown	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3-MW02-01.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8432143
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 13:10 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG-23 SDG#: SGP94-26

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	16181298731A	06/29/2016 14:56	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16178820006A	06/28/2016 09:43	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

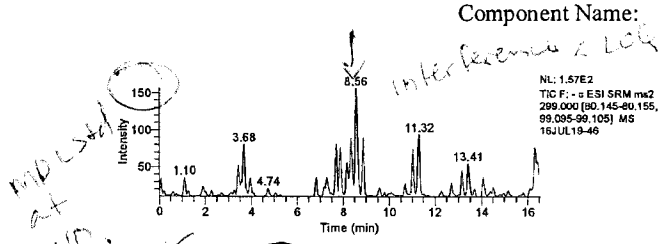
LCMSMS ANALYSIS REPORT

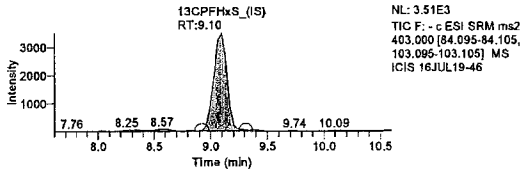
Sample Name:	8432143	Original Data Path:	C:\XCALIBUR\PFC\2016\16JUL11
Sample ID:	8432143	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL19-46		M\HWell_16.5minutes
Acquisition Date:	07/20/16 04:14:01 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	b:14	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	10.17	170521.40	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.53	182290.76	N/A	N/A	N/A
13CPFDA_(IS)	N/A	10.81	161862.38	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	12.80	112847.19	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	9.10	193588.05	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.71	126566.51	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	9.10	28088.65	N/A	N/A	N/A
13CPFOS_(IS)	N/A	10.14	17833.74	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	11.66	117713.49	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	0.302	10.78	4295.51	161862.38	0.027	ng/g
PFDoA	9.212	12.80	123722.90	112847.19	1.096	ng/g
PFHxA	0.206	8.67	2946.49	126566.51	0.023	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	6.525	9.53	121613.45	182290.76	0.667	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	36.253	15.46	348646.46	117713.49	2.962	ng/g
PFTrDA	13.527	13.90	202522.53	112847.19	1.795	ng/g
PFUdA	0.914	11.70	9409.82	117713.49	0.080	ng/g
PFhpA	0.123	9.10	1668.58	193588.05	0.009	ng/g

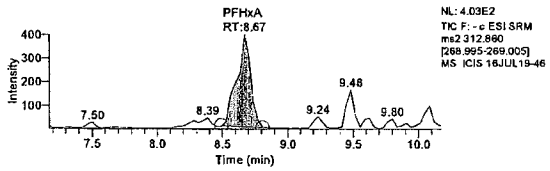
Component Name: PFBS

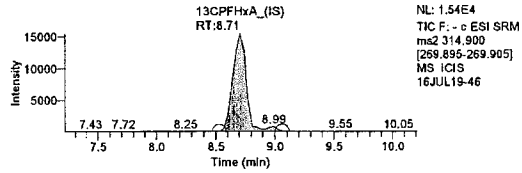




Lab check integration

Component Name: PFHxA





Component Name: PFhpA

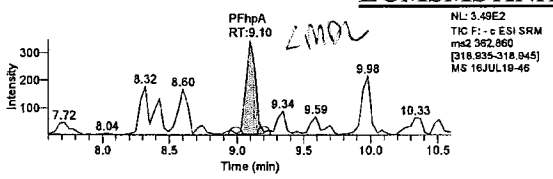
Christine Ratcliff
Manager

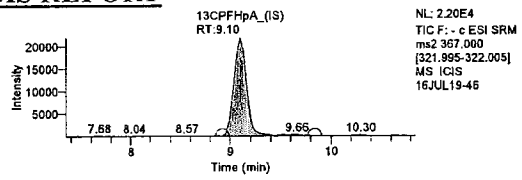
JUL 20 2016

Jason W. Knight
Senior Chemist

JUL 20 2016

LCMSMS ANALYSIS REPORT





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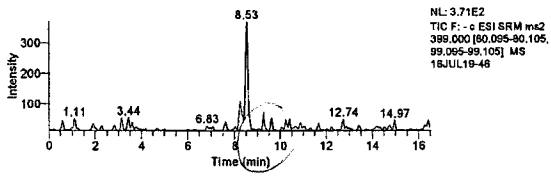
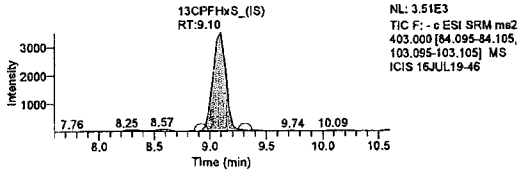
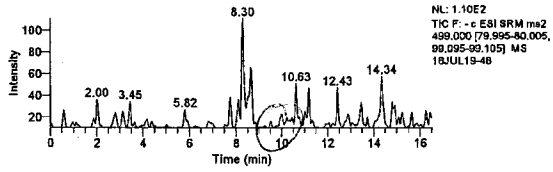
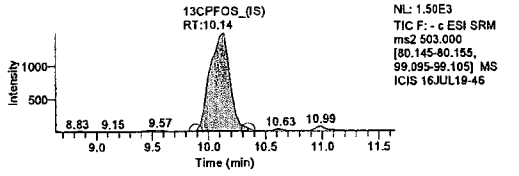


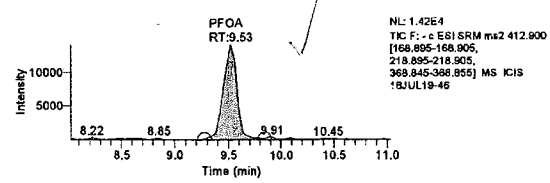


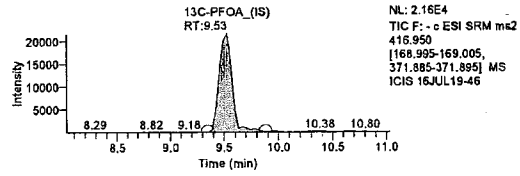
Component Name: PFOS



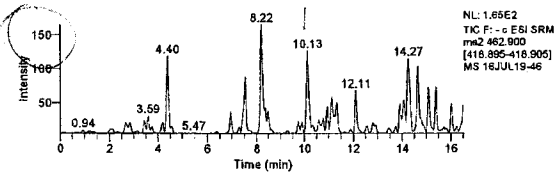


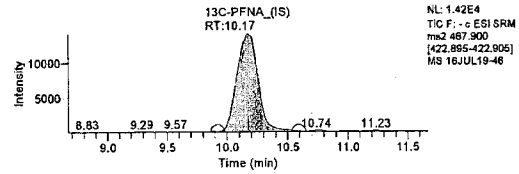
Component Name: PFOA





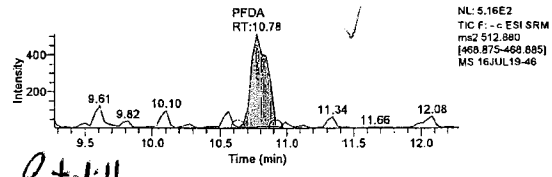
Component Name: PFNA

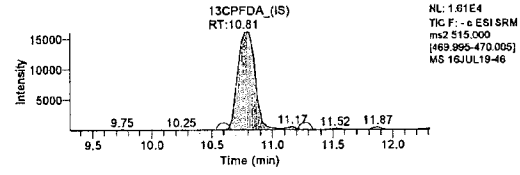




Component Name: PFDA

Lab check integration





Christine Ratcliff
Manager

JUL 20 2016

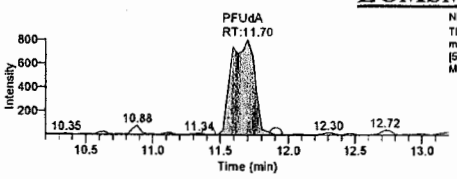
Component Name: PFUdA

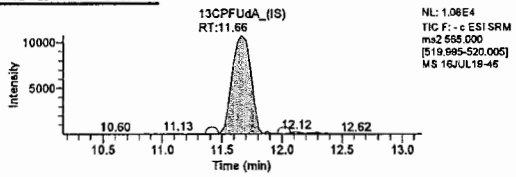
Jason W. Knight
Senior Chemist

Wednesday, July 20, 2016, 07:20:36

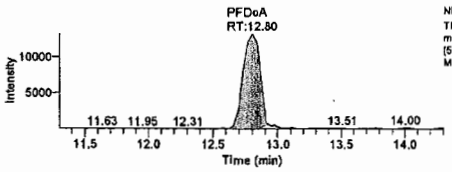
JUL 20 2016

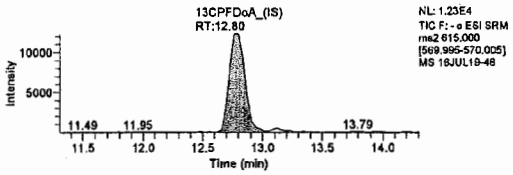
LCMSMS ANALYSIS REPORT



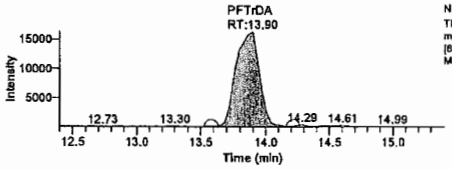


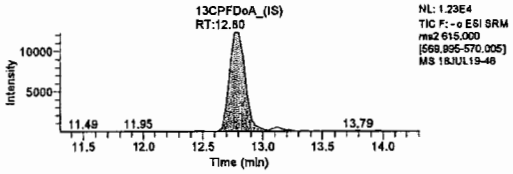
Component Name: PFDoA



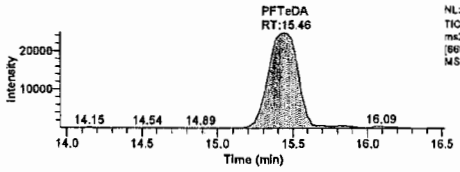


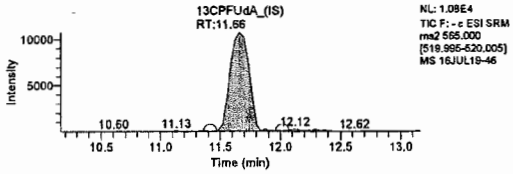
Component Name: PFTrDA





Component Name: PFTeDA





Christine Ratcliff
Christine Ratcliff
Manager

JUL 20 2016

Jason W. Knight
Senior Chemist

JUL 20 2016

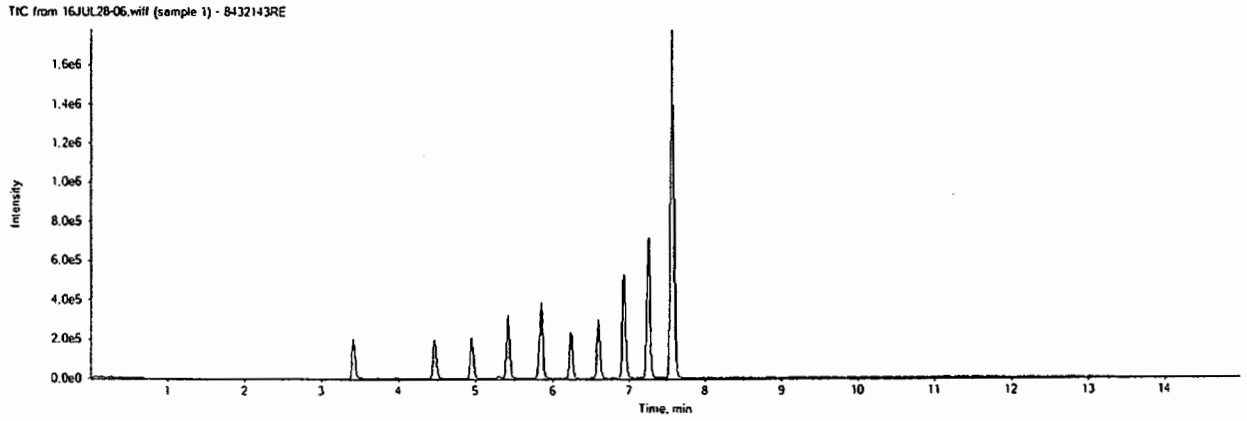
Sample Name:	8432143RE	**Data File:**		16JUL28-06.wiff
Sample ID:	8432143RE	**Acquis Date:**		7/28/2016 8:16:59 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	66	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16203007
Batch Number:	16203007	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.120	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.04	437.8	18O2-PFHxS	4.94	199628.6	0.002	0.015	
PFHxA	4.46	5085.3	13C2-PFHxA	4.46	587839.0	0.009	0.164	
PFHpA	4.95	6495.0	13C4-PFHpA	4.95	371617.3	0.017	0.124	
PFHxS	4.93	1188.3	18O2-PFHxS	4.94	199628.6	0.006	0.049	
PFOA	5.42	325388.6	13C4-PFOA	5.41	574552.3	0.566	4.409	
PFNA	5.85	8912.8	13C5-PFNA	5.85	913423.7	0.010	0.082	
PFOS	5.81	844.0	13C4-PFOS	5.82	201685.6	0.004	0.034	
PFDA	6.24	31619.9	13C2-PFDA	6.24	621830.3	0.051	0.363	
PFUndA	6.59	56065.4	13C2-PFUnDA	6.60	759425.8	0.074	0.646	
PFDoDA	6.93	525370.0	13C2-PFDoDA	6.93	1022180.1	0.514	5.830	
PFTrDA	7.25	2115372.5	13C2-PFDoDA	6.93	1022180.1	2.069	↑ 19.034	
PFTeDA	7.56	5411039.0	13C2-PFDoDA	6.93	1022180.1	5.294	↑ 45.062	

9.2
13
36

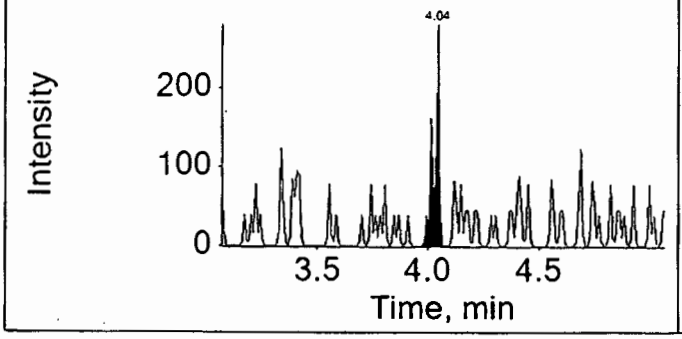
Total Ion Chromatogram
8432143RE



16JUL28-06.wiff

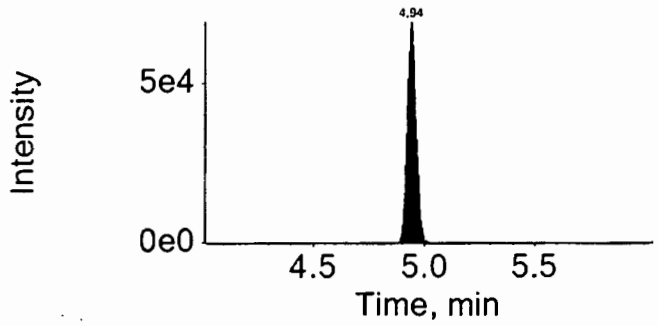
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

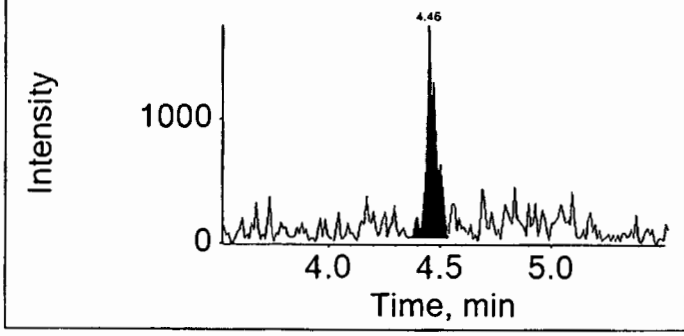
403.0 / 103.0



16JUL28-06.wiff

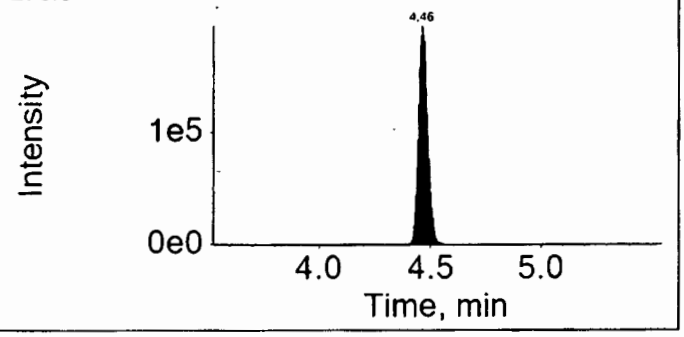
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

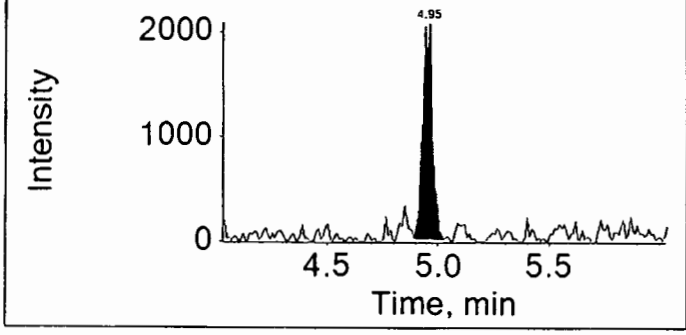
314.9 / 270.0



16JUL28-06.wiff

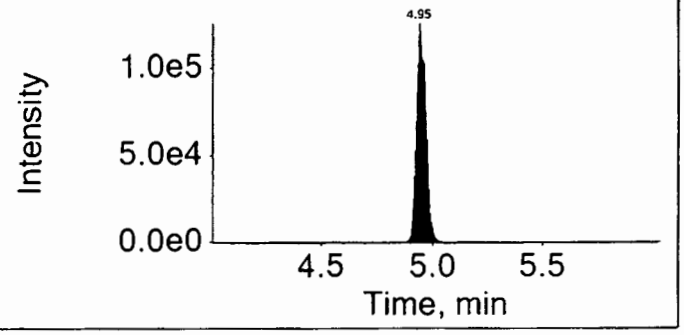
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

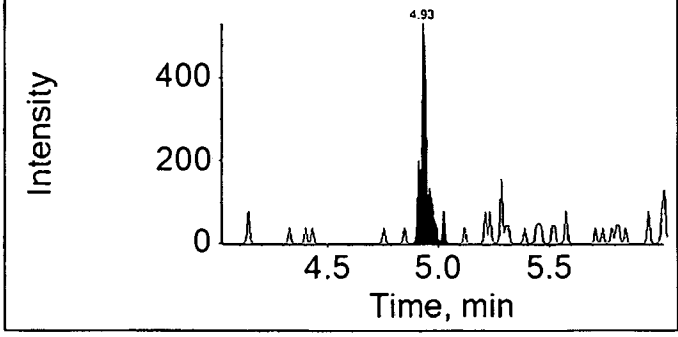
367.0 / 322.0



16JUL28-06.wiff

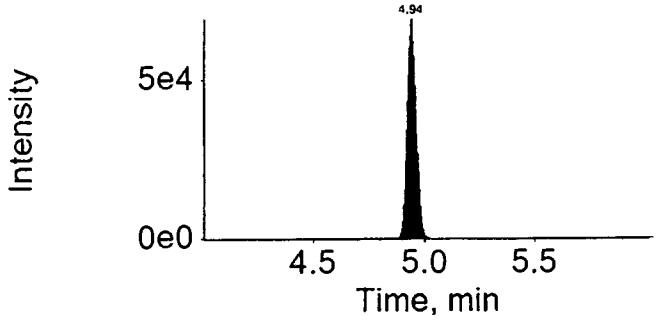
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

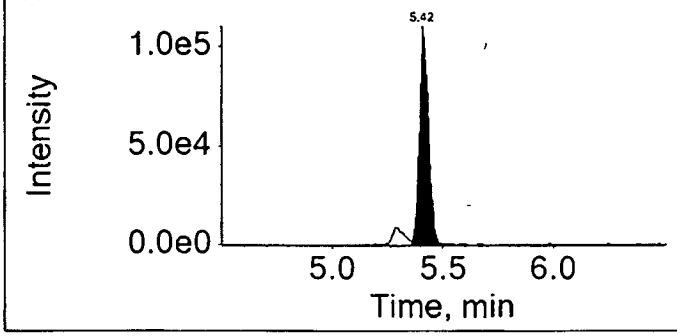
403.0 / 103.0



16JUL28-06.wiff

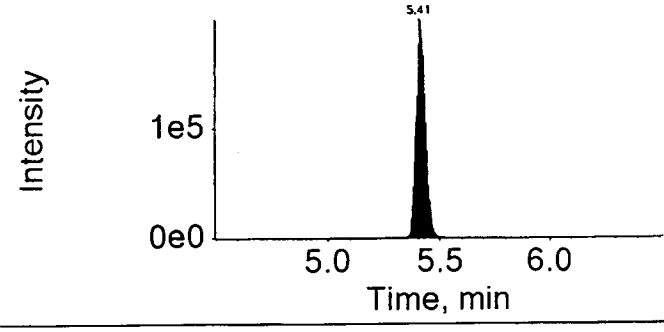
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

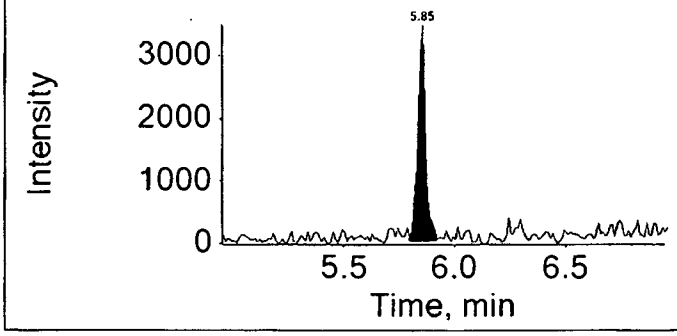
417.0 / 372.0



16JUL28-06.wiff

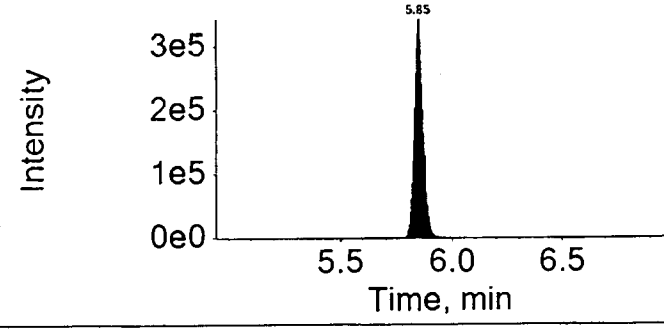
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

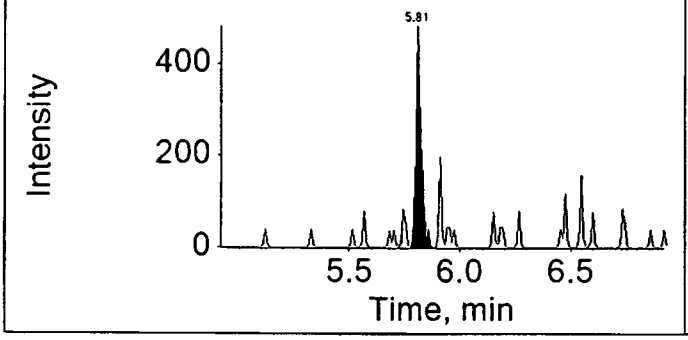
468.0 / 423.0



16JUL28-06.wiff

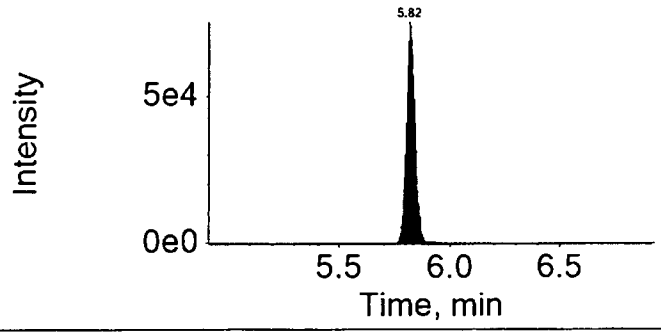
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

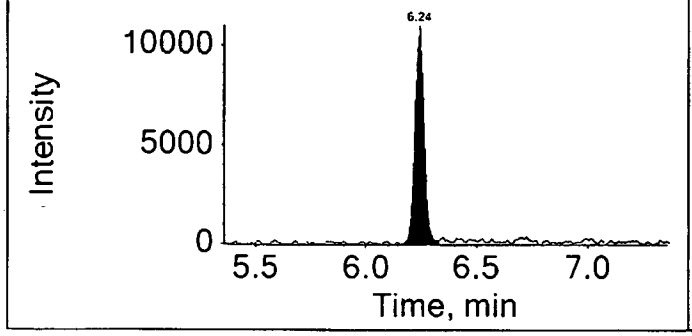
503.0 / 99.0



16JUL28-06.wiff

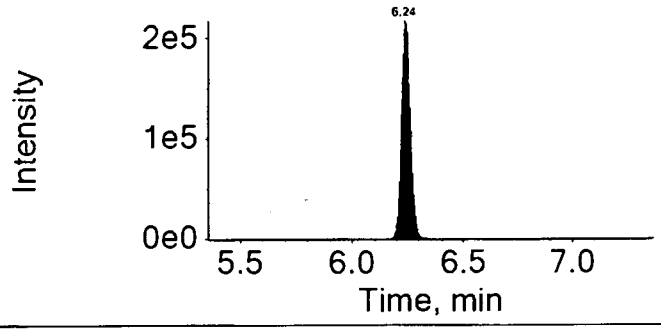
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

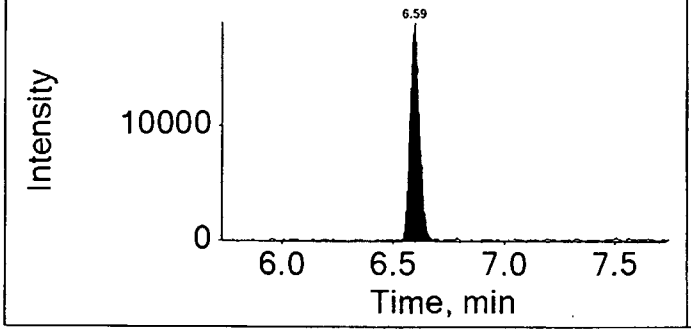
515.0 / 470.0



16JUL28-06.wiff

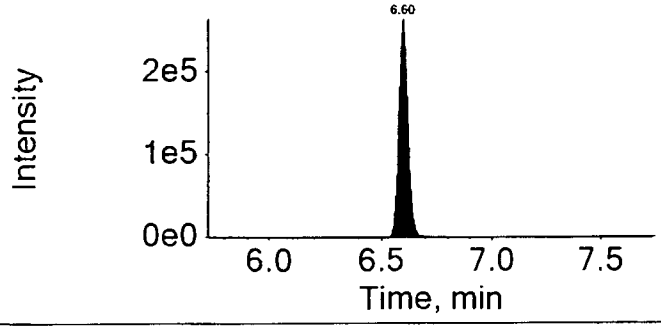
Analyte: PFUndA

562.9 / 518.9

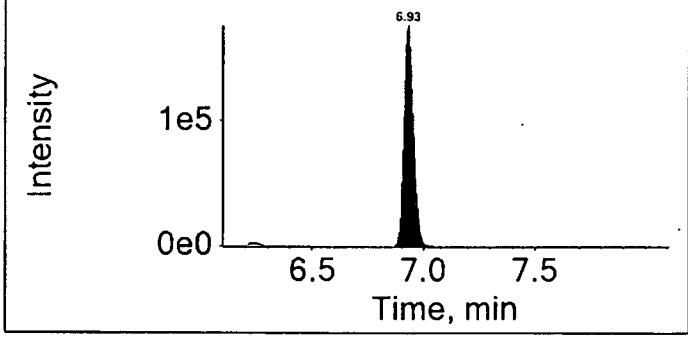


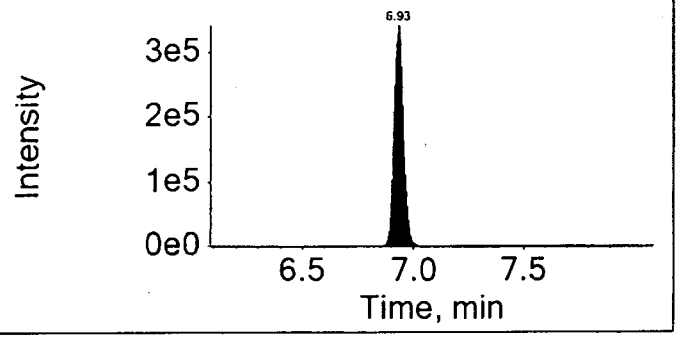
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

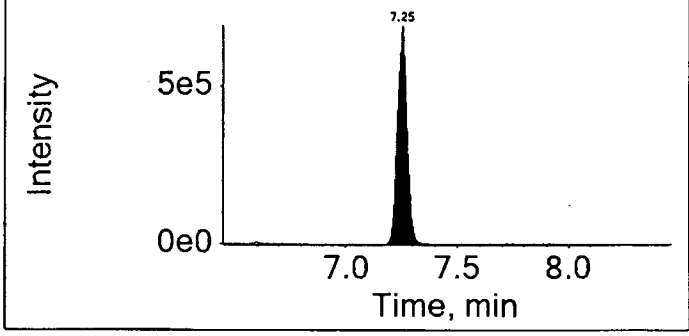


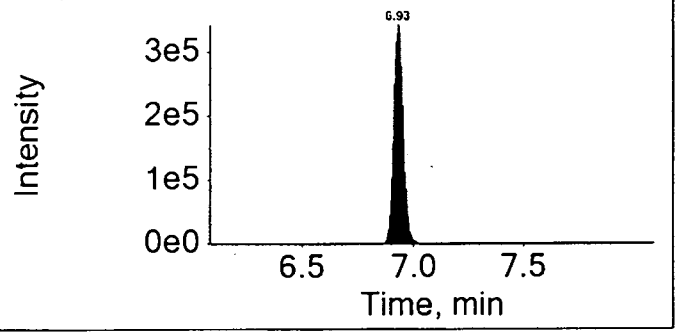
16JUL28-06.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



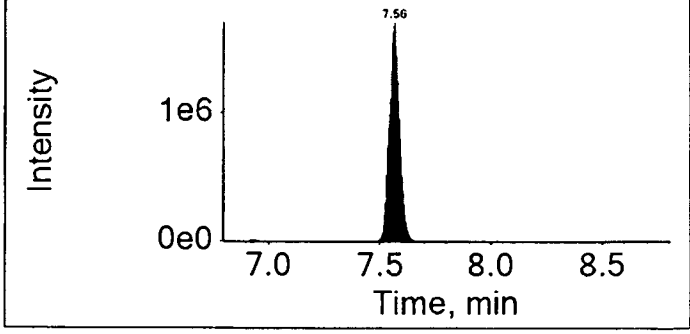


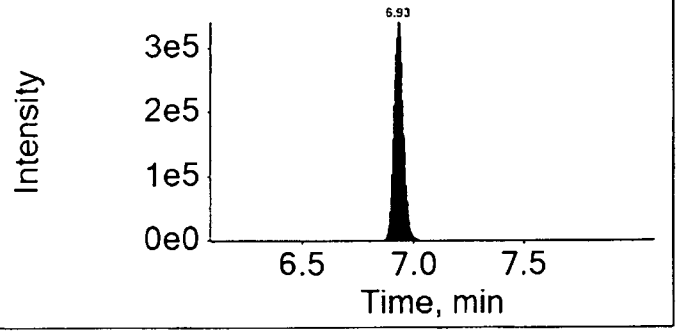
16JUL28-06.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL28-06.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Sample Description: SG3-MW02-01.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8432144
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 13:13 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL

SG-24 SDG#: SGP94-27

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.58	U	0.58	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.74		0.23	0.47	1
14027	Perfluorododecanoic acid	307-55-1	16		0.47	0.93	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.58	U	0.58	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.82	U	0.82	1.9	1
14027	Perfluorooctanoic acid	335-67-1	7.1		0.35	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	11		0.35	0.93	1
14027	Perfluorotridecanoic acid	72629-94-8	6.5		0.70	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	1.8		0.35	0.70	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	8,230		688	2,070	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	14.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 11:02	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16181298731A	06/29/2016 15:11	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

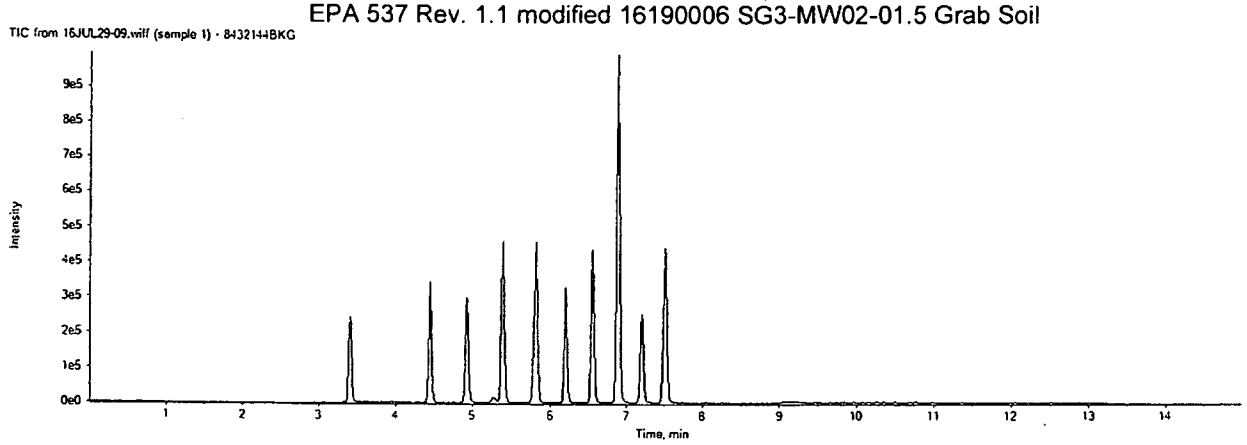
Sample Name:	8432144BKG	**Data File:**		16JUL29-09.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW02-01.5 Grab Soil	**Acquis Date:**		7/29/2016 11:02:33 AM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	34	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.010	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.01	469.0	18O2-PFHxS	4.92	267576.5	0.002	0.012	
PFHxA	4.44	5389.0	13C2-PFHxA	4.44	812021.8	0.007	0.128	
PFHpA	4.92	9214.4	13C4-PFHpA	4.92	568908.1	0.016	0.117	
PFHxS	4.92	1438.4	18O2-PFHxS	4.92	267576.5	0.005	0.045	
PFOA	5.38	581529.9	13C4-PFOA	5.38	757579.9	0.768	6.108	
PFNA	5.81	14212.3	13C5-PFNA	5.82	1070937.1	0.013	0.114	
PFOS	5.79	2658.0	13C4-PFOS	5.79	267394.7	0.010	0.083	
PFDA	6.20	66557.8	13C2-PFDA	6.20	769230.6	0.087	0.632	
PFUndA	6.56	165775.6	13C2-PFUnDA	6.56	956360.6	0.173	1.549	
PFDoDA	6.89	1480514.0	13C2-PFDoDA	6.89	1237224.3	1.197	13.871	
PFTrDA	7.20	730920.8	13C2-PFDoDA	6.89	1237224.3	0.591	5.553	
PFTeDA	7.51	1357762.7	13C2-PFDoDA	6.89	1237224.3	1.097	9.547	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW02-01.5 Grab Soil



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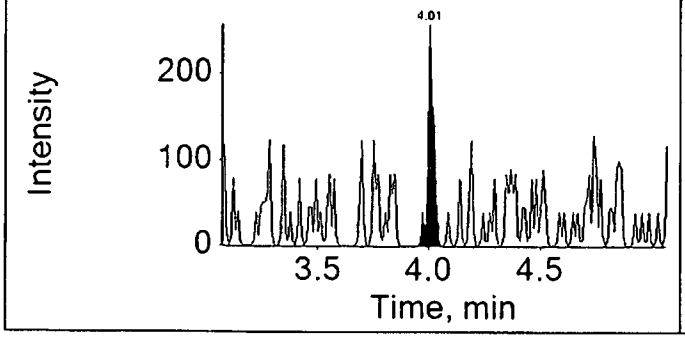
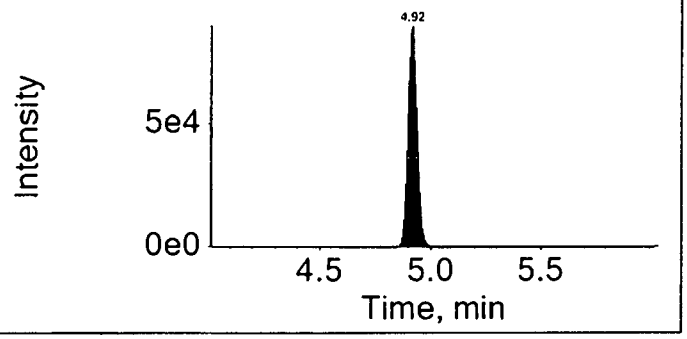
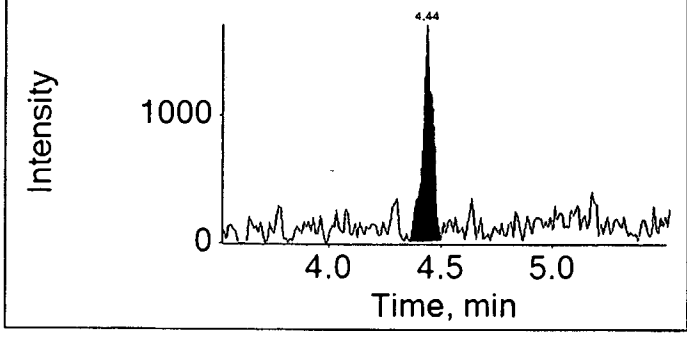
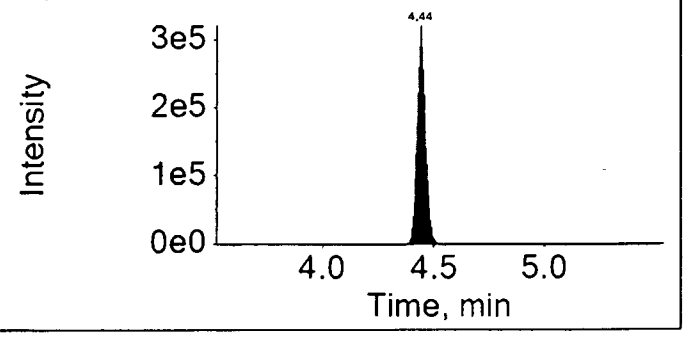
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



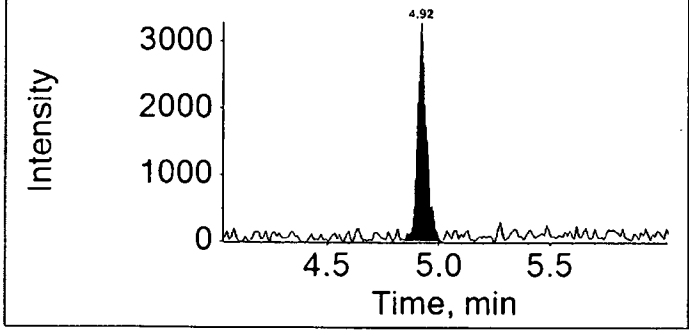


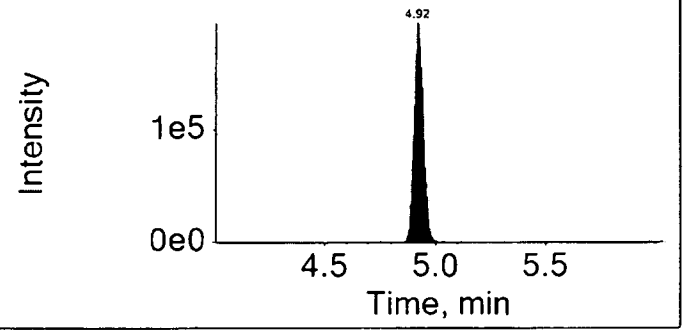
16JUL29-09.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16JUL29-09.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

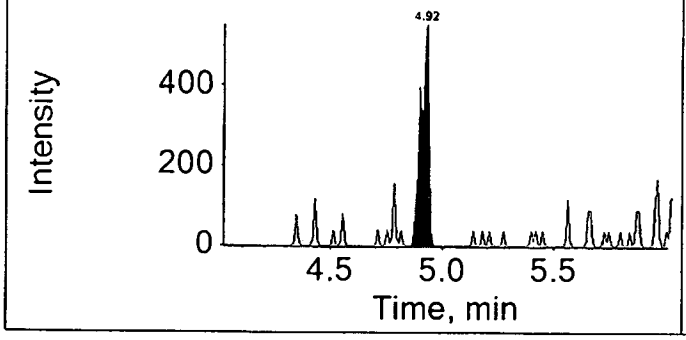




16JUL29-09.wiff

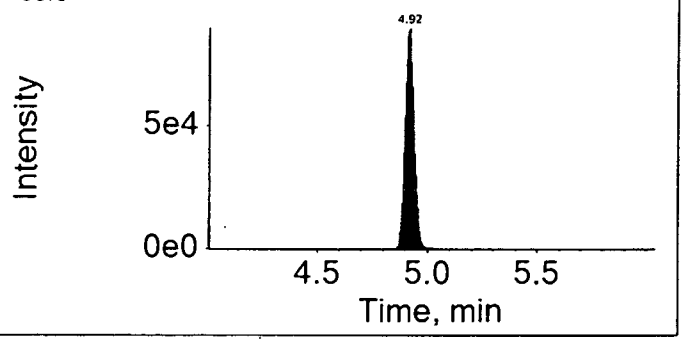
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

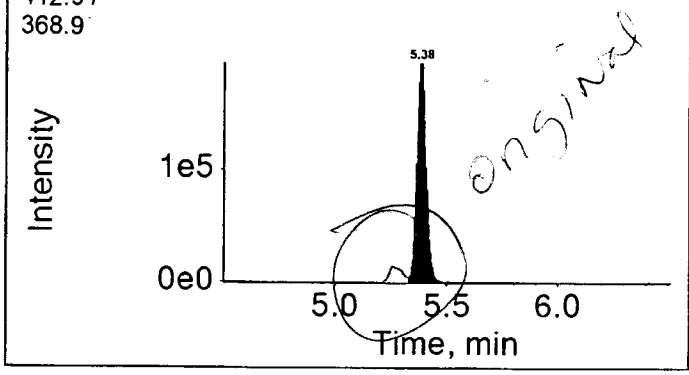
403.0 / 103.0



16JUL29-09.wiff

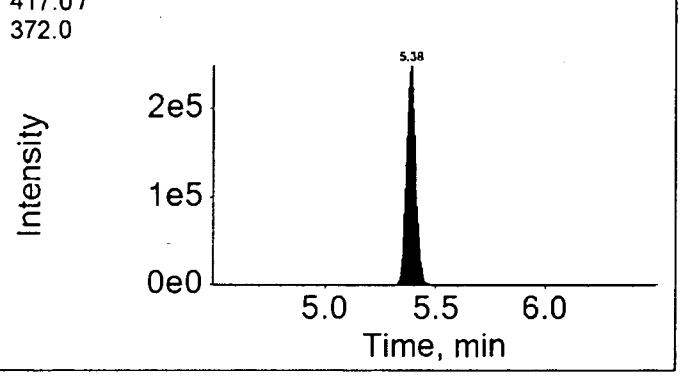
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

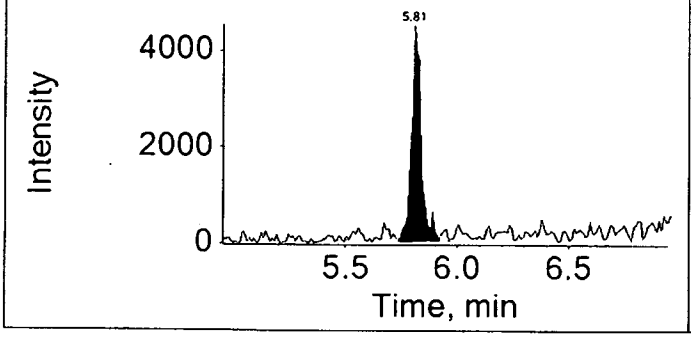
417.0 / 372.0



16JUL29-09.wiff

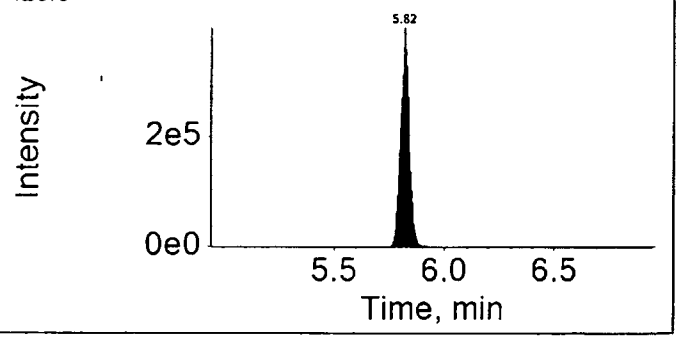
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

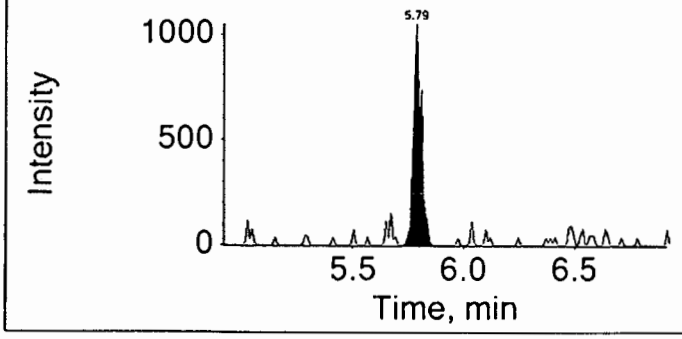
468.0 / 423.0



16JUL29-09.wiff

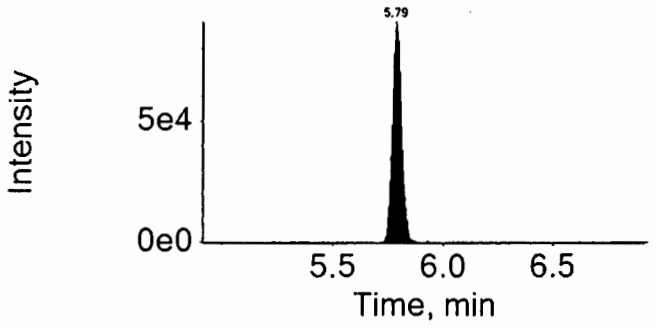
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

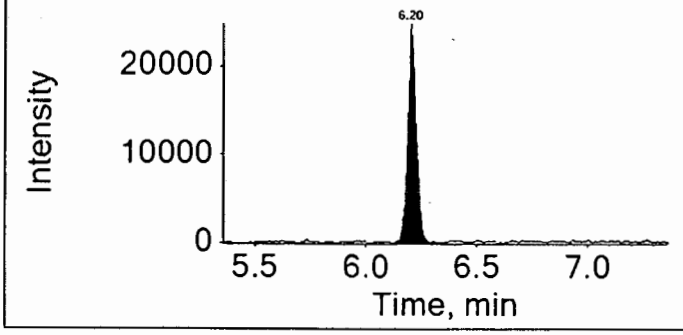
503.0 / 99.0



16JUL29-09.wiff

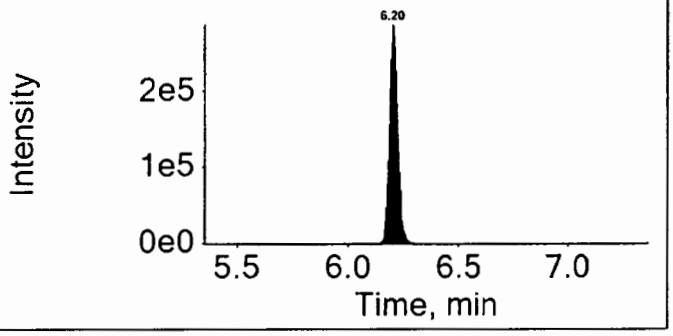
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

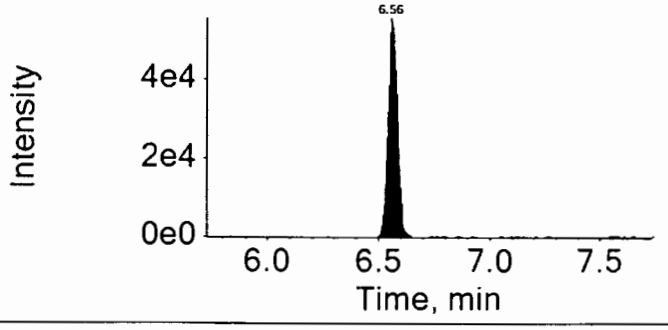
515.0 / 470.0



16JUL29-09.wiff

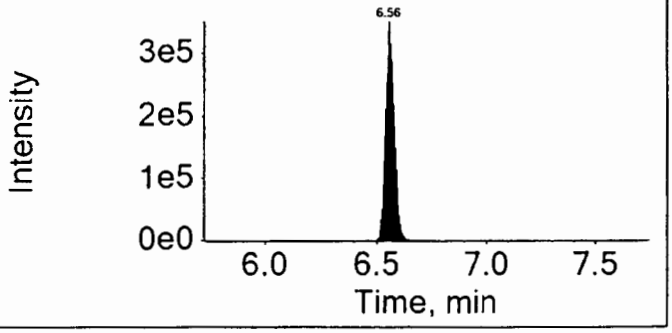
Analyte: PFUndA

562.9 / 518.9

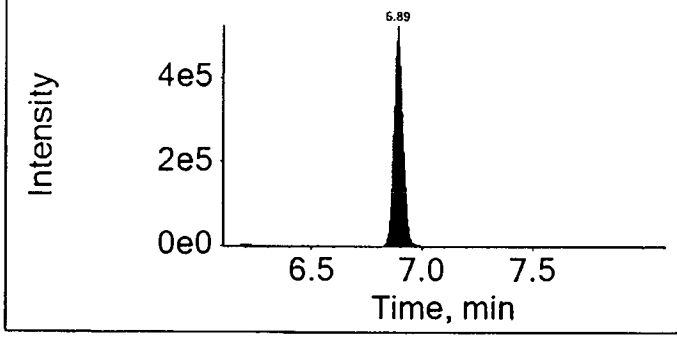


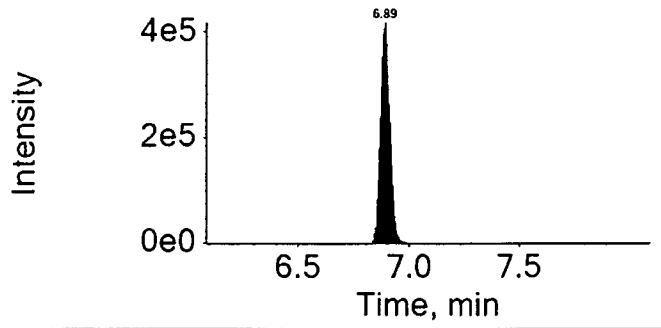
Internal Standard: 13C2-PFUnDA

565.0 / 520.0



16JUL29-09.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0





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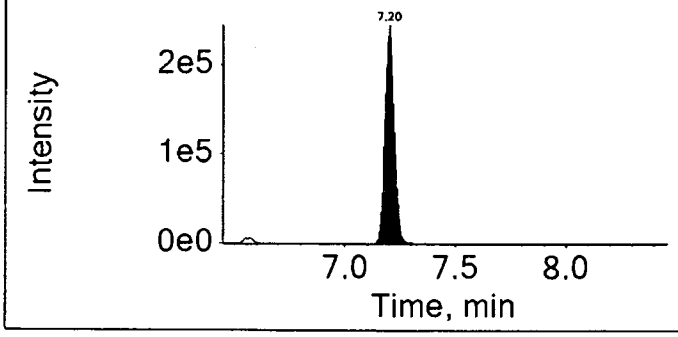
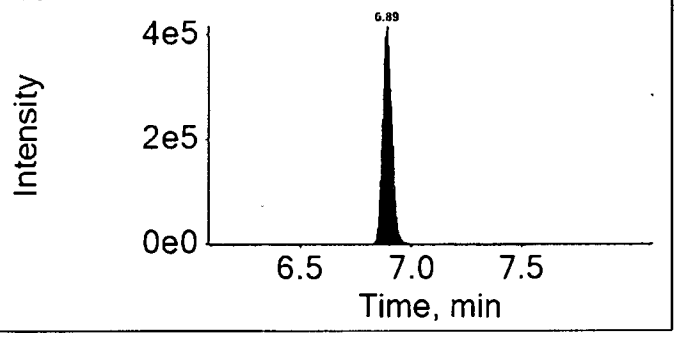
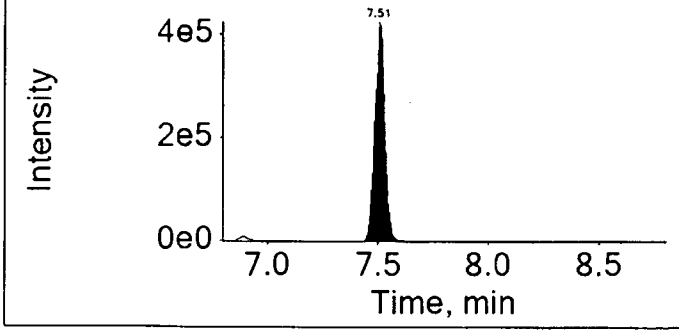
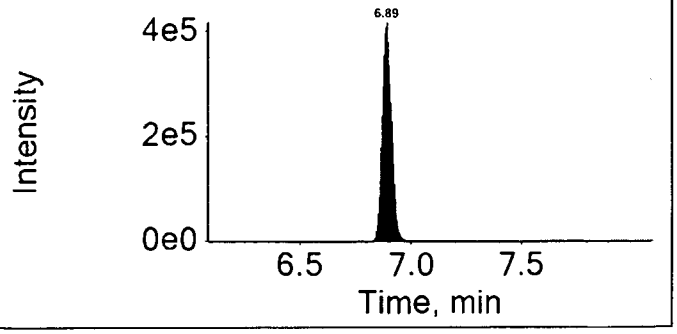
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL29-09.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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Analysis Report

REVISED

Sample Description: SG3-MW02-01.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8432144
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 13:13 by JD

Submitted: 06/17/2016 09:40
Reported: 05/30/2017 08:38

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG-24 SDG#: SGP94-27

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.58	U	0.58	1.9	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.74**		0.23	0.47	1
14027	**Perfluorododecanoic acid**	307-55-1	**16**		0.47	0.93	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.58	U	0.58	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.82	U	0.82	1.9	1
14027	**Perfluorooctanoic acid**	335-67-1	**7.8**		0.35	0.70	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**11**		0.35	0.93	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**6.5**		0.70	1.4	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.8**		0.35	0.70	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**		n.a.	**8,230**	688	2,070	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**		n.a.	**14.3**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 11:02	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 5/23/2017 2:59:00 PM

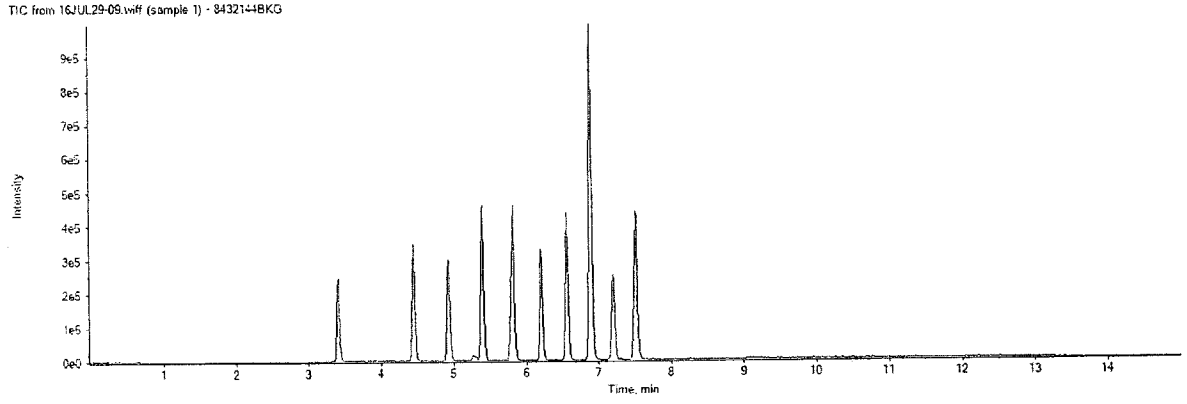
Sample Name:	8432144BKG			**Data File:**		16JUL29-09.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW02-01.5 Grab Soil			**Acquis Date:**		2016-07-29T11:02:33
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	34			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16190006
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.010			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	4.01	0.820	469.0	A	18O2-PFHxS	4.92	267576.5	0.002	0.012
PFHxA	4.44	1.000	5389.0	M	13C2-PFHxA	4.44	812021.8	0.007	0.128
PFHpA	4.92	1.000	9214.4	A	13C4-PFHpA	4.92	568908.1	0.016	0.117
PFHxS	4.92	1.000	1438.4	A	18O2-PFHxS	4.92	267576.5	0.005	0.045
PFOA	5.38	1.000	638605.5	M	13C4-PFOA	5.38	757579.9	0.843	6.707
PFNA	5.81	1.000	14212.3	M	13C5-PFNA	5.82	1070937.1	0.013	0.114
PFOS	5.79	1.000	2658.0	A	13C4-PFOS	5.79	267394.7	0.010	0.083
PFDA	6.20	1.000	66557.8	A	13C2-PFDA	6.20	769230.6	0.087	0.632
PFUndA	6.56	1.000	165775.6	A	13C2-PFUnDA	6.56	956360.6	0.173	1.549
PFDoDA	6.89	1.000	1480514.0	A	13C2-PFDoDA	6.89	1237224.3	1.197	13.871
PFTrDA	7.20	1.050	730920.8	A	13C2-PFDoDA	6.89	1237224.3	0.591	5.553
PFTeDA	7.51	1.090	1357762.7	A	13C2-PFDoDA	6.89	1237224.3	1.097	9.547

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW02-01.5 Grab Soil



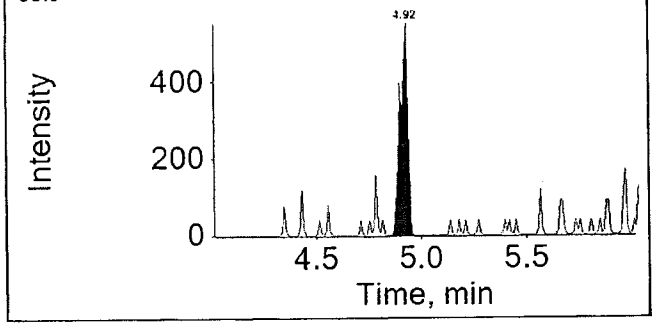
APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 2:16 pm, 5/27/17

16JUL29-09.wiff

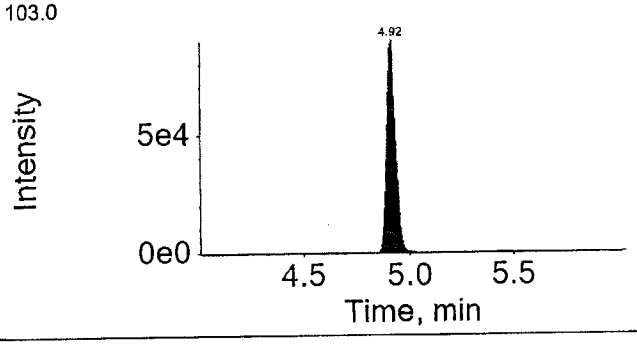
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

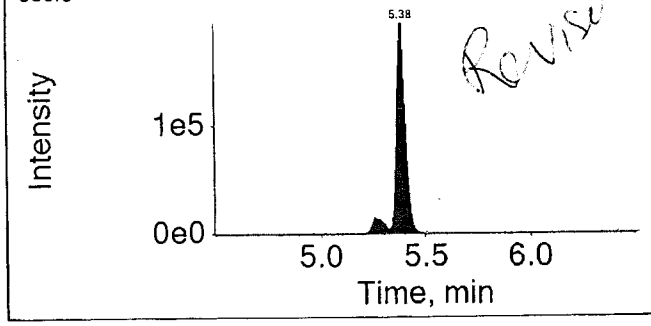
403.0 / 103.0



16JUL29-09.wiff

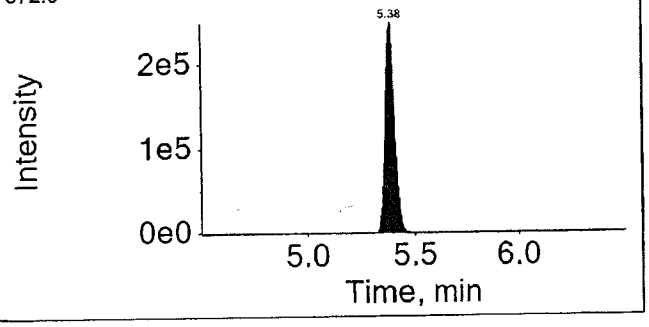
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

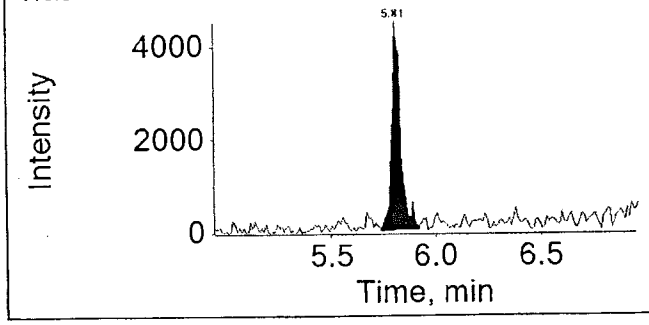
417.0 / 372.0



16JUL29-09.wiff

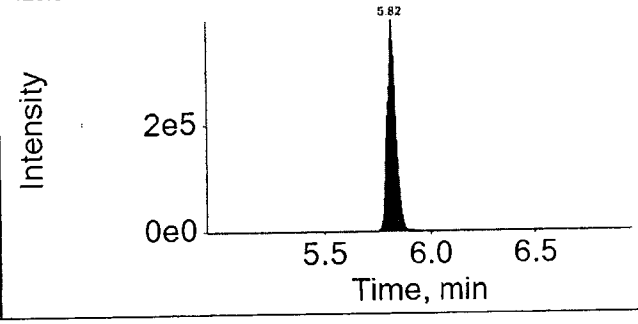
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 2:16 pm, 5/27/17

Sample Name:	8432144RE		**Data File:**		16AUG04-09.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW02-01.5 Grab Soil		**Acquis Date:**		8/4/2016 3:45:18 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	19		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.350		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

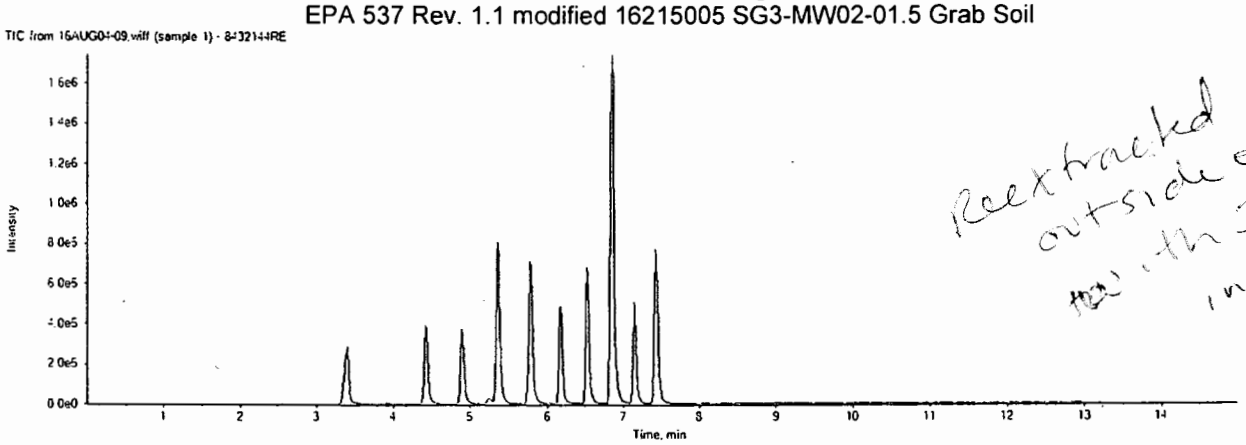
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.89	500320.6	N/A	N/A	
PFHxA	4.43	9566.0	M	13C2-PFHxA	4.42	1356636.4	0.007	0.122	
PFHpA	4.90	18943.6	A	13C4-PFHpA	4.90	700991.4	0.027	0.182	
PFHxS	4.89	2564.2	M	18O2-PFHxS	4.89	500320.6	0.005	0.041	
PFOA	5.35	1268039.6	A	13C4-PFOA	5.35	1307506.2	0.970	7.722	
PFNA	5.78	24382.2	M	13C5-PFNA	5.78	1969967.2	0.012	0.102	
PFOS	5.76	5693.3	M	13C4-PFOS	5.76	477017.1	0.012	0.097	
PFDA	6.17	172149.5	A	13C2-PFDA	6.17	1418278.5	0.121	0.855	
PFUndA	6.53	459373.3	A	13C2-PFUnDA	6.53	1631952.5	0.281	2.348	
PFDoDA	6.85	3891980.9	A	13C2-PFDoDA	6.85	2104450.4	1.849	17.729	
PFTrDA	7.14	1507583.9	A	13C2-PFDoDA	6.85	2104450.4	0.716	6.498	
PFTeDA	7.43	2724086.5	A	13C2-PFDoDA	6.85	2104450.4	1.294	11.384	

6.108

.632
1.549
13.871
5.553
9.547

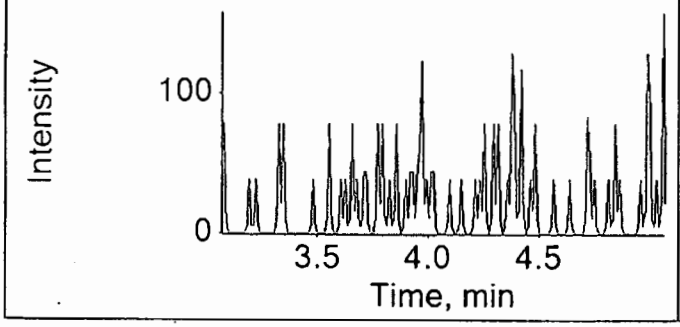
Total Ion Chromatogram

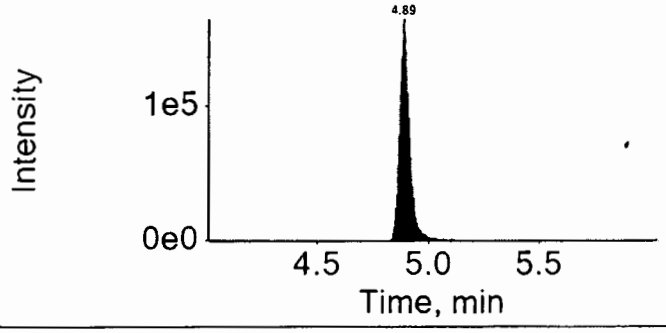
EPA 537 Rev. 1.1 modified 16215005 SG3-MW02-01.5 Grab Soil



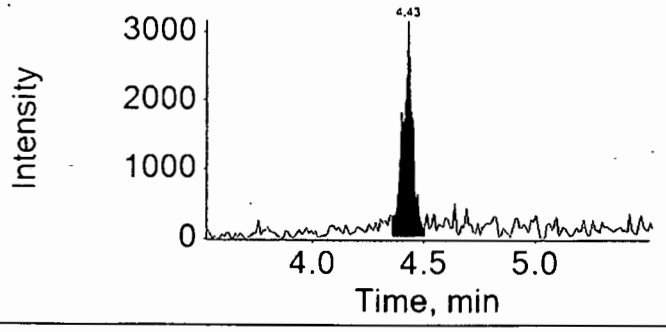
Reextracted outside of HT with IS in limits.

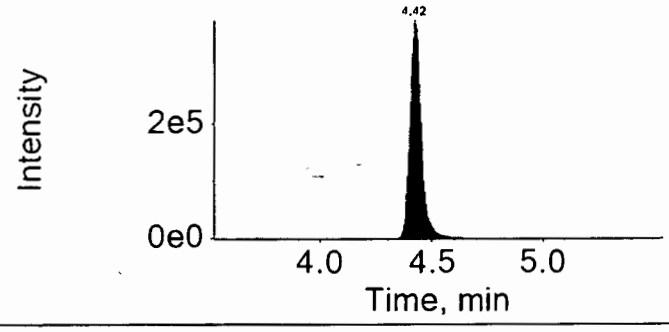
16AUG04-09.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



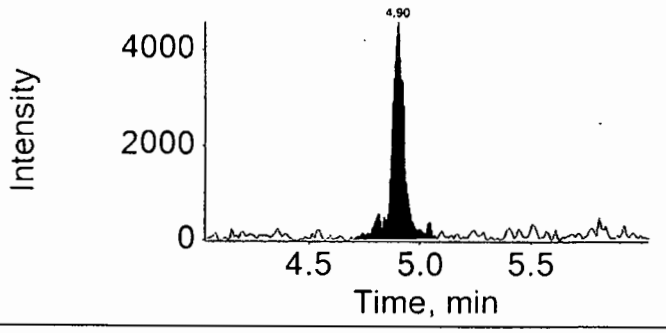


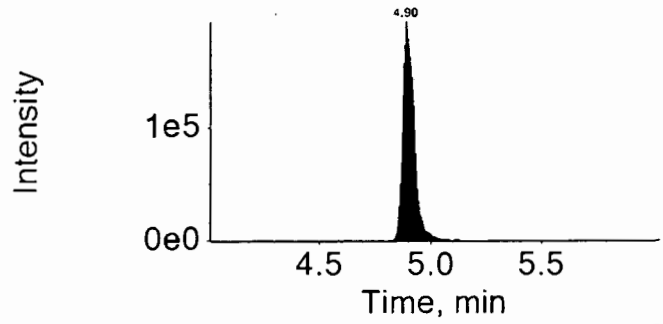
16AUG04-09.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



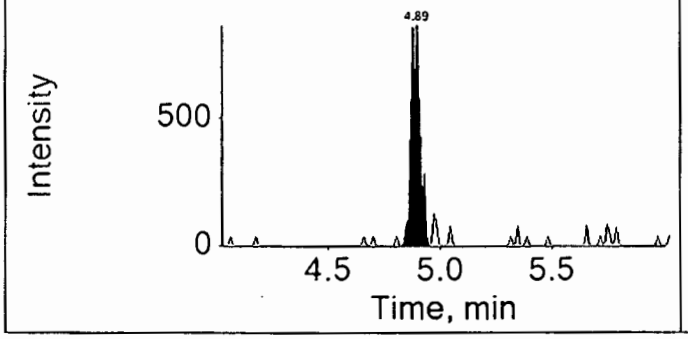


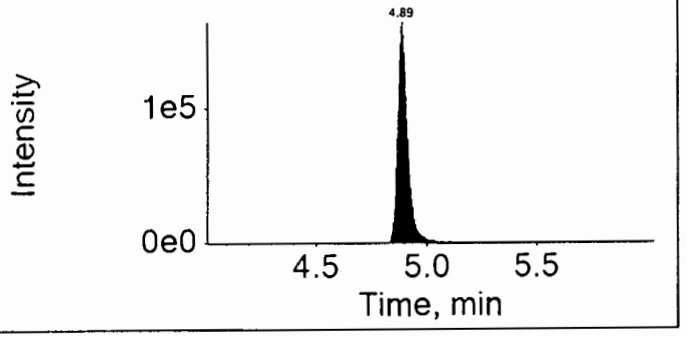
16AUG04-09.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



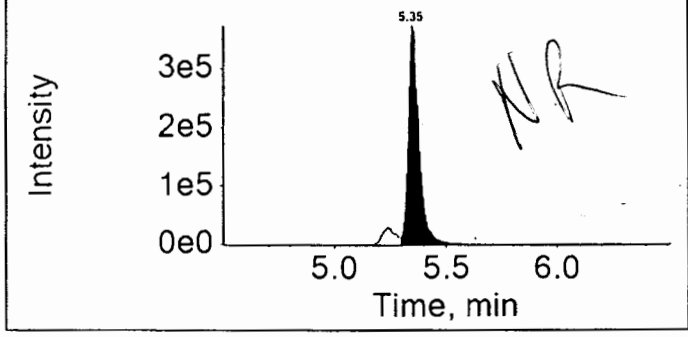


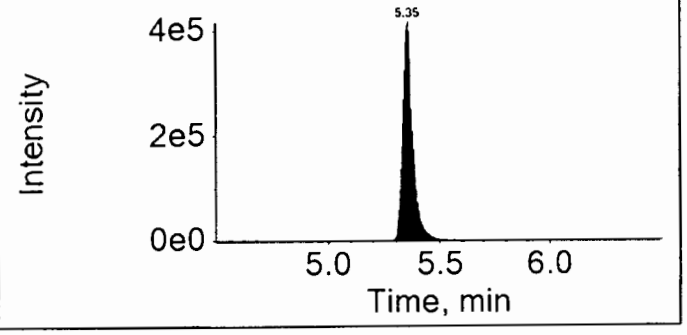
16AUG04-09.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



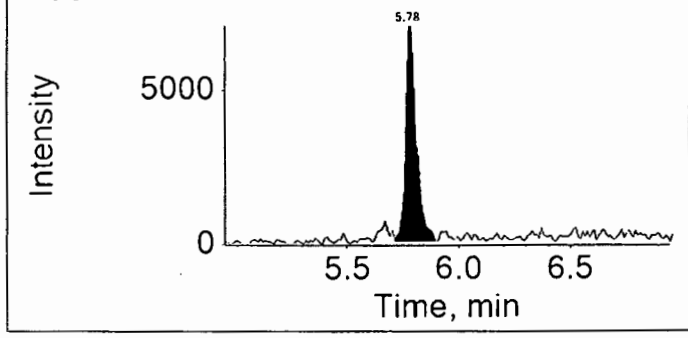


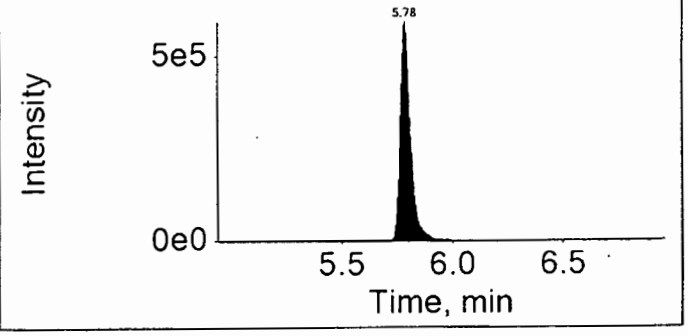
16AUG04-09.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



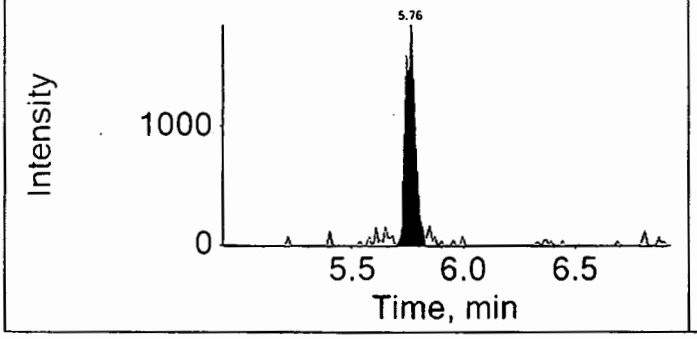


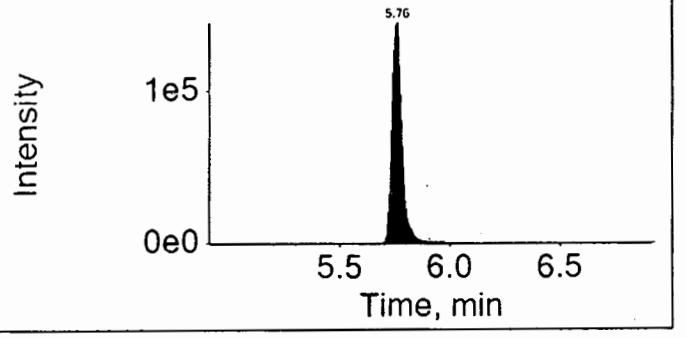
16AUG04-09.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



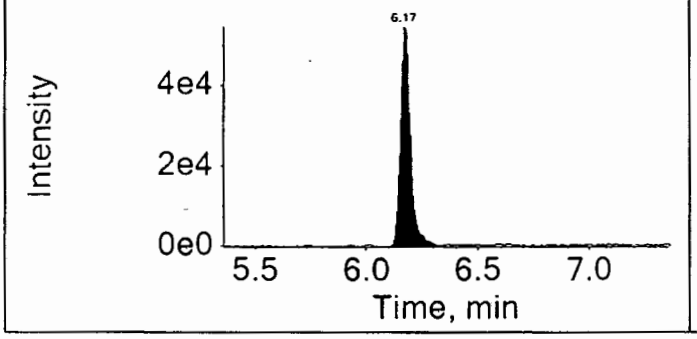


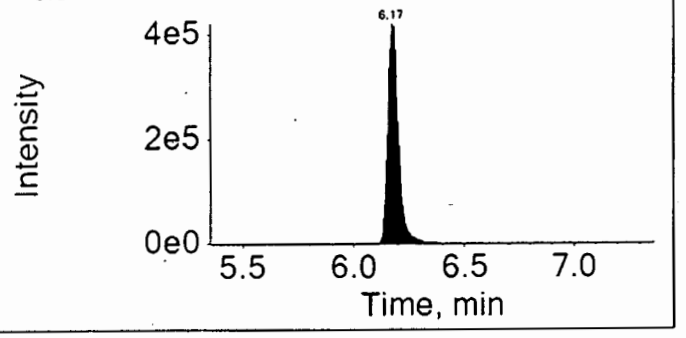
16AUG04-09.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



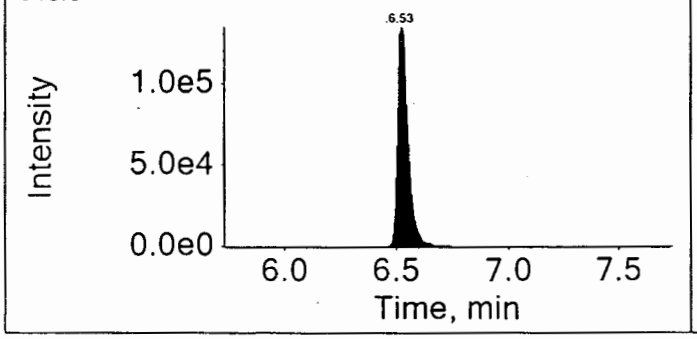


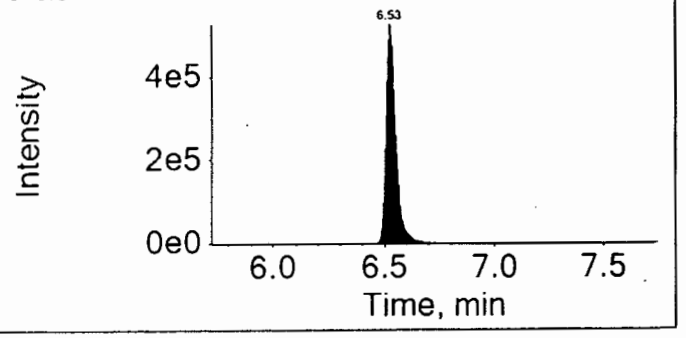
16AUG04-09.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



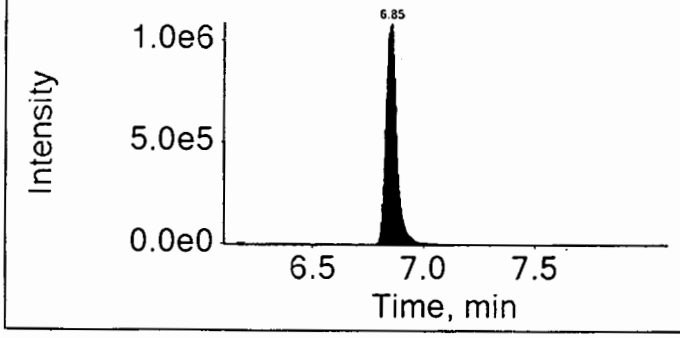


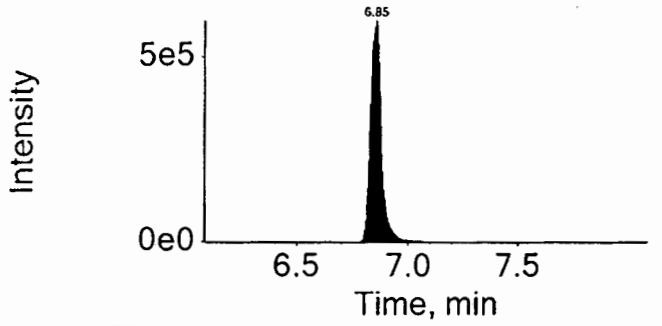
16AUG04-09.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



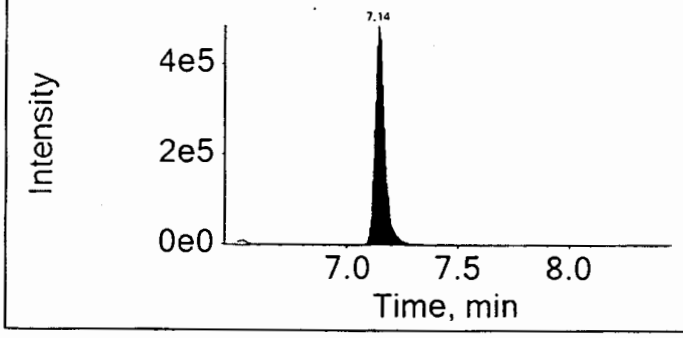


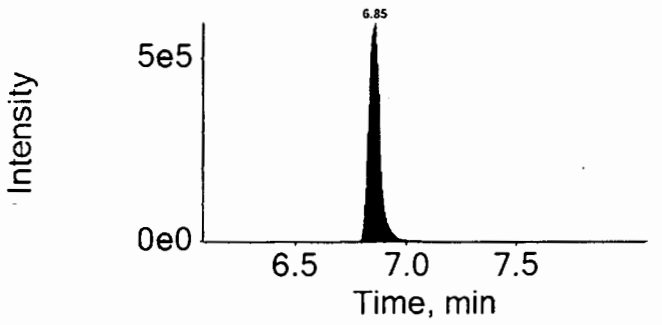
16AUG04-09.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



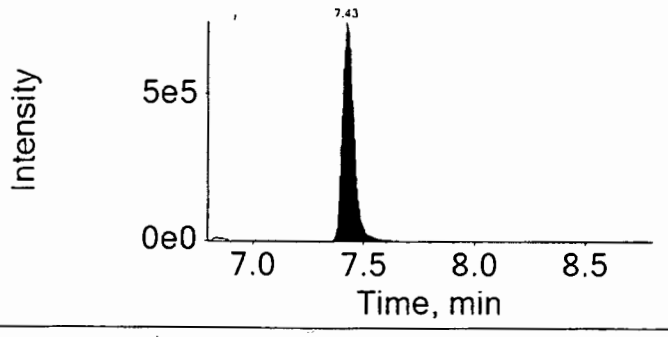


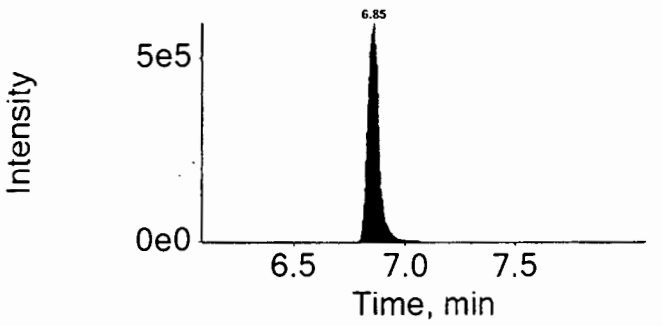
16AUG04-09.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG04-09.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:11:00 PM

Sample Name:	8432144RE			**Data File:**		16AUG04-09.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW02-01.5 Grab Soil			**Acquis Date:**		2016-08-04T15:45:18
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	19			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16215005
				ICAL Name:		16AUG01
Batch Number:	16215005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.35000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

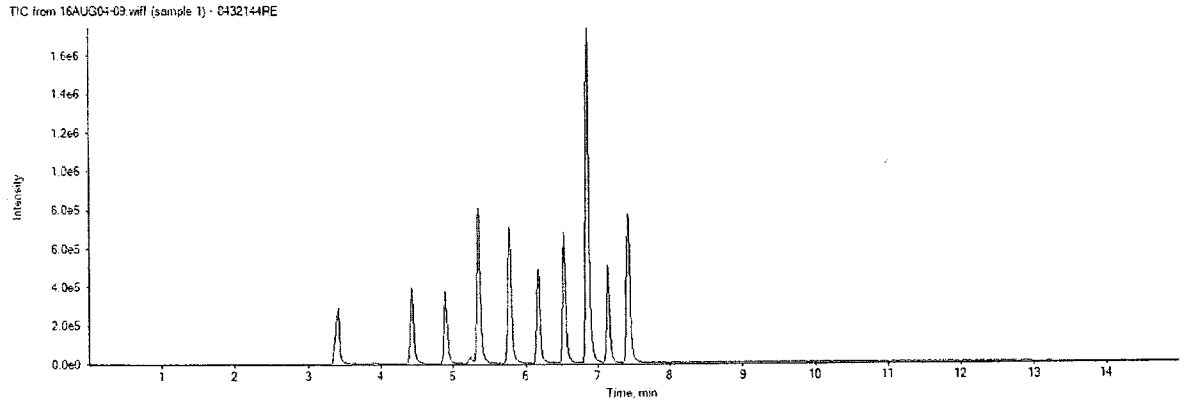
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.89	500320.6	N/A	N/A
PFHxA	4.43	1.000	9566.0	M	13C2-PFHxA	4.42	1356636.4	0.007	0.122
PFHpA	4.90	1.000	18943.6	A	13C4-PFHpA	4.90	700991.4	0.027	0.182
PFHxS	4.89	1.000	2564.2	M	18O2-PFHxS	4.89	500320.6	0.005	0.041
PFOA	5.35	1.000	1379036.2	M	13C4-PFOA	5.35	1307506.2	1.055	8.398
PFNA	5.78	1.000	24382.2	M	13C5-PFNA	5.78	1969967.2	0.012	0.102
PFOS	5.76	1.000	5693.3	M	13C4-PFOS	5.76	477017.1	0.012	0.097
PFDA	6.17	1.000	172149.5	A	13C2-PFDA	6.17	1418278.5	0.121	0.855
PFUndA	6.53	1.000	459373.3	A	13C2-PFUnDA	6.53	1631952.5	0.281	2.348
PFDoDA	6.85	1.000	3891980.9	A	13C2-PFDoDA	6.85	2104450.4	1.849	17.729
PFTrDA	7.14	1.040	1507583.9	A	13C2-PFDoDA	6.85	2104450.4	0.716	6.498
PFTeDA	7.43	1.080	2724086.5	A	13C2-PFDoDA	6.85	2104450.4	1.294	11.384

Rev

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW02-01.5 Grab Soil



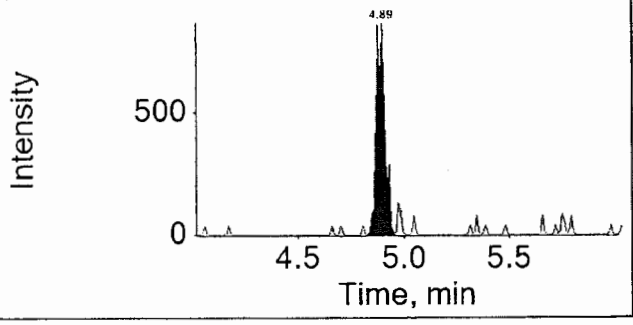
APPROVED
By MCD at 3:33 pm, 5/23/17

REVIEWED
By ucmr at 2:19 pm, 5/27/17

16AUG04-09.wiff

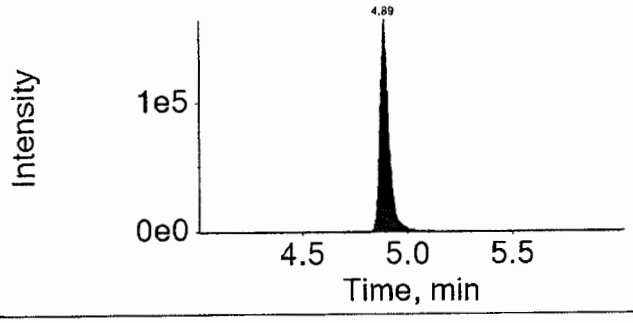
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

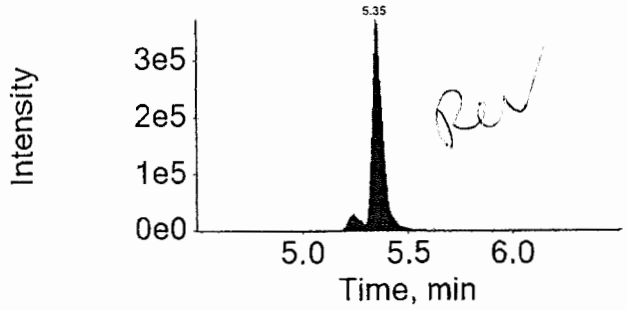
403.0 / 103.0



16AUG04-09.wiff

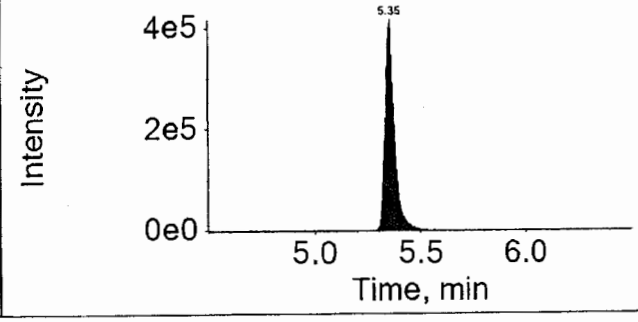
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

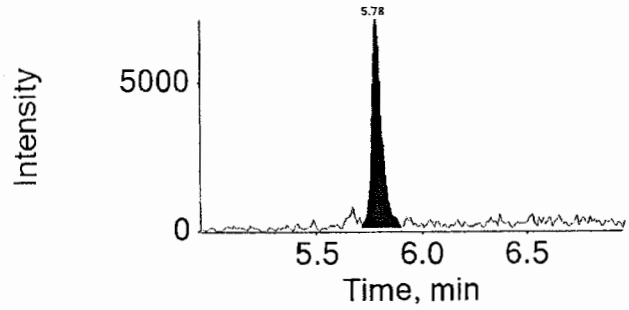
417.0 / 372.0



16AUG04-09.wiff

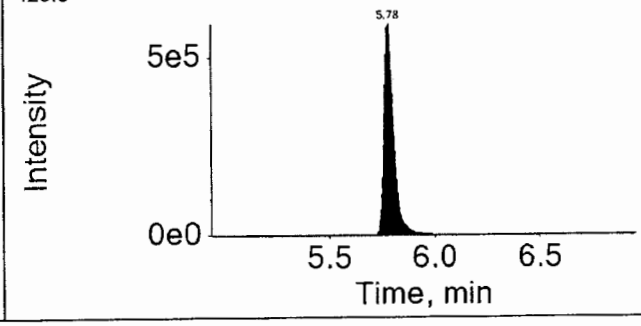
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:33 pm, 5/23/17

REVIEWED
By ucmr at 2:19 pm, 5/27/17

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SG3-MW04-08.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8432145
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 13:45 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL

SG-46 SDG#: SGP94-28

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.87	U	0.87	2.0	1
14027	Perfluorooctanoic acid	335-67-1	7.0		0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.74	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	1,480		363	1,090	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	19.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 11:33	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16190049531A	07/08/2016 18:59	James S Mathiot	1

*=This limit was used in the evaluation of the final result

Sample Name:	8432145	**Data File:**		16JUL29-11.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW04-08.0 Grab Soil	**Acquis Date:**		7/29/2016 11:33:57 AM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	36	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.180	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

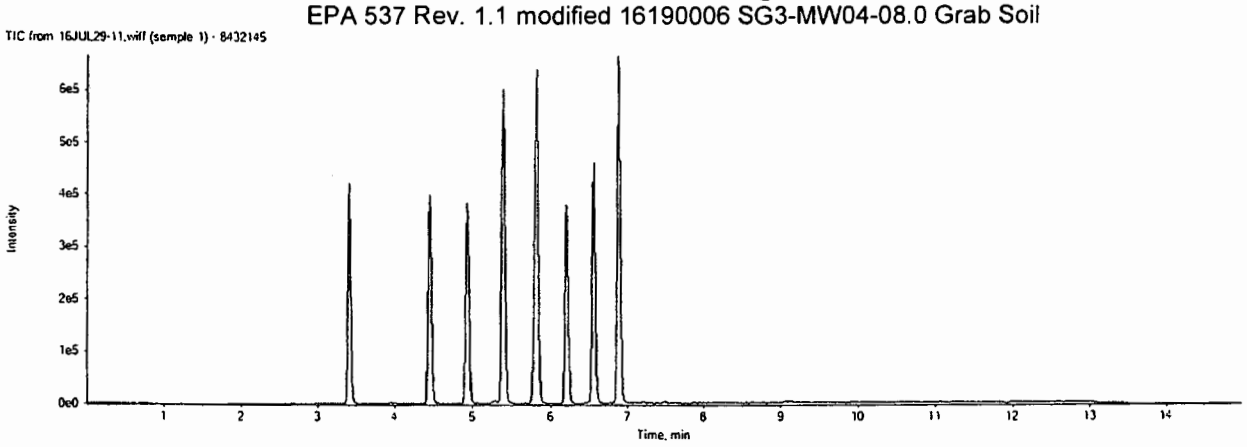
Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.01	1503.8	18O2-PFHxS	4.92	360799.5	0.004	0.028	
PFHxA	4.45	3897.9	13C2-PFHxA	4.44	1152007.3	0.003	0.063	
PFHpA	4.93	3987.2	13C4-PFHpA	4.93	776131.4	0.005	0.036	
PFHxS	4.92	3441.4	18O2-PFHxS	4.92	360799.5	0.010	0.078	
PFOA	5.39	771619.2	13C4-PFOA	5.39	1049536.1	0.735	5.658	
PFNA	5.82	3957.8	13C5-PFNA	5.82	1595695.0	0.002	0.021	
PFOS	5.79	1502.6	13C4-PFOS	5.79	347979.1	0.004	0.035	
PFDA	6.20	3298.0	13C2-PFDA	6.20	1082876.8	0.003	0.022	
PFUndA	6.56	6535.2	13C2-PFUnDA	6.56	1309845.5	0.005	0.043	
PFDoDA	6.89	5047.2	13C2-PFDoDA	6.88	1775446.0	0.003	0.032	
PFTrDA	7.20	6632.4	13C2-PFDoDA	6.88	1775446.0	0.004	0.034	
PFTeDA	7.50	7822.0	13C2-PFDoDA	6.88	1775446.0	0.004	0.037	

ons

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW04-08.0 Grab Soil



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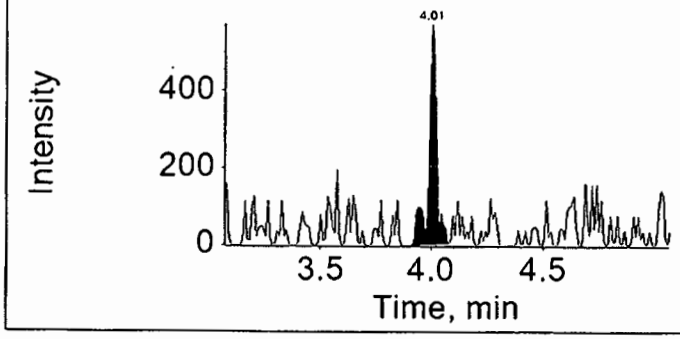
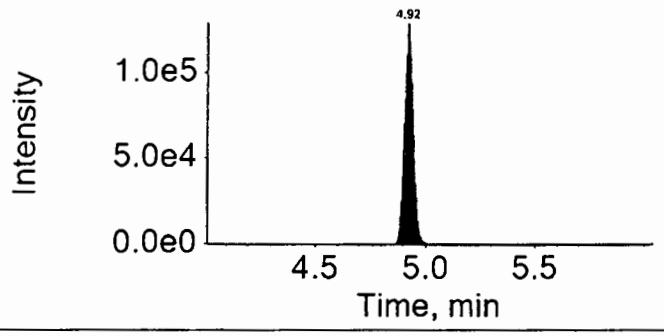
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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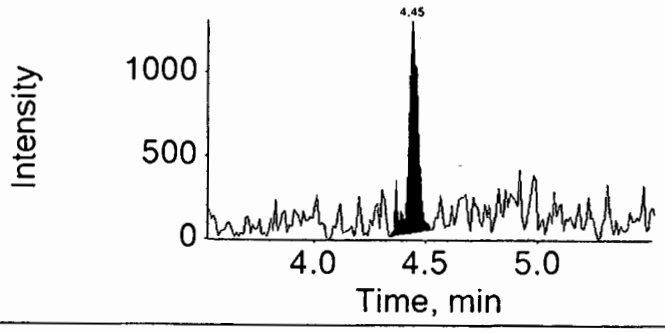
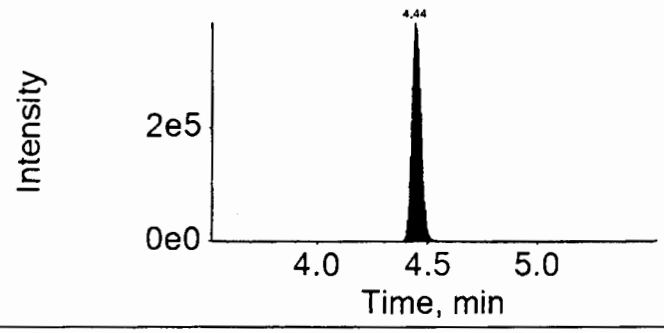
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





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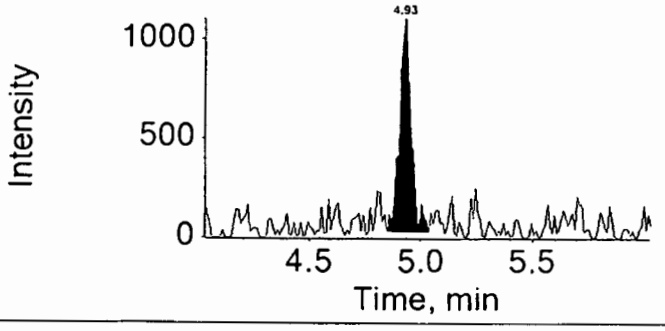
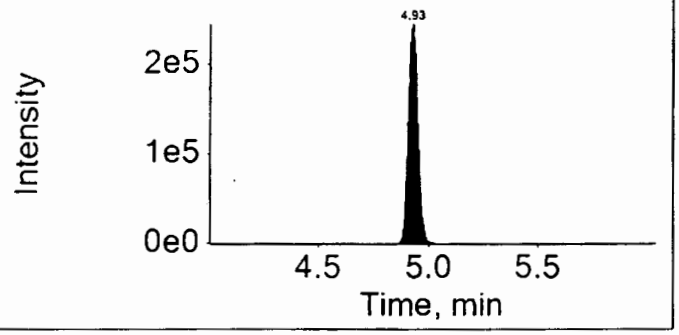
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

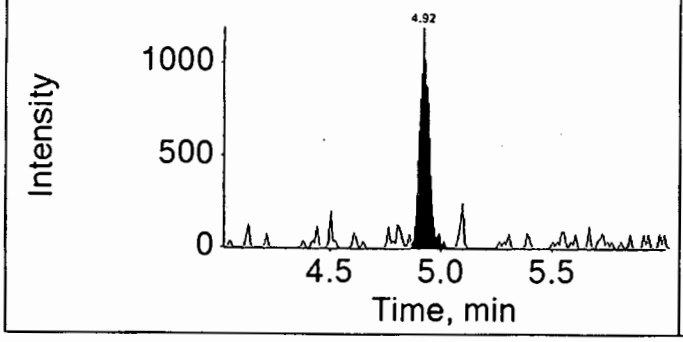




16JUL29-11.wiff

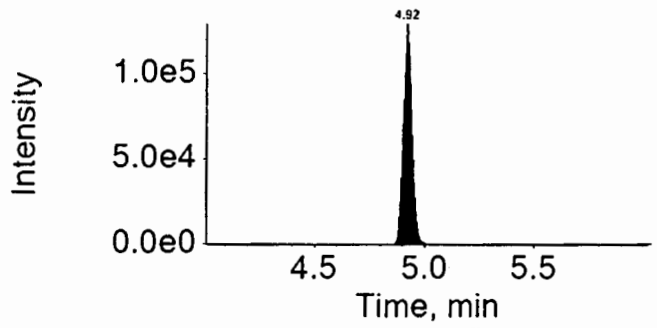
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

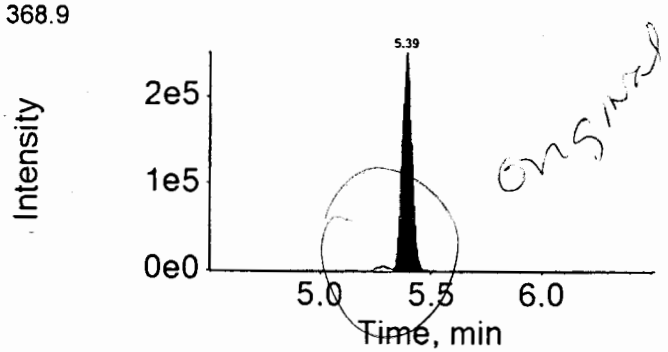
403.0 / 103.0



16JUL29-11.wiff

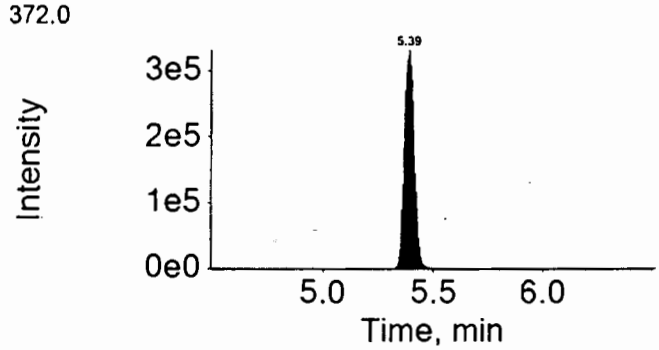
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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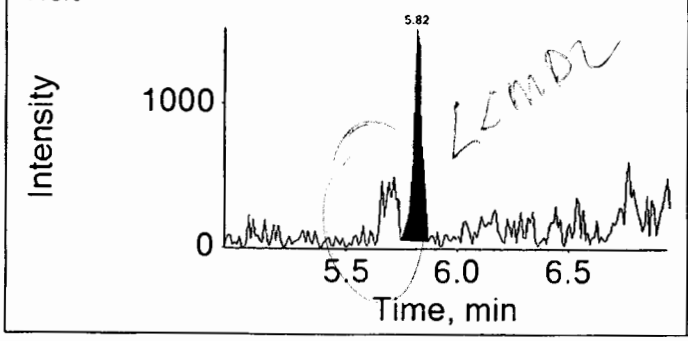
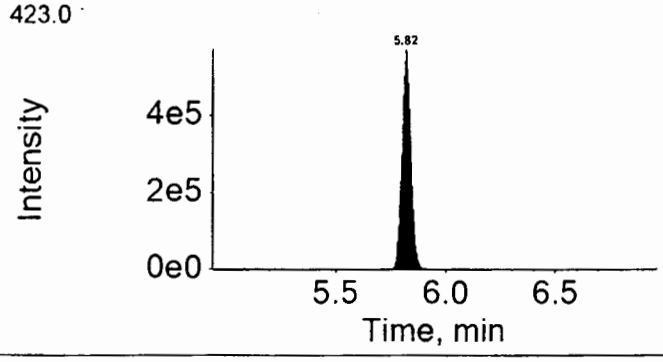
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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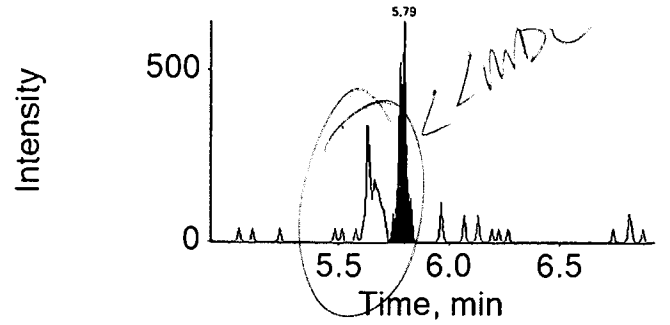
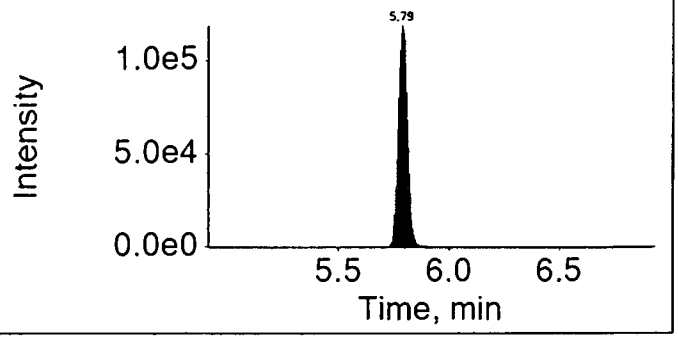
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0





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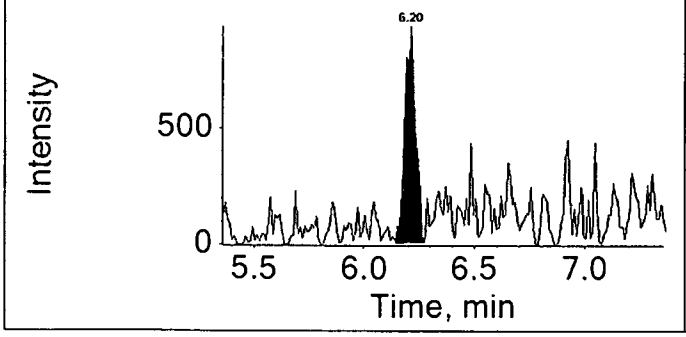
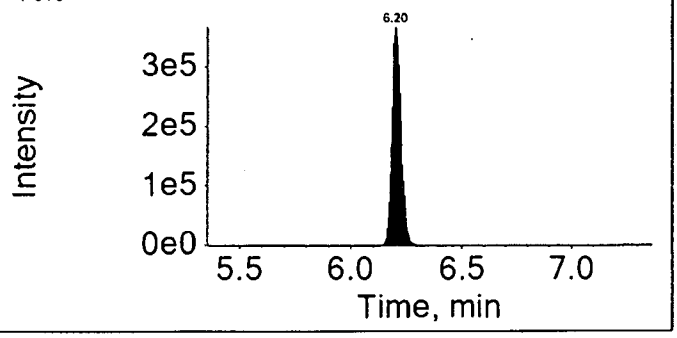
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





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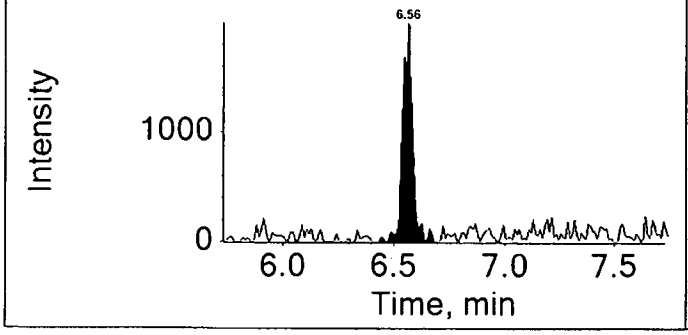
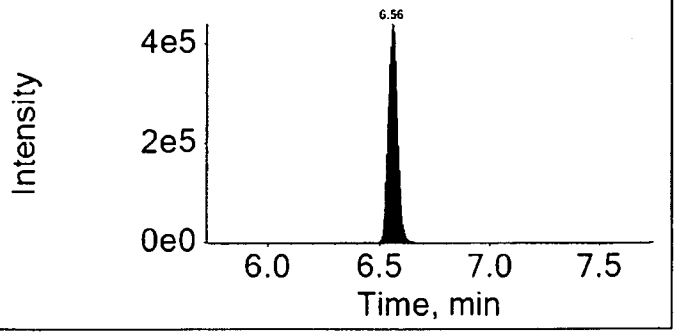
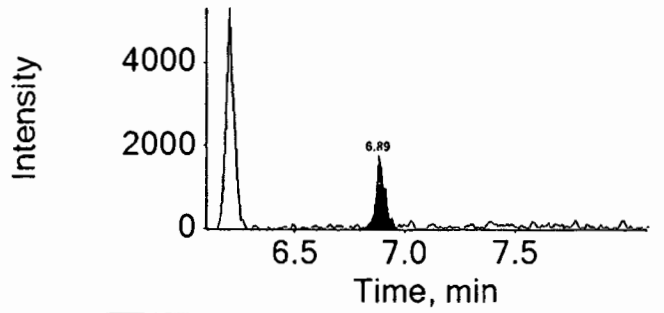
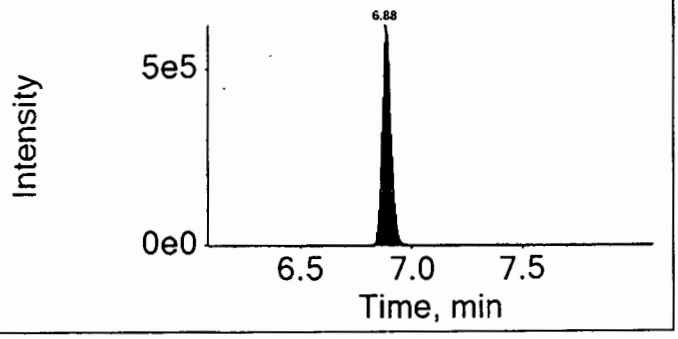
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



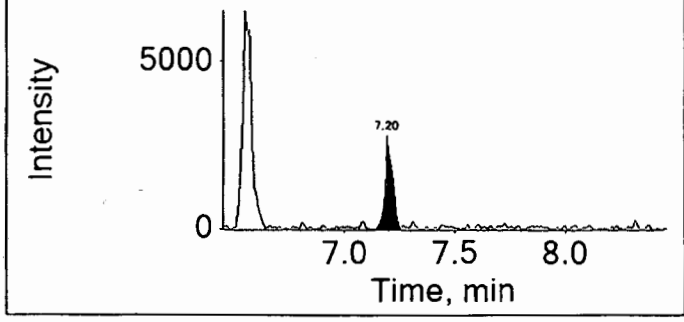


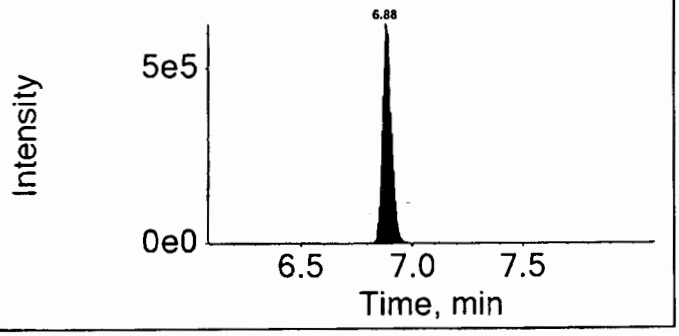
16JUL29-11.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



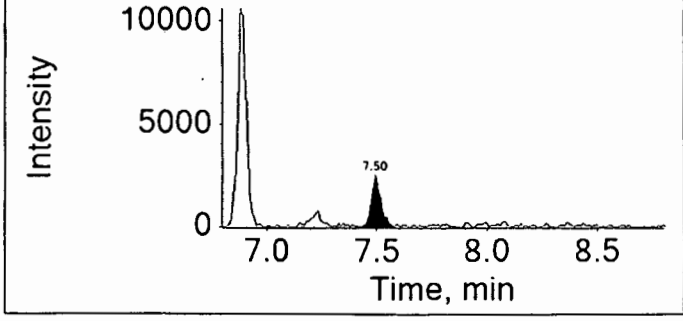


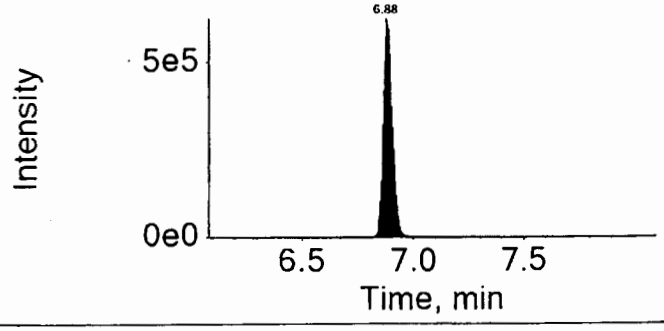
16JUL29-11.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL29-11.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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Analysis Report

REVISED

Sample Description: SG3-MW04-08.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8432145
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 13:45 by JD

Submitted: 06/17/2016 09:40
Reported: 05/30/2017 08:38

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG-46 SDG#: SGP94-28

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.95	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	**Perfluorooctanoic acid**	335-67-1	1.2		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.95	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	1,480		363	1,090	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	19.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 11:33	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 5/23/2017 2:59:00 PM

Sample Name:	8432145			**Data File:**		16JUL29-11.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW04-08.0 Grab Soil			**Acquis Date:**		2016-07-29T11:33:57
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	36			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16190006
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.180			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

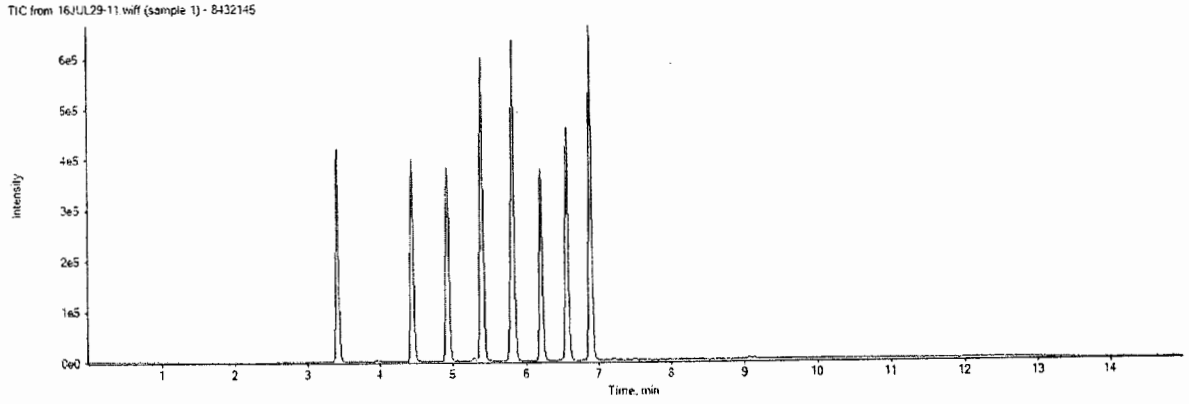
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	4.01	0.810	1503.8	A	18O2-PFHxS	4.92	360799.5	0.004	0.028
PFHxA	4.45	1.000	3897.9	A	13C2-PFHxA	4.44	1152007.3	0.003	0.063
PFHpA	4.93	1.000	3987.2	A	13C4-PFHpA	4.93	776131.4	0.005	0.036
PFHxS	4.92	1.000	3441.4	A	18O2-PFHxS	4.92	360799.5	0.010	0.078
PFOA	5.39	1.000	790027.2	M	13C4-PFOA	5.39	1049536.1	0.753	5.793
PFNA	5.82	1.000	3957.8	A	13C5-PFNA	5.82	1595695.0	0.002	0.021
PFOS	5.79	1.000	1502.6	M	13C4-PFOS	5.79	347979.1	0.004	0.035
PFDA	6.20	1.000	3298.0	M	13C2-PFDA	6.20	1082876.8	0.003	0.022
PFUndA	6.56	1.000	6535.2	A	13C2-PFUnDA	6.56	1309845.5	0.005	0.043
PFDoDA	6.89	1.000	5047.2	M	13C2-PFDoDA	6.88	1775446.0	0.003	0.032
PFTrDA	7.20	1.050	6632.4	M	13C2-PFDoDA	6.88	1775446.0	0.004	0.034
PFTeDA	7.50	1.090	7822.0	M	13C2-PFDoDA	6.88	1775446.0	0.004	0.037

RAV

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW04-08.0 Grab Soil



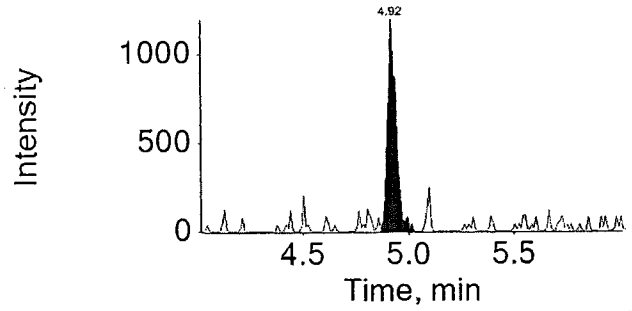
APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 2:16 pm, 5/27/17

16JUL29-11.wiff

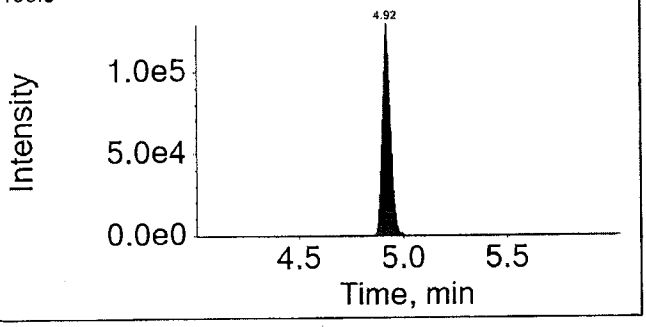
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

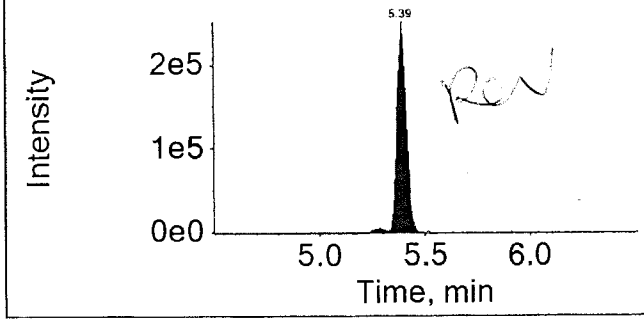
403.0 / 103.0



16JUL29-11.wiff

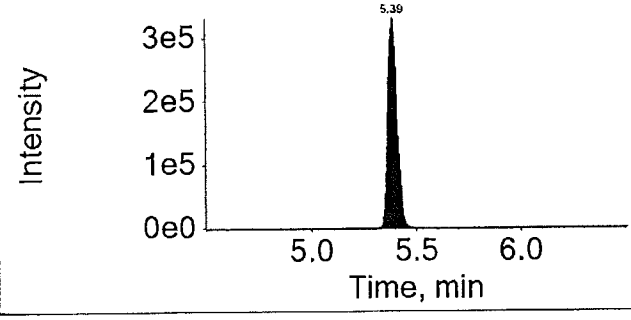
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

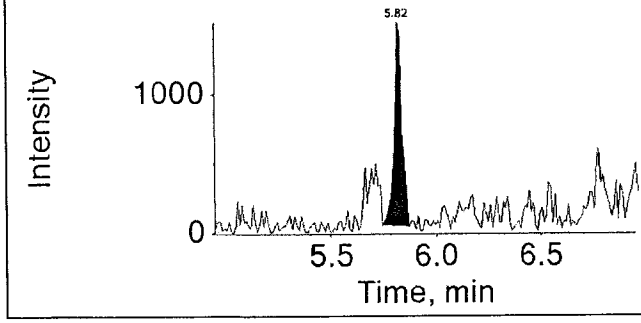
417.0 / 372.0



16JUL29-11.wiff

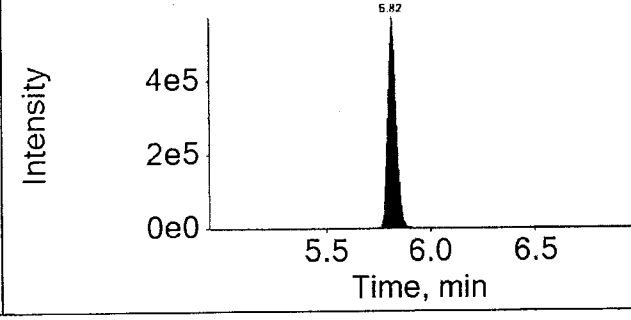
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 2:16 pm, 5/27/17

Sample Name:	8432145RE		**Data File:**		16AUG04-11.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW04-08.0 Grab Soil		**Acquis Date:**		8/4/2016 4:16:45 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	21		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.190		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

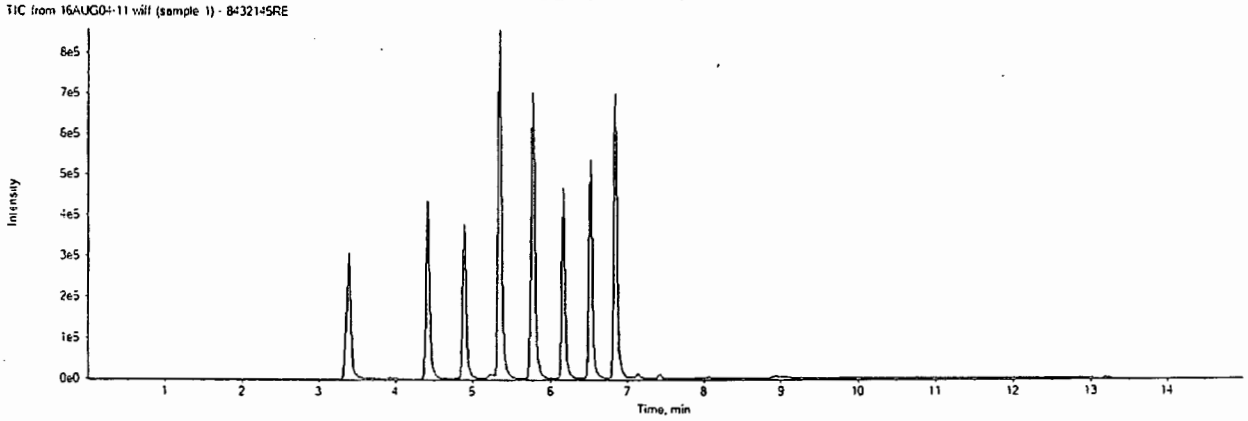
Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	3.99	5003.5	A	18O2-PFHxS	4.88	477868.5	0.010	0.073	
PFHxA	4.42	12702.1	A	13C2-PFHxA	4.42	1391154.5	0.009	0.163	
PFHpA	4.89	15398.3	A	13C4-PFHpA	4.89	719902.7	0.021	0.149	
PFHxS	4.88	10694.8	A	18O2-PFHxS	4.88	477868.5	0.022	0.185	
PFOA	5.35	1417673.5	A	13C4-PFOA	5.35	1304619.5	1.087	8.919	
PFNA	5.78	28191.4	M	13C5-PFNA	5.78	1938880.0	0.015	0.124	
PFOS	5.75	10102.4	A	13C4-PFOS	5.75	477292.2	0.021	0.177	
PFDA	6.16	28704.6	A	13C2-PFDA	6.16	1345004.0	0.021	0.155	
PFUndA	6.52	27392.5	A	13C2-PFUnDA	6.52	1616535.3	0.017	0.146	
PFDoDA	6.84	27768.1	A	13C2-PFDoDA	6.84	2086561.5	0.013	0.132	
PFTrDA	7.14	32490.3	A	13C2-PFDoDA	6.84	2086561.5	0.016	0.146	
PFTeDA	7.42	31767.3	A	13C2-PFDoDA	6.84	2086561.5	0.015	0.138	

5.658

Total Ion Chromatogram

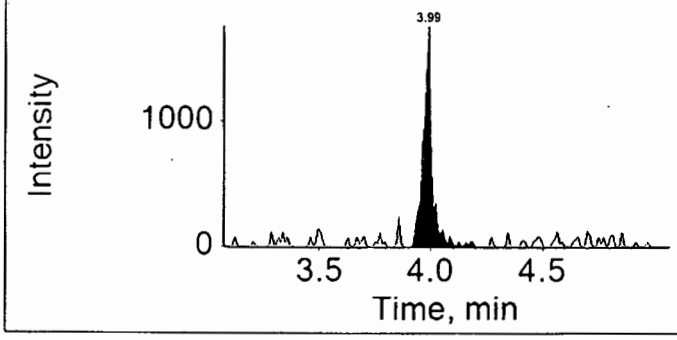
EPA 537 Rev. 1.1 modified 16215005 SG3-MW04-08.0 Grab Soil



16AUG04-11.wiff

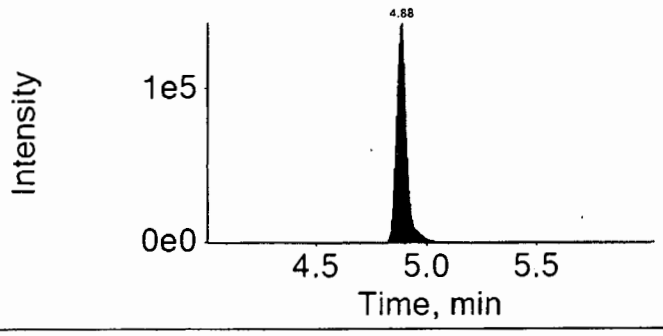
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

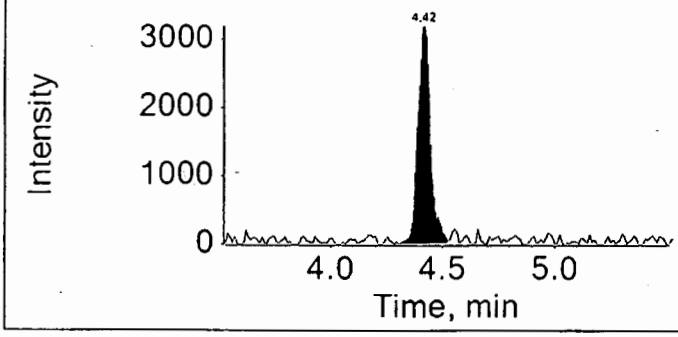
403.0 / 103.0



16AUG04-11.wiff

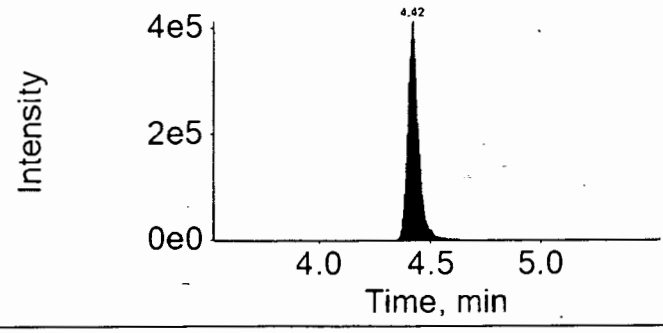
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

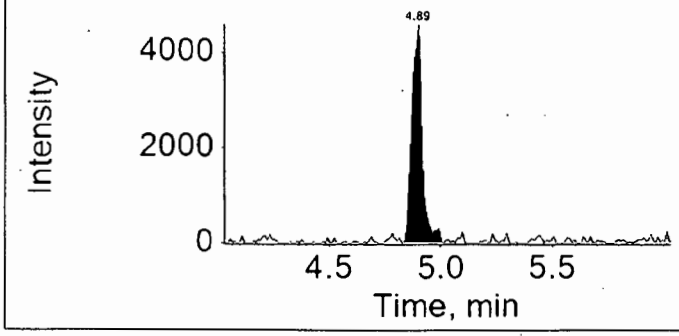
314.9 / 270.0



16AUG04-11.wiff

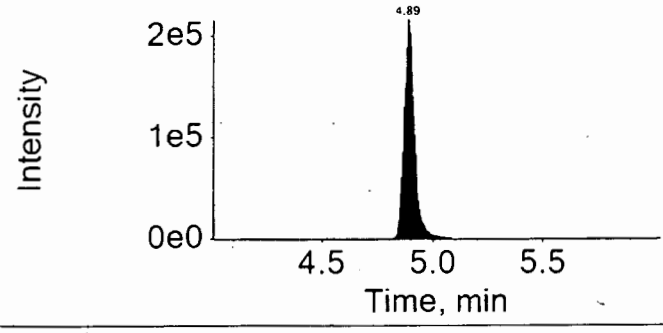
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

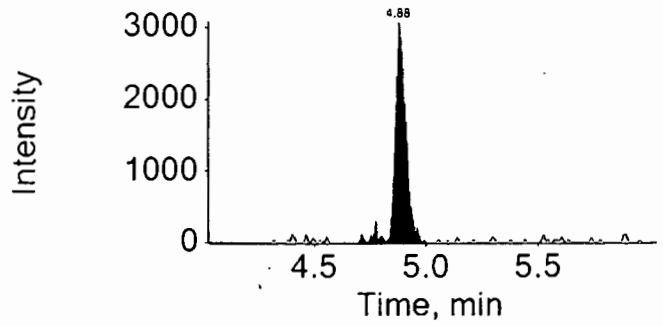
367.0 / 322.0



16AUG04-11.wiff

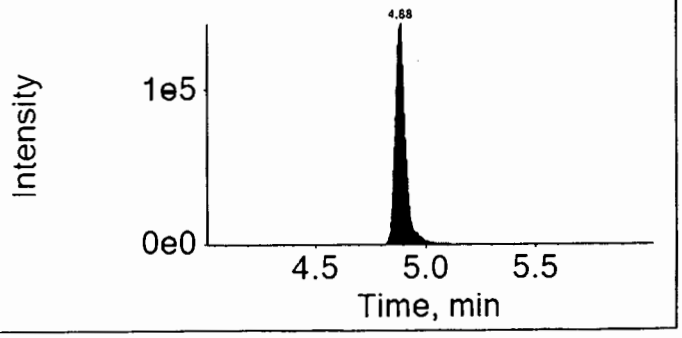
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

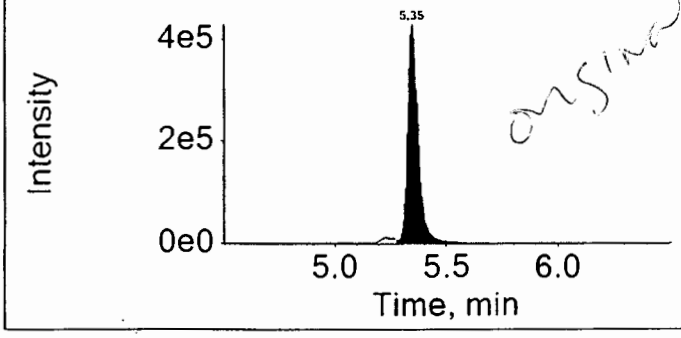
403.0 / 103.0



16AUG04-11.wiff

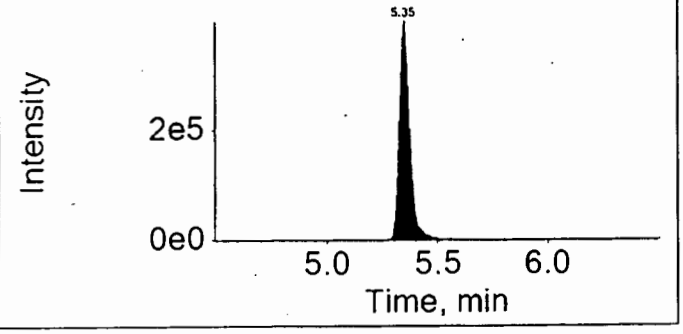
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

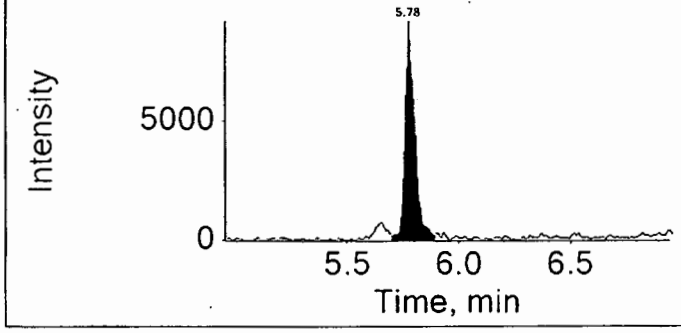
417.0 / 372.0



16AUG04-11.wiff

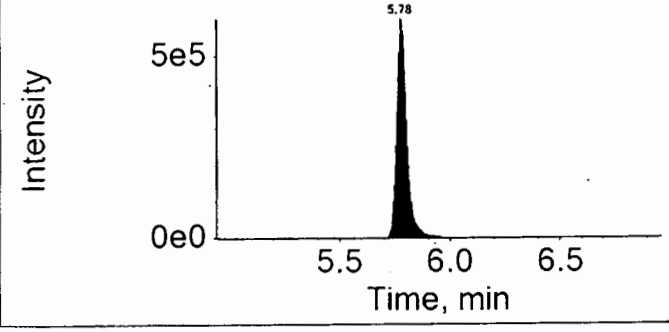
Analyte: PFNA

462.9 / 418.9

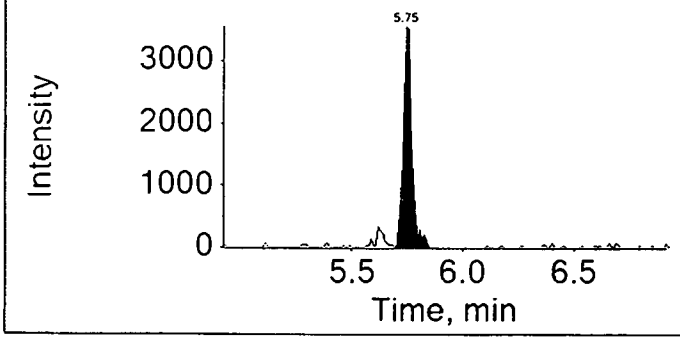


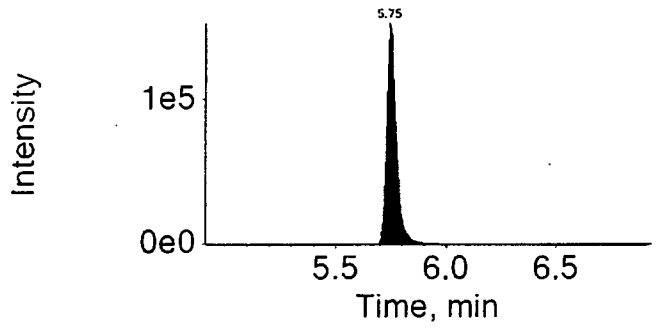
Internal Standard: 13C5-PFNA

468.0 / 423.0

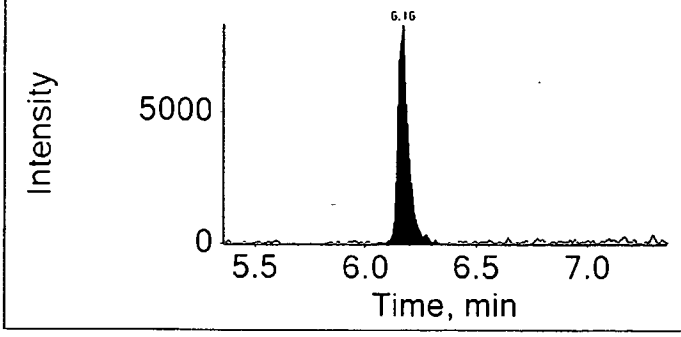


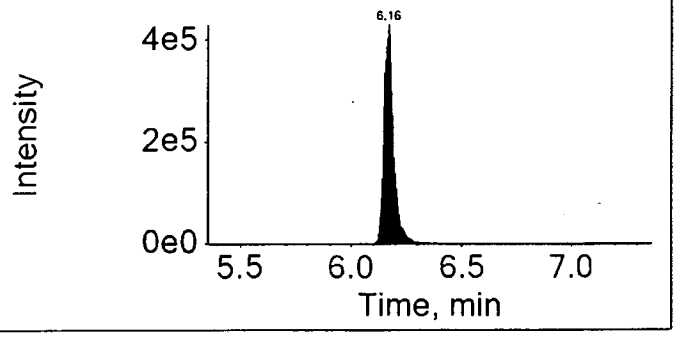
16AUG04-11.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



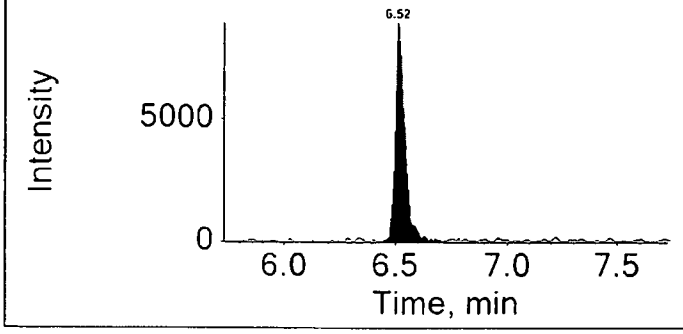


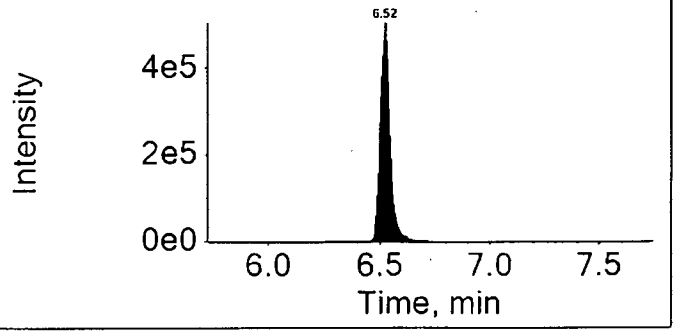
16AUG04-11.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



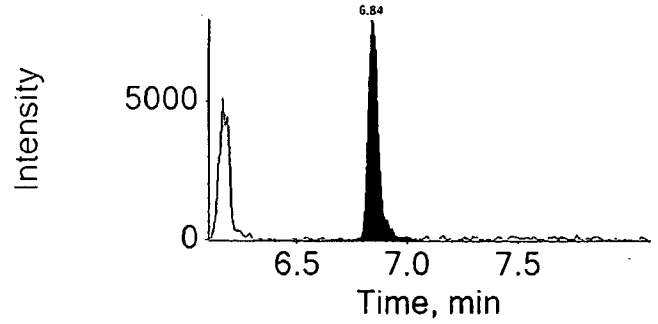


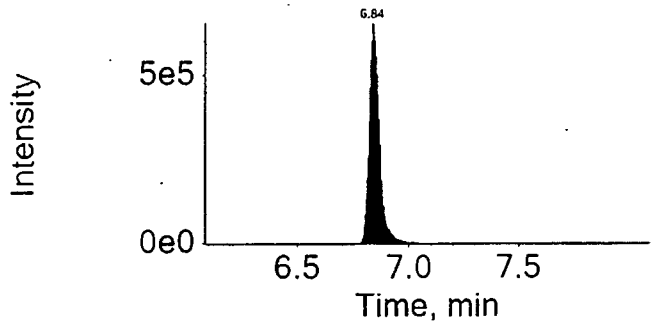
16AUG04-11.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



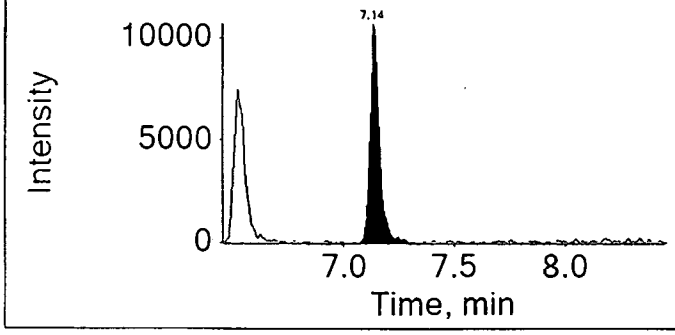


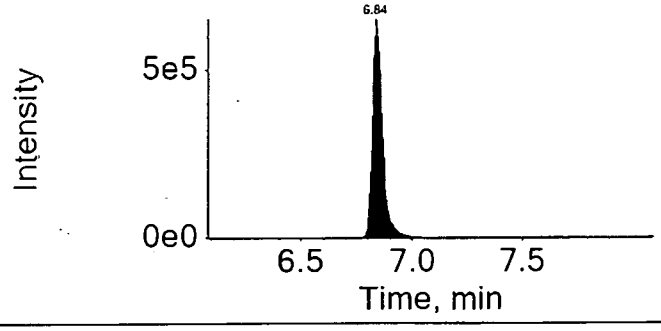
16AUG04-11.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



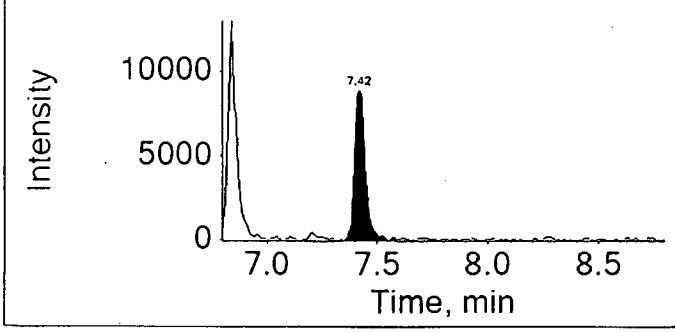


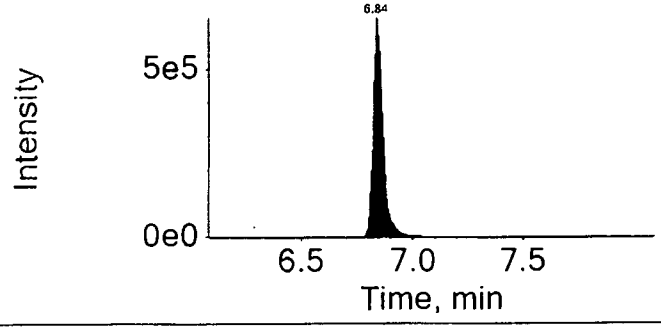
16AUG04-11.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG04-11.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:12:00 PM

Sample Name:	8432145RE			**Data File:**		16AUG04-11.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW04-08.0 Grab Soil			**Acquis Date:**		2016-08-04T16:16:45
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	21			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16215005
				ICAL Name:		16AUG01
Batch Number:	16215005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.19000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

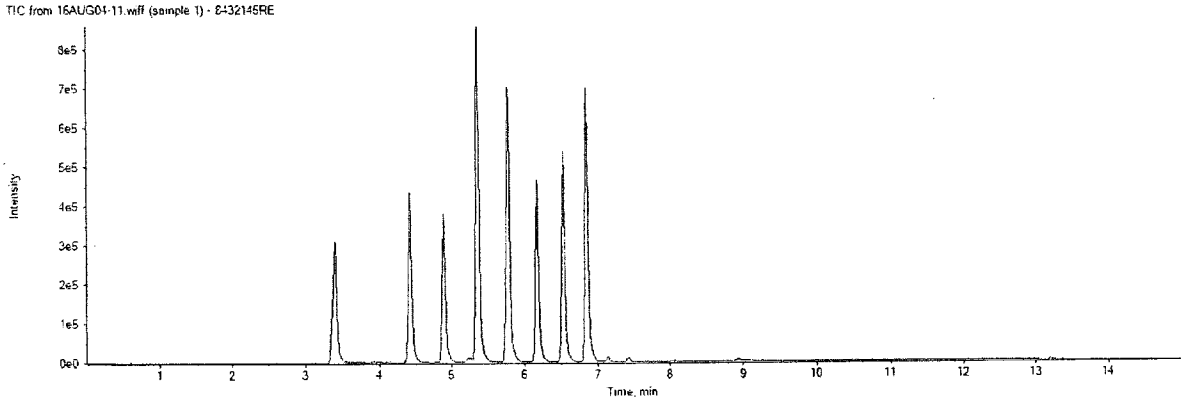
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	3.99	0.820	5003.5	A	18O2-PFHxS	4.88	477868.5	0.010	0.073
PFHxA	4.42	1.000	12702.1	A	13C2-PFHxA	4.42	1391154.5	0.009	0.163
PFHpA	4.89	1.000	15398.3	A	13C4-PFHpA	4.89	719902.7	0.021	0.149
PFHxS	4.88	1.000	10694.8	A	18O2-PFHxS	4.88	477868.5	0.022	0.185
PFOA	5.35	1.000	1460122.1	M	13C4-PFOA	5.35	1304619.5	1.119	9.187
PFNA	5.78	1.000	28191.4	M	13C5-PFNA	5.78	1938880.0	0.015	0.124
PFOS	5.75	1.000	10102.4	A	13C4-PFOS	5.75	477292.2	0.021	0.177
PFDA	6.16	1.000	28704.6	A	13C2-PFDA	6.16	1345004.0	0.021	0.155
PFUndA	6.52	1.000	27392.5	A	13C2-PFUnDA	6.52	1616535.3	0.017	0.146
PFDoDA	6.84	1.000	27768.1	A	13C2-PFDoDA	6.84	2086561.5	0.013	0.132
PFTrDA	7.14	1.040	32490.3	A	13C2-PFDoDA	6.84	2086561.5	0.016	0.146
PFTeDA	7.42	1.080	31767.3	A	13C2-PFDoDA	6.84	2086561.5	0.015	0.138

Rev

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW04-08.0 Grab Soil



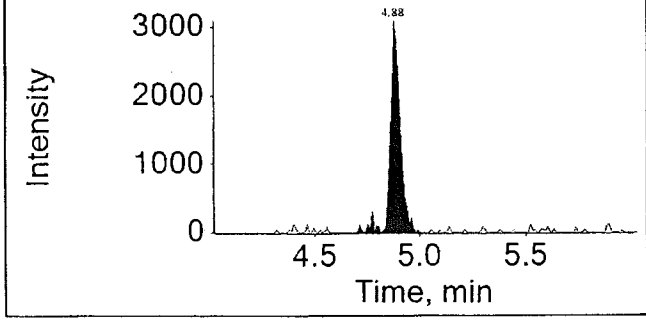
APPROVED
By MCD at 3:33 pm, 5/23/17

REVIEWED
By ucmr at 2:19 pm, 5/27/17

16AUG04-11.wiff

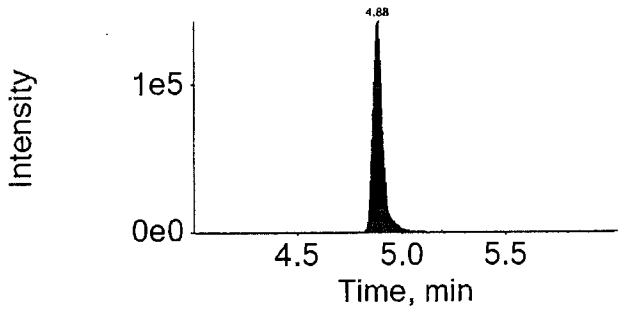
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

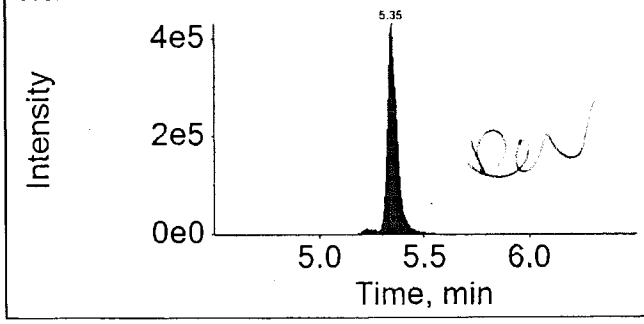
403.0 / 103.0



16AUG04-11.wiff

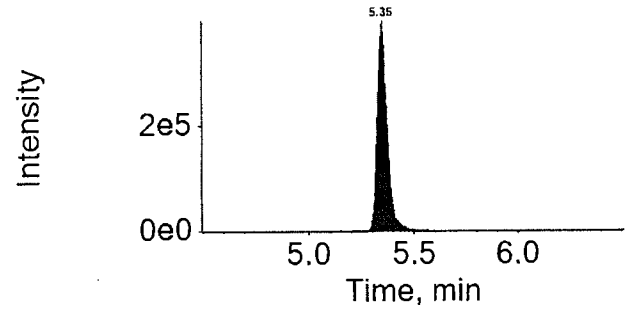
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

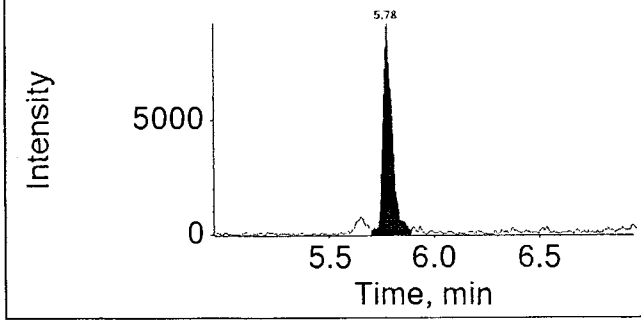
417.0 / 372.0



16AUG04-11.wiff

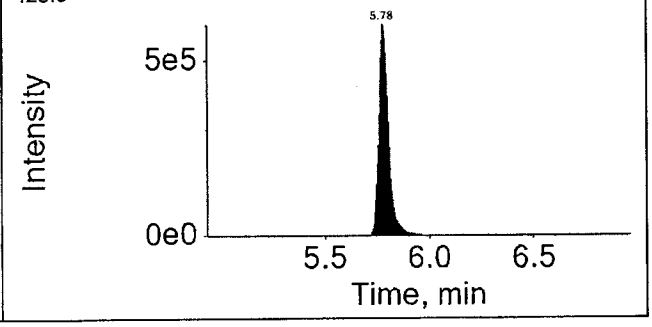
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:33 pm, 5/23/17

REVIEWED
By ucmr at 2:19 pm, 5/27/17

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Analysis Report

Sample Description: SG3-MW04-09.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Collected: 06/16/2016 13:50 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

LL Sample # SW 8432146
LL Group # 1673381
Account # 37191

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL

SG-47 SDG#: SGP94-29

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.56	U	0.56	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.45	1
14027	Perfluorododecanoic acid	307-55-1	0.45	U	0.45	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.56	U	0.56	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.79	U	0.79	1.8	1
14027	Perfluorooctanoic acid	335-67-1	2.7		0.34	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	0.67	U	0.67	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.67	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	4,210		388	1,160	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	11.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 11:49	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16190049531A	07/08/2016 19:07	James S Mathiot	1

*=This limit was used in the evaluation of the final result

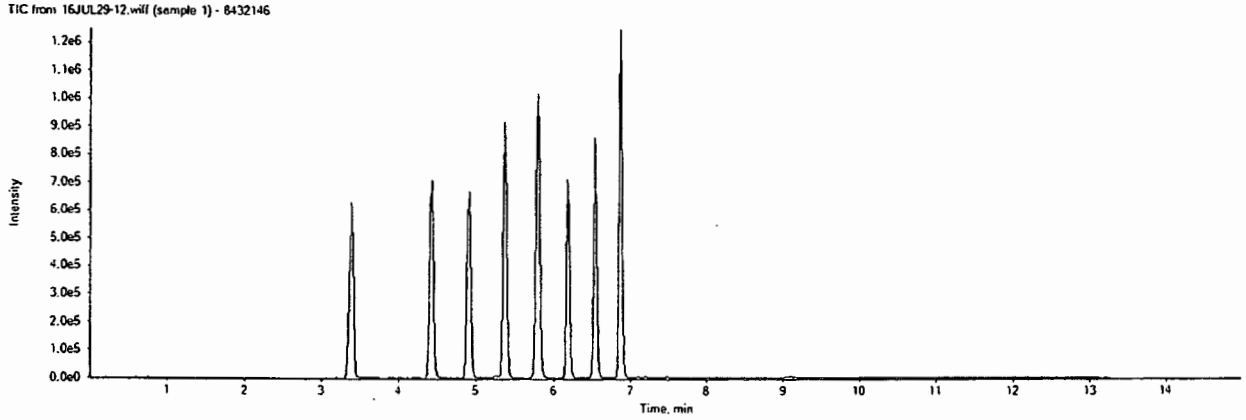
Sample Name:	8432146	**Data File:**		16JUL29-12.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW04-09.5 Grab Soil	**Acquis Date:**		7/29/2016 11:49:39 AM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	37	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.300	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	4.90	794005.9	N/A	N/A	
PFHxA	4.42	5060.8	13C2-PFHxA	4.42	2456304.9	0.002	0.038	
PFHpA	4.90	5969.3	13C4-PFHpA	4.91	1569560.0	0.004	0.026	
PFHxS	4.90	4113.1	18O2-PFHxS	4.90	794005.9	0.005	0.041	
PFOA	5.37	708956.1	13C4-PFOA	5.37	2209889.8	0.321	2.413	→ 2.7
PFNA	5.80	6825.7	13C5-PFNA	5.80	2843307.8	0.002	0.019	
PFOS	5.78	1688.3	13C4-PFOS	5.77	780382.1	0.002	0.017	
PFDA	6.19	4928.3	13C2-PFDA	6.19	2059791.1	0.002	0.017	
PFUndA	6.54	7317.1	13C2-PFUnDA	6.54	2324553.4	0.003	0.027	
PFDoDA	6.87	4670.1	13C2-PFDoDA	6.87	3264566.7	0.001	0.016	
PFTrDA	7.18	7442.1	13C2-PFDoDA	6.87	3264566.7	0.002	0.020	
PFTeDA	7.48	14508.8	13C2-PFDoDA	6.87	3264566.7	0.004	0.037	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW04-09.5 Grab Soil



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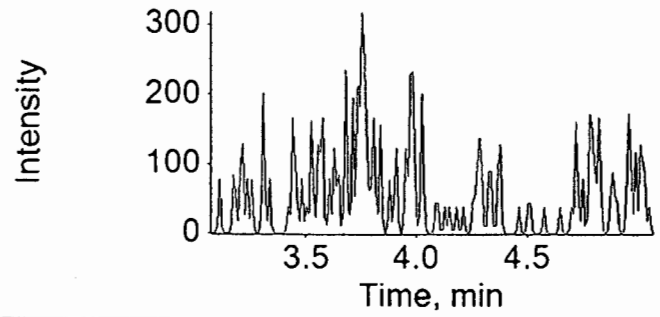
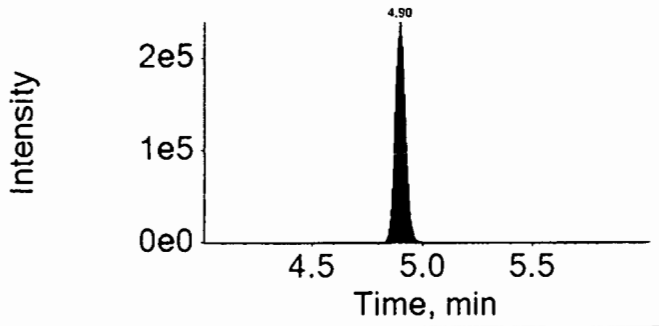
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

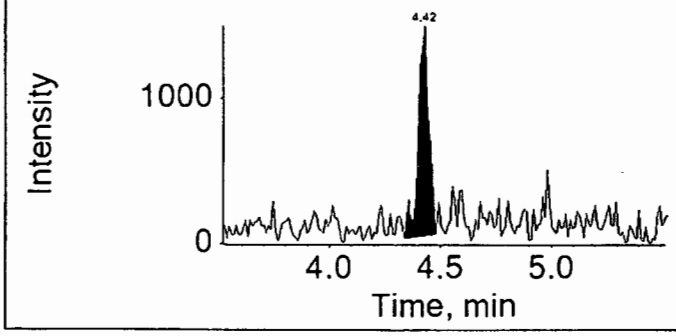
403.0 / 103.0



16JUL29-12.wiff

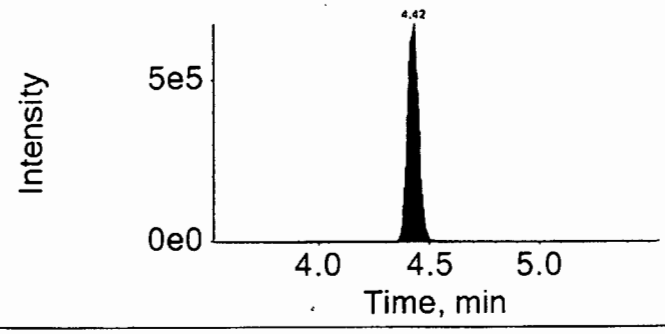
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

314.9 / 270.0



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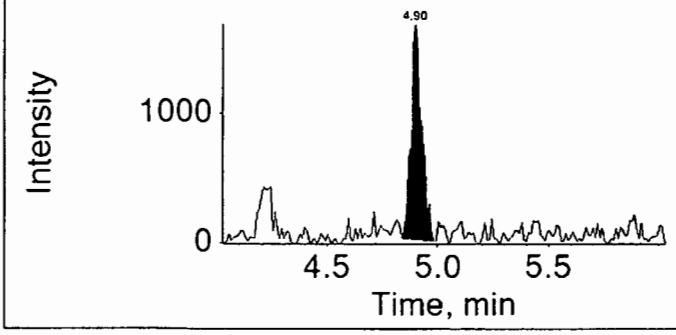
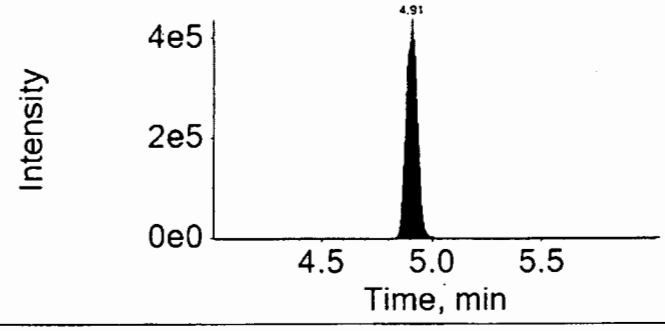
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



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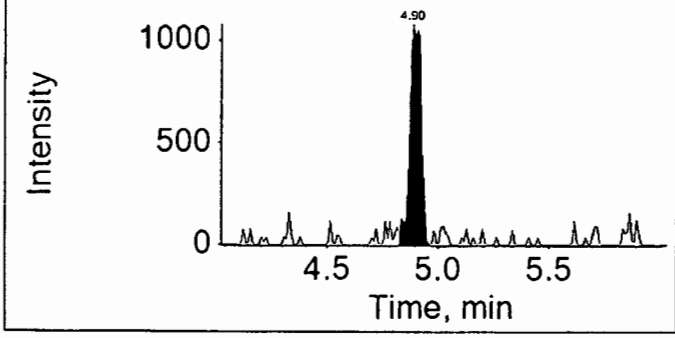
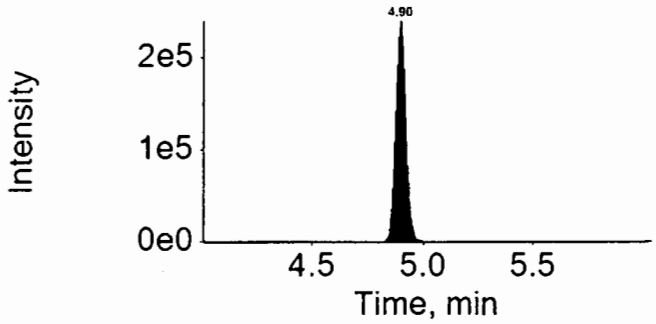
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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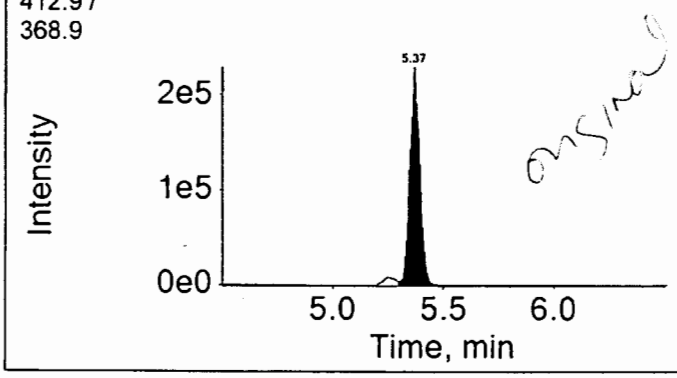
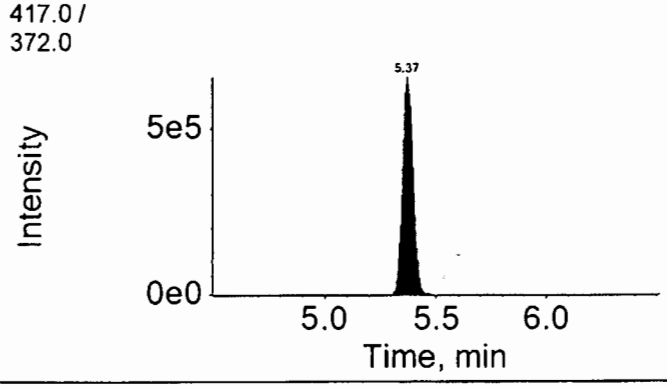
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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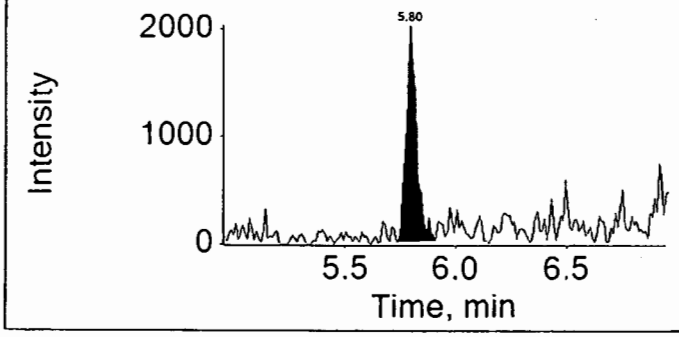
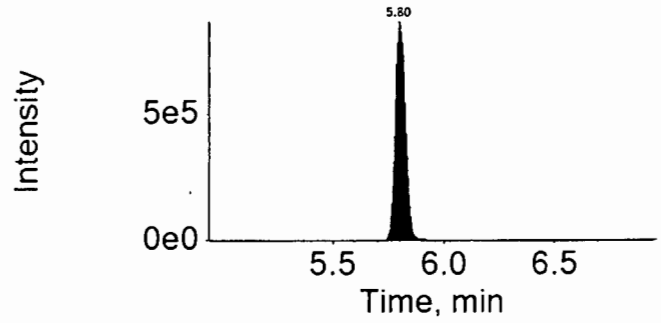
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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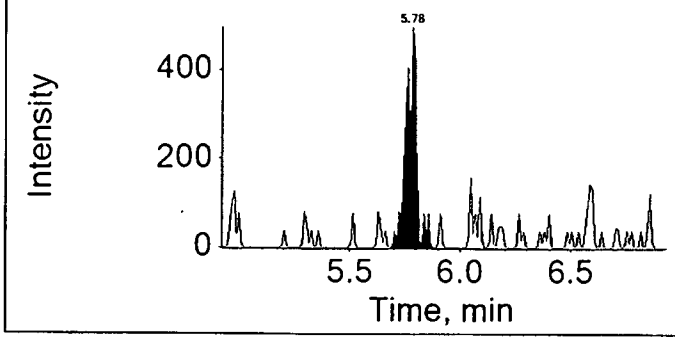
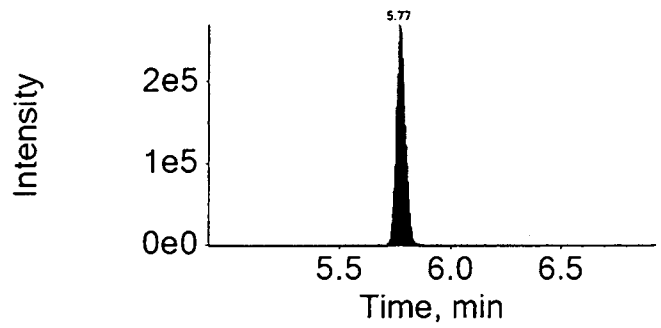
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0





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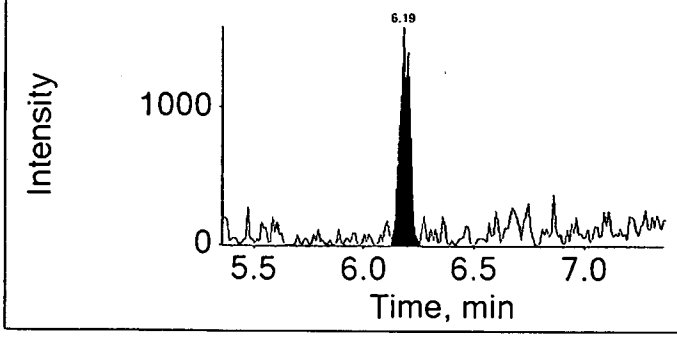
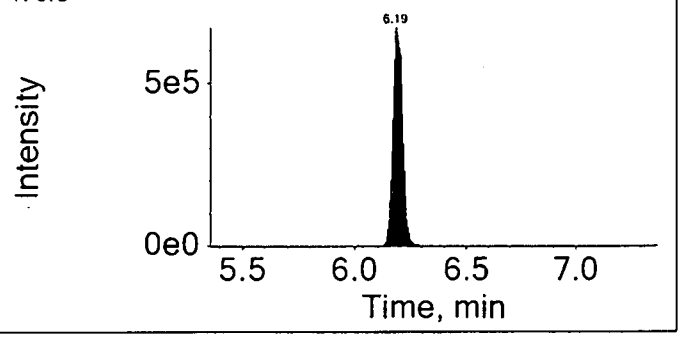
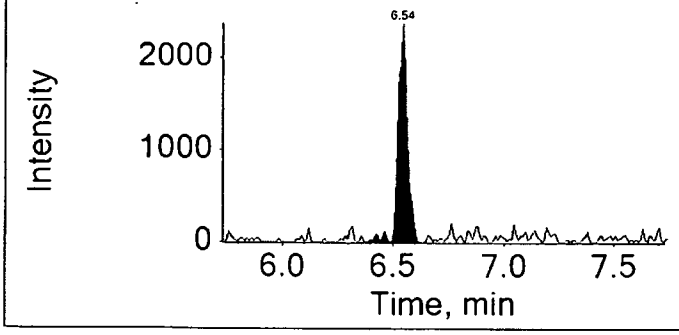
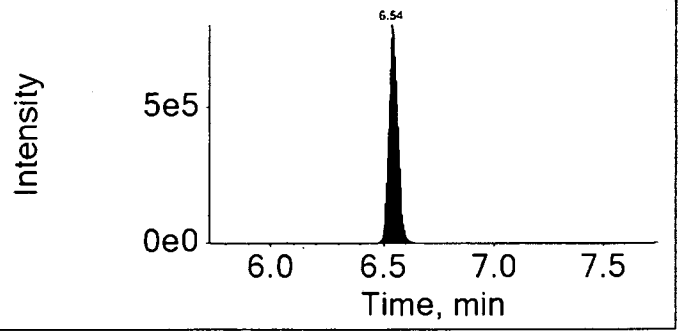
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16JUL29-12.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0





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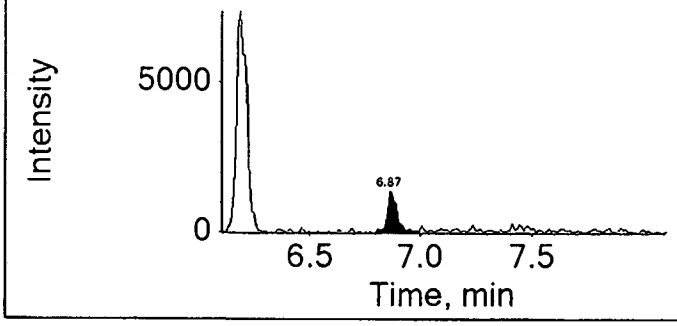
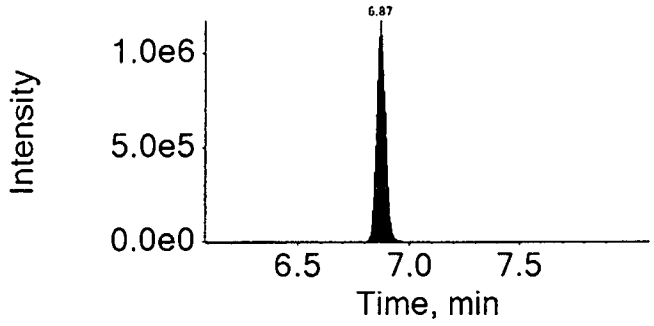
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

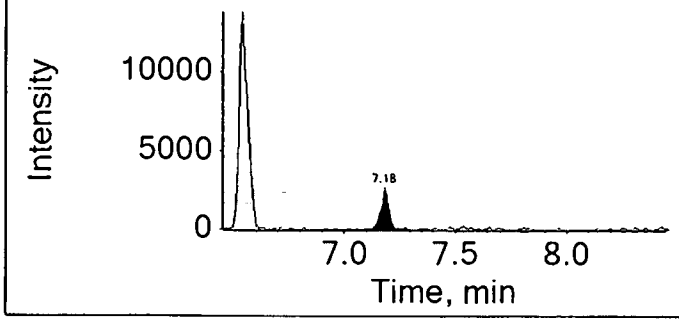
615.0 / 570.0



16JUL29-12.wiff

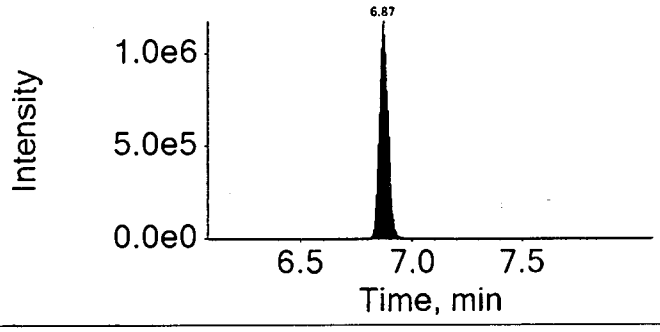
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

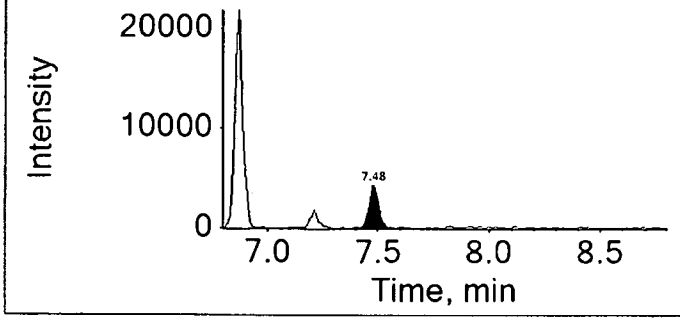
615.0 / 570.0



16JUL29-12.wiff

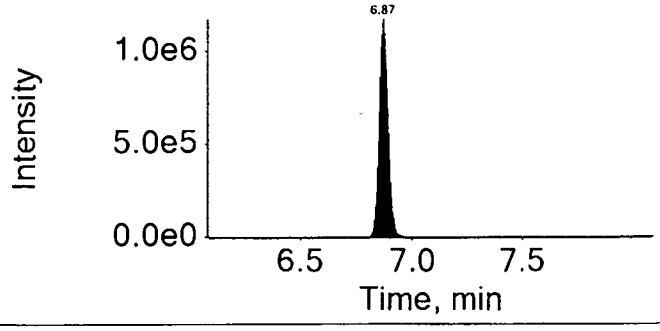
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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Analysis Report

REVISED

Sample Description: SG3-MW04-09.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8432146
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 13:50 by JD

Submitted: 06/17/2016 09:40
Reported: 05/30/2017 08:38

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG-47 SDG#: SGP94-29

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.53	U	0.53	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.42	1
14027	Perfluorododecanoic acid	307-55-1	0.42	U	0.42	0.85	1
14027	Perfluoroheptanoic acid	375-85-9	0.32	U	0.32	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.53	U	0.53	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.21	U	0.21	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.21	U	0.21	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.74	U	0.74	1.7	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.8**		0.32	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.32	U	0.32	0.85	1
14027	Perfluorotridecanoic acid	72629-94-8	0.64	U	0.64	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.32	U	0.32	0.64	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	**4,210**		388	1,160	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**11.1**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 11:49	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 5/23/2017 2:59:00 PM

Sample Name:	8432146			**Data File:**		16JUL29-12.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW04-09.5 Grab Soil			**Acquis Date:**		2016-07-29T11:49:39
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	37			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16190006
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.300			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

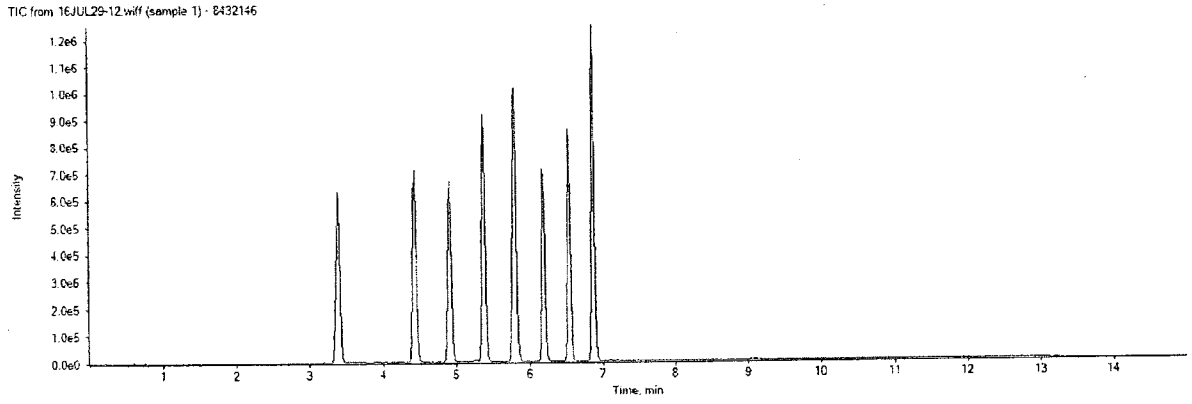
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.90	794005.9	N/A	N/A
PFHxA	4.42	1.000	5060.8	A	13C2-PFHxA	4.42	2456304.9	0.002	0.038
PFHpA	4.90	1.000	5969.3	A	13C4-PFHpA	4.91	1569560.0	0.004	0.026
PFHxS	4.90	1.000	4113.1	M	18O2-PFHxS	4.90	794005.9	0.005	0.041
PFOA	5.37	1.000	735335.5	M	13C4-PFOA	5.37	2209889.8	0.333	2.503
PFNA	5.80	1.000	6825.7	A	13C5-PFNA	5.80	2843307.8	0.002	0.019
PFOS	5.78	1.000	1688.3	A	13C4-PFOS	5.77	780382.1	0.002	0.017
PFDA	6.19	1.000	4928.3	M	13C2-PFDA	6.19	2059791.1	0.002	0.017
PFUndA	6.54	1.000	7317.1	A	13C2-PFUnDA	6.54	2324553.4	0.003	0.027
PFDoDA	6.87	1.000	4670.1	M	13C2-PFDoDA	6.87	3264566.7	0.001	0.016
PFTrDA	7.18	1.050	7442.1	A	13C2-PFDoDA	6.87	3264566.7	0.002	0.020
PFTeDA	7.48	1.090	14508.8	A	13C2-PFDoDA	6.87	3264566.7	0.004	0.037

Rev

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW04-09.5 Grab Soil



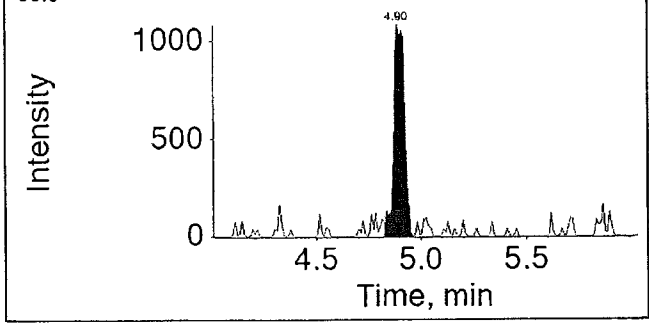
APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 2:16 pm, 5/27/17

16JUL29-12.wiff

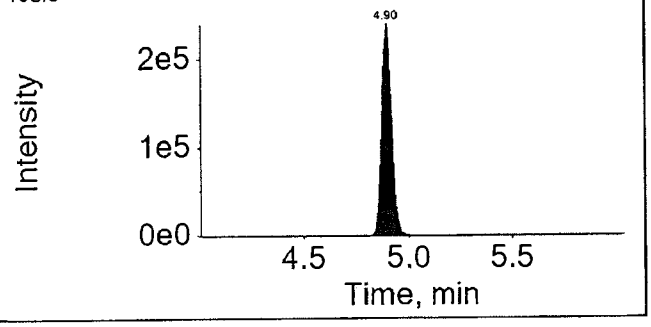
Analyte: PFHxS

398.9 /
99.0



Internal Standard: 18O2-PFHxS

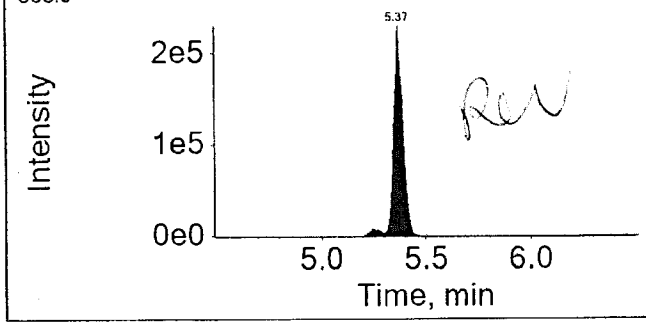
403.0 /
103.0



16JUL29-12.wiff

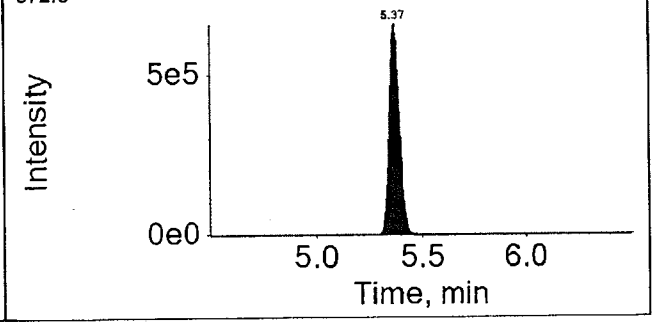
Analyte: PFOA

412.9 /
368.9



Internal Standard: 13C4-PFOA

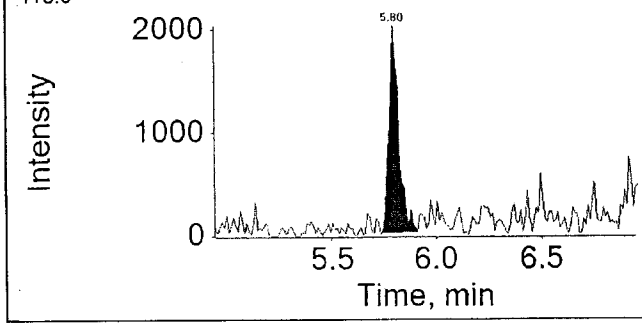
417.0 /
372.0



16JUL29-12.wiff

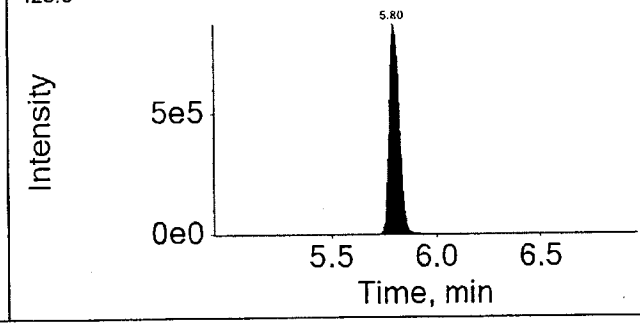
Analyte: PFNA

462.9 /
418.9



Internal Standard: 13C5-PFNA

468.0 /
423.0



APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 2:16 pm, 5/27/17

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LC-MS/MS Analysis Report

Printed: 8/5/2016 10:04:00 AM

Sample Name:	8432146RE		**Data File:**		16AUG04-12.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW04-09.5 Grab Soil		**Acquis Date:**		8/4/2016 4:32:30 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	22		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.020		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

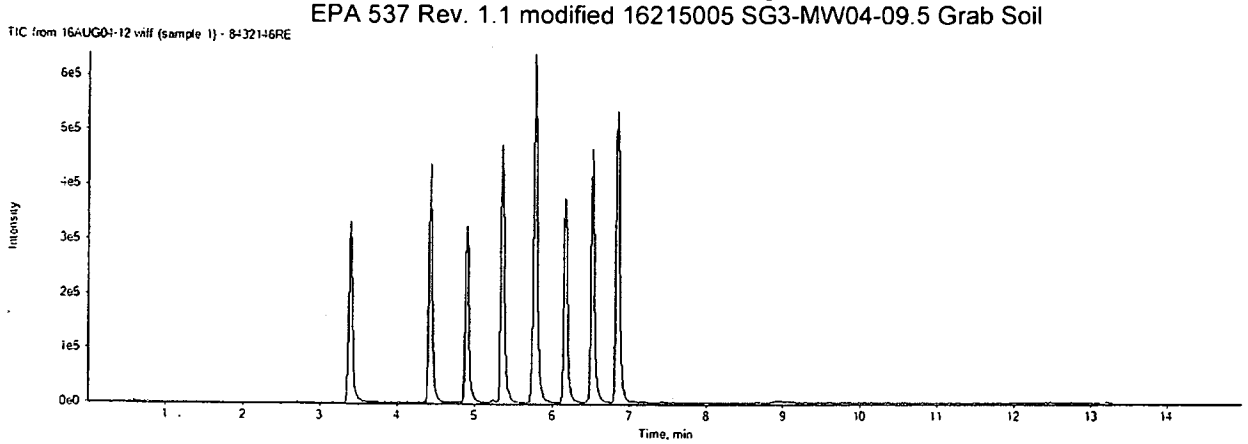
Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.89	421275.1	N/A	N/A	
PFHxA	4.42	2042.6	A	13C2-PFHxA	4.42	1313090.3	0.002	0.029	
PFHpA	4.90	2682.6	A	13C4-PFHpA	4.90	648201.1	0.004	0.030	
PFHxS	4.89	2595.4	A	18O2-PFHxS	4.89	421275.1	0.006	0.053	
PFOA	5.35	446079.2	A	13C4-PFOA	5.35	1169938.4	0.381	3.236	
PFNA	5.78	1781.8	A	13C5-PFNA	5.78	1743389.7	0.001	0.009	
PFOS	5.75	1094.6	M	13C4-PFOS	5.75	410859.4	0.003	0.023	
PFDA	6.17	3158.0	A	13C2-PFDA	6.17	1219889.7	0.003	0.019	
PFUndA	6.52	4207.8	A	13C2-PFUnDA	6.52	1422918.6	0.003	0.026	
PFDoDA	6.85	2251.0	A	13C2-PFDoDA	6.85	1828532.8	0.001	0.013	
PFTrDA	7.14	2344.7	A	13C2-PFDoDA	6.85	1828532.8	0.001	0.012	
PFTeDA	7.43	4813.0	M	13C2-PFDoDA	6.85	1828532.8	0.003	0.025	

0.053 2.413

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW04-09.5 Grab Soil



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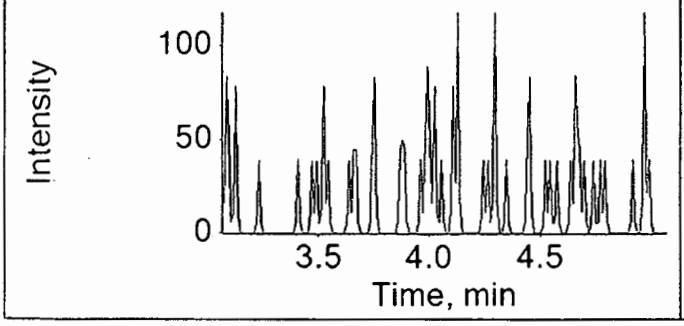
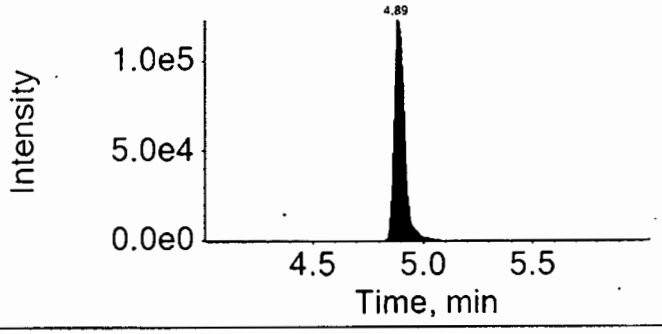
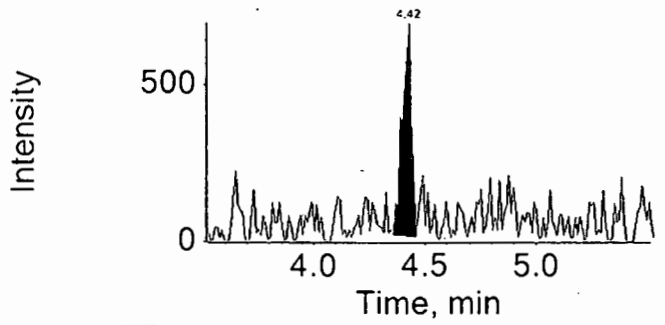
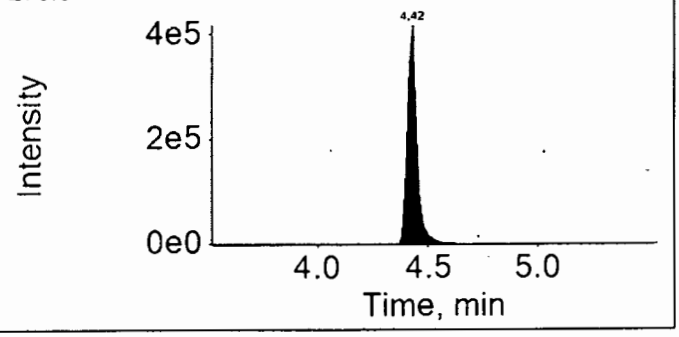
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



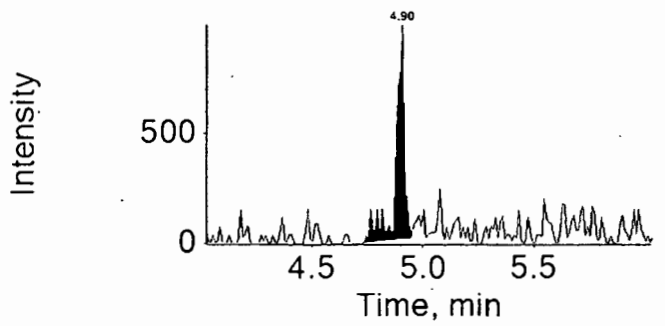


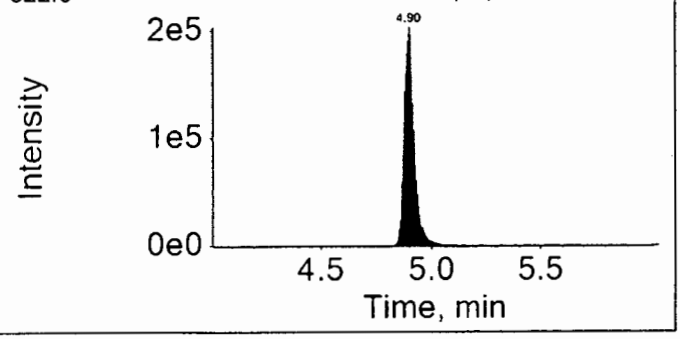
16AUG04-12.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



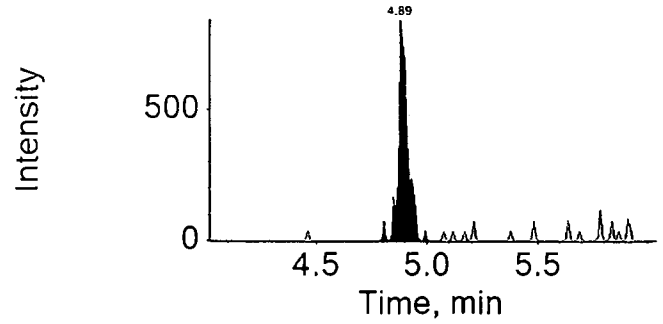


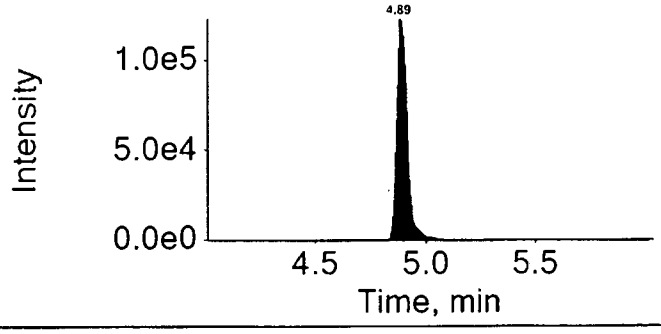
16AUG04-12.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



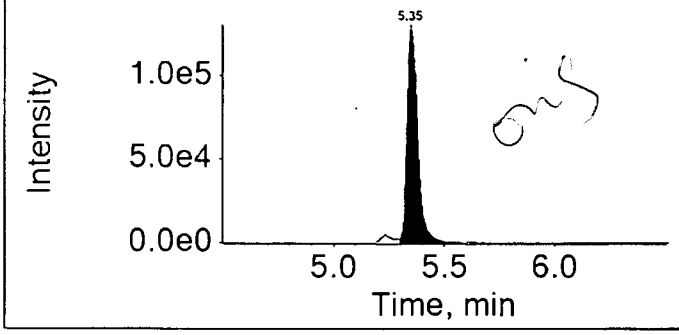


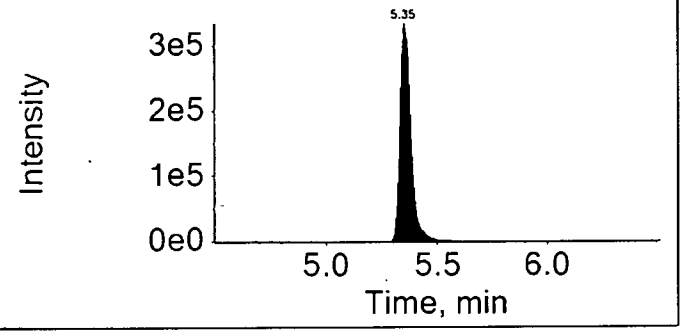
16AUG04-12.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



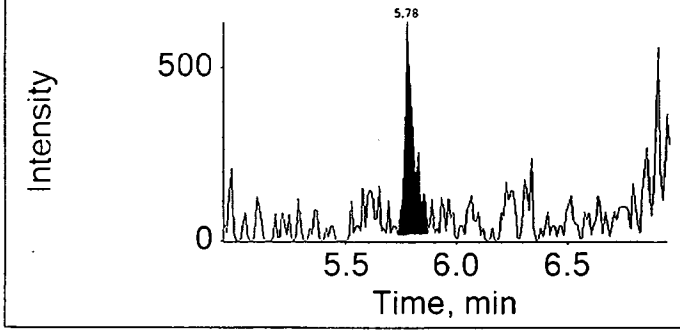


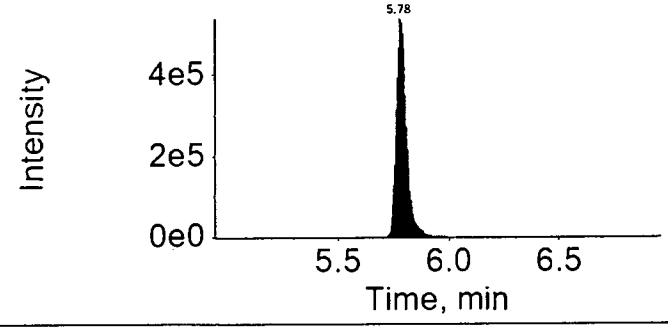
16AUG04-12.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





16AUG04-12.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0

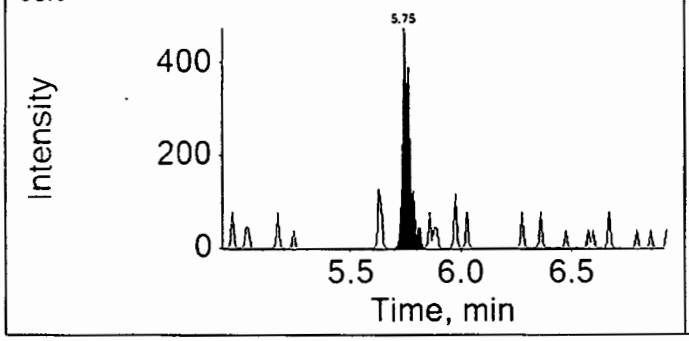




16AUG04-12.wiff

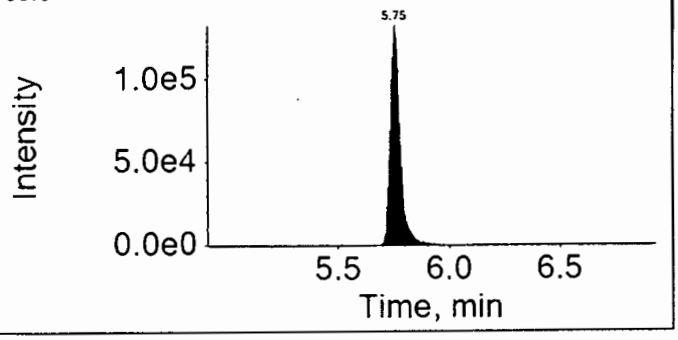
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

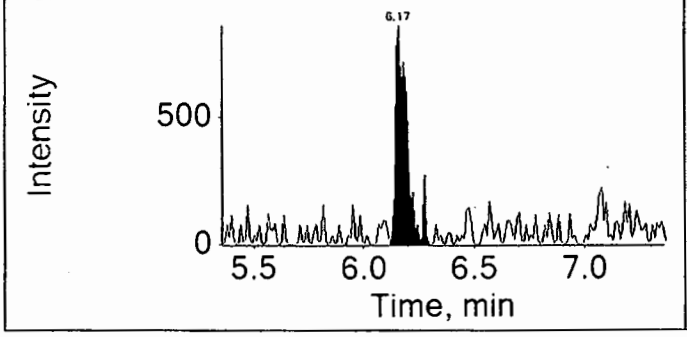
503.0 / 99.0



16AUG04-12.wiff

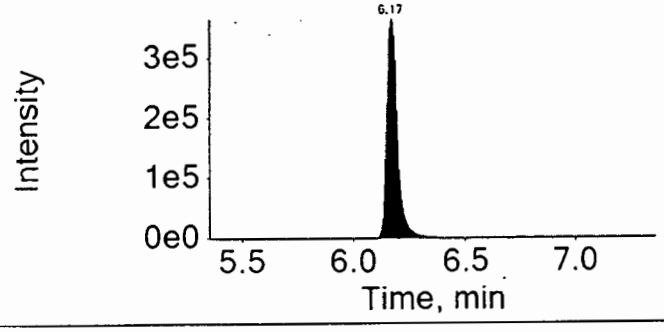
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

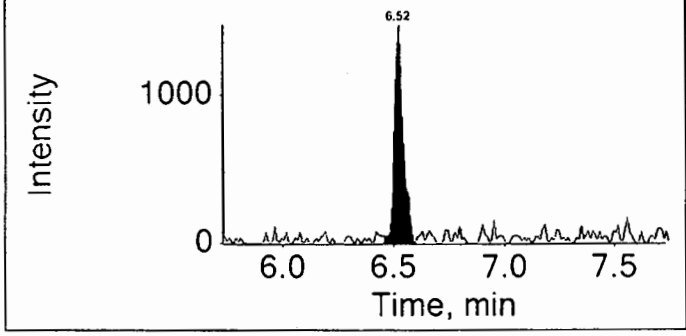
515.0 / 470.0



16AUG04-12.wiff

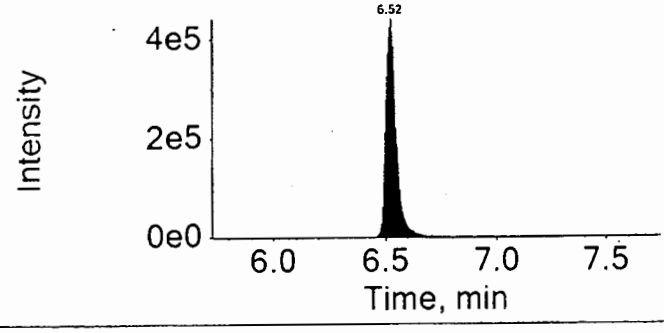
Analyte: PFUndA

562.9 / 518.9

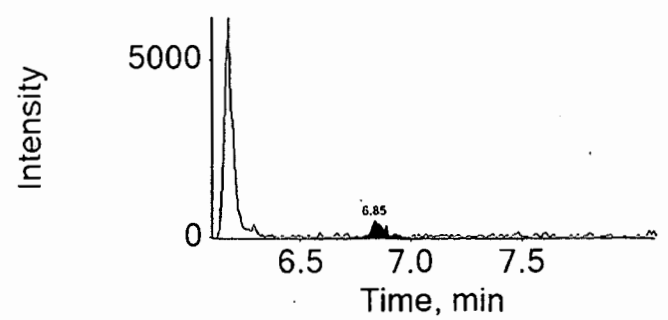


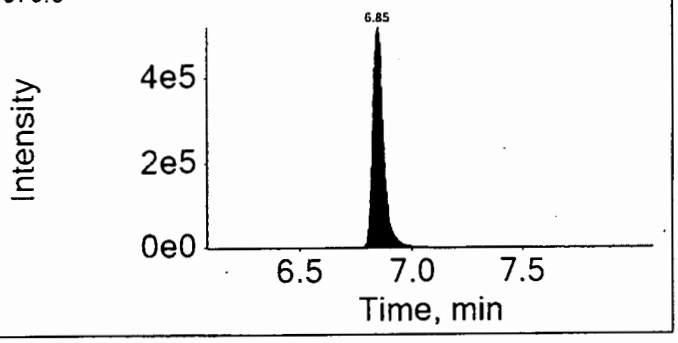
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

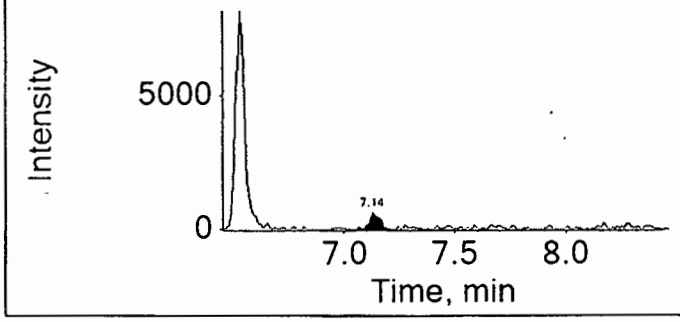


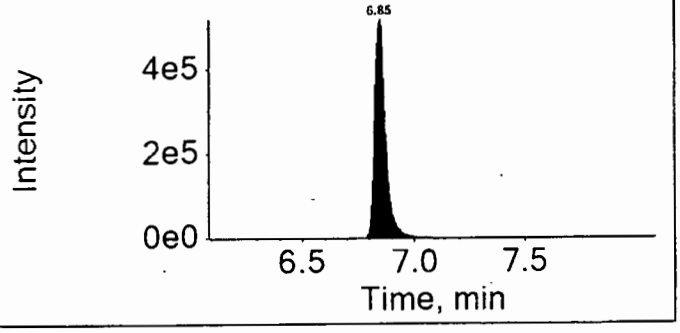
16AUG04-12.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



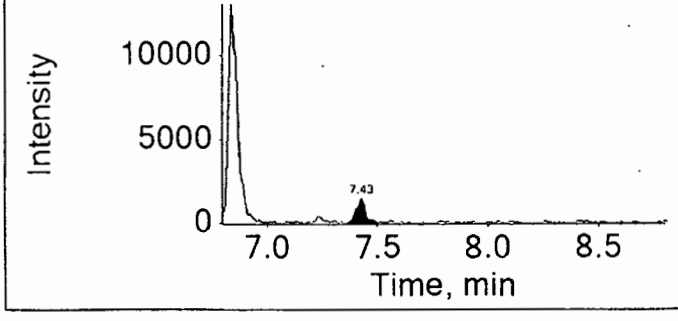


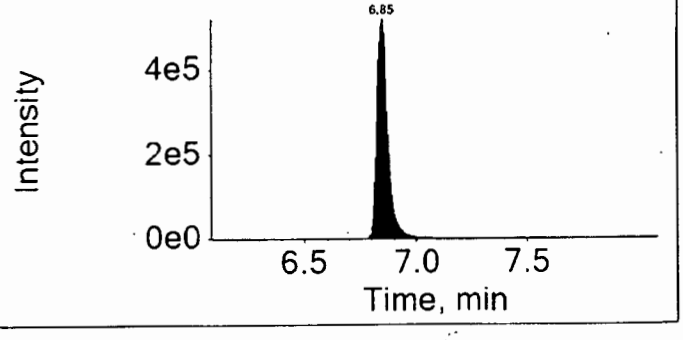
16AUG04-12.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG04-12.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:12:00 PM

Sample Name:	8432146RE			**Data File:**		16AUG04-12.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW04-09.5 Grab Soil			**Acquis Date:**		2016-08-04T16:32:30
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	22			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16215005
				ICAL Name:		16AUG01
Batch Number:	16215005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.02000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

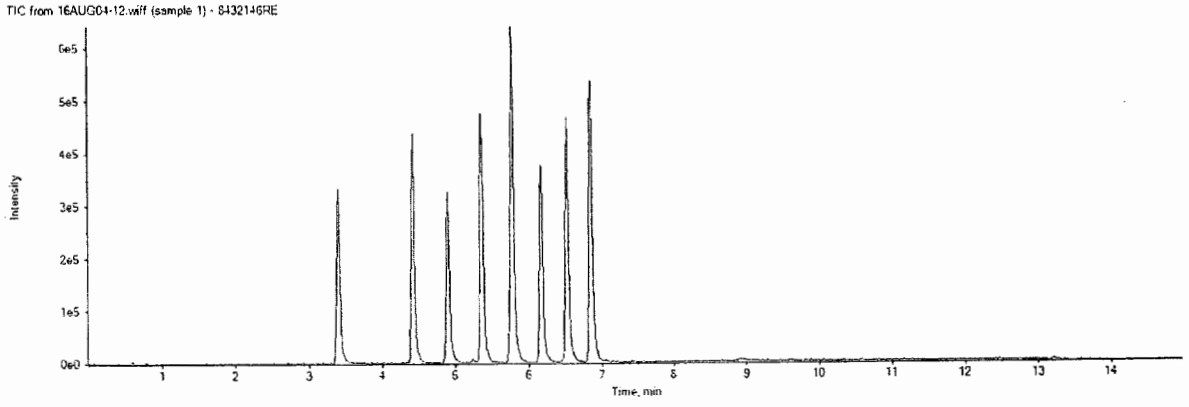
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.89	421275.1	N/A	N/A
PFHxA	4.42	1.000	2042.6	A	13C2-PFHxA	4.42	1313090.3	0.002	0.029
PFHpA	4.90	1.000	2682.6	A	13C4-PFHpA	4.90	648201.1	0.004	0.030
PFHxS	4.89	1.000	2595.4	A	18O2-PFHxS	4.89	421275.1	0.006	0.053
PFOA	5.35	1.000	464107.1	M	13C4-PFOA	5.35	1169938.4	0.397	3.366
PFNA	5.78	1.000	1781.8	A	13C5-PFNA	5.78	1743389.7	0.001	0.009
PFOS	5.75	1.000	1094.6	M	13C4-PFOS	5.75	410859.4	0.003	0.023
PFDA	6.17	1.000	3158.0	A	13C2-PFDA	6.17	1219889.7	0.003	0.019
PFUndA	6.52	1.000	4207.8	A	13C2-PFUnDA	6.52	1422918.6	0.003	0.026
PFDoDA	6.85	1.000	2251.0	A	13C2-PFDoDA	6.85	1828532.8	0.001	0.013
PFTrDA	7.14	1.040	2344.7	A	13C2-PFDoDA	6.85	1828532.8	0.001	0.012
PFTeDA	7.43	1.080	4813.0	M	13C2-PFDoDA	6.85	1828532.8	0.003	0.025

Rev

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW04-09.5 Grab Soil



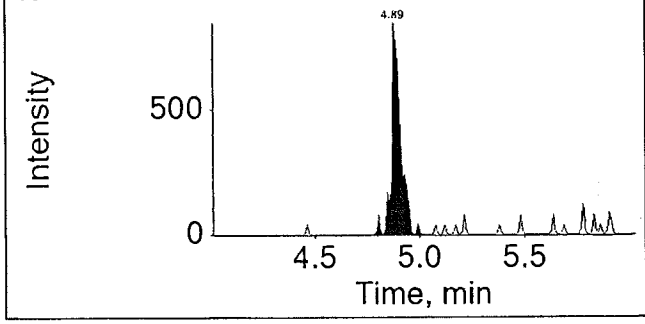
APPROVED
By MCD at 3:33 pm, 5/23/17

REVIEWED
By ucmr at 2:19 pm, 5/27/17

16AUG04-12.wiff

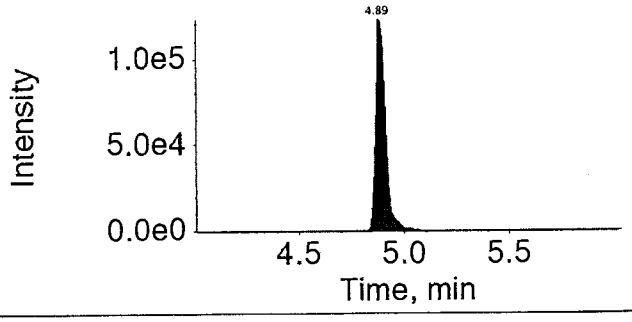
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

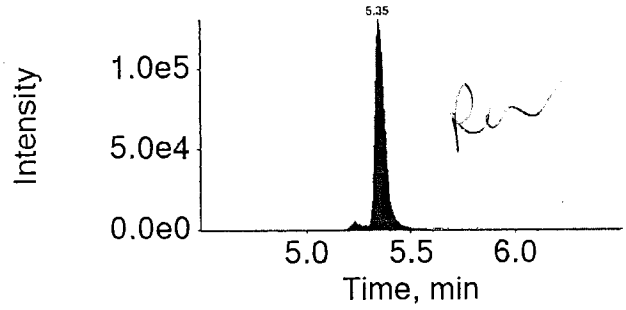
403.0 / 103.0



16AUG04-12.wiff

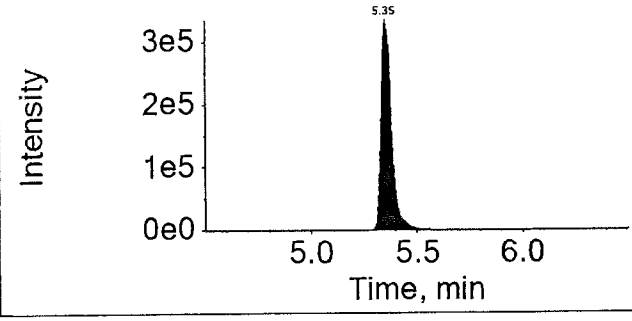
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

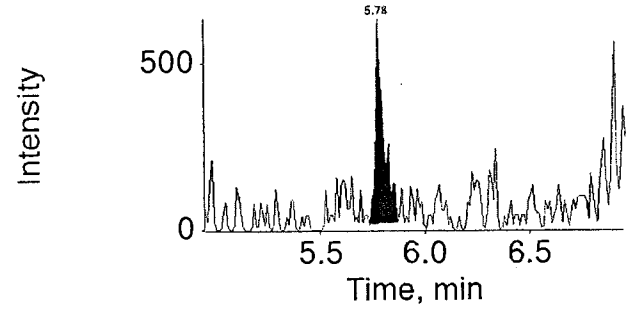
417.0 / 372.0



16AUG04-12.wiff

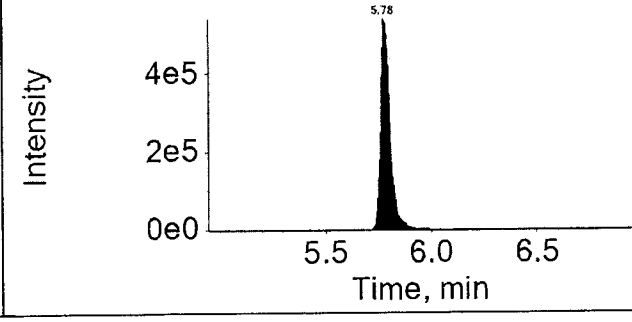
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:33 pm, 5/23/17

REVIEWED
By ucmr at 2:19 pm, 5/27/17

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Analysis Report

Sample Description: SG3-MW04-12.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Collected: 06/16/2016 13:55 by JD

Submitted: 06/17/2016 09:40
Reported: 08/05/2016 14:13

LL Sample # SW 8432147
LL Group # 1673381
Account # 37191

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL

SG-48 SDG#: SGP94-30

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.50	U	0.50	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.87	U	0.87	2.0	1
14027	Perfluorooctanoic acid	335-67-1	0.73	J	0.37	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.75	U	0.75	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.75	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	124	U	124	373	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	19.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 12:05	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16190049531A	07/08/2016 19:18	James S Mathiot	1

*=This limit was used in the evaluation of the final result

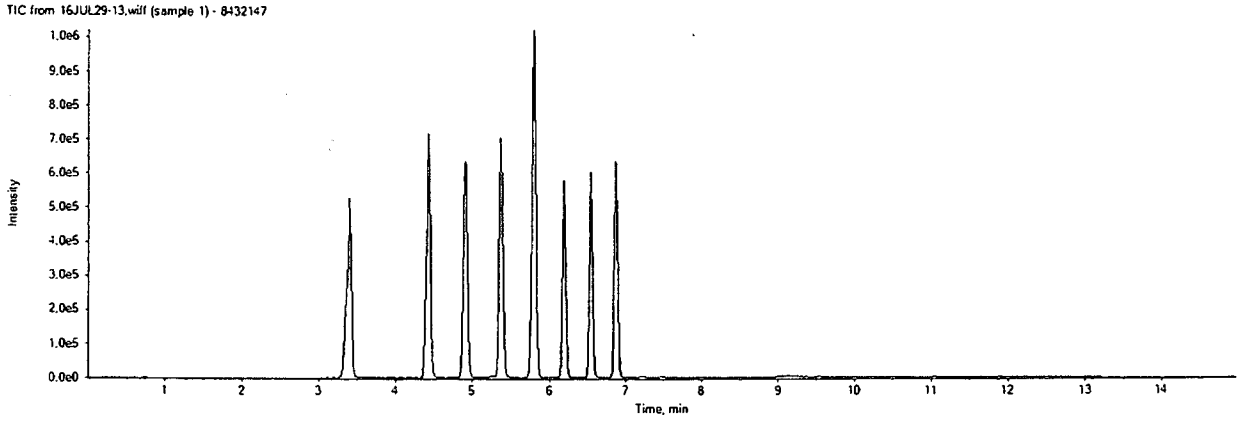
Sample Name:	8432147	**Data File:**		16JUL29-13.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW04-12.5 Grab Soil	**Acquis Date:**		7/29/2016 12:05:21 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	38	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.210	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	3.96	1592.5	18O2-PFHxS	4.90	822158.5	0.002	0.013	
PFHxA	4.42	5226.2	13C2-PFHxA	4.43	2490224.6	0.002	0.039	
PFHpA	4.91	4608.5	13C4-PFHpA	4.91	1596373.6	0.003	0.020	
PFHxS	4.91	3846.3	18O2-PFHxS	4.90	822158.5	0.005	0.038	
PFOA	5.37	173785.0	13C4-PFOA	5.37	2256902.1	0.077	0.589	ng/L
PFNA	5.81	5305.0	13C5-PFNA	5.80	2719043.7	0.002	0.016	
PFOS	5.77	1718.6	13C4-PFOS	5.78	794686.4	0.002	0.017	
PFDA	6.20	2966.6	13C2-PFDA	6.19	1584073.7	0.002	0.013	
PFUndA	6.54	5130.1	13C2-PFUnDA	6.55	1627479.7	0.003	0.027	
PFDoDA	6.88	2729.3	13C2-PFDoDA	6.87	1921700.3	0.001	0.016	
PFTrDA	7.19	4940.9	13C2-PFDoDA	6.87	1921700.3	0.003	0.023	
PFTeDA	7.48	8817.5	13C2-PFDoDA	6.87	1921700.3	0.005	0.038	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW04-12.5 Grab Soil



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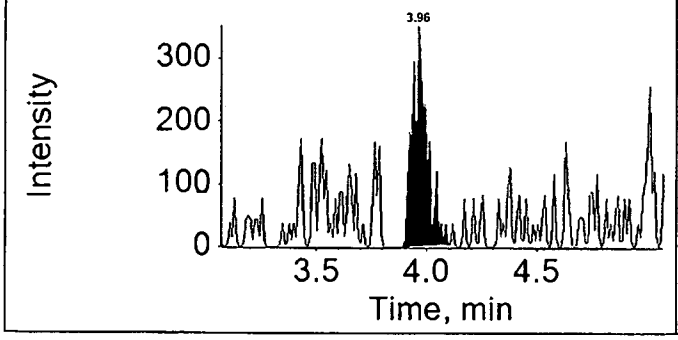
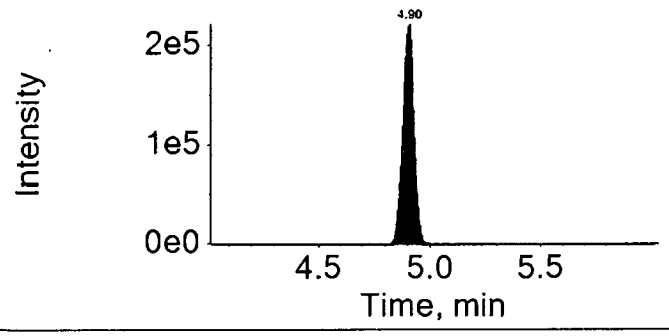
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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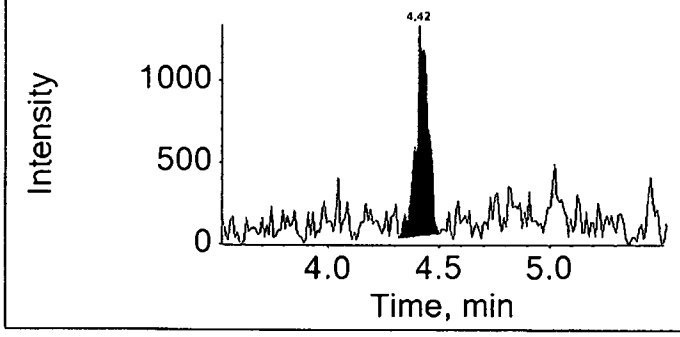
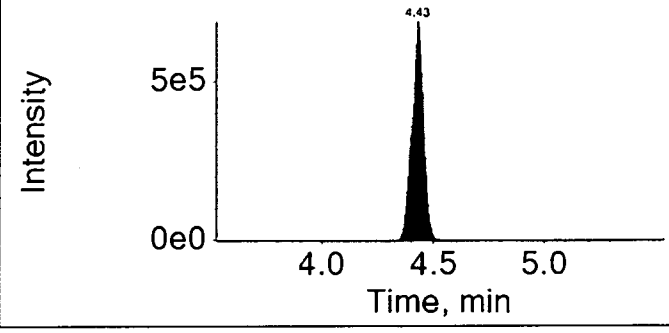
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





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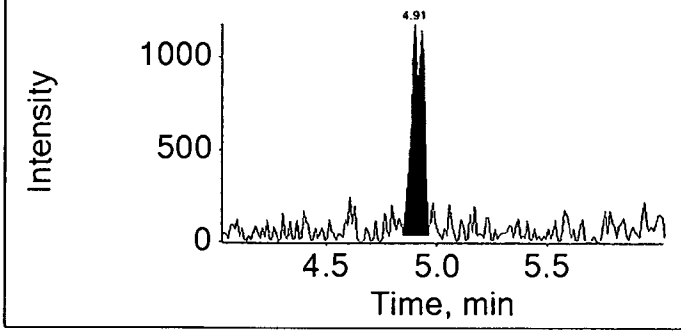
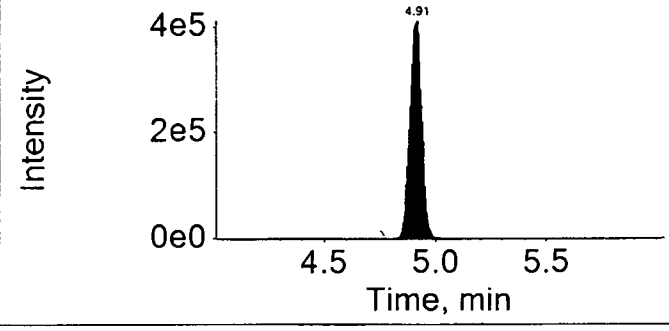
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0





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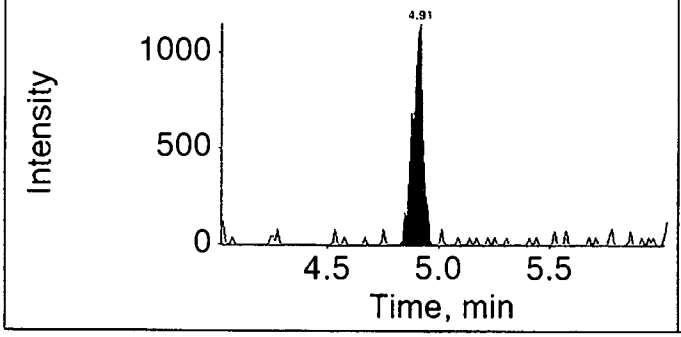
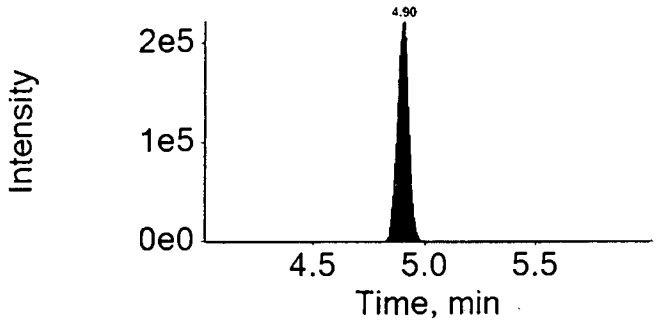
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0





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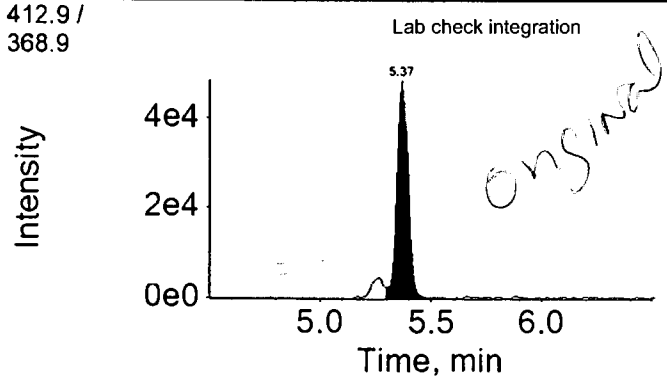
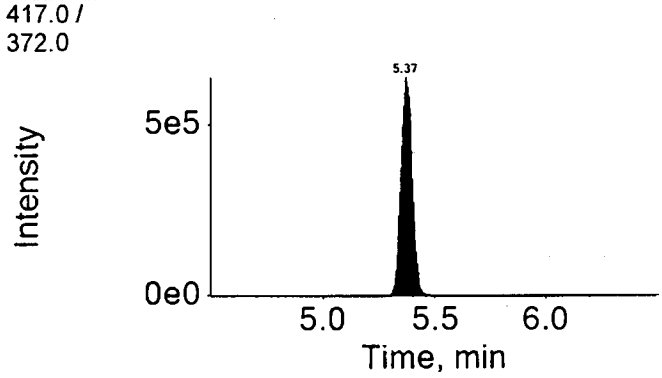
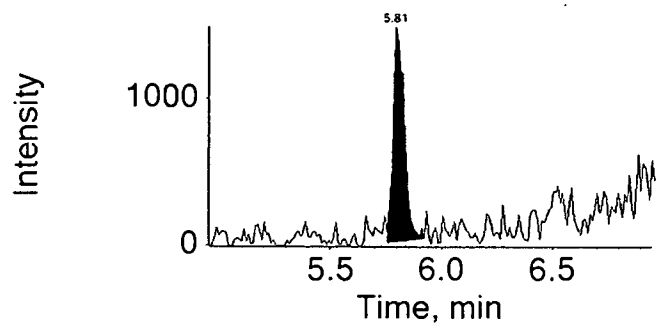
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0

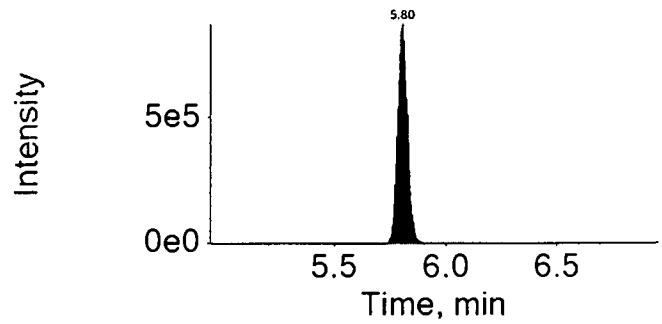
Lab check integration





16JUL29-13.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0





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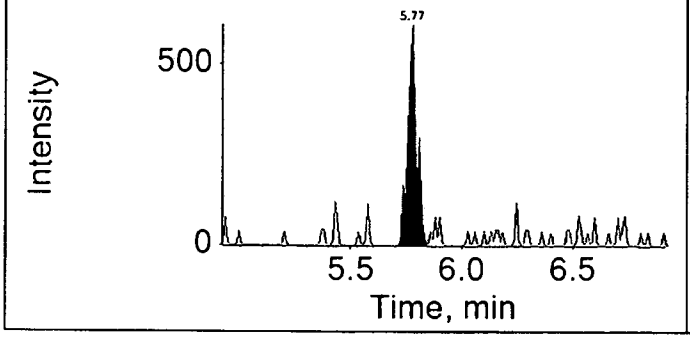
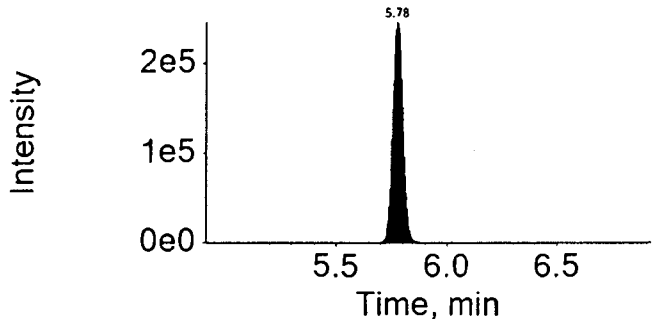
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

503.0 / 99.0



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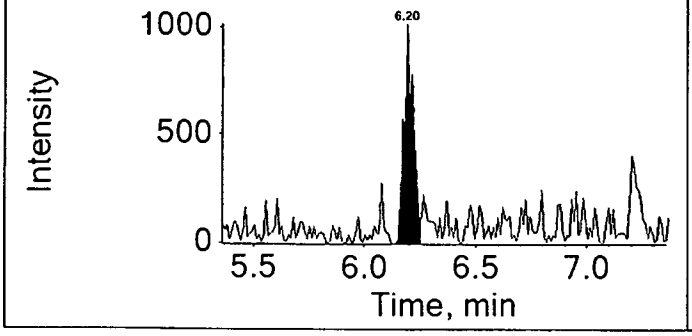
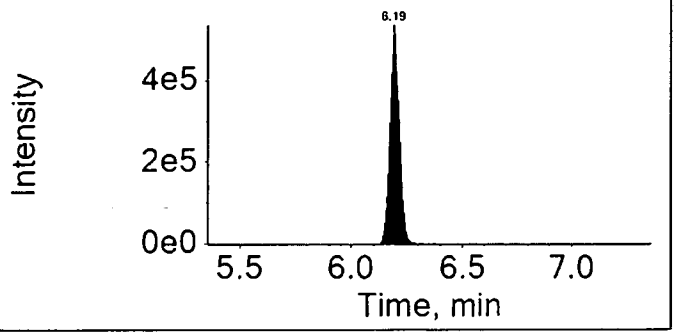
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

515.0 / 470.0



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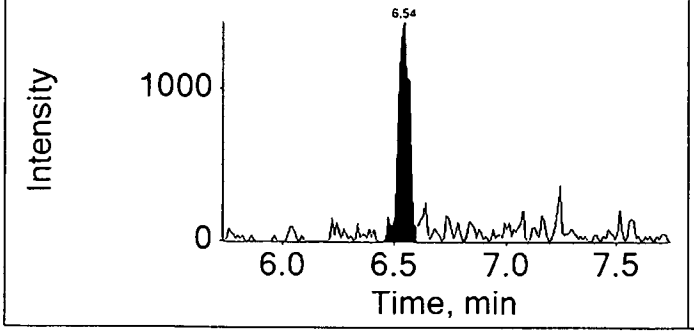
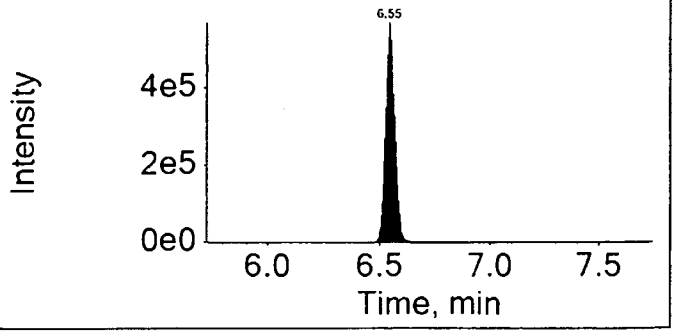
Analyte: PFUndA

562.9 / 518.9

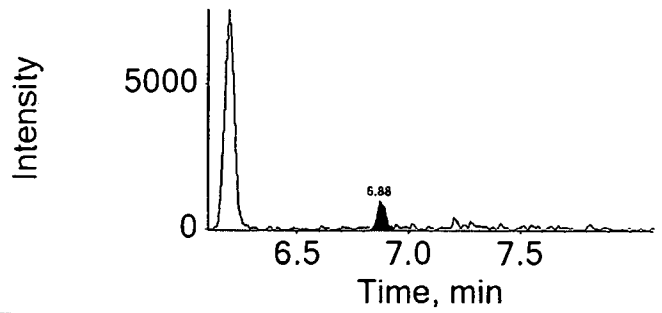


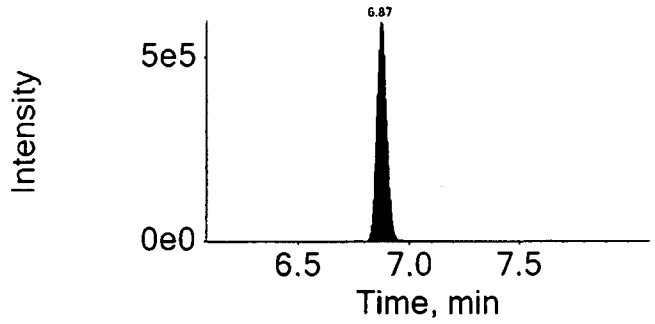
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

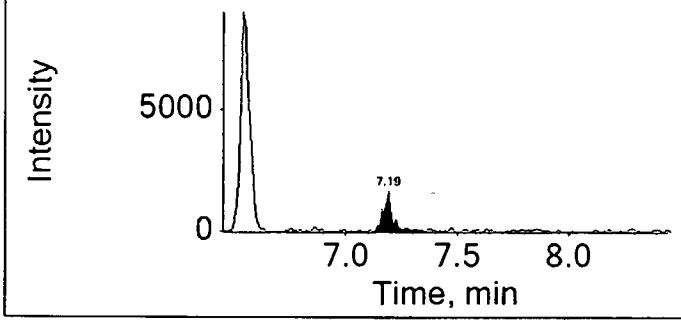


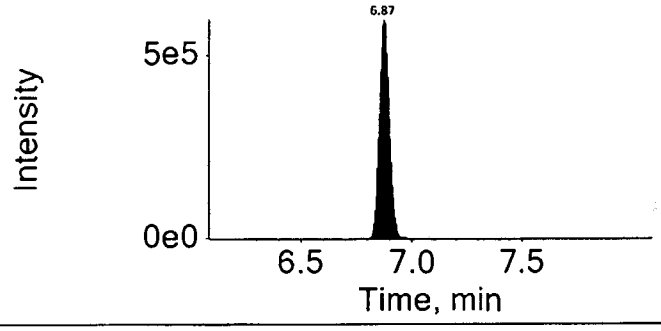
16JUL29-13.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



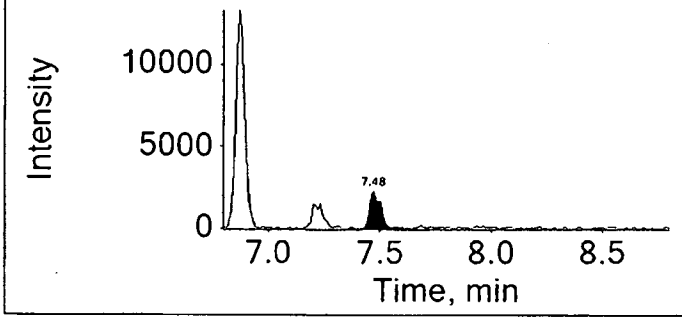


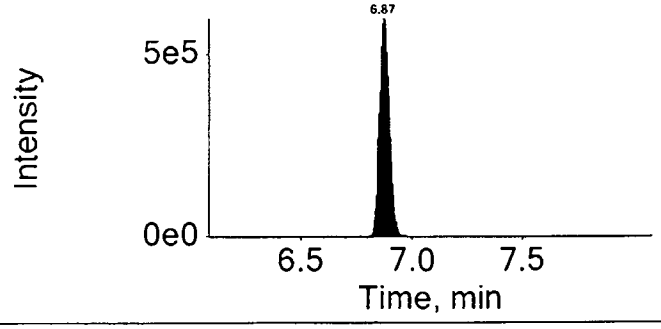
16JUL29-13.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL29-13.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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Analysis Report

REVISED

Sample Description: SG3-MW04-12.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8432147
LL Group # 1673381
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/16/2016 13:55 by JD

Submitted: 06/17/2016 09:40
Reported: 05/30/2017 08:38

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG-48 SDG#: SGP94-30

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.95	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.83	U	0.83	1.9	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.80**		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.95	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	124	U	124	373	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**19.5**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 12:05	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:00:00 PM

Sample Name:	8432147			**Data File:**		16JUL29-13.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW04-12.5 Grab Soil			**Acquis Date:**		2016-07-29T12:05:21
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	38			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16190006
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.210			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

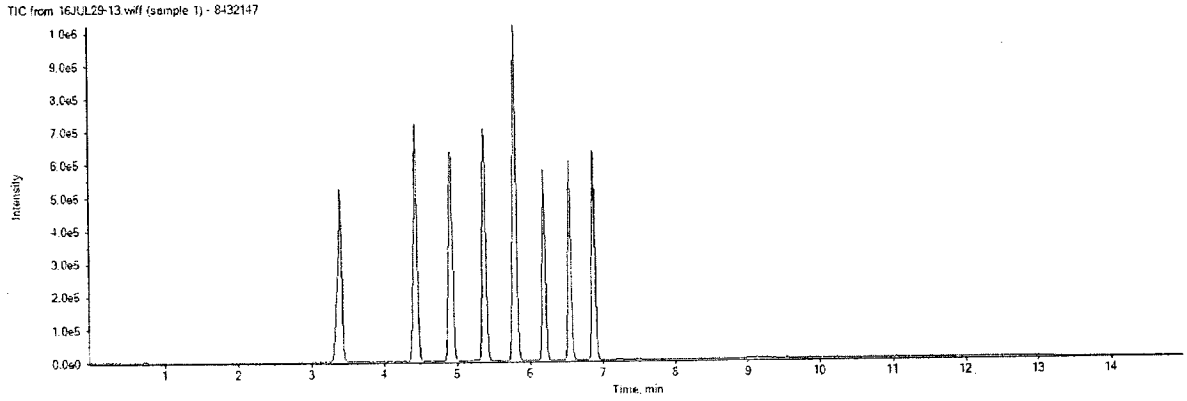
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	3.96	0.810	1592.5	A	18O2-PFHxS	4.90	822158.5	0.002	0.013
PFHxA	4.42	1.000	5226.2	A	13C2-PFHxA	4.43	2490224.6	0.002	0.039
PFHpA	4.91	1.000	4608.5	M	13C4-PFHpA	4.91	1596373.6	0.003	0.020
PFHxS	4.91	1.000	3846.3	A	18O2-PFHxS	4.90	822158.5	0.005	0.038
PFOA	5.37	1.000	189977.3	M	13C4-PFOA	5.37	2256902.1	0.084	0.644
PFNA	5.81	1.000	5305.0	A	13C5-PFNA	5.80	2719043.7	0.002	0.016
PFOS	5.77	1.000	1718.6	M	13C4-PFOS	5.78	794686.4	0.002	0.017
PFDA	6.20	1.000	2966.6	M	13C2-PFDA	6.19	1584073.7	0.002	0.013
PFUndA	6.54	1.000	5130.1	A	13C2-PFUnDA	6.55	1627479.7	0.003	0.027
PFDoDA	6.88	1.000	2729.3	M	13C2-PFDoDA	6.87	1921700.3	0.001	0.016
PFTrDA	7.19	1.050	4940.9	A	13C2-PFDoDA	6.87	1921700.3	0.003	0.023
PFTeDA	7.48	1.090	8817.5	A	13C2-PFDoDA	6.87	1921700.3	0.005	0.038

Rev

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW04-12.5 Grab Soil



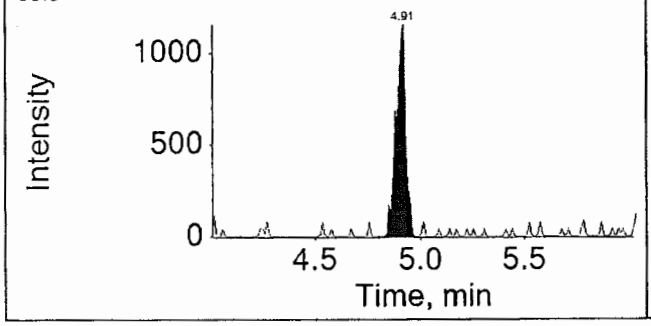
APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 2:16 pm, 5/27/17

16JUL29-13.wiff

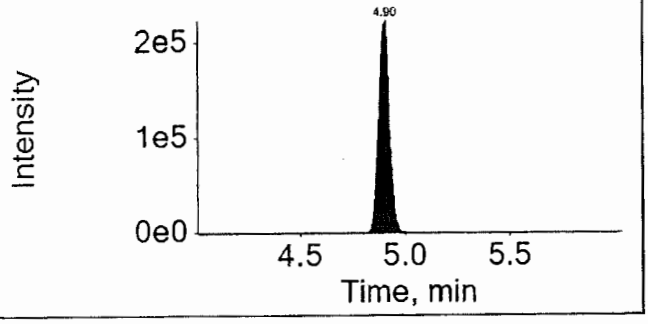
Analyte: PFHxS

398.9 /
99.0



Internal Standard: 18O2-PFHxS

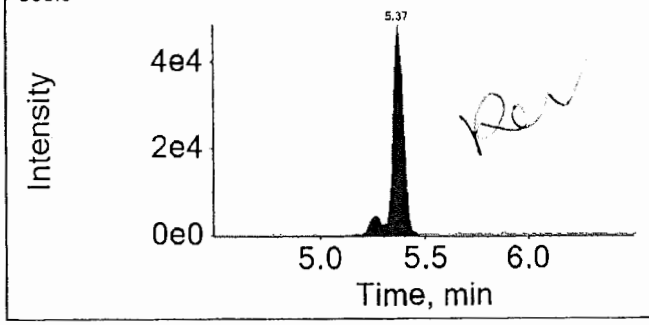
403.0 /
103.0



16JUL29-13.wiff

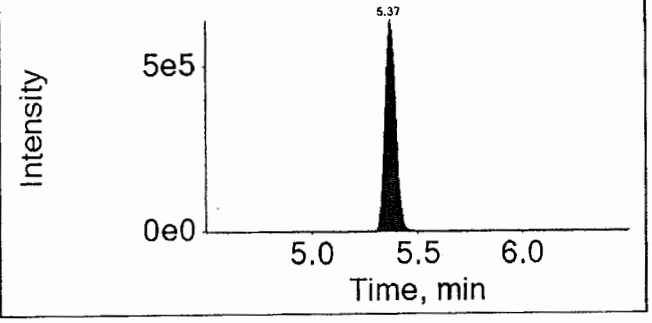
Analyte: PFOA

412.9 /
368.9



Internal Standard: 13C4-PFOA

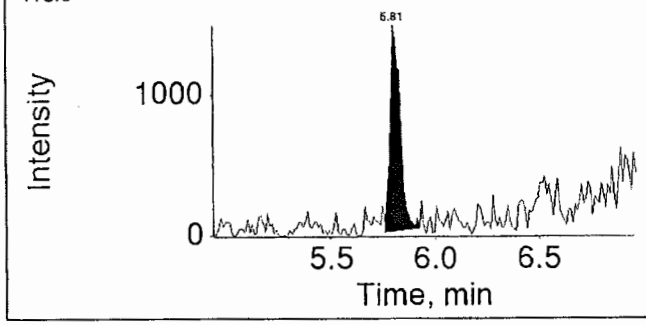
417.0 /
372.0



16JUL29-13.wiff

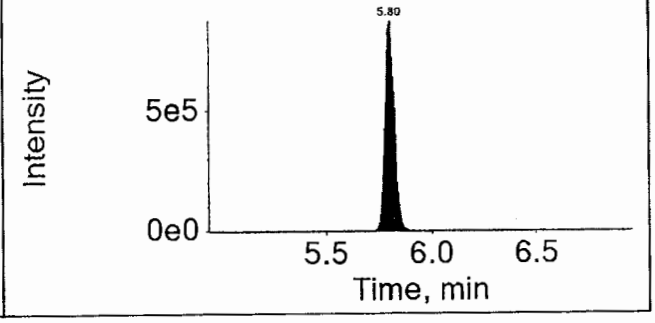
Analyte: PFNA

462.9 /
418.9



Internal Standard: 13C5-PFNA

468.0 /
423.0



APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 2:16 pm, 5/27/17

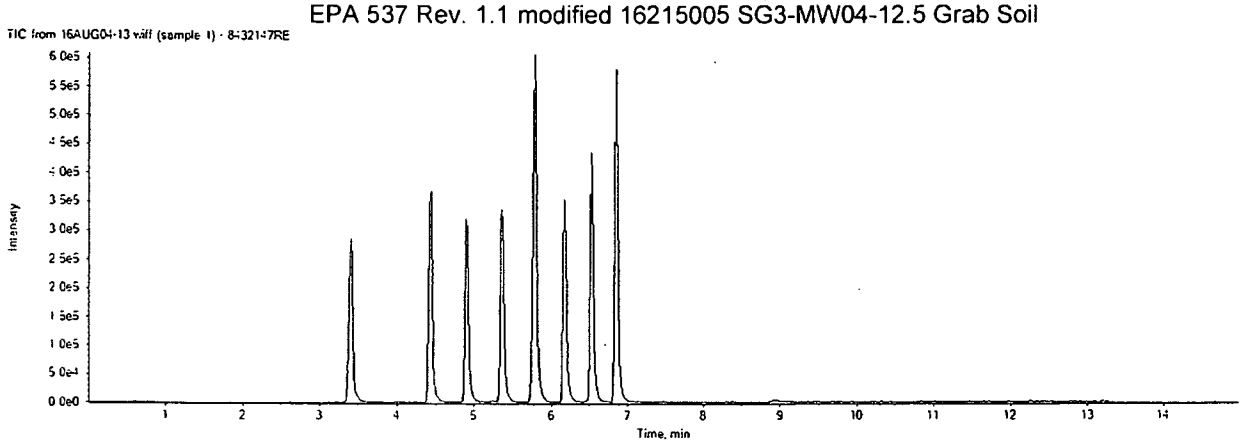
Sample Name:	8432147RE		**Data File:**		16AUG04-13.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW04-12.5 Grab Soil		**Acquis Date:**		8/4/2016 4:48:12 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	23		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.460		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.90	395190.7	N/A	N/A	
PFHxA	4.42	1973.6	A	13C2-PFHxA	4.43	1220078.8	0.002	0.027	
PFHpA	4.90	1960.3	A	13C4-PFHpA	4.90	672861.0	0.003	0.019	
PFHxS	4.90	3470.9	A	18O2-PFHxS	4.90	395190.7	0.009	0.069	
PFOA	5.36	96636.4	M	13C4-PFOA	5.36	1081647.8	0.089	0.697	
PFNA	5.79	1700.9	A	13C5-PFNA	5.79	1688096.6	0.001	0.008	
PFOS	5.76	1903.1	M	13C4-PFOS	5.76	410920.4	0.005	0.037	
PFDA	6.17	1908.7	A	13C2-PFDA	6.17	1146843.9	0.002	0.011	
PFUndA	6.54	3626.9	A	13C2-PFUnDA	6.53	1269168.7	0.003	0.023	
PFDoDA	6.85	2063.2	M	13C2-PFDoDA	6.85	1744588.6	0.001	0.011	
PFTrDA	7.15	2063.4	A	13C2-PFDoDA	6.85	1744588.6	0.001	0.011	
PFTeDA	7.43	2687.6	A	13C2-PFDoDA	6.85	1744588.6	0.002	0.013	

Total Ion Chromatogram

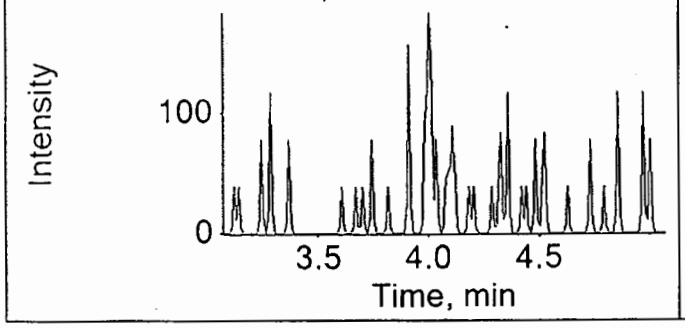
EPA 537 Rev. 1.1 modified 16215005 SG3-MW04-12.5 Grab Soil



16AUG04-13.wiff

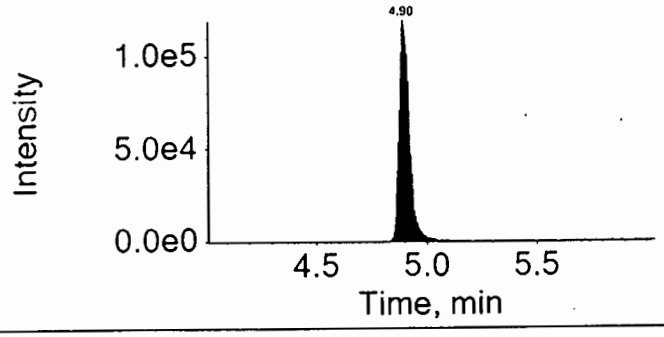
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

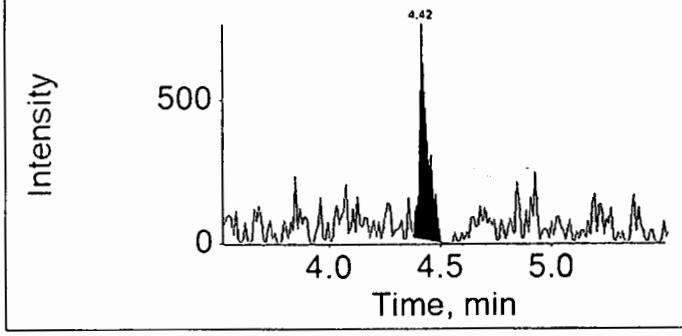
403.0 / 103.0



16AUG04-13.wiff

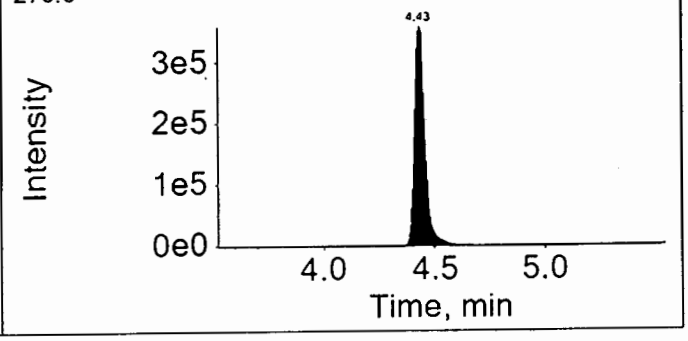
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

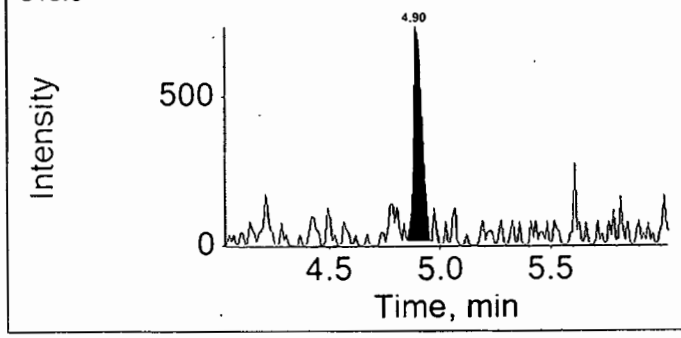
314.9 / 270.0



16AUG04-13.wiff

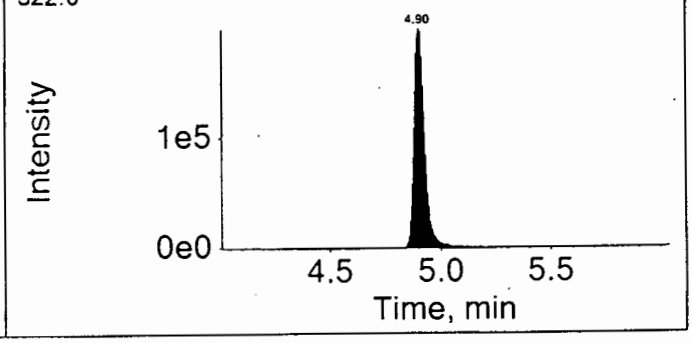
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

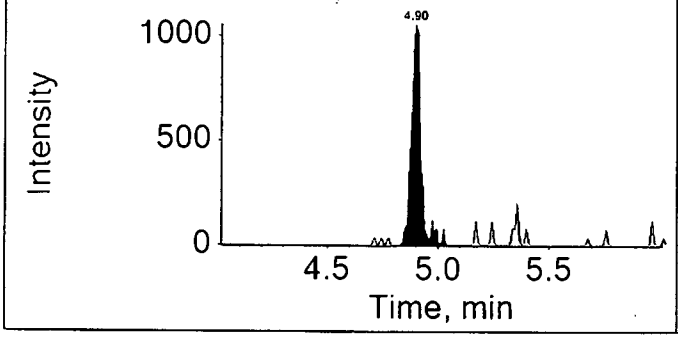
367.0 / 322.0



16AUG04-13.wiff

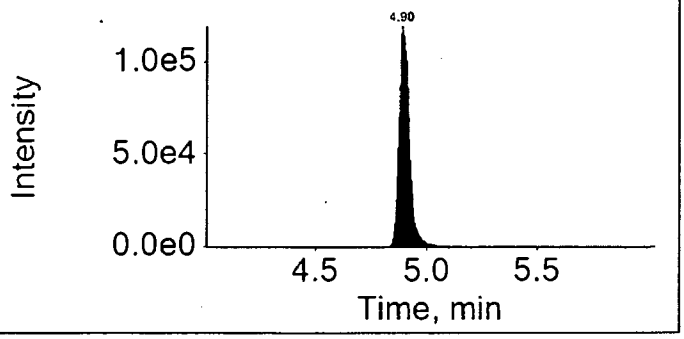
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

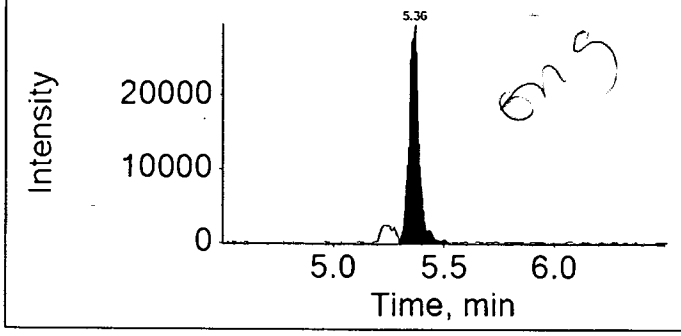
403.0 / 103.0



16AUG04-13.wiff

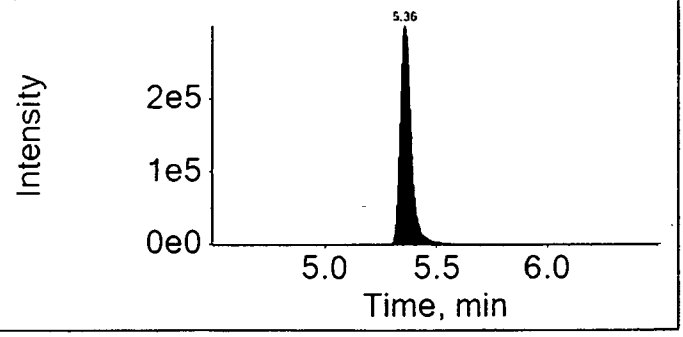
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

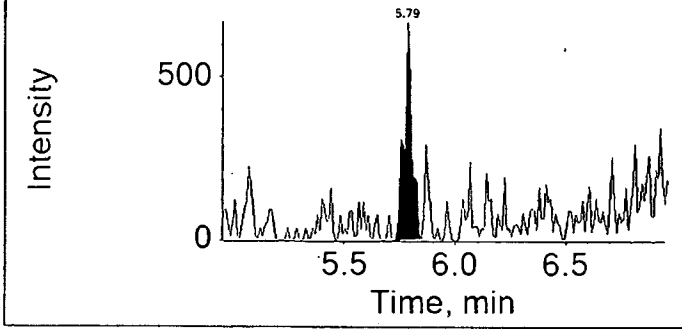
417.0 / 372.0



16AUG04-13.wiff

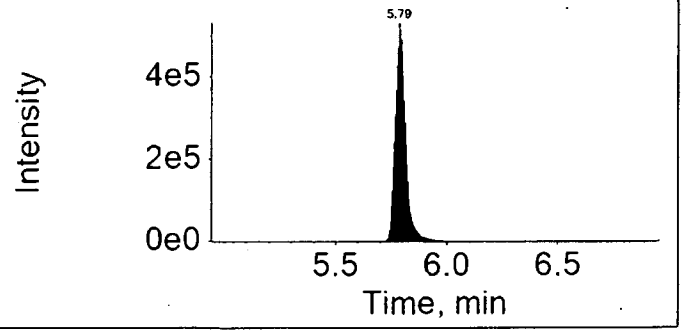
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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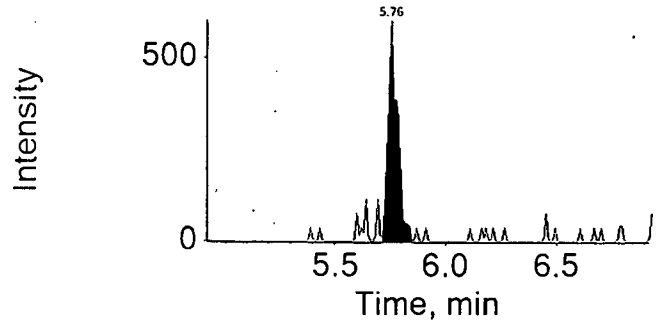
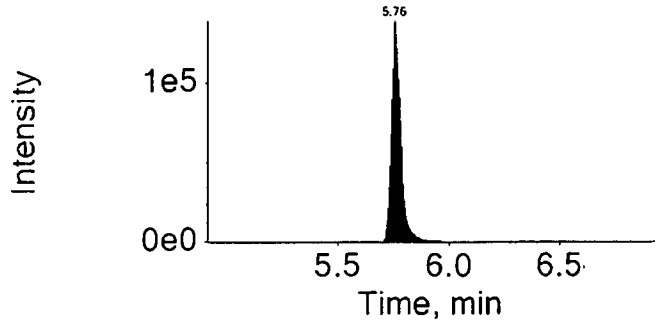
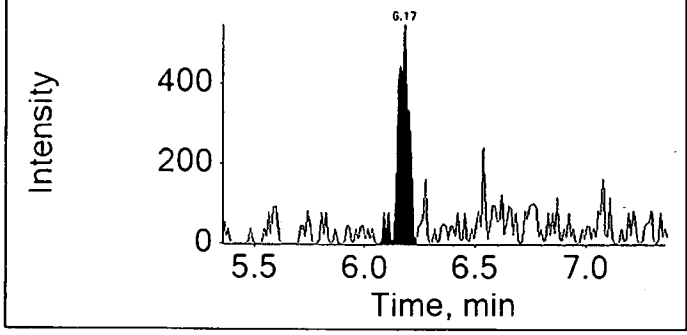
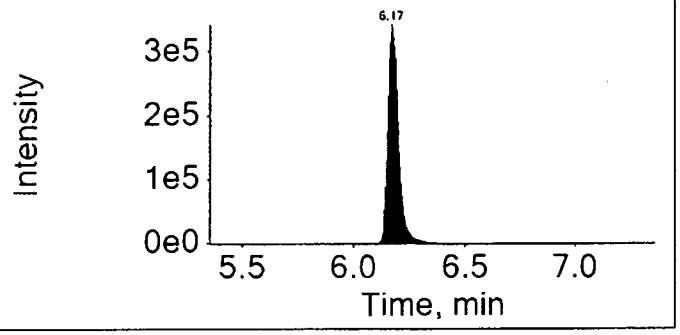
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



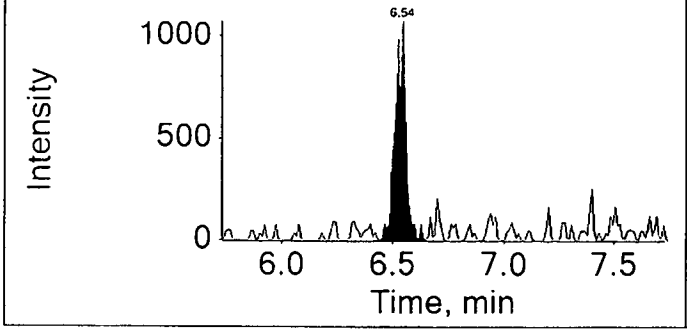


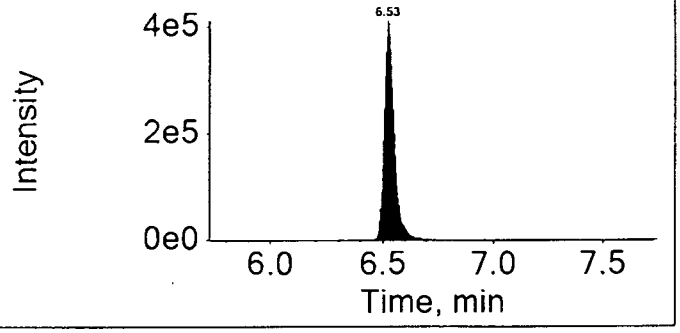
16AUG04-13.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16AUG04-13.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

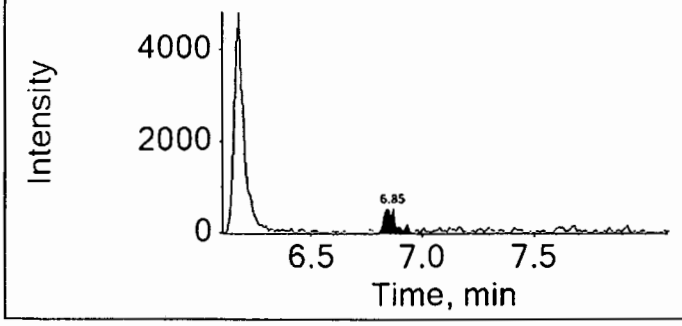




16AUG04-13.wiff

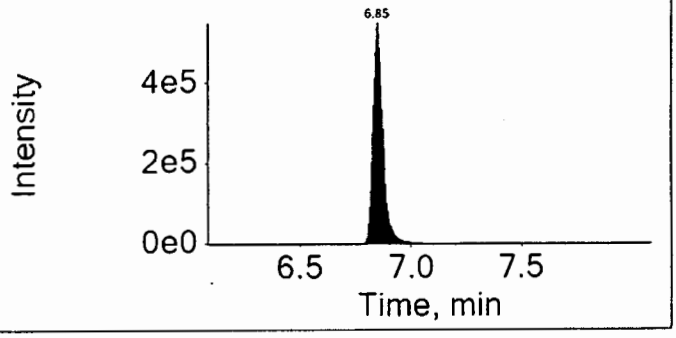
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

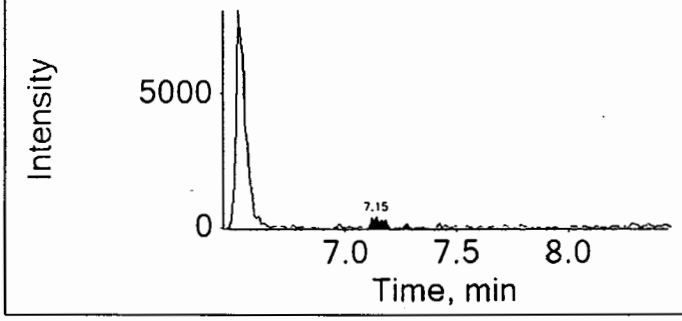
615.0 / 570.0



16AUG04-13.wiff

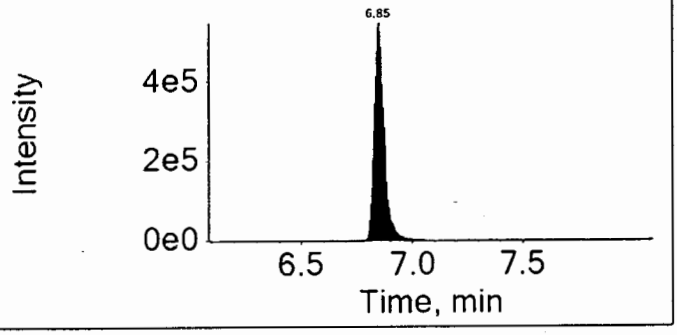
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

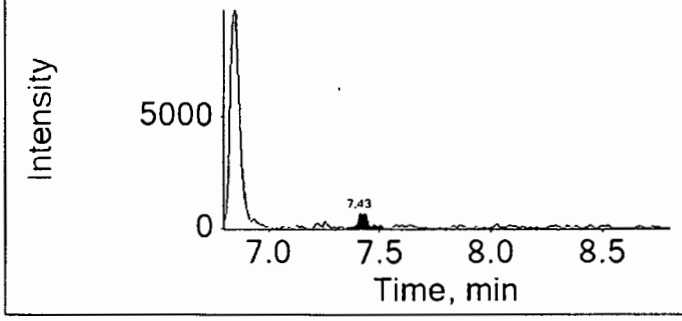
615.0 / 570.0



16AUG04-13.wiff

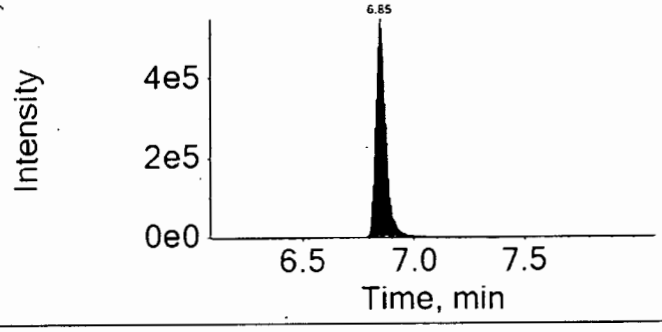
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

Printed: 5/23/2017 3:12:00 PM

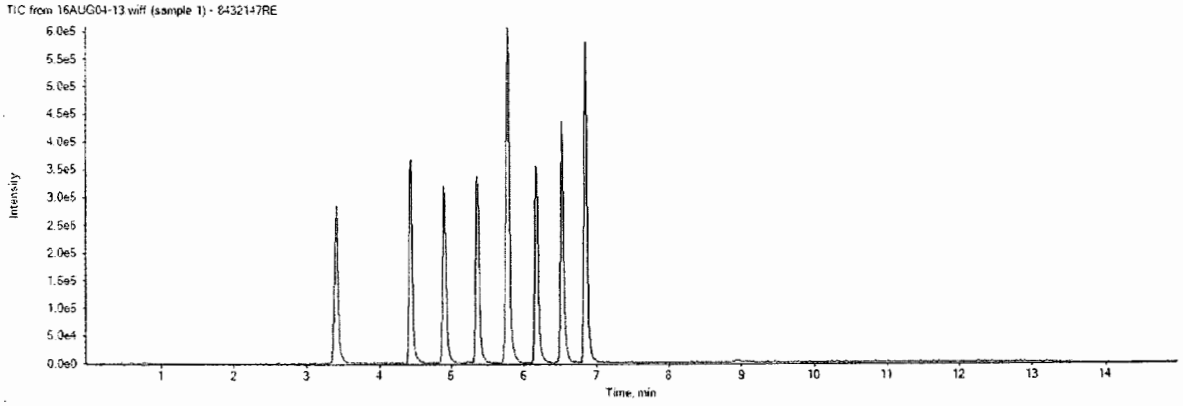
Sample Name:	8432147RE			**Data File:**		16AUG04-13.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW04-12.5 Grab Soil			**Acquis Date:**		2016-08-04T16:48:12
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	23			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16215005
				ICAL Name:		16AUG01
Batch Number:	16215005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.46000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.90	395190.7	N/A	N/A
PFHxA	4.42	1.000	1973.6	A	13C2-PFHxA	4.43	1220078.8	0.002	0.027
PFHpA	4.90	1.000	1960.3	A	13C4-PFHpA	4.90	672861.0	0.003	0.019
PFHxS	4.90	1.000	3470.9	A	18O2-PFHxS	4.90	395190.7	0.009	0.069
PFOA	5.36	1.000	107447.9	M	13C4-PFOA	5.36	1081647.8	0.099	0.775
PFNA	5.79	1.000	1700.9	A	13C5-PFNA	5.79	1688096.6	0.001	0.008
PFOS	5.76	1.000	1903.1	M	13C4-PFOS	5.76	410920.4	0.005	0.037
PFDA	6.17	1.000	1908.7	A	13C2-PFDA	6.17	1146843.9	0.002	0.011
PFUndA	6.54	1.000	3626.9	A	13C2-PFUnDA	6.53	1269168.7	0.003	0.023
PFDoDA	6.85	1.000	2063.2	M	13C2-PFDoDA	6.85	1744588.6	0.001	0.011
PFTrDA	7.15	1.040	2063.4	A	13C2-PFDoDA	6.85	1744588.6	0.001	0.011
PFTeDA	7.43	1.080	2687.6	A	13C2-PFDoDA	6.85	1744588.6	0.002	0.013

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW04-12.5 Grab Soil



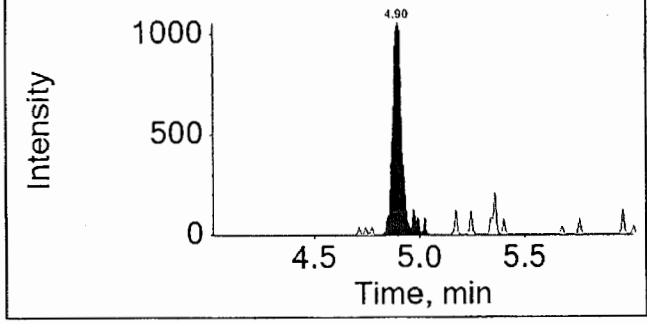
APPROVED
By MCD at 3:33 pm, 5/23/17

REVIEWED
By ucmr at 2:19 pm, 5/27/17

16AUG04-13.wiff

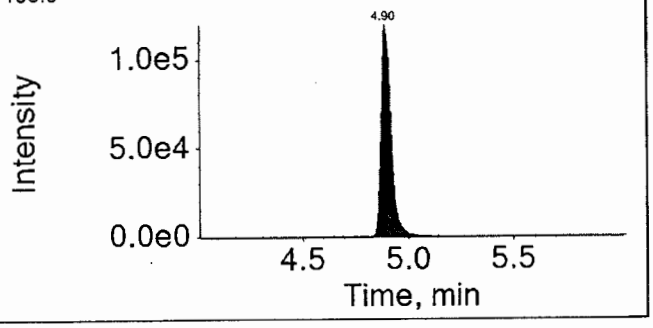
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

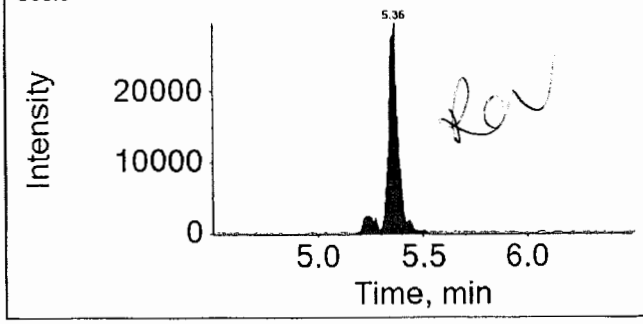
403.0 / 103.0



16AUG04-13.wiff

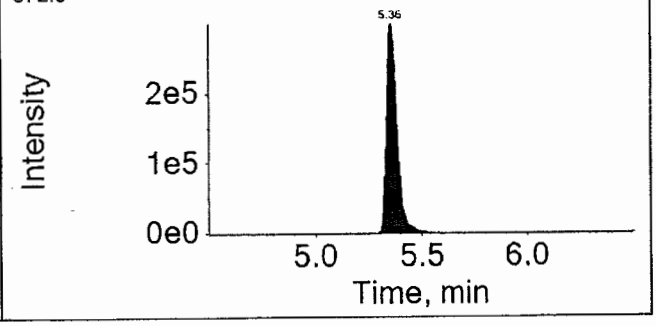
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

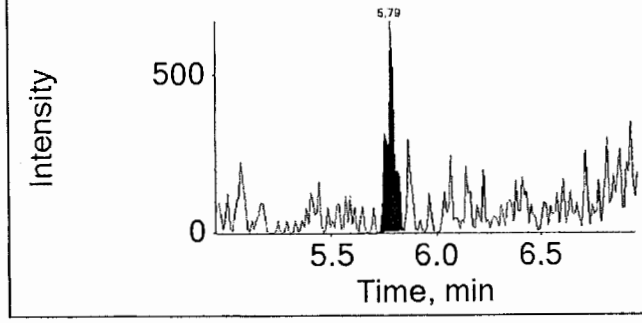
417.0 / 372.0



16AUG04-13.wiff

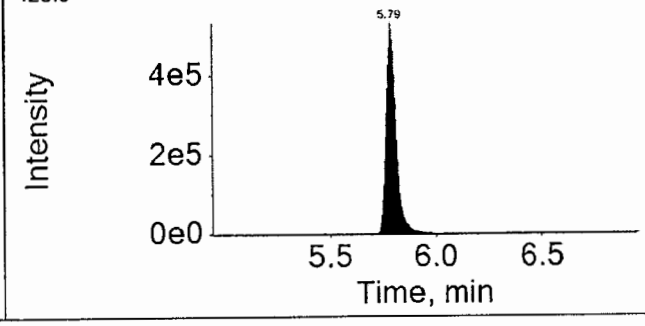
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:33 pm, 5/23/17

REVIEWED
By ucmr at 2:19 pm, 5/27/17

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 08/05/2016 14:13

Group Number: 1673381

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16182008	Sample number(s): 8432118-8432126,8432129,8432131-8432139,8432141-8432143			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
Batch number: 16190006	Sample number(s): 8432144-8432147			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16172001	Sample number(s): 8432116-8432117,8432127-8432128,8432130,8432140			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 08/05/2016 14:13

Group Number: 1673381

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Batch number: 16180298731D	Sample number(s): 8432118-8432121,8432124,8432126,8432129,8432131-8432133			
TOC	100	U	100	300
Batch number: 16181298731A	Sample number(s): 8432134-8432139,8432141-8432144			
TOC	100	U	100	300
Batch number: 16190049531A	Sample number(s): 8432145-8432147			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16182008	Sample number(s): 8432118-8432126,8432129,8432131-8432139,8432141-8432143								
Perfluorobutanesulfonate	17.68	17.12			97		70-130		
Perfluorodecanoic acid	20	25.99			130		70-130		
Perfluorododecanoic acid	20	25.47			127		70-130		
Perfluoroheptanoic acid	20	33.28			166*		70-130		
Perfluorohexanesulfonate	18.92	20.08			106		70-130		
Perfluorohexanoic acid	20	26.66			133*		70-130		
Perfluorononanoic acid	20	24.85			124		70-130		
Perfluoro-octanesulfonate	19.12	23.27			122		70-130		
Perfluorooctanoic acid	20	22.3			111		70-130		
Perfluorotetradecanoic acid	20	53.41			267*		70-130		
Perfluorotridecanoic acid	20	25.2			126		70-130		
Perfluoroundecanoic acid	20	28.08			140*		70-130		
Batch number: 16190006	Sample number(s): 8432144-8432147								
Perfluorobutanesulfonate	17.8	13.6	17.8	16.12	76	91	70-130	17	30
Perfluorodecanoic acid	20	17.21	20	19.7	86	98	70-130	14	30
Perfluorododecanoic acid	20	17.72	20	20.64	89	103	70-130	15	30
Perfluoroheptanoic acid	20	12.79	20	13.28	64*	66*	70-130	4	30
Perfluorohexanesulfonate	18.92	18.15	18.92	18.91	96	100	70-130	4	30
Perfluorohexanoic acid	20	21.39	20	22.34	107	112	70-130	4	30
Perfluorononanoic acid	20	17.29	20	18.65	86	93	70-130	8	30
Perfluoro-octanesulfonate	19.12	16.53	19.12	18.11	86	95	70-130	9	30
Perfluorooctanoic acid	20	17.1	20	18.43	86	92	70-130	7	30
Perfluorotetradecanoic acid	20	32.92	20	25.67	165*	128	70-130	25	30
Perfluorotridecanoic acid	20	25.32	20	24.77	127	124	70-130	2	30
Perfluoroundecanoic acid	20	16.33	20	18.87	82	94	70-130	14	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16172001	Sample number(s): 8432116-8432117,8432127-8432128,8432130,8432140								
Perfluorooctanoic acid	200	189.69	200	182.7	95	91	70-130	4	30
Perfluorononanoic acid	200	195.42	200	211.39	98	106	70-130	8	30
Perfluorodecanoic acid	200	187.49	200	212.82	94	106	70-130	13	30
Perfluoroundecanoic acid	200	209.31	200	201.1	105	101	70-130	4	30
Perfluorododecanoic acid	200	216.26	200	194.7	108	97	70-130	10	30

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 08/05/2016 14:13

Group Number: 1673381

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluorotridecanoic acid	200	188.15	200	181.79	94	91	70-130	3	30
Perfluorotetradecanoic acid	200	181.46	200	171.69	91	86	70-130	6	30
Perfluorohexanoic acid	200	208.47	200	214.01	104	107	70-130	3	30
Perfluoroheptanoic acid	200	184.47	200	174.02	92	87	70-130	6	30
Perfluorobutanesulfonate	176.8	205.19	176.8	198.72	116	112	70-130	3	30
Perfluorohexanesulfonate	189.2	159.21	189.2	142.98	84	76	70-130	11	30
Perfluoro-octanesulfonate	191.2	220.06	191.2	221.04	115	116	70-130	0	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16180298731D	Sample number(s): 8432118-8432121,8432124,8432126,8432129,8432131-8432133								
TOC	5430	4457.34			82		47-143		
Batch number: 16181298731A	Sample number(s): 8432134-8432139,8432141-8432144								
TOC	5430	4228.97			78		47-143		
Batch number: 16190049531A	Sample number(s): 8432145-8432147								
TOC	5430	5086.51			94		47-143		
	%	%	%	%					
Batch number: 16178820001B	Sample number(s): 8432118-8432126,8432129,8432131-8432139,8432141-8432142								
Moisture	89.5	89.47			100		99-101		
Moisture	89.5	89.47			100		99-101		
Moisture Duplicate	89.5	89.47			100		99-101		
Batch number: 16178820006A	Sample number(s): 8432143-8432147								
Moisture	89.5	89.49			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16182008	Sample number(s): 8432118-8432126,8432129,8432131-8432139,8432141-8432143 UNSPK: 8432121										
Perfluorobutanesulfonate	0.50	U	17.68	18.4	20	17.37	104	87	70-130	6	30
Perfluorodecanoic acid	0.20	U	20	31.59	20	28.83	158*	144*	70-130	9	30
Perfluorododecanoic acid	0.40	U	20	28.91	20	34.09	145*	170*	70-130	16	30
Perfluoroheptanoic acid	0.30	U	20	24.45	20	25.23	122	126	70-130	3	30
Perfluorohexanesulfonate	0.50	U	18.92	19.55	20	17.13	103	86	70-130	13	30
Perfluorohexanoic acid	0.20	U	20	25.84	20	21.49	129	107	70-130	18	30
Perfluorononanoic acid	0.20	U	20	21.86	20	20.37	109	102	70-130	7	30
Perfluoro-octanesulfonate	0.70	U	19.12	20.05	20	21.12	105	106	70-130	5	30
Perfluorooctanoic acid	0.30	U	20	21.36	20	18.93	107	95	70-130	12	30
Perfluorotetradecanoic acid	0.30	U	20	23.08	20	21.26	115	106	70-130	8	30
Perfluorotridecanoic acid	0.60	U	20	23.84	20	26.06	119	130	70-130	9	30

no (#) no impact.

not correct - on signal

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1673381
Reported: 08/05/2016 14:13

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Perfluoroundecanoic acid	0.30	U	20	30.54	20	30.93	153*	155*	70-130	1	30
Batch number: 16190006	Sample number(s): 8432144-8432147 UNSPK: 8432144										
Perfluorobutanesulfonate	0.50	U	17.8	17.25			97		70-130		
Perfluorodecanoic acid	0.632		20	19.32			93		70-130		
Perfluorododecanoic acid	13.87		20	32.16			91		70-130		
Perfluoroheptanoic acid	0.30	U	20	13.31			67*		70-130		
Perfluorohexanesulfonate	0.50	U	18.92	19.27			102		70-130		
Perfluorohexanoic acid	0.20	U	20	23.32			117		70-130		
Perfluorononanoic acid	0.20	U	20	18.31			92		70-130		
Perfluoro-octanesulfonate	0.70	U	19.12	18.77			98		70-130		
Perfluorooctanoic acid	6.11		20	23.05			85		70-130		
Perfluorotetradecanoic acid	9.55		20	24.35			74		70-130		
Perfluorotridecanoic acid	5.55		20	24.57			95		70-130		
Perfluoroundecanoic acid	1.55		20	16.92			77		70-130		
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 16172001	Sample number(s): 8432116-8432117,8432127-8432128,8432130,8432140 UNSPK: 8427012										
Perfluorooctanoic acid	1.54		200	207.84			103		70-130		
Perfluorononanoic acid	1	U	200	201.27			101		70-130		
Perfluorodecanoic acid	1	U	200	198.88			99		70-130		
Perfluoroundecanoic acid	2	U	200	187.55			94		70-130		
Perfluorododecanoic acid	3	U	200	237.24			119		70-130		
Perfluorotridecanoic acid	2	U	200	120.97			60*		70-130		
Perfluorotetradecanoic acid	3	U	200	89.3			45*		70-130		
Perfluorohexanoic acid	1	U	200	203.76			102		70-130		
Perfluoroheptanoic acid	1.01		200	179.31			89		70-130		
Perfluorobutanesulfonate	4	U	176.8	79.42			45*		70-130		
Perfluorohexanesulfonate	7.81		189.2	177.92			90		70-130		
Perfluoro-octanesulfonate	5	U	191.2	282.44			148*		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16180298731D	Sample number(s): 8432118-8432121,8432124,8432126,8432129,8432131-8432133 UNSPK: 8432121										
TOC	1763		10320	13242.87			111		47-143		
Batch number: 16181298731A	Sample number(s): 8432134-8432139,8432141-8432144 UNSPK: 8432134										
TOC	3863.54		19230	20615.78			87		47-143		
Batch number: 16190049531A	Sample number(s): 8432145-8432147 UNSPK: P433354										
TOC	2414.31		38961	46272.73			113		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 08/05/2016 14:13

Group Number: 1673381

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16180298731D	Sample number(s): 8432118-8432121,8432124,8432126,8432129,8432131-8432133 BKG: 8432121			
TOC	1763	1092.49	47* (1)	7
Batch number: 16181298731A	Sample number(s): 8432134-8432139,8432141-8432144 BKG: 8432134			
TOC	3863.54	2370.21	48* (1)	7
Batch number: 16190049531A	Sample number(s): 8432145-8432147 BKG: P433354			
TOC	2414.31	2535.24	5 (1)	7
	%	%		
Batch number: 16178820001B	Sample number(s): 8432118-8432126,8432129,8432131-8432139,8432141-8432142 BKG: 8432121, P432121			
Moisture	5.41	5.56	3	5
Moisture	5.41	5.56	3	5
Moisture Duplicate	5.41	5.56	3	5
Batch number: 16178820006A	Sample number(s): 8432143-8432147 BKG: P432702			
Moisture	33.97	38.47	12*	5

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/30/2017 08:38

Group Number: 1673381

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorooctanoic acid	200	189.69	200	182.7	95	91	70-130	4	30
Perfluorononanoic acid	200	195.42	200	211.39	98	106	70-130	8	30
Perfluorodecanoic acid	200	187.49	200	212.82	94	106	70-130	13	30
Perfluoroundecanoic acid	200	209.31	200	201.1	105	101	70-130	4	30
Perfluorododecanoic acid	200	216.26	200	194.7	108	97	70-130	10	30
Perfluorotridecanoic acid	200	188.15	200	181.79	94	91	70-130	3	30
Perfluorotetradecanoic acid	200	181.46	200	171.69	91	86	70-130	6	30
Perfluorohexanoic acid	200	208.47	200	214.01	104	107	70-130	3	30
Perfluoroheptanoic acid	200	184.47	200	174.02	92	87	70-130	6	30
Perfluorobutanesulfonate	176.8	205.19	176.8	198.72	116	112	70-130	3	30
Perfluorohexanesulfonate	189.2	159.21	189.2	142.98	84	76	70-130	11	30
Perfluoro-octanesulfonate	191.2	220.06	191.2	221.04	115	116	70-130	0	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16180298731D	Sample number(s): 8432118-8432121,8432124,8432126,8432129,8432131-8432133								
TOC	5430	4457.34			82		47-143		
Batch number: 16181298731A	Sample number(s): 8432134-8432139,8432141-8432144								
TOC	5430	4228.97			78		47-143		
Batch number: 16190049531A	Sample number(s): 8432145-8432147								
TOC	5430	5086.51			94		47-143		
	%	%	%	%					
Batch number: 16178820001B	Sample number(s): 8432118-8432126,8432129,8432131-8432139,8432141-8432142								
Moisture	89.5	89.47			100		99-101		
Moisture	89.5	89.47			100		99-101		
Moisture Duplicate	89.5	89.47			100		99-101		
Batch number: 16178820006A	Sample number(s): 8432143-8432147								
Moisture	89.5	89.49			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g		MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16182008	Sample number(s): 8432118-8432126,8432129,8432131-8432139,8432141-8432143 UNSPK: 8432121										
Perfluorobutanesulfonate	0.50	U	17.68	18.4	17.68	17.37	104	98	70-130	6	30
Perfluorodecanoic acid	0.20	U	20	31.59	20	28.83	158*	144*	70-130	9	30
Perfluorododecanoic acid	0.40	U	20	28.91	20	34.09	145*	170*	70-130	16	30
Perfluoroheptanoic acid	0.30	U	20	24.45	20	25.23	122	126	70-130	3	30

Revised

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/30/2017 08:38

Group Number: 1673381

MS/MSD (continued)

Revised

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Perfluorohexanesulfonate	0.50	U	18.92	19.55	18.92	17.13	103	91	70-130	13	30
Perfluorohexanoic acid	0.20	U	20	25.84	20	21.49	129	107	70-130	18	30
Perfluorononanoic acid	0.20	U	20	21.86	20	20.37	109	102	70-130	7	30
Perfluoro-octanesulfonate	0.70	U	19.12	20.05	19.12	21.12	105	110	70-130	5	30
Perfluorooctanoic acid	0.30	U	20	21.36	20	18.93	107	95	70-130	12	30
Perfluorotetradecanoic acid	0.30	U	20	23.08	20	21.26	115	106	70-130	8	30
Perfluorotridecanoic acid	0.60	U	20	23.84	20	26.06	119	130	70-130	9	30
Perfluoroundecanoic acid	0.30	U	20	30.54	20	30.93	153*	155*	70-130	1	30
Batch number: 16190006	Sample number(s): 8432144-8432147 UNSPK: 8432144										
Perfluorobutanesulfonate	0.50	U	17.8	17.25			97		70-130		
Perfluorodecanoic acid	0.632		20	19.32			93		70-130		
Perfluorododecanoic acid	13.87		20	32.16			91		70-130		
Perfluoroheptanoic acid	0.30	U	20	13.31			67*		70-130		
Perfluorohexanesulfonate	0.50	U	18.92	19.27			102		70-130		
Perfluorohexanoic acid	0.20	U	20	23.32			117		70-130		
Perfluorononanoic acid	0.20	U	20	18.31			92		70-130		
Perfluoro-octanesulfonate	0.70	U	19.12	18.77			98		70-130		
Perfluorooctanoic acid	6.71		20	23.05			82		70-130		
Perfluorotetradecanoic acid	9.55		20	24.35			74		70-130		
Perfluorotridecanoic acid	5.55		20	24.57			95		70-130		
Perfluoroundecanoic acid	1.55		20	16.92			77		70-130		
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 16172001	Sample number(s): 8432116-8432117,8432127-8432128,8432130,8432140 UNSPK: 8427012										
Perfluorooctanoic acid	1.54		200	207.84			103		70-130		
Perfluorononanoic acid	1	U	200	201.27			101		70-130		
Perfluorodecanoic acid	1	U	200	198.88			99		70-130		
Perfluoroundecanoic acid	2	U	200	187.55			94		70-130		
Perfluorododecanoic acid	3	U	200	237.24			119		70-130		
Perfluorotridecanoic acid	2	U	200	120.97			60*		70-130		
Perfluorotetradecanoic acid	3	U	200	89.3			45*		70-130		
Perfluorohexanoic acid	1	U	200	203.76			102		70-130		
Perfluoroheptanoic acid	1.01		200	179.31			89		70-130		
Perfluorobutanesulfonate	4	U	176.8	79.42			45*		70-130		
Perfluorohexanesulfonate	7.81		189.2	177.92			90		70-130		
Perfluoro-octanesulfonate	5	U	191.2	282.44			148*		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16180298731D	Sample number(s): 8432118-8432121,8432124,8432126,8432129,8432131-8432133 UNSPK: 8432121										
TOC	1763		10320	13242.87			111		47-143		
Batch number: 16181298731A	Sample number(s): 8432134-8432139,8432141-8432144 UNSPK: 8432134										
TOC	3863.54		19230	20615.78			87		47-143		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SGP94
Matrix: SOLID

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

UNSPK: 8432121 MS: 8432122 MSD: 8432123 Analyte	Batch: **16182008** (Sample number(s): 8432118-8432126, 8432129, 8432131-8432139, 8432141-8432143)								
	Spike Added ng/g MS/MSD	Unspiked Conc ng/g	MS Conc ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	%Rec Limits	%RPD	%RPD Limits
Perfluorooctanoic acid	20	N.D.	21.36	18.93	107	95	70-130	12	30
Perfluorononanoic acid	20	N.D.	21.86	20.37	109	102	70-130	7	30
Perfluorodecanoic acid	20	N.D.	31.59	28.82	158 *	144 *	70-130	9	30
Perfluoroundecanoic acid	20	N.D.	30.54	30.93	153 *	155 *	70-130	1	30
Perfluorododecanoic acid	20	N.D.	28.91	34.09	145 *	170 *	70-130	16	30
Perfluorotridecanoic acid	20	N.D.	23.84	26.06	119	130	70-130	9	30
Perfluorotetradecanoic acid	20	N.D.	23.08	21.26	115	106	70-130	8	30
Perfluorohexanoic acid	20	N.D.	25.84	21.49	129	107	70-130	18	30
Perfluoroheptanoic acid	20	N.D.	24.45	25.23	122	126	70-130	3	30
Perfluorobutanesulfonate	17.68 / 20	N.D.	18.4	17.37	104	87	70-130	6	30
Perfluorohexanesulfonate	18.92 / 20	N.D.	19.55	17.13	103	86	70-130	13	30
Perfluoro-octanesulfonate	19.12 / 20	N.D.	20.05	21.12	105	106	70-130	5	30

UNSPK: 8432144 MS: 8432144 Analyte	Batch: **16190006** (Sample number(s): 8432144-8432147)								
	Spike Added ng/g	Unspiked Conc ng/g	MS Conc ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	%Rec Limits	%RPD	%RPD Limits
Perfluorooctanoic acid	20	6.11	23.05	NA	85	NA	70-130	NA	NA
Perfluorononanoic acid	20	N.D.	18.31	NA	92	NA	70-130	NA	NA
Perfluorodecanoic acid	20	0.632	19.32	NA	93	NA	70-130	NA	NA
Perfluoroundecanoic acid	20	1.55	16.92	NA	77	NA	70-130	NA	NA
Perfluorododecanoic acid	20	13.87	32.16	NA	91	NA	70-130	NA	NA
Perfluorotridecanoic acid	20	5.55	24.57	NA	95	NA	70-130	NA	NA
Perfluorotetradecanoic acid	20	9.55	24.35	NA	74	NA	70-130	NA	NA
Perfluorohexanoic acid	20	N.D.	23.32	NA	117	NA	70-130	NA	NA
Perfluoroheptanoic acid VJ	20	N.D.	13.31	NA	67 *	NA	70-130	NA	NA
Perfluorobutanesulfonate	17.8	N.D.	17.25	NA	97	NA	70-130	NA	NA
Perfluorohexanesulfonate	18.92	N.D.	19.27	NA	102	NA	70-130	NA	NA
Perfluoro-octanesulfonate	19.12	N.D.	18.77	NA	98	NA	70-130	NA	NA

No (F)

Not updated by lab

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SGP94
Matrix: Solid

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

UNSPK: 8432144RE MS: 8432144RE **Analyte**	Batch: **16215005** (Sample number(s): 8432144RE-8432147RE)								
	Spike Added ng/g	**Unspiked Conc ng/g**	**MS Conc ng/g**	**MSD Conc ng/g**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	20	7.72	27.48	NA	99	NA	70-130	NA	NA
Perfluorononanoic acid	20	0	16.27	NA	81	NA	70-130	NA	NA
Perfluorodecanoic acid	20	0	20.73	NA	104	NA	70-130	NA	NA
Perfluoroundecanoic acid	20	2.35	17.08	NA	74	NA	70-130	NA	NA
Perfluorododecanoic acid	20	17.73	33.11	NA	77	NA	70-130	NA	NA
Perfluorotridecanoic acid	20	6.50	29.14	NA	113	NA	70-130	NA	NA
Perfluorotertadecanoic acid	20	11.38	36.72	NA	127	NA	70-130	NA	NA
Perfluorohexanoic acid	20	0	18.15	NA	91	NA	70-130	NA	NA
Perfluoroheptanoic acid	20	0	17.16	NA	86	NA	70-130	NA	NA
Perfluorobutanesulfonate	17.68	0	15.37	NA	87	NA	70-130	NA	NA
Perfluorohexanesulfonate	18.92	0	17.29	NA	91	NA	70-130	NA	NA
Perfluoro-octanesulfonate	19.12	0	17.04	NA	89	NA	70-130	NA	NA

REs extracted past HT
not reported

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

10/16/2016 3:30:46 PM

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP94
Matrix: SOLID

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

LCS: LCS	Batch: **16182008** (Sample number(s): 8432118-8432126, 8432129, 8432131-8432139, 8432141-8432143)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	20	22.3	NA	111	NA	70-130	NA	NA
Perfluorononanoic acid	20	24.85	NA	124	NA	70-130	NA	NA
Perfluorodecanoic acid	20	25.99	NA	130	NA	70-130	NA	NA
Perfluoroundecanoic acid 31,34,43	20	28.08	NA	140 *	NA	70-130	NA	NA
Perfluorododecanoic acid	20	25.47	NA	127	NA	70-130	NA	NA
Perfluorotridecanoic acid	20	25.2	NA	126	NA	70-130	NA	NA
Perfluorotetradecanoic acid 41-43	20	53.41	NA	267 *	NA	70-130	NA	NA
Perfluorohexanoic acid 34,43	20	26.66	NA	133 *	NA	70-130	NA	NA
Perfluoroheptanoic acid 34	20	33.28	NA	166 *	NA	70-130	NA	NA
Perfluorobutanesulfonate	17.68	17.12	NA	97	NA	70-130	NA	NA
Perfluorohexanesulfonate	18.92	20.08	NA	106	NA	70-130	NA	NA
Perfluoro-octanesulfonate	19.12	23.27	NA	122	NA	70-130	NA	NA

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LCS: LCS LCSD: LCSD	Batch: **16190006** (Sample number(s): 8432144-8432147)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	20	17.1	18.43	86	92	70-130	7	30
Perfluorononanoic acid	20	17.29	18.64	86	93	70-130	8	30
Perfluorodecanoic acid	20	17.2	19.7	86	98	70-130	14	30
Perfluoroundecanoic acid	20	16.33	18.87	82	94	70-130	14	30
Perfluorododecanoic acid	20	17.72	20.64	89	103	70-130	15	30
Perfluorotridecanoic acid	20	25.32	24.77	127	124	70-130	2	30
Perfluorotetradecanoic acid 44	20	32.92	25.67	165 *	128	70-130	25	30
Perfluorohexanoic acid	20	21.39	22.34	107	112	70-130	4	30
Perfluoroheptanoic acid 44-47	20	12.79	13.28	64 *	66 *	70-130	4	30
Perfluorobutanesulfonate	17.8	13.6	16.12	76	91	70-130	17	30
Perfluorohexanesulfonate	18.92	18.15	18.91	96	100	70-130	4	30
Perfluoro-octanesulfonate	19.12	16.53	18.11	86	95	70-130	9	30

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP94
Matrix: Solid

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

LCS: LCS	Batch: **16203007** (Sample number(s): 8432141RE-8432143RE)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	20	17.33	17.17	87	86	70-130	1	30
Perfluorononanoic acid	20	16.46	16.71	82	84	70-130	2	30
Perfluorodecanoic acid	20	17.92	10.02	90	100	70-130	11	30
Perfluoroundecanoic acid	20	16.72	17.50	84	87	70-130	5	30
Perfluorododecanoic acid	20	17.68	18.78	88	94	70-130	6	30
Perfluorotridecanoic acid	20	16.88	18.62	84	93	70-130	10	30
Perfluorotertadecanoic acid	20	15.96	17.87	80	89	70-130	11	30
Perfluorohexanoic acid	20	17.99	22.58	90	113	70-130	23	30
Perfluoroheptanoic acid	20	14.36	14.69	72	73	70-130	2	30
Perfluorobutanesulfonate	17.68	15.46	16.81	87	95	70-130	8	30
Perfluorohexanesulfonate	18.92	18.29	18.42	97	97	70-130	1	30
Perfluoro-octanesulfonate	19.12	16.69	17.82	87	93	70-130	7	30

(*) assoc. w/ REs that were not reported

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP94
Matrix: Solid

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

LCS: LCS	Batch: **16215005** (Sample number(s): 8432144RE-8432147RE)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	20	16.93	18.45	85	92	70-130	9	30
Perfluorononanoic acid	20	16.34	16.48	82	82	70-130	1	30
Perfluorodecanoic acid	20	17.77	19.59	89	98	70-130	10	30
Perfluoroundecanoic acid	20	16.17	17.08	81	85	70-130	5	30
Perfluorododecanoic acid	20	16.34	17.41	82	87	70-130	6	30
Perfluorotridecanoic acid	20	20.40	21.97	102	110	70-130	7	30
Perfluorotertadecanoic acid	20	19.75	22.16	99	111	70-130	12	30
Perfluorohexanoic acid	20	18.20	19.33	91	97	70-130	6	30
Perfluoroheptanoic acid	20	16.17	18.10	81	90	70-130	11	30
Perfluorobutanesulfonate	17.68	15.03	16.69	85	94	70-130	10	30
Perfluorohexanesulfonate	18.92	16.19	17.92	86	95	70-130	10	30
Perfluoro-octanesulfonate	19.12	15.88	17.38	83	91	70-130	9	30

(*)

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP94
Matrix: LIQUID

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

LCS: LCS LCSD: LCSD	Batch: **16172001** (Sample number(s): 8432116-8432117, 8432127-8432128, 8432130, 8432140)							
Analyte	**Spike Added ng/l**	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	200	189.68	182.7	95	91	70-130	4	30
Perfluorononanoic acid	200	195.42	211.39	98	106	70-130	8	30
Perfluorodecanoic acid	200	187.49	212.82	94	106	70-130	13	30
Perfluoroundecanoic acid	200	209.3	201.1	105	101	70-130	4	30
Perfluorododecanoic acid	200	216.26	194.7	108	97	70-130	10	30
Perfluorotridecanoic acid	200	188.15	181.79	94	91	70-130	3	30
Perfluorotetradecanoic acid	200	181.46	171.69	91	86	70-130	6	30
Perfluorohexanoic acid	200	208.47	214.01	104	107	70-130	3	30
Perfluoroheptanoic acid	200	184.47	174.02	92	87	70-130	6	30
Perfluorobutanesulfonate	176.8	205.19	198.72	116	112	70-130	3	30
Perfluorohexanesulfonate	189.2	159.21	142.98	84	76	70-130	11	30
Perfluoro-octanesulfonate	191.2	220.06	221.04	115	116	70-130	0	30

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP94
Matrix: SOLID

Fraction: PFAAs by LC/MS/MS

16182008 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	07/18/16	N.D.	ng/g	0.30	0.60
Perfluorononanoic acid	07/18/16	N.D.	ng/g	0.20	0.40
Perfluorodecanoic acid	07/18/16	N.D.	ng/g	0.20	0.40
Perfluoroundecanoic acid	07/18/16	N.D.	ng/g	0.30	0.60
Perfluorododecanoic acid	07/18/16	N.D.	ng/g	0.40	0.80
Perfluorotridecanoic acid	07/18/16	N.D.	ng/g	0.60	1.2
Perfluorotetradecanoic acid	07/18/16	N.D.	ng/g	0.30	0.80
Perfluorohexanoic acid	07/18/16	N.D.	ng/g	0.20	0.40
Perfluoroheptanoic acid	07/18/16	N.D.	ng/g	0.30	0.60
Perfluorobutanesulfonate	07/18/16	N.D.	ng/g	0.50	1.6
Perfluorohexanesulfonate	07/18/16	N.D.	ng/g	0.50	1.6
Perfluoro-octanesulfonate	07/18/16	N.D.	ng/g	0.70	1.6

16190006 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	07/29/16	N.D.	ng/g	0.30	0.60
Perfluorononanoic acid	07/29/16	N.D.	ng/g	0.20	0.40
Perfluorodecanoic acid	07/29/16	N.D.	ng/g	0.20	0.40
Perfluoroundecanoic acid	07/29/16	N.D.	ng/g	0.30	0.60
Perfluorododecanoic acid	07/29/16	N.D.	ng/g	0.40	0.80
Perfluorotridecanoic acid	07/29/16	N.D.	ng/g	0.60	1.2
Perfluorotetradecanoic acid	07/29/16	N.D.	ng/g	0.30	0.80
Perfluorohexanoic acid	07/29/16	N.D.	ng/g	0.20	0.40
Perfluoroheptanoic acid	07/29/16	N.D.	ng/g	0.30	0.60
Perfluorobutanesulfonate	07/29/16	N.D.	ng/g	0.50	1.6
Perfluorohexanesulfonate	07/29/16	N.D.	ng/g	0.50	1.6
Perfluoro-octanesulfonate	07/29/16	N.D.	ng/g	0.70	1.6

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Form 4
Method Blank Summary
LC/MS/MS

SDG: SGP94

Matrix: Soil
Water Sample Prep: Sonc
Sample vol: 5.00 grams
Instrument ID: 18881

Lab Sample ID: MB16182008
Lab File ID: 16JUL18-12
Date Analyzed: 07/18/2016 12:26

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
LCS16182008	16JUL18-13	07/18/2016 12:43
8432118	16JUL18-14	07/18/2016 13:00
8432119	16JUL18-15	07/18/2016 13:17
8432120	16JUL18-16	07/18/2016 13:35
8432124	16JUL18-17	07/18/2016 13:52
8432125	16JUL18-18	07/18/2016 14:09
8432126	16JUL18-19	07/18/2016 14:26
8432129	16JUL18-22	07/18/2016 15:18
8432131	16JUL18-23	07/18/2016 15:35
8432133	16JUL18-25	07/18/2016 16:10
8432134	16JUL18-26	07/18/2016 16:27
8432135	16JUL18-27	07/18/2016 16:44
8432136	16JUL18-28	07/18/2016 17:01
8432137	16JUL18-29	07/18/2016 17:19
8432138	16JUL18-30	07/18/2016 17:36
8432139	16JUL18-33	07/18/2016 18:28
8432121	16JUL18-37	07/18/2016 19:37
8432122MS	16JUL18-38	07/18/2016 19:54
8432123MSD	16JUL18-39	07/18/2016 20:11
8432141	16JUL19-44	07/20/2016 03:39
8432142	16JUL19-45	07/20/2016 03:56
8432143	16JUL19-46	07/20/2016 04:14
8432132	16JUL21-05	07/21/2016 07:54

LCMSMS ANALYSIS REPORT

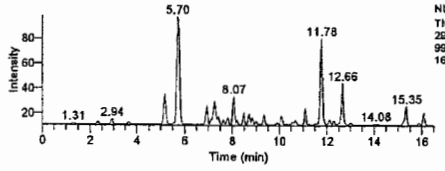
Sample Name:	MB 16182008	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	MB 16182008	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL18-12		
Acquisition Date:	07/18/16 12:26:08 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:1	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

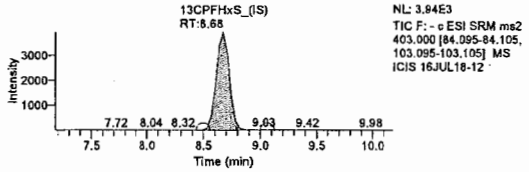
Extracted Ion Chromatogram

Quan Peak Table

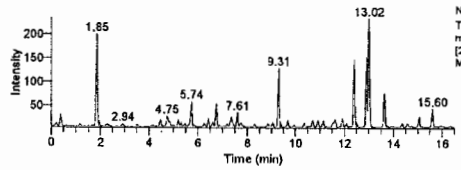
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.29	16288.98	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	9536.85	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.64	23154.94	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.72	43914.59	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.67	4232.84	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	2238.01	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.68	30977.93	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.25	22677.41	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.11	37363.21	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/g

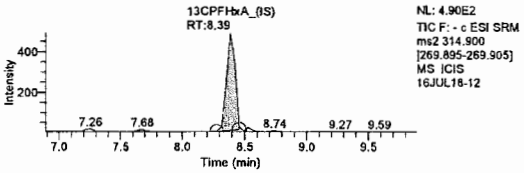
Component Name: PFBS





Component Name: PFHxA





Component Name: PFOA

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JUL 20 2016

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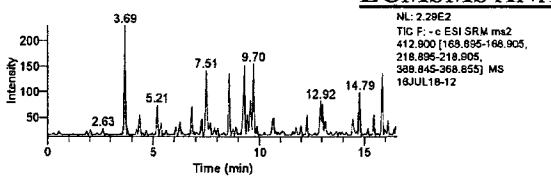
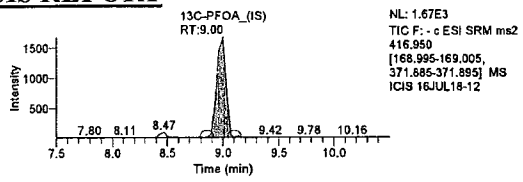
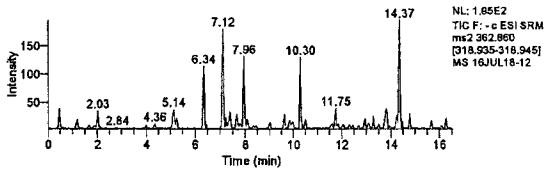
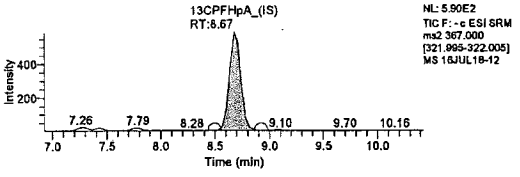


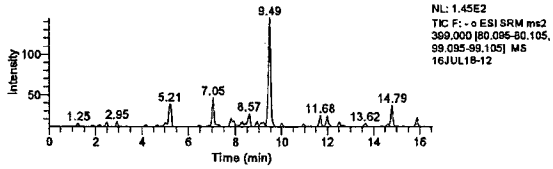


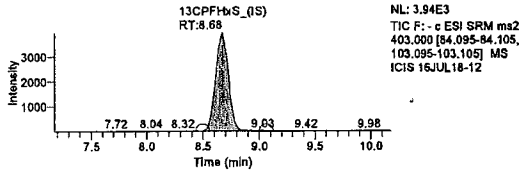
Component Name: PFhpA



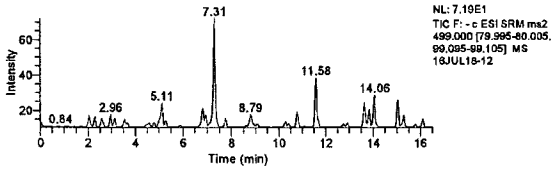


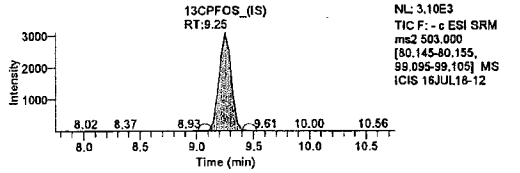
Component Name: PFHxS



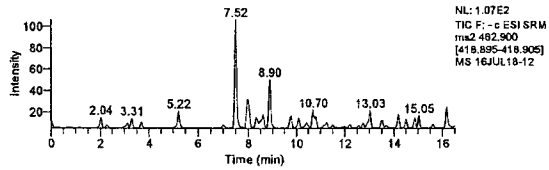


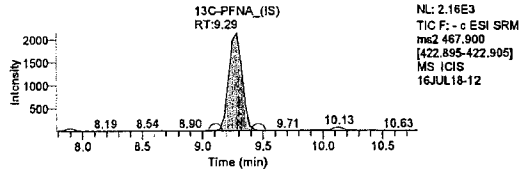
Component Name: PFOS



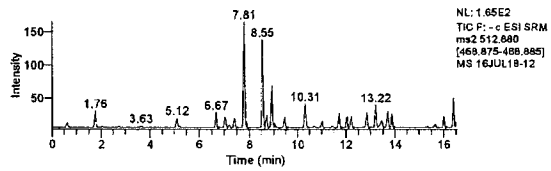


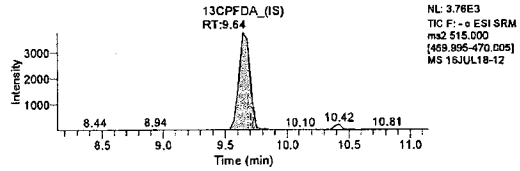
Component Name: PFNA





Component Name: PFDA





Component Name: PFUdA

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JUL 20 2016

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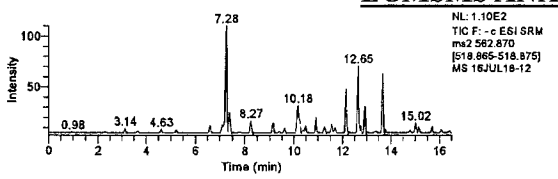
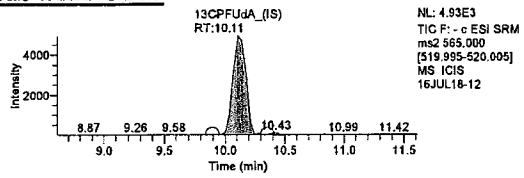
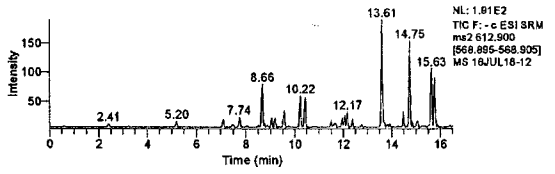
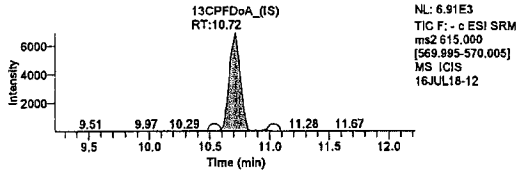


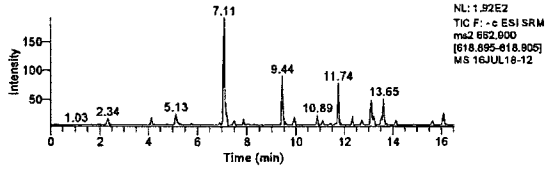


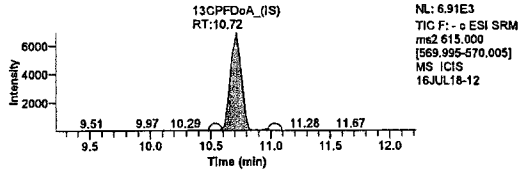
Component Name: PFDoA



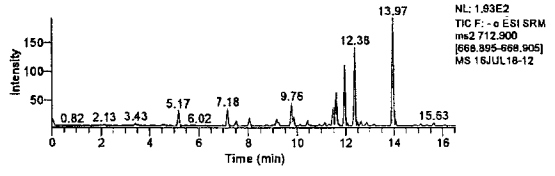


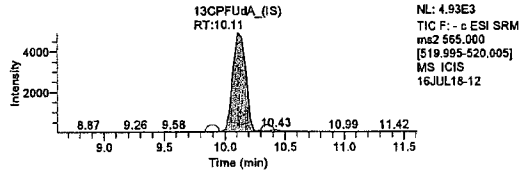
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 20 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 20 2016

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FORM 04
METHOD BLANK SUMMARY
LC/MS/MS

SDG No.: SGP94

Matrix: SOIL
Lab Sample ID: BLK190006

Sample Prep: Sonc
Lab File ID: 16JUL29-06.WIFF

Sample wt: 5.00 (g)

Instrument ID: 24743
Date Analyzed: 07/29/2016 10:15

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
OPR190006	16JUL29-07.WIFF	07/29/2016 10:31
LCSDA	16JUL29-08.WIFF	07/29/2016 10:46
8432144	16JUL29-09.WIFF	07/29/2016 11:02
8432144MS	16JUL29-10.WIFF	07/29/2016 11:18
8432145	16JUL29-11.WIFF	07/29/2016 11:33
8432146	16JUL29-12.WIFF	07/29/2016 11:49
8432147	16JUL29-13.WIFF	07/29/2016 12:05

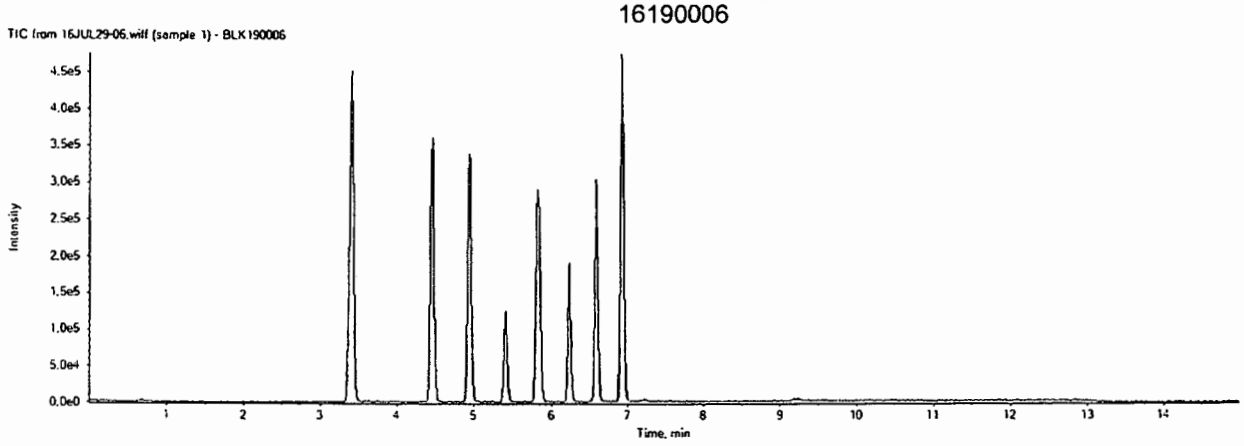
Sample Name:	BLK190006	**Data File:**		16JUL29-06.wiff
Sample ID:	16190006	**Acquis Date:**		7/29/2016 10:15:27 AM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	31	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.000	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

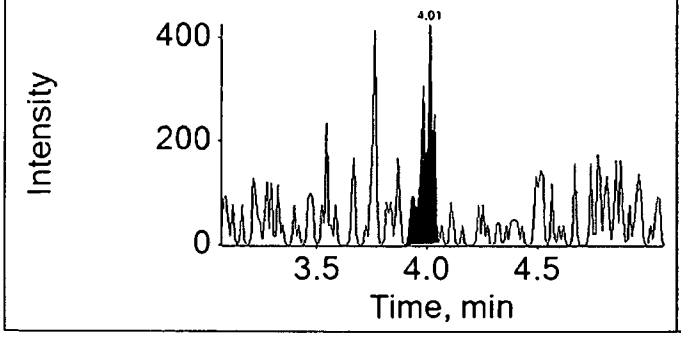
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.01	1320.8	18O2-PFHxS	4.93	620701.9	0.002	0.015	
PFHxA	4.46	2711.1	13C2-PFHxA	4.45	1174258.3	0.002	0.045	
PFHpA	4.94	813.0	13C4-PFHpA	4.94	440470.5	0.002	0.013	
PFHxS	4.94	2970.7	18O2-PFHxS	4.93	620701.9	0.005	0.040	
PFOA	5.41	1975.9	13C4-PFOA	5.41	350039.7	0.006	0.045	
PFNA	5.84	2909.9	13C5-PFNA	5.84	475435.3	0.006	0.053	
PFOS	5.82	1000.4	13C4-PFOS	5.81	611862.9	0.002	0.014	
PFDA	6.23	2064.8	13C2-PFDA	6.23	471577.7	0.004	0.032	
PFUndA	6.59	3193.8	13C2-PFUnDA	6.59	792967.1	0.004	0.036	
PFDoDA	6.93	3128.7	13C2-PFDoDA	6.93	1331734.9	0.002	0.027	
PFTrDA	7.25	3951.9	13C2-PFDoDA	6.93	1331734.9	0.003	0.028	
PFTeDA	7.56	6571.2	13C2-PFDoDA	6.93	1331734.9	0.005	0.043	

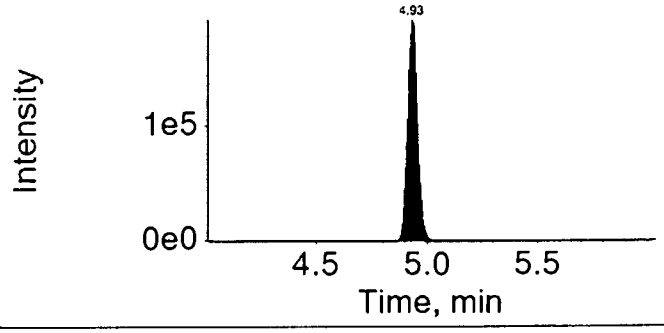
Total Ion Chromatogram

16190006

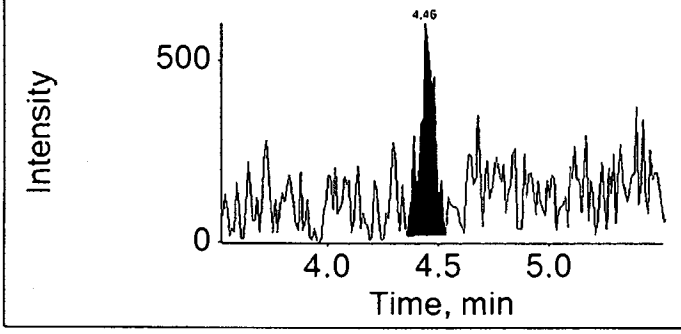


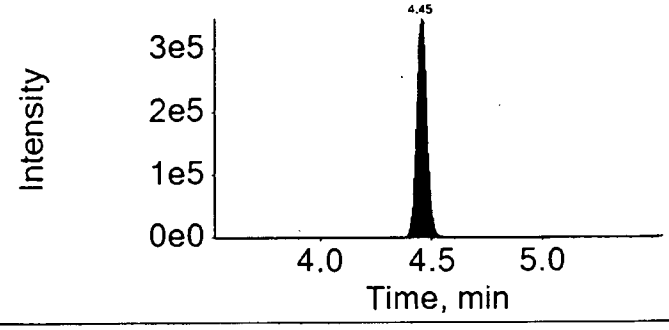
16JUL29-06.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



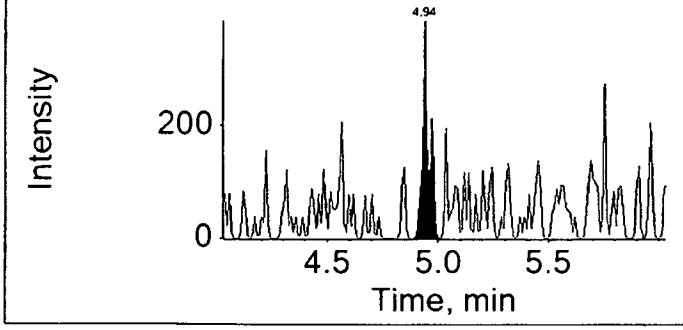


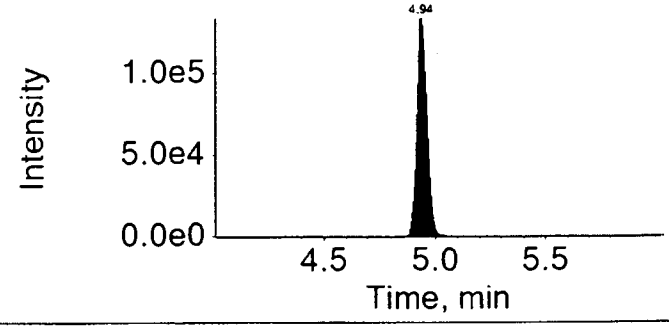
16JUL29-06.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16JUL29-06.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

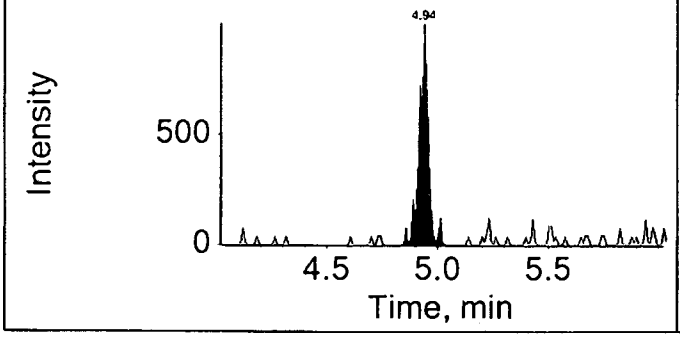




16JUL29-06.wiff

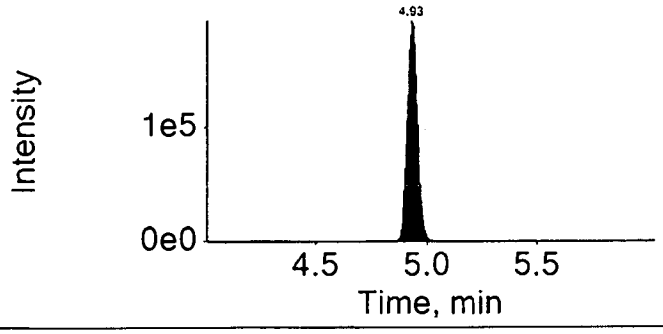
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

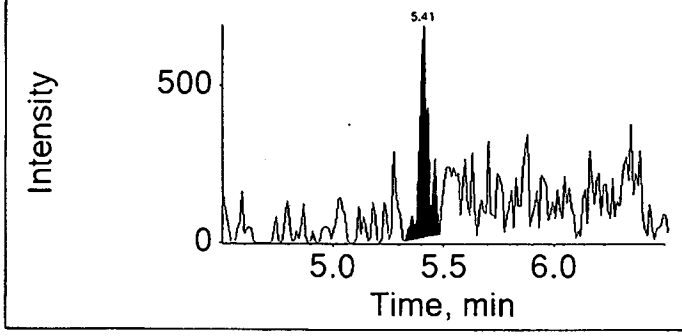
403.0 / 103.0



16JUL29-06.wiff

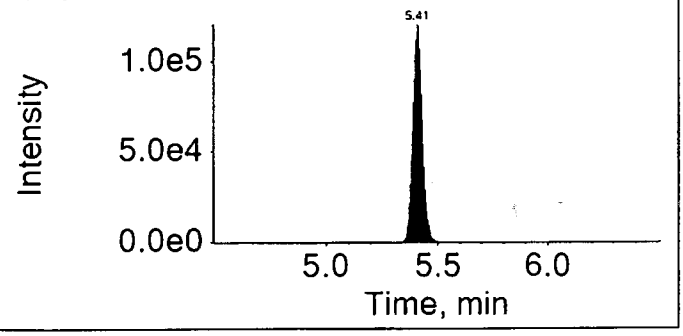
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

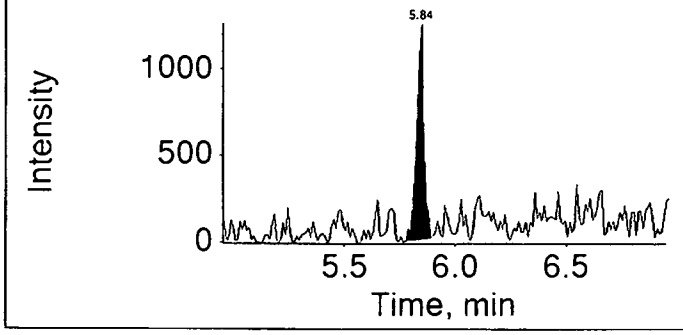
417.0 / 372.0



16JUL29-06.wiff

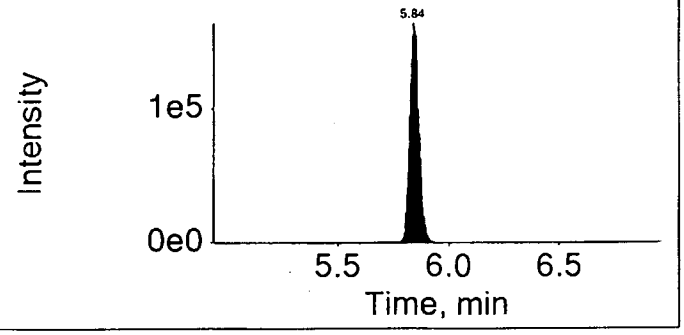
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

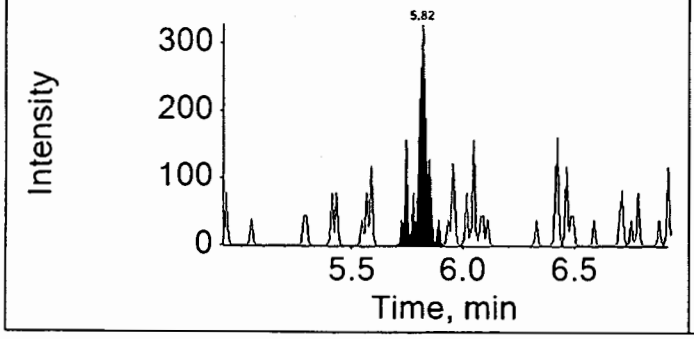
468.0 / 423.0



16JUL29-06.wiff

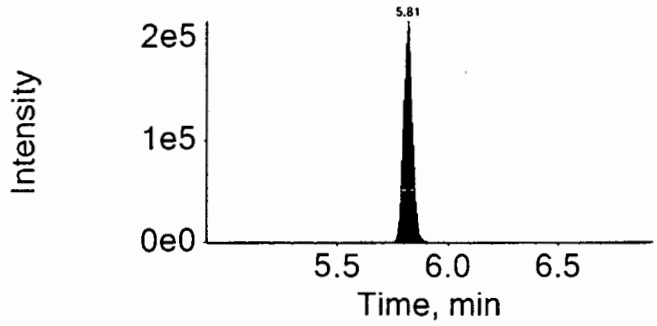
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

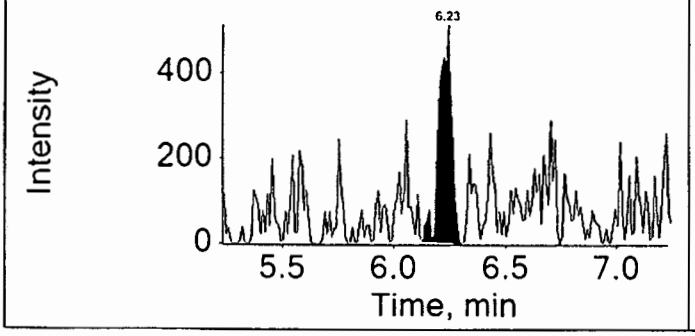
503.0 / 99.0



16JUL29-06.wiff

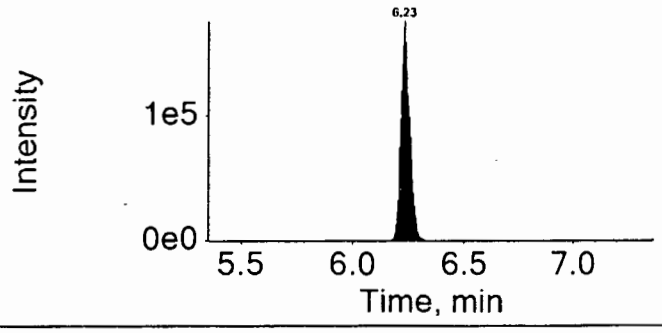
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

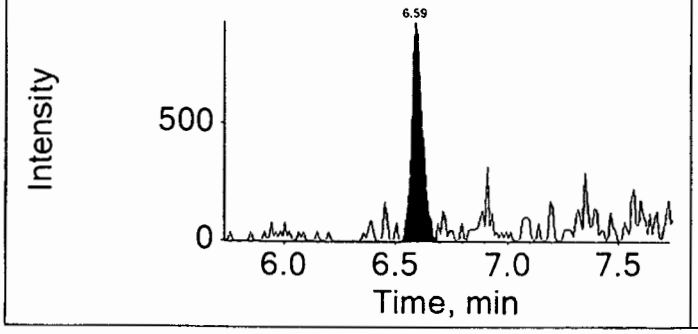
515.0 / 470.0



16JUL29-06.wiff

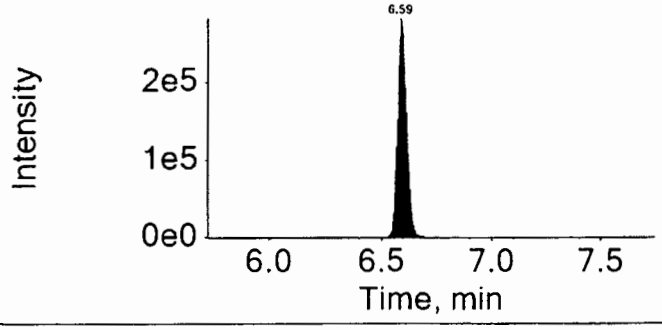
Analyte: PFUndA

562.9 / 518.9

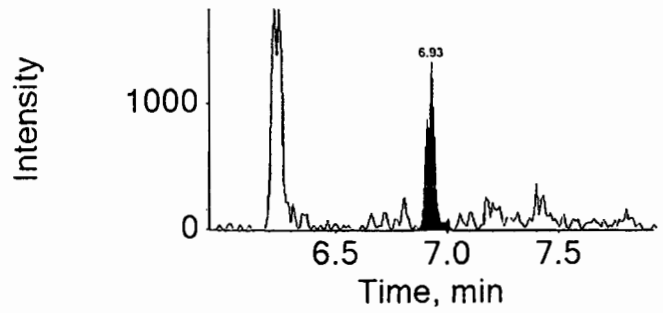


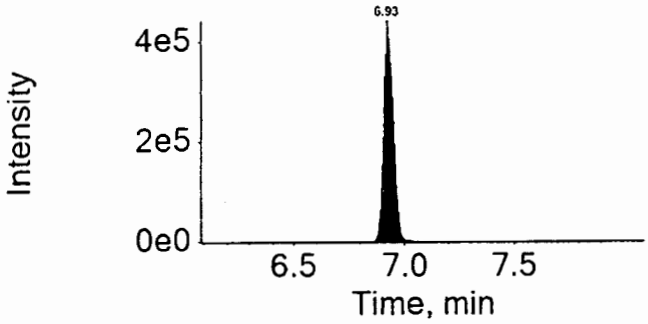
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

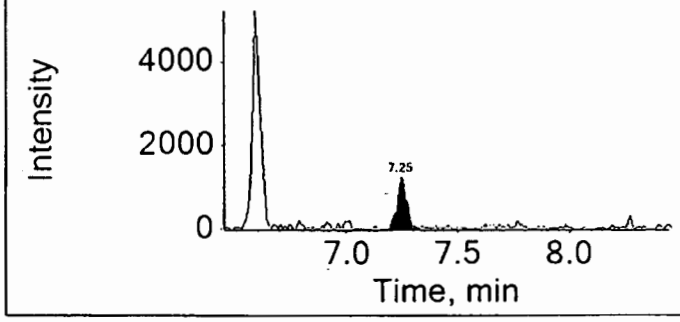


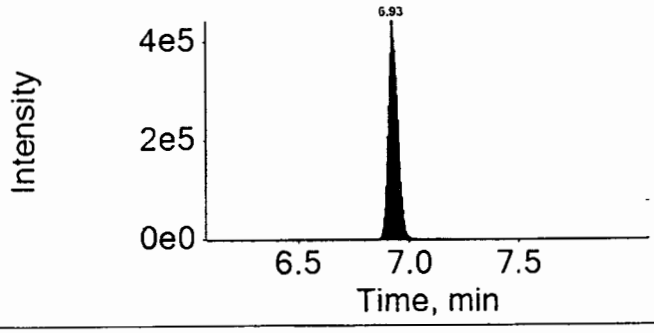
16JUL29-06.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



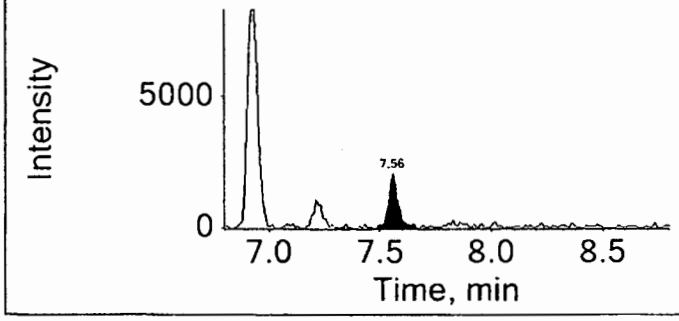


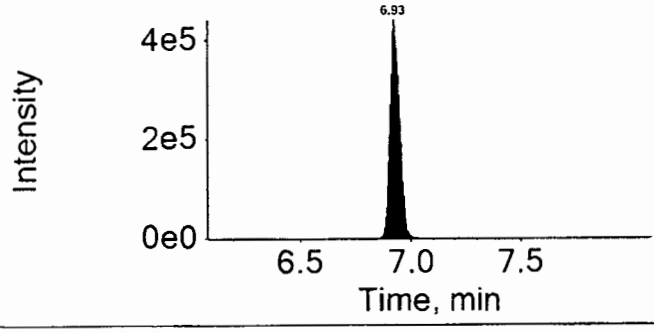
16JUL29-06.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL29-06.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP94
Matrix: Solid

Fraction: PFAAs by LC/MS/MS

16203007 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	07/28/2016	N.D.	ng/g	1	2
Perfluorononanoic acid	07/28/2016	N.D.	ng/g	1	2
Perfluorodecanoic acid	07/28/2016	N.D.	ng/g	1	2
Perfluoroundecanoic acid	07/28/2016	N.D.	ng/g	2	4
Perfluorododecanoic acid	07/28/2016	N.D.	ng/g	3	5
Perfluorotridecanoic acid	07/28/2016	N.D.	ng/g	2	4
Perfluorotertadecanoic acid	07/28/2016	N.D.	ng/g	3	5
Perfluorohexanoic acid	07/28/2016	N.D.	ng/g	1	2
Perfluoroheptanoic acid	07/28/2016	N.D.	ng/g	1	2
Perfluorobutanesulfonate	07/28/2016	N.D.	ng/g	4	10
Perfluorohexanesulfonate	07/28/2016	N.D.	ng/g	4	10
Perfluoro-octanesulfonate	07/28/2016	N.D.	ng/g	5	10

(*)

these are the Aq MDL/LOQs

Both Hetgood

original

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP94
Matrix: Solid

Fraction: PFAAs by LC/MS/MS

16203007 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	08/04/2016	N.D.	ng/g	0.30	0.60
Perfluorononanoic acid	08/04/2016	N.D.	ng/g	0.20	0.40
Perfluorodecanoic acid	08/04/2016	N.D.	ng/g	0.20	0.40
Perfluoroundecanoic acid	08/04/2016	N.D.	ng/g	0.30	0.60
Perfluorododecanoic acid	08/04/2016	N.D.	ng/g	0.40	0.80
Perfluorotridecanoic acid	08/04/2016	N.D.	ng/g	0.60	1.2
Perfluorotertadecanoic acid	08/04/2016	N.D.	ng/g	0.30	0.80
Perfluorohexanoic acid	08/04/2016	N.D.	ng/g	0.20	0.40
Perfluoroheptanoic acid	08/04/2016	N.D.	ng/g	0.30	0.60
Perfluorobutanesulfonate	08/04/2016	N.D.	ng/g	0.50	1.6
Perfluorohexanesulfonate	08/04/2016	N.D.	ng/g	0.50	1.6
Perfluoro-octanesulfonate	08/04/2016	N.D.	ng/g	0.70	1.6

Revised

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FORM 04
METHOD BLANK SUMMARY
LC/MS/MS

SDG No.: SGP94

Matrix: SOIL
Lab Sample ID: BLK203007

Sample Prep: Sonc
Lab File ID: 16JUL28-01.WIFF

Sample wt: 5.00 (g)

Instrument ID: 24743
Date Analyzed: 07/28/2016 18:58

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
OPR203007	16JUL28-02.WIFF	07/28/2016 19:14
LCSDA	16JUL28-03.WIFF	07/28/2016 19:29
8432141RE	16JUL28-04.WIFF	07/28/2016 19:45
8432142RE	16JUL28-05.WIFF	07/28/2016 20:01
8432143RE	16JUL28-06.WIFF	07/28/2016 20:16

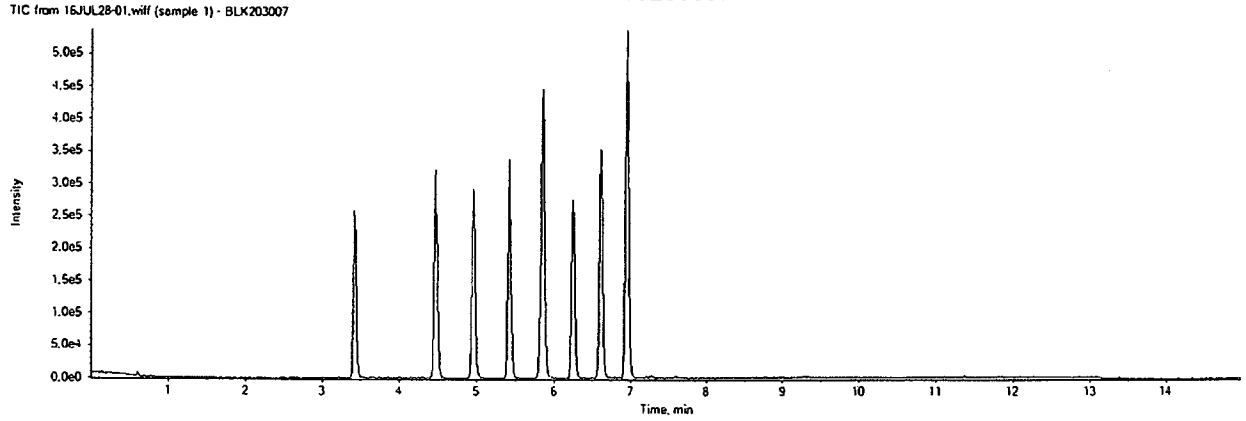
Sample Name:	BLK203007	**Data File:**		16JUL28-01.wiff
Sample ID:	16203007	**Acquis Date:**		7/28/2016 6:58:26 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	61	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16203007
Batch Number:	16203007	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.000	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.03	750.2	18O2-PFHxS	4.95	280516.3	0.003	0.019	
PFHxA	4.46	1989.0	13C2-PFHxA	4.47	866073.5	0.002	0.045	
PFHpA	4.95	1481.2	13C4-PFHpA	4.96	561669.0	0.003	0.019	
PFHxS	4.95	1717.9	18O2-PFHxS	4.95	280516.3	0.006	0.052	
PFOA	5.42	4975.4	13C4-PFOA	5.42	837728.4	0.006	0.047	
PFNA	5.85	3555.9	13C5-PFNA	5.86	1173024.3	0.003	0.026	
PFOS	5.83	812.9	13C4-PFOS	5.83	269016.9	0.003	0.025	
PFDA	6.25	4256.6	13C2-PFDA	6.25	819565.6	0.005	0.038	
PFUndA	6.61	6611.8	13C2-PFUnDA	6.61	1021110.4	0.006	0.058	
PFDoDA	6.95	7356.2	13C2-PFDoDA	6.95	1452569.1	0.005	0.059	
PFTrDA	7.27	9347.1	13C2-PFDoDA	6.95	1452569.1	0.006	0.061	
PFTeDA	7.59	9279.1	13C2-PFDoDA	6.95	1452569.1	0.006	0.056	

Total Ion Chromatogram

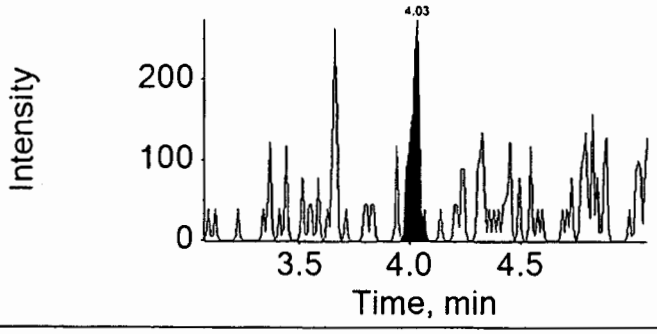
16203007



16JUL28-01.wiff

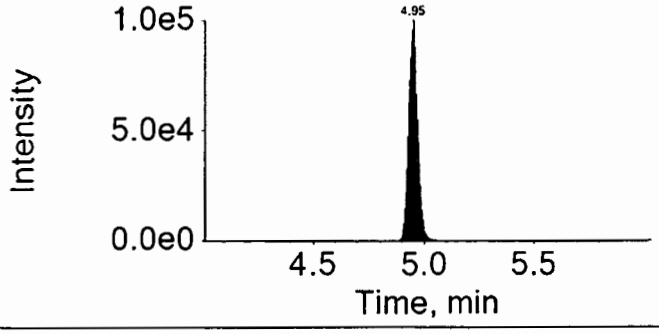
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

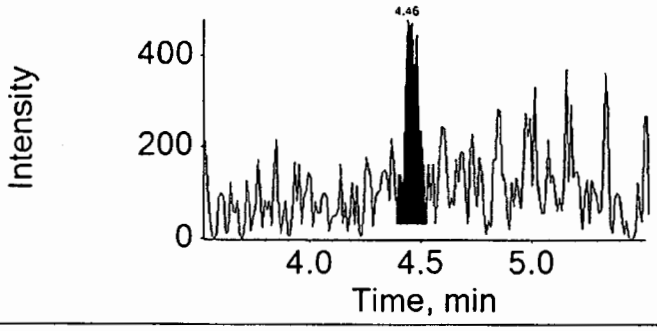
403.0 / 103.0



16JUL28-01.wiff

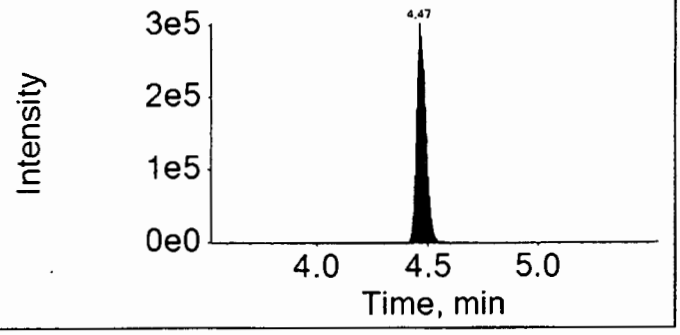
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

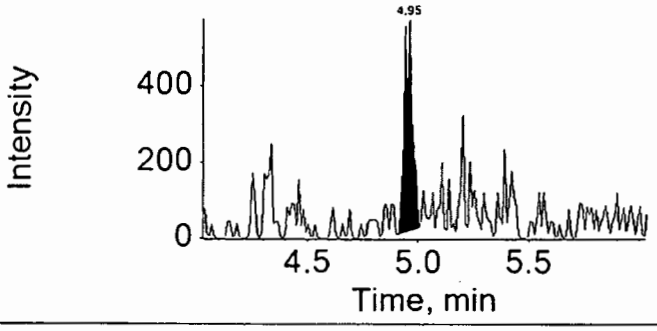
314.9 / 270.0



16JUL28-01.wiff

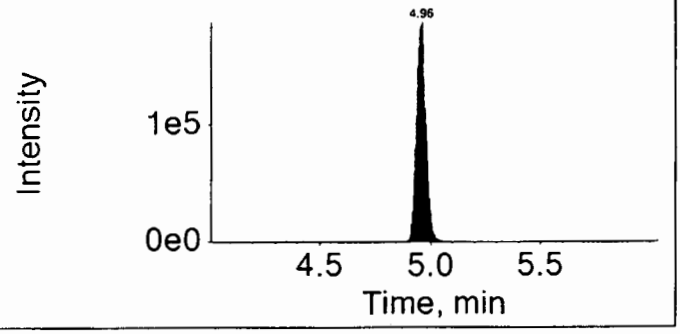
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

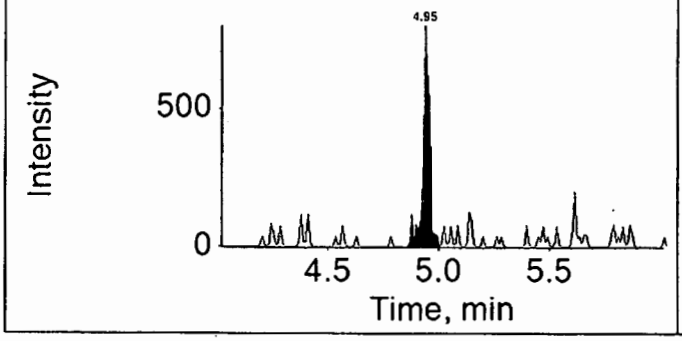
367.0 / 322.0



16JUL28-01.wiff

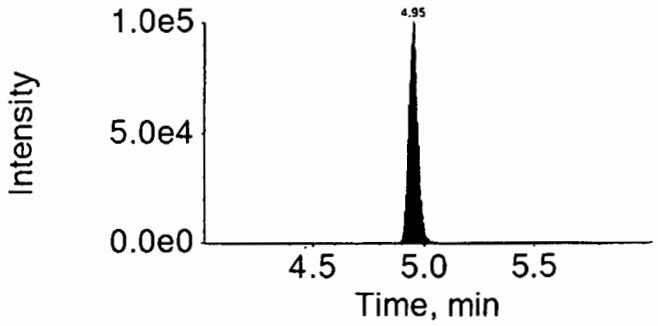
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

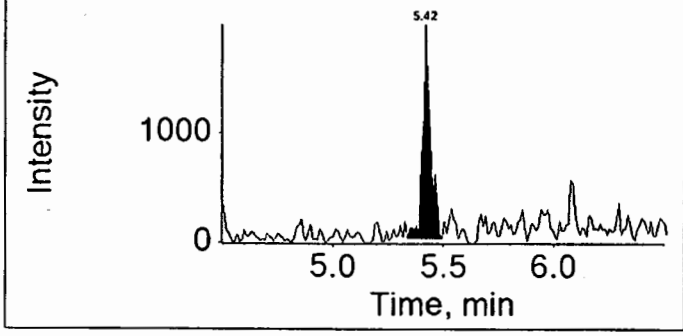
403.0 / 103.0



16JUL28-01.wiff

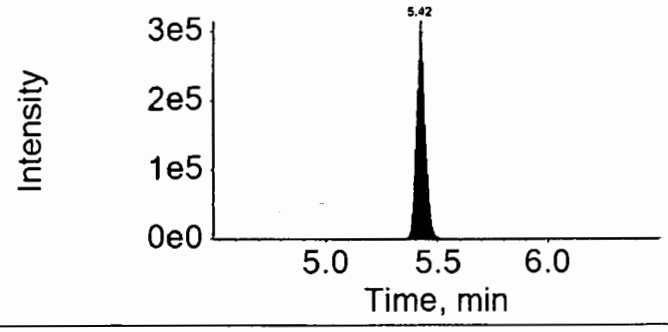
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

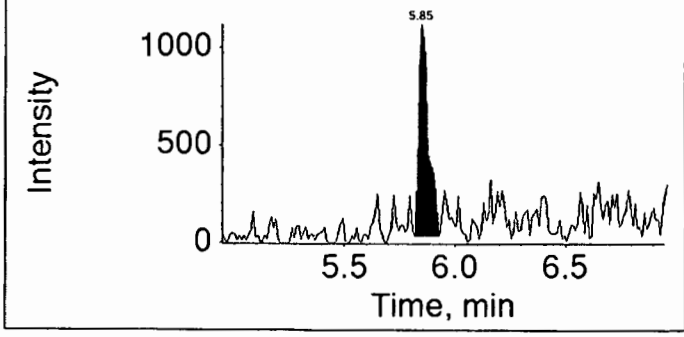
417.0 / 372.0



16JUL28-01.wiff

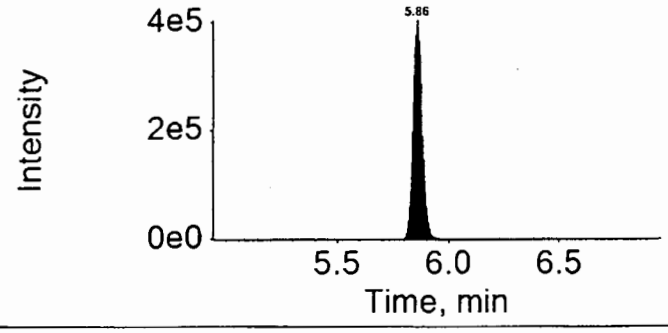
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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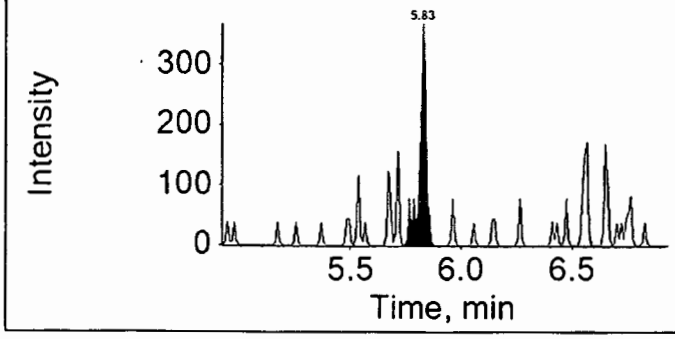
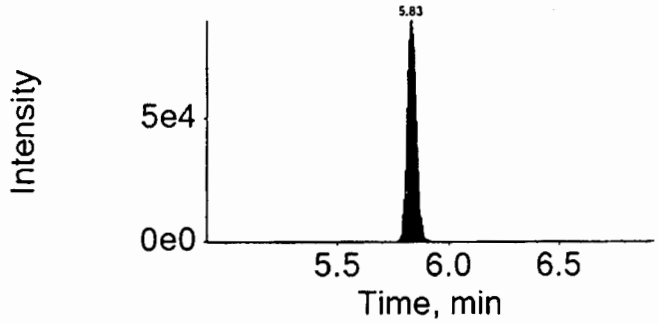
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

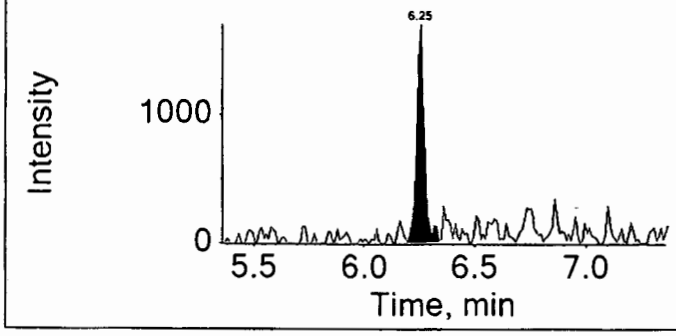
503.0 / 99.0



16JUL28-01.wiff

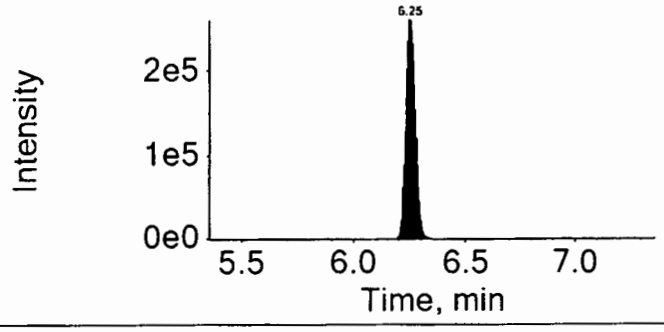
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

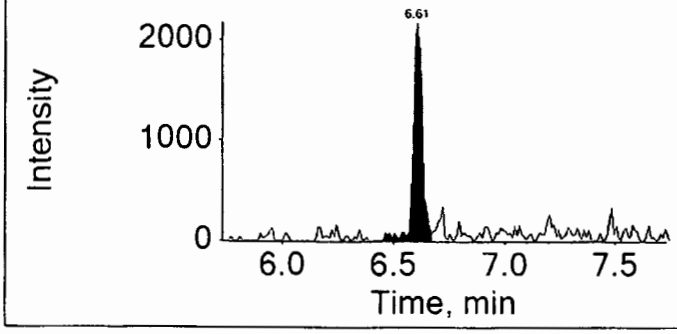
515.0 / 470.0



16JUL28-01.wiff

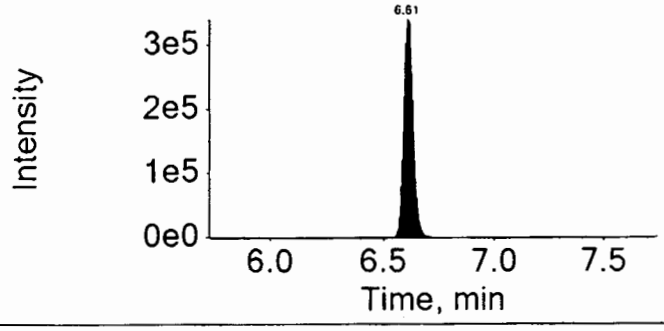
Analyte: PFUndA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



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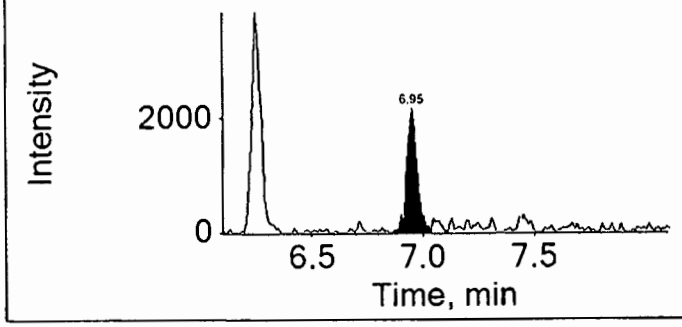
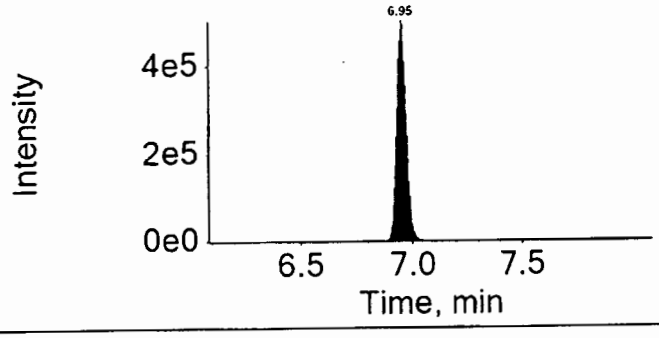
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

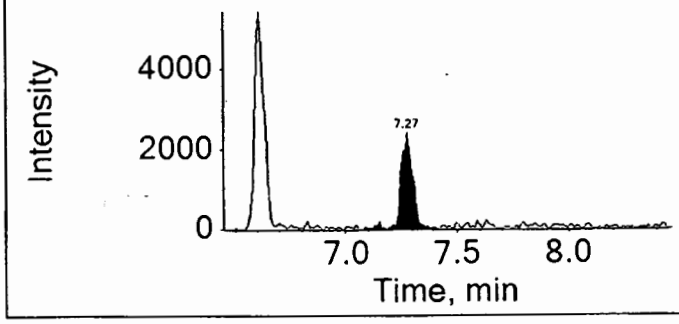
615.0 / 570.0



16JUL28-01.wiff

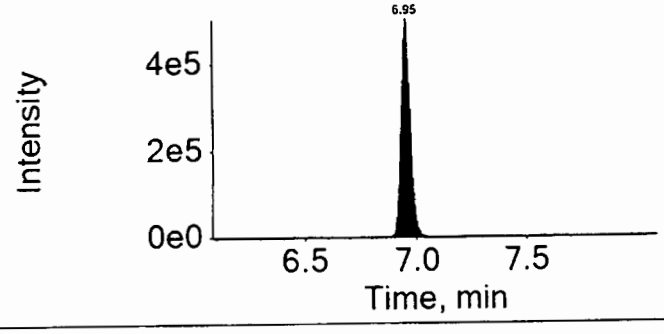
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

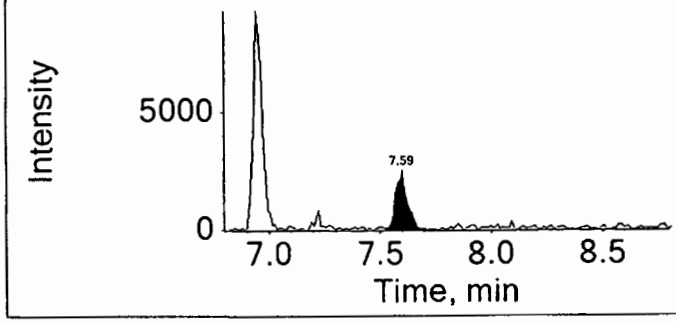
615.0 / 570.0



16JUL28-01.wiff

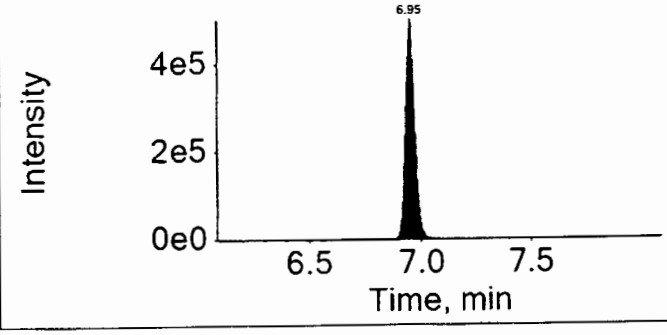
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP94
Matrix: Solid

Fraction: PFAAs by LC/MS/MS

16215005 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	08/04/2016	N.D.	ng/g	1	2
Perfluorononanoic acid	08/04/2016	N.D.	ng/g	1	2
Perfluorodecanoic acid	08/04/2016	N.D.	ng/g	1	2
Perfluoroundecanoic acid	08/04/2016	N.D.	ng/g	2	4
Perfluorododecanoic acid	08/04/2016	N.D.	ng/g	3	5
Perfluorotridecanoic acid	08/04/2016	N.D.	ng/g	2	4
Perfluorotertadecanoic acid	08/04/2016	N.D.	ng/g	3	5
Perfluorohexanoic acid	08/04/2016	N.D.	ng/g	1	2
Perfluoroheptanoic acid	08/04/2016	N.D.	ng/g	1	2
Perfluorobutanesulfonate	08/04/2016	N.D.	ng/g	4	10
Perfluorohexanesulfonate	08/04/2016	N.D.	ng/g	4	10
Perfluoro-octanesulfonate	08/04/2016	N.D.	ng/g	5	10

these are the Aq MDL/LOQs

ORIGINAL

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP94
Matrix: Solid

Fraction: PFAAs by LC/MS/MS

16215005 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	08/04/2016	N.D.	ng/g	0.30	0.60
Perfluorononanoic acid	08/04/2016	N.D.	ng/g	0.20	0.40
Perfluorodecanoic acid	08/04/2016	N.D.	ng/g	0.20	0.40
Perfluoroundecanoic acid	08/04/2016	N.D.	ng/g	0.30	0.60
Perfluorododecanoic acid	08/04/2016	N.D.	ng/g	0.40	0.80
Perfluorotridecanoic acid	08/04/2016	N.D.	ng/g	0.60	1.2
Perfluorotertadecanoic acid	08/04/2016	N.D.	ng/g	0.30	0.80
Perfluorohexanoic acid	08/04/2016	N.D.	ng/g	0.20	0.40
Perfluoroheptanoic acid	08/04/2016	N.D.	ng/g	0.30	0.60
Perfluorobutanesulfonate	08/04/2016	N.D.	ng/g	0.50	1.6
Perfluorohexanesulfonate	08/04/2016	N.D.	ng/g	0.50	1.6
Perfluoro-octanesulfonate	08/04/2016	N.D.	ng/g	0.70	1.6

reused

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FORM 04
METHOD BLANK SUMMARY
LC/MS/MS

SDG No.: SGP94

Matrix: SOIL
Lab Sample ID: BLK215005

Sample Prep: Sonc
Lab File ID: 16AUG04-06.WIFF

Sample wt: 5.00 (g)

Instrument ID: 24743
Date Analyzed: 08/04/2016 14:58

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
LCS215005	16AUG04-07.WIFF	08/04/2016 15:13
LCSDA	16AUG04-08.WIFF	08/04/2016 15:29
8432144RE	16AUG04-09.WIFF	08/04/2016 15:45
8432144MS	16AUG04-10.WIFF	08/04/2016 16:01
8432145RE	16AUG04-11.WIFF	08/04/2016 16:16
8432146RE	16AUG04-12.WIFF	08/04/2016 16:32
8432147RE	16AUG04-13.WIFF	08/04/2016 16:48

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LC-MS/MS Analysis Report

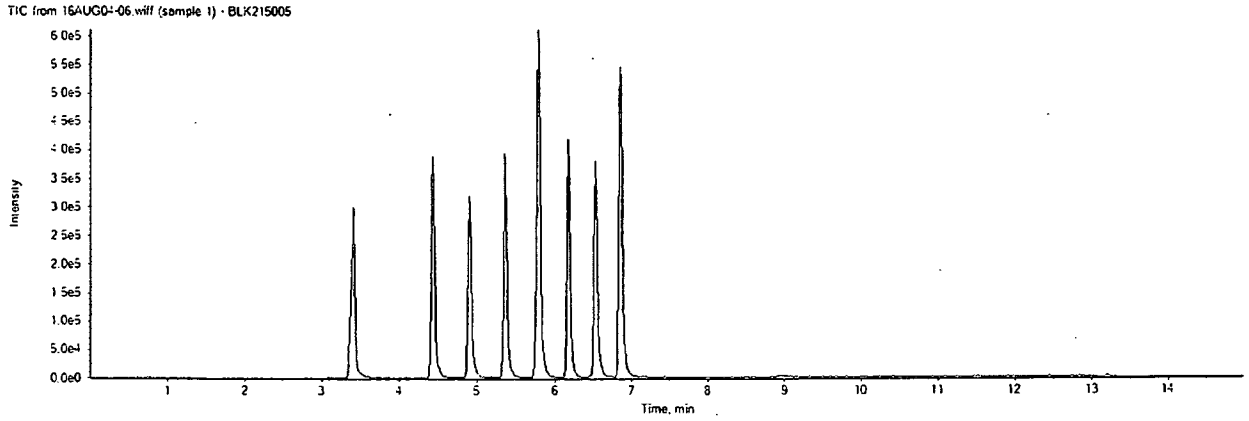
Printed: 8/5/2016 10:04:00 AM

Sample Name:	BLK215005		**Data File:**		16AUG04-06.wiff
Sample ID:	16215005		**Acquis Date:**		8/4/2016 2:58:09 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	16		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.90	401281.7	N/A	N/A	
PFHxA	4.43	2478.3	A	13C2-PFHxA	4.43	1267528.9	0.002	0.036	
PFHpA	4.90	1005.5	A	13C4-PFHpA	4.90	636309.4	0.002	0.011	
PFHxS	4.89	1970.0	M	18O2-PFHxS	4.90	401281.7	0.005	0.042	
PFOA	5.36	7476.4	A	13C4-PFOA	5.36	1141881.5	0.007	0.056	
PFNA	5.78	1121.1	A	13C5-PFNA	5.79	1664847.2	0.001	0.006	
PFOS	5.77	969.4	M	13C4-PFOS	5.77	411852.4	0.002	0.020	
PFDA	6.18	1162.6	M	13C2-PFDA	6.18	1141866.5	0.001	0.008	
PFUndA	6.53	3034.8	A	13C2-PFUnDA	6.54	1222499.2	0.002	0.022	
PFDoDA	6.86	2462.6	M	13C2-PFDoDA	6.86	1747356.6	0.001	0.014	
PFTrDA	7.16	2267.1	A	13C2-PFDoDA	6.86	1747356.6	0.001	0.013	
PFTeDA	7.44	2573.9	M	13C2-PFDoDA	6.86	1747356.6	0.001	0.014	

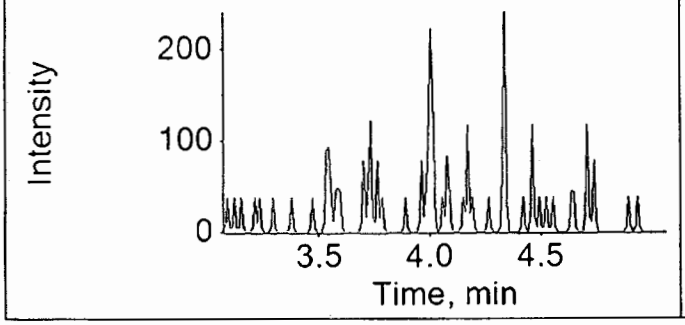
Total Ion Chromatogram
16215005



16AUG04-06.wiff

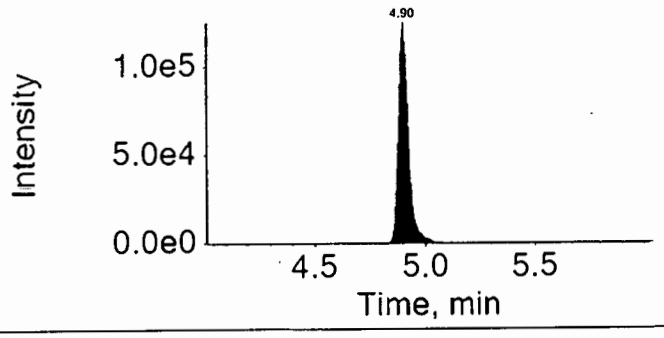
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

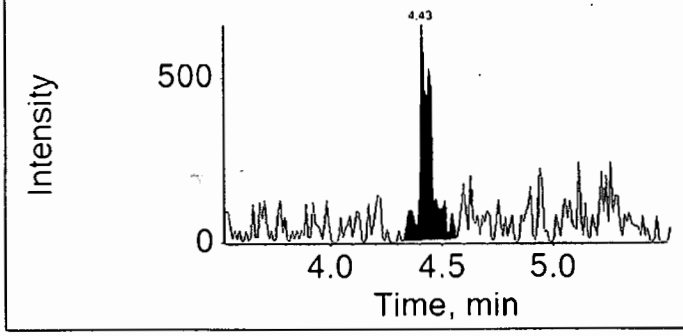
403.0 / 103.0



16AUG04-06.wiff

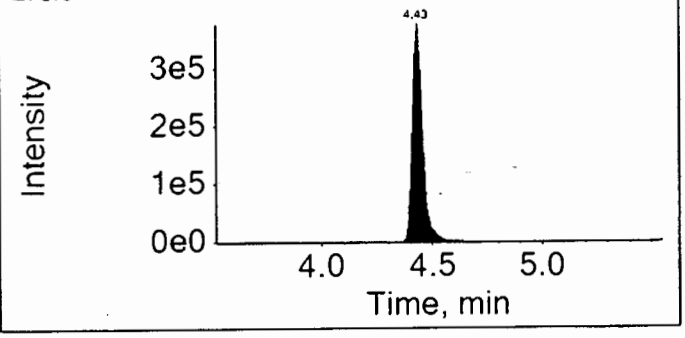
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

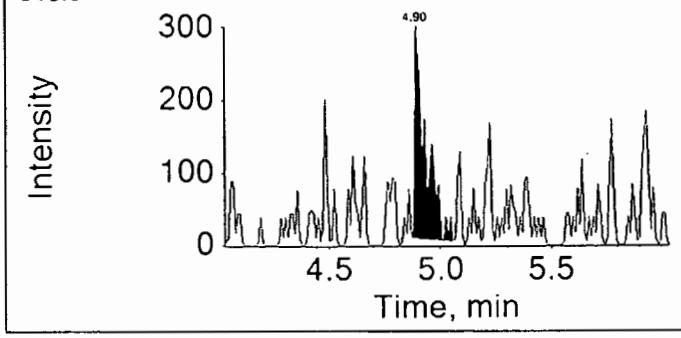
314.9 / 270.0



16AUG04-06.wiff

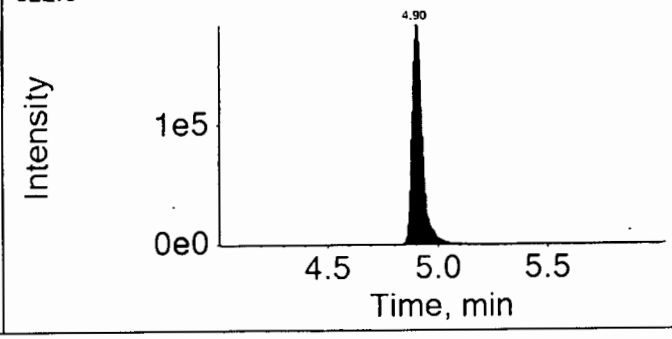
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

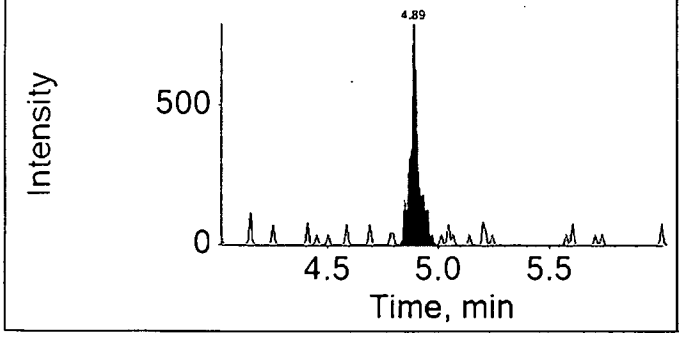
367.0 / 322.0



16AUG04-06.wiff

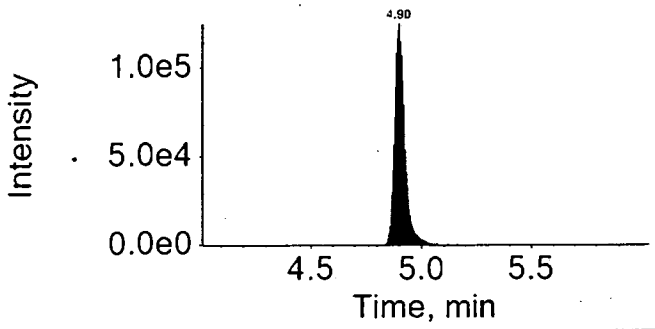
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

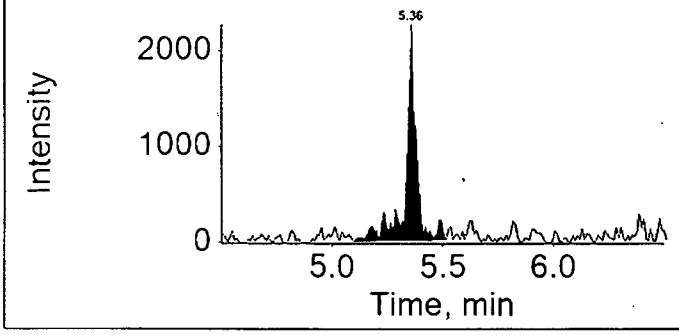
403.0 / 103.0



16AUG04-06.wiff

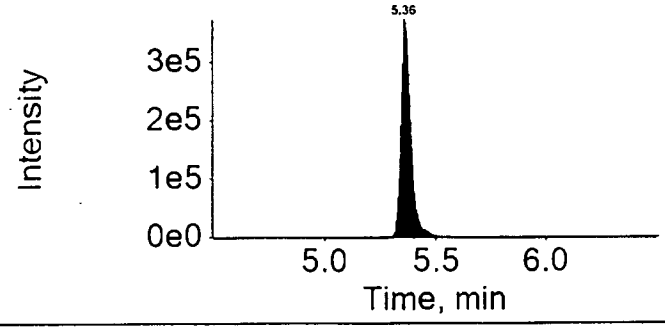
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

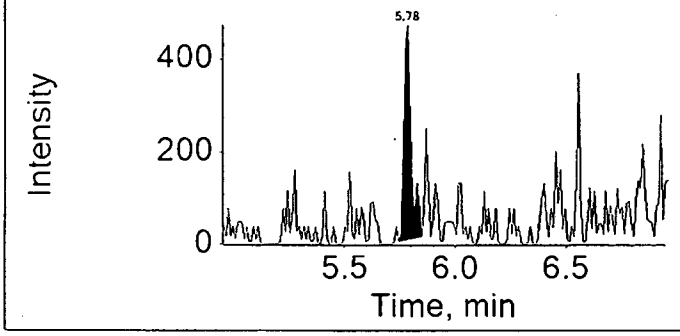
417.0 / 372.0



16AUG04-06.wiff

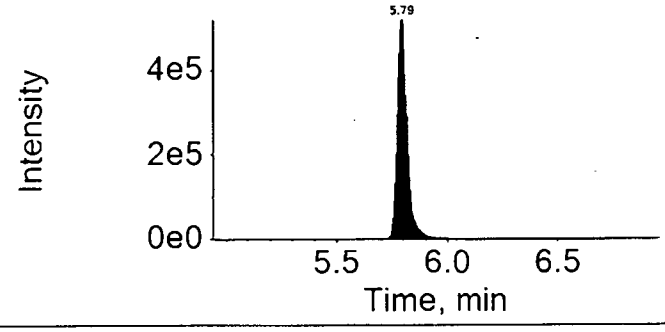
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

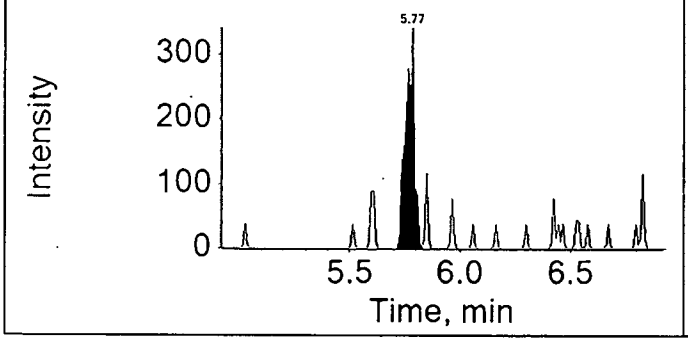
468.0 / 423.0



16AUG04-06.wiff

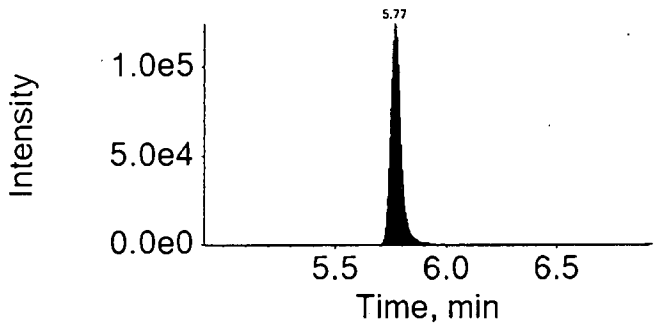
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

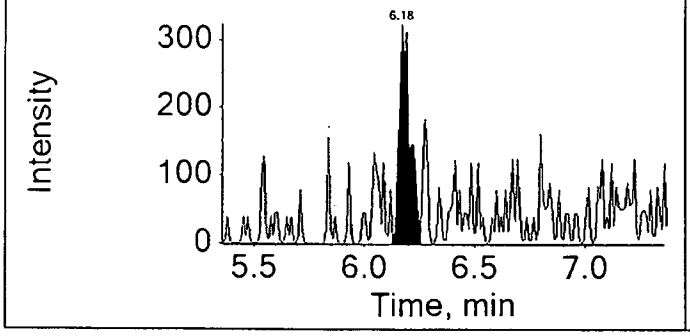
503.0 / 99.0



16AUG04-06.wiff

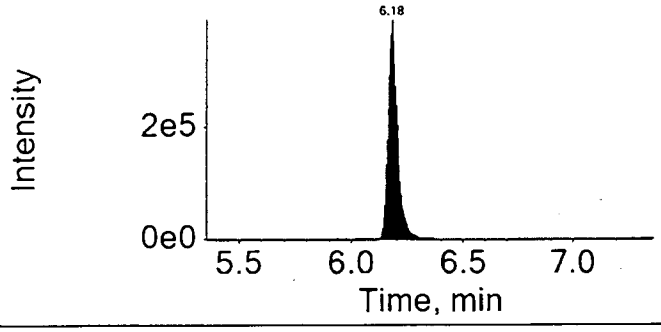
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

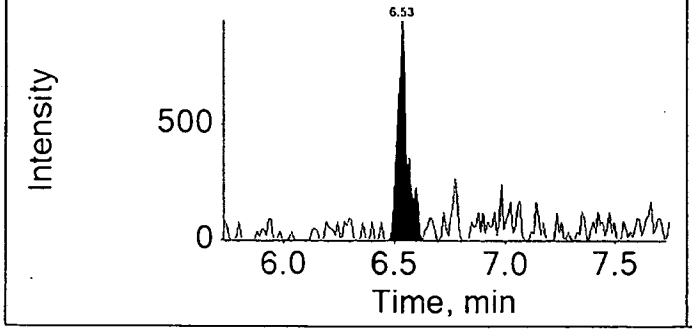
515.0 / 470.0



16AUG04-06.wiff

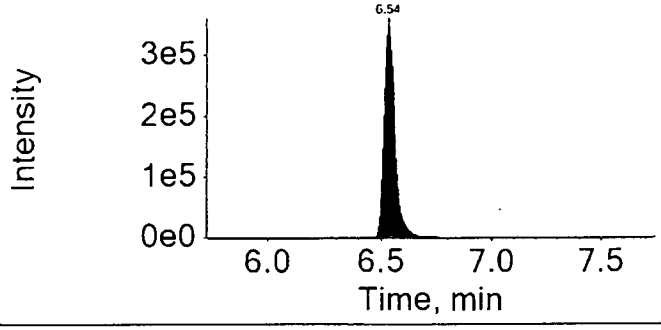
Analyte: PFUndA

562.9 / 518.9

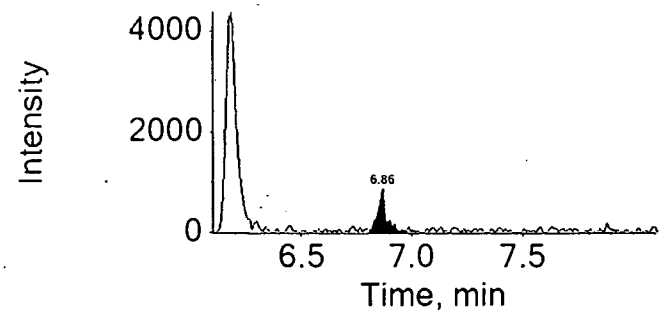


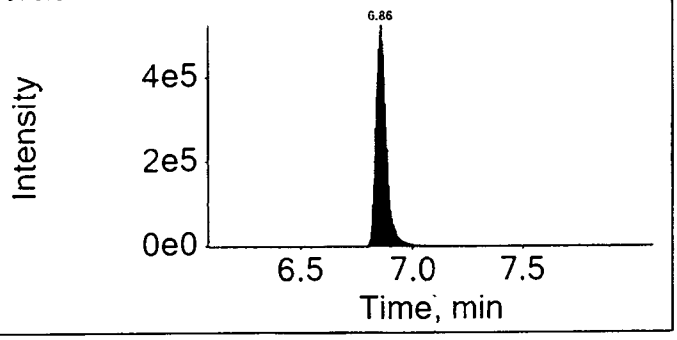
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

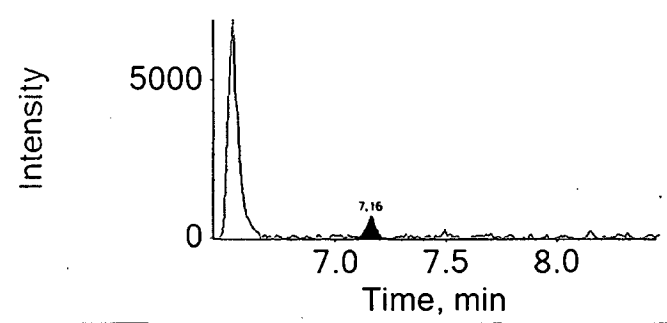


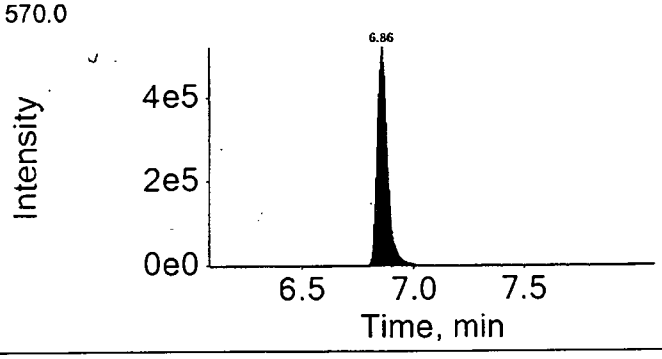
16AUG04-06.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



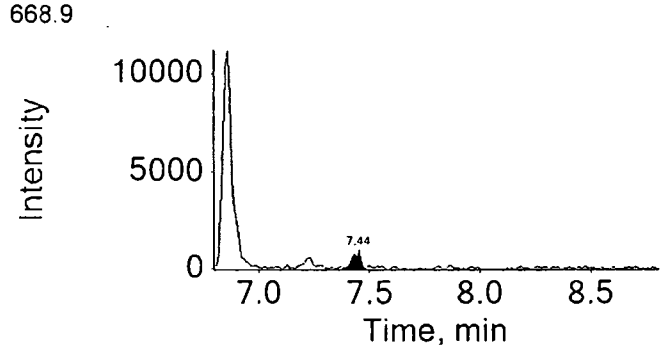


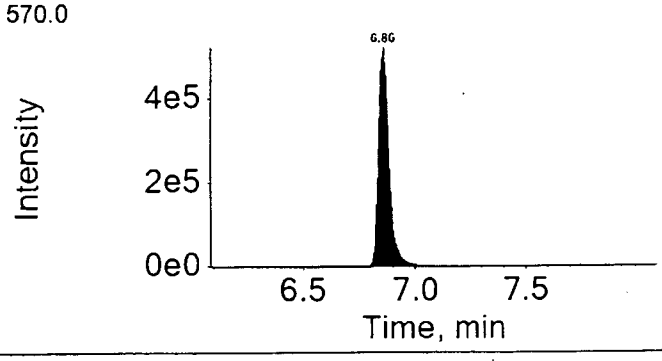
16AUG04-06.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG04-06.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP94
Matrix: LIQUID

Fraction: PFAAs by LC/MS/MS

16172001 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	06/29/16	N.D.	ng/l	1	2
Perfluorononanoic acid	06/29/16	N.D.	ng/l	1	2
Perfluorodecanoic acid	06/29/16	N.D.	ng/l	1	2
Perfluoroundecanoic acid	06/29/16	N.D.	ng/l	2	4
Perfluorododecanoic acid	06/29/16	N.D.	ng/l	3	5
Perfluorotridecanoic acid	06/29/16	N.D.	ng/l	2	4
Perfluorotetradecanoic acid	06/29/16	N.D.	ng/l	3	5
Perfluorohexanoic acid	06/29/16	N.D.	ng/l	1	2
Perfluoroheptanoic acid	06/29/16	N.D.	ng/l	1	2
Perfluorobutanesulfonate	06/29/16	N.D.	ng/l	4	10
Perfluorohexanesulfonate	06/29/16	N.D.	ng/l	4	10
Perfluoro-octanesulfonate	06/29/16	N.D.	ng/l	5	10

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Form 4
Method Blank Summary
LC/MS/MS

SDG No.: SGP94

Matrix: WATER
Water Sample Prep: SPE
Sample vol: 100.00 mL
Instrument ID: 18881

Lab Sample ID: MB16172001
Lab File ID: 16Jun28-86
Date Analyzed: 06/29/2016 08:00

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
LCS16172001	16JUN28-61	06/29/2016 00:49
LCSD16172001	16JUN28-62	06/29/2016 01:06
8432116	16JUN28-68	06/29/2016 02:50
8432117	16JUN28-71	06/29/2016 03:41
8432127	16JUN28-72	06/29/2016 03:58
8432128	16JUN28-73	06/29/2016 04:16
8432130	16JUN28-74	06/29/2016 04:33
8432140	16JUN28-75	06/29/2016 04:50

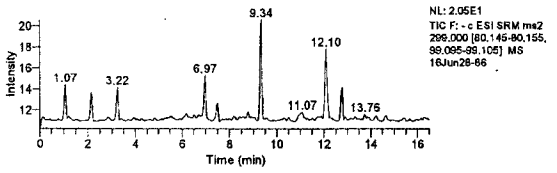
LCMSMS ANALYSIS REPORT

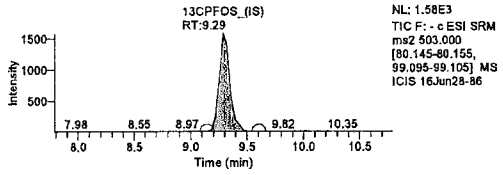
Sample Name:	MB 16172001	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	MB 16172001	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-86		
Acquisition Date:	06/29/16 08:00:26 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:1	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

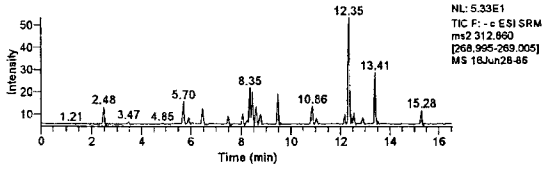
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.36	205967.12	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	147436.26	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.79	146407.23	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.39	115897.53	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	136036.49	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	102257.06	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.68	24867.93	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.29	10450.69	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.43	145103.23	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

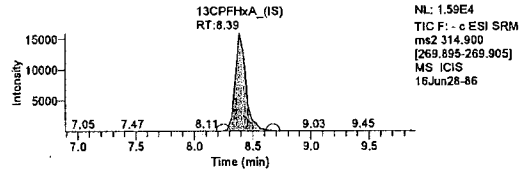
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHxS

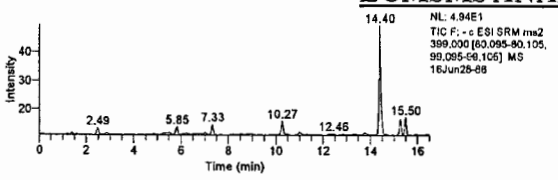
JUN 3 0 2016

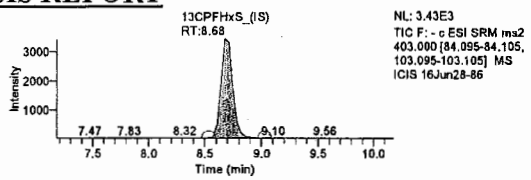
Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

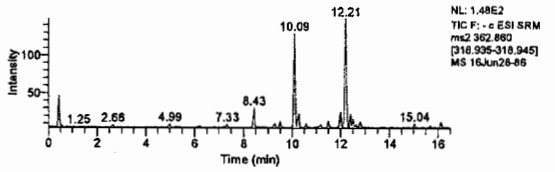
JUN 29 2016

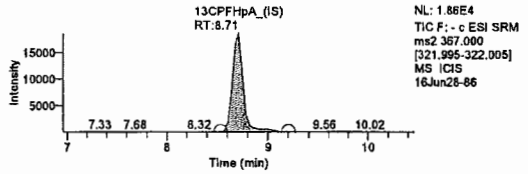
LCMSMS ANALYSIS REPORT



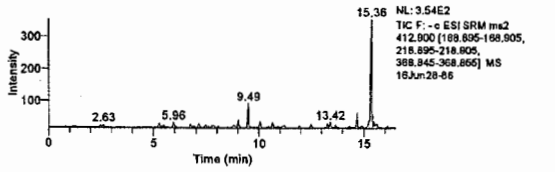


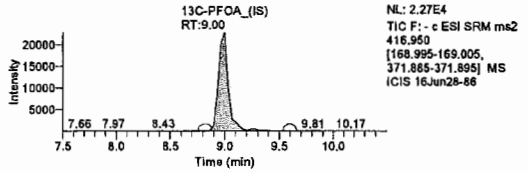
Component Name: PFhpA



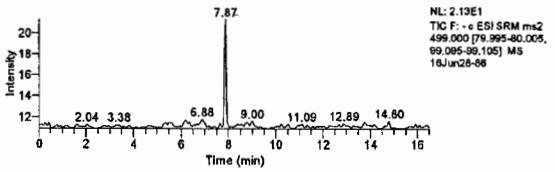


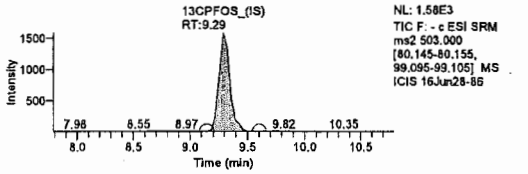
Component Name: PFOA





Component Name: PFOS





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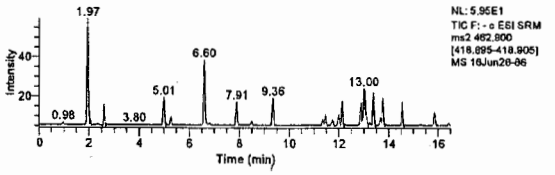

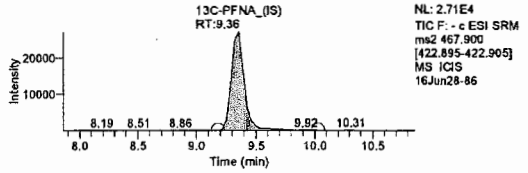

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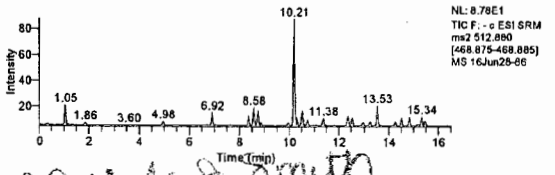

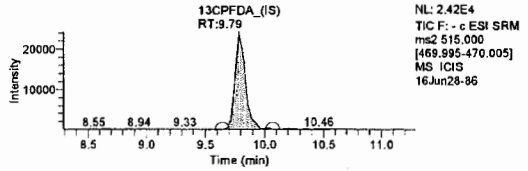

Component Name: PFUdA

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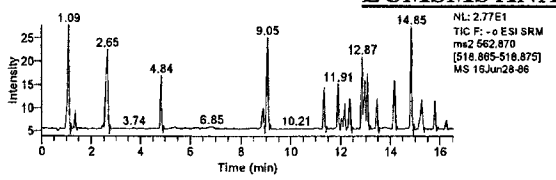
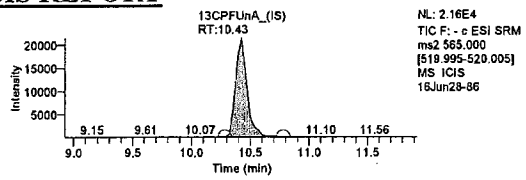
LCMSMS ANALYSIS REPORT





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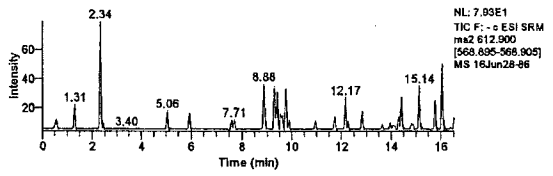

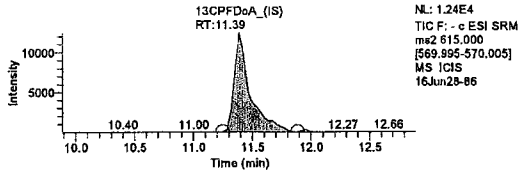

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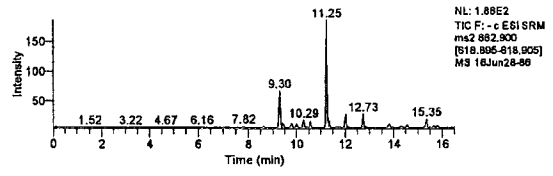
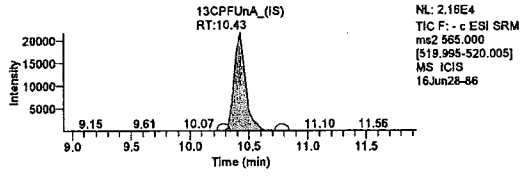
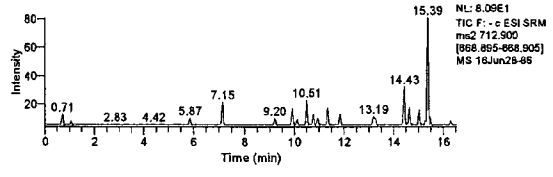
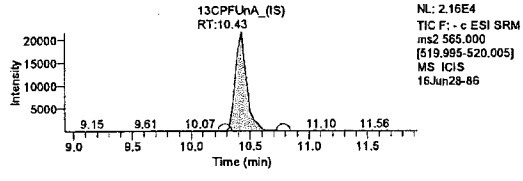




Component Name: PFTeDA





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JUN 29 2016

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LOQ/MDL Summary
Specialty Services Group

SDG: SGP94

Fraction: PFAAs by LC/MS/MS

10954: Full List PFC's Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	1	2	ng/l
Perfluorononanoic acid	1	2	ng/l
Perfluorodecanoic acid	1	2	ng/l
Perfluoroundecanoic acid	2	4	ng/l
Perfluorododecanoic acid	3	5	ng/l
Perfluorotridecanoic acid	2	4	ng/l
Perfluorotetradecanoic acid	3	5	ng/l
Perfluorohexanoic acid	1	2	ng/l
Perfluoroheptanoic acid	1	2	ng/l
Perfluorobutanesulfonate	4	10	ng/l
Perfluorohexanesulfonate	4	10	ng/l
Perfluoro-octanesulfonate	5	10	ng/l
8:2 fluorotelomersulfonate	2	4	ng/l
Perfluorobutanoic Acid	30	50	ng/l
Perfluoropentanoic Acid	30	50	ng/l
Perfluorohexyl Ethanoic Acid	30	50	ng/l
NEtFOSAA	5	8	ng/l
NMeFOSAA	4	8	ng/l

14027: Full List PFC's Analyte Name	Default MDL	Default LOQ	Units
Hydrazine	0.50	2.0	ng/g
Perfluorooctanoic acid	0.30	0.60	ng/g
Methylhydrazine	2.0	5.0	ng/g
Perfluorononanoic acid	0.20	0.40	ng/g
1,1-Dimethylhydrazine	2.5	5.0	ng/g
Perfluorodecanoic acid	0.20	0.40	ng/g
Perfluoroundecanoic acid	0.30	0.60	ng/g
Perfluorododecanoic acid	0.40	0.80	ng/g
Perfluorotridecanoic acid	0.60	1.2	ng/g
Perfluorotetradecanoic acid	0.30	0.80	ng/g
Perfluorohexanoic acid	0.20	0.40	ng/g
Perfluoroheptanoic acid	0.30	0.60	ng/g
Perfluorobutanesulfonate	0.50	1.6	ng/g
Perfluorohexanesulfonate	0.50	1.6	ng/g
Perfluoro-octanesulfonate	0.70	1.6	ng/g
NEtFOSAA	1.0	2.0	ng/g
NMeFOSAA	0.90	2.0	ng/g

Sequence Table

File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16JUL14-03	MDL	N/A	N/A	c:2	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL14-04	CAL1	N/A	1	c:3	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL14-05	CAL2	N/A	2	c:4	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL14-09	CAL3	N/A	3	c:5	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL14-11	CAL6	N/A	6	c:8	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL14-12	CAL5	N/A	5	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL14-14	CAL4	N/A	4	c:6	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL14-17	CCV1	N/A	1	c:5	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL14-19	ICV1	N/A	ICV1	c:9	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-01	solvent	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-02	solvent	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-03	CCV3	N/A	3	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-04	solvent	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-12	MB 16182008	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-13	LCS 16182008	N/A	N/A	a:2	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-14	8432118	N/A	N/A	a:3	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-15	8432119	N/A	N/A	a:4	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-16	8432120	N/A	N/A	a:5	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-17	8432124	N/A	N/A	a:6	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-18	8432125	N/A	N/A	a:7	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-19	8432126	N/A	N/A	a:8	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-20	CCV2	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils

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JUL 20 2016

File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16JUL18-21	solvent	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-22	8432129	N/A	N/A	a:9	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-23	8432131	N/A	N/A	a:10	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-24	8432132	N/A	N/A	a:11	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-25	8432133	N/A	N/A	a:12	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-26	8432134	N/A	N/A	a:13	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-27	8432135	N/A	N/A	a:14	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-28	8432136	N/A	N/A	a:15	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-29	8432137	N/A	N/A	a:16	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-30	8432138	N/A	N/A	a:17	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-31	CCV3	N/A	3	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-32	solvent	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-33	8432139	N/A	N/A	a:18	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-34	8432141	N/A	N/A	a:19	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-35	8432142	N/A	N/A	a:20	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-36	8432143	N/A	N/A	a:21	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-37	8432121 BKG	N/A	N/A	a:22	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-38	8432122 MS	N/A	N/A	a:23	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-39	8432123 MSD	N/A	N/A	a:24	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL18-40	CCV2	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils

not reported from this sequence

Lynn Dodd

JUL 20 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 20 2016

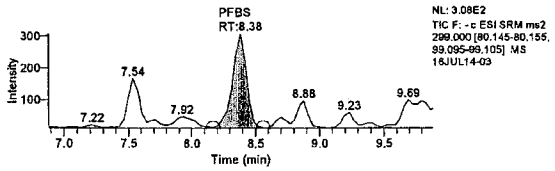
LCMSMS ANALYSIS REPORT

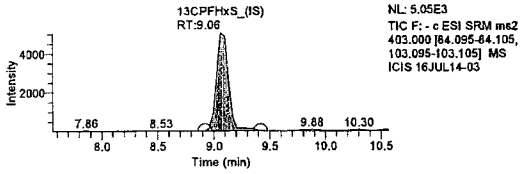
Sample Name:	MDL	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	MDL	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL14-03		M\HWell_16.5minutes
Acquisition Date:	07/14/16 09:06:39 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:2	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

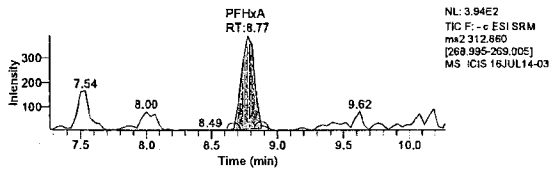
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.71	270826.13	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.35	226101.69	N/A	N/A	N/A
13CPFDA_(IS)	N/A	10.17	211895.24	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.63	193396.58	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	9.10	229709.18	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.78	122333.50	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	9.06	38029.96	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.68	15649.24	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.96	189356.00	N/A	N/A	N/A
PFBS	1.388	8.38	2229.26	38029.96	0.059	ng/g
PFDA	0.303	10.21	4406.49	211895.24	0.021	ng/g
PFDoA	0.370	11.63	7100.83	193396.58	0.037	ng/g
PFHxA	0.220	8.77	2641.02	122333.50	0.022	ng/g
PFHxS	1.040	9.10	2600.64	38029.96	0.068	ng/g
PFNA	0.275	9.71	3669.78	270826.13	0.014	ng/g
PFOA	0.242	9.35	5227.08	226101.69	0.023	ng/g
PFOS	1.251	9.71	1508.86	15649.24	0.096	ng/g
PFTeDA	0.433	13.65	4777.37	189356.00	0.025	ng/g
PFTrDA	0.326	12.52	5631.32	193396.58	0.029	ng/g
PFUdA	0.250	10.95	1781.81	189356.00	0.009	ng/g
PFhpA	0.281	9.09	3324.23	229709.18	0.014	ng/g

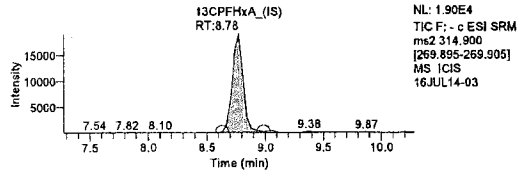
Component Name: PFBS





Component Name: PFHxA





Component Name: PFhpA

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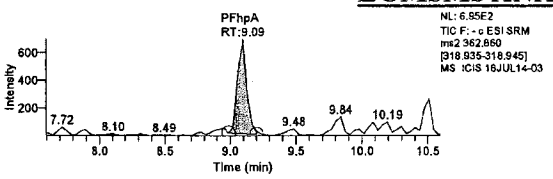
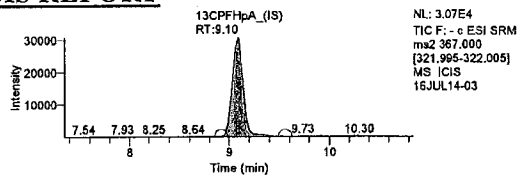
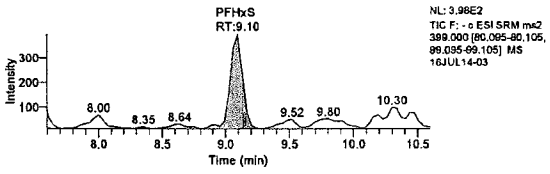
JUL 20 2016

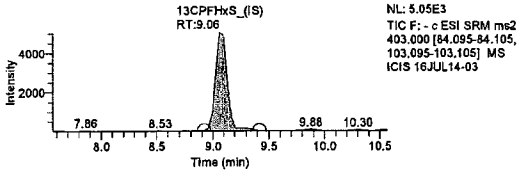
LCMSMS ANALYSIS REPORT



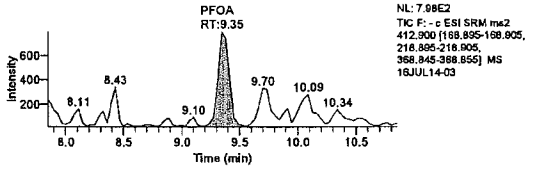


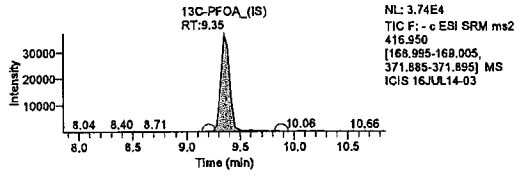
Component Name: PFHxS



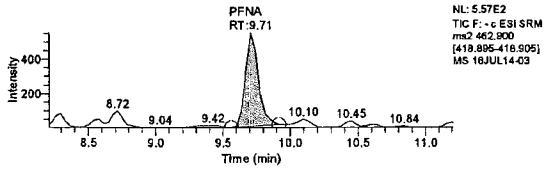


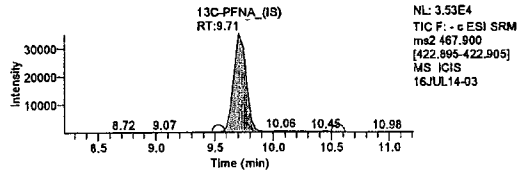
Component Name: PFOA



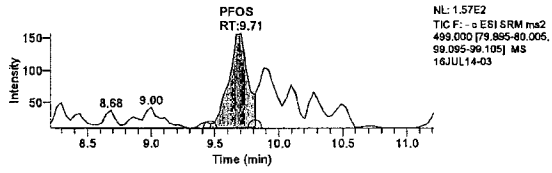


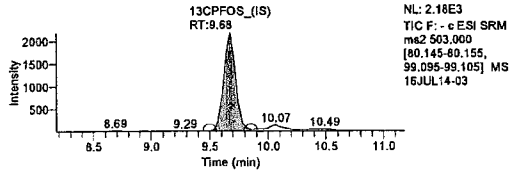
Component Name: PFNA



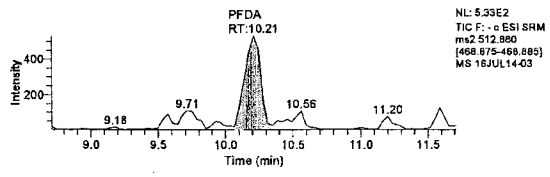


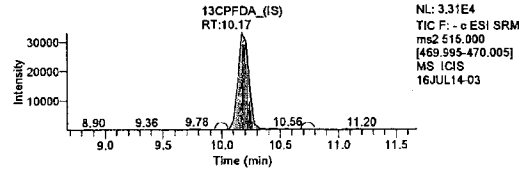
Component Name: PFOS





Component Name: PFDA





Component Name: PFUdA

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JUL 20 2016

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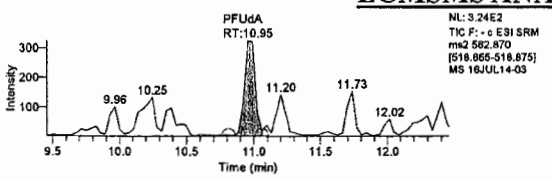
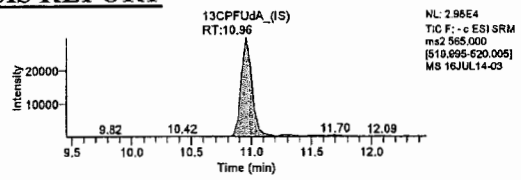
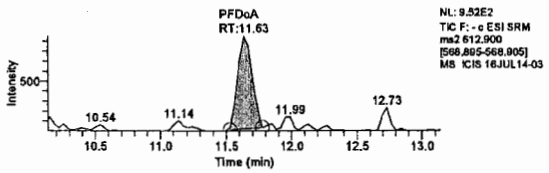
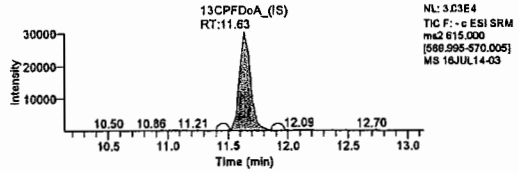


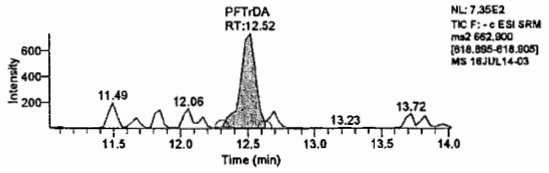


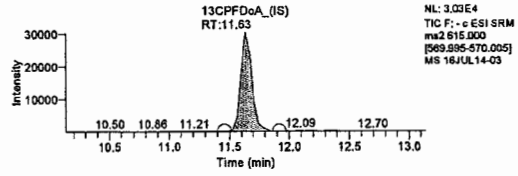
Component Name: PFDoA



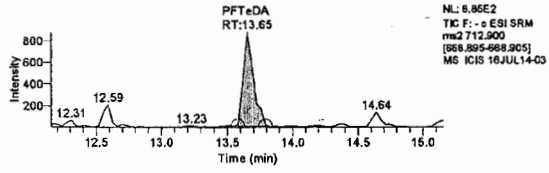


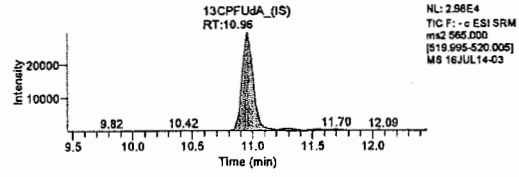
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd

JUL 20 2016

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Principal Specialist

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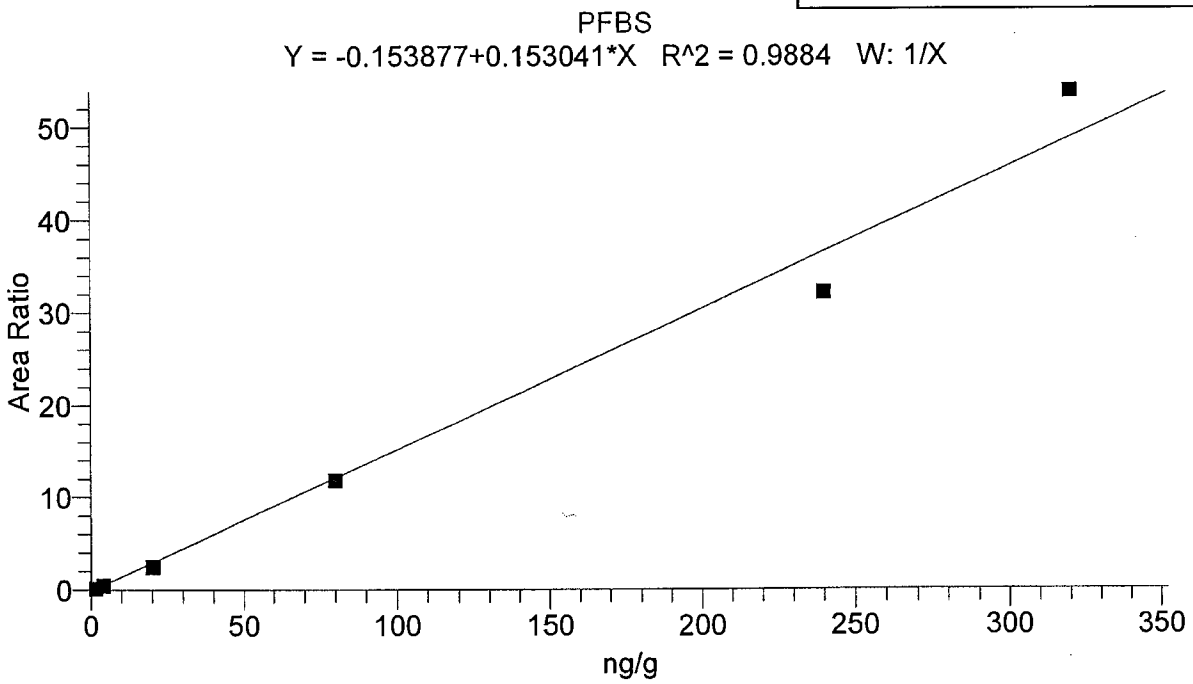
ICAL Curve not included in original report. Rcvd separately after requested.

Component Name: **PFBS**



Identification		Component Name:	PFBS
Filter:	- c ESI SRM ms2 299.00 [80.14-80.16, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.17000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Dctection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	20.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coclution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxS_(IS)	Weighting:	OncOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	1.600
2	4.000
3	20.000
4	80.000
5	240.000
6	320.000

Component QC Level Table

QC Level	Amount
ICV2	40.000
ICV1	20.000
1	20.000
2	80.000
3	240.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL14-04	1.907	4854.61	35181.64	0.138	19.19
CAL2	16JUL14-05	3.945	13252.19	29456.82	0.450	-1.37
CAL3	16JUL14-09	17.202	82460.10	33266.54	2.479	-13.99
CAL6	16JUL14-11	353.076	993151.73	18432.30	53.881	10.34
CAL5	16JUL14-12	211.208	842669.17	26194.70	32.169	-12.00
CAL4	16JUL14-14	78.262	345482.90	29220.27	11.823	-2.17
CCV1	16JUL14-17	18.411	88554.67	33243.42	2.664	-7.94
ICV1	16JUL14-19	14.913	62137.85	29194.99	2.128	-25.44
CCV3	16JUL18-03	210.657	780316.28	24320.14	32.085	-12.23
CCV2	16JUL18-20	83.787	333528.20	26326.38	12.669	4.73
CCV3	16JUL18-31	231.111	997234.05	28318.05	35.215	-3.70
CCV2	16JUL18-40	76.294	356891.70	30974.11	11.522	-4.63

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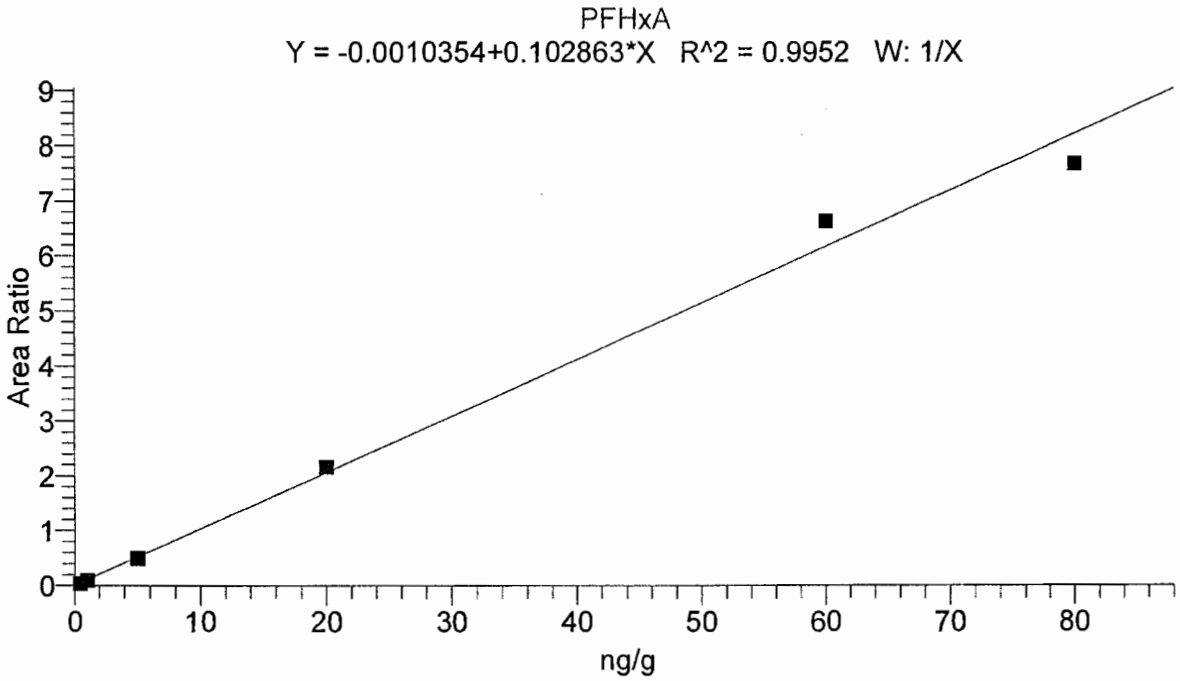
JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFHxA**



Identification		Component Name:	PFHxA
Filter:	- c ESI SRM ms2 312.86 [269.00-269.01]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.49000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL14-04	0.420	5395.91	128045.65	0.042	4.94
CAL2	16JUL14-05	0.927	12246.97	129869.42	0.094	-7.32
CAL3	16JUL14-09	4.825	62484.48	126168.21	0.495	-3.51
CAL6	16JUL14-11	74.696	937317.86	122008.35	7.682	-6.63
CAL5	16JUL14-12	64.544	778440.85	117267.77	6.638	7.57
CAL4	16JUL14-14	20.988	250180.20	115938.91	2.158	4.94
CCV1	16JUL14-17	5.135	62542.00	118636.57	0.527	2.70
ICV1	16JUL14-19	15.539	220022.81	137739.29	1.597	-22.30
CCV3	16JUL18-03	65.258	675658.66	100670.93	6.712	8.76
CCV2	16JUL18-20	22.079	253883.28	111841.98	2.270	10.39
CCV3	16JUL18-31	64.172	777386.51	117787.49	6.600	6.95
CCV2	16JUL18-40	21.592	259174.64	116749.27	2.220	7.96

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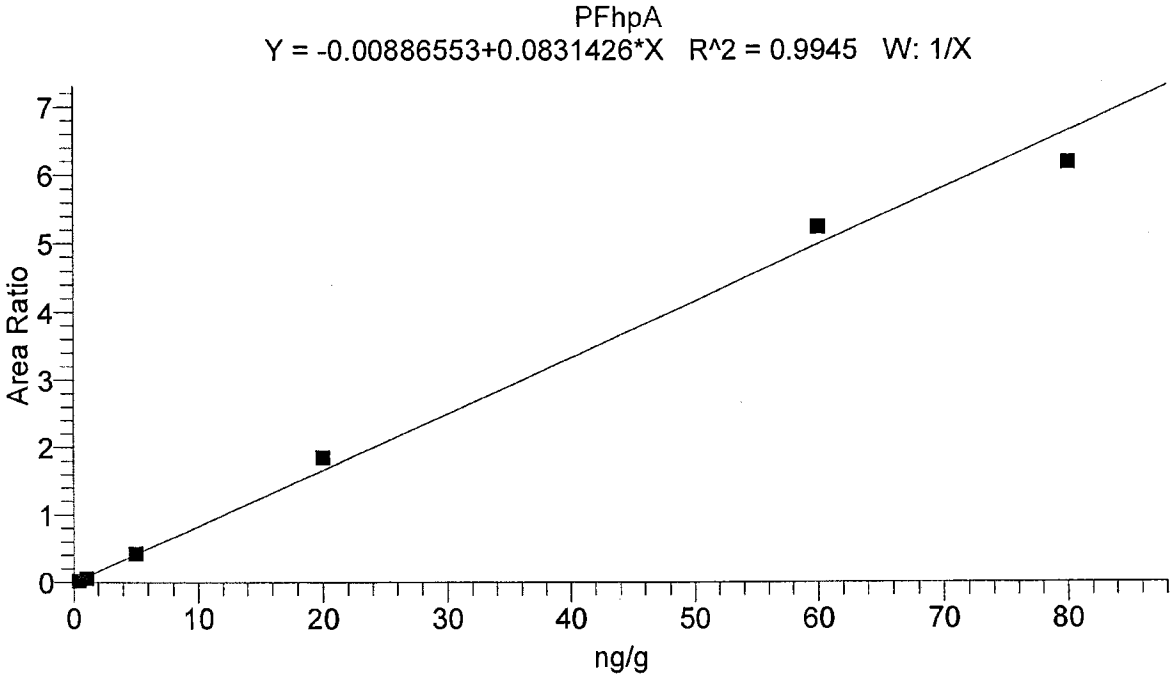
JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFhpA**



Identification		Component Name:	PFhpA
Filter:	- c ESI SRM ms2 362.86 [318.94-318.94]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.17000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHpA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL14-04	0.421	5886.08	224985.66	0.026	5.32
CAL2	16JUL14-05	0.812	14275.85	243514.94	0.059	-18.83
CAL3	16JUL14-09	5.173	91576.22	217394.25	0.421	3.46
CAL6	16JUL14-11	74.493	901627.01	145784.54	6.185	-6.88
CAL5	16JUL14-12	63.175	856821.36	163402.26	5.244	5.29
CAL4	16JUL14-14	22.327	372586.73	201678.93	1.847	11.63
CCV1	16JUL14-17	5.405	89019.76	202060.69	0.441	8.11
ICV1	16JUL14-19	21.055	292126.93	167721.46	1.742	5.28
CCV3	16JUL18-03	50.581	641676.39	152905.35	4.197	-15.70
CCV2	16JUL18-20	19.136	260988.91	164955.36	1.582	-4.32
CCV3	16JUL18-31	58.294	748065.78	154628.31	4.838	-2.84
CCV2	16JUL18-40	21.809	323224.95	179132.74	1.804	9.04

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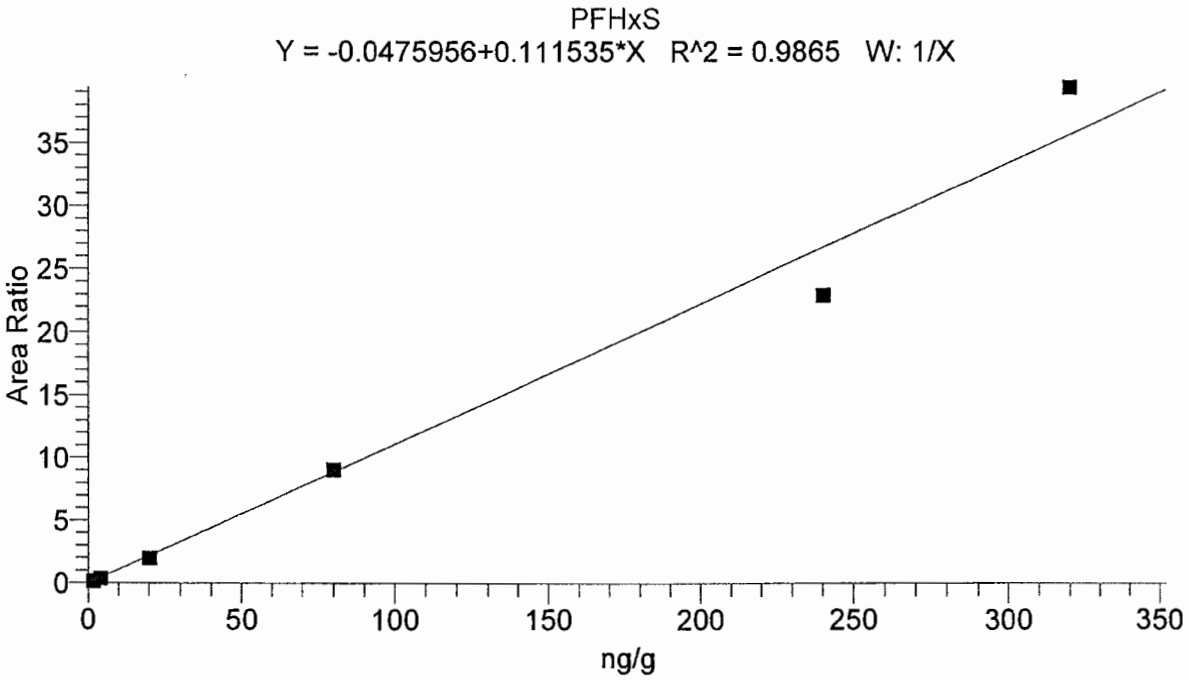
JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFHxS**



Identification		Component Name:	PFHxS
Filter:	- c ESI SRM ms2 399.00 [80.09-80.11, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.17000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	20.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	1.600
2	4.000
3	20.000
4	80.000
5	240.000
6	320.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	20.000
2	80.000
3	240.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL14-04	1.768	5264.74	35181.64	0.150	10.53
CAL2	16JUL14-05	3.976	11660.22	29456.82	0.396	-0.61
CAL3	16JUL14-09	18.252	66138.70	33266.54	1.988	-8.74
CAL6	16JUL14-11	353.612	726096.64	18432.30	39.393	10.50
CAL5	16JUL14-12	206.007	600632.06	26194.70	22.930	-14.16
CAL4	16JUL14-14	81.985	265805.69	29220.27	9.097	2.48
CCV1	16JUL14-17	18.729	67861.97	33243.42	2.041	-6.35
ICV1	16JUL14-19	16.270	51588.70	29194.99	1.767	-18.65
CCV3	16JUL18-03	221.621	600003.00	24320.14	24.671	-7.66
CCV2	16JUL18-20	83.692	244495.19	26326.38	9.287	4.62
CCV3	16JUL18-31	215.404	678996.79	28318.05	23.978	-10.25
CCV2	16JUL18-40	76.449	262634.57	30974.11	8.479	-4.44

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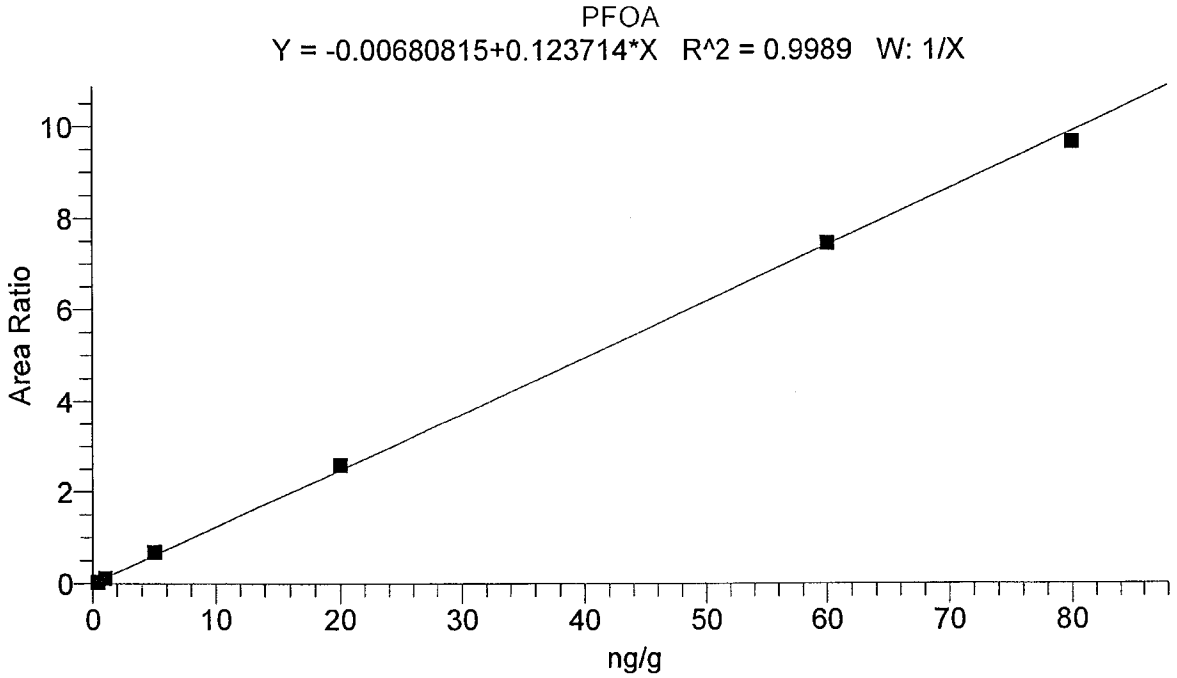
LCMSMS ANALYSIS REPORT

Component Name: **PFOA**



Identification		Component Name:	PFOA
Filter:	- c ESI SRM ms2 412.90 [168.90-168.91, 218.90-218.91, 368.85-368.86]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.13000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	15
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFOA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL14-04	0.336	7362.76	212107.95	0.035	-16.10
CAL2	16JUL14-05	1.009	25541.22	216400.46	0.118	0.91
CAL3	16JUL14-09	5.600	142098.10	207129.54	0.686	12.01
CAL6	16JUL14-11	78.133	1646412.09	170447.97	9.659	-2.33
CAL5	16JUL14-12	60.328	1366609.18	183273.16	7.457	0.55
CAL4	16JUL14-14	20.994	477390.38	184289.30	2.590	4.97
CCV1	16JUL14-17	4.807	112463.33	191315.95	0.588	-3.87
ICV1	16JUL14-19	16.448	372446.05	183650.31	2.028	-17.76
CCV3	16JUL18-03	60.991	1220019.40	161834.65	7.539	1.65
CCV2	16JUL18-20	20.640	421241.72	165413.11	2.547	3.20
CCV3	16JUL18-31	55.192	1338684.80	196252.26	6.821	-8.01
CCV2	16JUL18-40	19.853	493322.26	201412.42	2.449	-0.73

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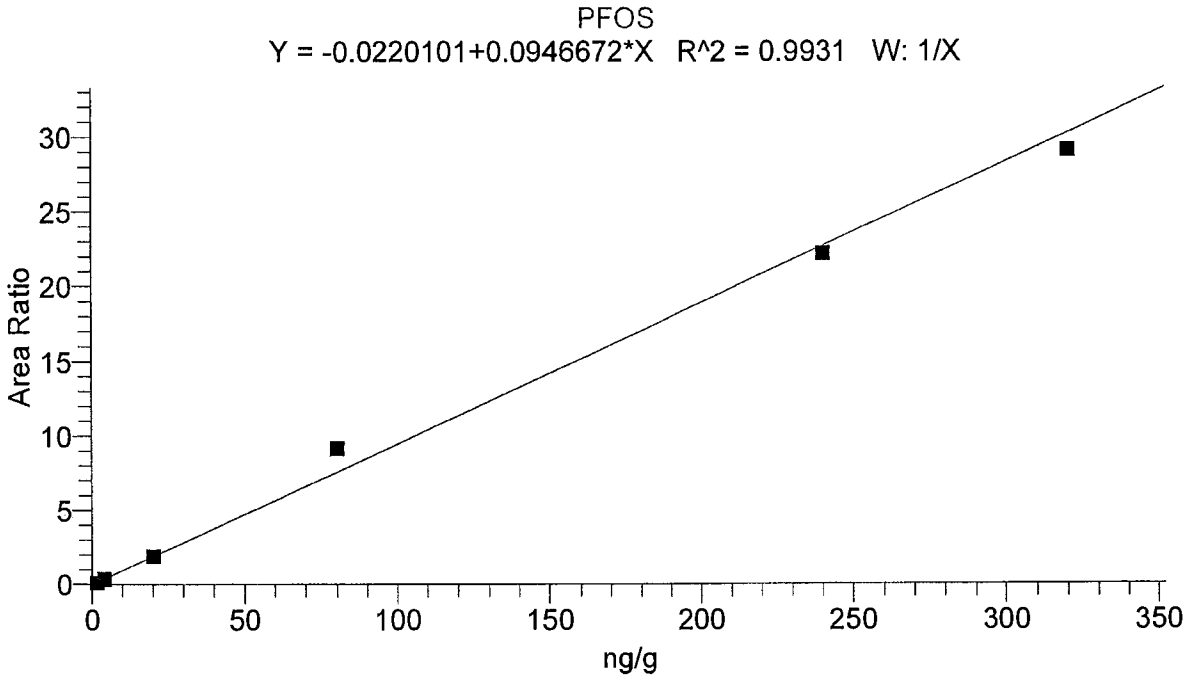
Component Name: **PFOS**



Identification		Component Name:	PFOS
Filter:	- c ESI SRM ms2 499.00 [80.00-80.00, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.46000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	20.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFOS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	1.600
2	4.000
3	20.000
4	80.000
5	240.000
6	320.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	20.000
2	80.000
3	240.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL14-04	1.422	1919.81	17054.60	0.113	-11.15
CAL2	16JUL14-05	3.797	6517.52	19313.47	0.337	-5.07
CAL3	16JUL14-09	20.077	35475.09	18883.18	1.879	0.39
CAL6	16JUL14-11	308.235	466067.44	15984.37	29.158	-3.68
CAL5	16JUL14-12	234.692	405195.33	18255.68	22.196	-2.21
CAL4	16JUL14-14	97.377	153587.30	16700.74	9.196	21.72
CCV1	16JUL14-17	23.259	42292.50	19401.43	2.180	16.30
ICV1	16JUL14-19	16.317	26915.23	17676.24	1.523	-18.41
CCV3	16JUL18-03	261.845	368131.95	14864.32	24.766	9.10
CCV2	16JUL18-20	95.957	153328.15	16920.03	9.062	19.95
CCV3	16JUL18-31	240.854	485148.65	21298.14	22.779	0.36
CCV2	16JUL18-40	75.462	167214.43	23479.40	7.122	-5.67

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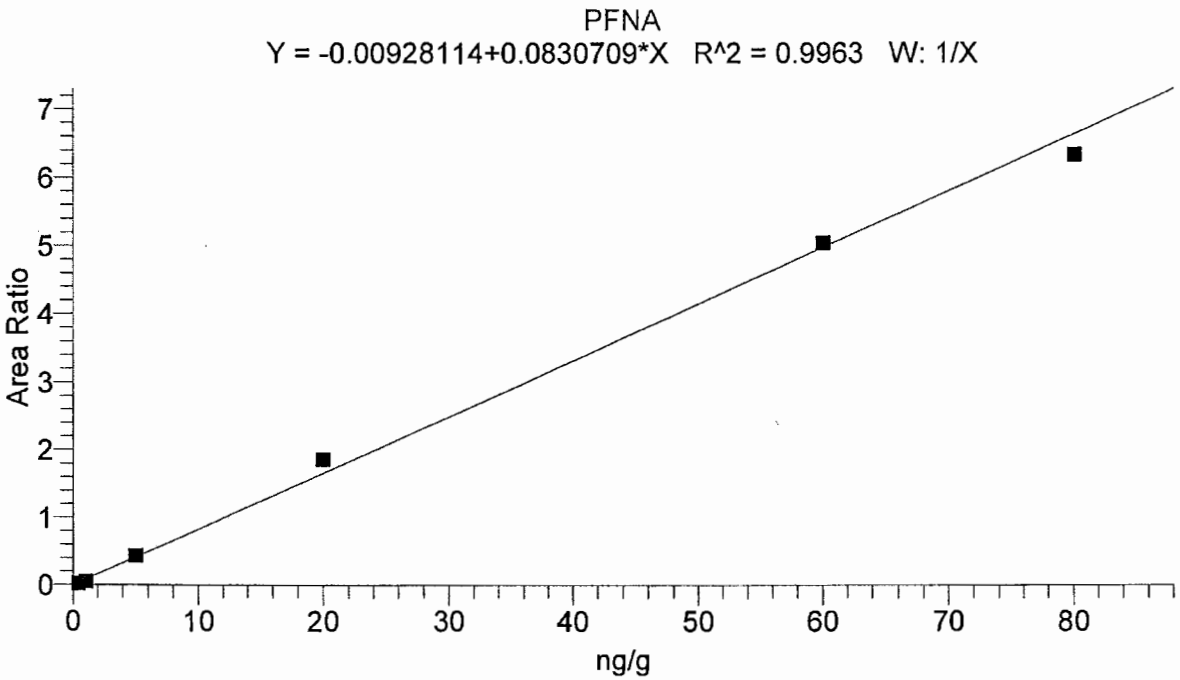
LCMSMS ANALYSIS REPORT

Component Name: **PFNA**



Identification		Component Name:	PFNA
Filter:	- c ESI SRM ms2 462.90 [418.89-418.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.67000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFNA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL14-04	0.424	7809.76	301477.26	0.026	5.89
CAL2	16JUL14-05	0.766	14811.13	272353.68	0.054	-23.36
CAL3	16JUL14-09	5.388	98398.97	224484.36	0.438	7.77
CAL6	16JUL14-11	76.401	1047617.14	165305.61	6.337	-4.50
CAL5	16JUL14-12	60.870	923857.07	183043.00	5.047	1.45
CAL4	16JUL14-14	22.551	371926.95	199529.94	1.864	12.75
CCV1	16JUL14-17	4.719	89845.28	234740.48	0.383	-5.62
ICV1	16JUL14-19	14.030	278471.93	240846.38	1.156	-29.85
CCV3	16JUL18-03	61.673	870021.19	170127.77	5.114	2.79
CCV2	16JUL18-20	22.747	329332.94	175143.18	1.880	13.74
CCV3	16JUL18-31	55.564	788017.20	171068.64	4.606	-7.39
CCV2	16JUL18-40	18.683	327996.40	212606.82	1.543	-6.58

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JUL 20 2016

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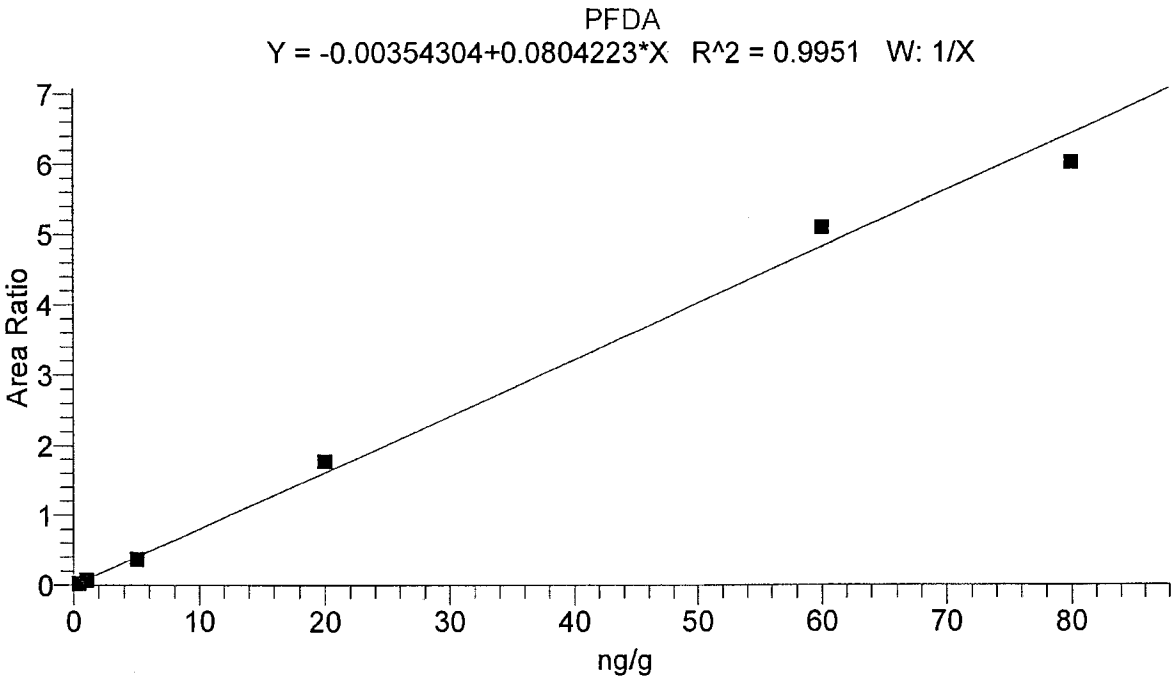
Component Name: **PFDA**



Identification		Component Name:	PFDA
Filter:	- c ESI SRM ms2 512.88 [468.88-468.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	10.10000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL14-04	0.403	5563.82	192569.52	0.029	0.83
CAL2	16JUL14-05	0.974	12954.22	173265.95	0.075	-2.63
CAL3	16JUL14-09	4.604	72159.56	196784.77	0.367	-7.93
CAL6	16JUL14-11	74.892	1090898.56	181228.69	6.019	-6.38
CAL5	16JUL14-12	63.457	815163.46	159841.42	5.100	5.76
CAL4	16JUL14-14	22.070	307618.00	173660.00	1.771	10.35
CCV1	16JUL14-17	5.490	75098.82	171483.72	0.438	9.79
ICV1	16JUL14-19	20.770	275605.63	165351.18	1.667	3.85
CCV3	16JUL18-03	66.843	847007.36	157667.90	5.372	11.40
CCV2	16JUL18-20	20.063	275387.92	171050.96	1.610	0.32
CCV3	16JUL18-31	57.647	904398.86	195225.91	4.633	-3.92
CCV2	16JUL18-40	22.606	358792.07	197738.14	1.814	13.03

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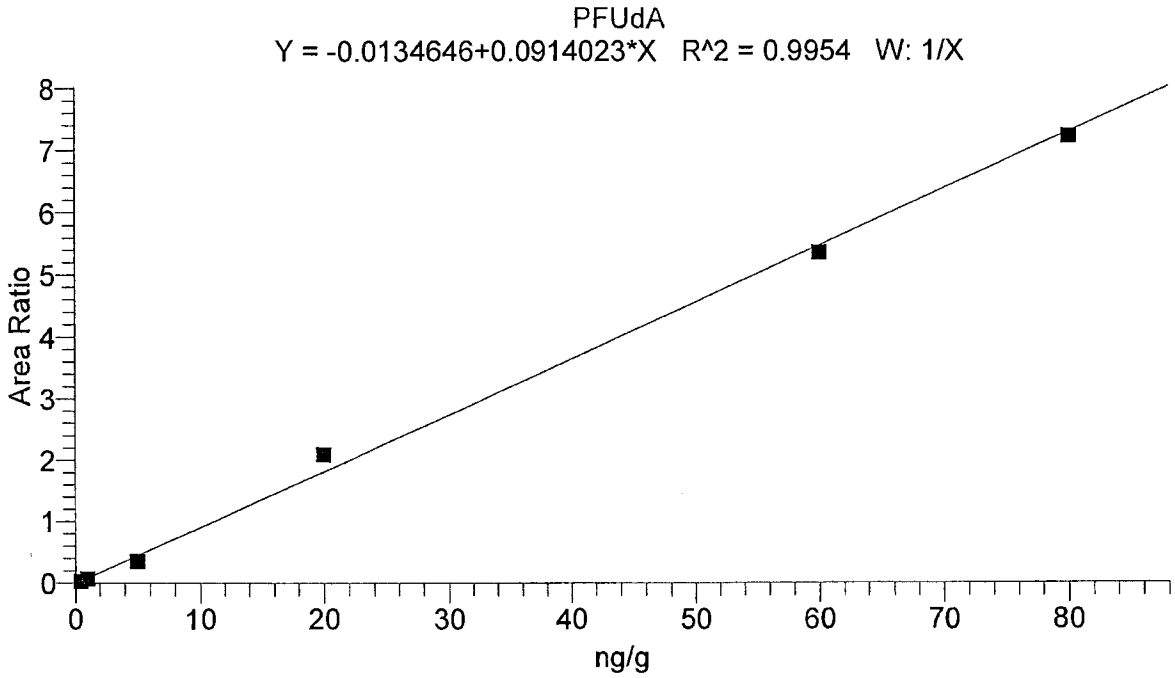
LCMSMS ANALYSIS REPORT

Component Name: **PFUdA**



Identification		Component Name:	PFUdA
Filter:	- c ESI SRM ms2 562.87 [518.87-518.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	10.71000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUdA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL14-04	0.463	5633.99	195261.55	0.029	15.75
CAL2	16JUL14-05	0.917	13433.33	190875.08	0.070	-8.27
CAL3	16JUL14-09	4.007	56961.38	161468.31	0.353	-19.86
CAL6	16JUL14-11	79.173	1170914.82	162105.50	7.223	-1.03
CAL5	16JUL14-12	58.733	901719.17	168392.19	5.355	-2.11
CAL4	16JUL14-14	23.106	329955.16	157232.34	2.099	15.53
CCV1	16JUL14-17	5.902	88145.30	167568.02	0.526	18.05
ICV1	16JUL14-19	18.244	318172.34	192356.71	1.654	-8.78
CCV3	16JUL18-03	57.576	922063.95	175660.87	5.249	-4.04
CCV2	16JUL18-20	21.632	316792.31	161318.11	1.964	8.16
CCV3	16JUL18-31	68.667	932214.22	148849.02	6.263	14.44
CCV2	16JUL18-40	28.718	322359.10	123439.55	2.611	43.59

soil IS 39 not no impact

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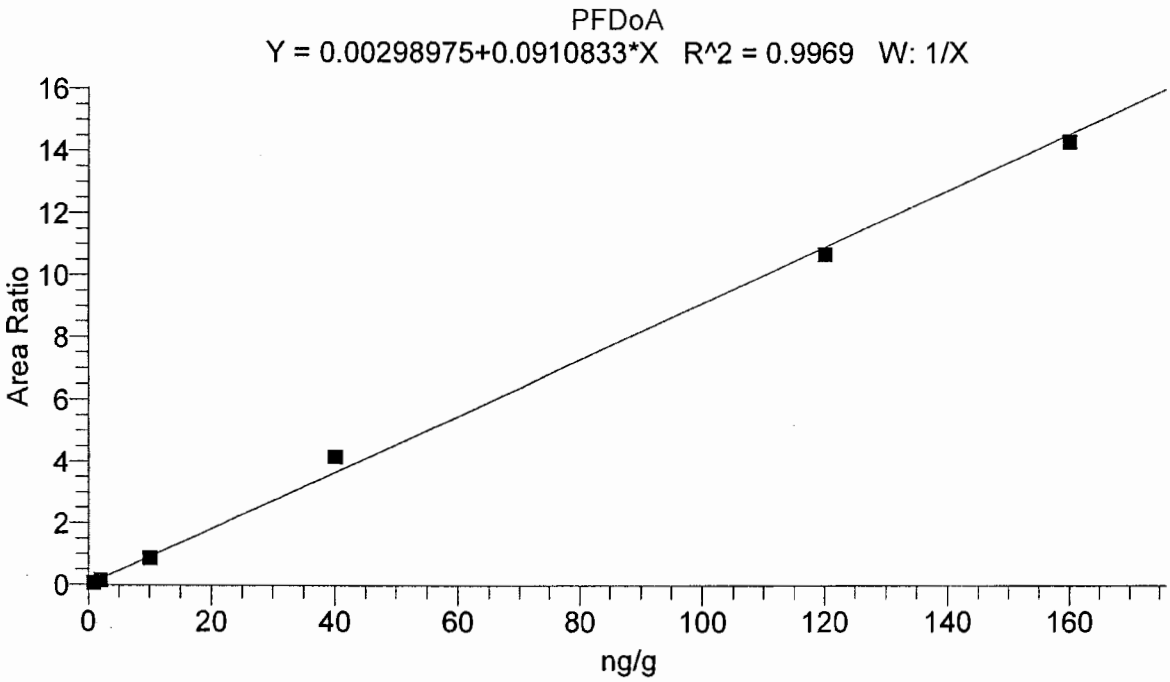
LCMSMS ANALYSIS REPORT

Component Name: **PFDoA**



Identification		Component Name:	PFDoA
Filter:	- c ESI SRM ms2 612.90 [568.89-568.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	11.49000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDoA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.800
2	2.000
3	10.000
4	40.000
5	120.000
6	160.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	10.000
2	40.000
3	120.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL14-04	0.849	14212.75	176973.87	0.080	6.11
CAL2	16JUL14-05	1.740	29410.24	182087.73	0.162	-12.98
CAL3	16JUL14-09	9.630	163446.59	185709.56	0.880	-3.70
CAL6	16JUL14-11	157.377	2166583.63	151113.93	14.337	-1.64
CAL5	16JUL14-12	117.483	1707046.04	159482.10	10.704	-2.10
CAL4	16JUL14-14	45.721	676828.02	162410.21	4.167	14.30
CCV1	16JUL14-17	10.424	168691.46	177111.16	0.952	4.24
ICV1	16JUL14-19	17.207	271017.08	172598.40	1.570	-13.97
CCV3	16JUL18-03	111.420	1693399.72	166812.35	10.152	-7.15
CCV2	16JUL18-20	40.726	590071.98	158942.57	3.712	1.82
CCV3	16JUL18-31	154.165	1551887.49	110495.39	14.045	28.47
CCV2	16JUL18-40	57.543	803665.90	153247.84	5.244	43.86

no impact

31 - ha

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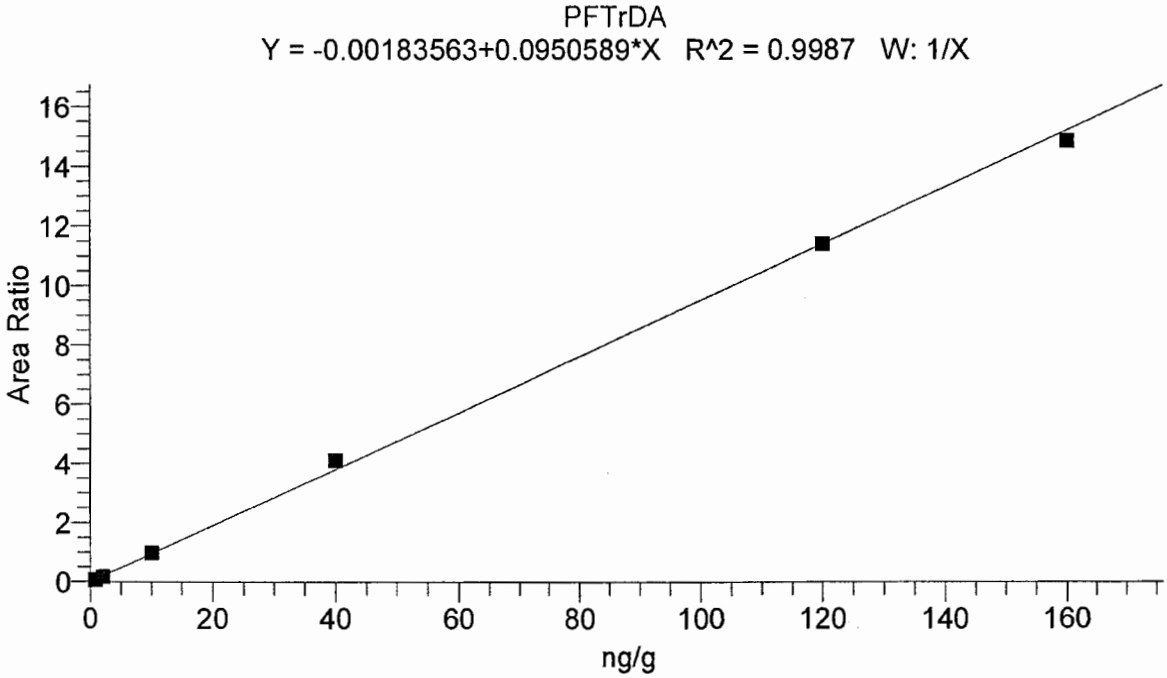
LCMSMS ANALYSIS REPORT

Component Name: **PFTrDA**



Identification		Component Name:	PFTrDA
Filter:	- c ESI SRM ms2 662.90 [618.89-618.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	12.41000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDoA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

Jason W. Knight
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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.800
2	2.000
3	10.000
4	40.000
5	120.000
6	160.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	10.000
2	40.000
3	120.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL14-04	0.795	13042.65	176973.87	0.074	-0.67
CAL2	16JUL14-05	1.826	31265.50	182087.73	0.172	-8.72
CAL3	16JUL14-09	10.312	181692.65	185709.56	0.978	3.12
CAL6	16JUL14-11	156.333	2245401.34	151113.93	14.859	-2.29
CAL5	16JUL14-12	120.161	1821366.99	159482.10	11.421	0.13
CAL4	16JUL14-14	43.375	669340.58	162410.21	4.121	8.44
CCV1	16JUL14-17	9.934	166920.25	177111.16	0.942	-0.66
ICV1	16JUL14-19	12.981	212668.63	172598.40	1.232	-35.09
CCV3	16JUL18-03	109.364	1733877.07	166812.35	10.394	-8.86
CCV2	16JUL18-20	43.259	653310.82	158942.57	4.110	8.15
CCV3	16JUL18-31	190.701	2002838.79	110495.39	18.126	58.92
CCV2	16JUL18-40	51.951	756515.38	153247.84	4.937	29.88

no impact

39 - no

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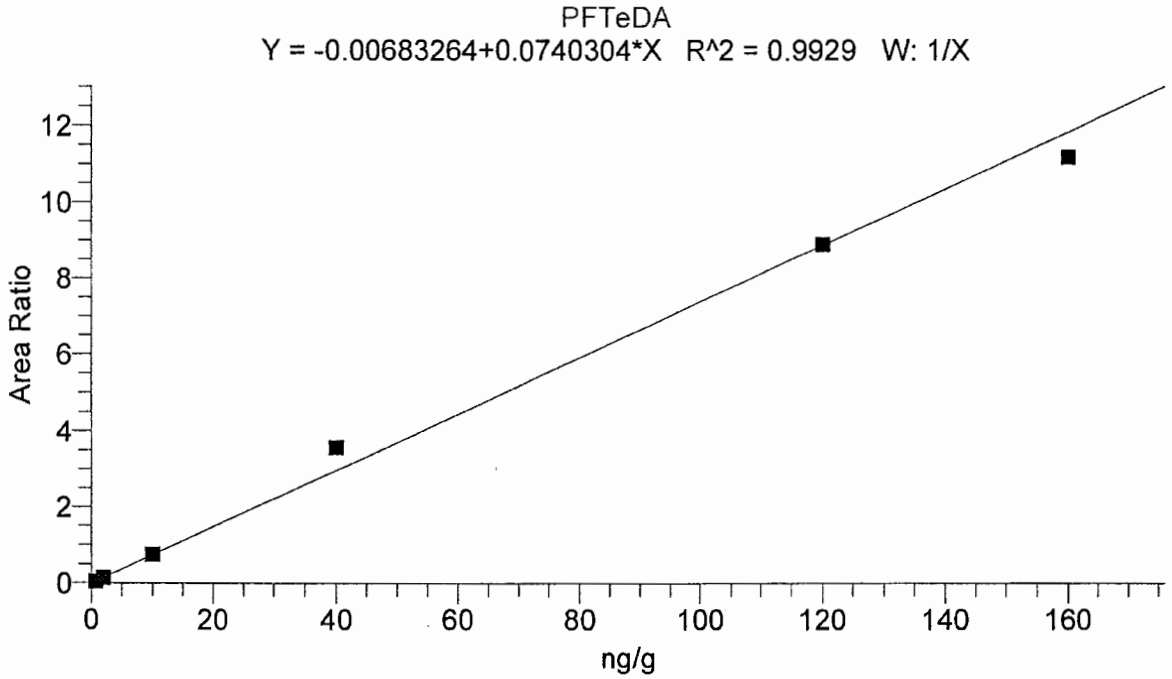
LCMSMS ANALYSIS REPORT

Component Name: **PFTeDA**



Identification		Component Name:	PFTeDA
Filter:	- c ESI SRM ms2 712.90 [668.89-668.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	13.33000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUdA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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Senior Chemist

JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.800
2	2.000
3	10.000
4	40.000
5	120.000
6	160.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	10.000
2	40.000
3	120.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL14-04	0.701	8801.85	195261.55	0.045	-12.35
CAL2	16JUL14-05	1.906	25629.65	190875.08	0.134	-4.70
CAL3	16JUL14-09	10.128	119963.28	161468.31	0.743	1.28
CAL6	16JUL14-11	151.210	1813529.58	162105.50	11.187	-5.49
CAL5	16JUL14-12	120.525	1501337.03	168392.19	8.916	0.44
CAL4	16JUL14-14	48.329	561470.75	157232.34	3.571	20.82
CCV1	16JUL14-17	11.021	135573.96	167568.02	0.809	10.21
ICV1	16JUL14-19	15.491	219277.84	192356.71	1.140	-22.55
CCV3	16JUL18-03	100.902	1310955.48	175660.87	7.463	-15.91
CCV2	16JUL18-20	43.645	520130.06	161318.11	3.224	9.11
CCV3	16JUL18-31	145.987	1607666.05	148849.02	10.801	21.66
CCV2	16JUL18-40	54.479	497002.65	123439.55	4.026	36.20

<40

Lynn Dodd
JUL 20 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 20 2016

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP94
Matrix: Water

Fraction: PFAAs by LC/MS/MS

16182008	13C-PFNA	13C-PFOA	13C-PFDA	13C-PFDoA
	Area	Area	Area	Area
Average ICAL Response	224366 ✓	195608 ✓	179558 ✓	169630 ✓
Upper Limit	336548 ✓	293412 ✓	269338 ✓	254444 ✓
Lower Limit	112183 ✓	97804 ✓	89779 ✓	84815 ✓
Sample				
MB16182008	16289 *	9537 *	23155 *	43915 *
LCS16182008	23083 *	15916 *	35418 *	59630 *
8432118	178492	159868	130314	136527
8432119	272828	224466	182542	195429
8432120	237083	214723	153940	170780
8432124	229227	181618	147146	132229
8432125	398402 *	313177 *	259019	253035
8432126	299071	234892	211537	192099
8432129	297114	229911	201998	153476
8432131	191232	160509	118739	133825
8432133	218719	168598	126029	120009
8432134	260751	223768	177681	199817
8432135	178922	160966	123000	123642
8432136	212650	162247	156183	159453
8432137	182607	204413	162208	134244
8432138	274063	206769	178610	135397
8432139	231129	232435	181291	119335
8432121	247383	209399	167442	128761
8432122MS	205989	172914	160558	131918
8432123MSD	206566	213124	196404	137783

QC

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP94
Matrix: Water

Fraction: PFAAs by LC/MS/MS

16182008	13C-PFHpA	13C-PFHxA	13C-PFHxS	13C-PFOS
	Area	Area	Area	Area
Average ICAL Response	199460 ✓	123216 ✓	28625 ✓	17699 ✓
Upper Limit	299190 ✓	184825 ✓	42938 ✓	26548 ✓
Lower Limit	99730 ✓	61608 ✓	14313 ✓	8849 ✓
Sample				
MB16182008	4233 *	2238 *	30978	22677
LCS16182008	12261 *	8045 *	34430	17822
8432118	168651	87936	30706	18886
8432119	232136	134686	36325	19670
8432120	204383	136458	36133	21430
8432124	206227	110338	34012	20509
8432125	318376 *	203398 *	61536 *	31145 *
8432126	261803	162536	46079 *	25779
8432129	277168	147277	46800 *	28879 *
8432131	177127	108875	37164	18068
8432133	179870	104506	31584	18783
8432134	220883	140779	37119	20131
8432135	173195	101032	29560	20709
8432136	188686	96938	32443	17291
8432137	195521	140698	30524	18501
8432138	180272	120377	33333	18186
8432139	197124	129519	42175	24930
8432121	173218	120146	28238	18527
8432122MS	177386	105517	29682	22248
8432123MSD	180112	125335	34991	22318

QC

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

Fraction: PFAAs by LC/MS/MS

16182008	13C-PFUnA
	Area
Average ICAL Response	172556 ✓
Upper Limit	258834 ✓
Lower Limit	86278 ✓
Sample	
MB16182008	37363 *
LCS16182008	43716 *
8432118	134238
8432119	197037
8432120	159635
8432124	138095
8432125	273258 *
8432126	209859
8432129	197113
8432131	106651
8432133	129646
8432134	185027
8432135	120068
8432136	167461
8432137	148127
8432138	155597
8432139	113046
8432121	147941
8432122MS	129663
8432123MSD	149464

QC

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

Sequence Table

File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16JUL19-06	MDL	N/A	N/A	c:2	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-07	CAL1	N/A	1	c:3	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-08	CAL2	N/A	2	c:4	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-09	CAL3	N/A	3	c:5	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-10	CAL4	N/A	4	c:6	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-11	CAL5	N/A	5	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-12	CAL6	N/A	6	c:8	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-13	solvent	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-14	solvent	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-20	CCV3	N/A	3	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-23	ICV1	N/A	ICV1	c:9	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL21-01	solvent	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL21-02	CCV3	N/A	3	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL21-03	solvent	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL21-04	solvent	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL21-05	8432132	N/A	N/A	B:29	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL21-06	CCV2	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils

Lab Reprocessed Against same curves as 41-43. Sec next sequence & curves

Christine Ratcliff
Manager

JUL 21 2016

Jason W. Knight
Senior Chemist

JUL 20 2016

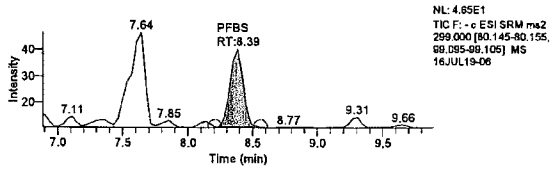
LCMSMS ANALYSIS REPORT

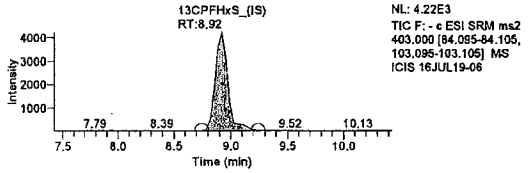
Sample Name:	MDL	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	MDL	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL19-06		M\HWell_16.5minutes
Acquisition Date:	07/19/16 04:44:26 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:2	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

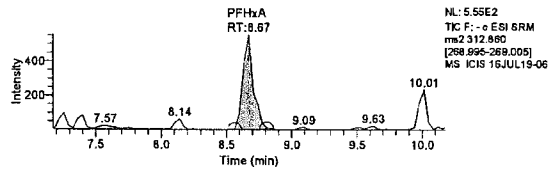
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.36	290172.17	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.14	266691.53	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.65	246962.85	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.93	126366.10	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.92	255934.36	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.67	131256.74	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.92	32663.00	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	23006.70	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.11	201126.66	N/A	N/A	N/A
PFBS	0.492	8.39	206.15	32663.00	0.006	ng/g
PFDA	0.047	9.64	2010.08	246962.85	0.008	ng/g
PFDoA	0.444	10.96	6687.02	126366.10	0.053	ng/g
PFHxA	0.207	8.67	3067.86	131256.74	0.023	ng/g
PFHxS	0.847	8.92	815.92	32663.00	0.025	ng/g
PFNA	0.100	9.36	3541.66	290172.17	0.012	ng/g
PFOA	0.095	9.10	3082.78	266691.53	0.012	ng/g
PFOS	1.515	9.29	600.06	23006.70	0.026	ng/g
PFTeDA	0.444	13.26	3605.75	201126.66	0.018	ng/g
PFTrDA	0.585	11.92	6359.51	126366.10	0.050	ng/g
PFUdA	0.273	10.07	4534.84	201126.66	0.023	ng/g
PFHpA	0.188	8.92	3567.93	255934.36	0.014	ng/g

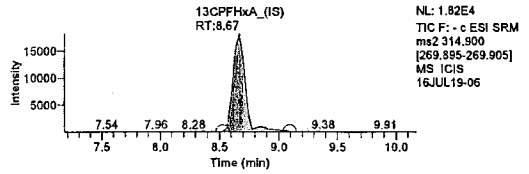
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHpA

Christine Ratcliff
Manager

JUL 21 2016

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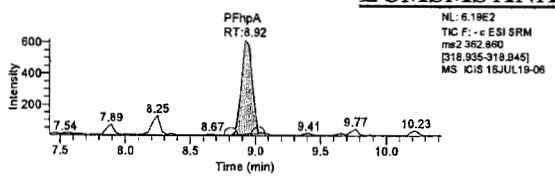
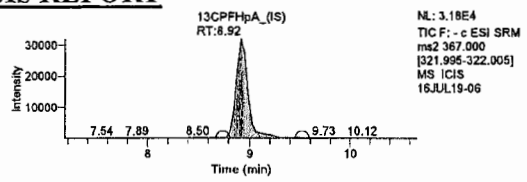
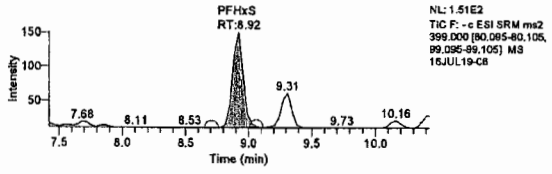
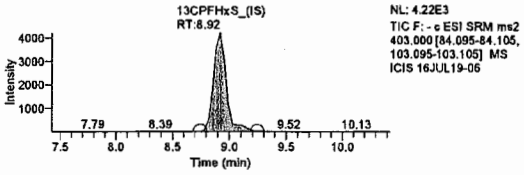


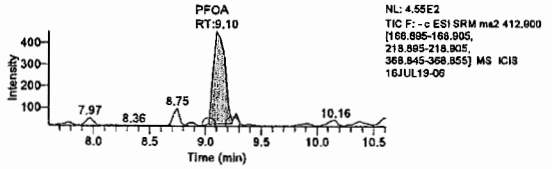


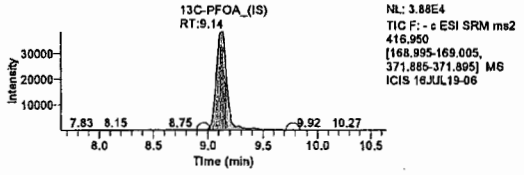
Component Name: PFHxS



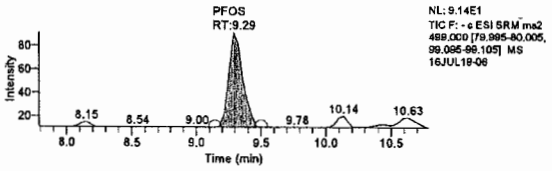


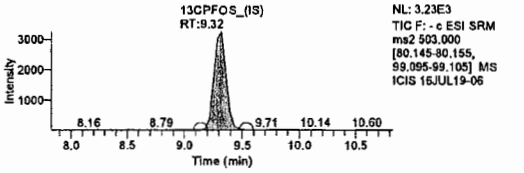
Component Name: PFOA





Component Name: PFOS





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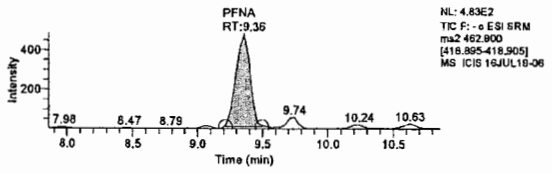
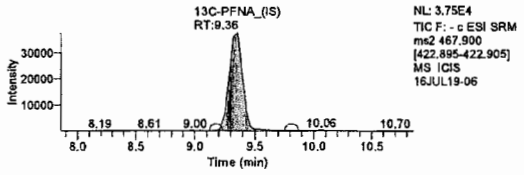
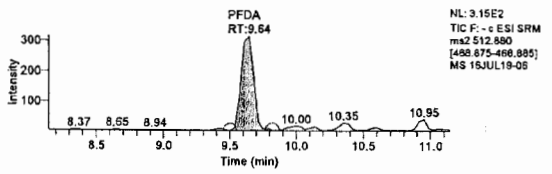
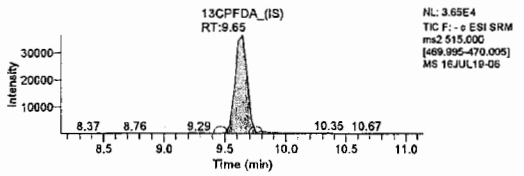




Component Name: PFDA





Component Name: PFUdA

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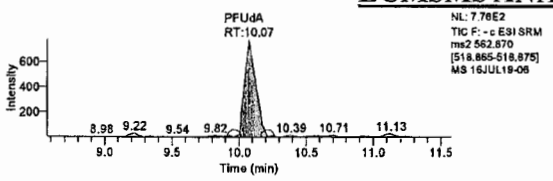
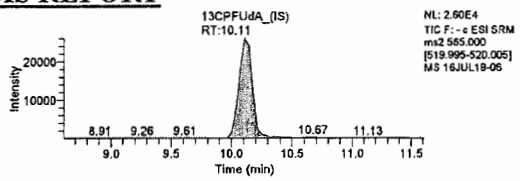
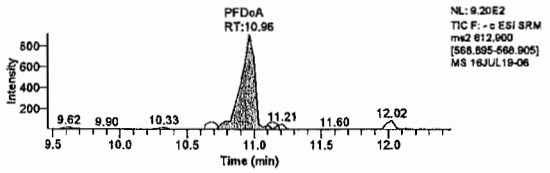
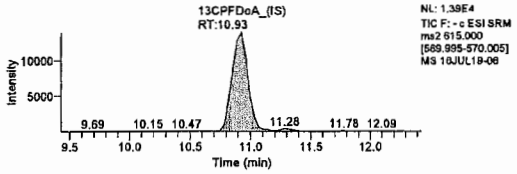


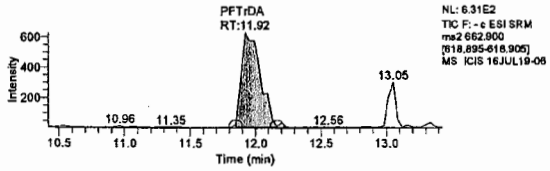


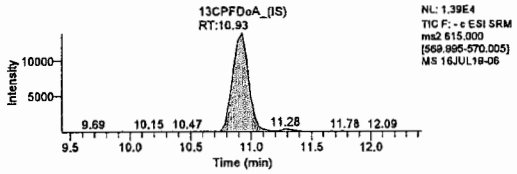
Component Name: PFDoA



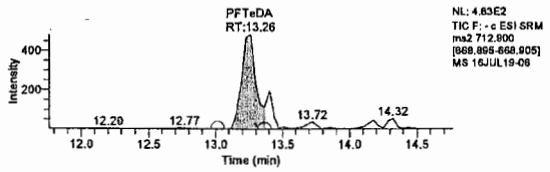


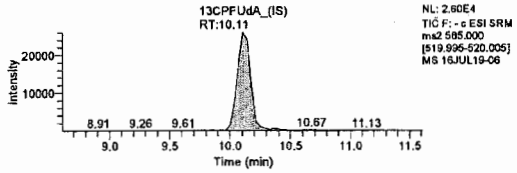
Component Name: PFTrDA





Component Name: PFTeDA





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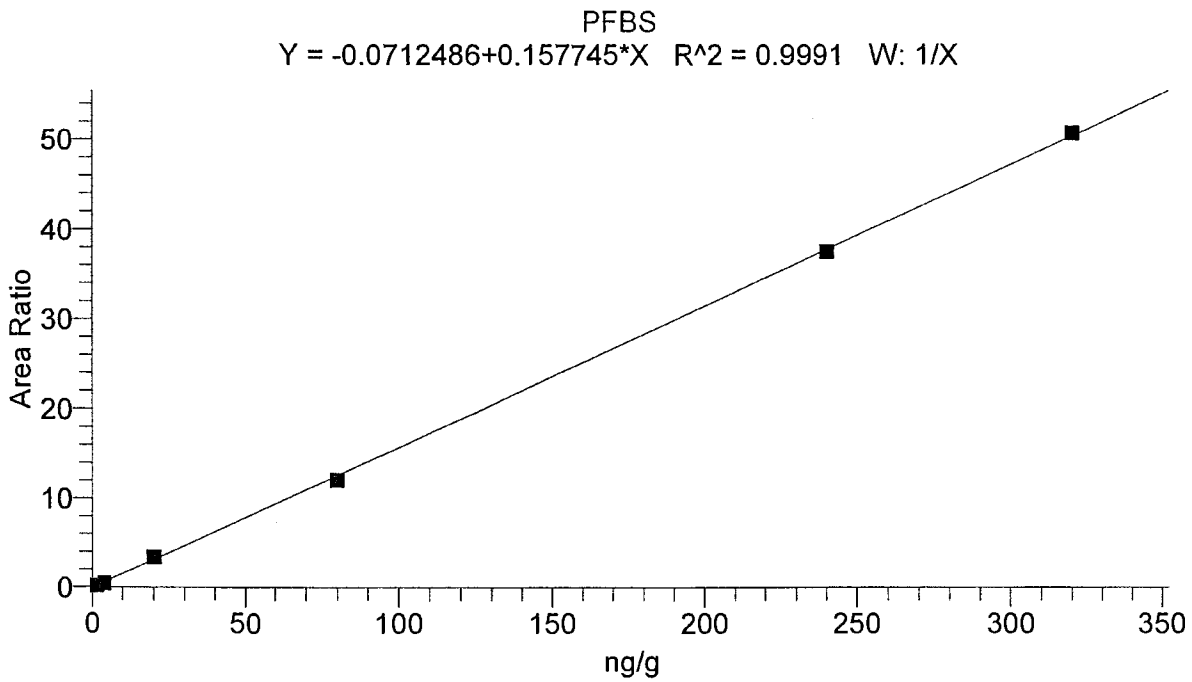
slightly drift

Component Name: **PFBS**



Identification		Component Name:	PFBS
Filter:	- c ESI SRM ms2 299.00 [80.14-80.16, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.17000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	20.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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Manager

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	1.600
2	4.000
3	20.000
4	80.000
5	240.000
6	320.000

Component QC Level Table

QC Level	Amount
ICV2	40.000
ICV1	20.000
1	20.000
2	80.000
3	240.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	1.762	6758.25	32690.06	0.207	10.14
CAL2	16JUL19-08	3.274	17721.91	39801.60	0.445	-18.14
CAL3	16JUL19-09	22.294	114106.68	33117.51	3.446	11.47
CAL4	16JUL19-10	77.021	352546.11	29188.18	12.078	-3.72
CAL5	16JUL19-11	238.705	982451.66	26140.77	37.583	-0.54
CAL6	16JUL19-12	322.544	1074054.29	21139.36	50.808	0.79
CCV3	16JUL19-20	243.627	908505.57	23683.92	38.360	1.51
ICV1	16JUL19-23	18.959	74260.85	25436.85	2.919	-5.21
CCV3	16JUL21-02	241.223	924842.73	24350.53	37.980	0.51
CCV2	16JUL21-06	99.154	360220.87	23135.94	15.570	23.94

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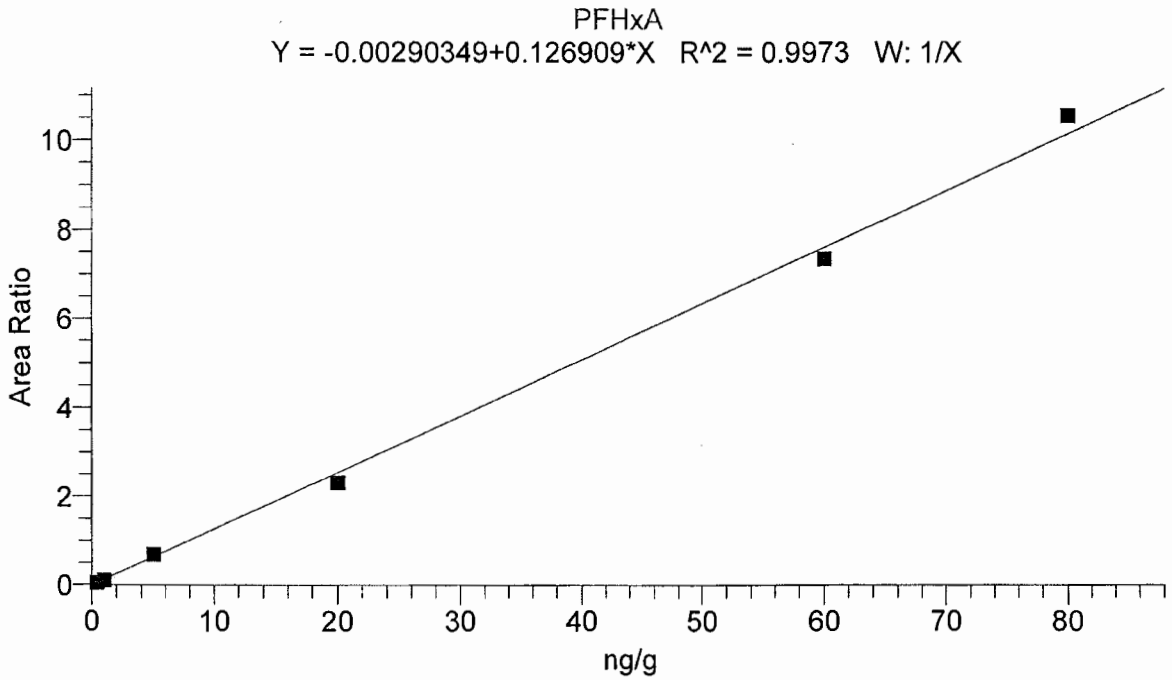
same

Component Name: **PFHxA** ✓



Identification		Component Name:	PFHxA
Filter:	- c ESI SRM ms2 312.86 [269.00-269.01]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.49000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):			

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Manager

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.456	7441.76	135298.60	0.055	14.07
CAL2	16JUL19-08	0.836	15452.91	149668.33	0.103	-16.36
CAL3	16JUL19-09	5.504	95229.28	136910.37	0.696	10.07
CAL4	16JUL19-10	18.272	292644.76	126358.79	2.316	-8.64
CAL5	16JUL19-11	58.055	915666.67	124328.92	7.365	-3.24
CAL6	16JUL19-12	83.276	1075377.54	101780.79	10.566	4.10
CCV3	16JUL19-20	53.384	858369.63	126752.00	6.772	-11.03
ICV1	16JUL19-23	18.108	262079.00	114185.28	2.295	-9.46
CCV3	16JUL21-02	57.445	921583.04	126463.31	7.287	-4.26
CCV2	16JUL21-06	21.727	330558.55	120008.75	2.754	8.63

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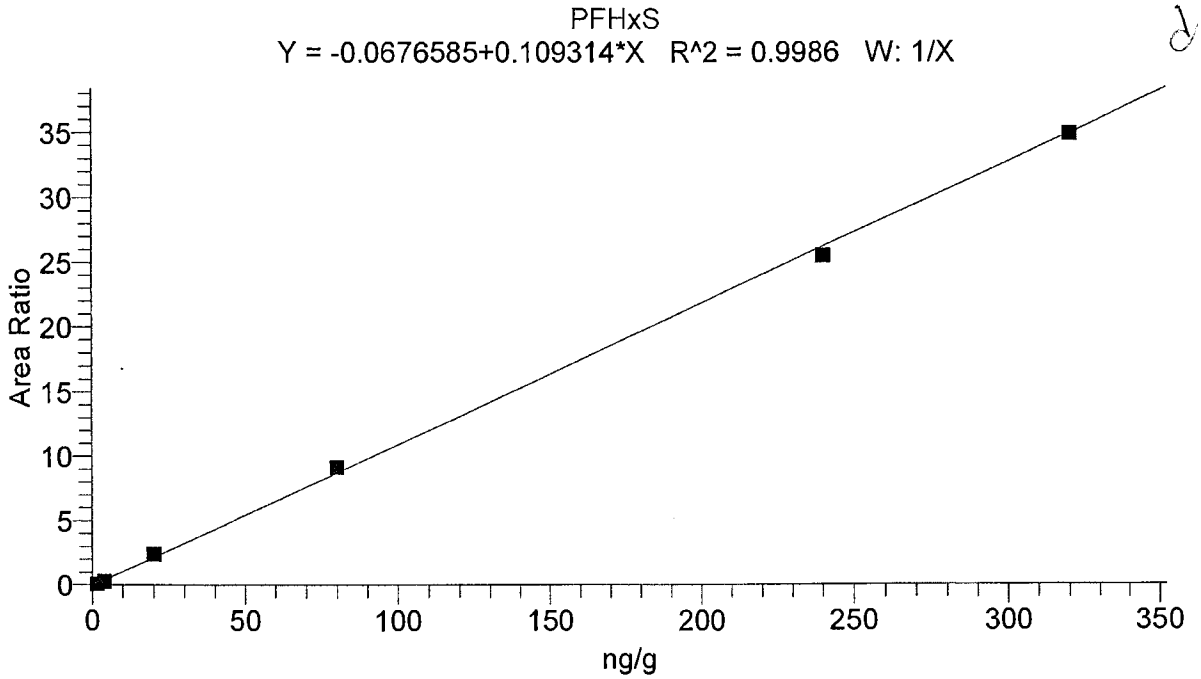
Component Name: **PFHxS**

slightly different



Identification		Component Name:	PFHxS
Filter:	- c ESI SRM ms2 399.00 [80.09-80.11, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.17000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	20.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	1.600
2	4.000
3	20.000
4	80.000
5	240.000
6	320.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	20.000
2	80.000
3	240.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	1.626	3599.89	32690.06	0.110	1.65
CAL2	16JUL19-08	3.268	11526.13	39801.60	0.290	-18.30
CAL3	16JUL19-09	22.812	80342.34	33117.51	2.426	14.06
CAL4	16JUL19-10	84.166	266570.74	29188.18	9.133	5.21
CAL5	16JUL19-11	233.736	666146.67	26140.77	25.483	-2.61
CAL6	16JUL19-12	319.992	738017.87	21139.36	34.912	-0.00
CCV3	16JUL19-20	237.948	614443.74	23683.92	25.943	-0.85
ICV1	16JUL19-23	17.060	45714.85	25436.85	1.797	-14.70
CCV3	16JUL21-02	245.293	651289.43	24350.53	26.746	2.21
CCV2	16JUL21-06	100.491	252584.71	23135.94	10.917	25.61

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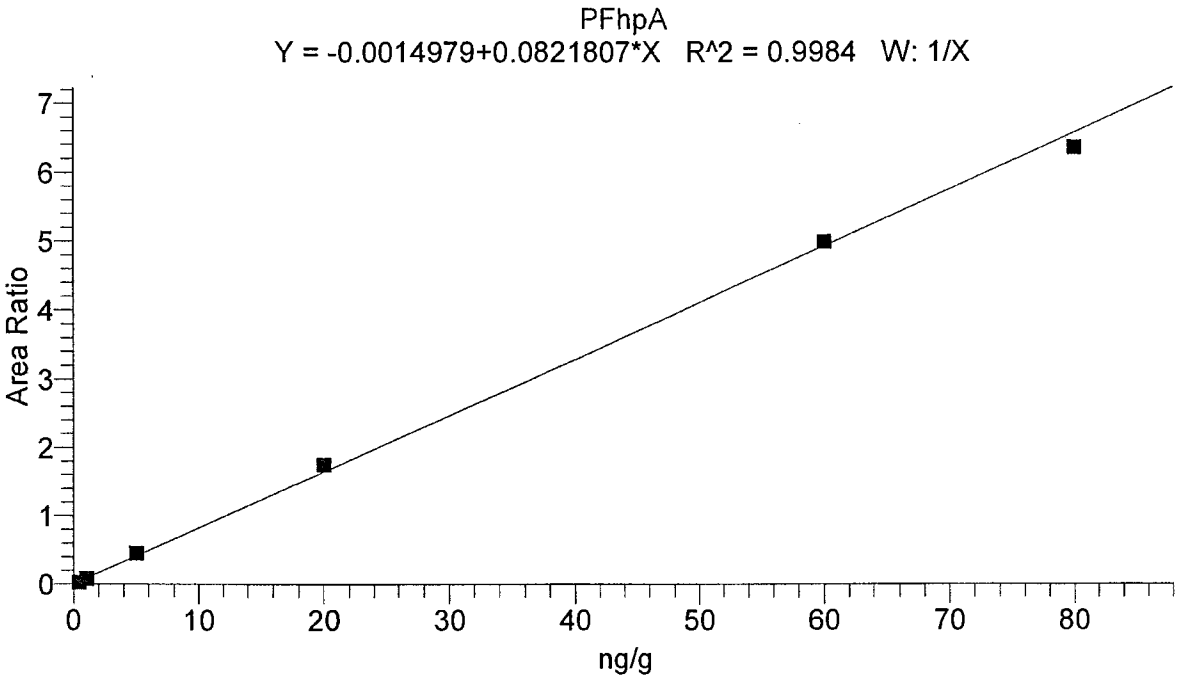
Component Name: **PFhpA**

Same



Identification		Component Name:	PFhpA
Filter:	- c ESI SRM ms2 362.86 [318.94-318.94]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.17000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHpA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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Manager

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.338	6805.72	258980.83	0.026	-15.50
CAL2	16JUL19-08	0.998	19183.71	238313.00	0.080	-0.22
CAL3	16JUL19-09	5.547	111700.92	245829.53	0.454	10.95
CAL4	16JUL19-10	21.346	366643.44	209184.08	1.753	6.73
CAL5	16JUL19-11	60.806	888329.00	177821.78	4.996	1.34
CAL6	16JUL19-12	77.365	1087176.40	171037.26	6.356	-3.29
CCV3	16JUL19-20	57.486	846058.59	179146.69	4.723	-4.19
ICV1	16JUL19-23	21.023	330589.26	191518.37	1.726	5.11
CCV3	16JUL21-02	57.775	990713.72	208726.08	4.746	-3.71
CCV2	16JUL21-06	20.437	393872.01	234724.08	1.678	2.18

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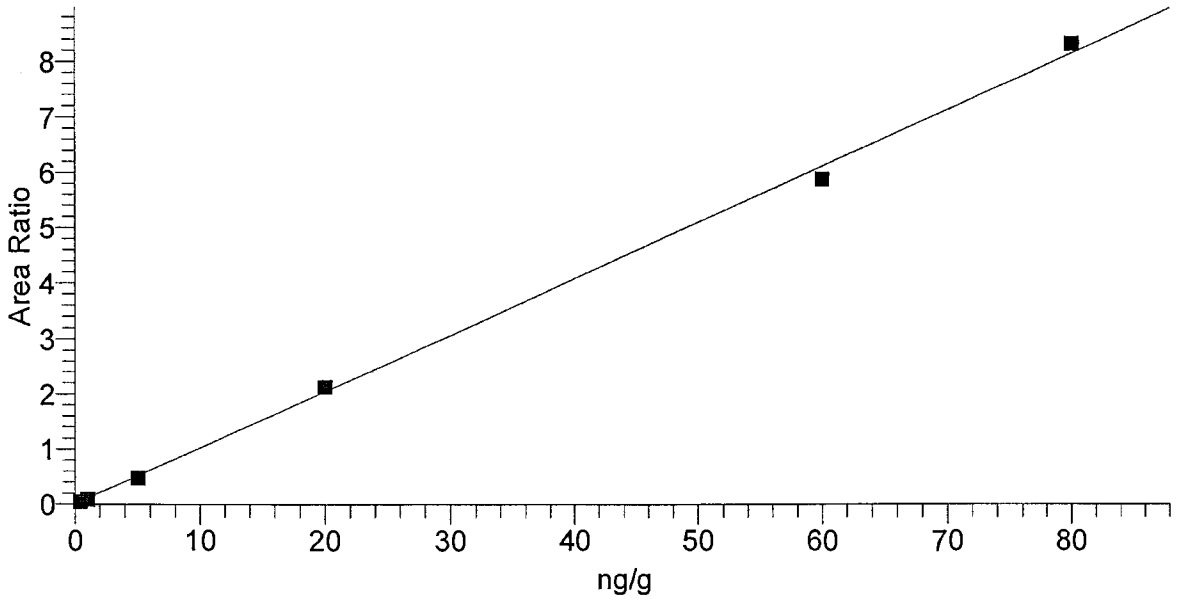
Component Name: **PFOA**

same

PFOA
Y = 0.00189203+0.101954*X R^2 = 0.9987 W: 1/X



Identification		Component Name:	PFOA
Filter:	- c ESI SRM ms2 412.90 [168.90-168.91, 218.90-218.91, 368.85-368.86]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.13000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	15
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFOA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 20 2016

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.456	10829.14	223823.62	0.048	14.00
CAL2	16JUL19-08	0.905	21898.12	232570.08	0.094	-9.50
CAL3	16JUL19-09	4.637	117956.15	248514.85	0.475	-7.26
CAL4	16JUL19-10	20.858	468155.72	219954.72	2.128	4.29
CAL5	16JUL19-11	57.716	1231901.89	209285.30	5.886	-3.81
CAL6	16JUL19-12	81.829	1658120.17	198703.37	8.345	2.29
CCV3	16JUL19-20	59.434	1244154.43	205257.37	6.061	-0.94
ICV1	16JUL19-23	16.863	385633.52	224061.24	1.721	-15.69
CCV3	16JUL21-02	65.826	1315250.45	195922.62	6.713	9.71
CCV2	16JUL21-06	21.162	526730.31	243924.29	2.159	5.81

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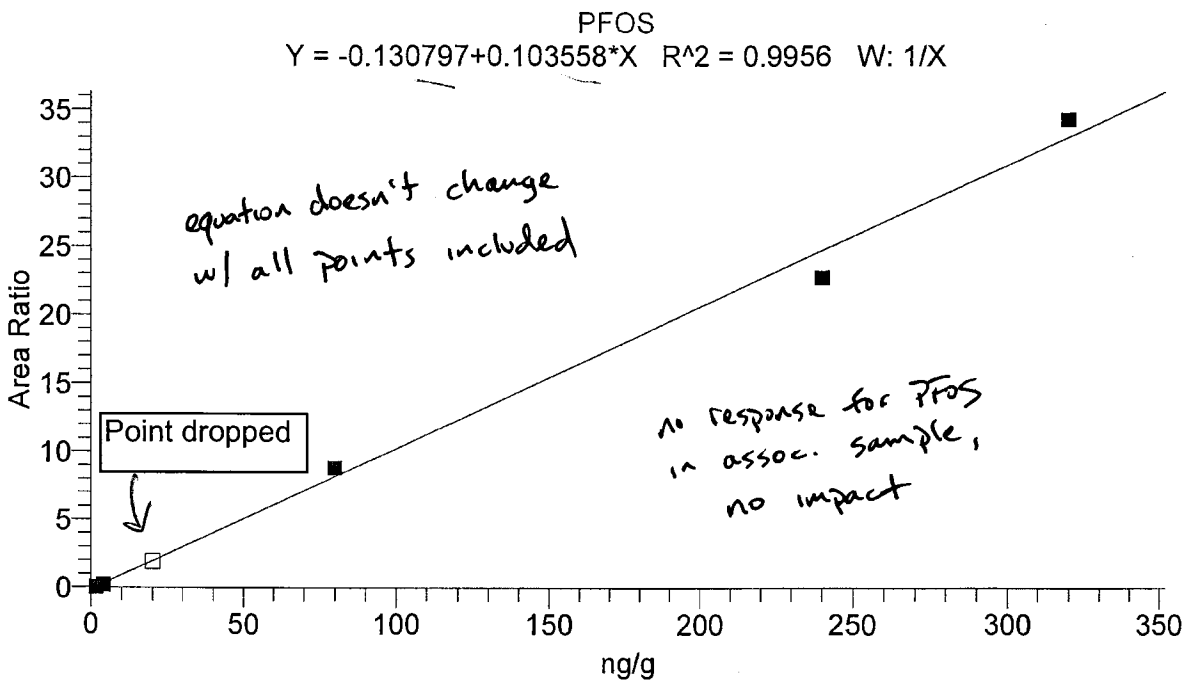
LCMSMS ANALYSIS REPORT

Component Name: **PFOS**

Slightly diff eq.



Identification		Component Name:	PFOS
Filter:	- c ESI SRM ms2 499.00 [80.00-80.00, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A		
Mass Range 2 (m/z):		Mass Range 1 (m/z):	
Base Peak(BP):		Wavelength Range 2 (nm):	N/A
Retention Time			
Window (sec):	50.00000	Expected RT (min):	9.46000
RT Reference:	No	View Width (min):	3.00000
Adjust Using:	N/A	Adjust Expected RT:	No
Detection Options			
		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection			
		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	20.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters			
		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFOS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	1.600
2	4.000
3	20.000
4	80.000
5	240.000
6	320.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	20.000
2	80.000
3	240.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	1.806	1132.61	20149.38	0.056	12.86
CAL2	16JUL19-08	3.310	5509.02	25986.66	0.212	-17.25
CAL3	16JUL19-09	19.818	38777.45	20180.92	1.921	-0.91
CAL4	16JUL19-10	86.627	147950.92	16736.32	8.840	8.28
CAL5	16JUL19-11	220.988	398371.87	17507.50	22.754	-7.92
CAL6	16JUL19-12	332.870	460091.78	13397.88	34.341	4.02
CCV3	16JUL19-20	249.297	386257.48	15037.67	25.686	3.87
ICV1	16JUL19-23	14.625	26638.07	19250.73	1.384	-26.88
CCV3	16JUL21-02	289.581	424900.27	14230.82	29.858	20.66
CCV2	16JUL21-06	100.781	160261.12	15550.43	10.306	25.98

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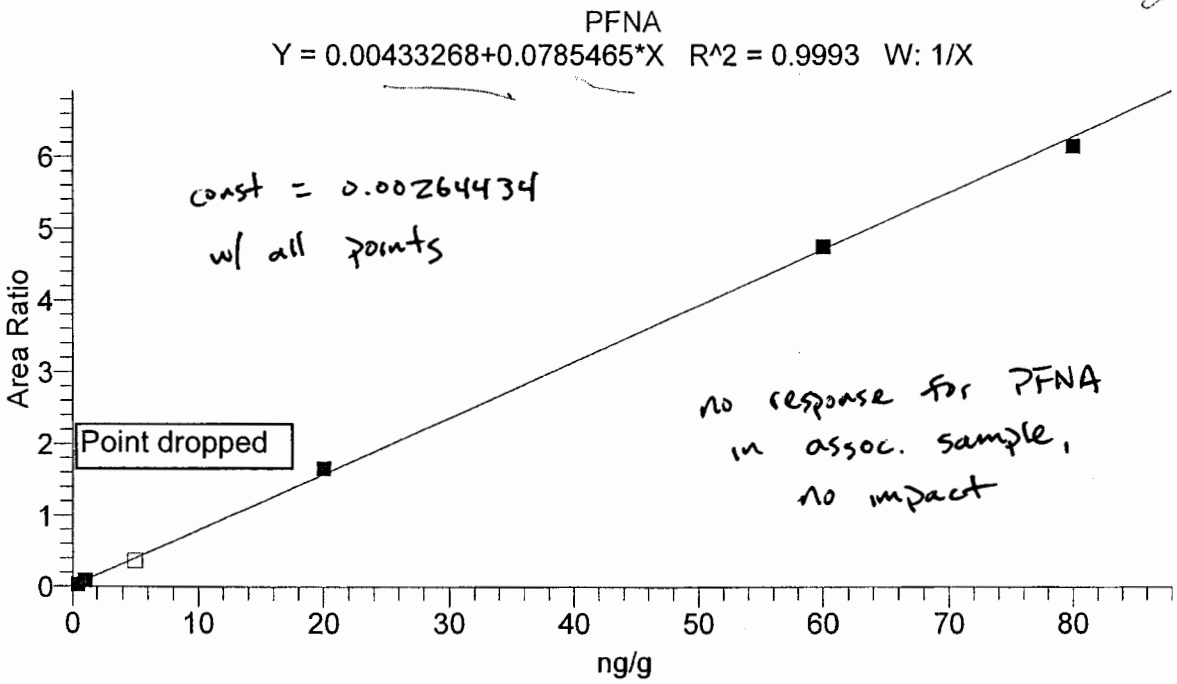
LCMSMS ANALYSIS REPORT

Component Name: **PFNA**



const = 0.0026434 w/ all points

no response for PFNA in assoc. sample, no impact

Identification		Component Name:	PFNA
Filter:	- c ESI SRM ms2 462.90 [418.89-418.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.67000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFNA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.364	7183.57	218072.72	0.033	-8.94
CAL2	16JUL19-08	1.045	19807.84	229179.60	0.086	4.52
CAL3	16JUL19-09	4.552	82156.85	227015.70	0.362	-8.95
CAL4	16JUL19-10	21.127	316826.28	190428.95	1.664	5.63
CAL5	16JUL19-11	60.507	867519.31	182368.49	4.757	0.85
CAL6	16JUL19-12	78.357	1030382.53	167297.56	6.159	-2.05
CCV3	16JUL19-20	63.434	880180.05	176499.88	4.987	5.72
ICV1	16JUL19-23	16.531	272491.04	209159.53	1.303	-17.34
CCV3	16JUL21-02	62.033	902785.92	185117.65	4.877	3.39
CCV2	16JUL21-06	21.219	372828.72	223111.71	1.671	6.10

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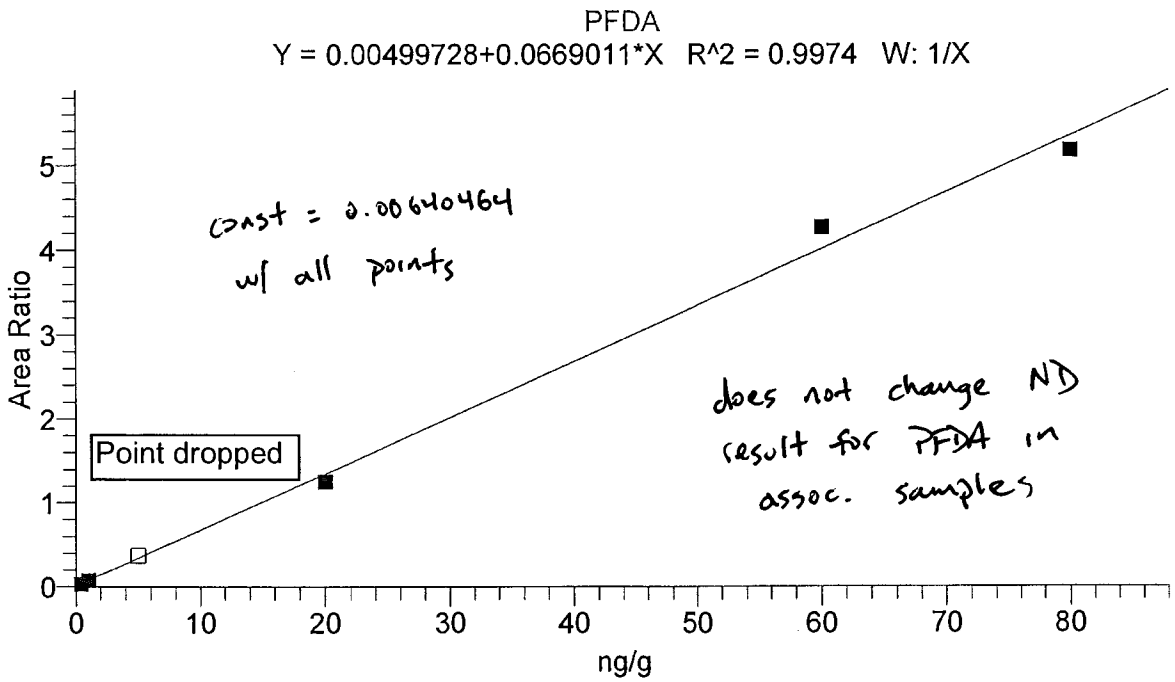
LCMSMS ANALYSIS REPORT

Component Name: **PFDA**



Identification		Component Name:	PFDA
Filter:	- c ESI SRM ms2 512.88 [468.88-468.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	10.10000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.401	6466.25	203130.26	0.032	0.28
CAL2	16JUL19-08	1.030	13907.33	188215.75	0.074	2.98
CAL3	16JUL19-09	5.410	86564.01	235894.22	0.367	8.21
CAL4	16JUL19-10	18.719	280350.05	222968.50	1.257	-6.40
CAL5	16JUL19-11	63.796	824958.68	193062.03	4.273	6.33
CAL6	16JUL19-12	77.454	994146.82	191671.27	5.187	-3.18
CCV3	16JUL19-20	68.677	876031.14	190458.57	4.600	14.46
ICV1	16JUL19-23	21.444	306298.60	212764.17	1.440	7.22
CCV3	16JUL21-02	70.044	865298.07	184458.74	4.691	16.74
CCV2	16JUL21-06	22.974	292182.18	189483.80	1.542	14.87

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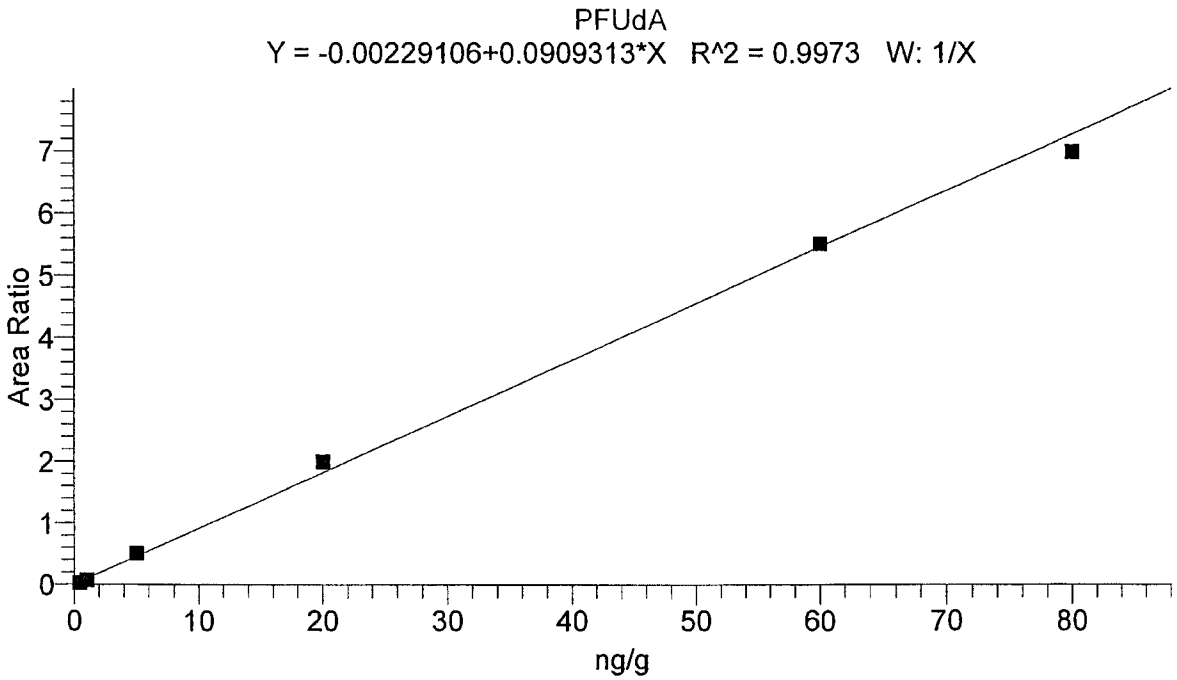
LCMSMS ANALYSIS REPORT

slightly d/A

Component Name: **PFUdA**



Identification		Component Name:	PFUdA
Filter:	- c ESI SRM ms2 562.87 [518.87-518.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	10.71000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUdA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.378	4993.13	155680.72	0.032	-5.52
CAL2	16JUL19-08	0.860	12560.09	165555.80	0.076	-14.05
CAL3	16JUL19-09	5.615	91810.63	180636.11	0.508	12.29
CAL4	16JUL19-10	22.026	282189.00	141054.98	2.001	10.13
CAL5	16JUL19-11	60.585	853080.48	154915.79	5.507	0.97
CAL6	16JUL19-12	76.937	1035081.47	148001.59	6.994	-3.83
CCV3	16JUL19-20	61.494	785739.09	140576.65	5.589	2.49
ICV1	16JUL19-23	20.390	255538.17	137995.25	1.852	1.95
CCV3	16JUL21-02	53.887	758900.58	154948.41	4.898	-10.19
CCV2	16JUL21-06	19.163	274285.03	157613.43	1.740	-4.18

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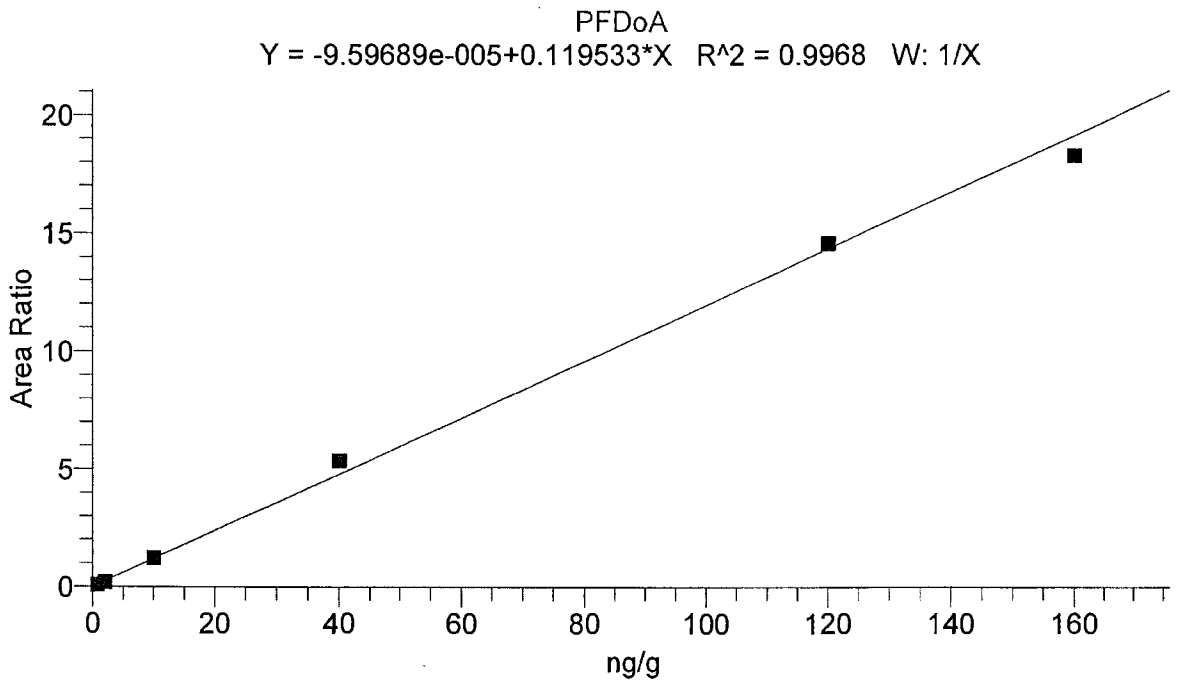
LCMSMS ANALYSIS REPORT

Component Name: **PFDoA**



Identification		Component Name:	PFDoA
Filter:	- c ESI SRM ms2 612.90 [568.89-568.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	11.49000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDoA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.800
2	2.000
3	10.000
4	40.000
5	120.000
6	160.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	10.000
2	40.000
3	120.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.829	17216.91	173950.21	0.099	3.60
CAL2	16JUL19-08	1.702	30070.45	147889.33	0.203	-14.91
CAL3	16JUL19-09	10.135	252398.42	208365.61	1.211	1.35
CAL4	16JUL19-10	45.041	672220.62	124860.50	5.384	12.60
CAL5	16JUL19-11	122.034	1773917.48	121609.50	14.587	1.69
CAL6	16JUL19-12	153.060	2076590.85	113501.38	18.296	-4.34
CCV3	16JUL19-20	109.889	1601018.63	121886.73	13.135	-8.43
ICV1	16JUL19-23	16.719	304146.41	152195.11	1.998	-16.40
CCV3	16JUL21-02	106.493	1726866.41	135659.72	12.729	-11.26
CCV2	16JUL21-06	33.902	589363.92	145440.12	4.052	-15.25

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LCMSMS ANALYSIS REPORT

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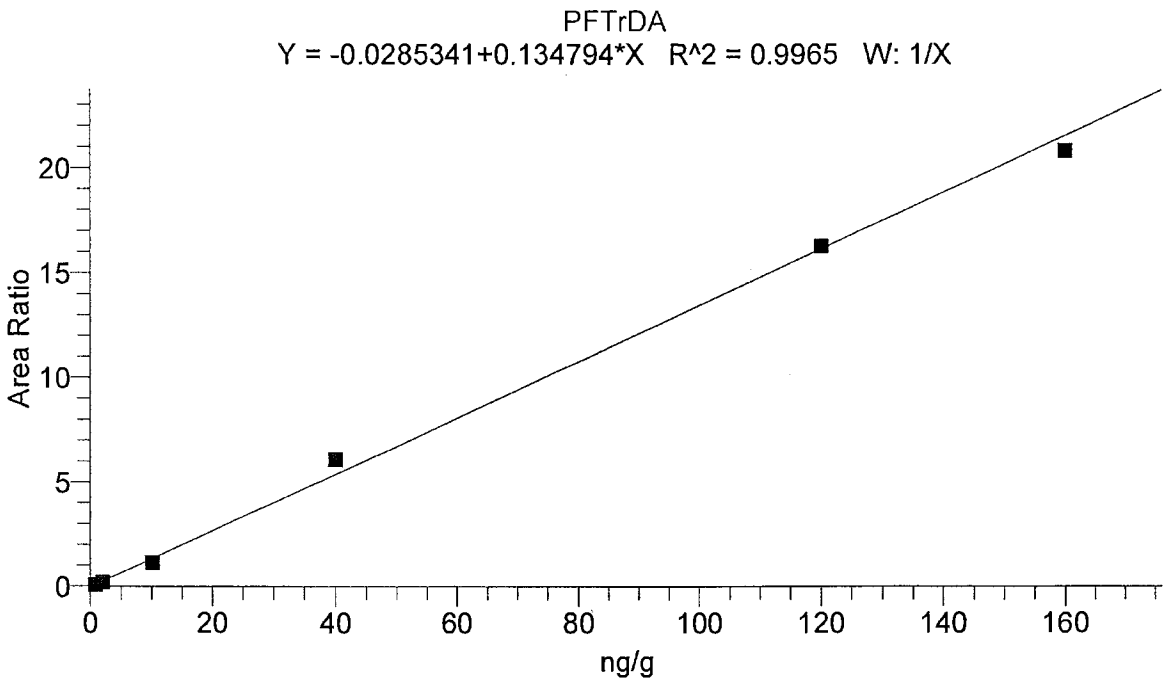
Component Name: **PFTrDA**



Identification		Component Name:	PFTrDA
Filter:	- c ESI SRM ms2 662.90 [618.89-618.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	12.41000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDoA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.800
2	2.000
3	10.000
4	40.000
5	120.000
6	160.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	10.000
2	40.000
3	120.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.869	15404.78	173950.21	0.089	8.58
CAL2	16JUL19-08	1.864	32929.00	147889.33	0.223	-6.82
CAL3	16JUL19-09	8.687	238034.25	208365.61	1.142	-13.13
CAL4	16JUL19-10	45.485	761964.72	124860.50	6.103	13.71
CAL5	16JUL19-11	121.079	1981287.62	121609.50	16.292	0.90
CAL6	16JUL19-12	154.818	2365369.83	113501.38	20.840	-3.24
CCV3	16JUL19-20	110.486	1811761.06	121886.73	14.864	-7.93
ICV1	16JUL19-23	12.167	245257.00	152195.11	1.611	-39.17
CCV3	16JUL21-02	103.831	1894799.10	135659.72	13.967	-13.47
CCV2	16JUL21-06	35.759	696893.48	145440.12	4.792	-10.60

L40

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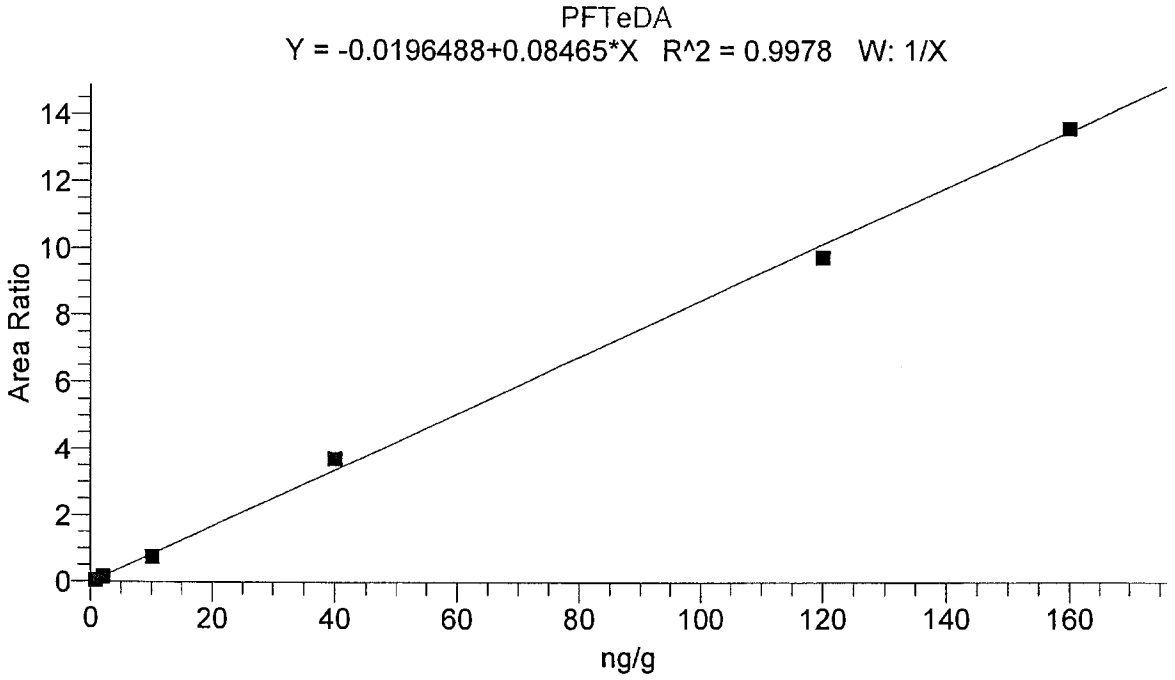
LCMSMS ANALYSIS REPORT

Component Name: **PFTeDA**



Identification		Component Name:	PFTeDA
Filter:	- c ESI SRM ms2 712.90 [668.89-668.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	13.33000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUdA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.800
2	2.000
3	10.000
4	40.000
5	120.000
6	160.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	10.000
2	40.000
3	120.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.785	7284.73	155680.72	0.047	-1.89
CAL2	16JUL19-08	2.064	25667.38	165555.80	0.155	3.18
CAL3	16JUL19-09	9.139	136198.25	180636.11	0.754	-8.61
CAL4	16JUL19-10	44.143	524314.17	141054.98	3.717	10.36
CAL5	16JUL19-11	115.376	1509956.28	154915.79	9.747	-3.85
CAL6	16JUL19-12	161.293	2017818.43	148001.59	13.634	0.81
CCV3	16JUL19-20	121.003	1437148.57	140576.65	10.223	0.84
ICV1	16JUL19-23	13.320	152880.23	137995.25	1.108	-33.40
CCV3	16JUL21-02	120.101	1572248.44	154948.41	10.147	0.08
CCV2	16JUL21-06	36.087	478375.49	157613.43	3.035	-9.78

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Sequence Table

File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16JUL19-06	MDL	N/A	N/A	c:2	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-07	CAL1	N/A	1	c:3	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-08	CAL2	N/A	2	c:4	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-09	CAL3	N/A	3	c:5	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-10	CAL4	N/A	4	c:6	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-11	CAL5	N/A	5	c:7	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-12	CAL6	N/A	6	c:8	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-13	solvent	N/A	N/A	c:1	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-14	solvent	N/A	N/A	c:1	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-20	CCV3	N/A	3	c:7	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-23	ICV1	N/A	ICV1	c:9	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-26	solvent	N/A	N/A	c:1	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-27	Methanol screen	N/A	N/A	b:1	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-28	MB 16200005	N/A	N/A	b:2	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-29	LCS 16200005	N/A	N/A	b:3	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-30	solvent	N/A	N/A	c:1	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-31	8476980	N/A	N/A	b:4	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-32	8476981	N/A	N/A	b:5	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-33	8476982	N/A	N/A	b:6	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-34	8476983	N/A	N/A	b:7	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-35	CCV2	N/A	2	c:6	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-36	solvent	N/A	N/A	c:1	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils

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JUL 20 2016

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JUL 20 2016

File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16JUL19-37	8476984	N/A	N/A	b:8	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-38	8476977 BKG	N/A	N/A	b:9	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-39	8476978 MS	N/A	N/A	b:10	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-40	8476979 MSD	N/A	N/A	b:11	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-41	CCV3	N/A	3	c:7	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-42	solvent	N/A	N/A	c:1	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-43	solvent	N/A	N/A	c:1	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-44	8432141	N/A	N/A	b:12	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-45	8432142	N/A	N/A	b:13	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-46	8432143	N/A	N/A	b:14	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL19-48	CCV2	N/A	2	c:6	10.0	1.000	C:\XCALIBUR\PFC\2016\16JUL11	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils

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JUL 20 2016

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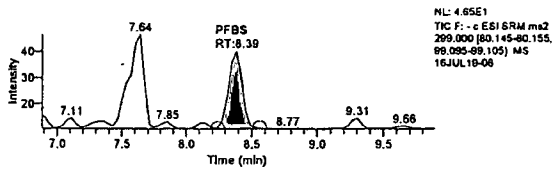
LCMSMS ANALYSIS REPORT

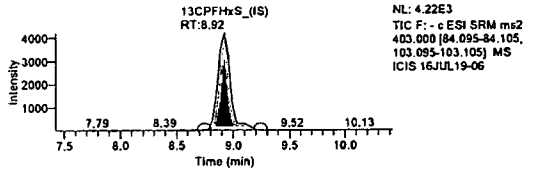
Sample Name:	MDL	Original Data Path:	C:\XCALIBUR\PFC\2016\16JUL11
Sample ID:	MDL	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL19-06		
Acquisition Date:	07/19/16 04:44:26 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:2	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

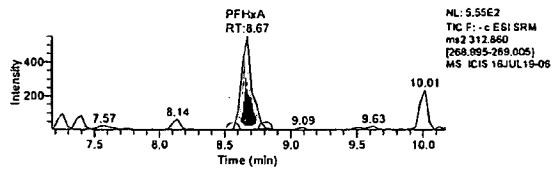
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.36	290172.17	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.14	266691.53	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.65	247055.20	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.93	126221.74	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.92	255934.36	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.67	131256.74	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.92	32663.00	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	23008.53	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.11	197224.33	N/A	N/A	N/A
PFBS	0.486	8.39	210.30	32663.00	0.006	ng/g
PFDA	0.028	9.64	2013.17	247055.20	0.008	ng/g
PFDoA	0.469	10.96	6735.89	126221.74	0.053	ng/g
PFHxA	0.207	8.67	3067.86	131256.74	0.023	ng/g
PFHxS	0.855	8.92	832.84	32663.00	0.025	ng/g
PFNA	0.120	9.36	3541.66	290172.17	0.012	ng/g
PFOA	0.095	9.10	3082.78	266691.53	0.012	ng/g
PFOS	1.514	9.29	602.92	23008.53	0.026	ng/g
PFTeDA	0.449	13.26	4196.86	197224.33	0.021	ng/g
PFTrDA	0.619	11.92	6570.94	126221.74	0.052	ng/g
PFUdA	0.284	10.07	4537.33	197224.33	0.023	ng/g
PFhpA	0.188	8.92	3567.93	255934.36	0.014	ng/g

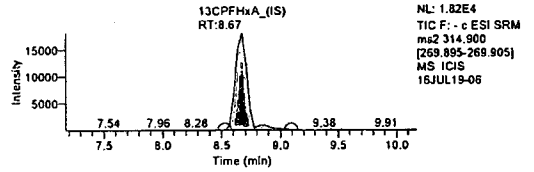
Component Name: PFBS





Component Name: PFHxA





Component Name: PFhpA

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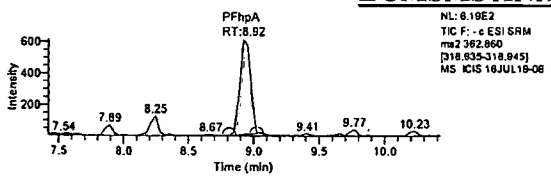
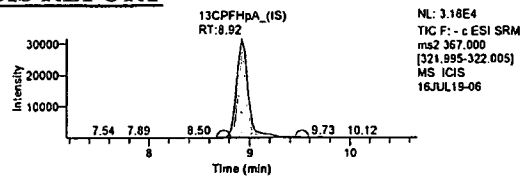
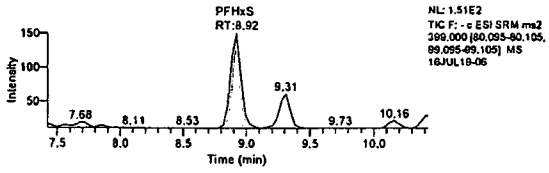
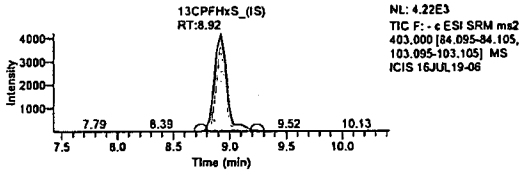
LCMSMS ANALYSIS REPORT



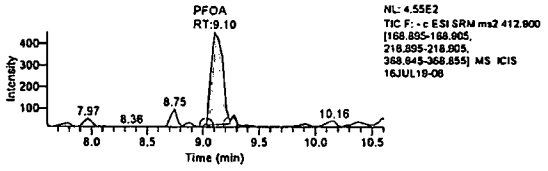


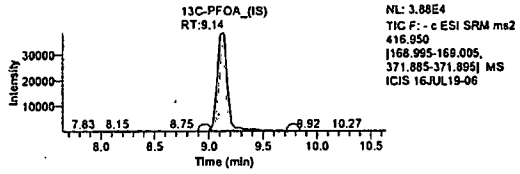
Component Name: PFHxS



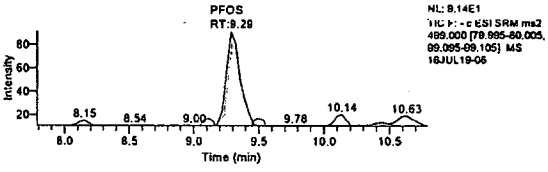


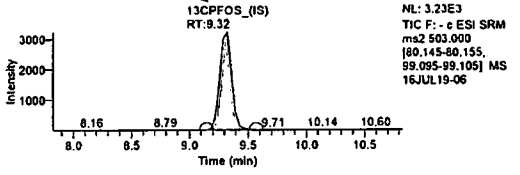
Component Name: PFOA





Component Name: PFOS





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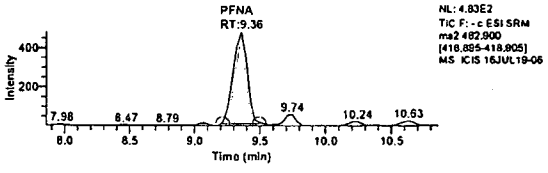
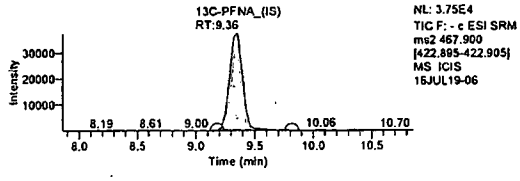
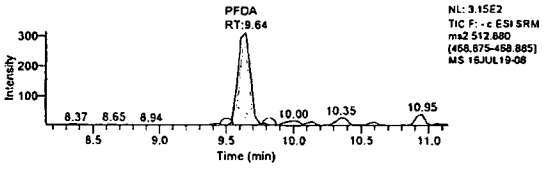
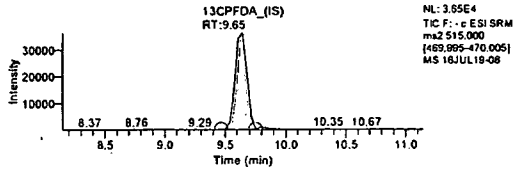




Component Name: PFDA





Component Name: PFUdA

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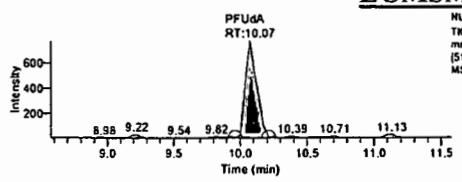
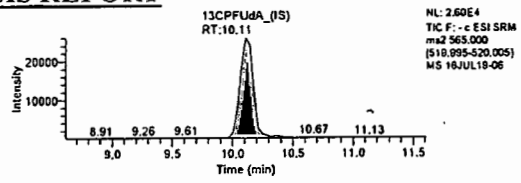
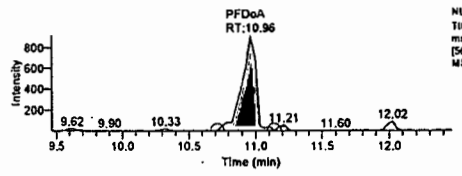
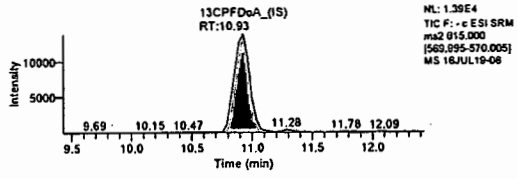


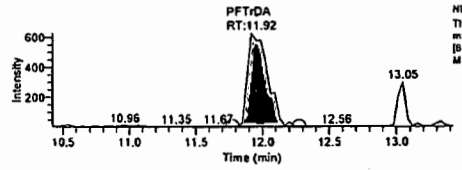


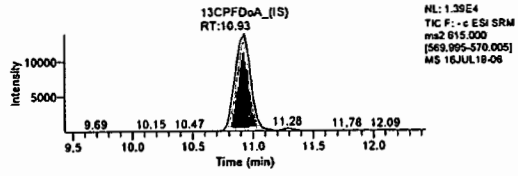
Component Name: PFDoA



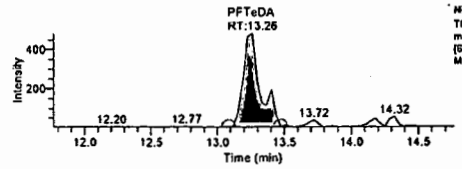


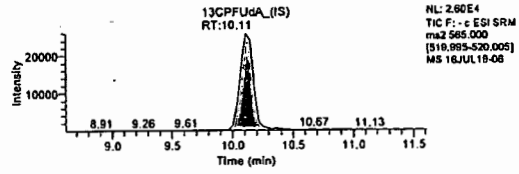
Component Name: PFTrDA





Component Name: PFTeDA





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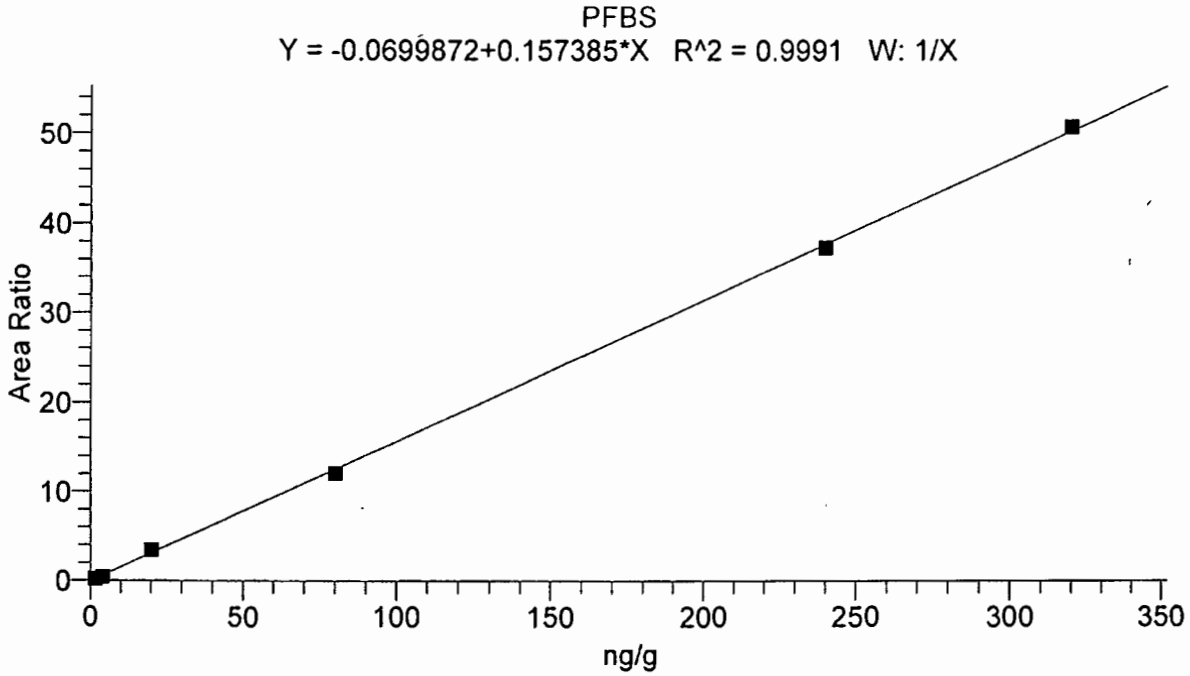
Component Name: **PFBS**



Identification		Component Name:	PFBS
Filter:	- c ESI SRM ms2 299.00 [80.14-80.16, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.17000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	20.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange [nm]:	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	1.600
2	4.000
3	20.000
4	80.000
5	240.000
6	320.000

Component QC Level Table

QC Level	Amount
ICV2	40.000
ICV1	20.000
1	20.000
2	80.000
3	240.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	1.758	6758.25	32690.06	0.207	9.89
CAL2	16JUL19-08	3.274	17721.91	39801.60	0.445	-18.16
CAL3	16JUL19-09	22.337	114106.68	33117.51	3.446	11.68
CAL4	16JUL19-10	77.189	352546.09	29188.18	12.078	-3.51
CAL5	16JUL19-11	237.759	976346.03	26140.77	37.350	-0.93
CAL6	16JUL19-12	323.283	1074085.69	21139.36	50.810	1.03
CCV3	16JUL19-20	241.537	898665.70	23683.92	37.944	0.64
ICV1	16JUL19-23	17.806	69503.36	25436.85	2.732	-10.97
CCV2	16JUL19-35	84.803	360556.31	27157.09	13.277	6.00
CCV3	16JUL19-41	266.177	877156.59	20973.50	41.822	10.91
CCV2	16JUL19-48	80.931	364493.39	28774.31	12.667	1.16

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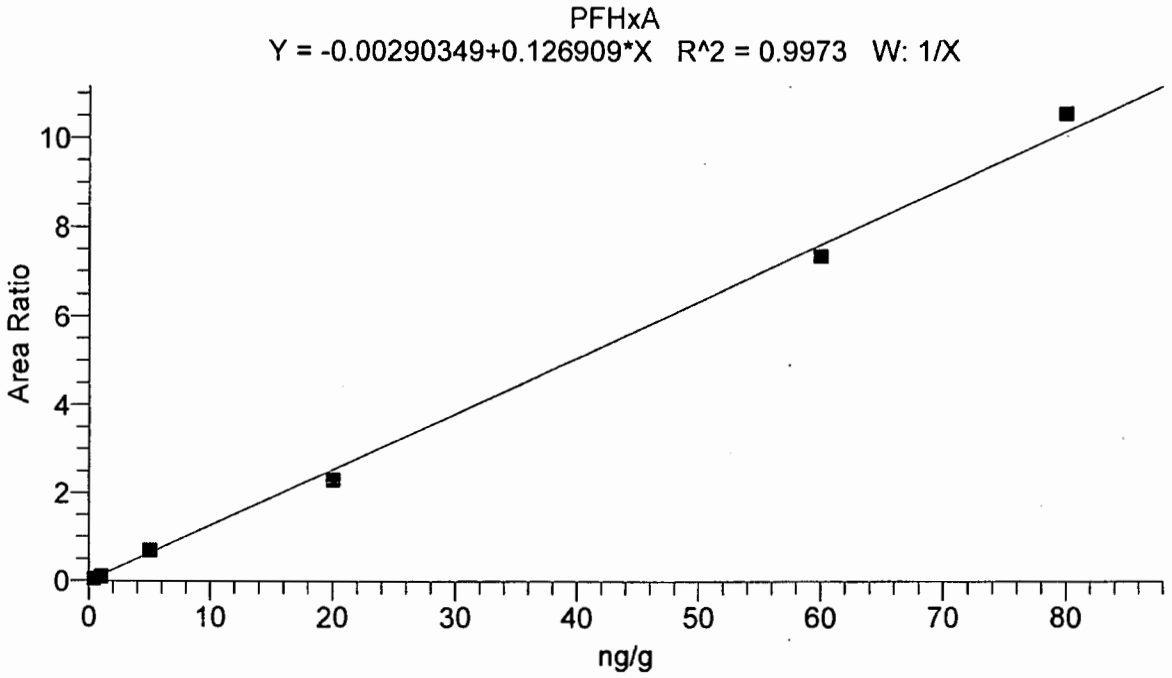
LCMSMS ANALYSIS REPORT

Component Name: **PFHxA**



Identification		Component Name:	PFHxA
Filter:	- c ESI SRM ms2 312.86 [269.00-269.01]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.49000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.456	7441.76	135298.60	0.055	14.07
CAL2	16JUL19-08	0.836	15452.91	149668.33	0.103	-16.36
CAL3	16JUL19-09	5.504	95229.28	136910.37	0.696	10.07
CAL4	16JUL19-10	18.272	292644.76	126358.79	2.316	-8.64
CAL5	16JUL19-11	58.055	915666.67	124328.92	7.365	-3.24
CAL6	16JUL19-12	83.276	1075377.54	101780.79	10.566	4.10
CCV3	16JUL19-20	52.929	851045.81	126752.00	6.714	-11.79
ICV1	16JUL19-23	18.108	262079.00	114185.28	2.295	-9.46
CCV2	16JUL19-35	20.809	305692.90	115882.89	2.638	4.04
CCV3	16JUL19-41	61.944	851504.53	108355.71	7.858	3.24
CCV2	16JUL19-48	19.102	267660.37	110545.95	2.421	-4.49

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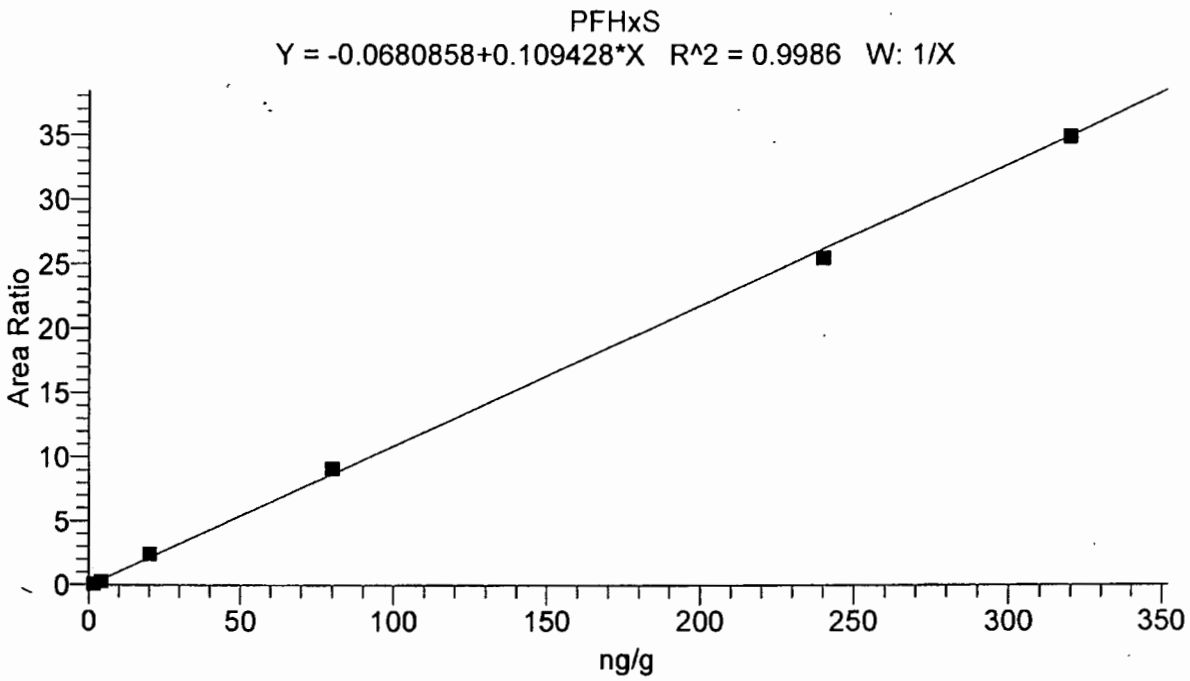
LCMSMS ANALYSIS REPORT

Component Name: **PFHxS**



Identification		Component Name:	PFHxS
Filter:	- c ESI SRM ms2 399.00 [80.09-80.11, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.17000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	20.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	1.600
2	4.000
3	20.000
4	80.000
5	240.000
6	320.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	20.000
2	80.000
3	240.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	1.629	3599.89	32690.06	0.110	1.78
CAL2	16JUL19-08	3.269	11526.10	39801.60	0.290	-18.29
CAL3	16JUL19-09	22.792	80342.34	33117.51	2.426	13.96
CAL4	16JUL19-10	84.082	266570.74	29188.18	9.133	5.10
CAL5	16JUL19-11	233.951	667445.85	26140.77	25.533	-2.52
CAL6	16JUL19-12	319.879	738518.42	21139.36	34.936	-0.04
CCV3	16JUL19-20	237.779	614637.52	23683.92	25.952	-0.93
ICV1	16JUL19-23	16.076	43016.17	25436.85	1.691	-19.62
CCV2	16JUL19-35	83.168	245307.25	27157.09	9.033	3.96
CCV3	16JUL19-41	264.709	606103.95	20973.50	28.899	10.30
CCV2	16JUL19-48	78.275	244507.19	28774.31	8.497	-2.16

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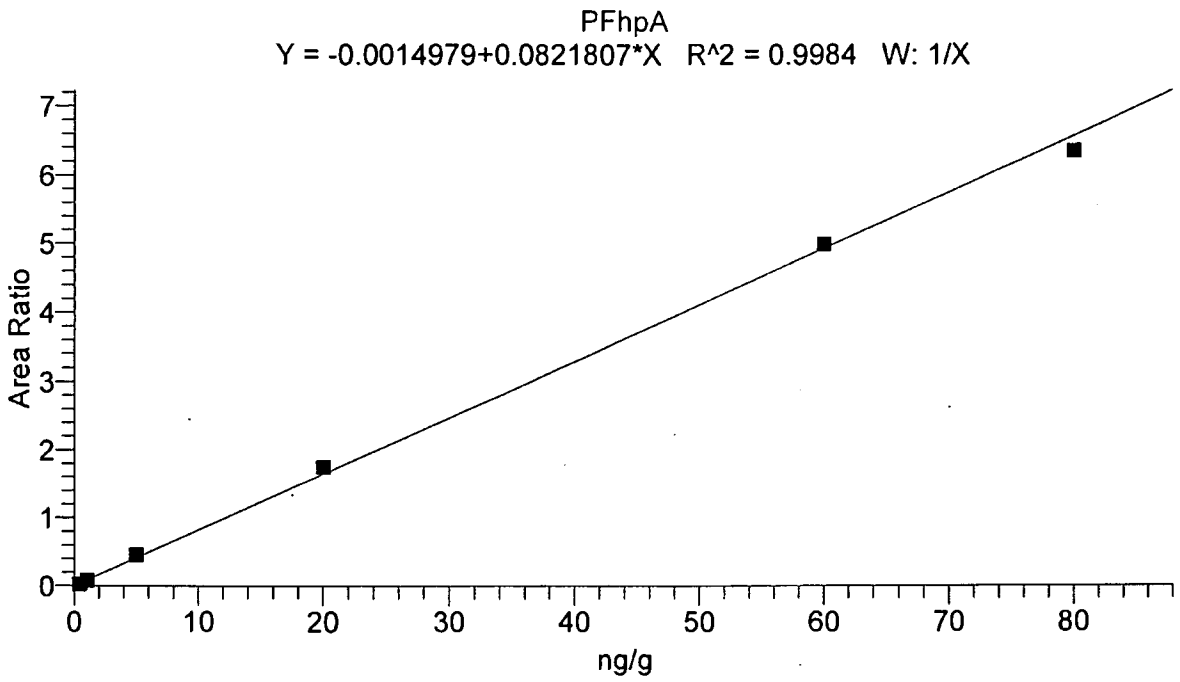
JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFhpA**



Identification		Component Name:	PFhpA
Filter:	- c ESI SRM ms2 362.86 [318.94-318.94]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.17000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHpA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 20 2016

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JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.338	6805.72	258980.83	0.026	-15.50
CAL2	16JUL19-08	0.998	19183.71	238313.00	0.080	-0.22
CAL3	16JUL19-09	5.547	111700.92	245829.53	0.454	10.95
CAL4	16JUL19-10	21.346	366643.44	209184.08	1.753	6.73
CAL5	16JUL19-11	60.806	888329.00	177821.78	4.996	1.34
CAL6	16JUL19-12	77.365	1087176.40	171037.26	6.356	-3.29
CCV3	16JUL19-20	57.486	846058.59	179146.69	4.723	-4.19
ICV1	16JUL19-23	21.023	330589.26	191518.37	1.726	5.11
CCV2	16JUL19-35	22.535	348668.80	188427.21	1.850	12.67
CCV3	16JUL19-41	60.253	850715.59	171855.99	4.950	0.42
CCV2	16JUL19-48	19.509	354673.78	221426.11	1.602	-2.45

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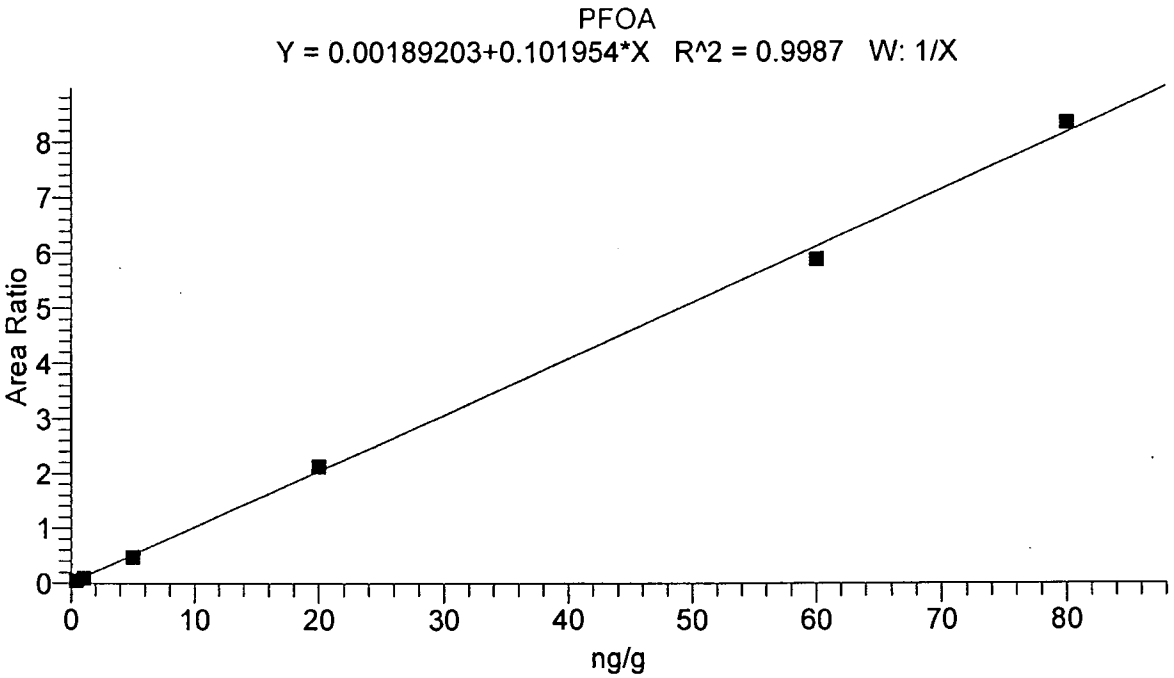
LCMSMS ANALYSIS REPORT

Component Name: **PFOA**



Identification		Component Name:	PFOA
Filter:	- c ESI SRM ms2 412.90 [168.90-168.91, 218.90-218.91, 368.85-368.86]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.13000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	15
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFOA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.456	10829.14	223823.62	0.048	14.00
CAL2	16JUL19-08	0.905	21898.12	232570.08	0.094	-9.50
CAL3	16JUL19-09	4.637	117956.15	248514.85	0.475	-7.26
CAL4	16JUL19-10	20.858	468155.72	219954.72	2.128	4.29
CAL5	16JUL19-11	57.716	1231901.89	209285.30	5.886	-3.81
CAL6	16JUL19-12	81.829	1658120.17	198703.37	8.345	2.29
CCV3	16JUL19-20	59.434	1244154.43	205257.37	6.061	-0.94
ICV1	16JUL19-23	16.863	385633.52	224061.24	1.721	-15.69
CCV2	16JUL19-35	21.237	460088.97	212308.82	2.167	6.18
CCV3	16JUL19-41	59.954	1182127.67	193334.77	6.114	-0.08
CCV2	16JUL19-48	21.512	432642.72	197090.64	2.195	7.56

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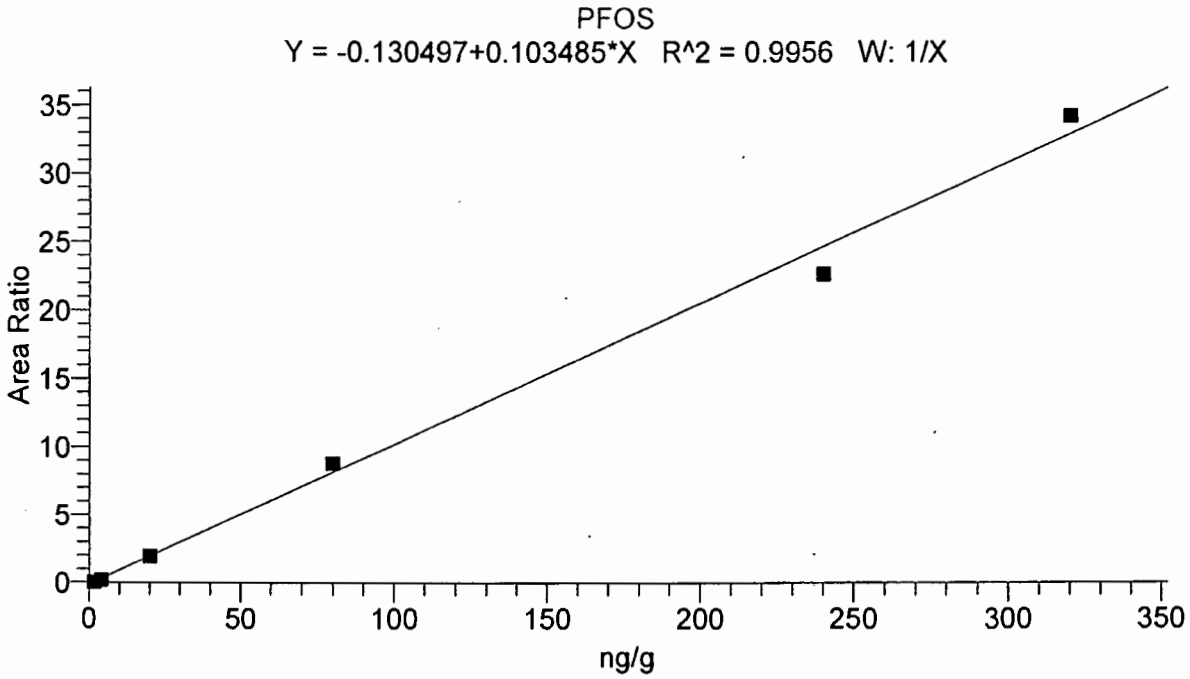
LCMSMS ANALYSIS REPORT

Component Name: **PFOS**



Identification		Component Name:	PFOS
Filter:	- c ESI SRM ms2 499.00 [80.00-80.00, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.46000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	20.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFOS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 20 2016
USCP94 Page 537 of 875

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	1.600
2	4.000
3	20.000
4	80.000
5	240.000
6	320.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	20.000
2	80.000
3	240.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	1.803	1130.58	20149.38	0.056	12.70
CAL2	16JUL19-08	3.317	5509.02	25896.22	0.213	-17.08
CAL3	16JUL19-09	19.994	38777.46	20003.45	1.939	-0.03
CAL4	16JUL19-10	86.685	147950.92	16736.33	8.840	8.36
CAL5	16JUL19-11	220.733	398372.39	17540.18	22.712	-8.03
CAL6	16JUL19-12	333.069	460058.56	13398.31	34.337	4.08
CCV3	16JUL19-20	244.593	386257.48	15339.11	25.181	1.91
ICV1	16JUL19-23	14.632	26638.07	19250.73	1.384	-26.84
CCV2	16JUL19-35	101.080	145376.90	14073.67	10.330	26.35
CCV3	16JUL19-41	226.771	355298.37	15224.76	23.337	-5.51
CCV2	16JUL19-48	89.148	146969.20	16159.48	9.095	11.43

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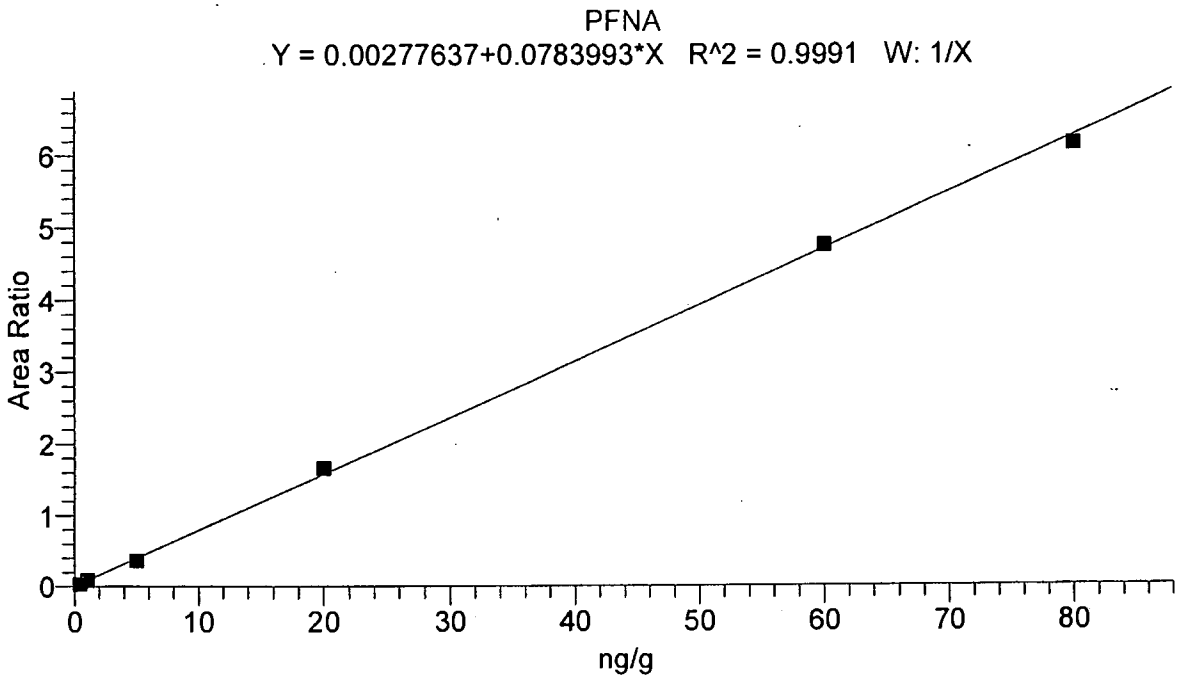
LCMSMS ANALYSIS REPORT

Component Name: **PFNA**



Identification		Component Name:	PFNA
Filter:	- c ESI SRM ms2 462.90 [418.89-418.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.67000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFNA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.385	7183.57	218072.72	0.033	-3.81
CAL2	16JUL19-08	1.067	19807.84	229179.60	0.086	6.70
CAL3	16JUL19-09	4.598	82156.85	226176.09	0.363	-8.04
CAL4	16JUL19-10	21.186	316826.28	190428.95	1.664	5.93
CAL5	16JUL19-11	60.641	867519.31	182368.49	4.757	1.07
CAL6	16JUL19-12	78.524	1030382.53	167297.56	6.159	-1.85
CCV3	16JUL19-20	63.573	880180.05	176499.88	4.987	5.96
ICV1	16JUL19-23	16.582	272491.04	209159.53	1.303	-17.09
CCV2	16JUL19-35	22.609	328649.29	185121.83	1.775	13.05
CCV3	16JUL19-41	57.630	760560.07	168230.78	4.521	-3.95
CCV2	16JUL19-48	23.061	323962.31	178914.69	1.811	15.30

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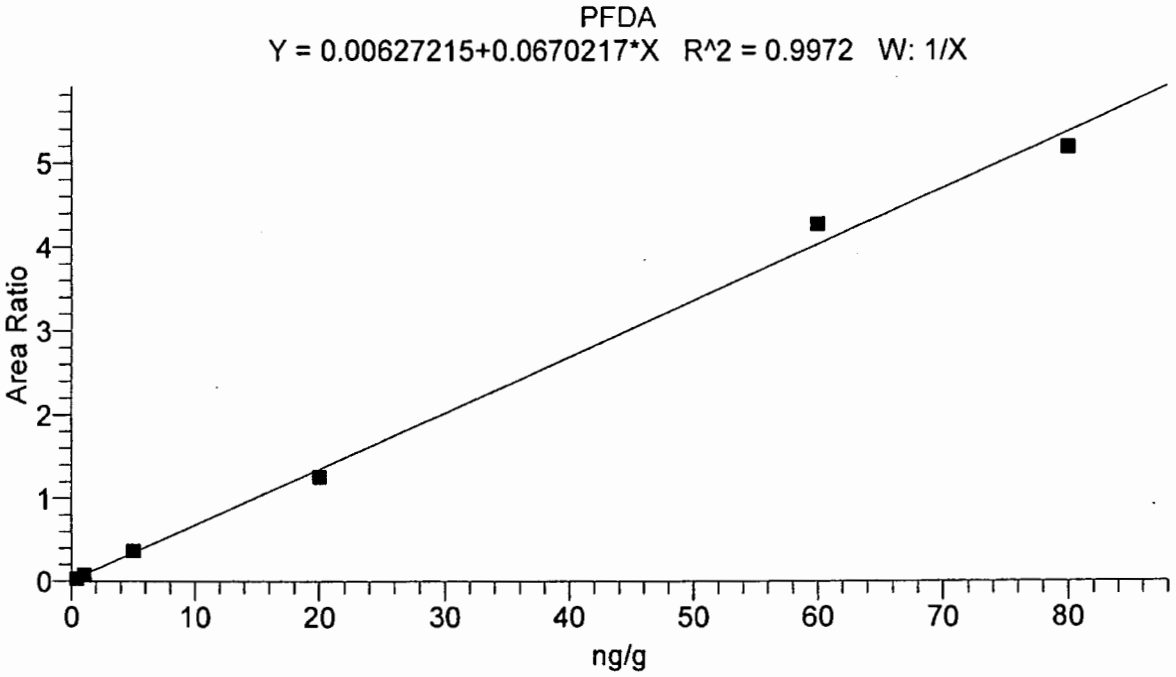
LCMSMS ANALYSIS REPORT

Component Name: **PFDA**



Identification		Component Name:	PFDA
Filter:	- c ESI SRM ms2 512.88 [468.88-468.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	10.10000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.381	6466.25	203130.26	0.032	-4.65
CAL2	16JUL19-08	1.009	13907.27	188215.75	0.074	0.89
CAL3	16JUL19-09	5.385	86564.01	235734.00	0.367	7.71
CAL4	16JUL19-10	18.667	280350.05	222968.50	1.257	-6.67
CAL5	16JUL19-11	63.662	824958.68	193062.03	4.273	6.10
CAL6	16JUL19-12	77.295	994146.82	191671.27	5.187	-3.38
CCV3	16JUL19-20	68.535	876031.07	190458.57	4.600	14.22
ICV1	16JUL19-23	21.362	305955.16	212764.17	1.438	6.81
CCV2	16JUL19-35	25.142	286825.83	169585.93	1.691	25.71
CCV3	16JUL19-41	59.750	723288.64	180333.29	4.011	-0.42
CCV2	16JUL19-48	20.923	268119.64	190353.52	1.409	4.61

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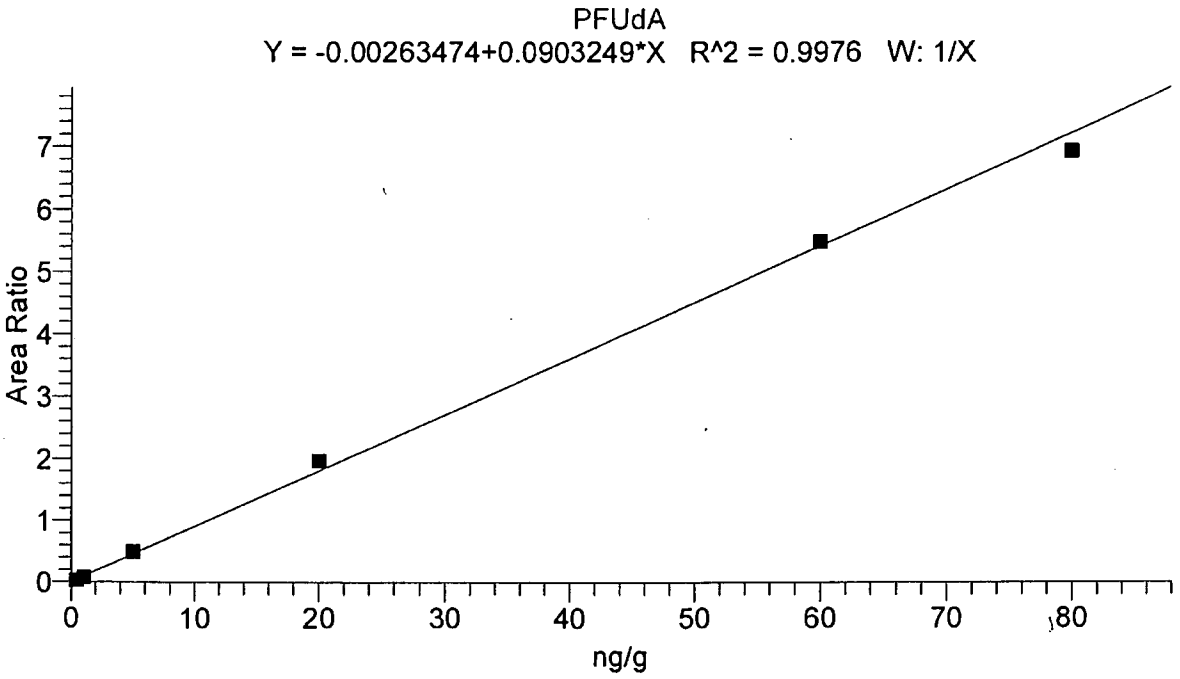
LCMSMS ANALYSIS REPORT

Component Name: **PFUdA**



Identification		Component Name:	PFUdA
Filter:	- c ESI SRM ms2 562.87 [518.87-518.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	10.71000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUdA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.381	4993.13	157138.46	0.032	-4.76
CAL2	16JUL19-08	0.869	12560.09	165555.60	0.076	-13.09
CAL3	16JUL19-09	5.554	91810.63	183968.39	0.499	11.09
CAL4	16JUL19-10	21.842	282189.00	143222.61	1.970	9.21
CAL5	16JUL19-11	60.866	853080.48	155243.83	5.495	1.44
CAL6	16JUL19-12	76.887	1035081.47	149100.56	6.942	-3.89
CCV3	16JUL19-20	60.555	785739.09	143725.22	5.467	.0.92
ICV1	16JUL19-23	20.531	255538.17	137995.20	1.852	2.65
CCV2	16JUL19-35	24.108	291253.64	133912.65	2.175	20.54
CCV3	16JUL19-41	60.848	733062.86	133442.72	5.493	1.41
CCV2	16JUL19-48	20.734	254882.94	136288.08	1.870	3.67

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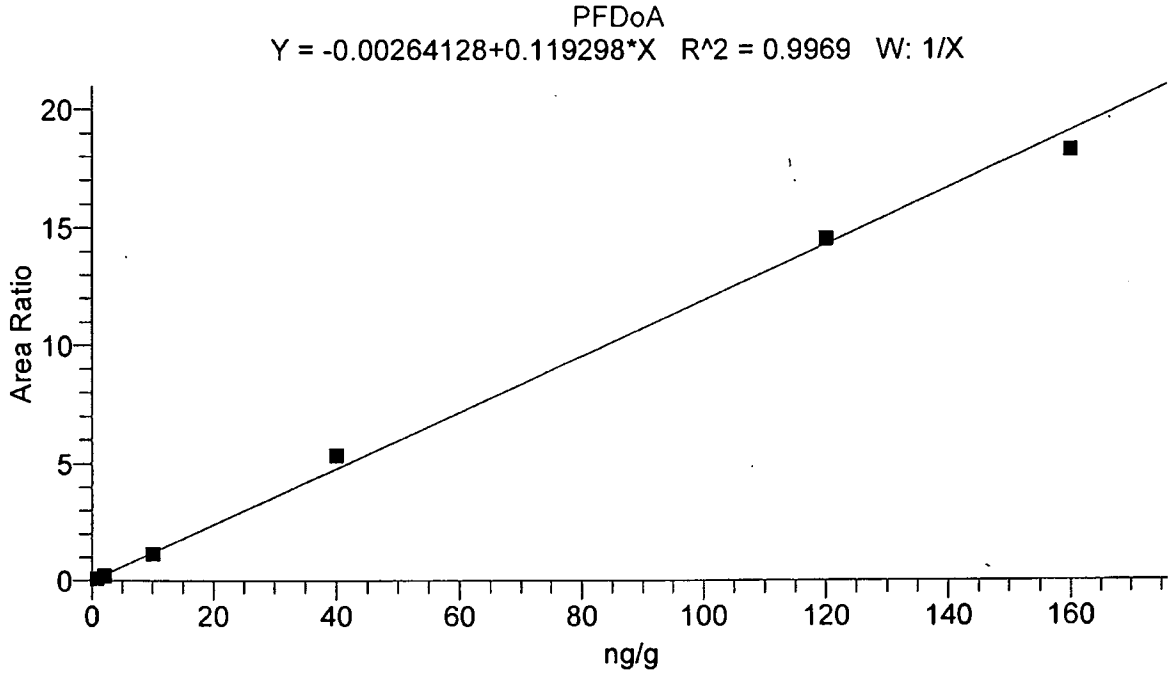
LCMSMS ANALYSIS REPORT

Component Name: **PFDoA**



Identification		Component Name:	PFDoA
Filter:	- c ESI SRM ms2 612.90 [568.89-568.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	11.49000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDoA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.800
2	2.000
3	10.000
4	40.000
5	120.000
6	160.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	10.000
2	40.000
3	120.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.852	17216.91	173949.90	0.099	6.47
CAL2	16JUL19-08	1.731	30096.61	147610.92	0.204	-13.44
CAL3	16JUL19-09	9.691	251500.20	218037.19	1.153	-3.09
CAL4	16JUL19-10	44.949	671199.35	125230.34	5.360	12.37
CAL5	16JUL19-11	122.134	1771577.71	121609.89	14.568	1.78
CAL6	16JUL19-12	153.442	2077378.39	113501.29	18.303	-4.10
CCV3	16JUL19-20	107.963	1596383.22	123970.53	12.877	-10.03
ICV1	16JUL19-23	16.773	304145.96	152194.94	1.998	-16.13
CCV2	16JUL19-35	41.232	550837.82	112043.97	4.916	3.08
CCV3	16JUL19-41	109.371	1501184.04	115076.86	13.045	-8.86
CCV2	16JUL19-48	42.552	615107.78	121234.30	5.074	6.38

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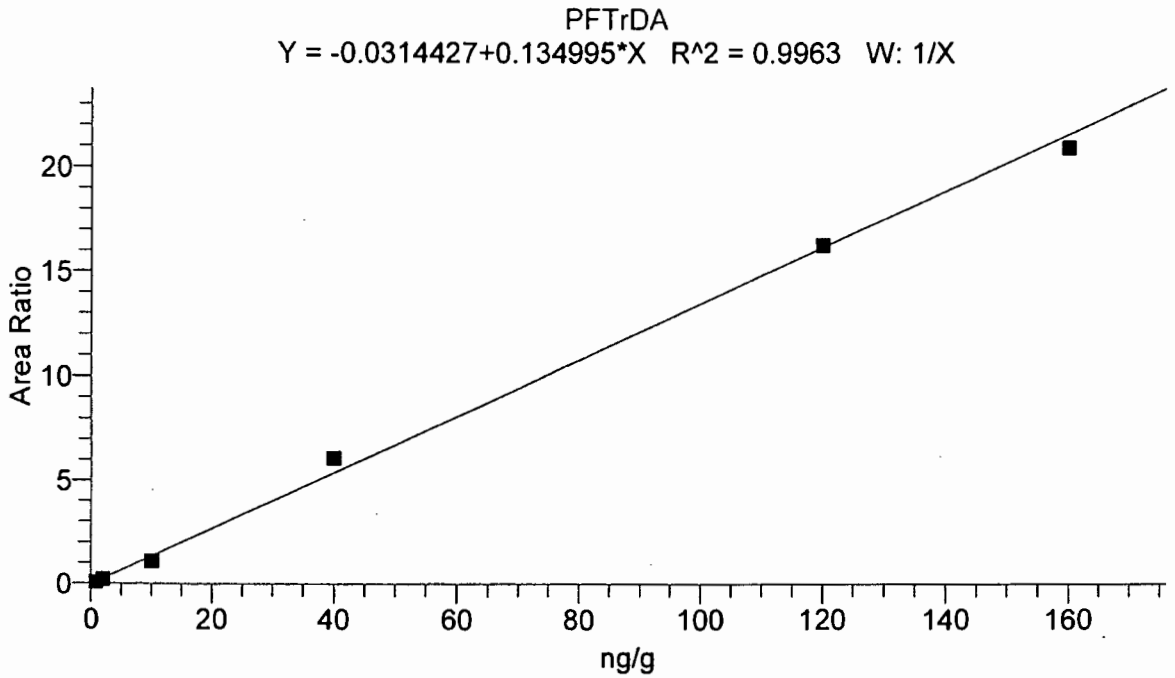
LCMSMS ANALYSIS REPORT

Component Name: **PFTrDA**



Identification		Component Name:	PFTrDA
Filter:	- c ESI SRM ms2 662.90 [618.89-618.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	12.41000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDoA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.800
2	2.000
3	10.000
4	40.000
5	120.000
6	160.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	10.000
2	40.000
3	120.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.889	15404.77	173949.90	0.089	11.12
CAL2	16JUL19-08	1.885	32929.00	147610.92	0.223	-5.73
CAL3	16JUL19-09	8.320	238045.61	218037.19	1.092	-16.80
CAL4	16JUL19-10	45.423	763952.64	125230.34	6.100	13.56
CAL5	16JUL19-11	120.843	1980025.03	121609.89	16.282	0.70
CAL6	16JUL19-12	155.440	2378093.45	113501.29	20.952	-2.85
CCV3	16JUL19-20	108.184	1806609.69	123970.53	14.573	-9.85
ICV1	16JUL19-23	12.147	244788.04	152194.94	1.608	-39.26
CCV2	16JUL19-35	38.452	578080.93	112043.97	5.159	-3.87
CCV3	16JUL19-41	126.631	1963564.05	115076.86	17.063	5.53
CCV2	16JUL19-48	42.332	688998.06	121234.30	5.683	5.83

40

Christine Ratcliff
Christine Ratcliff
Manager

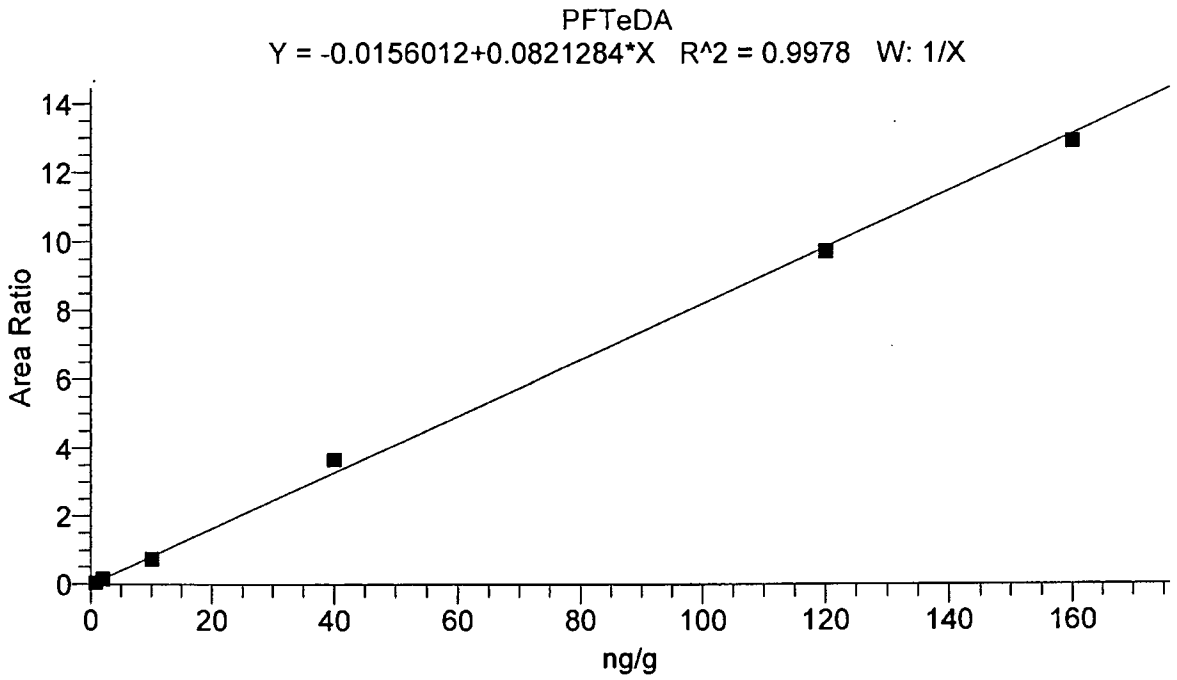
JUL 20 2016

Jason W. Knight
Jason W. Knight
Senior Chemist

JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFTeDA**



Identification		Component Name:	PFTeDA
Filter:	- c ESI SRM ms2 712.90 [668.89-668.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	13.33000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUdA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 20 2016

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Manager

JUL 20 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.800
2	2.000
3	10.000
4	40.000
5	120.000
6	160.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	10.000
2	40.000
3	120.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16JUL19-07	0.754	7284.73	157138.46	0.046	-5.70
CAL2	16JUL19-08	2.090	25834.26	165555.60	0.156	4.50
CAL3	16JUL19-09	9.208	136260.94	183968.39	0.741	-7.92
CAL4	16JUL19-10	44.764	524314.17	143222.61	3.661	11.91
CAL5	16JUL19-11	118.619	1509956.28	155243.83	9.726	-1.15
CAL6	16JUL19-12	157.364	1924656.46	149100.56	12.908	-1.65
CCV3	16JUL19-20	121.942	1437148.57	143725.22	9.999	1.62
ICV1	16JUL19-23	13.679	152880.23	137995.20	1.108	-31.60
CCV2	16JUL19-35	46.103	504948.50	133912.65	3.771	15.26
CCV3	16JUL19-41	123.914	1355946.95	133442.72	10.161	3.26
CCV2	16JUL19-48	40.740	453885.08	136288.08	3.330	1.85

Christine Ratcliff
Manager

JUL 20 2016

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Senior Chemist

JUL 20 2016

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP94
Matrix: Soil

Fraction: PFAAs by LC/MS/MS

16200005	13C-PFNA	13C-PFOA	13C-PFDA	13C-PFDoA
	Area	Area	Area	Area
Average ICAL Response	202254 ✓	222142 ✓	205797 ✓	149990 ✓
Upper Limit	303381 ✓	333213 ✓	308695 ✓	224985 ✓
Lower Limit	101127 ✓	111071 ✓	102898 ✓	74995 ✓
Sample				
8432141	247381	304728	211789	136674
8432142	189361	226462	162226	119913
8432143	170521	182291	161862	112847

8432132 202373 194183 194315 141047

8432132 should be on these forms

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

Fraction: PFAAs by LC/MS/MS

16200005	13C-PFHxA	13C-PFHpA	13C-PFHxS	13C-PFOS
	Area	Area	Area	Area
Average ICAL Response	129058 ✓	216861 ✓	30346 ✓	18954 ✓
Upper Limit	193586 ✓	325292 ✓	45519 ✓	28431 ✓
Lower Limit	64529 ✓	108431 ✓	15173 ✓	9477 ✓
Sample				
8432141	145929	286722	44072	22602
8432142	125682	248424	34190	18125
8432143	126567	193588	28089	17834

127325 226694 28565 15102

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

Fraction: PFAAs by LC/MS/MS

16200005	13C-PFUnA
	Area
Average ICAL Response	159038 ✓
Upper Limit	238557 ✓
Lower Limit	79519 ✓
Sample	
8432141	175330
8432142	131523
8432143	117713

173610

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP94
Matrix: Water

Fraction: PFAAs by LC/MS/MS

16182008	13C-PFNA	13C-PFOA	13C-PFDA	13C-PFDoA
	Area	Area	Area	Area
Average ICAL Response	202394✓	222142 ✓	205824 ✓	148363 ✓
Upper Limit	303591✓	333213 ✓	308736 ✓	222544 ✓
Lower Limit	101197✓	111071 ✓	102912 ✓	74181 ✓
Sample				
8432132	202373	194183	194315	141047

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP94
Matrix: Water

Fraction: PFAAs by LC/MS/MS

16182008	13C-PFHpA	13C-PFHxA	13C-PFHxS	13C-PFOS
	Area	Area	Area	Area
Average ICAL Response	~~216878~~ 216861	129058 ✓	30346 ✓	18993 ✓
Upper Limit	~~325317~~ 325292	193586 ✓	45519 ✓	28490 ✓
Lower Limit	~~108439~~ 108431	64529 ✓	15173 ✓	9497 ✓
Sample				
8432132	226684	127328	28565	15102

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

Fraction: PFAAs by LC/MS/MS

16182008	13C-PFUnA
	Area
Average ICAL Response	157641 ✓
Upper Limit	236461 ✓
Lower Limit	78820 ✓
Sample	
8432132	173610

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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LC-MS/MS
Sequence Report

Printed: 07/29/2016 9:25:00 AM

Triple Quad 4500, 0, LM24743

Acquisition Date	File Name	Sample Name	Vial Pos	DF	Sample Wt	Sample Vol
7/28/2016 4:21:22 PM	16JUL28ICAL-05.wiff	MDL	2	1.0	1.00	1.00
7/28/2016 4:37:04 PM	16JUL28ICAL-06.wiff	CAL1	3	1.0	1.00	1.00
7/28/2016 4:52:47 PM	16JUL28ICAL-07.wiff	CAL2	4	1.0	1.00	1.00
7/28/2016 5:08:28 PM	16JUL28ICAL-08.wiff	CAL3	5	1.0	1.00	1.00
7/28/2016 5:24:10 PM	16JUL28ICAL-09.wiff	CAL4	6	1.0	1.00	1.00
7/28/2016 5:39:52 PM	16JUL28ICAL-10.wiff	CAL5	7	1.0	1.00	1.00
7/28/2016 5:55:35 PM	16JUL28ICAL-11.wiff	CAL6	8	1.0	1.00	1.00
7/28/2016 6:11:17 PM	16JUL28ICAL-12.wiff	solvent	1	1.0	1.00	1.00
7/28/2016 6:27:02 PM	16JUL28ICAL-13.wiff	ICV	9	1.0	1.00	1.00
7/28/2016 6:42:44 PM	16JUL28ICAL-14.wiff	CCV1	5	1.0	1.00	1.00
7/28/2016 6:58:26 PM	16JUL28-01.wiff	BLK203007	61	1.0	5.00	1.00
7/28/2016 7:14:11 PM	16JUL28-02.wiff	OPR203007	62	1.0	5.00	1.00
7/28/2016 7:29:53 PM	16JUL28-03.wiff	LCSDA	63	1.0	5.00	1.00
7/28/2016 7:45:35 PM	16JUL28-04.wiff	8432141RE	64	1.0	5.16	1.00
7/28/2016 8:01:17 PM	16JUL28-05.wiff	8432142RE	65	1.0	5.36	1.00
7/28/2016 8:16:59 PM	16JUL28-06.wiff	8432143RE	66	1.0	5.12	1.00
7/28/2016 9:04:05 PM	16JUL28-07.wiff	CCV2	6	1.0	1.00	1.00

only REs that were not reported
due to extract past HT

MCD 7524
8/3/16

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LC-MS/MS
Sequence Report

Printed: 07/30/2016 3:08:00 PM

Triple Quad 4500, 0, LM24743

Acquisition Date	File Name	Sample Name	Vial Pos	DF	Sample Wt	Sample Vol
7/28/2016 4:21:22 PM	16JUL28ICAL-05.wiff	MDL	2	1.0	1.00	1.00
7/28/2016 4:37:04 PM	16JUL28ICAL-06.wiff	CAL1	3	1.0	1.00	1.00
7/28/2016 4:52:47 PM	16JUL28ICAL-07.wiff	CAL2	4	1.0	1.00	1.00
7/28/2016 5:08:28 PM	16JUL28ICAL-08.wiff	CAL3	5	1.0	1.00	1.00
7/28/2016 5:24:10 PM	16JUL28ICAL-09.wiff	CAL4	6	1.0	1.00	1.00
7/28/2016 5:39:52 PM	16JUL28ICAL-10.wiff	CAL5	7	1.0	1.00	1.00
7/28/2016 5:55:35 PM	16JUL28ICAL-11.wiff	CAL6	8	1.0	1.00	1.00
7/28/2016 6:11:17 PM	16JUL28ICAL-12.wiff	solvent	1	1.0	1.00	1.00
7/28/2016 6:27:02 PM	16JUL28ICAL-13.wiff	ICV	9	1.0	1.00	1.00
7/28/2016 6:42:44 PM	16JUL28ICAL-14.wiff	CCV1	5	1.0	1.00	1.00
7/29/2016 9:59:45 AM	16JUL29-05.wiff	CCV1	5	1.0	1.00	1.00
7/29/2016 10:15:27 AM	16JUL29-06.wiff	BLK190006	31	1.0	5.00	1.00
7/29/2016 10:31:09 AM	16JUL29-07.wiff	OPR190006	32	1.0	5.00	1.00
7/29/2016 10:46:51 AM	16JUL29-08.wiff	LCSDA	33	1.0	5.00	1.00
7/29/2016 11:02:33 AM	16JUL29-09.wiff	8432144BKG	34	1.0	5.01	1.00
7/29/2016 11:18:15 AM	16JUL29-10.wiff	8432144MS	35	1.0	5.00	1.00
7/29/2016 11:33:57 AM	16JUL29-11.wiff	8432145	36	1.0	5.18	1.00
7/29/2016 11:49:39 AM	16JUL29-12.wiff	8432146	37	1.0	5.30	1.00
7/29/2016 12:05:21 PM	16JUL29-13.wiff	8432147	38	1.0	5.21	1.00
7/29/2016 12:21:03 PM	16JUL29-14.wiff	8438959	39	1.0	5.00	1.00
7/29/2016 12:36:45 PM	16JUL29-15.wiff	8438960	40	1.0	5.19	1.00
7/29/2016 12:52:27 PM	16JUL29-16.wiff	CCV2	6	1.0	1.00	1.00
7/29/2016 1:08:09 PM	16JUL29-17.wiff	8438961	41	1.0	5.27	1.00
7/29/2016 1:23:51 PM	16JUL29-18.wiff	8438962	42	1.0	5.17	1.00
7/29/2016 2:04:03 PM	16JUL29-20.wiff	8438967	44	1.0	5.03	1.00
7/29/2016 2:19:45 PM	16JUL29-21.wiff	8438968	45	1.0	5.06	1.00
7/29/2016 2:35:30 PM	16JUL29-22.wiff	8438970	46	1.0	5.05	1.00
7/29/2016 2:51:12 PM	16JUL29-23.wiff	8438971	47	1.0	5.17	1.00
7/29/2016 3:06:54 PM	16JUL29-24.wiff	8438972	48	1.0	5.06	1.00
7/29/2016 3:22:39 PM	16JUL29-25.wiff	8441140	49	1.0	5.14	1.00
7/29/2016 3:38:21 PM	16JUL29-26.wiff	CCV3	7	1.0	1.00	1.00
7/29/2016 3:54:03 PM	16JUL29-27.wiff	8441141	50	1.0	5.30	1.00
7/29/2016 4:09:45 PM	16JUL29-28.wiff	8441142	51	1.0	5.09	1.00
7/29/2016 1:48:19 PM	16JUL29-19.wiff	8438965	43	1.0	5.10	1.00
7/29/2016 4:41:13 PM	16JUL27-29.wiff	CCV4	5	1.0	1.00	1.00

** Reported.

MEM 1624 10/14/16

Amy 7/12 10/14/16

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LC-MS/MS Analysis Report

Printed: 7/29/2016 9:26:00 AM

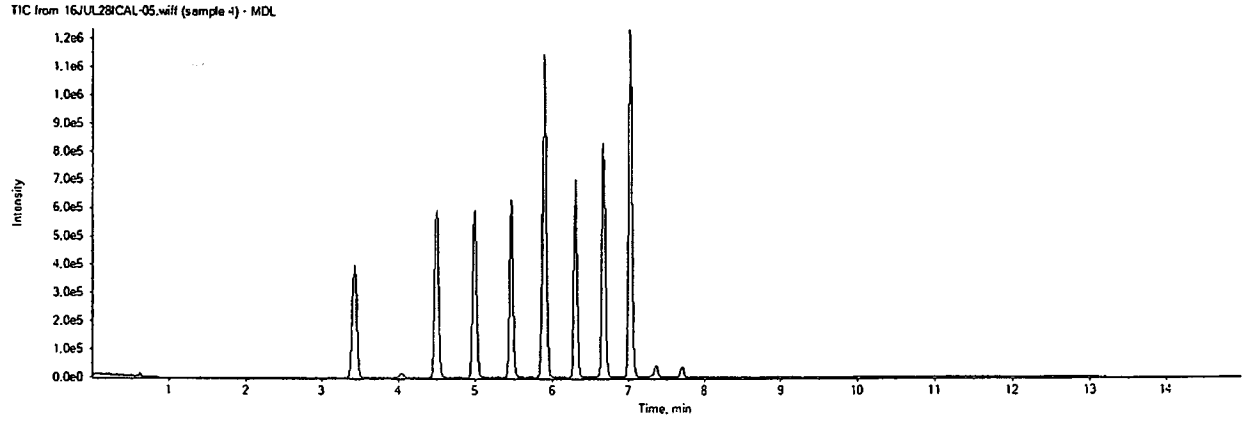
Sample Name:	MDL	**Data File:**		16JUL28ICAL-05.wiff
Sample ID:	MDL	**Acquis Date:**		7/28/2016 4:21:22 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	2	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16203007
Batch Number:	16203007	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.000	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		1.000

Quantitation Peak Table

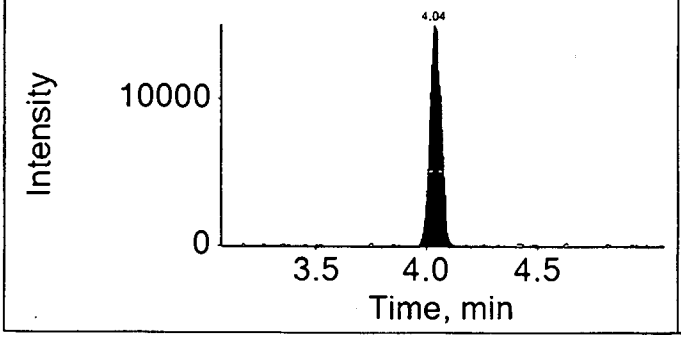
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.04	54691.9	18O2-PFHxS	4.98	695280.4	0.079	0.277	
PFHxA	4.50	20527.7	13C2-PFHxA	4.50	2166432.7	0.009	0.092	
PFHpA	4.99	21525.7	13C4-PFHpA	4.99	1294579.8	0.017	0.060	
PFHxS	4.98	55383.6	18O2-PFHxS	4.98	695280.4	0.080	0.336	
PFOA	5.46	42502.5	13C4-PFOA	5.46	1955561.8	0.022	0.087	
PFNA	5.90	50002.4	13C5-PFNA	5.90	2795099.9	0.018	0.077	
PFOS	5.87	52535.6	13C4-PFOS	5.87	695723.1	0.076	0.318	
PFDA	6.30	36920.5	13C2-PFDA	6.30	1951882.5	0.019	0.069	
PFUndA	6.67	42339.4	13C2-PFUnDA	6.67	2472608.9	0.017	0.077	
PFDoDA	7.02	94158.3	13C2-PFDoDA	7.02	3587999.9	0.026	0.152	
PFTrDA	7.36	141244.9	13C2-PFDoDA	7.02	3587999.9	0.039	0.185	
PFTeDA	7.70	129756.1	13C2-PFDoDA	7.02	3587999.9	0.036	0.158	

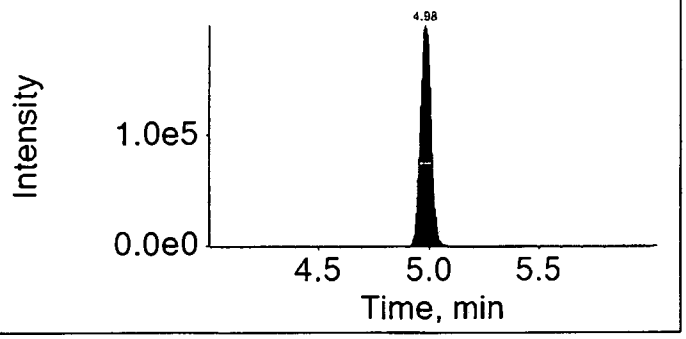
Total Ion Chromatogram

MDL

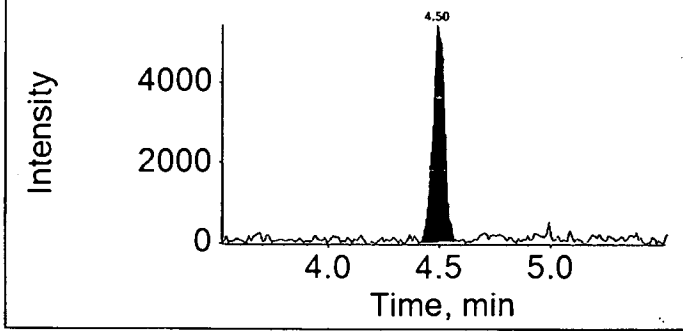


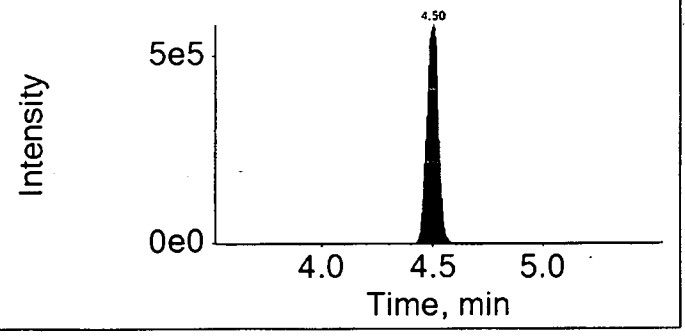
16JUL28ICAL-05.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



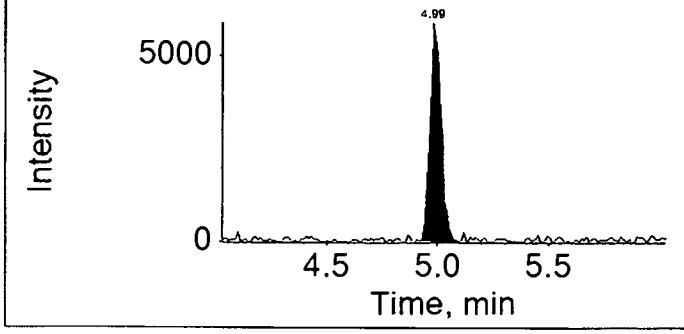


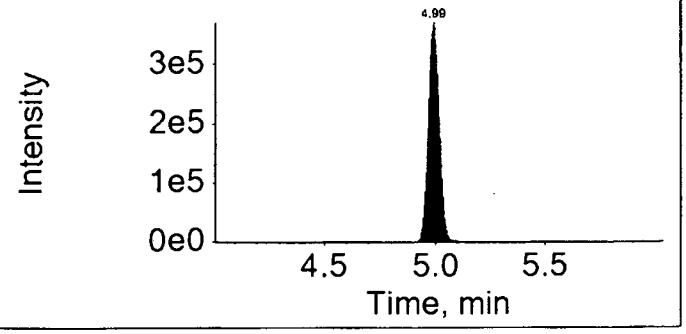
16JUL28ICAL-05.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



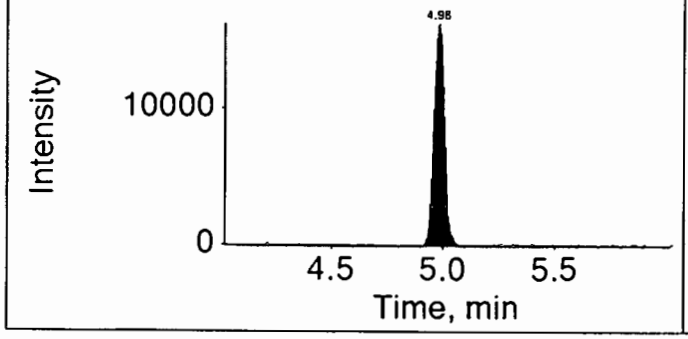


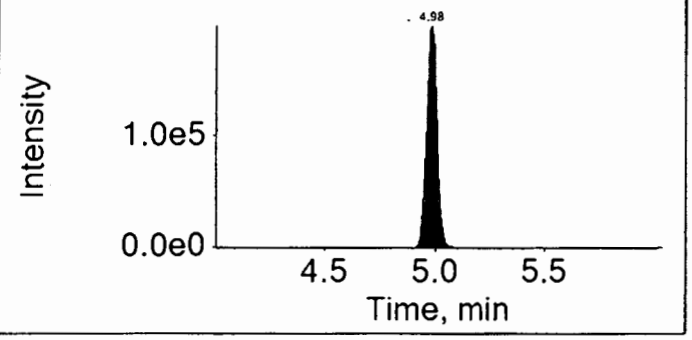
16JUL28ICAL-05.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



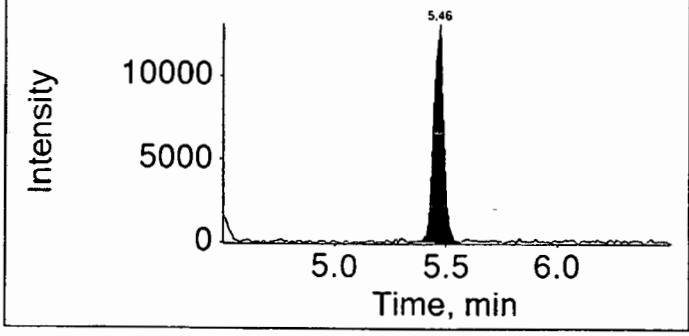


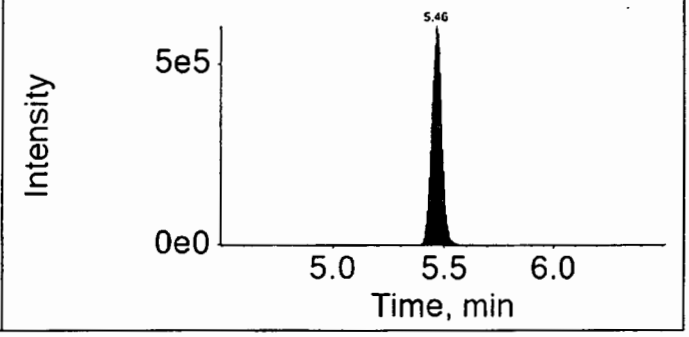
16JUL28ICAL-05.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



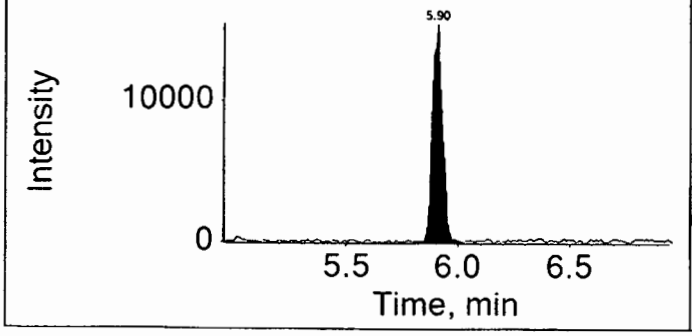


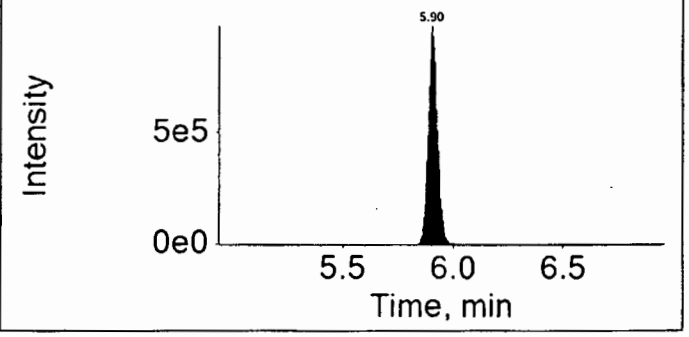
16JUL28ICAL-05.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



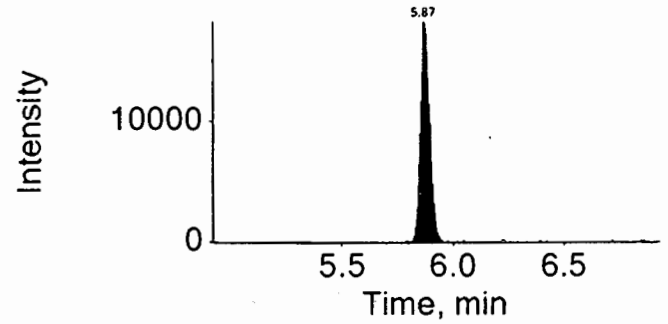


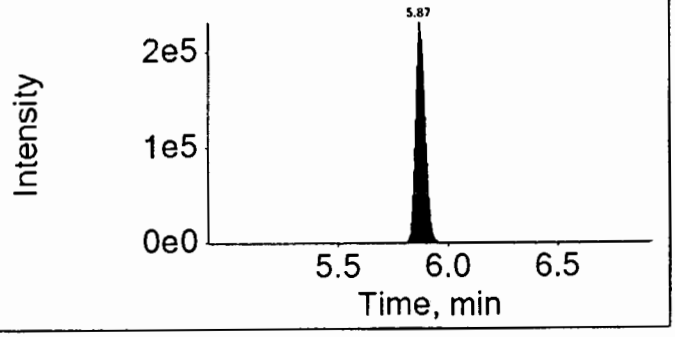
16JUL28ICAL-05.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



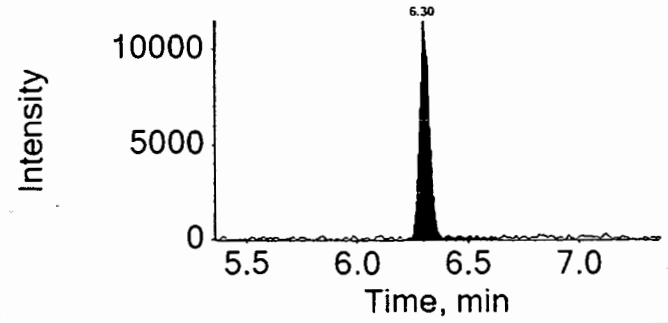


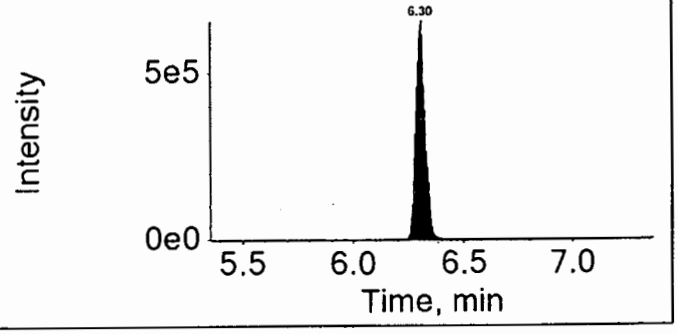
16JUL28ICAL-05.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



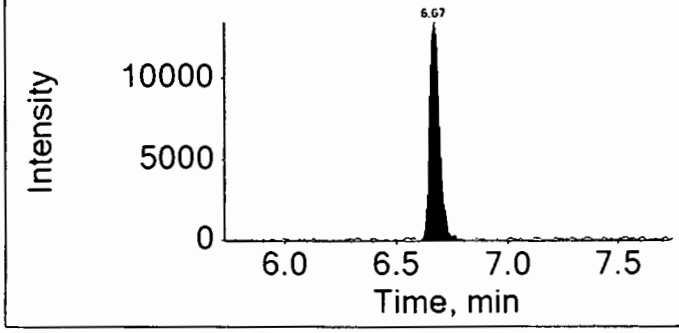


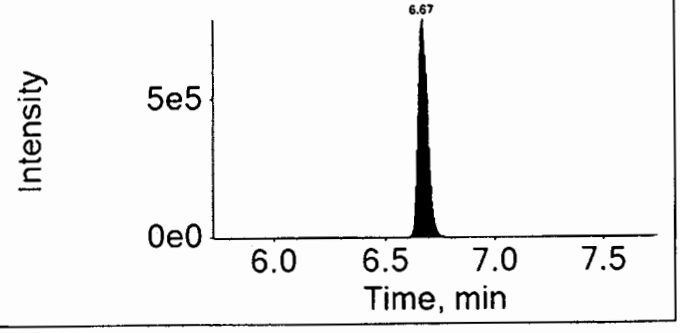
16JUL28ICAL-05.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



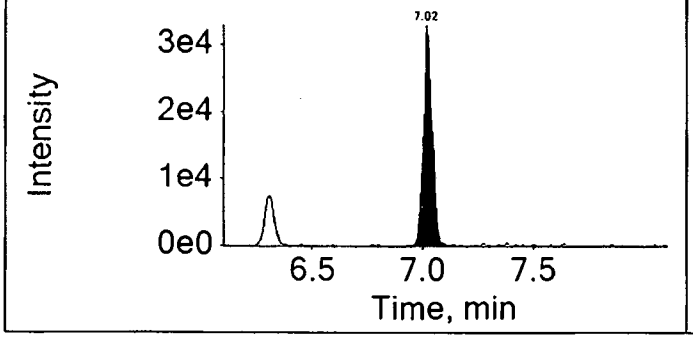


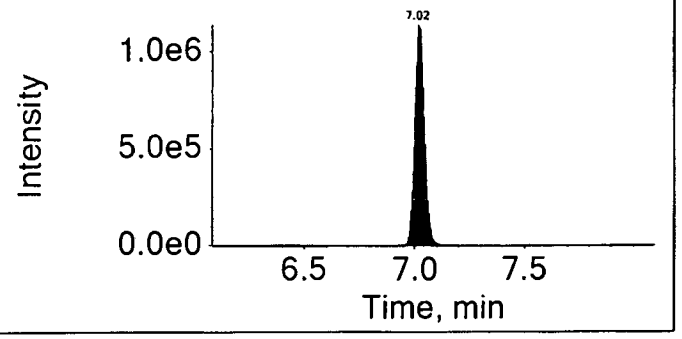
16JUL28ICAL-05.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



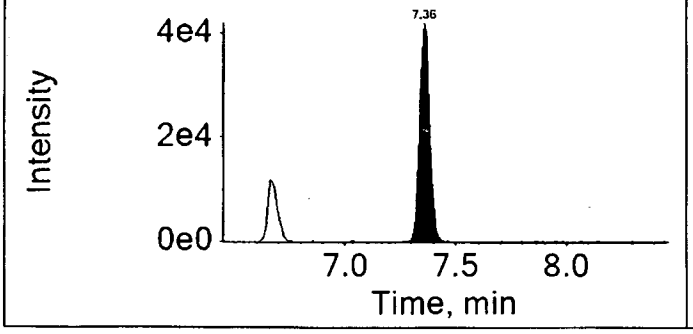


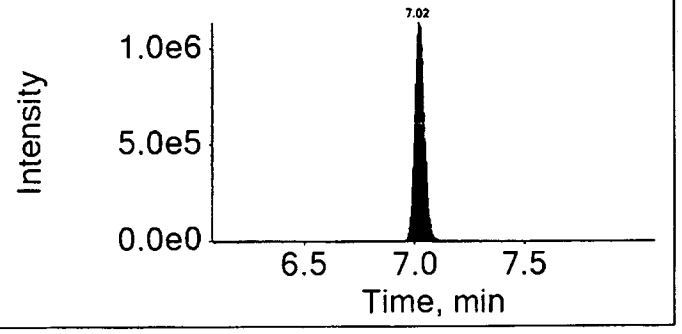
16JUL28ICAL-05.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



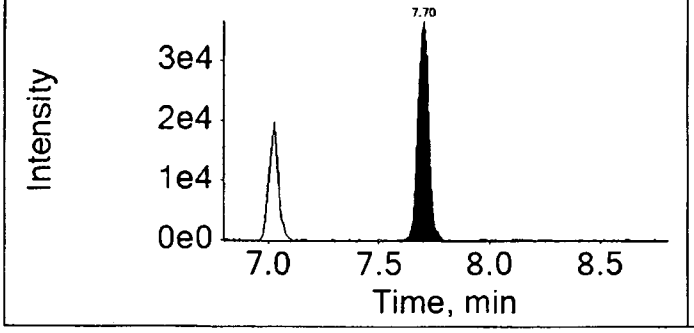


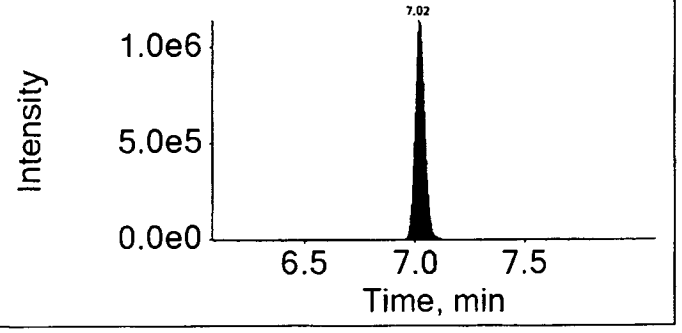
16JUL28ICAL-05.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL28ICAL-05.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0

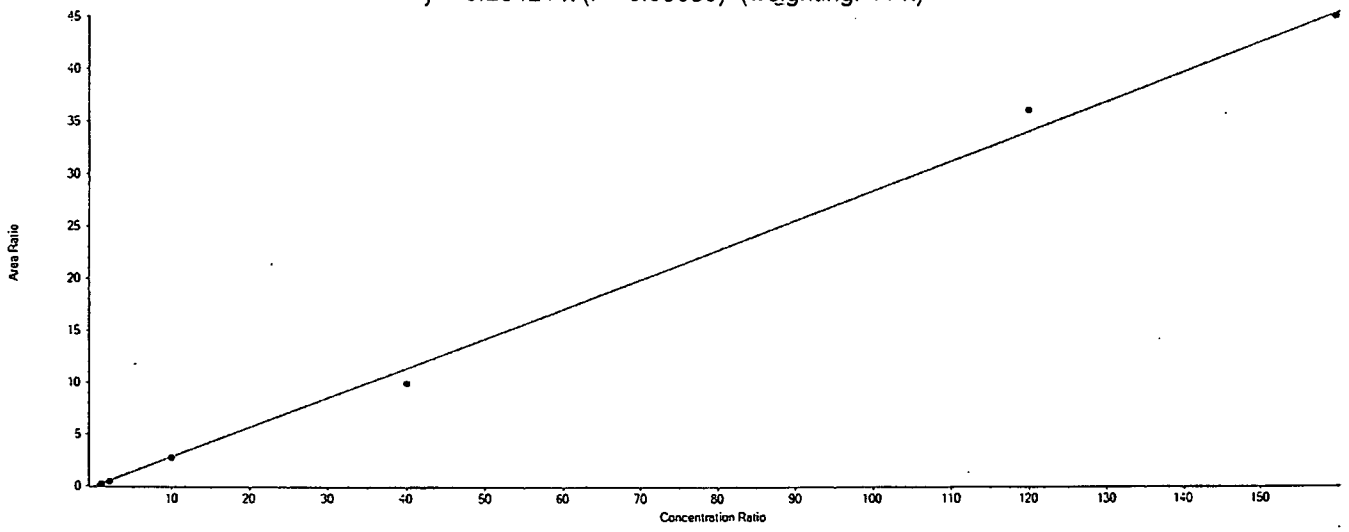




Initial Calibration

Triple Quad 4500, 0, LM24743
Results Table Name: MQ 16203007 7/29/2016 7:43:23 AM

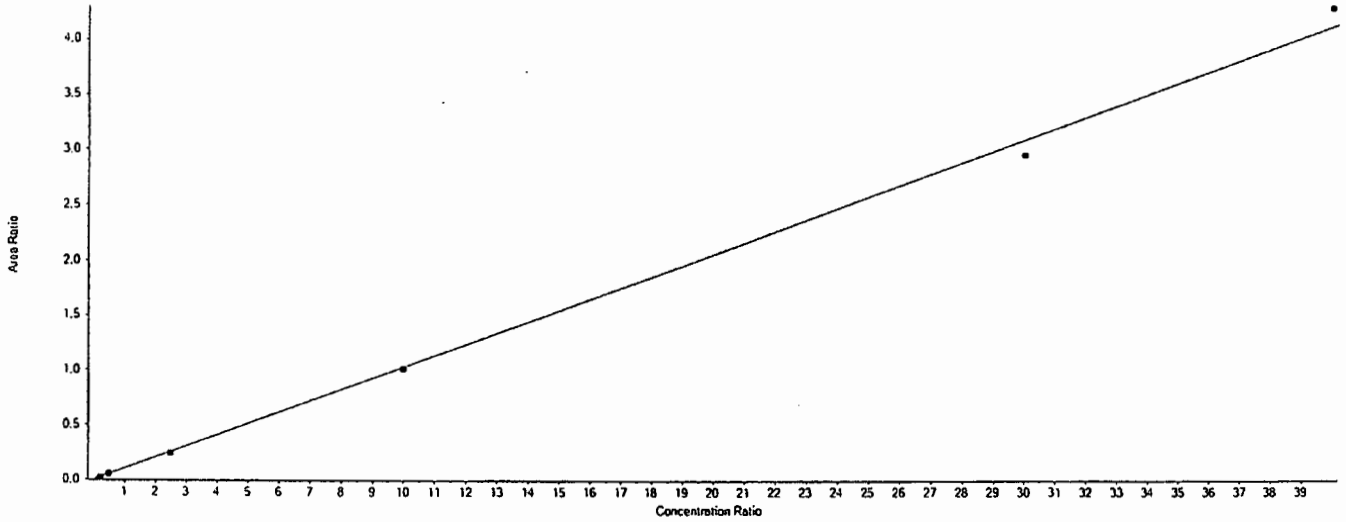
PFBS
y = 0.28421 x (r = 0.99830) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFBS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	53471.2	275790.4	1.00	0.194	4.04	0.800	0.680	-14.60
16JUL28ICAL-07.wiff	CAL2	138274.1	289445.8	1.00	0.478	4.04	2.000	1.680	-16.00
16JUL28ICAL-08.wiff	CAL3	658030.3	237993.9	1.00	2.765	4.03	9.990	9.730	-2.60
16JUL28ICAL-09.wiff	CAL4	2308436.6	233838.8	1.00	9.872	4.03	39.960	34.740	-13.10
16JUL28ICAL-10.wiff	CAL5	9641562.6	267336.4	1.00	36.065	4.03	119.900	126.900	5.80
16JUL28ICAL-11.wiff	CAL6	11753328.1	260547.2	1.00	45.110	4.02	159.800	158.720	-0.70

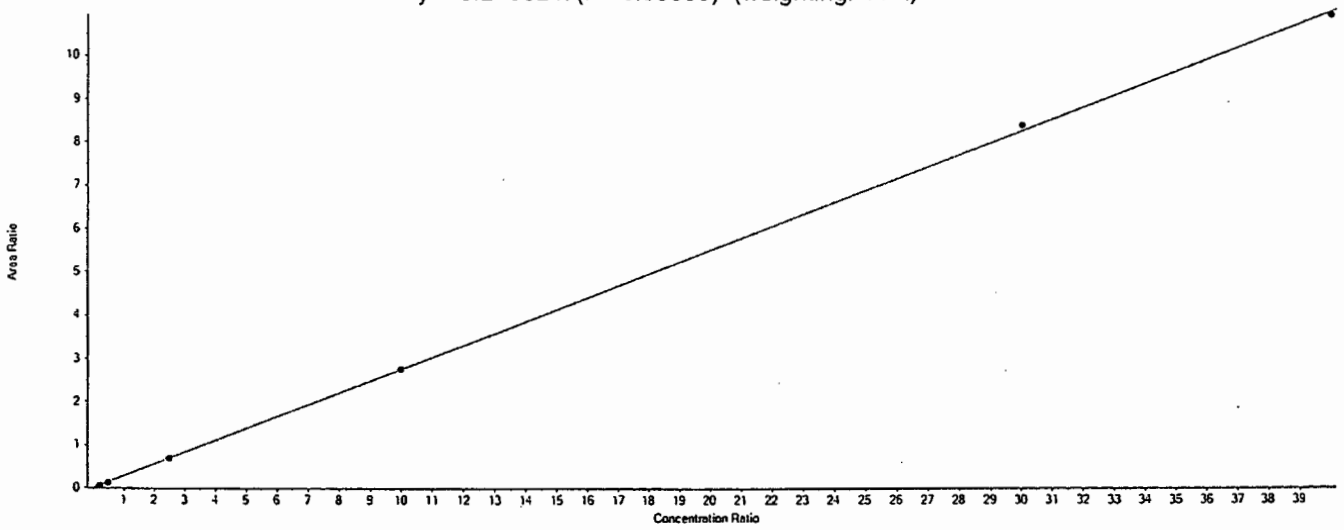
PFHxA
y = 0.10317 x (r = 0.99914) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHxA Area	13C2-PFHxA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	18099.3	848296.8	1.00	0.021	4.49	0.200	0.210	3.40
16JUL28ICAL-07.wiff	CAL2	48515.7	889199.0	1.00	0.055	4.48	0.500	0.530	5.80
16JUL28ICAL-08.wiff	CAL3	185969.5	762604.5	1.00	0.244	4.48	2.500	2.360	-5.50
16JUL28ICAL-09.wiff	CAL4	789749.1	780423.6	1.00	1.012	4.48	10.000	9.810	-1.90
16JUL28ICAL-10.wiff	CAL5	3649533.3	1233275.5	1.00	2.959	4.48	30.000	28.680	-4.40
16JUL28ICAL-11.wiff	CAL6	5408525.5	1259782.0	1.00	4.293	4.47	40.000	41.610	4.00

PFHpA
y = 0.27562 x (r = 0.99993) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHpA Area	13C4-PFHpA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	21349.9	468873.0	1.00	0.046	4.98	0.200	0.170	-17.40
16JUL28ICAL-07.wiff	CAL2	59136.4	497636.1	1.00	0.119	4.98	0.500	0.430	-13.80
16JUL28ICAL-08.wiff	CAL3	242280.3	360026.7	1.00	0.673	4.97	2.500	2.440	-2.30
16JUL28ICAL-09.wiff	CAL4	856605.6	311090.1	1.00	2.754	4.97	10.000	9.990	-0.10
16JUL28ICAL-10.wiff	CAL5	2727943.2	324756.5	1.00	8.400	4.98	30.000	30.480	1.60
16JUL28ICAL-11.wiff	CAL6	3334726.1	304805.6	1.00	10.941	4.97	40.000	39.690	-0.80

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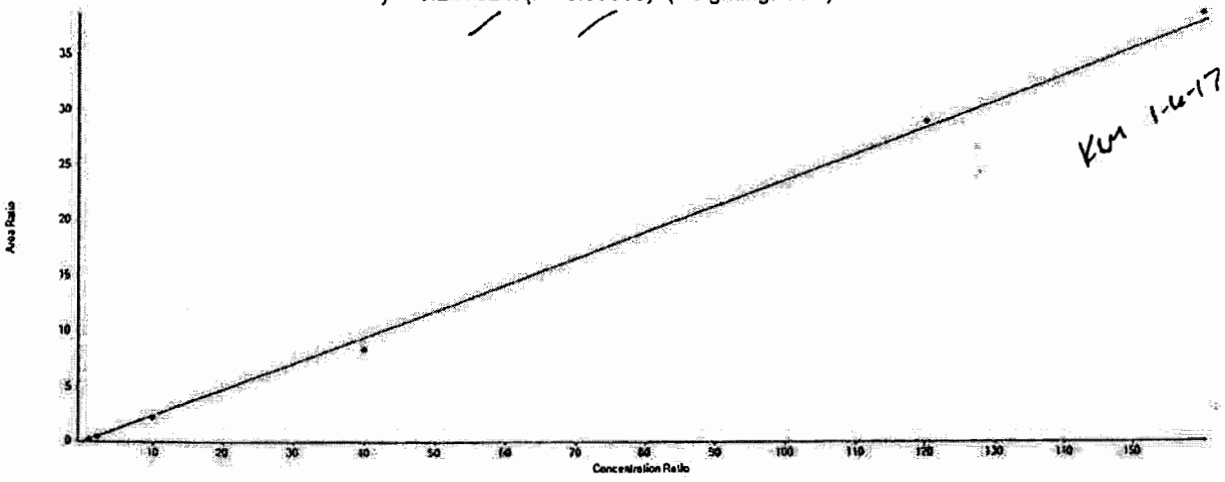
PFHxS
y = 0.23702 x (r = 0.99900) (weighting: 1 / x)



KM 1-6-17

Calibration Verification

File Name	Sample Name	PFHxS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	46439.7	275790.4	1.00	0.168	4.98	0.800	0.710	-11.20
16JUL28ICAL-07.wiff	CAL2	114266.5	289445.8	1.00	0.395	4.97	2.000	1.670	-16.70
16JUL28ICAL-08.wiff	CAL3	526467.1	237993.9	1.00	2.212	4.96	10.000	9.330	-6.70
16JUL28ICAL-09.wiff	CAL4	1966677.0	233838.8	1.00	8.410	4.97	40.000	35.480	-11.30
16JUL28ICAL-10.wiff	CAL5	7754862.4	267336.4	1.00	29.008	4.96	120.000	122.390	2.00
16JUL28ICAL-11.wiff	CAL6	10079580.1	260547.2	1.00	38.686	4.95	160.000	163.220	2.00

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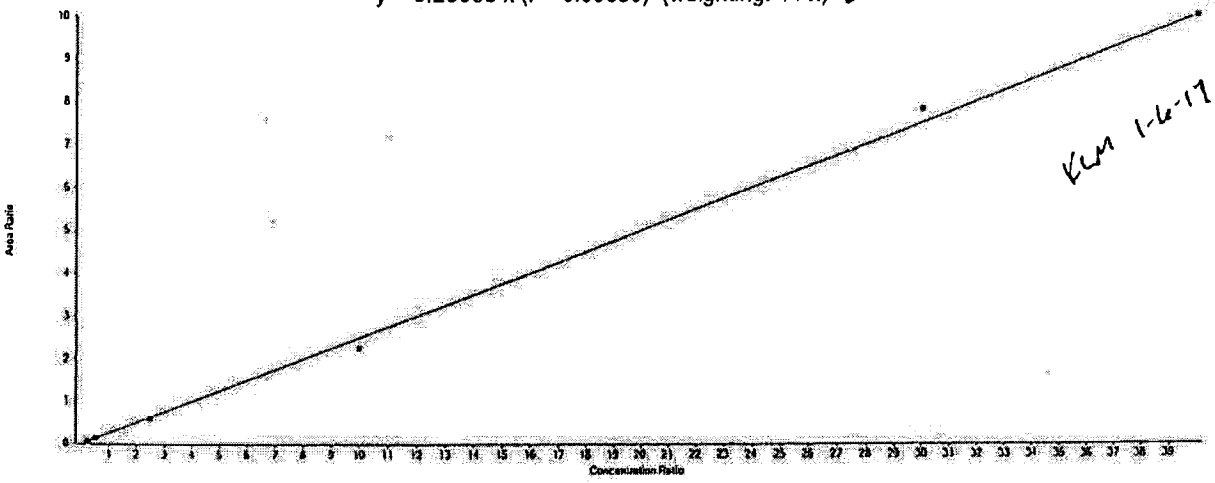
PFOA
y = 0.25086 x (r = 0.99899) (weighting: 1 / x) ✓

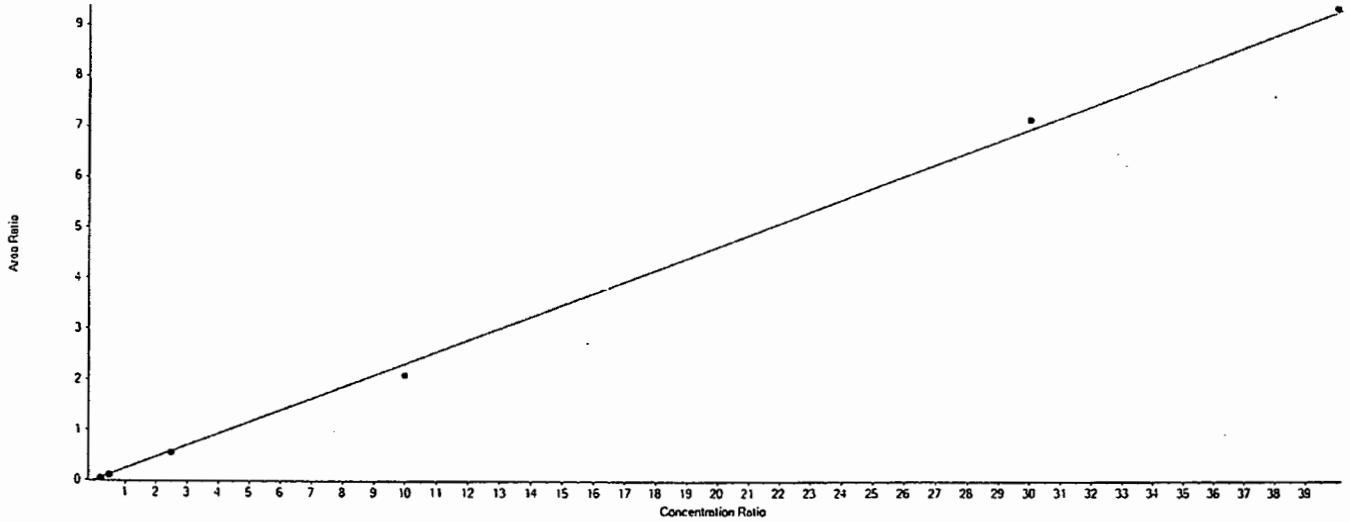


KLM 1-6-17

Calibration Verification

File Name	Sample Name	PFOA Area	13C4-PFOA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	41985.1	819638.3	1.00	0.051	5.46	0.200	0.200	2.10
16JUL28ICAL-07.wiff	CAL2	100625.0	872787.9	1.00	0.115	5.45	0.500	0.460	-8.10
16JUL28ICAL-08.wiff	CAL3	408187.4	693480.0	1.00	0.589	5.44	2.500	2.350	-6.10
16JUL28ICAL-09.wiff	CAL4	1662492.1	736563.0	1.00	2.257	5.44	10.000	9.000	-10.00
16JUL28ICAL-10.wiff	CAL5	8412231.2	1073723.6	1.00	7.835	5.44	30.000	31.230	4.10
16JUL28ICAL-11.wiff	CAL6	11169911.1	1114212.4	1.00	10.025	5.43	40.000	39.960	-0.10

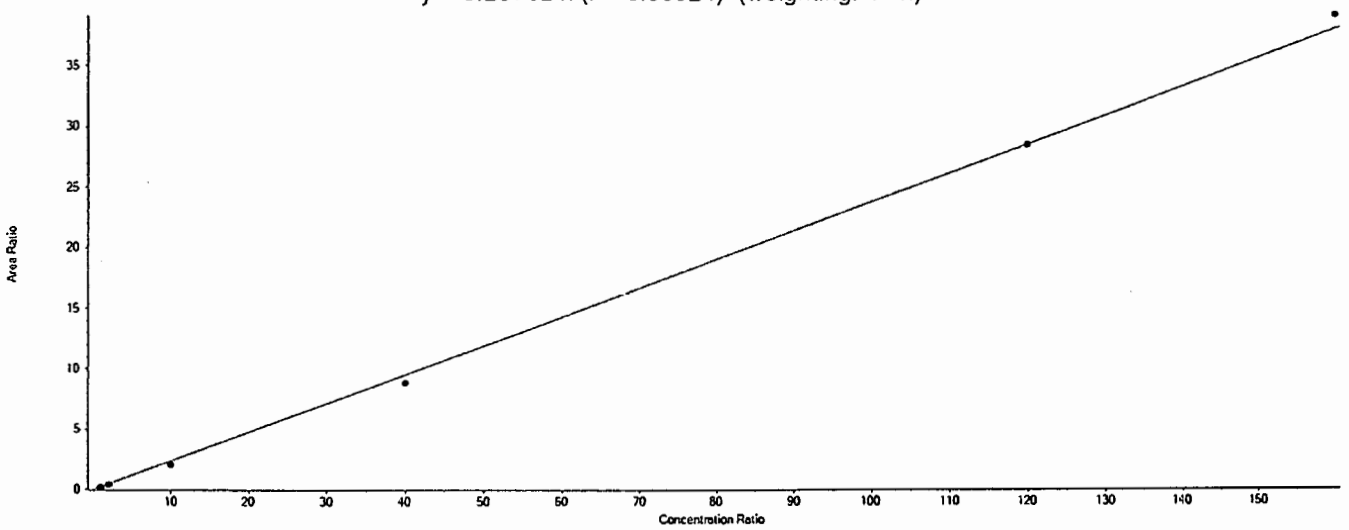
PFNA
y = 0.23229 x (r = 0.99921) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFNA Area	13C5-PFNA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	49121.8	1202169.8	1.00	0.041	5.89	0.200	0.180	-12.00
16JUL28ICAL-07.wiff	CAL2	126489.1	1236422.3	1.00	0.102	5.89	0.500	0.440	-11.90
16JUL28ICAL-08.wiff	CAL3	558263.9	1035695.2	1.00	0.539	5.88	2.500	2.320	-7.20
16JUL28ICAL-09.wiff	CAL4	1915671.7	912381.4	1.00	2.100	5.88	10.000	9.040	-9.60
16JUL28ICAL-10.wiff	CAL5	7243707.4	1010313.5	1.00	7.170	5.88	30.000	30.870	2.90
16JUL28ICAL-11.wiff	CAL6	8845467.0	943507.8	1.00	9.375	5.88	40.000	40.360	0.90

PFOS
y = 0.23782 x (r = 0.99924) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFOS Area	13C4-PFOS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	45470.0	277107.4	1.00	0.164	5.86	0.800	0.690	-13.60
16JUL28ICAL-07.wiff	CAL2	118275.5	289585.9	1.00	0.408	5.86	2.000	1.720	-14.10
16JUL28ICAL-08.wiff	CAL3	518447.6	252719.2	1.00	2.051	5.85	9.990	8.630	-13.70
16JUL28ICAL-09.wiff	CAL4	2003770.4	227683.8	1.00	8.801	5.85	39.960	37.010	-7.40
16JUL28ICAL-10.wiff	CAL5	7466537.5	261931.5	1.00	28.506	5.84	119.900	119.860	0.00
16JUL28ICAL-11.wiff	CAL6	9339617.8	238662.9	1.00	39.133	5.84	159.800	164.550	3.00

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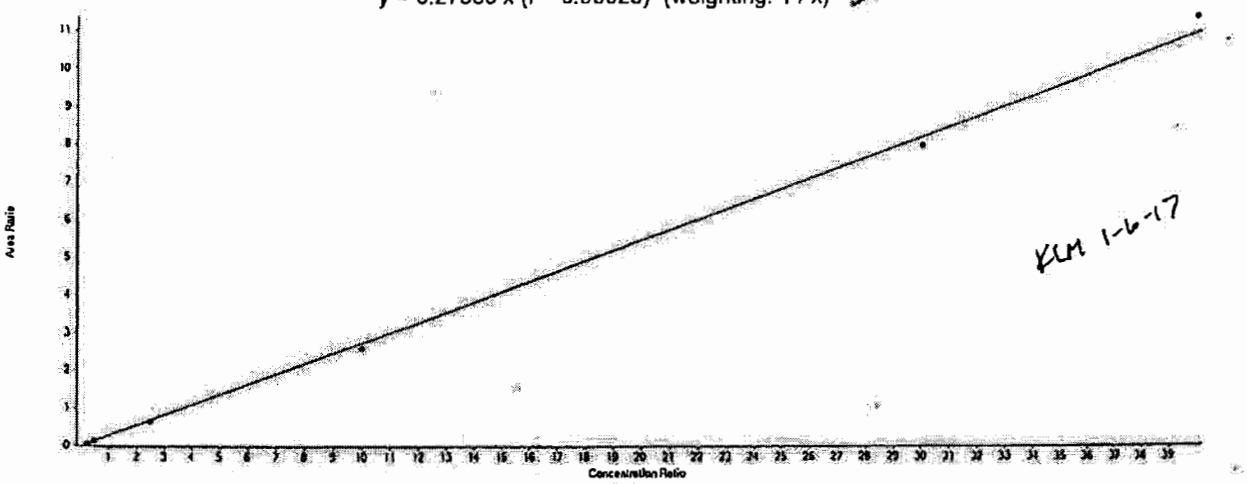
PFDA
y = 0.27339 x (r = 0.99925) (weighting: 1 / x)

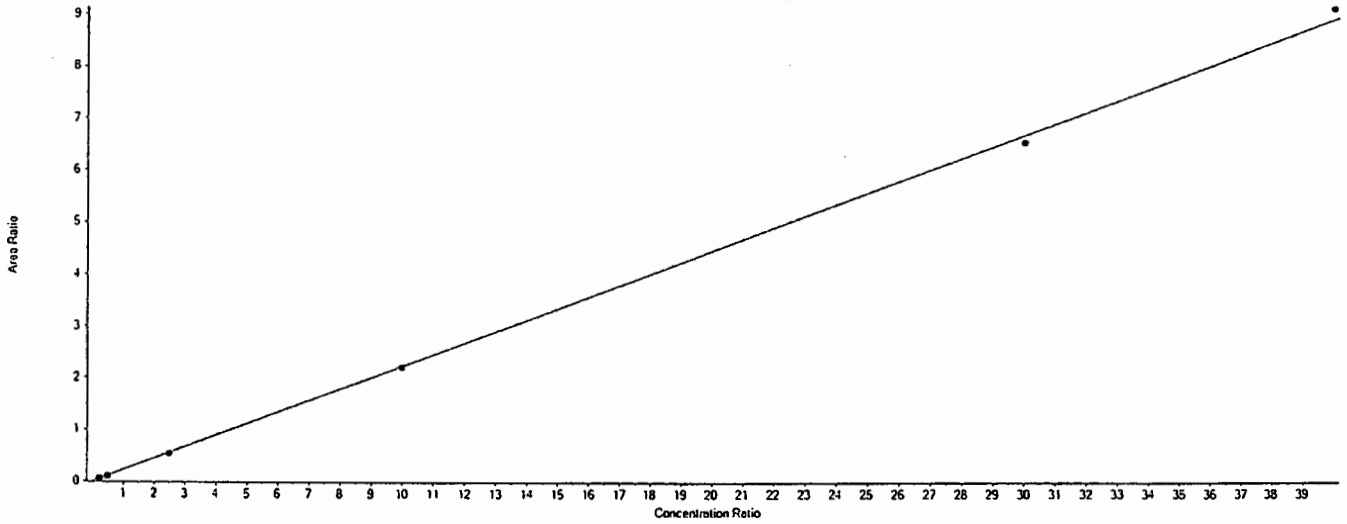


KLM 1-6-17

Calibration Verification

File Name	Sample Name	PFDA Area	13C2-PFDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	44370.9	830885.2	1.00	0.053	6.30	0.200	0.200	-2.30
16JUL28ICAL-07.wiff	CAL2	110556.6	846100.6	1.00	0.131	6.29	0.500	0.480	-4.40
16JUL28ICAL-08.wiff	CAL3	490521.2	769367.5	1.00	0.638	6.28	2.500	2.330	-6.70
16JUL28ICAL-09.wiff	CAL4	1766981.6	679765.6	1.00	2.599	6.27	10.000	9.510	-4.90
16JUL28ICAL-10.wiff	CAL5	7513198.5	943390.4	1.00	7.964	6.27	30.000	29.130	-2.90
16JUL28ICAL-11.wiff	CAL6	9646400.5	849103.0	1.00	11.361	6.26	40.000	41.560	3.90

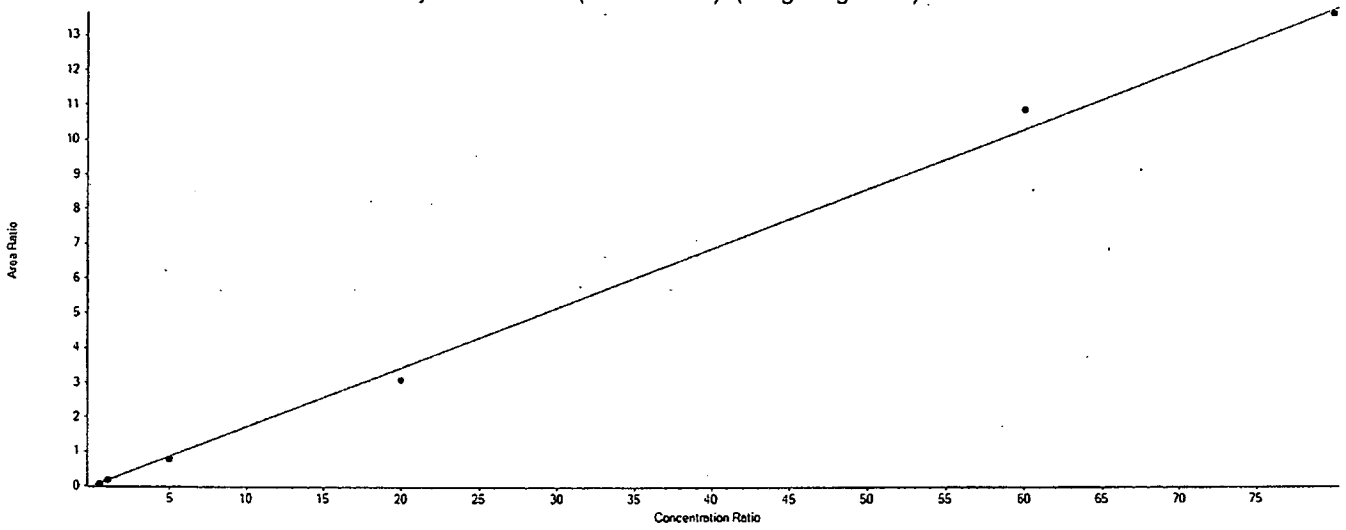
PFUndA
y = 0.22334 x (r = 0.99970) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFUndA Area	13C2-PFUnDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	45918.2	982914.7	1.00	0.047	6.66	0.200	0.210	4.60
16JUL28ICAL-07.wiff	CAL2	104669.7	1054743.1	1.00	0.099	6.65	0.500	0.440	-11.10
16JUL28ICAL-08.wiff	CAL3	499542.8	943644.5	1.00	0.529	6.64	2.500	2.370	-5.20
16JUL28ICAL-09.wiff	CAL4	1842758.0	830384.2	1.00	2.219	6.64	10.000	9.940	-0.60
16JUL28ICAL-10.wiff	CAL5	6958688.1	1062447.4	1.00	6.550	6.63	30.000	29.330	-2.20
16JUL28ICAL-11.wiff	CAL6	9012734.0	986311.8	1.00	9.138	6.62	40.000	40.910	2.30

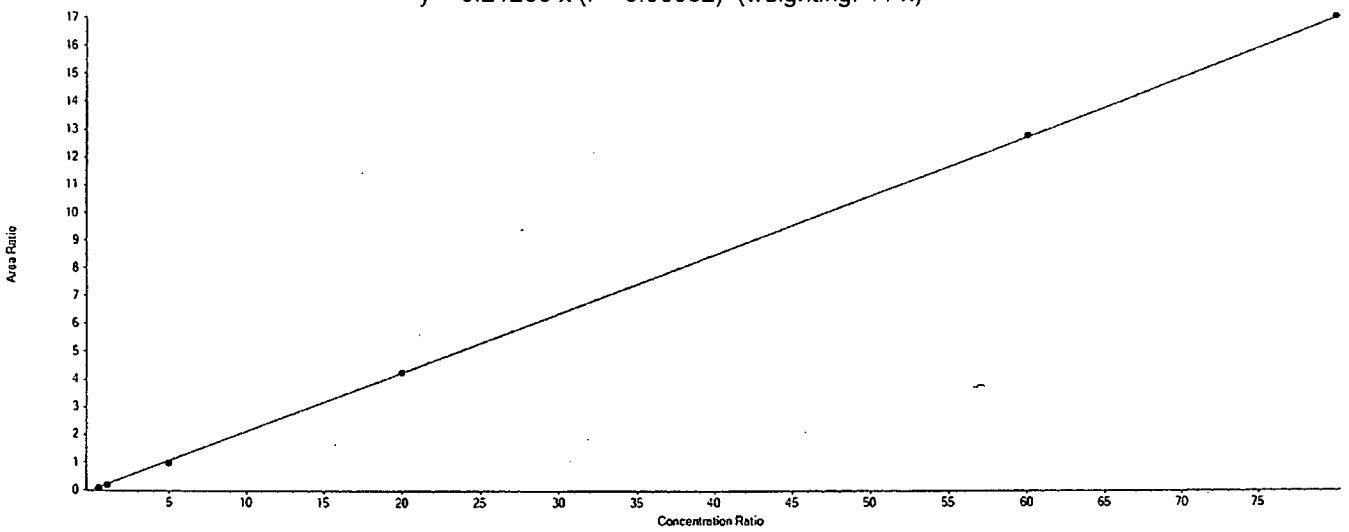
PFDoDA
y = 0.17219 x (r = 0.99859) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFDoDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	89354.3	1377823.0	1.00	0.065	7.01	0.400	0.380	-5.80
16JUL28ICAL-07.wiff	CAL2	232291.9	1505132.6	1.00	0.154	7.00	1.000	0.900	-10.40
16JUL28ICAL-08.wiff	CAL3	1059073.8	1351818.4	1.00	0.783	6.98	5.000	4.550	-9.00
16JUL28ICAL-09.wiff	CAL4	3712388.9	1205338.5	1.00	3.080	6.98	20.000	17.890	-10.60
16JUL28ICAL-10.wiff	CAL5	16607833.3	1521541.1	1.00	10.915	6.98	60.000	63.390	5.70
16JUL28ICAL-11.wiff	CAL6	19390998.9	1420112.2	1.00	13.655	6.97	80.000	79.300	-0.90

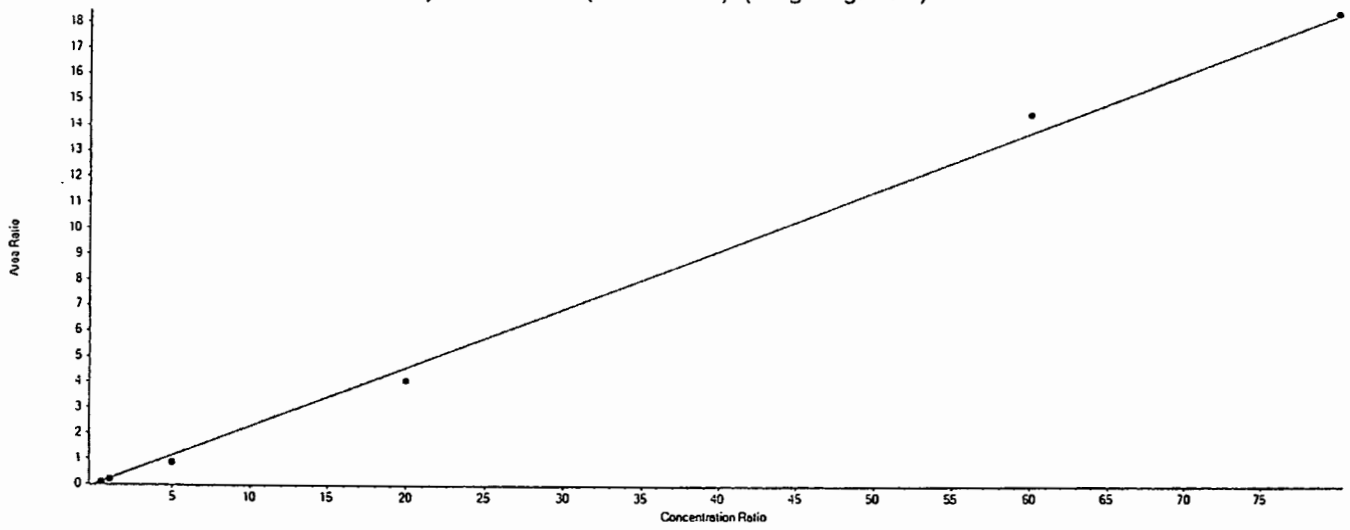
PFTrDA
y = 0.21235 x (r = 0.99982) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFTrDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	111464.6	1377823.0	1.00	0.081	7.34	0.400	0.380	-4.80
16JUL28ICAL-07.wiff	CAL2	278667.9	1505132.6	1.00	0.185	7.33	1.000	0.870	-12.80
16JUL28ICAL-08.wiff	CAL3	1282936.1	1351818.4	1.00	0.949	7.32	5.000	4.470	-10.60
16JUL28ICAL-09.wiff	CAL4	5125821.3	1205338.5	1.00	4.253	7.31	20.000	20.030	0.10
16JUL28ICAL-10.wiff	CAL5	19516875.4	1521541.1	1.00	12.827	7.30	60.000	60.400	0.70
16JUL28ICAL-11.wiff	CAL6	24199366.4	1420112.2	1.00	17.040	7.30	80.000	80.250	0.30

PFTeDA
y = 0.22944 x (r = 0.99802) (weighting: 1 / x)

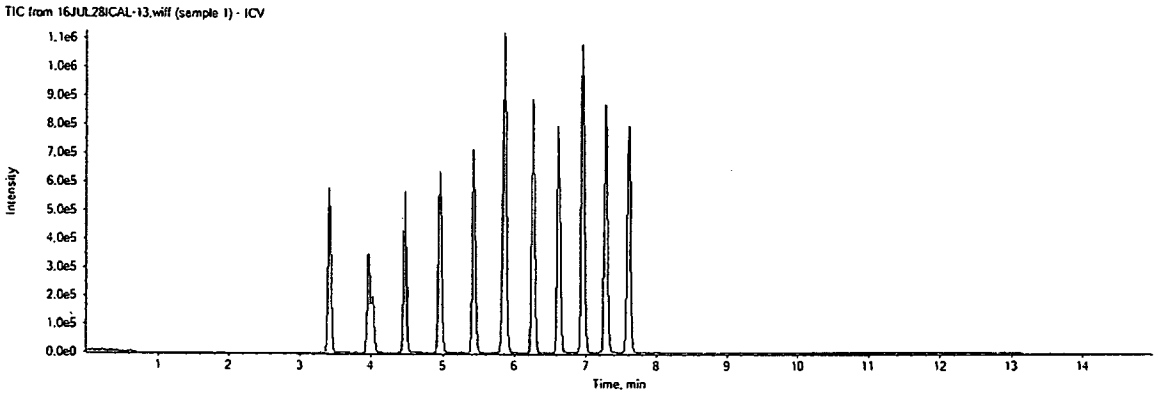


Calibration Verification

File Name	Sample Name	PFTeDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	101390.6	1377823.0	1.00	0.074	7.68	0.400	0.320	-19.80
16JUL28ICAL-07.wiff	CAL2	285734.8	1505132.6	1.00	0.190	7.66	1.000	0.830	-17.30
16JUL28ICAL-08.wiff	CAL3	1180658.1	1351818.4	1.00	0.873	7.65	5.000	3.810	-23.90
16JUL28ICAL-09.wiff	CAL4	4919283.5	1205338.5	1.00	4.081	7.64	20.000	17.790	-11.10
16JUL28ICAL-10.wiff	CAL5	22079210.0	1521541.1	1.00	14.511	7.63	60.000	63.250	5.40
16JUL28ICAL-11.wiff	CAL6	26201111.4	1420112.2	1.00	18.450	7.62	80.000	80.410	0.50

Initial Calibration Verification

Sample ID: ICV
Sample Name: ICV
Sample File: 16JUL28ICAL-13.wiff
Acquisition Date: 7/28/2016 6:27:02 PM

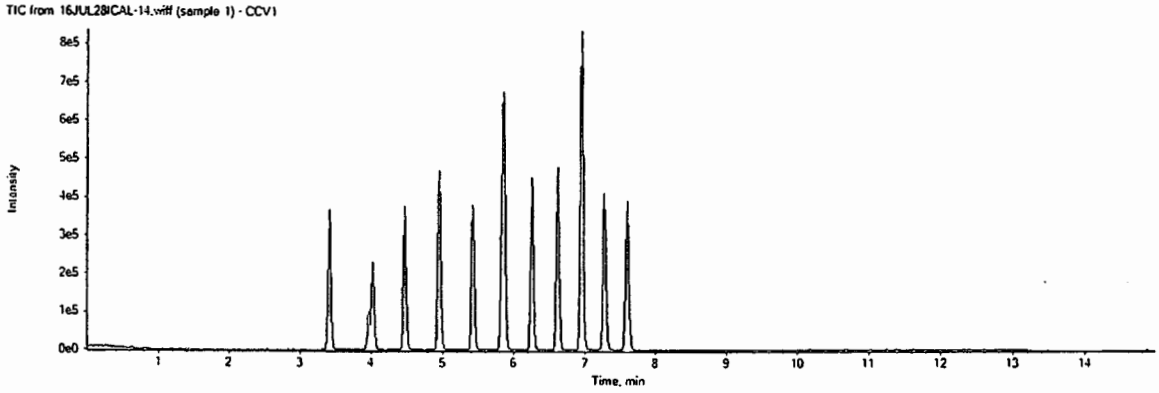


Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	530921.9	18O2-PFHxS	236214.7	1.00	2.248	4.02	8.85	7.910	-10.6	
PFHxA	810379.5	13C2-PFHxA	778011.6	1.00	1.042	4.47	10.00	10.100	1.0	
PFHpA	902798.4	13C4-PFHpA	381151.9	1.00	2.369	4.96	10.00	8.590	-14.1	
PFHxS	503035.7	18O2-PFHxS	236214.7	1.00	2.130	4.95	9.45	8.980	-4.9	
PFOA	1508574.2	13C4-PFOA	650499.0	1.00	2.319	5.42	10.00	9.240	-7.6	
PFNA	1964869.4	13C5-PFNA	937013.4	1.00	2.097	5.86	10.00	9.030	-9.7	
PFOS	486895.2	13C4-PFOS	254409.6	1.00	1.914	5.83	9.55	8.050	-15.7	
PFDA	1822047.5	13C2-PFDA	671050.1	1.00	2.715	6.26	10.00	9.930	-0.7	
PFUndA	1580552.3	13C2-PFUnDA	785528.8	1.00	2.012	6.62	10.00	9.010	-9.9	
PFDoDA	2063149.3	13C2-PFDoDA	1263701.4	1.00	1.633	6.96	10.00	9.480	-5.2	
PFTrDA	2674555.9	13C2-PFDoDA	1263701.4	1.00	2.116	7.28	10.00	9.970	-0.3	
PFTeDA	2662305.6	13C2-PFDoDA	1263701.4	1.00	2.107	7.60	10.00	9.180	-8.2	

Continuing Calibration Verification

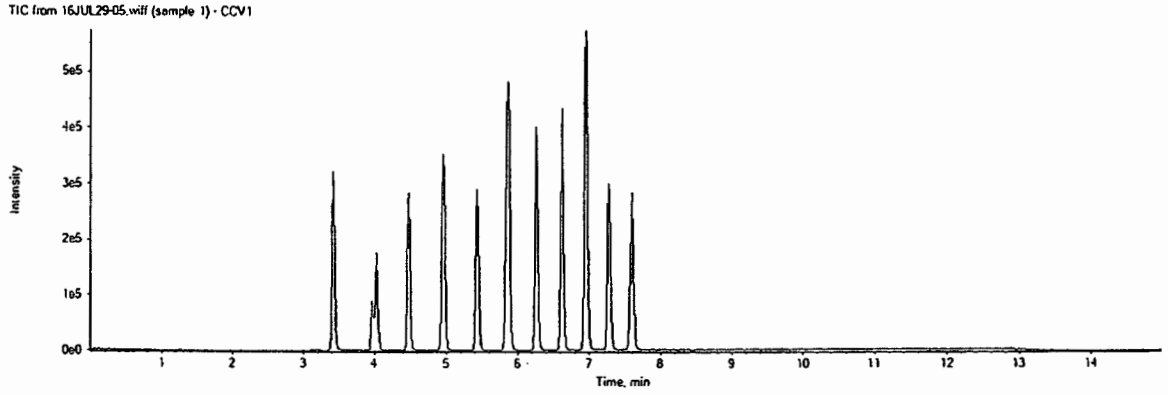
MQ 16190006

Sample ID: CAL3
Sample Name: CCV1
Sample File: 16JUL28ICAL-14.wiff
Acquisition Date: 7/28/2016 6:42:44 PM



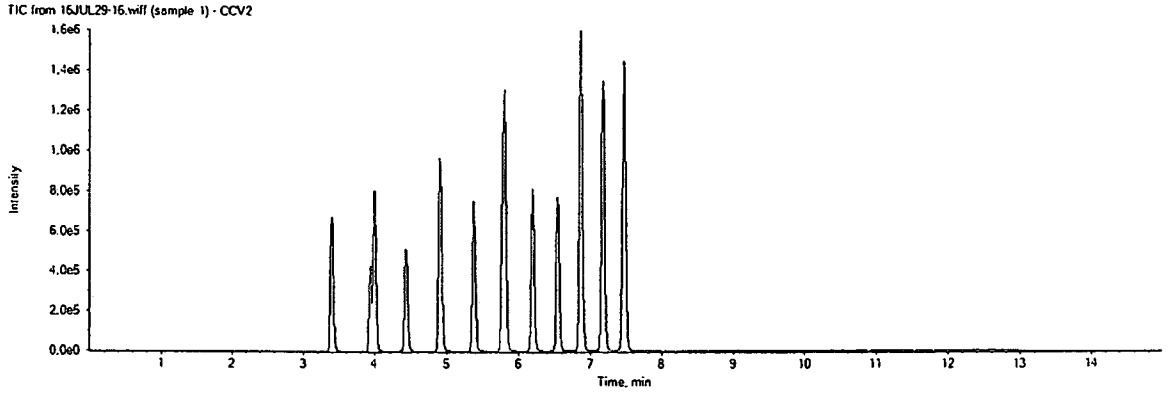
Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	627654.3	18O2-PFHxS	248281.7	1.00	2.528	4.02	9.99	8.890	-11.0	
PFHxA	221493.6	13C2-PFHxA	809504.9	1.00	0.274	4.47	2.50	2.650	6.1	
PFHpA	240308.3	13C4-PFHpA	372327.5	1.00	0.645	4.96	2.50	2.340	-6.3	
PFHxS	536060.5	18O2-PFHxS	248281.7	1.00	2.159	4.95	10.00	9.110	-8.9	
PFOA	407705.8	13C4-PFOA	754015.1	1.00	0.541	5.42	2.50	2.160	-13.8	
PFNA	546411.5	13C5-PFNA	1036127.1	1.00	0.527	5.86	2.50	2.270	-9.2	
PFOS	505939.7	13C4-PFOS	250567.2	1.00	2.019	5.83	9.99	8.490	-15.0	
PFDA	484233.0	13C2-PFDA	732308.7	1.00	0.661	6.25	2.50	2.420	-3.3	
PFUndA	466000.2	13C2-PFUnDA	879477.8	1.00	0.530	6.61	2.50	2.370	-5.1	
PFDoDA	1039287.8	13C2-PFDoDA	1276949.9	1.00	0.814	6.95	5.00	4.730	-5.5	
PFTrDA	1228227.8	13C2-PFDoDA	1276949.9	1.00	0.962	7.27	5.00	4.530	-9.4	
PFTeDA	1204650.6	13C2-PFDoDA	1276949.9	1.00	0.943	7.60	5.00	4.110	-17.8	

Sample ID: CAL3
Sample Name: CCV1
Sample File: 16JUL29-05.wiff
Acquisition Date: 7/29/2016 9:59:45 AM



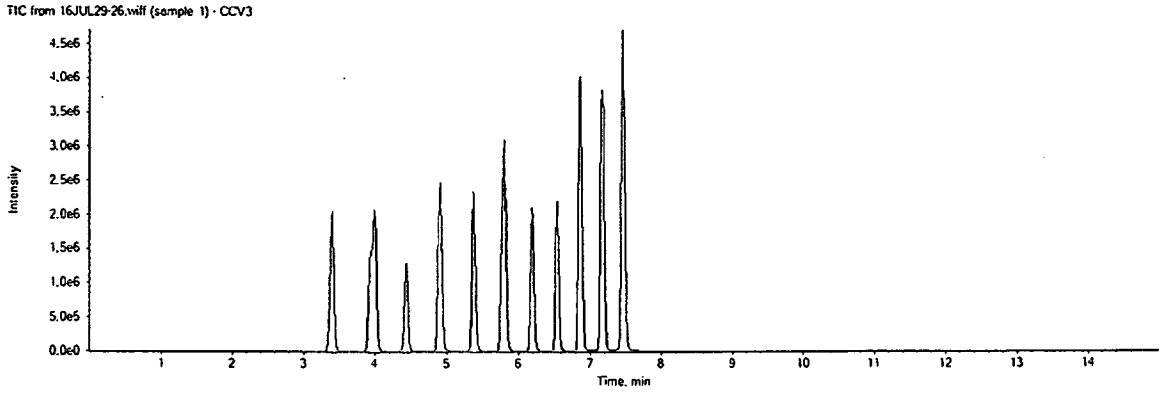
Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	408382.8	18O2-PFHxS	170511.7	1.00	2.395	4.02	9.99	8.430	-15.6	
PFHxA	159511.5	13C2-PFHxA	638784.8	1.00	0.250	4.47	2.50	2.420	-3.2	
PFHpA	209616.0	13C4-PFHpA	334745.3	1.00	0.626	4.96	2.50	2.270	-9.1	
PFHxS	338090.7	18O2-PFHxS	170511.7	1.00	1.983	4.95	10.00	8.370	-16.3	
PFOA	305864.8	13C4-PFOA	563163.0	1.00	0.543	5.43	2.50	2.170	-13.4	
PFNA	439224.4	13C5-PFNA	841664.9	1.00	0.522	5.86	2.50	2.250	-10.1	
PFOS	360038.2	13C4-PFOS	175274.2	1.00	2.054	5.83	9.99	8.640	-13.5	
PFDA	371920.5	13C2-PFDA	621142.6	1.00	0.599	6.26	2.50	2.190	-12.4	
PFUndA	358164.1	13C2-PFUnDA	772673.2	1.00	0.464	6.62	2.50	2.080	-17.0	
PFDoDA	770707.3	13C2-PFDoDA	952380.8	1.00	0.809	6.95	5.00	4.700	-6.0	
PFTrDA	913407.2	13C2-PFDoDA	952380.8	1.00	0.959	7.28	5.00	4.520	-9.7	
PFTeDA	860934.2	13C2-PFDoDA	952380.8	1.00	0.904	7.60	5.00	3.940	-21.2	

Sample ID: CAL4
Sample Name: CCV2
Sample File: 16JUL29-16.wiff
Acquisition Date: 7/29/2016 12:52:27 PM



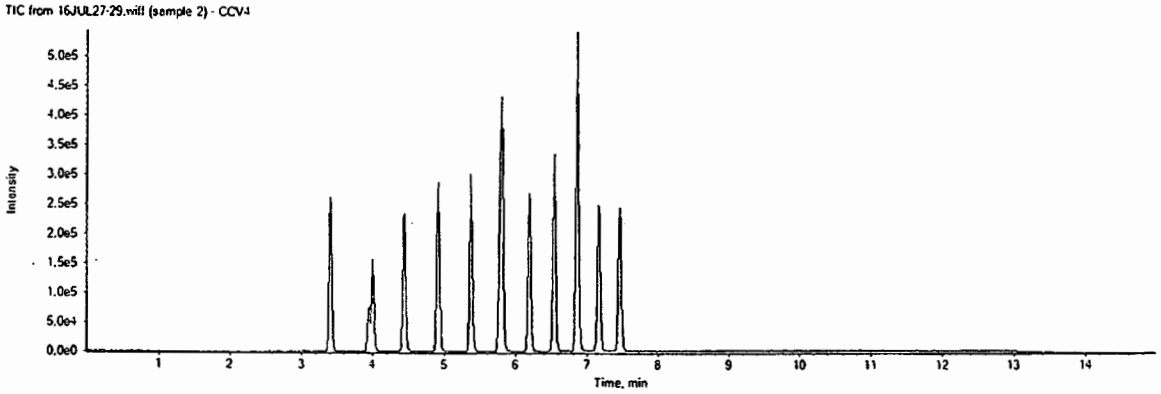
Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	2145446.3	18O2-PFHxS	202155.9	1.00	10.613	3.99	39.96	37.340	-6.6	
PFHxA	777951.6	13C2-PFHxA	767984.3	1.00	1.013	4.43	10.00	9.820	-1.8	
PFHpA	779754.6	13C4-PFHpA	331587.2	1.00	2.352	4.91	10.00	8.530	-14.7	
PFHxS	1783476.2	18O2-PFHxS	202155.9	1.00	8.822	4.90	40.00	37.220	-6.9	
PFOA	1533042.0	13C4-PFOA	666442.0	1.00	2.300	5.37	10.00	9.170	-8.3	
PFNA	1937238.3	13C5-PFNA	860091.9	1.00	2.252	5.80	10.00	9.700	-3.0	
PFOS	1829035.1	13C4-PFOS	211287.2	1.00	8.657	5.77	39.96	36.400	-8.9	
PFDA	1736656.0	13C2-PFDA	671410.0	1.00	2.587	6.19	10.00	9.460	-5.4	
PFUndA	1620703.5	13C2-PFUnDA	778875.3	1.00	2.081	6.54	10.00	9.320	-6.8	
PFDoDA	3560694.3	13C2-PFDoDA	1102654.2	1.00	3.229	6.87	20.00	18.750	-6.2	
PFTrDA	4177983.2	13C2-PFDoDA	1102654.2	1.00	3.789	7.17	20.00	17.840	-10.8	
PFTeDA	4486073.1	13C2-PFDoDA	1102654.2	1.00	4.068	7.47	20.00	17.730	-11.3	

Sample ID: CAL5
Sample Name: CCV3
Sample File: 16JUL29-26.wiff
Acquisition Date: 7/29/2016 3:38:21 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	7812424.6	18O2-PFHxS	225178.2	1.00	34.694	3.99	119.90	122.080	1.8	
PFHxA	3470770.6	13C2-PFHxA	994793.6	1.00	3.489	4.43	30.00	33.820	12.7	
PFHpA	2555056.3	13C4-PFHpA	306546.0	1.00	8.335	4.92	30.00	30.240	0.8	
PFHxS	6339950.8	18O2-PFHxS	225178.2	1.00	28.155	4.90	120.00	118.790	-1.0	
PFOA	6747084.3	13C4-PFOA	934044.8	1.00	7.224	5.37	30.00	28.790	-4.0	
PFNA	5651349.4	13C5-PFNA	846367.2	1.00	6.677	5.81	30.00	28.740	-4.2	
PFOS	6140884.1	13C4-PFOS	215264.6	1.00	28.527	5.77	119.90	119.950	0.0	
PFDA	5986212.2	13C2-PFDA	753090.1	1.00	7.949	6.19	30.00	29.080	-3.1	
PFUndA	6096366.3	13C2-PFUnDA	845429.0	1.00	7.211	6.53	30.00	32.290	7.6	
PFDoDA	12862422.5	13C2-PFDoDA	1178266.9	1.00	10.916	6.86	60.00	63.400	5.7	
PFTrDA	14502796.2	13C2-PFDoDA	1178266.9	1.00	12.309	7.17	60.00	57.960	-3.4	
PFTeDA	15614432.0	13C2-PFDoDA	1178266.9	1.00	13.252	7.46	60.00	57.760	-3.7	

Sample ID: CAL3
Sample Name: CCV4
Sample File: 16JUL27-29.wiff
Acquisition Date: 7/29/2016 4:41:13 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	382987.4	18O2-PFHxS	141620.4	1.00	2.704	4.00	9.99	9.520	-4.8	
PFHxA	135882.1	13C2-PFHxA	520951.4	1.00	0.261	4.43	2.50	2.530	1.1	
PFHpA	168715.7	13C4-PFHpA	237743.9	1.00	0.710	4.91	2.50	2.570	3.0	
PFHxS	308125.4	18O2-PFHxS	141620.4	1.00	2.176	4.90	10.00	9.180	-8.2	
PFOA	264182.7	13C4-PFOA	492008.1	1.00	0.537	5.37	2.50	2.140	-14.4	
PFNA	348840.6	13C5-PFNA	681380.9	1.00	0.512	5.80	2.50	2.200	-11.8	
PFOS	311727.1	13C4-PFOS	147277.1	1.00	2.117	5.77	9.99	8.900	-10.9	
PFDA	322224.4	13C2-PFDA	449749.7	1.00	0.716	6.19	2.50	2.620	4.8	
PFUndA	296895.4	13C2-PFUnDA	588410.9	1.00	0.505	6.54	2.50	2.260	-9.6	
PFDoDA	613337.1	13C2-PFDoDA	746657.7	1.00	0.821	6.86	5.00	4.770	-4.6	
PFTrDA	747744.5	13C2-PFDoDA	746657.7	1.00	1.001	7.16	5.00	4.720	-5.7	
PFTeDA	768120.6	13C2-PFDoDA	746657.7	1.00	1.029	7.45	5.00	4.480	-10.3	

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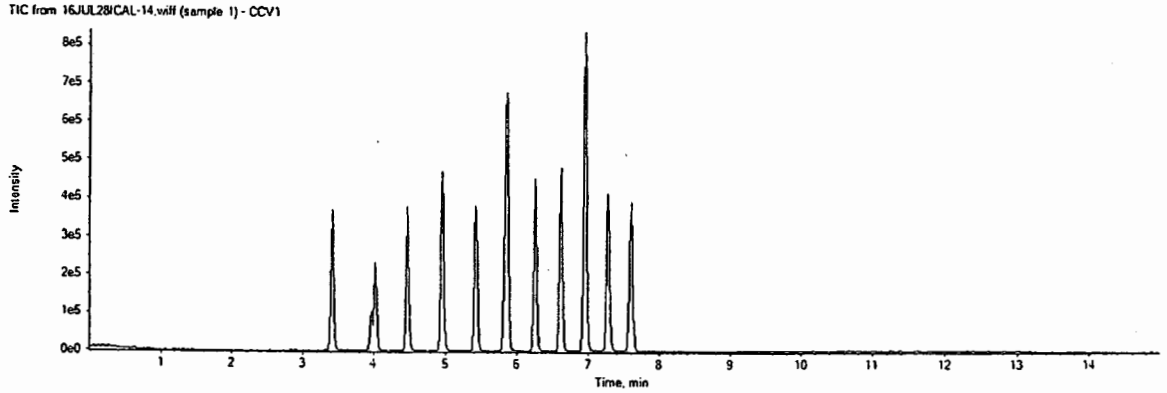
LC-MS/MS Analysis Report

Printed: 7/29/2016 9:25:00 AM

Continuing Calibration Verification

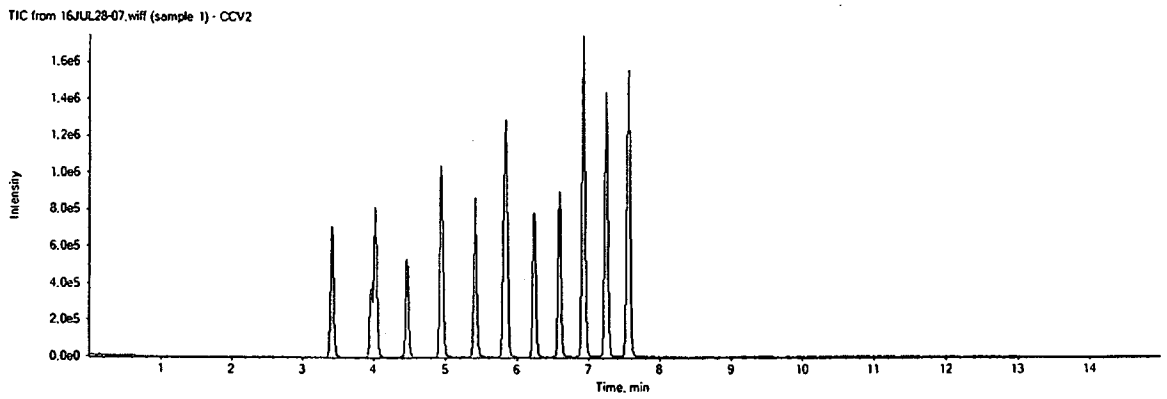
MQ 16203007

Sample ID: CAL3
Sample Name: CCV1
Sample File: 16JUL28ICAL-14.wiff
Acquisition Date: 7/28/2016 6:42:44 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	627654.3	18O2-PFHxS	248281.7	1.00	2.528	4.02	9.99	8.890	-11.0	
PFHxA	221493.6	13C2-PFHxA	809504.9	1.00	0.274	4.47	2.50	2.650	6.1	
PFHpA	240308.3	13C4-PFHpA	372327.5	1.00	0.645	4.96	2.50	2.340	-6.3	
PFHxS	536060.5	18O2-PFHxS	248281.7	1.00	2.159	4.95	10.00	9.110	-8.9	
PFOA	407705.8	13C4-PFOA	754015.1	1.00	0.541	5.42	2.50	2.160	-13.8	
PFNA	546411.5	13C5-PFNA	1036127.1	1.00	0.527	5.86	2.50	2.270	-9.2	
PFOS	505939.7	13C4-PFOS	250567.2	1.00	2.019	5.83	9.99	8.490	-15.0	
PFDA	484233.0	13C2-PFDA	732308.7	1.00	0.661	6.25	2.50	2.420	-3.3	
PFUndA	466000.2	13C2-PFUnDA	879477.8	1.00	0.530	6.61	2.50	2.370	-5.1	
PFDoDA	1039287.8	13C2-PFDoDA	1276949.9	1.00	0.814	6.95	5.00	4.730	-5.5	
PFTrDA	1228227.8	13C2-PFDoDA	1276949.9	1.00	0.962	7.27	5.00	4.530	-9.4	
PFTeDA	1204650.6	13C2-PFDoDA	1276949.9	1.00	0.943	7.60	5.00	4.110	-17.8	

Sample ID: CAL4
Sample Name: CCV2
Sample File: 16JUL28-07.wiff
Acquisition Date: 7/28/2016 9:04:05 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	2346365.2	18O2-PFHxS	233086.5	1.00	10.066	4.02	39.96	35.420	-11.4	
PFHxA	839571.3	13C2-PFHxA	772065.6	1.00	1.087	4.46	10.00	10.540	5.4	
PFHpA	814142.5	13C4-PFHpA	315423.2	1.00	2.581	4.95	10.00	9.360	-6.4	
PFHxS	1992923.4	18O2-PFHxS	233086.5	1.00	8.550	4.94	40.00	36.070	-9.8	
PFOA	1604576.2	13C4-PFOA	742572.4	1.00	2.161	5.41	10.00	8.610	-13.9	
PFNA	1808243.6	13C5-PFNA	859634.9	1.00	2.104	5.85	10.00	9.060	-9.4	
PFOS	1963678.2	13C4-PFOS	230771.1	1.00	8.509	5.82	39.96	35.780	-10.5	
PFDA	1741277.9	13C2-PFDA	657057.4	1.00	2.650	6.23	10.00	9.690	-3.1	
PFUndA	1659190.4	13C2-PFUnDA	816867.5	1.00	2.031	6.59	10.00	9.090	-9.1	
PFDoDA	3907894.3	13C2-PFDoDA	1148865.7	1.00	3.402	6.93	20.00	19.750	-1.2	
PFTrDA	4202312.0	13C2-PFDoDA	1148865.7	1.00	3.658	7.24	20.00	17.230	-13.9	
PFTeDA	4954038.1	13C2-PFDoDA	1148865.7	1.00	4.312	7.55	20.00	18.790	-6.0	

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SGP94
Matrix: SOIL

16203007	13C2-PFDA	13C2-PFDODA	13C2-PFHXA	13C2-PFUNDA
	Area	Area	Area	Area
Average ICAL Response	819769	1396961	962264	976741
UPPER LIMIT	1229654	2095442	1443396	1465112
LOWER LIMIT	409885	698481	481132	488371
LAB SAMPLE ID				
BLK203007	819566	1452569	866074	1021110
OPR203007	479668	869085	522338	558425
LCSDA	591292	1133414	635122	769055
8432141RE	747857	1191773	695322	884142
8432142RE	612297	1086179	671769	812974
8432143RE	621830	1022180	587839	759426

Not reported (call in)

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SGP94
Matrix: SOIL

16203007	13C4-PFHPA	13C4-PFOA	13C4-PFOS	13C5-PFNA
	Area	Area	Area	Area
Average ICAL Response	377865	885068	257948	1056748
UPPER LIMIT	566798	1327602	386922	1585122
LOWER LIMIT	188933	442534	128974	528374
LAB SAMPLE ID				
BLK203007	561669	837728	269017	1173024
OPR203007	303539	443719	171324	669373
LCSDA	387022	599845	228491	918553
8432141RE	464534	693354	231708	1025226
8432142RE	420801	667797	222355	956825
8432143RE	371617	574552	201686	913424

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SGP94
Matrix: SOIL

16203007	18O2-PFHXS
	Area
Average ICAL Response	260825
UPPER LIMIT	391238
LOWER LIMIT	130413
LAB SAMPLE ID	
BLK203007	280516
OPR203007	171890
LCSDA	218231
8432141RE	243124
8432142RE	211170
8432143RE	199629

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SGP94
Matrix: SOIL

16190006	13C2-PFDA	13C2-PFDODA	13C2-PFHXA	13C2-PFUNDA
	Area	Area	Area	Area
Average ICAL Response	819769	1396961	962264	976741
UPPER LIMIT	1229654	2095442	1443396	1465112
LOWER LIMIT	409885	698481	481132	488371
LAB SAMPLE ID				
BLK190006	471578	1331735	1174258	792967
OPR190006	123518 *	711175	22984 *	284063 *
LCSDA	112757 *	500599 *	87997 *	233177 *
8432144	769231	1237224	812022	956361
8432144MS	1135501	1785498	1111495	1337052
8432145	1082877	1775446	1152007	1309846
8432146	2059791 *	3264567 *	2456305 *	2324553 *
8432147	1584074 *	1921700	2490225 *	1627480 *

QC

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SGP94
Matrix: SOIL

16190006	13C4-PFHPA	13C4-PFOA	13C4-PFOS	13C5-PFNA
	Area	Area	Area	Area
Average ICAL Response	377865	885068	257948	1056748
UPPER LIMIT	566798	1327602	386922	1585122
LOWER LIMIT	188933	442534	128974	528374
LAB SAMPLE ID				
BLK190006	440470	350040 *	611863 *	475435 *
OPR190006	19700 *	37306 *	458424 *	87996 *
LCSDA	32865 *	45560 *	346826	89807 *
8432144	568908 *	757580	267395	1070937
8432144MS	808468 *	1006725	403386 *	1517586
8432145	776131 *	1049536	347979	1595695 *
8432146	1569560 *	2209890 *	780382 *	2843308 *
8432147	1596374 *	2256902 *	794686 *	2719044 *

QC

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SGP94
Matrix: SOIL

Avg ICAL Response changed after recalc, see next page

16190006	18O2-PFHXS Area	
Average ICAL Response	~~260825~~	260325
UPPER LIMIT	~~391238~~	390488
LOWER LIMIT	~~130413~~	130163
LAB SAMPLE ID		
BLK190006	620702 *	QC
OPR190006	433784 *	
LCSDA	354283	
8432144	267576	
8432144MS	394776 *	
8432145	360800	
8432146	~~794006~~ *	
8432147	822159 *	

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP03
Matrix: SOIL

16206005	18O2-PFHXS
	Area
Average ICAL Response	260825 → 260325
UPPER LIMIT	391238 → 390488
LOWER LIMIT	130413 → 130163
LAB SAMPLE ID	
BLK206005	210918
OPR206005	185153
8486567MS	199007
8486568MSD	204416
8486564	201743
8486565	222703
8486566	238282
8486570	195502
8486571	335088
8486572	166765
8486573	177834
8486574	145940
8486575	155908
8486576	155913
8486577	178018
8486578	408723 *
8486589	183518
8486591	299089
8486575	155908

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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LC-MS/MS Sequence Report

Printed: 08/05/2016 10:03:00 AM

only REs that were not reported due to extract past HT

Instrument	Acquisition Date	File Name	Sample ID	Vial Position	Samp Wt	Samp Vol	DF
Triple Quad 4500, 0, LM24743	8/2/2016 12:40:44 PM	16AUG01ICAL-05.wiff	MDL	2	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 12:57:08 PM	16AUG01ICAL-06.wiff	CAL1	3	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 1:13:29 PM	16AUG01ICAL-07.wiff	CAL2	4	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 1:29:53 PM	16AUG01ICAL-08.wiff	CAL3	5	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 1:46:17 PM	16AUG01ICAL-09.wiff	CAL4	6	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 2:02:41 PM	16AUG01ICAL-10.wiff	CAL5	7	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 2:19:02 PM	16AUG01ICAL-11.wiff	CAL6	8	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 2:35:23 PM	16AUG01ICAL-12.wiff	solvent	1	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 2:51:47 PM	16AUG01ICAL-13.wiff	ICV	9	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 3:09:11 PM	16AUG01ICAL-14.wiff	CCV1	5	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 2:42:24 PM	16AUG04-05.wiff	CCV1	5	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 2:58:09 PM	16AUG04-06.wiff	BLK215005	16	5.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 3:13:51 PM	16AUG04-07.wiff	LCS215005	17	5.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 3:29:36 PM	16AUG04-08.wiff	LCSDA	18	5.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 3:45:18 PM	16AUG04-09.wiff	8432144RE	19	5.35	1.00	1.00
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Triple Quad 4500, 0, LM24743	8/4/2016 4:32:30 PM	16AUG04-12.wiff	8432146RE	22	5.02	1.00	1.00
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Triple Quad 4500, 0,	8/4/2016 5:03:57 PM	16AUG04-14.wiff	8438959RE	24	5.17	1.00	1.00

LM24743							
Triple Quad 4500, 0, LM24743	8/4/2016 5:19:39 PM	16AUG04-15.wiff	8438960RE	25	5.14	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 5:35:21 PM	16AUG04-16.wiff	CCV2	6	1.00	1.00	1.00
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Triple Quad 4500, 0, LM24743	8/4/2016 6:22:36 PM	16AUG04-19.wiff	8438965RE	28	5.09	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 6:38:21 PM	16AUG04-20.wiff	8438967RE	29	5.15	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 6:54:06 PM	16AUG04-21.wiff	8438968RE	30	5.21	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 7:09:51 PM	16AUG04-22.wiff	8438970RE	31	5.15	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 7:25:36 PM	16AUG04-23.wiff	8438971RE	32	5.13	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 7:41:18 PM	16AUG04-24.wiff	8438972RE	33	5.32	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 7:57:03 PM	16AUG04-25.wiff	8441140RE	34	5.04	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 8:12:45 PM	16AUG04-26.wiff	8441141RE	35	5.42	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 8:28:27 PM	16AUG04-27.wiff	CCV3	7	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 8:44:09 PM	16AUG04-28.wiff	8441142RE	36	5.10	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 8:59:51 PM	16AUG04-29.wiff	CCV4	5	1.00	1.00	1.00

Results Table Name: MQ 16215005 8/5/2016 9:41:27 AM

Christine Ratcliff
Christine Ratcliff
Manager

AUG 05 2016

MEP 7824 8/5/16

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LC-MS/MS Analysis Report

Printed: 8/5/2016 10:04:00 AM

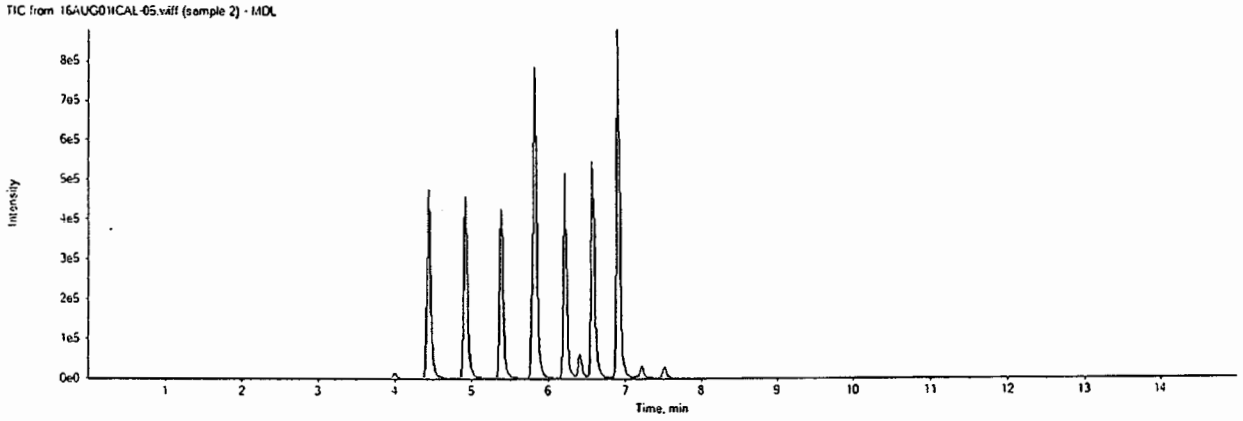
Sample Name:	MDL		**Data File:**		16AUG01ICAL-05.wiff
Sample ID:	MDL		**Acquis Date:**		8/2/2016 12:40:44 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	2		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		
Batch Number:			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.00	46123.4	A	18O2-PFHxS	4.91	543274.7	0.085	0.309	
PFHxA	4.45	16073.2	A	13C2-PFHxA	4.44	1546647.2	0.010	0.096	
PFHpA	4.92	22441.5	A	13C4-PFHpA	4.92	960209.1	0.023	0.084	
PFHxS	4.92	40838.5	A	18O2-PFHxS	4.91	543274.7	0.075	0.322	
PFOA	5.39	31102.9	A	13C4-PFOA	5.39	1391095.5	0.022	0.095	
PFNA	5.82	38607.7	A	13C5-PFNA	5.82	2073740.0	0.019	0.082	
PFOS	5.79	38616.3	A	13C4-PFOS	5.79	498283.2	0.077	0.336	
PFDA	6.22	26985.6	A	13C2-PFDA	6.22	1497218.1	0.018	0.068	
PFUndA	6.58	27485.1	A	13C2-PFUnDA	6.58	1603457.8	0.017	0.076	
PFDoDA	6.91	79399.3	A	13C2-PFDoDA	6.90	2452321.8	0.032	0.166	
PFTrDA	7.21	91091.3	A	13C2-PFDoDA	6.90	2452321.8	0.037	0.180	
PFTeDA	7.51	92043.9	A	13C2-PFDoDA	6.90	2452321.8	0.038	0.177	

Total Ion Chromatogram

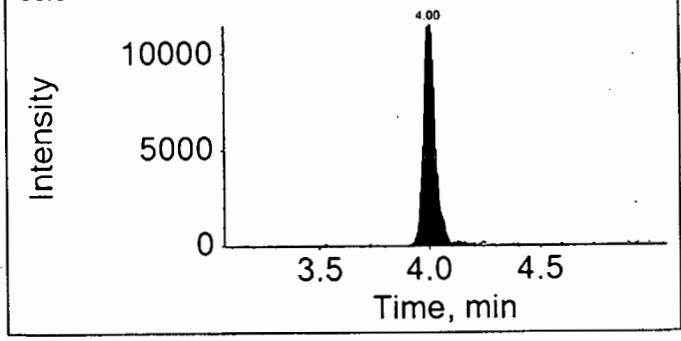
MDL



16AUG01ICAL-05.wiff

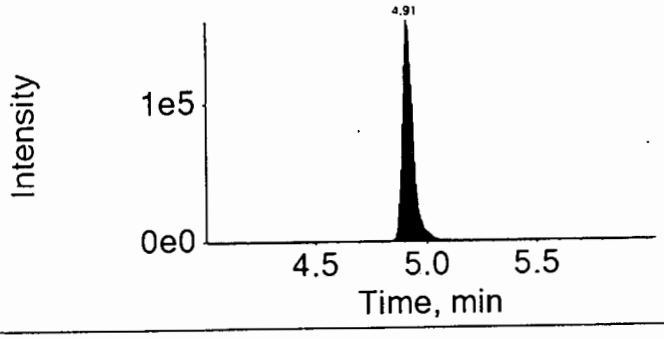
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

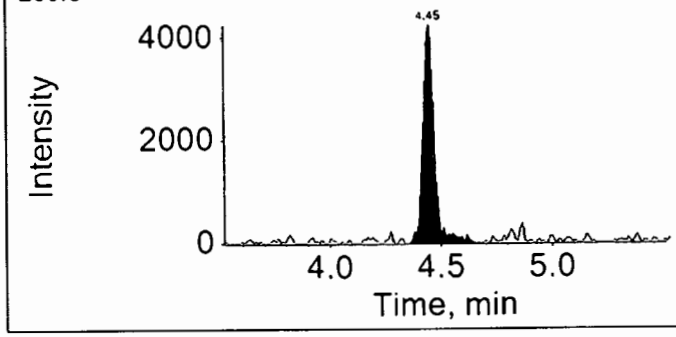
403.0 / 103.0



16AUG01ICAL-05.wiff

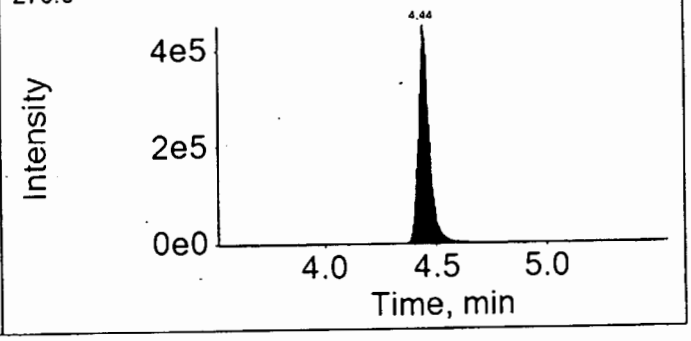
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

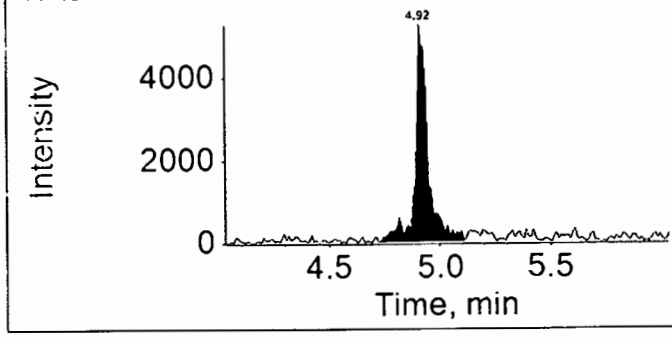
314.9 / 270.0



16AUG01ICAL-05.wiff

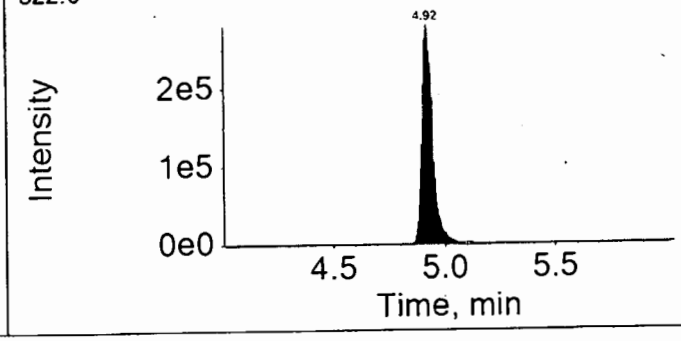
Analyte: PFHpA

362.9 / 319.9

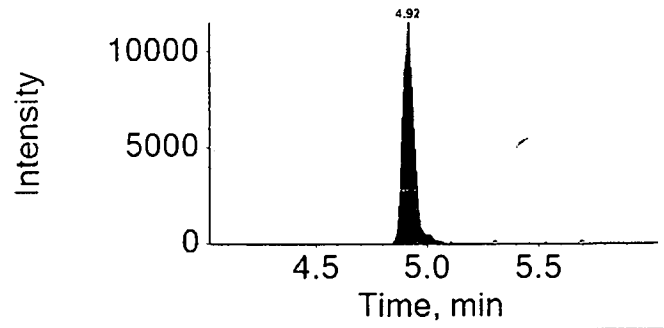


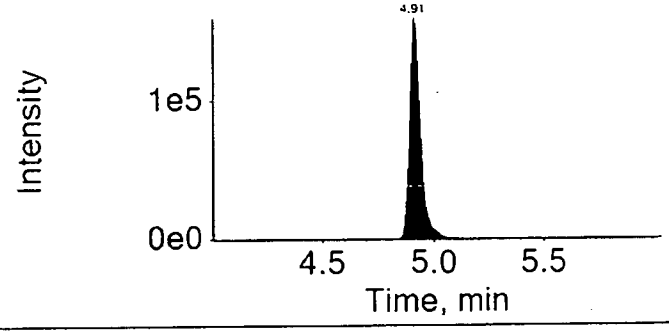
Internal Standard: 13C4-PFHpA

367.0 / 322.0



16AUG01ICAL-05.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0





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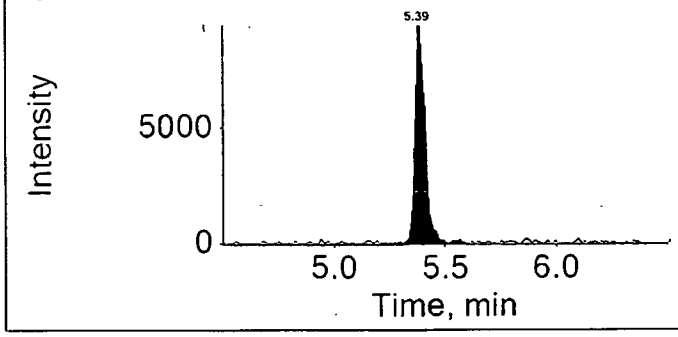
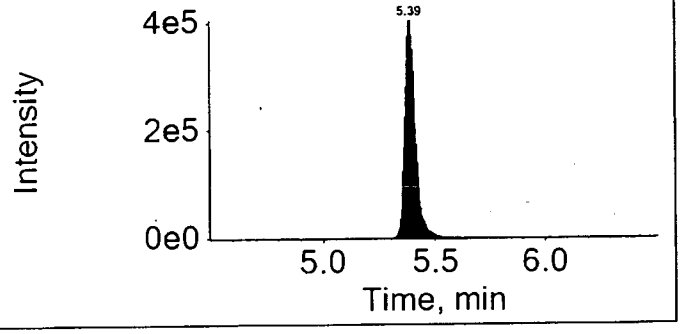
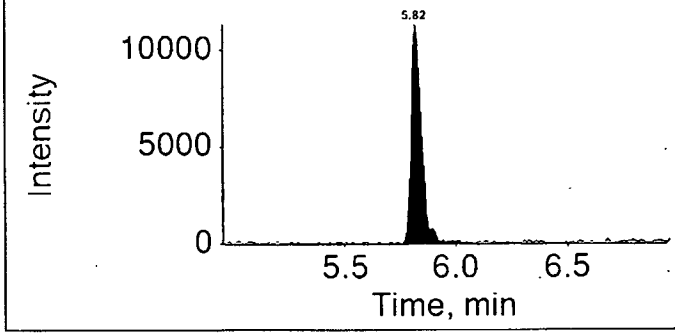
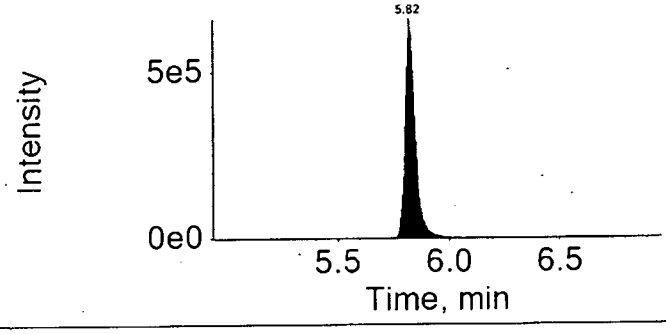
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





16AUG01ICAL-05.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0





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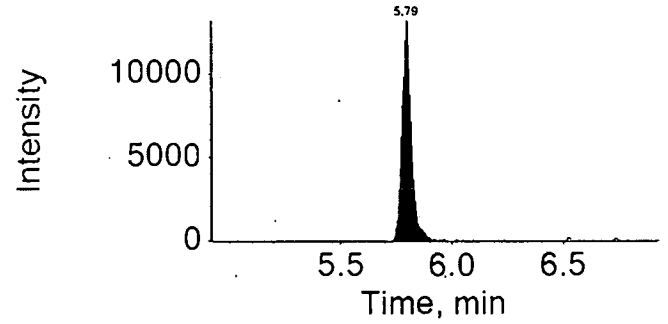
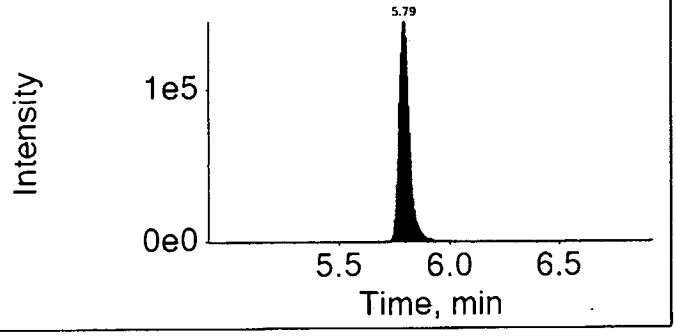
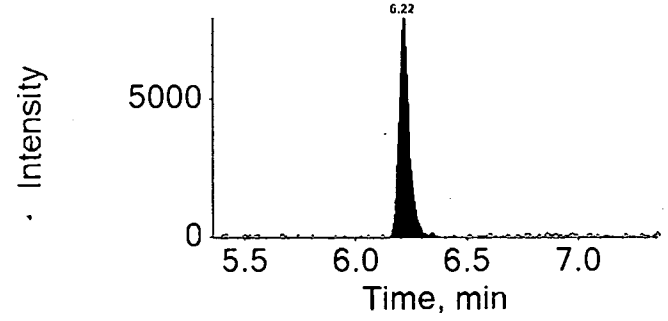
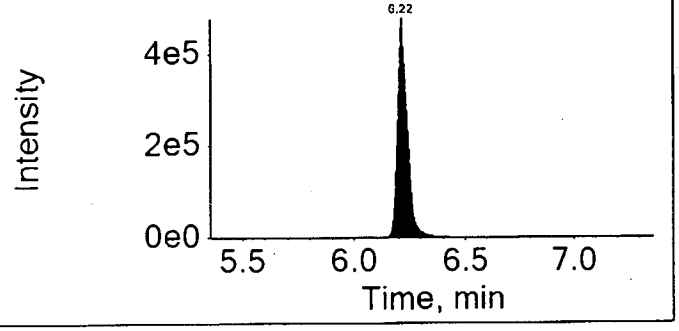
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



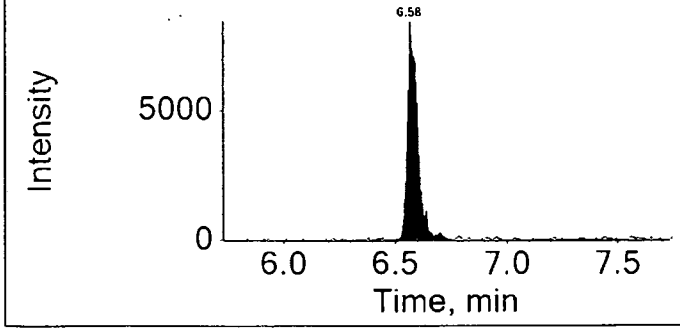


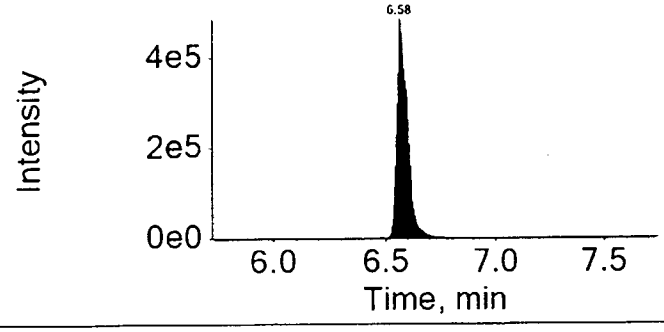
16AUG01ICAL-05.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



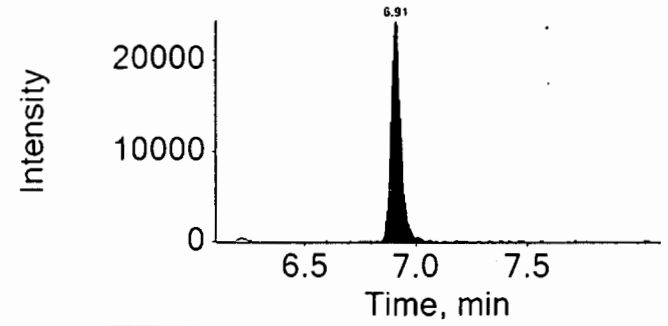


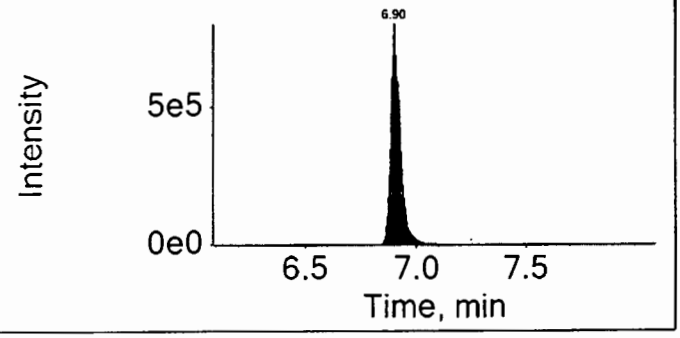
16AUG01ICAL-05.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



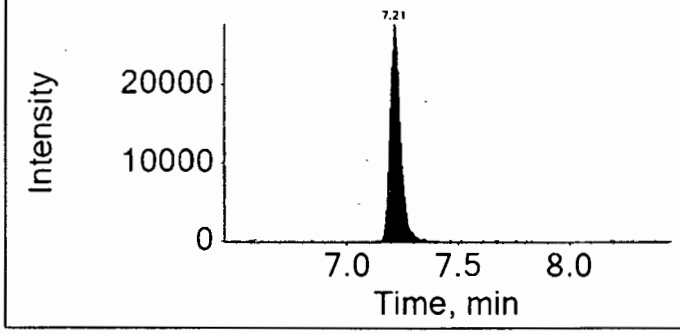


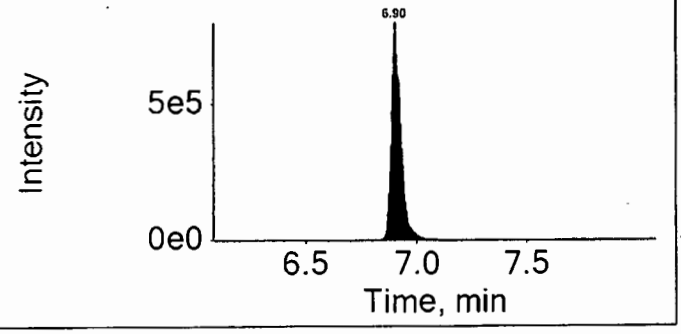
16AUG01ICAL-05.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



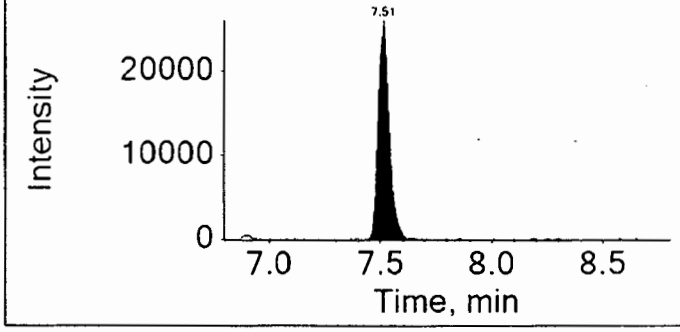


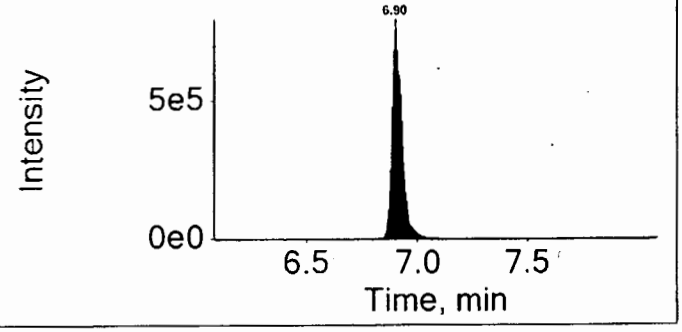
16AUG01ICAL-05.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG01ICAL-05.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0

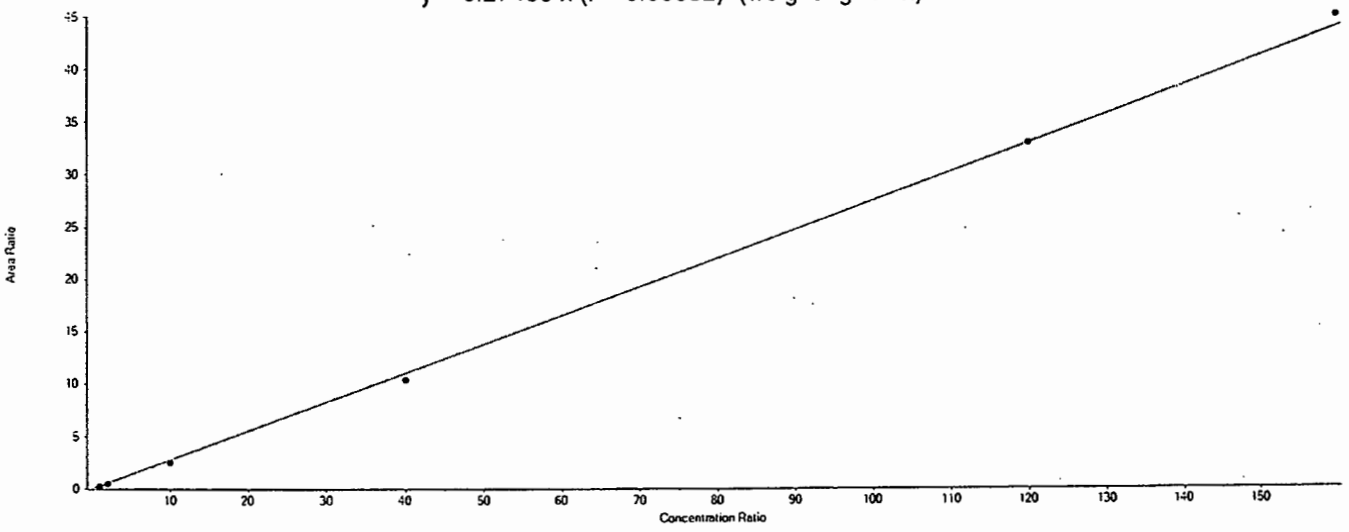




Initial Calibration

Results Table Name: MQ 16215005 8/5/2016 9:41:27 AM
16AUG01ICAL

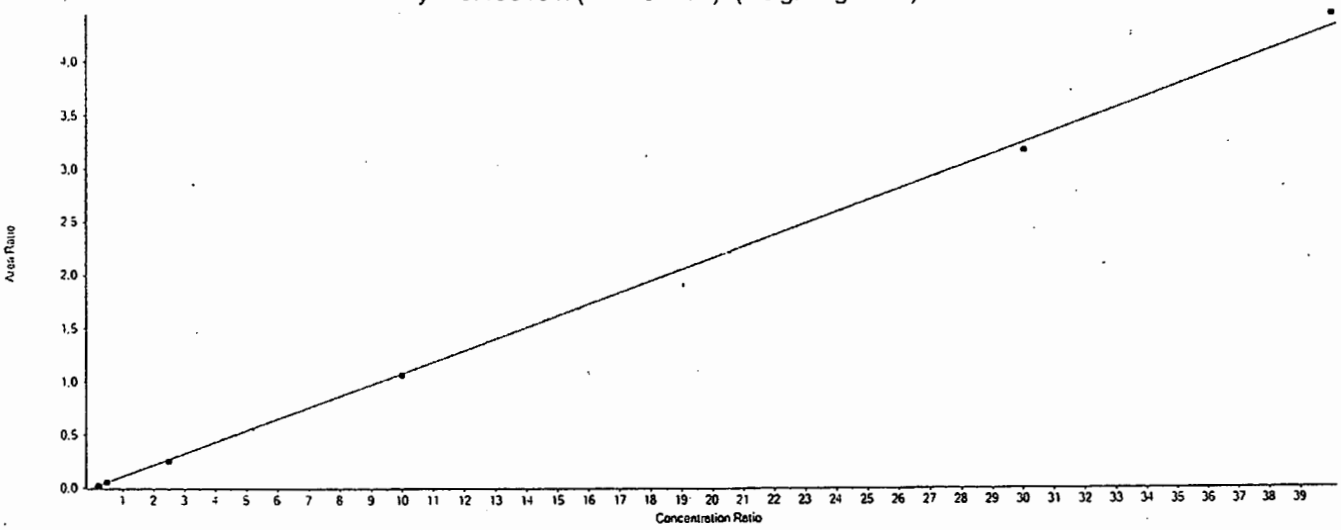
PFBS
y = 0.27480 x (r = 0.99952) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFBS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	75518.9	416170.0	1.00	0.181	4.00	0.800	0.660	-17.4
16AUG01ICAL-07.wiff	CAL2	194545.4	421583.0	1.00	0.461	4.00	2.000	1.680	-16.0
16AUG01ICAL-08.wiff	CAL3	955850.3	388867.8	1.00	2.458	3.99	9.990	8.940	-10.5
16AUG01ICAL-09.wiff	CAL4	3547054.0	343558.5	1.00	10.324	4.00	39.960	37.570	-6.0
16AUG01ICAL-10.wiff	CAL5	8818035.8	267890.9	1.00	32.917	4.00	119.900	119.780	-0.1
16AUG01ICAL-11.wiff	CAL6	10229164.4	227239.8	1.00	45.015	3.99	159.800	163.810	2.5

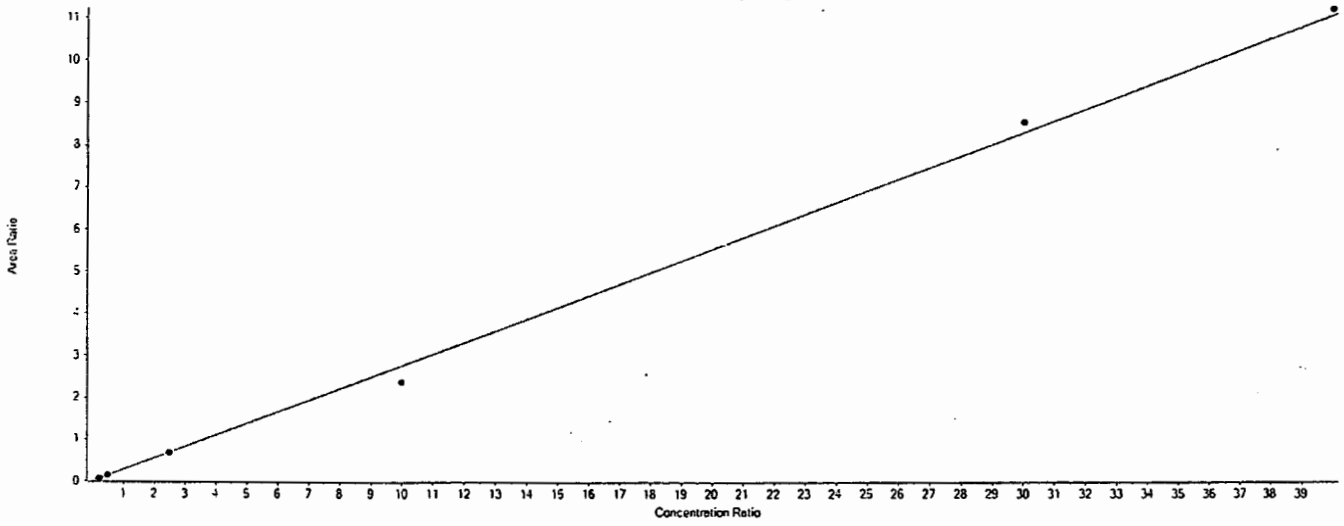
PFHxA
y = 0.10813 x (r = 0.99963) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHxA Area	13C2-PFHxA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	24733.3	1142250.5	1.00	0.022	4.44	0.200	0.200	0.1
16AUG01ICAL-07.wiff	CAL2	56990.0	1131937.6	1.00	0.050	4.44	0.500	0.470	-6.9
16AUG01ICAL-08.wiff	CAL3	288569.0	1147384.3	1.00	0.252	4.44	2.500	2.330	-7.0
16AUG01ICAL-09.wiff	CAL4	1172827.3	1104945.3	1.00	1.061	4.44	10.000	9.820	-1.8
16AUG01ICAL-10.wiff	CAL5	3324367.2	1048596.1	1.00	3.170	4.44	30.000	29.320	-2.3
16AUG01ICAL-11.wiff	CAL6	4098502.1	922918.2	1.00	4.441	4.44	40.000	41.070	2.7

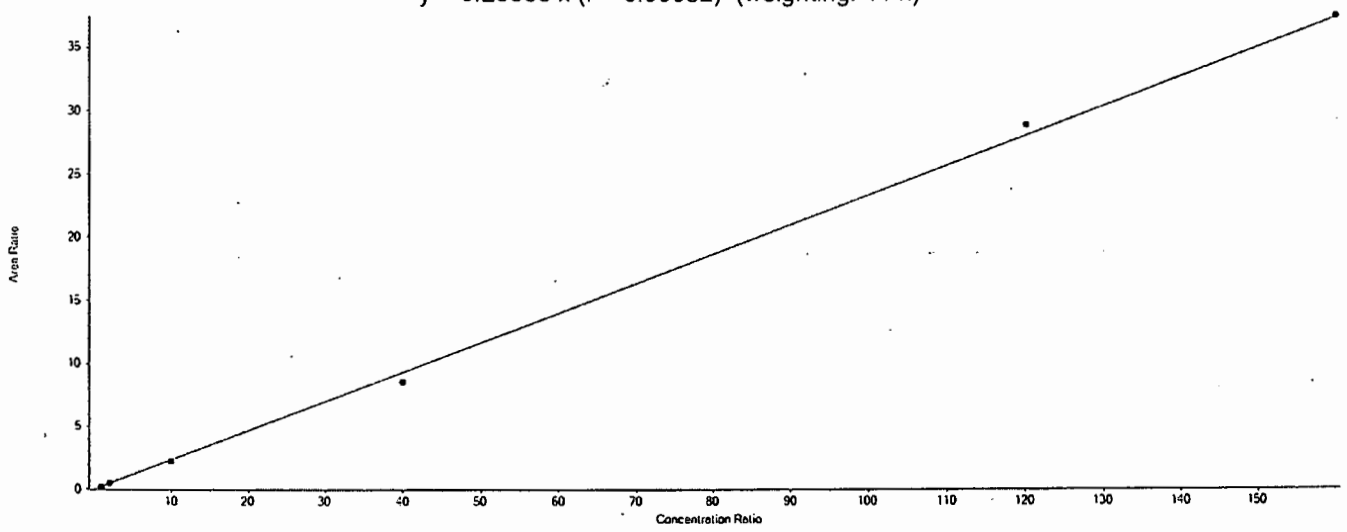
PFHpA
y = 0.27703 x (r = 0.99848) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHpA Area	13C4-PFHpA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	36505.4	623998.4	1.00	0.059	4.92	0.200	0.210	5.6
16AUG01ICAL-07.wiff	CAL2	78452.1	597416.9	1.00	0.131	4.92	0.500	0.470	-5.2
16AUG01ICAL-08.wiff	CAL3	375246.2	543496.9	1.00	0.690	4.92	2.500	2.490	-0.3
16AUG01ICAL-09.wiff	CAL4	1268014.8	533908.4	1.00	2.375	4.92	10.000	8.570	-14.3
16AUG01ICAL-10.wiff	CAL5	3175189.9	370747.2	1.00	8.564	4.92	30.000	30.910	3.0
16AUG01ICAL-11.wiff	CAL6	3552207.1	316332.1	1.00	11.229	4.92	40.000	40.530	1.3

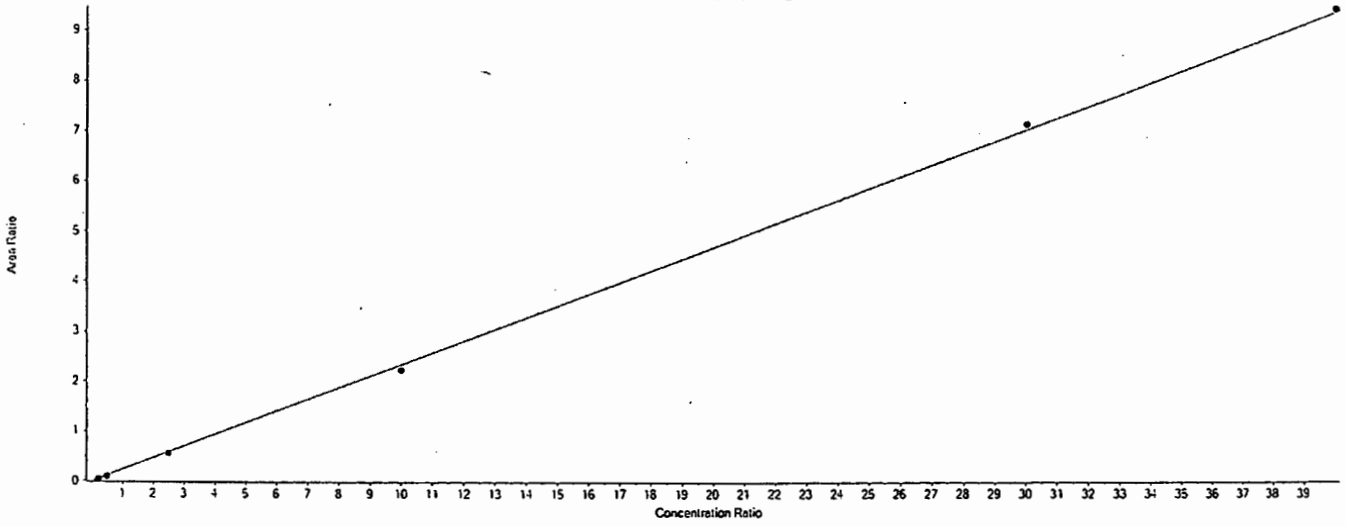
PFHxS
y = 0.23353 x (r = 0.99932) (weighting: 1 / x)



Calibration Verification

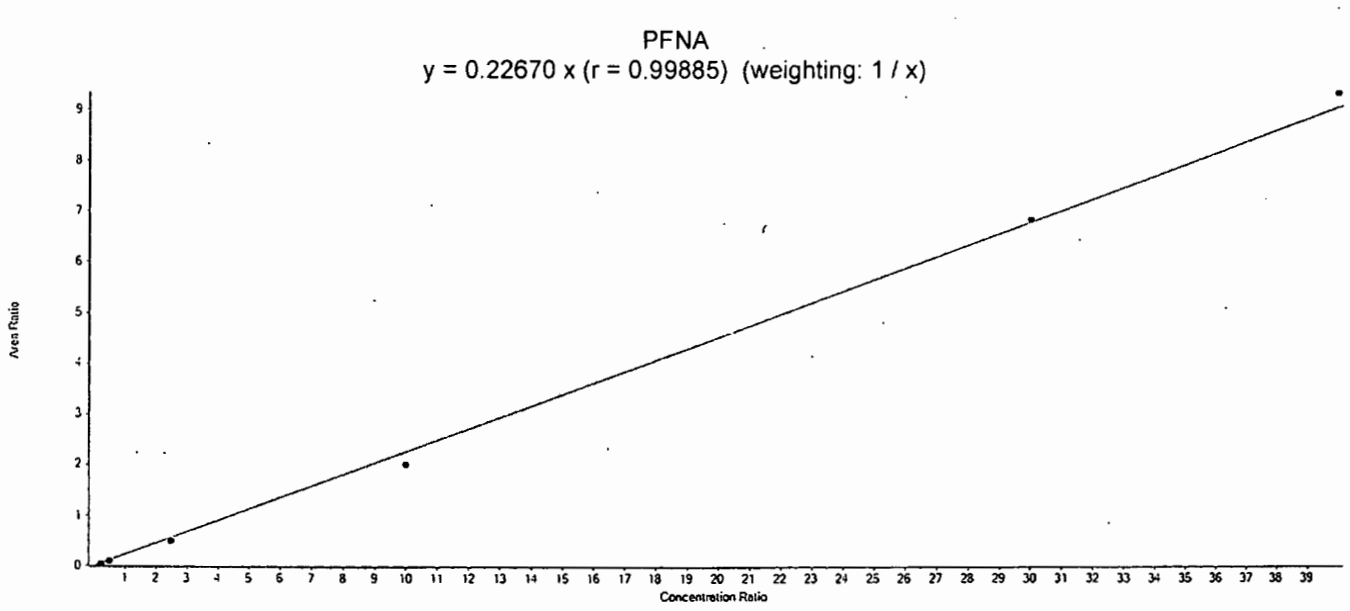
File Name	Sample Name	PFHxS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	75298.1	416170.0	1.00	0.181	4.91	0.800	0.770	-3.2
16AUG01ICAL-07.wiff	CAL2	179612.8	421583.0	1.00	0.426	4.91	2.000	1.820	-8.8
16AUG01ICAL-08.wiff	CAL3	850321.7	388867.8	1.00	2.187	4.91	10.000	9.360	-6.4
16AUG01ICAL-09.wiff	CAL4	2938964.4	343558.5	1.00	8.554	4.91	40.000	36.630	-8.4
16AUG01ICAL-10.wiff	CAL5	7739234.2	267890.9	1.00	28.890	4.91	120.000	123.710	3.1
16AUG01ICAL-11.wiff	CAL6	8516838.7	227239.8	1.00	37.480	4.90	160.000	160.490	0.3

PFOA
y = 0.23474 x (r = 0.99972) (weighting: 1 / x)



Calibration Verification

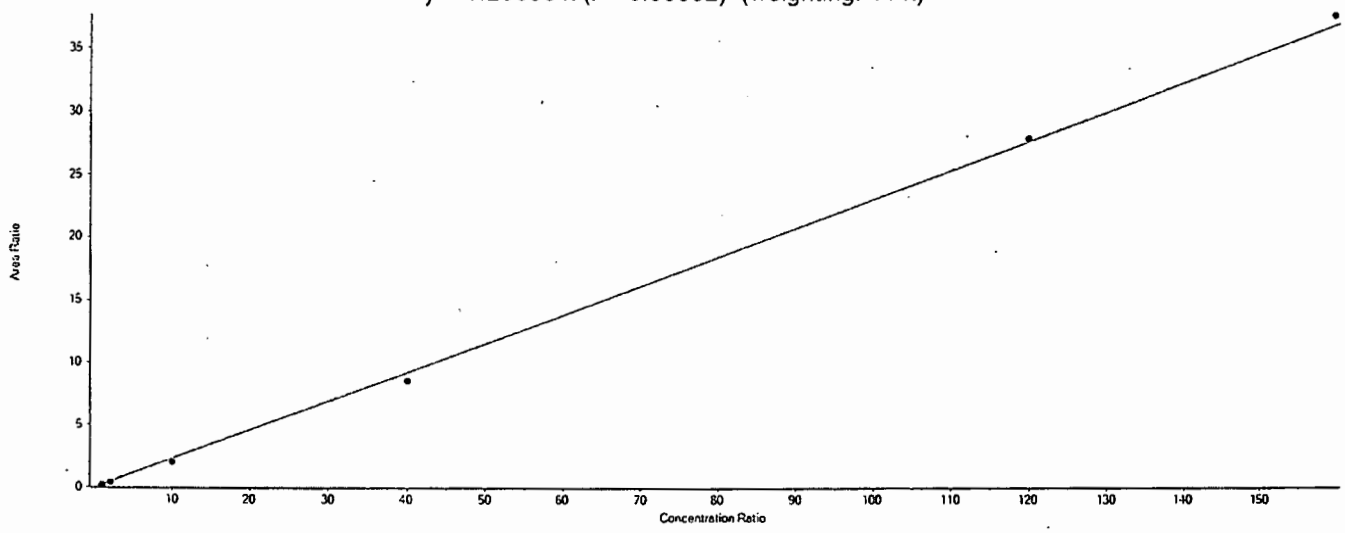
File Name	Sample Name	PFOA Area	13C4-PFOA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	48058.2	1113209.0	1.00	0.043	5.38	0.200	0.180	-8.0
16AUG01ICAL-07.wiff	CAL2	113890.0	1095383.3	1.00	0.104	5.38	0.500	0.440	-11.4
16AUG01ICAL-08.wiff	CAL3	610407.6	1114452.7	1.00	0.548	5.38	2.500	2.330	-6.7
16AUG01ICAL-09.wiff	CAL4	2304971.0	1036158.4	1.00	2.225	5.38	10.000	9.480	-5.2
16AUG01ICAL-10.wiff	CAL5	6474062.5	905714.1	1.00	7.148	5.38	30.000	30.450	1.5
16AUG01ICAL-11.wiff	CAL6	7892955.4	834094.3	1.00	9.463	5.37	40.000	40.310	0.8



Calibration Verification

File Name	Sample Name	PFNA Area	13C5-PFNA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	59021.6	1496320.2	1.00	0.039	5.82	0.200	0.170	-13.0
16AUG01ICAL-07.wiff	CAL2	151813.9	1502833.8	1.00	0.101	5.82	0.500	0.450	-10.9
16AUG01ICAL-08.wiff	CAL3	685089.7	1389836.8	1.00	0.493	5.81	2.500	2.170	-13.0
16AUG01ICAL-09.wiff	CAL4	2735362.4	1354072.1	1.00	2.020	5.82	10.000	8.910	-10.9
16AUG01ICAL-10.wiff	CAL5	7520696.0	1095523.1	1.00	6.865	5.82	30.000	30.280	0.9
16AUG01ICAL-11.wiff	CAL6	8505562.5	910353.5	1.00	9.343	5.81	40.000	41.210	3.0

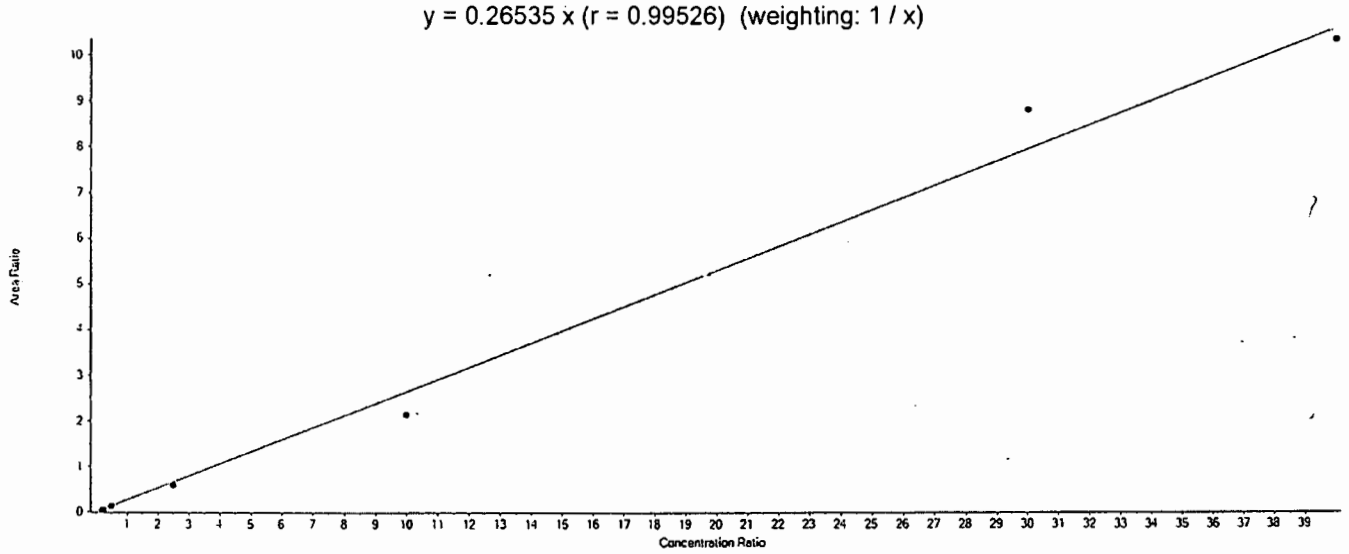
PFOS
y = 0.23098 x (r = 0.99932) (weighting: 1 / x)



Calibration Verification

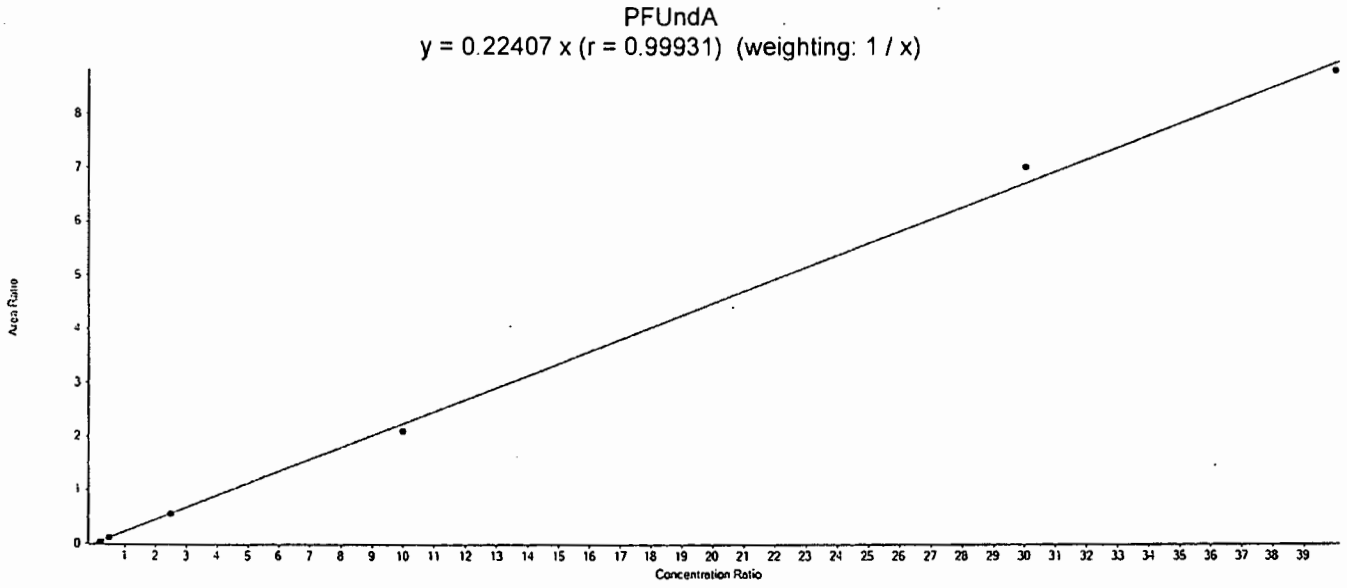
File Name	Sample Name	PFOS Area	13C4-PFOS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	63479.5	373841.0	1.00	0.170	5.79	0.800	0.740	-8.0
16AUG01ICAL-07.wiff	CAL2	162700.9	402327.7	1.00	0.404	5.79	2.000	1.750	-12.5
16AUG01ICAL-08.wiff	CAL3	765878.4	381932.3	1.00	2.005	5.78	9.990	8.680	-13.1
16AUG01ICAL-09.wiff	CAL4	2775323.9	324563.9	1.00	8.551	5.79	39.960	37.020	-7.4
16AUG01ICAL-10.wiff	CAL5	6763765.4	241866.0	1.00	27.965	5.78	119.900	121.070	1.0
16AUG01ICAL-11.wiff	CAL6	7999471.5	212228.8	1.00	37.693	5.78	159.800	163.190	2.1

PFDA
y = 0.26535 x (r = 0.99526) (weighting: 1 / x)



Calibration Verification

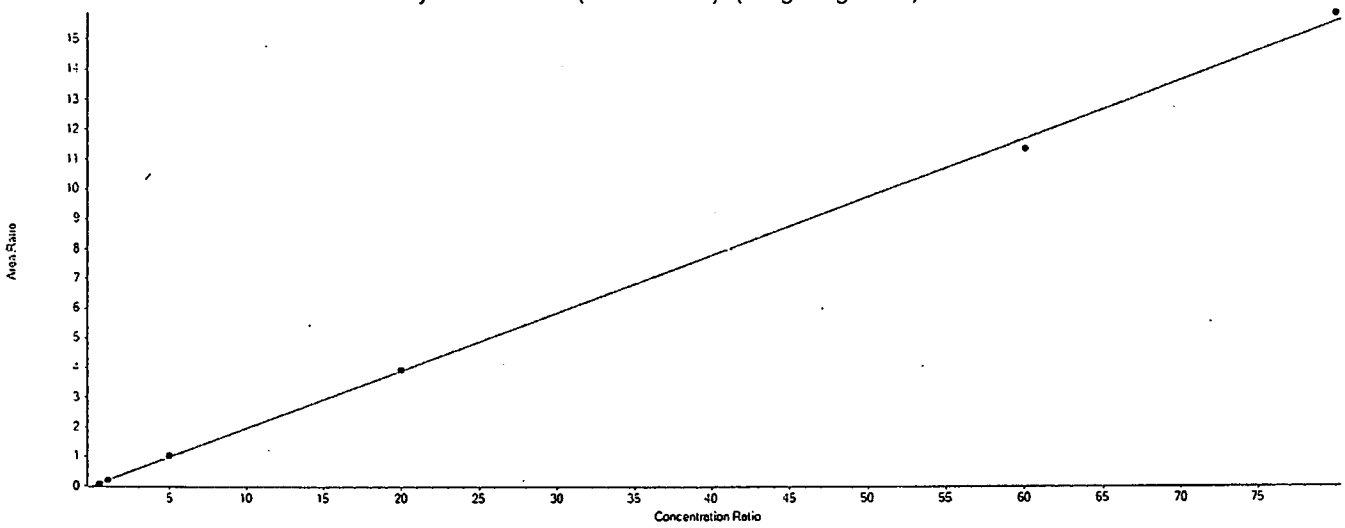
File Name	Sample Name	PFDA Area	13C2-PFDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	53470.7	1066206.6	1.00	0.050	6.21	0.200	0.190	-5.5
16AUG01ICAL-07.wiff	CAL2	131331.2	1066486.5	1.00	0.123	6.21	0.500	0.460	-7.2
16AUG01ICAL-08.wiff	CAL3	662801.3	1135479.5	1.00	0.584	6.21	2.500	2.200	-12.0
16AUG01ICAL-09.wiff	CAL4	2366300.8	1102772.1	1.00	2.146	6.21	10.000	8.090	-19.1
16AUG01ICAL-10.wiff	CAL5	7405465.9	840321.0	1.00	8.813	6.20	30.000	33.210	10.7
16AUG01ICAL-11.wiff	CAL6	7909882.0	763405.5	1.00	10.361	6.20	40.000	39.050	-2.4



Calibration Verification

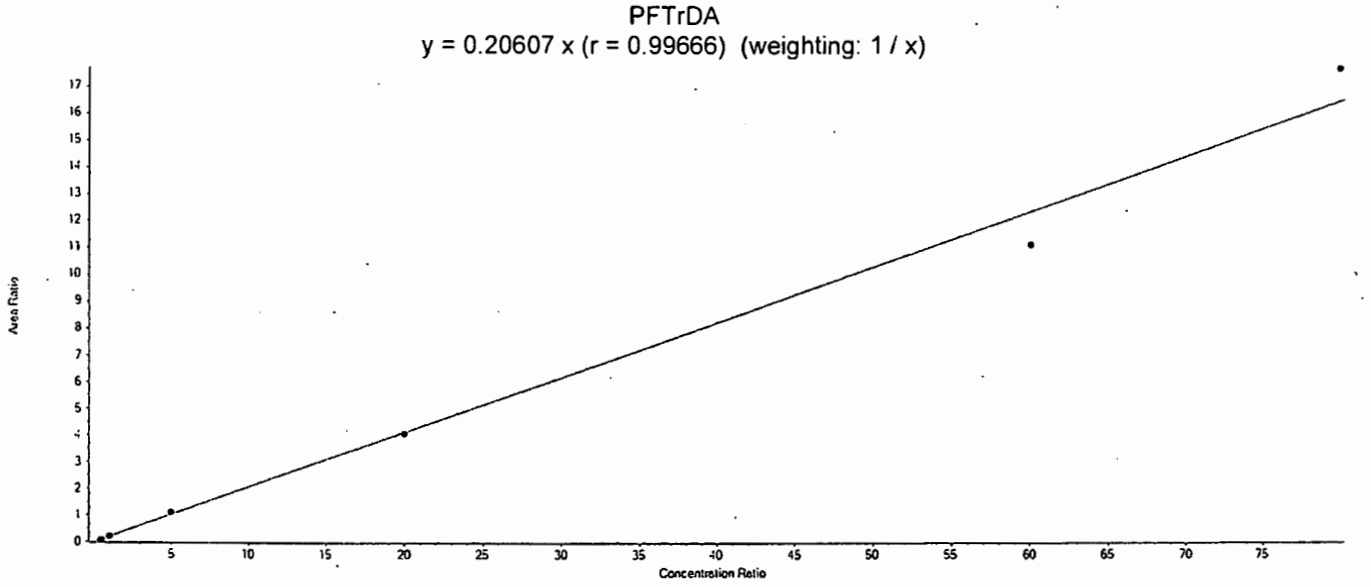
File Name	Sample Name	PFUndA Area	13C2-PFUnDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	47592.8	1186521.8	1.00	0.040	6.57	0.200	0.180	-10.5
16AUG01ICAL-07.wiff	CAL2	123924.4	1197756.6	1.00	0.103	6.57	0.500	0.460	-7.7
16AUG01ICAL-08.wiff	CAL3	638499.0	1162027.2	1.00	0.549	6.57	2.500	2.450	-1.9
16AUG01ICAL-09.wiff	CAL4	2344942.7	1116177.2	1.00	2.101	6.57	10.000	9.380	-6.2
16AUG01ICAL-10.wiff	CAL5	7286662.2	1037050.4	1.00	7.026	6.56	30.000	31.360	4.5
16AUG01ICAL-11.wiff	CAL6	8163402.9	925263.7	1.00	8.823	6.56	40.000	39.370	-1.6

PFDoDA
y = 0.19498 x (r = 0.99967) (weighting: 1 / x)



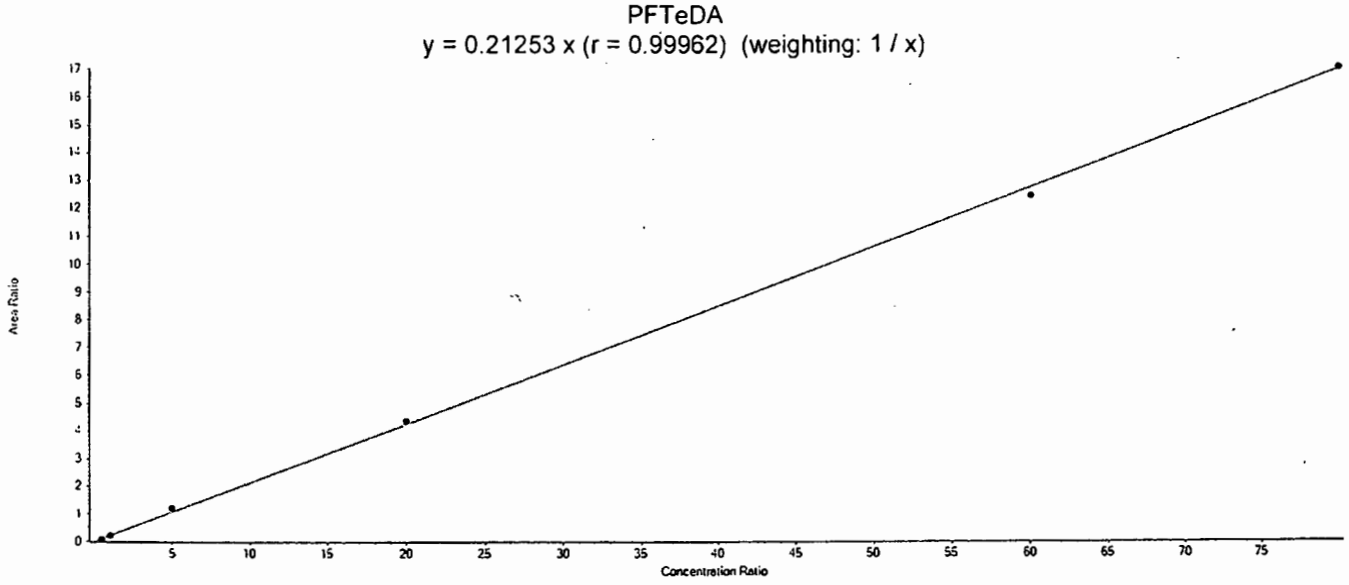
Calibration Verification

File Name	Sample Name	PFDoDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	108699.0	1788532.7	1.00	0.061	6.90	0.400	0.310	-22.1
16AUG01ICAL-07.wiff	CAL2	331192.3	1619193.0	1.00	0.205	6.90	1.000	1.050	4.9
16AUG01ICAL-08.wiff	CAL3	1556526.7	1542432.2	1.00	1.009	6.90	5.000	5.180	3.5
16AUG01ICAL-09.wiff	CAL4	5979579.3	1518519.5	1.00	3.938	6.90	20.000	20.200	1.0
16AUG01ICAL-10.wiff	CAL5	16586454.7	1460827.7	1.00	11.354	6.89	60.000	58.230	-2.9
16AUG01ICAL-11.wiff	CAL6	18365116.1	1156653.7	1.00	15.878	6.88	80.000	81.430	1.8



Calibration Verification

File Name	Sample Name	PFTrDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	151665.0	1788532.7	1.00	0.085	7.21	0.400	0.410	2.9
16AUG01ICAL-07.wiff	CAL2	341687.3	1619193.0	1.00	0.211	7.21	1.000	1.020	2.4
16AUG01ICAL-08.wiff	CAL3	1685615.8	1542432.2	1.00	1.093	7.20	5.000	5.300	6.1
16AUG01ICAL-09.wiff	CAL4	6165333.7	1518519.5	1.00	4.060	7.20	20.000	19.700	-1.5
16AUG01ICAL-10.wiff	CAL5	16268675.1	1460827.7	1.00	11.137	7.20	60.000	54.040	-9.9
16AUG01ICAL-11.wiff	CAL6	20477399.2	1156653.7	1.00	17.704	7.19	80.000	85.910	7.4



Calibration Verification

File Name	Sample Name	PFTeDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	147668.4	1788532.7	1.00	0.083	7.51	0.400	0.390	-2.9
16AUG01ICAL-07.wiff	CAL2	352274.2	1619193.0	1.00	0.218	7.50	1.000	1.020	2.4
16AUG01ICAL-08.wiff	CAL3	1834538.7	1542432.2	1.00	1.189	7.49	5.000	5.600	11.9
16AUG01ICAL-09.wiff	CAL4	6647710.4	1518519.5	1.00	4.378	7.50	20.000	20.600	3.0
16AUG01ICAL-10.wiff	CAL5	18187337.8	1460827.7	1.00	12.450	7.49	60.000	58.580	-2.4
16AUG01ICAL-11.wiff	CAL6	19718792.3	1156653.7	1.00	17.048	7.48	80.000	80.210	0.3

Initial Calibration Verification

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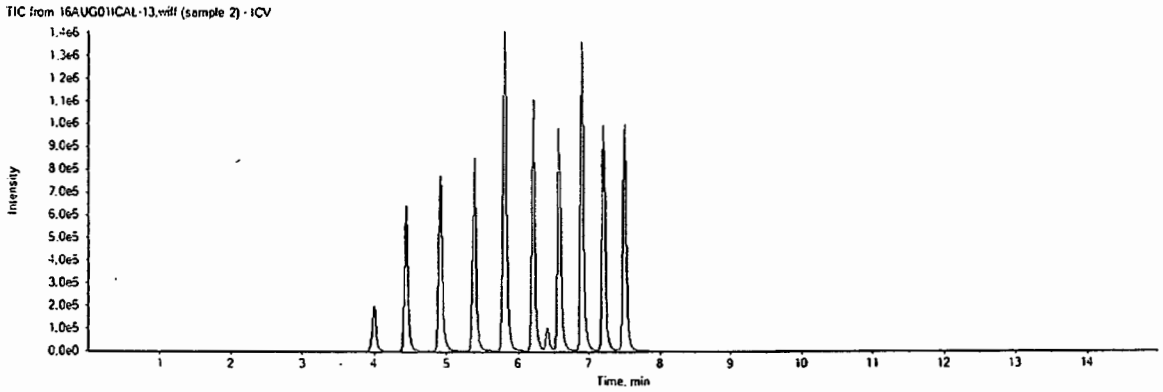
Sample File: 16AUG01ICAL-13.wiff
Acquisition Date: 8/2/2016 2:51:47 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	751802.7	18O2-PFHxS	360269.9	1.00	2.087	4.00	8.85	7.590	-14.2	
PFHxA	1108139.2	13C2-PFHxA	1029829.8	1.00	1.076	4.44	10.00	9.950	-0.5	
PFHpA	1280866.6	13C4-PFHpA	506482.7	1.00	2.529	4.92	10.00	9.130	-8.7	
PFHxS	724651.2	18O2-PFHxS	360269.9	1.00	2.011	4.91	9.45	8.610	-8.9	
PFOA	1822185.1	13C4-PFOA	945008.3	1.00	1.928	5.39	10.00	8.210	-17.9	
PFNA	2654044.6	13C5-PFNA	1322595.3	1.00	2.007	5.81	10.00	8.850	-11.5	
PFOS	681318.9	13C4-PFOS	355107.3	1.00	1.919	5.79	9.55	8.310	-13.0	
PFDA	2288833.9	13C2-PFDA	996598.6	1.00	2.297	6.21	10.00	8.660	-13.4	
PFUndA	2014702.7	13C2-PFUnDA	1035838.0	1.00	1.945	6.57	10.00	8.680	-13.2	
PFDoDA	2885434.8	13C2-PFDoDA	1469252.7	1.00	1.964	6.89	10.00	10.070	0.7	
PFTrDA	3281203.5	13C2-PFDoDA	1469252.7	1.00	2.233	7.20	10.00	10.840	8.4	
PFTeDA	3395689.7	13C2-PFDoDA	1469252.7	1.00	2.311	7.49	10.00	10.870	8.7	

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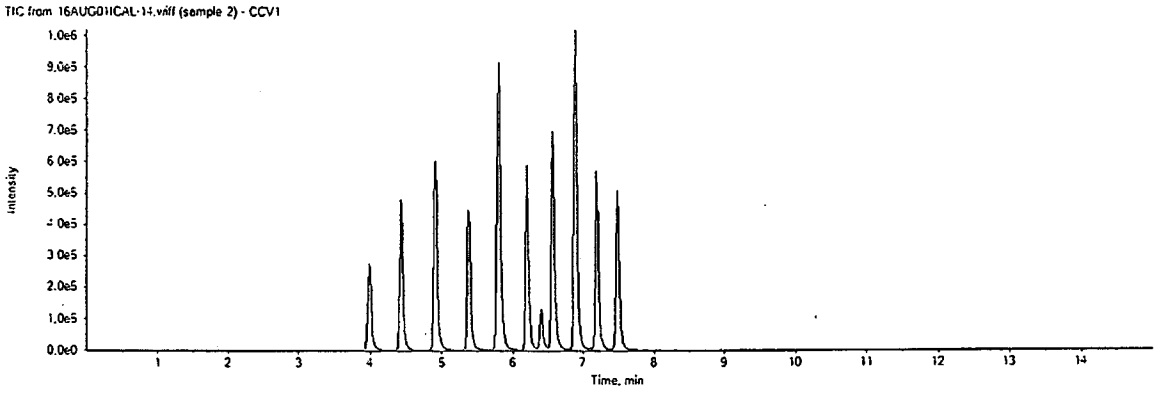
LC-MS/MS Analysis Report

Printed: 8/5/2016 10:04:00 AM

Continuing Calibration Verification

16215005

Sample ID: CAL3
Sample Name: CCV1
Sample File: 16AUG01ICAL-14.wiff
Acquisition Date: 8/2/2016 3:09:11 PM

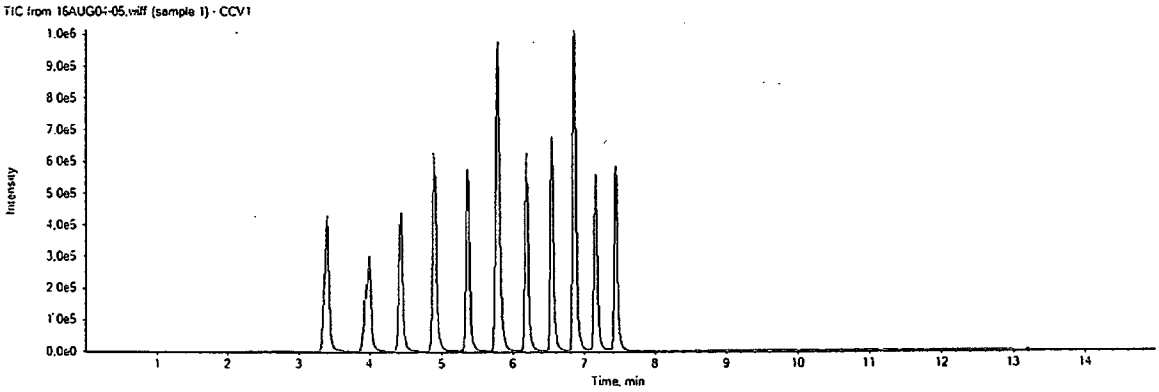


Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	981452.4	18O2-PFHxS	392121.3	1.00	2.503	3.99	9.99	9.110	-8.8	
PFHxA	287510.3	13C2-PFHxA	1239452.8	1.00	0.232	4.43	2.50	2.150	-14.2	
PFHpA	382532.4	13C4-PFHpA	570485.7	1.00	0.671	4.91	2.50	2.420	-3.2	
PFHxS	827050.7	18O2-PFHxS	392121.3	1.00	2.109	4.91	10.00	9.030	-9.7	
PFOA	569158.3	13C4-PFOA	1029164.8	1.00	0.553	5.38	2.50	2.360	-5.8	
PFNA	765242.8	13C5-PFNA	1476444.4	1.00	0.518	5.81	2.50	2.290	-8.5	
PFOS	768170.7	13C4-PFOS	354571.3	1.00	2.166	5.78	9.99	9.380	-6.1	
PFDA	646726.4	13C2-PFDA	1041754.2	1.00	0.621	6.20	2.50	2.340	-6.4	
PFUndA	616659.7	13C2-PFUnDA	1244380.8	1.00	0.496	6.56	2.50	2.210	-11.5	
PFDoDA	1547112.9	13C2-PFDoDA	1707433.5	1.00	0.906	6.89	5.00	4.650	-7.1	
PFTrDA	1775190.4	13C2-PFDoDA	1707433.5	1.00	1.040	7.19	5.00	5.050	0.9	
PFTeDA	1746304.2	13C2-PFDoDA	1707433.5	1.00	1.023	7.48	5.00	4.810	-3.8	

Christine Ratcliff
Manager

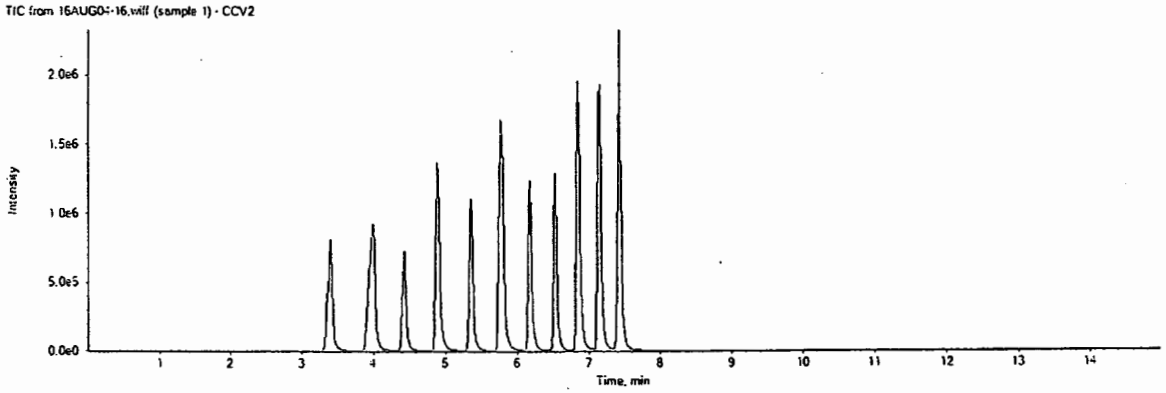
AUG 05 2016

Sample ID: CAL3
Sample Name: CCV1
Sample File: 16AUG04-05.wiff
Acquisition Date: 8/4/2016 2:42:24 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	1094721.9	18O2-PFHxS	430812.8	1.00	2.541	3.99	9.99	9.250	-7.4	
PFHxA	360752.9	13C2-PFHxA	1358056.4	1.00	0.266	4.42	2.50	2.460	-1.7	
PFHpA	400015.1	13C4-PFHpA	631881.3	1.00	0.633	4.90	2.50	2.290	-8.6	
PFHxS	920579.9	18O2-PFHxS	430812.8	1.00	2.137	4.89	10.00	9.150	-8.5	
PFOA	729601.5	13C4-PFOA	1316289.9	1.00	0.554	5.36	2.50	2.360	-5.5	
PFNA	853093.8	13C5-PFNA	1706733.6	1.00	0.500	5.79	2.50	2.200	-11.8	
PFOS	921115.9	13C4-PFOS	428564.5	1.00	2.149	5.76	9.99	9.310	-6.9	
PFDA	822619.7	13C2-PFDA	1247278.2	1.00	0.660	6.18	2.50	2.490	-0.6	
PFUndA	789060.4	13C2-PFUnDA	1442143.7	1.00	0.547	6.54	2.50	2.440	-2.3	
PFDoDA	1660760.2	13C2-PFDoDA	1917118.8	1.00	0.866	6.86	5.00	4.440	-11.1	
PFTrDA	1853673.5	13C2-PFDoDA	1917118.8	1.00	0.967	7.16	5.00	4.690	-6.2	
PFTeDA	1981112.5	13C2-PFDoDA	1917118.8	1.00	1.033	7.44	5.00	4.860	-2.8	

Sample ID: CAL4
Sample Name: CCV2
Sample File: 16AUG04-16.wiff
Acquisition Date: 8/4/2016 5:35:21 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	3861162.9	18O2-PFHxS	373247.7	1.00	10.345	3.99	39.96	37.640	-5.8	
PFHxA	1326328.7	13C2-PFHxA	1327647.3	1.00	0.999	4.43	10.00	9.240	-7.6	
PFHpA	1229640.0	13C4-PFHpA	501070.9	1.00	2.454	4.90	10.00	8.860	-11.4	
PFHxS	3317203.2	18O2-PFHxS	373247.7	1.00	8.887	4.89	40.00	38.060	-4.9	
PFOA	2735771.6	13C4-PFOA	1255194.9	1.00	2.180	5.35	10.00	9.290	-7.1	
PFNA	2891432.8	13C5-PFNA	1357937.2	1.00	2.129	5.79	10.00	9.390	-6.1	
PFOS	3200010.5	13C4-PFOS	370780.2	1.00	8.630	5.75	39.96	37.370	-6.5	
PFDA	3007236.7	13C2-PFDA	1153774.4	1.00	2.606	6.17	10.00	9.820	-1.8	
PFUndA	2885339.3	13C2-PFUnDA	1296133.6	1.00	2.226	6.52	10.00	9.930	-0.7	
PFDoDA	5558510.9	13C2-PFDoDA	1745257.1	1.00	3.185	6.85	20.00	16.330	-18.3	
PFTrDA	7114109.0	13C2-PFDoDA	1745257.1	1.00	4.076	7.14	20.00	19.780	-1.1	
PFTeDA	7152833.3	13C2-PFDoDA	1745257.1	1.00	4.098	7.42	20.00	19.280	-3.6	

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SGP94
Matrix: SOIL

16215005	13C2-PFDA	13C2-PFDODA	13C2-PFHXA	13C2-PFUNDA
	Area	Area	Area	Area
Average ICAL Response	995779	1514360	1083005	1104133
UPPER LIMIT	1493669	2271540	1624508	1656200
LOWER LIMIT	497890	757180	541503	552067
LAB SAMPLE ID				
BLK215005	1141867	1747357	1267529	1222499
LCS215005	997415	1625997	1203534	1064645
LCSDA	893763	1530182	1179272	948418
8432144RE	1418278	2104450	1356636	1631952
8432144MS	1127556	1706947	1341308	1407443
8432145RE	1345004	2086562	1391155	1616535
8432146RE	1219890	1828533	1313090	1422919
8432147RE	1146844	1744589	1220079	1269169

Not reported

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SGP94
Matrix: SOIL

16215005	13C4-PFHPA	13C4-PFOA	13C4-PFOS	13C5-PFNA
	Area	Area	Area	Area
Average ICAL Response	497650	1016502	322793	1291490
UPPER LIMIT	746475	1524753	484190	1937235
LOWER LIMIT	248825	508251	161397	645745
LAB SAMPLE ID				
BLK215005	636309	1141881	411852	1664847
LCS215005	574325	1042902	410399	1382810
LCSDA	496708	982923	395292	1386114
8432144RE	700991	1307506	477017	1969967 *
8432144MS	575037	1029808	434759	1696311
8432145RE	719903	1304620	477292	1938880 *
8432146RE	648201	1169938	410859	1743390
8432147RE	672861	1081648	410920	1688097

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SGP94
Matrix: SOIL

16215005	18O2-PFHXS
	Area
Average ICAL Response	344218
UPPER LIMIT	516327
LOWER LIMIT	172109
LAB SAMPLE ID	
BLK215005	401282
LCS215005	407963
LCSDA	392355
8432144RE	500321
8432144MS	425979
8432145RE	477868
8432146RE	421275
8432147RE	395191

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

Organic Extraction Batchlog Assigned to: 10262 Devon Whooley Reviewed by: [signature] Start Date: 07-01-16 ✓ Start time: 10:30

16182008 Tech 1: RGB / 375 Tech 2:

Dept: 37 Prep Analysis: 14090 PFC Solid Prep PFC s in Soil by LC/MS/MS

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
8432122MS	SG-32	5.33	235002-34A	0.250 ~~0.025~~	235002-35A	0.20 ~~0.040~~	1	Z	Z	170a	
8432123MSD	SG-32	5.29	↓	0.250	238002-35A	0.20 ~~0.040~~	1	Z	Z	170a	
BLANKA	BLK182008	5.00	↓	0.250	N/A	N/A	1	Z	Z		
LCSA	OPR182008	5.00	↓	0.250	238002-35A	0.20 ~~0.040~~	1	Z	Z		

Solvent Used	Lot No.
96% MeOH:H2O	159749

8432141-43 w/ batch 16200005

DW/7/12 7/21/16 8432132 -rerun w/ batch 16182008

Ⓢ DW 10262 7/7/16 Ⓢ DW 10262 7/7/16

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1 8432118	SG-51	5.18	235002-34A	0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
2 8432119	SG-52	5.16	↓	0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
3 8432120	SG-31	5.41		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
4 8432121BKG	SG-32	5.39		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
5 8432124	SG-33	5.28		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
6 8432125	SG-FD	5.32		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
7 8432126	SG-34	5.14		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
8 8432129	SG-35	5.19		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
9 8432131	SG-36	5.41		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
10 8432132	SG-37	5.18		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
11 8432133	SG-41	5.02		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
12 8432134	SG-42	5.13		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
13 8432135	SG-38	5.39		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
14 8432136	SG-43	5.45		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
15 8432137	SG-44	5.30		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
16 8432138	SG-39	5.49		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
17 8432139	SG-45	5.20		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
18 8432141	SG-21	5.21		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
19 8432142	SG-22	5.27		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
20 8432143	SG-23	5.38	↓	0.25	1	Z	Z	170a		14027	18151	06/29/2016	N

SGP94 Page 824 of 875

5 ± 0.5 ✓

Rack ID:		Work Station		Micro Temp 100?	
Internal Standard		Balance #	1121112112		

S-bath ID	C	S-bath ID	C	N-Evap	C	M-vap	C	16182008

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

Organic Extraction Batchlog Assigned to: 10262 Devon Whooley Reviewed by: dd 1415 Start Date: 7/11/16 Start time: 10:10

16190006 Tech 1: JWK9524 Tech 2: DW 162602

Dept: 37	Prep Analysis: 14090. PFC Solid Prep								PFC s in Soil by LC/MS/MS			
QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
8432144MS	SG-24MS	5.06	235002-444A	0.25	235062-35A	0.20	1	Z	Z	170a	
BLANKA	BLK190006	5.00	JWK9524 7/11/16	0.25	N/A	N/A	1	Z	Z		
LCSA	OPR190006	5.00		0.25	235062-35A	0.20	1	Z	Z		
LCSDA		5.00		0.25	235062-35A	0.20	1	Z	Z		

Solvent Used	Lot No.
80% ACN:H2O	
96% MeOH:H2O	
Sand	

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1 8432144	SG-24	5.01	235002-444A	0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
2 8432145	SG-46	5.18	JWK9524 7/11/16	0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
3 8432146	SG-47	5.30		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
4 8432147	SG-48	5.21		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
5 8438959	SG311	5.00		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
6 8438960	SG312	5.19		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
7 8438961	SG313	5.27		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
8 8438962	SG314	5.17		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
9 8438965	SG315	5.10		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
10 8438967	SG316	5.03		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
11 8438968	SG317	5.06		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
12 8438970	61SG3	5.05		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
13 8438971	62SG3	5.17		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
14 8438972	63SG3	5.06		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
15 8441140	BENGT	5.14		0.25	1	Z	Z	170a		14027	18151	07/06/2016	N
16 8441141	BENCH	5.30		0.25	1	Z	Z	170a		14027	18151	07/06/2016	N
17 8441142	CEMGT	5.09		0.25	1	Z	Z	170a		14027	18151	07/06/2016	N

SG94 Page 825 of 875

5 ± 0.5

Rack ID:		Work Station		Micro Temp 100?
Internal Standard		Balance #	1/2111/2/2	

S-bath ID	C	S-bath ID	C	N-Evap	C	M-vap	C	16190006

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

Organic Extraction Batchlog

16203007

Assigned to: 375 Robert Brown

Tech 1: JWK9524

Reviewed by: JDL 7/15

Tech 2: AW 102662

Start Date: 7/22/16

Start time: 09:00

> 28 days not reported

Analyses on Batch: PFC s in Soil by LC/MS/MS

Dept: 37 Prep Analysis: 14090 PFC Solid Prep

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	S Amt (uL)	BC	Comments
BLANKA	BLK203007	5.00	LCSPFC x16037g	0.250	N/A	N/A				
LCSA	OPR203007	5.00	↓	0.250		0.20				
LCSDA		5.00	↓	0.250		0.26				

Reagent	Lot No.
80% ACN:H2O	
96% MeOH:H2O	159749
Sand	

(160UL28ICAL-05→14)

Spike Solutions: Witness: JWK9524

Instrument: ABSciex LM24743

Sequence: 160UL28PFC\160UL28ICAL (files 160UL28-01 → 07)

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
18432141 R	SG-21	5.16	LCSPFC x16037A	0.250			170A		14027	06/29/2016	N
218432142 R	SG-22	5.36	↓	0.250			170A		14027	06/29/2016	N
318432143 R	SG-23	5.12	↓	0.250			170A		14027	06/29/2016	N

1mL

Balance #		Sonic Bath ID		N-evap	C	16203007

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Organic Extraction Batchlog Assigned to: 375 Robert Brown Reviewed by: jdl 4/15 Start Date: 1/22/16 Start time: 09:00

16203007 Tech 1: JWK9524 Tech 2: AW 102663

Analyses on Batch: PFC s in Soil by LC/MS/MS

Dept: 37 Prep Analysis: 14090 PFC Solid Prep

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV ~~(uL)~~	S Amt (uL)	BC	Comments
BLANKA	BLK203007	5.00	LCSPFC x160379	0.250	N/A	N/A	1ml	⑧		
LCSA	OPR203007	5.00	↓	0.250		0.20	1ml	⑤		
LCSDA		5.00	↓	0.250		0.25	1ml	⑧		

Reagent	Lot No.
80% ACN:H2O	
96% MeOH:H2O	159749
Sand	

(160UL28ICAL-05→14)

Spike Solutions: Witness: JWK9524 Instrument: ABSciex LM24743

Sequence: 160UL28PFC\160UL28ICAL (fics 160UL28-01→07)

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
1 8432141 R	SG-21	5.16	LCSPFC x160379A	0.250	1ml	⑧	170A		14027	06/29/2016	N
2 8432142 R	SG-22	5.36	↓	0.250	1ml	⑧	170A		14027	06/29/2016	N
3 8432143 R	SG-23	5.12	↓	0.250	1ml	⑧	170A		14027	06/29/2016	N

⑧ THE FINAL VOLUMES WERE POST DOCUMENTED. THIS IS AN EXACT FINAL VOLUME AND DOES NOT VARY. JWK9524 5/24/17

Revised

Balance #		Sonic Bath ID		N-evap	C	16203007

DF = Dilution Factor FV = Final Volume Page 1 of 1 Documented temps are NIST corrected.

Organic Extraction Batchlog Assigned to: 375 Robert Brown Reviewed by: Cmoy 7/12 Start Date: 08-02-16 Start time: 13:30

16215005 Tech 1: RCB/375 Tech 2: _____

> 28 days not reported

Analyses on Batch: PFC s in Soil by LC/MS/MS

Dept: 37 Prep Analysis: 14090 PFC Solid Prep

QC	Sample Code	Amt (g)	③ SS/IS Sol. (RCB 8-2-16)	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
8432144MS	SG-24MS	5.16	~~SS16216~~ SS16 21537A	.25	R35002-83	0.20	1		170A	
BLANKA	BLK215005	5.00	SS1621537A	.25	~~2350~~ ③ RCB 8-2-16/375	N/A	1			
LCSA	OPR215005	5.00	↓	.25	235002-83	.20	1			
LCSDA		5.00	↓	.25	235002-83	.20	1			

Reagent	Lot No.
80% ACN:H2O	375080216 37A
96% MeOH:H2O	159749
Sand	MKBV8012V

16AUG01ICAL

Spike Solutions: Witness: _____ Instrument: ABSciex LM24743

1 mL Sequence: 16AUG01ICAL - 16AUG01

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
1 8432144 R	SG-24	5.35	SS1621537A	.25	1		170a		14027	06/29/2016	N
2 8432145 R	SG-46	5.19	↓	.25	1		170a		14027	06/29/2016	N
3 8432146 R	SG-47	5.02		.25	1		170a		14027	06/29/2016	N
4 8432147 R	SG-48	5.46		.25	1		170a		14027	06/29/2016	N
5 8438959 R	SG311	5.17		.25	1		170a		14027	07/05/2016	N
6 8438960 R	SG312	5.14		.25	1		170a		14027	07/05/2016	N
7 8438961 R	SG313	5.45		.25	1		170a		14027	07/05/2016	N
8 8438962 R	SG314	5.17		.25	1		170a		14027	07/05/2016	N
9 8438965 R	SG315	5.09		.25	1		170a		14027	07/05/2016	N
10 8438967 R	SG316	5.15		.25	1		170a		14027	07/05/2016	N
11 8438968 R	SG317	5.21		.25	1		170a		14027	07/05/2016	N
12 8438970 R	61SG3	5.15		.25	1		170a		14027	07/05/2016	N
13 8438971 R	62SG3	5.13		.25	1		170a		14027	07/05/2016	N
14 8438972 R	63SG3	5.32		.25	1		170a		14027	07/05/2016	N
15 8441140 R	BENGT	5.04		.25	1		170a		14027	07/06/2016	N
16 8441141 R	BENCH	5.42	↓	.25	1		170a		14027	07/06/2016	N

Balance #	B629764122	Sonic Bath ID	5800	N-evap	C	16215005

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
17	8441142 R	CEMGT	5.10	SS1621537A	.25			170a		14027	07/06/2016	N

Balance #	B629764122	Sonic Bath ID	5800	N-evap	C	16215005

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Organic Extraction Batchlog Assigned to: 375 Robert Brown Reviewed by: [illegible] Start Date: 08-02-16 Start time: 13:30

16215005 Tech 1: RCG/375 Tech 2: _____

Revised

Analyses on Batch: PFC s in Soil by LC/MS/MS

Dept: 37 Prep Analysis: 14090 PFC Solid Prep ③ JWK9524 5/24/17

QC	Sample Code	Amt (g)	⑤ SS/IS Sol. (RCG/375 8-2-16)	Amt (mL)	MS Sol.	Amt (mL)	FV mL (uL)	IS Amt (uL)	BC	Comments
8432144MS	SG-24MS	5.16	~~551621~~ 5516 215 37A	.25	235002-83	0.20	1		170A	
BLANKA	BLK215005	5.00	SS1621537A	.25	~~2350~~ ③ RCG/375 8-2-16	N/A	1			
LCSA	OPR215005	5.00	↓	.25	235002-83	.20	1			
LCSDA		5.00	↓	.25	235002-83	.20	1			

Reagent	Lot No.
80% ACN:H2O	375080216378
96% MeOH:H2O	159749
Sand	MKBV8012V

Spike Solutions: Witness:_____ Instrument: ABSciex LM24743

Sequence: 16AUG01ICAL - 16AUG04 ③ JWK9524 5/24/17

16AUG01ICAL

	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV ③ (uL) mL	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
1	8432144 R	SG-24	5.35	SS1621537A	.25	1		170a		14027	06/29/2016	N
2	8432145 R	SG-46	5.19	↓	.25	1		170a		14027	06/29/2016	N
3	8432146 R	SG-47	5.02		.25	1		170a		14027	06/29/2016	N
4	8432147 R	SG-48	5.46		.25	1		170a		14027	06/29/2016	N
5	8438959 R	SG311	5.17		.25	1		170a		14027	07/05/2016	N
6	8438960 R	SG312	5.14		.25	1		170a		14027	07/05/2016	N
7	8438961 R	SG313	5.45		.25	1		170a		14027	07/05/2016	N
8	8438962 R	SG314	5.17		.25	1		170a		14027	07/05/2016	N
9	8438965 R	SG315	5.09		.25	1		170a		14027	07/05/2016	N
10	8438967 R	SG316	5.15		.25	1		170a		14027	07/05/2016	N
11	8438968 R	SG317	5.21		.25	1		170a		14027	07/05/2016	N
12	8438970 R	61SG3	5.15		.25	1		170a		14027	07/05/2016	N
13	8438971 R	62SG3	5.13		.25	1		170a		14027	07/05/2016	N
14	8438972 R	63SG3	5.32		.25	1		170a		14027	07/05/2016	N
15	8441140 R	BENGT	5.04		.25	1		170a		14027	07/06/2016	N
16	8441141 R	BENCH	5.42	↓	.25	1		170a		14027	07/06/2016	N

Balance #	B629764122	Sonic Bath ID	5800	N-evap	C	16215005

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV ③ ~~(uL)~~ mL	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
17	8441142 R	CEMGT	5.10	SS1621537A	.25	1.0		170a		14027	07/06/2016	N

③ THE FINAL VOLUME WAS POST DOCUMENTED. THIS IS AN EXACT FINAL VOLUME.
JWK 1524 5/24/17

Balance #	B629764122	Sonic Bath ID	5800	N-evap	C	16215005

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Sequence Table

File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16Jun28-30	MDL	N/A	N/A	c:2	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_17.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-31	CAL1	N/A	1	c:3	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_17.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-32	CAL2	N/A	2	c:4	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_17.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-33	CAL3	N/A	3	c:5	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-34	CAL4	N/A	4	c:6	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-35	CAL5	N/A	5	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-36	CAL6	N/A	6	c:8	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-37	recon	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-39	ICV1	N/A	ICV1	c:9	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-57	CCV1	N/A	1	c:5	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-61	LCS 16172001	N/A	N/A	a:2	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-62	LCSD 16172001	N/A	N/A	a:3	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-64	8427013	N/A	N/A	A:4	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-65	8427027	N/A	N/A	A:5	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-66	8427028	N/A	N/A	A:6	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-67	8427033	N/A	N/A	A:7	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-68	8432116	N/A	N/A	A:8	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-69	CCV2	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-71	8432117	N/A	N/A	A:9	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-72	8432127	N/A	N/A	A:10	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-73	8432128	N/A	N/A	A:11	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-74	8432130	N/A	N/A	A:12	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale

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File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16Jun28-75	8432140	N/A	N/A	A:13	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-76	8433348	N/A	N/A	A:14	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-77	8433349	N/A	N/A	A:15	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-78	8433350	N/A	N/A	A:16	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-79	8433351	N/A	N/A	A:17	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-80	CCV3	N/A	3	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-82	8433352	N/A	N/A	A:18	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-83	8427012 MS	N/A	N/A	A:19	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-84	8427012 BKG	N/A	N/A	A:20	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-86	MB 16172001	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-87	CCV1	N/A	1	c:5	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale

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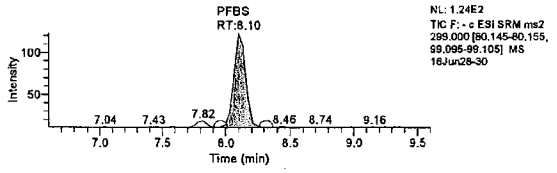
LCMSMS ANALYSIS REPORT

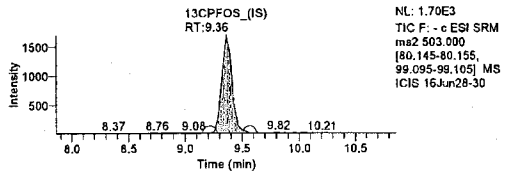
Sample Name:	MDL	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	MDL	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_17.5minutes
Data File:	16Jun28-30		
Acquisition Date:	06/28/16 03:46:56 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:2	Instrument Software Version:	2.5.0.1311
Run Time(min):	17.50	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

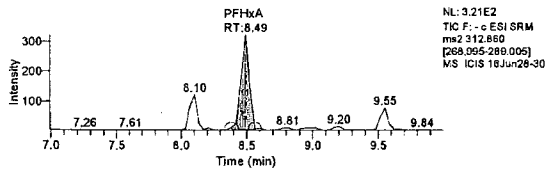
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.39	209018.93	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.07	149262.03	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.89	162578.76	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.49	130845.40	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.78	139261.07	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.49	89825.18	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.78	24105.45	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.36	10735.64	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.67	143805.94	N/A	N/A	N/A
PFBS	6.184	8.10	720.97	10735.64	0.067	ng/L
PFDA	0.730	9.89	2402.31	162578.76	0.015	ng/L
PFDoA	2.449	11.49	3962.57	130845.40	0.030	ng/L
PFHxA	1.449	8.49	1367.97	89825.18	0.015	ng/L
PFHxS	6.852	8.74	137.26	24105.45	0.006	ng/L
PFNA	1.561	9.43	3784.86	209018.93	0.018	ng/L
PFOA	2.116	9.07	3803.11	149262.03	0.025	ng/L
PFOS	5.274	9.39	120.86	10735.64	0.011	ng/L
PFTeDA	3.194	14.39	2981.74	143805.94	0.021	ng/L
PFTrDA	2.492	12.66	2061.86	143805.94	0.014	ng/L
PFUdA	1.327	10.67	1516.18	143805.94	0.011	ng/L
PFhpA	1.623	8.78	2675.43	139261.07	0.019	ng/L

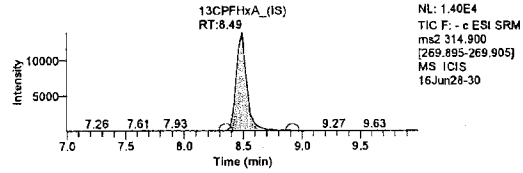
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHxS

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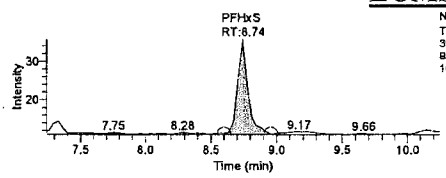

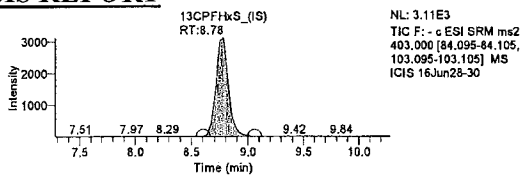

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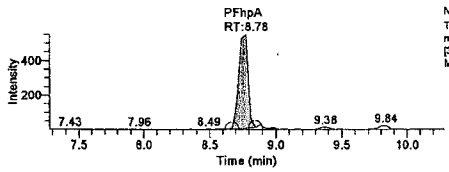

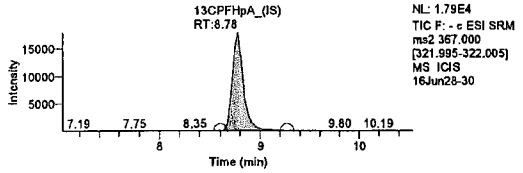

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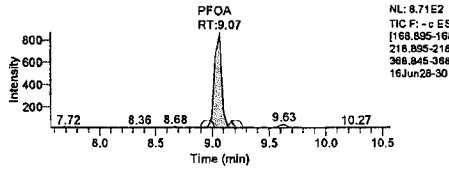
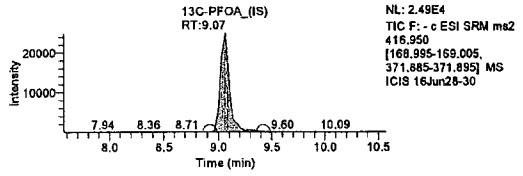
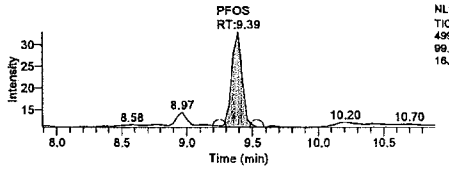
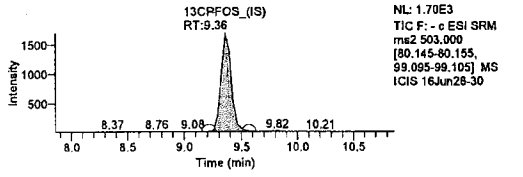


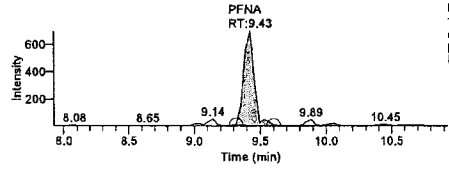


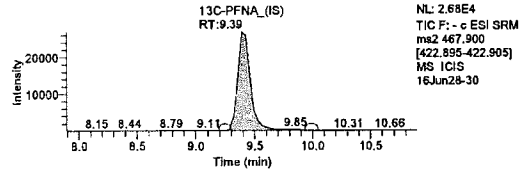
Component Name: PFOS



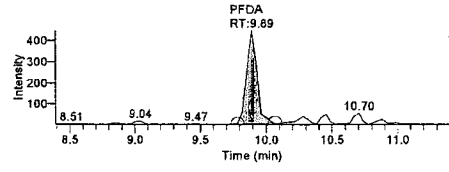


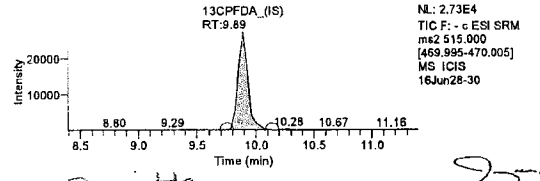
Component Name: PFNA





Component Name: PFDA





Component Name: PFUdA

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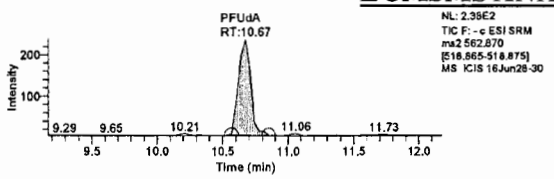
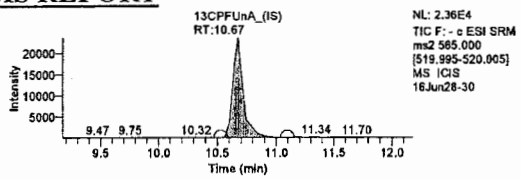
LCMSMS ANALYSIS REPORT





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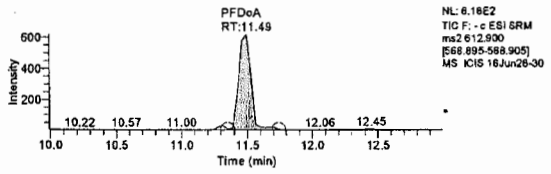

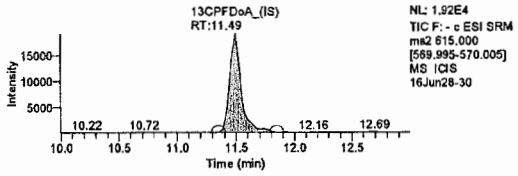

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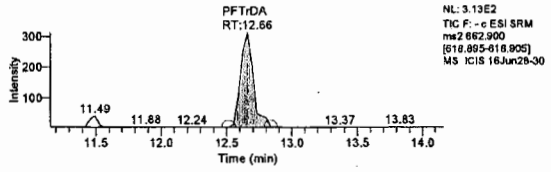

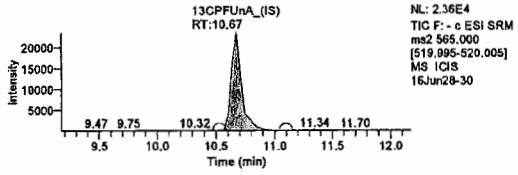

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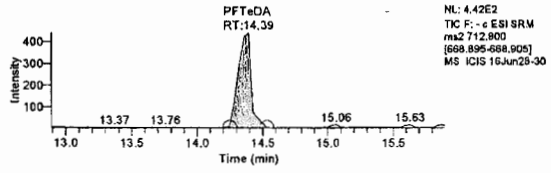

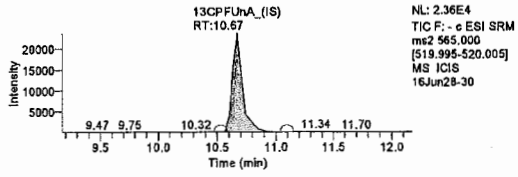

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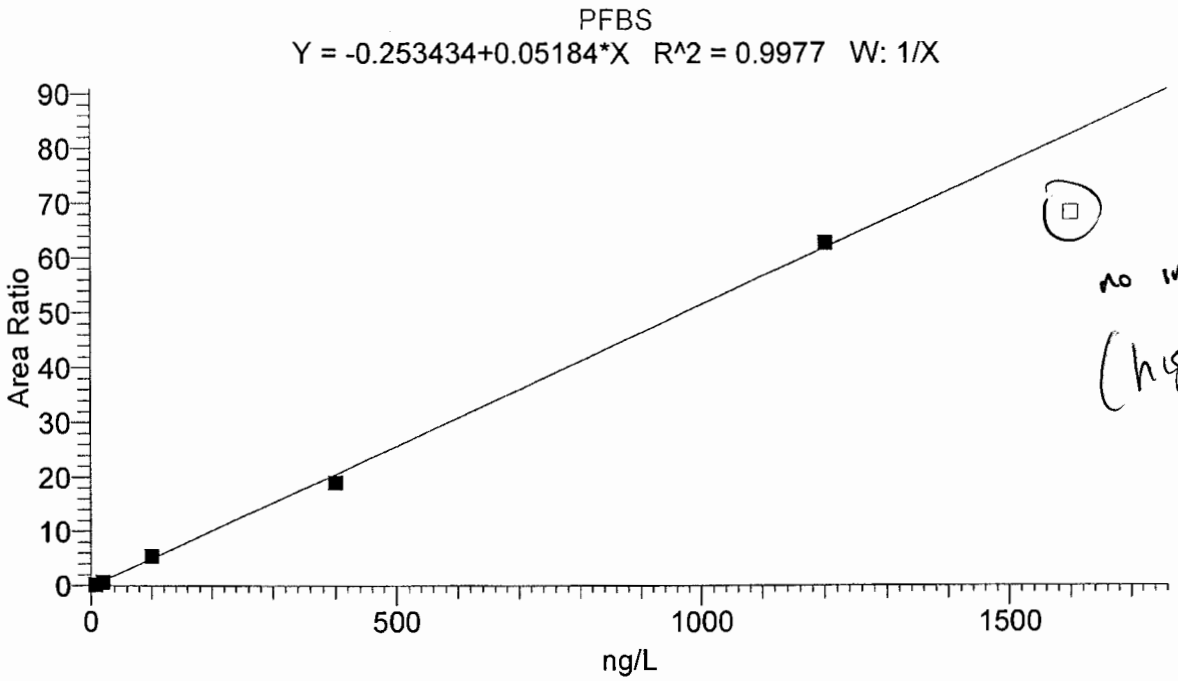
LCMSMS ANALYSIS REPORT

Component Name: **PFBS**



no impact
(highest std)

Identification		Component Name:	PFBS
Filter:	- c ESI SRM ms2 299.00 [80.14-80.16, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.25000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	100.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFOS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	8.000
2	20.000
3	100.000
4	400.000
5	1200.000
6	1600.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	100.000
2	400.000
3	1200.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	8.582	2388.65	12475.93	0.191	7.28
CAL2	16Jun28-32	17.491	9308.33	14247.69	0.653	-12.54
CAL3	16Jun28-33	110.544	81025.90	14793.39	5.477	10.54
CAL4	16Jun28-34	372.646	304031.77	15947.51	19.065	-6.84
CAL5	16Jun28-35	1218.737	787373.41	12512.72	62.926	1.56
(8) CAL6	16Jun28-36	1323.840	831925.07	12167.20	68.374	-17.26
ICV1	16Jun28-39	88.712	64409.56	14822.48	4.345	-11.29
CCV1	16Jun28-57	119.640	72670.54	12216.20	5.949	19.64
CCV2	16Jun28-69	385.867	311655.00	15780.08	19.750	-3.53
CCV3	16Jun28-80	1122.569	744050.42	12841.62	57.941	-6.45
CCV1	16Jun28-87	141.650	84210.29	11877.82	7.090	41.65

(8) Removed from calibration
MJP 1758 6/29/16

no impact
no (P).

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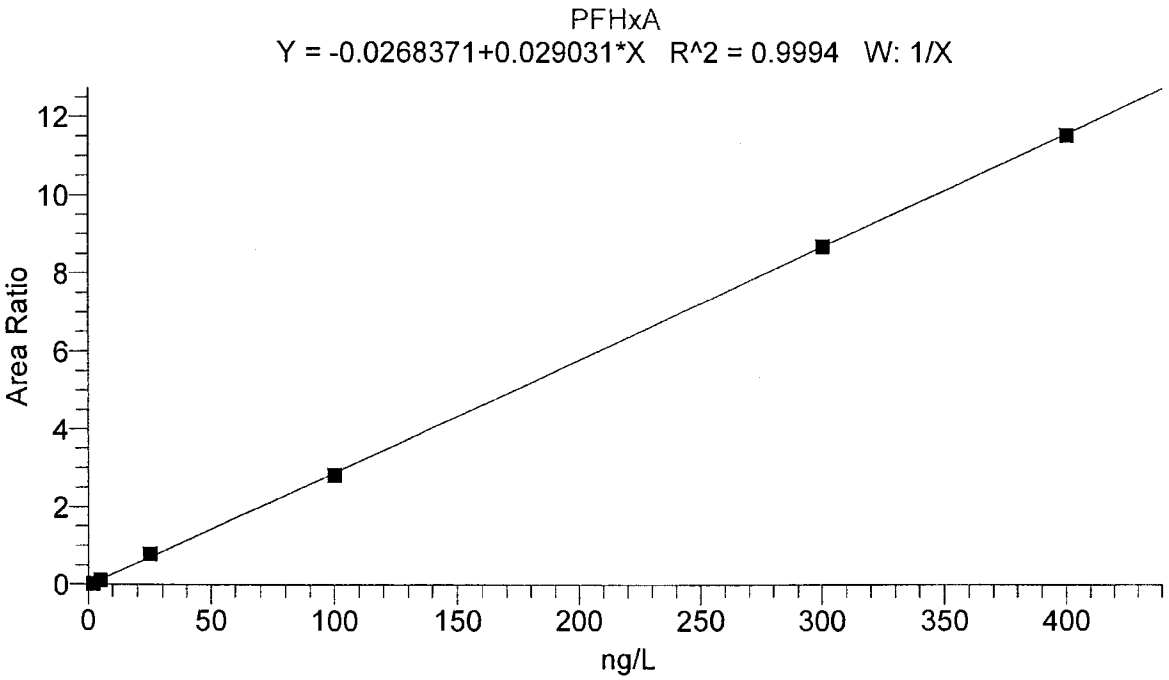
LCMSMS ANALYSIS REPORT

Component Name: **PFHxA**



Identification		Component Name:	PFHxA
Filter:	- c ESI SRM ms2 312.86 [269.00-269.01]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.50000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	1.889	2821.93	100754.17	0.028	-5.54
CAL2	16Jun28-32	4.749	12174.22	109660.34	0.111	-5.03
CAL3	16Jun28-33	28.170	79339.46	100308.36	0.791	12.68
CAL4	16Jun28-34	98.095	303708.73	107661.22	2.821	-1.90
CAL5	16Jun28-35	300.267	858213.47	98756.32	8.690	0.09
CAL6	16Jun28-36	398.831	991110.93	85798.26	11.552	-0.29
ICV1	16Jun28-39	94.340	278136.82	102559.72	2.712	-5.66
CCV1	16Jun28-57	22.832	63977.39	100593.25	0.636	-8.67
CCV2	16Jun28-69	94.455	302646.46	111460.01	2.715	-5.54
CCV3	16Jun28-80	323.869	900622.65	96062.10	9.375	7.96
CCV1	16Jun28-87	21.537	70712.57	118170.40	0.598	-13.85

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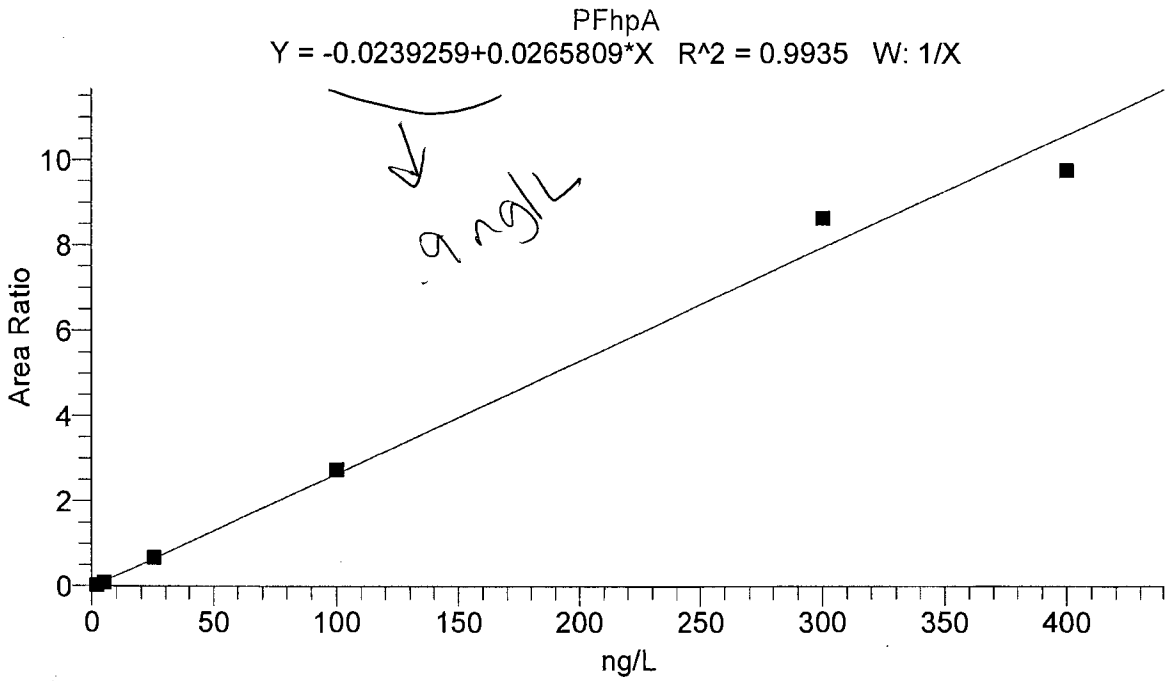
LCMSMS ANALYSIS REPORT

Component Name: **PFhpA**



Identification		Component Name:	PFhpA
Filter:	- c ESI SRM ms2 362.86 [318.94-318.94]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.76000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	10.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHpA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	2.180	5362.43	157632.04	0.034	9.00
CAL2	16Jun28-32	4.052	14635.29	174693.45	0.084	-18.96
CAL3	16Jun28-33	26.181	104392.20	155351.17	0.672	4.72
CAL4	16Jun28-34	104.198	396645.27	144458.58	2.746	4.20
CAL5	16Jun28-35	326.380	819865.85	94765.33	8.652	8.79
CAL6	16Jun28-36	369.010	914897.79	93502.87	9.785	-7.75
ICV1	16Jun28-39	83.402	344523.25	157102.87	2.193	-16.60
CCV1	16Jun28-57	27.292	93818.19	133736.04	0.702	9.17
CCV2	16Jun28-69	93.257	369349.45	150452.81	2.455	-6.74
CCV3	16Jun28-80	326.775	883261.20	101969.06	8.662	8.93
CCV1	16Jun28-87	26.261	109193.27	161982.73	0.674	5.04

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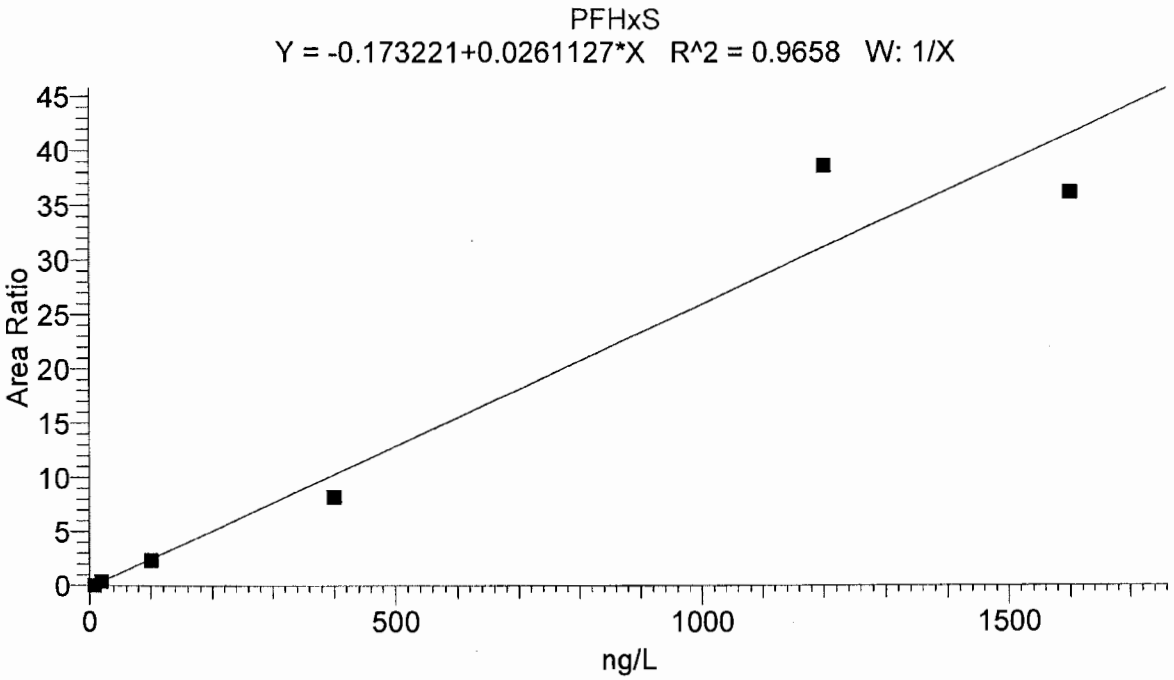
LCMSMS ANALYSIS REPORT

Component Name: **PFHxS**



Identification		Component Name:	PFHxS
Filter:	- c ESI SRM ms2 399.00 [80.09-80.11, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.73000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	100.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	8.000
2	20.000
3	100.000
4	400.000
5	1200.000
6	1600.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	100.000
2	400.000
3	1200.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	8.462	1061.90	22237.74	0.048	5.78
CAL2	16Jun28-32	21.211	11431.83	30032.05	0.381	6.05
CAL3	16Jun28-33	96.669	64885.10	27598.25	2.351	-3.33
CAL4	16Jun28-34	322.181	238866.08	28989.28	8.240	-19.45
CAL5	16Jun28-35	1487.325	618009.51	15983.74	38.665	23.94
CAL6	16Jun28-36	1392.152	612732.43	16935.82	36.180	-12.99
ICV1	16Jun28-39	81.989	55389.22	28148.56	1.968	-18.01
CCV1	16Jun28-57	124.565	60461.79	19633.51	3.080	24.57
CCV2	16Jun28-69	384.667	230078.08	23307.34	9.871	-3.83
CCV3	16Jun28-80	1267.697	533521.04	16201.76	32.930	5.64
CCV1	16Jun28-87	82.051	56919.53	28902.62	1.969	-17.95

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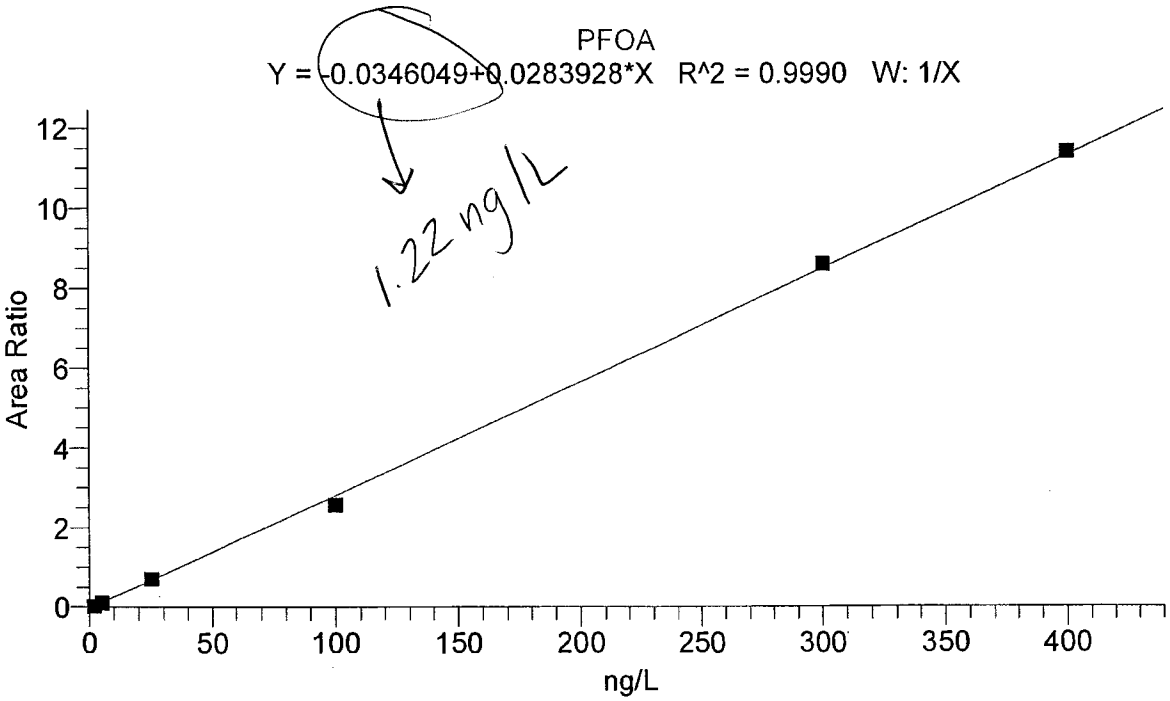
LCMSMS ANALYSIS REPORT

Component Name: **PFOA**



Identification		Component Name:	PFOA
Filter:	- c ESI SRM ms2 412.90 [168.90-168.91, 218.90-218.91, 368.85-368.86]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.02000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	15
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	5.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFOA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	2.177	4803.03	176578.12	0.027	8.84
CAL2	16Jun28-32	4.639	16696.29	171915.40	0.097	-7.21
CAL3	16Jun28-33	26.073	113468.87	160794.34	0.706	4.29
CAL4	16Jun28-34	91.956	479078.21	185957.72	2.576	-8.04
CAL5	16Jun28-35	304.036	1399185.53	162737.26	8.598	1.35
CAL6	16Jun28-36	403.119	1594472.40	139730.47	11.411	0.78
ICV1	16Jun28-39	80.446	391280.99	173943.19	2.249	-19.55
CCV1	16Jun28-57	24.442	109209.03	165627.70	0.659	-2.23
CCV2	16Jun28-69	106.777	471635.85	157363.96	2.997	6.78
CCV3	16Jun28-80	302.809	1366250.16	159553.24	8.563	0.94
CCV1	16Jun28-87	25.059	111166.93	164230.11	0.677	0.24

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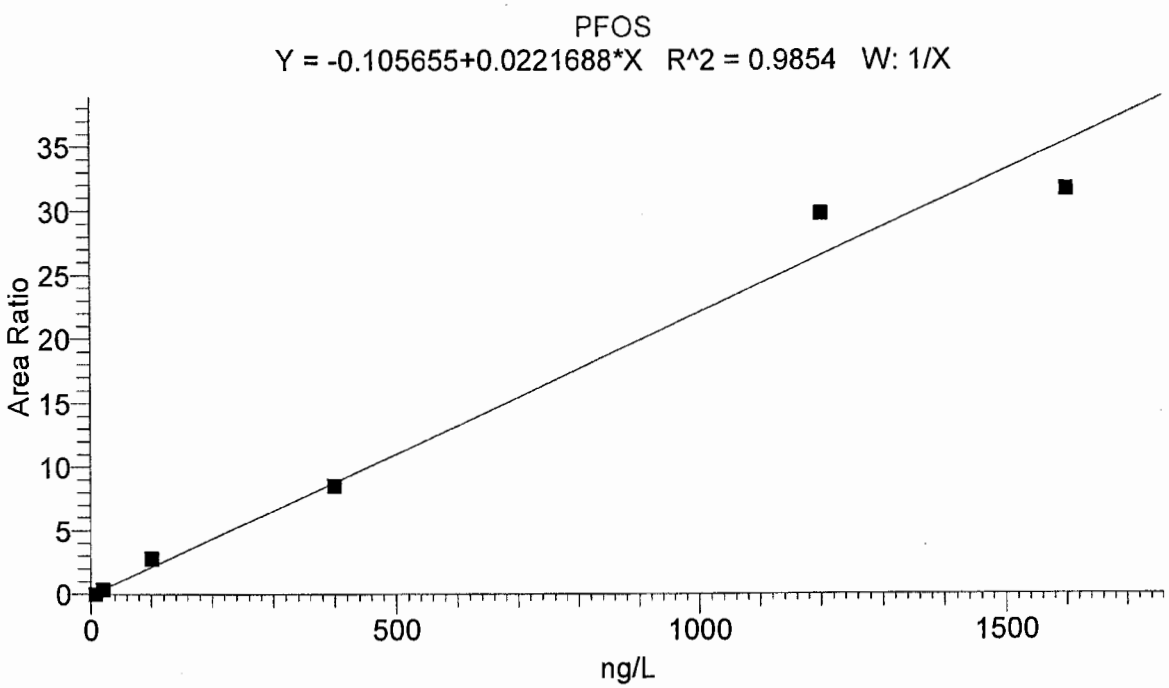
LCMSMS ANALYSIS REPORT

Component Name: **PFOS**



Identification		Component Name:	PFOS
Filter:	- c ESI SRM ms2 499.00 [80.00-80.00, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.25000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	100.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFOS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	8.000
2	20.000
3	100.000
4	400.000
5	1200.000
6	1600.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	100.000
2	400.000
3	1200.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	5.426	182.50	12475.93	0.015	-32.18
CAL2	16Jun28-32	20.494	4967.79	14247.69	0.349	2.47
CAL3	16Jun28-33	130.428	41211.00	14793.39	2.786	30.43
CAL4	16Jun28-34	388.949	135822.87	15947.51	8.517	-2.76
CAL5	16Jun28-35	1349.878	373122.56	12512.72	29.819	12.49
CAL6	16Jun28-36	1432.824	385192.62	12167.20	31.658	-10.45
ICV1	16Jun28-39	90.313	28110.52	14822.48	1.896	-9.69
CCV1	16Jun28-57	109.872	28464.66	12216.20	2.330	9.87
CCV2	16Jun28-69	348.024	120080.12	15780.08	7.610	-12.99
CCV3	16Jun28-80	1373.092	389539.03	12841.62	30.334	14.42
CCV1	16Jun28-87	140.756	35808.50	11877.82	3.015	40.76

no impact (no P)

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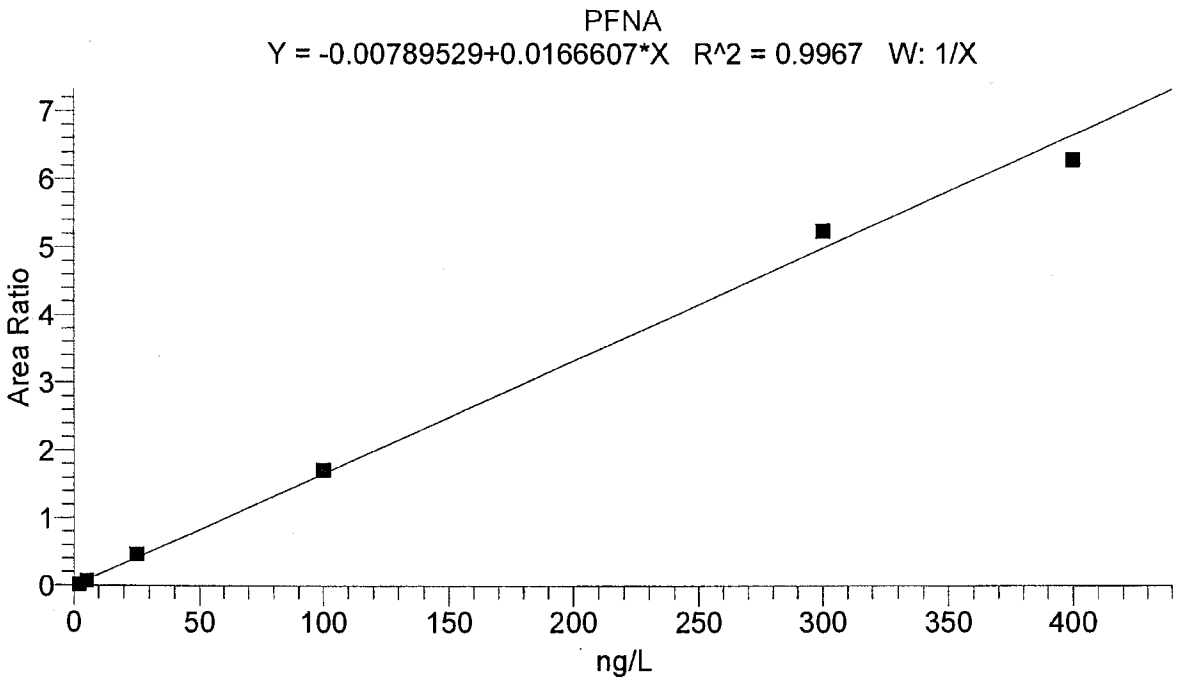
LCMSMS ANALYSIS REPORT

Component Name: **PFNA**



Identification		Component Name:	PFNA
Filter:	- c ESI SRM ms2 462.90 [418.89-418.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.28000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	10.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFNA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	1.712	4615.63	223826.72	0.021	-14.42
CAL2	16Jun28-32	4.885	16979.72	231017.61	0.073	-2.29
CAL3	16Jun28-33	28.367	108738.90	233985.70	0.465	13.47
CAL4	16Jun28-34	103.614	393115.67	228769.49	1.718	3.61
CAL5	16Jun28-35	315.258	1020389.71	194562.55	5.245	5.09
CAL6	16Jun28-36	378.163	1039360.23	165172.58	6.293	-5.46
ICV1	16Jun28-39	92.534	339262.57	221192.38	1.534	-7.47
CCV1	16Jun28-57	23.881	88369.73	226597.63	0.390	-4.47
CCV2	16Jun28-69	109.273	368197.96	203124.25	1.813	9.27
CCV3	16Jun28-80	309.952	983662.60	190775.43	5.156	3.32
CCV1	16Jun28-87	25.537	97073.52	232472.59	0.418	2.15

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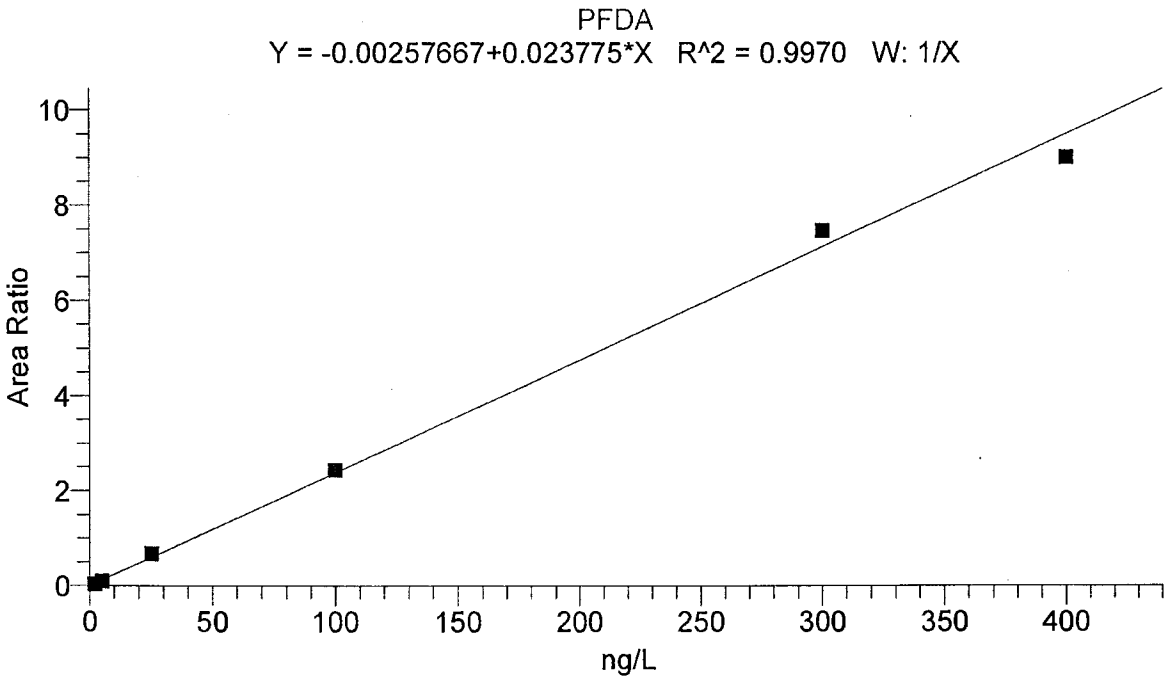
LCMSMS ANALYSIS REPORT

Component Name: **PFDA**



Identification		Component Name:	PFDA
Filter:	- c ESI SRM ms2 512.88 [468.88-468.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.57000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	3.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	1.856	6410.24	154300.79	0.042	-7.21
CAL2	16Jun28-32	4.506	20143.10	192639.55	0.105	-9.87
CAL3	16Jun28-33	28.631	109946.92	162133.90	0.678	14.52
CAL4	16Jun28-34	102.807	403239.71	165149.94	2.442	2.81
CAL5	16Jun28-35	314.443	1221942.01	163507.54	7.473	4.81
CAL6	16Jun28-36	379.757	1348843.31	149437.08	9.026	-5.06
ICV1	16Jun28-39	91.247	345683.46	159535.43	2.167	-8.75
CCV1	16Jun28-57	27.171	94998.96	147650.52	0.643	8.68
CCV2	16Jun28-69	115.858	427438.14	155322.52	2.752	15.86
CCV3	16Jun28-80	326.929	1131424.54	145611.38	7.770	8.98
CCV1	16Jun28-87	27.031	99393.44	155279.50	0.640	8.13

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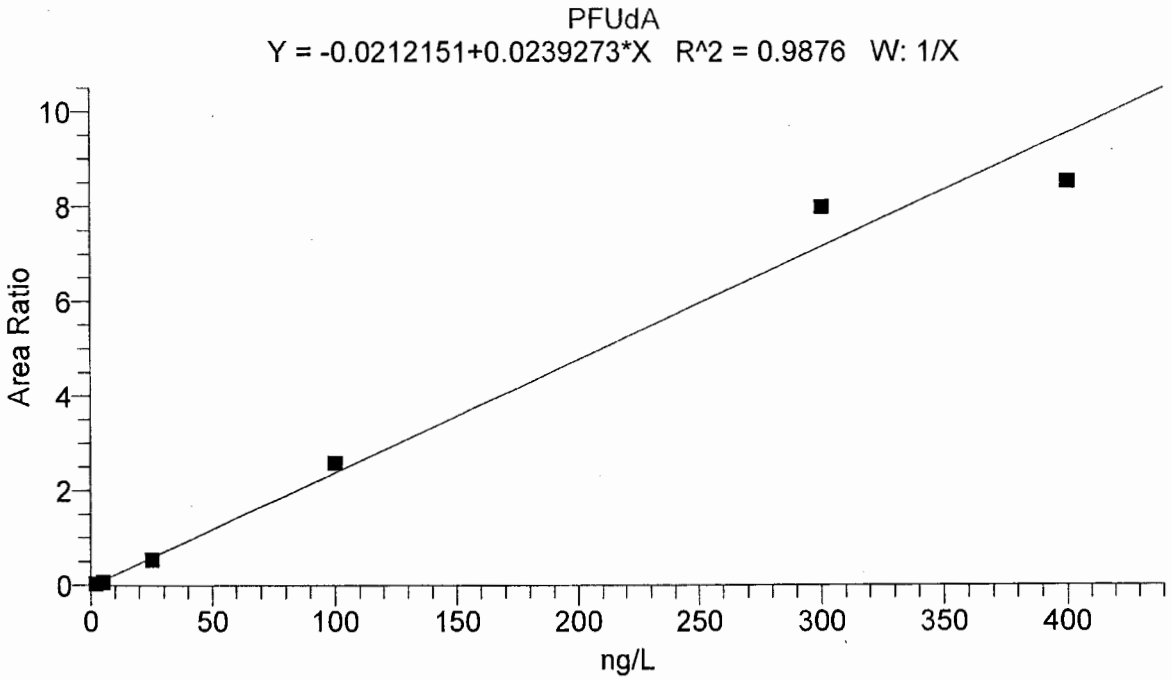
LCMSMS ANALYSIS REPORT

Component Name: **PFUdA**



Identification		Component Name:	PFUdA
Filter:	- c ESI SRM ms2 562.87 [518.87-518.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.99000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUnA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	2.355	5500.71	156535.00	0.035	17.76
CAL2	16Jun28-32	3.924	12026.25	165451.69	0.073	-21.51
CAL3	16Jun28-33	23.350	99068.44	184315.88	0.537	-6.60
CAL4	16Jun28-34	109.075	420926.31	162604.47	2.589	9.07
CAL5	16Jun28-35	335.352	1242640.54	155274.87	8.003	11.78
CAL6	16Jun28-36	357.943	1250775.27	146402.77	8.543	-10.51
ICV1	16Jun28-39	96.678	354865.67	154826.74	2.292	-3.32
CCV1	16Jun28-57	25.327	94826.63	162156.46	0.585	1.31
CCV2	16Jun28-69	110.033	402504.03	154123.34	2.612	10.03
CCV3	16Jun28-80	320.309	1141283.95	149325.92	7.643	6.77
CCV1	16Jun28-87	24.637	93815.06	165086.51	0.568	-1.45

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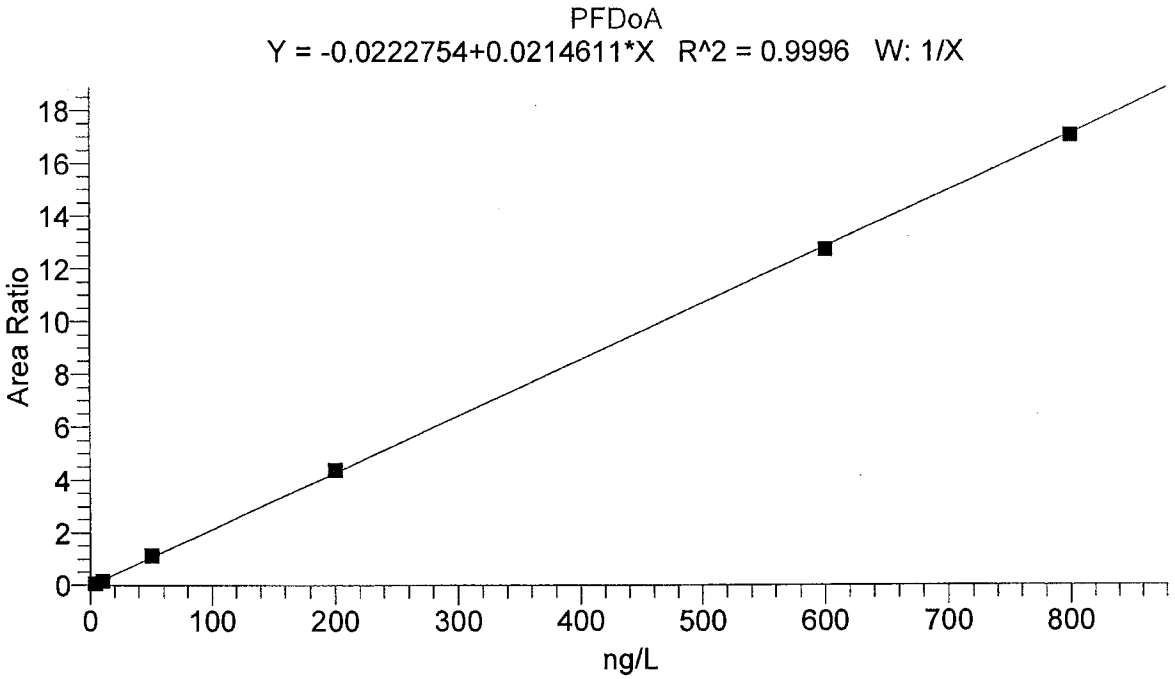
LCMSMS ANALYSIS REPORT

Component Name: **PFDoA**



Identification		Component Name:	PFDoA
Filter:	- c ESI SRM ms2 612.90 [568.89-568.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	11.30000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Hcight (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDoA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	4.000
2	10.000
3	50.000
4	200.000
5	600.000
6	800.000

Component QC Level Table

QC Level	Amount
ICV2	200.000
ICV1	100.000
1	50.000
2	200.000
3	600.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	4.213	10052.85	147554.87	0.068	5.31
CAL2	16Jun28-32	8.593	26241.65	161843.86	0.162	-14.07
CAL3	16Jun28-33	53.573	158676.92	140738.01	1.127	7.15
CAL4	16Jun28-34	205.612	694928.37	158284.44	4.390	2.81
CAL5	16Jun28-35	595.273	2200125.55	172519.03	12.753	-0.79
CAL6	16Jun28-36	796.736	2235678.74	130920.94	17.077	-0.41
ICV1	16Jun28-39	93.365	277780.82	140191.85	1.981	-6.64
CCV1	16Jun28-57	55.186	160482.42	138100.78	1.162	10.37
CCV2	16Jun28-69	217.753	715803.22	153904.90	4.651	8.88
CCV3	16Jun28-80	588.015	1801158.15	142981.18	12.597	-2.00
CCV1	16Jun28-87	56.558	165935.30	139264.02	1.192	13.12

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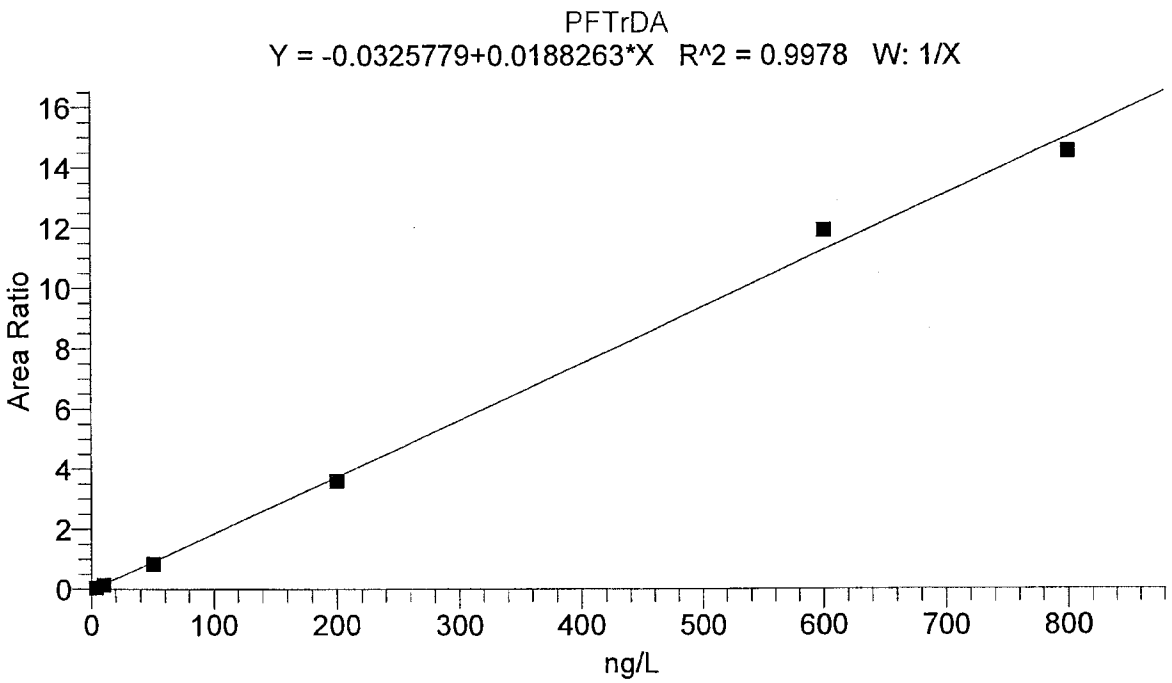
LCMSMS ANALYSIS REPORT

Component Name: **PFTrDA**



Identification		Component Name:	PFTrDA
Filter:	- c ESI SRM ms2 662.90 [618.89-618.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	12.50000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	5.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUnA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	4.000
2	10.000
3	50.000
4	200.000
5	600.000
6	800.000

Component QC Level Table

QC Level	Amount
ICV2	200.000
ICV1	100.000
1	50.000
2	200.000
3	600.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	4.484	8114.11	156535.00	0.052	12.10
CAL2	16Jun28-32	9.515	24248.42	165451.69	0.147	-4.85
CAL3	16Jun28-33	46.673	155948.77	184315.88	0.846	-6.65
CAL4	16Jun28-34	193.377	586675.16	162604.47	3.608	-3.31
CAL5	16Jun28-35	635.387	1852336.86	155274.87	11.929	5.90
CAL6	16Jun28-36	774.564	2130100.38	146402.77	14.550	-3.18
ICV1	16Jun28-39	85.162	243186.74	154826.74	1.571	-14.84
CCV1	16Jun28-57	48.272	142080.78	162156.46	0.876	-3.46
CCV2	16Jun28-69	201.543	579770.79	154123.34	3.762	0.77
CCV3	16Jun28-80	592.637	1661188.88	149325.92	11.125	-1.23
CCV1	16Jun28-87	46.494	139123.79	165086.51	0.843	-7.01

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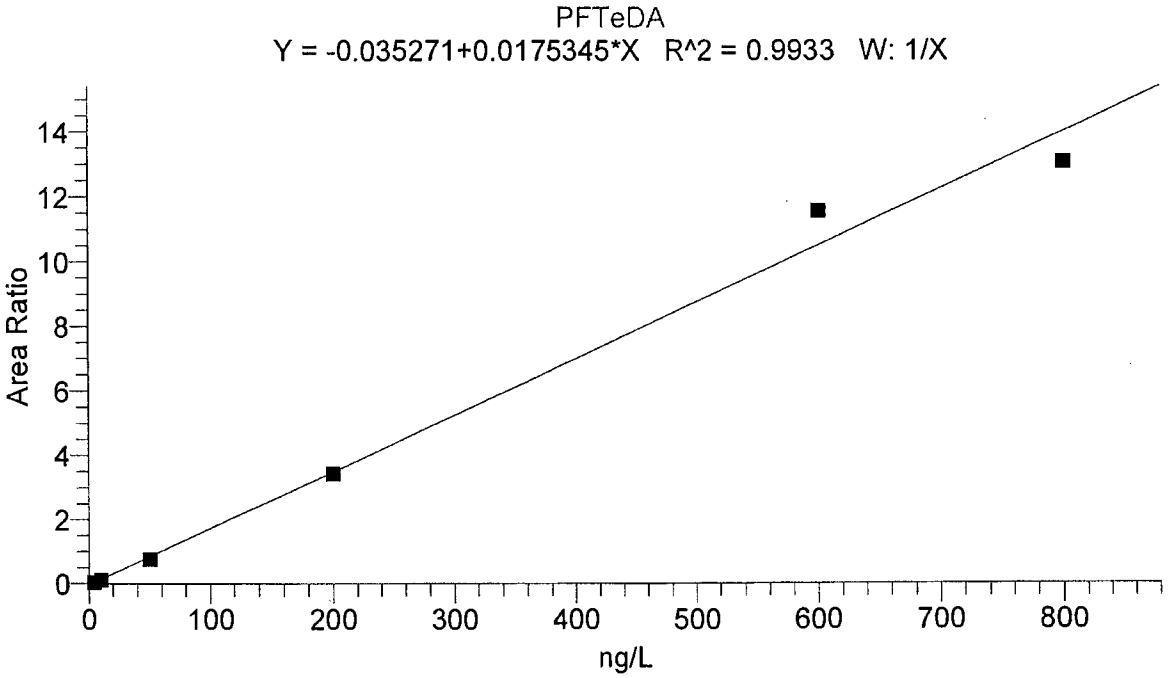
LCMSMS ANALYSIS REPORT

Component Name: **PFTeDA**



Identification		Component Name:	PFTeDA
Filter:	- c ESI SRM ms2 712.90 [668.89-668.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	13.70000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	5.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUnA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	4.000
2	10.000
3	50.000
4	200.000
5	600.000
6	800.000

Component QC Level Table

QC Level	Amount
ICV2	200.000
ICV1	100.000
1	50.000
2	200.000
3	600.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	4.880	7872.70	156535.00	0.050	21.99
CAL2	16Jun28-32	8.439	18645.75	165451.69	0.113	-15.61
CAL3	16Jun28-33	45.663	141077.32	184315.88	0.765	-8.67
CAL4	16Jun28-34	197.673	557867.88	162604.47	3.431	-1.16
CAL5	16Jun28-35	660.902	1793938.00	155274.87	11.553	10.15
CAL6	16Jun28-36	746.442	1911025.41	146402.77	13.053	-6.69
ICV1	16Jun28-39	93.947	249586.70	154826.74	1.612	-6.05
CCV1	16Jun28-57	49.186	134132.71	162156.46	0.827	-1.63
CCV2	16Jun28-69	201.511	539142.44	154123.34	3.498	0.76
CCV3	16Jun28-80	613.120	1600096.43	149325.92	10.715	2.19
CCV1	16Jun28-87	45.481	125831.39	165086.51	0.762	-9.04

Michele J Smith

JUN 3 0 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 2 9 2016

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SPG94
Matrix: Water

Fraction: Miscellaneous Specialty Services

16172001	13C-PFHxA	13C-PFHpA	13C-PFHxS	13C-PFOA
	Area	Area	Area	Area
Average ICAL Response	100490	136734	23629	166286
Upper Limit	150735	205101	35444	249428
Lower Limit	50245	68367	11815	83143
Sample				
MB16172001	102257	136036	24868	147436
LCS16172001	85045	139612	24661	137974
LCSD16172001	86696	154122	25221	158366
8432116	56868	132141	24042	134831
8432117	45218 *	133240	21523	128558
8432127	57359	153050	22978	136576
8432128	50153 *	138601	23044	120305
8432130	52184	150893	24448	145779
8432140	41260 *	141264	21392	129153

ICAL review included with SGP93, see summary included on pg. 226

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

Fraction: Miscellaneous Specialty Services

16172001	13C-PFOS	13C-PFNA	13C-PFDA	13C-PFUdA
	Area	Area	Area	Area
Average ICAL Response	13691	212889	164528	161764
Upper Limit	20536	319334	246792	242646
Lower Limit	6846	106445	82264	80882
Sample				
MB16172001	10451	205967	146407	145103
LCS16172001	11801	183403	132871	120676
LCSD16172001	11669	192639	135272	125115
8432116	13142	190911	124347	116065
8432117	9333	175640	114784	92329
8432127	12489	178834	110259	111719
8432128	8888	174965	108791	109903
8432130	9900	205874	128912	129216
8432140	13525	167407	103440	98450

ICAL review included with SGP93, see summary included on pg. 226

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

Fraction: Miscellaneous Specialty Services

16172001	13C-PFDoA
	Area
Average ICAL Response	151977
Upper Limit	227965
Lower Limit	75988
Sample	
MB16172001	115898
LCS16172001	121495
LCSD16172001	120584
8432116	117321
8432117	90674
8432127	100143
8432128	89698
8432130	105210
8432140	71206 *

ICAL review included with SGP93, see summary included on pg. 226

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

18881_062816_1605_ISCheck.xlsx

Measure	13CPFDA	13CPFDoA	13CPFHpA	13CPFHxA	13CPFHxS	13C-PFNA	13C-PFOA	13CPFOS	13CPFUnA
Average	164528	151977	136734	100490	23629	212889	166286	13691	161764
Upper	246792	227965	205101	150735	35444	319334	249428	20536	242646
Lower	82264	75988	68367	50245	11815	106445	83143	6845	80882

Organic Extraction Batchlog Assigned to: 9524 Jason Knight Reviewed by: mgp1758 Start Date: 06/20/16 Start time: 10:35

16172001

Tech 1: JWK9524 Tech 2: DW 102462

Dept: 37	Prep Analysis: 14091 PFAA Water Prep				PFAAs in Water by LC/MS/MS						
QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
8427012MS	SG3TBMS	99.90	235002-13A	0.025	235002-2A	0.04	1			085a	
BLANKA	BLK172001	100.00	↓	0.025	N/A	N/A	1				
LCSA	OPR172001	100.00		0.025	235002-2A	0.04	1				
LCSDA		100.00	↓	0.025	↓	0.04	1				

Solvent Used	Lot No.
MeOH/WATER 96:4	159749

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1	8427012	SG3TB	99.83	235002-13A	0.025	1			085a		10954	18262	06/27/2016	N
(2)	8427013	SG3FB	100.26	↓	0.025	1			085a		10954	18262	06/27/2016	N
(3)	8427027	SG3R1	99.74		0.025	1			085a		10954	18262	06/27/2016	N
(4)	8427028	SG3R2	100.32		0.025	1			085a		10954	18262	06/27/2016	N
(5)	8427033	SG3R3	99.79		0.025	1			085a		10954	18262	06/27/2016	N
(6)	8432116	SG-TB	100.15		0.025	1			085a		10954	18262	06/29/2016	N
(7)	8432117	SG-R1	100.00		0.025	1			085a		10954	18262	06/29/2016	N
(8)	8432127	SG-R2	100.10		0.025	1			085a		10954	18262	06/29/2016	N
(9)	8432128	SG-FB	100.02		0.025	1			085a		10954	18262	06/29/2016	N
(10)	8432130	SG-R3	99.64		0.025	1			085a		10954	18262	06/29/2016	N
(11)	8432140	SGR16	100.17		0.025	1			085a		10954	18262	06/29/2016	N
12	8433348	LTB17	99.65		0.025	1			085a		10954	18262	06/30/2016	N
(13)	8433349	FTB17	100.34		0.025	1			085a		10954	18262	06/30/2016	N
(14)	8433350	RB117	99.74		0.025	1			085a		10954	18262	06/30/2016	N
(15)	8433351	RB217	100.18		0.025	1			085a		10954	18262	06/30/2016	N
(16)	8433352	RB317	99.58	↓	0.025	1			085a		10954	18262	06/30/2016	N

Rack ID:		Work Station		Micro Temp 100?	
Internal Standard		Balance #	1/2/1112/2		

S-bath ID	C	S-bath ID	C	N-Evap	C	M-vap	C	16172001

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

SECTION 6

GENERAL PARAMETER DATA SUPPORT DOCUMENTATION

ENVIRONMENTAL STANDARDS

INORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: Saint Gobain Bennington
Sample Collection Dates: 6/15 & 6/16/16
Job Number: 20167391
Project Manager: Meg Michell
Laboratory: ELLE

Reviewed by: THW
Approved by: MAM
Completion Date: 5/2017

Applicable Sample No's (x)

Refer to Table 1 in the Quality Assurance Review

Deliverable:
CLP (Full) ( )
Level IV (Full) ( )
Limited (x)
Other:

Sample No.	Lab Control No.
SGP94	

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	5310B	2540G				5310B	2540G				5310B	2540G			
Holding Times	x	x									x	x			
Blank Analysis Results	x										x				
Matrix Spike (Predigestion) Results	x										x				
Duplicate Analysis: ( ) Field (x) Lab	x										x				
Quantitation of Results															
Detection Limit/Sensitivity	x	x									x	x			
Initial Calibrations	x										x				
Continuing Calibrations	x										x				
Laboratory Control Standard (LCS)	x	x									x	x			
ICP Linear Range Analysis															
ICP Interference Checks															
ICP Serial Dilutions															
ICP Post-Digestion Spike															
GFAA Post Digestion Spikes															
GFAA Duplicate Injections															
ICP Multiple Exposures															
GFAA Standard Additions															
CRDL Standards															
Condition on Receipt	x	x									x	x			
Percent Solids															
Others:															

Comments:

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 08/05/2016 14:13

Group Number: 1673381

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Batch number: 16180298731D	Sample number(s): 8432118-8432121,8432124,8432126,8432129,8432131-8432133			
TOC	100	U	100	300
Batch number: 16181298731A	Sample number(s): 8432134-8432139,8432141-8432144			
TOC	100	U	100	300
Batch number: 16190049531A	Sample number(s): 8432145-8432147			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16182008	Sample number(s): 8432118-8432126,8432129,8432131-8432139,8432141-8432143								
Perfluorobutanesulfonate	17.68	17.12			97		70-130		
Perfluorodecanoic acid	20	25.99			130		70-130		
Perfluorododecanoic acid	20	25.47			127		70-130		
Perfluoroheptanoic acid	20	33.28			166*		70-130		
Perfluorohexanesulfonate	18.92	20.08			106		70-130		
Perfluorohexanoic acid	20	26.66			133*		70-130		
Perfluorononanoic acid	20	24.85			124		70-130		
Perfluoro-octanesulfonate	19.12	23.27			122		70-130		
Perfluorooctanoic acid	20	22.3			111		70-130		
Perfluorotetradecanoic acid	20	53.41			267*		70-130		
Perfluorotridecanoic acid	20	25.2			126		70-130		
Perfluoroundecanoic acid	20	28.08			140*		70-130		
Batch number: 16190006	Sample number(s): 8432144-8432147								
Perfluorobutanesulfonate	17.8	13.6	17.8	16.12	76	91	70-130	17	30
Perfluorodecanoic acid	20	17.21	20	19.7	86	98	70-130	14	30
Perfluorododecanoic acid	20	17.72	20	20.64	89	103	70-130	15	30
Perfluoroheptanoic acid	20	12.79	20	13.28	64*	66*	70-130	4	30
Perfluorohexanesulfonate	18.92	18.15	18.92	18.91	96	100	70-130	4	30
Perfluorohexanoic acid	20	21.39	20	22.34	107	112	70-130	4	30
Perfluorononanoic acid	20	17.29	20	18.65	86	93	70-130	8	30
Perfluoro-octanesulfonate	19.12	16.53	19.12	18.11	86	95	70-130	9	30
Perfluorooctanoic acid	20	17.1	20	18.43	86	92	70-130	7	30
Perfluorotetradecanoic acid	20	32.92	20	25.67	165*	128	70-130	25	30
Perfluorotridecanoic acid	20	25.32	20	24.77	127	124	70-130	2	30
Perfluoroundecanoic acid	20	16.33	20	18.87	82	94	70-130	14	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16172001	Sample number(s): 8432116-8432117,8432127-8432128,8432130,8432140								
Perfluorooctanoic acid	200	189.69	200	182.7	95	91	70-130	4	30
Perfluorononanoic acid	200	195.42	200	211.39	98	106	70-130	8	30
Perfluorodecanoic acid	200	187.49	200	212.82	94	106	70-130	13	30
Perfluoroundecanoic acid	200	209.31	200	201.1	105	101	70-130	4	30
Perfluorododecanoic acid	200	216.26	200	194.7	108	97	70-130	10	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 08/05/2016 14:13

Group Number: 1673381

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluorotridecanoic acid	200	188.15	200	181.79	94	91	70-130	3	30
Perfluorotetradecanoic acid	200	181.46	200	171.69	91	86	70-130	6	30
Perfluorohexanoic acid	200	208.47	200	214.01	104	107	70-130	3	30
Perfluoroheptanoic acid	200	184.47	200	174.02	92	87	70-130	6	30
Perfluorobutanesulfonate	176.8	205.19	176.8	198.72	116	112	70-130	3	30
Perfluorohexanesulfonate	189.2	159.21	189.2	142.98	84	76	70-130	11	30
Perfluoro-octanesulfonate	191.2	220.06	191.2	221.04	115	116	70-130	0	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16180298731D	Sample number(s): 8432118-8432121,8432124,8432126,8432129,8432131-8432133								
TOC	5430	4457.34			82		47-143		
Batch number: 16181298731A	Sample number(s): 8432134-8432139,8432141-8432144								
TOC	5430	4228.97			78		47-143		
Batch number: 16190049531A	Sample number(s): 8432145-8432147								
TOC	5430	5086.51			94		47-143		
	%	%	%	%					
Batch number: 16178820001B	Sample number(s): 8432118-8432126,8432129,8432131-8432139,8432141-8432142								
Moisture	89.5	89.47			100		99-101		
Moisture	89.5	89.47			100		99-101		
Moisture Duplicate	89.5	89.47			100		99-101		
Batch number: 16178820006A	Sample number(s): 8432143-8432147								
Moisture	89.5	89.49			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16182008	Sample number(s): 8432118-8432126,8432129,8432131-8432139,8432141-8432143 UNSPK: 8432121										
Perfluorobutanesulfonate	0.50	U	17.68	18.4	20	17.37	104	87	70-130	6	30
Perfluorodecanoic acid	0.20	U	20	31.59	20	28.83	158*	144*	70-130	9	30
Perfluorododecanoic acid	0.40	U	20	28.91	20	34.09	145*	170*	70-130	16	30
Perfluoroheptanoic acid	0.30	U	20	24.45	20	25.23	122	126	70-130	3	30
Perfluorohexanesulfonate	0.50	U	18.92	19.55	20	17.13	103	86	70-130	13	30
Perfluorohexanoic acid	0.20	U	20	25.84	20	21.49	129	107	70-130	18	30
Perfluorononanoic acid	0.20	U	20	21.86	20	20.37	109	102	70-130	7	30
Perfluoro-octanesulfonate	0.70	U	19.12	20.05	20	21.12	105	106	70-130	5	30
Perfluorooctanoic acid	0.30	U	20	21.36	20	18.93	107	95	70-130	12	30
Perfluorotetradecanoic acid	0.30	U	20	23.08	20	21.26	115	106	70-130	8	30
Perfluorotridecanoic acid	0.60	U	20	23.84	20	26.06	119	130	70-130	9	30

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1673381
Reported: 08/05/2016 14:13

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Perfluoroundecanoic acid	0.30	U	20	30.54	20	30.93	153*	155*	70-130	1	30
Batch number: 16190006	Sample number(s): 8432144-8432147 UNSPK: 8432144										
Perfluorobutanesulfonate	0.50	U	17.8	17.25			97		70-130		
Perfluorodecanoic acid	0.632		20	19.32			93		70-130		
Perfluorododecanoic acid	13.87		20	32.16			91		70-130		
Perfluoroheptanoic acid	0.30	U	20	13.31			67*		70-130		
Perfluorohexanesulfonate	0.50	U	18.92	19.27			102		70-130		
Perfluorohexanoic acid	0.20	U	20	23.32			117		70-130		
Perfluorononanoic acid	0.20	U	20	18.31			92		70-130		
Perfluoro-octanesulfonate	0.70	U	19.12	18.77			98		70-130		
Perfluorooctanoic acid	6.11		20	23.05			85		70-130		
Perfluorotetradecanoic acid	9.55		20	24.35			74		70-130		
Perfluorotridecanoic acid	5.55		20	24.57			95		70-130		
Perfluoroundecanoic acid	1.55		20	16.92			77		70-130		
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 16172001	Sample number(s): 8432116-8432117,8432127-8432128,8432130,8432140 UNSPK: 8427012										
Perfluorooctanoic acid	1.54		200	207.84			103		70-130		
Perfluorononanoic acid	1	U	200	201.27			101		70-130		
Perfluorodecanoic acid	1	U	200	198.88			99		70-130		
Perfluoroundecanoic acid	2	U	200	187.55			94		70-130		
Perfluorododecanoic acid	3	U	200	237.24			119		70-130		
Perfluorotridecanoic acid	2	U	200	120.97			60*		70-130		
Perfluorotetradecanoic acid	3	U	200	89.3			45*		70-130		
Perfluorohexanoic acid	1	U	200	203.76			102		70-130		
Perfluoroheptanoic acid	1.01		200	179.31			89		70-130		
Perfluorobutanesulfonate	4	U	176.8	79.42			45*		70-130		
Perfluorohexanesulfonate	7.81		189.2	177.92			90		70-130		
Perfluoro-octanesulfonate	5	U	191.2	282.44			148*		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16180298731D	Sample number(s): 8432118-8432121,8432124,8432126,8432129,8432131-8432133 UNSPK: 8432121										
TOC	1763		10320	13242.87			111		47-143		
Batch number: 16181298731A	Sample number(s): 8432134-8432139,8432141-8432144 UNSPK: 8432134										
TOC	3863.54		19230	20615.78			87		47-143		
Batch number: 16190049531A	Sample number(s): 8432145-8432147 UNSPK: P433354										
TOC	2414.31		38961	46272.73			113		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 08/05/2016 14:13

Group Number: 1673381

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16180298731D	Sample number(s): 8432118-8432121,8432124,8432126,8432129,8432131-8432133 BKG: 8432121			
TOC	1763	1092.49	47* (1)	7
Batch number: 16181298731A	Sample number(s): 8432134-8432139,8432141-8432144 BKG: 8432134			
TOC	3863.54	2370.21	48* (1)	7
Batch number: 16190049531A	Sample number(s): 8432145-8432147 BKG: P433354			
TOC	2414.31	2535.24	5 (1)	7
	%	%		
Batch number: 16178820001B	Sample number(s): 8432118-8432126,8432129,8432131-8432139,8432141-8432142 BKG: 8432121, P432121			
Moisture	5.41	5.56	3	5
Moisture	5.41	5.56	3	5
Moisture Duplicate	5.41	5.56	3	5
Batch number: 16178820006A	Sample number(s): 8432143-8432147 BKG: P432702			
Moisture	33.97	38.47	12*	5

not project sample.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SGP94
Matrix: SOLID

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

UNSPK: 8432121 MS: 8432121	Batch: **16180298731D** (Sample number(s): 8432118-8432121, 8432124, 8432126, 8432129, 8432131-8432133)									
Parameter	**ME**	**Spike Added mg/kg**	**Unspiked Conc mg/kg**	**MS Conc mg/kg**	**MSD Conc mg/kg**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	10320	1763.	13242.87	NA	111	NA	47-143	NA	NA

UNSPK: 8432134 MS: 8432134	Batch: **16181298731A** (Sample number(s): 8432134-8432139, 8432141-8432144)									
Parameter	**ME**	**Spike Added mg/kg**	**Unspiked Conc mg/kg**	**MS Conc mg/kg**	**MSD Conc mg/kg**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	19230	3863.54	20615.78	NA	87	NA	47-143	NA	NA

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Duplicate

SDG: SGP94
Matrix: SOLID

LOQ = 612

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

BKG: 8432121 DUP: 8432121	Batch: **16180298731D** (Sample number(s): 8432118-8432121, 8432124, 8432126, 8432129, 8432131-8432133)				
Parameter	**ME**	**Unspiked Conc mg/kg**	**DUP Conc mg/kg**	**%RPD**	**%RPD Limits**
TOC	TOC	1763.	1092.49	47* (1)	7

Δ = 670.51

BKG: 8432134 DUP: 8432134	Batch: **16181298731A** (Sample number(s): 8432134-8432139, 8432141-8432144)				
Parameter	**ME**	**Unspiked Conc mg/kg**	**DUP Conc mg/kg**	**%RPD**	**%RPD Limits**
TOC	TOC	3863.54	2370.21	48* (1)	7

Δ = 1493.33

LOQ = 1400

results < 5x LOQ
and Δ < 2x LOQ
no qual

Comments:
(1) The sample and/or duplicate result is less than five times the LOQ.
* = Out of Specification

Results are being reported on an as received basis.

Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP94
Matrix: SOLID

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

LCS: 161801QQ	Batch: **16180298731D** (Sample number(s): 8432118-8432121, 8432124, 8432126, 8432129, 8432131-8432133)								
Parameter	**ME**	**Spike Added mg/kg**	**LCS Conc mg/kg**	**LCSD Conc mg/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	5430	4457.34	NA	82	NA	47-143	NA	NA

LCS: 161811QQ	Batch: **16181298731A** (Sample number(s): 8432134-8432139, 8432141-8432144)								
Parameter	**ME**	**Spike Added mg/kg**	**LCS Conc mg/kg**	**LCSD Conc mg/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	5430	4228.97	NA	78	NA	47-143	NA	NA

LCS: Q433354Q	Batch: **16190049531A** (Sample number(s): 8432145-8432147)								
Parameter	**ME**	**Spike Added mg/kg**	**LCS Conc mg/kg**	**LCSD Conc mg/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	5430	5086.51	NA	94	NA	47-143	NA	NA

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Quality Control Summary
Method Blank
Instrumental Water Quality
SDG: SGP94
Matrix: SOLID

Fraction: Instrumental Wet Chemistry

16180298731A / 161801BB Parameter	ME	Analysis Date	Blank Results	Units	MDL	LOQ
TOC	TOC	06/28/16	N.D.	mg/kg	100	300

16181298731A / 161811BB Parameter	ME	Analysis Date	Blank Results	Units	MDL	LOQ
TOC	TOC	06/29/16	N.D.	mg/kg	100	300

16190049531A / B433354B Parameter	ME	Analysis Date	Blank Results	Units	MDL	LOQ
TOC	TOC	07/08/16	N.D.	mg/kg	100	300

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LOQ/MDL Summary
Instrumental Water Quality

SDG: SGP94

Fraction: Instrumental Wet Chemistry

02079: TOC Analyte Name	Default MDL	Default LOQ	Units
TOC	100	300	mg/kg

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 6-22-16 ✓

Instrument #: 76837

R^2: 0.9993 r=0.9996

Analyst: CMW287

Sucrose Soln Lot #: 012015 E: 1-2018

Run #: 1 6 1 7 4 1 CAL

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	TEST	2.620	0.2mL				7:52				
2	CAL0	~~93.007~~ -.302	0.0				8:02		Blank		
3	CAL1	2330 cts	1µL				8:19		0.3 STD		
4	CAL2	4675 cts	3µL				8:41		0.9 STD		
5	CAL3	12549 cts	10µL				8:54		30 STD		
6	CAL4	22903 cts	20µL				9:03		60 STD		
7	ICV	2.904	10µL	IS			9:18	97%	3.0		
8	ICB	-0.275	0.0				9:27				

Verified by: BM 6/23

Date: 6/23/16

#0001 08:54:36 TC STD#03 003.000 mgC 0012549 cts

CALIBRATION RESULTS:
STD TYPE = TC
STD#1 = 00.300 mgC 1 reps Avg Area = 2330.0 cts %rsd = 0.00
STD#2 = 00.900 mgC 1 reps Avg Area = 4675.0 cts %rsd = 0.00
STD#3 = 03.000 mgC 1 reps Avg Area = 12549.0 cts %rsd = 0.00
STD#4 = 06.000 mgC 1 reps Avg Area = 24635.0 cts %rsd = 0.00
RF = 257.946 ugC/k-cts
R2 = 0.9997
OFFSET = 1161 cts (-0.300 mgC)

OI Analytical
TOC Solids V3.0
Analysis Date: Wed Jun 22 08:55:04 2016

#0001 09:03:13 TC STD#04 006.000 mgC 0022903 cts

CALIBRATION RESULTS:
STD TYPE = TC
STD#1 = 00.300 mgC 1 reps Avg Area = 2330.0 cts %rsd = 0.00
STD#2 = 00.900 mgC 1 reps Avg Area = 4675.0 cts %rsd = 0.00
STD#3 = 03.000 mgC 1 reps Avg Area = 12549.0 cts %rsd = 0.00
STD#4 = 06.000 mgC 1 reps Avg Area = 22903.0 cts %rsd = 0.00
RF = 273.104 ugC/k-cts
R2 = 0.9993
OFFSET = 1277 cts (-0.349 mgC)

OI Analytical
TOC Solids V3.0
Analysis Date: Wed Jun 22 09:03:37 2016

#0001 09:18:52 TC SPL#01 3.000 mg 0011911 cts 002.904 mgC 96.80 %C

OI Analytical
TOC Solids V3.0
Analysis Date: Wed Jun 22 09:19:58 2016

#0001 09:27:44 TC SPL#01 0.000 mg 0000269 cts -000.275 mgC 0.00 %C

Sandra J. Miller
Chemist

JUN 23 2016

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 6-28-16 ✓

Instrument #: 76837

R^2: 0.9993 E0.9996

Analyst: CW2987

Sucrose Soln Lot #: 012015 E: 1-20-18

Run #: 1 6 1 8 0 1

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	CCV	3.152 ✓	10mL	(IS)	—		7:37	—	105% ✓		
2	CCB	-0.349	0.0	↓	—		7:44	—	—		
3	LCSS	0.883 ✓	198.1 ③	~~4457.3~~ 4458.1 ✓	5.05	1515	8:22	16180298731A	IV = 5430 %rec = 82		
4	PBS	-0.349	0.0	~~0.0~~ 0.0	1	300	8:29	↓			
5	8288802-4	3273	149.7	21863.7	6.68	2004	8:39				
6	8288802R	4.475	76.7	58354.2	13.04	5912	8:49		SA = 39120 %rec = 93		
7	8288802-D	3.541	158.6	22326.6	6.31	1893	8:57				
8	8290807-4	2.591	140.8	18402.0	7.10	2130	9:07	16180298731B			
9	8290867-R	4.074	68.8	59215.1	14.53	4359	9:27	↓	SA = 43550 %rec = 94		
10	8290867-D	3.075	163.0	188650	6.13	1839	9:35	↓			
11	8290878-4	3.928	154.7 ③	~~6941.8~~ 6941.2	6.46	1938	9:44	16180298731C			
12	8290878-R	4.748	81.9	57993.13	12.21	3663	9:51	↓	SA = 36630 %rec = 91		
13	CCV	2.922 ✓	10mL	(IS)	—		10:03	—	97% ✓		
14	CCB	-0.349	0.0	↓	—		10:11	—	—		

SCP04 Page 845 of 875

Verified by: DJ 6/29 Date: 6/29/16

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 6-28-16 Instrument #: 76837

R^2: 0.9993 r=0.9996 Analyst: AW287

Sucrose Soln Lot #: 017015 E: 1-20-18

Run #: 1 6 1 8 0 1

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
15	8290878-D	4.092	165.1	24765.0	6.06	1818	10:25	161802987310			
16	8290882	2.921	145.3	20103.2	6.88	2064	10:34	↓			
17	84321214	0.912	517.3	1763.0	1.93	579	11:03	161802987310			
18	843421.R	3.855	291.1	13242.9	3.44	1032	11:15		SA=10320 %Rec=111		
19	843421-D	0.528	483.3	1092.5	2.07	621	11:40				
20	8432118	1.454	319.4	4552.3	3.13	939	11:56				
21	8432119	-0.052	~~6.728~~ 685.5	75.75	1.46	438	12:03		full cup		
22	8432120	0.605	~~4864.538~~ 2	1689.0	2.79	837	12:17				
23	8432124	-0.186	~~358.2~~ 459.2	405.1	2.18	654	12:39		full cup		
24	8432126	1.179	535.4	2202.1	1.87	561	13:10	↓			
25	CCV	3.076	10µL	(E)			13:29		103%		
26	CCB	-0.349	0-0	↓			13:36				
27	8432129	2.560	466.7	5485.3	2.14	642	13:45	161802987310			
28	8432131	1.132	279.2	4054.4	3.58	674	14:22	↓			

SOP94 Page 846 of 875

Verified by: 6/15 Date: 6/29/16

1941.03

230639 72

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 6-28-16 Instrument #: 76837

R^2: 0.9993 r=0.9996 Analyst: CLW298

Sucrose Soln Lot #: 012015 Exp 1-20-18

Run #: 1 6 1 8 0 1

Inj #.	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
29	543213 2	1.618	143.7	8353.1	5.116	1548	14:50	161802987310	2		
30	543213 3	0.627	447.6	1400.8	2.23	6629	15:04	↓	2		
31	CCV	3.231	10µL	IS	2		15:25	2	1089c		
32	CCB	-0.349	0.0	↓	2		15:36	2	2		

CLW 6-29-16 298

Verified by: RP/LS Date: 6/29/16

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 6-29-16 — Instrument #: 76837

R^2: 0.9993 r=0.9996 — Analyst: CWZ987

Sucrose Soln Lot #: 012015 E: 1-20-18

Run #: 160611

Inj #	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	CCV	3.082	10mL	IS			8:04		103%		
2	CCB	-0.349	0.0				9:02				
3	ECSS	0.724	171.2	4228.97	5.84	1752	11:11	1618129873A	TV= 5430 %rCC= 78		
4	PBS	-0.310	0.0	0.0	1	300	11:25				
5	84321344	0.923	238.9	3863.5	4.19	1257	11:35				
6	84321344-R	3.214	155.9	20615.8	6.41	1923	12:00		SA= 19230 %rCC= 87		
7	84321344-D	0557	235.0	2370.2	4.26	~~1278~~ 1278	12:26				
8	84321345	-0.022	764.4	0.0	1.31	392	12:43		full cup		
9	84321346	0.880	359.2	2544.3	2.95	885	13:02				
10	84321347	0.788	343.8	2292.0	2.91	873	13:29				
11	84321348	0.044	163.5	269.1	6.12	1835	13:42		reprep		
12	84321349	0.251	193.0	1300.5	5.18	1554	13:57		reprep		
13	CCV	3.108	10mL	IS			14:13		104%		
14	CCB	-0.349	0.0				14:25				

Verified by: 6/30 Date: 6/30/16

SOP 04 Page 852 of 878

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 6-29-16

Instrument #: 76837

R^2: 0.9993 r=0.9996

Analyst: CW7987

Sucrose Soln Lot #: 012015 E: 1-20-18

Run #: 160111

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
15	8432141	0.230	291.3	789.6	3.43	1030	14:33	160812987314	reprep		
16	8432142	0.215	401.4	535.6	2.49	747	14:44		reprep		
17	8432143	0.596	405.7	1469.1	2.46	738	14:56				
18	8432144	1.195	169.5	7050.1	5.90	1770	15:11				
19	CCV	3.022	10ML				15:24		101%		
20	CCB	-0.349	0.0				15:31				

CW 7987 6-30-16

Verified by: [signature] Date: 6/30/16

1941.03

230639 75

SOP# Page 862 of 876

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 7-1-16 ✓ Instrument #: 76837

R^2: 0.9993 C=0.9997 Analyst: CWZ987

Sucrose Soln Lot #: 012015 E:1-20-18

Run #: 160831

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	CCV	3.218 ✓	10µL	(IS)	≈		8:54	≈	107% ✓		
2	CCB	-0.349	0.0	↓	≈		9:01	≈	—		
3	~~8432138~~ ~~CCV~~ ⑧	3.380 ✓	788.5	4576.8 ✓	1.35	405	9:41	160812988731A			
4	8432139	0.586	719.5	814.5	1.39	417	9:53	↓			
5	8432141	0.914 ✓	708.5	1290.0 ✓	1.41	423	10:03				
6	8432142	0.006	639.5	9.4	1.57	471	10:16	↓	full cup		
7	CCSS	0.641 ✓	175.2	3658.7 ✓	5.71	1713	10:37	160832988731A	TV=9130 %rec=67		
8	PRS	-0.349	0.0	0.0	1	300	10:44	↓			
9	8429319	3.181	78.8	40368.0	12.69	3807	10:57				
10	8288794-A	4.283	97.3	44018.5	10.28	3084	11:10				
11	8288794-C	4.489	40.2	111666.7	24.88	7464	11:25		SA= 74640 %rec= 91		
12	8288794-D	3.414	84.6	40354.6	11.82	3546	11:42	↓			
13	CCV ⑬ ~~3.288~~ 3.414 ✓		10µL	00S	≈		12:34	≈	113.8% ✓		
14	CCV	3.286 ✓	10µL	(IS)	≈		12:46	≈	110% ✓		

SGP94 Page 860 of 875

CW CWZ 7-1-16

Verified by: 7/2/16 Date: 7/6/16

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 7-1-16

Instrument #: 76837

R^2: 0.9993 ≥0.9996

Analyst: CWZ987

Sucrose Soln Lot #: 012015 Exp 12-18

Run #: 1G1831

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
15	CCV	3.219	10ML	IS			12:54	107906			
16	CCB	-0.349	0.0				13:04				

CWZ 7-1-16 987

Verified by: DHB Date: 7/6/16

1941.03

237372 2

SGP94 Page 861 of 875

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Combustion TOC Prep Log
Analysis #2079, #0383

Phosphoric Lot # 062214 6.12.22-16

Oven ID# 1887

Oven Temperature (°C) 75

Tray #: 30 Balance ID: B35614 Time In: 0700 Time Out: 0715

Position	Date	Analyst	Sample #	Weight (mg)	Batch Number	Comments
A1	6-28-16	CW2917	LCSS	198.1	160802987731A	
A2	↓	↓	PBS	0.0	↓	
A3			8288802-4	149.7		
A4			8288802-R	76.7		
A5			8288802-D	158.6	↓	
A6			8290867-4	140.8	160802987731B	
A7			8290867-R	68.8	↓	
A8			8290867-D	163.0	↓	
B1			8290878-4	154.7	160802987731C	
B2			8290878-R	81.9	↓	
B3			8290878-D	165.1	↓	
B4			8290882	145.3	↓	
B5			8432121-4	517.3	160802987731D	
B6			8432121-R	291.1	↓	
B7			8432121-D	483.3	↓	
B8			8432118	~~149.3~~ 149.4		
C1			8432119	~~8288628-4~~ 685.5		full cup
C2			8432120	358.2		
C3			8432124	459.2		full cup
C4			8432126	535.4		
C5			8432129	466.7		
C6			8432131	279.2		
C7			8432132	193.7		
C8	↓	↓	8432133	447.6	↓	

Verified by: 0/45 Date: 6/29/16

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Combustion TOC Prep Log
Analysis #2079, #0383

Phosphoric Lot # 062416 E 12-22-16

Oven ID# 1887

Oven Temperature (°C)_____

Tray #: 30 Balance ID: B35614 Time In: 1015 Time Out: 1030

Position	Date	Analyst	Sample #	Weight (mg)	Batch Number	Comments
A1	6.29.16	aw2987	LCSS	171.2	16181298731A	
A2			PBS	0.0		
A3			8432134.4	238.9		
A4			8432134.R	155.9		
A5			8432134.D	235.0		
A6			8432135	764.4		full cup
A7			8432136	339.2		
A8			8432137	343.8		
B1			8432138	163.5		prep higher
B2			8432139	193.0		prep higher
B3			8432141	291.3		prep higher
B4			8432142	401.4		prep higher
B5			8432143	405.7		
B6			8432144	169.5		
B7						
B8						
C1						
C2						
C3						
C4						
C5						
C6						
C7						7/1/16
C8						NA

Verified by: _____ Date: 7/1/16

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 7-1-16 ✓

Instrument #: 76837

R^2: 0.9994 F=0.9997

Analyst: CMW287

Sucrose Soln Lot #: 017015 Exp 1-20-18

Run #: 161832 CAL

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	CAL 0	-0.349	0.0				13:29				
2	CAL 1	2171 cts	1 µL				13:56		0.3 mgC		
3	CAL 2	5125 cts	3 µL				14:00		0.9 mgC		
4	CAL 3	13992 cts	10 µL				14:11		3.0 mgC		
5	CAL 4	27298 cts	20 µL				14:23		6.0 mgC		
6	ICV	2.988 ✓	10 µL	IS			14:35		100% ✓		
7	ICB	-0.209	0.0	V			14:58				

CMW 7-1-16

Verified by: [illegible] Date: 7/6/16

OFFSET = 1811 cts (-0.319 mgC)

OI Analytical
TOC Solids V3.0
Analysis Date: Fri Jul 01 14:11:42 2016

#0001 14:23:14 TC STD#04 006.000 mgC 0027298 cts

CALIBRATION RESULTS:
STD TYPE = TC
STD#1 = 00.300 mgC 1 reps Avg Area = 2174.0 cts %rsd = 0.00
STD#2 = 00.900 mgC 1 reps Avg Area = 5125.0 cts %rsd = 0.00
STD#3 = 03.000 mgC 1 reps Avg Area = 13992.0 cts %rsd = 0.00
STD#4 = 06.000 mgC 1 reps Avg Area = 27298.0 cts %rsd = 0.00
RF = 227.093 ugC/k-cts
R2 = 0.9994
OFFSET = 918 cts (-0.209 mgC)

OI Analytical
TOC Solids V3.0
Analysis Date: Fri Jul 01 14:23:40 2016

#0001 14:35:30 TC SPL#01 3.000 mg 0014077 cts 002.988 mgC 99.61 %C

OI Analytical
TOC Solids V3.0
Analysis Date: Fri Jul 01 14:50:27 2016

#0001 14:58:11 TC SPL#01 0.000 mg 0000000 cts -000.209 mgC 0.00 %C

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 7.8.16 ✓ Instrument #: 76837

R^2: .9994 R=.9997 Analyst: [illegible]

Sucrose Soln Lot #: 012015 exp. 1.20.18

Run #: 161902

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	CCV 3.0	3.163 ✓	0.2mL	IS			1818		105% ✓		
2	CCB	-.151	0.0	↓			1826				
3	LCSS	.735 ✓	144.5	5086.51 ✓	6.92	2076	1844 ✓	161900495 31A	TV=5430 94% IS		
4	PBS	-.209	0.0	0	1	300	1852 ✓		IS		
5	8432145	.407 ✓	339.8	1197.76 ✓	2.94	882	1859 ✓				SGP94
6	8432146	1.084 ✓	289.5	3744.39 ✓	3.45	1035	1907 ✓				
7	8432147	-.098	999.7	0	1.00	300	1918 ✓				↓
8	8433353	.920	198.8	4627.77	5.03	1509	1952 ✓				SGP96
9	8433354-4	.965	399.7	2414.31	2.50	750	2008 ✓				
10	↓ -D	1.061	418.5	2535.24	2.39	717	2019 ✓				
11	↓ -R	3.563	77.0	46272.73	12.99	3897	2026 ✓		SD=38961 113% IS		
12	8433357	.354	241.9	1463.41	4.13	1239	2034 ✓				↓
13	~~0.2~~ CCV 3.0	3053 ✓	0.2mL	IS			2047		102% ✓		
14	CCB	-.209	0.0	↓			2052				

(3) DCM 7.8.16

Verified by: SM 7/11/16 Date: 7/11/16

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 7.8.16

Instrument #: 76837

R^2: .9994 R=.9997

Analyst: SM 945

Sucrose Soln Lot #: 012015 exp. 1.2018

Run #: 161902

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
15	8433358	1.456	277.1	5254.42	3.61	1083	2104	16 1900495 31A			SGP94
16	8433409	.571	998.6	571.8	1.00	300	2116	↓			
17	8433413	.452	998.5	452.68	1.00	300	2129				
18	8433414	.401	999.3	401.28	1.00	300	2141				
19	CCV 3.0	2.967	0.2 mL	IS			2153		99%		
20	CCB	-.209	0.0	↓			2200				

SGP94 Page 865 of 875

Verified by: SM 1347 Date: 7/11/16

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Combustion TOC Prep Log
Analysis #2079, #0383

Phosphoric Lot # CL62216 exp. 12.22.16

Oven ID# 1887

Oven Temperature (°C) 75°

Tray #: 3D Balance ID: B35614 Time In: 1815 Time Out: 1830

Position	Date	Analyst	Sample #	Weight (mg)	Batch Number	Comments
A1	7.8.16	QSmyer	LCSS	144.5	161900495314	
A2	↓	↓	PBS	0.0	↓	
A3			8432145	339.8		
A4			8432146	289.5		
A5			8432147	999.7		
A6			8433353	198.8		
A7			8433354-u	399.7		
A8			↓ -D	418.5		
B1			↓ -R	77.0		
B2			8433357	241.9		
B3			8433358	277.1		
B4			8433409	998.6		
B5			8433413	998.5		
B6	↓	↓	8433414	999.3	↓	
B7						
B8						
C1						
C2						
C3						
C4						
C5						
C6						
C7						
C8						

Verified by: SM/347 Date: 7/11/16

MOISTURE

SAMPLE NUMBERS:

Sample #	Sample Code
8432118	SG-51
8432119	SG-52
8432120	SG-31
8432121	SG-32BKG
8432122	SG-32MS
8432123	SG-32MSD
8432124	SG-33
8432125	SG-FDFD
8432126	SG-34
8432129	SG-35
8432131	SG-36
8432132	SG-37
8432133	SG-41
8432134	SG-42
8432135	SG-38
8432136	SG-43
8432137	SG-44
8432138	SG-39
8432139	SG-45
8432141	SG-21
8432142	SG-22
8432143	SG-23
8432144	SG-24
8432145	SG-46
8432146	SG-47
8432147	SG-48

COMMENTS:

Method defined actions are taken for any failed matrix QC.

Laboratory Compliance Quality Control

Analysis Name	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 16178820001B	Sample number(s): 8432118-8432126, 8432129, 8432131-8432139, 8432141-8432142				
Moisture	100		99-101		
Moisture	100		99-101		
Moisture Duplicate	100		99-101		
Batch number: 16178820006A	Sample number(s): 8432143-8432147				
Moisture	100		99-101		

MOISTURE

Sample Matrix Quality Control

Analysis Name		BKG Conc	DUP Conc	RPD	RPD Max
Batch number:	16178820001B	Sample number(s):		8432118-8432126, 8432129, 8432131-8432139, 8432141-8432142	
Moisture		5.4	5.6	3	5
Moisture		5.4	5.6	3	5
Moisture Duplicate		5.4	5.6	3	5
Batch number:	16178820006A	Sample number(s):		8432143-8432147	
Moisture		34.0	38.5	12*	5

Batch (not project sample)

* - Outside of specification

(1) - The result for one or both determinations was less than five times the LOQ.

Moisture Data Report

Batch #: 16178820001

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
8432118	B	00111	1.0792	6.4088	6.2854	18.76	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432119	B	00111	1.0989	6.1060	6.1481	17.31	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432120	B	00111	1.0579	5.8714	6.5678	6.16	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432121BKG	B	00111	1.0556	5.8463	6.5858	5.41	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432122MS	B	00118				5.41	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432123MSD	B	00118				5.41	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432123MSD	B	00121	1.0931	5.4301	6.2211	5.56	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432124	B	00111	1.1198	6.1865	6.8888	6.75	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432125FD	B	00111	1.0894	5.6491	6.4123	5.77	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432126	B	00111	1.1038	5.8454	6.5158	7.41	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432129	B	00111	1.0838	6.2902	6.6449	11.59	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432131	B	00111	1.0785	5.1931	5.2490	19.69	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432132	B	00111	1.0947	5.4659	5.4448	20.41	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432133	B	00111	1.0681	5.4017	6.1841	5.29	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432134	B	00111	1.0817	5.4717	6.0045	10.03	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432135	B	00111	1.0820	7.1466	6.9545	17.83	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432136	B	00111	1.0951	5.6457	6.3752	6.48	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432137	B	00111	1.0731	5.2000	5.9399	6.41	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432138	B	00111	1.0786	5.7820	5.6882	20.28	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432139	B	00111	1.0953	5.3545	5.4367	18.92	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432141	B	00111	1.1001	5.0915	5.7725	8.23	6/27/16 (189/WCS)	6/28/16 (236/CW)
8432142	B	00111	1.0963	6.6117	7.2446	7.01	6/27/16 (189/WCS)	6/28/16 (236/CW)
LCS 89.5% Std.		00111	1.0801	5.0125	1.6080	89.47	6/27/16 (189/WCS)	6/28/16 (236/CW)

Batch #: 16178820006

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
8432143	A	00111	1.0700	5.9360	6.4930	8.64	6/28/16 (835/LEB)	6/29/16 (236/CW)
8432144	A	00111	1.0780	5.3980	5.7018	14.34	6/28/16 (835/LEB)	6/29/16 (236/CW)
8432145	A	00111	1.0850	5.4550	5.4982	19.10	6/28/16 (835/LEB)	6/29/16 (236/CW)
8432146	A	00111	1.0820	5.2400	5.7417	11.07	6/28/16 (835/LEB)	6/29/16 (236/CW)
8432147	A	00111	1.0510	5.3570	5.3641	19.49	6/28/16 (835/LEB)	6/29/16 (236/CW)
P432702BKG	A	00111	1.0890	5.6930	4.8482	33.97	6/28/16 (835/LEB)	6/29/16 (236/CW)
P432702DUP	A	00111	1.0920	5.3970	4.4127	38.47	6/28/16 (835/LEB)	6/29/16 (236/CW)
LCS 89.5% Std.		00111	1.0940	5.0540	1.6252	89.49	6/28/16 (835/LEB)	6/29/16 (236/CW)

not proj.

SECTION 7

LABORATORY CASE NARRATIVE AND

PROJECT CHAIN-OF-CUSTODY RECORD

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Sample Reference List for SDG Number SGP94 with a Data Package Type of I

37191 - C. T. Male Associates

Project: SGPP - Bennington

Lab Sample Number	Client Sample ID	Collection Date	Date Received
8432116	SG3-LTB01-20160615	06/08/2016 00:00	06/17/2016 09:40
8432117	SG3-RB01-20160615	06/15/2016 09:05	06/17/2016 09:40
8432118	SG3-MW05-05.0	06/15/2016 10:05	06/17/2016 09:40
8432119	SG3-MW05-09.0	06/15/2016 10:25	06/17/2016 09:40
8432120	SG3-MW03-00.0	06/15/2016 11:20	06/17/2016 09:40
8432121	SG3-MW03-00.5	06/15/2016 11:22	06/17/2016 09:40
8432122	SG3-MW03-00.5 MS	06/15/2016 11:22	06/17/2016 09:40
8432123	SG3-MW03-00.5 MSD	06/15/2016 11:22	06/17/2016 09:40
8432124	SG3-MW03-01.0	06/15/2016 11:30	06/17/2016 09:40
8432125	SG3-FD01-20160615	06/15/2016 11:28	06/17/2016 09:40
8432126	SG3-MW03-01.5	06/15/2016 11:37	06/17/2016 09:40
8432127	SG3-RB02-20160615	06/15/2016 11:25	06/17/2016 09:40
8432128	SG3-FTB01-20160615	06/15/2016 12:10	06/17/2016 09:40
8432129	SG3-MW03-03.5	06/15/2016 13:05	06/17/2016 09:40
8432130	SG3-RB03-20160615	06/15/2016 14:05	06/17/2016 09:40
8432131	SG3-MW03-06.0	06/15/2016 14:30	06/17/2016 09:40
8432132	SG3-MW03-09.5	06/15/2016 14:45	06/17/2016 09:40
8432133	SG3-MW04-00.0	06/16/2016 08:55	06/17/2016 09:40
8432134	SG3-MW04-00.5	06/16/2016 09:00	06/17/2016 09:40
8432135	SG3-MW03-17.0	06/15/2016 15:10	06/17/2016 09:40
8432136	SG3-MW04-01.0	06/16/2016 09:05	06/17/2016 09:40
8432137	SG3-MW04-01.5	06/16/2016 09:10	06/17/2016 09:40
8432138	SG3-MW03-11.0	06/16/2016 10:40	06/17/2016 09:40
8432139	SG3-MW04-4.5	06/16/2016 12:05	06/17/2016 09:40
8432140	SG3-RB01-20160616	06/16/2016 12:20	06/17/2016 09:40
8432141	SG3-MW02-00.0	06/16/2016 13:02	06/17/2016 09:40
8432142	SG3-MW02-00.5	06/16/2016 13:05	06/17/2016 09:40
8432143	SG3-MW02-01.0	06/16/2016 13:10	06/17/2016 09:40
8432144	SG3-MW02-01.5	06/16/2016 13:13	06/17/2016 09:40
8432145	SG3-MW04-08.0	06/16/2016 13:45	06/17/2016 09:40
8432146	SG3-MW04-09.5	06/16/2016 13:50	06/17/2016 09:40
8432147	SG3-MW04-12.5	06/16/2016 13:55	06/17/2016 09:40

Project Name: SGPP - Bennington
LL Group #: 1673381

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8432118, 8432119, 8432120, 8432121, 8432122, 8432123, 8432124, 8432125, 8432126, 8432129, 8432131, 8432132, 8432133, 8432134, 8432135, 8432136, 8432137, 8432138, 8432139

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 8432144, 8432145, 8432146, 8432147

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.
Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Sample #s: 8432141, 8432142, 8432143

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside of the required holding time and the Laboratory Control Spike(s) was within the QC acceptance limits.
Both sets of data are provided in the data package.

Batch #: 16172001 (Sample number(s): 8432116-8432117, 8432127-8432128, 8432130, 8432140 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluorobutanesulfonate, Perfluoro-octanesulfonate

Batch #: 16182008 (Sample number(s): 8432118-8432126, 8432129, 8432131-8432139, 8432141-8432143 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluoroundecanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluoroheptanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorodecanoic acid, Perfluoroundecanoic acid, Perfluorododecanoic acid

Batch #: 16190006 (Sample number(s): 8432144-8432147 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorotetradecanoic acid

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluoroheptanoic acid

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluoroheptanoic acid

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 8432119, 8432124, 8432135, 8432142

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 16180298731D (Sample number(s): 8432118-8432121, 8432124, 8432126, 8432129, 8432131-8432133 UNSPK: 8432121 BKG: 8432121)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 16181298731A (Sample number(s): 8432134-8432139, 8432141-8432144 UNSPK: 8432134 BKG: 8432134)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2540 G-1997, Wet Chemistry

Batch #: 16178820006A (Sample number(s): 8432143-8432147 BKG: P432702)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP94

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8432116	SG3-LTB01-20160615	X		1	Trip Blank
8432117	SG3-RB01-20160615	X		1	Material Rinse Blank
8432118	SG3-MW05-05.0		X	1	
8432119	SG3-MW05-09.0		X	1	
8432120	SG3-MW03-00.0		X	1	
8432121	SG3-MW03-00.5		X	1	Unspiked
8432122	SG3-MW03-00.5 MS		X	1	Matrix Spike
8432123	SG3-MW03-00.5 MSD		X	1	Matrix Spike Duplicate
8432124	SG3-MW03-01.0		X	1	
8432125	SG3-FD01-20160615		X	1	Field Duplicate Sample
8432126	SG3-MW03-01.5		X	1	
8432127	SG3-RB02-20160615	X		1	Material Rinse Blank
8432128	SG3-FTB01-20160615	X		1	Field Blank
8432129	SG3-MW03-03.5		X	1	
8432130	SG3-RB03-20160615	X		1	Material Rinse Blank
8432131	SG3-MW03-06.0		X	1	
8432132	SG3-MW03-09.5		X	1	
8432133	SG3-MW04-00.0		X	1	
8432134	SG3-MW04-00.5		X	1	
8432135	SG3-MW03-17.0		X	1	
8432136	SG3-MW04-01.0		X	1	
8432137	SG3-MW04-01.5		X	1	
8432138	SG3-MW03-11.0		X	1	
8432139	SG3-MW04-4.5		X	1	
8432140	SG3-RB01-20160616	X		1	Material Rinse Blank
8432141	SG3-MW02-00.0		X	1	
8432142	SG3-MW02-00.5		X	1	
8432143	SG3-MW02-01.0		X	1	
8432144	SG3-MW02-01.5		X	1	
8432145	SG3-MW04-08.0		X	1	
8432146	SG3-MW04-09.5		X	1	
8432147	SG3-MW04-12.5		X	1	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP94

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

(Sample number(s): 8432116-8432117, 8432127-8432128, 8432130, 8432140: Analysis: 10954)
The internal standard response for perfluoroheptanoic acid (PFHpA) in the continuing calibration standards (CCVs) was less than 50% of the average area measured during the initial calibration.

(Sample number(s): 8432121: Analysis: 14027)
The responses for PFUdA and PFDoA in the ending continuing calibration verification (CCV) standard were outside QC acceptance limits at 43.59% and 43.86%, respectively. Since the responses are high, indicating increased sensitivity, and PFUdA and PFDoA were not detected in this sample, the data is reported.

The response for PFTrDA in the ending continuing calibration verification (CCV) standard was outside QC acceptance limits at 58.92. Since the response is high, indicating increased sensitivity, and PFTrDA was not detected in the sample, the data is reported.

(Sample number(s): 8432122-8432123: Analysis: 14027)
The responses for PFUdA and PFDoA in the ending continuing calibration verification (CCV) standard were outside QC acceptance limits at 43.59% and 43.86%, respectively. Since the responses are high, indicating increased sensitivity, the data is reported.

The response for PFTrDA in the ending continuing calibration verification (CCV) standard was outside QC acceptance limits at 58.92. Since the response is high, indicating increased sensitivity, the data is reported.

(Sample number(s): 8432129, 8432131, 8432133-8432138: Analysis: 14027)
The response for PFTrDA in the ending continuing calibration verification (CCV) standard was outside QC acceptance limits at 58.92. Since the response is high, indicating increased sensitivity, and PFTrDA was not detected in the sample, the data is reported.

(Sample number(s): 8432139: Analysis: 14027)
The responses for PFUdA and PFDoA in the ending continuing calibration verification (CCV) standard were outside QC acceptance limits at 43.59% and 43.86%, respectively. Since the

Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP94

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

responses are high, indicating increased sensitivity, and PFUdA and PFDoA were not detected in this sample, the data is reported.

The response for PFTrDA in the ending continuing calibration verification (CCV) standard was outside QC acceptance limits at 58.92. Since the response is high, indicating increased sensitivity, and PFTrDA was not detected in the sample, the data is reported.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Method Blank

(Sample number(s): 8432118-8432126, 8432129, 8432131-8432139, 8432141-8432143: Analysis: 14027)
The internal standard responses for several compounds in the method blank were less than 50% of the average area measured during the initial calibration. Since the response is low, any result should be considered biased high.

(Sample number(s): 8432116-8432117, 8432127-8432128, 8432130, 8432140: Analysis: 10954)
The internal standard response for perfluoroheptanoic acid (PFHpA) in the method blank associated with this sample was less than 50% of the average area measured during the initial calibration.

LCS/LCSD

(Sample number(s): 8432116-8432117, 8432127-8432128, 8432130, 8432140: Analysis: 10954)
The internal standard response for perfluoroheptanoic acid (PFHpA) in this sample was less than 50% of the average area measured during the initial calibration. The recovery of PFHpA in the LCS/LCSD was within QC acceptance criteria therefore the data is reported.

(Sample number(s): 8432118-8432126, 8432129, 8432131-8432139, 8432141-8432143: Analysis: 14027)
The internal standard responses for several compounds were less than 50% of the average area measured during the initial calibration. Since the response is low, any result should be considered biased high.

(Sample number(s): 8432118-8432126, 8432129, 8432131-8432139, 8432141-8432147: Analysis: 14027)
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP94

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

(Sample number(s): 8432141-8432143: Analysis: 14027)
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside of the required holding time and the Laboratory Control Spike(s) was within the QC acceptance limits.
Both sets of data are provided in the data package.

Batch#: 16182008 (Sample number(s): 8432118-8432126, 8432129, 8432131-8432139, 8432141-8432143, UNSPK: 8432121)
The recovery(ies) for the following analyte(s) in the LCS exceeds the acceptance window indicating a positive bias: Perfluoroheptanoic acid, Perfluorohexanoic acid, Perfluorotetradecanoic acid, Perfluoroundecanoic acid

Batch#: 16190006 (Sample number(s): 8432144-8432147, UNSPK: 8432144)
The recovery(ies) for the following analyte(s) in the LCS exceeds the acceptance window indicating a positive bias: Perfluorotetradecanoic acid

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD is below the acceptance window: Perfluoroheptanoic acid
Refer to the QC Summary forms for more information.

MS/MSD

Please note that US EPA Methods for organic compounds do not require action by the laboratory based on out-of-specification MS/MSD results.

Batch#: 16182008 (Sample number(s): 8432118-8432126, 8432129, 8432131-8432139, 8432141-8432143, UNSPK: 8432121)
The recovery(ies) for the following analyte(s) in the MS and MSD is outside the acceptance window: Perfluorodecanoic acid, Perfluorododecanoic acid, Perfluoroundecanoic acid
Refer to the QC Summary forms for more information.

Batch#: 16190006 (Sample number(s): 8432144-8432147, UNSPK: 8432144)
The recovery(ies) for the following analyte(s) in the MS is outside the acceptance window: Perfluoroheptanoic acid

SAMPLE ANALYSIS:

(Sample number(s): 8432116: Analysis: 10954)
The internal standard response for perfluoroheptanoic acid (PFHpA) in this sample was less than 50% of the average area measured during the initial calibration.

Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP94

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

(Sample number(s): 8432117: Analysis: 10954)
The internal standard response for perfluorohexanoic acid (PFHxA) in this sample was less than 50% of the average area measured during the initial calibration.

The internal standard response for perfluoroheptanoic acid (PFHpA) in this sample was less than 50% of the average area measured during the initial calibration.

(Sample number(s): 8432125: Analysis: 14027)
The internal standard responses for several compounds were greater than 50% of the average area measured during the initial calibration.

(Sample number(s): 8432126: Analysis: 14027)
The internal standard responses for PFBS and PFHxS were greater than 50% of the average area measured during the initial calibration.

(Sample number(s): 8432127, 8432130: Analysis: 10954)
The internal standard response for perfluoroheptanoic acid (PFHpA) in this sample was less than 50% of the average area measured during the initial calibration. The result for PFHpA should be considered biased high.

(Sample number(s): 8432128: Analysis: 10954)
The internal standard response for perfluorohexanoic acid (PFHxA) in this sample was less than 50% of the average area measured during the initial calibration. The result for PFHxA should be considered biased high.

The internal standard response for perfluoroheptanoic acid (PFHpA) in this sample was less than 50% of the average area measured during the initial calibration. The result for PFHpA should be considered biased high.

(Sample number(s): 8432129: Analysis: 14027)
The internal standard responses for PFBS, PFHxS, and PFOS were greater than 50% of the average area measured during the initial calibration.

(Sample number(s): 8432140: Analysis: 10954)
The internal standard response for perfluorododecanoic acid (PFDoA) in this sample was less than 50% of the average area measured during the initial calibration.

The internal standard response for perfluorohexanoic acid (PFHxA) in this sample was less than 50% of the average area measured during the initial calibration.

The internal standard response for perfluoroheptanoic acid (PFHpA) in this sample was less than 50% of the average area measured during the initial calibration. The result for PFHpA should be considered biased high.

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP94

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

(Sample number(s): 8432144-8432147: Analysis: 14027)
Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP94

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8432118	SG3-MW05-05.0		X	1	
8432119	SG3-MW05-09.0		X	1	
8432120	SG3-MW03-00.0		X	1	
8432121	SG3-MW03-00.5		X	1	
8432124	SG3-MW03-01.0		X	1	
8432126	SG3-MW03-01.5		X	1	
8432129	SG3-MW03-03.5		X	1	
8432131	SG3-MW03-06.0		X	1	
8432132	SG3-MW03-09.5		X	1	
8432133	SG3-MW04-00.0		X	1	
8432134	SG3-MW04-00.5		X	1	
8432135	SG3-MW03-17.0		X	1	
8432136	SG3-MW04-01.0		X	1	
8432137	SG3-MW04-01.5		X	1	
8432138	SG3-MW03-11.0		X	1	
8432139	SG3-MW04-4.5		X	1	
8432141	SG3-MW02-00.0		X	1	
8432142	SG3-MW02-00.5		X	1	
8432143	SG3-MW02-01.0		X	1	
8432144	SG3-MW02-01.5		X	1	
8432145	SG3-MW04-08.0		X	1	
8432146	SG3-MW04-09.5		X	1	
8432147	SG3-MW04-12.5		X	1	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP94

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Method Blank

LCS/LCSD

MS/MSD

Surrogate

Sample Duplicate

Method defined actions are taken for any failed matrix QC.

Batch#: 16181298731A (Sample number(s): 8432134-8432139, 8432141-8432144, UNSPK: 8432134, BKG: 8432134)
The duplicate RPD for the following analyte(s) is outside the acceptance window: TOC

Batch#: 16180298731D (Sample number(s): 8432118-8432121, 8432124, 8432126, 8432129, 8432131-8432133, UNSPK: 8432121, BKG: 8432121)
The duplicate RPD for the following analyte(s) is outside the acceptance window: TOC

Serial Dilution

Post Digestion Spike

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

Additional Comments

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP94

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

(Sample number(s): 8432119, 8432124, 8432135, 8432142: Analysis: 02079)
Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Abbreviation Key

U = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
R = Matrix Spike (MS)	MDL = Method Detection Limit
M = Matrix Spike Duplicate (MSD)	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	NA = Not Applicable
HS = High Spike	ME = Method
LS = Low Spike	CO = Colorimetric
SS = Soluble Spike	G = Gravimetric
IS = Insoluble Spike	IR = Infrared Spectrophotometry
ISD = Insoluble Spike Duplicate	MTR = Meter
PDS = Post Digestion Spike	OD = Oven Dried
* = Out of Specification	TI = Titration
V = Visual	TOC = Total Organic Carbon
AK = Alpkem	IC = Ion Chromatography
TC = Total Carbon	RA = Rapid Analyzer

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Environmental Services Analysis Request/Chain of Custody

Page 1 of 4

Acct. #: 37191 Group #: 1673381 Sample #: 8432116-47 COC#: 14770

Client: C.T. Male Associates		
Project Name/#: SGPP - Bennington	Site ID:	
Project Manager: Kirk Moline	P.O. #: 16.6131	
Sampler: Jonathan Dippert		
Phone #: 518-786-7400	Quote #: 214135	
State where sample(s) were collected: VT		

For Lab Use Only
SF#: 271157
SCR#: 189860

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Matrix: Sediment; Ground; Surface; Soil; Potable; NPDES; Water; Other: Blank Water

Preservation Codes: PFCs (EPA 537 mod.) = O

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil/Sediment	Water	Other	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-LTB01-20160615	6/8/16	—					X	1		X		
SG3-RB01-20160615	6/15/16	0905	X				X	1		X		
SG3-MW05-05.0		1005	X		X			1		X		
~~SG3-MW0509.0~~		~~1025~~	~~X~~		~~X~~			~~1~~		~~X~~		
SG3-MW05-09.0		1025	X		X			1		X		
SG3-MW03-00.0		1120	X		X			1		X		
SG3-MW03-00.5		1122	X		X			3		X		MS/MSD here
SG3-MW03-01.0		1130	X		X			1		X		
SG3-FD01-20160615		1128	X		X			1		X		
SG3-MW03-01.5	↓	1137	X		X			1		X		

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results: K.Moline@ctmale.com

Relinquished by	Date	Time	Received by	Date	Time
[signature]	6/16/16	1730			
			[signature]	6-17-16	940

Data Package Options (please check if required)
- Type I (Validation/non-CLP) [ ] MA MCP [ ] TX TRRP - 13 [ ]
- Type III (Reduced non-CLP) [ ] CT RCP [ ]
- Type IV (CLP SOW) [ ] ASP Type A [ ]
- Type VI (Raw Data Only) [ ] ASP Type B [✓]

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Airbill No.:
Relinquished by Commercial Carrier:
UPS ____ FedEx X Other ____
Temperature upon receipt 1.2 °C

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1673381 Sample #: 8432116-47 COC#: 14785

Client: C.T. Male Associates		Matrix	For Lab Use Only
Project Name/#: SGPP - Bennington	Site ID:		SF#: 271157
Project Manager: Kirk Moline	P.O. #: ~~16.6120~~ 16.6131		SCR#: 190029
Sampler: Jonathan Dippert			
Phone #: 518 786 7400	Quote #: 214135		
State where sample(s) were collected: VT			

Analyses Requested: Moisture (2540 G); PFCs (EPA 537 mod.); TOC (5310 B)

Preservation Codes: PFCs (EPA 537 mod.): 0

Preservation Codes: H = HCl, T = Thiosulfate, $N = HNO_3$, B = NaOH, $S = H_2SO_4$, $P = H_3PO_4$, O = Other

Matrix: Soil / Sediment; Water: Potable, NPDES, Ground, Surface; Other: Blank Water

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other: Blank Water	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-RB02-20160615	6/15/16	1125	X				X	1		X		
~~SG3-TB01-20160615~~	~~6/15/16~~		~~X~~				~~X~~	~~1~~		~~X~~		
SG3-FTB01-20160615	6/15/16	1210	X				X	1		X		
SG3-MW03-03.5	6/15/16	1305	X		X			1		X		
SG3-RB03-20160615	6/15/16	1405	X				X	1		X		
~~SG3-RB03~~												
SG3-MW03-06.0	6/15/16	1430	X		X			1		X		
SG3-MW03-09.5	6/15/16	1445	X		X			1		X		
SG3-MW04-00.0	6/16/16	0855	X		X			1		X		
SG3-MW04-00.5	6/16/16	0900	X		X			1		X		

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☑		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by	Date	Time	Received by	Date	Time
[signature]	6-13-16	1245	[signature]	6/16/16	0730
[signature]	6/16/16	1730			
			[signature]	6-17-16	900

Airbill No.:

Relinquished by Commercial Carrier: UPS ____ FedEx X ____ Other ____

Temperature upon receipt 1.2 °C

Page 3 of 4

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1673881 Sample #: 8432116-47 COC#: 14785

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: ~~16.6126~~ 16.6131

Sampler: Jonathan Dippert

Phone #: 518 786 7400 Quote #: 214135

State where sample(s) were collected: VT

Matrix: Sediment ☐ / Soil ☒; Ground ☐ / Surface ☐; Potable ☐ / NPDES ☐; Water; Other: Blank Water

Analyses Requested: Moisture (2540 G); PFCs (EPA 537 mod.); TOC (5310 B)

Preservation Codes: PFCs (EPA 537 mod.) – O

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW03-17.0	6/15/16	1510	X		X			1		X		
SG3-MW04-01.0	6/16/16	0905	X		X			1		X		
SG3-MW04-01.5	↓	0910	X		X			1		X		
SG3-MW03-11.0		1040	X		X			1		X		
SG3-MW04-4.5		1205	X		X			1		X		
SG3-RB01-20160616		1220	X		X			1		X		
SG3-MW02-00.0		1302	X		X			1		X		
SG3-MW02-00.5		1305	X		X			1		X		
SG3-MW02-01.0		1310	X		X			1		X		
SG3-MW02-01.5	↓	1313	X		X			1		X		

For Lab Use Only
SF#: 271157
SCR#: 190029

Preservation Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 P = H_3PO_4
O = Other

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☑		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	6/16/16	1730			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: [signature]	6-17-16	940

Airbill No.:
Relinquished by Commercial Carrier:
UPS ____ FedEx X Other ____

Temperature upon receipt 1.2 °C

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1673381 Sample #: 8432116-17 COC#: 14785

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: ~~16.6180~~ 16.6131

Sampler: Jonathan Rippert

Phone #: 518 786 7400 Quote #: 214135

State where sample(s) were collected: VT

For Lab Use Only: SF#: 271157 SCR#: 190029

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil (Sediment ☒)	Water	Other:	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.) (Preservation: 0)	TOC (5310 B)	Remarks
SG3-MW04-08.0	6/16/16	1345	X		X					X		
SG3-MW04-09.5	↓	1350	X		X					X		
SG3-MW04-12.5	↓	1355	X		X					X		

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐

Type III (Reduced non-CLP) ☐ CT RCP ☐

Type IV (CLP SOW) ☐ ASP Type A ☐

Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by	Date	Time	Received by	Date	Time
[signature]	6/16/16	1730			
			[signature]	6.17.16	940

Airbill No.:

Relinquished by Commercial Carrier:

UPS ____ FedEx ✓ Other ____

Temperature upon receipt 1.2 °C

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Environmental Services Analysis Request/Chain of Custody

Page 1 of 3

Acct. #: 37191 Group #: ~~1673602~~ 1673381 Sample #: ~~8433321-117~~ 843 2116-47 DJB 6/20/16 COC#: 14770

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: 16.6131

Sampler: Jonathan Dippert

Phone #: 518-786-7400 Quote #: 214135

State where sample(s) were collected: VT

Matrix: Sediment / Ground / Surface / Potable / NPDES / Soil / Water / Other

Analyses Requested — Preservation Codes: Moisture (2540 G): O; PFCs (EPA 537 mod.); TOC (5310 B): O

For Lab Use Only: SF#: 271157 SCR#: 189860

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW05-05.0	6/15/16	1005	X		X			1	X		X	
SG3-MW05-09.0	↓	1025	X		X			1	X		X	
SG3-MW03-00.0	↓	1120	X		X			1	X		X	
SG3-MW03-00.5	↓	1122	X		X			1	X		X	
SG3-MW03-01.0	↓	1130	X		X			1	X		X	
SG3-MW03-01.5	↓	1137	X		X			1	X		X	
SG3-MW03-03.5	↓	1305	X		X			1	X		X	
SG3-MW03-06.0	↓	1430	X		X			1	X		X	
SG3-MW03-09.5	↓	1445	X		X			1	X		X	
SG3-MW04-00.0	6/16/16	0855	X		X			1	X		X	

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moline@ctmale.com

Data Package Options (please check if required)

- Type I (Validation/non-CLP) [ ]
- Type III (Reduced non-CLP) [ ]
- Type IV (CLP SOW) [ ]
- Type VI (Raw Data Only) [ ]
- MA MCP [ ]
- CT RCP [ ]
- ASP Type A [ ]
- ASP Type B [✓]
- TX TRRP - 13 [ ]

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	6/17/16	1600			
			[signature]	6/18/16	0950

Airbill No:

Relinquished by Commercial Carrier: UPS ____ FedEx X ____ Other ____

Temperature upon receipt 0.8 °C

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Environmental Services Analysis Request/Chain of Custody

Page 2 of 3

Acct. #: 37191 Group #: 1673602 381 Sample #: 8433324-47 2116 NB 6/20/16 COC#: 14785

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: ~~16.6128~~ 16.6131
Sampler: Jonathan Dippert	
Phone #: 518 786 7400	Quote #: 214135
State where sample(s) were collected: VT	

For Lab Use Only: SF#: 271157 SCR#: 190029

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Matrix: Sediment / Soil (checked); Water: Ground, Surface, Potable, NPDES; Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW04-00.5	6/16/16	0900	X		X			1	X		X	
SG3-MW03-17.0	6/15/16	1510	X		X			1	X		X	
SG3-MW04-01.0	6/16/16	0905	X		X			1	X		X	
SG3-MW04-01.5	↓	0910	X		X			1	X		X	
SG3-MW03-11.0	↓	1040	X		X			1	X		X	
SG3-MW04-04.5	↓	1205	X		X			1	X		X	
SG3-MW02-00.0	↓	1302	X		X			1	X		X	
SG3-MW02-00.5	↓	1305	X		X			1	X		X	
SG3-MW02-01.0	↓	1310	X		X			1	X		X	
SG3-MW02-01.5	↓	1313	X		X			1	X		X	

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by	Date	Time	Received by	Date	Time
[signature]	6/17/16	1600			
			[signature]	6/18/16	0925

Airbill No.:
Relinquished by Commercial Carrier: UPS ___ FedEx X ___ Other ___

Temperature upon receipt 0.8 °C

eurofins Lancaster Laboratories

Environmental Services Analysis Request/Chain of Custody

Page 3 of 3

Acct. #: 37191 Group #: 1673602 381 Sample #: 8433324 - 47 2114 MB 6/20/16 COC#: 14785

Client: C.T. Male Associates			
Project Name/#: SGPP - Bennington	Site ID:		
Project Manager: Kirk Moline	P.O. #: ~~46.6125~~ 16.6131		
Sampler: Jonathan Dippert			
Phone #: 518 786 7400	Quote #: 214135		
State where sample(s) were collected: VT			

For Lab Use Only: SF#: 271157 SCR#: 190029

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Matrix: Sediment / Soil [checked]; Water: Ground, Surface, Potable, NPDES; Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW04-08.0	6/16/16	1345	X		X			1	X		X	
SG3-MW04-09.5	↓	1350	X		X			1	X		X	
SG3-MW04-12.5	↓	1355	X		X			1	X		X	
SG3-MW02-05.0	6/17/16	1050	X		X			1	X		X	
SG3-MW02-08.0	↓	1110	X		X			1	X		X	
SG3-MW02-10.0	↓	1115	X		X			1	X		X	
SG3-MW02-06.0	↓	1320	X		X			1	X		X	

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	[ ]	MA MCP	[ ]	TX TRRP - 13	[ ]
Type III (Reduced non-CLP)	[ ]	CT RCP	[ ]		
Type IV (CLP SOW)	[ ]	ASP Type A	[ ]		
Type VI (Raw Data Only)	[ ]	ASP Type B	[✓]		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by	Date	Time	Received by	Date	Time
[signature]	6/17/16	1600			
			[signature]	6/18/16	0950

Airbill No.:

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 0.5 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 150852

Group Number(s): 1673381

Client: C.T. Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	06/17/2016 9:40
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved

Unpacked by Timothy Cubberley (6520) at 16:13 on 06/17/2016

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.2	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17601-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

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Sample Administration Receipt Documentation Log

Doc Log ID: 150946

Group Number(s): 1673682
381
MB 6/20/16

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	06/18/2016 9:50
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Karen Diem (3060) at 14:26 on 06/18/2016

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
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SECTION 8

PROJECT CORRESPONDENCE

Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Monday, September 26, 2016 4:28 PM
To: Meg Michell; Charles Neslund
Cc: David Blye; Al Tordini; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: Revised (II) Questions on ELLI calibration procedures

Meg,
The 06/14/2016 ICAL was initially processed for samples from extraction batch 16141004 (SGP47). The analyst then reprocessed the 06/14/2016 ICAL for samples in batch 16141003 (SGP45). PFDA and PFTeDA were manually integrated and when the ICAL was reprocessed, the integrations would have differed slightly thus the slight variations in response. The analyst was thinking in terms of making each extraction batch a stand-alone product. At the time these samples were generated, we did not have a way to show the manual integrations/original integrations on paper. They can be viewed electronically on the data system. Going forward, we now have a way to show the manual integrations/original integrations. Those will be sent in subsequent data packages as available.

The PFTeDA curve in SGP45 being a linear curve and in SGP47 being a quadratic curve is not incorrect. The SOP and method 537.1 allow for the use of either curve fit. Quite possibly the analysts was thinking DoD criteria for other samples they were running and chose to use a quadratic but I am not sure. The analyst is no longer employed by ELLE and not available to ask. Again, the quadratic curve fit is permitted by the method and SOP.

We agree that this isn't a best practice and is isolated to this analyst who is no longer with us.

Christine Ratcliff
Manager
Specialty Services

Eurofins Lancaster Laboratories Environmental, LLC
2425 New Holland Pike
Lancaster, PA 17601
717-556-7380

ChristineRatcliff@eurofinsUS.com

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Wednesday, September 21, 2016 5:54 PM
To: Charles Neslund; Christine Ratcliff
Cc: David Blye; Al Tordini; Moline, Kirk (k.moline@ctmale.com)
Subject: FW: Revised (II) Questions on ELLI calibration procedures

Hi Chuck and Christine-

As noted below, we recently came across the issue described below while conducting our review. Could you look into this and get back to us as soon as possible? Depending on the reasoning, it could impact our review process as we have been assuming that the same calibration would not vary amongst data sets.

Thanks for your help!

From: Al Tordini
Sent: Wednesday, September 21, 2016 5:24 PM
To: Meg Michell <mmichell@envstd.com>
Cc: Andrew Piasecki <apiasecki@envstd.com>
Subject: Revised (II) Questions on ELLI calibration procedures

Meg:

While reviewing the calibrations for SDGs SGP45 and SGP47, we came across a calibration common to both for which some questions have developed. The calibration in question is on Instrument 4000, with CAL1 acquisition at 6/14/2016 15:11.

1. The responses shown for PFTeDA and PFDA in CAL1 are slightly different in the two data packages (PFTeDA= 44928 in SGP45 and 44883 in SGP47; PFDA = 29479 in SGP45 and 29189 in SGP47). We need to understand the reason for these differences.
2. In the same initial calibration, PFTeDA in SGP45 was based on an (apparently) 1/x weighted linear curve. PFTeDA in SGP47 was based on an (apparently) weighted quadratic curve. We need to understand the reasoning behind using different models for the same calibration in different data packages.

We have not examined either package exhaustively, so there may be more instances of one or both of these issues. Before devoting additional time to the evaluation, we would like to understand the laboratory's reasoning.

Thanks.

Al Tordini
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Emergency Response Quality Assurance Hotline: 855.374.7272

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Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Monday, September 26, 2016 8:15 PM
To: Meg Michell; Charles Neslund
Cc: David Blye
Subject: RE: IS question

Meg,
These samples were acquired under two different acquisition methods (one for wipes and one for soils) using two different labeled analogues for C13 and C14. At the point these samples were acquired, we had not made the decision to use C13-PFDoDA for the C13 and C14 compounds.

Christine Ratcliff
Manager
Specialty Services

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2425 New Holland Pike
Lancaster, PA 17601
717-556-7380

ChristineRatcliff@eurofinsUS.com

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Friday, September 16, 2016 4:56 PM
To: Charles Neslund; Christine Ratcliff
Cc: David Blye
Subject: IS question

Hi-
As we try to understand the internal standards for the non-isotope dilution analytes, we keep coming across new scenarios that make me realize that I do not fully understand it.

As I understood it, the IS is selected on the basis of the initial calibration curve fit. However, I came across data where different internal standards were used for the same initial calibration for different sample sets. The calibration was performed on 5/13/16 (CAL1 at 12:52:59) and there are 2 calibration files – the first in ng/g for soil, 16126001S.rdb, and uses the labeled C11 for C13 and C14 – the second in ng/ml for wipes, 1612600Wipe.rdb, and uses the labeled C12 for C13 and C14. There are a few exceedances for CAL4, LCS, and/or CCVs when the labeled C12 is used. The wipes are all in SGP15 and the soils are in various packages (e.g., SGP18). There are positive results.

What other factors besides the initial calibration fit impact the IS selected?

Thanks!

Meg A. Michell
Senior Technical Chemist
Environmental Standards, Inc.
1140 Valley Forge Road • PO Box 810 • Valley Forge, PA 19482
610.935.5577 x422 • www.envstd.com • mmichell@envstd.com

Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Tuesday, October 4, 2016 3:10 PM
To: Meg Michell; Charles Neslund
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: 18O2-PFHxS as IS

Hi Meg,
18O2-PFHxS is not a new internal standard. When the method was initially set up, 18O2-PFHxS was misnamed as 13C-PFHxS. The same labeled compound has been used for all samples but now we are using the correct naming for this compound. This has been corrected in the revised SOPs.

I signed off on the revisions of the SOPs yesterday. I will see where they are in the process so that we can get them to you. I am confused by the water QC table? Chuck had sent Dave a table a few days after you both visited with all our acceptance criteria. Is that what you are referring to?

Christine Ratcliff
Manager
Specialty Services

Eurofins Lancaster Laboratories Environmental, LLC
2425 New Holland Pike
Lancaster, PA 17601
717-556-7380

ChristineRatcliff@eurofinsUS.com

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Monday, October 03, 2016 4:53 PM
To: Christine Ratcliff; Charles Neslund
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: FW: 18O2-PFHxS as IS

Hi-
In reviewing some more recent data, we are noting that a new IS was introduced. We have not looked closely at the data yet. Before we did, I wanted to understand if this is under the same SOP or if there are other differences that we should be aware of. This IS was not covered in the previous version of the SOP that we received.

Also, how are you coming on the SOP revisions and water QC table?

Thanks!!

From: Andrew Piasecki
Sent: Monday, October 3, 2016 4:16 PM
To: Meg Michell <mmichell@envstd.com>
Subject: 18O2-PFHxS as IS

Meg,

In SDGs SGP82, SGP87, and SGP88, the ICAL started on 7/11/16 at 15:25 on instrument API 4000 used 18O2-PFHxS as an internal

Andrew L. Piasecki
Quality Assurance Chemist
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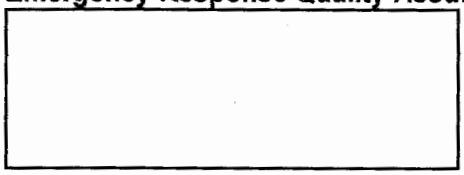

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Meg Michell

From: Charles Neslund <CharlesNeslund@eurofinsUS.com>
Sent: Monday, October 17, 2016 6:18 PM
To: Meg Michell; Christine Ratcliff
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: multiple transitions listed

Hi Meg,

Please see below.

Charles J. Neslund
Technical Director, Environmental Sciences

Eurofins Lancaster Laboratories Environmental, LLC
2425 New Holland Pike
Lancaster, PA 17601
office 717-556-7231
mobile 717-799-0439
CharlesNeslund@eurofinsUS.com

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Monday, October 17, 2016 12:28 PM
To: Christine Ratcliff; Charles Neslund
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: multiple transitions listed

Hi-
I wanted to check in on the response to this email and also the outstanding revisions for the sensitive soil data. Do you have an update?
Thanks!

From: Meg Michell
Sent: Thursday, October 13, 2016 10:36 AM
To: 'Christine Ratcliff' <ChristineRatcliff@eurofinsUS.com>; Charles Neslund <CharlesNeslund@eurofinsUS.com>
Cc: David Blye <DBLYE@envstd.com>; Moline, Kirk (k.moline@ctmale.com) <k.moline@ctmale.com>
Subject: multiple transitions listed

Hi-
We talked about this on the day that we met with you, but I want to make sure that we are clear on this issue so that we can explain it properly in our reports. On the one instrument, multiple transitions (see below) are listed. What does this mean in terms of:

- Are multiple transitions monitored?
  Yes, multiple transitions are monitored. In the examples below, for PFBS the transition 299 to 80 and the transition 299 to 99 are being monitored.
- Which transition(s) is/are used for quantitation? If only one transition is used for quantitation, how do we know which one it is?
  In the examples below, both transitions that are listed are used for quantitation. The transitions are summed. The use of the acronym TIC in the upper right indicates Total Ion or the sum of the ion transitions. If only one transitions is used, then only one is displayed, numerically and graphically.

- Which transition(s) is/are reflected by the ion trace? If only one transition is reflected in the ion trace, how do we know which it is?

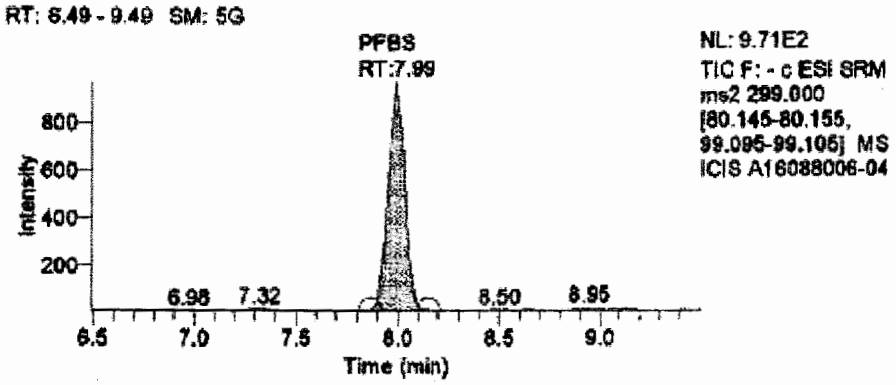
Where it is listed as TIC, the ion trace, the peak/chromatogram is the summed responses for the transitions used for quantitation.

- If only one is used for quantitation and/or shown in the trace, where is the data stored/presented for the 2nd (and/or 3rd) transition?

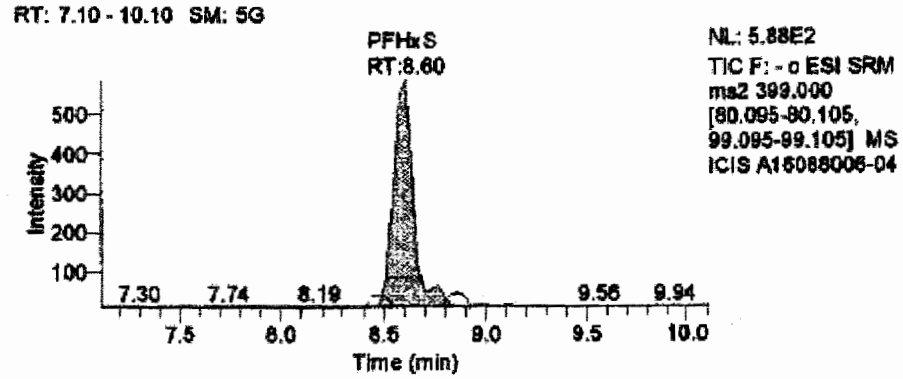
I think this is answered by the response to the last bullet. They both are used.

Thanks!!

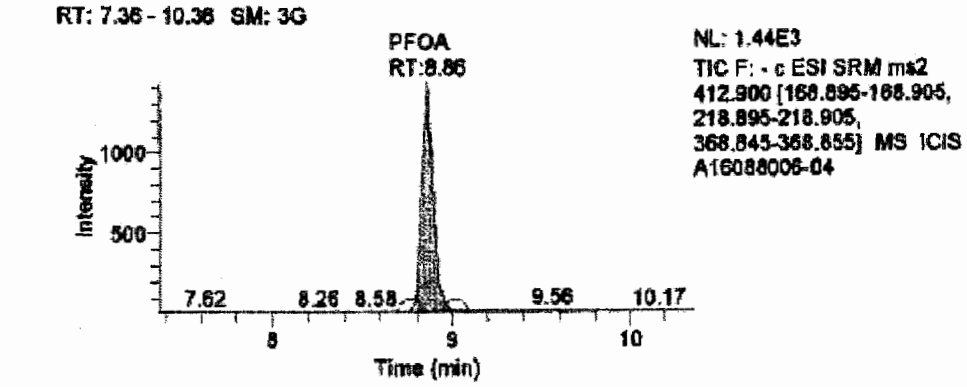
Identification
Filter: - c ESI SRM ms2 299.00 [80.14-80.16, 99.09-99.11]

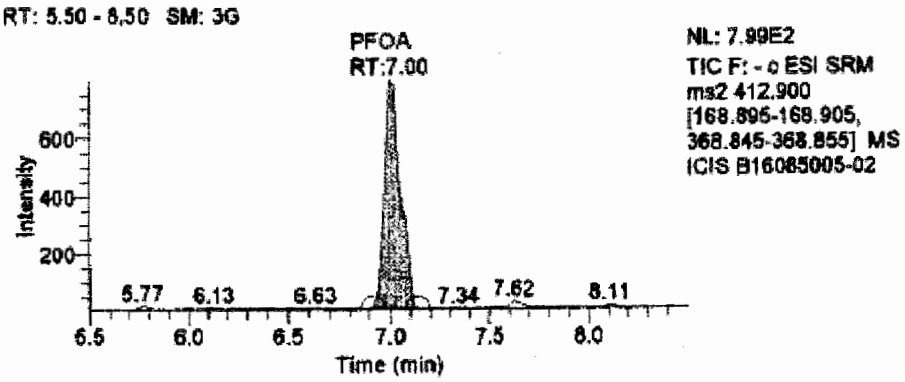


Identification
Filter: - c ESI SRM ms2 399.00 [80.09-80.11, 99.09-99.11]



Identification
Filter: - c ESI SRM ms2 412.90 [168.90-168.91, 218.90-218.91, 368.85-368.86]





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Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Saturday, May 27, 2017 3:09 PM
To: Meg Michell; Nancy Bornholm
Cc: Charles Neslund; David Blye; Moline, Kirk (k.moline@ctmale.com); 'mtreanor@barr.com'; Steve Zeiner; StGobain; Ward Swanson (WSwanson@barr.com); Al Tordini; Terri A. Olson; Dana B. Pasi; Tom Weinmann
Subject: RE: Missing calibration in Saint Gobain PFAS data, SDG SGP94

Hi Meg,
See below for responses. A revised data package and EDD will be issued.

Thanks

Christine Ratcliff
Manager
HRMS Group/PFAS Group

Eurofins Lancaster Laboratories Environmental LLC
2425 New Holland Pike
Lancaster, PA 17601
USA

Phone: 717-556-7380
Fax: 717-656-2681

ChristineRatcliff@EurofinsUS.com
www.EurofinsUS.com\LancLabsEnv

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Thursday, May 11, 2017 10:29 AM
To: Nancy Bornholm
Cc: Christine Ratcliff; Charles Neslund; David Blye; Moline, Kirk (k.moline@ctmale.com); 'mtreanor@barr.com'; Steve Zeiner; StGobain; Ward Swanson (WSwanson@barr.com); Al Tordini; Terri A. Olson; Dana B. Pasi; Tom Weinmann
Subject: RE: Missing calibration in Saint Gobain PFAS data, SDG SGP94

Hi-
We have some additional requests for this SDG:

- The spike added in the MSD of sample 8432121 was not adjusted based on the use of the sulfonate salts. This has been corrected.
- Aqueous MDLs/LOQs were reported on some of the solid method blanks quality control summary forms – 16203007, 16215005 This has been corrected.
- Sample 8432132: Middle points were dropped from the ICAL for PFOS, PFNA, and PFDA although for other samples in SDG (8432141-8432143) all points were included under a different processing of the same ICAL data This has been corrected. The data was processed correctly using all calibration points. However when the chemist printed the raw data, somehow these points were not turned on in the software. No reported results changed with the reprinting of the calibration.

- Samples 8432144-8432147: the results for these were adjusted for exact weight but not the MDLs/LOQs – please update as in the past This has been corrected.
- Samples 8432144-8432147: the branched peak for PFOA was not integrated This has been corrected.
- Samples 8432116, 8432117, 8432127, 8432140: The equation for PFOA is y= -0.0346049+0.0283928*x. When y is 0, x=1.22 ng/L, which is above the aqueous MDL. Very small peaks/noise quantitated above the MDL in these samples. PFOA was changed to a false positive due to the y-intercept inflating the sample results.
- Sample 8432128 (PFDA) and 8432130 (PFOA) – should the shoulder on the back of the peak be integrated? The chemist reviewed the integrations and chose to leave them as initially reported.
- Sample 8432140 (PFDA)– should all of the double peak be integrated? I think you mean PFNA? If so, there is no real point where we would feel comfortable splitting the peak.
- The final volume was not reported or incorrectly reported as 1 uL on the extraction logs for 16203007 and 16215005 This has been corrected.

Thanks!!

From: Nancy Bornholm [mailto:NancyBornholm@eurofinsUS.com]
Sent: Wednesday, April 5, 2017 3:54 PM
To: Meg Michell <mmichell@envstd.com>
Cc: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>; Charles Neslund <CharlesNeslund@eurofinsUS.com>; David Blye <DBLYE@envstd.com>; Moline, Kirk (k.moline@ctmale.com) <k.moline@ctmale.com>; 'mtreanor@barr.com' <mtreanor@barr.com>; Steve Zeiner <szeiner@envstd.com>; StGobain <StGobain@envstd.com>; Ward Swanson (WSwanson@barr.com) <WSwanson@barr.com>; Al Tordini <ATordini@envstd.com>; Terri A. Olson <TOlson@barr.com>
Subject: RE: Missing calibration in Saint Gobain PFAS data, SDG SGP94

Attached is the missing curve.

Nancy
717-556-7250
Nancy Bornholm
Eurofins Lancaster Laboratories
Environmental, LLC

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Tuesday, April 04, 2017 9:58 AM
To: Nancy Bornholm
Cc: Christine Ratcliff; Charles Neslund; David Blye; Moline, Kirk (k.moline@ctmale.com); 'mtreanor@barr.com'; Steve Zeiner; StGobain; Ward Swanson (WSwanson@barr.com); Al Tordini; Terri A. Olson
Subject: FW: Missing calibration in Saint Gobain PFAS data, SDG SGP94

Hi-
Could you provide the PFC data identified below? We need this to continue the review. We will likely have additional requests later so you can send it as a separate file for now if it is easier.
Thanks!

From: Al Tordini
Sent: Tuesday, April 4, 2017 9:53 AM
To: Meg Michell <mmichell@envstd.com>
Subject: Missing calibration in Saint Gobain PFAS data, SDG SGP94

Meg:

SDG SGP94 contains a Sequence Table for an ICAL run on 7/14/16 (page 362), but there are no associated curves for that calibration.

Al Tordini
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DATA USABILITY SUMMARY REPORT

ANALYSIS OF PERFLUORINATED COMPOUNDS

IN SOIL SAMPLES AND AQUEOUS BLANKS

1030 WATER STREET, VILLAGE OF NORTH BENNINGTON,

BENNINGTON COUNTY VERMONT, VTDEC SMS SITE # 20164630

SAMPLE DELIVERY GROUP: SGP96

June 21, 2017

Prepared for:

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

Prepared by:

ENVIRONMENTAL STANDARDS, INC.
1140 Valley Forge Road
P.O. Box 810
Valley Forge, PA 19482-0810

In conjunction with:

BARR ENGINEERING COMPANY
4300 MarketPointe Drive
Minneapolis, MN 55435

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TABLE OF CONTENTS

Introduction

Section 1 **Quality Assurance Review**

A. Organic Data Review

B. General Parameter Data Review

C. Conclusions

Section 2 **Validated Data Summary Tables**

Section 3 **Laboratory Calibration and Quality Control Acceptance Criteria**

Section 4 **Environmental Standards, Inc., Standard Operating Procedure**

Section 5 **Organic Data Support Documentation**

Section 6 **General Parameter Data Support Documentation**

Section 7 **Laboratory Case Narrative and Project Chain-of-Custody Record**

Section 8 **Project Correspondence**

Introduction

This Data Usability Summary Report (DUSR) was based upon an examination of the data generated from samples that were collected on June 8 and 17, 2016, as part of the 1030 Water Street, Village of North Bennington, Vermont project based on the "Initial Site Characterization Investigation Work Plan Saint-Gobain Performance Plastics Site 1030 Water Street, Village of North Bennington, Bennington County, Vermont" (Work Plan, April 2016). The analyses of the samples (and associated quality control [QC] samples) listed on the table below were performed by Eurofins Lancaster Laboratories Environmental (ELLE) of Lancaster, Pennsylvania. Soil samples were analyzed for perfluorinated compounds (PFCs) according to ELLE's internal standard operating procedure (SOP) "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins document reference 1-P-QM-WI-9035864, Rev. 2), total organic carbon (TOC) according to Standard Method (SM) 5310B, and percent moisture according to SM 2540G. Aqueous blank samples were analyzed for PFCs according to ELLE's internal SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins document reference 1-P-QM-WI -9012802, Rev. 5). Comprehensive data deliverables were prepared by the laboratory and were reviewed by Barr Engineering Company (Barr) and Environmental Standards, Inc. (Environmental Standards). The samples that have undergone a quality assurance (QA) review are listed on Table 1. Table 1 also presents the laboratory sample number, laboratory Sample Delivery Group (SDG), matrix, collection date, parameters analyzed and reviewed, and review type for the samples.

The reported analytical results are presented on the validated data summary tables included in Section 2. These validated data summary tables were generated from electronic data deliverables (EDDs) provided by the laboratory and have been edited by the data reviewer to include all final data validation qualifiers and results. The "Lab Result," "Lab MDL" (*i.e.*, the method detection limit [MDL]), "Lab LOQ" (*i.e.*, the limit of quantitation [LOQ]), "Lab Qualifier," and "Lab Detect Flag" fields presented on the validated data summary tables were derived directly from the laboratory-provided EDD. Errors in the "Lab Result," "Lab MDL," "Lab LOQ," and "Lab Detect Flag" fields noted during validation have been corrected, and the corrections are reflected in the "Final Result," "Final MDL," "Final LOQ," and "Final Detect Flag" fields, respectively, on the validated data summary tables. Validation qualifier codes have been placed in the "Validation Qualifier" fields on the data tables to enable the data user to quickly assess the qualitative and/or quantitative reliability of a result based on the criteria evaluated during this QA review. Finally, the "Validation Reason Code" field has been populated with codes that indicate the reason for the validation qualifiers. Definitions of the validation qualifier and reason codes are presented with the validated data summary tables.

This DUSR has been performed with guidance from the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016), and the "National Functional Guidelines for High Resolution Superfund Methods Data Review" (US EPA, April 2016) for the PFC analyses and from the "National Functional Guidelines for Inorganic Superfund Data Review" (US EPA, September 2016) for TOC and percent moisture analyses; however, these

validation guidance documents specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocol performed by the laboratory for these samples. Environmental Standards used professional judgment to determine the usability of the analytical results and compliance relative to the requirements specified in the Work Plan, US EPA Method 537, ELLE's internal SOPs for PFC analysis, SM 5310B for TOC analysis, and SM 2540G for percent moisture analysis. US EPA Method 537 is written strictly for drinking water samples and no approved US EPA method currently exists for other sample matrices. Although ELLE's internal SOPs reference US EPA Method 537 for PFC analysis, the procedures are really "in-house" procedures that are also considered "Confidential Information"; therefore, a summary of the Calibration and QC Requirements used by ELLE for PFC analysis has been included in Section 3. In addition, the SOP used by Environmental Standards to validate data generated under the ELLE PFC SOPs is provided in Section 4. Details of this QA review are presented in Section 1 of this DUSR.

This DUSR identifies data quality issues for specific samples and specific evaluation criteria. The data qualifications allow the data end-user to best understand the usability of the analysis results. Data not qualified in this report should be considered valid based on the QC criteria that have been reviewed.

Section 5 of the report presents the Organic Data Support Documentation for this DUSR and Section 6 of the report presents the General Parameter Data Support Documentation for this DUSR. Section 7 presents copies of the Laboratory Case Narrative and Project Chain-of-Custody (COC) Record. Section 8 presents the Project Correspondence.

TABLE 1 – SUMMARY OF SAMPLES REVIEWED

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3-LTB-20160617 (Trip Blank)	8433348	SGP96	Aq	6/8/16**	F*	PFC
SG3-FTB-20160617 (Field Blank)	8433349	SGP96	Aq	6/17/16	F*	PFC
SG3-RB01-20160617 (Rinse Blank)	8433350	SGP96	Aq	6/17/16	F*	PFC
SG3-RB02-20160617 (Rinse Blank)	8433351	SGP96	Aq	6/17/16	F*	PFC
SG3-RB03-20160617 (Rinse Blank)	8433352	SGP96	Aq	6/17/16	F*	PFC
SG3-MW02-05.0	8433353	SGP96	Soil	6/17/16	F* L	PFC TOC, Mois
SG3-MW02-08.0	8433354	SGP96	Soil	6/17/16	F* L	PFC TOC, Mois
SG3-MW02-08.0MS (Matrix Spike)	8433355	SGP96	Soil	6/17/16	F* L	PFC TOC
SG3-MW02-08.0MSD (Matrix Spike Duplicate)	8433356	SGP96	Soil	6/17/16	F*	PFC
SG3-MW02-08.0DUP (Laboratory Duplicate)	8433354DUP	SGP96	Soil	6/17/16	L	TOC, Mois
SG3-MW02-10.0	8433357	SGP96	Soil	6/17/16	F* L	PFC TOC, Mois
SG3-MW02-06.0	8433358	SGP96	Soil	6/17/16	F* L	PFC TOC, Mois
SG3-FD01-20160617 (Field Duplicate of SG3-MW02-05.0)	8433359	SGP96	Soil	6/17/16	F* L	PFC Mois

NOTES:

PFC - Perfluorinated Compounds (PFCs) according to ELLE's SOP "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins document reference 1-P-QM-WI-9035864, Rev. 2) for soil samples or ELLE's SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins document reference 1-P-QM-WI -9012802, Rev. 5) for aqueous blank samples. (12 Full analyses)

TOC - Total Organic Carbon by Standard Method 5310B. (6 Limited analyses)

Mois - Percent Moisture by Standard Method 2540G. (6 Limited analyses)

Aq - Aqueous.

TABLE 1 (Cont.)

NOTES (Cont):

F* - Full QA Review (performed in association with Barr personnel).
L - Limited QA Review.
** - This collection date was recorded on the Chain-of-Custody Record for the trip blank and pre-dates the collection date of the associated field samples. The data reviewer used the earliest collection date of the associated samples in order to evaluate holding time for the trip blank.

Section 1 Quality Assurance Review

A. Organic Data Review

The organic analyses of seven soil samples (including QC samples) and five aqueous blanks collected as part of the 1030 Water Street, Village of North Bennington, Vermont project on June 8 and 17, 2016, were performed by ELLE. Soil samples were analyzed for PFCs according to ELLE's internal SOP "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins document reference 1-P-QM-WI-9035864, Rev. 2). Aqueous blank samples were analyzed for PFCs according to ELLE's internal SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins document reference 1-P-QM-WI-9012802, Rev. 5). Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data were presented in comprehensive data deliverables.

Barr personnel performed the initial data review and Environmental Standards personnel conducted a secondary peer review and prepared this report. The findings offered in this report are based upon a review of all tabulated QC summary forms and raw data including the following QC measures:

- Sample and extract holding times
- Blank analysis results
- Second-source initial calibration verification (ICV) recoveries
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Labeled compound responses
- Analytical sequence
- Quantitation of results
- Sample condition upon laboratory receipt
- Initial calibrations
- Continuing calibration verification (CCV) recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate precision
- Qualitative identification

The analytical results for the organic target compounds are presented on the validated data summary tables in Section 2 of this report. The validated data summary tables include the full names of the target analytes along with their associated acronyms, which are used throughout the text of this DUSR. A summary of ELLE's Calibration and QC Requirements has been included in Section 3. The SOP used by Environmental Standards to validate data generated under the ELLE SOP is provided in Section 4. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, relevant raw data, and other documentation needed to support the findings in this DUSR in the Organic Data Support Documentation (Section 5), Laboratory Case Narrative and Project Chain-of-Custody Record (Section 7), and Project Correspondence

(Section 8). The data reviewer has also manually edited the laboratory-reported data, and QC summary forms included in these sections based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Usability issues are addressed in the subsequent Organic Data Qualifiers section. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the ELLE internal SOPs and the reference method, US EPA Method 537, Revision 1.1.

Reporting Issues

1. The MDLs and LOQs reported by the laboratory for PFCs in soil samples and their associated batch QC (method blank, LCS, and MS/MSD) were calculated based on a sample weight of 5.00 g in the original data package and EDD provided. The actual sample weight, as recorded on the extraction log, was between 4.50 g and 5.50 g for soil samples. Upon inquiry, the laboratory revised the MDLs and LOQs to reflect the actual sample weights as used for the positive results (refer to Project Correspondence). All results, MDLs, and LOQs reported by the laboratory for PFCs in aqueous blank samples and their associated batch QC (method blank, LCS, and MS/MSD) were calculated based on a sample weight of 100.00 g and assuming a sample density equivalent to water density of 1.00 g/mL. The actual sample weight, as recorded on the extraction log, was between 99.50 g and 100.50 g for aqueous samples; therefore, the reported results, MDLs, and LOQs may be minimally off (± 0.5%) from the actual measured values. The laboratory has since begun using the actual sample weights in these calculations.

2. The instrument systems used for the PFC analysis were not compatible with the laboratory information management system (LIMS) at the time of the analysis of the samples included in this DUSR. As a result, the laboratory entered 100% of the data (samples, QC, and calibration results) into LIMS manually. The laboratory review process included 100% verification (secondary-level review) of the information presented on the “Analysis Report” section of the data package. The “Analysis Report” section includes sample and batch QC results. All forms presented in the “Quality Control and Calibration Summary Forms” section of the data package were only spot-checked during the secondary level review performed at the laboratory.

   The data reviewer noted frequent errors on the forms presented in the “Quality Control and Calibration Summary Forms” section of the data package; however, these errors did not have a direct impact on sample results because the results were also manually entered into LIMS and not calculated based on the information presented on these forms. Much of the information presented on the forms in “Quality Control and Calibration Summary Forms” section was repeated, either in the “Analysis Report” (method blank, LCS, and MS/MSD) or on a summary generated directly from the instrument (with 100% electronic transfer) and presented in the “Standards Data” section of the data package. Where an alternate form was provided in the “Analysis Report” or

"Standards Data" sections of the data package, the data reviewer did not verify the information also presented in the "Quality Control and Calibration Summary Forms" section.

The only information in the "Quality Control and Calibration Summary Forms" section that is not in a summary in the "Analysis Report" or "Standards Data" sections is the "Quality Control Summary" for "Internal Standards." The data reviewer verified the information presented on the Internal Standard summary forms and has indicated the presence of any errors (including errors in flagging internal standards outside of limits) in the Organic Data Support Documentation section of this DUSR. The data reviewer used the corrected values to evaluate internal standard performance.

3. In some cases, the criteria presented on various calibration and QC summary forms included in the data packages were disparate with the criteria presented in ELLE's internal SOPs. In addition, the laboratory noted exceedances in the Case Narrative that were sometimes not consistent with the SOP criteria. Upon request for clarification, ELLE provided a summary of the Calibration and QC Requirements relevant to the PFC analyses performed, which has been included in Section 3. Some of the criteria provided was different than that presented in either the internal ELLE SOPs or presented in the data packages. The data reviewer evaluated the data based on the criteria presented in Section 3 as detailed in the data validation SOP in Section 4.

4. According to laboratory personnel (refer to Project Correspondence), initial calibrations were processed on a batch basis, such that disparities were observed between separate versions of the same initial calibration in different data sets. These disparities could include minor differences in peak integrations (and responses) and differences in the internal standards utilized for PFBS, PFTA, and PFTriA, which do not have exact labeled internal standards. Where the initial calibration was common amongst multiple SDGs (including aforementioned processing factors), it was validated only once; therefore, the support documentation will include copies of forms (including Internal Standard summary forms) from the SDG in which it was validated.

5. The laboratory incorrectly identified the internal standard $^{18}O_2$-PFHxS as ^{13}C-PFHxS in the raw data associated with the aqueous blank samples and the non-reported analyses for the soil samples (refer to Project Correspondence). The internal standard has been correctly referred to as $^{18}O_2$-PFHxS in this report.

6. The laboratory reported a positive result of 0.90 ng/g and 0.94 ng/g for PFBS (0.79 ng/g and 0.77 ng/g wet-weight) on the Analysis Reports and in the EDD for the samples SG3-MW02-10.0 and SG3-FD01-20160617, respectively in the original data package provided. A review of the initial calibration curve used to quantitate the result revealed a x-intercept equivalent to 0.80 ng/g (wet-weight). Upon inquiry, the laboratory revised the Analysis Reports and EDD to reflect a "not-detected" result for PFBS in the samples (refer to Project Correspondence).

7. The laboratory did not initially integrate peaks at the correct retention time (RT) for PFHxA in samples SG3-RB01-20160617 and SG3-RB02-20160617. Upon request, the laboratory integrated the PFHxA peaks and updated the data package and EDD accordingly (refer to Project Correspondence).

8. The laboratory recorded the final volume as 1 µL on the organic extraction log for batch 16201005. The correct final volume was 1 mL. The data reviewer hand-corrected the logs to reflect the correct final volume.

Procedural Issues

1. US EPA Method 537 is listed as the reference method in the title of the ELLE SOPs; however, US EPA Method 537 is written specifically for the analysis of drinking water samples. As a result, the laboratory has made modifications to the extraction procedure to accommodate preparation of non-aqueous samples (ultrasonic extraction for an hour with 4:1 acetonitrile/water mixture vs. solid-phase extraction). In addition, the laboratory has made other modifications, including, but not limited to, the following:

   - For aqueous blank samples, 100 mL was subsampled for extraction instead of using the entire container contents (250 mL), and Sep-Pak C18 solid-phase extraction cartridges were used instead of polystyrenedivinylbenzene.
   - The laboratory utilized additional labeled analogs of the target PFCs, where available for use, as pre-extraction internal standards (all target PFCs except PFBS, PFTA, and PFTriA), which generally should normalize any extraction inefficiency and provide greater accuracy in quantitation.
   - As the labeled internal standards were added prior to extractions, additional labeled surrogate compounds were not used.
   - A holding time of 28 days from collection to extraction was used for soils.
   - The calibration and QC requirements that were used are presented in Section 3 and are less restrictive than US EPA Method 537 in some cases.
   - The laboratory did not control the relative percent difference (RPD) between the high and low areas for each internal standard in the initial calibration (must be < 20% by US EPA Method 537, Version 1.1).
   - The laboratory did not calculate the peak asymmetry factor.
   - The laboratory did not use the lowest and highest standards from the initial calibration in the CCV standard rotation.
   - The laboratory did not rotate the concentration used for the LCS.
   - The calibration standards only included the linear PFC isomers and available branched/linear standards were not analyzed for qualitative or quantitative purposes.
   - The calibration curves were not always forced through zero.
   - Alternate ion transitions were used for PFBS, PFHxS, PFOS, and ^{13}C-PFOS (299→99 instead of 299→80 for PFBS, 399→99 instead of 399→80 for PFHxS, 499→99 instead of 499→80 for PFOS, and 503→99 instead of 503→80 for ^{13}C-PFOS) - the fragment represented by *m/z* 80 is the sulfonate group; whereas,

the fragment represented by *m/z* 99 is the fluorinated sulfonate group (refer to Procedural Issue No. 3 for exceptions).

US EPA Method 537 requires the use of 499→80 for PFOS and 399→80 for PFHxS. Studies[1] have shown that quantifying with a linear standard using the 499→99 transition may underestimate the PFOS concentration because many of the branched isomers have a lower response than the linear isomer. Conversely, using only the 499→80 transition could overestimate PFOS if branched isomers are quantitated based on a linear standard. It is unknown whether the same potential biases are present for the 399→99 and 399→80 transitions for PFHxS and 299→99 and 299→80 transitions for PFBS.

2. Where transition ion peaks were observed and deemed by laboratory personnel to represent branched isomers in samples, the responses for such peaks were included in the response for the analyte and used to quantitate the sample results. The laboratory did not analyze standards that included both branched and linear isomers, and the laboratory's SOP did not specify RT criteria for determining whether peaks other than the peak representative of the linear isomer (based on calibration standards) should be included.

3. In some cases, multiple ion transitions were monitored and used for qualitative identification and quantitation. In these cases, the response for the compound represents a sum of the responses for the multiple ion transitions in the calibration standard, QC, and sample analyses. For the aqueous blank samples and the non-reported soil sample analyses, multiple ion transitions were used for PFBS (299→80 and 399→99), PFHxS (**399→80** and 399→99), PFOS (**499→80** and 499→99), and PFOA (413→169, 413→219, and 413→369) and the associated labeled internal standards $^{18}O_2$-PFHxS (403→84 and 403→103), $^{13}C_4$-PFOS (503→80 and 503→99), and $^{13}C_4$-PFOA (417→169 and 417→372). The response for the compounds in the aforementioned analyses may represent the response for one ion transition or multiple ion transitions (in any ratio), as separate responses were not acquired by the instrument. The use of summed multiple ion transitions for qualitative identification and quantitation is not described in the reference method (US EPA 537) and should be considered a non-standard technique. As a result, any impact to qualitative identification and quantitation caused by the use of this technique is unknown. As only one of the multiple ion transitions have to be present at the expected RT to generate a response, there may be a greater chance for a co-eluting interferent to create a false positive or provide positive bias. Quantitation may also be impacted by a different ratio of the ion transitions in the calibration standards than in the samples (as may be caused by the presence of branched isomers). The soil sample results were reported from analyses that did not use multiple ion transitions; therefore, the reported results were not impacted by this issue. Various PFCs were not detected in the aqueous blank samples; however, no

[1] See Riddell, N. *et al.* Branched Perfluorooctane Sulfonate Isomer Quantification and Characterization in Blood Serum Samples by HPLC/ESI-MS(/MS). *Environ. Sci. Technol.* **2009**, 43, 7902-7908.

unusual chromatographic interference was observed. There is no impact to "not-detected" results with the exception of PFOS in sample SG3-RB01-20160617, where significant chromatographic interference was observed. The PFOS result in this sample has been qualified as addressed in the subsequent Organic Data Qualifiers section.

4. The internal standards the laboratory used for quantitation of PFBS, PFTA, and PFTriA vary, but were consistent within an analytical sequence under the same initial calibration. The internal standards that were used for PFBS include $^{13}C_2$-PFHxA, $^{18}O_2$-PFHxS, and $^{13}C_4$-PFOS. The internal standards that were used for PFTA and PFTriA include $^{13}C_2$-PFUnA and $^{13}C_2$-PFDoA. If the samples and associated QC samples within an extraction batch were reported from different analytical sequences, different internal standards may have been used for PFBS, PFTA, and PFTriA within the extraction batch. The laboratory began to use consistent internal standards for some of the analyses included in this data set (PFBS using $^{18}O_2$-PFHxS and PFTA and PFTriA using $^{13}C_2$-PFDoA for the reported soil sample results).

5. High recoveries were observed for all PFCs in the LCS analysis associated with the soil samples. The laboratory performed corrective action by re-extracting and reanalyzing the samples. The LCS recoveries associated with the re-extracted samples were within acceptance limits; however, the samples were re-extracted beyond the 28-day holding time from sample collection to extraction. The laboratory reported the data from the initial analysis. According to the Case Narrative, the QC limits are only advisory until sufficient data points can be obtained to calculate statistical limits. The advisory limits of 70-130% are consistent with US EPA Method 537. The data reviewer has qualified results due to the out-of-criteria LCS recoveries as addressed in the subsequent Organic Data Qualifiers section.

6. The laboratory noted on that sample SG3-FD01-20160617 was not included on the COC Record. The laboratory used the collection date and time from the container label to log the sample.

7. The laboratory performed a MS analysis on SDG SGP93 sample SG3-LTB-20160613, which is a laboratory trip blank. Using a laboratory trip blank for an MS analysis generally provides no useful information on the "matrix" of field samples; however, all associated samples were field-generated blanks. The data reviewer applied qualification of data due to low PFTA, PFTriA, and PFBS recoveries in the MS of the trip blank to all associated blanks similar to an LCS, as addressed in the subsequent Organic Data Qualifiers section

Data Evaluation

With respect to data usability, the principal areas of concern are out-of-criteria MS/MSD recoveries, high LCS recoveries, low internal standard responses, field duplicate imprecision, chromatographic interference, and quantitation below the LOQs. Based on a rigorous review of the data provided, the following data qualifiers are offered. The following data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical SOP used for analysis. Accordingly, the following data usability issues should not be construed as an indication of laboratory performance.

Organic Data Qualifiers

- The reported positive results for PFOA, PFNA, PFDA, PFUnA, PFDoA, PFTA, PFHxA, PFHpA, and PFOS in sample SG3-MW02-08.0 should be considered estimated and have been flagged "J" on the data tables. High recoveries (> 130%) were observed for these compounds in the associated MS/MSD analyses. (Validation Reason Code: MAH)

- The MDLs and LOQs for PFBS and PFTA in all aqueous samples and for PFTriA in samples SG3-FTB-20160617, SG3-RB01-20160617, and SG3-RB02-20160617 may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. In addition, the reported positive results for PFTriA in samples SG3-LTB-20160617 and SG3-RB03-20160617 should be considered estimated and have been flagged "J" on the data tables. Low recoveries (30% ≤ %R < 70%) were observed for these compounds in the associated MS analysis (refer to Procedural Issue No. 7). (Validation Reason Code: MAL)

- The reported positive results for all PFCs in the soil samples should be considered estimated and have been flagged "J" on the data tables. High recoveries (> 130%) were observed for all PFCs in the associated LCS analysis (refer to Procedural Issue No. 5). (Validation Reason Code: LAH)

- The MDLs and LOQs for PFHxA in sample SG3-FTB-20160617 and for PFDoA in sample SG3-RB03-20160617 may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. In addition, the reported positive results for PFHxA in samples SG3-RB02-20160617 and SG3-RB03-20160617 should be considered estimated and have been flagged "J" on the data tables. Low responses (< 50% of the associated initial calibration average response) were observed for the labeled isotopes used to quantitate these compounds in the analyses of these samples. (Validation Reason Code: IS)

- The reported positive results for PFDA, PFDoA, and PFUnA in samples SG3-MW02-05.0 and SG3-FD01-20160617 should be considered estimated and have been flagged "J" on the data tables. Large discrepancies (RPD > 30% when both results were ≥ 5× the LOQ) were observed between the results for these compounds in the field duplicate samples. (Validation Reason Code: FD)

- The MDL and LOQ for PFOS in sample SG3-RB01-20160617 may be higher than reported and the "not-detected" result has been flagged "UJ" on the data tables. Chromatographic interference in the form of a series of unresolved peaks was observed for the ion transitions for PFOS through the chromatographic region where this compound would elute if present in the sample (refer to Procedural Issue No. 3). (Validation Reason Code: CI)

- All positive results reported with concentrations between the laboratory's reported MDLs and LOQs were flagged "J" by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

B. General Parameter Data Review

The general parameter analyses of seven soil samples (including QC samples) collected as part of the 1030 Water Street, Village of North Bennington, Vermont project on June 17, 2016, were performed by ELLE. The samples were analyzed for TOC by SM 5310B and for percent moisture by SM 2540G. Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data were presented in comprehensive data deliverable.

The findings offered in this report are based upon a review of all tabulated QC summary forms including the following QC measures:

- Sample holding times
- Blank analysis results
- Continuing calibration check recoveries
- MS results
- Analytical sequence
- Sample condition upon laboratory receipt
- Initial calibrations
- LCS results
- Laboratory duplicate precision

The analytical results for the target compounds are presented on the data tables in Section 2 of this DUSR. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, and other documentation needed to support the findings in this DUSR in the General Parameter Data Support Documentation (Section 6), Laboratory Case Narrative and Project Chain-of-Custody Record (Section 7), and Project Correspondence (Section 8). The data reviewer has also manually edited the laboratory-reported data and QC summary forms included in these sections based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the analytical methods performed.

Reporting Issue

- Reporting issues were not identified during this DUSR.

Procedural Issue

- The laboratory noted on that sample SG3-FD01-20160617 was not included on the COC Record. The laboratory used the collection date and time from the container label to log the sample.

Data Evaluation

With respect to data usability, the principal area of concern is laboratory duplicate imprecision. Based on a review of the data provided, the following data qualifier is offered. The following data usability issue represents an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical method used for analysis. Accordingly, the following data usability issue should not be construed as an indication of laboratory performance.

General Parameter Data Qualifier

- The reported positive results for percent moisture in all soil samples should be considered estimated and have been flagged “J” on the data tables. A high RPD (> the laboratory acceptance limit) was observed for percent moisture in the associated laboratory duplicate analysis. (Validation Reason Code: LD)

C. Conclusions

The analytical data are acceptable for use as reported by the laboratory with the following qualifications. Several organic results were qualified as estimated due to high MS/MSD recoveries, high LCS recoveries, low internal standard responses, field duplicate imprecision, and quantitation below the LOQs. Several general chemistry results were qualified as estimated due to laboratory duplicate imprecision. In order to use any of the data, the data user should understand the qualifications and limitations as specified in this DUSR. The Laboratory Case Narrative and Project Chain-of-Custody Record are presented in Section 7 of this report. Project Correspondence is presented in Section 8.

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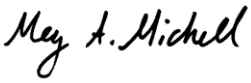

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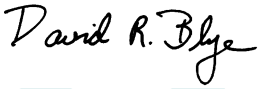

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SECTION 2

VALIDATED DATA SUMMARY TABLES

Validation Qualifier and Reason Code Definitions

Table 1. Validation Qualifiers and Definitions

Validation Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analyte has been “tentatively identified” or considered “presumptively” present.
UJ	The analyte was analyzed for, but was not detected. The reported MDL and limit of quantitation (LOQ) are approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
UB	The Analyte was not detected substantially above the level reported in the associated laboratory, equipment, field, or trip blank.

Table 2. Validation Reason Codes and Descriptions

Validation Reason Code	Description
CI	Chromatographic interference
CR	Calculated result in which one or more of the components has been qualified, potential bias indeterminate
CRH	Calculated result in which one or more of the components has been qualified, potential high bias
CRL	Calculated result in which one or more of the components has been qualified potential low bias
CV	Continuing calibration verification evaluation criteria not met, potential bias indeterminate
CVH	Continuing calibration verification evaluation criteria not met, potential high bias
CVL	Continuing calibration verification evaluation criteria not met, potential low bias
DC	Reporting limit exceeds decision criteria (for non-detects)
DL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the detection limit.
DT	Dissolved metals concentration exceeded total metals concentration in the sample above the acceptance criteria
DV	Missing Deliverables
EB	Equipment blank contamination
EC	Result exceeds the calibration range, potential bias indeterminate
ECH	Result exceeds the calibration range, potential high bias
ECL	Result exceeds the calibration range, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
EP	Estimated Maximum Possible Concentration (EMPC)
FB	Field blank contamination
FD	Field duplicate imprecision, potential bias indeterminate
FP	Potential false positives
FR	Field replicate imprecision, potential bias indeterminate
HA	Holding time - preparation to analysis, potential bias indeterminate
HAH	Holding time - preparation to analysis, potential high bias
HAL	Holding time - preparation to analysis, potential low bias
HC	Holding time - collection to analysis, potential bias indeterminate
HCH	Holding time - collection to analysis, potential high bias
HCL	Holding time - collection to analysis, potential low bias
HP	Holding time - collection to preparation, potential bias indeterminate
HPH	Holding time - collection to preparation, potential high bias
HPL	Holding time - collection to preparation, potential low bias
HV	Headspace present in volatile vials, potential bias indeterminate
HVL	Headspace present in volatile vials, potential low bias
IB	Instrument (including initial calibration or continuing calibration) blank contamination
IC	Initial calibration evaluation criteria not met, potential bias indeterminate
ICH	Initial calibration evaluation criteria not met, potential high bias
ICL	Initial calibration evaluation criteria not met, potential low bias
ID	Target compound identification criteria not met
IN	Elevated detection limit due to interference (i.e., laboratory, chemical, and/or matrix)
IR	Interference check standard recovery criteria not met, potential bias indeterminate
IRH	Interference check standard recovery criteria not met, potential high bias
IRL	Interference check standard recovery criteria not met, potential low bias
IS	Internal standard evaluation criteria not met, potential bias indeterminate
ISH	Internal standard evaluation criteria not met, potential high bias
ISL	Internal standard evaluation criteria not met, potential low bias
LA	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential bias indeterminate
LAH	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential high bias
LAL	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
LD	Laboratory duplicate precision criteria not met, potential bias indeterminate
LM	The PFK lock mass SICPs indicate that ion suppression evident
LP	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential bias indeterminate
LPH	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential high bias
LPL	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential low bias
LR	Linear range exceeded, potential bias indeterminate
MA	Matrix spike (MS &/or MSD) recovery criteria not met, potential bias indeterminate
MAH	Matrix spike (MS &/or MSD) recovery criteria not met, potential high bias
MAL	Matrix spike (MS &/or MSD) recovery criteria not met, potential low bias
MB	Method blank or preparation blank contamination
MP	Matrix spike (MS/MSD) or laboratory duplicate precision criteria not met, potential bias indeterminate
NB	Elevated detection limit or estimated result due to instrument drift (i.e., negative ICB or CCB result with an absolute value > 2× the MDL)
PD	Post-digestion spike recovery outside acceptance range, potential bias indeterminate
PDH	Post-digestion spike recovery outside acceptance range, potential high bias
PDL	Post-digestion spike recovery outside acceptance range, potential low bias
PJ	Professional judgment, potential bias indeterminate
PJH	Professional judgment, potential high bias
PJL	Professional judgment, potential low bias
PM	Performance evaluation mixture criteria not met, potential bias indeterminate
PMH	Performance evaluation mixture criteria not met, potential high bias
PML	Performance evaluation mixture criteria not met, potential low bias
PR	Peak(s) not adequately resolved, potential bias indeterminate
PRH	Peak(s) not adequately resolved, potential high bias
PRL	Peak(s) not adequately resolved, potential low bias
PS	Low percent solids could affect accuracy, potential bias indeterminate
PT	Chromatographic pattern in sample does not match pattern of calibration standard
RA	Reference material recovery criteria not met, potential bias indeterminate

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
RAH	Reference material recovery criteria not met, potential high bias
RAL	Reference material recovery criteria not met, potential low bias
RB	Rinsate blank contamination
RL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the quantitation or reporting limit, potential bias indeterminate
SA	Method of standard additions correction coefficient <0.995, potential bias indeterminate
SC	RPD Between two columns exceeds criteria, potential bias indeterminate
SD	Serial dilution results did not meet evaluation criteria, potential bias indeterminate
SDH	Serial dilution results did not meet evaluation criteria, potential high bias
SDL	Serial dilution results did not meet evaluation criteria, potential low bias
SP	Sample Preservation / Cooler Temperature, potential bias indeterminate
SPH	Sample Preservation / Cooler Temperature, potential high bias
SPL	Sample Preservation / Cooler Temperature, potential low bias
SR	Surrogate recovery outside acceptance range, potential bias indeterminate
SRH	Surrogate recovery outside acceptance range, potential high bias
SRL	Surrogate recovery outside acceptance range, potential low bias
SS	Second source evaluation criteria not met, potential bias indeterminate
SSH	Second source evaluation criteria not met, potential high bias
SSL	Second source evaluation criteria not met, potential low bias
ST	Compound not quantitated against an authentic standard, potential bias indeterminate
TB	Trip blank contamination
TD	Result for dissolved constituent significantly exceeded result for total constituent, potential bias indeterminate
TIC	Tentative identification, quantified using an assumed calibration factor, potential bias indeterminate.
TIR	Tentative identification and was observed in an associated laboratory, equipment, field, or trip blank.
TN	Instrument performance (tuning) criteria not met
YH	Due to a high y-intercept in the calibration curve, the sample result quantitated to a value greater than the MDL. Since the response ratio in the sample was less than the response ratio in the associated MDL standard, the reported result was changed to not-detected.

Facility:Bennington

SDG:SGP96

Sample ID	SG3-FD01-20160617
Sample Date	6/17/2016 10:55:00 AM
Sample Type	FD
Parent Sample ID	SG3-MW02-05.0_06/17/2016
Sample Matrix	SO
Lab Sample ID	8433359
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	17.7	0.50	0.50		Y	17.7	0.50	0.50	J	Y	LD

Facility:Bennington

SDG:SGP96

Sample ID	SG3-MW02-05.0
Sample Date	6/17/2016 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8433353
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	13.9	0.50	0.50		Y	13.9	0.50	0.50	J	Y	LD

Facility:Bennington

SDG:SGP96

Sample ID	SG3-MW02-06.0
Sample Date	6/17/2016 1:20:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8433358
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	12.1	0.50	0.50		Y	12.1	0.50	0.50	J	Y	LD

Facility:Bennington

SDG:SGP96

Sample ID	SG3-MW02-08.0
Sample Date	6/17/2016 11:10:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8433354
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	18.8	0.50	0.50		Y	18.8	0.50	0.50	J	Y	LD

Facility:Bennington

SDG:SGP96

Sample ID	SG3-MW02-10.0
Sample Date	6/17/2016 11:15:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8433357
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	12.7	0.50	0.50		Y	12.7	0.50	0.50	J	Y	LD

Facility:Bennington

SDG:SGP96

Sample ID	SG3-MW02-05.0
Sample Date	6/17/2016 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8433353
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	5370	584	1750		Y	5370	584	1750		Y	

Facility:Bennington

SDG:SGP96

Sample ID	SG3-MW02-06.0
Sample Date	6/17/2016 1:20:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8433358
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	5980	411	1230		Y	5980	411	1230		Y	

Facility:Bennington

SDG:SGP96

Sample ID	SG3-MW02-08.0
Sample Date	6/17/2016 11:10:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8433354
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	2970	308	924		Y	2970	308	924		Y	

Facility:Bennington

SDG:SGP96

Sample ID	SG3-MW02-10.0
Sample Date	6/17/2016 11:15:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8433357
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	1680	473	1420		Y	1680	473	1420		Y	

Facility:Bennington

SDG:SGP96

Sample ID	SG3-FD01-20160617
Sample Date	6/17/2016 10:55:00 AM
Sample Type	FD
Parent Sample ID	SG3-MW02-05.0_06/17/2016
Sample Matrix	SO
Lab Sample ID	8433359
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.57	1.8	U	N		0.57	1.8	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1	5.2	0.23	0.45		Y	5.2	0.23	0.45	J	Y	LAH,FD
Perfluorododecanoic acid (PFDoA)	307-55-1	1	26	0.45	0.91		Y	26	0.45	0.91	J	Y	LAH,FD
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	0.54	0.34	0.68	J	Y	0.54	0.34	0.68	J	Y	LAH,RL
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.57	1.8	U	N		0.57	1.8	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	0.35	0.23	0.45	J	Y	0.35	0.23	0.45	J	Y	LAH,RL
Perfluorononanoic acid (PFNA)	375-95-1	1	0.39	0.23	0.45	J	Y	0.39	0.23	0.45	J	Y	LAH,RL
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.79	1.8	U	N		0.79	1.8	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	23	0.34	0.68		Y	23	0.34	0.68	J	Y	LAH
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	19	0.34	0.91		Y	19	0.34	0.91	J	Y	LAH
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	6.6	0.68	1.4		Y	6.6	0.68	1.4	J	Y	LAH
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	10	0.34	0.68		Y	10	0.34	0.68	J	Y	LAH,FD

Facility:Bennington

SDG:SGP96

Sample ID	SG3-FTB-20160617
Sample Date	6/17/2016 7:55:00 AM
Sample Type	FB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8433349
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	2	1	2		Y	2	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP96

Sample ID	SG3-LTB-20160617
Sample Date	6/8/2016 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8433348
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1	1	1	2	J	Y	1	1	2	J	Y	RL
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	2	1	2	J	Y	2	1	2	J	Y	RL
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	4	1	2		Y	4	1	2		Y	
Perfluorononanoic acid (PFNA)	375-95-1	1	2	1	2	J	Y	2	1	2	J	Y	RL
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	2	1	2		Y	2	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	2	2	4	J	Y	2	2	4	J	Y	RL,MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	3	2	4	J	Y	3	2	4	J	Y	RL

Facility:Bennington

SDG:SGP96

Sample ID	SG3-MW02-05.0
Sample Date	6/17/2016 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8433353
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.54	1.7	U	N		0.54	1.7	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1	8.2	0.22	0.43		Y	8.2	0.22	0.43	J	Y	LAH,FD
Perfluorododecanoic acid (PFDoA)	307-55-1	1	9.0	0.43	0.87		Y	9.0	0.43	0.87	J	Y	LAH,FD
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	0.53	0.32	0.65	J	Y	0.53	0.32	0.65	J	Y	LAH,RL
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.54	1.7	U	N		0.54	1.7	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.22	0.43	U	N		0.22	0.43	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1	0.47	0.22	0.43		Y	0.47	0.22	0.43	J	Y	LAH
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.76	1.7	U	N		0.76	1.7	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	28	0.32	0.65		Y	28	0.32	0.65	J	Y	LAH
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	20	0.32	0.87		Y	20	0.32	0.87	J	Y	LAH
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	6.2	0.65	1.3		Y	6.2	0.65	1.3	J	Y	LAH
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	15	0.32	0.65		Y	15	0.32	0.65	J	Y	LAH,FD

Facility:Bennington

SDG:SGP96

Sample ID	SG3-MW02-06.0
Sample Date	6/17/2016 1:20:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8433358
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.54	1.7	U	N		0.54	1.7	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1	8.0	0.22	0.44		Y	8.0	0.22	0.44	J	Y	LAH
Perfluorododecanoic acid (PFDoA)	307-55-1	1	6.3	0.44	0.87		Y	6.3	0.44	0.87	J	Y	LAH
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	0.62	0.33	0.65	J	Y	0.62	0.33	0.65	J	Y	LAH,RL
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.54	1.7	U	N		0.54	1.7	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	0.29	0.22	0.44	J	Y	0.29	0.22	0.44	J	Y	LAH,RL
Perfluorononanoic acid (PFNA)	375-95-1	1	0.40	0.22	0.44	J	Y	0.40	0.22	0.44	J	Y	LAH,RL
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.76	1.7	U	N		0.76	1.7	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	30	0.33	0.65		Y	30	0.33	0.65	J	Y	LAH
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	29	0.33	0.87		Y	29	0.33	0.87	J	Y	LAH
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	10	0.65	1.3		Y	10	0.65	1.3	J	Y	LAH
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	3.9	0.33	0.65		Y	3.9	0.33	0.65	J	Y	LAH

Facility:Bennington

SDG:SGP96

Sample ID	SG3-MW02-08.0
Sample Date	6/17/2016 11:10:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8433354
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.56	1.8	U	N		0.56	1.8	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1	43	0.23	0.45		Y	43	0.23	0.45	J	Y	MAH,LAH
Perfluorododecanoic acid (PFDoA)	307-55-1	1	1.8	0.45	0.90		Y	1.8	0.45	0.90	J	Y	MAH,LAH
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	0.43	0.34	0.68	J	Y	0.43	0.34	0.68	J	Y	MAH,LAH,RL
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.56	1.8	U	N		0.56	1.8	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	0.39	0.23	0.45	J	Y	0.39	0.23	0.45	J	Y	MAH,LAH,RL
Perfluorononanoic acid (PFNA)	375-95-1	1	0.57	0.23	0.45		Y	0.57	0.23	0.45	J	Y	MAH,LAH
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1	1.1	0.79	1.8	J	Y	1.1	0.79	1.8	J	Y	MAH,LAH,RL
Perfluorooctanoic acid (PFOA)	335-67-1	1	22	0.34	0.68		Y	22	0.34	0.68	J	Y	MAH,LAH
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	1.6	0.34	0.90		Y	1.6	0.34	0.90	J	Y	MAH,LAH
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.68	1.4	U	N		0.68	1.4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	1.9	0.34	0.68		Y	1.9	0.34	0.68	J	Y	MAH,LAH

Facility:Bennington

SDG:SGP96

Sample ID	SG3-MW02-10.0
Sample Date	6/17/2016 11:15:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8433357
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.54	1.7	U	N		0.54	1.7	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1	3.9	0.22	0.43		Y	3.9	0.22	0.43	J	Y	LAH
Perfluorododecanoic acid (PFDoA)	307-55-1	1	2.5	0.43	0.86		Y	2.5	0.43	0.86	J	Y	LAH
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	0.33	0.32	0.65	J	Y	0.33	0.32	0.65	J	Y	RL
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.54	1.7	U	N		0.54	1.7	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.22	0.43	U	N		0.22	0.43	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.22	0.43	U	N		0.22	0.43	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.75	1.7	U	N		0.75	1.7	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	9.3	0.32	0.65		Y	9.3	0.32	0.65	J	Y	LAH
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	0.35	0.32	0.86	J	Y	0.35	0.32	0.86	J	Y	LAH,RL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.65	1.3	U	N		0.65	1.3	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	1.4	0.32	0.65		Y	1.4	0.32	0.65	J	Y	LAH

Facility:Bennington

SDG:SGP96

Sample ID	SG3-RB01-20160617
Sample Date	6/17/2016 8:05:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8433350
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	2	1	2		Y	2	1	2		Y	
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	UJ	N	CI
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP96

Sample ID	SG3-RB02-20160617
Sample Date	6/17/2016 8:10:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8433351
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	2	1	2		Y	2	1	2	J	Y	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	2	1	2	J	Y	2	1	2	J	Y	RL
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP96

Sample ID	SG3-RB03-20160617
Sample Date	6/17/2016 10:05:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8433352
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	MAL
Perfluorodecanoic acid (PFDA)	335-76-2	1	2	1	2		Y	2	1	2		Y	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	UJ	N	IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	2	1	2		Y	2	1	2		Y	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	4	1	2		Y	4	1	2	J	Y	IS
Perfluorononanoic acid (PFNA)	375-95-1	1	3	1	2		Y	3	1	2		Y	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	4	1	2		Y	4	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	MAL
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	2	2	4	J	Y	2	2	4	J	Y	RL,MAL
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	3	2	4	J	Y	3	2	4	J	Y	RL

SECTION 3

LABORATORY CALIBRATION AND QUALITY CONTROL ACCEPTANCE CRITERIA

Initial Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
1. Initial Calibration: Minimum of five calibration standards spanning at least a 20-fold concentration range. 2. Analyze MDL standard to ensure all compounds detected at MDL level	1. Initially and the after continuing calibration fails. 2. Analyzed with each initial calibration.	1. Back calculated concentration of each calibration point should be within ±70-130% of true. The level 1 calibration standard back calculated concentrations should be ±50-150% of true value. Analytes without a labeled internal standard back calculated concentrations should be within ±40-160% of true value. 2. All compounds detected.	1. If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the initial calibration can be used. In those cases, the data will be reported with a qualifying comment. 2. If compound not detected in MDL standard, the source of the problem should be determined and the system recalibrated.

Continuing Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Analyze every 10 samples and at the end of the analysis sequence. Concentrations alternate between low, mid, and high levels of the calibration curve.	Occurs every 10 samples and at the end of the analysis sequence.	Calculated amount should be within ±30% of the true value. Compounds without labeled internal standards should have calculated amounts within ±40% of the true value. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the continuing calibration can be used. In those cases, the data will be reported with a qualifying comment.

Initial Calibration Verification

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Second source standard analyzed at the end of each initial calibration.	Analyzed with each initial calibration	1. Calculated amount for each compound should be within ±70-130% of the true value. Analytes without a labeled internal standard should have calculated amounts within ±40% of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	1. If criteria are not met, the source of the problem should be determined and corrected. Situations may exist where the initial calibration verification can be used. In those cases, the data will be reported with a qualifying comment.

QC Acceptance Criteria

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Method Blanks	1 per 20 field samples	No positive detections above the MDL	Reextract to confirm detection or report if the analyte present in the method blank is not detected in the sample.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
LCS	1 per 20 field samples	1. Advisory QC limits of 70-130%, RPD<30% 2. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	Reextract LCS and associated samples. Analytes that fail high and are ND in the samples can be reported. Due to the advisory nature of the acceptance limits, situations may exist where LCS can be used. In those cases, the data will be reported with a qualifying comment.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
MS/MSD	MS is routinely prepared with each extraction batch. If limited sample volume exists, an LCS/LCSD will be prepared.	1. Advisory QC limits of 70-130%, RPD<30%. 2. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	Evaluate in conjunction with LCS.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Isotopically labeled internal standards	Per sample (including MS/MSD, LCS, and Blanks)	The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	Reinject samples as necessary. Report data with qualifying comment.

SECTION 4

ENVIRONMENTAL STANDARDS, INC., STANDARD OPERATING PROCEDURE

1.0 OBJECTIVES

This standard operating procedure (SOP) describes procedures that the Environmental Standards data reviewers will use to validate Perfluorinated Compound (PFC) data for solid samples generated by Eurofins SOP "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins Document Reference 1-P-QM-WI-9035864) or "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537.1 Modified Using LC/MS/MS" (Eurofins Document Reference 1-P-QM-WI-9039643) and aqueous samples generated by Eurofins SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins Document Reference 1-P-QM-WI -9012802) or "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537.1 Modified Using LC/MS/MS" (Eurofins Document Reference 1-P-QM-WI -9039651), for various Saint-Gobain Performance Plastics Corporation (Saint-Gobain) sites. Validation will be performed to assess compliance of the sample data to these Eurofins SOPs and any applicable Work Plans and/or Quality Assurance Project Plans (QAPPs). In addition, the usability of the PFC data provided by the analytical laboratory will be determined based on the general guidance provided in the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016) and "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016). It should be noted that the National Functional Guidelines apply strictly to data generated by the Contract Laboratory Program (CLP) protocol and are not directly applicable to validation of data generated by Modified EPA Method 537; therefore, this SOP presents the specific data qualification actions that will be used for validation.

The validation findings will be presented in a quality assurance review (QAR) that will be prepared for one or more sample delivery groups (SDGs). Copies of annotated analytical results summaries (Form I's), including any changes to the analytical results and data qualifier codes, or

a data summary spreadsheet of the qualified analytical results, will be included in the support documentation of the QAR.

2.0 EVALUATION TOOLS

- field duplicate form (DVF_DUP_SG_ELLE.xlsm)

Chemistry Applications:

- Curve fitting software (DVF_CAL.xlsm)
- Methods Database

3.0 REFERENCE DOCUMENTS

- "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016)
- "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016).
- Eurofins Document Reference 1-P-QM-WI -9035864.
- Eurofins Document Reference 1-P-QM-WI -9012802.
- Eurofins Document Reference 1-P-QM-WI -9039643.

- Eurofins Document Reference 1-P-QM-WI -9039651.
- US EPA Method 537, Version 1.1 (September 2009).
- Guidance for Labelling Externally Validated Laboratory Analytical Data for Superfund Use (EPA 540-R-08-005, 2009).

4.0 PROCEDURE

4.1 EVALUATION OF METHOD COMPLIANCE

The data reviewer will assess the method compliance of the PFC data based on an evaluation of information presented in the data package deliverables. Compliance to the aforementioned SOPs (and Work Plan and/or QAPP when applicable) will be evaluated as part of the assessment. In addition, the deliverables will be evaluated for reporting errors and inconsistencies. The findings of the compliance assessment will be described in terms of comments/deficiencies about the data/deliverables and presented in two subdivisions (*i.e.*, Reporting Issues and Procedural Issues) of the Organic Data Evaluation Section of the QAR. Each issue discussed in the QAR will indicate any subsequent impact on the usability of the data or will identify aspect(s) of the data that could not be evaluated due to the deficiency.

The data reviewer may contact the project laboratory to request the correction of deficiencies prior to submittal of the QAR (if feasible and sanctioned by Saint Gobain). At a minimum, corrections required to allow for a full evaluation of the usability of the data should be requested. Such correctable deficiencies may include sample result errors,

missing data deliverables, or calculation errors that would require a significant amount of the data reviewer's time to correct. Any laboratory resubmittals as a result of such requests will be discussed in the Reporting Issue subdivision of the QAR and included as an attachment to the QAR.

4.2 DETERMINATION OF DATA USABILITY

The data reviewer will determine the usability of the PFC data based on an evaluation of the information presented in the data package deliverables. The findings of the PFC data usability assessment will be presented in terms of data qualifications that the project team should consider in order to best utilize the data; these qualifications will be presented in the Organic Data Qualifier subsection of the QAR. Each qualification discussed in the QAR will indicate that the affected sample result(s) has been flagged with a representative qualifier code(s) in the data tables to provide, at a glance, an indication of the quantitative and qualitative reliability of each analytical result. In general, the qualifier statements will be presented in the QAR in the following order: blank contamination (UB), unusable results (R/UR), estimated results (J/UJ), tentative identifications of target compound results (N), and a general qualifier for all results reported below the limit of quantitation (if applicable). In addition, a Validation Reason Code will be presented on the data tables to indicate the reason that a qualifier code has been applied.

The data reviewer's criteria for evaluating the usability of the PFC data and the resultant qualifications and reason codes will be as stipulated on the attached Table for the Validation of PFC Data Generated. Additional qualifications and reason codes will be assigned based on professional judgement. It should be noted that the project manager

should be consulted when "professional judgement" use is indicated on the attached table.

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Temperature Upon Receipt	≤6°C	If temperature is <2°C, no action is required unless samples were frozen/broken and then professional judgment should be used. If temperature is >6°C but ≤20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SPL") If temperature is > 20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SPL") Note time of collection relative to receipt at laboratory. Professional judgement should be used if < 8 hours has elapsed from collection to receipt at the laboratory to determine if qualification due to elevated temperature applies.
Technical Holding Time	Solid samples should be extracted within 28 days of sample collection and aqueous samples should be extracted within 14 days of collection. All extracts should be analyzed within 28 days after extraction.	If a holding time is exceeded, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively) If a holding time is grossly exceeded (*i.e.*, > twice the holding time), qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively)

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Initial Calibration (See Note #1 for additional information.)	Back calculated concentration of each calibration point should be within 70-130% of true. The level 1 (lowest) calibration standard back calculated concentrations should be within 50-150% of true value. Analytes without a labeled internal standard back calculated concentrations should be within 60-140% of true value.	When evaluating initial calibration, use professional judgment to first assess impact of any out-of-criteria labeled PFC on the corresponding target PFC(s). If the low point or consecutive points at the low end of the curve are below the lower recovery criteria, qualify positive results < lowest compliant point as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "ICL") If the low point or consecutive points at the low end of the curve are above the upper recovery criteria, qualify positive results < lowest compliant point as estimated ("J"). If a point in the middle of the curve or non-consecutive points (beside the low point) quantitate outside of criteria, qualify positive results as estimated ("J"). If the high point or consecutive points at the upper end of the curve quantitates outside of criteria, qualify positive results > highest compliant point as estimated ("J"). (Validation Reason Code "ICL," "ICH," or "IC," are to be used based on whether direction of bias can be determined in these situations) Professional judgement should be used to qualify "not-detected" results as estimated ("UJ") if low recoveries are observed for standards other than the lowest calibration point. (Validation Reason Code "ICL")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Second Source Initial Calibration Verification (ICV)	1. Calculated amount for each compound should be within 70-130% (±30%) of the true value. Analytes without a labeled internal standard should have calculated amounts within 60-140% (±40%) of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within 50-150% of the average areas measured during the initial calibration.	**Qualification is for all samples associated with initial calibration being verified.** **When evaluating ICV, use professional judgment to first assess impact of any out-of-criteria labeled PFC on the corresponding target PFC.** If target PFC has %D>30% (or >40% for compounds without labeled internal standards) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "SSH") If target PFC has %D>30% (or >40% for compounds without labeled internal standards) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SSL") If target PFC has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SSL")
Daily Calibration Verification (See Note #2 for additional information.)	Calculated amount should be within ±30% of the true value. Compounds without labeled internal standards should have calculated amounts within ±40% of the true value. The absolute areas of the isotopically labeled internal standards should be within 50-150% of the average areas measured during the initial calibration.	**Qualification is for all samples on both sides of the out-of-criteria calibration verification standards.** **When evaluating calibration verification, use professional judgment to first assess impact of any out-of-criteria labeled PFC on the corresponding target PFC.** If target PFC has %D>30% (or >40% for compounds without labeled internal standards) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "CVH") If target PFC has %D>30% (or >40% for compounds without labeled internal standards) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "CVL") If target PFC has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "CVL")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Blanks (See Note #3 for additional information.)	Summarize all results greater than the method detection limit (MDL) present in the blanks. The highest positive result associated with a sample should be utilized for evaluation of contamination.	If a target PFC is found in the blank but not in the associated sample(s), no action is required. If a sample result is ≤5× the blank result, qualify the positive result as "not detected" ("UB") and raise the method detection limit (MDL) and/or limit of quantitation (LOQ) (if lower than original reported positive result) to the value of the original result. (Validation Reason Code(s) "EB," FB," "IB," "MB," and or "TB," as appropriate). If a sample result is >5× blank result, qualification is not required. Professional judgement should be used to evaluate whether an aqueous blank should be used to qualify a solid sample.
Internal Standards (Labelled Analytes, spiked prior to extraction)	The response for each IS in the original sample (prior to dilutions) must be within ±%50 of the average initial calibration response.	If an IS response is outside of 50-150% but ≥10%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ") for PFCs quantitated using that IS. (Validation Reason Code "IS") If an IS response is < 10%, qualify positive results for the associated PFCs as estimated ("J") and qualify "not-detected" results for the associated PFCs as estimated ("UJ") or unusable ("R") using professional judgment (based on the approximate signal-to-noise ratio for the IS and the expected response for the target PFC at the LOQ). (Validation Reason Code "IS")
Laboratory Control Samples (LCS)/ Laboratory Control Sample Duplicates (LCSD)	%R within 70-130%, RPD ≤ 30%.	The LCS qualification will be applied to all samples in the preparation batch. If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). (Validation Reason Code "LAL") If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "LAL") If the precision between recoveries exceeds the RPD criterion, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LP")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Matrix Spike/Matrix Spike Duplicate (MS/MSD) (If performed)	%R within 70-130%, RPD ≤ 30%.	Data should not be qualified due to %Rs (or RPDs calculated on %Rs) that are outside of criteria if the original concentration of a PFC is >4× the spiking level for that compound. RPDs calculated using MS/MSD results can be used to evaluate precision. If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "MAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "MAL") If the precision between recoveries exceeds the RPD criterion, qualify the positive result in the native sample as estimated ("J") and do not qualify the "not-detected" result. (Validation Reason Code "MP")
Field/Laboratory Duplicate (See Note #4 for additional information)	RPD ≤ 30% when PFCs are detected in one sample ≥ sample-specific LOQ (RL). The RPD should be ≤30% for results >5× the sample-specific LOQ (RL). The difference between results should be ≤ 1.5×LOQ when at least one result is ≤5× the LOQ.	If both results are <LOQ, a quantitative assessment of duplicate precision is not performed. If the criteria are not met, qualify positive results for the out-of-criteria PFCs in the original sample and its duplicate as estimated ("J"). (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate) Use the MDL as a numerical value for any "not-detected" result in the difference calculation. Qualify "not-detected" results as estimated ("UJ") if the difference between the results is outside of criteria. (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate)
Percent Solids	Solid samples with less than 30% solid content require qualification.	If a solid sample has a percent solid content <30%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code of "PS") Use professional judgment if a solid sample has a percent solids content <10%. (Validation Reason Code of "PS")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Compound Quantitation and Qualitative Identification (See Notes #5 for additional information.)	Samples with results that exceed the instrument calibration range should be reanalyzed at a dilution or re-extracted with a lower volume.	If a target PFC result exceeds the instrument calibration range, qualify positive result as estimated ("J"). (Validation Reason Code "EC") Use professional judgment to determine whether sample reanalyses and dilutions should be compared to the original analyses. If criteria (see field duplicate usability) between the original sample results and the reanalysis sample results are not met, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "LD") If a target PFC is <LOQ but ≥MDL, qualify positive results as estimated ("J"). (Validation Reason Code "RL") Use professional judgment to determine whether quantitation and qualitative identifications are accurate and whether data qualification is necessary.
System Performance	Professional judgement should be used when assessing the degradation of system performance during analyses.	Use professional judgment to qualify the data if it is determined that system performance degraded during sample analyses.
Overall Assessment of Data	Assess overall quality of the data. Review available materials to assess the quality, keeping in mind the additive nature of the analytical problems.	Use professional judgment to determine the need to qualify data not qualified based on the QC previously discussed. Write a brief narrative to give the user an indication of the analytical limitations of the data. If sufficient information on the intended use and required quality of the data is available, include the assessment of the usability of the data within the given context.

Validation Notes

1. Use professional judgment when evaluating the response intercept of a calibration curve. If the response intercept is positive, the samples should be evaluated for false positives. If the response intercept is negative, the sample should be evaluated for false negatives.

2. If instrument instability (*i.e.*, several calibration verification standards with PFCs exhibiting both increasing and decreasing sensitivity throughout an analytical sequence) is observed in the analysis of sequential calibration verification standards, "not-detected" results may be qualified as estimated ("UJ") due to instrument sensitivity of a continuing calibration standard response that is greater than the initial calibration standard response (increase in instrument sensitivity).

3. The frequency of equipment/rinse blanks is determined during the sampling event. The results of an equipment/rinse blank should be applied to all samples collected in the same day by the same techniques, unless only one blank was collected for a several-day sampling event. In instances where more than one blank is associated with a given sample, qualification should be based upon a comparison with the associated blank having the highest concentration of a contaminant.

   Method blank contamination should be applied to samples in the preparation batch.

   Instrument blank contamination should be applied to samples bracketing the contaminated instrument blank.

   Blanks should also be evaluated using professional judgment for non-target interference.

Validation Notes

4. Duplicate samples may be collected and analyzed as an indication of overall precision. Field duplicate analyses measure both field and laboratory precision; therefore, the results may have more variability than laboratory duplicates that measure only laboratory performance. Laboratory duplicate results and field duplicate results apply only to the original sample and the laboratory/field duplicate. Solid duplicate results are expected to have greater variance than aqueous duplicate results.

5. If a sample result exceeds the instrument calibration range (lower dilution analysis) or is less than the LOQ (secondary dilution), do not utilize this result when comparing an original analysis and a diluted reanalysis.

Poor chromatographic performance may affect qualitative identification and/or quantitation. Indications of substandard performance include:

- High background levels
- Extraneous peaks
- Loss of resolution
- Peak tailing or peak splitting that may result in inaccurate quantitation
- The laboratory analyzes a Cal3 level standard that contains linear and branch chained isomers of PFOA, PFOS, and PFHxS for analyses by Eurofins Document References 1-P-QM-WI-9039643 and 1-P-QM-WI -9039651. The analysis of this standard is used to demonstrate where the branch chained isomers elute and is not included in the calibration curve. This will assist the chemist in the integration of branched isomers of these compounds in samples.

SECTION 5

ORGANIC DATA SUPPORT DOCUMENTATION

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	Saint Gobain Benninton	Reviewed by:	KDP
Sample Collection Dates:	6/8/16, 6/17/16	Approved by:	MAM
Job Number:	Group #1673603	Completion Date:	5/2017
Project Manager:	MAM		
Laboratory:	ELLE	Applicable Sample No's (√)	Refer to Table 1 in the Quality Assurance Review

Deliverable:		Sample No.	Lab Control No.
	CLP (Full) ( )		
	Level IV (Full) (√)	SDG#SGP96	
	Limited ( )		
	Other:		

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail Check (√) if Yes or Footnote Letter for Comments Below					Problems Identified Check (√) if Yes or Footnote Letter for Comments Below					Support Documentation Attachments Check (√) if Yes or Footnote Letter for Comments Below				
	PFC					PFC					PFC				
Holding Times	√					√ (2)					√				
Blank Analysis: Target Cmpds	√					√ (3)					√				
Sys Montr Cmps/Surrogates	NA														
Matrix Spike/Matrix Spike Duplicate	√					√ (4)					√				
Blank Spike	√					√ (5)					√				
Duplicate Analysis (√) Field ( ) Lab	√					√ (6)					√				
Detection Limit/Sensitivity	√										√				
Qualitative Identification: Target Cmpds	√					√ (9)					√				
Qualitative Identification: TICs	NA														
DFTPP & BFB Mass Tuning	NA														
GC Instrument Performance	NA														
Initial Calibrations	√										√				
Continuing Calibrations	√										√				
Quantitation of Results	√					√ (8)					√				
DDT/Endrin Breakdown	NA														
Surrogate Retention Time Shifts	NA														
Internal Standards Performance	√					√ (7)					√				
Resolution Check Standards	NA														
Analytical Sequence	√										√				
Florisil Cartridge & GPC Calibration	NA														
GC Column Agreement	NA														
Condition Upon Receipt	√										√				
Percent Solids	√ (1)										√				
Others:	√										√				

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

Comments: (1) Checked % solids but did not perform Level IV review. (2) Soil samples were reextracted and reanalyzed outside the hold times, but original results were reported. (3) Field and rinse blanks had detections of multiple compounds; PFOA in the field trip blank; PFUnDA, PFHxA, PFOA, PFDA, PFHpA, PFNA, and PFTrDA in the laboratory trip blank; PFOA in rinse blank 2; PFUnDA, PFHxA, PFOA, PFDA, PFHpA, PFNA, and PFTrDA in rinse blank 3. (4) Water and soil MS and / or MSD samples had multiple compounds that did not meet percent recovery criteria. Soils – MS/MSD all but one compound above acceptance criteria (PFTrDA). Water – PFOS, PFTrDA, PFTeDA, and PFBS outside acceptance criteria for MS. (5) Soil LCS – all compounds outside acceptance criteria, samples rextracted and reanalyzed outside hold times, laboratory reported original sample results. (6) Field duplicate – PFDA, PFDoA, and PFUnDA RPDs were outside acceptance criteria. (7) Water – for several samples the internal standards were below acceptance criteria for PFHxA and PFDoA indicating a high bias. Soil – the internal standards were below acceptance criteria for PFOA, PFNA, PFDA, and PFUnDA in the Method Blank and LCS.

(5) A false + was reported for PFBS in 843333-7 & 8-433359 due to intercept in curve. Also, peaks for PFHxA were not integrated for 843330 & 843337. Both issues were addressed by lab in a revision.

(7) MDLs/LOQs were not adjusted for exact wt although results were. Was addressed by lab in a revision. + Results were adjusted as needed due to lower MDLs.

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample Number	Contaminant	Concentration	Qualification limit	
						5×	10×
PFC	S	MB	MB 16180013	All non-detect	ng/g		
PFC	S	MB	MB 16201005	All non-detect	ng/g		
PFC	Aq.	MB	MB 16172001	All non-detect	ng/L		
PFC	Aq.	FB	SG3-FTB-20160617	Perfluorooctanoic acid (PFOA)	2 –		
PFC	Aq.	TB	SG3-LTB-20160617	Perfluoroundecanoic Acid (PFUnA)	3 –		
PFC	Aq.	TB	SG3-LTB-20160617	Perfluorohexanoic acid (PFHxA)	4 –		
PFC	Aq.	TB	SG3-LTB-20160617	Perfluorooctanoic acid (PFOA)	2 –		
PFC	Aq.	TB	SG3-LTB-20160617	Perfluorodecanoic acid (PFDA)	1 –		
PFC	Aq.	TB	SG3-LTB-20160617	Perfluoroheptanoic acid (PFHpA)	2 –		
PFC	Aq.	TB	SG3-LTB-20160617	Perfluorononanoic acid (PFNA)	2 –		
PFC	Aq.	TB	SG3-LTB-20160617	Perfluorotridecanoic Acid (PFTrDA)	2 –		
PFC	Aq.	RB	SG3-RB02-20160617	Perfluorooctanoic acid (PFOA)	2 –		
PFC	Aq.	RB	SG3-RB03-20160617	Perfluoroundecanoic Acid (PFUnA)	3 –		
PFC	Aq.	RB	SG3-RB03-20160617	Perfluorohexanoic acid (PFHxA)	4 –		
PFC	Aq.	RB	SG3-RB03-20160617	Perfluorooctanoic acid (PFOA)	4 –		
PFC	Aq.	RB	SG3-RB03-20160617	Perfluorodecanoic acid (PFDA)	2 –		
PFC	Aq.	RB	SG3-RB03-20160617	Perfluoroheptanoic acid (PFHpA)	2 –		
PFC	Aq.	RB	SG3-RB03-20160617	Perfluorononanoic acid (PFNA)	3 –		
PFC	Aq.	RB	SG3-RB03-20160617	Perfluorotridecanoic Acid (PFTrDA)	2 –		

1 – V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other:

2 – MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes: No impact from Aq blanks on soil samples

also, after lab revisions, 2 ng/L PFHxA in SG3-RB01-20160617 & SG3-RB02-20160617

False D — Lab Reviewed MAM 6/20/17

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Effective Date: 11/23/2015
Revision: 0

Matrix: ○ Aqueous ◉ Non-aq.
Reporting Level: ◉ MDL ○ QL
Units: ng/g

PRECISION OBJECTIVES:
If Both Results ≥ 5 × Their QL, RPD ≤: 30
If Either Result < 5 × Its QL, Dif. ≤: 1.5 **× Highest QL**

Sample ID:	SG3-MW02-0.5.0				Duplicate Sample ID:		SG3-FD01-20160617				
Analyte	Sample Concentration	Qual	QL	MDL	Duplicate Concentration	Qual	QL	MDL	Difference	RPD	Flag
PFBS	0.58	U	1.9	0.58	0.94	J	1.9	0.61	NA	NA	
PFDA	8.20		0.46	0.23	5.20		0.49	0.24	NA	45%	J
PFDoA	9		0.93	0.46	26		0.97	0.49	NA	97%	J
PFHpA	0.53	J	0.7	0.35	0.54	J	0.7	0.36	NA	NA	
PFHxS	0.58	U	1.9	0.58	0.61	U	1.9	0.61	NA	NA	
PFHxA	0.23	U	0.46	0.23	0.35	J	0.49	0.24	NA	NA	
PFNA	0.47		0.46	0.23	0.39	J	0.49	0.24	0.08	NA	
PFOS	0.81	U	1.9	0.81	0.85	U	1.9	0.85	NA	NA	
PFOA	28		0.7	0.35	23		0.73	0.36	NA	20%	
PFTeDA	20		0.93	0.35	19		0.97	0.36	NA	5%	
PFTrDA	6.2		1.4	0.7	6.6		1.5	0.73	0.4	NA	
PFUnDA	15		0.7	0.35	10		0.73	0.36	NA	40%	J

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SG3-LTB-20160617 Water
SGPP - Bennington

LL Sample # WW 8433348
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/08/2016

Submitted: 06/18/2016 09:50
Reported: 07/25/2016 17:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB17 SDG#: SGP96-01TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	2		1	2	1
10954	Perfluorononanoic acid	375-95-1	2	J	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	J	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	3	J	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	J	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	4		1	2	1
10954	Perfluoroheptanoic acid	375-85-9	2	J	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 05:07	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

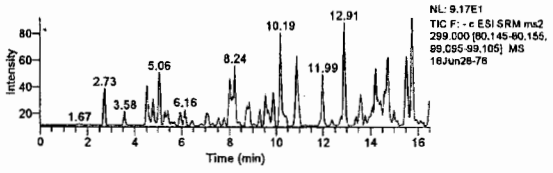
LCMSMS ANALYSIS REPORT

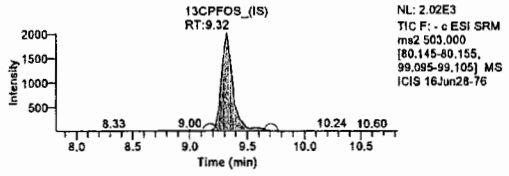
Sample Name:	8433348	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8433348	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16Jun28-76		M\HWell_16.5minutes
Acquisition Date:	06/29/16 05:07:55 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:14	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

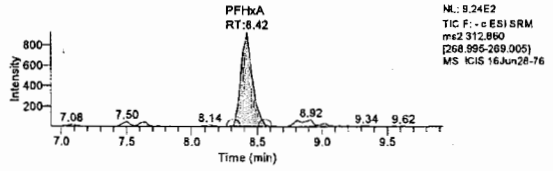
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.36	215342.89	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	152694.41	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.96	132225.74	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.39	98833.42	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	168472.66	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.42	55729.42	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	25482.55	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	14046.65	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.53	123842.22	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	1.132	9.96	3216.41	132225.74	0.024	ng/L
PFDoA	1.750	11.39	1510.54	98833.42	0.015	ng/L
PFHxA	4.450	8.42	5704.16	55729.42	0.102	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	1.972	9.35	5373.91	215342.89	0.025	ng/L
PFOA	2.310	8.99	4730.89	152694.41	0.031	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	2.709	14.29	1514.98	123842.22	0.012	ng/L
PFTrDA	2.257	12.70	1228.71	123842.22	0.010	ng/L
PFUdA	3.013	10.49	6300.81	123842.22	0.051	ng/L
PFhpA	1.962	8.71	4755.62	168472.66	0.028	ng/L

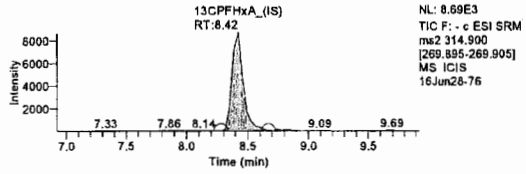
Component Name: PFBS





✓ Component Name: PFHxA



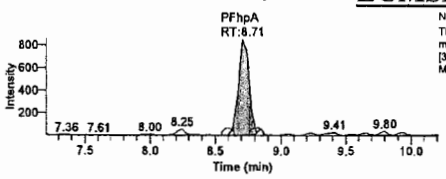


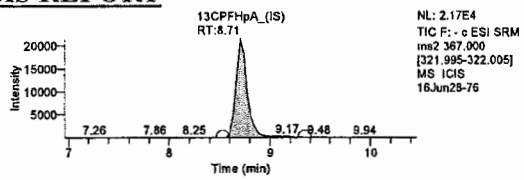
Component Name: PFhpA

Michele J. Smith
JUN 30 2016
Michele J. Smith
Senior Specialist

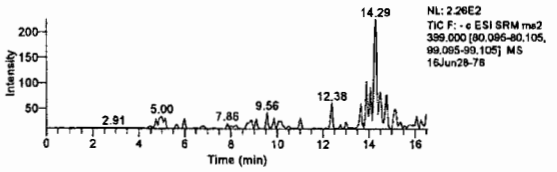
Jason W. Knight
Senior Chemist
JUN 29 2016

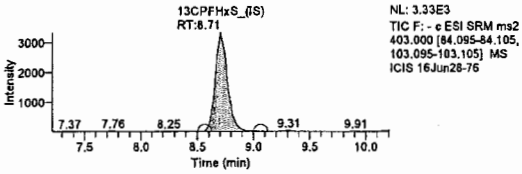
LCMSMS ANALYSIS REPORT



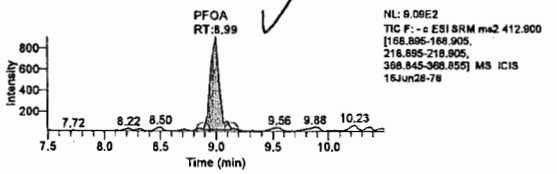


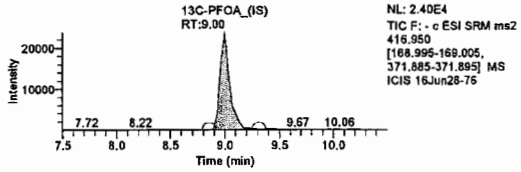
Component Name: PFHxS



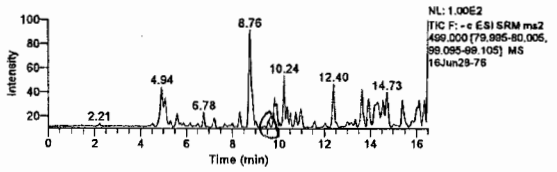


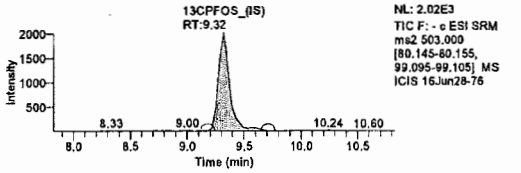
Component Name: PFOA





Component Name: PFOS





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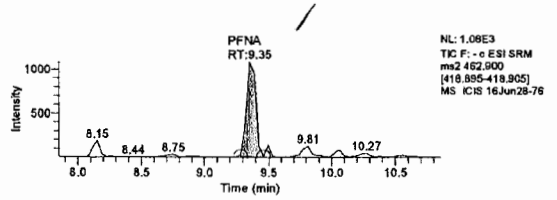
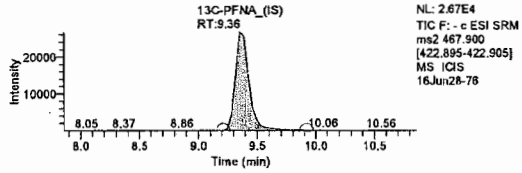
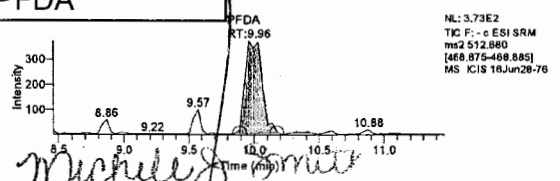
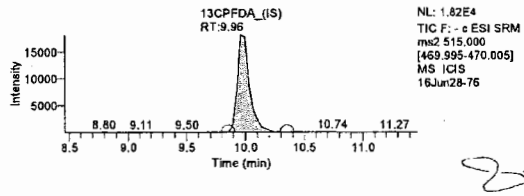




Component Name: PFDA

Check integration of PFDA





Jason W. Knight
Senior Chemist

JUN 29 2016

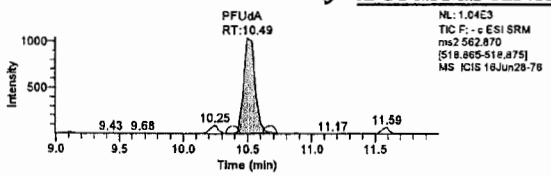
JUN 30 2016

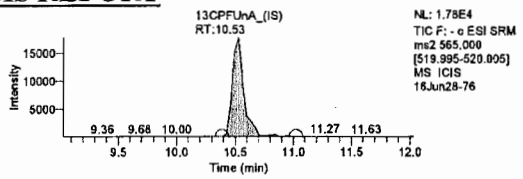
Michele J. Smith
Senior Specialist

Component Name: PFUdA

lab could not find good pt to re-integrate already J

LCMSMS ANALYSIS REPORT





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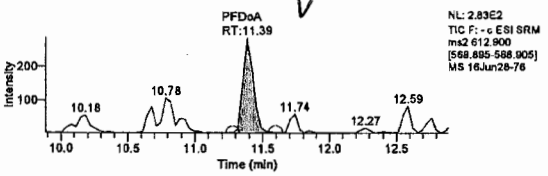

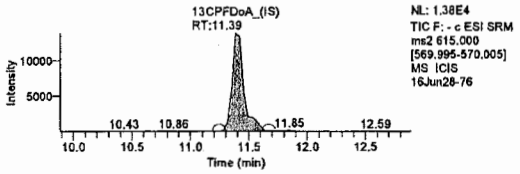

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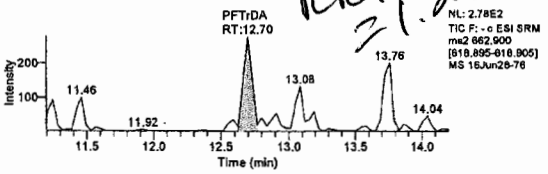
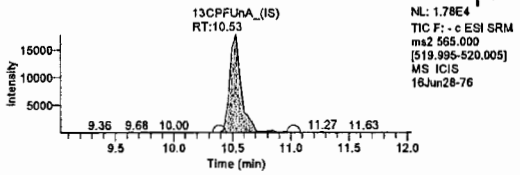
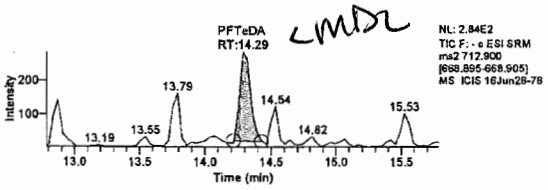
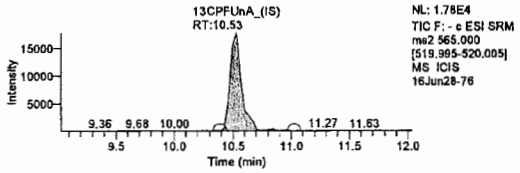
RT 1.21 1.22 1.23 12.66/10.39 12.77/10.39





Component Name: PFTeDA





Michele J Smith

JUN 30 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

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Analysis Report

Sample Description: SG3-FTB-20160617 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8433349
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/17/2016 07:55 by JD

Submitted: 06/18/2016 09:50
Reported: 07/25/2016 17:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

FTB17 SDG#: SGP96-02FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	2		1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 05:25	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

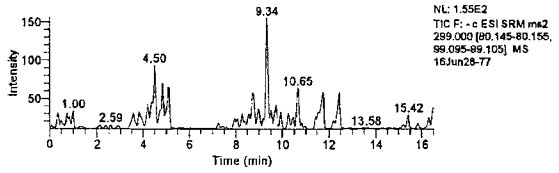
Sample Name:	8433349	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8433349	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-77		
Acquisition Date:	06/29/16 05:25:09 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:15	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

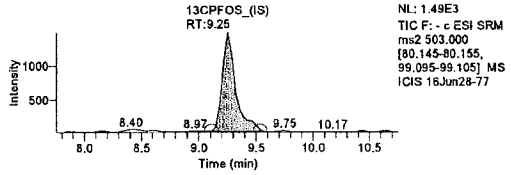
Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.28	191322.48	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.93	136592.05	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.75	110541.94	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.35	97471.83	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.67	147684.37	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	45490.97	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.67	23242.45	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.25	11930.82	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.39	116007.89	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	0.703	9.75	1562.71	110541.94	0.014	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	2.091	8.92	3383.73	136592.05	0.025	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	1.668	10.42	2168.16	116007.89	0.019	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

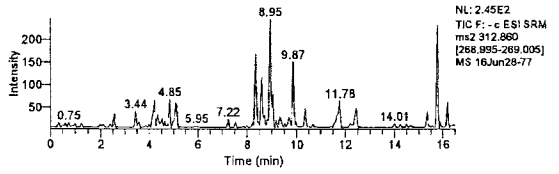
MDL Std

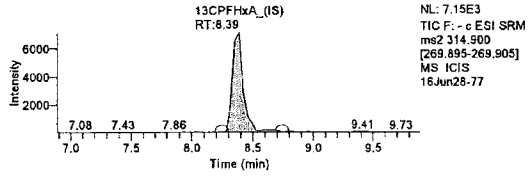
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHxS

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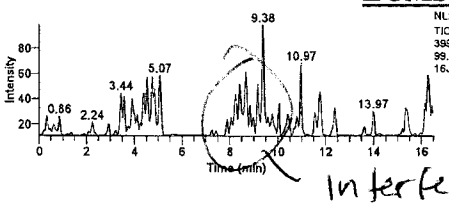
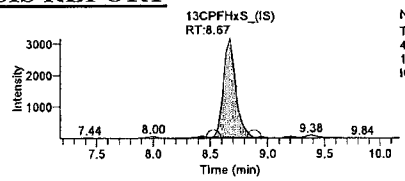
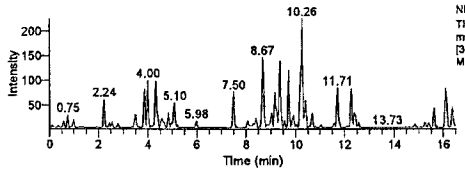
LCMSMS ANALYSIS REPORT

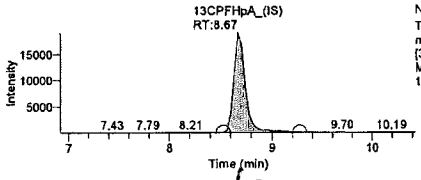




Interference > MDL std but < CAL), ok!

Component Name: PFhpA





no inflection pt to reintegrate

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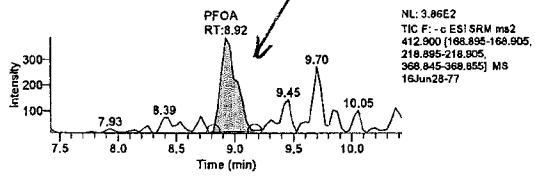
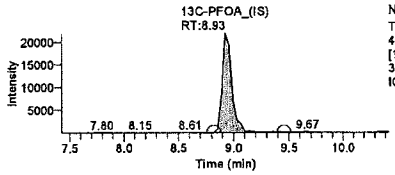
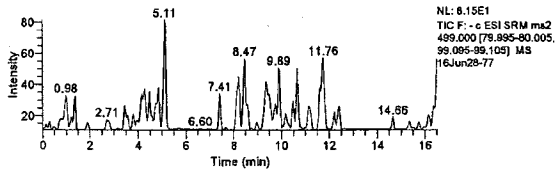
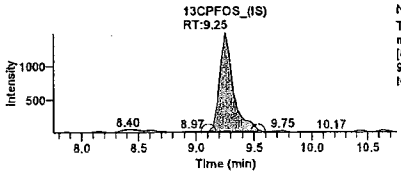




Component Name: PFOS





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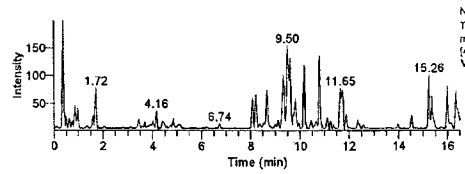

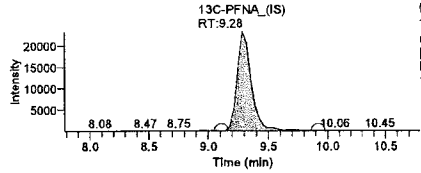

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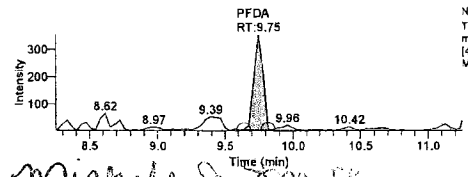
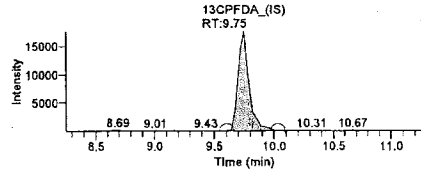




Michele J. Smith

JUN 30 2016

Michele J. Smith
Senior Specialist

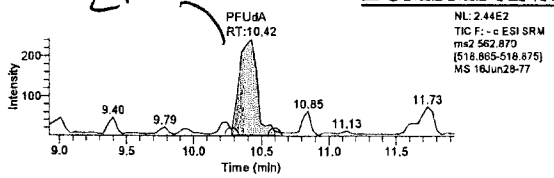
Jason W. Knight
Senior Chemist

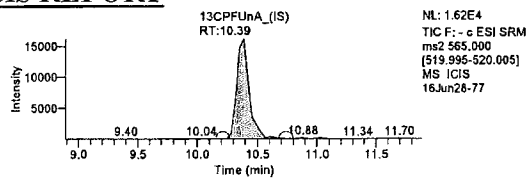
JUN 29 2016

Component Name: PFUdA

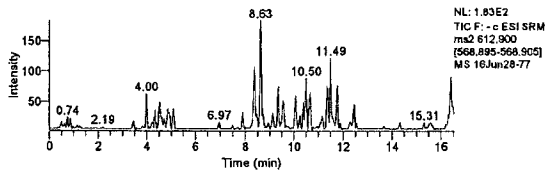
CMPL

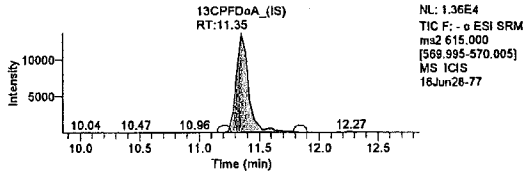
LCMSMS ANALYSIS REPORT





Component Name: PFDoA





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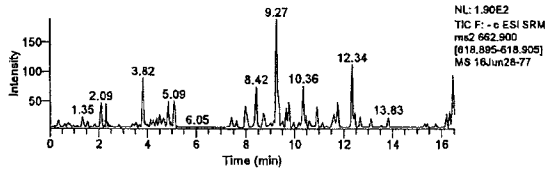
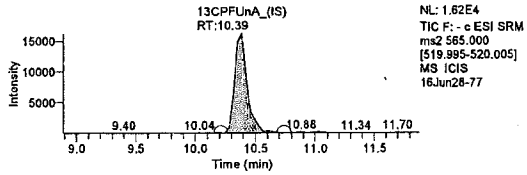
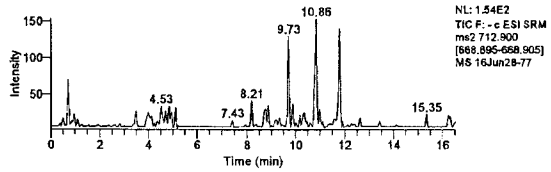
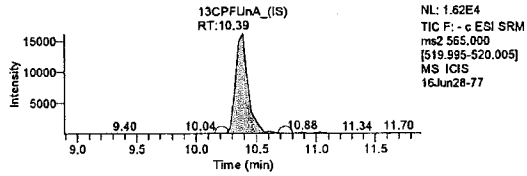




Component Name: PFTeDA





Michele J. Smith

JUN 3 0 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 2 9 2016

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Analysis Report

Sample Description: SG3-RB01-20160617 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8433350
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/17/2016 08:05 by JD

Submitted: 06/18/2016 09:50
Reported: 07/25/2016 17:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

RB117 SDG#: SGP96-03RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	EPA 537 Rev. 1.1 modified		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 05:42	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

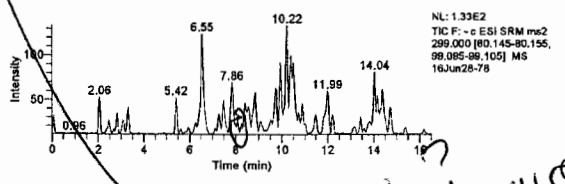
LCMSMS ANALYSIS REPORT

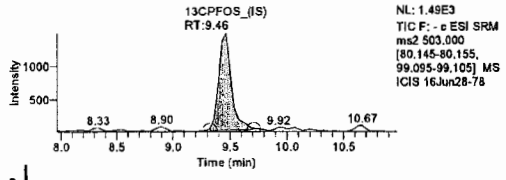
Sample Name:	8433350	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8433350	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-78		
Acquisition Date:	06/29/16 05:42:24 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:16	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.50	200309.69	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.03	141350.47	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.86	128254.13	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.21	99502.78	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.74	170974.49	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.46	60081.52	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.75	29143.90	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.46	11420.49	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.36	124227.92	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	2.506	14.29	1076.77	124227.92	0.009	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

Component Name: PFBS





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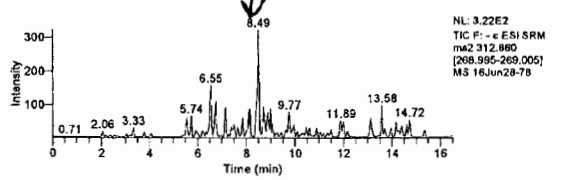

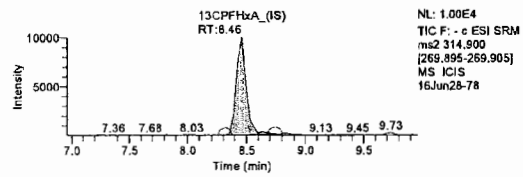

Component Name: PFHxS

JUN 30 2016

Michele J. Smith
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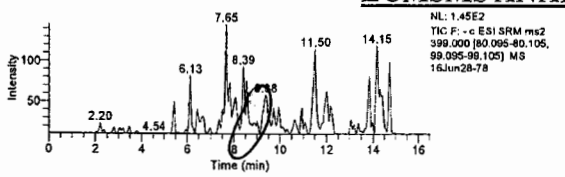
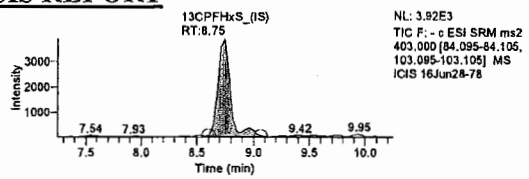
Jason W. Knight
Senior Chemist

JUN 29 2016

LCMSMS ANALYSIS REPORT





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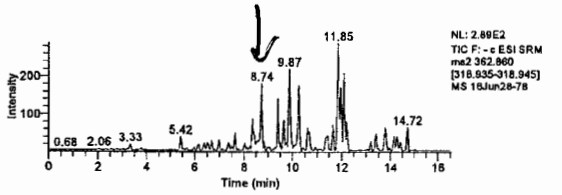

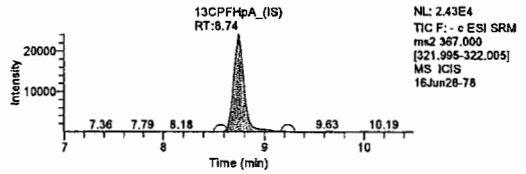

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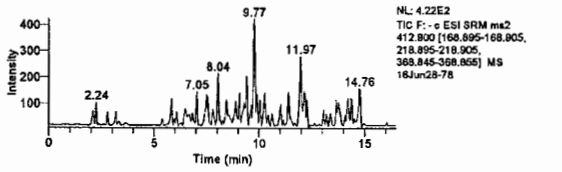

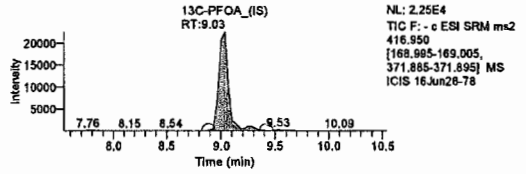

CAL 1 ~ 30 interference

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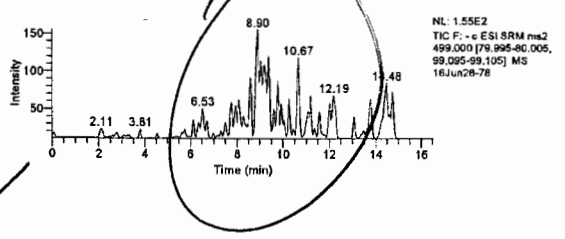

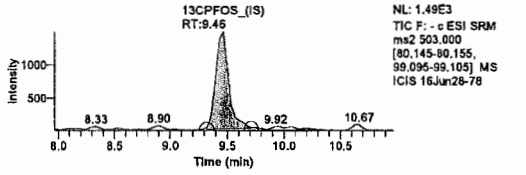

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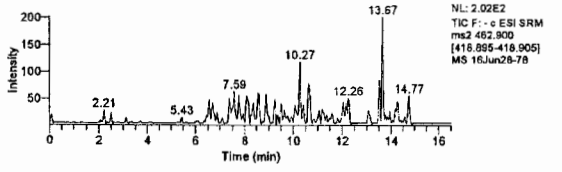

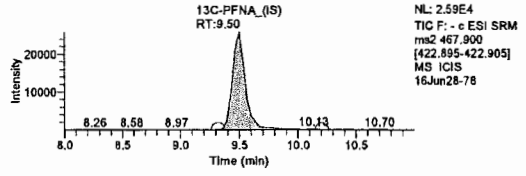

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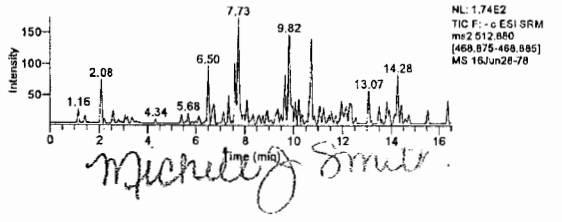
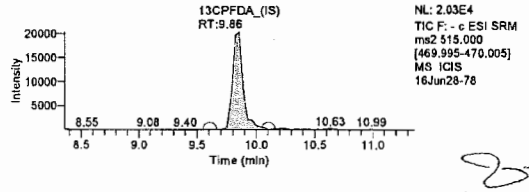




Jason W. Knight
Senior Chemist

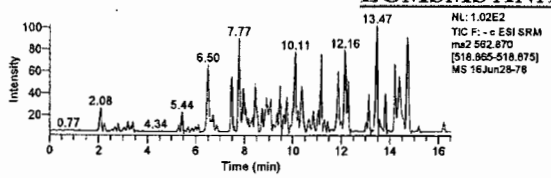
JUN 29 2016

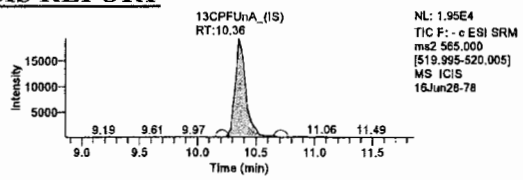
JUN 30 2016

Component Name: PFUdA

Michele J. Smith
Senior Specialist

LCMSMS ANALYSIS REPORT





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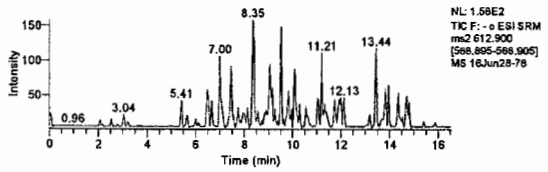

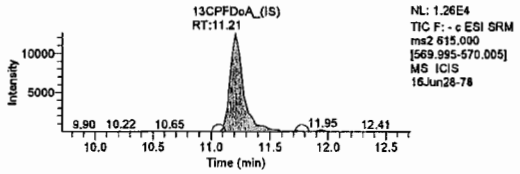

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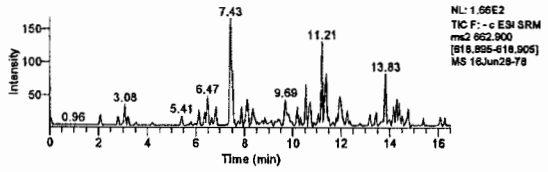

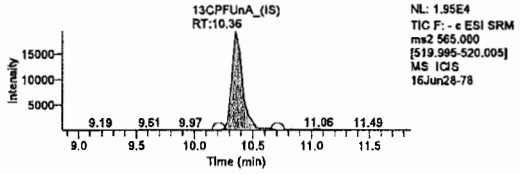

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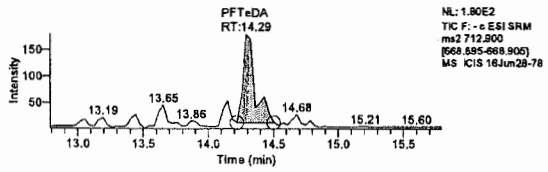

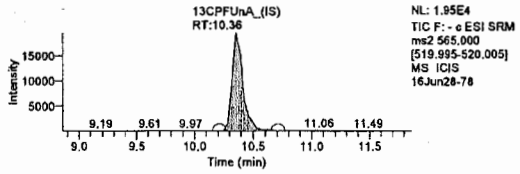

Michele J Smith

JUN 3 0 2016

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Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

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Analysis Report

REVISED

Sample Description: SG3-RB01-20160617 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8433350
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/17/2016 08:05 by JD

Submitted: 06/18/2016 09:50
Reported: 06/06/2017 16:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

RB117 SDG#: SGP96-03RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	**Perfluorohexanoic acid**	307-24-4	**2**		1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 05:42	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

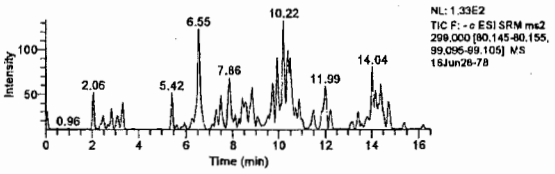
Sample Name:	8433350	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8433350	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-78		
Acquisition Date:	06/29/16 05:42:24 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:16	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

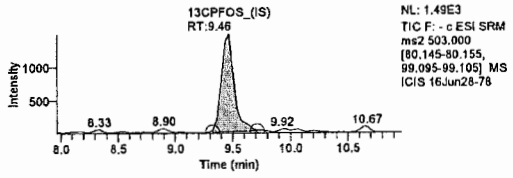
Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.50	200309.69	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.03	141350.47	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.86	128254.13	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.21	99502.78	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.74	170974.49	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.46	60081.52	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.75	29143.90	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.46	11420.49	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	N/A	N/A	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	2.023	8.49	1916.81	60081.52	0.032	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	2.506	14.29	1076.77	124227.92	0.009	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

Revised →

Component Name: PFBS





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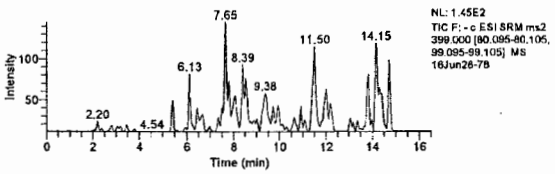
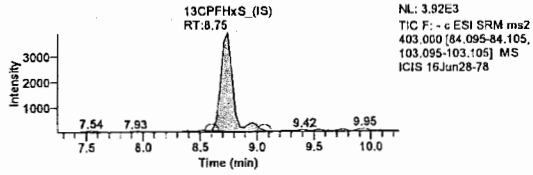
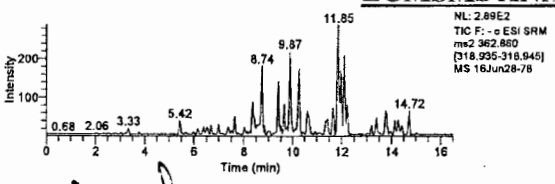
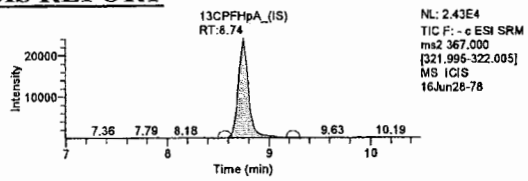




Component Name: PFhpA

LCMSMS ANALYSIS REPORT





Revised

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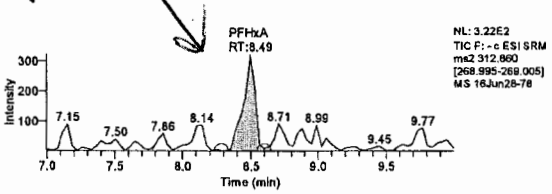

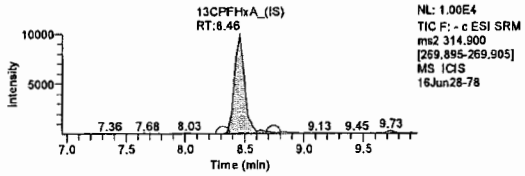

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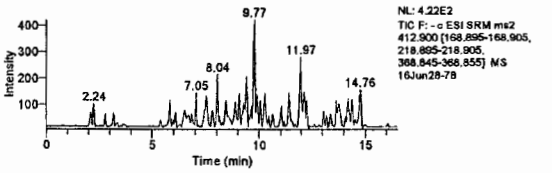

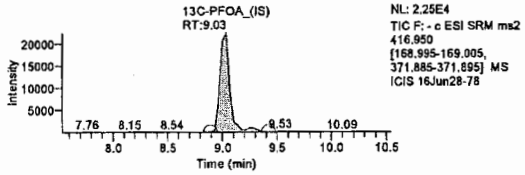

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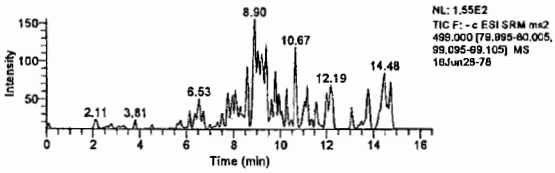

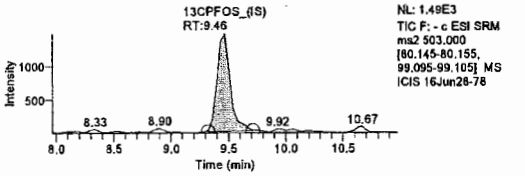

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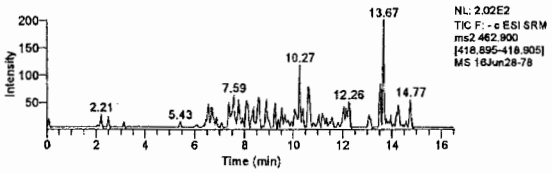

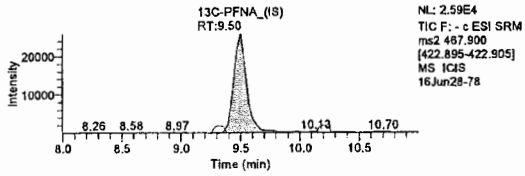

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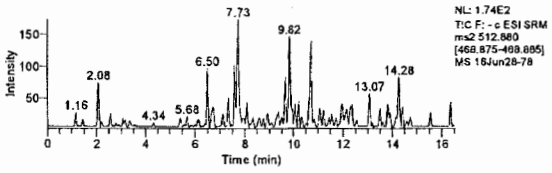

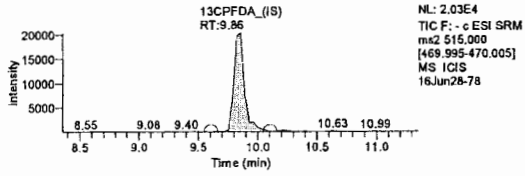

Component Name: PFUdA

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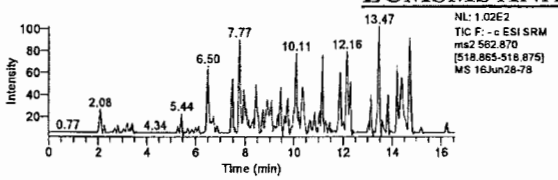

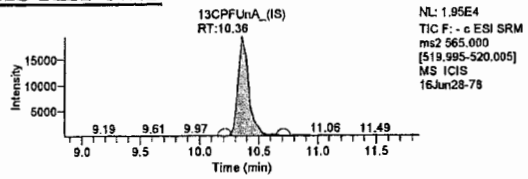

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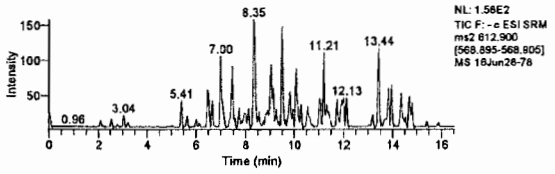
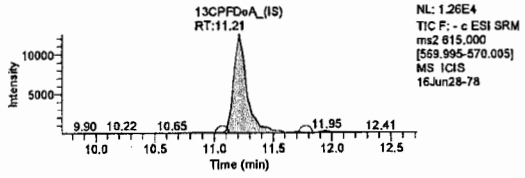
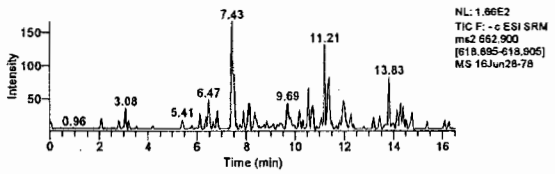
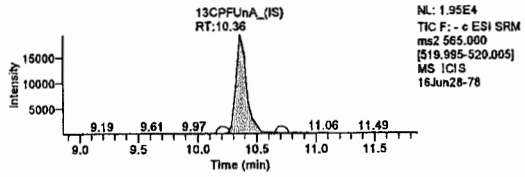




Component Name: PFTrDA





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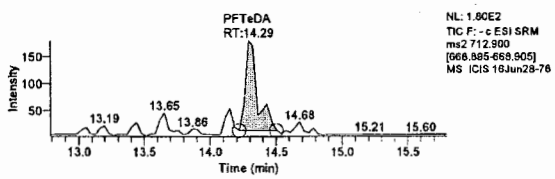

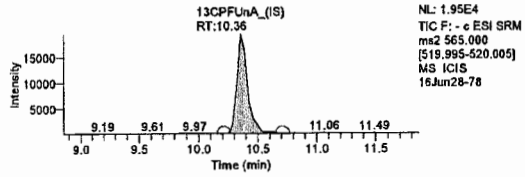

Jason W. Knight
Senior Chemist

MAY 30 2017

cma/412
6/3/17

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Analysis Report

Sample Description: SG3-RB02-20160617 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8433351
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/17/2016 08:10 by JD

Submitted: 06/18/2016 09:50
Reported: 07/25/2016 17:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

RB217 SDG#: SGP96-04RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	2	J	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 05:59	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

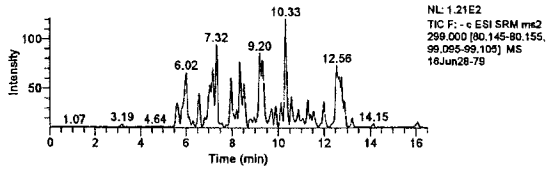
LCMSMS ANALYSIS REPORT

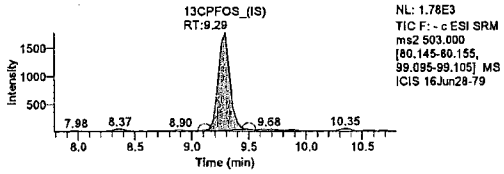
Sample Name:	8433351	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8433351	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16Jun28-79		M\HWell_16.5minutes
Acquisition Date:	06/29/16 05:59:38 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:17	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

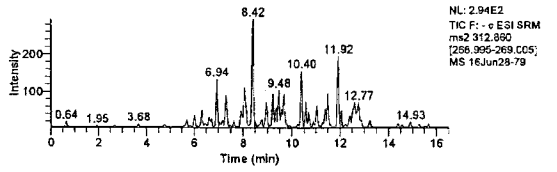
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.32	203587.18	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	158984.93	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.75	138759.78	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.35	125518.92	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	159722.18	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	41939.62	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	24649.34	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.29	12371.44	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.35	136699.60	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	0.561	9.75	1493.99	138759.78	0.011	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	1.798	8.99	2613.36	158984.93	0.016	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

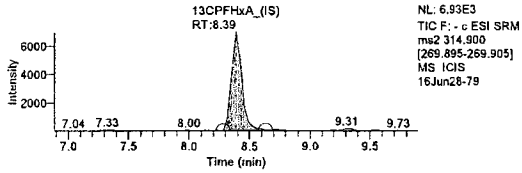
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHxS

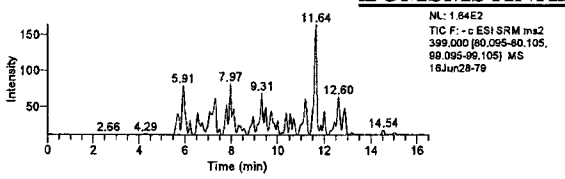
Michele J. Smith
Senior Specialist

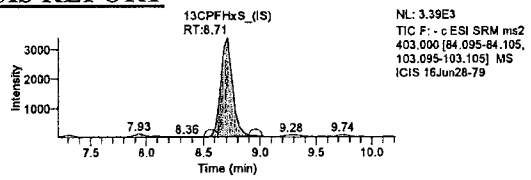
JUN 30 2016

Jason W. Knight
Senior Chemist

JUN 29 2016

LCMSMS ANALYSIS REPORT





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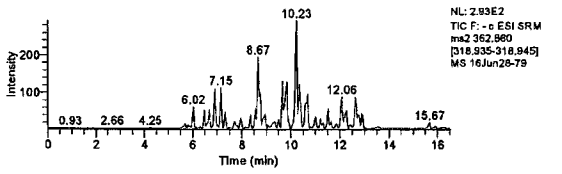

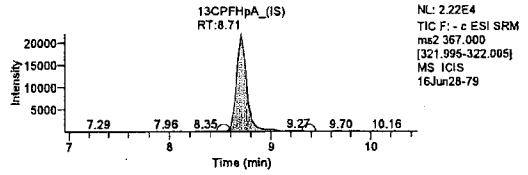

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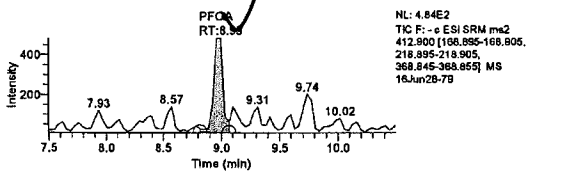
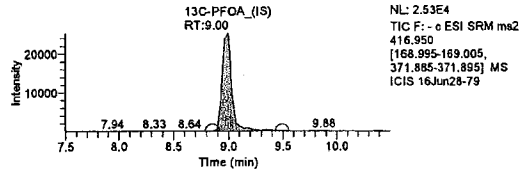
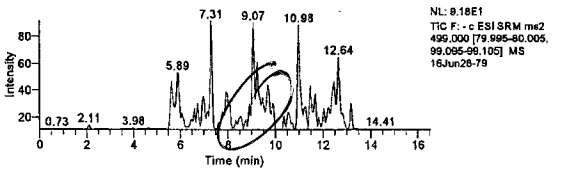
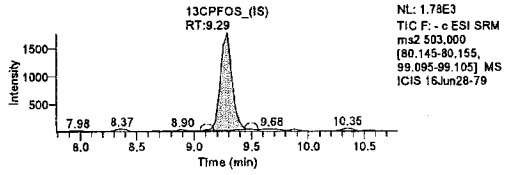




Component Name: PFOS





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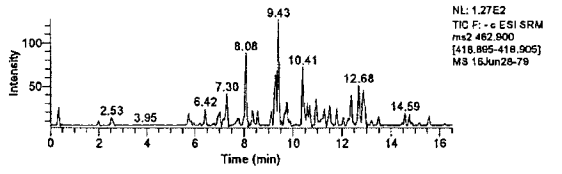
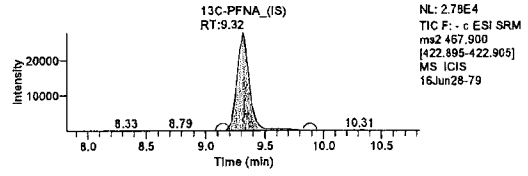
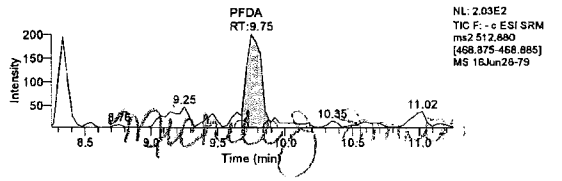
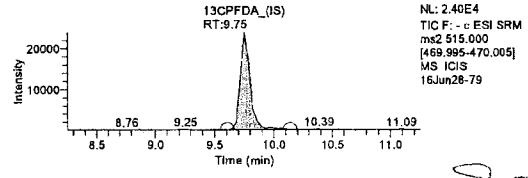




Component Name: PFDA





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Component Name: PFUdA

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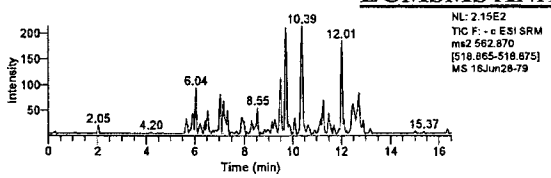
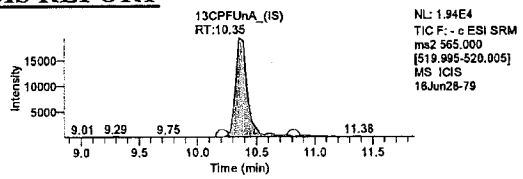
Senior Specialist

Jason W. Knight
Senior Chemist

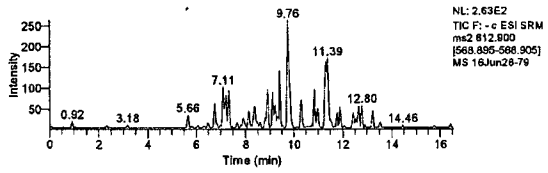
JUN 29 2016

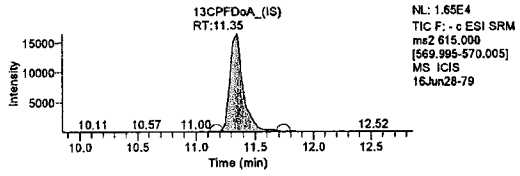
LCMSMS ANALYSIS REPORT





Component Name: PFDoA





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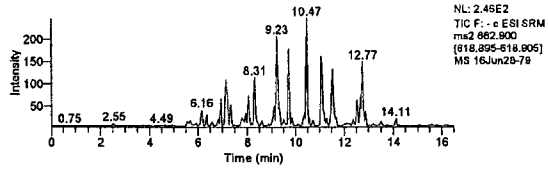
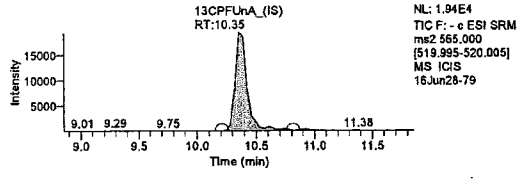
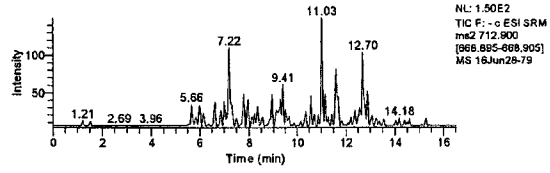
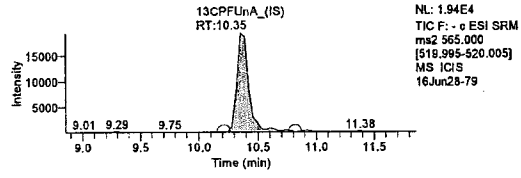




Component Name: PFTeDA





Michele J Smith

JUN 3 0 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

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Analysis Report

REVISED

Sample Description: SG3-RB02-20160617 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8433351
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/17/2016 08:10 by JD

Submitted: 06/18/2016 09:50
Reported: 06/06/2017 16:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised to write PFOA!

RB217 SDG#: SGP96-04RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	**Perfluorooctanoic acid**	335-67-1	**2**	**J**	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	**Perfluorohexanoic acid**	307-24-4	**1**	**J**	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 05:59	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

Sample Name:	8433351	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8433351	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-79		
Acquisition Date:	06/29/16 05:59:38 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:17	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.32	203587.18	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	158984.93	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.75	138759.78	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.35	125518.92	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	159722.18	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	41939.62	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	24649.34	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.29	12371.44	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	N/A	N/A	N/A	N/A	N/A
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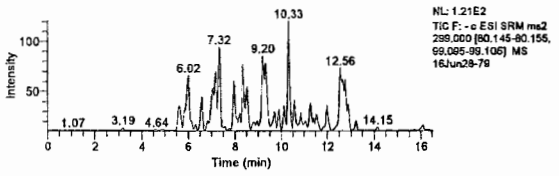
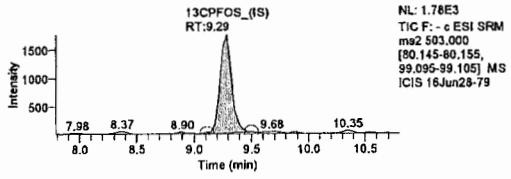
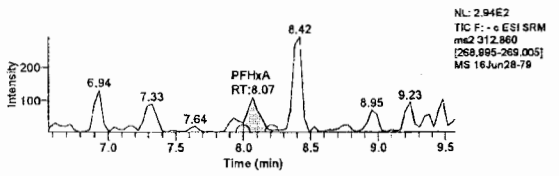
PFDA	0.561	9.75	1493.99	138759.78	0.011	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	1.463	8.07	656.01	41939.62	0.016	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	1.798	8.99	2613.36	158984.93	0.016	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

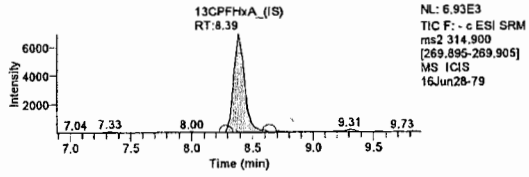
Component Name: PFBS





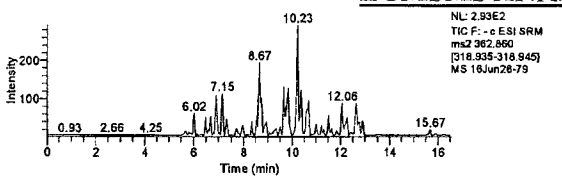
Component Name: PFHxA

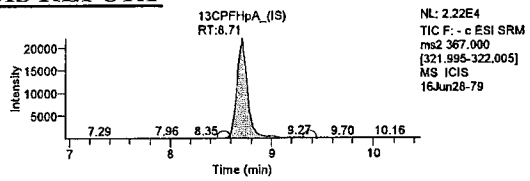




Component Name: PFhpA

LCMSMS ANALYSIS REPORT





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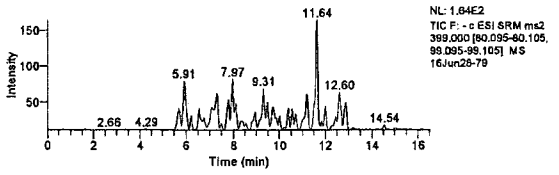

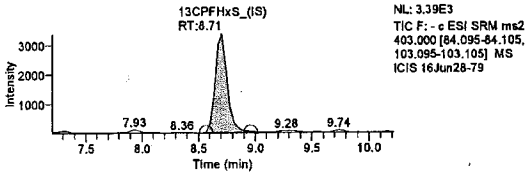

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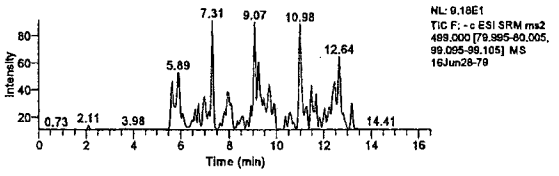

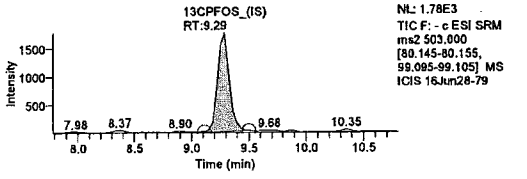

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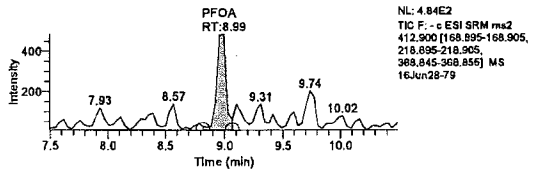

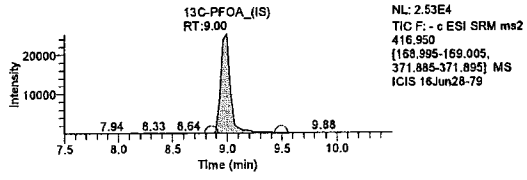

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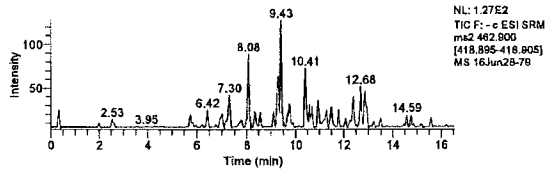

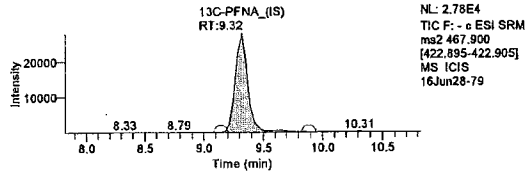

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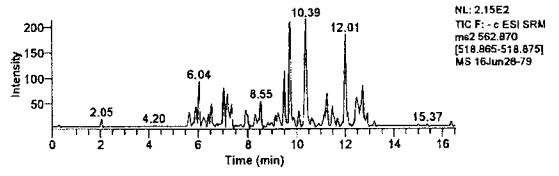
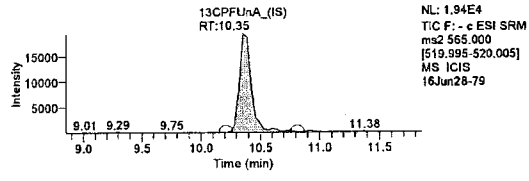
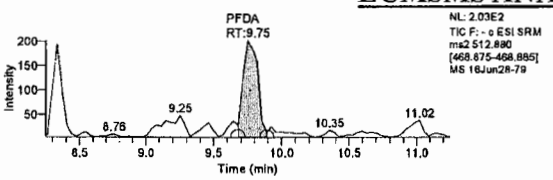
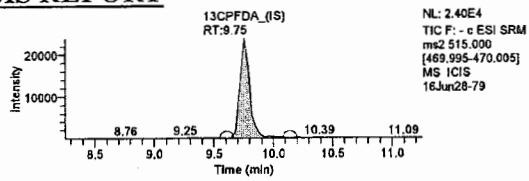




Component Name: PFDA

LCMSMS ANALYSIS REPORT





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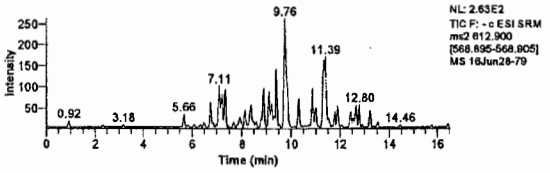

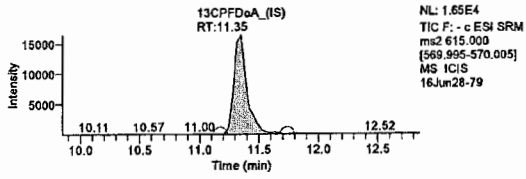

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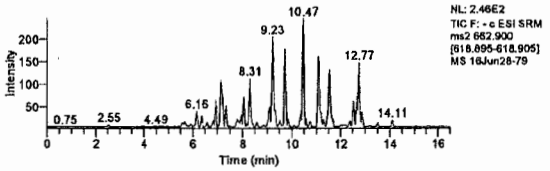

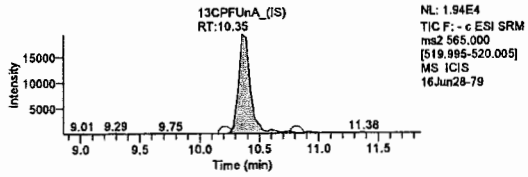

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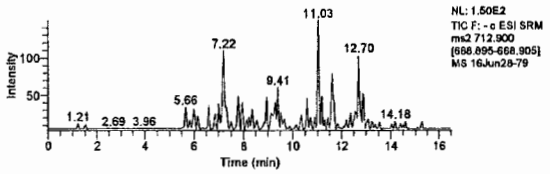

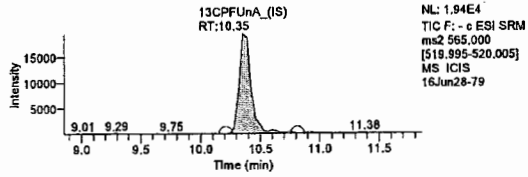

Jason W. Knight
Senior Chemist

MAY 30 2017

CMR/472
6/3/17

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Analysis Report

REVISED

Sample Description: SG3-RB02-20160617 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8433351
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/17/2016 08:10 by JD

Submitted: 06/18/2016 09:50
Reported: 06/19/2017 14:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

FINAL Revision

RB217 SDG#: SGP96-04RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	**Perfluorooctanoic acid**	335-67-1	**2**	**J**	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	**Perfluorohexanoic acid**	307-24-4	**2**		1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 05:59	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

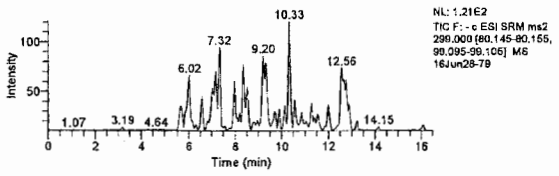
LCMSMS ANALYSIS REPORT

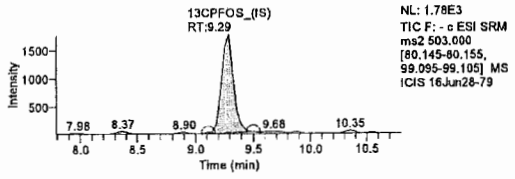
Sample Name:	8433351	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8433351	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16Jun28-79		M\HWell_16.5minutes
Acquisition Date:	06/29/16 05:59:38 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:17	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

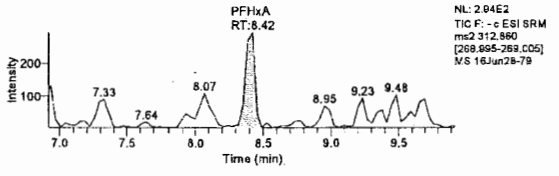
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.32	203587.18	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	158984.93	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.75	138759.78	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.35	125518.92	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	159722.18	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	41939.62	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	24649.34	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.29	12371.44	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	N/A	N/A	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	0.561	9.75	1493.99	138759.78	0.011	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	2.182	8.42	1530.58	41939.62	0.036	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	1.798	8.99	2613.36	158984.93	0.016	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

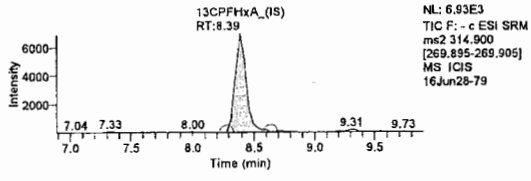
Component Name: PFBS





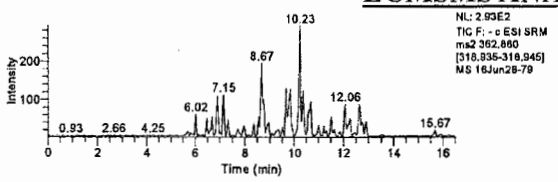
Component Name: PFHxA

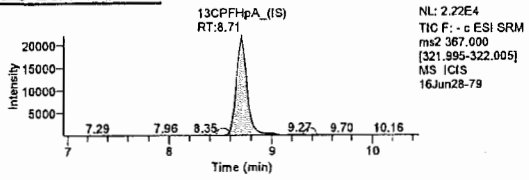




Component Name: PFhpA

LCMSMS ANALYSIS REPORT





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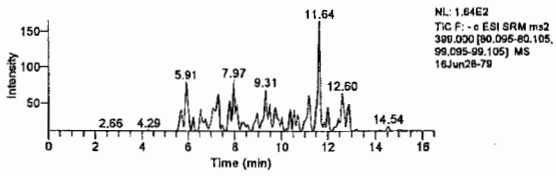

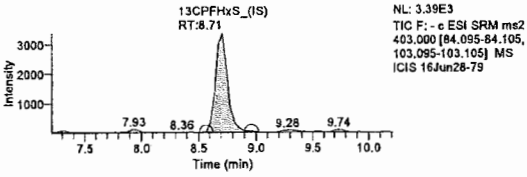

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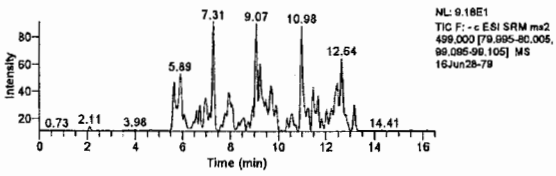

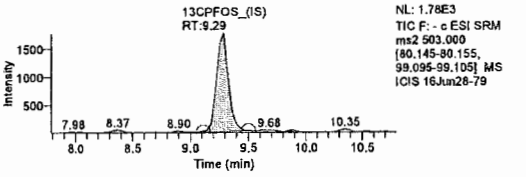

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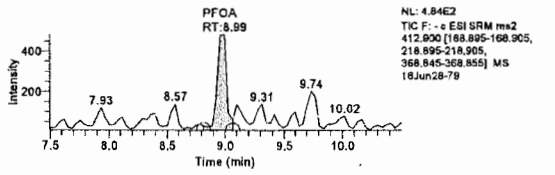

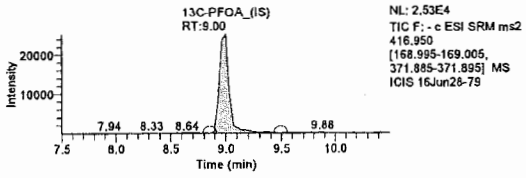

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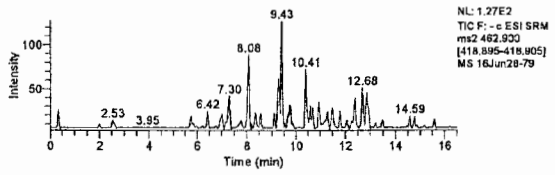

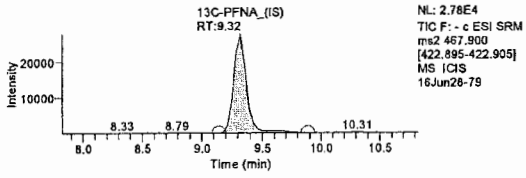

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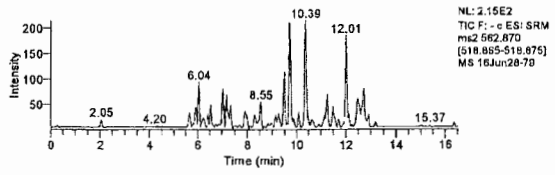

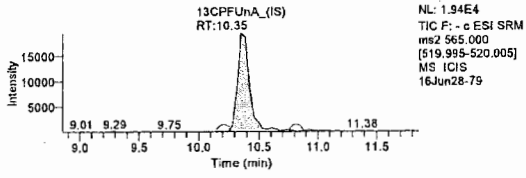

Component Name: PFDA

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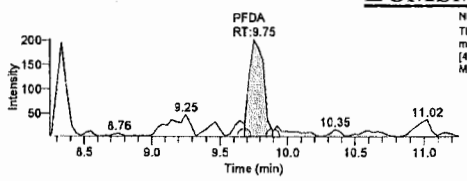

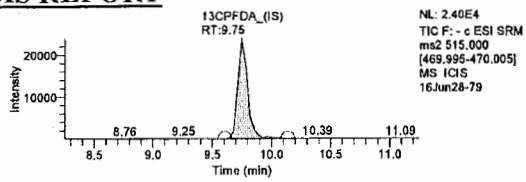

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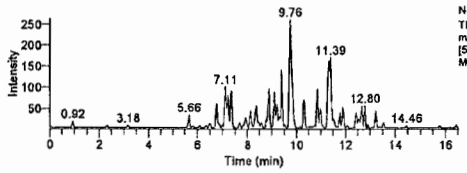
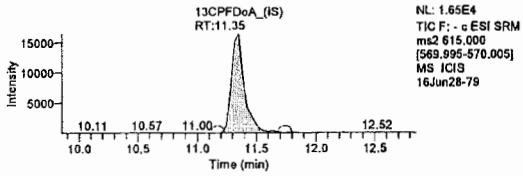
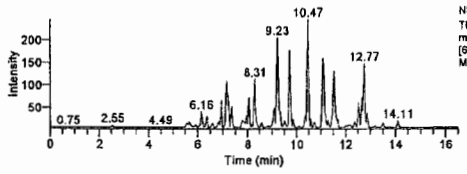
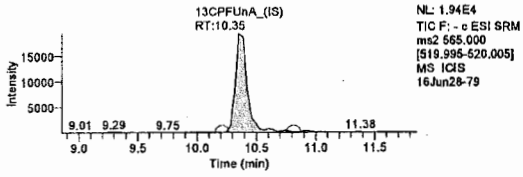




Component Name: PFTrDA





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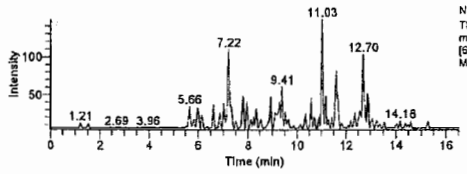

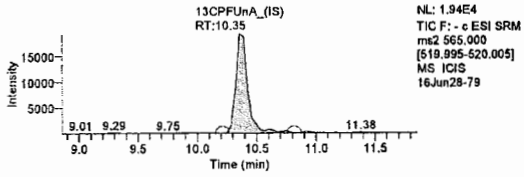

Jason W. Knight
Senior Chemist

JUN 16 2017

6/16/17

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Analysis Report

Sample Description: SG3-RB03-20160617 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8433352
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/17/2016 10:05 by JD

Submitted: 06/18/2016 09:50
Reported: 07/25/2016 17:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB317 SDG#: SGP96-05RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	4		1	2	1
10954	Perfluorononanoic acid	375-95-1	3		1	2	1
10954	Perfluorodecanoic acid	335-76-2	2		1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	3	J	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	J	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	4		1	2	1
10954	Perfluoroheptanoic acid	375-85-9	2		1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16172001	06/29/2016 06:51	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16172001	06/20/2016 10:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

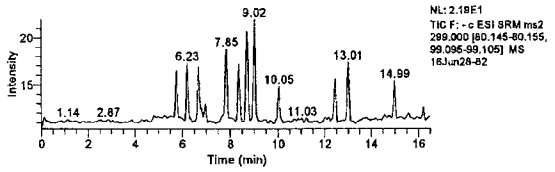
LCMSMS ANALYSIS REPORT

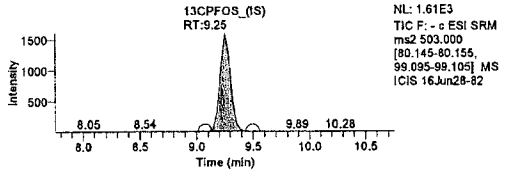
Sample Name:	8433352	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	8433352	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-82		
Acquisition Date:	06/29/16 06:51:21 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	A:18	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.28	188997.65	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.96	131596.19	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.71	110174.65	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.31	72611.81	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	131860.47	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	47157.49	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	19285.89	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.25	10357.81	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.39	83985.15	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	2.384	9.75	5960.96	110174.65	0.054	ng/L
PFDoA	1.988	11.31	1480.13	72611.81	0.020	ng/L
PFHxA	4.373	8.39	4721.75	47157.49	0.100	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	2.616	9.28	6744.14	188997.65	0.036	ng/L
PFOA	3.574	8.96	8799.06	131596.19	0.067	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	2.243	12.69	809.74	83985.15	0.010	ng/L
PFUdA	2.538	10.39	3317.61	83985.15	0.040	ng/L
PFhpA	2.462	8.71	5475.32	131860.47	0.042	ng/L

Component Name: PFBS





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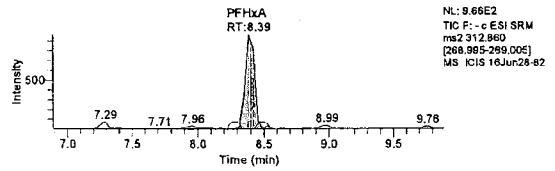
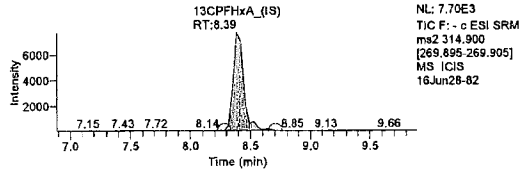




Component Name: PFhpA

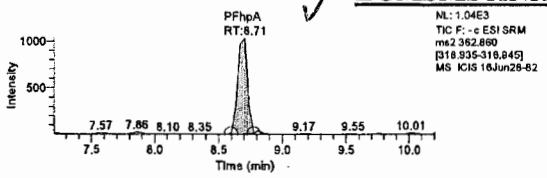
Michele J. Smith
Senior Specialist

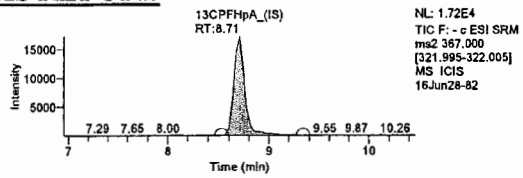
JUN 30 2016

Jason W. Knight
Senior Chemist

JUN 29 2016

LCMSMS ANALYSIS REPORT





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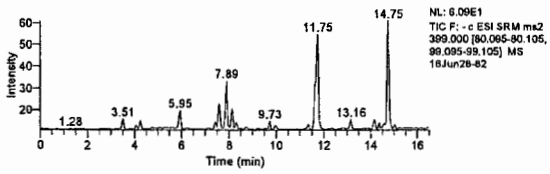

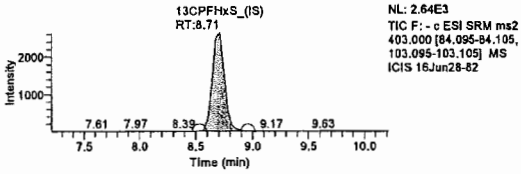

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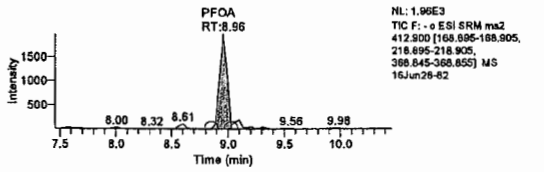
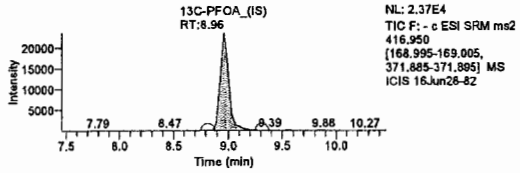
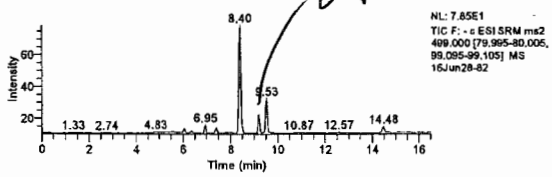
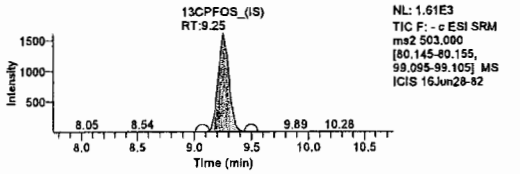




Component Name: PFOS





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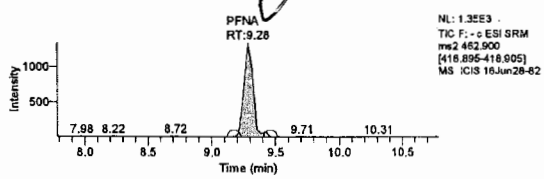
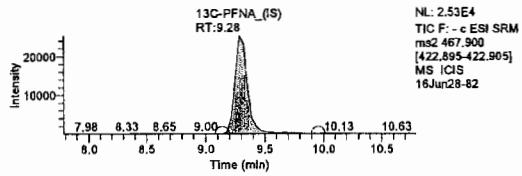
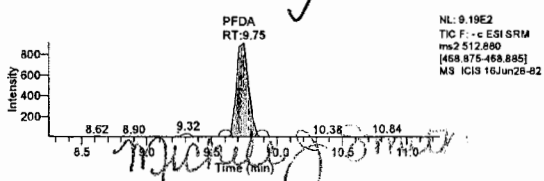
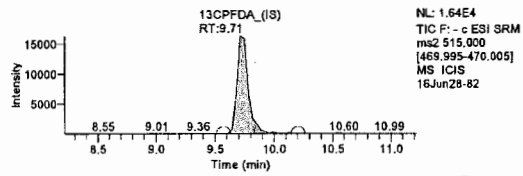




Component Name: PFDA





JUN 3 0 2016

Component Name: PFUdA

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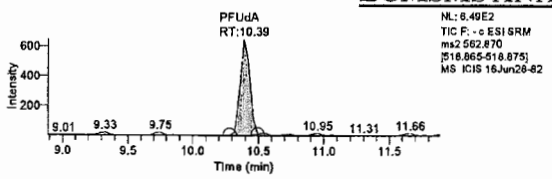

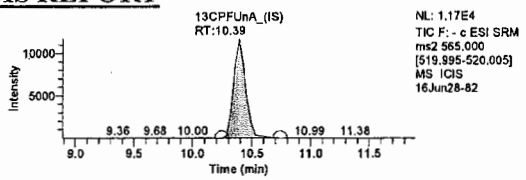

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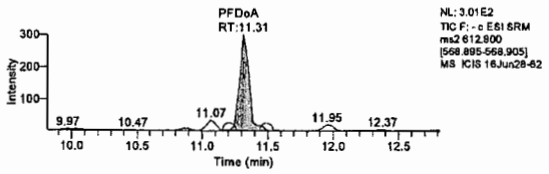

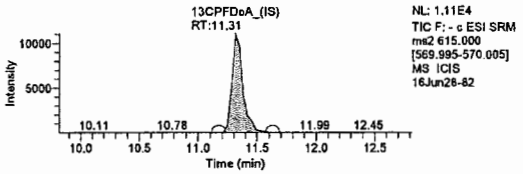

1.22 12.66/10.39
1.23 12.77/10.39

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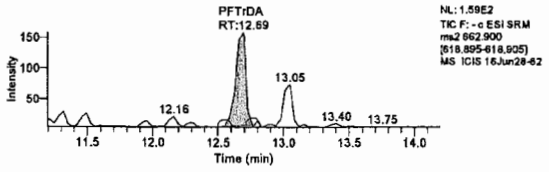
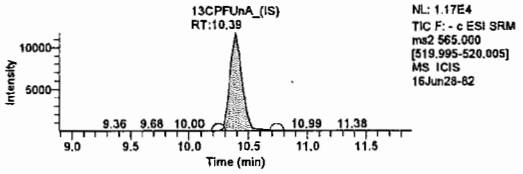
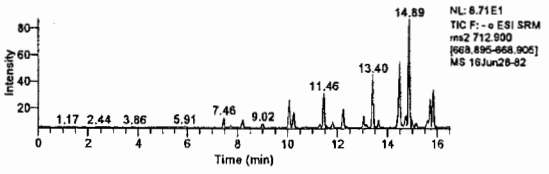
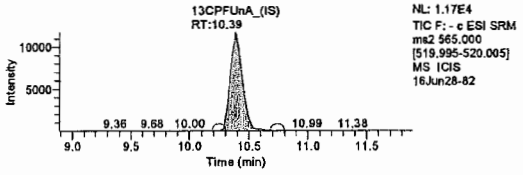




Component Name: PFTeDA





Michele J Smith

JUN 30 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

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Analysis Report

Sample Description: SG3-MW02-05.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8433353
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/17/2016 10:50 by JD

Submitted: 06/18/2016 09:50
Reported: 07/25/2016 17:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

SG321 SDG#: SGP96-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.58	U	0.58	1.9	1
14027	Perfluorodecanoic acid	335-76-2	8.2		0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	9.0		0.46	0.93	1
14027	Perfluoroheptanoic acid	375-85-9	0.53	J	0.35	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.58	U	0.58	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.47		0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.81	U	0.81	1.9	1
14027	Perfluorooctanoic acid	335-67-1	28		0.35	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	20		0.35	0.93	1
14027	Perfluorotridecanoic acid	72629-94-8	6.2		0.70	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	15		0.35	0.70	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was reextracted outside the holding time and comparable results were observed. Both sets of data are included in the data package.

Wet Chemistry	**SM 5310 B modified-2000**	mg/kg	mg/kg	mg/kg		
02079	TOC	n.a.	5,370	584	1,750	1
Wet Chemistry	**SM 2540 G-1997**	%	%	%		
00111	Moisture	n.a.	13.9	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16180013	07/14/2016 14:15	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16180013	06/29/2016 12:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16190049531A	07/08/2016 19:52	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16180820003A	06/28/2016 13:05	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW02-05.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8433353
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/17/2016 10:50 by JD

Submitted: 06/18/2016 09:50
Reported: 06/06/2017 16:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG321 SDG#: SGP96-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.54	U	0.54	1.7	1
14027	**Perfluorodecanoic acid**	335-76-2	**8.2**		0.22	0.43	1
14027	**Perfluorododecanoic acid**	307-55-1	**9.0**		0.43	0.87	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.53**	J	0.32	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.54	U	0.54	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.43	1
14027	**Perfluorononanoic acid**	375-95-1	**0.47**		0.22	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.76	U	0.76	1.7	1
14027	**Perfluorooctanoic acid**	335-67-1	**28**		0.32	0.65	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**20**		0.32	0.87	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**6.2**		0.65	1.3	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**15**		0.32	0.65	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was reextracted outside the holding time and comparable results were observed. Both sets of data are included in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,370**		584	1,750	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.9**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16180013	07/14/2016 14:15	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16180013	06/29/2016 12:30	Robert Brown	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 7/15/2016 8:13:00 AM

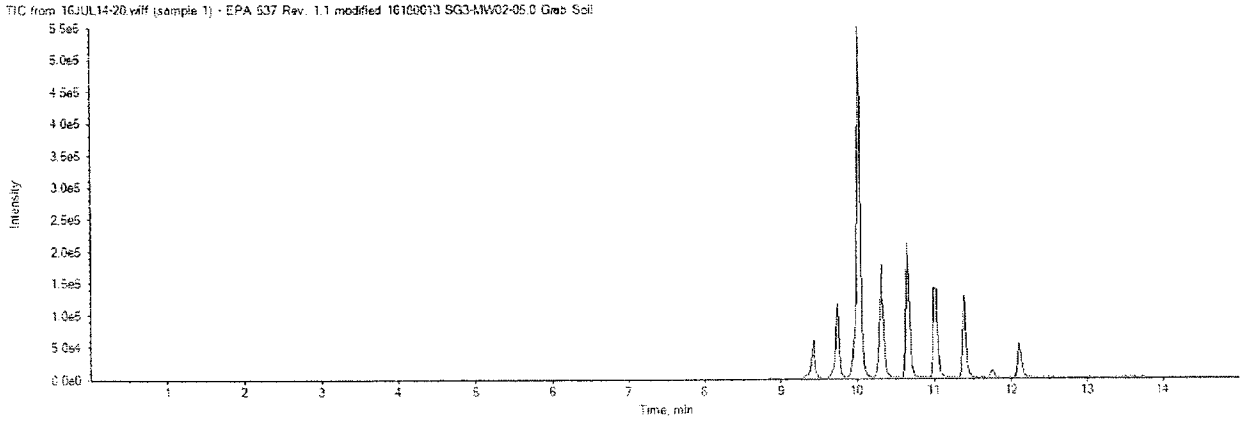
Sample Name:	EPA 537 Rev. 1.1 modified 16180013 SG3-MW02-05.0 Grab Soil	**Data File:**		16JUL14-20.wiff
Sample ID:	8433353	**Acquis Date:**		7/14/2016 2:15:39 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	55	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16180013
Batch Number:	16180013	**Operator:**		US19INS07959\4000
Sample Wt.:	5.370	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

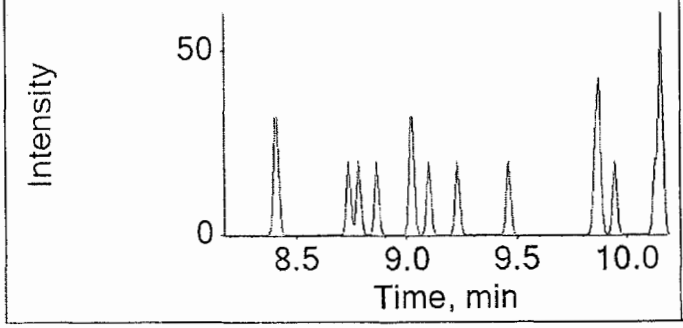
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.74	132290.3	N/A	N/A	
PFHxA	9.42	2176.3	13C2-PFHxA	9.42	187156.7	0.012	0.182	
PFHpA	9.74	5978.2	13C4-PFHpA	9.74	250206.5	0.024	0.456	
PFHxS	9.73	467.9	18O2-PFHxS	9.74	132290.3	0.004	0.270	
PFOA	10.02	907964.9	13C4-PFOA	10.02	864408.6	1.050	24.228	
PFNA	10.32	23530.3	13C5-PFNA	10.32	488379.2	0.048	0.408	
PFOS	10.29	1155.9	13C4-PFOS	10.29	69583.6	0.017	0.540	
PFDA	10.65	284887.5	13C2-PFDA	10.65	416595.7	0.684	7.049	
PFUndA	11.01	253796.7	13C2-PFUnDA	11.01	309227.4	0.821	12.829	
PFDoDA	11.38	115369.6	13C2-PFDoDA	11.38	259159.3	0.445	7.770	
PFTrDA	11.75	38355.3	13C2-PFDoDA	11.38	259159.3	0.148	5.303	
PFTeDA	12.11	185554.4	13C2-PFDoDA	11.38	259159.3	0.716	17.285	

Total Ion Chromatogram

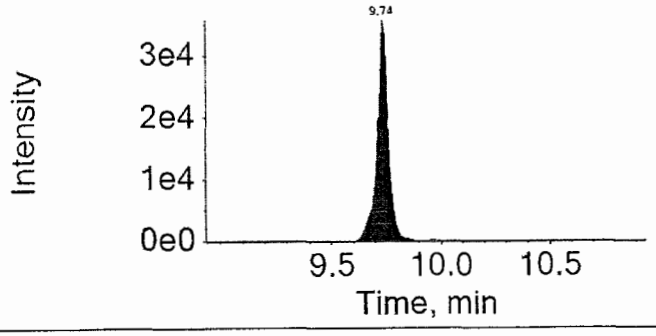
8433353



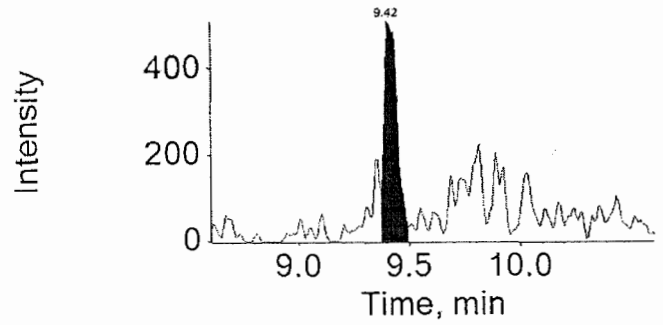
16JUL14-20.wiff
Analyte: PFBS
298.9 /
98.9



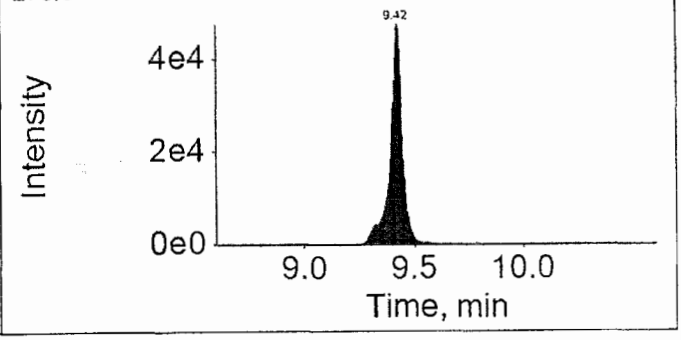
Internal Standard: 18O2-PFHxS
403.0 /
103.0



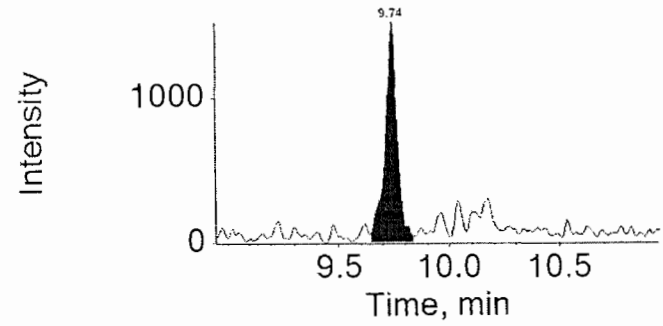
16JUL14-20.wiff
Analyte: PFHxA
312.9 /
269.0



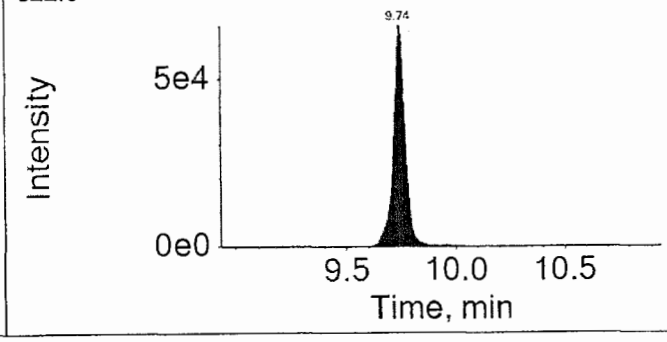
Internal Standard: 13C2-PFHxA
314.9 /
270.0



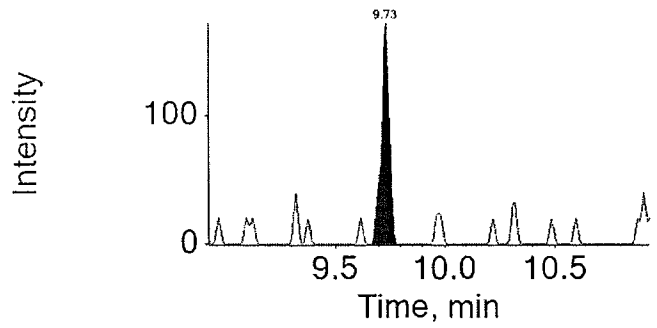
16JUL14-20.wiff
Analyte: PFHpA
362.9 /
318.9

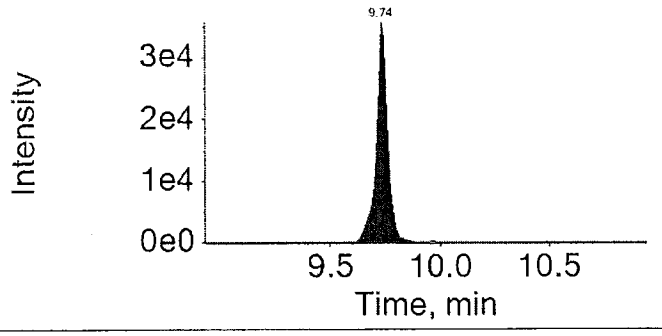


Internal Standard: 13C4-PFHpA
367.0 /
322.0

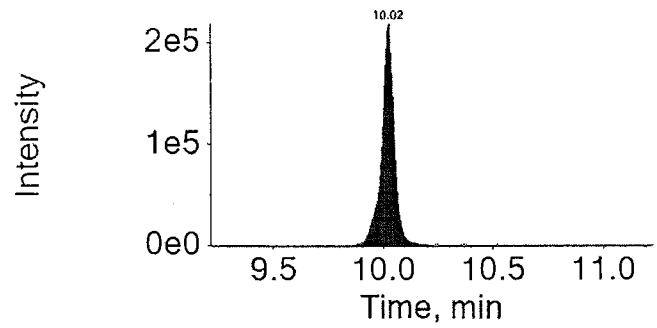


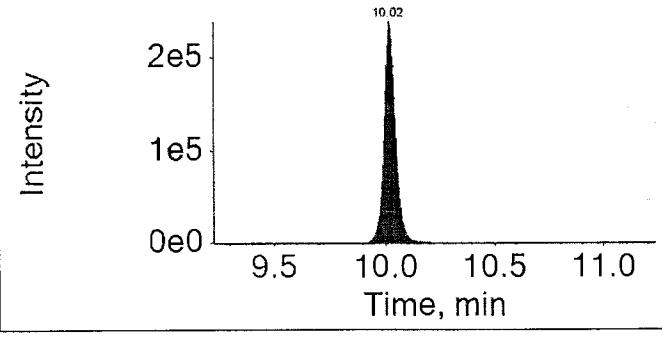
16JUL14-20.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



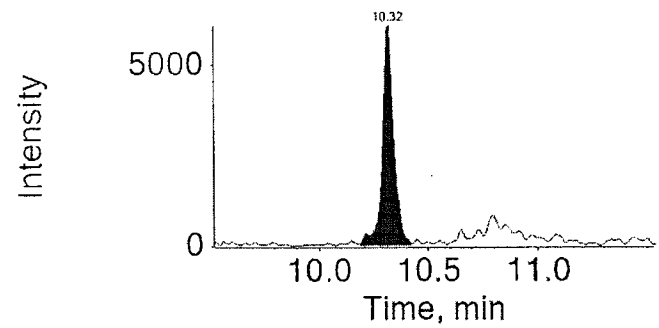


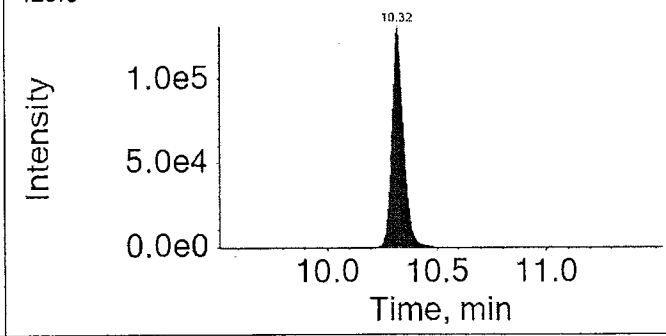
16JUL14-20.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



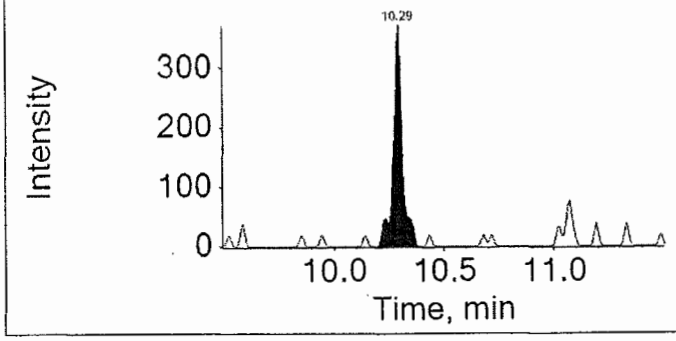


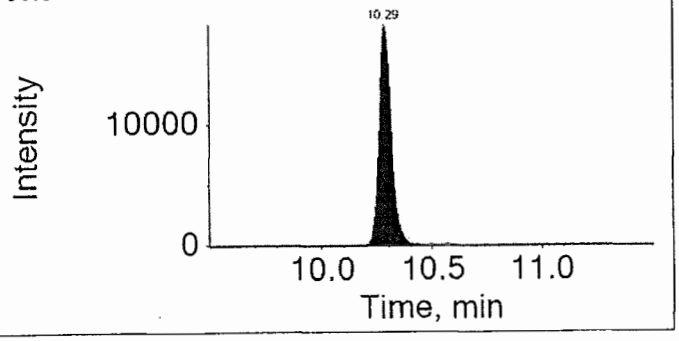
16JUL14-20.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



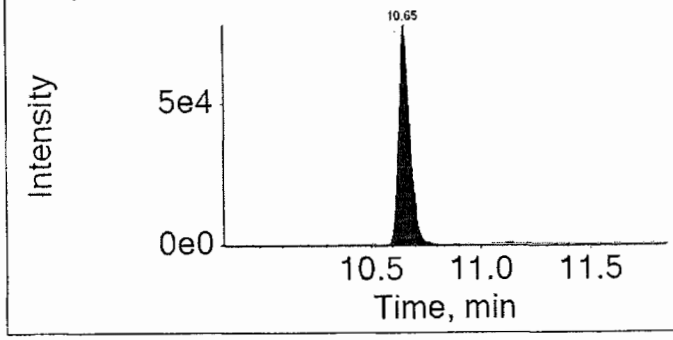


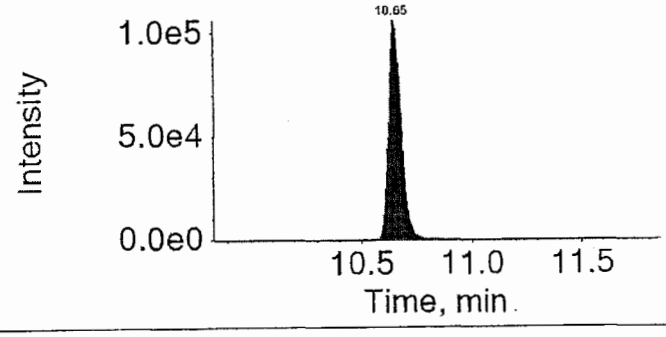
16JUL14-20.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



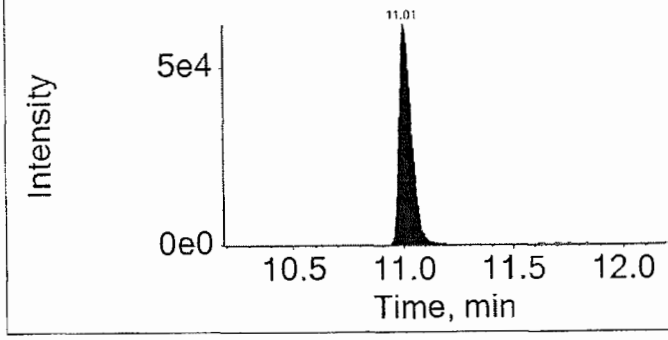


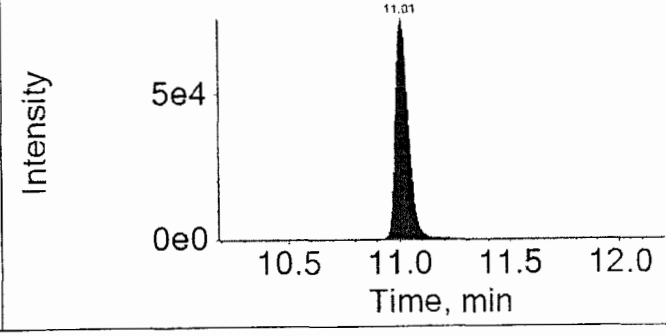
16JUL14-20.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



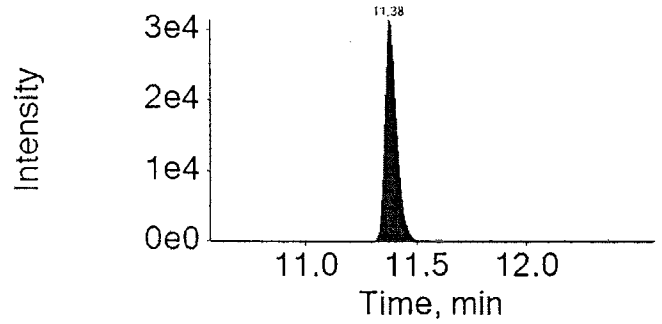


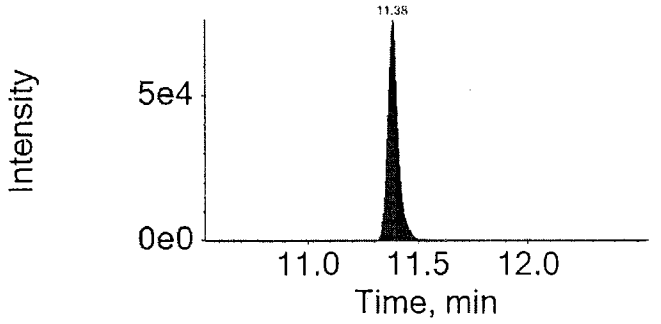
16JUL14-20.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



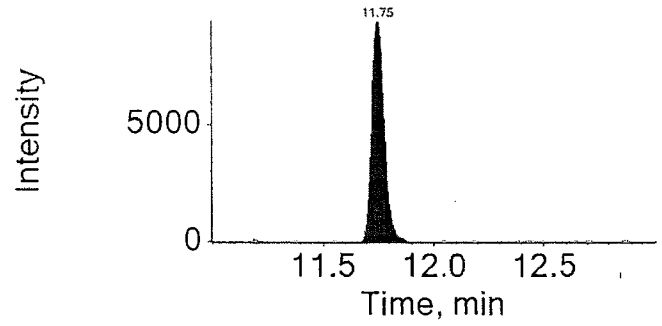


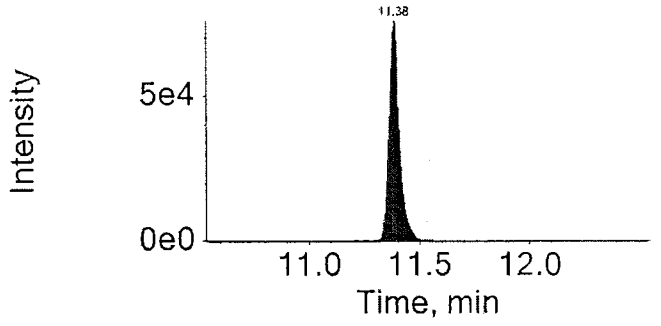
16JUL14-20.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



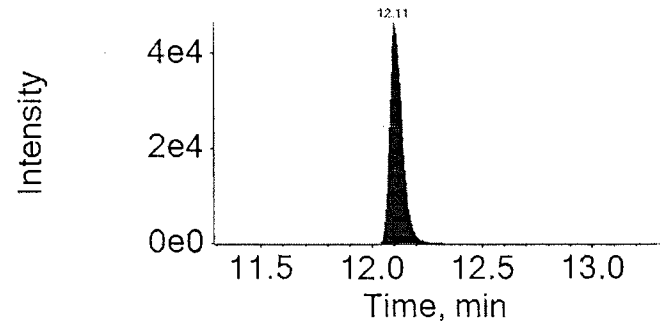


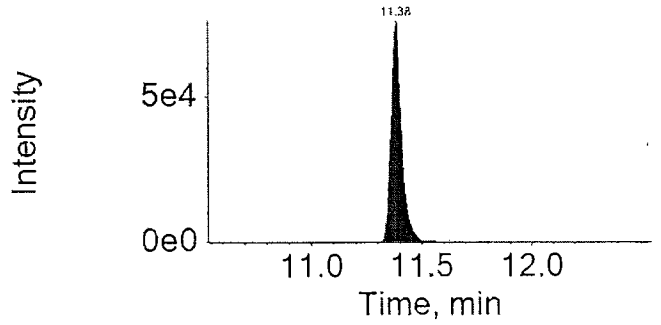
16JUL14-20.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL14-20.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





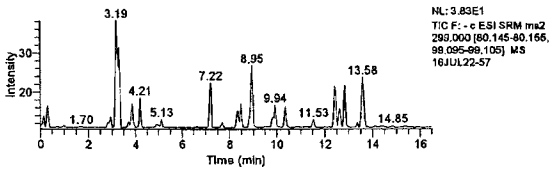
LCMSMS ANALYSIS REPORT

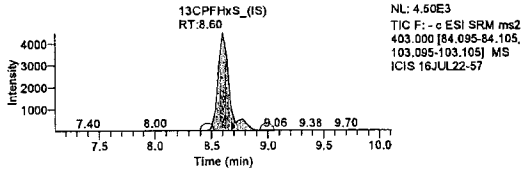
Sample Name:	8433353 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8433353 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL22-57		
Acquisition Date:	07/23/16 12:29:38 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:12	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

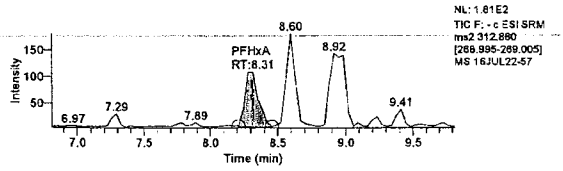
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.25	236394.71	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.93	218585.23	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.68	179349.28	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.96	143555.24	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.64	227951.03	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.32	139275.41	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.60	31042.05	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.22	16521.28	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.25	193283.30	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	4.230	9.68	52859.59	179349.28	0.295	ng/g
PFDoA	5.257	11.00	75845.69	143555.24	0.528	ng/g
PFHxA	0.051	8.31	723.12	139275.41	0.005	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.202	9.25	2396.72	236394.71	0.010	ng/g
PFOA	12.341	8.92	270839.89	218585.23	1.239	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	8.738	12.77	133608.84	193283.30	0.691	ng/g
PFTrDA	2.942	11.85	48883.98	143555.24	0.341	ng/g
PFUdA	5.310	10.25	87613.83	193283.30	0.453	ng/g
PFHpA	0.322	8.63	5051.10	227951.03	0.022	ng/g

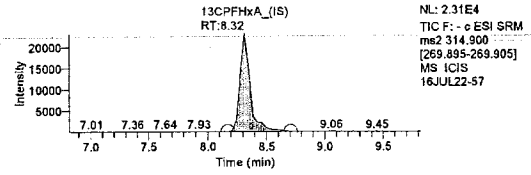
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHpA

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JUL 25 2016

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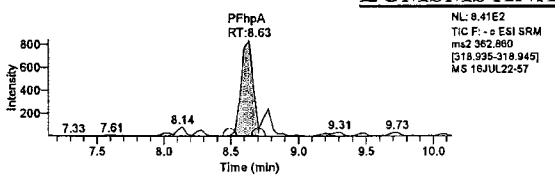
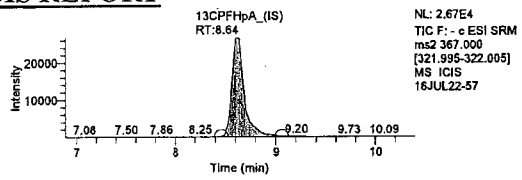
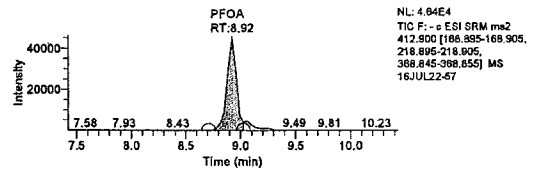
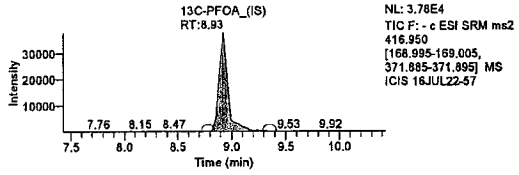


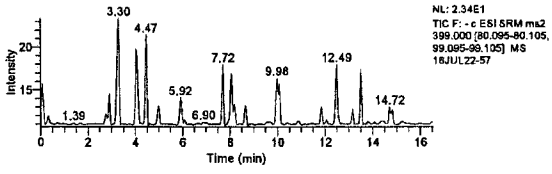


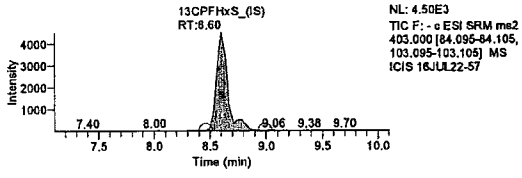
Component Name: PFOA



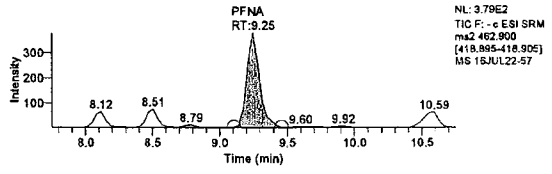


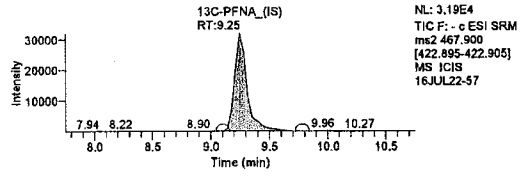
Component Name: PFHxS



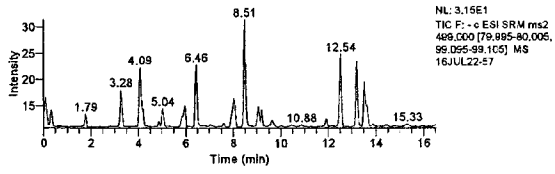


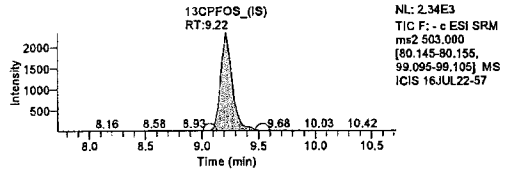
Component Name: PFNA



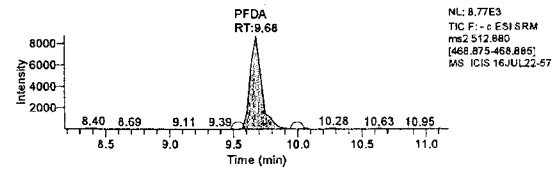


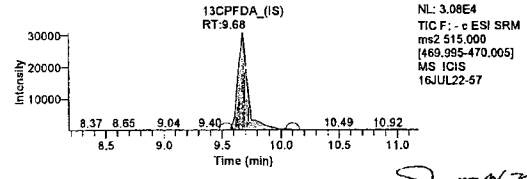
Component Name: PFOS





Component Name: PFDA





Jason W. Knight
Senior Chemist

Component Name: PFUdA

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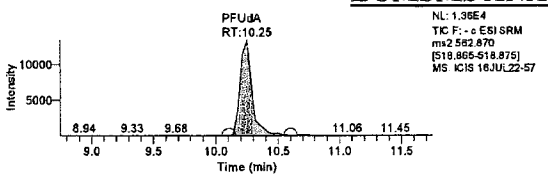
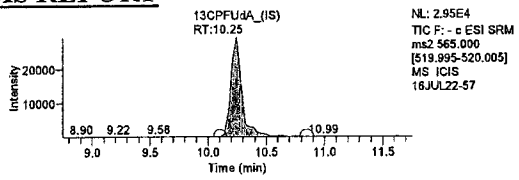
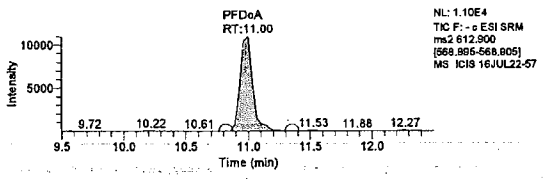
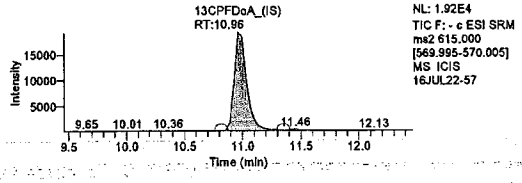


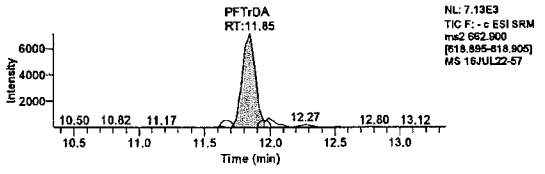


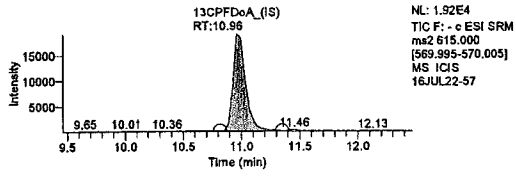
Component Name: PFDoA



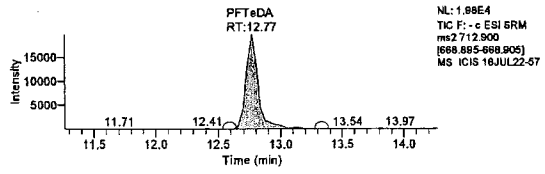


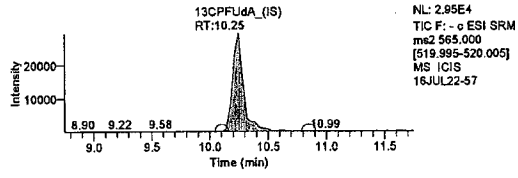
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 25 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

Sample Description: SG3-MW02-08.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Collected: 06/17/2016 11:10 by JD

Submitted: 06/18/2016 09:50
Reported: 07/25/2016 17:24

LL Sample # SW 8433354
LL Group # 1673603
Account # 37191

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

SG322 SDG#: SGP96-07BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	43		0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	1.8		0.49	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	0.43	J	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.39	J	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.57		0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.1	J	0.86	2.0	1
14027	Perfluorooctanoic acid	335-67-1	22		0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	1.6		0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	1.9		0.37	0.74	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was reextracted outside the holding time and comparable results were observed. Both sets of data are included in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	2,970		308	924	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	18.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16180013	07/14/2016 10:02	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16180013	06/29/2016 12:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16190049531A	07/08/2016 20:08	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16180820003A	06/28/2016 13:05	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MW02-08.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8433354
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/17/2016 11:10 by JD

Submitted: 06/18/2016 09:50
Reported: 06/06/2017 16:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG322 SDG#: SGP96-07BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.56	U	0.56	1.8	1
14027	**Perfluorodecanoic acid**	335-76-2	**43**		0.23	0.45	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.8**		0.45	0.90	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.43**	J	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.56	U	0.56	1.8	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.39**	J	0.23	0.45	1
14027	**Perfluorononanoic acid**	375-95-1	**0.57**		0.23	0.45	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.1**	J	0.79	1.8	1
14027	**Perfluorooctanoic acid**	335-67-1	**22**		0.34	0.68	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.6**		0.34	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	0.68	U	0.68	1.4	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.9**		0.34	0.68	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was reextracted outside the holding time and comparable results were observed. Both sets of data are included in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**2,970**	308	924	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**18.8**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16180013	07/14/2016 10:02	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16180013	06/29/2016 12:30	Robert Brown	1

*=This limit was used in the evaluation of the final result

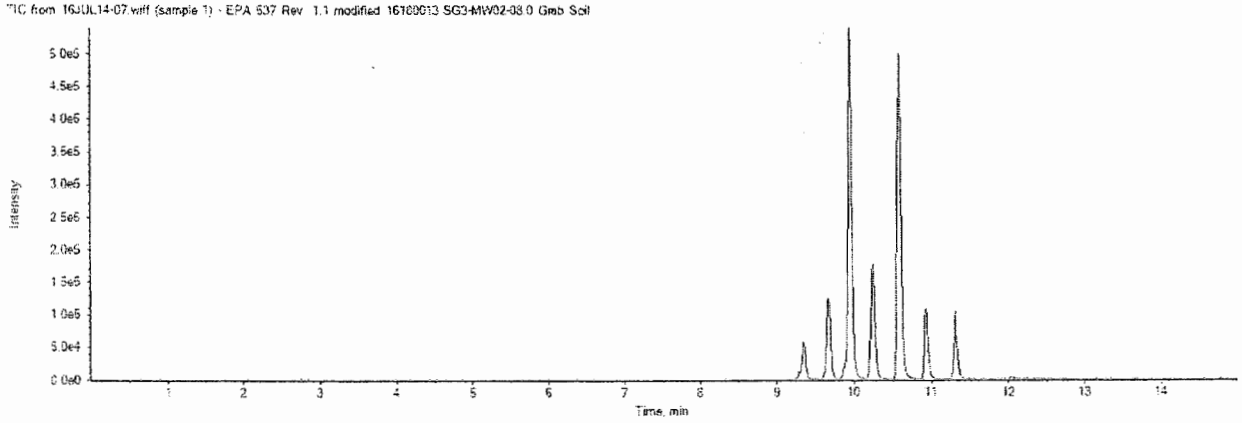
Sample Name:	EPA 537 Rev. 1.1 modified 16180013 SG3-MW02-08.0 Grab Soil	**Data File:**		16JUL14-07.wiff
Sample ID:	8433354BKG	**Acquis Date:**		7/14/2016 10:02:10 AM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	43	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16180013
Batch Number:	16180013	**Operator:**		US19INS07959\4000
Sample Wt.:	5.470	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.66	155319.4	N/A	N/A	
PFHxA	9.35	4167.6	13C2-PFHxA	9.35	208551.4	0.020	0.318	
PFHpA	9.67	5129.6	13C4-PFHpA	9.67	284684.1	0.018	0.353	
PFHxS	9.65	422.6	18O2-PFHxS	9.66	155319.4	0.003	0.255	
PFOA	9.95	729935.9	13C4-PFOA	9.95	907607.2	0.804	18.207	
PFNA	10.24	30803.5	13C5-PFNA	10.24	541865.8	0.057	0.462	
PFOS	10.21	4924.1	13C4-PFOS	10.21	88206.9	0.056	0.869	
PFDA	10.57	1410901.3	13C2-PFDA	10.57	406951.0	3.467	34.927	
PFUndA	10.93	34416.4	13C2-PFUnDA	10.92	340275.4	0.101	1.518	
PFDoDA	11.31	22203.0	13C2-PFDoDA	11.30	246326.7	0.090	1.468	
PFTrDA	11.67	2893.9	13C2-PFDoDA	11.30	246326.7	0.012	0.242	
PFTeDA	12.04	14742.5	13C2-PFDoDA	11.30	246326.7	0.060	1.297	

Total Ion Chromatogram

8433354BKG



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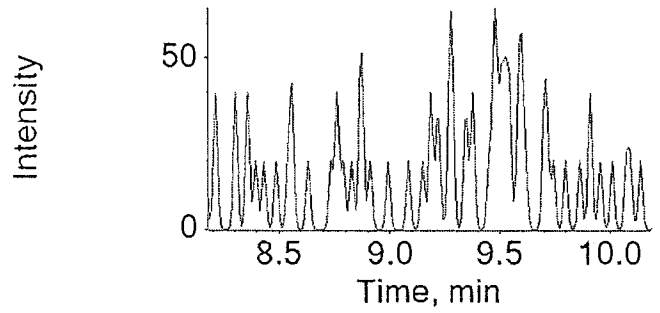
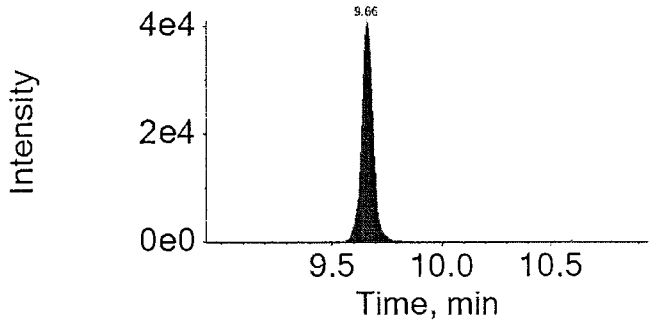
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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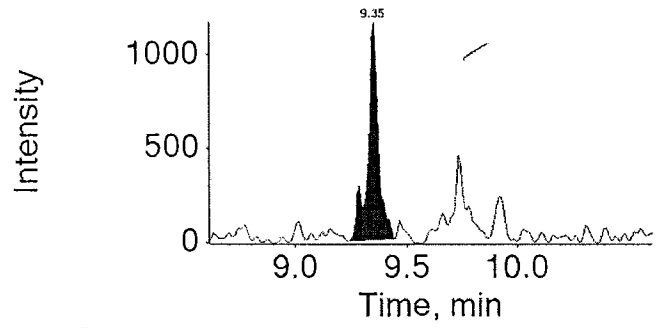
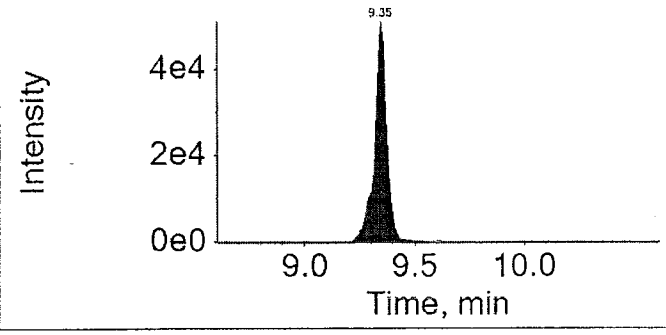
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

314.9 / 270.0



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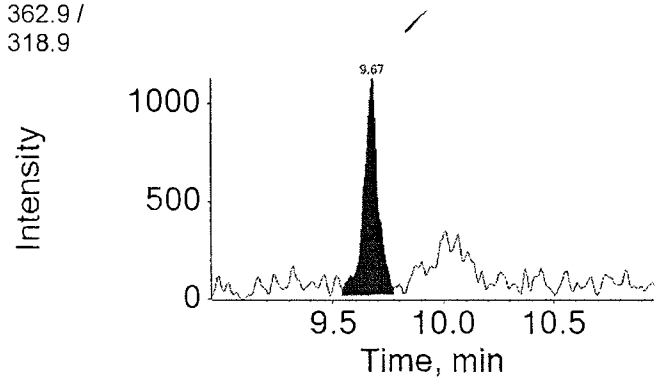
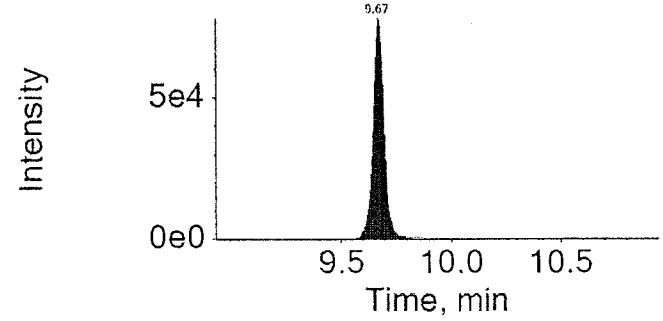
Analyte: PFHpA

362.9 / 318.9



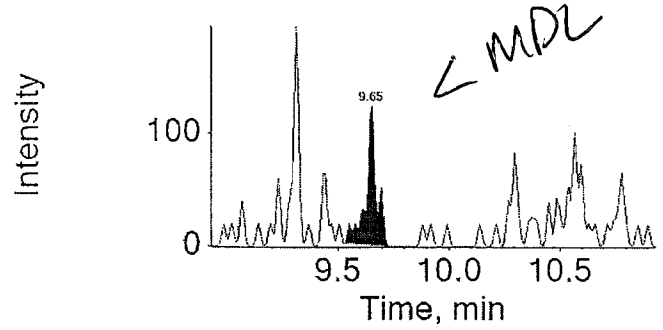
Internal Standard: 13C4-PFHpA

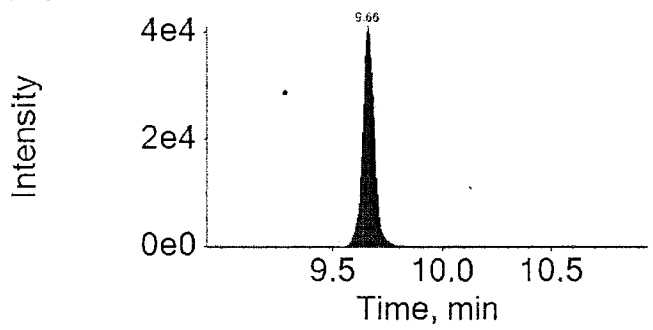
367.0 / 322.0



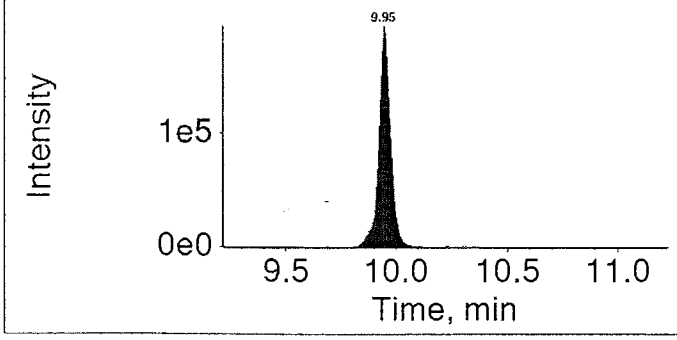
Check integration for PFHxA

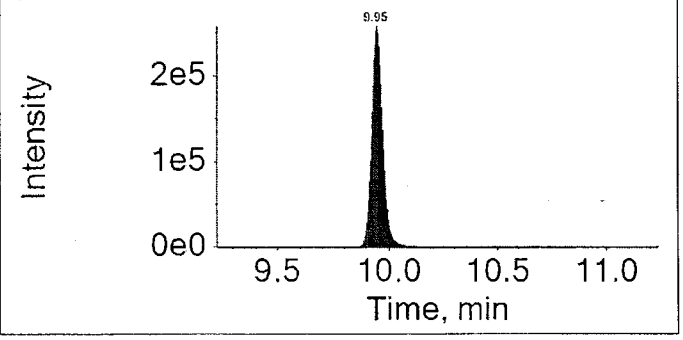
16JUL14-07.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



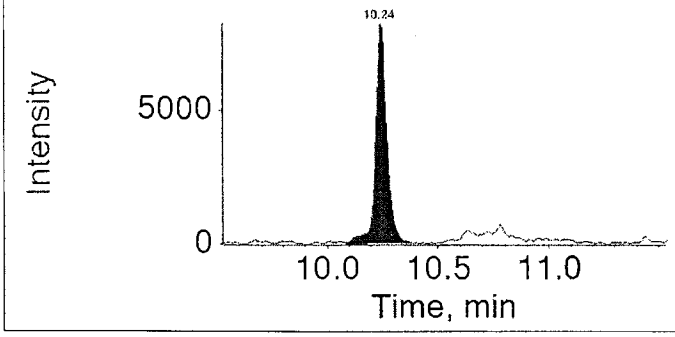


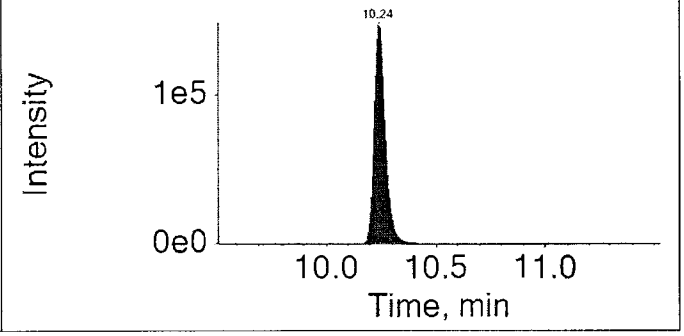
16JUL14-07.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



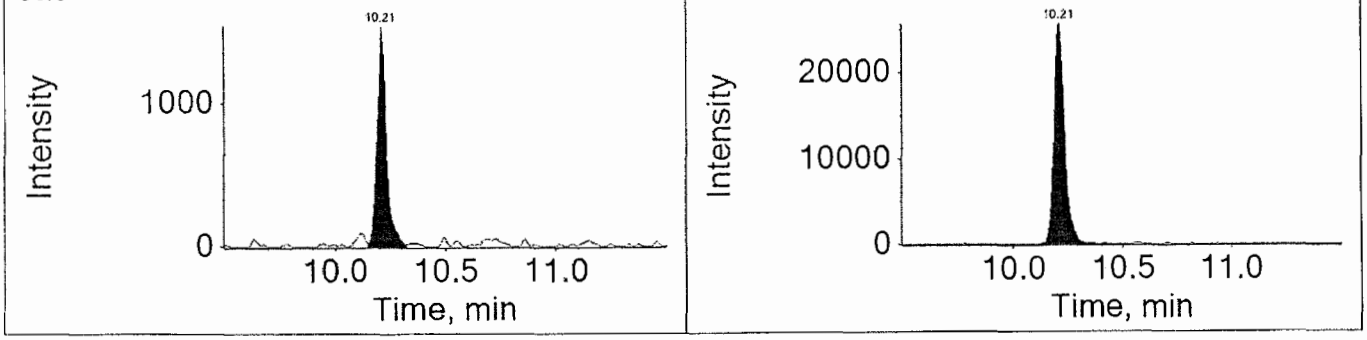


16JUL14-07.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0

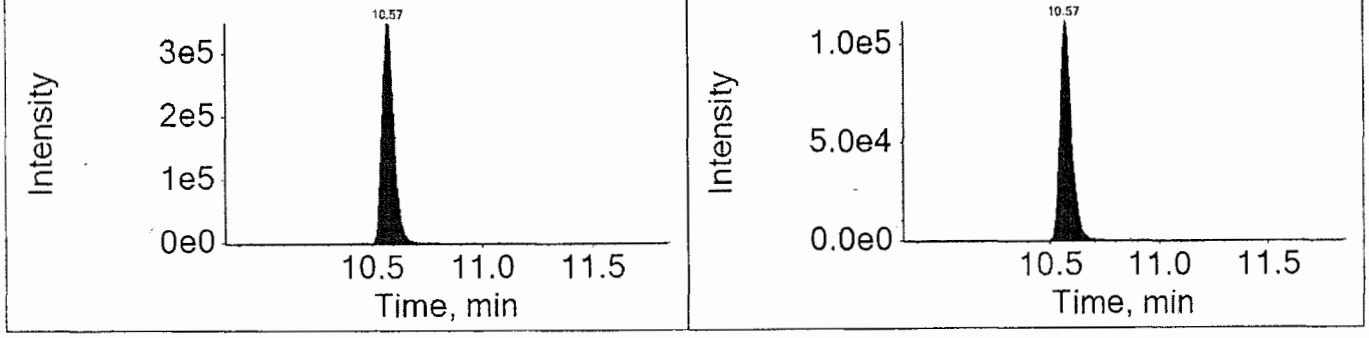




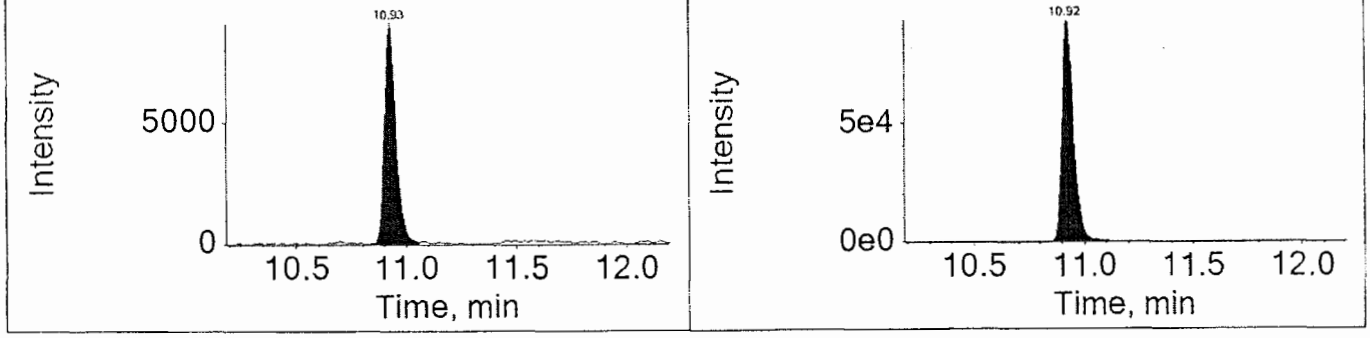
16JUL14-07.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



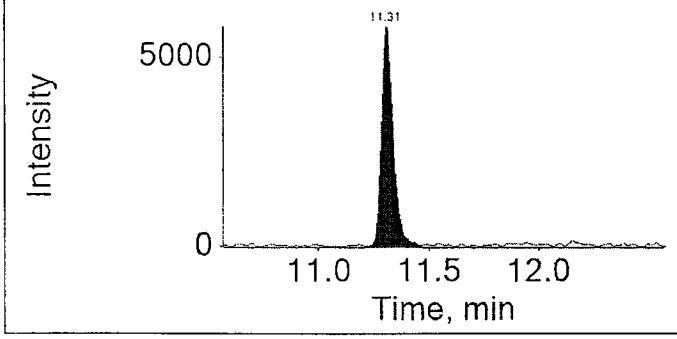
16JUL14-07.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0

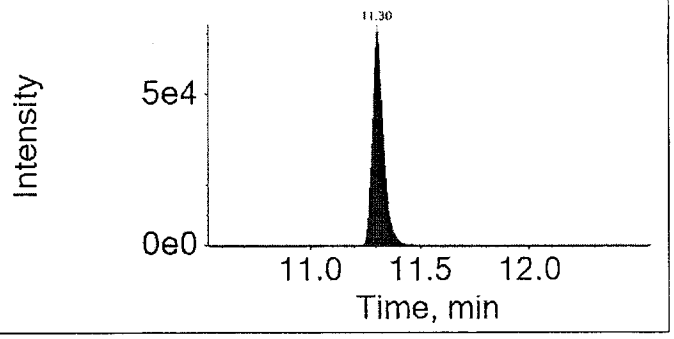


16JUL14-07.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

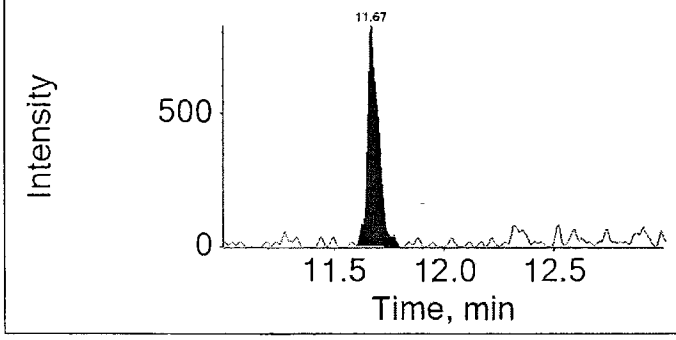


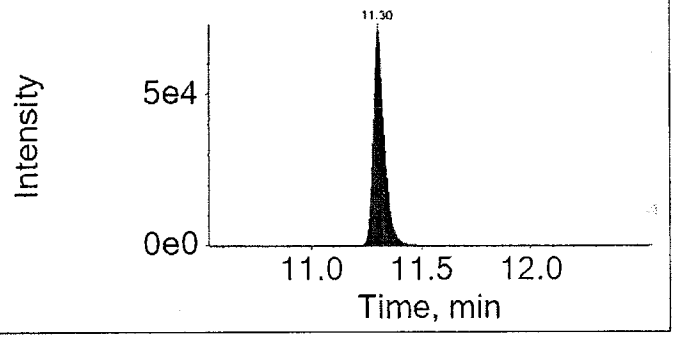
16JUL14-07.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



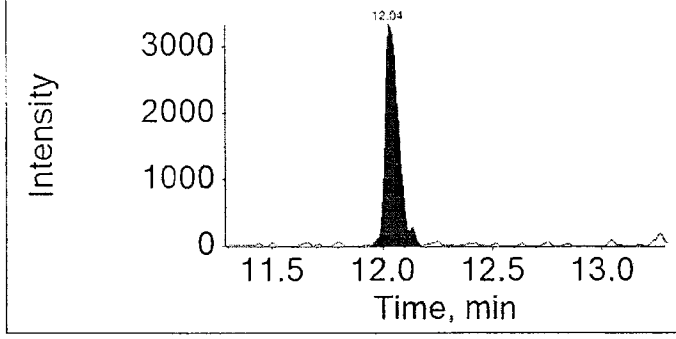


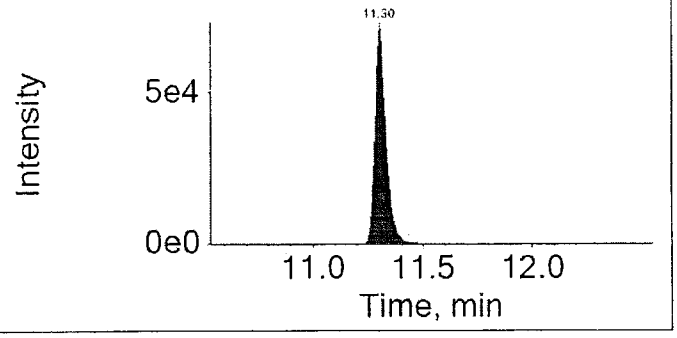
16JUL14-07.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL14-07.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





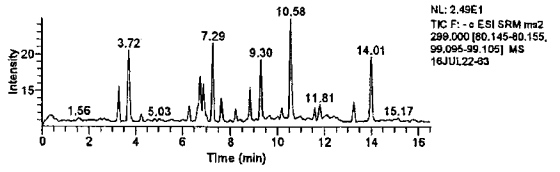
LCMSMS ANALYSIS REPORT

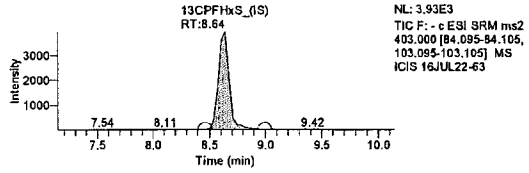
Sample Name:	8433354 BKG RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8433354 BKG RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16JUL22-63		
Acquisition Date:	07/23/16 02:13:04 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:16	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

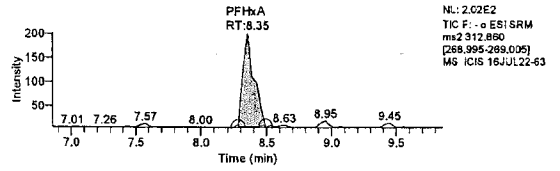
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.29	184133.20	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.96	158576.20	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.75	156841.08	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.07	109588.13	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.64	195867.27	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.35	104416.63	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.64	26625.86	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.25	12979.39	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.32	126439.55	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	30.181	9.75	326955.81	156841.08	2.085	ng/g
PFDoA	0.474	11.07	5631.08	109588.13	0.051	ng/g
PFHxA	0.106	8.35	1182.62	104416.63	0.011	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.403	9.28	4693.81	184133.20	0.025	ng/g
PFOA	16.506	8.96	262747.45	158576.20	1.657	ng/g
PFOS	0.248	9.25	235.80	12979.39	0.018	ng/g
PFTeDA	0.148	12.56	175.44	126439.55	0.001	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	0.875	10.32	10365.62	126439.55	0.082	ng/g
PFhpA	0.082	8.64	635.00	195867.27	0.003	ng/g

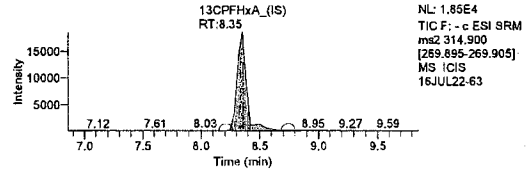
Component Name: PFBS





Component Name: PFHxA



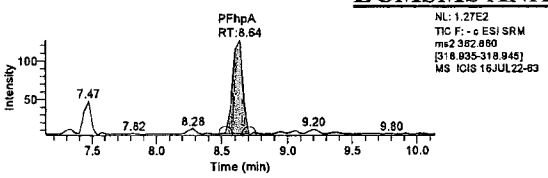


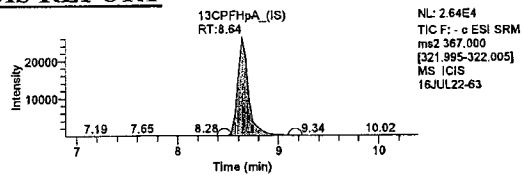
Component Name: PFhpA

Jason W. Knight
Senior Chemist

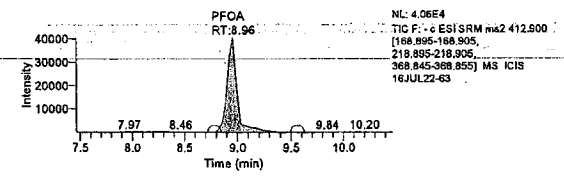
JUL 25 2016

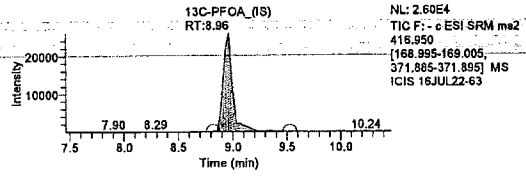
LCMSMS ANALYSIS REPORT





Component Name: PFOA





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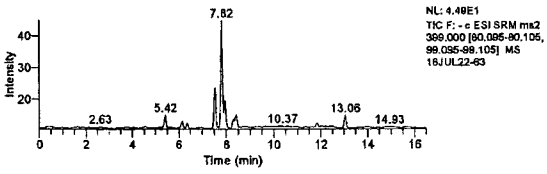
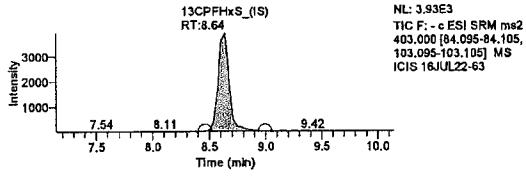
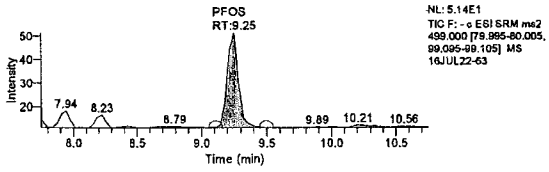
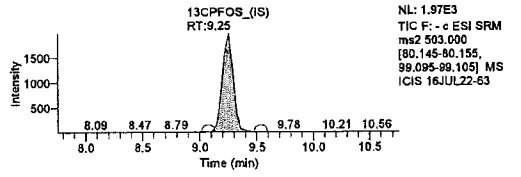




Component Name: PFOS





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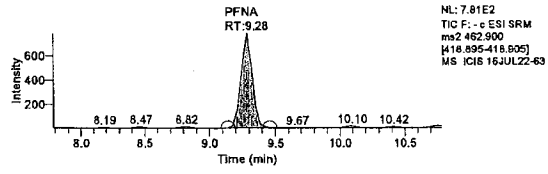

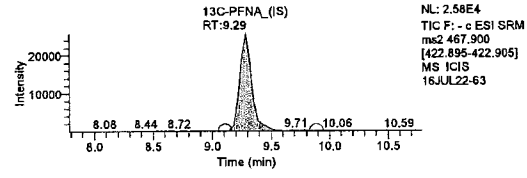

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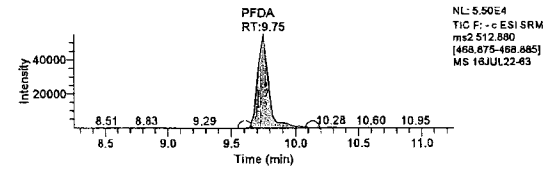

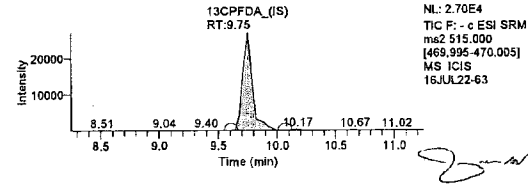

Jason W. Knight
Senior Chemist

Component Name: PFUdA

JUL 25 2016

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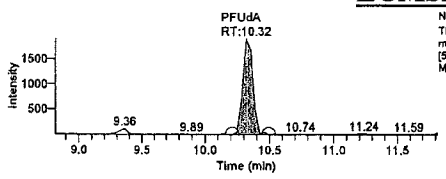

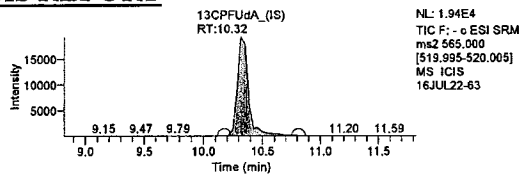

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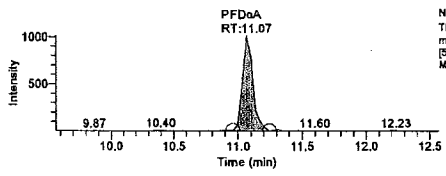
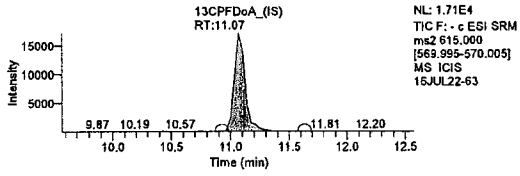
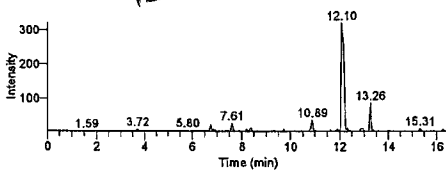


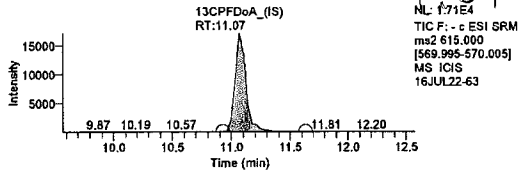


RRT 1.09 < MDL

CCVS
1.08 11.46/10.61
1.07 11.74/10.96

Component Name: PFTrDA



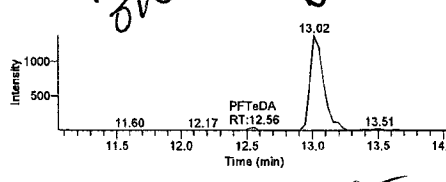


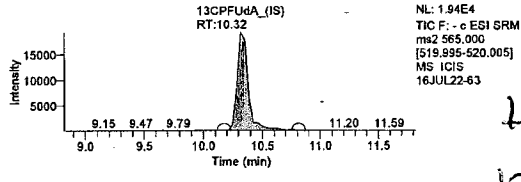
1.24
12.38/9.96
~~10.96~~
~~11.74~~
12.70/10.28

RRT = 1.24

RE ON

Component Name: PFTeDA





RRT = 1.24

12.24/10.11
12.55/10.00
12.48/10.07

14.78
~~12.94~~/11.24
14.71/11.17
14.89/11.24
12.27/10.18
12.49/10.
12.13/9.96

Lynn Dodd
JUL 25 2016
Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

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Analysis Report

Sample Description: SG3-MW02-10.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Collected: 06/17/2016 11:15 by JD

Submitted: 06/18/2016 09:50
Reported: 07/25/2016 17:24

LL Sample # SW 8433357
LL Group # 1673603
Account # 37191

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG323 SDG#: SGP96-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		mg/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.90	J	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	2.9		0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	2.5		0.46	0.92	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.80	U	0.80	1.8	1
14027	Perfluorooctanoic acid	335-67-1	9.3		0.34	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	J	0.34	0.92	1
14027	Perfluorotridecanoic acid	72629-94-8	0.69	U	0.69	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	1.4		0.34	0.69	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was reextracted outside the holding time and comparable results were observed. Both sets of data are included in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	1,680		473	1,420	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	12.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16180013	07/14/2016 14:35	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16180013	06/29/2016 12:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16190049531A	07/08/2016 20:34	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16180820003A	06/28/2016 13:05	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

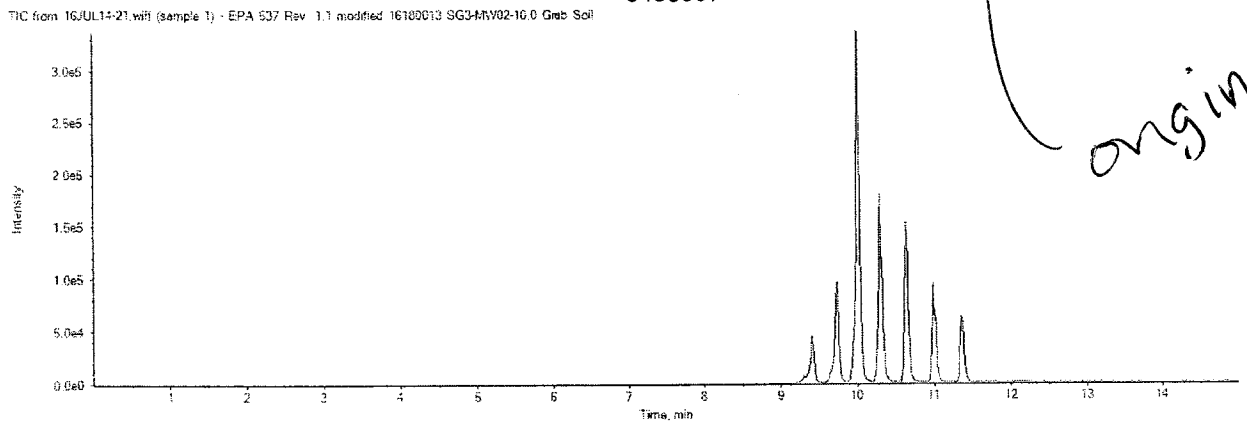
Sample Name:	EPA 537 Rev. 1.1 modified 16180013 SG3-MW02-10.0 Grab Soil	**Data File:**		16JUL14-21.wiff
Sample ID:	8433357	**Acquis Date:**		7/14/2016 2:35:01 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	56	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16180013
Batch Number:	16180013	**Operator:**		US19INS07959\4000
Sample Wt.:	5.320	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

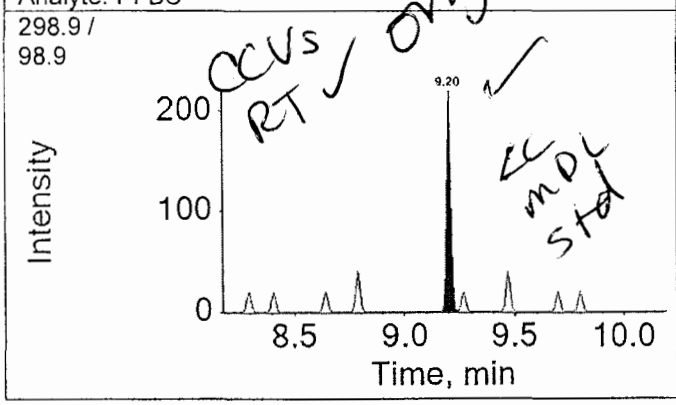
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	9.20	302.9	18O2-PFHxS	9.73	132516.1	0.002	0.790	
PFHxA	N/A	N/A	13C2-PFHxA	9.41	185700.9	N/A	N/A	
PFHpA	9.73	3254.6	13C4-PFHpA	9.74	239785.5	0.014	0.289	
PFHxS	9.72	495.6	18O2-PFHxS	9.73	132516.1	0.004	0.275	
PFOA	10.01	291418.0	13C4-PFOA	10.01	838924.3	0.347	8.076	
PFNA	10.31	7886.6	13C5-PFNA	10.31	529441.9	0.015	0.167	
PFOS	10.28	853.2	13C4-PFOS	10.28	71324.7	0.012	0.503	
PFDA	10.64	132960.8	13C2-PFDA	10.63	411755.5	0.323	3.381	
PFUnDA	10.99	22571.1	13C2-PFUnDA	10.99	292001.2	0.077	1.184	
PFDoDA	11.36	27277.4	13C2-PFDoDA	11.35	210897.6	0.129	2.209	
PFTrDA	11.72	1100.9	13C2-PFDoDA	11.35	210897.6	0.005	0.005	
PFTeDA	12.09	3798.9	13C2-PFDoDA	11.35	210897.6	0.018	0.306	

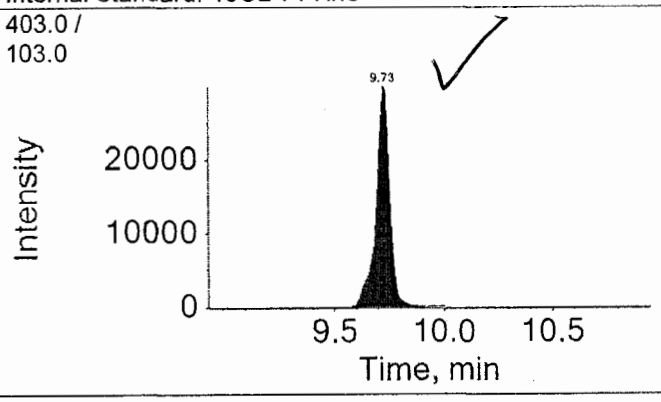
Total Ion Chromatogram

8433357



16JUL14-21.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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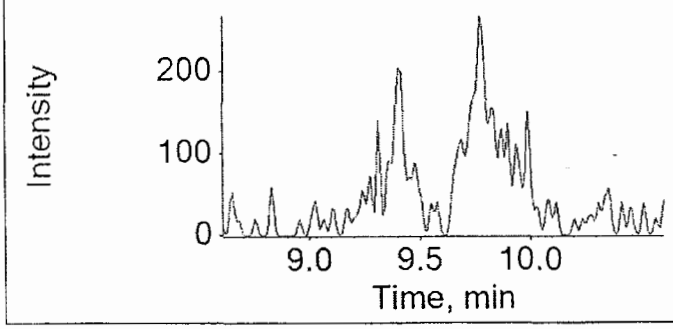
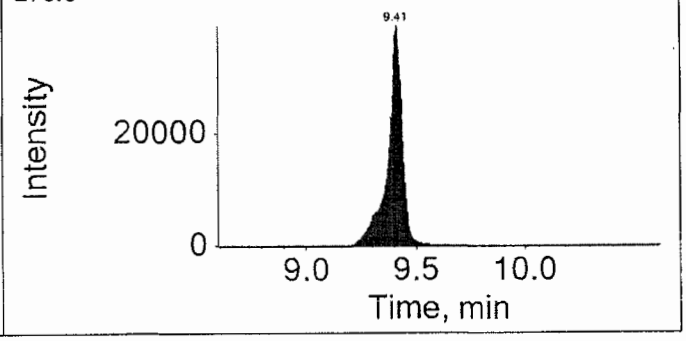
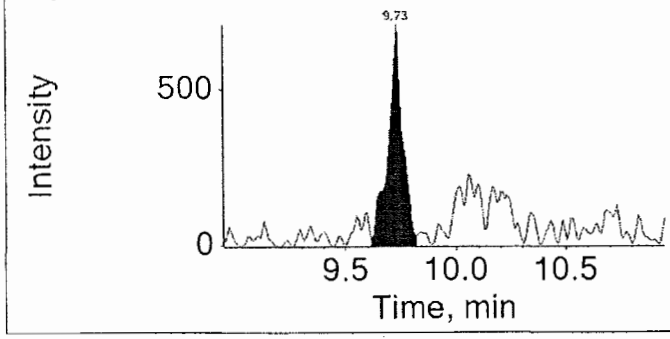
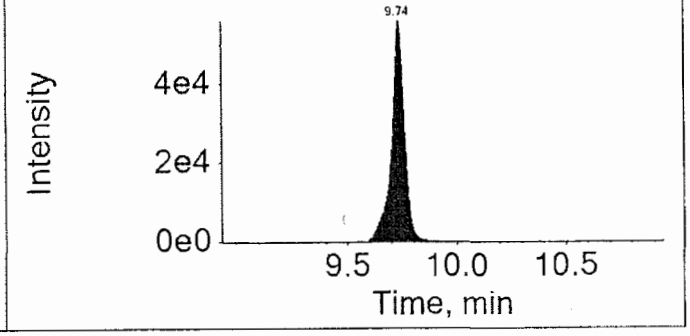
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16JUL14-21.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

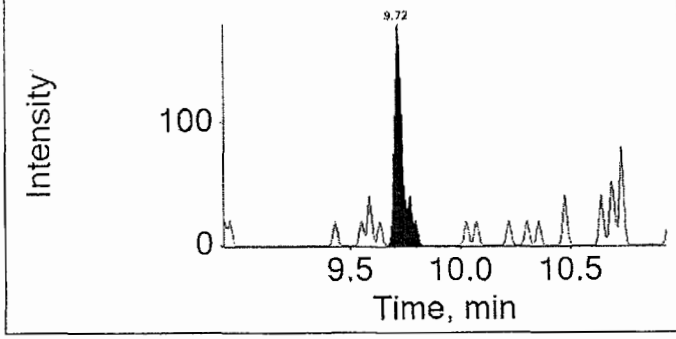




16JUL14-21.wiff

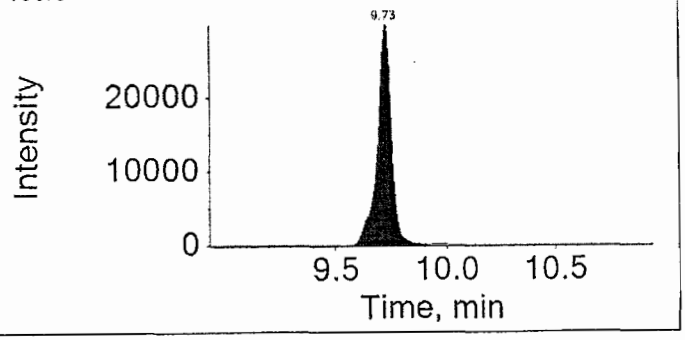
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

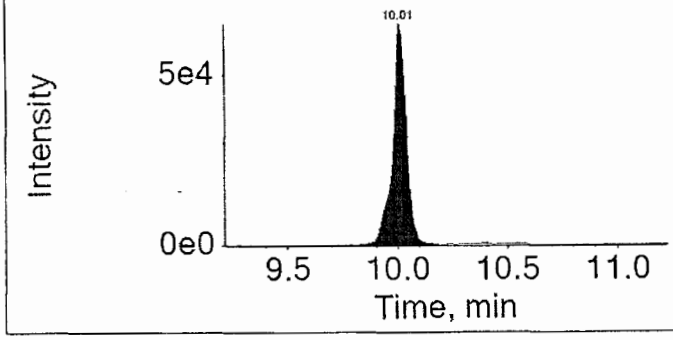
403.0 / 103.0



16JUL14-21.wiff

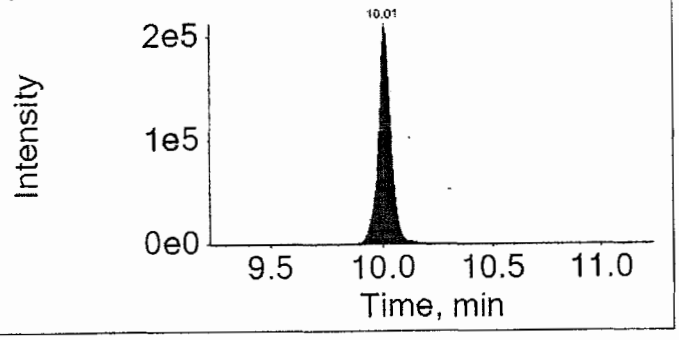
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

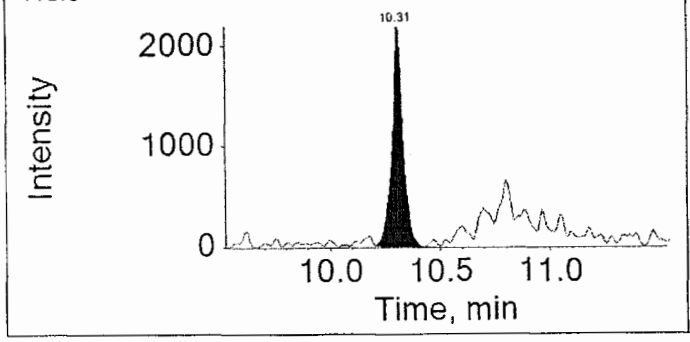
417.0 / 372.0



16JUL14-21.wiff

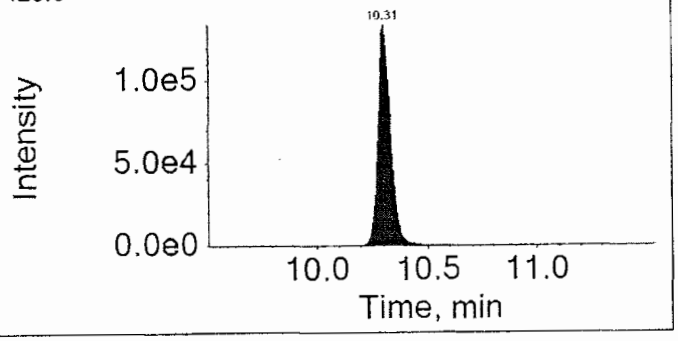
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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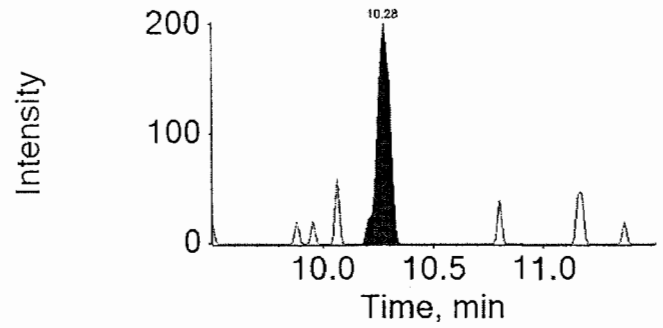
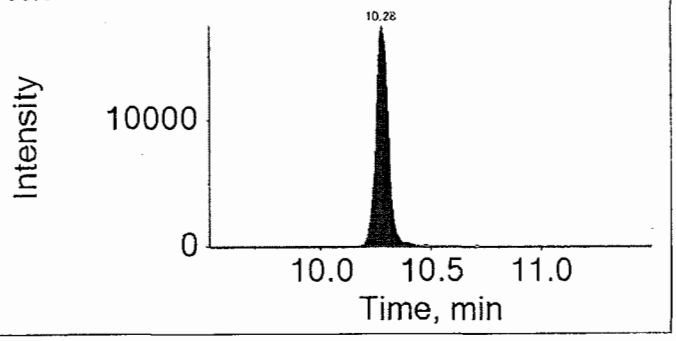
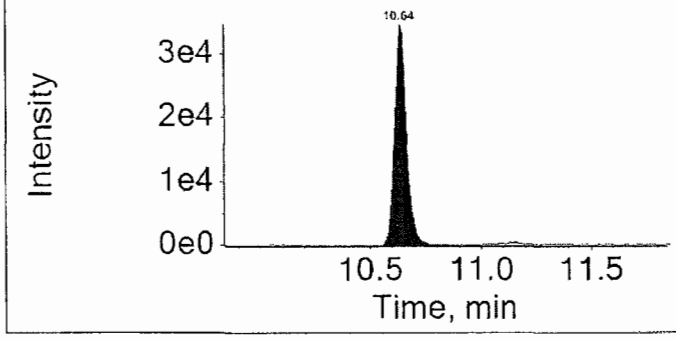
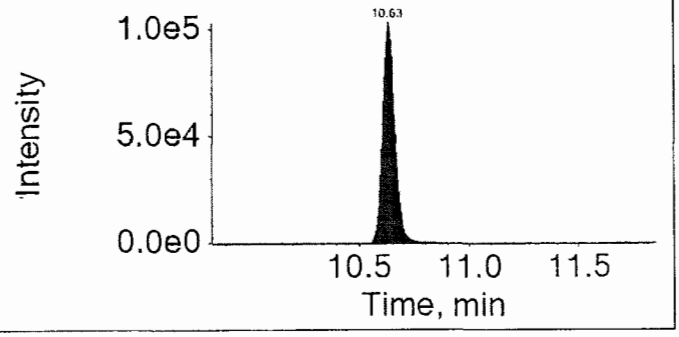
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



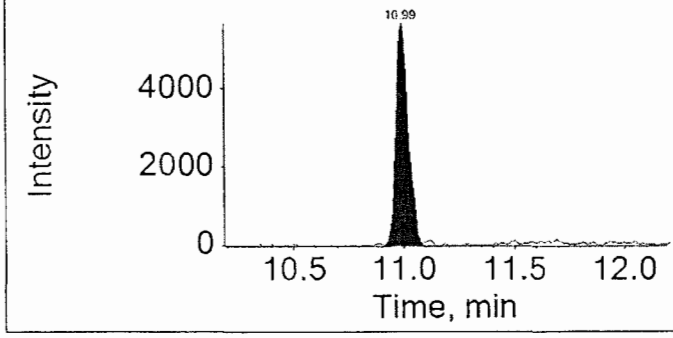


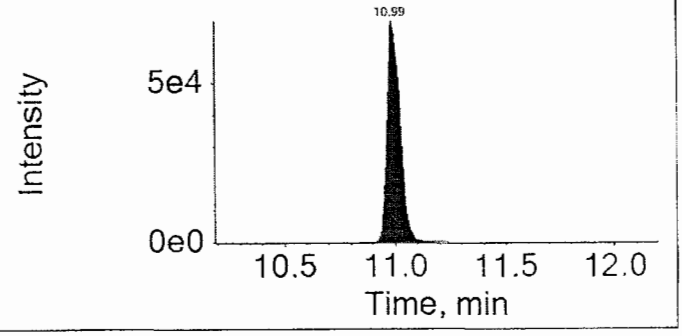
16JUL14-21.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



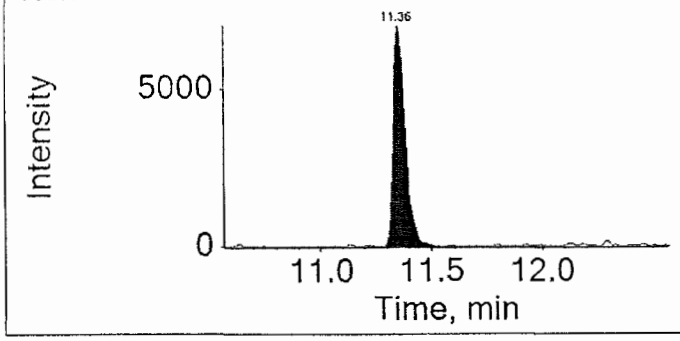


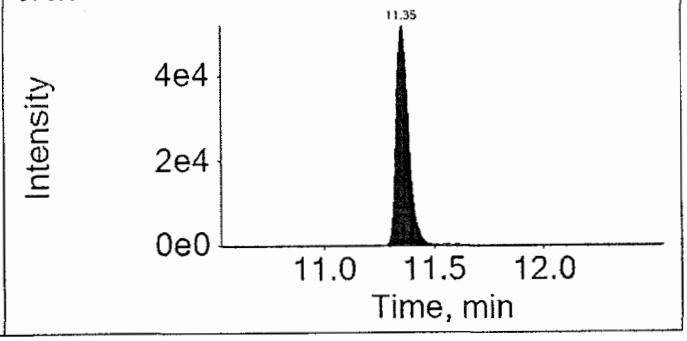
16JUL14-21.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



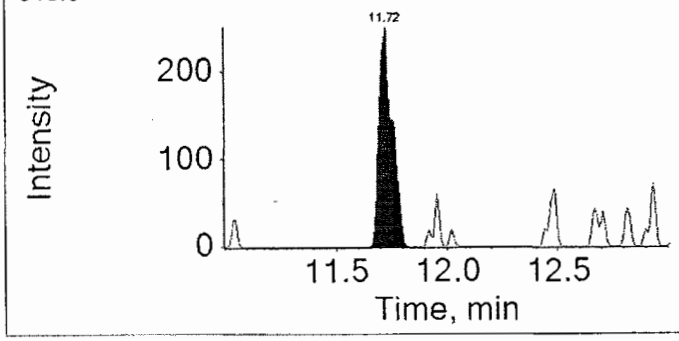


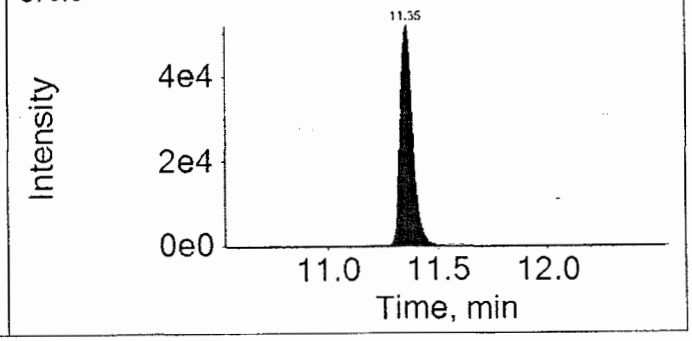
16JUL14-21.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



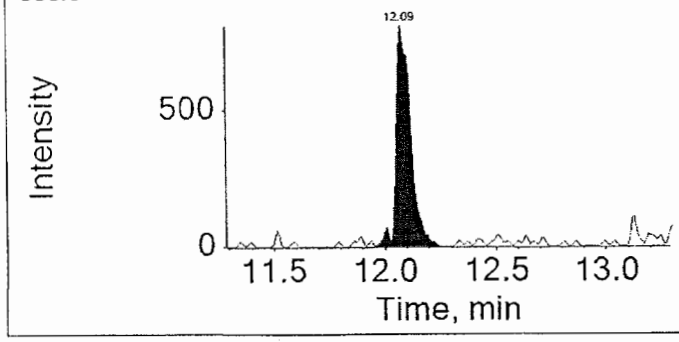


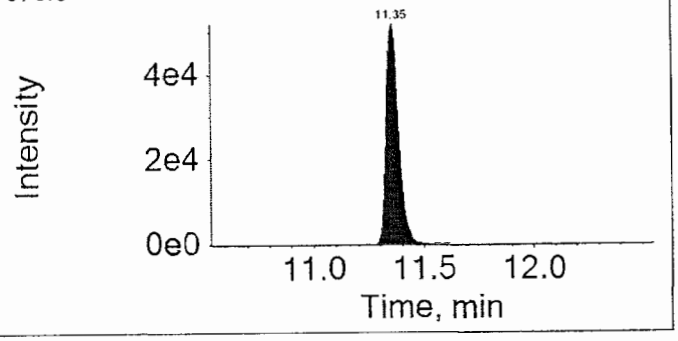
16JUL14-21.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL14-21.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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Analysis Report

REVISED

Sample Description: SG3-MW02-10.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8433357
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/17/2016 11:15 by JD

Submitted: 06/18/2016 09:50
Reported: 06/06/2017 16:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG323 SDG#: SGP96-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.54	U	0.54	1.7	1
14027	**Perfluorodecanoic acid**	335-76-2	**3.9**		0.22	0.43	1
14027	**Perfluorododecanoic acid**	307-55-1	**2.5**		0.43	0.86	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.33**	J	0.32	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.54	U	0.54	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.75	U	0.75	1.7	1
14027	**Perfluorooctanoic acid**	335-67-1	**9.3**		0.32	0.65	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**0.35**	J	0.32	0.86	1
14027	Perfluorotridecanoic acid	72629-94-8	0.65	U	0.65	1.3	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.4**		0.32	0.65	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was reextracted outside the holding time and comparable results were observed. Both sets of data are included in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,680**		473	1,420	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**12.7**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16180013	07/14/2016 14:35	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16180013	06/29/2016 12:30	Robert Brown	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 6/5/2017 6:35:00 PM

Sample Name:	EPA 537 Rev. 1.1 modified 16180013 SG3-MW02-10.0 Grab Soil			**Data File:**		16JUL14-21.wiff
Sample ID:	8433357			**Acquis Date:**		2016-07-14T14:35:01
Sample Type:	Unknown			**Instrument:**		API 4000
Vial Position:	56			**Acquis Method:**		PFC 16JUL08.dam
Injection Vol:	10.00			**Result Table:**		MQ 16180013
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS07959\4000
Sample Wt.:	5.32000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

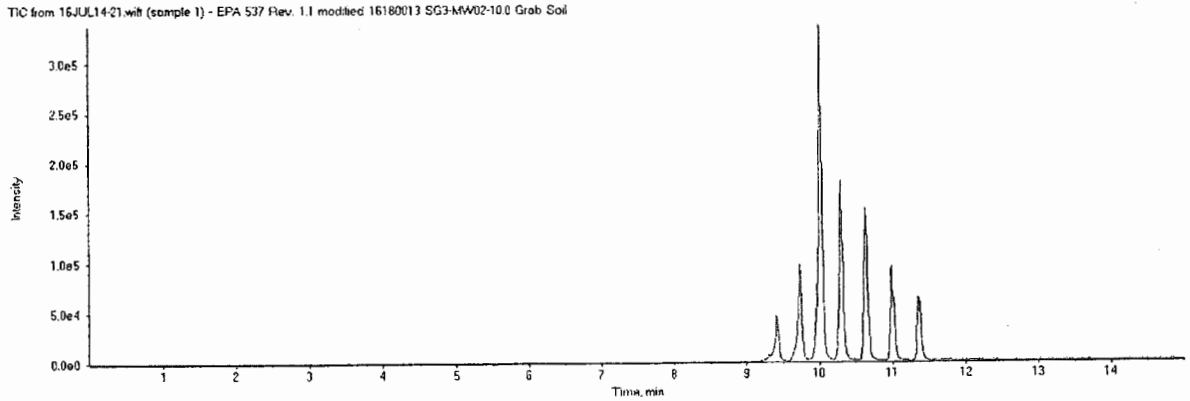
Revised

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	9.73	132516.1	N/A	N/A
PFHxA	N/A	N/A	N/A	A	13C2-PFHxA	9.41	185700.9	N/A	N/A
PFHpA	9.73	1.000	3254.6	M	13C4-PFHpA	9.74	239785.5	0.014	0.289
PFHxS	9.72	1.000	495.6	A	18O2-PFHxS	9.73	132516.1	0.004	0.275
PFOA	10.01	1.000	291418.0	A	13C4-PFOA	10.01	838924.3	0.347	8.076
PFNA	10.31	1.000	7886.6	A	13C5-PFNA	10.31	529441.9	0.015	0.167
PFOS	10.28	1.000	853.2	A	13C4-PFOS	10.28	71324.7	0.012	0.503
PFDA	10.64	1.000	132960.8	A	13C2-PFDA	10.63	411755.5	0.323	3.381
PFUndA	10.99	1.000	22571.1	A	13C2-PFUnDA	10.99	292001.2	0.077	1.184
PFDoDA	11.36	1.000	27277.4	A	13C2-PFDoDA	11.35	210897.6	0.129	2.209
PFTrDA	11.72	1.030	1100.9	A	13C2-PFDoDA	11.35	210897.6	0.005	0.005
PFTeDA	12.09	1.060	3798.9	A	13C2-PFDoDA	11.35	210897.6	0.018	0.306

Total Ion Chromatogram

8433357



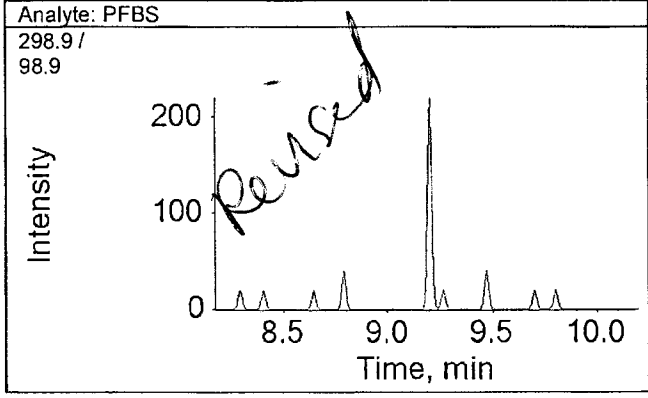
APPROVED
By MCD at 6:43 pm, 6/5/17

REVIEWED
By ucmr at 1:42 pm, 6/6/17

16JUL14-21.wiff

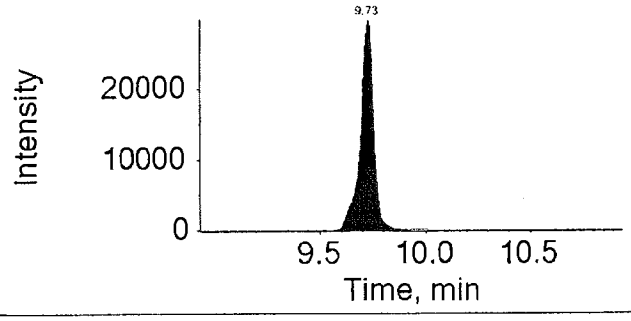
Analyte: PFBS

298.9 /
98.9



Internal Standard: 18O2-PFHxS

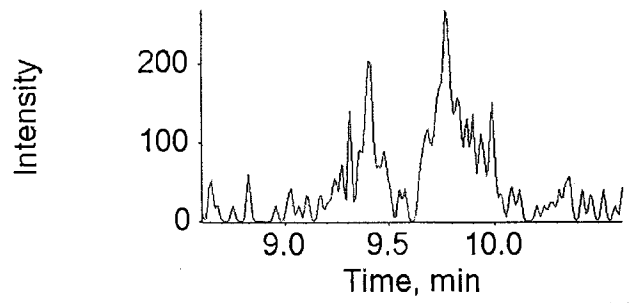
403.0 /
103.0



16JUL14-21.wiff

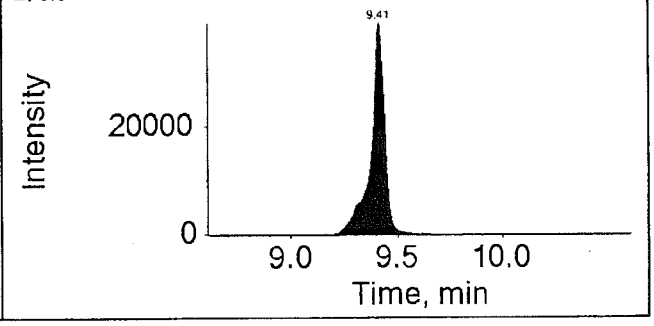
Analyte: PFHxA

312.9 /
269.0



Internal Standard: 13C2-PFHxA

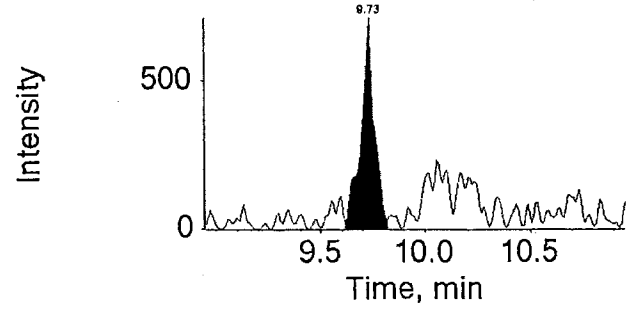
314.9 /
270.0



16JUL14-21.wiff

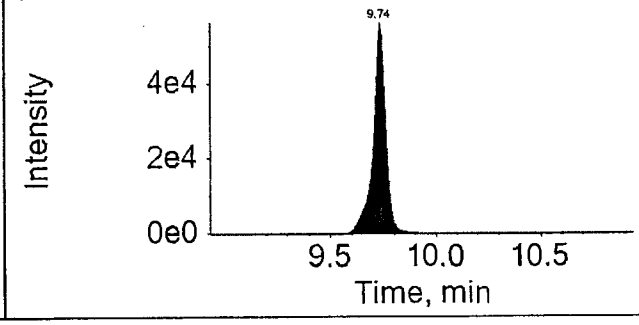
Analyte: PFHpA

362.9 /
318.9



Internal Standard: 13C4-PFHpA

367.0 /
322.0



APPROVED
By MCD at 6:43 pm, 6/5/17

REVIEWED
By ucmr at 1:42 pm, 6/6/17

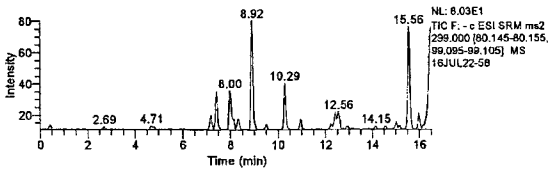
LCMSMS ANALYSIS REPORT

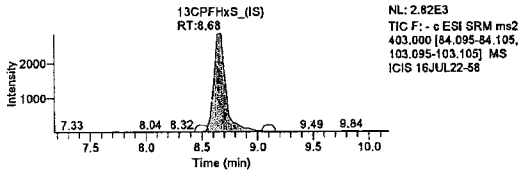
Sample Name:	8433357 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8433357 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-58		M\HWell_16.5minutes
Acquisition Date:	07/23/16 12:46:52 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:13	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

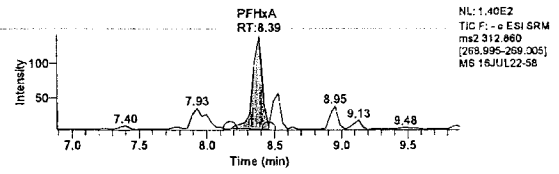
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.32	182543.48	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.96	174610.51	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.82	157444.25	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.21	124146.09	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.67	185735.34	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.35	103319.11	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.68	21583.91	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.29	17845.84	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.46	138018.57	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	2.936	9.82	32351.17	157444.25	0.205	ng/g
PFDoA	1.097	11.17	14097.04	124146.09	0.114	ng/g
PFHxA	0.062	8.39	660.27	103319.11	0.006	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.154	9.32	1192.46	182543.48	0.007	ng/g
PFOA	6.055	9.00	106241.55	174610.51	0.608	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	0.579	12.98	4970.38	138018.57	0.036	ng/g
PFTrDA	0.311	11.99	1127.28	124146.09	0.009	ng/g
PFUdA	1.033	10.46	13131.62	138018.57	0.095	ng/g
PFhpA	0.091	8.67	729.55	185735.34	0.004	ng/g

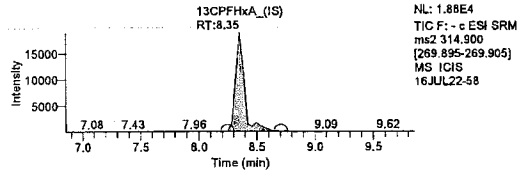
Component Name: PFBS





Component Name: PFHxA



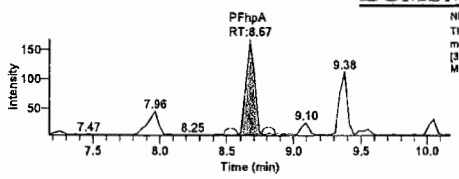


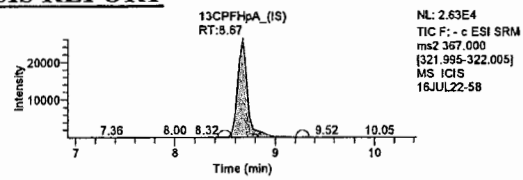
Component Name: PFhpA

Jason W. Knight
Senior Chemist

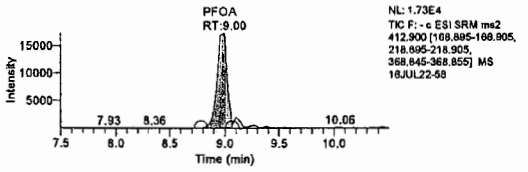
JUL 25 2016

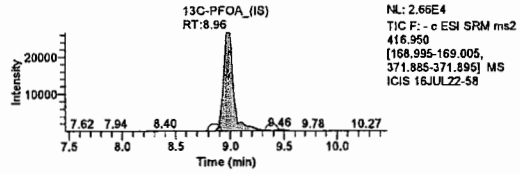
LCMSMS ANALYSIS REPORT



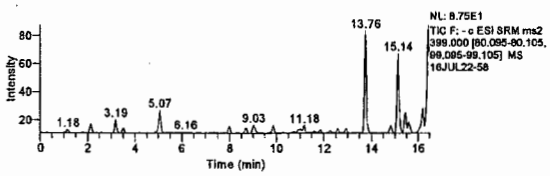


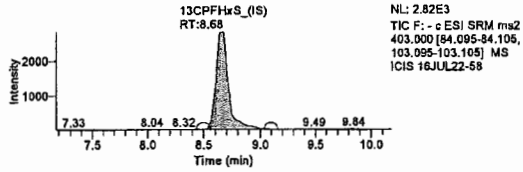
Component Name: PFOA



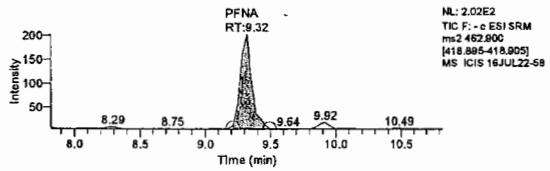


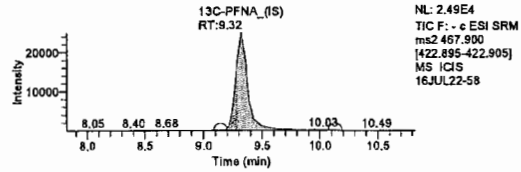
Component Name: PFHxS



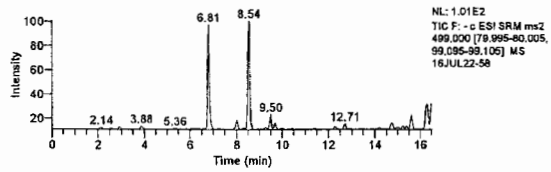


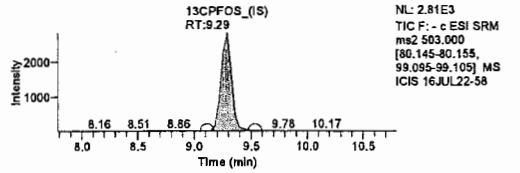
Component Name: PFNA



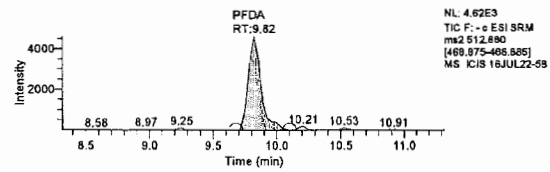


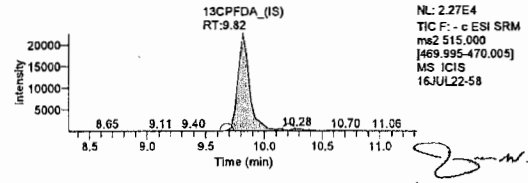
Component Name: PFOS





Component Name: PFDA



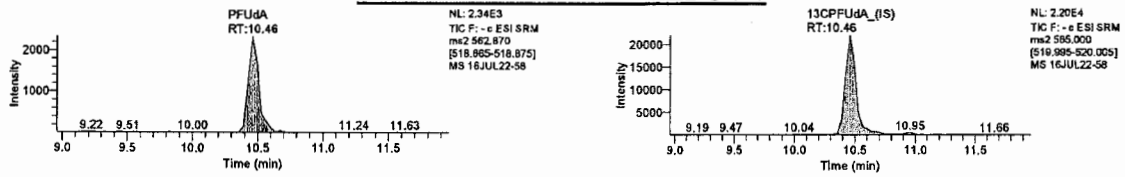


Jason W. Knight
Senior Chemist

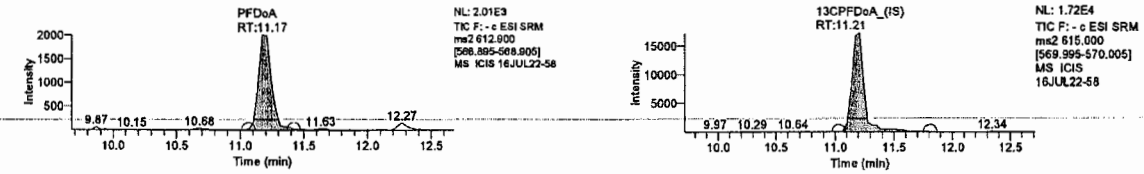
Component Name: PFUdA

JUL 25 2016

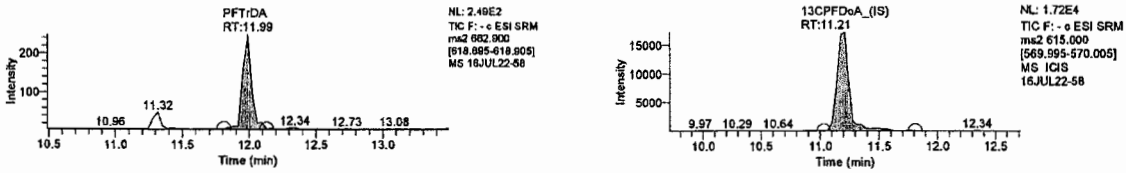
LCMSMS ANALYSIS REPORT



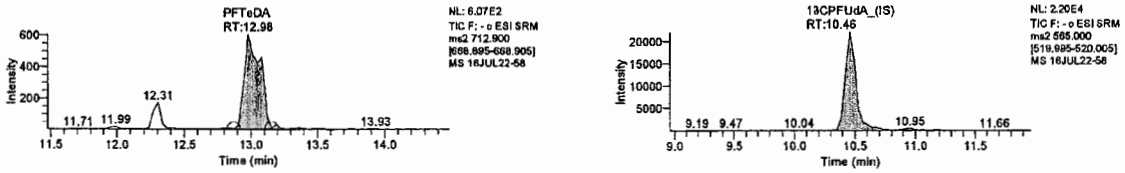
Component Name: PFDoA



Component Name: PFTrDA



Component Name: PFTeDA



Lynn Dodd
JUL 25 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

Sample Description: SG3-MW02-06.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8433358
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/17/2016 13:20 by JD

Submitted: 06/18/2016 09:50
Reported: 07/25/2016 17:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL

SG324 SDG#: SGP96-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	8.0		0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	6.3		0.46	0.91	1
14027	Perfluoroheptanoic acid	375-85-9	0.62	J	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.29	J	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.40	J	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.80	U	0.80	1.8	1
14027	Perfluorooctanoic acid	335-67-1	30		0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	29		0.34	0.91	1
14027	Perfluorotridecanoic acid	72629-94-8	10		0.68	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	3.9		0.34	0.68	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was reextracted outside the holding time and comparable results were observed. Both sets of data are included in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	5,980		411	1,230	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	12.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16180013	07/14/2016 14:54	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16180013	06/29/2016 12:30	Robert Brown	1
02079	TOC	SM 5310 B modified-2000	1	16190049531A	07/08/2016 21:04	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16180820003A	06/28/2016 13:05	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW02-06.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8433358
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/17/2016 13:20 by JD

Submitted: 06/18/2016 09:50
Reported: 06/06/2017 16:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG324 SDG#: SGP96-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.54	U	0.54	1.7	1
14027	**Perfluorodecanoic acid**	335-76-2	**8.0**		0.22	0.44	1
14027	**Perfluorododecanoic acid**	307-55-1	**6.3**		0.44	0.87	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.62**	**J**	0.33	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.54	U	0.54	1.7	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.29**	**J**	0.22	0.44	1
14027	**Perfluorononanoic acid**	375-95-1	**0.40**	**J**	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.76	U	0.76	1.7	1
14027	**Perfluorooctanoic acid**	335-67-1	**30**		0.33	0.65	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**29**		0.33	0.87	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**10**		0.65	1.3	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**3.9**		0.33	0.65	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was reextracted outside the holding time and comparable results were observed. Both sets of data are included in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	**5,980**		411	1,230	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**12.1**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

TOC and moisture container was received on 6/18/16 at 09:50.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16180013	07/14/2016 14:54	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16180013	06/29/2016 12:30	Robert Brown	1

*=This limit was used in the evaluation of the final result

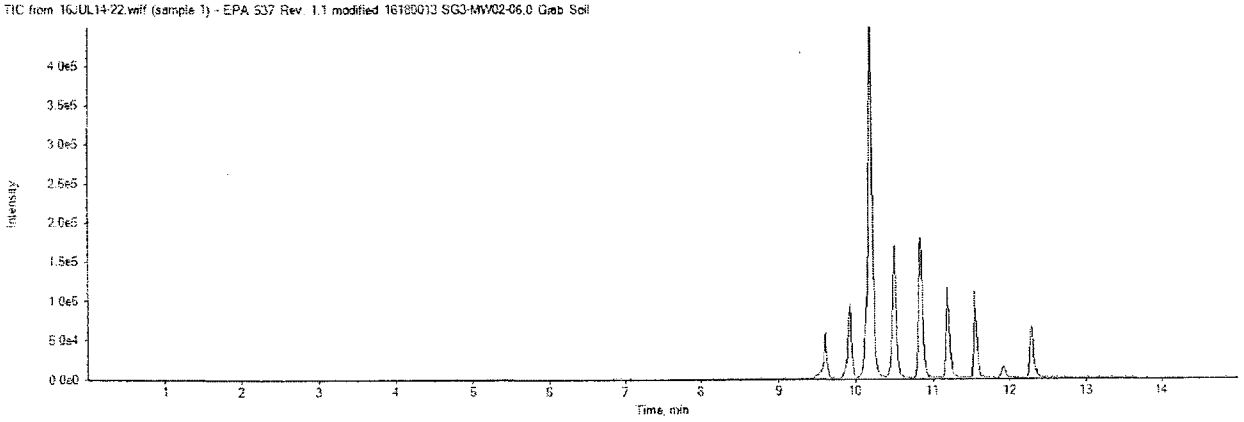
Sample Name:	EPA 537 Rev. 1.1 modified 16180013 SG3-MW02-06.0 Grab Soil	**Data File:**		16JUL14-22.wiff
Sample ID:	8433358	**Acquis Date:**		7/14/2016 2:54:22 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	57	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16180013
Batch Number:	16180013	**Operator:**		US19INS07959\4000
Sample Wt.:	5.230	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.92	129003.1	N/A	N/A	
PFHxA	9.60	2670.5	13C2-PFHxA	9.60	173232.4	0.015	0.253	
PFHpA	9.93	6115.7	13C4-PFHpA	9.93	216293.8	0.028	0.543	
PFHxS	9.93	633.1	18O2-PFHxS	9.92	129003.1	0.005	0.295	
PFOA	10.21	896929.4	13C4-PFOA	10.20	798841.0	1.123	26.592	
PFNA	10.50	19705.8	13C5-PFNA	10.50	509194.7	0.039	0.348	
PFOS	10.47	1431.2	13C4-PFOS	10.47	68037.4	0.021	0.594	
PFDA	10.84	255692.7	13C2-PFDA	10.84	385516.5	0.663	7.021	
PFUndA	11.19	62835.7	13C2-PFUnDA	11.19	290563.0	0.216	3.441	
PFDoDA	11.55	68694.0	13C2-PFDoDA	11.55	220827.7	0.311	5.545	
PFTrDA	11.92	52613.5	13C2-PFDoDA	11.55	220827.7	0.238	8.884	
PFTeDA	12.28	227618.9	13C2-PFDoDA	11.55	220827.7	1.031	25.611	

Total Ion Chromatogram

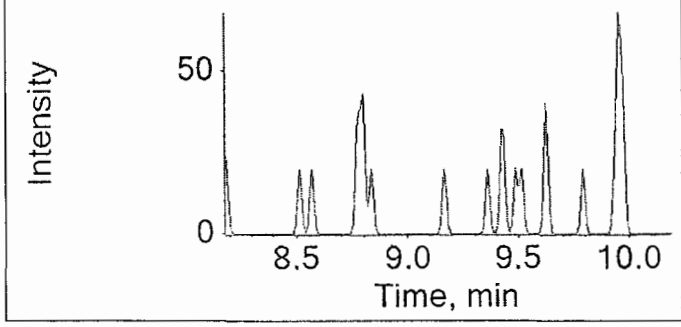
8433358



16JUL14-22.wiff

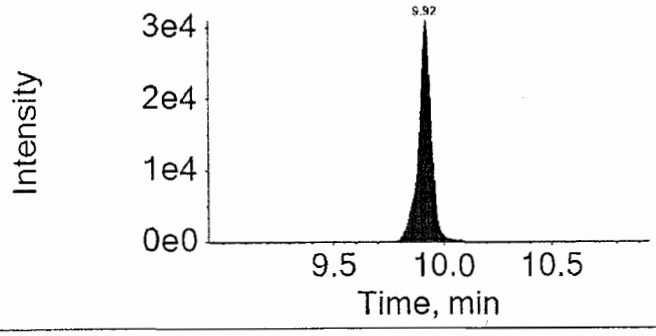
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

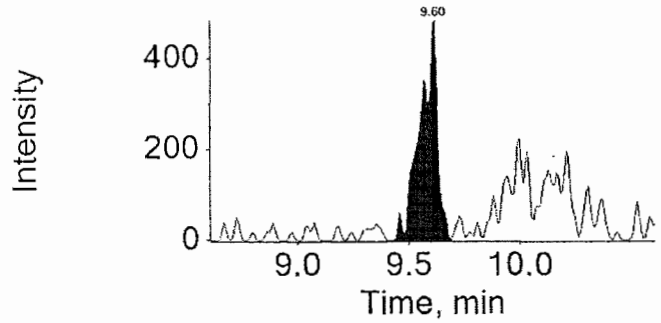
403.0 / 103.0



16JUL14-22.wiff

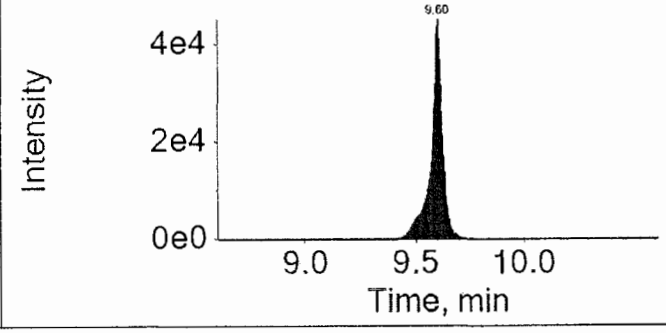
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

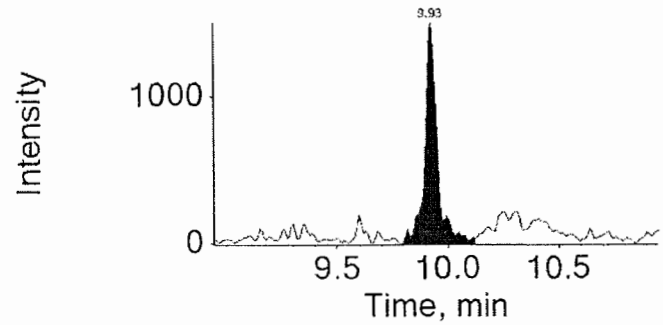
314.9 / 270.0



16JUL14-22.wiff

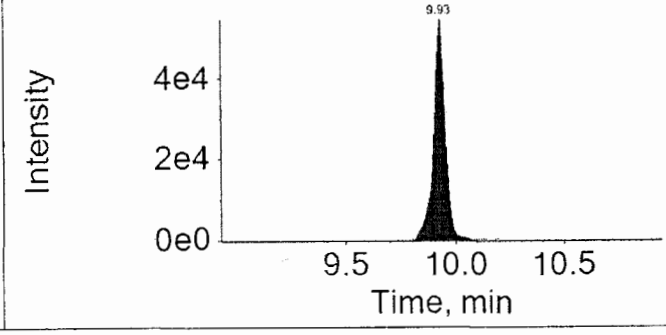
Analyte: PFHpA

362.9 / 318.9



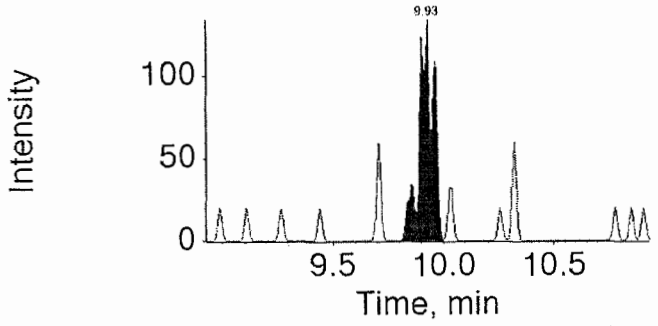
Internal Standard: 13C4-PFHpA

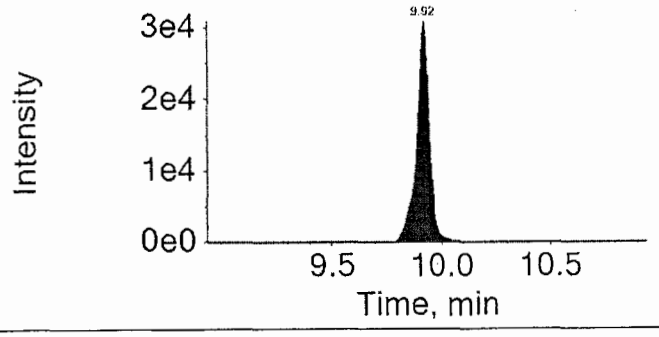
367.0 / 322.0



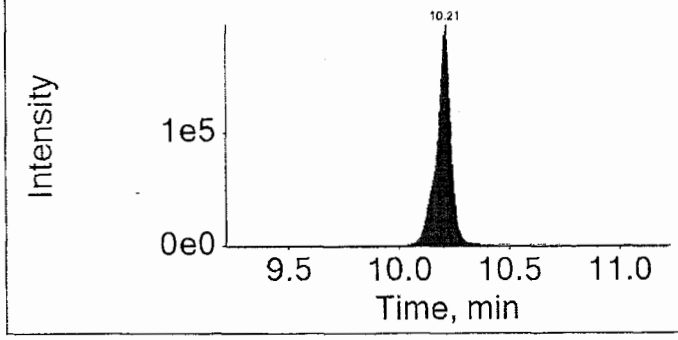
Check integration for PFHxA and PFHpA for consistency

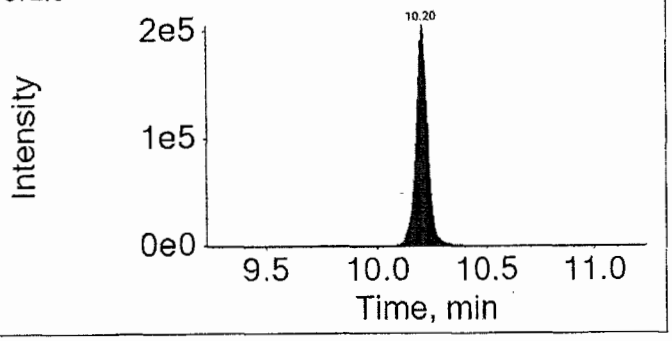
16JUL14-22.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



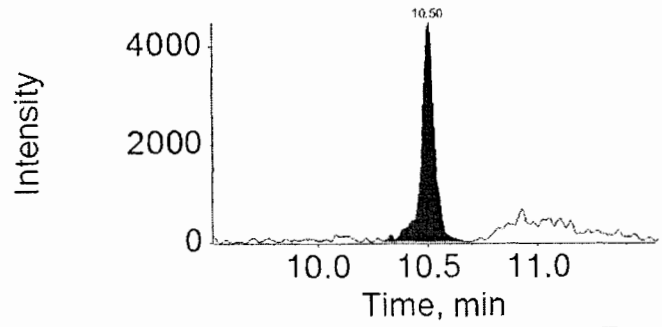


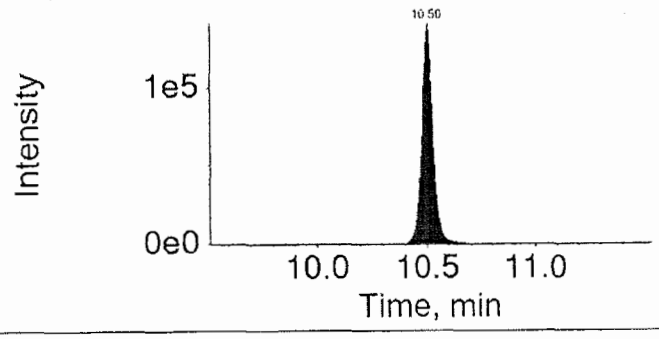
16JUL14-22.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





16JUL14-22.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



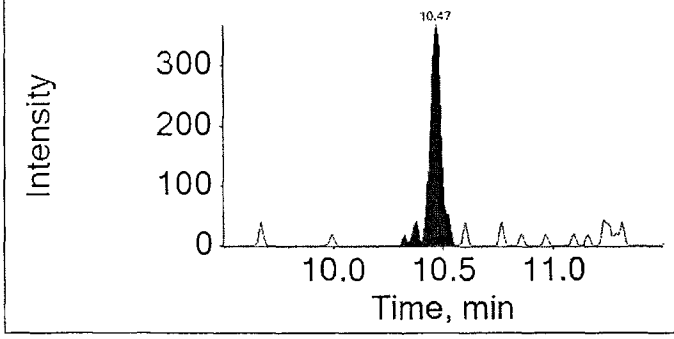


Check integration for PFNA

16JUL14-22.wiff

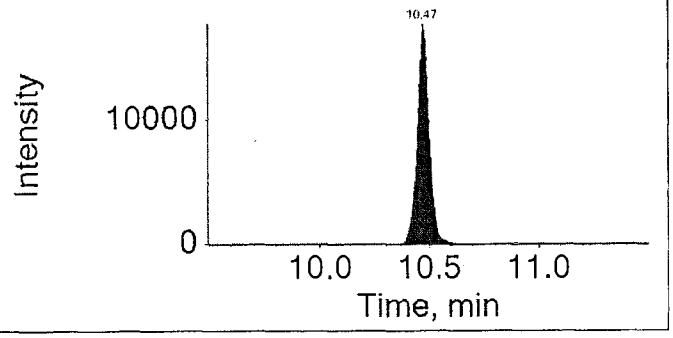
Analyte: PFOS

498.9 /
98.9



Internal Standard: 13C4-PFOS

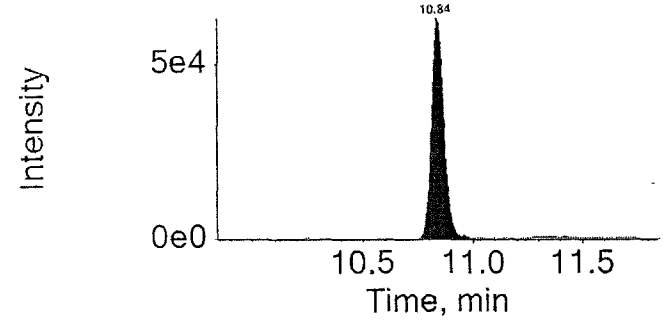
503.0 /
99.0



16JUL14-22.wiff

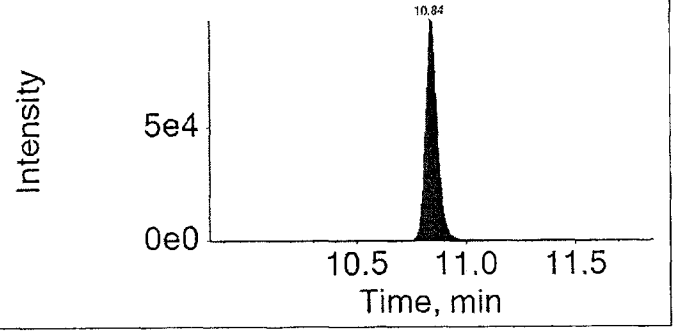
Analyte: PFDA

512.9 /
469.0



Internal Standard: 13C2-PFDA

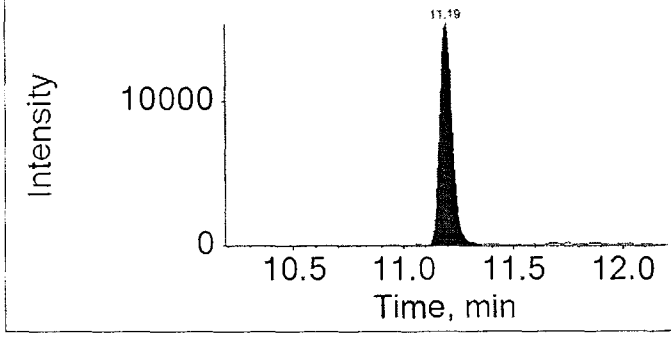
515.0 /
470.0



16JUL14-22.wiff

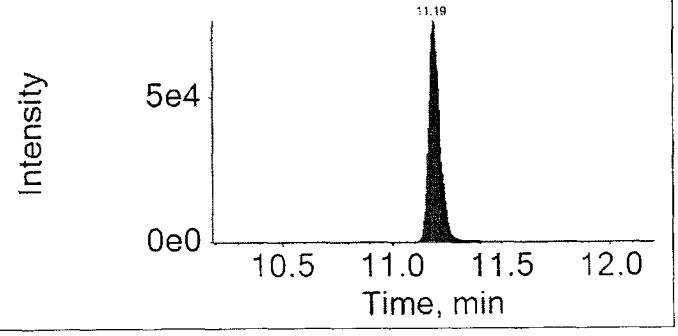
Analyte: PFUnDA

562.9 /
518.9

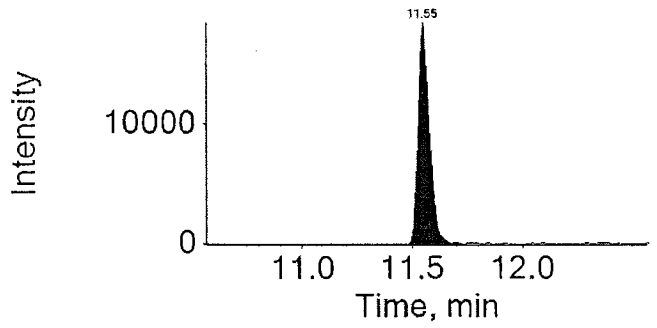


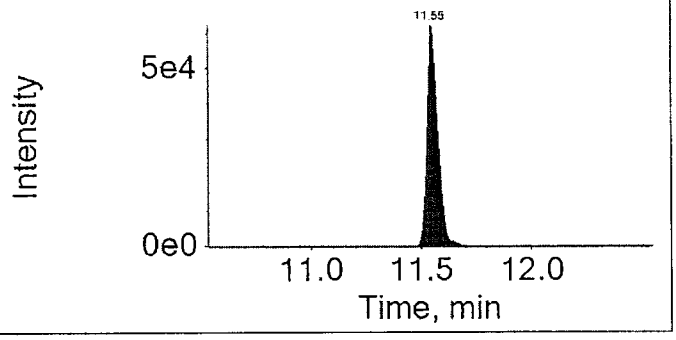
Internal Standard: 13C2-PFUnDA

565.0 /
520.0

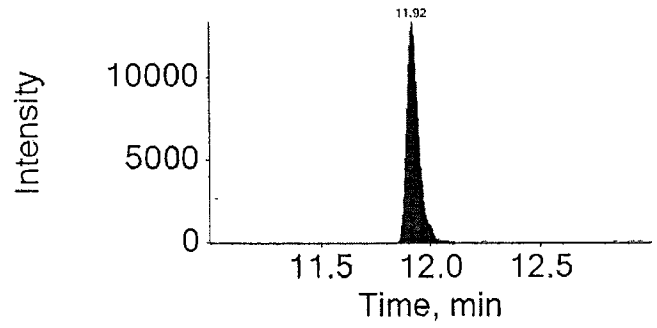


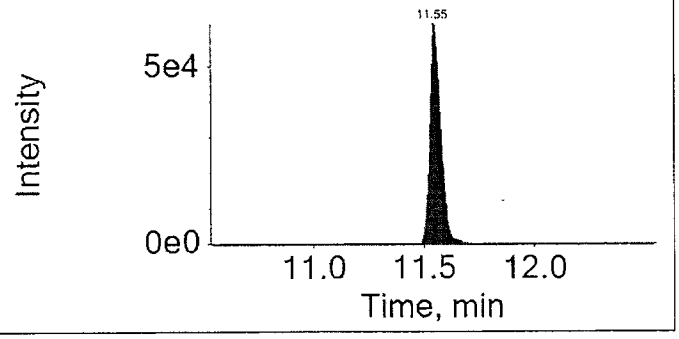
16JUL14-22.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



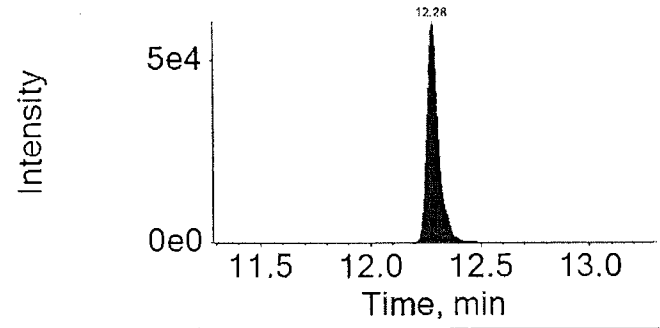


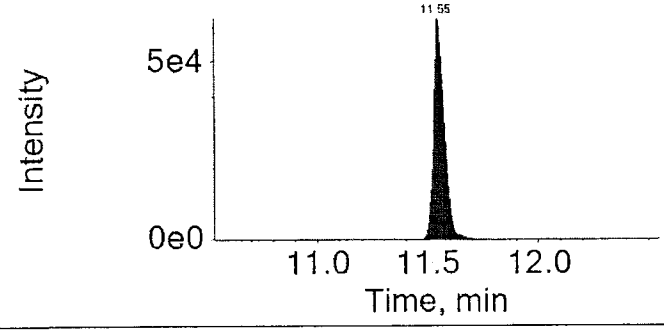
16JUL14-22.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL14-22.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





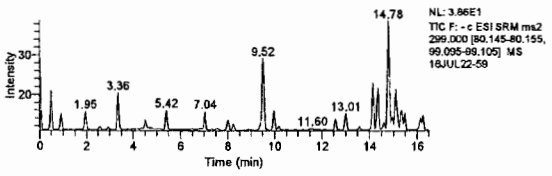
LCMSMS ANALYSIS REPORT

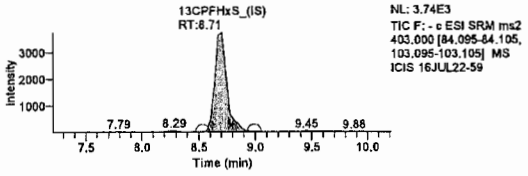
Sample Name:	8433358 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8433358 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-59		M\HWell_16.5minutes
Acquisition Date:	07/23/16 01:04:07 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:14	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

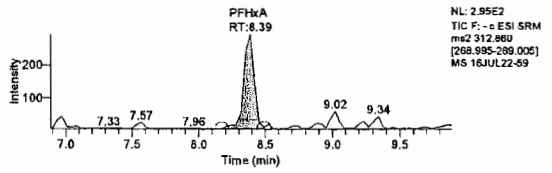
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.32	222303.19	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	218316.36	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.78	226653.15	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.82	158452.92	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	206915.39	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	123410.34	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	27814.13	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.29	23634.43	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.18	189147.31	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	5.927	9.78	93337.22	226653.15	0.412	ng/g
PFDoA	4.770	10.82	76010.17	158452.92	0.480	ng/g
PFHxA	0.120	8.39	1597.22	123410.34	0.013	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	0.215	9.28	2482.28	222303.19	0.011	ng/g
PFOA	19.347	8.99	423957.33	218316.36	1.942	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	12.705	12.48	191010.18	189147.31	1.010	ng/g
PFTrDA	4.923	11.60	93511.13	158452.92	0.590	ng/g
PFUdA	2.481	10.18	40928.51	189147.31	0.216	ng/g
PFhpA	0.253	8.71	3469.57	206915.39	0.017	ng/g

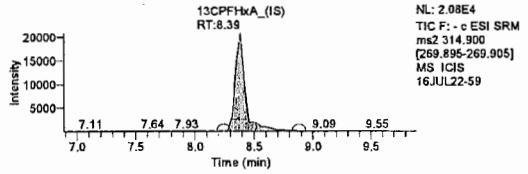
Component Name: PFBS





Component Name: PFHxA



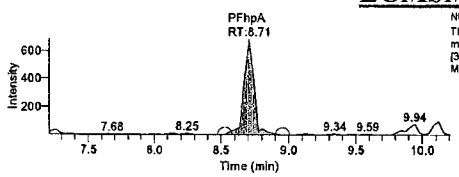


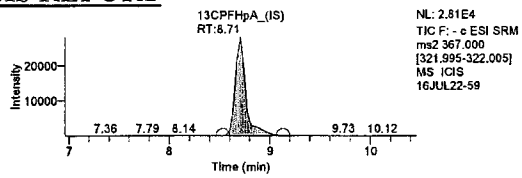
Component Name: PFhpA

Jason W. Knight
Senior Chemist

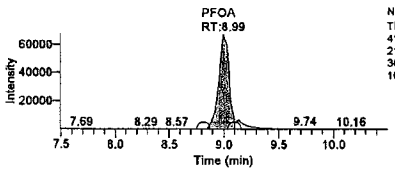
JUL 25 2016

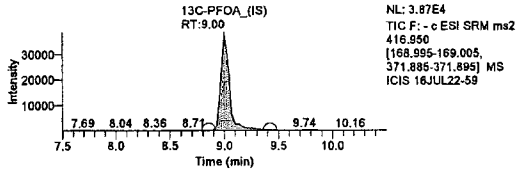
LCMSMS ANALYSIS REPORT



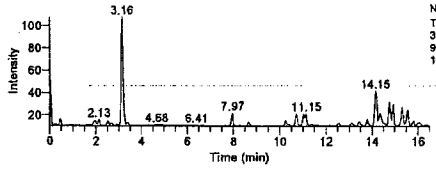


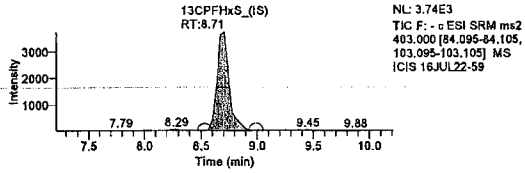
Component Name: PFOA





Component Name: PFHxS





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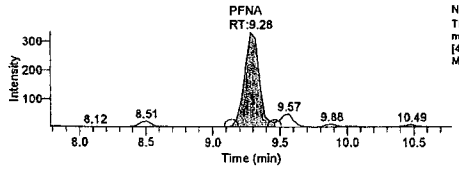

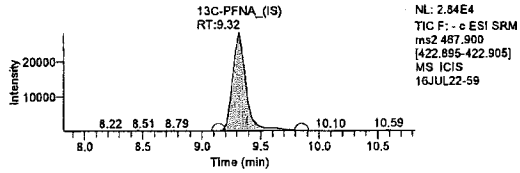

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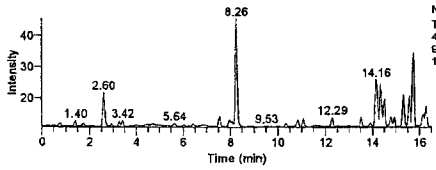
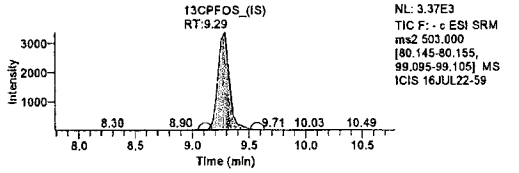
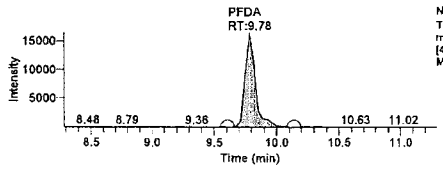
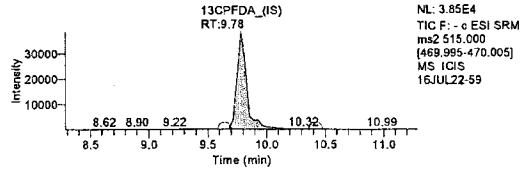




Component Name: PFDA





Component Name: PFUdA

Jason W. Knight
Senior Chemist

JUL 25 2016

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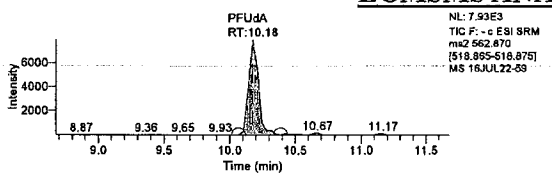

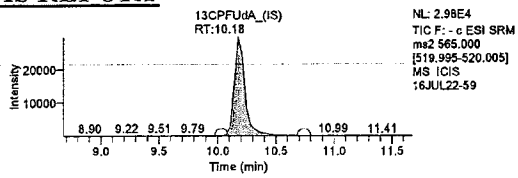

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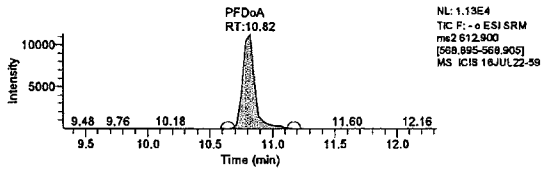
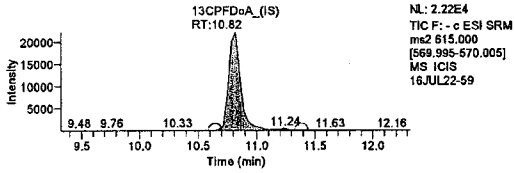
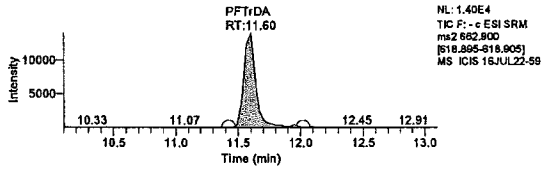
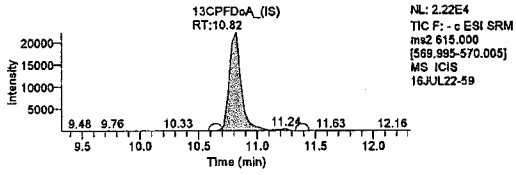




Component Name: PFTrDA





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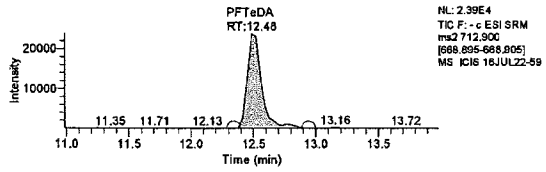

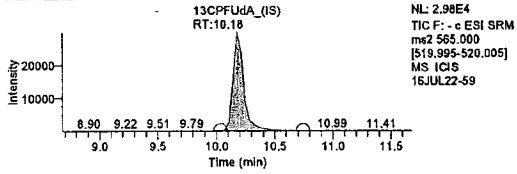

Lynn Dodd
JUL 25 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

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Analysis Report

Sample Description: SG3-FD01-20160617 Grab Soil
SGPP - Bennington

LL Sample # SW 8433359
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/17/2016 10:55 by JD

Submitted: 06/18/2016 09:50
Reported: 07/25/2016 17:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

false ⊕

FD117 SDG#: SGP96-10FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.94	J	0.61	1.9	1
14027	Perfluorodecanoic acid	335-76-2	5.2		0.24	0.49	1
14027	Perfluorododecanoic acid	307-55-1	26		0.49	0.97	1
14027	Perfluoroheptanoic acid	375-85-9	0.54	J	0.36	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.35	J	0.24	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.39	J	0.24	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.85	U	0.85	1.9	1
14027	Perfluorooctanoic acid	335-67-1	23		0.36	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	19		0.36	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	6.6		0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	10		0.36	0.73	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was reextracted outside the holding time and comparable results were observed. Both sets of data are included in the data package.

Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	17.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16180013	07/14/2016 15:13	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16180013	06/29/2016 12:30	Robert Brown	1
00111	Moisture	SM 2540 G-1997	1	16180820003A	06/28/2016 13:05	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Name:	EPA 537 Rev. 1.1 modified 16180013 SG3-FD01-20160617 Grab Soil	**Data File:**		16JUL14-23.wiff
Sample ID:	8433359	**Acquis Date:**		7/14/2016 3:13:35 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	58	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16180013
Batch Number:	16180013	**Operator:**		US19INS07959\4000
Sample Wt.:	5.360	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

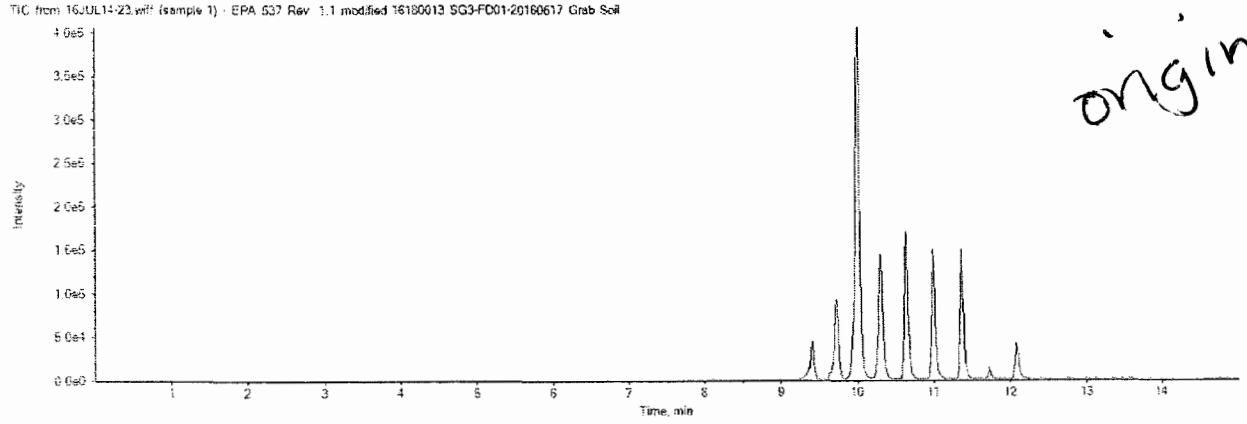
LLMDL

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	8.84	191.5	18O2-PFHxS	9.71	124815.1	0.002	0.772	
PFHxA	9.41	2970.9	13C2-PFHxA	9.40	166870.9	0.018	0.288	
PFHpA	9.73	5547.7	13C4-PFHpA	9.72	237547.0	0.023	0.448	
PFHxS	9.71	715.6	18O2-PFHxS	9.71	124815.1	0.006	0.298	
PFOA	10.01	704886.8	13C4-PFOA	10.01	851038.2	0.828	19.137	
PFNA	10.30	17902.7	13C5-PFNA	10.31	489980.3	0.037	0.324	
PFOS	10.28	1155.2	13C4-PFOS	10.27	65425.5	0.018	0.550	
PFDA	10.63	172979.0	13C2-PFDA	10.63	417602.8	0.414	4.293	
PFUndA	10.99	165663.9	13C2-PFUnDA	10.99	311179.6	0.532	8.323	
PFDoDA	11.36	259275.2	13C2-PFDoDA	11.36	211467.9	1.226	21.611	
PFTrDA	11.72	31983.9	13C2-PFDoDA	11.36	211467.9	0.151	5.433	
PFTeDA	12.08	134626.3	13C2-PFDoDA	11.36	211467.9	0.637	15.383	

Total Ion Chromatogram

8433359



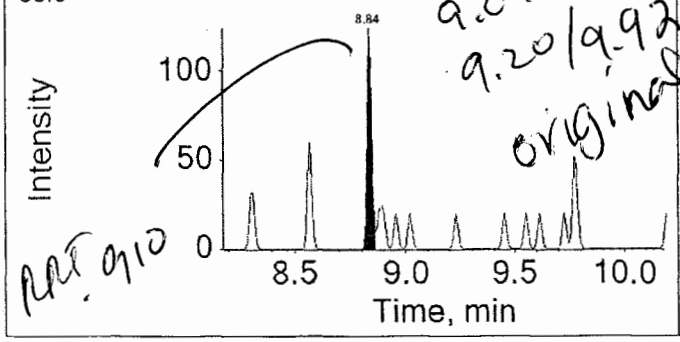
original

.927 RRT
927 RRT
LCMD2

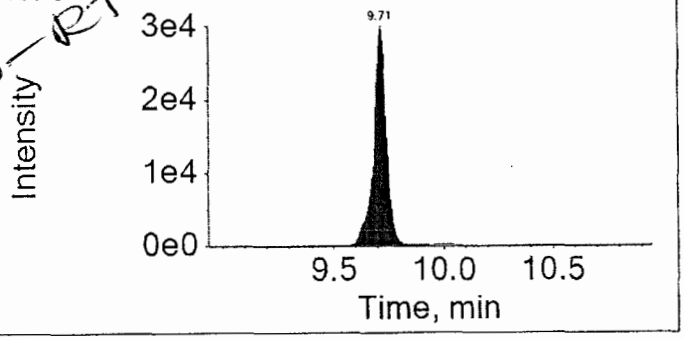
CCV 3:
9.04/9.75
9.20/9.92
original RT of

RRT 910

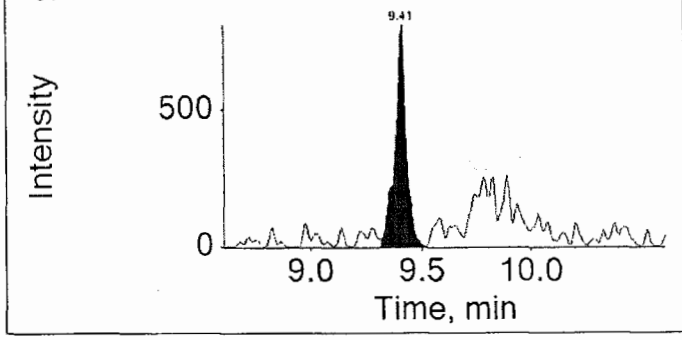
16JUL14-23.wiff
Analyte: PFBS
298.9 / 98.9



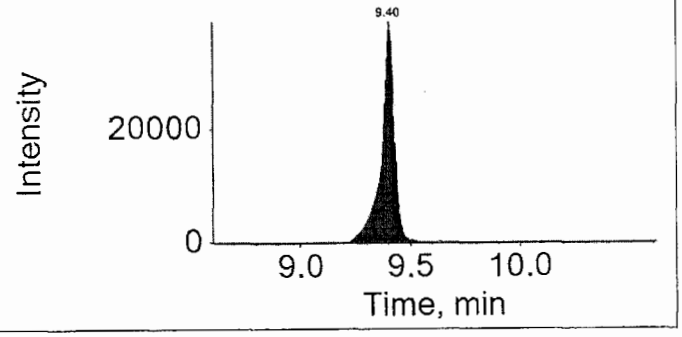
Internal Standard: 18O2-PFHxS
403.0 / 103.0



16JUL14-23.wiff
Analyte: PFHxA
312.9 / 269.0



Internal Standard: 13C2-PFHxA
314.9 / 270.0



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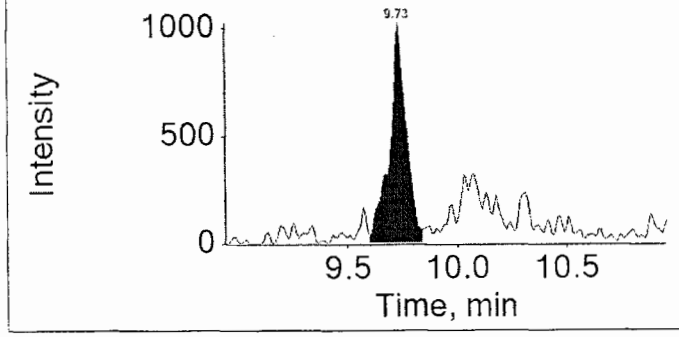
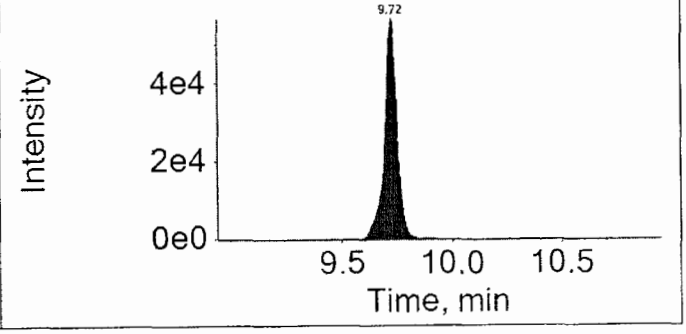
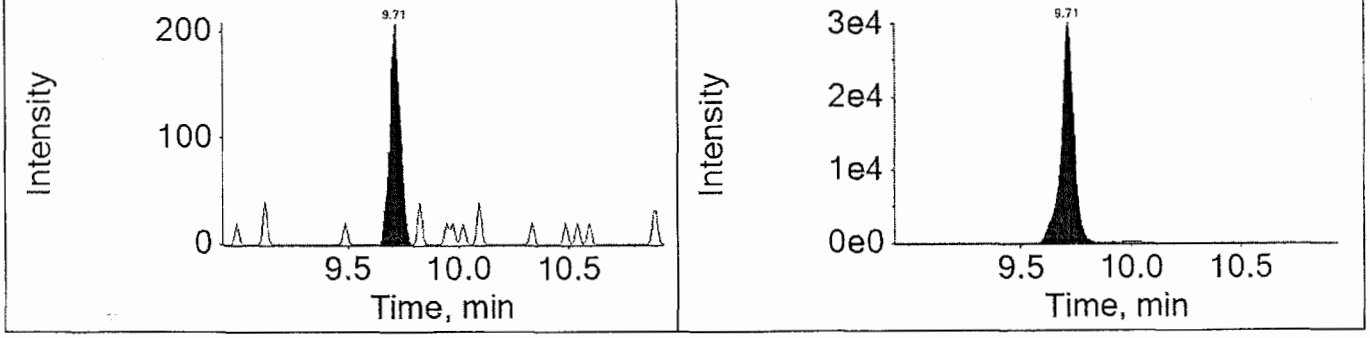
Analyte: PFHpA
362.9 / 318.9



Internal Standard: 13C4-PFHpA
367.0 / 322.0



16JUL14-23.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



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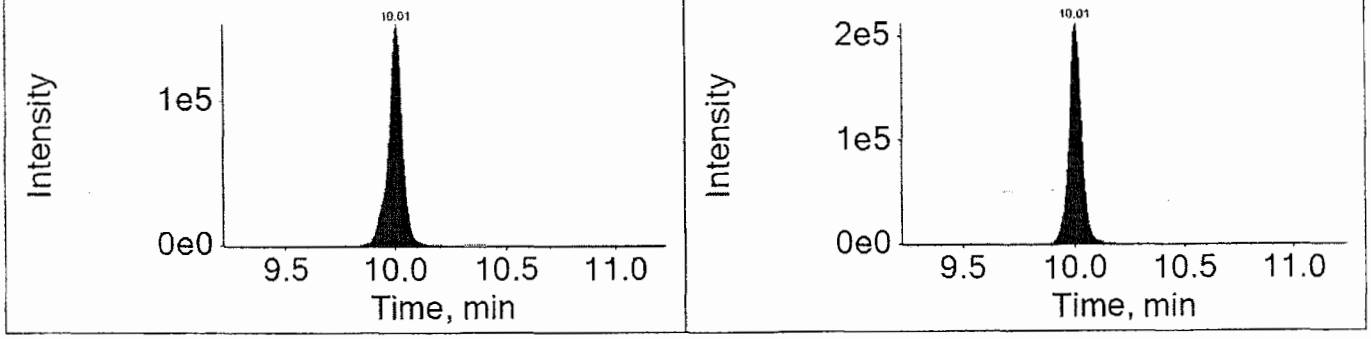
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



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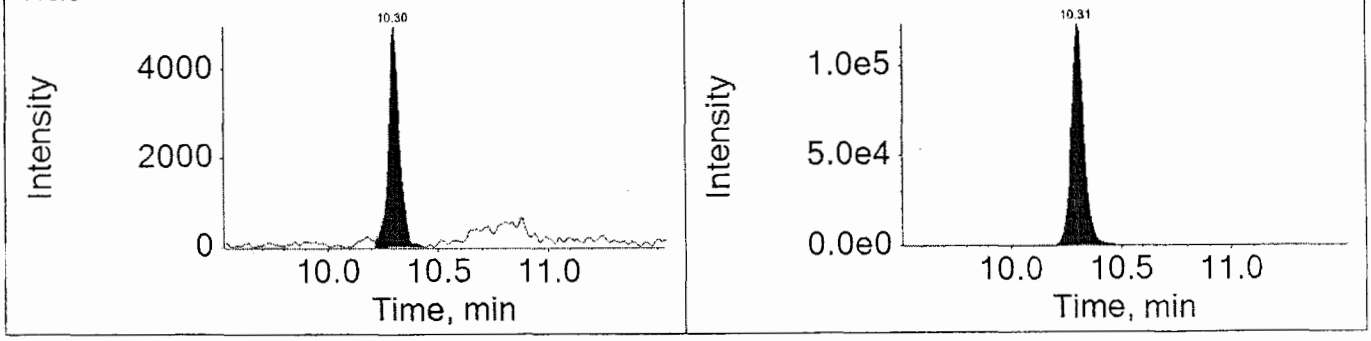
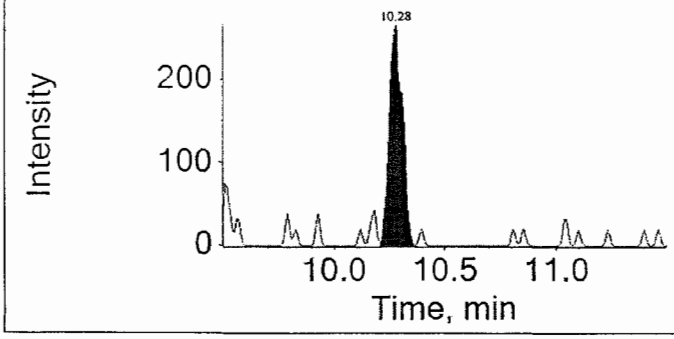
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



16JUL14-23.wiff

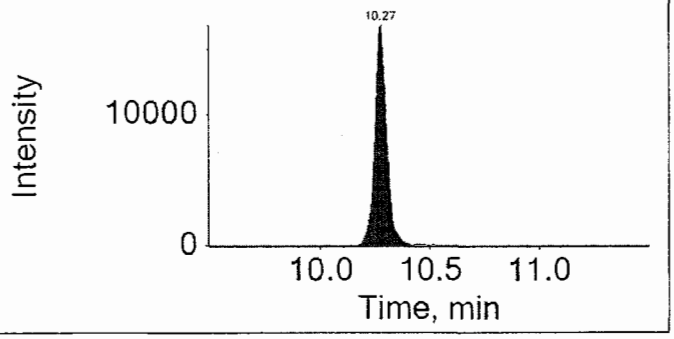
Analyte: PFOS

498.9 /
98.9



Internal Standard: 13C4-PFOS

503.0 /
99.0



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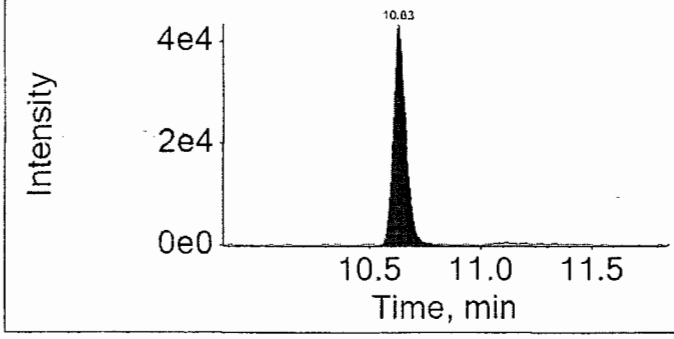
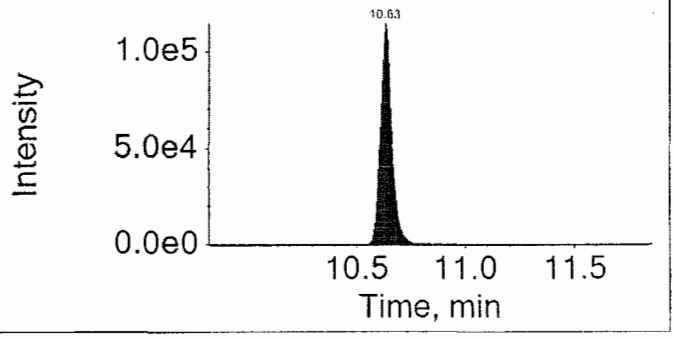
Analyte: PFDA

512.9 /
469.0



Internal Standard: 13C2-PFDA

515.0 /
470.0



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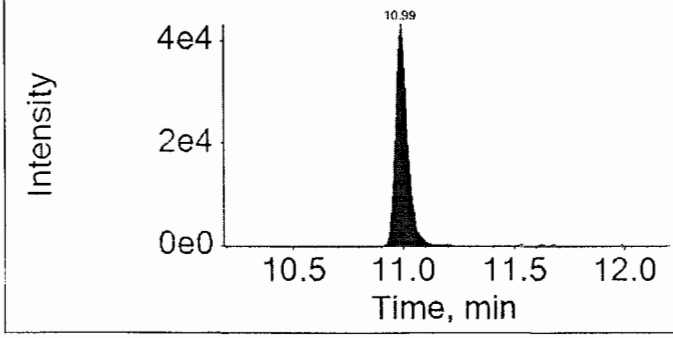
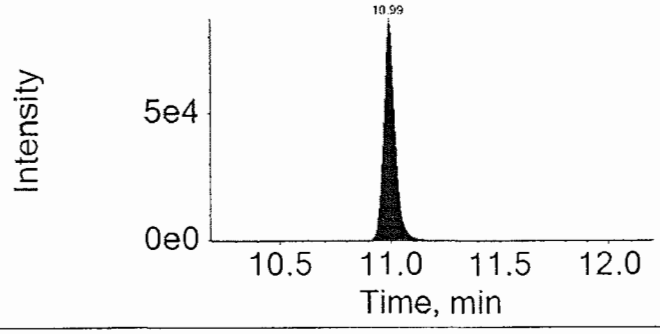
Analyte: PFUndA

562.9 /
518.9



Internal Standard: 13C2-PFUnDA

565.0 /
520.0



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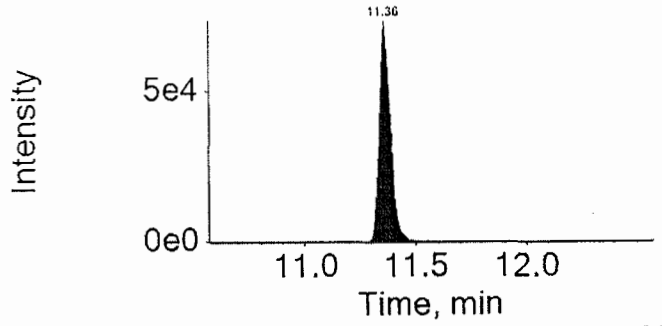
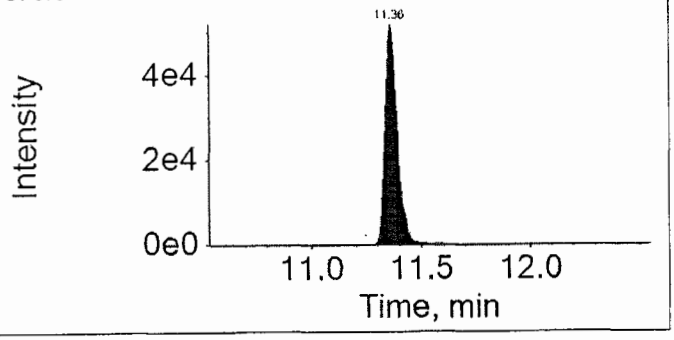
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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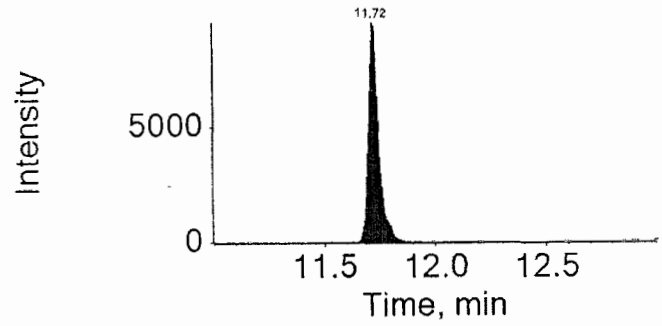
Analyte: PFTrDA

662.9 / 618.9



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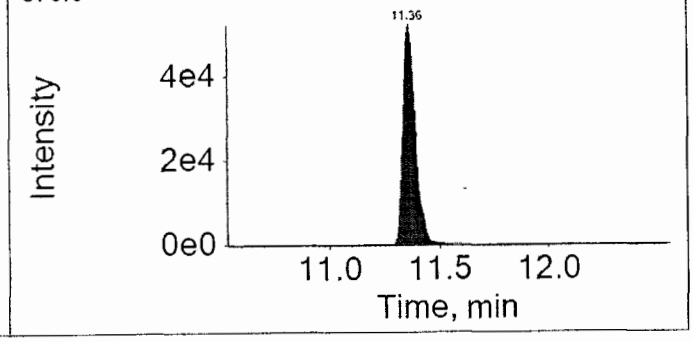
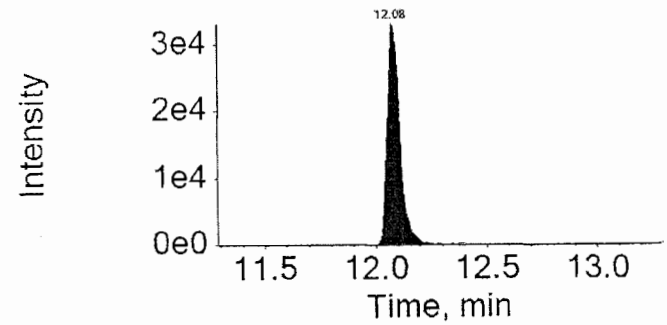
615.0 / 570.0



16JUL14-23.wiff

Analyte: PFTeDA

712.9 / 668.9



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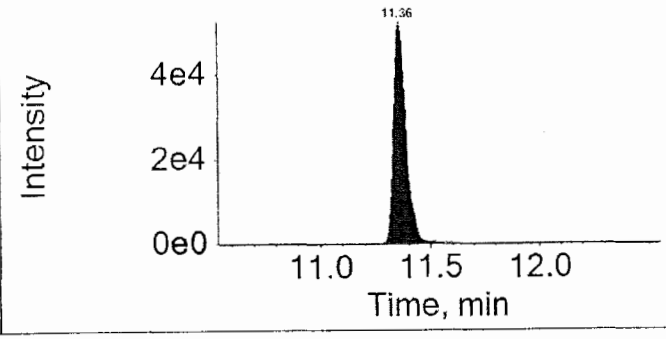
615.0 / 570.0



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Analysis Report

REVISED

Sample Description: SG3-FD01-20160617 Grab Soil
SGPP - Bennington

LL Sample # SW 8433359
LL Group # 1673603
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/17/2016 10:55 by JD

Submitted: 06/18/2016 09:50
Reported: 06/06/2017 16:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

FD117 SDG#: SGP96-10FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.57 U	0.57	1.8	1
14027	**Perfluorodecanoic acid**	335-76-2	**5.2**	0.23	0.45	1
14027	**Perfluorododecanoic acid**	307-55-1	**26**	0.45	0.91	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.54 J**	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.57 U	0.57	1.8	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.35 J**	0.23	0.45	1
14027	**Perfluorononanoic acid**	375-95-1	**0.39 J**	0.23	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.79 U	0.79	1.8	1
14027	**Perfluorooctanoic acid**	335-67-1	**23**	0.34	0.68	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**19**	0.34	0.91	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**6.6**	0.68	1.4	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**10**	0.34	0.68	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was reextracted outside the holding time and comparable results were observed. Both sets of data are included in the data package.

Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**17.7**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16180013	07/14/2016 15:13	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16180013	06/29/2016 12:30	Robert Brown	1
00111	Moisture	SM 2540 G-1997	1	16180820003A	06/28/2016 13:05	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 6/5/2017 6:35:00 PM

Sample Name:	EPA 537 Rev. 1.1 modified 16180013 SG3-FD01-20160617 Grab Soil			**Data File:**		16JUL14-23.wiff
Sample ID:	8433359			**Acquis Date:**		2016-07-14T15:13:35
Sample Type:	Unknown			**Instrument:**		API 4000
Vial Position:	58			**Acquis Method:**		PFC 16JUL08.dam
Injection Vol:	10.00			**Result Table:**		MQ 16180013
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS07959\4000
Sample Wt.:	5.36000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

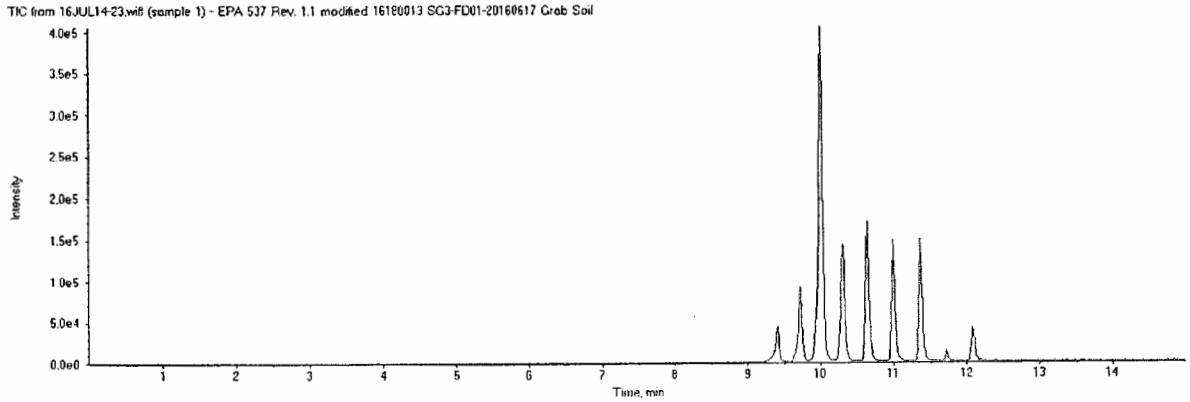
Revised

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	9.71	124815.1	N/A	N/A
PFHxA	9.41	1.000	2970.9	A	13C2-PFHxA	9.40	166870.9	0.018	~~0.288~~
PFHpA	9.73	1.000	5547.7	A	13C4-PFHpA	9.72	237547.0	0.023	0.448
PFHxS	9.71	1.000	715.6	A	18O2-PFHxS	9.71	124815.1	0.006	0.298
PFOA	10.01	1.000	704886.8	A	13C4-PFOA	10.01	851038.2	0.828	19.137
PFNA	10.30	1.000	17902.7	A	13C5-PFNA	10.31	489980.3	0.037	0.324
PFOS	10.28	1.000	1155.2	A	13C4-PFOS	10.27	65425.5	0.018	0.550
PFDA	10.63	1.000	172979.0	A	13C2-PFDA	10.63	417602.8	0.414	4.293
PFUndA	10.99	1.000	165663.9	A	13C2-PFUnDA	10.99	311179.6	0.532	8.323
PFDoDA	11.36	1.000	259275.2	A	13C2-PFDoDA	11.36	211467.9	1.226	21.611
PFTrDA	11.72	1.030	31983.9	A	13C2-PFDoDA	11.36	211467.9	0.151	5.433
PFTeDA	12.08	1.060	134626.3	A	13C2-PFDoDA	11.36	211467.9	0.637	15.383

Total Ion Chromatogram

8433359



APPROVED
By MCD at 6:43 pm, 6/5/17

REVIEWED
By ucmr at 1:42 pm, 6/6/17

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LC-MS/MS Analysis Report

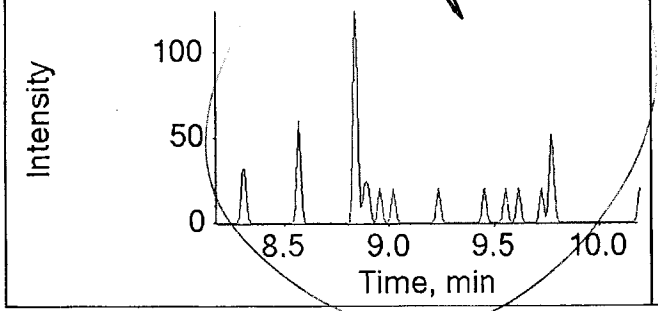
Printed: 6/5/2017 6:35:00 PM

Revised

16JUL14-23.wiff

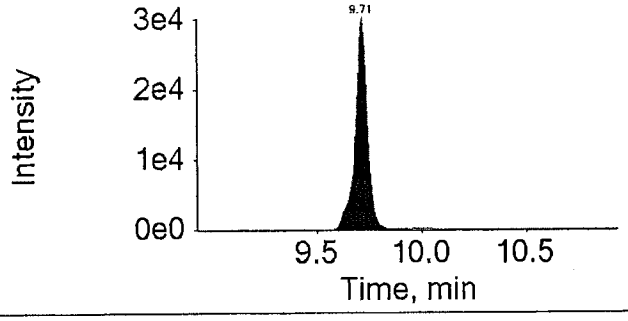
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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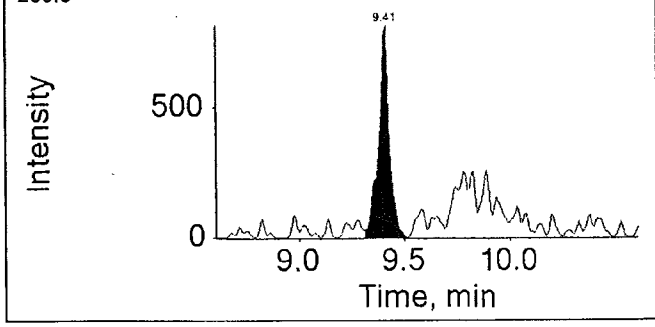
Analyte: PFHxA

312.9 / 269.0



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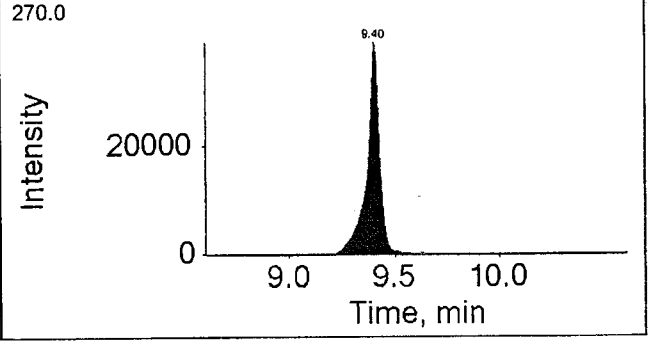
314.9 / 270.0



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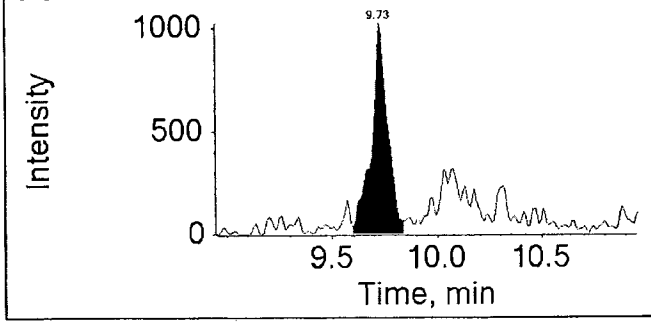
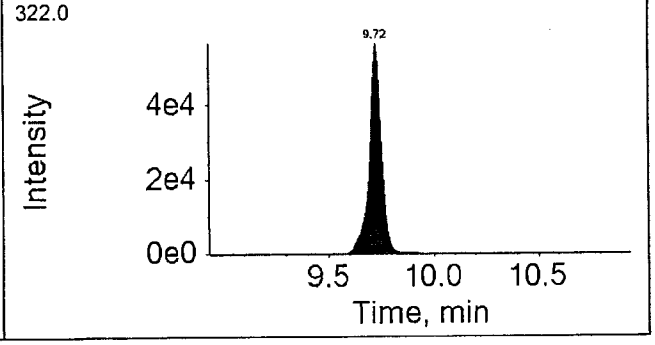
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



APPROVED
By MCD at 6:43 pm, 6/5/17

REVIEWED
By rcmr at 1:42 pm, 6/6/17

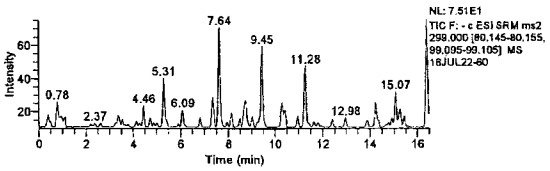
LCMSMS ANALYSIS REPORT

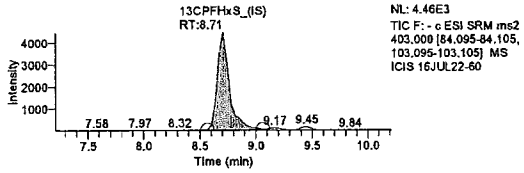
Sample Name:	8433359 RE	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	8433359 RE	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-60		M\HWell_16.5minutes
Acquisition Date:	07/23/16 01:21:21 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:15	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.36	243670.84	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.03	220605.57	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.75	201810.45	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	10.89	162052.10	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	221002.37	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	120780.01	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	32847.41	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.29	22472.30	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.25	179955.67	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	3.189	9.75	44999.98	201810.45	0.223	ng/g
PFDoA	6.417	10.89	104349.43	162052.10	0.644	ng/g
PFHxA	0.064	8.35	810.35	120780.01	0.007	ng/g
PFHxS	0.134	8.78	414.60	32847.41	0.013	ng/g
PFNA	0.282	9.32	3966.31	243670.84	0.016	ng/g
PFOA	12.175	9.03	269661.57	220605.57	1.222	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	10.893	12.59	155543.00	179955.67	0.864	ng/g
PFTrDA	3.213	11.74	60717.39	162052.10	0.375	ng/g
PFUdA	5.933	10.25	90956.65	179955.67	0.505	ng/g
PFhpA	0.270	8.71	3998.09	221002.37	0.018	ng/g

Component Name: PFBS





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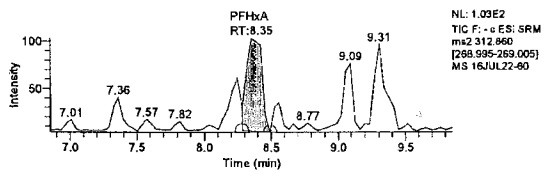

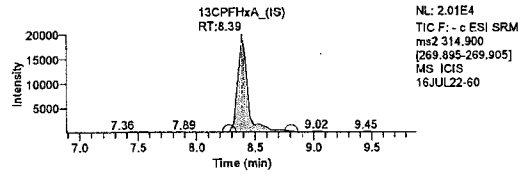

Component Name: PFhpA

Jason W. Knight
Senior Chemist

JUL 25 2016

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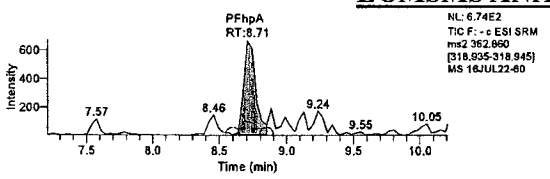

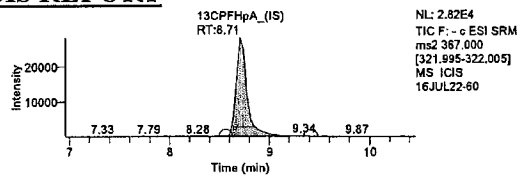

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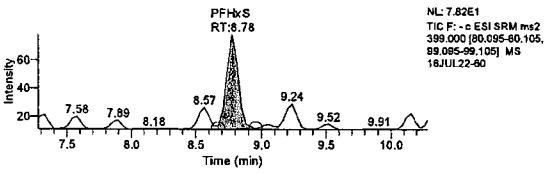

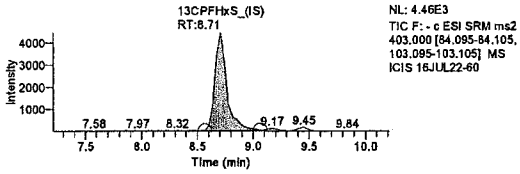

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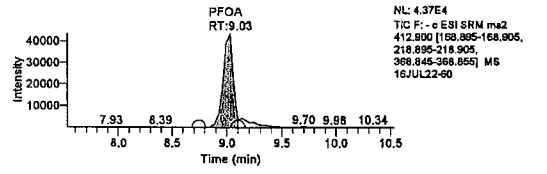
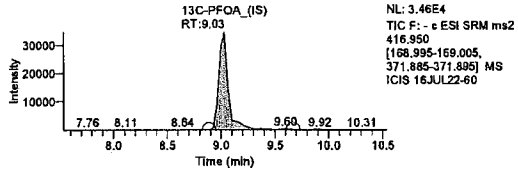
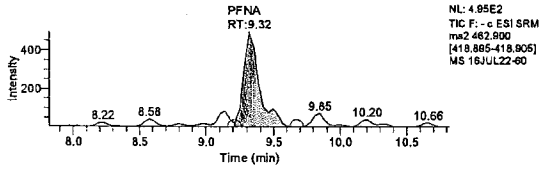
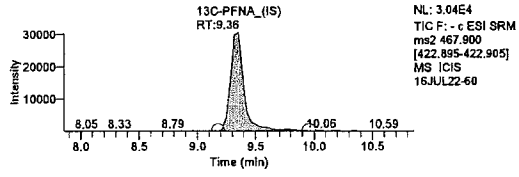




Component Name: PFNA





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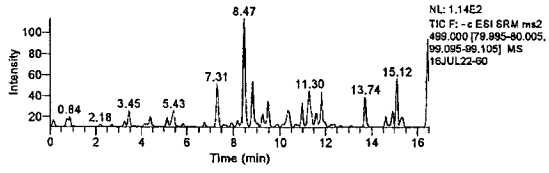

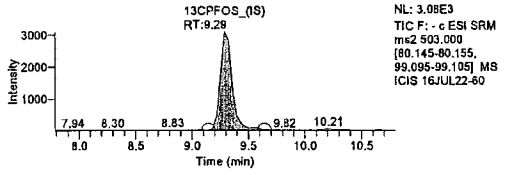

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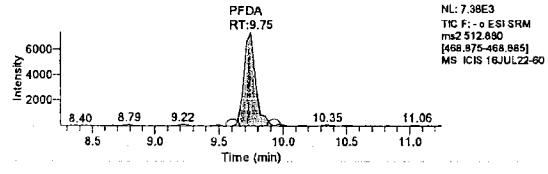

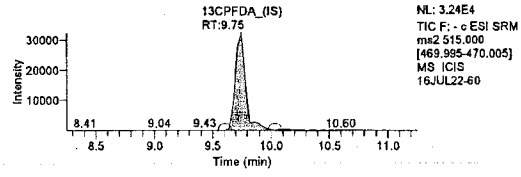

Jason W. Knight
Senior Chemist

Component Name: PFUdA

JUL 25 2016

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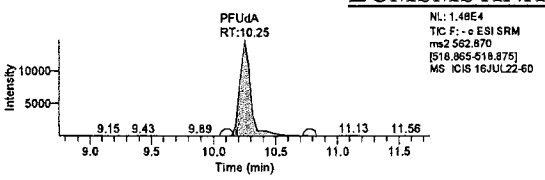

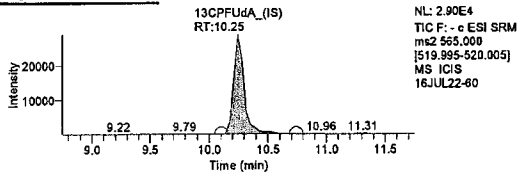

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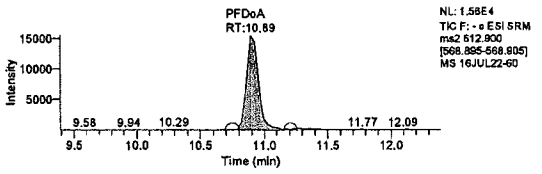

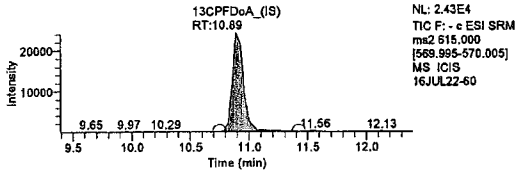

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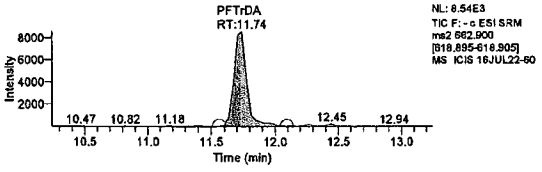

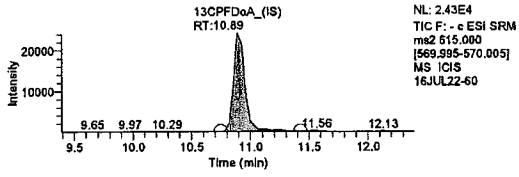

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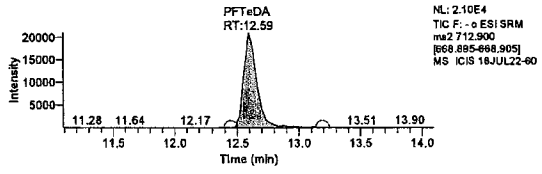

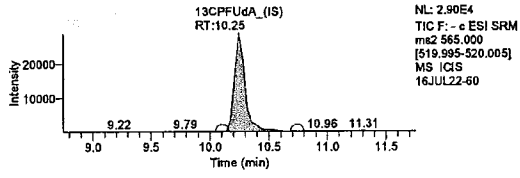

Lynn Dodd
JUL 25 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1673603
Reported: 07/25/2016 17:24

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16180013	Sample number(s): 8433353-8433359			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16172001	Sample number(s): 8433348-8433352			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16190049531A	Sample number(s): 8433353-8433354,8433357-8433358			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16180013	Sample number(s): 8433353-8433359								
Perfluorobutanesulfonate	17.8	23.91			134*		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a [illegible]up.

High recovery - qualify detects of PFBS with J (LAH). Don't qualify ND. Soil samples.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 07/25/2016 17:24

Group Number: 1673603

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Perfluorodecanoic acid	20	40.09			200*		70-130		
Perfluorododecanoic acid	20	33.26			166*		70-130		
Perfluoroheptanoic acid	20	29.52			148*		70-130		
Perfluorohexanesulfonate	18.92	27.3			144*		70-130		
Perfluorohexanoic acid	20	33.13			166*		70-130		
Perfluorononanoic acid	20	28.38			142*		70-130		
Perfluoro-octanesulfonate	19.12	25.06			131*		70-130		
Perfluorooctanoic acid	20	29.38			147*		70-130		
Perfluorotetradecanoic acid	20	45.91			230*		70-130		
Perfluorotridecanoic acid	20	35.31			177*		70-130		
Perfluoroundecanoic acid	20	35.81			179*		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16172001	Sample number(s): 8433348-8433352								
Perfluorooctanoic acid	200	189.69	200	182.7	95	91	70-130	4	30
Perfluorononanoic acid	200	195.42	200	211.39	98	106	70-130	8	30
Perfluorodecanoic acid	200	187.49	200	212.82	94	106	70-130	13	30
Perfluoroundecanoic acid	200	209.31	200	201.1	105	101	70-130	4	30
Perfluorododecanoic acid	200	216.26	200	194.7	108	97	70-130	10	30
Perfluorotridecanoic acid	200	188.15	200	181.79	94	91	70-130	3	30
Perfluorotetradecanoic acid	200	181.46	200	171.69	91	86	70-130	6	30
Perfluorohexanoic acid	200	208.47	200	214.01	104	107	70-130	3	30
Perfluoroheptanoic acid	200	184.47	200	174.02	92	87	70-130	6	30
Perfluorobutanesulfonate	176.8	205.19	176.8	198.72	116	112	70-130	3	30
Perfluorohexanesulfonate	189.2	159.21	189.2	142.98	84	76	70-130	11	30
Perfluoro-octanesulfonate	191.2	220.06	191.2	221.04	115	116	70-130	0	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16190049531A	Sample number(s): 8433353-8433354,8433357-8433358								
TOC	5430	5086.51			94		47-143		
	%	%	%	%					
Batch number: 16180820003A	Sample number(s): 8433353-8433359								
Moisture	89.5	89.46			100		99-101		
Moisture	89.5	89.46			100		99-101		
Moisture Duplicate	89.5	89.46			100		99-101		

All recoveries high. Qualify all detects with J (LAH). Don't qualify ND. Soil samples

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g	ng/g					
Batch number: 16180013	Sample number(s): 8433353-8433359 UNSPK: 8433354									
Perfluorobutanesulfonate	0.50 U	17.8	24.03	17.8	24.53	135*	138*	70-130	2	30

no @ no qual

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 07/25/2016 17:24

Group Number: 1673603

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g	ng/g					
Perfluorodecanoic acid	34.93	20	70.22	20	67.94	176*	165*	70-130	3	30
Perfluorododecanoic acid	1.47	20	30.82	20	28.51	147*	135*	70-130	8	30
Perfluoroheptanoic acid	0.353	20	31.28	20	29.26	155*	145*	70-130	7	30
Perfluorohexanesulfonate	0.50 U	18.92	29.73	18.92	29.92	157*	158*	70-130	1	30
Perfluorohexanoic acid	0.318	20	29.4	20	32.05	145*	159*	70-130	9	30
Perfluorononanoic acid	0.462	20	27.17	20	27.97	134*	138*	70-130	3	30
Perfluoro-octanesulfonate	0.869	19.12	27.34	19.12	26.58	138*	134*	70-130	3	30
Perfluorooctanoic acid	18.21	20	44.32	20	45.48	131*	136*	70-130	3	30
Perfluorotetradecanoic acid	1.30	20	34.25	20	28.87	165*	138*	70-130	17	30
Perfluorotridecanoic acid	0.60 U	20	25.72	20	25.05	129	125	70-130	3	30
Perfluoroundecanoic acid	1.52	20	31.12	20	34.93	148*	167*	70-130	12	30
	ng/l	ng/l	ng/l	ng/l	ng/l					
Batch number: 16172001	Sample number(s): 8433348-8433352 UNSPK: 8427012									
Perfluorooctanoic acid	1.54	200	207.84			103		70-130		
Perfluorononanoic acid	1 U	200	201.27			101		70-130		
Perfluorodecanoic acid	1 U	200	198.88			99		70-130		
Perfluoroundecanoic acid	2 U	200	187.55			94		70-130		
Perfluorododecanoic acid	3 U	200	237.24			119		70-130		
Perfluorotridecanoic acid	2 U	200	120.97			60*		70-130		
Perfluorotetradecanoic acid	3 U	200	89.3			45*		70-130		
Perfluorohexanoic acid	1 U	200	203.76			102		70-130		
Perfluoroheptanoic acid	1.01	200	179.31			89		70-130		
Perfluorobutanesulfonate	4 U	176.8	79.42			45*		70-130		
Perfluorohexanesulfonate	7.81	189.2	177.92			90		70-130		
Perfluoro-octanesulfonate	5 U	191.2	282.44			148*		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16190049531A	Sample number(s): 8433353-8433354,8433357-8433358 UNSPK: 8433354									
TOC	2414.31	38961	46272.73			113		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16190049531A	Sample number(s): 8433353-8433354,8433357-8433358 BKG: 8433354			
TOC	2414.31	2535.24	5 (1)	7
	%	%		
Batch number: 16180820003A	Sample number(s): 8433353-8433359 BKG: 8433354, P433354			
Moisture	18.76	17.36	8*	5
Moisture	18.76	17.36	8*	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1673603
Reported: 07/25/2016 17:24

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	%	%		
Moisture Duplicate	18.76	17.36	8*	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SGP96
Matrix: SOLID

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

UNSPK: 8433354 MS: 8433355 MSD: 8433356 **Analyte**	Batch: **16180013** (Sample number(s): 8433353-8433359)								
	Spike Added ng/g	**Unspiked Conc ng/g**	**MS Conc ng/g**	**MSD Conc ng/g**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	20	18.21	44.32	45.48	131 *	136 *	70-130	3	30
Perfluorononanoic acid	20	0.462	27.17	27.97	134 *	138 *	70-130	3	30
Perfluorodecanoic acid	20	34.93	70.22	67.94	176 *	165 *	70-130	3	30
Perfluoroundecanoic acid	20	1.52	31.12	34.93	148 *	167 *	70-130	12	30
Perfluorododecanoic acid	20	1.47	30.82	28.51	147 *	135 *	70-130	8	30
Perfluorotridecanoic acid	20	N.D.	25.72	25.04	129	125	70-130	3	30
Perfluorotetradecanoic acid	20	1.30	34.25	28.87	165 *	138 *	70-130	17	30
Perfluorohexanoic acid	20	0.318	29.4	32.05	145 *	159 *	70-130	9	30
Perfluoroheptanoic acid	20	0.353	31.28	29.26	155 *	145 *	70-130	7	30
Perfluorobutanesulfonate	17.8	N.D.	24.03	24.53	135 *	138 *	70-130	2	30
Perfluorohexanesulfonate	18.92	N.D.	29.73	29.92	157 *	158 *	70-130	1	30
Perfluoro-octanesulfonate	19.12	0.869	27.34	26.58	138 *	134 *	70-130	3	30

MS and MSD recoveries out. Qualify soil detects with J. Don't qualify non-detects. Only PFTrDA ok. (MAH)

J ⊕ in bkgrd sample

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SGP96
Matrix: SOLID

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

UNSPK: 8433354 MS: 8433355 MSD: 8433356 **Analyte**	Batch: **16201005**(Sample number(s): 8433353-59) **Spike Added ng/g**	**Unspiked Conc ng/g**	**MS Conc ng/g**	**MSD Conc ng/g**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	20	16.51	36.04	37.30	98	104	70-130	6	30
Perfluorononanoic acid	20	0.403	22.01	19.43	108	95	70-130	13	30
Perfluorodecanoic acid	20	30.18	58.24	55.96	140 *	129	70-130	8	30
Perfluoroundecanoic acid	20	0.875	25.97	22.62	125	109	70-130	14	30
Perfluorododecanoic acid	20	0.474	19.96	21.81	97	107	70-130	10	30
Perfluorotridecanoic acid	20	N.D.	15.53	16.58	78	83	70-130	10	30
Perfluorotetradecanoic acid	20	N.D.	22.24	20.01	111	100	70-130	10	30
Perfluorohexanoic acid	20	N.D.	18.24	20.38	91	102	70-130	11	30
Perfluoroheptanoic acid	20	N.D.	21.32	22.19	107	111	70-130	4	30
Perfluorobutanesulfonate	17.8	N.D.	13.47	14.77	76	83	70-130	9	30
Perfluorohexanesulfonate	18.92	N.D.	16.69	19.93	88	105	70-130	18	30
Perfluoro-octanesulfonate	19.12	N.D.	18.35	23.65	96	124	70-130	25	30

RE extracted past HT not used to qualify, see original MS/MSD

Soil. PFDA MS recovery high. Qualify PFDA detects with J. Don't qualify non-detects. (MAH)

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP96
Matrix: SOLID

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

LCS: LCS	Batch: **16180013** (Sample number(s): 8433353-8433359)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	20	29.38	NA	147 *	NA	70-130	NA	NA
Perfluorononanoic acid	20	28.38	NA	142 *	NA	70-130	NA	NA
Perfluorodecanoic acid	20	40.09	NA	200 *	NA	70-130	NA	NA
Perfluoroundecanoic acid	20	35.8	NA	179 *	NA	70-130	NA	NA
Perfluorododecanoic acid	20	33.26	NA	166 *	NA	70-130	NA	NA
Perfluorotridecanoic acid	20	35.31	NA	177 *	NA	70-130	NA	NA
Perfluorotetradecanoic acid	20	45.91	NA	230 *	NA	70-130	NA	NA
Perfluorohexanoic acid	20	33.13	NA	166 *	NA	70-130	NA	NA
Perfluoroheptanoic acid	20	29.52	NA	148 *	NA	70-130	NA	NA
Perfluorobutanesulfonate	17.8	23.91	NA	134 *	NA	70-130	NA	NA
Perfluorohexanesulfonate	18.92	27.3	NA	144 *	NA	70-130	NA	NA
Perfluoro-octanesulfonate	19.12	25.06	NA	131 *	NA	70-130	NA	NA

5 ⊕ soils

Soil LCS recoveries high for all. Qualify detects as J. Don't qualify non-detects. (LAH)

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP96
Matrix: SOLID

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

LCS: LCS	Batch: **16201005** (Sample number(s): 8433353-59)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	20	19.40	NA	97	NA	70-130	NA	NA
Perfluorononanoic acid	20	18.05	NA	90	NA	70-130	NA	NA
Perfluorodecanoic acid	20	28.40	NA	142 *	NA	70-130	NA	NA
Perfluoroundecanoic acid	20	20.54	NA	103	NA	70-130	NA	NA
Perfluorododecanoic acid	20	19.38	NA	97	NA	70-130	NA	NA
Perfluorotridecanoic acid	20	13.81	NA	69 *	NA	70-130	NA	NA
Perfluorotetradecanoic acid	20	16.16	NA	81	NA	70-130	NA	NA
Perfluorohexanoic acid	20	21.68	NA	108	NA	70-130	NA	NA
Perfluoroheptanoic acid	20	20.02	NA	100	NA	70-130	NA	NA
Perfluorobutanesulfonate	17.8	14.81	NA	83	NA	70-130	NA	NA
Perfluorohexanesulfonate	18.92	18.67	NA	99	NA	70-130	NA	NA
Perfluoro-octanesulfonate	19.12	15.27	NA	80	NA	70-130	NA	NA

assoc. w/ REs that were not reported due to extract past HT, not used to qualify, see original LCS

Soil. Recover high in LCS. Qualify PFDA detects with J. Don't qualify non-detects.

Soil. PFTrDA recovery low in LCS. Qualify all samples with J or UJ for PFTrDA.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP96
Matrix: LIQUID

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

LCS: LCS LCSD: LCSD Analyte	Batch: **16172001** (Sample number(s): 8433348-8433352) Spike Added ng/l	LCS Conc ng/l	LCSD Conc ng/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Perfluorooctanoic acid	200	189.68	182.7	95	91	70-130	4	30
Perfluorononanoic acid	200	195.42	211.39	98	106	70-130	8	30
Perfluorodecanoic acid	200	187.49	212.82	94	106	70-130	13	30
Perfluoroundecanoic acid	200	209.3	201.1	105	101	70-130	4	30
Perfluorododecanoic acid	200	216.26	194.7	108	97	70-130	10	30
Perfluorotridecanoic acid	200	188.15	181.79	94	91	70-130	3	30
Perfluorotetradecanoic acid	200	181.46	171.69	91	86	70-130	6	30
Perfluorohexanoic acid	200	208.47	214.01	104	107	70-130	3	30
Perfluoroheptanoic acid	200	184.47	174.02	92	87	70-130	6	30
Perfluorobutanesulfonate	176.8	205.19	198.72	116	112	70-130	3	30
Perfluorohexanesulfonate	189.2	159.21	142.98	84	76	70-130	11	30
Perfluoro-octanesulfonate	191.2	220.06	221.04	115	116	70-130	0	30

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP96
Matrix: SOLID

Fraction: PFAAs by LC/MS/MS

16180013 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	07/14/16	N.D. ✓	ng/g	0.30	0.60
Perfluorononanoic acid	07/14/16	N.D.	ng/g	0.20	0.40
Perfluorodecanoic acid	07/14/16	N.D.	ng/g	0.20	0.40
Perfluoroundecanoic acid	07/14/16	N.D.	ng/g	0.30	0.60
Perfluorododecanoic acid	07/14/16	N.D.	ng/g	0.40	0.80
Perfluorotridecanoic acid	07/14/16	N.D.	ng/g	0.60	1.2
Perfluorotetradecanoic acid	07/14/16	N.D.	ng/g	0.30	0.80
Perfluorohexanoic acid	07/14/16	N.D.	ng/g	0.20	0.40
Perfluoroheptanoic acid	07/14/16	N.D.	ng/g	0.30	0.60
Perfluorobutanesulfonate	07/14/16	N.D.	ng/g	0.50	1.6
Perfluorohexanesulfonate	07/14/16	N.D.	ng/g	0.50	1.6
Perfluoro-octanesulfonate	07/14/16	N.D.	ng/g	0.70	1.6

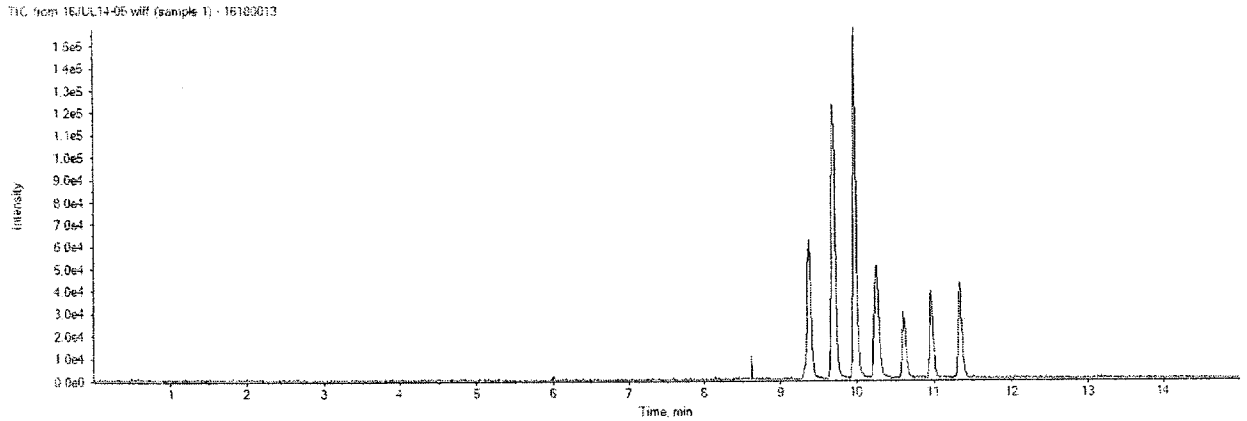
Sample Name:	16180013	**Data File:**		16JUL14-05.wiff
Sample ID:	BLK180013	**Acquis Date:**		7/14/2016 9:23:35 AM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	41	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16180013
Batch Number:	16180013	**Operator:**		US19INS07959\4000
Sample Wt.:	5.000	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

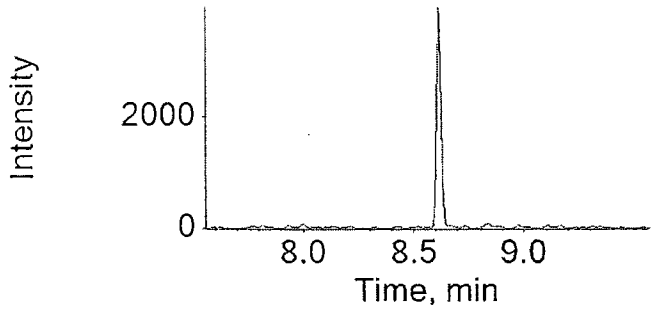
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	9.69	189951.9	N/A	N/A	
PFHxA	N/A	N/A	13C2-PFHxA	9.38	225528.2	N/A	N/A	
PFHpA	N/A	N/A	13C4-PFHpA	9.70	251499.5	N/A	N/A	
PFHxS	9.69	824.0	18O2-PFHxS	9.69	189951.9	0.004	0.300	
PFOA	10.39	2207.6	13C4-PFOA	9.98	434487.9	0.005	0.107	
PFNA	N/A	N/A	13C5-PFNA	10.27	112985.0	N/A	N/A	
PFOS	10.24	342.7	13C4-PFOS	10.24	99049.5	0.003	0.455	
PFDA	10.61	788.2	13C2-PFDA	10.61	94610.7	0.008	0.134	
PFUndA	10.98	522.9	13C2-PFUnDA	10.97	124036.2	0.004	0.029	
PFDoDA	N/A	N/A	13C2-PFDoDA	11.33	135815.1	N/A	N/A	
PFTrDA	N/A	N/A	13C2-PFDoDA	11.33	135815.1	N/A	N/A	
PFTeDA	N/A	N/A	13C2-PFDoDA	11.33	135815.1	N/A	N/A	

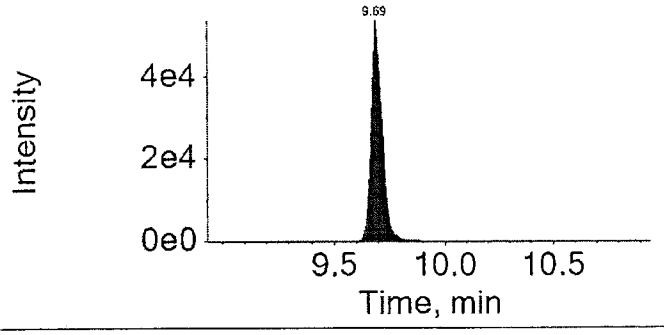
Total Ion Chromatogram

BLK180013

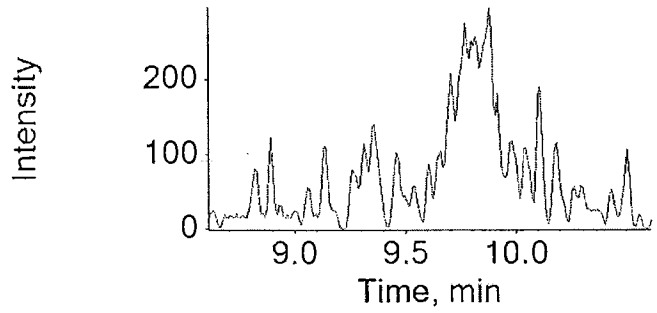


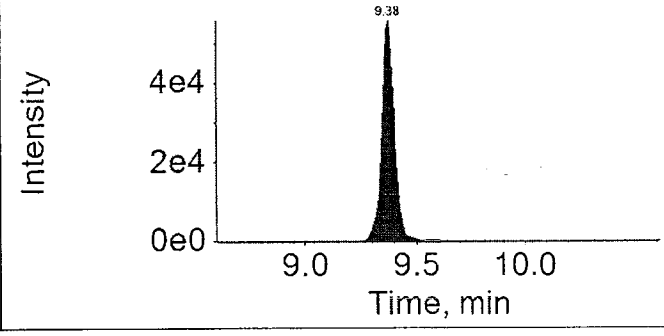
16JUL14-05.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



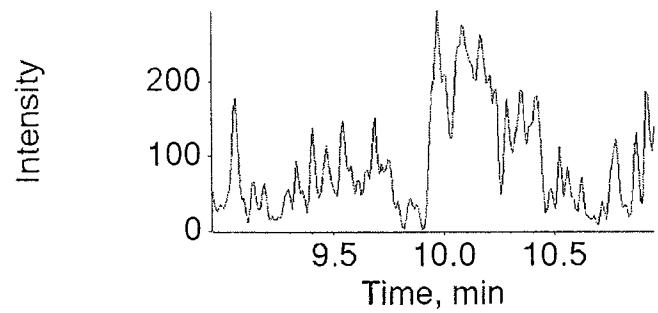


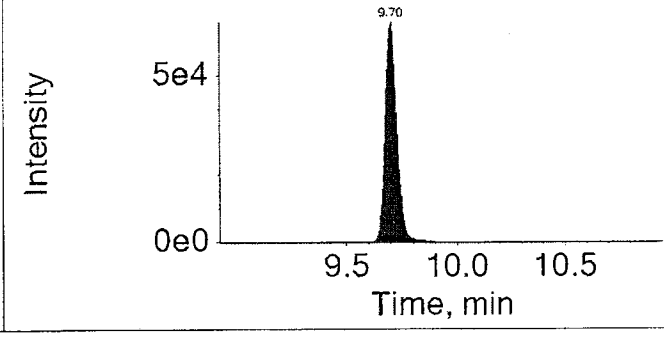
16JUL14-05.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



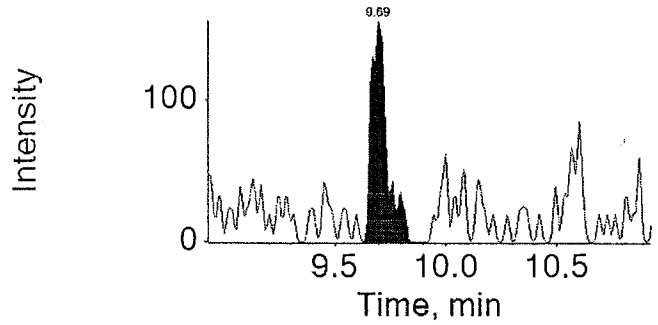


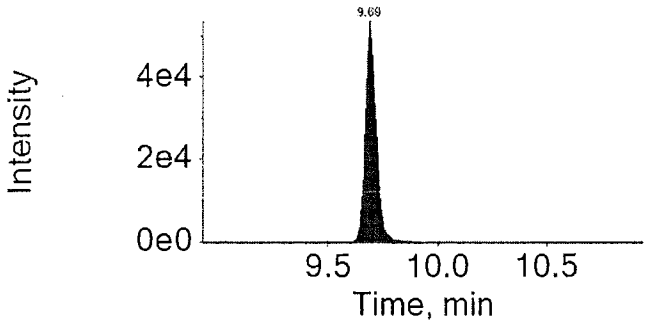
16JUL14-05.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



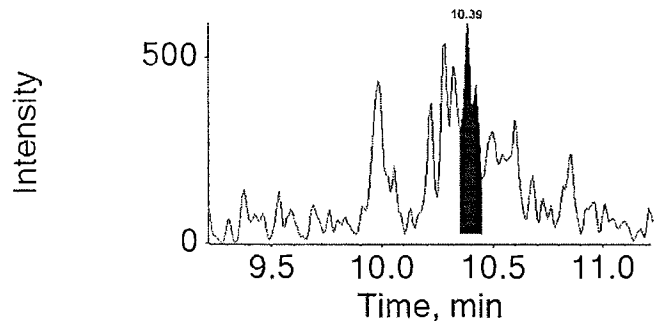


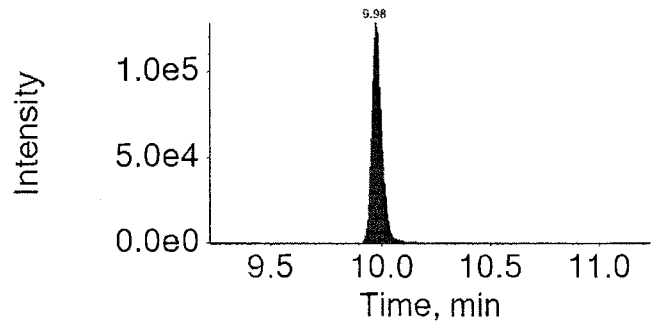
16JUL14-05.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



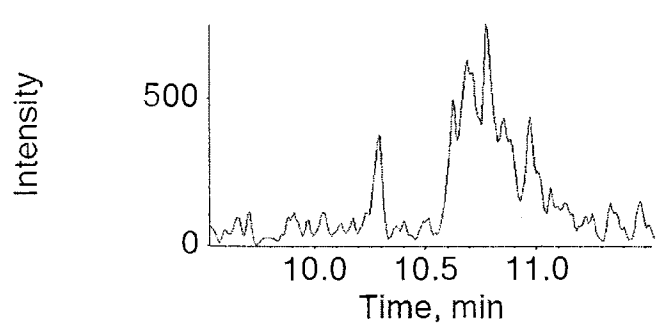


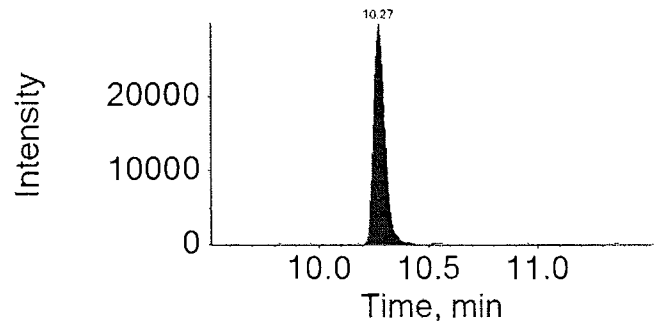
16JUL14-05.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



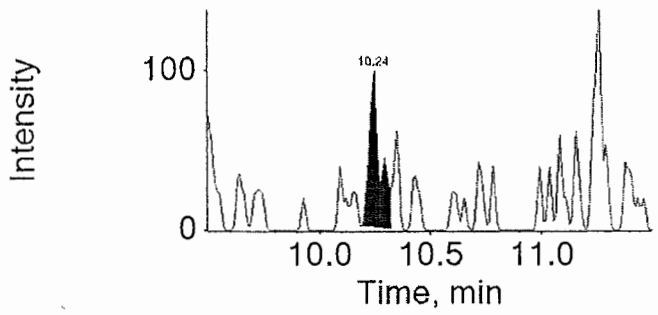


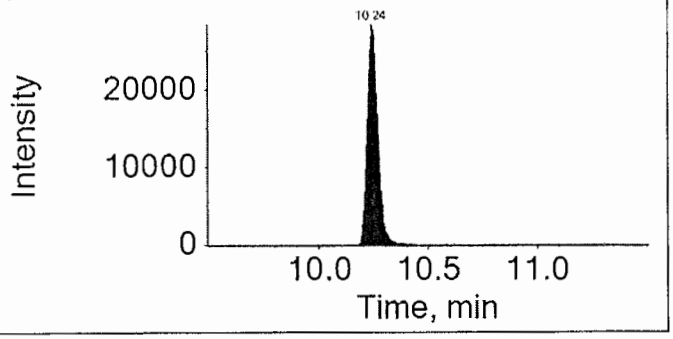
16JUL14-05.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



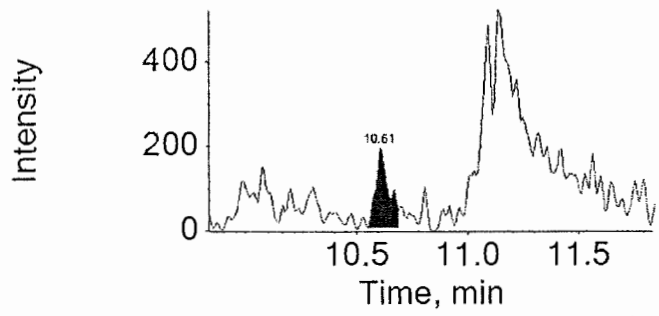


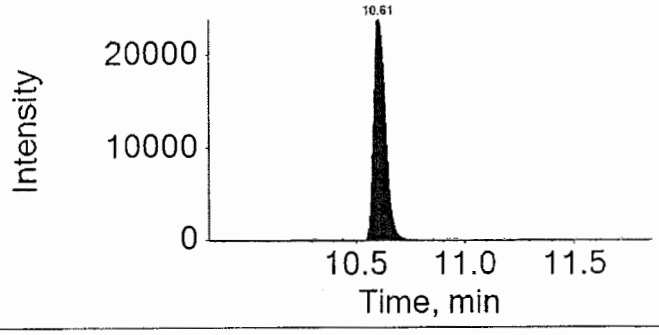
16JUL14-05.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



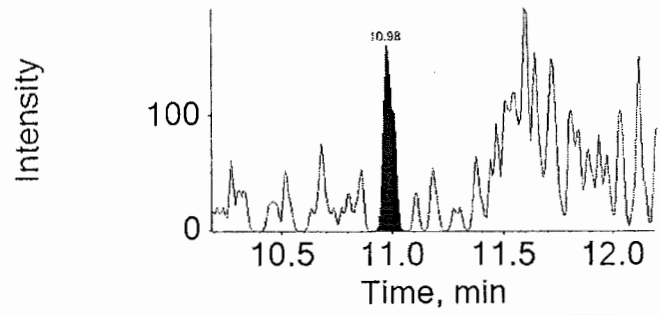


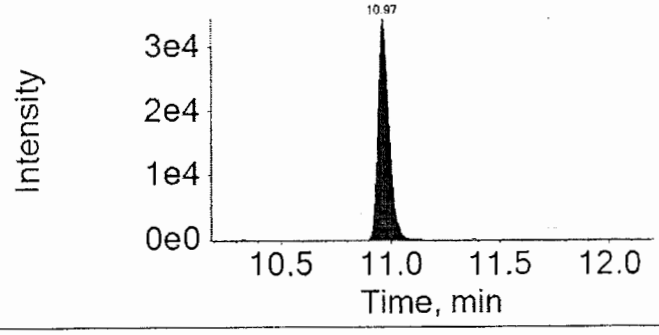
16JUL14-05.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



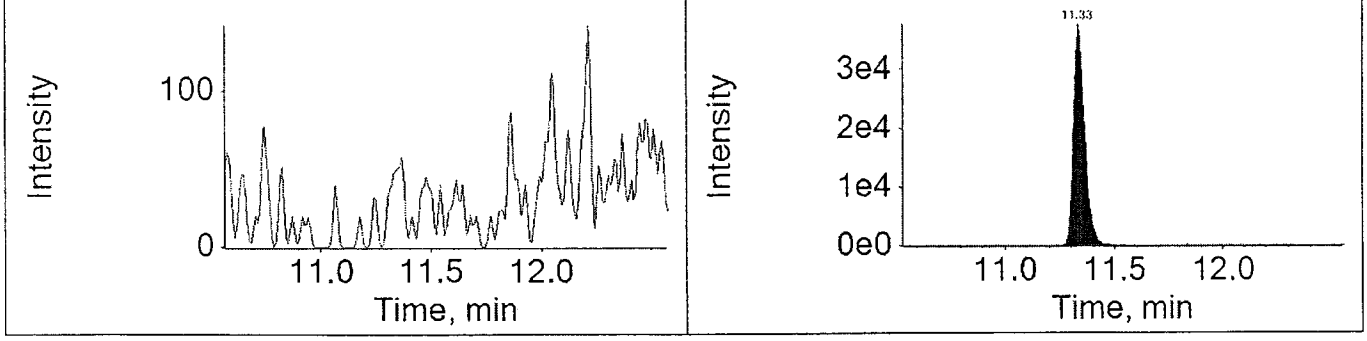


16JUL14-05.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

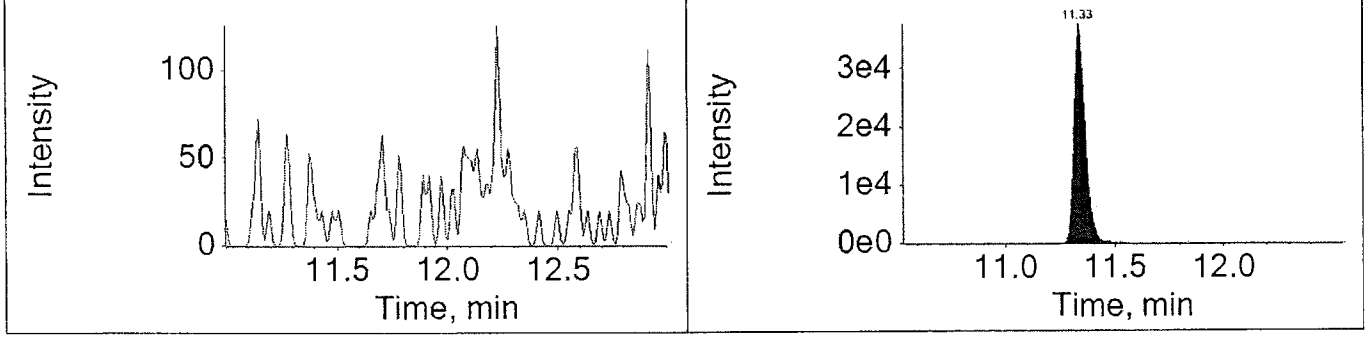




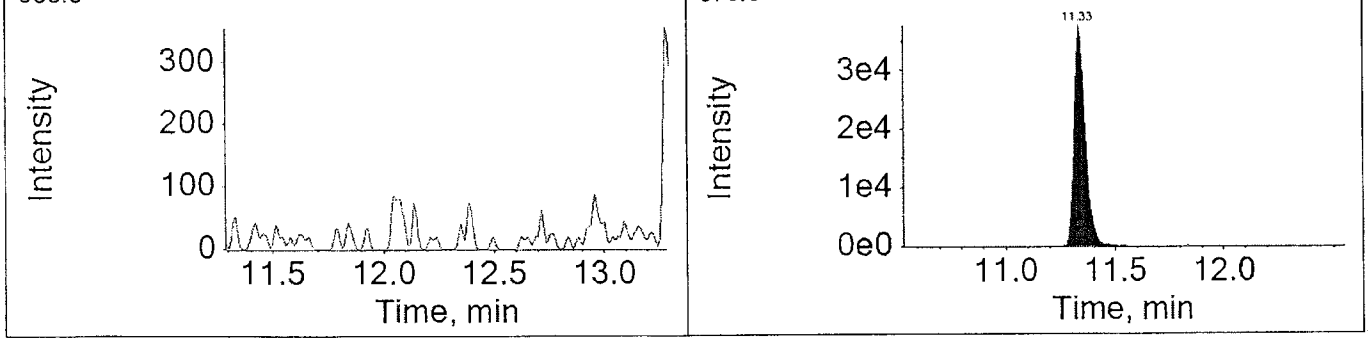
16JUL14-05.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



16JUL14-05.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0



16JUL14-05.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0



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Form 4
Method Blank Summary
LC/MS/MS

SDG: SPG96

Matrix: Soil
Water Sample Prep: Sonc
Sample vol: 5.00 grams
Instrument ID: 23282

Lab Sample ID: BKL180013
Lab File ID: 16JUL14-05
Date Analyzed: 07/14/2016 09:23

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
OPR180013	16JUL14-06	07/14/2016 09:42
8433354	16JUL14-07	07/14/2016 10:02
8433355MS	16JUL14-08	07/14/2016 10:21
8433356MSD	16JUL14-09	07/14/2016 10:41
8433353	16JUL14-20	07/14/2016 14:15
8433357	16JUL14-21	07/14/2016 14:35
8433358	16JUL14-22	07/14/2016 14:54
8433359	16JUL14-23	07/14/2016 15:13

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP96
Matrix: SOLID

Fraction: PFAAs by LC/MS/MS

16201005 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	07/22/16	N.D.	ng/g	0.30	0.60
Perfluorononanoic acid	07/22/16	N.D.	ng/g	0.20	0.40
Perfluorodecanoic acid	07/22/16	N.D.	ng/g	0.20	0.40
Perfluoroundecanoic acid	07/22/16	N.D.	ng/g	0.30	0.60
Perfluorododecanoic acid	07/22/16	N.D.	ng/g	0.40	0.80
Perfluorotridecanoic acid	07/22/16	N.D.	ng/g	0.60	1.2
Perfluorotetradecanoic acid	07/22/16	N.D.	ng/g	0.30	0.80
Perfluorohexanoic acid	07/22/16	N.D.	ng/g	0.20	0.40
Perfluoroheptanoic acid	07/22/16	N.D.	ng/g	0.30	0.60
Perfluorobutanesulfonate	07/22/16	N.D.	ng/g	0.50	1.6
Perfluorohexanesulfonate	07/22/16	N.D.	ng/g	0.50	1.6
Perfluoro-octanesulfonate	07/22/16	N.D.	ng/g	0.70	1.6

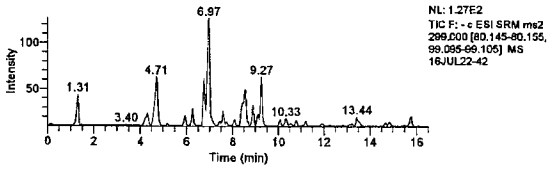
LCMSMS ANALYSIS REPORT

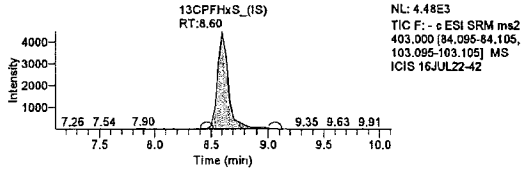
Sample Name:	MB 16201005	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	MB 16201005	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-42		M\HWell_16.5minutes
Acquisition Date:	07/22/16 08:11:04 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:1	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

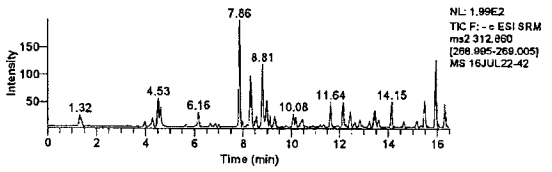
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.25	247730.37	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.93	221805.95	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.75	219569.72	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.14	159077.07	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.64	240537.50	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.32	110661.34	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.60	31101.44	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.22	16645.85	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	10.35	184357.67	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/g
PFDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/g
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/g
PFNA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOA	N/A	N/A	N/A	N/A	N/A	ng/g
PFOS	N/A	N/A	N/A	N/A	N/A	ng/g
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/g
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/g
PFhpA	0.080	8.64	729.28	240537.50	0.003	ng/g

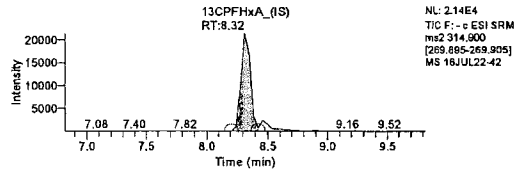
Component Name: PFBS





Component Name: PFHxA





Component Name: PFhpA

Jason W. Knight
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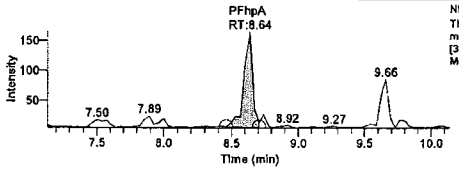
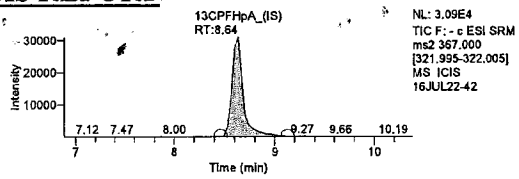
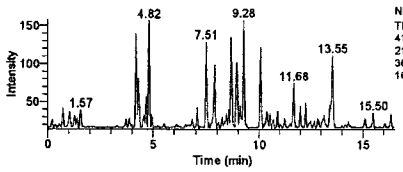
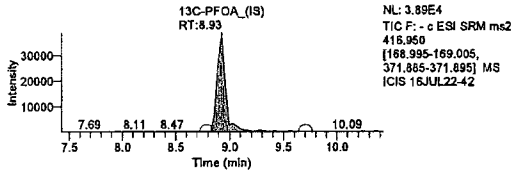
LCMSMS ANALYSIS REPORT



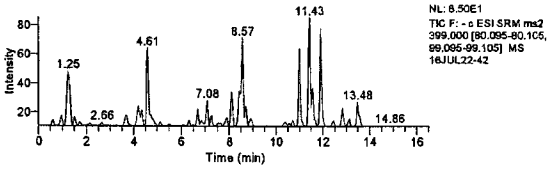


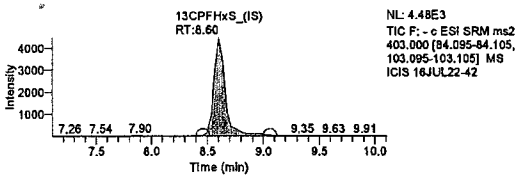
Component Name: PFOA



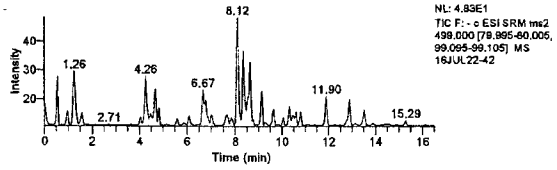


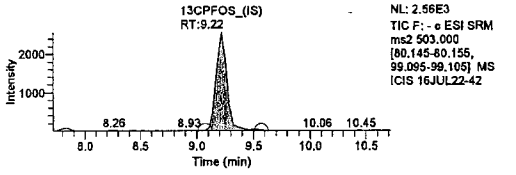
Component Name: PFHxS



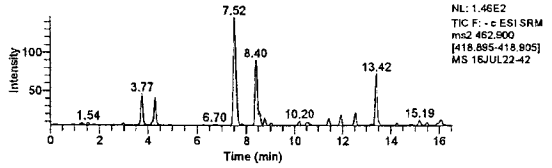


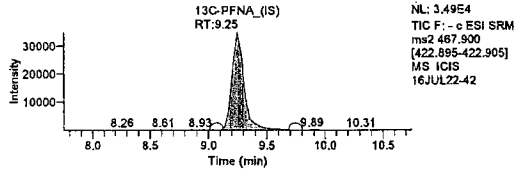
Component Name: PFOS



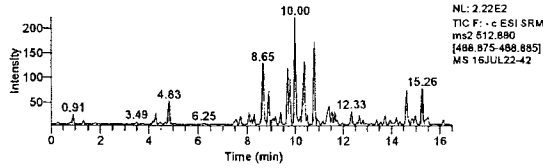


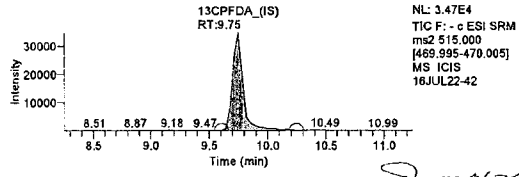
Component Name: PFNA





Component Name: PFDA





Jason W. Knight
Senior Chemist

Component Name: PFUdA

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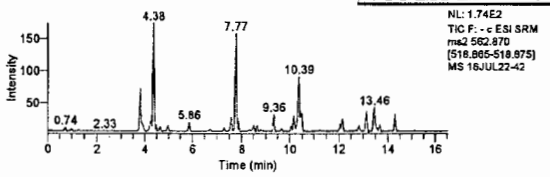
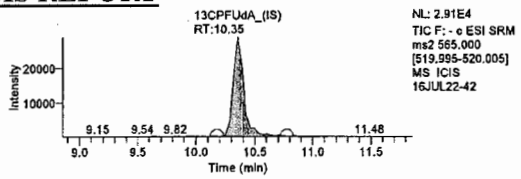
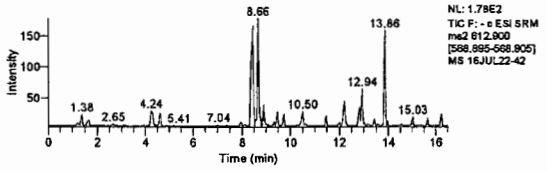
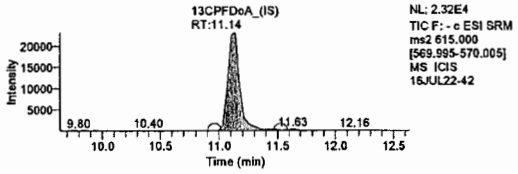


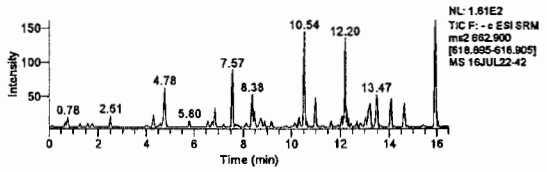


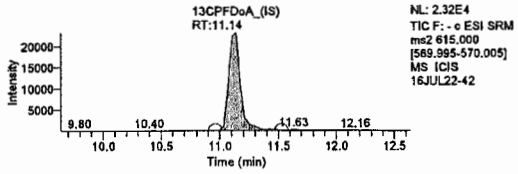
Component Name: PFDoA



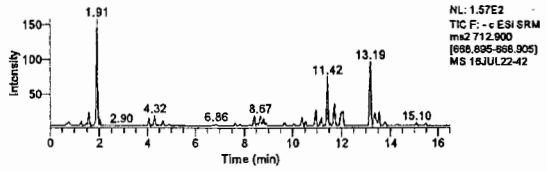


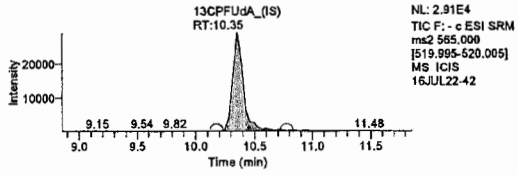
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd
JUL 25 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

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Form 4
Method Blank Summary
LC/MS/MS

SDG: SPG96

Matrix: Soil
Water Sample Prep: Sonc
Sample vol: 5.00 grams
Instrument ID: 18881

Lab Sample ID: MB16201005
Lab File ID: 16JUL22-42
Date Analyzed: 07/22/2016 08:11

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
LCS16201005	16JUL22-43	07/22/2016 20:28
8433353 RE	16JUL22-57	07/23/2016 00:29
8433357 RE	16JUL22-58	07/23/2016 00:46
8433358 RE	16JUL22-59	07/23/2016 01:04
8433359 RE	16JUL22-60	07/23/2016 01:21
8433354 RE	16JUL22-63	07/23/2016 02:13
8433355MS RE	16JUL22-64	07/23/2016 02:30
8433356MSD RE	16JUL22-65	07/23/2016 02:47

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP96
Matrix: LIQUID

Fraction: PFAAs by LC/MS/MS

16172001 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	06/29/16	N.D.	ng/l	1	2
Perfluorononanoic acid	06/29/16	N.D.	ng/l	1	2
Perfluorodecanoic acid	06/29/16	N.D.	ng/l	1	2
Perfluoroundecanoic acid	06/29/16	N.D.	ng/l	2	4
Perfluorododecanoic acid	06/29/16	N.D.	ng/l	3	5
Perfluorotridecanoic acid	06/29/16	N.D.	ng/l	2	4
Perfluorotetradecanoic acid	06/29/16	N.D.	ng/l	3	5
Perfluorohexanoic acid	06/29/16	N.D.	ng/l	1	2
Perfluoroheptanoic acid	06/29/16	N.D.	ng/l	1	2
Perfluorobutanesulfonate	06/29/16	N.D.	ng/l	4	10
Perfluorohexanesulfonate	06/29/16	N.D.	ng/l	4	10
Perfluoro-octanesulfonate	06/29/16	N.D.	ng/l	5	10

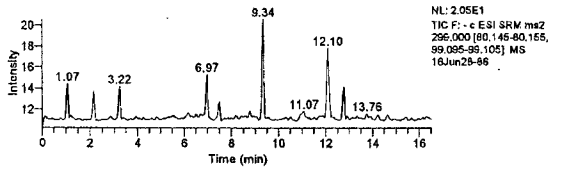
LCMSMS ANALYSIS REPORT

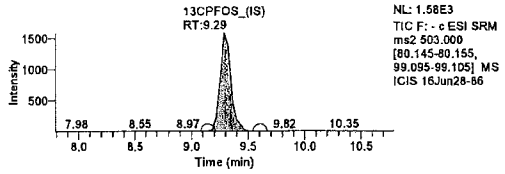
Sample Name:	MB 16172001	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	MB 16172001	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun28-86		
Acquisition Date:	06/29/16 08:00:26 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:1	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

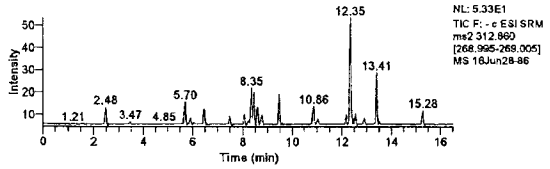
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.36	205967.12	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	147436.26	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.79	146407.23	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.39	115897.53	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	136036.49	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.39	102257.06	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.68	24867.93	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.29	10450.69	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.43	145103.23	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

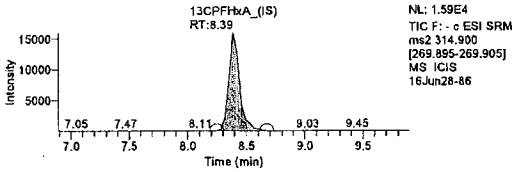
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHxS

JUN 30 2016

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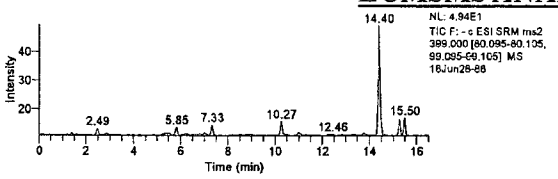

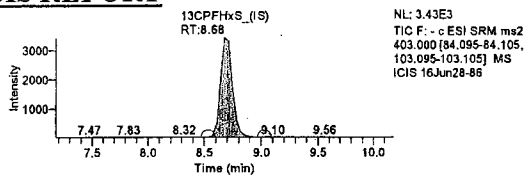

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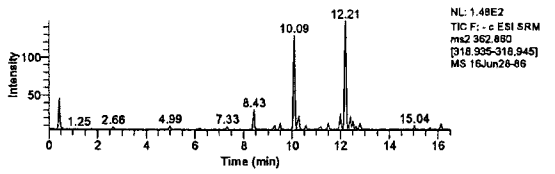
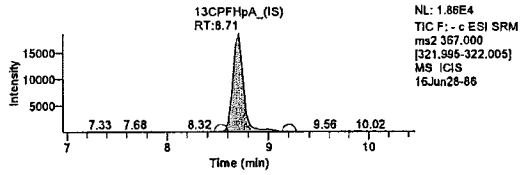
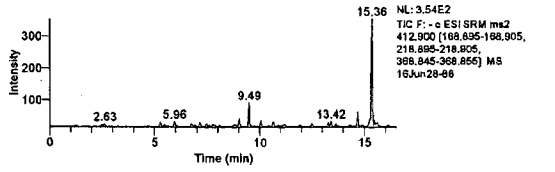
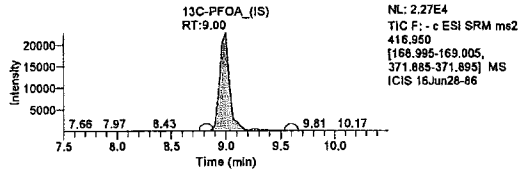


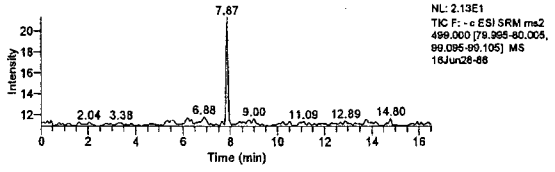


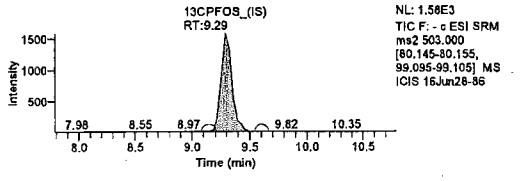
Component Name: PFOA



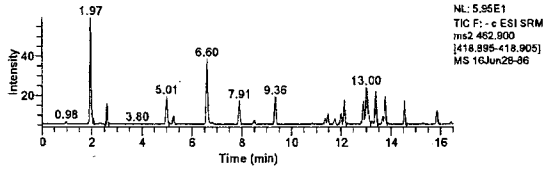


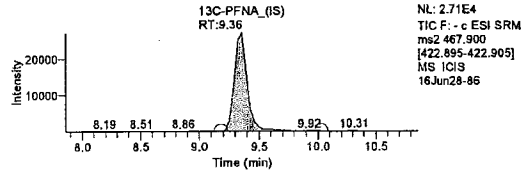
Component Name: PFOS



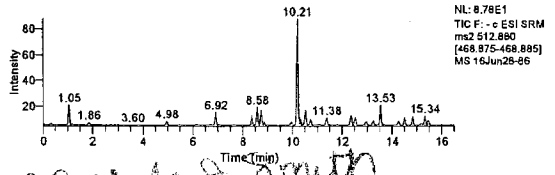


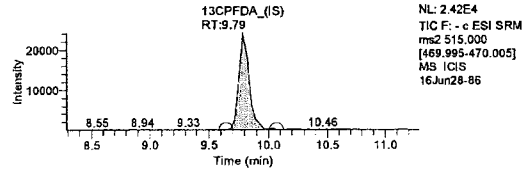
Component Name: PFNA





Component Name: PFDA





Component Name: PFUdA

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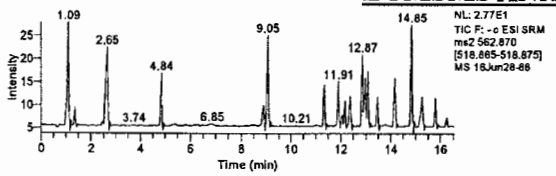
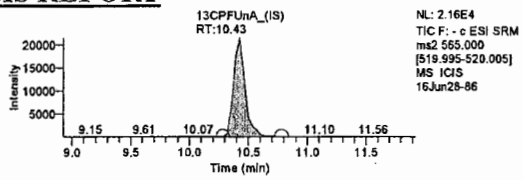
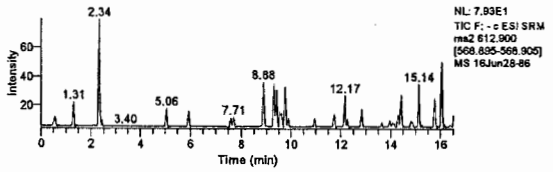
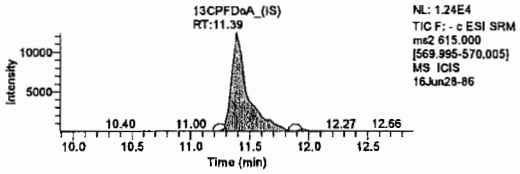


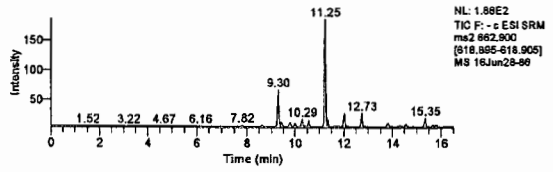


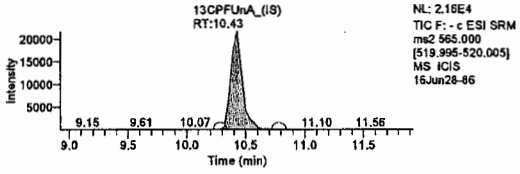
Component Name: PFDoA



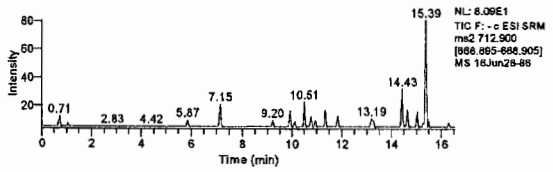


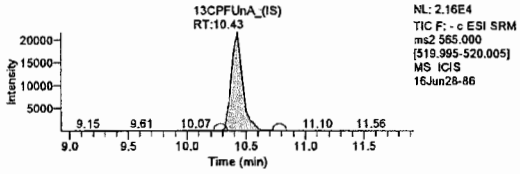
Component Name: PFTrDA





Component Name: PFTeDA





Michele J Smith

JUN 3 0 2016

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Form 4
Method Blank Summary
LC/MS/MS

SDG No.: SGP96

Matrix: WATER
Lab Sample ID: MB16172001

Water Sample Prep: SPE
Lab File ID: 16Jun28-86

Sample vol: 100.00 mL

Instrument ID: 18881
Date Analyzed: 06/29/2016 08:00

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
LCS16172001	16JUN28-61	06/29/2016 00:49
LCSD16172001	16JUN28-62	06/29/2016 01:06
8433348	16JUN28-76	06/29/2016 05:07
8433349	16JUN28-77	06/29/2016 05:25
8433350	16JUN28-78	06/29/2016 05:42
8433351	16JUN28-79	06/29/2016 05:59
8433352	16JUN28-82	06/29/2016 06:51

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LOQ/MDL Summary
Specialty Services Group

SDG: SGP96

Fraction: PFAAs by LC/MS/MS

10954: Full List PFC's Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	1	2	ng/l
Perfluorononanoic acid	1	2	ng/l
Perfluorodecanoic acid	1	2	ng/l
Perfluoroundecanoic acid	2	4	ng/l
Perfluorododecanoic acid	3	5	ng/l
Perfluorotridecanoic acid	2	4	ng/l
Perfluorotetradecanoic acid	3	5	ng/l
Perfluorohexanoic acid	1	2	ng/l
Perfluoroheptanoic acid	1	2	ng/l
Perfluorobutanesulfonate	4	10	ng/l
Perfluorohexanesulfonate	4	10	ng/l
Perfluoro-octanesulfonate	5	10	ng/l

14027: Full List PFC's Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.30	0.60	ng/g
Perfluorononanoic acid	0.20	0.40	ng/g
Perfluorodecanoic acid	0.20	0.40	ng/g
Perfluoroundecanoic acid	0.30	0.60	ng/g
Perfluorododecanoic acid	0.40	0.80	ng/g
Perfluorotridecanoic acid	0.60	1.2	ng/g
Perfluorotetradecanoic acid	0.30	0.80	ng/g
Perfluorohexanoic acid	0.20	0.40	ng/g
Perfluoroheptanoic acid	0.30	0.60	ng/g
Perfluorobutanesulfonate	0.50	1.6	ng/g
Perfluorohexanesulfonate	0.50	1.6	ng/g
Perfluoro-octanesulfonate	0.70	1.6	ng/g

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LC-MS/MS Sequence Report

Printed: 07/15/2016 10:04:00 AM

Instrument	Acquisition Date	File Name	Sample ID	Vial Position	Samp Wt	Samp Vol	DF
API 4000	7/13/2016 4:36:17 PM	16JUL12t3CAL-04.wiff	MDL	2	1.00	1.00	1.00
API 4000	7/13/2016 4:55:25 PM	16JUL12t3CAL-05.wiff	CAL1	3	1.00	1.00	1.00
API 4000	7/13/2016 5:14:54 PM	16JUL12t3CAL-06.wiff	CAL2	4	1.00	1.00	1.00
API 4000	7/13/2016 5:34:17 PM	16JUL12t3CAL-07.wiff	CAL3	5	1.00	1.00	1.00
API 4000	7/13/2016 5:53:37 PM	16JUL12t3CAL-08.wiff	CAL4	6	1.00	1.00	1.00
API 4000	7/13/2016 6:12:52 PM	16JUL12t3CAL-09.wiff	CAL5	7	1.00	1.00	1.00
API 4000	7/13/2016 6:32:14 PM	16JUL12t3CAL-10.wiff	CAL6	8	1.00	1.00	1.00
API 4000	7/13/2016 6:51:37 PM	16JUL12t3CAL-11.wiff	solvent	1	1.00	1.00	1.00
API 4000	7/13/2016 7:10:57 PM	16JUL12t3CAL-12.wiff	ICV1	9	1.00	1.00	1.00
API 4000	7/13/2016 7:30:26 PM	16JUL12t3CAL-13.wiff	CCV1	5	1.00	1.00	1.00
API 4000	7/14/2016 9:04:14 AM	16JUL14-04.wiff	CCV1	5	1.00	1.00	1.00
API 4000	7/14/2016 9:23:35 AM	16JUL14-05.wiff	BLK180013	41	5.00	1.00	1.00
API 4000	7/14/2016 9:42:59 AM	16JUL14-06.wiff	OPR180013	42	5.00	1.00	1.00
API 4000	7/14/2016 10:02:10 AM	16JUL14-07.wiff	8433354BKG	43	5.47	1.00	1.00
API 4000	7/14/2016 10:21:38 AM	16JUL14-08.wiff	8433355MS	44	5.17	1.00	1.00
API 4000	7/14/2016 10:41:01 AM	16JUL14-09.wiff	8433356MSD	45	5.19	1.00	1.00
API 4000	7/14/2016 11:00:23 AM	16JUL14-10.wiff	8420528	46	5.23	1.00	1.00
API 4000	7/14/2016 11:19:30 AM	16JUL14-11.wiff	8421800	47	5.23	1.00	1.00
API 4000	7/14/2016 11:38:41 AM	16JUL14-12.wiff	8421801	48	5.23	1.00	1.00
API 4000	7/14/2016 11:57:52 AM	16JUL14-13.wiff	8421802	49	5.13	1.00	1.00
API 4000	7/14/2016 12:17:03 PM	16JUL14-14.wiff	8421803	50	5.02	1.00	1.00
API 4000	7/14/2016 12:36:16 PM	16JUL14-15.wiff	CCV2	6	1.00	1.00	1.00
API 4000	7/14/2016 12:55:35 PM	16JUL14-16.wiff	8421804	51	5.12	1.00	1.00
API 4000	7/14/2016 1:14:50 PM	16JUL14-17.wiff	8421805	52	5.05	1.00	1.00
API 4000	7/14/2016 1:34:04 PM	16JUL14-18.wiff	8421806	53	5.43	1.00	1.00
API 4000	7/14/2016 1:56:13 PM	16JUL14-19.wiff	8421807	54	5.12	1.00	1.00
API 4000	7/14/2016 2:15:39 PM	16JUL14-20.wiff	8433353	55	5.37	1.00	1.00
API 4000	7/14/2016 2:35:01 PM	16JUL14-21.wiff	8433357	56	5.32	1.00	1.00
API 4000	7/14/2016 2:54:22 PM	16JUL14-22.wiff	8433358	57	5.23	1.00	1.00
API 4000	7/14/2016 3:13:35 PM	16JUL14-23.wiff	8433359	58	5.36	1.00	1.00
API 4000	7/14/2016 3:32:58 PM	16JUL14-24.wiff	CCV3	7	1.00	1.00	1.00

MCD 7824
7/25/16

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LC-MS/MS Analysis Report

Printed: 7/15/2016 8:13:00 AM

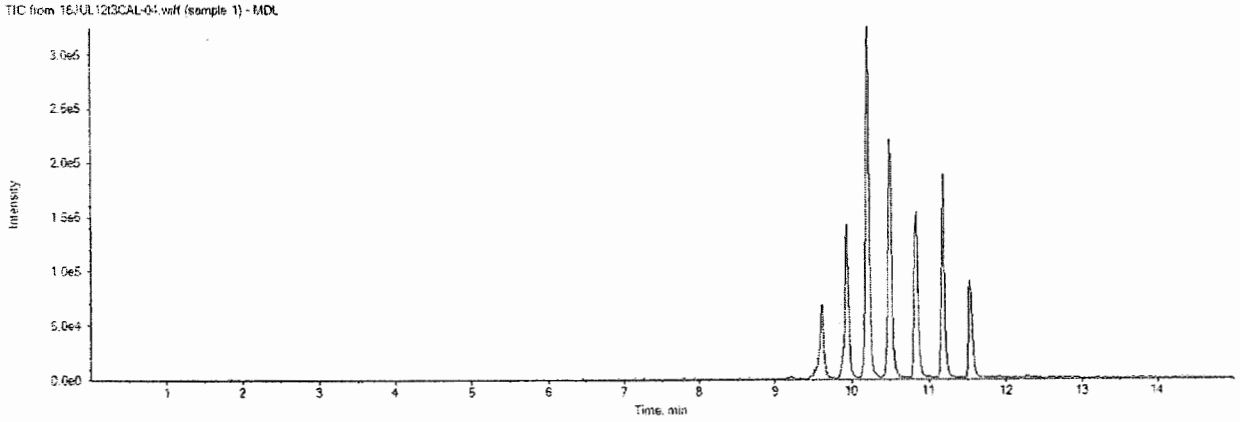
Sample Name:	MDL	**Data File:**		16JUL12t3CAL-04.wiff
Sample ID:	MDL	**Acquis Date:**		7/13/2016 4:36:17 PM
Sample Type:	Unknown	**Instrument:**		API 4000
Vial Position:	2	**Acquis Method:**		PFC 16JUL08.dam
Injection Volume:	10.00	**Result Table:**		MQ 16180013
Batch Number:	16180013	**Operator:**		US19INS07959\4000
Sample Wt.:	1.000	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		1.000

Quantitation Peak Table

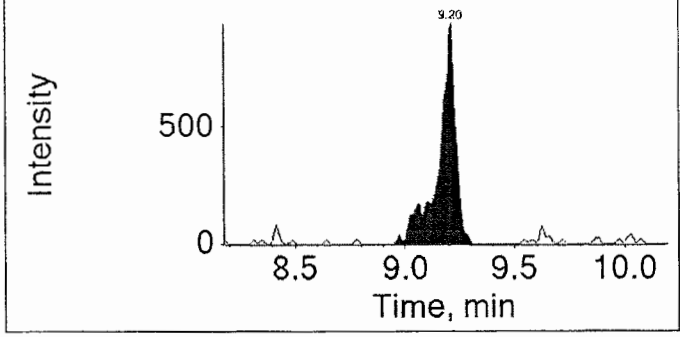
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	9.20	5284.7	18O2-PFHxS	9.92	156685.7	0.034	0.689	
PFHxA	9.62	2871.2	13C2-PFHxA	9.61	260046.6	0.011	0.018	
PFHpA	9.94	4824.0	13C4-PFHpA	9.93	350741.0	0.014	0.031	
PFHxS	9.93	7045.0	18O2-PFHxS	9.92	156685.7	0.045	0.084	
PFOA	10.21	9771.2	13C4-PFOA	10.21	1070250.8	0.009	0.021	
PFNA	10.50	15560.3	13C5-PFNA	10.50	669053.7	0.023	0.024	
PFOS	10.47	4733.3	13C4-PFOS	10.47	75648.6	0.063	0.101	
PFDA	10.83	10704.3	13C2-PFDA	10.83	532012.8	0.020	0.026	
PFUndA	11.18	5779.6	13C2-PFUnDA	11.18	512175.3	0.011	0.015	
PFDoDA	11.54	6114.5	13C2-PFDoDA	11.54	304814.5	0.020	0.028	
PFTrDA	11.91	3743.1	13C2-PFDoDA	11.54	304814.5	0.012	0.029	
PFTeDA	12.27	4595.9	13C2-PFDoDA	11.54	304814.5	0.015	0.025	

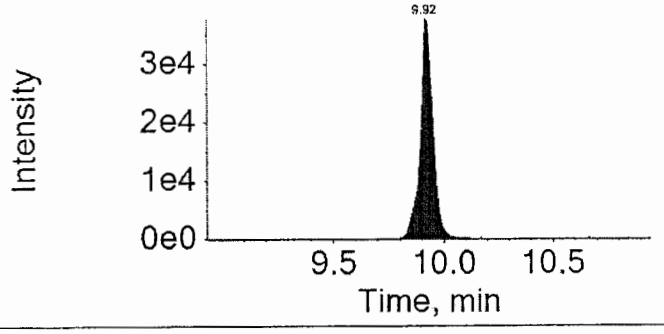
Total Ion Chromatogram

MDL

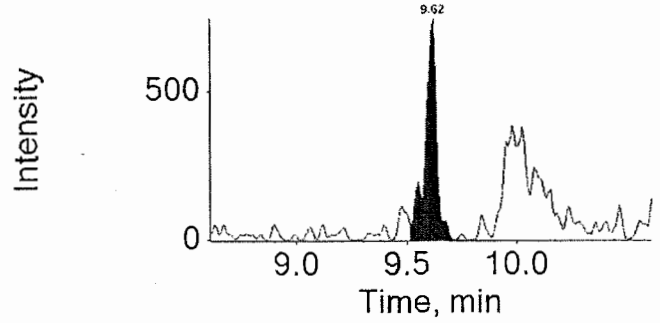


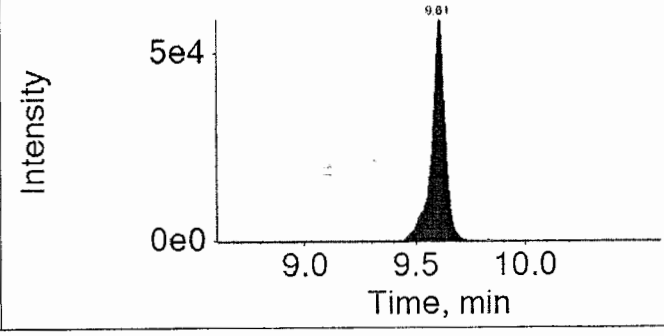
16JUL12t3CAL-04.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



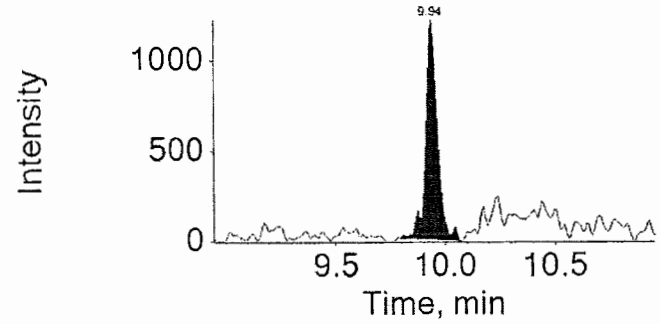


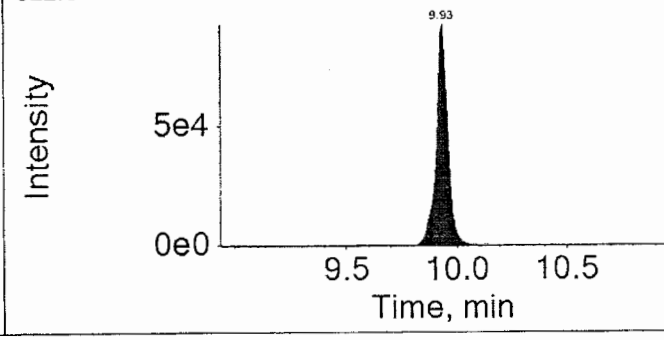
16JUL12t3CAL-04.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



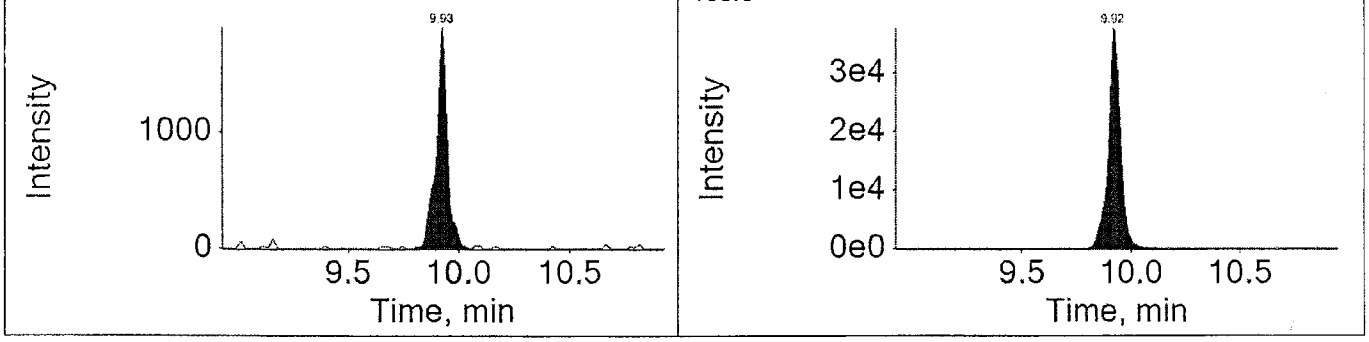


16JUL12t3CAL-04.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

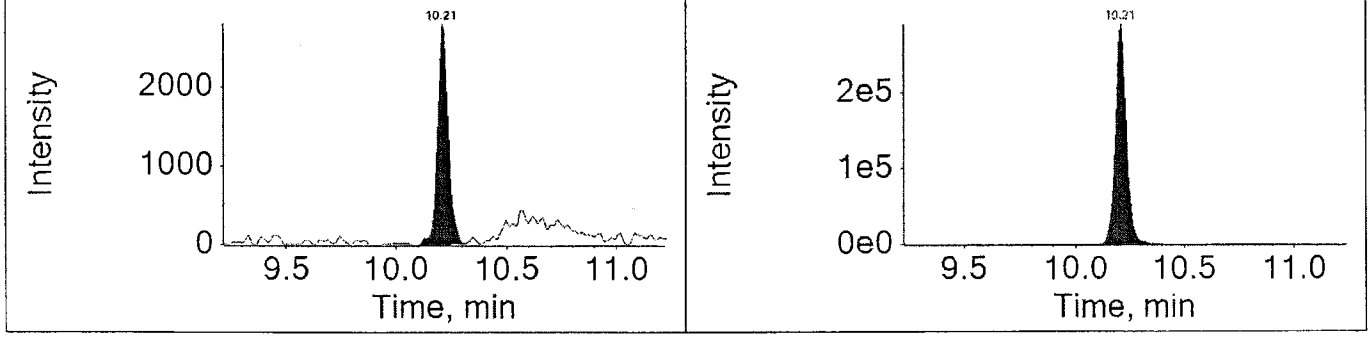




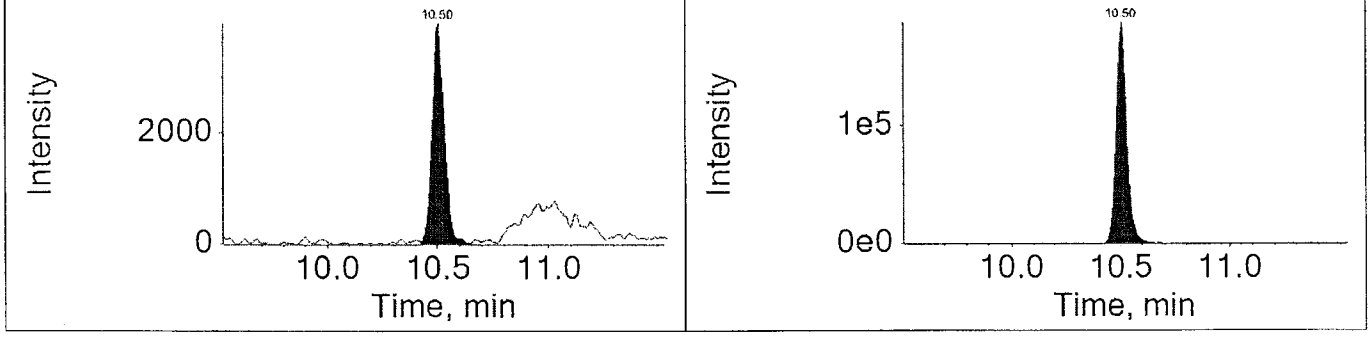
16JUL12t3CAL-04.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



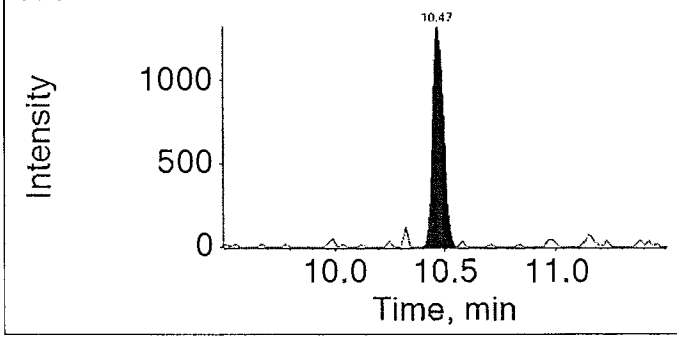
16JUL12t3CAL-04.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0

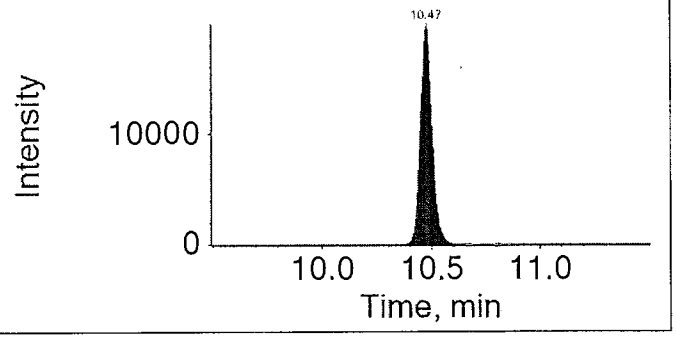


16JUL12t3CAL-04.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0

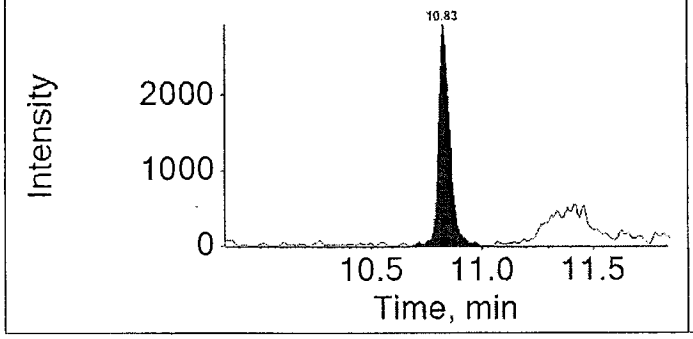


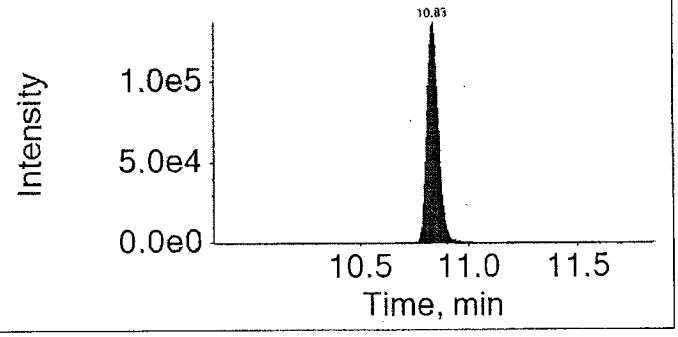
16JUL12t3CAL-04.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



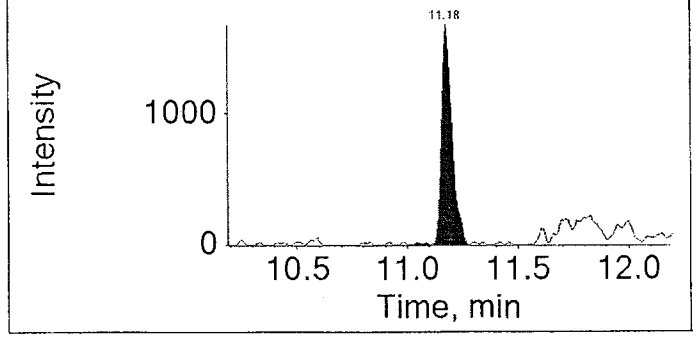


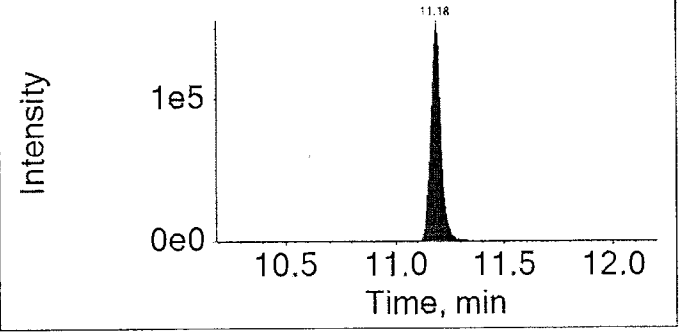
16JUL12t3CAL-04.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



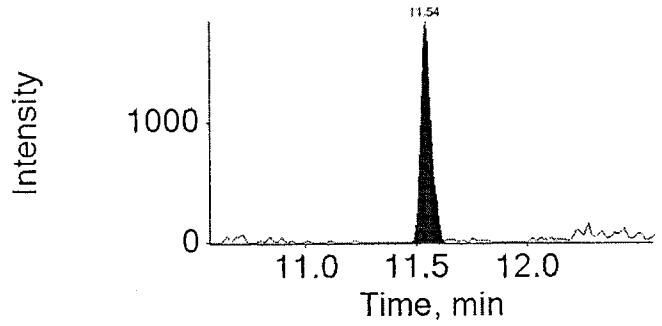


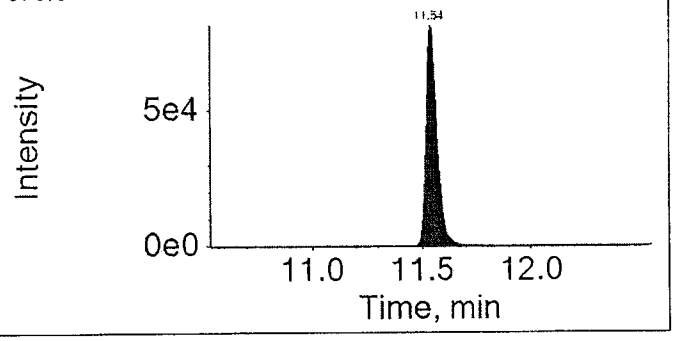
16JUL12t3CAL-04.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



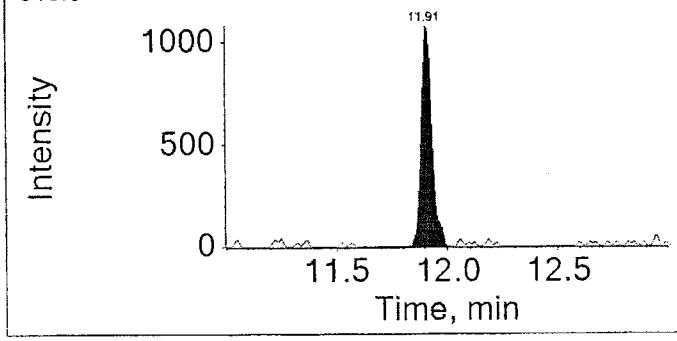


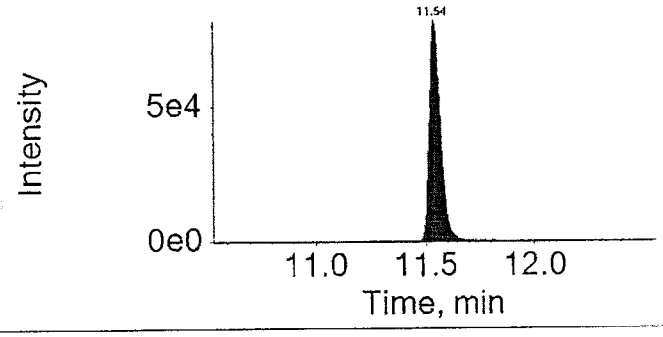
16JUL12t3CAL-04.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



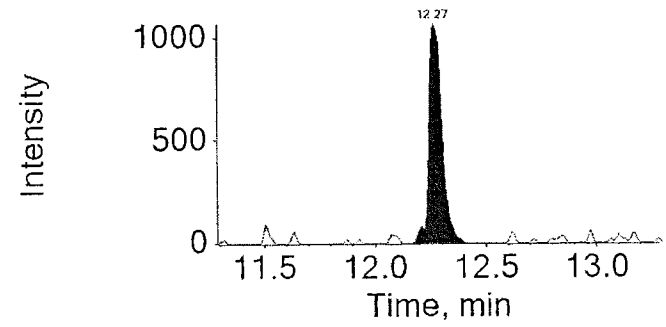


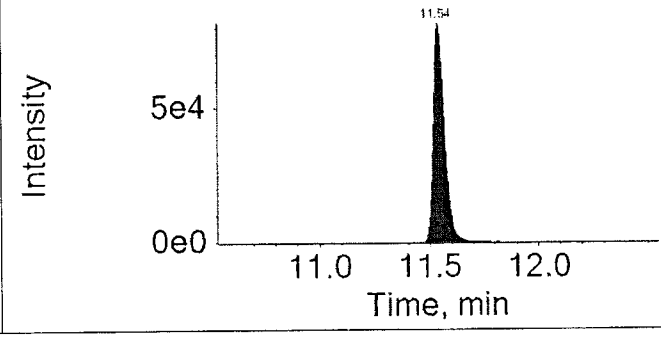
16JUL12t3CAL-04.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





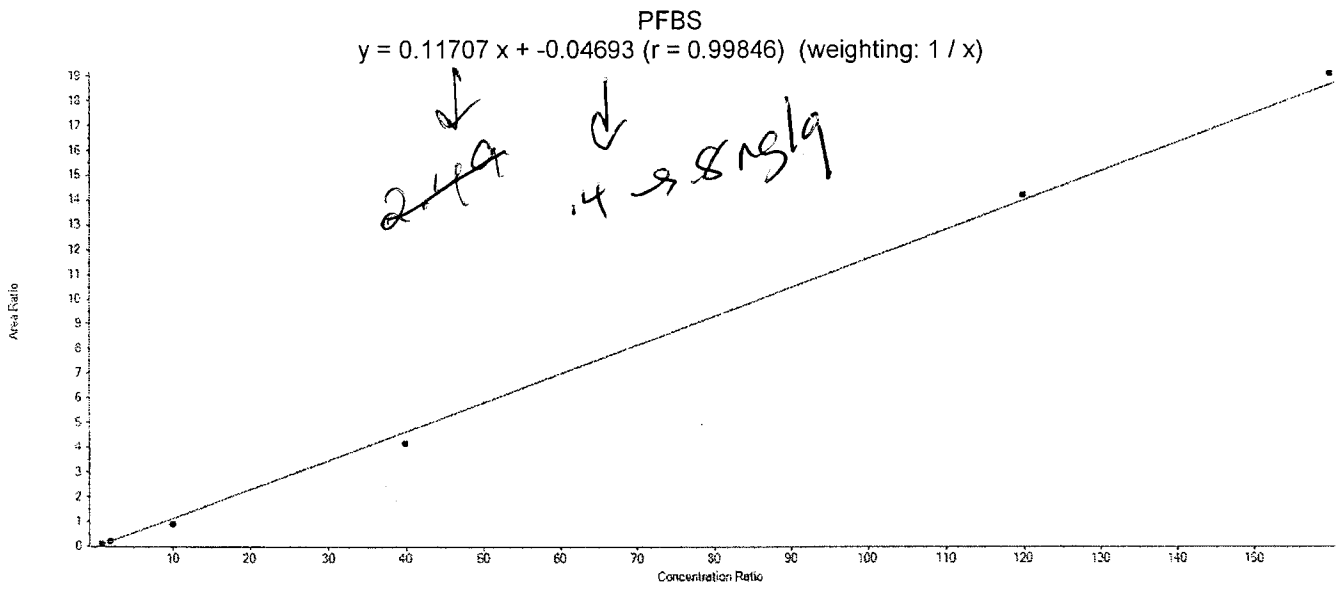
16JUL12t3CAL-04.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Initial Calibration

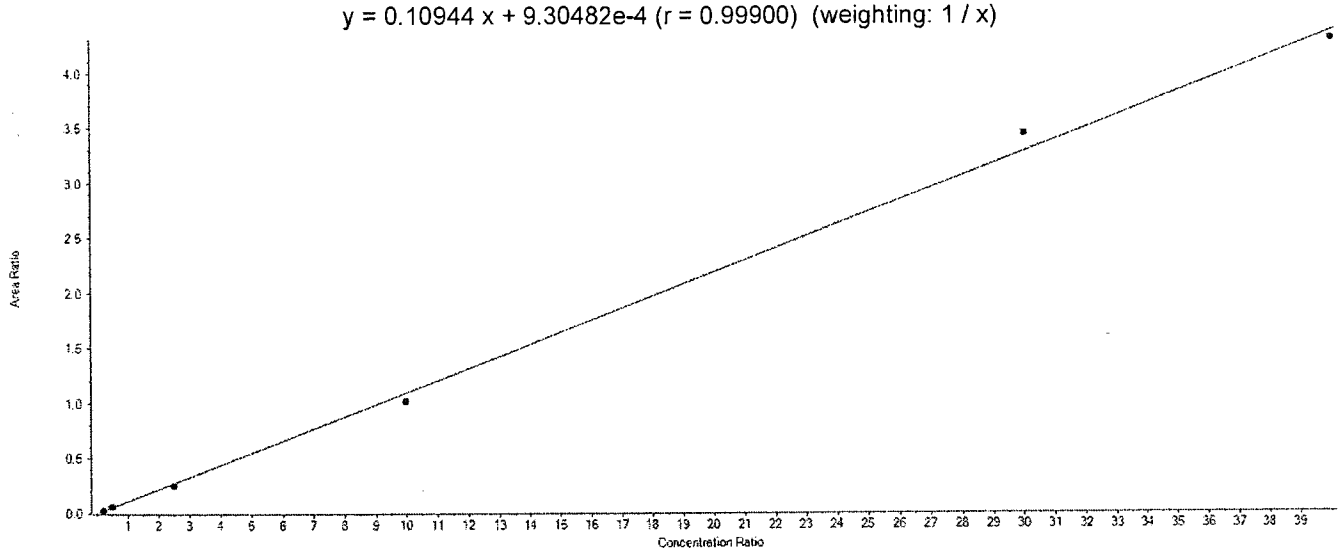
Results Table Name: MQ 16180013 7/15/2016 8:05:54 AM



Calibration Verification

File Name	Sample Name	PFBS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	11918.0	162517.3	1.00	0.073	8.99	0.800	1.030	28.75
16JUL12t3CAL-06.wiff	CAL2	29259.0	163371.9	1.00	0.179	9.04	2.000	1.930	-3.5
16JUL12t3CAL-07.wiff	CAL3	129668.5	144043.1	1.00	0.900	8.99	9.990	8.090	-19.02
16JUL12t3CAL-08.wiff	CAL4	612631.3	147502.7	1.00	4.153	8.95	39.960	35.880	-10.21
16JUL12t3CAL-09.wiff	CAL5	1914291.6	134663.1	1.00	14.220	9.11	119.870	121.820	1.63
16JUL12t3CAL-10.wiff	CAL6	2364637.9	123690.1	1.00	19.120	9.02	159.830	163.690	2.42

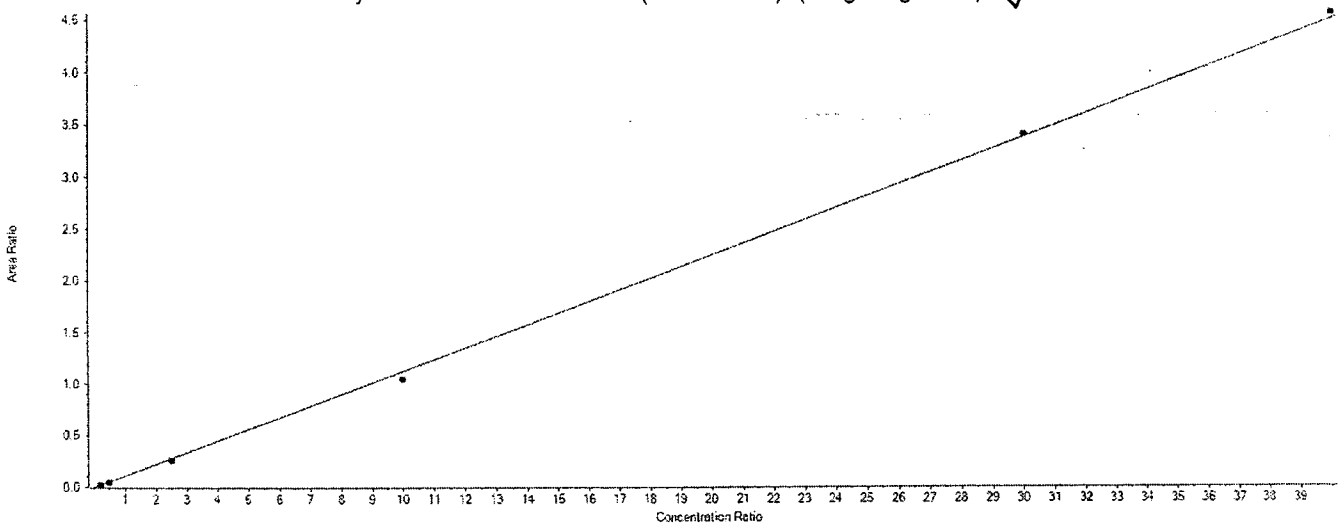
PFHxA
y = 0.10944 x + 9.30482e-4 (r = 0.99900) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHxA Area	13C2-PFHxA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	6486.9	273080.3	1.00	0.024	9.38	0.200	0.210	5
16JUL12t3CAL-06.wiff	CAL2	15564.8	258933.6	1.00	0.060	9.44	0.500	0.540	8
16JUL12t3CAL-07.wiff	CAL3	58810.2	234580.9	1.00	0.251	9.40	2.500	2.280	-8.8
16JUL12t3CAL-08.wiff	CAL4	252230.6	248064.9	1.00	1.017	9.39	10.000	9.280	-7.2
16JUL12t3CAL-09.wiff	CAL5	860450.4	249574.3	1.00	3.448	9.50	30.000	31.490	4.97
16JUL12t3CAL-10.wiff	CAL6	1030940.1	239084.6	1.00	4.312	9.46	40.000	39.390	-1.52

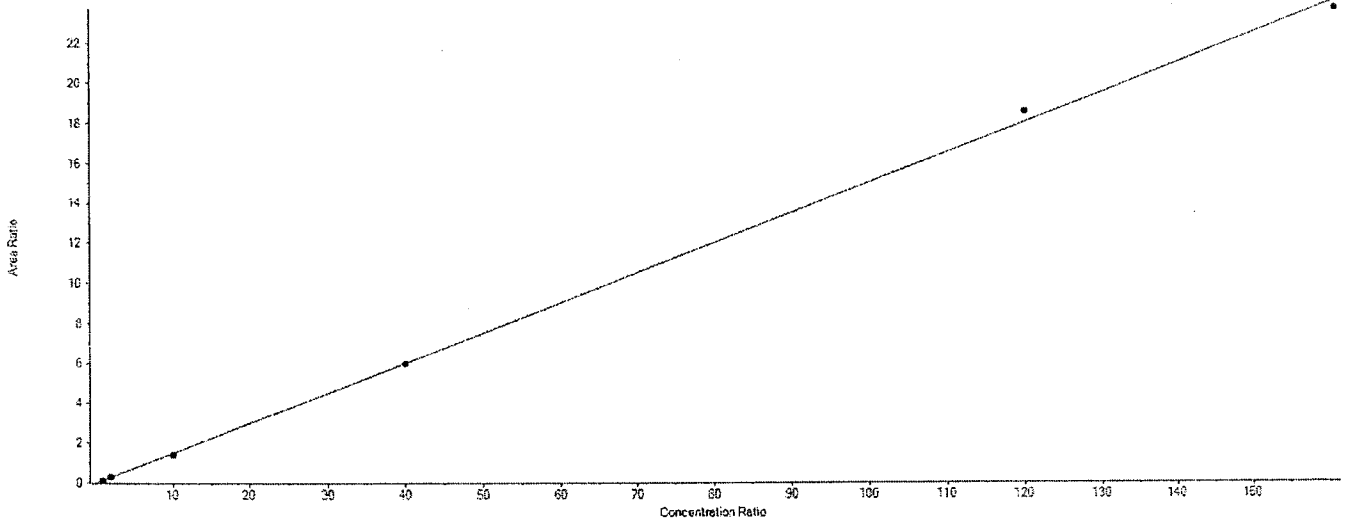
PFHpA
y = 0.11268 x + -0.00373 (r = 0.99957) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHpA Area	13C4-PFHpA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	7911.0	345755.3	1.00	0.023	9.70	0.200	0.240	20
16JUL12t3CAL-06.wiff	CAL2	16993.1	351911.2	1.00	0.048	9.76	0.500	0.460	-8
16JUL12t3CAL-07.wiff	CAL3	77522.1	298062.6	1.00	0.260	9.73	2.500	2.340	-6.4
16JUL12t3CAL-08.wiff	CAL4	330270.1	313580.0	1.00	1.053	9.74	10.000	9.380	-6.2
16JUL12t3CAL-09.wiff	CAL5	964620.3	283275.7	1.00	3.405	9.83	30.000	30.250	0.83
16JUL12t3CAL-10.wiff	CAL6	1143753.2	250671.8	1.00	4.563	9.80	40.000	40.530	1.33

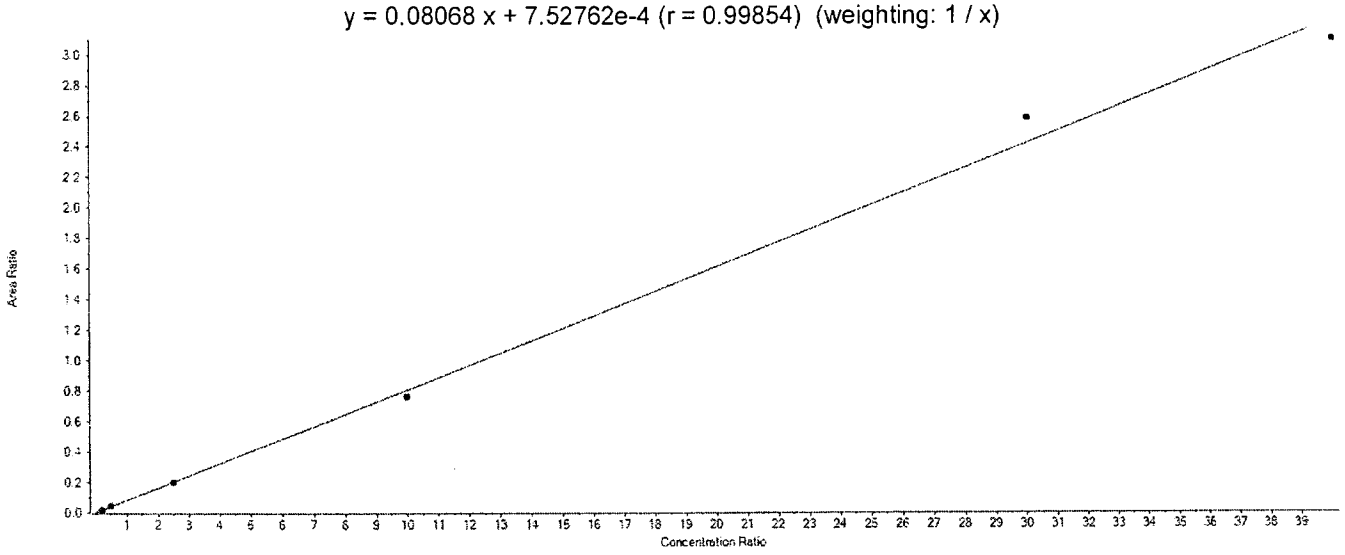
PFHxS
y = 0.15049 x + -0.01827 (r = 0.99970) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHxS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	17890.7	162517.3	1.00	0.110	9.69	0.800	0.850	6.25
16JUL12t3CAL-06.wiff	CAL2	45824.0	163371.9	1.00	0.281	9.75	2.010	1.990	-1
16JUL12t3CAL-07.wiff	CAL3	201157.6	144043.1	1.00	1.397	9.72	10.000	9.400	-6
16JUL12t3CAL-08.wiff	CAL4	879531.2	147502.7	1.00	5.963	9.73	40.020	39.740	-0.7
16JUL12t3CAL-09.wiff	CAL5	2501450.9	134663.1	1.00	18.580	9.82	120.050	123.550	2.92
16JUL12t3CAL-10.wiff	CAL6	2938265.6	123690.1	1.00	23.760	9.79	160.630	157.970	-1.66

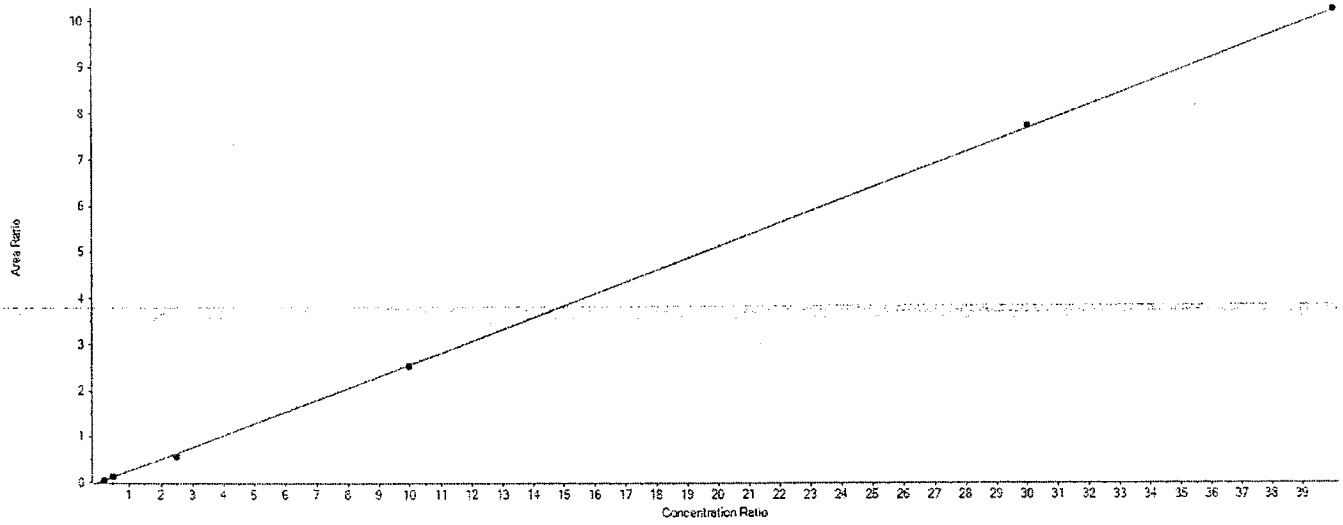
PFOA
y = 0.08068 x + 7.52762e-4 (r = 0.99854) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFOA Area	13C4-PFOA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	18495.1	1080832.7	1.00	0.017	9.98	0.200	0.200	0
16JUL12t3CAL-06.wiff	CAL2	41526.4	1003761.8	1.00	0.041	10.04	0.500	0.500	0
16JUL12t3CAL-07.wiff	CAL3	188575.7	928852.2	1.00	0.203	10.01	2.500	2.510	0.4
16JUL12t3CAL-08.wiff	CAL4	789398.2	1033323.7	1.00	0.764	10.02	10.000	9.460	-5.4
16JUL12t3CAL-09.wiff	CAL5	2514129.2	971724.2	1.00	2.587	10.10	30.000	32.060	6.87
16JUL12t3CAL-10.wiff	CAL6	3064489.7	987254.0	1.00	3.104	10.08	40.000	38.470	-3.83

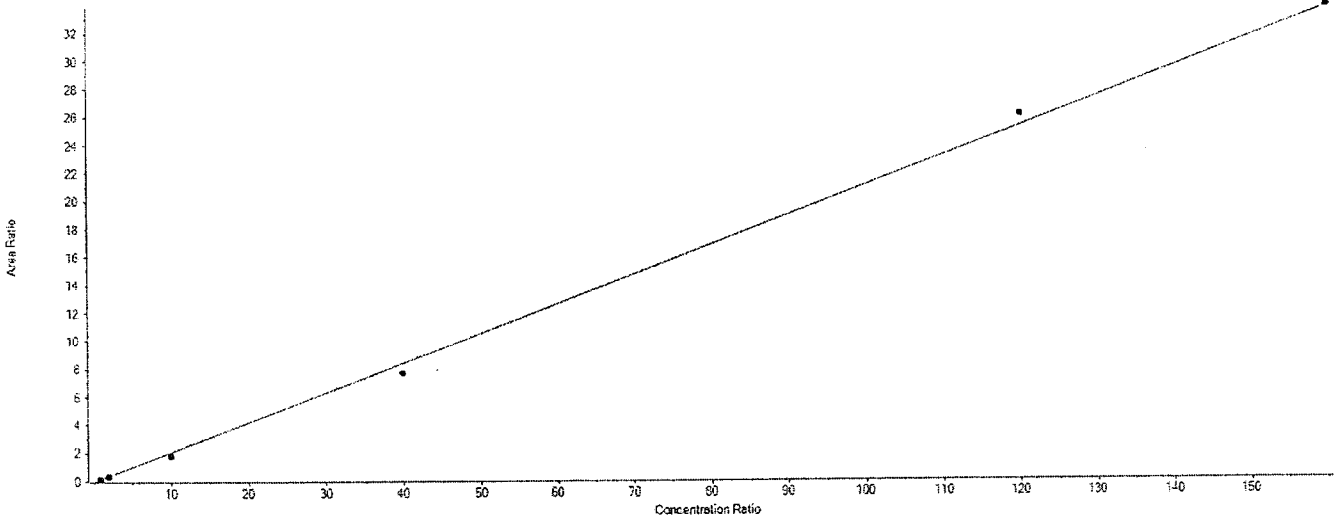
PFNA
y = 0.25653 x + -0.00796 (r = 0.99972) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFNA Area	13C5-PFNA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	32901.0	675696.7	1.00	0.049	10.27	0.200	0.220	10
16JUL12t3CAL-06.wiff	CAL2	80552.6	658034.0	1.00	0.122	10.33	0.500	0.510	2
16JUL12t3CAL-07.wiff	CAL3	318486.7	573965.2	1.00	0.555	10.31	2.500	2.190	-12.4
16JUL12t3CAL-08.wiff	CAL4	1463582.2	578067.3	1.00	2.532	10.30	10.000	9.900	-1
16JUL12t3CAL-09.wiff	CAL5	4013652.7	517388.7	1.00	7.758	10.39	30.000	30.270	0.9
16JUL12t3CAL-10.wiff	CAL6	4852155.3	471991.4	1.00	10.280	10.37	40.000	40.100	0.25

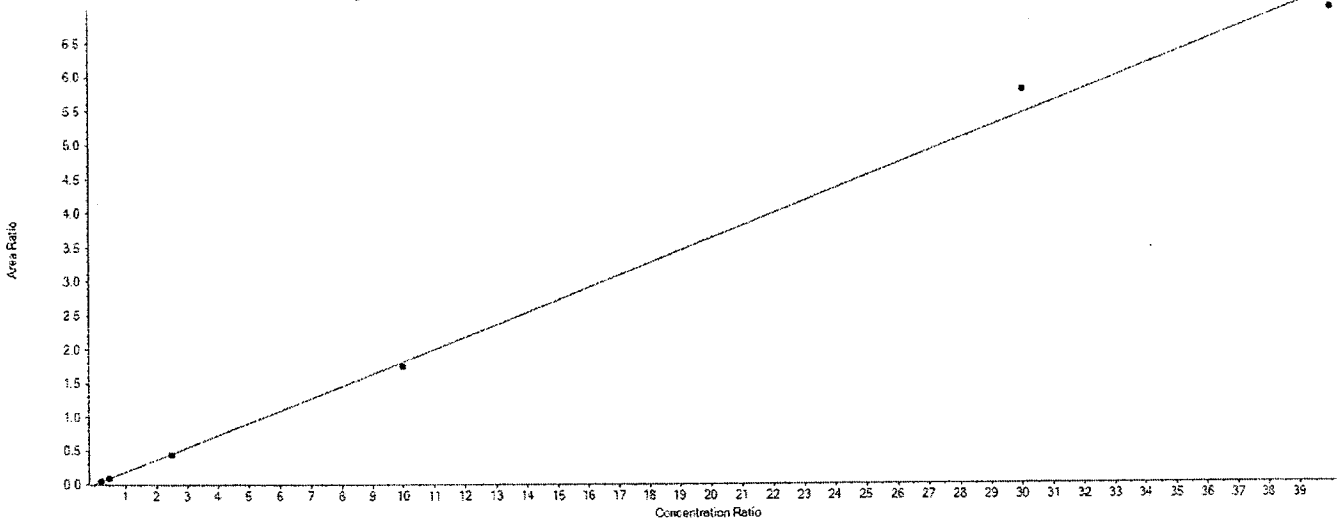
PFOS
y = 0.21125 x + -0.04462 (r = 0.99891) (weighting: 1 / x)



Calibration Verification

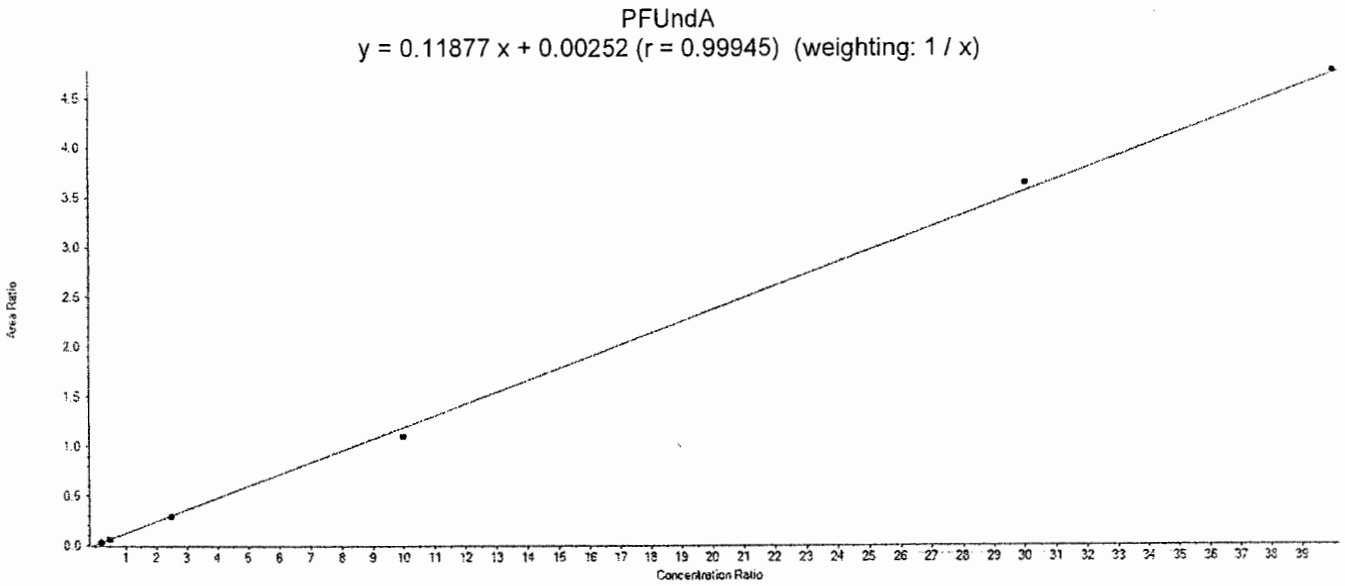
File Name	Sample Name	PFOS Area	13C4-PFOS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	13459.0	79871.6	1.00	0.169	10.23	0.800	1.010	26.25
16JUL12t3CAL-06.wiff	CAL2	29368.8	84333.2	1.00	0.348	10.31	2.000	1.860	-7
16JUL12t3CAL-07.wiff	CAL3	123413.9	70691.0	1.00	1.746	10.28	9.990	8.480	-15.12
16JUL12t3CAL-08.wiff	CAL4	582037.7	75269.2	1.00	7.733	10.27	39.960	36.820	-7.86
16JUL12t3CAL-09.wiff	CAL5	1623667.3	62093.6	1.00	26.150	10.36	119.880	123.990	3.43
16JUL12t3CAL-10.wiff	CAL6	1941964.0	57412.9	1.00	33.820	10.34	159.840	160.320	0.3

PFDA
y = 0.18167 x + -0.00383 (r = 0.99868) (weighting: 1 / x)



Calibration Verification

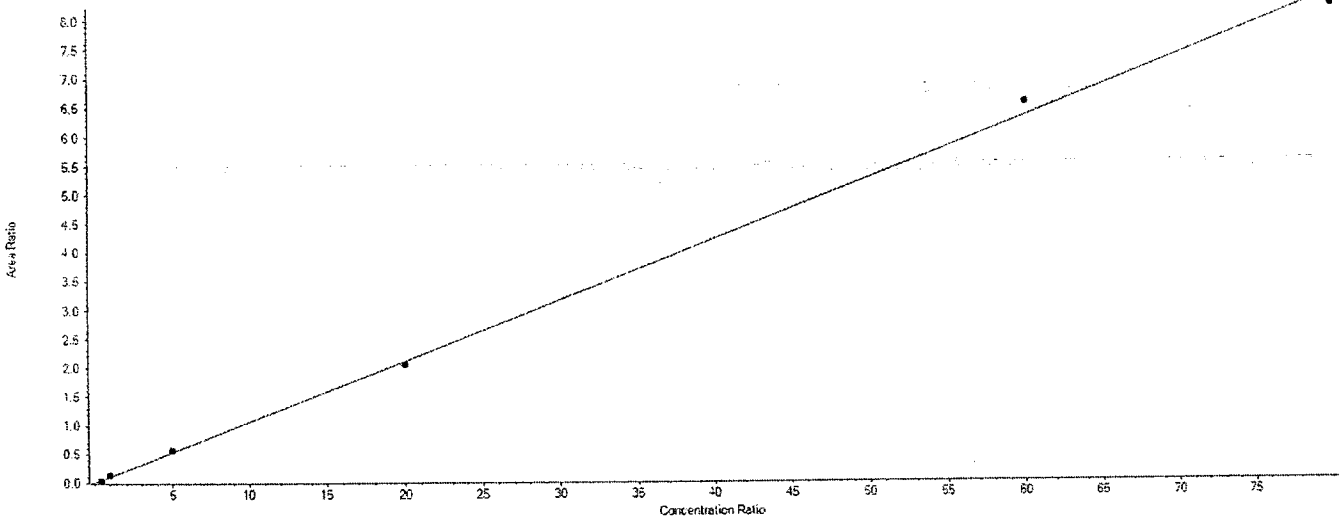
File Name	Sample Name	PFDA Area	13C2-PFDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	20342.2	537597.2	1.00	0.038	10.59	0.200	0.230	15
16JUL12t3CAL-06.wiff	CAL2	42214.0	539847.2	1.00	0.078	10.67	0.500	0.450	-10
16JUL12t3CAL-07.wiff	CAL3	202494.4	469269.7	1.00	0.432	10.62	2.500	2.400	-4
16JUL12t3CAL-08.wiff	CAL4	919397.6	526725.7	1.00	1.745	10.60	10.000	9.630	-3.7
16JUL12t3CAL-09.wiff	CAL5	2870901.1	494900.0	1.00	5.801	10.69	30.000	31.950	6.5
16JUL12t3CAL-10.wiff	CAL6	3428952.5	489980.2	1.00	6.998	10.67	40.000	38.540	-3.65



Calibration Verification

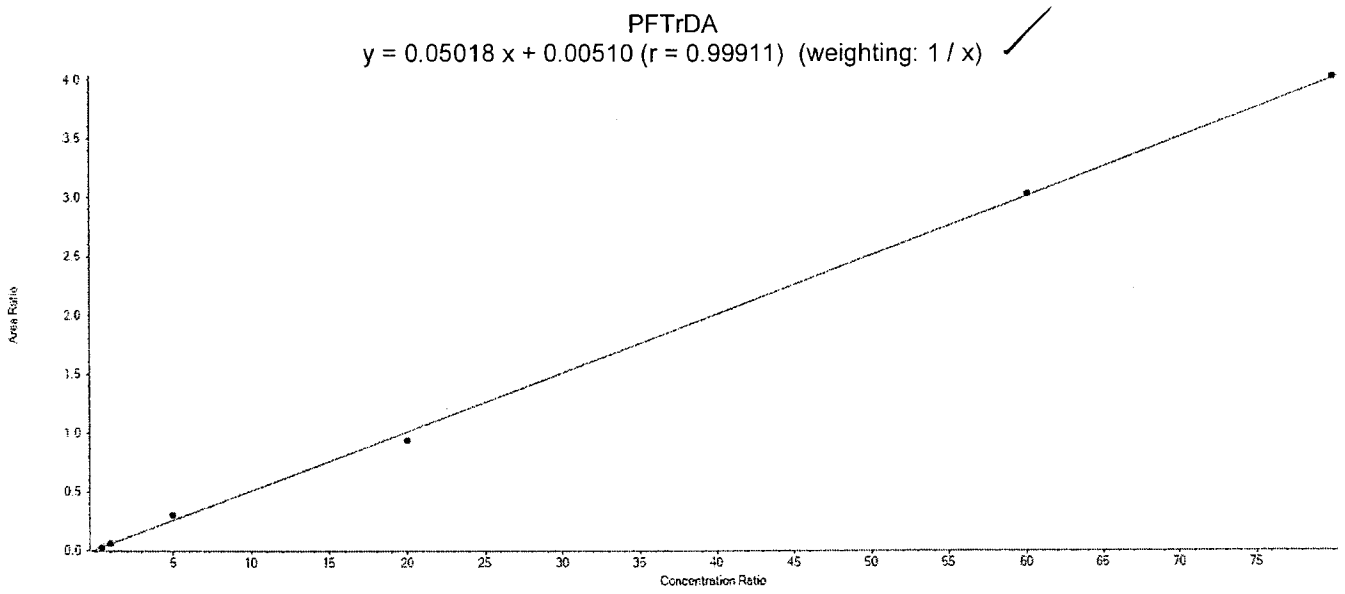
File Name	Sample Name	PFUndA Area	13C2-PFUnDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	12578.0	431038.4	1.00	0.029	10.94	0.200	0.220	10
16JUL12t3CAL-06.wiff	CAL2	27165.8	451728.2	1.00	0.060	11.02	0.500	0.490	-2
16JUL12t3CAL-07.wiff	CAL3	108716.6	378741.7	1.00	0.287	10.96	2.500	2.400	-4
16JUL12t3CAL-08.wiff	CAL4	443233.2	404103.4	1.00	1.097	10.92	10.000	9.210	-7.9
16JUL12t3CAL-09.wiff	CAL5	1412307.7	387355.0	1.00	3.646	11.01	30.000	30.680	2.27
16JUL12t3CAL-10.wiff	CAL6	1813729.1	379664.6	1.00	4.777	10.99	40.000	40.200	0.5

PFDoDA
y = 0.10537 x + 0.00552 (r = 0.99929) (weighting: 1 / x)



Calibration Verification

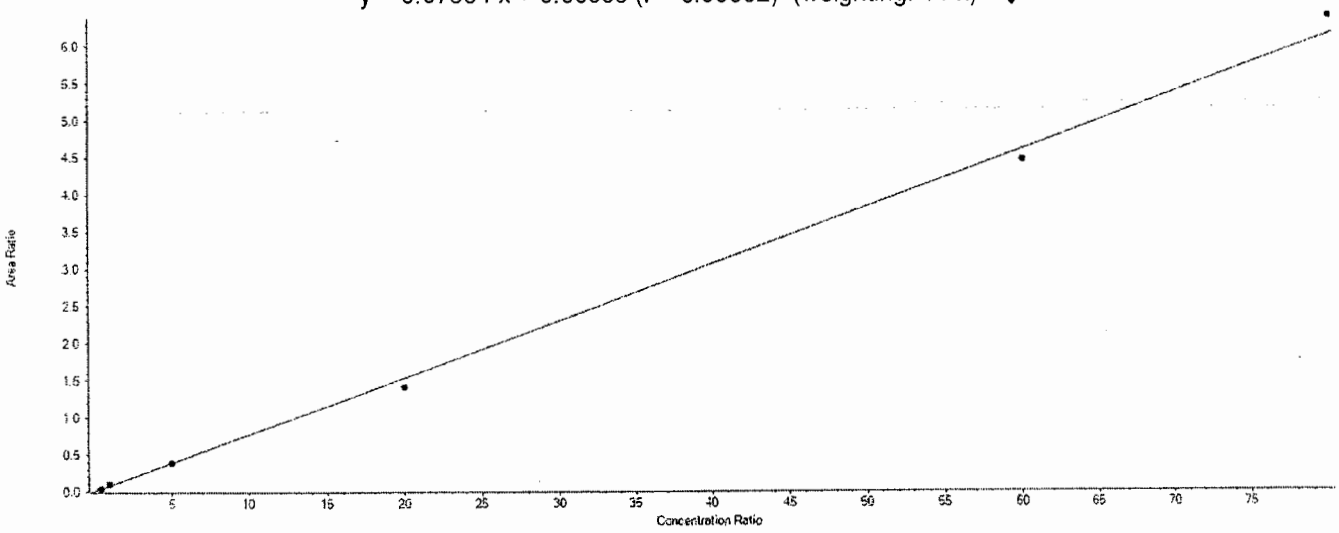
File Name	Sample Name	PFDoDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	12191.4	316942.8	1.00	0.038	11.31	0.400	0.310	-22.5
16JUL12t3CAL-06.wiff	CAL2	35746.7	277591.1	1.00	0.129	11.41	1.000	1.170	17
16JUL12t3CAL-07.wiff	CAL3	136208.5	239922.4	1.00	0.568	11.31	5.000	5.340	6.8
16JUL12t3CAL-08.wiff	CAL4	570837.4	278463.7	1.00	2.050	11.25	20.000	19.400	-3
16JUL12t3CAL-09.wiff	CAL5	1703047.9	259571.7	1.00	6.561	11.35	60.000	62.210	3.68
16JUL12t3CAL-10.wiff	CAL6	2061989.0	250834.2	1.00	8.221	11.33	80.000	77.960	-2.55



Calibration Verification

File Name	Sample Name	PFTrDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	6798.5	316942.8	1.00	0.021	11.68	0.400	0.330	-17.5
16JUL12t3CAL-06.wiff	CAL2	16459.2	277591.1	1.00	0.059	11.78	1.000	1.080	8
16JUL12t3CAL-07.wiff	CAL3	71689.7	239922.4	1.00	0.299	11.66	5.000	5.850	17
16JUL12t3CAL-08.wiff	CAL4	260121.4	278463.7	1.00	0.934	11.58	20.000	18.510	-7.45
16JUL12t3CAL-09.wiff	CAL5	787202.3	259571.7	1.00	3.033	11.68	60.000	60.330	0.55
16JUL12t3CAL-10.wiff	CAL6	1012005.2	250834.2	1.00	4.035	11.66	80.000	80.300	0.37

PFTeDA
y = 0.07654 x + 0.00556 (r = 0.99892) (weighting: 1 / x)

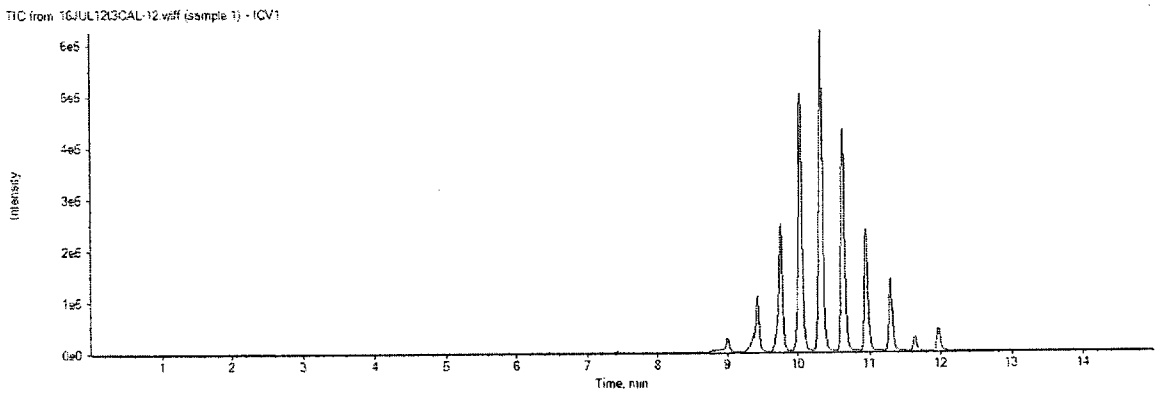


Calibration Verification

File Name	Sample Name	PFTeDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL12t3CAL-05.wiff	CAL1	10404.6	316942.8	1.00	0.033	12.05	0.400	0.360	-10
16JUL12t3CAL-06.wiff	CAL2	26934.3	277591.1	1.00	0.097	12.16	1.000	1.200	20
16JUL12t3CAL-07.wiff	CAL3	91237.9	239922.4	1.00	0.380	12.02	5.000	4.900	-2
16JUL12t3CAL-08.wiff	CAL4	395317.6	278463.7	1.00	1.420	11.91	20.000	18.480	-7.6
16JUL12t3CAL-09.wiff	CAL5	1159029.2	259571.7	1.00	4.465	12.00	60.000	58.270	-2.88
16JUL12t3CAL-10.wiff	CAL6	1598923.8	250834.2	1.00	6.374	12.00	80.000	83.210	4.01

Initial Calibration Verification

Sample ID: ICV1
Sample File: 16JUL12t3CAL-12.wiff



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amount	Calc Amount	% Diff
PFBS	137447.6	18O2-PFHxS	149726.7	1.00	0.918	9.00	10.00	8.24	-17.6
PFHxA	263950.1	13C2-PFHxA	223057.8	1.00	1.183	9.42	10.00	10.80	8
PFHpA	344903.6	13C4-PFHpA	309219.4	1.00	1.115	9.76	10.00	9.93	-0.7
PFHxS	205339.4	18O2-PFHxS	149726.7	1.00	1.371	9.75	10.00	9.23	-7.7
PFOA	779263.8	13C4-PFOA	934317.6	1.00	0.834	10.04	10.00	10.33	3.3
PFNA	1456280.3	13C5-PFNA	581509.7	1.00	2.504	10.32	10.00	9.79	-2.1
PFOS	142845.8	13C4-PFOS	74449.2	1.00	1.919	10.29	10.00	9.29	-7.1
PFDA	1087926.7	13C2-PFDA	476459.0	1.00	2.283	10.63	10.00	12.59	25.9
PFUndA	468437.2	13C2-PFUnDA	368287.1	1.00	1.272	10.95	10.00	10.69	6.9
PFDoDA	242939.0	13C2-PFDoDA	228620.3	1.00	1.063	11.29	10.00	10.03	0.3
PFTrDA	94816.4	13C2-PFDoDA	228620.3	1.00	0.415	11.63	10.00	8.16	-18.4
PFTeDA	162939.4	13C2-PFDoDA	228620.3	1.00	0.713	11.97	10.00	9.24	-7.6

MCD 7824
7/25/16

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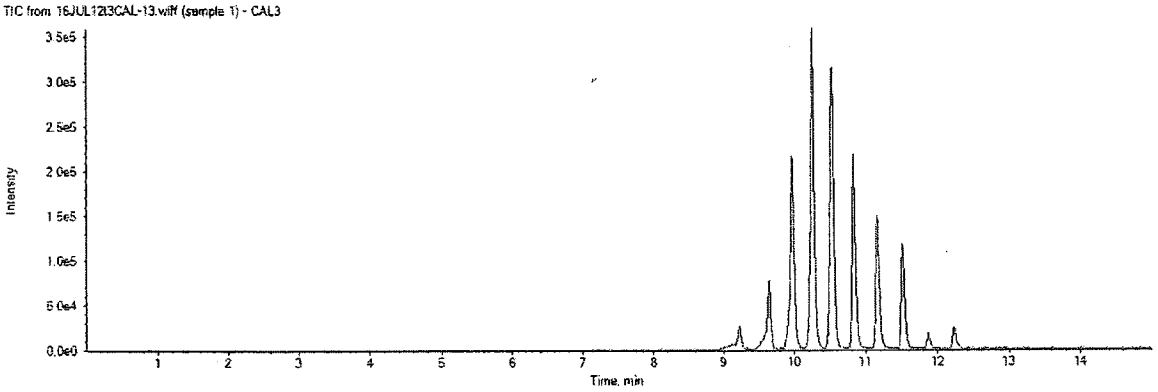
LC-MS/MS
Analysis Report

Printed: 9/6/2016 8:18:00 AM

Continuing Calibration Verification

MQ 16180013

Sample ID: CCV1
Sample Name: CAL3
Sample File: 16JUL12t3CAL-13.wiff
Acquisition Date: 7/13/2016 7:30:26 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	146503.0	18O2-PFHxS	162874.8	1.00	0.900	9.22	9.99	8.080	-19.1	
PFHxA	70486.0	13C2-PFHxA	256151.5	1.00	0.275	9.64	2.50	2.510	0.2	
PFHpA	85160.3	13C4-PFHpA	342127.7	1.00	0.249	9.98	2.50	2.240	-10.3	
PFHxS	227027.6	18O2-PFHxS	162874.8	1.00	1.394	9.97	10.00	9.380	-6.2	
PFOA	189763.6	13C4-PFOA	1030920.4	1.00	0.184	10.26	2.50	2.270	-9.1	
PFNA	380416.6	13C5-PFNA	643222.8	1.00	0.591	10.54	2.50	2.340	-6.5	
PFOS	148734.8	13C4-PFOS	83056.1	1.00	1.791	10.51	9.99	8.690	-13.0	
PFDA	225055.2	13C2-PFDA	524009.7	1.00	0.430	10.84	2.50	2.390	-4.6	
PFUndA	113607.5	13C2-PFUnDA	400739.3	1.00	0.284	11.16	2.50	2.370	-5.4	
PFDoDA	130622.7	13C2-PFDoDA	263046.5	1.00	0.497	11.51	5.00	4.660	-6.8	
PFTrDA	53343.5	13C2-PFDoDA	263046.5	1.00	0.203	11.87	5.00	3.940	-21.2	
PFTeDA	83314.7	13C2-PFDoDA	263046.5	1.00	0.317	12.22	5.00	4.070	-18.7	

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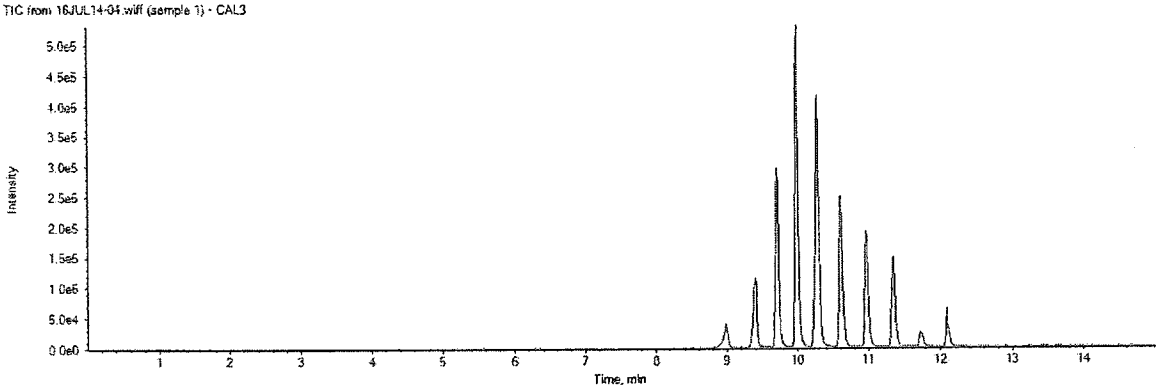
LC-MS/MS Analysis Report

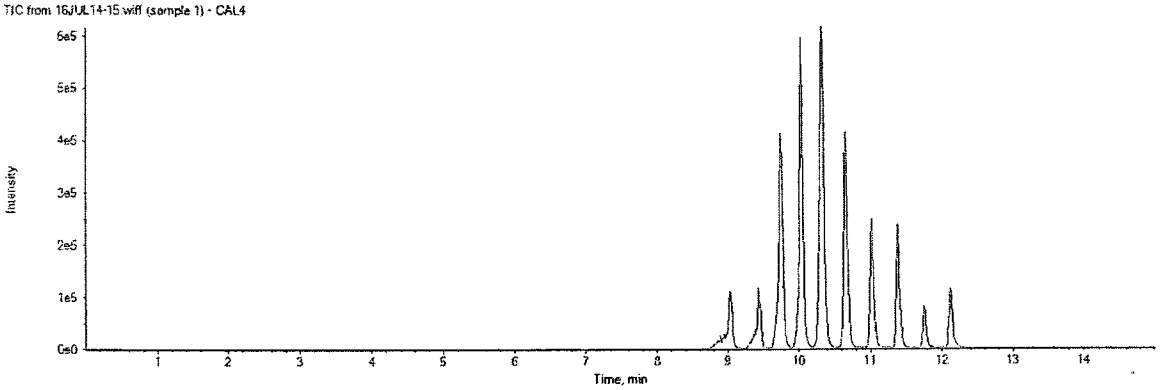
Printed: 9/6/2016 8:18:00 AM

Sample ID: CCV1
Sample Name: CAL3
Sample File: 16JUL14-04.wiff
Acquisition Date: 7/14/2016 9:04:14 AM



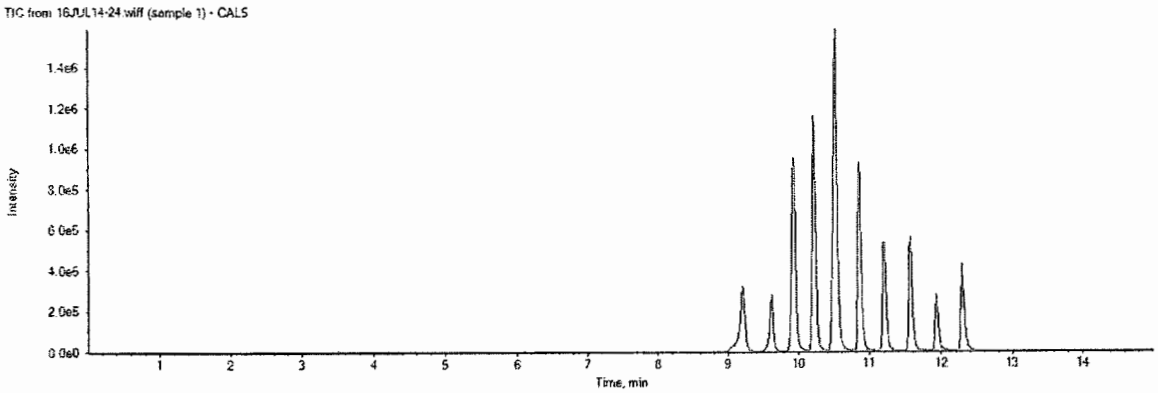
Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	174535.3	18O2-PFHxS	197323.0	1.00	0.885	8.98	9.99	7.960	-20.4	
PFHxA	74984.1	13C2-PFHxA	324538.1	1.00	0.231	9.39	2.50	2.100	-15.9	
PFHpA	102398.4	13C4-PFHpA	385926.6	1.00	0.265	9.71	2.50	2.390	-4.5	
PFHxS	268765.2	18O2-PFHxS	197323.0	1.00	1.362	9.70	10.00	9.170	-8.3	
PFOA	241927.5	13C4-PFOA	1327139.8	1.00	0.182	9.98	2.50	2.250	-10.0	
PFNA	437299.6	13C5-PFNA	769268.8	1.00	0.569	10.27	2.50	2.250	-10.1	
PFOS	187745.3	13C4-PFOS	92381.4	1.00	2.032	10.24	9.99	9.830	-1.6	
PFDA	262358.8	13C2-PFDA	596996.6	1.00	0.440	10.60	2.50	2.440	-2.4	
PFUndA	144444.5	13C2-PFUnDA	494734.7	1.00	0.292	10.97	2.50	2.440	-2.5	
PFDoDA	176556.6	13C2-PFDoDA	332340.6	1.00	0.531	11.34	5.00	4.990	-0.2	
PFTrDA	93105.0	13C2-PFDoDA	332340.6	1.00	0.280	11.73	5.00	5.480	9.6	
PFTeDA	147651.3	13C2-PFDoDA	332340.6	1.00	0.444	12.09	5.00	5.730	14.6	

Sample ID: CCV2
Sample Name: CAL4
Sample File: 16JUL14-15.wiff
Acquisition Date: 7/14/2016 12:36:16 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	613971.6	18O2-PFHxS	162058.7	1.00	3.789	9.04	39.96	32.760	-18.0	
PFHxA	254858.0	13C2-PFHxA	239301.1	1.00	1.065	9.44	10.00	9.720	-2.8	
PFHpA	333535.5	13C4-PFHpA	319594.5	1.00	1.044	9.76	10.00	9.300	-7.0	
PFHxS	930480.4	18O2-PFHxS	162058.7	1.00	5.742	9.75	40.02	38.270	-4.4	
PFOA	876758.4	13C4-PFOA	1071859.0	1.00	0.818	10.04	10.00	10.130	1.3	
PFNA	1449948.3	13C5-PFNA	564094.0	1.00	2.570	10.33	10.00	10.050	0.5	
PFOS	609323.3	13C4-PFOS	82465.0	1.00	7.389	10.30	39.96	35.190	-11.9	
PFDA	927663.5	13C2-PFDA	533531.3	1.00	1.739	10.66	10.00	9.590	-4.1	
PFUndA	464378.3	13C2-PFUnDA	398769.6	1.00	1.165	11.02	10.00	9.780	-2.2	
PFDoDA	528888.1	13C2-PFDoDA	278658.4	1.00	1.898	11.38	20.00	17.960	-10.2	
PFTrDA	272015.0	13C2-PFDoDA	278658.4	1.00	0.976	11.75	20.00	19.350	-3.2	
PFTeDA	409505.1	13C2-PFDoDA	278658.4	1.00	1.470	12.11	20.00	19.130	-4.4	

Sample ID: CCV3
Sample Name: CAL5
Sample File: 16JUL14-24.wiff
Acquisition Date: 7/14/2016 3:32:58 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	1660368.3	18O2-PFHxS	125679.1	1.00	13.210	9.20	119.87	113.240	-5.5	
PFHxA	787423.0	13C2-PFHxA	214716.8	1.00	3.667	9.61	30.00	33.500	11.7	
PFHpA	894703.7	13C4-PFHpA	258758.2	1.00	3.458	9.93	30.00	30.720	2.4	
PFHxS	2428362.7	18O2-PFHxS	125679.1	1.00	19.320	9.93	120.05	128.510	7.1	
PFOA	2436003.8	13C4-PFOA	1055066.3	1.00	2.309	10.21	30.00	28.610	-4.6	
PFNA	4158794.1	13C5-PFNA	496090.3	1.00	8.383	10.52	30.00	32.710	9.0	
PFOS	1669519.6	13C4-PFOS	65261.7	1.00	25.580	10.48	119.88	121.310	1.2	
PFDA	2784572.9	13C2-PFDA	486864.3	1.00	5.719	10.85	30.00	31.500	5.0	
PFUndA	1548936.7	13C2-PFUnDA	368729.3	1.00	4.201	11.21	30.00	35.350	17.8	
PFDoDA	1764506.0	13C2-PFDoDA	235512.7	1.00	7.492	11.56	60.00	71.050	18.4	
PFTrDA	861447.9	13C2-PFDoDA	235512.7	1.00	3.658	11.93	60.00	72.790	21.3	
PFTeDA	1348643.1	13C2-PFDoDA	235512.7	1.00	5.726	12.29	60.00	74.740	24.6	

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP96
Matrix: Soil

Fraction: PFAAs by LC/MS/MS

16180013	13C-PFNA	13C-PFOA	13C-PFDA	13C-PFDoA
	Area	Area	Area	Area
Average ICAL Response	579191	1000958	509720	270554
Upper Limit	868786	1501437	764580	405831
Lower Limit	289595	500479	254860	135277
Sample				
BKL180013	112985 *	434488 *	94611 *	135815
OPR180013	137015 *	386751 *	128380 *	143636
8433354	541866	907607	406951	246327
8433355MS	534725	889463	398822	216198
8433356MSD	500035	872994	399002	247750
8433353	488379	864409	416596	259159
8433357	529442	838924	411756	210898
8433358	509195	798841	385517	220828
8433359	489980	851038	417603	211468

QC

ICal responses checked by Env Stds for 16180013, 16Jul12 calibration

QC, no qual

BLK and LCS internal standard response <50% of the average area measured during calibration for PFNA, PFOA, PFDA, PFUnA --> low bias (ISL)

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP96
Matrix: Soil

Fraction: PFAAs by LC/MS/MS

16180013	13C-PFHpA	13C-PFHxA	13C-PFHxS	13C-PFOS
	Area	Area	Area	Area
Average ICAL Response	307209	250553	145965	71612
Upper Limit	460814	375830	218947	107418
Lower Limit	153605	125277	72982	35806
Sample				
BKL180013	251500	225528	189952	99050
OPR180013	201291	179232	154526	78739
8433354	284684	208551	155319	88207
8433355MS	273854	211206	136127	70397
8433356MSD	268604	185544	132207	73513
8433353	250207	187157	132290	69584
8433357	239786	185701	132516	71325
8433358	216294	173232	129003	68037
8433359	237547	166871	124815	65426

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP96
Matrix: Soil

Fraction: PFAAs by LC/MS/MS

16180013	13C-PFUnA
	Area
Average ICAL Response	405439
Upper Limit	608158
Lower Limit	202719
Sample	
BKL180013	124036 *
OPR180013	155017 *
8433354	340275
8433355MS	304204
8433356MSD	316689
8433353	309227
8433357	292001
8433358	290563
8433359	311180

QC

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

Organic Extraction Batchlog Assigned to: 375 Robert Brown Reviewed by: MP1758 Start Date: 06-29-16 Start time: 12:30

16180013 Tech 1: ROB/375 Tech 2:

Dept: 37	Prep Analysis: 14090 PFC Solid Prep				PFC s in Soil by LC/MS/MS						
QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
8433355MS	SG322	5.17	235002-20A	0.25	235002-23A	0.20	1	Z	Z	170a	
8433356MSD	SG322	5.19			235002-23A	0.20	1	Z	Z	170a	
BLANKA	BLK180013	5.00					1	Z	Z		
LCSA	OPR180013	5.00			235002-23A	0.20	1	Z	Z		

Solvent Used	Lot No.

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1 8420528	409F2	5.23	235002-20A	0.25	1	Z	Z	170a		14027	18151	06/22/2016	N
2 8421800	711D1	5.23			1	Z	Z	170a		14027	18151	06/23/2016	N
3 8421801	711D2	5.25			1	Z	Z	170a		14027	18151	06/23/2016	N
4 8421802	711C1	5.13			1	Z	Z	170a		14027	18151	06/23/2016	N
5 8421803	711C2	5.02			1	Z	Z	170a		14027	18151	06/23/2016	N
6 8421804	711A1	5.12			1	Z	Z	170a		14027	18151	06/23/2016	N
7 8421805	711A2	5.05			1	Z	Z	170a		14027	18151	06/23/2016	N
8 8421806	711B1	5.43			1	Z	Z	170a		14027	18151	06/23/2016	N
9 8421807	711B2	5.12			1	Z	Z	170a		14027	18151	06/23/2016	N
10 8433353	SG321	5.37			1	Z	Z	170a		14027	18151	06/30/2016	N
11 8433354BKG	SG322	5.47			1	Z	Z	170a		14027	18151	06/30/2016	N
12 8433357	SG323	5.32			1	Z	Z	170a		14027	18151	06/30/2016	N
13 8433358	SG324	5.23			1	Z	Z	170a		14027	18151	06/30/2016	N
14 8433359	FD117	5.36			1	Z	Z	170a		14027	18151	06/30/2016	N

SG096 Page 4 of 4 of 4

Rack ID:		Work Station		Micro Temp 100?
Internal Standard		Balance #		

S-bath ID	C	S-bath ID	C	N-Evap	C	M-vap	C	16180013

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume Page 1 of 1

(*) assoc. w/ REs that were not reported due to extract past HT

Sequence Table

File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16JUL22-09	MDL	N/A	N/A	a:2	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-12	CAL3	N/A	3	A:5	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-14	CAL5	N/A	5	A:7	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-15	CAL6	N/A	6	A:8	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-16	CAL2	N/A	2	A:4	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-17	CAL4	N/A	4	A:6	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-18	CAL1	N/A	1	A:3	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-19_160722133431	solvent	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-20	ICV1	N/A	ICV1	a:9	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-39	CCV2	N/A	2	a:6	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-40	solvent	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-41	solvent	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-42	MB 16201005	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-43	LCS 16201005	N/A	N/A	c:2	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-44	solvent	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-45	8420528 RE	N/A	N/A	c:3	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-46	8421800 RE	N/A	N/A	c:4	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-47	8421801 RE	N/A	N/A	c:5	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-48	8421802 RE	N/A	N/A	c:6	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-49	8421803 RE	N/A	N/A	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-50	CCV3	N/A	3	a:7	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-51	solvent	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils

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JUL 25 2016

File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16JUL22-52	solvent	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-53	8421804 RE	N/A	N/A	c:8	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-54	8421805 RE	N/A	N/A	c:9	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-55	8421806 RE	N/A	N/A	c:10	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-56	8421807 RE	N/A	N/A	c:11	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-57	8433353 RE	N/A	N/A	c:12	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-58	8433357 RE	N/A	N/A	c:13	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-59	8433358 RE	N/A	N/A	c:14	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-60	8433359 RE	N/A	N/A	c:15	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-61	CCV2	N/A	2	a:6	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-62	solvent	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-63	8433354 BKG RE	N/A	N/A	c:16	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-64	8433355 MS RE	N/A	N/A	c:17	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-65	8433356 MSD RE	N/A	N/A	c:18	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils
16JUL22-66	CCV3	N/A	3	a:7	10.0	1.000	C:\Xcalibur\PFC\2016\Raw PFC DATA	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\PFC_12_Soils

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JUL 25 2016

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JUL 25 2016

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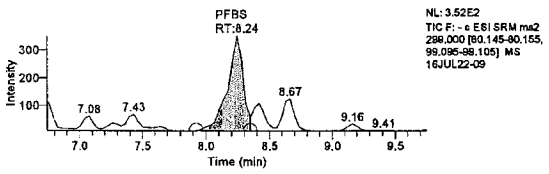
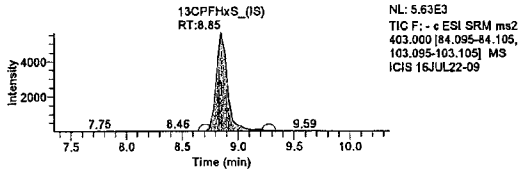
Sample Name:	MDL	Original Data Path:	C:\Xcalibur\PFC\2016\Raw PFC DATA
Sample ID:	MDL	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16JUL22-09		M\HWell_16.5minutes
Acquisition Date:	07/22/16 10:39:37 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	a:2	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

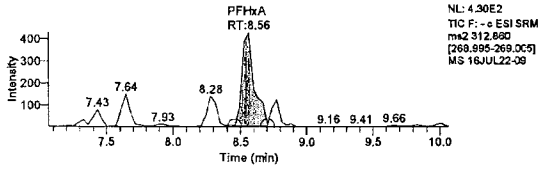
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.71	251850.29	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.21	233561.74	N/A	N/A	N/A
13CPFDA_(IS)	N/A	10.42	232331.86	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	12.16	166053.15	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.88	252785.77	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.56	146370.30	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.85	39710.13	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.68	22104.76	N/A	N/A	N/A
13CPFUdA_(IS)	N/A	11.24	197980.32	N/A	N/A	N/A
PFBS	0.134	8.24	2890.09	39710.13	0.073	ng/g
PFDA	0.073	10.42	1863.55	232331.86	0.008	ng/g
PFDoA	0.236	12.16	4591.04	166053.15	0.028	ng/g
PFHxA	0.171	8.56	2734.86	146370.30	0.019	ng/g
PFHxS	0.337	8.85	1342.93	39710.13	0.034	ng/g
PFNA	0.208	9.71	2680.85	251850.29	0.011	ng/g
PFOA	0.137	9.24	3440.45	233561.74	0.015	ng/g
PFOS	0.320	9.67	558.74	22104.76	0.025	ng/g
PFTeDA	0.188	13.54	914.00	197980.32	0.005	ng/g
PFTrDA	0.420	13.37	3775.07	166053.15	0.023	ng/g
PFUdA	0.056	11.27	2645.36	197980.32	0.013	ng/g
PFhpA	0.195	8.85	3073.10	252785.77	0.012	ng/g

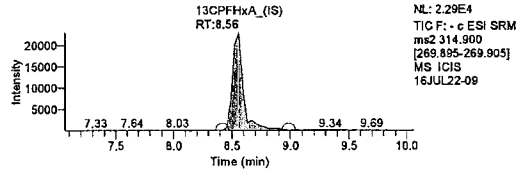
Component Name: PFBS





Component Name: PFHxA





Component Name: PFhpA

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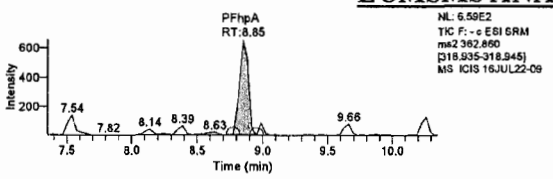
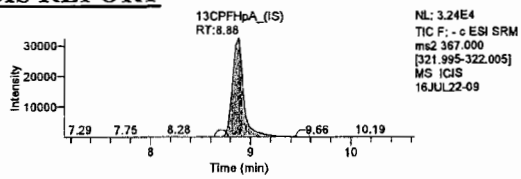
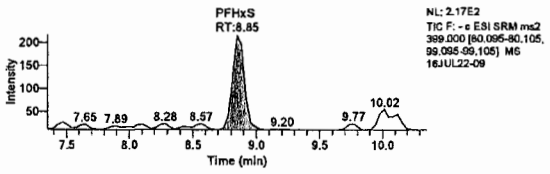
JUL 25 2016

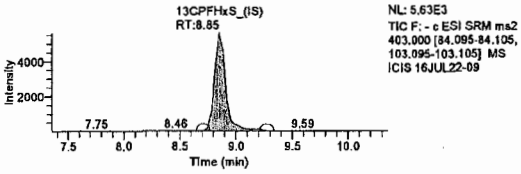
LCMSMS ANALYSIS REPORT



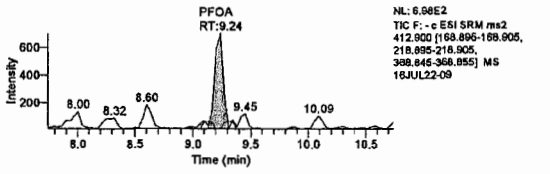


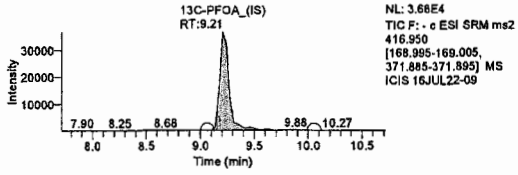
Component Name: PFHxS



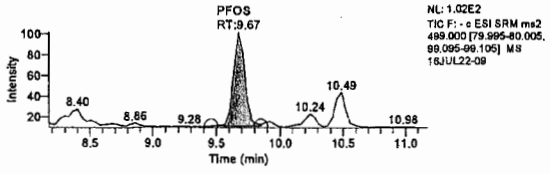


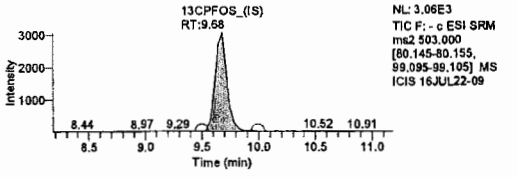
Component Name: PFOA



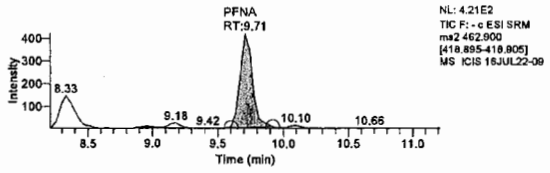


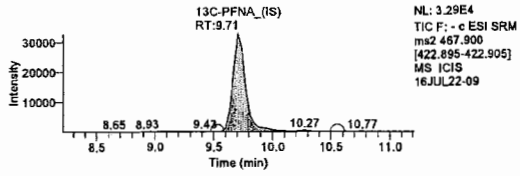
Component Name: PFOS



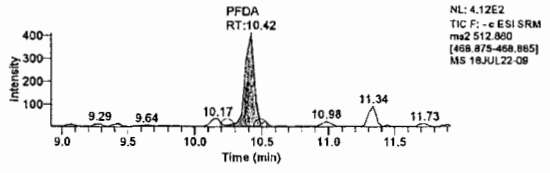


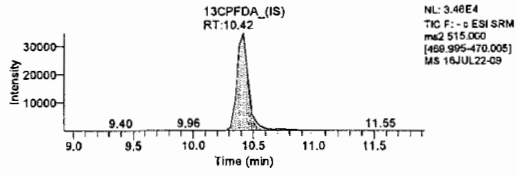
Component Name: PFNA





Component Name: PFDA





Component Name: PFUdA

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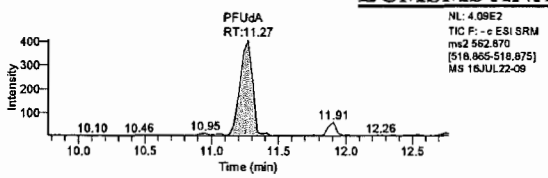
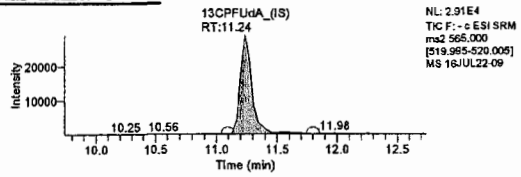
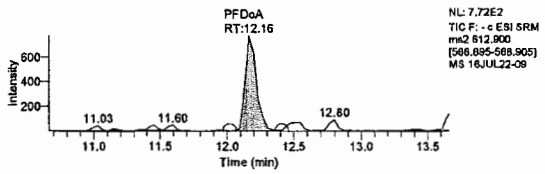
JUL 25 2016

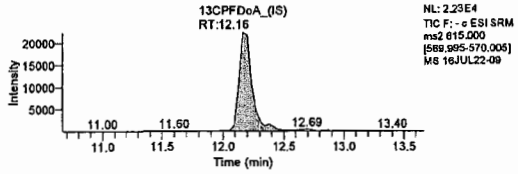
LCMSMS ANALYSIS REPORT



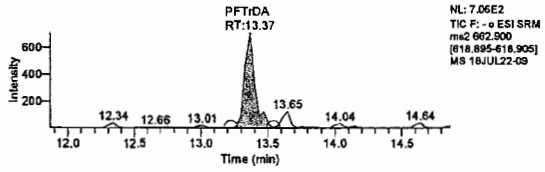


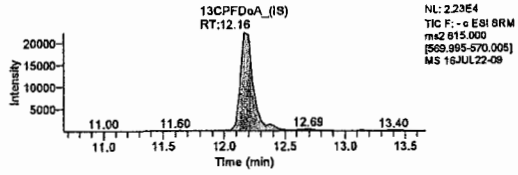
Component Name: PFDoA



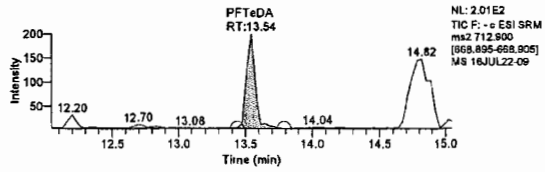


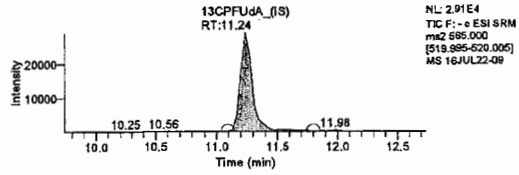
Component Name: PFTrDA





Component Name: PFTeDA





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JUL 25 2016

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JUL 25 2016

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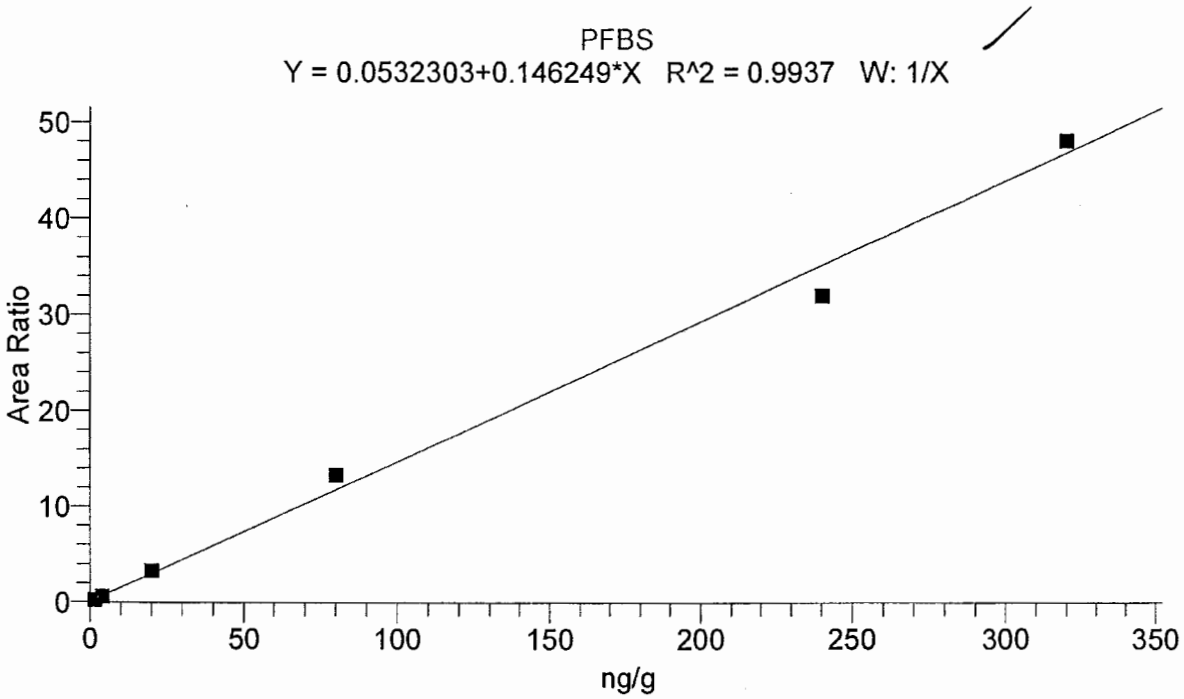
Component Name: **PFBS**



Identification		Component Name:	PFBS
Filter:	- c ESI SRM ms2 299.00 [80.14-80.16, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.17000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	20.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	1.600
2	4.000
3	20.000
4	80.000
5	240.000
6	320.000

Component QC Level Table

QC Level	Amount
ICV2	40.000
ICV1	20.000
1	20.000
2	80.000
3	240.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	22.219	92053.10	27871.46	3.303	11.10
CAL5	16JUL22-14	218.437	860219.57	26882.39	31.999	-8.98
CAL6	16JUL22-15	329.019	912923.23	18951.35	48.172	2.82
CAL2	16JUL22-16	3.625	17961.79	30790.90	0.583	-9.38
CAL4	16JUL22-17	90.846	353947.71	26534.07	13.339	13.56
CAL1	16JUL22-18	1.454	7736.85	29094.66	0.266	-9.11
ICV1	16JUL22-20	16.886	71634.15	28394.09	2.523	-15.57
CCV2	16JUL22-39	70.620	318407.55	30671.26	10.381	-11.73
CCV3	16JUL22-50	232.820	746277.92	21883.11	34.103	-2.99
CCV2	16JUL22-61	102.638	334117.18	22180.03	15.064	28.30
CCV3	16JUL22-66	261.773	800121.05	20870.61	38.337	9.07

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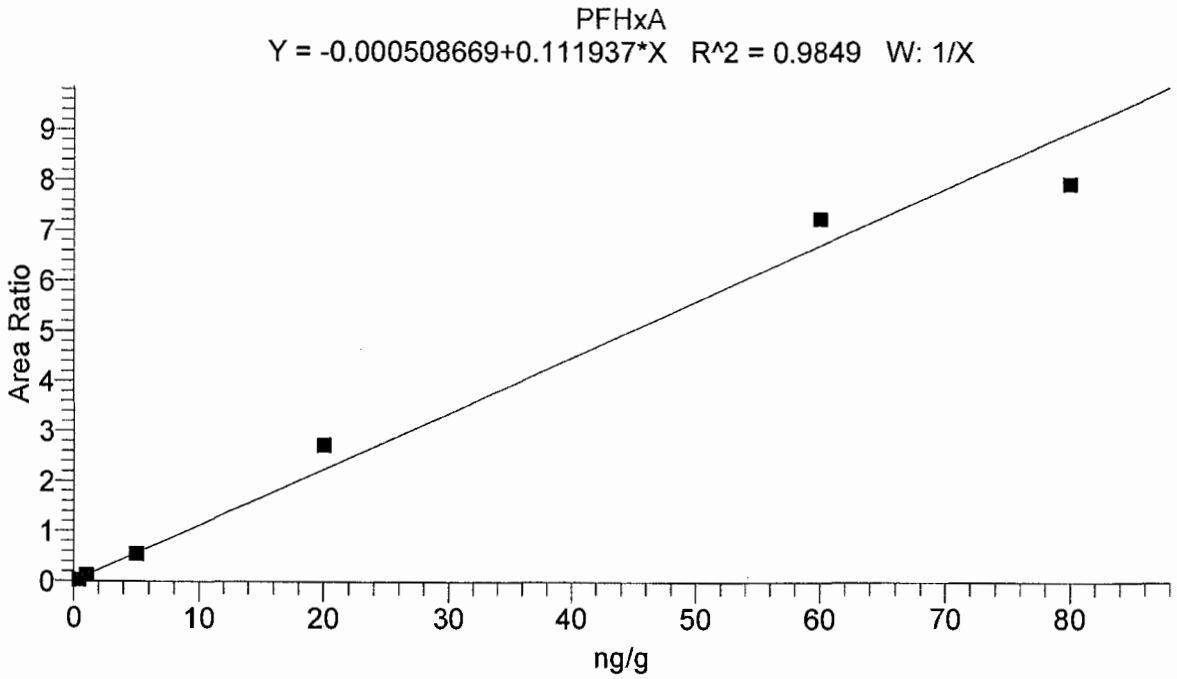
JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFHxA**



Identification		Component Name:	PFHxA
Filter:	- c ESI SRM ms2 312.86 [269.00-269.01]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.49000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	4.859	64127.10	118017.65	0.543	-2.82
CAL5	16JUL22-14	64.795	789205.73	108818.74	7.252	7.99
CAL6	16JUL22-15	70.968	863473.86	108702.00	7.943	-11.29
CAL2	16JUL22-16	1.072	12760.35	106826.16	0.119	7.17
CAL4	16JUL22-17	24.398	271707.24	99506.28	2.731	21.99
CAL1	16JUL22-18	0.308	4194.90	123551.83	0.034	-23.03
ICV1	16JUL22-20	18.380	245036.20	119128.94	2.057	-8.10
CCV2	16JUL22-39	22.153	258701.82	104346.11	2.479	10.77
CCV3	16JUL22-50	64.911	756448.38	104115.91	7.265	8.18
CCV2	16JUL22-61	23.837	306344.97	114831.74	2.668	19.19
CCV3	16JUL22-66	53.051	729794.31	122905.25	5.938	-11.58

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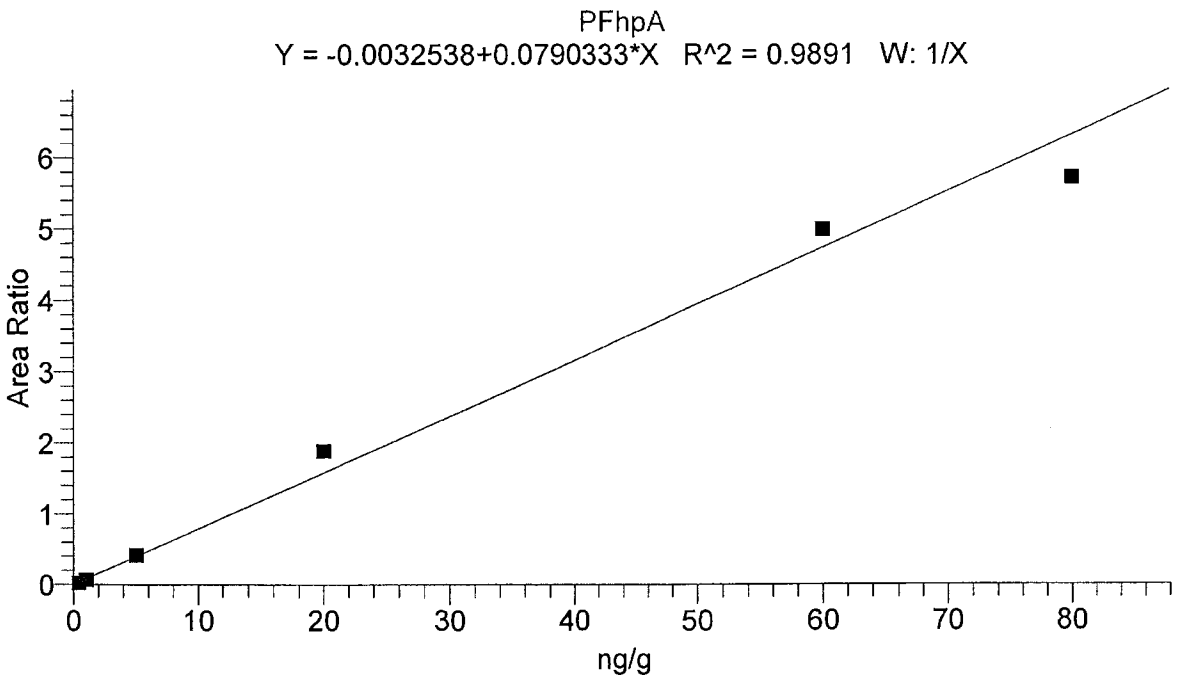
LCMSMS ANALYSIS REPORT

Component Name: **PFhpA**



Identification		Component Name:	PFhpA
Filter:	- c ESI SRM ms2 362.86 [318.94-318.94]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.17000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHpA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	5.305	84899.85	204079.96	0.416	6.10
CAL5	16JUL22-14	63.326	826552.49	165257.44	5.002	5.54
CAL6	16JUL22-15	72.509	882608.59	154104.36	5.727	-9.36
CAL2	16JUL22-16	0.890	15238.16	227205.61	0.067	-11.02
CAL4	16JUL22-17	24.016	324570.26	171294.57	1.895	20.08
CAL1	16JUL22-18	0.355	5901.00	238172.48	0.025	-11.33
ICV1	16JUL22-20	21.364	344499.24	204428.42	1.685	6.82
CCV2	16JUL22-39	22.554	320145.77	179931.21	1.779	12.77
CCV3	16JUL22-50	74.280	845327.69	144073.47	5.867	23.80
CCV2	16JUL22-61	23.969	328428.19	173669.27	1.891	19.85
CCV3	16JUL22-66	62.761	840596.18	169578.65	4.957	4.60

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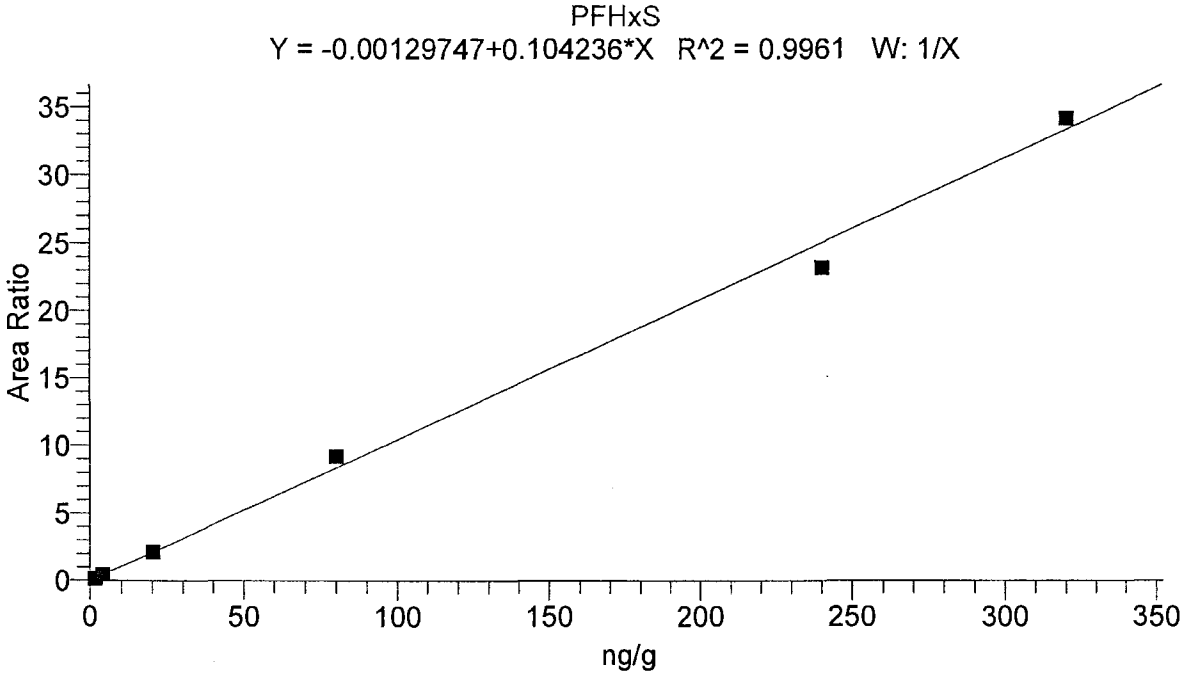
JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFHxS**



Identification		Component Name:	PFHxS
Filter:	- c ESI SRM ms2 399.00 [80.09-80.11, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.17000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	20.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	1.600
2	4.000
3	20.000
4	80.000
5	240.000
6	320.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	20.000
2	80.000
3	240.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	20.612	59846.99	27871.46	2.147	3.06
CAL5	16JUL22-14	222.647	623849.06	26882.39	23.207	-7.23
CAL6	16JUL22-15	328.356	648616.09	18951.35	34.225	2.61
CAL2	16JUL22-16	4.287	13717.96	30790.90	0.446	7.16
CAL4	16JUL22-17	88.355	244338.86	26534.07	9.208	10.44
CAL1	16JUL22-18	1.343	4035.78	29094.66	0.139	-16.05
ICV1	16JUL22-20	19.430	57469.01	28394.09	2.024	-2.85
CCV2	16JUL22-39	77.467	247626.68	30671.26	8.074	-3.17
CCV3	16JUL22-50	261.132	595617.79	21883.11	27.218	8.81
CCV2	16JUL22-61	101.261	234082.28	22180.03	10.554	26.58
CCV3	16JUL22-66	252.596	549488.61	20870.61	26.328	5.25

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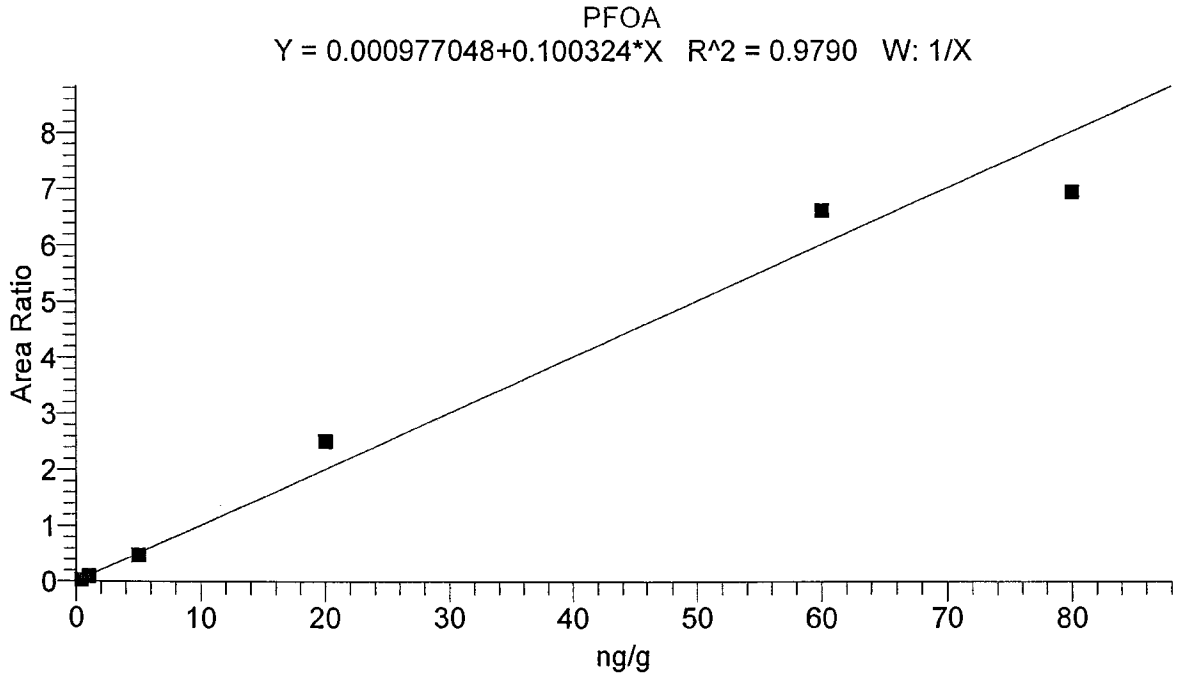
JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFOA**



Identification		Component Name:	PFOA
Filter:	- c ESI SRM ms2 412.90 [168.90-168.91, 218.90-218.91, 368.85-368.86]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.13000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	15
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFOA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Lincar	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	4.702	96554.32	204263.70	0.473	-5.96
CAL5	16JUL22-14	66.073	1223837.38	184599.46	6.630	10.12
CAL6	16JUL22-15	69.254	1331646.89	191637.38	6.949	-13.43
CAL2	16JUL22-16	0.978	22945.15	231506.83	0.099	-2.18
CAL4	16JUL22-17	25.048	461761.77	183686.42	2.514	25.24
CAL1	16JUL22-18	0.345	7380.18	207458.63	0.036	-13.79
ICV1	16JUL22-20	20.921	384391.45	183060.00	2.100	4.60
CCV2	16JUL22-39	23.706	456378.80	191813.54	2.379	18.53
CCV3	16JUL22-50	57.017	1108366.13	193732.73	5.721	-4.97
CCV2	16JUL22-61	23.923	432428.70	180104.39	2.401	19.61
CCV3	16JUL22-66	59.834	1110648.11	184992.33	6.004	-0.28

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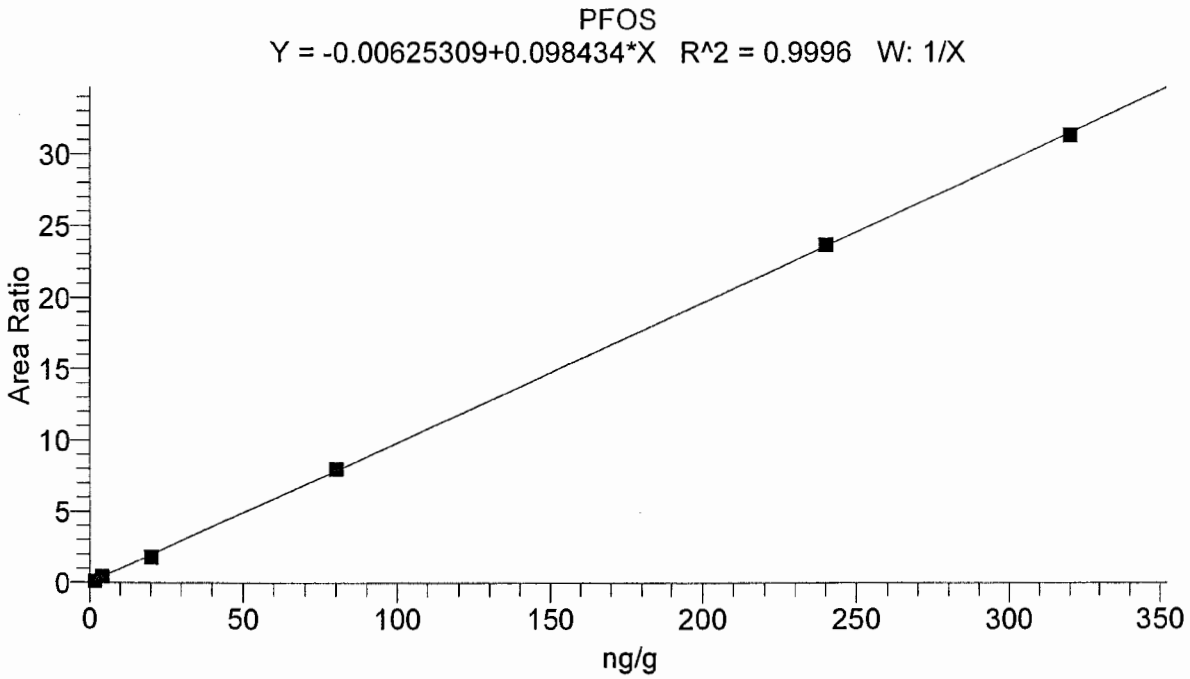
JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFOS**



Identification		Component Name:	PFOS
Filter:	- c ESI SRM ms2 499.00 [80.00-80.00, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.46000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	20.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFOS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	1.600
2	4.000
3	20.000
4	80.000
5	240.000
6	320.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	20.000
2	80.000
3	240.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	18.431	35457.49	19611.25	1.808	-7.84
CAL5	16JUL22-14	241.105	390426.07	16455.13	23.727	0.46
CAL6	16JUL22-15	318.541	418845.59	13360.74	31.349	-0.46
CAL2	16JUL22-16	4.528	8836.26	20107.39	0.439	13.20
CAL4	16JUL22-17	81.511	151689.08	18920.48	8.017	1.89
CAL1	16JUL22-18	1.484	3207.54	22939.72	0.140	-7.25
ICV1	16JUL22-20	19.753	35076.05	18098.28	1.938	-1.24
CCV2	16JUL22-39	99.804	155832.17	15872.24	9.818	24.76
CCV3	16JUL22-50	202.035	368465.66	18533.72	19.881	-15.82
CCV2	16JUL22-61	100.456	155561.22	15741.74	9.882	25.57
CCV3	16JUL22-66	301.250	359304.18	12119.40	29.647	25.52

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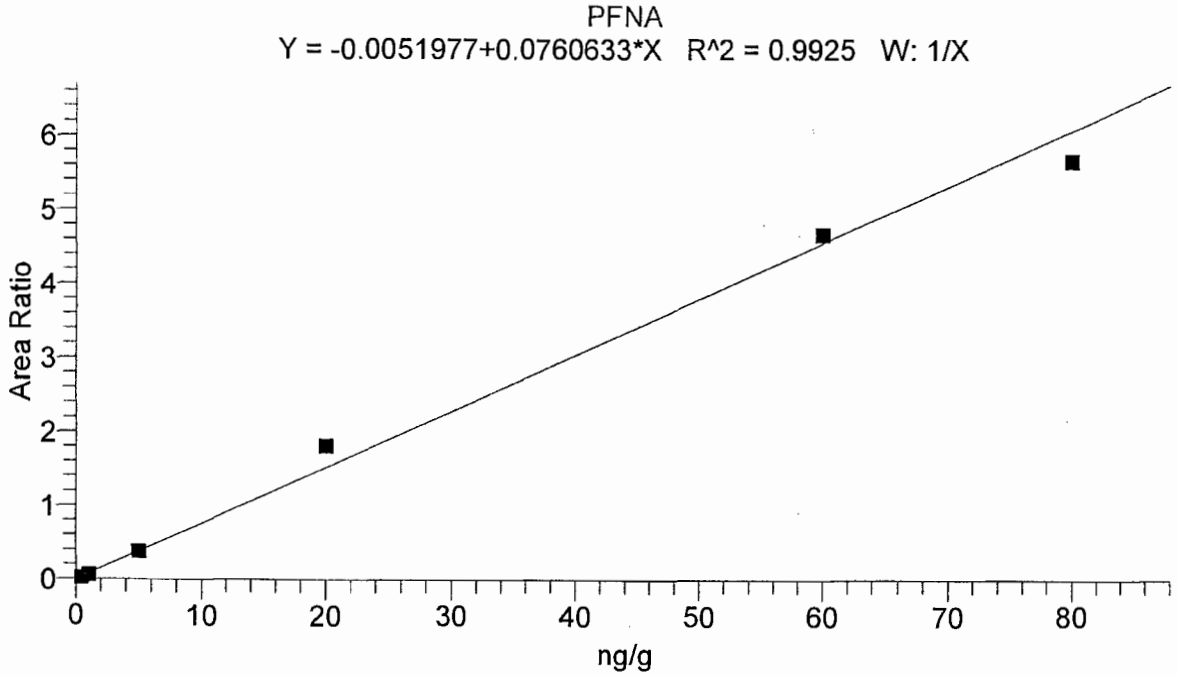
JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFNA**



Identification		Component Name:	PFNA
Filter:	- c ESI SRM ms2 462.90 [418.89-418.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.67000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFNA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

Jason W. Knight
Senior Chemist

JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	5.006	81641.34	217368.57	0.376	0.12
CAL5	16JUL22-14	61.526	909922.41	194648.78	4.675	2.54
CAL6	16JUL22-15	74.646	993720.89	175178.72	5.673	-6.69
CAL2	16JUL22-16	0.902	15717.74	247872.61	0.063	-9.80
CAL4	16JUL22-17	23.943	376138.34	207122.85	1.816	19.72
CAL1	16JUL22-18	0.376	6475.72	276321.73	0.023	-5.89
ICV1	16JUL22-20	20.140	359563.30	235508.38	1.527	0.70
CCV2	16JUL22-39	22.350	352613.00	208052.63	1.695	11.75
CCV3	16JUL22-50	60.242	797797.80	174305.58	4.577	0.40
CCV2	16JUL22-61	22.536	392980.27	229947.40	1.709	12.68
CCV3	16JUL22-66	60.004	843964.31	185124.04	4.559	0.01

Jason W. Knight
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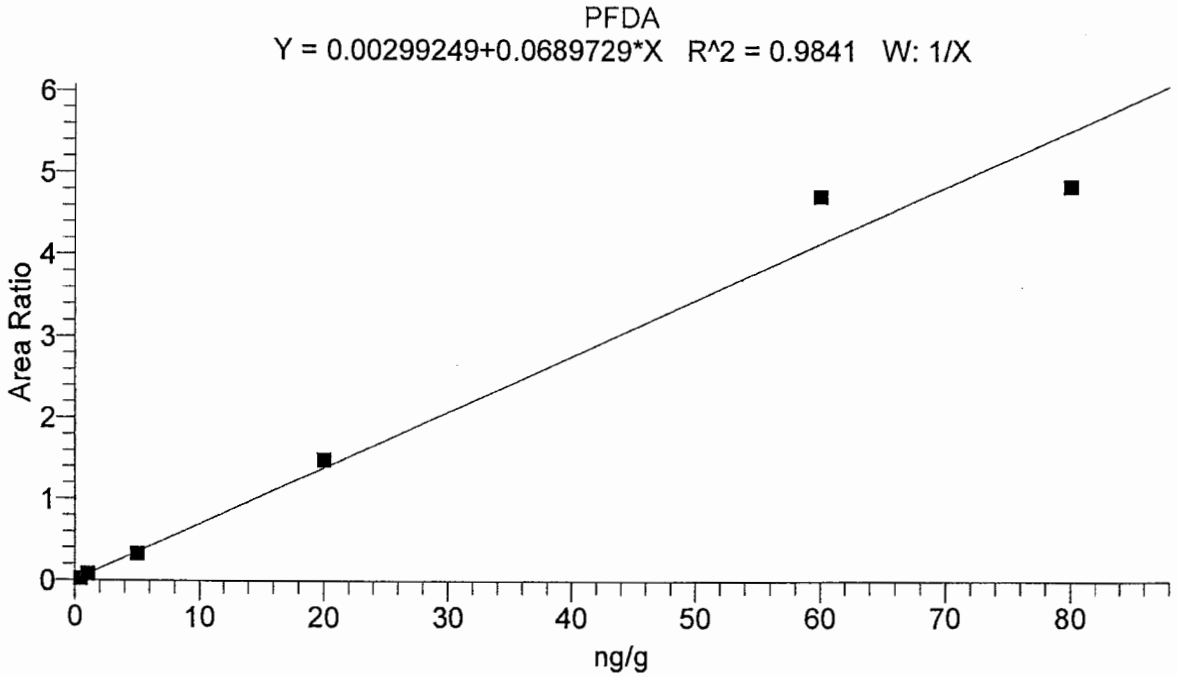
JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFDA**



Identification		Component Name:	PFDA
Filter:	- c ESI SRM ms2 512.88 [468.88-468.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A		
Mass Range 2 (m/z):		Mass Range 1 (m/z):	
Base Peak(BP):		Wavelength Range 2 (nm):	N/A
Retention Time			
Window (sec):	50.00000	Expected RT (min):	10.10000
RT Reference:	No	View Width (min):	3.00000
Adjust Using:	N/A	Adjust Expected RT:	No
Detection Options			
		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection			
ICIS Minimum Peak Height (S/N):	50.0	ICIS Identify By:	Nearest RT
ICIS Window %:		ICIS Ion Ratio Confirmation:	Disabled
		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters			
		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

Jason W. Knight
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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	4.753	59752.23	180631.04	0.331	-4.95
CAL5	16JUL22-14	68.458	879455.18	186138.99	4.725	14.10
CAL6	16JUL22-15	70.237	1054607.46	217560.35	4.847	-12.20
CAL2	16JUL22-16	1.091	18060.28	230726.33	0.078	9.15
CAL4	16JUL22-17	21.516	326558.16	219607.46	1.487	7.58
CAL1	16JUL22-18	0.345	7328.04	273342.70	0.027	-13.67
ICV1	16JUL22-20	25.857	386599.90	216407.82	1.786	29.29
CCV2	16JUL22-39	24.988	309054.87	179009.46	1.726	24.94
CCV3	16JUL22-50	61.479	839976.13	197950.05	4.243	2.46
CCV2	16JUL22-61	23.957	378867.89	228876.04	1.655	19.78
CCV3	16JUL22-66	63.988	872950.41	197660.47	4.416	6.65

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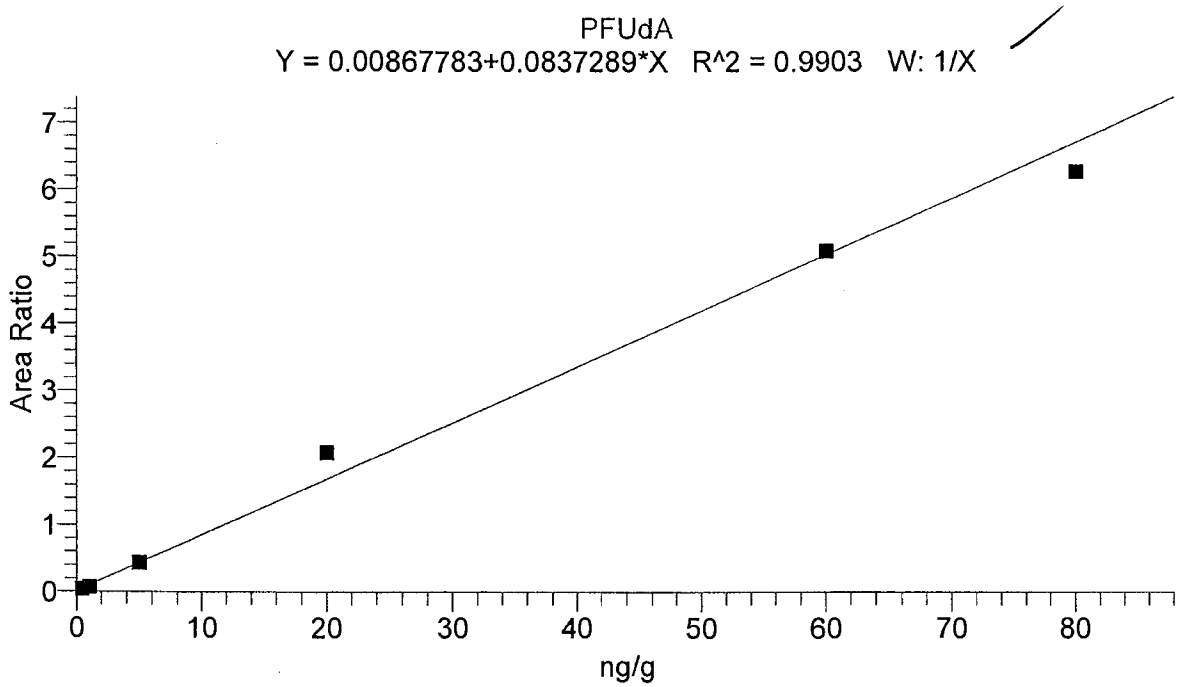
LCMSMS ANALYSIS REPORT

Component Name: **PFUdA**



Identification		Component Name:	PFUdA
Filter:	- c ESI SRM ms2 562.87 [518.87-518.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A		
Mass Range 2 (m/z):		Mass Range 1 (m/z):	
Base Peak(BP):		Wavelength Range 2 (nm):	N/A
Retention Time			
Window (sec):	50.00000	Expected RT (min):	10.71000
RT Reference:	No	View Width (min):	3.00000
Adjust Using:	N/A	Adjust Expected RT:	No
Detection Options			
		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection			
ICIS Minimum Peak Height (S/N):	50.0	ICIS Identify By:	Nearest RT
ICIS Window %:		ICIS Ion Ratio Confirmation:	Disabled
		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters			
		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUdA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

Jason W. Knight
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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.400
2	1.000
3	5.000
4	20.000
5	60.000
6	80.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	5.000
2	20.000
3	60.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	5.027	61926.24	144153.90	0.430	0.54
CAL5	16JUL22-14	60.688	838446.37	164723.45	5.090	1.15
CAL6	16JUL22-15	74.829	1012553.19	161388.22	6.274	-6.46
CAL2	16JUL22-16	0.707	10400.14	153311.44	0.068	-29.34
CAL4	16JUL22-17	24.707	345009.00	166079.24	2.077	23.54
CAL1	16JUL22-18	0.442	11331.41	247871.61	0.046	10.59
ICV1	16JUL22-20	25.933	349749.72	160431.25	2.180	29.67
CCV2	16JUL22-39	21.639	296369.72	162798.59	1.820	8.19
CCV3	16JUL22-50	65.133	814403.75	149098.29	5.462	8.56
CCV2	16JUL22-61	20.865	323893.84	184483.30	1.756	4.32
CCV3	16JUL22-66	62.828	781531.86	148320.84	5.269	4.71

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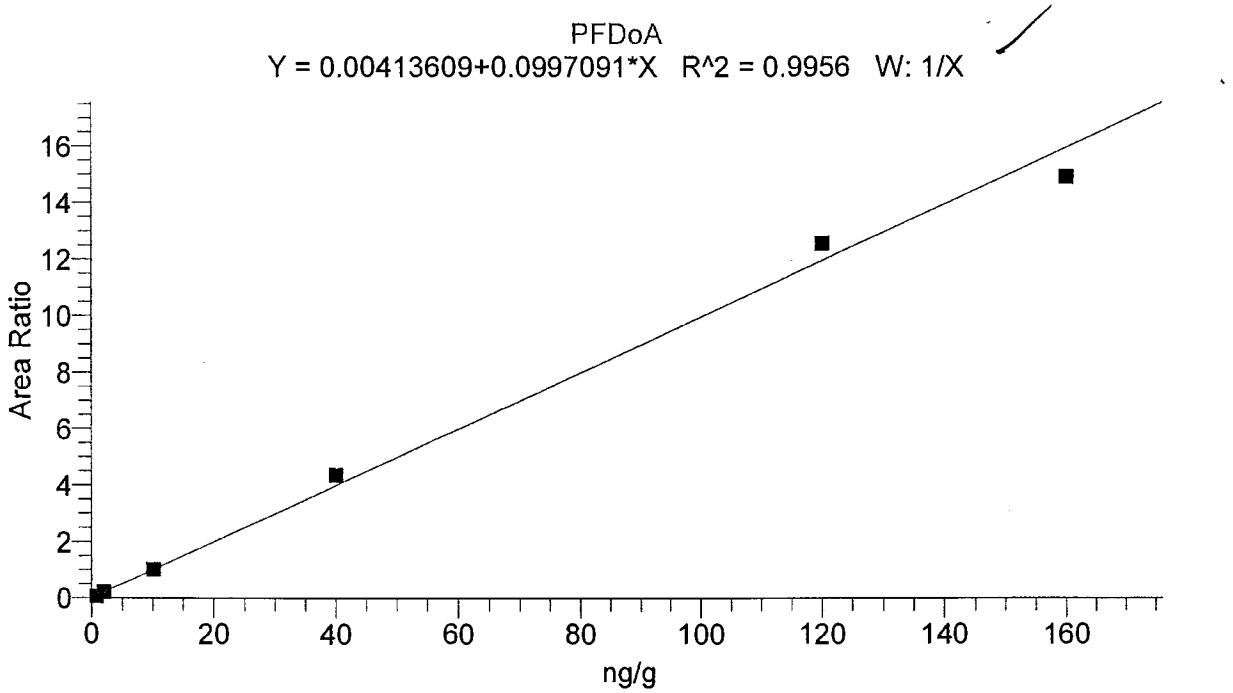
LCMSMS ANALYSIS REPORT

Component Name: **PFDoA**



Identification		Component Name:	PFDoA
Filter:	- c ESI SRM ms2 612.90 [568.89-568.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	11.49000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDoA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

Jason W. Knight
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JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.800
2	2.000
3	10.000
4	40.000
5	120.000
6	160.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	10.000
2	40.000
3	120.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	10.260	137791.59	134146.39	1.027	2.60
CAL5	16JUL22-14	126.287	1396290.05	110850.92	12.596	5.24
CAL6	16JUL22-15	149.717	2262939.61	151546.29	14.932	-6.43
CAL2	16JUL22-16	2.060	38718.09	184749.57	0.210	3.02
CAL4	16JUL22-17	43.786	672193.46	153819.50	4.370	9.47
CAL1	16JUL22-18	0.689	12682.03	174160.34	0.073	-13.90
ICV1	16JUL22-20	22.688	335933.21	148230.17	2.266	13.44
CCV2	16JUL22-39	45.459	578829.61	127584.98	4.537	13.65
CCV3	16JUL22-50	121.929	1522042.18	125151.47	12.162	1.61
CCV2	16JUL22-61	45.013	671468.93	149470.44	4.492	12.53
CCV3	16JUL22-66	132.221	1755164.28	133090.27	13.188	10.18

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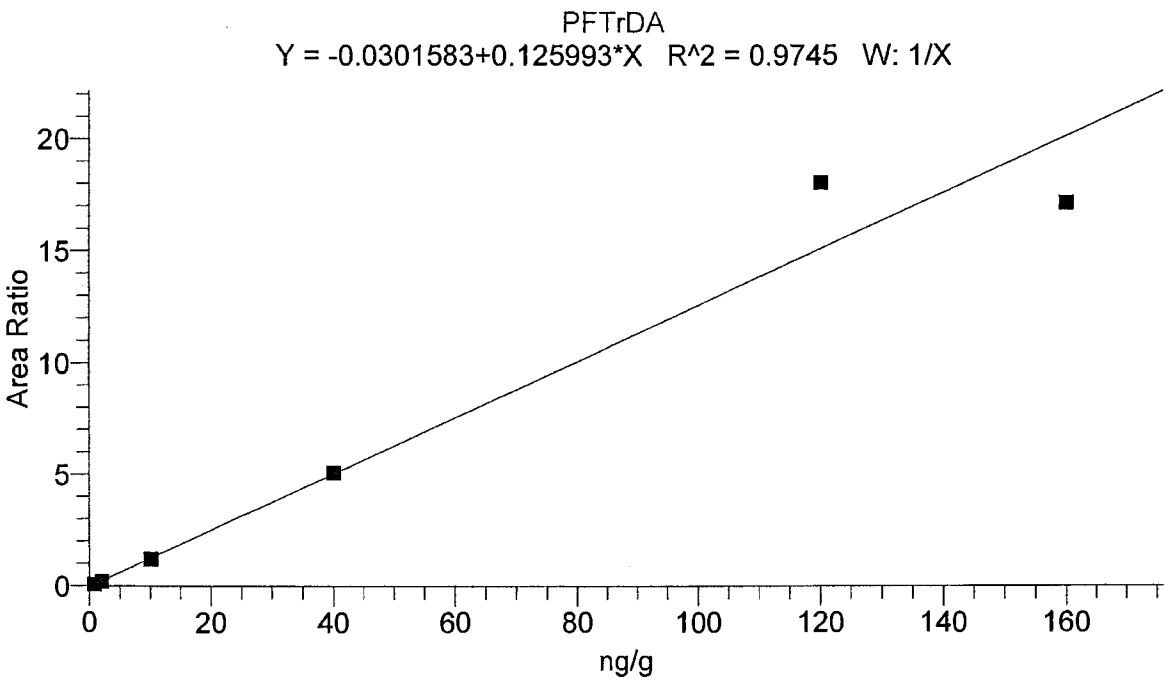
JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFTrDA**



Identification		Component Name:	PFTrDA
Filter:	- c ESI SRM ms2 662.90 [618.89-618.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	12.41000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDoA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

Jason W. Knight
Senior Chemist

JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.800
2	2.000
3	10.000
4	40.000
5	120.000
6	160.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	10.000
2	40.000
3	120.000

ICV & CCV Result Table

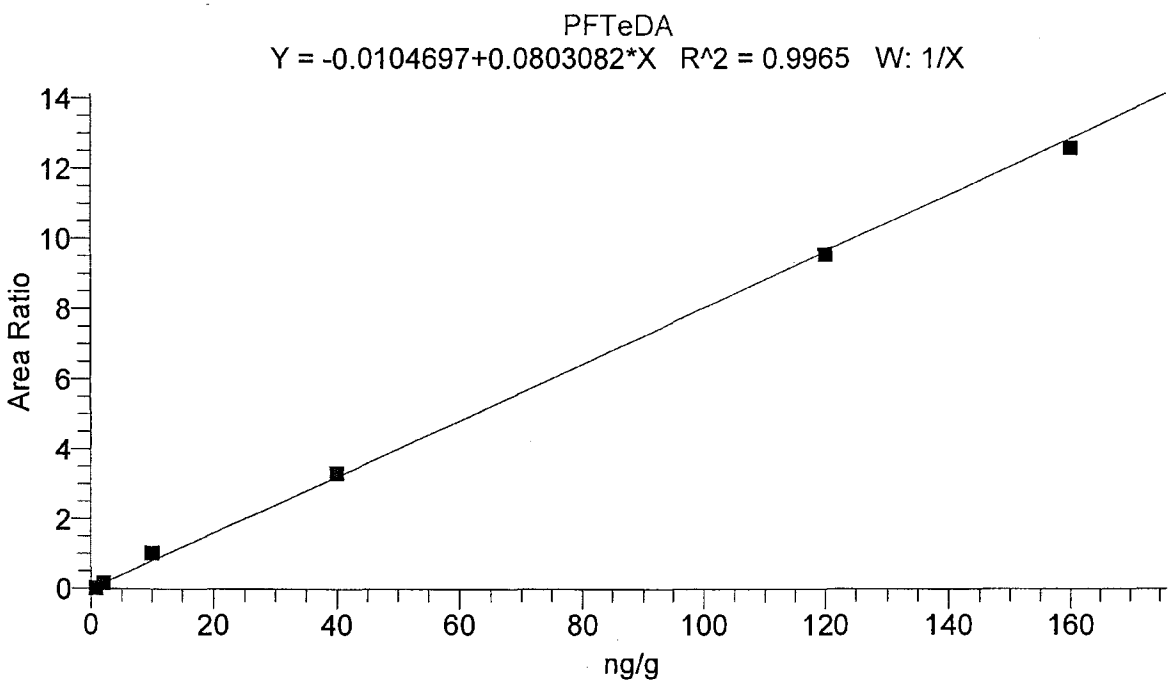
Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	9.757	160867.21	134146.39	1.199	-2.43
CAL5	16JUL22-14	143.585	2002038.70	110850.92	18.061	19.65
CAL6	16JUL22-15	136.349	2598856.35	151546.29	17.149	-14.78
CAL2	16JUL22-16	1.710	34235.55	184749.57	0.185	-14.49
CAL4	16JUL22-17	40.512	780486.21	153819.50	5.074	1.28
CAL1	16JUL22-18	0.886	14192.33	174160.34	0.081	10.77
ICV1	16JUL22-20	19.055	351406.25	148230.17	2.371	-4.72
CCV2	16JUL22-39	43.797	700183.77	127584.98	5.488	9.49
CCV3	16JUL22-50	117.960	1856239.58	125151.47	14.832	-1.70
CCV2	16JUL22-61	34.589	646877.53	149470.44	4.328	-13.53
CCV3	16JUL22-66	98.463	1647062.30	133090.27	12.376	-17.95

Jason W. Knight
Senior Chemist

JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFTeDA**



Identification		Component Name:	PFTeDA
Filter:	- c ESI SRM ms2 712.90 [668.89-668.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	13.33000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUdA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/g
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

Jason W. Knight
Senior Chemist

JUL 25 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	0.800
2	2.000
3	10.000
4	40.000
5	120.000
6	160.000

Component QC Level Table

QC Level	Amount
ICV1	20.000
ICV2	40.000
1	10.000
2	40.000
3	120.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL3	16JUL22-12	12.944	148339.00	144153.90	1.029	29.44
CAL5	16JUL22-14	119.069	1573392.11	164723.45	9.552	-0.78
CAL6	16JUL22-15	156.721	2029539.97	161388.22	12.576	-2.05
CAL2	16JUL22-16	2.134	24673.60	153311.44	0.161	6.72
CAL4	16JUL22-17	41.427	550797.95	166079.24	3.316	3.57
CAL1	16JUL22-18	0.505	7453.42	247871.61	0.030	-36.90
ICV1	16JUL22-20	22.441	287448.35	160431.25	1.792	12.20
CCV2	16JUL22-39	44.890	585189.70	162798.59	3.595	12.22
CCV3	16JUL22-50	123.063	1471974.28	149098.29	9.873	2.55
CCV2	16JUL22-61	40.107	592280.40	184483.30	3.210	0.27
CCV3	16JUL22-66	126.144	1500993.73	148320.84	10.120	5.12

Lynn Dodd
JUL 25 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 25 2016

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP96
Matrix: Soil

Fraction: PFAAs by LC/MS/MS

Edits to response per Environmental Standards

16201005	13C-PFNA	13C-PFOA	13C-PFDA	13C-PFDoA
	Area	Area	Area	Area
Average ICAL Response	219752	~~482984~~ 200525	218001	151546
Upper Limit	329628	~~724476~~ 300788	327002	227318
Lower Limit	109876	~~241492~~ 100263	109001	75773
Sample				
MB16201005	247730	221806 *	219570	159077
LCS16201005	230427	199834 *	188472	152657
8433353 RE	236395	218585 *	179349	143555
8433357 RE	182543	174611 *	157444	124146
8433358 RE	222303	218316 *	226653	158453
8433359 RE	243671	220606 *	201810	162052
8433354 RE	184133	158576 *	156841	109588
8433355MS RE	173766	174145 *	147625	127728
8433356MSD RE	239589	203753 *	192377	137672

With the edits per Environmental Standards, responses fall within the upper and lower limits for PFOA

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP96
Matrix: Soil

Fraction: PFAAs by LC/MS/MS

16201005	13C-PFHpA	13C-PFHxA	13C-PFHxS	13C-PFOS
	Area	Area	Area	Area
Average ICAL Response	193352	110904	26687	18566
Upper Limit	290029	166356	40031	27849
Lower Limit	96676	55452	13344	9283
Sample				
MB16201005	240538	110661	31101	16646
LCS16201005	221932	107330	29621	18704
8433353 RE	227951	139275	31042	16521
8433357 RE	185735	103319	21584	17846
8433358 RE	206915	123410	27814	23634
8433359 RE	221002	120780	32847	22472
8433354 RE	195867	104417	26626	12979
8433355MS RE	174794	108401	29011	17330
8433356MSD RE	210658	120427	27302	17929

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SGP96
Matrix: Soil

Fraction: PFAAs by LC/MS/MS

16201005	13C-PFUnA
	Area
Average ICAL Response	172921
Upper Limit	259382
Lower Limit	86461
Sample	
MB16201005	184358
LCS16201005	182236
8433353 RE	193283
8433357 RE	138019
8433358 RE	189147
8433359 RE	179956
8433354 RE	126440
8433355MS RE	119662
8433356MSD RE	169455

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

Organic Extraction Batchlog Assigned to: 1026 Devon Whooley Reviewed by: JA/4/15 Start Date: 7/20/16 Start time: 09:45

16201005 Tech 1: DW 102602 Tech 2:

> 28 days

Analyses on Batch: PFC s in Soil by LC/MS/MS

Not Reported

Dept: 37 Prep Analysis: 14090 PFC Solid Prep

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
8433355MS	SG322	4.98	LCSPFCx16037A	0.250	235002-53A	0.20	1		170a	
8433356MSD	SG322	5.03	↓	0.250	235002-53A	0.20	1		170a	
BLANKA	BLK201005	5.00		0.250	N/A	N/A	1			
LCSA	OPR201005	5.00	↓	0.250	235002-53A	0.20	1			

Reagent	Lot No.
80% ACN:H2O	102620719163JA
96% MeOH:H2O	159749
Sand	

Spike Solutions: Witness: JWK9524 Instrument: THERMO QUANTUM

Sequence: 16JUL22-16201005

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
1 8420528 R	409F2	5.00	LCSPFCx16037A	0.250	1		170a		14027	06/22/2016	N
2 8421800 R	711D1	5.47	↓	0.250	1		170a		14027	06/23/2016	N
3 8421801 R	711D2	4.94		0.250	1		170a		14027	06/23/2016	N
4 8421802 R	711C1	5.10		0.250	1		170a		14027	06/23/2016	N
5 8421803 R	711C2	5.04		0.250	1		170a		14027	06/23/2016	N
6 8421804 R	711A1	5.16		0.250	1		170a		14027	06/23/2016	N
7 8421805 R	711A2	5.27		0.250	1		170a		14027	06/23/2016	N
8 8421806 R	711B1	4.89		0.250	1		170a		14027	06/23/2016	N
9 8421807 R	711B2	5.01		0.250	1		170a		14027	06/23/2016	N
10 8433353 R	SG321	5.35		0.250	1		170a		14027	06/30/2016	N
11 8433354 R	SG322	5.22		0.250	1		170a		14027	06/30/2016	N
12 8433357 R	SG323	5.20		0.250	1		170a		14027	06/30/2016	N
13 8433358 R	SG324	5.41		0.250	1		170a		14027	06/30/2016	N
14 8433359 R	FD117	5.10	↓	0.250	1		170a		14027	06/30/2016	N

1mL

Balance #	112/1112/2	Sonic Bath ID		N-evap	C	16201005

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Page 495 of 496

Sequence Table

File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16Jun28-30	MDL	N/A	N/A	c:2	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_17.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-31	CAL1	N/A	1	c:3	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_17.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-32	CAL2	N/A	2	c:4	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_17.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-33	CAL3	N/A	3	c:5	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-34	CAL4	N/A	4	c:6	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-35	CAL5	N/A	5	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-36	CAL6	N/A	6	c:8	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-37	recon	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-39	ICV1	N/A	ICV1	c:9	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-57	CCV1	N/A	1	c:5	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-61	LCS 16172001	N/A	N/A	a:2	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-62	LCSD 16172001	N/A	N/A	a:3	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-64	8427013	N/A	N/A	A:4	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-65	8427027	N/A	N/A	A:5	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-66	8427028	N/A	N/A	A:6	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-67	8427033	N/A	N/A	A:7	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-68	8432116	N/A	N/A	A:8	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-69	CCV2	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-71	8432117	N/A	N/A	A:9	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-72	8432127	N/A	N/A	A:10	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-73	8432128	N/A	N/A	A:11	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-74	8432130	N/A	N/A	A:12	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale

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JUN 2 9 2016

File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16Jun28-75	8432140	N/A	N/A	A:13	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-76	8433348	N/A	N/A	A:14	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-77	8433349	N/A	N/A	A:15	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-78	8433350	N/A	N/A	A:16	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-79	8433351	N/A	N/A	A:17	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-80	CCV3	N/A	3	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-82	8433352	N/A	N/A	A:18	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-83	8427012 MS	N/A	N/A	A:19	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-84	8427012 BKG	N/A	N/A	A:20	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-86	MB 16172001	N/A	N/A	a:1	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-87	CCV1	N/A	1	c:5	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale

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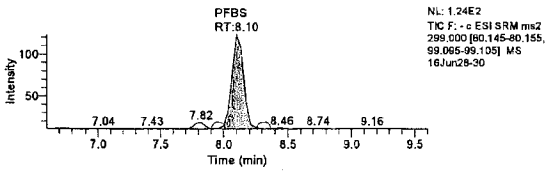
LCMSMS ANALYSIS REPORT

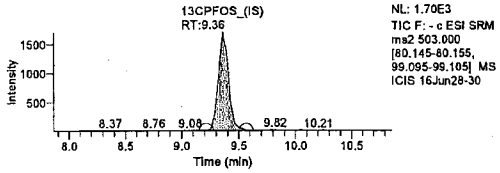
Sample Name:	MDL	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	MDL	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16Jun28-30		M\HWell_17.5minutes
Acquisition Date:	06/28/16 03:46:56 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:2	Instrument Software Version:	2.5.0.1311
Run Time(min):	17.50	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.39	209018.93	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.07	149262.03	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.89	162578.76	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.49	130845.40	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.78	139261.07	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.49	89825.18	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.78	24105.45	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.36	10735.64	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.67	143805.94	N/A	N/A	N/A
PFBS	6.184	8.10	720.97	10735.64	0.067	ng/L
PFDA	0.730	9.89	2402.31	162578.76	0.015	ng/L
PFDoA	2.449	11.49	3962.57	130845.40	0.030	ng/L
PFHxA	1.449	8.49	1367.97	89825.18	0.015	ng/L
PFHxS	6.852	8.74	137.26	24105.45	0.006	ng/L
PFNA	1.561	9.43	3784.86	209018.93	0.018	ng/L
PFOA	2.116	9.07	3803.11	149262.03	0.025	ng/L
PFOS	5.274	9.39	120.86	10735.64	0.011	ng/L
PFTeDA	3.194	14.39	2981.74	143805.94	0.021	ng/L
PFTrDA	2.492	12.66	2061.86	143805.94	0.014	ng/L
PFUdA	1.327	10.67	1516.18	143805.94	0.011	ng/L
PFhpA	1.623	8.78	2675.43	139261.07	0.019	ng/L

Component Name: PFBS





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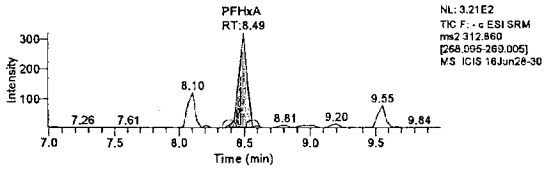

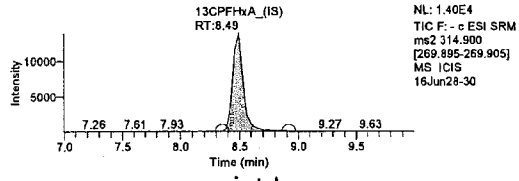

Component Name: PFHxS

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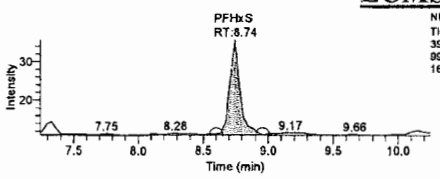
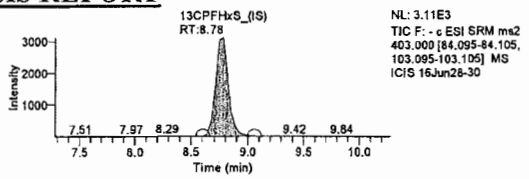
LCMSMS ANALYSIS REPORT





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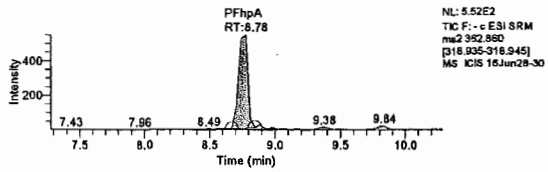

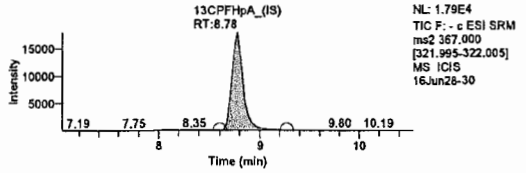

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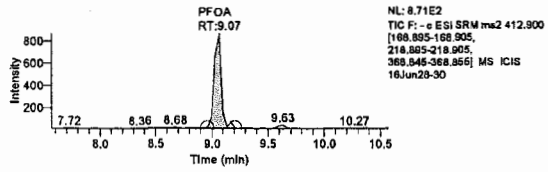
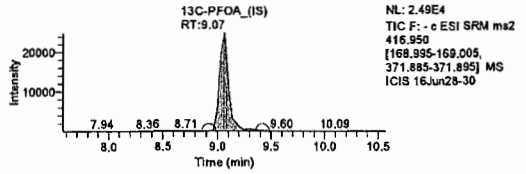
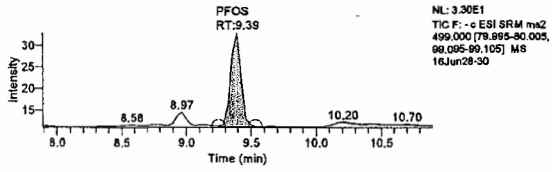
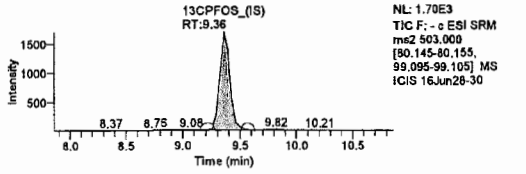


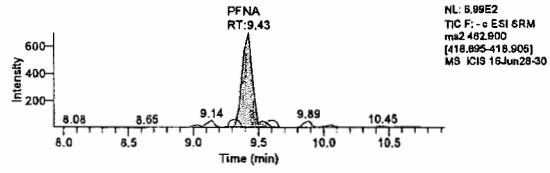


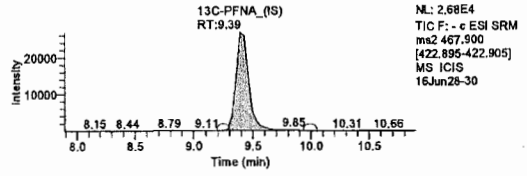
Component Name: PFOS



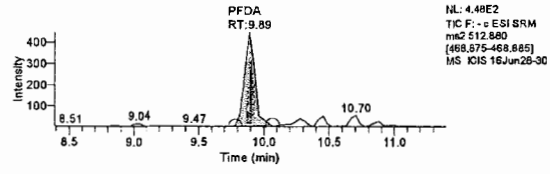


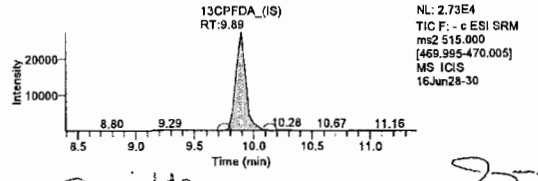
Component Name: PFNA





Component Name: PFDA





Component Name: PFUdA

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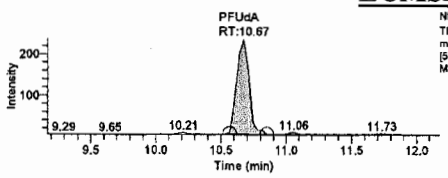
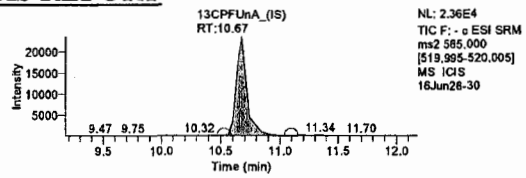
LCMSMS ANALYSIS REPORT





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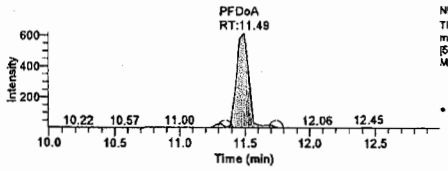
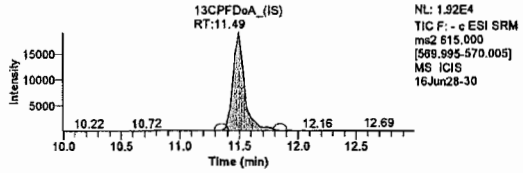
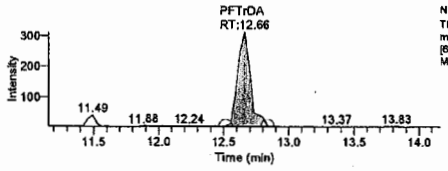
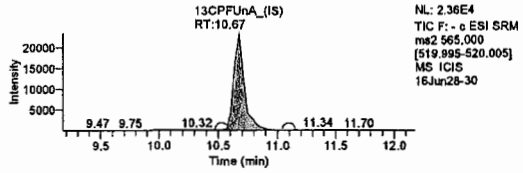


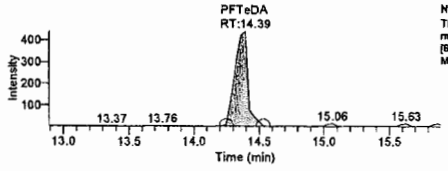


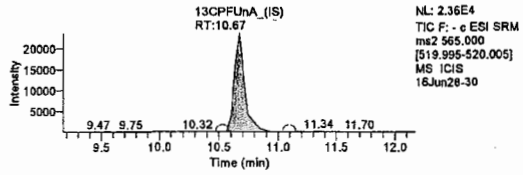
Component Name: PFTrDA





Component Name: PFTeDA





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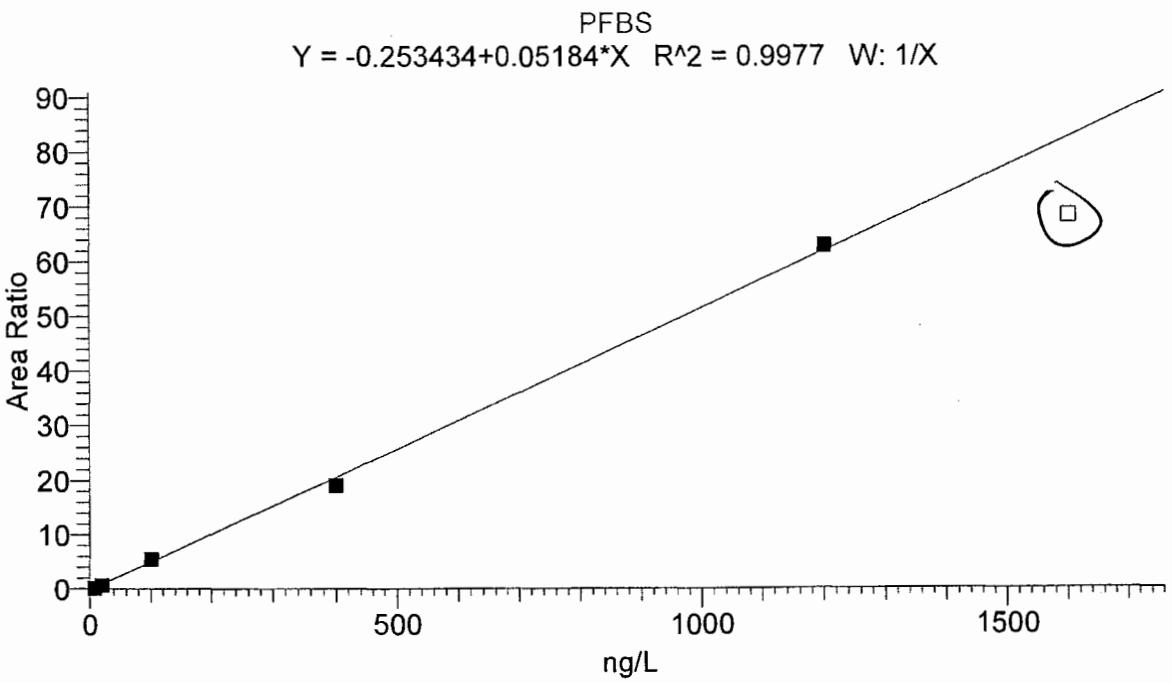
LCMSMS ANALYSIS REPORT

Component Name: **PFBS**



Identification		Component Name:	PFBS
Filter:	- c ESI SRM ms2 299.00 [80.14-80.16, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.25000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	100.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFOS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	8.000
2	20.000
3	100.000
4	400.000
5	1200.000
6	1600.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	100.000
2	400.000
3	1200.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	8.582	2388.65	12475.93	0.191	7.28
CAL2	16Jun28-32	17.491	9308.33	14247.69	0.653	-12.54
CAL3	16Jun28-33	110.544	81025.90	14793.39	5.477	10.54
CAL4	16Jun28-34	372.646	304031.77	15947.51	19.065	-6.84
CAL5	16Jun28-35	1218.737	787373.41	12512.72	62.926	1.56
(8) CAL6	16Jun28-36	1323.840	831925.07	12167.20	68.374	-17.26
ICV1	16Jun28-39	88.712	64409.56	14822.48	4.345	-11.29
CCV1	16Jun28-57	119.640	72670.54	12216.20	5.949	19.64
CCV2	16Jun28-69	385.867	311655.00	15780.08	19.750	-3.53
CCV3	16Jun28-80	1122.569	744050.42	12841.62	57.941	-6.45
CCV1	16Jun28-87	141.650	84210.29	11877.82	7.090	41.65 ↑

(8) Removed from calibration
MJP 1758 6/29/16

No (+)

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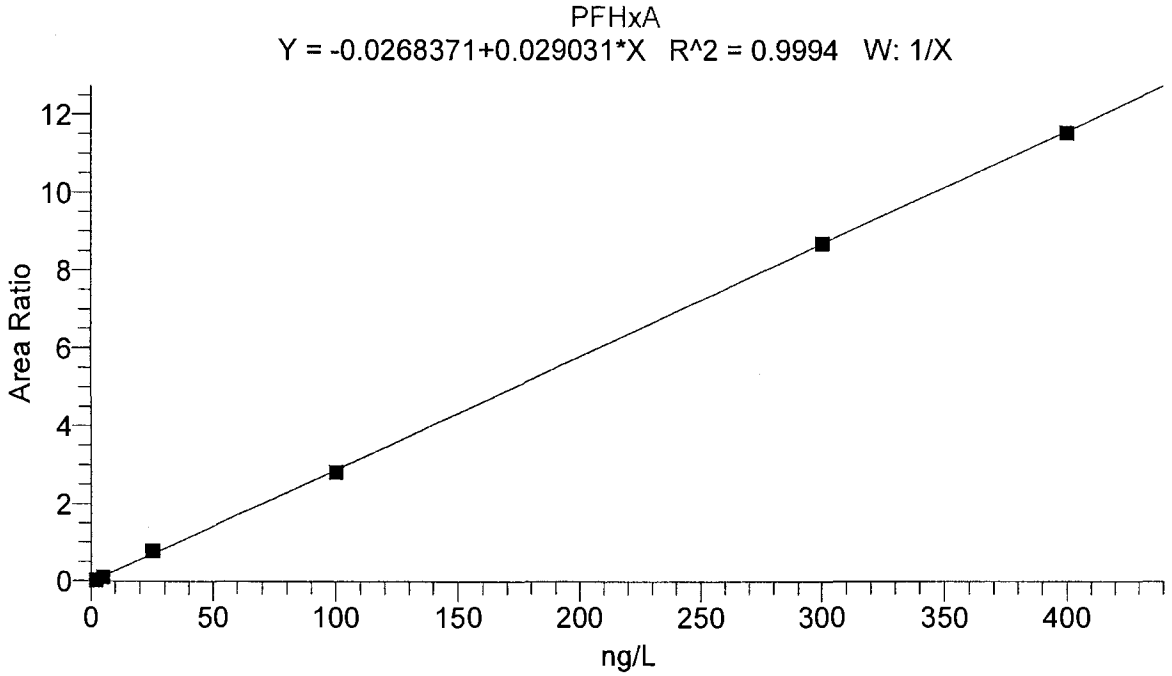
LCMSMS ANALYSIS REPORT

Component Name: **PFHxA**



Identification		Component Name:	PFHxA
Filter:	- c ESI SRM ms2 312.86 [269.00-269.01]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.50000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	1.889	2821.93	100754.17	0.028	-5.54
CAL2	16Jun28-32	4.749	12174.22	109660.34	0.111	-5.03
CAL3	16Jun28-33	28.170	79339.46	100308.36	0.791	12.68
CAL4	16Jun28-34	98.095	303708.73	107661.22	2.821	-1.90
CAL5	16Jun28-35	300.267	858213.47	98756.32	8.690	0.09
CAL6	16Jun28-36	398.831	991110.93	85798.26	11.552	-0.29
ICV1	16Jun28-39	94.340	278136.82	102559.72	2.712	-5.66
CCV1	16Jun28-57	22.832	63977.39	100593.25	0.636	-8.67
CCV2	16Jun28-69	94.455	302646.46	111460.01	2.715	-5.54
CCV3	16Jun28-80	323.869	900622.65	96062.10	9.375	7.96
CCV1	16Jun28-87	21.537	70712.57	118170.40	0.598	-13.85

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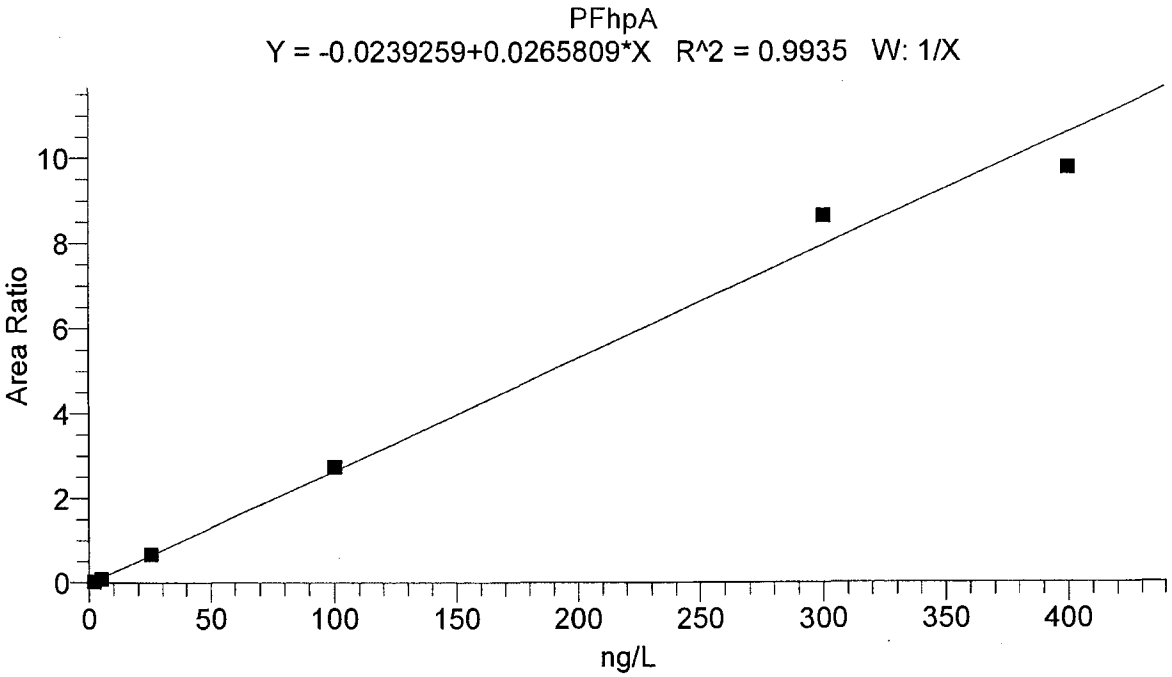
LCMSMS ANALYSIS REPORT

Component Name: **PFhpA**



Identification		Component Name:	PFhpA
Filter:	- c ESI SRM ms2 362.86 [318.94-318.94]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.76000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	10.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHpA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	2.180	5362.43	157632.04	0.034	9.00
CAL2	16Jun28-32	4.052	14635.29	174693.45	0.084	-18.96
CAL3	16Jun28-33	26.181	104392.20	155351.17	0.672	4.72
CAL4	16Jun28-34	104.198	396645.27	144458.58	2.746	4.20
CAL5	16Jun28-35	326.380	819865.85	94765.33	8.652	8.79
CAL6	16Jun28-36	369.010	914897.79	93502.87	9.785	-7.75
ICV1	16Jun28-39	83.402	344523.25	157102.87	2.193	-16.60
CCV1	16Jun28-57	27.292	93818.19	133736.04	0.702	9.17
CCV2	16Jun28-69	93.257	369349.45	150452.81	2.455	-6.74
CCV3	16Jun28-80	326.775	883261.20	101969.06	8.662	8.93
CCV1	16Jun28-87	26.261	109193.27	161982.73	0.674	5.04

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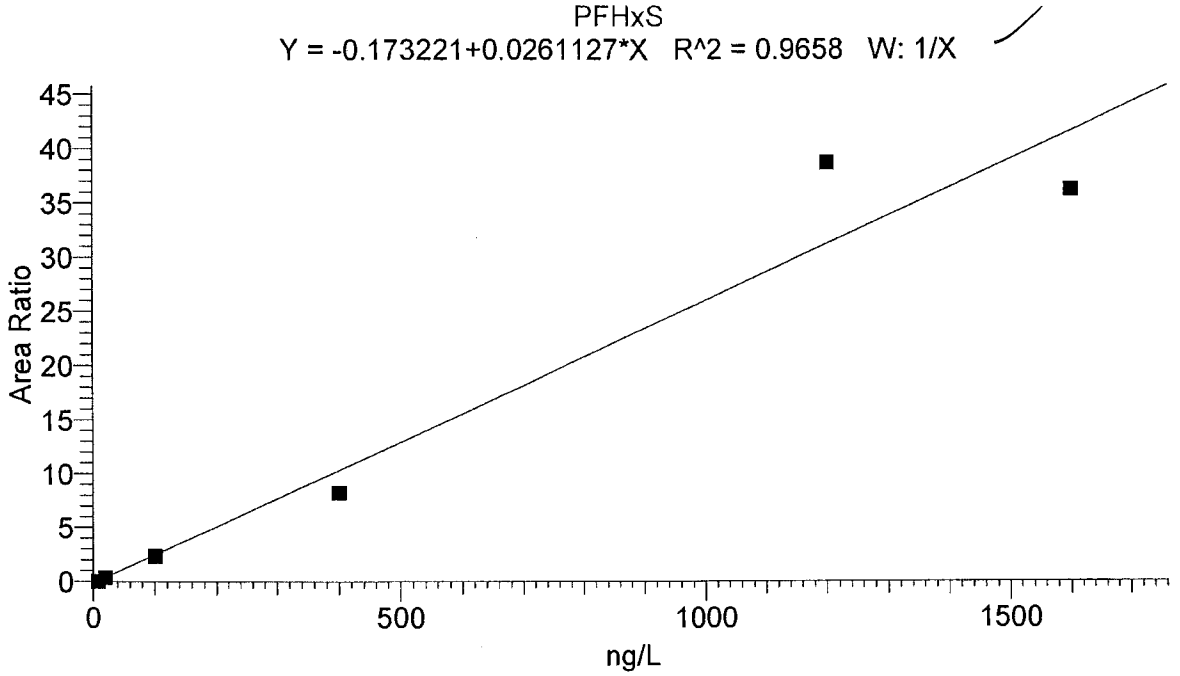
LCMSMS ANALYSIS REPORT

Component Name: **PFHxS**



Identification		Component Name:	PFHxS
Filter:	- c ESI SRM ms2 399.00 [80.09-80.11, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.73000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	100.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	8.000
2	20.000
3	100.000
4	400.000
5	1200.000
6	1600.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	100.000
2	400.000
3	1200.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	8.462	1061.90	22237.74	0.048	5.78
CAL2	16Jun28-32	21.211	11431.83	30032.05	0.381	6.05
CAL3	16Jun28-33	96.669	64885.10	27598.25	2.351	-3.33
CAL4	16Jun28-34	322.181	238866.08	28989.28	8.240	-19.45
CAL5	16Jun28-35	1487.325	618009.51	15983.74	38.665	23.94
CAL6	16Jun28-36	1392.152	612732.43	16935.82	36.180	-12.99
ICV1	16Jun28-39	81.989	55389.22	28148.56	1.968	-18.01
CCV1	16Jun28-57	124.565	60461.79	19633.51	3.080	24.57
CCV2	16Jun28-69	384.667	230078.08	23307.34	9.871	-3.83
CCV3	16Jun28-80	1267.697	533521.04	16201.76	32.930	5.64
CCV1	16Jun28-87	82.051	56919.53	28902.62	1.969	-17.95

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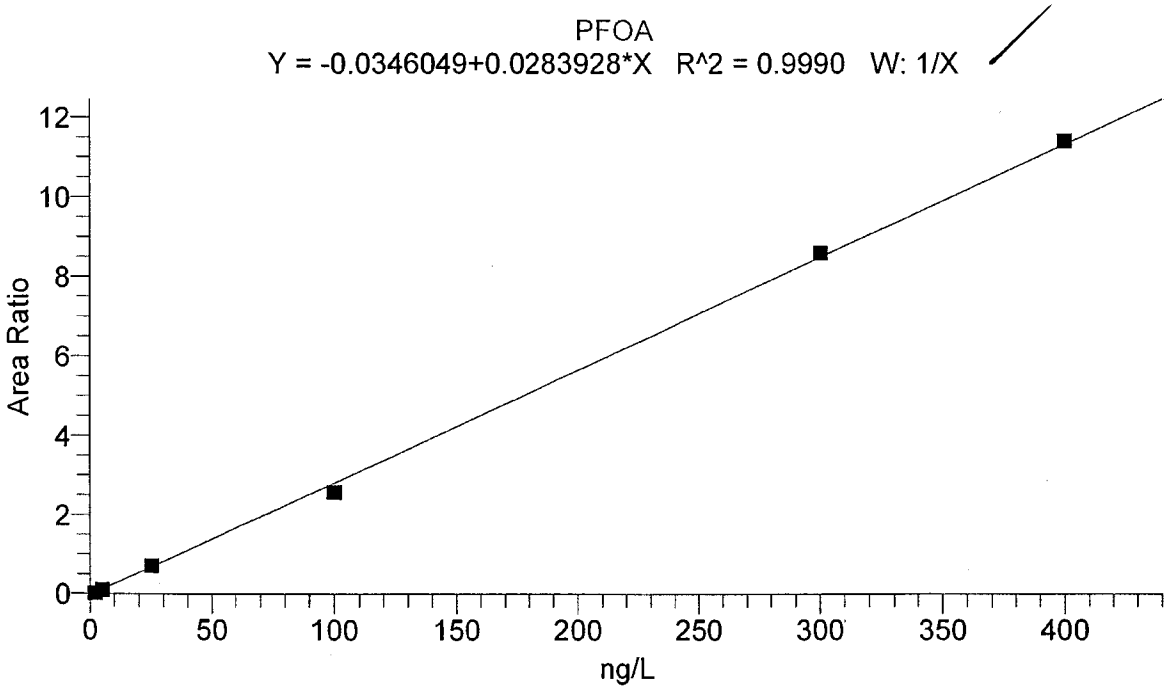
LCMSMS ANALYSIS REPORT

Component Name: **PFOA**



Identification		Component Name:	PFOA
Filter:	- c ESI SRM ms2 412.90 [168.90-168.91, 218.90-218.91, 368.85-368.86]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Rctention Time		Expected RT (min):	9.02000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	15
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	5.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFOA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	2.177	4803.03	176578.12	0.027	8.84
CAL2	16Jun28-32	4.639	16696.29	171915.40	0.097	-7.21
CAL3	16Jun28-33	26.073	113468.87	160794.34	0.706	4.29
CAL4	16Jun28-34	91.956	479078.21	185957.72	2.576	-8.04
CAL5	16Jun28-35	304.036	1399185.53	162737.26	8.598	1.35
CAL6	16Jun28-36	403.119	1594472.40	139730.47	11.411	0.78
ICV1	16Jun28-39	80.446	391280.99	173943.19	2.249	-19.55
CCV1	16Jun28-57	24.442	109209.03	165627.70	0.659	-2.23
CCV2	16Jun28-69	106.777	471635.85	157363.96	2.997	6.78
CCV3	16Jun28-80	302.809	1366250.16	159553.24	8.563	0.94
CCV1	16Jun28-87	25.059	111166.93	164230.11	0.677	0.24

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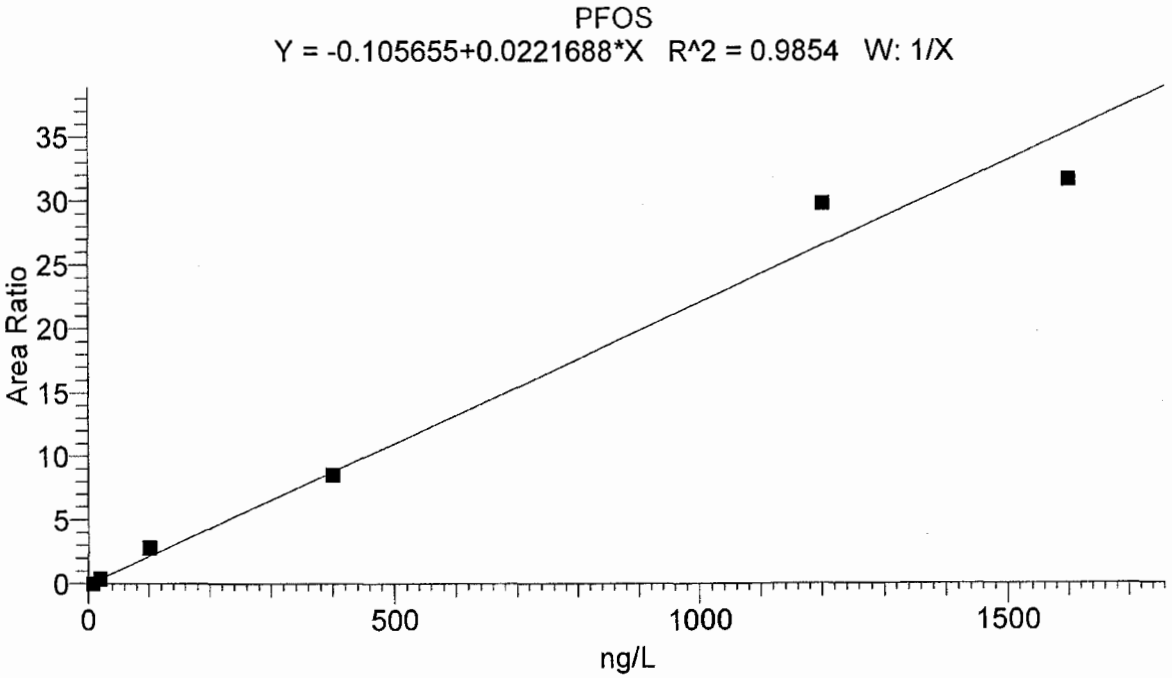
Component Name: **PFOS**



Identification		Component Name:	PFOS
Filter:	- c ESI SRM ms2 499.00 [80.00-80.00, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.25000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	100.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFOS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	8.000
2	20.000
3	100.000
4	400.000
5	1200.000
6	1600.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	100.000
2	400.000
3	1200.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	5.426	182.50	12475.93	0.015	-32.18
CAL2	16Jun28-32	20.494	4967.79	14247.69	0.349	2.47
CAL3	16Jun28-33	130.428	41211.00	14793.39	2.786	30.43
CAL4	16Jun28-34	388.949	135822.87	15947.51	8.517	-2.76
CAL5	16Jun28-35	1349.878	373122.56	12512.72	29.819	12.49
CAL6	16Jun28-36	1432.824	385192.62	12167.20	31.658	-10.45
ICV1	16Jun28-39	90.313	28110.52	14822.48	1.896	-9.69
CCV1	16Jun28-57	109.872	28464.66	12216.20	2.330	9.87
CCV2	16Jun28-69	348.024	120080.12	15780.08	7.610	-12.99
CCV3	16Jun28-80	1373.092	389539.03	12841.62	30.334	14.42
CCV1	16Jun28-87	140.756	35808.50	11877.82	3.015	40.76

no ⊕

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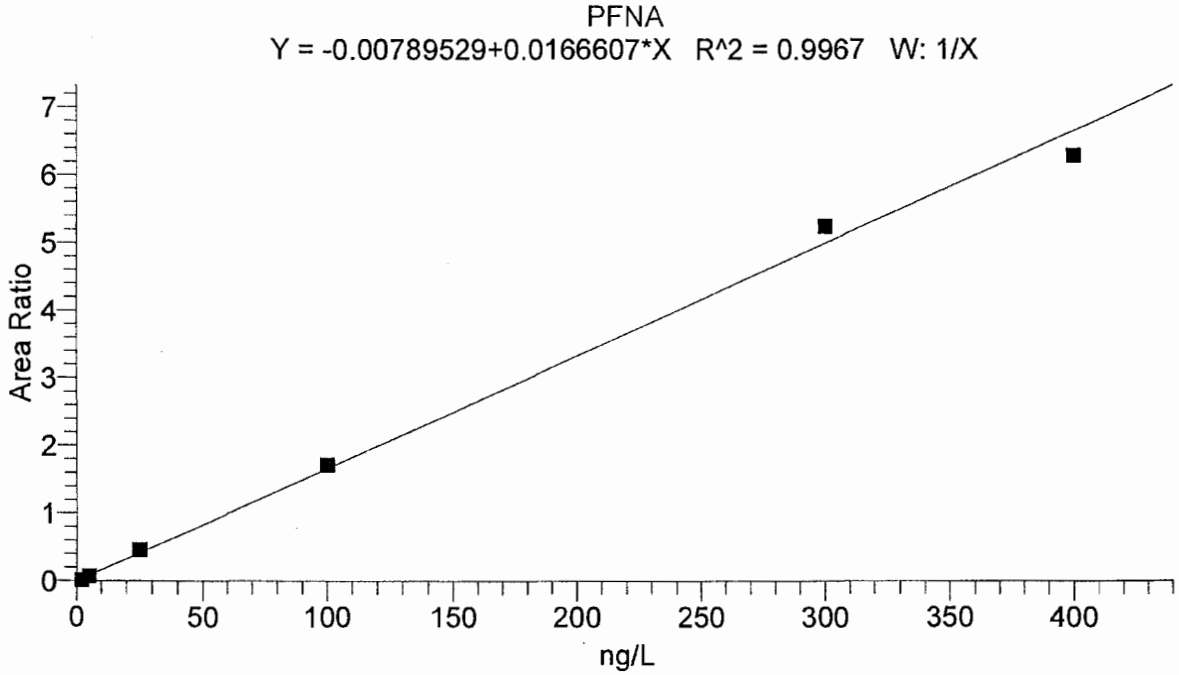
Component Name: **PFNA**



Identification		Component Name:	PFNA
Filter:	- c ESI SRM ms2 462.90 [418.89-418.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.28000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	10.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFNA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	1.712	4615.63	223826.72	0.021	-14.42
CAL2	16Jun28-32	4.885	16979.72	231017.61	0.073	-2.29
CAL3	16Jun28-33	28.367	108738.90	233985.70	0.465	13.47
CAL4	16Jun28-34	103.614	393115.67	228769.49	1.718	3.61
CAL5	16Jun28-35	315.258	1020389.71	194562.55	5.245	5.09
CAL6	16Jun28-36	378.163	1039360.23	165172.58	6.293	-5.46
ICV1	16Jun28-39	92.534	339262.57	221192.38	1.534	-7.47
CCV1	16Jun28-57	23.881	88369.73	226597.63	0.390	-4.47
CCV2	16Jun28-69	109.273	368197.96	203124.25	1.813	9.27
CCV3	16Jun28-80	309.952	983662.60	190775.43	5.156	3.32
CCV1	16Jun28-87	25.537	97073.52	232472.59	0.418	2.15

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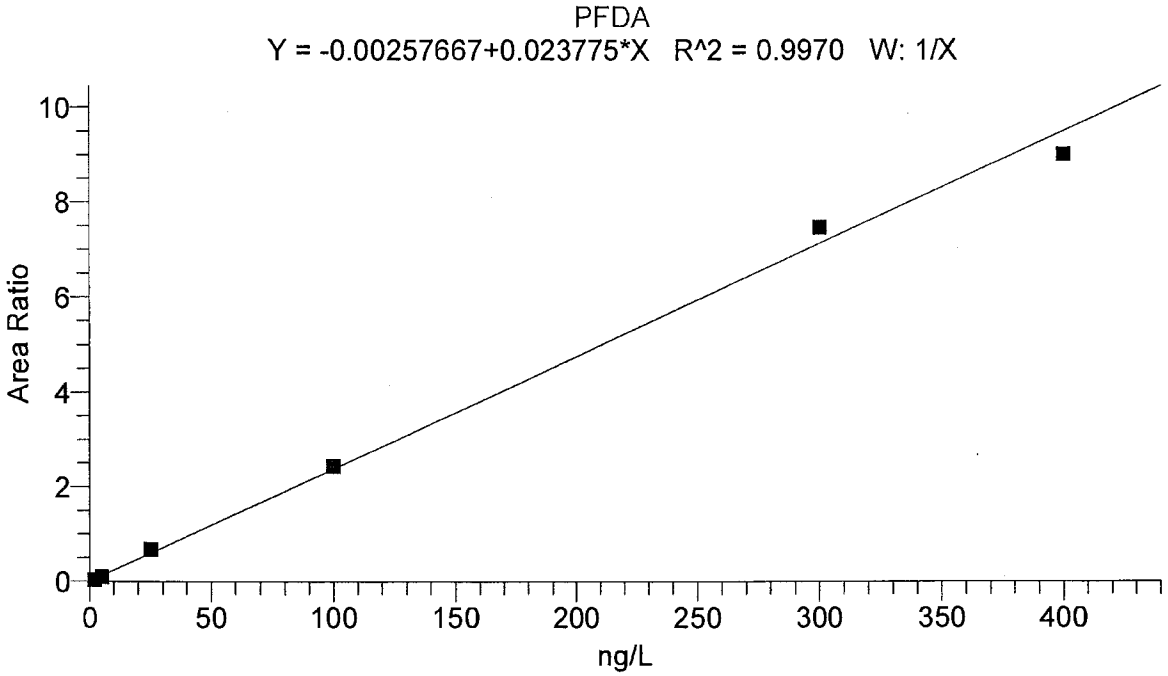
LCMSMS ANALYSIS REPORT

Component Name: **PFDA**



Identification		Component Name:	PFDA
Filter:	- c ESI SRM ms2 512.88 [468.88-468.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A		
Mass Range 2 (m/z):		Mass Range 1 (m/z):	
Base Peak(BP):		Wavelength Range 2 (nm):	N/A
Retention Time			
Window (sec):	50.00000	Expected RT (min):	9.57000
RT Reference:	No	View Width (min):	3.00000
Adjust Using:	N/A	Adjust Expected RT:	No
Detection Options			
		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	3.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	1.856	6410.24	154300.79	0.042	-7.21
CAL2	16Jun28-32	4.506	20143.10	192639.55	0.105	-9.87
CAL3	16Jun28-33	28.631	109946.92	162133.90	0.678	14.52
CAL4	16Jun28-34	102.807	403239.71	165149.94	2.442	2.81
CAL5	16Jun28-35	314.443	1221942.01	163507.54	7.473	4.81
CAL6	16Jun28-36	379.757	1348843.31	149437.08	9.026	-5.06
ICV1	16Jun28-39	91.247	345683.46	159535.43	2.167	-8.75
CCV1	16Jun28-57	27.171	94998.96	147650.52	0.643	8.68
CCV2	16Jun28-69	115.858	427438.14	155322.52	2.752	15.86
CCV3	16Jun28-80	326.929	1131424.54	145611.38	7.770	8.98
CCV1	16Jun28-87	27.031	99393.44	155279.50	0.640	8.13

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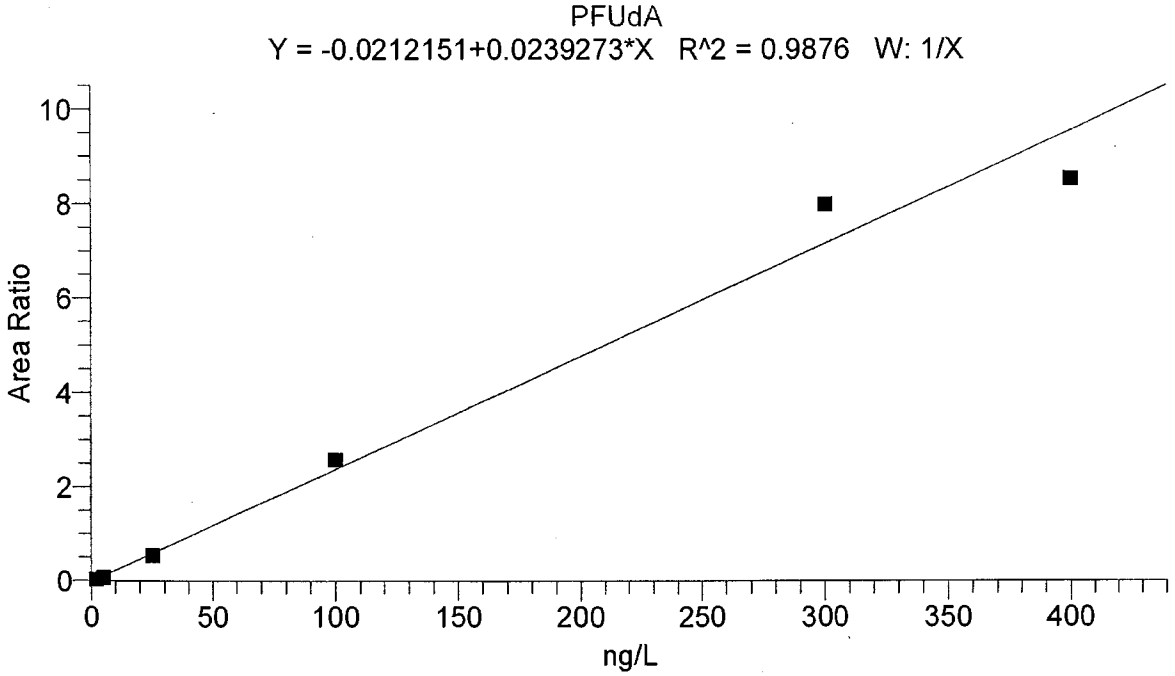
LCMSMS ANALYSIS REPORT

Component Name: **PFUdA**



Identification		Component Name:	PFUdA
Filter:	- c ESI SRM ms2 562.87 [518.87-518.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A		
Mass Range 2 (m/z):		Mass Range 1 (m/z):	
Base Peak(BP):		Wavelength Range 2 (nm):	N/A
Retention Time			
Window (sec):	50.00000	Expected RT (min):	9.99000
RT Reference:	No	View Width (min):	3.00000
Adjust Using:	N/A	Adjust Expected RT:	No
Detection Options			
		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUnA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	2.355	5500.71	156535.00	0.035	17.76
CAL2	16Jun28-32	3.924	12026.25	165451.69	0.073	-21.51
CAL3	16Jun28-33	23.350	99068.44	184315.88	0.537	-6.60
CAL4	16Jun28-34	109.075	420926.31	162604.47	2.589	9.07
CAL5	16Jun28-35	335.352	1242640.54	155274.87	8.003	11.78
CAL6	16Jun28-36	357.943	1250775.27	146402.77	8.543	-10.51
ICV1	16Jun28-39	96.678	354865.67	154826.74	2.292	-3.32
CCV1	16Jun28-57	25.327	94826.63	162156.46	0.585	1.31
CCV2	16Jun28-69	110.033	402504.03	154123.34	2.612	10.03
CCV3	16Jun28-80	320.309	1141283.95	149325.92	7.643	6.77
CCV1	16Jun28-87	24.637	93815.06	165086.51	0.568	-1.45

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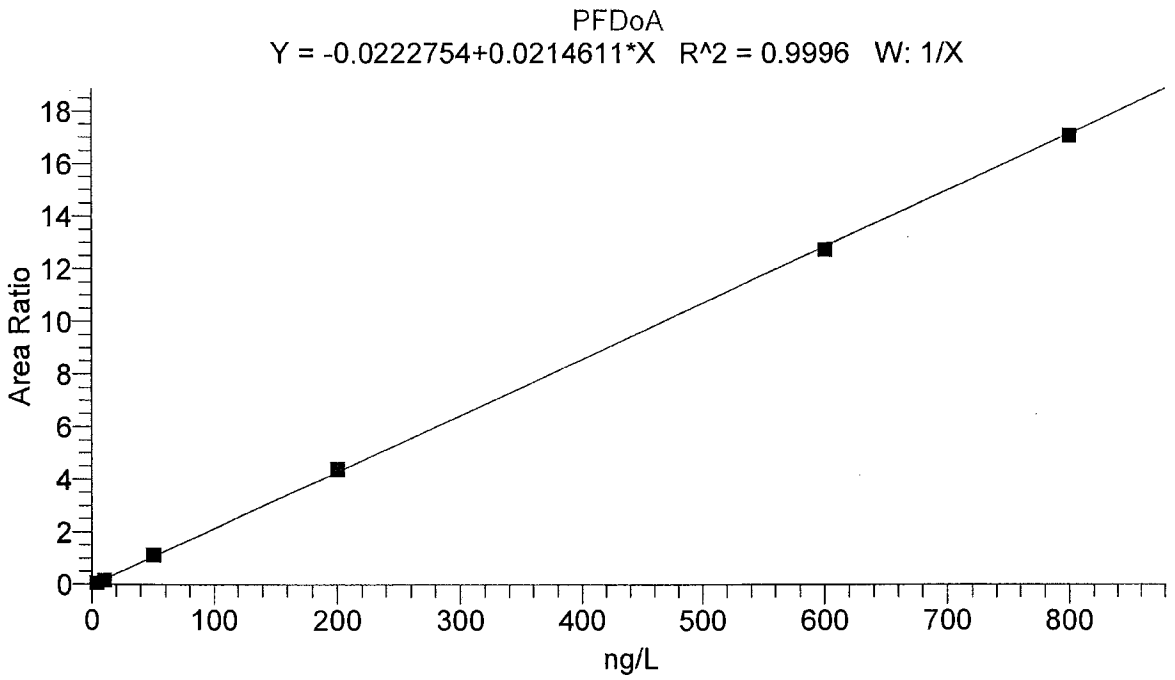
LCMSMS ANALYSIS REPORT

Component Name: **PFDoA**



Identification		Component Name:	PFDoA
Filter:	- c ESI SRM ms2 612.90 [568.89-568.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	11.30000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDoA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	4.000
2	10.000
3	50.000
4	200.000
5	600.000
6	800.000

Component QC Level Table

QC Level	Amount
ICV2	200.000
ICV1	100.000
1	50.000
2	200.000
3	600.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	4.213	10052.85	147554.87	0.068	5.31
CAL2	16Jun28-32	8.593	26241.65	161843.86	0.162	-14.07
CAL3	16Jun28-33	53.573	158676.92	140738.01	1.127	7.15
CAL4	16Jun28-34	205.612	694928.37	158284.44	4.390	2.81
CAL5	16Jun28-35	595.273	2200125.55	172519.03	12.753	-0.79
CAL6	16Jun28-36	796.736	2235678.74	130920.94	17.077	-0.41
ICV1	16Jun28-39	93.365	277780.82	140191.85	1.981	-6.64
CCV1	16Jun28-57	55.186	160482.42	138100.78	1.162	10.37
CCV2	16Jun28-69	217.753	715803.22	153904.90	4.651	8.88
CCV3	16Jun28-80	588.015	1801158.15	142981.18	12.597	-2.00
CCV1	16Jun28-87	56.558	165935.30	139264.02	1.192	13.12

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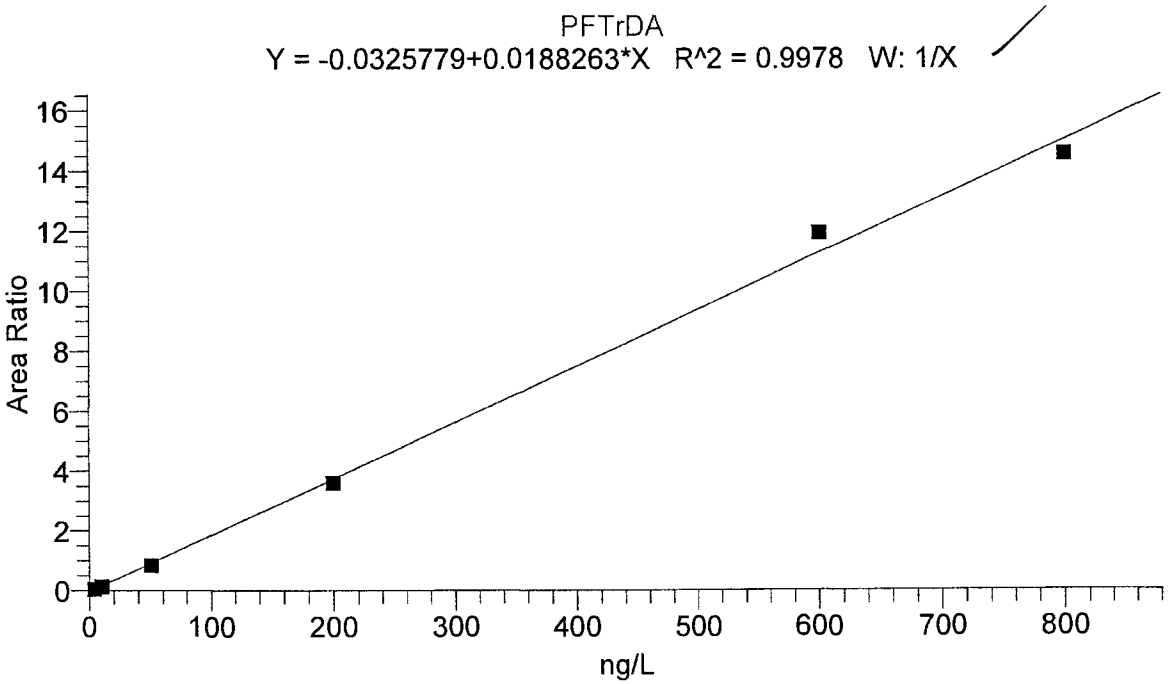
LCMSMS ANALYSIS REPORT

Component Name: **PFTrDA**



Identification		Component Name:	PFTrDA
Filter:	- c ESI SRM ms2 662.90 [618.89-618.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	12.50000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	5.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUnA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	4.000
2	10.000
3	50.000
4	200.000
5	600.000
6	800.000

Component QC Level Table

QC Level	Amount
ICV2	200.000
ICV1	100.000
1	50.000
2	200.000
3	600.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	4.484	8114.11	156535.00	0.052	12.10
CAL2	16Jun28-32	9.515	24248.42	165451.69	0.147	-4.85
CAL3	16Jun28-33	46.673	155948.77	184315.88	0.846	-6.65
CAL4	16Jun28-34	193.377	586675.16	162604.47	3.608	-3.31
CAL5	16Jun28-35	635.387	1852336.86	155274.87	11.929	5.90
CAL6	16Jun28-36	774.564	2130100.38	146402.77	14.550	-3.18
ICV1	16Jun28-39	85.162	243186.74	154826.74	1.571	-14.84
CCV1	16Jun28-57	48.272	142080.78	162156.46	0.876	-3.46
CCV2	16Jun28-69	201.543	579770.79	154123.34	3.762	0.77
CCV3	16Jun28-80	592.637	1661188.88	149325.92	11.125	-1.23
CCV1	16Jun28-87	46.494	139123.79	165086.51	0.843	-7.01

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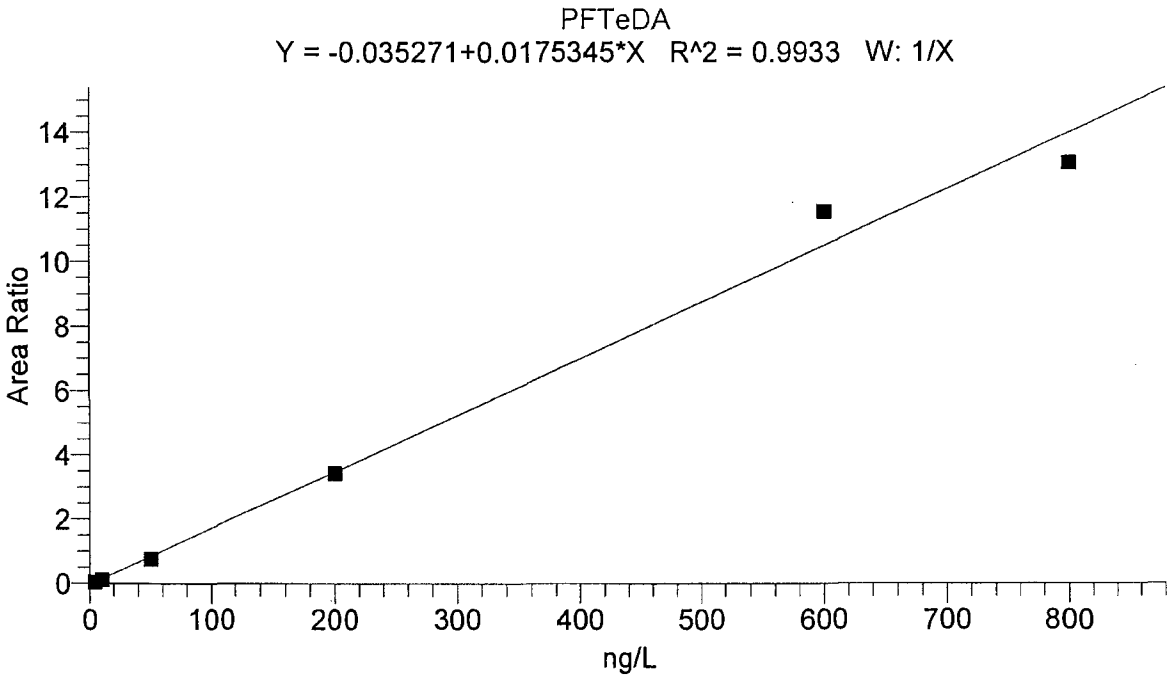
LCMSMS ANALYSIS REPORT

Component Name: **PFTeDA**



Identification		Component Name:	PFTeDA
Filter:	- c ESI SRM ms2 712.90 [668.89-668.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	13.70000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	5.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUnA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUN 29 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	4.000
2	10.000
3	50.000
4	200.000
5	600.000
6	800.000

Component QC Level Table

QC Level	Amount
ICV2	200.000
ICV1	100.000
1	50.000
2	200.000
3	600.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	4.880	7872.70	156535.00	0.050	21.99
CAL2	16Jun28-32	8.439	18645.75	165451.69	0.113	-15.61
CAL3	16Jun28-33	45.663	141077.32	184315.88	0.765	-8.67
CAL4	16Jun28-34	197.673	557867.88	162604.47	3.431	-1.16
CAL5	16Jun28-35	660.902	1793938.00	155274.87	11.553	10.15
CAL6	16Jun28-36	746.442	1911025.41	146402.77	13.053	-6.69
ICV1	16Jun28-39	93.947	249586.70	154826.74	1.612	-6.05
CCV1	16Jun28-57	49.186	134132.71	162156.46	0.827	-1.63
CCV2	16Jun28-69	201.511	539142.44	154123.34	3.498	0.76
CCV3	16Jun28-80	613.120	1600096.43	149325.92	10.715	2.19
CCV1	16Jun28-87	45.481	125831.39	165086.51	0.762	-9.04

Michele J Smith

JUN 30 2016

Michele J. Smith
Senior Specialist

Jason W. Knight
Senior Chemist

JUN 29 2016

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SPG96
Matrix: Water

Fraction: PFAAs by LC/MS/MS

16172001	13C-PFHxA	13C-PFHpA	13C-PFHxS	13C-PFOA
	Area	Area	Area	Area
Average ICAL Response	100490	136734	23629	166286
Upper Limit	150735	205101	35444	249428
Lower Limit	50245	68367	11815	83143
Sample				
MB16172001	102257	136036	24868	147436
LCS16172001	85045	139612	24661	137974
LCSD16172001	86696	154122	25221	158366
8433348	55729	168473	25483	152694
8433349	45491 *	147684	23242	136592
8433350	60082	170974	29144	141350
8433351	41940 *	159722	24649	158985
8433352	47157 *	131860	19286	131596

J/UJ

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SPG96
Matrix: Water

Fraction: PFAAs by LC/MS/MS

16172001	13C-PFOS	13C-PFNA	13C-PFDA	13C-PFUdA
	Area	Area	Area	Area
Average ICAL Response	13691	212889	164528	161764
Upper Limit	20536	319334	246792	242646
Lower Limit	6845	106445	82264	80882
Sample				
MB16172001	10451	205967	146407	145103
LCS16172001	11801	183403	132871	120676
LCSD16172001	11669	192639	135272	125115
8433348	14047	215343	132226	123842
8433349	11931	191322	110542	116008
8433350	11420	200310	128254	124228
8433351	12371	203587	138760	136700
8433352	10358	188998	110175	83985

PFOS - 6th point was not dropped, but was dropped for other packages.

PFUdA - 6th point was not dropped, but was dropped for other packages.

PFOS and PFUdA responses do not match Environmental Standards review 1881_062816_1605_SGP97_98 because of dropped 6th points

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SPG96
Matrix: Water

Fraction: PFAAs by LC/MS/MS

16172001	13C-PFDoA
	Area
Average ICAL Response	151977
Upper Limit	227965
Lower Limit	75988
Sample	
MB16172001	115898
LCS16172001	121495
LCSD16172001	120584
8433348	98833
8433349	97472
8433350	99503
8433351	125519
8433352	72612 *

UJ

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

Organic Extraction Batchlog Assigned to: 9524 Jason Knight

Reviewed by: MQ01758 Start Date: 06/20/16 Start time: 10:35

16172001

Tech 1: JWK9524 Tech 2: DW 10262

Dept: 37	Prep Analysis: 14091 PFAA Water Prep				PFAAs in Water by LC/MS/MS						
QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
8427012MS	SG3TBMS	99.90	235002-13A	0.025	235002-2A	0.04	1			085a	
BLANKA	BLK172001	100.00	↓	0.025	N/A	N/A	1				
LCSA	OPR172001	100.00		0.025	235002-2A	0.04	1				
LCSDA		100.00	↓	0.025	↓	0.04	1				

Solvent Used	Lot No.
MeOH/WATER 96:4	159749

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1	8427012	SG3TB	99.83	235002-13A	0.025	1			085a		10954	18262	06/27/2016	N
2	8427013	SG3FB	100.20	↓	0.025	1			085a		10954	18262	06/27/2016	N
3	8427027	SG3R1	99.74		0.025	1			085a		10954	18262	06/27/2016	N
4	8427028	SG3R2	100.32		0.025	1			085a		10954	18262	06/27/2016	N
5	8427033	SG3R3	99.79		0.025	1			085a		10954	18262	06/27/2016	N
6	8432116	SG-TB	100.15		0.025	1			085a		10954	18262	06/29/2016	N
7	8432117	SG-R1	100.00		0.025	1			085a		10954	18262	06/29/2016	N
8	8432127	SG-R2	100.10		0.025	1			085a		10954	18262	06/29/2016	N
9	8432128	SG-FB	100.02		0.025	1			085a		10954	18262	06/29/2016	N
10	8432130	SG-R3	99.64		0.025	1			085a		10954	18262	06/29/2016	N
11	8432140	SGR16	100.17		0.025	1			085a		10954	18262	06/29/2016	N
12	8433348	LTB17	99.65		0.025	1			085a		10954	18262	06/30/2016	N
13	8433349	FTB17	100.34		0.025	1			085a		10954	18262	06/30/2016	N
14	8433350	RB117	99.74		0.025	1			085a		10954	18262	06/30/2016	N
15	8433351	RB217	100.18		0.025	1			085a		10954	18262	06/30/2016	N
16	8433352	RB317	99.55	↓	0.025	1			085a		10954	18262	06/30/2016	N

Rack ID:		Work Station		Micro Temp 100?
Internal Standard		Balance #	1/2/1112/2	

S-bath ID	C	S-bath ID	C	N-Evap	C	M-vap	C	16172001

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

SECTION 6

GENERAL PARAMETER DATA SUPPORT DOCUMENTATION

ENVIRONMENTAL STANDARDS

INORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: Saint Gobain Bennington
Sample Collection Dates: 6/17/16
Job Number: 20167391
Project Manager: Meg Michell
Laboratory: ELLE

Reviewed by: THW
Approved by: MAM
Completion Date: 5/2017

Applicable Sample No's (x)

Refer to Table 1 in the Quality Assurance Review

Deliverable: CLP (Full) ( )
Level IV (Full) ( )
Limited (x)
Other:

Sample No.	Lab Control No.
SGP96	

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	5310B	2540G				5310B	2540G				5310B	2540G			
Holding Times	x	x									x	x			
Blank Analysis Results	x										x				
Matrix Spike (Predigestion) Results	x										x				
Duplicate Analysis: ( ) Field (x) Lab	x	x					x				x	x			
Quantitation of Results															
Detection Limit/Sensitivity	x	x									x	x			
Initial Calibrations	x										x				
Continuing Calibrations	x										x				
Laboratory Control Standard (LCS)	x	x									x	x			
ICP Linear Range Analysis															
ICP Interference Checks															
ICP Serial Dilutions															
ICP Post-Digestion Spike															
GFAA Post Digestion Spikes															
GFAA Duplicate Injections															
ICP Multiple Exposures															
GFAA Standard Additions															
CRDL Standards															
Condition on Receipt	x	x									x	x			
Percent Solids															
Others:															

Comments:

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Matrix: ○ Aqueous ◉ Non-aq.
Reporting Level: ◉ MDL ○ QL
Units: %

PRECISION OBJECTIVES:
If Both Results ≥ 5 × Their QL, RPD ≤: 40
If Either Result < 5 × Its QL, Dif. ≤: 2.0 × Highest QL

Sample ID:	SG3-MW02-05.0				Duplicate Sample ID:	SG3-FD01-2016-617					
Analyte	Sample Concentration	Qual	QL	MDL	Duplicate Concentration	Qual	QL	MDL	Difference	RPD	Flag
percent moisture	13.9		0.5		17.7		0.5		NA	24%	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/06/2017 16:47

Group Number: 1673603

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16180013	Sample number(s): 8433353-8433359			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16172001	Sample number(s): 8433348-8433352			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16190049531A	Sample number(s): 8433353-8433354,8433357-8433358			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/06/2017 16:47

Group Number: 1673603

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16180013	Sample number(s): 8433353-8433359								
Perfluorobutanesulfonate	17.68	23.91			135*		70-130		
Perfluorodecanoic acid	20	40.09			200*		70-130		
Perfluorododecanoic acid	20	33.26			166*		70-130		
Perfluoroheptanoic acid	20	29.52			148*		70-130		
Perfluorohexanesulfonate	18.92	27.3			144*		70-130		
Perfluorohexanoic acid	20	33.13			166*		70-130		
Perfluorononanoic acid	20	28.38			142*		70-130		
Perfluoro-octanesulfonate	19.12	25.06			131*		70-130		
Perfluorooctanoic acid	20	29.38			147*		70-130		
Perfluorotetradecanoic acid	20	45.91			230*		70-130		
Perfluorotridecanoic acid	20	35.31			177*		70-130		
Perfluoroundecanoic acid	20	35.81			179*		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16172001	Sample number(s): 8433348-8433352								
Perfluorooctanoic acid	200	189.69	200	182.7	95	91	70-130	4	30
Perfluorononanoic acid	200	195.42	200	211.39	98	106	70-130	8	30
Perfluorodecanoic acid	200	187.49	200	212.82	94	106	70-130	13	30
Perfluoroundecanoic acid	200	209.31	200	201.1	105	101	70-130	4	30
Perfluorododecanoic acid	200	216.26	200	194.7	108	97	70-130	10	30
Perfluorotridecanoic acid	200	188.15	200	181.79	94	91	70-130	3	30
Perfluorotetradecanoic acid	200	181.46	200	171.69	91	86	70-130	6	30
Perfluorohexanoic acid	200	208.47	200	214.01	104	107	70-130	3	30
Perfluoroheptanoic acid	200	184.47	200	174.02	92	87	70-130	6	30
Perfluorobutanesulfonate	176.8	205.19	176.8	198.72	116	112	70-130	3	30
Perfluorohexanesulfonate	189.2	159.21	189.2	142.98	84	76	70-130	11	30
Perfluoro-octanesulfonate	191.2	220.06	191.2	221.04	115	116	70-130	0	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16190049531A	Sample number(s): 8433353-8433354,8433357-8433358								
TOC	5430	5086.51			94		47-143		
	%	%	%	%					
Batch number: 16180820003A	Sample number(s): 8433353-8433359								
Moisture	89.5	89.46			100		99-101		
Moisture	89.5	89.46			100		99-101		
Moisture Duplicate	89.5	89.46			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/06/2017 16:47

Group Number: 1673603

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g	ng/g					
Batch number: 16180013	Sample number(s): 8433353-8433359 UNSPK: 8433354									
Perfluorobutanesulfonate	0.46 U	17.68	24.03	17.68	24.53	136*	139*	70-130	2	30
Perfluorodecanoic acid	34.93	20	70.22	20	67.94	176*	165*	70-130	3	30
Perfluorododecanoic acid	1.47	20	30.82	20	28.51	147*	135*	70-130	8	30
Perfluoroheptanoic acid	0.353	20	31.28	20	29.26	155*	145*	70-130	7	30
Perfluorohexanesulfonate	0.46 U	18.92	29.73	18.92	29.92	157*	158*	70-130	1	30
Perfluorohexanoic acid	0.318	20	29.4	20	32.05	145*	159*	70-130	9	30
Perfluorononanoic acid	0.462	20	27.17	20	27.97	134*	138*	70-130	3	30
Perfluoro-octanesulfonate	0.869	19.12	27.34	19.12	26.58	138*	134*	70-130	3	30
Perfluorooctanoic acid	18.21	20	44.32	20	45.48	131*	136*	70-130	3	30
Perfluorotetradecanoic acid	1.30	20	34.25	20	28.87	165*	138*	70-130	17	30
Perfluorotridecanoic acid	0.55 U	20	25.72	20	25.05	129	125	70-130	3	30
Perfluoroundecanoic acid	1.52	20	31.12	20	34.93	148*	167*	70-130	12	30
	ng/l	ng/l	ng/l	ng/l	ng/l					
Batch number: 16172001	Sample number(s): 8433348-8433352 UNSPK: 8427012									
Perfluorooctanoic acid	1.54	200	207.84			103		70-130		
Perfluorononanoic acid	1 U	200	201.27			101		70-130		
Perfluorodecanoic acid	1 U	200	198.88			99		70-130		
Perfluoroundecanoic acid	2 U	200	187.55			94		70-130		
Perfluorododecanoic acid	3 U	200	237.24			119		70-130		
Perfluorotridecanoic acid	2 U	200	120.97			60*		70-130		
Perfluorotetradecanoic acid	3 U	200	89.3			45*		70-130		
Perfluorohexanoic acid	1 U	200	203.76			102		70-130		
Perfluoroheptanoic acid	1.01	200	179.31			89		70-130		
Perfluorobutanesulfonate	4 U	176.8	79.42			45*		70-130		
Perfluorohexanesulfonate	7.81	189.2	177.92			90		70-130		
Perfluoro-octanesulfonate	5 U	191.2	282.44			148*		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16190049531A	Sample number(s): 8433353-8433354,8433357-8433358 UNSPK: 8433354									
TOC	2414.31	38961	46272.73			113		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16190049531A	Sample number(s): 8433353-8433354,8433357-8433358 BKG: 8433354			
TOC	2414.31	2535.24	5 (1)	7

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/06/2017 16:47

Group Number: 1673603

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	%	%		
Batch number: 16180820003A	Sample number(s): 8433353-8433359 BKG: 8433354, P433354			
Moisture	18.76	17.36	8*	5
Moisture	18.76	17.36	8*	5
Moisture Duplicate	18.76	17.36	8*	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SGP96
Matrix: SOLID

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

UNSPK: 8433354 MS: 8433354	Batch: **16190049531A** (Sample number(s): 8433353-8433354, 8433357-8433358)									
Parameter	**ME**	**Spike Added mg/kg**	**Unspiked Conc mg/kg**	**MS Conc mg/kg**	**MSD Conc mg/kg**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	38961	2414.31	46272.73	NA	113	NA	47-143	NA	NA

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Duplicate

SDG: SGP96
Matrix: SOLID

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

BKG: 8433354 DUP: 8433354	Batch: **16190049531A** (Sample number(s): 8433353-8433354, 8433357-8433358)				
Parameter	**ME**	**Unspiked Conc mg/kg**	**DUP Conc mg/kg**	**%RPD**	**%RPD Limits**
TOC	TOC	2414.31	2535.24	5 (1)	7

Comments:
(1) The sample and/or duplicate result is less than five times the LOQ.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP96
Matrix: SOLID

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

LCS: Q433354Q	Batch: **16190049531A** (Sample number(s): 8433353-8433354, 8433357-8433358)								
Parameter	**ME**	**Spike Added mg/kg**	**LCS Conc mg/kg**	**LCSD Conc mg/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	5430	5086.51	NA	94	NA	47-143	NA	NA

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Quality Control Summary
Method Blank
Instrumental Water Quality
SDG: SGP96
Matrix: SOLID

Fraction: Instrumental Wet Chemistry

16190049531A / B433354B Parameter	ME	Analysis Date	Blank Results	Units	MDL	LOQ
TOC	TOC	07/08/16	N.D.	mg/kg	100	300

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LOQ/MDL Summary
Instrumental Water Quality

SDG: SGP96

Fraction: Instrumental Wet Chemistry

02079: TOC Analyte Name	Default MDL	Default LOQ	Units
TOC	100	300	mg/kg

OFFSET = 1211 cts (-0.319 mgC)

OI Analytical
TOC Solids V3.0
Analysis Date: Fri Jul 01 14:11:42 2016

#0001 14:23:14 TC STD#04 006.000 mgC 0027298 cts

CALIBRATION RESULTS:
STD TYPE = TC

STD#1 = 00.300 mgC	1 reps	Avg Area =	2174.0	cts	%rsd =	0.00
STD#2 = 00.900 mgC	1 reps	Avg Area =	5125.0	cts	%rsd =	0.00
STD#3 = 03.000 mgC	1 reps	Avg Area =	13992.0	cts	%rsd =	0.00
STD#4 = 06.000 mgC	1 reps	Avg Area =	27290.0	cts	%rsd =	0.00

RF = 227.093 ugC/k-cts
R2 = 0.9994
OFFSET = 918 cts (-0.209 mgC)

OI Analytical
TOC Solids V3.0
Analysis Date: Fri Jul 01 14:23:40 2016

#0001 14:35:30 TC SPL#01 3.000 mg 0014077 cts 002.988 mgC 99.61 %C

OI Analytical
TOC Solids V3.0
Analysis Date: Fri Jul 01 14:50:27 2016

#0001 14:58:11 TC SPL#01 0.000 mg 0000000 cts -000.209 mgC 0.00 %C

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 7-1-16 ✓

Instrument #: 76837

R^2: 0.9994 F=0.9997

Analyst: CMW287

Sucrose Soln Lot #: 017015 Exp 1-20-18

Run #: 161832 CAL

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	CAL 0	-0.349	0.0				13:29				
2	CAL 1	2171 cts	1 µL				13:50		0.3 mgC		
3	CAL 2	5125 cts	3 µL				14:00		0.9 mgC		
4	CAL 3	13992 cts	10 µL				14:11		3.0 mgC		
5	CAL 4	27298 cts	20 µL				14:23		6.0 mgC		
6	ICV	2.988 ✓	10 µL	IS			14:35		100% ✓		
7	ICB	-0.209	0.0	↓			14:58				

CMW 7-1-16

Verified by: 8/16 Date: 7/6/16

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 7.8.16 ✓ Instrument #: 76837

R^2: .9994 R=.9997 Analyst: [illegible]

Sucrose Soln Lot #: 012015 exp. 1.20.18

Run #: 161902

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	CCV 3.0	3.163 ✓	0.2mL	IS			1818		105% ✓		
2	CCB	-.151	0.0	↓			1826				
3	LCSS	.735 ✓	144.5	5086.51 ✓	6.92	2076	1844	161900495314	TV=5430 94% IS		
4	PBS	-.209	0.0	0	1	300	1852		IS		
5	8432145	.407	339.8	1197.76	2.94	882	1859				SGP94
6	8432146	1.084	289.5	3744.39	3.45	1035	1907				↓
7	8432147	-.098	999.7	0	1.00	300	1918				
8	8433353	.920 ✓	198.8	4627.77 ✓	5.03	1509	1952				SGP96
9	8433354-4	.965 ✓	399.7	2414.31 ✓	2.50	750	2008				↓
10	↓ -D	1.061 ✓	418.5	2535.24 ✓	2.39	717	2019				
11	↓ -R	3.563 ✓	77.0	46272.73 ✓	12.99	3897	2026		SD=38961 113% IS		
12	8433357	.354 ✓	241.9	1463.41 ✓	4.13	1239	2034				↓
13	~~0.2~~ CCV 3.0	3053 ✓	0.2mL	IS			2047		102% ✓		
14	CCB	-.209	0.0	↓			2052				

(3) Begin 7.8.16

Verified by: SM 7/11/16 Date: 7/11/16

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 7.8.16

Instrument #: 76837

R^2: .9994 R=.9997

Analyst: SM 7/8/16

Sucrose Soln Lot #: 012015 exp. 1.20.18

Run #: 161902

SGP96 Page 442 of 449

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
15	8433358	1.456	277.1	5254.42	3.61	1083	2104	161900495 31A			SGP96
16	8433409	.571	998.6	571.8	1.00	300	2116				
17	8433413	.452	998.5	452.68	1.00	300	2129				
18	8433414	.401	999.3	401.28	1.00	300	2141				
19	CCV 3.0	2.967	0.2 mL	IS			2153		99%		
20	CCB	-.209	0.0	↓			2200				

Verified by: SM 7/13/17 Date: 7/11/16

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Combustion TOC Prep Log
Analysis #2079, #0383

Phosphoric Lot # O62216 exp. 12.22.16

Oven ID# 1887

Oven Temperature (°C) 75°

Tray #: 3D Balance ID: B35614 Time In: 1815 Time Out: 1830

Position	Date	Analyst	Sample #	Weight (mg)	Batch Number	Comments
A1	7.8.16	SMMar	LCSS	144.5	161900495 31A	
A2	↓	↓	PBS	0.0	↓	
A3			8432145	339.8		
A4			8432146	289.5		
A5			8432147	999.7		
A6			8433353	198.8		
A7			8433354-4	399.7		
A8			-D	418.5		
B1			-R	77.0		
B2			8433357	241.9		
B3			8433358	277.1		
B4			8433409	998.6		
B5			8433413	998.5		
B6	↓	↓	8433414	999.3	↓	
B7						
B8						
C1						
C2						
C3						
C4						
C5						
C6						
C7						
C8						

Verified by: SM/347 Date: 7/11/16

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CLIENT: C. T. Male Associates
SDG: SGP96

MOISTURE

SAMPLE NUMBERS:

Sample #	Sample Code
8433353	SG321
8433354	SG322BKG
8433355	SG322MS
8433356	SG322MSD
8433357	SG323
8433358	SG324
8433359	FD117FD

COMMENTS:

Method defined actions are taken for any failed matrix QC.

Laboratory Compliance Quality Control

Analysis Name	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 16180820003A	Sample number(s): 8433353-8433359				
Moisture	100		99-101		
Moisture	100		99-101		
Moisture Duplicate	100		99-101		

Sample Matrix Quality Control

Analysis Name	BKG Conc	DUP Conc	RPD	RPD Max
Batch number: 16180820003A	Sample number(s): 8433353-8433359			
Moisture	18.8	17.4	8*	5
Moisture	18.8	17.4	8*	5
Moisture Duplicate	18.8	17.4	8*	5

* - Outside of specification

(1) - The result for one or both determinations was less than five times the LOQ.

Moisture Data Report

Batch #: 16180820003

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
8433353	A	00111	1.0911	5.4984	5.8227	13.95	6/28/16 (835/LEB)	6/29/16 (236/CW)
8433354BKG	A	00111	1.0817	5.1849	5.2939	18.76	6/28/16 (835/LEB)	6/29/16 (236/CW)
8433355MS	A	00118				18.76	6/28/16 (835/LEB)	6/29/16 (236/CW)
8433356MSD	A	00118				18.76	6/28/16 (835/LEB)	6/29/16 (236/CW)
8433356MSD	A	00121	1.0900	5.2953	5.4663	17.36	6/28/16 (835/LEB)	6/29/16 (236/CW)
8433357	A	00111	1.0872	5.3955	5.7984	12.68	6/28/16 (835/LEB)	6/29/16 (236/CW)
8433358	A	00111	1.1003	5.4003	5.8488	12.07	6/28/16 (835/LEB)	6/29/16 (236/CW)
8433359FD	A	00111	1.0829	5.6360	5.7213	17.70	6/28/16 (835/LEB)	6/29/16 (236/CW)
LCS 89.5% Std.		00111	1.1012	5.0676	1.6353	89.46	6/28/16 (835/LEB)	6/29/16 (236/CW)

SECTION 7

LABORATORY CASE NARRATIVE AND

PROJECT CHAIN-OF-CUSTODY RECORD

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Sample Reference List for SDG Number SGP96 with a Data Package Type of I

37191 - C. T. Male Associates
Project: SGPP - Bennington

Lab Sample Number	Client Sample ID	Collection Date	Date Received
8433348	SG3-LTB-20160617	06/08/2016 00:00	06/18/2016 09:50
8433349	SG3-FTB-20160617	06/17/2016 07:55	06/18/2016 09:50
8433350	SG3-RB01-20160617	06/17/2016 08:05	06/18/2016 09:50
8433351	SG3-RB02-20160617	06/17/2016 08:10	06/18/2016 09:50
8433352	SG3-RB03-20160617	06/17/2016 10:05	06/18/2016 09:50
8433353	SG3-MW02-05.0	06/17/2016 10:50	06/18/2016 09:50
8433354	SG3-MW02-08.0	06/17/2016 11:10	06/18/2016 09:50
8433355	SG3-MW02-08.0 MS	06/17/2016 11:10	06/18/2016 09:50
8433356	SG3-MW02-08.0 MSD	06/17/2016 11:10	06/18/2016 09:50
8433357	SG3-MW02-10.0	06/17/2016 11:15	06/18/2016 09:50
8433358	SG3-MW02-06.0	06/17/2016 13:20	06/18/2016 09:50
8433359	SG3-FD01-20160617	06/17/2016 10:55	06/18/2016 09:50

Project Name: SGPP - Bennington
LL Group #: 1673603

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8433353, 8433354, 8433355, 8433356, 8433357, 8433358, 8433359

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was reextracted outside the holding time and comparable results were
observed. Both sets of data are included in the data package.

Batch #: 16172001 (Sample number(s): 8433348-8433352 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluorobutanesulfonate, Perfluoro-octanesulfonate

Batch #: 16180013 (Sample number(s): 8433353-8433359 UNSPK: MS)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorodecanoic acid, Perfluoroundecanoic acid, Perfluorododecanoic acid, Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluoroheptanoic acid, Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorodecanoic acid, Perfluoroundecanoic acid, Perfluorododecanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluoroheptanoic acid, Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

SM 2540 G-1997, Wet Chemistry

Batch #: 16180820003A (Sample number(s): 8433353-8433359 BKG: 8433354)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP96

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8433348	SG3-LTB-20160617	X		1	Trip Blank
8433349	SG3-FTB-20160617	X		1	Field Blank
8433350	SG3-RB01-20160617	X		1	Material Rinse Blank
8433351	SG3-RB02-20160617	X		1	Material Rinse Blank
8433352	SG3-RB03-20160617	X		1	Material Rinse Blank
8433353	SG3-MW02-05.0		X	1	
8433354	SG3-MW02-08.0		X	1	Unspiked
8433355	SG3-MW02-08.0 MS		X	1	Matrix Spike
8433356	SG3-MW02-08.0 MSD		X	1	Matrix Spike Duplicate
8433357	SG3-MW02-10.0		X	1	
8433358	SG3-MW02-06.0		X	1	
8433359	SG3-FD01-20160617		X	1	Field Duplicate Sample

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

(Sample number(s): 8433352: Analysis: 10954)
The recoveries for perfluorobutanesulfonate (PFBS) and perfluoro-octanesulfonate (PFOS) were outside of QC acceptance limits in the ending continuing calibration verification standard (CCV) associated with this sample. Since the recoveries are high, indicating increased sensitivity, and PFBS and PFOS were not detected, the data is reported. ✓

The internal standard response for perfluoroheptanoic acid (PFHpA) in the continuing calibration standards (CCVs) was less than 50% of the average area measured during the initial calibration. No

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June 7, 2017

Revision 1

Mr. Kirk Moline
C. T. Male Associates
50 Century Hill Drive
Latham, NY 12110

Dear Mr. Moline:

I am writing to inform you of revised analytical reports that are being issued for the following:

Project: SGPP - Bennington
Group No.: 1673603 **SDG No.: SGP96**

ELLE Sample No.	Client Sample Identification	Collection Date
8433350	SG3-RB01-20160617 Grab Blank Water	06/17/2016
8433351	SG3-RB02-20160617 Grab Blank Water	06/17/2016
8433353	SG3-MW02-05.0 Grab Soil	06/17/2016
8433354	SG3-MW02-08.0 Grab Soil	06/17/2016
8433355	SG3-MW02-08.0 MS Grab Soil	06/17/2016
8433356	SG3-MW02-08.0 MSD Grab Soil	06/17/2016
8433357	SG3-MW02-10.0 Grab Soil	06/17/2016
8433358	SG3-MW02-06.0 Grab Soil	06/17/2016
8433359	SG3-FD01-20160617 Grab Soil	06/17/2016

The correction to the data affects the PFCs in Soil by LC/MS/MS and PFAAs in Water by LC/MS/MS analysis only.

During an additional review of the data by Environmental Standards, Inc., it was determined that the MDLs and LOQs reported for ELLE Sample Nos. 8433353 to 8433359 were not corrected for the sample weights. It was determined that the y-intercept was inflating the results reported for perfluorobutanesulfonate (PFBS) for ELLE Samples Nos. 8433357 and 8433359. In addition the peak for perfluorohexanoic acid (PFHxA) in ELLE Sample Nos. 8433350 and 8433351 was not integrated. Refer to the initial analysis reports for the prior reported results.

The revised analytical reports and data package reflect these corrections and are enclosed.

You are a valued client and we apologize for any inconvenience that this incident may have caused. If you have any questions or require further assistance, please call me at 717-656-2300, Ext. 1203. We appreciate your business and look forward to continuing to serve your laboratory needs.

Sincerely,

Christine M. Ratchford

Manager
Specialty Services

CMR/mk
Enclosures

cc: Nancy Bornholm

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June 16, 2017

Revision 2

Mr. Kirk Moline
C. T. Male Associates
50 Century Hill Drive
Latham, NY 12110

Dear Mr. Moline:

I am writing to inform you of revised analytical reports that are being issued for the following:

Project: SGPP - Bennington
Group No.: 1673603 **SDG No.: SGP96**

ELLE Sample No.	Client Sample Identification	Collection Date
8433351	SG3-RB02-20160617 Grab Blank Water	06/17/2016

The correction to the data affects the PFAAs in Water by LC/MS/MS analysis only.

During an additional review of the data by Environmental Standards, Inc., it was determined that the incorrect peak was integrated for perfluorohexanoic acid (PFHxA) in ELLE Sample No. 8433351. PFHxA was initially reported as 1 J ng/L. PFHxA is being reported as 2 ng/L in the revised report.

The revised analytical report and data package reflect these corrections and are enclosed.

You are a valued client and we apologize for any inconvenience that this incident may have caused. If you have any questions or require further assistance, please call me at 717-656-2300, Ext. 1203. We appreciate your business and look forward to continuing to serve your laboratory needs.

Sincerely,

Christine M. Ratchford

Manager
Specialty Services

CMR/mc
Enclosures

cc: Nancy Bornholm

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP96

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

(Sample number(s): 8433348-8433351: Analysis: 10954)
The internal standard response for perfluoroheptanoic acid (PFHpA) in the continuing calibration standards (CCVs) was less than 50% of the average area measured during the initial calibration. No

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Method Blank

(Sample number(s): 8433348-8433352: Analysis: 10954)
The internal standard response for perfluoroheptanoic acid (PFHpA) in the method blank associated with this sample was less than 50% of the average area measured during the initial calibration. No

(Sample number(s): 8433353-8433359: Analysis: 14027)
The internal standard responses for PFOA, PFNA, PFDA, and PFUnDA in the method blank were less than 50% of the average area measured during the initial calibration. ✓ no impact

LCS/LCSD

(Sample number(s): 8433348-8433352: Analysis: 10954)
The internal standard response for perfluoroheptanoic acid (PFHpA) in this sample was less than 50% of the average area measured during the initial calibration. The recovery of PFHpA in the LCS/LCSD was within QC acceptance criteria therefore the data is reported. No

(Sample number(s): 8433353-8433359: Analysis: 14027)
The internal standard responses for PFOA, PFNA, PFDA, and PFUnDA in the LCS sample were less than 50% of the average area measured during the initial calibration. ✓ no impact

(Sample number(s): 8433353-8433359: Analysis: 14027)
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was reextracted outside the holding time and comparable results were observed. Both sets of data are included in the data package. ✓

Batch#: 16180013 (Sample number(s): 8433353-8433359, UNSPK: 8433354)
The recovery(ies) for the following analyte(s) in the LCS exceeds the acceptance window indicating a positive bias: Perfluorobutanesulfonate, Perfluorodecanoic acid, Perfluorododecanoic acid, Perfluoroheptanoic acid, Perfluorohexanesulfonate, Perfluorohexanoic acid, Perfluorononanoic acid, Perfluoro-octanesulfonate, Perfluorooctanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid, Perfluoroundecanoic acid ✓

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP96

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

MS/MSD

Please note that US EPA Methods for organic compounds do not require action by the laboratory based on out-of-specification MS/MSD results.

Batch#: 16180013 (Sample number(s): 8433353-8433359, UNSPK: 8433354)
The recovery(ies) for the following analyte(s) in the MS and MSD is outside the acceptance window: Perfluorobutanesulfonate, Perfluorodecanoic acid, Perfluorododecanoic acid, Perfluoroheptanoic acid, Perfluorohexanesulfonate, Perfluorohexanoic acid, Perfluorononanoic acid, Perfluoro-octanesulfonate, Perfluorooctanoic acid, Perfluorotetradecanoic acid, Perfluoroundecanoic acid
Refer to the QC Summary forms for more information.

SAMPLE ANALYSIS:

(Sample number(s): 8433349, 8433351: Analysis: 10954)
The internal standard response for perfluorohexanoic acid (PFHxA) in this sample was less than 50% of the average area measured during the initial calibration.

The internal standard response for perfluoroheptanoic acid (PFHpA) in this sample was less than 50% of the average area measured during the initial calibration. No

(Sample number(s): 8433352: Analysis: 10954)
The internal standard response for perfluorododecanoic acid (PFDoA) in this sample was less than 50% of the average area measured during the initial calibration. The result for PFDoA should be considered biased high.

The internal standard response for perfluorohexanoic acid (PFHxA) in this sample was less than 50% of the average area measured during the initial calibration. The result for PFHxA should be considered biased high.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP96

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8433353	SG3-MW02-05.0		X	1	
8433354	SG3-MW02-08.0		X	1	
8433357	SG3-MW02-10.0		X	1	
8433358	SG3-MW02-06.0		X	1	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC is within specification.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

Page 1 of 1

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1673603 Sample #: 8433348-59 COC#: 14770

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington Site ID:

Project Manager: Kirk Moline P.O. #: 16.6131

Sampler: Jonathan Dippert

Phone #: 518-786-7400 Quote #: 214135

State where sample(s) were collected: VT

For Lab Use Only: SF#: 271157 SCR#: 189860

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Matrix: Soil / Sediment; Water (Ground, Surface, Potable, NPDES); Other: Blank Water

Analyses Requested, with preservation codes: Moisture (2540 G); PFCs (EPA 537 mod.), preservation code O; TOC (5310 B)

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-LTB-20160617	6/8/16	—	X				X	1		X		
SG3-FTB-20160617	6/17/16	0755	X				X	1		X		
SG3-RB01-20160617	↓	0805	X				X	1		X		
SG3-RB02-20160617	↓	0810	X				X	1		X		
SG3-RB03-20160617	↓	1005	X				X	1		X		
SG3-MW02-05.0	↓	1050	X		X		X	1		X		
SG3-MW02-08.0	↓	1110	X		X		X	3		X		MS/MSD
SG3-MW02-10.0	↓	1115	X		X		X	1		X		
SG3-MW02-06.0	↓	1320	X		X		X	1		X		

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☑		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by	Date	Time	Received by	Date	Time
[signature]	6/17/16	1600			
			[signature]	6/18/16	0950

Airbill No.:

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 1.8 °C

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Environmental Services Analysis Request/Chain of Custody

Page 2 of 2

Acct. #: 37191 Group #: 1673607 3 Sample #: 8433327-45 48-51 NB 6/20/16 COC#: 14785

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: ~~16.6428~~ (.613)
Sampler: Jonathan Dippert	
Phone #: 518 786 7400	Quote #: 214135
State where sample(s) were collected: VT	

Matrix: Sediment ☐ / Soil ☑; Water: Ground ☐ Surface ☐ Potable ☐ NPDES ☐; Other:

Analyses Requested: Moisture (2540 G), PFCs (EPA 537 mod.), TOC (5310 B)

For Lab Use Only: SF#: 271157 SCR#: 190029

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Not included in this SDG (SG3-MW04-08.0, SG3-MW04-09.5, SG3-MW04-12.5)

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW04-08.0	6/16/16	1345	X		X			1	X		X	
SG3-MW04-09.5	↓	1350	X		X			1	X		X	
SG3-MW04-12.5	↓	1355	X		X			1	X		X	
SG3-MW02-05.0	6/17/16	1050	X		X			1	X		X	
SG3-MW02-08.0	↓	1110	X		X			1	X		X	
SG3-MW02-10.0	↓	1115	X		X			1	X		X	
SG3-MW02-06.0	↓	1320	X		X			1	X		X	

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☑		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	6/17/16	1600			
			[signature]	6/18/16	0950

Airbill No.:
Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 0.5 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 150945
Group Number(s): 1673603

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	06/18/2016 9:50
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Karen Diem (3060) at 14:13 on 06/18/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.8	DT	Wet	Y	Bagged	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
SG3-FD01-20160617	1	6/17/2016 10:55	

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F 717-656-2681
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Sample Administration Receipt Documentation Log

Doc Log ID: 150946

Group Number(s): 1673663

NB 6/20/16

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	06/18/2016 9:50
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Karen Diem (3060) at 14:26 on 06/18/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.8	DT	Wet	Y	Bagged	N

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SECTION 8

PROJECT CORRESPONDENCE

Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Monday, September 26, 2016 4:28 PM
To: Meg Michell; Charles Neslund
Cc: David Blye; Al Tordini; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: Revised (II) Questions on ELLI calibration procedures

Meg,
The 06/14/2016 ICAL was initially processed for samples from extraction batch 16141004 (SGP47). The analyst then reprocessed the 06/14/2016 ICAL for samples in batch 16141003 (SGP45). PFDA and PFTeDA were manually integrated and when the ICAL was reprocessed, the integrations would have differed slightly thus the slight variations in response. The analyst was thinking in terms of making each extraction batch a stand-alone product. At the time these samples were generated, we did not have a way to show the manual integrations/original integrations on paper. They can be viewed electronically on the data system. Going forward, we now have a way to show the manual integrations/original integrations. Those will be sent in subsequent data packages as available.

The PFTeDA curve in SGP45 being a linear curve and in SGP47 being a quadratic curve is not incorrect. The SOP and method 537.1 allow for the use of either curve fit. Quite possibly the analysts was thinking DoD criteria for other samples they were running and chose to use a quadratic but I am not sure. The analyst is no longer employed by ELLE and not available to ask. Again, the quadratic curve fit is permitted by the method and SOP.

We agree that this isn't a best practice and is isolated to this analyst who is no longer with us.

Christine Ratcliff
Manager
Specialty Services

Eurofins Lancaster Laboratories Environmental, LLC
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ChristineRatcliff@eurofinsUS.com

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Wednesday, September 21, 2016 5:54 PM
To: Charles Neslund; Christine Ratcliff
Cc: David Blye; Al Tordini; Moline, Kirk (k.moline@ctmale.com)
Subject: FW: Revised (II) Questions on ELLI calibration procedures

Hi Chuck and Christine-

As noted below, we recently came across the issue described below while conducting our review. Could you look into this and get back to us as soon as possible? Depending on the reasoning, it could impact our review process as we have been assuming that the same calibration would not vary amongst data sets.

Thanks for your help!

From: Al Tordini
Sent: Wednesday, September 21, 2016 5:24 PM
To: Meg Michell <mmichell@envstd.com>
Cc: Andrew Piasecki <apiasecki@envstd.com>
Subject: Revised (II) Questions on ELLI calibration procedures

Meg:

While reviewing the calibrations for SDGs SGP45 and SGP47, we came across a calibration common to both for which some questions have developed. The calibration in question is on Instrument 4000, with CAL1 acquisition at 6/14/2016 15:11.

1. The responses shown for PFTeDA and PFDA in CAL1 are slightly different in the two data packages (PFTeDA= 44928 in SGP45 and 44883 in SGP47; PFDA = 29479 in SGP45 and 29189 in SGP47). We need to understand the reason for these differences.
2. In the same initial calibration, PFTeDA in SGP45 was based on an (apparently) 1/x weighted linear curve. PFTeDA in SGP47 was based on an (apparently) weighted quadratic curve. We need to understand the reasoning behind using different models for the same calibration in different data packages.

We have not examined either package exhaustively, so there may be more instances of one or both of these issues. Before devoting additional time to the evaluation, we would like to understand the laboratory's reasoning.

Thanks.

Al Tordini
Senior Technical Specialist
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Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Monday, September 26, 2016 8:15 PM
To: Meg Michell; Charles Neslund
Cc: David Blye
Subject: RE: IS question

Meg,
These samples were acquired under two different acquisition methods (one for wipes and one for soils) using two different labeled analogues for C13 and C14. At the point these samples were acquired, we had not made the decision to use C13-PFDoDA for the C13 and C14 compounds.

Christine Ratcliff
Manager
Specialty Services

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ChristineRatcliff@eurofinsUS.com

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Friday, September 16, 2016 4:56 PM
To: Charles Neslund; Christine Ratcliff
Cc: David Blye
Subject: IS question

Hi-
As we try to understand the internal standards for the non-isotope dilution analytes, we keep coming across new scenarios that make me realize that I do not fully understand it.

As I understood it, the IS is selected on the basis of the initial calibration curve fit. However, I came across data where different internal standards were used for the same initial calibration for different sample sets. The calibration was performed on 5/13/16 (CAL1 at 12:52:59) and there are 2 calibration files – the first in ng/g for soil, 16126001S.rdb, and uses the labeled C11 for C13 and C14 – the second in ng/ml for wipes, 1612600Wipe.rdb, and uses the labeled C12 for C13 and C14. There are a few exceedances for CAL4, LCS, and/or CCVs when the labeled C12 is used. The wipes are all in SGP15 and the soils are in various packages (e.g., SGP18). There are positive results.

What other factors besides the initial calibration fit impact the IS selected?

Thanks!

Meg A. Michell
Senior Technical Chemist
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Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Tuesday, October 4, 2016 3:10 PM
To: Meg Michell; Charles Neslund
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: 18O2-PFHxS as IS

Hi Meg,
18O2-PFHxS is not a new internal standard. When the method was initially set up, 18O2-PFHxS was misnamed as 13C-PFHxS. The same labeled compound has been used for all samples but now we are using the correct naming for this compound. This has been corrected in the revised SOPs.

I signed off on the revisions of the SOPs yesterday. I will see where they are in the process so that we can get them to you. I am confused by the water QC table? Chuck had sent Dave a table a few days after you both visited with all our acceptance criteria. Is that what you are referring to?

Christine Ratcliff
Manager
Specialty Services

Eurofins Lancaster Laboratories Environmental, LLC
2425 New Holland Pike
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717-556-7380

ChristineRatcliff@eurofinsUS.com

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Monday, October 03, 2016 4:53 PM
To: Christine Ratcliff; Charles Neslund
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: FW: 18O2-PFHxS as IS

Hi-
In reviewing some more recent data, we are noting that a new IS was introduced. We have not looked closely at the data yet. Before we did, I wanted to understand if this is under the same SOP or if there are other differences that we should be aware of. This IS was not covered in the previous version of the SOP that we received.

Also, how are you coming on the SOP revisions and water QC table?

Thanks!!

From: Andrew Piasecki
Sent: Monday, October 3, 2016 4:16 PM
To: Meg Michell <mmichell@envstd.com>
Subject: 18O2-PFHxS as IS

Meg,

In SDGs SGP82, SGP87, and SGP88, the ICAL started on 7/11/16 at 15:25 on instrument API 4000 used 18O2-PFHxS as an internal

Andrew L. Piasecki
Quality Assurance Chemist
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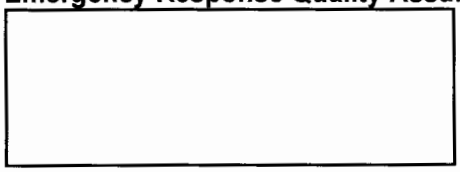

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Meg Michell

From: Charles Neslund <CharlesNeslund@eurofinsUS.com>
Sent: Monday, October 17, 2016 6:18 PM
To: Meg Michell; Christine Ratcliff
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: multiple transitions listed

Hi Meg,

Please see below.

Charles J. Neslund
Technical Director, Environmental Sciences

Eurofins Lancaster Laboratories Environmental, LLC
2425 New Holland Pike
Lancaster, PA 17601
office 717-556-7231
mobile 717-799-0439
CharlesNeslund@eurofinsUS.com

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Monday, October 17, 2016 12:28 PM
To: Christine Ratcliff; Charles Neslund
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: multiple transitions listed

Hi-
I wanted to check in on the response to this email and also the outstanding revisions for the sensitive soil data. Do you have an update?
Thanks!

From: Meg Michell
Sent: Thursday, October 13, 2016 10:36 AM
To: 'Christine Ratcliff' <ChristineRatcliff@eurofinsUS.com>; Charles Neslund <CharlesNeslund@eurofinsUS.com>
Cc: David Blye <DBLYE@envstd.com>; Moline, Kirk (k.moline@ctmale.com) <k.moline@ctmale.com>
Subject: multiple transitions listed

Hi-
We talked about this on the day that we met with you, but I want to make sure that we are clear on this issue so that we can explain it properly in our reports. On the one instrument, multiple transitions (see below) are listed. What does this mean in terms of:

- Are multiple transitions monitored?
  Yes, multiple transitions are monitored. In the examples below, for PFBS the transition 299 to 80 and the transition 299 to 99 are being monitored.
- Which transition(s) is/are used for quantitation? If only one transition is used for quantitation, how do we know which one it is?
  In the examples below, both transitions that are listed are used for quantitation. The transitions are summed. The use of the acronym TIC in the upper right indicates Total Ion or the sum of the ion transitions. If only one transitions is used, then only one is displayed, numerically and graphically.

- Which transition(s) is/are reflected by the ion trace? If only one transition is reflected in the ion trace, how do we know which it is?

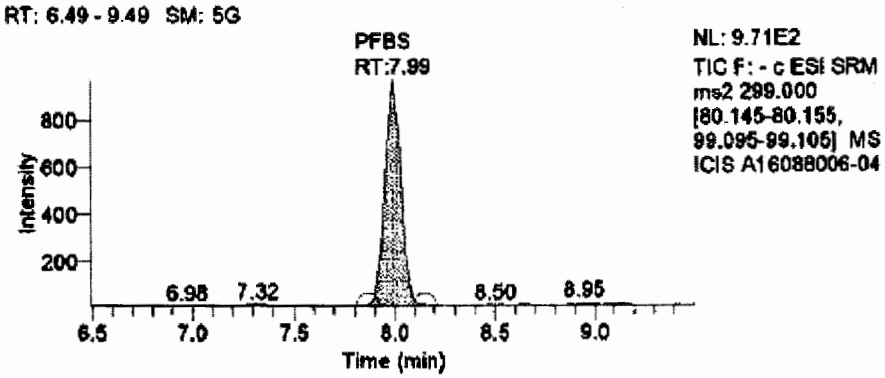
  Where it is listed as TIC, the ion trace, the peak/chromatogram is the summed responses for the transitions used for quantitation.

- If only one is used for quantitation and/or shown in the trace, where is the data stored/presented for the 2nd (and/or 3rd) transition?

  I think this is answered by the response to the last bullet. They both are used.

Thanks!!

Identification
Filter: - c ESI SRM ms2 299.00 [80.14-80.16, 99.09-99.11]



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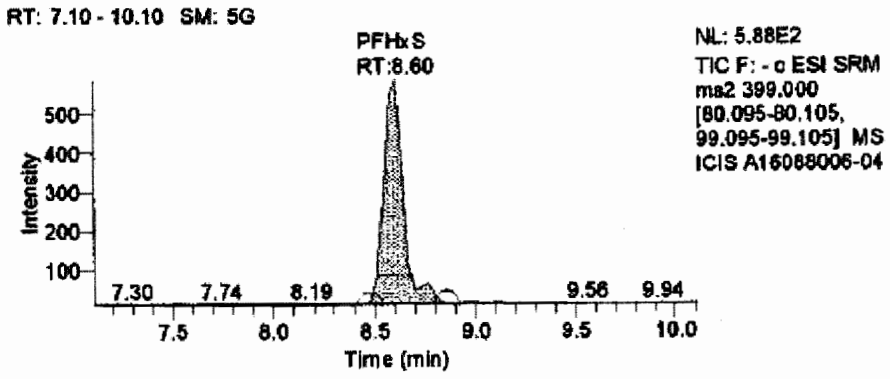
Filter: - c ESI SRM ms2 399.00 [80.09-80.11, 99.09-99.11]



Identification
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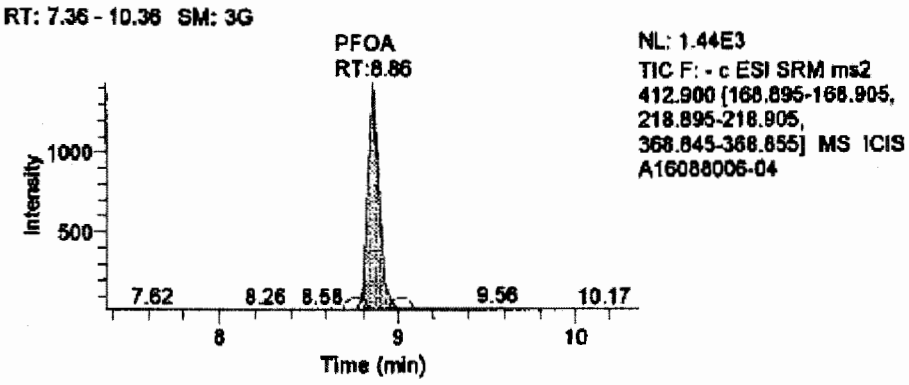

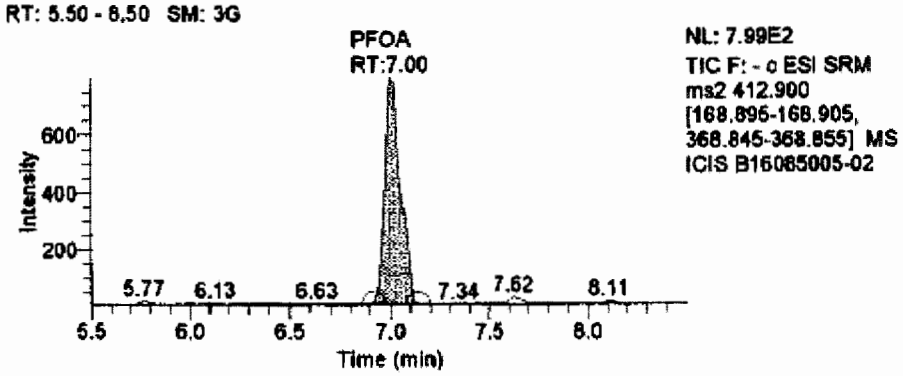

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Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Friday, June 16, 2017 11:34 AM
To: Meg Michell; Nancy Bornholm
Cc: Charles Neslund; David Blye; Moline, Kirk (k.moline@ctmale.com); 'mtreanor@barr.com'; Ward Swanson (WSwanson@barr.com); Keely D. Pearson; StGobain; Steve Zeiner; Tom Weinmann
Subject: RE: SGP96

Meg,
This has been corrected. The revised data package and EDD will be issued.

Thanks

Christine Ratcliff
Manager
HRMS Group/PFAS Group

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From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Tuesday, June 13, 2017 2:55 PM
To: Christine Ratcliff; Nancy Bornholm
Cc: Charles Neslund; David Blye; Moline, Kirk (k.moline@ctmale.com); 'mtreanor@barr.com'; Ward Swanson (WSwanson@barr.com); Keely D. Pearson; StGobain; Steve Zeiner; Tom Weinmann
Subject: RE: SGP96

We have reviewed the revised data and would like you to review the following:

- We requested that the peak for PFHxA at RT 8.42 be integrated in sample 8433351; however a peak at RT 8.07 was integrated instead

All other issues were addressed.
Thanks!

From: Christine Ratcliff [mailto:ChristineRatcliff@eurofinsUS.com]
Sent: Tuesday, June 6, 2017 1:48 PM
To: Meg Michell <mmichell@envstd.com>; Nancy Bornholm <NancyBornholm@eurofinsUS.com>
Cc: Charles Neslund <CharlesNeslund@eurofinsUS.com>; David Blye <DBLYE@envstd.com>; Moline, Kirk (k.moline@ctmale.com) <k.moline@ctmale.com>; 'mtreanor@barr.com' <mtreanor@barr.com>; Ward Swanson

(WSwanson@barr.com) <WSwanson@barr.com>; Keely D. Pearson <KPearson@barr.com>; StGobain <StGobain@envstd.com>; Steve Zeiner <szeiner@envstd.com>; Tom Weinmann <tweinmann@envstd.com>
Subject: RE: SGP96

Meg
All requests listed below were completed with the exception of sample 8433348. The chemist reviewed the integration of PFDA and could not find a good point in which to split the peak. A revised DP and EDD will be issued.

Thanks

Christine Ratcliff
Manager
HRMS Group/PFAS Group

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From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Friday, May 19, 2017 7:42 PM
To: Nancy Bornholm
Cc: Christine Ratcliff; Charles Neslund; David Blye; Moline, Kirk (k.moline@ctmale.com); 'mtreanor@barr.com'; Ward Swanson (WSwanson@barr.com); Keely D. Pearson; StGobain; Steve Zeiner; Tom Weinmann
Subject: SGP96

Here are a few requests for this SDG:

- All soil samples: the results for these were adjusted for exact weight but not the MDLs/LOQs – please update as in the past. There are a few cases where ND results will become positive results once this is done (e.g., PFHpA in 8433357) – please review the data for this.
- Samples 8433357, 8433359: The equation for PFBS is y= 0.1107x + -0.04693. When y is 0, x=0.8 ng/g, which is at the aqueous MDL. A small peak quantitated above the MDL in these samples.
- Sample 8433348: please check the integration of PFDA
- Please integrate peak for PFHxA in samples 8433350 (RT 8.49) and 8433351 (RT 8.42)

Thanks!!

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DATA USABILITY SUMMARY REPORT

ANALYSIS OF PERFLUORINATED COMPOUNDS

IN SOIL SAMPLES AND AQUEOUS BLANKS

1030 WATER STREET, VILLAGE OF NORTH BENNINGTON,

BENNINGTON COUNTY VERMONT, VTDEC SMS SITE # 20164630

SAMPLE DELIVERY GROUP: SGP97

June 13, 2017

Prepared for:

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

Prepared by:

ENVIRONMENTAL STANDARDS, INC.
1140 Valley Forge Road
P.O. Box 810
Valley Forge, PA 19482-0810

In conjunction with:

BARR ENGINEERING COMPANY
4300 MarketPointe Drive
Minneapolis, MN 55435

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TABLE OF CONTENTS

Introduction

Section 1 **Quality Assurance Review**

A. Organic Data Review

B. General Parameter Data Review

C. Conclusions

Section 2 **Validated Data Summary Tables**

Section 3 **Laboratory Calibration and Quality Control Acceptance Criteria**

Section 4 **Environmental Standards, Inc., Standard Operating Procedure**

Section 5 **Organic Data Support Documentation**

Section 6 **General Parameter Data Support Documentation**

Section 7 **Laboratory Case Narratives and Project Chain-of-Custody Record**

Section 8 **Project Correspondence**

Introduction

This Data Usability Summary Report (DUSR) was based upon an examination of the data generated from samples that were collected on June 8 and 20, 2016, as part of the 1030 Water Street, Village of North Bennington, Vermont project based on the "Initial Site Characterization Investigation Work Plan Saint-Gobain Performance Plastics Site 1030 Water Street, Village of North Bennington, Bennington County, Vermont" (Work Plan, April 2016). The analyses of the samples (and associated quality control [QC] samples) listed on the table below were performed by Eurofins Lancaster Laboratories Environmental (ELLE) of Lancaster, Pennsylvania. Soil samples were analyzed for perfluorinated compounds (PFCs) according to ELLE's internal standard operating procedure (SOP) "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins document reference 1-P-QM-WI-9035864, Rev. 2), total organic carbon (TOC) according to Standard Method (SM) 5310B, and percent moisture according to SM 2540G. Aqueous blank samples were analyzed for PFCs according to ELLE's internal SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins document reference 1-P-QM-WI -9012802, Rev. 5). Comprehensive data deliverables were prepared by the laboratory and were reviewed by Barr Engineering Company (Barr) and Environmental Standards, Inc. (Environmental Standards). The samples that have undergone a quality assurance (QA) review are listed on Table 1. Table 1 also presents the laboratory sample number, laboratory Sample Delivery Group (SDG), matrix, collection date, parameters analyzed and reviewed, and review type for the samples.

The reported analytical results are presented on the validated data summary tables included in Section 2. These validated data summary tables were generated from electronic data deliverables (EDDs) provided by the laboratory and have been edited by the data reviewer to include all final data validation qualifiers and results. The "Lab Result," "Lab MDL" (*i.e.*, the method detection limit [MDL]), "Lab LOQ" (*i.e.*, the limit of quantitation [LOQ]), "Lab Qualifier," and "Lab Detect Flag" fields presented on the validated data summary tables were derived directly from the laboratory-provided EDD. Errors in the "Lab Result," "Lab MDL," "Lab LOQ," and "Lab Detect Flag" fields noted during validation have been corrected, and the corrections are reflected in the "Final Result," "Final MDL," "Final LOQ," and "Final Detect Flag" fields, respectively, on the validated data summary tables. Validation qualifier codes have been placed in the "Validation Qualifier" fields on the data tables to enable the data user to quickly assess the qualitative and/or quantitative reliability of a result based on the criteria evaluated during this QA review. Finally, the "Validation Reason Code" field has been populated with codes that indicate the reason for the validation qualifiers. Definitions of the validation qualifier and reason codes are presented with the validated data summary tables.

This DUSR has been performed with guidance from the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016), and the "National Functional Guidelines for High Resolution Superfund Methods Data Review" (US EPA, April 2016) for the PFC analyses and from the "National Functional Guidelines for Inorganic Superfund Data

Review" (US EPA, September 2016) for TOC and percent moisture analyses; however, these validation guidance documents specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocol performed by the laboratory for these samples. Environmental Standards used professional judgment to determine the usability of the analytical results and compliance relative to the requirements specified in the Work Plan, US EPA Method 537, ELLE's internal SOPs for PFC analysis, SM 5310B for TOC analysis, and SM 2540G for percent moisture analysis. US EPA Method 537 is written strictly for drinking water samples and no approved US EPA method currently exists for other sample matrices. Although ELLE's internal SOPs reference US EPA Method 537 for PFC analysis, the procedures are really "in-house" procedures that are also considered "Confidential Information"; therefore, a summary of the Calibration and QC Requirements used by ELLE for PFC analysis has been included in Section 3. In addition, the SOP used by Environmental Standards to validate data generated under the ELLE PFC SOPs is provided in Section 4. Details of this QA review are presented in Section 1 of this DUSR.

This DUSR identifies data quality issues for specific samples and specific evaluation criteria. The data qualifications allow the data end-user to best understand the usability of the analysis results. Data not qualified in this report should be considered valid based on the QC criteria that have been reviewed.

Section 5 of the report presents the Organic Data Support Documentation for this DUSR and Section 6 of the report presents the General Parameter Data Support Documentation for this DUSR. Section 7 presents copies of the Laboratory Case Narratives and Project Chain-of-Custody (COC) Record. Section 8 presents the Project Correspondence.

TABLE 1 – SUMMARY OF SAMPLES REVIEWED

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3-MW01-00.0	8438959	SGP97	Soil	6/20/16	F* L	PFC TOC, Mois
SG3-MW01-00.5	8438960	SGP97	Soil	6/20/16	F* L	PFC TOC, Mois
SG3-MW01-00.5MS (Matrix Spike)	8438960MS	SGP97	Soil	6/20/16	L	TOC
SG3-MW01-00.5DUP (Laboratory Duplicate)	8438960DUP	SGP97	Soil	6/20/16	L	TOC
SG3-MW01-01.0	8438961	SGP97	Soil	6/20/16	F* L	PFC TOC, Mois
SG3-MW01-01.5	8438962	SGP97	Soil	6/20/16	F* L	PFC TOC, Mois
SG3-LTB01-20160620 (Trip Blank)	8438963	SGP97	Aq	6/8/16**	F*	PFC
SG3-FTB01-20160620 (Field Blank)	8438964	SGP97	Aq	6/20/16	F*	PFC
SG3-MW01-03.5	8438965	SGP97	Soil	6/20/16	F* L	PFC TOC, Mois
SG3-RB01-20160620 (Rinse Blank)	8438966	SGP97	Aq	6/20/16	F*	PFC
SG3-MW01-08.0	8438967	SGP97	Soil	6/20/16	F* L	PFC TOC, Mois
SG3-MW01-13.0	8438968	SGP97	Soil	6/20/16	F* L	PFC TOC, Mois
SG3-RB02-20160620 (Rinse Blank)	8438969	SGP97	Aq	6/20/16	F*	PFC
SG3-MW06-05.0	8438970	SGP97	Soil	6/20/16	F* L	PFC TOC, Mois
SG3-MW06-10.5	8438971	SGP97	Soil	6/20/16	F* L	PFC TOC, Mois
SG3-MW06-13.5	8438972	SGP97	Soil	6/20/16	F* L	PFC TOC, Mois

TABLE 1 (Cont.)

NOTES:

PFC	-	Perfluorinated Compounds (PFCs) according to ELLE's SOP "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins document reference 1-P-QM-WI-9035864, Rev. 2) for soil samples or ELLE's SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins document reference 1-P-QM-WI -9012802, Rev. 5) for aqueous blank samples. (14 Full analyses)
TOC	-	Total Organic Carbon by Standard Method 5310B. (12 Limited analyses)
Mois	-	Percent Moisture by Standard Method 2540G. (10 Limited analyses)
Aq	-	Aqueous.
F*	-	Full QA Review (performed in association with Barr personnel).
L	-	Limited QA Review.
**	-	This collection date was recorded on the COC Record for the trip blank and pre-dates the collection date of the associated field samples. The data reviewer used the earliest collection date of the associated samples in order to evaluate holding time for the trip blank.

Section 1 Quality Assurance Review

A. Organic Data Review

The organic analyses of 10 soil samples (including QC samples) and four aqueous blanks collected as part of the 1030 Water Street, Village of North Bennington, Vermont project on June 8 and 20, 2016, were performed by ELLE. Soil samples were analyzed for PFCs according to ELLE's internal SOP "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins document reference 1-P-QM-WI-9035864, Rev. 2). Aqueous blank samples were analyzed for PFCs according to ELLE's internal SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins document reference 1-P-QM-WI -9012802, Rev. 5). Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data were presented in comprehensive data deliverables.

Barr personnel performed the initial data review, and Environmental Standards personnel conducted a secondary peer review and prepared this report. The findings offered in this report are based upon a review of all tabulated QC summary forms and raw data including the following QC measures:

- Sample and extract holding times
- Blank analysis results
- Second-source initial calibration verification (ICV) recoveries
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Analytical sequence
- Quantitation of results
- Sample condition upon laboratory receipt
- Initial calibrations
- Continuing calibration verification (CCV) recoveries
- Labeled compound responses
- Qualitative identification

The analytical results for the organic target compounds are presented on the validated data summary tables in Section 2 of this report. The validated data summary tables include the full names of the target analytes along with their associated acronyms, which are used throughout the text of this DUSR. A summary of ELLE's Calibration and QC Requirements has been included in Section 3. The SOP used by Environmental Standards to validate data generated under the ELLE SOP is provided in Section 4. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, relevant raw data, and other documentation needed to support the findings in this DUSR in the Organic Data Support Documentation (Section 5), Laboratory Case Narratives and Project Chain-of-Custody Record (Section 7), and Project Correspondence (Section 8). The data reviewer has also manually edited the laboratory-reported data, and QC summary forms included in these sections based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Usability issues are addressed in the subsequent Organic Data Qualifiers section. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the ELLE internal SOPs and the reference method, US EPA Method 537, Revision 1.1.

Reporting Issues

1. The MDLs and LOQs reported by the laboratory for PFCs in soil samples and their associated batch QC (method blank, LCS, and MS/MSD) were calculated based on a sample weight of 5.00 g in the original data package and EDD provided. The actual sample weight, as recorded on the extraction log, was between 4.50 g and 5.50 g for soil samples. Upon inquiry, the laboratory revised the MDLs and LOQs to reflect the actual sample weights as used for the positive results (refer to Project Correspondence). All results, MDLs, and LOQs reported by the laboratory for PFCs in aqueous blank samples and their associated batch QC (method blank, LCS, and MS/MSD) were calculated based on a sample weight of 100.00 g and assuming a sample density equivalent to water density of 1.00 g/mL. The actual sample weight, as recorded on the extraction log, was between 99.50 g and 100.50 g for aqueous samples; therefore, the reported results, MDLs, and LOQs may be minimally off (± 0.5%) from the actual measured values. The laboratory has since begun using the actual sample weights in these calculations.

2. The instrument systems used for the PFC analysis were not compatible with the laboratory information management system (LIMS) at the time of the analysis of the samples included in this DUSR. As a result, the laboratory entered 100% of the data (samples, QC, and calibration results) into LIMS manually. The laboratory review process included 100% verification (secondary-level review) of the information presented on the “Analysis Report” section of the data package. The “Analysis Report” section includes sample and batch QC results. All forms presented in the “Quality Control and Calibration Summary Forms” section of the data package were only spot-checked during the secondary level review performed at the laboratory.

   The data reviewer noted frequent errors on the forms presented in the “Quality Control and Calibration Summary Forms” section of the data package; however, these errors did not have a direct impact on sample results because the results were also manually entered into LIMS and not calculated based on the information presented on these forms. Much of the information presented on the forms in “Quality Control and Calibration Summary Forms” section was repeated, either in the “Analysis Report” (method blank, LCS, and MS/MSD) or on a summary generated directly from the instrument (with 100% electronic transfer) and presented in the “Standards Data” section of the data package. Where an alternate form was provided in the “Analysis Report” or “Standards Data” sections of the data package, the data reviewer did not verify the information also presented in the “Quality Control and Calibration Summary Forms” section.

The only information in the "Quality Control and Calibration Summary Forms" section that is not in a summary in the "Analysis Report" or "Standards Data" sections is the "Quality Control Summary" for "Internal Standards." The data reviewer verified the information presented on the Internal Standard summary forms and has indicated the presence of any errors (including errors in flagging internal standards outside of limits) in the Organic Data Support Documentation section of this DUSR. The data reviewer used the corrected values to evaluate internal standard performance.

3. In some cases, the criteria presented on various calibration and QC summary forms included in the data packages were disparate with the criteria presented in ELLE's internal SOPs. In addition, the laboratory noted exceedances in the Case Narratives that were sometimes not consistent with the SOP criteria. Upon request for clarification, ELLE provided a summary of the Calibration and QC Requirements relevant to the PFC analyses performed, which has been included in Section 3. Some of the criteria provided were different than that presented in either the internal ELLE SOPs or presented in the data packages. The data reviewer evaluated the data based on the criteria presented in Section 3 as detailed in the data validation SOP in Section 4.

4. According to laboratory personnel (refer to Project Correspondence), initial calibrations were processed on a batch basis, such that disparities were observed between separate versions of the same initial calibration in different data sets. These disparities could include minor differences in peak integrations (and responses) and differences in the internal standards utilized for PFBS, PFTA, and PFTriA, which do not have exact labeled internal standards. Where the initial calibration was common amongst multiple SDGs (including aforementioned processing factors), it was validated only once; therefore, the support documentation will include copies of forms (including Internal Standard summary forms) from the SDG in which it was validated.

5. The laboratory incorrectly identified the internal standard $^{18}O_2$-PFHxS as ^{13}C-PFHxS in the raw data associated with the aqueous blank samples (refer to Project Correspondence). The internal standard has been correctly referred to as $^{18}O_2$-PFHxS in this report.

6. The laboratory reported aqueous MDLs and LOQs on the Sample Data Summary form (Form 1) for solid method blank BLK16215005. Upon request, the laboratory provided a revised data package including a revised Form 1 that reflected the correct MDLs and LOQs (refer to Project Correspondence). It should be noted that this method blank was associated with re-extractions/reanalyses that were not reported due to the extractions being performed past the required holding time.

7. Several samples appeared to have two peaks for PFOA at two different retention times (RTs; reflecting branched and linear isomers); however, only the peak for the linear isomer was integrated for these samples. Upon Environmental Standards' inquiry, the laboratory confirmed that both peaks should be integrated and provided revised reports and EDDs to reflect the corrected results (refer to Project Correspondence).

8. The laboratory reported the results for PFDA and PFUnA for sample SG3-MW01-00.0 as "not-detected" on the Analysis Report and in the EDD. According to the raw data, PFDA and PFUnA were detected at 0.27 ng/g and 0.45 ng/g, respectively. Upon inquiry, the laboratory revised the Analysis Report and EDD to reflect the correct results for this sample (refer to Project Correspondence).

9. The laboratory reported a positive result of 2 ng/L (rounded from 1.8 ng/L) for PFOA on the Analysis Report for the rinse blank sample SG3-RB01-20160620. A review of the initial calibration curve used to quantitate the result revealed a *y*-intercept equivalent to 1.2 ng/L. Upon inquiry, the laboratory revised the Analysis Report and EDD to reflect a "not-detected" result for PFOA in the rinse blank sample (refer to Project Correspondence).

10. The laboratory recorded the final volume as 1 µL on the organic extraction log for batch 16215005. The correct final volume was 1 mL. The data reviewer hand-corrected the logs to reflect the correct final volume.

Procedural Issues

1. US EPA Method 537 is listed as the reference method in the title of the ELLE SOPs; however, US EPA Method 537 is written specifically for the analysis of drinking water samples. As a result, the laboratory has made modifications to the extraction procedure to accommodate preparation of non-aqueous samples (ultrasonic extraction for an hour with 4:1 acetonitrile/water mixture vs. solid-phase extraction). In addition, the laboratory has made other modifications, including, but not limited to, the following:

    - For aqueous blank samples, 100 mL was subsampled for extraction instead of using the entire container contents (250 mL), and Sep-Pak C18 solid-phase extraction cartridges were used instead of polystyrenedivinylbenzene.
    - The laboratory utilized additional labeled analogs of the target PFCs, where available for use, as pre-extraction internal standards (all target PFCs except PFBS, PFTA, and PFTriA), which generally should normalize any extraction inefficiency and provide greater accuracy in quantitation.
    - As the labeled internal standards were added prior to extractions, additional labeled surrogate compounds were not used.
    - A holding time of 28 days from collection to extraction was used for soils.
    - The calibration and QC requirements that were used are presented in Section 3 and are less restrictive than US EPA Method 537 in some cases.
    - The laboratory did not control the relative percent difference (RPD) between the high and low areas for each internal standard in the initial calibration (must be < 20% by US EPA Method 537, Version 1.1).
    - The laboratory did not calculate the peak asymmetry factor.
    - The laboratory did not use the lowest and highest standards from the initial calibration in the CCV standard rotation.
    - The laboratory did not rotate the concentration used for the LCS.

- The calibration standards only included the linear PFC isomers and available branched/linear standards were not analyzed for qualitative or quantitative purposes.
- The calibration curves were not always forced through zero.
- Alternate ion transitions were used for PFBS, PFHxS, PFOS, and ^{13}C-PFOS (299→99 instead of 299→80 for PFBS, 399→99 instead of 399→80 for PFHxS, 499→99 instead of 499→80 for PFOS, and 503→99 instead of 503→80 for ^{13}C-PFOS) - the fragment represented by *m/z* 80 is the sulfonate group; whereas, the fragment represented by *m/z* 99 is the fluorinated sulfonate group (refer to Procedural Issue No. 3 for exceptions).

  US EPA Method 537 requires the use of 499→80 for PFOS and 399→80 for PFHxS. Studies[1] have shown that quantifying with a linear standard using the 499→99 transition may underestimate the PFOS concentration because many of the branched isomers have a lower response than the linear isomer. Conversely, using only the 499→80 transition could overestimate PFOS if branched isomers are quantitated based on a linear standard. It is unknown whether the same potential biases are present for the 399→99 and 399→80 transitions for PFHxS and 299→99 and 299→80 transitions for PFBS.

2. Where transition ion peaks were observed and deemed by laboratory personnel to represent branched isomers in samples, the responses for such peaks were included in the response for the analyte and used to quantitate the sample results. The laboratory did not analyze standards that included both branched and linear isomers, and the laboratory's SOP did not specify RT criteria for determining whether peaks other than the peak representative of the linear isomer (based on calibration standards) should be included.

3. In some cases, multiple ion transitions were monitored and used for qualitative identification and quantitation. In these cases, the response for the compound represents a sum of the responses for the multiple ion transitions in the calibration standard, QC, and sample analyses. For the aqueous blank samples, multiple ion transitions were used for PFBS (299→80 and 399→99), PFHxS (**399→80** and 399→99), PFOS (**499→80** and 499→99), and PFOA (413→169, 413→219, and 413→369) and the associated labeled internal standards $^{18}O_2$-PFHxS (403→84 and 403→103), $^{13}C_4$-PFOS (503→80 and 503→99), and $^{13}C_4$-PFOA (417→169 and 417→372). The response for the compounds in the aforementioned analyses may represent the response for one ion transition or multiple ion transitions (in any ratio), as separate responses were not acquired by the instrument. The use of summed multiple ion transitions for qualitative identification and quantitation is not described in the reference method (US EPA 537) and should be considered a non-standard technique. As a result, any impact to qualitative identification and quantitation caused by the use of this technique is unknown. As only one of the multiple ion transitions have to be present at the expected RT to

[1] See Riddell, N. *et al.* Branched Perfluorooctane Sulfonate Isomer Quantification and Characterization in Blood Serum Samples by HPLC/ESI-MS(/MS). *Environ. Sci. Technol.* **2009**, 43, 7902-7908.

generate a response, there may be a greater chance for a co-eluting interferent to create a false positive or provide positive bias. Quantitation may also be impacted by a different ratio of the ion transitions in the calibration standards than in the samples (as may be caused by the presence of branched isomers). PFCs were not detected in the aqueous blank samples and there should be no impact to "not-detected" results.

4. The internal standards the laboratory used for quantitation of PFBS, PFTA, and PFTriA vary, but were consistent within an analytical sequence under the same initial calibration. The internal standards that were used for PFBS include $^{13}C_2$-PFHxA, $^{18}O_2$-PFHxS, and $^{13}C_4$-PFOS. The internal standards that were used for PFTA and PFTriA include $^{13}C_2$-PFUnA and $^{13}C_2$-PFDoA. If the samples and associated QC samples within an extraction batch were reported from different analytical sequences, different internal standards may have been used for PFBS, PFTA, and PFTriA within the extraction batch. The laboratory began to use consistent internal standards for some of the analyses included in this data set (PFBS using $^{18}O_2$-PFHxS and PFTA and PFTriA using $^{13}C_2$-PFDoA for the reported soil sample results).

5. Low recoveries (< 70%) were observed for PFHpA in the LCS/LCSD analyses associated with the soil samples. The laboratory re-extracted and reanalyzed the samples and acceptable LCS/LCSD recoveries were observed; however, the re-extractions were performed past the required holding time and, as a result, the original analyses of all soil samples were reported. According to the Case Narrative, the QC limits are only advisory until sufficient data points can be obtained to calculate statistical limits. The advisory limits of 70-130% are consistent with US EPA Method 537. The data reviewer has qualified results due to the low LCS/LCSD recoveries as addressed in the subsequent Organic Data Qualifiers section.

6. The laboratory performed batch MS analysis on SDG SGP98 sample TB06222016, a trip blank. Using a trip blank for an MS analysis generally provides no useful information on the "matrix" of field samples; however, all associated samples were field-generated blanks. Several recoveries were above the QC limits for MS analysis. However, no positive results were observed in the associated blanks in this SDG, and there is no impact to data usability due to the high recoveries.

Data Evaluation

With respect to data usability, the principal areas of concern are low LCS/LCSD recoveries, low and high internal standard responses, and quantitation below the LOQs. Based on a rigorous review of the data provided, the following data qualifiers are offered. The following data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical SOP used for analysis. Accordingly, the following data usability issues should not be construed as an indication of laboratory performance.

Organic Data Qualifiers

- The MDLs and LOQs for PFHpA in all soil samples may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. Low recoveries (30% ≤ %R <70%) were observed for PFHpA in the associated LCS/LCSD analyses. (Validation Reason Code: LAL)

- The MDLs and LOQs for PFBS, PFHxA and PFOS in sample SG3-LTB01-20160620 and for PFHxA in sample SG3-FTB01-20160620 may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. Low responses (< 50% of the associated initial calibration average response) were observed for the labeled isotopes used to quantitate these compounds in the analyses of these samples. (Validation Reason Code: IS)

- The MDLs and LOQs for the following compounds in the samples listed below may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. In addition, the reported positive results for the following compounds should be considered estimated and have been flagged "J" on the data tables. High responses (> 150% of the associated initial calibration average response) were observed for the labeled isotopes used to quantitate these compounds in the analyses of these samples. (Validation Reason Code: IS)

Sample(s)	Compound(s) With Estimated Positive Results ("J")	Compound(s) With Estimated MDLs and LOQs ("UJ")
SG3-MW01-00.0	PFDA, PFDoA, PFOA, and PFUnA	PFBS, PFHpA, PFHxS, PFHxA, PFNA, PFOS, PFTA, and PFTriA
SG3-MW01-00.5	PFDA, PFDoA, PFOA, and PFUnA	PFBS, PFHpA, PFHxS, PFHxA, PFNA, PFOS, PFTA, and PFTriA
SG3-MW01-01.0, SG3-MW01-01.5, SG3-MW01-13.0, and SG3-MW06-13.5	-	PFHpA
SG3-MW01-03.5	-	PFBS, PFDA, PFDoA, PFHpA, PFHxS, PFNA, PFOS, PFTA, PFTriA, and PFUnA
SG3-MW06-05.0 and SG3-MW06-10.5	PFOA	PFBS, PFDA, PFDoA, PFHpA, PFHxS, PFHxA, PFNA, PFOS, PFTA, PFTriA, and PFUnA

- All positive results reported with concentrations between the laboratory's reported MDLs and LOQs were flagged "J" by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

B. General Parameter Data Review

The general parameter analyses of 12 soil samples (including QC samples) collected as part of the 1030 Water Street, Village of North Bennington, Vermont project on June 20, 2016, were performed by ELLE. The samples were analyzed for TOC by SM 5310B and for percent moisture by SM 2540G. Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data were presented in comprehensive data deliverable.

The findings offered in this report are based upon a review of all tabulated QC summary forms including the following QC measures:

- Sample holding times
- Blank analysis results
- Continuing calibration check recoveries
- MS results
- Analytical sequence
- Sample condition upon laboratory receipt
- Initial calibrations
- LCS results
- Laboratory duplicate precision

The analytical results for the target compounds are presented on the data tables in Section 2 of this DUSR. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, and other documentation needed to support the findings in this DUSR in the General Parameter Data Support Documentation (Section 6), Laboratory Case Narratives and Project Chain-of-Custody Record (Section 7), and Project Correspondence (Section 8). The data reviewer has also manually edited the laboratory-reported data and QC summary forms included in these sections based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the analytical methods performed.

Reporting Issue

- Reporting issues were not identified during this DUSR.

Procedural Issue

- Procedural issues were not identified during this DUSR.

Data Evaluation

With respect to data usability, the principal area of concern is quantitation below the LOQ. Based on a review of the data provided, the following data qualifier is offered. The following data usability issue represents an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical method used for analysis. Accordingly, the following data usability issue should not be construed as an indication of laboratory performance.

General Parameter Data Qualifier

- All positive results reported with concentrations between the laboratory's reported MDLs and LOQs were flagged "J" by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

C. Conclusions

The analytical data are acceptable for use as reported by the laboratory with the following qualifications. Several organic results were qualified as estimated due to low LCS/LCSD recoveries and low and high internal standard responses. Several organic and general chemistry results were qualified as estimated due to quantitation below the LOQs. In order to use any of the data, the data user should understand the qualifications and limitations as specified in this DUSR. The Laboratory Case Narratives and Project Chain-of-Custody Record are presented in Section 7 of this report. Project Correspondence is presented in Section 8.

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SECTION 2

VALIDATED DATA SUMMARY TABLES

Validation Qualifier and Reason Code Definitions

Table 1. Validation Qualifiers and Definitions

Validation Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analyte has been “tentatively identified” or considered “presumptively” present.
UJ	The analyte was analyzed for, but was not detected. The reported MDL and limit of quantitation (LOQ) are approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
UB	The Analyte was not detected substantially above the level reported in the associated laboratory, equipment, field, or trip blank.

Table 2. Validation Reason Codes and Descriptions

Validation Reason Code	Description
CI	Chromatographic interference
CR	Calculated result in which one or more of the components has been qualified, potential bias indeterminate
CRH	Calculated result in which one or more of the components has been qualified, potential high bias
CRL	Calculated result in which one or more of the components has been qualified potential low bias
CV	Continuing calibration verification evaluation criteria not met, potential bias indeterminate
CVH	Continuing calibration verification evaluation criteria not met, potential high bias
CVL	Continuing calibration verification evaluation criteria not met, potential low bias
DC	Reporting limit exceeds decision criteria (for non-detects)
DL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the detection limit.
DT	Dissolved metals concentration exceeded total metals concentration in the sample above the acceptance criteria
DV	Missing Deliverables
EB	Equipment blank contamination
EC	Result exceeds the calibration range, potential bias indeterminate
ECH	Result exceeds the calibration range, potential high bias
ECL	Result exceeds the calibration range, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
EP	Estimated Maximum Possible Concentration (EMPC)
FB	Field blank contamination
FD	Field duplicate imprecision, potential bias indeterminate
FP	Potential false positives
FR	Field replicate imprecision, potential bias indeterminate
HA	Holding time - preparation to analysis, potential bias indeterminate
HAH	Holding time - preparation to analysis, potential high bias
HAL	Holding time - preparation to analysis, potential low bias
HC	Holding time - collection to analysis, potential bias indeterminate
HCH	Holding time - collection to analysis, potential high bias
HCL	Holding time - collection to analysis, potential low bias
HP	Holding time - collection to preparation, potential bias indeterminate
HPH	Holding time - collection to preparation, potential high bias
HPL	Holding time - collection to preparation, potential low bias
HV	Headspace present in volatile vials, potential bias indeterminate
HVL	Headspace present in volatile vials, potential low bias
IB	Instrument (including initial calibration or continuing calibration) blank contamination
IC	Initial calibration evaluation criteria not met, potential bias indeterminate
ICH	Initial calibration evaluation criteria not met, potential high bias
ICL	Initial calibration evaluation criteria not met, potential low bias
ID	Target compound identification criteria not met
IN	Elevated detection limit due to interference (i.e., laboratory, chemical, and/or matrix)
IR	Interference check standard recovery criteria not met, potential bias indeterminate
IRH	Interference check standard recovery criteria not met, potential high bias
IRL	Interference check standard recovery criteria not met, potential low bias
IS	Internal standard evaluation criteria not met, potential bias indeterminate
ISH	Internal standard evaluation criteria not met, potential high bias
ISL	Internal standard evaluation criteria not met, potential low bias
LA	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential bias indeterminate
LAH	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential high bias
LAL	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
LD	Laboratory duplicate precision criteria not met, potential bias indeterminate
LM	The PFK lock mass SICPs indicate that ion suppression evident
LP	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential bias indeterminate
LPH	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential high bias
LPL	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential low bias
LR	Linear range exceeded, potential bias indeterminate
MA	Matrix spike (MS &/or MSD) recovery criteria not met, potential bias indeterminate
MAH	Matrix spike (MS &/or MSD) recovery criteria not met, potential high bias
MAL	Matrix spike (MS &/or MSD) recovery criteria not met, potential low bias
MB	Method blank or preparation blank contamination
MP	Matrix spike (MS/MSD) or laboratory duplicate precision criteria not met, potential bias indeterminate
NB	Elevated detection limit or estimated result due to instrument drift (i.e., negative ICB or CCB result with an absolute value > 2× the MDL)
PD	Post-digestion spike recovery outside acceptance range, potential bias indeterminate
PDH	Post-digestion spike recovery outside acceptance range, potential high bias
PDL	Post-digestion spike recovery outside acceptance range, potential low bias
PJ	Professional judgment, potential bias indeterminate
PJH	Professional judgment, potential high bias
PJL	Professional judgment, potential low bias
PM	Performance evaluation mixture criteria not met, potential bias indeterminate
PMH	Performance evaluation mixture criteria not met, potential high bias
PML	Performance evaluation mixture criteria not met, potential low bias
PR	Peak(s) not adequately resolved, potential bias indeterminate
PRH	Peak(s) not adequately resolved, potential high bias
PRL	Peak(s) not adequately resolved, potential low bias
PS	Low percent solids could affect accuracy, potential bias indeterminate
PT	Chromatographic pattern in sample does not match pattern of calibration standard
RA	Reference material recovery criteria not met, potential bias indeterminate

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
RAH	Reference material recovery criteria not met, potential high bias
RAL	Reference material recovery criteria not met, potential low bias
RB	Rinsate blank contamination
RL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the quantitation or reporting limit, potential bias indeterminate
SA	Method of standard additions correction coefficient <0.995, potential bias indeterminate
SC	RPD Between two columns exceeds criteria, potential bias indeterminate
SD	Serial dilution results did not meet evaluation criteria, potential bias indeterminate
SDH	Serial dilution results did not meet evaluation criteria, potential high bias
SDL	Serial dilution results did not meet evaluation criteria, potential low bias
SP	Sample Preservation / Cooler Temperature, potential bias indeterminate
SPH	Sample Preservation / Cooler Temperature, potential high bias
SPL	Sample Preservation / Cooler Temperature, potential low bias
SR	Surrogate recovery outside acceptance range, potential bias indeterminate
SRH	Surrogate recovery outside acceptance range, potential high bias
SRL	Surrogate recovery outside acceptance range, potential low bias
SS	Second source evaluation criteria not met, potential bias indeterminate
SSH	Second source evaluation criteria not met, potential high bias
SSL	Second source evaluation criteria not met, potential low bias
ST	Compound not quantitated against an authentic standard, potential bias indeterminate
TB	Trip blank contamination
TD	Result for dissolved constituent significantly exceeded result for total constituent, potential bias indeterminate
TIC	Tentative identification, quantified using an assumed calibration factor, potential bias indeterminate.
TIR	Tentative identification and was observed in an associated laboratory, equipment, field, or trip blank.
TN	Instrument performance (tuning) criteria not met
YH	Due to a high y-intercept in the calibration curve, the sample result quantitated to a value greater than the MDL. Since the response ratio in the sample was less than the response ratio in the associated MDL standard, the reported result was changed to not-detected.

Facility:Bennington

SDG:SGP97

Sample ID	SG3-FTB01-20160620
Sample Date	6/20/2016 8:44:00 AM
Sample Type	FB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8438964
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-LTB01-20160620
Sample Date	6/8/2016 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8438963
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	UJ	N	IS
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	UJ	N	IS
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-00.0
Sample Date	6/20/2016 8:54:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438959
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.57	1.8	U	N		0.57	1.8	UJ	N	IS
Perfluorodecanoic acid (PFDA)	335-76-2	1	0.27	0.23	0.46	J	Y	0.27	0.23	0.46	J	Y	RL,IS
Perfluorododecanoic acid (PFDoA)	307-55-1	1	1.2	0.46	0.91		Y	1.2	0.46	0.91	J	Y	IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.34	0.68	U	N		0.34	0.68	UJ	N	LAL,IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.57	1.8	U	N		0.57	1.8	UJ	N	IS
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.23	0.46	U	N		0.23	0.46	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		0.23	0.46	U	N		0.23	0.46	UJ	N	IS
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.80	1.8	U	N		0.80	1.8	UJ	N	IS
Perfluorooctanoic acid (PFOA)	335-67-1	1	1.0	0.34	0.68		Y	1.0	0.34	0.68	J	Y	IS
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.34	0.91	U	N		0.34	0.91	UJ	N	IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.68	1.4	U	N		0.68	1.4	UJ	N	IS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	0.45	0.34	0.68	J	Y	0.45	0.34	0.68	J	Y	RL,IS

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-00.5
Sample Date	6/20/2016 9:02:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438960
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.56	1.8	U	N		0.56	1.8	UJ	N	IS
Perfluorodecanoic acid (PFDA)	335-76-2	1	0.69	0.23	0.45		Y	0.69	0.23	0.45	J	Y	IS
Perfluorododecanoic acid (PFDoA)	307-55-1	1	0.48	0.45	0.90	J	Y	0.48	0.45	0.90	J	Y	RL,IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.34	0.68	U	N		0.34	0.68	UJ	N	LAL,IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.56	1.8	U	N		0.56	1.8	UJ	N	IS
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.23	0.45	U	N		0.23	0.45	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		0.23	0.45	U	N		0.23	0.45	UJ	N	IS
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.79	1.8	U	N		0.79	1.8	UJ	N	IS
Perfluorooctanoic acid (PFOA)	335-67-1	1	0.49	0.34	0.68	J	Y	0.49	0.34	0.68	J	Y	RL,IS
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.34	0.90	U	N		0.34	0.90	UJ	N	IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.68	1.4	U	N		0.68	1.4	UJ	N	IS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	0.35	0.34	0.68	J	Y	0.35	0.34	0.68	J	Y	RL,IS

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-01.0
Sample Date	6/20/2016 9:08:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438961
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.59	1.9	U	N		0.59	1.9	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1	1.7	0.23	0.47		Y	1.7	0.23	0.47		Y	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.47	0.94	U	N		0.47	0.94	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.35	0.70	U	N		0.35	0.70	UJ	N	LAL,IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.59	1.9	U	N		0.59	1.9	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.23	0.47	U	N		0.23	0.47	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.23	0.47	U	N		0.23	0.47	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.82	1.9	U	N		0.82	1.9	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	1.2	0.35	0.70		Y	1.2	0.35	0.70		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.35	0.94	U	N		0.35	0.94	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.70	1.4	U	N		0.70	1.4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.35	0.70	U	N		0.35	0.70	U	N	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-01.5
Sample Date	6/20/2016 9:13:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438962
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.58	1.9	U	N		0.58	1.9	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1	1.8	0.23	0.46		Y	1.8	0.23	0.46		Y	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.46	0.93	U	N		0.46	0.93	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.35	0.69	U	N		0.35	0.69	UJ	N	LAL,IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.58	1.9	U	N		0.58	1.9	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.23	0.46	U	N		0.23	0.46	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.23	0.46	U	N		0.23	0.46	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.81	1.9	U	N		0.81	1.9	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	1.1	0.35	0.69		Y	1.1	0.35	0.69		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.35	0.93	U	N		0.35	0.93	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.69	1.4	U	N		0.69	1.4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.35	0.69	U	N		0.35	0.69	U	N	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-03.5
Sample Date	6/20/2016 10:00:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438965
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.66	2.1	U	N		0.66	2.1	UJ	N	IS
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.27	0.53	U	N		0.27	0.53	UJ	N	IS
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.53	1.1	U	N		0.53	1.1	UJ	N	IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.40	0.80	U	N		0.40	0.80	UJ	N	LAL,IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.66	2.1	U	N		0.66	2.1	UJ	N	IS
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.27	0.53	U	N		0.27	0.53	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.27	0.53	U	N		0.27	0.53	UJ	N	IS
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.93	2.1	U	N		0.93	2.1	UJ	N	IS
Perfluorooctanoic acid (PFOA)	335-67-1	1	0.59	0.40	0.80	J	Y	0.59	0.40	0.80	J	Y	RL
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.40	1.1	U	N		0.40	1.1	UJ	N	IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.80	1.6	U	N		0.80	1.6	UJ	N	IS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.40	0.80	U	N		0.40	0.80	UJ	N	IS

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-08.0
Sample Date	6/20/2016 10:38:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438967
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.56	1.8	U	N		0.56	1.8	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.22	0.45	U	N		0.22	0.45	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.45	0.89	U	N		0.45	0.89	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.34	0.67	U	N		0.34	0.67	UJ	N	LAL
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.56	1.8	U	N		0.56	1.8	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.22	0.45	U	N		0.22	0.45	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.22	0.45	U	N		0.22	0.45	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.78	1.8	U	N		0.78	1.8	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	0.73	0.34	0.67		Y	0.73	0.34	0.67		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.34	0.89	U	N		0.34	0.89	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.67	1.3	U	N		0.67	1.3	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.34	0.67	U	N		0.34	0.67	U	N	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-13.0
Sample Date	6/20/2016 11:18:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438968
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.54	1.7	U	N		0.54	1.7	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.22	0.44	U	N		0.22	0.44	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.44	0.87	U	N		0.44	0.87	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.33	0.65	U	N		0.33	0.65	UJ	N	LAL,IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.54	1.7	U	N		0.54	1.7	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.22	0.44	U	N		0.22	0.44	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.22	0.44	U	N		0.22	0.44	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.76	1.7	U	N		0.76	1.7	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		0.33	0.65	U	N		0.33	0.65	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.33	0.87	U	N		0.33	0.87	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.65	1.3	U	N		0.65	1.3	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.33	0.65	U	N		0.33	0.65	U	N	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW06-05.0
Sample Date	6/20/2016 2:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438970
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.60	1.9	U	N		0.60	1.9	UJ	N	IS
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.24	0.48	U	N		0.24	0.48	UJ	N	IS
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.48	0.96	U	N		0.48	0.96	UJ	N	IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.36	0.72	U	N		0.36	0.72	UJ	N	LAL,IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.60	1.9	U	N		0.60	1.9	UJ	N	IS
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.24	0.48	U	N		0.24	0.48	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		0.24	0.48	U	N		0.24	0.48	UJ	N	IS
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.84	1.9	U	N		0.84	1.9	UJ	N	IS
Perfluorooctanoic acid (PFOA)	335-67-1	1	5.4	0.36	0.72		Y	5.4	0.36	0.72	J	Y	IS
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.36	0.96	U	N		0.36	0.96	UJ	N	IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.72	1.4	U	N		0.72	1.4	UJ	N	IS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.36	0.72	U	N		0.36	0.72	UJ	N	IS

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW06-10.5
Sample Date	6/20/2016 2:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438971
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.57	1.8	U	N		0.57	1.8	UJ	N	IS
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.23	0.46	U	N		0.23	0.46	UJ	N	IS
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.46	0.91	U	N		0.46	0.91	UJ	N	IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.34	0.69	U	N		0.34	0.69	UJ	N	LAL,IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.57	1.8	U	N		0.57	1.8	UJ	N	IS
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.23	0.46	U	N		0.23	0.46	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		0.23	0.46	U	N		0.23	0.46	UJ	N	IS
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.80	1.8	U	N		0.80	1.8	UJ	N	IS
Perfluorooctanoic acid (PFOA)	335-67-1	1	3.0	0.34	0.69		Y	3.0	0.34	0.69	J	Y	IS
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.34	0.91	U	N		0.34	0.91	UJ	N	IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.69	1.4	U	N		0.69	1.4	UJ	N	IS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.34	0.69	U	N		0.34	0.69	UJ	N	IS

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW06-13.5
Sample Date	6/20/2016 2:32:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438972
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.55	1.8	U	N		0.55	1.8	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		0.22	0.44	U	N		0.22	0.44	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		0.44	0.87	U	N		0.44	0.87	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		0.33	0.66	U	N		0.33	0.66	UJ	N	LAL,IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.55	1.8	U	N		0.55	1.8	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		0.22	0.44	U	N		0.22	0.44	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		0.22	0.44	U	N		0.22	0.44	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		0.76	1.8	U	N		0.76	1.8	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	2.6	0.33	0.66		Y	2.6	0.33	0.66		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		0.33	0.87	U	N		0.33	0.87	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		0.66	1.3	U	N		0.66	1.3	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		0.33	0.66	U	N		0.33	0.66	U	N	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-RB01-20160620
Sample Date	6/20/2016 10:20:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8438966
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-RB02-20160620
Sample Date	6/20/2016 1:10:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8438969
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-00.0
Sample Date	6/20/2016 8:54:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438959
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	12.2	0.50	0.50		Y	12.2	0.50	0.50		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-00.5
Sample Date	6/20/2016 9:02:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438960
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	14.5	0.50	0.50		Y	14.5	0.50	0.50		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-01.0
Sample Date	6/20/2016 9:08:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438961
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	19.1	0.50	0.50		Y	19.1	0.50	0.50		Y	

Sample ID	SG3-MW01-01.5
Sample Date	6/20/2016 9:13:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438962
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	16.5	0.50	0.50		Y	16.5	0.50	0.50		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-03.5
Sample Date	6/20/2016 10:00:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438965
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	26.2	0.50	0.50		Y	26.2	0.50	0.50		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-08.0
Sample Date	6/20/2016 10:38:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438967
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	11.1	0.50	0.50		Y	11.1	0.50	0.50		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-13.0
Sample Date	6/20/2016 11:18:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438968
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	9.3	0.50	0.50		Y	9.3	0.50	0.50		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW06-05.0
Sample Date	6/20/2016 2:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438970
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	17.8	0.50	0.50		Y	17.8	0.50	0.50		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW06-10.5
Sample Date	6/20/2016 2:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438971
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	15.4	0.50	0.50		Y	15.4	0.50	0.50		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW06-13.5
Sample Date	6/20/2016 2:32:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438972
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	9.5	0.50	0.50		Y	9.5	0.50	0.50		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-00.0
Sample Date	6/20/2016 8:54:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438959
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	3150	431	1290		Y	3150	431	1290		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-00.5
Sample Date	6/20/2016 9:02:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438960
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	2180	331	993		Y	2180	331	993		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-01.0
Sample Date	6/20/2016 9:08:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438961
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	1420	329	986		Y	1420	329	986		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-01.5
Sample Date	6/20/2016 9:13:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438962
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	1930	323	970		Y	1930	323	970		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-03.5
Sample Date	6/20/2016 10:00:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438965
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	631	142	427		Y	631	142	427		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-08.0
Sample Date	6/20/2016 10:38:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438967
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	1650	156	469		Y	1650	156	469		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW01-13.0
Sample Date	6/20/2016 11:18:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438968
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	445	150	450	J	Y	445	150	450	J	Y	RL

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW06-05.0
Sample Date	6/20/2016 2:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438970
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	5780	327	982		Y	5780	327	982		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW06-10.5
Sample Date	6/20/2016 2:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438971
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	1600	215	645		Y	1600	215	645		Y	

Facility:Bennington

SDG:SGP97

Sample ID	SG3-MW06-13.5
Sample Date	6/20/2016 2:32:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	8438972
Analytical Method	SM5310B
Result Unit	mg/kg
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Total Organic Carbon	TOC	1	570	211	633	J	Y	570	211	633	J	Y	RL

SECTION 3

LABORATORY CALIBRATION AND QUALITY CONTROL ACCEPTANCE CRITERIA

Initial Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
1. Initial Calibration: Minimum of five calibration standards spanning at least a 20-fold concentration range. 2. Analyze MDL standard to ensure all compounds detected at MDL level	1. Initially and the after continuing calibration fails. 2. Analyzed with each initial calibration.	1. Back calculated concentration of each calibration point should be within ±70-130% of true. The level 1 calibration standard back calculated concentrations should be ±50-150% of true value. Analytes without a labeled internal standard back calculated concentrations should be within ±40-160% of true value. 2. All compounds detected.	1. If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the initial calibration can be used. In those cases, the data will be reported with a qualifying comment. 2. If compound not detected in MDL standard, the source of the problem should be determined and the system recalibrated.

Continuing Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Analyze every 10 samples and at the end of the analysis sequence. Concentrations alternate between low, mid, and high levels of the calibration curve.	Occurs every 10 samples and at the end of the analysis sequence.	Calculated amount should be within ±30% of the true value. Compounds without labeled internal standards should have calculated amounts within ±40% of the true value. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the continuing calibration can be used. In those cases, the data will be reported with a qualifying comment.

Initial Calibration Verification

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Second source standard analyzed at the end of each initial calibration.	Analyzed with each initial calibration	1. Calculated amount for each compound should be within ±70-130% of the true value. Analytes without a labeled internal standard should have calculated amounts within ±40% of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	1. If criteria are not met, the source of the problem should be determined and corrected. Situations may exist where the initial calibration verification can be used. In those cases, the data will be reported with a qualifying comment.

QC Acceptance Criteria

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Method Blanks	1 per 20 field samples	No positive detections above the MDL.	Reextract to confirm detection or report if the analyte present in the method blank is not detected in the sample.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
LCS	1 per 20 field samples	1. Advisory QC limits of 70-130%, RPD<30% 2. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	Reextract LCS and associated samples. Analytes that fail high and are ND in the samples can be reported. Due to the advisory nature of the acceptance limits, situations may exist where LCS can be used. In those cases, the data will be reported with a qualifying comment.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
MS/MSD	MS is routinely prepared with each extraction batch. If limited sample volume exists, an LCS/LCSD will be prepared.	1. Advisory QC limits of 70-130%, RPD<30%. 2. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	Evaluate in conjunction with LCS.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Isotopically labeled internal standards	Per sample (including MS/MSD, LCS, and Blanks)	The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	Reinject samples as necessary. Report data with qualifying comment.

SECTION 4

ENVIRONMENTAL STANDARDS, INC., STANDARD OPERATING PROCEDURE

1.0 OBJECTIVES

This standard operating procedure (SOP) describes procedures that the Environmental Standards data reviewers will use to validate Perfluorinated Compound (PFC) data for solid samples generated by Eurofins SOP "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins Document Reference 1-P-QM-WI-9035864) or "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537.1 Modified Using LC/MS/MS" (Eurofins Document Reference 1-P-QM-WI-9039643) and aqueous samples generated by Eurofins SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins Document Reference 1-P-QM-WI - 9012802) or "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537.1 Modified Using LC/MS/MS" (Eurofins Document Reference 1-P-QM-WI -9039651), for various Saint-Gobain Performance Plastics Corporation (Saint-Gobain) sites. Validation will be performed to assess compliance of the sample data to these Eurofins SOPs and any applicable Work Plans and/or Quality Assurance Project Plans (QAPPs). In addition, the usability of the PFC data provided by the analytical laboratory will be determined based on the general guidance provided in the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016) and "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016). It should be noted that the National Functional Guidelines apply strictly to data generated by the Contract Laboratory Program (CLP) protocol and are not directly applicable to validation of data generated by Modified EPA Method 537; therefore, this SOP presents the specific data qualification actions that will be used for validation.

The validation findings will be presented in a quality assurance review (QAR) that will be prepared for one or more sample delivery groups (SDGs). Copies of annotated analytical results summaries (Form I's), including any changes to the analytical results and data qualifier codes, or

a data summary spreadsheet of the qualified analytical results, will be included in the support documentation of the QAR.

2.0 EVALUATION TOOLS

- field duplicate form (DVF_DUP_SG_ELLE.xlsm)

Chemistry Applications:

- Curve fitting software (DVF_CAL.xlsm)
- Methods Database

3.0 REFERENCE DOCUMENTS

- "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016)
- "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016).
- Eurofins Document Reference 1-P-QM-WI -9035864.
- Eurofins Document Reference 1-P-QM-WI -9012802.
- Eurofins Document Reference 1-P-QM-WI -9039643.

- Eurofins Document Reference 1-P-QM-WI -9039651.
- US EPA Method 537, Version 1.1 (September 2009).
- Guidance for Labelling Externally Validated Laboratory Analytical Data for Superfund Use (EPA 540-R-08-005, 2009).

4.0 PROCEDURE

4.1 EVALUATION OF METHOD COMPLIANCE

The data reviewer will assess the method compliance of the PFC data based on an evaluation of information presented in the data package deliverables. Compliance to the aforementioned SOPs (and Work Plan and/or QAPP when applicable) will be evaluated as part of the assessment. In addition, the deliverables will be evaluated for reporting errors and inconsistencies. The findings of the compliance assessment will be described in terms of comments/deficiencies about the data/deliverables and presented in two subdivisions (*i.e.*, Reporting Issues and Procedural Issues) of the Organic Data Evaluation Section of the QAR. Each issue discussed in the QAR will indicate any subsequent impact on the usability of the data or will identify aspect(s) of the data that could not be evaluated due to the deficiency.

The data reviewer may contact the project laboratory to request the correction of deficiencies prior to submittal of the QAR (if feasible and sanctioned by Saint Gobain). At a minimum, corrections required to allow for a full evaluation of the usability of the data should be requested. Such correctable deficiencies may include sample result errors,

missing data deliverables, or calculation errors that would require a significant amount of the data reviewer's time to correct. Any laboratory resubmittals as a result of such requests will be discussed in the Reporting Issue subdivision of the QAR and included as an attachment to the QAR.

4.2 DETERMINATION OF DATA USABILITY

The data reviewer will determine the usability of the PFC data based on an evaluation of the information presented in the data package deliverables. The findings of the PFC data usability assessment will be presented in terms of data qualifications that the project team should consider in order to best utilize the data; these qualifications will be presented in the Organic Data Qualifier subsection of the QAR. Each qualification discussed in the QAR will indicate that the affected sample result(s) has been flagged with a representative qualifier code(s) in the data tables to provide, at a glance, an indication of the quantitative and qualitative reliability of each analytical result. In general, the qualifier statements will be presented in the QAR in the following order: blank contamination (UB), unusable results (R/UR), estimated results (J/UJ), tentative identifications of target compound results (N), and a general qualifier for all results reported below the limit of quantitation (if applicable). In addition, a Validation Reason Code will be presented on the data tables to indicate the reason that a qualifier code has been applied.

The data reviewer's criteria for evaluating the usability of the PFC data and the resultant qualifications and reason codes will be as stipulated on the attached Table for the Validation of PFC Data Generated. Additional qualifications and reason codes will be assigned based on professional judgement. It should be noted that the project manager

should be consulted when "professional judgement" use is indicated on the attached table.

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Temperature Upon Receipt	≤6°C	If temperature is <2°C, no action is required unless samples were frozen/broken and then professional judgment should be used. If temperature is >6°C but ≤20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SPL") If temperature is > 20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SPL") Note time of collection relative to receipt at laboratory. Professional judgement should be used if < 8 hours has elapsed from collection to receipt at the laboratory to determine if qualification due to elevated temperature applies.
Technical Holding Time	Solid samples should be extracted within 28 days of sample collection and aqueous samples should be extracted within 14 days of collection. All extracts should be analyzed within 28 days after extraction.	If a holding time is exceeded, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively) If a holding time is grossly exceeded (*i.e.*, > twice the holding time), qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively)

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Initial Calibration (See Note #1 for additional information.)	Back calculated concentration of each calibration point should be within 70-130% of true. The level 1 (lowest) calibration standard back calculated concentrations should be within 50-150% of true value. Analytes without a labeled internal standard back calculated concentrations should be within 60-140% of true value.	When evaluating initial calibration, use professional judgment to first assess impact of any out-of-criteria labeled PFC on the corresponding target PFC(s). If the low point or consecutive points at the low end of the curve are below the lower recovery criteria, qualify positive results < lowest compliant point as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "ICL") If the low point or consecutive points at the low end of the curve are above the upper recovery criteria, qualify positive results < lowest compliant point as estimated ("J"). If a point in the middle of the curve or non-consecutive points (beside the low point) quantitate outside of criteria, qualify positive results as estimated ("J"). If the high point or consecutive points at the upper end of the curve quantitates outside of criteria, qualify positive results > highest compliant point as estimated ("J"). (Validation Reason Code "ICL," "ICH," or "IC," are to be used based on whether direction of bias can be determined in these situations) Professional judgement should be used to qualify "not-detected" results as estimated ("UJ") if low recoveries are observed for standards other than the lowest calibration point. (Validation Reason Code "ICL")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Second Source Initial Calibration Verification (ICV)	1. Calculated amount for each compound should be within 70-130% (±30%) of the true value. Analytes without a labeled internal standard should have calculated amounts within 60-140% (±40%) of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within 50-150% of the average areas measured during the initial calibration.	Qualification is for all samples associated with initial calibration being verified. When evaluating ICV, use professional judgment to first assess impact of any out-of-criteria labeled PFC on the corresponding target PFC. If target PFC has %D>30% (or >40% for compounds without labeled internal standards) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "SSH") If target PFC has %D>30% (or >40% for compounds without labeled internal standards) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SSL") If target PFC has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SSL")
Daily Calibration Verification (See Note #2 for additional information.)	Calculated amount should be within ±30% of the true value. Compounds without labeled internal standards should have calculated amounts within ±40% of the true value. The absolute areas of the isotopically labeled internal standards should be within 50-150% of the average areas measured during the initial calibration.	Qualification is for all samples on both sides of the out-of-criteria calibration verification standards. When evaluating calibration verification, use professional judgment to first assess impact of any out-of-criteria labeled PFC on the corresponding target PFC. If target PFC has %D>30% (or >40% for compounds without labeled internal standards) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "CVH") If target PFC has %D>30% (or >40% for compounds without labeled internal standards) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "CVL") If target PFC has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "CVL")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Blanks (See Note #3 for additional information.)	Summarize all results greater than the method detection limit (MDL) present in the blanks. The highest positive result associated with a sample should be utilized for evaluation of contamination.	If a target PFC is found in the blank but not in the associated sample(s), no action is required. If a sample result is ≤5× the blank result, qualify the positive result as "not detected" ("UB") and raise the method detection limit (MDL) and/or limit of quantitation (LOQ) (if lower than original reported positive result) to the value of the original result. (Validation Reason Code(s) "EB," FB," "IB," "MB," and or "TB," as appropriate). If a sample result is >5× blank result, qualification is not required. Professional judgement should be used to evaluate whether an aqueous blank should be used to qualify a solid sample.
Internal Standards (Labelled Analytes, spiked prior to extraction)	The response for each IS in the original sample (prior to dilutions) must be within ±%50 of the average initial calibration response.	If an IS response is outside of 50-150% but ≥10%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ") for PFCs quantitated using that IS. (Validation Reason Code "IS") If an IS response is < 10%, qualify positive results for the associated PFCs as estimated ("J") and qualify "not-detected" results for the associated PFCs as estimated ("UJ") or unusable ("R") using professional judgment (based on the approximate signal-to-noise ratio for the IS and the expected response for the target PFC at the LOQ). (Validation Reason Code "IS")
Laboratory Control Samples (LCS)/ Laboratory Control Sample Duplicates (LCSD)	%R within 70-130%, RPD ≤ 30%.	The LCS qualification will be applied to all samples in the preparation batch. If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). (Validation Reason Code "LAL") If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "LAL") If the precision between recoveries exceeds the RPD criterion, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LP")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Matrix Spike/Matrix Spike Duplicate (MS/MSD) (If performed)	%R within 70-130%, RPD ≤ 30%.	Data should not be qualified due to %Rs (or RPDs calculated on %Rs) that are outside of criteria if the original concentration of a PFC is >4× the spiking level for that compound. RPDs calculated using MS/MSD results can be used to evaluate precision. If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "MAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "MAL") If the precision between recoveries exceeds the RPD criterion, qualify the positive result in the native sample as estimated ("J") and do not qualify the "not-detected" result. (Validation Reason Code "MP")
Field/Laboratory Duplicate (See Note #4 for additional information)	RPD ≤ 30% when PFCs are detected in one sample ≥ sample-specific LOQ (RL). The RPD should be ≤30% for results >5× the sample-specific LOQ (RL). The difference between results should be ≤ 1.5×LOQ when at least one result is ≤5× the LOQ.	If both results are <LOQ, a quantitative assessment of duplicate precision is not performed. If the criteria are not met, qualify positive results for the out-of-criteria PFCs in the original sample and its duplicate as estimated ("J"). (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate) Use the MDL as a numerical value for any "not-detected" result in the difference calculation. Qualify "not-detected" results as estimated ("UJ") if the difference between the results is outside of criteria. (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate)
Percent Solids	Solid samples with less than 30% solid content require qualification.	If a solid sample has a percent solid content <30%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code of "PS") Use professional judgment if a solid sample has a percent solids content <10%. (Validation Reason Code of "PS")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Compound Quantitation and Qualitative Identification (See Notes #5 for additional information.)	Samples with results that exceed the instrument calibration range should be reanalyzed at a dilution or re-extracted with a lower volume.	If a target PFC result exceeds the instrument calibration range, qualify positive result as estimated ("J"). (Validation Reason Code "EC") Use professional judgment to determine whether sample reanalyses and dilutions should be compared to the original analyses. If criteria (see field duplicate usability) between the original sample results and the reanalysis sample results are not met, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "LD") If a target PFC is <LOQ but ≥MDL, qualify positive results as estimated ("J"). (Validation Reason Code "RL") Use professional judgment to determine whether quantitation and qualitative identifications are accurate and whether data qualification is necessary.
System Performance	Professional judgement should be used when assessing the degradation of system performance during analyses.	Use professional judgment to qualify the data if it is determined that system performance degraded during sample analyses.
Overall Assessment of Data	Assess overall quality of the data. Review available materials to assess the quality, keeping in mind the additive nature of the analytical problems.	Use professional judgment to determine the need to qualify data not qualified based on the QC previously discussed. Write a brief narrative to give the user an indication of the analytical limitations of the data. If sufficient information on the intended use and required quality of the data is available, include the assessment of the usability of the data within the given context.

Validation Notes

1. Use professional judgment when evaluating the response intercept of a calibration curve. If the response intercept is positive, the samples should be evaluated for false positives. If the response intercept is negative, the sample should be evaluated for false negatives.

2. If instrument instability (*i.e.*, several calibration verification standards with PFCs exhibiting both increasing and decreasing sensitivity throughout an analytical sequence) is observed in the analysis of sequential calibration verification standards, "not-detected" results may be qualified as estimated ("UJ") due to instrument sensitivity of a continuing calibration standard response that is greater than the initial calibration standard response (increase in instrument sensitivity).

3. The frequency of equipment/rinse blanks is determined during the sampling event. The results of an equipment/rinse blank should be applied to all samples collected in the same day by the same techniques, unless only one blank was collected for a several-day sampling event. In instances where more than one blank is associated with a given sample, qualification should be based upon a comparison with the associated blank having the highest concentration of a contaminant.

   Method blank contamination should be applied to samples in the preparation batch.

   Instrument blank contamination should be applied to samples bracketing the contaminated instrument blank.

   Blanks should also be evaluated using professional judgment for non-target interference.

Validation Notes

4. Duplicate samples may be collected and analyzed as an indication of overall precision. Field duplicate analyses measure both field and laboratory precision; therefore, the results may have more variability than laboratory duplicates that measure only laboratory performance. Laboratory duplicate results and field duplicate results apply only to the original sample and the laboratory/field duplicate. Solid duplicate results are expected to have greater variance than aqueous duplicate results.

5. If a sample result exceeds the instrument calibration range (lower dilution analysis) or is less than the LOQ (secondary dilution), do not utilize this result when comparing an original analysis and a diluted reanalysis.

Poor chromatographic performance may affect qualitative identification and/or quantitation. Indications of substandard performance include:

- High background levels
- Extraneous peaks
- Loss of resolution
- Peak tailing or peak splitting that may result in inaccurate quantitation
- The laboratory analyzes a Cal3 level standard that contains linear and branch chained isomers of PFOA, PFOS, and PFHxS for analyses by Eurofins Document References 1-P-QM-WI-9039643 and 1-P-QM-WI -9039651. The analysis of this standard is used to demonstrate where the branch chained isomers elute and is not included in the calibration curve. This will assist the chemist in the integration of branched isomers of these compounds in samples.

SECTION 5

ORGANIC DATA SUPPORT DOCUMENTATION

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: Saint Gobain Benninton
Sample Collection Dates: 6/20/16
Job Number: Group #1641935
Project Manager: MAM
Laboratory: ELLE

Reviewed by: WDS
Approved by: MAM
Completion Date: 5/2017

Applicable Sample No's: √ Refer to Table 1 in the Quality Assurance Review

			Sample No.	Lab Control No.
Deliverable:	CLP (Full)	( )		
	Level IV (Full)	(√)	SDG#SGP97	
	Limited	( )		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	PFC					PFC					PFC				
Holding Times	√										√				
Blank Analysis: Target Cmpds	√					√ (2)					√				
Sys Montr Cmps/Surrogates	NA														
Matrix Spike/Matrix Spike Duplicate	√					√ (3)					√				
Blank Spike	√					√ (4)					√				
Duplicate Analysis ( ) Field (√) Lab	√					√ (4)					√				
Detection Limit/Sensitivity	√										√				
Qualitative Identification: Target Cmpds	√					2, ~~5~~					√				
Qualitative Identification: TICs	NA														
DFTPP & BFB Mass Tuning	NA														
GC Instrument Performance	NA														
Initial Calibrations	√										√				
Continuing Calibrations	√										√				
Quantitation of Results	√					√ (5)					√				
DDT/Endrin Breakdown	NA														
Surrogate Retention Time Shifts	NA														
Internal Standards Performance	√					√ (6)					√				
Resolution Check Standards	NA														
Analytical Sequence	√										√				
Florisil Cartridge & GPC Calibration	NA														
GC Column Agreement	NA														
Condition Upon Receipt	√										√				
Percent Solids	√ (1)										√				
Others:	√										√				

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

Comments: (1) Checked % solids but did not perform Level IV review; (2) One equipment blank had a detection of PFOA, potential false positive. (3) Water MS –PFNA, PFDA, PFDOA, PFBS, exceed percent recovery criteria, Soil – PFHpA below percent recovery criteria. (4) Water LCS/LCSD – PFTDA, PFBS, PFOS, PFHxS, above percent recovery criteria, PFBS, PFOS above duplicate RPD criteria. Soil LCS/LCSD- PFTDA above percent recovery criteria, PFHPA below percent recovery criteria; (5) Inconsistency in quantitiation of branched PFOA in all samples and reanalysis, sample 8438959 PFDA appears to be detected above the MDL but not reported by the lab (6) Water – multiple internal standards were below percent recovery acceptance criteria for PFHxA and PFOS indicating a high bias. Soil – the majority of the internal standards for the initial soils analysis were outside acceptance criteria. Samples were reextracted and reanalyzed past holding times. The internal standards met criteria and the data from the reanalysis were comparable to the original analytical data. Based on this, the laboratory reported the data from the original extraction/analysis.

→ ESI performed

& PFUnA

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample Number	Contaminant	Concentration (ng/L,)	Qualification limit	
						5×	10×
Pfc	Aq	TB	SG3-LTB01-20160620	All non-detect			
Pfc	Aq	FB	SG3-RB01-20160620	All non-detect			
Pfc	Aq	FB	SG3-RB02-20160620	Perfluorooctanoic acid (PFOA)	2 J X		
Pfc	S	MB	1619006 BLK	All non-detect			
Pfc	S	MB	16215005 BLK	All non-detect			
pfc	Aq	MB	190006 BLK	All non-detect			

1 – V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: _____

2 – MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes: _____

X False Positive – Revised by lab

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Analysis Report

Sample Description: SG3-MW01-00.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8438959
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 08:54 by JD
through 06/20/2016 08:56
Submitted: 06/22/2016 09:30
Reported: 08/05/2016 13:43

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

add J to all sample results - IS J|UJ

original

SG311 SDG#: SGP97-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U		1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U		0.46	1
14027	Perfluorododecanoic acid	307-55-1	1.2			0.91	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U		0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U		1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.80	U	0.80	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.94		0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.91	1
14027	Perfluorotridecanoic acid	72629-94-8	0.68	U	0.68	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.68	1

Calculates above MDL

add J - LAL

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	TOC	n.a.	3,150	431	1,290	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	12.2	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 12:21	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16193298731B	07/11/2016 21:41	James S Mathiot	1
00111	Moisture	SM 2540 G-1997	1	16180820010B	06/28/2016 19:11	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW01-00.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8438959
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 08:54 by JD
through 06/20/2016 08:56
Submitted: 06/22/2016 09:30
Reported: 05/30/2017 08:39

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG311 SDG#: SGP97-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U	0.57	1.8	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.27**	**J**	0.23	0.46	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.2**		0.46	0.91	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.80	U	0.80	1.8	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.0**		0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.91	1
14027	Perfluorotridecanoic acid	72629-94-8	0.68	U	0.68	1.4	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.45**	**J**	0.34	0.68	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	**3,150**		431	1,290	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**12.2**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 12:21	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16193298731B	07/11/2016 21:41	James S Mathiot	1

*=This limit was used in the evaluation of the final result

Sample Name:	8438959	**Data File:**		16JUL29-14.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-00.0 Grab Soil	**Acquis Date:**		7/29/2016 12:21:03 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	39	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.000	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

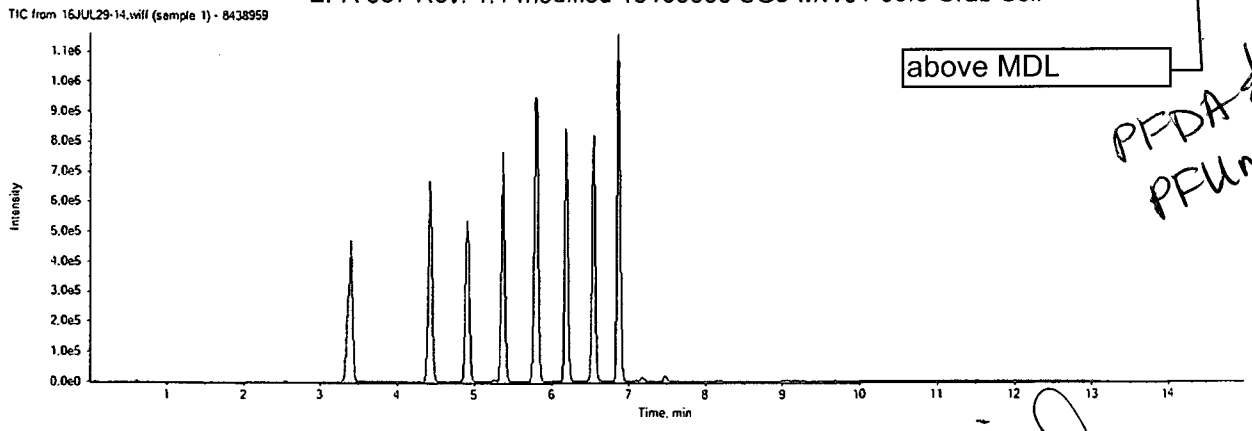
Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	3.98	751.6	18O2-PFHxS	4.90	703294.4	0.001	0.008	
PFHxA	4.42	10595.2	13C2-PFHxA	4.42	2176154.8	0.005	0.094	
PFHpA	4.91	9059.2	13C4-PFHpA	4.91	1150503.1	0.008	0.057	
PFHxS	4.89	2845.5	18O2-PFHxS	4.90	703294.4	0.004	0.034	
PFOA	5.37	201520.4	13C4-PFOA	5.37	1947733.1	0.103	0.825	
PFNA	5.80	12858.1	13C5-PFNA	5.80	2705584.6	0.005	0.041	
PFOS	5.77	4830.4	13C4-PFOS	5.77	683496.8	0.007	0.059	
PFDA	6.19	71910.2	13C2-PFDA	6.19	2193301.5	0.033	0.240	
PFUndA	6.54	99552.5	13C2-PFUnDA	6.54	2240421.1	0.044	0.398	
PFDoDA	6.87	262249.2	13C2-PFDoDA	6.87	2894018.5	0.091	1.053	
PFTrDA	7.18	38239.9	13C2-PFDoDA	6.87	2894018.5	0.013	0.124	
PFTeDA	7.47	52752.4	13C2-PFDoDA	6.87	2894018.5	0.018	0.159	

onsited

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-00.0 Grab Soil



above MDL

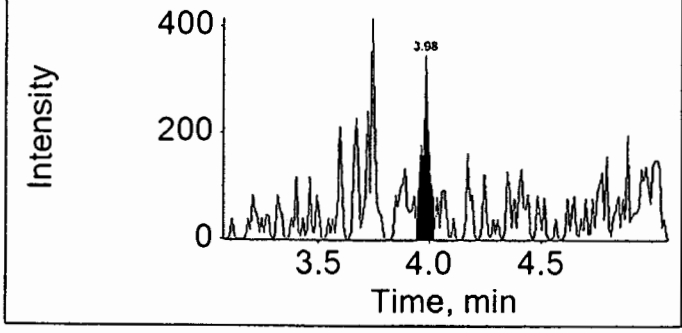
PFDA & PFUnA

Original

16JUL29-14.wiff

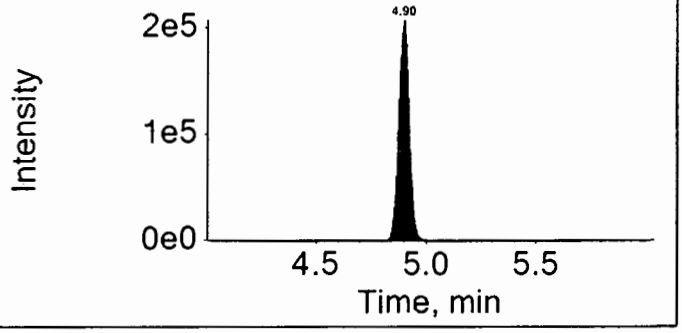
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

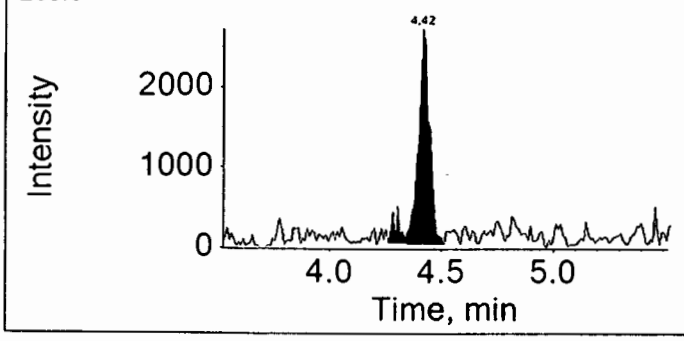
403.0 / 103.0



16JUL29-14.wiff

Analyte: PFHxA

312.9 / 269.0



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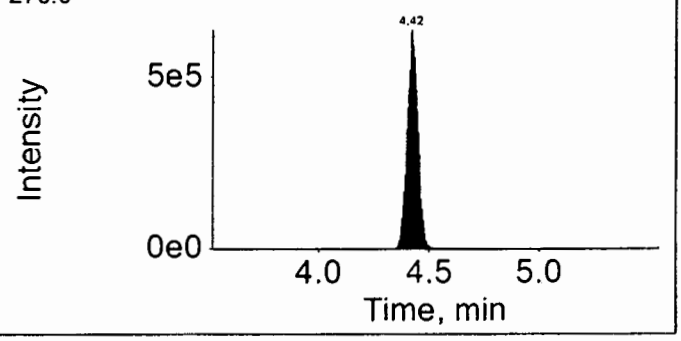
314.9 / 270.0



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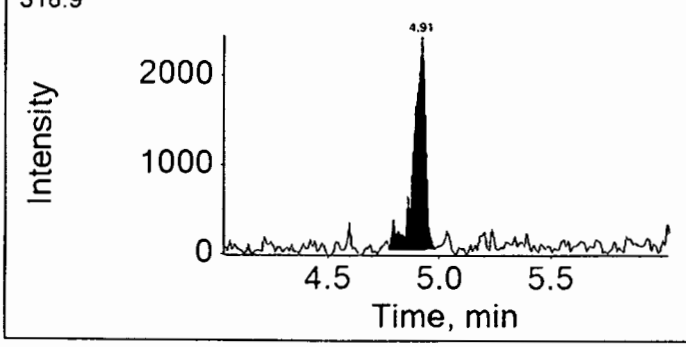
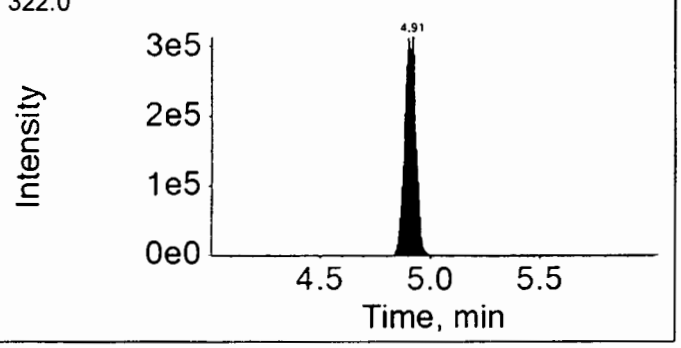
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

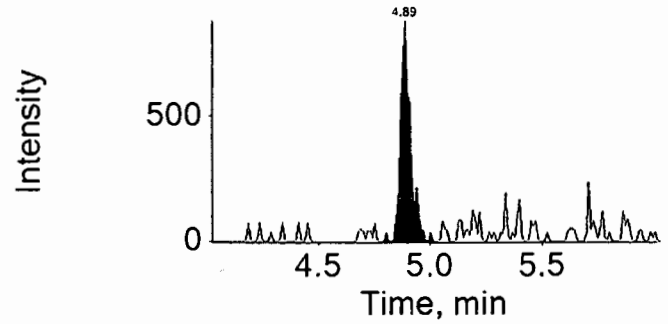
367.0 / 322.0



16JUL29-14.wiff

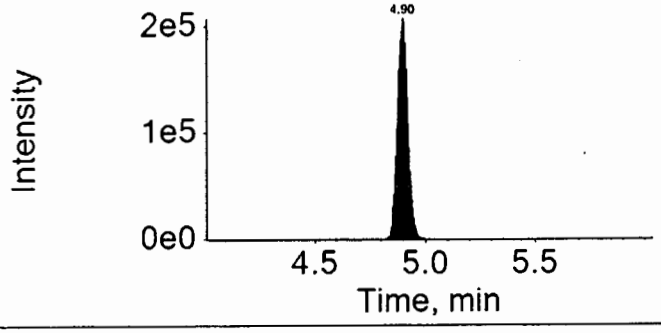
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

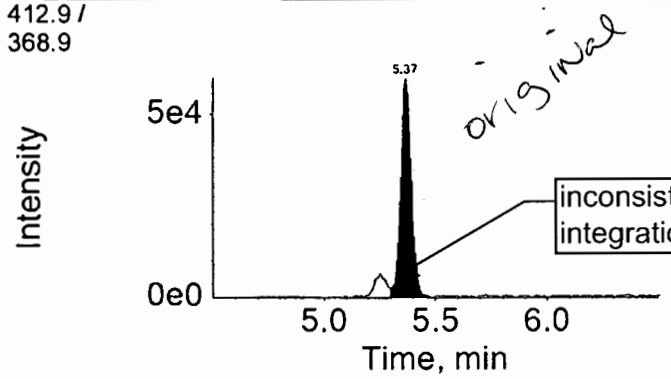
403.0 / 103.0



16JUL29-14.wiff

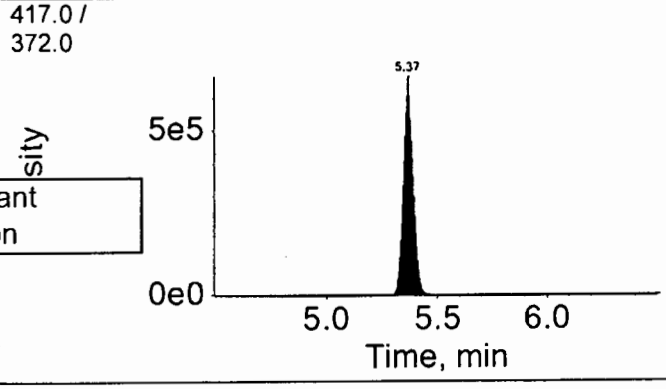
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

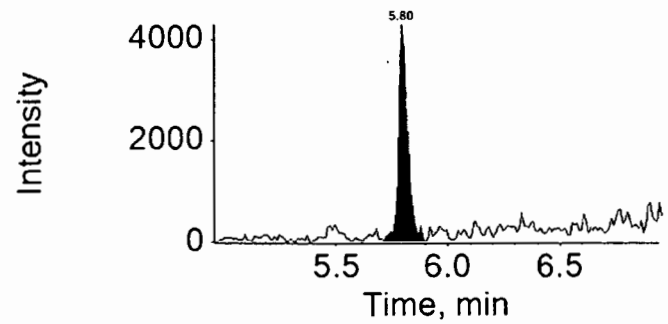
417.0 / 372.0



16JUL29-14.wiff

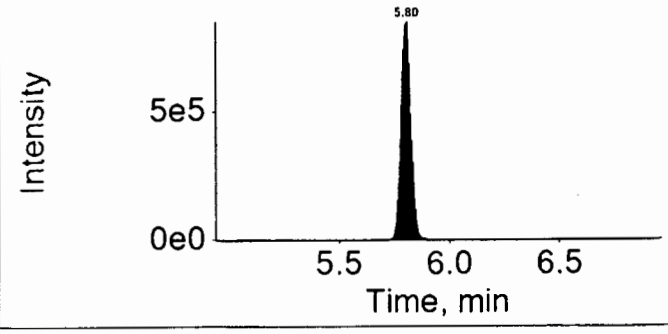
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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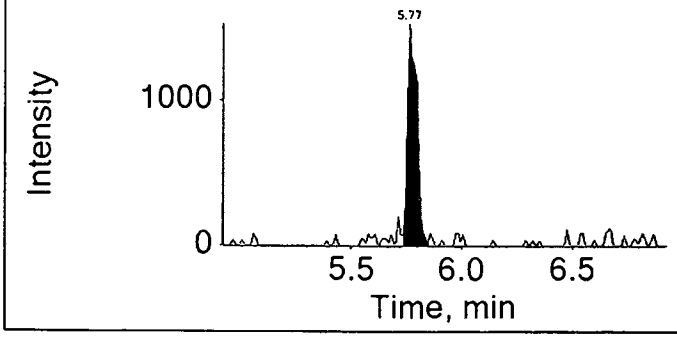
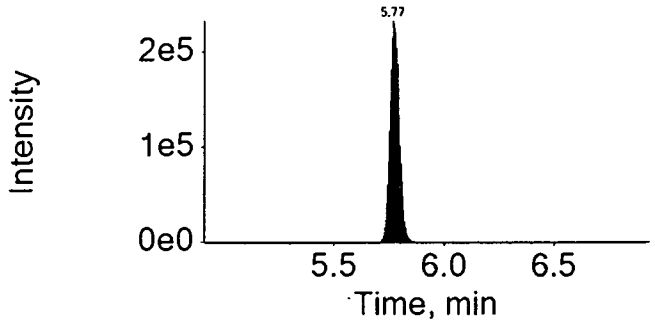
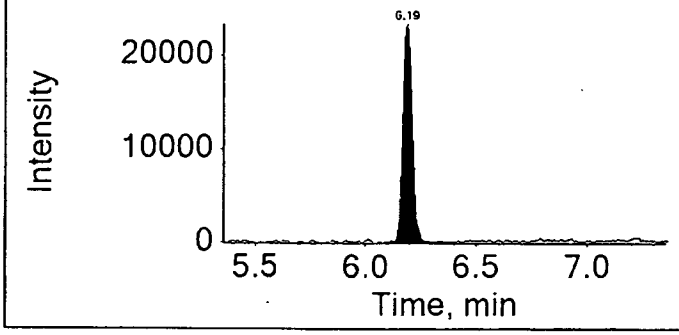
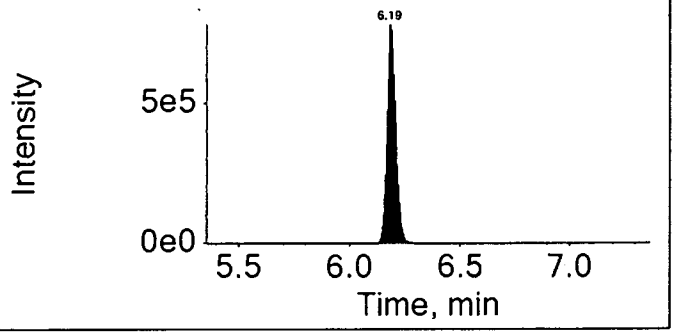
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



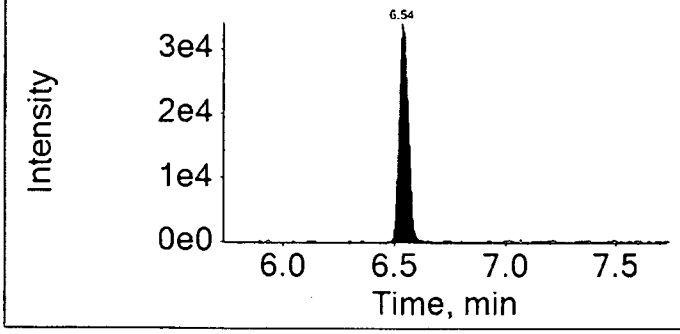


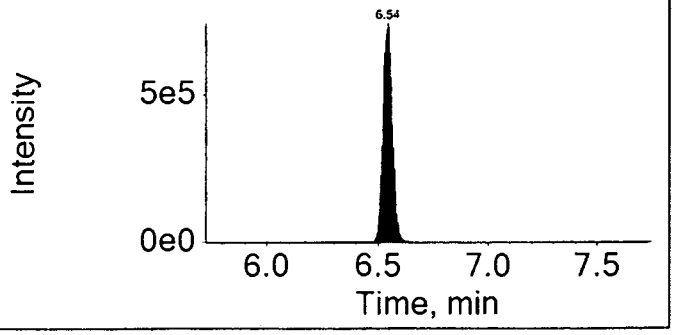
16JUL29-14.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



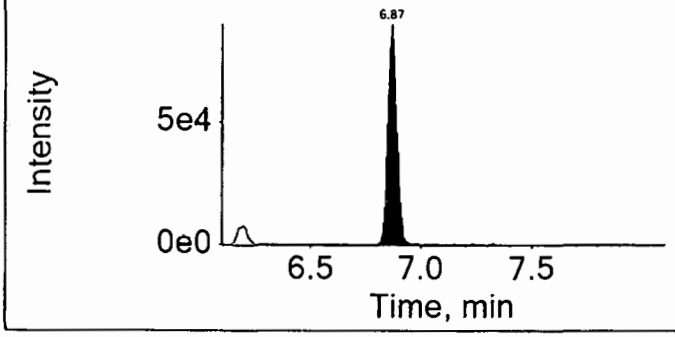


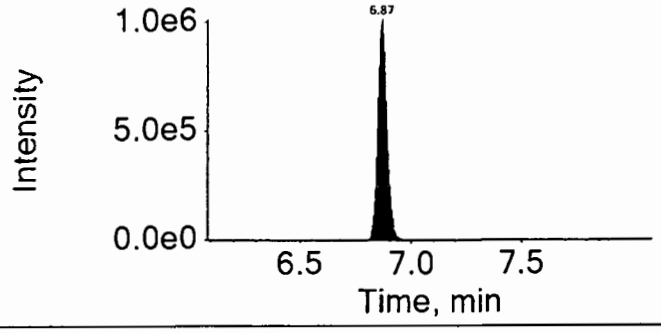
16JUL29-14.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



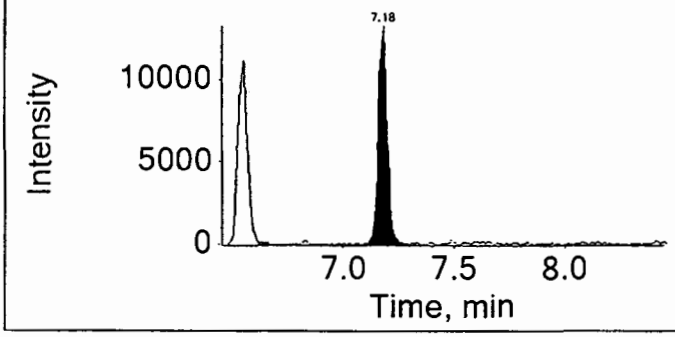


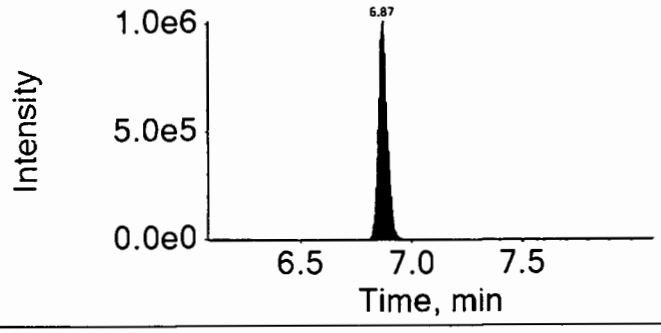
16JUL29-14.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



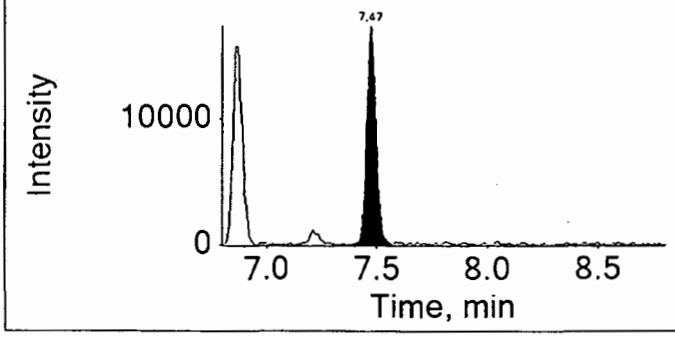


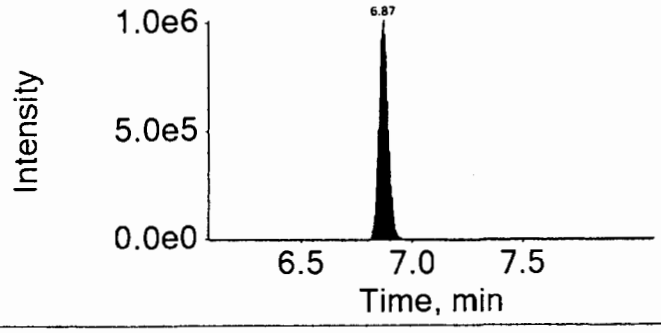
16JUL29-14.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL29-14.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:00:00 PM

Sample Name:	8438959			**Data File:**		16JUL29-14.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-00.0 Grab Soil			**Acquis Date:**		2016-07-29T12:21:03
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	39			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16190006
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

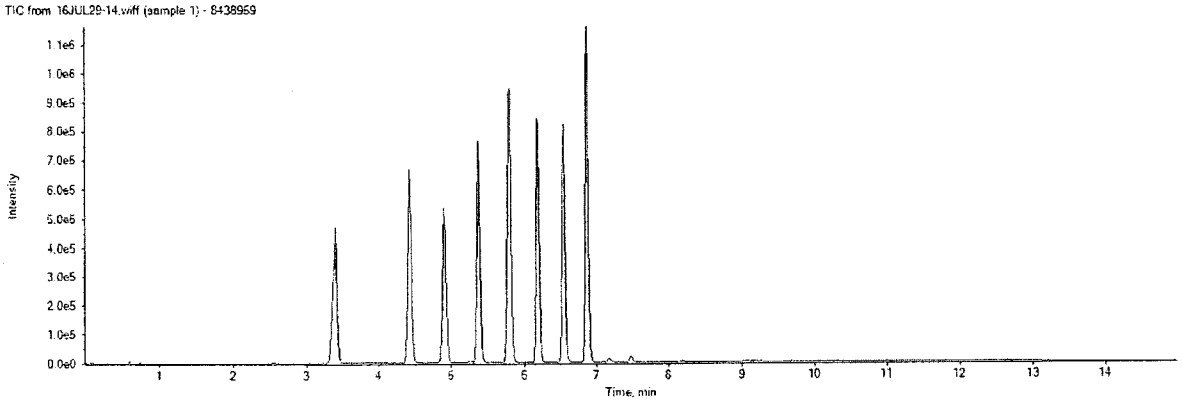
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	3.98	0.810	751.6	M	18O2-PFHxS	4.90	703294.4	0.001	0.008
PFHxA	4.42	1.000	10595.2	A	13C2-PFHxA	4.42	2176154.8	0.005	0.094
PFHpA	4.91	1.000	9059.2	A	13C4-PFHpA	4.91	1150503.1	0.008	0.057
PFHxS	4.89	1.000	2845.5	A	18O2-PFHxS	4.90	703294.4	0.004	0.034
PFOA	5.37	1.000	224390.0	M	13C4-PFOA	5.37	1947733.1	0.115	0.918
PFNA	5.80	1.000	12858.1	A	13C5-PFNA	5.80	2705584.6	0.005	0.041
PFOS	5.77	1.000	4830.4	M	13C4-PFOS	5.77	683496.8	0.007	0.059
PFDA	6.19	1.000	71910.2	A	13C2-PFDA	6.19	2193301.5	0.033	0.240
PFUndA	6.54	1.000	99552.5	A	13C2-PFUnDA	6.54	2240421.1	0.044	0.398
PFDoDA	6.87	1.000	262249.2	A	13C2-PFDoDA	6.87	2894018.5	0.091	1.053
PFTrDA	7.18	1.040	38239.9	M	13C2-PFDoDA	6.87	2894018.5	0.013	0.124
PFTeDA	7.47	1.090	52752.4	M	13C2-PFDoDA	6.87	2894018.5	0.018	0.159

Rerun

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-00.0 Grab Soil



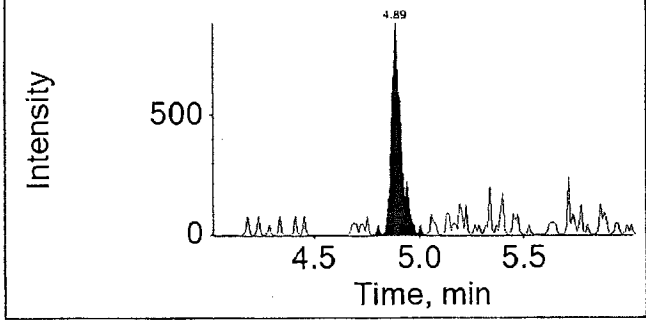
APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 1:24 pm, 5/27/17

16JUL29-14.wiff

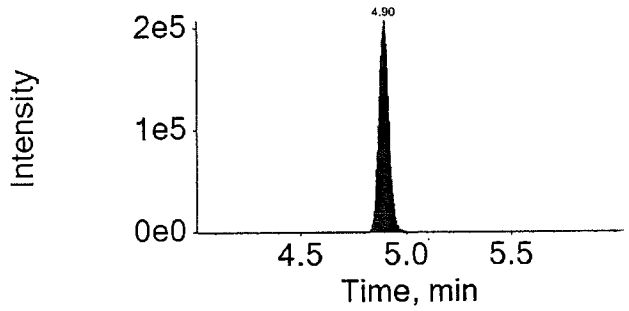
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

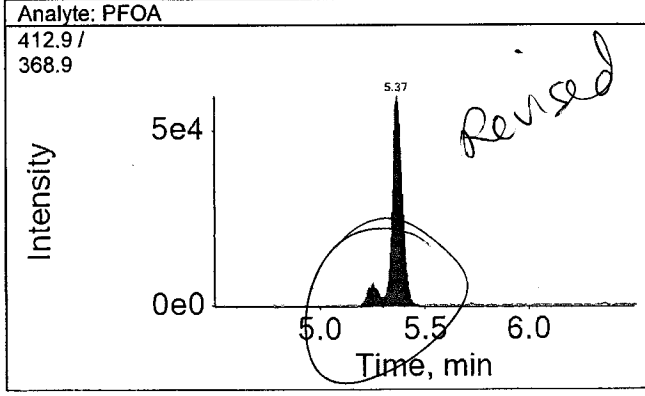
403.0 / 103.0



16JUL29-14.wiff

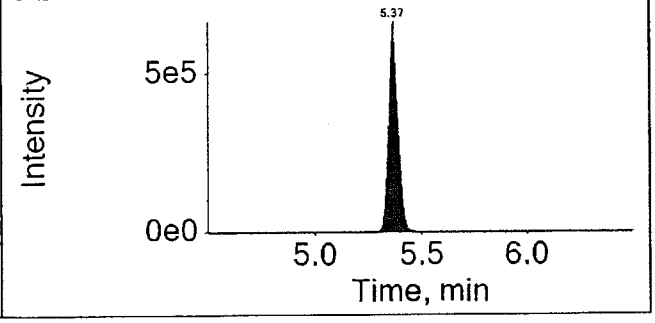
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

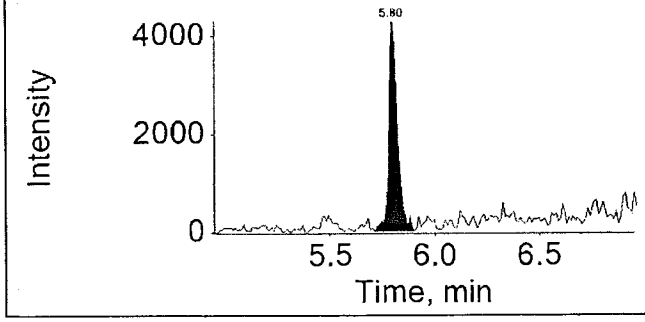
417.0 / 372.0



16JUL29-14.wiff

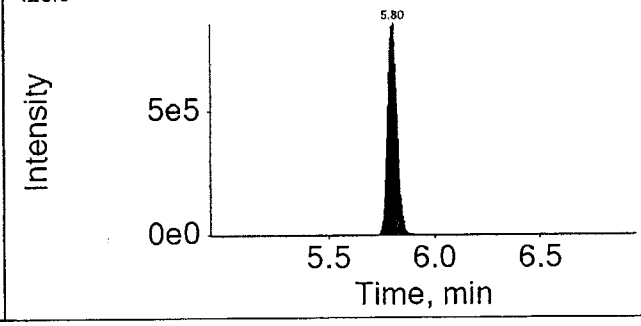
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 1:24 pm, 5/27/17

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LC-MS/MS Analysis Report

Printed: 8/5/2016 10:04:00 AM

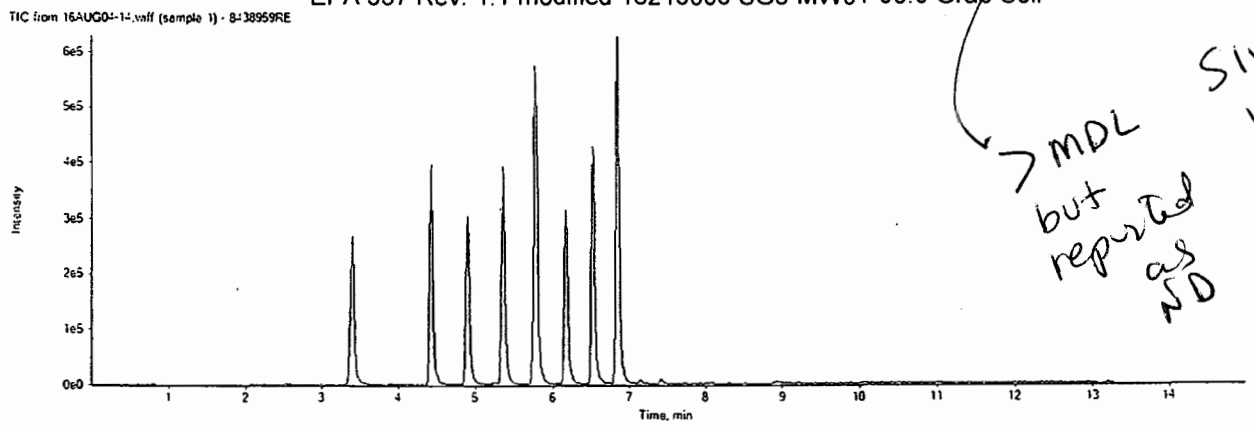
Sample Name:	8438959RE		**Data File:**		16AUG04-14.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-00.0 Grab Soil		**Acquis Date:**		8/4/2016 5:03:57 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	24		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.170		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.89	373708.0	N/A	N/A	
PFHxA	4.42	4532.4	A	13C2-PFHxA	4.42	1210454.7	0.004	0.067	
PFHpA	4.89	5170.7	A	13C4-PFHpA	4.90	627521.2	0.008	0.058	
PFHxS	4.89	1782.3	A	18O2-PFHxS	4.89	373708.0	0.005	0.040	
PFOA	5.36	106275.9	A	13C4-PFOA	5.36	1096647.9	0.097	0.799	
PFNA	5.79	3941.2	A	13C5-PFNA	5.78	1667788.4	0.002	0.020	
PFOS	5.76	1593.4	M	13C4-PFOS	5.76	384995.9	0.004	0.035	
PFDA	6.17	36800.0	A	13C2-PFDA	6.17	1025965.1	0.036	0.261	
PFUndA	6.53	50223.2	A	13C2-PFUnDA	6.53	1320257.7	0.038	0.328	
PFDoDA	6.85	188824.7	A	13C2-PFDoDA	6.84	1610250.6	0.117	1.163	
PFTrDA	7.15	19729.8	A	13C2-PFDoDA	6.84	1610250.6	0.012	0.115	
PFTeDA	7.41	26394.9	M	13C2-PFDoDA	6.84	1610250.6	0.016	0.149	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-00.0 Grab Soil



original

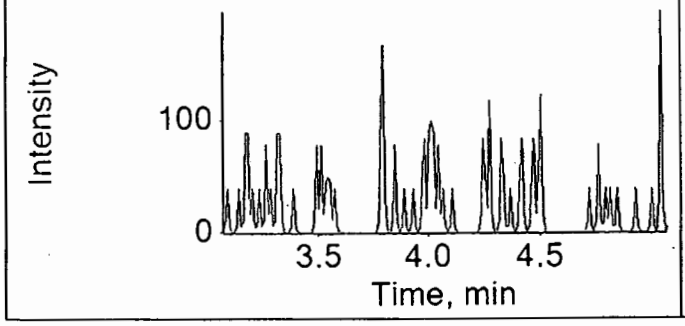
> MDL but reported as ND

Similar Results

16AUG04-14.wiff

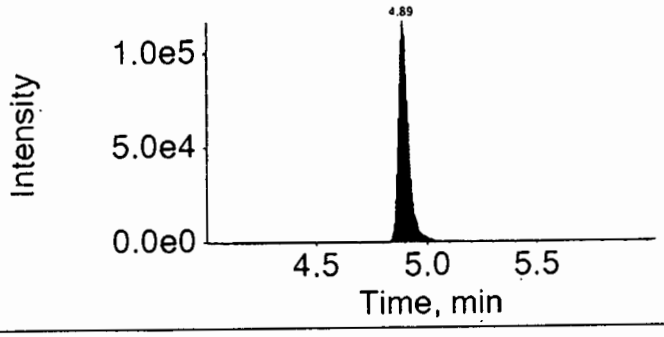
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

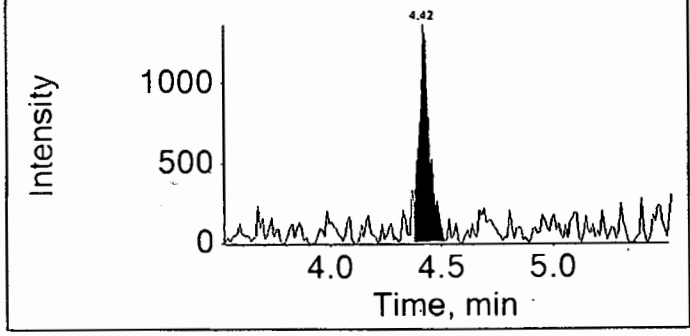
403.0 / 103.0



16AUG04-14.wiff

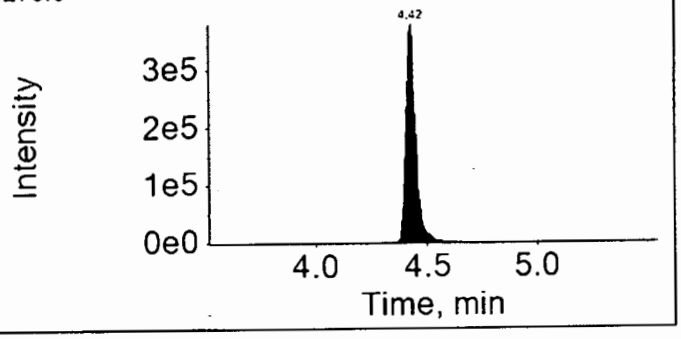
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

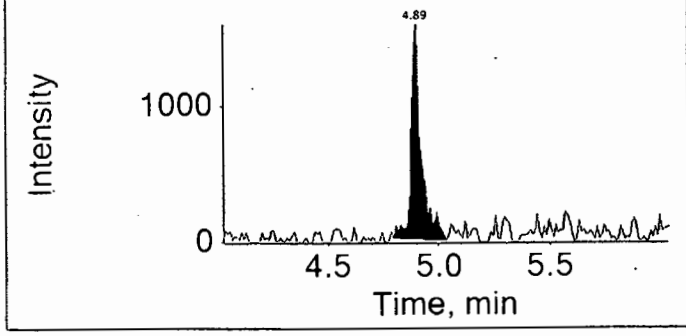
314.9 / 270.0



16AUG04-14.wiff

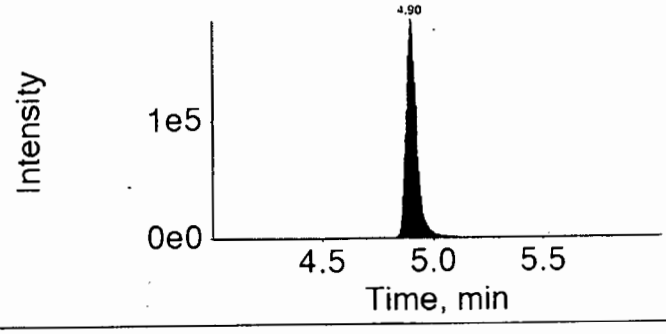
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

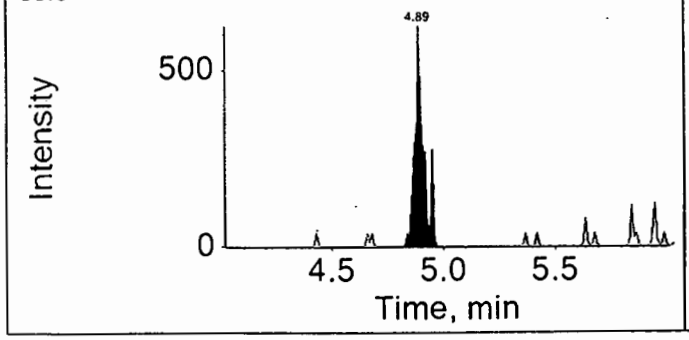
367.0 / 322.0



16AUG04-14.wiff

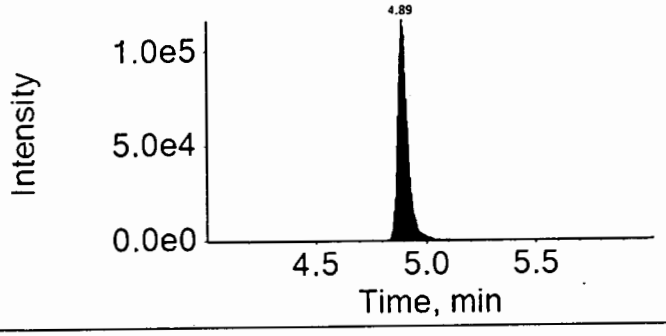
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

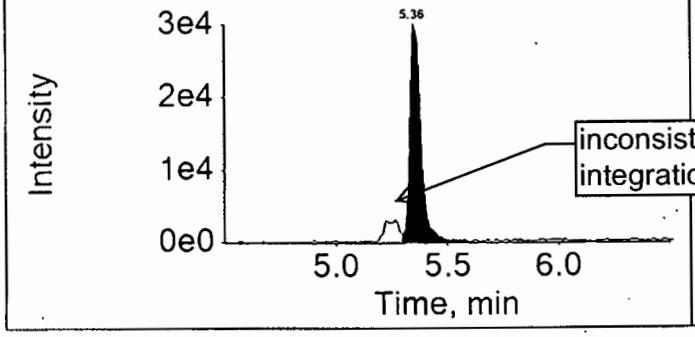
403.0 / 103.0



16AUG04-14.wiff

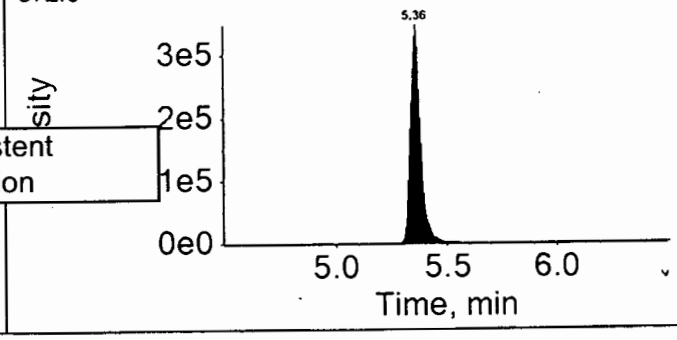
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

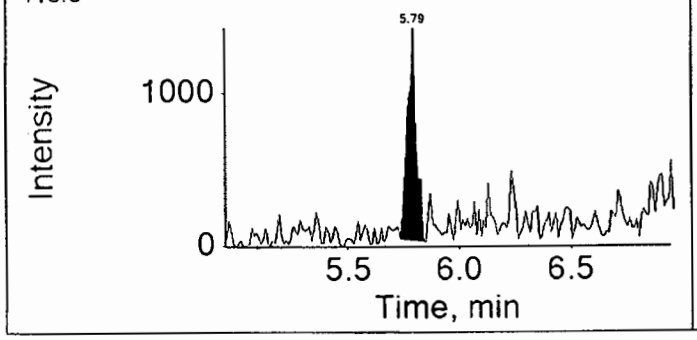
417.0 / 372.0



16AUG04-14.wiff

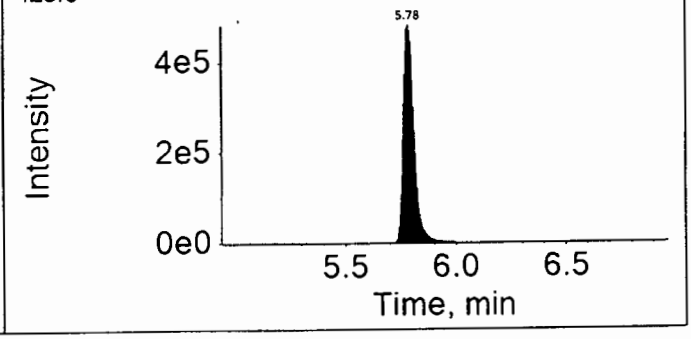
Analyte: PFNA

462.9 / 418.9

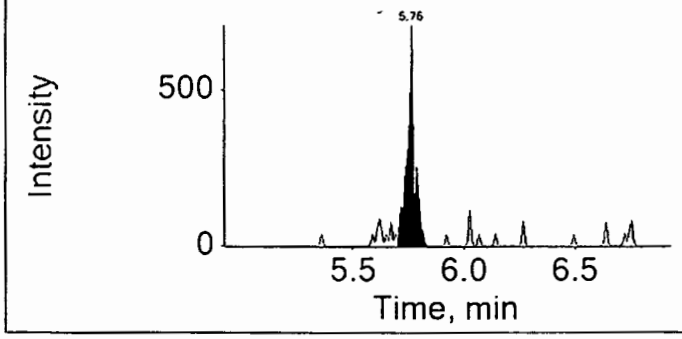


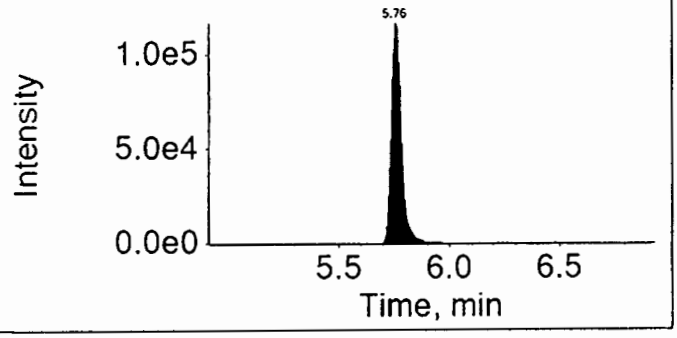
Internal Standard: 13C5-PFNA

468.0 / 423.0

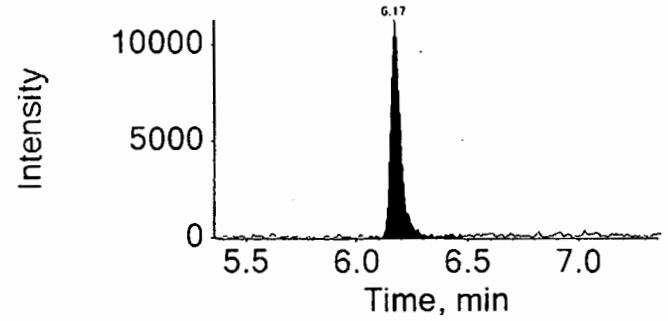


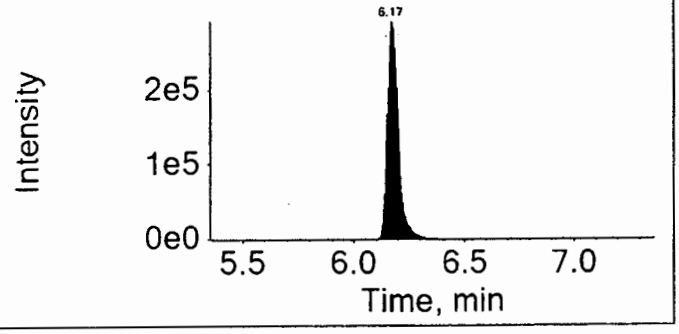
16AUG04-14.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



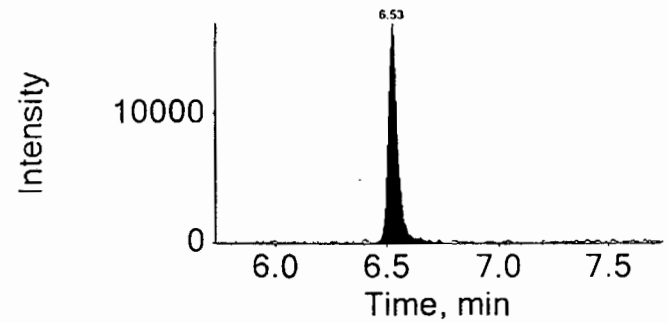


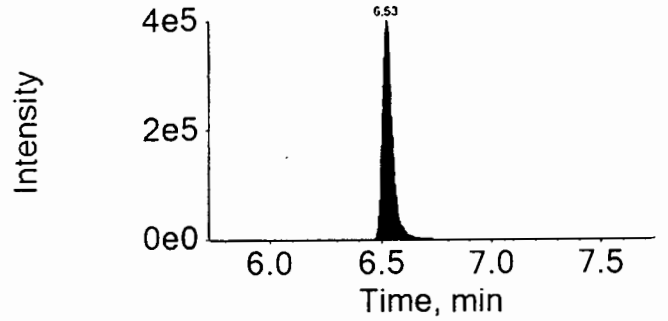
16AUG04-14.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



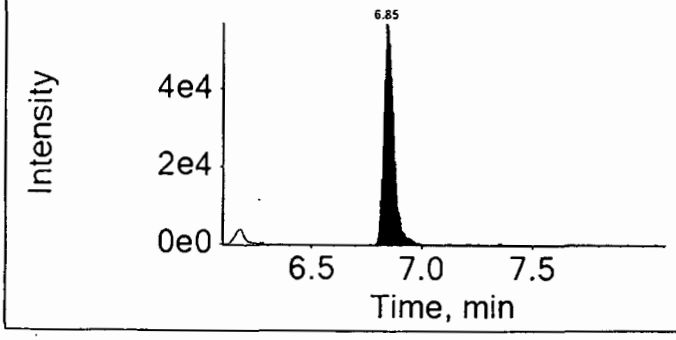


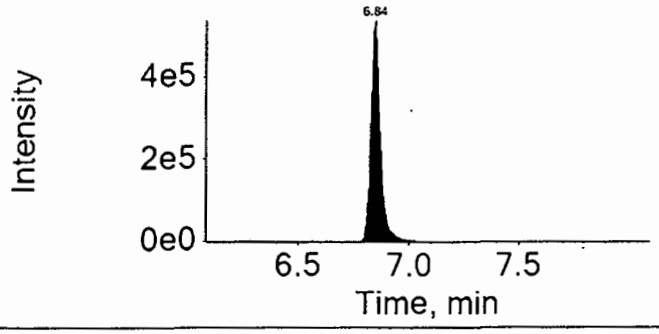
16AUG04-14.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0





16AUG04-14.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0





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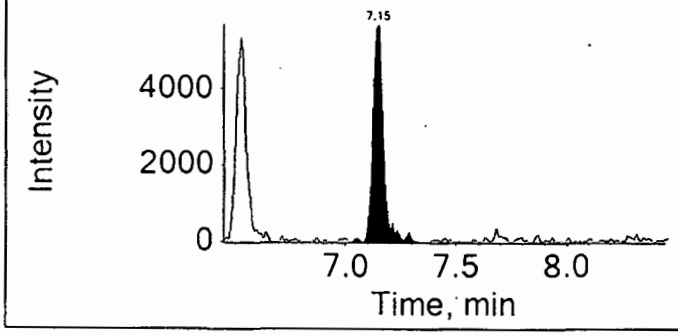
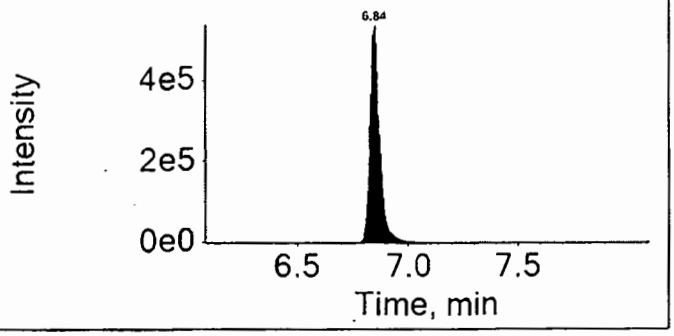
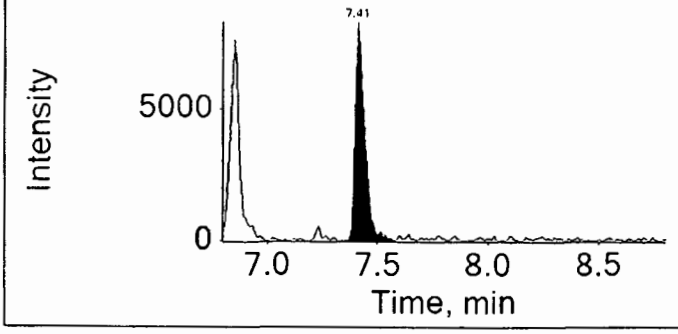
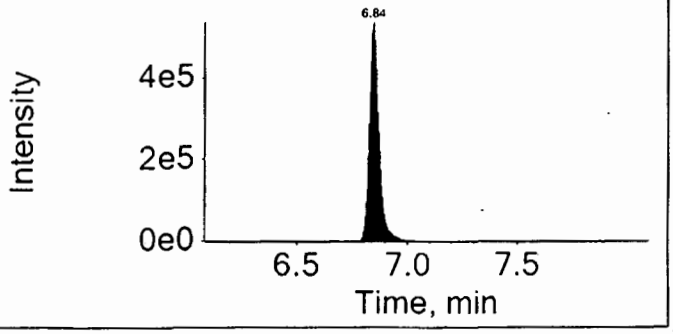
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG04-14.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:12:00 PM

Sample Name:	8438959RE			**Data File:**		16AUG04-14.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-00.0 Grab Soil			**Acquis Date:**		2016-08-04T17:03:57
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	24			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16215005
				ICAL Name:		16AUG01
Batch Number:	16215005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.17000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.89	373708.0	N/A	N/A
PFHxA	4.42	1.000	4532.4	A	13C2-PFHxA	4.42	1210454.7	0.004	0.067
PFHpA	4.89	1.000	5170.7	A	13C4-PFHpA	4.90	627521.2	0.008	0.058
PFHxS	4.89	1.000	1782.3	A	18O2-PFHxS	4.89	373708.0	0.005	~~0.040~~
PFOA	5.36	1.000	118392.0	M	13C4-PFOA	5.36	1096647.9	0.108	0.890
PFNA	5.79	1.000	3941.2	A	13C5-PFNA	5.78	1667788.4	0.002	~~0.020~~
PFOS	5.76	1.000	1593.4	M	13C4-PFOS	5.76	384995.9	0.004	0.035
PFDA	6.17	1.000	36800.0	A	13C2-PFDA	6.17	1025965.1	0.036	0.261
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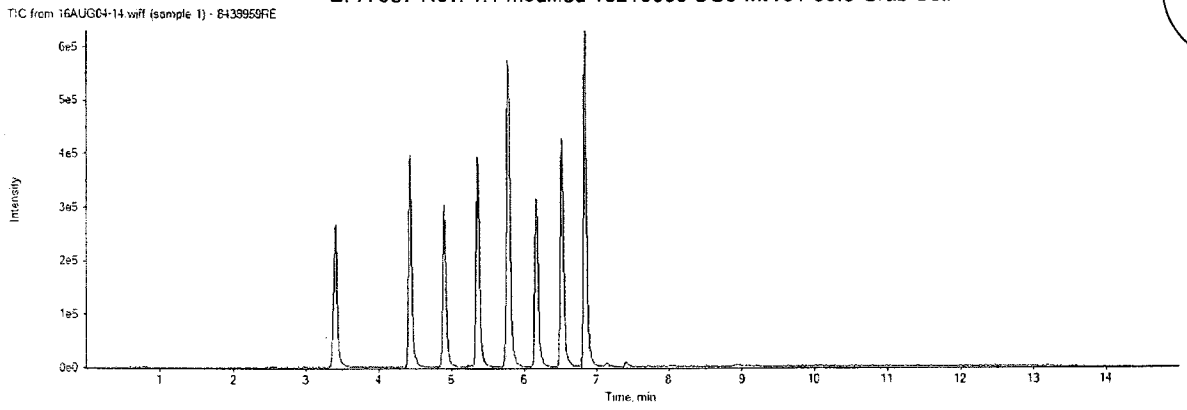
PFDoDA	6.85	1.000	188824.7	A	13C2-PFDoDA	6.84	1610250.6	0.117	1.163
PFTrDA	7.15	1.040	19729.8	A	13C2-PFDoDA	6.84	1610250.6	0.012	0.115
PFTeDA	7.41	1.080	26394.9	M	13C2-PFDoDA	6.84	1610250.6	0.016	0.149

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-00.0 Grab Soil



revised

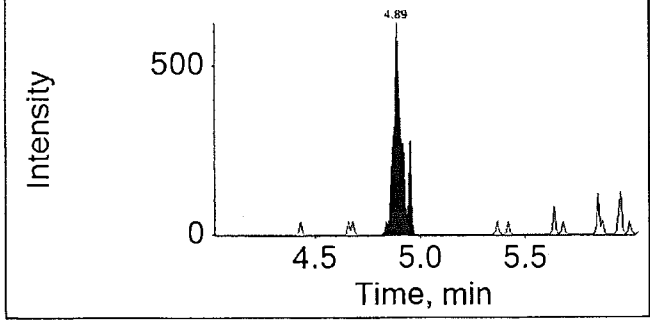
APPROVED
By MCD at 3:33 pm, 5/23/17

REVIEWED
By ucmr at 2:19 pm, 5/27/17

16AUG04-14.wiff

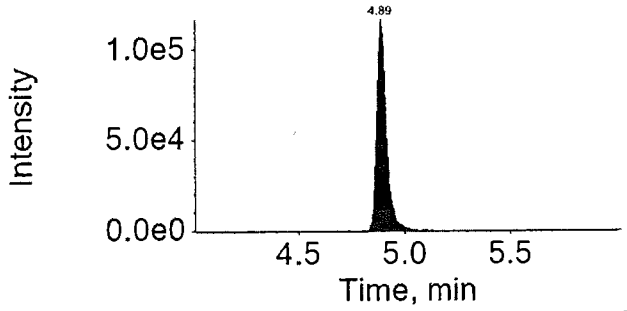
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

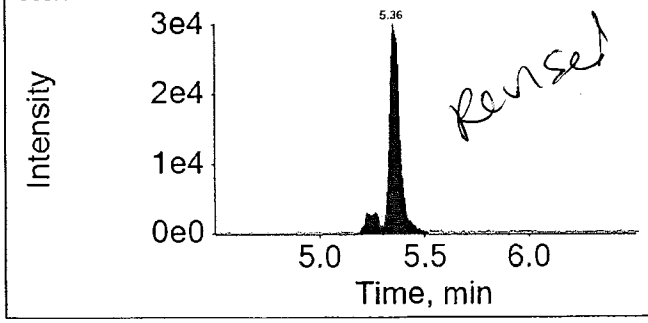
403.0 / 103.0



16AUG04-14.wiff

Analyte: PFOA

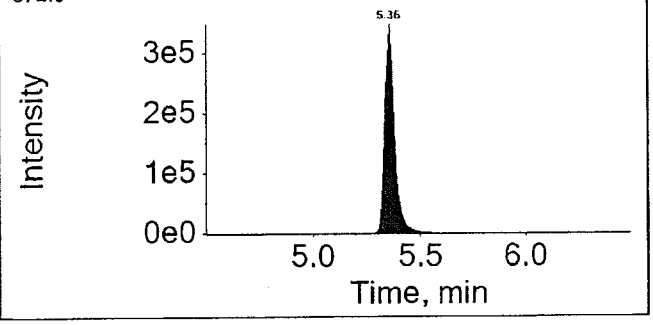
412.9 / 368.9



Rerun!

Internal Standard: 13C4-PFOA

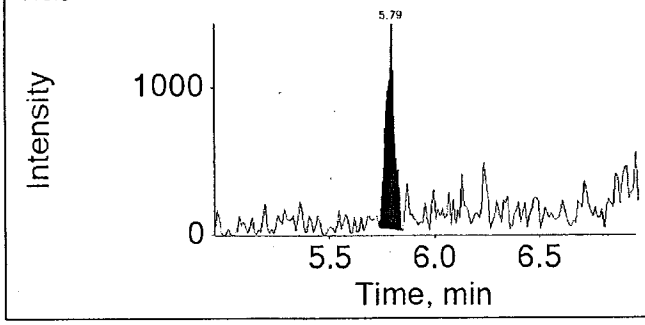
417.0 / 372.0



16AUG04-14.wiff

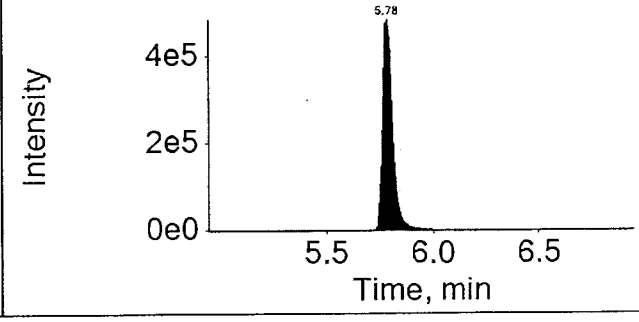
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:33 pm, 5/23/17

REVIEWED
By ucmr at 2:19 pm, 5/27/17

Sample Description: SG3-MW01-00.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8438960
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 09:02 by JD
through 06/20/2016 09:04
Submitted: 06/22/2016 09:30
Reported: 08/05/2016 13:43

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

add J to all sample results - IS

orginal

SG312 SDG#: SGP97-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.58	U	0.58	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.69		0.23	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.48	J			1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U			1
14027	Perfluorohexanesulfonate	355-46-4	0.58	U	0.58	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.82	U	0.82	1.9	1
14027	Perfluorooctanoic acid	335-67-1	0.49	J	0.35	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.70	U	0.70	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	J	0.35	0.70	1

add J - LAL

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	2,180		331	993	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	14.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 12:36	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16194298731A	07/12/2016 10:46	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16180820010B	06/28/2016 19:11	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW01-00.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8438960
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 09:02 by JD
through 06/20/2016 09:04
Submitted: 06/22/2016 09:30
Reported: 05/30/2017 08:39

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG312 SDG#: SGP97-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.56	U	0.56	1.8	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.69**		0.23	0.45	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.48**	**J**	0.45	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.56	U	0.56	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.79	U	0.79	1.8	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.49**	**J**	0.34	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	0.68	U	0.68	1.4	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.35**	**J**	0.34	0.68	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

revised

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	**2,180**		331	993	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**14.5**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 12:36	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16194298731A	07/12/2016 10:46	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

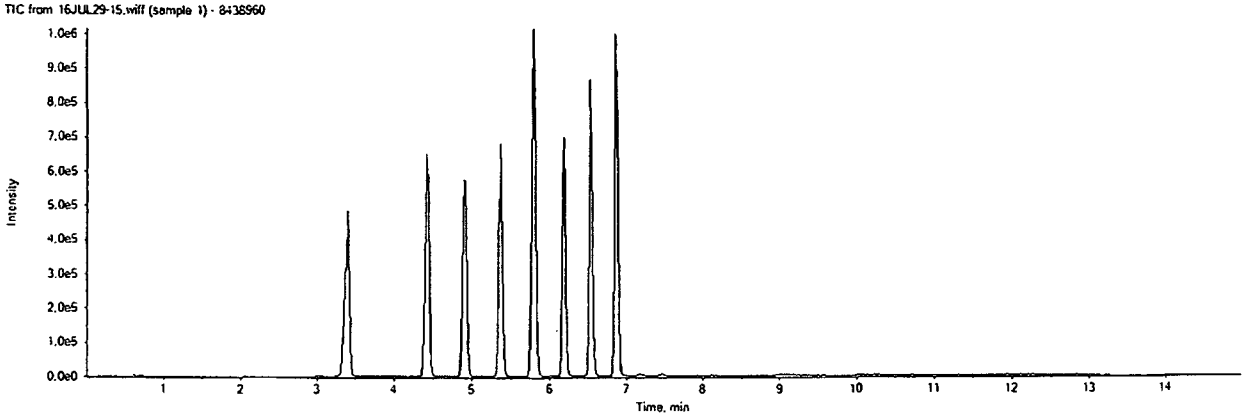
Sample Name:	8438960	**Data File:**		16JUL29-15.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-00.5 Grab Soil	**Acquis Date:**		7/29/2016 12:36:45 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	40	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.190	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	4.90	699456.0	N/A	N/A	
PFHxA	4.43	5185.0	13C2-PFHxA	4.42	2353553.1	0.002	0.041	
PFHpA	4.91	4213.5	13C4-PFHpA	4.91	1379468.5	0.003	0.021	
PFHxS	4.89	2751.9	18O2-PFHxS	4.90	699456.0	0.004	0.032	
PFOA	5.37	109349.5	13C4-PFOA	5.37	1989544.8	0.055	0.422	
PFNA	5.80	12606.1	13C5-PFNA	5.80	2660940.2	0.005	0.039	
PFOS	5.77	7692.4	13C4-PFOS	5.77	693593.9	0.011	0.090	
PFDA	6.19	153728.6	13C2-PFDA	6.19	1827407.0	0.084	0.593	
PFUndA	6.54	71671.2	13C2-PFUnDA	6.54	2054508.0	0.035	0.301	
PFDoDA	6.87	104065.5	13C2-PFDoDA	6.87	2826607.6	0.037	0.412	
PFTrDA	7.17	18824.8	13C2-PFDoDA	6.87	2826607.6	0.007	0.060	
PFTeDA	7.47	24095.1	13C2-PFDoDA	6.87	2826607.6	0.009	0.072	

Total Ion Chromatogram

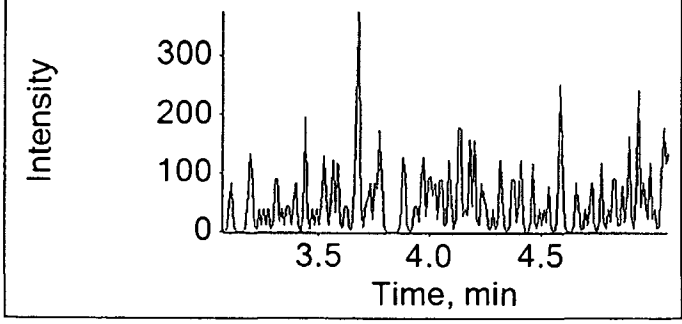
EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-00.5 Grab Soil



16JUL29-15.wiff

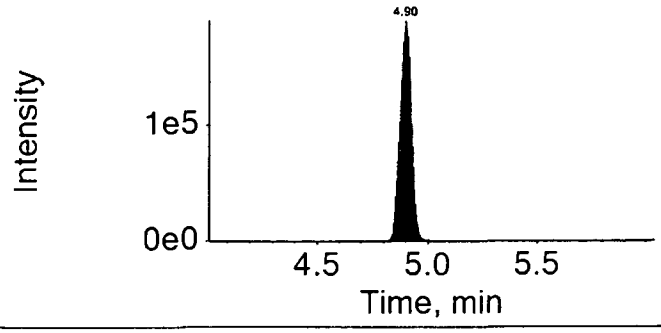
Analyte: PFBS

298.9 /
98.9



Internal Standard: 18O2-PFHxS

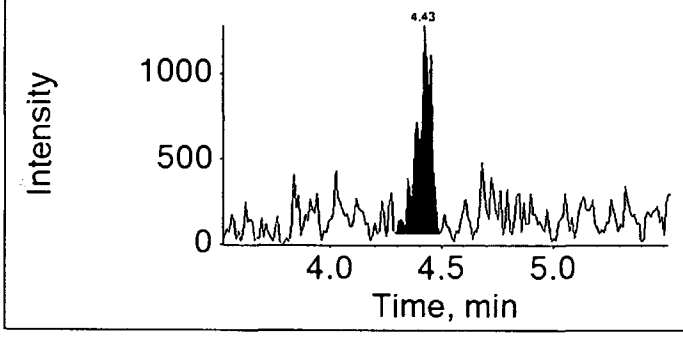
403.0 /
103.0



16JUL29-15.wiff

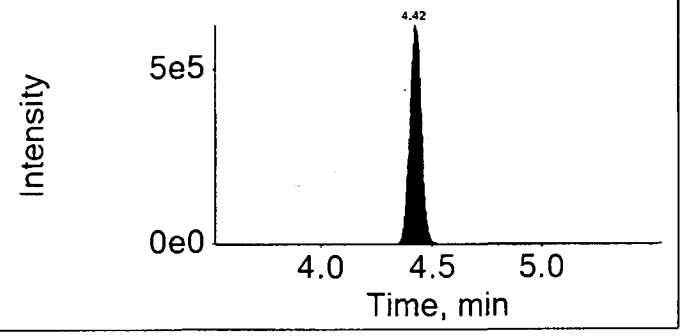
Analyte: PFHxA

312.9 /
269.0



Internal Standard: 13C2-PFHxA

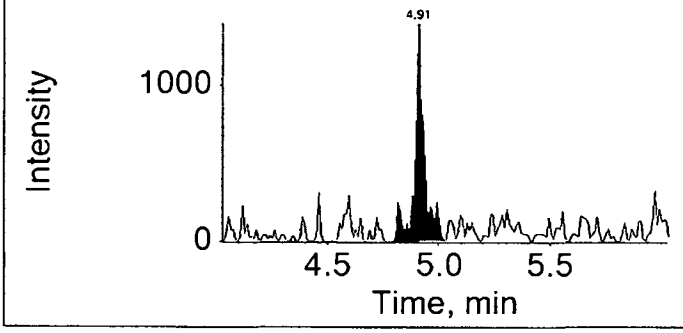
314.9 /
270.0



16JUL29-15.wiff

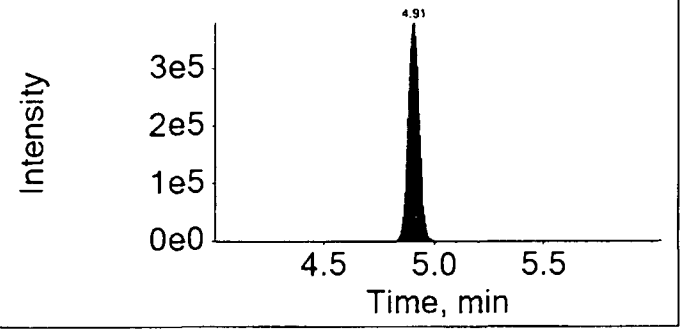
Analyte: PFHpA

362.9 /
318.9

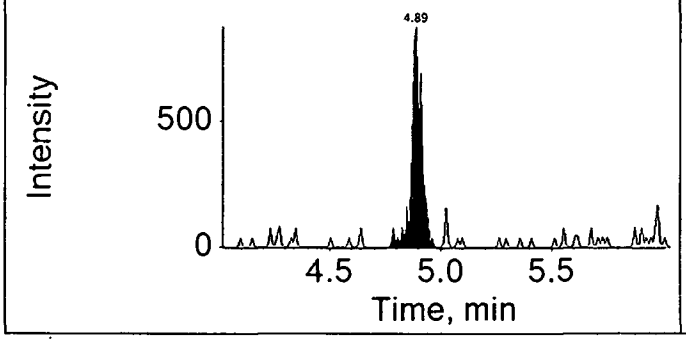


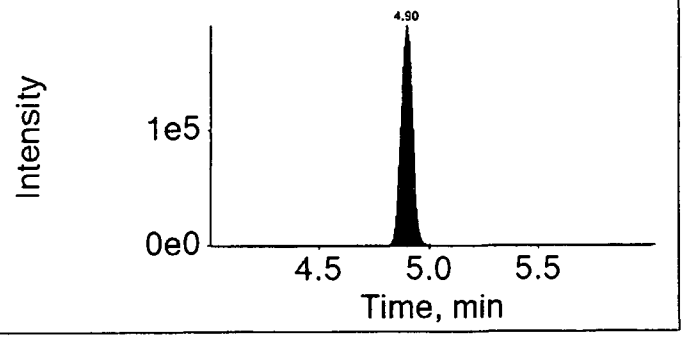
Internal Standard: 13C4-PFHpA

367.0 /
322.0

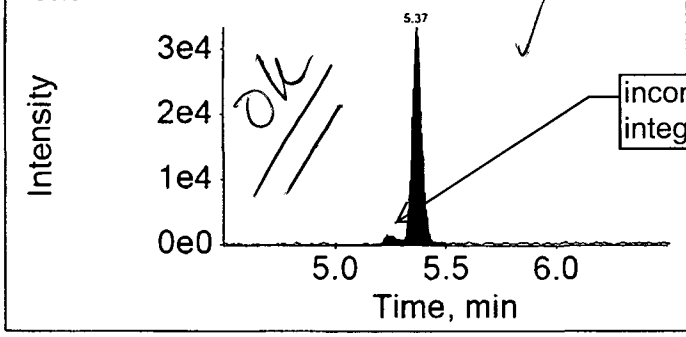


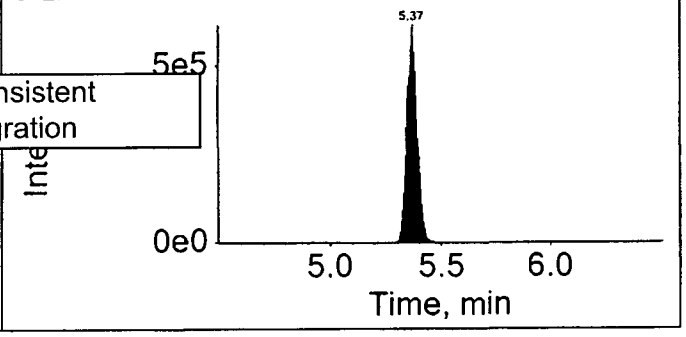
16JUL29-15.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



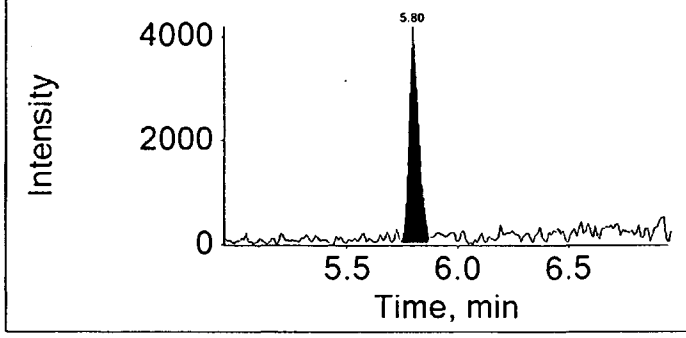


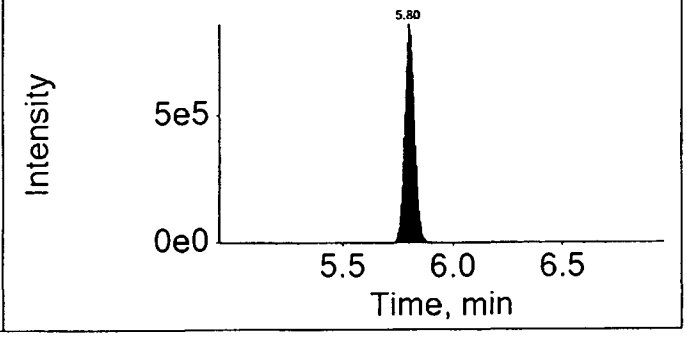
16JUL29-15.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



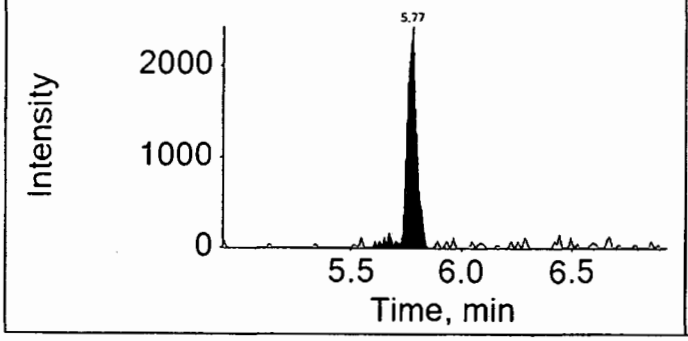


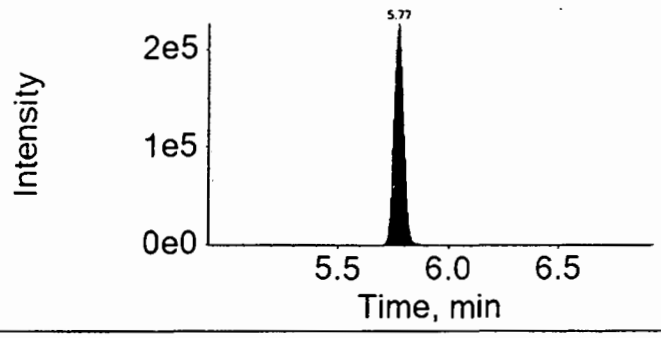
16JUL29-15.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



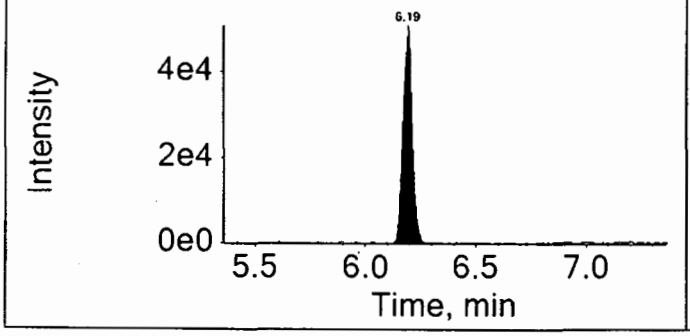


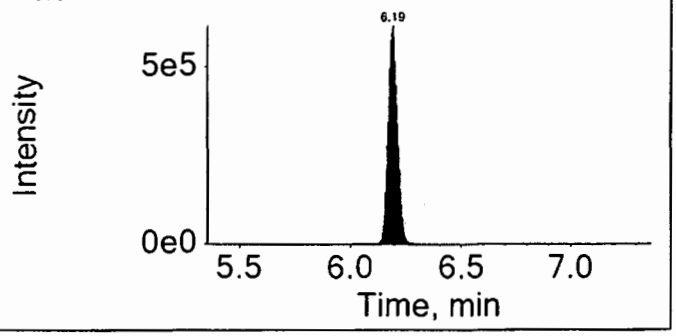
16JUL29-15.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



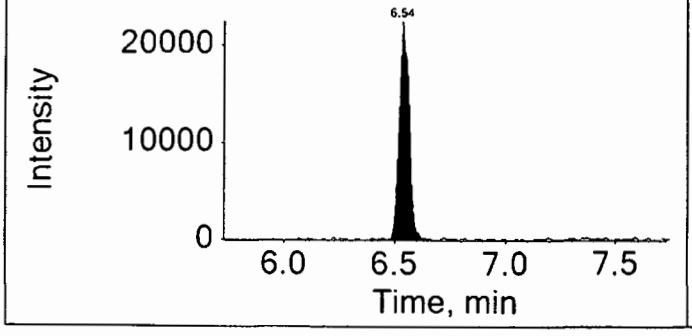


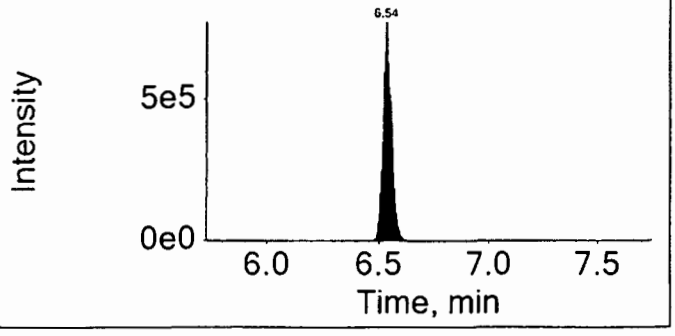
16JUL29-15.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



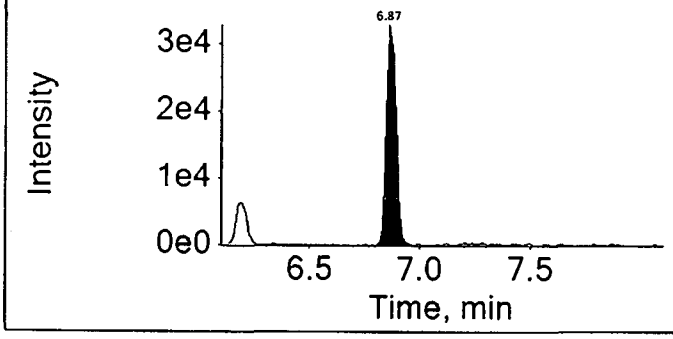


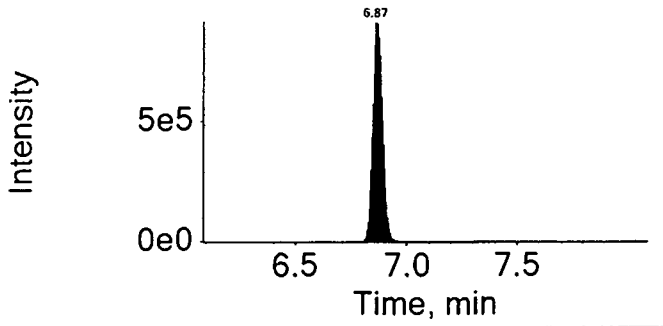
16JUL29-15.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



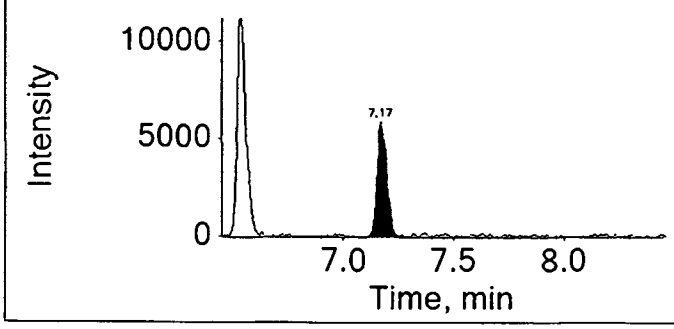


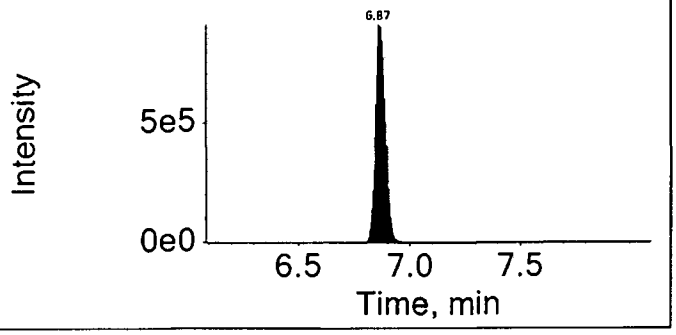
16JUL29-15.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



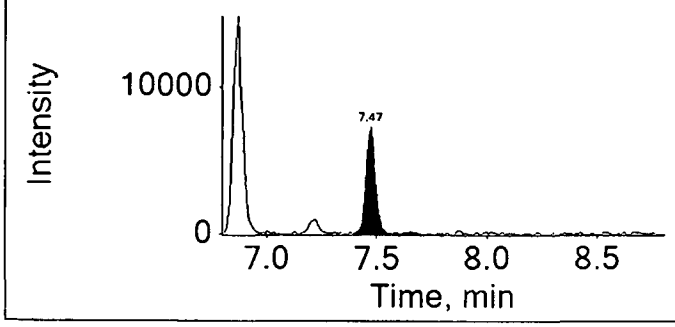


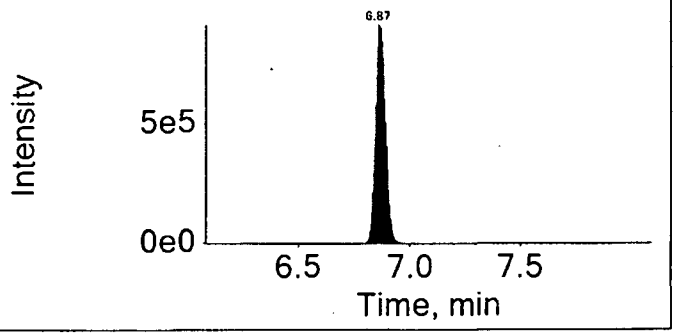
16JUL29-15.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL29-15.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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LC-MS/MS Analysis Report

Printed: 8/5/2016 10:04:00 AM

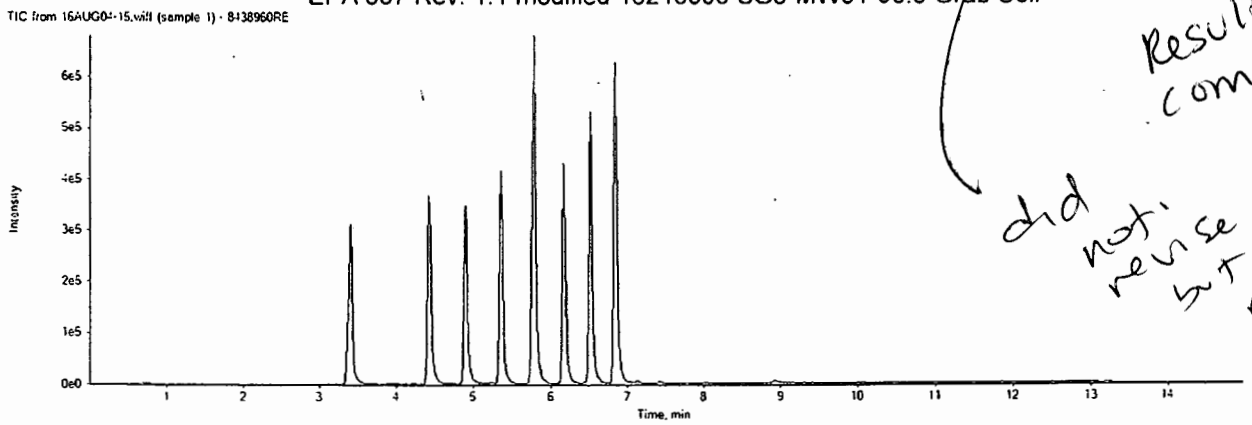
Sample Name:	8438960RE		**Data File:**		16AUG04-15.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-00.5 Grab Soil		**Acquis Date:**		8/4/2016 5:19:39 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	25		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.140		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.89	450188.7	N/A	N/A	
PFHxA	4.43	4579.2	A	13C2-PFHxA	4.43	1292789.3	0.004	0.064	
PFHpA	4.89	3076.0	A	13C4-PFHpA	4.90	692625.7	0.004	0.031	
PFHxS	4.90	3408.5	A	18O2-PFHxS	4.89	450188.7	0.008	0.063	
PFOA	5.36	94288.5	A	13C4-PFOA	5.36	1228329.3	0.077	0.636	
PFNA	5.79	7996.6	A	13C5-PFNA	5.78	1801620.3	0.004	0.038	
PFOS	5.75	6849.7	A	13C4-PFOS	5.76	449226.2	0.015	0.128	
PFDA	6.17	98762.5	A	13C2-PFDA	6.17	1212609.9	0.081	0.597	
PFUndA	6.53	49961.0	A	13C2-PFUnDA	6.52	1448832.2	0.034	0.299	
PFDoDA	6.84	88737.3	A	13C2-PFDoDA	6.84	1822438.6	0.049	0.486	
PFTrDA	7.13	15259.7	A	13C2-PFDoDA	6.84	1822438.6	0.008	0.079	
PFTeDA	7.41	14790.8	A	13C2-PFDoDA	6.84	1822438.6	0.008	0.074	

Total Ion Chromatogram

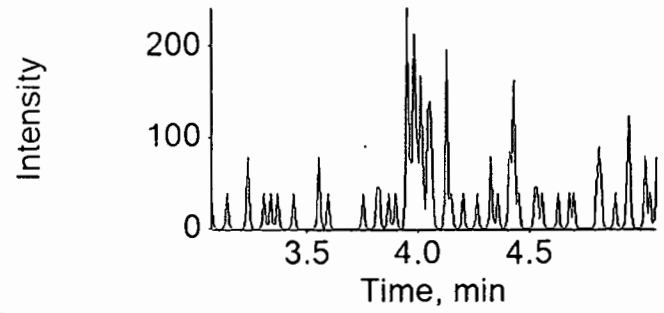
EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-00.5 Grab Soil

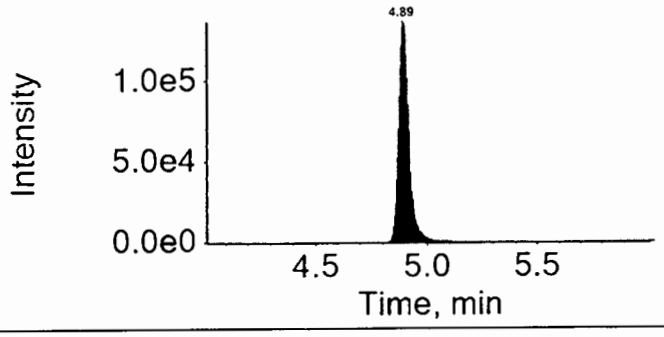


Results comparable

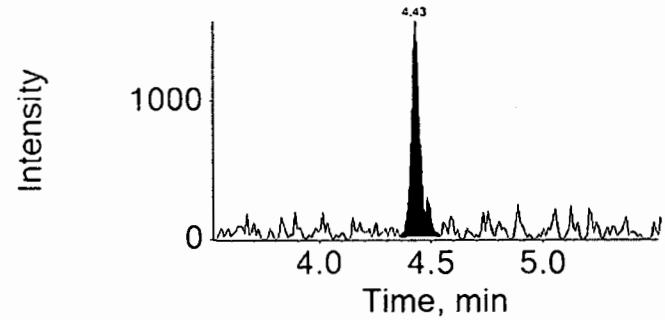
did not revise but not reported

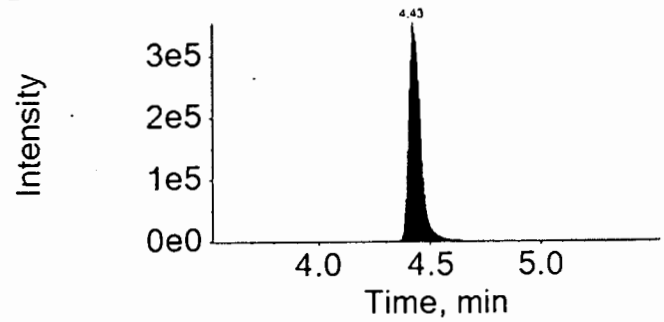
16AUG04-15.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



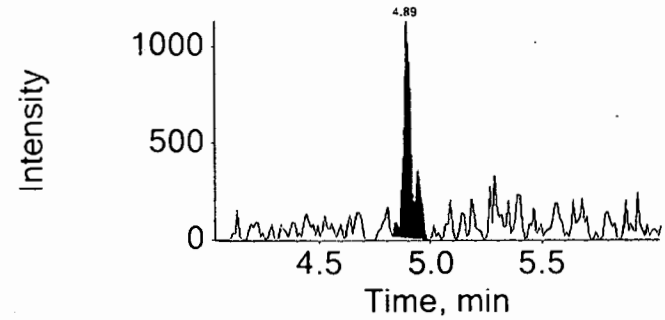


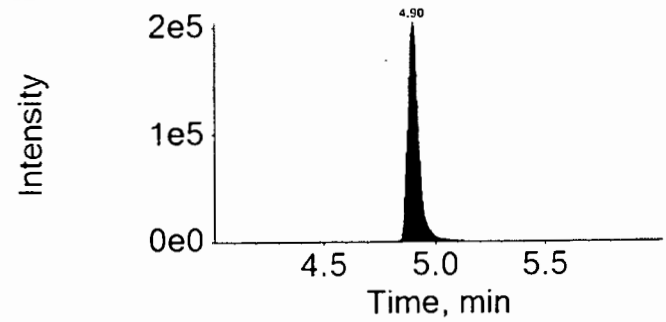
16AUG04-15.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



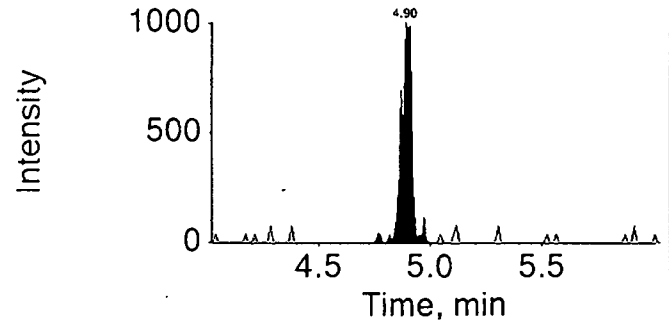


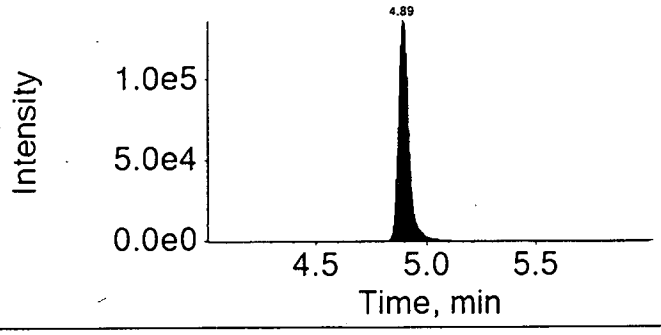
16AUG04-15.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



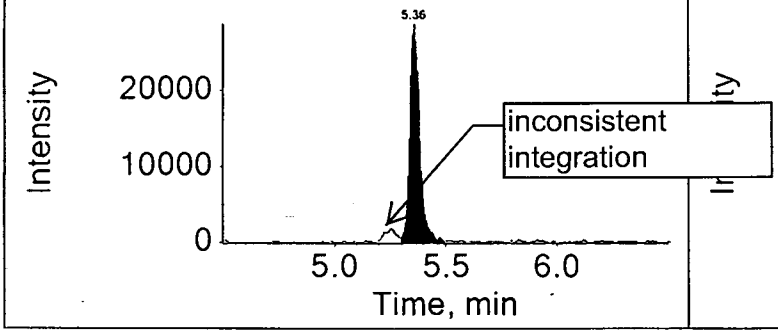


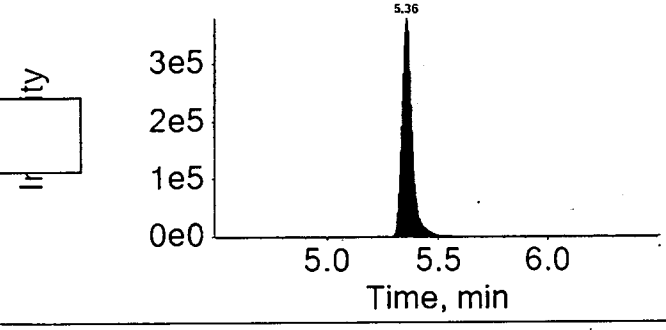
16AUG04-15.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



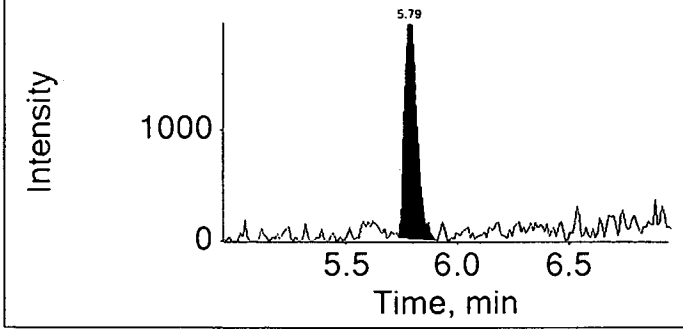


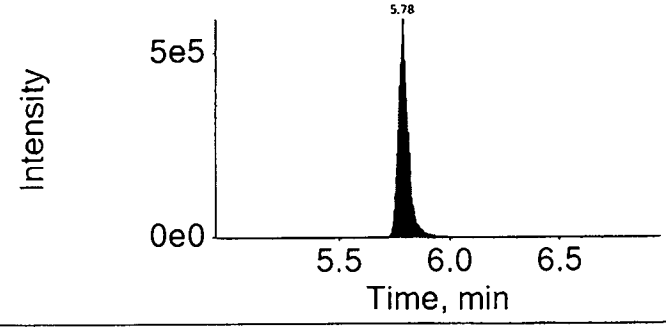
16AUG04-15.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



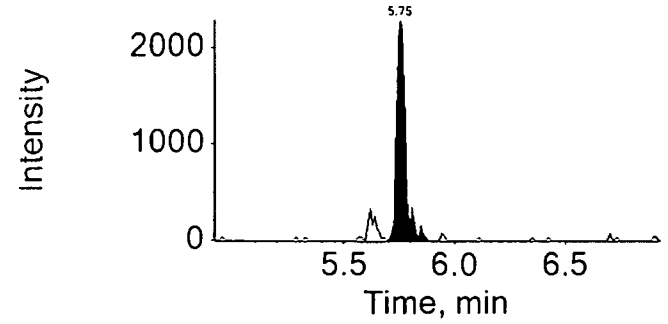


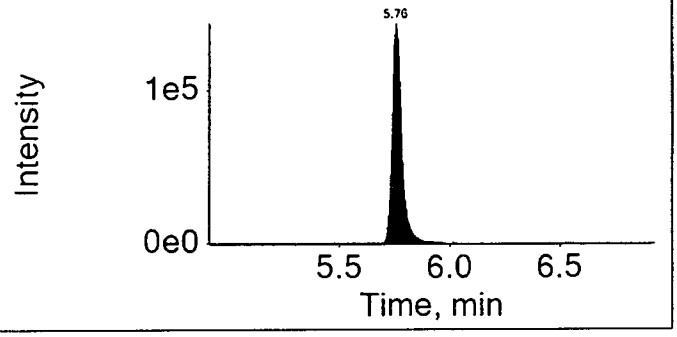
16AUG04-15.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



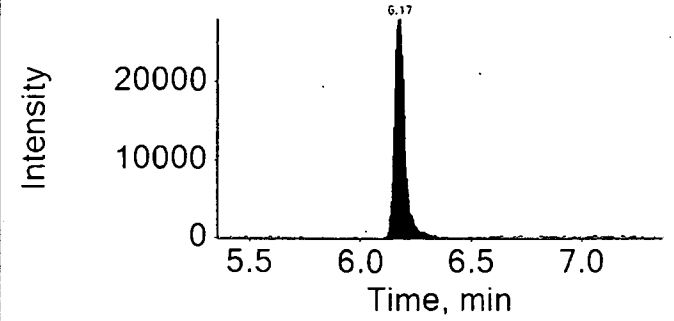


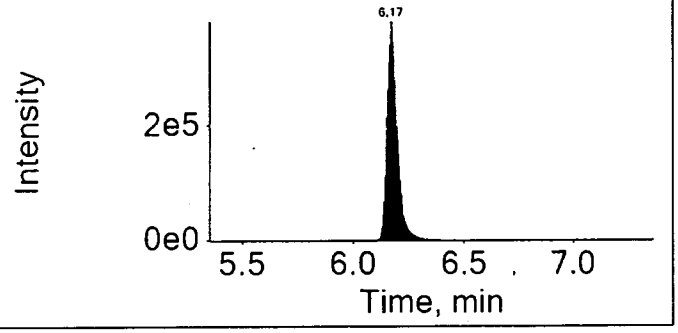
16AUG04-15.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



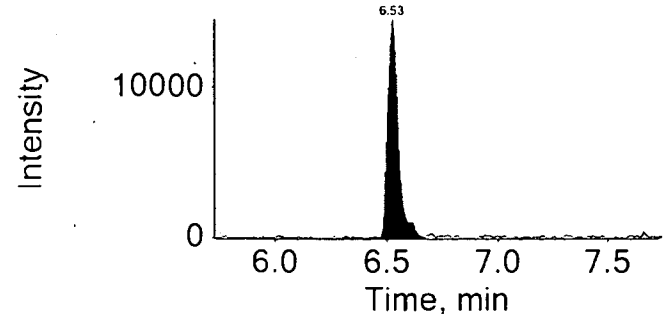


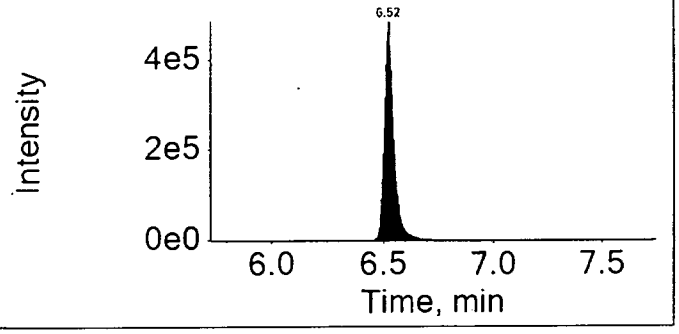
16AUG04-15.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



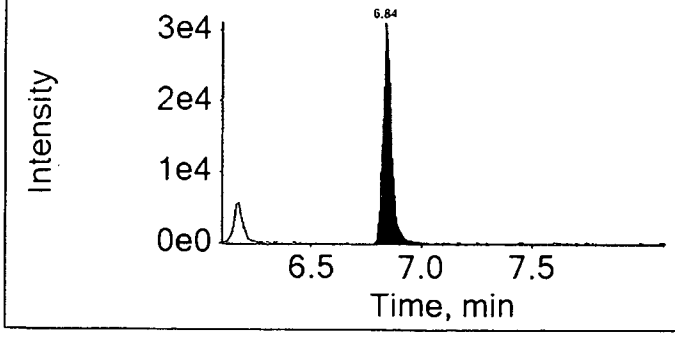


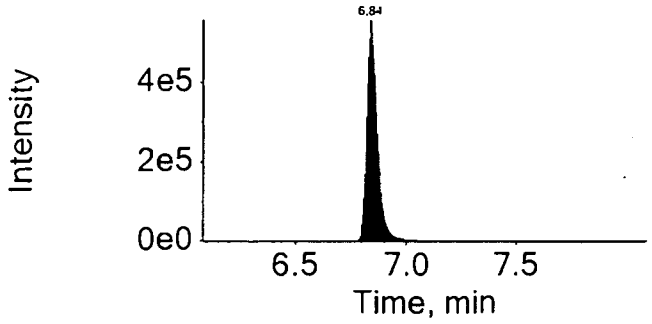
16AUG04-15.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



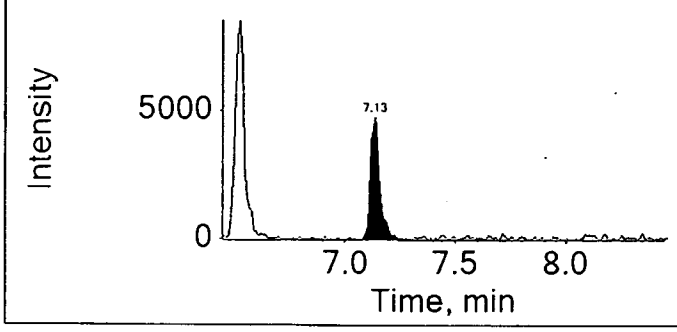


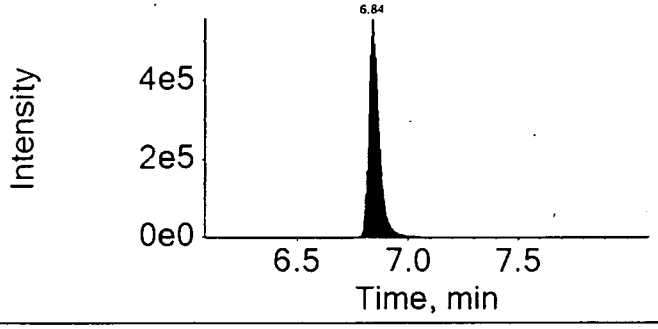
16AUG04-15.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



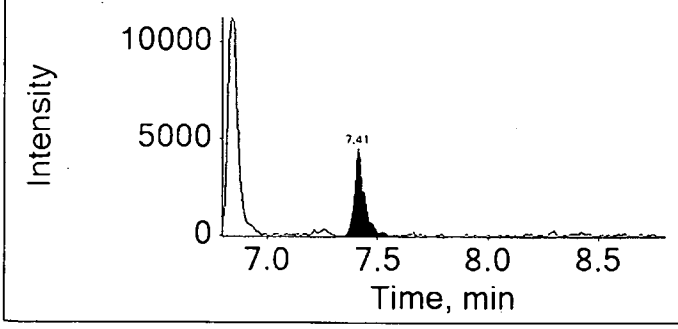


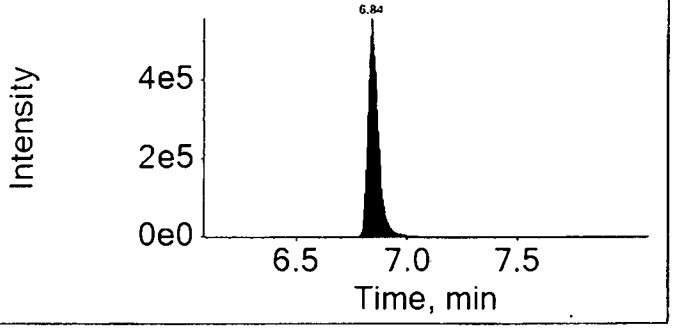
16AUG04-15.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG04-15.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Sample Description: SG3-MW01-01.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

LL Sample # SW 8438961
LL Group # 1674752
Account # 37191

Collected: 06/20/2016 09:08 by JD
through 06/20/2016 09:10
Submitted: 06/22/2016 09:30
Reported: 08/05/2016 13:43

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

to be Revised

Orig/Wal

SG313 SDG#: SGP97-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.62	U	0.62	2.0	1
14027	Perfluorodecanoic acid	335-76-2	1.7		0.25	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	0.99	1
14027	Perfluoroheptanoic acid	375-85-9	0.37	U	0.37	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.62	U	0.62	2.0	1
14027	Perfluorohexanoic acid	307-24-4	0.25	U	0.25	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.25	U	0.25	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.87	U	0.87	2.0	1
14027	Perfluorooctanoic acid	335-67-1	1.2		0.37	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.74	U	0.74	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	0.74	1

add J - LAL, IS

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC		n.a.		1,420	329	986	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture		n.a.		19.1	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 12:52	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16194298731A	07/12/2016 11:25	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16180820010B	06/28/2016 19:11	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

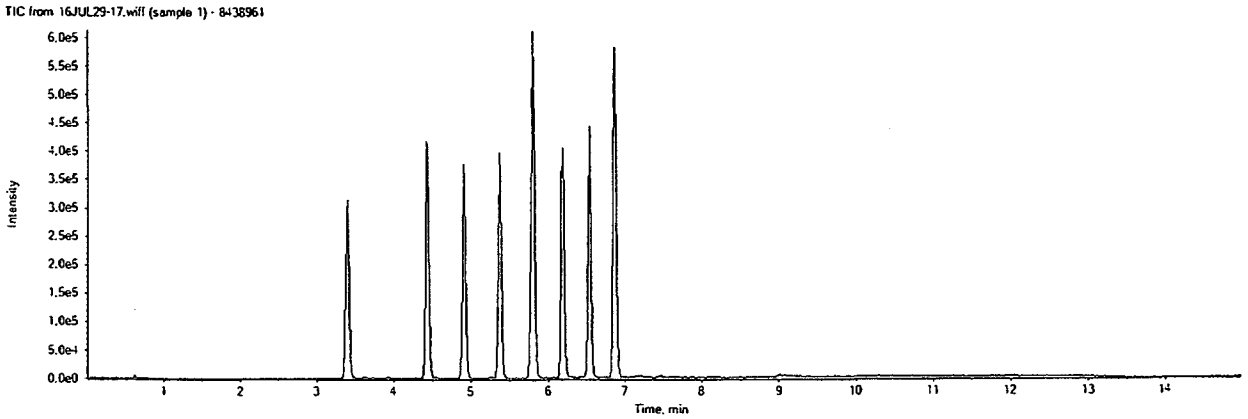
Sample Name:	8438961	**Data File:**		16JUL29-17.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-01.0 Grab Soil	**Acquis Date:**		7/29/2016 1:08:09 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	41	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.270	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

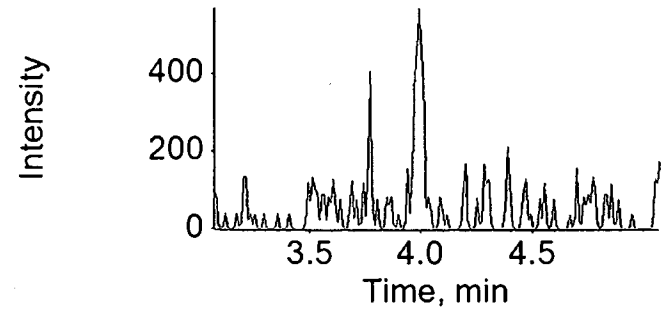
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	4.90	364693.7	N/A	N/A	
PFHxA	4.42	5179.1	13C2-PFHxA	4.43	1156977.3	0.004	0.082	
PFHpA	4.91	3638.4	13C4-PFHpA	4.91	672001.1	0.005	0.037	
PFHxS	4.90	2626.5	18O2-PFHxS	4.90	364693.7	0.007	0.058	
PFOA	5.37	120567.4	13C4-PFOA	5.37	972532.4	0.124	0.938	ng/g
PFNA	5.80	12958.7	13C5-PFNA	5.80	1492580.5	0.009	0.071	
PFOS	5.77	4752.6	13C4-PFOS	5.77	325511.9	0.015	0.116	
PFDA	6.19	198011.9	13C2-PFDA	6.18	1028365.8	0.193	1.336	
PFUndA	6.54	11972.4	13C2-PFUnDA	6.54	1145194.1	0.010	0.089	
PFDoDA	6.86	8670.4	13C2-PFDoDA	6.86	1586388.1	0.005	0.060	
PFTrDA	7.17	7089.7	13C2-PFDoDA	6.86	1586388.1	0.004	0.040	
PFTeDA	7.47	8945.8	13C2-PFDoDA	6.86	1586388.1	0.006	0.047	

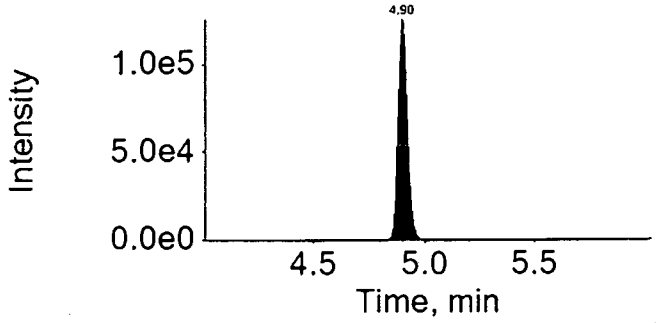
Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-01.0 Grab Soil

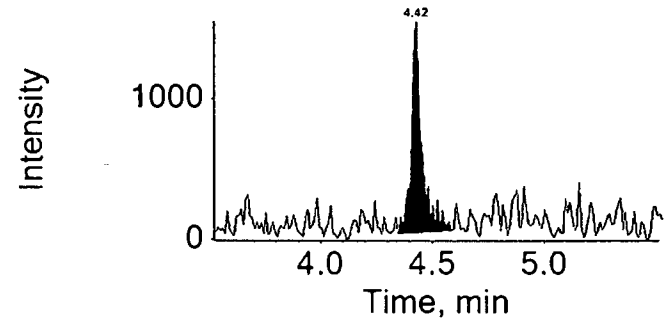


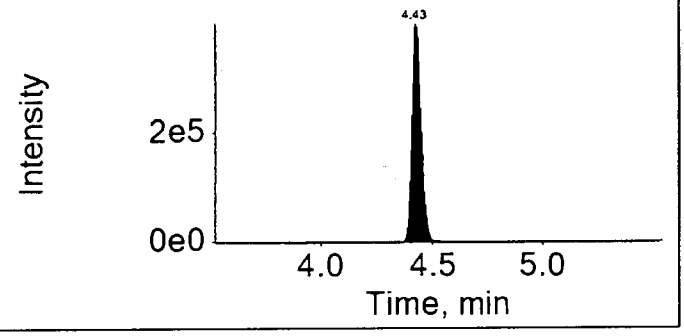
16JUL29-17.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



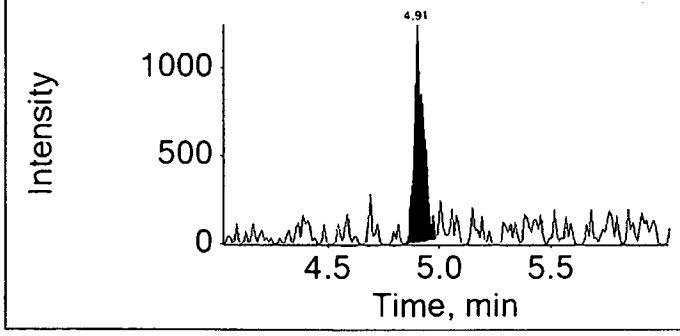


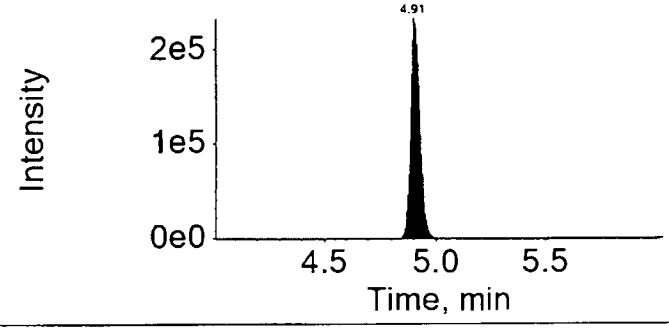
16JUL29-17.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16JUL29-17.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

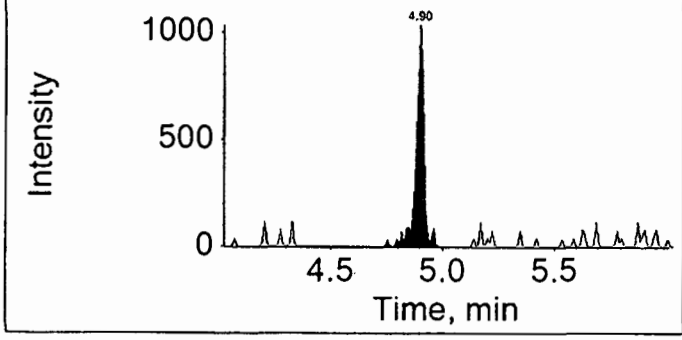




16JUL29-17.wiff

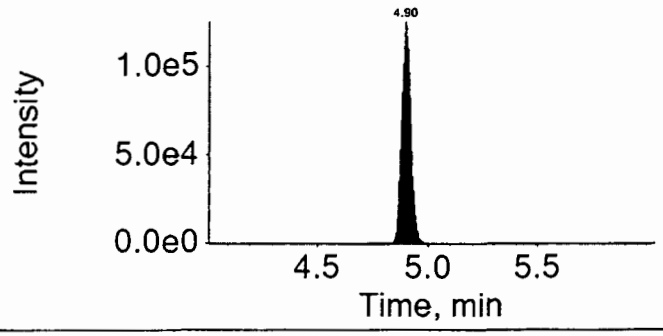
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

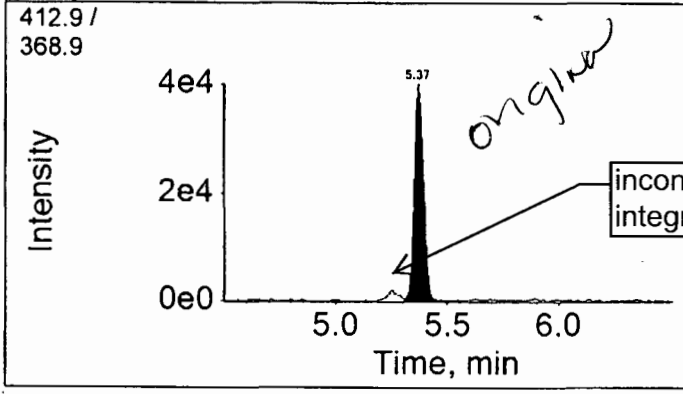
403.0 / 103.0



16JUL29-17.wiff

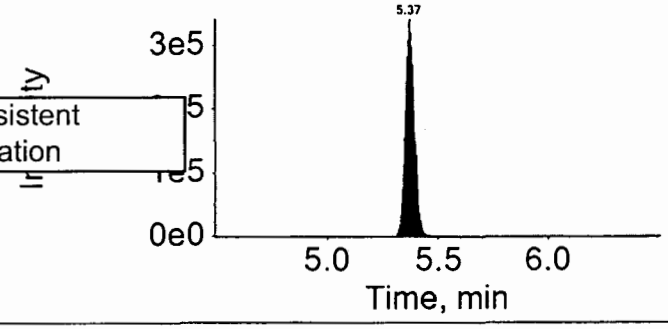
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

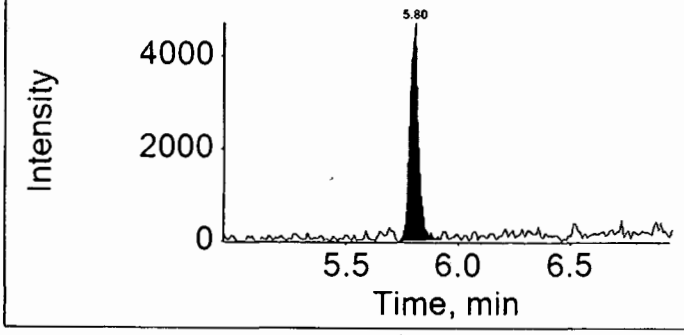
417.0 / 372.0



16JUL29-17.wiff

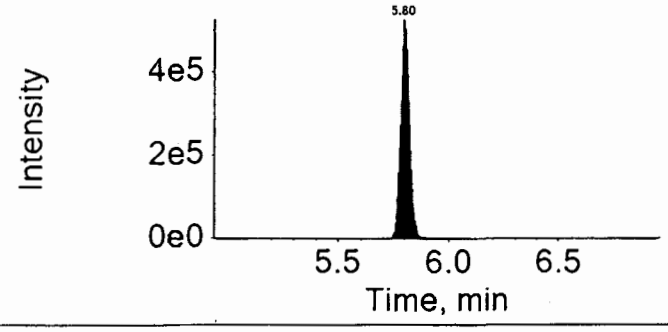
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

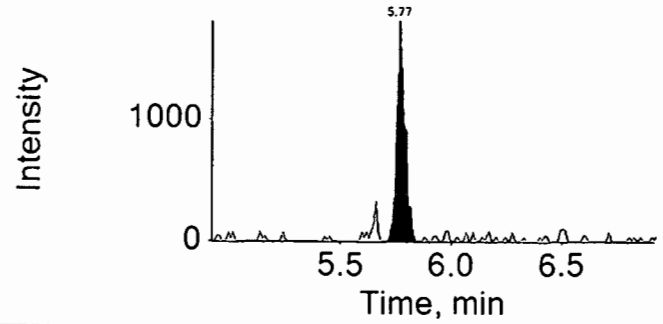
468.0 / 423.0



16JUL29-17.wiff

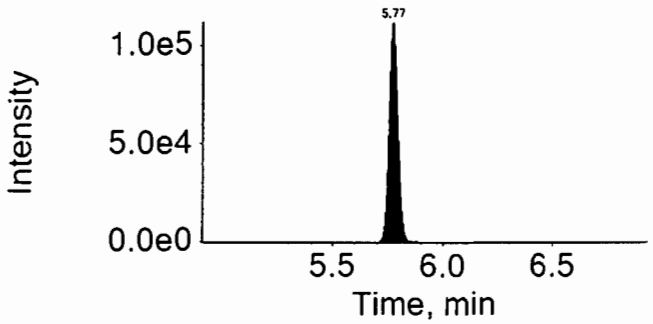
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

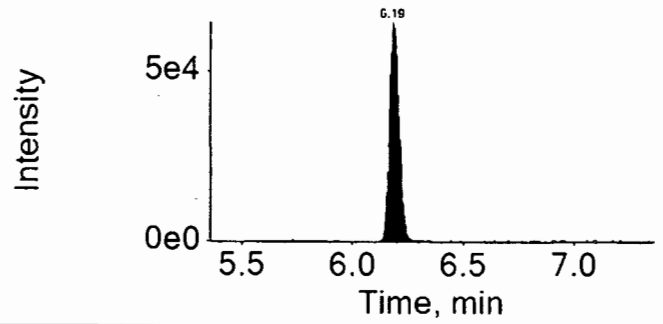
503.0 / 99.0



16JUL29-17.wiff

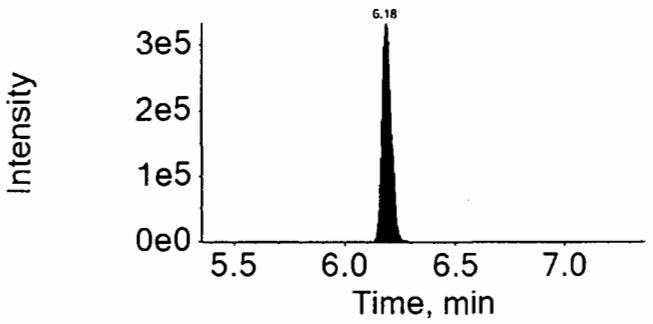
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

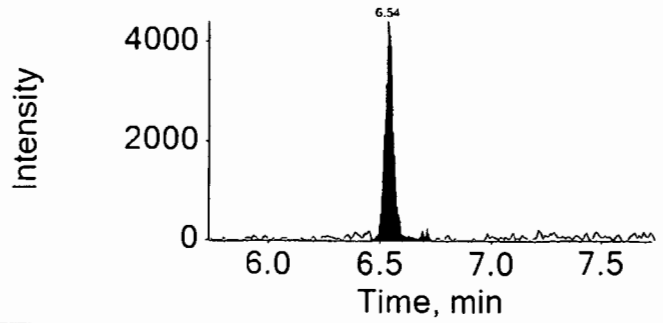
515.0 / 470.0



16JUL29-17.wiff

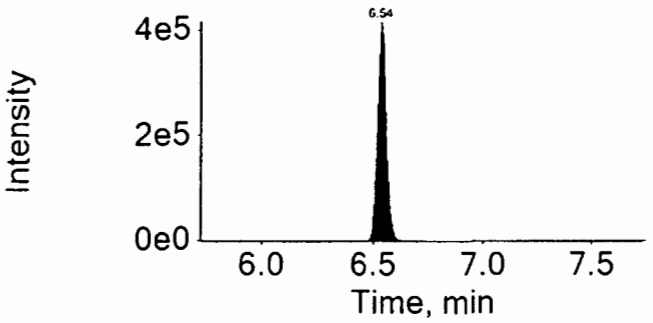
Analyte: PFUndA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

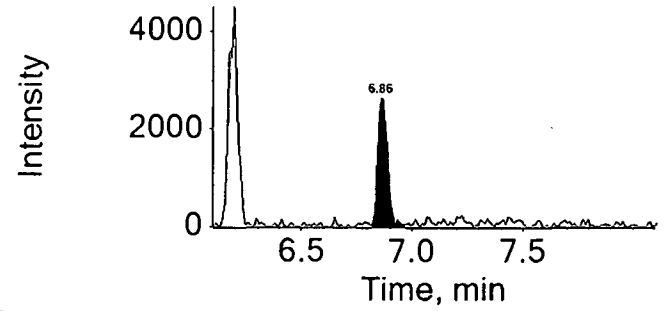
565.0 / 520.0



16JUL29-17.wiff

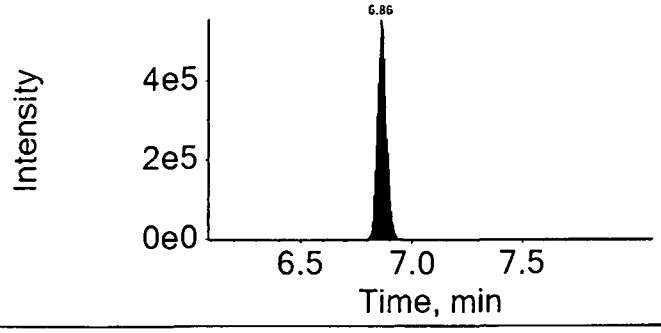
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

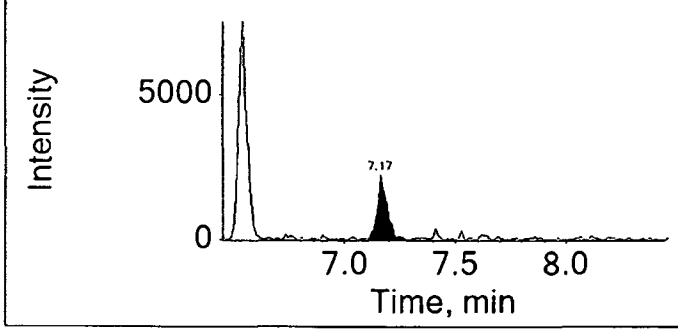
615.0 / 570.0



16JUL29-17.wiff

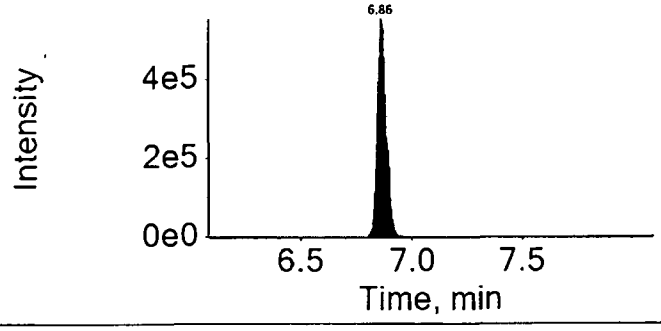
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

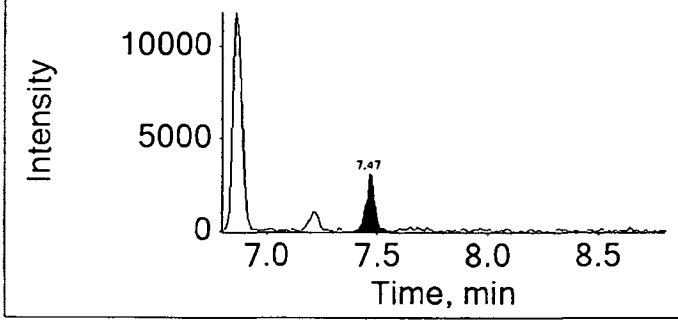
615.0 / 570.0



16JUL29-17.wiff

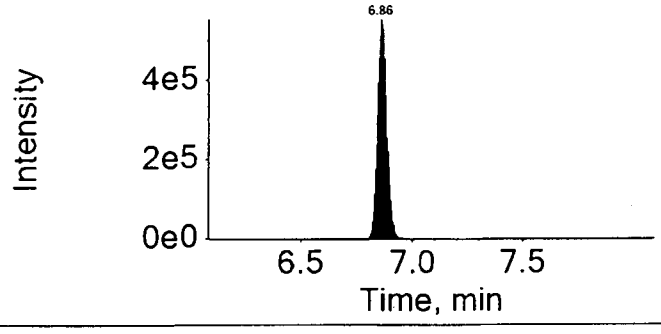
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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Analysis Report

REVISED

Sample Description: SG3-MW01-01.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8438961
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 09:08 by JD
through 06/20/2016 09:10
Submitted: 06/22/2016 09:30
Reported: 05/30/2017 08:39

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

did not change by rounding

revised

SG313 SDG#: SGP97-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.7**		0.23	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.94	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.82	U	0.82	1.9	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.2**		0.35	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.94	1
14027	Perfluorotridecanoic acid	72629-94-8	0.70	U	0.70	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.70	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,420**		329	986	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**19.1**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 12:52	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16194298731A	07/12/2016 11:25	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:00:00 PM

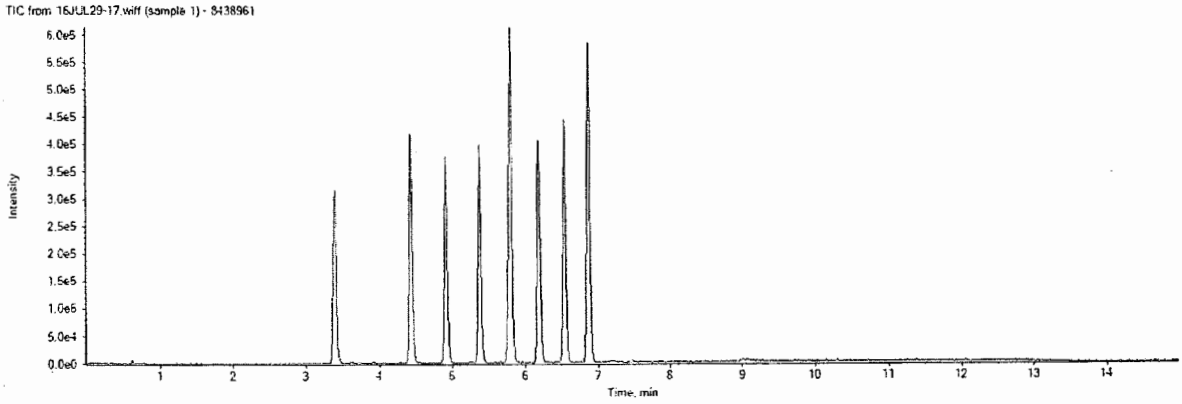
Sample Name:	8438961			**Data File:**		16JUL29-17.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-01.0 Grab Soil			**Acquis Date:**		2016-07-29T13:08:09
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	41			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16190006
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.270			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.90	364693.7	N/A	N/A
PFHxA	4.42	1.000	5179.1	A	13C2-PFHxA	4.43	1156977.3	0.004	0.082
PFHpA	4.91	1.000	3638.4	A	13C4-PFHpA	4.91	672001.1	0.005	0.037
PFHxS	4.90	1.000	2626.5	A	18O2-PFHxS	4.90	364693.7	0.007	0.058
PFOA	5.37	1.000	126620.2	M	13C4-PFOA	5.37	972532.4	0.130	0.985
PFNA	5.80	1.000	12958.7	A	13C5-PFNA	5.80	1492580.5	0.009	0.071
PFOS	5.77	1.000	4752.6	A	13C4-PFOS	5.77	325511.9	0.015	0.116
PFDA	6.19	1.000	198011.9	A	13C2-PFDA	6.18	1028365.8	0.193	1.336
PFUndA	6.54	1.000	11972.4	A	13C2-PFUnDA	6.54	1145194.1	0.010	0.089
PFDoDA	6.86	1.000	8670.4	M	13C2-PFDoDA	6.86	1586388.1	0.005	0.060
PFTrDA	7.17	1.040	7089.7	A	13C2-PFDoDA	6.86	1586388.1	0.004	0.040
PFTeDA	7.47	1.090	8945.8	M	13C2-PFDoDA	6.86	1586388.1	0.006	0.047

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-01.0 Grab Soil



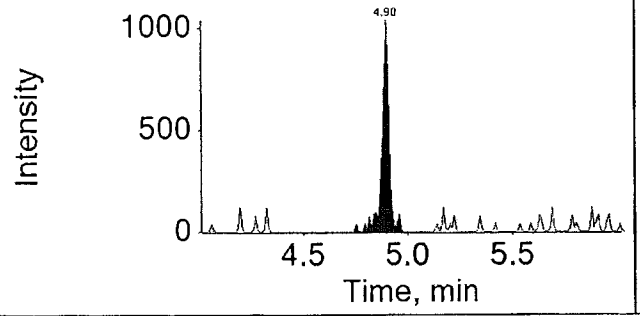
APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 1:24 pm, 5/27/17

16JUL29-17.wiff

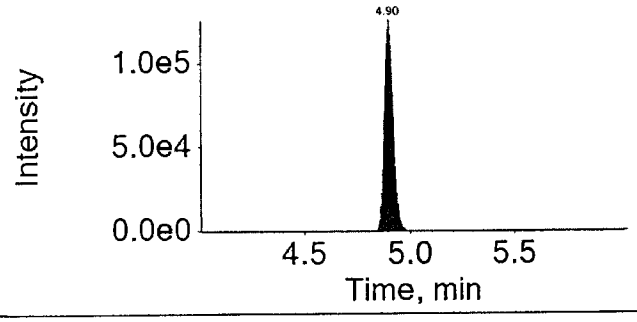
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

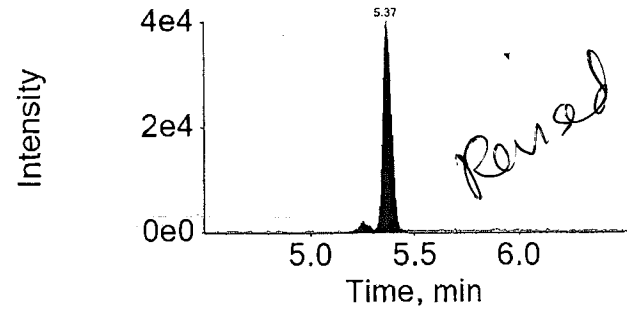
403.0 / 103.0



16JUL29-17.wiff

Analyte: PFOA

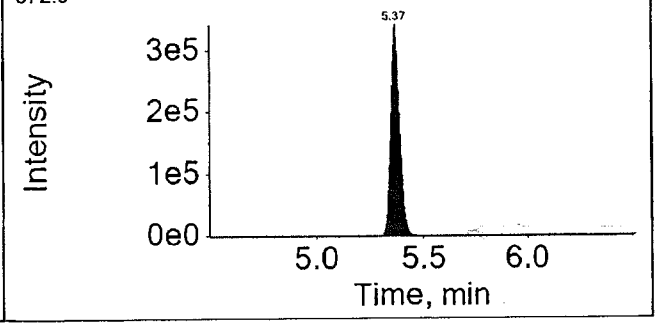
412.9 / 368.9



Revised

Internal Standard: 13C4-PFOA

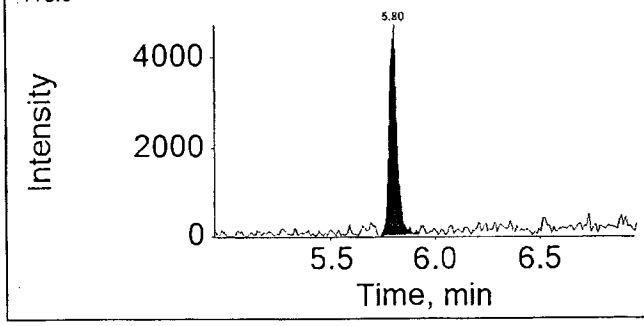
417.0 / 372.0



16JUL29-17.wiff

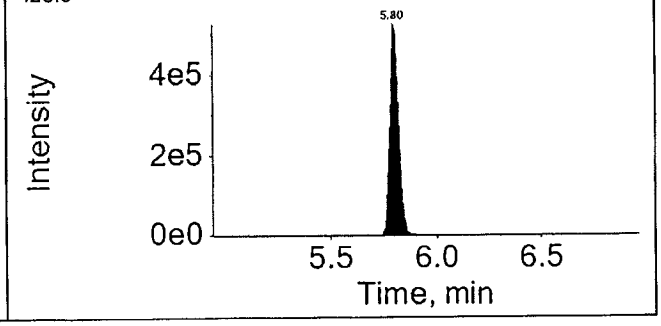
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 1:24 pm, 5/27/17

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LC-MS/MS Analysis Report

Printed: 8/5/2016 10:04:00 AM

Sample Name:	8438961RE		**Data File:**		16AUG04-17.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-01.0 Grab Soil		**Acquis Date:**		8/4/2016 5:51:06 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	26		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.450		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

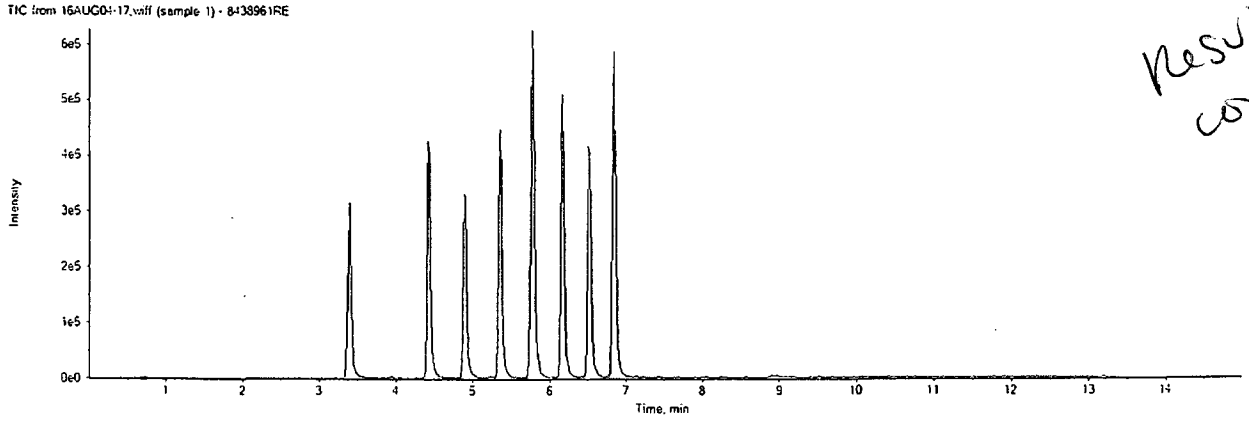
Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.89	422152.8	N/A	N/A	
PFHxA	4.43	6060.4	A	13C2-PFHxA	4.42	1304841.7	0.005	0.079	
PFHpA	4.90	3745.0	A	13C4-PFHpA	4.89	641213.3	0.006	0.039	
PFHxS	4.88	2187.4	A	18O2-PFHxS	4.89	422152.8	0.005	0.041	
PFOA	5.35	178205.3	A	13C4-PFOA	5.35	1214935.3	0.147	1.147	
PFNA	5.78	17611.2	A	13C5-PFNA	5.78	1603564.9	0.011	0.089	
PFOS	5.75	7098.5	A	13C4-PFOS	5.75	418902.0	0.017	0.135	
PFDA	6.16	305564.2	A	13C2-PFDA	6.16	1177941.0	0.259	1.794	
PFUndA	6.52	14036.9	M	13C2-PFUnDA	6.52	1320027.0	0.011	0.087	
PFDoDA	6.84	9911.5	A	13C2-PFDoDA	6.84	1747034.3	0.006	0.053	
PFTrDA	7.13	6347.5	A	13C2-PFDoDA	6.84	1747034.3	0.004	0.032	
PFTeDA	7.41	6240.4	A	13C2-PFDoDA	6.84	1747034.3	0.004	0.031	

or is mod

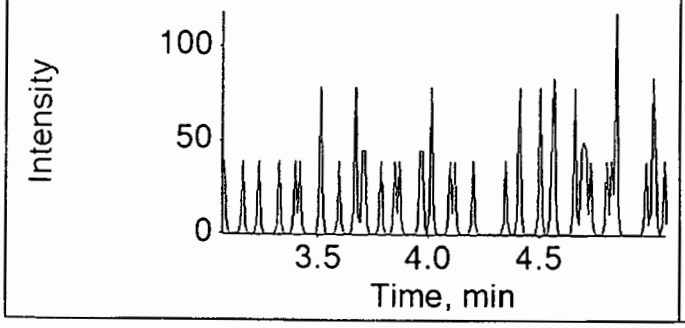
Total Ion Chromatogram

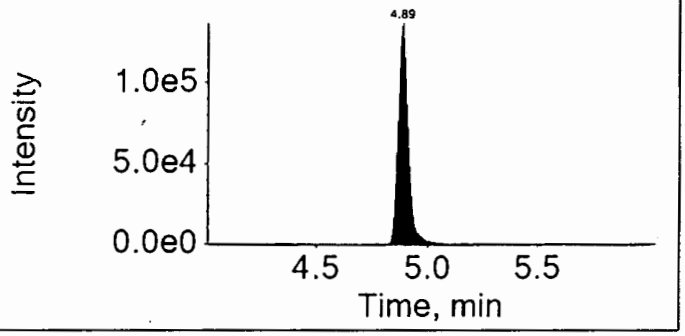
EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-01.0 Grab Soil



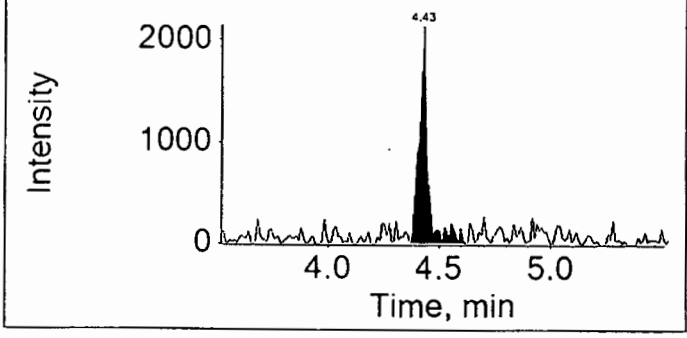
Results comparable

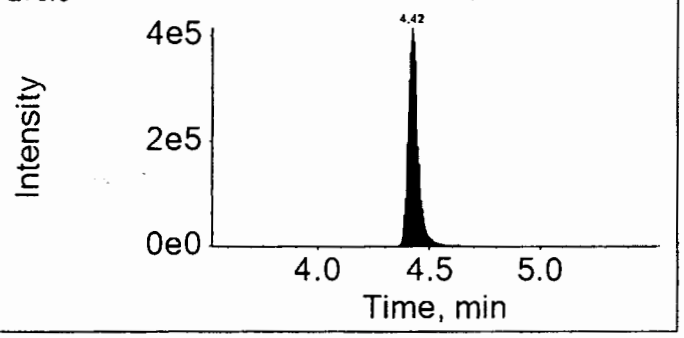
16AUG04-17.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



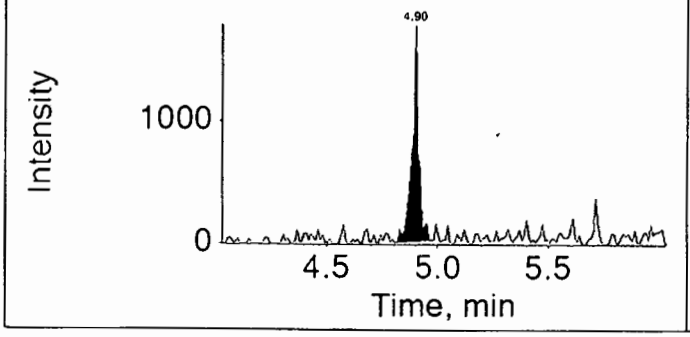


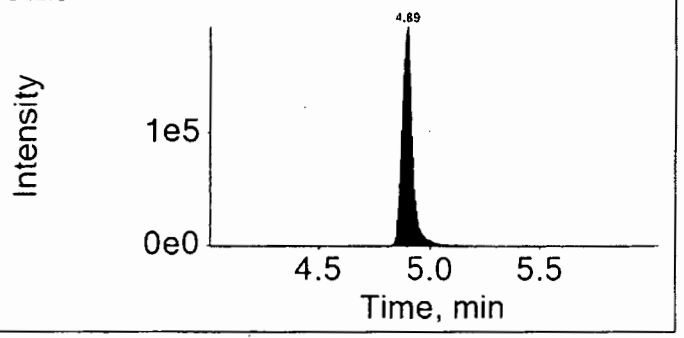
16AUG04-17.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16AUG04-17.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

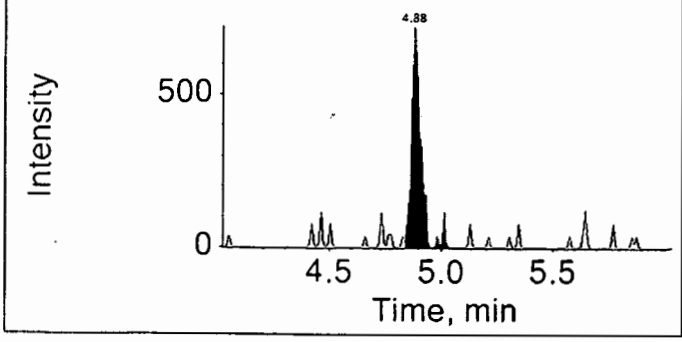




16AUG04-17.wiff

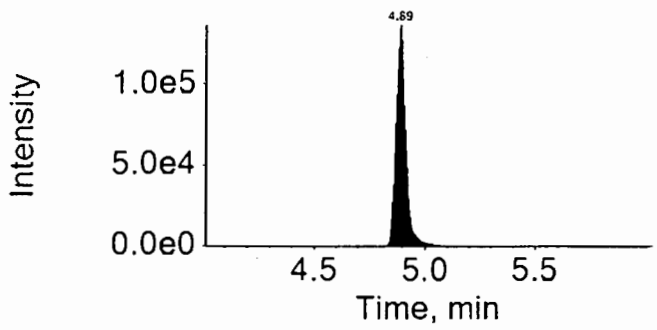
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

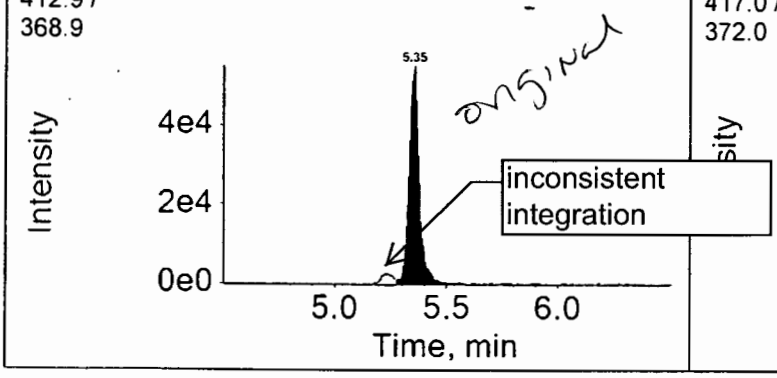
403.0 / 103.0



16AUG04-17.wiff

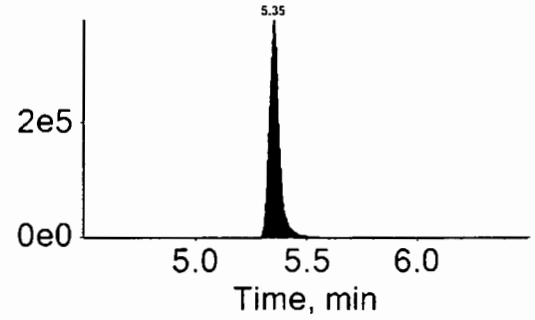
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

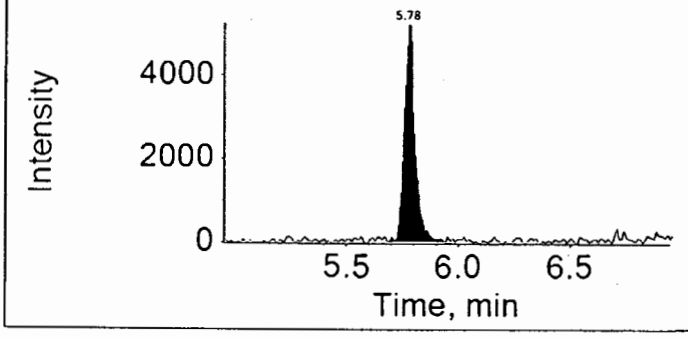
417.0 / 372.0



16AUG04-17.wiff

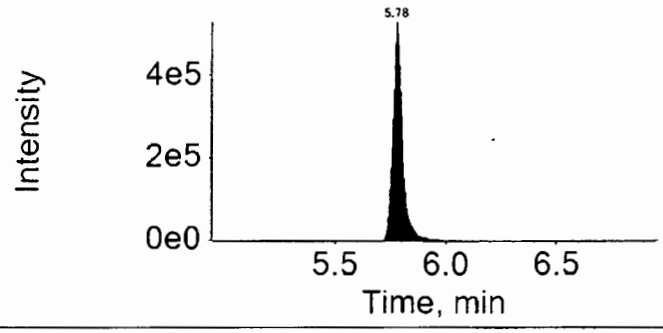
Analyte: PFNA

462.9 / 418.9

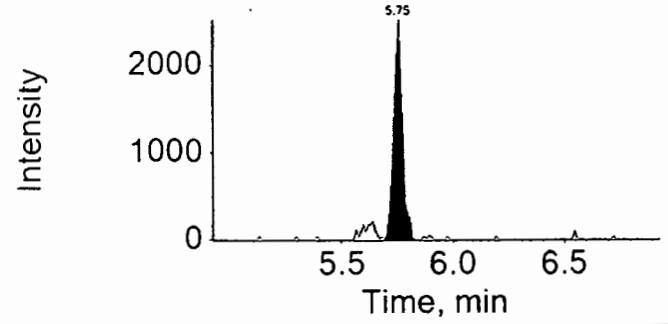


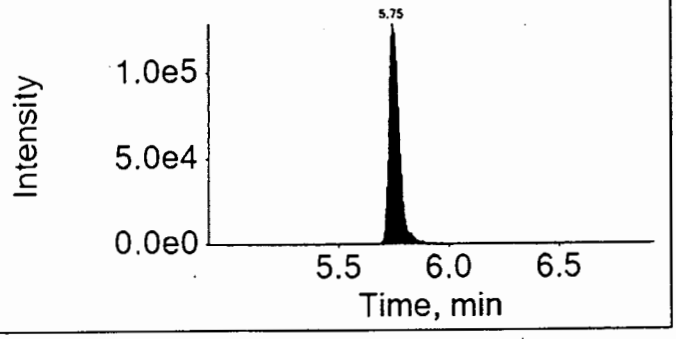
Internal Standard: 13C5-PFNA

468.0 / 423.0

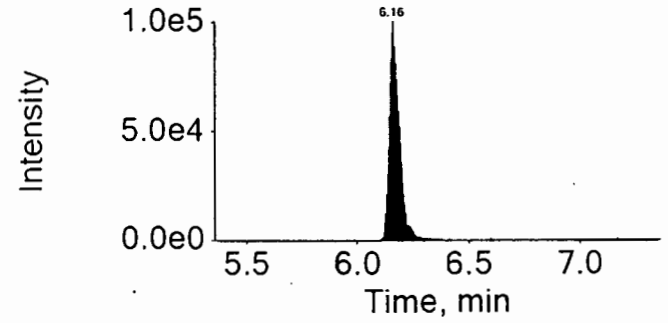


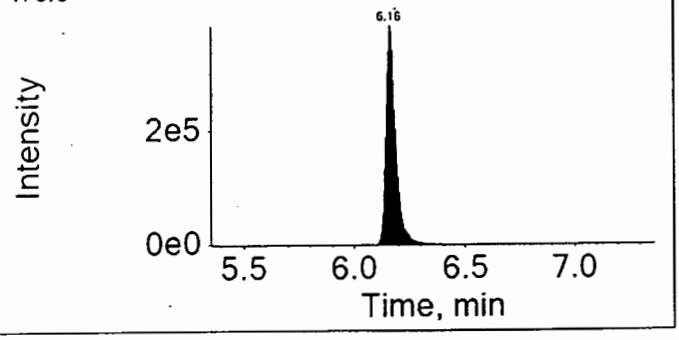
16AUG04-17.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



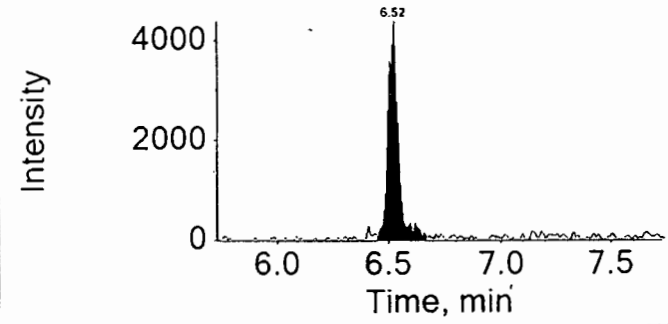


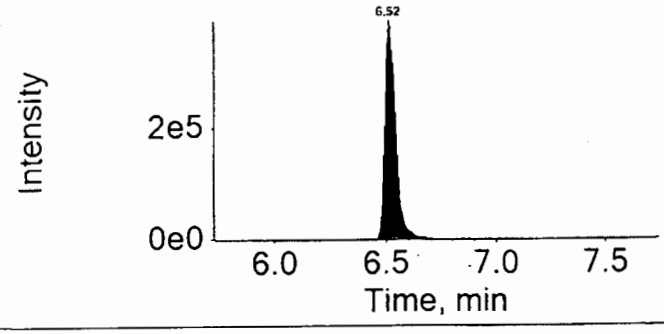
16AUG04-17.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16AUG04-17.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0





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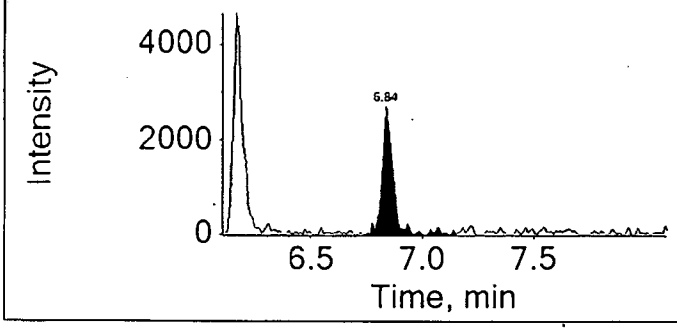
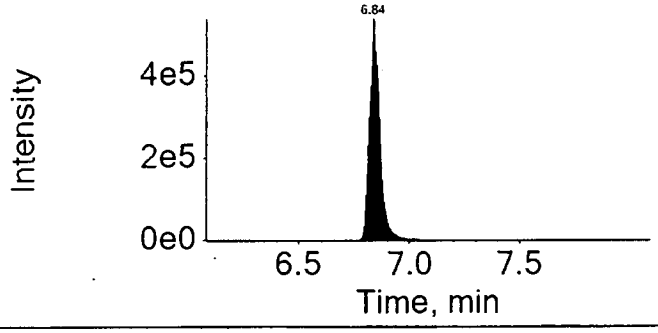
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0





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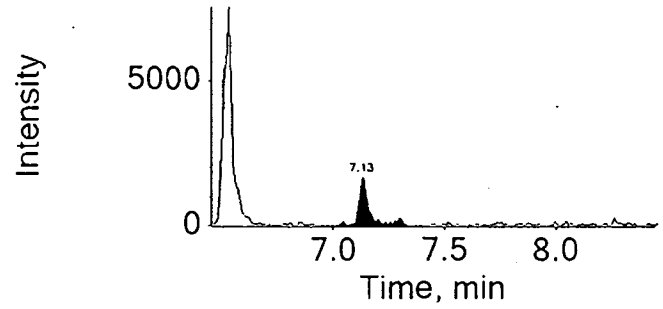
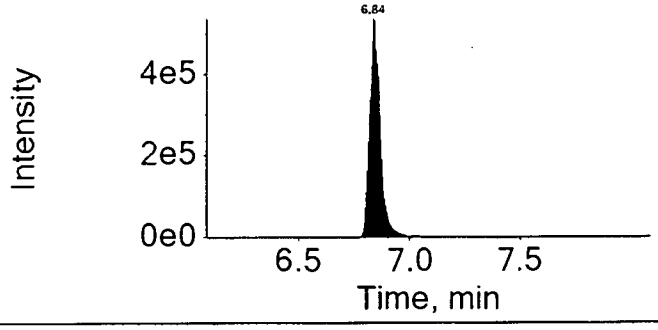
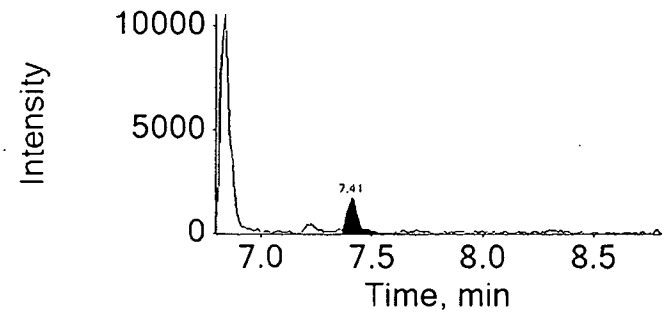
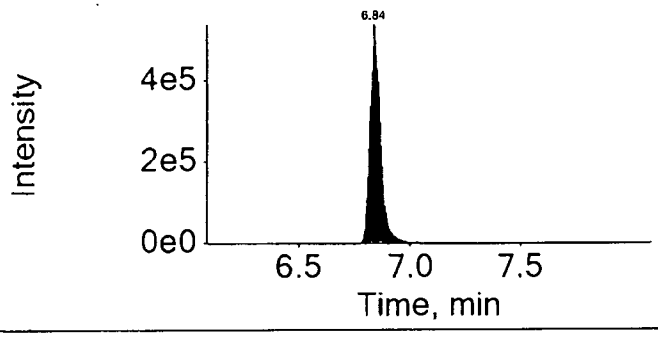
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG04-17.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:12:00 PM

Sample Name:	8438961RE			**Data File:**		16AUG04-17.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-01.0 Grab Soil			**Acquis Date:**		2016-08-04T17:51:06
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	26			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16215005
				ICAL Name:		16AUG01
Batch Number:	16215005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.45000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

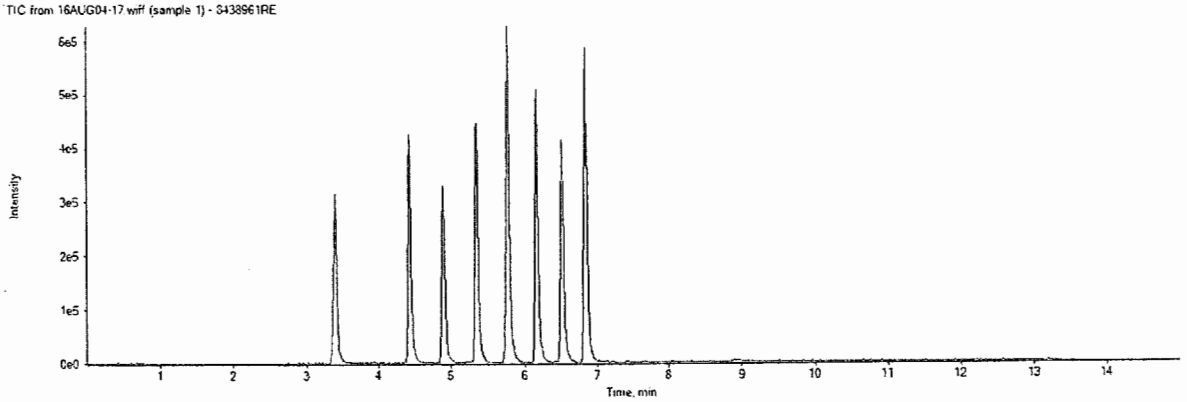
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.89	422152.8	N/A	N/A
PFHxA	4.43	1.000	6060.4	A	13C2-PFHxA	4.42	1304841.7	0.005	0.079
PFHpA	4.90	1.000	3745.0	A	13C4-PFHpA	4.89	641213.3	0.006	0.039
PFHxS	4.88	1.000	2187.4	A	18O2-PFHxS	4.89	422152.8	0.005	~~0.041~~
PFOA	5.35	1.000	186594.9	M	13C4-PFOA	5.35	1214935.3	0.154	1.201
PFNA	5.78	1.000	17611.2	A	13C5-PFNA	5.78	1603564.9	0.011	~~0.089~~
PFOS	5.75	1.000	7098.5	A	13C4-PFOS	5.75	418902.0	0.017	0.135
PFDA	6.16	1.000	305564.2	A	13C2-PFDA	6.16	1177941.0	0.259	1.794
PFUndA	6.52	1.000	14036.9	M	13C2-PFUnDA	6.52	1320027.0	0.011	0.087
PFDoDA	6.84	1.000	9911.5	A	13C2-PFDoDA	6.84	1747034.3	0.006	0.053
PFTrDA	7.13	1.040	6347.5	A	13C2-PFDoDA	6.84	1747034.3	0.004	0.032
PFTeDA	7.41	1.080	6240.4	A	13C2-PFDoDA	6.84	1747034.3	0.004	0.031

Revised

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-01.0 Grab Soil



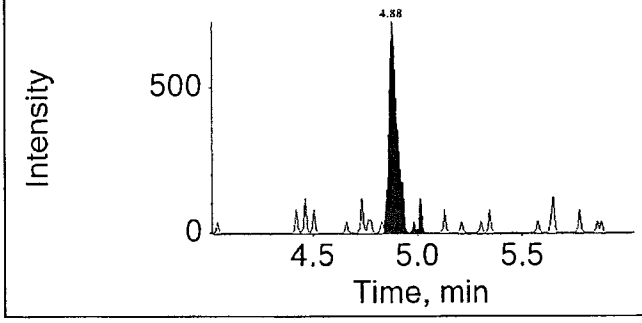
APPROVED
By MCD at 3:34 pm, 5/23/17

REVIEWED
By ucmr at 2:19 pm, 5/27/17

16AUG04-17.wiff

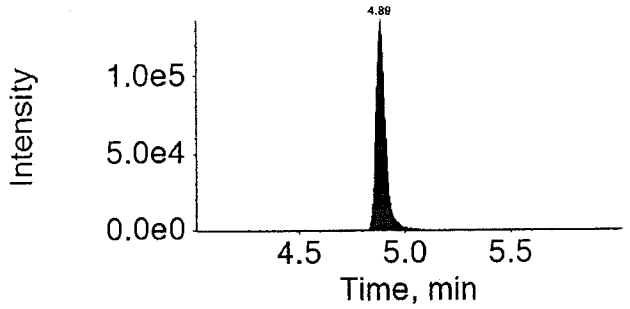
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

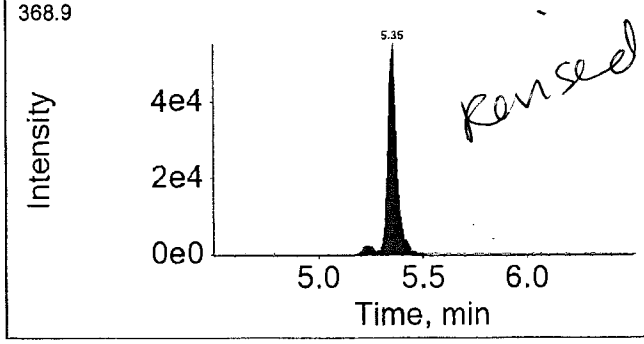
403.0 / 103.0



16AUG04-17.wiff

Analyte: PFOA

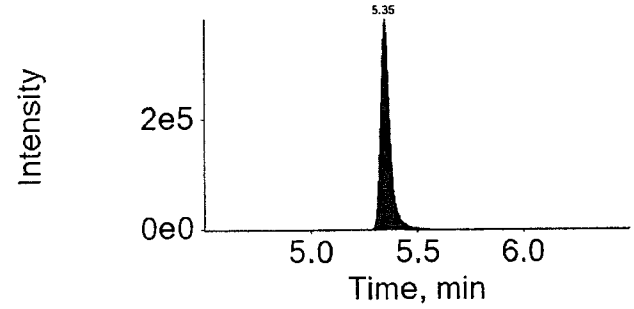
412.9 / 368.9



Rerun

Internal Standard: 13C4-PFOA

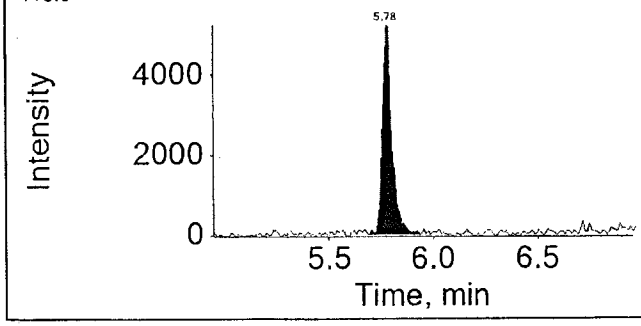
417.0 / 372.0



16AUG04-17.wiff

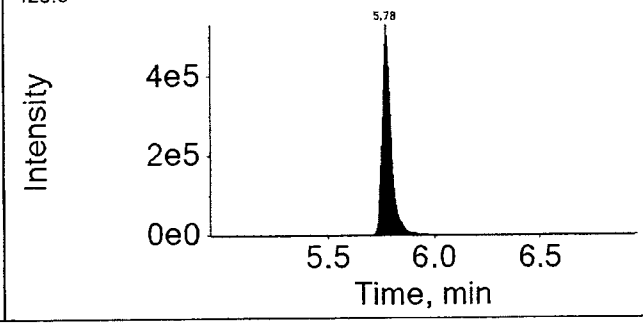
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:34 pm, 5/23/17

REVIEWED
By ucmr at 2:19 pm, 5/27/17

Sample Description: SG3-MW01-01.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

LL Sample # SW 8438962
LL Group # 1674752
Account # 37191

Collected: 06/20/2016 09:13 by JD
through 06/20/2016 09:15
Submitted: 06/22/2016 09:30
Reported: 08/05/2016 13:43

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

SG314 SDG#: SGP97-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	1.8		0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	add J - LAL, IS		1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U			1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	Perfluorooctanoic acid	335-67-1	1.0		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.96	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	1,930		323	970	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	16.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 13:23	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16194298731A	07/12/2016 11:52	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16180820010B	06/28/2016 19:11	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 7/30/2016 2:52:00 PM

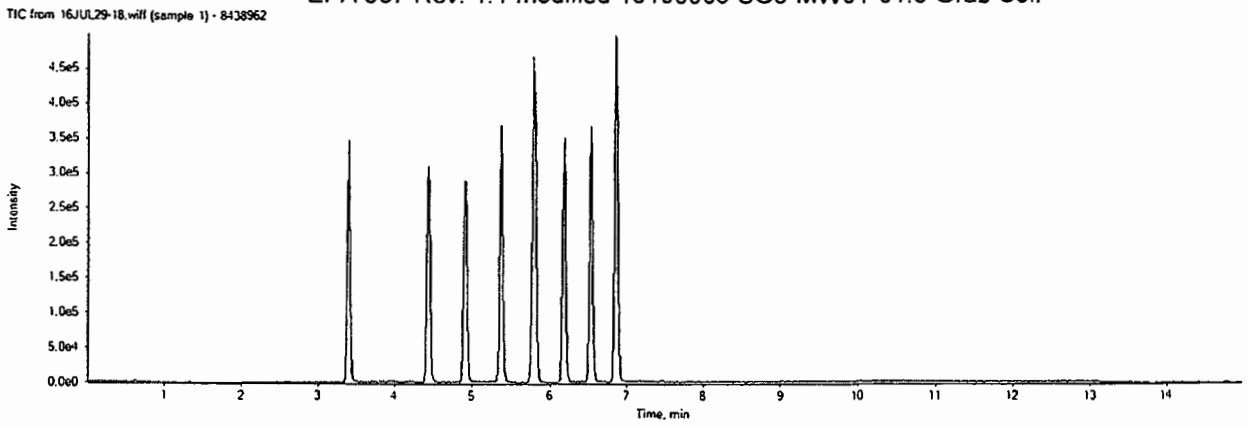
Sample Name:	8438962	**Data File:**		16JUL29-18.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-01.5 Grab Soil	**Acquis Date:**		7/29/2016 1:23:51 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	42	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.170	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	4.90	301967.7	N/A	N/A	
PFHxA	4.43	3911.2	13C2-PFHxA	4.43	932898.6	0.004	0.079	
PFHpA	4.91	3665.8	13C4-PFHpA	4.91	589734.6	0.006	0.044	
PFHxS	4.90	1219.5	18O2-PFHxS	4.90	301967.7	0.004	0.033	
PFOA	5.37	94091.7	13C4-PFOA	5.37	859553.6	0.109	0.844	
PFNA	5.80	10499.3	13C5-PFNA	5.80	1241684.9	0.008	0.070	
PFOS	5.77	3469.1	13C4-PFOS	5.77	322978.9	0.011	0.087	
PFDA	6.19	169331.9	13C2-PFDA	6.19	818981.1	0.207	1.463	
PFUndA	6.54	5753.5	13C2-PFUnDA	6.54	987442.4	0.006	0.050	
PFDoDA	6.86	5972.7	13C2-PFDoDA	6.86	1408714.2	0.004	0.048	
PFTrDA	7.17	4815.6	13C2-PFDoDA	6.86	1408714.2	0.003	0.031	
PFTeDA	7.46	5062.6	13C2-PFDoDA	6.86	1408714.2	0.004	0.030	

Total Ion Chromatogram

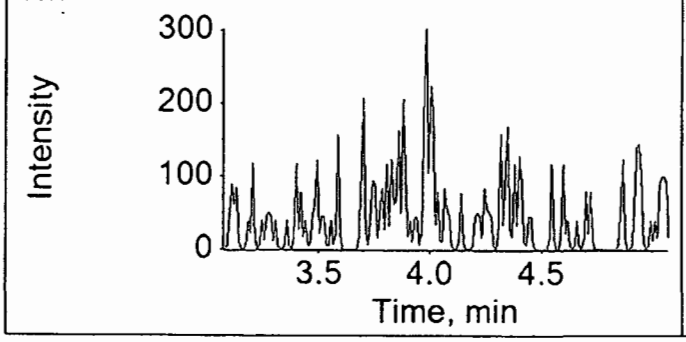
EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-01.5 Grab Soil



16JUL29-18.wiff

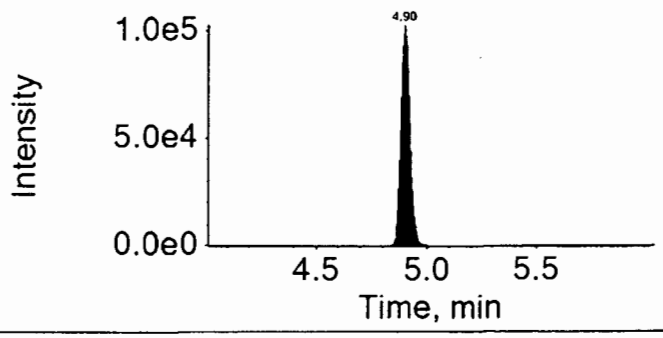
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

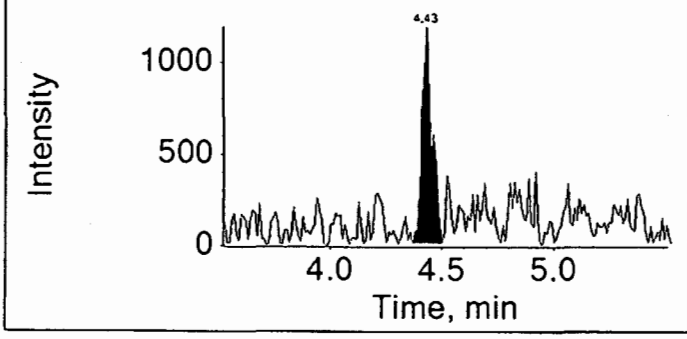
403.0 / 103.0



16JUL29-18.wiff

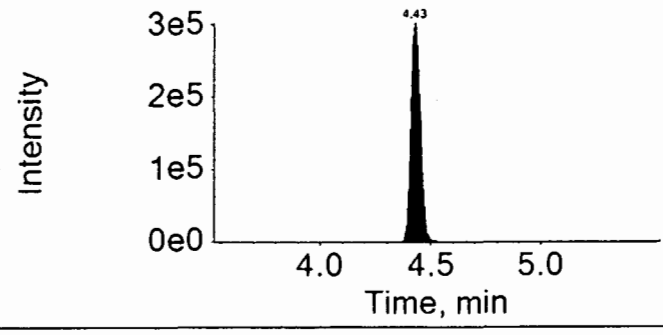
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

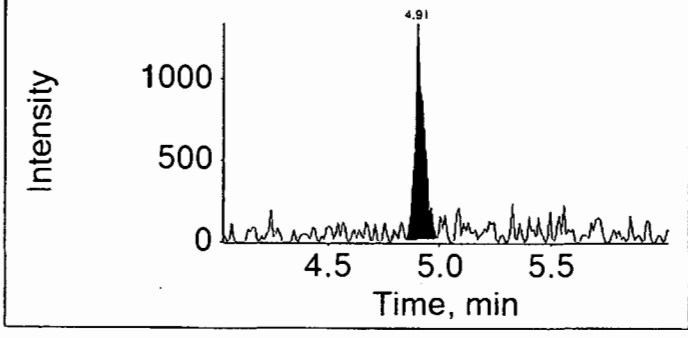
314.9 / 270.0



16JUL29-18.wiff

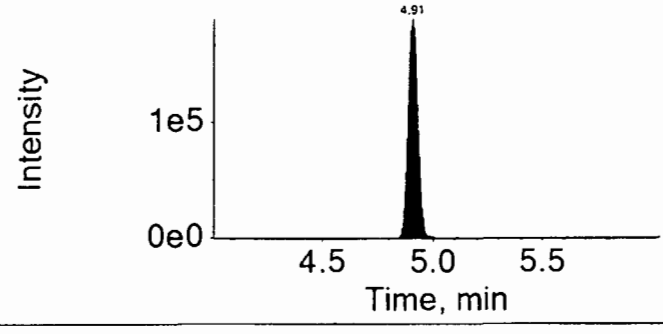
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

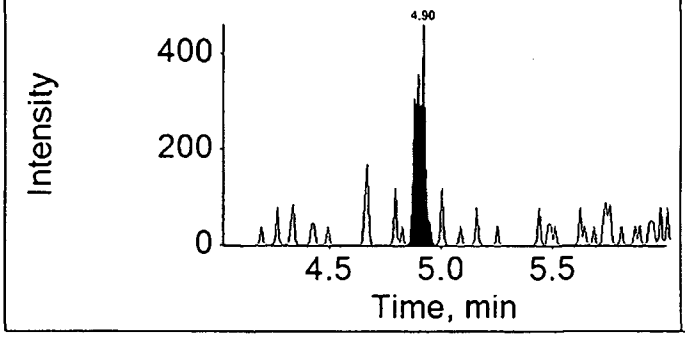
367.0 / 322.0



16JUL29-18.wiff

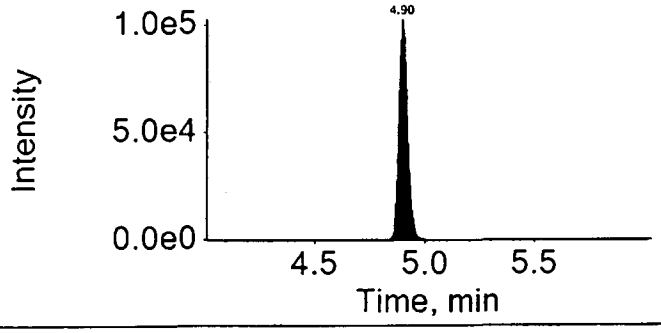
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

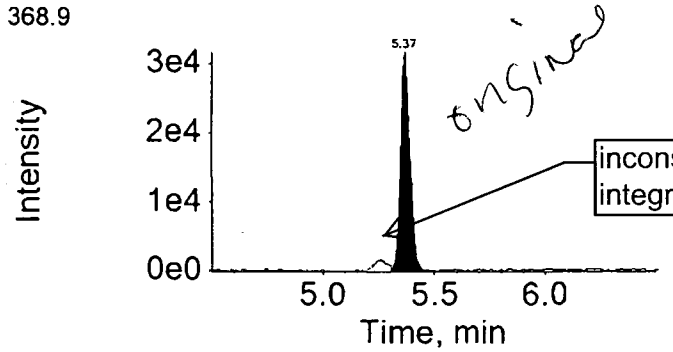
403.0 / 103.0



16JUL29-18.wiff

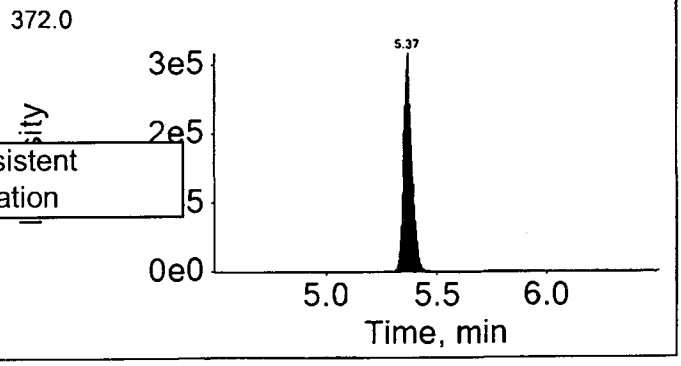
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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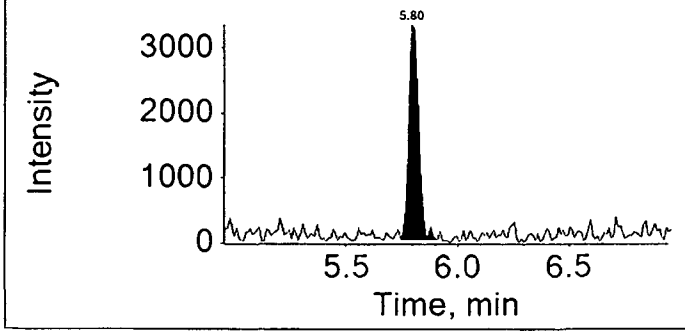
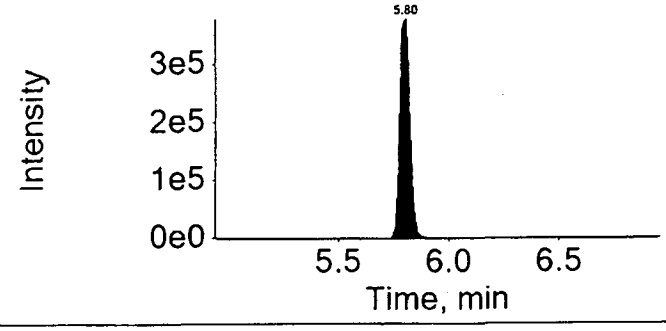
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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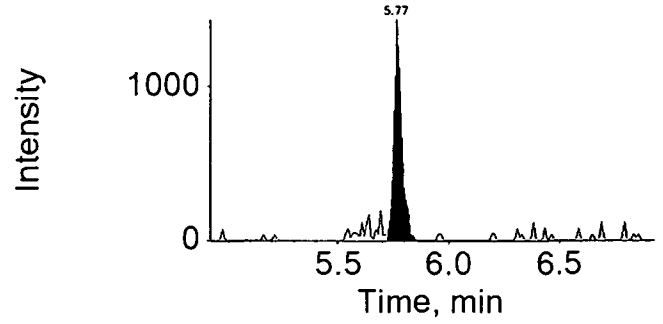
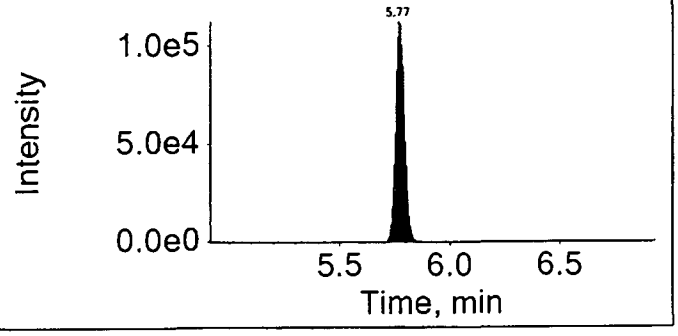
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0





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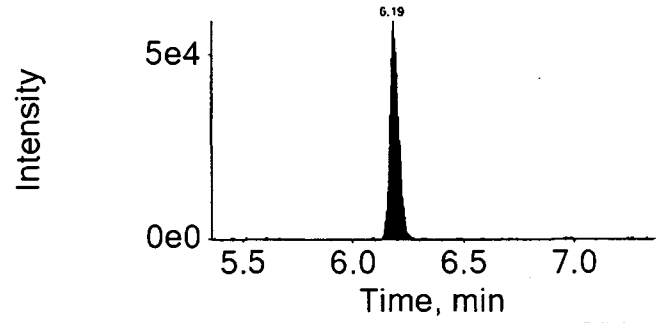
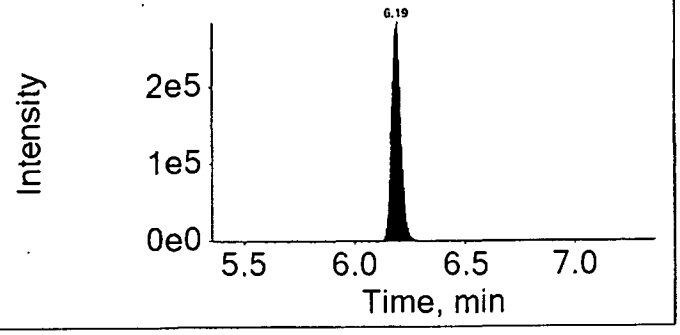
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





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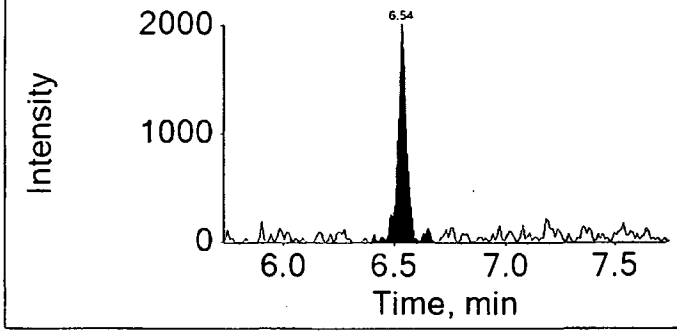
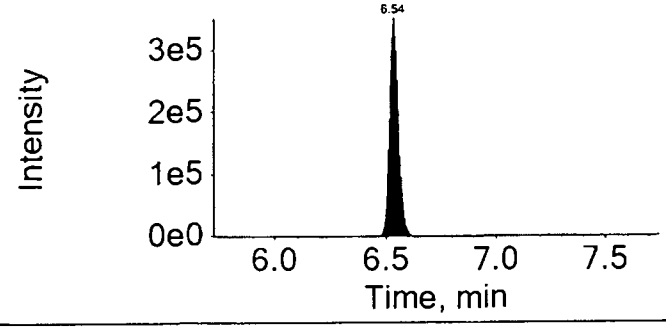
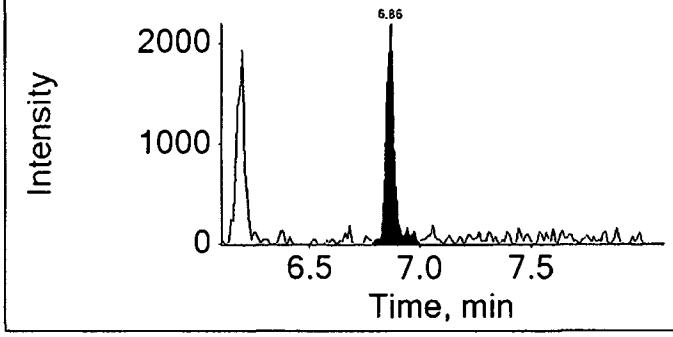
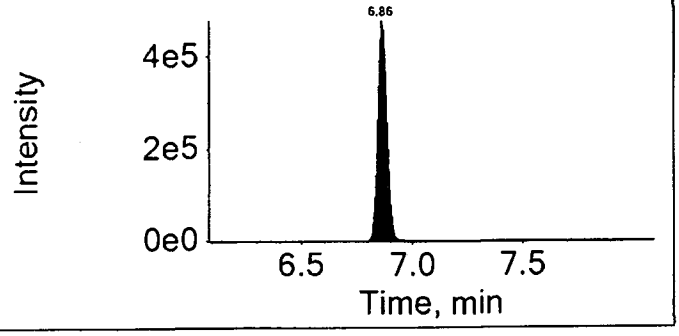
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



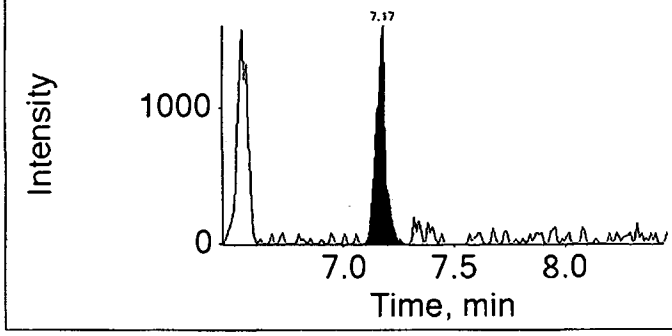


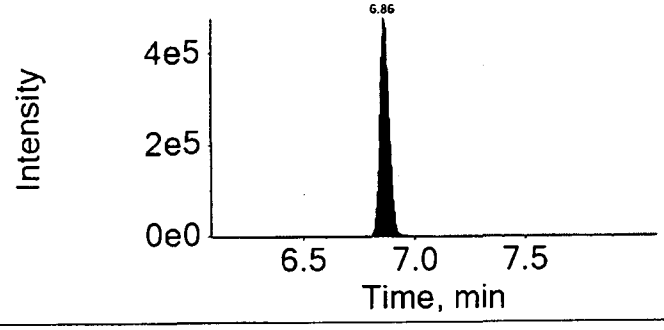
16JUL29-18.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



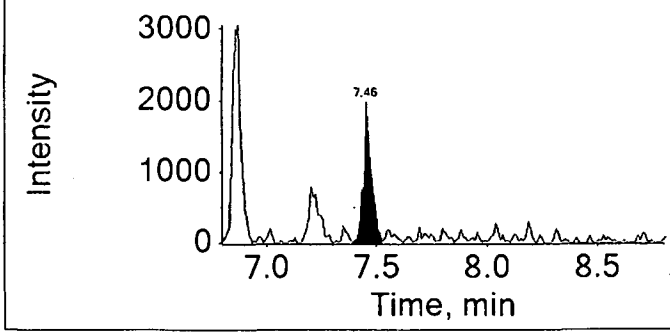


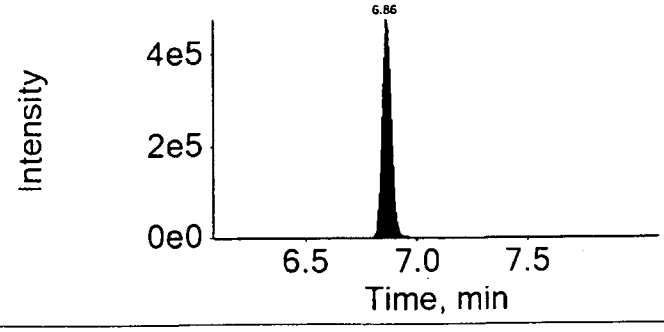
16JUL29-18.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL29-18.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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Analysis Report

REVISED

Sample Description: SG3-MW01-01.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8438962
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 09:13 by JD
through 06/20/2016 09:15
Submitted: 06/22/2016 09:30
Reported: 05/30/2017 08:39

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG314 SDG#: SGP97-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.58	U	0.58	1.9	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.8**		0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.46	U	0.46	0.93	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.58	U	0.58	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.81	U	0.81	1.9	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.1**		0.35	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.93	1
14027	Perfluorotridecanoic acid	72629-94-8	0.69	U	0.69	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.69	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,930**		323	970	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**16.5**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 13:23	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16194298731A	07/12/2016 11:52	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:00:00 PM

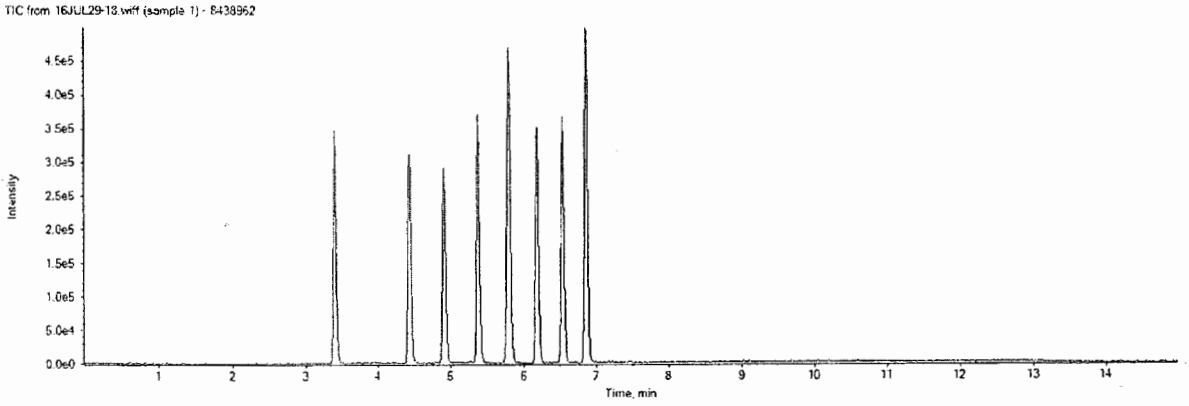
Sample Name:	8438962			**Data File:**		16JUL29-18.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-01.5 Grab Soil			**Acquis Date:**		2016-07-29T13:23:51
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	42			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16190006
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.170			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.90	301967.7	N/A	N/A
PFHxA	4.43	1.000	3911.2	A	13C2-PFHxA	4.43	932898.6	0.004	0.079
PFHpA	4.91	1.000	3665.8	A	13C4-PFHpA	4.91	589734.6	0.006	0.044
PFHxS	4.90	1.000	1219.5	M	18O2-PFHxS	4.90	301967.7	0.004	0.033
PFOA	5.37	1.000	100054.8	M	13C4-PFOA	5.37	859553.6	0.116	0.898 Rev
PFNA	5.80	1.000	10499.3	A	13C5-PFNA	5.80	1241684.9	0.008	0.070
PFOS	5.77	1.000	3469.1	M	13C4-PFOS	5.77	322978.9	0.011	0.087
PFDA	6.19	1.000	169331.9	A	13C2-PFDA	6.19	818981.1	0.207	1.463
PFUndA	6.54	1.000	5753.5	A	13C2-PFUnDA	6.54	987442.4	0.006	0.050
PFDoDA	6.86	1.000	5972.7	A	13C2-PFDoDA	6.86	1408714.2	0.004	0.048
PFTrDA	7.17	1.050	4815.6	A	13C2-PFDoDA	6.86	1408714.2	0.003	0.031
PFTeDA	7.46	1.090	5062.6	A	13C2-PFDoDA	6.86	1408714.2	0.004	0.030

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-01.5 Grab Soil



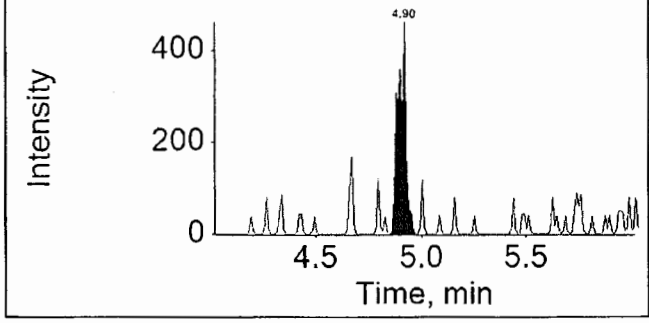
APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 1:25 pm, 5/27/17

16JUL29-18.wiff

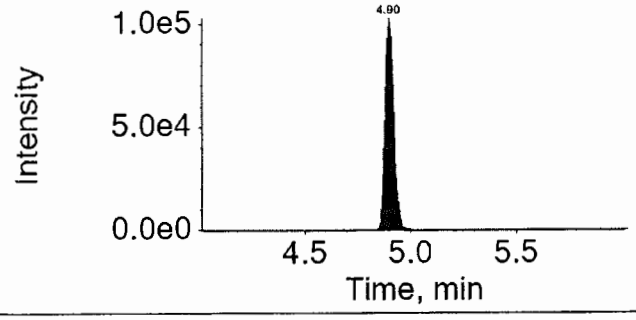
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

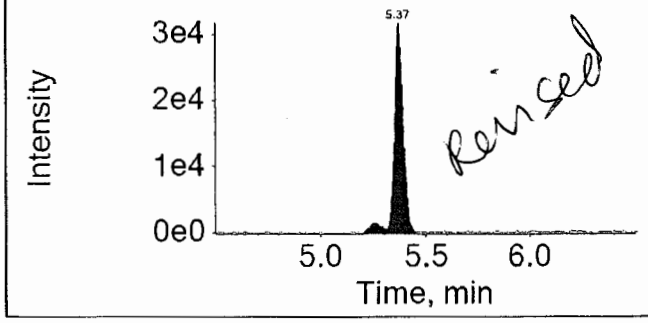
403.0 / 103.0



16JUL29-18.wiff

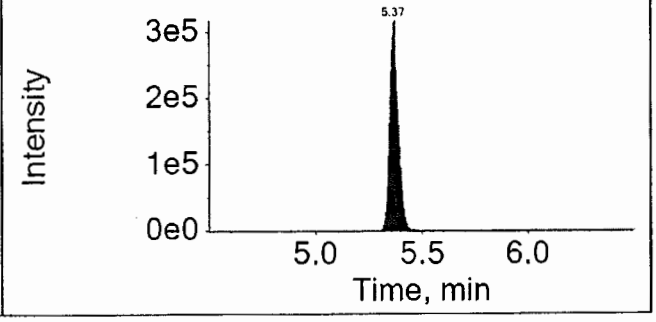
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

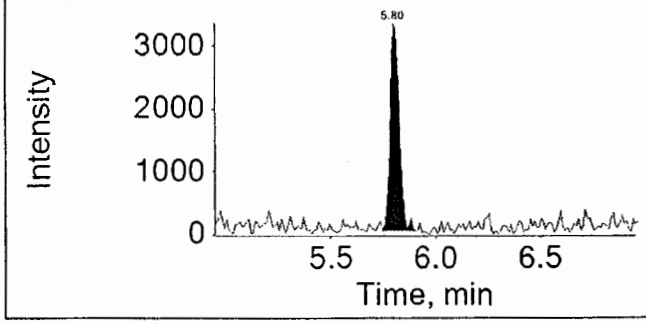
417.0 / 372.0



16JUL29-18.wiff

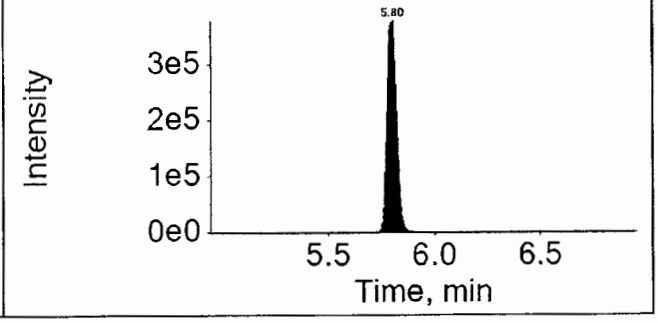
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 1:25 pm, 5/27/17

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LC-MS/MS Analysis Report

Printed: 8/5/2016 10:04:00 AM

Sample Name:	8438962RE		**Data File:**		16AUG04-18.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-01.5 Grab Soil		**Acquis Date:**		8/4/2016 6:06:51 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	27		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.170		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

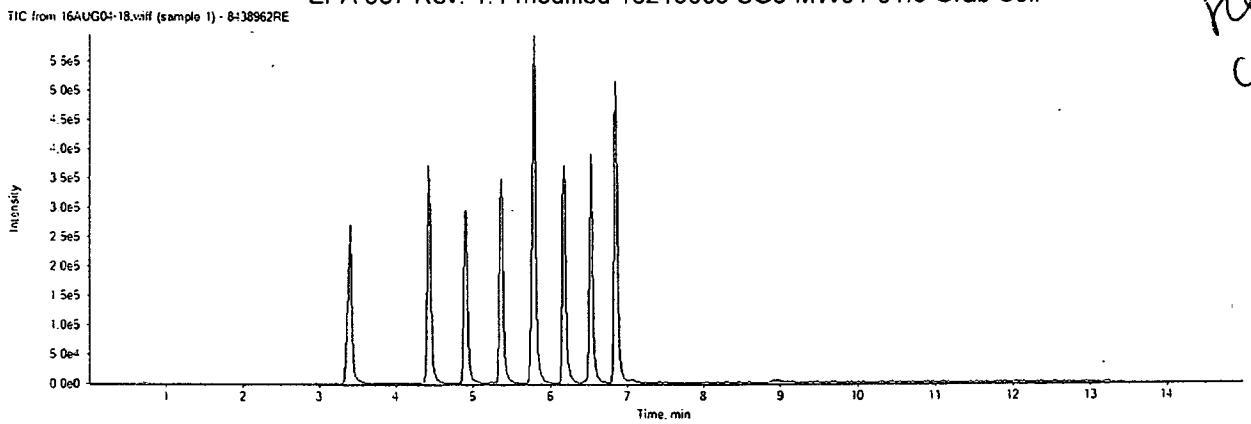
Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.89	398197.1	N/A	N/A	
PFHxA	4.43	3991.8	A	13C2-PFHxA	4.43	1182586.4	0.003	0.060	
PFHpA	4.90	2878.7	A	13C4-PFHpA	4.90	639435.8	0.005	0.031	
PFHxS	4.90	2188.9	A	18O2-PFHxS	4.89	398197.1	0.005	0.046	
PFOA	5.36	112891.1	M	13C4-PFOA	5.36	1108626.3	0.102	0.839	
PFNA	5.78	7644.6	A	13C5-PFNA	5.79	1593297.3	0.005	0.041	
PFOS	5.76	4959.5	A	13C4-PFOS	5.76	392936.8	0.013	0.106	
PFDA	6.18	171532.7	A	13C2-PFDA	6.17	1061161.9	0.162	1.178	
PFUndA	6.53	5376.8	A	13C2-PFUnDA	6.53	1119528.6	0.005	0.041	
PFDoDA	6.85	5067.7	A	13C2-PFDoDA	6.85	1536743.5	0.003	0.033	
PFTrDA	7.15	2469.6	A	13C2-PFDoDA	6.85	1536743.5	0.002	0.015	
PFTeDA	7.42	3577.1	A	13C2-PFDoDA	6.85	1536743.5	0.002	0.021	

org

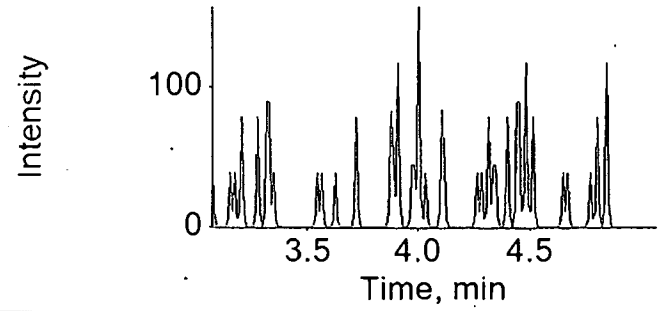
Total Ion Chromatogram

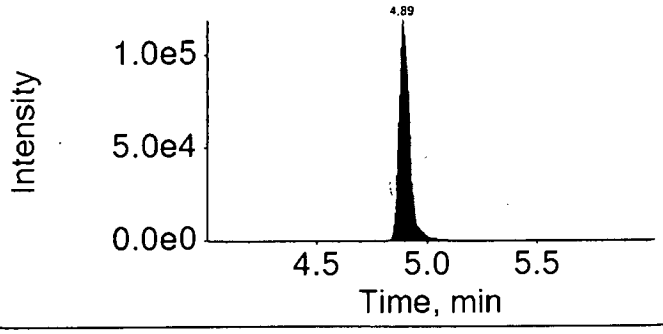
EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-01.5 Grab Soil



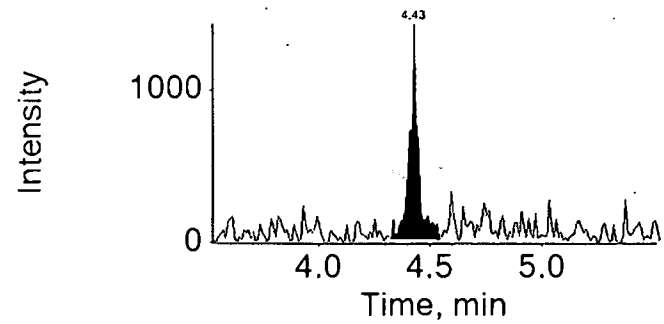
results comparable

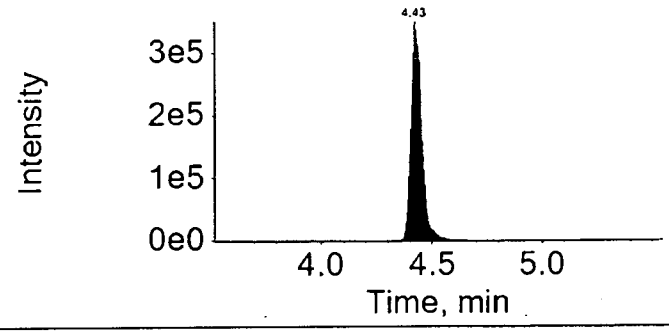
16AUG04-18.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



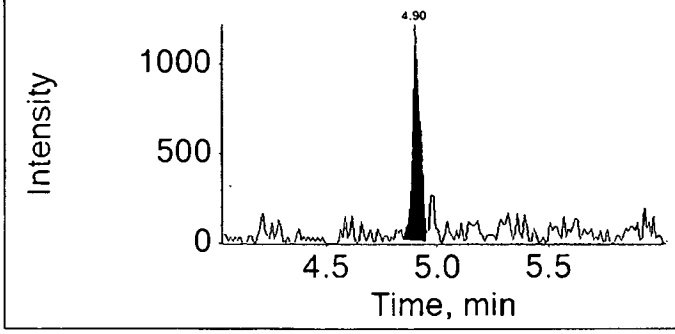


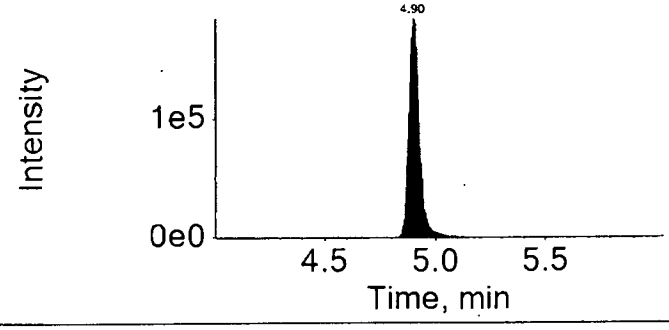
16AUG04-18.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16AUG04-18.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

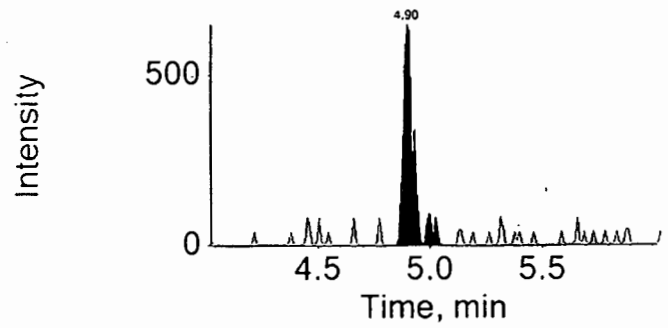




16AUG04-18.wiff

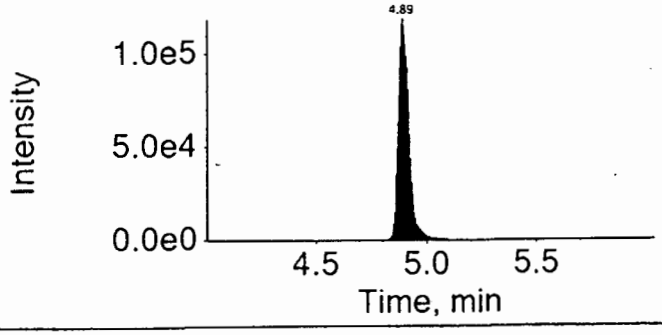
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

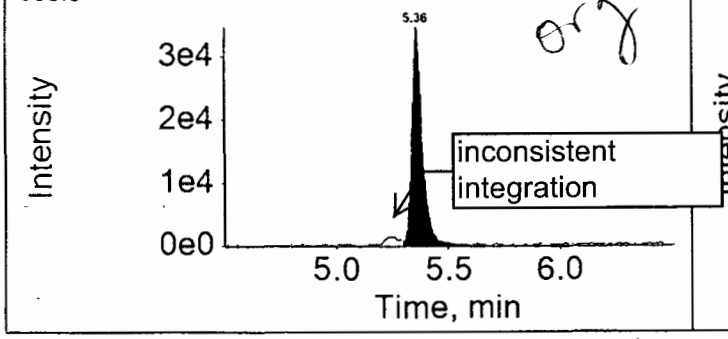
403.0 / 103.0



16AUG04-18.wiff

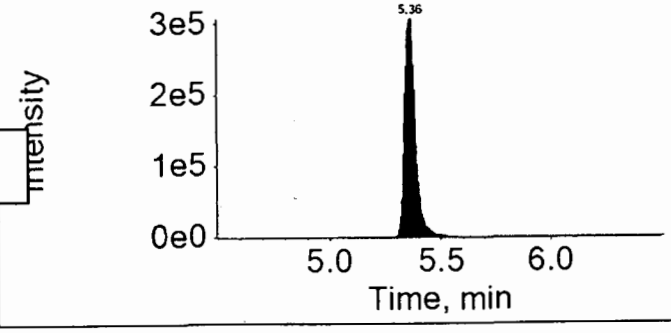
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

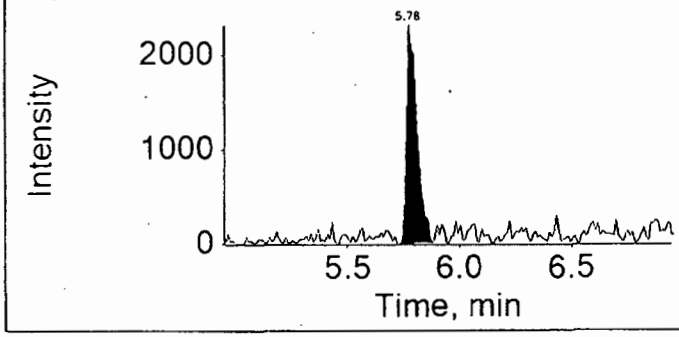
417.0 / 372.0



16AUG04-18.wiff

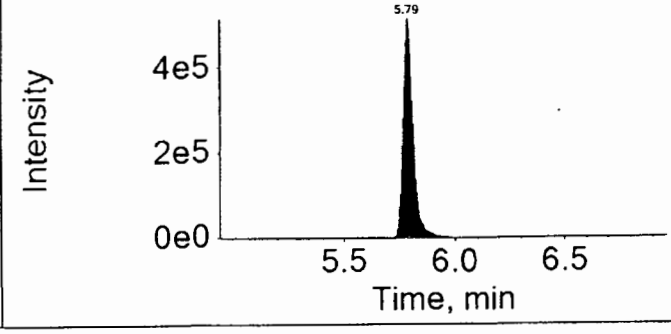
Analyte: PFNA

462.9 / 418.9

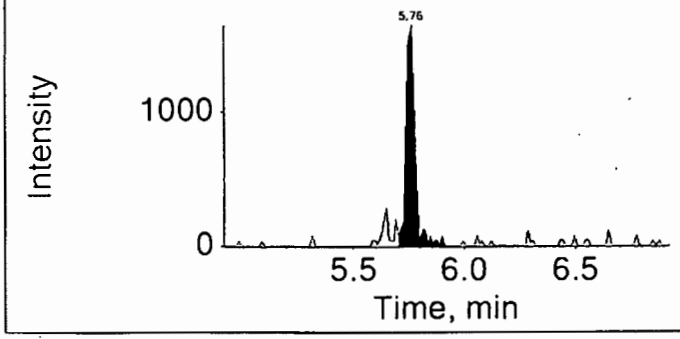


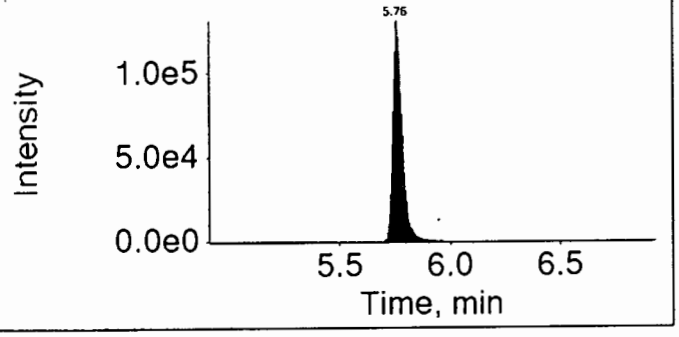
Internal Standard: 13C5-PFNA

468.0 / 423.0

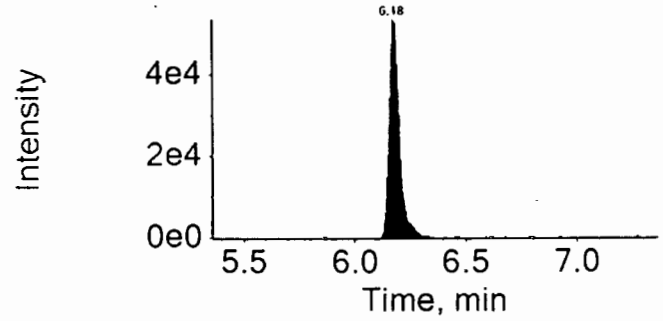


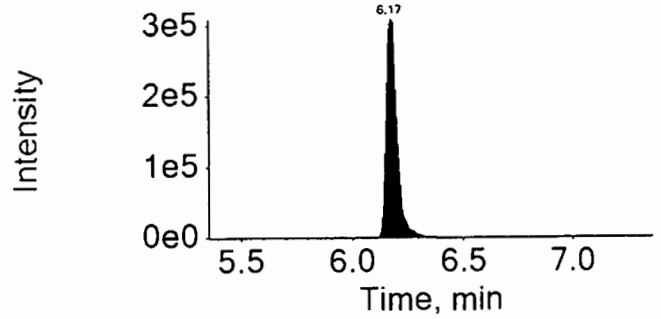
16AUG04-18.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



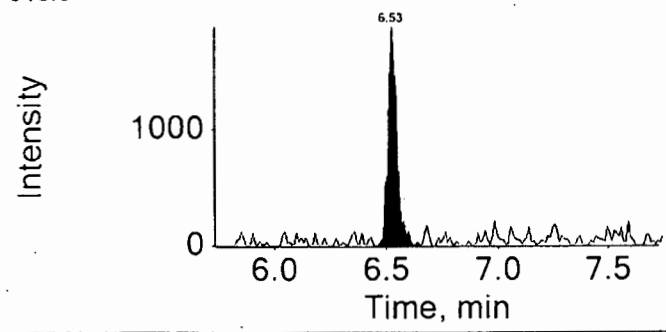


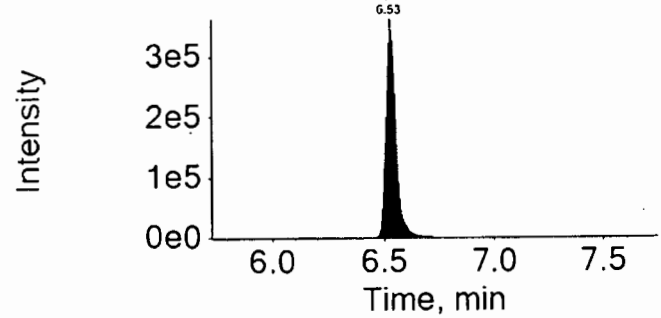
16AUG04-18.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16AUG04-18.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

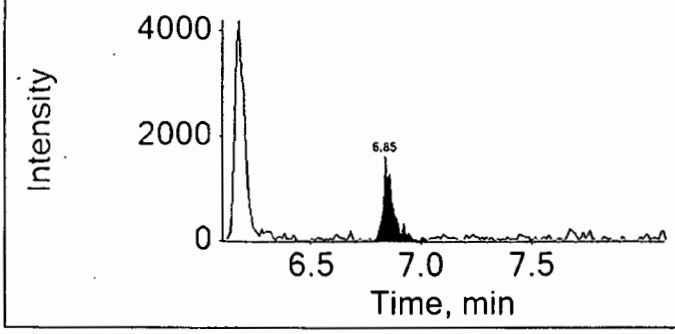




16AUG04-18.wiff

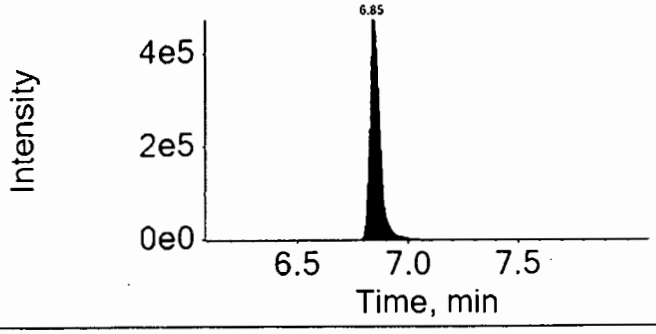
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

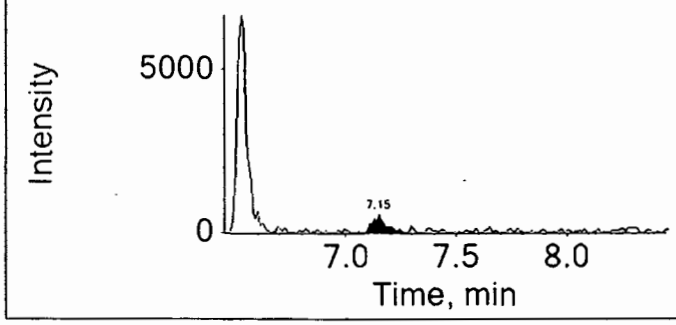
615.0 / 570.0



16AUG04-18.wiff

Analyte: PFTrDA

662.9 / 618.9



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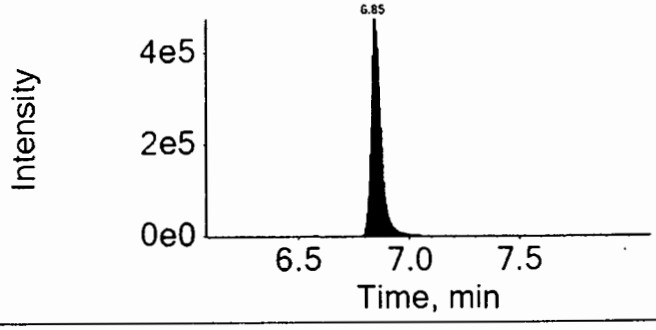
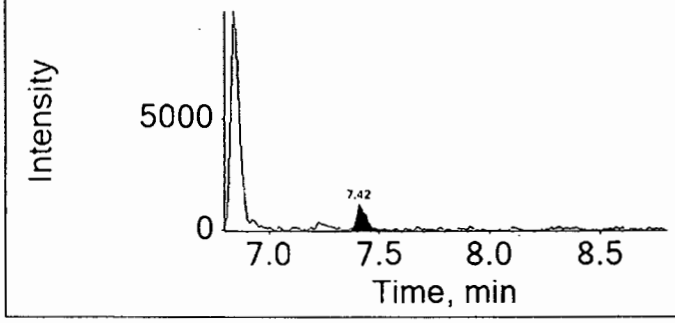
615.0 / 570.0



16AUG04-18.wiff

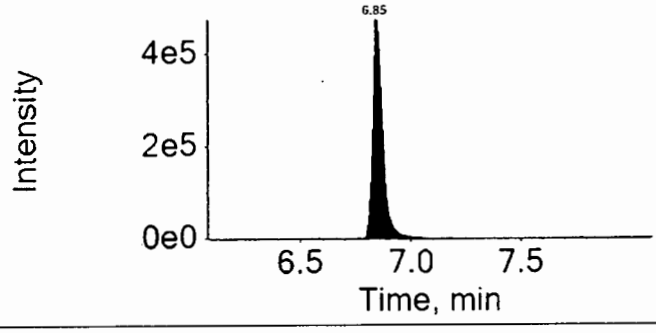
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:12:00 PM

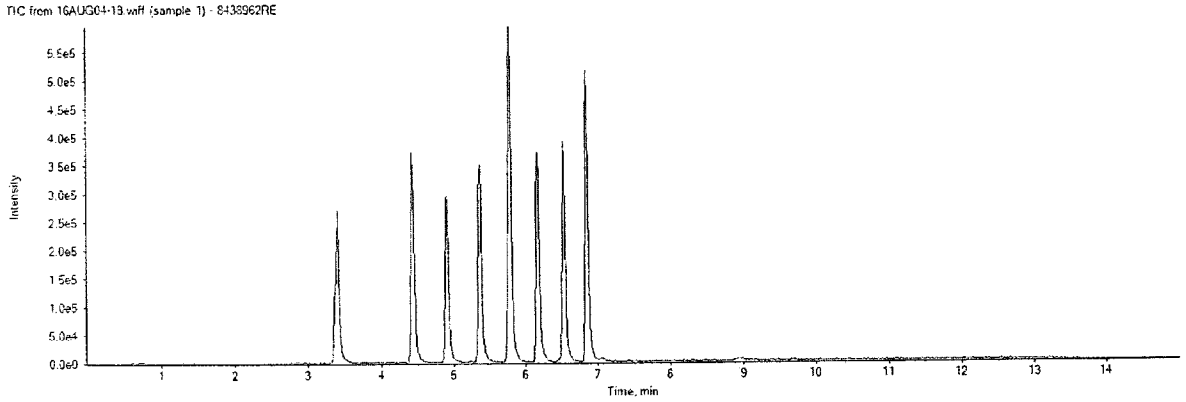
Sample Name:	8438962RE			**Data File:**		16AUG04-18.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-01.5 Grab Soil			**Acquis Date:**		2016-08-04T18:06:51
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	27			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16215005
				ICAL Name:		16AUG01
Batch Number:	16215005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.17000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.89	398197.1	N/A	N/A
PFHxA	4.43	1.000	3991.8	A	13C2-PFHxA	4.43	1182586.4	0.003	0.060
PFHpA	4.90	1.000	2878.7	A	13C4-PFHpA	4.90	639435.8	0.005	0.031
PFHxS	4.90	1.000	2188.9	A	18O2-PFHxS	4.89	398197.1	0.005	0.046
PFOA	5.36	1.000	119317.2	A	13C4-PFOA	5.36	1108626.3	0.108	0.887 RaV
PFNA	5.78	1.000	7644.6	A	13C5-PFNA	5.79	1593297.3	0.005	0.041
PFOS	5.76	1.000	4959.5	A	13C4-PFOS	5.76	392936.8	0.013	0.106
PFDA	6.18	1.000	171532.7	A	13C2-PFDA	6.17	1061161.9	0.162	1.178
PFUndA	6.53	1.000	5376.8	A	13C2-PFUnDA	6.53	1119528.6	0.005	0.041
PFDoDA	6.85	1.000	5067.7	A	13C2-PFDoDA	6.85	1536743.5	0.003	0.033
PFTrDA	7.15	1.040	2469.6	A	13C2-PFDoDA	6.85	1536743.5	0.002	0.015
PFTeDA	7.42	1.080	3577.1	A	13C2-PFDoDA	6.85	1536743.5	0.002	0.021

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-01.5 Grab Soil



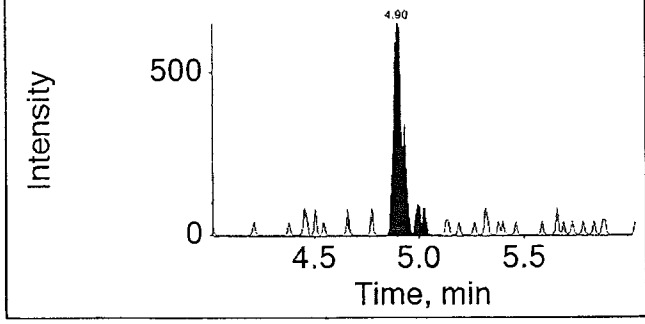
APPROVED
By MCD at 3:34 pm, 5/23/17

REVIEWED
By ucmr at 2:20 pm, 5/27/17

16AUG04-18.wiff

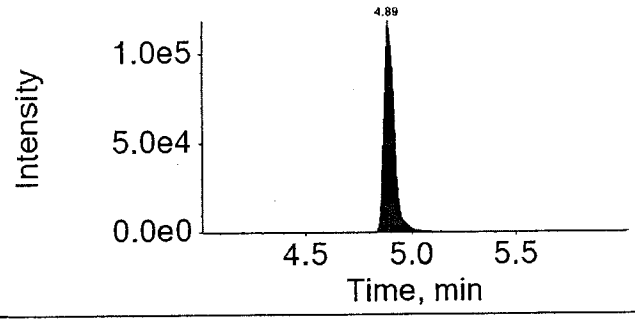
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

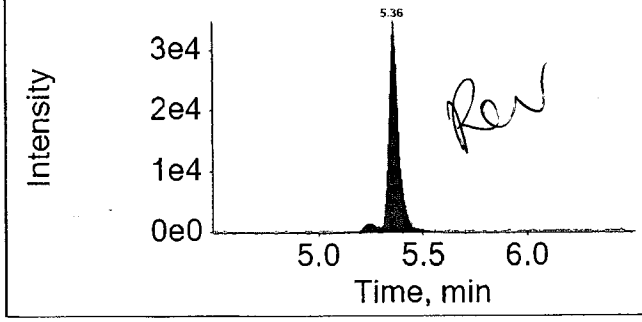
403.0 / 103.0



16AUG04-18.wiff

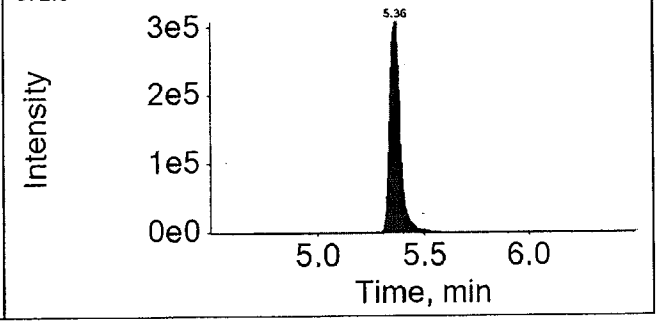
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

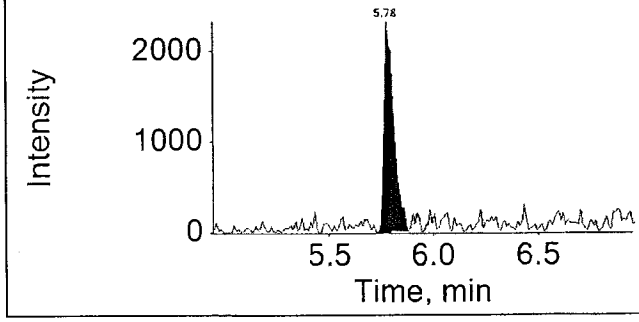
417.0 / 372.0



16AUG04-18.wiff

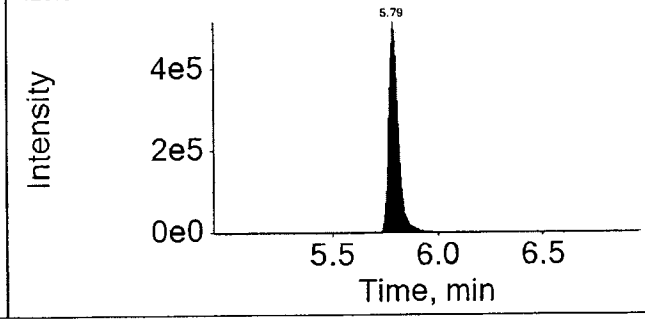
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:34 pm, 5/23/17

REVIEWED
By ucmr at 2:20 pm, 5/27/17

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: SG3-LTB01-20160620 Water
SGPP - Bennington

LL Sample # WW 8438963
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/08/2016

Submitted: 06/22/2016 09:30
Reported: 08/05/2016 13:43

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL — NO revision needed

LTB20 SDG#: SGP97-05TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U			1
10954	Perfluorohexanoic acid	307-24-4	1	U			1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U			1
10954	Perfluorohexanesulfonate	355-46-4	4	U			1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

add J - IS

add J - IS

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16180002	07/01/2016 00:55	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16180002	06/28/2016 11:20	Robert Brown	1

> 14 days based on 6/8 but OK based on collection date of associated samples

*=This limit was used in the evaluation of the final result

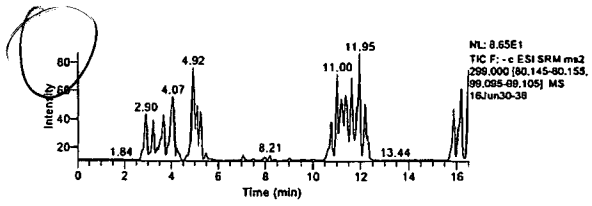
LCMSMS ANALYSIS REPORT

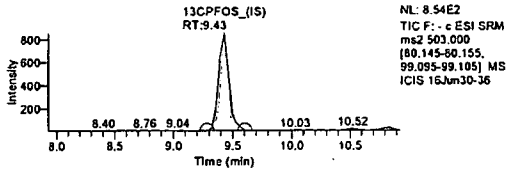
Sample Name:	8438963	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun30
Sample ID:	8438963	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun30-36		
Acquisition Date:	07/01/16 12:55:02 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	b:24	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

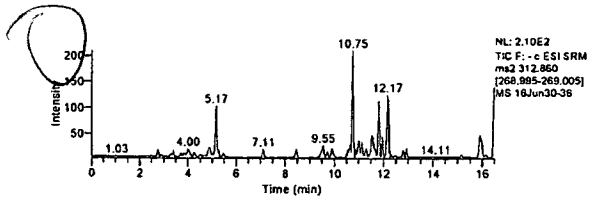
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.46	118851.64	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.07	87189.13	N/A	N/A	N/A
13CPFDA_(IS)	N/A	10.00	84955.75	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.53	76540.60	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.78	100247.53	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.49	47205.83	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.78	17397.17	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.43	5125.88	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.53	92998.11	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

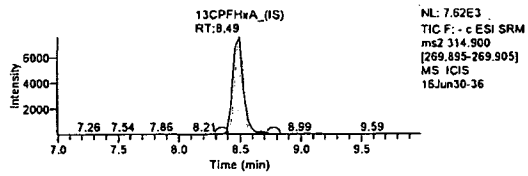
Component Name: PFBS





Component Name: PFHxA



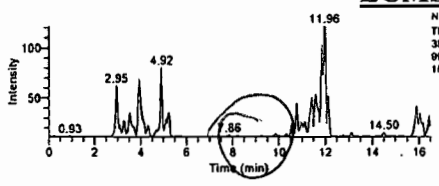


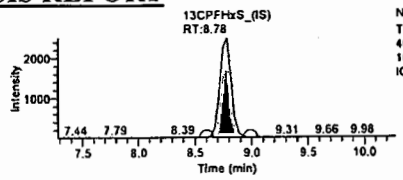
Component Name: PFHxS

Jason W. Knight
Senior Chemist

JUL 01 2016

LCMSMS ANALYSIS REPORT





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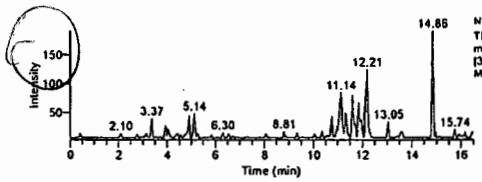

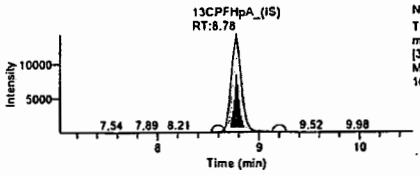

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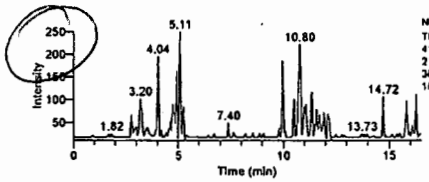
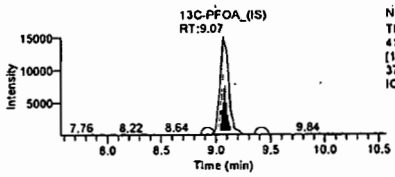
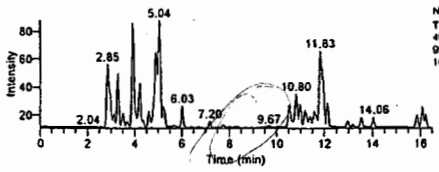
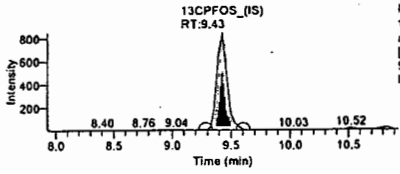


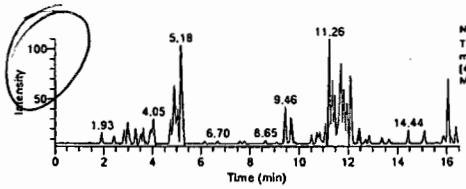


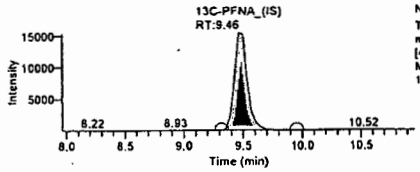
Component Name: PFOS



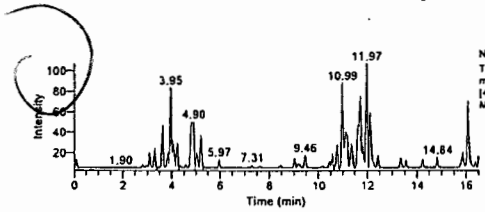


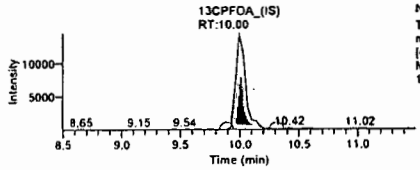
Component Name: PFNA





Component Name: PFDA





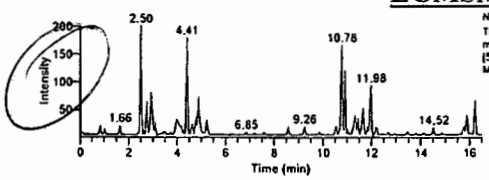
Component Name: PFUdA

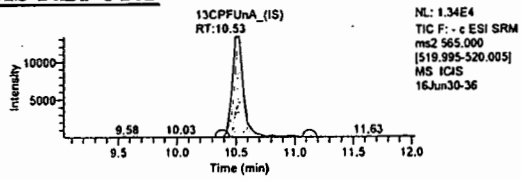
Jason W. Knight
Senior Chemist

Friday, July 01, 2016, 07:37:07

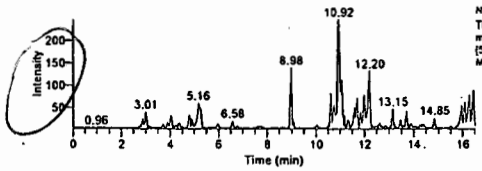
JUL 01 2016

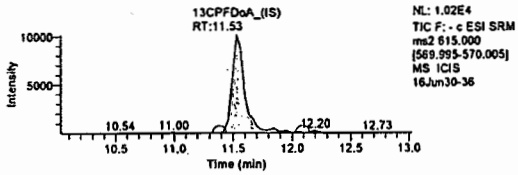
LCMSMS ANALYSIS REPORT



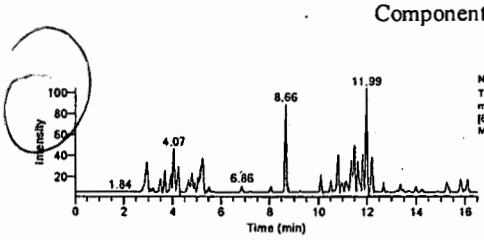


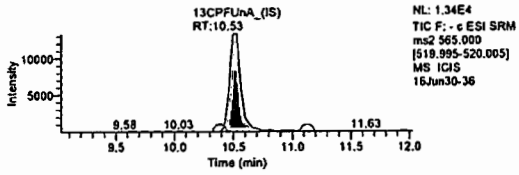
Component Name: PFDoA



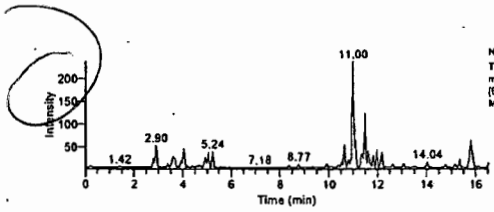


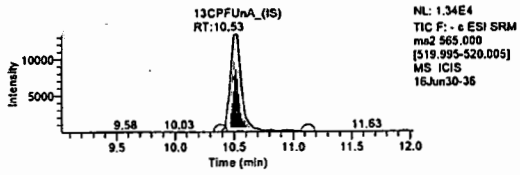
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd

JUL 0 1 2016

Jason W. Knight
Senior Chemist

Lynn Dodd
Principal Specialist

Printed: July 01, 2016, 07:37:08

JUL 0 1 2016

Sample Description: SG3-FTB01-20160620 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8438964
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 08:44 by JD

Submitted: 06/22/2016 09:30
Reported: 08/05/2016 13:43

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

FTB20 SDG#: SGP97-06FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

add J - IS

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16180002	07/01/2016 01:12	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16180002	06/28/2016 11:20	Robert Brown	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

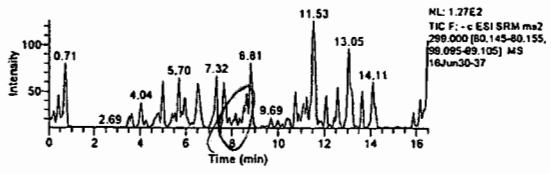
Sample Name:	8438964	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun30
Sample ID:	8438964	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun30-37		
Acquisition Date:	07/01/16 01:12:17 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	B:25	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

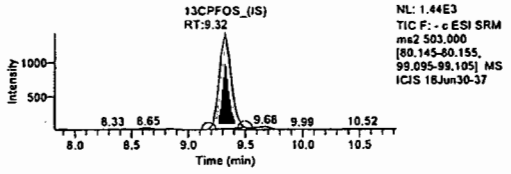
Extracted Ion Chromatogram

Quan Peak Table

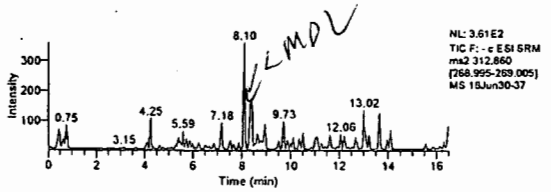
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.35	171099.84	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	8.96	134116.65	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.85	125372.89	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.95	92339.49	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.71	126450.67	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.42	47032.87	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.67	25317.22	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	10306.21	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.64	109050.16	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	0.800	9.35	930.37	171099.84	0.005	ng/L
PFOA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

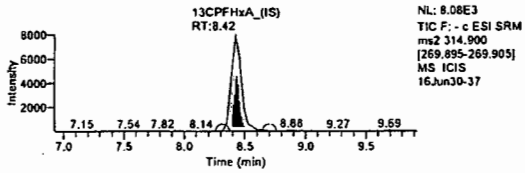
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHxS

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JUL 01 2016

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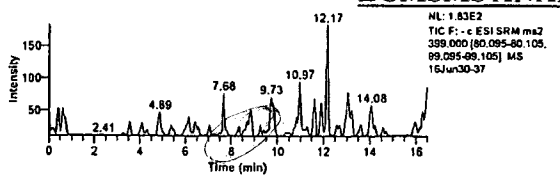

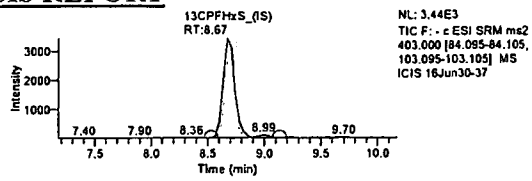

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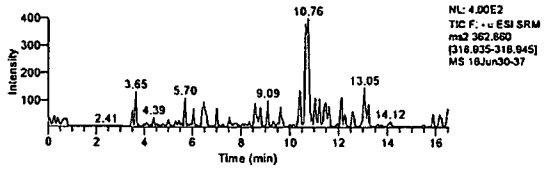

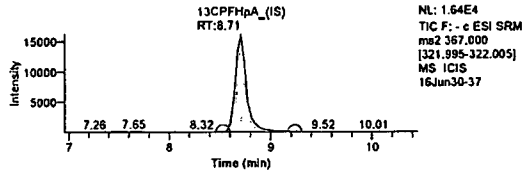

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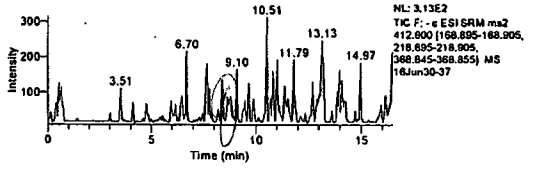
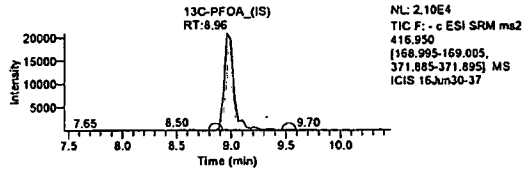
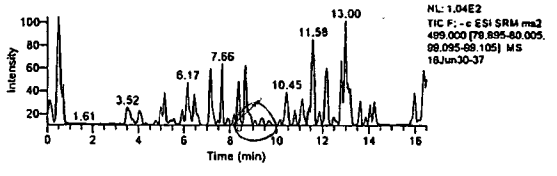
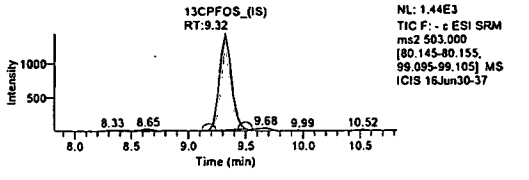




Component Name: PFOS





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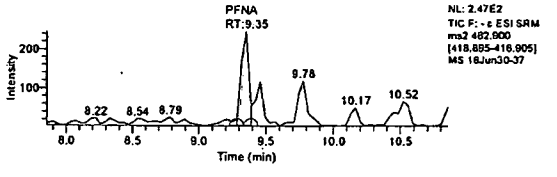
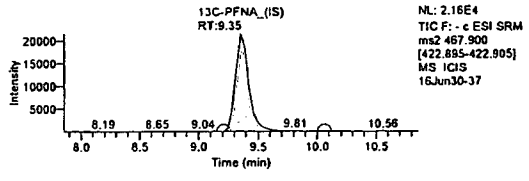
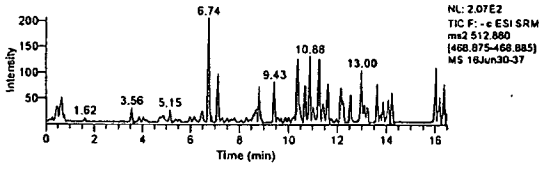
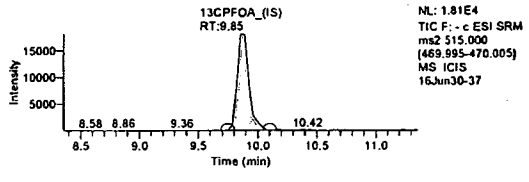




Component Name: PFDA





Component Name: PFUdA

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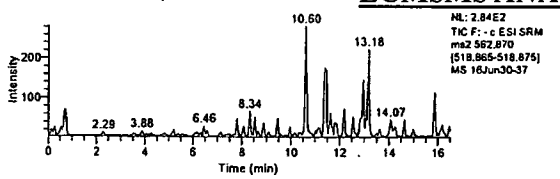

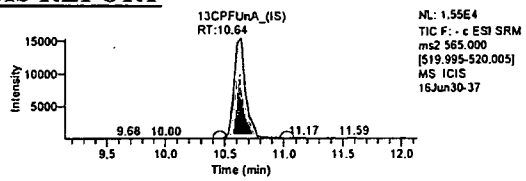

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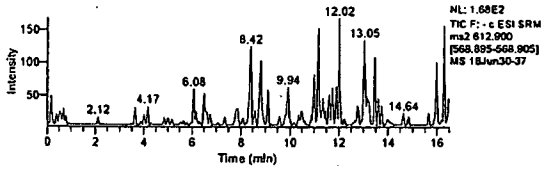

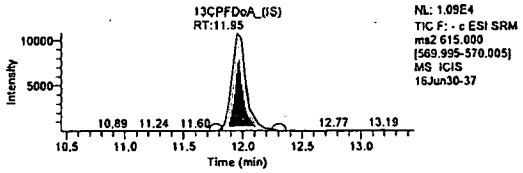

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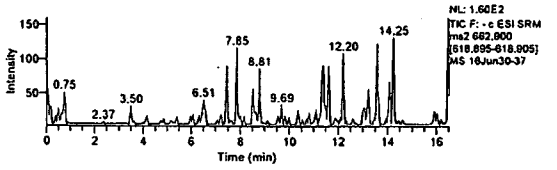
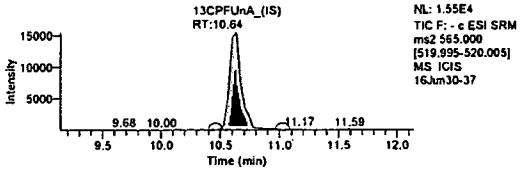
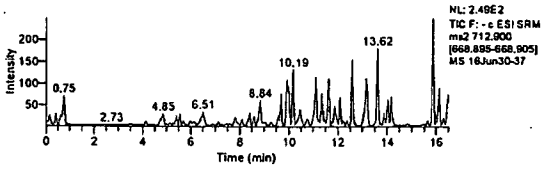
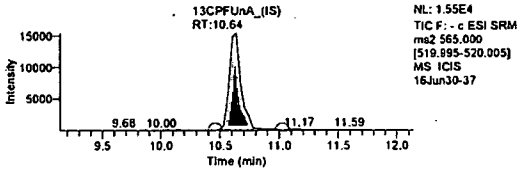




Component Name: PFTeDA





Lynn Dodd

JUL 0 1 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 0 1 2016

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Analysis Report

Sample Description: SG3-MW01-03.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Collected: 06/20/2016 10:00 by JD
through 06/20/2016 10:03
Submitted: 06/22/2016 09:30
Reported: 08/05/2016 13:43

SG315 SDG#: SGP97-07

LL Sample # SW 8438965
LL Group # 1674752
Account # 37191

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

add J to PFDA, PFDODA, PFUNDA, PFHPA, PFBS, PFTrDA, PFTeDA, PFOS,PFNA, PFHXS - IS

add J - LAL

CAT No.	Analysis Name	CAS Number	Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.68	U	0.68	2.2	1
14027	Perfluorodecanoic acid	335-76-2	0.27	U	0.27	0.54	1
14027	Perfluorododecanoic acid	307-55-1	0.54	U	0.54	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.41	U	0.41	0.81	1
14027	Perfluorohexanesulfonate	355-46-4	0.68	U	0.68	2.2	1
14027	Perfluorohexanoic acid	307-24-4	0.27	U	0.27	0.54	1
14027	Perfluorononanoic acid	375-95-1	0.27	U	0.27	0.54	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.95	U	0.95	2.2	1
14027	Perfluorooctanoic acid	335-67-1	0.59	J	0.41	0.81	1
14027	Perfluorotetradecanoic acid	376-06-7	0.41	U	0.41	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.81	U	0.81	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.41	U	0.41	0.81	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	631		142	427	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	26.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 13:48	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16194298731A	07/12/2016 15:40	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16180820010B	06/28/2016 19:11	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-MW01-03.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8438965
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 10:00 by JD
through 06/20/2016 10:03
Submitted: 06/22/2016 09:30
Reported: 05/30/2017 08:39

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

SG315 SDG#: SGP97-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.66	U	0.66	2.1	1
14027	Perfluorodecanoic acid	335-76-2	0.27	U	0.27	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.53	U	0.53	1.1	1
14027	Perfluoroheptanoic acid	375-85-9	0.40	U	0.40	0.80	1
14027	Perfluorohexanesulfonate	355-46-4	0.66	U	0.66	2.1	1
14027	Perfluorohexanoic acid	307-24-4	0.27	U	0.27	0.53	1
14027	Perfluorononanoic acid	375-95-1	0.27	U	0.27	0.53	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.93	U	0.93	2.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.59**	**J**	0.40	0.80	1
14027	Perfluorotetradecanoic acid	376-06-7	0.40	U	0.40	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.80	U	0.80	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.40	U	0.40	0.80	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**631**	142	427	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**26.2**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 13:48	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16194298731A	07/12/2016 15:40	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

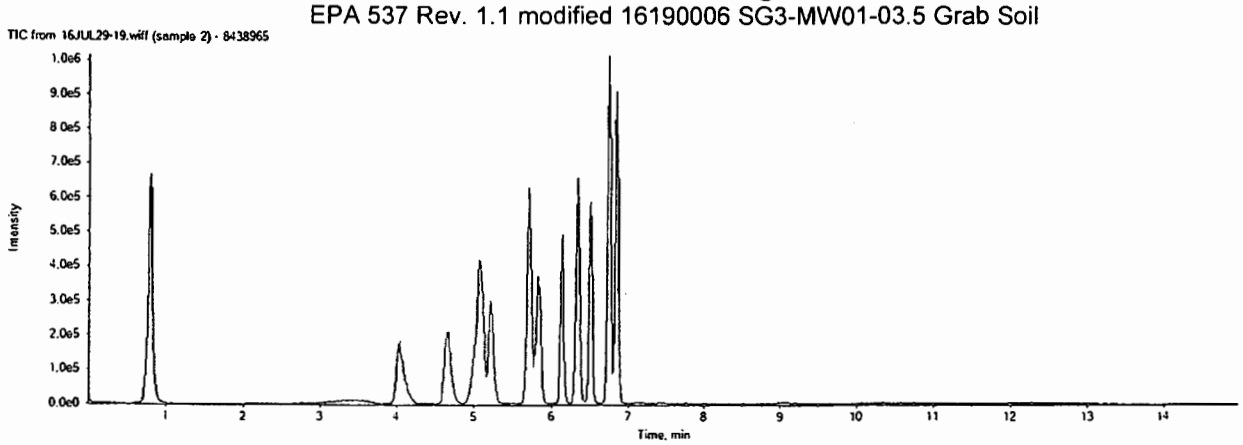
Sample Name:	8438965	**Data File:**		16JUL29-19.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-03.5 Grab Soil	**Acquis Date:**		7/29/2016 1:48:19 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	43	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.100	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	4.64	461999.2	N/A	N/A	
PFHxA	N/A	N/A	13C2-PFHxA	4.03	1233475.9	N/A	N/A	
PFHpA	4.66	1842.7	13C4-PFHpA	4.65	783030.3	0.002	0.017	
PFHxS	4.65	2220.2	18O2-PFHxS	4.64	461999.2	0.005	0.040	
PFOA	5.21	69592.2	13C4-PFOA	5.21	1260246.5	0.055	0.432	
PFNA	5.71	19764.9	13C5-PFNA	5.71	1918946.2	0.010	0.087	
PFOS	5.70	1124.3	13C4-PFOS	5.68	453997.6	0.002	0.020	
PFDA	6.13	6017.1	13C2-PFDA	6.13	1454544.5	0.004	0.030	
PFUndA	6.51	5913.6	13C2-PFUnDA	6.51	1772846.7	0.003	0.029	
PFDoDA	6.75	5133.7	13C2-PFDoDA	6.75	3112287.4	0.002	0.019	
PFTrDA	7.11	10821.3	13C2-PFDoDA	6.75	3112287.4	0.003	0.032	
PFTeDA	7.43	12568.2	13C2-PFDoDA	6.75	3112287.4	0.004	0.035	

Total Ion Chromatogram

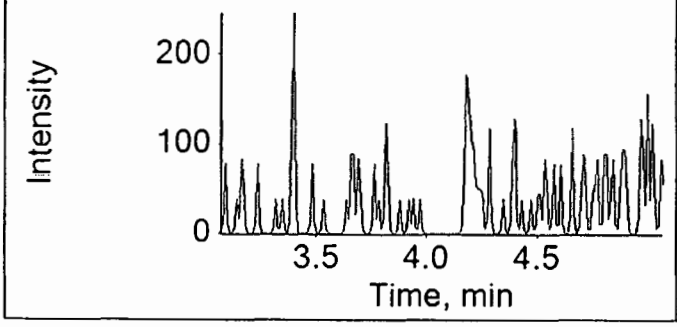
EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-03.5 Grab Soil



16JUL29-19.wiff

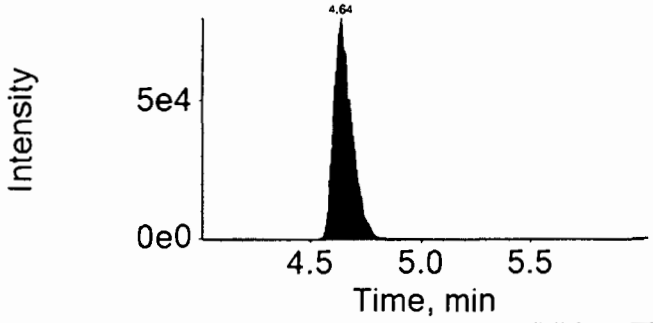
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

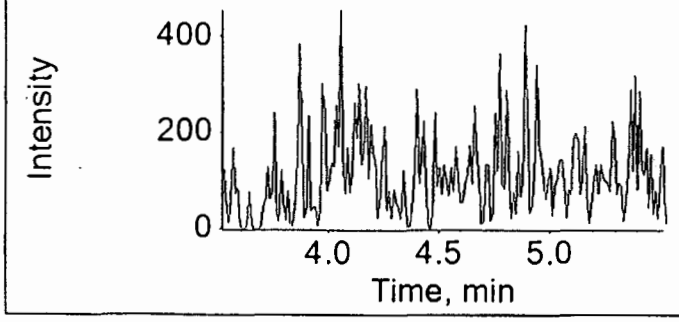
403.0 / 103.0



16JUL29-19.wiff

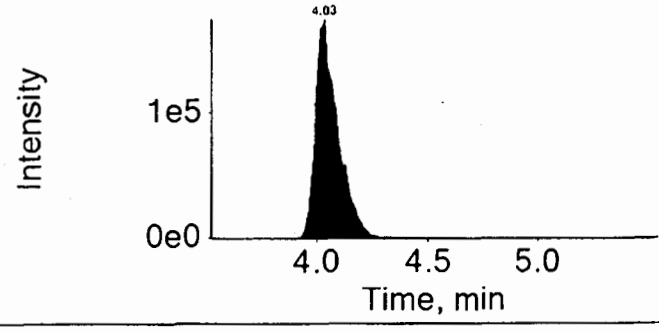
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

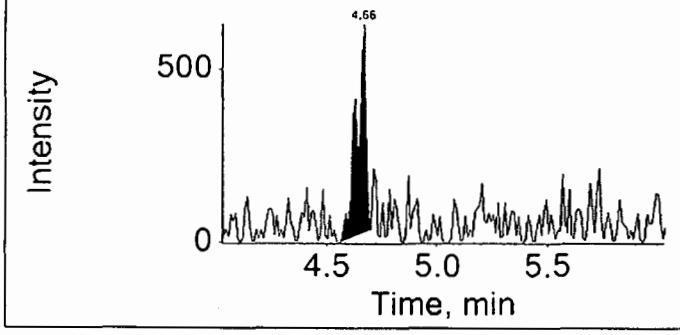
314.9 / 270.0



16JUL29-19.wiff

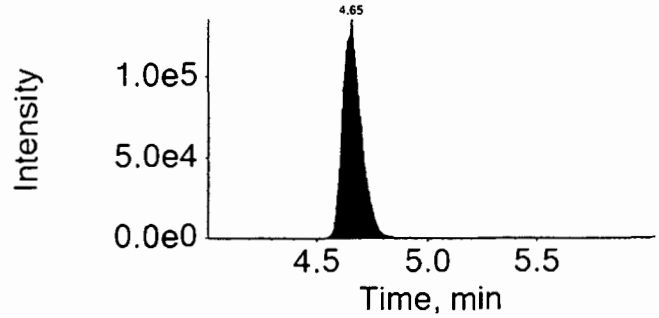
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

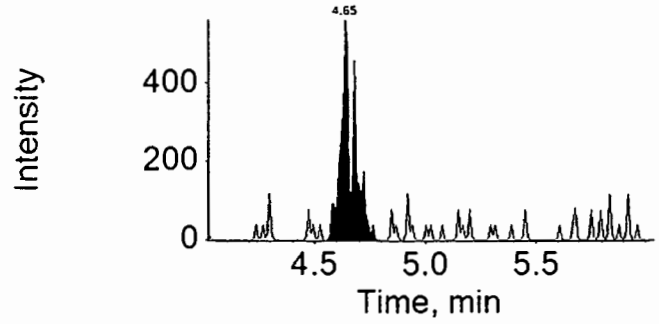
367.0 / 322.0



16JUL29-19.wiff

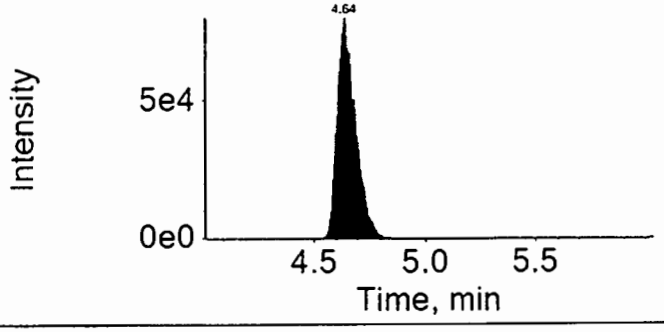
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

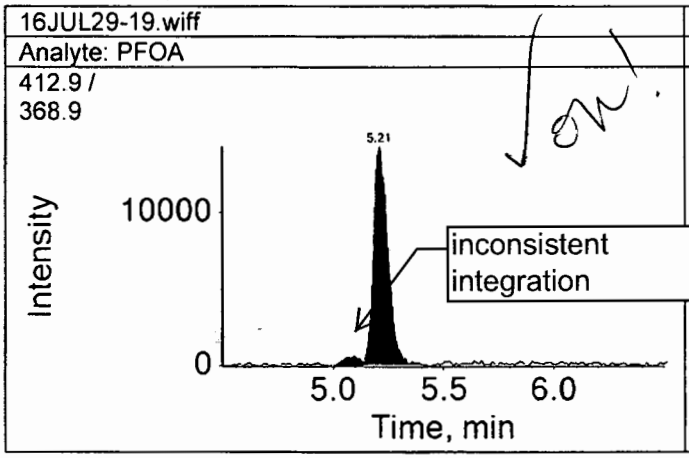
403.0 / 103.0



16JUL29-19.wiff

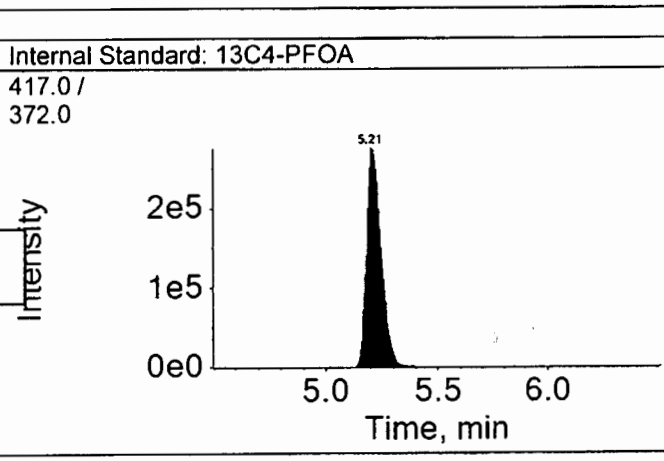
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

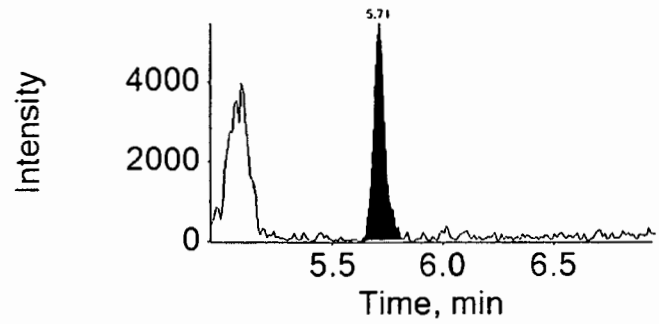
417.0 / 372.0



16JUL29-19.wiff

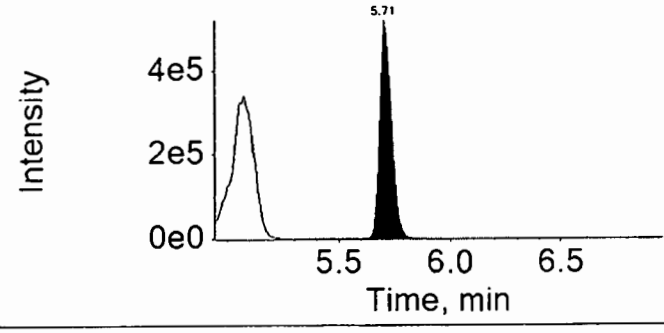
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

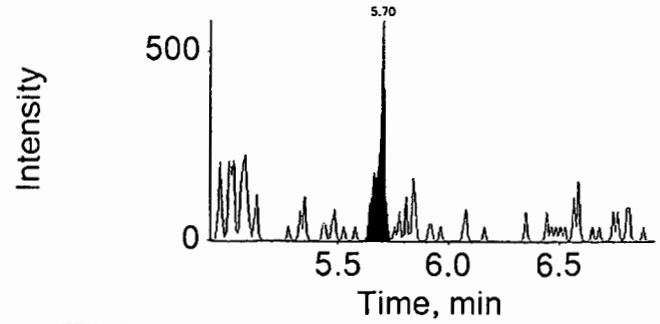
468.0 / 423.0



16JUL29-19.wiff

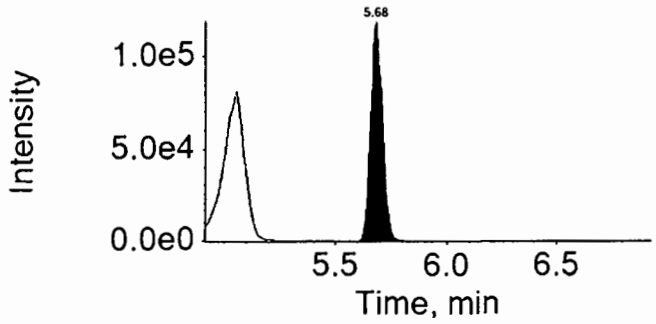
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

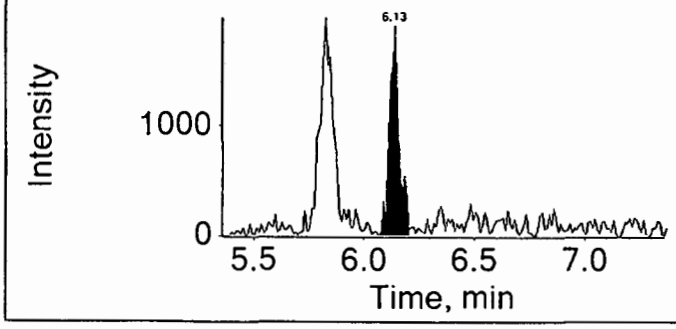
503.0 / 99.0



16JUL29-19.wiff

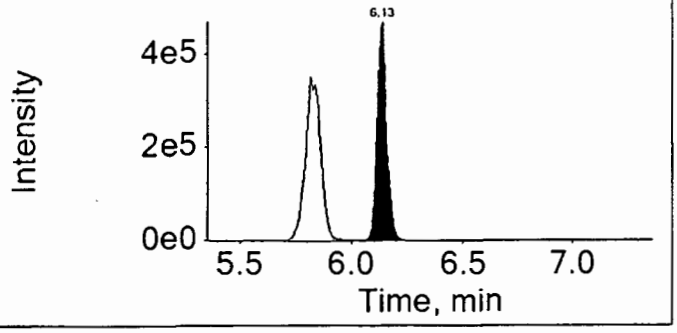
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

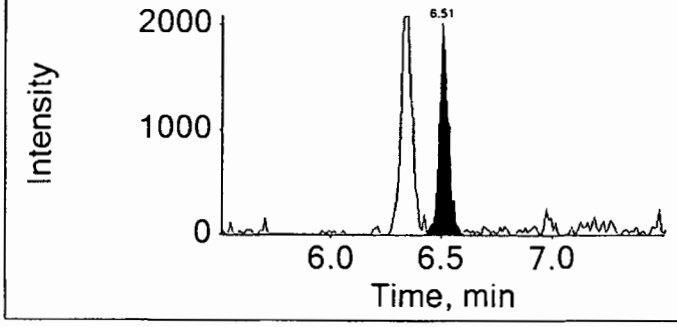
515.0 / 470.0



16JUL29-19.wiff

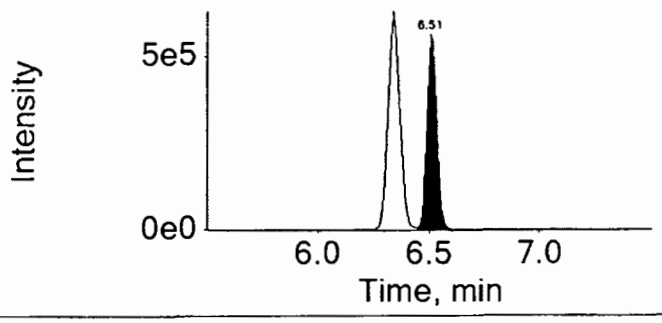
Analyte: PFUndA

562.9 / 518.9

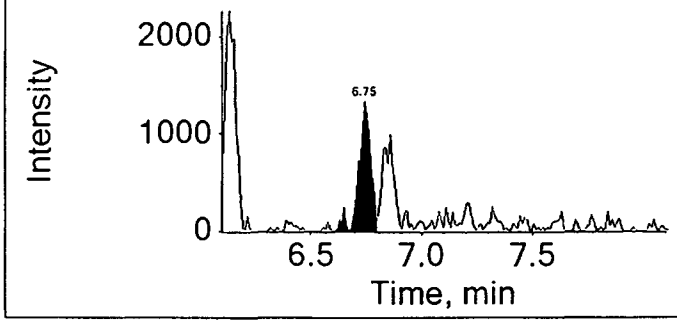


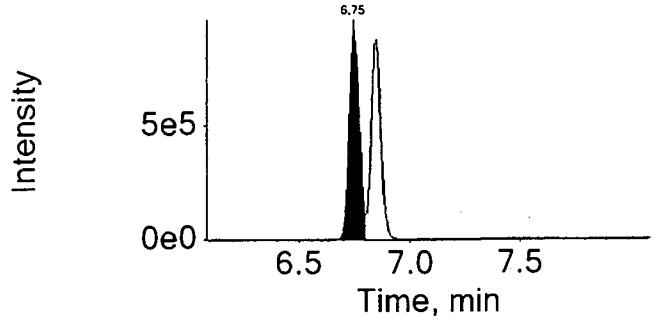
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

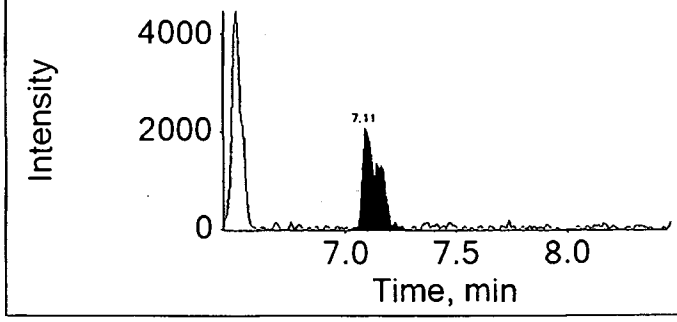


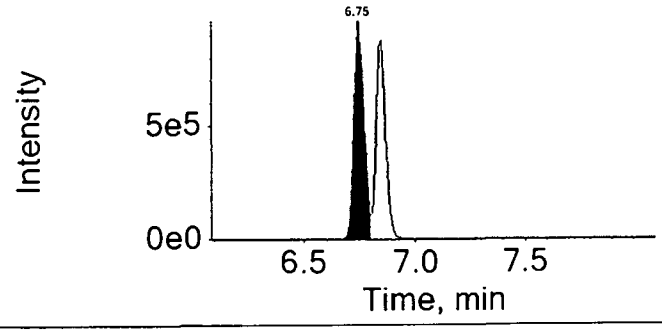
16JUL29-19.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



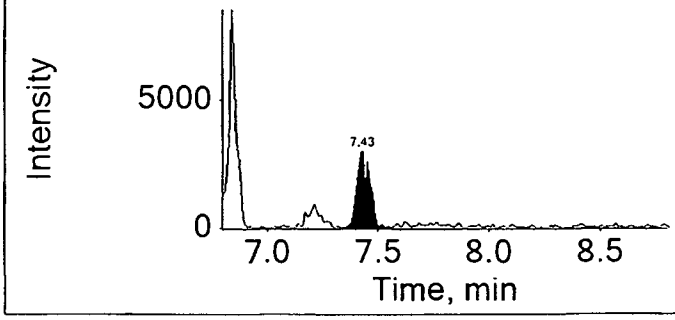


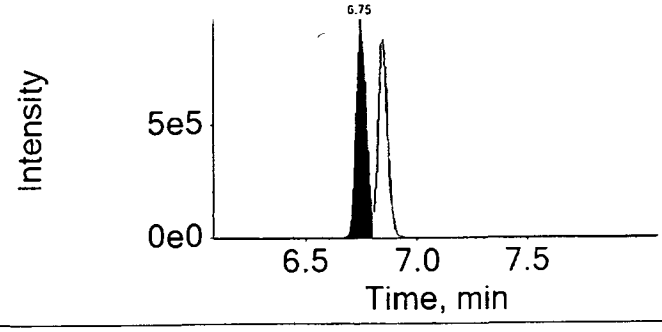
16JUL29-19.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL29-19.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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LC-MS/MS Analysis Report

Printed: 8/5/2016 10:04:00 AM

Sample Name:	8438965RE		**Data File:**		16AUG04-19.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-03.5 Grab Soil		**Acquis Date:**		8/4/2016 6:22:36 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	28		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.090		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

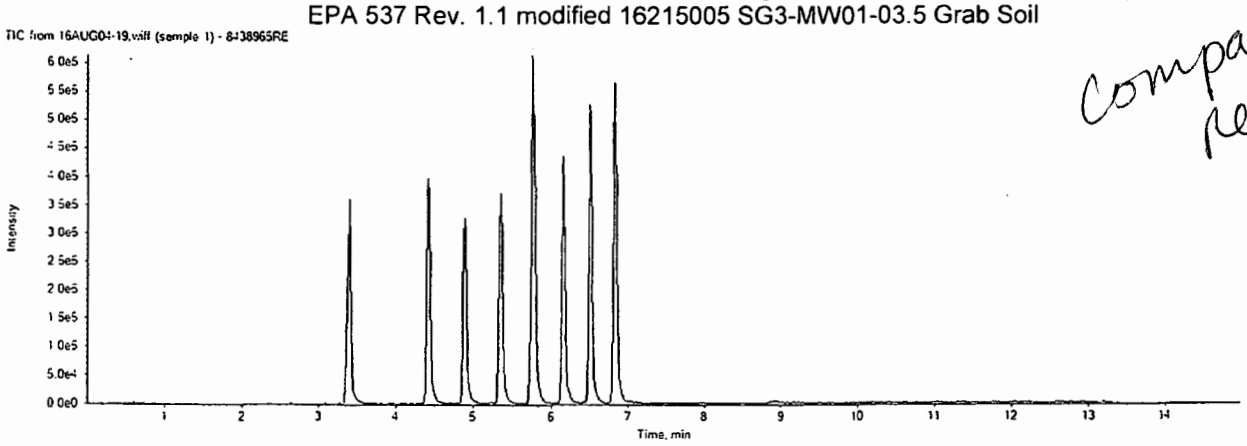
Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.88	417341.0	N/A	N/A	
PFHxA	4.42	2341.6	M	13C2-PFHxA	4.42	1306581.5	0.002	0.033	
PFHpA	4.89	2588.7	A	13C4-PFHpA	4.89	661181.5	0.004	0.028	
PFHxS	4.88	2751.8	A	18O2-PFHxS	4.88	417341.0	0.007	~~0.055~~	
PFOA	5.34	90161.7	A	13C4-PFOA	5.35	1166606.3	0.077	0.647	
PFNA	5.77	27669.2	A	13C5-PFNA	5.77	1659827.5	0.017	0.144	
PFOS	5.74	2095.2	A	13C4-PFOS	5.75	426292.1	0.005	0.042	
PFDA	6.16	7847.3	A	13C2-PFDA	6.16	1201295.7	0.007	0.048	
PFUndA	6.51	4277.5	A	13C2-PFUnDA	6.51	1379436.4	0.003	0.027	
PFDoDA	6.83	2406.1	A	13C2-PFDoDA	6.83	1740165.8	0.001	0.014	
PFTrDA	7.12	2378.3	A	13C2-PFDoDA	6.83	1740165.8	0.001	0.013	
PFTeDA	7.41	3267.6	A	13C2-PFDoDA	6.83	1740165.8	0.002	0.017	

NR

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-03.5 Grab Soil

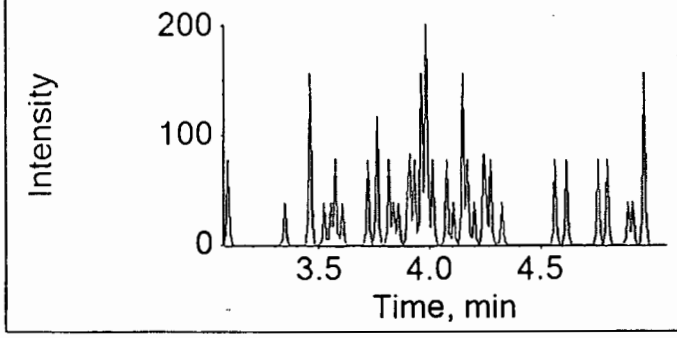


comparable results

16AUG04-19.wiff

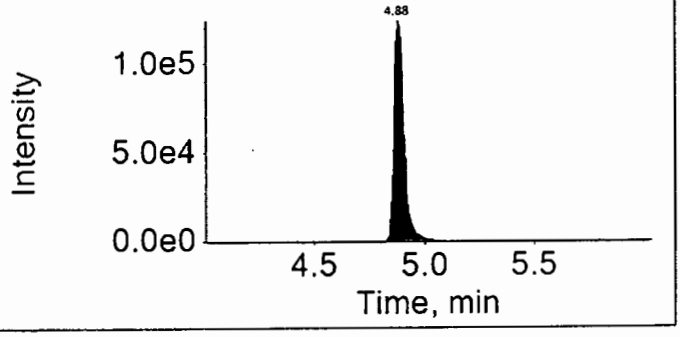
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

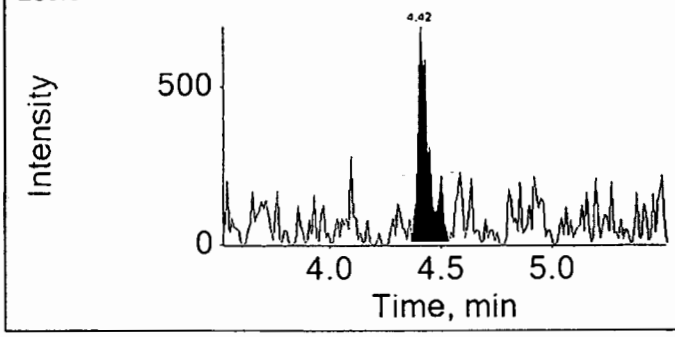
403.0 / 103.0



16AUG04-19.wiff

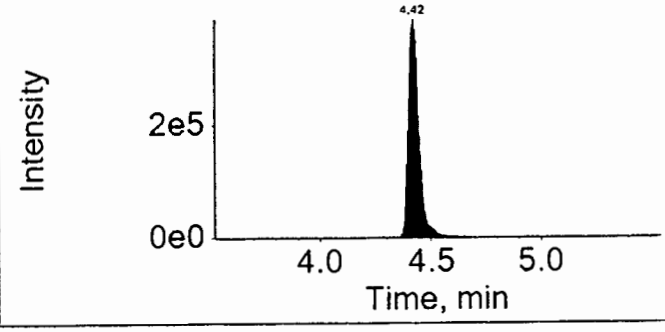
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

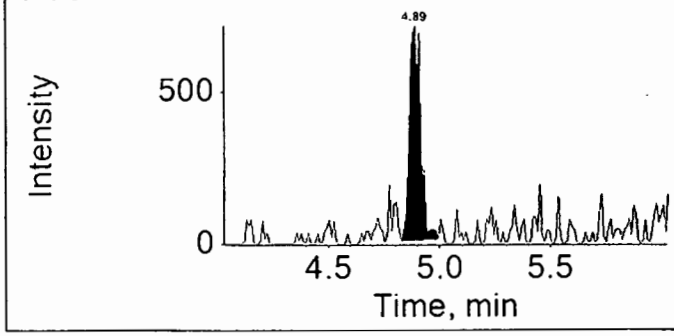
314.9 / 270.0



16AUG04-19.wiff

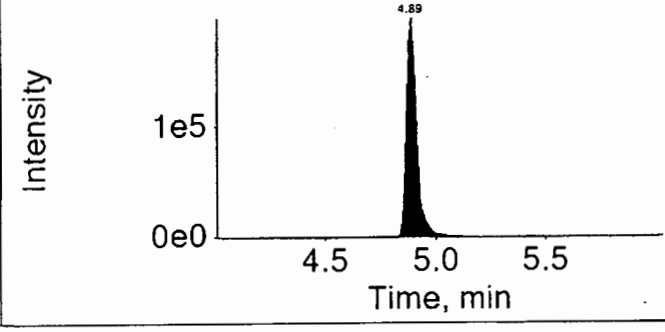
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

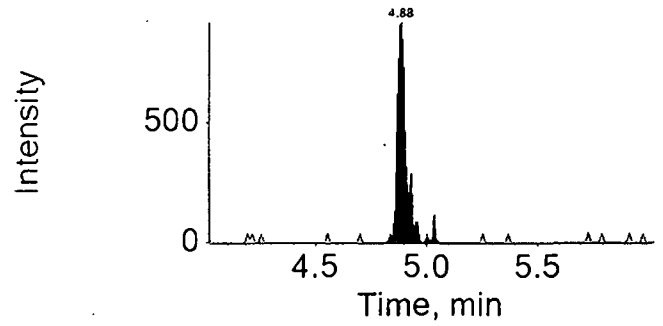
367.0 / 322.0



16AUG04-19.wiff

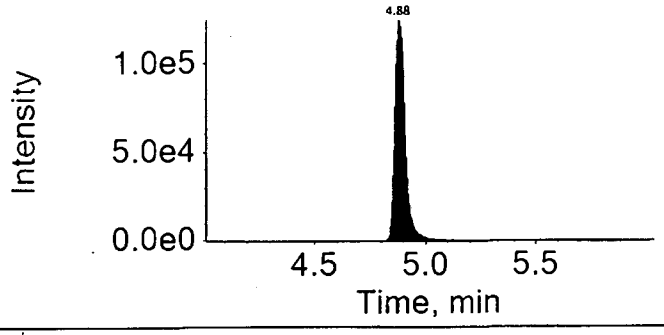
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

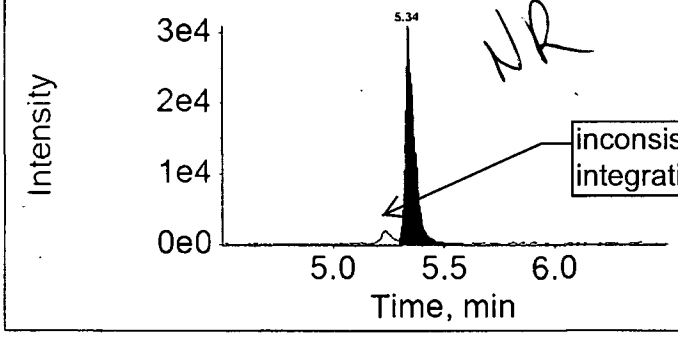
403.0 / 103.0



16AUG04-19.wiff

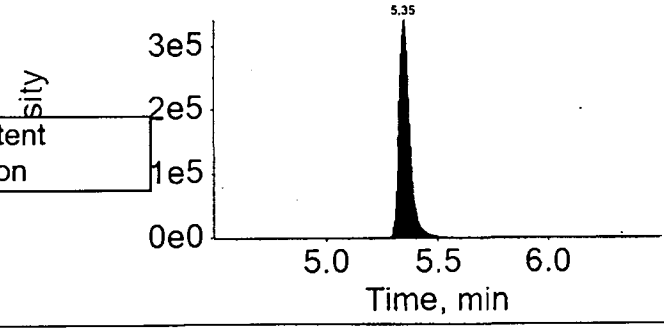
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

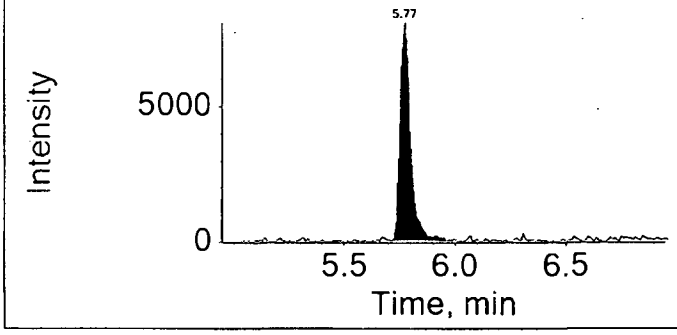
417.0 / 372.0



16AUG04-19.wiff

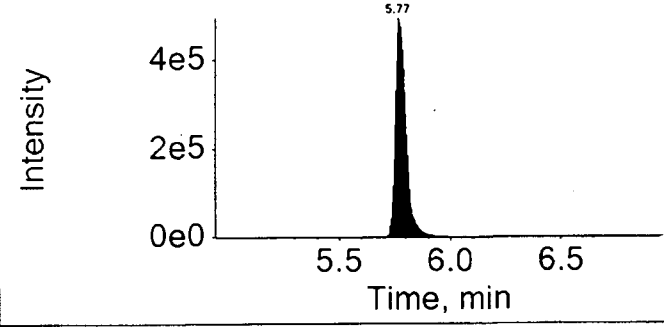
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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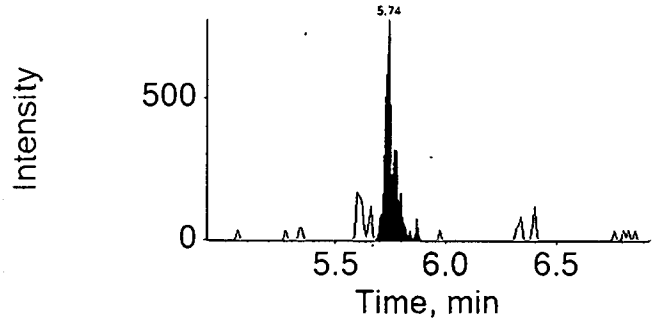
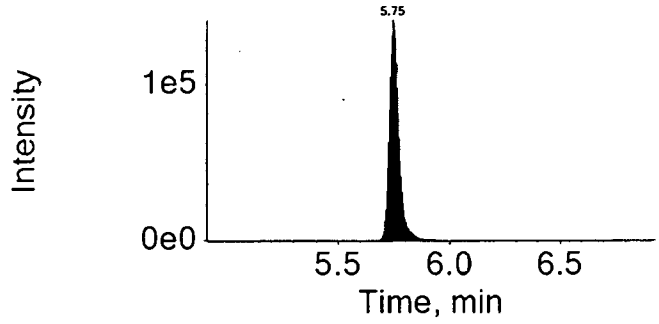
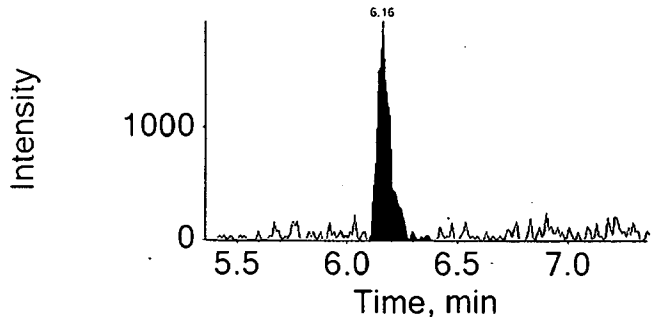
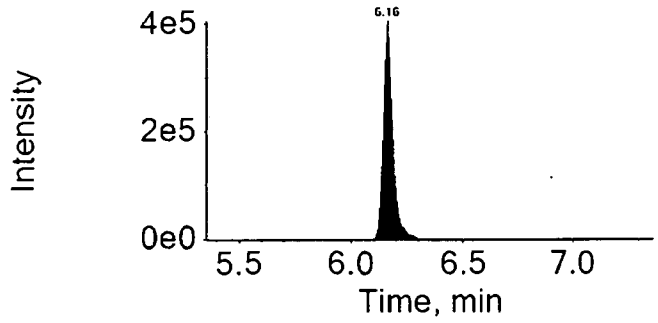
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



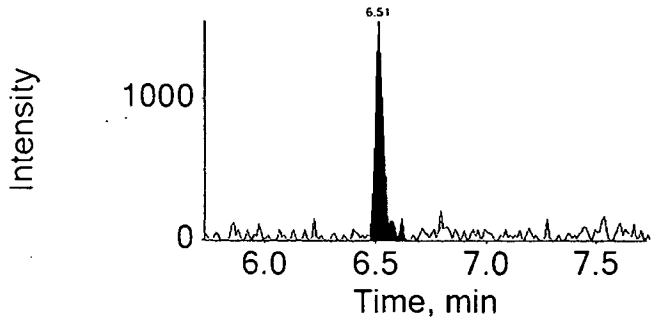


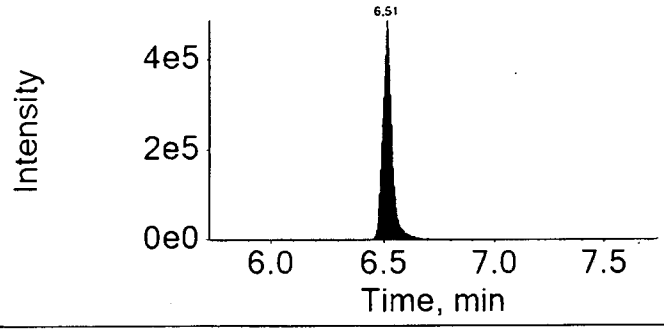
16AUG04-19.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16AUG04-19.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

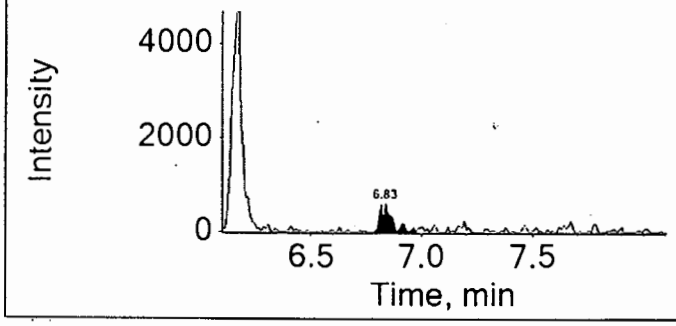




16AUG04-19.wiff

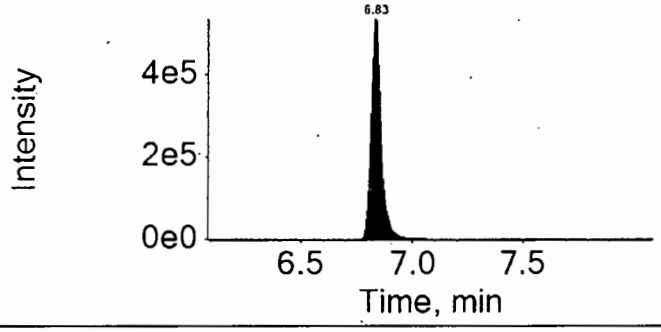
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

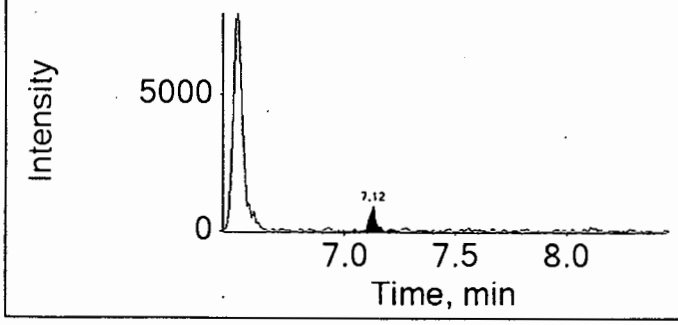
615.0 / 570.0



16AUG04-19.wiff

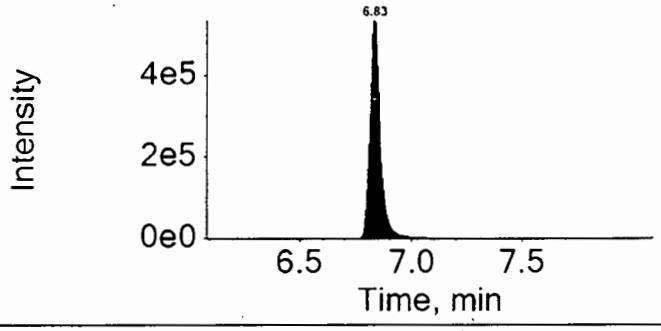
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

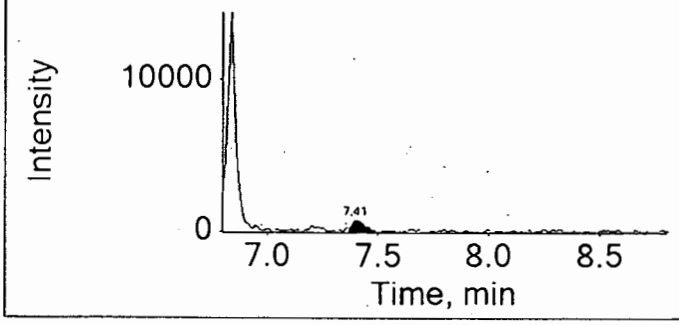
615.0 / 570.0



16AUG04-19.wiff

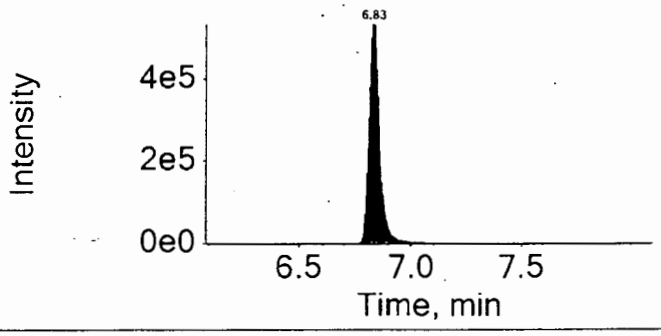
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: SG3-RB01-20160620 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8438966
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 10:20 by JD

Submitted: 06/22/2016 09:30
Reported: 08/05/2016 13:43

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL

RB120 SDG#: SGP97-08RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l			ng/l	
10954	Perfluorooctanoic acid	335-67-1	2	J		2	1
10954	Perfluorononanoic acid	375-95-1	1	U		2	1
10954	Perfluorodecanoic acid	335-76-2	1	U		2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U		4	1
10954	Perfluorododecanoic acid	307-55-1	3	U		5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U		4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U		5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Potential false positive. Response below MDL sample, calculates below MDL.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16180002	07/01/2016 01:29	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16180002	06/28/2016 11:20	Robert Brown	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

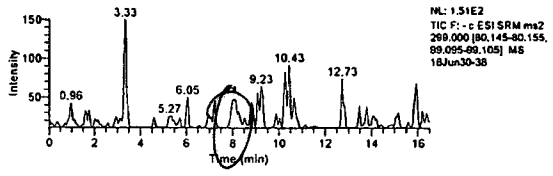
Sample Name:	8438966	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun30
Sample ID:	8438966	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16Jun30-38		M\HWell_16.5minutes
Acquisition Date:	07/01/16 01:29:31 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	B:26	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

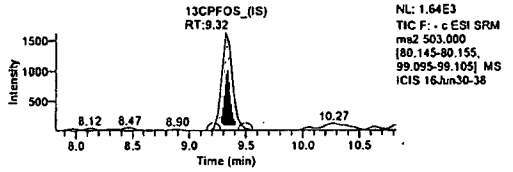
Extracted Ion Chromatogram

Quan Peak Table

Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.39	186876.81	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	153934.18	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.89	136524.60	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.88	88116.75	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.74	127914.38	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.46	54532.18	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	19492.83	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	10821.48	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.63	120486.90	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	1.773	8.99	2420.43	153934.18	0.016	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	1.803	10.63	1598.86	120486.90	0.013	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

Component Name: PFBS





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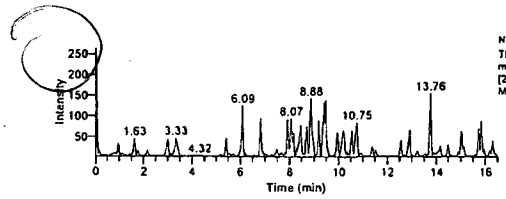

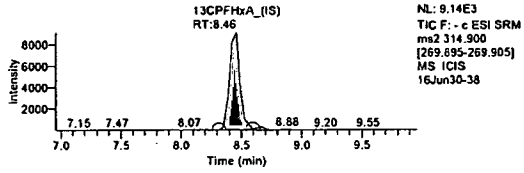

Component Name: PFHxS

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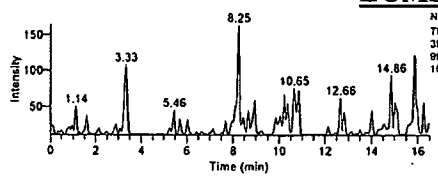

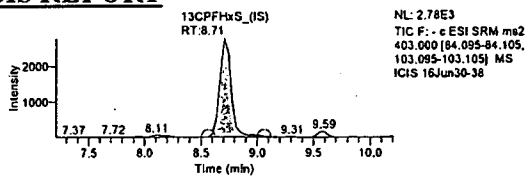

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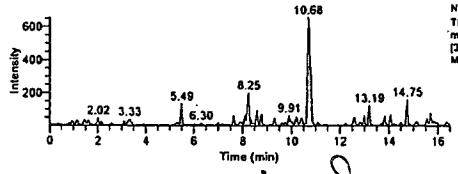
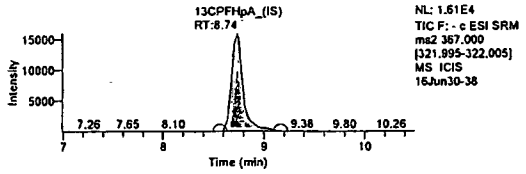
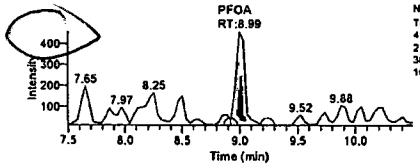
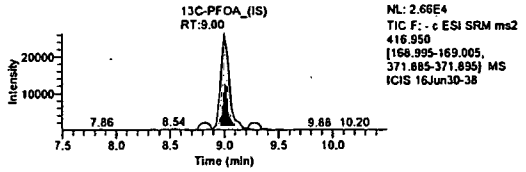




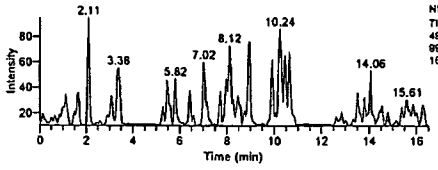
MDLs std 800 ng/mL

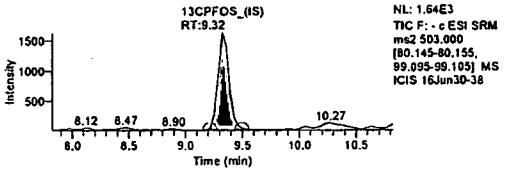
Component Name: PFOA



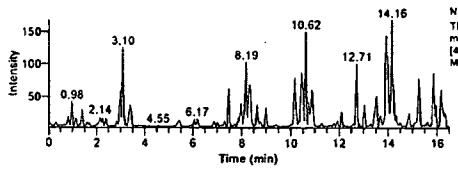


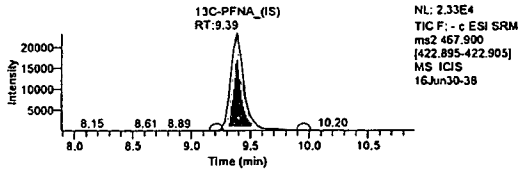
Component Name: PFOS



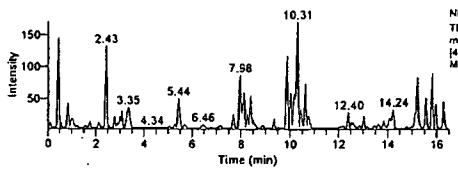


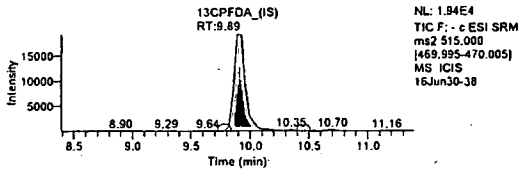
Component Name: PFNA





Component Name: PFDA





Component Name: PFUdA

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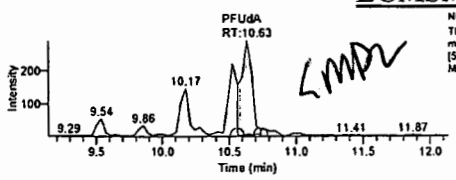

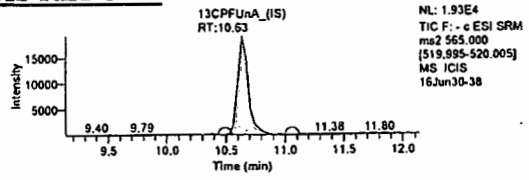

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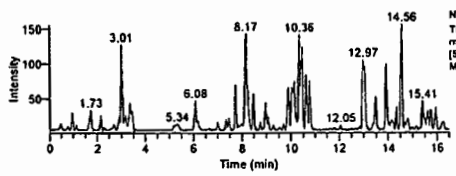

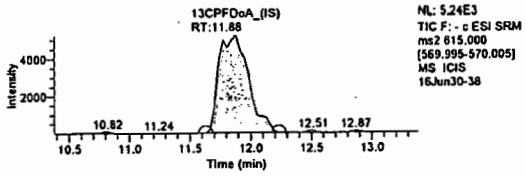

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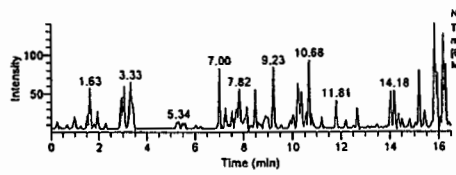
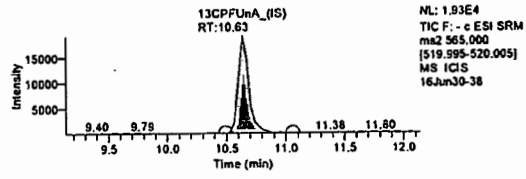
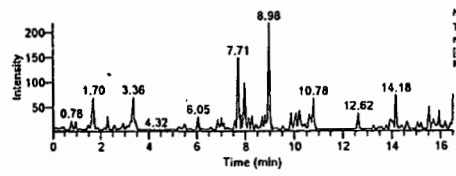
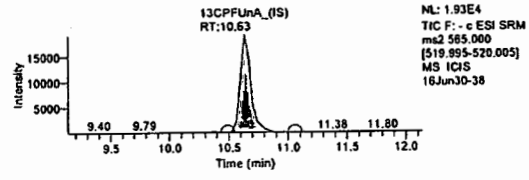




Component Name: PFTeDA





Lynn Dodd

JUL 0 1 2016

Jason W. Knight
Senior Chemist

JUL 0 1 2016

Lynn Dodd
Principal Specialist

Friday, July 01, 2016, 07:37:10

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Analysis Report

REVISED

Sample Description: SG3-RB01-20160620 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8438966
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 10:20 by JD

Submitted: 06/22/2016 09:30
Reported: 05/30/2017 08:39

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

RB120 SDG#: SGP97-08RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16180002	07/01/2016 01:29	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16180002	06/28/2016 11:20	Robert Brown	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

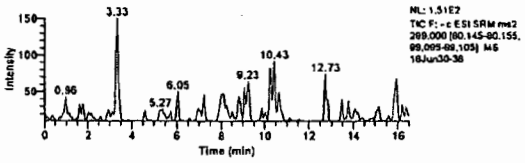
Sample Name:	8438966	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun30
Sample ID:	8438966	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun30-38		
Acquisition Date:	07/01/16 01:29:31 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	B:26	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

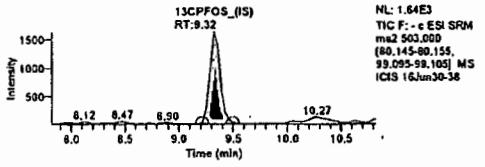
Extracted Ion Chromatogram

Quan Peak Table

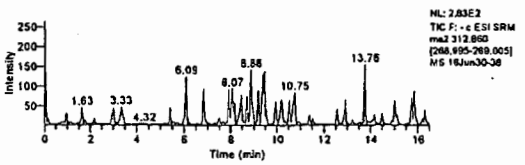
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.39	186876.81	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.00	153934.18	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.89	136524.60	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.88	88116.75	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.74	127914.38	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.46	54532.18	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.71	19492.83	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.32	10821.48	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.63	120486.90	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	1.773	8.99	2420.43	153934.18	0.016	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	1.803	10.63	1598.86	120486.90	0.013	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

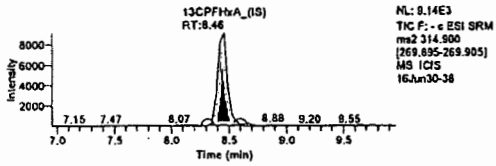
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHxS

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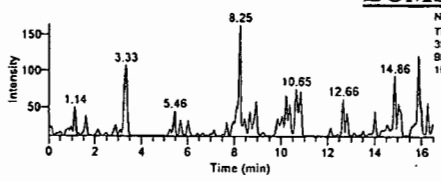
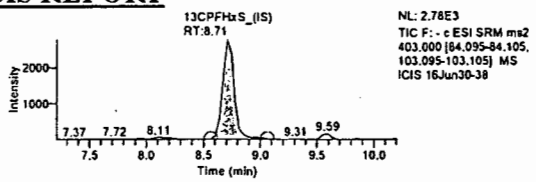
Senior Chemist

JUL 01 2016

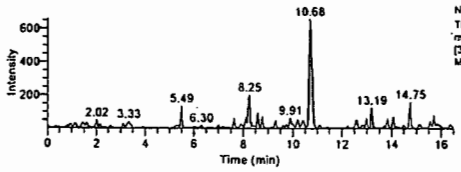
SGP97 Page 157 of 582

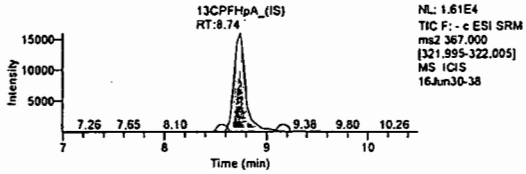
LCMSMS ANALYSIS REPORT



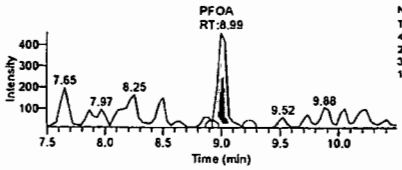


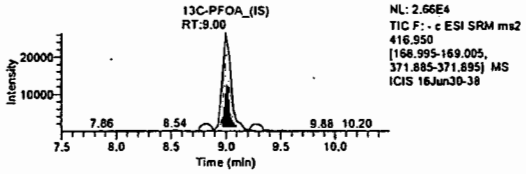
Component Name: PFhpA



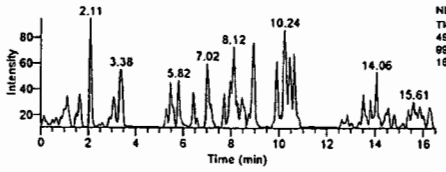


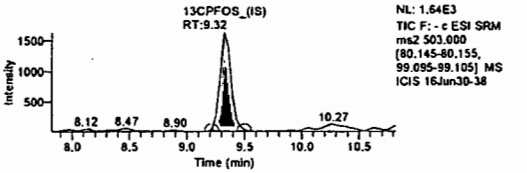
Component Name: PFOA





Component Name: PFOS





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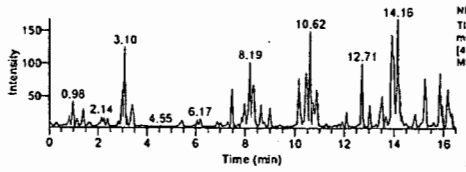
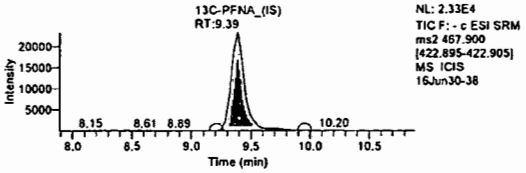
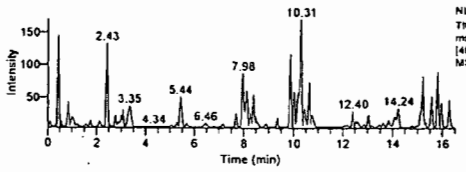
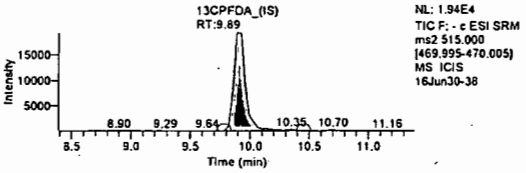




Component Name: PFDA





Component Name: PFUdA

Jason W. Knight
Senior Chemist

JUL 01 2016

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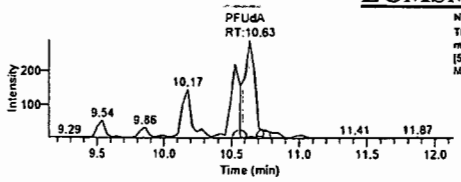
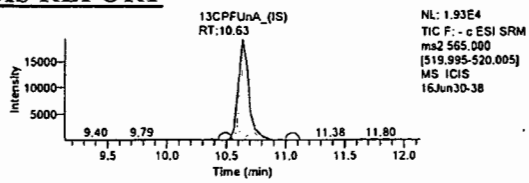
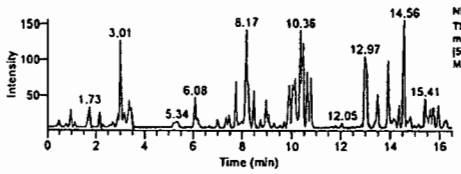
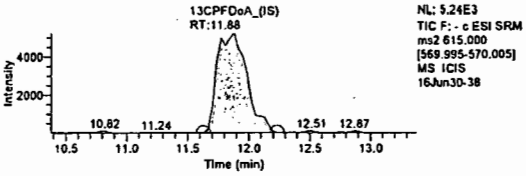




Component Name: PFDoA





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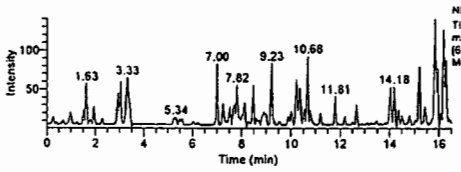
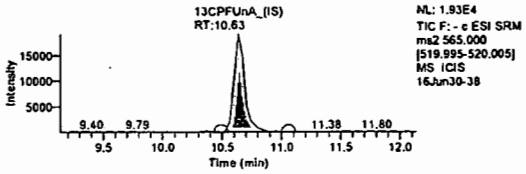
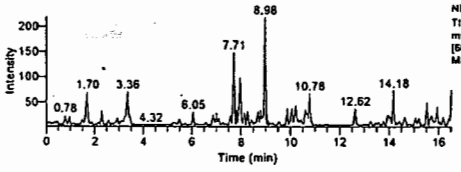
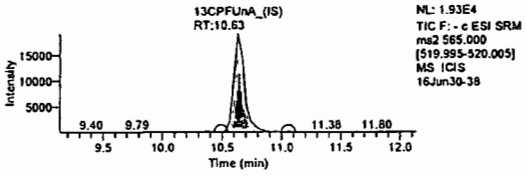




Component Name: PFTeDA





Lynn Dodd

JUL 0 1 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 0 1 2016

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Analysis Report

Sample Description: SG3-MW01-08.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8438967
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 10:38 by JD
through 06/20/2016 10:40
Submitted: 06/22/2016 09:30
Reported: 08/05/2016 13:43

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG316 SDG#: SGP97-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.56	U	0.56	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.45	1
14027	Perfluorododecanoic acid	307-55-1	0.45	U	0.45	0.90	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.56	U	0.56	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.79	U	0.79	1.8	1
14027	Perfluorooctanoic acid	335-67-1	0.73		0.34	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.90	1
14027	Perfluorotridecanoic acid	72629-94-8	0.67	U	0.67	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.67	1

add J - LAL

or 1.5 MDL

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC		n.a.		1,650	156	469	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture		n.a.		11.1	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 14:04	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16194298731A	07/12/2016 12:15	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16180820010B	06/28/2016 19:11	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

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SGPP - Bennington

LL Sample # SW 8438967
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 10:38 by JD
through 06/20/2016 10:40
Submitted: 06/22/2016 09:30
Reported: 05/30/2017 08:39

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG316 SDG#: SGP97-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.56	U	0.56	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	~~0.45~~	1
14027	Perfluorododecanoic acid	307-55-1	0.45	U	0.45	0.89	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	~~0.67~~	1
14027	Perfluorohexanesulfonate	355-46-4	0.56	U	0.56	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	~~0.22~~	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.78	U	0.78	1.8	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.73**		~~0.34~~	~~0.67~~	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.89	1
14027	Perfluorotridecanoic acid	72629-94-8	0.67	U	0.67	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.67	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	1,650		156	469	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	11.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 14:04	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16194298731A	07/12/2016 12:15	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

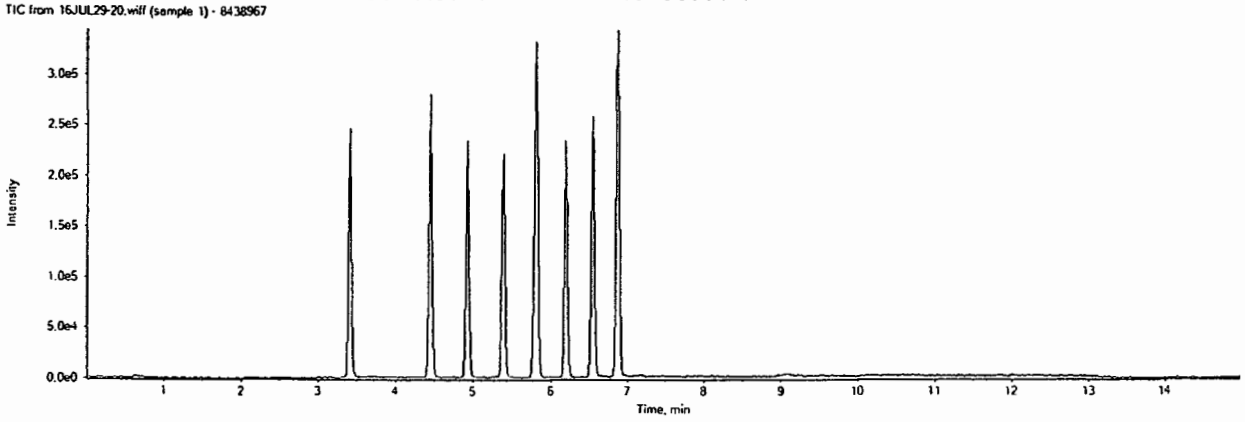
Sample Name:	8438967	**Data File:**		16JUL29-20.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-08.0 Grab Soil	**Acquis Date:**		7/29/2016 2:04:03 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	44	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.030	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	4.92	197987.4	N/A	N/A	
PFHxA	4.45	1830.3	13C2-PFHxA	4.44	695982.0	0.003	0.051	
PFHpA	4.93	1675.6	13C4-PFHpA	4.92	389100.5	0.004	0.031	
PFHxS	4.92	1219.6	18O2-PFHxS	4.92	197987.4	0.006	0.052	
PFOA	5.38	48415.4	13C4-PFOA	5.38	588375.6	0.082	0.652	
PFNA	5.81	8836.8	13C5-PFNA	5.81	870012.3	0.010	0.087	
PFOS	5.78	1751.1	13C4-PFOS	5.78	211981.0	0.008	0.069	
PFDA	6.19	16337.7	13C2-PFDA	6.20	601891.1	0.027	0.197	<MDL
PFUndA	6.54	8474.5	13C2-PFUnDA	6.55	724156.4	0.012	0.104	
PFDoDA	6.87	9124.2	13C2-PFDoDA	6.87	994509.8	0.009	0.106	
PFTrDA	7.17	4695.6	13C2-PFDoDA	6.87	994509.8	0.005	0.044	
PFTeDA	7.47	4942.2	13C2-PFDoDA	6.87	994509.8	0.005	0.043	

Total Ion Chromatogram

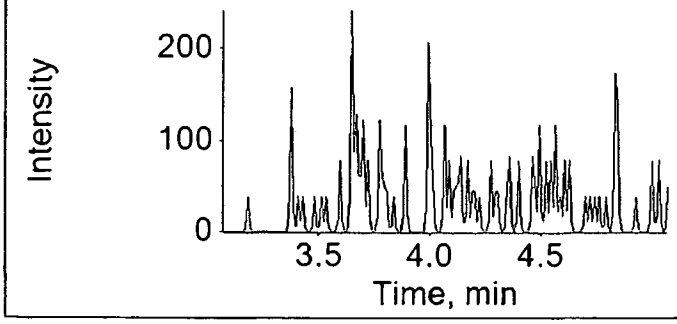
EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-08.0 Grab Soil



16JUL29-20.wiff

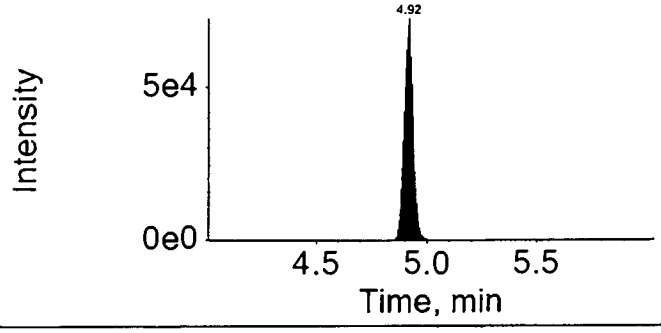
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

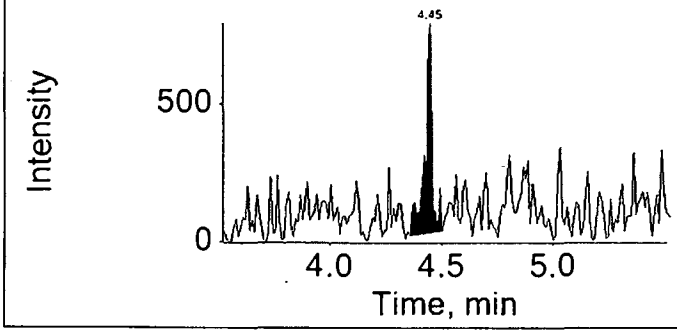
403.0 / 103.0



16JUL29-20.wiff

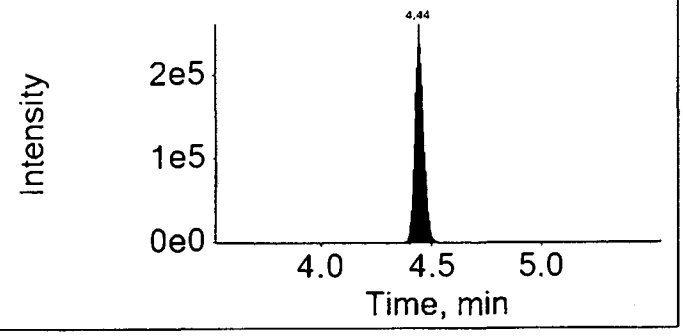
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

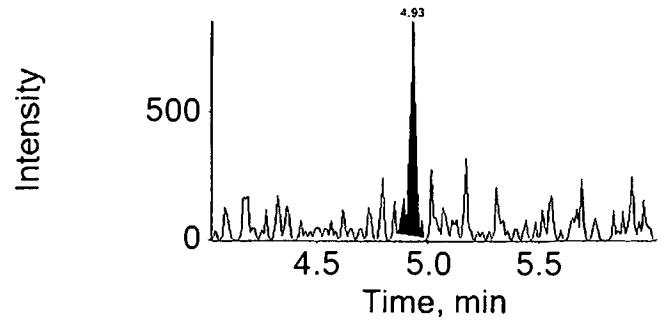
314.9 / 270.0



16JUL29-20.wiff

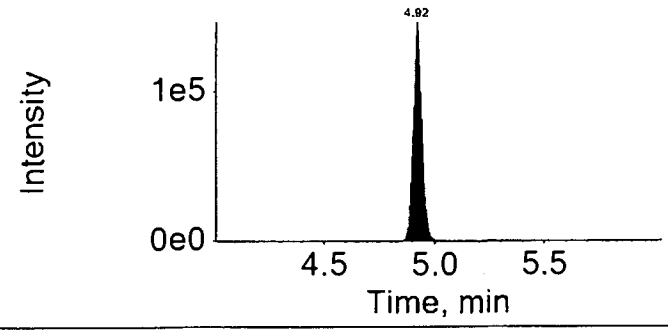
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

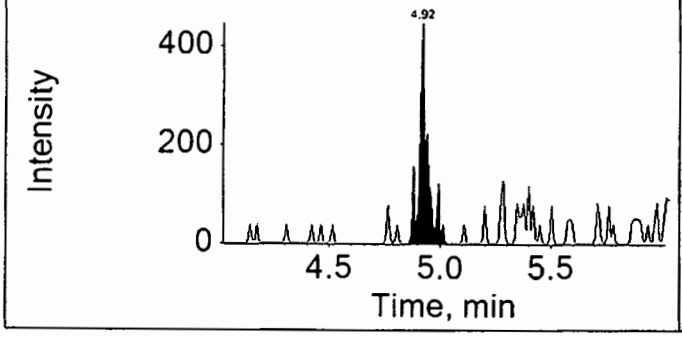
367.0 / 322.0



16JUL29-20.wiff

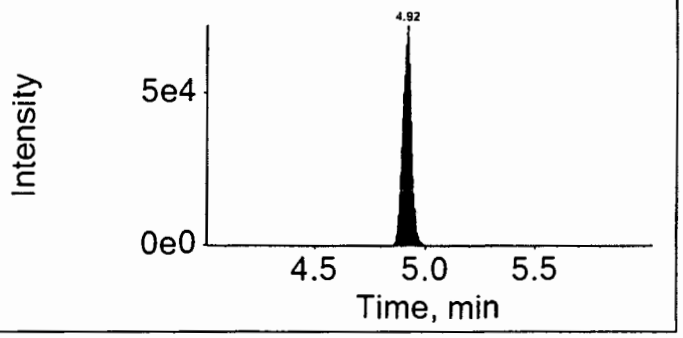
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

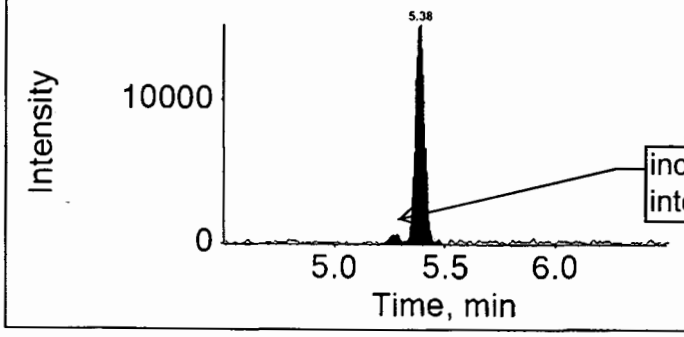
403.0 / 103.0



16JUL29-20.wiff

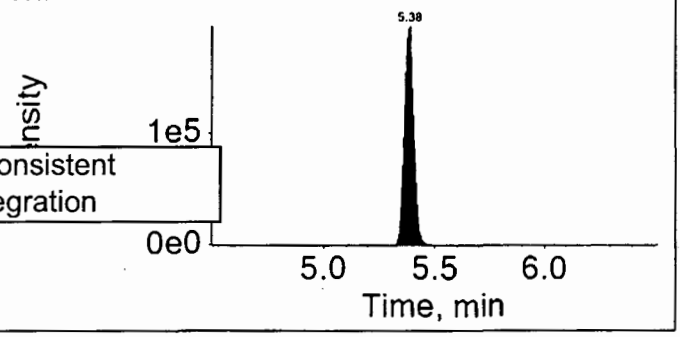
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

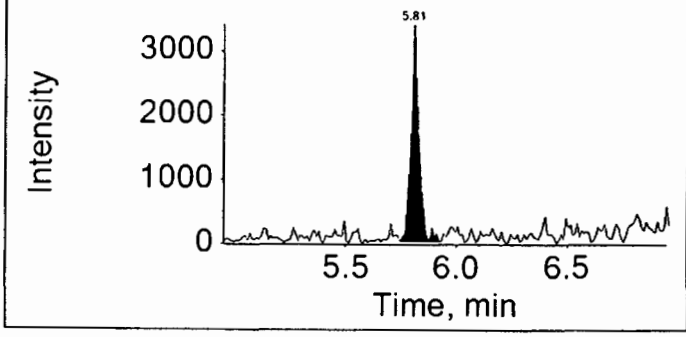
417.0 / 372.0



16JUL29-20.wiff

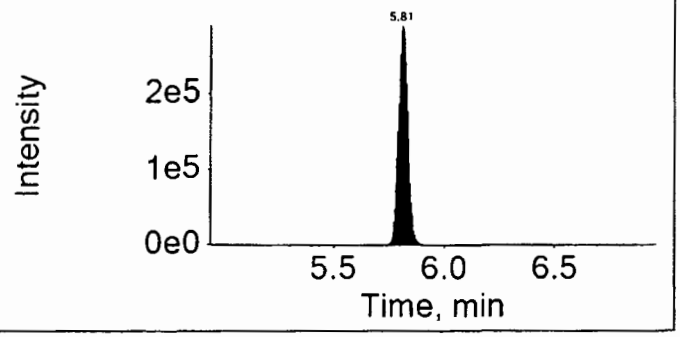
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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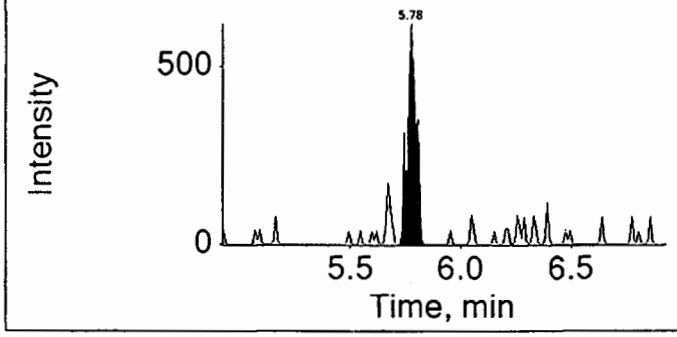
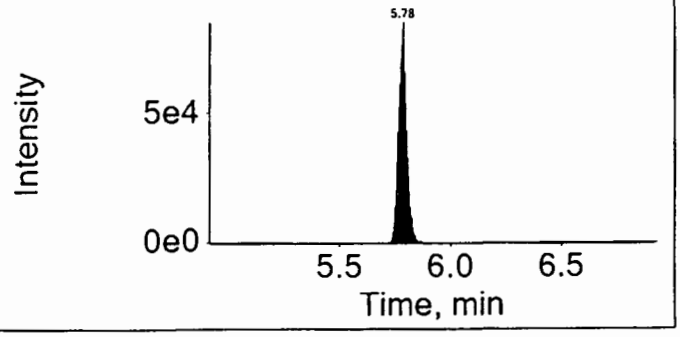
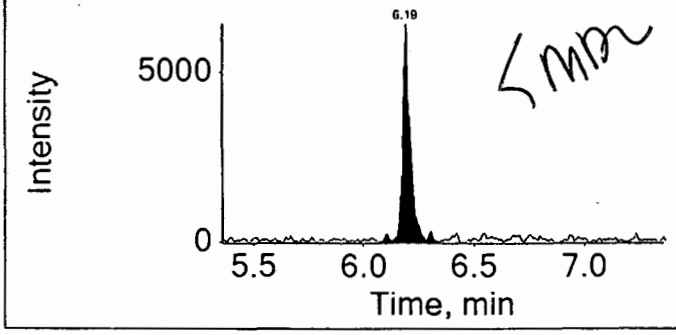
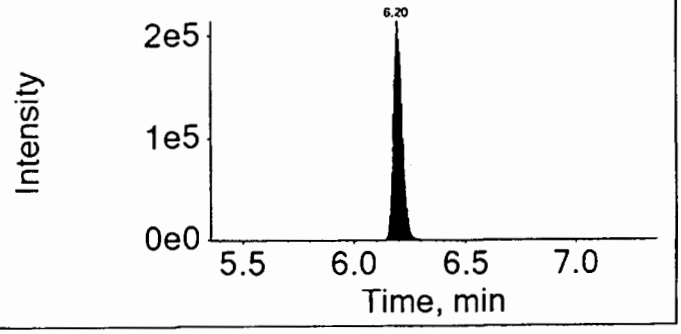
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



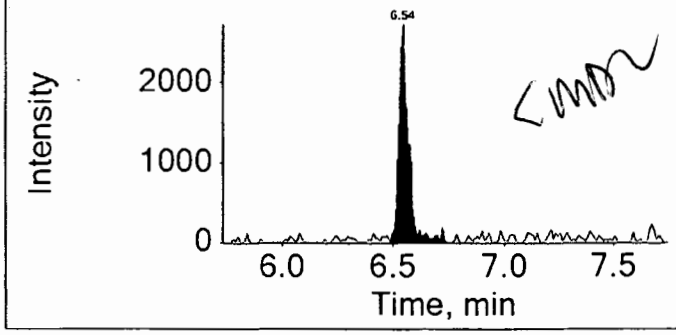


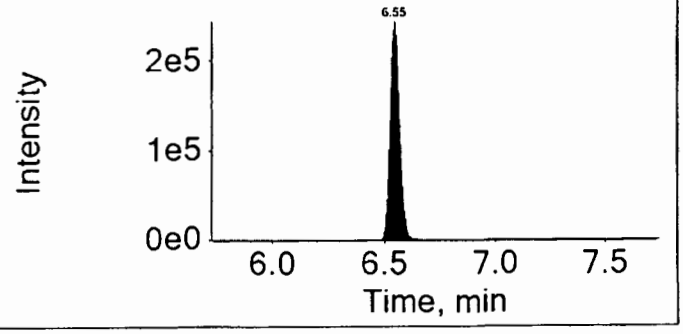
16JUL29-20.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16JUL29-20.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0





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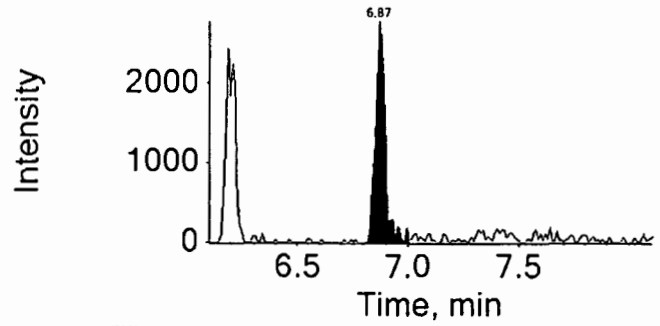
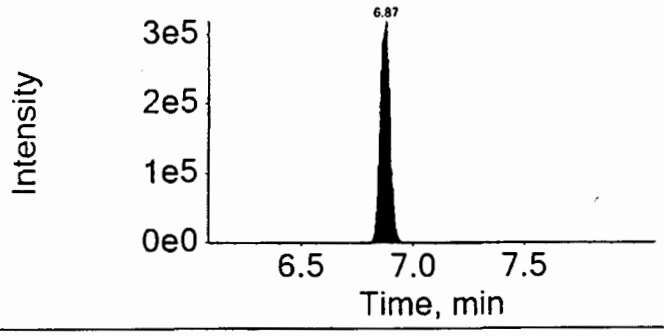
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

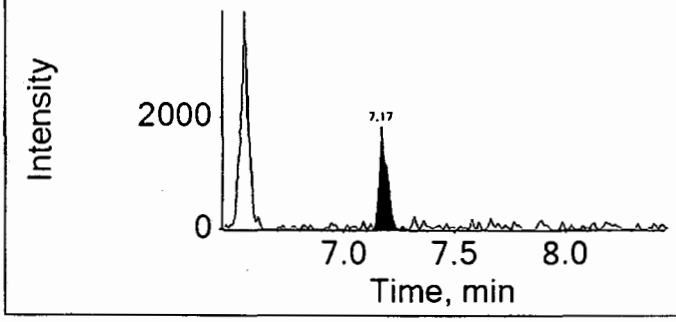
615.0 / 570.0



16JUL29-20.wiff

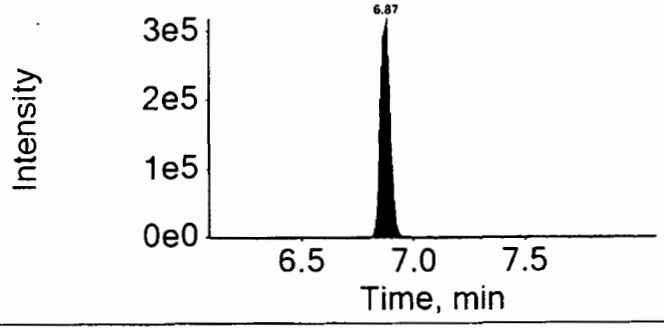
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

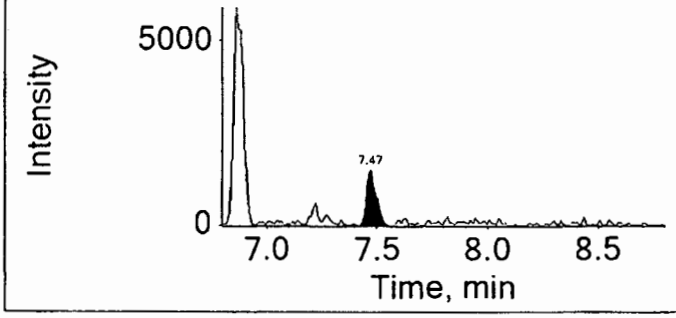
615.0 / 570.0



16JUL29-20.wiff

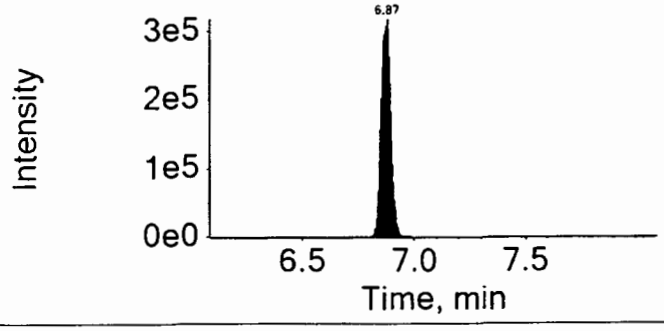
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

Printed: 8/5/2016 10:04:00 AM

Sample Name:	8438967RE		**Data File:**		16AUG04-20.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-08.0 Grab Soil		**Acquis Date:**		8/4/2016 6:38:21 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	29		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.150		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

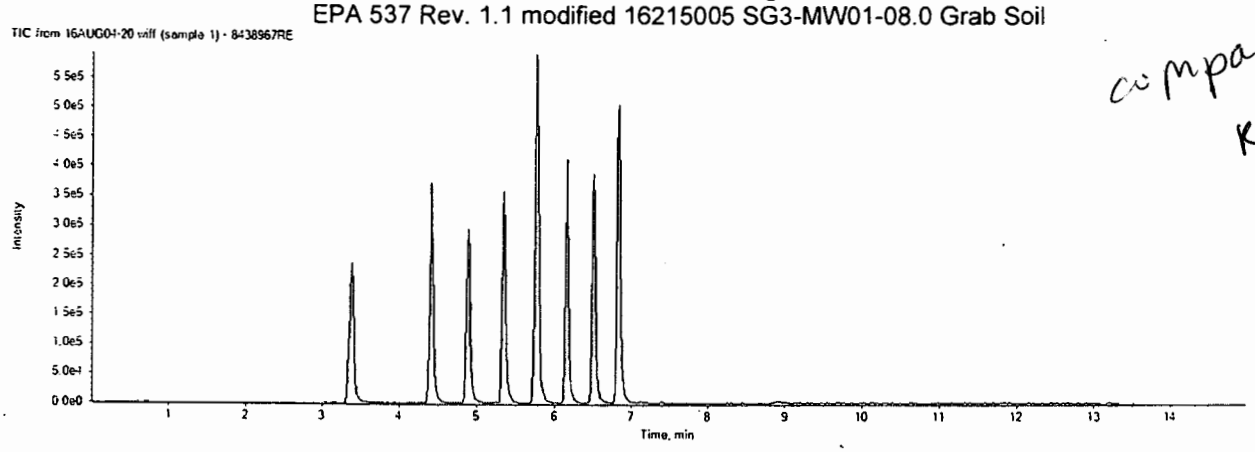
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.88	369758.2	N/A	N/A	
PFHxA	4.42	2537.1	M	13C2-PFHxA	4.41	1124976.0	0.002	0.041	
PFHpA	4.89	2135.1	A	13C4-PFHpA	4.89	608969.8	0.004	0.025	
PFHxS	4.87	2501.7	A	18O2-PFHxS	4.88	369758.2	0.007	0.056	
PFOA	5.34	79492.3	M	13C4-PFOA	5.34	1059288.8	0.075	0.621	
PFNA	5.77	11377.5	A	13C5-PFNA	5.77	1573605.4	0.007	0.062	
PFOS	5.74	3252.5	M	13C4-PFOS	5.74	375323.2	0.009	0.073	
PFDA	6.16	25329.3	M	13C2-PFDA	6.16	1108333.5	0.023	0.167	
PFUndA	6.51	13382.2	A	13C2-PFUnDA	6.51	1152585.1	0.012	0.101	
PFDoDA	6.83	12468.9	M	13C2-PFDoDA	6.83	1612189.8	0.008	0.077	
PFTrDA	7.12	4995.2	A	13C2-PFDoDA	6.83	1612189.8	0.003	0.029	
PFTeDA	7.41	7879.9	A	13C2-PFDoDA	6.83	1612189.8	0.005	0.045	

NR

comparable results

Total Ion Chromatogram

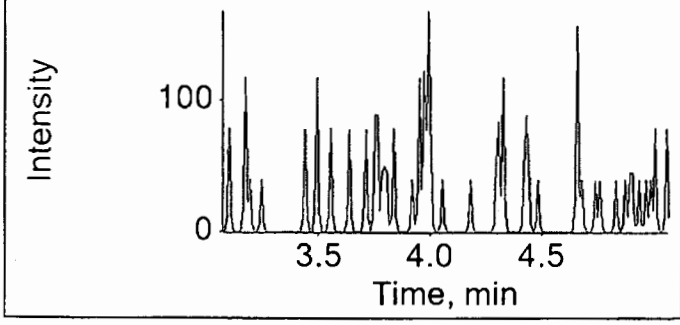
EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-08.0 Grab Soil



16AUG04-20.wiff

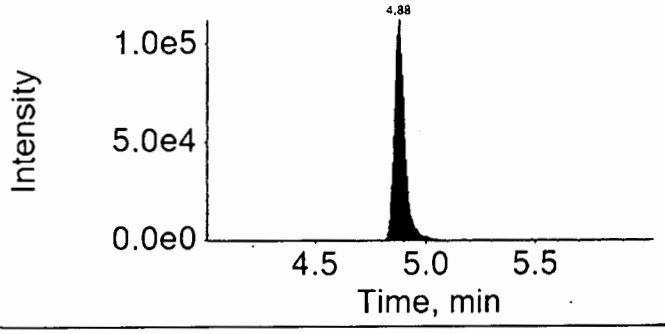
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

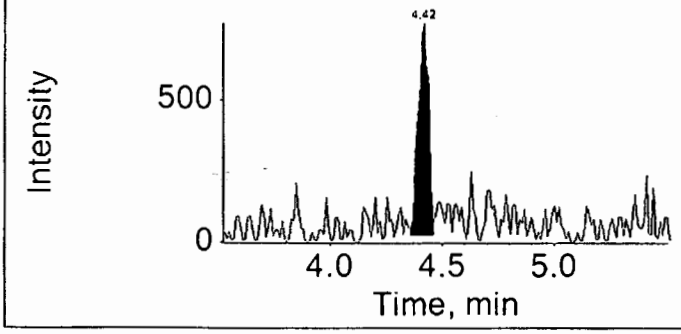
403.0 / 103.0



16AUG04-20.wiff

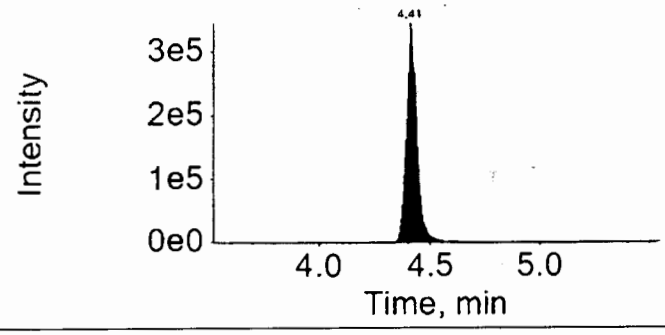
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

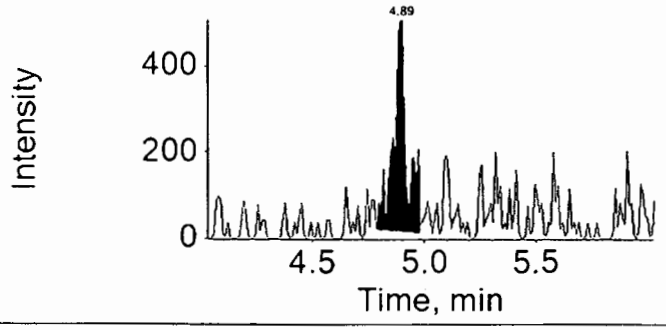
314.9 / 270.0



16AUG04-20.wiff

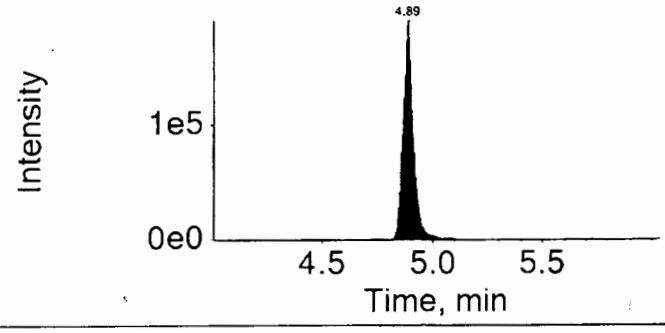
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

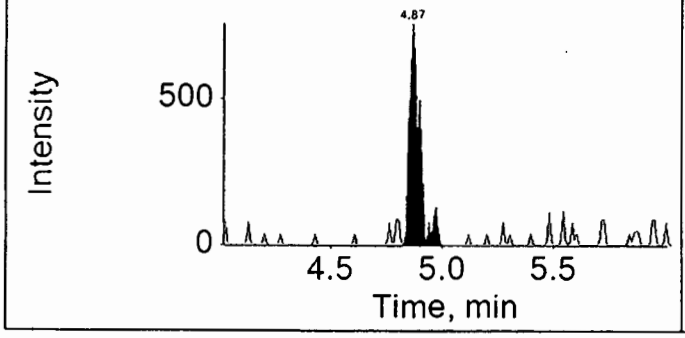
367.0 / 322.0



16AUG04-20.wiff

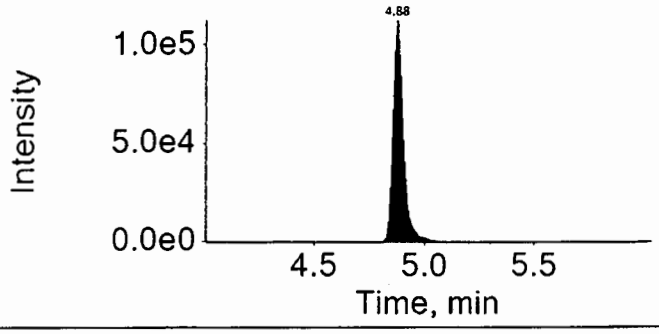
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

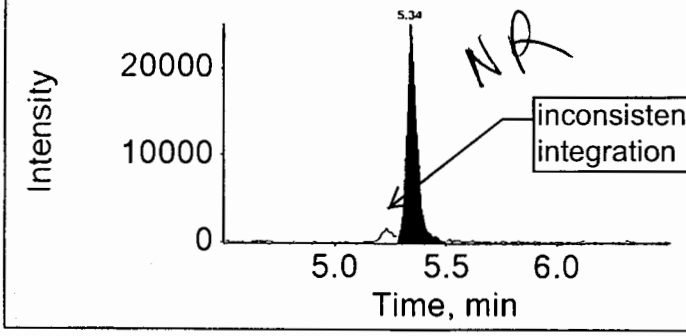
403.0 / 103.0



16AUG04-20.wiff

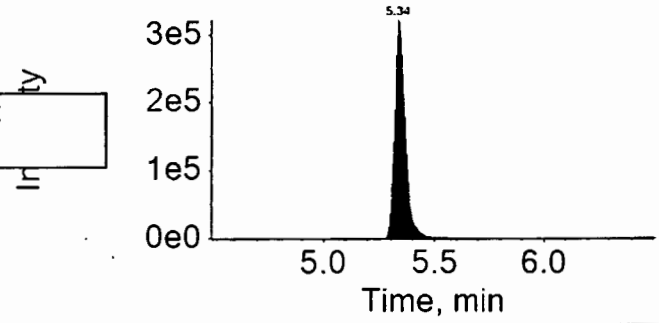
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

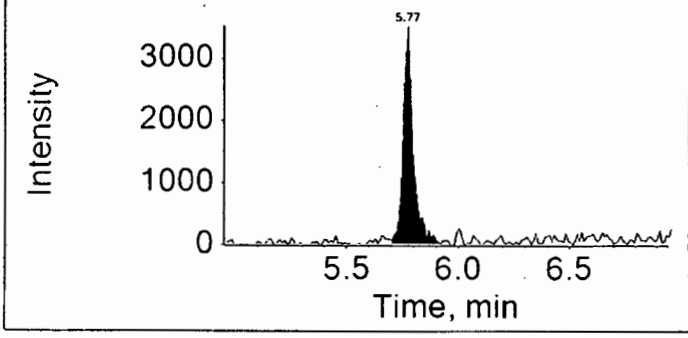
417.0 / 372.0



16AUG04-20.wiff

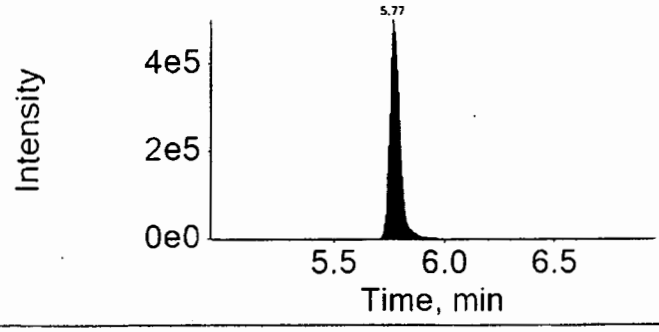
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

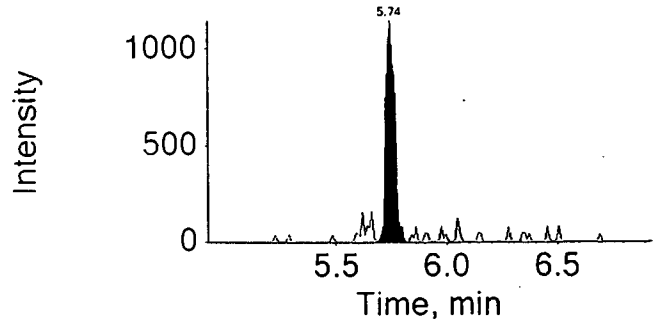
468.0 / 423.0



16AUG04-20.wiff

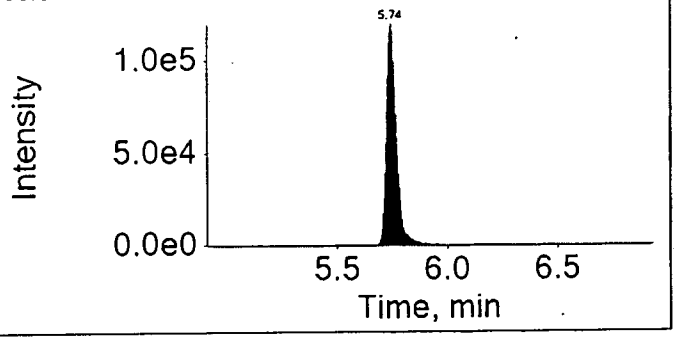
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

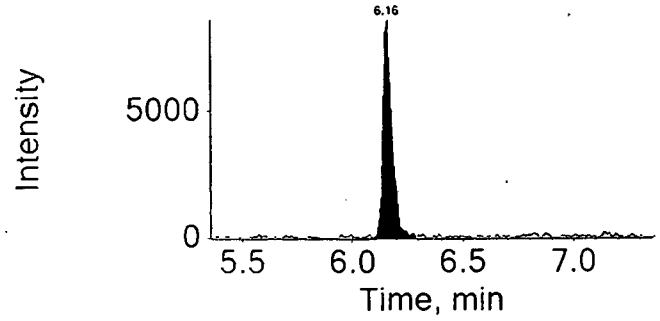
503.0 / 99.0



16AUG04-20.wiff

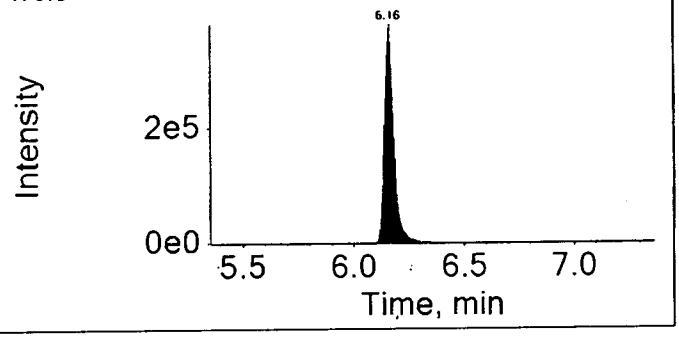
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

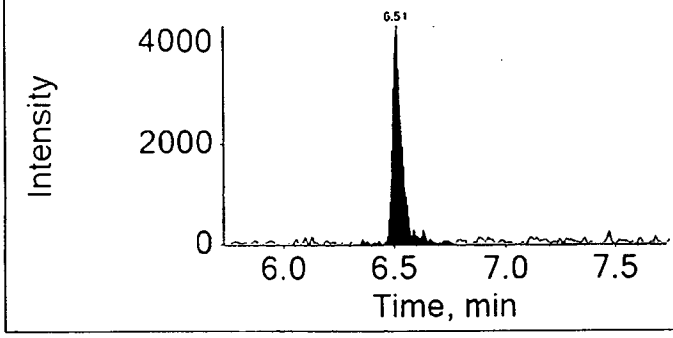
515.0 / 470.0



16AUG04-20.wiff

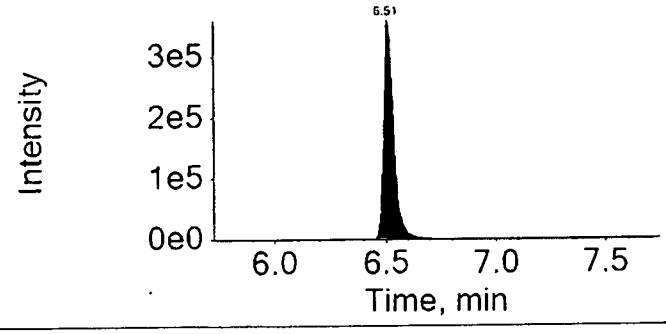
Analyte: PFUndA

562.9 / 518.9

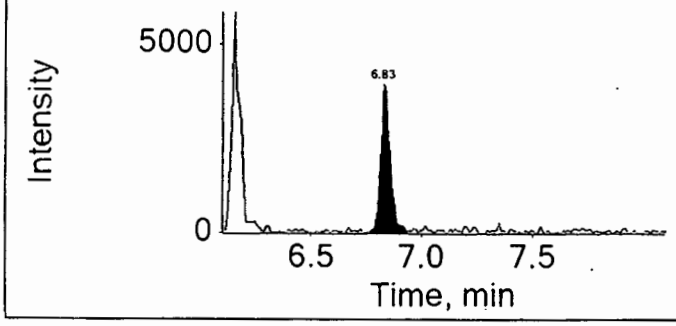


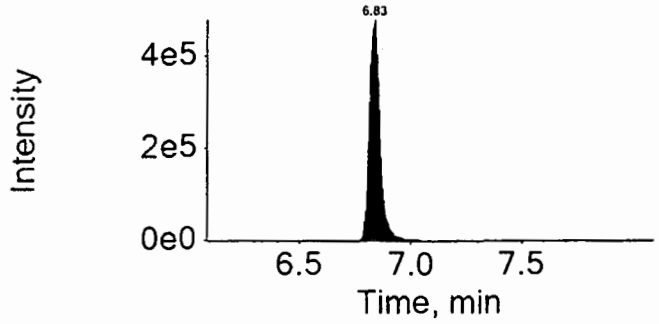
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

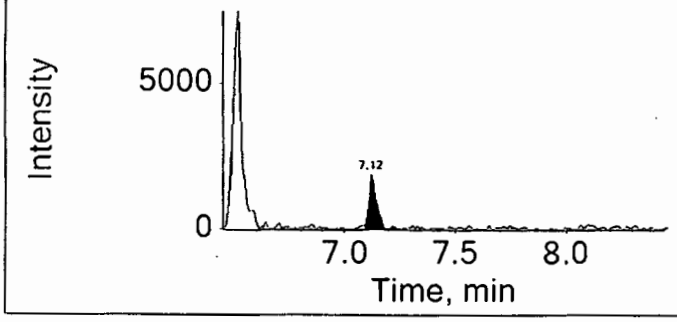


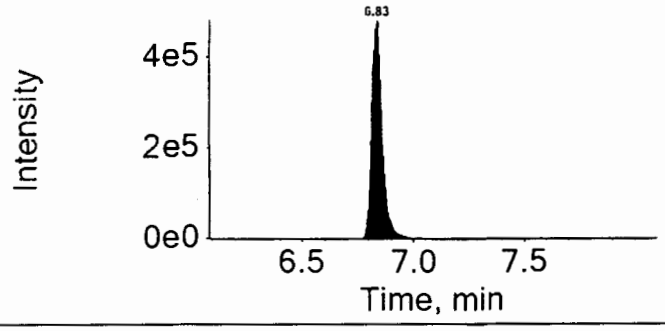
16AUG04-20.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



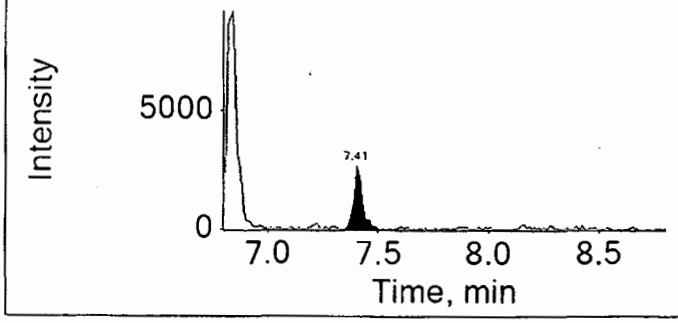


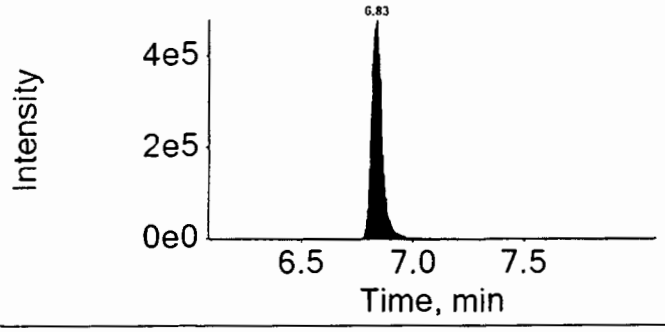
16AUG04-20.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG04-20.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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Analysis Report

Sample Description: SG3-MW01-13.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Collected: 06/20/2016 11:18 by JD
through 06/20/2016 11:20
Submitted: 06/22/2016 09:30
Reported: 08/05/2016 13:43

LL Sample # SW 8438968
LL Group # 1674752
Account # 37191

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

SG317 SDG#: SGP97-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.55	U	0.55	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.44	U	0.44	[illegible]	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	[illegible]	1
14027	Perfluorohexanesulfonate	355-46-4	0.55	U	0.55	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	[illegible]44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.77	U	0.77	[illegible]8	1
14027	Perfluorooctanoic acid	335-67-1	0.33	U	0.33	[illegible]66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	[illegible]88	1
14027	Perfluorotridecanoic acid	72629-94-8	0.66	U	0.66	[illegible]8	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	[illegible]66	1

add J - LAL, IS

inconsistent integration, could change to positive detection above MDL

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	445	J	150	450	1

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	9.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 14:19	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

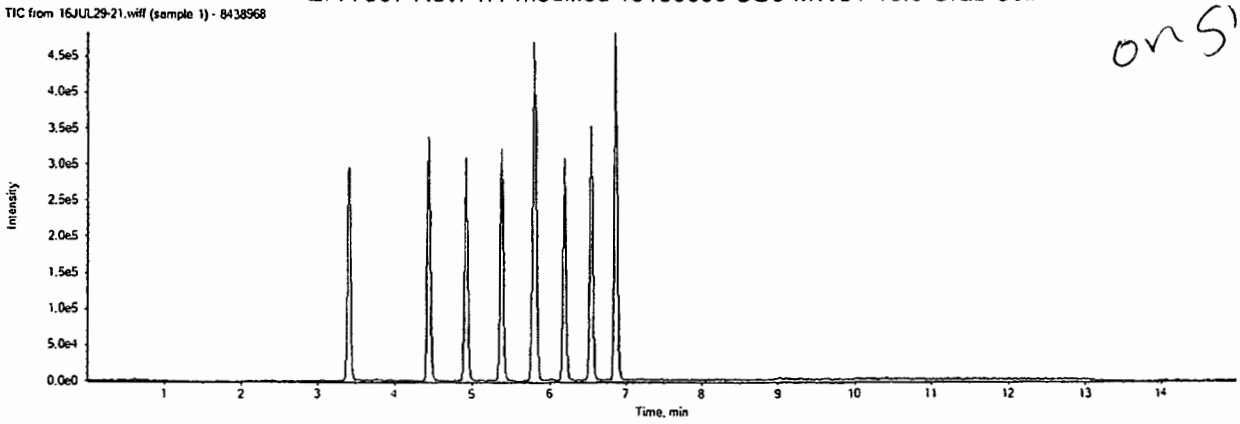
Sample Name:	8438968	**Data File:**		16JUL29-21.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-13.0 Grab Soil	**Acquis Date:**		7/29/2016 2:19:45 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	45	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.060	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	4.91	291776.8	N/A	N/A	
PFHxA	4.45	1213.8	13C2-PFHxA	4.43	986901.9	0.001	0.024	
PFHpA	4.92	636.0	13C4-PFHpA	4.92	575469.5	0.001	0.008	
PFHxS	4.91	1250.9	18O2-PFHxS	4.91	291776.8	0.004	0.036	
PFOA	5.38	24424.9	13C4-PFOA	5.38	884425.4	0.028	0.218	
PFNA	5.81	2289.5	13C5-PFNA	5.81	1221133.9	0.002	0.016	
PFOS	5.76	531.6	13C4-PFOS	5.78	291307.2	0.002	0.015	
PFDA	6.19	2684.6	13C2-PFDA	6.19	783124.0	0.003	0.025	
PFUndA	6.54	3595.9	13C2-PFUnDA	6.54	964210.3	0.004	0.033	
PFDoDA	6.86	1677.8	13C2-PFDoDA	6.86	1261569.5	0.001	0.015	
PFTrDA	7.16	2876.6	13C2-PFDoDA	6.86	1261569.5	0.002	0.021	
PFTeDA	7.47	3406.4	13C2-PFDoDA	6.86	1261569.5	0.003	0.023	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-13.0 Grab Soil

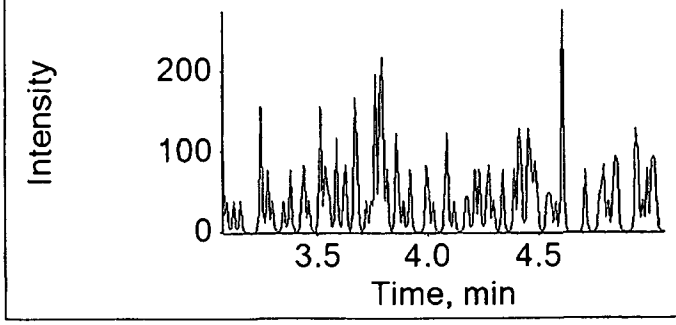


on signal

16JUL29-21.wiff

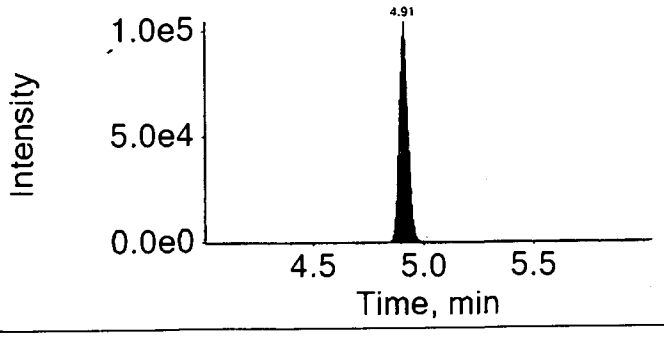
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

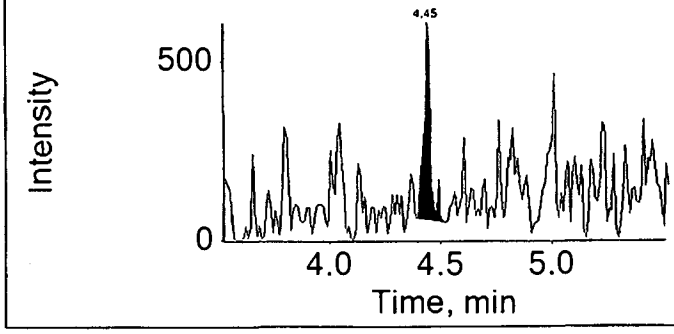
403.0 / 103.0



16JUL29-21.wiff

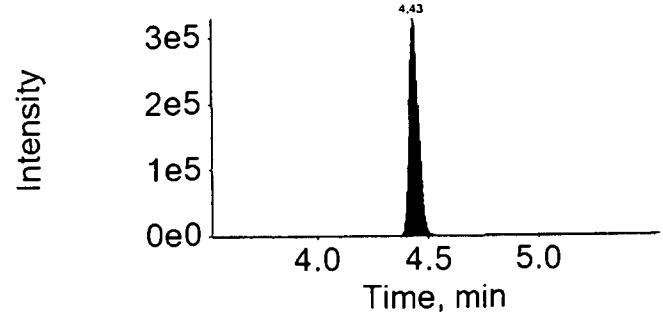
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

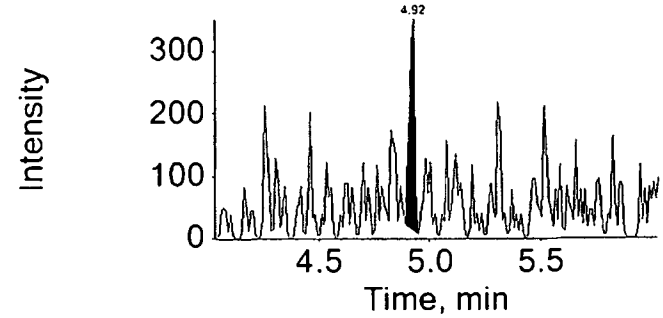
314.9 / 270.0



16JUL29-21.wiff

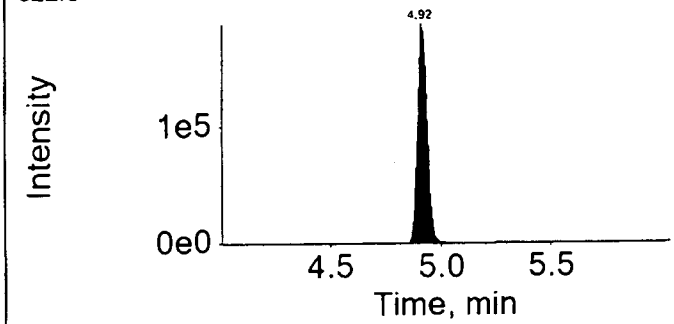
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

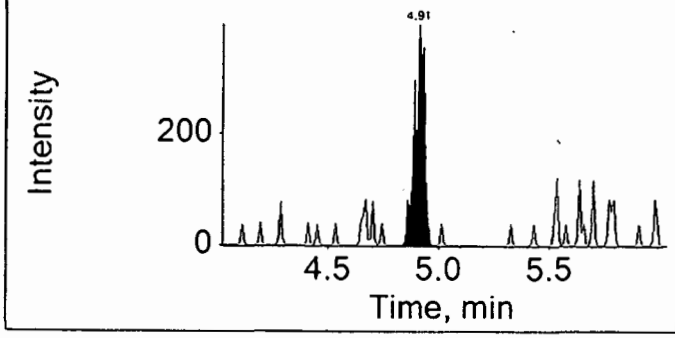
367.0 / 322.0



16JUL29-21.wiff

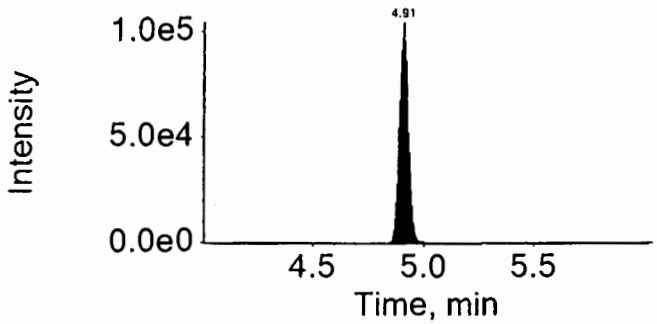
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

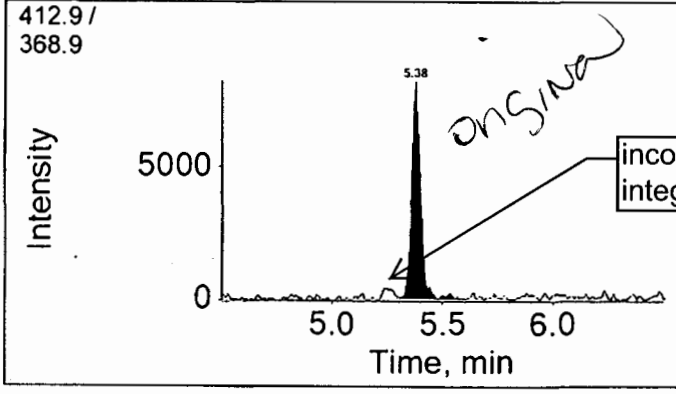
403.0 / 103.0



16JUL29-21.wiff

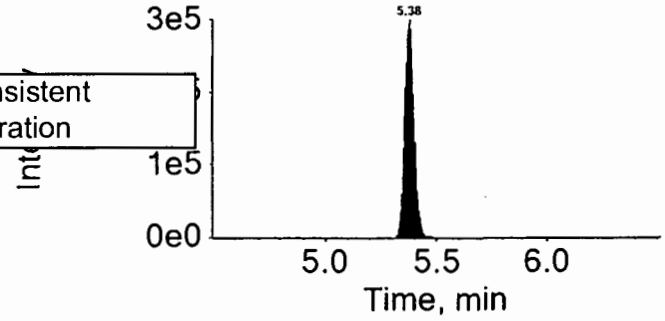
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

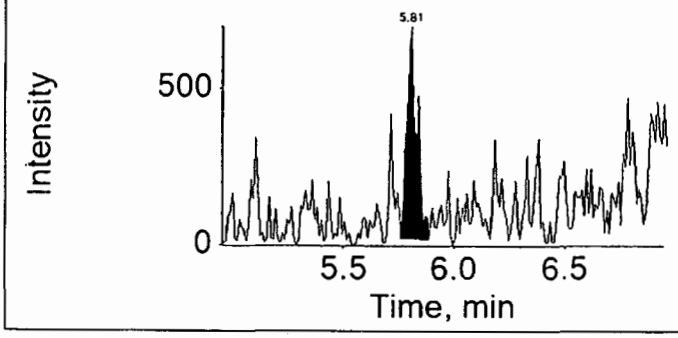
417.0 / 372.0



16JUL29-21.wiff

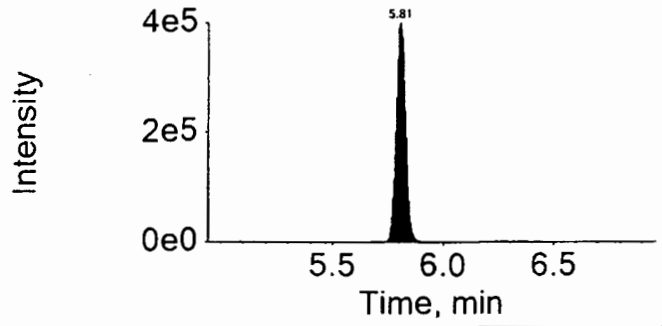
Analyte: PFNA

462.9 / 418.9

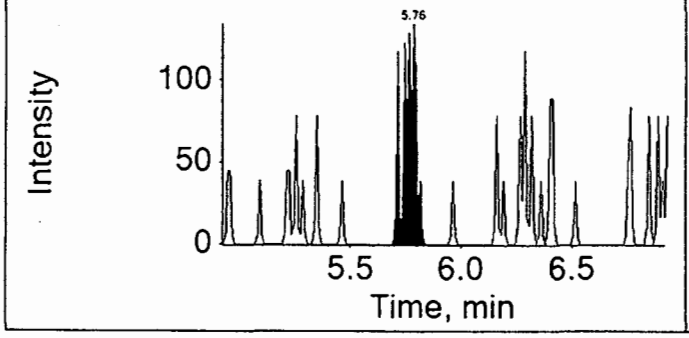


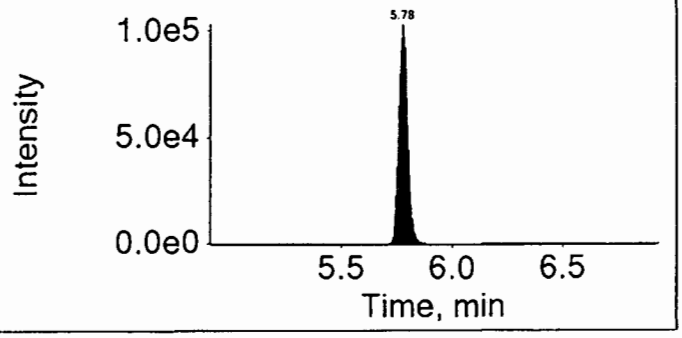
Internal Standard: 13C5-PFNA

468.0 / 423.0



16JUL29-21.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0





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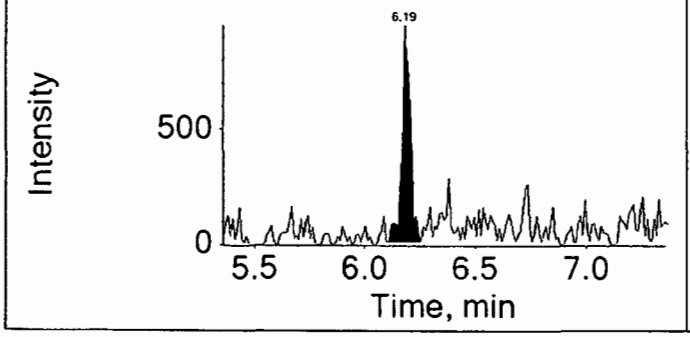
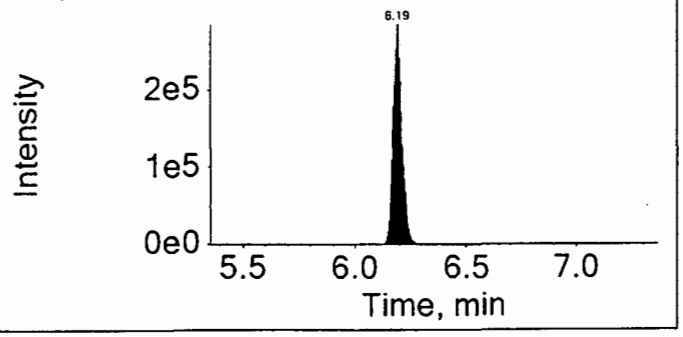
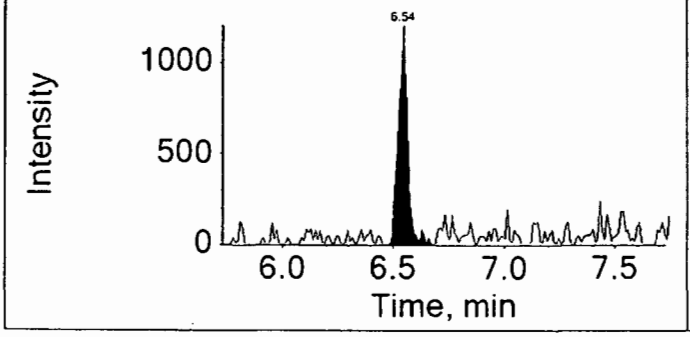
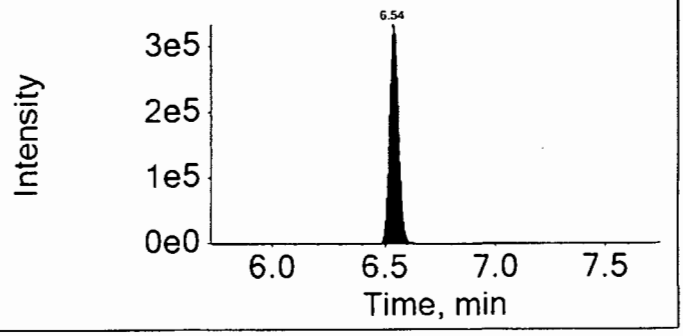
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



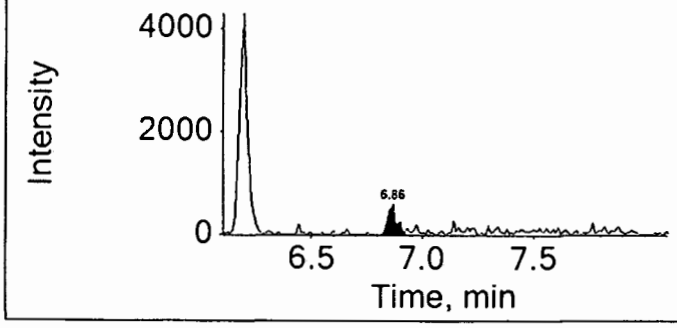


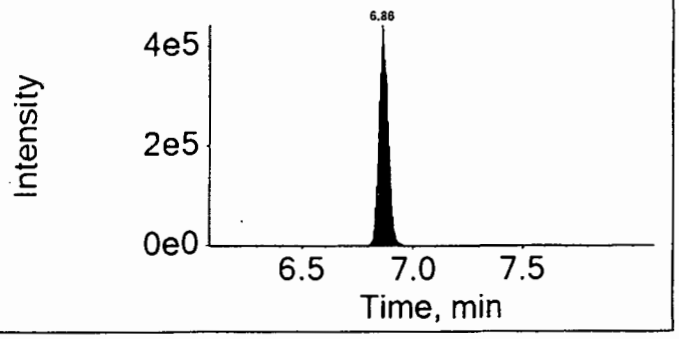
16JUL29-21.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



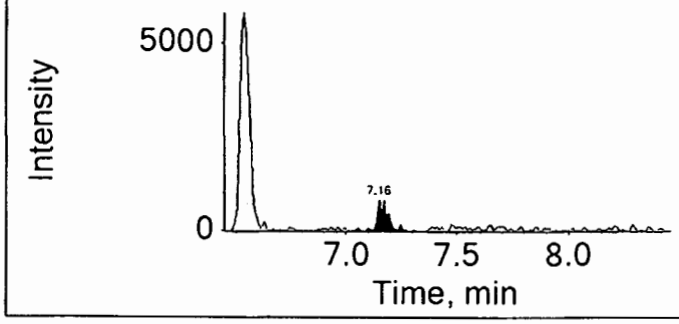


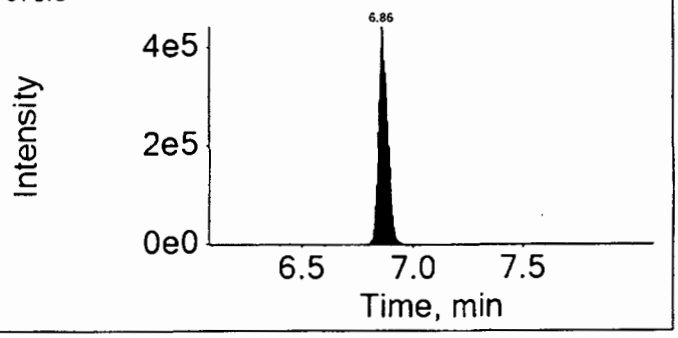
16JUL29-21.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



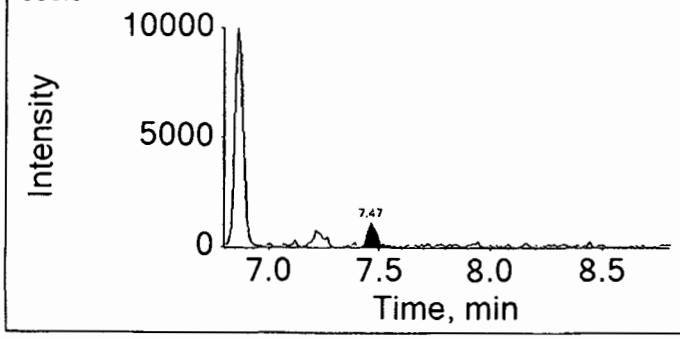


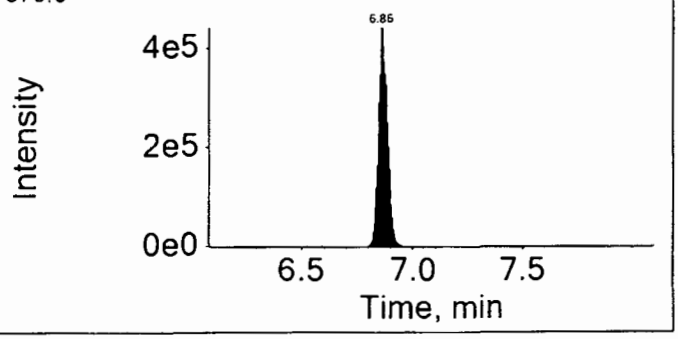
16JUL29-21.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL29-21.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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Analysis Report

REVISED

Sample Description: SG3-MW01-13.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8438968
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 11:18 by JD
through 06/20/2016 11:20
Submitted: 06/22/2016 09:30
Reported: 05/30/2017 08:39

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

no change

Revised

SG317 SDG#: SGP97-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.54	U	0.54	1.7	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.44	U	0.44	0.87	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.54	U	0.54	1.7	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.76	U	0.76	1.7	1
14027	Perfluorooctanoic acid	335-67-1	0.33	U	0.33	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.87	1
14027	Perfluorotridecanoic acid	72629-94-8	0.65	U	0.65	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.65	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	**445**	**J**	150	450	1

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**9.3**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 14:19	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:00:00 PM

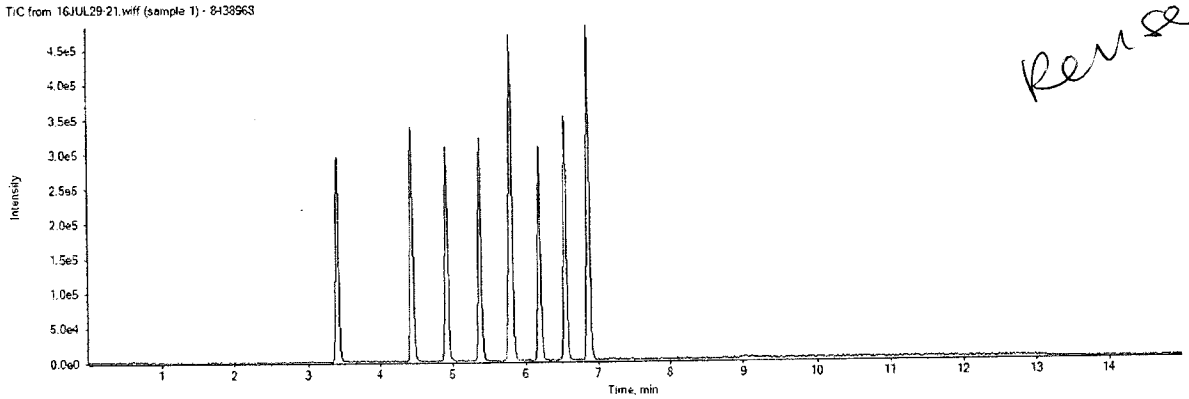
Sample Name:	8438968			**Data File:**		16JUL29-21.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-13.0 Grab Soil			**Acquis Date:**		2016-07-29T14:19:45
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	45			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16190006
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.060			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.91	291776.8	N/A	N/A
PFHxA	4.45	1.000	1213.8	A	13C2-PFHxA	4.43	986901.9	0.001	0.024
PFHpA	4.92	1.000	636.0	A	13C4-PFHpA	4.92	575469.5	0.001	0.008
PFHxS	4.91	1.000	1250.9	A	18O2-PFHxS	4.91	291776.8	0.004	0.036
PFOA	5.38	1.000	25507.6	M	13C4-PFOA	5.38	884425.4	0.029	0.227
PFNA	5.81	1.000	2289.5	M	13C5-PFNA	5.81	1221133.9	0.002	0.016
PFOS	5.76	1.000	531.6	A	13C4-PFOS	5.78	291307.2	0.002	0.015
PFDA	6.19	1.000	2684.6	M	13C2-PFDA	6.19	783124.0	0.003	0.025
PFUndA	6.54	1.000	3595.9	A	13C2-PFUnDA	6.54	964210.3	0.004	0.033
PFDoDA	6.86	1.000	1677.8	M	13C2-PFDoDA	6.86	1261569.5	0.001	0.015
PFTrDA	7.16	1.040	2876.6	A	13C2-PFDoDA	6.86	1261569.5	0.002	0.021
PFTeDA	7.47	1.090	3406.4	M	13C2-PFDoDA	6.86	1261569.5	0.003	0.023

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW01-13.0 Grab Soil



revised

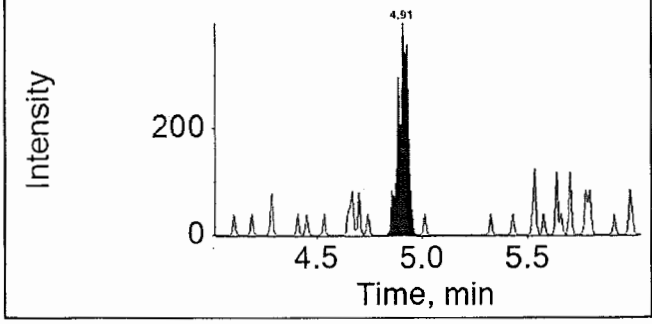
APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 1:25 pm, 5/27/17

16JUL29-21.wiff

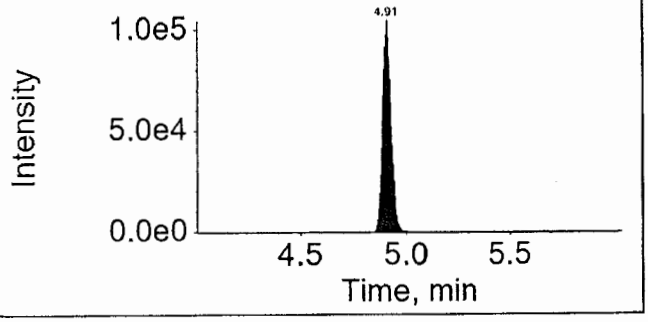
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

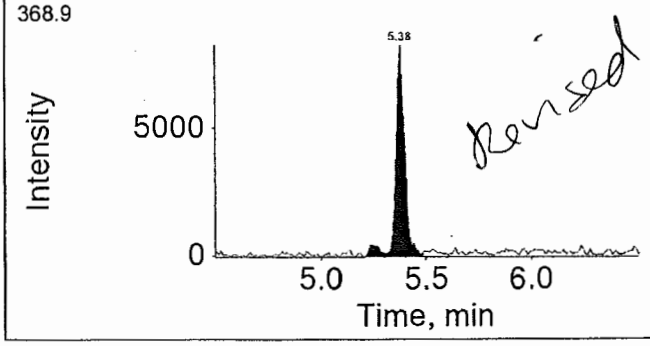
403.0 / 103.0



16JUL29-21.wiff

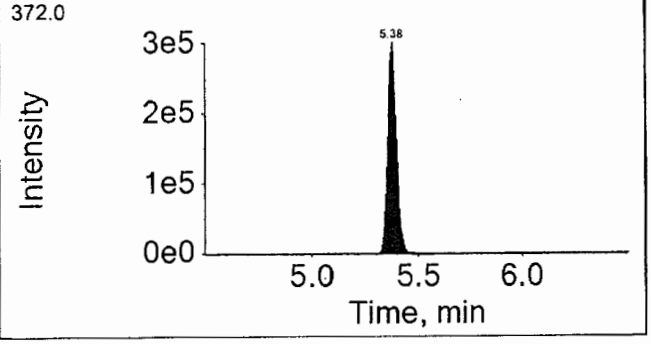
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

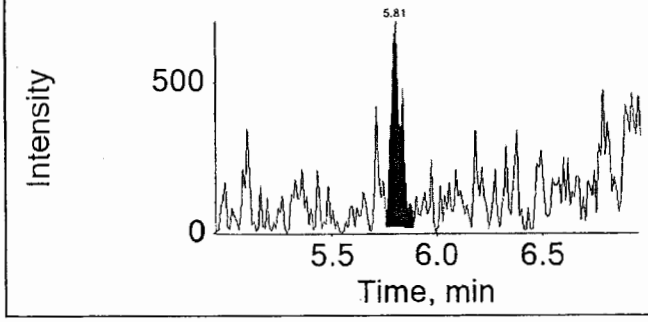
417.0 / 372.0



16JUL29-21.wiff

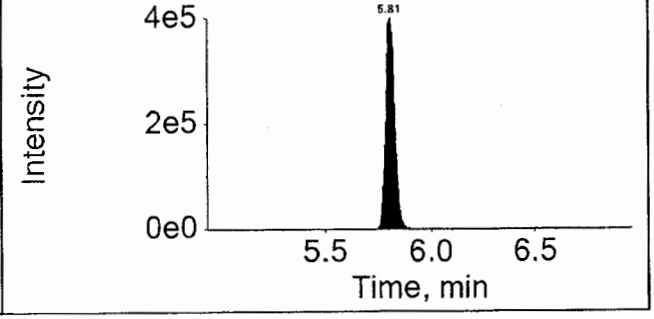
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 1:25 pm, 5/27/17

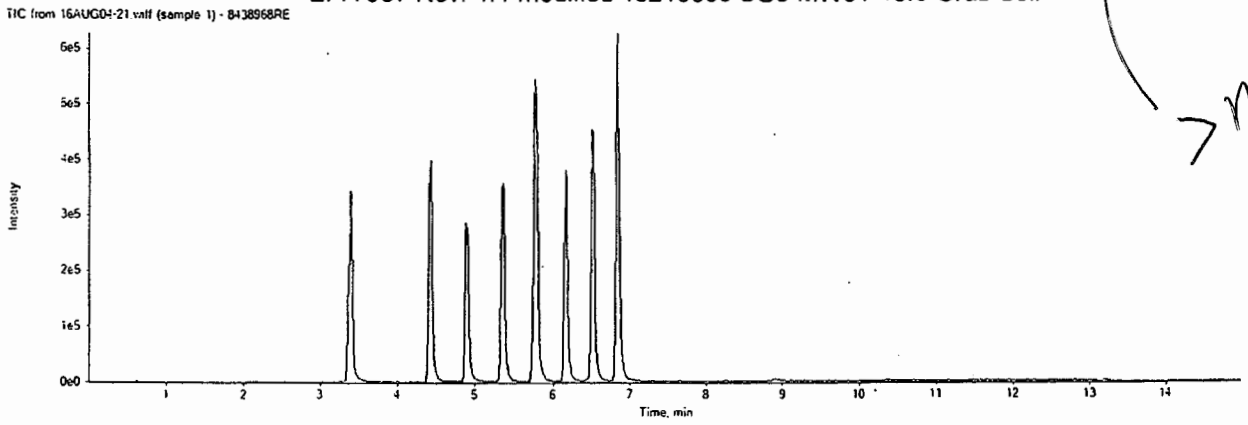
Sample Name:	8438968RE		**Data File:**		16AUG04-21.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-13.0 Grab Soil		**Acquis Date:**		8/4/2016 6:54:06 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	30		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.210		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.89	403238.5	N/A	N/A	
PFHxA	4.43	3673.4	A	13C2-PFHxA	4.42	1274662.3	0.003	0.051	
PFHpA	4.90	1250.2	A	13C4-PFHpA	4.89	600386.0	0.002	0.014	
PFHxS	4.89	3313.9	A	18O2-PFHxS	4.89	403238.5	0.008	0.068	
PFOA	5.35	55879.2	M	13C4-PFOA	5.35	1169212.9	0.048	0.391	
PFNA	5.77	1501.1	A	13C5-PFNA	5.78	1629351.8	0.001	0.008	
PFOS	5.75	4096.4	A	13C4-PFOS	5.75	393072.1	0.010	0.087	
PFDA	6.16	2531.0	A	13C2-PFDA	6.17	1128280.3	0.002	0.016	
PFUndA	6.51	4409.2	A	13C2-PFUnDA	6.52	1380828.8	0.003	0.027	
PFDoDA	6.84	2570.0	M	13C2-PFDoDA	6.84	1768017.7	0.001	0.014	
PFTrDA	7.13	1782.4	A	13C2-PFDoDA	6.84	1768017.7	0.001	0.009	
PFTeDA	N/A	N/A	A	13C2-PFDoDA	6.84	1768017.7	N/A	N/A	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-13.0 Grab Soil



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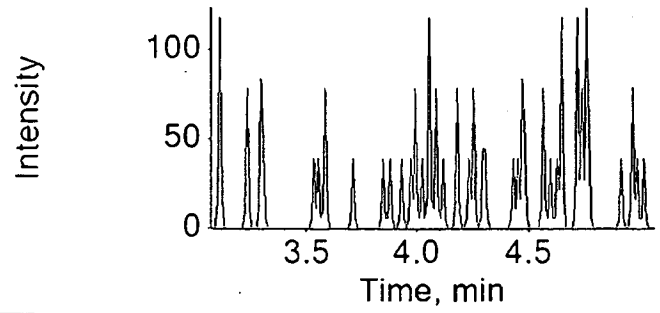
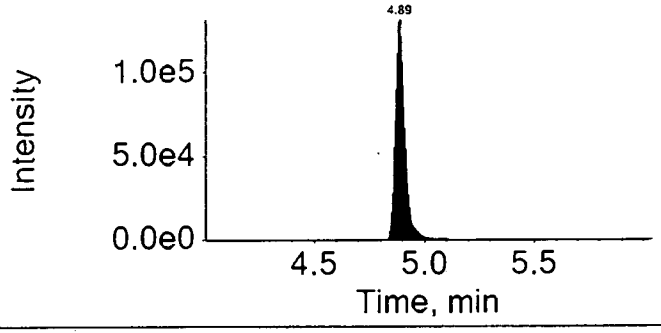
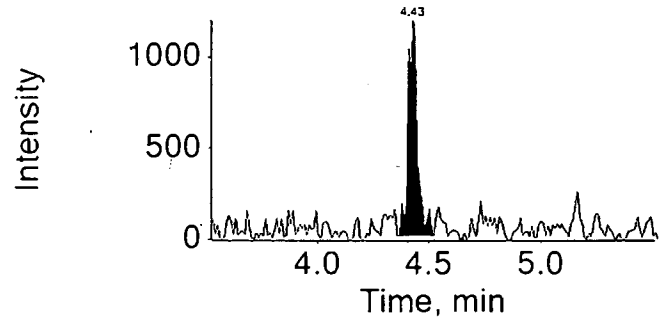
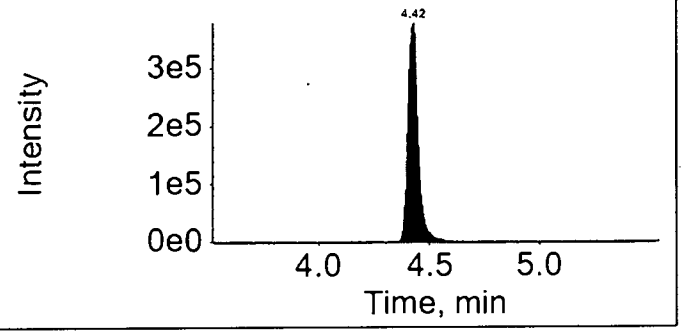
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



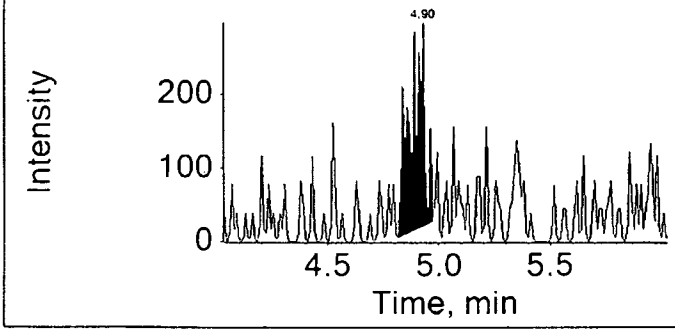


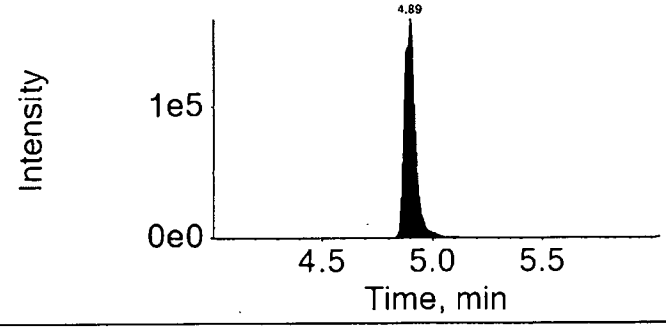
16AUG04-21.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



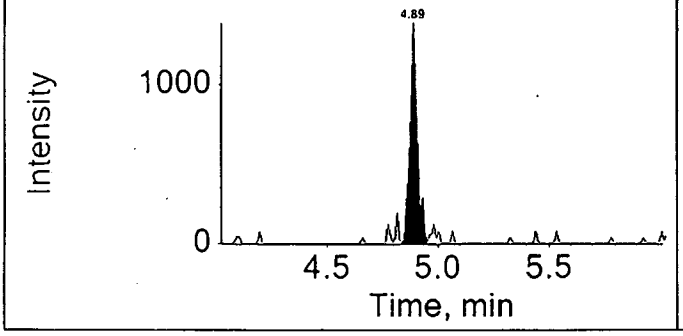


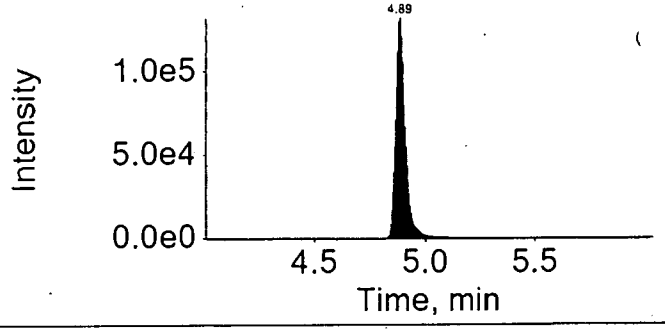
16AUG04-21.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



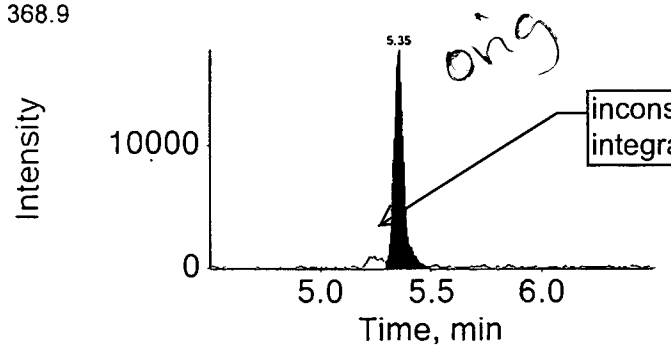


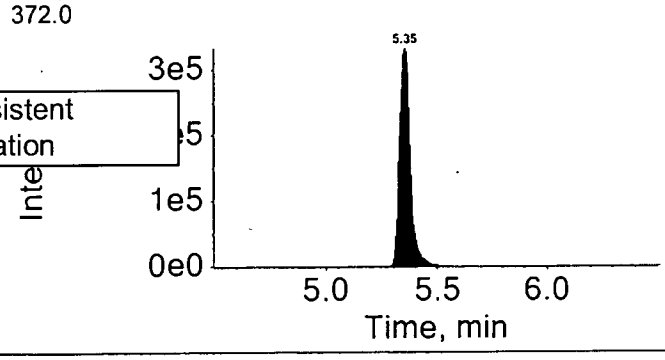
16AUG04-21.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



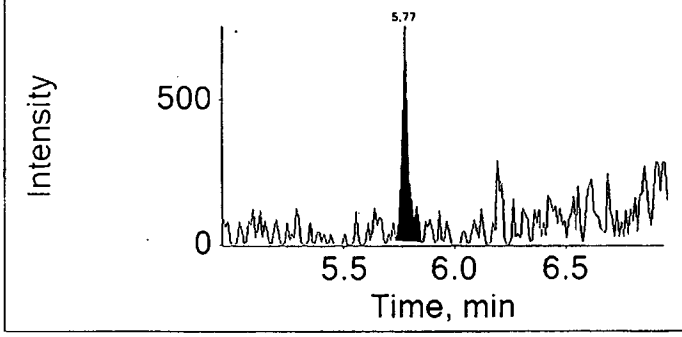


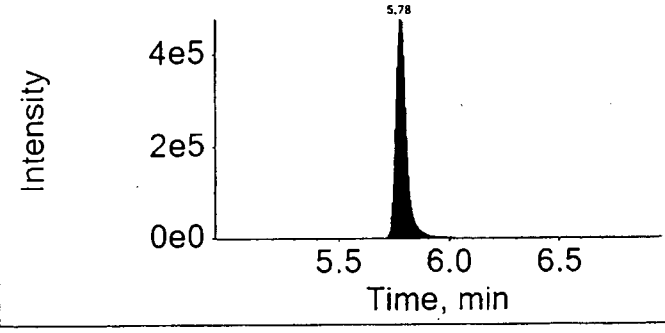
16AUG04-21.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



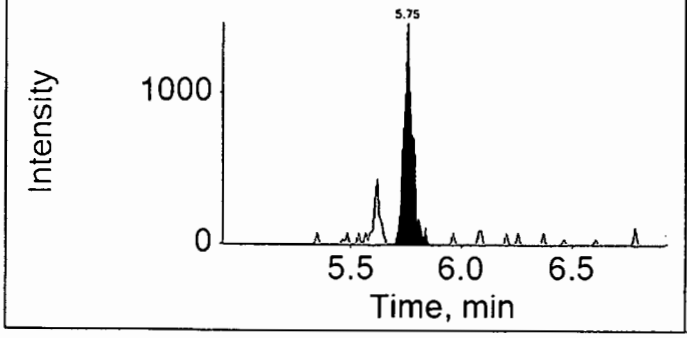


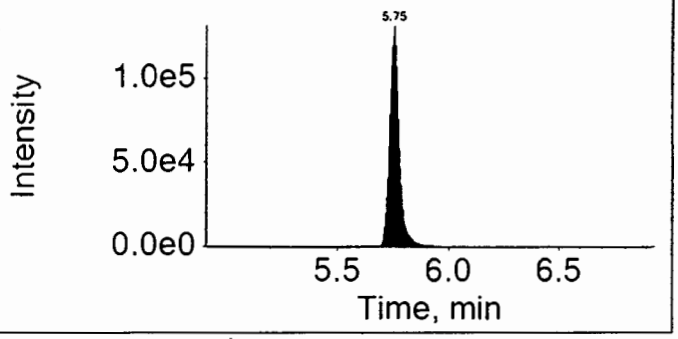
16AUG04-21.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0





16AUG04-21.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0





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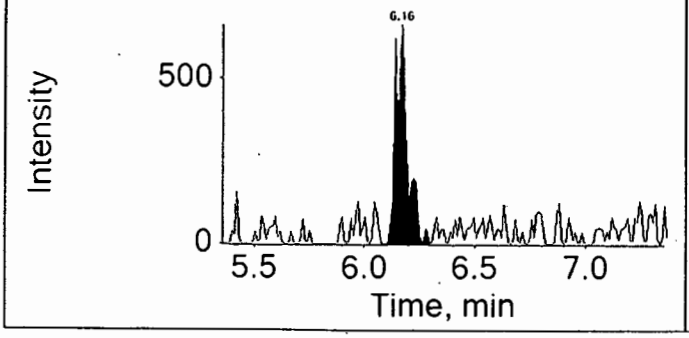
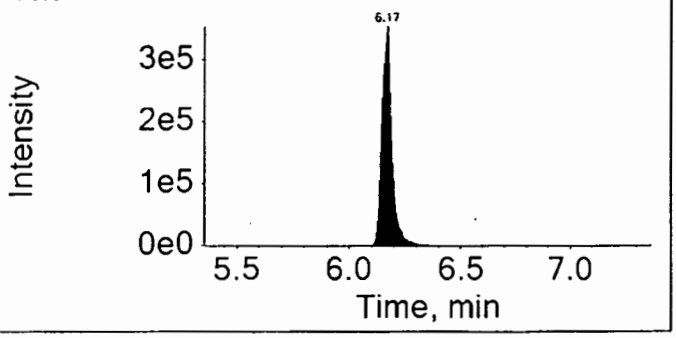
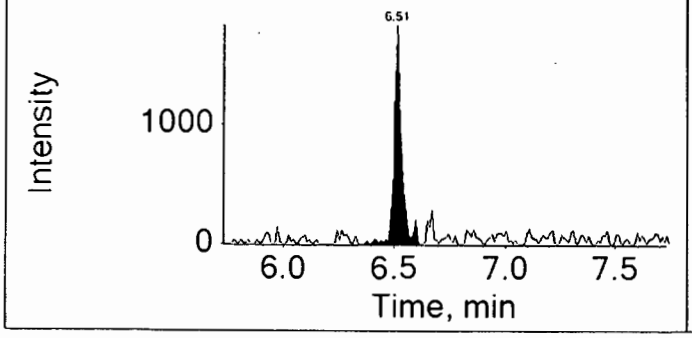
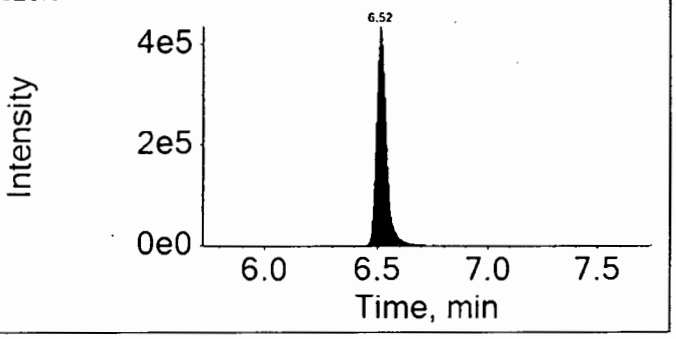
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



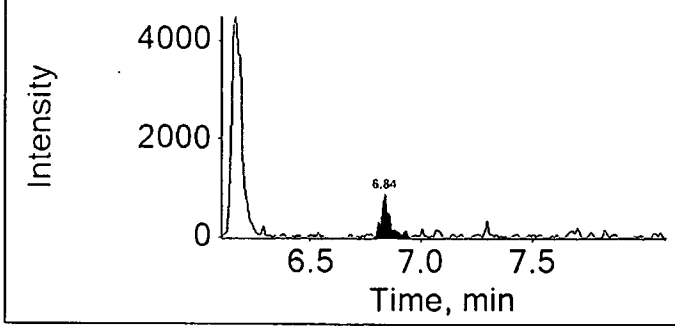


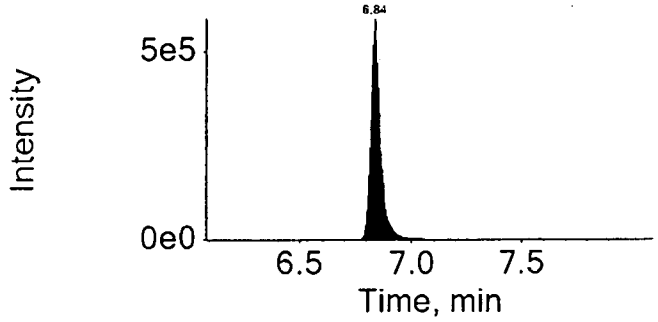
16AUG04-21.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



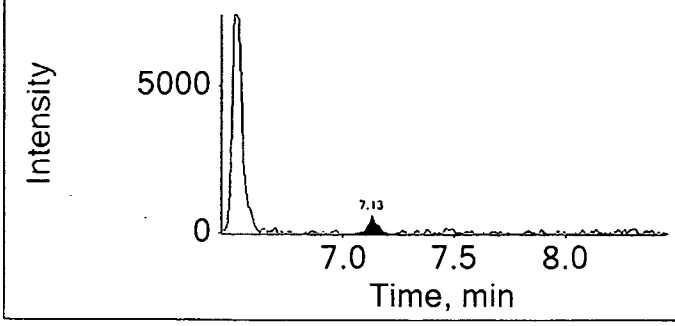


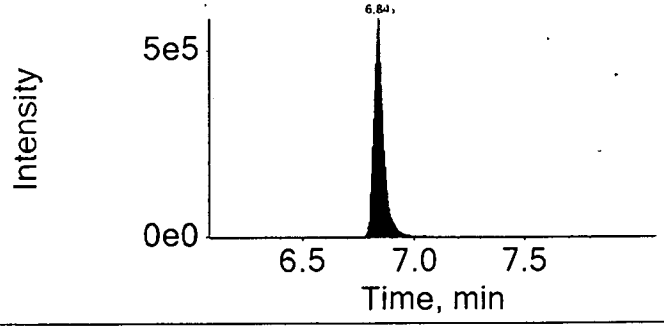
16AUG04-21.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



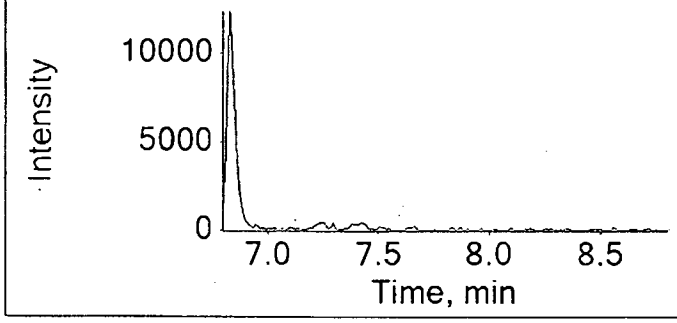


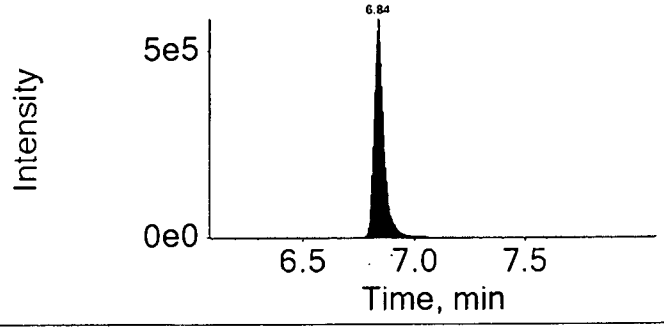
16AUG04-21.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG04-21.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

Printed: 5/23/2017 3:13:00 PM

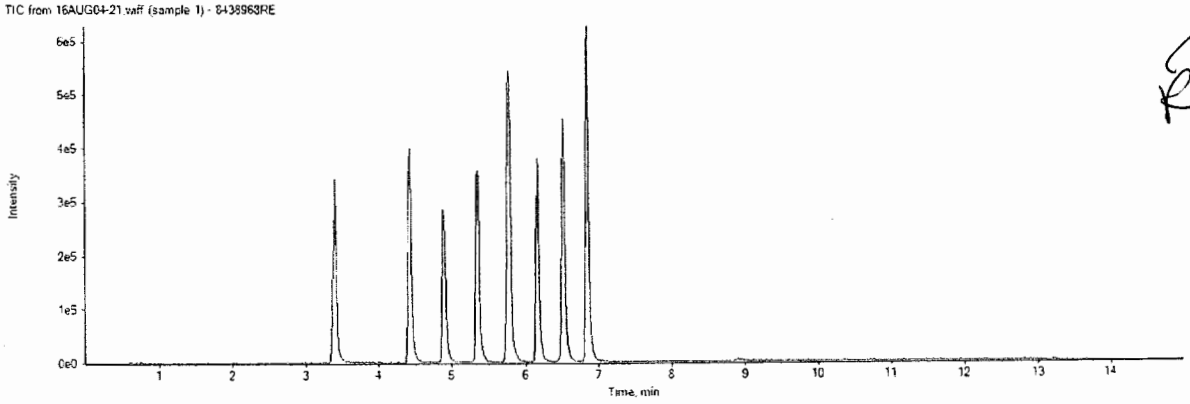
Sample Name:	8438968RE			**Data File:**		16AUG04-21.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-13.0 Grab Soil			**Acquis Date:**		2016-08-04T18:54:06
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	30			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16215005
				ICAL Name:		16AUG01
Batch Number:	16215005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.21000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.89	403238.5	N/A	N/A
PFHxA	4.43	1.000	3673.4	A	13C2-PFHxA	4.42	1274662.3	0.003	0.051
PFHpA	4.90	1.000	1250.2	A	13C4-PFHpA	4.89	600386.0	0.002	0.014
PFHxS	4.89	1.000	3313.9	A	18O2-PFHxS	4.89	403238.5	0.008	0.068
PFOA	5.35	1.000	60055.1	A	13C4-PFOA	5.35	1169212.9	0.051	0.420
PFNA	5.77	1.000	1501.1	A	13C5-PFNA	5.78	1629351.8	0.001	0.008
PFOS	5.75	1.000	4096.4	A	13C4-PFOS	5.75	393072.1	0.010	0.087
PFDA	6.16	1.000	2531.0	A	13C2-PFDA	6.17	1128280.3	0.002	0.016
PFUndA	6.51	1.000	4409.2	A	13C2-PFUnDA	6.52	1380828.8	0.003	0.027
PFDoDA	6.84	1.000	2570.0	M	13C2-PFDoDA	6.84	1768017.7	0.001	0.014
PFTrDA	7.13	1.040	1782.4	A	13C2-PFDoDA	6.84	1768017.7	0.001	0.009
PFTeDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.84	1768017.7	N/A	N/A

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW01-13.0 Grab Soil



RCN

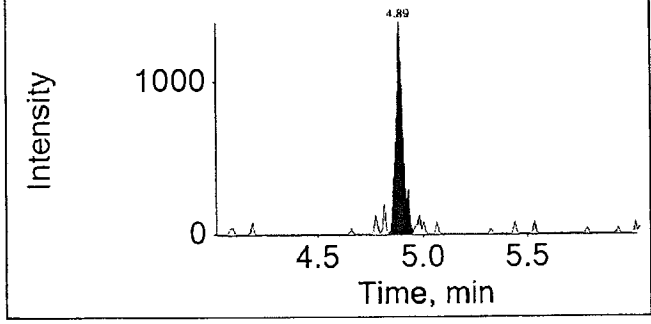
APPROVED
By MCD at 3:34 pm, 5/23/17

REVIEWED
By ucmr at 2:20 pm, 5/27/17

16AUG04-21.wiff

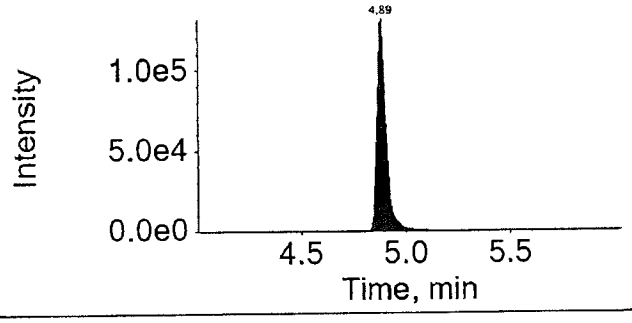
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

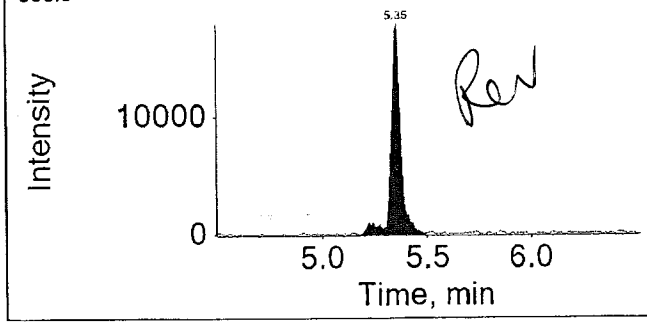
403.0 / 103.0



16AUG04-21.wiff

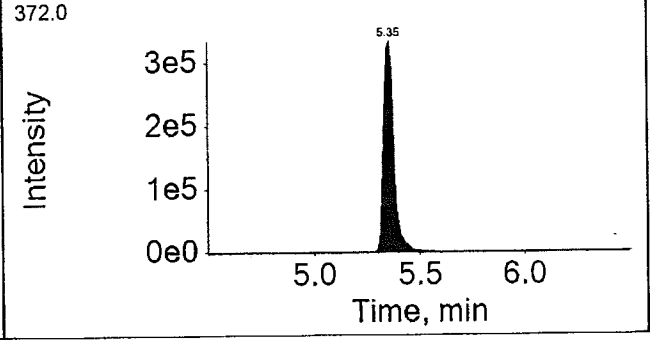
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

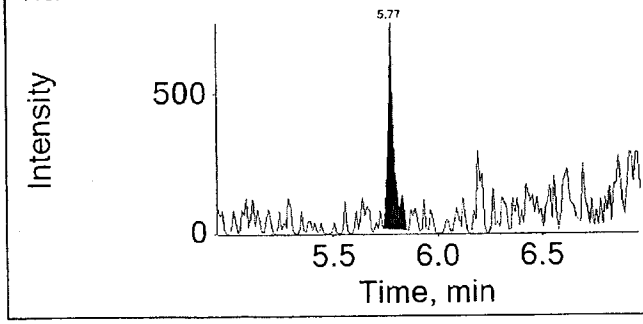
417.0 / 372.0



16AUG04-21.wiff

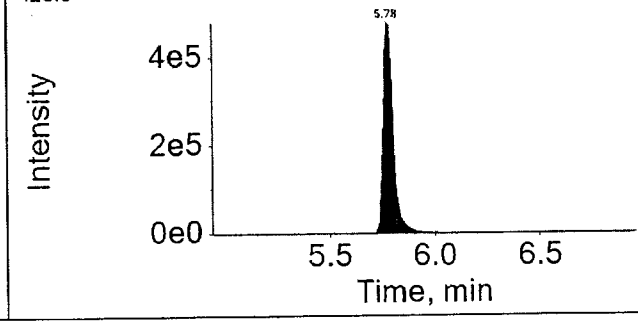
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:34 pm, 5/23/17

REVIEWED
By ucmr at 2:20 pm, 5/27/17

Sample Description: SG3-RB02-20160620 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8438969
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 13:10 by JD

Submitted: 06/22/2016 09:30
Reported: 08/05/2016 13:43

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB220 SDG#: SGP97-11RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16180002	07/01/2016 01:46	Jason W Knight	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16180002	06/28/2016 11:20	Robert Brown	1

*=This limit was used in the evaluation of the final result

LCMSMS ANALYSIS REPORT

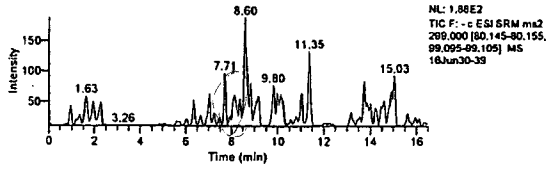
Sample Name:	8438969	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun30
Sample ID:	8438969	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun30-39		
Acquisition Date:	07/01/16 01:46:45 AM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	B:27	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

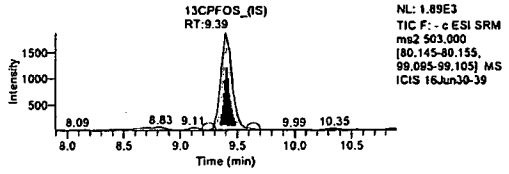
Extracted Ion Chromatogram

Quan Peak Table

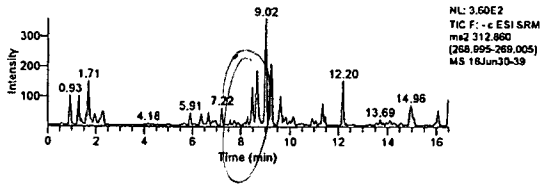
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.43	198716.32	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.07	154930.65	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.96	156362.48	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.84	117819.87	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.78	151315.28	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.49	86448.58	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.78	24622.34	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.39	13096.60	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.71	144929.36	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

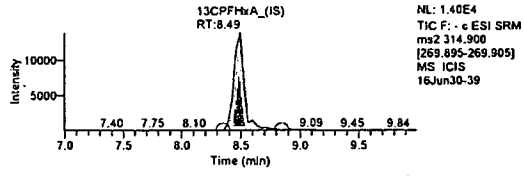
Component Name: PFBS





Component Name: PFHxA





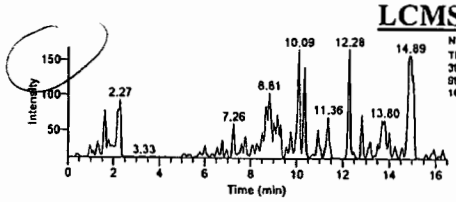
Component Name: PFHxS

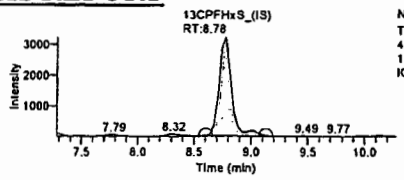
Jason W. Knight
Senior Chemist

Friday, July 01, 2016, 07:37:11

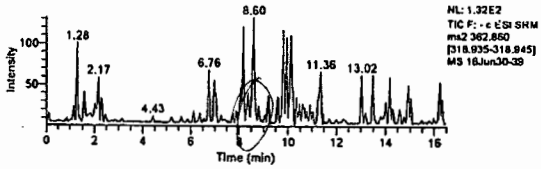
JUL 01 2016

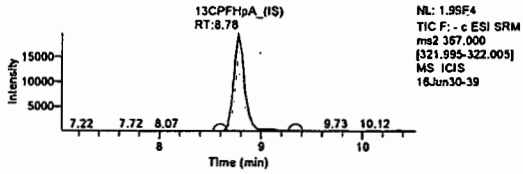
LCMSMS ANALYSIS REPORT



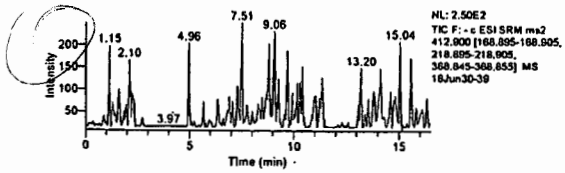


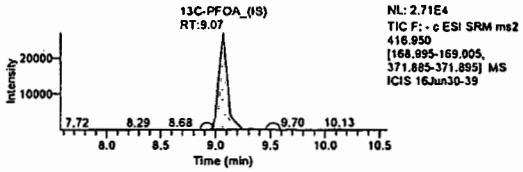
Component Name: PFhpA



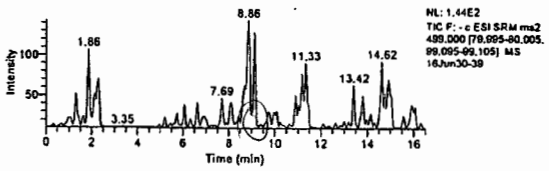


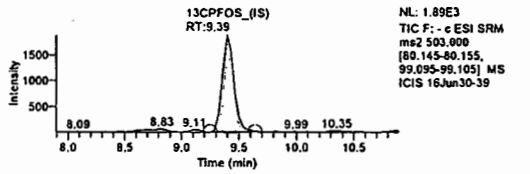
Component Name: PFOA





Component Name: PFOS





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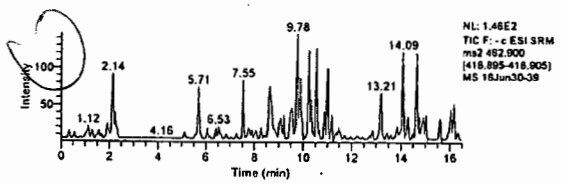
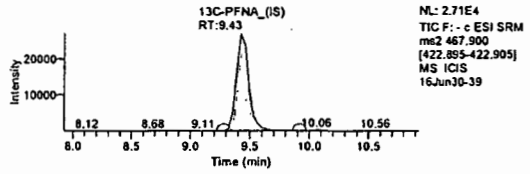
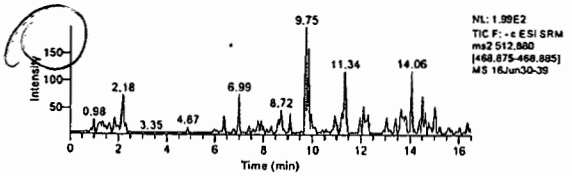
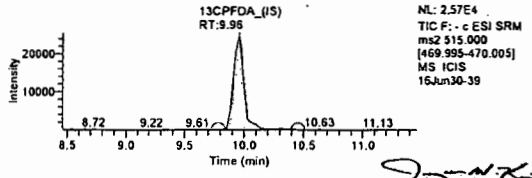




Component Name: PFDA





Jason W. Knight
Senior Chemist

Component Name: PFUdA

JUL 0 1 2016

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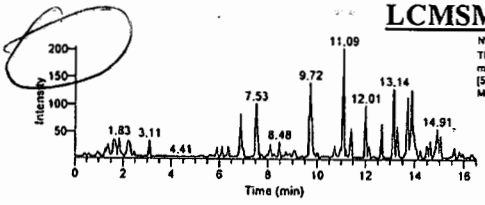
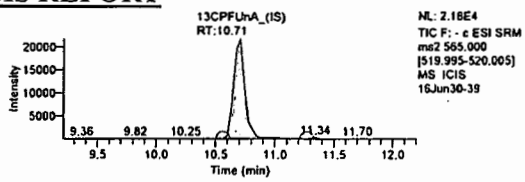
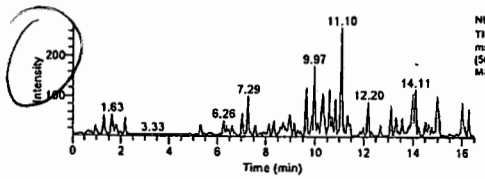
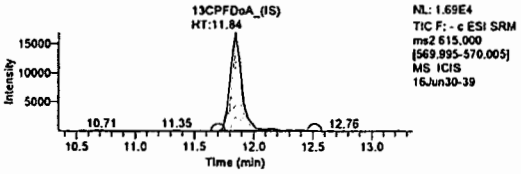


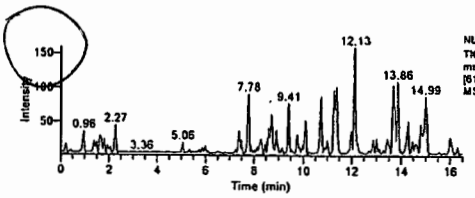


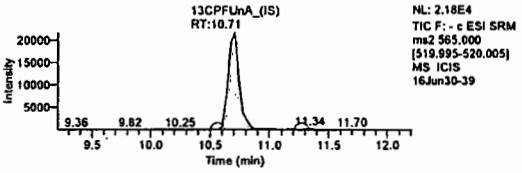
Component Name: PFDoA





Component Name: PFTrDA





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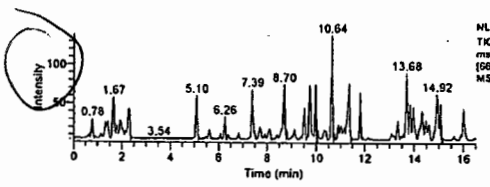
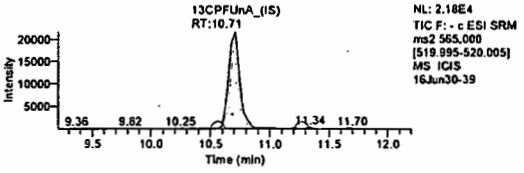




Lynn Dodd

JUL 0 1 2016

Jason W. Knight
Senior Chemist

Lynn Dodd
Principal Specialist

JUL 0 1 2016

Sample Description: SG3-MW06-05.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8438970
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 14:10 by JD
through 06/20/2016 14:12
Submitted: 06/22/2016 09:30
Reported: 08/05/2016 13:43

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

add J to all sample results - IS

original

61SG3 SDG#: SGP97-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.61	U	0.61	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.49	U	0.49	add J - LAL	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36		1
14027	Perfluorohexanesulfonate	355-46-4	0.61	U	0.61	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.85	U	0.85	1.9	1
14027	Perfluorooctanoic acid	335-67-1	5.2		0.36	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.97	1
14027	Perfluorotridecanoic acid	72629-94-8	0.73	U	0.73	1.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.73	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	5,780		327	982	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	17.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 14:35	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16194298731A	07/12/2016 13:07	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16180820010B	06/28/2016 19:11	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

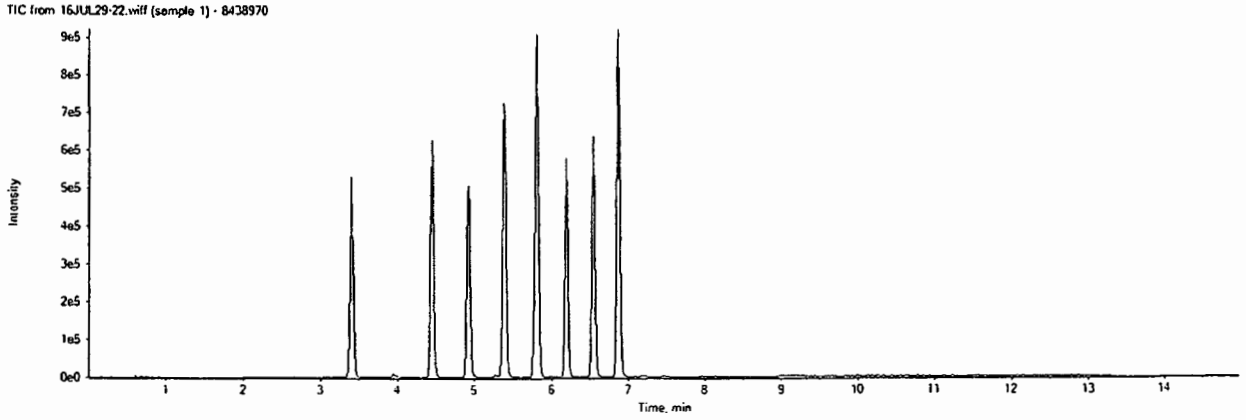
Sample Name:	8438970	**Data File:**		16JUL29-22.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW06-05.0 Grab Soil	**Acquis Date:**		7/29/2016 2:35:30 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	46	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.050	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	4.91	515383.0	N/A	N/A	
PFHxA	4.44	15364.4	13C2-PFHxA	4.44	1759793.0	0.009	0.168	
PFHpA	4.92	7318.4	13C4-PFHpA	4.92	1019540.3	0.007	0.052	
PFHxS	4.92	3596.2	18O2-PFHxS	4.91	515383.0	0.007	0.058	
PFOA	5.38	779548.2	13C4-PFOA	5.38	1428102.6	0.546	4.309	
PFNA	5.81	6560.7	13C5-PFNA	5.81	2286715.4	0.003	0.024	
PFOS	5.78	1250.6	13C4-PFOS	5.78	508076.5	0.002	0.020	
PFDA	6.20	3941.3	13C2-PFDA	6.19	1506698.8	0.003	0.019	
PFUndA	6.54	6816.6	13C2-PFUnDA	6.54	1757493.1	0.004	0.034	
PFDoDA	6.86	2571.2	13C2-PFDoDA	6.87	2488183.3	0.001	0.012	
PFTrDA	7.17	5097.1	13C2-PFDoDA	6.87	2488183.3	0.002	0.019	
PFTeDA	7.47	6968.0	13C2-PFDoDA	6.87	2488183.3	0.003	0.024	

Total Ion Chromatogram

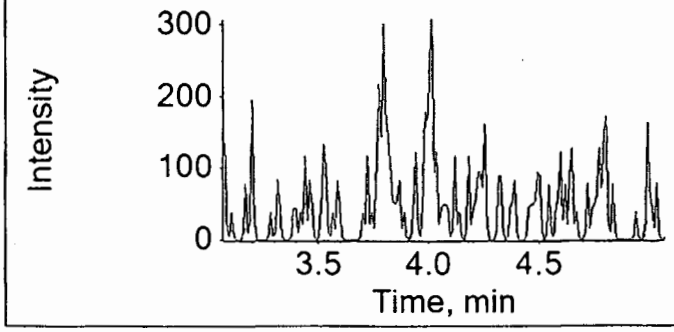
EPA 537 Rev. 1.1 modified 16190006 SG3-MW06-05.0 Grab Soil



16JUL29-22.wiff

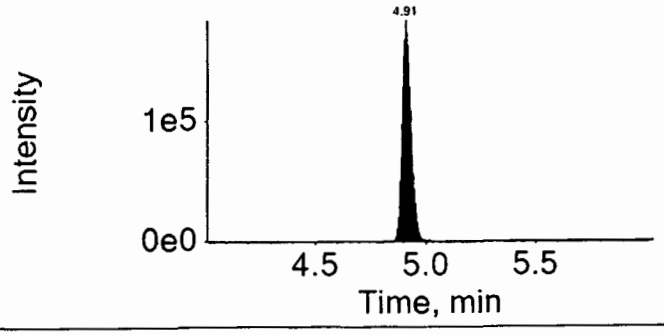
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

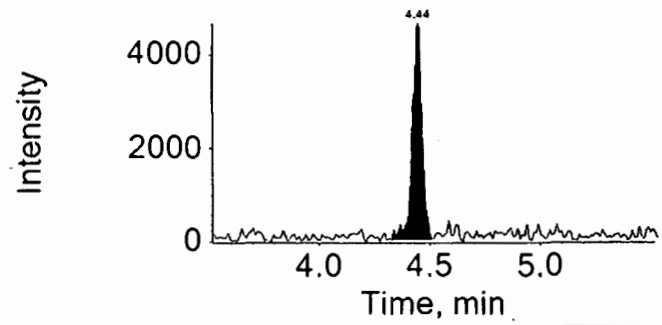
403.0 / 103.0



16JUL29-22.wiff

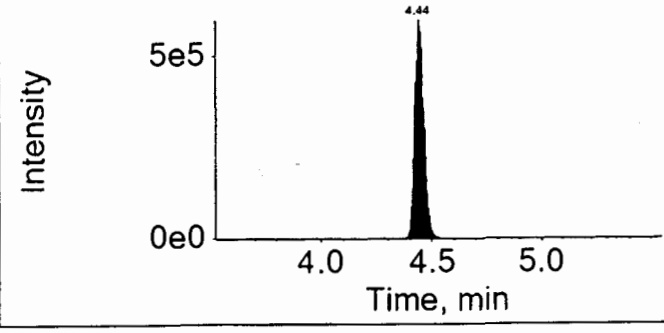
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

314.9 / 270.0



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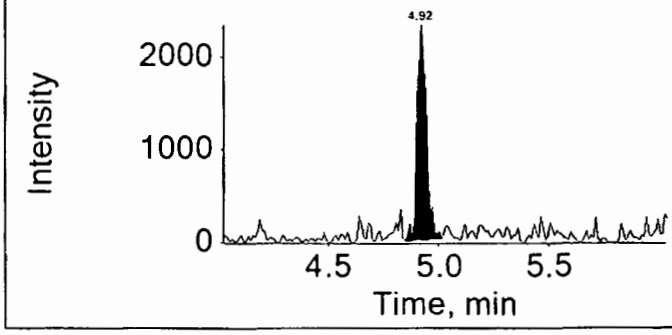
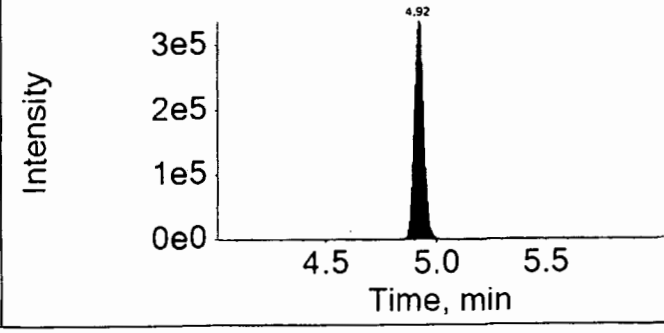
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

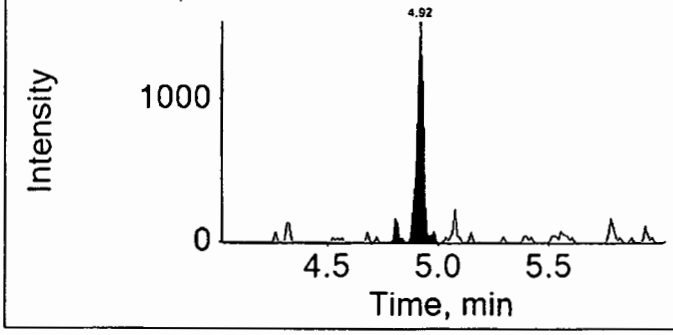
367.0 / 322.0



16JUL29-22.wiff

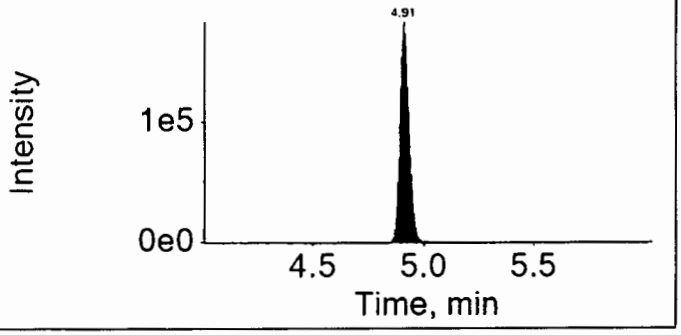
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

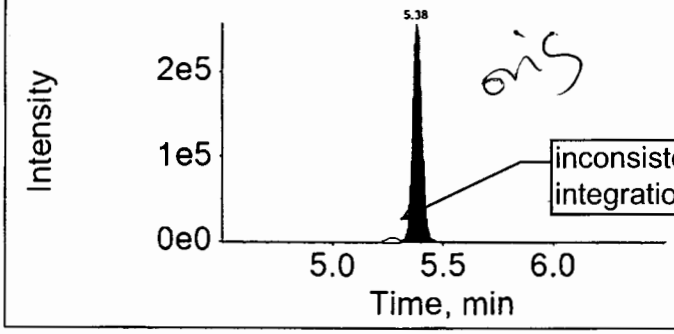
403.0 / 103.0



16JUL29-22.wiff

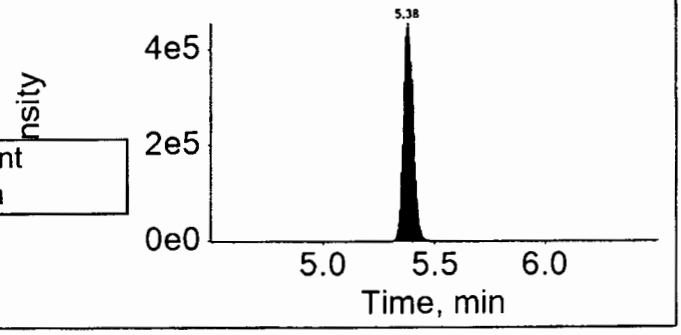
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

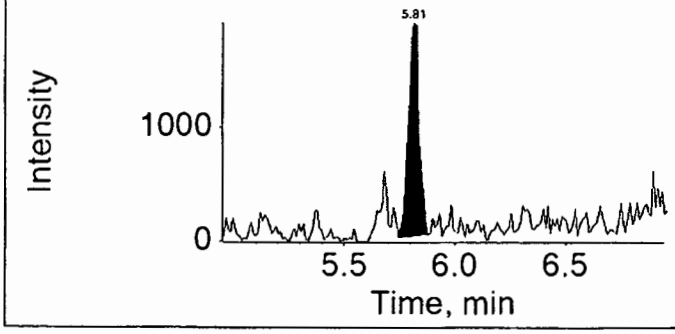
417.0 / 372.0



16JUL29-22.wiff

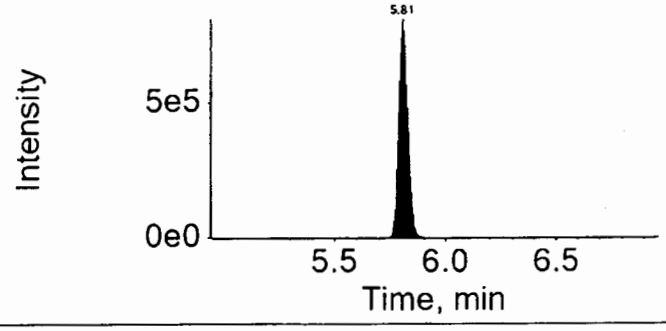
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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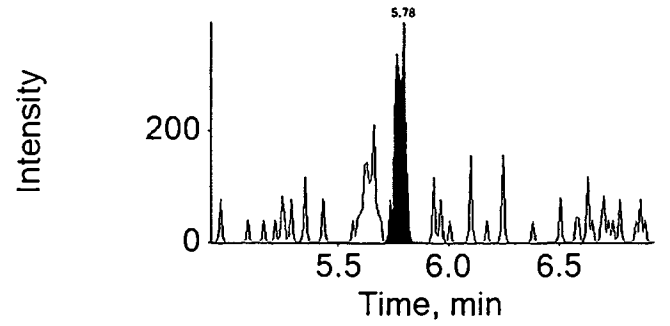
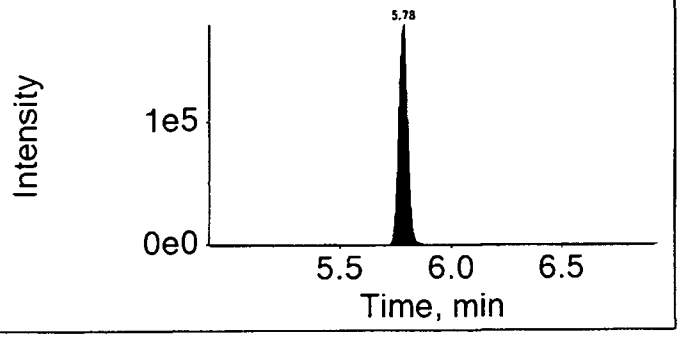
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0





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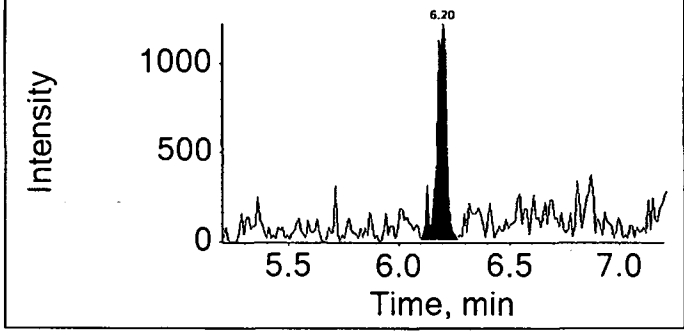
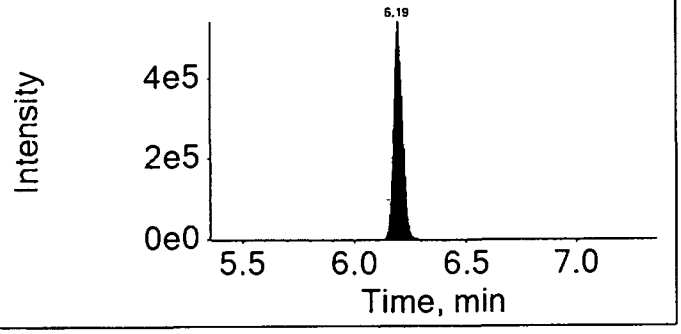
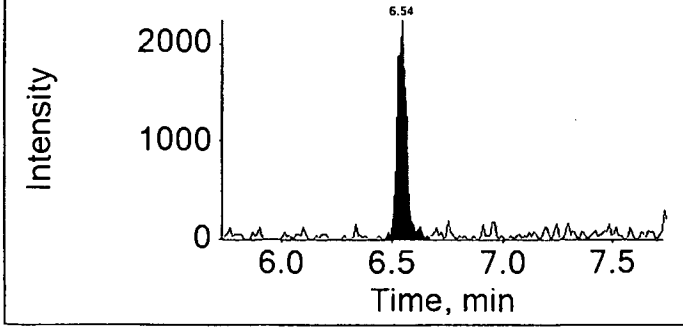
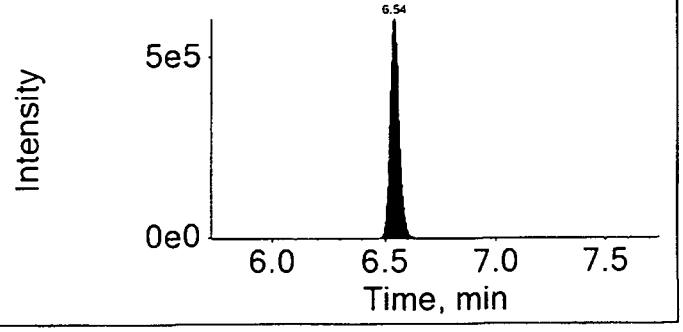
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



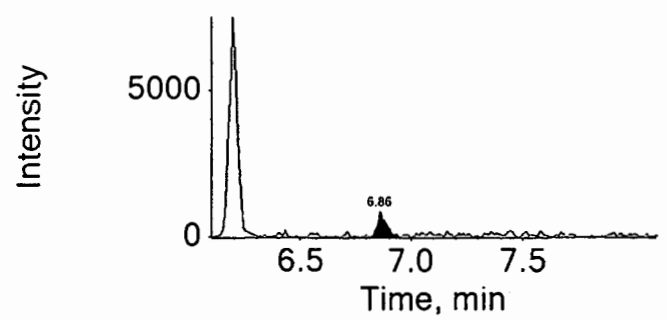


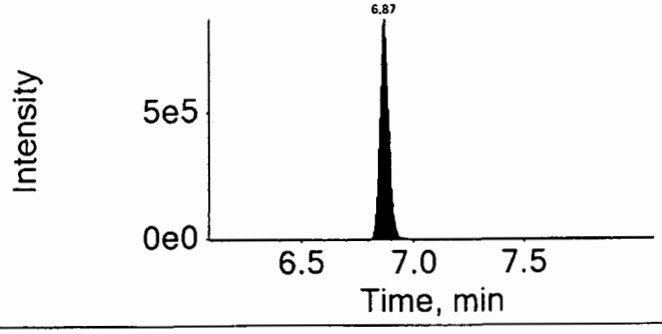
16JUL29-22.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



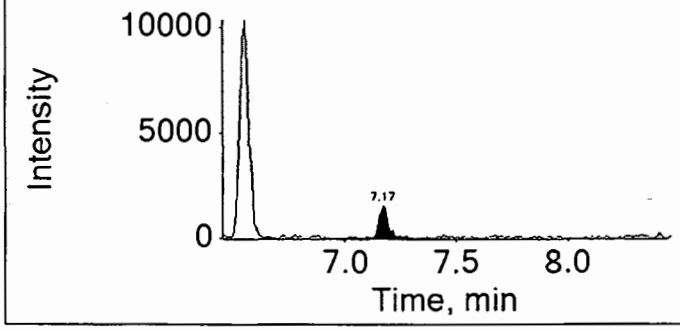


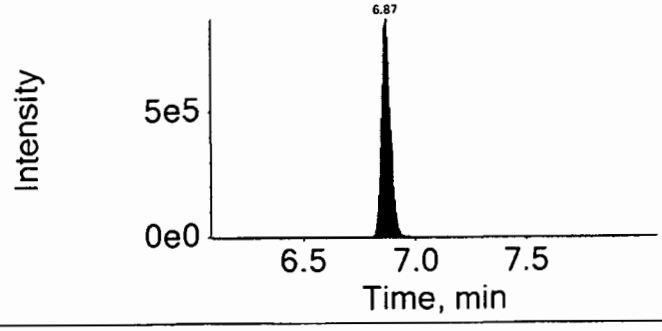
16JUL29-22.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



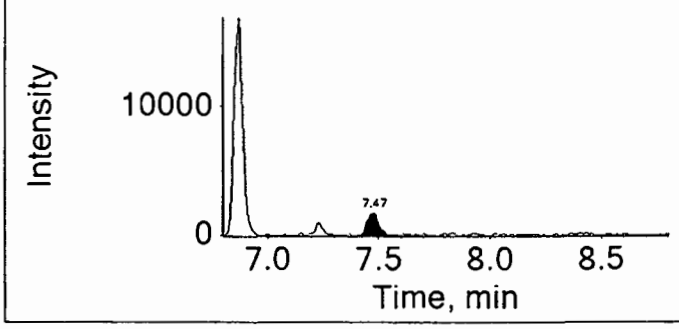


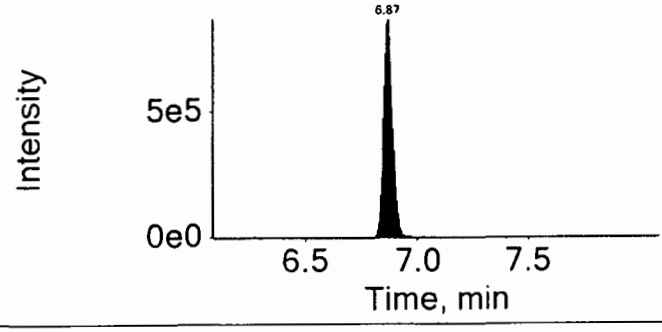
16JUL29-22.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL29-22.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

REVISED

Sample Description: SG3-MW06-05.0 Grab Soil
SGPP - Bennington

LL Sample # SW 8438970
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 14:10 by JD
through 06/20/2016 14:12
Submitted: 06/22/2016 09:30
Reported: 05/30/2017 08:39

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

61SG3 SDG#: SGP97-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.60	U	0.60	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.48	U	0.48	0.96	1
14027	Perfluoroheptanoic acid	375-85-9	0.36	U	0.36	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.60	U	0.60	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.84	U	0.84	1.9	1
14027	**Perfluorooctanoic acid**	335-67-1	**5.4**		0.36	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.36	U	0.36	0.96	1
14027	Perfluorotridecanoic acid	72629-94-8	0.72	U	0.72	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.36	U	0.36	0.72	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	**5,780**		327	982	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**17.8**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 14:35	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16194298731A	07/12/2016 13:07	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:00:00 PM

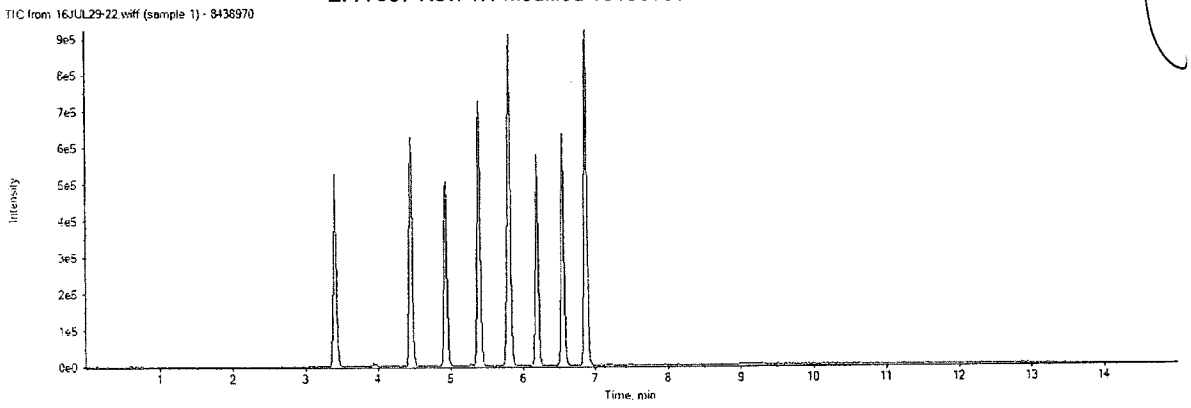
Sample Name:	8438970			**Data File:**		16JUL29-22.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW06-05.0 Grab Soil			**Acquis Date:**		2016-07-29T14:35:30
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	46			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16190006
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.050			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.91	515383.0	N/A	N/A
PFHxA	4.44	1.000	15364.4	A	13C2-PFHxA	4.44	1759793.0	0.009	0.168
PFHpA	4.92	1.000	7318.4	A	13C4-PFHpA	4.92	1019540.3	0.007	0.052
PFHxS	4.92	1.000	3596.2	A	18O2-PFHxS	4.91	515383.0	0.007	0.058
PFOA	5.38	1.000	796766.7	M	13C4-PFOA	5.38	1428102.6	0.558	4.404
PFNA	5.81	1.000	6560.7	A	13C5-PFNA	5.81	2286715.4	0.003	0.024
PFOS	5.78	1.000	1250.6	A	13C4-PFOS	5.78	508076.5	0.002	0.020
PFDA	6.20	1.000	3941.3	A	13C2-PFDA	6.19	1506698.8	0.003	0.019
PFUndA	6.54	1.000	6816.6	A	13C2-PFUnDA	6.54	1757493.1	0.004	0.034
PFDoDA	6.86	1.000	2571.2	M	13C2-PFDoDA	6.87	2488183.3	0.001	0.012
PFTrDA	7.17	1.040	5097.1	A	13C2-PFDoDA	6.87	2488183.3	0.002	0.019
PFTeDA	7.47	1.090	6968.0	M	13C2-PFDoDA	6.87	2488183.3	0.003	0.024

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW06-05.0 Grab Soil



Rev

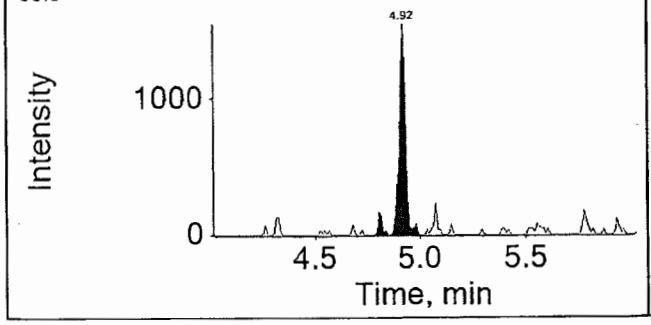
APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 1:25 pm, 5/27/17

16JUL29-22.wiff

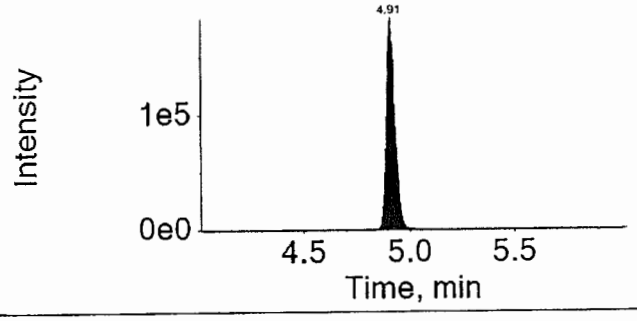
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

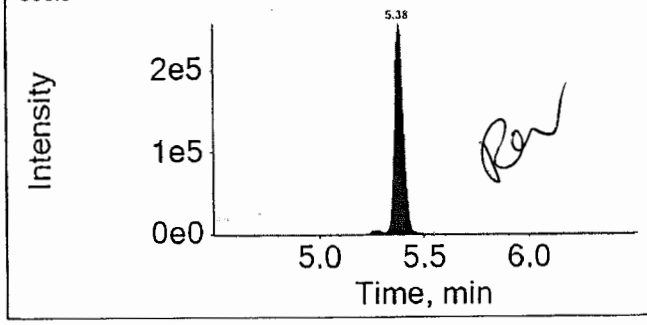
403.0 / 103.0



16JUL29-22.wiff

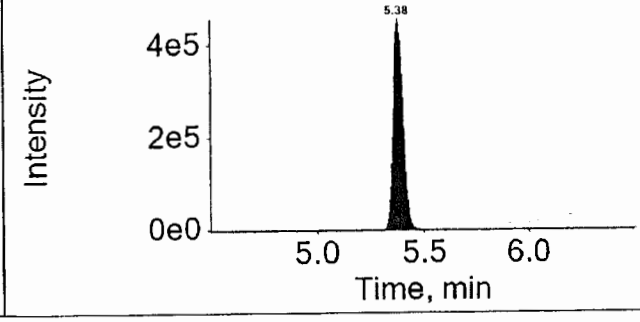
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

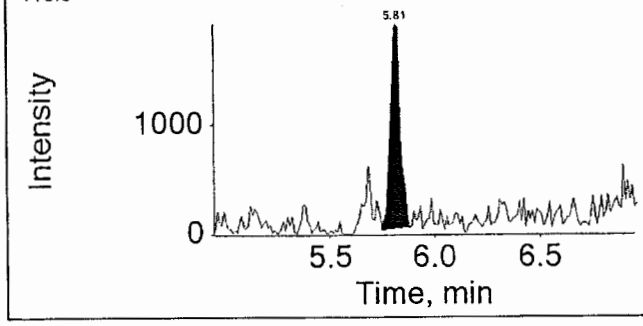
417.0 / 372.0



16JUL29-22.wiff

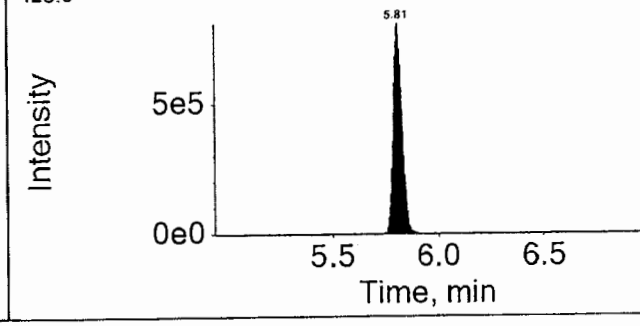
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 1:25 pm, 5/27/17

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LC-MS/MS Analysis Report

Printed: 8/5/2016 10:04:00 AM

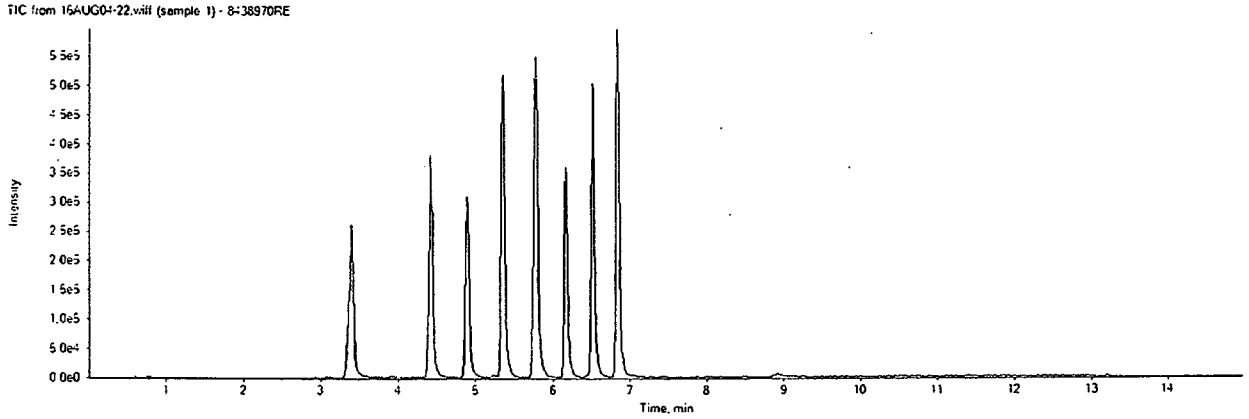
Sample Name:	8438970RE		**Data File:**		16AUG04-22.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW06-05.0 Grab Soil		**Acquis Date:**		8/4/2016 7:09:51 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	31		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.150		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

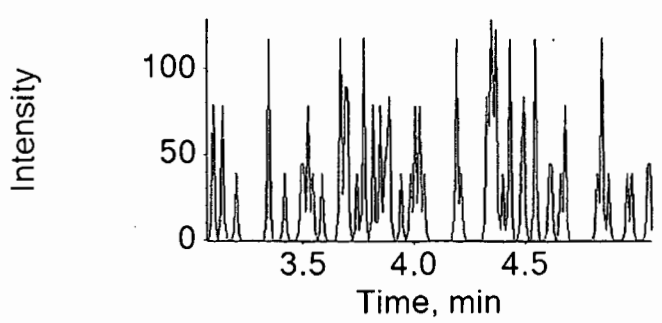
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.89	398231.8	N/A	N/A	
PFHxA	4.42	8575.7	A	13C2-PFHxA	4.42	1293173.4	0.007	0.119	
PFHpA	4.90	4365.7	A	13C4-PFHpA	4.89	665338.1	0.007	0.046	
PFHxS	4.88	1063.2	M	18O2-PFHxS	4.89	398231.8	0.003	0.022	
PFOA	5.35	625057.7	A	13C4-PFOA	5.35	1199427.9	0.521	4.311	ng/L
PFNA	5.77	3565.8	A	13C5-PFNA	5.78	1716289.4	0.002	0.018	
PFOS	5.75	562.9	A	13C4-PFOS	5.75	396073.0	0.001	0.012	
PFDA	6.17	3315.0	M	13C2-PFDA	6.17	1161513.2	0.003	0.021	
PFUndA	6.52	4532.7	A	13C2-PFUnDA	6.52	1362107.8	0.003	0.029	
PFDoDA	6.84	2155.6	M	13C2-PFDoDA	6.84	1829704.7	0.001	0.012	
PFTrDA	7.13	2063.8	M	13C2-PFDoDA	6.84	1829704.7	0.001	0.011	
PFTeDA	7.40	2149.3	A	13C2-PFDoDA	6.84	1829704.7	0.001	0.011	

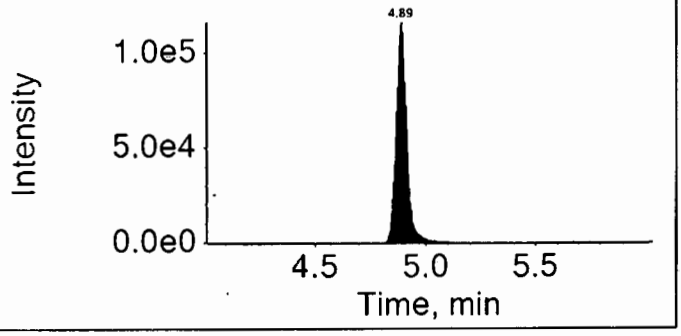
Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW06-05.0 Grab Soil



16AUG04-22.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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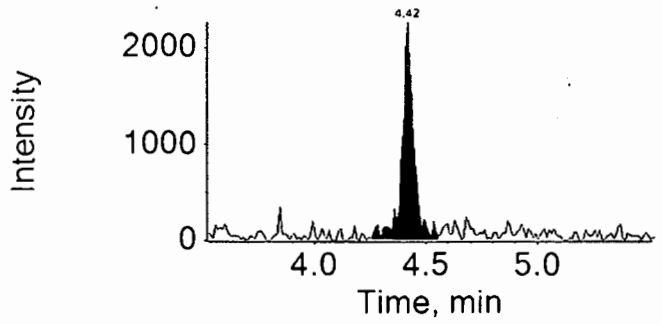
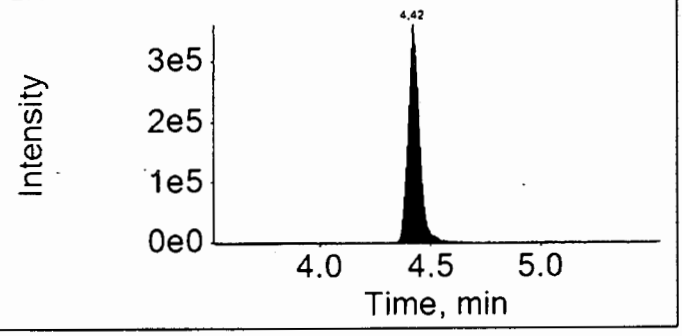
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





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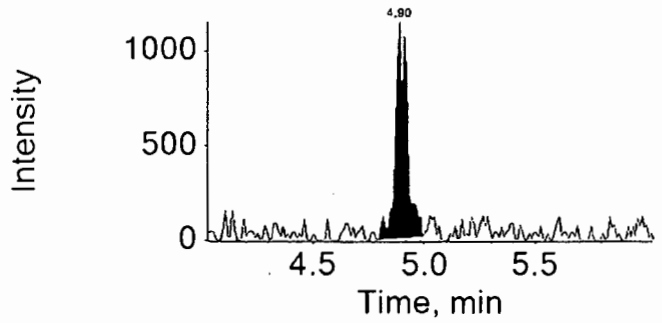
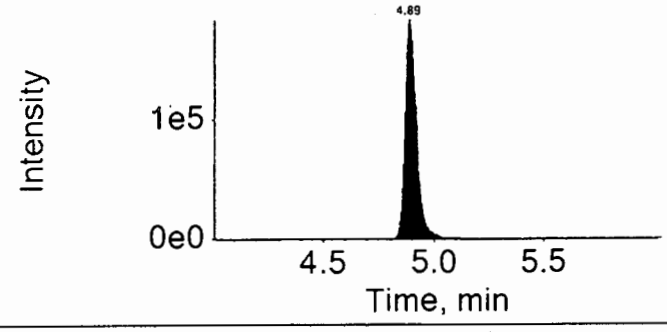
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

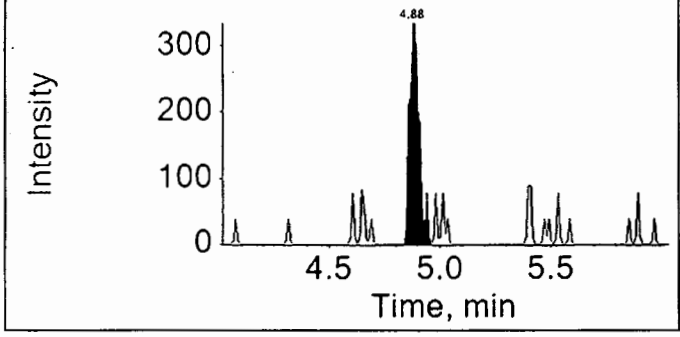




16AUG04-22.wiff

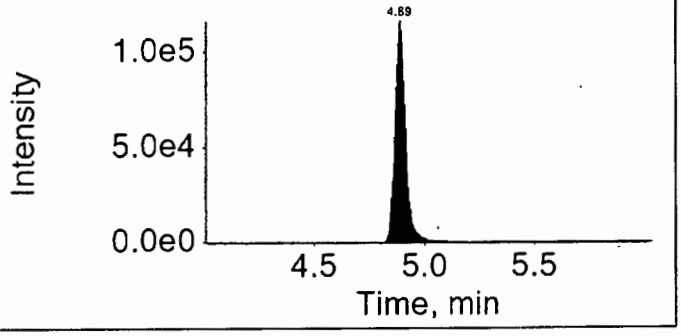
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

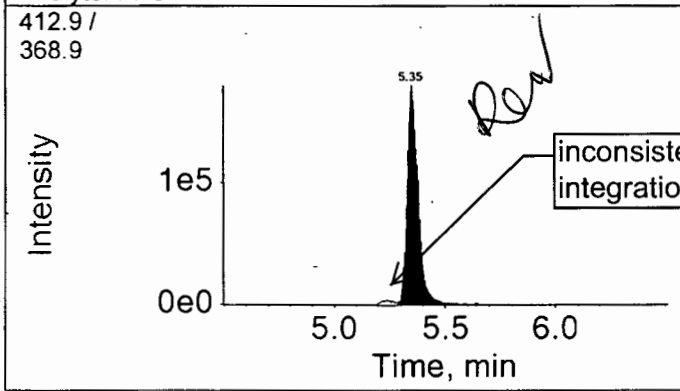
403.0 / 103.0



16AUG04-22.wiff

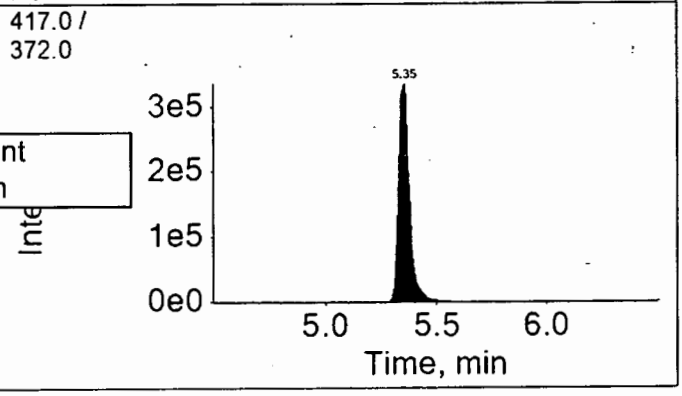
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

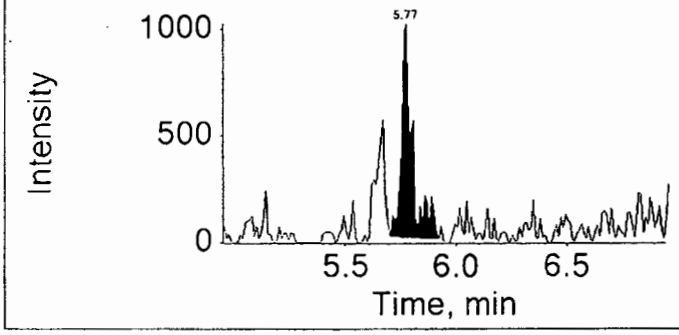
417.0 / 372.0



16AUG04-22.wiff

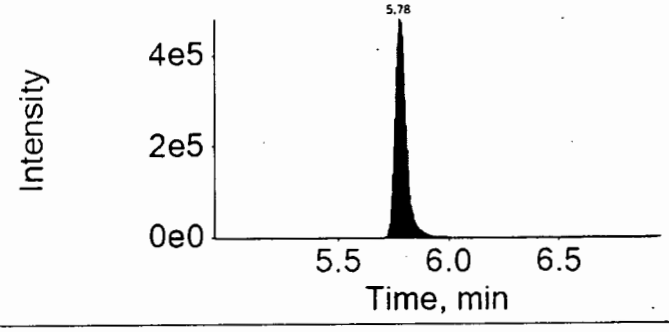
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

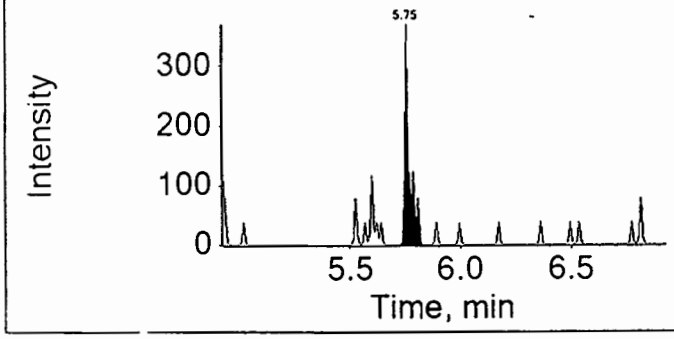
468.0 / 423.0



16AUG04-22.wiff

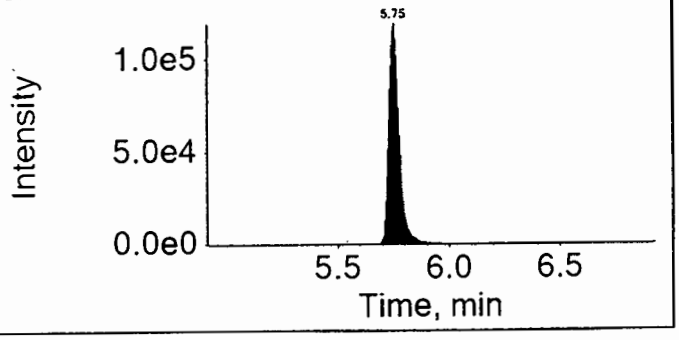
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

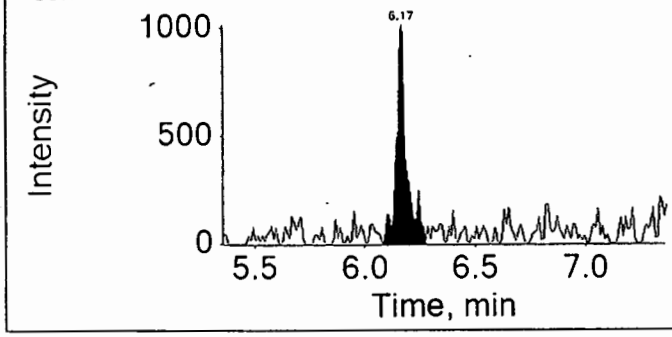
503.0 / 99.0



16AUG04-22.wiff

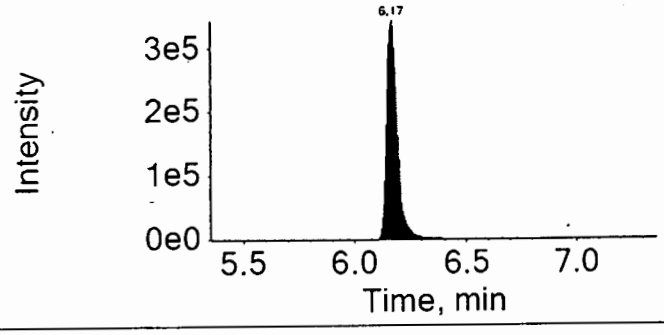
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

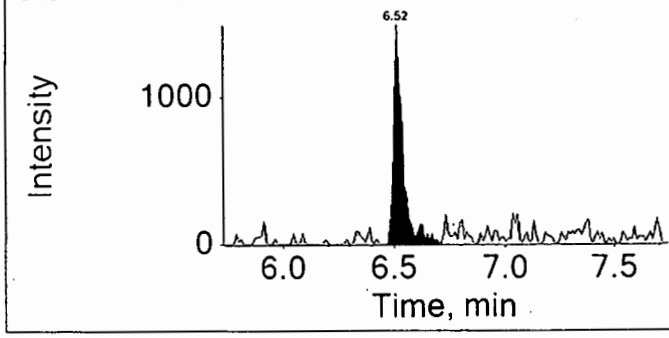
515.0 / 470.0



16AUG04-22.wiff

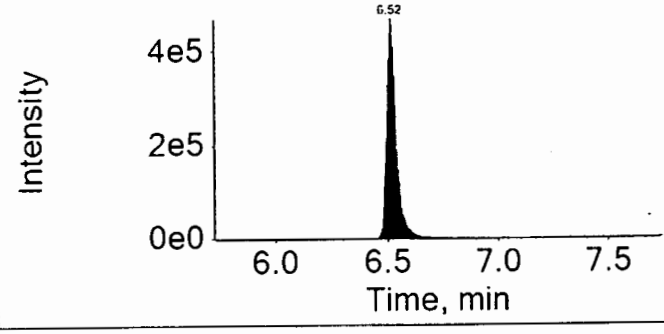
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



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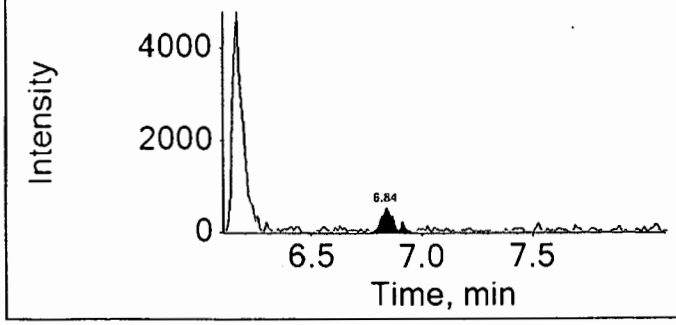
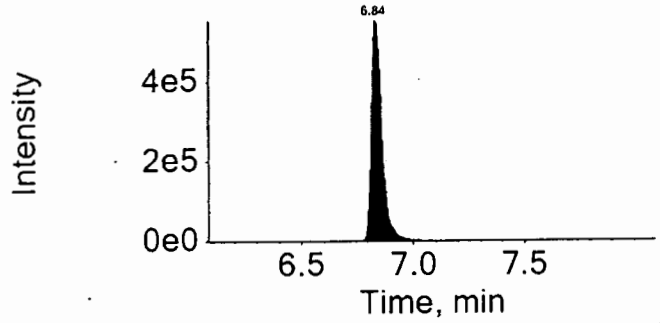
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0





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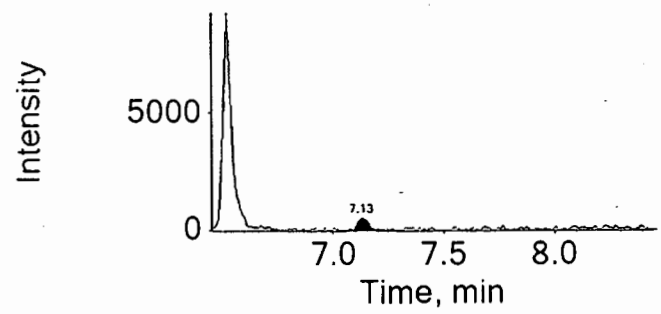
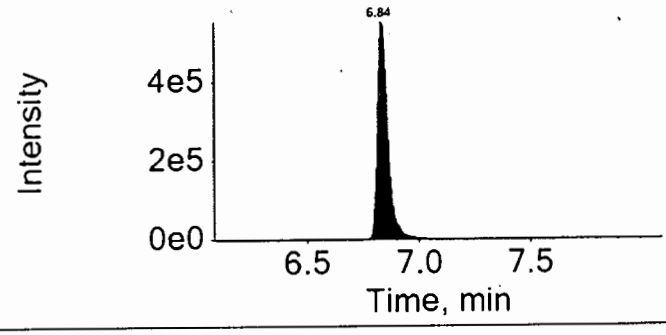
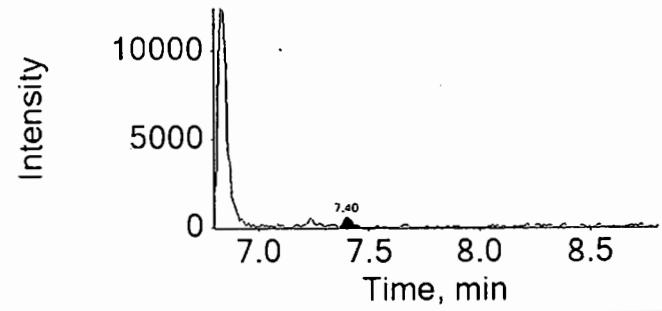
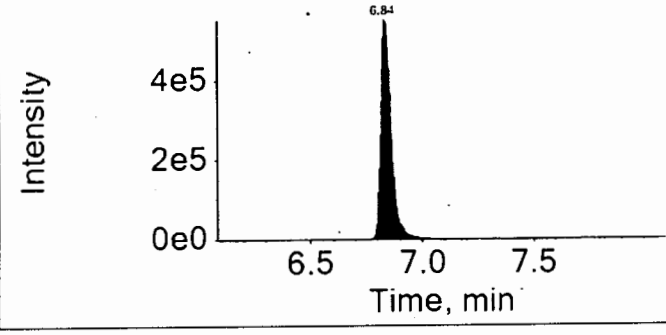
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG04-22.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:13:00 PM

Sample Name:	8438970RE			**Data File:**		16AUG04-22.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW06-05.0 Grab Soil			**Acquis Date:**		2016-08-04T19:09:51
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	31			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16215005
				ICAL Name:		16AUG01
Batch Number:	16215005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.15000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

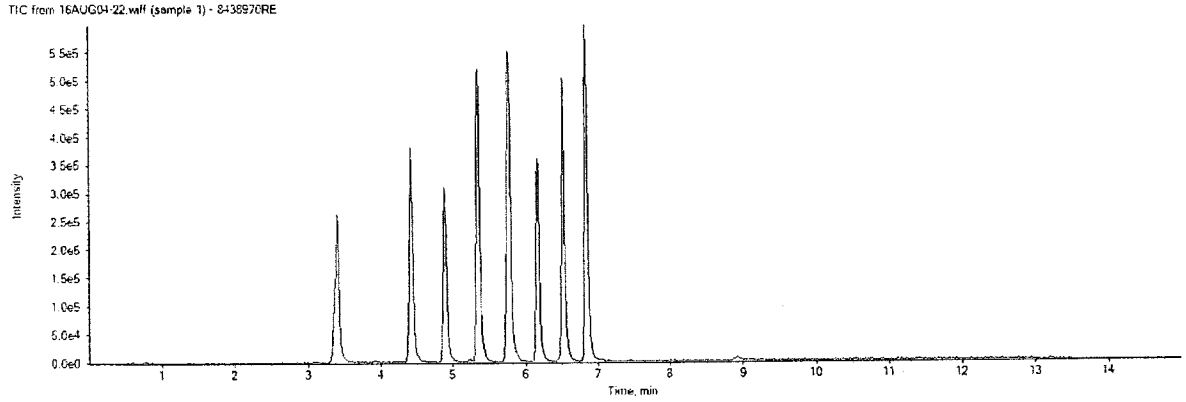
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.89	398231.8	N/A	N/A
PFHxA	4.42	1.000	8575.7	A	13C2-PFHxA	4.42	1293173.4	0.007	0.119
PFHpA	4.90	1.000	4365.7	A	13C4-PFHpA	4.89	665338.1	0.007	0.046
PFHxS	4.88	1.000	1063.2	M	18O2-PFHxS	4.89	398231.8	0.003	0.022
PFOA	5.35	1.000	636490.7	M	13C4-PFOA	5.35	1199427.9	0.531	4.390
PFNA	5.77	1.000	3565.8	A	13C5-PFNA	5.78	1716289.4	0.002	0.018
PFOS	5.75	1.000	562.9	A	13C4-PFOS	5.75	396073.0	0.001	0.012
PFDA	6.17	1.000	3315.0	M	13C2-PFDA	6.17	1161513.2	0.003	0.021
PFUndA	6.52	1.000	4532.7	A	13C2-PFUnDA	6.52	1362107.8	0.003	0.029
PFDoDA	6.84	1.000	2155.6	M	13C2-PFDoDA	6.84	1829704.7	0.001	0.012
PFTrDA	7.13	1.040	2063.8	M	13C2-PFDoDA	6.84	1829704.7	0.001	0.011
PFTeDA	7.40	1.080	2149.3	A	13C2-PFDoDA	6.84	1829704.7	0.001	0.011

Rev

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW06-05.0 Grab Soil



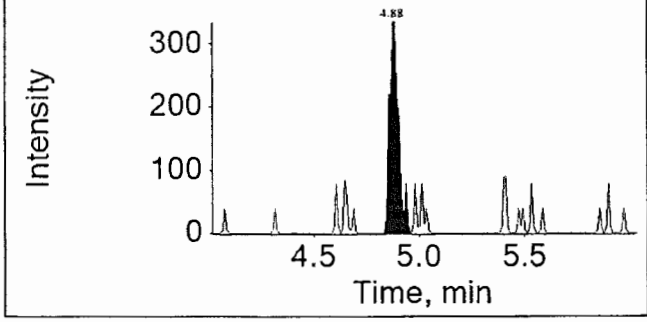
APPROVED
By MCD at 3:34 pm, 5/23/17

REVIEWED
By ucmr at 2:20 pm, 5/27/17

16AUG04-22.wiff

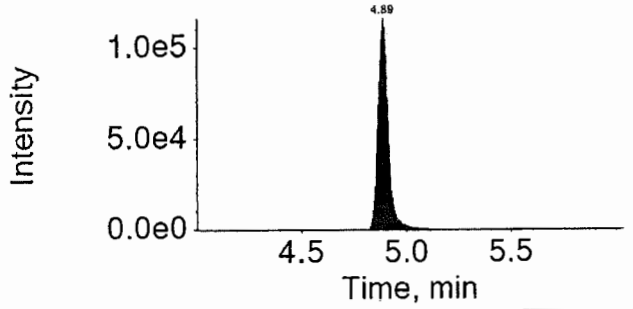
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

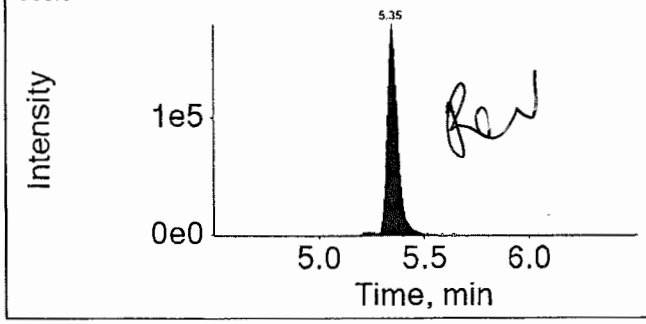
403.0 / 103.0



16AUG04-22.wiff

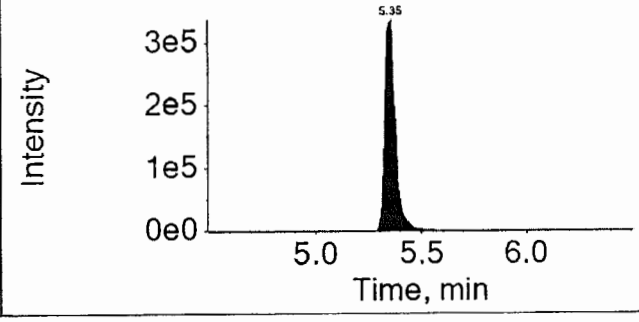
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

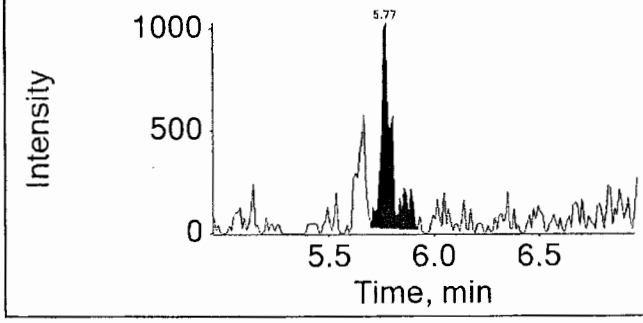
417.0 / 372.0



16AUG04-22.wiff

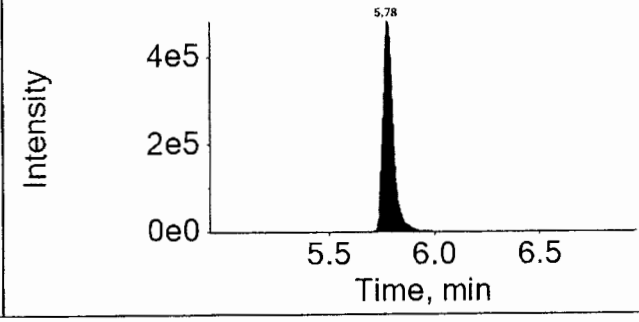
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:34 pm, 5/23/17

REVIEWED
By ucmr at 2:20 pm, 5/27/17

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Analysis Report

Sample Description: SG3-MW06-10.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8438971
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 14:10 by JD
through 06/20/2016 14:12
Submitted: 06/22/2016 09:30
Reported: 08/05/2016 13:43

add J to all sample results - IS

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

62SG3 SDG#: SGP97-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.59	U	0.59	1.9	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.47	U	0.47	0.95	1
14027	Perfluoroheptanoic acid	375-85-9	0.35	U	0.35	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.59	U	0.59	1.9	1
14027	Perfluorohexanoic acid	307-24-4	0.24	U	0.24	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.24	U	0.24	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.83	U	0.83	1.9	1
14027	Perfluorooctanoic acid	335-67-1	2.8		0.35	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.35	U	0.35	0.95	1
14027	Perfluorotridecanoic acid	72629-94-8	0.71	U	0.71	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.35	U	0.35	0.71	1

add J - LAL

ong

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	TOC	n.a.	1,600	215	645	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	15.4	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 14:51	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16194298731A	07/12/2016 13:20	Clinton M Wilson	1
00111	Moisture	SM 2540 G-1997	1	16180820010B	06/28/2016 19:11	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

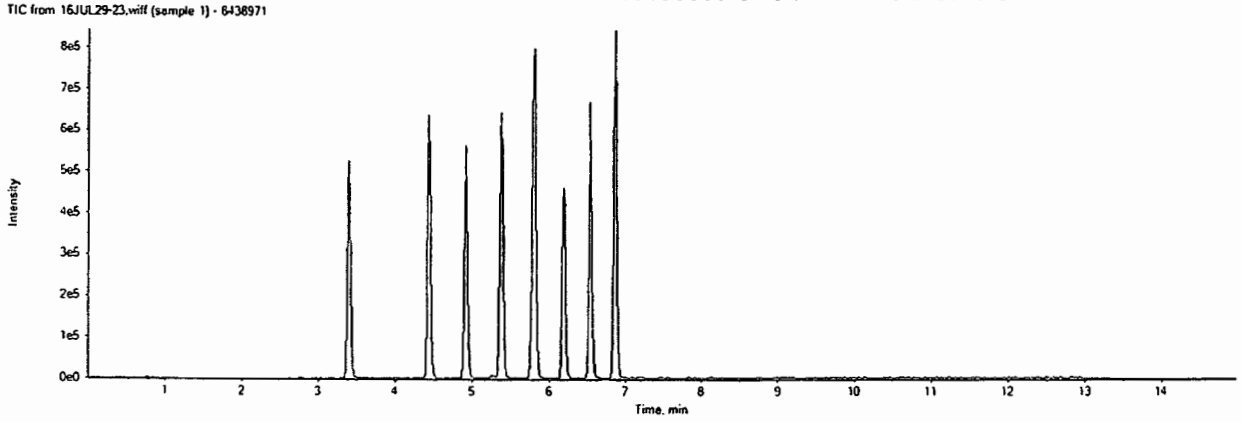
Sample Name:	8438971	**Data File:**		16JUL29-23.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW06-10.5 Grab Soil	**Acquis Date:**		7/29/2016 2:51:12 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	47	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.170	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	4.91	528552.9	N/A	N/A	
PFHxA	4.43	5037.3	13C2-PFHxA	4.43	1782627.8	0.003	0.053	
PFHpA	4.92	5174.5	13C4-PFHpA	4.91	991822.5	0.005	0.037	
PFHxS	4.91	2814.4	18O2-PFHxS	4.91	528552.9	0.005	0.043	
PFOA	5.38	460534.2	13C4-PFOA	5.38	1473270.1	0.313	2.410	ons
PFNA	5.81	6761.3	13C5-PFNA	5.80	2130649.3	0.003	0.026	
PFOS	5.78	2626.5	13C4-PFOS	5.78	525049.6	0.005	0.041	
PFDA	6.20	2411.1	13C2-PFDA	6.19	1380717.8	0.002	0.012	
PFUndA	6.53	4440.2	13C2-PFUnDA	6.54	1554828.2	0.003	0.025	
PFDoDA	6.86	2504.0	13C2-PFDoDA	6.86	2279893.3	0.001	0.012	
PFTrDA	7.17	4128.5	13C2-PFDoDA	6.86	2279893.3	0.002	0.016	
PFTeDA	7.46	5753.5	13C2-PFDoDA	6.86	2279893.3	0.003	0.021	

Total Ion Chromatogram

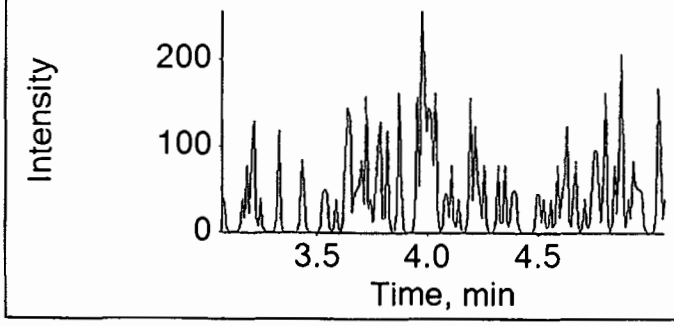
EPA 537 Rev. 1.1 modified 16190006 SG3-MW06-10.5 Grab Soil



16JUL29-23.wiff

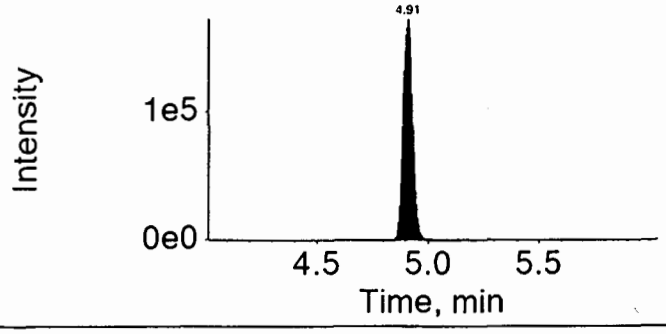
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

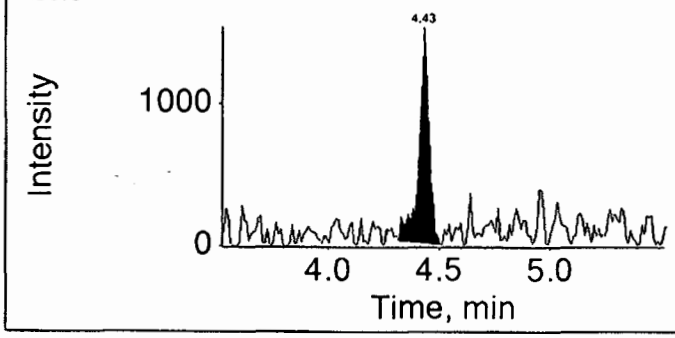
403.0 / 103.0



16JUL29-23.wiff

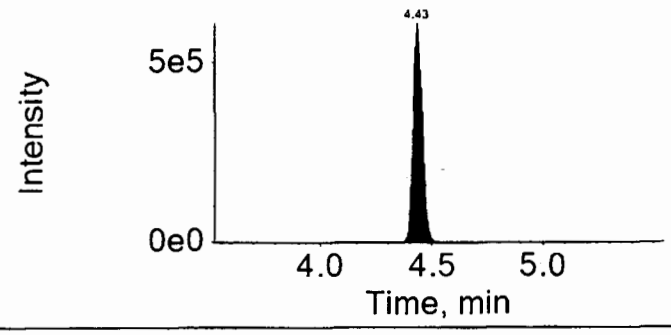
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

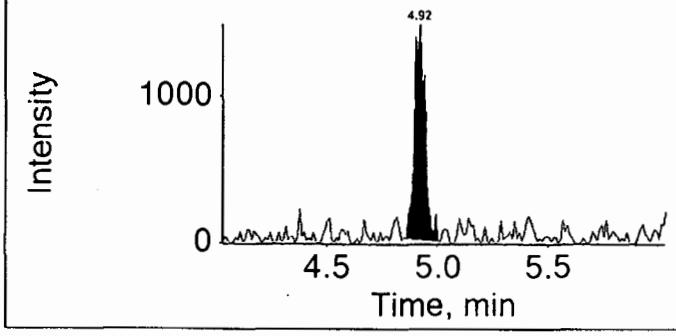
314.9 / 270.0



16JUL29-23.wiff

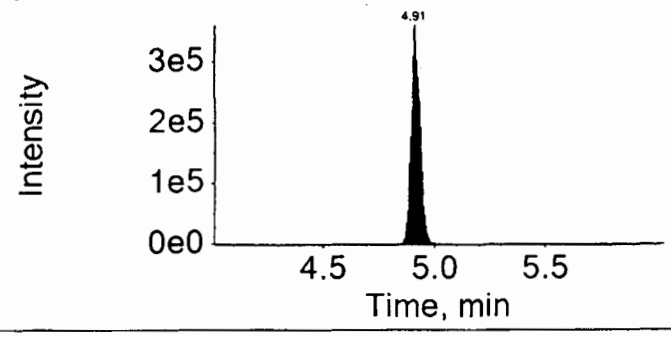
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

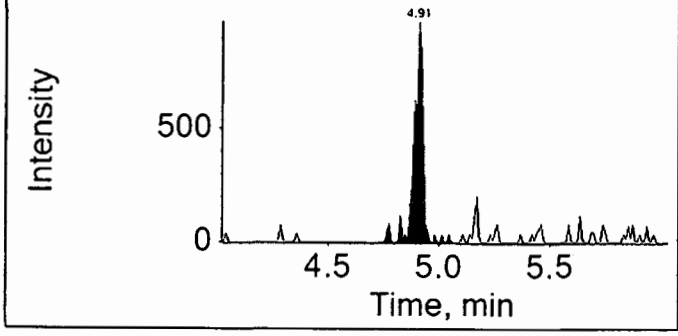
367.0 / 322.0



16JUL29-23.wiff

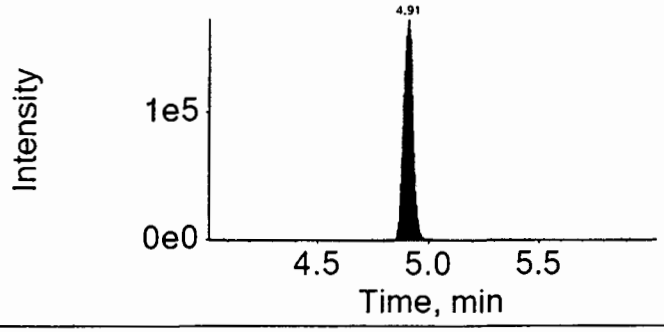
Analyte: PFHxS

398.9 /
99.0



Internal Standard: 18O2-PFHxS

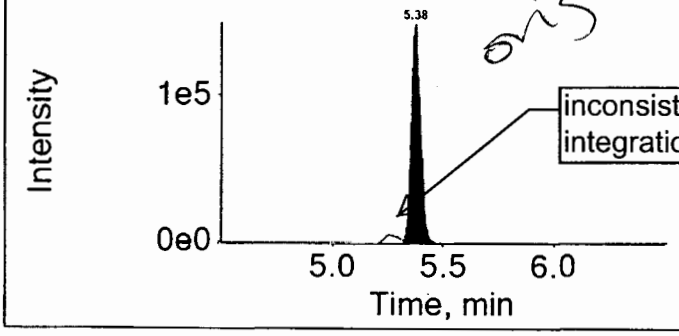
403.0 /
103.0



16JUL29-23.wiff

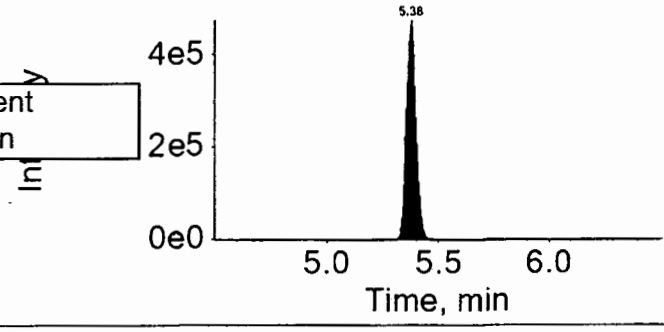
Analyte: PFOA

412.9 /
368.9



Internal Standard: 13C4-PFOA

417.0 /
372.0



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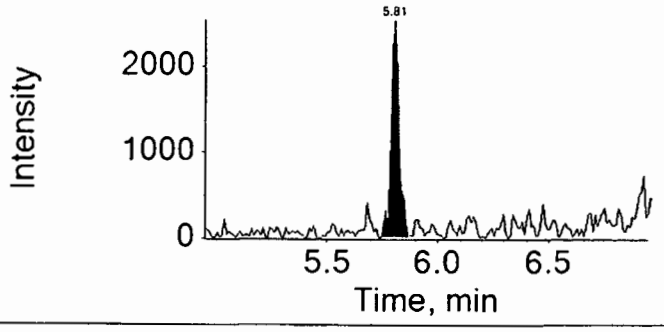
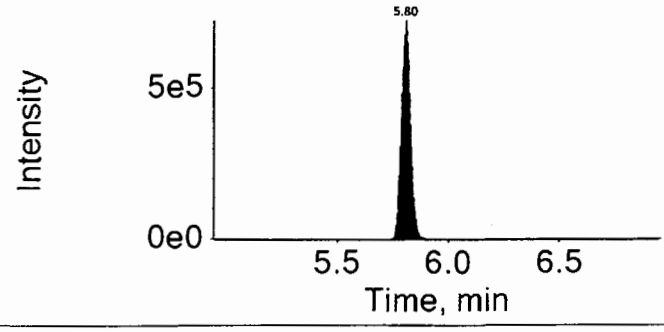
Analyte: PFNA

462.9 /
418.9



Internal Standard: 13C5-PFNA

468.0 /
423.0



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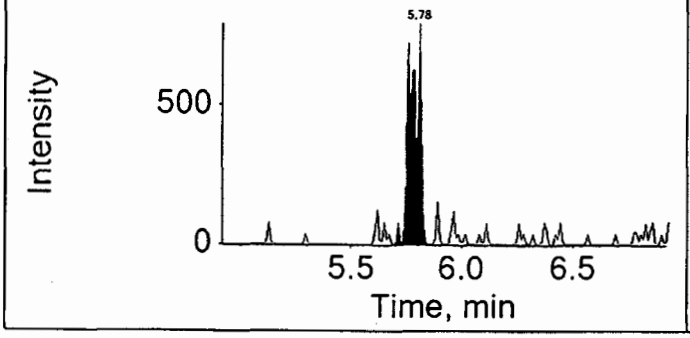
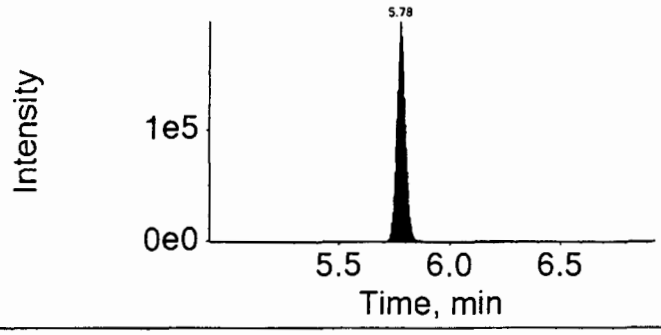
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

503.0 / 99.0



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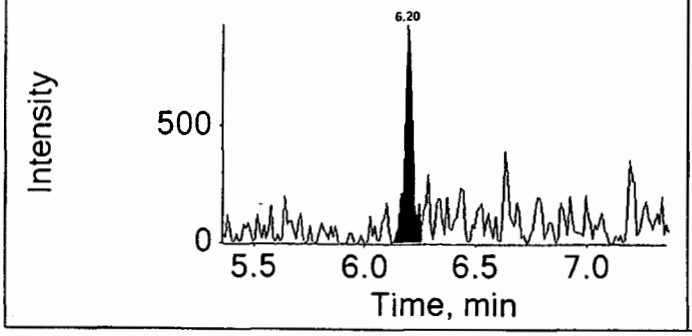
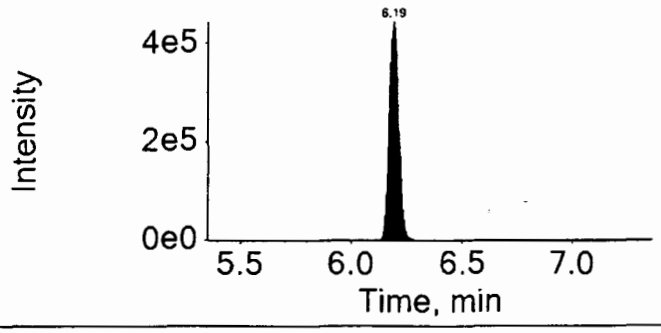
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

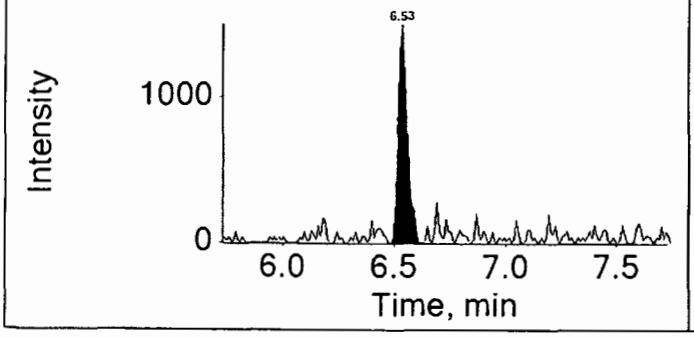
515.0 / 470.0



16JUL29-23.wiff

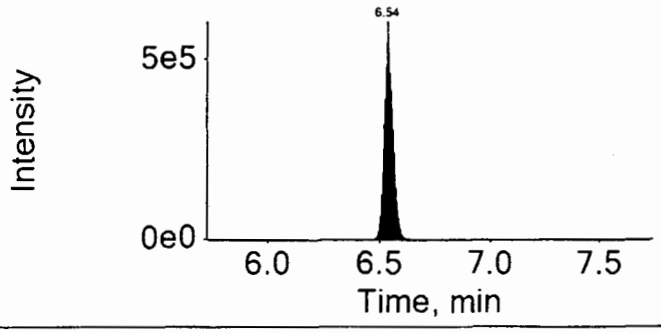
Analyte: PFUndA

562.9 / 518.9

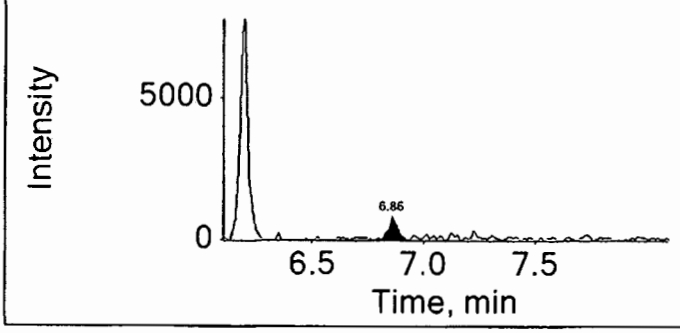


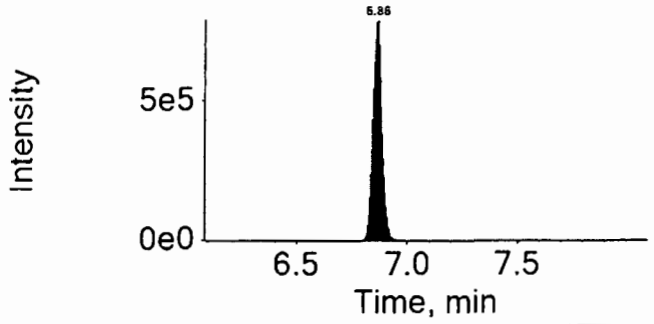
Internal Standard: 13C2-PFUnDA

565.0 / 520.0



16JUL29-23.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0





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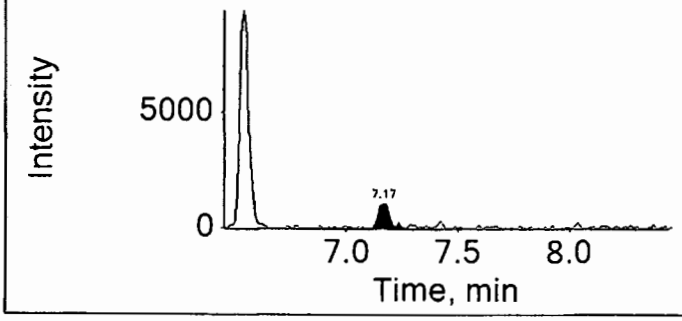
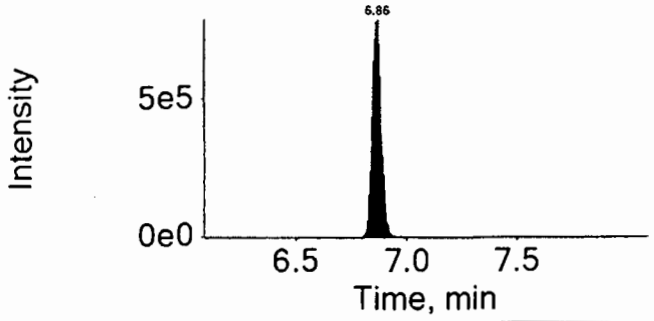
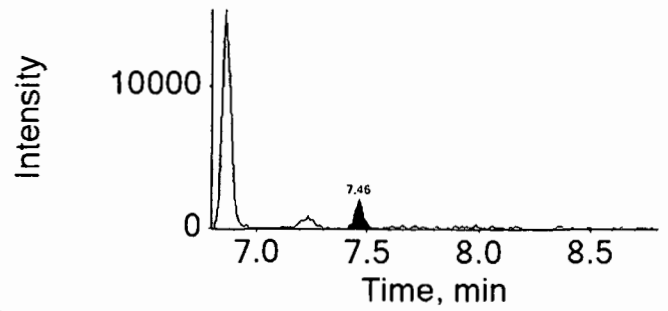
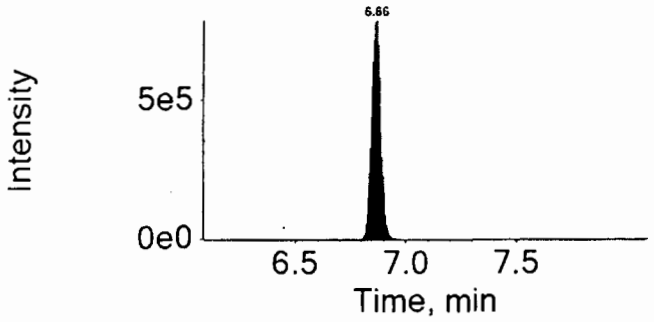
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL29-23.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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Analysis Report

REVISED

Sample Description: SG3-MW06-10.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8438971
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 14:10 by JD
through 06/20/2016 14:12
Submitted: 06/22/2016 09:30
Reported: 05/30/2017 08:39

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

62SG3 SDG#: SGP97-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.57	U	0.57	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.46	U	0.46	0.91	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.57	U	0.57	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.23	U	0.23	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.23	U	0.23	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.80	U	0.80	1.8	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.0**		0.34	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	0.91	1
14027	Perfluorotridecanoic acid	72629-94-8	0.69	U	0.69	1.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	0.69	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,600**	215	645	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**15.4**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 14:51	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1
02079	TOC	SM 5310 B modified-2000	1	16194298731A	07/12/2016 13:20	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:01:00 PM

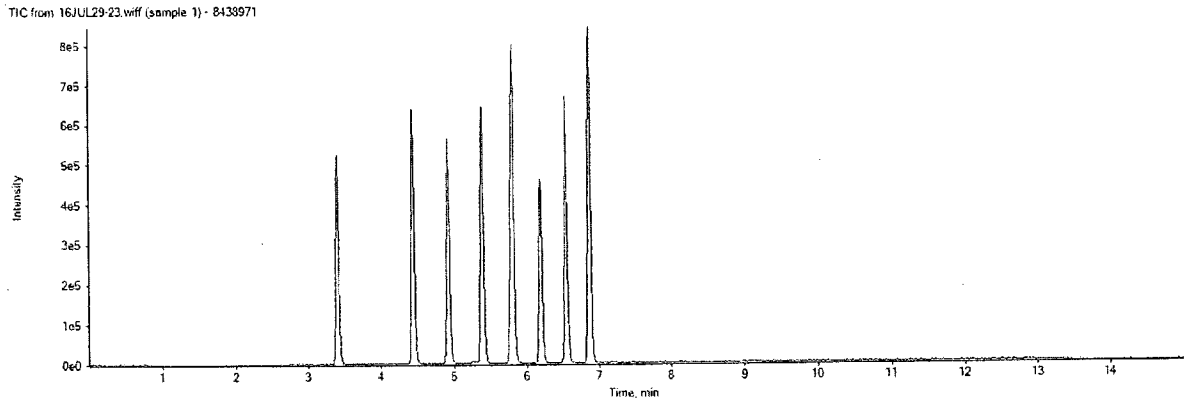
Sample Name:	8438971			**Data File:**		16JUL29-23.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW06-10.5 Grab Soil			**Acquis Date:**		2016-07-29T14:51:12
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	47			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16190006
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.170			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.91	528552.9	N/A	N/A
PFHxA	4.43	1.000	5037.3	A	13C2-PFHxA	4.43	1782627.8	0.003	0.053
PFHpA	4.92	1.000	5174.5	A	13C4-PFHpA	4.91	991822.5	0.005	0.037
PFHxS	4.91	1.000	2814.4	A	18O2-PFHxS	4.91	528552.9	0.005	0.043
PFOA	5.38	1.000	479649.4	M	13C4-PFOA	5.38	1473270.1	0.326	2.510 Rev
PFNA	5.81	1.000	6761.3	A	13C5-PFNA	5.80	2130649.3	0.003	0.026
PFOS	5.78	1.000	2626.5	A	13C4-PFOS	5.78	525049.6	0.005	0.041
PFDA	6.20	1.000	2411.1	A	13C2-PFDA	6.19	1380717.8	0.002	0.012
PFUndA	6.53	1.000	4440.2	A	13C2-PFUnDA	6.54	1554828.2	0.003	0.025
PFDoDA	6.86	1.000	2504.0	M	13C2-PFDoDA	6.86	2279893.3	0.001	0.012
PFTrDA	7.17	1.040	4128.5	M	13C2-PFDoDA	6.86	2279893.3	0.002	0.016
PFTeDA	7.46	1.090	5753.5	A	13C2-PFDoDA	6.86	2279893.3	0.003	0.021

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW06-10.5 Grab Soil



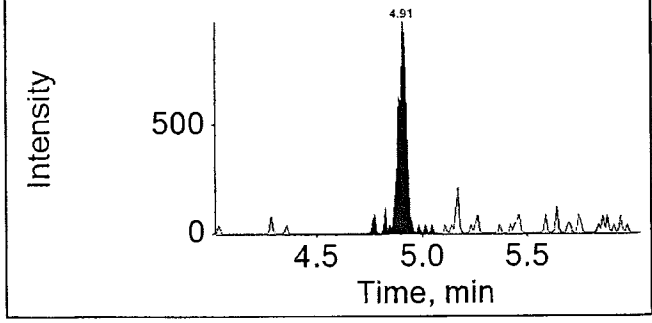
APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 1:25 pm, 5/27/17

16JUL29-23.wiff

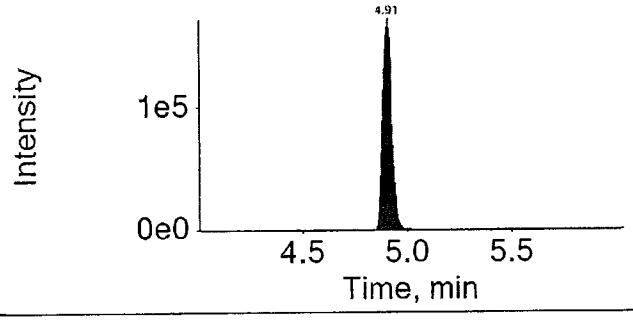
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

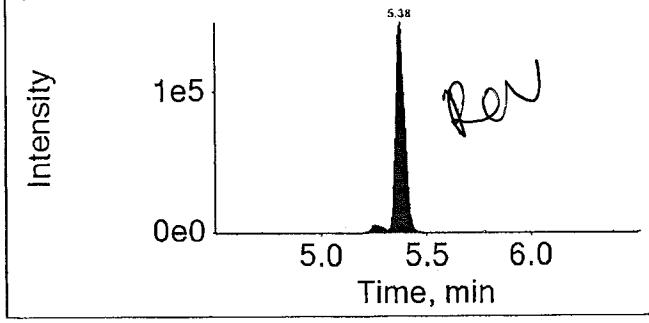
403.0 / 103.0



16JUL29-23.wiff

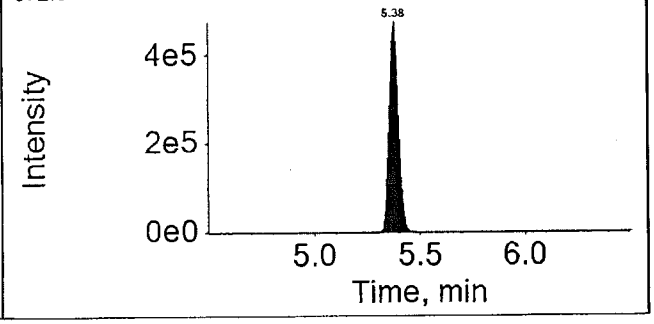
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

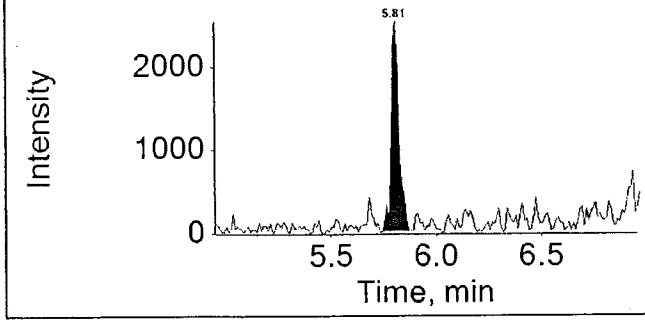
417.0 / 372.0



16JUL29-23.wiff

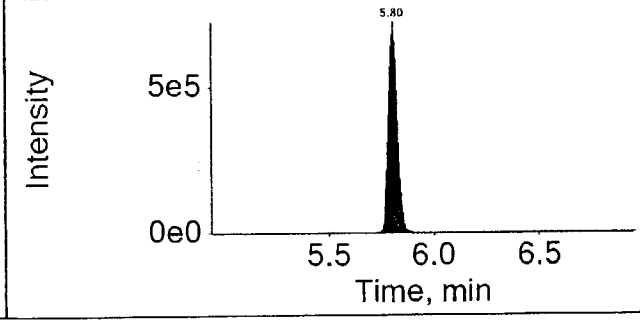
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 1:25 pm, 5/27/17

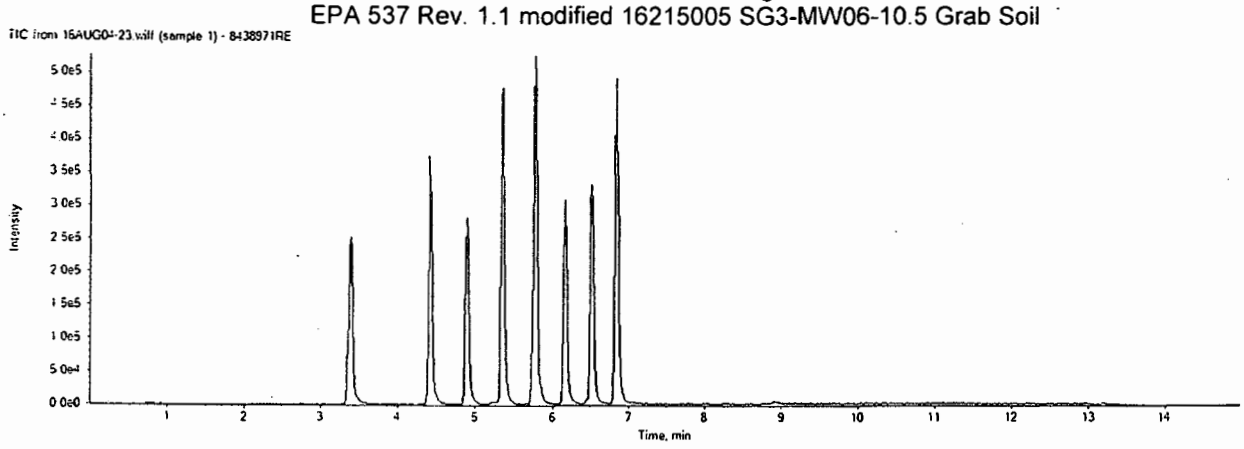
Sample Name:	8438971RE		**Data File:**		16AUG04-23.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW06-10.5 Grab Soil		**Acquis Date:**		8/4/2016 7:25:36 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	32		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.130		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

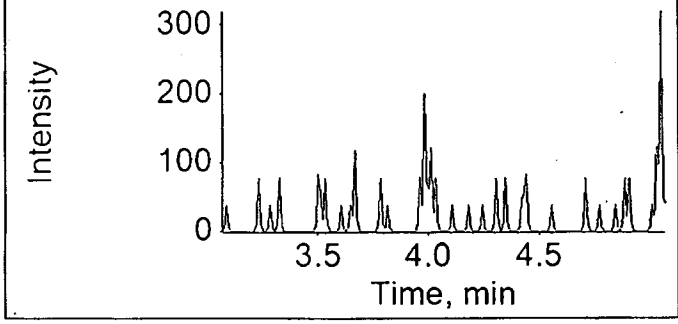
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.88	370903.9	N/A	N/A	
PFHxA	4.42	3688.9	A	13C2-PFHxA	4.42	1107447.3	0.003	0.060	
PFHpA	4.89	3123.7	A	13C4-PFHpA	4.89	557425.9	0.006	0.039	
PFHxS	4.90	1532.2	A	18O2-PFHxS	4.88	370903.9	0.004	0.034	
PFOA	5.35	335631.9	A	13C4-PFOA	5.35	1050662.4	0.319	2.653	ORVS
PFNA	5.78	3157.8	A	13C5-PFNA	5.78	1432212.6	0.002	0.019	
PFOS	5.74	2188.9	A	13C4-PFOS	5.75	356793.1	0.006	0.052	
PFDA	6.17	2375.4	M	13C2-PFDA	6.16	987180.2	0.002	0.018	
PFUndA	6.52	3876.9	A	13C2-PFUnDA	6.52	1066994.7	0.004	0.032	
PFDoDA	6.83	1751.2	A	13C2-PFDoDA	6.84	1542281.3	0.001	0.011	
PFTrDA	7.11	1782.2	A	13C2-PFDoDA	6.84	1542281.3	0.001	0.011	
PFTeDA	7.42	2032.4	A	13C2-PFDoDA	6.84	1542281.3	0.001	0.012	

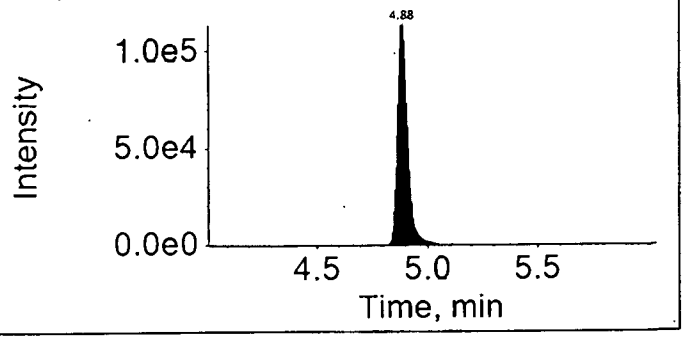
Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW06-10.5 Grab Soil

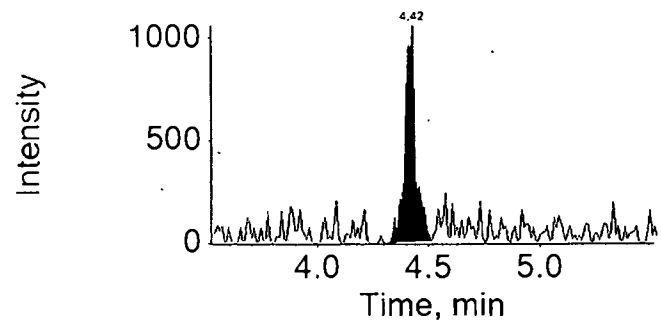


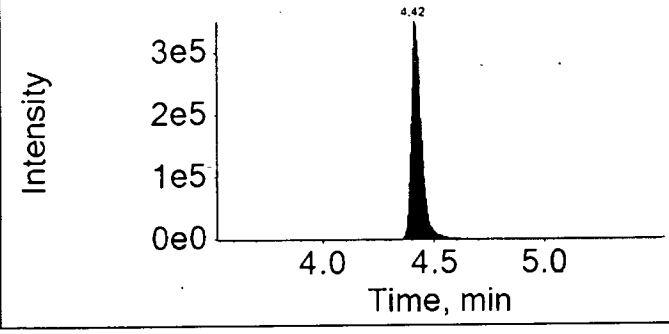
16AUG04-23.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



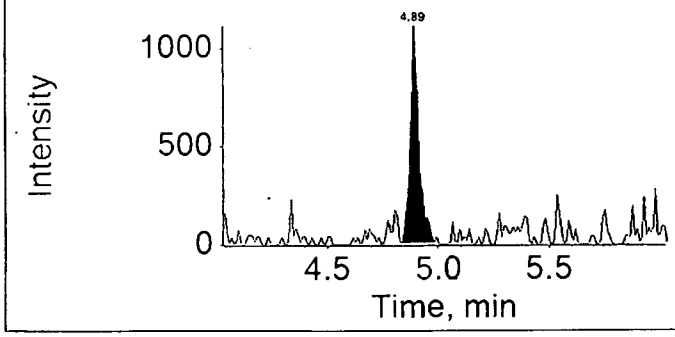


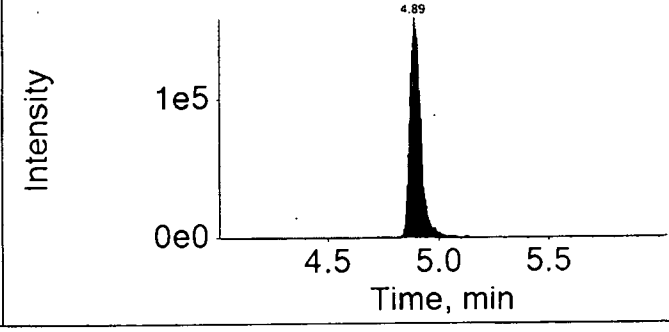
16AUG04-23.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16AUG04-23.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

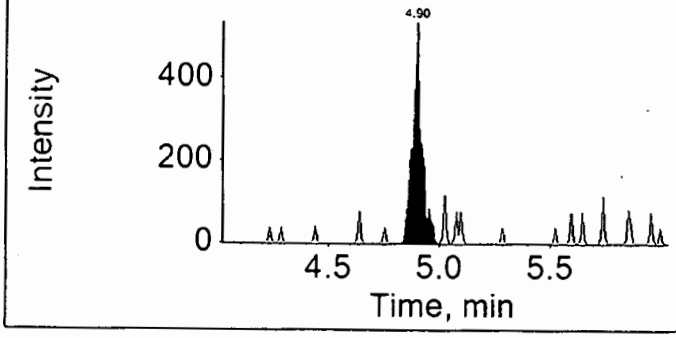




16AUG04-23.wiff

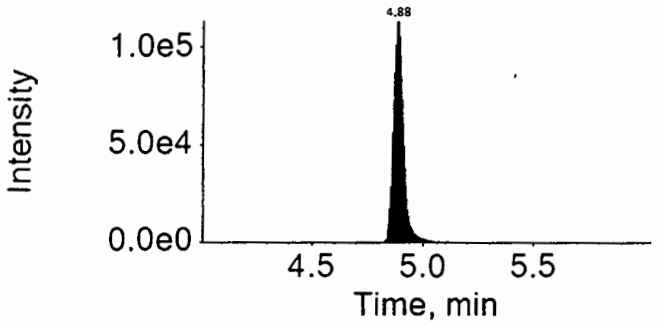
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

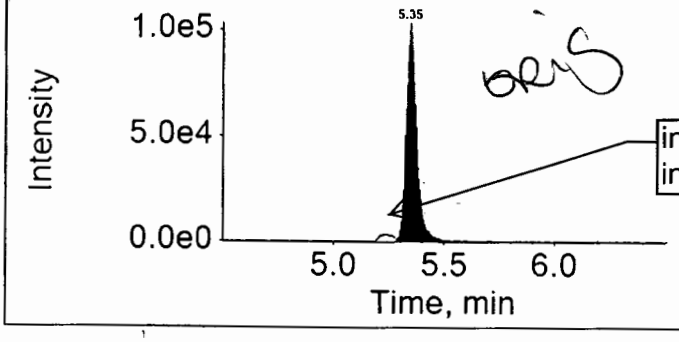
403.0 / 103.0



16AUG04-23.wiff

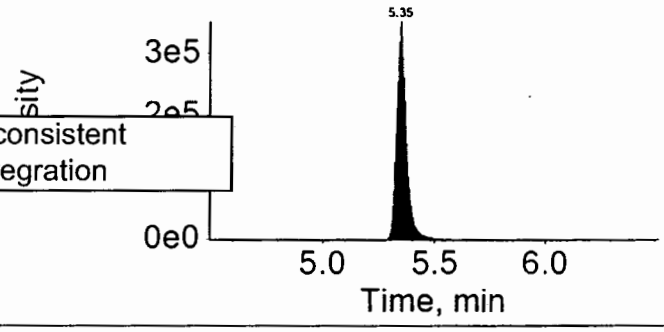
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

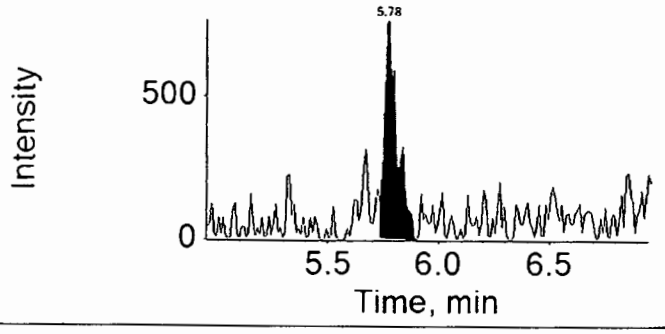
417.0 / 372.0



16AUG04-23.wiff

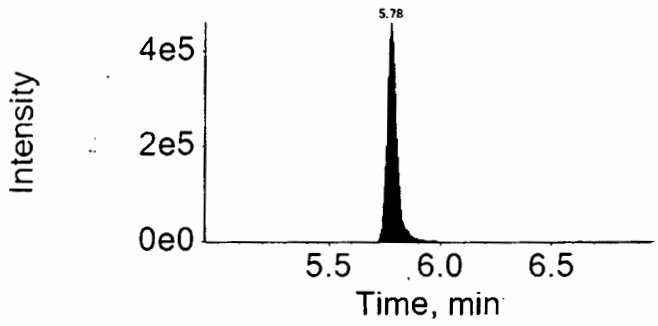
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

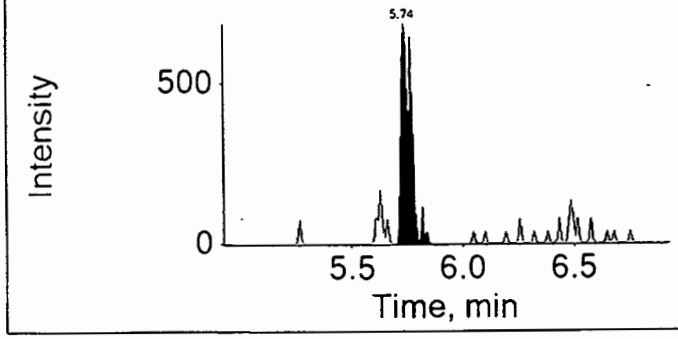
468.0 / 423.0



16AUG04-23.wiff

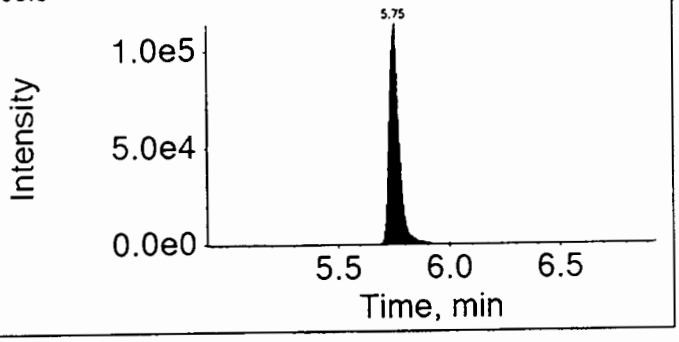
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

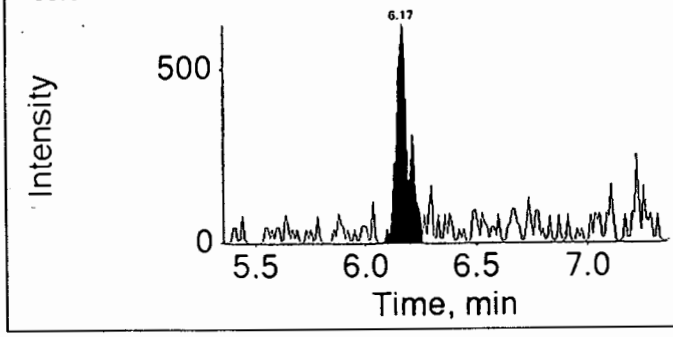
503.0 / 99.0



16AUG04-23.wiff

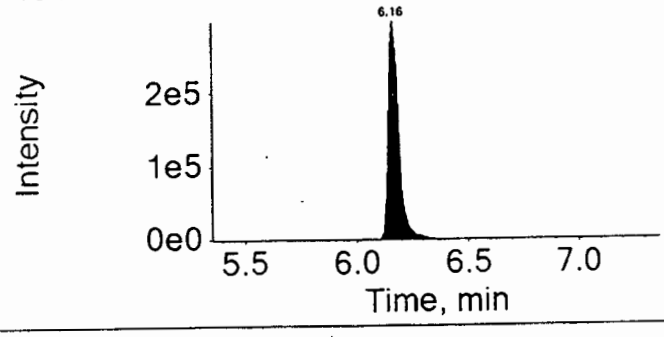
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

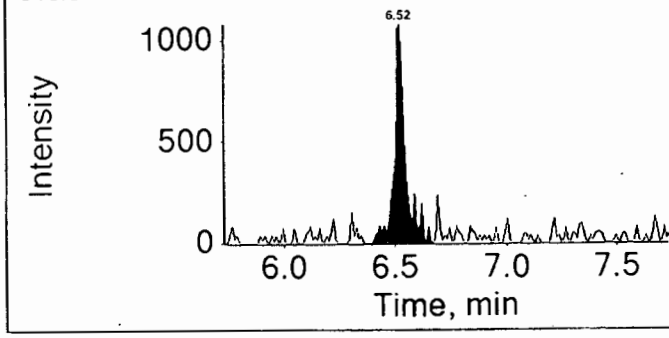
515.0 / 470.0



16AUG04-23.wiff

Analyte: PFUndA

562.9 / 518.9



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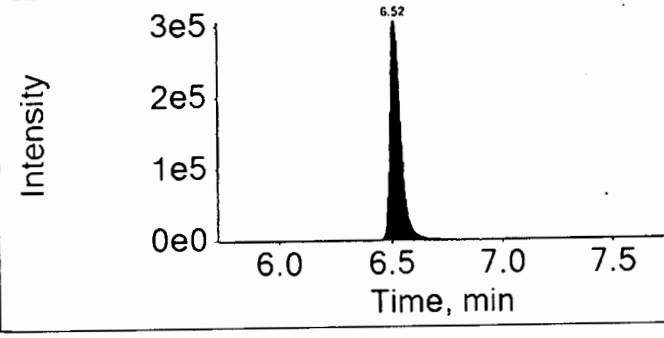
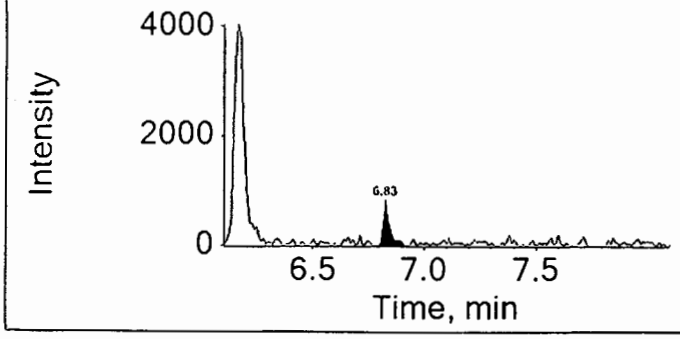
565.0 / 520.0



16AUG04-23.wiff

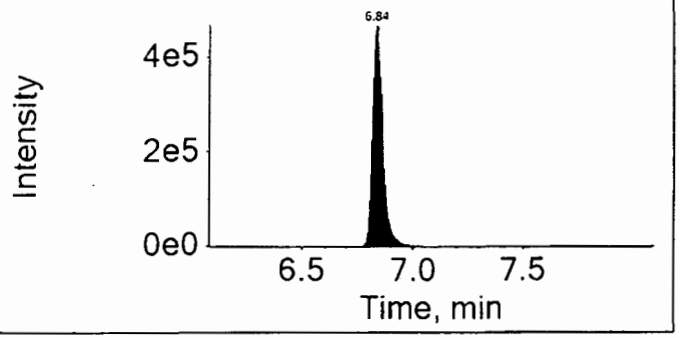
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

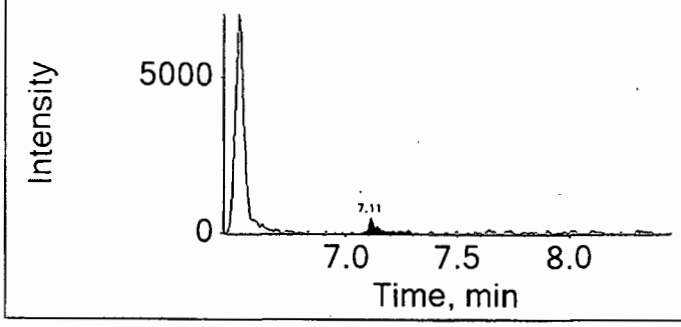
615.0 / 570.0



16AUG04-23.wiff

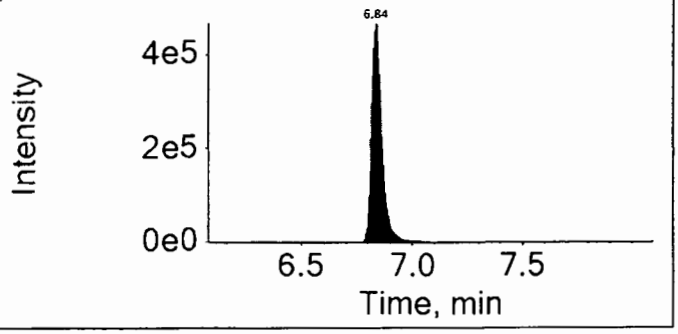
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

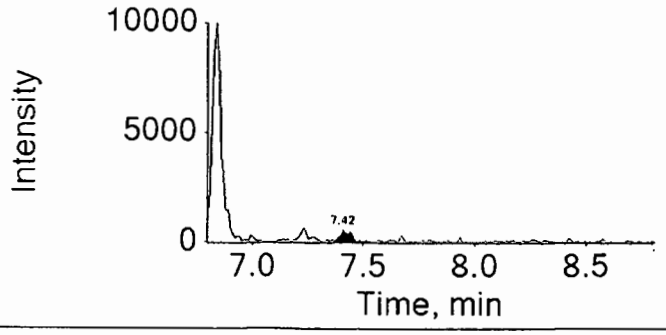
615.0 / 570.0



16AUG04-23.wiff

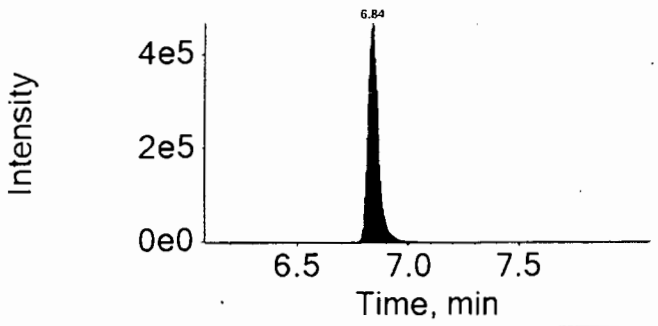
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:13:00 PM

Sample Name:	8438971RE			**Data File:**		16AUG04-23.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW06-10.5 Grab Soil			**Acquis Date:**		2016-08-04T19:25:36
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	32			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16215005
				ICAL Name:		16AUG01
Batch Number:	16215005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.13000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

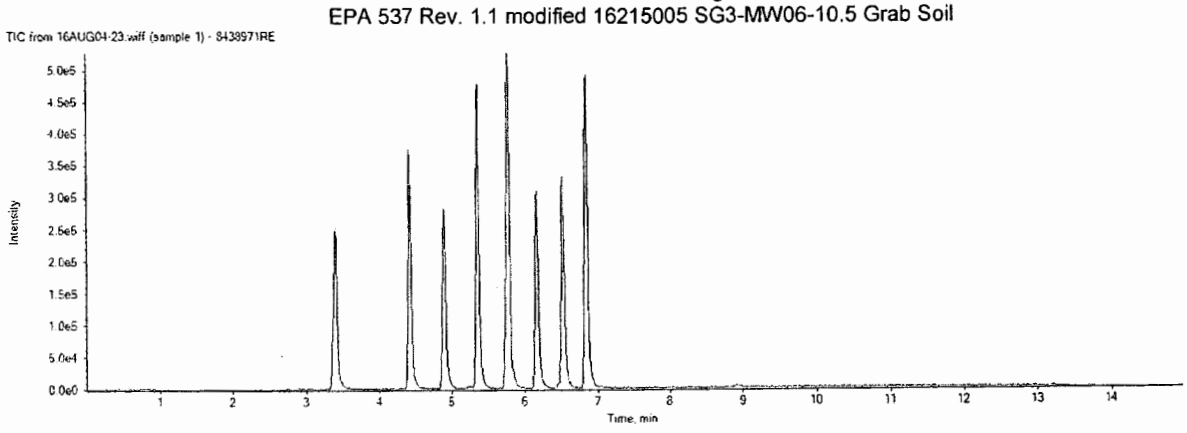
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.88	370903.9	N/A	N/A
PFHxA	4.42	1.000	3688.9	A	13C2-PFHxA	4.42	1107447.3	0.003	0.060
PFHpA	4.89	1.000	3123.7	A	13C4-PFHpA	4.89	557425.9	0.006	0.039
PFHxS	4.90	1.000	1532.2	A	18O2-PFHxS	4.88	370903.9	0.004	0.034
PFOA	5.35	1.000	347031.3	M	13C4-PFOA	5.35	1050662.4	0.330	2.743
PFNA	5.78	1.000	3157.8	A	13C5-PFNA	5.78	1432212.6	0.002	0.019
PFOS	5.74	1.000	2188.9	A	13C4-PFOS	5.75	356793.1	0.006	0.052
PFDA	6.17	1.000	2375.4	M	13C2-PFDA	6.16	987180.2	0.002	0.018
PFUndA	6.52	1.000	3876.9	A	13C2-PFUnDA	6.52	1066994.7	0.004	0.032
PFDoDA	6.83	1.000	1751.2	A	13C2-PFDoDA	6.84	1542281.3	0.001	0.011
PFTrDA	7.11	1.040	1782.2	A	13C2-PFDoDA	6.84	1542281.3	0.001	0.011
PFTeDA	7.42	1.090	2032.4	A	13C2-PFDoDA	6.84	1542281.3	0.001	0.012

Rev

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW06-10.5 Grab Soil



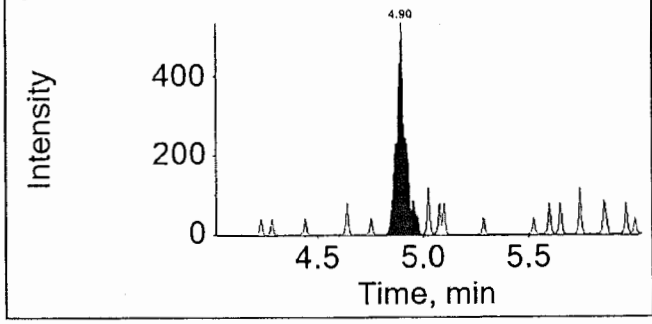
APPROVED
By MCD at 3:34 pm, 5/23/17

REVIEWED
By ucmr at 2:20 pm, 5/27/17

16AUG04-23.wiff

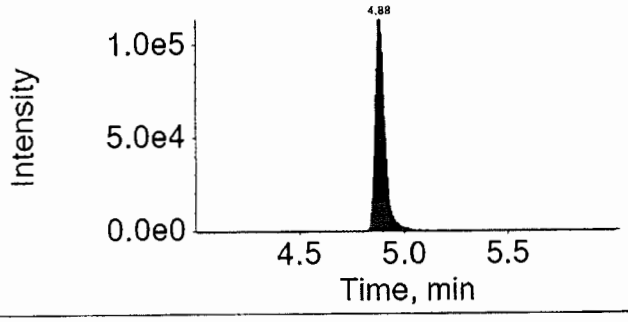
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

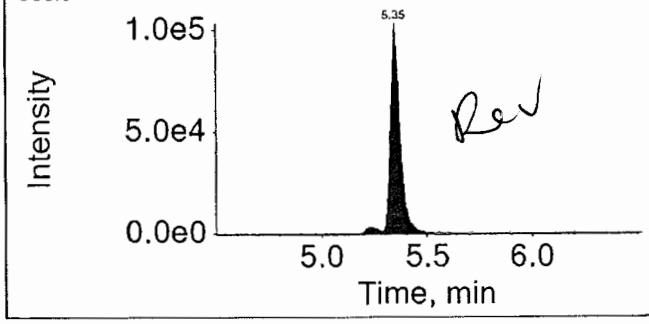
403.0 / 103.0



16AUG04-23.wiff

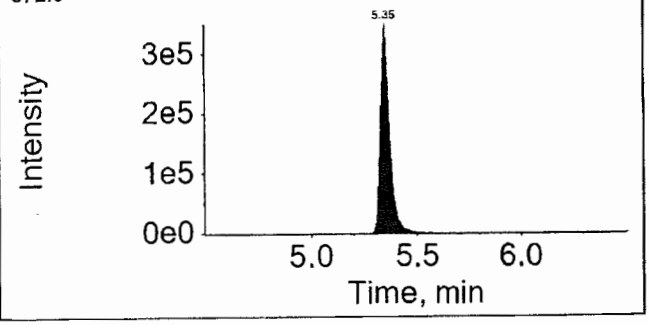
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

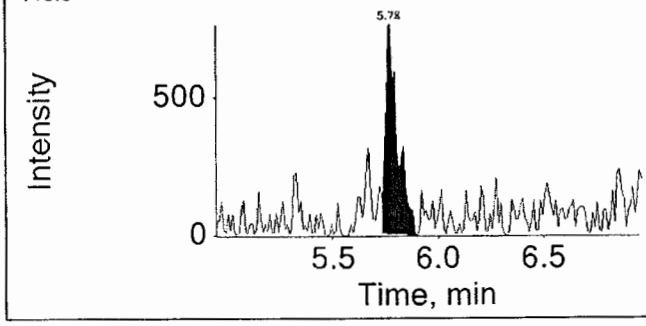
417.0 / 372.0



16AUG04-23.wiff

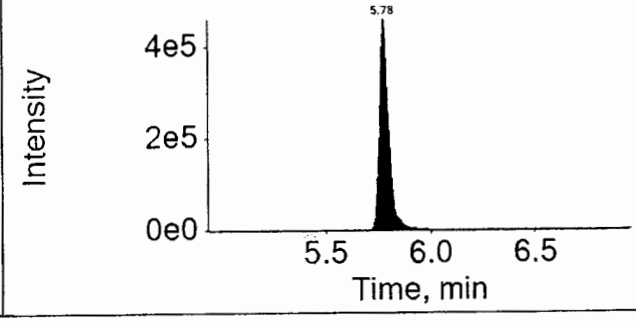
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:34 pm, 5/23/17

REVIEWED
By ucmr at 2:20 pm, 5/27/17

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Analysis Report

Sample Description: SG3-MW06-13.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8438972
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 14:32 by JD
through 06/20/2016 14:34
Submitted: 06/22/2016 09:30
Reported: 08/05/2016 13:43

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

63SG3 SDG#: SGP97-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.55	U	0.55	1.8	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.44	U	0.44	0.88	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.55	U	0.55	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.77	U	0.77	1.8	1
14027	Perfluorooctanoic acid	335-67-1	2.3		0.33	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.88	1
14027	Perfluorotridecanoic acid	72629-94-8	0.66	U	0.66	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.66	1

add J - LAL, IS

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	570	J	211	633	1

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	9.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 15:06	Marissa C Drexinger	1
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16190006	07/11/2016 10:10	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

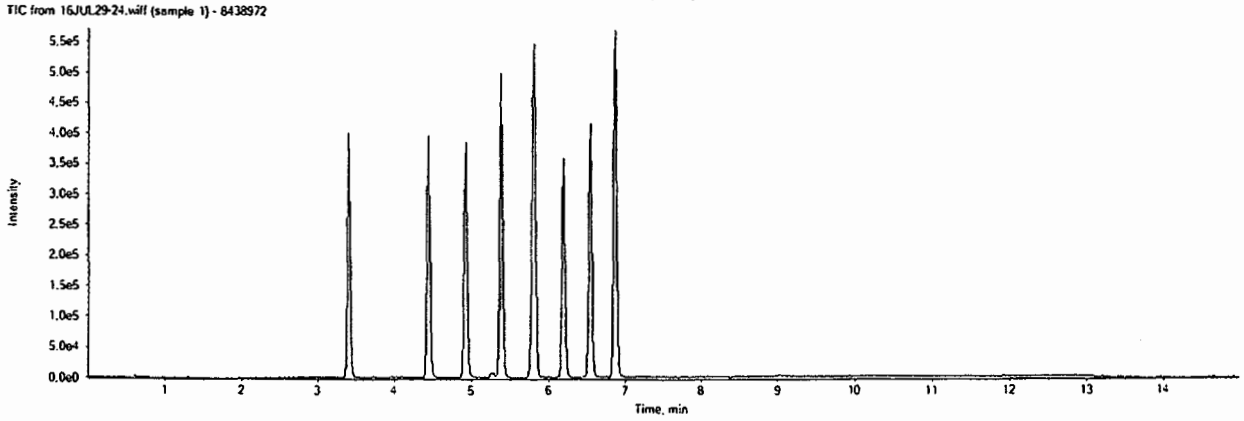
Sample Name:	8438972	**Data File:**		16JUL29-24.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW06-13.5 Grab Soil	**Acquis Date:**		7/29/2016 3:06:54 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	48	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.060	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

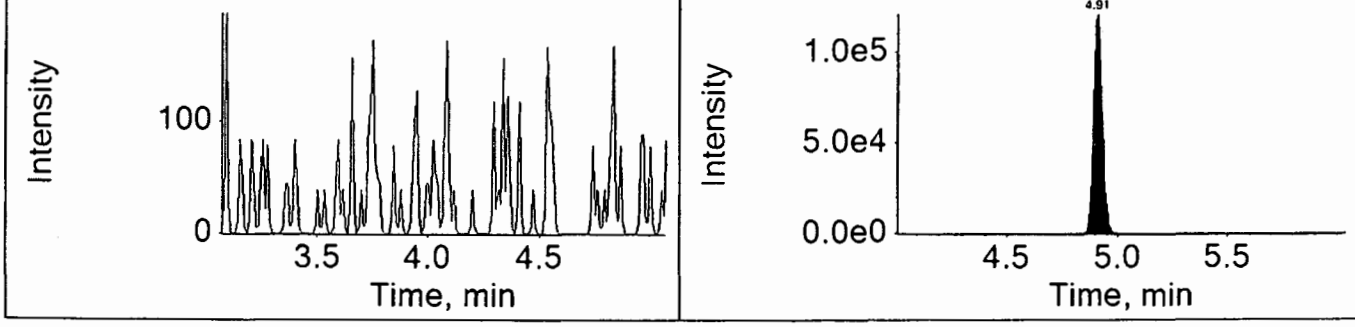
Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	18O2-PFHxS	4.91	349680.3	N/A	N/A	
PFHxA	4.43	1299.9	13C2-PFHxA	4.44	1107507.3	0.001	0.022	
PFHpA	4.92	3820.0	13C4-PFHpA	4.92	692103.0	0.006	0.040	
PFHxS	4.91	1469.6	18O2-PFHxS	4.91	349680.3	0.004	~~0.035~~	
PFOA	5.38	273815.2	13C4-PFOA	5.38	1030201.9	0.266	2.094	
PFNA	5.81	2616.7	13C5-PFNA	5.80	1437236.3	0.002	~~0.015~~	
PFOS	5.76	343.9	13C4-PFOS	5.78	346249.8	0.001	0.008	
PFDA	6.19	1200.1	13C2-PFDA	6.19	936373.0	0.001	0.009	
PFUndA	6.55	3220.7	13C2-PFUnDA	6.54	1132560.3	0.003	0.025	
PFDoDA	N/A	N/A	13C2-PFDoDA	6.86	1579487.6	N/A	N/A	
PFTrDA	7.16	2283.4	13C2-PFDoDA	6.86	1579487.6	0.001	0.013	
PFTeDA	7.47	2754.8	13C2-PFDoDA	6.86	1579487.6	0.002	0.015	

Total Ion Chromatogram

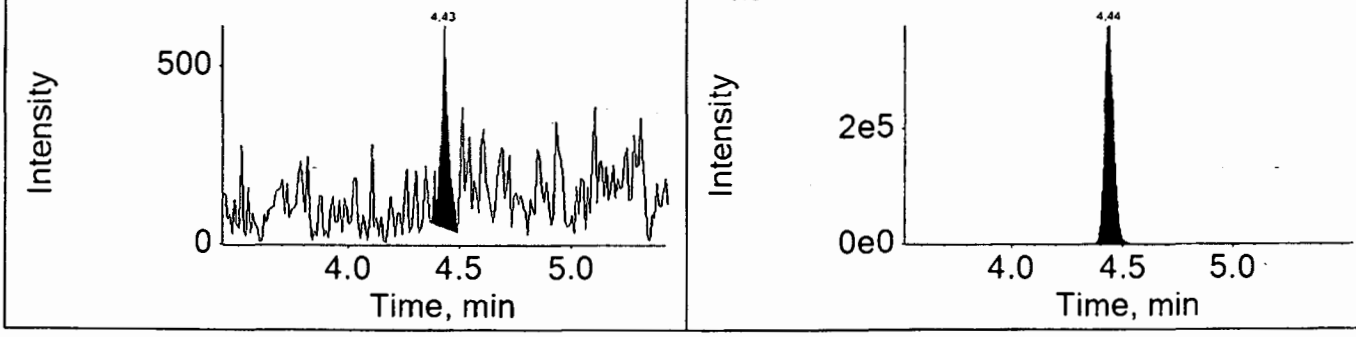
EPA 537 Rev. 1.1 modified 16190006 SG3-MW06-13.5 Grab Soil



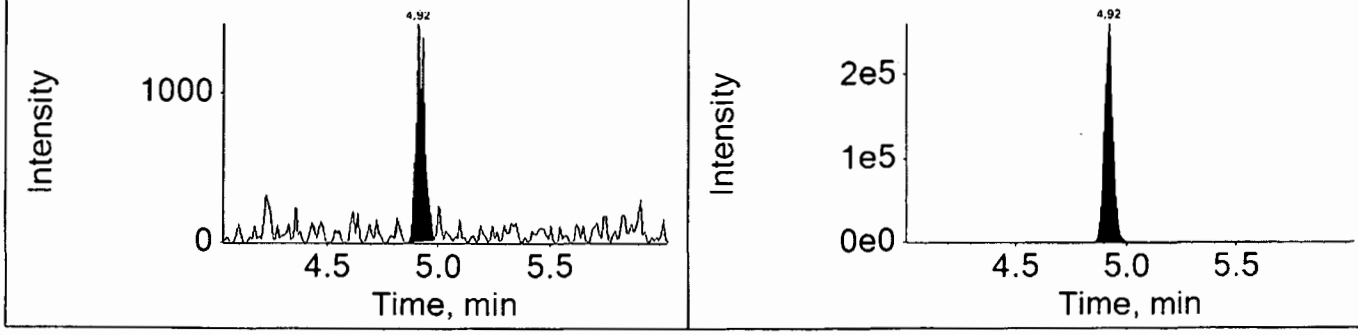
16JUL29-24.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



16JUL29-24.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



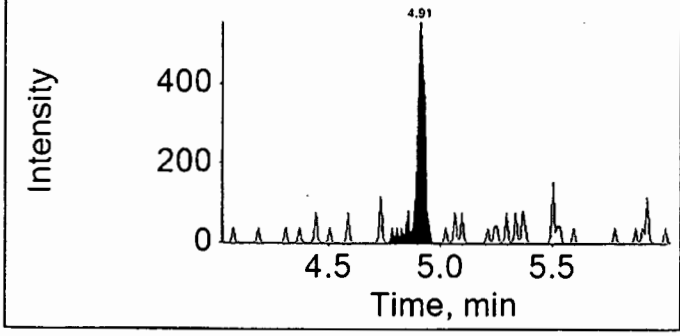
16JUL29-24.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



16JUL29-24.wiff

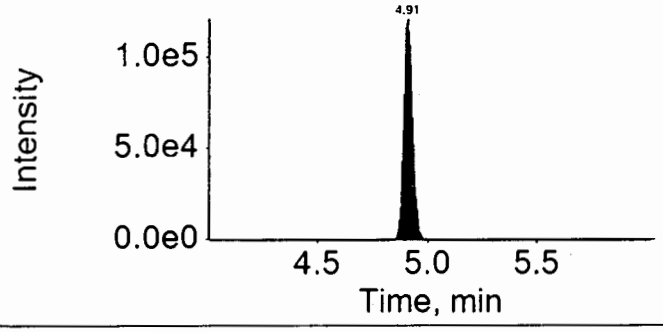
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

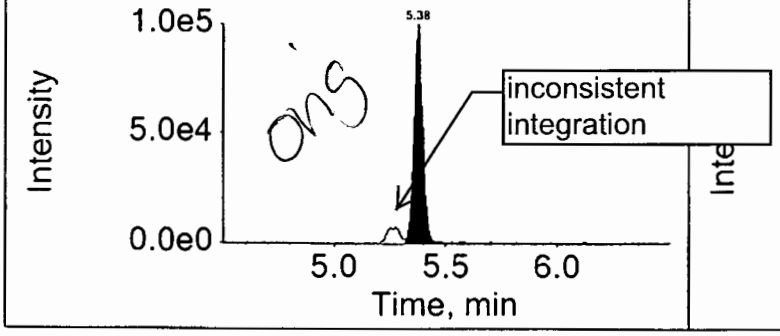
403.0 / 103.0



16JUL29-24.wiff

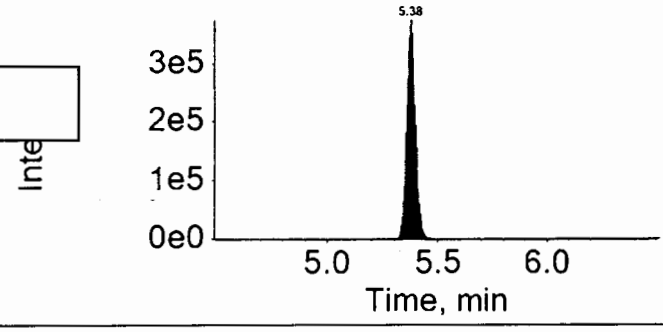
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

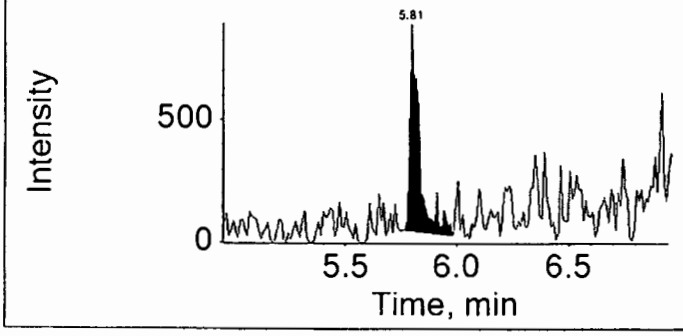
417.0 / 372.0



16JUL29-24.wiff

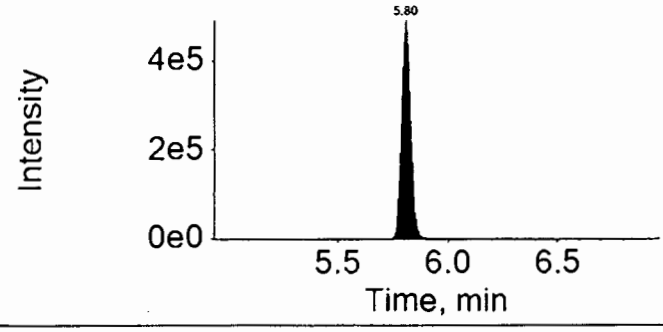
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

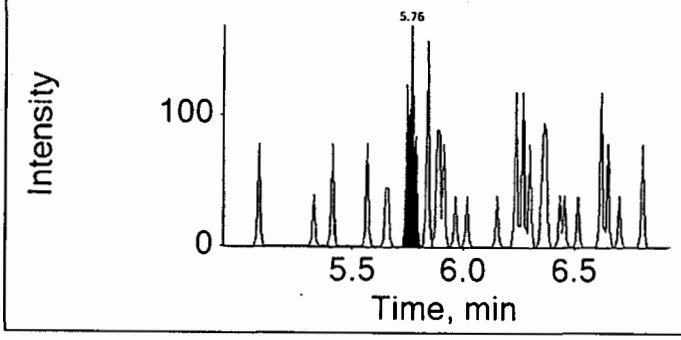
468.0 / 423.0



16JUL29-24.wiff

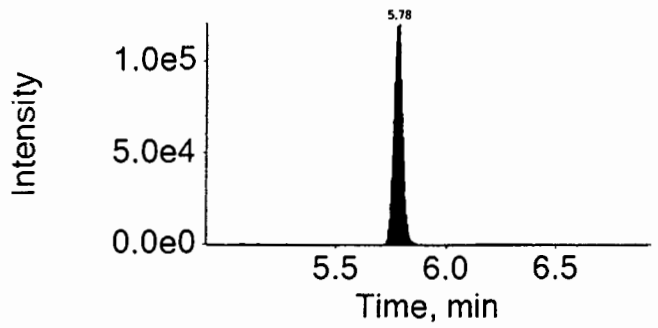
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

503.0 / 99.0



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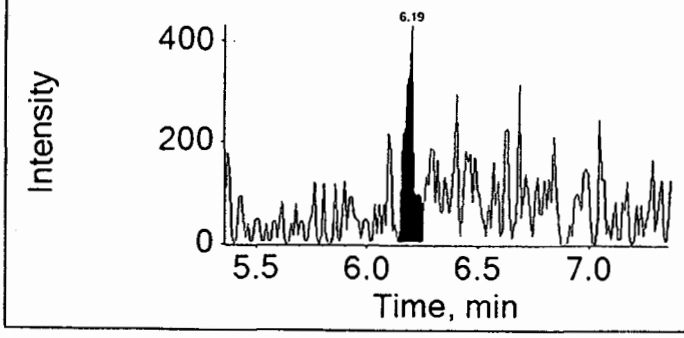
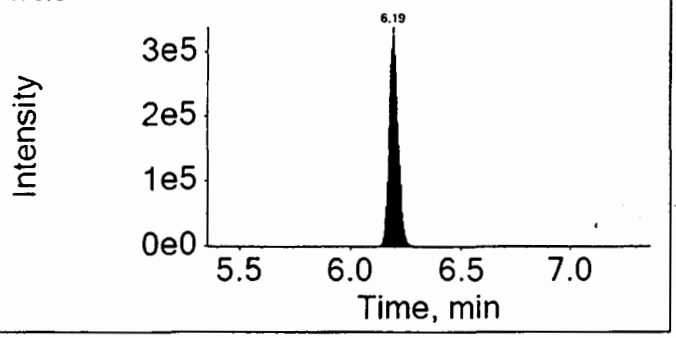
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

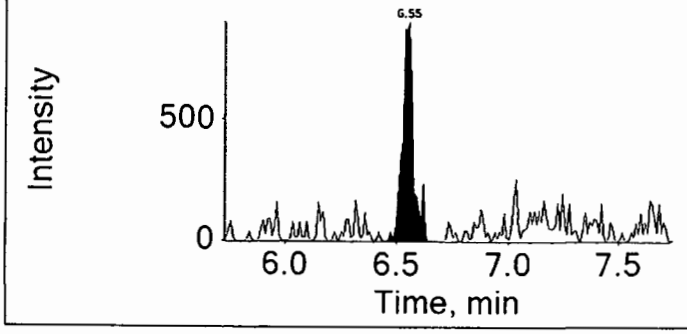
515.0 / 470.0



16JUL29-24.wiff

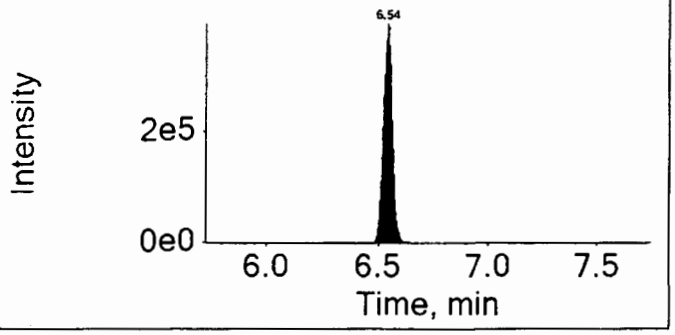
Analyte: PFUndA

562.9 / 518.9

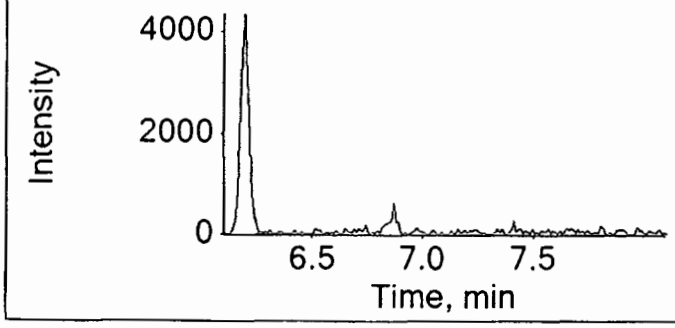


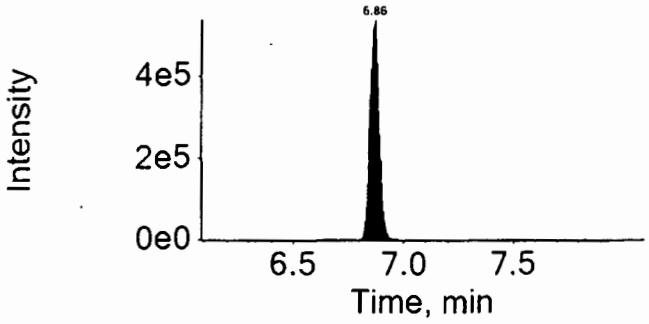
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

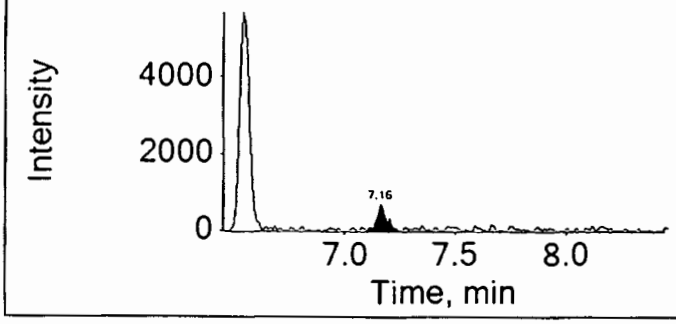


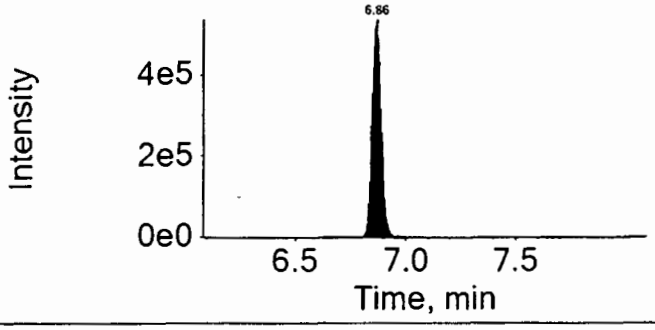
16JUL29-24.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



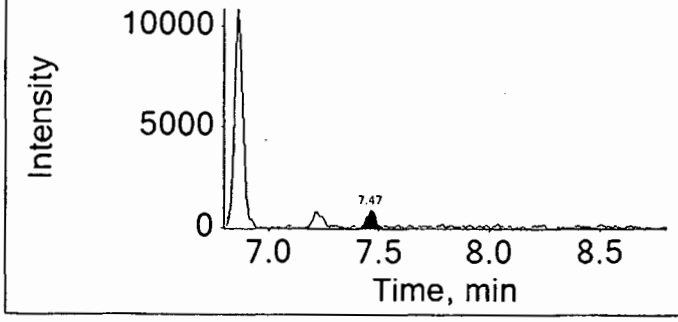


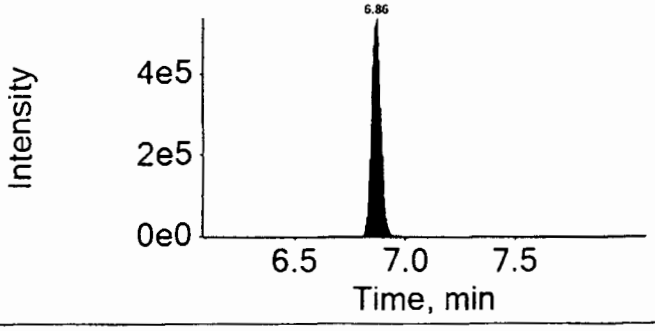
16JUL29-24.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL29-24.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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Analysis Report

REVISED

Sample Description: SG3-MW06-13.5 Grab Soil
SGPP - Bennington

LL Sample # SW 8438972
LL Group # 1674752
Account # 37191

Project Name: SGPP - Bennington

Collected: 06/20/2016 14:32 by JD
through 06/20/2016 14:34
Submitted: 06/22/2016 09:30
Reported: 05/30/2017 08:39

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

63SG3 SDG#: SGP97-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
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14027	Perfluorododecanoic acid	307-55-1	0.44	U	0.44	0.87	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.55	U	0.55	1.8	1
14027	Perfluorohexanoic acid	307-24-4	0.22	U	0.22	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.22	U	0.22	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.76	U	0.76	1.8	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.6**		0.33	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.87	1
14027	Perfluorotridecanoic acid	72629-94-8	0.66	U	0.66	1.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.66	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	**TOC**	n.a.	**570**	J	211	633	1

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**9.5**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16190006	07/29/2016 15:06	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:01:00 PM

Sample Name:	8438972			**Data File:**		16JUL29-24.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16190006 SG3-MW06-13.5 Grab Soil			**Acquis Date:**		2016-07-29T15:06:54
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	48			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16190006
				ICAL Name:		Not calculated
Batch Number:	Not calculated			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.060			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

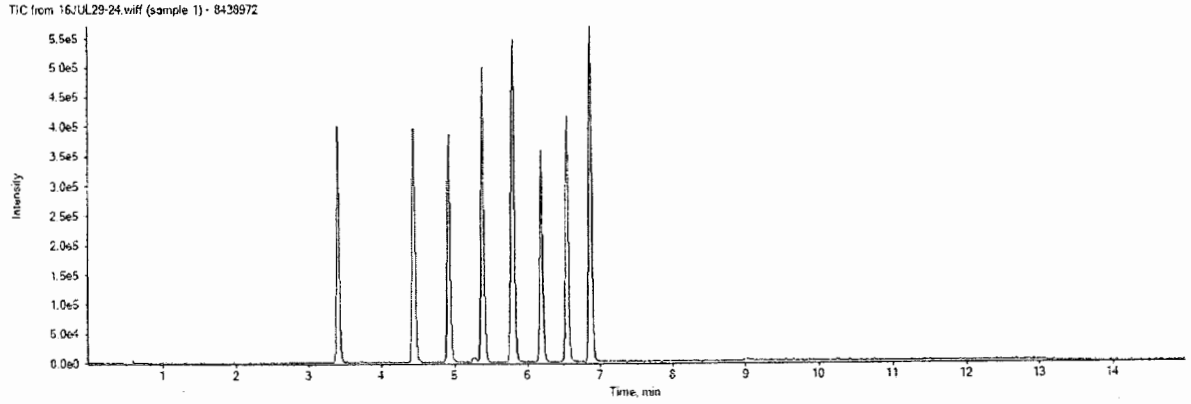
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.91	349680.3	N/A	N/A
PFHxA	4.43	1.000	1299.9	A	13C2-PFHxA	4.44	1107507.3	0.001	0.022
PFHpA	4.92	1.000	3820.0	A	13C4-PFHpA	4.92	692103.0	0.006	0.040
PFHxS	4.91	1.000	1469.6	A	18O2-PFHxS	4.91	349680.3	0.004	0.035
PFOA	5.38	1.000	301839.9	M	13C4-PFOA	5.38	1030201.9	0.293	2.308
PFNA	5.81	1.000	2616.7	A	13C5-PFNA	5.80	1437236.3	0.002	0.015
PFOS	5.76	1.000	343.9	A	13C4-PFOS	5.78	346249.8	0.001	0.008
PFDA	6.19	1.000	1200.1	M	13C2-PFDA	6.19	936373.0	0.001	0.009
PFUndA	6.55	1.000	3220.7	A	13C2-PFUnDA	6.54	1132560.3	0.003	0.025
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.86	1579487.6	N/A	N/A
PFTrDA	7.16	1.040	2283.4	M	13C2-PFDoDA	6.86	1579487.6	0.001	0.013
PFTeDA	7.47	1.090	2754.8	M	13C2-PFDoDA	6.86	1579487.6	0.002	0.015

Rev

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16190006 SG3-MW06-13.5 Grab Soil



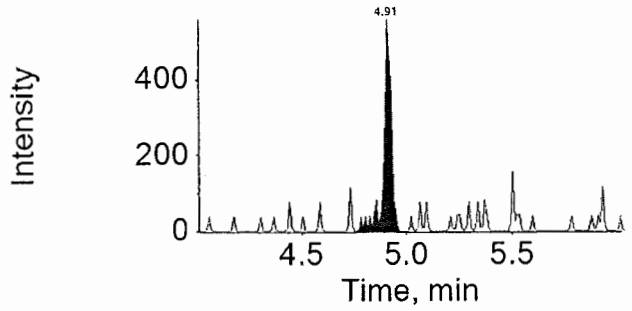
APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 1:25 pm, 5/27/17

16JUL29-24.wiff

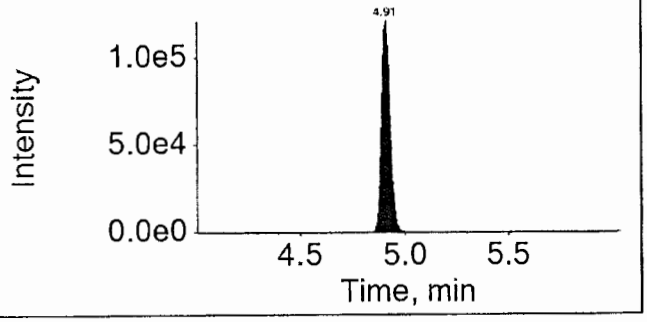
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

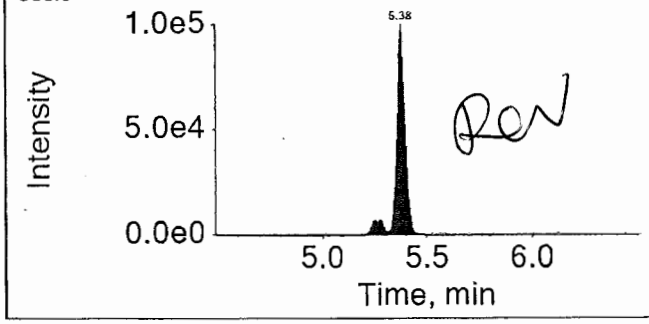
403.0 / 103.0



16JUL29-24.wiff

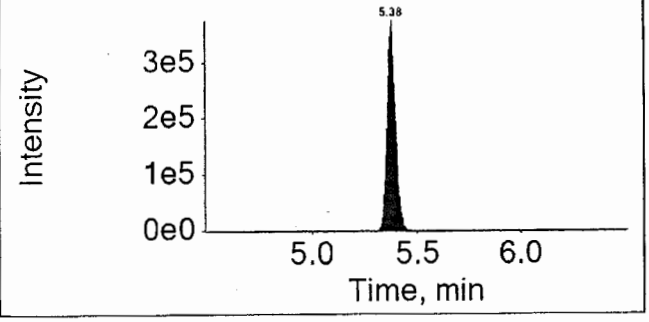
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

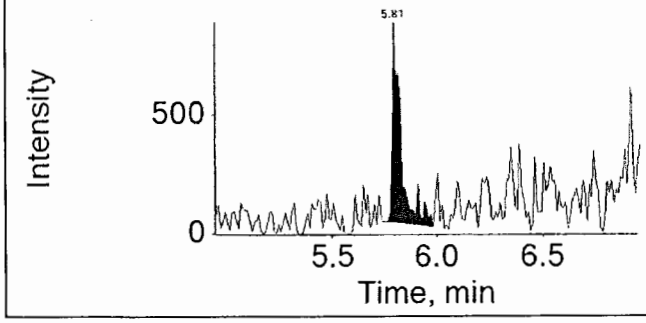
417.0 / 372.0



16JUL29-24.wiff

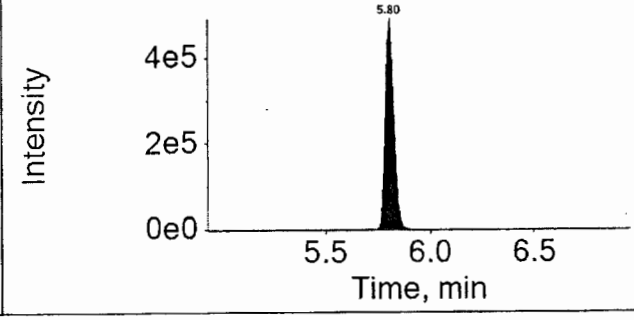
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:28 pm, 5/23/17

REVIEWED
By ucmr at 1:25 pm, 5/27/17

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LC-MS/MS Analysis Report

Printed: 8/5/2016 10:04:00 AM

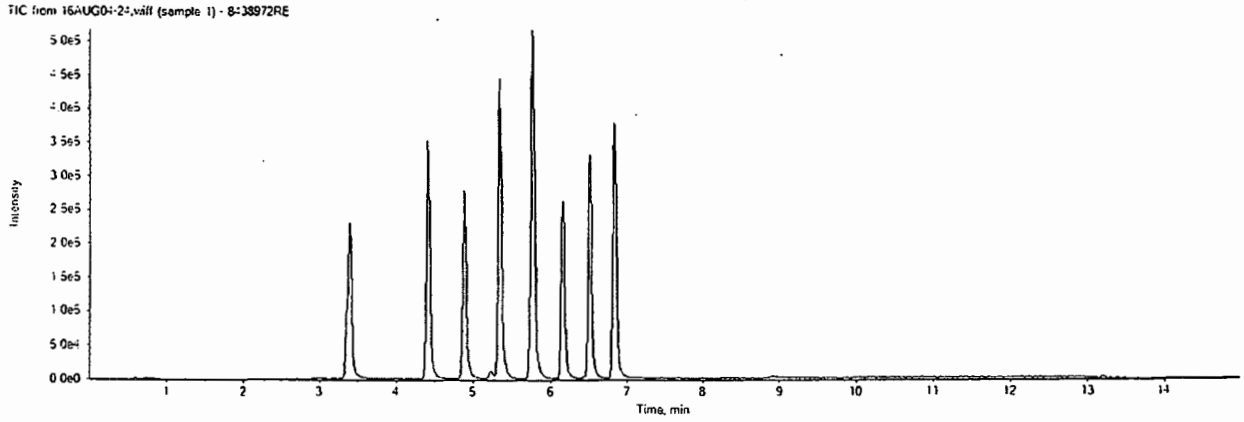
Sample Name:	8438972RE		**Data File:**		16AUG04-24.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW06-13.5 Grab Soil		**Acquis Date:**		8/4/2016 7:41:18 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	33		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.320		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

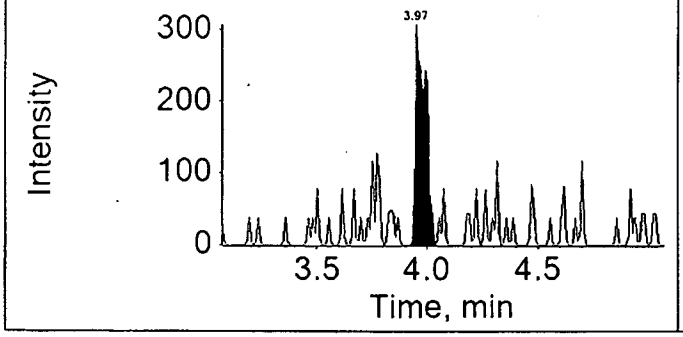
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	3.97	1064.4	M	18O2-PFHxS	4.88	356247.1	0.003	0.020	
PFHxA	4.42	3226.6	A	13C2-PFHxA	4.41	1111577.5	0.003	0.050	
PFHpA	4.89	4876.0	A	13C4-PFHpA	4.89	538982.7	0.009	0.061	
PFHxS	4.87	3221.1	A	18O2-PFHxS	4.88	356247.1	0.009	0.073	
PFOA	5.34	430860.5	A	13C4-PFOA	5.34	1000264.0	0.431	3.449	ng
PFNA	5.78	4550.3	A	13C5-PFNA	5.77	1453313.1	0.003	0.026	
PFOS	5.75	2254.3	M	13C4-PFOS	5.74	356435.6	0.006	0.051	
PFDA	6.16	4659.3	A	13C2-PFDA	6.16	893163.9	0.005	0.037	
PFUndA	6.52	4784.7	A	13C2-PFUnDA	6.51	983057.2	0.005	0.041	
PFDoDA	6.83	3565.5	M	13C2-PFDoDA	6.83	1231023.8	0.003	0.028	
PFTrDA	7.13	4594.5	A	13C2-PFDoDA	6.83	1231023.8	0.004	0.034	
PFTeDA	7.41	3192.6	A	13C2-PFDoDA	6.83	1231023.8	0.003	0.023	

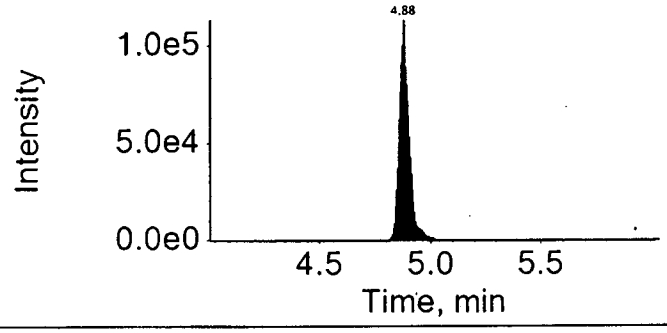
Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW06-13.5 Grab Soil

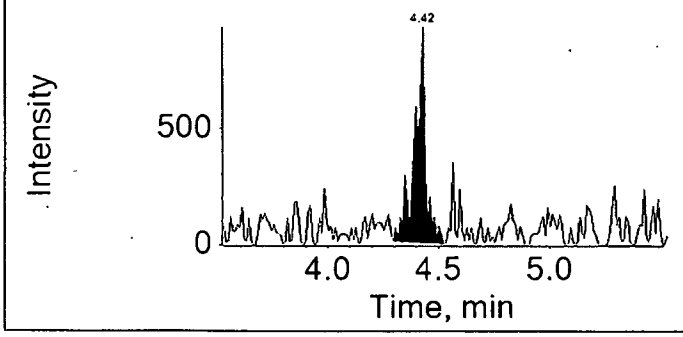


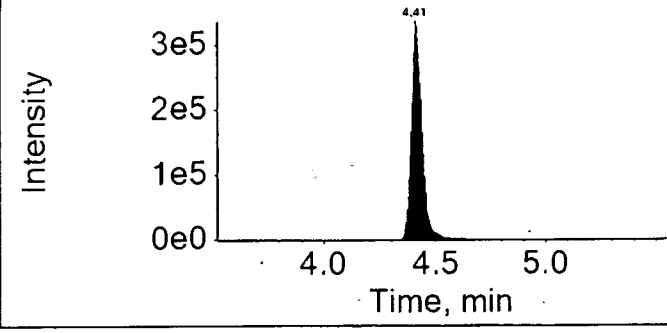
16AUG04-24.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



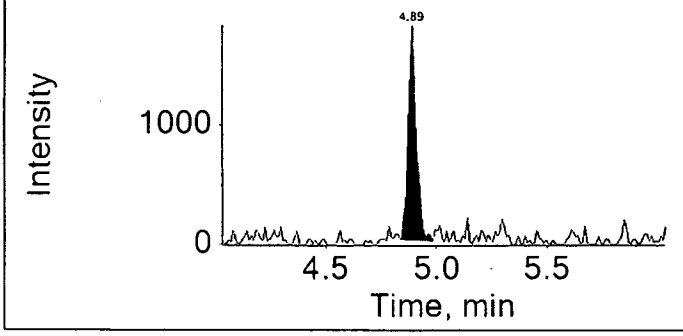


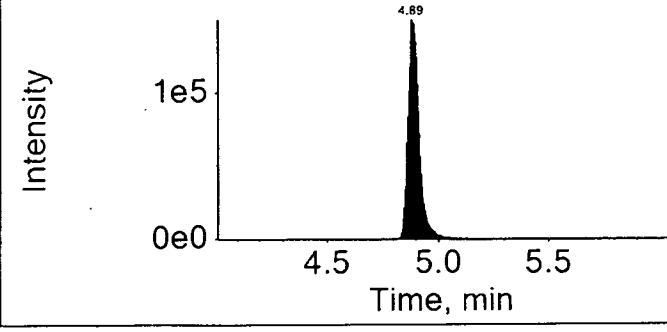
16AUG04-24.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16AUG04-24.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

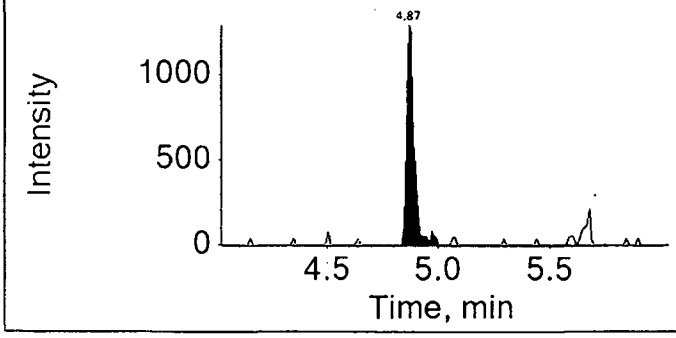




16AUG04-24.wiff

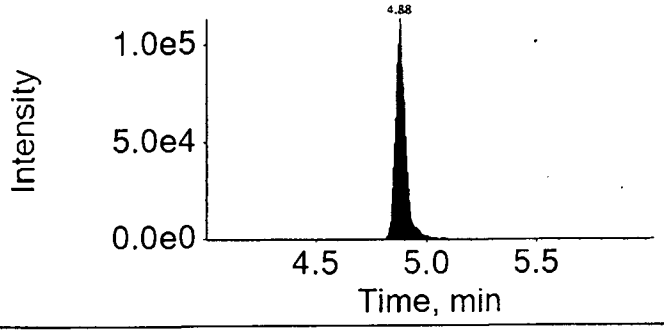
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

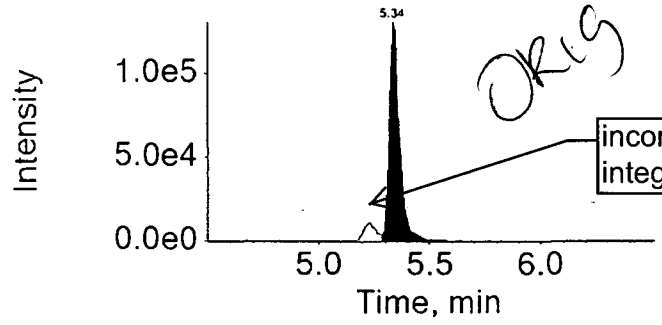
403.0 / 103.0



16AUG04-24.wiff

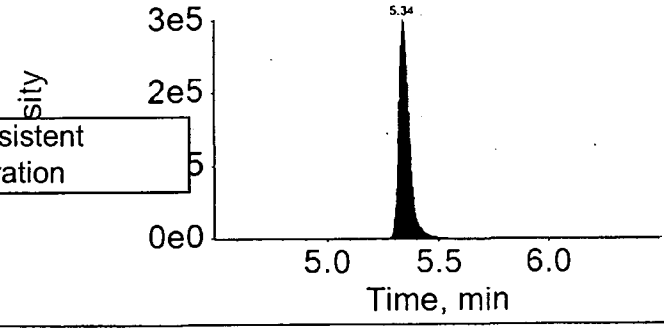
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

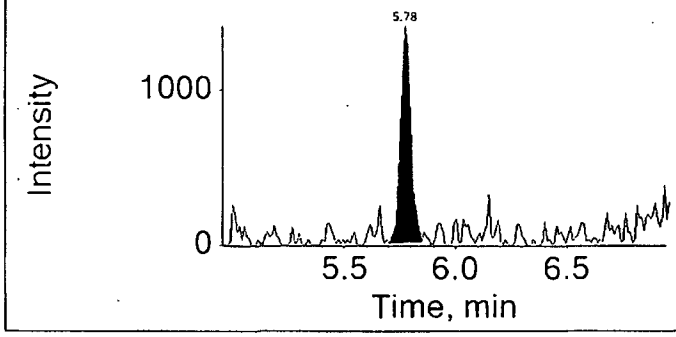
417.0 / 372.0



16AUG04-24.wiff

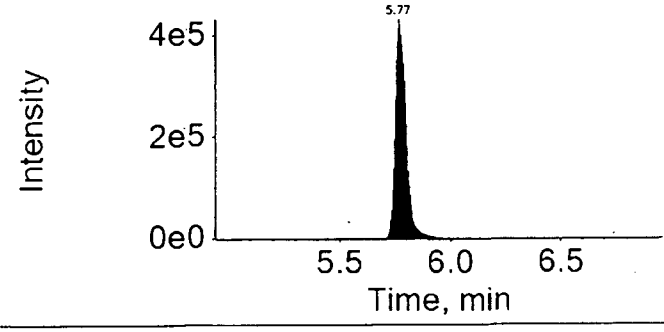
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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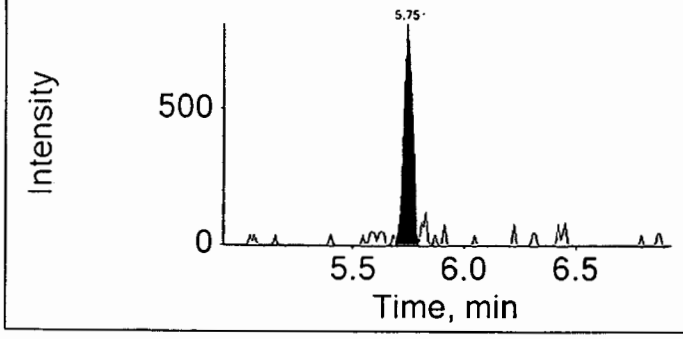
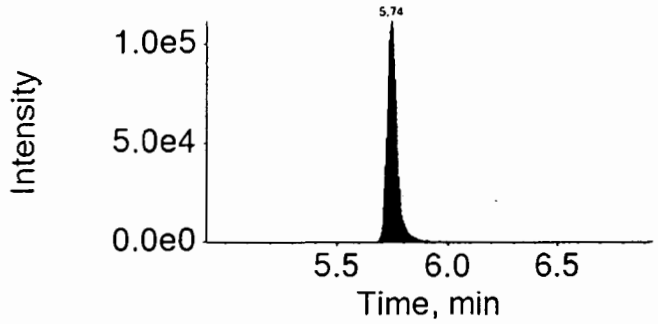
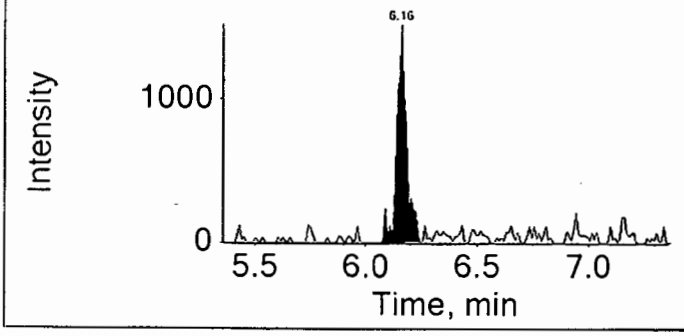
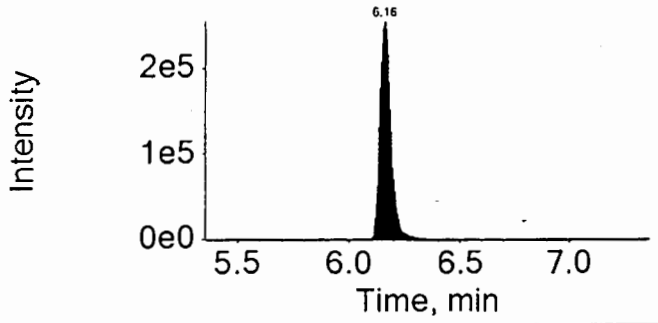
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



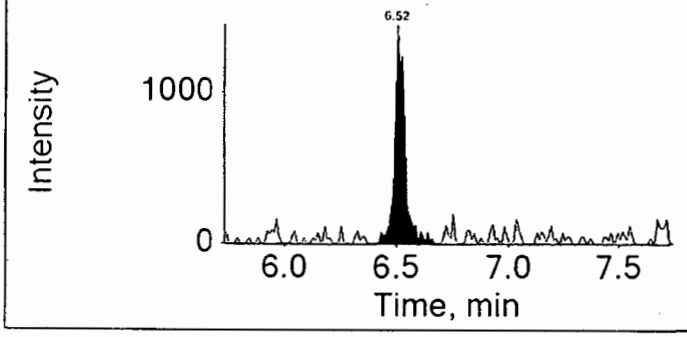


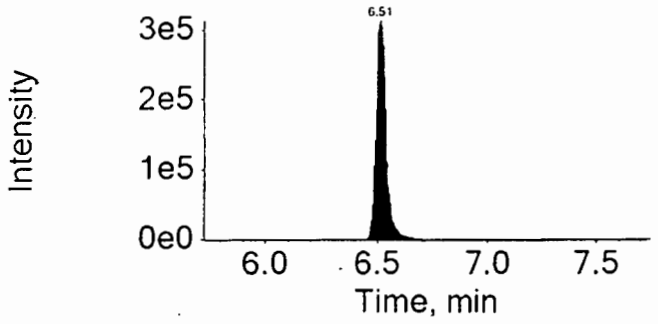
16AUG04-24.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



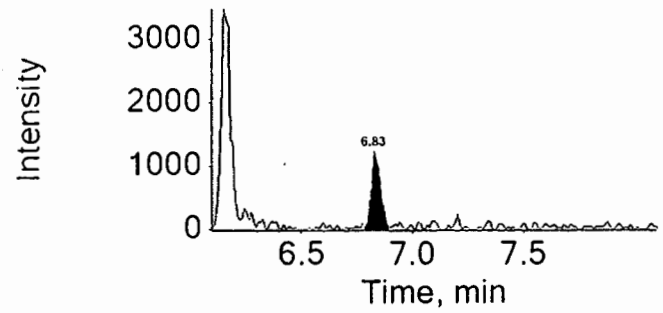


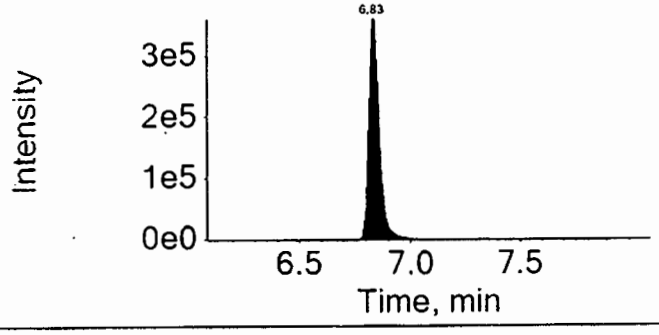
16AUG04-24.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0





16AUG04-24.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0





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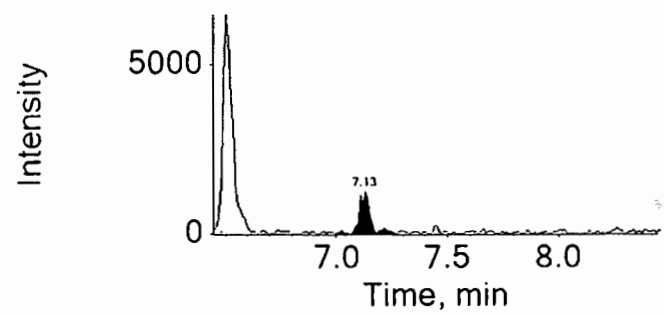
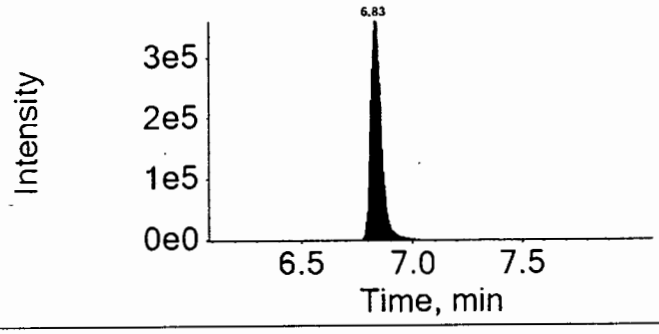
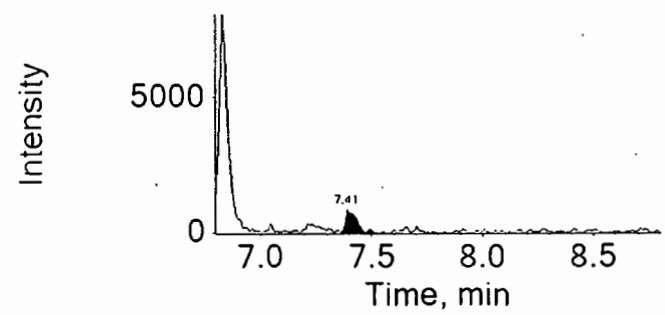
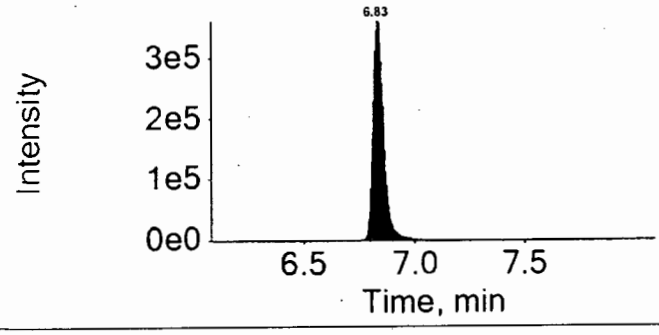
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG04-24.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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LC-MS/MS Analysis Report

Printed: 5/23/2017 3:13:00 PM

Sample Name:	8438972RE			**Data File:**		16AUG04-24.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16215005 SG3-MW06-13.5 Grab Soil			**Acquis Date:**		2016-08-04T19:41:18
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	33			**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00			**Result Table:**		MQ 16215005
				ICAL Name:		16AUG01
Batch Number:	16215005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.32000			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

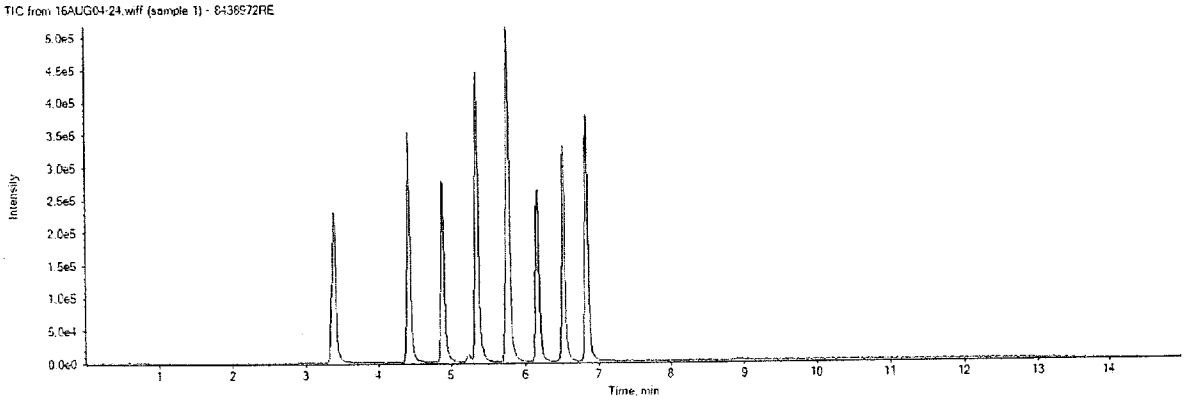
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result ()
PFBS	3.97	0.810	1064.4	M	18O2-PFHxS	4.88	356247.1	0.003	0.020
PFHxA	4.42	1.000	3226.6	A	13C2-PFHxA	4.41	1111577.5	0.003	0.050
PFHpA	4.89	1.000	4876.0	A	13C4-PFHpA	4.89	538982.7	0.009	0.061
PFHxS	4.87	1.000	3221.1	A	18O2-PFHxS	4.88	356247.1	0.009	0.073
PFOA	5.34	1.000	468824.7	M	13C4-PFOA	5.34	1000264.0	0.469	3.753
PFNA	5.78	1.000	4550.3	A	13C5-PFNA	5.77	1453313.1	0.003	0.026
PFOS	5.75	1.000	2254.3	M	13C4-PFOS	5.74	356435.6	0.006	0.051
PFDA	6.16	1.000	4659.3	A	13C2-PFDA	6.16	893163.9	0.005	0.037
PFUndA	6.52	1.000	4784.7	A	13C2-PFUnDA	6.51	983057.2	0.005	0.041
PFDoDA	6.83	1.000	3565.5	M	13C2-PFDoDA	6.83	1231023.8	0.003	0.028
PFTrDA	7.13	1.040	4594.5	A	13C2-PFDoDA	6.83	1231023.8	0.004	0.034
PFTeDA	7.41	1.080	3192.6	A	13C2-PFDoDA	6.83	1231023.8	0.003	0.023

RCV

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16215005 SG3-MW06-13.5 Grab Soil



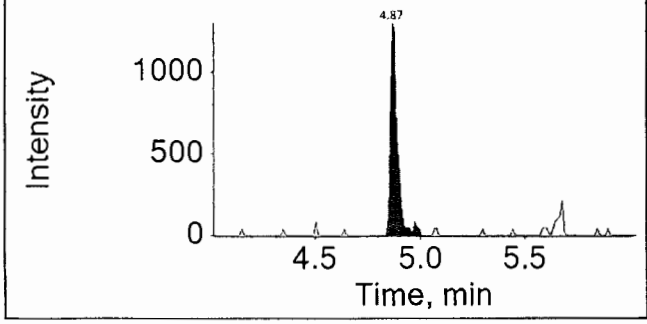
APPROVED
By MCD at 3:34 pm, 5/23/17

REVIEWED
By ucmr at 2:20 pm, 5/27/17

16AUG04-24.wiff

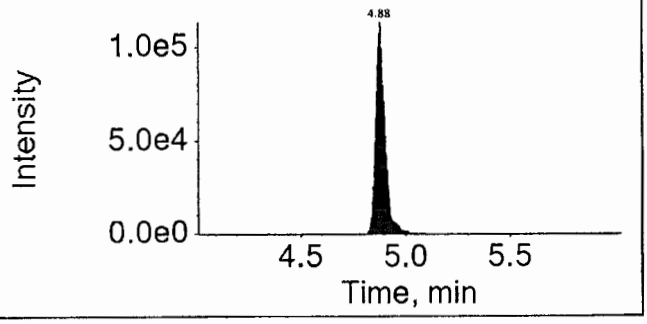
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

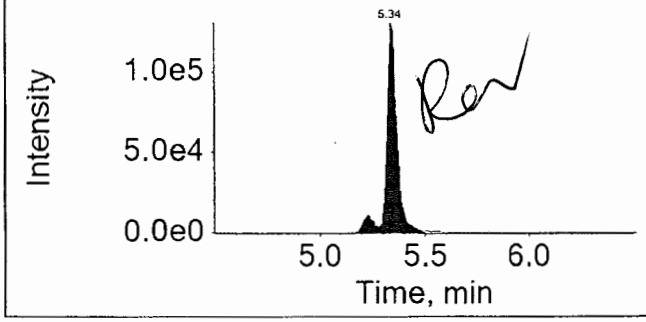
403.0 / 103.0



16AUG04-24.wiff

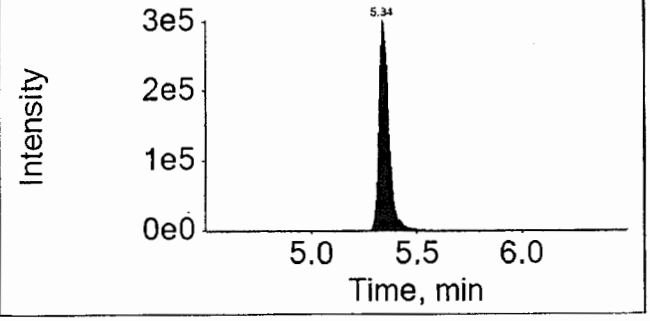
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

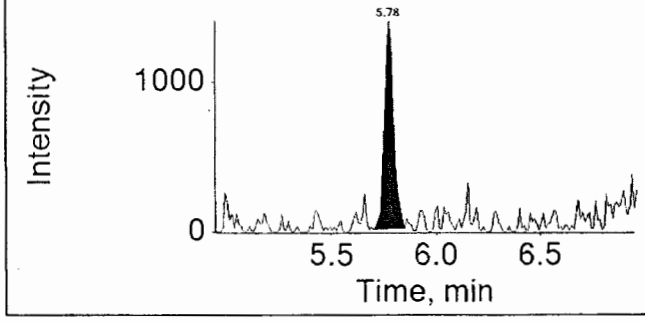
417.0 / 372.0



16AUG04-24.wiff

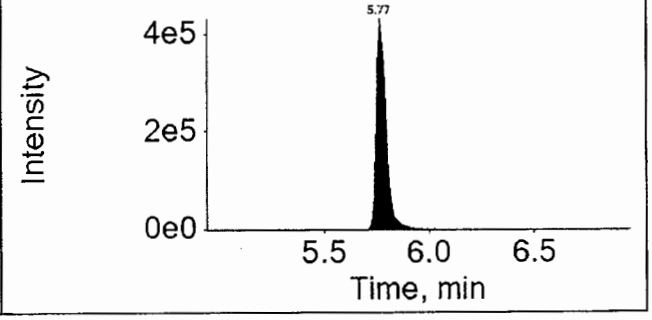
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



APPROVED
By MCD at 3:34 pm, 5/23/17

REVIEWED
By ucmr at 2:20 pm, 5/27/17

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 08/05/2016 13:43

Group Number: 1674752

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16190006	Sample number(s): 8438959-8438962,8438965,8438967-8438968,8438970-8438972			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16180002	Sample number(s): 8438963-8438964,8438966,8438969			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16193298731B	Sample number(s): 8438959			
TOC	100	U	100	300
Batch number: 16194298731A	Sample number(s): 8438960-8438962,8438965,8438967-8438968,8438970-8438972			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 08/05/2016 13:43

Group Number: 1674752

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16190006	Sample number(s): 8438959-8438962,8438965,8438967-8438968,8438970-8438972								
Perfluorobutanesulfonate	17.8	13.6	17.8	16.12	76	91	70-130	17	30
Perfluorodecanoic acid	20	17.21	20	19.7	86	98	70-130	14	30
Perfluorododecanoic acid	20	17.72	20	20.64	89	103	70-130	15	30
Perfluoroheptanoic acid	20	12.79	20	13.28	64*	66*	70-130	4	30
Perfluorohexanesulfonate	18.92	18.15	18.92	18.91	96	100	70-130	4	30
Perfluorohexanoic acid	20	21.39	20	22.34	107	112	70-130	4	30
Perfluorononanoic acid	20	17.29	20	18.65	86	93	70-130	8	30
Perfluoro-octanesulfonate	19.12	16.53	19.12	18.11	86	95	70-130	9	30
Perfluorooctanoic acid	20	17.1	20	18.43	86	92	70-130	7	30
Perfluorotetradecanoic acid	20	32.92	20	25.67	165*	128	70-130	25	30
Perfluorotridecanoic acid	20	25.32	20	24.77	127	124	70-130	2	30
Perfluoroundecanoic acid	20	16.33	20	18.87	82	94	70-130	14	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16180002	Sample number(s): 8438963-8438964,8438966,8438969								
Perfluorooctanoic acid	90.9	110.43	90.9	116.41	121	128	70-130	5	30
Perfluorononanoic acid	90.9	110.81	90.9	114.16	122	126	70-130	3	30
Perfluorodecanoic acid	90.9	109.1	90.9	118.35	120	130	70-130	8	30
Perfluoroundecanoic acid	90.9	112.22	90.9	111.31	123	122	70-130	1	30
Perfluorododecanoic acid	90.9	102.45	90.9	104.79	113	115	70-130	2	30
Perfluorotridecanoic acid	90.9	100.89	90.9	121.4	111	134*	70-130	18	30
Perfluorotetradecanoic acid	90.9	110.39	90.9	104.92	121	115	70-130	5	30
Perfluorohexanoic acid	90.9	104.26	90.9	98.61	115	108	70-130	6	30
Perfluoroheptanoic acid	90.9	102.94	90.9	107.91	113	149	70-130	5	30
Perfluorobutanesulfonate	80.37	195.34	80.37	141.88	243*	177*	70-130	32*	30
Perfluorohexanesulfonate	86	131.43	86	103.33	153*	120	70-130	24	30
Perfluoro-octanesulfonate	86.9	171.17	86.9	116.48	197*	134*	70-130	38*	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16193298731B	Sample number(s): 8438959								
TOC	5430	4735.69			87		47-143		
Batch number: 16194298731A	Sample number(s): 8438960-8438962,8438965,8438967-8438968,8438970-8438972								
TOC	5430	4412.58			81		47-143		
	%	%	%	%					
Batch number: 16180820010B	Sample number(s): 8438959-8438962,8438965,8438967-8438968,8438970-8438972								
Moisture	89.5	89.47			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g	ng/g					

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 08/05/2016 13:43

Group Number: 1674752

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16190006	Sample number(s): 8438959-8438962,8438965,8438967-8438968,8438970-8438972 UNSPK: 8432144 — not in this SDG										
Perfluorobutanesulfonate	0.50	U	17.8	17.25			97		70-130		
Perfluorodecanoic acid	0.632		20	19.32			93		70-130		
Perfluorododecanoic acid	13.87		20	32.16			91		70-130		
Perfluoroheptanoic acid	0.30	U	20	13.31			67*		70-130		
Perfluorohexanesulfonate	0.50	U	18.92	19.27			102		70-130		
Perfluorohexanoic acid	0.20	U	20	23.32			117		70-130		
Perfluorononanoic acid	0.20	U	20	18.31			92		70-130		
Perfluoro-octanesulfonate	0.70	U	19.12	18.77			98		70-130		
Perfluorooctanoic acid	6.11		20	23.05			85		70-130		
Perfluorotetradecanoic acid	9.55		20	24.35			74		70-130		
Perfluorotridecanoic acid	5.55		20	24.57			95		70-130		
Perfluoroundecanoic acid	1.55		20	16.92			77		70-130		
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 16180002	Sample number(s): 8438963-8438964,8438966,8438969 UNSPK: 8441143										
Perfluorooctanoic acid	1	U	90.9	118.56			130		70-130		
Perfluorononanoic acid	1	U	90.9	123.48			136*		70-130		
Perfluorodecanoic acid	1	U	90.9	127.34			140*		70-130		
Perfluoroundecanoic acid	2	U	90.9	103.24			114		70-130		
Perfluorododecanoic acid	3	U	90.9	122.79			135*		70-130		
Perfluorotridecanoic acid	2	U	90.9	104.09			115		70-130		
Perfluorotetradecanoic acid	3	U	90.9	109.39			120		70-130		
Perfluorohexanoic acid	1	U	90.9	114.62			126		70-130		
Perfluoroheptanoic acid	1	U	90.9	103.34			114		70-130		
Perfluorobutanesulfonate	4	U	80.37	111.71			139*		70-130		
Perfluorohexanesulfonate	4	U	86	82.5			96		70-130		
Perfluoro-octanesulfonate	5	U	86.9	104.46			120		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16193298731B	Sample number(s): 8438959 UNSPK: P437372										
TOC	4119.98		60484	75262.1			118		47-143		
Batch number: 16194298731A	Sample number(s): 8438960-8438962,8438965,8438967-8438968,8438970-8438972 UNSPK: 8438960										
TOC	1864.74		10680	10555.75			81		47-143		

orig

trip blank in SGP98 all samples ND for analytes w/ high %RS → no impact

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16193298731B	Sample number(s): 8438959 BKG: P437372			

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/30/2017 08:39

Group Number: 1674752

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16190006	Sample number(s): 8438959-8438962,8438965,8438967-8438968,8438970-8438972 UNSPK: 8432144										
Perfluorobutanesulfonate	0.50	U	17.8	17.25			97		70-130		
Perfluorodecanoic acid	0.632		20	19.32			93		70-130		
Perfluorododecanoic acid	13.87		20	32.16			91		70-130		
Perfluoroheptanoic acid	0.30	U	20	13.31			67*		70-130		
Perfluorohexanesulfonate	0.50	U	18.92	19.27			102		70-130		
Perfluorohexanoic acid	0.20	U	20	23.32			117		70-130		
Perfluorononanoic acid	0.20	U	20	18.31			92		70-130		
Perfluoro-octanesulfonate	0.20	U	19.12	18.77			98		70-130		
Perfluorooctanoic acid	6.71		20	23.05			82		70-130		
Perfluorotetradecanoic acid	9.55		20	24.35			74		70-130		
Perfluorotridecanoic acid	5.55		20	24.57			95		70-130		
Perfluoroundecanoic acid	1.55		20	16.92			77		70-130		
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 16180002	Sample number(s): 8438963-8438964,8438966,8438969 UNSPK: 8441143										
Perfluorooctanoic acid	1	U	90.9	118.56			130		70-130		
Perfluorononanoic acid	1	U	90.9	123.48			136*		70-130		
Perfluorodecanoic acid	1	U	90.9	127.34			140*		70-130		
Perfluoroundecanoic acid	2	U	90.9	103.24			114		70-130		
Perfluorododecanoic acid	3	U	90.9	122.79			135*		70-130		
Perfluorotridecanoic acid	2	U	90.9	104.09			115		70-130		
Perfluorotetradecanoic acid	3	U	90.9	109.39			120		70-130		
Perfluorohexanoic acid	1	U	90.9	114.62			126		70-130		
Perfluoroheptanoic acid	1	U	90.9	103.34			114		70-130		
Perfluorobutanesulfonate	4	U	80.37	111.71			139*		70-130		
Perfluorohexanesulfonate	4	U	86	82.5			96		70-130		
Perfluoro-octanesulfonate	5	U	86.9	104.46			120		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16193298731B	Sample number(s): 8438959 UNSPK: P437372										
TOC	4119.98		60484	75262.1			118		47-143		
Batch number: 16194298731A	Sample number(s): 8438960-8438962,8438965,8438967-8438968,8438970-8438972 UNSPK: 8438960										
TOC	1864.74		10680	10555.75			81		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP97
Matrix: SOLID

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

LCS: LCS LCSD: LCSD	Batch: **16190006** (Sample number(s): 8438959-8438962, 8438965, 8438967-8438968, 8438970-8438972)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	20	17.1	18.43	86	92	70-130	7	30
Perfluorononanoic acid	20	17.29	18.64	86	93	70-130	8	30
Perfluorodecanoic acid	20	17.2	19.7	86	98	70-130	14	30
Perfluoroundecanoic acid	20	16.33	18.87	82	94	70-130	14	30
Perfluorododecanoic acid	20	17.72	20.64	89	103	70-130	15	30
Perfluorotridecanoic acid	20	25.32	24.77	127	124	70-130	2	30
Perfluorotetradecanoic acid	20	32.92	25.67	165 *	128	70-130	25	30
Perfluorohexanoic acid	20	21.39	22.34	107	112	70-130	4	30
Perfluoroheptanoic acid	20	12.79	13.28	64 *	66 *	70-130	4	30
Perfluorobutanesulfonate	17.8	13.6	16.12	76	91	70-130	17	30
Perfluorohexanesulfonate	18.92	18.15	18.91	96	100	70-130	4	30
Perfluoro-octanesulfonate	19.12	16.53	18.11	86	95	70-130	9	30

No ⊕ UJ

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP97
Matrix: Solid

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

LCS: LCS	Batch: **16215005** (Sample number(s): 8438959RE-8438962RE, 8438965RE-8438968RE, 8438970RE-8438972RE)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	20	16.93	18.45	85	92	70-130	9	30
Perfluorononanoic acid	20	16.34	16.48	82	82	70-130	1	30
Perfluorodecanoic acid	20	17.77	19.59	89	98	70-130	10	30
Perfluoroundecanoic acid	20	16.17	17.08	81	85	70-130	5	30
Perfluorododecanoic acid	20	16.34	17.41	82	87	70-130	6	30
Perfluorotridecanoic acid	20	20.40	21.97	102	110	70-130	7	30
Perfluorotertadecanoic acid	20	19.75	22.16	99	111	70-130	12	30
Perfluorohexanoic acid	20	18.20	19.33	91	97	70-130	6	30
Perfluoroheptanoic acid	20	16.17	18.10	81	90	70-130	11	30
Perfluorobutanesulfonate	17.68	15.03	16.69	85	94	70-130	10	30
Perfluorohexanesulfonate	18.92	16.19	17.92	86	95	70-130	10	30
Perfluoro-octanesulfonate	19.12	15.88	17.38	83	91	70-130	9	30

RES not reported due to extract past HT

all in

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP97
Matrix: LIQUID

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

LCS: LCS LCSD: LCSD Analyte	Batch: **16180002** (Sample number(s): 8438963-8438964, 8438966, 8438969)							
	Spike Added ng/l	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	90.9	110.43	116.41	121	128	70-130	5	30
Perfluorononanoic acid	90.9	110.81	114.16	122	126	70-130	3	30
Perfluorodecanoic acid	90.9	109.1	118.35	120	130	70-130	8	30
Perfluoroundecanoic acid	90.9	112.22	111.31	123	122	70-130	1	30
Perfluorododecanoic acid	90.9	102.45	104.79	113	115	70-130	2	30
Perfluorotridecanoic acid	90.9	100.89	121.4	111	134 *	70-130	18	30
Perfluorotetradecanoic acid	90.9	110.39	104.92	121	115	70-130	5	30
Perfluorohexanoic acid	90.9	104.26	98.61	115	108	70-130	6	30
Perfluoroheptanoic acid	90.9	102.94	107.91	113	119	70-130	5	30
Perfluorobutanesulfonate	80.37	195.34	141.88	243 *	177 *	70-130	32 *	30
Perfluorohexanesulfonate	86	131.43	103.33	153 *	120	70-130	24	30
Perfluoro-octanesulfonate	86.9	171.17	116.48	197 *	134 *	70-130	38 *	30

No ⊕

no impact

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP97
Matrix: SOLID

Fraction: PFAAs by LC/MS/MS

16190006 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	07/29/16	N.D.	ng/g	0.30	0.60
Perfluorononanoic acid	07/29/16	N.D.	ng/g	0.20	0.40
Perfluorodecanoic acid	07/29/16	N.D.	ng/g	0.20	0.40
Perfluoroundecanoic acid	07/29/16	N.D.	ng/g	0.30	0.60
Perfluorododecanoic acid	07/29/16	N.D.	ng/g	0.40	0.80
Perfluorotridecanoic acid	07/29/16	N.D.	ng/g	0.60	1.2
Perfluorotetradecanoic acid	07/29/16	N.D.	ng/g	0.30	0.80
Perfluorohexanoic acid	07/29/16	N.D.	ng/g	0.20	0.40
Perfluoroheptanoic acid	07/29/16	N.D.	ng/g	0.30	0.60
Perfluorobutanesulfonate	07/29/16	N.D.	ng/g	0.50	1.6
Perfluorohexanesulfonate	07/29/16	N.D.	ng/g	0.50	1.6
Perfluoro-octanesulfonate	07/29/16	N.D.	ng/g	0.70	1.6

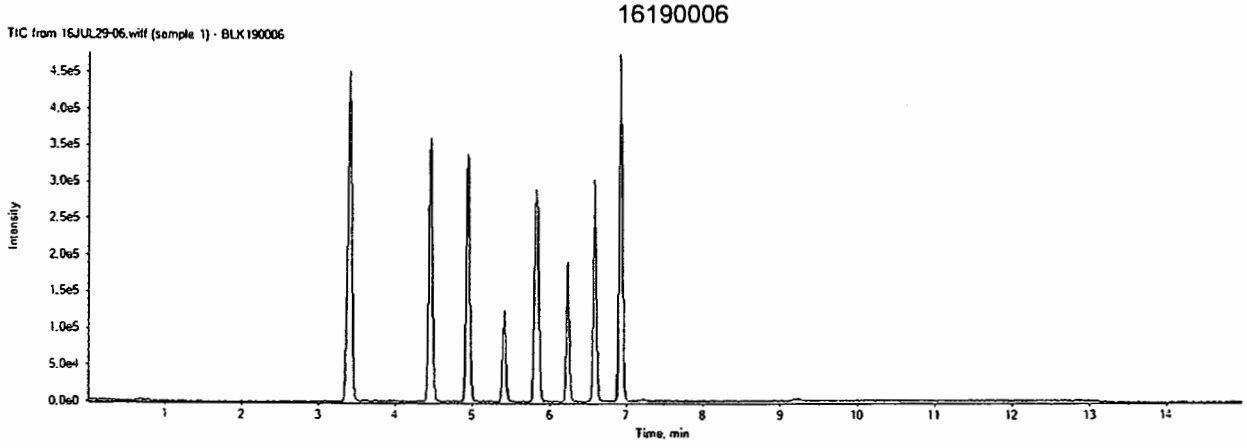
Sample Name:	BLK190006	**Data File:**		16JUL29-06.wiff
Sample ID:	16190006	**Acquis Date:**		7/29/2016 10:15:27 AM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	31	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.000	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.01	1320.8	18O2-PFHxS	4.93	620701.9	0.002	0.015	
PFHxA	4.46	2711.1	13C2-PFHxA	4.45	1174258.3	0.002	0.045	
PFHpA	4.94	813.0	13C4-PFHpA	4.94	440470.5	0.002	0.013	
PFHxS	4.94	2970.7	18O2-PFHxS	4.93	620701.9	0.005	0.040	
PFOA	5.41	1975.9	13C4-PFOA	5.41	350039.7	0.006	0.045	
PFNA	5.84	2909.9	13C5-PFNA	5.84	475435.3	0.006	0.053	
PFOS	5.82	1000.4	13C4-PFOS	5.81	611862.9	0.002	0.014	
PFDA	6.23	2064.8	13C2-PFDA	6.23	471577.7	0.004	0.032	
PFUndA	6.59	3193.8	13C2-PFUnDA	6.59	792967.1	0.004	0.036	
PFDoDA	6.93	3128.7	13C2-PFDoDA	6.93	1331734.9	0.002	0.027	
PFTrDA	7.25	3951.9	13C2-PFDoDA	6.93	1331734.9	0.003	0.028	
PFTeDA	7.56	6571.2	13C2-PFDoDA	6.93	1331734.9	0.005	0.043	

Total Ion Chromatogram

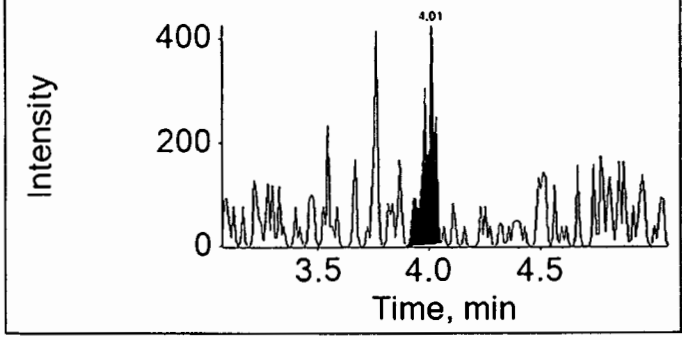
16190006



16JUL29-06.wiff

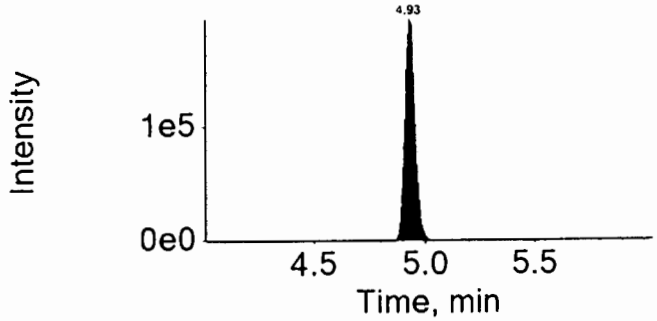
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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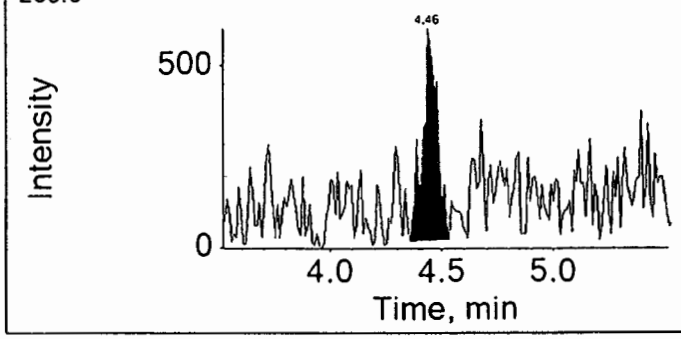
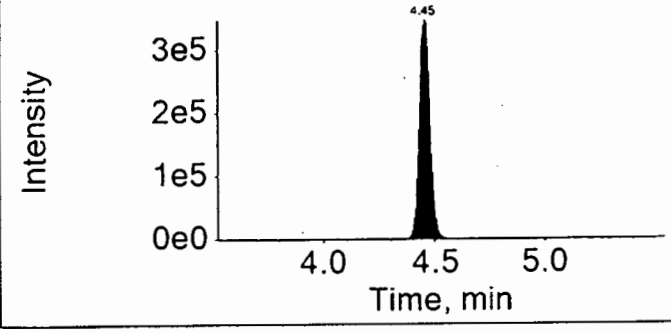
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

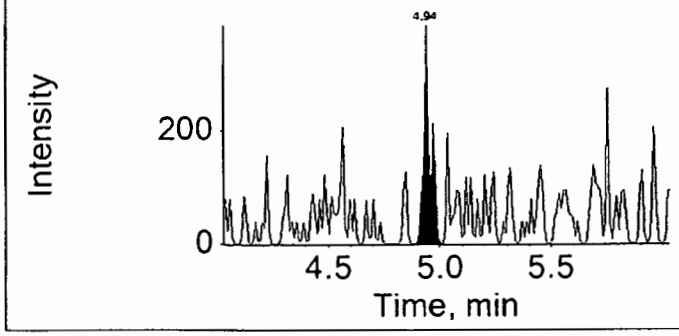
314.9 / 270.0



16JUL29-06.wiff

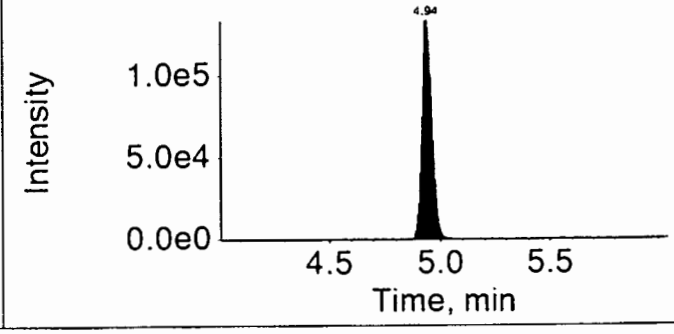
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

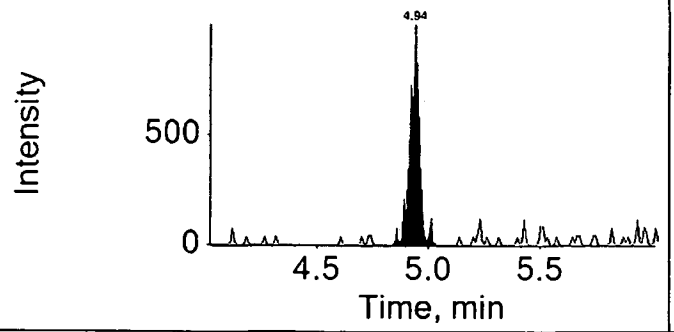
367.0 / 322.0



16JUL29-06.wiff

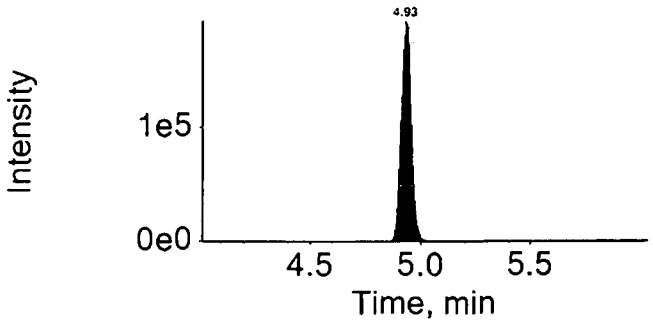
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

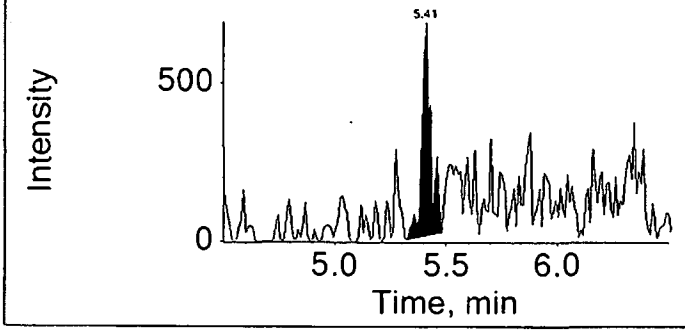
403.0 / 103.0



16JUL29-06.wiff

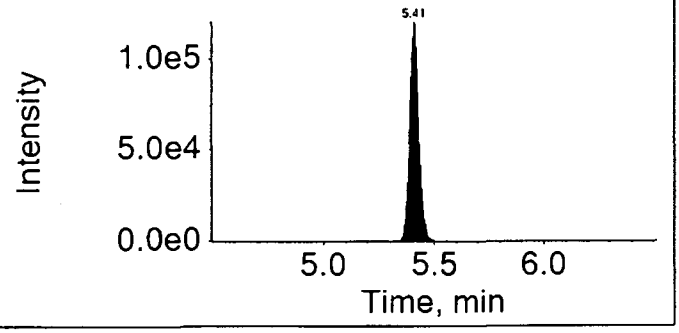
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

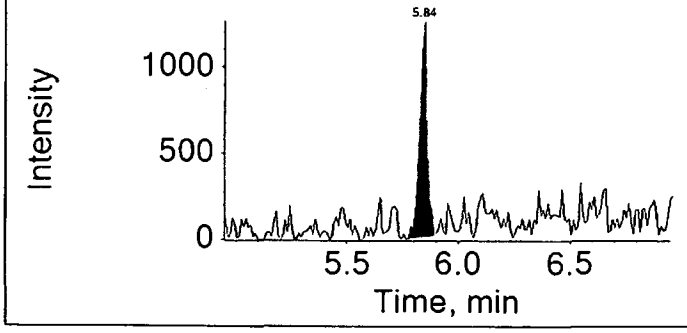
417.0 / 372.0



16JUL29-06.wiff

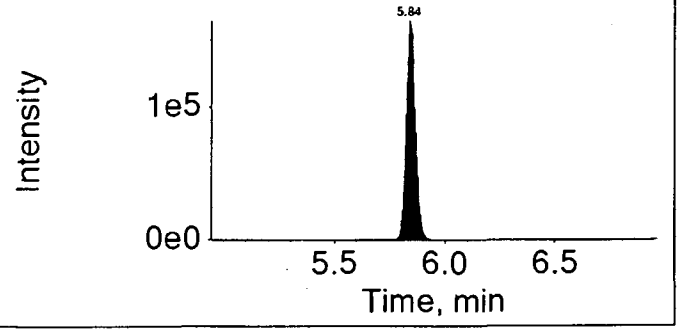
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

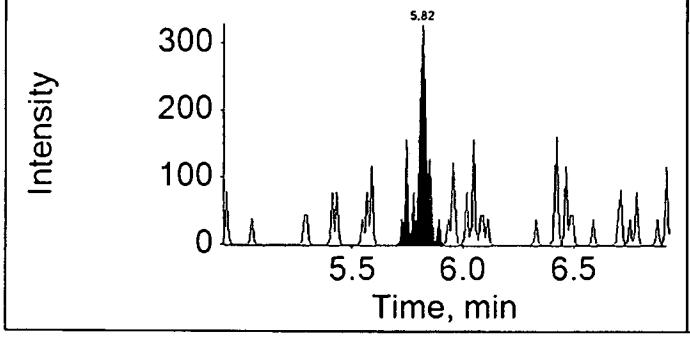
468.0 / 423.0



16JUL29-06.wiff

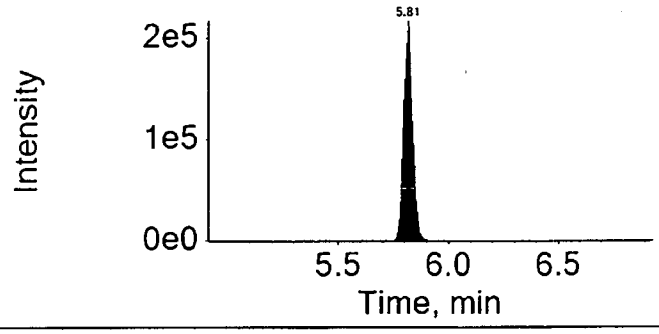
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

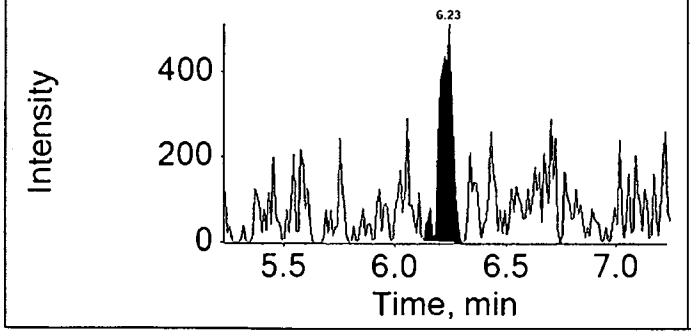
503.0 / 99.0



16JUL29-06.wiff

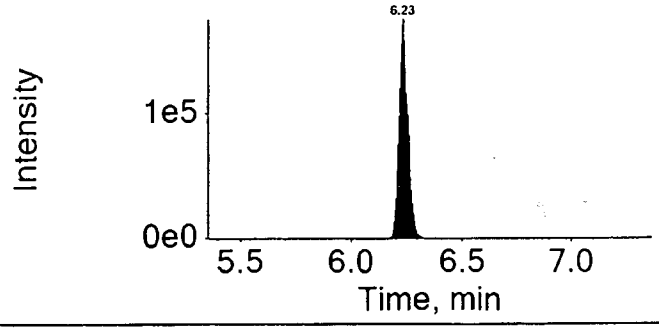
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

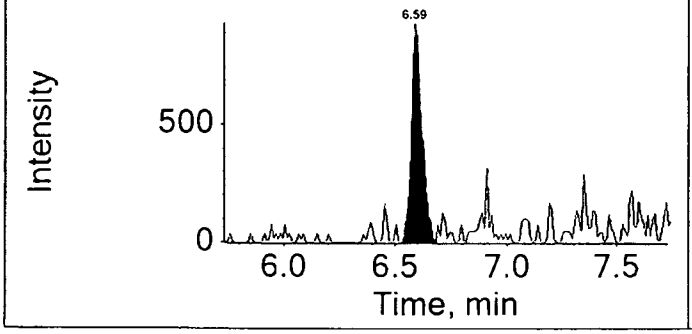
515.0 / 470.0



16JUL29-06.wiff

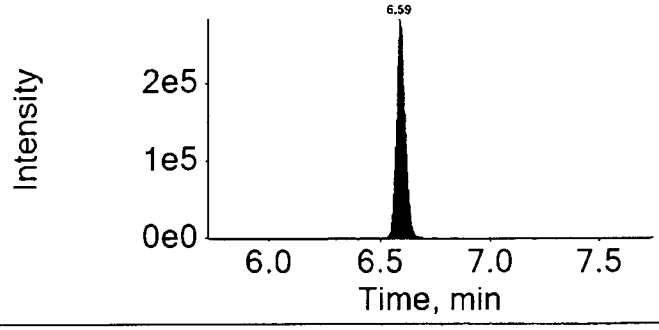
Analyte: PFUndA

562.9 / 518.9

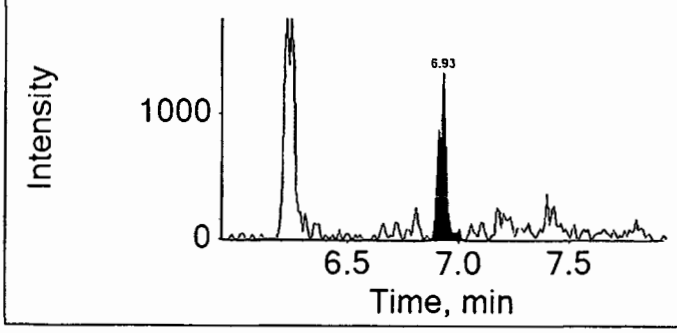


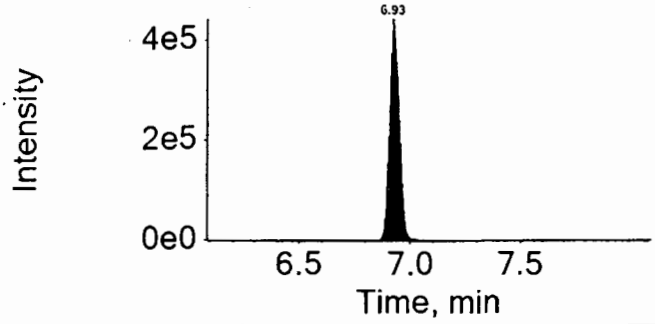
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

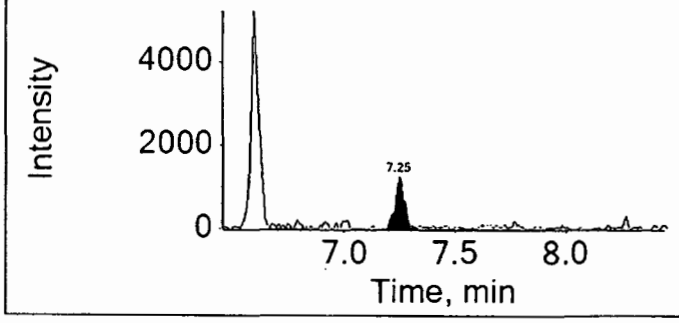


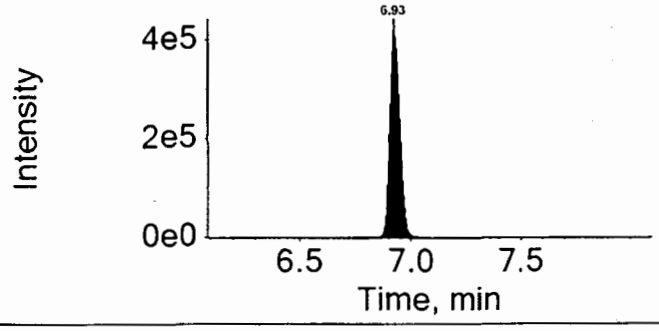
16JUL29-06.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



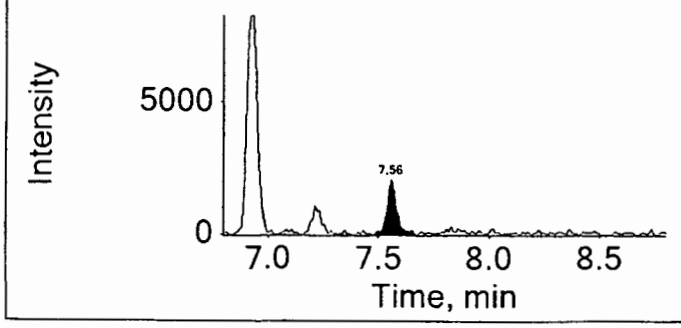


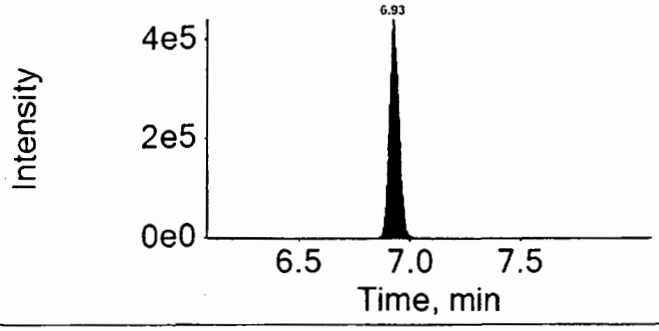
16JUL29-06.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL29-06.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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FORM 04
METHOD BLANK SUMMARY
LC/MS/MS

SDG No.: SGP97

Matrix: SOIL
Lab Sample ID: BLK190006
Sample Prep: Sonc
Lab File ID: 16JUL29-06.WIFF
Sample wt: 5.00 (g)
Instrument ID: 24743
Date Analyzed: 07/29/2016 10:15

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
OPR190006	16JUL29-07.WIFF	07/29/2016 10:31
LCSDA	16JUL29-08.WIFF	07/29/2016 10:46
8438959	16JUL29-14.WIFF	07/29/2016 12:21
8438960	16JUL29-15.WIFF	07/29/2016 12:36
8438961	16JUL29-17.WIFF	07/29/2016 13:08
8438962	16JUL29-18.WIFF	07/29/2016 13:23
8438965	16JUL29-19.WIFF	07/29/2016 13:48
8438967	16JUL29-20.WIFF	07/29/2016 14:04
8438968	16JUL29-21.WIFF	07/29/2016 14:19
8438970	16JUL29-22.WIFF	07/29/2016 14:35
8438971	16JUL29-23.WIFF	07/29/2016 14:51
8438972	16JUL29-24.WIFF	07/29/2016 15:06

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP97
Matrix: Solid

Fraction: PFAAs by LC/MS/MS

16215005 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	08/04/2016	N.D.	ng/g	1	2
Perfluorononanoic acid	08/04/2016	N.D.	ng/g	1	2
Perfluorodecanoic acid	08/04/2016	N.D.	ng/g	1	2
Perfluoroundecanoic acid	08/04/2016	N.D.	ng/g	2	4
Perfluorododecanoic acid	08/04/2016	N.D.	ng/g	3	5
Perfluorotridecanoic acid	08/04/2016	N.D.	ng/g	2	4
Perfluorotertadecanoic acid	08/04/2016	N.D.	ng/g	3	5
Perfluorohexanoic acid	08/04/2016	N.D.	ng/g	1	2
Perfluoroheptanoic acid	08/04/2016	N.D.	ng/g	1	2
Perfluorobutanesulfonate	08/04/2016	N.D.	ng/g	4	10
Perfluorohexanesulfonate	08/04/2016	N.D.	ng/g	4	10
Perfluoro-octanesulfonate	08/04/2016	N.D.	ng/g	5	10

Ag MDL/LOQs

Original

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP97
Matrix: Solid

Fraction: PFAAs by LC/MS/MS

16215005 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	08/04/2016	N.D.	ng/g	0.30	0.60
Perfluorononanoic acid	08/04/2016	N.D.	ng/g	0.20	0.40
Perfluorodecanoic acid	08/04/2016	N.D.	ng/g	0.20	0.40
Perfluoroundecanoic acid	08/04/2016	N.D.	ng/g	0.30	0.60
Perfluorododecanoic acid	08/04/2016	N.D.	ng/g	0.40	0.80
Perfluorotridecanoic acid	08/04/2016	N.D.	ng/g	0.60	1.2
Perfluorotertadecanoic acid	08/04/2016	N.D.	ng/g	0.30	0.80
Perfluorohexanoic acid	08/04/2016	N.D.	ng/g	0.20	0.40
Perfluoroheptanoic acid	08/04/2016	N.D.	ng/g	0.30	0.60
Perfluorobutanesulfonate	08/04/2016	N.D.	ng/g	0.50	1.6
Perfluorohexanesulfonate	08/04/2016	N.D.	ng/g	0.50	1.6
Perfluoro-octanesulfonate	08/04/2016	N.D.	ng/g	0.70	1.6

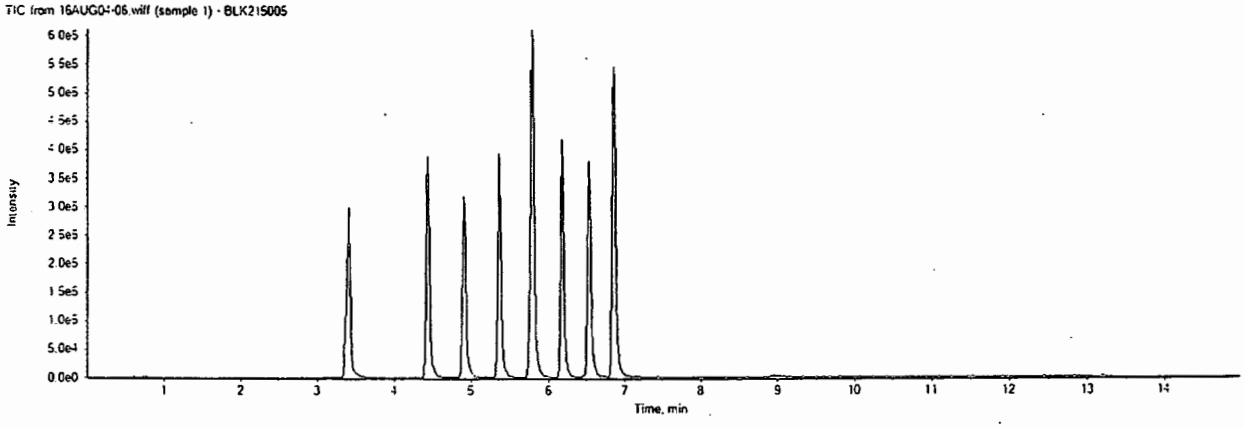
Reviewed

Sample Name:	BLK215005		**Data File:**		16AUG04-06.wiff
Sample ID:	16215005		**Acquis Date:**		8/4/2016 2:58:09 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	16		**Acquis Method:**		PFC-12cmpd.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		16AUG01
Batch Number:	16215005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

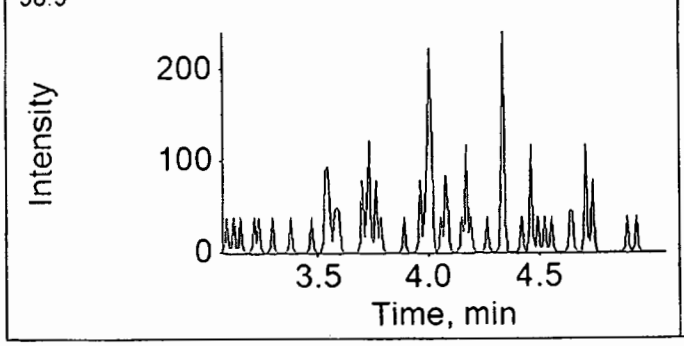
Quantitation Peak Table

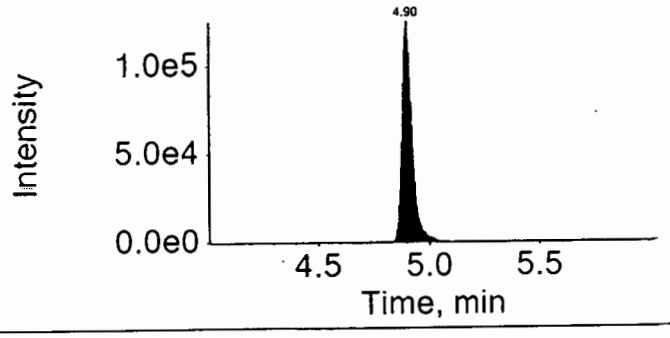
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.90	401281.7	N/A	N/A	
PFHxA	4.43	2478.3	A	13C2-PFHxA	4.43	1267528.9	0.002	0.036	
PFHpA	4.90	1005.5	A	13C4-PFHpA	4.90	636309.4	0.002	0.011	
PFHxS	4.89	1970.0	M	18O2-PFHxS	4.90	401281.7	0.005	0.042	
PFOA	5.36	7476.4	A	13C4-PFOA	5.36	1141881.5	0.007	0.056	
PFNA	5.78	1121.1	A	13C5-PFNA	5.79	1664847.2	0.001	0.006	
PFOS	5.77	969.4	M	13C4-PFOS	5.77	411852.4	0.002	0.020	
PFDA	6.18	1162.6	M	13C2-PFDA	6.18	1141866.5	0.001	0.008	
PFUndA	6.53	3034.8	A	13C2-PFUnDA	6.54	1222499.2	0.002	0.022	
PFDoDA	6.86	2462.6	M	13C2-PFDoDA	6.86	1747356.6	0.001	0.014	
PFTrDA	7.16	2267.1	A	13C2-PFDoDA	6.86	1747356.6	0.001	0.013	
PFTeDA	7.44	2573.9	M	13C2-PFDoDA	6.86	1747356.6	0.001	0.014	

Total Ion Chromatogram
16215005

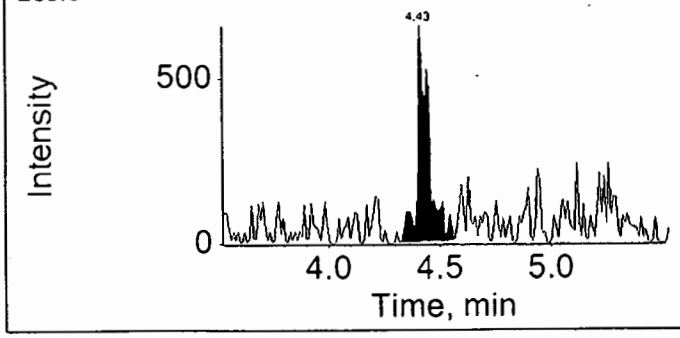


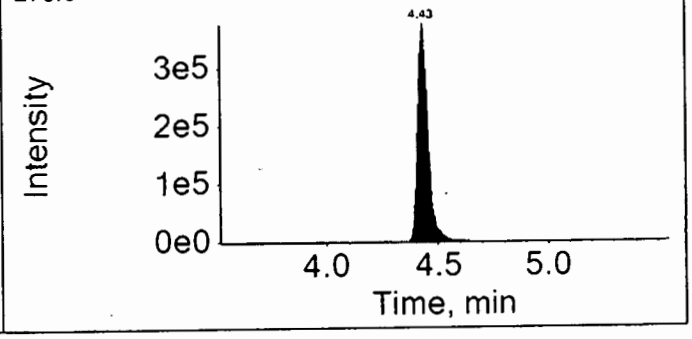
16AUG04-06.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



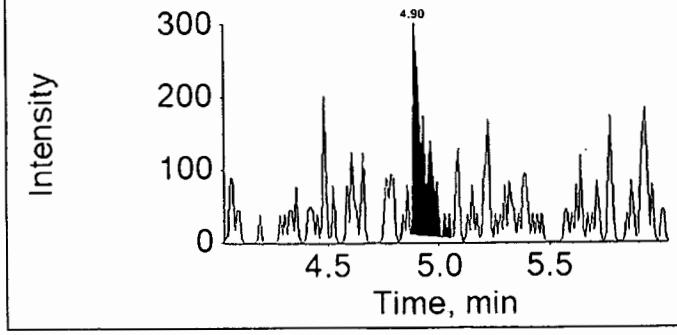


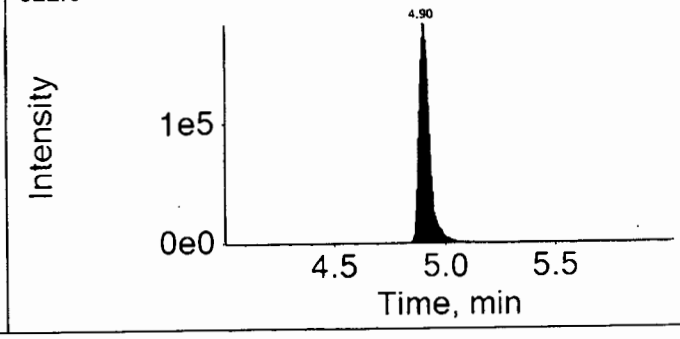
16AUG04-06.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16AUG04-06.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

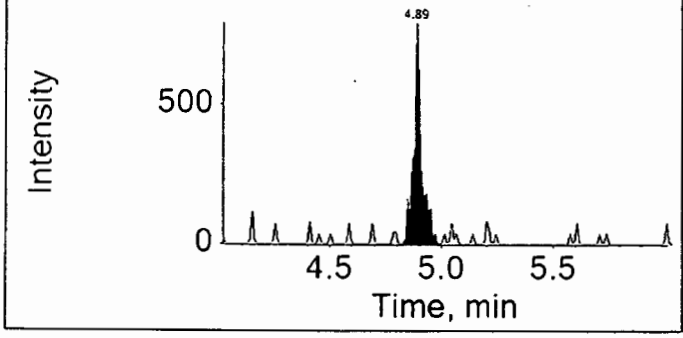




16AUG04-06.wiff

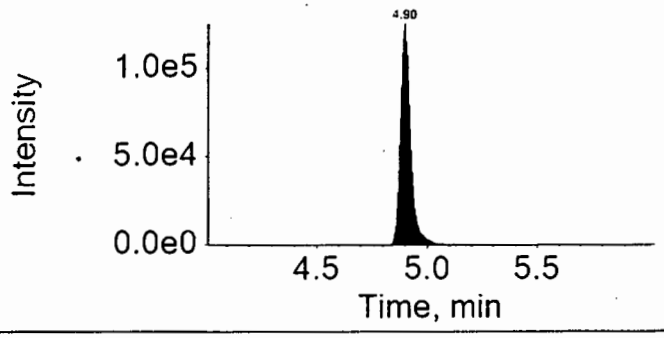
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

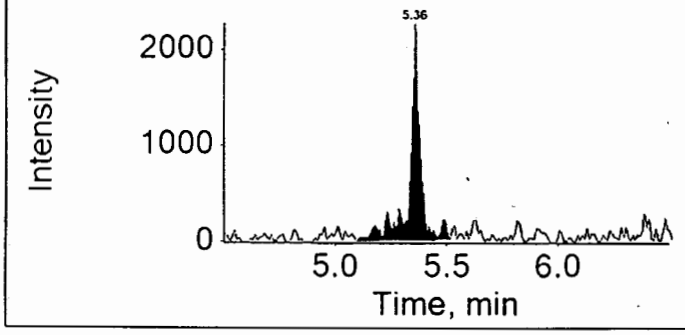
403.0 / 103.0



16AUG04-06.wiff

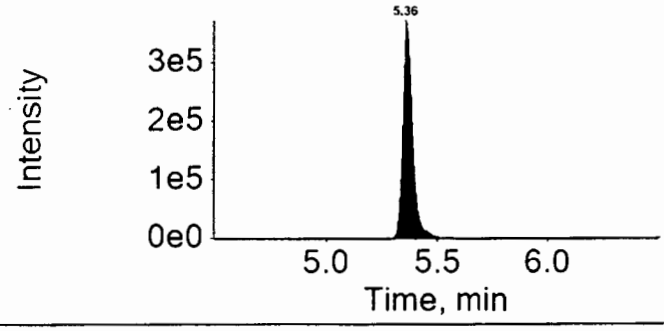
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

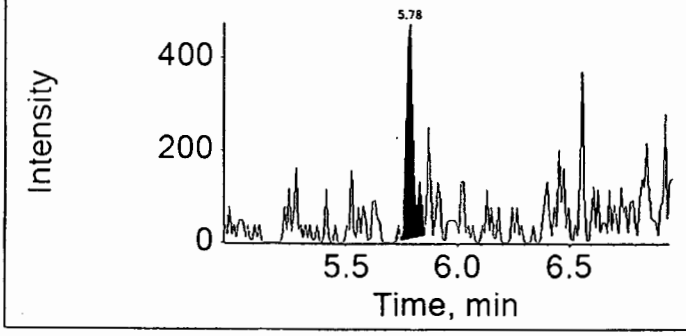
417.0 / 372.0



16AUG04-06.wiff

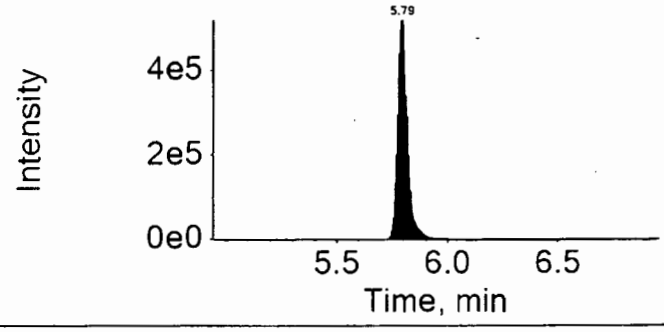
Analyte: PFNA

462.9 / 418.9

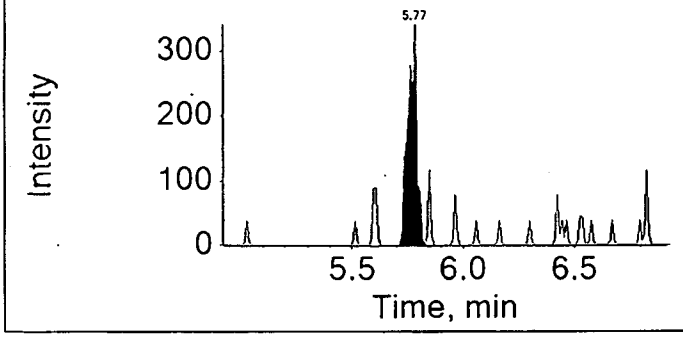


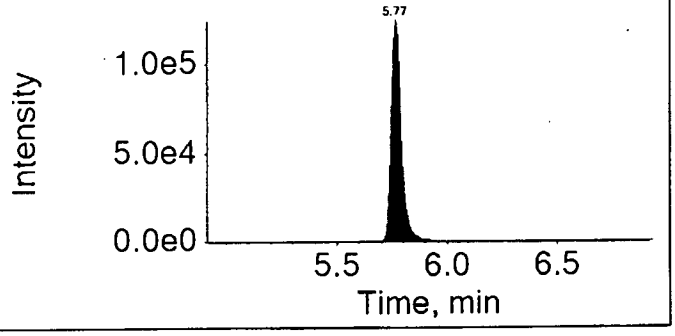
Internal Standard: 13C5-PFNA

468.0 / 423.0

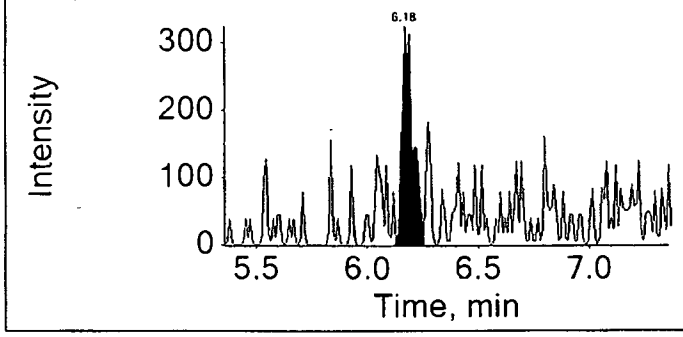


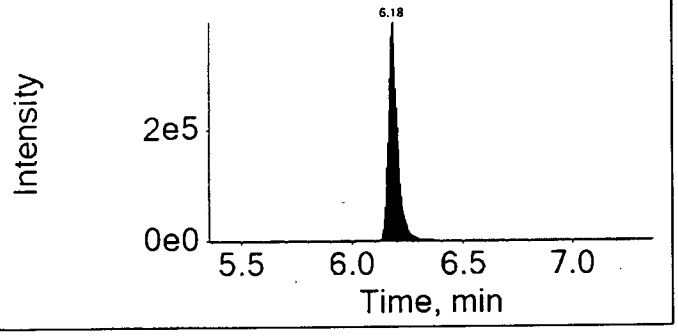
16AUG04-06.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



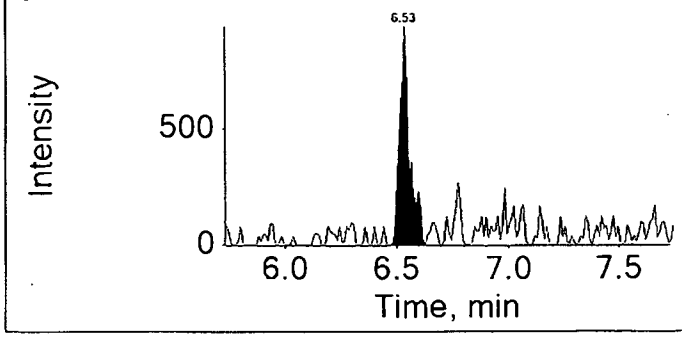


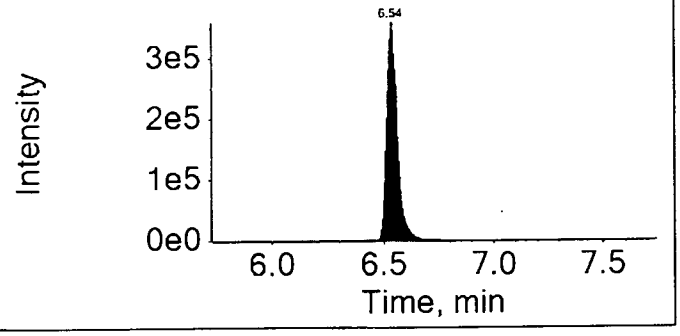
16AUG04-06.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16AUG04-06.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

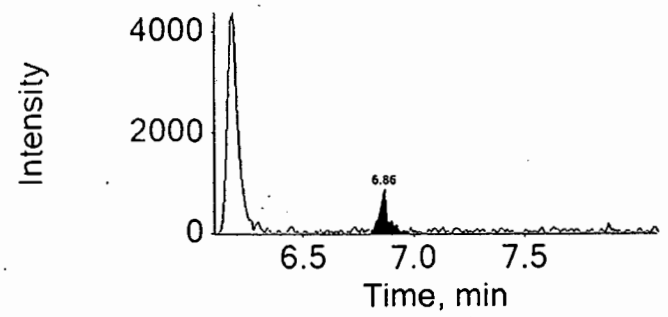




16AUG04-06.wiff

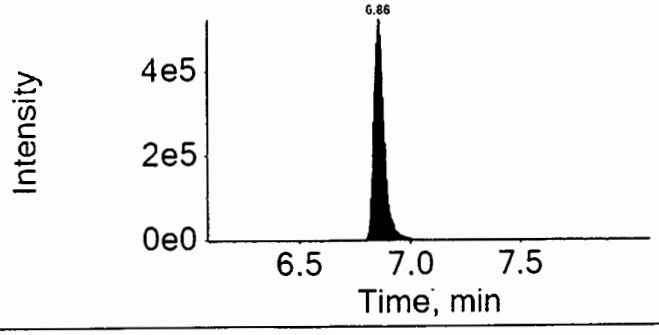
Analyte: PFDoDA

612.9 /
568.9



Internal Standard: 13C2-PFDoDA

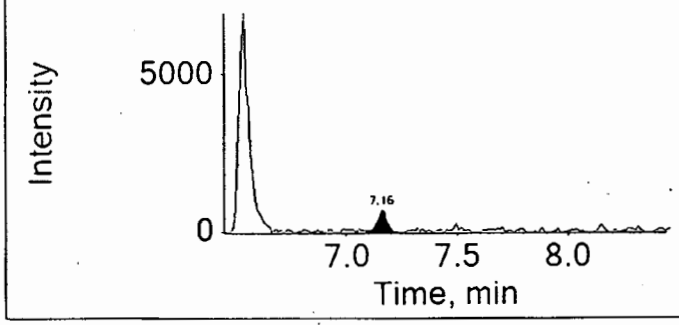
615.0 /
570.0



16AUG04-06.wiff

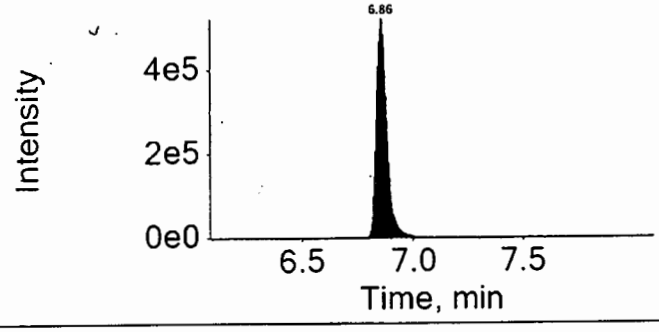
Analyte: PFTrDA

662.9 /
618.9



Internal Standard: 13C2-PFDoDA

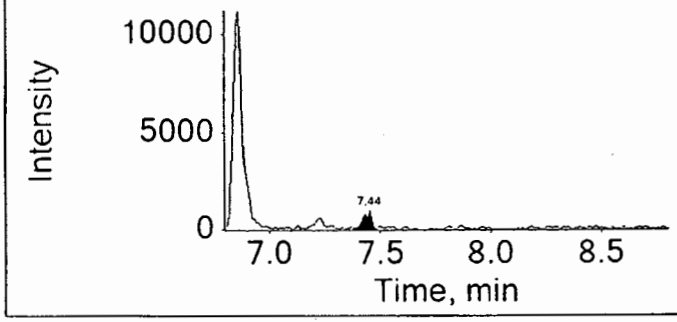
615.0 /
570.0



16AUG04-06.wiff

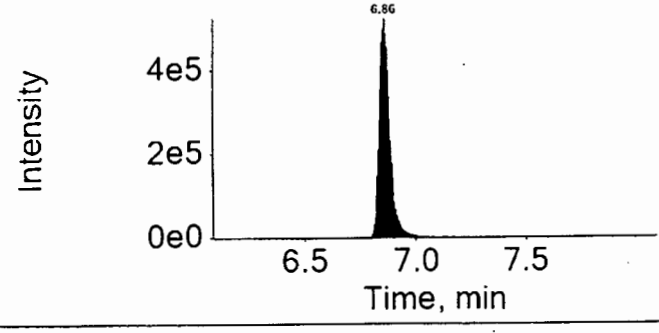
Analyte: PFTeDA

712.9 /
668.9



Internal Standard: 13C2-PFDoDA

615.0 /
570.0



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FORM 04
METHOD BLANK SUMMARY
LC/MS/MS

SDG No.: SGP97

Matrix: SOIL
Sample Prep: Sonc
Sample wt: 5.00 (g)
Instrument ID: 24743

Lab Sample ID: BLK215005
Lab File ID: 16AUG04-06.WIFF
Date Analyzed: 08/04/2016 14:58

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
LCS215005	16AUG04-07.WIFF	08/04/2016 15:13
LCSDA	16AUG04-08.WIFF	08/04/2016 15:29
8438959RE	16AUG04-14.WIFF	08/04/2016 17:03
8438960RE	16AUG04-15.WIFF	08/04/2016 17:19
8438961RE	16AUG04-17.WIFF	08/04/2016 17:51
8438962RE	16AUG04-18.WIFF	08/04/2016 18:06
8438965RE	16AUG04-19.WIFF	08/04/2016 18:22
8438967RE	16AUG04-20.WIFF	08/04/2016 18:38
8438968RE	16AUG04-21.WIFF	08/04/2016 18:54
8438970RE	16AUG04-22.WIFF	08/04/2016 19:09
8438971RE	16AUG04-23.WIFF	08/04/2016 19:25
8438972RE	16AUG04-24.WIFF	08/04/2016 19:41

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SGP97
Matrix: LIQUID

Fraction: PFAAs by LC/MS/MS

16180002 / BLK Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	06/30/16	N.D.	ng/l	1	2
Perfluorononanoic acid	06/30/16	N.D.	ng/l	1	2
Perfluorodecanoic acid	06/30/16	N.D.	ng/l	1	2
Perfluoroundecanoic acid	06/30/16	N.D.	ng/l	2	4
Perfluorododecanoic acid	06/30/16	N.D.	ng/l	3	5
Perfluorotridecanoic acid	06/30/16	N.D.	ng/l	2	4
Perfluorotetradecanoic acid	06/30/16	N.D.	ng/l	3	5
Perfluorohexanoic acid	06/30/16	N.D.	ng/l	1	2
Perfluoroheptanoic acid	06/30/16	N.D.	ng/l	1	2
Perfluorobutanesulfonate	06/30/16	N.D.	ng/l	4	10
Perfluorohexanesulfonate	06/30/16	N.D.	ng/l	4	10
Perfluoro-octanesulfonate	06/30/16	N.D.	ng/l	5	10

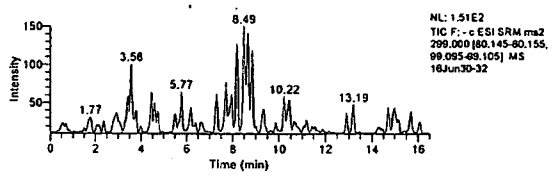
LCMSMS ANALYSIS REPORT

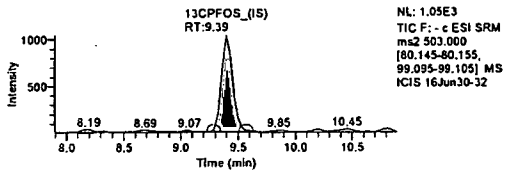
Sample Name:	MB 16180002	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun30
Sample ID:	MB 16180002	Instrument Method:	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes
Data File:	16Jun30-32		
Acquisition Date:	06/30/16 11:46:05 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	b:21	Instrument Software Version:	2.5.0.1311
Run Time(min):	16.51	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

Extracted Ion Chromatogram
Quan Peak Table

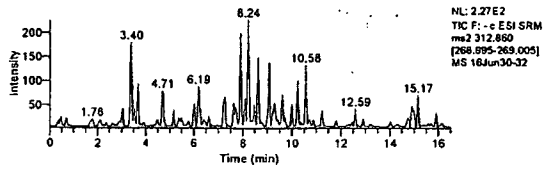
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.46	153985.85	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.07	115663.13	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.96	103066.03	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.81	87553.42	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.78	105117.82	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.46	66771.83	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.74	15916.16	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.39	6967.74	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.71	102439.26	N/A	N/A	N/A
PFBS	N/A	N/A	N/A	N/A	N/A	ng/L
PFDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFDoA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxA	N/A	N/A	N/A	N/A	N/A	ng/L
PFHxS	N/A	N/A	N/A	N/A	N/A	ng/L
PFNA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOA	N/A	N/A	N/A	N/A	N/A	ng/L
PFOS	N/A	N/A	N/A	N/A	N/A	ng/L
PFTeDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFTrDA	N/A	N/A	N/A	N/A	N/A	ng/L
PFUdA	N/A	N/A	N/A	N/A	N/A	ng/L
PFhpA	N/A	N/A	N/A	N/A	N/A	ng/L

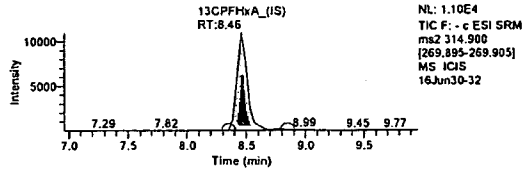
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHxS

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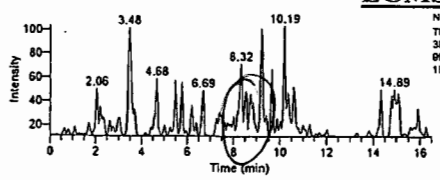
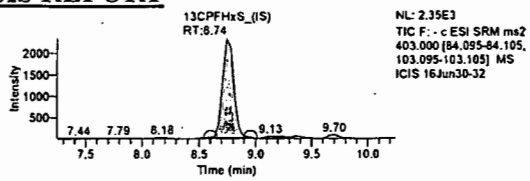
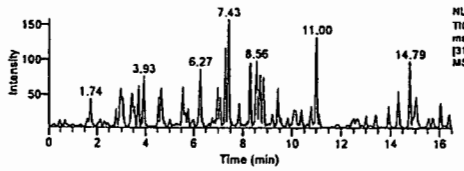
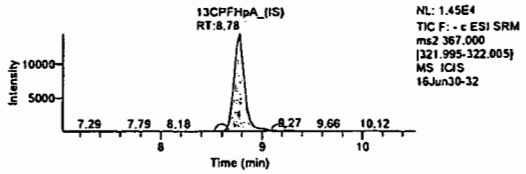




Component Name: PFhpA





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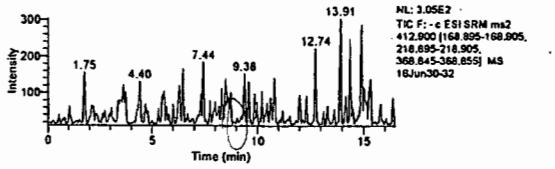
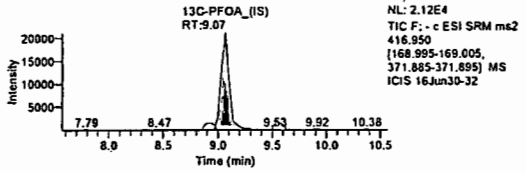
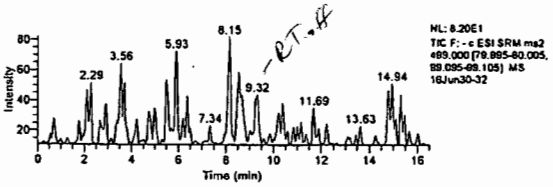
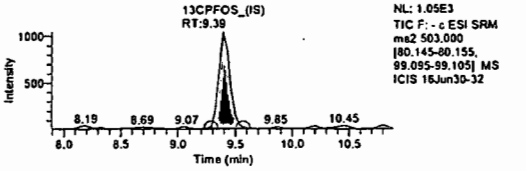


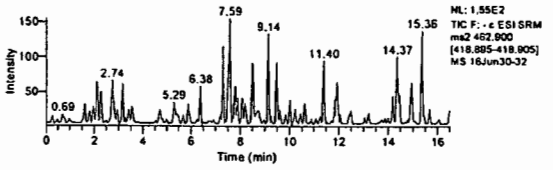


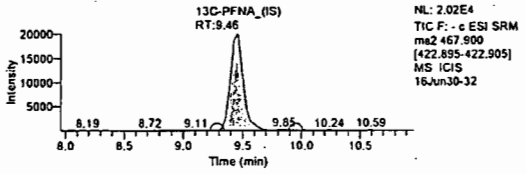
Component Name: PFOS



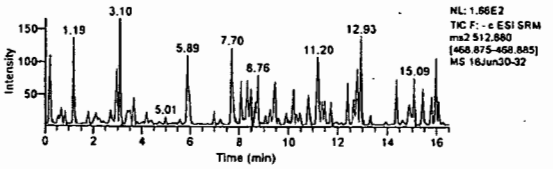


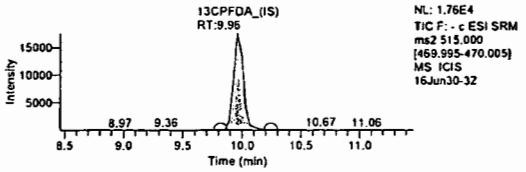
Component Name: PFNA





Component Name: PFDA





Component Name: PFUdA

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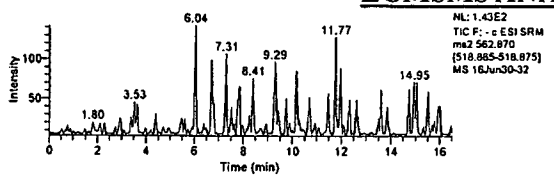

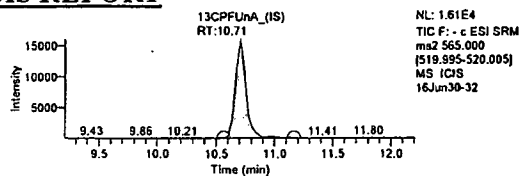

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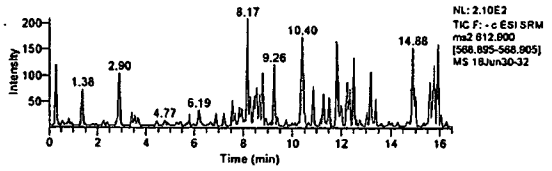
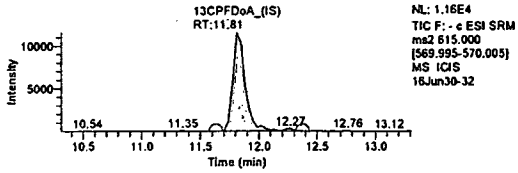
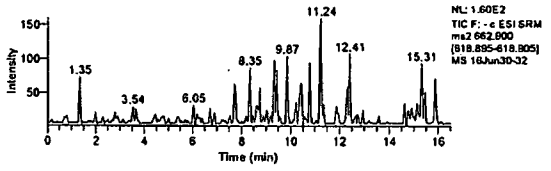
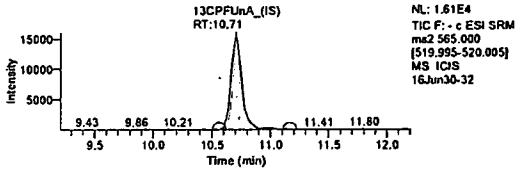


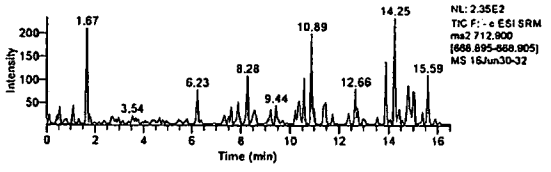


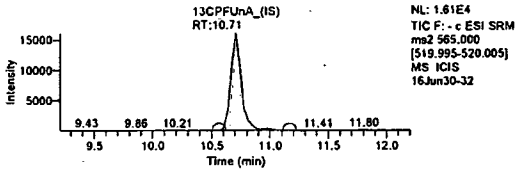
Component Name: PFTrDA





Component Name: PFTeDA





Lynn Dodd

JUL 0 1 2016

Jason W. Knight
Senior Chemist

JUL 0 1 2016

Lynn Dodd
Principal Specialist

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Form 4
Method Blank Summary
LC/MS/MS

SDG No.: SGP97

Matrix: WATER
Lab Sample ID: MB16180002

Water Sample Prep: SPE
Lab File ID: 16Jun30-32

Sample vol: 100.00 mL

Instrument ID: 18881
Date Analyzed: 06/30/2016 23:46

This Method Blank applies to Samples:

Lab Sample ID	Lab File ID	Date Analyzed
LCS16180010	16Jun30-33	07/01/2016 00:03
LCSD16180010	16Jun30-34	07/01/2016 00:20
8438963	16Jun30-36	07/01/2016 00:55
8438964	16Jun30-37	07/01/2016 01:12
8438966	16Jun30-38	07/01/2016 01:29
8438969	16Jun30-39	07/01/2016 01:46

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LOQ/MDL Summary
Specialty Services Group

SDG: SGP97

Fraction: PFAAs by LC/MS/MS

10954: Full List PFC's Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	1	2	ng/l
Perfluorononanoic acid	1	2	ng/l
Perfluorodecanoic acid	1	2	ng/l
Perfluoroundecanoic acid	2	4	ng/l
Perfluorododecanoic acid	3	5	ng/l
Perfluorotridecanoic acid	2	4	ng/l
Perfluorotetradecanoic acid	3	5	ng/l
Perfluorohexanoic acid	1	2	ng/l
Perfluoroheptanoic acid	1	2	ng/l
Perfluorobutanesulfonate	4	10	ng/l
Perfluorohexanesulfonate	4	10	ng/l
Perfluoro-octanesulfonate	5	10	ng/l

14027: Full List PFC's Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.30	0.60	ng/g
Perfluorononanoic acid	0.20	0.40	ng/g
Perfluorodecanoic acid	0.20	0.40	ng/g
Perfluoroundecanoic acid	0.30	0.60	ng/g
Perfluorododecanoic acid	0.40	0.80	ng/g
Perfluorotridecanoic acid	0.60	1.2	ng/g
Perfluorotetradecanoic acid	0.30	0.80	ng/g
Perfluorohexanoic acid	0.20	0.40	ng/g
Perfluoroheptanoic acid	0.30	0.60	ng/g
Perfluorobutanesulfonate	0.50	1.6	ng/g
Perfluorohexanesulfonate	0.50	1.6	ng/g
Perfluoro-octanesulfonate	0.70	1.6	ng/g

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LC-MS/MS Sequence Report

Printed: 07/30/2016 3:08:00 PM

Triple Quad 4500, 0, LM24743

Acquisition Date	File Name	Sample Name	Vial Pos	DF	Sample Wt	Sample Vol
7/28/2016 4:21:22 PM	16JUL28ICAL-05.wiff	MDL	2	1.0	1.00	1.00
7/28/2016 4:37:04 PM	16JUL28ICAL-06.wiff	CAL1	3	1.0	1.00	1.00
7/28/2016 4:52:47 PM	16JUL28ICAL-07.wiff	CAL2	4	1.0	1.00	1.00
7/28/2016 5:08:28 PM	16JUL28ICAL-08.wiff	CAL3	5	1.0	1.00	1.00
7/28/2016 5:24:10 PM	16JUL28ICAL-09.wiff	CAL4	6	1.0	1.00	1.00
7/28/2016 5:39:52 PM	16JUL28ICAL-10.wiff	CAL5	7	1.0	1.00	1.00
7/28/2016 5:55:35 PM	16JUL28ICAL-11.wiff	CAL6	8	1.0	1.00	1.00
7/28/2016 6:11:17 PM	16JUL28ICAL-12.wiff	solvent	1	1.0	1.00	1.00
7/28/2016 6:27:02 PM	16JUL28ICAL-13.wiff	ICV	9	1.0	1.00	1.00
7/28/2016 6:42:44 PM	16JUL28ICAL-14.wiff	CCV1	5	1.0	1.00	1.00
7/29/2016 9:59:45 AM	16JUL29-05.wiff	CCV1	5	1.0	1.00	1.00
7/29/2016 10:15:27 AM	16JUL29-06.wiff	BLK190006	31	1.0	5.00	1.00
7/29/2016 10:31:09 AM	16JUL29-07.wiff	OPR190006	32	1.0	5.00	1.00
7/29/2016 10:46:51 AM	16JUL29-08.wiff	LCSDA	33	1.0	5.00	1.00
7/29/2016 11:02:33 AM	16JUL29-09.wiff	8432144BKG	34	1.0	5.01	1.00
7/29/2016 11:18:15 AM	16JUL29-10.wiff	8432144MS	35	1.0	5.00	1.00
7/29/2016 11:33:57 AM	16JUL29-11.wiff	8432145	36	1.0	5.18	1.00
7/29/2016 11:49:39 AM	16JUL29-12.wiff	8432146	37	1.0	5.30	1.00
7/29/2016 12:05:21 PM	16JUL29-13.wiff	8432147	38	1.0	5.21	1.00
7/29/2016 12:21:03 PM	16JUL29-14.wiff	8438959	39	1.0	5.00	1.00
7/29/2016 12:36:45 PM	16JUL29-15.wiff	8438960	40	1.0	5.19	1.00
7/29/2016 12:52:27 PM	16JUL29-16.wiff	CCV2	6	1.0	1.00	1.00
7/29/2016 1:08:09 PM	16JUL29-17.wiff	8438961	41	1.0	5.27	1.00
7/29/2016 1:23:51 PM	16JUL29-18.wiff	8438962	42	1.0	5.17	1.00
7/29/2016 2:04:03 PM	16JUL29-20.wiff	8438967	44	1.0	5.03	1.00
7/29/2016 2:19:45 PM	16JUL29-21.wiff	8438968	45	1.0	5.06	1.00
7/29/2016 2:35:30 PM	16JUL29-22.wiff	8438970	46	1.0	5.05	1.00
7/29/2016 2:51:12 PM	16JUL29-23.wiff	8438971	47	1.0	5.17	1.00
7/29/2016 3:06:54 PM	16JUL29-24.wiff	8438972	48	1.0	5.06	1.00
7/29/2016 3:22:39 PM	16JUL29-25.wiff	8441140	49	1.0	5.14	1.00
7/29/2016 3:38:21 PM	16JUL29-26.wiff	CCV3	7	1.0	1.00	1.00
7/29/2016 3:54:03 PM	16JUL29-27.wiff	8441141	50	1.0	5.30	1.00
7/29/2016 4:09:45 PM	16JUL29-28.wiff	8441142	51	1.0	5.09	1.00
7/29/2016 1:48:19 PM	16JUL29-19.wiff	8438965	43	1.0	5.10	1.00
7/29/2016 4:41:13 PM	16JUL27-29.wiff	CCV4	5	1.0	1.00	1.00

MEM 1824 10/14/16

Amy 712 10/14/16

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LC-MS/MS Analysis Report

Printed: 7/30/2016 2:52:00 PM

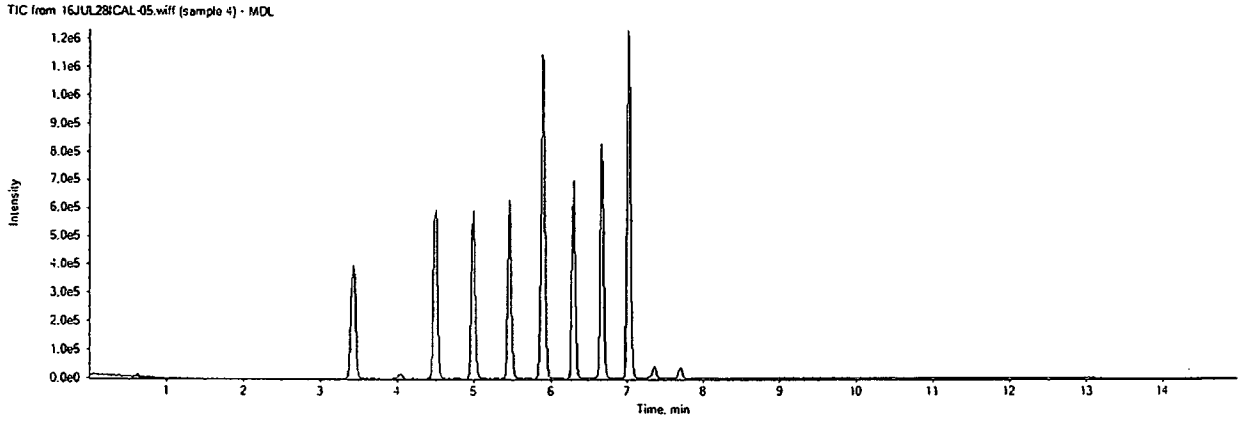
Sample Name:	MDL	**Data File:**		16JUL28ICAL-05.wiff
Sample ID:	MDL	**Acquis Date:**		7/28/2016 4:21:22 PM
Sample Type:	Unknown	**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	2	**Acquis Method:**		PFC-12cmpd.dam
Injection Volume:	10.00	**Result Table:**		MQ 16190006
Batch Number:	16190006	**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.000	**Dilution Factor:**		1.00
Sample Vol.:	1.000	**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.04	54691.9	18O2-PFHxS	4.98	695280.4	0.079	0.277	
PFHxA	4.50	20527.7	13C2-PFHxA	4.50	2166432.7	0.009	0.092	
PFHpA	4.99	21525.7	13C4-PFHpA	4.99	1294579.8	0.017	0.060	
PFHxS	4.98	55383.6	18O2-PFHxS	4.98	695280.4	0.080	0.336	
PFOA	5.46	42502.5	13C4-PFOA	5.46	1955561.8	0.022	0.087	
PFNA	5.90	50002.4	13C5-PFNA	5.90	2795099.9	0.018	0.077	
PFOS	5.87	52535.6	13C4-PFOS	5.87	695723.1	0.076	0.318	
PFDA	6.30	36920.5	13C2-PFDA	6.30	1951882.5	0.019	0.069	
PFUndA	6.67	42339.4	13C2-PFUnDA	6.67	2472608.9	0.017	0.077	
PFDoDA	7.02	94158.3	13C2-PFDoDA	7.02	3587999.9	0.026	0.152	
PFTrDA	7.36	141244.9	13C2-PFDoDA	7.02	3587999.9	0.039	0.185	
PFTeDA	7.70	129756.1	13C2-PFDoDA	7.02	3587999.9	0.036	0.158	

Total Ion Chromatogram

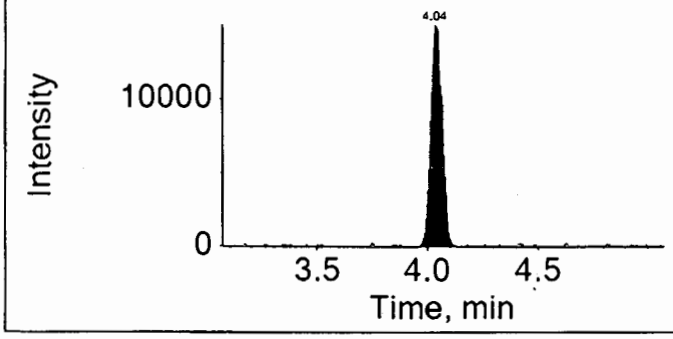
MDL



16JUL28ICAL-05.wiff

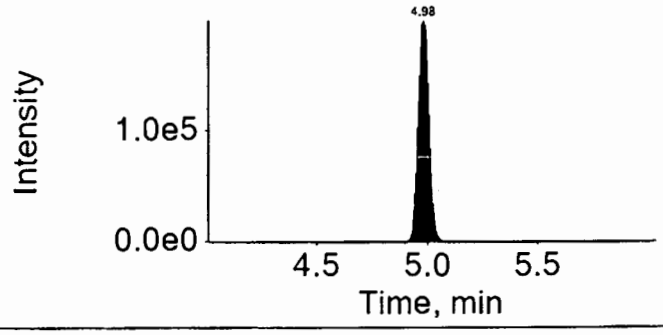
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

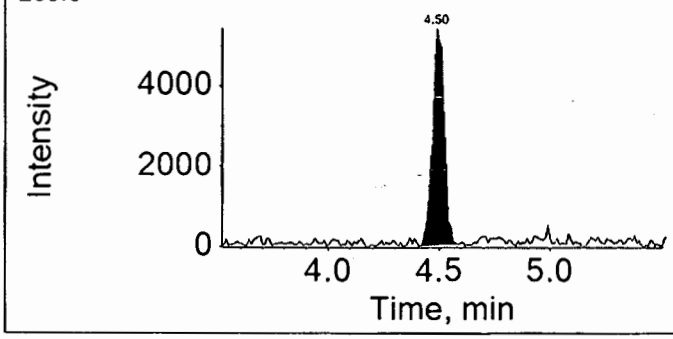
403.0 / 103.0



16JUL28ICAL-05.wiff

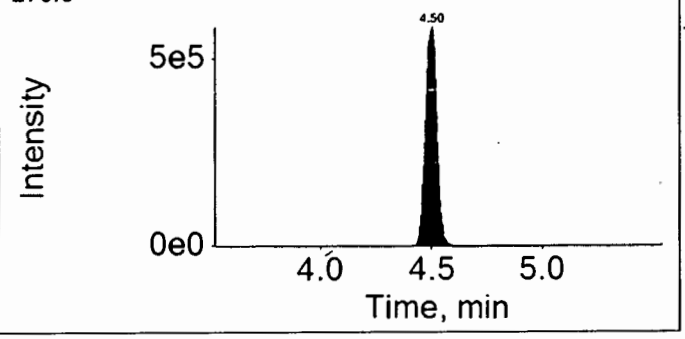
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

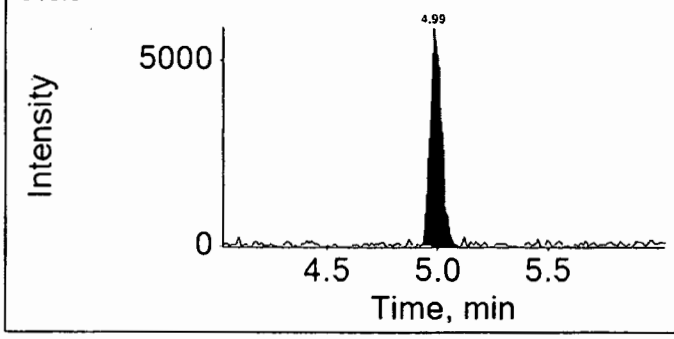
314.9 / 270.0



16JUL28ICAL-05.wiff

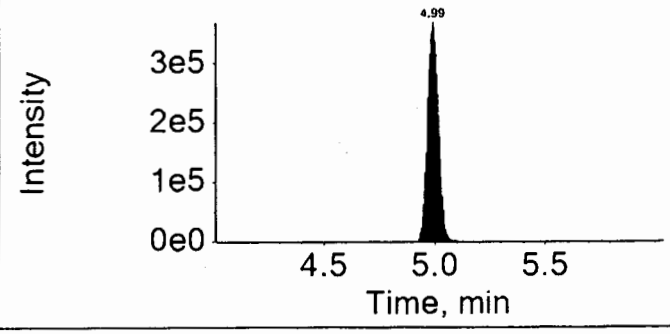
Analyte: PFHpA

362.9 / 318.9

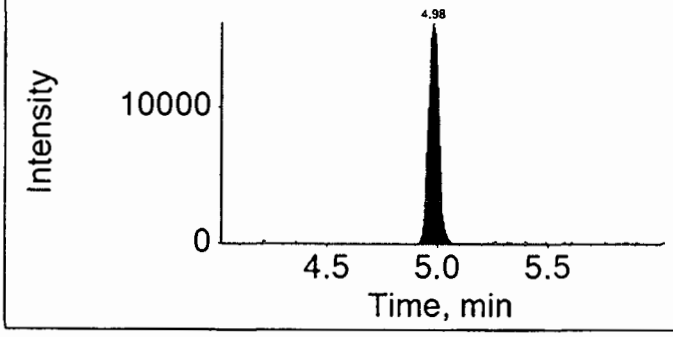


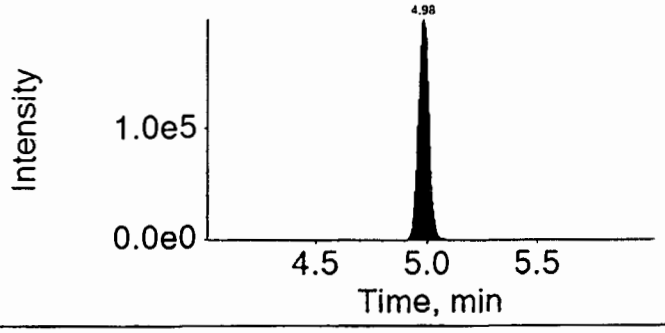
Internal Standard: 13C4-PFHpA

367.0 / 322.0

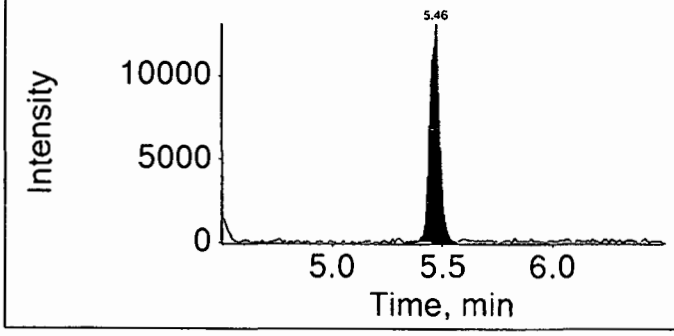


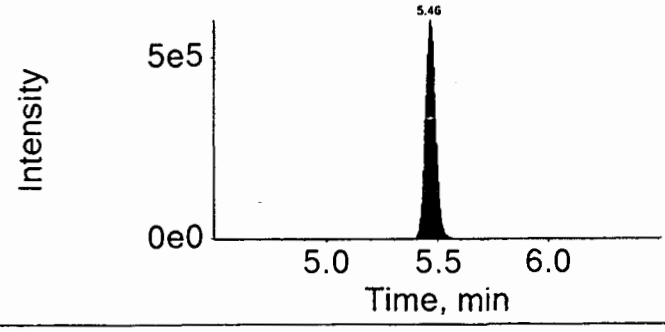
16JUL28ICAL-05.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



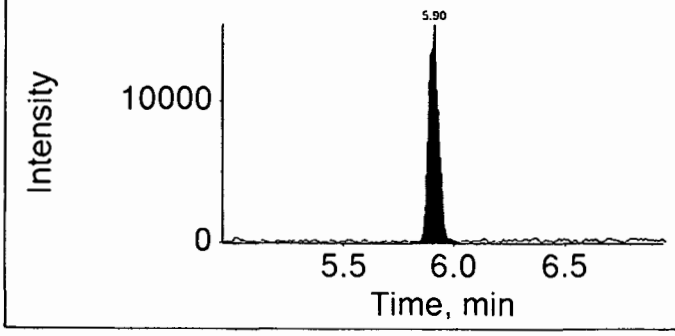


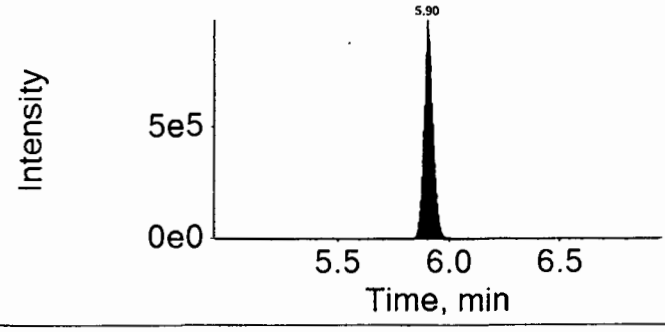
16JUL28ICAL-05.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



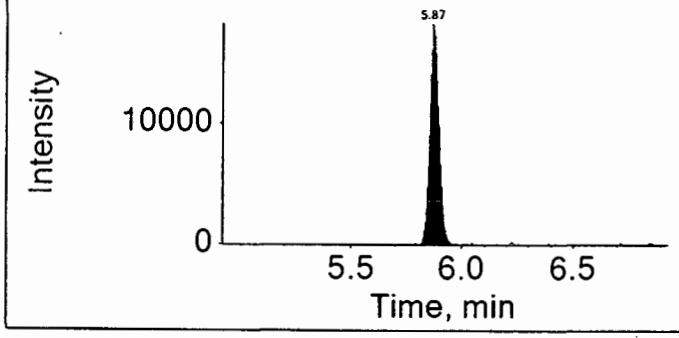


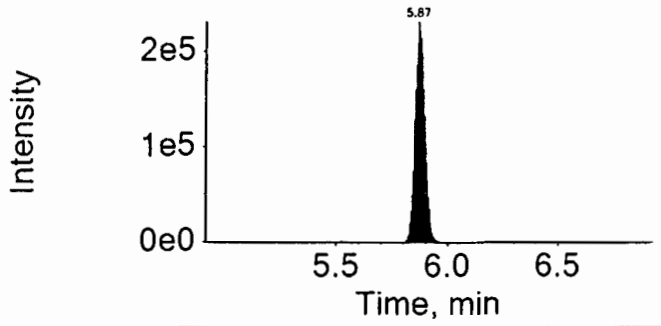
16JUL28ICAL-05.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



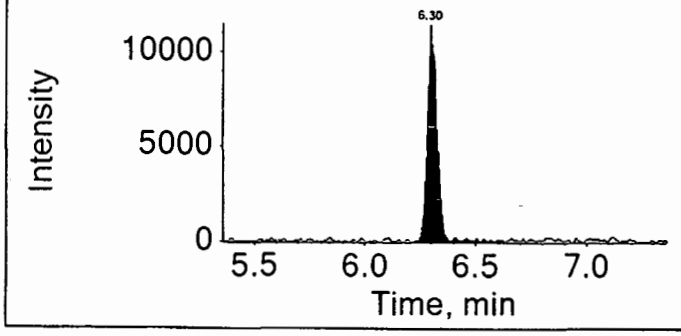


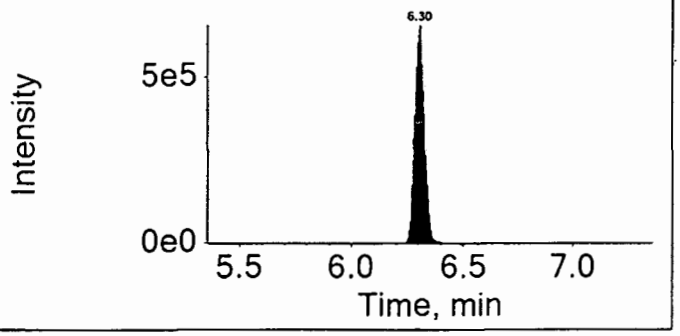
16JUL28ICAL-05.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



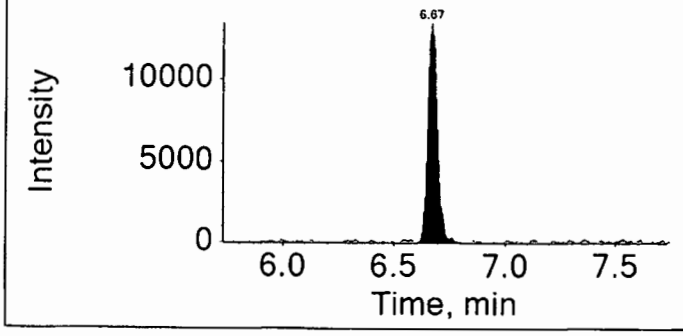


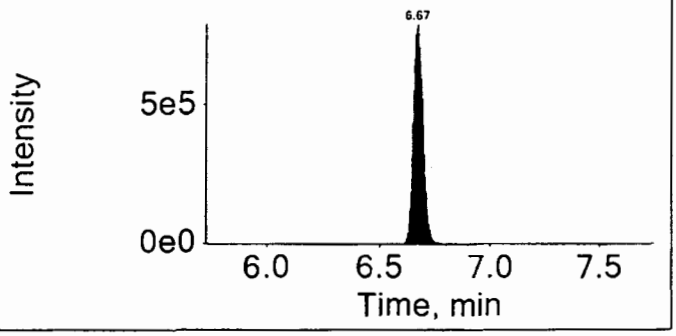
16JUL28ICAL-05.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



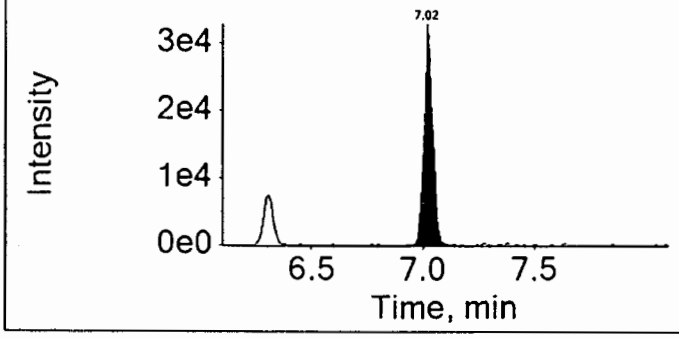


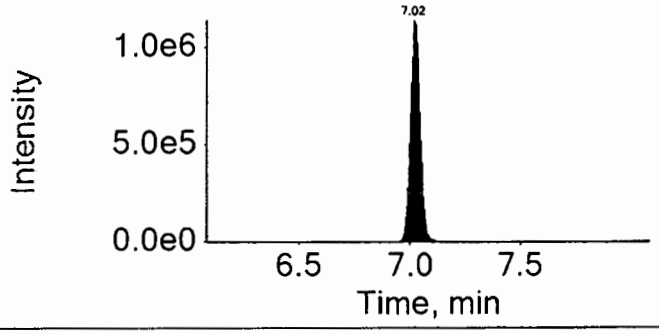
16JUL28ICAL-05.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



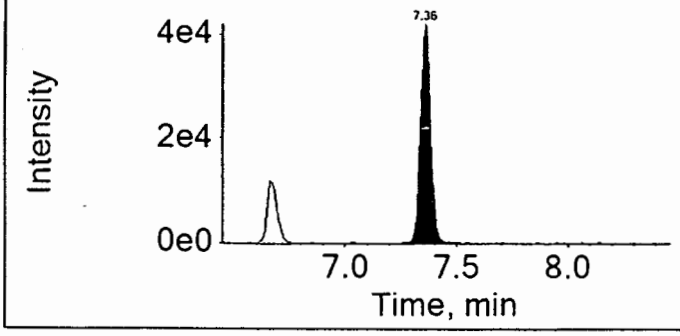


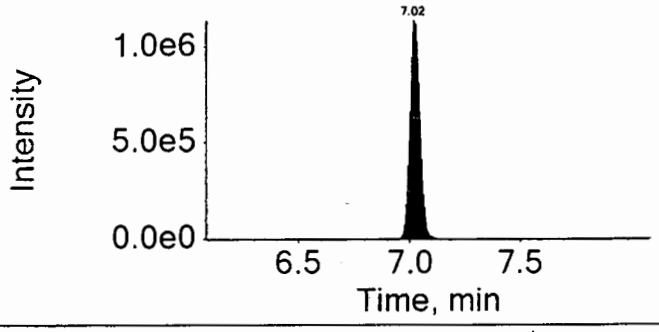
16JUL28ICAL-05.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



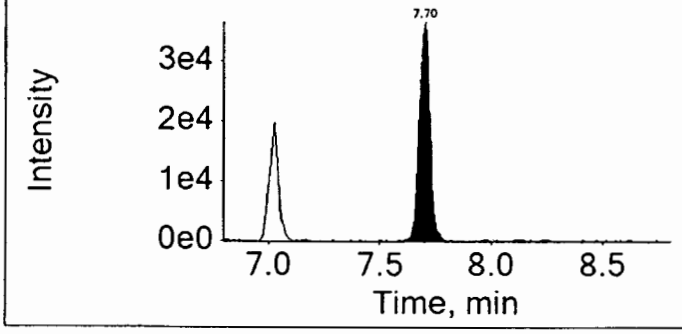


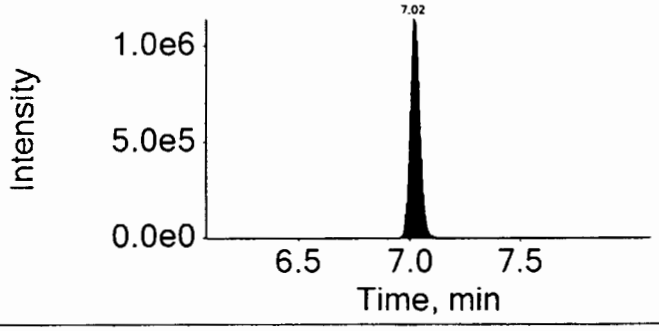
16JUL28ICAL-05.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16JUL28ICAL-05.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0

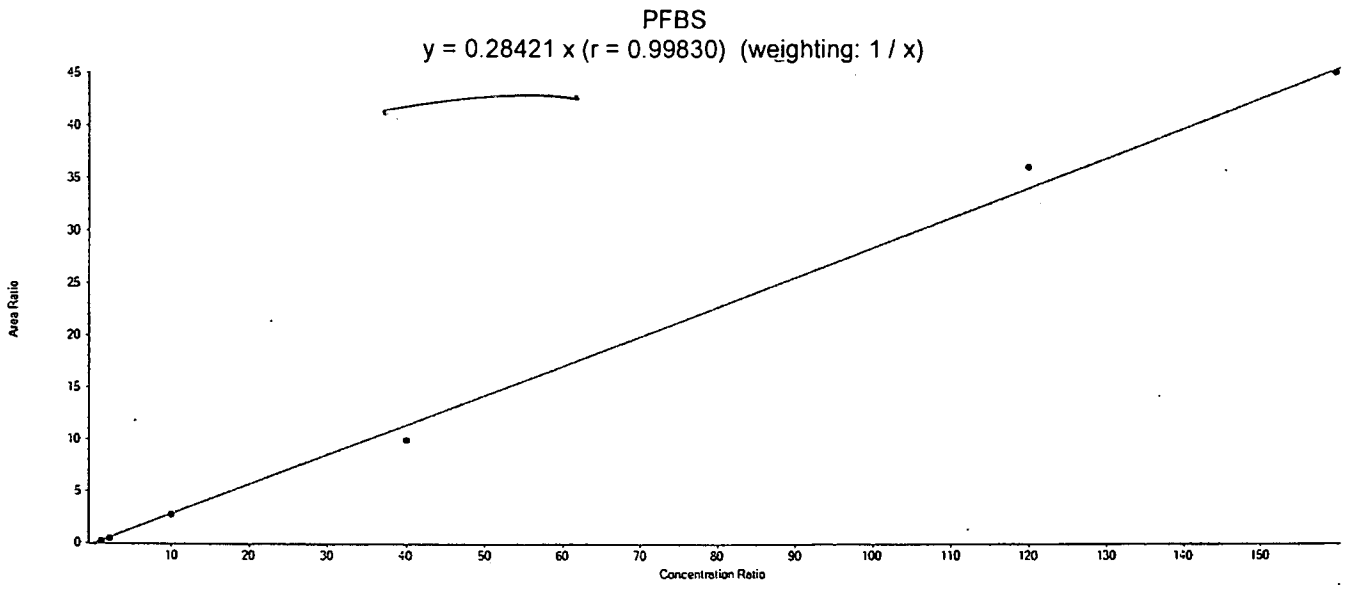




Soils Reported

Initial Calibration

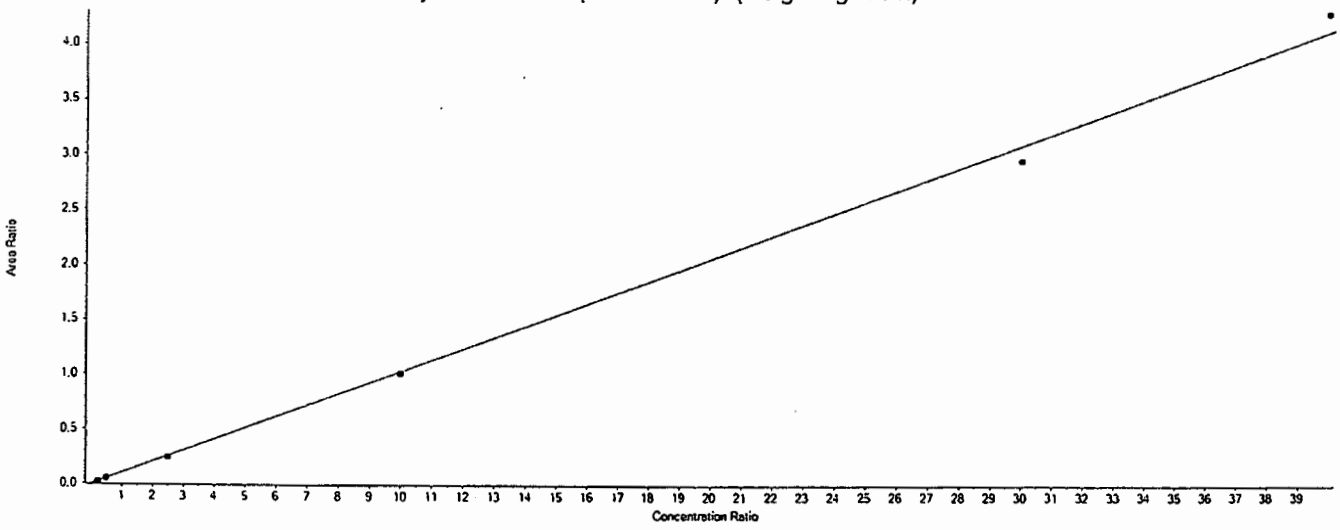
Triple Quad 4500, 0, LM24743
Results Table Name: MQ 16203007 7/29/2016 7:43:23 AM



Calibration Verification

File Name	Sample Name	PFBS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	53471.2	275790.4	1.00	0.194	4.04	0.800	0.680	-14.60
16JUL28ICAL-07.wiff	CAL2	138274.1	289445.8	1.00	0.478	4.04	2.000	1.680	-16.00
16JUL28ICAL-08.wiff	CAL3	658030.3	237993.9	1.00	2.765	4.03	9.990	9.730	-2.60
16JUL28ICAL-09.wiff	CAL4	2308436.6	233838.8	1.00	9.872	4.03	39.960	34.740	-13.10
16JUL28ICAL-10.wiff	CAL5	9641562.6	267336.4	1.00	36.065	4.03	119.900	126.900	5.80
16JUL28ICAL-11.wiff	CAL6	11753328.1	260547.2	1.00	45.110	4.02	159.800	158.720	-0.70

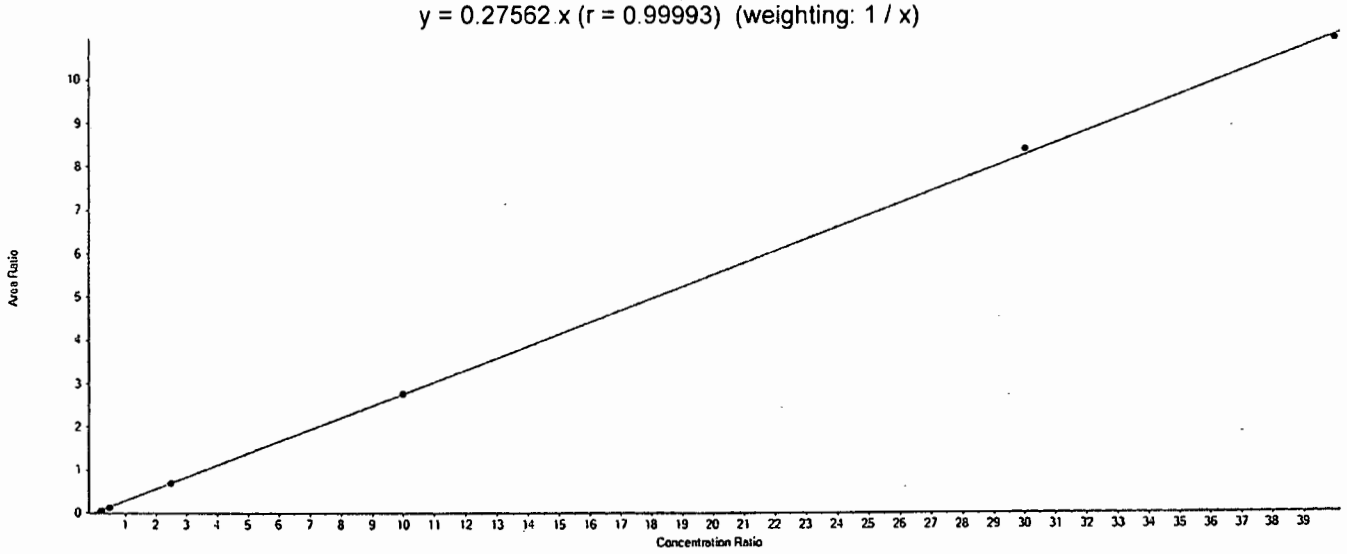
PFHxA
y = 0.10317 x (r = 0.99914) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHxA Area	13C2-PFHxA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	18099.3	848296.8	1.00	0.021	4.49	0.200	0.210	3.40
16JUL28ICAL-07.wiff	CAL2	48515.7	889199.0	1.00	0.055	4.48	0.500	0.530	5.80
16JUL28ICAL-08.wiff	CAL3	185969.5	762604.5	1.00	0.244	4.48	2.500	2.360	-5.50
16JUL28ICAL-09.wiff	CAL4	789749.1	780423.6	1.00	1.012	4.48	10.000	9.810	-1.90
16JUL28ICAL-10.wiff	CAL5	3649533.3	1233275.5	1.00	2.959	4.48	30.000	28.680	-4.40
16JUL28ICAL-11.wiff	CAL6	5408525.5	1259782.0	1.00	4.293	4.47	40.000	41.610	4.00

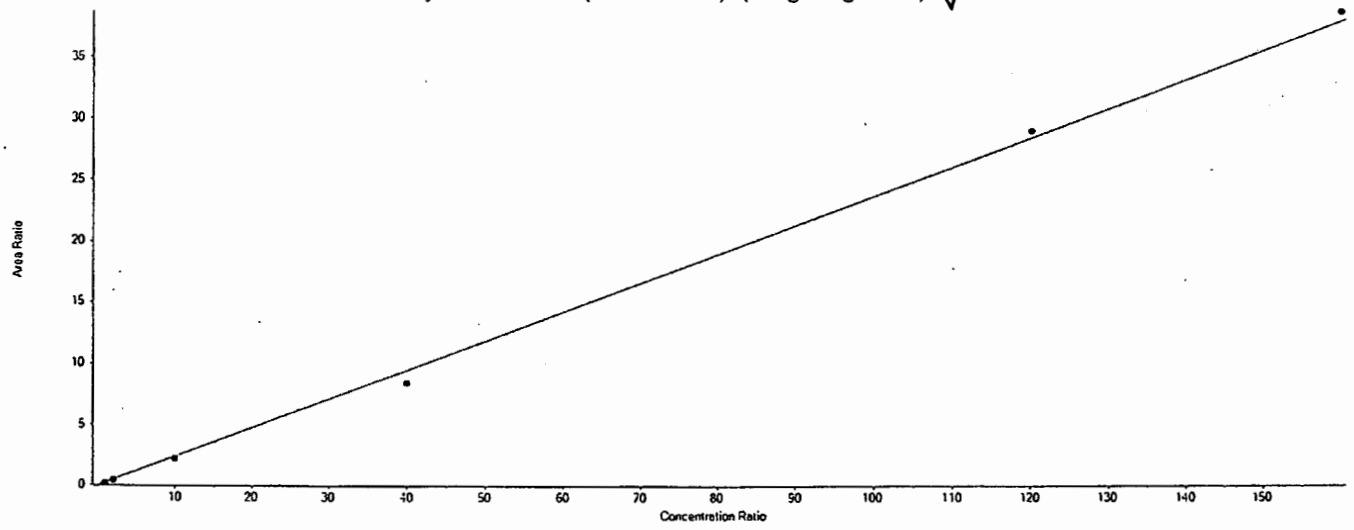
PFHpA
y = 0.27562 x (r = 0.99993) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHpA Area	13C4-PFHpA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	21349.9	468873.0	1.00	0.046	4.98	0.200	0.170	-17.40
16JUL28ICAL-07.wiff	CAL2	59136.4	497636.1	1.00	0.119	4.98	0.500	0.430	-13.80
16JUL28ICAL-08.wiff	CAL3	242280.3	360026.7	1.00	0.673	4.97	2.500	2.440	-2.30
16JUL28ICAL-09.wiff	CAL4	856605.6	311090.1	1.00	2.754	4.97	10.000	9.990	-0.10
16JUL28ICAL-10.wiff	CAL5	2727943.2	324756.5	1.00	8.400	4.98	30.000	30.480	1.60
16JUL28ICAL-11.wiff	CAL6	3334726.1	304805.6	1.00	10.941	4.97	40.000	39.690	-0.80

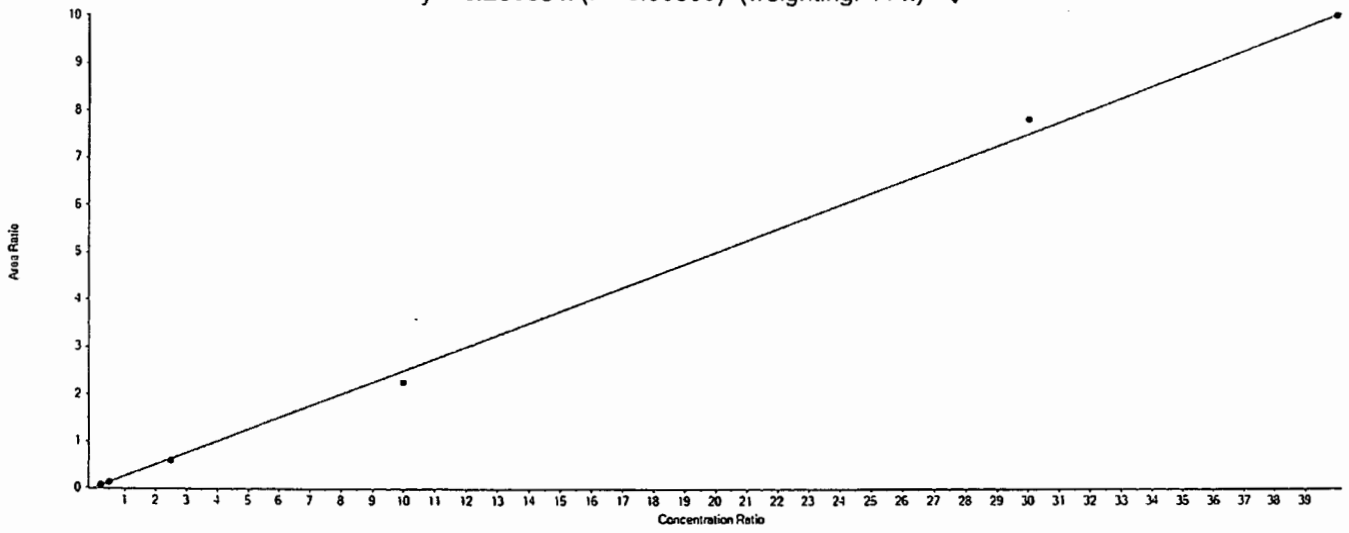
PFHxS
y = 0.23702 x (r = 0.99900) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHxS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	46439.7	275790.4	1.00	0.168	4.98	0.800	0.710	-11.20
16JUL28ICAL-07.wiff	CAL2	114266.5	289445.8	1.00	0.395	4.97	2.000	1.670	-16.70
16JUL28ICAL-08.wiff	CAL3	526467.1	237993.9	1.00	2.212	4.96	10.000	9.330	-6.70
16JUL28ICAL-09.wiff	CAL4	1966677.0	233838.8	1.00	8.410	4.97	40.000	35.480	-11.30
16JUL28ICAL-10.wiff	CAL5	7754862.4	267336.4	1.00	29.008	4.96	120.000	122.390	2.00
16JUL28ICAL-11.wiff	CAL6	10079580.1	260547.2	1.00	38.686	4.95	160.000	163.220	2.00

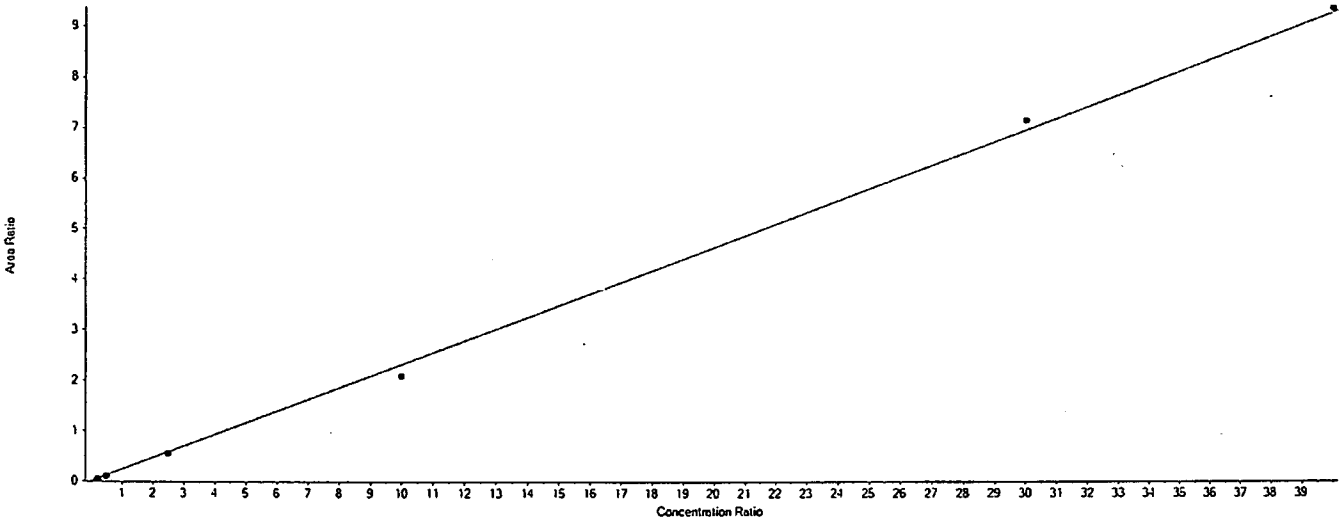
PFOA
y = 0.25086 x (r = 0.99899) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFOA Area	13C4-PFOA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	41985.1	819638.3	1.00	0.051	5.46	0.200	0.200	2.10
16JUL28ICAL-07.wiff	CAL2	100625.0	872787.9	1.00	0.115	5.45	0.500	0.460	-8.10
16JUL28ICAL-08.wiff	CAL3	408187.4	693480.0	1.00	0.589	5.44	2.500	2.350	-6.10
16JUL28ICAL-09.wiff	CAL4	1662492.1	736563.0	1.00	2.257	5.44	10.000	9.000	-10.00
16JUL28ICAL-10.wiff	CAL5	8412231.2	1073723.6	1.00	7.835	5.44	30.000	31.230	4.10
16JUL28ICAL-11.wiff	CAL6	11169911.1	1114212.4	1.00	10.025	5.43	40.000	39.960	-0.10

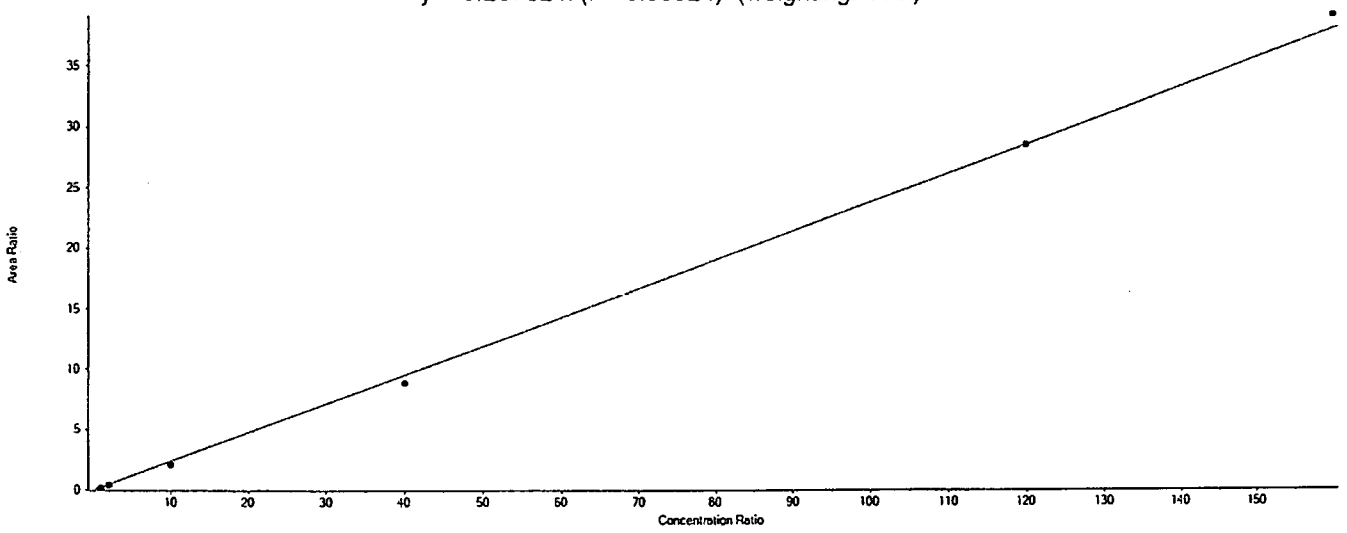
PFNA
y = 0.23229 x (r = 0.99921) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFNA Area	13C5-PFNA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	49121.8	1202169.8	1.00	0.041	5.89	0.200	0.180	-12.00
16JUL28ICAL-07.wiff	CAL2	126489.1	1236422.3	1.00	0.102	5.89	0.500	0.440	-11.90
16JUL28ICAL-08.wiff	CAL3	558263.9	1035695.2	1.00	0.539	5.88	2.500	2.320	-7.20
16JUL28ICAL-09.wiff	CAL4	1915671.7	912381.4	1.00	2.100	5.88	10.000	9.040	-9.60
16JUL28ICAL-10.wiff	CAL5	7243707.4	1010313.5	1.00	7.170	5.88	30.000	30.870	2.90
16JUL28ICAL-11.wiff	CAL6	8845467.0	943507.8	1.00	9.375	5.88	40.000	40.360	0.90

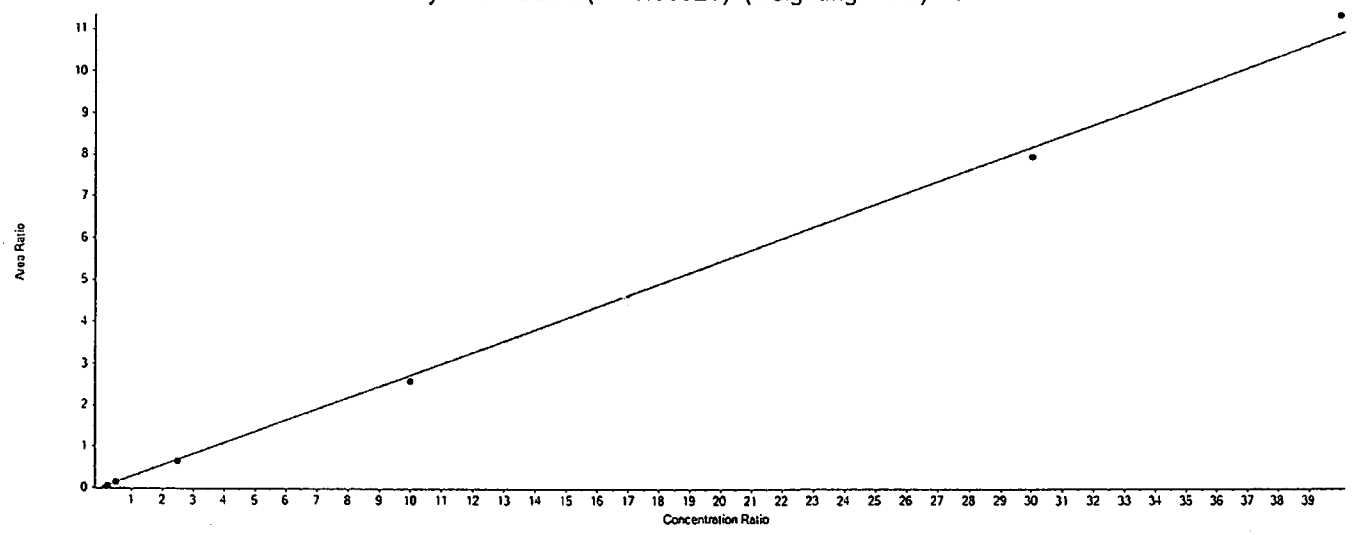
PFOS
y = 0.23782 x (r = 0.99924) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFOS Area	13C4-PFOS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	45470.0	277107.4	1.00	0.164	5.86	0.800	0.690	-13.60
16JUL28ICAL-07.wiff	CAL2	118275.5	289585.9	1.00	0.408	5.86	2.000	1.720	-14.10
16JUL28ICAL-08.wiff	CAL3	518447.6	252719.2	1.00	2.051	5.85	9.990	8.630	-13.70
16JUL28ICAL-09.wiff	CAL4	2003770.4	227683.8	1.00	8.801	5.85	39.960	37.010	-7.40
16JUL28ICAL-10.wiff	CAL5	7466537.5	261931.5	1.00	28.506	5.84	119.900	119.860	0.00
16JUL28ICAL-11.wiff	CAL6	9339617.8	238662.9	1.00	39.133	5.84	159.800	164.550	3.00

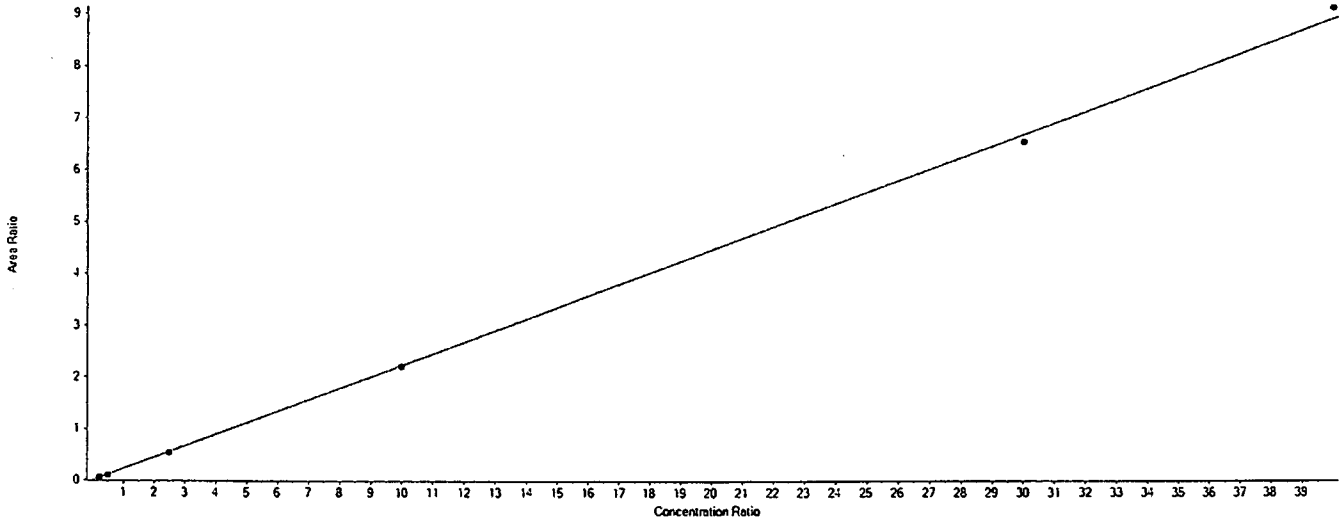
PFDA
y = 0.27339 x (r = 0.99925) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFDA Area	13C2-PFDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	44370.9	830885.2	1.00	0.053	6.30	0.200	0.200	-2.30
16JUL28ICAL-07.wiff	CAL2	110556.6	846100.6	1.00	0.131	6.29	0.500	0.480	-4.40
16JUL28ICAL-08.wiff	CAL3	490521.2	769367.5	1.00	0.638	6.28	2.500	2.330	-6.70
16JUL28ICAL-09.wiff	CAL4	1766981.6	679765.6	1.00	2.599	6.27	10.000	9.510	-4.90
16JUL28ICAL-10.wiff	CAL5	7513198.5	943390.4	1.00	7.964	6.27	30.000	29.130	-2.90
16JUL28ICAL-11.wiff	CAL6	9646400.5	849103.0	1.00	11.361	6.26	40.000	41.560	3.90

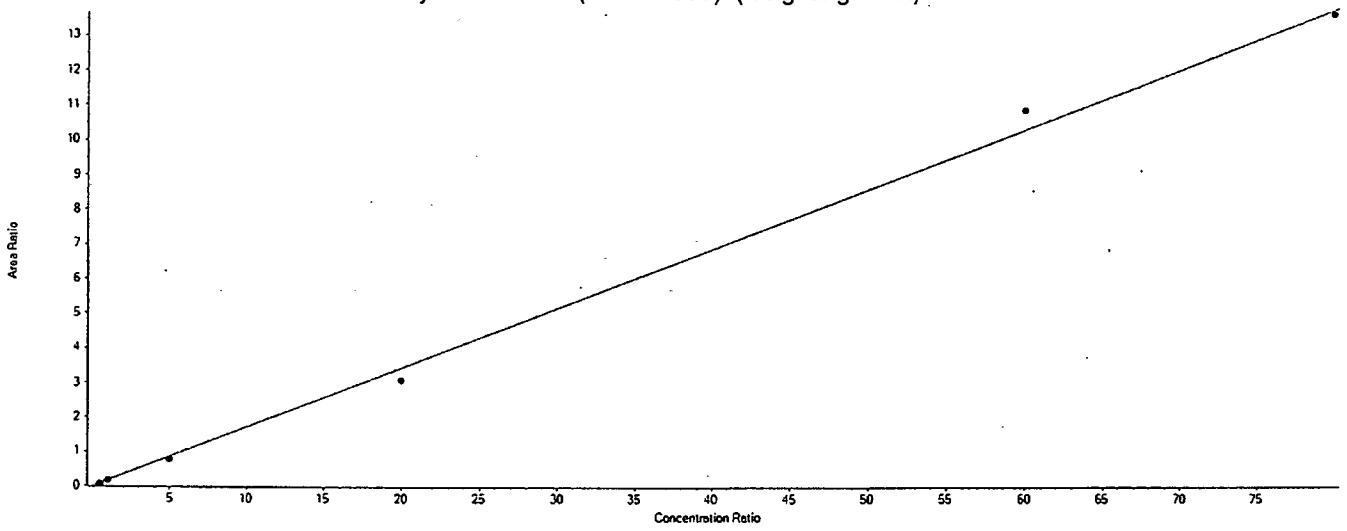
PFUndA
y = 0.22334 x (r = 0.99970) (weighting: 1 / x)



Calibration Verification

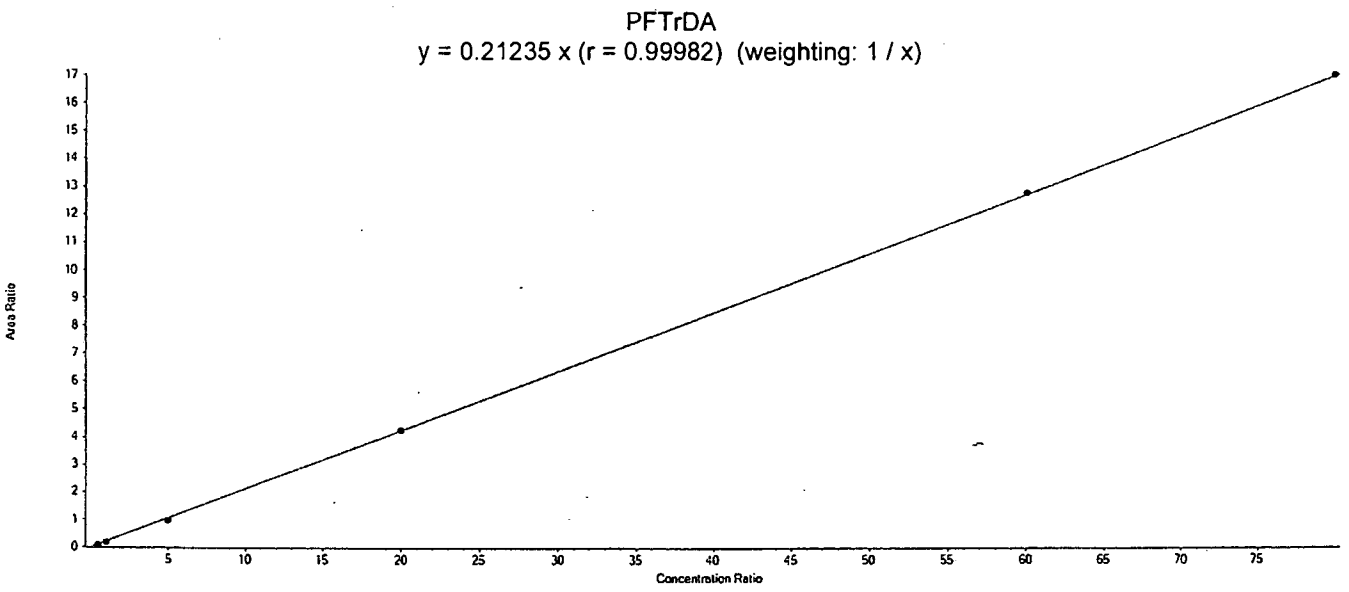
File Name	Sample Name	PFUndA Area	13C2-PFUnDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	45918.2	982914.7	1.00	0.047	6.66	0.200	0.210	4.60
16JUL28ICAL-07.wiff	CAL2	104669.7	1054743.1	1.00	0.099	6.65	0.500	0.440	-11.10
16JUL28ICAL-08.wiff	CAL3	499542.8	943644.5	1.00	0.529	6.64	2.500	2.370	-5.20
16JUL28ICAL-09.wiff	CAL4	1842758.0	830384.2	1.00	2.219	6.64	10.000	9.940	-0.60
16JUL28ICAL-10.wiff	CAL5	6958688.1	1062447.4	1.00	6.550	6.63	30.000	29.330	-2.20
16JUL28ICAL-11.wiff	CAL6	9012734.0	986311.8	1.00	9.138	6.62	40.000	40.910	2.30

PFDoDA
y = 0.17219 x (r = 0.99859) (weighting: 1 / x)



Calibration Verification

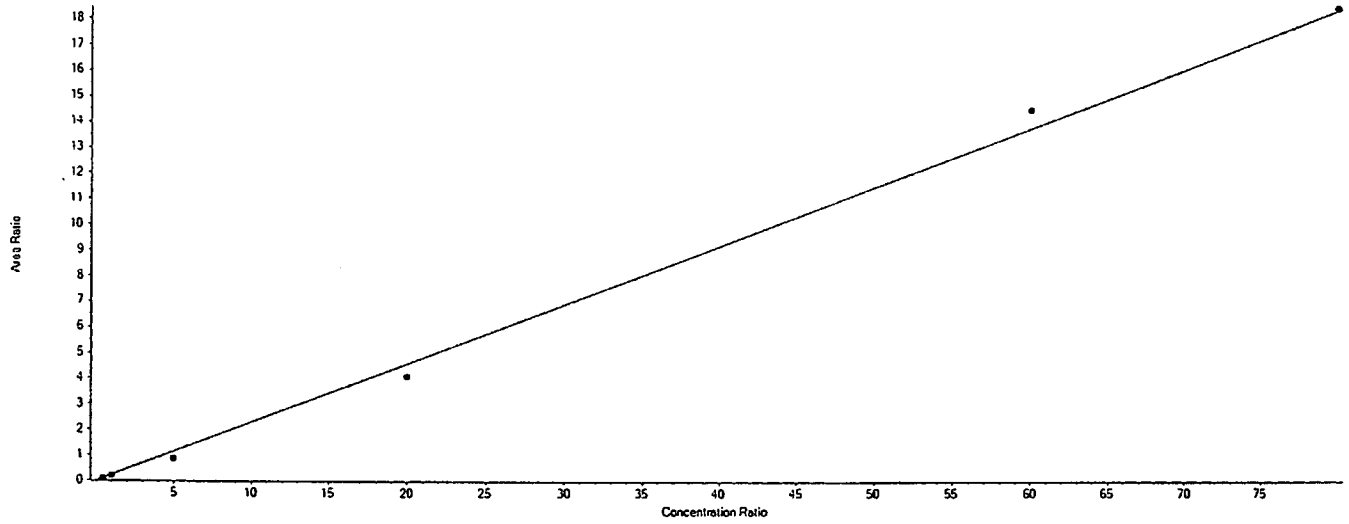
File Name	Sample Name	PFDoDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	89354.3	1377823.0	1.00	0.065	7.01	0.400	0.380	-5.80
16JUL28ICAL-07.wiff	CAL2	232291.9	1505132.6	1.00	0.154	7.00	1.000	0.900	-10.40
16JUL28ICAL-08.wiff	CAL3	1059073.8	1351818.4	1.00	0.783	6.98	5.000	4.550	-9.00
16JUL28ICAL-09.wiff	CAL4	3712388.9	1205338.5	1.00	3.080	6.98	20.000	17.890	-10.60
16JUL28ICAL-10.wiff	CAL5	16607833.3	1521541.1	1.00	10.915	6.98	60.000	63.390	5.70
16JUL28ICAL-11.wiff	CAL6	19390998.9	1420112.2	1.00	13.655	6.97	80.000	79.300	-0.90



Calibration Verification

File Name	Sample Name	PFTrDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	111464.6	1377823.0	1.00	0.081	7.34	0.400	0.380	-4.80
16JUL28ICAL-07.wiff	CAL2	278667.9	1505132.6	1.00	0.185	7.33	1.000	0.870	-12.80
16JUL28ICAL-08.wiff	CAL3	1282936.1	1351818.4	1.00	0.949	7.32	5.000	4.470	-10.60
16JUL28ICAL-09.wiff	CAL4	5125821.3	1205338.5	1.00	4.253	7.31	20.000	20.030	0.10
16JUL28ICAL-10.wiff	CAL5	19516875.4	1521541.1	1.00	12.827	7.30	60.000	60.400	0.70
16JUL28ICAL-11.wiff	CAL6	24199366.4	1420112.2	1.00	17.040	7.30	80.000	80.250	0.30

PFTeDA
y = 0.22944 x (r = 0.99802) (weighting: 1 / x)

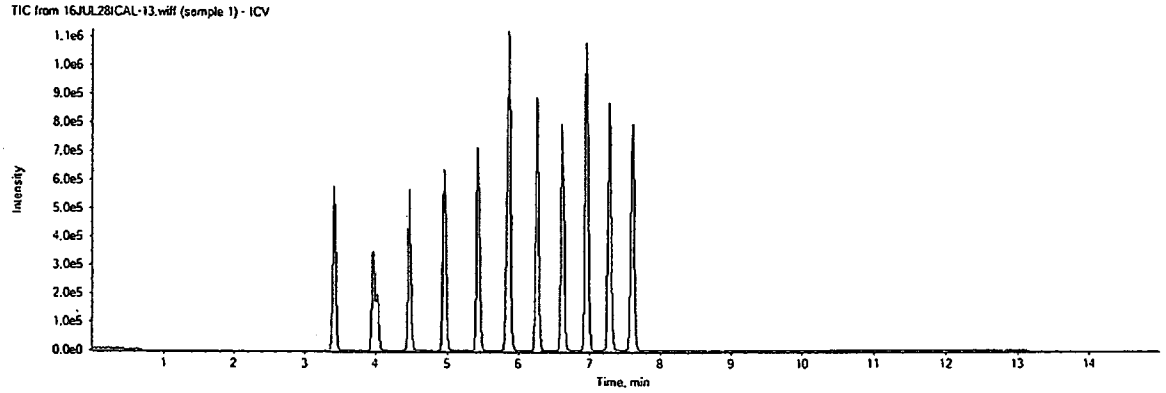


Calibration Verification

File Name	Sample Name	PFTeDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16JUL28ICAL-06.wiff	CAL1	101390.6	1377823.0	1.00	0.074	7.68	0.400	0.320	-19.80
16JUL28ICAL-07.wiff	CAL2	285734.8	1505132.6	1.00	0.190	7.66	1.000	0.830	-17.30
16JUL28ICAL-08.wiff	CAL3	1180658.1	1351818.4	1.00	0.873	7.65	5.000	3.810	-23.90
16JUL28ICAL-09.wiff	CAL4	4919283.5	1205338.5	1.00	4.081	7.64	20.000	17.790	-11.10
16JUL28ICAL-10.wiff	CAL5	22079210.0	1521541.1	1.00	14.511	7.63	60.000	63.250	5.40
16JUL28ICAL-11.wiff	CAL6	26201111.4	1420112.2	1.00	18.450	7.62	80.000	80.410	0.50

Initial Calibration Verification

Sample ID: ICV
Sample Name: ICV
Sample File: 16JUL28ICAL-13.wiff
Acquisition Date: 7/28/2016 6:27:02 PM

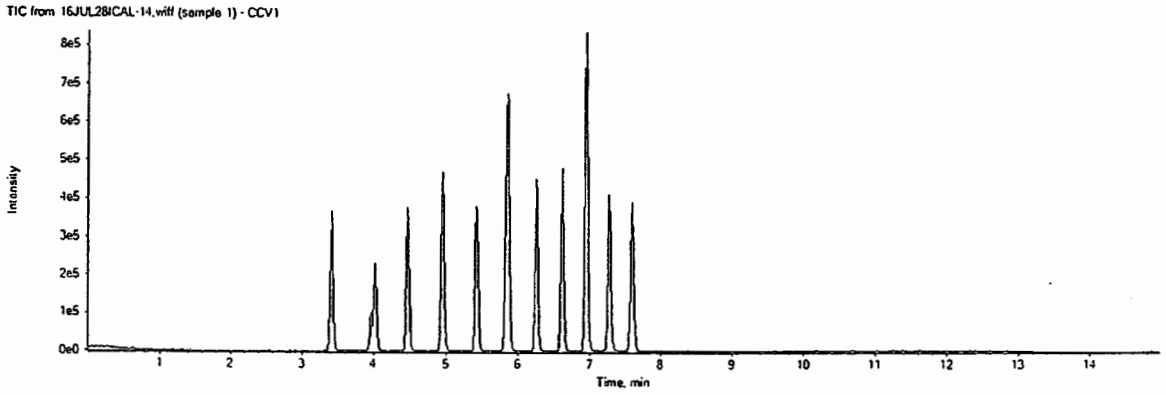


Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	530921.9	18O2-PFHxS	236214.7	1.00	2.248	4.02	8.85	7.910	-10.6	
PFHxA	810379.5	13C2-PFHxA	778011.6	1.00	1.042	4.47	10.00	10.100	1.0	
PFHpA	902798.4	13C4-PFHpA	381151.9	1.00	2.369	4.96	10.00	8.590	-14.1	
PFHxS	503035.7	18O2-PFHxS	236214.7	1.00	2.130	4.95	9.45	8.980	-4.9	
PFOA	1508574.2	13C4-PFOA	650499.0	1.00	2.319	5.42	10.00	9.240	-7.6	
PFNA	1964869.4	13C5-PFNA	937013.4	1.00	2.097	5.86	10.00	9.030	-9.7	
PFOS	486895.2	13C4-PFOS	254409.6	1.00	1.914	5.83	9.55	8.050	-15.7	
PFDA	1822047.5	13C2-PFDA	671050.1	1.00	2.715	6.26	10.00	9.930	-0.7	
PFUndA	1580552.3	13C2-PFUnDA	785528.8	1.00	2.012	6.62	10.00	9.010	-9.9	
PFDoDA	2063149.3	13C2-PFDoDA	1263701.4	1.00	1.633	6.96	10.00	9.480	-5.2	
PFTrDA	2674555.9	13C2-PFDoDA	1263701.4	1.00	2.116	7.28	10.00	9.970	-0.3	
PFTeDA	2662305.6	13C2-PFDoDA	1263701.4	1.00	2.107	7.60	10.00	9.180	-8.2	

Continuing Calibration Verification

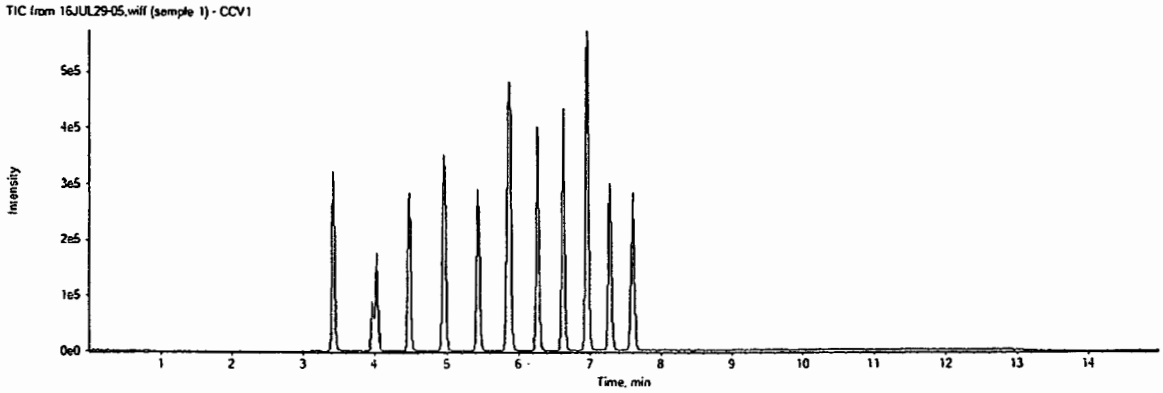
MQ 16190006

Sample ID: CAL3
Sample Name: CCV1
Sample File: 16JUL28ICAL-14.wiff
Acquisition Date: 7/28/2016 6:42:44 PM



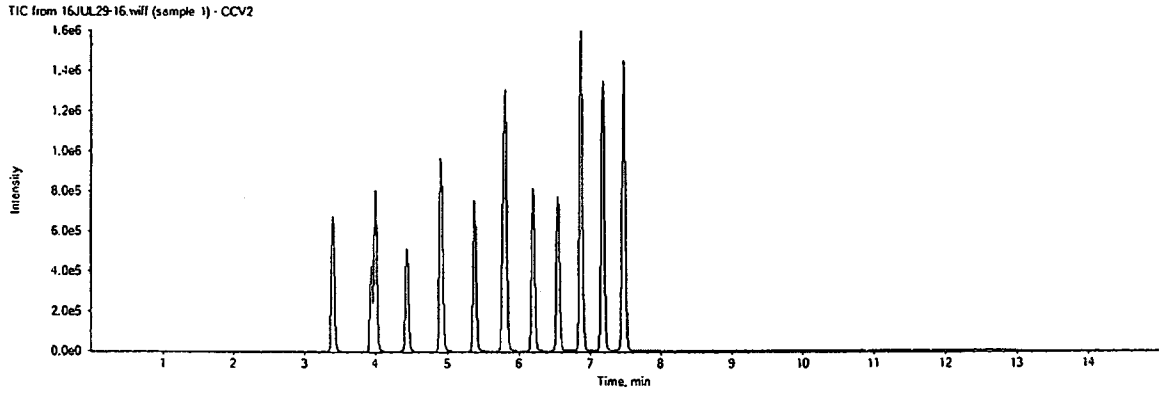
Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	627654.3	18O2-PFHxS	248281.7	1.00	2.528	4.02	9.99	8.890	-11.0	
PFHxA	221493.6	13C2-PFHxA	809504.9	1.00	0.274	4.47	2.50	2.650	6.1	
PFHpA	240308.3	13C4-PFHpA	372327.5	1.00	0.645	4.96	2.50	2.340	-6.3	
PFHxS	536060.5	18O2-PFHxS	248281.7	1.00	2.159	4.95	10.00	9.110	-8.9	
PFOA	407705.8	13C4-PFOA	754015.1	1.00	0.541	5.42	2.50	2.160	-13.8	
PFNA	546411.5	13C5-PFNA	1036127.1	1.00	0.527	5.86	2.50	2.270	-9.2	
PFOS	505939.7	13C4-PFOS	250567.2	1.00	2.019	5.83	9.99	8.490	-15.0	
PFDA	484233.0	13C2-PFDA	732308.7	1.00	0.661	6.25	2.50	2.420	-3.3	
PFUndA	466000.2	13C2-PFUnDA	879477.8	1.00	0.530	6.61	2.50	2.370	-5.1	
PFDoDA	1039287.8	13C2-PFDoDA	1276949.9	1.00	0.814	6.95	5.00	4.730	-5.5	
PFTrDA	1228227.8	13C2-PFDoDA	1276949.9	1.00	0.962	7.27	5.00	4.530	-9.4	
PFTeDA	1204650.6	13C2-PFDoDA	1276949.9	1.00	0.943	7.60	5.00	4.110	-17.8	

Sample ID: CAL3
Sample Name: CCV1
Sample File: 16JUL29-05.wiff
Acquisition Date: 7/29/2016 9:59:45 AM



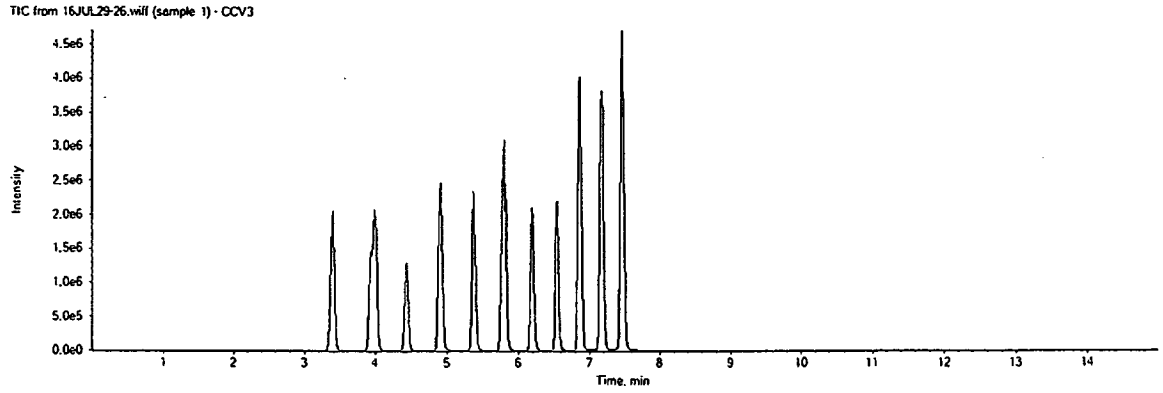
Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	408382.8	18O2-PFHxS	170511.7	1.00	2.395	4.02	9.99	8.430	-15.6	
PFHxA	159511.5	13C2-PFHxA	638784.8	1.00	0.250	4.47	2.50	2.420	-3.2	
PFHpA	209616.0	13C4-PFHpA	334745.3	1.00	0.626	4.96	2.50	2.270	-9.1	
PFHxS	338090.7	18O2-PFHxS	170511.7	1.00	1.983	4.95	10.00	8.370	-16.3	
PFOA	305864.8	13C4-PFOA	563163.0	1.00	0.543	5.43	2.50	2.170	-13.4	
PFNA	439224.4	13C5-PFNA	841664.9	1.00	0.522	5.86	2.50	2.250	-10.1	
PFOS	360038.2	13C4-PFOS	175274.2	1.00	2.054	5.83	9.99	8.640	-13.5	
PFDA	371920.5	13C2-PFDA	621142.6	1.00	0.599	6.26	2.50	2.190	-12.4	
PFUndA	358164.1	13C2-PFUnDA	772673.2	1.00	0.464	6.62	2.50	2.080	-17.0	
PFDoDA	770707.3	13C2-PFDoDA	952380.8	1.00	0.809	6.95	5.00	4.700	-6.0	
PFTrDA	913407.2	13C2-PFDoDA	952380.8	1.00	0.959	7.28	5.00	4.520	-9.7	
PFTeDA	860934.2	13C2-PFDoDA	952380.8	1.00	0.904	7.60	5.00	3.940	-21.2	

Sample ID: CAL4
Sample Name: CCV2
Sample File: 16JUL29-16.wiff
Acquisition Date: 7/29/2016 12:52:27 PM



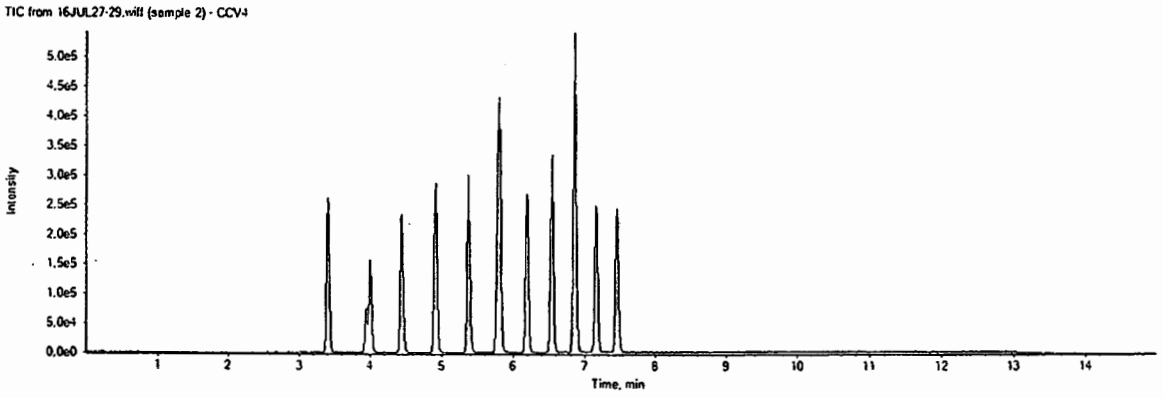
Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	2145446.3	18O2-PFHxS	202155.9	1.00	10.613	3.99	39.96	37.340	-6.6	
PFHxA	777951.6	13C2-PFHxA	767984.3	1.00	1.013	4.43	10.00	9.820	-1.8	
PFHpA	779754.6	13C4-PFHpA	331587.2	1.00	2.352	4.91	10.00	8.530	-14.7	
PFHxS	1783476.2	18O2-PFHxS	202155.9	1.00	8.822	4.90	40.00	37.220	-6.9	
PFOA	1533042.0	13C4-PFOA	666442.0	1.00	2.300	5.37	10.00	9.170	-8.3	
PFNA	1937238.3	13C5-PFNA	860091.9	1.00	2.252	5.80	10.00	9.700	-3.0	
PFOS	1829035.1	13C4-PFOS	211287.2	1.00	8.657	5.77	39.96	36.400	-8.9	
PFDA	1736656.0	13C2-PFDA	671410.0	1.00	2.587	6.19	10.00	9.460	-5.4	
PFUndA	1620703.5	13C2-PFUnDA	778875.3	1.00	2.081	6.54	10.00	9.320	-6.8	
PFDoDA	3560694.3	13C2-PFDoDA	1102654.2	1.00	3.229	6.87	20.00	18.750	-6.2	
PFTrDA	4177983.2	13C2-PFDoDA	1102654.2	1.00	3.789	7.17	20.00	17.840	-10.8	
PFTeDA	4486073.1	13C2-PFDoDA	1102654.2	1.00	4.068	7.47	20.00	17.730	-11.3	

Sample ID: CAL5
Sample Name: CCV3
Sample File: 16JUL29-26.wiff
Acquisition Date: 7/29/2016 3:38:21 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	7812424.6	18O2-PFHxS	225178.2	1.00	34.694	3.99	119.90	122.080	1.8	
PFHxA	3470770.6	13C2-PFHxA	994793.6	1.00	3.489	4.43	30.00	33.820	12.7	
PFHpA	2555056.3	13C4-PFHpA	306546.0	1.00	8.335	4.92	30.00	30.240	0.8	
PFHxS	6339950.8	18O2-PFHxS	225178.2	1.00	28.155	4.90	120.00	118.790	-1.0	
PFOA	6747084.3	13C4-PFOA	934044.8	1.00	7.224	5.37	30.00	28.790	-4.0	
PFNA	5651349.4	13C5-PFNA	846367.2	1.00	6.677	5.81	30.00	28.740	-4.2	
PFOS	6140884.1	13C4-PFOS	215264.6	1.00	28.527	5.77	119.90	119.950	0.0	
PFDA	5986212.2	13C2-PFDA	753090.1	1.00	7.949	6.19	30.00	29.080	-3.1	
PFUndA	6096366.3	13C2-PFUnDA	845429.0	1.00	7.211	6.53	30.00	32.290	7.6	
PFDoDA	12862422.5	13C2-PFDoDA	1178266.9	1.00	10.916	6.86	60.00	63.400	5.7	
PFTrDA	14502796.2	13C2-PFDoDA	1178266.9	1.00	12.309	7.17	60.00	57.960	-3.4	
PFTeDA	15614432.0	13C2-PFDoDA	1178266.9	1.00	13.252	7.46	60.00	57.760	-3.7	

Sample ID: CAL3
Sample Name: CCV4
Sample File: 16JUL27-29.wiff
Acquisition Date: 7/29/2016 4:41:13 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	382987.4	18O2-PFHxS	141620.4	1.00	2.704	4.00	9.99	9.520	-4.8	
PFHxA	135882.1	13C2-PFHxA	520951.4	1.00	0.261	4.43	2.50	2.530	1.1	
PFHpA	168715.7	13C4-PFHpA	237743.9	1.00	0.710	4.91	2.50	2.570	3.0	
PFHxS	308125.4	18O2-PFHxS	141620.4	1.00	2.176	4.90	10.00	9.180	-8.2	
PFOA	264182.7	13C4-PFOA	492008.1	1.00	0.537	5.37	2.50	2.140	-14.4	
PFNA	348840.6	13C5-PFNA	681380.9	1.00	0.512	5.80	2.50	2.200	-11.8	
PFOS	311727.1	13C4-PFOS	147277.1	1.00	2.117	5.77	9.99	8.900	-10.9	
PFDA	322224.4	13C2-PFDA	449749.7	1.00	0.716	6.19	2.50	2.620	4.8	
PFUndA	296895.4	13C2-PFUnDA	588410.9	1.00	0.505	6.54	2.50	2.260	-9.6	
PFDoDA	613337.1	13C2-PFDoDA	746657.7	1.00	0.821	6.86	5.00	4.770	-4.6	
PFTrDA	747744.5	13C2-PFDoDA	746657.7	1.00	1.001	7.16	5.00	4.720	-5.7	
PFTeDA	768120.6	13C2-PFDoDA	746657.7	1.00	1.029	7.45	5.00	4.480	-10.3	

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SGP97
Matrix: SOIL

Tci, T

16190006	13C2-PFDA	13C2-PFDODA	13C2-PFHXA	13C2-PFUNDA
	Area	Area	Area	Area
Average ICAL Response	819769	1396961	962264	976741
UPPER LIMIT	1229654	2095442	1443396	1465112
LOWER LIMIT	409885	698481	481132	488371
LAB SAMPLE ID				
BLK190006	471578	1331735	1174258	792967
OPR190006	123518 *	711175	22984 *	284063 *
LCSDA	112757 *	500599 *	87997 *	233177 *
8438959	2193302 *	2894018 *	2176155 *	2240421 *
8438960	1827407 *	2826608 *	2353553 *	2054508 *
8438961	1028366	1586388	1156977	1145194
8438962	818981	1408714	932899	987442
8438965	1454544 *	3112287 *	1233476	1772847 *
8438967	601891	994510	695982	724156
8438968	783124	1261569	986902	964210
8438970	1506699 *	2488183 *	1759793 *	1757493 *
8438971	1380718 *	2279893 *	1782628 *	1554828 *
8438972	936373	1579488	1107507	1132560

qc no Qual

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

Samples reextracted, reanalyzed past hold time. Original data used. All ~~applicable positive~~ exceedences ~~detections~~ qualified as estimated.

J/UJ

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SGP97
Matrix: SOIL

16190006	13C4-PFHPA	13C4-PFOA	13C4-PFOS	13C5-PFNA
	Area	Area	Area	Area
Average ICAL Response	377865	885068	257948	1056748
UPPER LIMIT	566798	1327602	386922	1585122
LOWER LIMIT	188933	442534	128974	528374
LAB SAMPLE ID				
BLK190006	440470	350040 *	611863 *	475435 *
OPR190006	19700 *	37306 *	458424 *	87996 *
LCSDA	32865 *	45560 *	346826	89807 *
8438959	1150503 *	1947733 *	683497 *	2705585 *
8438960	1379468 *	1989545 *	693594 *	2660940 *
8438961	672001 *	972532	325512	1492581
8438962	589735 *	859554	322979	1241685
8438965	783030 *	1260247	453998 *	1918946 *
8438967	389101	588376	211981	870012
8438968	575469 *	884425	291307	1221134
8438970	1019540 *	1428103 *	508076 *	2286715 *
8438971	991823 *	1473270 *	525050 *	2130649 *
8438972	692103 *	1030202	346250	1437236

QC

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SGP97
Matrix: SOIL

PFBS

16190006	18O2-PFHXS Area	
Average ICAL Response	~~260825~~	260525
UPPER LIMIT	~~391238~~	390488
LOWER LIMIT	~~130413~~	130163
LAB SAMPLE ID		
BLK190006	620702 *	QC
OPR190006	433784 *	
LCSDA	354283	
8438959	703294 *	
8438960	699456 *	
8438961	364694	
8438962	301968	
8438965	461999 *	
8438967	197987	
8438968	291777	
8438970	515383 *	
8438971	528553 *	
8438972	349680	

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP03
Matrix: SOIL

16206005	18O2-PFHXS
	Area
Average ICAL Response	260825 → 260325
UPPER LIMIT	391238 → 390488
LOWER LIMIT	130413 → 130163
LAB SAMPLE ID	
BLK206005	210918
OPR206005	185153
8486567MS	199007
8486568MSD	204416
8486564	201743
8486565	222703
8486566	238282
8486570	195502
8486571	335088
8486572	166765
8486573	177834
8486574	145940
8486575	155908
8486576	155913
8486577	178018
8486578	408723 *
8486589	183518
8486591	299089
8486575	155908

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

4500_072816_1637_ISCheck.xlsx

Measure	13C2-PFDA	13C2-PFDoDA	13C2-PFHxA	13C2-PFUnDA	13C4-PFHpA	13C4-PFOA	13C4-PFOS	13C5-PFNA	18O2-PFHxS
Average	819769	1396961	962264	976741	377865	885068	257948	1056748	260325
Upper	1229653	2095441	1443395	1465111	566797	1327601	386923	1585123	390488
Lower	409884	698480	481132	488370	188932	442534	128974	528374	130163

Organic Extraction Batchlog Assigned to: 10262 Devon Whooley Reviewed by: dd 1415 Start Date: 7/11/16 Start time: 10:10

16190006 Tech 1: JWK9524 Tech 2: DW 162602

Dept: 37	Prep Analysis: 14090. PFC Solid Prep				PFC s in Soil by LC/MS/MS						
QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
8432144MS	SG-24MS	5.06	235002-44A IS-7-GN (3)	0.25	235002-35A	0.20	1	Z	Z	170a	
BLANKA	BLK190006	5.06	JWK9524 7/11/16	0.25	N/A	N/A	1	Z	Z		
LCSA	OPR190006	5.06		0.25	235002-35A	0.20	1	Z	Z		
LCSDA		5.00		0.25	235002-35A	0.20	1	Z	Z		

Solvent Used	Lot No.
80% ACN:H2O	
96% MeOH:H2O	
Sand	

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1 8432144	SG-24	5.01	235002-44A IS-7-GN (3)	0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
2 8432145	SG-46	5.18	JWK9524 7/11/16	0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
3 8432146	SG-47	5.30		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
4 8432147	SG-48	5.21		0.25	1	Z	Z	170a		14027	18151	06/29/2016	N
5 8438959	SG311	5.00		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
6 8438960	SG312	5.19		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
7 8438961	SG313	5.27		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
8 8438962	SG314	5.17		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
9 8438965	SG315	5.10		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
10 8438967	SG316	5.03		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
11 8438968	SG317	5.06		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
12 8438970	61SG3	5.05		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
13 8438971	62SG3	5.17		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
14 8438972	63SG3	5.06		0.25	1	Z	Z	170a		14027	18151	07/05/2016	N
15 8441140	BENGT	5.14		0.25	1	Z	Z	170a		14027	18151	07/06/2016	N
16 8441141	BENCH	5.30		0.25	1	Z	Z	170a		14027	18151	07/06/2016	N
17 8441142	CEMGT	5.09		0.25	1	Z	Z	170a		14027	18151	07/06/2016	N

SG p97 Page 477 of 514

5 to 0.5

Rack ID:		Work Station		Micro Temp 100?
Internal Standard		Balance #	1/2111/2/2	

S-bath ID	C	S-bath ID	C	N-Evap	C	M-vap	C	16190006

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

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LC-MS/MS Sequence Report (*)

Printed: 08/05/2016 10:03:00 AM

only assoc. w/ REs that were not reported due to extract past HT

Instrument	Acquisition Date	File Name	Sample ID	Vial Position	Samp Wt	Samp Vol	DF
Triple Quad 4500, 0, LM24743	8/2/2016 12:40:44 PM	16AUG01ICAL-05.wiff	MDL	2	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 12:57:08 PM	16AUG01ICAL-06.wiff	CAL1	3	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 1:13:29 PM	16AUG01ICAL-07.wiff	CAL2	4	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 1:29:53 PM	16AUG01ICAL-08.wiff	CAL3	5	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 1:46:17 PM	16AUG01ICAL-09.wiff	CAL4	6	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 2:02:41 PM	16AUG01ICAL-10.wiff	CAL5	7	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 2:19:02 PM	16AUG01ICAL-11.wiff	CAL6	8	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 2:35:23 PM	16AUG01ICAL-12.wiff	solvent	1	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 2:51:47 PM	16AUG01ICAL-13.wiff	ICV	9	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/2/2016 3:09:11 PM	16AUG01ICAL-14.wiff	CCV1	5	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 2:42:24 PM	16AUG04-05.wiff	CCV1	5	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 2:58:09 PM	16AUG04-06.wiff	BLK215005	16	5.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 3:13:51 PM	16AUG04-07.wiff	LCS215005	17	5.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 3:29:36 PM	16AUG04-08.wiff	LCSDA	18	5.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 3:45:18 PM	16AUG04-09.wiff	8432144RE	19	5.35	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 4:01:03 PM	16AUG04-10.wiff	8432144MS	20	5.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 4:16:45 PM	16AUG04-11.wiff	8432145RE	21	5.19	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 4:32:30 PM	16AUG04-12.wiff	8432146RE	22	5.02	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 4:48:12 PM	16AUG04-13.wiff	8432147RE	23	5.46	1.00	1.00
Triple Quad 4500, 0,	8/4/2016 5:03:57 PM	16AUG04-14.wiff	8438959RE	24	5.17	1.00	1.00

LM24743							
Triple Quad 4500, 0, LM24743	8/4/2016 5:19:39 PM	16AUG04-15.wiff	8438960RE	25	5.14	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 5:35:21 PM	16AUG04-16.wiff	CCV2	6	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 5:51:06 PM	16AUG04-17.wiff	8438961RE	26	5.45	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 6:06:51 PM	16AUG04-18.wiff	8438962RE	27	5.17	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 6:22:36 PM	16AUG04-19.wiff	8438965RE	28	5.09	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 6:38:21 PM	16AUG04-20.wiff	8438967RE	29	5.15	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 6:54:06 PM	16AUG04-21.wiff	8438968RE	30	5.21	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 7:09:51 PM	16AUG04-22.wiff	8438970RE	31	5.15	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 7:25:36 PM	16AUG04-23.wiff	8438971RE	32	5.13	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 7:41:18 PM	16AUG04-24.wiff	8438972RE	33	5.32	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 7:57:03 PM	16AUG04-25.wiff	8441140RE	34	5.04	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 8:12:45 PM	16AUG04-26.wiff	8441141RE	35	5.42	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 8:28:27 PM	16AUG04-27.wiff	CCV3	7	1.00	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 8:44:09 PM	16AUG04-28.wiff	8441142RE	36	5.10	1.00	1.00
Triple Quad 4500, 0, LM24743	8/4/2016 8:59:51 PM	16AUG04-29.wiff	CCV4	5	1.00	1.00	1.00

Results Table Name: MQ 16215005 8/5/2016 9:41:27 AM

Christine Ratcliff
Manager

AUG 05 2016

MED 7824 8/5/16

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LC-MS/MS Analysis Report

Printed: 8/5/2016 10:04:00 AM

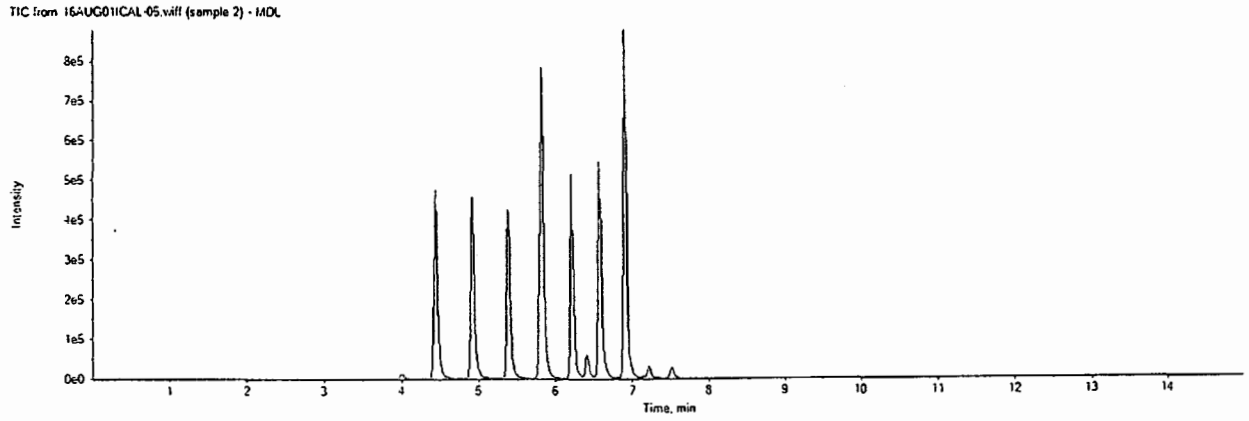
Sample Name:	MDL		**Data File:**		16AUG01ICAL-05.wiff
Sample ID:	MDL		**Acquis Date:**		8/2/2016 12:40:44 PM
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500, 0, LM24743
Vial Position:	2		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16215005
			ICAL Name:		
Batch Number:			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

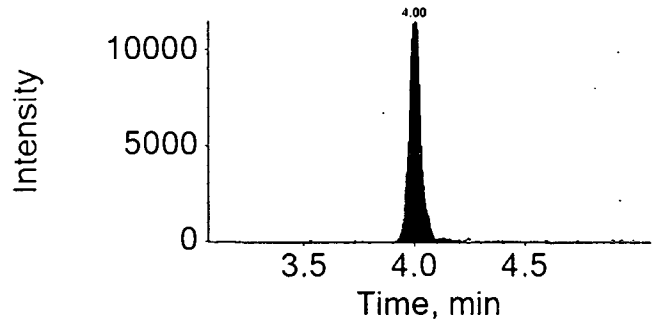
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.00	46123.4	A	18O2-PFHxS	4.91	543274.7	0.085	0.309	
PFHxA	4.45	16073.2	A	13C2-PFHxA	4.44	1546647.2	0.010	0.096	
PFHpA	4.92	22441.5	A	13C4-PFHpA	4.92	960209.1	0.023	0.084	
PFHxS	4.92	40838.5	A	18O2-PFHxS	4.91	543274.7	0.075	0.322	
PFOA	5.39	31102.9	A	13C4-PFOA	5.39	1391095.5	0.022	0.095	
PFNA	5.82	38607.7	A	13C5-PFNA	5.82	2073740.0	0.019	0.082	
PFOS	5.79	38616.3	A	13C4-PFOS	5.79	498283.2	0.077	0.336	
PFDA	6.22	26985.6	A	13C2-PFDA	6.22	1497218.1	0.018	0.068	
PFUndA	6.58	27485.1	A	13C2-PFUnDA	6.58	1603457.8	0.017	0.076	
PFDoDA	6.91	79399.3	A	13C2-PFDoDA	6.90	2452321.8	0.032	0.166	
PFTrDA	7.21	91091.3	A	13C2-PFDoDA	6.90	2452321.8	0.037	0.180	
PFTeDA	7.51	92043.9	A	13C2-PFDoDA	6.90	2452321.8	0.038	0.177	

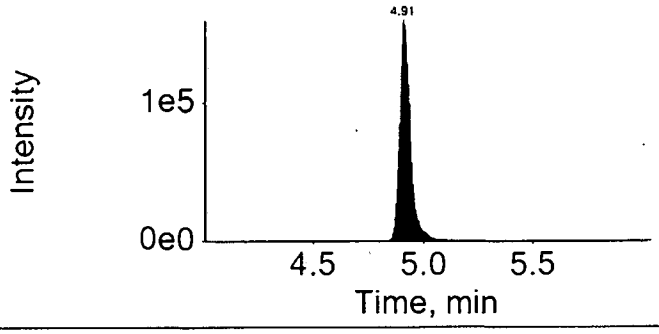
Total Ion Chromatogram

MDL

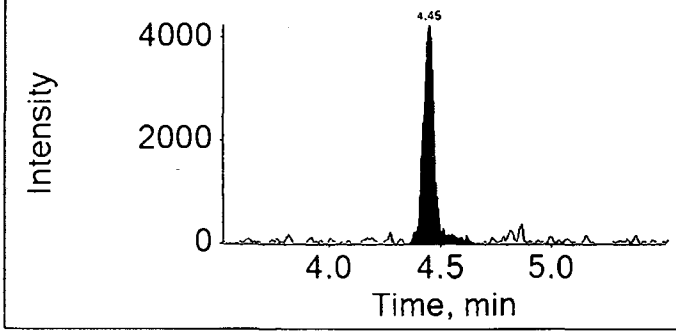


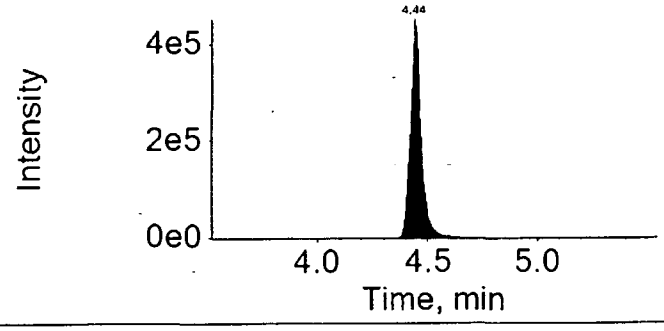
16AUG01ICAL-05.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



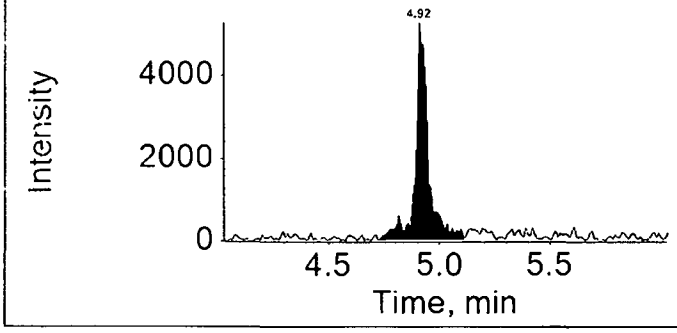


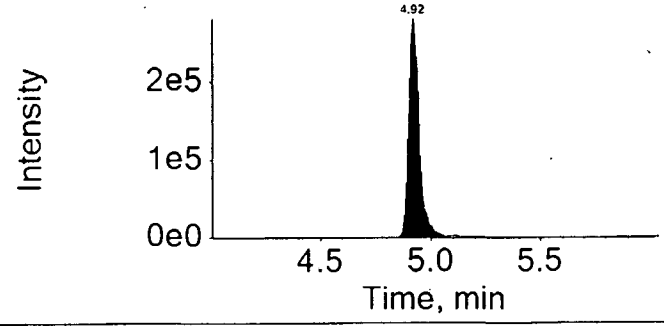
16AUG01ICAL-05.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



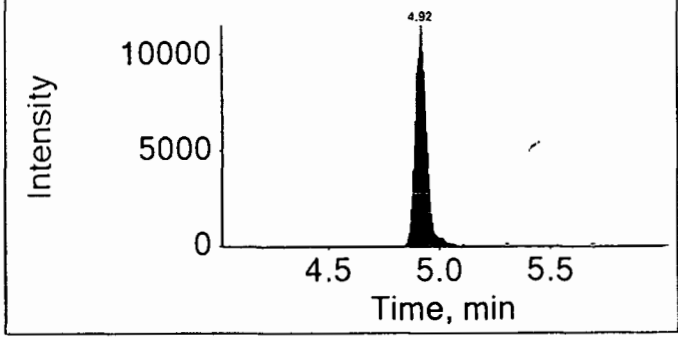


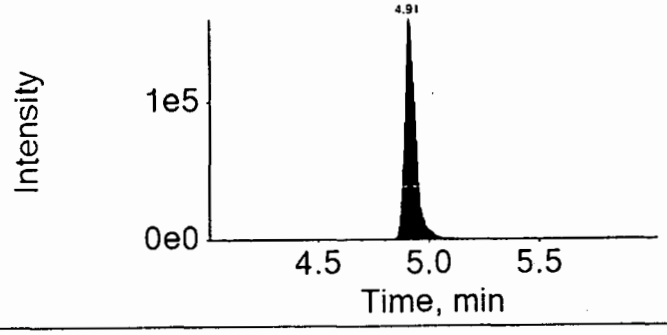
16AUG01ICAL-05.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 319.9	367.0 / 322.0



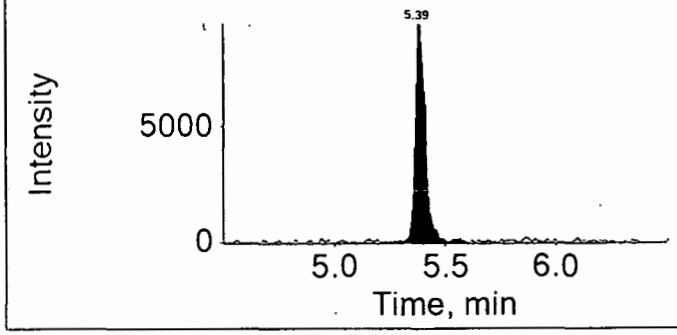


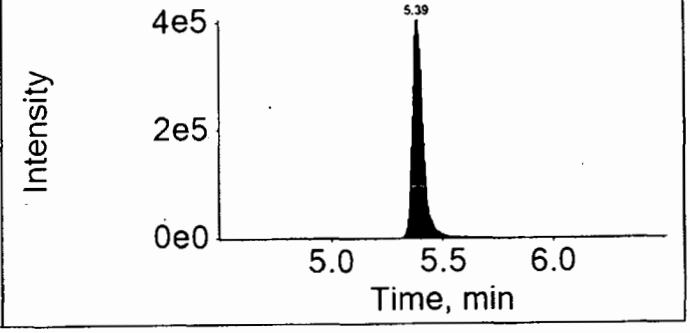
16AUG01ICAL-05.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



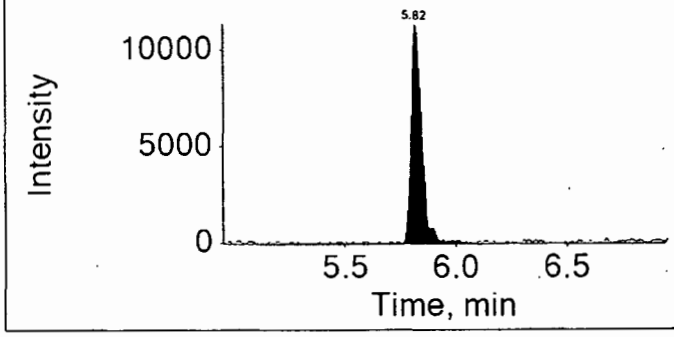


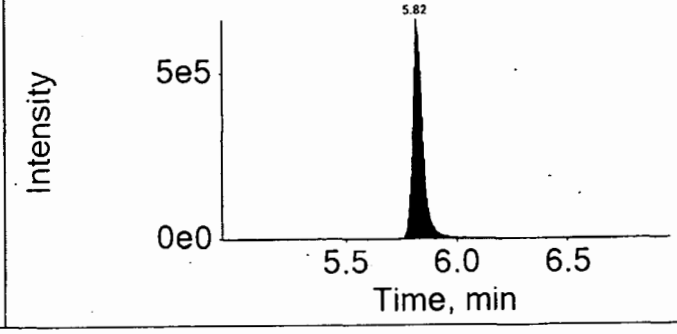
16AUG01ICAL-05.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



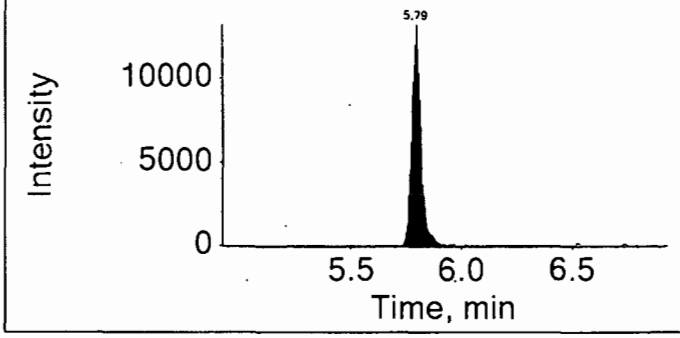


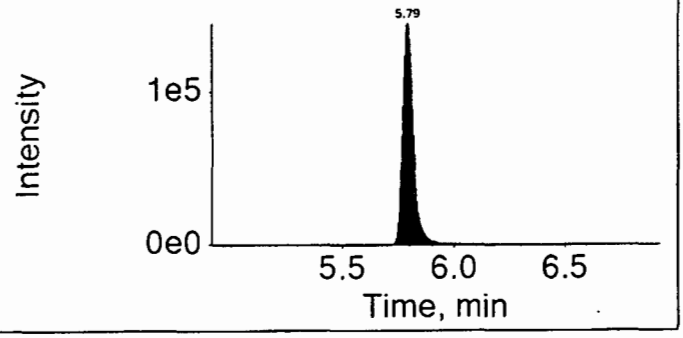
16AUG01ICAL-05.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



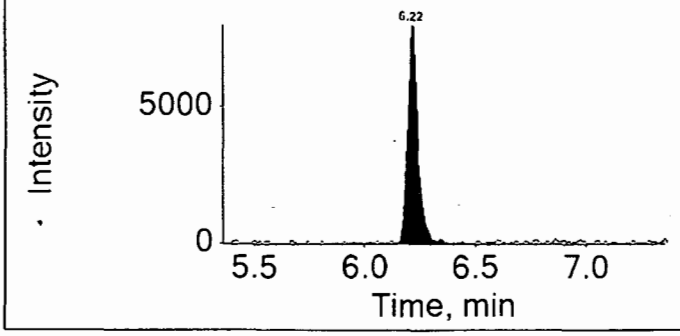


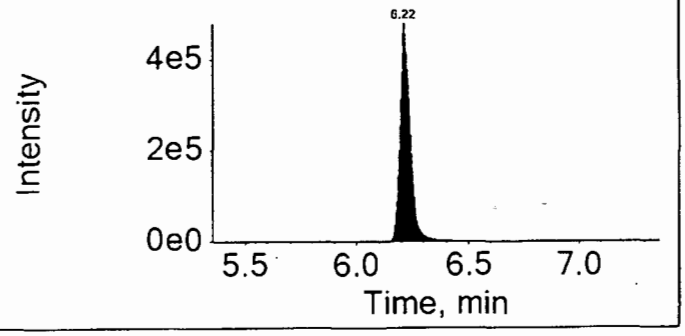
16AUG01ICAL-05.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



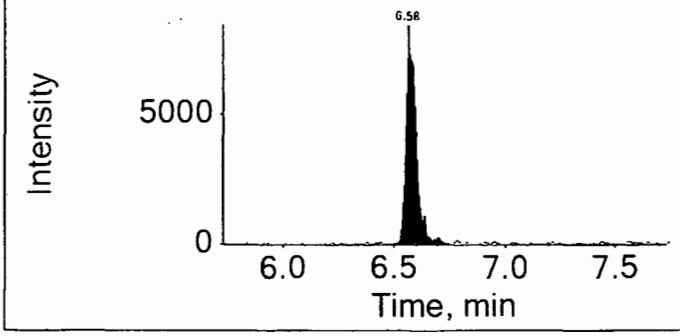


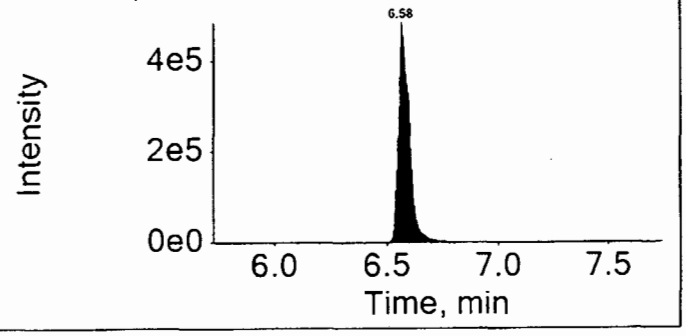
16AUG01ICAL-05.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



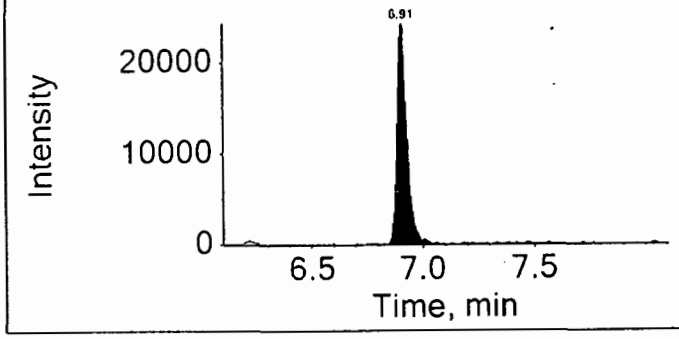


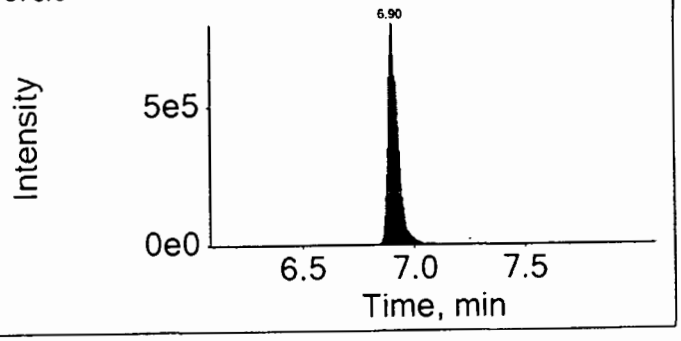
16AUG01ICAL-05.wiff	
Analyte: PFUndA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



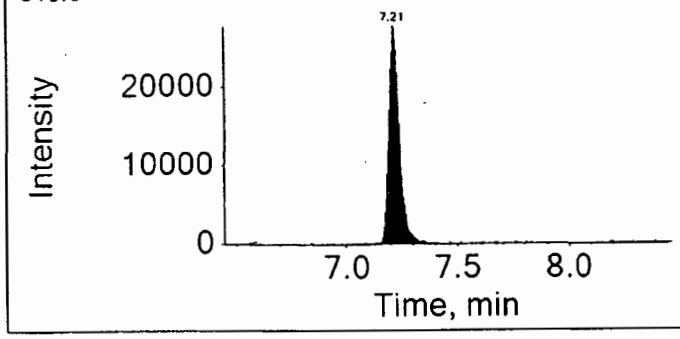


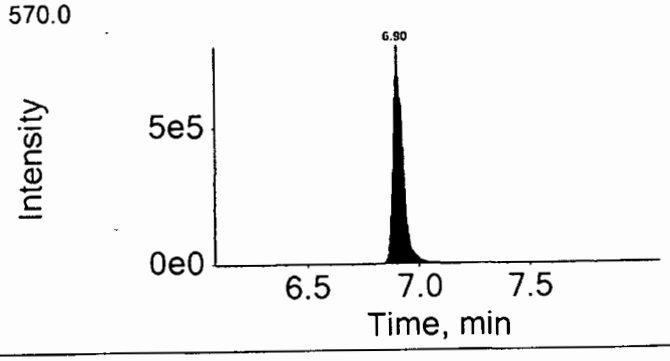
16AUG01ICAL-05.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



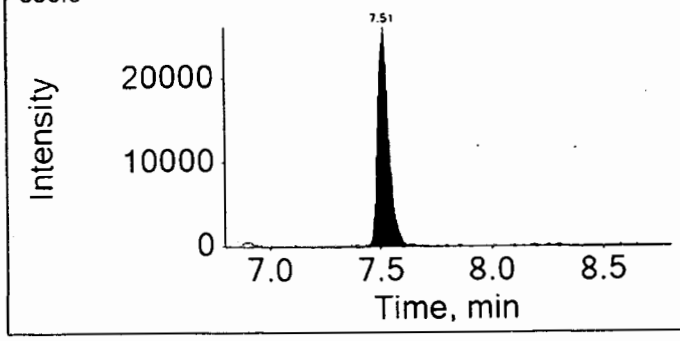


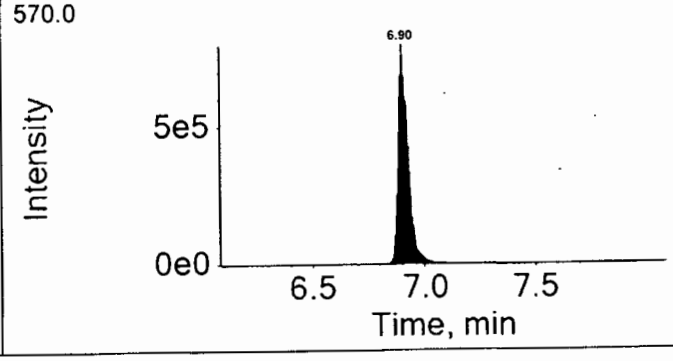
16AUG01ICAL-05.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG01ICAL-05.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0

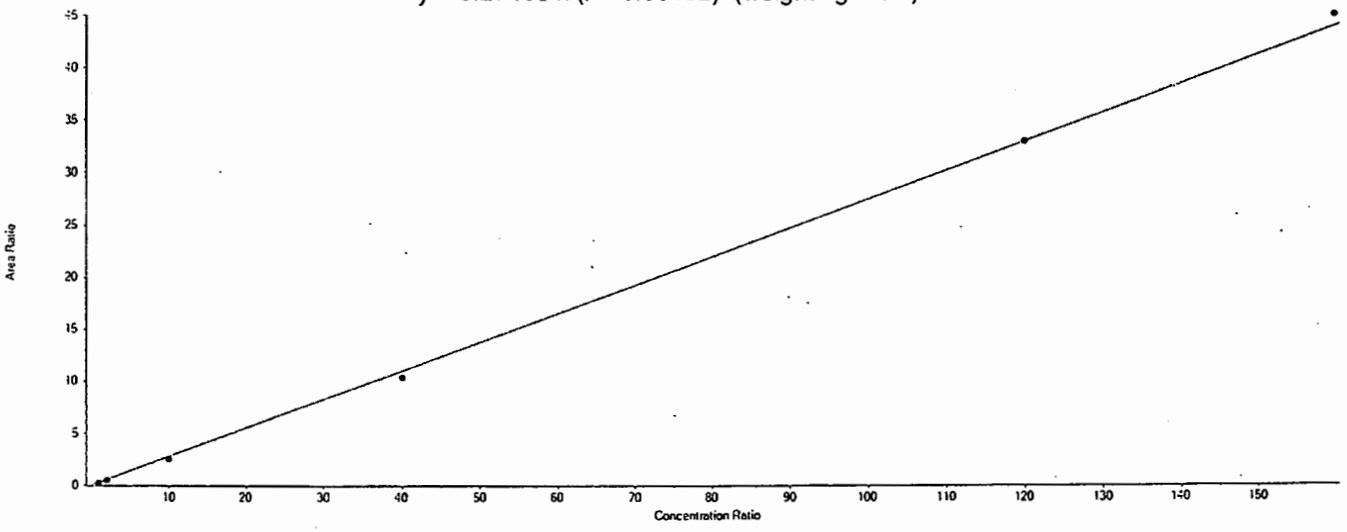




Initial Calibration

Results Table Name: MQ 16215005 8/5/2016 9:41:27 AM
16AUG01ICAL

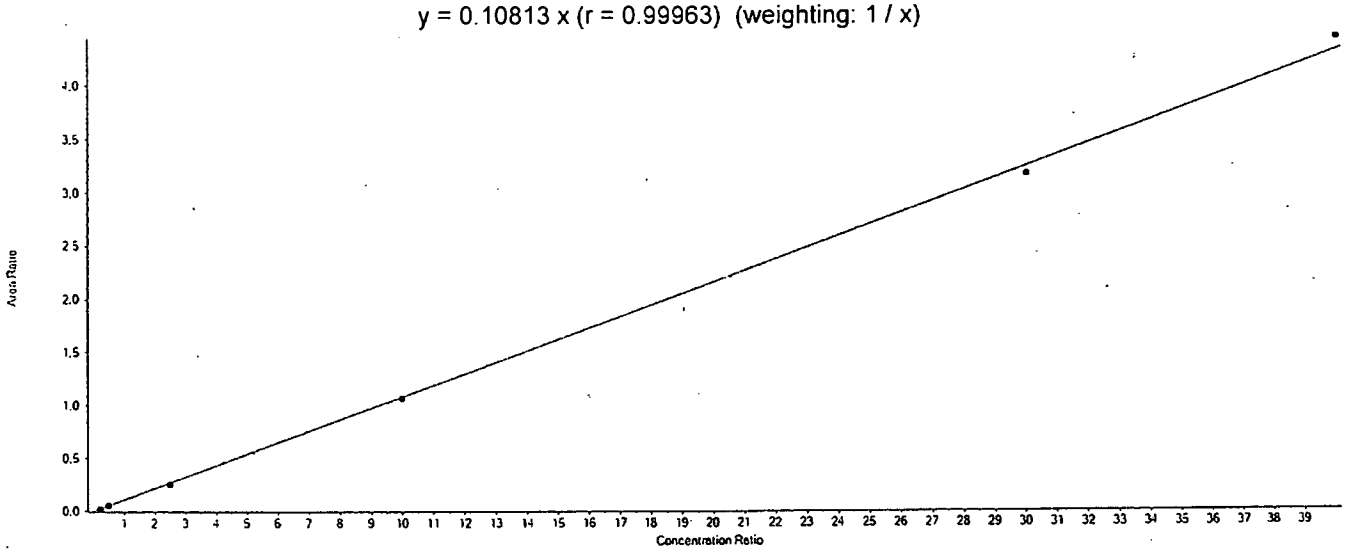
PFBS
y = 0.27480 x (r = 0.99952) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFBS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	75518.9	416170.0	1.00	0.181	4.00	0.800	0.660	-17.4
16AUG01ICAL-07.wiff	CAL2	194545.4	421583.0	1.00	0.461	4.00	2.000	1.680	-16.0
16AUG01ICAL-08.wiff	CAL3	955850.3	388867.8	1.00	2.458	3.99	9.990	8.940	-10.5
16AUG01ICAL-09.wiff	CAL4	3547054.0	343558.5	1.00	10.324	4.00	39.960	37.570	-6.0
16AUG01ICAL-10.wiff	CAL5	8818035.8	267890.9	1.00	32.917	4.00	119.900	119.780	-0.1
16AUG01ICAL-11.wiff	CAL6	10229164.4	227239.8	1.00	45.015	3.99	159.800	163.810	2.5

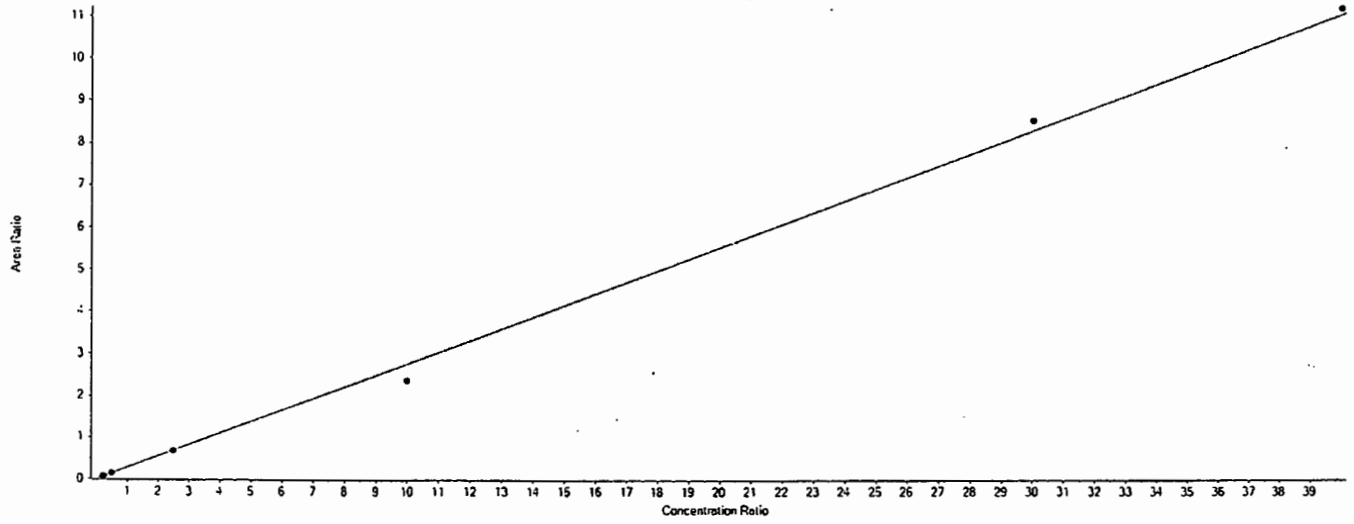
PFHxA
y = 0.10813 x (r = 0.99963) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHxA Area	13C2-PFHxA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	24733.3	1142250.5	1.00	0.022	4.44	0.200	0.200	0.1
16AUG01ICAL-07.wiff	CAL2	56990.0	1131937.6	1.00	0.050	4.44	0.500	0.470	-6.9
16AUG01ICAL-08.wiff	CAL3	288569.0	1147384.3	1.00	0.252	4.44	2.500	2.330	-7.0
16AUG01ICAL-09.wiff	CAL4	1172827.3	1104945.3	1.00	1.061	4.44	10.000	9.820	-1.8
16AUG01ICAL-10.wiff	CAL5	3324367.2	1048596.1	1.00	3.170	4.44	30.000	29.320	-2.3
16AUG01ICAL-11.wiff	CAL6	4098502.1	922918.2	1.00	4.441	4.44	40.000	41.070	2.7

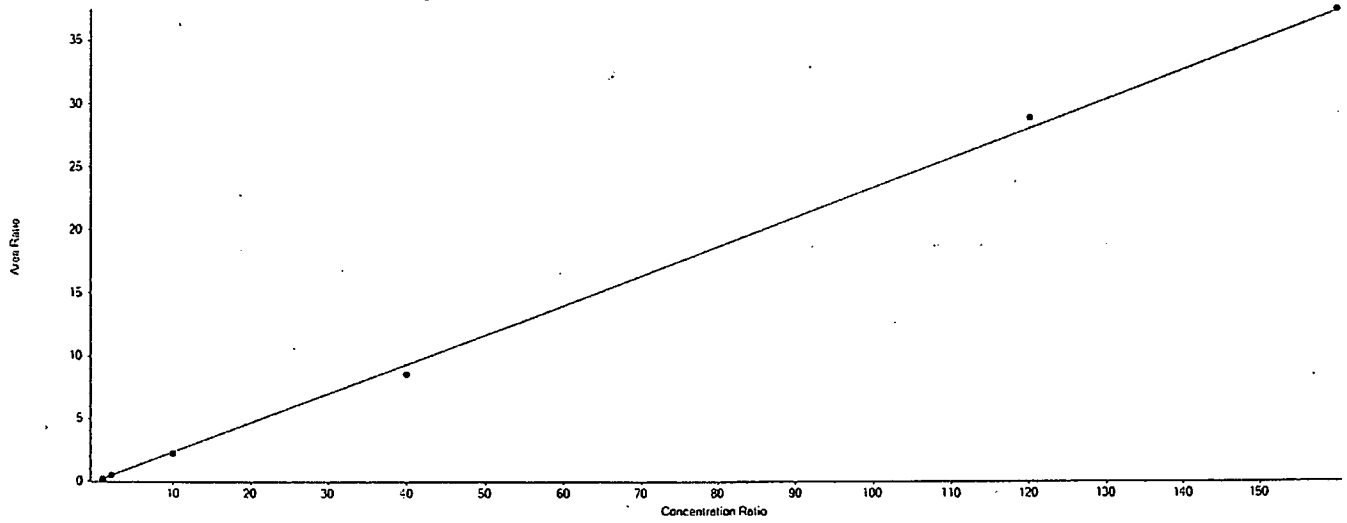
PFHpA
y = 0.27703 x (r = 0.99848) (weighting: 1 / x)



Calibration Verification

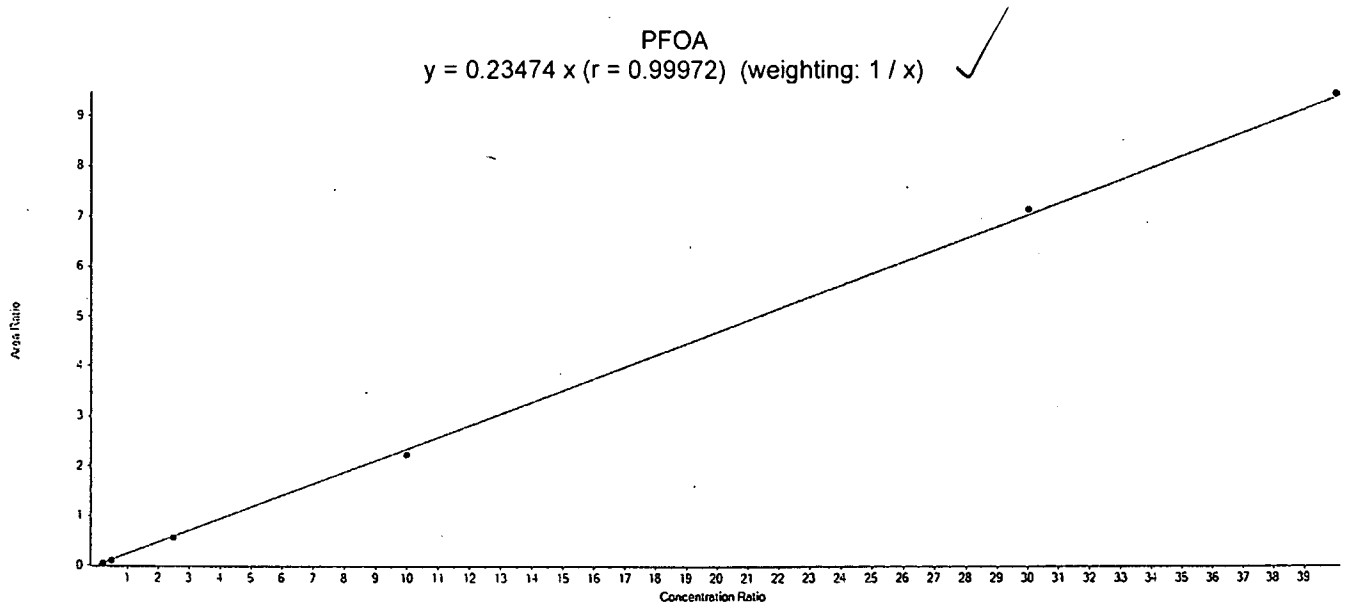
File Name	Sample Name	PFHpA Area	13C4-PFHpA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	36505.4	623998.4	1.00	0.059	4.92	0.200	0.210	5.6
16AUG01ICAL-07.wiff	CAL2	78452.1	597416.9	1.00	0.131	4.92	0.500	0.470	-5.2
16AUG01ICAL-08.wiff	CAL3	375246.2	543496.9	1.00	0.690	4.92	2.500	2.490	-0.3
16AUG01ICAL-09.wiff	CAL4	1268014.8	533908.4	1.00	2.375	4.92	10.000	8.570	-14.3
16AUG01ICAL-10.wiff	CAL5	3175189.9	370747.2	1.00	8.564	4.92	30.000	30.910	3.0
16AUG01ICAL-11.wiff	CAL6	3552207.1	316332.1	1.00	11.229	4.92	40.000	40.530	1.3

PFHxS
y = 0.23353 x (r = 0.99932) (weighting: 1 / x)



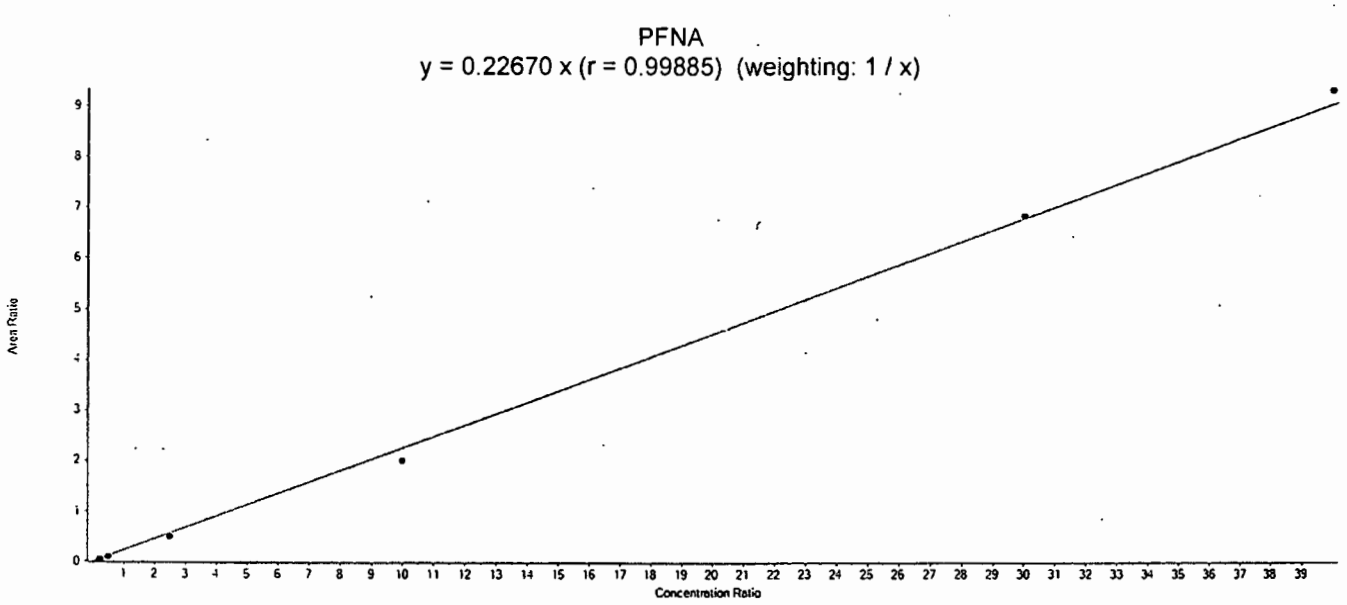
Calibration Verification

File Name	Sample Name	PFHxS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	75298.1	416170.0	1.00	0.181	4.91	0.800	0.770	-3.2
16AUG01ICAL-07.wiff	CAL2	179612.8	421583.0	1.00	0.426	4.91	2.000	1.820	-8.8
16AUG01ICAL-08.wiff	CAL3	850321.7	388867.8	1.00	2.187	4.91	10.000	9.360	-6.4
16AUG01ICAL-09.wiff	CAL4	2938964.4	343558.5	1.00	8.554	4.91	40.000	36.630	-8.4
16AUG01ICAL-10.wiff	CAL5	7739234.2	267890.9	1.00	28.890	4.91	120.000	123.710	3.1
16AUG01ICAL-11.wiff	CAL6	8516838.7	227239.8	1.00	37.480	4.90	160.000	160.490	0.3



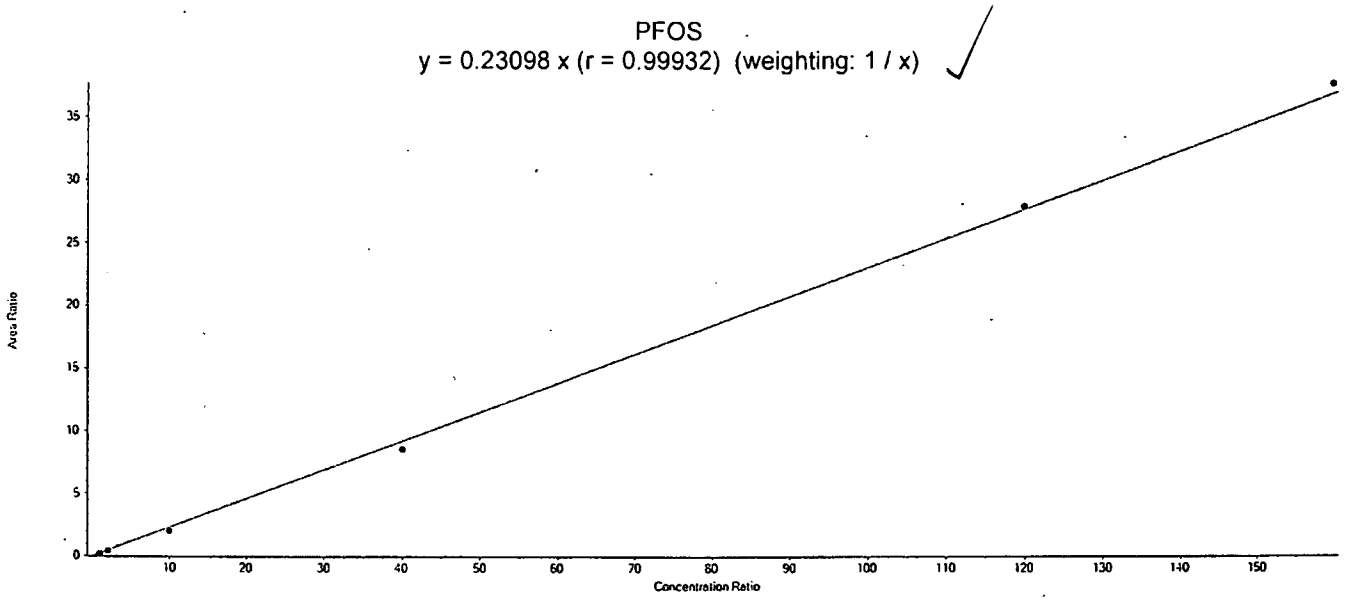
Calibration Verification

File Name	Sample Name	PFOA Area	13C4-PFOA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	48058.2	1113209.0	1.00	0.043	5.38	0.200	0.180	-8.0
16AUG01ICAL-07.wiff	CAL2	113890.0	1095383.3	1.00	0.104	5.38	0.500	0.440	-11.4
16AUG01ICAL-08.wiff	CAL3	610407.6	1114452.7	1.00	0.548	5.38	2.500	2.330	-6.7
16AUG01ICAL-09.wiff	CAL4	2304971.0	1036158.4	1.00	2.225	5.38	10.000	9.480	-5.2
16AUG01ICAL-10.wiff	CAL5	6474062.5	905714.1	1.00	7.148	5.38	30.000	30.450	1.5
16AUG01ICAL-11.wiff	CAL6	7892955.4	834094.3	1.00	9.463	5.37	40.000	40.310	0.8



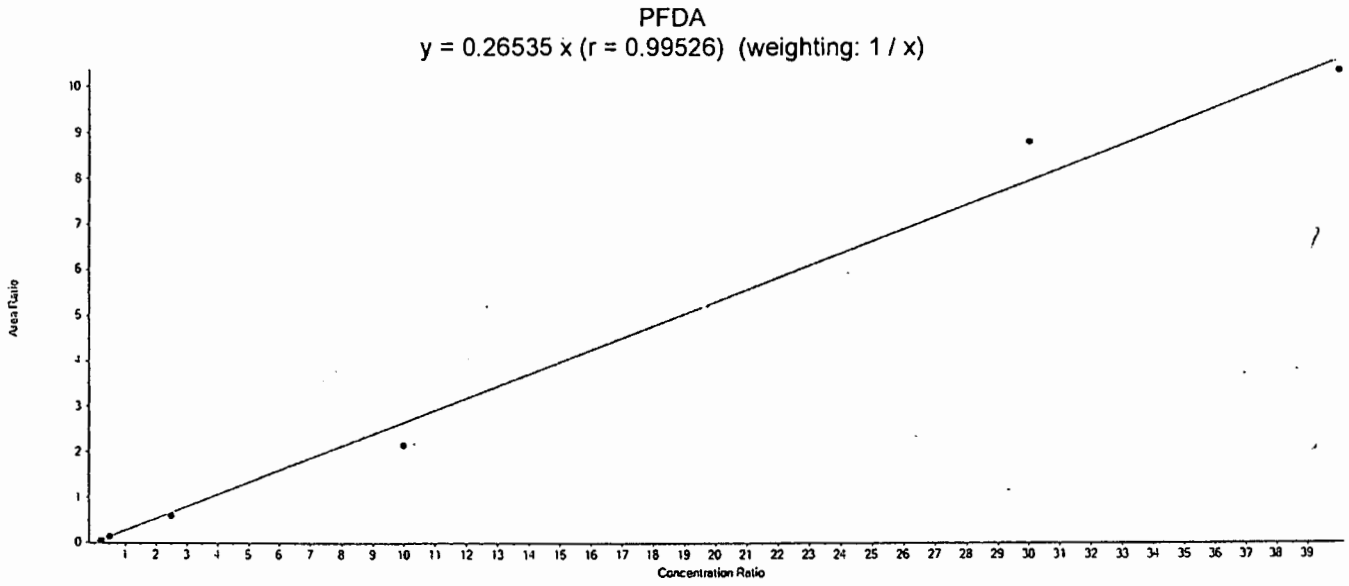
Calibration Verification

File Name	Sample Name	PFNA Area	13C5-PFNA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	59021.6	1496320.2	1.00	0.039	5.82	0.200	0.170	-13.0
16AUG01ICAL-07.wiff	CAL2	151813.9	1502833.8	1.00	0.101	5.82	0.500	0.450	-10.9
16AUG01ICAL-08.wiff	CAL3	685089.7	1389836.8	1.00	0.493	5.81	2.500	2.170	-13.0
16AUG01ICAL-09.wiff	CAL4	2735362.4	1354072.1	1.00	2.020	5.82	10.000	8.910	-10.9
16AUG01ICAL-10.wiff	CAL5	7520696.0	1095523.1	1.00	6.865	5.82	30.000	30.280	0.9
16AUG01ICAL-11.wiff	CAL6	8505562.5	910353.5	1.00	9.343	5.81	40.000	41.210	3.0



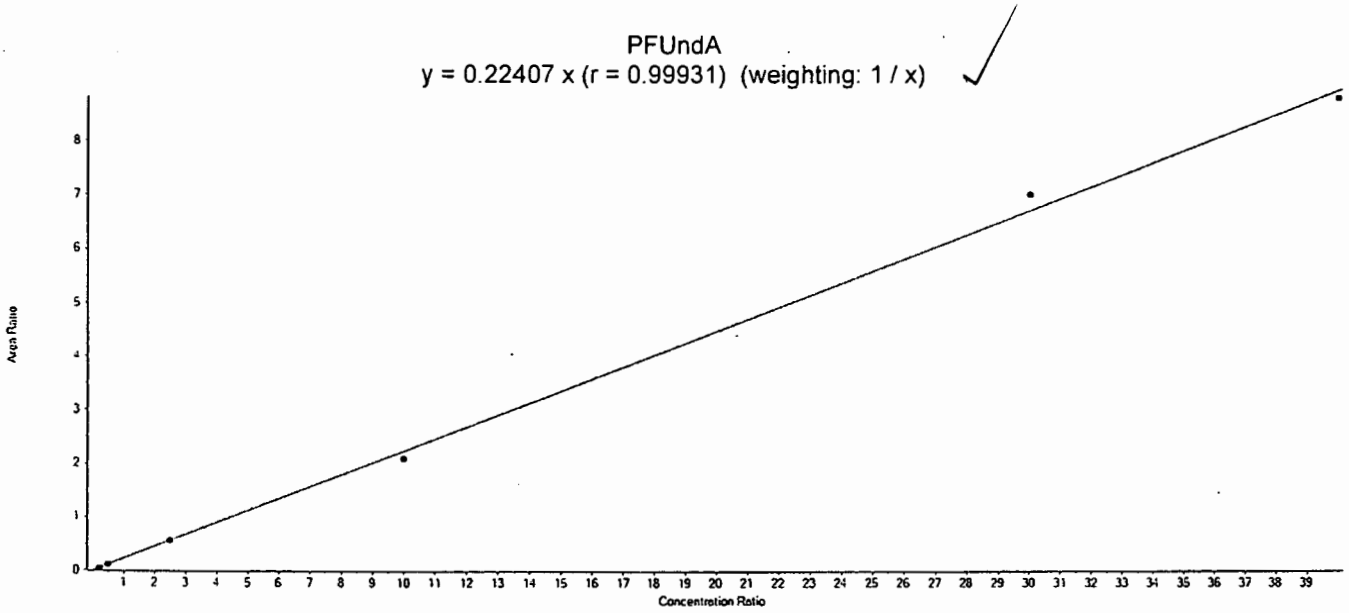
Calibration Verification

File Name	Sample Name	PFOS Area	13C4-PFOS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	63479.5	373841.0	1.00	0.170	5.79	0.800	0.740	-8.0
16AUG01ICAL-07.wiff	CAL2	162700.9	402327.7	1.00	0.404	5.79	2.000	1.750	-12.5
16AUG01ICAL-08.wiff	CAL3	765878.4	381932.3	1.00	2.005	5.78	9.990	8.680	-13.1
16AUG01ICAL-09.wiff	CAL4	2775323.9	324563.9	1.00	8.551	5.79	39.960	37.020	-7.4
16AUG01ICAL-10.wiff	CAL5	6763765.4	241866.0	1.00	27.965	5.78	119.900	121.070	1.0
16AUG01ICAL-11.wiff	CAL6	7999471.5	212228.8	1.00	37.693	5.78	159.800	163.190	2.1



Calibration Verification

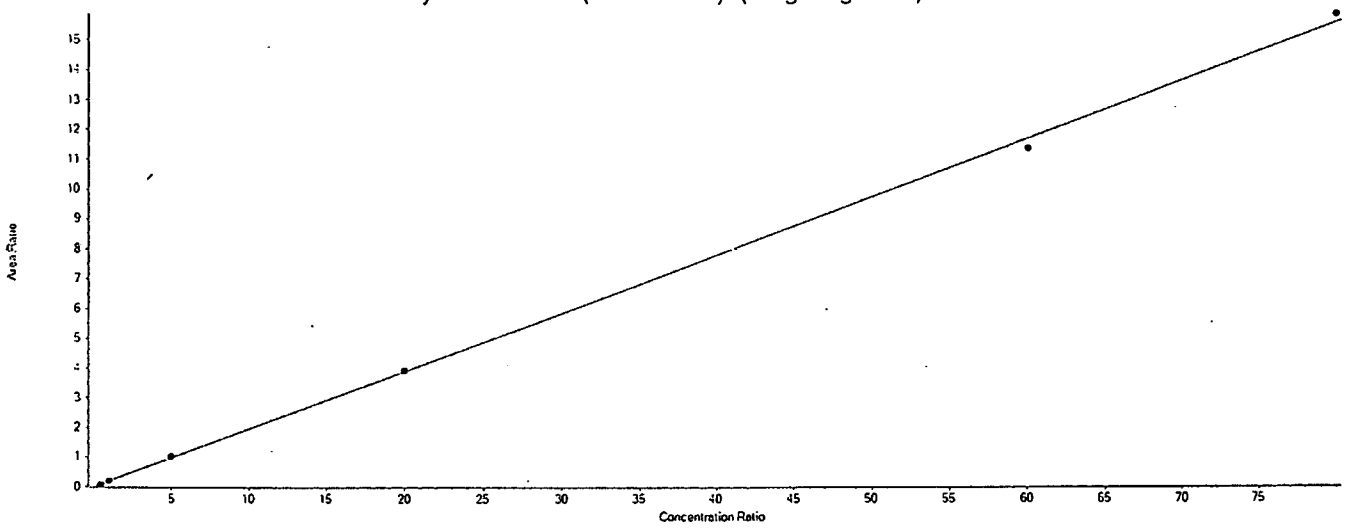
File Name	Sample Name	PFDA Area	13C2-PFDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	53470.7	1066206.6	1.00	0.050	6.21	0.200	0.190	-5.5
16AUG01ICAL-07.wiff	CAL2	131331.2	1066486.5	1.00	0.123	6.21	0.500	0.460	-7.2
16AUG01ICAL-08.wiff	CAL3	662801.3	1135479.5	1.00	0.584	6.21	2.500	2.200	-12.0
16AUG01ICAL-09.wiff	CAL4	2366300.8	1102772.1	1.00	2.146	6.21	10.000	8.090	-19.1
16AUG01ICAL-10.wiff	CAL5	7405465.9	840321.0	1.00	8.813	6.20	30.000	33.210	10.7
16AUG01ICAL-11.wiff	CAL6	7909882.0	763405.5	1.00	10.361	6.20	40.000	39.050	-2.4



Calibration Verification

File Name	Sample Name	PFUndA Area	13C2-PFUnDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	47592.8	1186521.8	1.00	0.040	6.57	0.200	0.180	-10.5
16AUG01ICAL-07.wiff	CAL2	123924.4	1197756.6	1.00	0.103	6.57	0.500	0.460	-7.7
16AUG01ICAL-08.wiff	CAL3	638499.0	1162027.2	1.00	0.549	6.57	2.500	2.450	-1.9
16AUG01ICAL-09.wiff	CAL4	2344942.7	1116177.2	1.00	2.101	6.57	10.000	9.380	-6.2
16AUG01ICAL-10.wiff	CAL5	7286662.2	1037050.4	1.00	7.026	6.56	30.000	31.360	4.5
16AUG01ICAL-11.wiff	CAL6	8163402.9	925263.7	1.00	8.823	6.56	40.000	39.370	-1.6

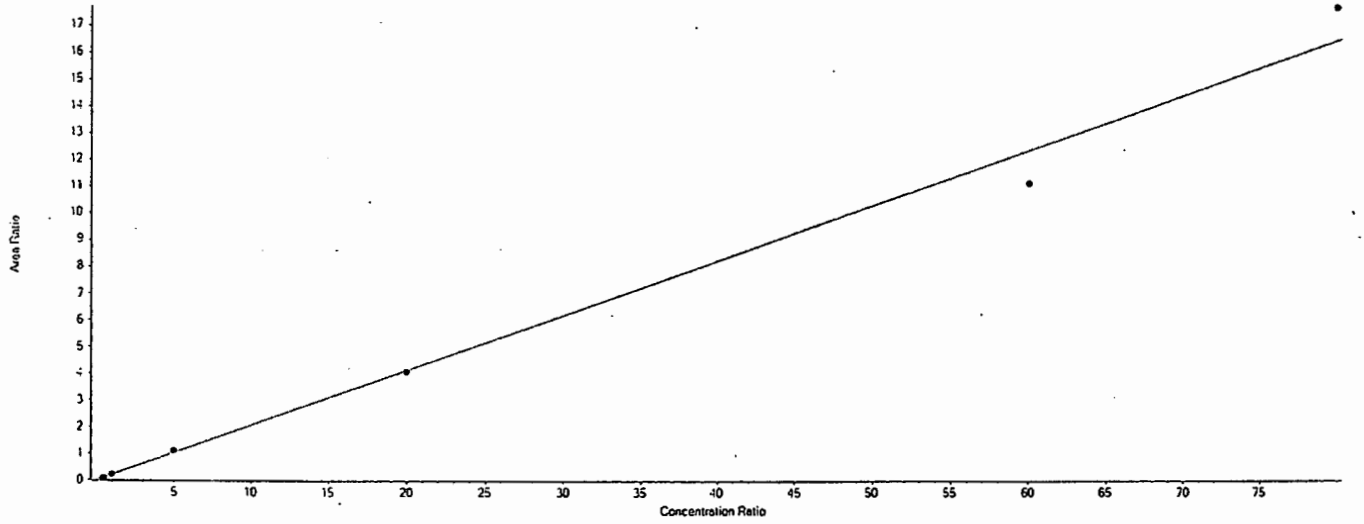
PFDoDA
y = 0.19498 x (r = 0.99967) (weighting: 1 / x)



Calibration Verification

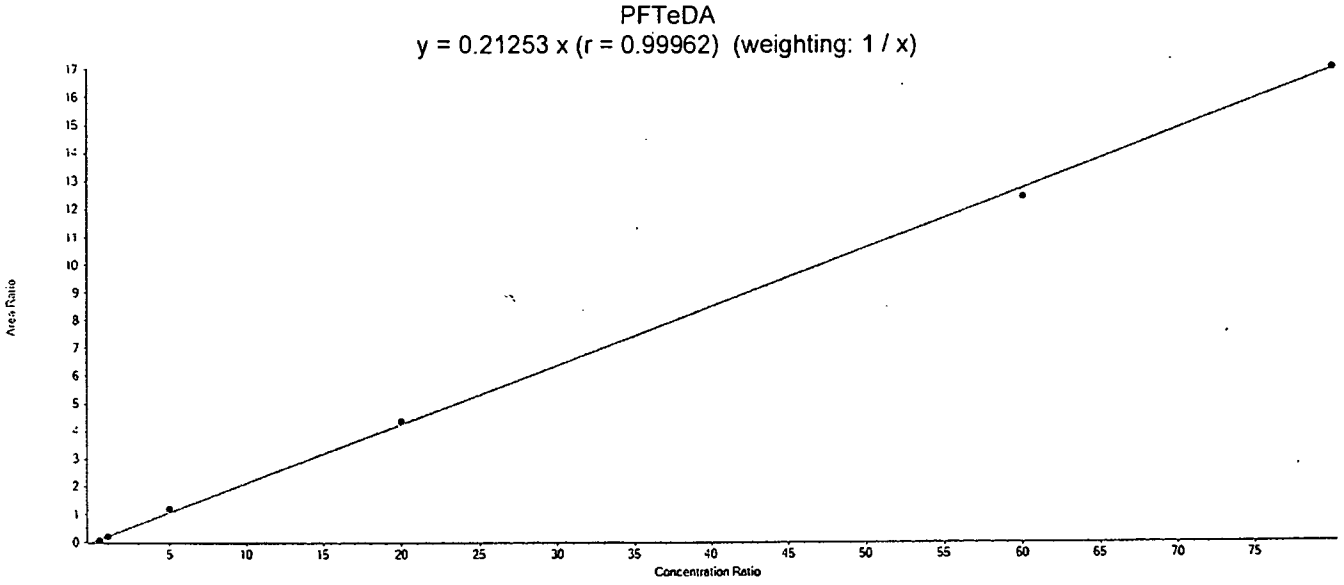
File Name	Sample Name	PFDoDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	108699.0	1788532.7	1.00	0.061	6.90	0.400	0.310	-22.1
16AUG01ICAL-07.wiff	CAL2	331192.3	1619193.0	1.00	0.205	6.90	1.000	1.050	4.9
16AUG01ICAL-08.wiff	CAL3	1556526.7	1542432.2	1.00	1.009	6.90	5.000	5.180	3.5
16AUG01ICAL-09.wiff	CAL4	5979579.3	1518519.5	1.00	3.938	6.90	20.000	20.200	1.0
16AUG01ICAL-10.wiff	CAL5	16586454.7	1460827.7	1.00	11.354	6.89	60.000	58.230	-2.9
16AUG01ICAL-11.wiff	CAL6	18365116.1	1156653.7	1.00	15.878	6.88	80.000	81.430	1.8

PFTrDA
y = 0.20607 x (r = 0.99666) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFTrDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	151665.0	1788532.7	1.00	0.085	7.21	0.400	0.410	2.9
16AUG01ICAL-07.wiff	CAL2	341687.3	1619193.0	1.00	0.211	7.21	1.000	1.020	2.4
16AUG01ICAL-08.wiff	CAL3	1685615.8	1542432.2	1.00	1.093	7.20	5.000	5.300	6.1
16AUG01ICAL-09.wiff	CAL4	6165333.7	1518519.5	1.00	4.060	7.20	20.000	19.700	-1.5
16AUG01ICAL-10.wiff	CAL5	16268675.1	1460827.7	1.00	11.137	7.20	60.000	54.040	-9.9
16AUG01ICAL-11.wiff	CAL6	20477399.2	1156653.7	1.00	17.704	7.19	80.000	85.910	7.4

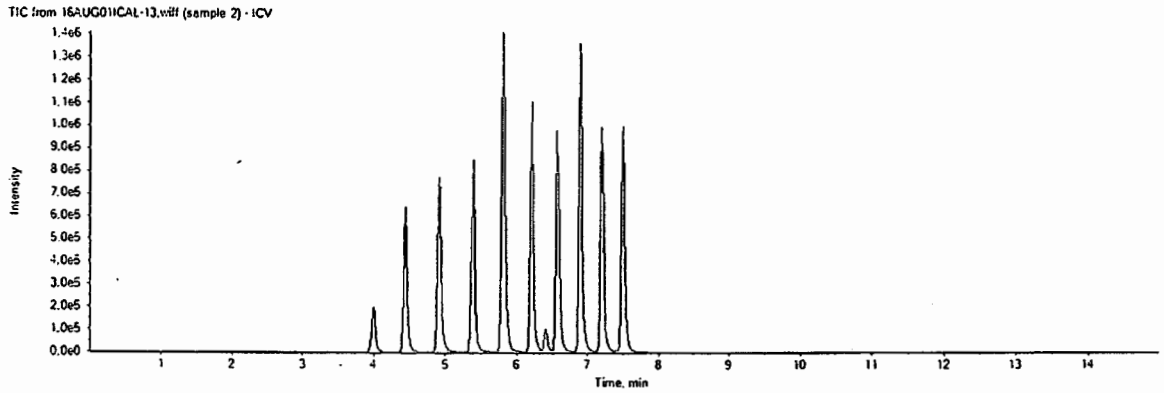


Calibration Verification

File Name	Sample Name	PFTeDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG01ICAL-06.wiff	CAL1	147668.4	1788532.7	1.00	0.083	7.51	0.400	0.390	-2.9
16AUG01ICAL-07.wiff	CAL2	352274.2	1619193.0	1.00	0.218	7.50	1.000	1.020	2.4
16AUG01ICAL-08.wiff	CAL3	1834538.7	1542432.2	1.00	1.189	7.49	5.000	5.600	11.9
16AUG01ICAL-09.wiff	CAL4	6647710.4	1518519.5	1.00	4.378	7.50	20.000	20.600	3.0
16AUG01ICAL-10.wiff	CAL5	18187337.8	1460827.7	1.00	12.450	7.49	60.000	58.580	-2.4
16AUG01ICAL-11.wiff	CAL6	19718792.3	1156653.7	1.00	17.048	7.48	80.000	80.210	0.3

Initial Calibration Verification

Sample ID: ICV
Sample Name: ICV
Sample File: 16AUG01ICAL-13.wiff
Acquisition Date: 8/2/2016 2:51:47 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	751802.7	18O2-PFHxS	360269.9	1.00	2.087	4.00	8.85	7.590	-14.2	
PFHxA	1108139.2	13C2-PFHxA	1029829.8	1.00	1.076	4.44	10.00	9.950	-0.5	
PFHpA	1280866.6	13C4-PFHpA	506482.7	1.00	2.529	4.92	10.00	9.130	-8.7	
PFHxS	724651.2	18O2-PFHxS	360269.9	1.00	2.011	4.91	9.45	8.610	-8.9	
PFOA	1822185.1	13C4-PFOA	945008.3	1.00	1.928	5.39	10.00	8.210	-17.9	
PFNA	2654044.6	13C5-PFNA	1322595.3	1.00	2.007	5.81	10.00	8.850	-11.5	
PFOS	681318.9	13C4-PFOS	355107.3	1.00	1.919	5.79	9.55	8.310	-13.0	
PFDA	2288833.9	13C2-PFDA	996598.6	1.00	2.297	6.21	10.00	8.660	-13.4	
PFUndA	2014702.7	13C2-PFUnDA	1035838.0	1.00	1.945	6.57	10.00	8.680	-13.2	
PFDoDA	2885434.8	13C2-PFDoDA	1469252.7	1.00	1.964	6.89	10.00	10.070	0.7	
PFTrDA	3281203.5	13C2-PFDoDA	1469252.7	1.00	2.233	7.20	10.00	10.840	8.4	
PFTeDA	3395689.7	13C2-PFDoDA	1469252.7	1.00	2.311	7.49	10.00	10.870	8.7	

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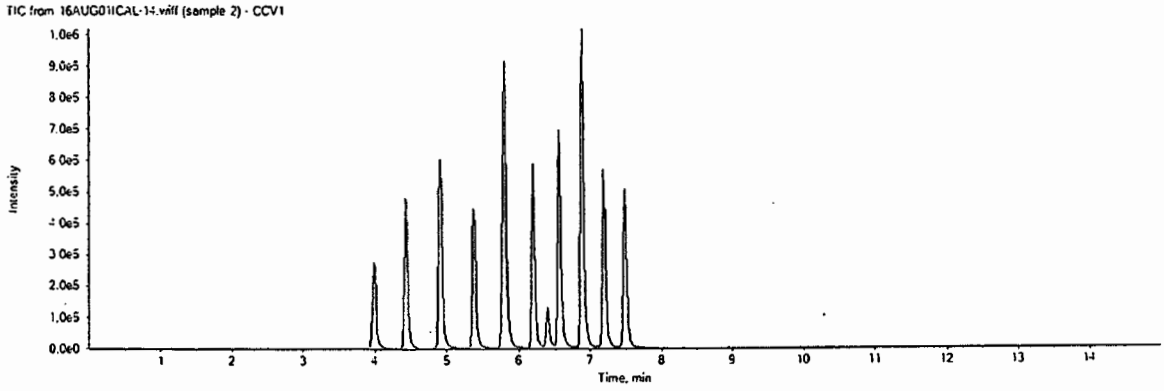
LC-MS/MS Analysis Report

Printed: 8/5/2016 10:04:00 AM

Continuing Calibration Verification

16215005

Sample ID: CAL3
Sample Name: CCV1
Sample File: 16AUG01ICAL-14.wiff
Acquisition Date: 8/2/2016 3:09:11 PM

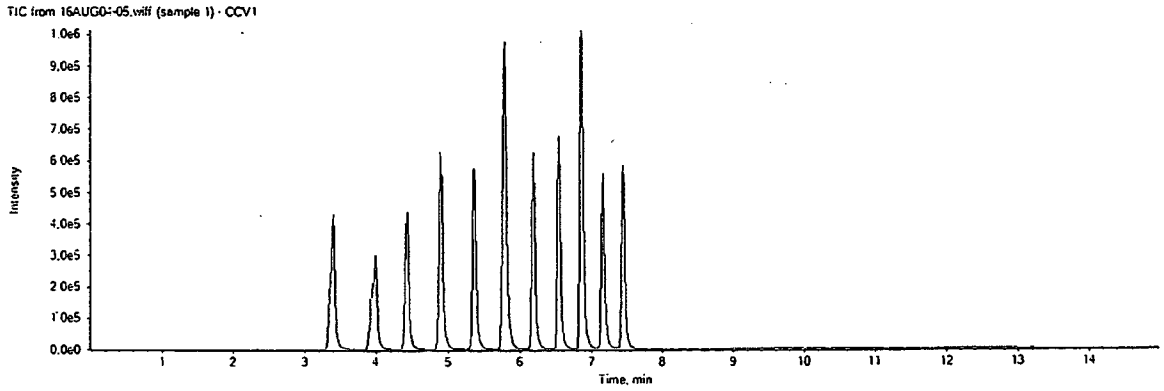


Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	981452.4	18O2-PFHxS	392121.3	1.00	2.503	3.99	9.99	9.110	-8.8	
PFHxA	287510.3	13C2-PFHxA	1239452.8	1.00	0.232	4.43	2.50	2.150	-14.2	
PFHpA	382532.4	13C4-PFHpA	570485.7	1.00	0.671	4.91	2.50	2.420	-3.2	
PFHxS	827050.7	18O2-PFHxS	392121.3	1.00	2.109	4.91	10.00	9.030	-9.7	
PFOA	569158.3	13C4-PFOA	1029164.8	1.00	0.553	5.38	2.50	2.360	-5.8	
PFNA	765242.8	13C5-PFNA	1476444.4	1.00	0.518	5.81	2.50	2.290	-8.5	
PFOS	768170.7	13C4-PFOS	354571.3	1.00	2.166	5.78	9.99	9.380	-6.1	
PFDA	646726.4	13C2-PFDA	1041754.2	1.00	0.621	6.20	2.50	2.340	-6.4	
PFUndA	616659.7	13C2-PFUnDA	1244380.8	1.00	0.496	6.56	2.50	2.210	-11.5	
PFDoDA	1547112.9	13C2-PFDoDA	1707433.5	1.00	0.906	6.89	5.00	4.650	-7.1	
PFTrDA	1775190.4	13C2-PFDoDA	1707433.5	1.00	1.040	7.19	5.00	5.050	0.9	
PFTeDA	1746304.2	13C2-PFDoDA	1707433.5	1.00	1.023	7.48	5.00	4.810	-3.8	

Christine Ratcliff
Christine Ratcliff
Manager

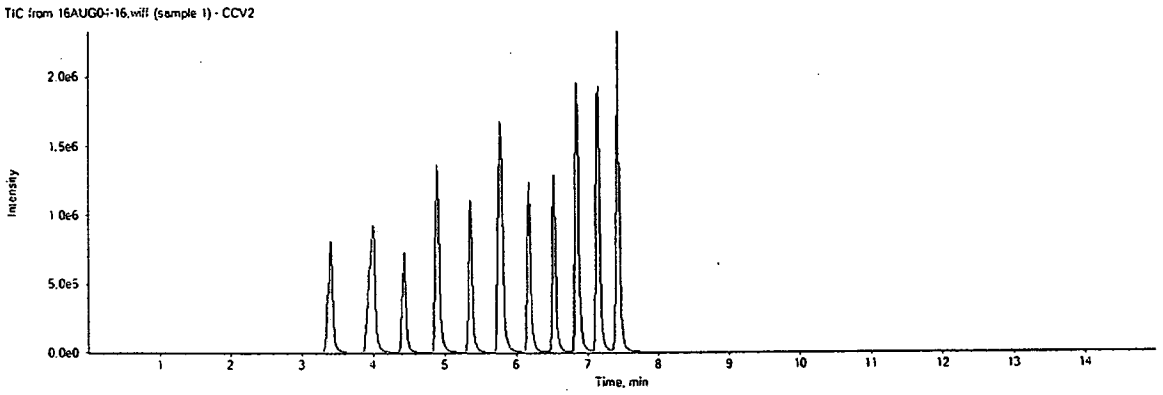
AUG 05 2016

Sample ID: CAL3
Sample Name: CCV1
Sample File: 16AUG04-05.wiff
Acquisition Date: 8/4/2016 2:42:24 PM



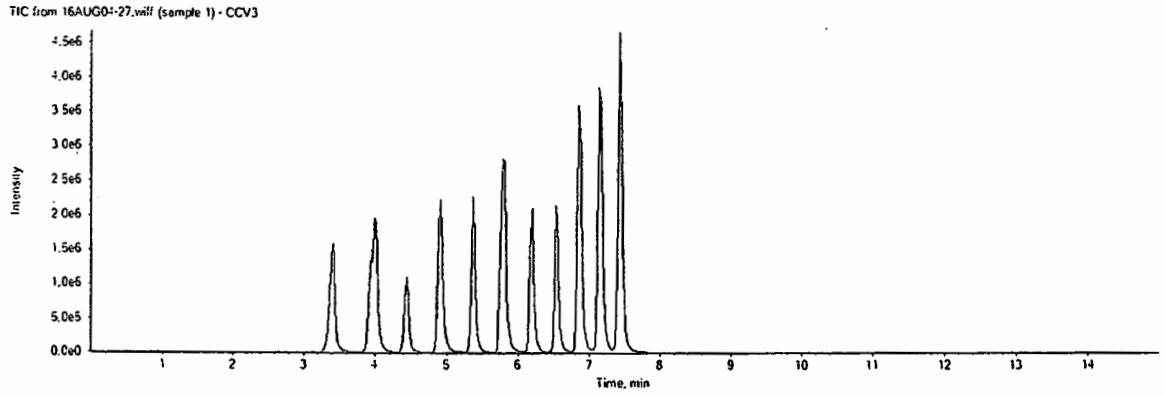
Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	1094721.9	18O2-PFHxS	430812.8	1.00	2.541	3.99	9.99	9.250	-7.4	
PFHxA	360752.9	13C2-PFHxA	1358056.4	1.00	0.266	4.42	2.50	2.460	-1.7	
PFHpA	400015.1	13C4-PFHpA	631881.3	1.00	0.633	4.90	2.50	2.290	-8.6	
PFHxS	920579.9	18O2-PFHxS	430812.8	1.00	2.137	4.89	10.00	9.150	-8.5	
PFOA	729601.5	13C4-PFOA	1316289.9	1.00	0.554	5.36	2.50	2.360	-5.5	
PFNA	853093.8	13C5-PFNA	1706733.6	1.00	0.500	5.79	2.50	2.200	-11.8	
PFOS	921115.9	13C4-PFOS	428564.5	1.00	2.149	5.76	9.99	9.310	-6.9	
PFDA	822619.7	13C2-PFDA	1247278.2	1.00	0.660	6.18	2.50	2.490	-0.6	
PFUndA	789060.4	13C2-PFUnDA	1442143.7	1.00	0.547	6.54	2.50	2.440	-2.3	
PFDoDA	1660760.2	13C2-PFDoDA	1917118.8	1.00	0.866	6.86	5.00	4.440	-11.1	
PFTrDA	1853673.5	13C2-PFDoDA	1917118.8	1.00	0.967	7.16	5.00	4.690	-6.2	
PFTeDA	1981112.5	13C2-PFDoDA	1917118.8	1.00	1.033	7.44	5.00	4.860	-2.8	

Sample ID: CAL4
Sample Name: CCV2
Sample File: 16AUG04-16.wiff
Acquisition Date: 8/4/2016 5:35:21 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	3861162.9	18O2-PFHxS	373247.7	1.00	10.345	3.99	39.96	37.640	-5.8	
PFHxA	1326328.7	13C2-PFHxA	1327647.3	1.00	0.999	4.43	10.00	9.240	-7.6	
PFHpA	1229640.0	13C4-PFHpA	501070.9	1.00	2.454	4.90	10.00	8.860	-11.4	
PFHxS	3317203.2	18O2-PFHxS	373247.7	1.00	8.887	4.89	40.00	38.060	-4.9	
PFOA	2735771.6	13C4-PFOA	1255194.9	1.00	2.180	5.35	10.00	9.290	-7.1	
PFNA	2891432.8	13C5-PFNA	1357937.2	1.00	2.129	5.79	10.00	9.390	-6.1	
PFOS	3200010.5	13C4-PFOS	370780.2	1.00	8.630	5.75	39.96	37.370	-6.5	
PFDA	3007236.7	13C2-PFDA	1153774.4	1.00	2.606	6.17	10.00	9.820	-1.8	
PFUndA	2885339.3	13C2-PFUnDA	1296133.6	1.00	2.226	6.52	10.00	9.930	-0.7	
PFDoDA	5558510.9	13C2-PFDoDA	1745257.1	1.00	3.185	6.85	20.00	16.330	-18.3	
PFTrDA	7114109.0	13C2-PFDoDA	1745257.1	1.00	4.076	7.14	20.00	19.780	-1.1	
PFTeDA	7152833.3	13C2-PFDoDA	1745257.1	1.00	4.098	7.42	20.00	19.280	-3.6	

Sample ID: CAL5
Sample Name: CCV3
Sample File: 16AUG04-27.wiff
Acquisition Date: 8/4/2016 8:28:27 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	9400605.6	18O2-PFHxS	256688.4	1.00	36.623	4.00	119.90	133.270	11.2	
PFHxA	3822377.0	13C2-PFHxA	1122568.8	1.00	3.405	4.44	30.00	31.490	5.0	
PFHpA	2851308.3	13C4-PFHpA	365892.8	1.00	7.793	4.91	30.00	28.130	-6.2	
PFHxS	7690628.0	18O2-PFHxS	256688.4	1.00	29.961	4.90	120.00	128.300	6.9	
PFOA	7937054.1	13C4-PFOA	1022178.9	1.00	7.765	5.37	30.00	33.080	10.3	
PFNA	7198178.2	13C5-PFNA	990698.0	1.00	7.266	5.80	30.00	32.050	6.8	
PFOS	7471847.8	13C4-PFOS	258275.3	1.00	28.930	5.77	119.90	125.250	4.5	
PFDA	8067537.1	13C2-PFDA	885641.9	1.00	9.109	6.18	30.00	34.330	14.4	
PFUndA	7208129.8	13C2-PFUnDA	1053521.1	1.00	6.842	6.53	30.00	30.530	1.8	
PFDoDA	14957435.8	13C2-PFDoDA	1392462.3	1.00	10.742	6.86	60.00	55.090	-8.2	
PFTrDA	17713247.2	13C2-PFDoDA	1392462.3	1.00	12.721	7.15	60.00	61.730	2.9	
PFTeDA	19026751.6	13C2-PFDoDA	1392462.3	1.00	13.664	7.43	60.00	64.290	7.2	

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SGP97
Matrix: SOIL

16215005	13C2-PFDA	13C2-PFDODA	13C2-PFHXA	13C2-PFUNDA
	Area	Area	Area	Area
Average ICAL Response	995779	1514360	1083005	1104133
UPPER LIMIT	1493669	2271540	1624508	1656200
LOWER LIMIT	497890	757180	541503	552067
LAB SAMPLE ID				
BLK215005	1141867	1747357	1267529	1222499
LCS215005	997415	1625997	1203534	1064645
LCSDA	893763	1530182	1179272	948418
8438959RE	1025965	1610251	1210455	1320258
8438960RE	1212610	1822439	1292789	1448832
8438961RE	1177941	1747034	1304842	1320027
8438962RE	1061162	1536743	1182586	1119529
8438965RE	1201296	1740166	1306582	1379436
8438967RE	1108333	1612190	1124976	1152585
8438968RE	1128280	1768018	1274662	1380829
8438970RE	1161513	1829705	1293173	1362108
8438971RE	987180	1542281	1107447	1066995
8438972RE	893164	1231024	1111578	983057

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

RCs not reported due to extract past HT

(IS not confirmed)

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SGP97
Matrix: SOIL

16215005	13C4-PFHPA	13C4-PFOA	13C4-PFOS	13C5-PFNA
	Area	Area	Area	Area
Average ICAL Response	497650	1016502	322793	1291490
UPPER LIMIT	746475	1524753	484190	1937235
LOWER LIMIT	248825	508251	161397	645745
LAB SAMPLE ID				
BLK215005	636309	1141881	411852	1664847
LCS215005	574325	1042902	410399	1382810
LCSDA	496708	982923	395292	1386114
8438959RE	627521	1096648	384996	1667788
8438960RE	692626	1228329	449226	1801620
8438961RE	641213	1214935	418902	1603565
8438962RE	639436	1108626	392937	1593297
8438965RE	661182	1166606	426292	1659828
8438967RE	608970	1059289	375323	1573605
8438968RE	600386	1169213	393072	1629352
8438970RE	665338	1199428	396073	1716289
8438971RE	557426	1050662	356793	1432213
8438972RE	538983	1000264	356436	1453313

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SGP97
Matrix: SOIL

16215005	18O2-PFHXS
	Area
Average ICAL Response	344218
UPPER LIMIT	516327
LOWER LIMIT	172109
LAB SAMPLE ID	
BLK215005	401282
LCS215005	407963
LCSDA	392355
8438959RE	373708
8438960RE	450189
8438961RE	422153
8438962RE	398197
8438965RE	417341
8438967RE	369758
8438968RE	403239
8438970RE	398232
8438971RE	370904
8438972RE	356247

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

Organic Extraction Batchlog Assigned to: 375 Robert Brown Reviewed by: CMS 7/12 Start Date: 08-02-16 Start time: 13:30

16215005 Tech 1: RCG/375 Tech 2: _____

7 28 days Not Reported

Analyses on Batch: PFC s in Soil by LC/MS/MS

Dept: 37 Prep Analysis: 14090 PFC Solid Prep

QC	Sample Code	Amt (g)	SS/IS Sol. (RCG 8-2-16)	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
8432144MS	SG-24MS	5.16	~~5516216~~ 5516 215 37A	.25	A35002-83	0.20	1		170A	
BLANKA	BLK215005	5.00	SS1621537A	.25	~~2350~~ (3) RCG 8-2-16 375	N/A	1			
LCSA	OPR215005	5.00	↓	.25	235002-83	.20	1			
LCSDA		5.00	↓	.25	235002-83	.20	1			

Reagent	Lot No.
80% ACN:H2O	375080216 37A
96% MeOH:H2O	159749
Sand	MKBV8012V

16AUG01ICAL

Spike Solutions: Witness: _____ Instrument: ABSciex LM24743

Sequence: 16AUG01ICAL - 16AUG04

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
1 8432144 R	SG-24	5.35	SS1621537A	.25	1		170a		14027	06/29/2016	N
2 8432145 R	SG-46	5.19		.25	1		170a		14027	06/29/2016	N
3 8432146 R	SG-47	5.02		.25	1		170a		14027	06/29/2016	N
4 8432147 R	SG-48	5.46		.25	1		170a		14027	06/29/2016	N
5 8438959 R	SG311	5.17		.25	1		170a		14027	07/05/2016	N
6 8438960 R	SG312	5.14		.25	1		170a		14027	07/05/2016	N
7 8438961 R	SG313	5.45		.25	1		170a		14027	07/05/2016	N
8 8438962 R	SG314	5.17		.25	1		170a		14027	07/05/2016	N
9 8438965 R	SG315	5.09		.25	1		170a		14027	07/05/2016	N
10 8438967 R	SG316	5.15		.25	1		170a		14027	07/05/2016	N
11 8438968 R	SG317	5.21		.25	1		170a		14027	07/05/2016	N
12 8438970 R	61SG3	5.15		.25	1		170a		14027	07/05/2016	N
13 8438971 R	62SG3	5.13		.25	1		170a		14027	07/05/2016	N
14 8438972 R	63SG3	5.32		.25	1		170a		14027	07/05/2016	N
15 8441140 R	BENGT	5.04		.25	1		170a		14027	07/06/2016	N
16 8441141 R	BENCH	5.42	↓	.25	1		170a		14027	07/06/2016	N

Balance #	B629764122	Sonic Bath ID	5800	N-evap	C	16215005

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

1 mL

	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
17	8441142 R	CEMGT	5.10	SS1621537A	.25			170a		14027	07/06/2016	N

1mL

SGP97 Page 479 of 514

Balance #	B629764127	Sonic Bath ID	5800	N-evap	C	16215005

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Sequence Table

File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16Jun28-30	MDL	N/A	N/A	c:2	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_17.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-31	CAL1	N/A	1	c:3	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_17.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-32	CAL2	N/A	2	c:4	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_17.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-33	CAL3	N/A	3	c:5	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-34	CAL4	N/A	4	c:6	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-35	CAL5	N/A	5	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-36	CAL6	N/A	6	c:8	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-37	recon	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun28-39	ICV1	N/A	ICV1	c:9	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun28	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-29	CCV3	N/A	3	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-30	recon	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-31	recon	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-32	MB 16180002	N/A	N/A	b:21	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-33	LCS 16180010	N/A	N/A	B:22	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-34	LCSD 16180010	N/A	N/A	B:23	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-35	recon	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-36	8438963	N/A	N/A	b:24	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-37	8438964	N/A	N/A	B:25	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-38	8438966	N/A	N/A	B:26	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-39	8438969	N/A	N/A	B:27	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-40	CCV2	N/A	2	c:6	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-41	recon	N/A	N/A	c:1	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale

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JUL 01 2016

File Name	Sample ID	Sample Type	Level	Vial	Inj Vol	Dil Factor	Path	Inst Method	Proc Method
16Jun30-42	8441143 BKG	N/A	N/A	b:28	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-43	8441143 MS	N/A	N/A	B:29	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-44	CCV1	N/A	1	c:5	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale
16Jun30-45	CCV3	N/A	3	c:7	10.0	1.000	C:\Xcalibur\PFC\2016\16Jun30	C:\Xcalibur\PFC\Acquistion M\HWell_16.5minutes	C:\Xcalibur\PFC\Quan M\CTMale

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JUL 0 1 2016

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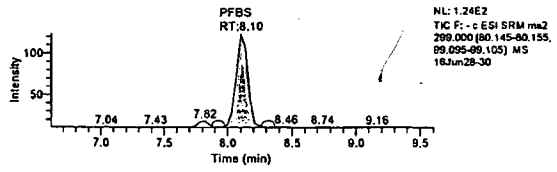
Sample Name:	MDL	Original Data Path:	C:\Xcalibur\PFC\2016\16Jun28
Sample ID:	MDL	Instrument Method:	C:\Xcalibur\PFC\Acquistion
Data File:	16Jun28-30		M\HWell_17.5minutes
Acquisition Date:	06/28/16 03:46:56 PM	Dilution Factor:	1.00
Sample Type:	Unknown	Instrument Model:	TSQ Quantum Access
Vial:	c:2	Instrument Software Version:	2.5.0.1311
Run Time(min):	17.50	Instrument Serial Number:	TQU01408
Injection Volume(µl):	10.00	Operator:	US19_USR_INS00022

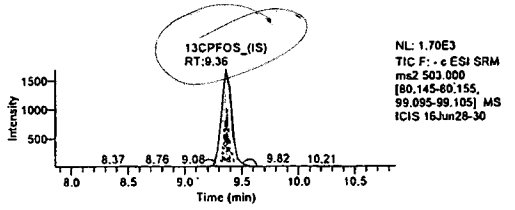
Extracted Ion Chromatogram

Quan Peak Table

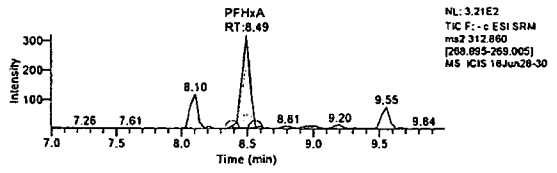
Component Name	Calculated Amount	RT	Response	ISTD Response	Response Ratio	Units
13C-PFNA_(IS)	N/A	9.39	209018.93	N/A	N/A	N/A
13C-PFOA_(IS)	N/A	9.07	149262.03	N/A	N/A	N/A
13CPFDA_(IS)	N/A	9.89	162578.76	N/A	N/A	N/A
13CPFDoA_(IS)	N/A	11.49	130845.40	N/A	N/A	N/A
13CPFHpA_(IS)	N/A	8.78	139261.07	N/A	N/A	N/A
13CPFHxA_(IS)	N/A	8.49	89825.18	N/A	N/A	N/A
13CPFHxS_(IS)	N/A	8.78	24105.45	N/A	N/A	N/A
13CPFOS_(IS)	N/A	9.36	10735.64	N/A	N/A	N/A
13CPFUnA_(IS)	N/A	10.67	143805.94	N/A	N/A	N/A
PFBS	4.771	8.10	721.52	10735.64	0.067	ng/L
PFDA	0.730	9.89	2402.31	162578.76	0.015	ng/L
PFDoA	2.449	11.49	3962.57	130845.40	0.030	ng/L
PFHxA	1.449	8.49	1367.97	89825.18	0.015	ng/L
PFHxS	6.831	8.74	137.24	24105.45	0.006	ng/L
PFNA	1.561	9.43	3784.86	209018.93	0.018	ng/L
PFOA	2.116	9.07	3803.11	149262.03	0.025	ng/L
PFOS	6.757	9.39	121.06	10735.64	0.011	ng/L
PFTeDA	3.194	14.39	2981.74	143805.94	0.021	ng/L
PFTrDA	2.492	12.66	2061.86	143805.94	0.014	ng/L
PFUdA	1.700	10.67	1516.18	143805.94	0.011	ng/L
PFhpA	1.623	8.78	2675.43	139261.07	0.019	ng/L

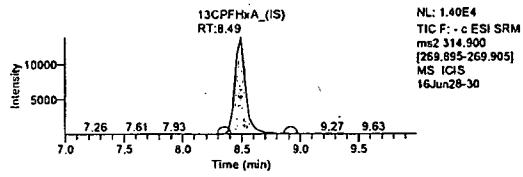
Component Name: PFBS





Component Name: PFHxA





Component Name: PFHxS

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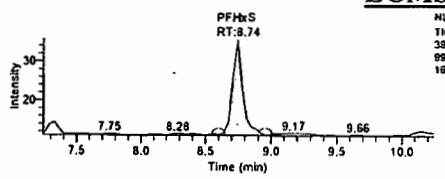
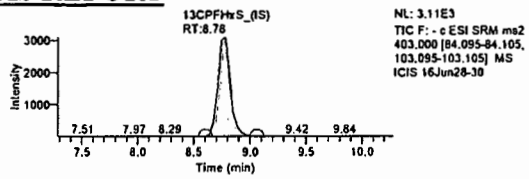
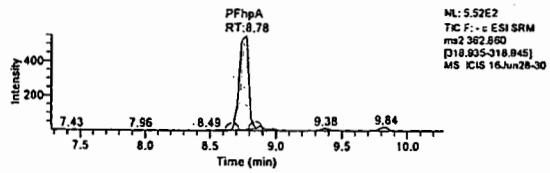
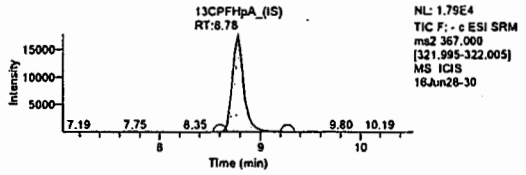


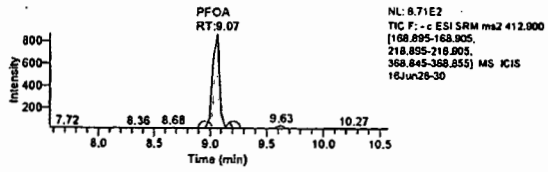


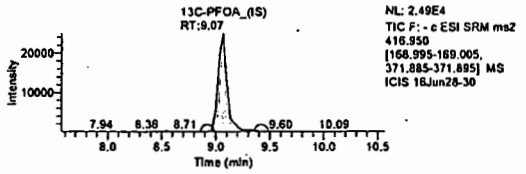
Component Name: PFhpA



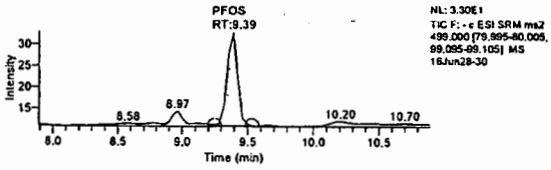


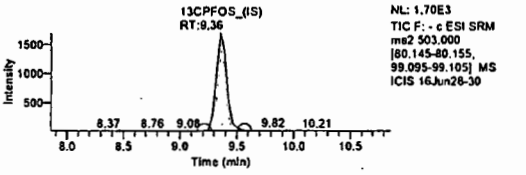
Component Name: PFOA



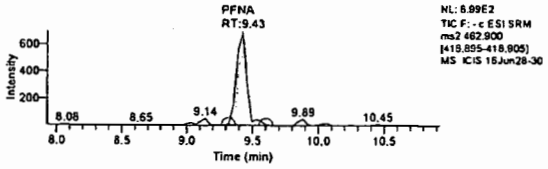


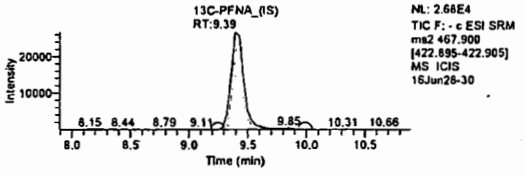
Component Name: PFOS



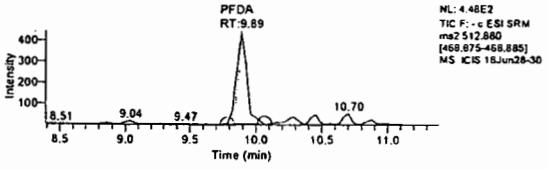


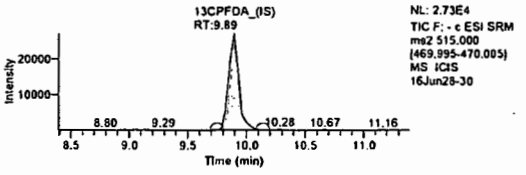
Component Name: PFNA





Component Name: PFDA





Component Name: PFUdA

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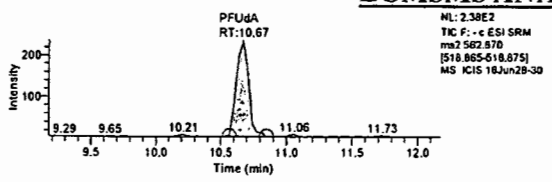
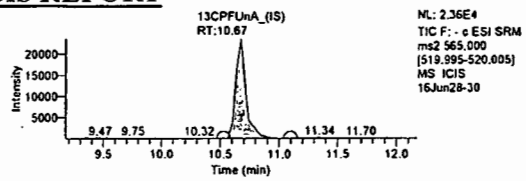
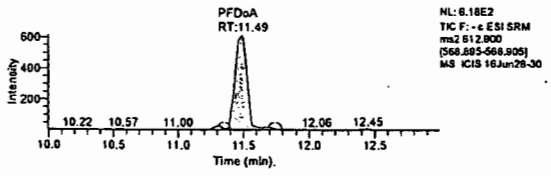
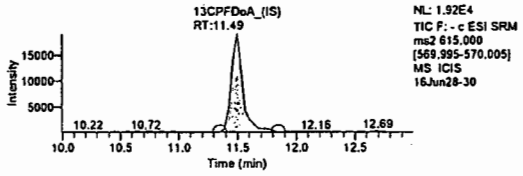


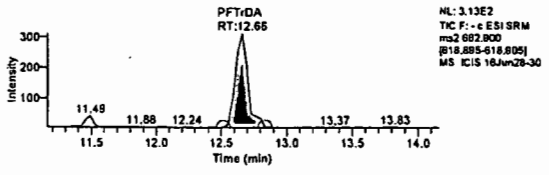


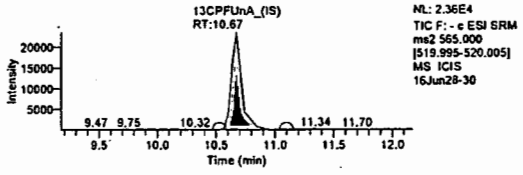
Component Name: PFDoA



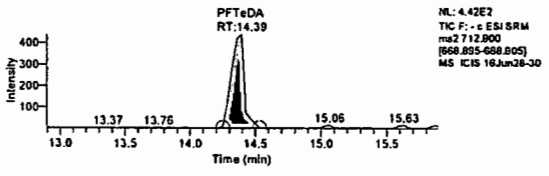


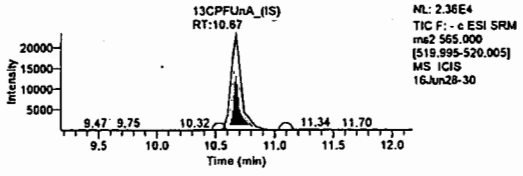
Component Name: PFTrDA





Component Name: PFTeDA





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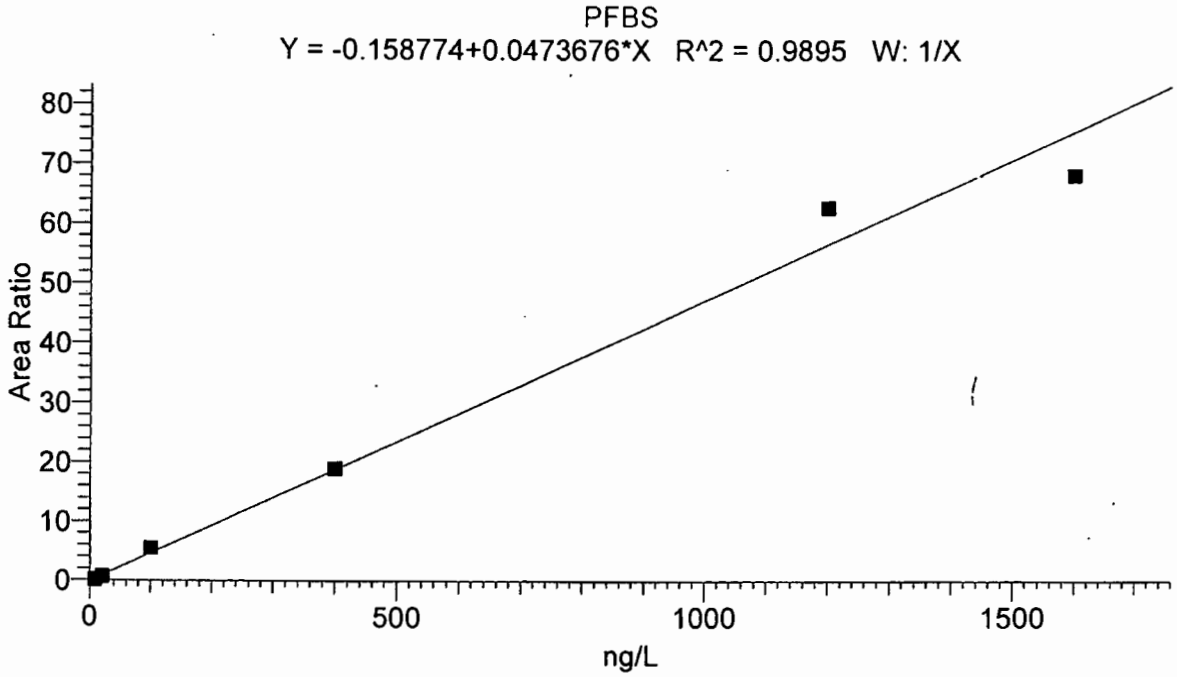
Component Name: **PFBS**



Identification		Component Name:	PFBS
Filter:	- c ESI SRM ms2 299.00 [80.14-80.16, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.25000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	100.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFOS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 01 2016

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Component Cal Level Table

Cal Level	Amount
1	8.000
2	20.000
3	100.000
4	400.000
5	1200.000
6	1600.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	100.000
2	400.000
3	1200.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	7.394	2388.65	12475.93	0.191	-7.58
CAL2	16Jun28-32	17.145	9308.33	14247.69	0.653	-14.28
CAL3	16Jun28-33	118.983	81025.90	14793.39	5.477	18.98
CAL4	16Jun28-34	405.832	304031.77	15947.51	19.065	1.46
CAL5	16Jun28-35	1331.810	787373.41	12512.72	62.926	10.98
CAL6	16Jun28-36	1446.836	831925.07	12167.20	68.374	-9.57
ICV1	16Jun28-39	95.090	64409.56	14822.48	4.345	-4.91
CCV3	16Jun30-29	1247.140	858700.43	14575.18	58.915	3.93
CCV2	16Jun30-40	441.350	299680.64	14444.58	20.747	10.34
CCV1	16Jun30-44	108.463	75166.95	15097.27	4.979	8.46
CCV3	16Jun30-45	1226.143	840155.78	14505.28	57.921	2.18

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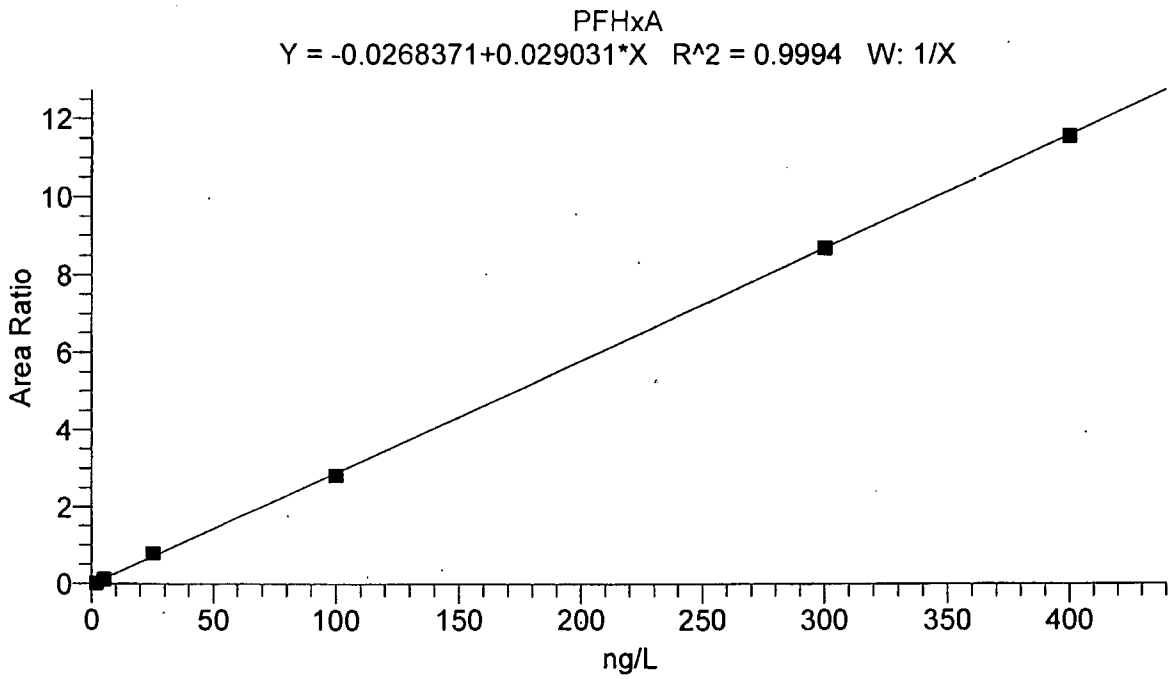
Component Name: **PFHxA**



Identification		Component Name:	PFHxA
Filter:	- c ESI SRM ms2 312.86 [269.00-269.01]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.50000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 01 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	1.889	2821.93	100754.17	0.028	-5.54
CAL2	16Jun28-32	4.749	12174.22	109660.34	0.111	-5.03
CAL3	16Jun28-33	28.170	79339.46	100308.36	0.791	12.68
CAL4	16Jun28-34	98.095	303708.73	107661.22	2.821	-1.90
CAL5	16Jun28-35	300.267	858213.47	98756.32	8.690	0.09
CAL6	16Jun28-36	398.831	991110.93	85798.26	11.552	-0.29
ICV1	16Jun28-39	94.340	278136.82	102559.72	2.712	-5.66
CCV3	16Jun30-29	275.598	954509.08	119701.80	7.974	-8.13
CCV2	16Jun30-40	95.432	300706.07	109600.51	2.744	-4.57
CCV1	16Jun30-44	25.904	76451.76	105426.17	0.725	3.61
CCV3	16Jun30-45	277.767	934662.46	116294.39	8.037	-7.41

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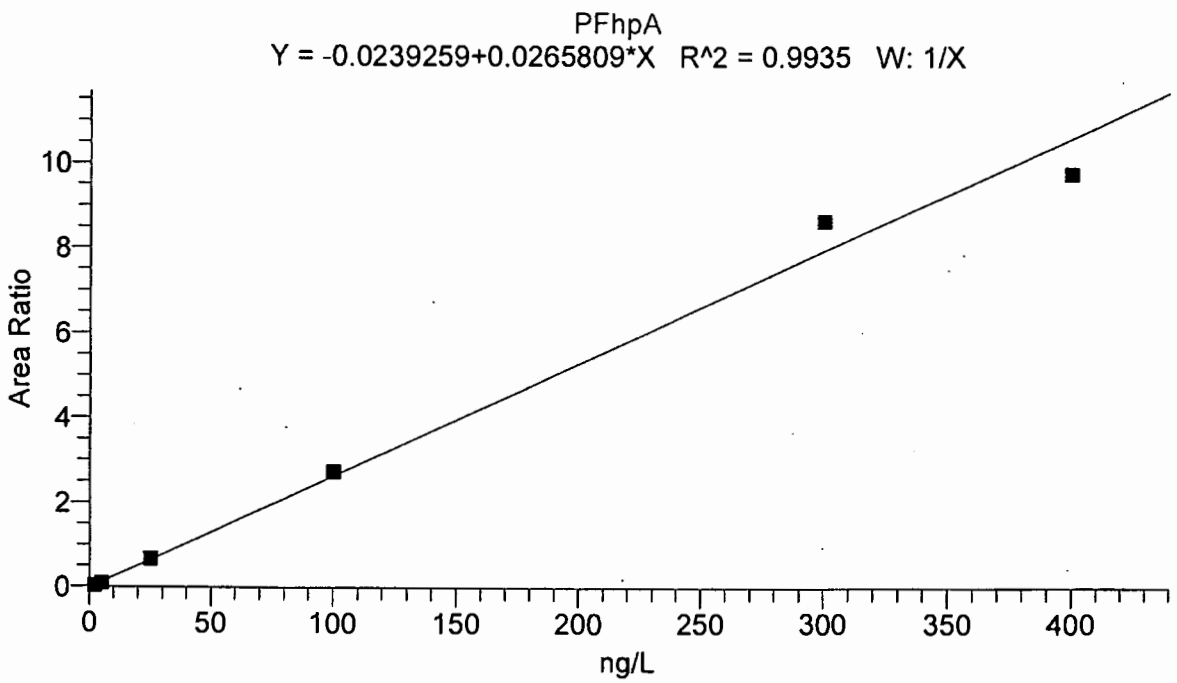
LCMSMS ANALYSIS REPORT

Component Name: **PFhpA**



Identification		Component Name:	PFhpA
Filter:	- c ESI SRM ms2 362.86 [318.94-318.94]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.76000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	10.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHpA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 01 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	2.180	5362.43	157632.04	0.034	9.00
CAL2	16Jun28-32	4.052	14635.29	174693.45	0.084	-18.96
CAL3	16Jun28-33	26.181	104392.20	155351.17	0.672	4.72
CAL4	16Jun28-34	104.198	396645.27	144458.58	2.746	4.20
CAL5	16Jun28-35	326.380	819865.85	94765.33	8.652	8.79
CAL6	16Jun28-36	369.010	914897.79	93502.87	9.785	-7.75
ICV1	16Jun28-39	83.402	344523.25	157102.87	2.193	-16.60
CCV3	16Jun30-29	323.853	968888.72	112866.53	8.584	7.95
CCV2	16Jun30-40	91.943	379031.45	156624.50	2.420	-8.06
CCV1	16Jun30-44	23.453	96727.77	161352.85	0.599	-6.19
CCV3	16Jun30-45	303.888	981650.60	121888.16	8.054	1.30

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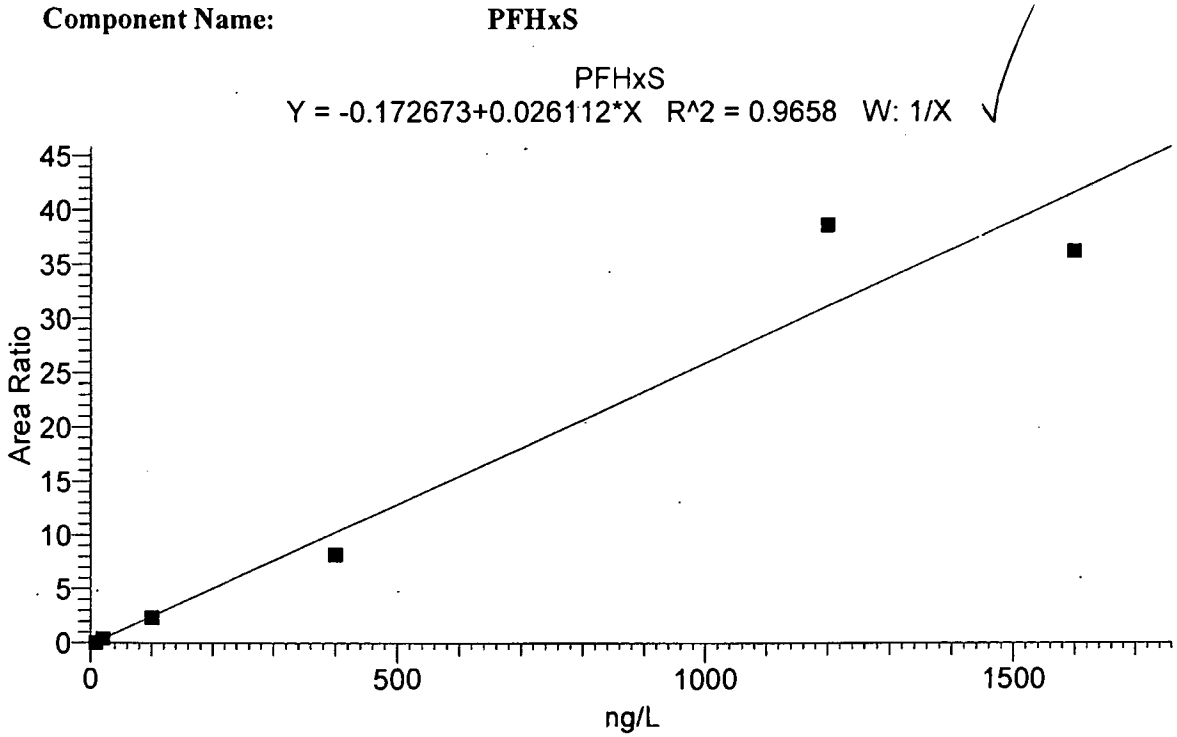
JUL 0 1 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFHxS**



Identification		Component Name:	PFHxS
Filter:	- c ESI SRM ms2 399.00 [80.09-80.11, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	8.73000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	100.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFHxS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 01 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	8.000
2	20.000
3	100.000
4	400.000
5	1200.000
6	1600.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	100.000
2	400.000
3	1200.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	8.472	1079.53	22237.74	0.049	5.90
CAL2	16Jun28-32	21.191	11431.83	30032.05	0.381	5.95
CAL3	16Jun28-33	96.650	64885.10	27598.25	2.351	-3.35
CAL4	16Jun28-34	322.169	238866.08	28989.28	8.240	-19.46
CAL5	16Jun28-35	1487.347	618009.51	15983.74	38.665	23.95
CAL6	16Jun28-36	1392.171	612732.43	16935.82	36.180	-12.99
ICV1	16Jun28-39	81.971	55389.22	28148.56	1.968	-18.03
CCV3	16Jun30-29	1215.624	640646.11	20293.08	31.570	1.30
CCV2	16Jun30-40	309.258	221646.69	28047.05	7.903	-22.69
CCV1	16Jun30-44	91.511	56310.32	25400.89	2.217	-8.49
CCV3	16Jun30-45	1087.284	598817.90	21220.78	28.218	-9.39

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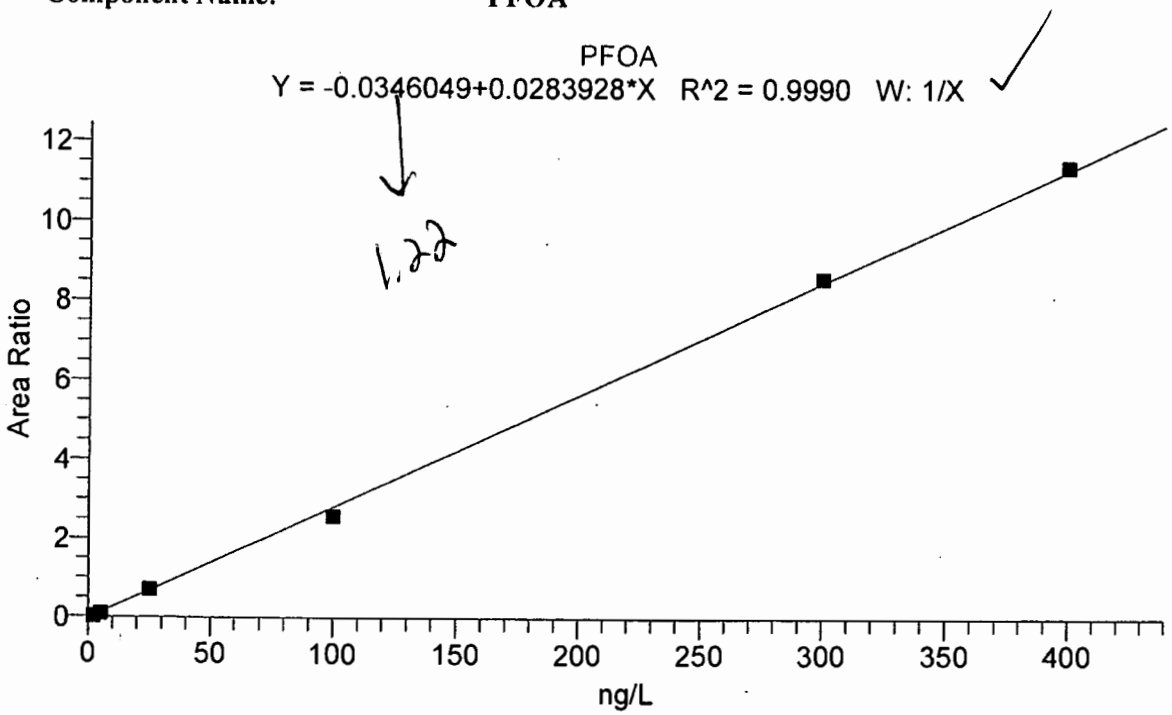
LCMSMS ANALYSIS REPORT

Component Name: **PFOA**



Identification		Component Name:	PFOA
Filter:	- c ESI SRM ms2 412.90 [168.90-168.91, 218.90-218.91, 368.85-368.86]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.02000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	15
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	5.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFOA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 01 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	2.177	4803.03	176578.12	0.027	8.84
CAL2	16Jun28-32	4.639	16696.29	171915.40	0.097	-7.21
CAL3	16Jun28-33	26.073	113468.87	160794.34	0.706	4.29
CAL4	16Jun28-34	91.956	479078.21	185957.72	2.576	-8.04
CAL5	16Jun28-35	304.036	1399185.53	162737.26	8.598	1.35
CAL6	16Jun28-36	403.119	1594472.40	139730.47	11.411	0.78
ICV1	16Jun28-39	80.446	391280.99	173943.19	2.249	-19.55
CCV3	16Jun30-29	327.934	1592037.68	171623.52	9.276	9.31
CCV2	16Jun30-40	84.691	476742.86	201157.36	2.370	-15.31
CCV1	16Jun30-44	25.385	110773.88	161442.74	0.686	1.54
CCV3	16Jun30-45	318.848	1570794.02	174177.42	9.018	6.28

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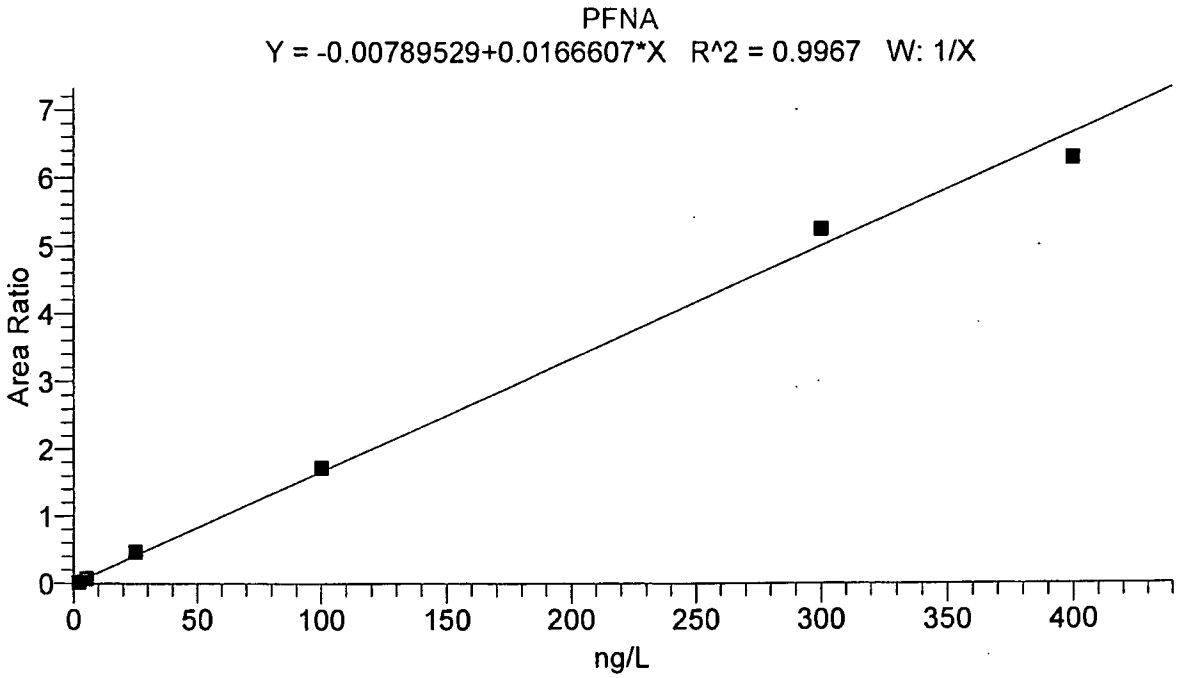
JUL 0 1 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFNA**



Identification		Component Name:	PFNA
Filter:	- c ESI SRM ms2 462.90 [418.89-418.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.28000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	10.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13C-PFNA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 01 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	1.712	4615.63	223826.72	0.021	-14.42
CAL2	16Jun28-32	4.885	16979.72	231017.61	0.073	-2.29
CAL3	16Jun28-33	28.367	108738.90	233985.70	0.465	13.47
CAL4	16Jun28-34	103.614	393115.67	228769.49	1.718	3.61
CAL5	16Jun28-35	315.258	1020389.71	194562.55	5.245	5.09
CAL6	16Jun28-36	378.163	1039360.23	165172.58	6.293	-5.46
ICV1	16Jun28-39	92.534	339262.57	221192.38	1.534	-7.47
CCV3	16Jun30-29	324.609	1080933.59	200160.68	5.400	8.20
CCV2	16Jun30-40	97.909	372529.47	229483.79	1.623	-2.09
CCV1	16Jun30-44	26.170	93628.48	218695.24	0.428	4.68
CCV3	16Jun30-45	318.421	1032005.71	194820.28	5.297	6.14

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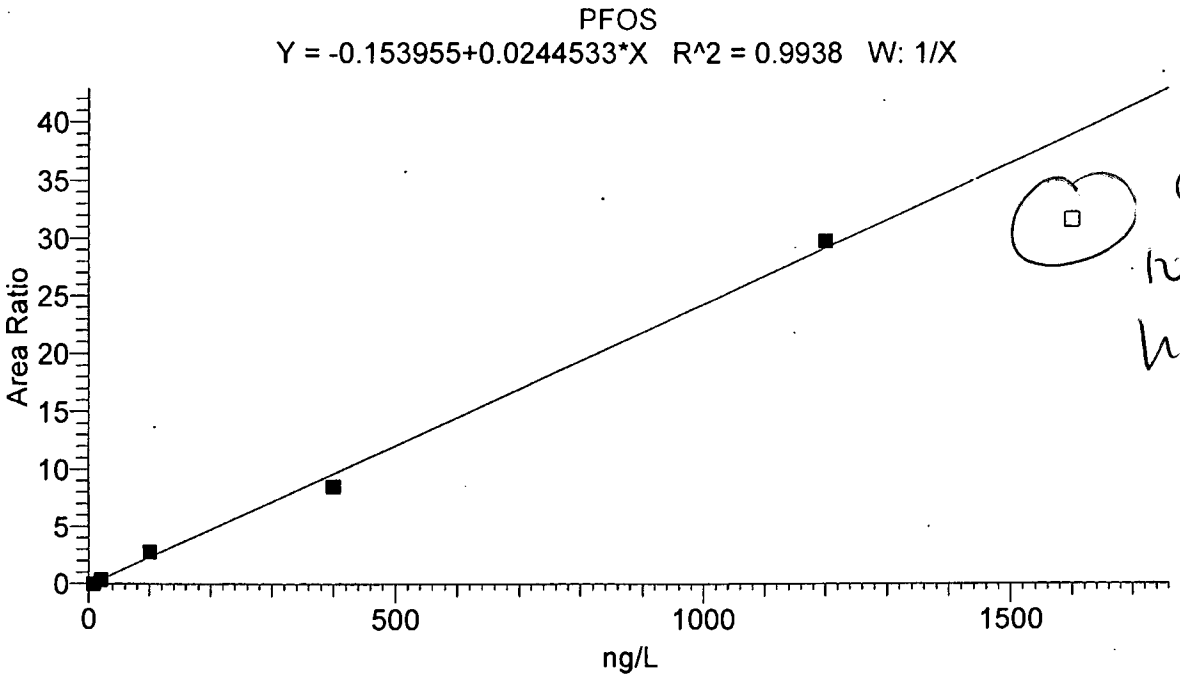
JUL 01 2016

LCMSMS ANALYSIS REPORT

Component Name: **PFOS**



OK to drop highest pt

Identification		Component Name:	PFOS
Filter:	- c ESI SRM ms2 499.00 [80.00-80.00, 99.09-99.11]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.25000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	5	Baseline Window:	100
Area Noise Factor:	5	Peak Noise Factor:	25
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	100.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFOS_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 01 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

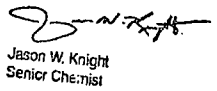
Cal Level	Amount
1	8.000
2	20.000
3	100.000
4	400.000
5	1200.000
6	1600.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	100.000
2	400.000
3	1200.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	6.897	183.49	12475.93	0.015	-13.78
CAL2	16Jun28-32	20.555	4967.79	14247.69	0.349	2.77
CAL3	16Jun28-33	120.218	41211.00	14793.39	2.786	20.22
CAL4	16Jun28-34	354.588	135822.87	15947.51	8.517	-11.35
CAL5	16Jun28-35	1225.742	373122.27	12512.72	29.819	2.15
CAL6	16Jun28-36	1300.940	385192.62	12167.20	31.658	-18.69
ICV1	16Jun28-39	83.851	28110.51	14822.48	1.896	-16.15
CCV3	16Jun30-29	1065.129	377379.45	14575.18	25.892	-11.24
CCV2	16Jun30-40	385.862	134069.40	14444.58	9.282	-3.53
CCV1	16Jun30-44	86.532	29621.37	15097.27	1.962	-13.47
CCV3	16Jun30-45	1087.473	383495.20	14505.28	26.438	-9.38



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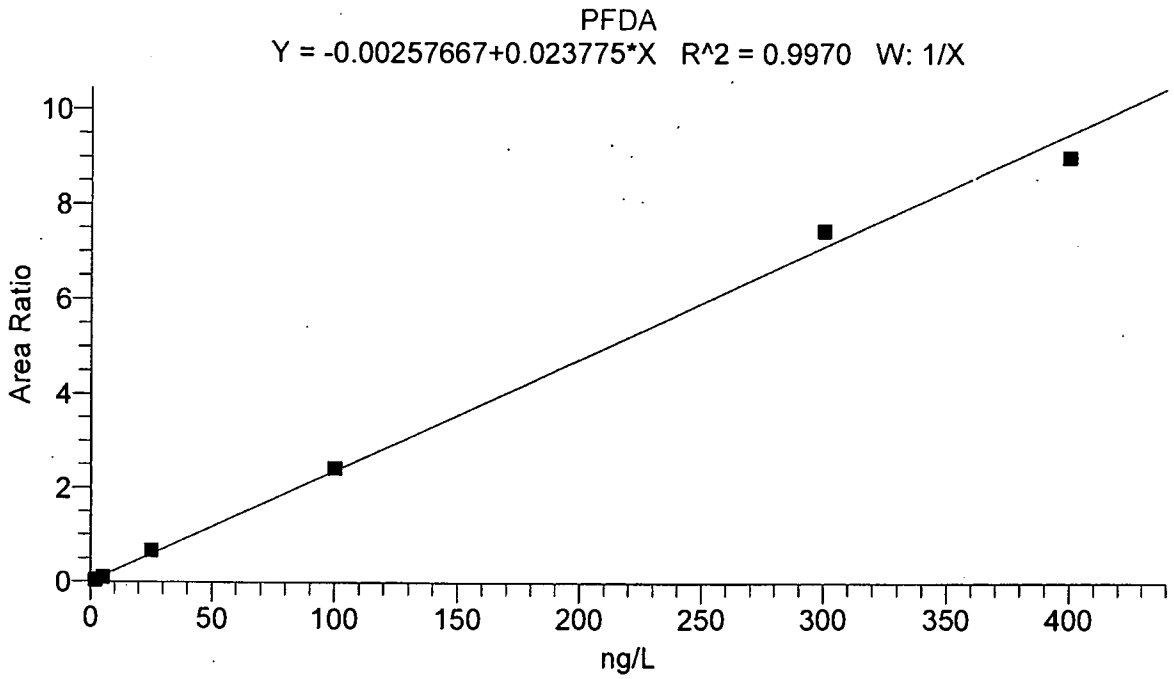
LCMSMS ANALYSIS REPORT

Component Name: **PFDA**



Identification		Component Name:	PFDA
Filter:	- c ESI SRM ms2 512.88 [468.88-468.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.57000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	3.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 01 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	1.856	6410.24	154300.79	0.042	-7.21
CAL2	16Jun28-32	4.506	20143.10	192639.55	0.105	-9.87
CAL3	16Jun28-33	28.631	109946.92	162133.90	0.678	14.52
CAL4	16Jun28-34	102.807	403239.71	165149.94	2.442	2.81
CAL5	16Jun28-35	314.443	1221942.01	163507.54	7.473	4.81
CAL6	16Jun28-36	379.757	1348843.31	149437.08	9.026	-5.06
ICV1	16Jun28-39	91.247	345683.46	159535.43	2.167	-8.75
CCV3	16Jun30-29	331.241	1267717.97	161027.25	7.873	10.41
CCV2	16Jun30-40	96.588	410701.16	179047.17	2.294	-3.41
CCV1	16Jun30-44	25.044	92604.92	156203.05	0.593	0.18
CCV3	16Jun30-45	306.386	1368570.19	187945.34	7.282	2.13

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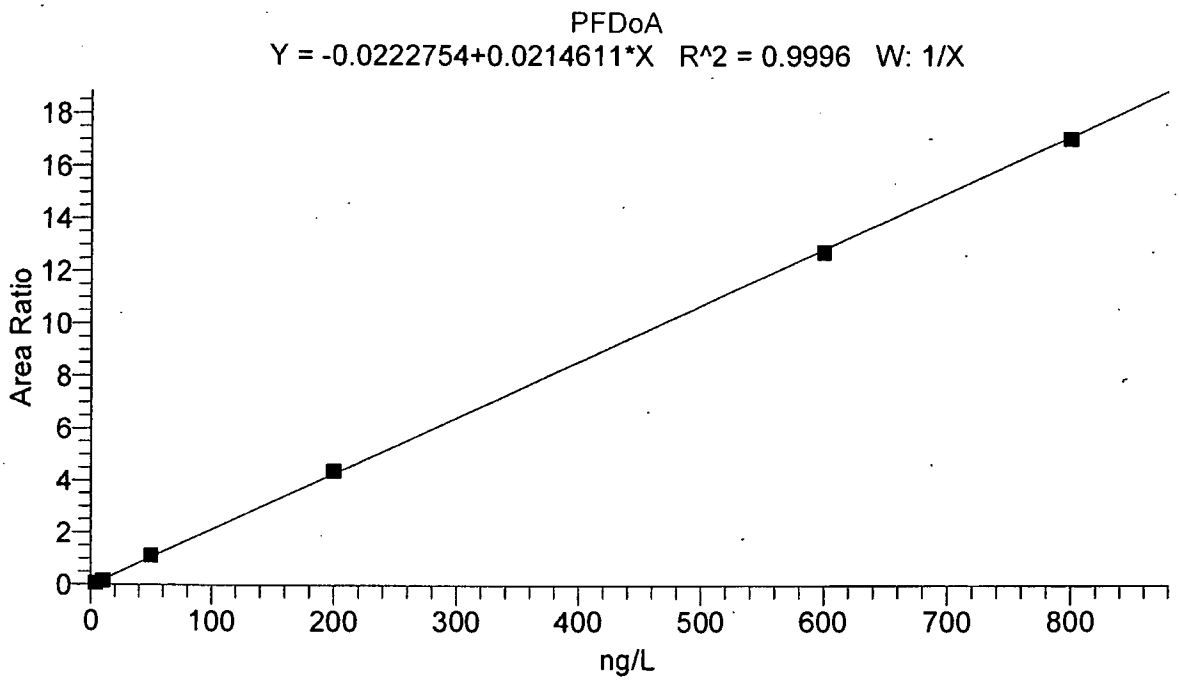
LCMSMS ANALYSIS REPORT

Component Name: **PFDoA**



Identification		Component Name:	PFDoA
Filter:	- c ESI SRM ms2 612.90 [568.89-568.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	11.60000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFDoA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	4.000
2	10.000
3	50.000
4	200.000
5	600.000
6	800.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	50.000
2	200.000
3	600.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	4.213	10052.85	147554.87	0.068	5.31
CAL2	16Jun28-32	8.593	26241.65	161843.86	0.162	-14.07
CAL3	16Jun28-33	53.573	158676.92	140738.01	1.127	7.15
CAL4	16Jun28-34	205.612	694928.37	158284.44	4.390	2.81
CAL5	16Jun28-35	595.273	2200125.55	172519.03	12.753	-0.79
CAL6	16Jun28-36	796.736	2235678.74	130920.94	17.077	-0.41
ICV1	16Jun28-39	93.365	277780.82	140191.85	1.981	-6.64
CCV3	16Jun30-29	634.065	2108659.36	155214.44	13.585	5.68
CCV2	16Jun30-40	198.351	690543.95	163073.32	4.235	-0.82
CCV1	16Jun30-44	53.374	161231.92	143547.49	1.123	6.75
CCV3	16Jun30-45	617.449	2380789.64	179969.54	13.229	2.91

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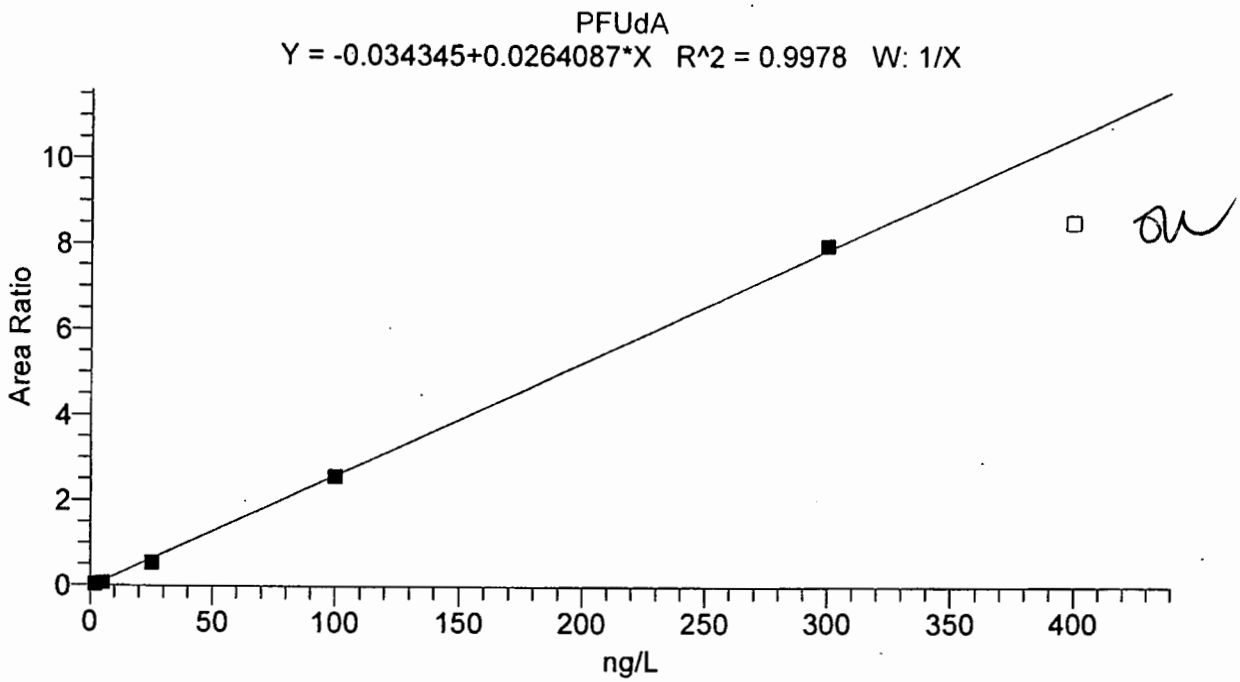
LCMSMS ANALYSIS REPORT

Component Name: **PFUdA**



Identification		Component Name:	PFUdA
Filter:	- c ESI SRM ms2 562.87 [518.87-518.88]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	9.99000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	Unknown
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	50.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUnA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	2.000
2	5.000
3	25.000
4	100.000
5	300.000
6	400.000

Component QC Level Table

QC Level	Amount
ICV1	100.000
ICV2	200.000
1	25.000
2	100.000
3	300.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	2.631	5500.71	156535.00	0.035	31.56
CAL2	16Jun28-32	4.053	12026.25	165451.69	0.073	-18.94
CAL3	16Jun28-33	21.653	99068.44	184315.88	0.537	-13.39
CAL4	16Jun28-34	99.323	420926.31	162604.47	2.589	-0.68
CAL5	16Jun28-35	304.339	1242640.54	155274.87	8.003	1.45
CAL6	16Jun28-36	324.807	1250775.27	146402.77	8.543	-18.80
ICV1	16Jun28-39	88.091	354865.67	154826.74	2.292	-11.91
CCV3	16Jun30-29	298.136	1322031.62	168647.43	7.839	-0.62
CCV2	16Jun30-40	89.518	417601.90	179251.47	2.330	-10.48
CCV1	16Jun30-44	23.020	82341.18	143552.68	0.574	-7.92
CCV3	16Jun30-45	294.352	1315440.82	169973.70	7.739	-1.88

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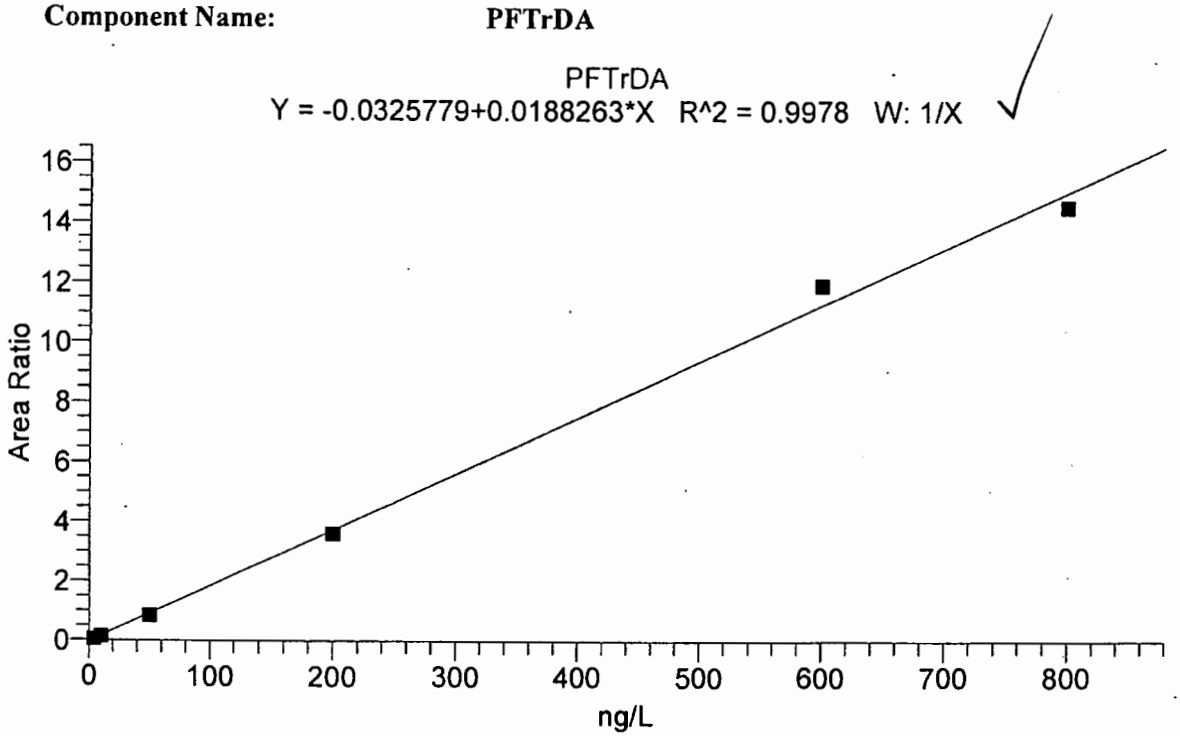
LCMSMS ANALYSIS REPORT

Component Name: **PFTrDA**



Identification		Component Name:	PFTrDA
Filter:	- c ESI SRM ms2 662.90 [618.89-618.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	12.50000
Window (sec):	60.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	5.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUnA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

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JUL 01 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

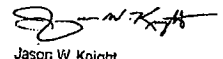
Cal Level	Amount
1	4.000
2	10.000
3	50.000
4	200.000
5	600.000
6	800.000

Component QC Level Table

QC Level	Amount
ICV2	200.000
ICV1	100.000
1	50.000
2	200.000
3	600.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	4.484	8114.11	156535.00	0.052	12.10
CAL2	16Jun28-32	9.515	24248.42	165451.69	0.147	-4.85
CAL3	16Jun28-33	46.673	155948.77	184315.88	0.846	-6.65
CAL4	16Jun28-34	193.377	586675.16	162604.47	3.608	-3.31
CAL5	16Jun28-35	635.387	1852336.86	155274.87	11.929	5.90
CAL6	16Jun28-36	774.564	2130100.38	146402.77	14.550	-3.18
ICV1	16Jun28-39	85.162	243186.74	154826.74	1.571	-14.84
CCV3	16Jun30-29	587.178	1858799.20	168647.43	11.022	-2.14
CCV2	16Jun30-40	172.638	576752.12	179251.47	3.218	-13.68
CCV1	16Jun30-44	52.881	138236.58	143552.68	0.963	5.76
CCV3	16Jun30-45	629.134	2007676.27	169973.70	11.812	4.86



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Senior Chemist

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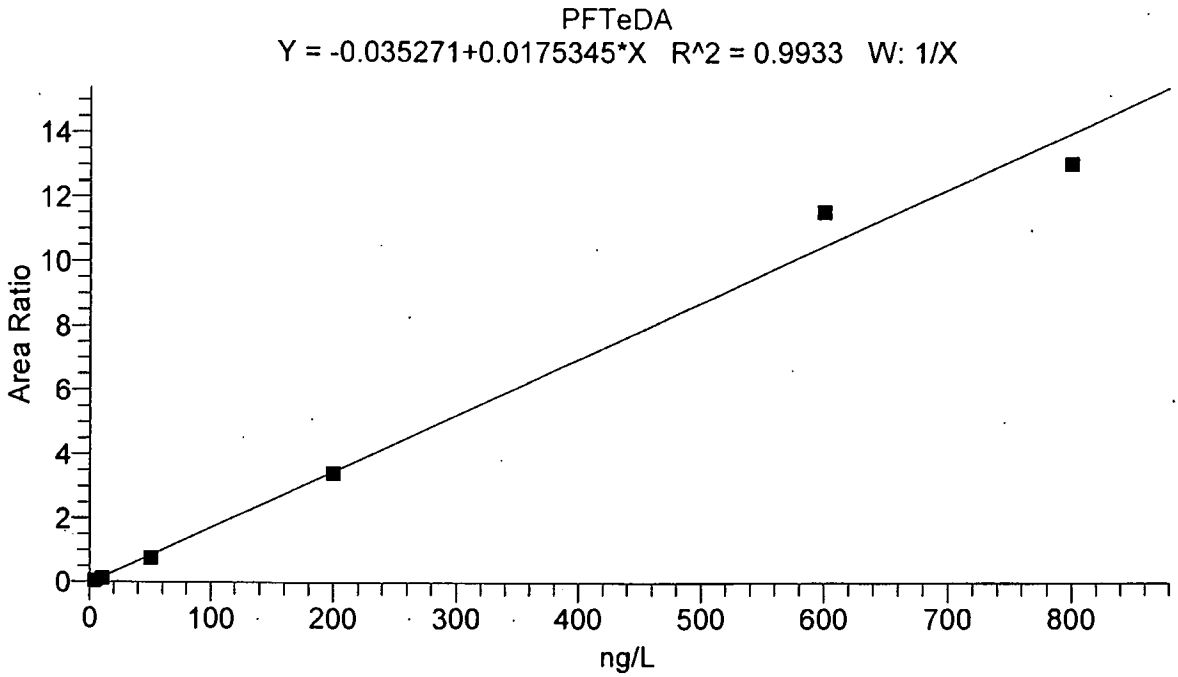
LCMSMS ANALYSIS REPORT

Component Name: **PFTeDA**



Identification		Component Name:	PFTeDA
Filter:	- c ESI SRM ms2 712.90 [668.89-668.90]	1st Trace Type:	TIC
2nd Trace Type:	N/A	Mass Range 1 (m/z):	
Mass Range 2 (m/z):		Wavelength Range 2 (nm):	N/A
Base Peak(BP):			
Retention Time		Expected RT (min):	13.70000
Window (sec):	50.00000	View Width (min):	3.00000
RT Reference:	No	Adjust Expected RT:	No
Adjust Using:	N/A		
Detection Options		Peak Detection Algorithm:	ICIS
		ICIS Peak Integration	
ICIS Smoothing Points:	3	Baseline Window:	75
Area Noise Factor:	5	Peak Noise Factor:	10
ICIS Constrain Peak Width:	No	ICIS Peak Height (%):	N/A
ICIS Tailing Factor:	N/A		
ICIS Peak Detection		ICIS Identify By:	Nearest RT
ICIS Minimum Peak Height (S/N):	5.0	ICIS Ion Ratio Confirmation:	Disabled
ICIS Window %:		ICIS Qualifier Ion Coelution (min):	N/A
		ICIS Spectrum Thresholds	
ICIS Forward:	0	ICIS Reverse:	0
ICIS Match:	0		
ICIS Advanced Parameters		Noise Method:	Incos
Minimum Peak Width:	3	Multiplet Resolution:	10
Area Tail Extension:	5	Area Scan Window:	0
		Calibration	
Component Type:	Target Compound	%RSD Calculation Method:	Use calculated amounts
		Internal Standard	
ISTD Amount:	N/A	ISTD Units:	N/A
		Target Compounds	
ISTD:	13CPFUnA_(IS)	Weighting:	OneOverX
Origin:	IgnoreOrigin	Response:	Area
Calibration Curve:	Linear	Target Units:	ng/L
Number of Cal. Levels:	6	Number of QC Levels:	5
		Peak Purity Options	
Scan Threshold (mAU):	N/A	Peak Coverage (%):	N/A
Limit ScanRange (nm):	N/A		

Jason W. Knight
Senior Chemist

JUL 01 2016

LCMSMS ANALYSIS REPORT

Component Cal Level Table

Cal Level	Amount
1	4.000
2	10.000
3	50.000
4	200.000
5	600.000
6	800.000

Component QC Level Table

QC Level	Amount
ICV2	200.000
ICV1	100.000
1	50.000
2	200.000
3	600.000

ICV & CCV Result Table

Sample ID	Data File Name	Calculated Amount	Area	ISTD Area	Area Ratio	% Diff
CAL1	16Jun28-31	4.880	7872.70	156535.00	0.050	21.99
CAL2	16Jun28-32	8.439	18645.75	165451.69	0.113	-15.61
CAL3	16Jun28-33	45.663	141077.32	184315.88	0.765	-8.67
CAL4	16Jun28-34	197.673	557867.88	162604.47	3.431	-1.16
CAL5	16Jun28-35	660.902	1793938.00	155274.87	11.553	10.15
CAL6	16Jun28-36	746.442	1911025.41	146402.77	13.053	-6.69
ICV1	16Jun28-39	93.947	249586.70	154826.74	1.612	-6.05
CCV3	16Jun30-29	627.389	1849332.02	168647.43	10.966	4.56
CCV2	16Jun30-40	172.002	534294.99	179251.47	2.981	-14.00
CCV1	16Jun30-44	54.961	133279.97	143552.68	0.928	9.92
CCV3	16Jun30-45	604.032	1794262.09	169973.70	10.556	0.67

Lynn Dodd
JUL 01 2016

Lynn Dodd
Principal Specialist

Jason W. Knight
Senior Chemist

JUL 01 2016

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SPG97
Matrix: Water

Fraction: PFAAs by LC/MS/MS

16180002	13C-PFHxA	13C-PFHpA	13C-PFHxS	13C-PFOA
	Area	Area	Area	Area
Average ICAL Response	100490 ✓	136734 ✓	~~23623~~ 23629	166286 ✓
Upper Limit	150735 ✓	205101 ✓	~~35434~~ 35444	249428 ✓
Lower Limit	50245 ✓	68367 ✓	~~11811~~ 11815	83143 ✓
Sample				
MB16180002	66772	105118	15916	115663
LCS16180010	64253	96483	13890	102330
LCSD16180010	71991	95283	15409	98684
8438963	47206 *	100248	17397	87189
8438964	47033 *	126451	25317	134117
8438966	54532	127914	19493	153934
8438969	86449	151315	24622	154931

below criteria, all associated data qualified as estimated. J5

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

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Quality Control Summary
Internal Standards
Specialty Services Group
SDG: SPG97
Matrix: Water

Fraction: PFAAs by LC/MS/MS

16180002	13C-PFOS	13C-PFNA	13C-PFDA	13C-PFUdA
	Area	Area	Area	Area
Average ICAL Response	13691 ~~13995~~ ✓	212889 ✓	164528 ✓	161764 ~~164836~~ ✓
Upper Limit	20536 ~~20993~~ ✓	319334 ✓	246792 ✓	242646 ~~247255~~ ✓
Lower Limit	6846 6998 ✓	106445 ✓	82264 ✓	80882 ~~82418~~ ✓
Sample				
MB16180002	6968 * QC no qual	153986	103066	102439
LCS16180010	5697 *	144502	95739	90120
LCSD16180010	8396	130553	86566	75520 * QC no qual
8438963	5126 *	118852	84956	92998
8438964	10306	171100	125373	109050
8438966	10821	186877	136525	120487
8438969	13097	198716	156362	144929

below criteria, all associated data qualified as estimated. VJ

* PFBS

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

Fraction: PFAAs by LC/MS/MS

16180002	13C-PFDoA
	Area
Average ICAL Response	151977 ✓
Upper Limit	227965 ✓
Lower Limit	75988 ✓
Sample	
MB16180002	87553
LCS16180010	92624
LCSD16180010	80262
8438963	76541
8438964	92339
8438966	88117
8438969	117820

UPPER LIMIT = + 50% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

* Values outside of QC limits.

18881_062816_1605_ISCheck.xlsx

Measure	13CPFDA	13CPFDoA	13CPFHpA	13CPFHxA	13CPFHxS	13C-PFNA	13C-PFOA	13CPFOS	13CPFUnA
Average	164528	151977	136734	100490	23629	212880	166286	13691	161764
Upper	246792	227965	205101	150735	35444	319334	249428	20536	242646
Lower	82264	75988	68367	50245	11815	106445	83143	6845	80882

Organic Extraction Batchlog Assigned to: 10262 Devon Whooley Reviewed by: UA/6/15 Start Date: 6/28/16 Start time: 11:20

16180002 Tech 1: PAB/375 Tech 2: DW 102662

Dept: 37 Prep Analysis: 14091 PFAA Water Prep PFAAs in Water by LC/MS/MS

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
8441143MS	TBBENMS	100.29	235002-23A	0.04	235002-20A	0.025 0.25	1			201a	
BLANKA	BLK180002	100.00	N/A	N/A		0.025	1				
LCSA	OPR180002	100.00	235002-23A	0.04		0.025	1				
LCSDA		100.00	↓	0.04	↓	0.025	1				

Solvent Used	Lot No.
96% MeOH: H_2O	159749

DW 102662 6/28/16

Sample #		Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1	8438963	LTB20	100.45	235002-23A	0.04	1			085a		10954	18262	07/05/2016	N
2	8438964	FTB20	100.18		0.04	1			085a		10954	18262	07/05/2016	N
3	8438966	RB120	99.94		0.04	1			085a		10954	18262	07/05/2016	N
4	8438969	RB220	99.95		0.04	1			085a		10954	18262	07/05/2016	N
5	8441143	TBBEN	99.95	↓	0.04	1			201a		10954	18262	07/06/2016	N

> 14 days by date on COC ok by collection date of associated samples

SOP 971 Page 476 of 514

Rack ID:		Work Station		Micro Temp 100?
Internal Standard		Balance #	1121111212	

DF = Dilution Factor FV = Final Volume

S-bath ID	C	S-bath ID	C	N-Evap	C	M-vap	C	16180002

Documented temps are NIST corrected.

SECTION 6

GENERAL PARAMETER DATA SUPPORT DOCUMENTATION

ENVIRONMENTAL STANDARDS

INORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: Saint Gobain Bennington
Sample Collection Dates: 6/20/16
Job Number: 20167391
Project Manager: Meg Michell
Laboratory: ELLE

Reviewed by: THW
Approved by: MJM
Completion Date: 5/2017

Applicable Sample No's (x)

Refer to Table 1 in the Quality Assurance Review

Deliverable:
CLP (Full) ( )
Level IV (Full) ( )
Limited (x)
Other:

Sample No.	Lab Control No.
SGP97	

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	5310B	2540G				5310B	2540G				5310B	2540G			
Holding Times	x	x									x	x			
Blank Analysis Results	x										x				
Matrix Spike (Predigestion) Results	x										x				
Duplicate Analysis: ( ) Field (x) Lab	x										x				
Quantitation of Results															
Detection Limit/Sensitivity	x	x									x	x			
Initial Calibrations	x										x				
Continuing Calibrations	x										x				
Laboratory Control Standard (LCS)	x	x									x	x			
ICP Linear Range Analysis															
ICP Interference Checks															
ICP Serial Dilutions															
ICP Post-Digestion Spike															
GFAA Post Digestion Spikes															
GFAA Duplicate Injections															
ICP Multiple Exposures															
GFAA Standard Additions															
CRDL Standards															
Condition on Receipt	x	x									x	x			
Percent Solids															
Others:															

Comments:

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 08/05/2016 13:43

Group Number: 1674752

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16190006	Sample number(s): 8438959-8438962,8438965,8438967-8438968,8438970-8438972			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16180002	Sample number(s): 8438963-8438964,8438966,8438969			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10
	mg/kg		mg/kg	mg/kg
Batch number: 16193298731B	Sample number(s): 8438959			
TOC	100	U	100	300
Batch number: 16194298731A	Sample number(s): 8438960-8438962,8438965,8438967-8438968,8438970-8438972			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 08/05/2016 13:43

Group Number: 1674752

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16190006	Sample number(s): 8438959-8438962,8438965,8438967-8438968,8438970-8438972								
Perfluorobutanesulfonate	17.8	13.6	17.8	16.12	76	91	70-130	17	30
Perfluorodecanoic acid	20	17.21	20	19.7	86	98	70-130	14	30
Perfluorododecanoic acid	20	17.72	20	20.64	89	103	70-130	15	30
Perfluoroheptanoic acid	20	12.79	20	13.28	64*	66*	70-130	4	30
Perfluorohexanesulfonate	18.92	18.15	18.92	18.91	96	100	70-130	4	30
Perfluorohexanoic acid	20	21.39	20	22.34	107	112	70-130	4	30
Perfluorononanoic acid	20	17.29	20	18.65	86	93	70-130	8	30
Perfluoro-octanesulfonate	19.12	16.53	19.12	18.11	86	95	70-130	9	30
Perfluorooctanoic acid	20	17.1	20	18.43	86	92	70-130	7	30
Perfluorotetradecanoic acid	20	32.92	20	25.67	165*	128	70-130	25	30
Perfluorotridecanoic acid	20	25.32	20	24.77	127	124	70-130	2	30
Perfluoroundecanoic acid	20	16.33	20	18.87	82	94	70-130	14	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16180002	Sample number(s): 8438963-8438964,8438966,8438969								
Perfluorooctanoic acid	90.9	110.43	90.9	116.41	121	128	70-130	5	30
Perfluorononanoic acid	90.9	110.81	90.9	114.16	122	126	70-130	3	30
Perfluorodecanoic acid	90.9	109.1	90.9	118.35	120	130	70-130	8	30
Perfluoroundecanoic acid	90.9	112.22	90.9	111.31	123	122	70-130	1	30
Perfluorododecanoic acid	90.9	102.45	90.9	104.79	113	115	70-130	2	30
Perfluorotridecanoic acid	90.9	100.89	90.9	121.4	111	134*	70-130	18	30
Perfluorotetradecanoic acid	90.9	110.39	90.9	104.92	121	115	70-130	5	30
Perfluorohexanoic acid	90.9	104.26	90.9	98.61	115	108	70-130	6	30
Perfluoroheptanoic acid	90.9	102.94	90.9	107.91	113	119	70-130	5	30
Perfluorobutanesulfonate	80.37	195.34	80.37	141.88	243*	177*	70-130	32*	30
Perfluorohexanesulfonate	86	131.43	86	103.33	153*	120	70-130	24	30
Perfluoro-octanesulfonate	86.9	171.17	86.9	116.48	197*	134*	70-130	38*	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16193298731B	Sample number(s): 8438959								
TOC	5430	4735.69			87		47-143		
Batch number: 16194298731A	Sample number(s): 8438960-8438962,8438965,8438967-8438968,8438970-8438972								
TOC	5430	4412.58			81		47-143		
	%	%	%	%					
Batch number: 16180820010B	Sample number(s): 8438959-8438962,8438965,8438967-8438968,8438970-8438972								
Moisture	89.5	89.47			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g	ng/g					

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 08/05/2016 13:43

Group Number: 1674752

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 16190006	Sample number(s): 8438959-8438962,8438965,8438967-8438968,8438970-8438972 UNSPK: 8432144										
Perfluorobutanesulfonate	0.50	U	17.8	17.25			97		70-130		
Perfluorodecanoic acid	0.632		20	19.32			93		70-130		
Perfluorododecanoic acid	13.87		20	32.16			91		70-130		
Perfluoroheptanoic acid	0.30	U	20	13.31			67*		70-130		
Perfluorohexanesulfonate	0.50	U	18.92	19.27			102		70-130		
Perfluorohexanoic acid	0.20	U	20	23.32			117		70-130		
Perfluorononanoic acid	0.20	U	20	18.31			92		70-130		
Perfluoro-octanesulfonate	0.70	U	19.12	18.77			98		70-130		
Perfluorooctanoic acid	6.11		20	23.05			85		70-130		
Perfluorotetradecanoic acid	9.55		20	24.35			74		70-130		
Perfluorotridecanoic acid	5.55		20	24.57			95		70-130		
Perfluoroundecanoic acid	1.55		20	16.92			77		70-130		
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 16180002	Sample number(s): 8438963-8438964,8438966,8438969 UNSPK: 8441143										
Perfluorooctanoic acid	1	U	90.9	118.56			130		70-130		
Perfluorononanoic acid	1	U	90.9	123.48			136*		70-130		
Perfluorodecanoic acid	1	U	90.9	127.34			140*		70-130		
Perfluoroundecanoic acid	2	U	90.9	103.24			114		70-130		
Perfluorododecanoic acid	3	U	90.9	122.79			135*		70-130		
Perfluorotridecanoic acid	2	U	90.9	104.09			115		70-130		
Perfluorotetradecanoic acid	3	U	90.9	109.39			120		70-130		
Perfluorohexanoic acid	1	U	90.9	114.62			126		70-130		
Perfluoroheptanoic acid	1	U	90.9	103.34			114		70-130		
Perfluorobutanesulfonate	4	U	80.37	111.71			139*		70-130		
Perfluorohexanesulfonate	4	U	86	82.5			96		70-130		
Perfluoro-octanesulfonate	5	U	86.9	104.46			120		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 16193298731B	Sample number(s): 8438959 UNSPK: P437372										
TOC	4119.98		60484	75262.1			118		47-143		
Batch number: 16194298731A	Sample number(s): 8438960-8438962,8438965,8438967-8438968,8438970-8438972 UNSPK: 8438960										
TOC	1864.74		10680	10555.75			81		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 16193298731B	Sample number(s): 8438959 BKG: P437372			

→ not project sample

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 08/05/2016 13:43

Group Number: 1674752

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
TOC	4119.98	5984.89	37* (1)	7
Batch number: 16194298731A	Sample number(s): 8438960-8438962,8438965,8438967-8438968,8438970-8438972 BKG: 8438960			
TOC	1864.74	1441.46	26* (1)	7
	%	%		
Batch number: 16180820010B	Sample number(s): 8438959-8438962,8438965,8438967-8438968,8438970-8438972 BKG: P439241			
Moisture	7.40	7.33	1	5

within 5 x LOQ

not project sample.

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SGP97
Matrix: SOLID

Instrumental Water Quality
Fraction: Instrumental Wet Chemistry

UNSPK: 8438960 ✓ MS: 8438960	Batch: **16194298731A** (Sample number(s): 8438960-8438962, 8438965, 8438967-8438968, 8438970-8438972)									
Parameter	**ME**	**Spike Added mg/kg**	**Unspiked Conc mg/kg**	**MS Conc mg/kg**	**MSD Conc mg/kg**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	10680	1864.74 ✓	10555.75 ✓	NA	81 ✓	NA	47-143	NA	NA

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Duplicate

SDG: SGP97
Matrix: SOLID

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

BKG: 8438960 DUP: 8438960	Batch: **16194298731A** (Sample number(s): 8438960-8438962, 8438965, 8438967-8438968, 8438970-8438972)				
Parameter	**ME**	**Unspiked Conc mg/kg**	**DUP Conc mg/kg**	**%RPD**	**%RPD Limits**
TOC	TOC	1864.74	1441.46	26* (1)	7

LOQ = 993

Δ = 423.28

results < 5x LOQ

and Δ < 2x LOQ

no impact

Comments:
(1) The sample and/or duplicate result is less than five times the LOQ.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SGP97
Matrix: SOLID

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

LCS: 161931QQ	Batch: **16193298731B** (Sample number(s): 8438959)								
Parameter	**ME**	**Spike Added mg/kg**	**LCS Conc mg/kg**	**LCSD Conc mg/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	5430	4735.69	NA	87	NA	47-143	NA	NA

LCS: 161941QQ	Batch: **16194298731A** (Sample number(s): 8438960-8438962, 8438965, 8438967-8438968, 8438970-8438972)								
Parameter	**ME**	**Spike Added mg/kg**	**LCS Conc mg/kg**	**LCSD Conc mg/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	5430	4412.58	NA	81	NA	47-143	NA	NA

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Quality Control Summary
Method Blank
Instrumental Water Quality
SDG: SGP97
Matrix: SOLID

Fraction: Instrumental Wet Chemistry

16193298731A / 161931BB Parameter	ME	Analysis Date	Blank Results	Units	MDL	LOQ
TOC	TOC	07/11/16	N.D.	mg/kg	100	300

16194298731A / 161941BB Parameter	ME	Analysis Date	Blank Results	Units	MDL	LOQ
TOC	TOC	07/12/16	N.D.	mg/kg	100	300

Fraction: Instrumental Wet Chemistry

02079: TOC Analyte Name	Default MDL	Default LOQ	Units
TOC	100	300	mg/kg

OFFSET = 1211 cts (-0.319 mgC)

OI Analytical
TOC Solids V3.0
Analysis Date: Fri Jul 01 14:11:42 2016

#0001 14:23:14 TC STD#04 006.000 mgC 0027298 cts

CALIBRATION RESULTS:
STD TYPE = TC
STD#1 = 00.300 mgC 1 reps Avg Area = 2174.0 cts %rsd = 0.00
STD#2 = 00.900 mgC 1 reps Avg Area = 5125.0 cts %rsd = 0.00
STD#3 = 03.000 mgC 1 reps Avg Area = 13992.0 cts %rsd = 0.00
STD#4 = 06.000 mgC 1 reps Avg Area = 27290.0 cts %rsd = 0.00
RF = 227.093 ugC/k-cts
R2 = 0.9994
OFFSET = 918 cts (-0.209 mgC)

OI Analytical
TOC Solids V3.0
Analysis Date: Fri Jul 01 14:23:40 2016

#0001 14:35:30 TC SPL#01 3.000 mg 0014077 cts 002.980 mgC 99.61 %C

OI Analytical
TOC Solids V3.0
Analysis Date: Fri Jul 01 14:50:27 2016

#0001 14:50:11 TC SPL#01 0.000 mg 0000000 cts -000.209 mgC 0.00 %C

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 7-1-16

Instrument #: 76837

R^2: 0.9994 r=0.9997

Analyst: CMW297

Sucrose Soln Lot #: 017915 Exp 1-20-18

Run #: 161832 CAL

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	CAL 0	-0.349	0.0				13:29				
2	CAL 1	2171 cts	1 µL				13:50		0.3 mg C		
3	CAL 2	5125 cts	3 µL				14:00		0.9 mg C		
4	CAL 3	13992 cts	10 µL				14:11		3.0 mg C		
5	CAL 4	27298 cts	20 µL				14:23		6.0 mg C		
6	ICV	2.988	10 µL	IS			14:35		100%		
7	ICB	-0.209	0.0				14:58				

CMW 7-1-16

Verified by: [illegible] Date: 7/6/16

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 7-11-16 ✓ Instrument #: 76837

R^2: 0.9994 (≥0.9997 Analyst: CW2987

Sucrose Soln Lot #: 012015 (E: 1-20-17

Run #: 1 | 6 | 1 | 9 | 3 | 1

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	CCV	3.045 ✓	10mL	(IS)			10:16		101% ✓		
2	CCB	-0.209	0.0	↓			10:18				
3	LCSS	0.864 ✓	183.5	4735.7 ✓	5.45	1635	10:44	1619329873IA	TV=5430 %rec=87		
4	PBS	-0.172	0.0	0.0	1	300	11:05				
5	8433415-4	0.170	700.1	242.8	1.43	429	11:16				
6	8433415-R	2.219	433.2	5122.3	2.31	693	11:53		SA=6930 %rec=70		
7	8433415-D	0.161	1001.2	160.8	1.00	300	12:17				
8	8433419	2.915	691.7	4214.3	1.45	435	12:28				
9	8433420	-0.209	787.5	0.0	1.27	381	13:01				
10	8433421	0.685	765.5	894.8	1.31	393	13:20				
11	8437364	1.467	682.4	2149.8	1.47	441	13:59				
12	8437365	0.081	692.7	116.9	1.44	432	14:08	↓			
13	CCV	3.037 ✓	10µL	(IS)			14:36		101% ✓		
14	CCB	-0.209	0.0	↓			14:44				

SGP97 Page 4698 of 5174

Verified by: EB/LLS Date: 7/11/16

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 7-11-16

Instrument #: 76837

R^2: 0.9954 (=0.9997

Analyst: CW2987

Sucrose Soln Lot #: 012015 (=1-20-18

Run #: 161931

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
15	84373666	1.988	591.6	3360.4	1.69	507	14:59				
16	84373647	7.913	493.3	—	2.03	—	15:15				
17	84373668	10.406	433.3	—	2.31	—	15:35				
18	84373669	5.734	433.2	13240.997	2.31	693	15:43				
19	CCV	3.049	10mL	(E)			15:53		102%		
20	CCB	-0.209	0.0	↓			16:00				

CW2987 7-11-16

Verified by: BC/LS Date: 7/11/16

1941.03

237372 2

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 7.11.16 ✓ Instrument #: 76837

R^2: .9994 R=.9997 Analyst: Emily

Sucrose Soln Lot #: 012015 exp. 1.20.18

Run #: 161932

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	CCV 3.0	3.279 ✓	0.2mL	(+S)			1749		109% ✓		
2	CCB	-.209	0.0	↓			1803				
3	8437367	7.173	171.2	RPT			1811	161932987314			
4	~~8437376~~ 8437368	2.720	183.1	14855.27 ✓	5.46	1638	1821	↓			
5	8437370	.903	1666.0	5439.76 ✓	6.02	1806	1834	161932987313			
6	8437371	2.361	97.2	24290.12 ✓	10.29	3087	1857				
7	8437372-4	.728	176.7	4119.98 ✓	5.66	1698	1908				
8	↓ -D	1.109	185.3	5984.89 ✓	5.40	1620	1926				
9	↓ -R	3.733	49.6	75262.1 ✓	20.16	6048	1939	↓	SA=60484 118% (+S)		
10	8437367	4.293	106.4	40347.74 ✓	9.40	2820	2038	161932987314			
11	8460252	.351	103.3	3397.87 ✓	9.68	2904	2046	161932987313	B		
12	8438959	.237 ✓	131.4	RPT			2114	↓			
13	CCV 3.0	2.913 ✓	0.2mL	(+S)			2126		97% ✓		
14	CCB	-.209	0.0	↓			2134				

SGP97 Page 502 of 544

Verified by: [signature] Date: 7/12/16

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 7.11.16

Instrument #: 76837

R^2: .9994 R=.9997

Analyst: [signature]

Sucrose Soln Lot #: 012015 exp. 1.20.18

Run #: 161932

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
15	8438959	.732	264.9	2763.31	3.78	1134	2141	161932987318			SGP97
16	CCV 3.0	3.112	0.2 ml	IS			2150		1049.		
17	CCB	-.209	0.0	↓			2157				

SGP97 Page 503 of 514

Verified by: [signature] Date: 7/12/16

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 7-12-16

Instrument #: 74837

R^2: 0.9994 r=0.9997

Analyst: CWZ987

Sucrose Soln Lot #: 012015 Exp: 1-20-18

Run #: 161941

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
1	CCV	3.058	10mL	(IS)			9:51		102%		
2	CCB	-0.209	0.0				10:04		③ CWZ 7-12-16		
3	LCIS	0.800	181.3	4412.6	5.52	1656	10:26	161942987314	TV = ~~5T~~ 5130 & PCC = 5T		
4	PBS	-0.209	0.0	0.0	1	300	10:35				
5	84388960-4	0.659	353.4	1864.7	2.83	849	10:46				
6	84388960-R	-0.209	198.6		5.04		10:59		RI		
7	84388960-D	-0.209	353.4		2.83		11:13		RI		
8	84388961	0.431	375.9	1146.6	2.66	798	11:25				
9	84388962	0.596	370.7	1607.8	2.70	810	11:52				
10	84388965	0.005	324.6		3.08		12:07		RI		
11	84388967	1.058	722.0	1465.4	1.39	417	12:15				
12	84388968	0.297	736.6	403.2	~~3.36~~ ③ 7-12-16	408	12:25		full cup		
13	CCV	3.144	10mL	(IS)			12:46		105%		
14	CCB	-0.209	0.0				12:59				

SGP97 Page 507 of 514

Verified by: BM/3-17 Date: 7/13/16

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Raw Data Notebook
Total Organic Carbon Solids Module

Date: 7-12-16

Instrument #: 76837

R^2: 0.9994 r=0.9997

Analyst: CW2987

Sucrose Soln Lot #: 012015 E: 1-20-18

Run #: 1 6 1 9 4 1

Inj .#	Sample Number	Raw Result (mgC)	Weight (mg) or µL used	Calc. Result (mg/kg)	Factor	LOQ	Time	Batch Number	Comments	Trial Avg.	SDG
15	843897O	1.768	3720	4752.7	2.69	807	13:07	161947287331A			
16	8438971	0.744	5482	1357.2	1.82	546	13:20				
17	8438972	0.270	523.4	515.9	1.91	573	13:43		full cup		
18	8438960-E	2.963	280.7	10555.75	3.56	1068	14:25		SA= 106680 %rec= 81		
19	8438960-D	0.655	454.4	1441.5	2.20	660	14:50				
20	8438965	0.078	486.6		2.06		15:13		RT		
21	8438965	0.443	951.8	465.4	1.05	315	15:40				
22	CCV	3.097	0ML	FS			15:48		103 %		
23	CCB	-0.209	0.0				15:55				
									CW 2987 7-12-16		

SGP97 Page 508 of 514

Verified by: SM 7/13/16 Date: 7/13/16

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Combustion TOC Prep Log
Analysis #2079, #0383

Phosphoric Lot #062216 Exp 12-16

Oven ID# 1887

Oven Temperature (°C) 75

Tray #: 30 Balance ID: B35614 Time In: 0930 Time Out: 0945

Position	Date	Analyst	Sample #	Weight (mg)	Batch Number	Comments
A1	7-11-16	CW2987	CCSS	187.5	161932987311A	
A2			PBS	0.0		
A3			8433415-4	700.1		full cup
A4			8433415-R	433.2		
A5			8433415-D	1001.2		full cup
A6			8433419	691.7		full cup
A7			8433420	787.5		full cup
A8			8433421	765.5		full cup
B1			8437364	682.4		full cup
B2			8437365	692.7		full cup
B3			8437366	591.6		full cup
B4			8437367	493.3		full cup
B5			8437368	433.3		full cup
B6			8437369	433.2		full cup
B7	7.11.16	Asmyer	8437367	171.2		8/05 7/13/16
B8			8437368	183.1		
C1			8437370	166.0	161932987313	
C2			8437371	97.2		
C3			8437372-4	176.7		
C4			-D	185.3		
C5			-R	49.6		
C6			8437367	106.4	161932987311A	
C7			8460252	103.3	161932987313	
C8			8438959	131.4		
			8438959	264.9		

Verified by: _____ Date: 7/12/16

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Combustion TOC Prep Log
Analysis #2079, #0383

Phosphoric Lot #_____

Oven ID# 1887

Oven Temperature (°C) 75

Tray #: 30 Balance ID: B35614 Time In: 945 Time Out: 1000

Position	Date	Analyst	Sample #	Weight (mg)	Batch Number	Comments
A1	7-12-16	CW298T	LCSS	181.3	1619429873IA	
A2			PBS	0.0		
A3			8438960-4	353.4		
A4			8438960-R	198.6		RI
A5			8438960-D	353.4		RI
A6			8438961	375.9		
A7			8438962	370.7		
A8			8438965	324.6		higher weight
B1			8438967	722.0		full cup
B2			8438968	736.6		full cup
B3			8438970	372.0		
B4			8438971	548.2		full cup
B5			8438972	523.4		full cup
B6	7-12-16	CW298T	8438960-R	280.7	1619429873IA	
B7			8438960-D	454.4		
B8			8438965	486.6		
C1			8438965	951.8		full cup
C2						
C3						
C4						
C5						
C6						
C7						
C8						

Verified by: SM 347 Date: 7/13/16

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CLIENT: C. T. Male Associates
SDG: SGP97

MOISTURE

SAMPLE NUMBERS:

Sample #	Sample Code
8438959	SG311
8438960	SG312
8438961	SG313
8438962	SG314
8438965	SG315
8438967	SG316
8438968	SG317
8438970	61SG3
8438971	62SG3
8438972	63SG3

COMMENTS:

Method defined actions are taken for any failed matrix QC.

Laboratory Compliance Quality Control

Analysis Name		LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number:	16180820010B	Sample number(s):		8438959-8438962, 8438965, 8438967-8438968, 8438970-8438972		
Moisture		100		99-101		

Sample Matrix Quality Control

Analysis Name		BKG Conc	DUP Conc	RPD	RPD Max
Batch number:	16180820010B	Sample number(s):		8438959-8438962, 8438965, 8438967-8438968, 8438970-8438972	
Moisture		7.4	7.3	1	5

Batch

* - Outside of specification

(1) - The result for one or both determinations was less than five times the LOQ.

Moisture Data Report

Batch #: 16180820010

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
8438959	B	00111	1.0870	6.8114	7.0669	12.21	6/28/16 (1201/SWF)	6/29/16 (236/CW)
8438960	B	00111	1.0783	7.6830	7.6436	14.55	6/28/16 (1201/SWF)	6/29/16 (236/CW)
8438961	B	00111	1.0795	9.3818	8.6685	19.11	6/28/16 (1201/SWF)	6/29/16 (236/CW)
8438962	B	00111	1.0747	8.8843	8.4951	16.48	6/28/16 (1201/SWF)	6/29/16 (236/CW)
8438965	B	00111	1.0504	9.4570	8.0334	26.16	6/28/16 (1201/SWF)	6/29/16 (236/CW)
8438967	B	00111	1.0945	8.3218	8.4898	11.13	6/28/16 (1201/SWF)	6/29/16 (236/CW)
8438968	B	00111	1.0700	7.1431	7.5465	9.33	6/28/16 (1201/SWF)	6/29/16 (236/CW)
8438970	B	00111	1.0877	9.6668	9.0333	17.81	6/28/16 (1201/SWF)	6/29/16 (236/CW)
8438971	B	00111	1.1248	5.8562	6.0784	15.41	6/28/16 (1201/SWF)	6/29/16 (236/CW)
8438972	B	00111	1.1038	7.8521	8.2116	9.48	6/28/16 (1201/SWF)	6/29/16 (236/CW)
P439241BKG	B	00111	1.0932	7.5708	8.1035	7.40	6/28/16 (1201/SWF)	6/29/16 (236/CW)
P439241DUP	B	00111	1.0889	7.2124	7.7725	7.33	6/28/16 (1201/SWF)	6/29/16 (236/CW)
LCS 89.5% Std.		00111	1.0720	5.0295	1.6018	89.47	6/28/16 (1201/SWF)	6/29/16 (236/CW)

SECTION 7

LABORATORY CASE NARRATIVES AND

PROJECT CHAIN-OF-CUSTODY RECORD

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Sample Reference List for SDG Number SGP97 with a Data Package Type of I

37191 - C. T. Male Associates

Project: SGPP - Bennington

Lab Sample Number	Client Sample ID	Collection Date	Date Received
8438959	SG3-MW01-00.0	06/20/2016 08:54	06/22/2016 09:30
8438960	SG3-MW01-00.5	06/20/2016 09:02	06/22/2016 09:30
8438961	SG3-MW01-01.0	06/20/2016 09:08	06/22/2016 09:30
8438962	SG3-MW01-01.5	06/20/2016 09:13	06/22/2016 09:30
8438963	SG3-LTB01-20160620	06/08/2016 00:00	06/22/2016 09:30
8438964	SG3-FTB01-20160620	06/20/2016 08:44	06/22/2016 09:30
8438965	SG3-MW01-03.5	06/20/2016 10:00	06/22/2016 09:30
8438966	SG3-RB01-20160620	06/20/2016 10:20	06/22/2016 09:30
8438967	SG3-MW01-08.0	06/20/2016 10:38	06/22/2016 09:30
8438968	SG3-MW01-13.0	06/20/2016 11:18	06/22/2016 09:30
8438969	SG3-RB02-20160620	06/20/2016 13:10	06/22/2016 09:30
8438970	SG3-MW06-05.0	06/20/2016 14:10	06/22/2016 09:30
8438971	SG3-MW06-10.5	06/20/2016 14:10	06/22/2016 09:30
8438972	SG3-MW06-13.5	06/20/2016 14:32	06/22/2016 09:30

Project Name: SGPP - Bennington
LL Group #: 1674752

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8438963, 8438964, 8438966, 8438969

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample #s: 8438959, 8438960, 8438961, 8438962, 8438965, 8438967, 8438968, 8438970, 8438971, 8438972

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.
Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP97

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8438959	SG3-MW01-00.0		X	1	
8438960	SG3-MW01-00.5		X	1	
8438961	SG3-MW01-01.0		X	1	
8438962	SG3-MW01-01.5		X	1	
8438963	SG3-LTB01-20160620	X		1	Trip Blank
8438964	SG3-FTB01-20160620	X		1	Field Blank
8438965	SG3-MW01-03.5		X	1	
8438966	SG3-RB01-20160620	X		1	Material Rinse Blank
8438967	SG3-MW01-08.0		X	1	
8438968	SG3-MW01-13.0		X	1	
8438969	SG3-RB02-20160620	X		1	Material Rinse Blank
8438970	SG3-MW06-05.0		X	1	
8438971	SG3-MW06-10.5		X	1	
8438972	SG3-MW06-13.5		X	1	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP97

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

LCS/LCSD

(Sample number(s): 8438963-8438964, 8438966, 8438969: Analysis: 10954)
The internal standard responses for several compounds in the LCS and LCSD were less than 50% of the average area measured during the initial calibration. Since the response is low, any result should be considered biased high.

(Sample number(s): 8438959-8438962, 8438965, 8438967-8438968, 8438970-8438972: Analysis: 14027)
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

(Sample number(s): 8438963-8438964, 8438966, 8438969: Analysis: 10954)
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Batch#: 16180002 (Sample number(s): 8438963-8438964, 8438966, 8438969)
The relative percent difference(s) for the following analyte(s) in the LCS/LCSD is outside the acceptance window: Perfluorobutanesulfonate, Perfluoro-octanesulfonate

The recovery(ies) for the following analyte(s) in the LCS exceeds the acceptance window indicating a positive bias: Perfluorohexanesulfonate
Since the recovery is high and no analytes are detected above the quantitation limit, the data is reported.

The recovery(ies) for the following analyte(s) in the LCSD exceeds the acceptance window indicating a positive bias: Perfluorotridecanoic acid
Since the recovery is high and no analytes are detected above the quantitation limit, the data is reported.

The recovery(ies) for the following analyte(s) in the LCS and LCSD exceeds the acceptance window indicating a positive bias: Perfluorobutanesulfonate, Perfluoro-octanesulfonate
Since the recovery is high and no analytes are detected above the quantitation limit, the data is reported. Refer to the QC Summary forms for more information.

Batch#: 16190006 (Sample number(s): 8438959-8438962, 8438965, 8438967-8438968, 8438970-8438972)
The recovery(ies) for the following analyte(s) in the LCS exceeds the acceptance window indicating a positive bias: Perfluorotetradecanoic acid
Since the recovery is high and no analytes are detected above the quantitation limit, the data is reported.

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP97

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD is below the acceptance window: Perfluoroheptanoic acid
Refer to the QC Summary forms for more information.

MS/MSD

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

SAMPLE ANALYSIS:

(Sample number(s): 8438959-8438962, 8438965, 8438967-8438968, 8438970-8438972: Analysis: 14027)
Internals standard responses were greater than 50% of the average area measured during the initial calibration. The sample was reextracted outside the required holding time. Comparable data was observed between the two extractions. Both sets of data will be reported in the data package.

(Sample number(s): 8438963-8438964, 8438966, 8438969: Analysis: 10954)
The internal standard responses for PFBS, PFOS, and PFHxA in this sample were less than 50% of the average area measured during the initial calibration. Since the response is low, any result should be considered biased high.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP97

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8438959	SG3-MW01-00.0		X	1	
8438960	SG3-MW01-00.5		X	1	
8438961	SG3-MW01-01.0		X	1	
8438962	SG3-MW01-01.5		X	1	
8438965	SG3-MW01-03.5		X	1	
8438967	SG3-MW01-08.0		X	1	
8438968	SG3-MW01-13.0		X	1	
8438970	SG3-MW06-05.0		X	1	
8438971	SG3-MW06-10.5		X	1	
8438972	SG3-MW06-13.5		X	1	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Sample Duplicate

Method defined actions are taken for any failed matrix QC.

Batch#: 16194298731A (Sample number(s): 8438960-8438962, 8438965, 8438967-8438968, 8438970-8438972, UNSPK: 8438960, BKG: 8438960)
The duplicate RPD for the following analyte(s) is outside the acceptance window: TOC

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SGP97

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

(Sample number(s): 8438968, 8438972: Analysis: 02079)
Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Abbreviation Key

U = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
R = Matrix Spike (MS)	MDL = Method Detection Limit
M = Matrix Spike Duplicate (MSD)	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	NA = Not Applicable
HS = High Spike	ME = Method
LS = Low Spike	CO = Colorimetric
SS = Soluble Spike	G = Gravimetric
IS = Insoluble Spike	IR = Infrared Spectrophotometry
ISD = Insoluble Spike Duplicate	MTR = Meter
PDS = Post Digestion Spike	OD = Oven Dried
* = Out of Specification	TI = Titration
V = Visual	TOC = Total Organic Carbon
AK = Alpkem	IC = Ion Chromatography
TC = Total Carbon	RA = Rapid Analyzer

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1674752 Sample #: 84138959-72 COC#: 14770

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: 16,6131
Sampler: Jonathan Dippert	
Phone #: 518-786-7400	Quote #: 214135
State where sample(s) were collected: VT	

For Lab Use Only
SF#: 271157
SCR#: 189860

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Matrix: Sediment	Matrix: Water (Potable / Ground / NPDES / Surface)	Matrix: Other: Blank Water	Total # of Containers	Analyses Requested: Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW01-00.0	6/20/16	854	X		X				1		X		
SG3-MW01-00.5	6/20/16	902	X		X				1		X		
SG3-MW01-01.0	6/20/16	908	X		X				1		X		
SG3-MW01-01.5	6/20/16	913	X		X				1		X		
SG3-LTB01-20160620	6/8/2016	—	—				X	X	1		X		
SG3-FTB01-20160620	6/20/16	844	X					X	1		X		
SG3-MW01-03.5	6/20/16	1000	X		X				1		X		
SG3-RB01-20160620	6/20/16	1020	X					X	1		X		
SG3-MW01-08.0	6/20/16	1038	X		X				1		X		
SG3-MW01-13.0	6/20/16	1118	X		X				1		X		

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	[ ]	MA MCP	[ ]
Type III (Reduced non-CLP)	[ ]	CT RCP	[ ]
Type IV (CLP SOW)	[ ]	ASP Type A	[ ]
Type VI (Raw Data Only)	[ ]	ASP Type B	[✓]
		TX TRRP - 13	[ ]

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

	Relinquished by:	Date	Time	Received by:	Date	Time
1		6/21/16	1615			
2						
3						
4						
5						

Airbill No.:
Relinquished by Commercial Carrier:
UPS ____ FedEx X Other ____

Temperature upon receipt 2.3 °C

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Environmental Services Analysis Request/Chain of Custody

Page 2 of 2

Acct. #: 37191 Group #: 1674752 Sample #: 8438959-72 COC#: 14770

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Jonathan Dippert	
Phone #: 518-786-7400	Quote #: 214135
State where sample(s) were collected: VT	

Matrix: Sediment ☐ / Soil ☒; Water: Ground ☐ Surface ☐ / Potable ☐ NPDES ☐; Other: Blank Water

Analyses Requested / Preservation Codes

For Lab Use Only: SF#: 271157 SCR#: 189860

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other: Blank Water	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)									Remarks
SG3-~~RB06~~ RB02-20160620	6-20-16	1310	X				X	1		X										
SG3-MW06-05.0	6-20-16	1410	X		X			1		X										
SG3-MW06-10.5	6-20-16	1410	X		X			1		X										
SG3-MW06-13.5	6-20-16	1434	X		X			1		X										

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☑		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	6/21/16	1615			
Relinquished by:			Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received by: [signature]	6-22-16	930

Airbill No.:
Relinquished by Commercial Carrier:
UPS ____ FedEx X Other ____

Temperature upon receipt 2.3 °C

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Environmental Services Analysis Request/Chain of Custody

Page 1 of 1

Acct. #: 37191 Group #: 1674752 Sample #: 8438957-72 COC#: 14770

Client:	C.T. Male Associates
Project Name/#:	SGPP - Bennington
Site ID:	
Project Manager:	Kirk Moline
P.O. #:	16.6131
Sampler:	Jonathan Dippert
Phone #:	518-786-7400
Quote #:	214135
State where sample(s) were collected:	VT

For Lab Use Only
SF#: 271157
SCR#: 189860

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Matrix: Soil (Sediment), Water (Ground, Surface, Potable, NPDES), Other

Analyses Requested: Moisture (2540 G), PFCs (EPA 537 mod.), TOC (5310 B)

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)	TOC (5310 B)	Remarks
SG3-MW01-00.0	6/20/16	856	X		X			1	X		X	
SG3-MW01-00.5	6/20/16	904	X		X			1	X		X	
SG3-MW01-01.0	6/20/16	910	X		X			1	X		X	
SG3-MW01-01.5	6/20/16	915	X		X			1	X		X	
SG3-MW01-03.5	6/20/16	1003	X		X			1	X		X	
SG3-MW01-08.0	6/20/16	1040	X		X			1	X		X	
SG3-MW01-13.0	6/20/16	1120	X		X			1	X		X	
SG3-MW06-05.00	6/20/16	1412	X		X			1	X		X	
SG3-MW06-10.5	6/20/16	1412	X		X			1	X		X	
SG3-MW06-13.5	6/20/16	1432	X		X			1	X		X	

Turnaround Time Requested (TAT) (please check): Standard [X] RUSH [ ]
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results: K.Moline@CTMale.com

Data Package Options (please check if required)

- Type I (Validation/non-CLP) [ ] MA MCP [ ] TX TRRP - 13 [ ]
- Type III (Reduced non-CLP) [ ] CT RCP [ ]
- Type IV (CLP SOW) [ ] ASP Type A [ ]
- Type VI (Raw Data Only) [ ] ASP Type B [✓]

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	6/21/16	1615			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: [signature]	6-22-16	930

Airbill No.:
Relinquished by Commercial Carrier:
UPS ____ FedEx X Other ____

Temperature upon receipt 2.3-3.5 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 151237

Group Number(s): 1674752

Client: CT Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	06/22/2016 9:30
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved

Unpacked by Timothy Cubberley (6520) at 11:55 on 06/22/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	2.3	DT	Wet	Y	Bagged	N
2	DT131	3.5	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
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www.LancasterLabs.com

SECTION 8

PROJECT CORRESPONDENCE

Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Monday, September 26, 2016 4:28 PM
To: Meg Michell; Charles Neslund
Cc: David Blye; Al Tordini; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: Revised (II) Questions on ELLI calibration procedures

Meg,
The 06/14/2016 ICAL was initially processed for samples from extraction batch 16141004 (SGP47). The analyst then reprocessed the 06/14/2016 ICAL for samples in batch 16141003 (SGP45). PFDA and PFTeDA were manually integrated and when the ICAL was reprocessed, the integrations would have differed slightly thus the slight variations in response. The analyst was thinking in terms of making each extraction batch a stand-alone product. At the time these samples were generated, we did not have a way to show the manual integrations/original integrations on paper. They can be viewed electronically on the data system. Going forward, we now have a way to show the manual integrations/original integrations. Those will be sent in subsequent data packages as available.

The PFTeDA curve in SGP45 being a linear curve and in SGP47 being a quadratic curve is not incorrect. The SOP and method 537.1 allow for the use of either curve fit. Quite possibly the analysts was thinking DoD criteria for other samples they were running and chose to use a quadratic but I am not sure. The analyst is no longer employed by ELLE and not available to ask. Again, the quadratic curve fit is permitted by the method and SOP.

We agree that this isn't a best practice and is isolated to this analyst who is no longer with us.

Christine Ratcliff
Manager
Specialty Services

Eurofins Lancaster Laboratories Environmental, LLC
2425 New Holland Pike
Lancaster, PA 17601
717-556-7380

ChristineRatcliff@eurofinsUS.com

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Wednesday, September 21, 2016 5:54 PM
To: Charles Neslund; Christine Ratcliff
Cc: David Blye; Al Tordini; Moline, Kirk (k.moline@ctmale.com)
Subject: FW: Revised (II) Questions on ELLI calibration procedures

Hi Chuck and Christine-

As noted below, we recently came across the issue described below while conducting our review. Could you look into this and get back to us as soon as possible? Depending on the reasoning, it could impact our review process as we have been assuming that the same calibration would not vary amongst data sets.

Thanks for your help!

From: Al Tordini
Sent: Wednesday, September 21, 2016 5:24 PM
To: Meg Michell <mmichell@envstd.com>
Cc: Andrew Piasecki <apiasecki@envstd.com>
Subject: Revised (II) Questions on ELLI calibration procedures

Meg:

While reviewing the calibrations for SDGs SGP45 and SGP47, we came across a calibration common to both for which some questions have developed. The calibration in question is on Instrument 4000, with CAL1 acquisition at 6/14/2016 15:11.

1. The responses shown for PFTeDA and PFDA in CAL1 are slightly different in the two data packages (PFTeDA= 44928 in SGP45 and 44883 in SGP47; PFDA = 29479 in SGP45 and 29189 in SGP47). We need to understand the reason for these differences.
2. In the same initial calibration, PFTeDA in SGP45 was based on an (apparently) 1/x weighted linear curve. PFTeDA in SGP47 was based on an (apparently) weighted quadratic curve. We need to understand the reasoning behind using different models for the same calibration in different data packages.

We have not examined either package exhaustively, so there may be more instances of one or both of these issues. Before devoting additional time to the evaluation, we would like to understand the laboratory's reasoning.

Thanks.

Al Tordini
Senior Technical Specialist
Environmental Standards, Inc.
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Emergency Response Quality Assurance Hotline: 855.374.7272

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Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Monday, September 26, 2016 8:15 PM
To: Meg Michell; Charles Neslund
Cc: David Blye
Subject: RE: IS question

Meg,
These samples were acquired under two different acquisition methods (one for wipes and one for soils) using two different labeled analogues for C13 and C14. At the point these samples were acquired, we had not made the decision to use C13-PFDoDA for the C13 and C14 compounds.

Christine Ratcliff
Manager
Specialty Services

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2425 New Holland Pike
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ChristineRatcliff@eurofinsUS.com

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Friday, September 16, 2016 4:56 PM
To: Charles Neslund; Christine Ratcliff
Cc: David Blye
Subject: IS question

Hi-
As we try to understand the internal standards for the non-isotope dilution analytes, we keep coming across new scenarios that make me realize that I do not fully understand it.

As I understood it, the IS is selected on the basis of the initial calibration curve fit. However, I came across data where different internal standards were used for the same initial calibration for different sample sets. The calibration was performed on 5/13/16 (CAL1 at 12:52:59) and there are 2 calibration files – the first in ng/g for soil, 16126001S.rdb, and uses the labeled C11 for C13 and C14 – the second in ng/ml for wipes, 1612600Wipe.rdb, and uses the labeled C12 for C13 and C14. There are a few exceedances for CAL4, LCS, and/or CCVs when the labeled C12 is used. The wipes are all in SGP15 and the soils are in various packages (e.g., SGP18). There are positive results.

What other factors besides the initial calibration fit impact the IS selected?

Thanks!

Meg A. Michell
Senior Technical Chemist
Environmental Standards, Inc.
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610.935.5577 x422 • www.envstd.com • mmichell@envstd.com

Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Tuesday, October 4, 2016 3:10 PM
To: Meg Michell; Charles Neslund
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: 18O2-PFHxS as IS

Hi Meg,
18O2-PFHxS is not a new internal standard. When the method was initially set up, 18O2-PFHxS was misnamed as 13C-PFHxS. The same labeled compound has been used for all samples but now we are using the correct naming for this compound. This has been corrected in the revised SOPs.

I signed off on the revisions of the SOPs yesterday. I will see where they are in the process so that we can get them to you. I am confused by the water QC table? Chuck had sent Dave a table a few days after you both visited with all our acceptance criteria. Is that what you are referring to?

Christine Ratcliff
Manager
Specialty Services

Eurofins Lancaster Laboratories Environmental, LLC
2425 New Holland Pike
Lancaster, PA 17601
717-556-7380

ChristineRatcliff@eurofinsUS.com

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Monday, October 03, 2016 4:53 PM
To: Christine Ratcliff; Charles Neslund
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: FW: 18O2-PFHxS as IS

Hi-
In reviewing some more recent data, we are noting that a new IS was introduced. We have not looked closely at the data yet. Before we did, I wanted to understand if this is under the same SOP or if there are other differences that we should be aware of. This IS was not covered in the previous version of the SOP that we received.

Also, how are you coming on the SOP revisions and water QC table?

Thanks!!

From: Andrew Piasecki
Sent: Monday, October 3, 2016 4:16 PM
To: Meg Michell <mmichell@envstd.com>
Subject: 18O2-PFHxS as IS

Meg,

In SDGs SGP82, SGP87, and SGP88, the ICAL started on 7/11/16 at 15:25 on instrument API 4000 used 18O2-PFHxS as an internal

Andrew L. Piasecki
Quality Assurance Chemist
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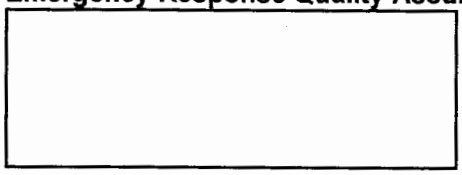
Emergency Response Quality Assurance Hotline: 855.374.7272



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Meg Michell

From: Charles Neslund <CharlesNeslund@eurofinsUS.com>
Sent: Monday, October 17, 2016 6:18 PM
To: Meg Michell; Christine Ratcliff
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: multiple transitions listed

Hi Meg,

Please see below.

Charles J. Neslund
Technical Director, Environmental Sciences

Eurofins Lancaster Laboratories Environmental, LLC
2425 New Holland Pike
Lancaster, PA 17601
office 717-556-7231
mobile 717-799-0439
CharlesNeslund@eurofinsUS.com

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Monday, October 17, 2016 12:28 PM
To: Christine Ratcliff; Charles Neslund
Cc: David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: multiple transitions listed

Hi-
I wanted to check in on the response to this email and also the outstanding revisions for the sensitive soil data. Do you have an update?
Thanks!

From: Meg Michell
Sent: Thursday, October 13, 2016 10:36 AM
To: 'Christine Ratcliff' <ChristineRatcliff@eurofinsUS.com>; Charles Neslund <CharlesNeslund@eurofinsUS.com>
Cc: David Blye <DBLYE@envstd.com>; Moline, Kirk (k.moline@ctmale.com) <k.moline@ctmale.com>
Subject: multiple transitions listed

Hi-
We talked about this on the day that we met with you, but I want to make sure that we are clear on this issue so that we can explain it properly in our reports. On the one instrument, multiple transitions (see below) are listed. What does this mean in terms of:

- Are multiple transitions monitored?
  Yes, multiple transitions are monitored. In the examples below, for PFBS the transition 299 to 80 and the transition 299 to 99 are being monitored.
- Which transition(s) is/are used for quantitation? If only one transition is used for quantitation, how do we know which one it is?
  In the examples below, both transitions that are listed are used for quantitation. The transitions are summed. The use of the acronym TIC in the upper right indicates Total Ion or the sum of the ion transitions. If only one transitions is used, then only one is displayed, numerically and graphically.

- Which transition(s) is/are reflected by the ion trace? If only one transition is reflected in the ion trace, how do we know which it is?

  Where it is listed as TIC, the ion trace, the peak/chromatogram is the summed responses for the transitions used for quantitation.

- If only one is used for quantitation and/or shown in the trace, where is the data stored/presented for the 2nd (and/or 3rd) transition?

  I think this is answered by the response to the last bullet. They both are used.

Thanks!!

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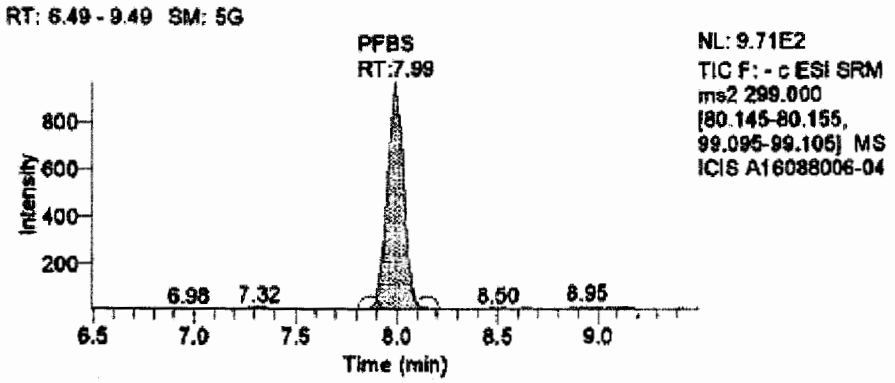

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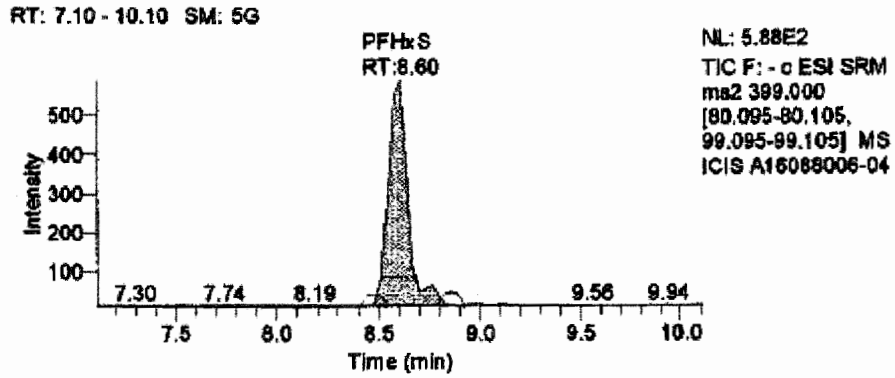
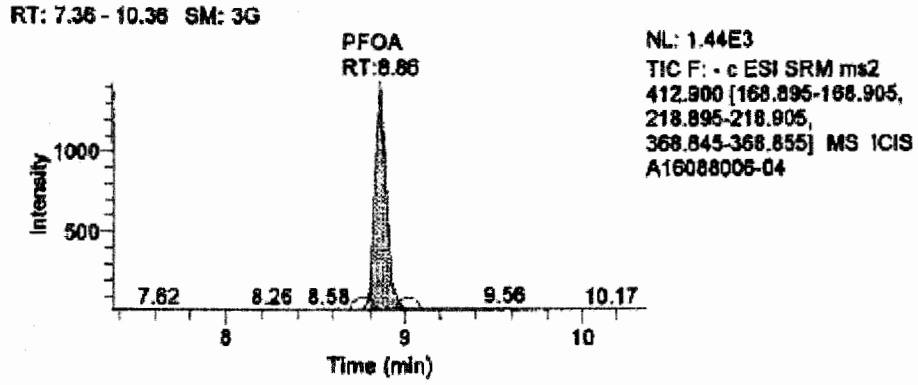
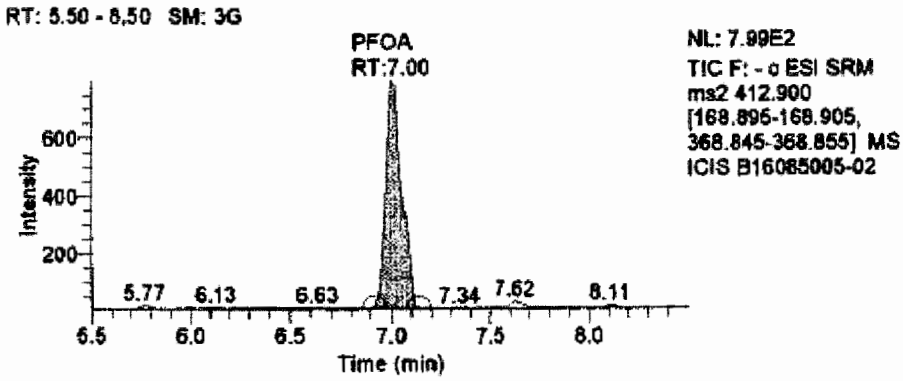


Identification Filter:	- c ESI SRM ms2 412.90 [168.90-168.91, 218.90-218.91, 368.85-368.86]





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Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Saturday, May 27, 2017 1:31 PM
To: Meg Michell; Nancy Bornholm
Cc: Charles Neslund; David Blye; Moline, Kirk (k.moline@ctmale.com); 'Margaret Treanor; Ward Swanson (WSwanson@barr.com); Terri A. Olson; Tom Weinmann; StGobain; Steve Zeiner
Subject: RE: SGP97

Meg,
These corrections have been completed. A revised data package and EDD will be issued.

Thanks

Christine Ratcliff
Manager
HRMS Group/PFAS Group

Eurofins Lancaster Laboratories Environmental LLC
2425 New Holland Pike
Lancaster, PA 17601
USA

Phone: 717-556-7380
Fax: 717-656-2681

ChristineRatcliff@EurofinsUS.com
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From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Thursday, May 11, 2017 3:29 PM
To: Nancy Bornholm
Cc: Charles Neslund; Christine Ratcliff; David Blye; Moline, Kirk (k.moline@ctmale.com); 'Margaret Treanor; Ward Swanson (WSwanson@barr.com); Terri A. Olson; Tom Weinmann; StGobain; Steve Zeiner
Subject: SGP97

Hi-
We have some requests for this SDG:

- Aqueous MDLs/LOQs were reported on one of the solid method blank quality control summary forms – 16215005
- All soil samples: the results for these were adjusted for exact weight but not the MDLs/LOQs – please update as in the past
- Sample 8438959: appears to have transcription errors for PFDA and PFUnA – raw data shows above MDL for both but both are reported as ND
- Samples 8438959, 8438961-62, 8438968, 8438970-72: the branched peak for PFOA was not integrated (It was integrated in other samples as expected)
- Sample 8438966: The equation for PFOA is y= -0.0346049+0.0283928*x. When y is 0, x=1.22 ng/L, which is above the aqueous MDL. A small peak quantitated above the MDL in this sample.

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DATA USABILITY SUMMARY REPORT

ANALYSIS OF VARIOUS ANALYTES

IN SOIL AND AQUEOUS SAMPLES

1030 WATER STREET, VILLAGE OF NORTH BENNINGTON,

BENNINGTON COUNTY, VERMONT, VTDEC SMS SITE # 20164630

SAMPLE DELIVERY GROUPS: SNB95, SNB96, AND SNB98

June 7, 2018

Prepared for:

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

Prepared by:

ENVIRONMENTAL STANDARDS, INC.
1140 Valley Forge Road
P.O. Box 810
Valley Forge, PA 19482-0810

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TABLE OF CONTENTS

Introduction

Section 1 Quality Assurance Review

A. Organic Data Review

B. Inorganic and Wet Chemistry Data Review

C. Conclusions

Section 2 Validated Data Summary Tables

A. SDG SNB95

B. SDG SNB96

C. SDG SNB98

Section 3 Laboratory Calibration and Quality Control Acceptance Criteria

Section 4 Environmental Standards, Inc., Standard Operating Procedure

Section 5 Data Support Documentation

A. SDG SNB95

B. SDG SNB96

C. SDG SNB98

Section 6 Project Correspondence

Introduction

This Data Usability Summary Report (DUSR) was based upon an examination of the data generated from samples that were collected on March 5, 6, 7, 9, and 12, 2018, as part of the 1030 Water Street, Village of North Bennington, Vermont project based on the "Initial Site Characterization Investigation Work Plan Saint-Gobain Performance Plastics Site 1030 Water Street, Village of North Bennington, Bennington County, Vermont" (Work Plan, April 2016). The analyses of the samples (and associated quality control [QC] samples) listed on the table below were performed by Eurofins Lancaster Laboratories Environmental (ELLE) of Lancaster, Pennsylvania or by ALS Environmental of Middletown, Pennsylvania. Soil samples were analyzed for perfluorinated and polyfluorinated alkyl substances (PFASs) according to ELLE's internal standard operating procedure (SOP) "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3). Aqueous samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI14355, Version 3). All other analyses were performed in accordance with US EPA, Standard Method (SM), or SW-846 methods. The Analytical Services Protocol (ASP) Category A data deliverables were prepared by the laboratories and were reviewed by Environmental Standards, Inc. (Environmental Standards). The ASP Category B data packages prepared by the laboratories were reviewed for analyses that underwent a Full quality assurance (QA) review. The samples that have undergone a Full or Limited QA review are listed on Table 1. Table 1 also presents the laboratory sample number(s), laboratory Sample Delivery Group (SDG), matrix, collection date, and parameter(s) analyzed and reviewed for the samples.

The reported analytical results are presented on the validated data summary tables included in Section 2. These validated data summary tables were generated from electronic data deliverables (EDDs) provided by the laboratory and have been edited by the data reviewer to include all final data validation qualifiers and results. The "Lab Result," "Lab MDL" (*i.e.*, the method detection limit [MDL]), "Lab LOQ" (*i.e.*, the limit of quantitation [LOQ]), "Lab Qualifier," and "Lab Detect Flag" fields presented on the validated data summary tables were derived directly from the laboratory-provided EDD. Errors in the "Lab Result," "Lab MDL," "Lab LOQ," and "Lab Detect Flag" fields noted during validation have been corrected, and the corrections are reflected in the "Final Result," "Final MDL," "Final LOQ," and "Final Detect Flag" fields, respectively, on the validated data summary tables. Validation qualifier codes have been placed in the "Final Qualifier" fields on the data tables to enable the data user to quickly assess the qualitative and/or quantitative reliability of a result based on the criteria evaluated during this QA review. Finally, the "Validation Reason Code" field has been populated with codes that indicate the reason for the validation qualifiers. Definitions of the validation qualifiers and reason codes are presented with the validated data summary tables.

This QA review has been performed with guidance from the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016), the "National Functional Guidelines for High Resolution Superfund Methods Data Review" (US EPA, April 2016), and the

"National Functional Guidelines for Inorganic Superfund Data Review" (US EPA, September 2016); however, these validation guidance documents specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocol performed by the laboratory for these samples. Environmental Standards used professional judgment to determine the usability of the analytical results and compliance relative to the requirements specified in the Work Plan, ELLE's internal SOPs for PFAS analysis, US EPA methods, SW-846 methods, and SM analyses. US EPA Method 537 is written strictly for drinking water samples, and no approved US EPA method currently exists for other sample matrices. Although ELLE's internal SOPs reference US EPA Method 537 for PFAS analysis, the procedures are really "in-house" procedures that are also considered "Confidential Information"; therefore, a summary of the Calibration and QC Requirements used by ELLE for PFAS analysis has been included in Section 3. In addition, the SOP used by Environmental Standards to validate data generated under the ELLE PFAS SOPs is provided in Section 4. Details of this QA review are presented in Section 1 of this DUSR.

This DUSR identifies data quality issues for specific samples and specific evaluation criteria. The data qualifications allow the data end-user to best understand the usability of the analysis results. Data not qualified in this report should be considered valid based on the QC criteria that have been reviewed.

Section 5 of the report presents the Data Support Documentation for this DUSR. Project Correspondence is presented in Section 6.

TABLE 1 – SUMMARY OF SAMPLES REVIEWED

Field Sample Identification	Laboratory Sample Identification(s)	SDG(s)	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3a-LTB01-180305 (Trip Blank)	9491674	SNB95	Aq	3/5/18	L2	PFAS
SG3a-FTB01-180305 (Field Blank)	9491675	SNB95	Aq	3/5/18	L2	PFAS
SG3a-RB01-180305 (Rinse Blank)	9491676	SNB95	Aq	3/5/18	L2	PFAS
SG3a-RB02-180305 (Rinse Blank)	9491677	SNB95	Aq	3/5/18	L2	PFAS
SG3a-RB03-180305 (Rinse Blank)	9491678	SNB95	Aq	3/5/18	L2	PFAS
SG3a-RB04-180305 (Rinse Blank)	9491679	SNB95	Aq	3/5/18	L2	PFAS
SG3a-RB05-180305 (Rinse Blank)	9491680	SNB95	Aq	3/5/18	L2	PFAS
SG3a-RB06-180305 (Rinse Blank)	9491681	SNB95	Aq	3/5/18	L2	PFAS
SG3a-RB07-180305 (Rinse Blank)	9491682	SNB95	Aq	3/5/18	L2	PFAS
SG3a-RB01-180306 (Rinse Blank)	9491683	SNB95	Aq	3/6/18	L2	PFAS
SG3a-RB02-180306 (Rinse Blank)	9491684	SNB95	Aq	3/6/18	L2	PFAS
SG3a-RB03-180306 (Rinse Blank)	9491685	SNB95	Aq	3/6/18	L2	PFAS
SG3a-RB04-180306 (Rinse Blank)	9491686	SNB95	Aq	3/6/18	L2	PFAS
SG3a-RB05-180306 (Rinse Blank)	9491687	SNB95	Aq	3/6/18	L2	PFAS
SG3a-SB18-01-0.0-1.0	9491688 2305219001	SNB95 LPL011	Soil	3/6/18	L2	PFAS, pH, Mois TOC
SG3a-SB18-01-10.0-11.0	9491689 2305219002	SNB95 LPL011	Soil	3/6/18	L2	PFAS, pH, Mois TOC
SG3a-SB18-01-15.0-20.0	9491690 2305219003	SNB95 LPL011	Soil	3/6/18	L2	PFAS, pH, Mois TOC
SG3a-SB18-01-8.0	9491691 2305219004	SNB95 LPL011	Soil	3/6/18	L2	PFAS, pH, Mois TOC
SG3a-SB18-01-21.0	9491692 2305219005	SNB95 LPL011	Soil	3/6/18	L2	PFAS, pH, Mois TOC
SG3a-RB06-180306 (Rinse Blank)	9491693	SNB95	Aq	3/6/18	L2	PFAS

TABLE 1 (Cont.)

Field Sample Identification	Laboratory Sample Identification(s)	SDG(s)	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3a-SB18-02-0.0-1.0	9491694 2305219006	SNB95 LPL011	Soil	3/6/18	L2	PFAS, V, SV, M, M[1], Hg, pH, Mois TOC
SG3a-SB18-02-10.0-11.0	9491695 2305219007	SNB95 LPL011	Soil	3/6/18	L2	PFAS, V, SV, M, M[1], Hg, pH, Mois TOC
SG3a-SB18-02-10.0-11.0 MS (Matrix Spike)	9491696 2715245	SNB95 LPL011	Soil	3/6/18	L2	PFAS, V, SV, M, M[1], Hg TOC
SG3a-SB18-02-10.0-11.0 MSD (Matrix Spike Duplicate)	9491697	SNB95	Soil	3/6/18	L2	PFAS, V, SV, M, M[1], Hg
SG3a-SB18-02-10.0-11.0 Dupl (Laboratory Duplicate)	9491698 2305219008	SNB95 LPL011	Soil	3/6/18	L2	M, M[1], Hg, pH, Mois TOC
SG3a-SB18-02-15.0	9491699 2305219009	SNB95 LPL011	Soil	3/6/18	L2	PFAS, V, SV, M, M[1], Hg, pH, Mois TOC
SG3a-SB18-02-6.5	9491700 2305219010	SNB95 LPL011	Soil	3/6/18	L2	PFAS, V, SV, M, M[1], Hg, pH, Mois TOC
SG3a-SB18-02-9.0	9491701 2305219011	SNB95 LPL011	Soil	3/6/18	L2	PFAS, V, SV, M, M[1], Hg, pH, Mois TOC
SG3a-RB07-180306 (Rinse Blank)	9491702	SNB95	Aq	3/6/18	L2	PFAS
SG3a-RB01-180307 (Rinse Blank)	9497789	SNB96	Aq	3/7/18	L2	PFAS
SG3a-RB02-180307 (Rinse Blank)	9497790	SNB96	Aq	3/7/18	L2	PFAS
SG3a-SB18-04-0.0-1.0	9497791 2305218001	SNB96 LPL010	Soil	3/7/18	L2	PFAS, pH, Mois TOC
SG3a-SB18-04-0.0-1.0MS (Matrix Spike)	9497791MS	SNB96	Soil	3/7/18	L2	PFAS
SG3a-SB18-04-10.0-11.0	9497792 2305218002	SNB96 LPL010	Soil	3/7/18	L2	PFAS, pH, Mois TOC
SG3a-SB18-04-10.0-11.0MS (Matrix Spike)	2716305	LPL010	Soil	3/7/18	L2	TOC
SG3a-SB18-04-15.0-20.0	9497793 2305218003	SNB96 LPL010	Soil	3/7/18	L2	PFAS, pH, Mois TOC
SG3a-SB18-04-8.0	9497794 2305218004	SNB96 LPL010	Soil	3/7/18	L2	PFAS, pH, Mois TOC

TABLE 1 (Cont.)

Field Sample Identification	Laboratory Sample Identification(s)	SDG(s)	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3a-FD01-180307 (Field Duplicate of SG3a-SB18-04-0.0-1.0)	9497795	SNB96	Soil	3/7/18	L2	PFAS, pH, Mois
SG3a-SB18-05-0.0-1.0	9497796 2305218005	SNB96 LPL010	Soil	3/7/18	L2	PFAS, pH, Mois TOC
SG3a-SB18-05-10.0-11.0	9497797 2305218008	SNB96 LPL010	Soil	3/7/18	L2	PFAS, pH, Mois TOC
SG3a-SB18-05-15.0-20.0	9497798 2305218006	SNB96 LPL010	Soil	3/7/18	L2	PFAS, pH, Mois TOC
SG3a-SB18-05-22.0	9497799 2305218007	SNB96 LPL010	Soil	3/7/18	L2	PFAS, pH, Mois TOC
SG3a-RB04-180307 (Rinse Blank)	9497800	SNB96	Aq	3/7/18	L2	PFAS
SG3a-RB03-180307 (Rinse Blank)	9497801	SNB96	Aq	3/7/18	L2	PFAS
SG3a-SB18-06-10.0-11.0	9497802 2305218009	SNB96 LPL010	Soil	3/9/18	L2	PFAS, pH, Mois TOC
SG3a-SB18-06-0.0-1.0	9497803 2305218010	SNB96 LPL010	Soil	3/9/18	L2	PFAS, pH, Mois TOC
SG3a-SB18-06-0.0-1.0 MS (Matrix Spike)	9497804 2719318	SNB96 LPL010	Soil	3/9/18	L2	PFAS TOC
SG3a-SB18-06-0.0-1.0 MSD (Matrix Spike Duplicate)	9497805	SNB96	Soil	3/9/18	L2	PFAS
SG3a-SB18-06-0.0-1.0 Dupl (Laboratory Duplicate)	9497806 2305218011	SNB96 LPL010	Soil	3/9/18	L2	pH, Mois TOC
SG3a-RB01-180309 (Rinse Blank)	9497807	SNB96	Aq	3/9/18	L2	PFAS
SG3a-EB01-180309 (Equipment Blank)	9497808	SNB96	Aq	3/9/18	L2	PFAS, V, SV, M, M[1], Hg, TOC
SG3a-EB02-180309 (Equipment Blank)	9497809	SNB96	Aq	3/9/18	L2	PFAS, TOC
SG3a-LTB01-180309 (Trip Blank)	9497810	SNB96	Aq	3/9/18	L2	PFAS, V
SG3a-FTB01-180309 (Field Blank)	9497811	SNB96	Aq	3/9/18	L2	PFAS
SG3a-SB18-03-15.0-17.0	9497812 2305218012	SNB96 LPL010	Soil	3/6/18	L2	PFAS, pH, Mois TOC
SG3a-SB18-03-14.0	9497813 2305218013	SNB96 LPL010	Soil	3/6/18	L2	PFAS, pH, Mois TOC
SG3a-SB18-03-0.0-1.0	9497814 2305218014	SNB96 LPL010	Soil	3/6/18	L2	PFAS, pH, Mois TOC

TABLE 1 (Cont.)

Field Sample Identification	Laboratory Sample Identification(s)	SDG(s)	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3a-SB18-03-10.0-11.0	9497815 2305218015	SNB96 LPL010	Soil	3/6/18	L2	PFAS, pH, Mois TOC
SG3a-SB18-03-13.0	9497816 2305218016	SNB96 LPL010	Soil	3/6/18	L2	PFAS, pH, Mois TOC
SG3a-RB01-180312 (Rinse Blank)	9500919	SNB98	Aq	3/12/18	F	PFAS
SG3a-FD01-180312 (Field Duplicate of SG3a-SB18-07-15.0-18.0)	9500920	SNB98	Soil	3/12/18	F	PFAS, V, SV, M, M[1], Hg, TOC, pH, Mois
SG3a-SB18-07-0.0-1.0	9500921	SNB98	Soil	3/12/18	F	PFAS, V, SV, M, M[1], Hg, TOC, pH, Mois
SG3a-SB18-07-0.0-1.0MS (Matrix Spike)	9500921MS	SNB98	Soil	3/12/18	F	M, M[1], TOC
SG3a-SB18-07-0.0-1.0MSD (Matrix Spike Duplicate)	9500921MSD	SNB98	Soil	3/12/18	F	M, M[1]
SG3a-SB18-07-0.0-1.0DUP (Laboratory Duplicate)	9500921D	SNB98	Soil	3/12/18	F	M, M[1], TOC
SG3a-SB18-07-10.0-11.0	9500922	SNB98	Soil	3/12/18	F	PFAS, V, SV, M, M[1], Hg, pH, Mois
SG3a-SB18-07-15.0-18.0	9500923	SNB98	Soil	3/12/18	F	PFAS, V, SV, M, M[1], Hg, pH, Mois
SG3a-FTB01-180312 (Field Blank)	9500924	SNB98	Aq	3/12/18	F	PFAS
SG3a-LTB01-180312 (Trip Blank)	9500925	SNB98	Aq	3/12/18	F	PFAS

NOTES:

PFAS - Perfluorinated and Polyfluorinated Alkyl Substances (PFASs) according to ELLE's SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3) for soil samples and "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI14355, Version 3) for aqueous samples. (56 Limited analyses; 7 Full analyses)

V - Volatile Organic Compounds by SW-846 Method 8260C. (9 Limited analyses; 4 Full analyses)

SV - Semivolatile Organic Compounds by SW-846 Method 8270D. (8 Limited analyses; 4 Full analyses)

M - Total Metals by SW-846 Method 6010C. (9 Limited analyses; 7 Full analyses)

M[1] - Total Metals by SW-846 Method 6020A. (9 Limited analyses; 7 Full analyses)

Hg - Mercury by SW-846 Method 7470A or 7471B. (9 Limited analyses; 4 Full analyses)

TABLE 1 (Cont.)

NOTES (Cont.):

TOC	-	Total Organic Carbon by SW-846 Method 9060A (modified) or SM 5310C. (32 Limited analyses; 4 Full analyses)
pH	-	pH by SW-846 Method 9045D (modified). (28 Limited analyses; 4 Full analyses)
Mois	-	Percent Moisture by SM 2540G. (28 Limited analyses; 4 Full analyses)
L2	-	Limited QA Review (refer to Section 1).
F	-	Full QA Review (refer to Section 1).
Aq	-	Aqueous.

Section 1 Quality Assurance Review

A. Organic Data Review

The organic analyses of 35 soil samples and 28 aqueous samples (including QC samples) collected on March 5, 6, 7, 9, and 12, 2018, as part of the 1030 Water Street, Village of North Bennington, Vermont project were performed by ELLE. Soil samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI12031, Version 3). Aqueous samples were analyzed for PFASs according to ELLE's internal SOP "Polyfluorinated Alkyl Substances in Aqueous Samples by Method 537 Revision 1.1 Modified Using LC/MS/MS" (Eurofins document reference T-PFAS-WI14355, Version 3). The samples were also collectively analyzed for volatile organic compounds (VOCs) by SW-846 Method 8260C and semivolatile organic compounds (SVOCs) by SW-846 Method 8270D. Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data reviewed were presented in an ASP Category A and Category B data deliverables.

The findings offered in this report for analyses that underwent a Limited QA review are based upon a review of tabulated QC summary forms, including the following QC measures:

- Sample and extract holding times
- Blank analysis results
- Labeled pre-extraction internal standard recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Sample condition upon laboratory receipt
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Surrogate recoveries
- Field duplicate precision

The findings offered in this report for analyses that underwent a Full QA review were based upon a rigorous review of all tabulated QC summary forms and all raw data, including the following QC measures:

- Sample and extract holding times
- Blank analysis results
- Second-source initial calibration verification (ICV) recoveries
- LCS/LCSD results
- Labeled pre-extraction internal standard recoveries
- MS/MSD results
- Sample condition upon laboratory receipt
- Initial calibrations
- Continuing calibration verification (CCV) recoveries
- Analytical sequence
- Pre-injection internal standard responses
- Surrogate recoveries

- Qualitative identification
- Quantitation of results
- Field duplicate precision

The analytical results for the organic target compounds are presented on the validated data summary tables in Section 2 of this DUSR. The validated data summary tables include the full names of the target analytes along with their associated acronyms, which are used throughout the text of this DUSR. A summary of ELLE's Calibration and QC Requirements has been included in Section 3. The SOP used by Environmental Standards to validate data generated under the ELLE SOPs is provided in Section 4. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, and other documentation needed to support the findings in this DUSR in the Data Support Documentation provided in Section 5. The data reviewer has also manually edited the laboratory-reported data and QC summary forms included in this section based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Usability issues are addressed in the subsequent Organic Data Qualifiers section. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the analytical methods performed and the ELLE internal SOPs.

Reporting Issue

- The results for PFOA in SDG SNB96 samples SG3a-SB18-05-0.0-1.0, SG3a-RB04-180307, and SG3a-SB18-03-0.0-1.0 were reported from analyses performed at secondary dilutions; however, the laboratory reported the recoveries of the associated labeled pre-extraction internal standard from the undiluted analyses in the Surrogate Quality Control section of the Analysis Report. Since a Limited QA review was performed, the data reviewer used the recoveries from the undiluted analysis to evaluate data quality. The recoveries from the dilution analyses were not evaluated.

Procedural Issues

1. US EPA Method 537 is listed as the reference method in the title of the ELLE SOPs; however, US EPA Method 537 is written specifically for the analysis of drinking water samples. As a result, the laboratory has made modifications to the extraction procedure to accommodate preparation of non-aqueous samples (ultrasonic extraction for an hour with 1:1 acetonitrile/methanol mixture vs. solid-phase extraction). In addition, the laboratory has made other modifications, including, but not limited to, the following:

    - For aqueous samples, Agilent SampliQ Weak Anion Exchange ("WAX") solid-phase extraction cartridges were used instead of polystyrenedivinylbenzene.
    - The laboratory utilized additional labeled analogs of the target PFASs, where available for use, as pre-extraction internal standards (all target PFASs except PFTriA), which generally should normalize any extraction inefficiency and provide

greater accuracy in quantitation. For dilution analyses, the pre-extraction internal standards were refortified after extraction and prior to dilution. In addition, the laboratory spiked the extracts with yet additional labeled analogs of the target PFASs post extraction and used these labeled analogs as the internal standards for the pre-extraction internal standards.

- As the labeled internal standards were added prior to extractions, additional labeled surrogate compounds were not used.
- A holding time of 28 days from collection to extraction was used for solid samples.
- The laboratory did not control the relative percent difference (RPD) between the high and low areas for each internal standard in the initial calibration (must be < 20% by US EPA Method 537, Version 1.1).
- The laboratory did not calculate the peak asymmetry factor.
- The laboratory did not rotate the concentration used for the LCS.
- The calibration standards only included the linear PFAS isomers; however, available branched/linear standards were analyzed for qualitative purposes.
- Alternate ion transitions were used for PFBS and $^{13}C_8$-PFOS (299→99 instead of 299→80 for PFBS and 503→99 instead of 503→80 for $^{13}C_8$-PFOS) - the fragment represented by *m/z* 80 is the sulfonate group; whereas, the fragment represented by *m/z* 99 is the fluorinated sulfonate group.

2. The laboratory analyzed a qualitative standard that included both branched and linear isomers for PFHxS, PFOA, and PFOS. Where transition ion peaks were observed and deemed by laboratory personnel to represent branched isomers in samples based on the analysis of this standard, the responses for such peaks were included in the response for the analyte and used to quantitate the results for PFHxS, PFOA, and PFOS in samples relative to the linear isomer calibration standards. The laboratory did not integrate peaks other than the peak representative of the linear isomer (based on calibration standards) for target analytes other than PFHxS, PFOA, and PFOS in samples.

3. In the PFAS fraction of SDG SNB96, the laboratory noted a high (> 130%) recovery for PFHpA in the LCS associated with samples; however, the laboratory did not re-extract the LCS and associated samples according to the Laboratory Calibration and Quality Control Acceptance Criteria (Section 3). Qualification of the data due to the high LCS recovery is addressed in the subsequent Organic Data Qualifiers section.

4. Elevated PFAS results (up to 360 ng/L PFOA) were observed in a number of the rinse blanks collected with the soil samples. Other than rinse blanks of the geoprobe cutting shoe and acetate liner, which were not elevated, the rinse blanks were of equipment that did not come into direct contact with the samples. A limited volume of cooling water used on the concrete core barrels (which did show elevated levels) may have come in contact with soil directly beneath the concrete; however, positive results were not limited to the uppermost sample collected within a core. The data reviewer has not qualified results due to the elevated rinse blank results. The data user may want to consider the results of the rinse blanks when evaluating the data.

Data Evaluation

With respect to data usability, the principal areas of concern are a high LCS recovery, out-of-criteria MS/MSD recoveries, MS/MSD imprecision, out-of-criteria pre-extraction internal standard recoveries, low internal standard responses, field duplicate imprecision, and results reported between the MDL and the LOQ. Based on a review of the data provided, the following data qualifiers are offered. The following data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical method used for analysis. Accordingly, the following data usability issues should not be construed as an indication of laboratory performance.

Organic Data Qualifiers

- The reported positive results for PFHpA in SDG SNB96 samples SG3a-RB01-180307, SG3a-RB02-180307, and SG3a-RB01-180309 should be considered estimated and have been flagged “J” on the data tables. A high recovery (%R > 130%) was observed for PFHpA in the associated LCS analysis (see Procedural Issue No. 3). (Validation Reason Code: LAH)

- The MDLs and LOQs for styrene; 2,4-dimethylphenol; 4,6-dinitro-2-methylphenol; 2,4-dinitrophenol; pentachlorophenol; 2,3,4,6-tetrachlorophenol; and 2,4,6-trichlorophenol in SDG SNB95 sample SG3a-SB18-02-10.0-11.0 may be higher than reported, and the “not-detected” results have been flagged “UJ” on the data tables. In addition, the reported positive results for carbon disulfide, PFBS, and PFOS in SDG SNB95 sample SG3a-SB18-02-10.0-11.0 should be considered estimated and have been flagged “J” on the data tables. Low recoveries (%R < lower laboratory acceptance limits) were observed for these compounds in the associated MS/MSD analyses. (Validation Reason Code: MAL)

- The reported positive results for fluoranthene, phenanthrene, pyrene, and PFNA in SDG SNB95 sample SG3a-SB18-02-10.0-11.0 should be considered estimated and have been flagged “J” on the data tables. High %Rs (> upper laboratory acceptance limits) were observed for these compounds in the associated MS/MSD analyses. (Validation Reason Code: MAH)

- The reported positive result for PFDA in SDG SNB95 sample SG3a-SB18-02-10.0-11.0 should be considered estimated and has been flagged “J” on the data tables. A high %R (> upper laboratory acceptance limit) was observed for PFDA in the associated MS analysis, and a low %R (< lower laboratory acceptance limit) was observed in the associated MSD analysis. (Validation Reason Code: MA)

- The reported positive results for PFDA, PFNA, and PFOA in SDG SNB95 sample SG3a-SB18-02-10.0-11.0 should be considered estimated and have been flagged “J” on the data tables. Large discrepancies (RPD > laboratory acceptance limit) were observed for these compounds in the associated MS/MSD analyses. (Validation Reason Code: MP)

- The MDLs and LOQs for the compounds listed on the table below may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. High recoveries (> upper laboratory acceptance limits) were observed for the pre-extraction internal standards used to quantitate these compounds in the analyses of these samples. (Validation Reason Code: IS)

Sample(s)	SDG	Compound(s) With Estimated MDLs and LOQs ("UJ")
SG3a-RB01-180305 and SG3a-RB07-180305	SNB95	PFOS
SG3a-RB03-180306	SNB95	PFNA and PFDA
SG3a-RB04-180306	SNB95	PFOS and PFNA

- The MDLs and LOQs for PFPeA in all SDG SNB95 soil samples, except samples SG3a-SB18-02-0.0-1.0, SG3a-SB18-02-10.0-11.0, SG3a-SB18-02-6.5, and SG3a-SB18-02-9.0; and all SDG SNB96 soil samples, except samples SG3a-SB18-05-0.0-1.0, and SG3a-SB18-03-0.0-1.0, may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. In addition, the reported positive results for PFPeA in SDG SNB95 samples SG3a-SB18-02-0.0-1.0, SG3a-SB18-02-10.0-11.0, SG3a-SB18-02-6.5, and SG3a-SB18-02-9.0; in SDG SNB96 sample SG3a-SB18-05-0.0-1.0; and in all SDG SNB98 soil samples should be considered estimated and have been flagged "J" on the data tables. Low recoveries (< advisory limit of 70%) were observed for the pre-extraction internal standard $^{13}C_5$-PFPeA in the analyses of these samples. (Validation Reason Code: IS)

- The MDLs and LOQs for 1,1,2,2-tetrachloroethane; 1,3-dichlorobenzene; 1,4-dichlorobenzene; 1,2-dichlorobenzene; 1,2-dibromo-3-chloropropane; 1,2,4-trichlorobenzene; and 1,2,3-trichlorobenzene in SDG SNB98 samples SG3a-FD01-180312, SG3a-SB18-07-10.0-11.0, and SG3a-SB18-07-15.0-18.0 may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. Low responses (< 50% of the associated initial calibration average response) were observed for the internal standard 1,4-dichlorobenzene-d_4 in the analyses of these samples. (Validation Reason Code: IS)

- The MDL and LOQ for benzaldehyde in SDG SNB98 sample SG3a-FD01-180312 may be higher than reported, and the "not-detected" result has been flagged "UJ" on the data tables. In addition, the reported positive results for 2-methylnaphthalene and naphthalene in SDG SNB98 sample SG3a-FD01-180312 and for benzaldehyde, 2-methylnaphthalene, and naphthalene in SDG SNB98 sample SG3a-SB18-07-15.0-18.0 should be considered estimated and have been flagged "J" on the data tables. Large discrepancies (RPD > 40% when both results were ≥ 5× the LOQ, or the difference between the results was > 2× the LOQ when at least one result was < 5× the LOQ) were observed for these analytes in the associated field duplicate analyses. (Validation Reason Code: FD)

- All positive results reported with concentrations between the laboratory's reported MDLs and LOQs were flagged "J" by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

B. Inorganic and Wet Chemistry Data Review

The inorganic and wet chemistry analyses of 39 soil samples and two aqueous samples (including QC samples) collected as part of the 1030 Water Street, Village of North Bennington, Vermont project on March 5, 6, 7, 9, and 12, 2018, were performed by ELLE or ALS laboratories. The samples were collectively analyzed for total metals by SW-846 Methods 6010C and 6020A, mercury by SW-846 Methods 7470A or 7471B, total organic carbon (TOC) by SW-846 Method 9060A or SM 5310C, pH by SW-846 Method 9045D (modified), and percent moisture by SM 2540G. Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data reviewed were presented in ASP Category A and Category B data deliverables.

The findings offered in this report for analyses that underwent a Limited QA review are based upon a review of tabulated QC summary forms including the following QC measures:

- Sample holding times
- Blank analysis results
- MS/MSD results
- Sample condition upon laboratory receipt
- LCS/LCSD results
- Laboratory and field duplicate precision

The findings offered in this report for analyses that underwent a Full QA review are based upon a rigorous review of all tabulated QC summary forms and all raw data, including the following QC measures:

- Sample holding times
- Blank analysis results
- Calibration check standard recoveries
- Interference check sample results
- MS/MSD results
- Field duplicate precision
- Analytical sequence
- Quantitation of results
- Sample condition upon laboratory receipt
- Initial calibrations
- Detection limit standard results
- LCS results
- Laboratory duplicate precision
- Serial dilution results
- Post-digestion spike results

The analytical results for the target compounds are presented on the data tables in Section 2 of this DUSR. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, and other documentation needed to support the findings in this DUSR in the Data Support Documentation (Section 5). The data reviewer has also manually edited the laboratory-reported data and QC summary forms included in this section based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the analytical methods performed.

Reporting Issue

- In the ALS Case Narratives for SDG SNB95 and SDG SNB96 soil TOC analysis, it was noted that the 14-day holding time was exceeded between sample collection and sample analysis. After review, all samples were analyzed by the laboratory within the QAPP-required holding time of 28 days from collection to analysis (QAPP, Revision 1, January 2018, Worksheet #19 and #30). No qualification is required.

Procedural Issue

- ALS Environmental analyzed all SDG SNB95 and SDG SNB96 samples for TOC, percent moisture, and total solids. When determining percent moisture, SM 2540G specifies a temperature of 103 - 105°C to be used. Instead of using the results of the SM 2540G test to dry-weight correct wet-weight TOC results, ALS dried the samples prior to analysis. Upon inquiry, the laboratory performed this drying step using a heating temperature of 75°C (see Project Correspondence). The drying step for the TOC analysis is typically performed after the removal of inorganic carbon. Qualification of data has been addressed in the Inorganic and Wet Chemistry Data Qualifiers section of this DUSR.

Data Evaluation

With respect to data usability, the principal areas of concern are blank contamination, out-of-criteria MS/MSD recoveries, MS/MSD imprecision, laboratory duplicate imprecision, field duplicate imprecision, serial dilution imprecision, and results reported between the MDL and LOQ. Based on a review of the data provided, the following data qualifiers are offered. The following data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical method used for analysis. Accordingly, the following data usability issues should not be construed as an indication of laboratory performance.

Inorganic and Wet Chemistry Data Qualifiers

- Due to its presence in the associated initial calibration blank, the reported positive results for antimony in SDG SNB98 samples SG3a-FD01-180312, SG3a-SB18-07-0.0-1.0, and SG3a-SB18-07-15.0-18.0 should be considered “not-detected” and have been flagged “UB” on the data tables. In addition, the data reviewer removed the results from the “Final Result” field, changed the “Final Detect Flag” to “N,” and raised the “Final MDL” and “Final LOQ” to the value of the original positive result, when appropriate, on the data tables. (Validation Reason Code: IB)

- The MDL and LOQ for antimony in SDG SNB98 sample SG3a-SB18-07-10.0-11.0, may be higher than reported, and the “not-detected” result has been flagged “UJ” on the data tables. In addition, the reported positive results for zinc, antimony, beryllium, chromium, cobalt, thallium, and vanadium in all SNB95 samples; for nickel in all SDG SNB98 samples; and for antimony in SDG SNB98 samples SG3a-FD01-180312, SG3a-SB18-07-0.0-1.0, and SG3a-SB18-07-15.0-18.0 should be considered estimated and have been flagged “J” (unless previously flagged “UB”) on the data tables. Low recoveries (< lower laboratory acceptance limits) were observed for these analytes in the associated MS/MSD analyses. (Validation Reason Code: MAL)

- The reported positive results for potassium in all SDG SNB95 samples and for potassium, vanadium, and barium in all SDG SNB98 samples should be considered estimated and have been flagged “J” on the data tables. High recoveries (> upper laboratory acceptance limits) were observed for these analytes in the associated MS/MSD analyses. (Validation Reason Code: MAH)

- The reported positive results for TOC in all SDG SNB95 and all SDG SNB96 samples should be considered estimated and have been flagged “J” on the data tables. The samples were dried at 75ºC rather than using a dry-weight correction (performed at 103-105ºC) of wet-weight results (see Procedural Issue). (Validation Reason Code: PJ)

- The reported positive results for TOC in SDG SNB96 samples SG3a-SB18-04-10.0-11.0, SG3a-SB18-04-8.0, SG3a-SB18-05-10.0-11.0, SG3a-SB18-05-15.0-20.0, and SG3a-SB18-05-22.0 should be considered estimated and have been flagged “J” on the data tables. A high recovery (> upper laboratory acceptance limit) was observed for TOC in the associated MS analysis. (Validation Reason Code: MAH)

- The reported positive results for cadmium in all SDG SNB95 samples should be considered estimated and have been flagged “J” on the data tables. A high recovery (> upper laboratory acceptance limit) and a low recovery (< lower laboratory acceptance limit) were observed for cadmium in the associated MS/MSD analyses. (Validation Reason Code: MA)

- The reported positive results for arsenic, beryllium, cadmium, chromium, cobalt, copper, lead, nickel, vanadium, and barium in all SDG SNB95 samples and for calcium and manganese in all SDG SNB98 samples should be considered estimated and have been flagged “J” on the data tables. Large discrepancies (RPD > laboratory acceptance limit) were observed for these compounds in the associated MS/MSD analyses. (Validation Reason Code: MP)

- The reported positive results for calcium, iron, magnesium, manganese, zinc, chromium, cobalt, copper, nickel, and barium in all SDG SNB95 samples and for calcium in all SDG SNB98 samples should be considered estimated and have been flagged “J” on the data tables. Large discrepancies (RPD > the laboratory acceptance limit when both results were ≥ 5× the LOQ) were observed between the results for these analytes in the associated laboratory duplicate analysis. (Validation Reason Code: LD)

- The reported positive results for TOC in all SDG SNB96 soil samples should be considered estimated and have been flagged “J” on the data tables. A large discrepancy (RPD > 40% when both results were ≥ 5× the LOQ) was observed for TOC in the associated laboratory duplicate analysis. (Validation Reason Code: LD)

- The reported positive results for arsenic, lead, and mercury in SDG SNB98 samples SG3a-FD01-180312 and SG3a-SB18-07-15.0-18.0 should be considered estimated and have been flagged “J” on the data tables. Large discrepancies (RPD > 40% when both results were ≥ 5× the LOQ, or the difference between the results was > 2× the LOQ when at least one result was < 5× the LOQ) were observed for these analytes in the associated field duplicate analyses. (Validation Reason Code: FD)

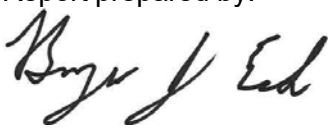
- The reported positive results vanadium in all SNB98 samples should be considered estimated and have been flagged “J” on the data tables. A high percent difference (> 10% when the initial concentration was > 50× the MDL) was observed for vanadium in the associated serial dilution analysis. (Validation Reason Code: SD)

- All positive results reported with concentrations between the laboratory’s reported MDLs and LOQs were flagged “J” (unless previously flagged “UB”) by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

C. Conclusions

The analytical data are acceptable for use as reported by the laboratory with the following qualifications. Several organic results were qualified as estimated due to a high LCS recovery, out-of-criteria MS/MSD recoveries, MS/MSD imprecision, out-of-criteria pre-extraction internal standard recoveries, low internal standard responses, field duplicate imprecision, and results reported between the MDL and the LOQ. A few inorganic results were qualified as "not-detected" due to blank contamination. In addition, several inorganic and wet chemistry results were qualified as estimated due to out-of-criteria MS/MSD recoveries, MS/MSD imprecision, laboratory duplicate imprecision, field duplicate imprecision, serial dilution imprecision, and results reported between the MDL and LOQ. In order to use any of the data, the data user should understand the qualifications and limitations as specified in this DUSR.

Report prepared by:



Bryan J. Eck
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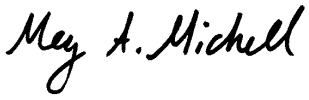
Report reviewed by:



Meg A. Michell, M.S.
Senior Technical Chemist/
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Report reviewed and approved by:

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Principal Chemist

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Date: 6/7/18

SECTION 2

VALIDATED DATA SUMMARY TABLES

Validation Qualifier and Reason Code Definitions

Table 1. Validation Qualifiers and Definitions

Validation Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analyte has been “tentatively identified” or considered “presumptively” present.
UJ	The analyte was analyzed for, but was not detected. The reported MDL and limit of quantitation (LOQ) are approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
UB	The Analyte was not detected substantially above the level reported in the associated laboratory, equipment, field, or trip blank.

Table 2. Validation Reason Codes and Descriptions

Validation Reason Code	Description
CI	Chromatographic interference
CR	Calculated result in which one or more of the components has been qualified, potential bias indeterminate
CRH	Calculated result in which one or more of the components has been qualified, potential high bias
CRL	Calculated result in which one or more of the components has been qualified potential low bias
CV	Continuing calibration verification evaluation criteria not met, potential bias indeterminate
CVH	Continuing calibration verification evaluation criteria not met, potential high bias
CVL	Continuing calibration verification evaluation criteria not met, potential low bias
DC	Reporting limit exceeds decision criteria (for non-detects)
DL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the detection limit.
DT	Dissolved metals concentration exceeded total metals concentration in the sample above the acceptance criteria
DV	Missing Deliverables
EB	Equipment blank contamination
EC	Result exceeds the calibration range, potential bias indeterminate
ECH	Result exceeds the calibration range, potential high bias
ECL	Result exceeds the calibration range, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
EP	Estimated Maximum Possible Concentration (EMPC)
FB	Field blank contamination
FD	Field duplicate imprecision, potential bias indeterminate
FP	Potential false positives
FR	Field replicate imprecision, potential bias indeterminate
HA	Holding time - preparation to analysis, potential bias indeterminate
HAH	Holding time - preparation to analysis, potential high bias
HAL	Holding time - preparation to analysis, potential low bias
HC	Holding time - collection to analysis, potential bias indeterminate
HCH	Holding time - collection to analysis, potential high bias
HCL	Holding time - collection to analysis, potential low bias
HP	Holding time - collection to preparation, potential bias indeterminate
HPH	Holding time - collection to preparation, potential high bias
HPL	Holding time - collection to preparation, potential low bias
HV	Headspace present in volatile vials, potential bias indeterminate
HVL	Headspace present in volatile vials, potential low bias
IB	Instrument (including initial calibration or continuing calibration) blank contamination
IC	Initial calibration evaluation criteria not met, potential bias indeterminate
ICH	Initial calibration evaluation criteria not met, potential high bias
ICL	Initial calibration evaluation criteria not met, potential low bias
ID	Target compound identification criteria not met
IN	Elevated detection limit due to interference (i.e., laboratory, chemical, and/or matrix)
IR	Interference check standard recovery criteria not met, potential bias indeterminate
IRH	Interference check standard recovery criteria not met, potential high bias
IRL	Interference check standard recovery criteria not met, potential low bias
IS	Internal standard evaluation criteria not met, potential bias indeterminate
ISH	Internal standard evaluation criteria not met, potential high bias
ISL	Internal standard evaluation criteria not met, potential low bias
LA	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential bias indeterminate
LAH	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential high bias
LAL	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
LD	Laboratory duplicate precision criteria not met, potential bias indeterminate
LM	The PFK lock mass SICPs indicate that ion suppression evident
LP	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential bias indeterminate
LPH	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential high bias
LPL	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential low bias
LR	Linear range exceeded, potential bias indeterminate
MA	Matrix spike (MS &/or MSD) recovery criteria not met, potential bias indeterminate
MAH	Matrix spike (MS &/or MSD) recovery criteria not met, potential high bias
MAL	Matrix spike (MS &/or MSD) recovery criteria not met, potential low bias
MB	Method blank or preparation blank contamination
MP	Matrix spike (MS/MSD) or laboratory duplicate precision criteria not met, potential bias indeterminate
NB	Elevated detection limit or estimated result due to instrument drift (i.e., negative ICB or CCB result with an absolute value > 2× the MDL)
PD	Post-digestion spike recovery outside acceptance range, potential bias indeterminate
PDH	Post-digestion spike recovery outside acceptance range, potential high bias
PDL	Post-digestion spike recovery outside acceptance range, potential low bias
PJ	Professional judgment, potential bias indeterminate
PJH	Professional judgment, potential high bias
PJL	Professional judgment, potential low bias
PM	Performance evaluation mixture criteria not met, potential bias indeterminate
PMH	Performance evaluation mixture criteria not met, potential high bias
PML	Performance evaluation mixture criteria not met, potential low bias
PR	Peak(s) not adequately resolved, potential bias indeterminate
PRH	Peak(s) not adequately resolved, potential high bias
PRL	Peak(s) not adequately resolved, potential low bias
PS	Low percent solids could affect accuracy, potential bias indeterminate
PT	Chromatographic pattern in sample does not match pattern of calibration standard
RA	Reference material recovery criteria not met, potential bias indeterminate

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
RAH	Reference material recovery criteria not met, potential high bias
RAL	Reference material recovery criteria not met, potential low bias
RB	Rinsate blank contamination
RL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the quantitation or reporting limit, potential bias indeterminate
SA	Method of standard additions correction coefficient <0.995, potential bias indeterminate
SC	RPD Between two columns exceeds criteria, potential bias indeterminate
SD	Serial dilution results did not meet evaluation criteria, potential bias indeterminate
SDH	Serial dilution results did not meet evaluation criteria, potential high bias
SDL	Serial dilution results did not meet evaluation criteria, potential low bias
SP	Sample Preservation / Cooler Temperature, potential bias indeterminate
SPH	Sample Preservation / Cooler Temperature, potential high bias
SPL	Sample Preservation / Cooler Temperature, potential low bias
SR	Surrogate recovery outside acceptance range, potential bias indeterminate
SRH	Surrogate recovery outside acceptance range, potential high bias
SRL	Surrogate recovery outside acceptance range, potential low bias
SS	Second source evaluation criteria not met, potential bias indeterminate
SSH	Second source evaluation criteria not met, potential high bias
SSL	Second source evaluation criteria not met, potential low bias
ST	Compound not quantitated against an authentic standard, potential bias indeterminate
TB	Trip blank contamination
TD	Result for dissolved constituent significantly exceeded result for total constituent, potential bias indeterminate
TIC	Tentative identification, quantified using an assumed calibration factor, potential bias indeterminate.
TIR	Tentative identification and was observed in an associated laboratory, equipment, field, or trip blank.
TN	Instrument performance (tuning) criteria not met
YH	Due to a high y-intercept in the calibration curve, the sample result quantitated to a value greater than the MDL. Since the response ratio in the sample was less than the response ratio in the associated MDL standard, the reported result was changed to not-detected.

A. SDG SNB95

Sample ID	SG3a-LTB01-180305
Sample Date	3/5/2018 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491674
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-FTB01-180305
Sample Date	3/5/2018 9:25:00 AM
Sample Type	FB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491675
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-RB01-180305
Sample Date	3/5/2018 12:55:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491676
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	UJ	N	IS	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.7	0.3	0.9	J	Y	0.7	0.3	0.9	J	Y	RL	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-RB02-180305
Sample Date	3/5/2018 1:00:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491677
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.4	0.3	0.9	J	Y	0.4	0.3	0.9	J	Y	RL	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-RB03-180305
Sample Date	3/5/2018 1:05:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491678
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-RB04-180305
Sample Date	3/5/2018 1:10:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491679
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.7	0.3	0.9	J	Y	0.7	0.3	0.9	J	Y	RL	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-RB05-180305
Sample Date	3/5/2018 1:15:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491680
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	1	0.3	0.9		Y	1	0.3	0.9		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-RB06-180305
Sample Date	3/5/2018 2:20:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491681
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	5	0.3	0.9		Y	5	0.3	0.9		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-RB07-180305
Sample Date	3/5/2018 3:30:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491682
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1	0.4	0.3	0.9	J	Y	0.4	0.3	0.9	J	Y	RL	Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	4	0.3	0.9		Y	4	0.3	0.9		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	4	0.4	2		Y	4	0.4	2		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	UJ	N	IS	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	280	0.3	0.9		Y	280	0.3	0.9		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-RB01-180306
Sample Date	3/6/2018 8:45:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491683
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	6	0.9	2		Y	6	0.9	2		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	8	0.3	0.9		Y	8	0.3	0.9		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	0.4	0.3	0.9	J	Y	0.4	0.3	0.9	J	Y	RL	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	1	0.4	2	J	Y	1	0.4	2	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	0.6	0.4	2	J	Y	0.6	0.4	2	J	Y	RL	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	150	0.3	0.9		Y	150	0.3	0.9		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	2	0.3	0.9		Y	2	0.3	0.9		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	3	0.3	0.9		Y	3	0.3	0.9		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	4	0.4	2		Y	4	0.4	2		Y		Yes

Sample ID	SG3a-RB02-180306
Sample Date	3/6/2018 9:25:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491684
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	19	0.3	0.9		Y	19	0.3	0.9		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-RB03-180306
Sample Date	3/6/2018 10:00:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491685
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	UJ	N	IS	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	0.4	0.3	0.9	J	Y	0.4	0.3	0.9	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	0.5	0.3	0.9	J	Y	0.5	0.3	0.9	J	Y	RL	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	UJ	N	IS	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	81	0.3	0.9		Y	81	0.3	0.9		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-RB04-180306
Sample Date	3/6/2018 11:35:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491686
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	UJ	N	IS	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	UJ	N	IS	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.7	0.3	0.9	J	Y	0.7	0.3	0.9	J	Y	RL	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-RB05-180306
Sample Date	3/6/2018 1:45:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491687
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	2	0.3	0.9		Y	2	0.3	0.9		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-SB18-01-0.0-1.0
Sample Date	3/6/2018 12:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491688
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-01 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.33	0.21	0.63	J	Y	0.33	0.21	0.63	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	0.38	0.21	0.63	J	Y	0.38	0.21	0.63	J	Y	RL	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	0.21	0.21	0.63	J	Y	0.21	0.21	0.63	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.31	0.94	U	N		0.31	0.94	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	33	0.21	0.63		Y	33	0.21	0.63		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.21	0.63	U	N		0.21	0.63	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes

Sample ID	SG3a-SB18-01-10.0-11.0
Sample Date	3/6/2018 12:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491689
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-01 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.27	0.82	U	N		0.27	0.82	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.77	0.18	0.55		Y	0.77	0.18	0.55		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.18	0.55	U	N		0.18	0.55	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes

Sample ID	SG3a-SB18-01-15.0-20.0
Sample Date	3/6/2018 12:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491690
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-01 / 15-20 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.38	0.25	0.74	J	Y	0.38	0.25	0.74	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.37	1.1	U	N		0.37	1.1	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	3.1	0.25	0.74		Y	3.1	0.25	0.74		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.25	0.74	U	N		0.25	0.74	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes

Sample ID	SG3a-SB18-01-8.0
Sample Date	3/6/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491691
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-01 / 8-8 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.43	0.24	0.71	J	Y	0.43	0.24	0.71	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.36	1.1	U	N		0.36	1.1	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.24	0.71	U	N		0.24	0.71	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes

Sample ID	SG3a-SB18-01-21.0
Sample Date	3/6/2018 12:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491692
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-01 / 21-21 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.34	0.24	0.71	J	Y	0.34	0.24	0.71	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.35	1.1	U	N		0.35	1.1	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	1.4	0.24	0.71		Y	1.4	0.24	0.71		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.24	0.71	U	N		0.24	0.71	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes

Sample ID	SG3a-RB06-180306
Sample Date	3/6/2018 3:10:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491693
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	2	0.3	0.9		Y	2	0.3	0.9		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	0.9	0.4	2	J	Y	0.9	0.4	2	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	170	0.3	0.9		Y	170	0.3	0.9		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-SB18-02-0.0-1.0
Sample Date	3/6/2018 2:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491694
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-02 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	1.0	0.19	0.58		Y	1.0	0.19	0.58		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	1.7	0.19	0.58		Y	1.7	0.19	0.58		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	5.2	0.19	0.58		Y	5.2	0.19	0.58		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.29	0.87	U	N		0.29	0.87	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	27	0.19	0.58		Y	27	0.19	0.58		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	2.9	0.19	0.58		Y	2.9	0.19	0.58	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes

Sample ID	SG3a-SB18-02-10.0-11.0
Sample Date	3/6/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491695
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-02 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1	0.49	0.17	0.50	J	Y	0.49	0.17	0.50	J	Y	RL,MAL	Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.88	0.17	0.50		Y	0.88	0.17	0.50		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	1.1	0.17	0.50		Y	1.1	0.17	0.50	J	Y	MA,MP	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	0.57	0.17	0.50		Y	0.57	0.17	0.50		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	0.75	0.17	0.50		Y	0.75	0.17	0.50		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1	0.53	0.17	0.50		Y	0.53	0.17	0.50		Y		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	0.67	0.17	0.50		Y	0.67	0.17	0.50		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	0.84	0.17	0.50		Y	0.84	0.17	0.50	J	Y	MAH,MP	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1	0.65	0.25	0.75	J	Y	0.65	0.25	0.75	J	Y	RL,MAL	Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	14	0.17	0.50		Y	14	0.17	0.50	J	Y	MP	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	0.62	0.17	0.50		Y	0.62	0.17	0.50	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	0.48	0.17	0.50	J	Y	0.48	0.17	0.50	J	Y	RL	Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	0.54	0.17	0.50		Y	0.54	0.17	0.50		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	0.52	0.17	0.50		Y	0.52	0.17	0.50		Y		Yes

Sample ID	SG3a-SB18-02-15.0
Sample Date	3/6/2018 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491699
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-02 / 15-15 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.21	0.64	U	N		0.21	0.64	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.32	0.21	0.64	J	Y	0.32	0.21	0.64	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	0.72	0.21	0.64		Y	0.72	0.21	0.64		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	0.61	0.21	0.64	J	Y	0.61	0.21	0.64	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.21	0.64	U	N		0.21	0.64	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.21	0.64	U	N		0.21	0.64	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.21	0.64	U	N		0.21	0.64	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.21	0.64	U	N		0.21	0.64	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.32	0.96	U	N		0.32	0.96	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	3.6	0.21	0.64		Y	3.6	0.21	0.64		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.21	0.64	U	N		0.21	0.64	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.21	0.64	U	N		0.21	0.64	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.21	0.64	U	N		0.21	0.64	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	0.79	0.21	0.64		Y	0.79	0.21	0.64		Y		Yes

Sample ID	SG3a-SB18-02-6.5
Sample Date	3/6/2018 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491700
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-02 / 6.5-6.5 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.22	0.22	0.66	J	Y	0.22	0.22	0.66	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	1.6	0.22	0.66		Y	1.6	0.22	0.66		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.33	0.99	U	N		0.33	0.99	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	0.65	0.22	0.66	J	Y	0.65	0.22	0.66	J	Y	RL,IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes

Sample ID	SG3a-SB18-02-9.0
Sample Date	3/6/2018 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491701
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-02 / 9-9 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.36	0.22	0.66	J	Y	0.36	0.22	0.66	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	0.94	0.22	0.66		Y	0.94	0.22	0.66		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	0.62	0.22	0.66	J	Y	0.62	0.22	0.66	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.33	0.99	U	N		0.33	0.99	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	12	0.22	0.66		Y	12	0.22	0.66		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	0.30	0.22	0.66	J	Y	0.30	0.22	0.66	J	Y	RL,IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes

Sample ID	SG3a-RB07-180306
Sample Date	3/6/2018 3:25:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9491702
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-SB18-01-0.0-1.0
Sample Date	3/6/2018 12:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491688
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-01 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	5.2	0.50	0.50		Y	5.2	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-01-10.0-11.0
Sample Date	3/6/2018 12:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491689
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-01 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	18.4	0.50	0.50		Y	18.4	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-01-15.0-20.0
Sample Date	3/6/2018 12:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491690
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-01 / 15-20 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	18.7	0.50	0.50		Y	18.7	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-01-8.0
Sample Date	3/6/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491691
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-01 / 8-8 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	17.6	0.50	0.50		Y	17.6	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-01-21.0
Sample Date	3/6/2018 12:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491692
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-01 / 21-21 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	19.3	0.50	0.50		Y	19.3	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-02-0.0-1.0
Sample Date	3/6/2018 2:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491694
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-02 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	4.3	0.50	0.50		Y	4.3	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-02-10.0-11.0
Sample Date	3/6/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491695
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-02 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	13.1	0.50	0.50		Y	13.1	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-02-15.0
Sample Date	3/6/2018 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491699
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-02 / 15-15 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	9.4	0.50	0.50		Y	9.4	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-02-6.5
Sample Date	3/6/2018 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491700
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-02 / 6.5-6.5 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	11.2	0.50	0.50		Y	11.2	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-02-9.0
Sample Date	3/6/2018 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491701
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-02 / 9-9 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	24.7	0.50	0.50		Y	24.7	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-02-0.0-1.0
Sample Date	3/6/2018 2:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491694
Analytical Method	SW6010C
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-02 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Aluminum	7429-90-5	T	1	7160	6.77	30.3		Y	7160	6.77	30.3		Y		Yes
	Calcium	7440-70-2	T	1	3380	2.52	30.3		Y	3380	2.52	30.3	J	Y	LD	Yes
	Iron	7439-89-6	T	1	19200	6.10	30.3		Y	19200	6.10	30.3	J	Y	LD	Yes
	Magnesium	7439-95-4	T	1	4290	1.84	15.1		Y	4290	1.84	15.1	J	Y	LD	Yes
	Manganese	7439-96-5	T	1	392	0.0628	0.757		Y	392	0.0628	0.757	J	Y	LD	Yes
	Potassium	7440-09-7	T	1	986	12.6	75.7		Y	986	12.6	75.7	J	Y	MAH	Yes
	Sodium	7440-23-5	T	1	30.5	12.6	151	J	Y	30.5	12.6	151	J	Y	RL	Yes
	Zinc	7440-66-6	T	1	35.1	0.182	3.03		Y	35.1	0.182	3.03	J	Y	MAL,LD	Yes

Sample ID	SG3a-SB18-02-10.0-11.0
Sample Date	3/6/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491695
Analytical Method	SW6010C
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-02 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Aluminum	7429-90-5	T	1	13900	10.1	45.1		Y	13900	10.1	45.1		Y		Yes
	Calcium	7440-70-2	T	1	14900	3.76	45.1		Y	14900	3.76	45.1	J	Y	LD	Yes
	Iron	7439-89-6	T	5	53200	45.4	226		Y	53200	45.4	226	J	Y	LD	Yes
	Magnesium	7439-95-4	T	1	9500	2.74	22.6		Y	9500	2.74	22.6	J	Y	LD	Yes
	Manganese	7439-96-5	T	5	2500	0.468	5.64		Y	2500	0.468	5.64	J	Y	LD	Yes
	Potassium	7440-09-7	T	1	1440	18.8	113		Y	1440	18.8	113	J	Y	MAH	Yes
	Sodium	7440-23-5	T	1	92.1	18.8	226	J	Y	92.1	18.8	226	J	Y	RL	Yes
	Zinc	7440-66-6	T	1	201	0.271	4.51		Y	201	0.271	4.51	J	Y	MAL,LD	Yes

Sample ID	SG3a-SB18-02-15.0
Sample Date	3/6/2018 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491699
Analytical Method	SW6010C
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-02 / 15-15 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Aluminum	7429-90-5	T	1	8460	9.58	42.9		Y	8460	9.58	42.9		Y		Yes
	Calcium	7440-70-2	T	1	40900	3.57	42.9		Y	40900	3.57	42.9	J	Y	LD	Yes
	Iron	7439-89-6	T	1	23900	8.63	42.9		Y	23900	8.63	42.9	J	Y	LD	Yes
	Magnesium	7439-95-4	T	1	26100	2.60	21.4		Y	26100	2.60	21.4	J	Y	LD	Yes
	Manganese	7439-96-5	T	1	735	0.0889	1.07		Y	735	0.0889	1.07	J	Y	LD	Yes
	Potassium	7440-09-7	T	1	1020	17.9	107		Y	1020	17.9	107	J	Y	MAH	Yes
	Sodium	7440-23-5	T	1	80.3	17.9	214	J	Y	80.3	17.9	214	J	Y	RL	Yes
	Zinc	7440-66-6	T	1	47.6	0.257	4.29		Y	47.6	0.257	4.29	J	Y	MAL,LD	Yes

Sample ID	SG3a-SB18-02-6.5
Sample Date	3/6/2018 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491700
Analytical Method	SW6010C
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-02 / 6.5-6.5 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Aluminum	7429-90-5	T	1	10500	10.1	45.0		Y	10500	10.1	45.0		Y		Yes
	Calcium	7440-70-2	T	1	38100	3.75	45.0		Y	38100	3.75	45.0	J	Y	LD	Yes
	Iron	7439-89-6	T	5	46000	45.3	225		Y	46000	45.3	225	J	Y	LD	Yes
	Magnesium	7439-95-4	T	1	14800	2.74	22.5		Y	14800	2.74	22.5	J	Y	LD	Yes
	Manganese	7439-96-5	T	1	1860	0.0935	1.13		Y	1860	0.0935	1.13	J	Y	LD	Yes
	Potassium	7440-09-7	T	1	1010	18.8	113		Y	1010	18.8	113	J	Y	MAH	Yes
	Sodium	7440-23-5	T	1	57.6	18.8	225	J	Y	57.6	18.8	225	J	Y	RL	Yes
	Zinc	7440-66-6	T	1	193	0.270	4.50		Y	193	0.270	4.50	J	Y	MAL,LD	Yes

Sample ID	SG3a-SB18-02-9.0
Sample Date	3/6/2018 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491701
Analytical Method	SW6010C
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-02 / 9-9 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Aluminum	7429-90-5	T	5	21500	56.5	253		Y	21500	56.5	253		Y		Yes
	Calcium	7440-70-2	T	5	3280	21.1	253		Y	3280	21.1	253	J	Y	LD	Yes
	Iron	7439-89-6	T	5	171000	50.9	253		Y	171000	50.9	253	J	Y	LD	Yes
	Magnesium	7439-95-4	T	5	2760	15.4	126		Y	2760	15.4	126	J	Y	LD	Yes
	Manganese	7439-96-5	T	10	12800	1.05	12.6		Y	12800	1.05	12.6	J	Y	LD	Yes
	Potassium	7440-09-7	T	5	1780	106	632		Y	1780	106	632	J	Y	MAH	Yes
	Sodium	7440-23-5	T	5		106	1260	U	N		106	1260	U	N		Yes
	Zinc	7440-66-6	T	5	1070	1.52	25.3		Y	1070	1.52	25.3	J	Y	MAL,LD	Yes

Facility: Bennington
SDG: SNB95

Sample ID	SG3a-SB18-02-0.0-1.0
Sample Date	3/6/2018 2:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491694
Analytical Method	SW6020A
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-02 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Antimony	7440-36-0	T	2	0.204	0.0706	0.303	J	Y	0.204	0.0706	0.303	J	Y	RL,MAL	Yes
	Arsenic	7440-38-2	T	2	5.38	0.0969	0.606		Y	5.38	0.0969	0.606	J	Y	MP	Yes
	Barium	7440-39-3	T	2	32.2	0.138	0.606		Y	32.2	0.138	0.606	J	Y	MP,LD	Yes
	Beryllium	7440-41-7	T	2	0.221	0.0079	0.151		Y	0.221	0.0079	0.151	J	Y	MAL,MP	Yes
	Cadmium	7440-43-9	T	2	0.0744	0.0260	0.151	J	Y	0.0744	0.0260	0.151	J	Y	RL,MA,MP	Yes
	Chromium, Total	7440-47-3	T	2	8.41	0.132	0.606		Y	8.41	0.132	0.606	J	Y	MAL,MP,LD	Yes
	Cobalt	7440-48-4	T	2	7.10	0.0236	0.151		Y	7.10	0.0236	0.151	J	Y	MAL,MP,LD	Yes
	Copper	7440-50-8	T	2	17.9	0.0812	0.606		Y	17.9	0.0812	0.606	J	Y	MP,LD	Yes
	Lead	7439-92-1	T	2	7.86	0.0168	0.303		Y	7.86	0.0168	0.303	J	Y	MP	Yes
	Nickel	7440-02-0	T	2	15.4	0.151	0.606		Y	15.4	0.151	0.606	J	Y	MP,LD	Yes
	Selenium	7782-49-2	T	2	0.152	0.0757	0.606	J	Y	0.152	0.0757	0.606	J	Y	RL	Yes
	Silver	7440-22-4	T	2	0.0279	0.0221	0.151	J	Y	0.0279	0.0221	0.151	J	Y	RL	Yes
	Thallium	7440-28-0	T	2	0.0401	0.0189	0.151	J	Y	0.0401	0.0189	0.151	J	Y	RL,MAL	Yes
	Vanadium	7440-62-2	T	2	8.02	0.0323	0.151		Y	8.02	0.0323	0.151	J	Y	MAL,MP	Yes

Sample ID	SG3a-SB18-02-10.0-11.0
Sample Date	3/6/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491695
Analytical Method	SW6020A
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-02 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Antimony	7440-36-0	T	2	0.400	0.105	0.451	J	Y	0.400	0.105	0.451	J	Y	RL,MAL	Yes
	Arsenic	7440-38-2	T	2	10.3	0.144	0.903		Y	10.3	0.144	0.903	J	Y	MP	Yes
	Barium	7440-39-3	T	2	136	0.205	0.903		Y	136	0.205	0.903	J	Y	MP,LD	Yes
	Beryllium	7440-41-7	T	2	1.06	0.0118	0.226		Y	1.06	0.0118	0.226	J	Y	MAL,MP	Yes
	Cadmium	7440-43-9	T	2	1.07	0.0388	0.226		Y	1.07	0.0388	0.226	J	Y	MA,MP	Yes
	Chromium, Total	7440-47-3	T	2	16.1	0.196	0.903		Y	16.1	0.196	0.903	J	Y	MAL,MP,LD	Yes
	Cobalt	7440-48-4	T	2	85.8	0.0352	0.226		Y	85.8	0.0352	0.226	J	Y	MAL,MP,LD	Yes
	Copper	7440-50-8	T	2	48.4	0.121	0.903		Y	48.4	0.121	0.903	J	Y	MP,LD	Yes
	Lead	7439-92-1	T	2	18.7	0.0250	0.451		Y	18.7	0.0250	0.451	J	Y	MP	Yes
	Nickel	7440-02-0	T	2	116	0.225	0.903		Y	116	0.225	0.903	J	Y	MP,LD	Yes
	Selenium	7782-49-2	T	2	0.332	0.113	0.903	J	Y	0.332	0.113	0.903	J	Y	RL	Yes
	Silver	7440-22-4	T	2	0.258	0.0329	0.226		Y	0.258	0.0329	0.226		Y		Yes
	Thallium	7440-28-0	T	2	0.194	0.0282	0.226	J	Y	0.194	0.0282	0.226	J	Y	RL,MAL	Yes
	Vanadium	7440-62-2	T	2	15.3	0.0481	0.226		Y	15.3	0.0481	0.226	J	Y	MAL,MP	Yes

Sample ID	SG3a-SB18-02-15.0
Sample Date	3/6/2018 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491699
Analytical Method	SW6020A
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-02 / 15-15 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Antimony	7440-36-0	T	2	0.176	0.0999	0.429	J	Y	0.176	0.0999	0.429	J	Y	RL,MAL	Yes
	Arsenic	7440-38-2	T	2	8.74	0.137	0.857		Y	8.74	0.137	0.857	J	Y	MP	Yes
	Barium	7440-39-3	T	2	43.0	0.195	0.857		Y	43.0	0.195	0.857	J	Y	MP,LD	Yes
	Beryllium	7440-41-7	T	2	0.315	0.0112	0.214		Y	0.315	0.0112	0.214	J	Y	MAL,MP	Yes
	Cadmium	7440-43-9	T	2	0.120	0.0369	0.214	J	Y	0.120	0.0369	0.214	J	Y	RL,MA,MP	Yes
	Chromium, Total	7440-47-3	T	2	10.5	0.186	0.857		Y	10.5	0.186	0.857	J	Y	MAL,MP,LD	Yes
	Cobalt	7440-48-4	T	2	9.57	0.0334	0.214		Y	9.57	0.0334	0.214	J	Y	MAL,MP,LD	Yes
	Copper	7440-50-8	T	2	13.3	0.115	0.857		Y	13.3	0.115	0.857	J	Y	MP,LD	Yes
	Lead	7439-92-1	T	2	8.67	0.0238	0.429		Y	8.67	0.0238	0.429	J	Y	MP	Yes
	Nickel	7440-02-0	T	2	19.0	0.213	0.857		Y	19.0	0.213	0.857	J	Y	MP,LD	Yes
	Selenium	7782-49-2	T	2	0.152	0.107	0.857	J	Y	0.152	0.107	0.857	J	Y	RL	Yes
	Silver	7440-22-4	T	2	0.0390	0.0313	0.214	J	Y	0.0390	0.0313	0.214	J	Y	RL	Yes
	Thallium	7440-28-0	T	2	0.100	0.0268	0.214	J	Y	0.100	0.0268	0.214	J	Y	RL,MAL	Yes
	Vanadium	7440-62-2	T	2	10.7	0.0457	0.214		Y	10.7	0.0457	0.214	J	Y	MAL,MP	Yes

Sample ID	SG3a-SB18-02-6.5
Sample Date	3/6/2018 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491700
Analytical Method	SW6020A
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-02 / 6.5-6.5 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Antimony	7440-36-0	T	2	0.606	0.105	0.450		Y	0.606	0.105	0.450	J	Y	MAL	Yes
	Arsenic	7440-38-2	T	2	11.3	0.144	0.901		Y	11.3	0.144	0.901	J	Y	MP	Yes
	Barium	7440-39-3	T	2	140	0.205	0.901		Y	140	0.205	0.901	J	Y	MP,LD	Yes
	Beryllium	7440-41-7	T	2	0.883	0.0118	0.225		Y	0.883	0.0118	0.225	J	Y	MAL,MP	Yes
	Cadmium	7440-43-9	T	2	1.30	0.0387	0.225		Y	1.30	0.0387	0.225	J	Y	MP,MA	Yes
	Chromium, Total	7440-47-3	T	2	11.9	0.196	0.901		Y	11.9	0.196	0.901	J	Y	MAL,MP,LD	Yes
	Cobalt	7440-48-4	T	2	70.4	0.0351	0.225		Y	70.4	0.0351	0.225	J	Y	MAL,MP,LD	Yes
	Copper	7440-50-8	T	2	55.5	0.121	0.901		Y	55.5	0.121	0.901	J	Y	MP,LD	Yes
	Lead	7439-92-1	T	2	24.4	0.0250	0.450		Y	24.4	0.0250	0.450	J	Y	MP	Yes
	Nickel	7440-02-0	T	2	145	0.224	0.901		Y	145	0.224	0.901	J	Y	MP,LD	Yes
	Selenium	7782-49-2	T	2	0.327	0.113	0.901	J	Y	0.327	0.113	0.901	J	Y	RL	Yes
	Silver	7440-22-4	T	2	0.395	0.0329	0.225		Y	0.395	0.0329	0.225		Y		Yes
	Thallium	7440-28-0	T	2	0.216	0.0282	0.225	J	Y	0.216	0.0282	0.225	J	Y	RL,MAL	Yes
	Vanadium	7440-62-2	T	2	11.9	0.0480	0.225		Y	11.9	0.0480	0.225	J	Y	MAL,MP	Yes

Sample ID	SG3a-SB18-02-9.0
Sample Date	3/6/2018 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491701
Analytical Method	SW6020A
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-02 / 9-9 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Antimony	7440-36-0	T	2	1.62	0.118	0.506		Y	1.62	0.118	0.506	J	Y	MAL	Yes
	Arsenic	7440-38-2	T	2	33.8	0.162	1.01		Y	33.8	0.162	1.01	J	Y	MP	Yes
	Barium	7440-39-3	T	2	525	0.230	1.01		Y	525	0.230	1.01	J	Y	MP,LD	Yes
	Beryllium	7440-41-7	T	2	4.29	0.0133	0.253		Y	4.29	0.0133	0.253	J	Y	MAL,MP	Yes
	Cadmium	7440-43-9	T	2	7.61	0.0435	0.253		Y	7.61	0.0435	0.253	J	Y	MA,MP	Yes
	Chromium, Total	7440-47-3	T	2	12.1	0.220	1.01		Y	12.1	0.220	1.01	J	Y	MAL,MP,LD	Yes
	Cobalt	7440-48-4	T	2	362	0.0395	0.253		Y	362	0.0395	0.253	J	Y	MAL,MP,LD	Yes
	Copper	7440-50-8	T	2	131	0.136	1.01		Y	131	0.136	1.01	J	Y	MP,LD	Yes
	Lead	7439-92-1	T	20	42.3	0.281	5.06		Y	42.3	0.281	5.06	J	Y	MP	Yes
	Nickel	7440-02-0	T	2	418	0.252	1.01		Y	418	0.252	1.01	J	Y	MP,LD	Yes
	Selenium	7782-49-2	T	2	1.01	0.126	1.01		Y	1.01	0.126	1.01		Y		Yes
	Silver	7440-22-4	T	2	2.88	0.0369	0.253		Y	2.88	0.0369	0.253		Y		Yes
	Thallium	7440-28-0	T	5	0.925	0.0790	0.632		Y	0.925	0.0790	0.632	J	Y	MAL	Yes
	Vanadium	7440-62-2	T	2	15.4	0.0539	0.253		Y	15.4	0.0539	0.253	J	Y	MAL,MP	Yes

Sample ID	SG3a-SB18-02-0.0-1.0
Sample Date	3/6/2018 2:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491694
Analytical Method	SW7471B
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-02 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	1		0.0104	0.104	U	N		0.0104	0.104	U	N		Yes

Sample ID	SG3a-SB18-02-10.0-11.0
Sample Date	3/6/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491695
Analytical Method	SW7471B
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-02 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	1	0.0527	0.0108	0.108	J	Y	0.0527	0.0108	0.108	J	Y	RL	Yes

Sample ID	SG3a-SB18-02-15.0
Sample Date	3/6/2018 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491699
Analytical Method	SW7471B
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-02 / 15-15 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	1		0.0103	0.103	U	N		0.0103	0.103	U	N		Yes

Sample ID	SG3a-SB18-02-6.5
Sample Date	3/6/2018 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491700
Analytical Method	SW7471B
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-02 / 6.5-6.5 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	1	0.0410	0.0107	0.107	J	Y	0.0410	0.0107	0.107	J	Y	RL	Yes

Sample ID	SG3a-SB18-02-9.0
Sample Date	3/6/2018 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491701
Analytical Method	SW7471B
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-02 / 9-9 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	10	2.73	0.129	1.29		Y	2.73	0.129	1.29		Y		Yes

Sample ID	SG3a-SB18-02-0.0-1.0
Sample Date	3/6/2018 2:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491694
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	0.89		2	9	U	N		2	9	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	1,2,4-Trichlorobenzene	120-82-1	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	0.89		2	5	U	N		2	5	U	N		Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	1,2-Dichloroethane	107-06-2	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	1,4-Dichlorobenzene	106-46-7	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	2-Hexanone	591-78-6	T	0.89		3	9	U	N		3	9	U	N		Yes
	Acetone	67-64-1	T	0.89	27	6	19		Y	27	6	19		Y		Yes
	Benzene	71-43-2	T	0.89		0.5	5	U	N		0.5	5	U	N		Yes
	Bromochloromethane	74-97-5	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Bromodichloromethane	75-27-4	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes

Sample ID	SG3a-SB18-02-0.0-1.0
Sample Date	3/6/2018 2:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491694
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Bromomethane	74-83-9	T	0.89		2	5	U	N		2	5	U	N		Yes
	Carbon Disulfide	75-15-0	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Carbon Tetrachloride	56-23-5	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Chlorobenzene	108-90-7	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Chloroethane	75-00-3	T	0.89		2	5	U	N		2	5	U	N		Yes
	Chloroform	67-66-3	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Chloromethane	74-87-3	T	0.89		2	5	U	N		2	5	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Cyclohexane	110-82-7	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Dibromochloromethane	124-48-1	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	0.89		2	5	U	N		2	5	U	N		Yes
	Ethylbenzene	100-41-4	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	m,p-Xylene	179601-23-1	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Methyl Acetate	79-20-9	T	0.89		2	5	U	N		2	5	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	0.89		4	9	U	N		4	9	U	N		Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	0.89		3	9	U	N		3	9	U	N		Yes
	Methylcyclohexane	108-87-2	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes

Sample ID	SG3a-SB18-02-0.0-1.0
Sample Date	3/6/2018 2:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491694
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	0.89		2	5	U	N		2	5	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Styrene	100-42-5	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	0.89		0.5	5	U	N		0.5	5	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Toluene	108-88-3	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Trans-1,2-Dichloroethene	156-60-5	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	0.89		2	5	U	N		2	5	U	N		Yes
	Vinyl Chloride	75-01-4	T	0.89		0.9	5	U	N		0.9	5	U	N		Yes

Sample ID	SG3a-SB18-02-10.0-11.0
Sample Date	3/6/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491695
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	1.07		1	6	U	N		1	6	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	1.07		1	6	U	N		1	6	U	N		Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	1.07		2	12	U	N		2	12	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	1.07		1	6	U	N		1	6	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	1.07		1	6	U	N		1	6	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	1.07		1	6	U	N		1	6	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	1.07		1	6	U	N		1	6	U	N		Yes
	1,2,4-Trichlorobenzene	120-82-1	T	1.07		1	6	U	N		1	6	U	N		Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	1.07		2	6	U	N		2	6	U	N		Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	1.07		1	6	U	N		1	6	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	1.07		1	6	U	N		1	6	U	N		Yes
	1,2-Dichloroethane	107-06-2	T	1.07		1	6	U	N		1	6	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	1.07		1	6	U	N		1	6	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	1.07		1	6	U	N		1	6	U	N		Yes
	1,4-Dichlorobenzene	106-46-7	T	1.07		1	6	U	N		1	6	U	N		Yes
	2-Hexanone	591-78-6	T	1.07		4	12	U	N		4	12	U	N		Yes
	Acetone	67-64-1	T	1.07	19	9	25	J	Y	19	9	25	J	Y	RL	Yes
	Benzene	71-43-2	T	1.07		0.6	6	U	N		0.6	6	U	N		Yes
	Bromochloromethane	74-97-5	T	1.07		1	6	U	N		1	6	U	N		Yes
	Bromodichloromethane	75-27-4	T	1.07		1	6	U	N		1	6	U	N		Yes

Sample ID	SG3a-SB18-02-10.0-11.0
Sample Date	3/6/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491695
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	1.07		1	6	U	N		1	6	U	N		Yes
	Bromomethane	74-83-9	T	1.07		2	6	U	N		2	6	U	N		Yes
	Carbon Disulfide	75-15-0	T	1.07	7	1	6		Y	7	1	6	J	Y	MAL	Yes
	Carbon Tetrachloride	56-23-5	T	1.07		1	6	U	N		1	6	U	N		Yes
	Chlorobenzene	108-90-7	T	1.07		1	6	U	N		1	6	U	N		Yes
	Chloroethane	75-00-3	T	1.07		2	6	U	N		2	6	U	N		Yes
	Chloroform	67-66-3	T	1.07		1	6	U	N		1	6	U	N		Yes
	Chloromethane	74-87-3	T	1.07		2	6	U	N		2	6	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	1.07		1	6	U	N		1	6	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	1.07		1	6	U	N		1	6	U	N		Yes
	Cyclohexane	110-82-7	T	1.07		1	6	U	N		1	6	U	N		Yes
	Dibromochloromethane	124-48-1	T	1.07		1	6	U	N		1	6	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	1.07		2	6	U	N		2	6	U	N		Yes
	Ethylbenzene	100-41-4	T	1.07		1	6	U	N		1	6	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	1.07		1	6	U	N		1	6	U	N		Yes
	m,p-Xylene	179601-23-1	T	1.07		1	6	U	N		1	6	U	N		Yes
	Methyl Acetate	79-20-9	T	1.07		2	6	U	N		2	6	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	1.07		5	12	U	N		5	12	U	N		Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	1.07		4	12	U	N		4	12	U	N		Yes
	Methylcyclohexane	108-87-2	T	1.07		1	6	U	N		1	6	U	N		Yes

Sample ID	SG3a-SB18-02-10.0-11.0
Sample Date	3/6/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491695
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	1.07		2	6	U	N		2	6	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	1.07		1	6	U	N		1	6	U	N		Yes
	Styrene	100-42-5	T	1.07		1	6	U	N		1	6	UJ	N	MAL	Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	1.07		0.6	6	U	N		0.6	6	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	1.07		1	6	U	N		1	6	U	N		Yes
	Toluene	108-88-3	T	1.07		1	6	U	N		1	6	U	N		Yes
	Trans-1,2-Dichloroethene	156-60-5	T	1.07		1	6	U	N		1	6	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	1.07		1	6	U	N		1	6	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	1.07		1	6	U	N		1	6	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	1.07		2	6	U	N		2	6	U	N		Yes
	Vinyl Chloride	75-01-4	T	1.07		1	6	U	N		1	6	U	N		Yes

Sample ID	SG3a-SB18-02-15.0
Sample Date	3/6/2018 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491699
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 15-15 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	1		1	6	U	N		1	6	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	1		1	6	U	N		1	6	U	N		Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	1		2	11	U	N		2	11	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	1		1	6	U	N		1	6	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	1		1	6	U	N		1	6	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	1		1	6	U	N		1	6	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	1		1	6	U	N		1	6	U	N		Yes
	1,2,4-Trichlorobenzene	120-82-1	T	1		1	6	U	N		1	6	U	N		Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	1		2	6	U	N		2	6	U	N		Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	1		1	6	U	N		1	6	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	1		1	6	U	N		1	6	U	N		Yes
	1,2-Dichloroethane	107-06-2	T	1		1	6	U	N		1	6	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	1		1	6	U	N		1	6	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	1		1	6	U	N		1	6	U	N		Yes
	1,4-Dichlorobenzene	106-46-7	T	1		1	6	U	N		1	6	U	N		Yes
	2-Hexanone	591-78-6	T	1		3	11	U	N		3	11	U	N		Yes
	Acetone	67-64-1	T	1	10	8	22	J	Y	10	8	22	J	Y	RL	Yes
	Benzene	71-43-2	T	1		0.6	6	U	N		0.6	6	U	N		Yes
	Bromochloromethane	74-97-5	T	1		1	6	U	N		1	6	U	N		Yes
	Bromodichloromethane	75-27-4	T	1		1	6	U	N		1	6	U	N		Yes

Sample ID	SG3a-SB18-02-15.0
Sample Date	3/6/2018 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491699
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 15-15 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	1		1	6	U	N		1	6	U	N		Yes
	Bromomethane	74-83-9	T	1		2	6	U	N		2	6	U	N		Yes
	Carbon Disulfide	75-15-0	T	1	4	1	6	J	Y	4	1	6	J	Y	RL	Yes
	Carbon Tetrachloride	56-23-5	T	1		1	6	U	N		1	6	U	N		Yes
	Chlorobenzene	108-90-7	T	1		1	6	U	N		1	6	U	N		Yes
	Chloroethane	75-00-3	T	1		2	6	U	N		2	6	U	N		Yes
	Chloroform	67-66-3	T	1		1	6	U	N		1	6	U	N		Yes
	Chloromethane	74-87-3	T	1		2	6	U	N		2	6	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	1		1	6	U	N		1	6	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	1		1	6	U	N		1	6	U	N		Yes
	Cyclohexane	110-82-7	T	1		1	6	U	N		1	6	U	N		Yes
	Dibromochloromethane	124-48-1	T	1		1	6	U	N		1	6	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	1		2	6	U	N		2	6	U	N		Yes
	Ethylbenzene	100-41-4	T	1		1	6	U	N		1	6	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	1		1	6	U	N		1	6	U	N		Yes
	m,p-Xylene	179601-23-1	T	1		1	6	U	N		1	6	U	N		Yes
	Methyl Acetate	79-20-9	T	1		2	6	U	N		2	6	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	1		4	11	U	N		4	11	U	N		Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	1		3	11	U	N		3	11	U	N		Yes
	Methylcyclohexane	108-87-2	T	1		1	6	U	N		1	6	U	N		Yes

Sample ID	SG3a-SB18-02-15.0
Sample Date	3/6/2018 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491699
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 15-15 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	1		2	6	U	N		2	6	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	1		1	6	U	N		1	6	U	N		Yes
	Styrene	100-42-5	T	1		1	6	U	N		1	6	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	1		0.6	6	U	N		0.6	6	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	1		1	6	U	N		1	6	U	N		Yes
	Toluene	108-88-3	T	1		1	6	U	N		1	6	U	N		Yes
	Trans-1,2-Dichloroethene	156-60-5	T	1		1	6	U	N		1	6	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	1		1	6	U	N		1	6	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	1		1	6	U	N		1	6	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	1		2	6	U	N		2	6	U	N		Yes
	Vinyl Chloride	75-01-4	T	1		1	6	U	N		1	6	U	N		Yes

Sample ID	SG3a-SB18-02-6.5
Sample Date	3/6/2018 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491700
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 6.5-6.5 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	0.92		1	5	U	N		1	5	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	0.92		1	5	U	N		1	5	U	N		Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	0.92		2	10	U	N		2	10	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	0.92		1	5	U	N		1	5	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	0.92		1	5	U	N		1	5	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	0.92		1	5	U	N		1	5	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	0.92		1	5	U	N		1	5	U	N		Yes
	1,2,4-Trichlorobenzene	120-82-1	T	0.92		1	5	U	N		1	5	U	N		Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	0.92		2	5	U	N		2	5	U	N		Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	0.92		1	5	U	N		1	5	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	0.92		1	5	U	N		1	5	U	N		Yes
	1,2-Dichloroethane	107-06-2	T	0.92		1	5	U	N		1	5	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	0.92		1	5	U	N		1	5	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	0.92		1	5	U	N		1	5	U	N		Yes
	1,4-Dichlorobenzene	106-46-7	T	0.92		1	5	U	N		1	5	U	N		Yes
	2-Hexanone	591-78-6	T	0.92		3	10	U	N		3	10	U	N		Yes
	Acetone	67-64-1	T	0.92	110	7	21		Y	110	7	21		Y		Yes
	Benzene	71-43-2	T	0.92		0.5	5	U	N		0.5	5	U	N		Yes
	Bromochloromethane	74-97-5	T	0.92		1	5	U	N		1	5	U	N		Yes
	Bromodichloromethane	75-27-4	T	0.92		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-SB18-02-6.5
Sample Date	3/6/2018 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491700
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 6.5-6.5 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	0.92		1	5	U	N		1	5	U	N		Yes
	Bromomethane	74-83-9	T	0.92		2	5	U	N		2	5	U	N		Yes
	Carbon Disulfide	75-15-0	T	0.92	1	1	5	J	Y	1	1	5	J	Y	RL	Yes
	Carbon Tetrachloride	56-23-5	T	0.92		1	5	U	N		1	5	U	N		Yes
	Chlorobenzene	108-90-7	T	0.92		1	5	U	N		1	5	U	N		Yes
	Chloroethane	75-00-3	T	0.92		2	5	U	N		2	5	U	N		Yes
	Chloroform	67-66-3	T	0.92		1	5	U	N		1	5	U	N		Yes
	Chloromethane	74-87-3	T	0.92		2	5	U	N		2	5	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	0.92		1	5	U	N		1	5	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	0.92		1	5	U	N		1	5	U	N		Yes
	Cyclohexane	110-82-7	T	0.92		1	5	U	N		1	5	U	N		Yes
	Dibromochloromethane	124-48-1	T	0.92		1	5	U	N		1	5	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	0.92		2	5	U	N		2	5	U	N		Yes
	Ethylbenzene	100-41-4	T	0.92		1	5	U	N		1	5	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	0.92		1	5	U	N		1	5	U	N		Yes
	m,p-Xylene	179601-23-1	T	0.92		1	5	U	N		1	5	U	N		Yes
	Methyl Acetate	79-20-9	T	0.92		2	5	U	N		2	5	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	0.92		4	10	U	N		4	10	U	N		Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	0.92		3	10	U	N		3	10	U	N		Yes
	Methylcyclohexane	108-87-2	T	0.92		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-SB18-02-6.5
Sample Date	3/6/2018 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491700
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 6.5-6.5 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	0.92		2	5	U	N		2	5	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	0.92		1	5	U	N		1	5	U	N		Yes
	Styrene	100-42-5	T	0.92		1	5	U	N		1	5	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	0.92		0.5	5	U	N		0.5	5	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	0.92		1	5	U	N		1	5	U	N		Yes
	Toluene	108-88-3	T	0.92		1	5	U	N		1	5	U	N		Yes
	Trans-1,2-Dichloroethene	156-60-5	T	0.92		1	5	U	N		1	5	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	0.92		1	5	U	N		1	5	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	0.92		1	5	U	N		1	5	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	0.92		2	5	U	N		2	5	U	N		Yes
	Vinyl Chloride	75-01-4	T	0.92		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-SB18-02-9.0
Sample Date	3/6/2018 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491701
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 9-9 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	0.84		1	6	U	N		1	6	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	0.84		1	6	U	N		1	6	U	N		Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	0.84		2	11	U	N		2	11	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	0.84		1	6	U	N		1	6	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	0.84		1	6	U	N		1	6	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	0.84		1	6	U	N		1	6	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	0.84		1	6	U	N		1	6	U	N		Yes
	1,2,4-Trichlorobenzene	120-82-1	T	0.84		1	6	U	N		1	6	U	N		Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	0.84		2	6	U	N		2	6	U	N		Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	0.84		1	6	U	N		1	6	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	0.84		1	6	U	N		1	6	U	N		Yes
	1,2-Dichloroethane	107-06-2	T	0.84		1	6	U	N		1	6	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	0.84		1	6	U	N		1	6	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	0.84		1	6	U	N		1	6	U	N		Yes
	1,4-Dichlorobenzene	106-46-7	T	0.84		1	6	U	N		1	6	U	N		Yes
	2-Hexanone	591-78-6	T	0.84		3	11	U	N		3	11	U	N		Yes
	Acetone	67-64-1	T	0.84	180	8	22		Y	180	8	22		Y		Yes
	Benzene	71-43-2	T	0.84		0.6	6	U	N		0.6	6	U	N		Yes
	Bromochloromethane	74-97-5	T	0.84		1	6	U	N		1	6	U	N		Yes
	Bromodichloromethane	75-27-4	T	0.84		1	6	U	N		1	6	U	N		Yes

Sample ID	SG3a-SB18-02-9.0
Sample Date	3/6/2018 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491701
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 9-9 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	0.84		1	6	U	N		1	6	U	N		Yes
	Bromomethane	74-83-9	T	0.84		2	6	U	N		2	6	U	N		Yes
	Carbon Disulfide	75-15-0	T	0.84		1	6	U	N		1	6	U	N		Yes
	Carbon Tetrachloride	56-23-5	T	0.84		1	6	U	N		1	6	U	N		Yes
	Chlorobenzene	108-90-7	T	0.84		1	6	U	N		1	6	U	N		Yes
	Chloroethane	75-00-3	T	0.84		2	6	U	N		2	6	U	N		Yes
	Chloroform	67-66-3	T	0.84		1	6	U	N		1	6	U	N		Yes
	Chloromethane	74-87-3	T	0.84		2	6	U	N		2	6	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	0.84		1	6	U	N		1	6	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	0.84		1	6	U	N		1	6	U	N		Yes
	Cyclohexane	110-82-7	T	0.84		1	6	U	N		1	6	U	N		Yes
	Dibromochloromethane	124-48-1	T	0.84		1	6	U	N		1	6	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	0.84		2	6	U	N		2	6	U	N		Yes
	Ethylbenzene	100-41-4	T	0.84		1	6	U	N		1	6	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	0.84		1	6	U	N		1	6	U	N		Yes
	m,p-Xylene	179601-23-1	T	0.84		1	6	U	N		1	6	U	N		Yes
	Methyl Acetate	79-20-9	T	0.84		2	6	U	N		2	6	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	0.84		4	11	U	N		4	11	U	N		Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	0.84		3	11	U	N		3	11	U	N		Yes
	Methylcyclohexane	108-87-2	T	0.84		1	6	U	N		1	6	U	N		Yes

Sample ID	SG3a-SB18-02-9.0
Sample Date	3/6/2018 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491701
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 9-9 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	0.84		2	6	U	N		2	6	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	0.84		1	6	U	N		1	6	U	N		Yes
	Styrene	100-42-5	T	0.84		1	6	U	N		1	6	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	0.84		0.6	6	U	N		0.6	6	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	0.84		1	6	U	N		1	6	U	N		Yes
	Toluene	108-88-3	T	0.84		1	6	U	N		1	6	U	N		Yes
	Trans-1,2-Dichloroethene	156-60-5	T	0.84		1	6	U	N		1	6	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	0.84		1	6	U	N		1	6	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	0.84		1	6	U	N		1	6	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	0.84		2	6	U	N		2	6	U	N		Yes
	Vinyl Chloride	75-01-4	T	0.84		1	6	U	N		1	6	U	N		Yes

Sample ID	SG3a-SB18-02-0.0-1.0
Sample Date	3/6/2018 2:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491694
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	T	1		17	35	U	N		17	35	U	N		Yes
	1,4-Dioxane (P-Dioxane)	123-91-1	T	1		100	350	U	N		100	350	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	T	1		70	170	U	N		70	170	U	N		Yes
	2,4,5-Trichlorophenol	95-95-4	T	1		17	35	U	N		17	35	U	N		Yes
	2,4,6-Trichlorophenol	88-06-2	T	1		17	35	U	N		17	35	U	N		Yes
	2,4-Dichlorophenol	120-83-2	T	1		17	35	U	N		17	35	U	N		Yes
	2,4-Dimethylphenol	105-67-9	T	1		17	35	U	N		17	35	U	N		Yes
	2,4-Dinitrophenol	51-28-5	T	1		310	1000	U	N		310	1000	U	N		Yes
	2,4-Dinitrotoluene	121-14-2	T	1		70	170	U	N		70	170	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	T	1		17	35	U	N		17	35	U	N		Yes
	2-Chloronaphthalene	91-58-7	T	1		7	34	U	N		7	34	U	N		Yes
	2-Chlorophenol	95-57-8	T	1		17	35	U	N		17	35	U	N		Yes
	2-Methylnaphthalene	91-57-6	T	1	12	3	18	J	Y	12	3	18	J	Y	RL	Yes
	2-Methylphenol (O-Cresol)	95-48-7	T	1		17	35	U	N		17	35	U	N		Yes
	2-Nitroaniline	88-74-4	T	1		17	35	U	N		17	35	U	N		Yes
	2-Nitrophenol	88-75-5	T	1		17	35	U	N		17	35	U	N		Yes
	3,3'-Dichlorobenzidine	91-94-1	T	1		100	350	U	N		100	350	U	N		Yes
	3-Nitroaniline	99-09-2	T	1		70	170	U	N		70	170	U	N		Yes
	4,6-Dinitro-2-Methylphenol	534-52-1	T	1		170	520	U	N		170	520	U	N		Yes
	4-Bromophenyl Phenyl Ether	101-55-3	T	1		17	35	U	N		17	35	U	N		Yes

Sample ID	SG3a-SB18-02-0.0-1.0
Sample Date	3/6/2018 2:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491694
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	4-Chloro-3-Methylphenol	59-50-7	T	1		17	35	U	N		17	35	U	N		Yes
	4-Chloroaniline	106-47-8	T	1		35	70	U	N		35	70	U	N		Yes
	4-Chlorophenyl Phenyl Ether	7005-72-3	T	1		17	35	U	N		17	35	U	N		Yes
	4-Methylphenol (P-Cresol)	106-44-5	T	1		17	35	U	N		17	35	U	N		Yes
	4-Nitroaniline	100-01-6	T	1		70	170	U	N		70	170	U	N		Yes
	4-Nitrophenol	100-02-7	T	1		170	520	U	N		170	520	U	N		Yes
	Acenaphthene	83-32-9	T	1		3	18	U	N		3	18	U	N		Yes
	Acenaphthylene	208-96-8	T	1	4	3	18	J	Y	4	3	18	J	Y	RL	Yes
	Acetophenone	98-86-2	T	1		17	35	U	N		17	35	U	N		Yes
	Anthracene	120-12-7	T	1	9	3	18	J	Y	9	3	18	J	Y	RL	Yes
	Atrazine	1912-24-9	T	1		35	170	U	N		35	170	U	N		Yes
	Benzaldehyde	100-52-7	T	1		70	170	U	N		70	170	U	N		Yes
	Benzo(A)Anthracene	56-55-3	T	1	28	3	18		Y	28	3	18		Y		Yes
	Benzo(A)Pyrene	50-32-8	T	1	29	3	18		Y	29	3	18		Y		Yes
	Benzo(B)Fluoranthene	205-99-2	T	1	42	3	18		Y	42	3	18		Y		Yes
	Benzo(G,H,I)Perylene	191-24-2	T	1	23	3	18		Y	23	3	18		Y		Yes
	Benzo(K)Fluoranthene	207-08-9	T	1	17	3	18	J	Y	17	3	18	J	Y	RL	Yes
	Benzyl Butyl Phthalate	85-68-7	T	1		70	170	U	N		70	170	U	N		Yes
	Biphenyl (Diphenyl)	92-52-4	T	1		17	35	U	N		17	35	U	N		Yes
	Bis(2-Chloroethoxy) Methane	111-91-1	T	1		17	35	U	N		17	35	U	N		Yes

Sample ID	SG3a-SB18-02-0.0-1.0
Sample Date	3/6/2018 2:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491694
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	T	1		17	35	U	N		17	35	U	N		Yes
	Bis(2-Chloroisopropyl) Ether	108-60-1	T	1		17	35	U	N		17	35	U	N		Yes
	Bis(2-Ethylhexyl) Phthalate	117-81-7	T	1		70	180	U	N		70	180	U	N		Yes
	Caprolactam	105-60-2	T	1		35	170	U	N		35	170	U	N		Yes
	Carbazole	86-74-8	T	1		17	35	U	N		17	35	U	N		Yes
	Chrysene	218-01-9	T	1	47	3	18		Y	47	3	18		Y		Yes
	Dibenz(A,H)Anthracene	53-70-3	T	1	7	3	18	J	Y	7	3	18	J	Y	RL	Yes
	Dibenzofuran	132-64-9	T	1		17	35	U	N		17	35	U	N		Yes
	Diethyl Phthalate	84-66-2	T	1		70	170	U	N		70	170	U	N		Yes
	Dimethyl Phthalate	131-11-3	T	1		70	170	U	N		70	170	U	N		Yes
	Di-N-Butyl Phthalate	84-74-2	T	1		70	170	U	N		70	170	U	N		Yes
	Di-N-Octylphthalate	117-84-0	T	1		70	170	U	N		70	170	U	N		Yes
	Fluoranthene	206-44-0	T	1	52	3	18		Y	52	3	18		Y		Yes
	Fluorene	86-73-7	T	1	3	3	18	J	Y	3	3	18	J	Y	RL	Yes
	Hexachlorobenzene	118-74-1	T	1		3	18	U	N		3	18	U	N		Yes
	Hexachlorobutadiene	87-68-3	T	1		17	35	U	N		17	35	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	T	1		170	520	U	N		170	520	U	N		Yes
	Hexachloroethane	67-72-1	T	1		35	170	U	N		35	170	U	N		Yes
	Indeno(1,2,3-C,D)Pyrene	193-39-5	T	1	19	3	18		Y	19	3	18		Y		Yes
	Isophorone	78-59-1	T	1		17	35	U	N		17	35	U	N		Yes

Sample ID	SG3a-SB18-02-0.0-1.0
Sample Date	3/6/2018 2:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491694
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Naphthalene	91-20-3	T	1	9	3	18	J	Y	9	3	18	J	Y	RL	Yes
	Nitrobenzene	98-95-3	T	1		17	35	U	N		17	35	U	N		Yes
	N-Nitrosodi-N-Propylamine	621-64-7	T	1		17	35	U	N		17	35	U	N		Yes
	N-Nitrosodiphenylamine	86-30-6	T	1		17	35	U	N		17	35	U	N		Yes
	Pentachlorophenol	87-86-5	T	1		35	180	U	N		35	180	U	N		Yes
	Phenanthrene	85-01-8	T	1	54	3	18		Y	54	3	18		Y		Yes
	Phenol	108-95-2	T	1		17	35	U	N		17	35	U	N		Yes
	Pyrene	129-00-0	T	1	50	3	18		Y	50	3	18		Y		Yes

Sample ID	SG3a-SB18-02-10.0-11.0
Sample Date	3/6/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491695
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	T	1		19	38	U	N		19	38	U	N		Yes
	1,4-Dioxane (P-Dioxane)	123-91-1	T	1		110	380	U	N		110	380	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	T	1		76	190	U	N		76	190	UJ	N	MAL	Yes
	2,4,5-Trichlorophenol	95-95-4	T	1		19	38	U	N		19	38	U	N		Yes
	2,4,6-Trichlorophenol	88-06-2	T	1		19	38	U	N		19	38	UJ	N	MAL	Yes
	2,4-Dichlorophenol	120-83-2	T	1		19	38	U	N		19	38	U	N		Yes
	2,4-Dimethylphenol	105-67-9	T	1		19	38	U	N		19	38	UJ	N	MAL	Yes
	2,4-Dinitrophenol	51-28-5	T	1		340	1100	U	N		340	1100	UJ	N	MAL	Yes
	2,4-Dinitrotoluene	121-14-2	T	1		76	190	U	N		76	190	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	T	1		19	38	U	N		19	38	U	N		Yes
	2-Chloronaphthalene	91-58-7	T	1		8	38	U	N		8	38	U	N		Yes
	2-Chlorophenol	95-57-8	T	1		19	38	U	N		19	38	U	N		Yes
	2-Methylnaphthalene	91-57-6	T	1		4	19	U	N		4	19	U	N		Yes
	2-Methylphenol (O-Cresol)	95-48-7	T	1		19	38	U	N		19	38	U	N		Yes
	2-Nitroaniline	88-74-4	T	1		19	38	U	N		19	38	U	N		Yes
	2-Nitrophenol	88-75-5	T	1		19	38	U	N		19	38	U	N		Yes
	3,3'-Dichlorobenzidine	91-94-1	T	1		110	380	U	N		110	380	U	N		Yes
	3-Nitroaniline	99-09-2	T	1		76	190	U	N		76	190	U	N		Yes
	4,6-Dinitro-2-Methylphenol	534-52-1	T	1		190	570	U	N		190	570	UJ	N	MAL	Yes
	4-Bromophenyl Phenyl Ether	101-55-3	T	1		19	38	U	N		19	38	U	N		Yes

Sample ID	SG3a-SB18-02-10.0-11.0
Sample Date	3/6/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491695
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	4-Chloro-3-Methylphenol	59-50-7	T	1		19	38	U	N		19	38	U	N		Yes
	4-Chloroaniline	106-47-8	T	1		38	76	U	N		38	76	U	N		Yes
	4-Chlorophenyl Phenyl Ether	7005-72-3	T	1		19	38	U	N		19	38	U	N		Yes
	4-Methylphenol (P-Cresol)	106-44-5	T	1		19	38	U	N		19	38	U	N		Yes
	4-Nitroaniline	100-01-6	T	1		76	190	U	N		76	190	U	N		Yes
	4-Nitrophenol	100-02-7	T	1		190	570	U	N		190	570	U	N		Yes
	Acenaphthene	83-32-9	T	1		4	19	U	N		4	19	U	N		Yes
	Acenaphthylene	208-96-8	T	1		4	19	U	N		4	19	U	N		Yes
	Acetophenone	98-86-2	T	1		19	38	U	N		19	38	U	N		Yes
	Anthracene	120-12-7	T	1	5	4	19	J	Y	5	4	19	J	Y	RL	Yes
	Atrazine	1912-24-9	T	1		38	190	U	N		38	190	U	N		Yes
	Benzaldehyde	100-52-7	T	1		76	190	U	N		76	190	U	N		Yes
	Benzo(A)Anthracene	56-55-3	T	1	22	4	19		Y	22	4	19		Y		Yes
	Benzo(A)Pyrene	50-32-8	T	1	19	4	19	J	Y	19	4	19	J	Y	RL	Yes
	Benzo(B)Fluoranthene	205-99-2	T	1	25	4	19		Y	25	4	19		Y		Yes
	Benzo(G,H,I)Perylene	191-24-2	T	1	15	4	19	J	Y	15	4	19	J	Y	RL	Yes
	Benzo(K)Fluoranthene	207-08-9	T	1	13	4	19	J	Y	13	4	19	J	Y	RL	Yes
	Benzyl Butyl Phthalate	85-68-7	T	1		76	190	U	N		76	190	U	N		Yes
	Biphenyl (Diphenyl)	92-52-4	T	1		19	38	U	N		19	38	U	N		Yes
	Bis(2-Chloroethoxy) Methane	111-91-1	T	1		19	38	U	N		19	38	U	N		Yes

Sample ID	SG3a-SB18-02-10.0-11.0
Sample Date	3/6/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491695
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	T	1		19	38	U	N		19	38	U	N		Yes
	Bis(2-Chloroisopropyl) Ether	108-60-1	T	1		19	38	U	N		19	38	U	N		Yes
	Bis(2-Ethylhexyl) Phthalate	117-81-7	T	1		76	190	U	N		76	190	U	N		Yes
	Caprolactam	105-60-2	T	1		38	190	U	N		38	190	U	N		Yes
	Carbazole	86-74-8	T	1		19	38	U	N		19	38	U	N		Yes
	Chrysene	218-01-9	T	1	25	4	19		Y	25	4	19		Y		Yes
	Dibenz(A,H)Anthracene	53-70-3	T	1	7	4	19	J	Y	7	4	19	J	Y	RL	Yes
	Dibenzofuran	132-64-9	T	1		19	38	U	N		19	38	U	N		Yes
	Diethyl Phthalate	84-66-2	T	1		76	190	U	N		76	190	U	N		Yes
	Dimethyl Phthalate	131-11-3	T	1		76	190	U	N		76	190	U	N		Yes
	Di-N-Butyl Phthalate	84-74-2	T	1		76	190	U	N		76	190	U	N		Yes
	Di-N-Octylphthalate	117-84-0	T	1		76	190	U	N		76	190	U	N		Yes
	Fluoranthene	206-44-0	T	1	40	4	19		Y	40	4	19	J	Y	MAH	Yes
	Fluorene	86-73-7	T	1		4	19	U	N		4	19	U	N		Yes
	Hexachlorobenzene	118-74-1	T	1		4	19	U	N		4	19	U	N		Yes
	Hexachlorobutadiene	87-68-3	T	1		19	38	U	N		19	38	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	T	1		190	570	U	N		190	570	U	N		Yes
	Hexachloroethane	67-72-1	T	1		38	190	U	N		38	190	U	N		Yes
	Indeno(1,2,3-C,D)Pyrene	193-39-5	T	1	13	4	19	J	Y	13	4	19	J	Y	RL	Yes
	Isophorone	78-59-1	T	1		19	38	U	N		19	38	U	N		Yes

Sample ID	SG3a-SB18-02-10.0-11.0
Sample Date	3/6/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491695
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Naphthalene	91-20-3	T	1	6	4	19	J	Y	6	4	19	J	Y	RL	Yes
	Nitrobenzene	98-95-3	T	1		19	38	U	N		19	38	U	N		Yes
	N-Nitrosodi-N-Propylamine	621-64-7	T	1		19	38	U	N		19	38	U	N		Yes
	N-Nitrosodiphenylamine	86-30-6	T	1		19	38	U	N		19	38	U	N		Yes
	Pentachlorophenol	87-86-5	T	1		38	190	U	N		38	190	UJ	N	MAL	Yes
	Phenanthrene	85-01-8	T	1	32	4	19		Y	32	4	19	J	Y	MAH	Yes
	Phenol	108-95-2	T	1		19	38	U	N		19	38	U	N		Yes
	Pyrene	129-00-0	T	1	38	4	19		Y	38	4	19	J	Y	MAH	Yes

Sample ID	SG3a-SB18-02-15.0
Sample Date	3/6/2018 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491699
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 15-15 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	T	1		18	36	U	N		18	36	U	N		Yes
	1,4-Dioxane (P-Dioxane)	123-91-1	T	1		110	360	U	N		110	360	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	T	1		73	180	U	N		73	180	U	N		Yes
	2,4,5-Trichlorophenol	95-95-4	T	1		18	36	U	N		18	36	U	N		Yes
	2,4,6-Trichlorophenol	88-06-2	T	1		18	36	U	N		18	36	U	N		Yes
	2,4-Dichlorophenol	120-83-2	T	1		18	36	U	N		18	36	U	N		Yes
	2,4-Dimethylphenol	105-67-9	T	1		18	36	U	N		18	36	U	N		Yes
	2,4-Dinitrophenol	51-28-5	T	1		330	1100	U	N		330	1100	U	N		Yes
	2,4-Dinitrotoluene	121-14-2	T	1		73	180	U	N		73	180	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	T	1		18	36	U	N		18	36	U	N		Yes
	2-Chloronaphthalene	91-58-7	T	1		7	36	U	N		7	36	U	N		Yes
	2-Chlorophenol	95-57-8	T	1		18	36	U	N		18	36	U	N		Yes
	2-Methylnaphthalene	91-57-6	T	1		4	19	U	N		4	19	U	N		Yes
	2-Methylphenol (O-Cresol)	95-48-7	T	1		18	36	U	N		18	36	U	N		Yes
	2-Nitroaniline	88-74-4	T	1		18	36	U	N		18	36	U	N		Yes
	2-Nitrophenol	88-75-5	T	1		18	36	U	N		18	36	U	N		Yes
	3,3'-Dichlorobenzidine	91-94-1	T	1		110	360	U	N		110	360	U	N		Yes
	3-Nitroaniline	99-09-2	T	1		73	180	U	N		73	180	U	N		Yes
	4,6-Dinitro-2-Methylphenol	534-52-1	T	1		180	550	U	N		180	550	U	N		Yes
	4-Bromophenyl Phenyl Ether	101-55-3	T	1		18	36	U	N		18	36	U	N		Yes

Sample ID	SG3a-SB18-02-15.0
Sample Date	3/6/2018 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491699
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 15-15 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	4-Chloro-3-Methylphenol	59-50-7	T	1		18	36	U	N		18	36	U	N		Yes
	4-Chloroaniline	106-47-8	T	1		36	73	U	N		36	73	U	N		Yes
	4-Chlorophenyl Phenyl Ether	7005-72-3	T	1		18	36	U	N		18	36	U	N		Yes
	4-Methylphenol (P-Cresol)	106-44-5	T	1		18	36	U	N		18	36	U	N		Yes
	4-Nitroaniline	100-01-6	T	1		73	180	U	N		73	180	U	N		Yes
	4-Nitrophenol	100-02-7	T	1		180	550	U	N		180	550	U	N		Yes
	Acenaphthene	83-32-9	T	1		4	19	U	N		4	19	U	N		Yes
	Acenaphthylene	208-96-8	T	1		4	19	U	N		4	19	U	N		Yes
	Acetophenone	98-86-2	T	1		18	36	U	N		18	36	U	N		Yes
	Anthracene	120-12-7	T	1		4	19	U	N		4	19	U	N		Yes
	Atrazine	1912-24-9	T	1		36	180	U	N		36	180	U	N		Yes
	Benzaldehyde	100-52-7	T	1		73	180	U	N		73	180	U	N		Yes
	Benzo(A)Anthracene	56-55-3	T	1		4	19	U	N		4	19	U	N		Yes
	Benzo(A)Pyrene	50-32-8	T	1		4	19	U	N		4	19	U	N		Yes
	Benzo(B)Fluoranthene	205-99-2	T	1		4	19	U	N		4	19	U	N		Yes
	Benzo(G,H,I)Perylene	191-24-2	T	1		4	19	U	N		4	19	U	N		Yes
	Benzo(K)Fluoranthene	207-08-9	T	1		4	19	U	N		4	19	U	N		Yes
	Benzyl Butyl Phthalate	85-68-7	T	1		73	180	U	N		73	180	U	N		Yes
	Biphenyl (Diphenyl)	92-52-4	T	1		18	36	U	N		18	36	U	N		Yes
	Bis(2-Chloroethoxy) Methane	111-91-1	T	1		18	36	U	N		18	36	U	N		Yes

Sample ID	SG3a-SB18-02-15.0
Sample Date	3/6/2018 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491699
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 15-15 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	T	1		18	36	U	N		18	36	U	N		Yes
	Bis(2-Chloroisopropyl) Ether	108-60-1	T	1		18	36	U	N		18	36	U	N		Yes
	Bis(2-Ethylhexyl) Phthalate	117-81-7	T	1		73	190	U	N		73	190	U	N		Yes
	Caprolactam	105-60-2	T	1		36	180	U	N		36	180	U	N		Yes
	Carbazole	86-74-8	T	1		18	36	U	N		18	36	U	N		Yes
	Chrysene	218-01-9	T	1		4	19	U	N		4	19	U	N		Yes
	Dibenz(A,H)Anthracene	53-70-3	T	1		4	19	U	N		4	19	U	N		Yes
	Dibenzofuran	132-64-9	T	1		18	36	U	N		18	36	U	N		Yes
	Diethyl Phthalate	84-66-2	T	1		73	180	U	N		73	180	U	N		Yes
	Dimethyl Phthalate	131-11-3	T	1		73	180	U	N		73	180	U	N		Yes
	Di-N-Butyl Phthalate	84-74-2	T	1		73	180	U	N		73	180	U	N		Yes
	Di-N-Octylphthalate	117-84-0	T	1		73	180	U	N		73	180	U	N		Yes
	Fluoranthene	206-44-0	T	1		4	19	U	N		4	19	U	N		Yes
	Fluorene	86-73-7	T	1		4	19	U	N		4	19	U	N		Yes
	Hexachlorobenzene	118-74-1	T	1		4	19	U	N		4	19	U	N		Yes
	Hexachlorobutadiene	87-68-3	T	1		18	36	U	N		18	36	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	T	1		180	550	U	N		180	550	U	N		Yes
	Hexachloroethane	67-72-1	T	1		36	180	U	N		36	180	U	N		Yes
	Indeno(1,2,3-C,D)Pyrene	193-39-5	T	1		4	19	U	N		4	19	U	N		Yes
	Isophorone	78-59-1	T	1		18	36	U	N		18	36	U	N		Yes

Sample ID	SG3a-SB18-02-15.0
Sample Date	3/6/2018 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491699
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 15-15 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Naphthalene	91-20-3	T	1	4	4	19	J	Y	4	4	19	J	Y	RL	Yes
	Nitrobenzene	98-95-3	T	1		18	36	U	N		18	36	U	N		Yes
	N-Nitrosodi-N-Propylamine	621-64-7	T	1		18	36	U	N		18	36	U	N		Yes
	N-Nitrosodiphenylamine	86-30-6	T	1		18	36	U	N		18	36	U	N		Yes
	Pentachlorophenol	87-86-5	T	1		36	190	U	N		36	190	U	N		Yes
	Phenanthrene	85-01-8	T	1		4	19	U	N		4	19	U	N		Yes
	Phenol	108-95-2	T	1		18	36	U	N		18	36	U	N		Yes
	Pyrene	129-00-0	T	1		4	19	U	N		4	19	U	N		Yes

Sample ID	SG3a-SB18-02-6.5
Sample Date	3/6/2018 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491700
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 6.5-6.5 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	T	1		19	37	U	N		19	37	U	N		Yes
	1,4-Dioxane (P-Dioxane)	123-91-1	T	1		110	370	U	N		110	370	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	T	1		75	190	U	N		75	190	U	N		Yes
	2,4,5-Trichlorophenol	95-95-4	T	1		19	37	U	N		19	37	U	N		Yes
	2,4,6-Trichlorophenol	88-06-2	T	1		19	37	U	N		19	37	U	N		Yes
	2,4-Dichlorophenol	120-83-2	T	1		19	37	U	N		19	37	U	N		Yes
	2,4-Dimethylphenol	105-67-9	T	1		19	37	U	N		19	37	U	N		Yes
	2,4-Dinitrophenol	51-28-5	T	1		340	1100	U	N		340	1100	U	N		Yes
	2,4-Dinitrotoluene	121-14-2	T	1		75	190	U	N		75	190	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	T	1		19	37	U	N		19	37	U	N		Yes
	2-Chloronaphthalene	91-58-7	T	1		7	37	U	N		7	37	U	N		Yes
	2-Chlorophenol	95-57-8	T	1		19	37	U	N		19	37	U	N		Yes
	2-Methylnaphthalene	91-57-6	T	1	24	4	19		Y	24	4	19		Y		Yes
	2-Methylphenol (O-Cresol)	95-48-7	T	1		19	37	U	N		19	37	U	N		Yes
	2-Nitroaniline	88-74-4	T	1		19	37	U	N		19	37	U	N		Yes
	2-Nitrophenol	88-75-5	T	1		19	37	U	N		19	37	U	N		Yes
	3,3'-Dichlorobenzidine	91-94-1	T	1		110	370	U	N		110	370	U	N		Yes
	3-Nitroaniline	99-09-2	T	1		75	190	U	N		75	190	U	N		Yes
	4,6-Dinitro-2-Methylphenol	534-52-1	T	1		190	560	U	N		190	560	U	N		Yes
	4-Bromophenyl Phenyl Ether	101-55-3	T	1		19	37	U	N		19	37	U	N		Yes

Sample ID	SG3a-SB18-02-6.5
Sample Date	3/6/2018 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491700
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 6.5-6.5 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	4-Chloro-3-Methylphenol	59-50-7	T	1		19	37	U	N		19	37	U	N		Yes
	4-Chloroaniline	106-47-8	T	1		37	75	U	N		37	75	U	N		Yes
	4-Chlorophenyl Phenyl Ether	7005-72-3	T	1		19	37	U	N		19	37	U	N		Yes
	4-Methylphenol (P-Cresol)	106-44-5	T	1		19	37	U	N		19	37	U	N		Yes
	4-Nitroaniline	100-01-6	T	1		75	190	U	N		75	190	U	N		Yes
	4-Nitrophenol	100-02-7	T	1		190	560	U	N		190	560	U	N		Yes
	Acenaphthene	83-32-9	T	1	41	4	19		Y	41	4	19		Y		Yes
	Acenaphthylene	208-96-8	T	1	13	4	19	J	Y	13	4	19	J	Y	RL	Yes
	Acetophenone	98-86-2	T	1		19	37	U	N		19	37	U	N		Yes
	Anthracene	120-12-7	T	1	110	4	19		Y	110	4	19		Y		Yes
	Atrazine	1912-24-9	T	1		37	190	U	N		37	190	U	N		Yes
	Benzaldehyde	100-52-7	T	1		75	190	U	N		75	190	U	N		Yes
	Benzo(A)Anthracene	56-55-3	T	1	350	4	19		Y	350	4	19		Y		Yes
	Benzo(A)Pyrene	50-32-8	T	1	330	4	19		Y	330	4	19		Y		Yes
	Benzo(B)Fluoranthene	205-99-2	T	1	440	4	19		Y	440	4	19		Y		Yes
	Benzo(G,H,I)Perylene	191-24-2	T	1	210	4	19		Y	210	4	19		Y		Yes
	Benzo(K)Fluoranthene	207-08-9	T	1	160	4	19		Y	160	4	19		Y		Yes
	Benzyl Butyl Phthalate	85-68-7	T	1		75	190	U	N		75	190	U	N		Yes
	Biphenyl (Diphenyl)	92-52-4	T	1		19	37	U	N		19	37	U	N		Yes
	Bis(2-Chloroethoxy) Methane	111-91-1	T	1		19	37	U	N		19	37	U	N		Yes

Sample ID	SG3a-SB18-02-6.5
Sample Date	3/6/2018 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491700
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 6.5-6.5 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	T	1		19	37	U	N		19	37	U	N		Yes
	Bis(2-Chloroisopropyl) Ether	108-60-1	T	1		19	37	U	N		19	37	U	N		Yes
	Bis(2-Ethylhexyl) Phthalate	117-81-7	T	1		75	190	U	N		75	190	U	N		Yes
	Caprolactam	105-60-2	T	1		37	190	U	N		37	190	U	N		Yes
	Carbazole	86-74-8	T	1	42	19	37		Y	42	19	37		Y		Yes
	Chrysene	218-01-9	T	1	400	4	19		Y	400	4	19		Y		Yes
	Dibenz(A,H)Anthracene	53-70-3	T	1	64	4	19		Y	64	4	19		Y		Yes
	Dibenzofuran	132-64-9	T	1	28	19	37	J	Y	28	19	37	J	Y	RL	Yes
	Diethyl Phthalate	84-66-2	T	1		75	190	U	N		75	190	U	N		Yes
	Dimethyl Phthalate	131-11-3	T	1		75	190	U	N		75	190	U	N		Yes
	Di-N-Butyl Phthalate	84-74-2	T	1		75	190	U	N		75	190	U	N		Yes
	Di-N-Octylphthalate	117-84-0	T	1		75	190	U	N		75	190	U	N		Yes
	Fluoranthene	206-44-0	T	1	670	4	19		Y	670	4	19		Y		Yes
	Fluorene	86-73-7	T	1	39	4	19		Y	39	4	19		Y		Yes
	Hexachlorobenzene	118-74-1	T	1		4	19	U	N		4	19	U	N		Yes
	Hexachlorobutadiene	87-68-3	T	1		19	37	U	N		19	37	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	T	1		190	560	U	N		190	560	U	N		Yes
	Hexachloroethane	67-72-1	T	1		37	190	U	N		37	190	U	N		Yes
	Indeno(1,2,3-C,D)Pyrene	193-39-5	T	1	170	4	19		Y	170	4	19		Y		Yes
	Isophorone	78-59-1	T	1		19	37	U	N		19	37	U	N		Yes

Sample ID	SG3a-SB18-02-6.5
Sample Date	3/6/2018 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491700
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 6.5-6.5 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Naphthalene	91-20-3	T	1	25	4	19		Y	25	4	19		Y		Yes
	Nitrobenzene	98-95-3	T	1		19	37	U	N		19	37	U	N		Yes
	N-Nitrosodi-N-Propylamine	621-64-7	T	1		19	37	U	N		19	37	U	N		Yes
	N-Nitrosodiphenylamine	86-30-6	T	1		19	37	U	N		19	37	U	N		Yes
	Pentachlorophenol	87-86-5	T	1		37	190	U	N		37	190	U	N		Yes
	Phenanthrene	85-01-8	T	1	520	4	19		Y	520	4	19		Y		Yes
	Phenol	108-95-2	T	1		19	37	U	N		19	37	U	N		Yes
	Pyrene	129-00-0	T	1	690	4	19		Y	690	4	19		Y		Yes

Sample ID	SG3a-SB18-02-9.0
Sample Date	3/6/2018 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491701
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 9-9 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	T	1		22	44	U	N		22	44	U	N		Yes
	1,4-Dioxane (P-Dioxane)	123-91-1	T	1		130	440	U	N		130	440	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	T	1		88	220	U	N		88	220	U	N		Yes
	2,4,5-Trichlorophenol	95-95-4	T	1		22	44	U	N		22	44	U	N		Yes
	2,4,6-Trichlorophenol	88-06-2	T	1		22	44	U	N		22	44	U	N		Yes
	2,4-Dichlorophenol	120-83-2	T	1		22	44	U	N		22	44	U	N		Yes
	2,4-Dimethylphenol	105-67-9	T	1		22	44	U	N		22	44	U	N		Yes
	2,4-Dinitrophenol	51-28-5	T	1		400	1300	U	N		400	1300	U	N		Yes
	2,4-Dinitrotoluene	121-14-2	T	1		88	220	U	N		88	220	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	T	1		22	44	U	N		22	44	U	N		Yes
	2-Chloronaphthalene	91-58-7	T	1		9	44	U	N		9	44	U	N		Yes
	2-Chlorophenol	95-57-8	T	1		22	44	U	N		22	44	U	N		Yes
	2-Methylnaphthalene	91-57-6	T	1		4	22	U	N		4	22	U	N		Yes
	2-Methylphenol (O-Cresol)	95-48-7	T	1		22	44	U	N		22	44	U	N		Yes
	2-Nitroaniline	88-74-4	T	1		22	44	U	N		22	44	U	N		Yes
	2-Nitrophenol	88-75-5	T	1		22	44	U	N		22	44	U	N		Yes
	3,3'-Dichlorobenzidine	91-94-1	T	1		130	440	U	N		130	440	U	N		Yes
	3-Nitroaniline	99-09-2	T	1		88	220	U	N		88	220	U	N		Yes
	4,6-Dinitro-2-Methylphenol	534-52-1	T	1		220	660	U	N		220	660	U	N		Yes
	4-Bromophenyl Phenyl Ether	101-55-3	T	1		22	44	U	N		22	44	U	N		Yes

Sample ID	SG3a-SB18-02-9.0
Sample Date	3/6/2018 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491701
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 9-9 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	4-Chloro-3-Methylphenol	59-50-7	T	1		22	44	U	N		22	44	U	N		Yes
	4-Chloroaniline	106-47-8	T	1		44	88	U	N		44	88	U	N		Yes
	4-Chlorophenyl Phenyl Ether	7005-72-3	T	1		22	44	U	N		22	44	U	N		Yes
	4-Methylphenol (P-Cresol)	106-44-5	T	1		22	44	U	N		22	44	U	N		Yes
	4-Nitroaniline	100-01-6	T	1		88	220	U	N		88	220	U	N		Yes
	4-Nitrophenol	100-02-7	T	1		220	660	U	N		220	660	U	N		Yes
	Acenaphthene	83-32-9	T	1		4	22	U	N		4	22	U	N		Yes
	Acenaphthylene	208-96-8	T	1		4	22	U	N		4	22	U	N		Yes
	Acetophenone	98-86-2	T	1		22	44	U	N		22	44	U	N		Yes
	Anthracene	120-12-7	T	1	5	4	22	J	Y	5	4	22	J	Y	RL	Yes
	Atrazine	1912-24-9	T	1		44	220	U	N		44	220	U	N		Yes
	Benzaldehyde	100-52-7	T	1		88	220	U	N		88	220	U	N		Yes
	Benzo(A)Anthracene	56-55-3	T	1	21	4	22	J	Y	21	4	22	J	Y	RL	Yes
	Benzo(A)Pyrene	50-32-8	T	1	22	4	22	J	Y	22	4	22	J	Y	RL	Yes
	Benzo(B)Fluoranthene	205-99-2	T	1	39	4	22		Y	39	4	22		Y		Yes
	Benzo(G,H,I)Perylene	191-24-2	T	1	18	4	22	J	Y	18	4	22	J	Y	RL	Yes
	Benzo(K)Fluoranthene	207-08-9	T	1	15	4	22	J	Y	15	4	22	J	Y	RL	Yes
	Benzyl Butyl Phthalate	85-68-7	T	1		88	220	U	N		88	220	U	N		Yes
	Biphenyl (Diphenyl)	92-52-4	T	1		22	44	U	N		22	44	U	N		Yes
	Bis(2-Chloroethoxy) Methane	111-91-1	T	1		22	44	U	N		22	44	U	N		Yes

Sample ID	SG3a-SB18-02-9.0
Sample Date	3/6/2018 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491701
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 9-9 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	T	1		22	44	U	N		22	44	U	N		Yes
	Bis(2-Chloroisopropyl) Ether	108-60-1	T	1		22	44	U	N		22	44	U	N		Yes
	Bis(2-Ethylhexyl) Phthalate	117-81-7	T	1		88	220	U	N		88	220	U	N		Yes
	Caprolactam	105-60-2	T	1		44	220	U	N		44	220	U	N		Yes
	Carbazole	86-74-8	T	1		22	44	U	N		22	44	U	N		Yes
	Chrysene	218-01-9	T	1	30	4	22		Y	30	4	22		Y		Yes
	Dibenz(A,H)Anthracene	53-70-3	T	1	5	4	22	J	Y	5	4	22	J	Y	RL	Yes
	Dibenzofuran	132-64-9	T	1		22	44	U	N		22	44	U	N		Yes
	Diethyl Phthalate	84-66-2	T	1		88	220	U	N		88	220	U	N		Yes
	Dimethyl Phthalate	131-11-3	T	1		88	220	U	N		88	220	U	N		Yes
	Di-N-Butyl Phthalate	84-74-2	T	1		88	220	U	N		88	220	U	N		Yes
	Di-N-Octylphthalate	117-84-0	T	1		88	220	U	N		88	220	U	N		Yes
	Fluoranthene	206-44-0	T	1	61	4	22		Y	61	4	22		Y		Yes
	Fluorene	86-73-7	T	1		4	22	U	N		4	22	U	N		Yes
	Hexachlorobenzene	118-74-1	T	1		4	22	U	N		4	22	U	N		Yes
	Hexachlorobutadiene	87-68-3	T	1		22	44	U	N		22	44	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	T	1		220	660	U	N		220	660	U	N		Yes
	Hexachloroethane	67-72-1	T	1		44	220	U	N		44	220	U	N		Yes
	Indeno(1,2,3-C,D)Pyrene	193-39-5	T	1	16	4	22	J	Y	16	4	22	J	Y	RL	Yes
	Isophorone	78-59-1	T	1		22	44	U	N		22	44	U	N		Yes

Sample ID	SG3a-SB18-02-9.0
Sample Date	3/6/2018 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491701
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-02 / 9-9 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Naphthalene	91-20-3	T	1	6	4	22	J	Y	6	4	22	J	Y	RL	Yes
	Nitrobenzene	98-95-3	T	1		22	44	U	N		22	44	U	N		Yes
	N-Nitrosodi-N-Propylamine	621-64-7	T	1		22	44	U	N		22	44	U	N		Yes
	N-Nitrosodiphenylamine	86-30-6	T	1		22	44	U	N		22	44	U	N		Yes
	Pentachlorophenol	87-86-5	T	1		44	220	U	N		44	220	U	N		Yes
	Phenanthrene	85-01-8	T	1	54	4	22		Y	54	4	22		Y		Yes
	Phenol	108-95-2	T	1		22	44	U	N		22	44	U	N		Yes
	Pyrene	129-00-0	T	1	51	4	22		Y	51	4	22		Y		Yes

Sample ID	SG3a-SB18-01-0.0-1.0
Sample Date	3/6/2018 12:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491688
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-01 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.84	0.0100	0.0100		Y	8.84	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-01-10.0-11.0
Sample Date	3/6/2018 12:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491689
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-01 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.02	0.0100	0.0100		Y	8.02	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-01-15.0-20.0
Sample Date	3/6/2018 12:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491690
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-01 / 15-20 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	7.83	0.0100	0.0100		Y	7.83	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-01-8.0
Sample Date	3/6/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491691
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-01 / 8-8 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.04	0.0100	0.0100		Y	8.04	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-01-21.0
Sample Date	3/6/2018 12:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491692
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-01 / 21-21 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.63	0.0100	0.0100		Y	8.63	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-02-0.0-1.0
Sample Date	3/6/2018 2:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491694
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-02 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.08	0.0100	0.0100		Y	8.08	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-02-10.0-11.0
Sample Date	3/6/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491695
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-02 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.05	0.0100	0.0100		Y	8.05	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-02-15.0
Sample Date	3/6/2018 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491699
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-02 / 15-15 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.47	0.0100	0.0100		Y	8.47	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-02-6.5
Sample Date	3/6/2018 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491700
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-02 / 6.5-6.5 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.07	0.0100	0.0100		Y	8.07	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-02-9.0
Sample Date	3/6/2018 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9491701
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-02 / 9-9 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	7.45	0.0100	0.0100		Y	7.45	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-01-0.0-1.0
Sample Date	3/6/2018 12:30:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305219001
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-01 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	37200	204	500		Y	37200	204	500	J	Y	PJ	Yes

Sample ID	SG3a-SB18-01-10.0-11.0
Sample Date	3/6/2018 12:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305219002
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-01 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	9480	204	500		Y	9480	204	500	J	Y	PJ	Yes

Sample ID	SG3a-SB18-01-15.0-20.0
Sample Date	3/6/2018 12:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305219003
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-01 / 15-20 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	37400	204	500		Y	37400	204	500	J	Y	PJ	Yes

Sample ID	SG3a-SB18-01-8.0
Sample Date	3/6/2018 12:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305219004
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-01 / 8-8 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	8080	204	500		Y	8080	204	500	J	Y	PJ	Yes

Sample ID	SG3a-SB18-01-21.0
Sample Date	3/6/2018 12:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305219005
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-01 / 21-21 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	20800	204	500		Y	20800	204	500	J	Y	PJ	Yes

Sample ID	SG3a-SB18-02-0.0-1.0
Sample Date	3/6/2018 2:35:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305219006
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-02 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	8860	204	500		Y	8860	204	500	J	Y	PJ	Yes

Sample ID	SG3a-SB18-02-10.0-11.0
Sample Date	3/6/2018 2:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305219007
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-02 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	5580	204	500		Y	5580	204	500	J	Y	PJ	Yes

Sample ID	SG3a-SB18-02-15.0
Sample Date	3/6/2018 2:45:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305219009
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-02 / 15-15 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	23200	204	500		Y	23200	204	500	J	Y	PJ	Yes

Sample ID	SG3a-SB18-02-6.5
Sample Date	3/6/2018 2:50:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305219010
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-02 / 6.5-6.5 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	9830	204	500		Y	9830	204	500	J	Y	PJ	Yes

Sample ID	SG3a-SB18-02-9.0
Sample Date	3/6/2018 2:55:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305219011
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-02 / 9-9 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	5780	204	500		Y	5780	204	500	J	Y	PJ	Yes

B. SDG SNB96

Sample ID	SG3a-RB01-180307
Sample Date	3/7/2018 8:35:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497789
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		1	2	U	N		1	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	2	0.3	1		Y	2	0.3	1	J	Y	LAH	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	1	0.4	2	J	Y	1	0.4	2	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	140	0.3	1		Y	140	0.3	1		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-RB02-180307
Sample Date	3/7/2018 8:40:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497790
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		1	2	U	N		1	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	1	0.3	1		Y	1	0.3	1	J	Y	LAH	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	0.7	0.4	2	J	Y	0.7	0.4	2	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	71	0.3	1		Y	71	0.3	1		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-SB18-04-0.0-1.0
Sample Date	3/7/2018 9:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497791
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-04 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.29	0.87	U	N		0.29	0.87	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.35	0.19	0.58	J	Y	0.35	0.19	0.58	J	Y	RL	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.19	0.58	U	N		0.19	0.58	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.19	0.58	U	N		0.19	0.58	U	N		Yes

Sample ID	SG3a-SB18-04-10.0-11.0
Sample Date	3/7/2018 9:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497792
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-04 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.22	0.67	U	N		0.22	0.67	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.46	0.22	0.67	J	Y	0.46	0.22	0.67	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.22	0.67	U	N		0.22	0.67	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.22	0.67	U	N		0.22	0.67	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.22	0.67	U	N		0.22	0.67	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.22	0.67	U	N		0.22	0.67	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.22	0.67	U	N		0.22	0.67	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.22	0.67	U	N		0.22	0.67	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.33	1.0	U	N		0.33	1.0	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.56	0.22	0.67	J	Y	0.56	0.22	0.67	J	Y	RL	Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.22	0.67	U	N		0.22	0.67	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.22	0.67	U	N		0.22	0.67	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.22	0.67	U	N		0.22	0.67	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.22	0.67	U	N		0.22	0.67	U	N		Yes

Sample ID	SG3a-SB18-04-15.0-20.0
Sample Date	3/7/2018 9:35:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497793
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-04 / 15-20 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.22	0.17	0.50	J	Y	0.22	0.17	0.50	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.25	0.75	U	N		0.25	0.75	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	1.3	0.17	0.50		Y	1.3	0.17	0.50		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.17	0.50	U	N		0.17	0.50	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes

Sample ID	SG3a-SB18-04-8.0
Sample Date	3/7/2018 9:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497794
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-04 / 8-8 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.23	0.68	U	N		0.23	0.68	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		0.23	0.68	U	N		0.23	0.68	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.23	0.68	U	N		0.23	0.68	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.23	0.68	U	N		0.23	0.68	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.23	0.68	U	N		0.23	0.68	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.23	0.68	U	N		0.23	0.68	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.23	0.68	U	N		0.23	0.68	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.23	0.68	U	N		0.23	0.68	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.34	1.0	U	N		0.34	1.0	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.23	0.68	U	N		0.23	0.68	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.23	0.68	U	N		0.23	0.68	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.23	0.68	U	N		0.23	0.68	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.23	0.68	U	N		0.23	0.68	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.23	0.68	U	N		0.23	0.68	U	N		Yes

Sample ID	SG3a-FD01-180307
Sample Date	3/7/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-04-0.0-1.0_03/07/2018
Sample Matrix	SO
Lab Sample ID	9497795
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-04 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.16	0.47	U	N		0.16	0.47	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		0.16	0.47	U	N		0.16	0.47	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.16	0.47	U	N		0.16	0.47	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.16	0.47	U	N		0.16	0.47	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.16	0.47	U	N		0.16	0.47	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.16	0.47	U	N		0.16	0.47	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.16	0.47	U	N		0.16	0.47	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.16	0.47	U	N		0.16	0.47	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.55	0.16	0.47		Y	0.55	0.16	0.47		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.16	0.47	U	N		0.16	0.47	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.16	0.47	U	N		0.16	0.47	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.16	0.47	U	N		0.16	0.47	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.16	0.47	U	N		0.16	0.47	U	N		Yes

Sample ID	SG3a-SB18-05-0.0-1.0
Sample Date	3/7/2018 10:15:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497796
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-05 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.16	0.48	U	N		0.16	0.48	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.26	0.16	0.48	J	Y	0.26	0.16	0.48	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	0.19	0.16	0.48	J	Y	0.19	0.16	0.48	J	Y	RL	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.16	0.48	U	N		0.16	0.48	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	1.4	0.16	0.48		Y	1.4	0.16	0.48		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.16	0.48	U	N		0.16	0.48	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	0.45	0.16	0.48	J	Y	0.45	0.16	0.48	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	0.17	0.16	0.48	J	Y	0.17	0.16	0.48	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.24	0.72	U	N		0.24	0.72	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	10	80	1.6	4.8		Y	80	1.6	4.8		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	0.17	0.16	0.48	J	Y	0.17	0.16	0.48	J	Y	RL,IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.16	0.48	U	N		0.16	0.48	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.16	0.48	U	N		0.16	0.48	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.16	0.48	U	N		0.16	0.48	U	N		Yes

Sample ID	SG3a-SB18-05-10.0-11.0
Sample Date	3/7/2018 10:20:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497797
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-05 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.15	0.44	U	N		0.15	0.44	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		0.15	0.44	U	N		0.15	0.44	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.15	0.44	U	N		0.15	0.44	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.15	0.44	U	N		0.15	0.44	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	0.74	0.15	0.44		Y	0.74	0.15	0.44		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.15	0.44	U	N		0.15	0.44	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	0.31	0.15	0.44	J	Y	0.31	0.15	0.44	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.15	0.44	U	N		0.15	0.44	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.22	0.66	U	N		0.22	0.66	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	42	0.15	0.44		Y	42	0.15	0.44		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.15	0.44	U	N		0.15	0.44	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.15	0.44	U	N		0.15	0.44	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.15	0.44	U	N		0.15	0.44	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.15	0.44	U	N		0.15	0.44	U	N		Yes

Sample ID	SG3a-SB18-05-15.0-20.0
Sample Date	3/7/2018 10:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497798
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-05 / 15-20 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.16	0.48	U	N		0.16	0.48	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.17	0.16	0.48	J	Y	0.17	0.16	0.48	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	0.32	0.16	0.48	J	Y	0.32	0.16	0.48	J	Y	RL	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	0.38	0.16	0.48	J	Y	0.38	0.16	0.48	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	0.70	0.16	0.48		Y	0.70	0.16	0.48		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.16	0.48	U	N		0.16	0.48	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.16	0.48	U	N		0.16	0.48	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	0.16	0.16	0.48	J	Y	0.16	0.16	0.48	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	43	0.16	0.48		Y	43	0.16	0.48		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.16	0.48	U	N		0.16	0.48	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.16	0.48	U	N		0.16	0.48	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.16	0.48	U	N		0.16	0.48	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	0.27	0.16	0.48	J	Y	0.27	0.16	0.48	J	Y	RL	Yes

Sample ID	SG3a-SB18-05-22.0
Sample Date	3/7/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497799
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-05 / 22-22 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.35	1.1	U	N		0.35	1.1	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	1.1	0.24	0.71		Y	1.1	0.24	0.71		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.24	0.71	U	N		0.24	0.71	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.24	0.71	U	N		0.24	0.71	U	N		Yes

Sample ID	SG3a-RB04-180307
Sample Date	3/7/2018 11:35:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497800
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	2	0.9	2		Y	2	0.9	2		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	2	0.3	0.9		Y	2	0.3	0.9		Y		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	3	0.3	0.9		Y	3	0.3	0.9		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	2	0.4	2	J	Y	2	0.4	2	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	0.8	0.4	2	J	Y	0.8	0.4	2	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	10	360	3	9		Y	360	3	9		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1	2	0.3	0.9		Y	2	0.3	0.9		Y		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1	1	0.3	0.9		Y	1	0.3	0.9		Y		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	0.7	0.4	2	J	Y	0.7	0.4	2	J	Y	RL	Yes

Sample ID	SG3a-RB03-180307
Sample Date	3/7/2018 11:05:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497801
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		1	2	U	N		1	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	13	0.3	1		Y	13	0.3	1		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-SB18-06-10.0-11.0
Sample Date	3/9/2018 9:00:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497802
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-06 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.21	0.64	U	N		0.21	0.64	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	0.59	0.14	0.43		Y	0.59	0.14	0.43		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.14	0.43	U	N		0.14	0.43	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes

Sample ID	SG3a-SB18-06-0.0-1.0
Sample Date	3/9/2018 8:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497803
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-06 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.23	0.21	0.63	J	Y	0.23	0.21	0.63	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.31	0.94	U	N		0.31	0.94	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	5.2	0.21	0.63		Y	5.2	0.21	0.63		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.21	0.63	U	N		0.21	0.63	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.21	0.63	U	N		0.21	0.63	U	N		Yes

Sample ID	SG3a-RB01-180309
Sample Date	3/9/2018 12:15:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497807
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		1	2	U	N		1	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	0.5	0.3	1	J	Y	0.5	0.3	1	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	1	0.3	1		Y	1	0.3	1	J	Y	LAH	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	0.7	0.4	2	J	Y	0.7	0.4	2	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	0.4	0.4	2	J	Y	0.4	0.4	2	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	120	0.3	1		Y	120	0.3	1		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-EB01-180309
Sample Date	3/9/2018 3:05:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497808
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		1	2	U	N		1	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-EB02-180309
Sample Date	3/9/2018 3:20:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497809
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		1	2	U	N		1	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-LTB01-180309
Sample Date	3/9/2018 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497810
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		1	2	U	N		1	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-FTB01-180309
Sample Date	3/9/2018 3:35:00 PM
Sample Type	FB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497811
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.9	2	U	N		0.9	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	0.9	U	N		0.3	0.9	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-SB18-03-15.0-17.0
Sample Date	3/6/2018 4:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497812
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-03 / 15-17 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.22	0.65	U	N		0.22	0.65	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		0.22	0.65	U	N		0.22	0.65	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	0.83	0.22	0.65		Y	0.83	0.22	0.65		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.22	0.65	U	N		0.22	0.65	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.22	0.65	U	N		0.22	0.65	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.22	0.65	U	N		0.22	0.65	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.22	0.65	U	N		0.22	0.65	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.22	0.65	U	N		0.22	0.65	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.32	0.97	U	N		0.32	0.97	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	4.3	0.22	0.65		Y	4.3	0.22	0.65		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.22	0.65	U	N		0.22	0.65	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.22	0.65	U	N		0.22	0.65	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.22	0.65	U	N		0.22	0.65	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	1.4	0.22	0.65		Y	1.4	0.22	0.65		Y		Yes

Sample ID	SG3a-SB18-03-14.0
Sample Date	3/6/2018 4:20:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497813
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-03 / 14-14 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.25	0.75	U	N		0.25	0.75	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		0.25	0.75	U	N		0.25	0.75	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.25	0.75	U	N		0.25	0.75	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.25	0.75	U	N		0.25	0.75	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	0.64	0.25	0.75	J	Y	0.64	0.25	0.75	J	Y	RL	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.25	0.75	U	N		0.25	0.75	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	0.35	0.25	0.75	J	Y	0.35	0.25	0.75	J	Y	RL	Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.25	0.75	U	N		0.25	0.75	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.37	1.1	U	N		0.37	1.1	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	8.2	0.25	0.75		Y	8.2	0.25	0.75		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.25	0.75	U	N		0.25	0.75	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.25	0.75	U	N		0.25	0.75	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.25	0.75	U	N		0.25	0.75	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.25	0.75	U	N		0.25	0.75	U	N		Yes

Sample ID	SG3a-SB18-03-0.0-1.0
Sample Date	3/6/2018 4:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497814
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-03 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.30	0.14	0.43	J	Y	0.30	0.14	0.43	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	2.0	0.14	0.43		Y	2.0	0.14	0.43		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	1.5	0.14	0.43		Y	1.5	0.14	0.43		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.21	0.64	U	N		0.21	0.64	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	10	84	1.4	4.3		Y	84	1.4	4.3		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	0.43	0.14	0.43		Y	0.43	0.14	0.43		Y		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.14	0.43	U	N		0.14	0.43	U	N		Yes

Sample ID	SG3a-SB18-03-10.0-11.0
Sample Date	3/6/2018 4:05:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497815
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-03 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.26	0.18	0.55	J	Y	0.26	0.18	0.55	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.27	0.82	U	N		0.27	0.82	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	5.0	0.18	0.55		Y	5.0	0.18	0.55		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.18	0.55	U	N		0.18	0.55	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.18	0.55	U	N		0.18	0.55	U	N		Yes

Sample ID	SG3a-SB18-03-13.0
Sample Date	3/6/2018 4:15:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497816
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-03 / 13-13 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.21	0.62	U	N		0.21	0.62	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.27	0.21	0.62	J	Y	0.27	0.21	0.62	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.21	0.62	U	N		0.21	0.62	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.21	0.62	U	N		0.21	0.62	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	0.21	0.21	0.62	J	Y	0.21	0.21	0.62	J	Y	RL	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.21	0.62	U	N		0.21	0.62	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.21	0.62	U	N		0.21	0.62	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.21	0.62	U	N		0.21	0.62	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.31	0.93	U	N		0.31	0.93	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	3.8	0.21	0.62		Y	3.8	0.21	0.62		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		0.21	0.62	U	N		0.21	0.62	UJ	N	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.21	0.62	U	N		0.21	0.62	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.21	0.62	U	N		0.21	0.62	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.21	0.62	U	N		0.21	0.62	U	N		Yes

Sample ID	SG3a-SB18-04-0.0-1.0
Sample Date	3/7/2018 9:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497791
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-04 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	5.4	0.50	0.50		Y	5.4	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-04-10.0-11.0
Sample Date	3/7/2018 9:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497792
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-04 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	29.1	0.50	0.50		Y	29.1	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-04-15.0-20.0
Sample Date	3/7/2018 9:35:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497793
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-04 / 15-20 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	18.5	0.50	0.50		Y	18.5	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-04-8.0
Sample Date	3/7/2018 9:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497794
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-04 / 8-8 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	21.4	0.50	0.50		Y	21.4	0.50	0.50		Y		Yes

Sample ID	SG3a-FD01-180307
Sample Date	3/7/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-04-0.0-1.0_03/07/2018
Sample Matrix	SO
Lab Sample ID	9497795
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-04 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	4.9	0.50	0.50		Y	4.9	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-05-0.0-1.0
Sample Date	3/7/2018 10:15:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497796
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-05 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	5.8	0.50	0.50		Y	5.8	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-05-10.0-11.0
Sample Date	3/7/2018 10:20:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497797
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-05 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	6.2	0.50	0.50		Y	6.2	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-05-15.0-20.0
Sample Date	3/7/2018 10:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497798
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-05 / 15-20 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	9.2	0.50	0.50		Y	9.2	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-05-22.0
Sample Date	3/7/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497799
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-05 / 22-22 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	24.4	0.50	0.50		Y	24.4	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-06-10.0-11.0
Sample Date	3/9/2018 9:00:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497802
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-06 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	3.7	0.50	0.50		Y	3.7	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-06-0.0-1.0
Sample Date	3/9/2018 8:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497803
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-06 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	6.3	0.50	0.50		Y	6.3	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-03-15.0-17.0
Sample Date	3/6/2018 4:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497812
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-03 / 15-17 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	14.0	0.50	0.50		Y	14.0	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-03-14.0
Sample Date	3/6/2018 4:20:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497813
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-03 / 14-14 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	26.6	0.50	0.50		Y	26.6	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-03-0.0-1.0
Sample Date	3/6/2018 4:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497814
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-03 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	5.0	0.50	0.50		Y	5.0	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-03-10.0-11.0
Sample Date	3/6/2018 4:05:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497815
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-03 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	4.2	0.50	0.50		Y	4.2	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-03-13.0
Sample Date	3/6/2018 4:15:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497816
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-03 / 13-13 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	23.6	0.50	0.50		Y	23.6	0.50	0.50		Y		Yes

Sample ID	SG3a-EB01-180309
Sample Date	3/9/2018 3:05:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497808
Analytical Method	SM5310C
Result Unit	mg/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	T	1		0.50	1.0	U	N		0.50	1.0	U	N		Yes

Sample ID	SG3a-EB02-180309
Sample Date	3/9/2018 3:20:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497809
Analytical Method	SM5310C
Result Unit	mg/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	T	1		0.50	1.0	U	N		0.50	1.0	U	N		Yes

Sample ID	SG3a-EB01-180309
Sample Date	3/9/2018 3:05:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497808
Analytical Method	SW6010C
Result Unit	mg/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Aluminum	7429-90-5	T	1		0.0894	0.400	U	N		0.0894	0.400	U	N		Yes
	Calcium	7440-70-2	T	1		0.0600	0.400	U	N		0.0600	0.400	U	N		Yes
	Iron	7439-89-6	T	1		0.0805	0.400	U	N		0.0805	0.400	U	N		Yes
	Magnesium	7439-95-4	T	1		0.0374	0.200	U	N		0.0374	0.200	U	N		Yes
	Manganese	7439-96-5	T	1		0.0016	0.0100	U	N		0.0016	0.0100	U	N		Yes
	Potassium	7440-09-7	T	1		0.179	1.00	U	N		0.179	1.00	U	N		Yes
	Sodium	7440-23-5	T	1		0.321	2.00	U	N		0.321	2.00	U	N		Yes
	Zinc	7440-66-6	T	1		0.0065	0.0400	U	N		0.0065	0.0400	U	N		Yes

Facility: Bennington
SDG: SNB96

Sample ID	SG3a-EB01-180309
Sample Date	3/9/2018 3:05:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497808
Analytical Method	SW6020A
Result Unit	mg/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Antimony	7440-36-0	T	1		0.00045	0.0020	U	N		0.00045	0.0020	U	N		Yes
	Arsenic	7440-38-2	T	1		0.00072	0.0040	U	N		0.00072	0.0040	U	N		Yes
	Barium	7440-39-3	T	1		0.00072	0.0040	U	N		0.00072	0.0040	U	N		Yes
	Beryllium	7440-41-7	T	1		0.000071	0.0010	U	N		0.000071	0.0010	U	N		Yes
	Cadmium	7440-43-9	T	1		0.00015	0.0010	U	N		0.00015	0.0010	U	N		Yes
	Chromium, Total	7440-47-3	T	1		0.00087	0.0040	U	N		0.00087	0.0040	U	N		Yes
	Cobalt	7440-48-4	T	1		0.00016	0.0010	U	N		0.00016	0.0010	U	N		Yes
	Copper	7440-50-8	T	1	0.0045	0.00054	0.0040		Y	0.0045	0.00054	0.0040		Y		Yes
	Lead	7439-92-1	T	1		0.00011	0.0020	U	N		0.00011	0.0020	U	N		Yes
	Nickel	7440-02-0	T	1		0.0010	0.0040	U	N		0.0010	0.0040	U	N		Yes
	Selenium	7782-49-2	T	1		0.00050	0.0040	U	N		0.00050	0.0040	U	N		Yes
	Silver	7440-22-4	T	1		0.00015	0.0010	U	N		0.00015	0.0010	U	N		Yes
	Thallium	7440-28-0	T	1		0.00012	0.0010	U	N		0.00012	0.0010	U	N		Yes
	Vanadium	7440-62-2	T	1		0.00021	0.0010	U	N		0.00021	0.0010	U	N		Yes

Sample ID	SG3a-EB01-180309
Sample Date	3/9/2018 3:05:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497808
Analytical Method	SW7470A
Result Unit	mg/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	1		0.000050	0.00020	U	N		0.000050	0.00020	U	N		Yes

Sample ID	SG3a-EB01-180309
Sample Date	3/9/2018 3:05:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497808
Analytical Method	SW8260C
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	1		2	10	U	N		2	10	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	1		1	5	U	N		1	5	U	N		Yes
	1,2,4-Trichlorobenzene	120-82-1	T	1		1	5	U	N		1	5	U	N		Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	1		2	5	U	N		2	5	U	N		Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	1		1	5	U	N		1	5	U	N		Yes
	1,2-Dichloroethane	107-06-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	1		1	5	U	N		1	5	U	N		Yes
	1,4-Dichlorobenzene	106-46-7	T	1		1	5	U	N		1	5	U	N		Yes
	2-Hexanone	591-78-6	T	1		3	10	U	N		3	10	U	N		Yes
	Acetone	67-64-1	T	1		6	20	U	N		6	20	U	N		Yes
	Benzene	71-43-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Bromochloromethane	74-97-5	T	1		1	5	U	N		1	5	U	N		Yes
	Bromodichloromethane	75-27-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes

Sample ID	SG3a-EB01-180309
Sample Date	3/9/2018 3:05:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497808
Analytical Method	SW8260C
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	1		0.5	4	U	N		0.5	4	U	N		Yes
	Bromomethane	74-83-9	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Carbon Disulfide	75-15-0	T	1		1	5	U	N		1	5	U	N		Yes
	Carbon Tetrachloride	56-23-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chlorobenzene	108-90-7	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chloroethane	75-00-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chloroform	67-66-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chloromethane	74-87-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Cyclohexane	110-82-7	T	1		2	5	U	N		2	5	U	N		Yes
	Dibromochloromethane	124-48-1	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Ethylbenzene	100-41-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	1		1	5	U	N		1	5	U	N		Yes
	m,p-Xylene	179601-23-1	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Methyl Acetate	79-20-9	T	1		1	5	U	N		1	5	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	1		3	10	U	N		3	10	U	N		Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	1		3	10	U	N		3	10	U	N		Yes
	Methylcyclohexane	108-87-2	T	1		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-EB01-180309
Sample Date	3/9/2018 3:05:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497808
Analytical Method	SW8260C
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Styrene	100-42-5	T	1		1	5	U	N		1	5	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Toluene	108-88-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trans-1,2-Dichloroethene	156-60-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Vinyl Chloride	75-01-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes

Sample ID	SG3a-LTB01-180309
Sample Date	3/9/2018 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497810
Analytical Method	SW8260C
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	1		2	10	U	N		2	10	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	1		1	5	U	N		1	5	U	N		Yes
	1,2,4-Trichlorobenzene	120-82-1	T	1		1	5	U	N		1	5	U	N		Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	1		2	5	U	N		2	5	U	N		Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	1		1	5	U	N		1	5	U	N		Yes
	1,2-Dichloroethane	107-06-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	1		1	5	U	N		1	5	U	N		Yes
	1,4-Dichlorobenzene	106-46-7	T	1		1	5	U	N		1	5	U	N		Yes
	2-Hexanone	591-78-6	T	1		3	10	U	N		3	10	U	N		Yes
	Acetone	67-64-1	T	1		6	20	U	N		6	20	U	N		Yes
	Benzene	71-43-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Bromochloromethane	74-97-5	T	1		1	5	U	N		1	5	U	N		Yes
	Bromodichloromethane	75-27-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes

Sample ID	SG3a-LTB01-180309
Sample Date	3/9/2018 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497810
Analytical Method	SW8260C
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	1		0.5	4	U	N		0.5	4	U	N		Yes
	Bromomethane	74-83-9	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Carbon Disulfide	75-15-0	T	1		1	5	U	N		1	5	U	N		Yes
	Carbon Tetrachloride	56-23-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chlorobenzene	108-90-7	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chloroethane	75-00-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chloroform	67-66-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chloromethane	74-87-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Cyclohexane	110-82-7	T	1		2	5	U	N		2	5	U	N		Yes
	Dibromochloromethane	124-48-1	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Ethylbenzene	100-41-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	1		1	5	U	N		1	5	U	N		Yes
	m,p-Xylene	179601-23-1	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Methyl Acetate	79-20-9	T	1		1	5	U	N		1	5	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	1		3	10	U	N		3	10	U	N		Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	1		3	10	U	N		3	10	U	N		Yes
	Methylcyclohexane	108-87-2	T	1		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-LTB01-180309
Sample Date	3/9/2018 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497810
Analytical Method	SW8260C
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Styrene	100-42-5	T	1		1	5	U	N		1	5	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Toluene	108-88-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trans-1,2-Dichloroethene	156-60-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Vinyl Chloride	75-01-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes

Sample ID	SG3a-EB01-180309
Sample Date	3/9/2018 3:05:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497808
Analytical Method	SW8270D
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	1,4-Dioxane (P-Dioxane)	123-91-1	T	1		1	5	U	N		1	5	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2,4,5-Trichlorophenol	95-95-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2,4,6-Trichlorophenol	88-06-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2,4-Dichlorophenol	120-83-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2,4-Dimethylphenol	105-67-9	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2,4-Dinitrophenol	51-28-5	T	1		10	31	U	N		10	31	U	N		Yes
	2,4-Dinitrotoluene	121-14-2	T	1		1	5	U	N		1	5	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2-Chloronaphthalene	91-58-7	T	1		0.4	1	U	N		0.4	1	U	N		Yes
	2-Chlorophenol	95-57-8	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2-Methylnaphthalene	91-57-6	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	2-Methylphenol (O-Cresol)	95-48-7	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2-Nitroaniline	88-74-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	2-Nitrophenol	88-75-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	3,3'-Dichlorobenzidine	91-94-1	T	1		2	5	U	N		2	5	U	N		Yes
	3-Nitroaniline	99-09-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	4,6-Dinitro-2-Methylphenol	534-52-1	T	1		5	15	U	N		5	15	U	N		Yes
	4-Bromophenyl Phenyl Ether	101-55-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes

Sample ID	SG3a-EB01-180309
Sample Date	3/9/2018 3:05:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497808
Analytical Method	SW8270D
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	4-Chloro-3-Methylphenol	59-50-7	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	4-Chloroaniline	106-47-8	T	1		2	4	U	N		2	4	U	N		Yes
	4-Chlorophenyl Phenyl Ether	7005-72-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	4-Methylphenol (P-Cresol)	106-44-5	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	4-Nitroaniline	100-01-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	4-Nitrophenol	100-02-7	T	1		10	31	U	N		10	31	U	N		Yes
	Acenaphthene	83-32-9	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Acenaphthylene	208-96-8	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Acetophenone	98-86-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Anthracene	120-12-7	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Atrazine	1912-24-9	T	1		2	5	U	N		2	5	U	N		Yes
	Benzaldehyde	100-52-7	T	1		1	5	U	N		1	5	U	N		Yes
	Benzo(A)Anthracene	56-55-3	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Benzo(A)Pyrene	50-32-8	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Benzo(B)Fluoranthene	205-99-2	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Benzo(G,H,I)Perylene	191-24-2	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Benzo(K)Fluoranthene	207-08-9	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Benzyl Butyl Phthalate	85-68-7	T	1		2	5	U	N		2	5	U	N		Yes
	Biphenyl (Diphenyl)	92-52-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Bis(2-Chloroethoxy) Methane	111-91-1	T	1		0.5	1	U	N		0.5	1	U	N		Yes

Sample ID	SG3a-EB01-180309
Sample Date	3/9/2018 3:05:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497808
Analytical Method	SW8270D
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Bis(2-Chloroisopropyl) Ether	108-60-1	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Bis(2-Ethylhexyl) Phthalate	117-81-7	T	1		2	5	U	N		2	5	U	N		Yes
	Caprolactam	105-60-2	T	1		5	15	U	N		5	15	U	N		Yes
	Carbazole	86-74-8	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Chrysene	218-01-9	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Dibenz(A,H)Anthracene	53-70-3	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Dibenzofuran	132-64-9	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Diethyl Phthalate	84-66-2	T	1		2	5	U	N		2	5	U	N		Yes
	Dimethyl Phthalate	131-11-3	T	1		2	5	U	N		2	5	U	N		Yes
	Di-N-Butyl Phthalate	84-74-2	T	1		2	5	U	N		2	5	U	N		Yes
	Di-N-Octylphthalate	117-84-0	T	1		2	5	U	N		2	5	U	N		Yes
	Fluoranthene	206-44-0	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Fluorene	86-73-7	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Hexachlorobenzene	118-74-1	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Hexachlorobutadiene	87-68-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	T	1		5	15	U	N		5	15	U	N		Yes
	Hexachloroethane	67-72-1	T	1		1	5	U	N		1	5	U	N		Yes
	Indeno(1,2,3-C,D)Pyrene	193-39-5	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Isophorone	78-59-1	T	1		0.5	1	U	N		0.5	1	U	N		Yes

Sample ID	SG3a-EB01-180309
Sample Date	3/9/2018 3:05:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9497808
Analytical Method	SW8270D
Result Unit	ug/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Naphthalene	91-20-3	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Nitrobenzene	98-95-3	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	N-Nitrosodi-N-Propylamine	621-64-7	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	N-Nitrosodiphenylamine	86-30-6	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Pentachlorophenol	87-86-5	T	1		1	5	U	N		1	5	U	N		Yes
	Phenanthrene	85-01-8	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes
	Phenol	108-95-2	T	1		0.5	1	U	N		0.5	1	U	N		Yes
	Pyrene	129-00-0	T	1		0.1	0.5	U	N		0.1	0.5	U	N		Yes

Sample ID	SG3a-SB18-04-0.0-1.0
Sample Date	3/7/2018 9:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497791
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-04 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	7.94	0.0100	0.0100		Y	7.94	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-04-10.0-11.0
Sample Date	3/7/2018 9:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497792
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-04 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	7.55	0.0100	0.0100		Y	7.55	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-04-15.0-20.0
Sample Date	3/7/2018 9:35:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497793
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-04 / 15-20 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.10	0.0100	0.0100		Y	8.10	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-04-8.0
Sample Date	3/7/2018 9:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497794
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-04 / 8-8 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	7.61	0.0100	0.0100		Y	7.61	0.0100	0.0100		Y		Yes

Sample ID	SG3a-FD01-180307
Sample Date	3/7/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-04-0.0-1.0_03/07/2018
Sample Matrix	SO
Lab Sample ID	9497795
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-04 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.04	0.0100	0.0100		Y	8.04	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-05-0.0-1.0
Sample Date	3/7/2018 10:15:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497796
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-05 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.49	0.0100	0.0100		Y	8.49	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-05-10.0-11.0
Sample Date	3/7/2018 10:20:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497797
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-05 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.15	0.0100	0.0100		Y	8.15	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-05-15.0-20.0
Sample Date	3/7/2018 10:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497798
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-05 / 15-20 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.44	0.0100	0.0100		Y	8.44	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-05-22.0
Sample Date	3/7/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497799
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-05 / 22-22 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.55	0.0100	0.0100		Y	8.55	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-06-10.0-11.0
Sample Date	3/9/2018 9:00:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497802
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-06 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.43	0.0100	0.0100		Y	8.43	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-06-0.0-1.0
Sample Date	3/9/2018 8:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497803
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-06 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.39	0.0100	0.0100		Y	8.39	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-03-15.0-17.0
Sample Date	3/6/2018 4:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497812
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-03 / 15-17 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.57	0.0100	0.0100		Y	8.57	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-03-14.0
Sample Date	3/6/2018 4:20:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497813
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-03 / 14-14 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	7.80	0.0100	0.0100		Y	7.80	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-03-0.0-1.0
Sample Date	3/6/2018 4:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497814
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-03 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.88	0.0100	0.0100		Y	8.88	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-03-10.0-11.0
Sample Date	3/6/2018 4:05:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497815
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-03 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	11.3	0.0100	0.0100	J	Y	11.3	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-03-13.0
Sample Date	3/6/2018 4:15:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9497816
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-03 / 13-13 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	7.73	0.0100	0.0100		Y	7.73	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-04-0.0-1.0
Sample Date	3/7/2018 9:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305218001
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-04 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	2030	204	500		Y	2030	204	500	J	Y	PJ,LD	Yes

Sample ID	SG3a-SB18-04-10.0-11.0
Sample Date	3/7/2018 9:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305218002
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-04 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	1700	204	500		Y	1700	204	500	J	Y	MAH,PJ,LD	Yes

Sample ID	SG3a-SB18-04-15.0-20.0
Sample Date	3/7/2018 9:35:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305218003
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-04 / 15-20 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	5050	204	500		Y	5050	204	500	J	Y	PJ,LD	Yes

Sample ID	SG3a-SB18-04-8.0
Sample Date	3/7/2018 9:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305218004
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-04 / 8-8 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	13400	204	500		Y	13400	204	500	J	Y	MAH,PJ,LD	Yes

Sample ID	SG3a-SB18-05-0.0-1.0
Sample Date	3/7/2018 10:15:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305218005
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-05 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	4640	204	500		Y	4640	204	500	J	Y	PJ,LD	Yes

Sample ID	SG3a-SB18-05-15.0-20.0
Sample Date	3/7/2018 10:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305218006
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-05 / 15-20 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	10500	204	500		Y	10500	204	500	J	Y	MAH,PJ,LD	Yes

Sample ID	SG3a-SB18-05-22.0
Sample Date	3/7/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305218007
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-05 / 22-22 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	27400	204	500		Y	27400	204	500	J	Y	MAH,PJ,LD	Yes

Sample ID	SG3a-SB18-05-10.0-11.0
Sample Date	3/7/2018 10:20:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305218008
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-05 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	2200	204	500		Y	2200	204	500	J	Y	MAH,PJ,LD	Yes

Sample ID	SG3a-SB18-06-10.0-11.0
Sample Date	3/9/2018 9:00:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305218009
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-06 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	25300	204	500		Y	25300	204	500	J	Y	PJ,LD	Yes

Sample ID	SG3a-SB18-06-0.0-1.0
Sample Date	3/9/2018 8:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305218010
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-06 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	2970	204	500		Y	2970	204	500	J	Y	PJ,LD	Yes

Sample ID	SG3a-SB18-03-15.0-17.0
Sample Date	3/6/2018 4:10:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305218012
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-03 / 15-17 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	11800	204	500		Y	11800	204	500	J	Y	PJ,LD	Yes

Sample ID	SG3a-SB18-03-14.0
Sample Date	3/6/2018 4:20:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305218013
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-03 / 14-14 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	47400	204	500		Y	47400	204	500	J	Y	PJ,LD	Yes

Sample ID	SG3a-SB18-03-0.0-1.0
Sample Date	3/6/2018 4:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305218014
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-03 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	36900	204	500		Y	36900	204	500	J	Y	PJ,LD	Yes

Sample ID	SG3a-SB18-03-10.0-11.0
Sample Date	3/6/2018 4:05:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305218015
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-03 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	43400	204	500		Y	43400	204	500	J	Y	PJ,LD	Yes

Sample ID	SG3a-SB18-03-13.0
Sample Date	3/6/2018 4:15:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	2305218016
Analytical Method	SW9060M
Result Unit	mg/kg
Fraction	NA
Location/Depth	SB18-03 / 13-13 ft
Validated?	Y
Validation Level	CATEGORY A

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	NA	1	16000	204	500		Y	16000	204	500	J	Y	PJ,LD	Yes

C. SDG SNB98

Sample ID	SG3a-RB01-180312
Sample Date	3/12/2018 9:20:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9500919
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	2	1	2		Y	2	1	2		Y		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1	0.7	0.3	1	J	Y	0.7	0.3	1	J	Y	RL	Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	4	0.3	1		Y	4	0.3	1		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	3	0.4	2		Y	3	0.4	2		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	0.8	0.4	2	J	Y	0.8	0.4	2	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	310	0.3	1		Y	310	0.3	1		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1	0.7	0.4	2	J	Y	0.7	0.4	2	J	Y	RL	Yes

Sample ID	SG3a-FD01-180312
Sample Date	3/12/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-07-15.0-18.0_03/12/2018
Sample Matrix	SO
Lab Sample ID	9500920
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.17	0.51	U	N		0.17	0.51	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.27	0.17	0.51	J	Y	0.27	0.17	0.51	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.17	0.51	U	N		0.17	0.51	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.17	0.51	U	N		0.17	0.51	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	0.49	0.17	0.51	J	Y	0.49	0.17	0.51	J	Y	RL	Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.17	0.51	U	N		0.17	0.51	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	0.69	0.17	0.51		Y	0.69	0.17	0.51		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.17	0.51	U	N		0.17	0.51	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.26	0.77	U	N		0.26	0.77	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	30	0.17	0.51		Y	30	0.17	0.51		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	0.45	0.17	0.51	J	Y	0.45	0.17	0.51	J	Y	RL,IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.17	0.51	U	N		0.17	0.51	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.17	0.51	U	N		0.17	0.51	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.17	0.51	U	N		0.17	0.51	U	N		Yes

Sample ID	SG3a-SB18-07-0.0-1.0
Sample Date	3/12/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500921
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-07 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	4.1	0.17	0.50		Y	4.1	0.17	0.50		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	12	0.17	0.50		Y	12	0.17	0.50		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	17	0.17	0.50		Y	17	0.17	0.50		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1	0.25	0.17	0.50	J	Y	0.25	0.17	0.50	J	Y	RL	Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.25	0.74	U	N		0.25	0.74	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	10	380	1.7	5.0		Y	380	1.7	5.0		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	17	0.17	0.50		Y	17	0.17	0.50	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.17	0.50	U	N		0.17	0.50	U	N		Yes

Sample ID	SG3a-SB18-07-10.0-11.0
Sample Date	3/12/2018 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500922
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-07 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.17	0.52	U	N		0.17	0.52	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	1.1	0.17	0.52		Y	1.1	0.17	0.52		Y		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1	0.27	0.17	0.52	J	Y	0.27	0.17	0.52	J	Y	RL	Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.17	0.52	U	N		0.17	0.52	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	3.6	0.17	0.52		Y	3.6	0.17	0.52		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.17	0.52	U	N		0.17	0.52	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	6.9	0.17	0.52		Y	6.9	0.17	0.52		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.17	0.52	U	N		0.17	0.52	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.26	0.78	U	N		0.26	0.78	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	10	83	1.7	5.2		Y	83	1.7	5.2		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	5.2	0.17	0.52		Y	5.2	0.17	0.52	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.17	0.52	U	N		0.17	0.52	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.17	0.52	U	N		0.17	0.52	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.17	0.52	U	N		0.17	0.52	U	N		Yes

Sample ID	SG3a-SB18-07-15.0-18.0
Sample Date	3/12/2018 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500923
Analytical Method	E537M
Result Unit	ng/g
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.18	0.53	U	N		0.18	0.53	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1	0.26	0.18	0.53	J	Y	0.26	0.18	0.53	J	Y	RL	Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		0.18	0.53	U	N		0.18	0.53	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.18	0.53	U	N		0.18	0.53	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1	0.54	0.18	0.53		Y	0.54	0.18	0.53		Y		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.18	0.53	U	N		0.18	0.53	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1	1.0	0.18	0.53		Y	1.0	0.18	0.53		Y		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.18	0.53	U	N		0.18	0.53	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.27	0.80	U	N		0.27	0.80	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1	29	0.18	0.53		Y	29	0.18	0.53		Y		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1	0.83	0.18	0.53		Y	0.83	0.18	0.53	J	Y	IS	Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.18	0.53	U	N		0.18	0.53	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.18	0.53	U	N		0.18	0.53	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.18	0.53	U	N		0.18	0.53	U	N		Yes

Sample ID	SG3a-FTB01-180312
Sample Date	3/12/2018 11:15:00 AM
Sample Type	FB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9500924
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		1	2	U	N		1	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-LTB01-180312
Sample Date	3/12/2018 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	9500925
Analytical Method	E537M
Result Unit	ng/l
Fraction	T
Location/Depth	QC
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Perfluorobutanesulfonic acid (PFBS)	375-73-5	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorobutanoic Acid	375-22-4	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorodecanoic acid (PFDA)	335-76-2	T	1		1	2	U	N		1	2	U	N		Yes
	Perfluorododecanoic acid (PFDoA)	307-55-1	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroheptanoic acid (PFHpA)	375-85-9	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorohexanoic acid (PFHxA)	307-24-4	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorononanoic acid (PFNA)	375-95-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	T	1		0.4	2	U	N		0.4	2	U	N		Yes
	Perfluorooctanoic acid (PFOA)	335-67-1	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoropentanoic Acid (PFPeA)	2706-90-3	T	1		2	6	U	N		2	6	U	N		Yes
	Perfluorotetradecanoic acid (PFTA)	376-06-7	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluorotridecanoic Acid (PFTriA)	72629-94-8	T	1		0.3	1	U	N		0.3	1	U	N		Yes
	Perfluoroundecanoic Acid (PFUnA)	2058-94-8	T	1		0.4	2	U	N		0.4	2	U	N		Yes

Sample ID	SG3a-FD01-180312
Sample Date	3/12/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-07-15.0-18.0_03/12/2018
Sample Matrix	SO
Lab Sample ID	9500920
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	13.5	0.50	0.50		Y	13.5	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-07-0.0-1.0
Sample Date	3/12/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500921
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-07 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	6.1	0.50	0.50		Y	6.1	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-07-10.0-11.0
Sample Date	3/12/2018 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500922
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-07 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	8.6	0.50	0.50		Y	8.6	0.50	0.50		Y		Yes

Sample ID	SG3a-SB18-07-15.0-18.0
Sample Date	3/12/2018 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500923
Analytical Method	SM 2540G
Result Unit	%
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Moisture, Percent	MOIST	T	1	10.1	0.50	0.50		Y	10.1	0.50	0.50		Y		Yes

Sample ID	SG3a-FD01-180312
Sample Date	3/12/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-07-15.0-18.0_03/12/2018
Sample Matrix	SO
Lab Sample ID	9500920
Analytical Method	SM5310B
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	T	1	12200	287	860		Y	12200	287	860		Y		Yes

Sample ID	SG3a-SB18-07-0.0-1.0
Sample Date	3/12/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500921
Analytical Method	SM5310B
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	T	1	4720	299	898		Y	4720	299	898		Y		Yes

Sample ID	SG3a-SB18-07-10.0-11.0
Sample Date	3/12/2018 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500922
Analytical Method	SM5310B
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	T	1	11800	282	847		Y	11800	282	847		Y		Yes

Sample ID	SG3a-SB18-07-15.0-18.0
Sample Date	3/12/2018 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500923
Analytical Method	SM5310B
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Total Organic Carbon	TOC	T	1	14100	271	814		Y	14100	271	814		Y		Yes

Sample ID	SG3a-FD01-180312
Sample Date	3/12/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-07-15.0-18.0_03/12/2018
Sample Matrix	SO
Lab Sample ID	9500920
Analytical Method	SW6010C
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Aluminum	7429-90-5	T	1	7930	7.23	32.3		Y	7930	7.23	32.3		Y		Yes
	Calcium	7440-70-2	T	1	34800	2.69	32.3		Y	34800	2.69	32.3	J	Y	MP,LD	Yes
	Iron	7439-89-6	T	1	20900	6.51	32.3		Y	20900	6.51	32.3		Y		Yes
	Magnesium	7439-95-4	T	1	19200	1.96	16.2		Y	19200	1.96	16.2		Y		Yes
	Manganese	7439-96-5	T	1	810	0.0671	0.808		Y	810	0.0671	0.808	J	Y	MP	Yes
	Potassium	7440-09-7	T	1	632	13.5	80.8		Y	632	13.5	80.8	J	Y	MAH	Yes
	Sodium	7440-23-5	T	1	55.8	13.5	162	J	Y	55.8	13.5	162	J	Y	RL	Yes
	Zinc	7440-66-6	T	1	79.5	0.194	3.23		Y	79.5	0.194	3.23		Y		Yes

Sample ID	SG3a-SB18-07-0.0-1.0
Sample Date	3/12/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500921
Analytical Method	SW6010C
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Aluminum	7429-90-5	T	1	12400	7.74	34.6		Y	12400	7.74	34.6		Y		Yes
	Calcium	7440-70-2	T	1	14200	2.88	34.6		Y	14200	2.88	34.6	J	Y	MP,LD	Yes
	Iron	7439-89-6	T	5	32000	34.8	173		Y	32000	34.8	173		Y		Yes
	Magnesium	7439-95-4	T	1	10800	2.10	17.3		Y	10800	2.10	17.3		Y		Yes
	Manganese	7439-96-5	T	1	643	0.0719	0.866		Y	643	0.0719	0.866	J	Y	MP	Yes
	Potassium	7440-09-7	T	1	1660	14.5	86.6		Y	1660	14.5	86.6	J	Y	MAH	Yes
	Sodium	7440-23-5	T	1	109	14.5	173	J	Y	109	14.5	173	J	Y	RL	Yes
	Zinc	7440-66-6	T	1	69.6	0.208	3.46		Y	69.6	0.208	3.46		Y		Yes

Sample ID	SG3a-SB18-07-10.0-11.0
Sample Date	3/12/2018 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500922
Analytical Method	SW6010C
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Aluminum	7429-90-5	T	1	9430	8.02	35.9		Y	9430	8.02	35.9		Y		Yes
	Calcium	7440-70-2	T	5	57600	14.9	179		Y	57600	14.9	179	J	Y	MP,LD	Yes
	Iron	7439-89-6	T	1	21100	7.22	35.9		Y	21100	7.22	35.9		Y		Yes
	Magnesium	7439-95-4	T	1	34100	2.18	17.9		Y	34100	2.18	17.9		Y		Yes
	Manganese	7439-96-5	T	1	681	0.0744	0.897		Y	681	0.0744	0.897	J	Y	MP	Yes
	Potassium	7440-09-7	T	1	1240	15.0	89.7		Y	1240	15.0	89.7	J	Y	MAH	Yes
	Sodium	7440-23-5	T	1	81.8	15.0	179	J	Y	81.8	15.0	179	J	Y	RL	Yes
	Zinc	7440-66-6	T	1	62.3	0.215	3.59		Y	62.3	0.215	3.59		Y		Yes

Sample ID	SG3a-SB18-07-15.0-18.0
Sample Date	3/12/2018 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500923
Analytical Method	SW6010C
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Aluminum	7429-90-5	T	1	7970	7.10	31.8		Y	7970	7.10	31.8		Y		Yes
	Calcium	7440-70-2	T	1	24200	2.65	31.8		Y	24200	2.65	31.8	J	Y	MP,LD	Yes
	Iron	7439-89-6	T	5	21000	32.0	159		Y	21000	32.0	159		Y		Yes
	Magnesium	7439-95-4	T	1	14900	1.93	15.9		Y	14900	1.93	15.9		Y		Yes
	Manganese	7439-96-5	T	1	837	0.0659	0.795		Y	837	0.0659	0.795	J	Y	MP	Yes
	Potassium	7440-09-7	T	1	577	13.3	79.5		Y	577	13.3	79.5	J	Y	MAH	Yes
	Sodium	7440-23-5	T	1	50.9	13.3	159	J	Y	50.9	13.3	159	J	Y	RL	Yes
	Zinc	7440-66-6	T	1	88.3	0.191	3.18		Y	88.3	0.191	3.18		Y		Yes

Sample ID	SG3a-FD01-180312
Sample Date	3/12/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-07-15.0-18.0_03/12/2018
Sample Matrix	SO
Lab Sample ID	9500920
Analytical Method	SW6020A
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Antimony	7440-36-0	T	2	0.0776	0.0753	0.323	J	Y		0.0776	0.323	UB	N	IB,MAL,RL	Yes
	Arsenic	7440-38-2	T	2	6.55	0.103	0.647		Y	6.55	0.103	0.647	J	Y	FD	Yes
	Barium	7440-39-3	T	2	60.4	0.147	0.647		Y	60.4	0.147	0.647	J	Y	MAH	Yes
	Beryllium	7440-41-7	T	2	0.335	0.0085	0.162		Y	0.335	0.0085	0.162		Y		Yes
	Cadmium	7440-43-9	T	2	0.233	0.0278	0.162		Y	0.233	0.0278	0.162		Y		Yes
	Chromium, Total	7440-47-3	T	2	11.0	0.141	0.647		Y	11.0	0.141	0.647		Y		Yes
	Cobalt	7440-48-4	T	2	10.7	0.0252	0.162		Y	10.7	0.0252	0.162		Y		Yes
	Copper	7440-50-8	T	2	17.0	0.0867	0.647		Y	17.0	0.0867	0.647		Y		Yes
	Lead	7439-92-1	T	2	30.6	0.0179	0.323		Y	30.6	0.0179	0.323	J	Y	FD	Yes
	Nickel	7440-02-0	T	2	19.5	0.161	0.647		Y	19.5	0.161	0.647	J	Y	MAL	Yes
	Selenium	7782-49-2	T	2	0.240	0.0808	0.647	J	Y	0.240	0.0808	0.647	J	Y	RL	Yes
	Silver	7440-22-4	T	2	0.162	0.0236	0.162		Y	0.162	0.0236	0.162		Y		Yes
	Thallium	7440-28-0	T	2	0.0941	0.0202	0.162	J	Y	0.0941	0.0202	0.162	J	Y	RL	Yes
	Vanadium	7440-62-2	T	2	9.63	0.0344	0.162		Y	9.63	0.0344	0.162	J	Y	MAH,SD	Yes

Sample ID	SG3a-SB18-07-0.0-1.0
Sample Date	3/12/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500921
Analytical Method	SW6020A
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Antimony	7440-36-0	T	2	0.0892	0.0807	0.346	J	Y		0.0892	0.346	UB	N	IB,MAL,RL	Yes
	Arsenic	7440-38-2	T	2	9.40	0.111	0.693		Y	9.40	0.111	0.693		Y		Yes
	Barium	7440-39-3	T	2	39.7	0.157	0.693		Y	39.7	0.157	0.693	J	Y	MAH	Yes
	Beryllium	7440-41-7	T	2	0.396	0.0091	0.173		Y	0.396	0.0091	0.173		Y		Yes
	Cadmium	7440-43-9	T	2	0.172	0.0298	0.173	J	Y	0.172	0.0298	0.173	J	Y	RL	Yes
	Chromium, Total	7440-47-3	T	2	13.4	0.151	0.693		Y	13.4	0.151	0.693		Y		Yes
	Cobalt	7440-48-4	T	2	14.1	0.0270	0.173		Y	14.1	0.0270	0.173		Y		Yes
	Copper	7440-50-8	T	2	29.2	0.0928	0.693		Y	29.2	0.0928	0.693		Y		Yes
	Lead	7439-92-1	T	2	13.7	0.0192	0.346		Y	13.7	0.0192	0.346		Y		Yes
	Nickel	7440-02-0	T	2	28.6	0.172	0.693		Y	28.6	0.172	0.693	J	Y	MAL	Yes
	Selenium	7782-49-2	T	2	0.233	0.0866	0.693	J	Y	0.233	0.0866	0.693	J	Y	RL	Yes
	Silver	7440-22-4	T	2	0.0563	0.0253	0.173	J	Y	0.0563	0.0253	0.173	J	Y	RL	Yes
	Thallium	7440-28-0	T	2	0.0573	0.0216	0.173	J	Y	0.0573	0.0216	0.173	J	Y	RL	Yes
	Vanadium	7440-62-2	T	2	13.8	0.0369	0.173		Y	13.8	0.0369	0.173	J	Y	MAH,SD	Yes

Sample ID	SG3a-SB18-07-10.0-11.0
Sample Date	3/12/2018 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500922
Analytical Method	SW6020A
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Antimony	7440-36-0	T	2		0.0836	0.359	U	N		0.0836	0.359	UJ	N	MAL	Yes
	Arsenic	7440-38-2	T	2	5.78	0.115	0.717		Y	5.78	0.115	0.717		Y		Yes
	Barium	7440-39-3	T	2	38.0	0.163	0.717		Y	38.0	0.163	0.717	J	Y	MAH	Yes
	Beryllium	7440-41-7	T	2	0.302	0.0094	0.179		Y	0.302	0.0094	0.179		Y		Yes
	Cadmium	7440-43-9	T	2	0.149	0.0308	0.179	J	Y	0.149	0.0308	0.179	J	Y	RL	Yes
	Chromium, Total	7440-47-3	T	2	15.9	0.156	0.717		Y	15.9	0.156	0.717		Y		Yes
	Cobalt	7440-48-4	T	2	8.48	0.0280	0.179		Y	8.48	0.0280	0.179		Y		Yes
	Copper	7440-50-8	T	2	19.6	0.0961	0.717		Y	19.6	0.0961	0.717		Y		Yes
	Lead	7439-92-1	T	2	12.8	0.0199	0.359		Y	12.8	0.0199	0.359		Y		Yes
	Nickel	7440-02-0	T	2	17.9	0.179	0.717		Y	17.9	0.179	0.717	J	Y	MAL	Yes
	Selenium	7782-49-2	T	2	0.171	0.0897	0.717	J	Y	0.171	0.0897	0.717	J	Y	RL	Yes
	Silver	7440-22-4	T	2	0.0518	0.0262	0.179	J	Y	0.0518	0.0262	0.179	J	Y	RL	Yes
	Thallium	7440-28-0	T	2	0.0698	0.0224	0.179	J	Y	0.0698	0.0224	0.179	J	Y	RL	Yes
	Vanadium	7440-62-2	T	2	11.7	0.0382	0.179		Y	11.7	0.0382	0.179	J	Y	MAH,SD	Yes

Sample ID	SG3a-SB18-07-15.0-18.0
Sample Date	3/12/2018 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500923
Analytical Method	SW6020A
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Antimony	7440-36-0	T	2	0.125	0.0741	0.318	J	Y		0.125	0.318	UB	N	IB,MAL,RL	Yes
	Arsenic	7440-38-2	T	2	10.0	0.102	0.636		Y	10.0	0.102	0.636	J	Y	FD	Yes
	Barium	7440-39-3	T	2	62.9	0.144	0.636		Y	62.9	0.144	0.636	J	Y	MAH	Yes
	Beryllium	7440-41-7	T	2	0.325	0.0083	0.159		Y	0.325	0.0083	0.159		Y		Yes
	Cadmium	7440-43-9	T	2	0.277	0.0273	0.159		Y	0.277	0.0273	0.159		Y		Yes
	Chromium, Total	7440-47-3	T	2	11.9	0.138	0.636		Y	11.9	0.138	0.636		Y		Yes
	Cobalt	7440-48-4	T	2	11.7	0.0248	0.159		Y	11.7	0.0248	0.159		Y		Yes
	Copper	7440-50-8	T	2	20.8	0.0852	0.636		Y	20.8	0.0852	0.636		Y		Yes
	Lead	7439-92-1	T	2	54.4	0.0176	0.318		Y	54.4	0.0176	0.318	J	Y	FD	Yes
	Nickel	7440-02-0	T	2	19.9	0.158	0.636		Y	19.9	0.158	0.636	J	Y	MAL	Yes
	Selenium	7782-49-2	T	2	0.389	0.0795	0.636	J	Y	0.389	0.0795	0.636	J	Y	RL	Yes
	Silver	7440-22-4	T	2	0.173	0.0232	0.159		Y	0.173	0.0232	0.159		Y		Yes
	Thallium	7440-28-0	T	2	0.115	0.0199	0.159	J	Y	0.115	0.0199	0.159	J	Y	RL	Yes
	Vanadium	7440-62-2	T	2	9.90	0.0338	0.159		Y	9.90	0.0338	0.159	J	Y	MAH,SD	Yes

Sample ID	SG3a-FD01-180312
Sample Date	3/12/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-07-15.0-18.0_03/12/2018
Sample Matrix	SO
Lab Sample ID	9500920
Analytical Method	SW7471B
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	1	0.630	0.0110	0.110		Y	0.630	0.0110	0.110	J	Y	FD	Yes

Sample ID	SG3a-SB18-07-0.0-1.0
Sample Date	3/12/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500921
Analytical Method	SW7471B
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	1	0.0151	0.0103	0.103	J	Y	0.0151	0.0103	0.103	J	Y	RL	Yes

Sample ID	SG3a-SB18-07-10.0-11.0
Sample Date	3/12/2018 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500922
Analytical Method	SW7471B
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	1	0.129	0.0103	0.103		Y	0.129	0.0103	0.103		Y		Yes

Sample ID	SG3a-SB18-07-15.0-18.0
Sample Date	3/12/2018 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500923
Analytical Method	SW7471B
Result Unit	mg/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Mercury	7439-97-6	T	1	0.347	0.0108	0.108		Y	0.347	0.0108	0.108	J	Y	FD	Yes

Sample ID	SG3a-FD01-180312
Sample Date	3/12/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-07-15.0-18.0_03/12/2018
Sample Matrix	SO
Lab Sample ID	9500920
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	0.91		1	5	U	N		1	5	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	0.91		1	5	U	N		1	5	UJ	N	IS	Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	0.91		2	11	U	N		2	11	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	0.91		1	5	U	N		1	5	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	0.91		1	5	U	N		1	5	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	0.91		1	5	U	N		1	5	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	0.91		1	5	U	N		1	5	UJ	N	IS	Yes
	1,2,4-Trichlorobenzene	120-82-1	T	0.91		1	5	U	N		1	5	UJ	N	IS	Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	0.91		2	5	U	N		2	5	UJ	N	IS	Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	0.91		1	5	U	N		1	5	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	0.91		1	5	U	N		1	5	UJ	N	IS	Yes
	1,2-Dichloroethane	107-06-2	T	0.91		1	5	U	N		1	5	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	0.91		1	5	U	N		1	5	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	0.91		1	5	U	N		1	5	UJ	N	IS	Yes
	1,4-Dichlorobenzene	106-46-7	T	0.91		1	5	U	N		1	5	UJ	N	IS	Yes
	2-Hexanone	591-78-6	T	0.91		3	11	U	N		3	11	U	N		Yes
	Acetone	67-64-1	T	0.91	61	7	21		Y	61	7	21		Y		Yes
	Benzene	71-43-2	T	0.91		0.5	5	U	N		0.5	5	U	N		Yes
	Bromochloromethane	74-97-5	T	0.91		1	5	U	N		1	5	U	N		Yes
	Bromodichloromethane	75-27-4	T	0.91		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-FD01-180312
Sample Date	3/12/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-07-15.0-18.0_03/12/2018
Sample Matrix	SO
Lab Sample ID	9500920
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	0.91		1	5	U	N		1	5	U	N		Yes
	Bromomethane	74-83-9	T	0.91		2	5	U	N		2	5	U	N		Yes
	Carbon Disulfide	75-15-0	T	0.91	3	1	5	J	Y	3	1	5	J	Y	RL	Yes
	Carbon Tetrachloride	56-23-5	T	0.91		1	5	U	N		1	5	U	N		Yes
	Chlorobenzene	108-90-7	T	0.91		1	5	U	N		1	5	U	N		Yes
	Chloroethane	75-00-3	T	0.91		2	5	U	N		2	5	U	N		Yes
	Chloroform	67-66-3	T	0.91		1	5	U	N		1	5	U	N		Yes
	Chloromethane	74-87-3	T	0.91		2	5	U	N		2	5	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	0.91		1	5	U	N		1	5	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	0.91		1	5	U	N		1	5	U	N		Yes
	Cyclohexane	110-82-7	T	0.91		1	5	U	N		1	5	U	N		Yes
	Dibromochloromethane	124-48-1	T	0.91		1	5	U	N		1	5	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	0.91		2	5	U	N		2	5	U	N		Yes
	Ethylbenzene	100-41-4	T	0.91		1	5	U	N		1	5	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	0.91		1	5	U	N		1	5	U	N		Yes
	m,p-Xylene	179601-23-1	T	0.91		1	5	U	N		1	5	U	N		Yes
	Methyl Acetate	79-20-9	T	0.91		2	5	U	N		2	5	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	0.91	9	4	11	J	Y	9	4	11	J	Y	RL	Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	0.91		3	11	U	N		3	11	U	N		Yes
	Methylcyclohexane	108-87-2	T	0.91		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-FD01-180312
Sample Date	3/12/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-07-15.0-18.0_03/12/2018
Sample Matrix	SO
Lab Sample ID	9500920
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	0.91		2	5	U	N		2	5	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	0.91		1	5	U	N		1	5	U	N		Yes
	Styrene	100-42-5	T	0.91		1	5	U	N		1	5	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	0.91		0.5	5	U	N		0.5	5	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	0.91		1	5	U	N		1	5	U	N		Yes
	Toluene	108-88-3	T	0.91	1	1	5	J	Y	1	1	5	J	Y	RL	Yes
	Trans-1,2-Dichloroethene	156-60-5	T	0.91		1	5	U	N		1	5	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	0.91		1	5	U	N		1	5	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	0.91		1	5	U	N		1	5	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	0.91		2	5	U	N		2	5	U	N		Yes
	Vinyl Chloride	75-01-4	T	0.91		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-SB18-07-0.0-1.0
Sample Date	3/12/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500921
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	0.84		2	9	U	N		2	9	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	1,2,4-Trichlorobenzene	120-82-1	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	0.84		2	4	U	N		2	4	U	N		Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dichloroethane	107-06-2	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	1,4-Dichlorobenzene	106-46-7	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	2-Hexanone	591-78-6	T	0.84		3	9	U	N		3	9	U	N		Yes
	Acetone	67-64-1	T	0.84	33	6	18		Y	33	6	18		Y		Yes
	Benzene	71-43-2	T	0.84		0.4	4	U	N		0.4	4	U	N		Yes
	Bromochloromethane	74-97-5	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Bromodichloromethane	75-27-4	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes

Sample ID	SG3a-SB18-07-0.0-1.0
Sample Date	3/12/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500921
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Bromomethane	74-83-9	T	0.84		2	4	U	N		2	4	U	N		Yes
	Carbon Disulfide	75-15-0	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Carbon Tetrachloride	56-23-5	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Chlorobenzene	108-90-7	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Chloroethane	75-00-3	T	0.84		2	4	U	N		2	4	U	N		Yes
	Chloroform	67-66-3	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Chloromethane	74-87-3	T	0.84		2	4	U	N		2	4	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Cyclohexane	110-82-7	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Dibromochloromethane	124-48-1	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	0.84		2	4	U	N		2	4	U	N		Yes
	Ethylbenzene	100-41-4	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	m,p-Xylene	179601-23-1	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Methyl Acetate	79-20-9	T	0.84		2	4	U	N		2	4	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	0.84	4	4	9	J	Y	4	4	9	J	Y	RL	Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	0.84		3	9	U	N		3	9	U	N		Yes
	Methylcyclohexane	108-87-2	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes

Sample ID	SG3a-SB18-07-0.0-1.0
Sample Date	3/12/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500921
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	0.84		2	4	U	N		2	4	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Styrene	100-42-5	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	0.84		0.4	4	U	N		0.4	4	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Toluene	108-88-3	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Trans-1,2-Dichloroethene	156-60-5	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	0.84		2	4	U	N		2	4	U	N		Yes
	Vinyl Chloride	75-01-4	T	0.84		0.9	4	U	N		0.9	4	U	N		Yes

Sample ID	SG3a-SB18-07-10.0-11.0
Sample Date	3/12/2018 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500922
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	0.95		1	5	U	N		1	5	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	0.95		1	5	U	N		1	5	UJ	N	IS	Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	0.95		2	10	U	N		2	10	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	0.95		1	5	U	N		1	5	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	0.95		1	5	U	N		1	5	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	0.95		1	5	U	N		1	5	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	0.95		1	5	U	N		1	5	UJ	N	IS	Yes
	1,2,4-Trichlorobenzene	120-82-1	T	0.95		1	5	U	N		1	5	UJ	N	IS	Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	0.95		2	5	U	N		2	5	UJ	N	IS	Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	0.95		1	5	U	N		1	5	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	0.95		1	5	U	N		1	5	UJ	N	IS	Yes
	1,2-Dichloroethane	107-06-2	T	0.95		1	5	U	N		1	5	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	0.95		1	5	U	N		1	5	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	0.95		1	5	U	N		1	5	UJ	N	IS	Yes
	1,4-Dichlorobenzene	106-46-7	T	0.95		1	5	U	N		1	5	UJ	N	IS	Yes
	2-Hexanone	591-78-6	T	0.95		3	10	U	N		3	10	U	N		Yes
	Acetone	67-64-1	T	0.95	21	7	21		Y	21	7	21		Y		Yes
	Benzene	71-43-2	T	0.95	0.7	0.5	5	J	Y	0.7	0.5	5	J	Y	RL	Yes
	Bromochloromethane	74-97-5	T	0.95		1	5	U	N		1	5	U	N		Yes
	Bromodichloromethane	75-27-4	T	0.95		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-SB18-07-10.0-11.0
Sample Date	3/12/2018 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500922
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	0.95		1	5	U	N		1	5	U	N		Yes
	Bromomethane	74-83-9	T	0.95		2	5	U	N		2	5	U	N		Yes
	Carbon Disulfide	75-15-0	T	0.95		1	5	U	N		1	5	U	N		Yes
	Carbon Tetrachloride	56-23-5	T	0.95		1	5	U	N		1	5	U	N		Yes
	Chlorobenzene	108-90-7	T	0.95		1	5	U	N		1	5	U	N		Yes
	Chloroethane	75-00-3	T	0.95		2	5	U	N		2	5	U	N		Yes
	Chloroform	67-66-3	T	0.95		1	5	U	N		1	5	U	N		Yes
	Chloromethane	74-87-3	T	0.95		2	5	U	N		2	5	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	0.95		1	5	U	N		1	5	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	0.95		1	5	U	N		1	5	U	N		Yes
	Cyclohexane	110-82-7	T	0.95		1	5	U	N		1	5	U	N		Yes
	Dibromochloromethane	124-48-1	T	0.95		1	5	U	N		1	5	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	0.95		2	5	U	N		2	5	U	N		Yes
	Ethylbenzene	100-41-4	T	0.95		1	5	U	N		1	5	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	0.95		1	5	U	N		1	5	U	N		Yes
	m,p-Xylene	179601-23-1	T	0.95		1	5	U	N		1	5	U	N		Yes
	Methyl Acetate	79-20-9	T	0.95		2	5	U	N		2	5	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	0.95		4	10	U	N		4	10	U	N		Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	0.95		3	10	U	N		3	10	U	N		Yes
	Methylcyclohexane	108-87-2	T	0.95		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-SB18-07-10.0-11.0
Sample Date	3/12/2018 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500922
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	0.95		2	5	U	N		2	5	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	0.95		1	5	U	N		1	5	U	N		Yes
	Styrene	100-42-5	T	0.95		1	5	U	N		1	5	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	0.95		0.5	5	U	N		0.5	5	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	0.95		1	5	U	N		1	5	U	N		Yes
	Toluene	108-88-3	T	0.95		1	5	U	N		1	5	U	N		Yes
	Trans-1,2-Dichloroethene	156-60-5	T	0.95		1	5	U	N		1	5	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	0.95		1	5	U	N		1	5	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	0.95		1	5	U	N		1	5	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	0.95		2	5	U	N		2	5	U	N		Yes
	Vinyl Chloride	75-01-4	T	0.95		1	5	U	N		1	5	U	N		Yes

Sample ID	SG3a-SB18-07-15.0-18.0
Sample Date	3/12/2018 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500923
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,1,1-Trichloroethane	71-55-6	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	1,1,2,2-Tetrachloroethane	79-34-5	T	0.78		0.9	4	U	N		0.9	4	UJ	N	IS	Yes
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	T	0.78		2	9	U	N		2	9	U	N		Yes
	1,1,2-Trichloroethane	79-00-5	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	1,1-Dichloroethane	75-34-3	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	1,1-Dichloroethene	75-35-4	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	1,2,3-Trichlorobenzene	87-61-6	T	0.78		0.9	4	U	N		0.9	4	UJ	N	IS	Yes
	1,2,4-Trichlorobenzene	120-82-1	T	0.78		0.9	4	U	N		0.9	4	UJ	N	IS	Yes
	1,2-Dibromo-3-Chloropropane	96-12-8	T	0.78		2	4	U	N		2	4	UJ	N	IS	Yes
	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dichlorobenzene	95-50-1	T	0.78		0.9	4	U	N		0.9	4	UJ	N	IS	Yes
	1,2-Dichloroethane	107-06-2	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	1,2-Dichloropropane	78-87-5	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	1,3-Dichlorobenzene	541-73-1	T	0.78		0.9	4	U	N		0.9	4	UJ	N	IS	Yes
	1,4-Dichlorobenzene	106-46-7	T	0.78		0.9	4	U	N		0.9	4	UJ	N	IS	Yes
	2-Hexanone	591-78-6	T	0.78		3	9	U	N		3	9	U	N		Yes
	Acetone	67-64-1	T	0.78	21	6	17		Y	21	6	17		Y		Yes
	Benzene	71-43-2	T	0.78		0.4	4	U	N		0.4	4	U	N		Yes
	Bromochloromethane	74-97-5	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Bromodichloromethane	75-27-4	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes

Sample ID	SG3a-SB18-07-15.0-18.0
Sample Date	3/12/2018 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500923
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bromoform	75-25-2	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Bromomethane	74-83-9	T	0.78		2	4	U	N		2	4	U	N		Yes
	Carbon Disulfide	75-15-0	T	0.78	3	0.9	4	J	Y	3	0.9	4	J	Y	RL	Yes
	Carbon Tetrachloride	56-23-5	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Chlorobenzene	108-90-7	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Chloroethane	75-00-3	T	0.78		2	4	U	N		2	4	U	N		Yes
	Chloroform	67-66-3	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Chloromethane	74-87-3	T	0.78		2	4	U	N		2	4	U	N		Yes
	Cis-1,2-Dichloroethylene	156-59-2	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Cis-1,3-Dichloropropene	10061-01-5	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Cyclohexane	110-82-7	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Dibromochloromethane	124-48-1	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Dichlorodifluoromethane	75-71-8	T	0.78		2	4	U	N		2	4	U	N		Yes
	Ethylbenzene	100-41-4	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Isopropylbenzene (Cumene)	98-82-8	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	m,p-Xylene	179601-23-1	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Methyl Acetate	79-20-9	T	0.78		2	4	U	N		2	4	U	N		Yes
	Methyl Ethyl Ketone (2-Butanone)	78-93-3	T	0.78		3	9	U	N		3	9	U	N		Yes
	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	T	0.78		3	9	U	N		3	9	U	N		Yes
	Methylcyclohexane	108-87-2	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes

Sample ID	SG3a-SB18-07-15.0-18.0
Sample Date	3/12/2018 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500923
Analytical Method	SW8260C
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Methylene Chloride	75-09-2	T	0.78		2	4	U	N		2	4	U	N		Yes
	O-Xylene (1,2-Dimethylbenzene)	95-47-6	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Styrene	100-42-5	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Tert-Butyl Methyl Ether	1634-04-4	T	0.78		0.4	4	U	N		0.4	4	U	N		Yes
	Tetrachloroethylene (PCE)	127-18-4	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Toluene	108-88-3	T	0.78	1	0.9	4	J	Y	1	0.9	4	J	Y	RL	Yes
	Trans-1,2-Dichloroethene	156-60-5	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Trans-1,3-Dichloropropene	10061-02-6	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Trichloroethylene (TCE)	79-01-6	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes
	Trichlorofluoromethane	75-69-4	T	0.78		2	4	U	N		2	4	U	N		Yes
	Vinyl Chloride	75-01-4	T	0.78		0.9	4	U	N		0.9	4	U	N		Yes

Sample ID	SG3a-FD01-180312
Sample Date	3/12/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-07-15.0-18.0_03/12/2018
Sample Matrix	SO
Lab Sample ID	9500920
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	T	1		19	38	U	N		19	38	U	N		Yes
	1,4-Dioxane (P-Dioxane)	123-91-1	T	1		110	380	U	N		110	380	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	T	1		76	190	U	N		76	190	U	N		Yes
	2,4,5-Trichlorophenol	95-95-4	T	1		19	38	U	N		19	38	U	N		Yes
	2,4,6-Trichlorophenol	88-06-2	T	1		19	38	U	N		19	38	U	N		Yes
	2,4-Dichlorophenol	120-83-2	T	1		19	38	U	N		19	38	U	N		Yes
	2,4-Dimethylphenol	105-67-9	T	1		19	38	U	N		19	38	U	N		Yes
	2,4-Dinitrophenol	51-28-5	T	1		340	1100	U	N		340	1100	U	N		Yes
	2,4-Dinitrotoluene	121-14-2	T	1		76	190	U	N		76	190	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	T	1		19	38	U	N		19	38	U	N		Yes
	2-Chloronaphthalene	91-58-7	T	1		8	38	U	N		8	38	U	N		Yes
	2-Chlorophenol	95-57-8	T	1		19	38	U	N		19	38	U	N		Yes
	2-Methylnaphthalene	91-57-6	T	1	7	4	19	J	Y	7	4	19	J	Y	RL,FD	Yes
	2-Methylphenol (O-Cresol)	95-48-7	T	1		19	38	U	N		19	38	U	N		Yes
	2-Nitroaniline	88-74-4	T	1		19	38	U	N		19	38	U	N		Yes
	2-Nitrophenol	88-75-5	T	1		19	38	U	N		19	38	U	N		Yes
	3,3'-Dichlorobenzidine	91-94-1	T	1		110	380	U	N		110	380	U	N		Yes
	3-Nitroaniline	99-09-2	T	1		76	190	U	N		76	190	U	N		Yes
	4,6-Dinitro-2-Methylphenol	534-52-1	T	1		190	570	U	N		190	570	U	N		Yes
	4-Bromophenyl Phenyl Ether	101-55-3	T	1		19	38	U	N		19	38	U	N		Yes

Sample ID	SG3a-FD01-180312
Sample Date	3/12/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-07-15.0-18.0_03/12/2018
Sample Matrix	SO
Lab Sample ID	9500920
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	4-Chloro-3-Methylphenol	59-50-7	T	1		19	38	U	N		19	38	U	N		Yes
	4-Chloroaniline	106-47-8	T	1		38	76	U	N		38	76	U	N		Yes
	4-Chlorophenyl Phenyl Ether	7005-72-3	T	1		19	38	U	N		19	38	U	N		Yes
	4-Methylphenol (P-Cresol)	106-44-5	T	1		19	38	U	N		19	38	U	N		Yes
	4-Nitroaniline	100-01-6	T	1		76	190	U	N		76	190	U	N		Yes
	4-Nitrophenol	100-02-7	T	1		190	570	U	N		190	570	U	N		Yes
	Acenaphthene	83-32-9	T	1		4	19	U	N		4	19	U	N		Yes
	Acenaphthylene	208-96-8	T	1		4	19	U	N		4	19	U	N		Yes
	Acetophenone	98-86-2	T	1		19	38	U	N		19	38	U	N		Yes
	Anthracene	120-12-7	T	1	4	4	19	J	Y	4	4	19	J	Y	RL	Yes
	Atrazine	1912-24-9	T	1		38	190	U	N		38	190	U	N		Yes
	Benzaldehyde	100-52-7	T	1		76	190	U	N		76	190	UJ	N	FD	Yes
	Benzo(A)Anthracene	56-55-3	T	1	4	4	19	J	Y	4	4	19	J	Y	RL	Yes
	Benzo(A)Pyrene	50-32-8	T	1	5	4	19	J	Y	5	4	19	J	Y	RL	Yes
	Benzo(B)Fluoranthene	205-99-2	T	1	7	4	19	J	Y	7	4	19	J	Y	RL	Yes
	Benzo(G,H,I)Perylene	191-24-2	T	1	5	4	19	J	Y	5	4	19	J	Y	RL	Yes
	Benzo(K)Fluoranthene	207-08-9	T	1		4	19	U	N		4	19	U	N		Yes
	Benzyl Butyl Phthalate	85-68-7	T	1		76	190	U	N		76	190	U	N		Yes
	Biphenyl (Diphenyl)	92-52-4	T	1		19	38	U	N		19	38	U	N		Yes
	Bis(2-Chloroethoxy) Methane	111-91-1	T	1		19	38	U	N		19	38	U	N		Yes

Sample ID	SG3a-FD01-180312
Sample Date	3/12/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-07-15.0-18.0_03/12/2018
Sample Matrix	SO
Lab Sample ID	9500920
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	T	1		19	38	U	N		19	38	U	N		Yes
	Bis(2-Chloroisopropyl) Ether	108-60-1	T	1		19	38	U	N		19	38	U	N		Yes
	Bis(2-Ethylhexyl) Phthalate	117-81-7	T	1		76	190	U	N		76	190	U	N		Yes
	Caprolactam	105-60-2	T	1		38	190	U	N		38	190	U	N		Yes
	Carbazole	86-74-8	T	1		19	38	U	N		19	38	U	N		Yes
	Chrysene	218-01-9	T	1	6	4	19	J	Y	6	4	19	J	Y	RL	Yes
	Dibenz(A,H)Anthracene	53-70-3	T	1		4	19	U	N		4	19	U	N		Yes
	Dibenzofuran	132-64-9	T	1		19	38	U	N		19	38	U	N		Yes
	Diethyl Phthalate	84-66-2	T	1		76	190	U	N		76	190	U	N		Yes
	Dimethyl Phthalate	131-11-3	T	1		76	190	U	N		76	190	U	N		Yes
	Di-N-Butyl Phthalate	84-74-2	T	1		76	190	U	N		76	190	U	N		Yes
	Di-N-Octylphthalate	117-84-0	T	1		76	190	U	N		76	190	U	N		Yes
	Fluoranthene	206-44-0	T	1	11	4	19	J	Y	11	4	19	J	Y	RL	Yes
	Fluorene	86-73-7	T	1		4	19	U	N		4	19	U	N		Yes
	Hexachlorobenzene	118-74-1	T	1		4	19	U	N		4	19	U	N		Yes
	Hexachlorobutadiene	87-68-3	T	1		19	38	U	N		19	38	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	T	1		190	570	U	N		190	570	U	N		Yes
	Hexachloroethane	67-72-1	T	1		38	190	U	N		38	190	U	N		Yes
	Indeno(1,2,3-C,D)Pyrene	193-39-5	T	1		4	19	U	N		4	19	U	N		Yes
	Isophorone	78-59-1	T	1		19	38	U	N		19	38	U	N		Yes

Sample ID	SG3a-FD01-180312
Sample Date	3/12/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-07-15.0-18.0_03/12/2018
Sample Matrix	SO
Lab Sample ID	9500920
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Naphthalene	91-20-3	T	1	23	4	19		Y	23	4	19	J	Y	FD	Yes
	Nitrobenzene	98-95-3	T	1		19	38	U	N		19	38	U	N		Yes
	N-Nitrosodi-N-Propylamine	621-64-7	T	1		19	38	U	N		19	38	U	N		Yes
	N-Nitrosodiphenylamine	86-30-6	T	1		19	38	U	N		19	38	U	N		Yes
	Pentachlorophenol	87-86-5	T	1		38	190	U	N		38	190	U	N		Yes
	Phenanthrene	85-01-8	T	1	13	4	19	J	Y	13	4	19	J	Y	RL	Yes
	Phenol	108-95-2	T	1		19	38	U	N		19	38	U	N		Yes
	Pyrene	129-00-0	T	1	11	4	19	J	Y	11	4	19	J	Y	RL	Yes

Sample ID	SG3a-SB18-07-0.0-1.0
Sample Date	3/12/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500921
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	T	1		18	35	U	N		18	35	U	N		Yes
	1,4-Dioxane (P-Dioxane)	123-91-1	T	1		110	350	U	N		110	350	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	T	1		70	180	U	N		70	180	U	N		Yes
	2,4,5-Trichlorophenol	95-95-4	T	1		18	35	U	N		18	35	U	N		Yes
	2,4,6-Trichlorophenol	88-06-2	T	1		18	35	U	N		18	35	U	N		Yes
	2,4-Dichlorophenol	120-83-2	T	1		18	35	U	N		18	35	U	N		Yes
	2,4-Dimethylphenol	105-67-9	T	1		18	35	U	N		18	35	U	N		Yes
	2,4-Dinitrophenol	51-28-5	T	1		320	1100	U	N		320	1100	U	N		Yes
	2,4-Dinitrotoluene	121-14-2	T	1		70	180	U	N		70	180	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	T	1		18	35	U	N		18	35	U	N		Yes
	2-Chloronaphthalene	91-58-7	T	1		7	35	U	N		7	35	U	N		Yes
	2-Chlorophenol	95-57-8	T	1		18	35	U	N		18	35	U	N		Yes
	2-Methylnaphthalene	91-57-6	T	1	5	4	18	J	Y	5	4	18	J	Y	RL	Yes
	2-Methylphenol (O-Cresol)	95-48-7	T	1		18	35	U	N		18	35	U	N		Yes
	2-Nitroaniline	88-74-4	T	1		18	35	U	N		18	35	U	N		Yes
	2-Nitrophenol	88-75-5	T	1		18	35	U	N		18	35	U	N		Yes
	3,3'-Dichlorobenzidine	91-94-1	T	1		110	350	U	N		110	350	U	N		Yes
	3-Nitroaniline	99-09-2	T	1		70	180	U	N		70	180	U	N		Yes
	4,6-Dinitro-2-Methylphenol	534-52-1	T	1		180	530	U	N		180	530	U	N		Yes
	4-Bromophenyl Phenyl Ether	101-55-3	T	1		18	35	U	N		18	35	U	N		Yes

Sample ID	SG3a-SB18-07-0.0-1.0
Sample Date	3/12/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500921
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	4-Chloro-3-Methylphenol	59-50-7	T	1		18	35	U	N		18	35	U	N		Yes
	4-Chloroaniline	106-47-8	T	1		35	70	U	N		35	70	U	N		Yes
	4-Chlorophenyl Phenyl Ether	7005-72-3	T	1		18	35	U	N		18	35	U	N		Yes
	4-Methylphenol (P-Cresol)	106-44-5	T	1		18	35	U	N		18	35	U	N		Yes
	4-Nitroaniline	100-01-6	T	1		70	180	U	N		70	180	U	N		Yes
	4-Nitrophenol	100-02-7	T	1		180	530	U	N		180	530	U	N		Yes
	Acenaphthene	83-32-9	T	1		4	18	U	N		4	18	U	N		Yes
	Acenaphthylene	208-96-8	T	1		4	18	U	N		4	18	U	N		Yes
	Acetophenone	98-86-2	T	1		18	35	U	N		18	35	U	N		Yes
	Anthracene	120-12-7	T	1		4	18	U	N		4	18	U	N		Yes
	Atrazine	1912-24-9	T	1		35	180	U	N		35	180	U	N		Yes
	Benzaldehyde	100-52-7	T	1		70	180	U	N		70	180	U	N		Yes
	Benzo(A)Anthracene	56-55-3	T	1	4	4	18	J	Y	4	4	18	J	Y	RL	Yes
	Benzo(A)Pyrene	50-32-8	T	1	5	4	18	J	Y	5	4	18	J	Y	RL	Yes
	Benzo(B)Fluoranthene	205-99-2	T	1	7	4	18	J	Y	7	4	18	J	Y	RL	Yes
	Benzo(G,H,I)Perylene	191-24-2	T	1	4	4	18	J	Y	4	4	18	J	Y	RL	Yes
	Benzo(K)Fluoranthene	207-08-9	T	1	4	4	18	J	Y	4	4	18	J	Y	RL	Yes
	Benzyl Butyl Phthalate	85-68-7	T	1		70	180	U	N		70	180	U	N		Yes
	Biphenyl (Diphenyl)	92-52-4	T	1		18	35	U	N		18	35	U	N		Yes
	Bis(2-Chloroethoxy) Methane	111-91-1	T	1		18	35	U	N		18	35	U	N		Yes

Sample ID	SG3a-SB18-07-0.0-1.0
Sample Date	3/12/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500921
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	T	1		18	35	U	N		18	35	U	N		Yes
	Bis(2-Chloroisopropyl) Ether	108-60-1	T	1		18	35	U	N		18	35	U	N		Yes
	Bis(2-Ethylhexyl) Phthalate	117-81-7	T	1		70	180	U	N		70	180	U	N		Yes
	Caprolactam	105-60-2	T	1		35	180	U	N		35	180	U	N		Yes
	Carbazole	86-74-8	T	1		18	35	U	N		18	35	U	N		Yes
	Chrysene	218-01-9	T	1	5	4	18	J	Y	5	4	18	J	Y	RL	Yes
	Dibenz(A,H)Anthracene	53-70-3	T	1		4	18	U	N		4	18	U	N		Yes
	Dibenzofuran	132-64-9	T	1		18	35	U	N		18	35	U	N		Yes
	Diethyl Phthalate	84-66-2	T	1		70	180	U	N		70	180	U	N		Yes
	Dimethyl Phthalate	131-11-3	T	1		70	180	U	N		70	180	U	N		Yes
	Di-N-Butyl Phthalate	84-74-2	T	1		70	180	U	N		70	180	U	N		Yes
	Di-N-Octylphthalate	117-84-0	T	1		70	180	U	N		70	180	U	N		Yes
	Fluoranthene	206-44-0	T	1	7	4	18	J	Y	7	4	18	J	Y	RL	Yes
	Fluorene	86-73-7	T	1		4	18	U	N		4	18	U	N		Yes
	Hexachlorobenzene	118-74-1	T	1		4	18	U	N		4	18	U	N		Yes
	Hexachlorobutadiene	87-68-3	T	1		18	35	U	N		18	35	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	T	1		180	530	U	N		180	530	U	N		Yes
	Hexachloroethane	67-72-1	T	1		35	180	U	N		35	180	U	N		Yes
	Indeno(1,2,3-C,D)Pyrene	193-39-5	T	1		4	18	U	N		4	18	U	N		Yes
	Isophorone	78-59-1	T	1		18	35	U	N		18	35	U	N		Yes

Sample ID	SG3a-SB18-07-0.0-1.0
Sample Date	3/12/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500921
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Naphthalene	91-20-3	T	1		4	18	U	N		4	18	U	N		Yes
	Nitrobenzene	98-95-3	T	1		18	35	U	N		18	35	U	N		Yes
	N-Nitrosodi-N-Propylamine	621-64-7	T	1		18	35	U	N		18	35	U	N		Yes
	N-Nitrosodiphenylamine	86-30-6	T	1		18	35	U	N		18	35	U	N		Yes
	Pentachlorophenol	87-86-5	T	1		35	180	U	N		35	180	U	N		Yes
	Phenanthrene	85-01-8	T	1		4	18	U	N		4	18	U	N		Yes
	Phenol	108-95-2	T	1		18	35	U	N		18	35	U	N		Yes
	Pyrene	129-00-0	T	1	8	4	18	J	Y	8	4	18	J	Y	RL	Yes

Sample ID	SG3a-SB18-07-10.0-11.0
Sample Date	3/12/2018 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500922
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	T	1		18	36	U	N		18	36	U	N		Yes
	1,4-Dioxane (P-Dioxane)	123-91-1	T	1		110	360	U	N		110	360	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	T	1		72	180	U	N		72	180	U	N		Yes
	2,4,5-Trichlorophenol	95-95-4	T	1		18	36	U	N		18	36	U	N		Yes
	2,4,6-Trichlorophenol	88-06-2	T	1		18	36	U	N		18	36	U	N		Yes
	2,4-Dichlorophenol	120-83-2	T	1		18	36	U	N		18	36	U	N		Yes
	2,4-Dimethylphenol	105-67-9	T	1		18	36	U	N		18	36	U	N		Yes
	2,4-Dinitrophenol	51-28-5	T	1		330	1100	U	N		330	1100	U	N		Yes
	2,4-Dinitrotoluene	121-14-2	T	1		72	180	U	N		72	180	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	T	1		18	36	U	N		18	36	U	N		Yes
	2-Chloronaphthalene	91-58-7	T	1		7	36	U	N		7	36	U	N		Yes
	2-Chlorophenol	95-57-8	T	1		18	36	U	N		18	36	U	N		Yes
	2-Methylnaphthalene	91-57-6	T	1		4	18	U	N		4	18	U	N		Yes
	2-Methylphenol (O-Cresol)	95-48-7	T	1		18	36	U	N		18	36	U	N		Yes
	2-Nitroaniline	88-74-4	T	1		18	36	U	N		18	36	U	N		Yes
	2-Nitrophenol	88-75-5	T	1		18	36	U	N		18	36	U	N		Yes
	3,3'-Dichlorobenzidine	91-94-1	T	1		110	360	U	N		110	360	U	N		Yes
	3-Nitroaniline	99-09-2	T	1		72	180	U	N		72	180	U	N		Yes
	4,6-Dinitro-2-Methylphenol	534-52-1	T	1		180	540	U	N		180	540	U	N		Yes
	4-Bromophenyl Phenyl Ether	101-55-3	T	1		18	36	U	N		18	36	U	N		Yes

Sample ID	SG3a-SB18-07-10.0-11.0
Sample Date	3/12/2018 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500922
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	4-Chloro-3-Methylphenol	59-50-7	T	1		18	36	U	N		18	36	U	N		Yes
	4-Chloroaniline	106-47-8	T	1		36	72	U	N		36	72	U	N		Yes
	4-Chlorophenyl Phenyl Ether	7005-72-3	T	1		18	36	U	N		18	36	U	N		Yes
	4-Methylphenol (P-Cresol)	106-44-5	T	1		18	36	U	N		18	36	U	N		Yes
	4-Nitroaniline	100-01-6	T	1		72	180	U	N		72	180	U	N		Yes
	4-Nitrophenol	100-02-7	T	1		180	540	U	N		180	540	U	N		Yes
	Acenaphthene	83-32-9	T	1	4	4	18	J	Y	4	4	18	J	Y	RL	Yes
	Acenaphthylene	208-96-8	T	1		4	18	U	N		4	18	U	N		Yes
	Acetophenone	98-86-2	T	1		18	36	U	N		18	36	U	N		Yes
	Anthracene	120-12-7	T	1	18	4	18	J	Y	18	4	18	J	Y	RL	Yes
	Atrazine	1912-24-9	T	1		36	180	U	N		36	180	U	N		Yes
	Benzaldehyde	100-52-7	T	1		72	180	U	N		72	180	U	N		Yes
	Benzo(A)Anthracene	56-55-3	T	1	45	4	18		Y	45	4	18		Y		Yes
	Benzo(A)Pyrene	50-32-8	T	1	48	4	18		Y	48	4	18		Y		Yes
	Benzo(B)Fluoranthene	205-99-2	T	1	63	4	18		Y	63	4	18		Y		Yes
	Benzo(G,H,I)Perylene	191-24-2	T	1	35	4	18		Y	35	4	18		Y		Yes
	Benzo(K)Fluoranthene	207-08-9	T	1	32	4	18		Y	32	4	18		Y		Yes
	Benzyl Butyl Phthalate	85-68-7	T	1		72	180	U	N		72	180	U	N		Yes
	Biphenyl (Diphenyl)	92-52-4	T	1		18	36	U	N		18	36	U	N		Yes
	Bis(2-Chloroethoxy) Methane	111-91-1	T	1		18	36	U	N		18	36	U	N		Yes

Sample ID	SG3a-SB18-07-10.0-11.0
Sample Date	3/12/2018 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500922
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	T	1		18	36	U	N		18	36	U	N		Yes
	Bis(2-Chloroisopropyl) Ether	108-60-1	T	1		18	36	U	N		18	36	U	N		Yes
	Bis(2-Ethylhexyl) Phthalate	117-81-7	T	1		72	180	U	N		72	180	U	N		Yes
	Caprolactam	105-60-2	T	1		36	180	U	N		36	180	U	N		Yes
	Carbazole	86-74-8	T	1		18	36	U	N		18	36	U	N		Yes
	Chrysene	218-01-9	T	1	55	4	18		Y	55	4	18		Y		Yes
	Dibenz(A,H)Anthracene	53-70-3	T	1	8	4	18	J	Y	8	4	18	J	Y	RL	Yes
	Dibenzofuran	132-64-9	T	1		18	36	U	N		18	36	U	N		Yes
	Diethyl Phthalate	84-66-2	T	1		72	180	U	N		72	180	U	N		Yes
	Dimethyl Phthalate	131-11-3	T	1		72	180	U	N		72	180	U	N		Yes
	Di-N-Butyl Phthalate	84-74-2	T	1		72	180	U	N		72	180	U	N		Yes
	Di-N-Octylphthalate	117-84-0	T	1		72	180	U	N		72	180	U	N		Yes
	Fluoranthene	206-44-0	T	1	120	4	18		Y	120	4	18		Y		Yes
	Fluorene	86-73-7	T	1	4	4	18	J	Y	4	4	18	J	Y	RL	Yes
	Hexachlorobenzene	118-74-1	T	1		4	18	U	N		4	18	U	N		Yes
	Hexachlorobutadiene	87-68-3	T	1		18	36	U	N		18	36	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	T	1		180	540	U	N		180	540	U	N		Yes
	Hexachloroethane	67-72-1	T	1		36	180	U	N		36	180	U	N		Yes
	Indeno(1,2,3-C,D)Pyrene	193-39-5	T	1	28	4	18		Y	28	4	18		Y		Yes
	Isophorone	78-59-1	T	1		18	36	U	N		18	36	U	N		Yes

Sample ID	SG3a-SB18-07-10.0-11.0
Sample Date	3/12/2018 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500922
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Naphthalene	91-20-3	T	1	6	4	18	J	Y	6	4	18	J	Y	RL	Yes
	Nitrobenzene	98-95-3	T	1		18	36	U	N		18	36	U	N		Yes
	N-Nitrosodi-N-Propylamine	621-64-7	T	1		18	36	U	N		18	36	U	N		Yes
	N-Nitrosodiphenylamine	86-30-6	T	1		18	36	U	N		18	36	U	N		Yes
	Pentachlorophenol	87-86-5	T	1		36	180	U	N		36	180	U	N		Yes
	Phenanthrene	85-01-8	T	1	110	4	18		Y	110	4	18		Y		Yes
	Phenol	108-95-2	T	1		18	36	U	N		18	36	U	N		Yes
	Pyrene	129-00-0	T	1	110	4	18		Y	110	4	18		Y		Yes

Sample ID	SG3a-SB18-07-15.0-18.0
Sample Date	3/12/2018 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500923
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	1,2,4,5-Tetrachlorobenzene	95-94-3	T	1		18	37	U	N		18	37	U	N		Yes
	1,4-Dioxane (P-Dioxane)	123-91-1	T	1		110	370	U	N		110	370	U	N		Yes
	2,3,4,6-Tetrachlorophenol	58-90-2	T	1		74	180	U	N		74	180	U	N		Yes
	2,4,5-Trichlorophenol	95-95-4	T	1		18	37	U	N		18	37	U	N		Yes
	2,4,6-Trichlorophenol	88-06-2	T	1		18	37	U	N		18	37	U	N		Yes
	2,4-Dichlorophenol	120-83-2	T	1		18	37	U	N		18	37	U	N		Yes
	2,4-Dimethylphenol	105-67-9	T	1		18	37	U	N		18	37	U	N		Yes
	2,4-Dinitrophenol	51-28-5	T	1		330	1100	U	N		330	1100	U	N		Yes
	2,4-Dinitrotoluene	121-14-2	T	1		74	180	U	N		74	180	U	N		Yes
	2,6-Dinitrotoluene	606-20-2	T	1		18	37	U	N		18	37	U	N		Yes
	2-Chloronaphthalene	91-58-7	T	1		7	36	U	N		7	36	U	N		Yes
	2-Chlorophenol	95-57-8	T	1		18	37	U	N		18	37	U	N		Yes
	2-Methylnaphthalene	91-57-6	T	1	3100	4	19		Y	3100	4	19	J	Y	FD	Yes
	2-Methylphenol (O-Cresol)	95-48-7	T	1		18	37	U	N		18	37	U	N		Yes
	2-Nitroaniline	88-74-4	T	1		18	37	U	N		18	37	U	N		Yes
	2-Nitrophenol	88-75-5	T	1		18	37	U	N		18	37	U	N		Yes
	3,3'-Dichlorobenzidine	91-94-1	T	1		110	370	U	N		110	370	U	N		Yes
	3-Nitroaniline	99-09-2	T	1		74	180	U	N		74	180	U	N		Yes
	4,6-Dinitro-2-Methylphenol	534-52-1	T	1		180	550	U	N		180	550	U	N		Yes
	4-Bromophenyl Phenyl Ether	101-55-3	T	1		18	37	U	N		18	37	U	N		Yes

Sample ID	SG3a-SB18-07-15.0-18.0
Sample Date	3/12/2018 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500923
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	4-Chloro-3-Methylphenol	59-50-7	T	1		18	37	U	N		18	37	U	N		Yes
	4-Chloroaniline	106-47-8	T	1		37	74	U	N		37	74	U	N		Yes
	4-Chlorophenyl Phenyl Ether	7005-72-3	T	1		18	37	U	N		18	37	U	N		Yes
	4-Methylphenol (P-Cresol)	106-44-5	T	1		18	37	U	N		18	37	U	N		Yes
	4-Nitroaniline	100-01-6	T	1		74	180	U	N		74	180	U	N		Yes
	4-Nitrophenol	100-02-7	T	1		180	550	U	N		180	550	U	N		Yes
	Acenaphthene	83-32-9	T	1		4	19	U	N		4	19	U	N		Yes
	Acenaphthylene	208-96-8	T	1		4	19	U	N		4	19	U	N		Yes
	Acetophenone	98-86-2	T	1		18	37	U	N		18	37	U	N		Yes
	Anthracene	120-12-7	T	1	6	4	19	J	Y	6	4	19	J	Y	RL	Yes
	Atrazine	1912-24-9	T	1		37	180	U	N		37	180	U	N		Yes
	Benzaldehyde	100-52-7	T	1	1100	74	180		Y	1100	74	180	J	Y	FD	Yes
	Benzo(A)Anthracene	56-55-3	T	1	8	4	19	J	Y	8	4	19	J	Y	RL	Yes
	Benzo(A)Pyrene	50-32-8	T	1	9	4	19	J	Y	9	4	19	J	Y	RL	Yes
	Benzo(B)Fluoranthene	205-99-2	T	1	11	4	19	J	Y	11	4	19	J	Y	RL	Yes
	Benzo(G,H,I)Perylene	191-24-2	T	1	11	4	19	J	Y	11	4	19	J	Y	RL	Yes
	Benzo(K)Fluoranthene	207-08-9	T	1	5	4	19	J	Y	5	4	19	J	Y	RL	Yes
	Benzyl Butyl Phthalate	85-68-7	T	1		74	180	U	N		74	180	U	N		Yes
	Biphenyl (Diphenyl)	92-52-4	T	1	93	18	37		Y	93	18	37		Y		Yes
	Bis(2-Chloroethoxy) Methane	111-91-1	T	1		18	37	U	N		18	37	U	N		Yes

Sample ID	SG3a-SB18-07-15.0-18.0
Sample Date	3/12/2018 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500923
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	T	1		18	37	U	N		18	37	U	N		Yes
	Bis(2-Chloroisopropyl) Ether	108-60-1	T	1		18	37	U	N		18	37	U	N		Yes
	Bis(2-Ethylhexyl) Phthalate	117-81-7	T	1		74	190	U	N		74	190	U	N		Yes
	Caprolactam	105-60-2	T	1		37	180	U	N		37	180	U	N		Yes
	Carbazole	86-74-8	T	1		18	37	U	N		18	37	U	N		Yes
	Chrysene	218-01-9	T	1	10	4	19	J	Y	10	4	19	J	Y	RL	Yes
	Dibenz(A,H)Anthracene	53-70-3	T	1		4	19	U	N		4	19	U	N		Yes
	Dibenzofuran	132-64-9	T	1		18	37	U	N		18	37	U	N		Yes
	Diethyl Phthalate	84-66-2	T	1		74	180	U	N		74	180	U	N		Yes
	Dimethyl Phthalate	131-11-3	T	1		74	180	U	N		74	180	U	N		Yes
	Di-N-Butyl Phthalate	84-74-2	T	1		74	180	U	N		74	180	U	N		Yes
	Di-N-Octylphthalate	117-84-0	T	1		74	180	U	N		74	180	U	N		Yes
	Fluoranthene	206-44-0	T	1	16	4	19	J	Y	16	4	19	J	Y	RL	Yes
	Fluorene	86-73-7	T	1	41	4	19		Y	41	4	19		Y		Yes
	Hexachlorobenzene	118-74-1	T	1		4	19	U	N		4	19	U	N		Yes
	Hexachlorobutadiene	87-68-3	T	1		18	37	U	N		18	37	U	N		Yes
	Hexachlorocyclopentadiene	77-47-4	T	1		180	550	U	N		180	550	U	N		Yes
	Hexachloroethane	67-72-1	T	1		37	180	U	N		37	180	U	N		Yes
	Indeno(1,2,3-C,D)Pyrene	193-39-5	T	1	7	4	19	J	Y	7	4	19	J	Y	RL	Yes
	Isophorone	78-59-1	T	1		18	37	U	N		18	37	U	N		Yes

Sample ID	SG3a-SB18-07-15.0-18.0
Sample Date	3/12/2018 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500923
Analytical Method	SW8270D
Result Unit	ug/kg
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	Naphthalene	91-20-3	T	1	760	4	19		Y	760	4	19	J	Y	FD	Yes
	Nitrobenzene	98-95-3	T	1		18	37	U	N		18	37	U	N		Yes
	N-Nitrosodi-N-Propylamine	621-64-7	T	1		18	37	U	N		18	37	U	N		Yes
	N-Nitrosodiphenylamine	86-30-6	T	1		18	37	U	N		18	37	U	N		Yes
	Pentachlorophenol	87-86-5	T	1		37	190	U	N		37	190	U	N		Yes
	Phenanthrene	85-01-8	T	1	12	4	19	J	Y	12	4	19	J	Y	RL	Yes
	Phenol	108-95-2	T	1		18	37	U	N		18	37	U	N		Yes
	Pyrene	129-00-0	T	1	15	4	19	J	Y	15	4	19	J	Y	RL	Yes

Sample ID	SG3a-FD01-180312
Sample Date	3/12/2018 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3A-SB18-07-15.0-18.0_03/12/2018
Sample Matrix	SO
Lab Sample ID	9500920
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.02	0.0100	0.0100		Y	8.02	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-07-0.0-1.0
Sample Date	3/12/2018 10:30:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500921
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-07 / 0-1 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.28	0.0100	0.0100		Y	8.28	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-07-10.0-11.0
Sample Date	3/12/2018 10:40:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500922
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-07 / 10-11 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	8.24	0.0100	0.0100		Y	8.24	0.0100	0.0100		Y		Yes

Sample ID	SG3a-SB18-07-15.0-18.0
Sample Date	3/12/2018 10:50:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SO
Lab Sample ID	9500923
Analytical Method	SW9045
Result Unit	ph units
Fraction	T
Location/Depth	SB18-07 / 15-18 ft
Validated?	Y
Validation Level	CATEGORY B

Result Type	Chemical Name	CAS	T/D	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code	Reportable Result?
TRG	pH	PH	T	1	7.75	0.0100	0.0100		Y	7.75	0.0100	0.0100		Y		Yes

SECTION 3

LABORATORY CALIBRATION AND QUALITY CONTROL ACCEPTANCE CRITERIA

Initial Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
1. Initial Calibration: Minimum of five calibration standards. 2. Analyze MDL standard to ensure all compounds detected at MDL level 3. Analyze a technical grade branched/linear chained standard for PFOA/PFOS/PFHxS.	1. Initially and the after continuing calibration fails. 2. Analyzed with each initial calibration. 3. Run with each initial calibration.	1. Back calculated concentration of each calibration point should be within ±30% (or 70-130%) of true. The level 1 calibration standard back calculated concentrations should be ±50% (or 50-150%) of true value. $R^2 \geq 0.99$ for each analyte. 2. All compounds detected. 3. Qualitative use only to assist chemists in the integration of these compounds.	1. If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the initial calibration can be used. In those cases, the data will be reported with a qualifying comment. 2. If compound not detected in MDL standard, the source of the problem should be determined and the system recalibrated.

Continuing Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Analyze every 10 samples and at the end of the analysis sequence. Concentrations alternate between low, mid, and high levels of the calibration curve. The CCV ran after ICAL must be at CAL3 level. Opening CCV for sequence **should** be at CAL1 level and must be within 50-150%.	Occurs every 10 samples and at the end of the analysis sequence.	Calculated amount for the native analytes should be within ±30% of the true value. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. The calculated amount for the isotopically labeled extraction standards should be within the advisory window of 70-130%	If criteria are not met, the source of the problem **should** be determined, corrected and the system recalibrated. Situations may exist where the continuing calibration can be used. In those cases, the data will be reported with a qualifying comment.

Initial Calibration Verification

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Second source standard analyzed at the end of each initial calibration.	Analyzed with each initial calibration	1. Calculated amount for each native analytes should be within 70-130% of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration.	1. If criteria are not met, the source of the problem should be determined and corrected. Situations may exist where the initial calibration verification can be used. In those cases, the data will be reported with a qualifying comment.

QC Acceptance Criteria

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Method Blanks	1 per 20 field samples	1. No positive detections above the MDL. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	1. Report if the analyte present in the method blank is not detected in the sample or the analyte detected in the sample at greater than 10x's the amount in the method blank. If analyte detected in blank and sample at approximately the sample concentration sample will be RX'd. 2. Blank will be reinjected. Blank data may be qualified and reported. 3. If extraction standards are outside the advisory window and there are positive detections in the blank, the blank may be reinjected. If after reinjection, extraction standards are still out data may be reported and qualified due to the advisory nature of the windows.
LCS	1 per 20 field samples	1. Advisory QC limits of 70-130%, RPD<30% 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	1. Reextract LCS and associated samples. Analytes that fail high and are ND in the samples can be reported. Due to the advisory nature of the acceptance limits, situations may exist where LCS can be used. In those cases, the data will be reported with a qualifying comment. 2. If all native recoveries are within QC limits, data can be reported. 3. If all native recoveries are within QC limits, data can be reported.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
MS/MSD	MS is routinely prepared with each extraction batch. If limited sample volume exists, an LCS/LCSD will be prepared.	1. Advisory QC limits of 70-130%, RPD<30%. 2. The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration. 3. The % differences for the isotopically labeled extraction standards should be within the advisory QC window of 70-130%	Evaluate in conjunction with LCS.
Isotopically labeled internal standards	Per sample (including MS/MSD, LCS, and Blanks)	The absolute areas of the isotopically labeled internal standards should be within ±50% (or 50-150%) of the average areas measured during the initial calibration.	Reinject samples as necessary. Report data with qualifying comment.
Isotopically labeled extraction standards	Per sample (including MS/MSD, LCS, and Blanks)	The percent difference for the isotopically labeled extraction standards should be within the advisory QC window of 70-130% or laboratory-generated control limits, if available.	Reinject samples as necessary. Report data with qualifying comment.

SECTION 4

ENVIRONMENTAL STANDARDS, INC., STANDARD OPERATING PROCEDURE

1.0 OBJECTIVES

This standard operating procedure (SOP) describes procedures that the Environmental Standards data reviewers will use to validate Perfluorinated and Polyfluorinated Alkyl Substance (PFAS) data for solid samples generated by Eurofins SOP "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537 Version 1.1 Modified Using LC/MS/MS" (Eurofins Document Reference T-PFAS-WI12031, Version 2) and aqueous samples generated by Eurofins SOP "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537 Revision 1.1 Using LC/MS/MS" (Eurofins Document Reference T-PFAS-WI14355, Version 2) for various Saint-Gobain Performance Plastics Corporation (Saint-Gobain) sites. Validation will be performed to assess compliance of the sample data to these Eurofins SOPs and any applicable Work Plans and/or Quality Assurance Project Plans (QAPPs). In addition, the usability of the PFAS data provided by the analytical laboratory will be determined based on the general guidance provided in the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016) and "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016). It should be noted that the National Functional Guidelines apply strictly to data generated by the Contract Laboratory Program (CLP) protocol and are not directly applicable to validation of data generated by Modified EPA Method 537; therefore, this SOP presents the specific data qualification actions that will be used for validation.

The validation findings will be presented in a quality assurance review (QAR) that will be prepared for one or more sample delivery groups (SDGs). Copies of annotated analytical results summaries (Form I's), including any changes to the analytical results and data qualifier codes, or a data summary spreadsheet of the qualified analytical results, will be included in the support documentation of the QAR.

2.0 EVALUATION TOOLS

- field duplicate form (DVF_DUP_SG_ELLE.xlsm)

Chemistry Applications:

- Curve fitting software (DVF_CAL.xlsm)
- Methods Database

3.0 REFERENCE DOCUMENTS

- "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016)

- "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016).

- Eurofins Document Reference T-PFAS-WI12031.

- Eurofins Document Reference T-PFAS-WI14355.

- US EPA Method 537, Version 1.1 (September 2009).

- Guidance for Labelling Externally Validated Laboratory Analytical Data for Superfund Use (EPA 540-R-08-005, 2009).

4.0 PROCEDURE

4.1 EVALUATION OF METHOD COMPLIANCE

The data reviewer will assess the method compliance of the PFAS data based on an evaluation of information presented in the data package deliverables. Compliance to the aforementioned SOPs (and Work Plan and/or QAPP when applicable) will be evaluated as part of the assessment. In addition, the deliverables will be evaluated for reporting errors and inconsistencies. The findings of the compliance assessment will be described in terms of comments/deficiencies about the data/deliverables and presented in two subdivisions (*i.e.*, Reporting Issues and Procedural Issues) of the Organic Data Evaluation Section of the QAR. Each issue discussed in the QAR will indicate any subsequent impact on the usability of the data or will identify aspect(s) of the data that could not be evaluated due to the deficiency.

The data reviewer may contact the project laboratory to request the correction of deficiencies prior to submittal of the QAR (if feasible and sanctioned by Saint Gobain). At a minimum, corrections required to allow for a full evaluation of the usability of the data should be requested. Such correctable deficiencies may include sample result errors, missing data deliverables, or calculation errors that would require a significant amount of the data reviewer's time to correct. Any laboratory resubmittals as a result of such requests will be discussed in the Reporting Issue subdivision of the QAR and included as an attachment to the QAR.

4.2 DETERMINATION OF DATA USABILITY

The data reviewer will determine the usability of the PFAS data based on an evaluation of the information presented in the data package deliverables. The findings of the PFAS data usability assessment will be presented in terms of data qualifications that the project team should consider in order to best utilize the data; these qualifications will be presented in the Organic Data Qualifier subsection of the QAR. Each qualification discussed in the QAR will indicate that the affected sample result(s) has been flagged with a representative qualifier code(s) in the data tables to provide, at a glance, an indication of the quantitative and qualitative reliability of each analytical result. In general, the qualifier statements will be presented in the QAR in the following order: blank contamination (UB), unusable results (R/UR), estimated results (J/UJ), tentative identifications of target compound results (N), and a general qualifier for all results reported below the limit of quantitation (if applicable). In addition, a Validation Reason Code will be presented on the data tables to indicate the reason that a qualifier code has been applied.

The data reviewer's criteria for evaluating the usability of the PFAS data and the resultant qualifications and reason codes will be as stipulated on the attached Table for the Validation of PFAS Data Generated. Additional qualifications and reason codes will be assigned based on professional judgement. It should be noted that the project manager should be consulted when "professional judgement" use is indicated on the attached table.

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Temperature Upon Receipt	≤6°C	If temperature is <2°C, no action is required unless samples were frozen/broken and then professional judgment should be used. If temperature is >6°C but ≤20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SPL") If temperature is > 20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SPL") Note time of collection relative to receipt at laboratory. Professional judgement should be used if < 8 hours has elapsed from collection to receipt at the laboratory to determine if qualification due to elevated temperature applies.
Technical Holding Time	Solid samples should be extracted within 28 days of sample collection and aqueous samples should be extracted within 14 days of collection. All extracts should be analyzed within 28 days after extraction.	If a holding time is exceeded, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively) If a holding time is grossly exceeded (*i.e.*, > twice the holding time), qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively)

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Initial Calibration (See Note #1 for additional information.)	Back calculated concentration of each calibration point should be within 70-130% of true value. The level 1 (lowest) calibration standard back calculated concentrations should be within 50-150% of true value. $r^2 \geq 0.99$ for each analyte.	**When evaluating initial calibration, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS(s).** If the low point or consecutive points at the low end of the curve are below the lower recovery criteria, qualify positive results < lowest compliant point as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "ICL") If the low point or consecutive points at the low end of the curve are above the upper recovery criteria, qualify positive results < lowest compliant point as estimated ("J"). (Validation Reason Code "ICH") If a point in the middle of the curve or non-consecutive points (beside the low point) quantitate outside of criteria, qualify positive results as estimated ("J"). If the high point or consecutive points at the upper end of the curve quantitates outside of criteria, qualify positive results > highest compliant point as estimated ("J"). (Validation Reason Code "ICL," "ICH," or "IC," are to be used based on whether direction of bias can be determined in these situations) Professional judgement should be used to qualify "not-detected" results as estimated ("UJ") if low recoveries are observed for standards other than the lowest calibration point. (Validation Reason Code "ICL") If the $r^2 \geq 0.99$ for any analyte, qualify positive results as estimated ("J"). (Validation Reason Code "IC")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Second Source Initial Calibration Verification (ICV)	1. Calculated amount for each compound should be within 70-130% (±30%) of the true value. 2. The isotopically labeled injection and/or extraction standards should be within criteria.	**Qualification is for all samples associated with initial calibration being verified.** **When evaluating ICV, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS.** If target PFAS has %D>30% with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "SSH") If target PFAS has %D>30% but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SSL") If target PFAS has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SSL")
Continuing Calibration Verification (See Note #2 for additional information.)	Calculated amount should be within ±30% of the true value. The isotopically labeled injection and/or extraction standards should be within criteria. The CCV ran after ICAL must be at CAL3 level. Opening CCV for sequence **should** be at CAL1 level and must be within 50-150%.	**Qualification is for all samples on both sides of the out-of-criteria calibration verification standards**. **When evaluating calibration verification, use professional judgment to first assess impact of any out-of-criteria labeled PFAS on the corresponding target PFAS.** If target PFAS has %D>30% (50% for CAL1 CCV) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "CVH") If target PFAS has %D>30% (50% for CAL1 CCV) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "CVL") If target PFAS has %D>90% with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "CVL")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Blanks (See Note #3 for additional information.)	Summarize all results greater than the method detection limit (MDL) present in the blanks. The highest positive result associated with a sample should be utilized for evaluation of contamination.	If a target PFAS is found in the blank but not in the associated sample(s), no action is required. If a sample result is ≤5× the blank result, qualify the positive result as "not detected" ("UB") and raise the method detection limit (MDL) and/or limit of quantitation (LOQ) (if lower than original reported positive result) to the value of the original result. (Validation Reason Code(s) "EB," FB," "IB," "MB," and or "TB," as appropriate). If a sample result is >5× blank result, qualification is not required. Professional judgement should be used to evaluate whether an aqueous blank should be used to qualify a solid sample.
Injection/Internal Standards (Labelled Analytes, spiked prior to injection and used as internal standards for extraction standards)	The response for each internal standard in the original sample must be within ±%50 of the average initial calibration response.	If an internal response is outside of criteria, use professional judgment to determine the potential impact on the quantitation of the extraction standard recoveries and whether qualification due to out-of-criteria extraction standard recoveries (see directly below) should be modified.
Extraction Standards (Labelled Analytes, spiked prior to extraction and used as internal standards for target compounds)	The response for each ES in the original sample must be within the advisory limits of 70-130% recovery or laboratory-generated control limits, if available.	If an ES response or recovery is outside of criteria but ≥10%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ") for PFASs quantitated using that ES. (Validation Reason Code "IS") If an ES response is < 10%, qualify positive results for the associated PFASs as estimated ("J") and qualify "not-detected" results for the associated PFASs as estimated ("UJ") or unusable ("R") using professional judgment (based on the approximate signal-to-noise ratio for the ES and the expected response for the target PFAS at the LOQ). (Validation Reason Code "IS")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Laboratory Control Samples (LCS)/ Laboratory Control Sample Duplicates (LCSD)	%R within 70-130%, RPD ≤ 30%.	**The LCS qualification will be applied to all samples in the preparation batch.** If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). (Validation Reason Code "LAL") If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "LAL") If the precision between recoveries exceeds the RPD criterion, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LP")
Matrix Spike/Matrix Spike Duplicate (MS/MSD) (If performed)	%R within 70-130%, RPD ≤ 30%.	**The MS/MSD qualification will be applied to the unspiked parent sample.** Data should not be qualified due to %Rs (or RPDs calculated on %Rs) that are outside of criteria if the original concentration of a PFAS is >4× the spiking level for that compound. In such cases, RPDs calculated using MS/MSD results can be used to evaluate precision. If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "MAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "MAL") If the precision between recoveries exceeds the RPD criterion, qualify the positive result in the native sample as estimated ("J") and do not qualify the "not-detected" result. (Validation Reason Code "MP")

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Field/Laboratory Duplicate (See Note #4 for additional information)	The RPD should be ≤30% when both results are >5× the sample-specific LOQ (RL). The difference between results should be ≤ 1.5×LOQ when at least one result is ≤5× the LOQ.	**If both results are <LOQ, a quantitative assessment of duplicate precision is not performed.** If the criteria are not met, qualify positive results for the out-of-criteria PFASs in the original sample and its duplicate as estimated ("J"). (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate) Use the MDL as a numerical value for any "not-detected" result in the difference calculation. Qualify "not-detected" results as estimated ("UJ") if the difference between the results is outside of criteria. (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate)
Percent Solids	Solid samples with less than 30% solid content require qualification.	If a solid sample has a percent solid content <30%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code of "PS") Use professional judgment to qualified "not-detected" results as unusable ("R") if a solid sample has a percent solids content <10%. (Validation Reason Code of "PS")
Compound Quantitation and Qualitative Identification (See Notes #5 for additional information.)	Samples with results that exceed the instrument calibration range should be reanalyzed at a dilution or re-extracted with a lower volume.	If a target PFAS result exceeds the instrument calibration range, qualify positive result as estimated ("J"). (Validation Reason Code "EC") Use professional judgment to determine whether sample reanalyses and dilutions should be compared to the original analyses. If criteria (see field duplicate usability) between the original sample results and the reanalysis sample results are not met, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "LD") If a target PFAS is <LOQ but ≥MDL, qualify positive results as estimated ("J"). (Validation Reason Code "RL") Use professional judgment to determine whether quantitation and qualitative identifications are accurate and whether data qualification is necessary.
System Performance	Professional judgement should be used when assessing the degradation of system performance during analyses.	Use professional judgment to qualify the data if it is determined that system performance degraded during sample analyses.

Table for the Validation of PFAS Data

Quality Control Item	Usability Criteria	Action
Overall Assessment of Data	Assess overall quality of the data. Review available materials to assess the quality, keeping in mind the additive nature of the analytical problems.	Use professional judgment to determine the need to qualify data not qualified based on the QC previously discussed. Write a brief narrative to give the user an indication of the analytical limitations of the data. If sufficient information on the intended use and required quality of the data is available, include the assessment of the usability of the data within the given context.

Validation Notes

1. Use professional judgment when evaluating the response intercept of a calibration curve. If the response intercept is positive, the samples should be evaluated for false positives. If the response intercept is negative, the sample should be evaluated for false negatives.

2. If instrument instability (*i.e.*, several calibration verification standards with PFASs exhibiting both increasing and decreasing sensitivity throughout an analytical sequence) is observed in the analysis of sequential calibration verification standards, "not-detected" results may be qualified as estimated ("UJ") due to instrument sensitivity of a continuing calibration standard response that is greater than the initial calibration standard response (increase in instrument sensitivity).

3. The frequency of equipment/rinse blanks is determined during the sampling event. The results of an equipment/rinse blank should be applied to all collected in the same day by the same techniques, unless only one blank was collected for a several-day sampling event. In instances where more than one blank is associated with a given sample, qualification should be based upon a comparison with the associated blank having the highest concentration of a contaminant. Professional judgement should be used to evaluate whether an aqueous blank should be used to directly qualify a solid sample.

   Method blank contamination should be applied to samples in the preparation batch.

   Instrument blank contamination should be applied to samples bracketing the contaminated instrument blank.

   Blanks should also be evaluated using professional judgment for non-target interference.

Validation Notes

4. Duplicate samples may be collected and analyzed as an indication of overall precision. Field duplicate analyses measure both field and laboratory precision; therefore, the results may have more variability than laboratory duplicates that measure only laboratory performance. Laboratory duplicate results and field duplicate results apply only to the original sample and the laboratory/field duplicate. Solid duplicate results are expected to have greater variance than aqueous duplicate results.

5. If a sample result exceeds the instrument calibration range (lower dilution analysis) or is less than the LOQ (secondary dilution), do not utilize this result when comparing an original analysis and a diluted reanalysis.

   Poor chromatographic performance may affect qualitative identification and/or quantitation. Indications of substandard performance include:

   - High background levels
   - Extraneous peaks
   - Loss of resolution

- Peak tailing or peak splitting that may result in inaccurate quantitation
- The laboratory analyzes a Cal3 level standard that contains linear and branch chained isomers of PFOA, PFOS, and PFHxS for analyses. The analysis of this standard is used to demonstrate where the branch chained isomers elute and is not included in the calibration curve. This will assist the chemist in the integration of branched isomers of these compounds in samples.

SECTION 5

DATA SUPPORT DOCUMENTATION

A. SDG SNB95

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	Saint Gobain Vermont	Reviewed by:	BE 5/22/18
Sample Collection Dates:	3/5/18 – 3/6/18	Approved by:	THW
Job Number:	20167391.NBEN	Completion Date:	5/2018
Project Manager:	Meg Michell		
Laboratory:	ELLE	Applicable Sample No's (X)	Refer to Table 1 in the Quality Assurance Review

			Sample No.	Lab Control No.
Deliverable:	CLP (Full)	( )	SNB95	
	Level IV (Full)	( )		
	Limited	(X)		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	PFAS	VOC	SVOC			PFAS	VOC	SVOC			PFAS	VOC	SVOC		
Holding Times	X	X	X								X	X	X		
Blank Analysis: Target Cmpds	X	X	X								X	X	X		
Sys Montr Cmps/Surrogates		X	X									X	X		
Matrix Spike/Matrix Spike Duplicate	X	X	X			X	X	X			X	X	X		
Blank Spike	X	X	X								X	X	X		
Duplicate Analysis ( ) Field ( ) Lab															
Detection Limit/Sensitivity															
Qualitative Identification: Target Cmpds															
Qualitative Identification: TICs															
DFTPP & BFB Mass Tuning															
GC Instrument Performance															
Initial Calibrations															
Continuing Calibrations															
Quantitation of Results															
DDT/Endrin Breakdown															
Surrogate Retention Time Shifts															
Internal Standards Performance	X					X					X				
Resolution Check Standards															
Analytical Sequence															
Florisil Cartridge & GPC Calibration															
GC Column Agreement															
Condition Upon Receipt	X	X	X								X	X	X		
Percent Solids	X	X	X								X	X	X		
Others:															

Comments: _____

ENVIRONMENTAL STANDARDS

INORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: Saint Gobain Bennington
Sample Collection Dates: 3/5/18 – 3/6/18
Job Number: 20167391.NBEN
Project Manager: Meg Michell
Laboratory: ELLE, ALS

Reviewed by: BE 5/22/18
Approved by: THW
Completion Date: 5/2018

Applicable Sample No's (X)

Refer to Table 1 in the Quality Assurance Review

Deliverable:		Sample No.	Lab Control No.
	CLP (Full) ( )	SNB95	
	Level IV (Full) ( )		
	Limited (X)		
	Other:		

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	Metals	pH	Mois	TOC		Metals	pH	Mois	TOC		Metals	pH	Mois	TOC	
Holding Times	X	X	X	X							X	X	X	X	
Blank Analysis Results	X			X							X			X	
Matrix Spike (Predigestion) Results	X			X		X					X			X	
Duplicate Analysis: ( ) Field (X) Lab	X	X	X	X		X					X	X	X	X	
Quantitation of Results															
Detection Limit/Sensitivity															
Initial Calibrations															
Continuing Calibrations															
Laboratory Control Standard (LCS)	X										X				
ICP Linear Range Analysis															
ICP Interference Checks															
ICP Serial Dilutions															
ICP Post-Digestion Spike															
GFAA Post Digestion Spikes															
GFAA Duplicate Injections															
ICP Multiple Exposures															
GFAA Standard Additions															
CRDL Standards															
Condition on Receipt	X	X	X	X							X	X	X	X	
Percent Solids	X	X	X	X							X	X	X	X	
Others:															

Comments:

ENVIRONMENTAL STANDARDS

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample / batch ID	Contaminant	Concentration ng/L	Qualification limit	
						5×	10×
O	Aq	RB	SG3a-RB01-180305	PFOA	0.7	3.5	
O	Aq	RB	SG3a-RB02-180305	PFOA	0.4	2	
O	Aq	RB	SG3a-RB04-180305	PFOA	0.7	3.5	
O	Aq	RB	SG3a-RB05-180305	PFOA	1	5	
O	Aq	RB	SG3a-RB06-180305	PFOA	5	25	
O	Aq	RB	SG3a-RB07-180305	PFOA	280	1400	
				PFBS	0.4	2	
				PFHpA	4	20	
				PFHxA	4	20	
O	Aq	RB	SG3a-RB01-180306	PFOA	150	750	
				PFDA	6	30	
				PFDoA	8	40	
				PFHpA	0.4	2	
				PFNA	1	5	
				PFOS	0.6	3	
				PFTA	2	10	
				PFTriA	3	15	
				PFUnA	4	20	
O	Aq	RB	SG3a-RB02-180306	PFOA	19	95	
O	Aq	RB	SG3a-RB03-180306	PFOA	81	405	
				PFDoA	0.4	2	
				PFHpA	0.5	2.5	
O	Aq	RB	SG3a-RB04-180306	PFOA	0.7	3.5	
O	Aq	RB	SG3a-RB05-180306	PFOA	2	10	
O	Aq	RB	SG3a-RB06-180306	PFOA	170	850	
				PFHpA	2	10	
				PFHxA	0.9	4.5	

1 - V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: PFC

2 - MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; RB = Rinse Blank

Notes: _____

** Columns G and H contains formulas

BLANK ANALYSIS RESULTS FOR INORGANIC PARAMETERS

Analysis Type	Matrix (Aq, S)	Blank Type (2)	Blank Sample Number / Batch Number	Contaminant	Concentration (mg/l)	Qualif Limit
			SDG: SNB95			5X
M	Aq	MB	180671063702	Mn	0.0850	0.4250

2: MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes: _____

_____

_____

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3a-LTB01-180305 Blank Water	03/05/2018	9491674
SG3a-FTB01-180305 Grab Blank Water	03/05/2018 09:25	9491675
SG3a-RB01-180305 Grab Rinse Water	03/05/2018 12:55	9491676
SG3a-RB02-180305 Grab Rinse Water	03/05/2018 13:00	9491677
SG3a-RB03-180305 Grab Rinse Water	03/05/2018 13:05	9491678
SG3a-RB04-180305 Grab Rinse Water	03/05/2018 13:10	9491679
SG3a-RB05-180305 Grab Rinse Water	03/05/2018 13:15	9491680
SG3a-RB06-180305 Grab Rinse Water	03/05/2018 14:20	9491681
SG3a-RB07-180305 Grab Rinse Water	03/05/2018 15:30	9491682
SG3a-RB01-180306 Grab Rinse Water	03/06/2018 08:45	9491683
SG3a-RB02-180306 Grab Rinse Water	03/06/2018 09:25	9491684
SG3a-RB03-180306 Grab Rinse Water	03/06/2018 10:00	9491685
SG3a-RB04-180306 Grab Rinse Water	03/06/2018 11:35	9491686
SG3a-RB05-180306 Grab Rinse Water	03/06/2018 13:45	9491687
SG3a-SB18-01-0.0-1.0 Grab Soil	03/06/2018 12:30	9491688
SG3a-SB18-01-10.0-11.0 Grab Soil	03/06/2018 12:35	9491689
SG3a-SB18-01-15.0-20.0 Grab Soil	03/06/2018 12:40	9491690
SG3a-SB18-01-8.0 Grab Soil	03/06/2018 12:45	9491691
SG3a-SB18-01-21.0 Grab Soil	03/06/2018 12:50	9491692
SG3a-RB06-180306 Grab Rinse Water	03/06/2018 15:10	9491693
SG3a-SB18-02-0.0-1.0 Grab Soil	03/06/2018 14:35	9491694
SG3a-SB18-02-10.0-11.0 Grab Soil	03/06/2018 14:40	9491695
SG3a-SB18-02-10.0-11.0 MS Grab Soil	03/06/2018 14:40	9491696
SG3a-SB18-02-10.0-11.0 MSD Grab Soil	03/06/2018 14:40	9491697
SG3a-SB18-02-10.0-11.0 Dupl Grab Soil	03/06/2018 14:40	9491698
SG3a-SB18-02-15.0 Grab Soil	03/06/2018 14:45	9491699
SG3a-SB18-02-6.5 Grab Soil	03/06/2018 14:50	9491700
SG3a-SB18-02-9.0 Grab Soil	03/06/2018 14:55	9491701
SG3a-RB07-180306 Grab Rinse Water	03/06/2018 15:25	9491702

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1916534

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Batch #: X180671AA (Sample number(s): 9491694-9491697, 9491699-9491701 UNSPK: 9491695)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Toluene, 1,1,2-Trichloroethane, Tetrachloroethene, 1,2-Dibromoethane, 1,1,2,2-Tetrachloroethane, 4-Methyl-2-pentanone, 2-Hexanone

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Styrene, Carbon Disulfide

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Methyl Acetate, 2-Hexanone

SW-846 8270D, GC/MS Semivolatiles

Batch #: 18067SLA026 (Sample number(s): 9491694-9491697, 9491699-9491701 UNSPK: 9491695)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Pyrene, Phenanthrene, Fluoranthene

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Pentachlorophenol, 2,4-Dimethylphenol, 2,4,6-Trichlorophenol, 2,4-Dinitrophenol, 2,3,4,6-Tetrachlorophenol, 4,6-Dinitro-2-methylphenol

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: 2,4-Dinitrophenol

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9491674, 9491675, 9491677, 9491679, 9491680, 9491684, 9491687, 9491693, 9491702

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the

target analytes is compliant, the data is reported.

Sample #s: 9491676, 9491682, 9491685

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

Sample #s: 9491686

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

Sample injection internal peak area was outside of QC acceptance limits. Since the result is high and the recovery for the labeled compounds used as extraction standards are within QC acceptance limits, the data is reported.

Sample #s: 9491688, 9491689, 9491690, 9491691, 9491692, 9491694, 9491695, 9491696, 9491697, 9491699, 9491700, 9491701

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18067009 (Sample number(s): 9491674-9491677, 9491679-9491680, 9491682, 9491684-9491687, 9491693, 9491702)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9491676, 9491682, 9491685, 9491686, LCSD

Batch #: 18067010 (Sample number(s): 9491688-9491692, 9491694-9491697, 9491699-9491701 UNSPK: 9491695)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorodecanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid, Perfluorodecanoic acid, Perfluorobutanesulfonate, Perfluoro-octanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorodecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9491688, 9491689, 9491690, 9491691, 9491692, 9491694, 9491695, 9491696, 9491697, 9491699, 9491700, 9491701, Blank, LCS, MS, MSD

SW-846 6010C, Metals

Batch #: 180671063702 (Sample number(s): 9491694-9491701 UNSPK: 9491695 BKG: 9491695)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Magnesium, Potassium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window:

Iron, Manganese, Zinc, Calcium, Magnesium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Calcium, Iron, Magnesium, Sodium, Manganese, Zinc

SW-846 6020A, Metals

Batch #: 180671063702A (Sample number(s): 9491694-9491701 UNSPK: 9491695 BKG: 9491695)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Cadmium, Nickel

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Lead, Antimony, Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Copper, Nickel, Thallium, Vanadium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Vanadium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Antimony, Beryllium, Cadmium, Chromium, Cobalt, Copper, Nickel, Silver, Thallium

Batch #: 180671063702B (Sample number(s): 9491694-9491701 UNSPK: 9491695 BKG: 9491695)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Selenium

Batch #: 180671063702D (Sample number(s): 9491694-9491701 UNSPK: 9491695 BKG: 9491695)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SW-846 9045D modified, Wet Chemistry

Sample #s: 9491699

The pH was measured in water at 18.9 C.

Sample #s: 9491688, 9491700

The pH was measured in water at 20.3 C.

Sample #s: 9491701

The pH was measured in water at 20.5 C.

Sample #s: 9491694

The pH was measured in water at 20.6 C.

Sample #s: 9491689, 9491690, 9491692

The pH was measured in water at 20.8 C.

Sample #s: 9491695, 9491698

The pH was measured in water at 20.9 C.

Sample #s: 9491691

The pH was measured in water at 21 C.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 37191 Group # 1916534 Sample # 9491674-702

COC # 545875

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: SCRP-Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16-6131
Sampler: JD, CB, DK	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
* 48 Hr hold for VOCs

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil ☐ Sediment ☐ Tissue ☐	Water: Potable ☐ Ground ☐ Surface ☐ NPDES ☐	Other: Rinse blanks	Total # of Containers	14 PFAS	Remarks
SG3a - LTB01 - 180305	3/5/18	—					X	2	X	
SG3a - FTB01 - 180305	3/5/18	0925	X				X	2	X	
SG3a - RB01 - 180305		1255	X				X	2	X	concrete core barrel
SG3a - RB02 - 180305		1300	X				X	2	X	geoprobe cutting shoe
SG3a - RB03 - 180305		1305	X				X	2	X	geoprobe acetate liner
SG3a - RB04 - 180305		1310	X				X	2	X	macrocore barrel
SG3a - RB05 - 180305		1315	X				X	2	X	geoprobe 3" casing
SG3a - RB06 - 180305	↓	1420	X				X	2	X	concrete core barrel - SB18-02
SG3a - RB07 - 180305	3/5/18	1530	X				X	2	X	concrete core barrel - SB18-03
SG3a - RB01 - 180306	3/6/18	0845	X				X	2	X	Concrete core barrel - SB18-01

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: k.moline@ctmale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3/6/18	1730			
			[signature]	3/7/18	1100

EDD Required? Yes No
If yes, format: _____
Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx X Other _____
Temperature upon receipt 2.1-2.2 °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 37191 Group # 1916534 Sample # 9491674-702

COC # 545876

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SLPP - Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: JD, CB, DK	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Soil ☒ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ | Other: Rinse water

Analysis Requested

Preservation Codes

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
* 48 Hr Hold for VOCs

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil/Sed	Water	Other	Total # of Containers	14 PFAS	TOC	pH	Moisture		Remarks
~~SB3a CB 3/6/18 SB18~~ SB3a-RB02-180306	3/6/18	0925	X				X	2	X					Concrete Core barrel - SB18-21
SB3a-RB03-180306	3/6/18	1000	X				X	2	X					Concrete Core barrel - SB18-21
SB3a-RB04-180306	3/6/18	1135	X				X	2	X					Ziploc Bag
SB3a-RB05-180306	3/6/18	1345	X				X	2	X					~~CB 3/6/18 Time blank~~
SB3a-SB18-01-0.0-1.0	3/6/18	1230	X		X		X	2	X	X	X	X		Macro - Barrel 1 (after)
SB3a-SB18-01-10.0-11.0	3/6/18	1235	X		X	CB 3/6/18	X	2	X	X	X	X		
SB3a-SB18-01-15.0-20.0	3/6/18	1240	X		X		X	2	X	X	X	X		
SB3a-SB18-01-5.0	3/6/18	1245	X		X		X	2	X	X	X	X		
SB3a-SB18-01-21.0	3/6/18	1250	X		X		X	2	X	X	X	X		
SB3a-RB06-180306	3/6/18	1510	X				X	2	X					Macro - Barrel (after 2)

Turnaround Time (TAT) Requested (please circle)

(Standard) Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)
Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13
NYSDEC Category A or B | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3/6/18	1730			
			[signature]	3/7/18	1100

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx ✓ Other _____

Temperature upon receipt 2.1-2.2 °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 37191 Group # 1916534 Sample # 9491674-702

COC # 545877

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SLPP - Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: JD, CB, DK	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil (Sediment, Tissue)	Matrix: Water (Ground, Potable, NPDES, Surface, Other: Rinse Water)	Total # of Containers	14 PFAS	TOC	pH	Moisture	TAL Metals	SVOCs	VOCs	Remarks
SG3a-SB18-02-0.0-1.0	3/6/18	1435	X		X		6	X	X	X	X	X	X	X	
SG3a-SB18-02-10.0-11.0		1440	X		X		18	X	X	X	X	X	X	X	MS/MSD
SG3a-SB18-02-15.0		1445	X		X		6	X	X	X	X	X	X	X	
SG3a-SB18-02-6.5		1450	X		X		6	X	X	X	X	X	X	X	
SG3a-SB18-02-9.0		1455	X		X		6	X	X	X	X	X	✓	X	
SG3a-RB07-180306	✓	1525	X			X	2	X							Nitrile Glove

Analysis Requested — Preservation Codes

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
* 48 Hr Hold for VOCs

Turnaround Time (TAT) Requested (please circle)

(Standard) Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.Moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)
Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13
NYSDEC Category A or B | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3/6/18	1730			
			[signature]	3/7/18	1100

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx X Other _____

Temperature upon receipt 2.1-2.2 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 210169

Group Number(s): 1916534

Client: CT Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/07/2018 11:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	Yes		

Trip Blank Type(s): Two 250mL Unpreserved bottles

Unpacked by Simon Nies (25112) at 16:06 on 03/07/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.1	DT	Wet	Y	Bagged	N
2	DT146	2.2	DT	Wet	Y	Bagged	N

Container Quantity Discrepancy Details

Sample ID on COC	Container Qty. Received	Container Qty. on COC	Comments
SG3a-LTB01-180305	3	2	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/kg	ug/kg	ug/kg
Batch number: X180671AA	Sample number(s): 9491694-9491697,9491699-9491701		
Acetone	7 U	7	20
Benzene	0.5 U	0.5	5
Bromochloromethane	1 U	1	5
Bromodichloromethane	1 U	1	5
Bromoform	1 U	1	5
Bromomethane	2 U	2	5
2-Butanone	4 U	4	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	1 U	1	5
Chlorobenzene	1 U	1	5
Chloroethane	2 U	2	5
Chloroform	1 U	1	5
Chloromethane	2 U	2	5
Cyclohexane	1 U	1	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	1 U	1	5
1,2-Dibromoethane	1 U	1	5
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	2 U	2	5
1,1-Dichloroethane	1 U	1	5
1,2-Dichloroethane	1 U	1	5
1,1-Dichloroethene	1 U	1	5
cis-1,2-Dichloroethene	1 U	1	5
trans-1,2-Dichloroethene	1 U	1	5
1,2-Dichloropropane	1 U	1	5
cis-1,3-Dichloropropene	1 U	1	5
trans-1,3-Dichloropropene	1 U	1	5
Ethylbenzene	1 U	1	5
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	2 U	2	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	5
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	2 U	2	5
Styrene	1 U	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/kg	ug/kg	ug/kg
1,1,2,2-Tetrachloroethane	1 U	1	5
Tetrachloroethene	1 U	1	5
Toluene	1 U	1	5
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	1 U	1	5
1,1,2-Trichloroethane	1 U	1	5
Trichloroethene	1 U	1	5
Trichlorofluoromethane	2 U	2	5
Vinyl Chloride	1 U	1	5
m+p-Xylene	1 U	1	5
o-Xylene	1 U	1	5
Batch number: 18067SLA026	Sample number(s): 9491694-9491697,9491699-9491701		
Acenaphthene	3 U	3	17
Acenaphthylene	3 U	3	17
Acetophenone	17 U	17	33
Anthracene	3 U	3	17
Atrazine	33 U	33	170
Benzaldehyde	67 U	67	170
Benzo(a)anthracene	3 U	3	17
Benzo(a)pyrene	3 U	3	17
Benzo(b)fluoranthene	3 U	3	17
Benzo(g,h,i)perylene	3 U	3	17
Benzo(k)fluoranthene	3 U	3	17
1,1'-Biphenyl	17 U	17	33
4-Bromophenyl-phenylether	17 U	17	33
Butylbenzylphthalate	67 U	67	170
Di-n-butylphthalate	67 U	67	170
Caprolactam	33 U	33	170
Carbazole	17 U	17	33
4-Chloro-3-methylphenol	17 U	17	33
4-Chloroaniline	33 U	33	67
bis(2-Chloroethoxy)methane	17 U	17	33
bis(2-Chloroethyl)ether	17 U	17	33
2-Chloronaphthalene	7 U	7	33
2-Chlorophenol	17 U	17	33
4-Chlorophenyl-phenylether	17 U	17	33
2,2'-oxybis(1-Chloropropane)	17 U	17	33
Chrysene	3 U	3	17
Dibenz(a,h)anthracene	3 U	3	17
Dibenzofuran	17 U	17	33
3,3'-Dichlorobenzidine	100 U	100	330
2,4-Dichlorophenol	17 U	17	33
Diethylphthalate	67 U	67	170

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/kg	ug/kg	ug/kg
2,4-Dimethylphenol	17 U	17	33
Dimethylphthalate	67 U	67	170
4,6-Dinitro-2-methylphenol	170 U	170	500
2,4-Dinitrophenol	300 U	300	1,000
2,4-Dinitrotoluene	67 U	67	170
2,6-Dinitrotoluene	17 U	17	33
1,4-Dioxane	100 U	100	330
bis(2-Ethylhexyl)phthalate	67 U	67	170
Fluoranthene	3 U	3	17
Fluorene	3 U	3	17
Hexachlorobenzene	3 U	3	17
Hexachlorobutadiene	17 U	17	33
Hexachlorocyclopentadiene	170 U	170	500
Hexachloroethane	33 U	33	170
Indeno(1,2,3-cd)pyrene	3 U	3	17
Isophorone	17 U	17	33
2-Methylnaphthalene	3 U	3	17
2-Methylphenol	17 U	17	33
4-Methylphenol	17 U	17	33
Naphthalene	3 U	3	17
2-Nitroaniline	17 U	17	33
3-Nitroaniline	67 U	67	170
4-Nitroaniline	67 U	67	170
Nitrobenzene	17 U	17	33
2-Nitrophenol	17 U	17	33
4-Nitrophenol	170 U	170	500
N-Nitroso-di-n-propylamine	17 U	17	33
N-Nitrosodiphenylamine	17 U	17	33
Di-n-octylphthalate	67 U	67	170
Pentachlorophenol	33 U	33	170
Phenanthrene	3 U	3	17
Phenol	17 U	17	33
Pyrene	3 U	3	17
1,2,4,5-Tetrachlorobenzene	17 U	17	33
2,3,4,6-Tetrachlorophenol	67 U	67	170
2,4,5-Trichlorophenol	17 U	17	33
2,4,6-Trichlorophenol	17 U	17	33
	ng/g	ng/g	ng/g
Batch number: 18067010	Sample number(s): 9491688-9491692,9491694-9491697,9491699-9491701		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.20 U	0.20	0.60
Perfluorononanoic acid	0.20 U	0.20	0.60
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 18067009	Sample number(s): 9491674-9491677,9491679-9491680,9491682,9491684-9491687,9491693,9491702		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
Batch number: 18073001	Sample number(s): 9491678,9491681,9491683		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	mg/kg	mg/kg
Batch number: 180671063702	Sample number(s): 9491694-9491701		
Aluminum	8.94 U	8.94	40.0

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

Method Blank (continued)

Analysis Name	Result mg/kg	MDL** mg/kg	LOQ mg/kg
Calcium	3.33 U	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.0850 J	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.240 U	0.240	4.00
Batch number: 180671063702A	Sample number(s): 9491694-9491701		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 180671063702B	Sample number(s): 9491694-9491701		
Selenium	0.100 U	0.100	0.800
Batch number: 180671063702D	Sample number(s): 9491694-9491701		
Barium	0.182 U	0.182	0.800
Batch number: 180671063801	Sample number(s): 9491694-9491701		
Mercury	0.0100 U	0.0100	0.100

.425 all > 5x

LCS/LCSD

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: X180671AA	Sample number(s): 9491694-9491697,9491699-9491701								
Acetone	150	147.79	150	154.8	99	103	55-131	5	30
Benzene	20	19.85	20	19.56	99	98	80-120	1	30
Bromochloromethane	20	21.53	20	21.42	108	107	80-120	1	30
Bromodichloromethane	20	19.67	20	19.24	98	96	70-120	2	30
Bromoform	20	19.61	20	19.21	98	96	51-127	2	30
Bromomethane	20	16.57	20	16.94	83	85	50-136	2	30
2-Butanone	150	141.17	150	145.65	94	97	57-128	3	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Carbon Disulfide	20	21.44	20	20.98	107	105	64-133	2	30
Carbon Tetrachloride	20	20.76	20	20.45	104	102	64-134	1	30
Chlorobenzene	20	20.37	20	20.29	102	101	80-120	0	30
Chloroethane	20	16.6	20	16.31	83	82	50-131	2	30
Chloroform	20	20.08	20	19.88	100	99	80-120	1	30
Chloromethane	20	16.27	20	15.9	81	80	56-120	2	30
Cyclohexane	20	17.33	20	17.07	87	85	58-126	2	30
1,2-Dibromo-3-chloropropane	20	18.49	20	17.43	92	87	36-144	6	30
Dibromochloromethane	20	21.06	20	20.98	105	105	65-120	0	30
1,2-Dibromoethane	20	20.66	20	20.35	103	102	74-120	1	30
1,2-Dichlorobenzene	20	20.03	20	19.73	100	99	80-120	1	30
1,3-Dichlorobenzene	20	19.71	20	19.25	99	96	80-120	2	30
1,4-Dichlorobenzene	20	20.02	20	19.67	100	98	80-120	2	30
Dichlorodifluoromethane	20	15.08	20	14.67	75	73	16-136	3	30
1,1-Dichloroethane	20	19.38	20	19.5	97	98	77-120	1	30
1,2-Dichloroethane	20	19.49	20	19.08	97	95	71-128	2	30
1,1-Dichloroethene	20	22.18	20	21.92	111	110	73-129	1	30
cis-1,2-Dichloroethene	20	21.14	20	20.97	106	105	80-120	1	30
trans-1,2-Dichloroethene	20	21.52	20	21.06	108	105	80-125	2	30
1,2-Dichloropropane	20	19.18	20	18.77	96	94	76-120	2	30
cis-1,3-Dichloropropene	20	18.78	20	18.5	94	93	66-120	1	30
trans-1,3-Dichloropropene	20	18.53	20	18.38	93	92	63-124	1	30
Ethylbenzene	20	19.94	20	19.76	100	99	74-120	1	30
Freon 113	20	20.69	20	19.79	103	99	64-135	4	30
2-Hexanone	100	98.52	100	93.83	99	94	54-140	5	30
Isopropylbenzene	20	20.3	20	20	102	100	69-123	1	30
Methyl Acetate	20	17.85	20	17.35	89	87	59-134	3	30
Methyl Tertiary Butyl Ether	20	19.6	20	19.29	98	96	66-123	2	30
4-Methyl-2-pentanone	100	98.47	100	93.56	98	94	61-135	5	30
Methylcyclohexane	20	18.73	20	17.85	94	89	61-124	5	30
Methylene Chloride	20	19.88	20	19.92	99	100	76-122	0	30
Styrene	20	19.66	20	19.42	98	97	76-120	1	30
1,1,2,2-Tetrachloroethane	20	18.79	20	18.43	94	92	61-131	2	30
Tetrachloroethene	20	21.82	20	21.11	109	106	73-120	3	30
Toluene	20	20.16	20	20.06	101	100	80-120	0	30
1,2,3-Trichlorobenzene	20	20.02	20	19.45	100	97	44-155	3	30
1,2,4-Trichlorobenzene	20	19.75	20	18.79	99	94	56-130	5	30
1,1,1-Trichloroethane	20	21.76	20	21.61	109	108	69-123	1	30
1,1,2-Trichloroethane	20	20.73	20	20.35	104	102	80-120	2	30
Trichloroethene	20	20.24	20	19.73	101	99	80-120	3	30
Trichlorofluoromethane	20	17.95	20	17.39	90	87	55-134	3	30
Vinyl Chloride	20	16.63	20	16.49	83	82	59-120	1	30
m+p-Xylene	40	40.68	40	40.12	102	100	80-120	1	30
o-Xylene	20	19.94	20	19.74	100	99	75-120	1	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: 18067SLA026	Sample number(s): 9491694-9491697,9491699-9491701								
Acenaphthene	1666.67	1735.87			104		78-119		
Acenaphthylene	1666.67	1860.9			112		45-149		
Acetophenone	1666.67	1503.42			90		68-115		
Anthracene	1666.67	1724.92			103		82-113		
Atrazine	1666.67	1536.27			92		58-126		
Benzaldehyde	1666.67	1393.56			84		18-123		
Benzo(a)anthracene	1666.67	1644.32			99		76-119		
Benzo(a)pyrene	1666.67	1716.88			103		77-112		
Benzo(b)fluoranthene	1666.67	1627.91			98		78-120		
Benzo(g,h,i)perylene	1666.67	1627.19			98		76-111		
Benzo(k)fluoranthene	1666.67	1667.74			100		78-119		
1,1'-Biphenyl	1666.67	1695.42			102		78-115		
4-Bromophenyl-phenylether	1666.67	1752.78			105		81-116		
Butylbenzylphthalate	1666.67	1688.13			101		81-118		
Di-n-butylphthalate	1666.67	1713.37			103		77-121		
Caprolactam	1666.67	1483.8			89		63-121		
Carbazole	1666.67	1740.33			104		74-118		
4-Chloro-3-methylphenol	1666.67	1698.68			102		70-128		
4-Chloroaniline	1666.67	370.71			22		10-117		
bis(2-Chloroethoxy)methane	1666.67	1617.17			97		72-117		
bis(2-Chloroethyl)ether	1666.67	1530.41			92		68-115		
2-Chloronaphthalene	1666.67	1529.95			92		51-150		
2-Chlorophenol	1666.67	1678.87			101		75-124		
4-Chlorophenyl-phenylether	1666.67	1653.09			99		79-112		
2,2'-oxybis(1-Chloropropane)	1666.67	1426.62			86		61-120		
Chrysene	1666.67	1598			96		78-115		
Dibenz(a,h)anthracene	1666.67	1717.34			103		79-117		
Dibenzofuran	1666.67	1659.91			100		79-114		
3,3'-Dichlorobenzidine	1666.67	1588.3			95		33-117		
2,4-Dichlorophenol	1666.67	1794.32			108		79-125		
Diethylphthalate	1666.67	1624.42			97		74-120		
2,4-Dimethylphenol	1666.67	1587.2			95		56-107		
Dimethylphthalate	1666.67	1600.53			96		77-116		
4,6-Dinitro-2-methylphenol	1666.67	1763.96			106		73-127		
2,4-Dinitrophenol	3333.33	3271.57			98		51-139		
2,4-Dinitrotoluene	1666.67	1651.72			99		78-123		
2,6-Dinitrotoluene	1666.67	1739.01			104		80-120		
1,4-Dioxane	1666.67	1041.84			63		37-87		
bis(2-Ethylhexyl)phthalate	1666.67	1724.31			103		78-118		
Fluoranthene	1666.67	1638.3			98		76-115		
Fluorene	1666.67	1665.59			100		80-112		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Hexachlorobenzene	1666.67	1691.82			102		77-114		
Hexachlorobutadiene	1666.67	1837.48			110		75-115		
Hexachlorocyclopentadiene	3333.33	4448.62			133		10-172		
Hexachloroethane	1666.67	1552.71			93		72-111		
Indeno(1,2,3-cd)pyrene	1666.67	1640.18			98		78-113		
Isophorone	1666.67	1569.59			94		65-120		
2-Methylnaphthalene	1666.67	1666.5			100		77-116		
2-Methylphenol	1666.67	1700			102		74-128		
4-Methylphenol	1666.67	1662.79			100		66-121		
Naphthalene	1666.67	1642.41			99		81-111		
2-Nitroaniline	1666.67	1747.95			105		81-126		
3-Nitroaniline	1666.67	1179.53			71		68-124		
4-Nitroaniline	1666.67	1296.25			78		50-112		
Nitrobenzene	1666.67	1608.12			96		70-122		
2-Nitrophenol	1666.67	1773.43			106		77-129		
4-Nitrophenol	1666.67	1350.08			81		44-131		
N-Nitroso-di-n-propylamine	1666.67	1417.65			85		60-123		
N-Nitrosodiphenylamine	1666.67	1786.19			107		83-118		
Di-n-octylphthalate	1666.67	1802.35			108		81-134		
Pentachlorophenol	1666.67	1370.19			82		54-131		
Phenanthrene	1666.67	1664.22			100		81-109		
Phenol	1666.67	1535.18			92		68-123		
Pyrene	1666.67	1627.92			98		80-107		
1,2,4,5-Tetrachlorobenzene	1666.67	1732.54			104		76-116		
2,3,4,6-Tetrachlorophenol	1666.67	1701.36			102		73-127		
2,4,5-Trichlorophenol	1666.67	1781.58			107		84-122		
2,4,6-Trichlorophenol	1666.67	1787.46			107		81-123		
	ng/g	ng/g	ng/g	ng/g					
Batch number: 18067010	Sample number(s): 9491688-9491692,9491694-9491697,9491699-9491701								
Perfluorobutanesulfonate	1.20	1.22			102		70-130		
Perfluorobutanoic acid	1.36	1.67			123		70-130		
Perfluorodecanoic acid	1.36	1.36			100		70-130		
Perfluorododecanoic acid	1.36	1.64			120		70-130		
Perfluoroheptanoic acid	1.36	1.62			119		70-130		
Perfluorohexanesulfonate	1.29	1.40			109		70-130		
Perfluorohexanoic acid	1.36	1.51			111		70-130		
Perfluorononanoic acid	1.36	1.56			115		70-130		
Perfluoro-octanesulfonate	1.30	1.43			110		70-130		
Perfluorooctanoic acid	1.36	1.67			123		70-130		
Perfluoropentanoic acid	1.36	1.49			109		70-130		
Perfluorotetradecanoic acid	1.36	1.46			107		70-130		
Perfluorotridecanoic acid	1.36	1.61			119		70-130		
Perfluoroundecanoic acid	1.36	1.55			114		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Batch number: 18067009	Sample number(s): 9491674-9491677,9491679-9491680,9491682,9491684-9491687,9491693,9491702								
Perfluorobutanesulfonate	4.81	3.92	4.81	4.27	81	89	70-130	9	30
Perfluorobutanoic acid	5.44	5.20	5.44	5.23	96	96	70-130	1	30
Perfluorodecanoic acid	5.44	5.12	5.44	5.05	94	93	70-130	1	30
Perfluorododecanoic acid	5.44	5.03	5.44	5.10	92	94	70-130	1	30
Perfluoroheptanoic acid	5.44	5.16	5.44	5.01	95	92	70-130	3	30
Perfluorohexanesulfonate	5.14	4.57	5.14	5.05	89	98	70-130	10	30
Perfluorohexanoic acid	5.44	5.37	5.44	5.57	99	102	70-130	4	30
Perfluorononanoic acid	5.44	5.16	5.44	5.65	95	104	70-130	9	30
Perfluoro-octanesulfonate	5.20	4.52	5.20	4.88	87	94	70-130	8	30
Perfluorooctanoic acid	5.44	5.41	5.44	5.63	99	103	70-130	4	30
Perfluoropentanoic acid	5.44	4.88	5.44	5.40	90	99	70-130	10	30
Perfluorotetradecanoic acid	5.44	4.89	5.44	4.98	90	92	70-130	2	30
Perfluorotridecanoic acid	5.44	4.39	5.44	4.83	81	89	70-130	9	30
Perfluoroundecanoic acid	5.44	4.62	5.44	4.99	85	92	70-130	8	30
Batch number: 18073001	Sample number(s): 9491678,9491681,9491683								
Perfluorobutanesulfonate	4.81	4.54	4.81	4.47	94	93	70-130	1	30
Perfluorobutanoic acid	5.44	5.31	5.44	5.61	98	103	70-130	6	30
Perfluorodecanoic acid	5.44	5.41	5.44	5.24	99	96	70-130	3	30
Perfluorododecanoic acid	5.44	5.21	5.44	5.88	96	108	70-130	12	30
Perfluoroheptanoic acid	5.44	5.05	5.44	5.51	93	101	70-130	9	30
Perfluorohexanesulfonate	5.14	4.95	5.14	5.07	96	99	70-130	2	30
Perfluorohexanoic acid	5.44	5.40	5.44	5.51	99	101	70-130	2	30
Perfluorononanoic acid	5.44	5.73	5.44	5.74	105	106	70-130	0	30
Perfluoro-octanesulfonate	5.20	4.83	5.20	5.10	93	98	70-130	5	30
Perfluorooctanoic acid	5.44	5.12	5.44	5.12	94	94	70-130	0	30
Perfluoropentanoic acid	5.44	5.07	5.44	5.39	93	99	70-130	6	30
Perfluorotetradecanoic acid	5.44	5.03	5.44	5.06	93	93	70-130	1	30
Perfluorotridecanoic acid	5.44	5.21	5.44	5.67	96	104	70-130	8	30
Perfluoroundecanoic acid	5.44	5.25	5.44	5.29	96	97	70-130	1	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 180671063702	Sample number(s): 9491694-9491701								
Aluminum	200	208.31			104		80-120		
Calcium	400	413.95			103		80-120		
Iron	100	100.5			100		80-120		
Magnesium	200	208.36			104		80-120		
Manganese	50	51.59			103		80-120		
Potassium	1000	988.1			99		80-120		
Sodium	1000	1004.97			100		80-120		
Zinc	50	50.78			102		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 180671063702A	Sample number(s): 9491694-9491701								
Antimony	0.600	0.617			103		80-120		
Arsenic	1.00	1.06			106		80-120		
Beryllium	0.400	0.424			106		80-120		
Cadmium	0.500	0.506			101		80-120		
Chromium	5.00	5.07			101		80-120		
Cobalt	25	24.05			96		80-120		
Copper	5.00	5.02			100		80-120		
Lead	1.50	1.56			104		80-120		
Nickel	5.00	4.90			98		80-120		
Silver	5.00	4.88			98		80-120		
Thallium	0.200	0.169			84		80-120		
Vanadium	5.00	4.80			96		80-120		
Batch number: 180671063702B	Sample number(s): 9491694-9491701								
Selenium	1.00	1.00			100		80-120		
Batch number: 180671063702D	Sample number(s): 9491694-9491701								
Barium	5.00	4.65			93		80-120		
Batch number: 180671063801	Sample number(s): 9491694-9491701								
Mercury	0.100	0.0827			83		80-120		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 18069039401B	Sample number(s): 9491688-9491692,9491694-9491695,9491698-9491700								
pH	7.00	7.01			100		95-105		
Batch number: 18069039402A	Sample number(s): 9491701								
pH	7.00	7.00			100		95-105		
	%	%	%	%					
Batch number: 18067820004B	Sample number(s): 9491688-9491692,9491694-9491701								
Moisture	89.5	89.44			100		99-101		
Moisture	89.5	89.44			100		99-101		
Moisture Duplicate	89.5	89.44			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: X180671AA	Sample number(s): 9491694-9491697,9491699-9491701 UNSPK: 9491695									
Acetone	16.72	126.48	177.51	139.14	168.24	127	109	55-131	5	30
Benzene	0.5 U	16.86	16.53	18.55	21.01	98	113	80-120	24	30
Bromochloromethane	1 U	16.86	16.29	18.55	20.95	97	113	80-120	25	30
Bromodichloromethane	1 U	16.86	16.45	18.55	19.66	98	106	70-120	18	30
Bromoform	1 U	16.86	16.91	18.55	19.37	100	104	51-127	14	30
Bromomethane	2 U	16.86	14.13	18.55	15.83	84	85	50-136	11	30
2-Butanone	4 U	126.48	133.74	139.14	141.76	106	102	57-128	6	30
Carbon Disulfide	6.45	16.86	16.95	18.55	21.99	62*	84	64-133	26	30
Carbon Tetrachloride	1 U	16.86	17.38	18.55	21.58	103	116	64-134	22	30
Chlorobenzene	1 U	16.86	16.88	18.55	20.46	100	110	80-120	19	30
Chloroethane	2 U	16.86	13.24	18.55	14.42	79	78	50-131	9	30
Chloroform	1 U	16.86	16.59	18.55	20.5	98	110	80-120	21	30
Chloromethane	2 U	16.86	16.74	18.55	20.31	99	109	56-120	19	30
Cyclohexane	1 U	16.86	15.62	18.55	18.9	93	102	58-126	19	30
1,2-Dibromo-3-chloropropane	2 U	16.86	18.88	18.55	21.57	112	116	36-144	13	30
Dibromochloromethane	1 U	16.86	18.44	18.55	22.13	109	119	65-120	18	30
1,2-Dibromoethane	1 U	16.86	18.26	18.55	22.84	108	123*	74-120	22	30
1,2-Dichlorobenzene	1 U	16.86	16.2	18.55	17.84	96	96	80-120	10	30
1,3-Dichlorobenzene	1 U	16.86	16.34	18.55	18.66	97	101	80-120	13	30
1,4-Dichlorobenzene	1 U	16.86	16.06	18.55	18.82	95	101	80-120	16	30
Dichlorodifluoromethane	2 U	16.86	16.35	18.55	20.57	97	111	16-136	23	30
1,1-Dichloroethane	1 U	16.86	16.18	18.55	20.17	96	109	77-120	22	30
1,2-Dichloroethane	1 U	16.86	16.28	18.55	19.68	97	106	71-128	19	30
1,1-Dichloroethene	1 U	16.86	18.01	18.55	22.88	107	123	73-129	24	30
cis-1,2-Dichloroethene	1 U	16.86	16.84	18.55	20.93	100	113	80-120	22	30
trans-1,2-Dichloroethene	1 U	16.86	17.45	18.55	21.86	103	118	80-125	22	30
1,2-Dichloropropane	1 U	16.86	16	18.55	19.82	95	107	76-120	21	30
cis-1,3-Dichloropropene	1 U	16.86	15.41	18.55	18.93	91	102	66-120	21	30
trans-1,3-Dichloropropene	1 U	16.86	15.09	18.55	19.05	89	103	63-124	23	30
Ethylbenzene	1 U	16.86	16.59	18.55	20.71	98	112	74-120	22	30
Freon 113	2 U	16.86	17.94	18.55	22.05	106	119	64-135	21	30
2-Hexanone	3 U	84.32	104.33	92.76	147.93	124	159*	54-140	35*	30
Isopropylbenzene	1 U	16.86	16.5	18.55	19.22	98	104	69-123	15	30
Methyl Acetate	2 U	16.86	16.68	18.55	24.32	99	131	59-134	37*	30
Methyl Tertiary Butyl Ether	0.5 U	16.86	16.19	18.55	18.85	96	102	66-123	15	30
4-Methyl-2-pentanone	3 U	84.32	97.43	92.76	128.46	116	138*	61-135	27	30
Methylcyclohexane	1 U	16.86	16.34	18.55	19.35	97	104	61-124	17	30
Methylene Chloride	2 U	16.86	15.64	18.55	18.62	93	100	76-122	17	30
Styrene	1 U	16.86	8.48	18.55	8.68	50*	47	76-120	2	30
1,1,2,2-Tetrachloroethane	1 U	16.86	20.14	18.55	25.02	119	135*	61-131	22	30
Tetrachloroethene	1 U	16.86	19.15	18.55	23.73	114	128*	73-120	21	30
Toluene	1 U	16.86	17.6	18.55	22.95	104	124*	80-120	26	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,2,3-Trichlorobenzene	1 U	16.86	12.35	18.55	10.39	73	56	44-155	17	30
1,2,4-Trichlorobenzene	1 U	16.86	11.7	18.55	10.59	69	57	56-130	10	30
1,1,1-Trichloroethane	1 U	16.86	18.02	18.55	22.48	107	121	69-123	22	30
1,1,2-Trichloroethane	1 U	16.86	18.82	18.55	23.1	112	125*	80-120	20	30
Trichloroethene	1 U	16.86	17.12	18.55	21.25	102	115	80-120	22	30
Trichlorofluoromethane	2 U	16.86	18.03	18.55	21.87	107	118	55-134	19	30
Vinyl Chloride	1 U	16.86	17.34	18.55	21.14	103	114	59-120	20	30
m+p-Xylene	1 U	33.73	33.5	37.1	40.64	99	110	80-120	19	30
o-Xylene	1 U	16.86	15.89	18.55	18.86	94	102	75-120	17	30
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: 18067SLA026	Sample number(s): 9491694-9491697,9491699-9491701 UNSPK: 9491695									
Acenaphthene	3 U	1652.35	1638.3	1657.28	1650.12	99	100	78-119	1	30
Acenaphthylene	3 U	1652.35	1710.32	1657.28	1662.46	104	100	45-149	3	30
Acetophenone	17 U	1652.35	1471.21	1657.28	1437.79	89	87	68-115	2	30
Anthracene	4.21	1652.35	1632.55	1657.28	1663.98	99	100	82-113	2	30
Atrazine	33 U	1652.35	1487.07	1657.28	1485.45	90	90	58-126	0	30
Benzaldehyde	66 U	1652.35	1399.35	1657.28	1374.01	85	83	18-123	2	30
Benzo(a)anthracene	18.96	1652.35	1625.31	1657.28	1730.06	97	103	76-119	6	30
Benzo(a)pyrene	16.24	1652.35	1673.49	1657.28	1796.46	100	107	77-112	7	30
Benzo(b)fluoranthene	22.13	1652.35	1815.06	1657.28	1937.26	109	116	78-120	7	30
Benzo(g,h,i)perylene	12.66	1652.35	1636.04	1657.28	1749.24	98	105	76-111	7	30
Benzo(k)fluoranthene	11.35	1652.35	1485.08	1657.28	1609.16	89	96	78-119	8	30
1,1'-Biphenyl	17 U	1652.35	1564.7	1657.28	1551.72	95	94	78-115	1	30
4-Bromophenyl-phenylether	17 U	1652.35	1659.44	1657.28	1610.66	100	97	81-116	3	30
Butylbenzylphthalate	66 U	1652.35	1568.28	1657.28	1556.53	95	94	81-118	1	30
Di-n-butylphthalate	66 U	1652.35	1608.74	1657.28	1589.76	97	96	77-121	1	30
Caprolactam	33 U	1652.35	1456.37	1657.28	1398.6	88	84	63-121	4	30
Carbazole	17 U	1652.35	1658.24	1657.28	1710.33	100	103	74-118	3	30
4-Chloro-3-methylphenol	17 U	1652.35	1513.28	1657.28	1442.2	92	87	70-128	5	30
4-Chloroaniline	33 U	1652.35	1057.67	1657.28	1085.93	64	66	10-117	3	30
bis(2-Chloroethoxy)methane	17 U	1652.35	1534.57	1657.28	1464.72	93	88	72-117	5	30
bis(2-Chloroethyl)ether	17 U	1652.35	1518.7	1657.28	1432.04	92	86	68-115	6	30
2-Chloronaphthalene	7 U	1652.35	1442.26	1657.28	1413.94	87	85	51-150	2	30
2-Chlorophenol	17 U	1652.35	1455.36	1657.28	1406.49	88	85	75-124	3	30
4-Chlorophenyl-phenylether	17 U	1652.35	1534.97	1657.28	1524.24	93	92	79-112	1	30
2,2'-oxybis(1-Chloropropane)	17 U	1652.35	1401.48	1657.28	1372.2	85	83	61-120	2	30
Chrysene	21.83	1652.35	1554.41	1657.28	1681.59	93	100	78-115	8	30
Dibenz(a,h)anthracene	6.36	1652.35	1660.56	1657.28	1679.98	100	101	79-117	1	30
Dibenzofuran	17 U	1652.35	1578.94	1657.28	1613.64	96	97	79-114	2	30
3,3'-Dichlorobenzidine	99 U	1652.35	1171.41	1657.28	1191.77	71	72	33-117	2	30
2,4-Dichlorophenol	17 U	1652.35	1573.46	1657.28	1537.41	95	93	79-125	2	30
Diethylphthalate	66 U	1652.35	1505.53	1657.28	1485.89	91	90	74-120	1	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
2,4-Dimethylphenol •	17 U	1652.35	973.94	1657.28	853.06	59	51* MJ	56-107	13	30
Dimethylphthalate	66 U	1652.35	1514.98	1657.28	1487.18	92	90	77-116	2	30
4,6-Dinitro-2-methylphenol	170 U	1652.35	1087.64	1657.28	1222.7	66* MJ	74	73-127	12	30
2,4-Dinitrophenol	300 U	3304.69	1138.3	3314.55	1595.82	34*	48* MJ	51-139	33*	30
2,4-Dinitrotoluene	66 U	1652.35	1545.85	1657.28	1536.9	94	93	78-123	1	30
2,6-Dinitrotoluene	17 U	1652.35	1534.63	1657.28	1578.35	93	95	80-120	3	30
1,4-Dioxane	99 U	1652.35	1066.47	1657.28	943.44	65	57	37-87	12	30
bis(2-Ethylhexyl)phthalate	66 U	1652.35	1584.15	1657.28	1579.05	96	95	78-118	0	30
Fluoranthene	34.97	1652.35	1804.29	1657.28	2289.46	107	136* J	76-115	24	30
Fluorene	3 U	1652.35	1568.53	1657.28	1612.3	95	97	80-112	3	30
Hexachlorobenzene	3 U	1652.35	1607.79	1657.28	1585.08	97	96	77-114	1	30
Hexachlorobutadiene	17 U	1652.35	1789.18	1657.28	1674.59	108	101	75-115	7	30
Hexachlorocyclopentadiene	170 U	3304.69	1725.57	3314.55	2101.48	52	63	10-172	20	30
Hexachloroethane	33 U	1652.35	1496.11	1657.28	1438.34	91	87	72-111	4	30
Indeno(1,2,3-cd)pyrene	11.26	1652.35	1649.78	1657.28	1710.98	99	103	78-113	4	30
Isophorone	17 U	1652.35	1531.69	1657.28	1468.59	93	89	65-120	4	30
2-Methylnaphthalene	3 U	1652.35	1666.56	1657.28	1608.54	101	97	77-116	4	30
2-Methylphenol	17 U	1652.35	1285.45	1657.28	1218.57	78	74	74-128	5	30
4-Methylphenol	17 U	1652.35	1392.99	1657.28	1345.55	84	81	66-121	3	30
Naphthalene	4.79	1652.35	1640.85	1657.28	1654.82	99	100	81-111	1	30
2-Nitroaniline	17 U	1652.35	1661.42	1657.28	1664.62	101	100	81-126	0	30
3-Nitroaniline	66 U	1652.35	1328.3	1657.28	1369.17	80	83	68-124	3	30
4-Nitroaniline	66 U	1652.35	1369.88	1657.28	1420.16	83	86	50-112	4	30
Nitrobenzene	17 U	1652.35	1549.96	1657.28	1506.3	94	91	70-122	3	30
2-Nitrophenol	17 U	1652.35	1386.55	1657.28	1548.83	84	93	77-129	11	30
4-Nitrophenol	170 U	1652.35	1361.21	1657.28	1393	82	84	44-131	2	30
N-Nitroso-di-n-propylamine	17 U	1652.35	1374.32	1657.28	1361.63	83	82	60-123	1	30
N-Nitrosodiphenylamine	17 U	1652.35	1507	1657.28	1474.19	91	89	83-118	2	30
Di-n-octylphthalate	66 U	1652.35	1763.42	1657.28	1748.07	107	105	81-134	1	30
Pentachlorophenol •	33 U	1652.35	875.4	1657.28	810.47	53*	49* MJ	54-131	8	30
Phenanthrene	27.77	1652.35	1786.25	1657.28	2371.43	106	141* J	81-109	28	30
Phenol	17 U	1652.35	1352.08	1657.28	1338.65	82	81	68-123	1	30
Pyrene	33.17	1652.35	1810.96	1657.28	2133.09	108*	127* J	80-107	16	30
1,2,4,5-Tetrachlorobenzene	17 U	1652.35	1642.98	1657.28	1599.24	99	96	76-116	3	30
2,3,4,6-Tetrachlorophenol •	66 U	1652.35	1143.32	1657.28	1091.33	69*	66* MJ	73-127	5	30
2,4,5-Trichlorophenol	17 U	1652.35	1475.99	1657.28	1458.76	89	88	84-122	1	30
2,4,6-Trichlorophenol •	17 U	1652.35	1245.97	1657.28	1238.39	75*	75* MJ	81-123	1	30
	ng/g	ng/g	ng/g	ng/g	ng/g					
Batch number: 18067010	Sample number(s): 9491688-9491692,9491694-9491697,9491699-9491701 UNSPK: 9491695									
Perfluorobutanesulfonate	0.424	1.08	1.24	1.19	1.24	76	69* J	70-130	0	30
Perfluorobutanoic acid	0.765	1.23	1.69	1.35	1.75	75	73	70-130	4	30
Perfluorodecanoic acid	0.925	1.23	2.87	1.35	1.73	159*	60*	70-130	50* J	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorododecanoic acid	0.500	1.23	1.48	1.35	1.53	80	77	70-130	3	30
Perfluoroheptanoic acid	0.651	1.23	1.84	1.35	1.85	97	89	70-130	1	30
Perfluorohexanesulfonate	0.456	1.16	1.33	1.27	1.42	75	75	70-130	6	30
Perfluorohexanoic acid	0.586	1.23	1.69	1.35	1.56	90	72	70-130	8	30
Perfluorononanoic acid	0.731	1.23	2.41	1.35	1.72	137* J	74	70-130	33* J	30
Perfluoro-octanesulfonate	0.566	1.17	1.36	1.29	1.58	68* J	79	70-130	15	30
Perfluorooctanoic acid	12.51	1.23	33.86	1.35	12.05	1743 (2)	-33 (2)	70-130	95* J	30
Perfluoropentanoic acid	0.536	1.23	1.60	1.35	1.60	87	79	70-130	0	30
Perfluorotetradecanoic acid	0.415	1.23	1.40	1.35	1.48	81	79	70-130	5	30
Perfluorotridecanoic acid	0.465	1.23	1.54	1.35	1.48	88	75	70-130	4	30
Perfluoroundecanoic acid	0.452	1.23	1.57	1.35	1.57	91	83	70-130	0	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 180671063702	Sample number(s): 9491694-9491701 UNSPK: 9491695									
Aluminum	12036.27	198.02	13420.19	200	14997.64	699 (2)	1481 (2)	75-125	11	20
Calcium	12980.76	396.04	11744.89	400	14136.04	-312 (2)	289 (2)	75-125	18	20
Iron	46257.75	99.01	31532.11	100	36906.47	-14873 (2)	-9351 (2)	75-125	16	20
Magnesium	8259.07	198.02	7720.81	200	8784.81	-272 (2)	263 (2)	75-125	13	20
Manganese	2173.51	49.5	978.4	50	1175.77	-2414 (2)	-1995 (2)	75-125	18	20
Potassium	1254.44	990.1	3065.86	1000	3264.49	183*	201* J	75-125	6	20
Sodium	80.08	990.1	1074.32	1000	1072.12	100	99	75-125	0	20
Zinc	174.59	49.5	158.12	50	180	-33*	11* J	75-125	13	20
Batch number: 180671063702A	Sample number(s): 9491694-9491701 UNSPK: 9491695									
Antimony	0.348	1.19	1.21	1.20	1.32	72* J	81	75-125	9	20
Arsenic	8.97	1.98	3.82	2.00	12.69	-260 (2)	186 (2)	75-125	107*	20
Beryllium	0.920	0.792	0.955	0.800	1.68	4*	95	75-125	55*	20
Cadmium	0.932	0.990	1.03	1.00	2.25	10*	32* J	75-125	74*	20
Chromium	13.98	9.90	13.56	10	22.02	-4* J	80	75-125	48*	20
Cobalt	74.58	49.5	54.4	50	114.57	-41* J	80	75-125	71*	20
Copper	42.07	9.90	14.04	10	52.13	-283 (2)	101 (2)	75-125	115*	20
Lead	16.21	2.97	6.11	3.00	17.74	-340 (2)	51 (2)	75-125	98*	20
Nickel	101.22	9.90	18.5	10	116.01	-835 (2)	148 (2)	75-125	145*	20
Silver	0.224	9.90	9.68	10	10.5	96	103	75-125	8	20
Thallium	0.169	0.396	0.418	0.400	0.479	63* J	78	75-125	14	20
Vanadium	13.3	9.90	13.95	10	23.05	7* J	98	75-125	49*	20
Batch number: 180671063702B	Sample number(s): 9491694-9491701 UNSPK: 9491695									
Selenium	0.288	1.98	2.10	2.00	2.26	92	99	75-125	7	20
Batch number: 180671063702D	Sample number(s): 9491694-9491701 UNSPK: 9491695									
Barium	117.98	9.90	25.23	10	126.78	-937 (2)	88 (2)	75-125	134* J	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 180671063801	Sample number(s): 9491694-9491701 UNSPK: 9491695									
Mercury	0.0458	0.159	0.179	0.164	0.183	84	84	80-120	3	20

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD		DUP RPD Max	
Batch number: 180671063702	Sample number(s): 9491694-9491701 BKG: 9491695					
Aluminum	12036.27	10962.38	9		20	
Calcium	12980.76	8821.31	38*		20	
Iron	46257.75	35203.7	27*	J	20	
Magnesium	8259.07	5698.53	37*		20	
Manganese	2173.51	1243.24	54*		20	
Potassium	1254.44	1124.54	11		20	
Sodium	80.08	63.5	23* (1)		20	log = .196 no qual
Zinc	174.59	124.87	33*	J	20	
Batch number: 180671063702A	Sample number(s): 9491694-9491701 BKG: 9491695					
Antimony	0.348	0.255	31* (1)		20	log = .391 no qual
Arsenic	8.97	7.41	19		20	
Beryllium	0.920	0.672	31* (1)		20	= .196 diff = .248 no qual
Cadmium	0.932	0.602	43* (1)		20	= .196 = .332 no qual
Chromium	13.98	10.72	26*		20	
Cobalt	74.58	40.2	60*	J	20	
Copper	42.07	26.53	45*		20	
Lead	16.21	14.49	11		20	
Nickel	101.22	62.28	48*	J	20	
Silver	0.224	0.156	36* (1)		20	= .196 diff = .068 no qual
Thallium	0.169	0.118	36* (1)		20	= .196 no qual
Vanadium	13.3	11.86	11		20	
Batch number: 180671063702B	Sample number(s): 9491694-9491701 BKG: 9491695					
Selenium	0.288	0.221	26* (1)		20	= .784 no qual
Batch number: 180671063702D	Sample number(s): 9491694-9491701 BKG: 9491695					
Barium	117.98	69.75	51*	J	20	
Batch number: 180671063801	Sample number(s): 9491694-9491701 BKG: 9491695					
Mercury	0.0458	0.0549	18 (1)		20	

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc Std. Units	DUP Conc Std. Units	DUP RPD	DUP RPD Max
Batch number: 18069039401B	Sample number(s): 9491688-9491692,9491694-9491695,9491698-9491700 BKG: 9491695			
pH	8.05	8.04	0	3
Batch number: 18069039402A	Sample number(s): 9491701 BKG: P494055			
pH	11.74	11.72	0	3
	%	%		
Batch number: 18067820004B	Sample number(s): 9491688-9491692,9491694-9491701 BKG: 9491695, P491695			
Moisture	13.05	12.51	4	5
Moisture	13.05	12.51	4	5
Moisture Duplicate	13.05	12.51	4	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SOM02.2 Volatiles
Batch number: X180671AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9491694	103	105	99	96
9491695	96	100	100	91
9491696	99	100	103	92
9491697	98	101	105	89
9491699	97	103	98	93
9491700	100	102	102	89
9491701	101	101	100	92
Blank	102	103	99	96
LCS	103	101	99	98
LCSD	102	100	100	98
MS	99	100	103	92
MSD	98	101	105	89
Limits:	50-141	54-135	52-141	50-131

Analysis Name: TCL Semivolatiles
Batch number: 18067SLA026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
9491694	81	87	90	84	90	88
9491695	59	58	43	77	82	79
9491696	79	82	67	86	89	90
9491697	79	81	64	85	88	88

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TCL Semivolatiles
Batch number: 18067SLA026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
9491699	74	77	81	81	89	94
9491700	79	80	80	81	88	84
9491701	58	53	50	76	81	80
Blank	81	89	100	88	93	95
LCS	88	96	99	89	96	94
MS	79	82	67	86	89	90
MSD	79	81	64	85	88	88
Limits:	46-125	51-123	27-137	49-118	57-116	55-118

Analysis Name: 14 PFAS Compounds
Batch number: 18067009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9491674	97	87	91	90	88	93
9491675	100	92	101	98	96	103
9491676	106	93	101	92	89	101
9491677	104	97	99	105	103	107
9491679	98	88	98	92	85	94
9491680	96	88	97	97	98	102
9491682	109	97	107	113	112	118
9491684	101	95	100	108	104	99
9491685	108	102	108	108	105	109
9491686	107	97	103	111	96	100
9491687	100	93	97	94	90	98
9491693	91	86	89	88	86	91
9491702	85	76	84	78	81	81
Blank	105	96	101	100	100	108
LCS	101	97	100	105	100	109
LCSD	113	102	107	112	116	118
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9491674	97	99	99	103	82	88
9491675	102	101	106	97	89	84
9491676	101	118* UJ	119	109	102	94
9491677	103	106	113	112	119	110
9491679	91	101	130	100	87	89
9491680	100	101	124	94	89	87
9491682	101	119* UJ	130	111	125	109
9491684	112	105	131	104	93	91
9491685	110	112	159* UJ	117* UJ	89	92

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFAS Compounds
Batch number: 18067009

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9491686	108	118* UJ	148* UJ	110	73	82
9491687	104	98	105	99	84	88
9491693	86	88	88	92	100	86
9491702	82	82	91	79	77	77
Blank	104	104	104	109	98	103
LCS	105	101	94	95	85	89
LCSD	116*	110	107	123*	104	101
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9491674	76
9491675	81
9491676	91
9491677	94
9491679	82
9491680	86
9491682	106
9491684	93
9491685	101
9491686	76
9491687	84
9491693	86
9491702	67
Blank	90
LCS	79
LCSD	95
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 18067010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9491688	56	54* UJ	54	59	55	60
9491689	48	UJ 47*	50	47	52	52
9491690	58	59* UJ	52	59	59	61
9491691	55	UJ 56*	57	60	65	64
9491692	48	46* UJ	46	48	51	50
9491694	50	J 51*	58	53	65	52
9491695	46	45* J	45	45	50	47
MS 9491696	52	49*	49	54	54	55
MSD 9491697	49	46*	48	51	50	51

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18067010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9491699	59	57*	57	58	63	64
9491700	47	45*	48	46	51	45
9491701	43	42*	44	44	51	47
Blank	61	59*	56	65	63	64
LCS	60	53*	45	60	60	64
MS	52	49*	49	54	54	55
MSD	49	46*	48	51	50	51
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9491688	53	60	58	59	66	62
9491689	52	57	47	48	49	50
9491690	58	59	67	66	68	64
9491691	55	63	55	60	57	57
9491692	50	50	48	54	53	51
9491694	53	56	44	53	53	55
9491695	44	45	42	50	54	51
MS 9491696	54	59	50	53	54	52
MSD 9491697	51	51	50	50	58	52
9491699	61	61	54	59	60	55
9491700	50	55	51	48	48	46
9491701	47	51	46	46	44	45
Blank	61	65	63	67	68	67
LCS	59	64	64	65	65	61
MS	54	59	50	53	54	52
MSD	51	51	50	50	58	52
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9491688	62
9491689	54
9491690	71
9491691	60
9491692	54
9491694	54
9491695	53
MS 9491696	57
MSD 9491697	52
9491699	59
9491700	46

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/09/2018 12:06

Group Number: 1916534

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18067010

	13C2-PFTeDA
9491701	47
Blank	65
LCS	63
MS	57
MSD	52
Limits:	20-127

Analysis Name: 14 PFAS Compounds
Batch number: 18073001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9491678	71	71	66	76	74	73
9491681	77	79	76	80	75	79
9491683	78	75	72	86	82	90
Blank	69	66	62	68	65	71
LCS	67	68	62	66	66	71
LCSD	72	70	66	70	70	75
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9491678	73	69	80	71	71	69
9491681	80	71	86	83	83	79
9491683	77	76	85	73	42	43
Blank	71	69	71	70	75	72
LCS	69	67	72	66	72	69
LCSD	71	75	80	70	79	69
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9491678	72
9491681	85
9491683	61
Blank	70
LCS	68
LCSD	74
Limits:	26-119

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Sample Description: SG3a-LTB01-180305 Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/05/2018
SDG#: SNB95-01TB

C. T. Male Associates
ELLE Sample #: WW 9491674
ELLE Group #: 1916534
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18067009	03/10/2018 12:26	Joshua P Trost	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18067009	03/08/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-FTB01-180305 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/05/2018 09:25
SDG#: SNB95-02TB

C. T. Male Associates
ELLE Sample #: WW 9491675
ELLE Group #: 1916534
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18067009	03/10/2018 12:46	Joshua P Trost	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18067009	03/08/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB01-180305 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/05/2018 12:55
SDG#: SNB95-03RB

C. T. Male Associates
ELLE Sample #: WW 9491676
ELLE Group #: 1916534
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	0.7 J	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

3.5

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18067009	03/10/2018 13:07	Joshua P Trost	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18067009	03/08/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB02-180305 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/05/2018 13:00
SDG#: SNB95-04RB

C. T. Male Associates
ELLE Sample #: WW 9491677
ELLE Group #: 1916534
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.4** J 2.0	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18067009	03/10/2018 13:27	Joshua P Trost	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18067009	03/08/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-RB03-180305 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/05/2018 13:05
SDG#: SNB95-05RB

C. T. Male Associates
ELLE Sample #: WW 9491678
ELLE Group #: 1916534
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18073001	03/15/2018 15:32	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	18073001	03/14/2018 09:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB04-180305 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/05/2018 13:10
SDG#: SNB95-06RB

C. T. Male Associates
ELLE Sample #: WW 9491679
ELLE Group #: 1916534
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	0.7 J	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18067009	03/10/2018 14:08	Joshua P Trost	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18067009	03/08/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB05-180305 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/05/2018 13:15
SDG#: SNB95-07RB

C. T. Male Associates
ELLE Sample #: WW 9491680
ELLE Group #: 1916534
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	1 S	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18067009	03/10/2018 14:29	Joshua P Trost	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18067009	03/08/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB06-180305 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/05/2018 14:20
SDG#: SNB95-08RB

C. T. Male Associates
ELLE Sample #: WW 9491681
ELLE Group #: 1916534
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	5	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

25

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18073001	03/15/2018 15:53	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	18073001	03/14/2018 09:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB07-180305 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/05/2018 15:30
SDG#: SNB95-09RB

C. T. Male Associates
ELLE Sample #: WW 9491682
ELLE Group #: 1916534
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**4**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**4**	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**280**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18067009	03/10/2018 15:10	Joshua P Trost	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18067009	03/08/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB01-180306 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 08:45
SDG#: SNB95-10RB

C. T. Male Associates
ELLE Sample #: WW 9491683
ELLE Group #: 1916534
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**6**	0.9	2	1
14473	**Perfluorododecanoic acid**	307-55-1	**8**	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.4 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**1 J**	0.4	2	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**0.6 J**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**150**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	**Perfluorotetradecanoic acid**	376-06-7	**2**	0.3	0.9	1
14473	**Perfluorotridecanoic acid**	72629-94-8	**3**	0.3	0.9	1
14473	**Perfluoroundecanoic acid**	2058-94-8	**4**	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18073001	03/15/2018 16:13	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	18073001	03/14/2018 09:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB02-180306 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 09:25
SDG#: SNB95-11RB

C. T. Male Associates
ELLE Sample #: WW 9491684
ELLE Group #: 1916534
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**19**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18067009	03/10/2018 16:32	Joshua P Trost	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18067009	03/08/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB03-180306 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 10:00
SDG#: SNB95-12RB

C. T. Male Associates
ELLE Sample #: WW 9491685
ELLE Group #: 1916534
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	**Perfluorododecanoic acid**	307-55-1	**0.4 J**	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.5 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**81**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18067009	03/10/2018 16:53	Joshua P Trost	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18067009	03/08/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB04-180306 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 11:35
SDG#: SNB95-13RB

C. T. Male Associates
ELLE Sample #: WW 9491686
ELLE Group #: 1916534
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.7 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

Sample injection internal peak area was outside of QC acceptance limits. Since the result is high and the recovery for the labeled compounds used as extraction standards are within QC acceptance limits, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18067009	03/10/2018 17:13	Joshua P Trost	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18067009	03/08/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB05-180306 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 13:45
SDG#: SNB95-14RB

C. T. Male Associates
ELLE Sample #: WW 9491687
ELLE Group #: 1916534
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**2**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18067009	03/10/2018 17:34	Joshua P Trost	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18067009	03/08/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3a-SB18-01-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 12:30
SDG#: SNB95-15

C. T. Male Associates
ELLE Sample #: SW 9491688
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.63	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.33 J**	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.63	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.38 J**	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.63	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.21 J**	0.21	0.63	1
14027	Perfluorononanoic acid	375-95-1	0.21 U	0.21	0.63	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.94	1
14027	**Perfluorooctanoic acid**	335-67-1	**33**	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.84**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**5.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18067010	03/15/2018 19:59	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18067010	03/08/2018 15:35	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18069039401B	03/10/2018 12:30	Luz M Groff	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-SB18-01-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 12:30
SDG#: SNB95-15

C. T. Male Associates
ELLE Sample #: SW 9491688
ELLE Group #: 1916534
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18067820004B	03/08/2018 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-01-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 12:35
SDG#: SNB95-16

C. T. Male Associates
ELLE Sample #: SW 9491689
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.18 U	0.18	0.55	1
14027	Perfluorononanoic acid	375-95-1	0.18 U	0.18	0.55	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.82	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.77**	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.55	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.02**	0.0100	0.0100	1
	The pH was measured in water at 20.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**18.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18067010	03/16/2018 07:17	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18067010	03/08/2018 15:35	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18069039401B	03/10/2018 12:30	Luz M Groff	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-SB18-01-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 12:35
SDG#: SNB95-16

C. T. Male Associates
ELLE Sample #: SW 9491689
ELLE Group #: 1916534
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18067820004B	03/08/2018 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-01-15.0-20.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 12:40
SDG#: SNB95-17

C. T. Male Associates
ELLE Sample #: SW 9491690
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.25 U	0.25	0.74	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.38 J**	0.25	0.74	1
14027	Perfluorodecanoic acid	335-76-2	0.25 U	0.25	0.74	1
14027	Perfluorododecanoic acid	307-55-1	0.25 U	0.25	0.74	1
14027	Perfluoroheptanoic acid	375-85-9	0.25 U	0.25	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.25 U	0.25	0.74	1
14027	Perfluorohexanoic acid	307-24-4	0.25 U	0.25	0.74	1
14027	Perfluorononanoic acid	375-95-1	0.25 U	0.25	0.74	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.37 U	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.1**	0.25	0.74	1
14027	Perfluoropentanoic acid	2706-90-3	0.25 U	0.25	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25 U	0.25	0.74	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25 U	0.25	0.74	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25 U	0.25	0.74	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.83**	0.0100	0.0100	1
	The pH was measured in water at 20.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**18.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18067010	03/15/2018 20:40	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18067010	03/08/2018 15:35	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18069039401B	03/10/2018 12:30	Luz M Groff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-01-15.0-20.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 12:40
SDG#: SNB95-17

C. T. Male Associates
ELLE Sample #: SW 9491690
ELLE Group #: 1916534
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18067820004B	03/08/2018 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3a-SB18-01-8.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 12:45
SDG#: SNB95-18

C. T. Male Associates
ELLE Sample #: SW 9491691
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.24 U	0.24	0.71	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.43 J**	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24 U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24 U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24 U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24 U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.24 U	0.24	0.71	1
14027	Perfluorononanoic acid	375-95-1	0.24 U	0.24	0.71	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.24 U	0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24 U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24 U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24 U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24 U	0.24	0.71	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.04**	0.0100	0.0100	1
	The pH was measured in water at 21 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**17.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18067010	03/16/2018 07:38	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18067010	03/08/2018 15:35	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18069039401B	03/10/2018 12:30	Luz M Groff	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-SB18-01-8.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 12:45
SDG#: SNB95-18

C. T. Male Associates
ELLE Sample #: SW 9491691
ELLE Group #: 1916534
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18067820004B	03/08/2018 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-01-21.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 12:50
SDG#: SNB95-19

C. T. Male Associates
ELLE Sample #: SW 9491692
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.24 U	0.24	0.71	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.34 J**	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24 U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24 U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24 U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24 U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.24 U	0.24	0.71	1
14027	Perfluorononanoic acid	375-95-1	0.24 U	0.24	0.71	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35 U	0.35	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.4**	0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24 U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24 U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24 U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24 U	0.24	0.71	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.63**	0.0100	0.0100	1
	The pH was measured in water at 20.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**19.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18067010	03/15/2018 21:21	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18067010	03/08/2018 15:35	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18069039401B	03/10/2018 12:30	Luz M Groff	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-SB18-01-21.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 12:50
SDG#: SNB95-19

C. T. Male Associates
ELLE Sample #: SW 9491692
ELLE Group #: 1916534
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18067820004B	03/08/2018 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-RB06-180306 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 15:10
SDG#: SNB95-20RB

C. T. Male Associates
ELLE Sample #: WW 9491693
ELLE Group #: 1916534
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**2**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**170**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18067009	03/10/2018 17:54	Joshua P Trost	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18067009	03/08/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:35
SDG#: SNB95-21

C. T. Male Associates
ELLE Sample #: SW 9491694
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	**Acetone**	67-64-1	**27**	6	19	0.89
11995	Benzene	71-43-2	0.5 U	0.5	5	0.89
11995	Bromochloromethane	74-97-5	0.9 U	0.9	5	0.89
11995	Bromodichloromethane	75-27-4	0.9 U	0.9	5	0.89
11995	Bromoform	75-25-2	0.9 U	0.9	5	0.89
11995	Bromomethane	74-83-9	2 U	2	5	0.89
11995	2-Butanone	78-93-3	4 U	4	9	0.89
11995	Carbon Disulfide	75-15-0	0.9 U	0.9	5	0.89
11995	Carbon Tetrachloride	56-23-5	0.9 U	0.9	5	0.89
11995	Chlorobenzene	108-90-7	0.9 U	0.9	5	0.89
11995	Chloroethane	75-00-3	2 U	2	5	0.89
11995	Chloroform	67-66-3	0.9 U	0.9	5	0.89
11995	Chloromethane	74-87-3	2 U	2	5	0.89
11995	Cyclohexane	110-82-7	0.9 U	0.9	5	0.89
11995	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	0.89
11995	Dibromochloromethane	124-48-1	0.9 U	0.9	5	0.89
11995	1,2-Dibromoethane	106-93-4	0.9 U	0.9	5	0.89
11995	1,2-Dichlorobenzene	95-50-1	0.9 U	0.9	5	0.89
11995	1,3-Dichlorobenzene	541-73-1	0.9 U	0.9	5	0.89
11995	1,4-Dichlorobenzene	106-46-7	0.9 U	0.9	5	0.89
11995	Dichlorodifluoromethane	75-71-8	2 U	2	5	0.89
11995	1,1-Dichloroethane	75-34-3	0.9 U	0.9	5	0.89
11995	1,2-Dichloroethane	107-06-2	0.9 U	0.9	5	0.89
11995	1,1-Dichloroethene	75-35-4	0.9 U	0.9	5	0.89
11995	cis-1,2-Dichloroethene	156-59-2	0.9 U	0.9	5	0.89
11995	trans-1,2-Dichloroethene	156-60-5	0.9 U	0.9	5	0.89
11995	1,2-Dichloropropane	78-87-5	0.9 U	0.9	5	0.89
11995	cis-1,3-Dichloropropene	10061-01-5	0.9 U	0.9	5	0.89
11995	trans-1,3-Dichloropropene	10061-02-6	0.9 U	0.9	5	0.89
11995	Ethylbenzene	100-41-4	0.9 U	0.9	5	0.89
11995	Freon 113	76-13-1	2 U	2	9	0.89
11995	2-Hexanone	591-78-6	3 U	3	9	0.89
11995	Isopropylbenzene	98-82-8	0.9 U	0.9	5	0.89
11995	Methyl Acetate	79-20-9	2 U	2	5	0.89
11995	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	5	0.89
11995	4-Methyl-2-pentanone	108-10-1	3 U	3	9	0.89
11995	Methylcyclohexane	108-87-2	0.9 U	0.9	5	0.89
11995	Methylene Chloride	75-09-2	2 U	2	5	0.89
11995	Styrene	100-42-5	0.9 U	0.9	5	0.89
11995	1,1,2,2-Tetrachloroethane	79-34-5	0.9 U	0.9	5	0.89
11995	Tetrachloroethene	127-18-4	0.9 U	0.9	5	0.89

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-SB18-02-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:35
SDG#: SNB95-21

C. T. Male Associates
ELLE Sample #: SW 9491694
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**	**ug/kg**	**ug/kg**	
11995	Toluene	108-88-3	0.9 U	0.9	5	0.89
11995	1,2,3-Trichlorobenzene	87-61-6	0.9 U	0.9	5	0.89
11995	1,2,4-Trichlorobenzene	120-82-1	0.9 U	0.9	5	0.89
11995	1,1,1-Trichloroethane	71-55-6	0.9 U	0.9	5	0.89
11995	1,1,2-Trichloroethane	79-00-5	0.9 U	0.9	5	0.89
11995	Trichloroethene	79-01-6	0.9 U	0.9	5	0.89
11995	Trichlorofluoromethane	75-69-4	2 U	2	5	0.89
11995	Vinyl Chloride	75-01-4	0.9 U	0.9	5	0.89
11995	m+p-Xylene	179601-23-1	0.9 U	0.9	5	0.89
11995	o-Xylene	95-47-6	0.9 U	0.9	5	0.89
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**	**ug/kg**	**ug/kg**	
10726	Acenaphthene	83-32-9	3 U	3	18	1
10726	**Acenaphthylene**	208-96-8	**4 J**	3	18	1
10726	Acetophenone	98-86-2	17 U	17	35	1
10726	**Anthracene**	120-12-7	**9 J**	3	18	1
10726	Atrazine	1912-24-9	35 U	35	170	1
10726	Benzaldehyde	100-52-7	70 U	70	170	1
10726	**Benzo(a)anthracene**	56-55-3	**28**	3	18	1
10726	**Benzo(a)pyrene**	50-32-8	**29**	3	18	1
10726	**Benzo(b)fluoranthene**	205-99-2	**42**	3	18	1
10726	**Benzo(g,h,i)perylene**	191-24-2	**23**	3	18	1
10726	**Benzo(k)fluoranthene**	207-08-9	**17 J**	3	18	1
10726	1,1'-Biphenyl	92-52-4	17 U	17	35	1
10726	4-Bromophenyl-phenylether	101-55-3	17 U	17	35	1
10726	Butylbenzylphthalate	85-68-7	70 U	70	170	1
10726	Di-n-butylphthalate	84-74-2	70 U	70	170	1
10726	Caprolactam	105-60-2	35 U	35	170	1
10726	Carbazole	86-74-8	17 U	17	35	1
10726	4-Chloro-3-methylphenol	59-50-7	17 U	17	35	1
10726	4-Chloroaniline	106-47-8	35 U	35	70	1
10726	bis(2-Chloroethoxy)methane	111-91-1	17 U	17	35	1
10726	bis(2-Chloroethyl)ether	111-44-4	17 U	17	35	1
10726	2-Chloronaphthalene	91-58-7	7 U	7	34	1
10726	2-Chlorophenol	95-57-8	17 U	17	35	1
10726	4-Chlorophenyl-phenylether	7005-72-3	17 U	17	35	1
10726	2,2'-oxybis(1-Chloropropane)	108-60-1	17 U	17	35	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.					
10726	**Chrysene**	218-01-9	**47**	3	18	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:35
SDG#: SNB95-21

C. T. Male Associates
ELLE Sample #: SW 9491694
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg		ug/kg	ug/kg	
10726	**Dibenz(a,h)anthracene**	53-70-3	**7**	**J**	3	18	1
10726	Dibenzofuran	132-64-9	17	U	17	35	1
10726	3,3'-Dichlorobenzidine	91-94-1	100	U	100	350	1
10726	2,4-Dichlorophenol	120-83-2	17	U	17	35	1
10726	Diethylphthalate	84-66-2	70	U	70	170	1
10726	2,4-Dimethylphenol	105-67-9	17	U	17	35	1
10726	Dimethylphthalate	131-11-3	70	U	70	170	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	170	U	170	520	1
10726	2,4-Dinitrophenol	51-28-5	310	U	310	1,000	1
10726	2,4-Dinitrotoluene	121-14-2	70	U	70	170	1
10726	2,6-Dinitrotoluene	606-20-2	17	U	17	35	1
10726	1,4-Dioxane	123-91-1	100	U	100	350	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	70	U	70	180	1
10726	**Fluoranthene**	206-44-0	**52**		3	18	1
10726	**Fluorene**	86-73-7	**3**	**J**	3	18	1
10726	Hexachlorobenzene	118-74-1	3	U	3	18	1
10726	Hexachlorobutadiene	87-68-3	17	U	17	35	1
10726	Hexachlorocyclopentadiene	77-47-4	170	U	170	520	1
10726	Hexachloroethane	67-72-1	35	U	35	170	1
10726	**Indeno(1,2,3-cd)pyrene**	193-39-5	**19**		3	18	1
10726	Isophorone	78-59-1	17	U	17	35	1
10726	**2-Methylnaphthalene**	91-57-6	**12**	**J**	3	18	1
10726	2-Methylphenol	95-48-7	17	U	17	35	1
10726	4-Methylphenol	106-44-5	17	U	17	35	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10726	**Naphthalene**	91-20-3	**9**	**J**	3	18	1
10726	2-Nitroaniline	88-74-4	17	U	17	35	1
10726	3-Nitroaniline	99-09-2	70	U	70	170	1
10726	4-Nitroaniline	100-01-6	70	U	70	170	1
10726	Nitrobenzene	98-95-3	17	U	17	35	1
10726	2-Nitrophenol	88-75-5	17	U	17	35	1
10726	4-Nitrophenol	100-02-7	170	U	170	520	1
10726	N-Nitroso-di-n-propylamine	621-64-7	17	U	17	35	1
10726	N-Nitrosodiphenylamine	86-30-6	17	U	17	35	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10726	Di-n-octylphthalate	117-84-0	70	U	70	170	1
10726	Pentachlorophenol	87-86-5	35	U	35	180	1
10726	**Phenanthrene**	85-01-8	**54**		3	18	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:35
SDG#: SNB95-21

C. T. Male Associates
ELLE Sample #: SW 9491694
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
10726	Phenol	108-95-2	17 U	17	35	1
10726	**Pyrene**	129-00-0	**50**	3	18	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	17 U	17	35	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	70 U	70	170	1
10726	2,4,5-Trichlorophenol	95-95-4	17 U	17	35	1
10726	2,4,6-Trichlorophenol	88-06-2	17 U	17	35	1
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.0**	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.58	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.7**	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	**Perfluorohexanoic acid**	307-24-4	**5.2**	0.19	0.58	1
14027	Perfluorononanoic acid	375-95-1	0.19 U	0.19	0.58	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.87	1
14027	**Perfluorooctanoic acid**	335-67-1	**27**	0.19	0.58	1
14027	**Perfluoropentanoic acid**	2706-90-3	**2.9**	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.58	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals		**SW-846 6010C**	mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**7,160**	6.77	30.3	1
01650	**Calcium**	7440-70-2	**3,380**	2.52	30.3	1
01654	**Iron**	7439-89-6	**19,200**	6.10	30.3	1
01657	**Magnesium**	7439-95-4	**4,290**	1.84	15.1	1
06958	**Manganese**	7439-96-5	**392**	0.0628	0.757	1
01662	**Potassium**	7440-09-7	**986**	12.6	75.7	1
01667	**Sodium**	7440-23-5	**30.5 J**	12.6	151	1
06972	**Zinc**	7440-66-6	**35.1**	0.182	3.03	1
		SW-846 6020A	mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.204 J**	0.0706	0.303	2
06125	**Arsenic**	7440-38-2	**5.38**	0.0969	0.606	2
06126	**Barium**	7440-39-3	**32.2**	0.138	0.606	2
06127	**Beryllium**	7440-41-7	**0.221**	0.0079	0.151	2
06128	**Cadmium**	7440-43-9	**0.0744 J**	0.0260	0.151	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:35
SDG#: SNB95-21

C. T. Male Associates
ELLE Sample #: SW 9491694
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06131	**Chromium**	7440-47-3	**8.41**	0.132	0.606	2
06132	**Cobalt**	7440-48-4	**7.10**	0.0236	0.151	2
06133	**Copper**	7440-50-8	**17.9**	0.0812	0.606	2
06135	**Lead**	7439-92-1	**7.86**	0.0168	0.303	2
06139	**Nickel**	7440-02-0	**15.4**	0.151	0.606	2
06141	**Selenium**	7782-49-2	**0.152 J**	0.0757	0.606	2
06142	**Silver**	7440-22-4	**0.0279 J**	0.0221	0.151	2
06145	**Thallium**	7440-28-0	**0.0401 J**	0.0189	0.151	2
06148	**Vanadium**	7440-62-2	**8.02**	0.0323	0.151	2
	SW-846 7471B		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0104 U	0.0104	0.104	1
Wet Chemistry	**SW-846 9045D modified**		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.08**	0.0100	0.0100	1
	The pH was measured in water at 20.6 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**4.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	SOM02.2 Volatiles	SW-846 8260C	1	X180671AA	03/08/2018 23:32	Patrick T Herres	0.89
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201806749146	03/06/2018 14:35	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201806749146	03/06/2018 14:35	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201806749146	03/06/2018 14:35	Client Supplied	1
10726	TCL Semivolatiles	SW-846 8270D	1	18067SLA026	03/09/2018 11:48	Edward C Monborne	1
10813	BNA Soil Microwave APP IX	SW-846 3546	1	18067SLA026	03/08/2018 19:15	Sally L Appleyard	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18067010	03/16/2018 07:58	Jason W Knight	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3a-SB18-02-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:35
SDG#: SNB95-21

C. T. Male Associates
ELLE Sample #: SW 9491694
ELLE Group #: 1916534
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18067010	03/08/2018 15:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	180671063702	03/12/2018 09:34	Suzanne M Will	1
01650	Calcium	SW-846 6010C	1	180671063702	03/12/2018 09:34	Suzanne M Will	1
01654	Iron	SW-846 6010C	1	180671063702	03/12/2018 09:34	Suzanne M Will	1
01657	Magnesium	SW-846 6010C	1	180671063702	03/12/2018 09:34	Suzanne M Will	1
06958	Manganese	SW-846 6010C	1	180671063702	03/12/2018 09:34	Suzanne M Will	1
01662	Potassium	SW-846 6010C	1	180671063702	03/12/2018 09:34	Suzanne M Will	1
01667	Sodium	SW-846 6010C	1	180671063702	03/12/2018 09:34	Suzanne M Will	1
06972	Zinc	SW-846 6010C	1	180671063702	03/12/2018 09:34	Suzanne M Will	1
06124	Antimony	SW-846 6020A	1	180671063702A	03/12/2018 12:18	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	180671063702A	03/12/2018 12:18	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	180671063702D	03/12/2018 12:18	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	180671063702A	03/12/2018 12:18	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	180671063702A	03/12/2018 12:18	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	180671063702A	03/12/2018 12:18	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	180671063702A	03/12/2018 12:18	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	180671063702A	03/12/2018 12:18	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	180671063702A	03/12/2018 12:18	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	180671063702A	03/12/2018 12:18	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	180671063702B	03/12/2018 12:18	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	180671063702A	03/12/2018 12:18	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	180671063702A	03/12/2018 12:18	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	180671063702A	03/12/2018 12:18	Choon Y Tian	2
00159	Mercury	SW-846 7471B	1	180671063801	03/12/2018 09:35	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	180671063702	03/09/2018 15:45	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	180671063801	03/09/2018 16:40	JoElla L Rice	1
00394	pH	SW-846 9045D modified	1	18069039401B	03/10/2018 12:30	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18067820004B	03/08/2018 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:40
SDG#: SNB95-22BKG

C. T. Male Associates
ELLE Sample #: SW 9491695
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	**Acetone**	67-64-1	**19 J**	9	25	1.07
11995	Benzene	71-43-2	0.6 U	0.6	6	1.07
11995	Bromochloromethane	74-97-5	1 U	1	6	1.07
11995	Bromodichloromethane	75-27-4	1 U	1	6	1.07
11995	Bromoform	75-25-2	1 U	1	6	1.07
11995	Bromomethane	74-83-9	2 U	2	6	1.07
11995	2-Butanone	78-93-3	5 U	5	12	1.07
11995	**Carbon Disulfide**	75-15-0	**7**	1	6	1.07
11995	Carbon Tetrachloride	56-23-5	1 U	1	6	1.07
11995	Chlorobenzene	108-90-7	1 U	1	6	1.07
11995	Chloroethane	75-00-3	2 U	2	6	1.07
11995	Chloroform	67-66-3	1 U	1	6	1.07
11995	Chloromethane	74-87-3	2 U	2	6	1.07
11995	Cyclohexane	110-82-7	1 U	1	6	1.07
11995	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	6	1.07
11995	Dibromochloromethane	124-48-1	1 U	1	6	1.07
11995	1,2-Dibromoethane	106-93-4	1 U	1	6	1.07
11995	1,2-Dichlorobenzene	95-50-1	1 U	1	6	1.07
11995	1,3-Dichlorobenzene	541-73-1	1 U	1	6	1.07
11995	1,4-Dichlorobenzene	106-46-7	1 U	1	6	1.07
11995	Dichlorodifluoromethane	75-71-8	2 U	2	6	1.07
11995	1,1-Dichloroethane	75-34-3	1 U	1	6	1.07
11995	1,2-Dichloroethane	107-06-2	1 U	1	6	1.07
11995	1,1-Dichloroethene	75-35-4	1 U	1	6	1.07
11995	cis-1,2-Dichloroethene	156-59-2	1 U	1	6	1.07
11995	trans-1,2-Dichloroethene	156-60-5	1 U	1	6	1.07
11995	1,2-Dichloropropane	78-87-5	1 U	1	6	1.07
11995	cis-1,3-Dichloropropene	10061-01-5	1 U	1	6	1.07
11995	trans-1,3-Dichloropropene	10061-02-6	1 U	1	6	1.07
11995	Ethylbenzene	100-41-4	1 U	1	6	1.07
11995	Freon 113	76-13-1	2 U	2	12	1.07
11995	2-Hexanone	591-78-6	4 U	4	12	1.07
11995	Isopropylbenzene	98-82-8	1 U	1	6	1.07
11995	Methyl Acetate	79-20-9	2 U	2	6	1.07
11995	Methyl Tertiary Butyl Ether	1634-04-4	0.6 U	0.6	6	1.07
11995	4-Methyl-2-pentanone	108-10-1	4 U	4	12	1.07
11995	Methylcyclohexane	108-87-2	1 U	1	6	1.07
11995	Methylene Chloride	75-09-2	2 U	2	6	1.07
11995	Styrene	100-42-5	1 U	1	6	1.07
11995	1,1,2,2-Tetrachloroethane	79-34-5	1 U	1	6	1.07
11995	Tetrachloroethene	127-18-4	1 U	1	6	1.07

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:40
SDG#: SNB95-22BKG

C. T. Male Associates
ELLE Sample #: SW 9491695
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg		ug/kg	ug/kg	
11995	Toluene	108-88-3	1	U	1	6	1.07
11995	1,2,3-Trichlorobenzene	87-61-6	1	U	1	6	1.07
11995	1,2,4-Trichlorobenzene	120-82-1	1	U	1	6	1.07
11995	1,1,1-Trichloroethane	71-55-6	1	U	1	6	1.07
11995	1,1,2-Trichloroethane	79-00-5	1	U	1	6	1.07
11995	Trichloroethene	79-01-6	1	U	1	6	1.07
11995	Trichlorofluoromethane	75-69-4	2	U	2	6	1.07
11995	Vinyl Chloride	75-01-4	1	U	1	6	1.07
11995	m+p-Xylene	179601-23-1	1	U	1	6	1.07
11995	o-Xylene	95-47-6	1	U	1	6	1.07
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg		ug/kg	ug/kg	
10726	Acenaphthene	83-32-9	4	U	4	19	1
10726	Acenaphthylene	208-96-8	4	U	4	19	1
10726	Acetophenone	98-86-2	19	U	19	38	1
10726	**Anthracene**	120-12-7	**5**	**J**	4	19	1
10726	Atrazine	1912-24-9	38	U	38	190	1
10726	Benzaldehyde	100-52-7	76	U	76	190	1
10726	**Benzo(a)anthracene**	56-55-3	**22**		4	19	1
10726	**Benzo(a)pyrene**	50-32-8	**19**	**J**	4	19	1
10726	**Benzo(b)fluoranthene**	205-99-2	**25**		4	19	1
10726	**Benzo(g,h,i)perylene**	191-24-2	**15**	**J**	4	19	1
10726	**Benzo(k)fluoranthene**	207-08-9	**13**	**J**	4	19	1
10726	1,1'-Biphenyl	92-52-4	19	U	19	38	1
10726	4-Bromophenyl-phenylether	101-55-3	19	U	19	38	1
10726	Butylbenzylphthalate	85-68-7	76	U	76	190	1
10726	Di-n-butylphthalate	84-74-2	76	U	76	190	1
10726	Caprolactam	105-60-2	38	U	38	190	1
10726	Carbazole	86-74-8	19	U	19	38	1
10726	4-Chloro-3-methylphenol	59-50-7	19	U	19	38	1
10726	4-Chloroaniline	106-47-8	38	U	38	76	1
10726	bis(2-Chloroethoxy)methane	111-91-1	19	U	19	38	1
10726	bis(2-Chloroethyl)ether	111-44-4	19	U	19	38	1
10726	2-Chloronaphthalene	91-58-7	8	U	8	38	1
10726	2-Chlorophenol	95-57-8	19	U	19	38	1
10726	4-Chlorophenyl-phenylether	7005-72-3	19	U	19	38	1
10726	2,2'-oxybis(1-Chloropropane)	108-60-1	19	U	19	38	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10726	**Chrysene**	218-01-9	**25**		4	19	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:40
SDG#: SNB95-22BKG

C. T. Male Associates
ELLE Sample #: SW 9491695
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**		**ug/kg**	**ug/kg**	
10726	**Dibenz(a,h)anthracene**	53-70-3	**7**	**J**	4	19	1
10726	Dibenzofuran	132-64-9	19	U	19	38	1
10726	3,3'-Dichlorobenzidine	91-94-1	110	U	110	380	1
10726	2,4-Dichlorophenol	120-83-2	19	U	19	38	1
10726	Diethylphthalate	84-66-2	76	U	76	190	1
10726	2,4-Dimethylphenol	105-67-9	19	U	19	38	1
10726	Dimethylphthalate	131-11-3	76	U	76	190	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	190	U	190	570	1
10726	2,4-Dinitrophenol	51-28-5	340	U	340	1,100	1
10726	2,4-Dinitrotoluene	121-14-2	76	U	76	190	1
10726	2,6-Dinitrotoluene	606-20-2	19	U	19	38	1
10726	1,4-Dioxane	123-91-1	110	U	110	380	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	76	U	76	190	1
10726	**Fluoranthene**	206-44-0	**40**		4	19	1
10726	Fluorene	86-73-7	4	U	4	19	1
10726	Hexachlorobenzene	118-74-1	4	U	4	19	1
10726	Hexachlorobutadiene	87-68-3	19	U	19	38	1
10726	Hexachlorocyclopentadiene	77-47-4	190	U	190	570	1
10726	Hexachloroethane	67-72-1	38	U	38	190	1
10726	**Indeno(1,2,3-cd)pyrene**	193-39-5	**13**	**J**	4	19	1
10726	Isophorone	78-59-1	19	U	19	38	1
10726	2-Methylnaphthalene	91-57-6	4	U	4	19	1
10726	2-Methylphenol	95-48-7	19	U	19	38	1
10726	4-Methylphenol	106-44-5	19	U	19	38	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10726	**Naphthalene**	91-20-3	**6**	**J**	4	19	1
10726	2-Nitroaniline	88-74-4	19	U	19	38	1
10726	3-Nitroaniline	99-09-2	76	U	76	190	1
10726	4-Nitroaniline	100-01-6	76	U	76	190	1
10726	Nitrobenzene	98-95-3	19	U	19	38	1
10726	2-Nitrophenol	88-75-5	19	U	19	38	1
10726	4-Nitrophenol	100-02-7	190	U	190	570	1
10726	N-Nitroso-di-n-propylamine	621-64-7	19	U	19	38	1
10726	N-Nitrosodiphenylamine	86-30-6	19	U	19	38	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10726	Di-n-octylphthalate	117-84-0	76	U	76	190	1
10726	Pentachlorophenol	87-86-5	38	U	38	190	1
10726	**Phenanthrene**	85-01-8	**32**		4	19	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:40
SDG#: SNB95-22BKG

C. T. Male Associates
ELLE Sample #: SW 9491695
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
10726	Phenol	108-95-2	19 U	19	38	1
10726	**Pyrene**	129-00-0	**38**	4	19	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	19 U	19	38	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	76 U	76	190	1
10726	2,4,5-Trichlorophenol	95-95-4	19 U	19	38	1
10726	2,4,6-Trichlorophenol	88-06-2	19 U	19	38	1
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**0.49 J**	0.17	0.50	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.88**	0.17	0.50	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.1**	0.17	0.50	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.57**	0.17	0.50	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.75**	0.17	0.50	1
14027	**Perfluorohexanesulfonate**	355-46-4	**0.53**	0.17	0.50	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.67**	0.17	0.50	1
14027	**Perfluorononanoic acid**	375-95-1	**0.84**	0.17	0.50	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.65 J**	0.25	0.75	1
14027	**Perfluorooctanoic acid**	335-67-1	**14**	0.17	0.50	1
14027	**Perfluoropentanoic acid**	2706-90-3	**0.62**	0.17	0.50	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**0.48 J**	0.17	0.50	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**0.54**	0.17	0.50	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.52**	0.17	0.50	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**13,900**	10.1	45.1	1
01650	**Calcium**	7440-70-2	**14,900**	3.76	45.1	1
01654	**Iron**	7439-89-6	**53,200**	45.4	226	5
01657	**Magnesium**	7439-95-4	**9,500**	2.74	22.6	1
06958	**Manganese**	7439-96-5	**2,500**	0.468	5.64	5
01662	**Potassium**	7440-09-7	**1,440**	18.8	113	1
01667	**Sodium**	7440-23-5	**92.1 J**	18.8	226	1
06972	**Zinc**	7440-66-6	**201**	0.271	4.51	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.400 J**	0.105	0.451	2
06125	**Arsenic**	7440-38-2	**10.3**	0.144	0.903	2
06126	**Barium**	7440-39-3	**136**	0.205	0.903	2
06127	**Beryllium**	7440-41-7	**1.06**	0.0118	0.226	2
06128	**Cadmium**	7440-43-9	**1.07**	0.0388	0.226	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:40
SDG#: SNB95-22BKG

C. T. Male Associates
ELLE Sample #: SW 9491695
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06131	**Chromium**	7440-47-3	**16.1**	0.196	0.903	2
06132	**Cobalt**	7440-48-4	**85.8**	0.0352	0.226	2
06133	**Copper**	7440-50-8	**48.4**	0.121	0.903	2
06135	**Lead**	7439-92-1	**18.7**	0.0250	0.451	2
06139	**Nickel**	7440-02-0	**116**	0.225	0.903	2
06141	**Selenium**	7782-49-2	**0.332 J**	0.113	0.903	2
06142	**Silver**	7440-22-4	**0.258**	0.0329	0.226	2
06145	**Thallium**	7440-28-0	**0.194 J**	0.0282	0.226	2
06148	**Vanadium**	7440-62-2	**15.3**	0.0481	0.226	2
	SW-846 7471B		mg/kg	mg/kg	mg/kg	
00159	**Mercury**	7439-97-6	**0.0527 J**	0.0108	0.108	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.05**	0.0100	0.0100	1
	The pH was measured in water at 20.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**13.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	SOM02.2 Volatiles	SW-846 8260C	1	X180671AA	03/08/2018 22:22	Patrick T Herres	1.07
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201806749146	03/06/2018 14:40	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201806749146	03/06/2018 14:40	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201806749146	03/06/2018 14:40	Client Supplied	1
10726	TCL Semivolatiles	SW-846 8270D	1	18067SLA026	03/09/2018 12:14	Edward C Monborne	1
10813	BNA Soil Microwave APP IX	SW-846 3546	1	18067SLA026	03/08/2018 19:15	Sally L Appleyard	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18067010	03/15/2018 22:43	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:40
SDG#: SNB95-22BKG

C. T. Male Associates
ELLE Sample #: SW 9491695
ELLE Group #: 1916534
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18067010	03/08/2018 15:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	180671063702	03/12/2018 09:11	Suzanne M Will	1
01650	Calcium	SW-846 6010C	1	180671063702	03/12/2018 09:11	Suzanne M Will	1
01654	Iron	SW-846 6010C	1	180671063702	03/12/2018 09:54	Suzanne M Will	5
01657	Magnesium	SW-846 6010C	1	180671063702	03/12/2018 09:11	Suzanne M Will	1
06958	Manganese	SW-846 6010C	1	180671063702	03/12/2018 09:54	Suzanne M Will	5
01662	Potassium	SW-846 6010C	1	180671063702	03/12/2018 09:11	Suzanne M Will	1
01667	Sodium	SW-846 6010C	1	180671063702	03/12/2018 09:11	Suzanne M Will	1
06972	Zinc	SW-846 6010C	1	180671063702	03/12/2018 09:11	Suzanne M Will	1
06124	Antimony	SW-846 6020A	1	180671063702A	03/12/2018 11:48	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	180671063702A	03/12/2018 11:48	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	180671063702D	03/12/2018 11:48	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	180671063702A	03/12/2018 11:48	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	180671063702A	03/12/2018 11:48	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	180671063702A	03/12/2018 11:48	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	180671063702A	03/12/2018 11:48	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	180671063702A	03/12/2018 11:48	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	180671063702A	03/12/2018 11:48	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	180671063702A	03/12/2018 11:48	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	180671063702B	03/12/2018 11:48	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	180671063702A	03/12/2018 11:48	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	180671063702A	03/12/2018 11:48	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	180671063702A	03/12/2018 11:48	Choon Y Tian	2
00159	Mercury	SW-846 7471B	1	180671063801	03/12/2018 09:03	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	180671063702	03/09/2018 15:45	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	180671063801	03/09/2018 16:40	JoElla L Rice	1
00394	pH	SW-846 9045D modified	1	18069039401B	03/10/2018 12:30	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18067820004B	03/08/2018 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-15.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:45
SDG#: SNB95-23

C. T. Male Associates
ELLE Sample #: SW 9491699
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg		ug/kg	ug/kg	
11995	**Acetone**	67-64-1	**10**	**J**	8	22	1
11995	Benzene	71-43-2	0.6	U	0.6	6	1
11995	Bromochloromethane	74-97-5	1	U	1	6	1
11995	Bromodichloromethane	75-27-4	1	U	1	6	1
11995	Bromoform	75-25-2	1	U	1	6	1
11995	Bromomethane	74-83-9	2	U	2	6	1
11995	2-Butanone	78-93-3	4	U	4	11	1
11995	**Carbon Disulfide**	75-15-0	**4**	**J**	1	6	1
11995	Carbon Tetrachloride	56-23-5	1	U	1	6	1
11995	Chlorobenzene	108-90-7	1	U	1	6	1
11995	Chloroethane	75-00-3	2	U	2	6	1
11995	Chloroform	67-66-3	1	U	1	6	1
11995	Chloromethane	74-87-3	2	U	2	6	1
11995	Cyclohexane	110-82-7	1	U	1	6	1
11995	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	6	1
11995	Dibromochloromethane	124-48-1	1	U	1	6	1
11995	1,2-Dibromoethane	106-93-4	1	U	1	6	1
11995	1,2-Dichlorobenzene	95-50-1	1	U	1	6	1
11995	1,3-Dichlorobenzene	541-73-1	1	U	1	6	1
11995	1,4-Dichlorobenzene	106-46-7	1	U	1	6	1
11995	Dichlorodifluoromethane	75-71-8	2	U	2	6	1
11995	1,1-Dichloroethane	75-34-3	1	U	1	6	1
11995	1,2-Dichloroethane	107-06-2	1	U	1	6	1
11995	1,1-Dichloroethene	75-35-4	1	U	1	6	1
11995	cis-1,2-Dichloroethene	156-59-2	1	U	1	6	1
11995	trans-1,2-Dichloroethene	156-60-5	1	U	1	6	1
11995	1,2-Dichloropropane	78-87-5	1	U	1	6	1
11995	cis-1,3-Dichloropropene	10061-01-5	1	U	1	6	1
11995	trans-1,3-Dichloropropene	10061-02-6	1	U	1	6	1
11995	Ethylbenzene	100-41-4	1	U	1	6	1
11995	Freon 113	76-13-1	2	U	2	11	1
11995	2-Hexanone	591-78-6	3	U	3	11	1
11995	Isopropylbenzene	98-82-8	1	U	1	6	1
11995	Methyl Acetate	79-20-9	2	U	2	6	1
11995	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	6	1
11995	4-Methyl-2-pentanone	108-10-1	3	U	3	11	1
11995	Methylcyclohexane	108-87-2	1	U	1	6	1
11995	Methylene Chloride	75-09-2	2	U	2	6	1
11995	Styrene	100-42-5	1	U	1	6	1
11995	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	6	1
11995	Tetrachloroethene	127-18-4	1	U	1	6	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-15.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:45
SDG#: SNB95-23

C. T. Male Associates
ELLE Sample #: SW 9491699
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	Toluene	108-88-3	1 U	1	6	1
11995	1,2,3-Trichlorobenzene	87-61-6	1 U	1	6	1
11995	1,2,4-Trichlorobenzene	120-82-1	1 U	1	6	1
11995	1,1,1-Trichloroethane	71-55-6	1 U	1	6	1
11995	1,1,2-Trichloroethane	79-00-5	1 U	1	6	1
11995	Trichloroethene	79-01-6	1 U	1	6	1
11995	Trichlorofluoromethane	75-69-4	2 U	2	6	1
11995	Vinyl Chloride	75-01-4	1 U	1	6	1
11995	m+p-Xylene	179601-23-1	1 U	1	6	1
11995	o-Xylene	95-47-6	1 U	1	6	1
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
10726	Acenaphthene	83-32-9	4 U	4	19	1
10726	Acenaphthylene	208-96-8	4 U	4	19	1
10726	Acetophenone	98-86-2	18 U	18	36	1
10726	Anthracene	120-12-7	4 U	4	19	1
10726	Atrazine	1912-24-9	36 U	36	180	1
10726	Benzaldehyde	100-52-7	73 U	73	180	1
10726	Benzo(a)anthracene	56-55-3	4 U	4	19	1
10726	Benzo(a)pyrene	50-32-8	4 U	4	19	1
10726	Benzo(b)fluoranthene	205-99-2	4 U	4	19	1
10726	Benzo(g,h,i)perylene	191-24-2	4 U	4	19	1
10726	Benzo(k)fluoranthene	207-08-9	4 U	4	19	1
10726	1,1'-Biphenyl	92-52-4	18 U	18	36	1
10726	4-Bromophenyl-phenylether	101-55-3	18 U	18	36	1
10726	Butylbenzylphthalate	85-68-7	73 U	73	180	1
10726	Di-n-butylphthalate	84-74-2	73 U	73	180	1
10726	Caprolactam	105-60-2	36 U	36	180	1
10726	Carbazole	86-74-8	18 U	18	36	1
10726	4-Chloro-3-methylphenol	59-50-7	18 U	18	36	1
10726	4-Chloroaniline	106-47-8	36 U	36	73	1
10726	bis(2-Chloroethoxy)methane	111-91-1	18 U	18	36	1
10726	bis(2-Chloroethyl)ether	111-44-4	18 U	18	36	1
10726	2-Chloronaphthalene	91-58-7	7 U	7	36	1
10726	2-Chlorophenol	95-57-8	18 U	18	36	1
10726	4-Chlorophenyl-phenylether	7005-72-3	18 U	18	36	1
10726	2,2'-oxybis(1-Chloropropane)	108-60-1	18 U	18	36	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.					
10726	Chrysene	218-01-9	4 U	4	19	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-15.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:45
SDG#: SNB95-23

C. T. Male Associates
ELLE Sample #: SW 9491699
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg		ug/kg	ug/kg	
10726	Dibenz(a,h)anthracene	53-70-3	4	U	4	19	1
10726	Dibenzofuran	132-64-9	18	U	18	36	1
10726	3,3'-Dichlorobenzidine	91-94-1	110	U	110	360	1
10726	2,4-Dichlorophenol	120-83-2	18	U	18	36	1
10726	Diethylphthalate	84-66-2	73	U	73	180	1
10726	2,4-Dimethylphenol	105-67-9	18	U	18	36	1
10726	Dimethylphthalate	131-11-3	73	U	73	180	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	550	1
10726	2,4-Dinitrophenol	51-28-5	330	U	330	1,100	1
10726	2,4-Dinitrotoluene	121-14-2	73	U	73	180	1
10726	2,6-Dinitrotoluene	606-20-2	18	U	18	36	1
10726	1,4-Dioxane	123-91-1	110	U	110	360	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	73	U	73	190	1
10726	Fluoranthene	206-44-0	4	U	4	19	1
10726	Fluorene	86-73-7	4	U	4	19	1
10726	Hexachlorobenzene	118-74-1	4	U	4	19	1
10726	Hexachlorobutadiene	87-68-3	18	U	18	36	1
10726	Hexachlorocyclopentadiene	77-47-4	180	U	180	550	1
10726	Hexachloroethane	67-72-1	36	U	36	180	1
10726	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	19	1
10726	Isophorone	78-59-1	18	U	18	36	1
10726	2-Methylnaphthalene	91-57-6	4	U	4	19	1
10726	2-Methylphenol	95-48-7	18	U	18	36	1
10726	4-Methylphenol	106-44-5	18	U	18	36	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10726	**Naphthalene**	91-20-3	**4**	**J**	4	19	1
10726	2-Nitroaniline	88-74-4	18	U	18	36	1
10726	3-Nitroaniline	99-09-2	73	U	73	180	1
10726	4-Nitroaniline	100-01-6	73	U	73	180	1
10726	Nitrobenzene	98-95-3	18	U	18	36	1
10726	2-Nitrophenol	88-75-5	18	U	18	36	1
10726	4-Nitrophenol	100-02-7	180	U	180	550	1
10726	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	36	1
10726	N-Nitrosodiphenylamine	86-30-6	18	U	18	36	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10726	Di-n-octylphthalate	117-84-0	73	U	73	180	1
10726	Pentachlorophenol	87-86-5	36	U	36	190	1
10726	Phenanthrene	85-01-8	4	U	4	19	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-15.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:45
SDG#: SNB95-23

C. T. Male Associates
ELLE Sample #: SW 9491699
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
10726	Phenol	108-95-2	18 U	18	36	1
10726	Pyrene	129-00-0	4 U	4	19	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	18 U	18	36	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	73 U	73	180	1
10726	2,4,5-Trichlorophenol	95-95-4	18 U	18	36	1
10726	2,4,6-Trichlorophenol	88-06-2	18 U	18	36	1
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.64	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.32 J**	0.21	0.64	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.72**	0.21	0.64	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.61 J**	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.21 U	0.21	0.64	1
14027	Perfluorononanoic acid	375-95-1	0.21 U	0.21	0.64	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.96	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.6**	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.64	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.79**	0.21	0.64	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**8,460**	9.58	42.9	1
01650	**Calcium**	7440-70-2	**40,900**	3.57	42.9	1
01654	**Iron**	7439-89-6	**23,900**	8.63	42.9	1
01657	**Magnesium**	7439-95-4	**26,100**	2.60	21.4	1
06958	**Manganese**	7439-96-5	**735**	0.0889	1.07	1
01662	**Potassium**	7440-09-7	**1,020**	17.9	107	1
01667	**Sodium**	7440-23-5	**80.3 J**	17.9	214	1
06972	**Zinc**	7440-66-6	**47.6**	0.257	4.29	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.176 J**	0.0999	0.429	2
06125	**Arsenic**	7440-38-2	**8.74**	0.137	0.857	2
06126	**Barium**	7440-39-3	**43.0**	0.195	0.857	2
06127	**Beryllium**	7440-41-7	**0.315**	0.0112	0.214	2
06128	**Cadmium**	7440-43-9	**0.120 J**	0.0369	0.214	2

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3a-SB18-02-15.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:45
SDG#: SNB95-23

C. T. Male Associates
ELLE Sample #: SW 9491699
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06131	**Chromium**	7440-47-3	**10.5**	0.186	0.857	2
06132	**Cobalt**	7440-48-4	**9.57**	0.0334	0.214	2
06133	**Copper**	7440-50-8	**13.3**	0.115	0.857	2
06135	**Lead**	7439-92-1	**8.67**	0.0238	0.429	2
06139	**Nickel**	7440-02-0	**19.0**	0.213	0.857	2
06141	**Selenium**	7782-49-2	**0.152 J**	0.107	0.857	2
06142	**Silver**	7440-22-4	**0.0390 J**	0.0313	0.214	2
06145	**Thallium**	7440-28-0	**0.100 J**	0.0268	0.214	2
06148	**Vanadium**	7440-62-2	**10.7**	0.0457	0.214	2
	SW-846 7471B		mg/kg	mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.0103 U	0.0103	0.103	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.47**	0.0100	0.0100	1
	The pH was measured in water at 18.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**9.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	SOM02.2 Volatiles	SW-846 8260C	1	X180671AA	03/08/2018 23:55	Patrick T Herres	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201806749146	03/06/2018 14:45	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201806749146	03/06/2018 14:45	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201806749146	03/06/2018 14:45	Client Supplied	1
10726	TCL Semivolatiles	SW-846 8270D	1	18067SLA026	03/12/2018 11:42	Edward C Monborne	1
10813	BNA Soil Microwave APP IX	SW-846 3546	1	18067SLA026	03/08/2018 19:15	Sally L Appleyard	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18067010	03/15/2018 23:04	Jason W Knight	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-SB18-02-15.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:45
SDG#: SNB95-23

C. T. Male Associates
ELLE Sample #: SW 9491699
ELLE Group #: 1916534
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18067010	03/08/2018 15:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	180671063702	03/12/2018 09:44	Suzanne M Will	1
01650	Calcium	SW-846 6010C	1	180671063702	03/12/2018 09:44	Suzanne M Will	1
01654	Iron	SW-846 6010C	1	180671063702	03/12/2018 09:44	Suzanne M Will	1
01657	Magnesium	SW-846 6010C	1	180671063702	03/12/2018 09:44	Suzanne M Will	1
06958	Manganese	SW-846 6010C	1	180671063702	03/12/2018 09:44	Suzanne M Will	1
01662	Potassium	SW-846 6010C	1	180671063702	03/12/2018 09:44	Suzanne M Will	1
01667	Sodium	SW-846 6010C	1	180671063702	03/12/2018 09:44	Suzanne M Will	1
06972	Zinc	SW-846 6010C	1	180671063702	03/12/2018 09:44	Suzanne M Will	1
06124	Antimony	SW-846 6020A	1	180671063702A	03/12/2018 12:22	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	180671063702A	03/12/2018 12:22	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	180671063702D	03/12/2018 12:22	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	180671063702A	03/12/2018 12:22	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	180671063702A	03/12/2018 12:22	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	180671063702A	03/12/2018 12:22	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	180671063702A	03/12/2018 12:22	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	180671063702A	03/12/2018 12:22	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	180671063702A	03/12/2018 12:22	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	180671063702A	03/12/2018 12:22	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	180671063702B	03/12/2018 12:22	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	180671063702A	03/12/2018 12:22	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	180671063702A	03/12/2018 12:22	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	180671063702A	03/12/2018 12:22	Choon Y Tian	2
00159	Mercury	SW-846 7471B	1	180671063801	03/12/2018 09:37	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	180671063702	03/09/2018 15:45	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	180671063801	03/09/2018 16:40	JoElla L Rice	1
00394	pH	SW-846 9045D modified	1	18069039401B	03/10/2018 12:30	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18067820004B	03/08/2018 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-6.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:50
SDG#: SNB95-24

C. T. Male Associates
ELLE Sample #: SW 9491700
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	**Acetone**	67-64-1	**110**	7	21	0.92
11995	Benzene	71-43-2	0.5 U	0.5	5	0.92
11995	Bromochloromethane	74-97-5	1 U	1	5	0.92
11995	Bromodichloromethane	75-27-4	1 U	1	5	0.92
11995	Bromoform	75-25-2	1 U	1	5	0.92
11995	Bromomethane	74-83-9	2 U	2	5	0.92
11995	2-Butanone	78-93-3	4 U	4	10	0.92
11995	**Carbon Disulfide**	75-15-0	**1 J**	1	5	0.92
11995	Carbon Tetrachloride	56-23-5	1 U	1	5	0.92
11995	Chlorobenzene	108-90-7	1 U	1	5	0.92
11995	Chloroethane	75-00-3	2 U	2	5	0.92
11995	Chloroform	67-66-3	1 U	1	5	0.92
11995	Chloromethane	74-87-3	2 U	2	5	0.92
11995	Cyclohexane	110-82-7	1 U	1	5	0.92
11995	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	0.92
11995	Dibromochloromethane	124-48-1	1 U	1	5	0.92
11995	1,2-Dibromoethane	106-93-4	1 U	1	5	0.92
11995	1,2-Dichlorobenzene	95-50-1	1 U	1	5	0.92
11995	1,3-Dichlorobenzene	541-73-1	1 U	1	5	0.92
11995	1,4-Dichlorobenzene	106-46-7	1 U	1	5	0.92
11995	Dichlorodifluoromethane	75-71-8	2 U	2	5	0.92
11995	1,1-Dichloroethane	75-34-3	1 U	1	5	0.92
11995	1,2-Dichloroethane	107-06-2	1 U	1	5	0.92
11995	1,1-Dichloroethene	75-35-4	1 U	1	5	0.92
11995	cis-1,2-Dichloroethene	156-59-2	1 U	1	5	0.92
11995	trans-1,2-Dichloroethene	156-60-5	1 U	1	5	0.92
11995	1,2-Dichloropropane	78-87-5	1 U	1	5	0.92
11995	cis-1,3-Dichloropropene	10061-01-5	1 U	1	5	0.92
11995	trans-1,3-Dichloropropene	10061-02-6	1 U	1	5	0.92
11995	Ethylbenzene	100-41-4	1 U	1	5	0.92
11995	Freon 113	76-13-1	2 U	2	10	0.92
11995	2-Hexanone	591-78-6	3 U	3	10	0.92
11995	Isopropylbenzene	98-82-8	1 U	1	5	0.92
11995	Methyl Acetate	79-20-9	2 U	2	5	0.92
11995	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	5	0.92
11995	4-Methyl-2-pentanone	108-10-1	3 U	3	10	0.92
11995	Methylcyclohexane	108-87-2	1 U	1	5	0.92
11995	Methylene Chloride	75-09-2	2 U	2	5	0.92
11995	Styrene	100-42-5	1 U	1	5	0.92
11995	1,1,2,2-Tetrachloroethane	79-34-5	1 U	1	5	0.92
11995	Tetrachloroethene	127-18-4	1 U	1	5	0.92

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-6.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:50
SDG#: SNB95-24

C. T. Male Associates
ELLE Sample #: SW 9491700
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	Toluene	108-88-3	1 U	1	5	0.92
11995	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	0.92
11995	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	0.92
11995	1,1,1-Trichloroethane	71-55-6	1 U	1	5	0.92
11995	1,1,2-Trichloroethane	79-00-5	1 U	1	5	0.92
11995	Trichloroethene	79-01-6	1 U	1	5	0.92
11995	Trichlorofluoromethane	75-69-4	2 U	2	5	0.92
11995	Vinyl Chloride	75-01-4	1 U	1	5	0.92
11995	m+p-Xylene	179601-23-1	1 U	1	5	0.92
11995	o-Xylene	95-47-6	1 U	1	5	0.92
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
10726	**Acenaphthene**	83-32-9	**41**	4	19	1
10726	**Acenaphthylene**	208-96-8	**13 J**	4	19	1
10726	Acetophenone	98-86-2	19 U	19	37	1
10726	**Anthracene**	120-12-7	**110**	4	19	1
10726	Atrazine	1912-24-9	37 U	37	190	1
10726	Benzaldehyde	100-52-7	75 U	75	190	1
10726	**Benzo(a)anthracene**	56-55-3	**350**	4	19	1
10726	**Benzo(a)pyrene**	50-32-8	**330**	4	19	1
10726	**Benzo(b)fluoranthene**	205-99-2	**440**	4	19	1
10726	**Benzo(g,h,i)perylene**	191-24-2	**210**	4	19	1
10726	**Benzo(k)fluoranthene**	207-08-9	**160**	4	19	1
10726	1,1'-Biphenyl	92-52-4	19 U	19	37	1
10726	4-Bromophenyl-phenylether	101-55-3	19 U	19	37	1
10726	Butylbenzylphthalate	85-68-7	75 U	75	190	1
10726	Di-n-butylphthalate	84-74-2	75 U	75	190	1
10726	Caprolactam	105-60-2	37 U	37	190	1
10726	**Carbazole**	86-74-8	**42**	19	37	1
10726	4-Chloro-3-methylphenol	59-50-7	19 U	19	37	1
10726	4-Chloroaniline	106-47-8	37 U	37	75	1
10726	bis(2-Chloroethoxy)methane	111-91-1	19 U	19	37	1
10726	bis(2-Chloroethyl)ether	111-44-4	19 U	19	37	1
10726	2-Chloronaphthalene	91-58-7	7 U	7	37	1
10726	2-Chlorophenol	95-57-8	19 U	19	37	1
10726	4-Chlorophenyl-phenylether	7005-72-3	19 U	19	37	1
10726	2,2'-oxybis(1-Chloropropane)	108-60-1	19 U	19	37	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.					
10726	**Chrysene**	218-01-9	**400**	4	19	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-6.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:50
SDG#: SNB95-24

C. T. Male Associates
ELLE Sample #: SW 9491700
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**		**ug/kg**	**ug/kg**	
10726	**Dibenz(a,h)anthracene**	53-70-3	**64**		4	19	1
10726	**Dibenzofuran**	132-64-9	**28**	**J**	19	37	1
10726	3,3'-Dichlorobenzidine	91-94-1	110	U	110	370	1
10726	2,4-Dichlorophenol	120-83-2	19	U	19	37	1
10726	Diethylphthalate	84-66-2	75	U	75	190	1
10726	2,4-Dimethylphenol	105-67-9	19	U	19	37	1
10726	Dimethylphthalate	131-11-3	75	U	75	190	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	190	U	190	560	1
10726	2,4-Dinitrophenol	51-28-5	340	U	340	1,100	1
10726	2,4-Dinitrotoluene	121-14-2	75	U	75	190	1
10726	2,6-Dinitrotoluene	606-20-2	19	U	19	37	1
10726	1,4-Dioxane	123-91-1	110	U	110	370	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	75	U	75	190	1
10726	**Fluoranthene**	206-44-0	**670**		4	19	1
10726	**Fluorene**	86-73-7	**39**		4	19	1
10726	Hexachlorobenzene	118-74-1	4	U	4	19	1
10726	Hexachlorobutadiene	87-68-3	19	U	19	37	1
10726	Hexachlorocyclopentadiene	77-47-4	190	U	190	560	1
10726	Hexachloroethane	67-72-1	37	U	37	190	1
10726	**Indeno(1,2,3-cd)pyrene**	193-39-5	**170**		4	19	1
10726	Isophorone	78-59-1	19	U	19	37	1
10726	**2-Methylnaphthalene**	91-57-6	**24**		4	19	1
10726	2-Methylphenol	95-48-7	19	U	19	37	1
10726	4-Methylphenol	106-44-5	19	U	19	37	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10726	**Naphthalene**	91-20-3	**25**		4	19	1
10726	2-Nitroaniline	88-74-4	19	U	19	37	1
10726	3-Nitroaniline	99-09-2	75	U	75	190	1
10726	4-Nitroaniline	100-01-6	75	U	75	190	1
10726	Nitrobenzene	98-95-3	19	U	19	37	1
10726	2-Nitrophenol	88-75-5	19	U	19	37	1
10726	4-Nitrophenol	100-02-7	190	U	190	560	1
10726	N-Nitroso-di-n-propylamine	621-64-7	19	U	19	37	1
10726	N-Nitrosodiphenylamine	86-30-6	19	U	19	37	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10726	Di-n-octylphthalate	117-84-0	75	U	75	190	1
10726	Pentachlorophenol	87-86-5	37	U	37	190	1
10726	**Phenanthrene**	85-01-8	**520**		4	19	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-6.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:50
SDG#: SNB95-24

C. T. Male Associates
ELLE Sample #: SW 9491700
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
10726	Phenol	108-95-2	19 U	19	37	1
10726	**Pyrene**	129-00-0	**690**	4	19	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	19 U	19	37	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	75 U	75	190	1
10726	2,4,5-Trichlorophenol	95-95-4	19 U	19	37	1
10726	2,4,6-Trichlorophenol	88-06-2	19 U	19	37	1
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.22 J**	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.6**	0.22	0.66	1
14027	Perfluorononanoic acid	375-95-1	0.22 U	0.22	0.66	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.99	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.66	1
14027	**Perfluoropentanoic acid**	2706-90-3	**0.65 J**	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals		**SW-846 6010C**	mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**10,500**	10.1	45.0	1
01650	**Calcium**	7440-70-2	**38,100**	3.75	45.0	1
01654	**Iron**	7439-89-6	**46,000**	45.3	225	5
01657	**Magnesium**	7439-95-4	**14,800**	2.74	22.5	1
06958	**Manganese**	7439-96-5	**1,860**	0.0935	1.13	1
01662	**Potassium**	7440-09-7	**1,010**	18.8	113	1
01667	**Sodium**	7440-23-5	**57.6 J**	18.8	225	1
06972	**Zinc**	7440-66-6	**193**	0.270	4.50	1
		SW-846 6020A	mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.606**	0.105	0.450	2
06125	**Arsenic**	7440-38-2	**11.3**	0.144	0.901	2
06126	**Barium**	7440-39-3	**140**	0.205	0.901	2
06127	**Beryllium**	7440-41-7	**0.883**	0.0118	0.225	2
06128	**Cadmium**	7440-43-9	**1.30**	0.0387	0.225	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-6.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:50
SDG#: SNB95-24

C. T. Male Associates
ELLE Sample #: SW 9491700
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06131	Chromium	7440-47-3	**11.9**	0.196	0.901	2
06132	Cobalt	7440-48-4	**70.4**	0.0351	0.225	2
06133	Copper	7440-50-8	**55.5**	0.121	0.901	2
06135	Lead	7439-92-1	**24.4**	0.0250	0.450	2
06139	Nickel	7440-02-0	**145**	0.224	0.901	2
06141	Selenium	7782-49-2	**0.327 J**	0.113	0.901	2
06142	Silver	7440-22-4	**0.395**	0.0329	0.225	2
06145	Thallium	7440-28-0	**0.216 J**	0.0282	0.225	2
06148	Vanadium	7440-62-2	**11.9**	0.0480	0.225	2
	SW-846 7471B		mg/kg	mg/kg	mg/kg	
00159	Mercury	7439-97-6	**0.0410 J**	0.0107	0.107	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	pH	n.a.	**8.07**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	Moisture	n.a.	**11.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	SOM02.2 Volatiles	SW-846 8260C	1	X180671AA	03/09/2018 00:18	Patrick T Herres	0.92
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201806749146	03/06/2018 14:50	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201806749146	03/06/2018 14:50	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201806749146	03/06/2018 14:50	Client Supplied	1
10726	TCL Semivolatiles	SW-846 8270D	1	18067SLA026	03/12/2018 12:06	Edward C Monborne	1
10813	BNA Soil Microwave APP IX	SW-846 3546	1	18067SLA026	03/08/2018 19:15	Sally L Appleyard	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18067010	03/15/2018 23:24	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-6.5 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:50
SDG#: SNB95-24

C. T. Male Associates
ELLE Sample #: SW 9491700
ELLE Group #: 1916534
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18067010	03/08/2018 15:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	180671063702	03/12/2018 09:47	Suzanne M Will	1
01650	Calcium	SW-846 6010C	1	180671063702	03/12/2018 09:47	Suzanne M Will	1
01654	Iron	SW-846 6010C	1	180671063702	03/12/2018 10:15	Suzanne M Will	5
01657	Magnesium	SW-846 6010C	1	180671063702	03/12/2018 09:47	Suzanne M Will	1
06958	Manganese	SW-846 6010C	1	180671063702	03/12/2018 09:47	Suzanne M Will	1
01662	Potassium	SW-846 6010C	1	180671063702	03/12/2018 09:47	Suzanne M Will	1
01667	Sodium	SW-846 6010C	1	180671063702	03/12/2018 09:47	Suzanne M Will	1
06972	Zinc	SW-846 6010C	1	180671063702	03/12/2018 09:47	Suzanne M Will	1
06124	Antimony	SW-846 6020A	1	180671063702A	03/12/2018 12:25	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	180671063702A	03/12/2018 12:25	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	180671063702D	03/12/2018 12:25	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	180671063702A	03/12/2018 12:25	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	180671063702A	03/12/2018 12:25	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	180671063702A	03/12/2018 12:25	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	180671063702A	03/12/2018 12:25	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	180671063702A	03/12/2018 12:25	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	180671063702A	03/12/2018 12:25	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	180671063702A	03/12/2018 12:25	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	180671063702B	03/12/2018 12:25	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	180671063702A	03/12/2018 12:25	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	180671063702A	03/12/2018 12:25	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	180671063702A	03/12/2018 12:25	Choon Y Tian	2
00159	Mercury	SW-846 7471B	1	180671063801	03/12/2018 09:43	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	180671063702	03/09/2018 15:45	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	180671063801	03/09/2018 16:40	JoElla L Rice	1
00394	pH	SW-846 9045D modified	1	18069039401B	03/10/2018 12:30	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18067820004B	03/08/2018 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-9.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:55
SDG#: SNB95-25

C. T. Male Associates
ELLE Sample #: SW 9491701
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	**Acetone**	67-64-1	**180**	8	22	0.84
11995	Benzene	71-43-2	0.6 U	0.6	6	0.84
11995	Bromochloromethane	74-97-5	1 U	1	6	0.84
11995	Bromodichloromethane	75-27-4	1 U	1	6	0.84
11995	Bromoform	75-25-2	1 U	1	6	0.84
11995	Bromomethane	74-83-9	2 U	2	6	0.84
11995	2-Butanone	78-93-3	4 U	4	11	0.84
11995	Carbon Disulfide	75-15-0	1 U	1	6	0.84
11995	Carbon Tetrachloride	56-23-5	1 U	1	6	0.84
11995	Chlorobenzene	108-90-7	1 U	1	6	0.84
11995	Chloroethane	75-00-3	2 U	2	6	0.84
11995	Chloroform	67-66-3	1 U	1	6	0.84
11995	Chloromethane	74-87-3	2 U	2	6	0.84
11995	Cyclohexane	110-82-7	1 U	1	6	0.84
11995	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	6	0.84
11995	Dibromochloromethane	124-48-1	1 U	1	6	0.84
11995	1,2-Dibromoethane	106-93-4	1 U	1	6	0.84
11995	1,2-Dichlorobenzene	95-50-1	1 U	1	6	0.84
11995	1,3-Dichlorobenzene	541-73-1	1 U	1	6	0.84
11995	1,4-Dichlorobenzene	106-46-7	1 U	1	6	0.84
11995	Dichlorodifluoromethane	75-71-8	2 U	2	6	0.84
11995	1,1-Dichloroethane	75-34-3	1 U	1	6	0.84
11995	1,2-Dichloroethane	107-06-2	1 U	1	6	0.84
11995	1,1-Dichloroethene	75-35-4	1 U	1	6	0.84
11995	cis-1,2-Dichloroethene	156-59-2	1 U	1	6	0.84
11995	trans-1,2-Dichloroethene	156-60-5	1 U	1	6	0.84
11995	1,2-Dichloropropane	78-87-5	1 U	1	6	0.84
11995	cis-1,3-Dichloropropene	10061-01-5	1 U	1	6	0.84
11995	trans-1,3-Dichloropropene	10061-02-6	1 U	1	6	0.84
11995	Ethylbenzene	100-41-4	1 U	1	6	0.84
11995	Freon 113	76-13-1	2 U	2	11	0.84
11995	2-Hexanone	591-78-6	3 U	3	11	0.84
11995	Isopropylbenzene	98-82-8	1 U	1	6	0.84
11995	Methyl Acetate	79-20-9	2 U	2	6	0.84
11995	Methyl Tertiary Butyl Ether	1634-04-4	0.6 U	0.6	6	0.84
11995	4-Methyl-2-pentanone	108-10-1	3 U	3	11	0.84
11995	Methylcyclohexane	108-87-2	1 U	1	6	0.84
11995	Methylene Chloride	75-09-2	2 U	2	6	0.84
11995	Styrene	100-42-5	1 U	1	6	0.84
11995	1,1,2,2-Tetrachloroethane	79-34-5	1 U	1	6	0.84
11995	Tetrachloroethene	127-18-4	1 U	1	6	0.84

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-9.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:55
SDG#: SNB95-25

C. T. Male Associates
ELLE Sample #: SW 9491701
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	Toluene	108-88-3	1 U	1	6	0.84
11995	1,2,3-Trichlorobenzene	87-61-6	1 U	1	6	0.84
11995	1,2,4-Trichlorobenzene	120-82-1	1 U	1	6	0.84
11995	1,1,1-Trichloroethane	71-55-6	1 U	1	6	0.84
11995	1,1,2-Trichloroethane	79-00-5	1 U	1	6	0.84
11995	Trichloroethene	79-01-6	1 U	1	6	0.84
11995	Trichlorofluoromethane	75-69-4	2 U	2	6	0.84
11995	Vinyl Chloride	75-01-4	1 U	1	6	0.84
11995	m+p-Xylene	179601-23-1	1 U	1	6	0.84
11995	o-Xylene	95-47-6	1 U	1	6	0.84
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
10726	Acenaphthene	83-32-9	4 U	4	22	1
10726	Acenaphthylene	208-96-8	4 U	4	22	1
10726	Acetophenone	98-86-2	22 U	22	44	1
10726	**Anthracene**	120-12-7	**5 J**	4	22	1
10726	Atrazine	1912-24-9	44 U	44	220	1
10726	Benzaldehyde	100-52-7	88 U	88	220	1
10726	**Benzo(a)anthracene**	56-55-3	**21 J**	4	22	1
10726	**Benzo(a)pyrene**	50-32-8	**22 J**	4	22	1
10726	**Benzo(b)fluoranthene**	205-99-2	**39**	4	22	1
10726	**Benzo(g,h,i)perylene**	191-24-2	**18 J**	4	22	1
10726	**Benzo(k)fluoranthene**	207-08-9	**15 J**	4	22	1
10726	1,1'-Biphenyl	92-52-4	22 U	22	44	1
10726	4-Bromophenyl-phenylether	101-55-3	22 U	22	44	1
10726	Butylbenzylphthalate	85-68-7	88 U	88	220	1
10726	Di-n-butylphthalate	84-74-2	88 U	88	220	1
10726	Caprolactam	105-60-2	44 U	44	220	1
10726	Carbazole	86-74-8	22 U	22	44	1
10726	4-Chloro-3-methylphenol	59-50-7	22 U	22	44	1
10726	4-Chloroaniline	106-47-8	44 U	44	88	1
10726	bis(2-Chloroethoxy)methane	111-91-1	22 U	22	44	1
10726	bis(2-Chloroethyl)ether	111-44-4	22 U	22	44	1
10726	2-Chloronaphthalene	91-58-7	9 U	9	44	1
10726	2-Chlorophenol	95-57-8	22 U	22	44	1
10726	4-Chlorophenyl-phenylether	7005-72-3	22 U	22	44	1
10726	2,2'-oxybis(1-Chloropropane)	108-60-1	22 U	22	44	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.					
10726	**Chrysene**	218-01-9	**30**	4	22	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-9.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:55
SDG#: SNB95-25

C. T. Male Associates
ELLE Sample #: SW 9491701
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**		**ug/kg**	**ug/kg**	
10726	**Dibenz(a,h)anthracene**	53-70-3	**5**	**J**	4	22	1
10726	Dibenzofuran	132-64-9	22	U	22	44	1
10726	3,3'-Dichlorobenzidine	91-94-1	130	U	130	440	1
10726	2,4-Dichlorophenol	120-83-2	22	U	22	44	1
10726	Diethylphthalate	84-66-2	88	U	88	220	1
10726	2,4-Dimethylphenol	105-67-9	22	U	22	44	1
10726	Dimethylphthalate	131-11-3	88	U	88	220	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	220	U	220	660	1
10726	2,4-Dinitrophenol	51-28-5	400	U	400	1,300	1
10726	2,4-Dinitrotoluene	121-14-2	88	U	88	220	1
10726	2,6-Dinitrotoluene	606-20-2	22	U	22	44	1
10726	1,4-Dioxane	123-91-1	130	U	130	440	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	88	U	88	220	1
10726	**Fluoranthene**	206-44-0	**61**		4	22	1
10726	Fluorene	86-73-7	4	U	4	22	1
10726	Hexachlorobenzene	118-74-1	4	U	4	22	1
10726	Hexachlorobutadiene	87-68-3	22	U	22	44	1
10726	Hexachlorocyclopentadiene	77-47-4	220	U	220	660	1
10726	Hexachloroethane	67-72-1	44	U	44	220	1
10726	**Indeno(1,2,3-cd)pyrene**	193-39-5	**16**	**J**	4	22	1
10726	Isophorone	78-59-1	22	U	22	44	1
10726	2-Methylnaphthalene	91-57-6	4	U	4	22	1
10726	2-Methylphenol	95-48-7	22	U	22	44	1
10726	4-Methylphenol	106-44-5	22	U	22	44	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10726	**Naphthalene**	91-20-3	**6**	**J**	4	22	1
10726	2-Nitroaniline	88-74-4	22	U	22	44	1
10726	3-Nitroaniline	99-09-2	88	U	88	220	1
10726	4-Nitroaniline	100-01-6	88	U	88	220	1
10726	Nitrobenzene	98-95-3	22	U	22	44	1
10726	2-Nitrophenol	88-75-5	22	U	22	44	1
10726	4-Nitrophenol	100-02-7	220	U	220	660	1
10726	N-Nitroso-di-n-propylamine	621-64-7	22	U	22	44	1
10726	N-Nitrosodiphenylamine	86-30-6	22	U	22	44	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10726	Di-n-octylphthalate	117-84-0	88	U	88	220	1
10726	Pentachlorophenol	87-86-5	44	U	44	220	1
10726	**Phenanthrene**	85-01-8	**54**		4	22	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-9.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:55
SDG#: SNB95-25

C. T. Male Associates
ELLE Sample #: SW 9491701
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
10726	Phenol	108-95-2	22 U	22	44	1
10726	**Pyrene**	129-00-0	**51**	4	22	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	22 U	22	44	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	88 U	88	220	1
10726	2,4,5-Trichlorophenol	95-95-4	22 U	22	44	1
10726	2,4,6-Trichlorophenol	88-06-2	22 U	22	44	1
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.36 J**	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.94**	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.62 J**	0.22	0.66	1
14027	Perfluorononanoic acid	375-95-1	0.22 U	0.22	0.66	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.99	1
14027	**Perfluorooctanoic acid**	335-67-1	**12**	0.22	0.66	1
14027	**Perfluoropentanoic acid**	2706-90-3	**0.30 J**	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**21,500**	56.5	253	5
01650	**Calcium**	7440-70-2	**3,280**	21.1	253	5
01654	**Iron**	7439-89-6	**171,000**	50.9	253	5
01657	**Magnesium**	7439-95-4	**2,760**	15.4	126	5
06958	**Manganese**	7439-96-5	**12,800**	1.05	12.6	10
01662	**Potassium**	7440-09-7	**1,780**	106	632	5
01667	Sodium	7440-23-5	106 U	106	1,260	5
06972	**Zinc**	7440-66-6	**1,070**	1.52	25.3	5
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**1.62**	0.118	0.506	2
06125	**Arsenic**	7440-38-2	**33.8**	0.162	1.01	2
06126	**Barium**	7440-39-3	**525**	0.230	1.01	2
06127	**Beryllium**	7440-41-7	**4.29**	0.0133	0.253	2
06128	**Cadmium**	7440-43-9	**7.61**	0.0435	0.253	2

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3a-SB18-02-9.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:55
SDG#: SNB95-25

C. T. Male Associates
ELLE Sample #: SW 9491701
ELLE Group #: 1916534
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06131	Chromium	7440-47-3	**12.1**	0.220	1.01	2
06132	Cobalt	7440-48-4	**362**	0.0395	0.253	2
06133	Copper	7440-50-8	**131**	0.136	1.01	2
06135	Lead	7439-92-1	**42.3**	0.281	5.06	20
06139	Nickel	7440-02-0	**418**	0.252	1.01	2
06141	Selenium	7782-49-2	**1.01**	0.126	1.01	2
06142	Silver	7440-22-4	**2.88**	0.0369	0.253	2
06145	Thallium	7440-28-0	**0.925**	0.0790	0.632	5
06148	Vanadium	7440-62-2	**15.4**	0.0539	0.253	2
	SW-846 7471B		mg/kg	mg/kg	mg/kg	
00159	Mercury	7439-97-6	**2.73**	0.129	1.29	10
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	pH The pH was measured in water at 20.5 C.	n.a.	**7.45**	0.0100	0.0100	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	Moisture Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.	n.a.	**24.7**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	SOM02.2 Volatiles	SW-846 8260C	1	X180671AA	03/09/2018 00:41	Patrick T Herres	0.84
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201806749146	03/06/2018 14:55	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201806749146	03/06/2018 14:55	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201806749146	03/06/2018 14:55	Client Supplied	1
10726	TCL Semivolatiles	SW-846 8270D	1	18067SLA026	03/12/2018 12:29	Edward C Monborne	1
10813	BNA Soil Microwave APP IX	SW-846 3546	1	18067SLA026	03/08/2018 19:15	Sally L Appleyard	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18067010	03/15/2018 23:45	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-02-9.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 14:55
SDG#: SNB95-25

C. T. Male Associates
ELLE Sample #: SW 9491701
ELLE Group #: 1916534
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18067010	03/08/2018 15:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	180671063702	03/12/2018 10:36	Suzanne M Will	5
01650	Calcium	SW-846 6010C	1	180671063702	03/12/2018 10:36	Suzanne M Will	5
01654	Iron	SW-846 6010C	1	180671063702	03/12/2018 10:36	Suzanne M Will	5
01657	Magnesium	SW-846 6010C	1	180671063702	03/12/2018 10:36	Suzanne M Will	5
06958	Manganese	SW-846 6010C	1	180671063702	03/12/2018 10:39	Suzanne M Will	10
01662	Potassium	SW-846 6010C	1	180671063702	03/12/2018 10:36	Suzanne M Will	5
01667	Sodium	SW-846 6010C	1	180671063702	03/12/2018 10:36	Suzanne M Will	5
06972	Zinc	SW-846 6010C	1	180671063702	03/12/2018 10:36	Suzanne M Will	5
06124	Antimony	SW-846 6020A	1	180671063702A	03/12/2018 12:12	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	180671063702A	03/12/2018 12:12	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	180671063702D	03/12/2018 12:12	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	180671063702A	03/12/2018 12:12	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	180671063702A	03/12/2018 12:12	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	180671063702A	03/12/2018 12:12	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	180671063702A	03/12/2018 12:12	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	180671063702A	03/12/2018 12:12	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	180671063702A	03/12/2018 12:28	Choon Y Tian	20
06139	Nickel	SW-846 6020A	1	180671063702A	03/12/2018 12:12	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	180671063702B	03/12/2018 12:12	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	180671063702A	03/12/2018 12:12	Choon Y Tian	2
06145	Thallium	SW-846 6020A	2	180671063702A	03/13/2018 17:53	Bradley M Berlot	5
06148	Vanadium	SW-846 6020A	1	180671063702A	03/12/2018 12:12	Choon Y Tian	2
00159	Mercury	SW-846 7471B	1	180671063801	03/12/2018 09:59	Damary Valentin	10
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	180671063702	03/09/2018 15:45	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	180671063801	03/09/2018 16:40	JoElla L Rice	1
00394	pH	SW-846 9045D modified	1	18069039402A	03/10/2018 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18067820004B	03/08/2018 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB07-180306 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/07/2018 11:00
Collection Date/Time: 03/06/2018 15:25
SDG#: SNB95-26RB

C. T. Male Associates
ELLE Sample #: WW 9491702
ELLE Group #: 1916534
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18067009	03/10/2018 18:15	Joshua P Trost	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18067009	03/08/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Analytical Narrative
Lancaster Laboratories
LPL-011

Sample Management

This report contains the results of the analysis of eight (8) solid samples and three (3) other samples collected on March 6, 2018. Analytical results and quality control information are summarized in this data package.

Sample Receipt

The samples arrived at ALS via courier on March 29, 2018. Upon receipt, the samples were inspected and compared to the Chain of Custody. Sample temperature was documented on the enclosed Chain of Custody. Samples were received intact and properly preserved, unless noted on the enclosed Certificate of Analysis and/or Chain of Custody.

Total Solids by SM 2540G

Sample handling. Seven (7) solid samples were analyzed for total solids by SM 2540G. The samples were not analyzed within the 14-day hold time established for the method.

Duplicate. A duplicate analysis identified as 2717660 was performed on sample 2305219006 (SG3a-SB18-02-0.0-1.0). The relative percent difference between the results was within the QC limit of 5%.

Total Organic Carbon by SW-846 9060

Sample handling. Eleven (11) solid samples were analyzed for total organic carbon by SW-846 Method 9060. The samples were not analyzed within the 28-day holding time established for the method.

Calibration. A four-point calibration was properly established. Initial and continuing calibration verification standards were analyzed on the day of analysis. The recoveries were within the QC limits of 80-120%.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above the reporting limit in the blanks.

Spikes. A matrix spike analysis was performed on sample 2305219007 (SG3a-SB18-02-10.0-11.0). The relative percent difference between the expected spike results and the actual spike results was outside the QC limit of 80-120%.

ALS Environmental

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

April 7, 2018

ENV Subcontracting
Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17601

Certificate of Analysis

Revised Report - 4/7/2018 4:08:05 PM - See workorder comment section for explanation

Project Name:	TOC	Workorder:	2305219
Purchase Order:		Workorder ID:	Group 1916534

Dear ENV Subcontracting:

Enclosed are the analytical results for samples received by the laboratory on Thursday, March 29, 2018.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Ms. Sarah S Leung (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

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ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Ms. Sarah S Leung
Project Coordinator

ALS Environmental

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2305219 Group 1916534

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2305219001	SG3a-SB18-01-0.0-1.0	Other	3/6/2018 12:30	3/29/2018 10:25	Collected by Client
2305219002	SG3a-SB18-01-10.0-11.0	Solid	3/6/2018 12:35	3/29/2018 10:25	Collected by Client
2305219003	SG3a-SB18-01-15.0-20.0	Other	3/6/2018 12:40	3/29/2018 10:25	Collected by Client
2305219004	SG3a-SB18-01-8.0	Other	3/6/2018 12:45	3/29/2018 10:25	Collected by Client
2305219005	SG3a-SB18-01-21.0	Solid	3/6/2018 12:50	3/29/2018 10:25	Collected by Client
2305219006	SG3a-SB18-02-0.0-1.0	Solid	3/6/2018 14:35	3/29/2018 10:25	Collected by Client
2305219007	SG3a-SB18-02-10.0-11.0	Solid	3/6/2018 14:40	3/29/2018 10:25	Collected by Client
2305219008	SG3a-SB18-02-10.0-11.0 dupl	Solid	3/6/2018 14:40	3/29/2018 10:25	Collected by Client
2305219009	SG3a-SB18-02-15.0	Solid	3/6/2018 14:45	3/29/2018 10:25	Collected by Client
2305219010	SG3a-SB18-02-6.5	Solid	3/6/2018 14:50	3/29/2018 10:25	Collected by Client
2305219011	SG3a-SB18-02-9.0	Solid	3/6/2018 14:55	3/29/2018 10:25	Collected by Client

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SAMPLE SUMMARY

Workorder: 2305219 Group 1916534

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

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PROJECT SUMMARY

Workorder: 2305219 Group 1916534

Workorder Comments

This certificate of analysis was reissued to correct the sample ID for sample 005. SSL 04/06/18

Sample Comments

Lab ID: 2305219001 **Sample ID:** SG3a-SB18-01-0.0-1.0 **Sample Type:** SAMPLE

There was not enough volume to perform the dry weight analysis. SSL 04/05/18

Lab ID: 2305219003 **Sample ID:** SG3a-SB18-01-15.0-20.0 **Sample Type:** SAMPLE

There was not enough volume to perform the dry weight analysis. SSL 04/05/18

Lab ID: 2305219004 **Sample ID:** SG3a-SB18-01-8.0 **Sample Type:** SAMPLE

There was not enough volume to perform the dry weight analysis. SSL 04/05/18

Lab ID: 2305219005 **Sample ID:** SG3a-SB18-01-21.0 **Sample Type:** SAMPLE

There was not enough volume to perform the dry weight analysis. SSL 04/05/18

ALS Environmental

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ANALYTICAL RESULTS

Workorder: 2305219 Group 1916534

Lab ID: **2305219001** Date Collected: 3/6/2018 12:30 Matrix: Other

Sample ID: **SG3a-SB18-01-0.0-1.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Total Organic Carbon (TOC)	37200		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A

Ms. Sarah S Leung
Project Coordinator

ALS Environmental

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305219 Group 1916534

Lab ID: **2305219002** Date Collected: 3/6/2018 12:35 Matrix: Solid

Sample ID: **SG3a-SB18-01-10.0-11.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	15.7		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	9480		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A
Total Solids	84.3	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

Ms. Sarah S Leung
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2305219 Group 1916534

Lab ID: **2305219003** Date Collected: 3/6/2018 12:40 Matrix: Other

Sample ID: **SG3a-SB18-01-15.0-20.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Total Organic Carbon (TOC)	37400		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A

Ms. Sarah S Leung
Project Coordinator

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305219 Group 1916534

Lab ID: **2305219004** Date Collected: 3/6/2018 12:45 Matrix: Other

Sample ID: **SG3a-SB18-01-8.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Total Organic Carbon (TOC)	8080		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A

Ms. Sarah S Leung
Project Coordinator

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305219 Group 1916534

Lab ID: **2305219005** Date Collected: 3/6/2018 12:50 Matrix: Solid

Sample ID: **SG3a-SB18-01-21.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Total Organic Carbon (TOC)	20800		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305219 Group 1916534

Lab ID: **2305219006** Date Collected: 3/6/2018 14:35 Matrix: Solid

Sample ID: **SG3a-SB18-02-0.0-1.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	1.4		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	8860		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A
Total Solids	98.6	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

Ms. Sarah S Leung
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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305219 Group 1916534

Lab ID: **2305219007** Date Collected: 3/6/2018 14:40 Matrix: Solid

Sample ID: **SG3a-SB18-02-10.0-11.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	18.2		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	5580		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A
Total Solids	81.8	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305219 Group 1916534

Lab ID: **2305219008** Date Collected: 3/6/2018 14:40 Matrix: Solid

Sample ID: **SG3a-SB18-02-10.0-11.0 dupl** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	9.8		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	7170		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A
Total Solids	90.2	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305219 Group 1916534

Lab ID: **2305219009** Date Collected: 3/6/2018 14:45 Matrix: Solid

Sample ID: **SG3a-SB18-02-15.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	7.3		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	23200		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A
Total Solids	92.7	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

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Project Coordinator

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305219 Group 1916534

Lab ID: **2305219010** Date Collected: 3/6/2018 14:50 Matrix: Solid

Sample ID: **SG3a-SB18-02-6.5** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	7.6		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	9830		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A
Total Solids	92.4	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

Ms. Sarah S Leung
Project Coordinator

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305219 Group 1916534

Lab ID: **2305219011** Date Collected: 3/6/2018 14:55 Matrix: Solid

Sample ID: **SG3a-SB18-02-9.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	23.1		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	5780		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A
Total Solids	76.9	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

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Project Coordinator

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305219 Group 1916534

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2305219002	1	SG3a-SB18-01-10.0-11.0	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				
2305219006	1	SG3a-SB18-02-0.0-1.0	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				
2305219007	1	SG3a-SB18-02-10.0-11.0	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				
2305219008	1	SG3a-SB18-02-10.0-11.0 dupl	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				
2305219009	1	SG3a-SB18-02-15.0	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				
2305219010	1	SG3a-SB18-02-6.5	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				
2305219011	1	SG3a-SB18-02-9.0	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

230521 9

1 of 2

Client Name: Eurofins Lancaster Laboratories, Inc.
Address: 2425 New Holland Pike, Lancaster, PA 17601
Contact: Janine Eaby
Phone#: 656-2300 EXT.1520
Project Name/#: Group 1916534
Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: _____ Approved By: _____
Email? [X] -Y ENVsubcontracting@EurofinsUS.com
Fax? [ ] -Y No.: _____

Container Type	CG									
Container Size	2oz									
Preservative	—									

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	TOC									
					Enter Number of Containers Per Sample or Field Results Below.									
SG3a-SB18-01-0.0-1.0	3/6/2018	12:30	G	SW	1									
SG3a-SB18-01-10.0-11.0	3/6/2018	12:35	G	SW	1									
SG3a-SB18-01-15.0-20.0	3/6/2018	12:40	G	SW	1									
SG3a-SB18-01-8.0	3/6/2018	12:45	G	SW	1									
SG3a-SB18-01-21.0	3/6/2018	12:50	G	SW	1									
SG3a-SB18-02-0.0-1.0	3/6/2018	14:35	G	SW	1									
SG3a-SB18-02-10.0-11.0	3/6/2018	14:40	G	SW	1									
SG3a-SB18-02-10.0-11.0 MS	3/6/2018	14:40	G	SW	1									

Receipt Information (completed by Receiving Lab)

Cooler Temp: 5° Therm ID: 31K
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?	X		
COC/Labels Complete/Accurate?	X		
Cont. in Good Cond.?	X		
Correct Containers?	X		
Correct Sample Volumes?	X		
Correct Preservation?	X		
Headspace/Volatiles?			

Courier/Tracking #:

Sample/COC Comments

9491688
9491689
9491690
9491691
9491692
9491694
9491695
9491696

ALS Field Services: __Pickup __Labor
__Composite Sampling __Rental Equipment
__Other: _____

Project Comments: From Vermont

LOGGED BY(signature): Date: Time:
REVIEWED BY(signature): Date: Time:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1			2 Dawn Wilson ALS	3/7	1015
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]
Special Processing: USACE [ ] Navy [ ]
State Samples Collected In: [ ] NY [ ] NJ [X] PA [ ] NC [ ]
Reportable to PADEP? Yes [ ] PWSID # _____
Sample Disposal: Lab [ ] Special [ ]
EDDS: Format Type- _____

* G=Grab; C=Composite ** Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Rev 10/11

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34 Dogwood Lane
Middletown, PA 17057
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F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 5219 | 2 of 2
ALS Quote #:

Client Name: Eurofins Lancaster Laboratories, Inc.
Address: 2425 New Holland Pike, Lancaster, PA 17601
Contact: Janine Eaby
Phone#: 656-2300 EXT.1520
Project Name/#: Group 1916534
Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: _____ Approved By: _____
Email? [X] -Y ENVsubcontracting@EurofinsUS.com
Fax? [ ] -Y No.: _____

Container Type: 2066
Container Size: 40Z
Preservative: —

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	TOC								Sample/COC Comments
			Enter Number of Containers Per Sample or Field Results Below.										
SG3a-SB18-02-10.0-11.0 Dupl	3/6/2018	14:40	G	SW	1								9491698
SG3a-SB18-02-15.0	3/6/2018	14:45	G	SW	1								9491699
SG3a-SB18-02-6.5	3/6/2018	14:50	G	SW	1								9491700
SG3a-SB18-02-9.0	3/6/2018	14:55	G	SW	1								9491701

Receipt Information (completed by Receiving Lab)
Cooler Temp: 5° Therm ID: 358
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?	X		
COC/Labels Complete/Accurate?	X		
Cont. in Good Cond.?	X		
Correct Containers?	X		
Correct Sample Volumes?	X		
Correct Preservation?	X		
Headspace/Volatiles?			

Courier/Tracking #:

ALS Field Services: _Pickup _Labor
_Composite Sampling _Rental Equipment
_Other: _____

Project Comments: From Vermont

LOGGED BY(signature): _____ DATE _____ TIME _____
REVIEWED BY(signature): _____ DATE _____ TIME _____

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 SAMPLER			[illegible] ALS	3-29	1025
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]
Special Processing: USACE [ ] Navy [ ]
State Samples Collected In: [ ] NY [ ] NJ [X] PA [ ] NC [ ]
Reportable to PADEP? Yes [ ]
PWSID # _____
Sample Disposal: Lab [ ] Special [ ]
EDDS: Format Type- _____

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

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F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: | of
ALS Quote #:

Client Name: Eurofins Lancaster Laboratories, Inc.
Address: 2425 New Holland Pike, Lancaster, PA 17601
Contact: Janine Eaby
Phone#: 656-2300 EXT.1520
Project Name/#: Group 1916534
Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required: _____ Approved By: _____
Email? [X] -Y ENVsubcontracting@EurofinsUS.com
Fax? [ ] -Y No.: _____

Container Type: G6
Container Size: 40Z
Preservative: —

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	TOC	Sample/COC Comments
SG3a-SB18-02-10.0-11.0 Dupl	3/6/2018	14:40	G	SW	1	9491698
SG3a-SB18-02-15.0	3/6/2018	14:45	G	SW	1	9491699
SG3a-SB18-02-6.5	3/6/2018	14:50	G	SW	1	9491700
SG3a-SB18-02-9.0	3/6/2018	14:55	G	SW	1	9491701
SG3a-SB18-02-10.0-11.0	3/6/18	1440				9491695
X=per clients confirmation GSL 3/29/18						

Enter Number of Containers Per Sample or Field Results Below.

Receipt Information (completed by Receiving Lab)
Cooler Temp: 5° Therm ID: 318
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?	X		
COC/Labels Complete/Accurate?	X		
Cont. in Good Cond.?	X		
Correct Containers?	X		
Correct Sample Volumes?	X		
Correct Preservation?	X		
Headspace/Volatiles?		N	

Courier/Tracking #:

ALS Field Services: _Pickup _Labor _Composite Sampling _Rental Equipment _Other: _____

Project Comments: From Vermont

LOGGED BY(signature): Date: Time:
REVIEWED BY(signature): Date: Time:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1			2		
3	3/29/18	1005	4 Chem Waste Mgt	3/29	1028
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]
Special Processing: USACE [ ] Navy [ ]
State Samples Collected In: [ ] NY [ ] NJ [X] PA [ ] NC [ ]
Reportable to PADEP? Yes [ ] PWSID # _____
Sample Disposal: Lab [ ] Special [ ]
EDDS: Format Type- _____

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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Form 4B
Inorganic Blank Summary

Analysis Method: SW846 9060A
Instrument: TOC

SDG No.: LPL011

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2715240	Total Organic Carbon (TOC)	MB	QC-Solid	04/02/2018 14:33	500	U	mg/kg
2715243	Total Organic Carbon (TOC)	MB	QC-Solid	04/02/2018 14:33	500	U	mg/kg
2715246	Total Organic Carbon (TOC)	MB	QC-Solid	04/02/2018 14:33	500	U	mg/kg

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Sample Description

SG3a-SB18-02-10.0-11.0

Form 3A
Matrix Spike Recovery Summary

Analysis Method: SW846 9060A
Matrix (soil/water): Solid

SDG No.: LPL011
Units: mg/kg
Lab Sample ID: 2305219007
Lab MS Sample ID: 2715245

Analyte	Spike Added	Sample Concentration	MS Concentration	MS Recovery (%)	(1)	Acceptable Limits (%)
Total Organic Carbon (TOC)	500	5580	10500	974	*	80 - 120

[Sample] > 4x spike added
∴ no qual

(1) The following qualifiers are used:

* : Values outside of acceptable limits
D : Spikes diluted out

Comments:

B. SDG SNB96

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	Saint Gobain Vermont	Reviewed by:	BE 5/22/18
Sample Collection Dates:	3/7/18, 3/9/18	Approved by:	THW
Job Number:	20167391.NBEN	Completion Date:	5/2018
Project Manager:	Meg Michell		
Laboratory:	ELLE	Applicable Sample No's (X)	Refer to Table 1 in the Quality Assurance Review

			Sample No.	Lab Control No.
Deliverable:	CLP (Full)	( )	SNB96	
	Level IV (Full)	( )		
	Limited	(X)		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	PFAS	VOC	SVOC			PFAS	VOC	SVOC			PFAS	VOC	SVOC		
Holding Times	X	X	X								X	X	X		
Blank Analysis: Target Cmpds	X	X	X								X	X	X		
Sys Montr Cmps/Surrogates		X	X									X	X		
Matrix Spike/Matrix Spike Duplicate	X										X				
Blank Spike	X	X	X			X					X	X	X		
Duplicate Analysis (X) Field ( ) Lab	X														
Detection Limit/Sensitivity															
Qualitative Identification: Target Cmpds															
Qualitative Identification: TICs															
DFTPP & BFB Mass Tuning															
GC Instrument Performance															
Initial Calibrations															
Continuing Calibrations															
Quantitation of Results															
DDT/Endrin Breakdown															
Surrogate Retention Time Shifts															
Internal Standards Performance	X					X					X				
Resolution Check Standards															
Analytical Sequence															
Florisil Cartridge & GPC Calibration															
GC Column Agreement															
Condition Upon Receipt	X	X	X								X	X	X		
Percent Solids	X										X				
Others:															

Comments: _____

ENVIRONMENTAL STANDARDS

INORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: Saint Gobain Bennington
Sample Collection Dates: 3/7/18, 3/9/18
Job Number: 20167391.NBEN
Project Manager: Meg Michell
Laboratory: ELLE, ALS

Reviewed by: BE 5/22/18
Approved by: THW
Completion Date: 5/2018

Applicable Sample No's (X)

Refer to Table 1 in the Quality Assurance Review

Deliverable:			Sample No.	Lab Control No.
	CLP (Full)	( )	SNB96	
	Level IV (Full)	( )		
	Limited	(X)		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	Metals	pH	Mois	TOC		Metals	pH	Mois	TOC		Metals	pH	Mois	TOC	
Holding Times	X	X	X	X							X	X	X	X	
Blank Analysis Results	X			X							X			X	
Matrix Spike (Predigestion) Results	X			X		✗			X		X			X	
Duplicate Analysis: (X) Field (X) Lab	X	X	X	X					X		X	X	X	X	
Quantitation of Results															
Detection Limit/Sensitivity															
Initial Calibrations															
Continuing Calibrations															
Laboratory Control Standard (LCS)	X										X				
ICP Linear Range Analysis															
ICP Interference Checks															
ICP Serial Dilutions															
ICP Post-Digestion Spike															
GFAA Post Digestion Spikes															
GFAA Duplicate Injections															
ICP Multiple Exposures															
GFAA Standard Additions															
CRDL Standards															
Condition on Receipt	X	X	X	X							X	X	X	X	
Percent Solids		X	X	X								X	X	X	
Others:															

Comments:

ENVIRONMENTAL STANDARDS

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample / batch ID	Contaminant	Concentration ng/L	Qualification limit	
						5×	10×
O	Aq	RB	SG3a-RB01-180307	PFHpA	2	10	
				PFHxA	1	5	
				PFOA	140	700	
O	Aq	RB	SG3a-RB02-180307	PFHpA	1	5	
				PFHxA	0.7	3.5	
				PFOA	71	355	
O	Aq	RB	SG3a-RB04-180307	PFDA	2	10	
				PFDoA	2	10	
				PFHpA	3	15	
				PFHxA	2	10	
				PFNA	0.8	4	
				PFOA	360	1800	
				PFTA	2	10	
				PFTriA	1	5	
				PFUnA	0.7	3.5	
O	Aq	RB	SG3a-RB03-180307	PFOA	13	65	
O	Aq	RB	SG3a-RB01-180309	PFDoA	0.5	2.5	
				PFHpA	1	5	
				PFHxA	0.7	3.5	
				PFNA	0.4	2	
				PFOA	120	600	

1 - V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: PFC

2 - MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; RB = Rinse Blank

Notes: _____

** Columns G and H contains formulas

BLANK ANALYSIS RESULTS FOR INORGANIC PARAMETERS

Analysis Type	Matrix (Aq, S)	Blank Type (2)	Blank Sample Number / Batch Number	Contaminant	Concentration (mg/l)	Qualif Limit
			SDG: SNB96			5X
M	Aq	EB	SG3a-EB01-180309	Cu	0.0045	0.0225
M	Aq	MB	180741063901D	Ba	0.0016	0.0080

2: MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes: _____

_____

_____

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Matrix: ○ Aqueous ◉ Non-a
Reporting Level: ◉ MDL ○ QL
Units: mg/kg

PRECISION OBJECTIVES:
If Both Results ≥ 5 × Their QL, RPD ≤: 30
If Either Result < 5 × Its QL, Dif. ≤: 1.5 **× Highest QL**

Sample ID: SG3a-SB18-04-0.0-1.0 **Duplicate Sample ID:** SG3a-FD01-180307

Analyte	Sample Concentration	Qual	QL	MDL	Duplicate Concentration	Qual	QL	MDL	Difference	RPD	Flag
PFOA	0.35	J	0.58	0.19	0.55		0.47	0.16	0.2	NA	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

SNB62

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Matrix: ○ Aqueous ◉ Non-a **PRECISION OBJECTIVES:**
Reporting Level: ◉ MDL ○ QL
Units: mg/kg

If Both Results ≥ 5 × Their QL, RPD ≤: 40
If Either Result < 5 × Its QL, Dif. ≤: 2.0 **× Highest QL**

Sample ID: SG3a-SB18-07-15.0-18.0 **Duplicate Sample ID:** SG3a-FD01-180312

Analyte	Sample Concentration	Qual	QL	MDL	Duplicate Concentration	Qual	QL	MDL	Difference	RPD	Flag
pH	7.94		0.0100	0.0100	8.04		0.0100	0.0100	NA	1%	
Moisture	5.4		0.50	0.50	4.9		0.50	0.50	NA	10%	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

SNB62

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3a-RB01-180307 Grab Rinse Water	03/07/2018 08:35	9497789
SG3a-RB02-180307 Grab Rinse Water	03/07/2018 08:40	9497790
SG3a-SB18-04-0.0-1.0 Grab Soil	03/07/2018 09:25	9497791
SG3a-SB18-04-10.0-11.0 Grab Soil	03/07/2018 09:30	9497792
SG3a-SB18-04-15.0-20.0 Grab Soil	03/07/2018 09:35	9497793
SG3a-SB18-04-8.0 Grab Soil	03/07/2018 09:40	9497794
SG3a-FD01-180307 Grab Soil	03/07/2018	9497795
SG3a-SB18-05-0.0-1.0 Grab Soil	03/07/2018 10:15	9497796
SG3a-SB18-05-10.0-11.0 Grab Soil	03/07/2018 10:20	9497797
SG3a-SB18-05-15.0-20.0 Grab Soil	03/07/2018 10:25	9497798
SG3a-SB18-05-22.0 Grab Soil	03/07/2018 10:30	9497799
SG3a-RB04-180307 Grab Rinse Water	03/07/2018 11:35	9497800
SG3a-RB03-180307 Grab Rinse Water	03/07/2018 11:05	9497801
SG3a-SB18-06-10.0-11.0 Grab Soil	03/09/2018 09:00	9497802
SG3a-SB18-06-0.0-1.0 Grab Soil	03/09/2018 08:50	9497803
SG3a-SB18-06-0.0-1.0 MS Grab Soil	03/09/2018 08:50	9497804
SG3a-SB18-06-0.0-1.0 MSD Grab Soil	03/09/2018 08:50	9497805
SG3a-SB18-06-0.0-1.0 Dupl Grab Soil	03/09/2018 08:50	9497806
SG3a-RB01-180309 Grab Rinse Water	03/09/2018 12:15	9497807
SG3a-EB01-180309 Grab Blank Water	03/09/2018 15:05	9497808
SG3a-EB02-180309 Grab Blank Water	03/09/2018 15:20	9497809
SG3a-LTB01-180309 Blank Water	03/09/2018	9497810
SG3a-FTB01-180309 Grab Blank Water	03/09/2018 15:35	9497811
SG3a-SB18-03-15.0-17.0 Grab Soil	03/06/2018 16:10	9497812
SG3a-SB18-03-14.0 Grab Soil	03/06/2018 16:20	9497813
SG3a-SB18-03-0.0-1.0 Grab Soil	03/06/2018 16:00	9497814
SG3a-SB18-03-10.0-11.0 Grab Soil	03/06/2018 16:05	9497815
SG3a-SB18-03-13.0 Grab Soil	03/06/2018 16:15	9497816

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1917875

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Batch #: 5180793AA (Sample number(s): 9497808, 9497810)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: trans-1,2-Dichloroethene, Chloroform, 1,1-Dichloroethene

SW-846 8270D, GC/MS Semivolatiles

Batch #: 18071WAI026 (Sample number(s): 9497808 UNSPK: P495929)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: 2-Chloronaphthalene

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9497791, 9497792, 9497793, 9497794, 9497795, 9497796, 9497797, 9497798, 9497799, 9497802, 9497803, 9497804, 9497805, 9497812, 9497813, 9497815, 9497816

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18071004 (Sample number(s): 9497789-9497790, 9497801, 9497807-9497811)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorododecanoic acid, Perfluoroundecanoic acid, Perfluoroheptanoic acid

Batch #: 18073006 (Sample number(s): 9497792-9497796, 9497798-9497799, 9497803-9497805, 9497812-9497816 UNSPK: 9497803)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9497792, 9497793, 9497794, 9497795, 9497796, 9497798, 9497799, 9497803, 9497804, 9497805, 9497812,

9497813, 9497815, 9497816, LCS, MS, MSD

Batch #: 18079011 (Sample number(s): 9497791, 9497797, 9497802 UNSPK: 9497791)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9497791, 9497797, 9497802, Blank, MS

SW-846 6010C, Metals

Batch #: 180721063504 (Sample number(s): 9497808 UNSPK: P497433 BKG: P497433)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Calcium, Manganese, Magnesium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum

SW-846 6020A, Metals

Batch #: 180741063901A (Sample number(s): 9497808 UNSPK: P497754 BKG: P497754)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Arsenic, Copper

Batch #: 180741063901D (Sample number(s): 9497808 UNSPK: P497754 BKG: P497754)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

SW-846 7470A, Metals

Batch #: 180720571304 (Sample number(s): 9497808 UNSPK: P497751 BKG: P497751)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Mercury

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Mercury

SW-846 9045D modified, Wet Chemistry

Sample #s: 9497814

The pH was measured in water at 20.2 C.

Sample #s: 9497802, 9497815

The pH was measured in water at 20.4 C.

Sample #s: 9497797, 9497799, 9497803, 9497812, 9497813

The pH was measured in water at 20.5 C.

Sample #s: 9497792, 9497794, 9497816

The pH was measured in water at 20.6 C.

Sample #s: 9497791, 9497795, 9497806

The pH was measured in water at 20.7 C.

Sample #s: 9497798

The pH was measured in water at 20.8 C.

Sample #s: 9497793, 9497796

The pH was measured in water at 20.9 C.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1917875 Sample # 9497789-816

COC # 545878

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP - Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: CB, DK, KM	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Soil ☒ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☐ Surface ☐ NPDES ☐ | Other: Rinse water

Analysis Requested — Preservation Codes

For Lab Use Only: FSC: ____ SCR#: ____

Preservation Codes: H=HCl, T=Thiosulfate, N=HNO_3, B=NaOH, S=H_2SO_4, O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Water	Other	Total # of Containers	14 PFAS	PH	Moisture	TOC	Remarks
SG3a - RB01 - 180307	3/7/18	0835	X				X	2	X				MacroBarrel (SB18-04)
SG3a - RB02 - 180307		0840	X				X	2	X				MacroBarrel (SB18-05)
SG3a - SB18-04 - 0.0-1.0		0725	X		X			2	X	X	X	X	
SG3a - SB18-04 - 10.0-11.0		0930	X		X			2	X	X	X	X	
SG3a - SB18-04 - 15.0-20.0		0935	X		X			2	X	X	X	X	
~~SG3a - SB18-04~~ CB 3/7/18			~~X~~										
SG3a - SB18-04 - 8.0		0940	X		X			2	X	X	X	X	
SG3a - FD01 - 180307		—	X		X			2	X	X	X	X	
SG3a - SB18-05 - 0.0 - 1.0		1015	X		X			2	X	X	X	X	
SG3a - SB18-05 - 10.0 - 11.0		1020	X		X			2	X	X	X	X	

Turnaround Time (TAT) Requested (please circle)

(Standard) Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or B | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Chris Burke	3/9/18	1730			
			Received by	3/10/18	1020

EDD Required? Yes No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 1.2-2.6 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1917875 Sample # 9497789-816

COC # 545879

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP-Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6171
Sampler: CB, DK, KM	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Soil ☒ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ | Other: Rinse water

Analysis Requested

Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Water	Other	Total # of Containers	14 PFAS	pH	moisture	TOC	VOC	TAL metals	SVOCs	Remarks
SG3a-SB18-05-15.0-20.0	3/7/18	1025	X		X			2	X	X	X	X				
SG3a-SB18-05-22.0		1030	X		X			2	X	X	X	X				
SG3a-RB04-180307		1135	X				X	2	X							Cement Barrel 06 re-drill
SG3a-RB03-180307	↓	1105	X				X	2	X							Macro Barrel (SB18-06)
SG3a-SB18-06-10.0-11.0	3/9/18	0900	X		X		~~X~~	2	X	X	X	X				
SG3a-SB18-06-0.0-1.0		0850	X		X		~~X~~	6	X	X	X	X				MS/MSD
SG3a-RB01-180309		1215	X				X	2	X							Cement Barrel 07
SG3a-EB01-180309		1505	X				X	10	X			X	X	X	X	Nitrile Glove
SG3a-EB02-180309		1520	X				X	4	X			X				Ziplol Bag
SG3a-LTB01-180309	↓	—	X				X	4	X				X			

Preservation Codes: H=HCl, T=Thiosulfate, N=HNO_3, B=NaOH, S=H_2SO_4, O=Other

For Lab Use Only: FSC: ____ SCR#: ____

Turnaround Time (TAT) Requested (please circle)

(Standard) Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or B | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Cliff Burch	3/9/18	1730			
				3/10/18	1020

EDD Required? Yes No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 1.2-2.6 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1917375 Sample # 9497739-816

COC # 532389

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SG2r - Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: CB, DK, KM	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Soil ☒ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ | Other: Rinse water

Analysis Requested

Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	14 PFAS	pH	Moisture	TOC
SG3a - FTB01-180309	3/9/18	1535	X		2	X			
SG3a - SB18-03-15.0-17.0	3/6/18	1610	X		2	X	X	X	X
SG3a - SB18-03-14.0		1620	X		2	X	X	X	X
SG3a - SB18-03-0.0-1.0		1600	X		2	X	X	X	X
SG3a - SB18-03-10.0-11.0		1605	X		2	X	X	X	X
SG3a - SB18-03-13.0		1615	X		2	X	X	X	X

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Cliff Burt	3/9/18	1730			
			Received by	3/10/18	1020

EDD Required? Yes No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS FedEx ✓ Other

Temperature upon receipt 1.2-2.6 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 210533

Group Number(s): 1917875

Client: C.T. Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/10/2018 10:20
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Two 40mL HCl vials and two 250mL Unpreserved bottles

Unpacked by Simon Nies (25112) at 15:37 on 03/10/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.2	DT	Wet	Y	Bagged	N
2	DT146	2.6	DT	Wet	Y	Bagged	N

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 5180793AA	Sample number(s): 9497808,9497810		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ug/l		ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5	U	0.5	1
Tetrachloroethene	0.5	U	0.5	1
Toluene	0.5	U	0.5	1
1,2,3-Trichlorobenzene	1	U	1	5
1,2,4-Trichlorobenzene	1	U	1	5
1,1,1-Trichloroethane	0.5	U	0.5	1
1,1,2-Trichloroethane	0.5	U	0.5	1
Trichloroethene	0.5	U	0.5	1
Trichlorofluoromethane	0.5	U	0.5	1
Vinyl Chloride	0.5	U	0.5	1
m+p-Xylene	0.5	U	0.5	1
o-Xylene	0.5	U	0.5	1
Batch number: 18071WAI026	Sample number(s): 9497808			
Acenaphthene	0.1	U	0.1	0.5
Acenaphthylene	0.1	U	0.1	0.5
Acetophenone	0.5	U	0.5	1
Anthracene	0.1	U	0.1	0.5
Atrazine	2	U	2	5
Benzaldehyde	1	U	1	5
Benzo(a)anthracene	0.1	U	0.1	0.5
Benzo(a)pyrene	0.1	U	0.1	0.5
Benzo(b)fluoranthene	0.1	U	0.1	0.5
Benzo(g,h,i)perylene	0.1	U	0.1	0.5
Benzo(k)fluoranthene	0.1	U	0.1	0.5
1,1'-Biphenyl	0.5	U	0.5	1
4-Bromophenyl-phenylether	0.5	U	0.5	1
Butylbenzylphthalate	2	U	2	5
Di-n-butylphthalate	2	U	2	5
Caprolactam	5	U	5	15
Carbazole	0.5	U	0.5	1
4-Chloro-3-methylphenol	0.5	U	0.5	1
4-Chloroaniline	2	U	2	4
bis(2-Chloroethoxy)methane	0.5	U	0.5	1
bis(2-Chloroethyl)ether	0.5	U	0.5	1
2-Chloronaphthalene	0.4	U	0.4	1
2-Chlorophenol	0.5	U	0.5	1
4-Chlorophenyl-phenylether	0.5	U	0.5	1
2,2'-oxybis(1-Chloropropane)	0.5	U	0.5	1
Chrysene	0.1	U	0.1	0.5
Dibenz(a,h)anthracene	0.1	U	0.1	0.5
Dibenzofuran	0.5	U	0.5	1
3,3'-Dichlorobenzidine	2	U	2	5
2,4-Dichlorophenol	0.5	U	0.5	1
Diethylphthalate	2	U	2	5

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
2,4-Dimethylphenol	0.5 U	0.5	1
Dimethylphthalate	2 U	2	5
4,6-Dinitro-2-methylphenol	5 U	5	15
2,4-Dinitrophenol	10 U	10	30
2,4-Dinitrotoluene	1 U	1	5
2,6-Dinitrotoluene	0.5 U	0.5	1
1,4-Dioxane	1 U	1	5
bis(2-Ethylhexyl)phthalate	2 U	2	5
Fluoranthene	0.1 U	0.1	0.5
Fluorene	0.1 U	0.1	0.5
Hexachlorobenzene	0.1 U	0.1	0.5
Hexachlorobutadiene	0.5 U	0.5	1
Hexachlorocyclopentadiene	5 U	5	15
Hexachloroethane	1 U	1	5
Indeno(1,2,3-cd)pyrene	0.1 U	0.1	0.5
Isophorone	0.5 U	0.5	1
2-Methylnaphthalene	0.1 U	0.1	0.5
2-Methylphenol	0.5 U	0.5	1
4-Methylphenol	0.5 U	0.5	1
Naphthalene	0.1 U	0.1	0.5
2-Nitroaniline	0.5 U	0.5	1
3-Nitroaniline	0.5 U	0.5	1
4-Nitroaniline	0.5 U	0.5	1
Nitrobenzene	0.5 U	0.5	1
2-Nitrophenol	0.5 U	0.5	1
4-Nitrophenol	10 U	10	30
N-Nitroso-di-n-propylamine	0.5 U	0.5	1
N-Nitrosodiphenylamine	0.5 U	0.5	1
Di-n-octylphthalate	2 U	2	5
Pentachlorophenol	1 U	1	5
Phenanthrene	0.1 U	0.1	0.5
Phenol	0.5 U	0.5	1
Pyrene	0.1 U	0.1	0.5
1,2,4,5-Tetrachlorobenzene	0.5 U	0.5	1
2,3,4,6-Tetrachlorophenol	0.5 U	0.5	1
2,4,5-Trichlorophenol	0.5 U	0.5	1
2,4,6-Trichlorophenol	0.5 U	0.5	1
	ng/g	ng/g	ng/g
Batch number: 18073006	Sample number(s): 9497792-9497796,9497798-9497799,9497803-9497805,9497812-9497816		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.20 U	0.20	0.60
Perfluorononanoic acid	0.20 U	0.20	0.60
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
Batch number: 18079011	Sample number(s): 9497791,9497797,9497802		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.20 U	0.20	0.60
Perfluorononanoic acid	0.20 U	0.20	0.60
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 18071004	Sample number(s): 9497789-9497790,9497801,9497807-9497811		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
Batch number: 18079014	Sample number(s): 9497800		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 180720571304	Sample number(s): 9497808		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 180721063504	Sample number(s): 9497808		
Aluminum	0.0894 U	0.0894	0.400
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 180741063901A	Sample number(s): 9497808		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 180741063901B	Sample number(s): 9497808		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 180741063901D	Sample number(s): 9497808		
Barium	0.0016 J	0.00072	0.0040
Batch number: 18071667603B	Sample number(s): 9497808-9497809		

.0080 EB : no qual

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

Method Blank (continued)

Analysis Name	Result mg/l	MDL** mg/l	LOQ mg/l
Total Organic Carbon	0.50 U	0.50	1.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 5180793AA	Sample number(s): 9497808,9497810								
Acetone	150	134.49	150	147.42	90	98	54-157	9	30
Benzene	20	21.65	20	21.62	108	108	80-120	0	30
Bromochloromethane	20	22	20	21.14	110	106	80-120	4	30
Bromodichloromethane	20	22.72	20	22.28	114	111	71-120	2	30
Bromoform	20	20.55	20	19.69	103	98	59-120	4	30
Bromomethane	20	23.55	20	22.6	118	113	58-130	4	30
2-Butanone	150	163.74	150	157.13	109	105	59-135	4	30
Carbon Disulfide	20	24.41	20	23.58	122	118	65-128	3	30
Carbon Tetrachloride	20	24.25	20	23.98	121	120	64-134	1	30
Chlorobenzene	20	21.3	20	20.98	107	105	80-120	2	30
Chloroethane	20	20.92	20	21.18	105	106	61-123	1	30
Chloroform	20	24.05	20	24.12	120	121* ND	80-120	0	30
Chloromethane	20	19.9	20	18.55	100	93	63-120	7	30
Cyclohexane	20	20.38	20	20.25	102	101	67-121	1	30
1,2-Dibromo-3-chloropropane	20	22.53	20	20.43	113	102	53-128	10	30
Dibromochloromethane	20	21.99	20	22.31	110	112	71-120	1	30
1,2-Dibromoethane	20	21.83	20	21.68	109	108	75-120	1	30
1,2-Dichlorobenzene	20	21.37	20	20.56	107	103	80-120	4	30
1,3-Dichlorobenzene	20	20.61	20	20.33	103	102	80-120	1	30
1,4-Dichlorobenzene	20	21.42	20	20.97	107	105	80-120	2	30
Dichlorodifluoromethane	20	20.28	20	19.96	101	100	47-124	2	30
1,1-Dichloroethane	20	22.27	20	22.18	111	111	80-120	0	30
1,2-Dichloroethane	20	24.56	20	24.26	123	121	73-124	1	30
1,1-Dichloroethene	20	26.37	20	25.38	132* ND	127	80-131	4	30
cis-1,2-Dichloroethene	20	23.25	20	23.07	116	115	80-120	1	30
trans-1,2-Dichloroethene	20	24.42	20	24.34	122*	122* ND	80-120	0	30
1,2-Dichloropropane	20	21.25	20	20.7	106	104	80-120	3	30
cis-1,3-Dichloropropene	20	19.91	20	20.08	100	100	75-120	1	30
trans-1,3-Dichloropropene	20	20.69	20	20.29	103	101	76-120	2	30
Ethylbenzene	20	21.27	20	21.39	106	107	80-120	1	30
Freon 113	20	24.61	20	23.51	123	118	68-137	5	30
2-Hexanone	100	105.16	100	100.16	105	100	50-141	5	30
Isopropylbenzene	20	21.21	20	20.97	106	105	80-120	1	30
Methyl Acetate	20	22.97	20	23	115	115	64-130	0	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Methyl Tertiary Butyl Ether	20	20.56	20	21.5	103	107	75-120	4	30
4-Methyl-2-pentanone	100	103.91	100	99.76	104	100	62-133	4	30
Methylcyclohexane	20	18.8	20	18.66	94	93	67-121	1	30
Methylene Chloride	20	23.09	20	22.78	115	114	80-120	1	30
Styrene	20	20.58	20	20.36	103	102	80-120	1	30
1,1,2,2-Tetrachloroethane	20	20.86	20	20.73	104	104	72-120	1	30
Tetrachloroethene	20	22.7	20	22.25	114	111	80-120	2	30
Toluene	20	20.78	20	20.87	104	104	80-120	0	30
1,2,3-Trichlorobenzene	20	20.85	20	19.49	104	97	66-120	7	30
1,2,4-Trichlorobenzene	20	19.43	20	18.5	97	93	70-120	5	30
1,1,1-Trichloroethane	20	23.51	20	23.03	118	115	67-126	2	30
1,1,2-Trichloroethane	20	22.36	20	22.17	112	111	80-120	1	30
Trichloroethene	20	23.45	20	22.95	117	115	80-120	2	30
Trichlorofluoromethane	20	25.17	20	24.83	126	124	60-136	1	30
Vinyl Chloride	20	19.87	20	20.45	99	102	68-120	3	30
m+p-Xylene	40	42.55	40	42.52	106	106	80-120	0	30
o-Xylene	20	20.09	20	19.84	100	99	80-120	1	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 18071WAI026	Sample number(s): 9497808								
Acenaphthene	50	48.03			96		49-123		
Acenaphthylene	50	51.23			102		67-111		
Acetophenone	50	48.22			96		53-118		
Anthracene	50	47.8			96		55-126		
Atrazine	50	52.34			105		65-126		
Benzaldehyde	50	48.86			98		49-110		
Benzo(a)anthracene	50	48.1			96		63-124		
Benzo(a)pyrene	50	48.9			98		50-128		
Benzo(b)fluoranthene	50	48.69			97		58-127		
Benzo(g,h,i)perylene	50	47.93			96		51-124		
Benzo(k)fluoranthene	50	50.46			101		63-123		
1,1'-Biphenyl	50	45.74			91		45-118		
4-Bromophenyl-phenylether	50	46.29			93		53-127		
Butylbenzylphthalate	50	42.52			85		40-131		
Di-n-butylphthalate	50	47.27			95		58-119		
Caprolactam	50	13.21			26		13-37		
Carbazole	50	52.19			104		65-123		
4-Chloro-3-methylphenol	50	47.57			95		50-130		
4-Chloroaniline	50	44.86			90		33-106		
bis(2-Chloroethoxy)methane	50	47.99			96		54-127		
bis(2-Chloroethyl)ether	50	44.24			88		48-119		
2-Chloronaphthalene	50	41.57			83		41-123		
2-Chlorophenol	50	42.4			85		47-116		
4-Chlorophenyl-phenylether	50	43.23			86		45-124		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
2,2'-oxybis(1-Chloropropane)	50	44.83			90		40-117		
Chrysene	50	48.58			97		65-124		
Dibenz(a,h)anthracene	50	49.55			99		53-132		
Dibenzofuran	50	47.03			94		50-124		
3,3'-Dichlorobenzidine	50	43.89			88		32-106		
2,4-Dichlorophenol	50	46.6			93		53-126		
Diethylphthalate	50	44.93			90		42-124		
2,4-Dimethylphenol	50	40.89			82		41-103		
Dimethylphthalate	50	34.77			70		19-119		
4,6-Dinitro-2-methylphenol	50	48.64			97		50-132		
2,4-Dinitrophenol	100	89.97			90		19-140		
2,4-Dinitrotoluene	50	49.6			99		56-128		
2,6-Dinitrotoluene	50	49.79			100		57-131		
1,4-Dioxane	50	22			44		18-67		
bis(2-Ethylhexyl)phthalate	50	49.02			98		52-132		
Fluoranthene	50	49.71			99		61-123		
Fluorene	50	46.56			93		48-124		
Hexachlorobenzene	50	44.49			89		57-123		
Hexachlorobutadiene	50	30.76			62		16-119		
Hexachlorocyclopentadiene	100	43.13			43		10-104		
Hexachloroethane	50	29.87			60		19-105		
Indeno(1,2,3-cd)pyrene	50	45.16			90		52-127		
Isophorone	50	47.64			95		49-129		
2-Methylnaphthalene	50	43.05			86		42-120		
2-Methylphenol	50	42.9			86		46-113		
4-Methylphenol	50	39.6			79		42-115		
Naphthalene	50	42.12			84		44-114		
2-Nitroaniline	50	50.07			100		54-133		
3-Nitroaniline	50	49.19			98		41-123		
4-Nitroaniline	50	46.32			93		46-114		
Nitrobenzene	50	44.33			89		43-128		
2-Nitrophenol	50	46.53			93		58-125		
4-Nitrophenol	50	28.49			57		10-96		
N-Nitroso-di-n-propylamine	50	46.29			93		48-128		
N-Nitrosodiphenylamine	50	49.5			99		55-128		
Di-n-octylphthalate	50	49.54			99		51-134		
Pentachlorophenol	50	51.94			104		50-127		
Phenanthrene	50	46.08			92		54-122		
Phenol	50	24.41			49		10-92		
Pyrene	50	48.26			97		54-123		
1,2,4,5-Tetrachlorobenzene	50	38.23			76		30-117		
2,3,4,6-Tetrachlorophenol	50	49.61			99		60-128		
2,4,5-Trichlorophenol	50	51			102		59-129		
2,4,6-Trichlorophenol	50	48.55			97		61-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 18073006	Sample number(s): 9497792-9497796,9497798-9497799,9497803-9497805,9497812-9497816								
Perfluorobutanesulfonate	1.20	1.11			92		70-130		
Perfluorobutanoic acid	1.36	1.39			102		70-130		
Perfluorodecanoic acid	1.36	1.20			88		70-130		
Perfluorododecanoic acid	1.36	1.30			95		70-130		
Perfluoroheptanoic acid	1.36	1.36			100		70-130		
Perfluorohexanesulfonate	1.29	1.05			81		70-130		
Perfluorohexanoic acid	1.36	1.32			97		70-130		
Perfluorononanoic acid	1.36	1.25			92		70-130		
Perfluoro-octanesulfonate	1.30	1.19			91		70-130		
Perfluorooctanoic acid	1.36	1.24			91		70-130		
Perfluoropentanoic acid	1.36	1.18			87		70-130		
Perfluorotetradecanoic acid	1.36	1.41			104		70-130		
Perfluorotridecanoic acid	1.36	1.14			84		70-130		
Perfluoroundecanoic acid	1.36	1.40			103		70-130		
Batch number: 18079011	Sample number(s): 9497791,9497797,9497802								
Perfluorobutanesulfonate	1.20	1.15	1.20	1.22	95	101	70-130	6	30
Perfluorobutanoic acid	1.36	1.39	1.36	1.42	102	105	70-130	2	30
Perfluorodecanoic acid	1.36	1.37	1.36	1.38	100	102	70-130	1	30
Perfluorododecanoic acid	1.36	1.45	1.36	1.31	107	96	70-130	11	30
Perfluoroheptanoic acid	1.36	1.43	1.36	1.40	105	103	70-130	2	30
Perfluorohexanesulfonate	1.29	1.26	1.29	1.16	98	90	70-130	8	30
Perfluorohexanoic acid	1.36	1.47	1.36	1.46	108	107	70-130	1	30
Perfluorononanoic acid	1.36	1.56	1.36	1.68	115	123	70-130	7	30
Perfluoro-octanesulfonate	1.30	1.21	1.30	1.43	93	110	70-130	16	30
Perfluorooctanoic acid	1.36	1.34	1.36	1.50	99	110	70-130	11	30
Perfluoropentanoic acid	1.36	1.38	1.36	1.40	101	103	70-130	2	30
Perfluorotetradecanoic acid	1.36	1.31	1.36	1.36	97	100	70-130	4	30
Perfluorotridecanoic acid	1.36	1.39	1.36	1.37	102	101	70-130	1	30
Perfluoroundecanoic acid	1.36	1.55	1.36	1.47	114	108	70-130	5	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 18071004	Sample number(s): 9497789-9497790,9497801,9497807-9497811								
Perfluorobutanesulfonate	4.81	5.12	4.81	5.35	106	111	70-130	4	30
Perfluorobutanoic acid	5.44	6.60	5.44	6.51	121	120	70-130	1	30
Perfluorodecanoic acid	5.44	5.94	5.44	5.97	109	110	70-130	1	30
Perfluorododecanoic acid	5.44	6.24	5.44	7.11	115	131*	70-130	13	30
Perfluoroheptanoic acid	5.44	7.32	5.44	6.73	135*	124	70-130	8	30
Perfluorohexanesulfonate	5.14	5.23	5.14	5.39	102	105	70-130	3	30
Perfluorohexanoic acid	5.44	6.41	5.44	6.79	118	125	70-130	6	30
Perfluorononanoic acid	5.44	6.25	5.44	6.31	115	116	70-130	1	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	5.20	5.27	5.20	5.80	101	112	70-130	10	30
Perfluorooctanoic acid	5.44	5.53	5.44	6.17	102	113	70-130	11	30
Perfluoropentanoic acid	5.44	6.47	5.44	6.42	119	118	70-130	1	30
Perfluorotetradecanoic acid	5.44	7.00	5.44	7.07	129	130	70-130	1	30
Perfluorotridecanoic acid	5.44	5.33	5.44	6.29	98	116	70-130	17	30
Perfluoroundecanoic acid	5.44	7.52	5.44	5.98	138*	110	70-130	23	30
Batch number: 18079014	Sample number(s): 9497800								
Perfluorobutanesulfonate	4.81	4.61	4.81	4.37	96	91	70-130	5	30
Perfluorobutanoic acid	5.44	5.99	5.44	6.05	110	111	70-130	1	30
Perfluorodecanoic acid	5.44	6.29	5.44	5.39	116	99	70-130	15	30
Perfluorododecanoic acid	5.44	6.09	5.44	5.35	112	98	70-130	13	30
Perfluoroheptanoic acid	5.44	6.19	5.44	6.01	114	110	70-130	3	30
Perfluorohexanesulfonate	5.14	5.57	5.14	5.50	108	107	70-130	1	30
Perfluorohexanoic acid	5.44	6.08	5.44	5.41	112	100	70-130	12	30
Perfluorononanoic acid	5.44	5.99	5.44	5.97	110	110	70-130	0	30
Perfluoro-octanesulfonate	5.20	5.74	5.20	5.12	110	98	70-130	11	30
Perfluorooctanoic acid	5.44	5.08	5.44	4.72	93	87	70-130	7	30
Perfluoropentanoic acid	5.44	6.36	5.44	5.78	117	106	70-130	10	30
Perfluorotetradecanoic acid	5.44	5.85	5.44	6.27	108	115	70-130	7	30
Perfluorotridecanoic acid	5.44	4.69	5.44	4.26	86	78	70-130	9	30
Perfluoroundecanoic acid	5.44	6.62	5.44	5.62	122	103	70-130	16	30
	mg/l	mg/l	mg/l	mg/l					
Batch number: 180720571304	Sample number(s): 9497808								
Mercury	0.00100	0.000895			89		80-120		
Batch number: 180721063504	Sample number(s): 9497808								
Aluminum	2.00	2.10			105		80-120		
Calcium	4.00	4.27			107		80-120		
Iron	1.00	1.05			105		80-120		
Magnesium	2.00	2.12			106		80-120		
Manganese	0.500	0.541			108		80-120		
Potassium	10	10.27			103		80-120		
Sodium	10	10.55			105		80-120		
Zinc	0.500	0.519			104		80-120		
Batch number: 180741063901A	Sample number(s): 9497808								
Antimony	0.00600	0.00601			100		80-120		
Arsenic	0.0100	0.0106			106		80-120		
Beryllium	0.00400	0.00398			99		80-120		
Cadmium	0.00500	0.00495			99		80-120		
Chromium	0.0500	0.0514			103		80-120		
Cobalt	0.250	0.242			97		80-120		
Copper	0.0500	0.0506			101		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Lead	0.0150	0.0147			98		80-120		
Nickel	0.0500	0.0541			108		80-120		
Silver	0.0500	0.0492			98		80-120		
Thallium	0.00200	0.00195			97		80-120		
Vanadium	0.0500	0.0503			101		80-120		
Batch number: 180741063901B	Sample number(s): 9497808								
Selenium	0.0100	0.00982			98		80-120		
Batch number: 180741063901D	Sample number(s): 9497808								
Barium	0.0500	0.0483			97		80-120		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 18071667603B	Sample number(s): 9497808-9497809								
Total Organic Carbon	25	25.95			104		91-113		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 18072039401B	Sample number(s): 9497791-9497797								
pH	7.00	7.04			101		95-105		
Batch number: 18072039402A	Sample number(s): 9497798-9497799,9497802-9497803,9497806,9497812-9497816								
pH	7.00	7.02			100		95-105		
	%	%	%	%					
Batch number: 18072820004A	Sample number(s): 9497791-9497799,9497802-9497806,9497812-9497816								
Moisture	89.5	89.41			100		99-101		
Moisture	89.5	89.41			100		99-101		
Moisture Duplicate	89.5	89.41			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18071WAI026	Sample number(s): 9497808 UNSPK: P495929 not in SDG ∴ no eval									
Acenaphthene	0.1 U	50.61	47.79	51.87	49.49	94	95	49-123	3	30
Acenaphthylene	0.1 U	50.61	51.69	51.87	52.85	102	102	67-111	2	30
Acetophenone	0.6 U	50.61	47.33	51.87	48.76	94	94	53-118	3	30
Anthracene	0.1 U	50.61	48.14	51.87	49.59	95	96	55-126	3	30
Atrazine	2 U	50.61	53.26	51.87	54.41	105	105	65-126	2	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Benzaldehyde	1 U	50.61	47.66	51.87	48.7	94	94	49-110	2	30
Benzo(a)anthracene	0.1 U	50.61	48.14	51.87	49.03	95	95	63-124	2	30
Benzo(a)pyrene	0.1 U	50.61	47.64	51.87	50.02	94	96	50-128	5	30
Benzo(b)fluoranthene	0.1 U	50.61	47.48	51.87	49.67	94	96	58-127	5	30
Benzo(g,h,i)perylene	0.1 U	50.61	45.34	51.87	47.18	90	91	51-124	4	30
Benzo(k)fluoranthene	0.1 U	50.61	48.54	51.87	50.25	96	97	63-123	3	30
1,1'-Biphenyl	0.6 U	50.61	45.34	51.87	47.37	90	91	45-118	4	30
4-Bromophenyl-phenylether	0.6 U	50.61	45.92	51.87	47.51	91	92	53-127	3	30
Butylbenzylphthalate	2 U	50.61	40.26	51.87	39.76	80	77	40-131	1	30
Di-n-butylphthalate	2 U	50.61	46.55	51.87	47.27	92	91	58-119	2	30
Caprolactam	6 U	50.61	12.31	51.87	13.28	24	26	13-37	8	30
Carbazole	0.6 U	50.61	52.66	51.87	53.35	104	103	65-123	1	30
4-Chloro-3-methylphenol	0.6 U	50.61	47.63	51.87	49.64	94	96	50-130	4	30
4-Chloroaniline	2 U	50.61	44.1	51.87	44.37	87	86	33-106	1	30
bis(2-Chloroethoxy)methane	0.6 U	50.61	47.93	51.87	49.84	95	96	54-127	4	30
bis(2-Chloroethyl)ether	0.6 U	50.61	44.39	51.87	44.55	88	86	48-119	0	30
2-Chloronaphthalene	0.5 U	50.61	285.65	51.87	295.45	564*	570*	41-123	3	30
2-Chlorophenol	0.6 U	50.61	41.34	51.87	42.77	82	82	47-116	3	30
4-Chlorophenyl-phenylether	0.6 U	50.61	42.79	51.87	44	85	85	45-124	3	30
2,2'-oxybis(1-Chloropropane)	0.6 U	50.61	44.73	51.87	45.78	88	88	40-117	2	30
Chrysene	0.1 U	50.61	48.51	51.87	49.68	96	96	65-124	2	30
Dibenz(a,h)anthracene	0.1 U	50.61	47.66	51.87	49.65	94	96	53-132	4	30
Dibenzofuran	0.6 U	50.61	47.11	51.87	48.01	93	93	50-124	2	30
3,3'-Dichlorobenzidine	2 U	50.61	42.53	51.87	40.89	84	79	32-106	4	30
2,4-Dichlorophenol	0.6 U	50.61	46.14	51.87	47.96	91	92	53-126	4	30
Diethylphthalate	2 U	50.61	43.74	51.87	43.51	86	84	42-124	1	30
2,4-Dimethylphenol	0.6 U	50.61	40.93	51.87	42.43	81	82	41-103	4	30
Dimethylphthalate	2 U	50.61	32.17	51.87	31.09	64	60	19-119	3	30
4,6-Dinitro-2-methylphenol	6 U	50.61	47.18	51.87	51.28	93	99	50-132	8	30
2,4-Dinitrophenol	12 U	101.21	78.83	103.73	92.66	78	89	19-140	16	30
2,4-Dinitrotoluene	1 U	50.61	49.46	51.87	50.73	98	98	56-128	3	30
2,6-Dinitrotoluene	0.6 U	50.61	50.57	51.87	51.54	100	99	57-131	2	30
1,4-Dioxane	1 U	50.61	20.49	51.87	20.75	40	40	18-67	1	30
bis(2-Ethylhexyl)phthalate	2 U	50.61	48.9	51.87	49.59	97	96	52-132	1	30
Fluoranthene	0.1 U	50.61	49.48	51.87	50.27	98	97	61-123	2	30
Fluorene	0.1 U	50.61	46.68	51.87	48.26	92	93	48-124	3	30
Hexachlorobenzene	0.1 U	50.61	45.09	51.87	45.87	89	88	57-123	2	30
Hexachlorobutadiene	0.6 U	50.61	35.34	51.87	38.21	70	74	16-119	8	30
Hexachlorocyclopentadiene	6 U	101.21	62.2	103.73	68.01	61	66	10-104	9	30
Hexachloroethane	1 U	50.61	32.88	51.87	35	65	67	19-105	6	30
Indeno(1,2,3-cd)pyrene	0.1 U	50.61	43.17	51.87	44.8	85	86	52-127	4	30
Isophorone	0.6 U	50.61	48.05	51.87	49.34	95	95	49-129	3	30
2-Methylnaphthalene	0.1 U	50.61	43.43	51.87	45.45	86	88	42-120	5	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
2-Methylphenol	0.6 U	50.61	40.67	51.87	42.04	80	81	46-113	3	30
4-Methylphenol	0.6 U	50.61	37.57	51.87	38.6	74	74	42-115	3	30
Naphthalene	0.1 U	50.61	42.43	51.87	43.9	84	85	44-114	3	30
2-Nitroaniline	0.6 U	50.61	50.5	51.87	51.29	100	99	54-133	2	30
3-Nitroaniline	0.6 U	50.61	48.89	51.87	49.59	97	96	41-123	1	30
4-Nitroaniline	0.6 U	50.61	46.05	51.87	45.92	91	89	46-114	0	30
Nitrobenzene	0.6 U	50.61	44.84	51.87	46.08	89	89	43-128	3	30
2-Nitrophenol	0.6 U	50.61	46.07	51.87	49.01	91	94	58-125	6	30
4-Nitrophenol	12 U	50.61	26.55	51.87	27.81	52	54	10-96	5	30
N-Nitroso-di-n-propylamine	0.6 U	50.61	46.04	51.87	46.65	91	90	48-128	1	30
N-Nitrosodiphenylamine	0.6 U	50.61	50.07	51.87	51.18	99	99	55-128	2	30
Di-n-octylphthalate	2 U	50.61	48.33	51.87	50.9	95	98	51-134	5	30
Pentachlorophenol	1 U	50.61	44.06	51.87	46.65	87	90	50-127	6	30
Phenanthrene	0.1 U	50.61	45.88	51.87	47.21	91	91	54-122	3	30
Phenol	0.6 U	50.61	22.51	51.87	23.35	44	45	10-92	4	30
Pyrene	0.1 U	50.61	48.31	51.87	48.99	95	94	54-123	1	30
1,2,4,5-Tetrachlorobenzene	0.6 U	50.61	40.11	51.87	42.35	79	82	30-117	5	30
2,3,4,6-Tetrachlorophenol	0.6 U	50.61	47.41	51.87	48.81	94	94	60-128	3	30
2,4,5-Trichlorophenol	0.6 U	50.61	49.93	51.87	50.97	99	98	59-129	2	30
2,4,6-Trichlorophenol	0.6 U	50.61	47.12	51.87	49.09	93	95	61-130	4	30
	ng/g	ng/g	ng/g	ng/g	ng/g					
Batch number: 18073006	Sample number(s): 9497792-9497796,9497798-9497799,9497803-9497805,9497812-9497816 UNSPK: 9497803									
Perfluorobutanesulfonate	0.20 U	0.946	0.750	0.962	0.881	79	92	70-130	16	30
Perfluorobutanoic acid	0.218	1.07	1.16	1.09	1.28	88	97	70-130	9	30
Perfluorodecanoic acid	0.20 U	1.07	0.998	1.09	1.03	93	95	70-130	3	30
Perfluorododecanoic acid	0.20 U	1.07	0.976	1.09	1.08	91	99	70-130	10	30
Perfluoroheptanoic acid	0.20 U	1.07	1.10	1.09	1.25	103	114	70-130	12	30
Perfluorohexanesulfonate	0.20 U	1.01	0.826	1.03	0.952	82	92	70-130	14	30
Perfluorohexanoic acid	0.20 U	1.07	1.18	1.09	1.29	110	119	70-130	10	30
Perfluorononanoic acid	0.20 U	1.07	0.974	1.09	1.22	91	112	70-130	22	30
Perfluoro-octanesulfonate	0.29 U	1.02	0.782	1.04	0.968	76	93	70-130	21	30
Perfluorooctanoic acid	4.91	1.07	5.26	1.09	6.13	33 (2)	112 (2)	70-130	15	30
Perfluoropentanoic acid	0.20 U	1.07	1.04	1.09	1.05	97	97	70-130	1	30
Perfluorotetradecanoic acid	0.20 U	1.07	1.04	1.09	1.12	97	103	70-130	7	30
Perfluorotridecanoic acid	0.20 U	1.07	0.923	1.09	1.03	86	95	70-130	11	30
Perfluoroundecanoic acid	0.20 U	1.07	0.962	1.09	1.02	90	94	70-130	6	30
Batch number: 18079011	Sample number(s): 9497791,9497797,9497802 UNSPK: 9497791									
Perfluorobutanesulfonate	0.18 U	0.847	0.858			101		70-130		
Perfluorobutanoic acid	0.18 U	0.958	1.04			109		70-130		
Perfluorodecanoic acid	0.18 U	0.958	0.932			97		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorododecanoic acid	0.18 U	0.958	1.01			106		70-130		
Perfluoroheptanoic acid	0.18 U	0.958	1.02			106		70-130		
Perfluorohexanesulfonate	0.18 U	0.906	0.909			100		70-130		
Perfluorohexanoic acid	0.18 U	0.958	0.976			102		70-130		
Perfluorononanoic acid	0.18 U	0.958	1.15			120		70-130		
Perfluoro-octanesulfonate	0.28 U	0.915	0.935			102		70-130		
Perfluorooctanoic acid	0.331	0.958	1.54			126		70-130		
Perfluoropentanoic acid	0.18 U	0.958	0.996			104		70-130		
Perfluorotetradecanoic acid	0.18 U	0.958	0.916			96		70-130		
Perfluorotridecanoic acid	0.18 U	0.958	0.934			97		70-130		
Perfluoroundecanoic acid	0.18 U	0.958	1.10			115		70-130		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 180720571304	Sample number(s): 9497808 UNSPK: P497751 not a spike ∴ no eval)									
Mercury	0.000115	0.00100	0.000486	0.00100	0.000448	37*	33*	80-120	8	20
Batch number: 180721063504	Sample number(s): 9497808 UNSPK: P497433 ∴ no eval)									
Aluminum	0.125	2.00	2.24	2.00	2.13	106	100	75-125	5	20
Calcium	133.82	4.00	143.9	4.00	140.27	252 (2)	161 (2)	75-125	3	20
Iron	0.0805 U	1.00	1.04	1.00	1.01	104	101	75-125	3	20
Magnesium	21.76	2.00	24.8	2.00	24.19	152 (2)	121 (2)	75-125	2	20
Manganese	42.31	0.500	43.88	0.500	45.16	313 (2)	570 (2)	75-125	3	20
Potassium	7.80	10	18.91	10	18.5	111	107	75-125	2	20
Sodium	8.43	10	19.4	10	19.05	110	106	75-125	2	20
Zinc	0.0181	0.500	0.537	0.500	0.527	104	102	75-125	2	20
Batch number: 180741063901A	Sample number(s): 9497808 UNSPK: P497754									
Antimony	0.00045 U	0.00600	0.00615	0.00600	0.00636	102	106	75-125	3	20
Arsenic	0.000924	0.0100	0.0113	0.0100	0.0113	104	104	75-125	0	20
Beryllium	0.000071 U	0.00400	0.00386	0.00400	0.00422	96	106	75-125	9	20
Cadmium	0.000333	0.00500	0.00521	0.00500	0.00537	98	101	75-125	3	20
Chromium	0.00087 U	0.0500	0.0490	0.0500	0.0529	98	106	75-125	8	20
Cobalt	0.0764	0.250	0.333	0.250	0.329	103	101	75-125	1	20
Copper	0.00054 U	0.0500	0.0510	0.0500	0.0514	102	103	75-125	1	20
Lead	0.000664	0.0150	0.0151	0.0150	0.0161	97	103	75-125	6	20
Nickel	0.0183	0.0500	0.0704	0.0500	0.0688	104	101	75-125	2	20
Silver	0.00015 U	0.0500	0.0498	0.0500	0.0475	100	95	75-125	5	20
Thallium	0.000710	0.00200	0.00277	0.00200	0.00265	103	97	75-125	5	20
Vanadium	0.00021 U	0.0500	0.0521	0.0500	0.0523	104	105	75-125	0	20
Batch number: 180741063901B	Sample number(s): 9497808 UNSPK: P497754									
Selenium	0.00050 U	0.0100	0.0103	0.0100	0.0105	103	105	75-125	2	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 180741063901D	Sample number(s): 9497808 UNSPK: P497754									
Barium	0.545	0.0500	0.662	0.0500	0.614	235 (2)	138 (2)	75-125	8	20
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 18071667603B	Sample number(s): 9497808-9497809 UNSPK: P497092									
Total Organic Carbon	8.57	10	18.73			102		91-113		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 180720571304	Sample number(s): 9497808 BKG: P497751		no eval	
Mercury	0.000115	0.0000631	58* (1)	20
Batch number: 180721063504	Sample number(s): 9497808 BKG: P497433			
Aluminum	0.125	0.0894 U	200* (1)	20
Calcium	133.82	137.72	3	20
Iron	0.0805 U	0.0805 U	0 (1)	20
Magnesium	21.76	22.38	3	20
Manganese	42.31	43.88	4	20
Potassium	7.80	8.11	4	20
Sodium	8.43	8.66	3 (1)	20
Zinc	0.0181	0.0191	5 (1)	20
Batch number: 180741063901A	Sample number(s): 9497808 BKG: P497754			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.000924	0.00121	27* (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.000333	0.000352	6 (1)	20
Chromium	0.00087 U	0.00087 U	0 (1)	20
Cobalt	0.0764	0.0889	15	20
Copper	0.00054 U	0.000689	200* (1)	20
Lead	0.000664	0.000735	10 (1)	20
Nickel	0.0183	0.0202	10 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.000710	0.000785	10 (1)	20
Vanadium	0.00021 U	0.00021 U	0 (1)	20
Batch number: 180741063901B	Sample number(s): 9497808 BKG: P497754			

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 180741063901D	Sample number(s): 9497808 BKG: P497754			
Barium	0.545	0.615	12	20
	mg/l	mg/l		
Batch number: 18071667603B	Sample number(s): 9497808-9497809 BKG: P497092			
Total Organic Carbon	8.57	8.59	0	9
	Std. Units	Std. Units		
Batch number: 18072039401B	Sample number(s): 9497791-9497797 BKG: P497439			
pH	8.23	8.23	0	3
Batch number: 18072039402A	Sample number(s): 9497798-9497799,9497802-9497803,9497806,9497812-9497816 BKG: 9497803			
pH	8.39	8.34	1	3
	%	%		
Batch number: 18072820004A	Sample number(s): 9497791-9497799,9497802-9497806,9497812-9497816 BKG: 9497803, P497803			
Moisture	6.30	6.13	3	5
Moisture	6.30	6.13	3	5
Moisture Duplicate	6.30	6.13	3	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SOM02.2 Volatiles
Batch number: 5180793AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9497808	112	107	96	96
9497810	111	104	97	96
Blank	108	106	99	98
LCS	107	100	100	105
LCSD	107	103	100	104
Limits:	80-120	80-120	80-120	80-120

Analysis Name: TCL Semivolatiles
Batch number: 18071WAI026

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TCL Semivolatiles
Batch number: 18071WAI026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
9497808	27	39	72	71	71	63
Blank	30	41	80	76	75	86
LCS	42	56	86	82	83	86
MS	38	52	85	82	81	82
MSD	39	53	86	82	80	82
Limits:	10-71	10-82	21-134	30-111	39-105	27-116

Analysis Name: 14 PFAS Compounds
Batch number: 18071004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9497789	84	83	74	81	82	75
9497790	84	79	72	76	75	78
9497801	89	88	78	85	85	81
9497807	83	80	70	88	90	90
9497808	86	84	76	84	80	79
9497809	88	83	77	79	81	76
9497810	79	74	63	69	65	72
9497811	79	78	68	85	83	78
Blank	80	78	72	79	76	75
LCS	84	79	75	73	78	68
LCSD	81	78	71	73	79	76
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9497789	89	81	100	75	83	93
9497790	77	84	94	77	75	84
9497801	94	85	103	88	84	104
9497807	87	86	102	74	55	73
9497808	86	94	97	88	87	97
9497809	81	94	110	82	67	78
9497810	75	81	90	76	67	84
9497811	85	85	98	74	81	89
Blank	88	77	80	86	86	91
LCS	82	84	91	83	79	97
LCSD	80	82	91	82	84	80
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFAS Compounds
Batch number: 18071004

	13C2-PFTeDA
9497789	62
9497790	54
9497801	72
9497807	65
9497808	73
9497809	58
9497810	56
9497811	58
Blank	62
LCS	62
LCSD	61
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 18073006

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9497792	46	44*	48	46	56	49
9497793	65	63*	58	59	58	58
9497794	49	47*	57	47	55	49
9497795	45	46*	59	44	65	47
9497796	59	58*	56	57	63	57
9497798	54	51*	55	54	62	51
9497799	60	60*	61	59	64	60
9497803	58	58*	62	55	68	54
9497804	56	56*	64	52	63	57
9497805	57	58*	61	53	60	56
9497812	58	56*	48	56	61	57
9497813	66	68*	62	65	70	64
9497814	71	70	65	71	71	74
9497815	58	59*	54	56	59	55
9497816	59	59*	58	60	63	58
Blank	70	72	67	73	73	72
LCS	62	61*	54	58	57	59
MS	56	56*	64	52	63	57
MSD	57	58*	61	53	60	56
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9497792	51	57	44	46	54	57
9497793	61	63	58	65	78	73

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18073006

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9497794	48	61	52	47	50	57
9497795	52	67	48	47	48	55
9497796	57	68	61	66	70	82
9497798	58	58	47	59	66	64
9497799	64	75	66	67	83	72
MS 9497803	57	66	55	61	60	70
MSD 9497804	57	76	58	59	67	76
9497805	57	64	51	56	64	66
9497812	62	66	61	59	56	61
9497813	74	70	68	68	76	85
9497814	68	66	62	67	67	84
9497815	60	69	54	54	61	67
9497816	62	63	57	65	67	75
Blank	75	69	73	82	83	90
LCS	62	63	63	65	66	78
MS	57	76	58	59	67	76
MSD	57	64	51	56	64	66
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9497792	41
9497793	56
9497794	41
9497795	40
9497796	53
9497798	49
9497799	54
9497803	50
9497804	61
9497805	53
9497812	45
9497813	56
9497814	55
9497815	45
9497816	52
Blank	63
LCS	56
MS	61
MSD	53
Limits:	20-127

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18079011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9497791	58	58* UJ	68	62	78	62
9497797	62	UJ 59*	68	62	73	61
9497802	62	58* UJ	67	67	78	67
Blank	73	69*	67	76	73	81
LCS	76	74	67	72	69	74
LCSD	95	92	86	90	95	99
MS	60	59*	70	60	76	62
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9497791	62	71	53	68	68	66
9497797	64	78	70	70	70	63
9497802	66	79	62	68	64	61
Blank	75	72	68	76	77	74
LCS	78	79	70	83	83	74
LCSD	93	89	90	94	95	91
MS	66	78	56	65	67	67
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9497791	57
9497797	57
9497802	55
Blank	64
LCS	69
LCSD	83
MS	60
Limits:	20-127

Analysis Name: 14 PFAS Compounds
Batch number: 18079014

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9497800	90	91	85	94	92	93
Blank	90	88	81	107	91	89
LCS	93	91	87	102	91	99
LCSD	93	95	88	94	80	79
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 17:07

Group Number: 1917875

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFAS Compounds
Batch number: 18079014

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9497800	81	89	86	81	53	46
Blank	98	84	89	93	98	107
LCS	100	90	94	99	98	105
LCSD	90	84	84	100	96	104
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9497800	66
Blank	88
LCS	92
LCSD	82
Limits:	26-119

*- Outside of specification
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Sample Description: SG3a-RB01-180307 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 08:35
SDG#: SNB96-01RB

C. T. Male Associates
ELLE Sample #: WW 9497789
ELLE Group #: 1917875
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**2**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1 J**	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**140**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18071004	03/16/2018 15:37	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18071004	03/12/2018 09:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB02-180307 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 08:40
SDG#: SNB96-02RB

C. T. Male Associates
ELLE Sample #: WW 9497790
ELLE Group #: 1917875
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.7 J**	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**71**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18071004	03/16/2018 15:57	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18071004	03/12/2018 09:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-04-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 09:25
SDG#: SNB96-03

C. T. Male Associates
ELLE Sample #: SW 9497791
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.19 U	0.19	0.58	1
14027	Perfluorononanoic acid	375-95-1	0.19 U	0.19	0.58	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.87	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.35 J**	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.58	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.94**	0.0100	0.0100	1
	The pH was measured in water at 20.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**5.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18079011	03/21/2018 08:38	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18079011	03/20/2018 10:30	Anthony C Polaski	1
00394	pH	SW-846 9045D modified	1	18072039401B	03/13/2018 17:15	Luz M Groff	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3a-SB18-04-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 09:25
SDG#: SNB96-03

C. T. Male Associates
ELLE Sample #: SW 9497791
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3a-SB18-04-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 09:30
SDG#: SNB96-04

C. T. Male Associates
ELLE Sample #: SW 9497792
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.67	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.46 J**	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.22 U	0.22	0.67	1
14027	Perfluorononanoic acid	375-95-1	0.22 U	0.22	0.67	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.56 J**	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.67	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.55**	0.0100	0.0100	1
	The pH was measured in water at 20.6 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**29.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/19/2018 16:45	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18072039401B	03/13/2018 17:15	Luz M Groff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-04-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 09:30
SDG#: SNB96-04

C. T. Male Associates
ELLE Sample #: SW 9497792
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-04-15.0-20.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 09:35
SDG#: SNB96-05

C. T. Male Associates
ELLE Sample #: SW 9497793
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.50	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.22 J**	0.17	0.50	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.50	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.50	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.50	1
14027	Perfluorohexanoic acid	307-24-4	0.17 U	0.17	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.17 U	0.17	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.75	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.3**	0.17	0.50	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.50	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.50	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.50	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.50	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.10**	0.0100	0.0100	1
	The pH was measured in water at 20.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**18.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/17/2018 23:42	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18072039401B	03/13/2018 17:15	Luz M Groff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-04-15.0-20.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 09:35
SDG#: SNB96-05

C. T. Male Associates
ELLE Sample #: SW 9497793
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-04-8.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 09:40
SDG#: SNB96-06

C. T. Male Associates
ELLE Sample #: SW 9497794
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.23 U	0.23	0.68	1
14027	Perfluorononanoic acid	375-95-1	0.23 U	0.23	0.68	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.61**	0.0100	0.0100	1
	The pH was measured in water at 20.6 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**21.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/18/2018 00:03	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18072039401B	03/13/2018 17:15	Luz M Groff	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-SB18-04-8.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 09:40
SDG#: SNB96-06

C. T. Male Associates
ELLE Sample #: SW 9497794
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-FD01-180307 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018
SDG#: SNB96-07FD

C. T. Male Associates
ELLE Sample #: SW 9497795
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.47	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.47	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.47	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.47	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.47	1
14027	Perfluorohexanoic acid	307-24-4	0.16 U	0.16	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.16 U	0.16	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24 U	0.24	0.71	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.55**	0.16	0.47	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.47	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.47	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.47	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.47	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.04**	0.0100	0.0100	1
	The pH was measured in water at 20.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**4.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/18/2018 00:24	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18072039401B	03/13/2018 17:15	Luz M Groff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-FD01-180307 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018
SDG#: SNB96-07FD

C. T. Male Associates
ELLE Sample #: SW 9497795
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-05-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 10:15
SDG#: SNB96-08

C. T. Male Associates
ELLE Sample #: SW 9497796
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.48	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.26 J**	0.16	0.48	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.19 J**	0.16	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.48	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.4**	0.16	0.48	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.48	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.45 J**	0.16	0.48	1
14027	**Perfluorononanoic acid**	375-95-1	**0.17 J**	0.16	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24 U	0.24	0.72	1
14027	**Perfluorooctanoic acid**	335-67-1	**80**	1.6	4.8	10
14027	**Perfluoropentanoic acid**	2706-90-3	**0.17 J**	0.16	0.48	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.48	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.48	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.48	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.49**	0.0100	0.0100	1
	The pH was measured in water at 20.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**5.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/18/2018 00:44	Mark Makowiecki	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/19/2018 07:52	Marissa C Drexinger	10
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-05-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 10:15
SDG#: SNB96-08

C. T. Male Associates
ELLE Sample #: SW 9497796
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00394	pH	SW-846 9045D modified	1	18072039401B	03/13/2018 17:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-05-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 10:20
SDG#: SNB96-09

C. T. Male Associates
ELLE Sample #: SW 9497797
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.15 U	0.15	0.44	1
14027	Perfluorobutanoic acid	375-22-4	0.15 U	0.15	0.44	1
14027	Perfluorodecanoic acid	335-76-2	0.15 U	0.15	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.15 U	0.15	0.44	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.74**	0.15	0.44	1
14027	Perfluorohexanesulfonate	355-46-4	0.15 U	0.15	0.44	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.31 J**	0.15	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.15 U	0.15	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.22 U	0.22	0.66	1
14027	**Perfluorooctanoic acid**	335-67-1	**42**	0.15	0.44	1
14027	Perfluoropentanoic acid	2706-90-3	0.15 U	0.15	0.44	1
14027	Perfluorotetradecanoic acid	376-06-7	0.15 U	0.15	0.44	1
14027	Perfluorotridecanoic acid	72629-94-8	0.15 U	0.15	0.44	1
14027	Perfluoroundecanoic acid	2058-94-8	0.15 U	0.15	0.44	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.15**	0.0100	0.0100	1
	The pH was measured in water at 20.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**6.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18079011	03/21/2018 08:58	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18079011	03/20/2018 10:30	Anthony C Polaski	1
00394	pH	SW-846 9045D modified	1	18072039401B	03/13/2018 17:15	Luz M Groff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-05-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 10:20
SDG#: SNB96-09

C. T. Male Associates
ELLE Sample #: SW 9497797
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-05-15.0-20.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 10:25
SDG#: SNB96-10

C. T. Male Associates
ELLE Sample #: SW 9497798
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.48	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.17 J**	0.16	0.48	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.32 J**	0.16	0.48	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.38 J**	0.16	0.48	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.70**	0.16	0.48	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.48	1
14027	Perfluorohexanoic acid	307-24-4	0.16 U	0.16	0.48	1
14027	**Perfluorononanoic acid**	375-95-1	**0.16 J**	0.16	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24 U	0.24	0.71	1
14027	**Perfluorooctanoic acid**	335-67-1	**43**	0.16	0.48	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.48	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.48	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.48	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.27 J**	0.16	0.48	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.44**	0.0100	0.0100	1
	The pH was measured in water at 20.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**9.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/18/2018 02:06	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18072039402A	03/13/2018 18:40	Luz M Groff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-05-15.0-20.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 10:25
SDG#: SNB96-10

C. T. Male Associates
ELLE Sample #: SW 9497798
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-05-22.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 10:30
SDG#: SNB96-11

C. T. Male Associates
ELLE Sample #: SW 9497799
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.24 U	0.24	0.71	1
14027	Perfluorobutanoic acid	375-22-4	0.24 U	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24 U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24 U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24 U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24 U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.24 U	0.24	0.71	1
14027	Perfluorononanoic acid	375-95-1	0.24 U	0.24	0.71	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35 U	0.35	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.1**	0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24 U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24 U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24 U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24 U	0.24	0.71	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.55**	0.0100	0.0100	1
	The pH was measured in water at 20.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**24.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/18/2018 02:27	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18072039402A	03/13/2018 18:40	Luz M Groff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-05-22.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 10:30
SDG#: SNB96-11

C. T. Male Associates
ELLE Sample #: SW 9497799
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB04-180307 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 11:35
SDG#: SNB96-12RB

C. T. Male Associates
ELLE Sample #: WW 9497800
ELLE Group #: 1917875
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**2**	0.9	2	1
14473	**Perfluorododecanoic acid**	307-55-1	**2**	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**3**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**2 J**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**0.8 J**	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**360**	3	9	10
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	**Perfluorotetradecanoic acid**	376-06-7	**2**	0.3	0.9	1
14473	**Perfluorotridecanoic acid**	72629-94-8	**1**	0.3	0.9	1
14473	**Perfluoroundecanoic acid**	2058-94-8	**0.7 J**	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18079014	03/21/2018 08:25	Marissa C Drexinger	1
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18079014	03/22/2018 00:08	Joshua P Trost	10
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	18079014	03/20/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB03-180307 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/07/2018 11:05
SDG#: SNB96-13RB

C. T. Male Associates
ELLE Sample #: WW 9497801
ELLE Group #: 1917875
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**13**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18071004	03/16/2018 16:38	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18071004	03/12/2018 09:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-06-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/09/2018 09:00
SDG#: SNB96-14

C. T. Male Associates
ELLE Sample #: SW 9497802
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.14 U	0.14	0.43	1
14027	Perfluorobutanoic acid	375-22-4	0.14 U	0.14	0.43	1
14027	Perfluorodecanoic acid	335-76-2	0.14 U	0.14	0.43	1
14027	Perfluorododecanoic acid	307-55-1	0.14 U	0.14	0.43	1
14027	Perfluoroheptanoic acid	375-85-9	0.14 U	0.14	0.43	1
14027	Perfluorohexanesulfonate	355-46-4	0.14 U	0.14	0.43	1
14027	Perfluorohexanoic acid	307-24-4	0.14 U	0.14	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.14 U	0.14	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.21 U	0.21	0.64	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.59**	0.14	0.43	1
14027	Perfluoropentanoic acid	2706-90-3	0.14 U	0.14	0.43	1
14027	Perfluorotetradecanoic acid	376-06-7	0.14 U	0.14	0.43	1
14027	Perfluorotridecanoic acid	72629-94-8	0.14 U	0.14	0.43	1
14027	Perfluoroundecanoic acid	2058-94-8	0.14 U	0.14	0.43	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.43**	0.0100	0.0100	1
	The pH was measured in water at 20.4 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**3.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18079011	03/21/2018 09:19	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	18079011	03/20/2018 10:30	Anthony C Polaski	1
00394	pH	SW-846 9045D modified	1	18072039402A	03/13/2018 18:40	Luz M Groff	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-SB18-06-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/09/2018 09:00
SDG#: SNB96-14

C. T. Male Associates
ELLE Sample #: SW 9497802
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-06-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/09/2018 08:50
SDG#: SNB96-15BKG

C. T. Male Associates
ELLE Sample #: SW 9497803
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.63	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.23 J**	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.21 U	0.21	0.63	1
14027	Perfluorononanoic acid	375-95-1	0.21 U	0.21	0.63	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.94	1
14027	**Perfluorooctanoic acid**	335-67-1	**5.2**	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.39**	0.0100	0.0100	1
	The pH was measured in water at 20.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**6.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/18/2018 03:08	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18072039402A	03/13/2018 18:40	Luz M Groff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-06-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/09/2018 08:50
SDG#: SNB96-15BKG

C. T. Male Associates
ELLE Sample #: SW 9497803
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-RB01-180309 Grab Rinse Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/09/2018 12:15
SDG#: SNB96-16RB

C. T. Male Associates
ELLE Sample #: WW 9497807
ELLE Group #: 1917875
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
14473	**Perfluorododecanoic acid**	307-55-1	**0.5 J**	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.7 J**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**120**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18071004	03/16/2018 16:59	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18071004	03/12/2018 09:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-EB01-180309 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/09/2018 15:05
SDG#: SNB96-17EB

C. T. Male Associates
ELLE Sample #: WW 9497808
ELLE Group #: 1917875
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-EB01-180309 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/09/2018 15:05
SDG#: SNB96-17EB

C. T. Male Associates
ELLE Sample #: WW 9497808
ELLE Group #: 1917875
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D**		ug/l	ug/l	ug/l	
14242	Acenaphthene	83-32-9	0.1 U	0.1	0.5	1
14242	Acenaphthylene	208-96-8	0.1 U	0.1	0.5	1
14242	Acetophenone	98-86-2	0.5 U	0.5	1	1
14242	Anthracene	120-12-7	0.1 U	0.1	0.5	1
14242	Atrazine	1912-24-9	2 U	2	5	1
14242	Benzaldehyde	100-52-7	1 U	1	5	1
14242	Benzo(a)anthracene	56-55-3	0.1 U	0.1	0.5	1
14242	Benzo(a)pyrene	50-32-8	0.1 U	0.1	0.5	1
14242	Benzo(b)fluoranthene	205-99-2	0.1 U	0.1	0.5	1
14242	Benzo(g,h,i)perylene	191-24-2	0.1 U	0.1	0.5	1
14242	Benzo(k)fluoranthene	207-08-9	0.1 U	0.1	0.5	1
14242	1,1'-Biphenyl	92-52-4	0.5 U	0.5	1	1
14242	4-Bromophenyl-phenylether	101-55-3	0.5 U	0.5	1	1
14242	Butylbenzylphthalate	85-68-7	2 U	2	5	1
14242	Di-n-butylphthalate	84-74-2	2 U	2	5	1
14242	Caprolactam	105-60-2	5 U	5	15	1
14242	Carbazole	86-74-8	0.5 U	0.5	1	1
14242	4-Chloro-3-methylphenol	59-50-7	0.5 U	0.5	1	1
14242	4-Chloroaniline	106-47-8	2 U	2	4	1
14242	bis(2-Chloroethoxy)methane	111-91-1	0.5 U	0.5	1	1
14242	bis(2-Chloroethyl)ether	111-44-4	0.5 U	0.5	1	1
14242	2-Chloronaphthalene	91-58-7	0.4 U	0.4	1	1
14242	2-Chlorophenol	95-57-8	0.5 U	0.5	1	1
14242	4-Chlorophenyl-phenylether	7005-72-3	0.5 U	0.5	1	1
14242	2,2'-oxybis(1-Chloropropane)	108-60-1	0.5 U	0.5	1	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.					
14242	Chrysene	218-01-9	0.1 U	0.1	0.5	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-EB01-180309 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/09/2018 15:05
SDG#: SNB96-17EB

C. T. Male Associates
ELLE Sample #: WW 9497808
ELLE Group #: 1917875
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/l	ug/l	ug/l	
14242	Dibenz(a,h)anthracene	53-70-3	0.1 U	0.1	0.5	1
14242	Dibenzofuran	132-64-9	0.5 U	0.5	1	1
14242	3,3'-Dichlorobenzidine	91-94-1	2 U	2	5	1
14242	2,4-Dichlorophenol	120-83-2	0.5 U	0.5	1	1
14242	Diethylphthalate	84-66-2	2 U	2	5	1
14242	2,4-Dimethylphenol	105-67-9	0.5 U	0.5	1	1
14242	Dimethylphthalate	131-11-3	2 U	2	5	1
14242	4,6-Dinitro-2-methylphenol	534-52-1	5 U	5	15	1
14242	2,4-Dinitrophenol	51-28-5	10 U	10	31	1
14242	2,4-Dinitrotoluene	121-14-2	1 U	1	5	1
14242	2,6-Dinitrotoluene	606-20-2	0.5 U	0.5	1	1
14242	1,4-Dioxane	123-91-1	1 U	1	5	1
14242	bis(2-Ethylhexyl)phthalate	117-81-7	2 U	2	5	1
14242	Fluoranthene	206-44-0	0.1 U	0.1	0.5	1
14242	Fluorene	86-73-7	0.1 U	0.1	0.5	1
14242	Hexachlorobenzene	118-74-1	0.1 U	0.1	0.5	1
14242	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1	1
14242	Hexachlorocyclopentadiene	77-47-4	5 U	5	15	1
14242	Hexachloroethane	67-72-1	1 U	1	5	1
14242	Indeno(1,2,3-cd)pyrene	193-39-5	0.1 U	0.1	0.5	1
14242	Isophorone	78-59-1	0.5 U	0.5	1	1
14242	2-Methylnaphthalene	91-57-6	0.1 U	0.1	0.5	1
14242	2-Methylphenol	95-48-7	0.5 U	0.5	1	1
14242	4-Methylphenol	106-44-5	0.5 U	0.5	1	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
14242	Naphthalene	91-20-3	0.1 U	0.1	0.5	1
14242	2-Nitroaniline	88-74-4	0.5 U	0.5	1	1
14242	3-Nitroaniline	99-09-2	0.5 U	0.5	1	1
14242	4-Nitroaniline	100-01-6	0.5 U	0.5	1	1
14242	Nitrobenzene	98-95-3	0.5 U	0.5	1	1
14242	2-Nitrophenol	88-75-5	0.5 U	0.5	1	1
14242	4-Nitrophenol	100-02-7	10 U	10	31	1
14242	N-Nitroso-di-n-propylamine	621-64-7	0.5 U	0.5	1	1
14242	N-Nitrosodiphenylamine	86-30-6	0.5 U	0.5	1	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
14242	Di-n-octylphthalate	117-84-0	2 U	2	5	1
14242	Pentachlorophenol	87-86-5	1 U	1	5	1
14242	Phenanthrene	85-01-8	0.1 U	0.1	0.5	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-EB01-180309 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/09/2018 15:05
SDG#: SNB96-17EB

C. T. Male Associates
ELLE Sample #: WW 9497808
ELLE Group #: 1917875
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/l	ug/l	ug/l	
14242	Phenol	108-95-2	0.5 U	0.5	1	1
14242	Pyrene	129-00-0	0.1 U	0.1	0.5	1
14242	1,2,4,5-Tetrachlorobenzene	95-94-3	0.5 U	0.5	1	1
14242	2,3,4,6-Tetrachlorophenol	58-90-2	0.5 U	0.5	1	1
14242	2,4,5-Trichlorophenol	95-95-4	0.5 U	0.5	1	1
14242	2,4,6-Trichlorophenol	88-06-2	0.5 U	0.5	1	1
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1
Metals	**SW-846 6010C**		mg/l	mg/l	mg/l	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
01750	Calcium	7440-70-2	0.0600 U	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.0374 U	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0016 U	0.0016	0.0100	1
01762	Potassium	7440-09-7	0.179 U	0.179	1.00	1
01767	Sodium	7440-23-5	0.321 U	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
	SW-846 6020A		mg/l	mg/l	mg/l	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	Barium	7440-39-3	0.00072 U	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	Cobalt	7440-48-4	0.00016 U	0.00016	0.0010	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-EB01-180309 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/09/2018 15:05
SDG#: SNB96-17EB

C. T. Male Associates
ELLE Sample #: WW 9497808
ELLE Group #: 1917875
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals		**SW-846 6020A**	mg/l	mg/l	mg/l	
06033	**Copper**	7440-50-8	**0.0045** x 5 = .0225	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00011 U	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
		SW-846 7470A	mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry		**SM 5310 C-2011**	mg/l	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	0.50 U	0.50	1.0	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5180793AA	03/21/2018 01:36	Don V Viray	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5180793AA	03/21/2018 01:36	Don V Viray	1
14242	TCL Semivolatiles	SW-846 8270D	1	18071WAI026	03/15/2018 15:44	Holly B Ziegler	1
00813	BNA Water Extraction	SW-846 3510C	1	18071WAI026	03/12/2018 19:43	Kate E Lutte	1
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18071004	03/16/2018 17:19	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18071004	03/12/2018 09:45	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	180721063504	03/14/2018 22:33	Cindy M Gehman	1
01750	Calcium	SW-846 6010C	1	180721063504	03/14/2018 22:33	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	180721063504	03/14/2018 22:33	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	180721063504	03/14/2018 22:33	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	180721063504	03/14/2018 22:33	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	180721063504	03/14/2018 22:33	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	180721063504	03/14/2018 22:33	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	180721063504	03/14/2018 22:33	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	180741063901A	03/16/2018 14:15	Patrick J Engle	1
06025	Arsenic	SW-846 6020A	1	180741063901A	03/16/2018 14:15	Patrick J Engle	1
06026	Barium	SW-846 6020A	1	180741063901D	03/16/2018 14:15	Patrick J Engle	1
06027	Beryllium	SW-846 6020A	1	180741063901A	03/16/2018 14:15	Patrick J Engle	1
06028	Cadmium	SW-846 6020A	1	180741063901A	03/20/2018 13:23	Patrick J Engle	1
06031	Chromium	SW-846 6020A	1	180741063901A	03/16/2018 14:15	Patrick J Engle	1
06032	Cobalt	SW-846 6020A	1	180741063901A	03/16/2018 14:15	Patrick J Engle	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-EB01-180309 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/09/2018 15:05
SDG#: SNB96-17EB

C. T. Male Associates
ELLE Sample #: WW 9497808
ELLE Group #: 1917875
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	SW-846 6020A	1	180741063901A	03/16/2018 14:15	Patrick J Engle	1
06035	Lead	SW-846 6020A	1	180741063901A	03/16/2018 14:15	Patrick J Engle	1
06039	Nickel	SW-846 6020A	1	180741063901A	03/16/2018 14:15	Patrick J Engle	1
06041	Selenium	SW-846 6020A	1	180741063901B	03/16/2018 14:15	Patrick J Engle	1
06042	Silver	SW-846 6020A	1	180741063901A	03/16/2018 14:15	Patrick J Engle	1
06045	Thallium	SW-846 6020A	1	180741063901A	03/16/2018 14:15	Patrick J Engle	1
06048	Vanadium	SW-846 6020A	1	180741063901A	03/16/2018 14:15	Patrick J Engle	1
00259	Mercury	SW-846 7470A	1	180720571304	03/17/2018 10:13	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	180721063504	03/14/2018 05:38	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	180741063901	03/16/2018 05:02	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	180720571304	03/16/2018 16:45	JoElla L Rice	1
00273	Total Organic Carbon	SM 5310 C-2011	1	18071667603B	03/13/2018 09:11	Drew M Gerhart	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-EB02-180309 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/09/2018 15:20
SDG#: SNB96-18EB

C. T. Male Associates
ELLE Sample #: WW 9497809
ELLE Group #: 1917875
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1
Wet Chemistry	**SM 5310 C-2011**		mg/l	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	0.50 U	0.50	1.0	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18071004	03/16/2018 17:40	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18071004	03/12/2018 09:45	Pamela Rothharpt	1
00273	Total Organic Carbon	SM 5310 C-2011	1	18071667603B	03/13/2018 09:26	Drew M Gerhart	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-LTB01-180309 Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/09/2018
SDG#: SNB96-19TB

C. T. Male Associates
ELLE Sample #: WW 9497810
ELLE Group #: 1917875
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-LTB01-180309 Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/09/2018
SDG#: SNB96-19TB

C. T. Male Associates
ELLE Sample #: WW 9497810
ELLE Group #: 1917875
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5180793AA	03/21/2018 01:14	Don V Viray	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5180793AA	03/21/2018 01:14	Don V Viray	1
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18071004	03/16/2018 18:41	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18071004	03/12/2018 09:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-FTB01-180309 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/09/2018 15:35
SDG#: SNB96-20TB

C. T. Male Associates
ELLE Sample #: WW 9497811
ELLE Group #: 1917875
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18071004	03/16/2018 19:02	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18071004	03/12/2018 09:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-03-15.0-17.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/06/2018 16:10
SDG#: SNB96-21

C. T. Male Associates
ELLE Sample #: SW 9497812
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.65	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.83**	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.22 U	0.22	0.65	1
14027	Perfluorononanoic acid	375-95-1	0.22 U	0.22	0.65	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.97	1
14027	**Perfluorooctanoic acid**	335-67-1	**4.3**	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.65	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.4**	0.22	0.65	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.57**	0.0100	0.0100	1
	The pH was measured in water at 20.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**14.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/18/2018 03:28	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18072039402A	03/13/2018 18:40	Luz M Groff	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-SB18-03-15.0-17.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/06/2018 16:10
SDG#: SNB96-21

C. T. Male Associates
ELLE Sample #: SW 9497812
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-SB18-03-14.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/06/2018 16:20
SDG#: SNB96-22

C. T. Male Associates
ELLE Sample #: SW 9497813
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.25 U	0.25	0.75	1
14027	Perfluorobutanoic acid	375-22-4	0.25 U	0.25	0.75	1
14027	Perfluorodecanoic acid	335-76-2	0.25 U	0.25	0.75	1
14027	Perfluorododecanoic acid	307-55-1	0.25 U	0.25	0.75	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.64 J**	0.25	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.25 U	0.25	0.75	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.35 J**	0.25	0.75	1
14027	Perfluorononanoic acid	375-95-1	0.25 U	0.25	0.75	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.37 U	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**8.2**	0.25	0.75	1
14027	Perfluoropentanoic acid	2706-90-3	0.25 U	0.25	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25 U	0.25	0.75	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25 U	0.25	0.75	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25 U	0.25	0.75	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.80**	0.0100	0.0100	1
	The pH was measured in water at 20.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**26.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/18/2018 03:49	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18072039402A	03/13/2018 18:40	Luz M Groff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-03-14.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/06/2018 16:20
SDG#: SNB96-22

C. T. Male Associates
ELLE Sample #: SW 9497813
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-03-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/06/2018 16:00
SDG#: SNB96-23

C. T. Male Associates
ELLE Sample #: SW 9497814
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.14 U	0.14	0.43	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.30 J**	0.14	0.43	1
14027	Perfluorodecanoic acid	335-76-2	0.14 U	0.14	0.43	1
14027	Perfluorododecanoic acid	307-55-1	0.14 U	0.14	0.43	1
14027	**Perfluoroheptanoic acid**	375-85-9	**2.0**	0.14	0.43	1
14027	Perfluorohexanesulfonate	355-46-4	0.14 U	0.14	0.43	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.5**	0.14	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.14 U	0.14	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.21 U	0.21	0.64	1
14027	**Perfluorooctanoic acid**	335-67-1	**84**	1.4	4.3	10
14027	**Perfluoropentanoic acid**	2706-90-3	**0.43**	0.14	0.43	1
14027	Perfluorotetradecanoic acid	376-06-7	0.14 U	0.14	0.43	1
14027	Perfluorotridecanoic acid	72629-94-8	0.14 U	0.14	0.43	1
14027	Perfluoroundecanoic acid	2058-94-8	0.14 U	0.14	0.43	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.88**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**5.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/18/2018 04:09	Mark Makowiecki	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/19/2018 16:04	Marissa C Drexinger	10
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18072039402A	03/13/2018 18:40	Luz M Groff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-03-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/06/2018 16:00
SDG#: SNB96-23

C. T. Male Associates
ELLE Sample #: SW 9497814
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3a-SB18-03-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/06/2018 16:05
SDG#: SNB96-24

C. T. Male Associates
ELLE Sample #: SW 9497815
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.26 J**	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.18 U	0.18	0.55	1
14027	Perfluorononanoic acid	375-95-1	0.18 U	0.18	0.55	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.82	1
14027	**Perfluorooctanoic acid**	335-67-1	**5.0**	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.55	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**11.3 J**	0.0100	0.0100	1
	The pH was measured in water at 20.4 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**4.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/18/2018 04:30	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18072039402A	03/13/2018 18:40	Luz M Groff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-03-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/06/2018 16:05
SDG#: SNB96-24

C. T. Male Associates
ELLE Sample #: SW 9497815
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-03-13.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/06/2018 16:15
SDG#: SNB96-25

C. T. Male Associates
ELLE Sample #: SW 9497816
ELLE Group #: 1917875
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.27 J**	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.21 J**	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.21 U	0.21	0.62	1
14027	Perfluorononanoic acid	375-95-1	0.21 U	0.21	0.62	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.93	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.8**	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.73**	0.0100	0.0100	1
	The pH was measured in water at 20.6 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**23.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/18/2018 04:50	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
00394	pH	SW-846 9045D modified	1	18072039402A	03/13/2018 18:40	Luz M Groff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-03-13.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/10/2018 10:20
Collection Date/Time: 03/06/2018 16:15
SDG#: SNB96-25

C. T. Male Associates
ELLE Sample #: SW 9497816
ELLE Group #: 1917875
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18072820004A	03/13/2018 22:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

ALS-Middletown
Analytical Narrative
Lancaster Laboratories
LPL-010 Modified

Sample Management

This report contains the results of the analysis of ten (10) solid samples and six (6) other samples collected on March 6, 7, and 9, 2018. Analytical results and quality control information are summarized in this data package.

Sample Receipt

The samples arrived at ALS via courier on March 29, 2018. Upon receipt, the samples were inspected and compared to the Chain of Custody. Sample temperature was documented on the enclosed Chain of Custody. Samples were received intact and properly preserved, unless noted on the enclosed Certificate of Analysis and/or Chain of Custody.

Modification

This data package was modified to correct the sample identification for 2305218-007 per the client.

Total Solids by SM 2540G

Sample handling. Ten (10) solid samples were analyzed for total solids by SM 2540G. The samples were not analyzed within the 14-day hold time established for the method.

Duplicate. A duplicate analysis identified as 2717658 was performed on sample 2305218001 (SG3a-SB18-04-0.0-1.0). The relative percent difference between the results was within the QC limit of 5%.

Total Organic Carbon by SW-846 9060

Sample handling. Sixteen (16) solid samples were analyzed for total organic carbon by SW-846 Method 9060. The samples were not analyzed within the 28-day holding time established for the method.

Calibration. A four-point calibration was properly established. Initial and continuing calibration verification standards were analyzed on the day of analysis. The recoveries were within the QC limits of 80-120%.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above the reporting limit in the blanks.

Spikes. A matrix spike analysis was performed on sample 2305218010 (SG3a-SB18-06-0.0-1.0). The relative percent difference between the expected spike results and the actual spike results was outside the QC limit of 80-120%.

A matrix spike analysis was performed on sample 2305218002 (SG3a-SB18-04-10.0-11.0). The relative percent difference between the expected spike results and the actual spike results was outside the QC limit of 80-120%.

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

April 10, 2018

ENV Subcontracting
Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17601

Certificate of Analysis

Project Name:	TOC	Workorder:	2305218
Purchase Order:		Workorder ID:	LPL010|Group 1917875

Dear ENV Subcontracting:

Enclosed are the analytical results for samples received by the laboratory on Thursday, March 29, 2018.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Ms. Sarah S Leung (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

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ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Ms. Sarah S Leung
Project Coordinator

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2305218 LPL010|Group 1917875

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2305218001	SG3a-SB18-04-0.0-1.0	Solid	3/7/2018 09:25	3/29/2018 10:25	Collected by Client
2305218002	SG3a-SB18-04-10.0-11.0	Other	3/7/2018 09:30	3/29/2018 10:25	Collected by Client
2305218003	SG3a-SB18-04-15.0-20.0	Solid	3/7/2018 09:35	3/29/2018 10:25	Collected by Client
2305218004	SG3a-SB18-04-8.0	Other	3/7/2018 09:40	3/29/2018 10:25	Collected by Client
2305218005	SG3a-SB18-05-0.0-1.0	Solid	3/7/2018 10:15	3/29/2018 10:25	Collected by Client
2305218006	SG3a-SB18-05-15.0-20.0	Other	3/7/2018 10:25	3/29/2018 10:25	Collected by Client
2305218007	SG3a-SB18-05-2[illegible].0	Other	3/7/2018 10:30	3/29/2018 10:25	Collected by Client
2305218008	SG3a-SB18-05-10.0-11.0	Other	3/7/2018 10:20	3/29/2018 10:25	Collected by Client
2305218009	SG3a-SB18-06-10.0-11.0	Solid	3/9/2018 09:00	3/29/2018 10:25	Collected by Client
2305218010	SG3a-SB18-06-0.0-1.0	Solid	3/9/2018 08:50	3/29/2018 10:25	Collected by Client
2305218011	SG3a-SB18-06-0.0-1.0 Duplicate	Other	3/9/2018 08:50	3/29/2018 10:25	Collected by Client
2305218012	SG3a-SB18-03-15.0-17.0	Solid	3/6/2018 16:10	3/29/2018 10:25	Collected by Client
2305218013	SG3a-SB18-03-14.0	Solid	3/6/2018 16:20	3/29/2018 10:25	Collected by Client
2305218014	SG3a-SB18-03-0.0-1.0	Solid	3/6/2018 16:00	3/29/2018 10:25	Collected by Client
2305218015	SG3a-SB18-03-10.0-11.0	Solid	3/6/2018 16:05	3/29/2018 10:25	Collected by Client
2305218016	SG3a-SB18-03-13.0	Solid	3/6/2018 16:15	3/29/2018 10:25	Collected by Client

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2305218 LPL010|Group 1917875

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

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PROJECT SUMMARY

Workorder: 2305218 LPL010|Group 1917875

Sample Comments

Lab ID: 2305218002 **Sample ID:** SG3a-SB18-04-10.0-11.0 **Sample Type:** SAMPLE

There was not enough volume to perform the dry weight analysis. SSL 04/05/18

Lab ID: 2305218004 **Sample ID:** SG3a-SB18-04-8.0 **Sample Type:** SAMPLE

There was not enough volume to perform the dry weight analysis. SSL 04/05/18

Lab ID: 2305218006 **Sample ID:** SG3a-SB18-05-15.0-20.0 **Sample Type:** SAMPLE

There was not enough volume to perform the dry weight analysis. SSL 04/05/18

Lab ID: 2305218007 **Sample ID:** SG3a-SB18-05-20.0 **Sample Type:** SAMPLE

There was not enough volume to perform the dry weight analysis. SSL 04/05/18

Lab ID: 2305218008 **Sample ID:** SG3a-SB18-05-10.0-11.0 **Sample Type:** SAMPLE

There was not enough volume to perform the dry weight analysis. SSL 04/05/18

Lab ID: 2305218011 **Sample ID:** SG3a-SB18-06-0.0-1.0 Duplicate **Sample Type:** SAMPLE

There was not enough volume to perform the dry weight analysis. SSL 04/05/18

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ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218001** Date Collected: 3/7/2018 09:25 Matrix: Solid

Sample ID: **SG3a-SB18-04-0.0-1.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	5.0		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	2030		mg/kg	500	SW846 9060A			4/3/18 20:30	RXB	A
Total Solids	95.0	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

Ms. Sarah S Leung
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ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218002** Date Collected: 3/7/2018 09:30 Matrix: Other

Sample ID: **SG3a-SB18-04-10.0-11.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Total Organic Carbon (TOC)	1700		mg/kg	500	SW846 9060A			4/3/18 20:30	RXB	A

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ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218003** Date Collected: 3/7/2018 09:35 Matrix: Solid

Sample ID: **SG3a-SB18-04-15.0-20.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	0.7		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	5050		mg/kg	500	SW846 9060A			4/3/18 20:30	RXB	A
Total Solids	99.3	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

Ms. Sarah S Leung
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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218004** Date Collected: 3/7/2018 09:40 Matrix: Other

Sample ID: **SG3a-SB18-04-8.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Total Organic Carbon (TOC)	13400		mg/kg	500	SW846 9060A			4/3/18 20:30	RXB	A

Ms. Sarah S Leung
Project Coordinator

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218005** Date Collected: 3/7/2018 10:15 Matrix: Solid

Sample ID: **SG3a-SB18-05-0.0-1.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	4.4		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	4640		mg/kg	500	SW846 9060A			4/3/18 20:30	RXB	A
Total Solids	95.6	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

Ms. Sarah S Leung
Project Coordinator

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218006** Date Collected: 3/7/2018 10:25 Matrix: Other

Sample ID: **SG3a-SB18-05-15.0-20.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Total Organic Carbon (TOC)	10500		mg/kg	500	SW846 9060A			4/3/18 20:30	RXB	A

Ms. Sarah S Leung
Project Coordinator

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218007**
Sample ID: **SG3a-SB18-05-2**~~8~~**.0**

Date Collected: 3/7/2018 10:30
Date Received: 3/29/2018 10:25

Matrix: Other

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Total Organic Carbon (TOC)	27400		mg/kg	500	SW846 9060A			4/3/18 20:30	RXB	A

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218008** Date Collected: 3/7/2018 10:20 Matrix: Other

Sample ID: **SG3a-SB18-05-10.0-11.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Total Organic Carbon (TOC)	2200		mg/kg	500	SW846 9060A			4/3/18 20:30	RXB	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218009** Date Collected: 3/9/2018 09:00 Matrix: Solid

Sample ID: **SG3a-SB18-06-10.0-11.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	3.5		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	25300		mg/kg	500	SW846 9060A			4/5/18 19:22	RXB	A
Total Solids	96.5	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

Ms. Sarah S Leung
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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218010** Date Collected: 3/9/2018 08:50 Matrix: Solid

Sample ID: **SG3a-SB18-06-0.0-1.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	4.4		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	2970		mg/kg	500	SW846 9060A			4/5/18 19:22	RXB	A
Total Solids	95.6	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218011** Date Collected: 3/9/2018 08:50 Matrix: Other

Sample ID: **SG3a-SB18-06-0.0-1.0 Duplicate** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Total Organic Carbon (TOC)	30200		mg/kg	500	SW846 9060A			4/5/18 17:26	RXB	A

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218012** Date Collected: 3/6/2018 16:10 Matrix: Solid

Sample ID: **SG3a-SB18-03-15.0-17.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	13.2		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	11800		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A
Total Solids	86.8	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218013** Date Collected: 3/6/2018 16:20 Matrix: Solid

Sample ID: **SG3a-SB18-03-14.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	35.1		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	47400		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A
Total Solids	64.9	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218014** Date Collected: 3/6/2018 16:00 Matrix: Solid

Sample ID: **SG3a-SB18-03-0.0-1.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	7.1		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	36900		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A
Total Solids	92.9	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218015** Date Collected: 3/6/2018 16:05 Matrix: Solid

Sample ID: **SG3a-SB18-03-10.0-11.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	3.3		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	43400		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A
Total Solids	96.7	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

Lab ID: **2305218016** Date Collected: 3/6/2018 16:15 Matrix: Solid

Sample ID: **SG3a-SB18-03-13.0** Date Received: 3/29/2018 10:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Moisture	17.4		%	0.1	S2540G-11			4/5/18 11:08	AXD	
Total Organic Carbon (TOC)	16000		mg/kg	500	SW846 9060A			4/2/18 14:33	RXB	A
Total Solids	82.6	1	%	0.1	S2540G-11			4/5/18 11:08	AXD	

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305218 LPL010|Group 1917875

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2305218001	1	SG3a-SB18-04-0.0-1.0	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				
2305218003	1	SG3a-SB18-04-15.0-20.0	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				
2305218005	1	SG3a-SB18-05-0.0-1.0	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				
2305218009	1	SG3a-SB18-06-10.0-11.0	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				
2305218010	1	SG3a-SB18-06-0.0-1.0	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				
2305218012	1	SG3a-SB18-03-15.0-17.0	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				
2305218013	1	SG3a-SB18-03-14.0	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				
2305218014	1	SG3a-SB18-03-0.0-1.0	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				
2305218015	1	SG3a-SB18-03-10.0-11.0	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				
2305218016	1	SG3a-SB18-03-13.0	S2540G-11	Total Solids
Analyte was analyzed past the 14 day hold time. The sample was received by the laboratory after the Total Solids hold time had expired.				

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

603584

1 of 2

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Client Name: Eurofins Lancaster Laboratories, Inc.
Address: 2425 New Holland Pike, Lancaster, PA 17601
Contact: Janine Eaby
Phone#: 656-2300 EXT.1520
Project Name/#: Group 1917875
Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.
Date Required: _____ Approved By: _____
Email? [X] -Y ENVsubcontracting@EurofinsUS.com
Fax? [ ] -Y No.: _____

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Container Type	Container Size	Preservative	TOC	ANALYSES/METHOD REQUESTED	Sample/COC Comments
					C6	20G	/		Enter Number of Containers Per Sample or Field Results Below.	
SG3a-SB18-04-0.0-1.0	3/7/2018	09:25	G	SW				1		9497791
SG3a-SB18-04-10.0-11.0	3/7/2018	09:30	G	SW				1		9497792
SG3a-SB18-04-15.0-20.0	3/7/2018	09:35	G	SW				1		9497793
SG3a-SB18-04-8.0	3/7/2018	09:40	G	SW				1		9497794
SG3a-FD01-180307 Missing	3/7/2018	00:00	G	SW				1		9497795
SG3a-SB18-05-0.0-1.0	3/7/2018	10:15	G	SW				1		9497796
SG3a-SB18-05-15.0-20.0	3/7/2018	10:25	G	SW				1		9497798
SG3a-SB18-05-22.0	3/7/2018	10:30	G	SW				1		9497799
Rec'd SG3a-SB18-05-16.0-11.0	3-7-18	1020						1		

Receipt Information (completed by Receiving Lab)
Cooler Temp: 5° Therm ID: 318
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?	X		
COC/Labels Complete/Accurate?		X	
Cont. in Good Cond.?	X		
Correct Containers?	X		
Correct Sample Volumes?	X		
Correct Preservation?	X		
Headspace/Volatiles?			

Courier/Tracking #:

ALS Field Services: _Pickup _Labor
_Composite Sampling _Rental Equipment
_Other: _____

Project Comments: From VT

LOGGED BY(signature): DATE TIME
REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1			[signature] ALS	3-29	1025
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]
Special Processing: USACE [ ] Navy [ ]
State Samples Collected In: [ ] NY [ ] NJ [X] PA [ ] NC [ ]
Reportable to PADEP? Yes [ ] PWSID # _____
Sample Disposal: Lab [ ] Special [ ]
EDDS: Format Type- _____

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Rev 10/11

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 528 — 2 of 2
ALS Quote #:

Client Name: Eurofins Lancaster Laboratories, Inc.
Address: 2425 New Holland Pike, Lancaster, PA 17601
Contact: Janine Eaby
Phone#: 656-2300 EXT.1520
Project Name/#: Group 1917875
Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required: _____ Approved By: _____
Email? [X] -Y ENVsubcontracting@EurofinsUS.com
Fax? [ ] -Y No.: _____

Container Type: C6
Container Size: 2oz
Preservative: —

ANALYSES/METHOD REQUESTED: TOC

Receipt Information (completed by Receiving Lab)
Cooler Temp: 5° Therm ID: 318
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?	X		
COC/Labels Complete/Accurate?	X		
Cont. in Good Cond.?	X		
Correct Containers?	X		
Correct Sample Volumes?	X		
Correct Preservation?	X		
Headspace/Volatiles?			

Courier/Tracking #:

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	TOC	Sample/COC Comments
SG3a-SB18-06-10.0-11.0	3/9/2018	09:00	G	SW	1	9497802
SG3a-SB18-06-0.0-1.0	3/9/2018	08:50	G	SW	1	9497803
SG3a-SB18-06-0.0-1.0 MS	3/9/2018	08:50	G	SW	1	9497804
SG3a-SB18-06-0.0-1.0 Dupl	3/9/2018	08:50	G	SW	1	9497806
SG3a-SB18-03-15.0-17.0	3/6/2018	16:10	G	SW	1	9497812
SG3a-SB18-03-14.0	3/6/2018	16:20	G	SW	1	9497813
SG3a-SB18-03-0.0-1.0	3/6/2018	16:00	G	SW	1	9497814
SG3a-SB18-03-10.0-11.0	3/6/2018	16:05	G	SW	1	9497815-9497816
SG3a-SB18-03-13.0	3/6/2018	16:15	G	SW	1	

Enter Number of Containers Per Sample or Field Results Below.

ALS Field Services: _Pickup _Labor _Composite Sampling _Rental Equipment _Other: _____

Project Comments: From VT

LOGGED BY(signature): DATE TIME
REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1			2 [signature] ALS	3-A	[illegible]
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]
Special Processing: USACE [ ] Navy [ ]
State Samples Collected In: [ ] NY [ ] NJ [X] PA [ ] NC [ ]
Reportable to PADEP? Yes [ ] PWSID # _____
Sample Disposal: Lab [ ] Special [ ]
EDDS: Format Type- _____

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Rev 10/11

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Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: of

ALS Quote #:

Client Name: Eurofins Lancaster Laboratories, Inc.

Address: 2425 New Holland Pike, Lancaster, PA 17601

Contact: Janine Eaby

Phone#: 656-2300 EXT.1520

Project Name/#: Group 1917875

Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved By:

Email? [X]-Y ENVsubcontracting@EurofinsUS.com

Fax? [ ]-Y No.:

Container Type: CG | Container Size: 2oz | Preservative: —

ANALYSES/METHOD REQUESTED: TOC

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	TOC									Sample/COC Comments
SG3a-SB18-03-10.0-11.0	3/6/2018	16:05	G	SW	1									9497815
SG3a-SB18-03-13.0	3/6/2018	16:15	G	SW	1									9497816

Enter Number of Containers Per Sample or Field Results Below.

Receipt Information (completed by Receiving Lab)

Cooler Temp: 5 Therm ID: 318

No. of Coolers:

	Y	N	Initial
Custody Seals Present?			EW
(If present) Seals Intact?			
Received on Ice?	X		
COC/Labels Complete/Accurate?	X		
Cont. in Good Cond.?	X		
Correct Containers?	X		
Correct Sample Volumes?	X		
Correct Preservation?	X		
Headspace/Volatiles?			

Courier/Tracking #:

ALS Field Services: __Pickup __Labor __Composite Sampling __Rental Equipment __Other:

Project Comments: From VT

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1				2			
3	[signature] / ELLE	3/29/18	1025	4	[signature] ALS	3-29	1025
5				6			
7				8			
9				10			

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]

Special Processing: USACE [ ] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [X] PA [ ] NC [ ]

Reportable to PADEP? Yes [ ]

PWSID #

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type-

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Rev 10/11

Sample Description

SG3a-SB18-04-10.0-11.0

Form 3A
Matrix Spike Recovery Summary

Analysis Method: SW846 9060A
Matrix (soil/water): Other
applies to all "other" matrix samples

SDG No.: LPL010
Units: mg/kg
Lab Sample ID: 2305218002
Lab MS Sample ID: 2716305

Analyte	Spike Added	Sample Concentration	MS Concentration	MS Recovery (%)	(1)	Acceptable Limits (%)
Total Organic Carbon (TOC)	500	1700	4530	566	*	80 - 120

002, 4, 6, 7, 8

(1) The following qualifiers are used:

* : Values outside of acceptable limits
D : Spikes diluted out

Comments:

Sample Description

SG3a-SB18-06-0.0-1.0

Form 3A
Matrix Spike Recovery Summary

Analysis Method: SW846 9060A
Matrix (soil/water): Solid

SDG No.: LPL010
Units: mg/kg
Lab Sample ID: 2305218010
Lab MS Sample ID: 2719318

Analyte	Spike Added	Sample Concentration	MS Concentration	MS Recovery (%)	(1)	Acceptable Limits (%)
Total Organic Carbon (TOC)	500	2970	6650	736	*	80 - 120

[Sample] > 4x spike added ∴ no good

(1) The following qualifiers are used:

* : Values outside of acceptable limits
D : Spikes diluted out

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: SW846 9060A
Instrument: TOC

SDG No.: LPL010

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2715240	Total Organic Carbon (TOC)	MB	QC-Water	04/02/2018 14:33	500	U	mg/kg
2715243	Total Organic Carbon (TOC)	MB	QC-Solid	04/02/2018 14:33	500	U	mg/kg
2716302	Total Organic Carbon (TOC)	MB	QC-Solid	04/03/2018 20:30	500	U	mg/kg
2716306	Total Organic Carbon (TOC)	MB	QC-Solid	04/03/2018 20:30	500	U	mg/kg
2719342	Total Organic Carbon (TOC)	MB	QC-Solid	04/05/2018 17:26	500	U	mg/kg
2719340	Total Organic Carbon (TOC)	MB	QC-Solid	04/05/2018 17:26	500	U	mg/kg
2719319	Total Organic Carbon (TOC)	MB	QC-Solid	04/05/2018 19:22	500	U	mg/kg
2719316	Total Organic Carbon (TOC)	MB	QC-Solid	04/05/2018 19:22	500	U	mg/kg

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

C. SDG SNB98

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	Saint Gobain Vermont	Reviewed by:	BE 5/22/18
Sample Collection Dates:	3/12/18	Approved by:	THW
Job Number:	20167391.NBEN	Completion Date:	5/2018
Project Manager:	Meg Michell		
Laboratory:	ELLE	Applicable Sample No's (X)	Refer to Table 1 in the Quality Assurance Review

			Sample No.	Lab Control No.
Deliverable:	CLP (Full)	( )	SNB98	
	Level IV (Full)	(X)		
	Limited	( )		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	PFAS	VOC	SVOC			PFAS	VOC	SVOC			PFAS	VOC	SVOC		
Holding Times	X	X	X					X			X	X	X		
Blank Analysis: Target Cmpds	X	X	X								X	X	X		
Sys Montr Cmps/Surrogates		X	X									X	X		
Matrix Spike/Matrix Spike Duplicate															
Blank Spike	X	X	X								X	X	X		
Duplicate Analysis (X) Field ( ) Lab	X	X	X					X			X	X	X		
Detection Limit/Sensitivity															
Qualitative Identification: Target Cmpds															
Qualitative Identification: TICs															
DFTPP & BFB Mass Tuning		X	X									X	X		
GC Instrument Performance															
Initial Calibrations	X	X	X								X	X	X		
Continuing Calibrations	X	X	X								X	X	X		
Quantitation of Results	X	X	X								X	X	X		
DDT/Endrin Breakdown															
Surrogate Retention Time Shifts															
Internal Standards Performance	X	X	X			X	X				X	X	X		
Resolution Check Standards															
Analytical Sequence	X	X	X								X	X	X		
Florisil Cartridge & GPC Calibration															
GC Column Agreement															
Condition Upon Receipt	X	X	X								X	X	X		
Percent Solids	X	X	X								X	X	X		
Others:															

Comments: _____

ENVIRONMENTAL STANDARDS

INORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: Saint Gobain Bennington
Sample Collection Dates: 3/7/18, 3/9/18
Job Number: 20167391.NBEN
Project Manager: Meg Michell
Laboratory: ELLE

Reviewed by: BE 5/22/18
Approved by: THW
Completion Date: 5/2018

Applicable Sample No's (X)

Refer to Table 1 in the Quality Assurance Review

Deliverable:		Sample No.	Lab Control No.
	CLP (Full) ( )	SNB98	
	Level IV (Full) (X)		
	Limited ( )		
	Other:		

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail (Check (√) if Yes or Footnote Letter for Comments Below)					Problems Identified (Check (√) if Yes or Footnote Letter for Comments Below)					Support Documentation Attachments (Check (√) if Yes or Footnote Letter for Comments Below)				
	Metals	pH	Mois	TOC		Metals	pH	Mois	TOC		Metals	pH	Mois	TOC	
Holding Times	X	X	X	X							X	X	X	X	
Blank Analysis Results	X			X		X					X			X	
Matrix Spike (Predigestion) Results	X			X		X					X			X	
Duplicate Analysis: (X) Field (X) Lab	X	X	X	X		X					X	X	X	X	
Quantitation of Results															
Detection Limit/Sensitivity															
Initial Calibrations	X			X							X			X	
Continuing Calibrations	X			X							X			X	
Laboratory Control Standard (LCS)	X										X				
ICP Linear Range Analysis															
ICP Interference Checks	X										X				
ICP Serial Dilutions	X					X					X				
ICP Post-Digestion Spike															
GFAA Post Digestion Spikes															
GFAA Duplicate Injections															
ICP Multiple Exposures															
GFAA Standard Additions															
CRDL Standards															
Condition on Receipt	X	X	X	X							X	X	X	X	
Percent Solids	X	X	X	X							X	X	X	X	
Others:															

Comments:

ENVIRONMENTAL STANDARDS

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample / batch ID	Contaminant	Concentration ng/L	Qualification limit	
						5×	10×
O	Aq	RB	SG3a-RB01-180312	PFDA	2	10	
				PFDoA	0.7	3.5	
				PFHpA	4	20	
				PFHxA	3	15	
				PFNA	0.8	4	
				PFOA	310	1550	
				PFDA	0.7	3.5	
			All other SNB98 blanks	none			

1 - V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: PFC

2 - MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; RB = Rinse Blank

Notes: _____

** Columns G and H contains formulas

BLANK ANALYSIS RESULTS FOR INORGANIC PARAMETERS

Analysis Type	Matrix (Aq, S)	Blank Type (2)	Blank Sample Number / Batch Number SDG: SNB98	Contaminant	Concentration (mg/l)	Qualif Limit 5X
M	S	MB	180731063701	Ca	4.87	24.35
				Mn	0.468	2.340
				Zn	1.79	8.95
M	S	MB	180731063701A	Pb	0.0328	0.1640
M	Aq	CCB	1807702T0	Ca	0.0574	
				Mg	0.0613	
M	Aq	CCB	1807906T74	Ca	0.0580	
M	Aq	CCB	1807805E05	Sb	0.00042	

2: MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes: _____

_____

_____

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Matrix: ○ Aqueous ◉ Non-a **PRECISION OBJECTIVES:**
Reporting Level: ◉ MDL ○ QL **If Both Results ≥ 5 × Their QL, RPD ≤:** 40
Units: mg/kg **If Either Result < 5 × Its QL, Dif. ≤:** 2.0 **× Highest QL**

Sample ID: SG3a-SB18-07-15.0-18.0 **Duplicate Sample ID:** SG3a-FD01-180312

Analyte	Sample Concentration	Qual	QL	MDL	Duplicate Concentration	Qual	QL	MDL	Difference	RPD	Flag
Acetone	21		17	6	61		21	7	40	NA	
Benzaldehyde	1100		180	74	76	U	190	76	1024	NA	J/UJ
1,1'-Biphenyl	93		37	18	19	U	38	19	74	NA	
Fluorene	41		19	4	4	U	19	4	37	NA	
2-Methylnaphthalene	3100		19	4	7	J	19	4	3093	NA	J
Naphthalene	760		19	4	23		19	4	737	NA	J

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

SNB62

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Matrix: ○ Aqueous ◉ Non-a
Reporting Level: ◉ MDL ○ QL
Units: mg/kg

PRECISION OBJECTIVES:
If Both Results ≥ 5 × Their QL, RPD ≤: 30
If Either Result < 5 × Its QL, Dif. ≤: 1.5 **× Highest QL**

Sample ID: SG3a-SB18-07-15.0-18.0 **Duplicate Sample ID:** SG3a-FD01-180312

Analyte	Sample Concentration	Qual	QL	MDL	Duplicate Concentration	Qual	QL	MDL	Difference	RPD	Flag
PFOA	29		0.53	0.18	30		0.51	0.17	NA	3%	
PFHxA	1.0		0.53	0.18	0.69		0.51	0.17	0.31	NA	
PFHpA	0.54		0.53	0.18	0.49		0.51	0.17	0.05	NA	
PFPeA	0.83		0.53	0.18	0.45		0.51	0.17	0.38	NA	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

SNB62

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Matrix: ○ Aqueous ◉ Non-a
Reporting Level: ◉ MDL ○ QL
Units: mg/kg

PRECISION OBJECTIVES:
If Both Results ≥ 5 × Their QL, RPD ≤: 40
If Either Result < 5 × Its QL, Dif. ≤: 2.0 × Highest QL

Sample ID:	SG3a-SB18-07-15.0-18.0				Duplicate Sample ID:	SG3a-FD01-180312					
Analyte	Sample Concentration	Qual	QL	MDL	Duplicate Concentration	Qual	QL	MDL	Difference	RPD	Flag
Aluminum	7970		31.8	7.10	7930		32.3	7.23	NA	1%	
Calcium	24200		31.8	2.65	34800		32.3	2.69	NA	36%	
Iron	21000		159	32.0	20900		32.3	6.51	NA	0%	
Magnesium	14900		15.9	1.93	19200		16.2	1.96	NA	25%	
Manganese	837		0.795	0.0659	810		0.808	0.0671	NA	3%	
Potassium	577		79.5	13.3	632		80.8	13.5	NA	9%	
Zinc	88.3		3.18	0.191	79.5		3.23	0.194	NA	10%	
Arsenic	10.0		0.636	0.102	6.55		0.647	0.103	NA	42%	J
Barium	62.9		0.636	0.144	60.4		0.647	0.147	NA	4%	
Beryllium	0.325		0.159	0.0083	0.335		0.162	0.0085	0.01	NA	
Cadmium	0.277		0.159	0.0273	0.233		0.162	0.0278	0.044	NA	
Chromium	11.9		0.636	0.138	11.0		0.647	0.141	NA	8%	
Cobalt	11.7		0.159	0.0248	10.7		0.162	0.0252	NA	9%	
Copper	20.8		0.636	0.0852	17.0		0.647	0.0867	NA	20%	
Lead	54.4		0.318	0.0176	30.6		0.323	0.0179	NA	56%	J
Nickel	19.9		0.636	0.158	19.5		0.647	0.161	NA	2%	
Silver	0.173		0.159	0.0232	0.162		0.162	0.0236	0.011	NA	
Vanadium	9.90		0.159	0.0338	9.63		0.162	0.0344	NA	3%	
Mercury	0.347		0.108	0.0108	0.63		0.110	0.0110	0.283	NA	J
TOC	14100		814	271	12,200		860	287	NA	14%	
pH	7.75		0.0100	0.0100	8.02		0.0100	0.0100	NA	3%	
Moisture	10.1		0.50	0.50	13.5		0.50	0.50	NA	29%	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
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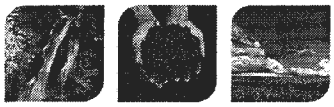
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

SNB62



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3a-RB01-180312 Grab Blank Water	03/12/2018 09:20	9500919
SG3a-FD01-180312 Grab Soil	03/12/2018	9500920
SG3a-SB18-07-0.0-1.0 Grab Soil	03/12/2018 10:30	9500921
SG3a-SB18-07-10.0-11.0 Grab Soil	03/12/2018 10:40	9500922
SG3a-SB18-07-15.0-18.0 Grab Soil	03/12/2018 10:50	9500923
SG3a-FTB01-180312 Grab Blank Water	03/12/2018 11:15	9500924
SG3a-LTB01-180312 Grab Blank Water	03/12/2018	9500925

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1918533

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Sample #s: 9500920, 9500922, 9500923

The recovery for the sample internal standard is outside the QC acceptance limits. The following corrective action was taken: The sample was re-analyzed and the QC is again outside of the acceptance limits, indicating a matrix effect. The data is reported from the initial trial.

Batch #: X180751AA (Sample number(s): 9500920-9500923 UNSPK: P501706)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: 1,1-Dichloroethene, 1,1,1-Trichloroethane

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Styrene

SW-846 8270D, GC/MS Semivolatiles

Batch #: 18073SLB026 (Sample number(s): 9500920-9500922 UNSPK: P498430)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Acenaphthene, 4-Nitrophenol, 2,4-Dinitrotoluene, Pentachlorophenol, Pyrene, 2-Nitrophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol, Hexachloroethane, Naphthalene, Hexachlorocyclopentadiene, 2,6-Dinitrotoluene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene, 2,3,4,6-Tetrachlorophenol, 2,2'-oxybis(1-Chloropropane), 2-Methylnaphthalene, 2,4,5-Trichlorophenol, Dibenzofuran, Carbazole, 1,1'-Biphenyl, 4-Chlorophenyl-phenylether

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: 4-Nitrophenol, Pentachlorophenol, Pyrene, 2-Nitrophenol, 4,6-Dinitro-2-methylphenol, Hexachloroethane, 4-Chloroaniline

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) MS, MSD

Batch #: 18078SLF026 (Sample number(s): 9500923 UNSPK: P501673)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: 2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9500920, 9500921, 9500922, 9500923

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18073006 (Sample number(s): 9500920-9500923 UNSPK: P497803)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9500920, 9500921, 9500922, 9500923, LCS, MS, MSD

SW-846 6010C, Metals

Batch #: 180731063701 (Sample number(s): 9500920-9500923 UNSPK: 9500921 BKG: 9500921)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Magnesium, Potassium, Manganese

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Iron, Calcium, Magnesium, Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Calcium, Manganese

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Calcium

SW-846 6020A, Metals

Batch #: 180731063701A (Sample number(s): 9500920-9500923 UNSPK: 9500921 BKG: 9500921)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Vanadium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Arsenic, Lead, Nickel

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Silver

Batch #: 180731063701D (Sample number(s): 9500920-9500923 UNSPK: 9500921 BKG: 9500921)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

SW-846 9045D modified, Wet Chemistry

Sample #s: 9500923

The pH was measured in water at 19.7 C.

Sample #s: 9500922

The pH was measured in water at 19.8 C.

Sample #s: 9500920, 9500921

The pH was measured in water at 19.9 C.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 18073820006A (Sample number(s): 9500920-9500923 BKG: P501669)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1918533 Sample # 9500919-25

COC # 555856

Client Information		Matrix						Analysis Requested											For Lab Use Only
Client: C.T. Male Associates	Acct. #:	Soil ☒ Sediment ☐ Tissue	Water ☐ Potable ☐ Ground ☐ NPDES ☐ Surface	Other: Rinse water	Total # of Containers	Preservation and Filtration Codes													FSC:
Project Name/#: SGPP - Bennington	PWSID #:																		SCR#:
Project Manager: Kirk Moline	P.O. #: 16.6131																		
Sampler: CB, DK	Quote #:																		
State where samples were collected: VT	For Compliance: Yes ☐ No ☐																		

Sample Identification	Collected Date	Collected Time	Grab	Composite	14 PFAS	pH	Moisture	TOC	TAL metals	VOCs	TCL SVOCs	Remarks
SG3a - RB01 - 180312	3/12/18	0920	X		X							Macro Barrel SB18-07
SG3a - FD01 - 180312		—	X		X	X	X	X	X	X	X	
SG3a - SB18-07-0.0-1.0		1030	X		X	X	X	X	X	X	X	
SG3a - SB18-07-10.0-11.0		1040	X		X	X	X	X	X	X	X	
SG3a - SB18-07-15.0-18.0		1050	X		X	X	X	X	X	X	X	
SG3a - FTB01 - 180312		1115	X		X							
SG3a - LTB01 - 180312		—	X		X							

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

* 48 Hr Hold time for Soil VOCs *

Turnaround Time (TAT) Requested (please circle)

(Standard) Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Cliff Bard	3/12/18	1630			
				3/13/18	10:30

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx ✓ Other _____

Temperature upon receipt: 0.2-0.7 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 210652

Group Number(s): 1918533

Client: CT Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	03/13/2018 10:30
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved

Unpacked by Conrad Burkholder (12671) at 12:27 on 03/13/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.7 ✓	DT	Wet	Y	Bagged	N
2	DT146	0.2	DT	Wet	Y	Bagged	N

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ug/kg		ug/kg	ug/kg
Batch number: X180751AA	Sample number(s): 9500920-9500923			
Acetone	7	U	7	20
Benzene	0.5	U	0.5	5
Bromochloromethane	1	U	1	5
Bromodichloromethane	1	U	1	5
Bromoform	1	U	1	5
Bromomethane	2	U	2	5
2-Butanone	4	U	4	10
Carbon Disulfide	1	U	1	5
Carbon Tetrachloride	1	U	1	5
Chlorobenzene	1	U	1	5
Chloroethane	2	U	2	5
Chloroform	1	U	1	5
Chloromethane	2	U	2	5
Cyclohexane	1	U	1	5
1,2-Dibromo-3-chloropropane	2	U	2	5
Dibromochloromethane	1	U	1	5
1,2-Dibromoethane	1	U	1	5
1,2-Dichlorobenzene	1	U	1	5
1,3-Dichlorobenzene	1	U	1	5
1,4-Dichlorobenzene	1	U	1	5
Dichlorodifluoromethane	2	U	2	5
1,1-Dichloroethane	1	U	1	5
1,2-Dichloroethane	1	U	1	5
1,1-Dichloroethene	1	U	1	5
cis-1,2-Dichloroethene	1	U	1	5
trans-1,2-Dichloroethene	1	U	1	5
1,2-Dichloropropane	1	U	1	5
cis-1,3-Dichloropropene	1	U	1	5
trans-1,3-Dichloropropene	1	U	1	5
Ethylbenzene	1	U	1	5
Freon 113	2	U	2	10
2-Hexanone	3	U	3	10
Isopropylbenzene	1	U	1	5
Methyl Acetate	2	U	2	5
Methyl Tertiary Butyl Ether	0.5	U	0.5	5
4-Methyl-2-pentanone	3	U	3	10
Methylcyclohexane	1	U	1	5
Methylene Chloride	2	U	2	5
Styrene	1	U	1	5

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/kg	ug/kg	ug/kg
1,1,2,2-Tetrachloroethane	1 U	1	5
Tetrachloroethene	1 U	1	5
Toluene	1 U	1	5
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	1 U	1	5
1,1,2-Trichloroethane	1 U	1	5
Trichloroethene	1 U	1	5
Trichlorofluoromethane	2 U	2	5
Vinyl Chloride	1 U	1	5
m+p-Xylene	1 U	1	5
o-Xylene	1 U	1	5
Batch number: 18073SLB026	Sample number(s): 9500920-9500922		
Acenaphthene	3 U	3	17
Acenaphthylene	3 U	3	17
Acetophenone	17 U	17	33
Anthracene	3 U	3	17
Atrazine	33 U	33	170
Benzaldehyde	67 U	67	170
Benzo(a)anthracene	3 U	3	17
Benzo(a)pyrene	3 U	3	17
Benzo(b)fluoranthene	3 U	3	17
Benzo(g,h,i)perylene	3 U	3	17
Benzo(k)fluoranthene	3 U	3	17
1,1'-Biphenyl	17 U	17	33
4-Bromophenyl-phenylether	17 U	17	33
Butylbenzylphthalate	67 U	67	170
Di-n-butylphthalate	67 U	67	170
Caprolactam	33 U	33	170
Carbazole	17 U	17	33
4-Chloro-3-methylphenol	17 U	17	33
4-Chloroaniline	33 U	33	67
bis(2-Chloroethoxy)methane	17 U	17	33
bis(2-Chloroethyl)ether	17 U	17	33
2-Chloronaphthalene	7 U	7	33
2-Chlorophenol	17 U	17	33
4-Chlorophenyl-phenylether	17 U	17	33
2,2'-oxybis(1-Chloropropane)	17 U	17	33
Chrysene	3 U	3	17
Dibenz(a,h)anthracene	3 U	3	17
Dibenzofuran	17 U	17	33
3,3'-Dichlorobenzidine	100 U	100	330
2,4-Dichlorophenol	17 U	17	33
Diethylphthalate	67 U	67	170

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

Method Blank (continued)

Analysis Name	Result ug/kg	MDL** ug/kg	LOQ ug/kg
2,4-Dimethylphenol	17 U	17	33
Dimethylphthalate	67 U	67	170
4,6-Dinitro-2-methylphenol	170 U	170	500
2,4-Dinitrophenol	300 U	300	1,000
2,4-Dinitrotoluene	67 U	67	170
2,6-Dinitrotoluene	17 U	17	33
1,4-Dioxane	100 U	100	330
bis(2-Ethylhexyl)phthalate	67 U	67	170
Fluoranthene	3 U	3	17
Fluorene	3 U	3	17
Hexachlorobenzene	3 U	3	17
Hexachlorobutadiene	17 U	17	33
Hexachlorocyclopentadiene	170 U	170	500
Hexachloroethane	33 U	33	170
Indeno(1,2,3-cd)pyrene	3 U	3	17
Isophorone	17 U	17	33
2-Methylnaphthalene	3 U	3	17
2-Methylphenol	17 U	17	33
4-Methylphenol	17 U	17	33
Naphthalene	3 U	3	17
2-Nitroaniline	17 U	17	33
3-Nitroaniline	67 U	67	170
4-Nitroaniline	67 U	67	170
Nitrobenzene	17 U	17	33
2-Nitrophenol	17 U	17	33
4-Nitrophenol	170 U	170	500
N-Nitroso-di-n-propylamine	17 U	17	33
N-Nitrosodiphenylamine	17 U	17	33
Di-n-octylphthalate	67 U	67	170
Pentachlorophenol	33 U	33	170
Phenanthrene	3 U	3	17
Phenol	17 U	17	33
Pyrene	3 U	3	17
1,2,4,5-Tetrachlorobenzene	17 U	17	33
2,3,4,6-Tetrachlorophenol	67 U	67	170
2,4,5-Trichlorophenol	17 U	17	33
2,4,6-Trichlorophenol	17 U	17	33
Batch number: 18078SLF026	Sample number(s): 9500923		
Acenaphthene	3 U	3	17
Acenaphthylene	3 U	3	17
Acetophenone	17 U	17	33
Anthracene	3 U	3	17
Atrazine	33 U	33	170
Benzaldehyde	67 U	67	170

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

Method Blank (continued)

Analysis Name	Result ug/kg	MDL** ug/kg	LOQ ug/kg
Benzo(a)anthracene	3 U	3	17
Benzo(a)pyrene	3 U	3	17
Benzo(b)fluoranthene	3 U	3	17
Benzo(g,h,i)perylene	3 U	3	17
Benzo(k)fluoranthene	3 U	3	17
1,1'-Biphenyl	17 U	17	33
4-Bromophenyl-phenylether	17 U	17	33
Butylbenzylphthalate	67 U	67	170
Di-n-butylphthalate	67 U	67	170
Caprolactam	33 U	33	170
Carbazole	17 U	17	33
4-Chloro-3-methylphenol	17 U	17	33
4-Chloroaniline	33 U	33	67
bis(2-Chloroethoxy)methane	17 U	17	33
bis(2-Chloroethyl)ether	17 U	17	33
2-Chloronaphthalene	7 U	7	33
2-Chlorophenol	17 U	17	33
4-Chlorophenyl-phenylether	17 U	17	33
2,2'-oxybis(1-Chloropropane)	17 U	17	33
Chrysene	3 U	3	17
Dibenz(a,h)anthracene	3 U	3	17
Dibenzofuran	17 U	17	33
3,3'-Dichlorobenzidine	100 U	100	330
2,4-Dichlorophenol	17 U	17	33
Diethylphthalate	67 U	67	170
2,4-Dimethylphenol	17 U	17	33
Dimethylphthalate	67 U	67	170
4,6-Dinitro-2-methylphenol	170 U	170	500
2,4-Dinitrophenol	300 U	300	1,000
2,4-Dinitrotoluene	67 U	67	170
2,6-Dinitrotoluene	17 U	17	33
1,4-Dioxane	100 U	100	330
bis(2-Ethylhexyl)phthalate	67 U	67	170
Fluoranthene	3 U	3	17
Fluorene	3 U	3	17
Hexachlorobenzene	3 U	3	17
Hexachlorobutadiene	17 U	17	33
Hexachlorocyclopentadiene	170 U	170	500
Hexachloroethane	33 U	33	170
Indeno(1,2,3-cd)pyrene	3 U	3	17
Isophorone	17 U	17	33
2-Methylnaphthalene	3 U	3	17
2-Methylphenol	17 U	17	33
4-Methylphenol	17 U	17	33
Naphthalene	3 U	3	17

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/kg	ug/kg	ug/kg
2-Nitroaniline	17 U	17	33
3-Nitroaniline	67 U	67	170
4-Nitroaniline	67 U	67	170
Nitrobenzene	17 U	17	33
2-Nitrophenol	17 U	17	33
4-Nitrophenol	170 U	170	500
N-Nitroso-di-n-propylamine	17 U	17	33
N-Nitrosodiphenylamine	17 U	17	33
Di-n-octylphthalate	67 U	67	170
Pentachlorophenol	33 U	33	170
Phenanthrene	3 U	3	17
Phenol	17 U	17	33
Pyrene	3 U	3	17
1,2,4,5-Tetrachlorobenzene	17 U	17	33
2,3,4,6-Tetrachlorophenol	67 U	67	170
2,4,5-Trichlorophenol	17 U	17	33
2,4,6-Trichlorophenol	17 U	17	33
	ng/g	ng/g	ng/g
Batch number: 18073006	Sample number(s): 9500920-9500923		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.20 U	0.20	0.60
Perfluorononanoic acid	0.20 U	0.20	0.60
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 18073001	Sample number(s): 9500919,9500924-9500925		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ	
	ng/l	ng/l	ng/l	
Perfluoro-octanesulfonate	0.4 U	0.4	2	
Perfluorooctanoic acid	0.3 U	0.3	1	
Perfluoropentanoic acid	2 U	2	6	
Perfluorotetradecanoic acid	0.3 U	0.3	1	
Perfluorotridecanoic acid	0.3 U	0.3	1	
Perfluoroundecanoic acid	0.4 U	0.4	2	
	mg/kg	mg/kg	mg/kg	
Batch number: 180731063701	Sample number(s): 9500920-9500923			
Aluminum	8.94 U	8.94	40.0	
Calcium	4.87 J	3.33	40.0	24.35
Iron	8.05 U	8.05	40.0	
Magnesium	2.43 U	2.43	20.0	
Manganese	0.468 J	0.0830	1.00	5.340
Potassium	16.7 U	16.7	100	
Sodium	16.7 U	16.7	200	
Zinc	1.79 J	0.240	4.00	8.95
Batch number: 180731063701A	Sample number(s): 9500920-9500923			
Antimony	0.0932 U	0.0932	0.400	
Arsenic	0.128 U	0.128	0.800	
Beryllium	0.0105 U	0.0105	0.200	
Cadmium	0.0344 U	0.0344	0.200	
Chromium	0.174 U	0.174	0.800	
Cobalt	0.0312 U	0.0312	0.200	
Copper	0.107 U	0.107	0.800	
Lead	0.0328 J	0.0222	0.400	.1640
Nickel	0.199 U	0.199	0.800	
Silver	0.0292 U	0.0292	0.200	
Thallium	0.0250 U	0.0250	0.200	
Vanadium	0.0426 U	0.0426	0.200	
Batch number: 180731063701B	Sample number(s): 9500920-9500923			
Selenium	0.100 U	0.100	0.800	
Batch number: 180731063701D	Sample number(s): 9500920-9500923			
Barium	0.182 U	0.182	0.800	
Batch number: 180751063801	Sample number(s): 9500920-9500923			
Mercury	0.0100 U	0.0100	0.100	
Batch number: 18095667631A	Sample number(s): 9500920-9500923			
TOC	100 U	100	300	

all > 5x

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

LCS/LCSD

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: X180751AA	Sample number(s): 9500920-9500923								
Acetone	150	160.15	150	160.39	107	107	55-131	0	30
Benzene	20	19.82	20	19.18	99	96	80-120	3	30
Bromochloromethane	20	21.1	20	20.8	105	104	80-120	1	30
Bromodichloromethane	20	19.2	20	18.68	96	93	70-120	3	30
Bromoform	20	18.78	20	17.77	94	89	51-127	6	30
Bromomethane	20	18.61	20	17.86	93	89	50-136	4	30
2-Butanone	150	147.09	150	148.54	98	99	57-128	1	30
Carbon Disulfide	20	21.03	20	20.05	105	100	64-133	5	30
Carbon Tetrachloride	20	20.42	20	19.58	102	98	64-134	4	30
Chlorobenzene	20	20.43	20	20.06	102	100	80-120	2	30
Chloroethane	20	18.41	20	17.67	92	88	50-131	4	30
Chloroform	20	19.98	20	19.53	100	98	80-120	2	30
Chloromethane	20	18.99	20	18.02	95	90	56-120	5	30
Cyclohexane	20	17.5	20	16.97	87	85	58-126	3	30
1,2-Dibromo-3-chloropropane	20	16.82	20	15.23	84	76	36-144	10	30
Dibromochloromethane	20	20.53	20	19.84	103	99	65-120	3	30
1,2-Dibromoethane	20	20.2	20	19.15	101	96	74-120	5	30
1,2-Dichlorobenzene	20	19.96	20	19.45	100	97	80-120	3	30
1,3-Dichlorobenzene	20	19.71	20	19.07	99	95	80-120	3	30
1,4-Dichlorobenzene	20	19.88	20	19.49	99	97	80-120	2	30
Dichlorodifluoromethane	20	17.56	20	16.73	88	84	16-136	5	30
1,1-Dichloroethane	20	19.56	20	18.87	98	94	77-120	4	30
1,2-Dichloroethane	20	18.76	20	18.11	94	91	71-128	3	30
1,1-Dichloroethene	20	22.39	20	21.35	112	107	73-129	5	30
cis-1,2-Dichloroethene	20	20.89	20	20.44	104	102	80-120	2	30
trans-1,2-Dichloroethene	20	21.54	20	20.59	108	103	80-125	5	30
1,2-Dichloropropane	20	19.01	20	18.37	95	92	76-120	3	30
cis-1,3-Dichloropropene	20	18.2	20	17.68	91	88	66-120	3	30
trans-1,3-Dichloropropene	20	18.32	20	17.74	92	89	63-124	3	30
Ethylbenzene	20	20.15	20	19.5	101	97	74-120	3	30
Freon 113	20	21.07	20	19.77	105	99	64-135	6	30
2-Hexanone	100	91.95	100	82.62	92	83	54-140	11	30
Isopropylbenzene	20	20.35	20	19.52	102	98	69-123	4	30
Methyl Acetate	20	16.87	20	15.35	84	77	59-134	9	30
Methyl Tertiary Butyl Ether	20	18.35	20	17.78	92	89	66-123	3	30
4-Methyl-2-pentanone	100	90.53	100	82.38	91	82	61-135	9	30
Methylcyclohexane	20	18.4	20	17.4	92	87	61-124	6	30
Methylene Chloride	20	20.06	20	19.5	100	98	76-122	3	30
Styrene	20	19.32	20	18.78	97	94	76-120	3	30
1,1,2,2-Tetrachloroethane	20	18.47	20	17.72	92	89	61-131	4	30
Tetrachloroethene	20	21.4	20	20.64	107	103	73-120	4	30
Toluene	20	20.3	20	19.63	101	98	80-120	3	30
1,2,3-Trichlorobenzene	20	19.69	20	18.84	98	94	44-155	4	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,2,4-Trichlorobenzene	20	19.18	20	18.01	96	90	56-130	6	30
1,1,1-Trichloroethane	20	22.5	20	21.82	113	109	69-123	3	30
1,1,2-Trichloroethane	20	20.69	20	19.67	103	98	80-120	5	30
Trichloroethene	20	20.11	20	19.29	101	96	80-120	4	30
Trichlorofluoromethane	20	20.12	20	19.12	101	96	55-134	5	30
Vinyl Chloride	20	19.15	20	18.11	96	91	59-120	6	30
m+p-Xylene	40	40.59	40	39.25	101	98	80-120	3	30
o-Xylene	20	19.81	20	19.43	99	97	75-120	2	30
	ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: 18073SLB026	Sample number(s): 9500920-9500922								
Acenaphthene	1666.67	1527.83			92		78-119		
Acenaphthylene	1666.67	1632.52			98		45-149		
Acetophenone	1666.67	1642.23			99		68-115		
Anthracene	1666.67	1594.67			96		82-113		
Atrazine	1666.67	1429.38			86		58-126		
Benzaldehyde	1666.67	1427.17			86		18-123		
Benzo(a)anthracene	1666.67	1382.8			83		76-119		
Benzo(a)pyrene	1666.67	1573.79			94		77-112		
Benzo(b)fluoranthene	1666.67	1524.05			91		78-120		
Benzo(g,h,i)perylene	1666.67	1510.86			91		76-111		
Benzo(k)fluoranthene	1666.67	1735.56			104		78-119		
1,1'-Biphenyl	1666.67	1517.02			91		78-115		
4-Bromophenyl-phenylether	1666.67	1544.75			93		81-116		
Butylbenzylphthalate	1666.67	1569.5			94		81-118		
Di-n-butylphthalate	1666.67	1666.05			100		77-121		
Caprolactam	1666.67	1510.57			91		63-121		
Carbazole	1666.67	1596.71			96		74-118		
4-Chloro-3-methylphenol	1666.67	1646.46			99		70-128		
4-Chloroaniline	1666.67	482.3			29		10-117		
bis(2-Chloroethoxy)methane	1666.67	1676.09			101		72-117		
bis(2-Chloroethyl)ether	1666.67	1709.07			103		68-115		
2-Chloronaphthalene	1666.67	1878.19			113		51-150		
2-Chlorophenol	1666.67	1656.35			99		75-124		
4-Chlorophenyl-phenylether	1666.67	1432.21			86		79-112		
2,2'-oxybis(1-Chloropropane)	1666.67	1162.8			70		61-120		
Chrysene	1666.67	1408.97			85		78-115		
Dibenz(a,h)anthracene	1666.67	1557.51			93		79-117		
Dibenzofuran	1666.67	1493.41			90		79-114		
3,3'-Dichlorobenzidine	1666.67	1359			82		33-117		
2,4-Dichlorophenol	1666.67	1632.38			98		79-125		
Diethylphthalate	1666.67	1491.31			89		74-120		
2,4-Dimethylphenol	1666.67	1459.78			88		56-107		
Dimethylphthalate	1666.67	1521.53			91		77-116		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
4,6-Dinitro-2-methylphenol	1666.67	1868.42			112		73-127		
2,4-Dinitrophenol	3333.33	3138.09			94		51-139		
2,4-Dinitrotoluene	1666.67	1580.85			95		78-123		
2,6-Dinitrotoluene	1666.67	1637.05			98		80-120		
1,4-Dioxane	1666.67	949.62			57		37-87		
bis(2-Ethylhexyl)phthalate	1666.67	1604.61			96		78-118		
Fluoranthene	1666.67	1414.04			85		76-115		
Fluorene	1666.67	1454.21			87		80-112		
Hexachlorobenzene	1666.67	1564.41			94		77-114		
Hexachlorobutadiene	1666.67	1492.8			90		75-115		
Hexachlorocyclopentadiene	3333.33	3398.97			102		10-172		
Hexachloroethane	1666.67	1519.05			91		72-111		
Indeno(1,2,3-cd)pyrene	1666.67	1474.7			88		78-113		
Isophorone	1666.67	1589.56			95		65-120		
2-Methylnaphthalene	1666.67	1466.99			88		77-116		
2-Methylphenol	1666.67	1703.36			102		74-128		
4-Methylphenol	1666.67	1612.98			97		66-121		
Naphthalene	1666.67	1509.34			91		81-111		
2-Nitroaniline	1666.67	1594.39			96		81-126		
3-Nitroaniline	1666.67	1262.39			76		68-124		
4-Nitroaniline	1666.67	1252.07			75		50-112		
Nitrobenzene	1666.67	1529.18			92		70-122		
2-Nitrophenol	1666.67	1705.85			102		77-129		
4-Nitrophenol	1666.67	1121.72			67		44-131		
N-Nitroso-di-n-propylamine	1666.67	1536.01			92		60-123		
N-Nitrosodiphenylamine	1666.67	1709.01			103		83-118		
Di-n-octylphthalate	1666.67	1958.49			118		81-134		
Pentachlorophenol	1666.67	1869.18			112		54-131		
Phenanthrene	1666.67	1580.67			95		81-109		
Phenol	1666.67	1617.74			97		68-123		
Pyrene	1666.67	1429.15			86		80-107		
1,2,4,5-Tetrachlorobenzene	1666.67	1469.69			88		76-116		
2,3,4,6-Tetrachlorophenol	1666.67	1487.04			89		73-127		
2,4,5-Trichlorophenol	1666.67	1581.37			95		84-122		
2,4,6-Trichlorophenol	1666.67	1553.42			93		81-123		
Batch number: 18078SLF026	Sample number(s): 9500923								
Acenaphthene	1666.67	1710.28			103		78-119		
Acenaphthylene	1666.67	1845			111		45-149		
Acetophenone	1666.67	1467.59			88		68-115		
Anthracene	1666.67	1679.65			101		82-113		
Atrazine	1666.67	1441.26			86		58-126		
Benzaldehyde	1666.67	1279.01			77		18-123		
Benzo(a)anthracene	1666.67	1579.29			95		76-119		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzo(a)pyrene	1666.67	1660.44			100		77-112		
Benzo(b)fluoranthene	1666.67	1665.69			100		78-120		
Benzo(g,h,i)perylene	1666.67	1610.49			97		76-111		
Benzo(k)fluoranthene	1666.67	1552.91			93		78-119		
1,1'-Biphenyl	1666.67	1681.44			101		78-115		
4-Bromophenyl-phenylether	1666.67	1795.82			108		81-116		
Butylbenzylphthalate	1666.67	1614.33			97		81-118		
Di-n-butylphthalate	1666.67	1652.47			99		77-121		
Caprolactam	1666.67	1418.72			85		63-121		
Carbazole	1666.67	1692.06			102		74-118		
4-Chloro-3-methylphenol	1666.67	1605.06			96		70-128		
4-Chloroaniline	1666.67	648.94			39		10-117		
bis(2-Chloroethoxy)methane	1666.67	1503.39			90		72-117		
bis(2-Chloroethyl)ether	1666.67	1491.99			90		68-115		
2-Chloronaphthalene	1666.67	1903.62			114		51-150		
2-Chlorophenol	1666.67	1653.65			99		75-124		
4-Chlorophenyl-phenylether	1666.67	1622.13			97		79-112		
2,2'-oxybis(1-Chloropropane)	1666.67	1324.41			79		61-120		
Chrysene	1666.67	1530.53			92		78-115		
Dibenz(a,h)anthracene	1666.67	1726.93			104		79-117		
Dibenzofuran	1666.67	1630.94			98		79-114		
3,3'-Dichlorobenzidine	1666.67	1520.91			91		33-117		
2,4-Dichlorophenol	1666.67	1734.17			104		79-125		
Diethylphthalate	1666.67	1538.25			92		74-120		
2,4-Dimethylphenol	1666.67	1521.84			91		56-107		
Dimethylphthalate	1666.67	1580.08			95		77-116		
4,6-Dinitro-2-methylphenol	1666.67	1725.36			104		73-127		
2,4-Dinitrophenol	3333.33	3005.73			90		51-139		
2,4-Dinitrotoluene	1666.67	1658.27			99		78-123		
2,6-Dinitrotoluene	1666.67	1676.11			101		80-120		
1,4-Dioxane	1666.67	1097.74			66		37-87		
bis(2-Ethylhexyl)phthalate	1666.67	1637.32			98		78-118		
Fluoranthene	1666.67	1560.56			94		76-115		
Fluorene	1666.67	1630.62			98		80-112		
Hexachlorobenzene	1666.67	1765.33			106		77-114		
Hexachlorobutadiene	1666.67	1726.01			104		75-115		
Hexachlorocyclopentadiene	3333.33	4017.2			121		10-172		
Hexachloroethane	1666.67	1586.11			95		72-111		
Indeno(1,2,3-cd)pyrene	1666.67	1611.32			97		78-113		
Isophorone	1666.67	1488.26			89		65-120		
2-Methylnaphthalene	1666.67	1622.41			97		77-116		
2-Methylphenol	1666.67	1622.96			97		74-128		
4-Methylphenol	1666.67	1560.1			94		66-121		
Naphthalene	1666.67	1594.47			96		81-111		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
2-Nitroaniline	1666.67	1736.38			104		81-126		
3-Nitroaniline	1666.67	1381.42			83		68-124		
4-Nitroaniline	1666.67	1271.9			76		50-112		
Nitrobenzene	1666.67	1517.17			91		70-122		
2-Nitrophenol	1666.67	1757.96			105		77-129		
4-Nitrophenol	1666.67	1196.02			72		44-131		
N-Nitroso-di-n-propylamine	1666.67	1335.73			80		60-123		
N-Nitrosodiphenylamine	1666.67	1799.5			108		83-118		
Di-n-octylphthalate	1666.67	1709.32			103		81-134		
Pentachlorophenol	1666.67	1175.85			71		54-131		
Phenanthrene	1666.67	1618.55			97		81-109		
Phenol	1666.67	1486.58			89		68-123		
Pyrene	1666.67	1570.09			94		80-107		
1,2,4,5-Tetrachlorobenzene	1666.67	1727.93			104		76-116		
2,3,4,6-Tetrachlorophenol	1666.67	1632.21			98		73-127		
2,4,5-Trichlorophenol	1666.67	1709.33			103		84-122		
2,4,6-Trichlorophenol	1666.67	1773.41			106		81-123		
	ng/g	ng/g	ng/g	ng/g					
Batch number: 18073006	Sample number(s): 9500920-9500923								
Perfluorobutanesulfonate	1.20	1.11			92		70-130		
Perfluorobutanoic acid	1.36	1.39			102		70-130		
Perfluorodecanoic acid	1.36	1.20			88		70-130		
Perfluorododecanoic acid	1.36	1.30			95		70-130		
Perfluoroheptanoic acid	1.36	1.36			100		70-130		
Perfluorohexanesulfonate	1.29	1.05			81		70-130		
Perfluorohexanoic acid	1.36	1.32			97		70-130		
Perfluorononanoic acid	1.36	1.25			92		70-130		
Perfluoro-octanesulfonate	1.30	1.19			91		70-130		
Perfluorooctanoic acid	1.36	1.24			91		70-130		
Perfluoropentanoic acid	1.36	1.18			87		70-130		
Perfluorotetradecanoic acid	1.36	1.41			104		70-130		
Perfluorotridecanoic acid	1.36	1.14			84		70-130		
Perfluoroundecanoic acid	1.36	1.40			103		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 18073001	Sample number(s): 9500919,9500924-9500925								
Perfluorobutanesulfonate	4.81	4.54	4.81	4.47	94	93	70-130	1	30
Perfluorobutanoic acid	5.44	5.31	5.44	5.61	98	103	70-130	6	30
Perfluorodecanoic acid	5.44	5.41	5.44	5.24	99	96	70-130	3	30
Perfluorododecanoic acid	5.44	5.21	5.44	5.88	96	108	70-130	12	30
Perfluoroheptanoic acid	5.44	5.05	5.44	5.51	93	101	70-130	9	30
Perfluorohexanesulfonate	5.14	4.95	5.14	5.07	96	99	70-130	2	30
Perfluorohexanoic acid	5.44	5.40	5.44	5.51	99	101	70-130	2	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	5.44	5.73	5.44	5.74	105	106	70-130	0	30
Perfluoro-octanesulfonate	5.20	4.83	5.20	5.10	93	98	70-130	5	30
Perfluorooctanoic acid	5.44	5.12	5.44	5.12	94	94	70-130	0	30
Perfluoropentanoic acid	5.44	5.07	5.44	5.39	93	99	70-130	6	30
Perfluorotetradecanoic acid	5.44	5.03	5.44	5.06	93	93	70-130	1	30
Perfluorotridecanoic acid	5.44	5.21	5.44	5.67	96	104	70-130	8	30
Perfluoroundecanoic acid	5.44	5.25	5.44	5.29	96	97	70-130	1	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 180731063701	Sample number(s): 9500920-9500923								
Aluminum	200	191.82			96		80-120		
Calcium	400	409.55			102		80-120		
Iron	100	100.25			100		80-120		
Magnesium	200	202.4			101		80-120		
Manganese	50	51.43			103		80-120		
Potassium	1000	1011.38			101		80-120		
Sodium	1000	1020.66			102		80-120		
Zinc	50	54.09			108		80-120		
Batch number: 180731063701A	Sample number(s): 9500920-9500923								
Antimony	0.600	0.501			83		80-120		
Arsenic	1.00	0.940			94		80-120		
Beryllium	0.400	0.393			98		80-120		
Cadmium	0.500	0.536			107		80-120		
Chromium	5.00	5.27			105		80-120		
Cobalt	25	25.02			100		80-120		
Copper	5.00	5.13			103		80-120		
Lead	1.50	1.52			101		80-120		
Nickel	5.00	5.09			102		80-120		
Silver	5.00	4.95			99		80-120		
Thallium	0.200	0.162			81		80-120		
Vanadium	5.00	4.90			98		80-120		
Batch number: 180731063701B	Sample number(s): 9500920-9500923								
Selenium	1.00	0.984			98		80-120		
Batch number: 180731063701D	Sample number(s): 9500920-9500923								
Barium	5.00	4.59			92		80-120		
Batch number: 180751063801	Sample number(s): 9500920-9500923								
Mercury	0.100	0.0862			86		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 18095667631A	Sample number(s): 9500920-9500923								
TOC	7150	5813.1	7150	5959.38	81	83	47-143	2	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18073039401A	Sample number(s): 9500920-9500923								
pH	7.00	7.02			100		95-105		
	%	%	%	%					
Batch number: 18073820006A	Sample number(s): 9500920-9500923								
Moisture	89.5	89.44			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: X180751AA	Sample number(s): 9500920-9500923 UNSPK: P501706				not in	50%	∴ no eval			
Acetone	22.33	118.29	171.3	126.27	178.08	126	123	55-131	4	30
Benzene	0.4 U	15.77	17.23	16.84	17.95	109	107	80-120	4	30
Bromochloromethane	0.7 U	15.77	18.62	16.84	19.13	118	114	80-120	3	30
Bromodichloromethane	0.7 U	15.77	16.31	16.84	16.87	103	100	70-120	3	30
Bromoform	0.7 U	15.77	17	16.84	17.88	108	106	51-127	5	30
Bromomethane	1 U	15.77	15.5	16.84	15.61	98	93	50-136	1	30
2-Butanone	3 U	118.29	130.64	126.27	135.57	110	107	57-128	4	30
Carbon Disulfide	0.7 U	15.77	18.76	16.84	19.83	119	118	64-133	6	30
Carbon Tetrachloride	0.7 U	15.77	18.35	16.84	19.43	116	115	64-134	6	30
Chlorobenzene	0.7 U	15.77	16.3	16.84	16.54	103	98	80-120	1	30
Chloroethane	1 U	15.77	15.46	16.84	16.02	98	95	50-131	4	30
Chloroform	0.7 U	15.77	17.39	16.84	18.18	110	108	80-120	4	30
Chloromethane	1 U	15.77	16.9	16.84	17.65	107	105	56-120	4	30
Cyclohexane	0.7 U	15.77	16.84	16.84	17.89	107	106	58-126	6	30
1,2-Dibromo-3-chloropropane	1 U	15.77	17.93	16.84	19.41	114	115	36-144	8	30
Dibromochloromethane	0.7 U	15.77	18.14	16.84	18.74	115	111	65-120	3	30
1,2-Dibromoethane	0.7 U	15.77	18.23	16.84	18.99	116	113	74-120	4	30
1,2-Dichlorobenzene	0.7 U	15.77	14.74	16.84	14.62	93	87	80-120	1	30
1,3-Dichlorobenzene	0.7 U	15.77	14.13	16.84	13.7	90	81	80-120	3	30
1,4-Dichlorobenzene	0.7 U	15.77	14.04	16.84	13.49	89	80	80-120	4	30
Dichlorodifluoromethane	1 U	15.77	17.01	16.84	18.27	108	109	16-136	7	30
1,1-Dichloroethane	0.7 U	15.77	16.94	16.84	17.72	107	105	77-120	4	30
1,2-Dichloroethane	0.7 U	15.77	16.57	16.84	17.25	105	102	71-128	4	30
1,1-Dichloroethene	0.7 U	15.77	20.69	16.84	21.89	131*	130*	73-129	6	30
cis-1,2-Dichloroethene	0.7 U	15.77	18.24	16.84	18.92	116	112	80-120	4	30
trans-1,2-Dichloroethene	0.7 U	15.77	18.8	16.84	19.8	119	118	80-125	5	30
1,2-Dichloropropane	0.7 U	15.77	16.38	16.84	17.19	104	102	76-120	5	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
cis-1,3-Dichloropropene	0.7 U	15.77	15.05	16.84	15.78	95	94	66-120	5	30
trans-1,3-Dichloropropene	0.7 U	15.77	15.34	16.84	15.73	97	93	63-124	3	30
Ethylbenzene	0.7 U	15.77	15.85	16.84	16.04	100	95	74-120	1	30
Freon 113	1 U	15.77	20.64	16.84	22.08	131	131	64-135	7	30
2-Hexanone	2 U	78.86	102.67	84.18	110.97	130	132	54-140	8	30
Isopropylbenzene	0.7 U	15.77	15.64	16.84	15.77	99	94	69-123	1	30
Methyl Acetate	1 U	15.77	16.59	16.84	17.88	105	106	59-134	8	30
Methyl Tertiary Butyl Ether	0.4 U	15.77	16.52	16.84	17.69	105	105	66-123	7	30
4-Methyl-2-pentanone	2 U	78.86	99.41	84.18	107.68	126	128	61-135	8	30
Methylcyclohexane	0.7 U	15.77	17.45	16.84	18.22	111	108	61-124	4	30
Methylene Chloride	1 U	15.77	17.71	16.84	18.63	112	111	76-122	5	30
Styrene	0.7 U	15.77	9.46	16.84	9.69	60*	58*	76-120	2	30
1,1,2,2-Tetrachloroethane	0.7 U	15.77	17.7	16.84	18.84	112	112	61-131	6	30
Tetrachloroethene	0.7 U	15.77	17.85	16.84	18.42	113	109	73-120	3	30
Toluene	0.7 U	15.77	17.18	16.84	17.59	109	104	80-120	2	30
1,2,3-Trichlorobenzene	0.7 U	15.77	13.34	16.84	12.96	85	77	44-155	3	30
1,2,4-Trichlorobenzene	0.7 U	15.77	12.22	16.84	11.59	77	69	56-130	5	30
1,1,1-Trichloroethane	0.7 U	15.77	19.9	16.84	21.24	126*	126*	69-123	7	30
1,1,2-Trichloroethane	0.7 U	15.77	18.48	16.84	19.12	117	114	80-120	3	30
Trichloroethene	0.7 U	15.77	17.07	16.84	17.74	108	105	80-120	4	30
Trichlorofluoromethane	1 U	15.77	19.07	16.84	20.15	121	120	55-134	6	30
Vinyl Chloride	0.7 U	15.77	17.32	16.84	18.27	110	109	59-120	5	30
m+p-Xylene	0.7 U	31.54	31.71	33.67	31.91	101	95	80-120	1	30
o-Xylene	0.7 U	15.77	15.19	16.84	15.4	96	91	75-120	1	30
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: 18073SLB026	Sample number(s): 9500920-9500922 UNSPK: P498430 ✓. no eval									
Acenaphthene	18686.32	1653.99	9928.34	1647.99	11177.45	-529 (2)	-455 (2)	78-119	12	30
Acenaphthylene	895.3	1653.99	1889.78	1647.99	2087.76	60	72	45-149	10	30
Acetophenone	17 U	1653.99	1545.79	1647.99	1528.76	93	93	68-115	1	30
Anthracene	3333.26	1653.99	3245.35	1647.99	3490.7	-4*	10*	82-113	7	30
Atrazine	33 U	1653.99	1585.25	1647.99	1650.86	96	100	58-126	4	30
Benzaldehyde	66 U	1653.99	1268.64	1647.99	1134.33	77	69	18-123	11	30
Benzo(a)anthracene	8486.87	1653.99	4211.86	1647.99	5617.82	-257 (2)	-173 (2)	76-119	29	30
Benzo(a)pyrene	4962.12	1653.99	3037.65	1647.99	3999.9	-115*	-57*	77-112	27	30
Benzo(b)fluoranthene	7312.13	1653.99	3624.18	1647.99	4647.24	-222 (2)	-161 (2)	78-120	25	30
Benzo(g,h,i)perylene	1830.79	1653.99	2206.91	1647.99	2618.28	23*	48*	76-111	17	30
Benzo(k)fluoranthene	2373.37	1653.99	2256.54	1647.99	2901.88	-6*	32*	78-119	25	30
1,1'-Biphenyl	2778.63	1653.99	3260.44	1647.99	3403.79	29*	38*	78-115	4	30
4-Bromophenyl-phenylether	17 U	1653.99	1548.88	1647.99	1581.42	94	96	81-116	2	30
Butylbenzylphthalate	66 U	1653.99	1497.12	1647.99	1551.11	91	94	81-118	4	30
Di-n-butylphthalate	66 U	1653.99	1559.94	1647.99	1608.77	94	98	77-121	3	30
Caprolactam	33 U	1653.99	1464.83	1647.99	1495.27	89	91	63-121	2	30

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Carbazole	1779.96	1653.99	2802.78	1647.99	2775.62	62*	60*	74-118	1	30
4-Chloro-3-methylphenol	17 U	1653.99	1459.39	1647.99	1494.33	88	91	70-128	2	30
4-Chloroaniline	33 U	1653.99	1084.18	1647.99	778.81	66	47	10-117	33*	30
bis(2-Chloroethoxy)methane	17 U	1653.99	1475.55	1647.99	1532.13	89	93	72-117	4	30
bis(2-Chloroethyl)ether	17 U	1653.99	1577.46	1647.99	1515.98	95	92	68-115	4	30
2-Chloronaphthalene	7 U	1653.99	1289.72	1647.99	1325.76	78	80	51-150	3	30
2-Chlorophenol	17 U	1653.99	1444.25	1647.99	1424.42	87	86	75-124	1	30
4-Chlorophenyl-phenylether	17 U	1653.99	1296.82	1647.99	1314.52	78*	80	79-112	1	30
2,2'-oxybis(1-Chloropropane)	17 U	1653.99	973.68	1647.99	952.79	59*	58*	61-120	2	30
Chrysene	5804.22	1653.99	3173.58	1647.99	4217.79	-158*	-95*	78-115	28	30
Dibenz(a,h)anthracene	612.71	1653.99	1925.94	1647.99	1811.12	79	73*	79-117	6	30
Dibenzofuran	11498.57	1653.99	6728.6	1647.99	7352.95	-287 (2)	-251 (2)	79-114	9	30
3,3'-Dichlorobenzidine	100 U	1653.99	1271.47	1647.99	1283.14	77	78	33-117	1	30
2,4-Dichlorophenol	17 U	1653.99	1367.68	1647.99	1316.62	83	80	79-125	4	30
Diethylphthalate	66 U	1653.99	1379.68	1647.99	1405.26	83	85	74-120	2	30
2,4-Dimethylphenol	17 U	1653.99	1335.71	1647.99	1382.89	81	84	56-107	3	30
Dimethylphthalate	66 U	1653.99	1437.03	1647.99	1454.8	87	88	77-116	1	30
4,6-Dinitro-2-methylphenol	170 U	1653.99	385.11	1647.99	160 U	23*	0*	73-127	200*	30
2,4-Dinitrophenol	300 U	3307.97	300 U	3295.98	300 U	0*	0*	51-139	0	30
2,4-Dinitrotoluene	66 U	1653.99	890.87	1647.99	736.73	54*	45*	78-123	19	30
2,6-Dinitrotoluene	17 U	1653.99	1002.6	1647.99	813.94	61*	49*	80-120	21	30
1,4-Dioxane	100 U	1653.99	880.09	1647.99	941.54	53	57	37-87	7	30
bis(2-Ethylhexyl)phthalate	66 U	1653.99	1569.97	1647.99	1603.83	95	97	78-118	2	30
Fluoranthene	26175.57	1653.99	9256.25	1647.99	11585.23	-1022 (2)	-884 (2)	76-115	22	30
Fluorene	15386.96	1653.99	7922.81	1647.99	8971.8	-450 (2)	-388 (2)	80-112	12	30
Hexachlorobenzene	3 U	1653.99	1519.38	1647.99	1532.84	92	93	77-114	1	30
Hexachlorobutadiene	17 U	1653.99	1480.84	1647.99	1485.13	90	90	75-115	0	30
Hexachlorocyclopentadiene	170 U	3307.97	170 U	3295.98	160 U	0*	0*	10-172	0	30
Hexachloroethane	33 U	1653.99	95.8	1647.99	33 U	6*	0*	72-111	200*	30
Indeno(1,2,3-cd)pyrene	1852.67	1653.99	2216.26	1647.99	2627.55	22*	47*	78-113	17	30
Isophorone	17 U	1653.99	1465.7	1647.99	1472.38	89	89	65-120	0	30
2-Methylnaphthalene	6200.38	1653.99	6923.79	1647.99	5536.85	44*	-39*	77-116	22	30
2-Methylphenol	17 U	1653.99	1475.09	1647.99	1456	89	88	74-128	1	30
4-Methylphenol	17 U	1653.99	1406.85	1647.99	1407.59	85	85	66-121	0	30
Naphthalene	48624.75	1653.99	21020.62	1647.99	20882.05	-1668 (2)	-1682 (2)	81-111	1	30
2-Nitroaniline	17 U	1653.99	2075.3	1647.99	2059.68	125	125	81-126	1	30
3-Nitroaniline	66 U	1653.99	1420.35	1647.99	1405.96	86	85	68-124	1	30
4-Nitroaniline	66 U	1653.99	1804.5	1647.99	1729.21	109	105	50-112	4	30
Nitrobenzene	17 U	1653.99	1278.05	1647.99	1185.03	77	72	70-122	8	30
2-Nitrophenol	17 U	1653.99	237.26	1647.99	75.44	14*	5*	77-129	104*	30
4-Nitrophenol	170 U	1653.99	1429.08	1647.99	499.62	86	30*	44-131	96*	30
N-Nitroso-di-n-propylamine	17 U	1653.99	1361.16	1647.99	1328.04	82	81	60-123	2	30
N-Nitrosodiphenylamine	17 U	1653.99	1783.87	1647.99	1874.53	108	114	83-118	5	30

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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Di-n-octylphthalate	66 U	1653.99	1588.78	1647.99	1584.07	96	96	81-134	0	30
Pentachlorophenol	33 U	1653.99	696.38	1647.99	410.97	42*	25*	54-131	52*	30
Phenanthrene	24801.51	1653.99	12563.37	1647.99	13132.85	-739 (2)	-707 (2)	81-109	4	30
Phenol	17 U	1653.99	1387.11	1647.99	1387.57	84	84	68-123	0	30
Pyrene	20021.77	1653.99	7569.75	1647.99	10512.9	-752 (2)	-576 (2)	80-107	33*	30
1,2,4,5-Tetrachlorobenzene	17 U	1653.99	1454.4	1647.99	1484.72	88	90	76-116	2	30
2,3,4,6-Tetrachlorophenol	66 U	1653.99	690.46	1647.99	816.64	42*	50*	73-127	17	30
2,4,5-Trichlorophenol	17 U	1653.99	1150.25	1647.99	1165.92	70*	71*	84-122	1	30
2,4,6-Trichlorophenol	17 U	1653.99	695.09	1647.99	653.27	42*	40*	81-123	6	30
Batch number: 18078SLF026	Sample number(s): 9500923 UNSPK: P501673 no evd									
Acenaphthene	3 U	1657.82	1531.24	1650.17	1557.62	92	94	78-119	2	30
Acenaphthylene	20.21	1657.82	1662.1	1650.17	1684.21	99	101	45-149	1	30
Acetophenone	16 U	1657.82	1338.78	1650.17	1376.18	81	83	68-115	3	30
Anthracene	13.79	1657.82	1543.17	1650.17	1596.45	92	96	82-113	3	30
Atrazine	33 U	1657.82	1275.52	1650.17	1353.3	77	82	58-126	6	30
Benzaldehyde	66 U	1657.82	1225.87	1650.17	1250.25	74	76	18-123	2	30
Benzo(a)anthracene	37.7	1657.82	1474.49	1650.17	1482.19	87	88	76-119	1	30
Benzo(a)pyrene	48.39	1657.82	1586.56	1650.17	1617.2	93	95	77-112	2	30
Benzo(b)fluoranthene	80.13	1657.82	1600.79	1650.17	1590.14	92	92	78-120	1	30
Benzo(g,h,i)perylene	46.24	1657.82	1630.26	1650.17	1663.14	96	98	76-111	2	30
Benzo(k)fluoranthene	28.89	1657.82	1475.13	1650.17	1531.14	87	91	78-119	4	30
1,1'-Biphenyl	16 U	1657.82	1554.79	1650.17	1571.79	94	95	78-115	1	30
4-Bromophenyl-phenylether	16 U	1657.82	1674.46	1650.17	1744	101	106	81-116	4	30
Butylbenzylphthalate	66 U	1657.82	1520.63	1650.17	1561.51	92	95	81-118	3	30
Di-n-butylphthalate	66 U	1657.82	1510.47	1650.17	1586.55	91	96	77-121	5	30
Caprolactam	33 U	1657.82	1242.04	1650.17	1258.29	75	76	63-121	1	30
Carbazole	16 U	1657.82	1486.75	1650.17	1566.94	90	95	74-118	5	30
4-Chloro-3-methylphenol	16 U	1657.82	1392.02	1650.17	1433.99	84	87	70-128	3	30
4-Chloroaniline	33 U	1657.82	394.46	1650.17	381.71	24	23	10-117	3	30
bis(2-Chloroethoxy)methane	16 U	1657.82	1415.19	1650.17	1445.53	85	88	72-117	2	30
bis(2-Chloroethyl)ether	16 U	1657.82	1364.82	1650.17	1395.86	82	85	68-115	2	30
2-Chloronaphthalene	7 U	1657.82	1885.54	1650.17	1899.36	114	115	51-150	1	30
2-Chlorophenol	16 U	1657.82	1469.42	1650.17	1539.71	89	93	75-124	5	30
4-Chlorophenyl-phenylether	16 U	1657.82	1474.87	1650.17	1499.15	89	91	79-112	2	30
2,2'-oxybis(1-Chloropropane)	16 U	1657.82	1238.14	1650.17	1277.96	75	77	61-120	3	30
Chrysene	46.31	1657.82	1395.02	1650.17	1416.89	81	83	78-115	2	30
Dibenz(a,h)anthracene	14.34	1657.82	1719.59	1650.17	1710.16	103	103	79-117	1	30
Dibenzofuran	16 U	1657.82	1487.99	1650.17	1514.43	90	92	79-114	2	30
3,3'-Dichlorobenzidine	98 U	1657.82	1201.16	1650.17	1242.62	72	75	33-117	3	30
2,4-Dichlorophenol	16 U	1657.82	1539.36	1650.17	1596.47	93	97	79-125	4	30
Diethylphthalate	66 U	1657.82	1413.22	1650.17	1433.65	85	87	74-120	1	30
2,4-Dimethylphenol	16 U	1657.82	1262.27	1650.17	1284.48	76	78	56-107	2	30

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(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Dimethylphthalate	66 U	1657.82	1424.32	1650.17	1465.67	86	89	77-116	3	30
4,6-Dinitro-2-methylphenol	160 U	1657.82	971.16	1650.17	1063.33	59*	64*	73-127	9	30
2,4-Dinitrophenol	300 U	3315.65	1301.44	3300.33	1390.14	39*	42*	51-139	7	30
2,4-Dinitrotoluene	66 U	1657.82	1392.58	1650.17	1438.52	84	87	78-123	3	30
2,6-Dinitrotoluene	16 U	1657.82	1513.85	1650.17	1509.54	91	91	80-120	0	30
1,4-Dioxane	98 U	1657.82	907.06	1650.17	965.33	55	58	37-87	6	30
bis(2-Ethylhexyl)phthalate	66 U	1657.82	1550.53	1650.17	1585.61	94	96	78-118	2	30
Fluoranthene	43.68	1657.82	1396.12	1650.17	1476.19	82	87	76-115	6	30
Fluorene	3 U	1657.82	1463.49	1650.17	1474.2	88	89	80-112	1	30
Hexachlorobenzene	3 U	1657.82	1626.51	1650.17	1683.7	98	102	77-114	3	30
Hexachlorobutadiene	16 U	1657.82	1688.32	1650.17	1693.3	102	103	75-115	0	30
Hexachlorocyclopentadiene	160 U	3315.65	2003.9	3300.33	2154.12	60	65	10-172	7	30
Hexachloroethane	33 U	1657.82	1384.95	1650.17	1438.02	84	87	72-111	4	30
Indeno(1,2,3-cd)pyrene	36.81	1657.82	1649.15	1650.17	1622.26	97	96	78-113	2	30
Isophorone	16 U	1657.82	1367.88	1650.17	1393.58	83	84	65-120	2	30
2-Methylnaphthalene	6.79	1657.82	1489.05	1650.17	1535.19	89	93	77-116	3	30
2-Methylphenol	16 U	1657.82	1447.27	1650.17	1450.28	87	88	74-128	0	30
4-Methylphenol	16 U	1657.82	1373.98	1650.17	1399.01	83	85	66-121	2	30
Naphthalene	5.81	1657.82	1490.47	1650.17	1526.65	90	92	81-111	2	30
2-Nitroaniline	16 U	1657.82	1582.88	1650.17	1594.11	95	97	81-126	1	30
3-Nitroaniline	66 U	1657.82	1208.24	1650.17	1205.18	73	73	68-124	0	30
4-Nitroaniline	66 U	1657.82	1107.83	1650.17	1169.06	67	71	50-112	5	30
Nitrobenzene	16 U	1657.82	1419.3	1650.17	1429.5	86	87	70-122	1	30
2-Nitrophenol	16 U	1657.82	1568.55	1650.17	1593.5	95	97	77-129	2	30
4-Nitrophenol	160 U	1657.82	1038.87	1650.17	1046.88	63	63	44-131	1	30
N-Nitroso-di-n-propylamine	16 U	1657.82	1217	1650.17	1252.73	73	76	60-123	3	30
N-Nitrosodiphenylamine	16 U	1657.82	1693.57	1650.17	1733.14	102	105	83-118	2	30
Di-n-octylphthalate	66 U	1657.82	1637.7	1650.17	1641.83	99	99	81-134	0	30
Pentachlorophenol	33 U	1657.82	1084.18	1650.17	1137.1	65	69	54-131	5	30
Phenanthrene	15.03	1657.82	1512.3	1650.17	1578.87	90	95	81-109	4	30
Phenol	16 U	1657.82	1323.17	1650.17	1334.57	80	81	68-123	1	30
Pyrene	53.09	1657.82	1527.44	1650.17	1571.71	89	92	80-107	3	30
1,2,4,5-Tetrachlorobenzene	16 U	1657.82	1598.77	1650.17	1667.63	96	101	76-116	4	30
2,3,4,6-Tetrachlorophenol	66 U	1657.82	1391.79	1650.17	1393.99	84	84	73-127	0	30
2,4,5-Trichlorophenol	16 U	1657.82	1595.57	1650.17	1609.45	96	98	84-122	1	30
2,4,6-Trichlorophenol	16 U	1657.82	1608.94	1650.17	1622.63	97	98	81-123	1	30
	ng/g	ng/g	ng/g	ng/g	ng/g					
Batch number: 18073006	Sample number(s): 9500920-9500923 UNSPK: P497803 no eval									
Perfluorobutanesulfonate	0.20 U	0.946	0.750	0.962	0.881	79	92	70-130	16	30
Perfluorobutanoic acid	0.218	1.07	1.16	1.09	1.28	88	97	70-130	9	30
Perfluorodecanoic acid	0.20 U	1.07	0.998	1.09	1.03	93	95	70-130	3	30
Perfluorododecanoic acid	0.20 U	1.07	0.976	1.09	1.08	91	99	70-130	10	30

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(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoroheptanoic acid	0.20 U	1.07	1.10	1.09	1.25	103	114	70-130	12	30
Perfluorohexanesulfonate	0.20 U	1.01	0.826	1.03	0.952	82	92	70-130	14	30
Perfluorohexanoic acid	0.20 U	1.07	1.18	1.09	1.29	110	119	70-130	10	30
Perfluorononanoic acid	0.20 U	1.07	0.974	1.09	1.22	91	112	70-130	22	30
Perfluoro-octanesulfonate	0.29 U	1.02	0.782	1.04	0.968	76	93	70-130	21	30
Perfluorooctanoic acid	4.91	1.07	5.26	1.09	6.13	33 (2)	112 (2)	70-130	15	30
Perfluoropentanoic acid	0.20 U	1.07	1.04	1.09	1.05	97	97	70-130	1	30
Perfluorotetradecanoic acid	0.20 U	1.07	1.04	1.09	1.12	97	103	70-130	7	30
Perfluorotridecanoic acid	0.20 U	1.07	0.923	1.09	1.03	86	95	70-130	11	30
Perfluoroundecanoic acid	0.20 U	1.07	0.962	1.09	1.02	90	94	70-130	6	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 180731063701	Sample number(s): 9500920-9500923 UNSPK: 9500921									
Aluminum	11679.98	192.31	13469.27	196.08	14265.04	930 (2)	1318 (2)	75-125	6	20
Calcium	13302.37	384.62	10226.48	392.16	17970.58	-800 (2)	1190 (2)	75-125	55* J	20
Iron	30093.93	96.15	24581.05	98.04	27622.13	-5733 (2)	-2521 (2)	75-125	12	20
Magnesium	10148.28	192.31	9810.34	196.08	11964.14	-176 (2)	926 (2)	75-125	20	20
Manganese	603.47	48.08	637.27	49.02	801.98	70 (2)	405 (2)	75-125	23* J	20
Potassium	1558.35	961.54	3181.51	980.39	3612.37	169*	210* J	75-125	13	20
Sodium	102.4	961.54	1038.38	980.39	1065.36	97	98	75-125	3	20
Zinc	65.32	48.08	104.34	49.02	110.87	81	93	75-125	6	20
Batch number: 180731063701A	Sample number(s): 9500920-9500923 UNSPK: 9500921									
Antimony	0.0837	1.15	0.847	1.18	0.814	66*	62* J	75-125	4	20
Arsenic	8.82	1.92	10.49	1.96	8.55	87 (2)	-14 (2)	75-125	20	20
Beryllium	0.372	0.769	1.17	0.784	1.07	104	89	75-125	10	20
Cadmium	0.161	0.962	1.01	0.980	1.06	88	92	75-125	5	20
Chromium	12.61	9.62	23.05	9.80	20.86	109	84	75-125	10	20
Cobalt	13.25	48.08	61.21	49.02	57.72	100	91	75-125	6	20
Copper	27.45	9.62	37.78	9.80	35.74	107	85	75-125	6	20
Lead	12.86	2.88	16.47	2.94	13.87	125 (2)	34 (2)	75-125	17	20
Nickel	26.85	9.62	35.25	9.80	31.9	87	52* J	75-125	10	20
Silver	0.0528	9.62	9.45	9.80	9.32	98	95	75-125	1	20
Thallium	0.0538	0.385	0.415	0.392	0.473	94	107	75-125	13	20
Vanadium	12.96	9.62	25.17	9.80	22.49	127* J	97	75-125	11	20
Batch number: 180731063701B	Sample number(s): 9500920-9500923 UNSPK: 9500921									
Selenium	0.219	1.92	2.06	1.96	2.01	96	91	75-125	2	20
Batch number: 180731063701D	Sample number(s): 9500920-9500923 UNSPK: 9500921									
Barium	37.28	9.62	57.56	9.80	63.26	211*	265* J	75-125	9	20
Batch number: 180751063801	Sample number(s): 9500920-9500923 UNSPK: P501669									
Mercury	0.0277	0.167	0.185	0.167	0.183	94	93	80-120	1	20

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 18095667631A	Sample number(s): 9500920-9500923 UNSPK: 9500921									
TOC	4431.98	18360	23067.97			102		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 180731063701	Sample number(s): 9500920-9500923 BKG: 9500921			
Aluminum	11679.98	11123.92	5	20
Calcium	13302.37	17239.79	26*	20
Iron	30093.93	26207.68	14	20
Magnesium	10148.28	10763.86	6	20
Manganese	603.47	630.72	4	20
Potassium	1558.35	1594.85	2	20
Sodium	102.4	97.38	5 (1)	20
Zinc	65.32	60.77	7	20
Batch number: 180731063701A	Sample number(s): 9500920-9500923 BKG: 9500921			
Antimony	0.0837	0.0987	16 (1)	20
Arsenic	8.82	10.12	14	20
Beryllium	0.372	0.344	8 (1)	20
Cadmium	0.161	0.151	7 (1)	20
Chromium	12.61	11.53	9	20
Cobalt	13.25	11.36	15	20
Copper	27.45	26.54	3	20
Lead	12.86	12.97	1	20
Nickel	26.85	24.01	11	20
Silver	0.0528	0.0313	51* (1)	20
Thallium	0.0538	0.0577	7 (1)	20
Vanadium	12.96	11.77	10	20
Batch number: 180731063701B	Sample number(s): 9500920-9500923 BKG: 9500921			
Selenium	0.219	0.211	4 (1)	20
Batch number: 180731063701D	Sample number(s): 9500920-9500923 BKG: 9500921			
Barium	37.28	39.56	6	20

d.f = .0215 log = .162 no qual

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 180751063801	Sample number(s): 9500920-9500923 BKG: P501669			
Mercury	0.0277	0.0236	16 (1)	20
	mg/kg	mg/kg		
Batch number: 18095667631A	Sample number(s): 9500920-9500923 BKG: 9500921			
TOC	4431.98	4601.19	4	7
	Std. Units	Std. Units		
Batch number: 18073039401A	Sample number(s): 9500920-9500923 BKG: P501425			
pH	4.83	4.88	1	3
	%	%		
Batch number: 18073820006A	Sample number(s): 9500920-9500923 BKG: P501669			
Moisture	13.3	15.81	17*	5

not in spike ∴ no eval

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SOM02.2 Volatiles
Batch number: X180751AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9500920	101	103	115	67
9500921	100	103	99	89
9500922	98	106	114	70
9500923	97	102	108	75
Blank	100	98	100	93
LCS	101	100	100	96
LCSD	99	97	100	96
MS	100	102	100	95
MSD	100	102	100	96
Limits:	50-141	54-135	52-141	50-131

Analysis Name: TCL Semivolatiles
Batch number: 18073SLB026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
9500920	93	92	63	85	85	90
9500921	85	85	67	78	76	79
9500922	86	87	55	71	82	80

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P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TCL Semivolatiles
Batch number: 18073SLB026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
Blank	92	93	80	84	82	91
LCS	95	98	76	86	85	88
MS	85	86	25*	72	83	86
MSD	85	85	22*	67	86	87
Limits:	46-125	51-123	27-137	49-118	57-116	55-118

Analysis Name: TCL Semivolatiles
Batch number: 18078SLF026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
9500923	80	87	68	83	92	93
Blank	79	88	112	86	95	98
LCS	84	93	100	85	96	94
MS	77	84	86	79	89	90
MSD	79	87	87	81	91	90
Limits:	46-125	51-123	27-137	49-118	57-116	55-118

Analysis Name: 14 PFAS Compounds
Batch number: 18073001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9500919	67	67	67	72	67	77
9500924	71	68	65	76	67	72
9500925	75	73	71	74	67	75
Blank	69	66	62	68	65	71
LCS	67	68	62	66	66	71
LCSD	72	70	66	70	70	75
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9500919	62	73	84	64	44	51
9500924	72	61	67	77	79	83
9500925	77	80	70	76	78	74
Blank	71	69	71	70	75	72
LCS	69	67	72	66	72	69
LCSD	71	75	80	70	79	69
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFAS Compounds
Batch number: 18073001

	13C2-PFTeDA
9500919	63
9500924	82
9500925	77
Blank	70
LCS	68
LCSD	74
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 18073006

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9500920	61	61*	58	57	62	57
9500921	50	49*	55	62	74	64
9500922	55	55*	55	56	66	55
9500923	58	58*	55	57	62	59
Blank	70	72	67	73	73	72
LCS	62	61*	54	58	57	59
MS	56	56*	64	52	63	57
MSD	57	58*	61	53	60	56
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9500920	59	62	61	61	66	71
9500921	49	59	48	52	56	63
9500922	52	61	57	56	64	72
9500923	65	60	57	57	54	65
Blank	75	69	73	82	83	90
LCS	62	63	63	65	66	78
MS	57	76	58	59	67	76
MSD	57	64	51	56	64	66
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9500920	49
9500921	42
9500922	49
9500923	45
Blank	63
LCS	56

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 04/10/2018 10:20

Group Number: 1918533

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 14 PFCs
Batch number: 18073006

	13C2-PFTeDA
MS	61
MSD	53
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Sample Description: SG3a-RB01-180312 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 09:20
SDG#: SNB98-01RB

C. T. Male Associates
ELLE Sample #: WW 9500919
ELLE Group #: 1918533
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**2**	1	2	1
14473	**Perfluorododecanoic acid**	307-55-1	**0.7 J**	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**4**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**3**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**0.8 J**	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**310**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	**Perfluoroundecanoic acid**	2058-94-8	**0.7 J**	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18073001	03/15/2018 16:34	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18073001	03/14/2018 09:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-FD01-180312 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018
SDG#: SNB98-02FD

C. T. Male Associates
ELLE Sample #: SW 9500920
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	**Acetone**	67-64-1	**61**	7	21	0.91
11995	Benzene	71-43-2	0.5 U	0.5	5	0.91
11995	Bromochloromethane	74-97-5	1 U	1	5	0.91
11995	Bromodichloromethane	75-27-4	1 U	1	5	0.91
11995	Bromoform	75-25-2	1 U	1	5	0.91
11995	Bromomethane	74-83-9	2 U	2	5	0.91
11995	**2-Butanone**	78-93-3	**9 J**	4	11	0.91
11995	**Carbon Disulfide**	75-15-0	**3 J**	1	5	0.91
11995	Carbon Tetrachloride	56-23-5	1 U	1	5	0.91
11995	Chlorobenzene	108-90-7	1 U	1	5	0.91
11995	Chloroethane	75-00-3	2 U	2	5	0.91
11995	Chloroform	67-66-3	1 U	1	5	0.91
11995	Chloromethane	74-87-3	2 U	2	5	0.91
11995	Cyclohexane	110-82-7	1 U	1	5	0.91
11995	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	0.91
11995	Dibromochloromethane	124-48-1	1 U	1	5	0.91
11995	1,2-Dibromoethane	106-93-4	1 U	1	5	0.91
11995	1,2-Dichlorobenzene	95-50-1	1 U	1	5	0.91
11995	1,3-Dichlorobenzene	541-73-1	1 U	1	5	0.91
11995	1,4-Dichlorobenzene	106-46-7	1 U	1	5	0.91
11995	Dichlorodifluoromethane	75-71-8	2 U	2	5	0.91
11995	1,1-Dichloroethane	75-34-3	1 U	1	5	0.91
11995	1,2-Dichloroethane	107-06-2	1 U	1	5	0.91
11995	1,1-Dichloroethene	75-35-4	1 U	1	5	0.91
11995	cis-1,2-Dichloroethene	156-59-2	1 U	1	5	0.91
11995	trans-1,2-Dichloroethene	156-60-5	1 U	1	5	0.91
11995	1,2-Dichloropropane	78-87-5	1 U	1	5	0.91
11995	cis-1,3-Dichloropropene	10061-01-5	1 U	1	5	0.91
11995	trans-1,3-Dichloropropene	10061-02-6	1 U	1	5	0.91
11995	Ethylbenzene	100-41-4	1 U	1	5	0.91
11995	Freon 113	76-13-1	2 U	2	11	0.91
11995	2-Hexanone	591-78-6	3 U	3	11	0.91
11995	Isopropylbenzene	98-82-8	1 U	1	5	0.91
11995	Methyl Acetate	79-20-9	2 U	2	5	0.91
11995	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	5	0.91
11995	4-Methyl-2-pentanone	108-10-1	3 U	3	11	0.91
11995	Methylcyclohexane	108-87-2	1 U	1	5	0.91
11995	Methylene Chloride	75-09-2	2 U	2	5	0.91
11995	Styrene	100-42-5	1 U	1	5	0.91
11995	1,1,2,2-Tetrachloroethane	79-34-5	1 U	1	5	0.91
11995	Tetrachloroethene	127-18-4	1 U	1	5	0.91

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-FD01-180312 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018
SDG#: SNB98-02FD

C. T. Male Associates
ELLE Sample #: SW 9500920
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	**Toluene**	108-88-3	**1 J**	1	5	0.91
11995	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	0.91
11995	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	0.91
11995	1,1,1-Trichloroethane	71-55-6	1 U	1	5	0.91
11995	1,1,2-Trichloroethane	79-00-5	1 U	1	5	0.91
11995	Trichloroethene	79-01-6	1 U	1	5	0.91
11995	Trichlorofluoromethane	75-69-4	2 U	2	5	0.91
11995	Vinyl Chloride	75-01-4	1 U	1	5	0.91
11995	m+p-Xylene	179601-23-1	1 U	1	5	0.91
11995	o-Xylene	95-47-6	1 U	1	5	0.91

The recovery for the sample internal standard is outside the QC acceptance limits. The following corrective action was taken: The sample was re-analyzed and the QC is again outside of the acceptance limits, indicating a matrix effect. The data is reported from the initial trial.

GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
10726	Acenaphthene	83-32-9	4 U	4	19	1
10726	Acenaphthylene	208-96-8	4 U	4	19	1
10726	Acetophenone	98-86-2	19 U	19	38	1
10726	**Anthracene**	120-12-7	**4 J**	4	19	1
10726	Atrazine	1912-24-9	38 U	38	190	1
10726	Benzaldehyde	100-52-7	76 U	76	190	1
10726	**Benzo(a)anthracene**	56-55-3	**4 J**	4	19	1
10726	**Benzo(a)pyrene**	50-32-8	**5 J**	4	19	1
10726	**Benzo(b)fluoranthene**	205-99-2	**7 J**	4	19	1
10726	**Benzo(g,h,i)perylene**	191-24-2	**5 J**	4	19	1
10726	Benzo(k)fluoranthene	207-08-9	4 U	4	19	1
10726	1,1'-Biphenyl	92-52-4	19 U	19	38	1
10726	4-Bromophenyl-phenylether	101-55-3	19 U	19	38	1
10726	Butylbenzylphthalate	85-68-7	76 U	76	190	1
10726	Di-n-butylphthalate	84-74-2	76 U	76	190	1
10726	Caprolactam	105-60-2	38 U	38	190	1
10726	Carbazole	86-74-8	19 U	19	38	1
10726	4-Chloro-3-methylphenol	59-50-7	19 U	19	38	1
10726	4-Chloroaniline	106-47-8	38 U	38	76	1
10726	bis(2-Chloroethoxy)methane	111-91-1	19 U	19	38	1
10726	bis(2-Chloroethyl)ether	111-44-4	19 U	19	38	1
10726	2-Chloronaphthalene	91-58-7	8 U	8	38	1
10726	2-Chlorophenol	95-57-8	19 U	19	38	1
10726	4-Chlorophenyl-phenylether	7005-72-3	19 U	19	38	1
10726	2,2'-oxybis(1-Chloropropane)	108-60-1	19 U	19	38	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-FD01-180312 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018
SDG#: SNB98-02FD

C. T. Male Associates
ELLE Sample #: SW 9500920
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg		ug/kg	ug/kg	
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10726	**Chrysene**	218-01-9	**6**	**J**	4	19	1
10726	Dibenz(a,h)anthracene	53-70-3	4	U	4	19	1
10726	Dibenzofuran	132-64-9	19	U	19	38	1
10726	3,3'-Dichlorobenzidine	91-94-1	110	U	110	380	1
10726	2,4-Dichlorophenol	120-83-2	19	U	19	38	1
10726	Diethylphthalate	84-66-2	76	U	76	190	1
10726	2,4-Dimethylphenol	105-67-9	19	U	19	38	1
10726	Dimethylphthalate	131-11-3	76	U	76	190	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	190	U	190	570	1
10726	2,4-Dinitrophenol	51-28-5	340	U	340	1,100	1
10726	2,4-Dinitrotoluene	121-14-2	76	U	76	190	1
10726	2,6-Dinitrotoluene	606-20-2	19	U	19	38	1
10726	1,4-Dioxane	123-91-1	110	U	110	380	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	76	U	76	190	1
10726	**Fluoranthene**	206-44-0	**11**	**J**	4	19	1
10726	Fluorene	86-73-7	4	U	4	19	1
10726	Hexachlorobenzene	118-74-1	4	U	4	19	1
10726	Hexachlorobutadiene	87-68-3	19	U	19	38	1
10726	Hexachlorocyclopentadiene	77-47-4	190	U	190	570	1
10726	Hexachloroethane	67-72-1	38	U	38	190	1
10726	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	19	1
10726	Isophorone	78-59-1	19	U	19	38	1
10726	**2-Methylnaphthalene**	91-57-6	**7**	**J**	4	19	1
10726	2-Methylphenol	95-48-7	19	U	19	38	1
10726	4-Methylphenol	106-44-5	19	U	19	38	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10726	**Naphthalene**	91-20-3	**23**		4	19	1
10726	2-Nitroaniline	88-74-4	19	U	19	38	1
10726	3-Nitroaniline	99-09-2	76	U	76	190	1
10726	4-Nitroaniline	100-01-6	76	U	76	190	1
10726	Nitrobenzene	98-95-3	19	U	19	38	1
10726	2-Nitrophenol	88-75-5	19	U	19	38	1
10726	4-Nitrophenol	100-02-7	190	U	190	570	1
10726	N-Nitroso-di-n-propylamine	621-64-7	19	U	19	38	1
10726	N-Nitrosodiphenylamine	86-30-6	19	U	19	38	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-FD01-180312 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018
SDG#: SNB98-02FD

C. T. Male Associates
ELLE Sample #: SW 9500920
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10726	Di-n-octylphthalate	117-84-0	76 U	76	190	1
10726	Pentachlorophenol	87-86-5	38 U	38	190	1
10726	**Phenanthrene**	85-01-8	**13 J**	4	19	1
10726	Phenol	108-95-2	19 U	19	38	1
10726	**Pyrene**	129-00-0	**11 J**	4	19	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	19 U	19	38	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	76 U	76	190	1
10726	2,4,5-Trichlorophenol	95-95-4	19 U	19	38	1
10726	2,4,6-Trichlorophenol	88-06-2	19 U	19	38	1
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.51	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.27 J**	0.17	0.51	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.51	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.49 J**	0.17	0.51	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.51	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.69**	0.17	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.17 U	0.17	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.77	1
14027	**Perfluorooctanoic acid**	335-67-1	**30**	0.17	0.51	1
14027	**Perfluoropentanoic acid**	2706-90-3	**0.45 J**	0.17	0.51	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.51	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.51	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.51	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**7,930**	7.23	32.3	1
01650	**Calcium**	7440-70-2	**34,800**	2.69	32.3	1
01654	**Iron**	7439-89-6	**20,900**	6.51	32.3	1
01657	**Magnesium**	7439-95-4	**19,200**	1.96	16.2	1
06958	**Manganese**	7439-96-5	**810**	0.0671	0.808	1
01662	**Potassium**	7440-09-7	**632**	13.5	80.8	1
01667	**Sodium**	7440-23-5	**55.8 J**	13.5	162	1
06972	**Zinc**	7440-66-6	**79.5**	0.194	3.23	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-FD01-180312 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018
SDG#: SNB98-02FD

C. T. Male Associates
ELLE Sample #: SW 9500920
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06124	Antimony	7440-36-0	0.0776 J	0.0753	0.323	2
06125	Arsenic	7440-38-2	6.55	0.103	0.647	2
06126	Barium	7440-39-3	60.4	0.147	0.647	2
06127	Beryllium	7440-41-7	0.335	0.0085	0.162	2
06128	Cadmium	7440-43-9	0.233	0.0278	0.162	2
06131	Chromium	7440-47-3	11.0	0.141	0.647	2
06132	Cobalt	7440-48-4	10.7	0.0252	0.162	2
06133	Copper	7440-50-8	17.0	0.0867	0.647	2
06135	Lead	7439-92-1	30.6	0.0179	0.323	2
06139	Nickel	7440-02-0	19.5	0.161	0.647	2
06141	Selenium	7782-49-2	0.240 J	0.0808	0.647	2
06142	Silver	7440-22-4	0.162	0.0236	0.162	2
06145	Thallium	7440-28-0	0.0941 J	0.0202	0.162	2
06148	Vanadium	7440-62-2	9.63	0.0344	0.162	2
	SW-846 7471B		mg/kg	mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.630	0.0110	0.110	1
Wet Chemistry	**SM 5310 B modified-2011**		mg/kg	mg/kg	mg/kg	
02079	TOC	n.a.	12,200	287	860	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	pH	n.a.	8.02	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	Moisture	n.a.	13.5	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	SOM02.2 Volatiles	SW-846 8260C	1	X180751AA	03/16/2018 19:22	Stephen C Nolte	0.91

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-FD01-180312 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018
SDG#: SNB98-02FD

C. T. Male Associates
ELLE Sample #: SW 9500920
ELLE Group #: 1918533
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201807249189	03/12/2018 00:00	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201807249189	03/12/2018 00:00	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201807249189	03/12/2018 00:00	Client Supplied	1
10726	TCL Semivolatiles	SW-846 8270D	1	18073SLB026	03/16/2018 00:28	Linda M Hartenstine	1
10813	BNA Soil Microwave APP IX	SW-846 3546	1	18073SLB026	03/14/2018 18:30	Sally L Appleyard	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/18/2018 05:52	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	180731063701	03/18/2018 17:59	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	180731063701	03/18/2018 17:59	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	180731063701	03/18/2018 17:59	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	180731063701	03/18/2018 17:59	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	180731063701	03/18/2018 17:59	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	180731063701	03/18/2018 17:59	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	180731063701	03/18/2018 17:59	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	180731063701	03/18/2018 17:59	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	180731063701A	03/19/2018 16:48	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	180731063701A	03/19/2018 16:48	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	180731063701D	03/19/2018 16:48	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	180731063701A	03/19/2018 16:48	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	180731063701A	03/19/2018 16:48	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	180731063701A	03/19/2018 16:48	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	180731063701A	03/19/2018 16:48	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	180731063701A	03/19/2018 16:48	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	180731063701A	03/19/2018 16:48	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	180731063701A	03/19/2018 16:48	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	180731063701B	03/19/2018 16:48	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	180731063701A	03/19/2018 16:48	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	180731063701A	03/19/2018 16:48	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	180731063701A	03/19/2018 16:48	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	180751063801	03/19/2018 08:06	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	180731063701	03/14/2018 23:15	Denise L Trimby	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	180731063801	03/15/2018 01:55	Denise L Trimby	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	2	180751063801	03/19/2018 03:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2011	1	18095667631A	04/09/2018 14:13	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	18073039401A	03/14/2018 21:10	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18073820006A	03/14/2018 21:01	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-SB18-07-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:30
SDG#: SNB98-03

C. T. Male Associates
ELLE Sample #: SW 9500921
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	**Acetone**	67-64-1	**33**	6	18	0.84
11995	Benzene	71-43-2	0.4 U	0.4	4	0.84
11995	Bromochloromethane	74-97-5	0.9 U	0.9	4	0.84
11995	Bromodichloromethane	75-27-4	0.9 U	0.9	4	0.84
11995	Bromoform	75-25-2	0.9 U	0.9	4	0.84
11995	Bromomethane	74-83-9	2 U	2	4	0.84
11995	**2-Butanone**	78-93-3	**4 J**	4	9	0.84
11995	Carbon Disulfide	75-15-0	0.9 U	0.9	4	0.84
11995	Carbon Tetrachloride	56-23-5	0.9 U	0.9	4	0.84
11995	Chlorobenzene	108-90-7	0.9 U	0.9	4	0.84
11995	Chloroethane	75-00-3	2 U	2	4	0.84
11995	Chloroform	67-66-3	0.9 U	0.9	4	0.84
11995	Chloromethane	74-87-3	2 U	2	4	0.84
11995	Cyclohexane	110-82-7	0.9 U	0.9	4	0.84
11995	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	4	0.84
11995	Dibromochloromethane	124-48-1	0.9 U	0.9	4	0.84
11995	1,2-Dibromoethane	106-93-4	0.9 U	0.9	4	0.84
11995	1,2-Dichlorobenzene	95-50-1	0.9 U	0.9	4	0.84
11995	1,3-Dichlorobenzene	541-73-1	0.9 U	0.9	4	0.84
11995	1,4-Dichlorobenzene	106-46-7	0.9 U	0.9	4	0.84
11995	Dichlorodifluoromethane	75-71-8	2 U	2	4	0.84
11995	1,1-Dichloroethane	75-34-3	0.9 U	0.9	4	0.84
11995	1,2-Dichloroethane	107-06-2	0.9 U	0.9	4	0.84
11995	1,1-Dichloroethene	75-35-4	0.9 U	0.9	4	0.84
11995	cis-1,2-Dichloroethene	156-59-2	0.9 U	0.9	4	0.84
11995	trans-1,2-Dichloroethene	156-60-5	0.9 U	0.9	4	0.84
11995	1,2-Dichloropropane	78-87-5	0.9 U	0.9	4	0.84
11995	cis-1,3-Dichloropropene	10061-01-5	0.9 U	0.9	4	0.84
11995	trans-1,3-Dichloropropene	10061-02-6	0.9 U	0.9	4	0.84
11995	Ethylbenzene	100-41-4	0.9 U	0.9	4	0.84
11995	Freon 113	76-13-1	2 U	2	9	0.84
11995	2-Hexanone	591-78-6	3 U	3	9	0.84
11995	Isopropylbenzene	98-82-8	0.9 U	0.9	4	0.84
11995	Methyl Acetate	79-20-9	2 U	2	4	0.84
11995	Methyl Tertiary Butyl Ether	1634-04-4	0.4 U	0.4	4	0.84
11995	4-Methyl-2-pentanone	108-10-1	3 U	3	9	0.84
11995	Methylcyclohexane	108-87-2	0.9 U	0.9	4	0.84
11995	Methylene Chloride	75-09-2	2 U	2	4	0.84
11995	Styrene	100-42-5	0.9 U	0.9	4	0.84
11995	1,1,2,2-Tetrachloroethane	79-34-5	0.9 U	0.9	4	0.84
11995	Tetrachloroethene	127-18-4	0.9 U	0.9	4	0.84

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-07-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:30
SDG#: SNB98-03

C. T. Male Associates
ELLE Sample #: SW 9500921
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	Toluene	108-88-3	0.9 U	0.9	4	0.84
11995	1,2,3-Trichlorobenzene	87-61-6	0.9 U	0.9	4	0.84
11995	1,2,4-Trichlorobenzene	120-82-1	0.9 U	0.9	4	0.84
11995	1,1,1-Trichloroethane	71-55-6	0.9 U	0.9	4	0.84
11995	1,1,2-Trichloroethane	79-00-5	0.9 U	0.9	4	0.84
11995	Trichloroethene	79-01-6	0.9 U	0.9	4	0.84
11995	Trichlorofluoromethane	75-69-4	2 U	2	4	0.84
11995	Vinyl Chloride	75-01-4	0.9 U	0.9	4	0.84
11995	m+p-Xylene	179601-23-1	0.9 U	0.9	4	0.84
11995	o-Xylene	95-47-6	0.9 U	0.9	4	0.84
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
10726	Acenaphthene	83-32-9	4 U	4	18	1
10726	Acenaphthylene	208-96-8	4 U	4	18	1
10726	Acetophenone	98-86-2	18 U	18	35	1
10726	Anthracene	120-12-7	4 U	4	18	1
10726	Atrazine	1912-24-9	35 U	35	180	1
10726	Benzaldehyde	100-52-7	70 U	70	180	1
10726	**Benzo(a)anthracene**	56-55-3	**4** J	4	18	1
10726	**Benzo(a)pyrene**	50-32-8	**5** J	4	18	1
10726	**Benzo(b)fluoranthene**	205-99-2	**7** J	4	18	1
10726	**Benzo(g,h,i)perylene**	191-24-2	**4** J	4	18	1
10726	**Benzo(k)fluoranthene**	207-08-9	**4** J	4	18	1
10726	1,1'-Biphenyl	92-52-4	18 U	18	35	1
10726	4-Bromophenyl-phenylether	101-55-3	18 U	18	35	1
10726	Butylbenzylphthalate	85-68-7	70 U	70	180	1
10726	Di-n-butylphthalate	84-74-2	70 U	70	180	1
10726	Caprolactam	105-60-2	35 U	35	180	1
10726	Carbazole	86-74-8	18 U	18	35	1
10726	4-Chloro-3-methylphenol	59-50-7	18 U	18	35	1
10726	4-Chloroaniline	106-47-8	35 U	35	70	1
10726	bis(2-Chloroethoxy)methane	111-91-1	18 U	18	35	1
10726	bis(2-Chloroethyl)ether	111-44-4	18 U	18	35	1
10726	2-Chloronaphthalene	91-58-7	7 U	7	35	1
10726	2-Chlorophenol	95-57-8	18 U	18	35	1
10726	4-Chlorophenyl-phenylether	7005-72-3	18 U	18	35	1
10726	2,2'-oxybis(1-Chloropropane)	108-60-1	18 U	18	35	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.					
10726	**Chrysene**	218-01-9	**5** J	4	18	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-07-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:30
SDG#: SNB98-03

C. T. Male Associates
ELLE Sample #: SW 9500921
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg		ug/kg	ug/kg	
10726	Dibenz(a,h)anthracene	53-70-3	4	U	4	18	1
10726	Dibenzofuran	132-64-9	18	U	18	35	1
10726	3,3'-Dichlorobenzidine	91-94-1	110	U	110	350	1
10726	2,4-Dichlorophenol	120-83-2	18	U	18	35	1
10726	Diethylphthalate	84-66-2	70	U	70	180	1
10726	2,4-Dimethylphenol	105-67-9	18	U	18	35	1
10726	Dimethylphthalate	131-11-3	70	U	70	180	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	530	1
10726	2,4-Dinitrophenol	51-28-5	320	U	320	1,100	1
10726	2,4-Dinitrotoluene	121-14-2	70	U	70	180	1
10726	2,6-Dinitrotoluene	606-20-2	18	U	18	35	1
10726	1,4-Dioxane	123-91-1	110	U	110	350	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	70	U	70	180	1
10726	**Fluoranthene**	206-44-0	**7**	**J**	4	18	1
10726	Fluorene	86-73-7	4	U	4	18	1
10726	Hexachlorobenzene	118-74-1	4	U	4	18	1
10726	Hexachlorobutadiene	87-68-3	18	U	18	35	1
10726	Hexachlorocyclopentadiene	77-47-4	180	U	180	530	1
10726	Hexachloroethane	67-72-1	35	U	35	180	1
10726	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	18	1
10726	Isophorone	78-59-1	18	U	18	35	1
10726	**2-Methylnaphthalene**	91-57-6	**5**	**J**	4	18	1
10726	2-Methylphenol	95-48-7	18	U	18	35	1
10726	4-Methylphenol	106-44-5	18	U	18	35	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10726	Naphthalene	91-20-3	4	U	4	18	1
10726	2-Nitroaniline	88-74-4	18	U	18	35	1
10726	3-Nitroaniline	99-09-2	70	U	70	180	1
10726	4-Nitroaniline	100-01-6	70	U	70	180	1
10726	Nitrobenzene	98-95-3	18	U	18	35	1
10726	2-Nitrophenol	88-75-5	18	U	18	35	1
10726	4-Nitrophenol	100-02-7	180	U	180	530	1
10726	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	35	1
10726	N-Nitrosodiphenylamine	86-30-6	18	U	18	35	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10726	Di-n-octylphthalate	117-84-0	70	U	70	180	1
10726	Pentachlorophenol	87-86-5	35	U	35	180	1
10726	Phenanthrene	85-01-8	4	U	4	18	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-07-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:30
SDG#: SNB98-03

C. T. Male Associates
ELLE Sample #: SW 9500921
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
10726	Phenol	108-95-2	18 U	18	35	1
10726	**Pyrene**	129-00-0	**8 J**	4	18	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	18 U	18	35	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	70 U	70	180	1
10726	2,4,5-Trichlorophenol	95-95-4	18 U	18	35	1
10726	2,4,6-Trichlorophenol	88-06-2	18 U	18	35	1
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.50	1
14027	**Perfluorobutanoic acid**	375-22-4	**4.1**	0.17	0.50	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.50	1
14027	**Perfluoroheptanoic acid**	375-85-9	**12**	0.17	0.50	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.50	1
14027	**Perfluorohexanoic acid**	307-24-4	**17**	0.17	0.50	1
14027	**Perfluorononanoic acid**	375-95-1	**0.25 J**	0.17	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.74	1
14027	**Perfluorooctanoic acid**	335-67-1	**380**	1.7	5.0	10
14027	**Perfluoropentanoic acid**	2706-90-3	**17**	0.17	0.50	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.50	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.50	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.50	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**12,400**	7.74	34.6	1
01650	**Calcium**	7440-70-2	**14,200**	2.88	34.6	1
01654	**Iron**	7439-89-6	**32,000**	34.8	173	5
01657	**Magnesium**	7439-95-4	**10,800**	2.10	17.3	1
06958	**Manganese**	7439-96-5	**643**	0.0719	0.866	1
01662	**Potassium**	7440-09-7	**1,660**	14.5	86.6	1
01667	**Sodium**	7440-23-5	**109 J**	14.5	173	1
06972	**Zinc**	7440-66-6	**69.6**	0.208	3.46	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.0892 J**	0.0807	0.346	2
06125	**Arsenic**	7440-38-2	**9.40**	0.111	0.693	2
06126	**Barium**	7440-39-3	**39.7**	0.157	0.693	2
06127	**Beryllium**	7440-41-7	**0.396**	0.0091	0.173	2
06128	**Cadmium**	7440-43-9	**0.172 J**	0.0298	0.173	2

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-SB18-07-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:30
SDG#: SNB98-03

C. T. Male Associates
ELLE Sample #: SW 9500921
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals		**SW-846 6020A**	**mg/kg**	**mg/kg**	**mg/kg**	
06131	Chromium	7440-47-3	**13.4**	0.151	0.693	2
06132	Cobalt	7440-48-4	**14.1**	0.0270	0.173	2
06133	Copper	7440-50-8	**29.2**	0.0928	0.693	2
06135	Lead	7439-92-1	**13.7**	0.0192	0.346	2
06139	Nickel	7440-02-0	**28.6**	0.172	0.693	2
06141	Selenium	7782-49-2	**0.233 J**	0.0866	0.693	2
06142	Silver	7440-22-4	**0.0563 J**	0.0253	0.173	2
06145	Thallium	7440-28-0	**0.0573 J**	0.0216	0.173	2
06148	Vanadium	7440-62-2	**13.8**	0.0369	0.173	2
		SW-846 7471B	**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	**0.0151 J**	0.0103	0.103	1
Wet Chemistry		**SM 5310 B modified-2011**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	**4,720**	299	898	1
		SW-846 9045D modified	**Std. Units**	**Std. Units**	**Std. Units**	
00394	pH	n.a.	**8.28**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry		**SM 2540 G-1997 %Moisture Calc**	**%**	**%**	**%**	
00111	Moisture	n.a.	**6.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	SOM02.2 Volatiles	SW-846 8260C	1	X180751AA	03/16/2018 18:13	Stephen C Nolte	0.84
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201807249189	03/12/2018 10:30	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201807249189	03/12/2018 10:30	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201807249189	03/12/2018 10:30	Client Supplied	1
10726	TCL Semivolatiles	SW-846 8270D	1	18073SLB026	03/16/2018 00:48	Linda M Hartenstine	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-07-0.0-1.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:30
SDG#: SNB98-03

C. T. Male Associates
ELLE Sample #: SW 9500921
ELLE Group #: 1918533
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10813	BNA Soil Microwave APP IX	SW-846 3546	1	18073SLB026	03/14/2018 18:30	Sally L Appleyard	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/18/2018 06:13	Mark Makowiecki	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/19/2018 08:12	Marissa C Drexinger	10
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	180731063701	03/18/2018 17:38	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	180731063701	03/18/2018 17:38	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	180731063701	03/20/2018 06:20	Suzanne M Will	5
01657	Magnesium	SW-846 6010C	1	180731063701	03/18/2018 17:38	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	180731063701	03/18/2018 17:38	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	180731063701	03/18/2018 17:38	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	180731063701	03/18/2018 17:38	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	180731063701	03/18/2018 17:38	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	180731063701A	03/19/2018 16:29	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	180731063701A	03/19/2018 16:29	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	180731063701D	03/19/2018 16:29	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	180731063701A	03/19/2018 16:29	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	180731063701A	03/19/2018 16:29	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	180731063701A	03/19/2018 16:29	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	180731063701A	03/19/2018 16:29	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	180731063701A	03/19/2018 16:29	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	180731063701A	03/19/2018 16:29	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	180731063701A	03/19/2018 16:29	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	180731063701B	03/19/2018 16:29	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	180731063701A	03/19/2018 16:29	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	180731063701A	03/19/2018 16:29	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	180731063701A	03/19/2018 16:29	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	180751063801	03/19/2018 08:08	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	180731063701	03/14/2018 23:15	Denise L Trimby	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	180731063801	03/15/2018 01:55	Denise L Trimby	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	2	180751063801	03/19/2018 03:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2011	1	18095667631A	04/09/2018 19:03	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	18073039401A	03/14/2018 21:10	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18073820006A	03/14/2018 21:01	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3a-SB18-07-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:40
SDG#: SNB98-04

C. T. Male Associates
ELLE Sample #: SW 9500922
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	**Acetone**	67-64-1	**21**	7	21	0.95
11995	**Benzene**	71-43-2	**0.7 J**	0.5	5	0.95
11995	Bromochloromethane	74-97-5	1 U	1	5	0.95
11995	Bromodichloromethane	75-27-4	1 U	1	5	0.95
11995	Bromoform	75-25-2	1 U	1	5	0.95
11995	Bromomethane	74-83-9	2 U	2	5	0.95
11995	2-Butanone	78-93-3	4 U	4	10	0.95
11995	Carbon Disulfide	75-15-0	1 U	1	5	0.95
11995	Carbon Tetrachloride	56-23-5	1 U	1	5	0.95
11995	Chlorobenzene	108-90-7	1 U	1	5	0.95
11995	Chloroethane	75-00-3	2 U	2	5	0.95
11995	Chloroform	67-66-3	1 U	1	5	0.95
11995	Chloromethane	74-87-3	2 U	2	5	0.95
11995	Cyclohexane	110-82-7	1 U	1	5	0.95
11995	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	0.95
11995	Dibromochloromethane	124-48-1	1 U	1	5	0.95
11995	1,2-Dibromoethane	106-93-4	1 U	1	5	0.95
11995	1,2-Dichlorobenzene	95-50-1	1 U	1	5	0.95
11995	1,3-Dichlorobenzene	541-73-1	1 U	1	5	0.95
11995	1,4-Dichlorobenzene	106-46-7	1 U	1	5	0.95
11995	Dichlorodifluoromethane	75-71-8	2 U	2	5	0.95
11995	1,1-Dichloroethane	75-34-3	1 U	1	5	0.95
11995	1,2-Dichloroethane	107-06-2	1 U	1	5	0.95
11995	1,1-Dichloroethene	75-35-4	1 U	1	5	0.95
11995	cis-1,2-Dichloroethene	156-59-2	1 U	1	5	0.95
11995	trans-1,2-Dichloroethene	156-60-5	1 U	1	5	0.95
11995	1,2-Dichloropropane	78-87-5	1 U	1	5	0.95
11995	cis-1,3-Dichloropropene	10061-01-5	1 U	1	5	0.95
11995	trans-1,3-Dichloropropene	10061-02-6	1 U	1	5	0.95
11995	Ethylbenzene	100-41-4	1 U	1	5	0.95
11995	Freon 113	76-13-1	2 U	2	10	0.95
11995	2-Hexanone	591-78-6	3 U	3	10	0.95
11995	Isopropylbenzene	98-82-8	1 U	1	5	0.95
11995	Methyl Acetate	79-20-9	2 U	2	5	0.95
11995	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	5	0.95
11995	4-Methyl-2-pentanone	108-10-1	3 U	3	10	0.95
11995	Methylcyclohexane	108-87-2	1 U	1	5	0.95
11995	Methylene Chloride	75-09-2	2 U	2	5	0.95
11995	Styrene	100-42-5	1 U	1	5	0.95
11995	1,1,2,2-Tetrachloroethane	79-34-5	1 U	1	5	0.95
11995	Tetrachloroethene	127-18-4	1 U	1	5	0.95

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-07-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:40
SDG#: SNB98-04

C. T. Male Associates
ELLE Sample #: SW 9500922
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	Toluene	108-88-3	1 U	1	5	0.95
11995	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	0.95
11995	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	0.95
11995	1,1,1-Trichloroethane	71-55-6	1 U	1	5	0.95
11995	1,1,2-Trichloroethane	79-00-5	1 U	1	5	0.95
11995	Trichloroethene	79-01-6	1 U	1	5	0.95
11995	Trichlorofluoromethane	75-69-4	2 U	2	5	0.95
11995	Vinyl Chloride	75-01-4	1 U	1	5	0.95
11995	m+p-Xylene	179601-23-1	1 U	1	5	0.95
11995	o-Xylene	95-47-6	1 U	1	5	0.95

The recovery for the sample internal standard is outside the QC acceptance limits. The following corrective action was taken: The sample was re-analyzed and the QC is again outside of the acceptance limits, indicating a matrix effect. The data is reported from the initial trial.

GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
10726	**Acenaphthene**	83-32-9	**4 J**	4	18	1
10726	Acenaphthylene	208-96-8	4 U	4	18	1
10726	Acetophenone	98-86-2	18 U	18	36	1
10726	**Anthracene**	120-12-7	**18 J**	4	18	1
10726	Atrazine	1912-24-9	36 U	36	180	1
10726	Benzaldehyde	100-52-7	72 U	72	180	1
10726	**Benzo(a)anthracene**	56-55-3	**45**	4	18	1
10726	**Benzo(a)pyrene**	50-32-8	**48**	4	18	1
10726	**Benzo(b)fluoranthene**	205-99-2	**63**	4	18	1
10726	**Benzo(g,h,i)perylene**	191-24-2	**35**	4	18	1
10726	**Benzo(k)fluoranthene**	207-08-9	**32**	4	18	1
10726	1,1'-Biphenyl	92-52-4	18 U	18	36	1
10726	4-Bromophenyl-phenylether	101-55-3	18 U	18	36	1
10726	Butylbenzylphthalate	85-68-7	72 U	72	180	1
10726	Di-n-butylphthalate	84-74-2	72 U	72	180	1
10726	Caprolactam	105-60-2	36 U	36	180	1
10726	Carbazole	86-74-8	18 U	18	36	1
10726	4-Chloro-3-methylphenol	59-50-7	18 U	18	36	1
10726	4-Chloroaniline	106-47-8	36 U	36	72	1
10726	bis(2-Chloroethoxy)methane	111-91-1	18 U	18	36	1
10726	bis(2-Chloroethyl)ether	111-44-4	18 U	18	36	1
10726	2-Chloronaphthalene	91-58-7	7 U	7	36	1
10726	2-Chlorophenol	95-57-8	18 U	18	36	1
10726	4-Chlorophenyl-phenylether	7005-72-3	18 U	18	36	1
10726	2,2'-oxybis(1-Chloropropane)	108-60-1	18 U	18	36	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-07-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:40
SDG#: SNB98-04

C. T. Male Associates
ELLE Sample #: SW 9500922
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg		ug/kg	ug/kg	
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10726	**Chrysene**	218-01-9	**55**		4	18	1
10726	**Dibenz(a,h)anthracene**	53-70-3	**8**	**J**	4	18	1
10726	Dibenzofuran	132-64-9	18	U	18	36	1
10726	3,3'-Dichlorobenzidine	91-94-1	110	U	110	360	1
10726	2,4-Dichlorophenol	120-83-2	18	U	18	36	1
10726	Diethylphthalate	84-66-2	72	U	72	180	1
10726	2,4-Dimethylphenol	105-67-9	18	U	18	36	1
10726	Dimethylphthalate	131-11-3	72	U	72	180	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	540	1
10726	2,4-Dinitrophenol	51-28-5	330	U	330	1,100	1
10726	2,4-Dinitrotoluene	121-14-2	72	U	72	180	1
10726	2,6-Dinitrotoluene	606-20-2	18	U	18	36	1
10726	1,4-Dioxane	123-91-1	110	U	110	360	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	72	U	72	180	1
10726	**Fluoranthene**	206-44-0	**120**		4	18	1
10726	**Fluorene**	86-73-7	**4**	**J**	4	18	1
10726	Hexachlorobenzene	118-74-1	4	U	4	18	1
10726	Hexachlorobutadiene	87-68-3	18	U	18	36	1
10726	Hexachlorocyclopentadiene	77-47-4	180	U	180	540	1
10726	Hexachloroethane	67-72-1	36	U	36	180	1
10726	**Indeno(1,2,3-cd)pyrene**	193-39-5	**28**		4	18	1
10726	Isophorone	78-59-1	18	U	18	36	1
10726	2-Methylnaphthalene	91-57-6	4	U	4	18	1
10726	2-Methylphenol	95-48-7	18	U	18	36	1
10726	4-Methylphenol	106-44-5	18	U	18	36	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10726	**Naphthalene**	91-20-3	**6**	**J**	4	18	1
10726	2-Nitroaniline	88-74-4	18	U	18	36	1
10726	3-Nitroaniline	99-09-2	72	U	72	180	1
10726	4-Nitroaniline	100-01-6	72	U	72	180	1
10726	Nitrobenzene	98-95-3	18	U	18	36	1
10726	2-Nitrophenol	88-75-5	18	U	18	36	1
10726	4-Nitrophenol	100-02-7	180	U	180	540	1
10726	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	36	1
10726	N-Nitrosodiphenylamine	86-30-6	18	U	18	36	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-07-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:40
SDG#: SNB98-04

C. T. Male Associates
ELLE Sample #: SW 9500922
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10726	Di-n-octylphthalate	117-84-0	72 U	72	180	1
10726	Pentachlorophenol	87-86-5	36 U	36	180	1
10726	**Phenanthrene**	85-01-8	**110**	4	18	1
10726	Phenol	108-95-2	18 U	18	36	1
10726	**Pyrene**	129-00-0	**110**	4	18	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	18 U	18	36	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	72 U	72	180	1
10726	2,4,5-Trichlorophenol	95-95-4	18 U	18	36	1
10726	2,4,6-Trichlorophenol	88-06-2	18 U	18	36	1
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.52	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.1**	0.17	0.52	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.27 J**	0.17	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.52	1
14027	**Perfluoroheptanoic acid**	375-85-9	**3.6**	0.17	0.52	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.52	1
14027	**Perfluorohexanoic acid**	307-24-4	**6.9**	0.17	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.17 U	0.17	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.78	1
14027	**Perfluorooctanoic acid**	335-67-1	**83**	1.7	5.2	10
14027	**Perfluoropentanoic acid**	2706-90-3	**5.2**	0.17	0.52	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.52	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.52	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.52	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**9,430**	8.02	35.9	1
01650	**Calcium**	7440-70-2	**57,600**	14.9	179	5
01654	**Iron**	7439-89-6	**21,100**	7.22	35.9	1
01657	**Magnesium**	7439-95-4	**34,100**	2.18	17.9	1
06958	**Manganese**	7439-96-5	**681**	0.0744	0.897	1
01662	**Potassium**	7440-09-7	**1,240**	15.0	89.7	1
01667	**Sodium**	7440-23-5	**81.8 J**	15.0	179	1
06972	**Zinc**	7440-66-6	**62.3**	0.215	3.59	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3a-SB18-07-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:40
SDG#: SNB98-04

C. T. Male Associates
ELLE Sample #: SW 9500922
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0836 U	0.0836	0.359	2
06125	**Arsenic**	7440-38-2	**5.78**	0.115	0.717	2
06126	**Barium**	7440-39-3	**38.0**	0.163	0.717	2
06127	**Beryllium**	7440-41-7	**0.302**	0.0094	0.179	2
06128	**Cadmium**	7440-43-9	**0.149 J**	0.0308	0.179	2
06131	**Chromium**	7440-47-3	**15.9**	0.156	0.717	2
06132	**Cobalt**	7440-48-4	**8.48**	0.0280	0.179	2
06133	**Copper**	7440-50-8	**19.6**	0.0961	0.717	2
06135	**Lead**	7439-92-1	**12.8**	0.0199	0.359	2
06139	**Nickel**	7440-02-0	**17.9**	0.179	0.717	2
06141	**Selenium**	7782-49-2	**0.171 J**	0.0897	0.717	2
06142	**Silver**	7440-22-4	**0.0518 J**	0.0262	0.179	2
06145	**Thallium**	7440-28-0	**0.0698 J**	0.0224	0.179	2
06148	**Vanadium**	7440-62-2	**11.7**	0.0382	0.179	2
	SW-846 7471B		**mg/kg**	**mg/kg**	**mg/kg**	
00159	**Mercury**	7439-97-6	**0.129**	0.0103	0.103	1
Wet Chemistry	**SM 5310 B modified-2011**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**11,800**	282	847	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.24**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	SOM02.2 Volatiles	SW-846 8260C	1	X180751AA	03/16/2018 18:36	Stephen C Nolte	0.95

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-07-10.0-11.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:40
SDG#: SNB98-04

C. T. Male Associates
ELLE Sample #: SW 9500922
ELLE Group #: 1918533
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201807249189	03/12/2018 10:40	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201807249189	03/12/2018 10:40	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201807249189	03/12/2018 10:40	Client Supplied	1
10726	TCL Semivolatiles	SW-846 8270D	1	18073SLB026	03/16/2018 01:07	Linda M Hartenstine	1
10813	BNA Soil Microwave APP IX	SW-846 3546	1	18073SLB026	03/14/2018 18:30	Sally L Appleyard	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/18/2018 06:33	Mark Makowiecki	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/19/2018 08:33	Marissa C Drexinger	10
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	180731063701	03/18/2018 18:03	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	3	180731063701	03/20/2018 19:25	Elaine F Stoltzfus	5
01654	Iron	SW-846 6010C	1	180731063701	03/18/2018 18:03	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	180731063701	03/18/2018 18:03	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	180731063701	03/18/2018 18:03	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	180731063701	03/18/2018 18:03	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	180731063701	03/18/2018 18:03	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	180731063701	03/18/2018 18:03	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	180731063701A	03/19/2018 16:51	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	180731063701A	03/19/2018 16:51	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	180731063701D	03/19/2018 16:51	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	180731063701A	03/19/2018 16:51	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	180731063701A	03/19/2018 16:51	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	180731063701A	03/19/2018 16:51	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	180731063701A	03/19/2018 16:51	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	180731063701A	03/19/2018 16:51	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	180731063701A	03/19/2018 16:51	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	180731063701A	03/19/2018 16:51	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	180731063701B	03/19/2018 16:51	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	180731063701A	03/19/2018 16:51	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	180731063701A	03/19/2018 16:51	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	180731063701A	03/19/2018 16:51	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	180751063801	03/19/2018 08:10	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	180731063701	03/14/2018 23:15	Denise L Trimby	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	180731063801	03/15/2018 01:55	Denise L Trimby	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	2	180751063801	03/19/2018 03:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2011	1	18095667631A	04/09/2018 15:04	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	18073039401A	03/14/2018 21:10	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18073820006A	03/14/2018 21:01	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-07-15.0-18.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:50
SDG#: SNB98-05

C. T. Male Associates
ELLE Sample #: SW 9500923
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	**Acetone**	67-64-1	**21**	6	17	0.78
11995	Benzene	71-43-2	0.4 U	0.4	4	0.78
11995	Bromochloromethane	74-97-5	0.9 U	0.9	4	0.78
11995	Bromodichloromethane	75-27-4	0.9 U	0.9	4	0.78
11995	Bromoform	75-25-2	0.9 U	0.9	4	0.78
11995	Bromomethane	74-83-9	2 U	2	4	0.78
11995	2-Butanone	78-93-3	3 U	3	9	0.78
11995	**Carbon Disulfide**	75-15-0	**3 J**	0.9	4	0.78
11995	Carbon Tetrachloride	56-23-5	0.9 U	0.9	4	0.78
11995	Chlorobenzene	108-90-7	0.9 U	0.9	4	0.78
11995	Chloroethane	75-00-3	2 U	2	4	0.78
11995	Chloroform	67-66-3	0.9 U	0.9	4	0.78
11995	Chloromethane	74-87-3	2 U	2	4	0.78
11995	Cyclohexane	110-82-7	0.9 U	0.9	4	0.78
11995	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	4	0.78
11995	Dibromochloromethane	124-48-1	0.9 U	0.9	4	0.78
11995	1,2-Dibromoethane	106-93-4	0.9 U	0.9	4	0.78
11995	1,2-Dichlorobenzene	95-50-1	0.9 U	0.9	4	0.78
11995	1,3-Dichlorobenzene	541-73-1	0.9 U	0.9	4	0.78
11995	1,4-Dichlorobenzene	106-46-7	0.9 U	0.9	4	0.78
11995	Dichlorodifluoromethane	75-71-8	2 U	2	4	0.78
11995	1,1-Dichloroethane	75-34-3	0.9 U	0.9	4	0.78
11995	1,2-Dichloroethane	107-06-2	0.9 U	0.9	4	0.78
11995	1,1-Dichloroethene	75-35-4	0.9 U	0.9	4	0.78
11995	cis-1,2-Dichloroethene	156-59-2	0.9 U	0.9	4	0.78
11995	trans-1,2-Dichloroethene	156-60-5	0.9 U	0.9	4	0.78
11995	1,2-Dichloropropane	78-87-5	0.9 U	0.9	4	0.78
11995	cis-1,3-Dichloropropene	10061-01-5	0.9 U	0.9	4	0.78
11995	trans-1,3-Dichloropropene	10061-02-6	0.9 U	0.9	4	0.78
11995	Ethylbenzene	100-41-4	0.9 U	0.9	4	0.78
11995	Freon 113	76-13-1	2 U	2	9	0.78
11995	2-Hexanone	591-78-6	3 U	3	9	0.78
11995	Isopropylbenzene	98-82-8	0.9 U	0.9	4	0.78
11995	Methyl Acetate	79-20-9	2 U	2	4	0.78
11995	Methyl Tertiary Butyl Ether	1634-04-4	0.4 U	0.4	4	0.78
11995	4-Methyl-2-pentanone	108-10-1	3 U	3	9	0.78
11995	Methylcyclohexane	108-87-2	0.9 U	0.9	4	0.78
11995	Methylene Chloride	75-09-2	2 U	2	4	0.78
11995	Styrene	100-42-5	0.9 U	0.9	4	0.78
11995	1,1,2,2-Tetrachloroethane	79-34-5	0.9 U	0.9	4	0.78
11995	Tetrachloroethene	127-18-4	0.9 U	0.9	4	0.78

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-07-15.0-18.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:50
SDG#: SNB98-05

C. T. Male Associates
ELLE Sample #: SW 9500923
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg	ug/kg	ug/kg	
11995	**Toluene**	108-88-3	**1 J**	0.9	4	0.78
11995	1,2,3-Trichlorobenzene	87-61-6	0.9 U	0.9	4	0.78
11995	1,2,4-Trichlorobenzene	120-82-1	0.9 U	0.9	4	0.78
11995	1,1,1-Trichloroethane	71-55-6	0.9 U	0.9	4	0.78
11995	1,1,2-Trichloroethane	79-00-5	0.9 U	0.9	4	0.78
11995	Trichloroethene	79-01-6	0.9 U	0.9	4	0.78
11995	Trichlorofluoromethane	75-69-4	2 U	2	4	0.78
11995	Vinyl Chloride	75-01-4	0.9 U	0.9	4	0.78
11995	m+p-Xylene	179601-23-1	0.9 U	0.9	4	0.78
11995	o-Xylene	95-47-6	0.9 U	0.9	4	0.78

The recovery for the sample internal standard is outside the QC acceptance limits. The following corrective action was taken: The sample was re-analyzed and the QC is again outside of the acceptance limits, indicating a matrix effect. The data is reported from the initial trial.

GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
10726	Acenaphthene	83-32-9	4 U	4	19	1
10726	Acenaphthylene	208-96-8	4 U	4	19	1
10726	Acetophenone	98-86-2	18 U	18	37	1
10726	**Anthracene**	120-12-7	**6 J**	4	19	1
10726	Atrazine	1912-24-9	37 U	37	180	1
10726	**Benzaldehyde**	100-52-7	**1,100**	74	180	1
10726	**Benzo(a)anthracene**	56-55-3	**8 J**	4	19	1
10726	**Benzo(a)pyrene**	50-32-8	**9 J**	4	19	1
10726	**Benzo(b)fluoranthene**	205-99-2	**11 J**	4	19	1
10726	**Benzo(g,h,i)perylene**	191-24-2	**11 J**	4	19	1
10726	**Benzo(k)fluoranthene**	207-08-9	**5 J**	4	19	1
10726	**1,1'-Biphenyl**	92-52-4	**93**	18	37	1
10726	4-Bromophenyl-phenylether	101-55-3	18 U	18	37	1
10726	Butylbenzylphthalate	85-68-7	74 U	74	180	1
10726	Di-n-butylphthalate	84-74-2	74 U	74	180	1
10726	Caprolactam	105-60-2	37 U	37	180	1
10726	Carbazole	86-74-8	18 U	18	37	1
10726	4-Chloro-3-methylphenol	59-50-7	18 U	18	37	1
10726	4-Chloroaniline	106-47-8	37 U	37	74	1
10726	bis(2-Chloroethoxy)methane	111-91-1	18 U	18	37	1
10726	bis(2-Chloroethyl)ether	111-44-4	18 U	18	37	1
10726	2-Chloronaphthalene	91-58-7	7 U	7	36	1
10726	2-Chlorophenol	95-57-8	18 U	18	37	1
10726	4-Chlorophenyl-phenylether	7005-72-3	18 U	18	37	1
10726	2,2'-oxybis(1-Chloropropane)	108-60-1	18 U	18	37	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-07-15.0-18.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:50
SDG#: SNB98-05

C. T. Male Associates
ELLE Sample #: SW 9500923
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg		ug/kg	ug/kg	
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10726	**Chrysene**	218-01-9	**10**	**J**	4	19	1
10726	Dibenz(a,h)anthracene	53-70-3	4	U	4	19	1
10726	Dibenzofuran	132-64-9	18	U	18	37	1
10726	3,3'-Dichlorobenzidine	91-94-1	110	U	110	370	1
10726	2,4-Dichlorophenol	120-83-2	18	U	18	37	1
10726	Diethylphthalate	84-66-2	74	U	74	180	1
10726	2,4-Dimethylphenol	105-67-9	18	U	18	37	1
10726	Dimethylphthalate	131-11-3	74	U	74	180	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	550	1
10726	2,4-Dinitrophenol	51-28-5	330	U	330	1,100	1
10726	2,4-Dinitrotoluene	121-14-2	74	U	74	180	1
10726	2,6-Dinitrotoluene	606-20-2	18	U	18	37	1
10726	1,4-Dioxane	123-91-1	110	U	110	370	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	74	U	74	190	1
10726	**Fluoranthene**	206-44-0	**16**	**J**	4	19	1
10726	**Fluorene**	86-73-7	**41**		4	19	1
10726	Hexachlorobenzene	118-74-1	4	U	4	19	1
10726	Hexachlorobutadiene	87-68-3	18	U	18	37	1
10726	Hexachlorocyclopentadiene	77-47-4	180	U	180	550	1
10726	Hexachloroethane	67-72-1	37	U	37	180	1
10726	**Indeno(1,2,3-cd)pyrene**	193-39-5	**7**	**J**	4	19	1
10726	Isophorone	78-59-1	18	U	18	37	1
10726	**2-Methylnaphthalene**	91-57-6	**3,100**		4	19	1
10726	2-Methylphenol	95-48-7	18	U	18	37	1
10726	4-Methylphenol	106-44-5	18	U	18	37	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10726	**Naphthalene**	91-20-3	**760**		4	19	1
10726	2-Nitroaniline	88-74-4	18	U	18	37	1
10726	3-Nitroaniline	99-09-2	74	U	74	180	1
10726	4-Nitroaniline	100-01-6	74	U	74	180	1
10726	Nitrobenzene	98-95-3	18	U	18	37	1
10726	2-Nitrophenol	88-75-5	18	U	18	37	1
10726	4-Nitrophenol	100-02-7	180	U	180	550	1
10726	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	37	1
10726	N-Nitrosodiphenylamine	86-30-6	18	U	18	37	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-07-15.0-18.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:50
SDG#: SNB98-05

C. T. Male Associates
ELLE Sample #: SW 9500923
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		ug/kg	ug/kg	ug/kg	
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10726	Di-n-octylphthalate	117-84-0	74 U	74	180	1
10726	Pentachlorophenol	87-86-5	37 U	37	190	1
10726	**Phenanthrene**	85-01-8	**12 J**	4	19	1
10726	Phenol	108-95-2	18 U	18	37	1
10726	**Pyrene**	129-00-0	**15 J**	4	19	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	18 U	18	37	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	74 U	74	180	1
10726	2,4,5-Trichlorophenol	95-95-4	18 U	18	37	1
10726	2,4,6-Trichlorophenol	88-06-2	18 U	18	37	1
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.53	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.26 J**	0.18	0.53	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.53	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.54**	0.18	0.53	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.53	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.0**	0.18	0.53	1
14027	Perfluorononanoic acid	375-95-1	0.18 U	0.18	0.53	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.80	1
14027	**Perfluorooctanoic acid**	335-67-1	**29**	0.18	0.53	1
14027	**Perfluoropentanoic acid**	2706-90-3	**0.83**	0.18	0.53	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.53	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.53	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.53	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**7,970**	7.10	31.8	1
01650	**Calcium**	7440-70-2	**24,200**	2.65	31.8	1
01654	**Iron**	7439-89-6	**21,000**	32.0	159	5
01657	**Magnesium**	7439-95-4	**14,900**	1.93	15.9	1
06958	**Manganese**	7439-96-5	**837**	0.0659	0.795	1
01662	**Potassium**	7440-09-7	**577**	13.3	79.5	1
01667	**Sodium**	7440-23-5	**50.9 J**	13.3	159	1
06972	**Zinc**	7440-66-6	**88.3**	0.191	3.18	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-07-15.0-18.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:50
SDG#: SNB98-05

C. T. Male Associates
ELLE Sample #: SW 9500923
ELLE Group #: 1918533
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06124	Antimony	7440-36-0	0.125 J	0.0741	0.318	2
06125	Arsenic	7440-38-2	10.0	0.102	0.636	2
06126	Barium	7440-39-3	62.9	0.144	0.636	2
06127	Beryllium	7440-41-7	0.325	0.0083	0.159	2
06128	Cadmium	7440-43-9	0.277	0.0273	0.159	2
06131	Chromium	7440-47-3	11.9	0.138	0.636	2
06132	Cobalt	7440-48-4	11.7	0.0248	0.159	2
06133	Copper	7440-50-8	20.8	0.0852	0.636	2
06135	Lead	7439-92-1	54.4	0.0176	0.318	2
06139	Nickel	7440-02-0	19.9	0.158	0.636	2
06141	Selenium	7782-49-2	0.389 J	0.0795	0.636	2
06142	Silver	7440-22-4	0.173	0.0232	0.159	2
06145	Thallium	7440-28-0	0.115 J	0.0199	0.159	2
06148	Vanadium	7440-62-2	9.90	0.0338	0.159	2
	SW-846 7471B		mg/kg	mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.347	0.0108	0.108	1
Wet Chemistry	**SM 5310 B modified-2011**		mg/kg	mg/kg	mg/kg	
02079	TOC	n.a.	14,100	271	814	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	pH The pH was measured in water at 19.7 C.	n.a.	7.75	0.0100	0.0100	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	Moisture Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.	n.a.	10.1	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	SOM02.2 Volatiles	SW-846 8260C	1	X180751AA	03/16/2018 18:59	Stephen C Nolte	0.78

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-SB18-07-15.0-18.0 Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 10:50
SDG#: SNB98-05

C. T. Male Associates
ELLE Sample #: SW 9500923
ELLE Group #: 1918533
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201807249189	03/12/2018 10:50	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201807249189	03/12/2018 10:50	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201807249189	03/12/2018 10:50	Client Supplied	1
10726	TCL Semivolatiles	SW-846 8270D	1	18078SLF026	03/21/2018 03:39	Brandon K Cordova	1
10813	BNA Soil Microwave APP IX	SW-846 3546	2	18078SLF026	03/20/2018 08:00	Kayla A Yuditsky	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	18073006	03/18/2018 06:54	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	18073006	03/14/2018 15:10	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	180731063701	03/18/2018 18:14	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	180731063701	03/18/2018 18:14	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	180731063701	03/20/2018 06:36	Suzanne M Will	5
01657	Magnesium	SW-846 6010C	1	180731063701	03/18/2018 18:14	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	180731063701	03/18/2018 18:14	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	180731063701	03/18/2018 18:14	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	180731063701	03/18/2018 18:14	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	180731063701	03/18/2018 18:14	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	180731063701A	03/19/2018 17:00	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	180731063701A	03/19/2018 17:00	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	180731063701D	03/19/2018 17:00	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	180731063701A	03/19/2018 17:00	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	180731063701A	03/19/2018 17:00	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	180731063701A	03/19/2018 17:00	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	180731063701A	03/19/2018 17:00	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	180731063701A	03/19/2018 17:00	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	180731063701A	03/19/2018 17:00	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	180731063701A	03/19/2018 17:00	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	180731063701B	03/19/2018 17:00	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	180731063701A	03/19/2018 17:00	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	180731063701A	03/19/2018 17:00	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	180731063701A	03/19/2018 17:00	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	180751063801	03/19/2018 08:12	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	180731063701	03/14/2018 23:15	Denise L Trimby	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	180731063801	03/15/2018 01:55	Denise L Trimby	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	2	180751063801	03/19/2018 03:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2011	1	18095667631A	04/09/2018 15:17	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	18073039401A	03/14/2018 21:10	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18073820006A	03/14/2018 21:01	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-FTB01-180312 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018 11:15
SDG#: SNB98-06TB

C. T. Male Associates
ELLE Sample #: WW 9500924
ELLE Group #: 1918533
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18073001	03/15/2018 16:54	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18073001	03/14/2018 09:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-LTB01-180312 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 03/13/2018 10:30
Collection Date/Time: 03/12/2018
SDG#: SNB98-07TB

C. T. Male Associates
ELLE Sample #: WW 9500925
ELLE Group #: 1918533
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18073001	03/15/2018 17:15	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18073001	03/14/2018 09:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SNB98

PFAS Group

Fraction: PFAS by LC/MS/MS

14 PFAS Compounds

		Matrix			
Sample #	Client ID	Liquid	Solid	DF	Comments
9500919	SG3a-RB01-180312	X		1	Material Rinse Blank
9500920	SG3a-FD01-180312		X	1	Field Duplicate Sample
9500921	SG3a-SB18-07-0.0-1.0		X	1; 10	
9500922	SG3a-SB18-07-10.0-11.0		X	1; 10	
9500923	SG3a-SB18-07-15.0-18.0		X	1	
9500924	SG3a-FTB01-180312	X		1	Trip Blank
9500925	SG3a-LTB01-180312	X		1	Trip Blank

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

MS/MSD

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SNB98

PFAS Group

Fraction: PFAS by LC/MS/MS

Surrogate

Surrogate recoveries that are noncompliant are confirmed unless attributed to a dilution or otherwise noted.

Batch#: 18073006 (Sample number(s): 9500920-9500923)
The recovery(ies) for the following surrogate(s) were below the acceptance window: 13C5-PFPeA (9500920, 9500921, 9500922, 9500923, LCS073006Q)

(Sample number(s): 9500920-9500923: Analysis: 14027)
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

ICAL Name: 18MAR12MCAL **Result Table:** 18073001 3/15/2018 5:52:52 PM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC-32-17AUG01.dam

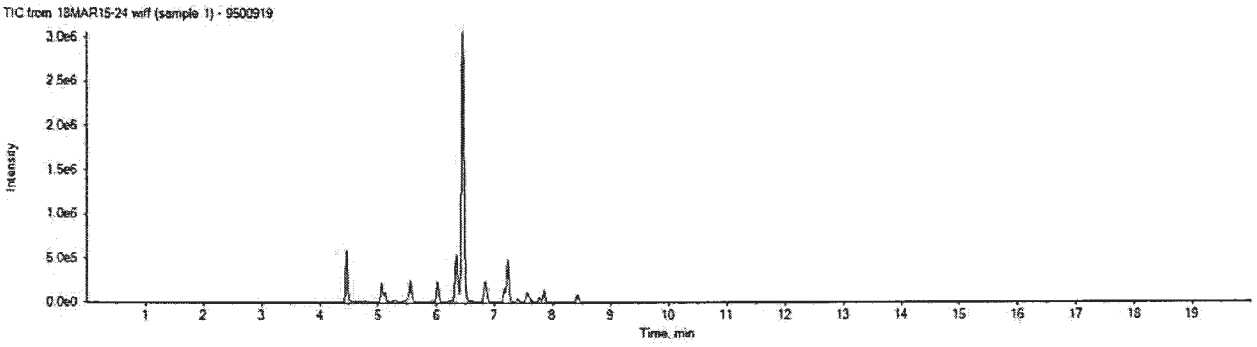
Analyte Quantitation Peak Table

Sample Name: 9500919 **Instrument Name:** LM24960 **File Name:** 18MAR15-24.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.25951 ✓	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.46	625758.0	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.06	525769.5	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.12	250688.2	N/A	
PFHxA	5.55	1.000	76766.9	M	13C5-PFHxA	5.55	540753.0	0.142	2.904 ✓
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	6.01	152979.2	N/A	
PFHpA	6.02	1.000	103309.7	M	13C4-PFHpA	6.02	377195.9	0.274	4.456
PFOA	6.46	1.000	5330423.6	M	13C8-PFOA	6.46	329282.3	16.188	307.033
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.83	184378.3	N/A	
PFNA	6.86	1.000	18931.4	M	13C9-PFNA	6.86	344400.0	0.055	0.784
PFDA	7.23	1.000	58078.2	M	13C6-PFDA	7.23	597093.0	0.097	2.038
PFUnDA	7.56	1.000	11551.1	M	13C7-PFUnDA	7.56	246569.9	0.047	0.700
PFDoDA	7.85	1.000	10995.6	M	13C2-PFDoDA	7.85	313570.7	0.035	0.743
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.85	313570.7	N/A	
PFTeDA	8.43	1.000	2745.9	M	13C2-PFTeDA	8.43	230269.2	0.012	0.245

Total Ion Chromatogram



APPROVED
By DMW at 5:59 pm, 3/15/18

REVIEWED
By umar at 3:30 pm, 3/16/18

ICAL Name: 18MAR12MCAL **Result Table:** 18073006 3/19/2018 10:50:31 AM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC Method_2018-01-22.dam

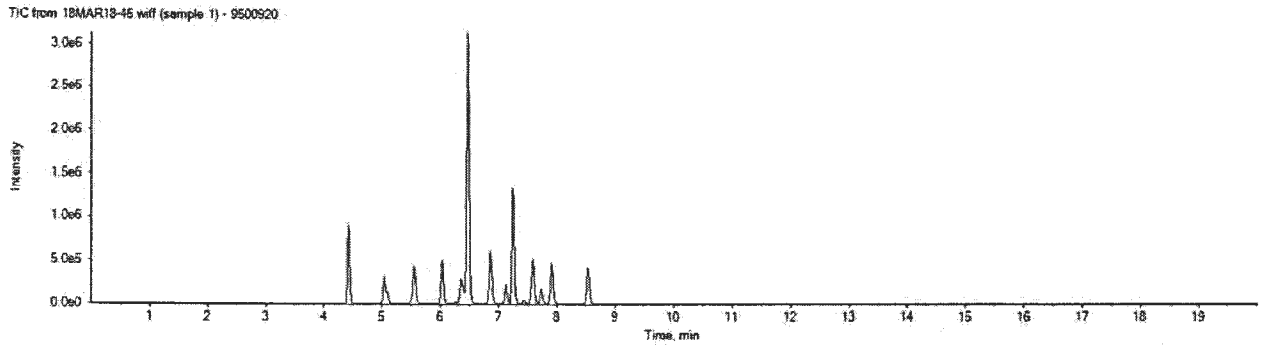
Analyte Quantitation Peak Table

Sample Name: 9500920 **Instrument Name:** LM26719 **File Name:** 18MAR18-46.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.36000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.42	1.000	23543.8	M	13C4-PFBA	4.42	878847.4	0.027	0.235
PFPeA	5.03	1.000	39110.1	A	13C5-PFPeA	5.03	801753.0	0.049	0.393
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.09	325306.0	N/A	
PFHxA	5.55	1.000	89286.7	M	13C5-PFHxA	5.55	1277846.3	0.070	0.601
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	6.02	271687.1	N/A	
PFHpA	6.03	1.000	67703.8	M	13C4-PFHpA	6.03	1204372.1	0.056	0.426
PFOA	6.47	1.000	4778775.6	M	13C8-PFOA	6.47	1353640.1	3.530	25.661
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.84	236666.5	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.87	1363354.0	N/A	
PFDA	7.24	1.000	13138.8	A	13C6-PFDA	7.24	1596149.8	0.008	0.068
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.59	1219009.3	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.91	1487342.1	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.91	1487342.1	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.53	1445022.9	N/A	

Total Ion Chromatogram



APPROVED
By MSM at 11:16 am, 3/19/18

REVIEWED
By umar at 2:21 pm, 3/21/18

ICAL Name: 18MAR12MCAL **Result Table:** 18073006 3/19/2018 10:50:31 AM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC Method_2018-01-22.dam

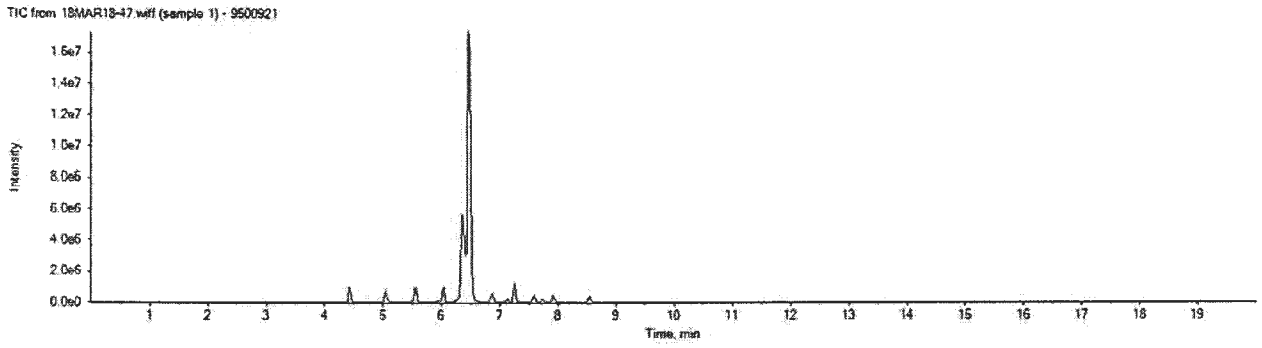
Analyte Quantitation Peak Table

Sample Name: 9500921 **Instrument Name:** LM26719 **File Name:** 18MAR18-47.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.29000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.42	1.000	313258.1	A	13C4-PFBA	4.42	753167.8	0.416	3.840
PFPeA	5.04	1.000	1263167.4	A	13C5-PFPeA	5.04	671039.0	1.882	15.994
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.09	321163.3	N/A	
PFHxA	5.55	1.000	1960403.7	M	13C5-PFHxA	5.55	1126700.2	1.740	15.776
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	6.03	263911.3	N/A	
PFHpA	6.03	1.000	1488820.1	M	13C4-PFHpA	6.03	1082299.2	1.376	10.988
PFOA	6.47	1.000	56665114.8	M	13C8-PFOA	6.47	900591.3	62.920	482.172
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.85	236121.3	N/A	
PFNA	6.87	1.000	33301.0	M	13C9-PFNA	6.87	1125473.1	0.030	0.233
PFDA	7.25	1.000	5135.9	A	13C6-PFDA	7.25	1318818.1	0.004	0.034
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.59	1012027.7	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.92	1283148.0	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.92	1283148.0	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.54	1222456.5	N/A	

Total Ion Chromatogram



APPROVED
By MSM at 11:16 am, 3/19/18

REVIEWED
By umar at 2:21 pm, 3/21/18

ICAL Name: 18MAR12MCAL **Result Table:** 18073006REDL 3/19/2018 9:42:40 PM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC Method_2018-01-22.dam

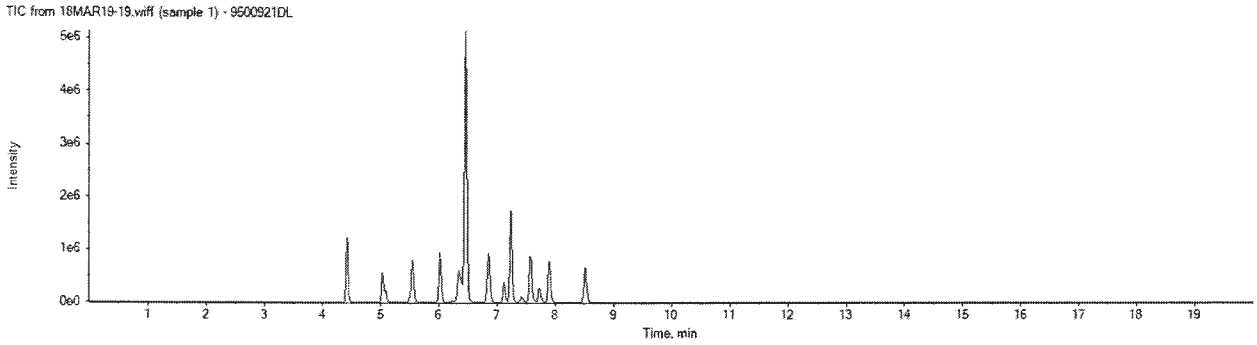
Analyte Quantitation Peak Table

Sample Name: 9500921DL **Instrument Name:** LM26719 **File Name:** 18MAR19-19.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.29000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.42	1.000	37046.6	M	13C4-PFBA	4.42	1519525.3	0.024	2.251
PFPeA	5.03	1.000	130818.2	M	13C5-PFPeA	5.03	1320986.2	0.099	8.414
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.09	496654.3	N/A	
PFHxA	5.54	1.000	197458.2	M	13C5-PFHxA	5.54	2165568.0	0.091	8.267
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	6.01	437023.3	N/A	
PFHpA	6.02	1.000	141098.2	M	13C4-PFHpA	6.02	2050303.6	0.069	5.497
PFOA	6.46	1.000	9834582.8	M	13C8-PFOA	6.46	2088931.7	4.708	360.783
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.83	412790.4	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.86	2226569.9	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.23	2533530.6	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.57	1851911.6	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.89	2455039.7	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.89	2455039.7	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.51	2218787.0	N/A	

Total Ion Chromatogram



APPROVED
By MCD at 9:49 pm, 3/19/18

REVIEWED
By umar at 3:25 pm, 3/21/18

ICAL Name: 18MAR12MCAL **Result Table:** 18073006 3/19/2018 10:50:31 AM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC Method_2018-01-22.dam

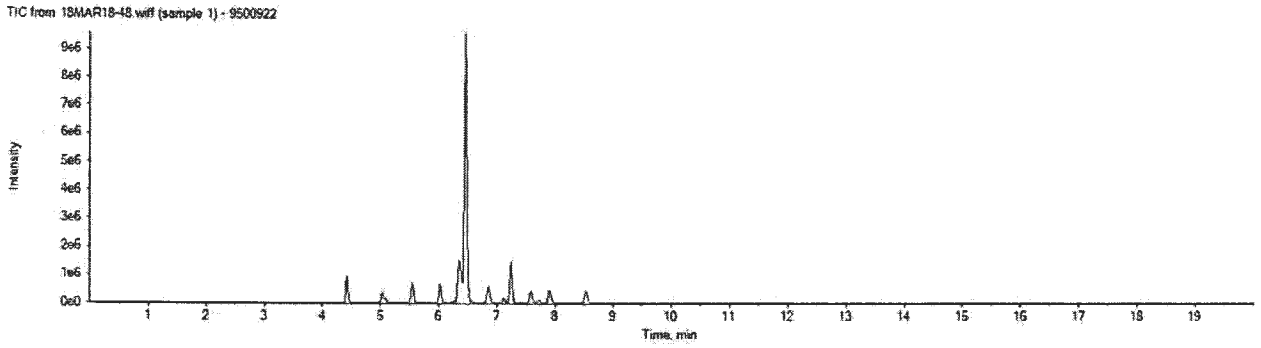
Analyte Quantitation Peak Table

Sample Name: 9500922 **Instrument Name:** LM26719 **File Name:** 18MAR18-48.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.27000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.41	1.000	89959.2	A	13C4-PFBA	4.42	823205.8	0.109	1.025
PFPeA	5.03	1.000	409072.8	A	13C5-PFPeA	5.03	742606.1	0.551	4.754
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.08	319961.8	N/A	
PFHxA	5.54	1.000	838580.6	M	13C5-PFHxA	5.54	1224767.3	0.685	6.306
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	6.01	283640.4	N/A	
PFHpA	6.02	1.000	461564.9	M	13C4-PFHpA	6.02	1129874.4	0.409	3.314
PFOA	6.46	1.000	21295447.4	M	13C8-PFOA	6.46	1178857.7	18.064	140.613
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.83	244232.4	N/A	
PFNA	6.86	1.000	24005.0	M	13C9-PFNA	6.86	1332152.1	0.018	0.144
PFDA	7.24	1.000	42471.0	A	13C6-PFDA	7.24	1536906.2	0.028	0.243
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.58	1234437.6	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.90	1553130.7	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.90	1553130.7	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.53	1515804.8	N/A	

Total Ion Chromatogram



APPROVED
By MSM at 11:16 am, 3/19/18

REVIEWED
By umar at 2:21 pm, 3/21/18

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LC-MS/MS Analysis Report

Printed: 3/19/2018 9:44:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18MAR12MCAL **Result Table:** 18073006REDL 3/19/2018 9:42:40 PM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC Method_2018-01-22.dam

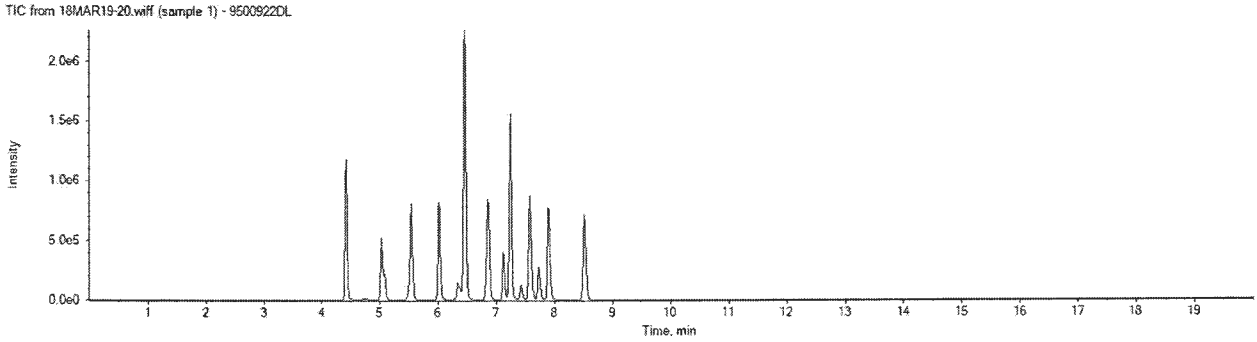
Analyte Quantitation Peak Table

Sample Name: 9500922DL **Instrument Name:** LM26719 **File Name:** 18MAR19-20.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.27000	1.000	10.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.41	1.000	15423.4	M	13C4-PFBA	4.41	1487666.5	0.010	0.972
PFPeA	5.02	1.000	41304.8	M	13C5-PFPeA	5.03	1324703.9	0.031	2.691
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.08	498938.1	N/A	
PFHxA	5.53	1.000	77581.0	M	13C5-PFHxA	5.54	2131044.6	0.036	3.353
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	6.01	423646.5	N/A	
PFHpA	6.01	1.000	41559.1	M	13C4-PFHpA	6.01	1945815.2	0.021	1.733
PFOA	6.45	1.000	2140231.5	M	13C8-PFOA	6.46	2198352.6	0.974	75.782
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.83	396717.8	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.86	2105123.2	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.23	2276162.2	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.57	1687636.3	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.90	2327462.5	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.90	2327462.5	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.51	2366718.0	N/A	

Total Ion Chromatogram



APPROVED
By MCD at 9:49 pm, 3/19/18

REVIEWED
By umar at 3:25 pm, 3/21/18

ICAL Name: 18MAR12MCAL **Result Table:** 18073006 3/19/2018 10:50:31 AM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC Method_2018-01-22.dam

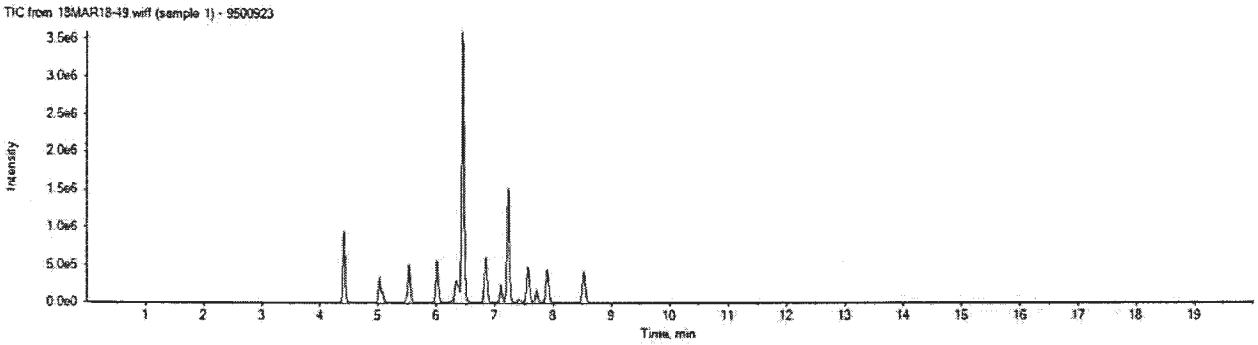
Analyte Quantitation Peak Table

Sample Name: 9500923 **Instrument Name:** LM26719 **File Name:** 18MAR18-49.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.25000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.41	1.000	21637.0	M	13C4-PFBA	4.41	878467.1	0.025	0.235
PFPeA	5.02	1.000	67004.7	A	13C5-PFPeA	5.02	792145.2	0.085	0.742
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.07	319380.5	N/A	
PFHxA	5.53	1.000	128084.8	M	13C5-PFHxA	5.53	1300670.0	0.098	0.921
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	6.01	276854.5	N/A	
PFHpA	6.01	1.000	74680.8	M	13C4-PFHpA	6.01	1263412.7	0.059	0.487
PFOA	6.45	1.000	4975385.7	M	13C8-PFOA	6.45	1508503.2	3.298	26.084
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.82	248760.6	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.85	1388747.1	N/A	
PFDA	7.23	1.000	17963.2	A	13C6-PFDA	7.23	1653054.1	0.011	0.097
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.57	1105154.4	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.90	1490062.1	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.90	1490062.1	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.52	1486357.6	N/A	

Total Ion Chromatogram



APPROVED
By MSM at 11:16 am, 3/19/18

REVIEWED
By umar at 2:21 pm, 3/21/18

ICAL Name: 18MAR12MCAL **Result Table:** 18073001 3/15/2018 5:52:52 PM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC-32-17AUG01.dam

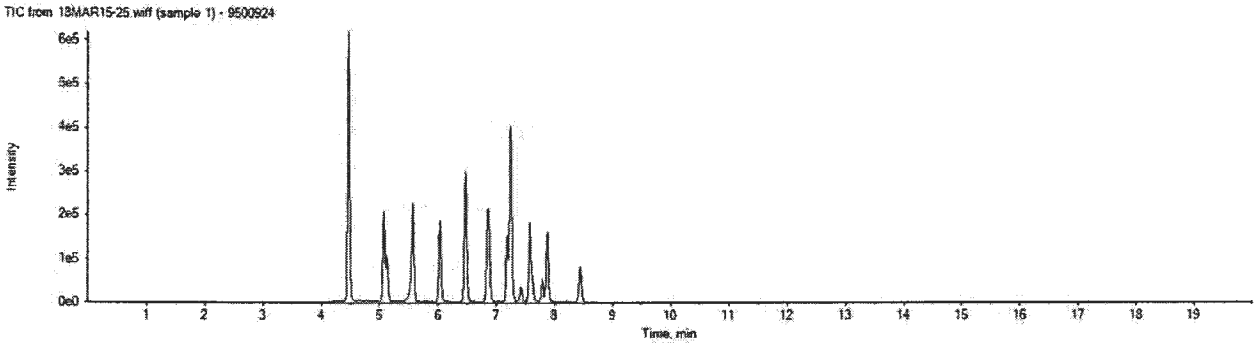
Analyte Quantitation Peak Table

Sample Name: 9500924 **Instrument Name:** LM24960 **File Name:** 18MAR15-25.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.25581	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.47	676610.8	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.07	547032.8	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.13	250654.1	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.56	587621.8	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	6.03	159053.0	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	6.03	367794.4	N/A	
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.47	393912.3	N/A	
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.84	167554.9	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.87	300842.9	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.24	596708.5	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.57	369024.5	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.87	427045.0	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.87	427045.0	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.44	248334.5	N/A	

Total Ion Chromatogram



APPROVED
By DMW at 5:59 pm, 3/15/18

REVIEWED
By umar at 3:30 pm, 3/16/18

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LC-MS/MS Analysis Report

Printed: 3/15/2018 5:56:00 PM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18MAR12MCAL **Result Table:** 18073001 3/15/2018 5:52:52 PM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC-32-17AUG01.dam

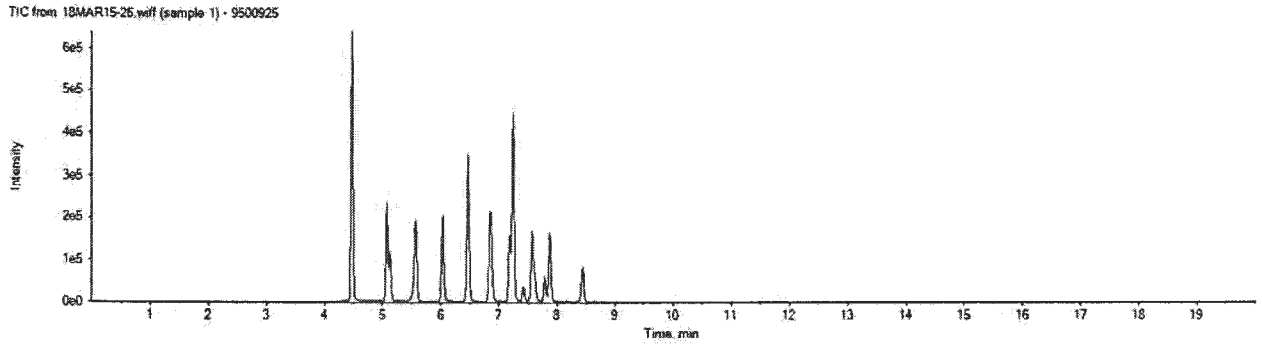
Analyte Quantitation Peak Table

Sample Name: 9500925 **Instrument Name:** LM24960 **File Name:** 18MAR15-26.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.25446	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.47	706261.1	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.07	576633.2	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.13	266602.1	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.57	574577.0	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	6.03	158545.1	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	6.03	384094.3	N/A	
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.47	425186.6	N/A	
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.85	205868.2	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.87	292296.2	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.24	645633.5	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.57	396529.3	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.87	414035.1	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.87	414035.1	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.44	253863.9	N/A	

Total Ion Chromatogram



APPROVED
By DMW at 5:59 pm, 3/15/18

REVIEWED
By umar at 3:30 pm, 3/16/18

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Quality Control Reference List
PFAS Group

CLIENT: C. T. Male Associates
SDG: SNB98

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
14 PFAS Compounds	18073001	BLK073001	03/15/2018 15:12:00
		LCS073001	03/15/2018 14:10:00
		LCSDA	03/15/2018 14:31:00
		9500919	03/15/2018 16:34:00
		9500924	03/15/2018 16:54:00
		9500925	03/15/2018 17:15:00
14 PFCs	18073006	BLK073006	03/17/2018 22:41:00
		LCS073006	03/17/2018 21:19:00
		9500920	03/18/2018 05:52:00
		9500921	03/18/2018 06:13:00
		9500921	03/19/2018 08:12:00
		9500922	03/18/2018 06:33:00
		9500922	03/19/2018 08:33:00
		9500923	03/18/2018 06:54:00

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Quality Control Summary
Method Blank
PFAS Group
SDG: SNB98
Matrix: SOLID

Fraction: PFAS by LC/MS/MS

18073006 / BLK073006 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	03/17/18	N.D.	ng/g	0.20	0.60
Perfluorononanoic acid	03/17/18	N.D.	ng/g	0.20	0.60
Perfluorodecanoic acid	03/17/18	N.D.	ng/g	0.20	0.60
Perfluoroundecanoic acid	03/17/18	N.D.	ng/g	0.20	0.60
Perfluorododecanoic acid	03/17/18	N.D.	ng/g	0.20	0.60
Perfluorotridecanoic acid	03/17/18	N.D.	ng/g	0.20	0.60
Perfluorotetradecanoic acid	03/17/18	N.D.	ng/g	0.20	0.60
Perfluorohexanoic acid	03/17/18	N.D.	ng/g	0.20	0.60
Perfluoroheptanoic acid	03/17/18	N.D.	ng/g	0.20	0.60
Perfluorobutanesulfonate	03/17/18	N.D.	ng/g	0.20	0.60
Perfluorohexanesulfonate	03/17/18	N.D.	ng/g	0.20	0.60
Perfluoro-octanesulfonate	03/17/18	N.D.	ng/g	0.30	0.90
Perfluorobutanoic acid	03/17/18	N.D.	ng/g	0.20	0.60
Perfluoropentanoic acid	03/17/18	N.D.	ng/g	0.20	0.60

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LC-MS/MS Analysis Report

Printed: 3/19/2018 10:53:00 AM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18MAR12MCAL **Result Table:** 18073006 3/19/2018 10:50:31 AM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC Method_2018-01-22.dam

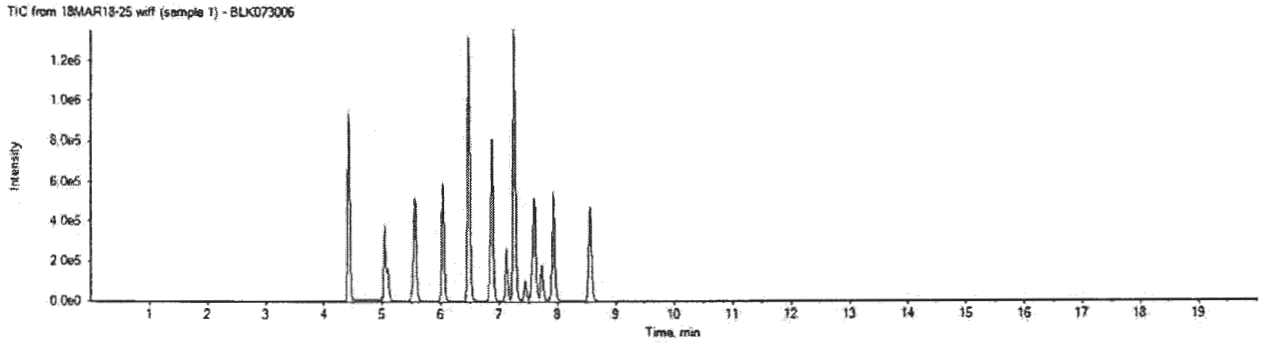
Analyte Quantitation Peak Table

Sample Name: BLK073006 **Instrument Name:** LM26719 **File Name:** 18MAR18-25.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	2.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.42	991198.4	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.04	929320.4	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.09	368489.2	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.56	1541405.5	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	6.03	302482.8	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	6.04	1439774.7	N/A	
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.48	1615407.5	N/A	
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.85	288020.4	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.88	1788717.4	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.25	1900497.3	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.60	1341758.6	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.93	1654056.9	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.93	1654056.9	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.56	1644418.3	N/A	

Total Ion Chromatogram



APPROVED
By MSM at 11:16 am, 3/19/18

REVIEWED
By umar at 12:45 pm, 3/21/18

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Quality Control Summary
Method Blank
PFAS Group
SDG: SNB98
Matrix: LIQUID

Fraction: PFAS by LC/MS/MS

18073001 / BLK073001 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	03/15/18	N.D.	ng/l	0.3	1
Perfluorononanoic acid	03/15/18	N.D.	ng/l	0.4	2
Perfluorodecanoic acid	03/15/18	N.D.	ng/l	1	2
Perfluoroundecanoic acid	03/15/18	N.D.	ng/l	0.4	2
Perfluorododecanoic acid	03/15/18	N.D.	ng/l	0.3	1
Perfluorotridecanoic acid	03/15/18	N.D.	ng/l	0.3	1
Perfluorotetradecanoic acid	03/15/18	N.D.	ng/l	0.3	1
Perfluorohexanoic acid	03/15/18	N.D.	ng/l	0.4	2
Perfluoroheptanoic acid	03/15/18	N.D.	ng/l	0.3	1
Perfluorobutanesulfonate	03/15/18	N.D.	ng/l	0.3	1
Perfluorohexanesulfonate	03/15/18	N.D.	ng/l	0.4	2
Perfluoro-octanesulfonate	03/15/18	N.D.	ng/l	0.4	2
Perfluorobutanoic acid	03/15/18	N.D.	ng/l	2	6
Perfluoropentanoic acid	03/15/18	N.D.	ng/l	2	6

✓

ICAL Name: 18MAR12MCAL **Result Table:** 18073001 3/15/2018 5:52:52 PM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC-32-17AUG01.dam

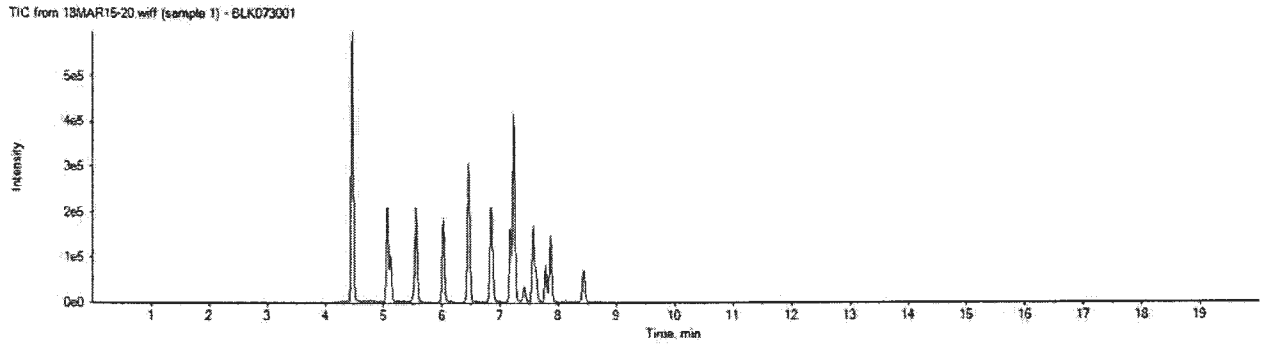
Analyte Quantitation Peak Table

Sample Name: BLK073001 **Instrument Name:** LM24960 **File Name:** 18MAR15-20.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
0.25000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.46	680166.8	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.07	551125.8	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.12	245173.4	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.56	527158.6	N/A	
PFHxS	N/A	N/A	N/A	A	13C3-PFHxS	6.02	154137.9	N/A	
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	6.02	359981.1	N/A	
PFOA	N/A	N/A	N/A	A	13C8-PFOA	6.46	390559.5	N/A	
PFOS	N/A	N/A	N/A	A	13C8-PFOS	6.84	176701.0	N/A	
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.86	295075.3	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.23	569568.6	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.56	372043.0	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.87	390669.6	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.87	390669.6	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.43	223115.0	N/A	

Total Ion Chromatogram



APPROVED
By DMW at 5:59 pm, 3/15/18

REVIEWED
By umar at 3:20 pm, 3/16/18

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SNB98
Matrix: WATER

18073001		13C2-PFDODA	13C2-PFTEDA	13C3-PFBS	13C3-PFHXS	13C4-PFBA
	Limits	28-127	26-119	26-148	34-126	33-123
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS073001	03/15/18 14:10	69	68	62	66	67
LCSDA	03/15/18 14:31	69	74	66	70	72
BLK073001	03/15/18 15:12	72	70	62	65	69
9500919	03/15/18 16:34	51	63	67	67	67
9500924	03/15/18 16:54	83	82	65	67	71
9500925	03/15/18 17:15	74	77	71	67	75

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SNB98
Matrix: WATER

18073001		13C4-PFHPA	13C5-PFHXA	13C5-PFPEA	13C6-PFDA	13C7-PFUNDA
	Limits	35-126	31-128	39-135	40-115	30-128
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS073001	03/15/18 14:10	71	66	68	66	72
LCSDA	03/15/18 14:31	75	70	70	70	79
BLK073001	03/15/18 15:12	71	68	66	70	75
9500919	03/15/18 16:34	77	72	67	64	44
9500924	03/15/18 16:54	72	76	68	77	79
9500925	03/15/18 17:15	75	74	73	76	78

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SNB98
Matrix: WATER

18073001		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	43-112	43-115	32-134
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery
LCS073001	03/15/18 14:10	69	67	72
LCSDA	03/15/18 14:31	71	75	80
BLK073001	03/15/18 15:12	71	69	71
9500919	03/15/18 16:34	62	73	84
9500924	03/15/18 16:54	72	61	67
9500925	03/15/18 17:15	77	80	70

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SNB98
Matrix: SOIL

18073006		13C2-PFDODA	13C2-PFTEDA	13C3-PFBS	13C3-PFHXS	13C4-PFBA
	Limits	15-135	20-127	34-118	32-125	37-107
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS073006	03/17/18 21:19	78	56	54	57	62
BLK073006	03/17/18 22:41	90	63	67	73	70
9500920	03/18/18 05:52	71	49	58	62	61
9500921	03/18/18 06:13	63	42	55	74	50
9500922	03/18/18 06:33	72	49	55	66	55
9500923	03/18/18 06:54	65	45	55	62	58
9500921DL	03/19/18 08:12	130	82	86	108	102
9500922DL	03/19/18 08:33	135	97	90	108	104

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SNB98
Matrix: SOIL

18073006		13C4-PFHPA	13C5-PFHXA	13C5-PFPEA	13C6-PFDA	13C7-PFUNDA
	Limits	45-114	43-115	70-130	36-121	25-134
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS073006	03/17/18 21:19	59	58	61 *	65	66
BLK073006	03/17/18 22:41	72	73	72	82	83
9500920	03/18/18 05:52	57	57	61 *	61	66
9500921	03/18/18 06:13	64	62	49 *	52	56
9500922	03/18/18 06:33	55	56	55 *	56	64
9500923	03/18/18 06:54	59	57	58 *	57	54
9500921DL	03/19/18 08:12	106	105	98	106	110
9500922DL	03/19/18 08:33	103	106	102	105	111

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: SNB98
Matrix: SOIL

18073006		13C8-PFOA	13C8-PFOS	13C9-PFNA
	Limits	44-115	42-118	37-124
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery
LCS073006	03/17/18 21:19	62	63	63
BLK073006	03/17/18 22:41	75	69	73
9500920	03/18/18 05:52	59	62	61
9500921	03/18/18 06:13	49	59	48
9500922	03/18/18 06:33	52	61	57
9500923	03/18/18 06:54	65	60	57
9500921DL	03/19/18 08:12	99	109	100
9500922DL	03/19/18 08:33	107	108	98

* Outside QC Limits

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SNB98
Matrix: SOLID

PFAS Group

Fraction: PFAS by LC/MS/MS

LCS: LCS073006	Batch: **18073006** (Sample number(s): 9500920-9500923)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	1.24	NA	91	NA	70-130	NA	NA
Perfluorononanoic acid	1.36	1.25	NA	92	NA	70-130	NA	NA
Perfluorodecanoic acid	1.36	1.20	NA	88	NA	70-130	NA	NA
Perfluoroundecanoic acid	1.36	1.40	NA	103	NA	70-130	NA	NA
Perfluorododecanoic acid	1.36	1.30	NA	95	NA	70-130	NA	NA
Perfluorotridecanoic acid	1.36	1.14	NA	84	NA	70-130	NA	NA
Perfluorotetradecanoic acid	1.36	1.41	NA	104	NA	70-130	NA	NA
Perfluorohexanoic acid	1.36	1.32	NA	97	NA	70-130	NA	NA
Perfluoroheptanoic acid	1.36	1.36	NA	100	NA	70-130	NA	NA
Perfluorobutanesulfonate	1.20	1.11	NA	92	NA	70-130	NA	NA
Perfluorohexanesulfonate	1.29	1.05	NA	81	NA	70-130	NA	NA
Perfluoro-octanesulfonate	1.30	1.19	NA	91	NA	70-130	NA	NA
Perfluorobutanoic acid	1.36	1.39	NA	102	NA	70-130	NA	NA
Perfluoropentanoic acid	1.36	1.18	NA	87	NA	70-130	NA	NA

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SNB98
Matrix: LIQUID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCS073001 LCSD: LCSDA Analyte	Batch: **18073001** (Sample number(s): 9500919, 9500924-9500925) Spike Added ng/l	LCS Conc ng/l	LCSD Conc ng/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Perfluorooctanoic acid	5.44	5.12	5.12	94	94	70-130	0	30
Perfluorononanoic acid	5.44	5.73	5.74	105	106	70-130	0	30
Perfluorodecanoic acid	5.44	5.41	5.24	99	96	70-130	3	30
Perfluoroundecanoic acid	5.44	5.25	5.29	96	97	70-130	1	30
Perfluorododecanoic acid	5.44	5.21	5.88	96	108	70-130	12	30
Perfluorotridecanoic acid	5.44	5.21	5.67	96	104	70-130	8	30
Perfluorotetradecanoic acid	5.44	5.03	5.06	93	93	70-130	1	30
Perfluorohexanoic acid	5.44	5.40	5.51	99	101	70-130	2	30
Perfluoroheptanoic acid	5.44	5.05	5.51	93	101	70-130	9	30
Perfluorobutanesulfonate	4.81	4.54	4.47	94	93	70-130	1	30
Perfluorohexanesulfonate	5.14	4.95	5.07	96	99	70-130	2	30
Perfluoro-octanesulfonate	5.20	4.83	5.10	93	98	70-130	5	30
Perfluorobutanoic acid	5.44	5.31 J	5.61 J	98	103	70-130	6	30
Perfluoropentanoic acid	5.44	5.07 J	5.39 J	93	99	70-130	6	30

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18MAR12MCAL-18.wiff	3/12/2018 3:06:43 PM	CALMOD11833A	CAL1
18MAR12MCAL-19.wiff	3/12/2018 3:27:13 PM	CALMOD21833A	CAL2
18MAR12MCAL-20.wiff	3/12/2018 3:47:43 PM	CALMOD31833A	CAL3
18MAR12MCAL-21.wiff	3/12/2018 4:08:16 PM	CALMOD41833A	CAL4
18MAR12MCAL-22.wiff	3/12/2018 4:28:49 PM	CALMOD51833A	CAL5
18MAR12MCAL-23.wiff	3/12/2018 4:49:22 PM	CALMOD61833A	CAL6
18MAR12MCAL-24.wiff	3/12/2018 5:09:55 PM	CALMOD71833A	CAL7

Injection Standard Averages Validated in SMC37

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	716631.4	668460.0
CAL2	I13C3-PFBA	True	737021.1	668460.0
CAL3	I13C3-PFBA	True	732433.3	668460.0
CAL4	I13C3-PFBA	True	717934.2	668460.0
CAL5	I13C3-PFBA	True	684932.0	668460.0
CAL6	I13C3-PFBA	True	608580.3	668460.0
CAL7	I13C3-PFBA	True	481687.6	668460.0
CAL1	I13C2-PFOA	True	345159.5	333762.2
CAL2	I13C2-PFOA	True	368565.1	333762.2
CAL3	I13C2-PFOA	True	359051.1	333762.2
CAL4	I13C2-PFOA	True	357709.1	333762.2
CAL5	I13C2-PFOA	True	336944.0	333762.2
CAL6	I13C2-PFOA	True	310422.0	333762.2
CAL7	I13C2-PFOA	True	258484.7	333762.2
CAL1	I13C4-PFOS	True	265875.0	240180.7
CAL2	I13C4-PFOS	True	263327.1	240180.7
CAL3	I13C4-PFOS	True	250686.6	240180.7
CAL4	I13C4-PFOS	True	258201.3	240180.7
CAL5	I13C4-PFOS	True	253046.6	240180.7
CAL6	I13C4-PFOS	True	215349.7	240180.7
CAL7	I13C4-PFOS	True	174778.8	240180.7
CAL1	I13C2-PFDA	True	465296.8	430178.4
CAL2	I13C2-PFDA	True	501802.6	430178.4
CAL3	I13C2-PFDA	True	474251.0	430178.4
CAL4	I13C2-PFDA	True	479481.5	430178.4
CAL5	I13C2-PFDA	True	412372.0	430178.4
CAL6	I13C2-PFDA	True	383020.5	430178.4
CAL7	I13C2-PFDA	True	295024.3	430178.4

APPROVED
By JWK at 7:26 am, 3/13/18

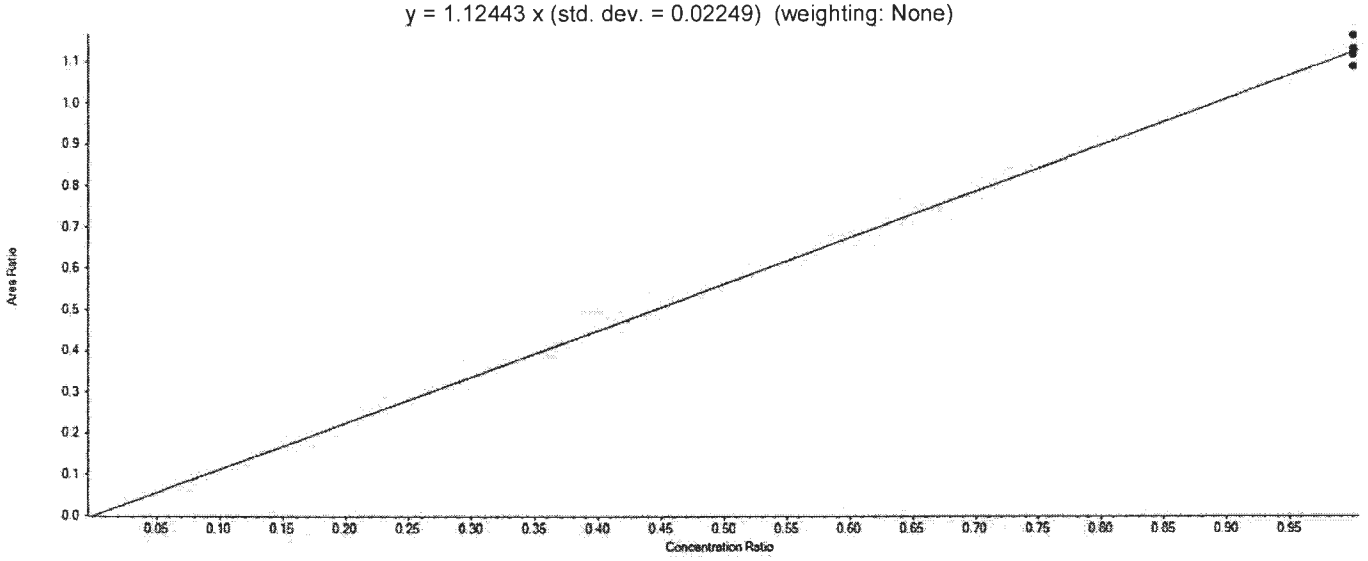
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

E13C4-PFBA

y = 1.12443 x (std. dev. = 0.02249) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	801799.5	716631.4	True	5.00	1.119	4.46	1.000	5.000	4.975	-0.5	50.0	
CAL2	858410.0	737021.1	True	5.00	1.165	4.47	1.000	5.000	5.179	3.6	30.0	
CAL3	830984.4	732433.3	True	5.00	1.135	4.46	1.000	5.000	5.045	0.9	30.0	
CAL4	803154.6	717934.2	True	5.00	1.119	4.47	1.000	5.000	4.975	-0.5	30.0	
CAL5	766224.9	684932.0	True	5.00	1.119	4.46	1.000	5.000	4.974	-0.5	30.0	
CAL6	663122.3	608580.3	True	5.00	1.090	4.46	1.000	5.000	4.845	-3.1	30.0	
CAL7	542335.7	481687.6	True	5.00	1.126	4.46	1.000	5.000	5.007	0.1	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

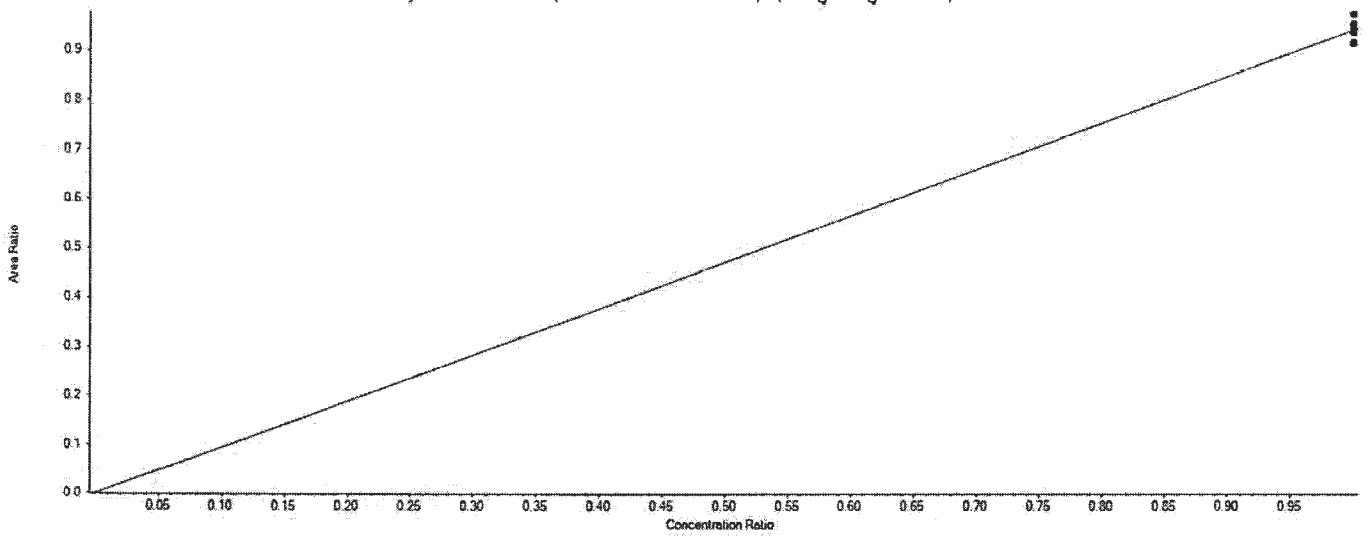
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

E13C5-PFPeA

y = 0.94357 x (std. dev. = 0.02128) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	656570.1	716631.4	True	5.00	0.916	5.07	1.140	5.000	4.855	-2.9	50.0	
CAL2	704289.2	737021.1	True	5.00	0.956	5.07	1.140	5.000	5.064	1.3	30.0	
CAL3	672853.7	732433.3	True	5.00	0.919	5.07	1.140	5.000	4.868	-2.6	30.0	
CAL4	685448.1	717934.2	True	5.00	0.955	5.07	1.140	5.000	5.059	1.2	30.0	
CAL5	642646.1	684932.0	True	5.00	0.938	5.07	1.140	5.000	4.972	-0.6	30.0	
CAL6	575497.2	608580.3	True	5.00	0.946	5.07	1.140	5.000	5.011	0.2	30.0	
CAL7	470083.4	481687.6	True	5.00	0.976	5.07	1.140	5.000	5.171	3.4	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

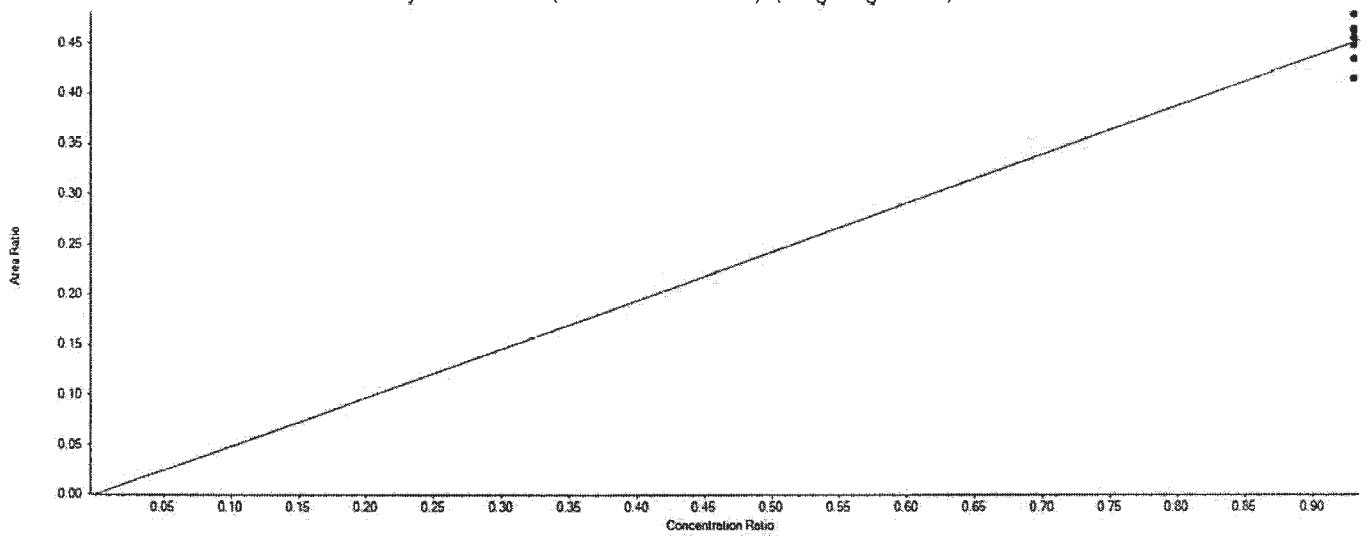
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

E13C3-PFBS

y = 0.48518 x (std. dev. = 0.02280) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	297384.8	716631.4	True	5.00	0.415	5.12	1.150	4.650	4.277	-8.0	50.0	
CAL2	335755.9	737021.1	True	5.00	0.456	5.13	1.150	4.650	4.695	1.0	30.0	
CAL3	318115.2	732433.3	True	5.00	0.434	5.12	1.150	4.650	4.476	-3.7	30.0	
CAL4	321466.8	717934.2	True	5.00	0.448	5.13	1.150	4.650	4.614	-0.8	30.0	
CAL5	316992.5	684932.0	True	5.00	0.463	5.13	1.150	4.650	4.769	2.6	30.0	
CAL6	282481.4	608580.3	True	5.00	0.464	5.13	1.150	4.650	4.783	2.9	30.0	
CAL7	230682.2	481687.6	True	5.00	0.479	5.13	1.150	4.650	4.935	6.1	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

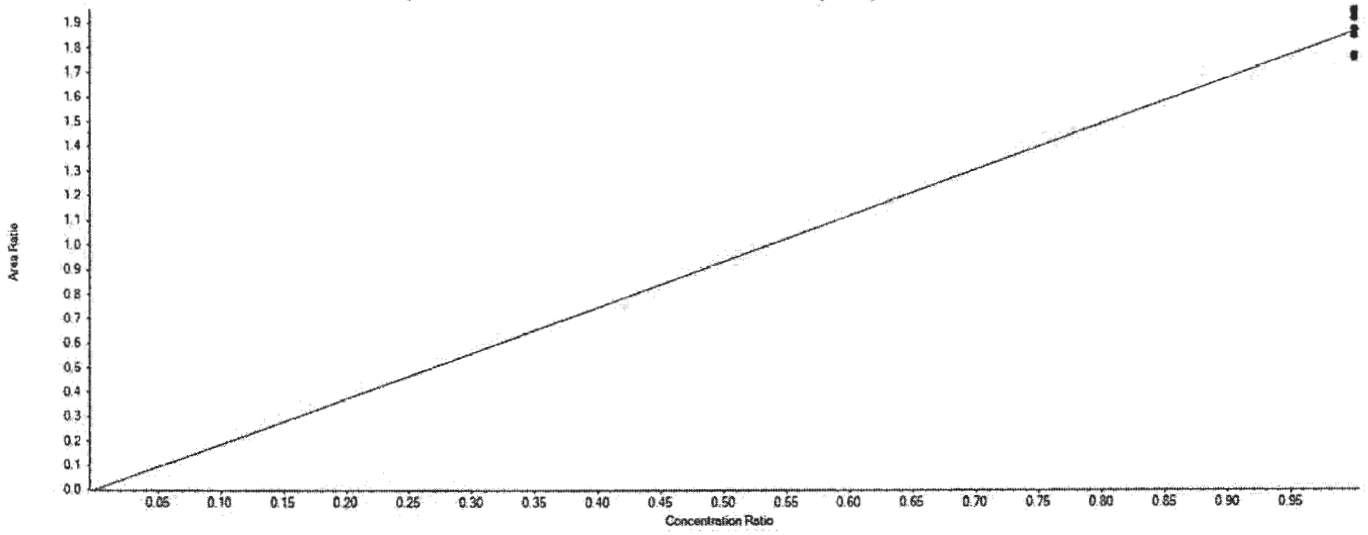
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

E13C5-PFHxA

y = 1.86513 x (std. dev. = 0.07978) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	674390.6	345159.5	True	5.00	1.954	5.56	0.860	5.000	5.238	4.8	50.0	
CAL2	715497.7	368565.1	True	5.00	1.941	5.57	0.860	5.000	5.204	4.1	30.0	
CAL3	688198.6	359051.1	True	5.00	1.917	5.56	0.860	5.000	5.138	2.8	30.0	
CAL4	660504.3	357709.1	True	5.00	1.846	5.57	0.860	5.000	4.950	-1.0	30.0	
CAL5	631423.7	336944.0	True	5.00	1.874	5.56	0.860	5.000	5.024	0.5	30.0	
CAL6	545049.3	310422.0	True	5.00	1.756	5.56	0.860	5.000	4.707	-5.9	30.0	
CAL7	456936.4	258484.7	True	5.00	1.768	5.56	0.860	5.000	4.739	-5.2	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

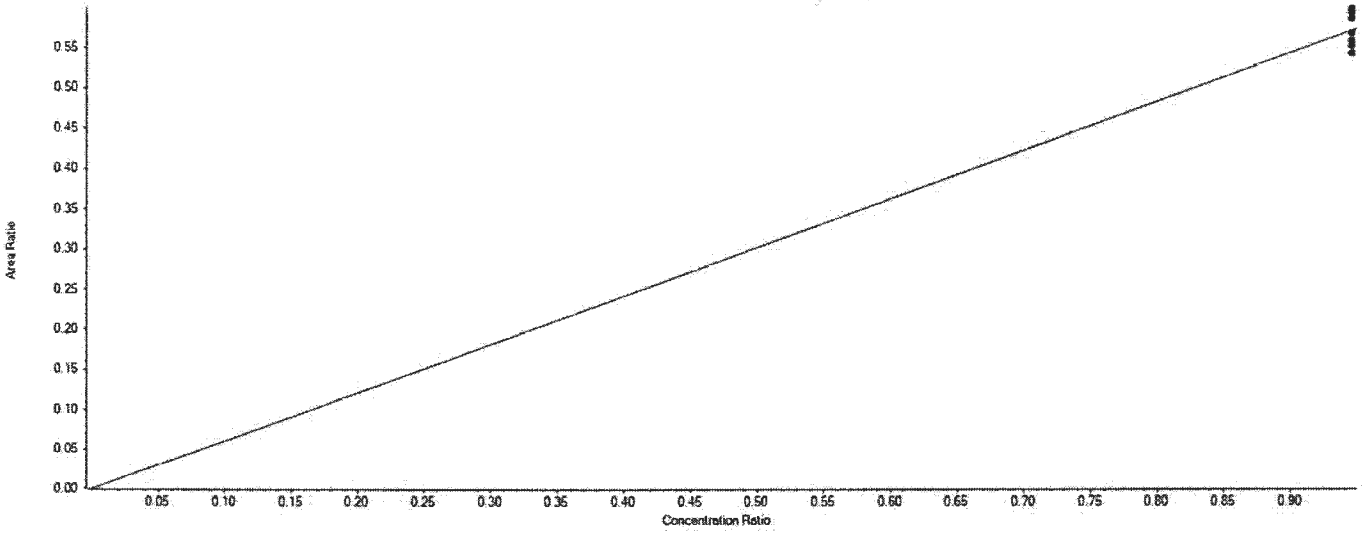
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

E13C3-PFHxS

y = 0.60452 x (std. dev. = 0.02267) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	196146.5	345159.5	True	5.00	0.568	6.02	0.930	4.730	4.700	-0.6	50.0	
CAL2	200337.4	368565.1	True	5.00	0.544	6.03	0.930	4.730	4.496	-5.0	30.0	
CAL3	213150.2	359051.1	True	5.00	0.594	6.02	0.930	4.730	4.910	3.8	30.0	
CAL4	214213.8	357709.1	True	5.00	0.599	6.03	0.930	4.730	4.953	4.7	30.0	
CAL5	197718.7	336944.0	True	5.00	0.587	6.03	0.930	4.730	4.853	2.6	30.0	
CAL6	173436.3	310422.0	True	5.00	0.559	6.02	0.930	4.730	4.621	-2.3	30.0	
CAL7	143009.7	258484.7	True	5.00	0.553	6.03	0.930	4.730	4.576	-3.3	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

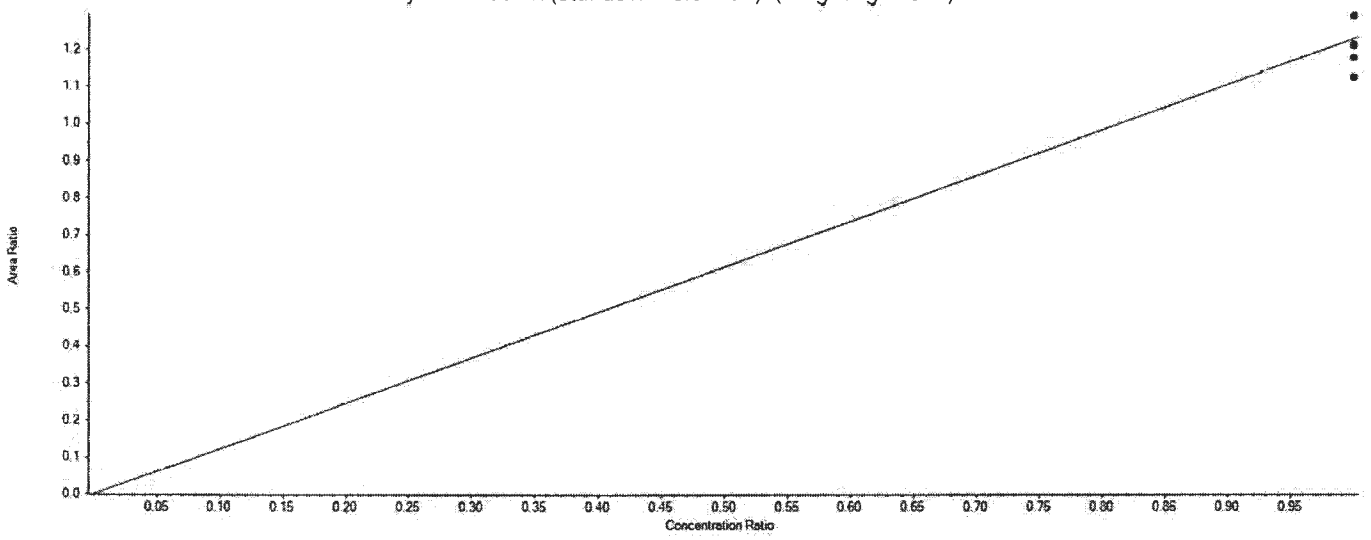
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

E13C4-PFHpA

y = 1.22993 x (std. dev. = 0.06498) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	446499.7	345159.5	True	5.00	1.294	6.03	0.930	5.000	5.259	5.2	50.0	
CAL2	448052.1	368565.1	True	5.00	1.216	6.04	0.930	5.000	4.942	-1.2	30.0	
CAL3	464336.1	359051.1	True	5.00	1.293	6.03	0.930	5.000	5.257	5.1	30.0	
CAL4	461520.4	357709.1	True	5.00	1.290	6.04	0.930	5.000	5.245	4.9	30.0	
CAL5	407616.0	336944.0	True	5.00	1.210	6.04	0.930	5.000	4.918	-1.6	30.0	
CAL6	350016.7	310422.0	True	5.00	1.128	6.03	0.930	5.000	4.584	-8.3	30.0	
CAL7	304879.0	258484.7	True	5.00	1.179	6.04	0.930	5.000	4.795	-4.1	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

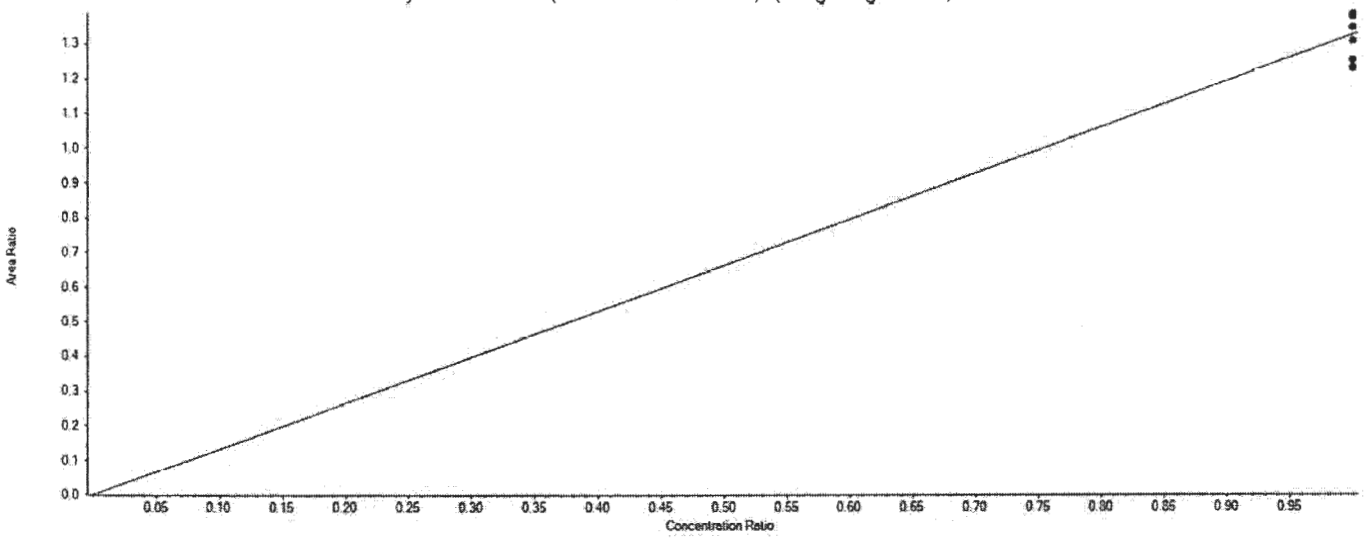
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

E13C8-PFOA

y = 1.32613 x (std. dev. = 0.06537) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	475904.7	345159.5	True	5.00	1.379	6.47	1.000	5.000	5.199	4.0	50.0	
CAL2	481484.0	368565.1	True	5.00	1.306	6.48	1.000	5.000	4.926	-1.5	30.0	
CAL3	497499.4	359051.1	True	5.00	1.386	6.47	1.000	5.000	5.224	4.5	30.0	
CAL4	481337.9	357709.1	True	5.00	1.346	6.47	1.000	5.000	5.073	1.5	30.0	
CAL5	466973.4	336944.0	True	5.00	1.386	6.47	1.000	5.000	5.225	4.5	30.0	
CAL6	381499.4	310422.0	True	5.00	1.229	6.47	1.000	5.000	4.634	-7.3	30.0	
CAL7	323538.7	258484.7	True	5.00	1.252	6.48	1.000	5.000	4.719	-5.6	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

REVIEWED
By uild at 3:25 pm, 3/13/18

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LC-MS/MS Analysis Report

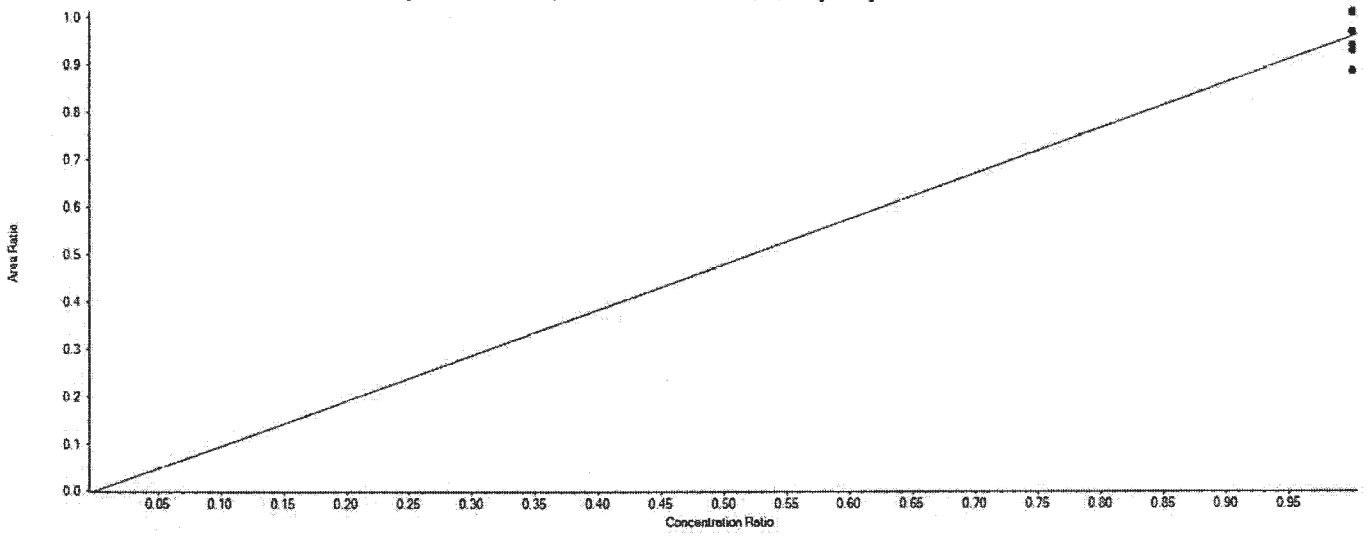
Printed: 3/13/2018 7:04:00 AM
Template: MQ-ICAL-16NOV21.docx

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

E13C8-PFOS

y = 0.95874 x (std. dev. = 0.04504) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	235299.1	265875.0	True	4.78	0.885	6.85	1.000	4.780	4.412	-7.7	50.0	
CAL2	247643.1	263327.1	True	4.78	0.940	6.85	1.000	4.780	4.689	-1.9	30.0	
CAL3	253711.8	250686.6	True	4.78	1.012	6.85	1.000	4.780	5.046	5.6	30.0	
CAL4	239822.4	258201.3	True	4.78	0.929	6.85	1.000	4.780	4.631	-3.1	30.0	
CAL5	244636.7	253046.6	True	4.78	0.967	6.85	1.000	4.780	4.820	0.8	30.0	
CAL6	208783.3	215349.7	True	4.78	0.970	6.84	1.000	4.780	4.834	1.1	30.0	
CAL7	176272.8	174778.8	True	4.78	1.009	6.85	1.000	4.780	5.028	5.2	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

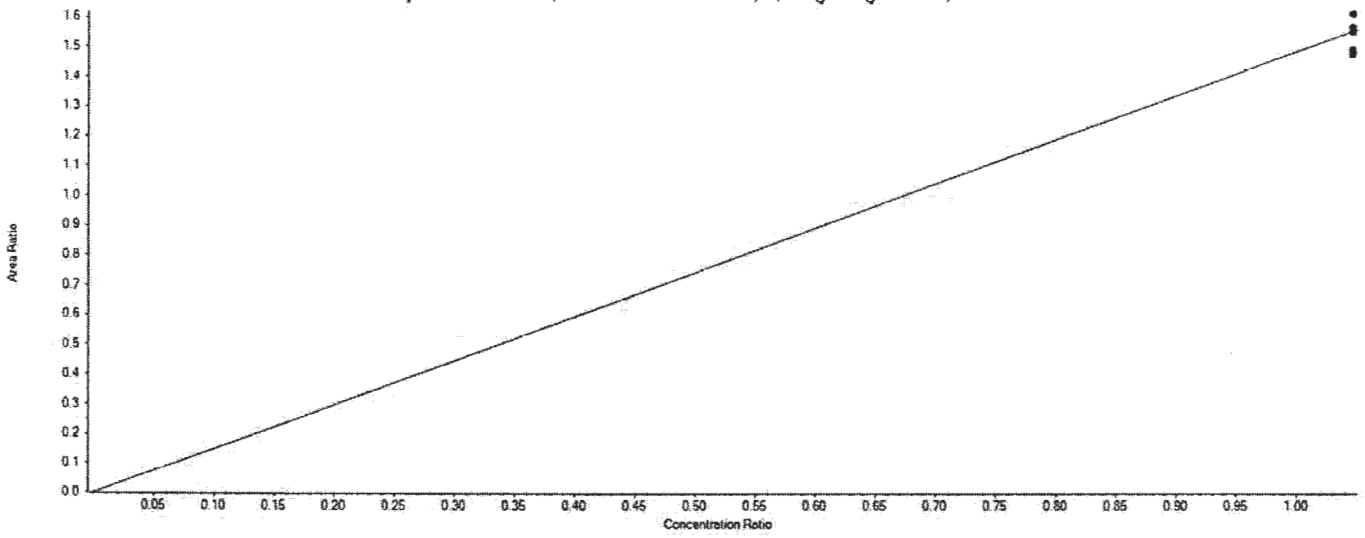
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

E13C9-PFNA

y = 1.48840 x (std. dev. = 0.05042) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	393504.1	265875.0	True	4.78	1.480	6.87	1.000	5.000	4.753	-4.9	50.0	
CAL2	425110.2	263327.1	True	4.78	1.614	6.88	1.000	5.000	5.185	3.7	30.0	
CAL3	404976.5	250686.6	True	4.78	1.615	6.88	1.000	5.000	5.188	3.8	30.0	
CAL4	405101.5	258201.3	True	4.78	1.569	6.88	1.000	5.000	5.039	0.8	30.0	
CAL5	378525.1	253046.6	True	4.78	1.496	6.88	1.000	5.000	4.804	-3.9	30.0	
CAL6	338062.1	215349.7	True	4.78	1.570	6.88	1.000	5.000	5.041	0.8	30.0	
CAL7	271578.0	174778.8	True	4.78	1.554	6.88	1.000	5.000	4.990	-0.2	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

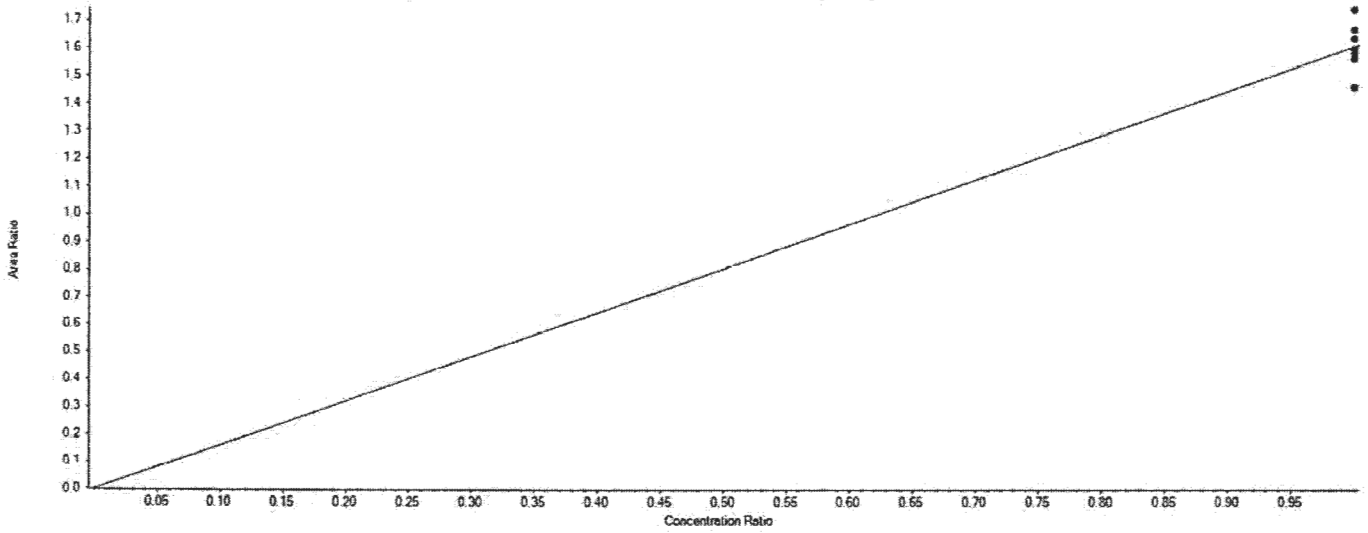
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

E13C6-PFDA

y = 1.60932 x (std. dev. = 0.08844) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	745251.4	465296.8	True	5.00	1.602	7.24	1.000	5.000	4.976	-0.5	50.0	
CAL2	822319.1	501802.6	True	5.00	1.639	7.25	1.000	5.000	5.091	1.8	30.0	
CAL3	791636.0	474251.0	True	5.00	1.669	7.25	1.000	5.000	5.186	3.7	30.0	
CAL4	749680.4	479481.5	True	5.00	1.564	7.25	1.000	5.000	4.858	-2.8	30.0	
CAL5	719337.6	412372.0	True	5.00	1.744	7.25	1.000	5.000	5.420	8.4	30.0	
CAL6	560270.1	383020.5	True	5.00	1.463	7.25	1.000	5.000	4.545	-9.1	30.0	
CAL7	467593.3	295024.3	True	5.00	1.585	7.25	1.000	5.000	4.924	-1.5	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

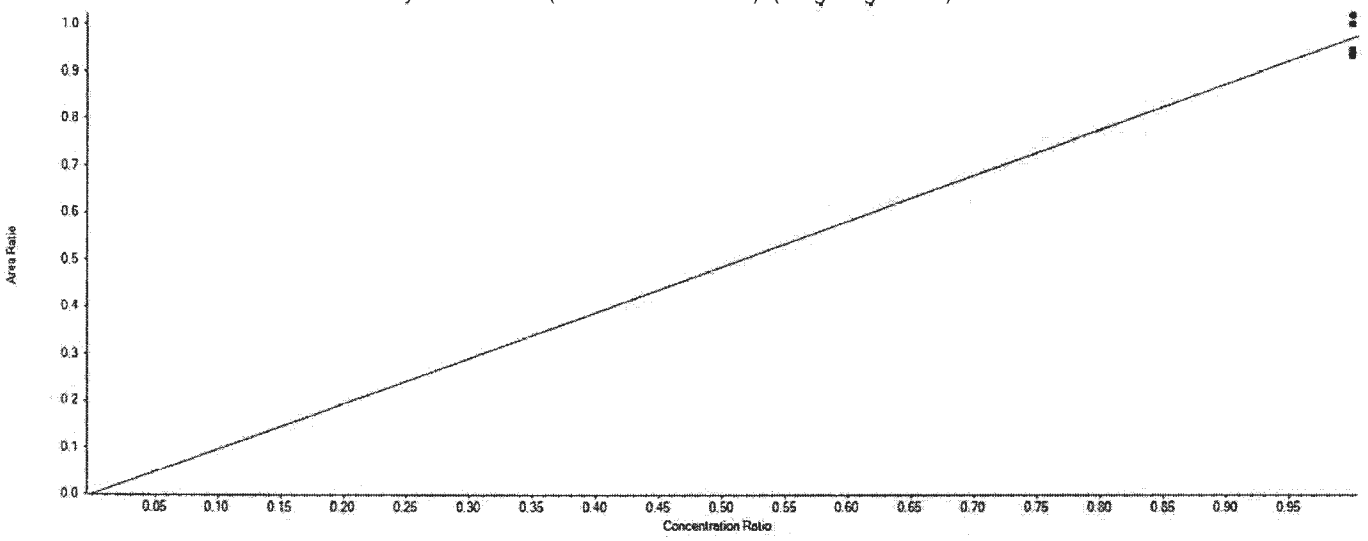
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

E13C7-PFUnDA

y = 0.97229 x (std. dev. = 0.04074) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	475235.6	465296.8	True	5.00	1.021	7.58	1.050	5.000	5.252	5.0	50.0	
CAL2	470100.1	501802.6	True	5.00	0.937	7.58	1.050	5.000	4.818	-3.6	30.0	
CAL3	475611.1	474251.0	True	5.00	1.003	7.58	1.050	5.000	5.157	3.1	30.0	
CAL4	447788.0	479481.5	True	5.00	0.934	7.58	1.050	5.000	4.803	-3.9	30.0	
CAL5	421053.1	412372.0	True	5.00	1.021	7.58	1.050	5.000	5.251	5.0	30.0	
CAL6	360795.4	383020.5	True	5.00	0.942	7.58	1.050	5.000	4.844	-3.1	30.0	
CAL7	279689.2	295024.3	True	5.00	0.948	7.58	1.050	5.000	4.875	-2.5	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

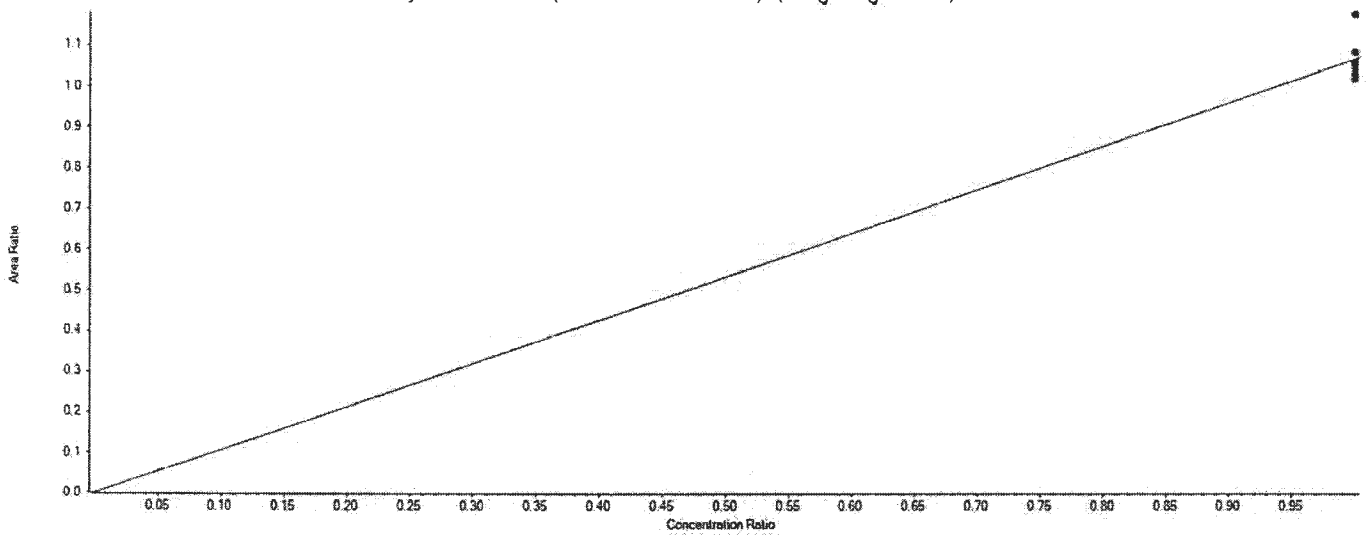
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

E13C2-PFDoDA

y = 1.06832 x (std. dev. = 0.05231) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	504461.6	465296.8	True	5.00	1.084	7.88	1.090	5.000	5.074	1.5	50.0	
CAL2	512628.6	501802.6	True	5.00	1.022	7.89	1.090	5.000	4.781	-4.4	30.0	
CAL3	496687.7	474251.0	True	5.00	1.047	7.88	1.090	5.000	4.902	-2.0	30.0	
CAL4	494976.8	479481.5	True	5.00	1.032	7.89	1.090	5.000	4.832	-3.4	30.0	
CAL5	435324.8	412372.0	True	5.00	1.056	7.89	1.090	5.000	4.941	-1.2	30.0	
CAL6	405739.2	383020.5	True	5.00	1.059	7.88	1.090	5.000	4.958	-0.8	30.0	
CAL7	347503.6	295024.3	True	5.00	1.178	7.89	1.090	5.000	5.513	10.3	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

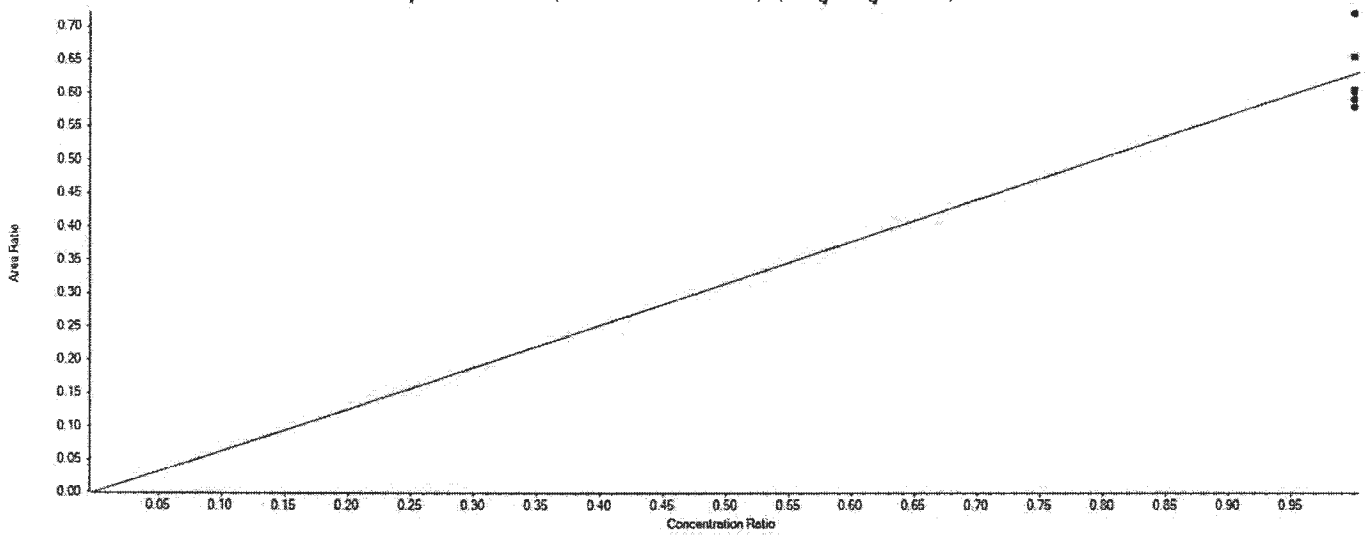
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

E13C2-PFTeDA

y = 0.63039 x (std. dev. = 0.04987) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	282014.2	465296.8	True	5.00	0.606	8.46	1.170	5.000	4.807	-3.9	50.0	
CAL2	290893.9	501802.6	True	5.00	0.580	8.46	1.170	5.000	4.598	-8.0	30.0	
CAL3	285935.6	474251.0	True	5.00	0.603	8.46	1.170	5.000	4.782	-4.4	30.0	
CAL4	283797.8	479481.5	True	5.00	0.592	8.47	1.170	5.000	4.695	-6.1	30.0	
CAL5	270223.0	412372.0	True	5.00	0.655	8.46	1.170	5.000	5.197	4.0	30.0	
CAL6	251066.7	383020.5	True	5.00	0.655	8.46	1.170	5.000	5.199	4.0	30.0	
CAL7	212814.8	295024.3	True	5.00	0.721	8.46	1.170	5.000	5.721	14.4	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

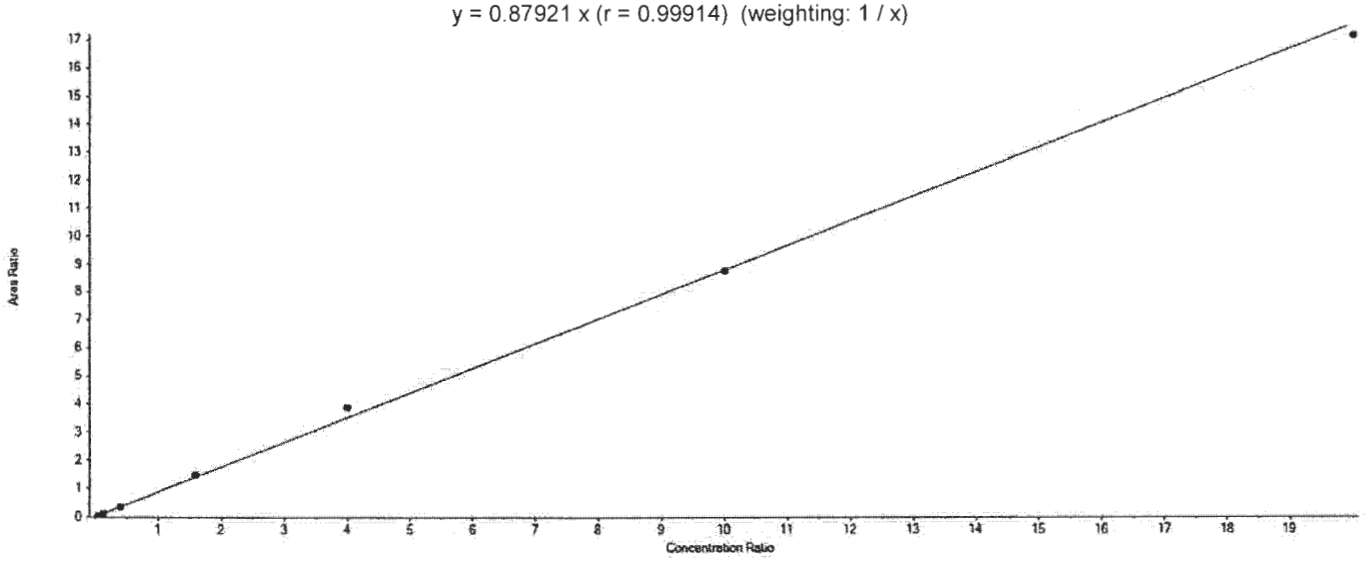
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

PFBA

y = 0.87921 x (r = 0.99914) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	33111.9	801799.5	True	5.00	0.041	4.46	1.000	0.200	0.235	17.4	50.0	
CAL2	91230.3	858410.0	True	5.00	0.106	4.46	1.000	0.600	0.604	0.7	30.0	
CAL3	294205.1	830984.4	True	5.00	0.354	4.46	1.000	2.000	2.013	0.7	30.0	
CAL4	1205200.0	803154.6	True	5.00	1.501	4.47	1.000	8.000	8.534	6.7	30.0	
CAL5	2972653.1	766224.9	True	5.00	3.880	4.46	1.000	20.000	22.063	10.3	30.0	
CAL6	5800098.8	663122.3	True	5.00	8.747	4.46	1.000	50.000	49.742	-0.5	30.0	
CAL7	9308442.5	542335.7	True	5.00	17.164	4.46	1.000	100.000	97.609	-2.4	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

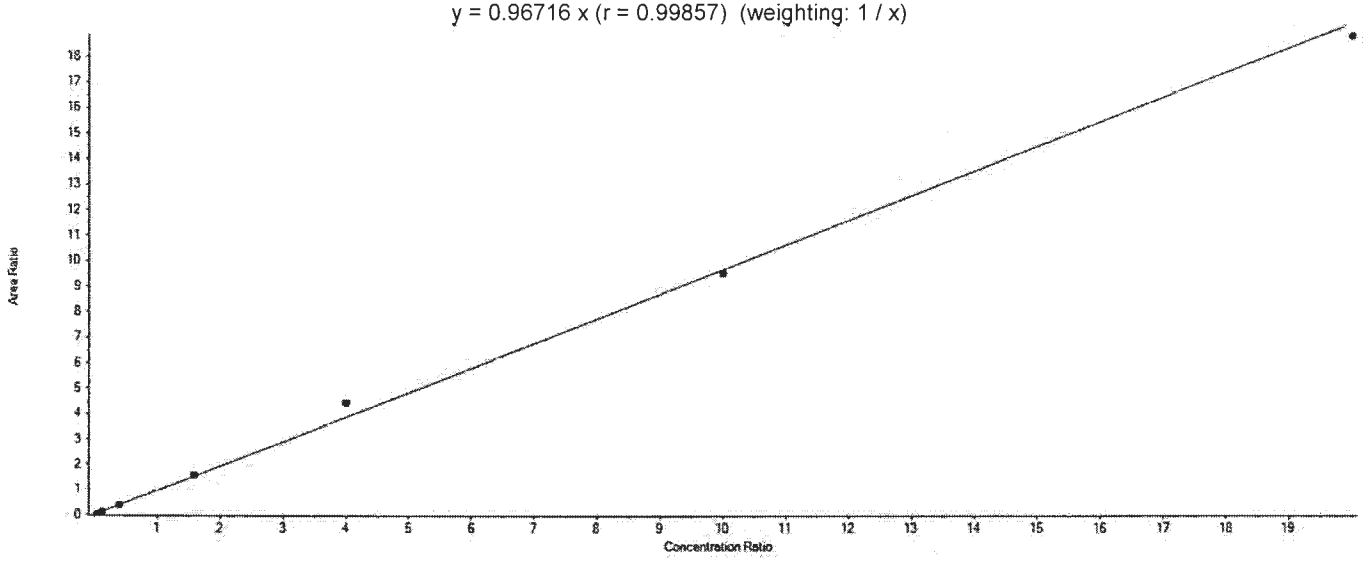
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

PFPeA

y = 0.96716 x (r = 0.99857) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	29307.2	656570.1	True	5.00	0.045	5.06	1.000	0.200	0.231	15.4	50.0	
CAL2	83838.9	704289.2	True	5.00	0.119	5.07	1.000	0.600	0.615	2.6	30.0	
CAL3	260595.8	672853.7	True	5.00	0.387	5.07	1.000	2.000	2.002	0.1	30.0	
CAL4	1099767.6	685448.1	True	5.00	1.604	5.07	1.000	8.000	8.295	3.7	30.0	
CAL5	2847118.0	642646.1	True	5.00	4.430	5.07	1.000	20.000	22.904	14.5	30.0	
CAL6	5491435.4	575497.2	True	5.00	9.542	5.07	1.000	50.000	49.330	-1.3	30.0	
CAL7	8858628.0	470083.4	True	5.00	18.845	5.07	1.000	100.000	97.423	-2.6	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

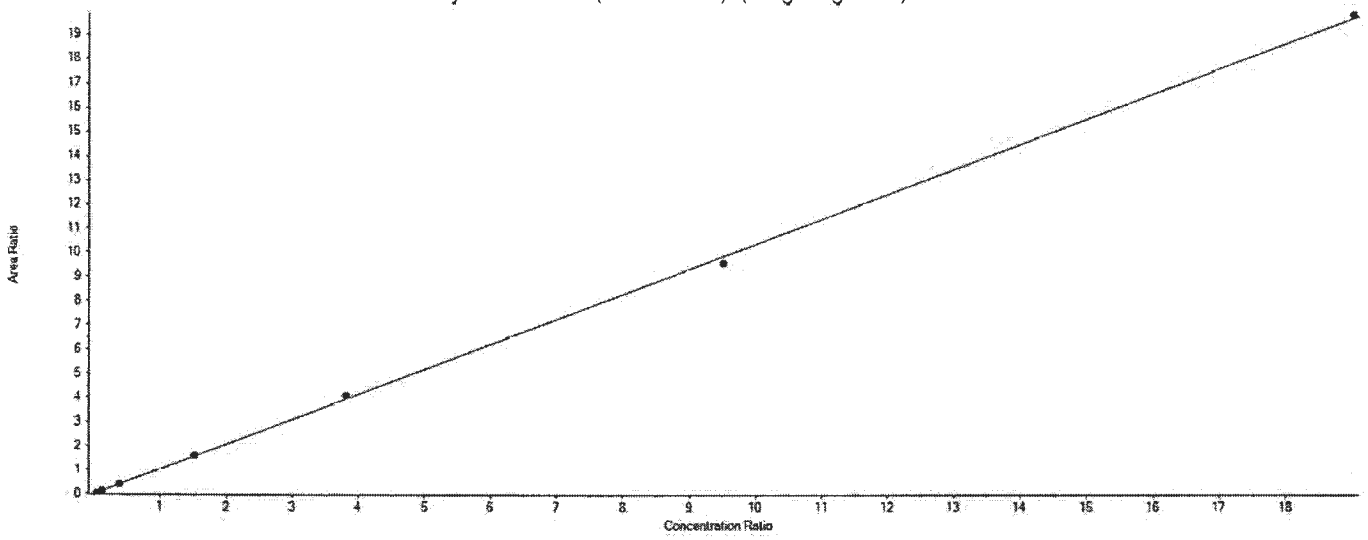
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

PFBS

y = 1.03696 x (r = 0.99976) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	12622.1	297384.8	True	4.65	0.042	5.12	1.000	0.170	0.190	12.0	50.0	
CAL2	35413.8	335755.9	True	4.65	0.105	5.13	1.000	0.530	0.473	-10.8	30.0	
CAL3	122571.6	318115.2	True	4.65	0.385	5.12	1.000	1.770	1.728	-2.4	30.0	
CAL4	513250.8	321466.8	True	4.65	1.597	5.13	1.000	7.080	7.160	1.1	30.0	
CAL5	1293279.4	316992.5	True	4.65	4.080	5.13	1.000	17.690	18.295	3.4	30.0	
CAL6	2705034.6	282481.4	True	4.65	9.576	5.12	1.000	44.220	42.941	-2.9	30.0	
CAL7	4584730.4	230682.2	True	4.65	19.875	5.13	1.000	88.450	89.123	0.8	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

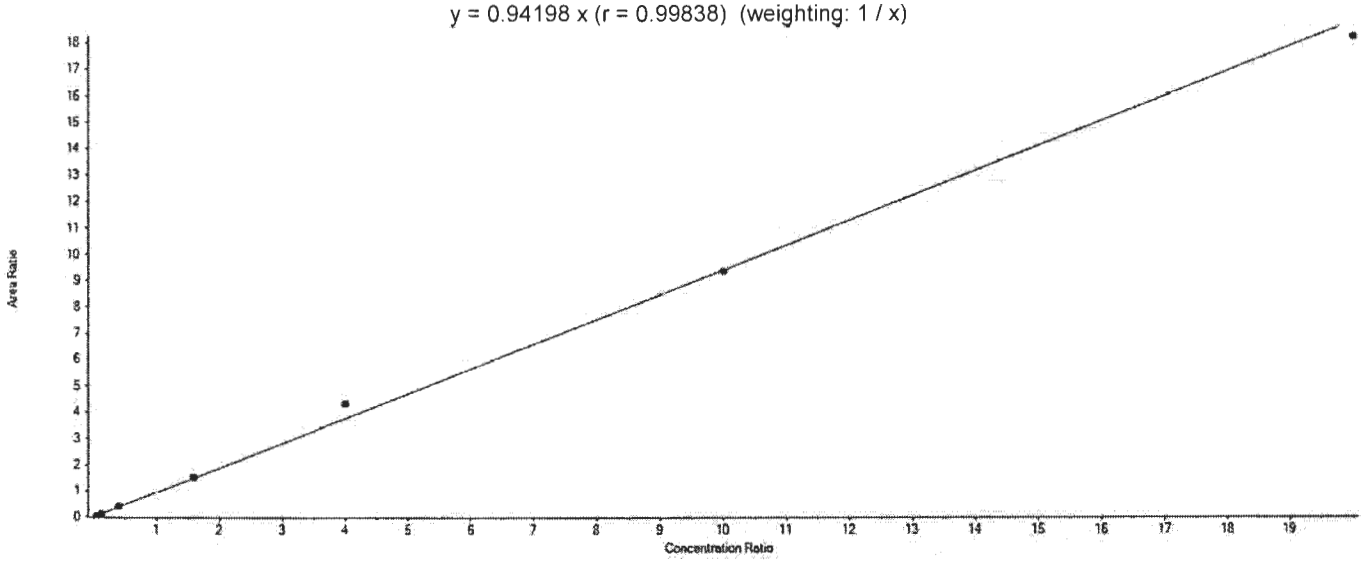
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

PFHxA

y = 0.94198 x (r = 0.99838) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	31234.5	674390.6	True	5.00	0.046	5.56	1.000	0.200	0.246	22.9	50.0	
CAL2	83494.4	715497.7	True	5.00	0.117	5.57	1.000	0.600	0.619	3.2	30.0	
CAL3	267623.0	688198.6	True	5.00	0.389	5.56	1.000	2.000	2.064	3.2	30.0	
CAL4	1025884.6	660504.3	True	5.00	1.553	5.57	1.000	8.000	8.244	3.1	30.0	
CAL5	2742777.6	631423.7	True	5.00	4.344	5.56	1.000	20.000	23.057	15.3	30.0	
CAL6	5108801.0	545049.3	True	5.00	9.373	5.56	1.000	50.000	49.752	-0.5	30.0	
CAL7	8334605.9	456936.4	True	5.00	18.240	5.56	1.000	100.000	96.818	-3.2	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

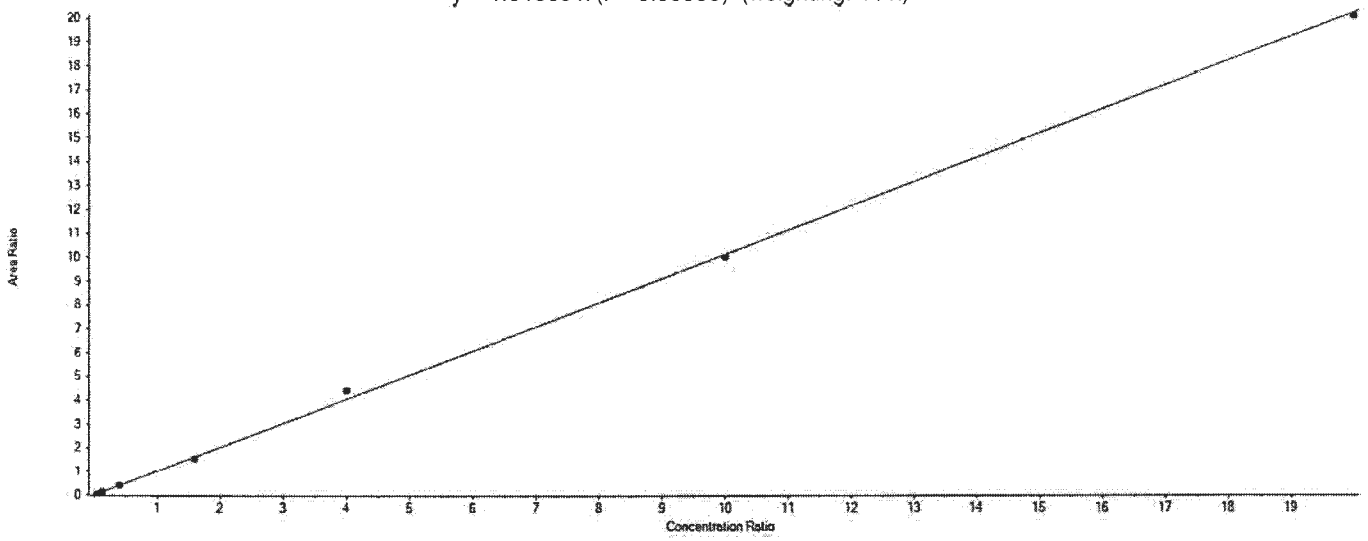
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

PFHxS

y = 1.01365 x (r = 0.99938) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	8544.4	196146.5	True	4.73	0.044	6.02	1.000	0.190	0.203	7.0	50.0	
CAL2	23802.4	200337.4	True	4.73	0.119	6.03	1.000	0.570	0.554	-2.7	30.0	
CAL3	83089.9	213150.2	True	4.73	0.390	6.02	1.000	1.890	1.819	-3.8	30.0	
CAL4	331240.9	214213.8	True	4.73	1.546	6.03	1.000	7.560	7.216	-4.6	30.0	
CAL5	877024.3	197718.7	True	4.73	4.436	6.03	1.000	18.910	20.698	9.5	30.0	
CAL6	1733531.3	173436.3	True	4.73	9.995	6.02	1.000	47.280	46.641	-1.4	30.0	
CAL7	2875283.5	143009.7	True	4.73	20.106	6.02	1.000	94.550	93.819	-0.8	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

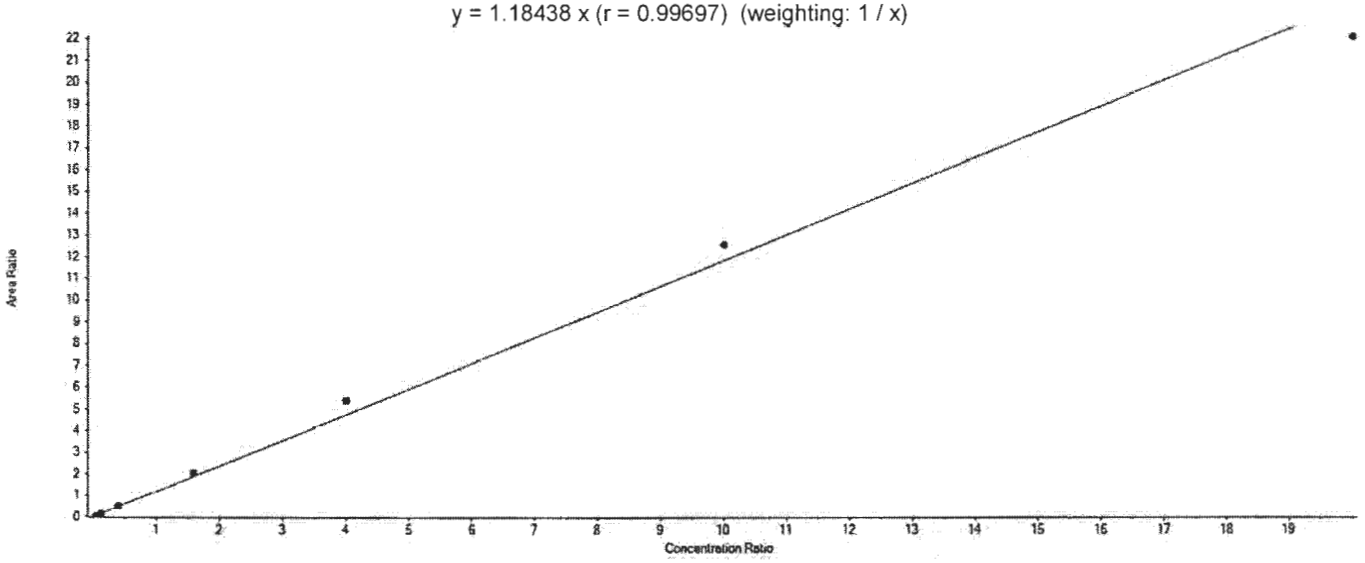
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

PFHpA

y = 1.18438 x (r = 0.99697) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	24249.6	446499.7	True	5.00	0.054	6.03	1.000	0.200	0.229	14.6	50.0	
CAL2	66372.5	448052.1	True	5.00	0.148	6.04	1.000	0.600	0.625	4.2	30.0	
CAL3	231500.3	464336.1	True	5.00	0.499	6.03	1.000	2.000	2.105	5.2	30.0	
CAL4	938304.1	461520.4	True	5.00	2.033	6.04	1.000	8.000	8.583	7.3	30.0	
CAL5	2208113.1	407616.0	True	5.00	5.417	6.03	1.000	20.000	22.869	14.3	30.0	
CAL6	4394445.5	350016.7	True	5.00	12.555	6.03	1.000	50.000	53.002	6.0	30.0	
CAL7	6744247.5	304879.0	True	5.00	22.121	6.04	1.000	100.000	93.387	-6.6	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

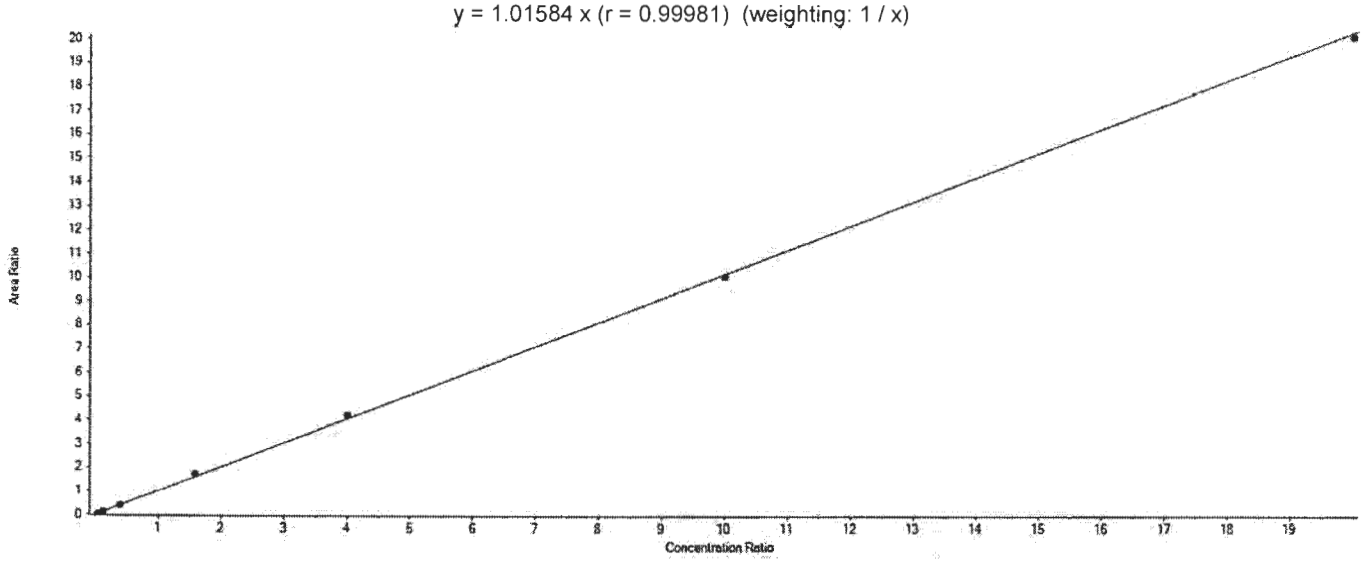
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

PFOA

y = 1.01584 x (r = 0.99981) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	24480.8	475904.7	True	5.00	0.051	6.46	1.000	0.200	0.253	26.6	50.0	
CAL2	65033.2	481484.0	True	5.00	0.135	6.47	1.000	0.600	0.665	10.8	30.0	
CAL3	205179.5	497499.4	True	5.00	0.412	6.47	1.000	2.000	2.030	1.5	30.0	
CAL4	833770.3	481337.9	True	5.00	1.732	6.48	1.000	8.000	8.526	6.6	30.0	
CAL5	1967549.5	466973.4	True	5.00	4.213	6.48	1.000	20.000	20.739	3.7	30.0	
CAL6	3839202.0	381499.4	True	5.00	10.063	6.47	1.000	50.000	49.533	-0.9	30.0	
CAL7	6511104.7	323538.7	True	5.00	20.125	6.48	1.000	100.000	99.055	-0.9	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

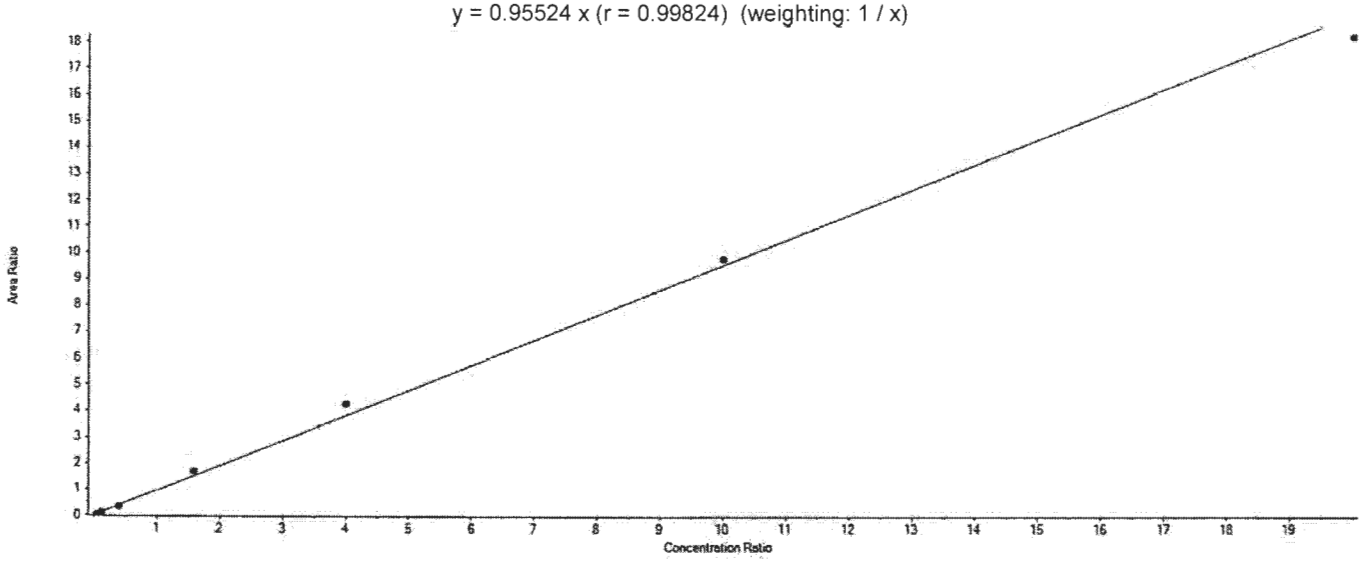
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

PFOS

y = 0.95524 x (r = 0.99824) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	10999.5	235299.1	True	4.78	0.047	6.84	1.000	0.190	0.234	23.1	50.0	
CAL2	30981.5	247643.1	True	4.78	0.125	6.86	1.000	0.570	0.626	9.8	30.0	
CAL3	87884.7	253711.8	True	4.78	0.346	6.85	1.000	1.910	1.733	-9.2	30.0	
CAL4	403064.5	239822.4	True	4.78	1.681	6.85	1.000	7.650	8.410	9.9	30.0	
CAL5	1049039.3	244636.7	True	4.78	4.288	6.85	1.000	19.120	21.458	12.2	30.0	
CAL6	2044939.9	208783.3	True	4.78	9.795	6.84	1.000	47.800	49.011	2.5	30.0	
CAL7	3218576.5	176272.8	True	4.78	18.259	6.85	1.000	95.600	91.367	-4.4	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

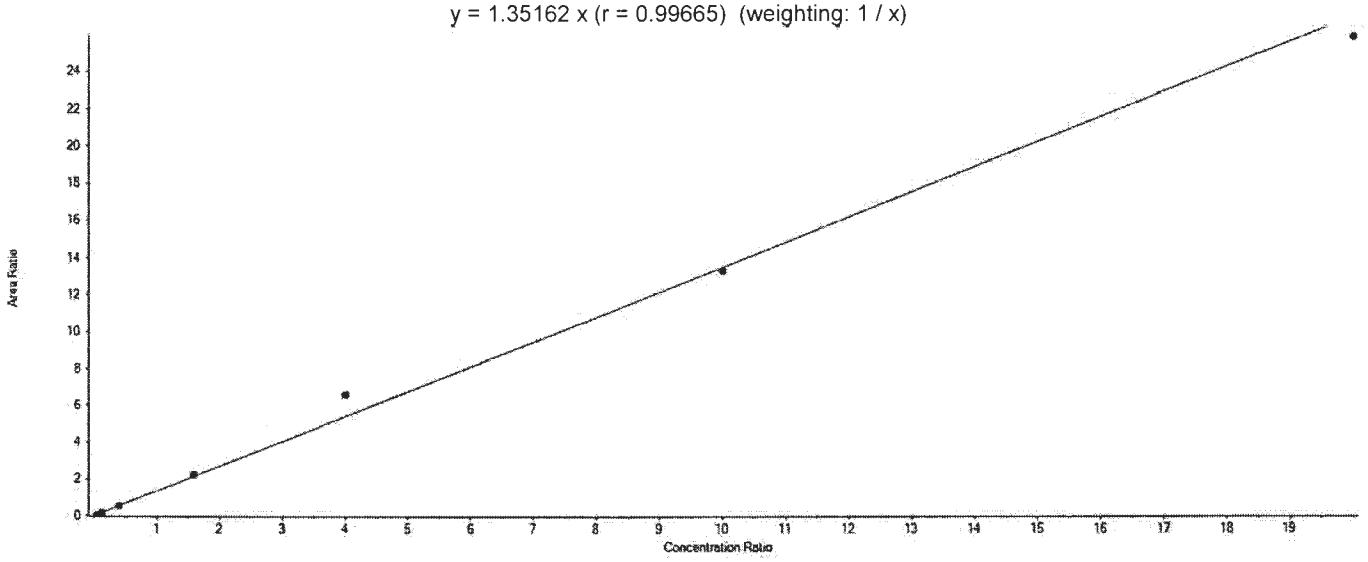
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

PFNA

y = 1.35162 x (r = 0.99665) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	25200.6	393504.1	True	5.00	0.064	6.87	1.000	0.200	0.237	18.5	50.0	
CAL2	70141.7	425110.2	True	5.00	0.165	6.88	1.000	0.600	0.610	1.7	30.0	
CAL3	219365.2	404976.5	True	5.00	0.542	6.88	1.000	2.000	2.004	0.2	30.0	
CAL4	919369.3	405101.5	True	5.00	2.269	6.88	1.000	8.000	8.395	4.9	30.0	
CAL5	2500594.8	378525.1	True	5.00	6.606	6.88	1.000	20.000	24.438	22.2	30.0	
CAL6	4497865.2	338062.1	True	5.00	13.305	6.88	1.000	50.000	49.218	-1.6	30.0	
CAL7	7040174.2	271578.0	True	5.00	25.923	6.88	1.000	100.000	95.897	-4.1	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

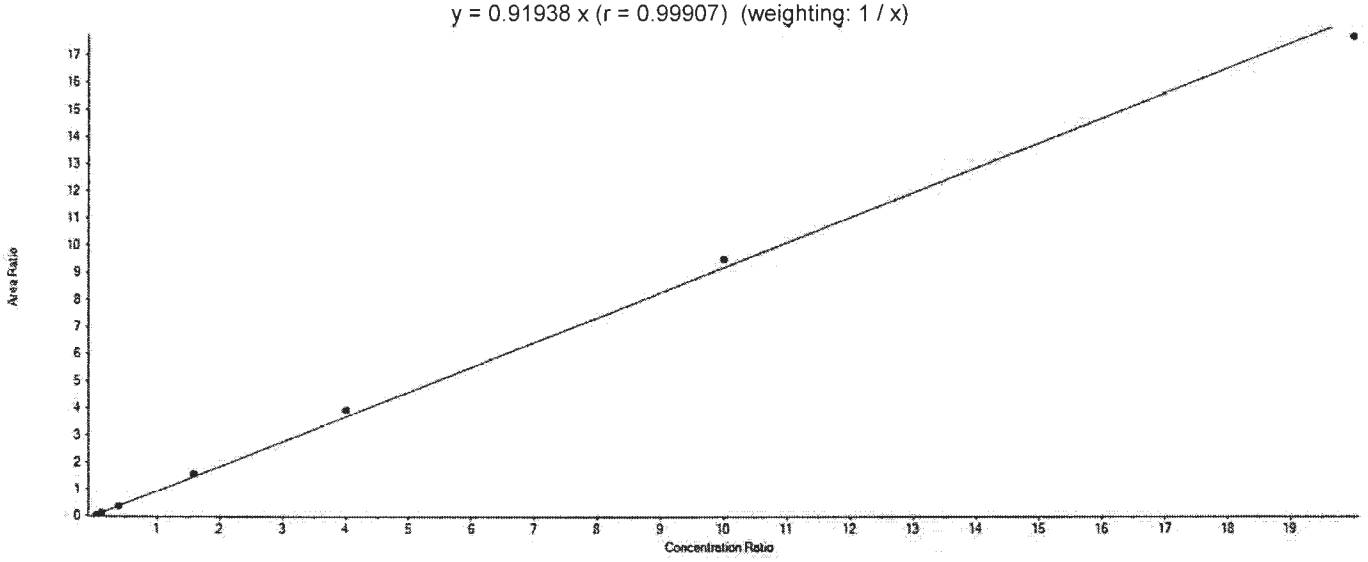
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

PFDA

y = 0.91938 x (r = 0.99907) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	31781.4	745251.4	True	5.00	0.043	7.24	1.000	0.200	0.232	16.0	50.0	
CAL2	89664.9	822319.1	True	5.00	0.109	7.25	1.000	0.600	0.593	-1.2	30.0	
CAL3	289487.2	791636.0	True	5.00	0.366	7.25	1.000	2.000	1.989	-0.6	30.0	
CAL4	1169330.3	749680.4	True	5.00	1.560	7.25	1.000	8.000	8.483	6.0	30.0	
CAL5	2837939.5	719337.6	True	5.00	3.945	7.25	1.000	20.000	21.456	7.3	30.0	
CAL6	5326781.1	560270.1	True	5.00	9.508	7.25	1.000	50.000	51.706	3.4	30.0	
CAL7	8283324.1	467593.3	True	5.00	17.715	7.25	1.000	100.000	96.341	-3.7	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

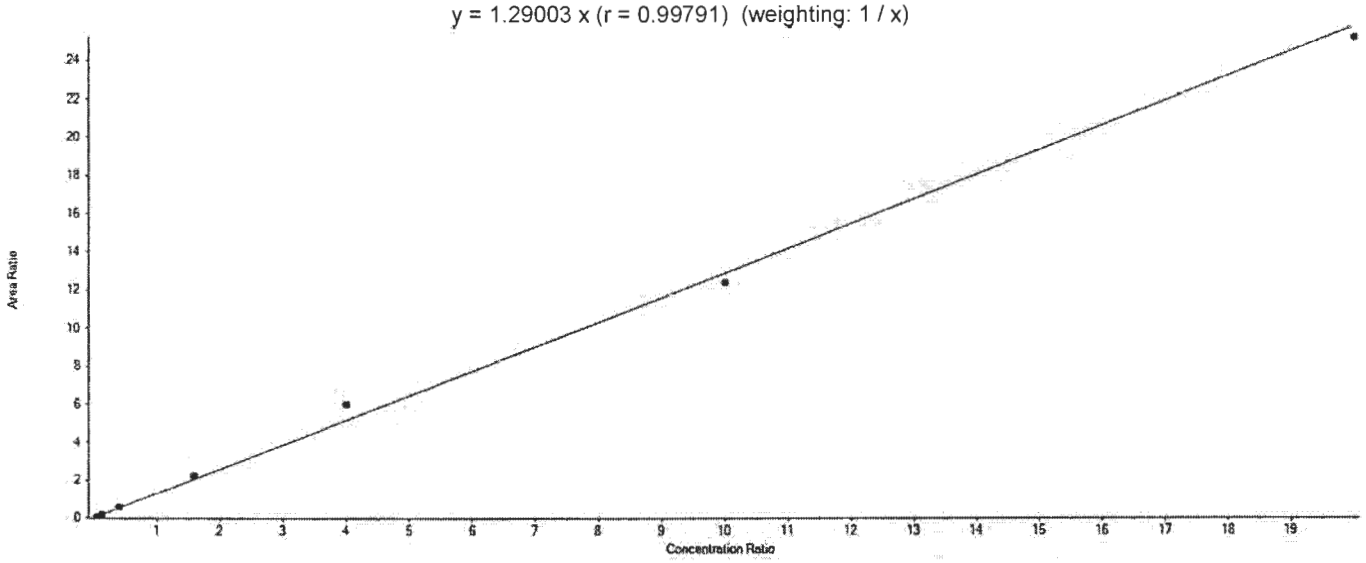
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

PFUnDA

y = 1.29003 x (r = 0.99791) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	28435.5	475235.6	True	5.00	0.060	7.57	1.000	0.200	0.232	16.0	50.0	
CAL2	77049.7	470100.1	True	5.00	0.164	7.58	1.000	0.600	0.635	5.9	30.0	
CAL3	273697.7	475611.1	True	5.00	0.575	7.58	1.000	2.000	2.230	11.5	30.0	
CAL4	1008653.4	447788.0	True	5.00	2.253	7.58	1.000	8.000	8.731	9.1	30.0	
CAL5	2527352.6	421053.1	True	5.00	6.002	7.58	1.000	20.000	23.265	16.3	30.0	
CAL6	4472057.8	360795.4	True	5.00	12.395	7.58	1.000	50.000	48.041	-3.9	30.0	
CAL7	7047707.5	279689.2	True	5.00	25.198	7.58	1.000	100.000	97.666	-2.3	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

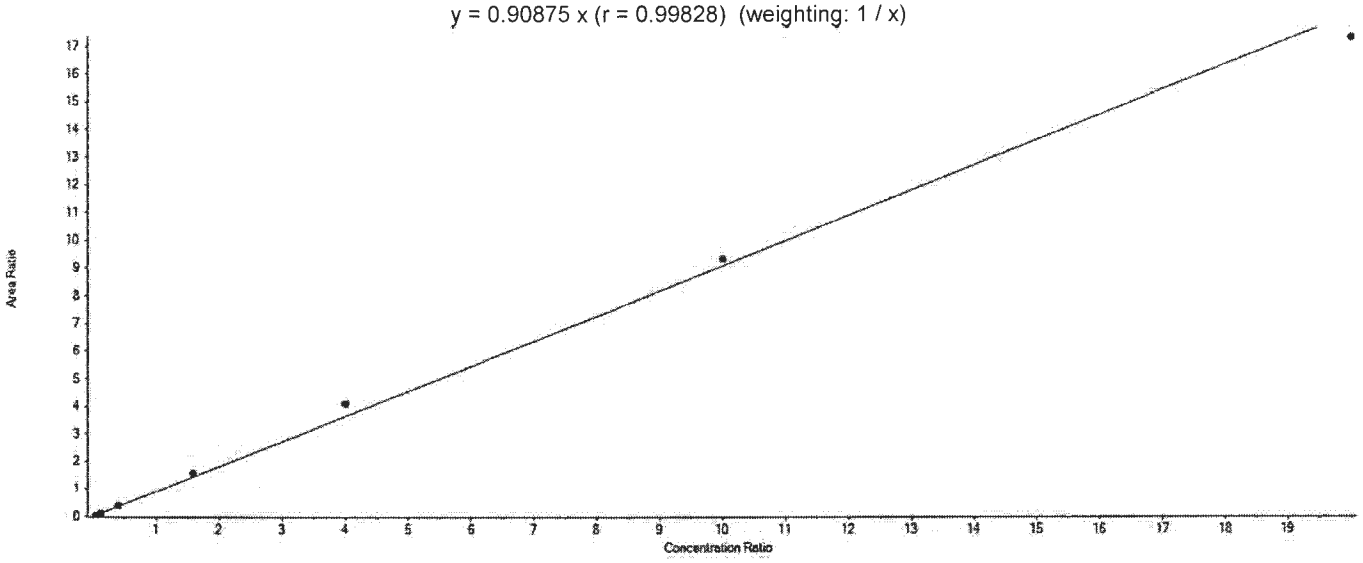
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

PFDoDA

y = 0.90875 x (r = 0.99828) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	18830.3	504461.6	True	5.00	0.037	7.88	1.000	0.200	0.205	2.7	50.0	
CAL2	60337.0	512628.6	True	5.00	0.118	7.89	1.000	0.600	0.648	7.9	30.0	
CAL3	193064.0	496687.7	True	5.00	0.389	7.88	1.000	2.000	2.139	6.9	30.0	
CAL4	784227.0	494976.8	True	5.00	1.584	7.89	1.000	8.000	8.717	9.0	30.0	
CAL5	1773374.3	435324.8	True	5.00	4.074	7.89	1.000	20.000	22.414	12.1	30.0	
CAL6	3783748.1	405739.2	True	5.00	9.326	7.88	1.000	50.000	51.310	2.6	30.0	
CAL7	6023240.3	347503.6	True	5.00	17.333	7.89	1.000	100.000	95.367	-4.6	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

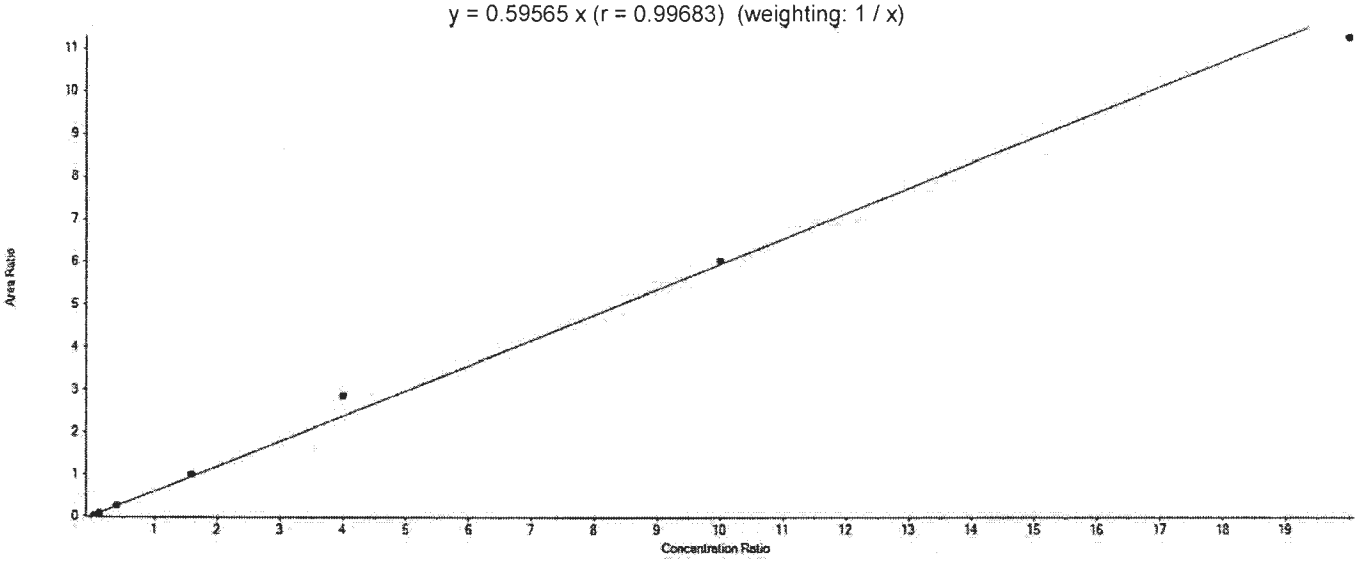
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

PFTrDA

y = 0.59565 x (r = 0.99683) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	12470.1	504461.6	True	5.00	0.025	8.17	1.040	0.200	0.207	3.8	50.0	
CAL2	37757.8	512628.6	True	5.00	0.074	8.18	1.040	0.600	0.618	3.0	30.0	
CAL3	125263.3	496687.7	True	5.00	0.252	8.17	1.040	2.000	2.117	5.8	30.0	
CAL4	496545.8	494976.8	True	5.00	1.003	8.18	1.040	8.000	8.421	5.3	30.0	
CAL5	1246077.4	435324.8	True	5.00	2.862	8.18	1.040	20.000	24.027	20.1	30.0	
CAL6	2446792.7	405739.2	True	5.00	6.030	8.17	1.040	50.000	50.620	1.2	30.0	
CAL7	3924107.2	347503.6	True	5.00	11.292	8.18	1.040	100.000	94.789	-5.2	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

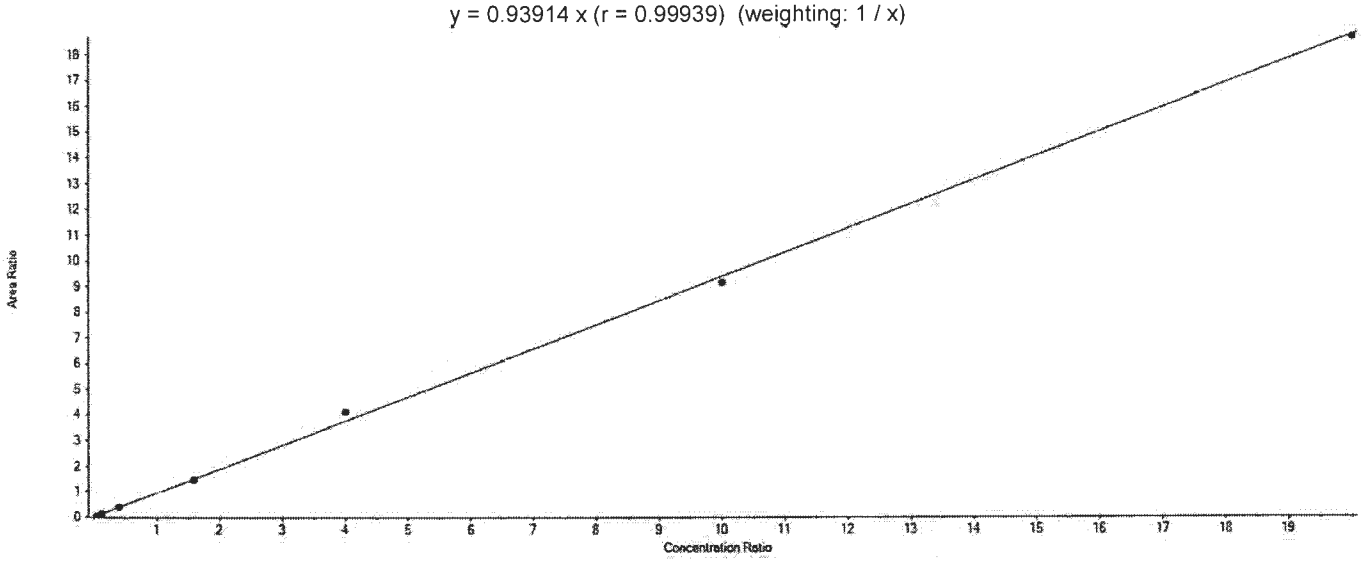
REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

PFTeDA

y = 0.93914 x (r = 0.99939) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	12159.8	282014.2	True	5.00	0.043	8.46	1.000	0.200	0.230	14.8	50.0	
CAL2	31567.4	290893.9	True	5.00	0.109	8.46	1.000	0.600	0.578	-3.7	30.0	
CAL3	105206.8	285935.6	True	5.00	0.368	8.46	1.000	2.000	1.959	-2.1	30.0	
CAL4	422049.5	283797.8	True	5.00	1.487	8.46	1.000	8.000	7.918	-1.0	30.0	
CAL5	1110124.6	270223.0	True	5.00	4.108	8.46	1.000	20.000	21.872	9.4	30.0	
CAL6	2299539.7	251066.7	True	5.00	9.159	8.46	1.000	50.000	48.763	-2.5	30.0	
CAL7	3976536.0	212814.8	True	5.00	18.685	8.46	1.000	100.000	99.481	-0.5	30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

REVIEWED
By uild at 3:25 pm, 3/13/18

ICAL Name: 18MAR12MCAL **Result Table:** 18MAR12MCAL - 32 Compounds 3/13/2018 7:03:47 AM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC-32-17AUG01.dam

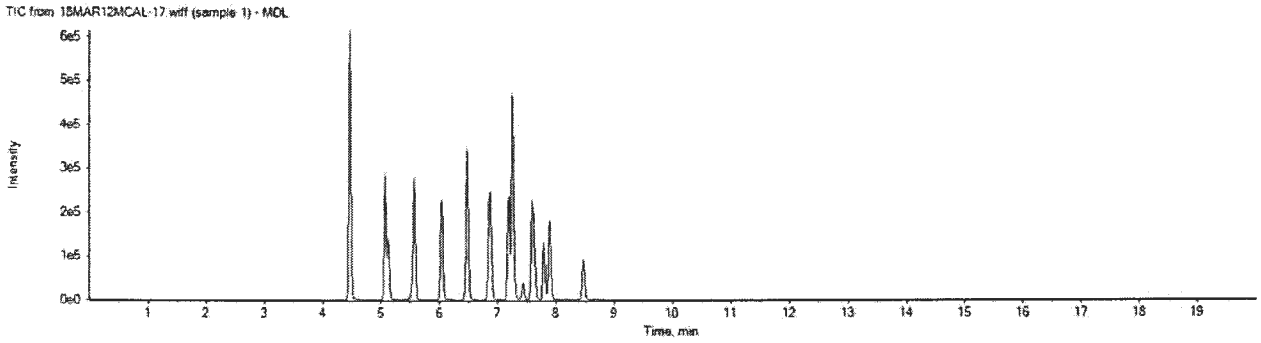
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM24960 **File Name:** 18MAR12MCAL-17.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	4.47	1.000	15290.6	M	13C4-PFBA	4.47	804656.4	0.019	0.108
PFPeA	5.07	1.000	15471.5	M	13C5-PFPeA	5.07	683552.4	0.023	0.117
PFBS	5.13	1.000	6570.4	M	13C3-PFBS	5.13	316096.2	0.021	0.093
4:2-FTS	5.52	1.000	4738.8	M	13C2-4:2-FTS	5.53	46186.9	0.103	0.563
PFHxA	5.57	1.000	14725.9	M	13C5-PFHxA	5.57	709149.3	0.021	0.110
PFPeS	5.59	1.090	2558.5	M	13C3-PFBS	5.13	316096.2	0.008	0.100
PFHxS	6.03	1.000	3707.7	M	13C3-PFHxS	6.03	203665.3	0.018	0.085
PFHpA	6.04	1.000	11718.6	M	13C4-PFHpA	6.04	470231.8	0.025	0.105
6:2-FTS	6.45	1.000	4151.9	M	13C2-6:2-FTS	6.46	35753.5	0.116	0.634
PFHpS	6.46	1.070	3621.5	M	13C3-PFHxS	6.03	203665.3	0.018	0.091
PFOA	6.47	1.000	10844.2	M	13C8-PFOA	6.48	505663.6	0.021	0.106
PFOS	6.85	1.000	5905.0	A	13C8-PFOS	6.85	249219.9	0.024	0.119
PFNA	6.88	1.000	11931.5	M	13C9-PFNA	6.88	399781.9	0.030	0.110
PFOSA	7.18	1.000	14323.8	M	13C8-PFOSA	7.18	607139.9	0.024	0.121
PFNS	7.22	1.050	3578.6	M	13C8-PFOS	6.85	249219.9	0.014	0.102
PFDA	7.25	1.000	16098.8	M	13C6-PFDA	7.25	777886.9	0.021	0.113
8:2-FTS	7.26	1.000	7395.5	M	13C2-8:2-FTS	7.26	69613.9	0.106	0.553
NMePFOSAE	7.63	1.000	5579.1	M	d7-NMePFOSAE	7.62	238102.4	0.023	0.103
NMePFOSA	7.64	1.000	1328.5	M	d3-NMePFOSA	7.65	73409.1	0.018	0.083
NMeFOSAA	7.44	1.000	3255.1	M	d3-NMeFOSAA	7.43	104838.3	0.031	0.143
NEtPFOSAE	7.80	1.000	9640.9	M	d9-NEtPFOSAE	7.78	304596.3	0.032	0.138
NEtPFOSA	7.82	1.000	690.8	M	d5-NEtPFOSA	7.81	64541.1	0.011	0.056
PFDS	7.55	1.100	2552.6	M	13C8-PFOS	6.85	249219.9	0.010	0.101
PFUnDA	7.58	1.000	14434.2	M	13C7-PFUnDA	7.58	478360.4	0.030	0.117
NEtFOSAA	7.61	1.000	3120.4	M	d5-NEtFOSAA	7.60	106755.2	0.029	0.142
PFDoDA	7.89	1.000	10660.5	M	13C2-PFDoDA	7.89	504489.3	0.021	0.116
10:2-FTS	7.92	1.090	5720.6	A	13C2-8:2-FTS	7.26	69613.9	0.082	0.572
PFDoS	8.13	1.190	993.9	M	13C8-PFOS	6.85	249219.9	0.004	0.103
PFTrDA	8.18	1.040	6028.5	M	13C2-PFDoDA	7.89	504489.3	0.012	0.100
PFTeDA	8.46	1.000	5746.0	A	13C2-PFTeDA	8.47	284563.9	0.020	0.108
PFHxDA	9.11	1.080	3412.7	A	13C2-PFTeDA	8.47	284563.9	0.012	0.116
PFODA	9.88	1.170	3069.2	A	13C2-PFTeDA	8.47	284563.9	0.011	0.088

Total Ion Chromatogram



APPROVED
By JWK at 7:26 am, 3/13/18

REVIEWED
By uild at 3:25 pm, 3/13/18

ICAL Name: 18MAR12MCAL **Result Table:** 18MAR12MCAL - 32 Compounds 3/13/2018 7:03:47 AM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC-32-17AUG01.dam

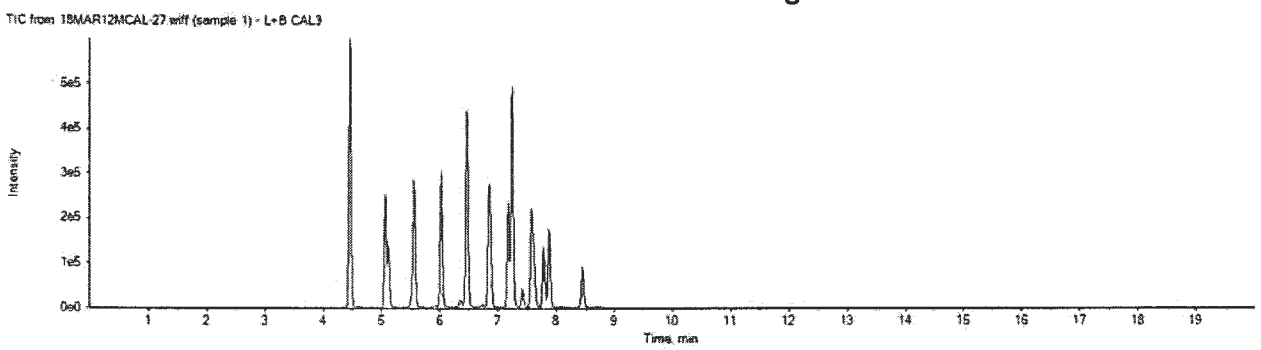
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM24960 **File Name:** 18MAR12MCAL-27.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.46	823818.2	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.06	707857.5	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.12	339448.2	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.51	51188.4	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.56	745335.2	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.12	339448.2	N/A	
PFHxS	6.02	1.000	79114.1	M	13C3-PFHxS	6.02	212376.9	0.373	1.738
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	6.02	481551.5	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.45	42135.1	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	6.02	212376.9	N/A	
PFOA	6.46	1.000	187001.7	M	13C8-PFOA	6.46	557140.9	0.336	1.652
PFOS	6.84	1.000	98902.2	M	13C8-PFOS	6.84	258687.8	0.382	1.913
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.87	422774.3	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	7.17	590040.7	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.84	258687.8	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.24	820417.7	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.25	76046.5	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.61	242855.5	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.64	72300.9	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.42	108490.2	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.78	320722.6	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.81	68768.0	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.84	258687.8	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.57	492036.3	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.59	89968.7	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.88	471568.4	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.25	76046.5	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.84	258687.8	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.88	471568.4	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.45	273616.3	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.45	273616.3	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.45	273616.3	N/A	

Total Ion Chromatogram

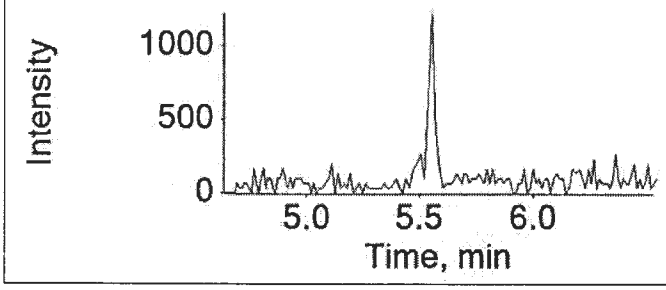


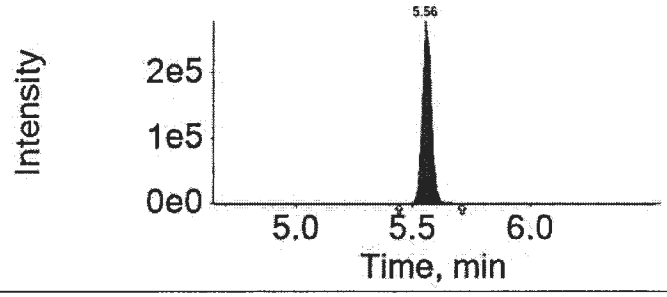
APPROVED
By JWK at 7:26 am, 3/13/18

REVIEWED
By uild at 3:25 pm, 3/13/18

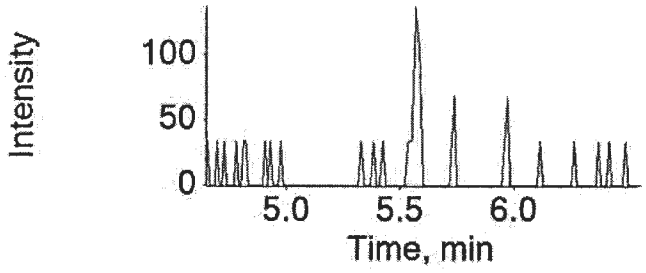
ICAL Name: 18MAR12MCAL **Result Table:** 18MAR12MCAL - 32 Compounds 3/13/2018 7:03:47 AM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC-32-17AUG01.dam

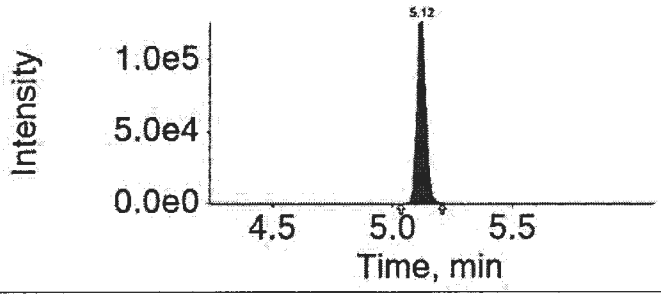
Analyte: PFHxA	Extraction Standard: 13C5-PFHxA
313.0 / 269.0	318.0 / 273.0



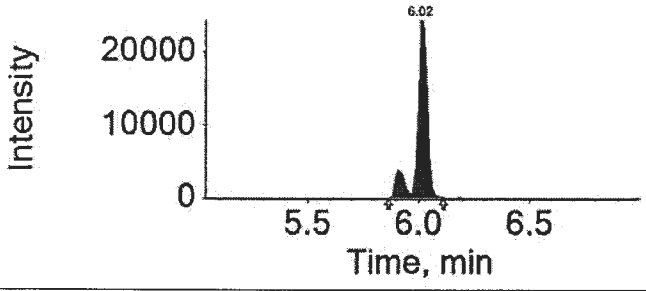


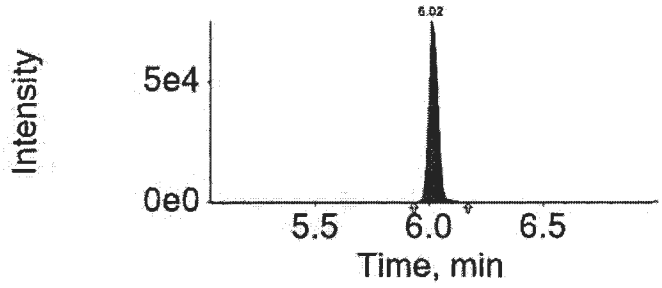
Analyte: PFPeS	Extraction Standard: 13C3-PFBS
349.0 / 80.0	302.0 / 80.0



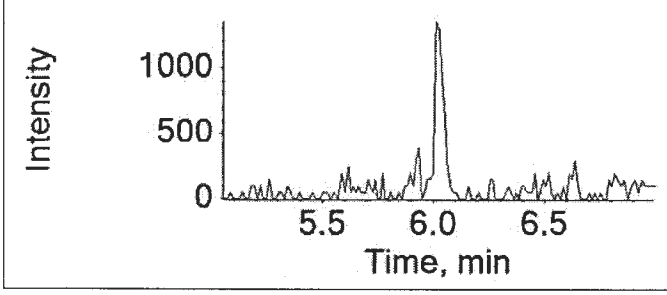


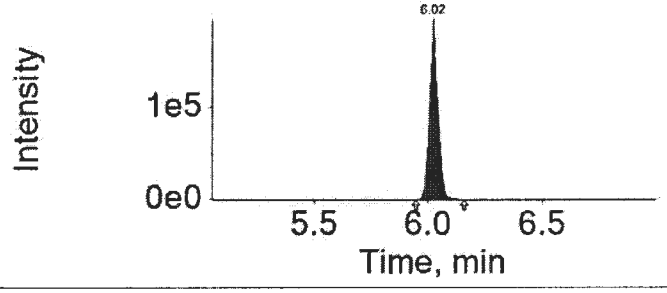
Analyte: PFHxS	Extraction Standard: 13C3-PFHxS
399.0 / 80.0	402.0 / 80.0





Analyte: PFHpA	Extraction Standard: 13C4-PFHpA
363.0 / 319.0	367.0 / 322.0





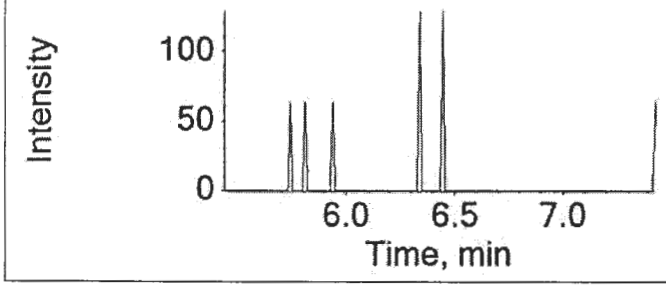
APPROVED
By JWK at 7:26 am, 3/13/18

REVIEWED
By uild at 3:25 pm, 3/13/18

ICAL Name: 18MAR12MCAL **Result Table:** 18MAR12MCAL - 32 Compounds 3/13/2018 7:03:47 AM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC-32-17AUG01.dam

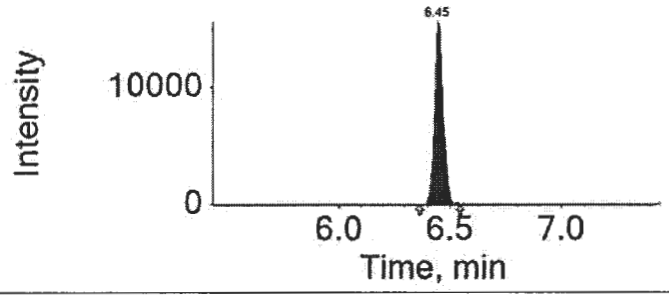
Analyte: 6:2-FTS

427.0 / 407.0



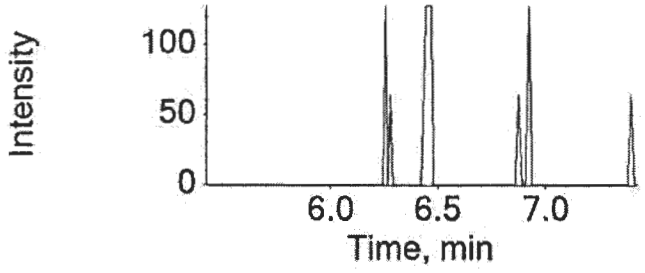
Extraction Standard: 13C2-6:2-FTS

429.0 / 409.0



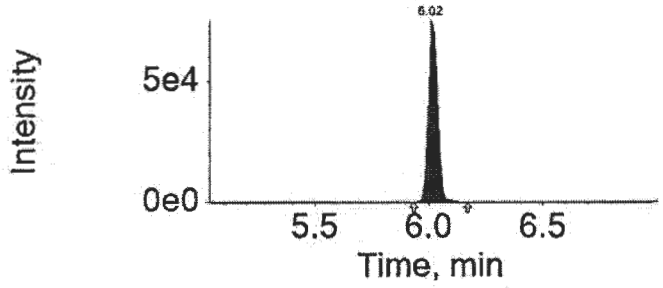
Analyte: PFHpS

449.0 / 80.0



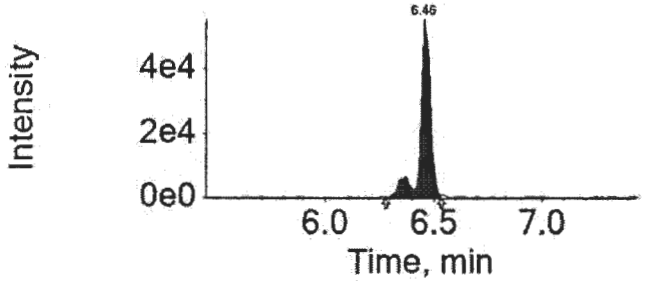
Extraction Standard: 13C3-PFHxS

402.0 / 80.0



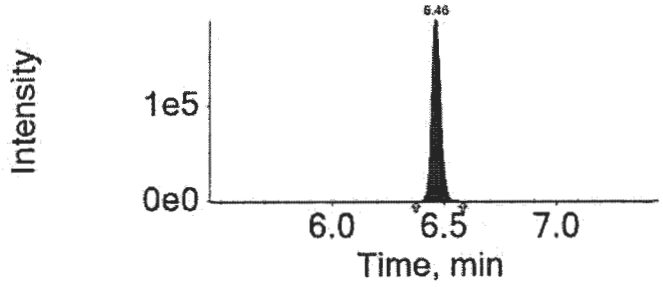
Analyte: PFOA

413.0 / 369.0



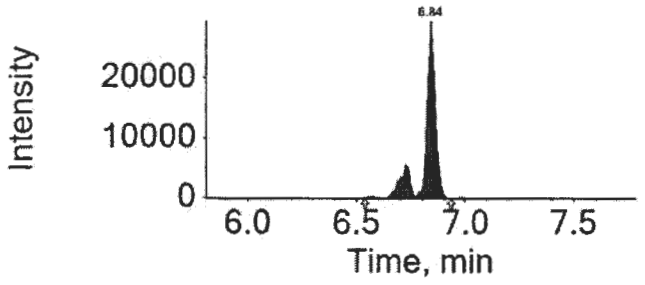
Extraction Standard: 13C8-PFOA

421.0 / 376.0



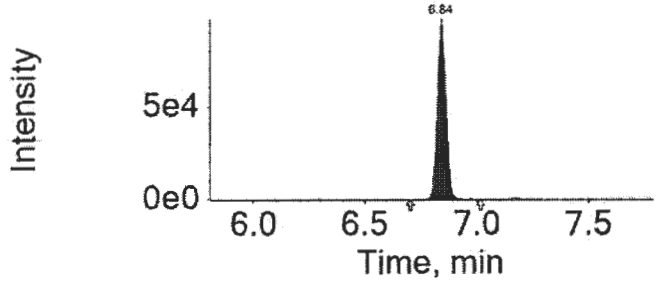
Analyte: PFOS

499.0 / 80.0



Extraction Standard: 13C8-PFOS

507.0 / 80.0



APPROVED
By JWK at 7:26 am, 3/13/18

REVIEWED
By uild at 3:25 pm, 3/13/18

Initial Calibration Verification

Instrument ID: LM24960 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PFCMOD-17AUG01
Result Table: 18MAR12MCAL - 32 Compounds3/13/2018 7:03:47 AM **Acquisition Method:** PFC-32-17AUG01.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18MAR12MCAL-26.wiff	3/12/2018 5:51:01 PM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	284604.6	13C4-PFBA	850010.2	5.00	0.335	4.46	1.00	2.000	1.904	-4.8	30.0	
PFPeA	261947.3	13C5-PFPeA	708660.1	5.00	0.370	5.07	1.00	2.000	1.911	-4.5	30.0	
PFBS	120651.7	13C3-PFBS	337863.7	4.65	0.357	5.13	1.00	1.770	1.601	-9.5	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	45367.3	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	262153.8	13C5-PFHxA	689722.3	5.00	0.380	5.57	1.00	2.000	2.017	0.9	30.0	
PFPeS	N/A	13C3-PFBS	337863.7	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	78455.8	13C3-PFHxS	210089.5	4.73	0.373	6.03	1.00	1.890	1.743	-7.8	30.0	
PFHpA	221521.5	13C4-PFHpA	478926.8	5.00	0.463	6.03	1.00	2.000	1.953	-2.4	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	43736.3	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	70199.3	13C3-PFHxS	210089.5	4.73	0.334	6.46	1.07	1.900	1.701	-10.5	30.0	
PFOA	216563.6	13C8-PFOA	540676.9	5.00	0.401	6.47	1.00	2.000	1.971	-1.4	30.0	
PFOS	96705.1	13C8-PFOS	249074.5	4.78	0.388	6.85	1.00	1.910	1.943	1.7	30.0	
PFNA	236173.3	13C9-PFNA	463282.3	5.00	0.510	6.88	1.00	2.000	1.886	-5.7	30.0	
PFOSA	N/A	13C8-PFOSA	612576.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	249074.5	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	276978.5	13C6-PFDA	812258.0	5.00	0.341	7.25	1.00	2.000	1.855	-7.3	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	83863.8	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	226272.8	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	74274.4	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	40287.4	d3-NMeFOSAA	101611.8	5.00	0.396	7.44	1.00	2.000	1.832	-8.4	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	332425.2	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	65198.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	46898.1	13C8-PFOS	249074.5	4.78	0.188	7.54	1.10	1.930	1.863	-3.5	30.0	
PFUnDA	245291.1	13C7-PFUnDA	479342.2	5.00	0.512	7.58	1.00	2.000	1.983	-0.8	30.0	
NEtFOSAA	37044.6	d5-NEtFOSAA	95889.6	5.00	0.386	7.61	1.00	2.000	1.874	-6.3	30.0	
PFDoDA	170888.6	13C2-PFDoDA	479809.6	5.00	0.356	7.89	1.00	2.000	1.960	-2.0	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	83863.8	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	249074.5	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	117612.4	13C2-PFDoDA	479809.6	5.00	0.245	8.17	1.04	2.000	2.058	2.9	30.0	
PFTeDA	93791.2	13C2-PFTeDA	269780.3	5.00	0.348	8.46	1.00	2.000	1.851	-7.5	30.0	
PFHxDA	N/A	13C2-PFTeDA	269780.3	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	269780.3	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By JWK at 7:26 am, 3/13/18

REVIEWED
By uild at 3:25 pm, 3/13/18

ICAL Name: 18MAR12MCAL **Result Table:** 18MAR12MCAL - 32 Compounds 3/13/2018 7:03:47 AM
QMethod Name: SF-PFCMOD-17AUG01 **Acquisition Method:** PFC-32-17AUG01.dam

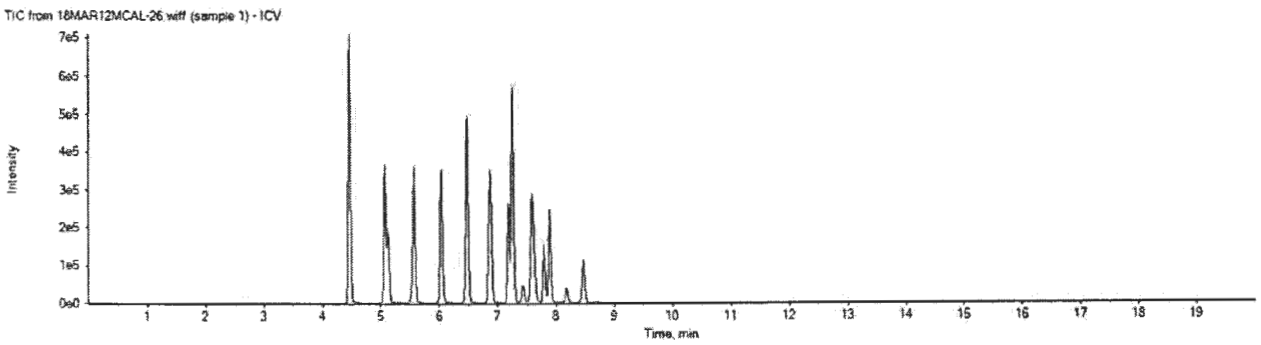
Analyte Quantitation Peak Table

Sample Name: ICV **Instrument Name:** LM24960 **File Name:** 18MAR12MCAL-26.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/L)
PFBA	4.46	1.000	284604.6	A	13C4-PFBA	4.46	850010.2	0.335	1.904
PFPeA	5.07	1.000	261947.3	A	13C5-PFPeA	5.07	708660.1	0.370	1.911
PFBS	5.13	1.000	120651.7	A	13C3-PFBS	5.13	337863.7	0.357	1.601
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.52	45367.3	N/A	
PFHxA	5.57	1.000	262153.8	A	13C5-PFHxA	5.56	689722.3	0.380	2.017
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.13	337863.7	N/A	
PFHxS	6.03	1.000	78455.8	A	13C3-PFHxS	6.03	210089.5	0.373	1.743
PFHpA	6.03	1.000	221521.5	A	13C4-PFHpA	6.03	478926.8	0.463	1.953
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.46	43736.3	N/A	
PFHpS	6.46	1.070	70199.3	A	13C3-PFHxS	6.03	210089.5	0.334	1.701
PFOA	6.47	1.000	216563.6	A	13C8-PFOA	6.47	540676.9	0.401	1.971
PFOS	6.85	1.000	96705.1	A	13C8-PFOS	6.85	249074.5	0.388	1.943
PFNA	6.88	1.000	236173.3	A	13C9-PFNA	6.88	463282.3	0.510	1.886
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	7.18	612576.9	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.85	249074.5	N/A	
PFDA	7.25	1.000	276978.5	A	13C6-PFDA	7.25	812258.0	0.341	1.855
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.26	83863.8	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.62	226272.8	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.64	74274.4	N/A	
NMeFOSAA	7.44	1.000	40287.4	A	d3-NMeFOSAA	7.43	101611.8	0.396	1.832
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.78	332425.2	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.81	65198.9	N/A	
PFDS	7.54	1.100	46898.1	A	13C8-PFOS	6.85	249074.5	0.188	1.863
PFUnDA	7.58	1.000	245291.1	A	13C7-PFUnDA	7.58	479342.2	0.512	1.983
NEtFOSAA	7.61	1.000	37044.6	A	d5-NEtFOSAA	7.60	95889.6	0.386	1.874
PFDoDA	7.89	1.000	170888.6	A	13C2-PFDoDA	7.89	479809.6	0.356	1.960
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.26	83863.8	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.85	249074.5	N/A	
PFTrDA	8.17	1.040	117612.4	A	13C2-PFDoDA	7.89	479809.6	0.245	2.058
PFTeDA	8.46	1.000	93791.2	A	13C2-PFTeDA	8.46	269780.3	0.348	1.851
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.46	269780.3	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.46	269780.3	N/A	

Total Ion Chromatogram



APPROVED
By JWK at 7:26 am, 3/13/18

REVIEWED
By uild at 3:25 pm, 3/13/18

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 24960

Init. Calib. Date/Times: 03/12/2018 15:06 03/12/2018 17:09

Lab File Names: CAL1= 18MAR12MCAL-18.WIFF; CAL2= 18MAR12MCAL-19.WIFF; CAL3= 18MAR12MCAL-20.WIFF;
CAL4= 18MAR12MCAL-21.WIFF; CAL5= 18MAR12MCAL-22.WIFF; CAL6= 18MAR12MCAL-23.WIFF;
CAL7= 18MAR12MCAL-24.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.235	17.4	±50
CAL2	0.106	0.60	0.604	0.7	±30
CAL3	0.354	2.00	2.013	0.7	±30
CAL4	1.501	8.00	8.534	6.7	±30
CAL5	3.880	20.00	22.063	10.3	±30
CAL6	8.747	50.00	49.742	-0.5	±30
CAL7	17.164	100.00	97.609	-2.4	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.045	0.20	0.231	15.4	±50
CAL2	0.119	0.60	0.615	2.6	±30
CAL3	0.387	2.00	2.002	0.1	±30
CAL4	1.604	8.00	8.295	3.7	±30
CAL5	4.430	20.00	22.904	14.5	±30
CAL6	9.542	50.00	49.330	-1.3	±30
CAL7	18.845	100.00	97.423	-2.6	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.17	0.190	12.0	±50
CAL2	0.105	0.53	0.473	-10.8	±30
CAL3	0.385	1.77	1.728	-2.4	±30
CAL4	1.597	7.08	7.160	1.1	±30
CAL5	4.080	17.69	18.295	3.4	±30
CAL6	9.576	44.22	42.941	-2.9	±30
CAL7	19.875	88.45	89.123	0.8	±30

4:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.085	0.58	0.467	-19.5	±50
CAL2	0.453	1.98	2.485	25.5	±30
CAL3	0.900	4.90	4.943	0.9	±30
CAL4	1.762	10.04	9.672	-3.7	±30
CAL5	2.263	12.49	12.424	-0.5	±30

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FORM 06
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LC/MS/MS

SDG No.: SNB98

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CAL4= 18MAR12MCAL-21.WIFF; CAL5= 18MAR12MCAL-22.WIFF; CAL6= 18MAR12MCAL-23.WIFF;
CAL7= 18MAR12MCAL-24.WIFF;

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.046	0.20	0.246	22.9	±50
CAL2	0.117	0.60	0.619	3.2	±30
CAL3	0.389	2.00	2.064	3.2	±30
CAL4	1.553	8.00	8.244	3.1	±30
CAL5	4.344	20.00	23.057	15.3	±30
CAL6	9.373	50.00	49.752	-0.5	±30
CAL7	18.240	100.00	96.818	-3.2	±30

Perfluoropentanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.018	0.19	0.218	14.9	±50
CAL2	0.048	0.56	0.592	5.6	±30
CAL3	0.152	1.88	1.881	0.0	±30
CAL4	0.616	7.50	7.601	1.3	±30
CAL5	1.656	18.76	20.429	8.9	±30
CAL6	3.741	46.90	46.142	-1.6	±30
CAL7	7.518	93.80	92.727	-1.1	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.19	0.203	7.0	±50
CAL2	0.119	0.57	0.554	-2.7	±30
CAL3	0.390	1.89	1.819	-3.8	±30
CAL4	1.546	7.56	7.216	-4.6	±30
CAL5	4.436	18.91	20.698	9.5	±30
CAL6	9.995	47.28	46.641	-1.4	±30
CAL7	20.106	94.55	93.819	-0.8	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.054	0.20	0.229	14.6	±50
CAL2	0.148	0.60	0.625	4.2	±30
CAL3	0.499	2.00	2.105	5.2	±30
CAL4	2.033	8.00	8.583	7.3	±30
CAL5	5.417	20.00	22.869	14.3	±30
CAL6	12.555	50.00	53.002	6.0	±30
CAL7	22.121	100.00	93.387	-6.6	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 24960

Init. Calib. Date/Times: 03/12/2018 15:06 03/12/2018 17:09

Lab File Names: CAL1= 18MAR12MCAL-18.WIFF; CAL2= 18MAR12MCAL-19.WIFF; CAL3= 18MAR12MCAL-20.WIFF;
CAL4= 18MAR12MCAL-21.WIFF; CAL5= 18MAR12MCAL-22.WIFF; CAL6= 18MAR12MCAL-23.WIFF;
CAL7= 18MAR12MCAL-24.WIFF;

6:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.276	1.30	1.507	15.9	±50
CAL2	0.374	2.09	2.043	-2.3	±30
CAL3	1.059	5.21	5.781	11.0	±30
CAL4	1.785	10.43	9.749	-6.5	±30
CAL5	2.378	13.04	12.989	-0.4	±30

Perfluoroheptanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.19	0.213	12.1	±50
CAL2	0.114	0.57	0.581	1.9	±30
CAL3	0.350	1.90	1.780	-6.3	±30
CAL4	1.432	7.61	7.292	-4.2	±30
CAL5	4.164	19.03	21.196	11.4	±30
CAL6	8.992	47.58	45.775	-3.8	±30
CAL7	18.701	95.15	95.194	0.0	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.253	26.6	±50
CAL2	0.135	0.60	0.665	10.8	±30
CAL3	0.412	2.00	2.030	1.5	±30
CAL4	1.732	8.00	8.526	6.6	±30
CAL5	4.213	20.00	20.739	3.7	±30
CAL6	10.063	50.00	49.533	-0.9	±30
CAL7	20.125	100.00	99.055	-0.9	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.047	0.19	0.234	23.1	±50
CAL2	0.125	0.57	0.626	9.8	±30
CAL3	0.346	1.91	1.733	-9.2	±30
CAL4	1.681	7.65	8.410	9.9	±30
CAL5	4.288	19.12	21.458	12.2	±30
CAL6	9.795	47.80	49.011	2.5	±30
CAL7	18.259	95.60	91.367	-4.4	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 24960

Init. Calib. Date/Times: 03/12/2018 15:06 03/12/2018 17:09

Lab File Names: CAL1= 18MAR12MCAL-18.WIFF; CAL2= 18MAR12MCAL-19.WIFF; CAL3= 18MAR12MCAL-20.WIFF;
CAL4= 18MAR12MCAL-21.WIFF; CAL5= 18MAR12MCAL-22.WIFF; CAL6= 18MAR12MCAL-23.WIFF;
CAL7= 18MAR12MCAL-24.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.064	0.20	0.237	18.5	±50
CAL2	0.165	0.60	0.610	1.7	±30
CAL3	0.542	2.00	2.004	0.2	±30
CAL4	2.269	8.00	8.395	4.9	±30
CAL5	6.606	20.00	24.438	22.2	±30
CAL6	13.305	50.00	49.218	-1.6	±30
CAL7	25.923	100.00	95.897	-4.1	±30

Perfluorooctanesulfonamide	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.197	-1.4	±50
CAL2	0.125	0.60	0.641	6.9	±30
CAL3	0.411	2.00	2.118	5.9	±30
CAL4	1.575	8.00	8.107	1.3	±30
CAL5	1.840	10.00	9.467	-5.3	±30
CAL6	9.633	50.00	49.578	-0.8	±30
CAL7	19.564	100.00	100.692	0.7	±30

Perfluorononanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.030	0.19	0.216	13.8	±50
CAL2	0.079	0.58	0.565	-2.6	±30
CAL3	0.256	1.92	1.829	-4.7	±30
CAL4	1.140	7.68	8.137	5.9	±30
CAL5	2.756	19.20	19.665	2.4	±30
CAL6	6.869	48.00	49.014	2.1	±30
CAL7	13.193	96.00	94.143	-1.9	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.232	16.0	±50
CAL2	0.109	0.60	0.593	-1.2	±30
CAL3	0.366	2.00	1.989	-0.6	±30
CAL4	1.560	8.00	8.483	6.0	±30
CAL5	3.945	20.00	21.456	7.3	±30
CAL6	9.508	50.00	51.706	3.4	±30
CAL7	17.715	100.00	96.341	-3.7	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 24960

Init. Calib. Date/Times: 03/12/2018 15:06 03/12/2018 17:09

Lab File Names: CAL1= 18MAR12MCAL-18.WIFF; CAL2= 18MAR12MCAL-19.WIFF; CAL3= 18MAR12MCAL-20.WIFF;
CAL4= 18MAR12MCAL-21.WIFF; CAL5= 18MAR12MCAL-22.WIFF; CAL6= 18MAR12MCAL-23.WIFF;
CAL7= 18MAR12MCAL-24.WIFF;

8:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.254	1.32	1.324	0.3	±50
CAL2	0.403	2.11	2.100	-0.5	±30
CAL3	1.104	5.27	5.752	9.2	±30
CAL4	2.096	10.54	10.917	3.6	±30
CAL5	2.365	13.17	12.317	-6.5	±30

NMeFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.055	0.20	0.255	27.5	±50
CAL2	0.127	0.60	0.587	-2.1	±30
CAL3	0.410	2.00	1.895	-5.3	±30
CAL4	1.606	8.00	7.421	-7.2	±30
CAL5	2.184	10.00	10.090	0.9	±30
CAL6	10.943	50.00	50.553	1.1	±30
CAL7	20.276	100.00	93.666	-6.3	±30

Perfluorodecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.019	0.19	0.190	-0.2	±50
CAL2	0.061	0.58	0.600	3.4	±30
CAL3	0.177	1.93	1.756	-9.0	±30
CAL4	0.818	7.70	8.093	5.1	±30
CAL5	2.054	19.26	20.328	5.5	±30
CAL6	4.965	48.15	49.130	2.0	±30
CAL7	9.500	96.30	94.013	-2.4	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.060	0.20	0.232	16.0	±50
CAL2	0.164	0.60	0.635	5.9	±30
CAL3	0.575	2.00	2.230	11.5	±30
CAL4	2.253	8.00	8.731	9.1	±30
CAL5	6.002	20.00	23.265	16.3	±30
CAL6	12.395	50.00	48.041	-3.9	±30
CAL7	25.198	100.00	97.666	-2.3	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 24960

Init. Calib. Date/Times: 03/12/2018 15:06 03/12/2018 17:09

Lab File Names: CAL1= 18MAR12MCAL-18.WIFF; CAL2= 18MAR12MCAL-19.WIFF; CAL3= 18MAR12MCAL-20.WIFF;
CAL4= 18MAR12MCAL-21.WIFF; CAL5= 18MAR12MCAL-22.WIFF; CAL6= 18MAR12MCAL-23.WIFF;
CAL7= 18MAR12MCAL-24.WIFF;

NEtFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.189	-5.7	±50
CAL2	0.143	0.60	0.692	15.3	±30
CAL3	0.422	2.00	2.047	2.3	±30
CAL4	1.494	8.00	7.247	-9.4	±30
CAL5	2.102	10.00	10.200	2.0	±30
CAL6	9.628	50.00	46.712	-6.6	±30
CAL7	21.377	100.00	103.713	3.7	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.20	0.205	2.7	±50
CAL2	0.118	0.60	0.648	7.9	±30
CAL3	0.389	2.00	2.139	6.9	±30
CAL4	1.584	8.00	8.717	9.0	±30
CAL5	4.074	20.00	22.414	12.1	±30
CAL6	9.326	50.00	51.310	2.6	±30
CAL7	17.333	100.00	95.367	-4.6	±30

10:2-fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.205	1.33	1.424	7.1	±50
CAL2	0.317	2.12	2.211	4.3	±30
CAL3	0.703	5.30	4.897	-7.6	±30
CAL4	1.530	10.60	10.651	0.5	±30
CAL5	1.928	13.26	13.427	1.3	±30

Perfluorododecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.008	0.19	0.219	15.5	±50
CAL2	0.021	0.58	0.544	-6.3	±30
CAL3	0.067	1.94	1.718	-11.5	±30
CAL4	0.300	7.74	7.745	0.1	±30
CAL5	0.735	19.36	18.980	-2.0	±30
CAL6	1.939	48.40	50.081	3.5	±30
CAL7	3.706	96.80	95.724	-1.1	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 24960

Init. Calib. Date/Times: 03/12/2018 15:06 03/12/2018 17:09

Lab File Names: CAL1= 18MAR12MCAL-18.WIFF; CAL2= 18MAR12MCAL-19.WIFF; CAL3= 18MAR12MCAL-20.WIFF;
CAL4= 18MAR12MCAL-21.WIFF; CAL5= 18MAR12MCAL-22.WIFF; CAL6= 18MAR12MCAL-23.WIFF;
CAL7= 18MAR12MCAL-24.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.025	0.20	0.207	3.7	±50
CAL2	0.074	0.60	0.618	3.0	±30
CAL3	0.252	2.00	2.117	5.8	±30
CAL4	1.003	8.00	8.421	5.3	±30
CAL5	2.862	20.00	24.027	20.1	±30
CAL6	6.030	50.00	50.620	1.2	±30
CAL7	11.292	100.00	94.789	-5.2	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.230	14.8	±50
CAL2	0.109	0.60	0.578	-3.7	±30
CAL3	0.368	2.00	1.959	-2.1	±30
CAL4	1.487	8.00	7.918	-1.0	±30
CAL5	4.108	20.00	21.872	9.4	±30
CAL6	9.159	50.00	48.763	-2.5	±30
CAL7	18.685	100.00	99.481	-0.5	±30

Perfluorohexadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.022	0.20	0.208	4.0	±50
CAL2	0.059	0.60	0.569	-5.1	±30
CAL3	0.195	2.00	1.882	-5.9	±30
CAL4	0.816	8.00	7.861	-1.7	±30
CAL5	2.175	20.00	20.953	4.8	±30
CAL6	4.981	50.00	47.983	-4.0	±30
CAL7	10.521	100.00	101.343	1.3	±30

Perfluorooctadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.022	0.20	0.182	-9.0	±50
CAL2	0.064	0.60	0.521	-13.2	±30
CAL3	0.219	2.00	1.779	-11.0	±30
CAL4	0.916	8.00	7.448	-6.9	±30
CAL5	2.538	20.00	20.642	3.2	±30
CAL6	5.970	50.00	48.550	-2.9	±30
CAL7	12.503	100.00	101.678	1.7	±30

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 24960 Lab File ID: 18MAR12MCAL-28.WIFF

Date/Time Analyzed: 03/12/2018 18:32 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 03/12/2018 15:06 03/12/2018 17:09

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.04	1.85	±30
Perfluoropentanoic acid	2.00	2.09	4.65	±30
Perfluorobutanesulfonate	1.77	1.75	-1.25	±30
4:2 fluorotelomersulfonate	4.90	5.40	10.13	±30
Perfluorohexanoic acid	2.00	2.19	9.34	±30
Perfluoropentanesulfonate	1.88	1.98	5.38	±30
Perfluorohexanesulfonate	1.89	1.87	-1.18	±30
Perfluoroheptanoic acid	2.00	2.07	3.38	±30
6:2 fluorotelomersulfonate	5.21	5.37	3.02	±30
Perfluoroheptanesulfonate	1.90	1.79	-5.56	±30
Perfluorooctanoic acid	2.00	1.85	-7.55	±30
Perfluoro-octanesulfonate	1.91	2.02	5.88	±30
Perfluorononanoic acid	2.00	2.10	5.22	±30
Perfluorooctanesulfonamide	2.00	2.23	11.44	±30
Perfluorononanesulfonate	1.92	1.92	0.10	±30
Perfluorodecanoic acid	2.00	1.90	-4.90	±30
8:2 fluorotelomersulfonate	5.27	5.64	7.09	±30
NMeFOSAA	2.00	2.12	5.81	±30
Perfluorodecanesulfonate	1.93	2.01	4.17	±30
Perfluoroundecanoic acid	2.00	2.02	0.83	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 24960 Lab File ID: 18MAR12MCAL-28.WIFF

Date/Time Analyzed: 03/12/2018 18:32 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 03/12/2018 15:06 03/12/2018 17:09

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.00	0.13	±30
Perfluorododecanoic acid	2.00	2.04	2.05	±30
10:2-fluorotelomersulfonate	5.30	4.62	-12.91	±30
Perfluorododecanesulfonate	1.94	1.82	-6.14	±30
Perfluorotridecanoic acid	2.00	2.09	4.37	±30
Perfluorotetradecanoic acid	2.00	2.05	2.56	±30
Perfluorohexadecanoic acid	2.00	2.05	2.53	±30
Perfluorooctadecanoic acid	2.00	1.90	-4.80	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 24960 Lab File ID: 18MAR15-14.WIFF

Date/Time Analyzed: 03/15/2018 13:08 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 03/12/2018 15:06 03/12/2018 17:09

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.11	1.38	±30
Perfluoropentanoic acid	8.00	8.17	2.12	±30
Perfluorobutanesulfonate	7.08	6.99	-1.23	±30
4:2 fluorotelomersulfonate	10.04	10.87	8.26	±30
Perfluorohexanoic acid	8.00	8.37	4.61	±30
Perfluoropentanesulfonate	7.50	7.50	0.00	±30
Perfluorohexanesulfonate	7.56	7.99	5.74	±30
Perfluoroheptanoic acid	8.00	8.31	3.92	±30
6:2 fluorotelomersulfonate	10.43	10.08	-3.33	±30
Perfluoroheptanesulfonate	7.61	7.55	-0.81	±30
Perfluorooctanoic acid	8.00	8.46	5.78	±30
Perfluoro-octanesulfonate	7.65	7.93	3.60	±30
Perfluorononanoic acid	8.00	7.98	-0.29	±30
Perfluorooctanesulfonamide	8.00	7.85	-1.85	±30
Perfluorononanesulfonate	7.68	8.24	7.33	±30
Perfluorodecanoic acid	8.00	8.00	0.01	±30
8:2 fluorotelomersulfonate	10.54	12.25	16.20	±30
NMeFOSAA	8.00	7.66	-4.23	±30
Perfluorodecanesulfonate	7.70	7.39	-4.07	±30
Perfluoroundecanoic acid	8.00	8.27	3.32	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 24960 Lab File ID: 18MAR15-14.WIFF

Date/Time Analyzed: 03/15/2018 13:08 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 03/12/2018 15:06 03/12/2018 17:09

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	8.00	7.30	-8.77	±30
Perfluorododecanoic acid	8.00	8.23	2.83	±30
10:2-fluorotelomersulfonate	10.60	11.94	12.65	±30
Perfluorododecanesulfonate	7.74	7.40	-4.35	±30
Perfluorotridecanoic acid	8.00	9.00	12.55	±30
Perfluorotetradecanoic acid	8.00	8.08	1.01	±30
Perfluorohexadecanoic acid	8.00	8.21	2.57	±30
Perfluorooctadecanoic acid	8.00	7.39	-7.68	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 24960 Lab File ID: 18MAR15-27.WIFF

Date/Time Analyzed: 03/15/2018 17:35 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 03/12/2018 15:06 03/12/2018 17:09

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	21.37	6.83	±30
Perfluoropentanoic acid	20.00	22.42	12.10	±30
Perfluorobutanesulfonate	17.69	19.04	7.65	±30
4:2 fluorotelomersulfonate	12.49	12.92	3.40	±30
Perfluorohexanoic acid	20.00	21.38	6.90	±30
Perfluoropentanesulfonate	18.76	20.59	9.73	±30
Perfluorohexanesulfonate	18.91	21.55	13.99	±30
Perfluoroheptanoic acid	20.00	23.43	17.13	±30
6:2 fluorotelomersulfonate	13.04	12.98	-0.49	±30
Perfluoroheptanesulfonate	19.03	20.28	6.57	±30
Perfluorooctanoic acid	20.00	21.61	8.04	±30
Perfluoro-octanesulfonate	19.12	22.70	18.73	±30
Perfluorononanoic acid	20.00	25.20	26.00	±30
Perfluorooctanesulfonamide	10.00	8.85	-11.52	±30
Perfluorononanesulfonate	19.20	20.94	9.05	±30
Perfluorodecanoic acid	20.00	21.32	6.58	±30
8:2 fluorotelomersulfonate	13.17	12.22	-7.19	±30
NMeFOSAA	10.00	9.64	-3.58	±30
Perfluorodecanesulfonate	19.26	22.17	15.11	±30
Perfluoroundecanoic acid	20.00	23.40	16.98	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 24960 Lab File ID: 18MAR15-27.WIFF

Date/Time Analyzed: 03/15/2018 17:35 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 03/12/2018 15:06 03/12/2018 17:09

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	10.00	9.55	-4.52	±30
Perfluorododecanoic acid	20.00	22.70	13.50	±30
10:2-fluorotelomersulfonate	13.26	14.06	6.02	±30
Perfluorododecanesulfonate	19.36	22.98	18.69	±30
Perfluorotridecanoic acid	20.00	23.09	15.44	±30
Perfluorotetradecanoic acid	20.00	21.44	7.21	±30
Perfluorohexadecanoic acid	20.00	21.71	8.57	±30
Perfluorooctadecanoic acid	20.00	19.99	-0.03	±30

* Outside QC Limits.

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

Sample File Name	Acquisition Date	Sample ID	Sample Name
18MAR12MCAL-10.wiff	3/13/2018 12:55:39 AM	CALMOD11833A	CAL1
18MAR12MCAL-11.wiff	3/13/2018 1:16:09 AM	CALMOD21833A	CAL2
18MAR12MCAL-12.wiff	3/13/2018 1:36:39 AM	CALMOD31833A	CAL3
18MAR12MCAL-13.wiff	3/13/2018 1:57:09 AM	CALMOD41833A	CAL4
18MAR12MCAL-14.wiff	3/13/2018 2:17:39 AM	CALMOD51833A	CAL5
18MAR12MCAL-15.wiff	3/13/2018 2:38:09 AM	CALMOD61833A	CAL6
18MAR12MCAL-16.wiff	3/13/2018 2:58:42 AM	CALMOD71833A	CAL7

Injection Standard Averages

Sample Name	Injection Std Name	Use	Injection Std Area	AVG Area
CAL1	I13C3-PFBA	True	1146034.5	1089708.0
CAL2	I13C3-PFBA	True	1178360.5	1089708.0
CAL3	I13C3-PFBA	True	1202777.0	1089708.0
CAL4	I13C3-PFBA	True	1133208.5	1089708.0
CAL5	I13C3-PFBA	True	1081291.4	1089708.0
CAL6	I13C3-PFBA	True	1003109.9	1089708.0
CAL7	I13C3-PFBA	True	883174.5	1089708.0
CAL1	I13C2-PFOA	True	1808060.1	1715163.0
CAL2	I13C2-PFOA	True	1872645.8	1715163.0
CAL3	I13C2-PFOA	True	1851769.6	1715163.0
CAL4	I13C2-PFOA	True	1800747.3	1715163.0
CAL5	I13C2-PFOA	True	1663960.0	1715163.0
CAL6	I13C2-PFOA	True	1568616.0	1715163.0
CAL7	I13C2-PFOA	True	1440342.0	1715163.0
CAL1	I13C4-PFOS	True	319380.2	348478.2
CAL2	I13C4-PFOS	True	386272.9	348478.2
CAL3	I13C4-PFOS	True	375216.2	348478.2
CAL4	I13C4-PFOS	True	368255.9	348478.2
CAL5	I13C4-PFOS	True	345146.5	348478.2
CAL6	I13C4-PFOS	True	324081.2	348478.2
CAL7	I13C4-PFOS	True	320994.4	348478.2
CAL1	I13C2-PFDA	True	1786269.0	1708307.0
CAL2	I13C2-PFDA	True	1979033.8	1708307.0
CAL3	I13C2-PFDA	True	1906125.2	1708307.0
CAL4	I13C2-PFDA	True	1744251.7	1708307.0
CAL5	I13C2-PFDA	True	1639487.1	1708307.0
CAL6	I13C2-PFDA	True	1472689.0	1708307.0
CAL7	I13C2-PFDA	True	1430293.1	1708307.0

APPROVED
By MSM at 8:08 am, 3/13/18

REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

Response Factor Table

Analyte Name	CAL 1	CAL 2	CAL 3	CAL 4	CAL 5	CAL 6	CAL 7	r^2	OOS
PFBA	1.015	0.840	0.872	0.859	0.932	0.854	0.811	0.998	
PFPeA	1.020	0.945	0.888	0.963	1.028	0.904	0.889	0.998	
PFBS	1.045	0.954	0.984	0.978	1.103	0.972	0.991	0.998	
4:2-FTS	0.935	0.919	0.905	0.855	0.798	N/A	N/A	0.997	
PFHxA	1.036	0.929	0.887	1.000	0.978	0.879	0.805	0.994	
PFPeS	0.475	0.494	0.477	0.517	0.545	0.478	0.488	0.998	
PFHxS	1.092	0.909	1.098	1.019	1.159	1.059	1.053	0.999	
PFHpA	1.278	1.043	1.077	1.050	1.154	0.985	0.917	0.994	
6:2-FTS	0.910	0.968	0.912	0.930	0.820	N/A	N/A	0.994	
PFHpS	0.822	0.895	0.925	0.853	0.961	0.905	0.908	0.999	
PFOA	1.215	1.046	1.019	1.031	1.137	0.957	N/A	0.994	
PFOS	1.030	1.093	0.957	0.952	1.145	0.986	1.010	0.998	
PFNA	1.209	0.973	1.060	0.985	1.130	0.925	N/A	0.992	
PFOSA	1.028	0.966	1.045	0.976	0.899	0.947	0.988	0.999	
PFNS	0.772	0.621	0.617	0.641	0.753	0.637	0.624	0.996	
PFDA	1.082	0.867	0.885	1.015	0.998	0.836	N/A	0.992	
8:2-FTS	1.077	0.963	1.122	0.960	0.949	N/A	N/A	0.993	
NMePFOSAE	1.028	1.029	1.028	1.018	1.006	1.119	0.977	0.996	
NMePFOSA	1.153	1.163	1.138	1.005	1.035	1.025	1.040	1.000	
NMeFOSAA	0.836	1.079	1.120	1.032	1.003	1.004	1.015	1.000	
NEtPFOSAE	1.122	1.077	1.161	1.071	1.032	1.082	1.040	1.000	
NEtPFOSA	1.002	1.001	1.075	1.003	0.985	1.021	0.998	1.000	
PFDS	0.528	0.453	0.473	0.440	0.537	0.478	0.435	0.995	
PFUnDA	1.110	0.965	1.132	0.993	1.126	1.055	0.944	0.995	
NEtFOSAA	1.009	0.988	1.094	0.936	0.951	0.989	1.043	0.999	
PFDoDA	1.072	0.949	1.020	1.011	1.058	0.917	0.811	0.990	
10:2-FTS	0.927	0.674	0.818	0.706	0.759	N/A	N/A	0.991	
PFDoS	0.226	0.208	0.211	0.206	0.235	0.214	0.201	0.997	
PFTrDA	1.211	0.902	1.034	0.998	1.066	0.998	N/A	0.999	
PFTeDA	1.039	0.892	0.938	0.885	0.926	0.808	0.765	0.996	
PFHxDA	0.440	0.428	0.389	0.398	0.381	0.407	0.443	0.997	
PFODA	0.599	0.622	0.615	0.612	0.507	0.639	N/A	0.991	

APPROVED
By MSM at 8:08 am, 3/13/18

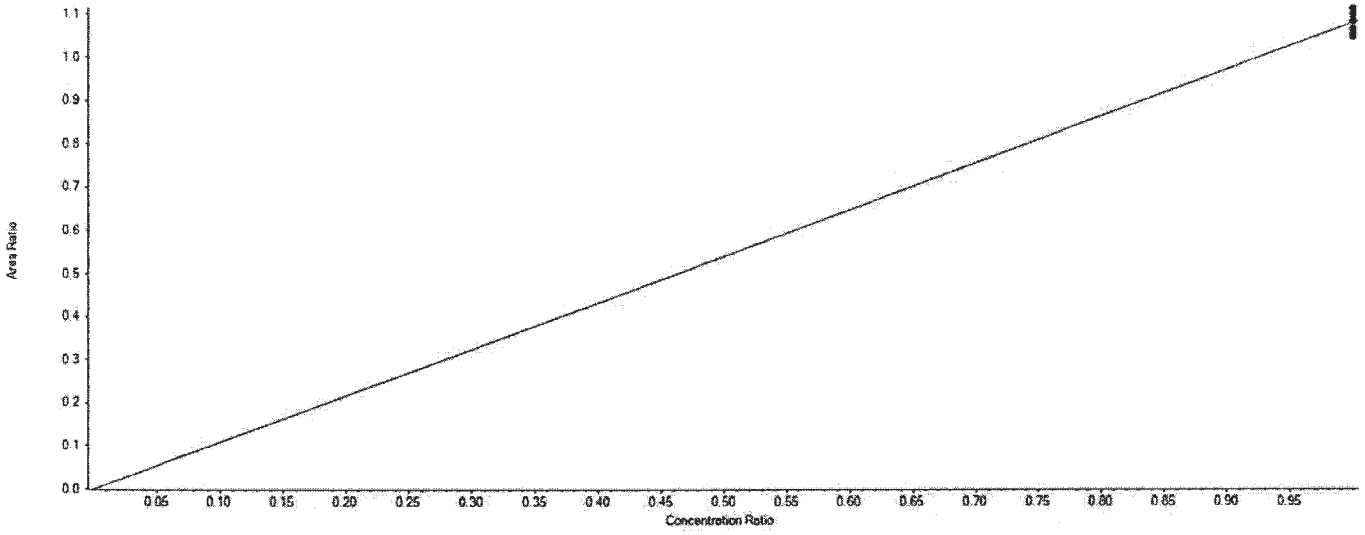
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

E13C4-PFBA

y = 1.07984 x (std. dev. = 0.02519) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFBA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1200725.3	1146034.5	True	5.00	1.048	4.41	1.000	5.000	4.851	-3.0	50.0	
CAL2	1295574.3	1178360.5	True	5.00	1.099	4.40	1.000	5.000	5.091	1.8	30.0	
CAL3	1265940.5	1202777.0	True	5.00	1.053	4.42	1.000	5.000	4.873	-2.5	30.0	
CAL4	1260099.4	1133208.5	True	5.00	1.112	4.41	1.000	5.000	5.149	3.0	30.0	
CAL5	1188746.7	1081291.4	True	5.00	1.099	4.41	1.000	5.000	5.090	1.8	30.0	
CAL6	1068309.5	1003109.9	True	5.00	1.065	4.41	1.000	5.000	4.931	-1.4	30.0	
CAL7	956300.2	883174.5	True	5.00	1.083	4.41	1.000	5.000	5.014	0.3	30.0	

APPROVED
By MSM at 8:08 am, 3/13/18

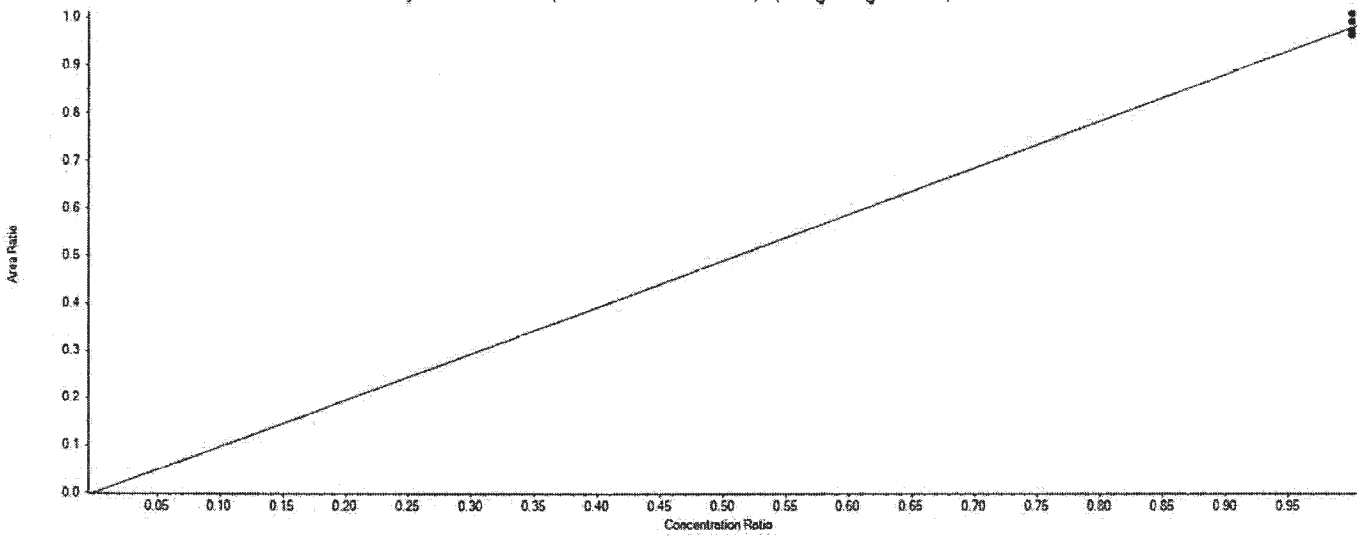
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

E13C5-PFPeA

y = 0.98023 x (std. dev. = 0.01571) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFPeA Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1116057.1	1146034.5	True	5.00	0.974	5.03	1.140	5.000	4.967	-0.7	50.0	
CAL2	1147762.5	1178360.5	True	5.00	0.974	5.02	1.140	5.000	4.968	-0.6	30.0	
CAL3	1159716.3	1202777.0	True	5.00	0.964	5.03	1.140	5.000	4.918	-1.6	30.0	
CAL4	1144237.9	1133208.5	True	5.00	1.010	5.03	1.140	5.000	5.150	3.0	30.0	
CAL5	1051209.2	1081291.4	True	5.00	0.972	5.03	1.140	5.000	4.959	-0.8	30.0	
CAL6	996473.7	1003109.9	True	5.00	0.993	5.03	1.140	5.000	5.067	1.3	30.0	
CAL7	860427.0	883174.5	True	5.00	0.974	5.03	1.140	5.000	4.969	-0.6	30.0	

APPROVED
By MSM at 8:08 am, 3/13/18

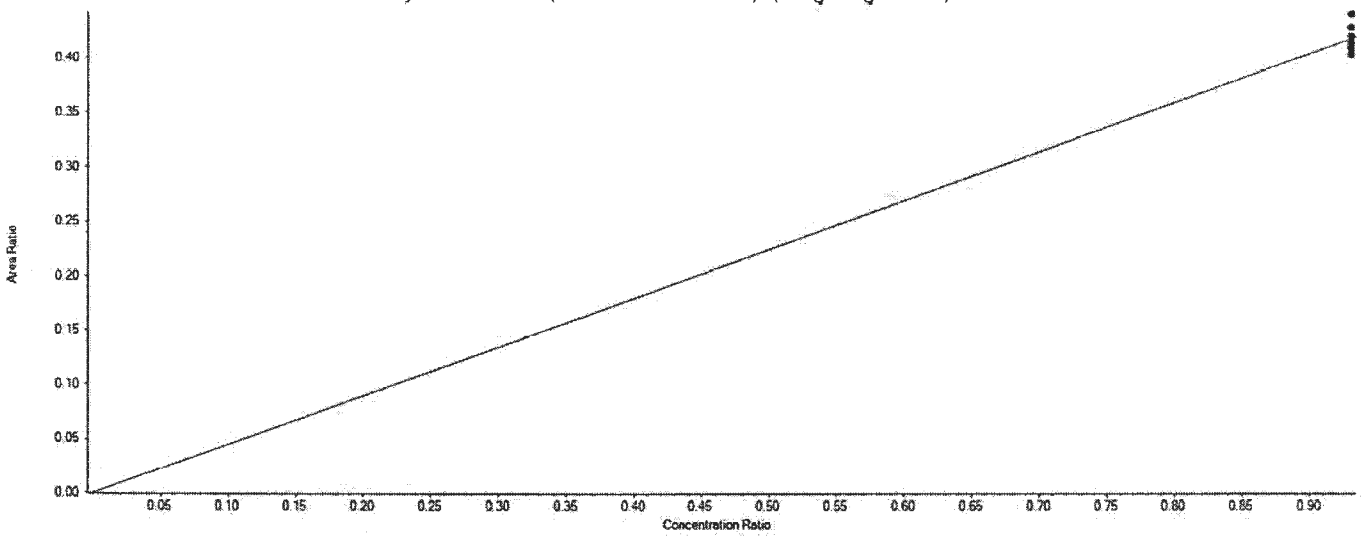
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

E13C3-PFBS

y = 0.44937 x (std. dev. = 0.01394) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C3-PFBS Area	13C3-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	470083.0	1146034.5	True	5.00	0.410	5.08	1.150	4.650	4.564	-1.9	50.0	
CAL2	495688.5	1178360.5	True	5.00	0.421	5.07	1.150	4.650	4.681	0.7	30.0	
CAL3	485229.8	1202777.0	True	5.00	0.403	5.09	1.150	4.650	4.489	-3.5	30.0	
CAL4	469075.6	1133208.5	True	5.00	0.414	5.09	1.150	4.650	4.606	-1.0	30.0	
CAL5	441598.6	1081291.4	True	5.00	0.408	5.09	1.150	4.650	4.544	-2.3	30.0	
CAL6	429328.2	1003109.9	True	5.00	0.428	5.08	1.150	4.650	4.762	2.4	30.0	
CAL7	389299.8	883174.5	True	5.00	0.441	5.08	1.150	4.650	4.905	5.5	30.0	

APPROVED
By MSM at 8:08 am, 3/13/18

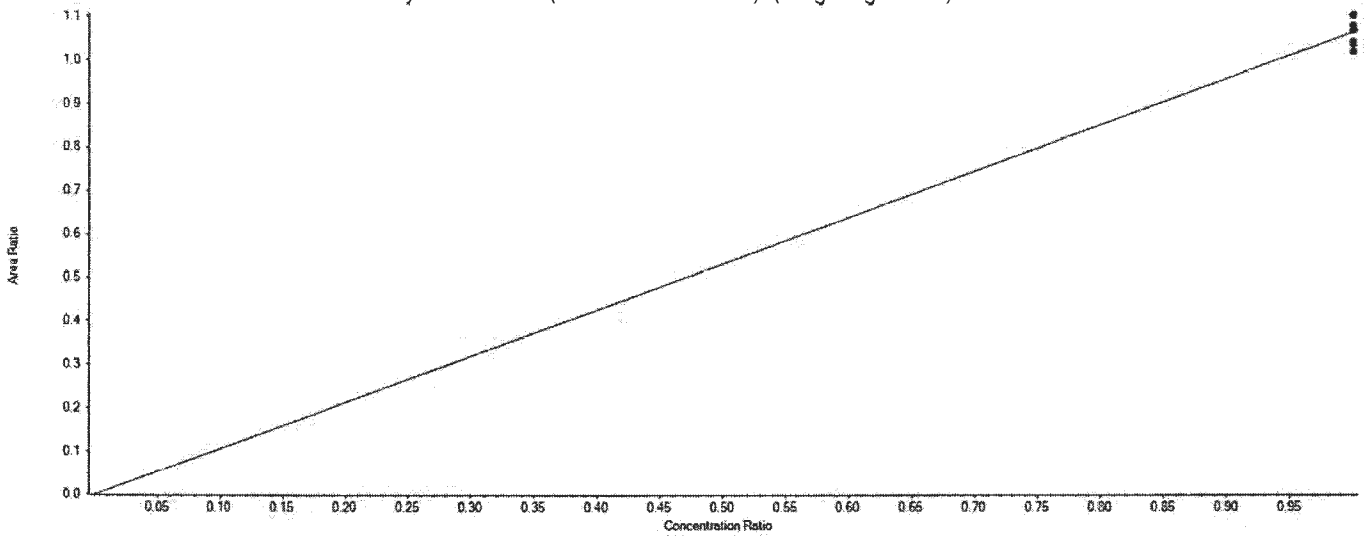
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

E13C5-PFHxA

y = 1.06522 x (std. dev. = 0.03285) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C5-PFHxA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1842807.3	1808060.1	True	5.00	1.019	5.54	0.860	5.000	4.784	-4.3	50.0	
CAL2	2022516.1	1872645.8	True	5.00	1.080	5.53	0.860	5.000	5.070	1.4	30.0	
CAL3	2046018.5	1851769.6	True	5.00	1.105	5.55	0.860	5.000	5.186	3.7	30.0	
CAL4	1925107.8	1800747.3	True	5.00	1.069	5.55	0.860	5.000	5.018	0.4	30.0	
CAL5	1833380.1	1663960.0	True	5.00	1.102	5.54	0.860	5.000	5.172	3.4	30.0	
CAL6	1636330.3	1568616.0	True	5.00	1.043	5.54	0.860	5.000	4.897	-2.1	30.0	
CAL7	1495544.5	1440342.0	True	5.00	1.038	5.54	0.860	5.000	4.874	-2.5	30.0	

APPROVED
By MSM at 8:08 am, 3/13/18

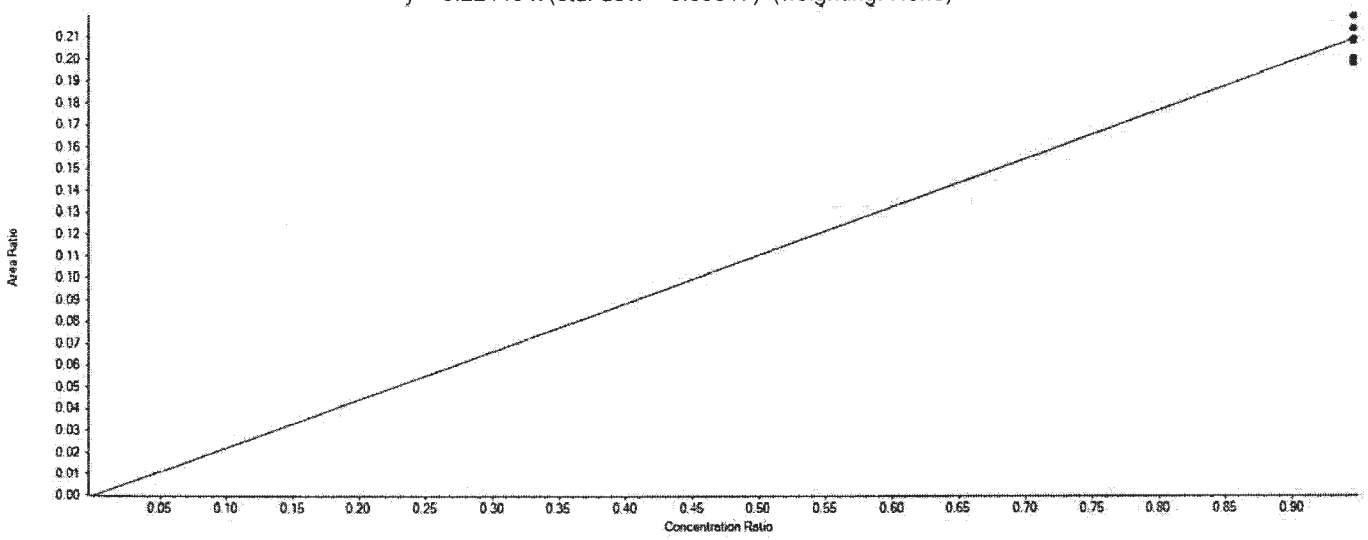
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

E13C3-PFHxS

y = 0.22119 x (std. dev. = 0.00817) (weighting: None)



Extraction Standard Calibration Verification

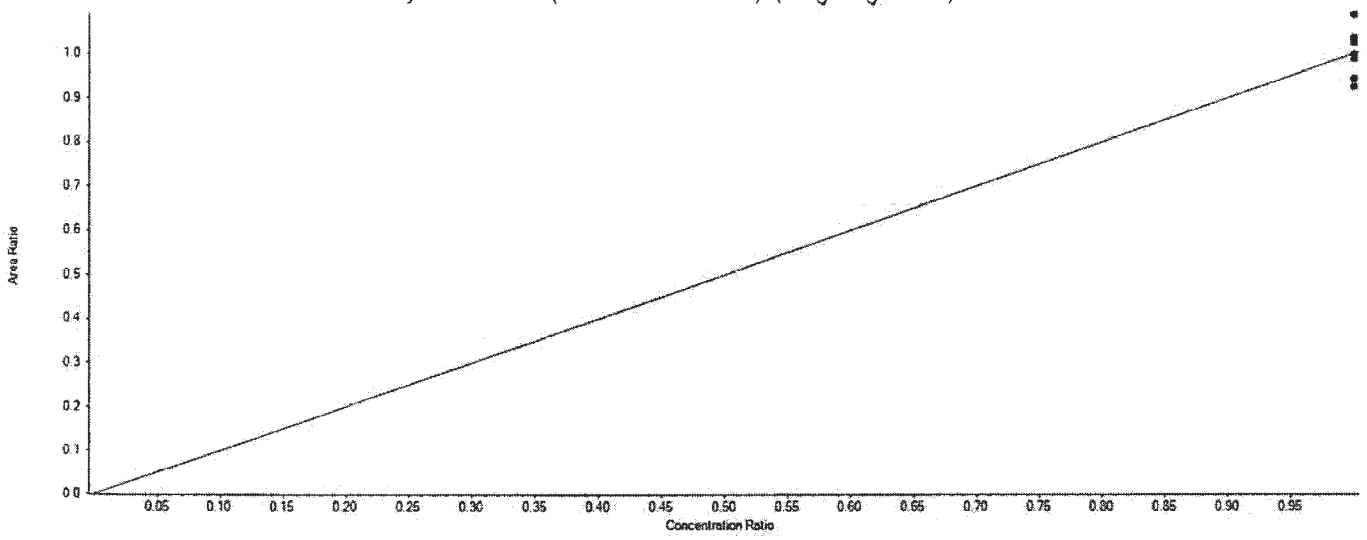
Sample Name	E13C3-PFHxS Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	362606.7	1808060.1	True	5.00	0.201	6.02	0.930	4.730	4.533	-4.2	50.0	
CAL2	401233.7	1872645.8	True	5.00	0.214	6.01	0.930	4.730	4.843	2.4	30.0	
CAL3	367332.0	1851769.6	True	5.00	0.198	6.02	0.930	4.730	4.484	-5.2	30.0	
CAL4	396014.8	1800747.3	True	5.00	0.220	6.02	0.930	4.730	4.971	5.1	30.0	
CAL5	356374.8	1663960.0	True	5.00	0.214	6.02	0.930	4.730	4.841	2.4	30.0	
CAL6	327951.5	1568616.0	True	5.00	0.209	6.01	0.930	4.730	4.726	-0.1	30.0	
CAL7	300142.3	1440342.0	True	5.00	0.208	6.01	0.930	4.730	4.710	-0.4	30.0	

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

E13C4-PFHpA

y = 1.00072 x (std. dev. = 0.05572) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C4-PFHpA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1673778.1	1808060.1	True	5.00	0.926	6.03	0.930	5.000	✓4.625	✓-7.5	50.0	
CAL2	2039201.2	1872645.8	True	5.00	1.089	6.01	0.930	5.000	✓5.441	✓8.8	30.0	
CAL3	1917071.7	1851769.6	True	5.00	1.035	6.03	0.930	5.000	✓5.173	✓3.5	30.0	
CAL4	1846239.6	1800747.3	True	5.00	1.025	6.03	0.930	5.000	✓5.123	✓2.5	30.0	
CAL5	1662055.6	1663960.0	True	5.00	0.999	6.03	0.930	5.000	✓4.991	✓-0.2	30.0	
CAL6	1548541.1	1568616.0	True	5.00	0.987	6.02	0.930	5.000	✓4.932	✓-1.4	30.0	
CAL7	1359411.1	1440342.0	True	5.00	0.944	6.02	0.930	5.000	✓4.716	✓-5.7	30.0	

✓

APPROVED
By MSM at 8:08 am, 3/13/18

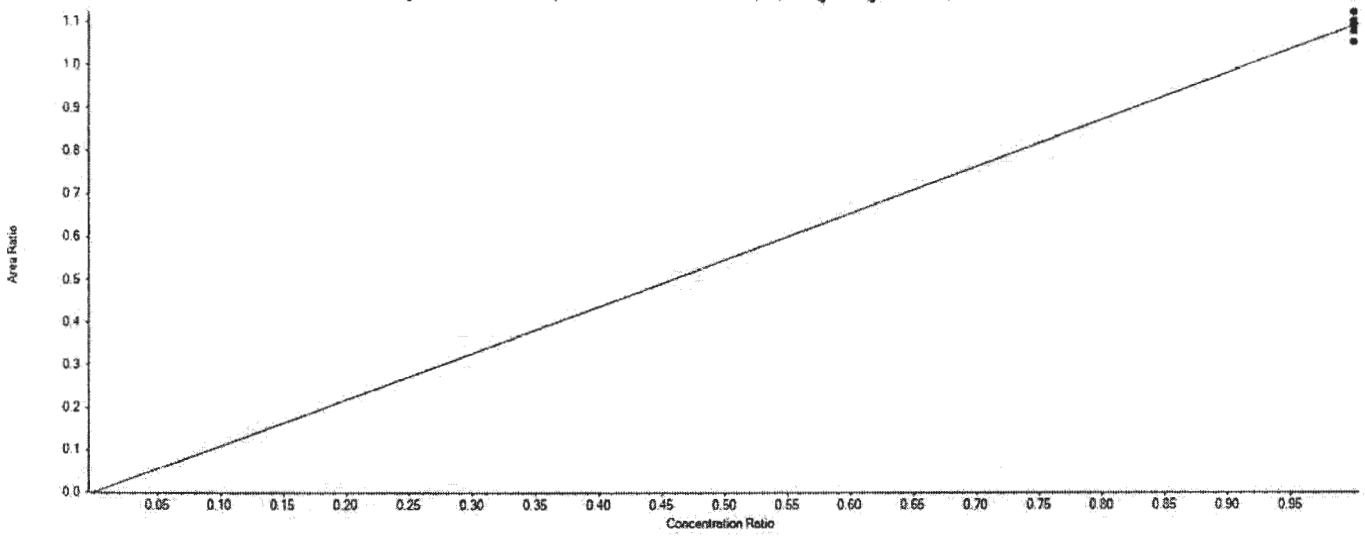
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

E13C8-PFOA

y = 1.09074 x (std. dev. = 0.02218) (weighting: None)



Extraction Standard Calibration Verification

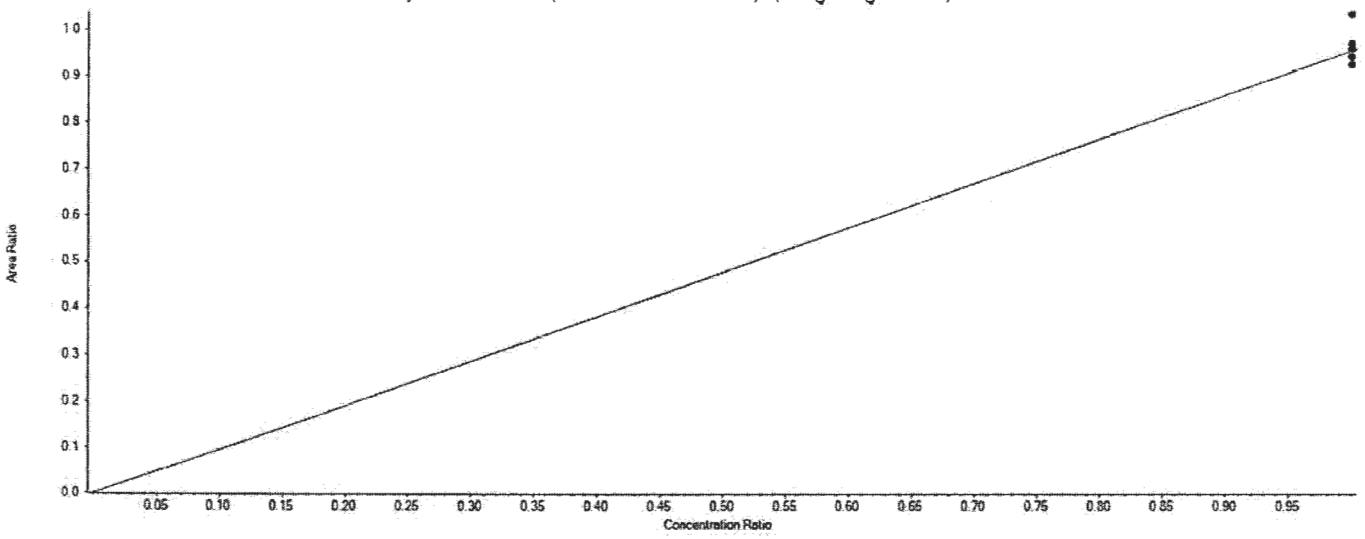
Sample Name	E13C8-PFOA Area	13C2-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1900579.1	1808060.1	True	5.00	1.051	6.47	1.000	5.000	4.819	-3.6	50.0	
CAL2	2064290.3	1872645.8	True	5.00	1.102	6.46	1.000	5.000	5.053	1.1	30.0	
CAL3	2077876.8	1851769.6	True	5.00	1.122	6.47	1.000	5.000	5.144	2.9	30.0	
CAL4	1939542.1	1800747.3	True	5.00	1.077	6.47	1.000	5.000	4.937	-1.3	30.0	
CAL5	1829506.8	1663960.0	True	5.00	1.099	6.47	1.000	5.000	5.040	0.8	30.0	
CAL6	1710296.1	1568616.0	True	5.00	1.090	6.46	1.000	5.000	4.998	0.0	30.0	
CAL7	1573866.1	1440342.0	True	5.00	1.093	6.47	1.000	5.000	5.009	0.2	30.0	

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

E13C8-PFOS

y = 0.95760 x (std. dev. = 0.03933) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C8-PFOS Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	331144.1	319380.2	True	4.78	1.037	6.85	1.000	4.780	5.176	8.3	50.0	
CAL2	358833.0	386272.9	True	4.78	0.929	6.84	1.000	4.780	4.637	-3.0	30.0	
CAL3	360690.5	375216.2	True	4.78	0.961	6.85	1.000	4.780	4.798	0.4	30.0	
CAL4	358823.8	368255.9	True	4.78	0.974	6.85	1.000	4.780	4.864	1.8	30.0	
CAL5	320451.2	345146.5	True	4.78	0.928	6.85	1.000	4.780	4.634	-3.0	30.0	
CAL6	306413.4	324081.2	True	4.78	0.945	6.84	1.000	4.780	4.720	-1.3	30.0	
CAL7	297814.5	320994.4	True	4.78	0.928	6.84	1.000	4.780	4.631	-3.1	30.0	

APPROVED
By MSM at 8:08 am, 3/13/18

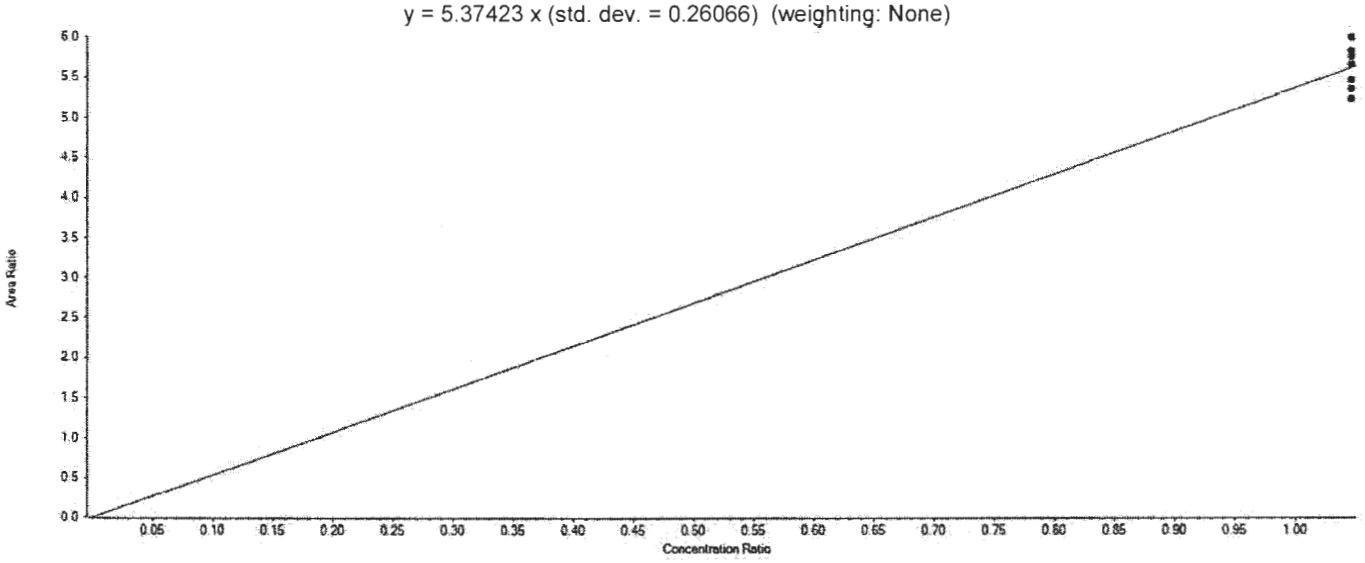
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

E13C9-PFNA

y = 5.37423 x (std. dev. = 0.26066) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C9-PFNA Area	13C4-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1917757.2	319380.2	True	4.78	6.005	6.87	1.000	5.000	5.341	6.8	50.0	
CAL2	2225985.4	386272.9	True	4.78	5.763	6.86	1.000	5.000	5.126	2.5	30.0	
CAL3	2054548.1	375216.2	True	4.78	5.476	6.88	1.000	5.000	4.870	-2.6	30.0	
CAL4	2085346.2	368255.9	True	4.78	5.663	6.88	1.000	5.000	5.037	0.7	30.0	
CAL5	2015057.0	345146.5	True	4.78	5.838	6.87	1.000	5.000	5.193	3.9	30.0	
CAL6	1738144.3	324081.2	True	4.78	5.363	6.87	1.000	5.000	4.770	-4.6	30.0	
CAL7	1683216.8	320994.4	True	4.78	5.244	6.87	1.000	5.000	4.664	-6.7	30.0	

APPROVED
By MSM at 8:08 am, 3/13/18

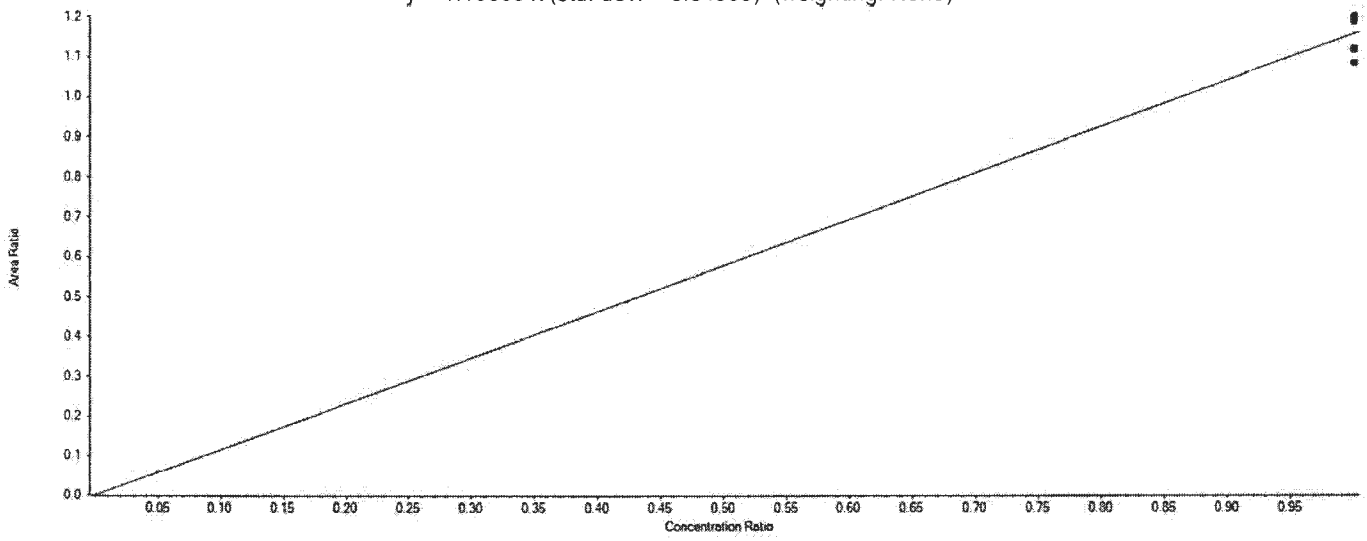
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

E13C6-PFDA

y = 1.15865 x (std. dev. = 0.04969) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C6-PFDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	2136887.8	1786269.0	True	5.00	1.196	7.25	1.000	5.000	5.162	3.2	50.0	
CAL2	2351301.9	1979033.8	True	5.00	1.188	7.24	1.000	5.000	5.127	2.5	30.0	
CAL3	2065351.7	1906125.2	True	5.00	1.084	7.25	1.000	5.000	4.676	-6.5	30.0	
CAL4	1954688.2	1744251.7	True	5.00	1.121	7.25	1.000	5.000	4.836	-3.3	30.0	
CAL5	1973076.2	1639487.1	True	5.00	1.203	7.25	1.000	5.000	5.193	3.9	30.0	
CAL6	1768228.0	1472689.0	True	5.00	1.201	7.24	1.000	5.000	5.181	3.6	30.0	
CAL7	1598829.3	1430293.1	True	5.00	1.118	7.25	1.000	5.000	4.824	-3.5	30.0	

APPROVED
By MSM at 8:08 am, 3/13/18

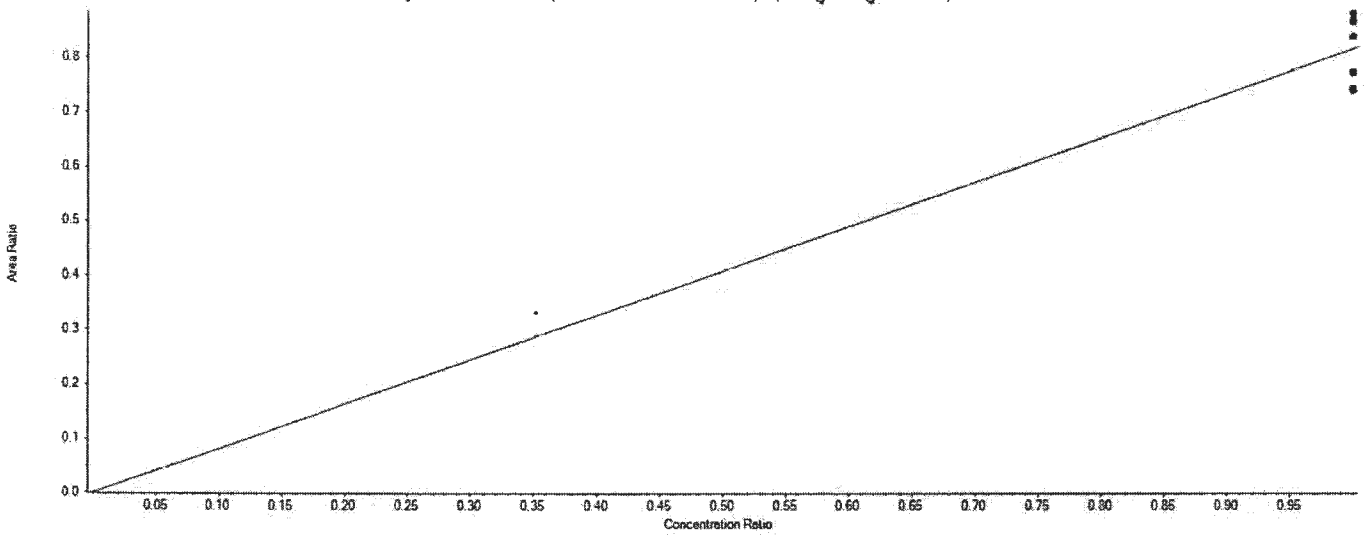
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

E13C7-PFUnDA

y = 0.81663 x (std. dev. = 0.06139) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C7-PFUnDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1575620.4	1786269.0	True	5.00	0.882	7.59	1.050	5.000	5.401	8.0	50.0	
CAL2	1529478.1	1979033.8	True	5.00	0.773	7.59	1.050	5.000	4.732	-5.4	30.0	
CAL3	1414833.8	1906125.2	True	5.00	0.742	7.60	1.050	5.000	4.545	-9.1	30.0	
CAL4	1517125.6	1744251.7	True	5.00	0.870	7.60	1.050	5.000	5.325	6.5	30.0	
CAL5	1419799.7	1639487.1	True	5.00	0.866	7.59	1.050	5.000	5.302	6.0	30.0	
CAL6	1234880.6	1472689.0	True	5.00	0.839	7.59	1.050	5.000	5.134	2.7	30.0	
CAL7	1065500.2	1430293.1	True	5.00	0.745	7.59	1.050	5.000	4.561	-8.8	30.0	

APPROVED
By MSM at 8:08 am, 3/13/18

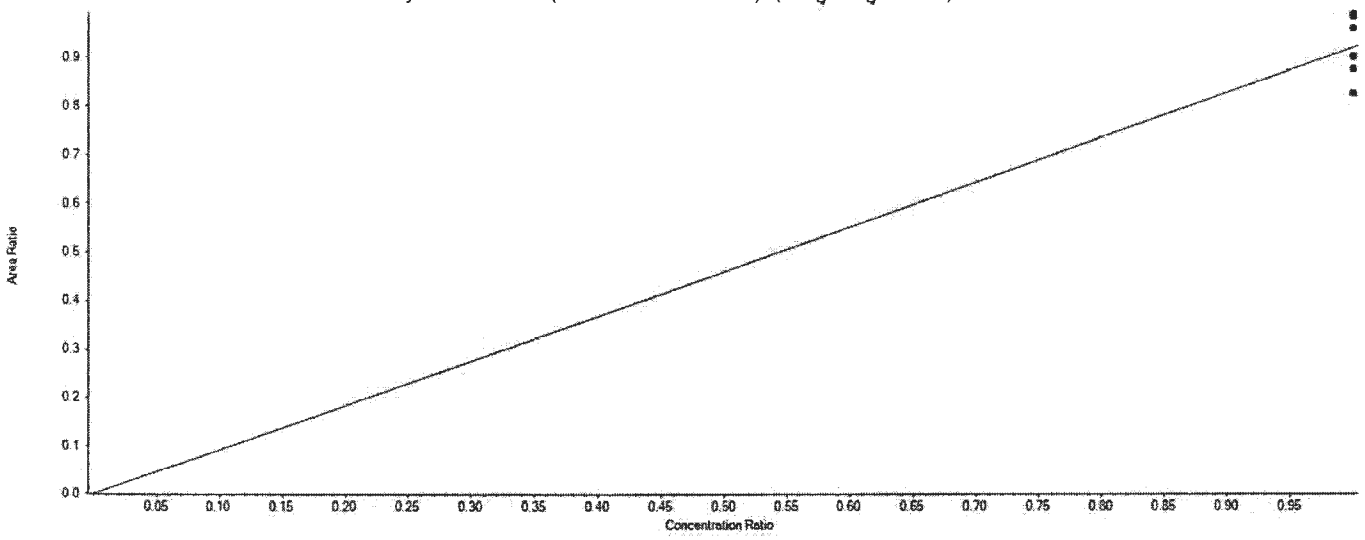
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

E13C2-PFDoDA

y = 0.92030 x (std. dev. = 0.06041) (weighting: None)



Extraction Standard Calibration Verification

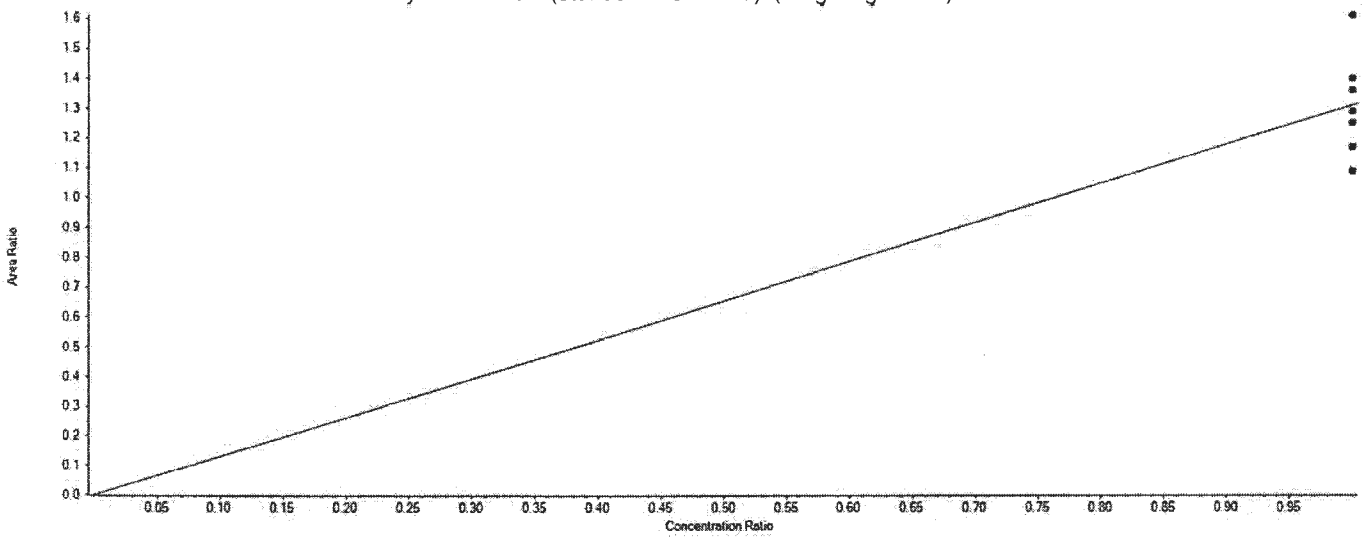
Sample Name	E13C2-PFDoDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	1613292.9	1786269.0	True	5.00	0.903	7.93	1.090	5.000	4.907	-1.9	50.0	
CAL2	1736187.0	1979033.8	True	5.00	0.877	7.91	1.090	5.000	4.766	-4.7	30.0	
CAL3	1574900.7	1906125.2	True	5.00	0.826	7.93	1.090	5.000	4.489	-10.2	30.0	
CAL4	1571564.7	1744251.7	True	5.00	0.901	7.93	1.090	5.000	4.895	-2.1	30.0	
CAL5	1612843.5	1639487.1	True	5.00	0.984	7.93	1.090	5.000	5.345	6.9	30.0	
CAL6	1458372.2	1472689.0	True	5.00	0.990	7.92	1.090	5.000	5.380	7.6	30.0	
CAL7	1373659.8	1430293.1	True	5.00	0.960	7.92	1.090	5.000	5.218	4.4	30.0	

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

E13C2-PFTeDA

y = 1.31125 x (std. dev. = 0.17039) (weighting: None)



Extraction Standard Calibration Verification

Sample Name	E13C2-PFTeDA Area	13C2-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	2435622.1	1786269.0	True	5.00	1.364	8.56	1.180	5.000	5.199	4.0	50.0	
CAL2	2157816.6	1979033.8	True	5.00	1.090	8.55	1.180	5.000	4.158	-16.8	30.0	
CAL3	2387076.9	1906125.2	True	5.00	1.252	8.56	1.180	5.000	4.775	-4.5	30.0	
CAL4	2250008.7	1744251.7	True	5.00	1.290	8.56	1.180	5.000	4.919	-1.6	30.0	
CAL5	2643428.7	1639487.1	True	5.00	1.612	8.56	1.180	5.000	6.148	23.0	30.0	
CAL6	2062758.8	1472689.0	True	5.00	1.401	8.55	1.180	5.000	5.341	6.8	30.0	
CAL7	1672829.5	1430293.1	True	5.00	1.170	8.55	1.180	5.000	4.460	-10.8	30.0	

APPROVED
By MSM at 8:08 am, 3/13/18

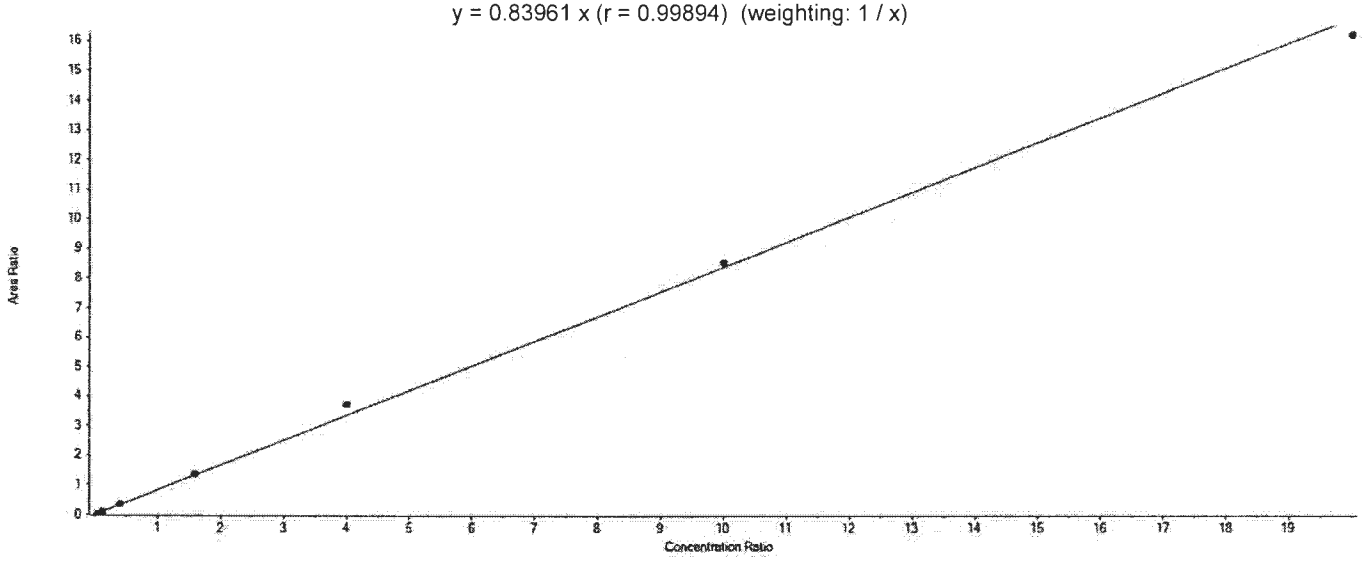
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

PFBA

y = 0.83961 x (r = 0.99894) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBA Area	S/N	13C4-PFBA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	48760.0	96.5	1200725.3	True	5.00	0.041	4.41	1.000	0.200	0.242	20.9	50.0	
CAL2	130638.0	236.8	1295574.3	True	5.00	0.101	4.40	1.000	0.600	0.600	0.1	30.0	
CAL3	441309.3	933.2	1265940.5	True	5.00	0.349	4.41	1.000	2.000	2.076	3.8	30.0	
CAL4	1732146.5	2733.4	1260099.4	True	5.00	1.375	4.41	1.000	8.000	8.186	2.3	30.0	
CAL5	4432471.2	6629.1	1188746.7	True	5.00	3.729	4.41	1.000	20.000	22.205	11.0	30.0	
CAL6	9126011.9	12425.1	1068309.5	True	5.00	8.542	4.41	1.000	50.000	50.872	1.7	30.0	
CAL7	15515337.3	13965.9	956300.2	True	5.00	16.224	4.41	1.000	100.000	96.619	-3.4	30.0	

APPROVED
By MSM at 8:08 am, 3/13/18

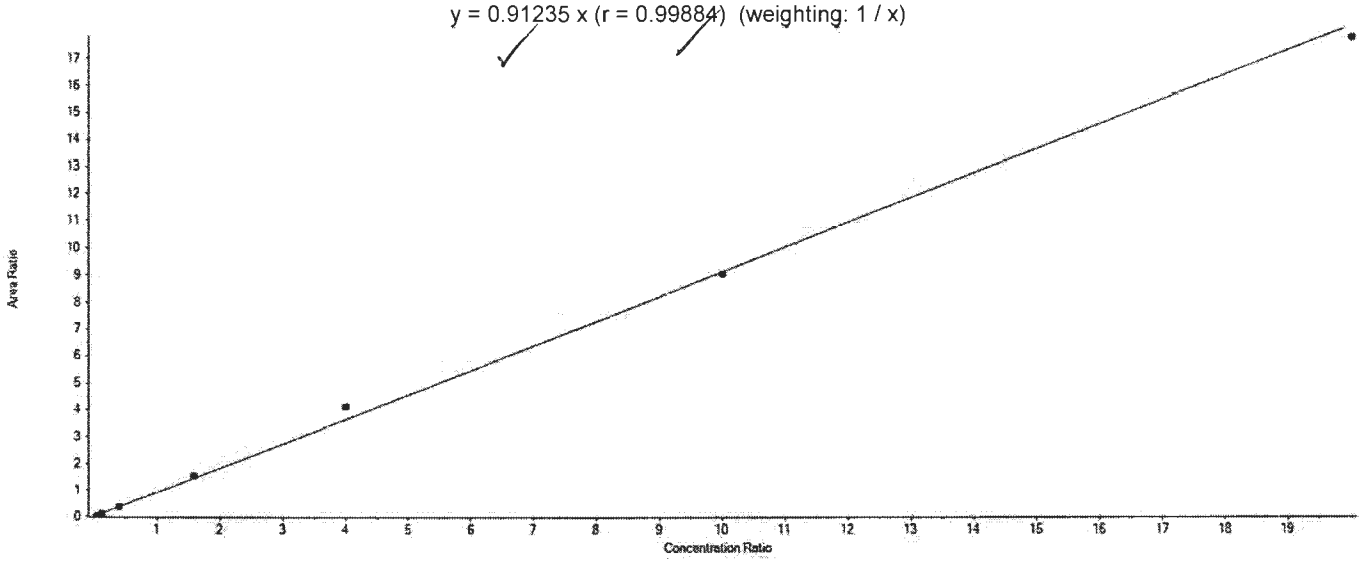
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

PFPeA

y = 0.91235 x (r = 0.99884) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFPeA Area	S/N	13C5-PFPeA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	45546.7	62.3	1116057.1	True	5.00	0.041	5.03	1.000	0.200	0.224	11.8	50.0	
CAL2	130111.7	172.4	1147762.5	True	5.00	0.113	5.02	1.000	0.600	0.621	3.5	30.0	
CAL3	412041.6	797.2	1159716.3	True	5.00	0.355	5.03	1.000	2.000	1.947	-2.6	30.0	
CAL4	1762380.0	3762.1	1144237.9	True	5.00	1.540	5.03	1.000	8.000	8.441	5.5	30.0	
CAL5	4320817.5	8533.7	1051209.2	True	5.00	4.110	5.03	1.000	20.000	22.526	12.6	30.0	
CAL6	9009465.4	13933.0	996473.7	True	5.00	9.041	5.03	1.000	50.000	49.550	-0.9	30.0	
CAL7	15306244.4	18360.6	860427.0	True	5.00	17.789	5.03	1.000	100.000	97.491	-2.5	30.0	

APPROVED
By MSM at 8:08 am, 3/13/18

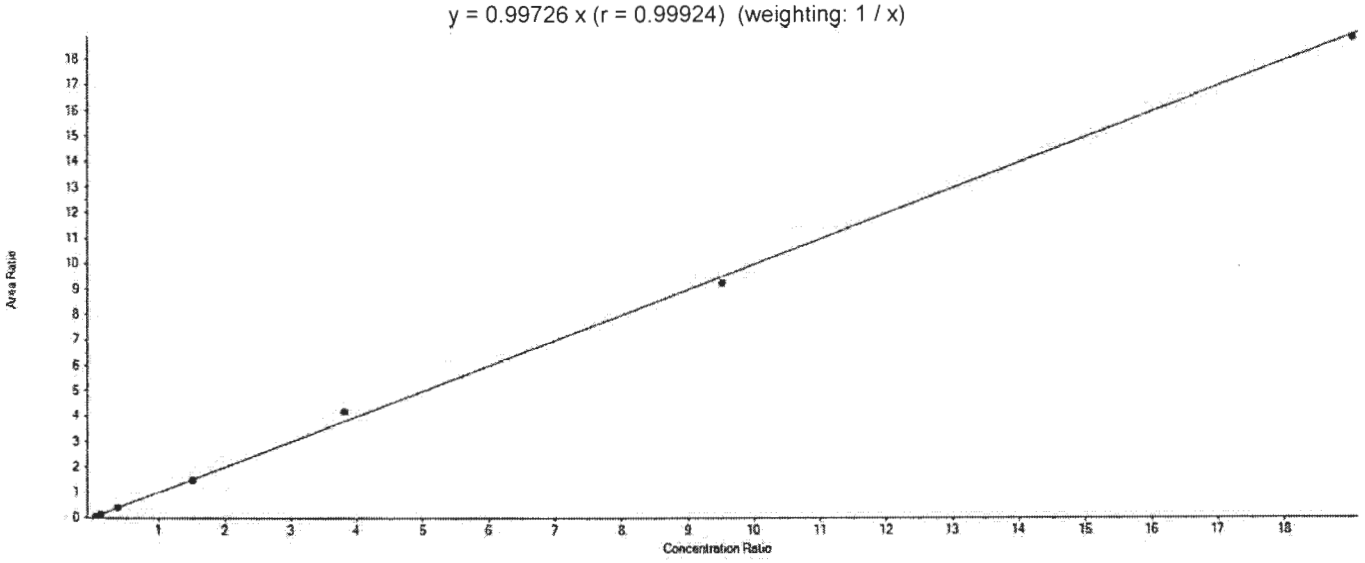
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

PFBS

y = 0.99726 x (r = 0.99924) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFBS Area	S/N	13C3-PFBS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	17958.4	278.9	470083.0	True	4.65	0.038	5.08	1.000	0.170	0.178	4.8	50.0	
CAL2	53915.7	909.7	495688.5	True	4.65	0.109	5.07	1.000	0.530	0.507	-4.3	30.0	
CAL3	181694.9	3273.8	485229.8	True	4.65	0.374	5.09	1.000	1.770	1.746	-1.4	30.0	
CAL4	698619.3	5272.6	469075.6	True	4.65	1.489	5.09	1.000	7.080	6.945	-1.9	30.0	
CAL5	1852497.6	9268.9	441598.6	True	4.65	4.195	5.09	1.000	17.690	19.560	10.6	30.0	
CAL6	3966569.0	13712.1	429328.2	True	4.65	9.239	5.08	1.000	44.220	43.079	-2.6	30.0	
CAL7	7338397.2	18718.2	389299.8	True	4.65	18.850	5.08	1.000	88.450	87.894	-0.6	30.0	

APPROVED
By MSM at 8:08 am, 3/13/18

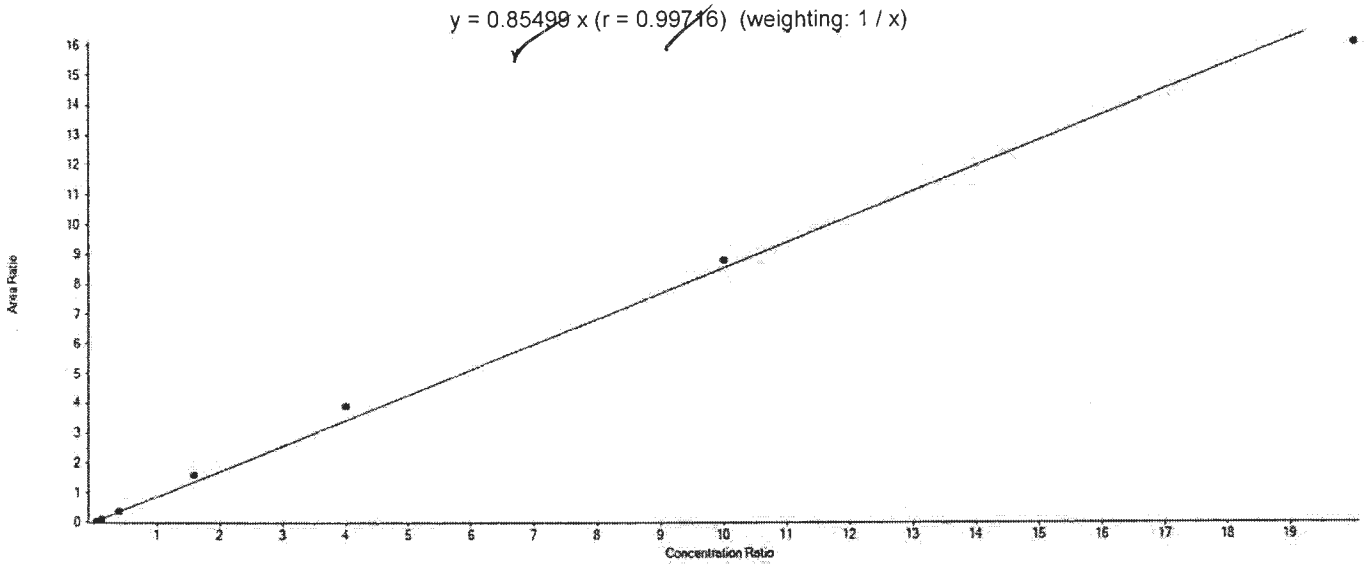
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

PFHxA

y = 0.85499 x (r = 0.99716) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxA Area	S/N	13C5-PFHxA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	76365.0	249.8	1842807.3	True	5.00	0.041	5.54	1.000	0.200	0.242	21.2	50.0	
CAL2	225437.9	1016.6	2022516.1	True	5.00	0.111	5.53	1.000	0.600	0.652	8.6	30.0	
CAL3	726094.8	1893.1	2046018.5	True	5.00	0.355	5.55	1.000	2.000	2.075	3.8	30.0	
CAL4	3080705.5	8361.7	1925107.8	True	5.00	1.600	5.55	1.000	8.000	9.358	17.0	30.0	
CAL5	7169925.1	14191.2	1833380.1	True	5.00	3.911	5.55	1.000	20.000	22.870	14.4	30.0	
CAL6	14390065.7	18816.1	1636330.3	True	5.00	8.794	5.54	1.000	50.000	51.428	2.9	30.0	
CAL7	24083361.4	21224.9	1495544.5	True	5.00	16.103	5.54	1.000	100.000	94.173	-5.8	30.0	

APPROVED
By MSM at 8:08 am, 3/13/18

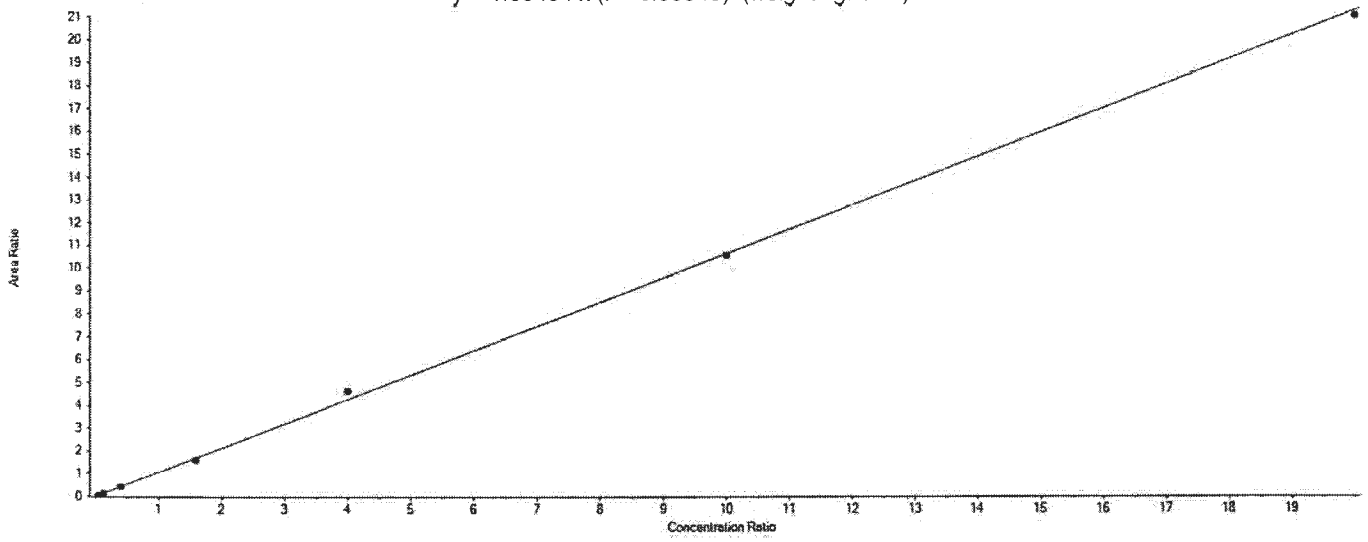
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

PFHxS

y = 1.06464 x (r = 0.99943) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHxS Area	S/N	13C3-PFHxS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	15905.9	176.6	362606.7	True	4.73	0.044	6.02	1.000	0.190	0.195	2.6	50.0	
CAL2	43944.4	577.6	401233.7	True	4.73	0.110	6.01	1.000	0.570	0.487	-14.6	30.0	
CAL3	161200.8	1306.1	367332.0	True	4.73	0.439	6.02	1.000	1.890	1.950	3.2	30.0	
CAL4	644980.0	4500.4	396014.8	True	4.73	1.629	6.02	1.000	7.560	7.236	-4.3	30.0	
CAL5	1650723.6	9941.1	356374.8	True	4.73	4.632	6.02	1.000	18.910	20.579	8.8	30.0	
CAL6	3470654.7	16579.3	327951.5	True	4.73	10.583	6.01	1.000	47.280	47.017	-0.6	30.0	
CAL7	6315655.5	7395.9	300142.3	True	4.73	21.042	6.01	1.000	94.550	93.486	-1.1	30.0	

APPROVED
By MSM at 8:08 am, 3/13/18

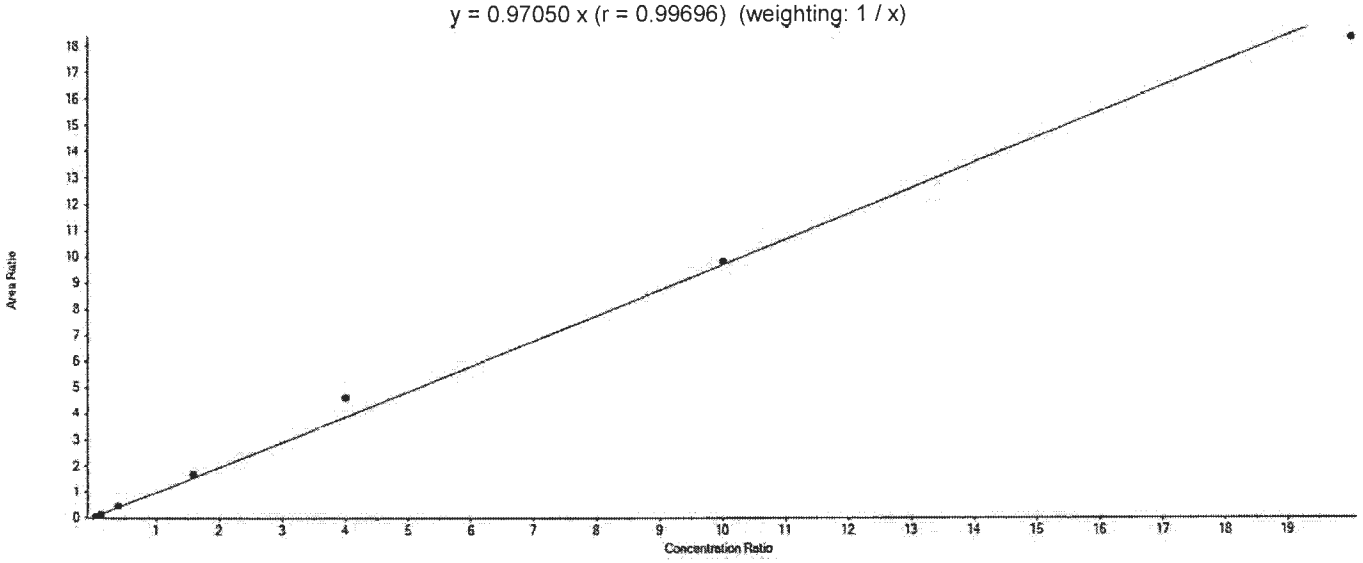
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

PFHpA

y = 0.97050 x (r = 0.99696) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFHpA Area	S/N	13C4-PFHpA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	85572.1	426.3	1673778.1	True	5.00	0.051	6.03	1.000	0.200	0.263	31.7	50.0	
CAL2	255279.6	915.1	2039201.2	True	5.00	0.125	6.02	1.000	0.600	0.645	7.5	30.0	
CAL3	825969.0	3255.3	1917071.7	True	5.00	0.431	6.03	1.000	2.000	2.220	11.0	30.0	
CAL4	3100316.6	13190.4	1846239.6	True	5.00	1.679	6.03	1.000	8.000	8.652	8.1	30.0	
CAL5	7673286.3	20611.3	1662055.6	True	5.00	4.617	6.03	1.000	20.000	23.785	18.9	30.0	
CAL6	15249775.1	26358.8	1548541.1	True	5.00	9.848	6.02	1.000	50.000	50.736	1.5	30.0	
CAL7	24934724.2	31377.8	1359411.1	True	5.00	18.342	6.02	1.000	100.000	94.499	-5.5	30.0	

APPROVED
By MSM at 8:08 am, 3/13/18

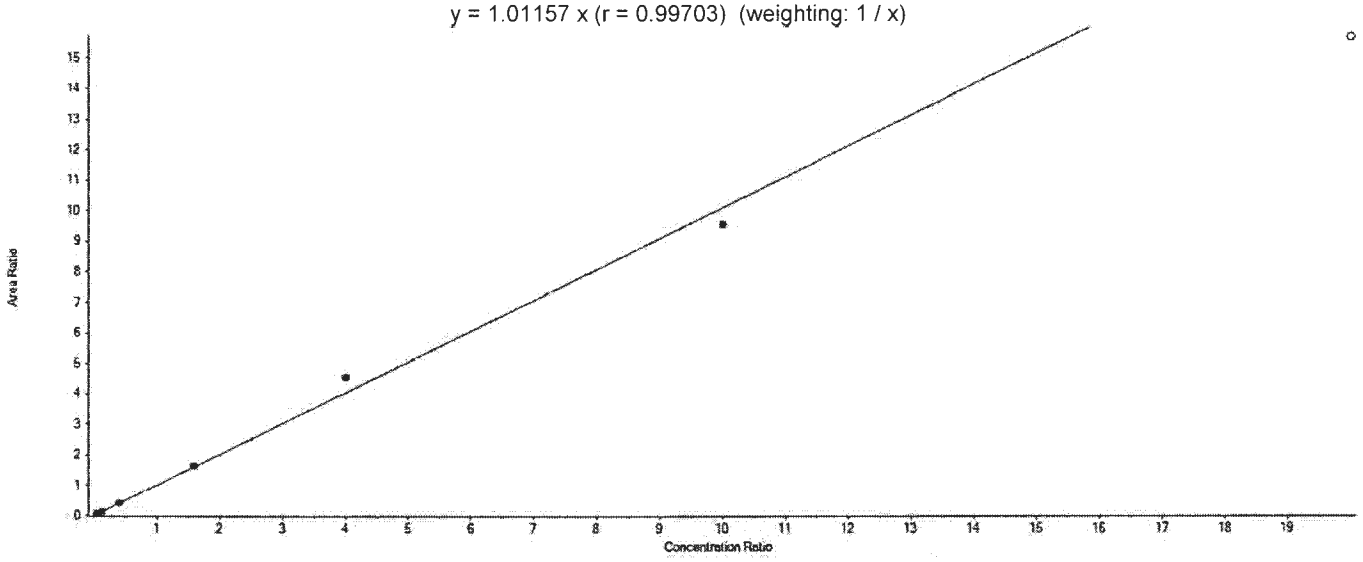
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

PFOA

y = 1.01157 x (r = 0.99703) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOA Area	S/N	13C8-PFOA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	92342.9	211.0	1900579.1	True	5.00	0.049	6.47	1.000	0.200	0.240	20.1	50.0	
CAL2	259149.5	583.3	2064290.3	True	5.00	0.126	6.46	1.000	0.600	0.621	3.4	30.0	
CAL3	846909.1	1684.4	2077876.8	True	5.00	0.408	6.47	1.000	2.000	2.015	0.7	30.0	
CAL4	3199616.4	5351.9	1939542.1	True	5.00	1.650	6.47	1.000	8.000	8.154	1.9	30.0	
CAL5	8319373.5	6527.9	1829506.8	True	5.00	4.547	6.47	1.000	20.000	22.477	12.4	30.0	
CAL6	16364559.3	8883.5	1710296.1	True	5.00	9.568	6.46	1.000	50.000	47.294	-5.4	30.0	
CAL7	24726671.3	6912.5	1573866.1	False	5.00	15.711	6.47	1.000	100.000	77.655	-22.3	30.0	

APPROVED
By MSM at 8:09 am, 3/13/18

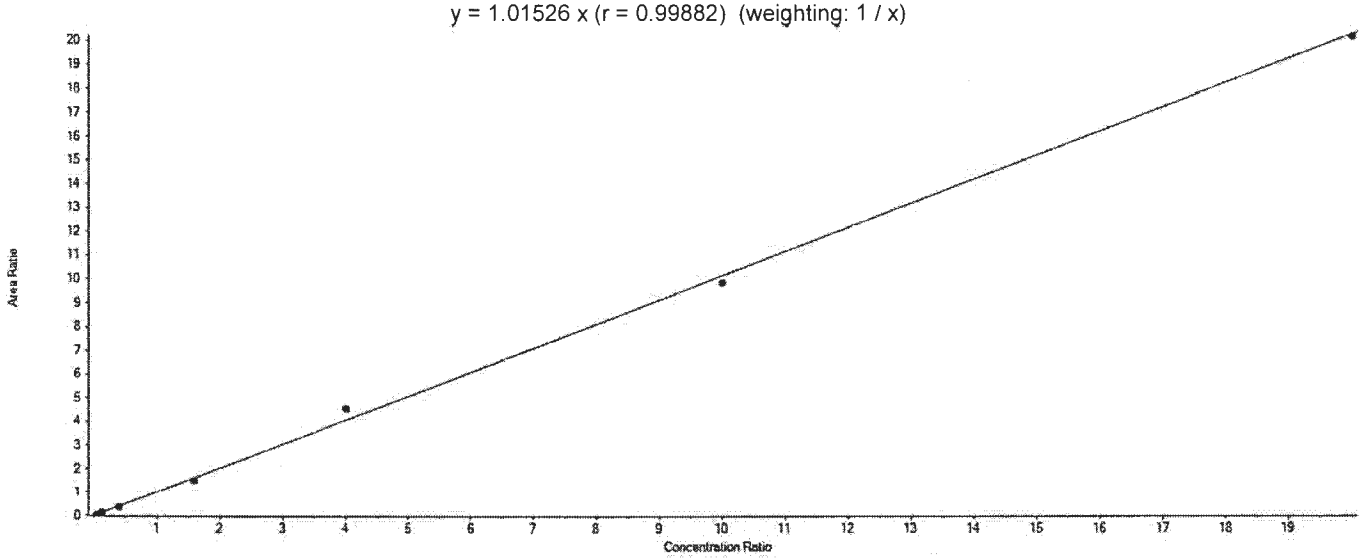
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

PFOS

y = 1.01526 x (r = 0.99882) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFOS Area	S/N	13C8-PFOS Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	13564.0	108.8	331144.1	True	4.78	0.041	6.84	1.000	0.190	0.193	1.5	50.0	
CAL2	46763.5	319.7	358833.0	True	4.78	0.130	6.84	1.000	0.570	0.614	7.6	30.0	
CAL3	137866.8	537.4	360690.5	True	4.78	0.382	6.85	1.000	1.910	1.800	-5.8	30.0	
CAL4	546426.7	1954.2	358823.8	True	4.78	1.523	6.85	1.000	7.650	7.170	-6.3	30.0	
CAL5	1467438.9	3978.6	320451.2	True	4.78	4.579	6.85	1.000	19.120	21.560	12.8	30.0	
CAL6	3021158.9	4154.9	306413.4	True	4.78	9.860	6.84	1.000	47.800	46.421	-2.9	30.0	
CAL7	6014433.7	8800.8	297814.5	True	4.78	20.195	6.84	1.000	95.600	95.083	-0.5	30.0	

APPROVED
By MSM at 8:09 am, 3/13/18

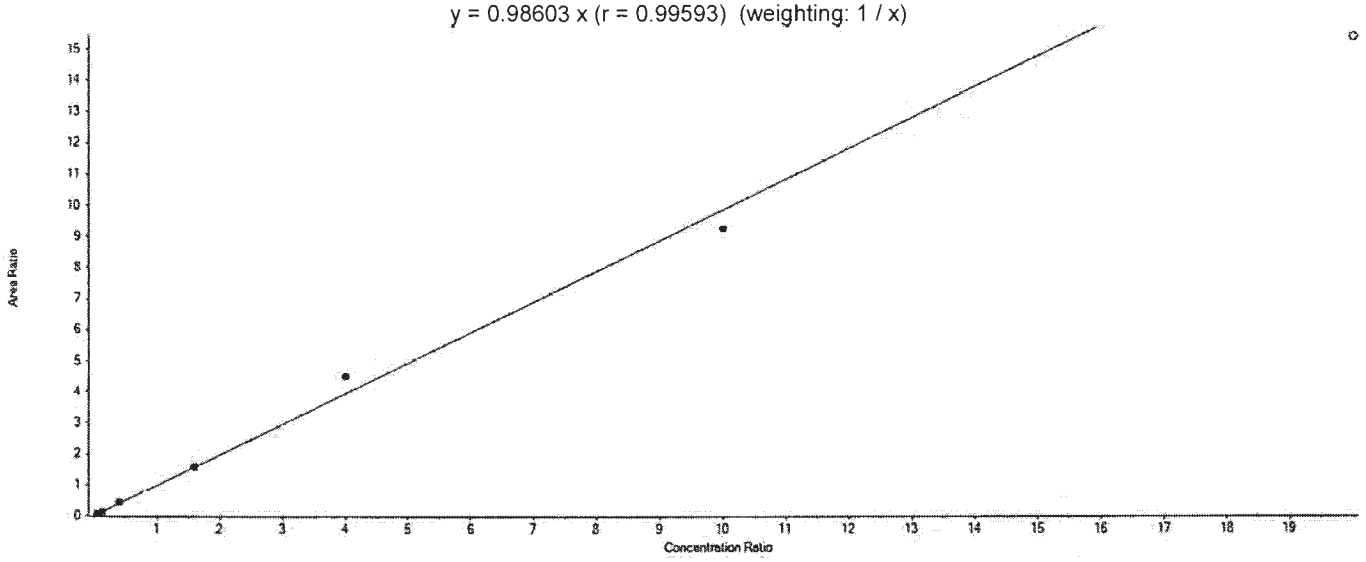
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

PFNA

y = 0.98603 x (r = 0.99593) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFNA Area	S/N	13C9-PFNA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	92705.0	138.9	1917757.2	True	5.00	0.048	6.87	1.000	0.200	0.245	22.6	50.0	
CAL2	260003.6	748.6	2225985.4	True	5.00	0.117	6.86	1.000	0.600	0.592	-1.3	30.0	
CAL3	870814.7	2333.4	2054548.1	True	5.00	0.424	6.88	1.000	2.000	2.149	7.5	30.0	
CAL4	3287670.1	4763.4	2085346.2	True	5.00	1.577	6.88	1.000	8.000	7.994	-0.1	30.0	
CAL5	9105272.4	9840.4	2015057.0	True	5.00	4.519	6.87	1.000	20.000	22.913	14.6	30.0	
CAL6	16077956.8	13074.1	1738144.3	True	5.00	9.250	6.87	1.000	50.000	46.906	-6.2	30.0	
CAL7	25930653.8	8663.0	1683216.8	False	5.00	15.405	6.87	1.000	100.000	78.118	-21.9	30.0	

APPROVED
By MSM at 8:09 am, 3/13/18

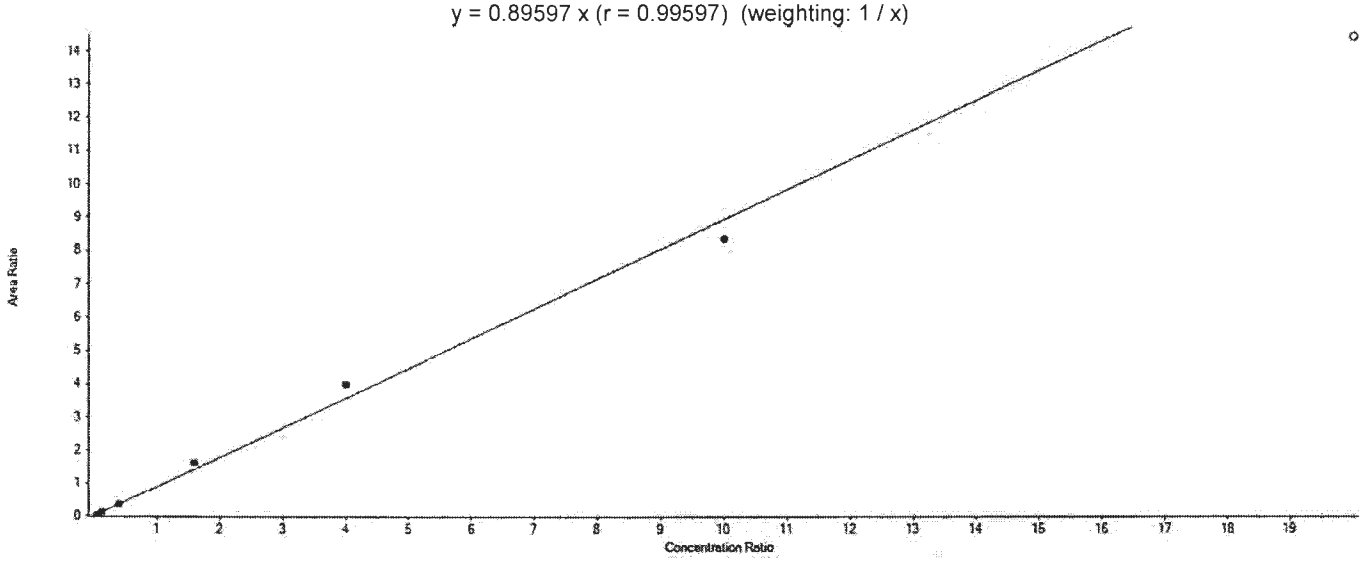
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

PFDA

y = 0.89597 x (r = 0.99597) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDA Area	S/N	13C6-PFDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	92488.5	499.7	2136887.8	True	5.00	0.043	7.25	1.000	0.200	0.242	20.8	50.0	
CAL2	244532.8	1395.1	2351301.9	True	5.00	0.104	7.24	1.000	0.600	0.580	-3.3	30.0	
CAL3	731532.4	2576.1	2065351.7	True	5.00	0.354	7.25	1.000	2.000	1.977	-1.2	30.0	
CAL4	3172858.4	6736.1	1954688.2	True	5.00	1.623	7.25	1.000	8.000	9.058	13.2	30.0	
CAL5	7873079.4	7354.4	1973076.2	True	5.00	3.990	7.25	1.000	20.000	22.268	11.3	30.0	
CAL6	14789345.9	12839.5	1768228.0	True	5.00	8.364	7.24	1.000	50.000	46.675	-6.6	30.0	
CAL7	23124550.7	13447.4	1598829.3	False	5.00	14.463	7.25	1.000	100.000	80.714	-19.3	30.0	

APPROVED
By MSM at 8:09 am, 3/13/18

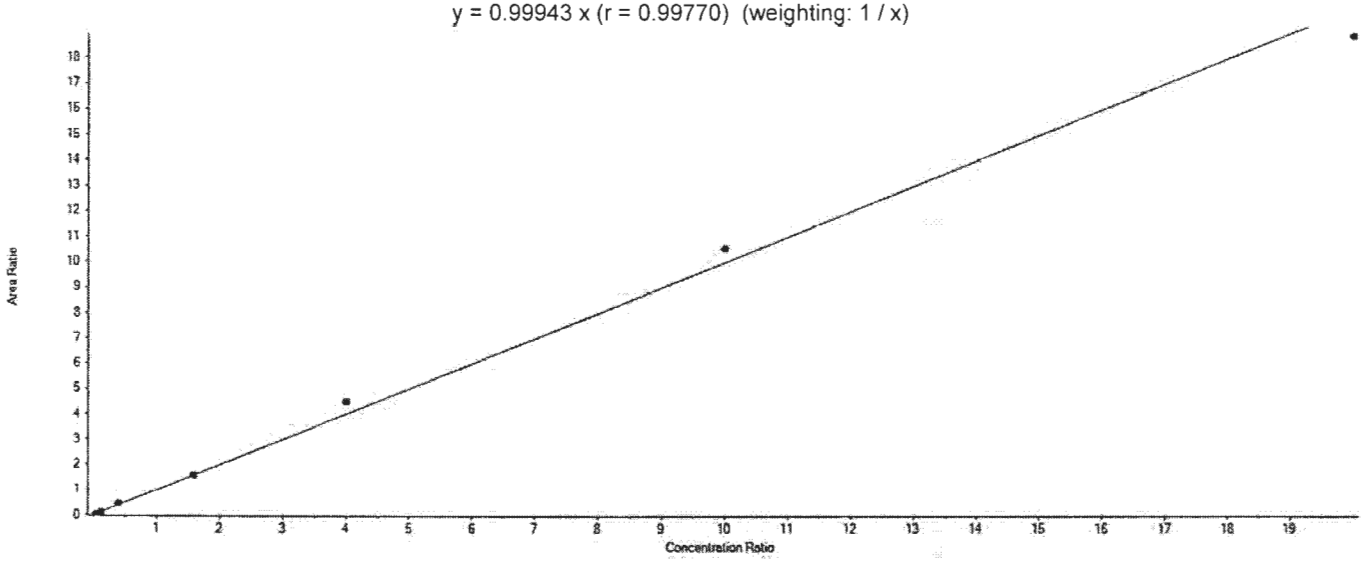
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

PFUnDA

y = 0.99943 x (r = 0.99770) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFUnDA Area	S/N	13C7-PFUnDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	69985.7	342.6	1575620.4	True	5.00	0.044	7.59	1.000	0.200	0.222	11.1	50.0	
CAL2	177132.3	836.0	1529478.1	True	5.00	0.116	7.59	1.000	0.600	0.579	-3.4	30.0	
CAL3	640827.5	2131.1	1414833.8	True	5.00	0.453	7.60	1.000	2.000	2.266	13.3	30.0	
CAL4	2410696.1	6151.7	1517125.6	True	5.00	1.589	7.60	1.000	8.000	7.949	-0.6	30.0	
CAL5	6392567.5	11467.4	1419799.7	True	5.00	4.502	7.59	1.000	20.000	22.525	12.6	30.0	
CAL6	13025817.8	7029.7	1234880.6	True	5.00	10.548	7.59	1.000	50.000	52.771	5.5	30.0	
CAL7	20123512.2	17506.8	1065500.2	True	5.00	18.886	7.59	1.000	100.000	94.486	-5.5	30.0	

APPROVED
By MSM at 8:09 am, 3/13/18

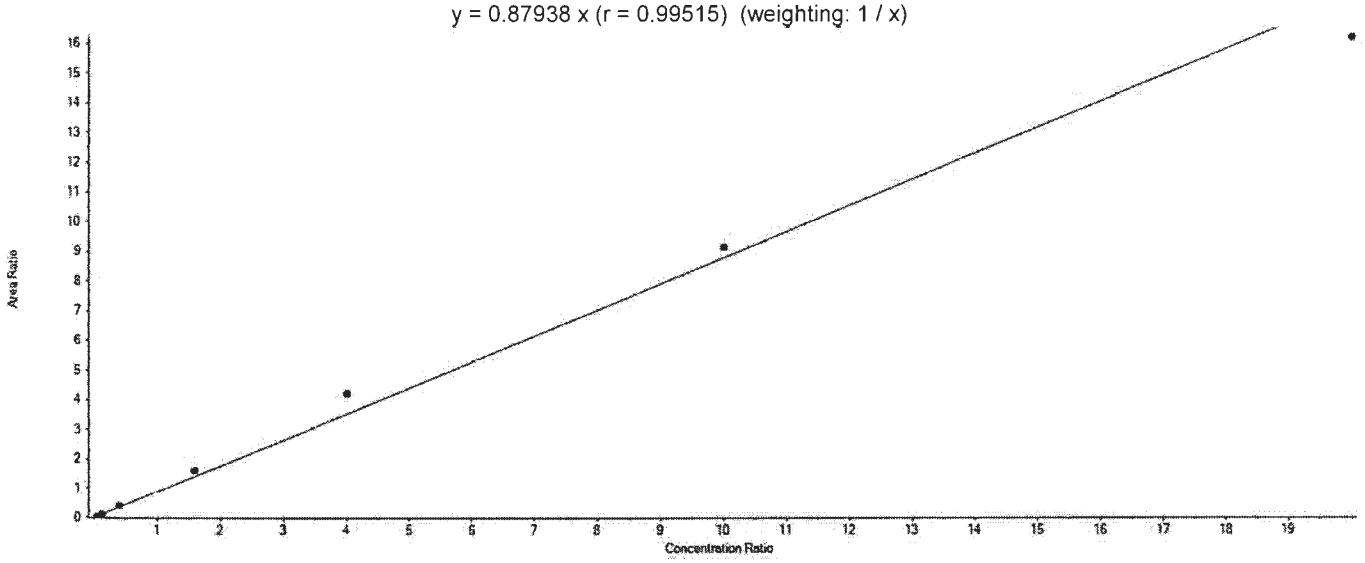
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

PFDoDA

y = 0.87938 x (r = 0.99515) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFDoDA Area	S/N	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	69188.7	431.4	1613292.9	True	5.00	0.043	7.93	1.000	0.200	0.244	21.9	50.0	
CAL2	197638.3	954.4	1736187.0	True	5.00	0.114	7.91	1.000	0.600	0.647	7.9	30.0	
CAL3	642679.6	2261.3	1574900.7	True	5.00	0.408	7.93	1.000	2.000	2.320	16.0	30.0	
CAL4	2542619.7	6963.4	1571564.7	True	5.00	1.618	7.93	1.000	8.000	9.199	15.0	30.0	
CAL5	6827379.2	11373.1	1612843.5	True	5.00	4.233	7.93	1.000	20.000	24.069	20.3	30.0	
CAL6	13370868.7	8496.6	1458372.2	True	5.00	9.168	7.92	1.000	50.000	52.130	4.3	30.0	
CAL7	22272671.3	19989.6	1373659.8	True	5.00	16.214	7.92	1.000	100.000	92.191	-7.8	30.0	

APPROVED
By MSM at 8:09 am, 3/13/18

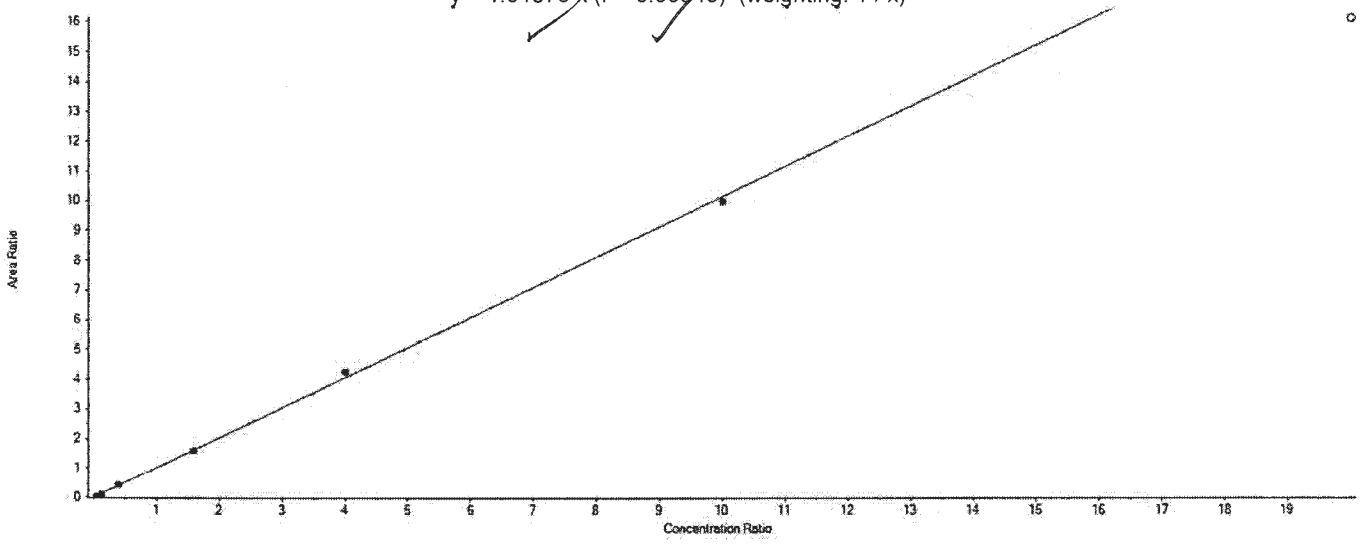
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

PFTrDA

y = 1.01576 x (r = 0.99948) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTrDA Area	S/N	13C2-PFDoDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	78138.4	526.2	1613292.9	True	5.00	0.048	8.24	1.040	0.200	0.238	19.2	50.0	
CAL2	187945.4	1155.8	1736187.0	True	5.00	0.108	8.23	1.040	0.600	0.533	-11.2	30.0	
CAL3	651101.4	5307.0	1574900.7	True	5.00	0.413	8.24	1.040	2.000	2.035	1.8	30.0	
CAL4	2510020.3	11007.4	1571564.7	True	5.00	1.597	8.24	1.040	8.000	7.862	-1.7	30.0	
CAL5	6874673.6	14626.6	1612843.5	True	5.00	4.262	8.24	1.040	20.000	20.982	4.9	30.0	
CAL6	14561720.1	21871.7	1458372.2	True	5.00	9.985	8.23	1.040	50.000	49.150	-1.7	30.0	
CAL7	22169828.4	14821.5	1373659.8	False	5.00	16.139	8.23	1.040	100.000	79.444	-20.6	30.0	

APPROVED
By MSM at 8:09 am, 3/13/18

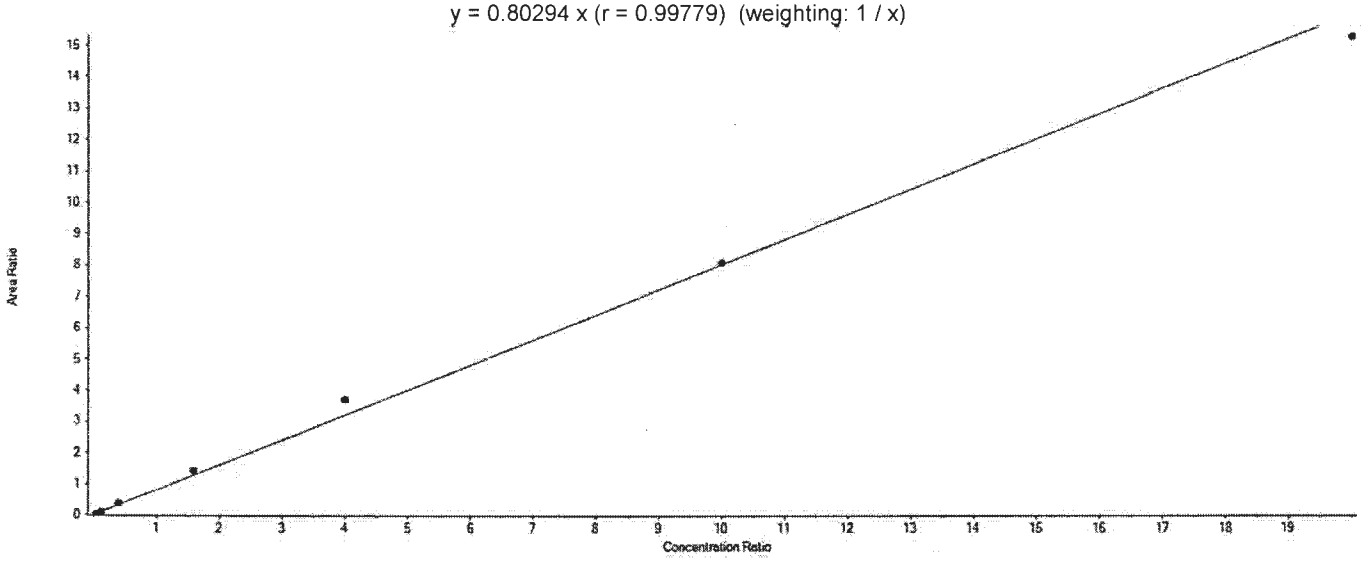
REVIEWED
By umar at 9:13 am, 3/14/18

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

PFTeDA

y = 0.80294 x (r = 0.99779) (weighting: 1 / x)



Component Calibration Verification

Sample Name	PFTeDA Area	S/N	13C2-PFTeDA Area	Used	ES Conc	Area Ratio	RT (min)	RRT	Spec Amount	Calc Amount	%Diff	%D Limit	%D OOS
CAL1	101204.1	897.6	2435622.1	True	5.00	0.042	8.56	1.000	0.200	0.259	29.4	50.0	
CAL2	230895.8	2523.9	2157816.6	True	5.00	0.107	8.55	1.000	0.600	0.666	11.1	30.0	
CAL3	895950.5	5803.5	2387076.9	True	5.00	0.375	8.56	1.000	2.000	2.337	16.9	30.0	
CAL4	3185048.3	18355.6	2250008.7	True	5.00	1.416	8.56	1.000	8.000	8.815	10.2	30.0	
CAL5	9791654.9	34733.6	2643428.7	True	5.00	3.704	8.55	1.000	20.000	23.066	15.3	30.0	
CAL6	16670834.3	32328.8	2062758.8	True	5.00	8.082	8.55	1.000	50.000	50.326	0.7	30.0	
CAL7	25609379.1	19635.2	1672829.5	True	5.00	15.309	8.55	1.000	100.000	95.331	-4.7	30.0	

APPROVED
By MSM at 8:09 am, 3/13/18

REVIEWED
By umar at 9:13 am, 3/14/18

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LC-MS/MS Analysis Report

Printed: 3/13/2018 7:53:00 AM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18MAR12MCAL **Result Table:** 18MAR12MCAL_MOD - 32 Compounds +SEC 3/13/2018 6:43:18 AM

QMethod Name: SF-PCFMOD-17AUG01 **Acquisition Method:** PFC Method_2018-01-22.dam

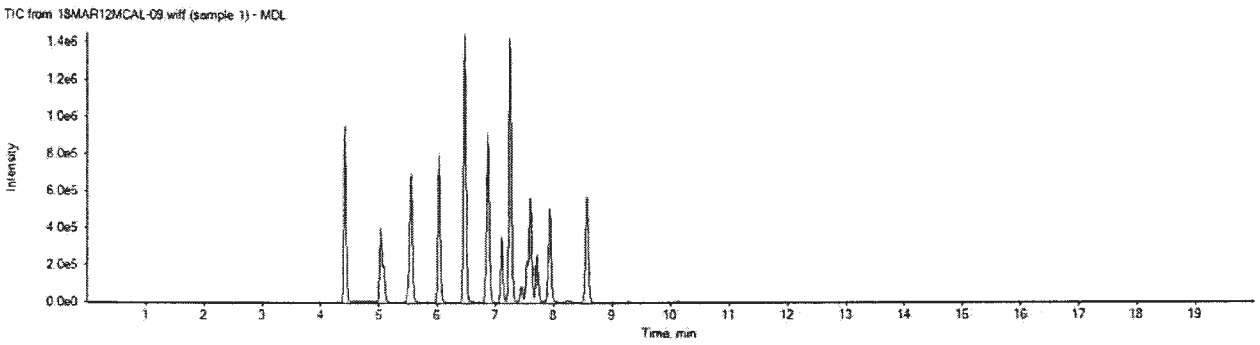
Analyte Quantitation Peak Table

Sample Name: MDL **Instrument Name:** LM26719 **File Name:** 18MAR12MCAL-09.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.41	1.000	25324.0	M	13C4-PFBA	4.41	1271139.7	0.020	0.119
PFPeA	5.03	1.000	23703.5	A	13C5-PFPeA	5.03	1127391.8	0.021	0.115
PFBS	5.08	1.000	8643.8	A	13C3-PFBS	5.08	455938.0	0.019	0.088
4:2-FTS	5.50	1.000	18368.1	A	13C2-4:2-FTS	5.50	212200.4	0.087	0.478
PFHxA	5.55	1.000	41497.9	A	13C5-PFHxA	5.55	2096610.0	0.020	0.116
PFPeS	5.56	1.090	4368.6	A	13C3-PFBS	5.08	455938.0	0.010	0.090
PFHxS	6.02	1.000	7976.8	A	13C3-PFHxS	6.02	365118.7	0.022	0.097
PFHpA	6.03	1.000	44233.5	A	13C4-PFHpA	6.03	1853596.6	0.024	0.123
6:2-FTS	6.46	1.000	16637.4	A	13C2-6:2-FTS	6.46	184403.4	0.090	0.485
PFHpS	6.45	1.070	6706.1	M	13C3-PFHxS	6.02	365118.7	0.018	0.095
PFOA	6.47	1.000	47301.2	A	13C8-PFOA	6.47	2145398.9	0.022	0.109
PFOS	6.85	1.000	7461.7	M	13C8-PFOS	6.85	341895.3	0.022	0.103
PFNA	6.87	1.000	44847.9	A	13C9-PFNA	6.88	2122608.3	0.021	0.107
PFOSA	7.11	1.000	20632.3	A	13C8-PFOSA	7.11	940554.9	0.022	0.113
PFNS	7.21	1.050	4606.4	A	13C8-PFOS	6.85	341895.3	0.013	0.100
PFDA	7.25	1.000	45801.8	A	13C6-PFDA	7.25	2166492.5	0.021	0.118
8:2-FTS	7.27	1.000	21421.7	A	13C2-8:2-FTS	7.26	191117.2	0.112	0.544
NMePFOSAE	7.55	1.000	12326.5	M	d7-NMePFOSAE	7.54	524870.1	0.023	0.115
NMePFOSA	7.57	1.000	3087.9	M	d3-NMePFOSA	7.57	144154.7	0.021	0.103
NMeFOSAA	7.45	1.000	6161.3	A	d3-NMeFOSAA	7.44	258629.6	0.024	0.118
NEtPFOSAE	7.72	1.000	16355.1	M	d9-NEtPFOSAE	7.70	635138.6	0.026	0.122
NEtPFOSA	7.74	1.000	2453.1	A	d5-NEtPFOSA	7.73	137114.6	0.018	0.089
PFDS	7.55	1.100	3375.9	A	13C8-PFOS	6.85	341895.3	0.010	0.103
PFUnDA	7.60	1.000	33118.5	A	13C7-PFUnDA	7.60	1486594.7	0.022	0.111
NEtFOSAA	7.62	1.000	5811.1	A	d5-NEtFOSAA	7.62	259698.5	0.022	0.110
PFDoDA	7.93	1.000	37984.2	A	13C2-PFDoDA	7.93	1685842.0	0.023	0.128
10:2-FTS	7.97	1.100	16870.6	A	13C2-8:2-FTS	7.26	191117.2	0.088	0.562
PFDoS	8.18	1.190	1819.2	M	13C8-PFOS	6.85	341895.3	0.005	0.122
PFTrDA	8.24	1.040	35990.4	A	13C2-PFDoDA	7.93	1685842.0	0.021	0.105
PFTeDA	8.56	1.000	39381.3	A	13C2-PFTeDA	8.57	1922411.3	0.020	0.128
PFHxDA	9.27	1.080	21282.7	A	13C2-PFTeDA	8.57	1922411.3	0.011	0.131
PFODA	10.12	1.180	25587.1	M	13C2-PFTeDA	8.57	1922411.3	0.013	0.110

Total Ion Chromatogram



APPROVED
By MSM at 8:47 am, 3/13/18

REVIEWED
By umar at 9:07 am, 3/14/18

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LC-MS/MS Analysis Report

Printed: 3/13/2018 7:57:00 AM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18MAR12MCAL **Result Table:** 18MAR12MCAL_MOD - 32 Compounds +SEC 3/13/2018 6:43:18 AM

QMethod Name: SF-PCFMOD-17AUG01 **Acquisition Method:** PFC Method_2018-01-22.dam

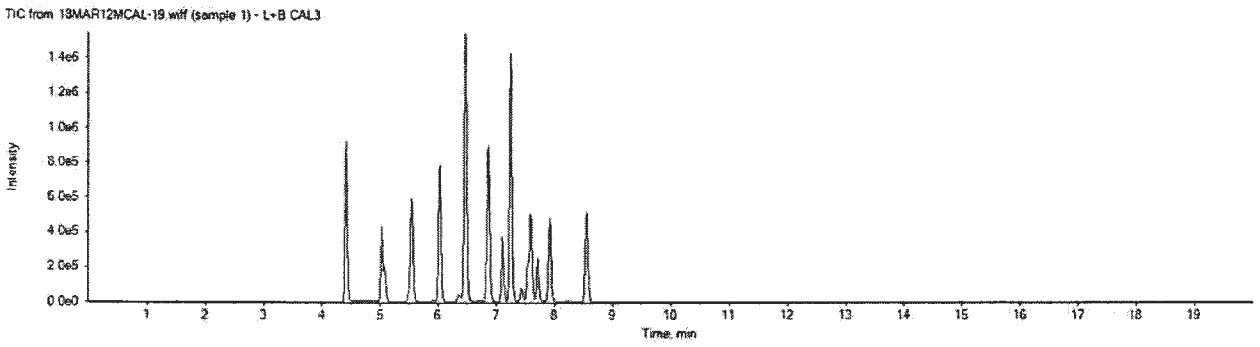
Analyte Quantitation Peak Table

Sample Name: L+B CAL3 **Instrument Name:** LM26719 **File Name:** 18MAR12MCAL-19.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	N/A	N/A	N/A	A	13C4-PFBA	4.41	1202128.6	N/A	
PFPeA	N/A	N/A	N/A	A	13C5-PFPeA	5.03	1064112.1	N/A	
PFBS	N/A	N/A	N/A	A	13C3-PFBS	5.08	449643.3	N/A	
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.50	184518.0	N/A	
PFHxA	N/A	N/A	N/A	A	13C5-PFHxA	5.54	1907609.2	N/A	
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.08	449643.3	N/A	
PFHxS	6.02	1.000	143162.6	M	13C3-PFHxS	6.02	357394.0	0.401	1.780
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	6.02	1851459.1	N/A	
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.45	189892.2	N/A	
PFHpS	N/A	N/A	N/A	A	13C3-PFHxS	6.02	357394.0	N/A	
PFOA	6.46	1.000	679994.0	M	13C8-PFOA	6.46	2005093.1	0.339	1.676
PFOS	6.84	1.000	134390.4	M	13C8-PFOS	6.84	323565.2	0.415	1.956
PFNA	N/A	N/A	N/A	A	13C9-PFNA	6.87	2132446.1	N/A	
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	7.11	926523.0	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.84	323565.2	N/A	
PFDA	N/A	N/A	N/A	A	13C6-PFDA	7.24	2041177.3	N/A	
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.26	202067.0	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.54	500011.6	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.56	137376.4	N/A	
NMeFOSAA	N/A	N/A	N/A	A	d3-NMeFOSAA	7.44	242353.3	N/A	
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.71	600838.3	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.73	123204.5	N/A	
PFDS	N/A	N/A	N/A	A	13C8-PFOS	6.84	323565.2	N/A	
PFUnDA	N/A	N/A	N/A	A	13C7-PFUnDA	7.59	1344330.4	N/A	
NEtFOSAA	N/A	N/A	N/A	A	d5-NEtFOSAA	7.61	244444.1	N/A	
PFDoDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.92	1525533.6	N/A	
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.26	202067.0	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.84	323565.2	N/A	
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	7.92	1525533.6	N/A	
PFTeDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.55	1666023.0	N/A	
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.55	1666023.0	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.55	1666023.0	N/A	

Total Ion Chromatogram



APPROVED
By MSM at 8:47 am, 3/13/18

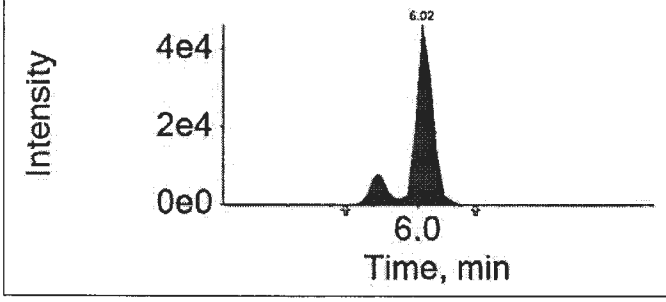
REVIEWED
By umar at 9:07 am, 3/14/18

ICAL Name: 18MAR12MCAL **Result Table:** 18MAR12MCAL_MOD - 32 Compounds +SEC 3/13/2018 6:43:18 AM

QMethod Name: SF-PCFMOD-17AUG01 **Acquisition Method:** PFC Method_2018-01-22.dam

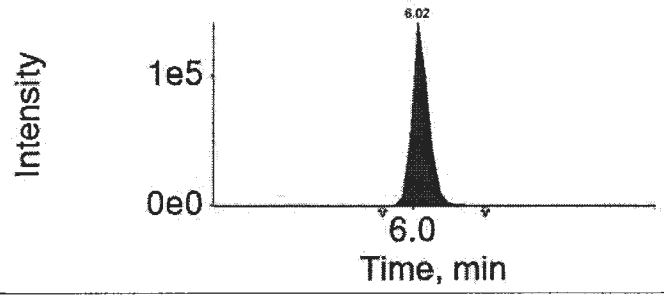
Analyte: PFHxS

399.0 / 80.0



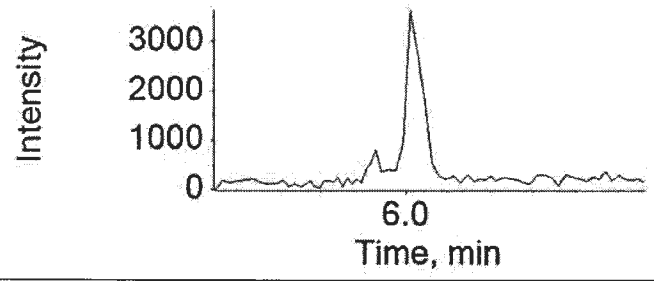
Extraction Standard: 13C3-PFHxS

402.0 / 80.0



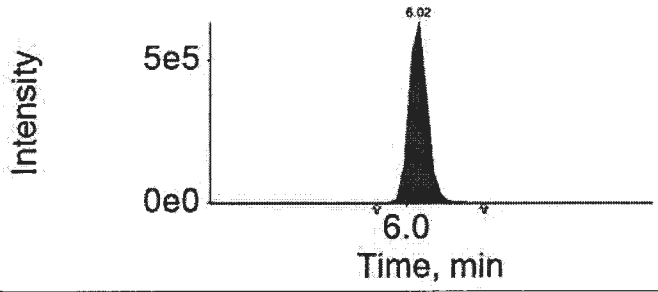
Analyte: PFHpA

363.0 / 319.0



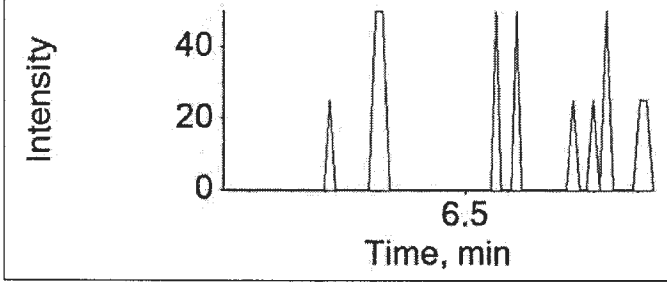
Extraction Standard: 13C4-PFHpA

367.0 / 322.0



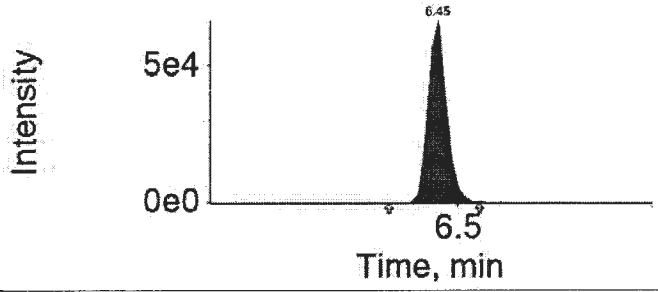
Analyte: 6:2-FTS

427.0 / 407.0



Extraction Standard: 13C2-6:2-FTS

429.0 / 409.0



APPROVED
By MSM at 8:47 am, 3/13/18

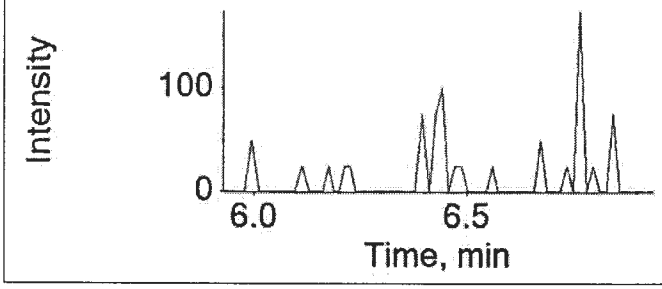
REVIEWED
By umar at 9:07 am, 3/14/18

ICAL Name: 18MAR12MCAL **Result Table:** 18MAR12MCAL_MOD - 32 Compounds +SEC 3/13/2018 6:43:18 AM

QMethod Name: SF-PCFMOD-17AUG01 **Acquisition Method:** PFC Method_2018-01-22.dam

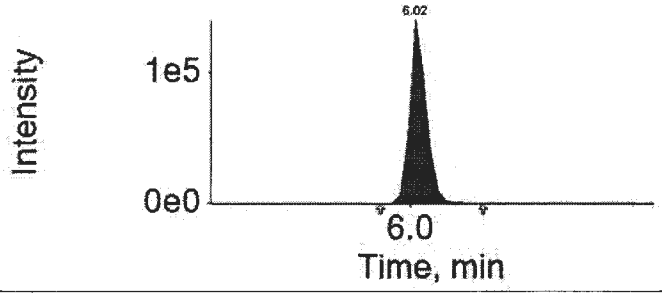
Analyte: PFHpS

449.0 / 80.0



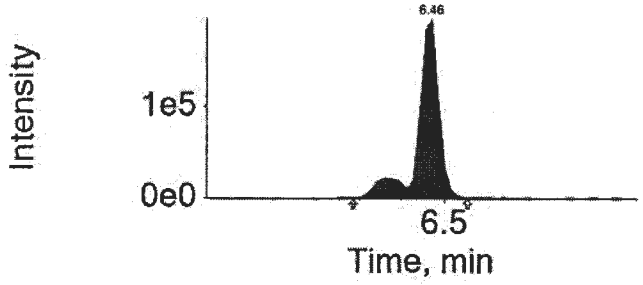
Extraction Standard: 13C3-PFHxS

402.0 / 80.0



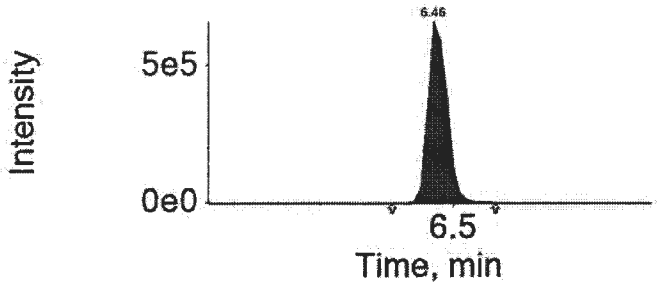
Analyte: PFOA

413.0 / 369.0



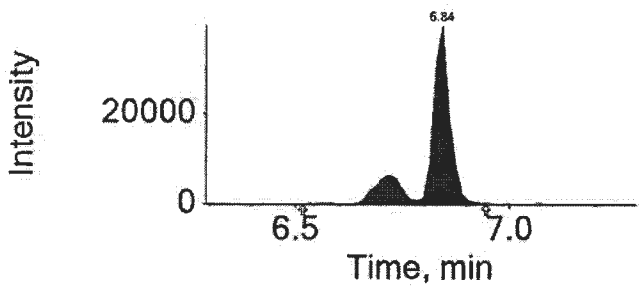
Extraction Standard: 13C8-PFOA

421.0 / 376.0



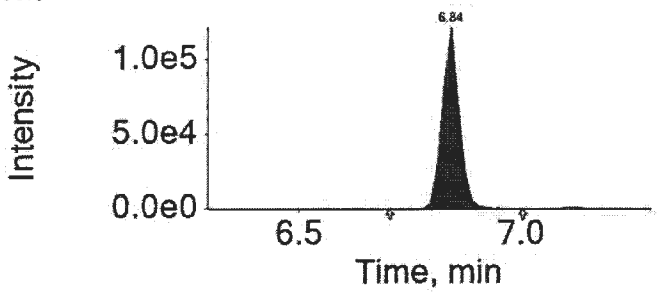
Analyte: PFOS

499.0 / 80.0



Extraction Standard: 13C8-PFOS

507.0 / 80.0



APPROVED
By MSM at 8:47 am, 3/13/18

REVIEWED
By umar at 9:07 am, 3/14/18

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LC-MS/MS Analysis Report

Printed: 3/13/2018 7:39:00 AM
Template: REG-ICAL-17MAY15.docx

Initial Calibration Verification

Instrument ID: LM26719 **ICAL Name:** 18MAR12MCAL **QMethod Name:** SF-PCFMOD-17AUG01
Result Table: 18MAR12MCAL_MOD - 32 Compounds +SEC3/13/2018 6:43:18 AM **Acquisition Method:** PFC Method_2018-01-22.dam

Sample Name	Sample ID:	Sample File:	Acquisition Date:
ICV	ICVMODX1833B	18MAR12MCAL-18.wiff	3/13/2018 3:39:45 AM

Analyte Name	Analyte Area	Ext Std Name	Ext Std Area	Ext Std Con	Area Ratio	RT (min)	RRT	Spec Amt	Calc Amt	% Diff	% Diff Lim	% Diff OOS
PFBA	418492.6	13C4-PFBA	1256719.4	5.00	0.333	4.41	1.00	2.000	1.983	-0.8	30.0	
PFPeA	419557.7	13C5-PFPeA	1052736.6	5.00	0.399	5.03	1.00	2.000	2.184	9.2	30.0	
PFBS	168247.2	13C3-PFBS	470265.2	4.65	0.358	5.08	1.00	1.770	1.668	-5.8	30.0	
4:2-FTS	N/A	13C2-4:2-FTS	190843.6	4.67	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxA	700753.5	13C5-PFHxA	2010002.2	5.00	0.349	5.54	1.00	2.000	2.039	1.9	30.0	
PFPeS	N/A	13C3-PFBS	470265.2	4.65	N/A	N/A	N/A	0.000	N/A		30.0	
PFHxS	139116.9	13C3-PFHxS	379730.8	4.73	0.366	6.02	1.00	1.890	1.628	-13.9	30.0	
PFHpA	729686.6	13C4-PFHpA	1763206.6	5.00	0.414	6.03	1.00	2.000	2.132	6.6	30.0	
6:2-FTS	N/A	13C2-6:2-FTS	186392.7	4.75	N/A	N/A	N/A	0.000	N/A		30.0	
PFHpS	129697.7	13C3-PFHxS	379730.8	4.73	0.342	6.45	1.07	1.900	1.774	-6.6	30.0	
PFOA	754731.3	13C8-PFOA	2106092.9	5.00	0.358	6.47	1.00	2.000	1.771	-11.4	30.0	
PFOS	119580.2	13C8-PFOS	352891.4	4.78	0.339	6.84	1.00	1.910	1.595	-16.5	30.0	
PFNA	838018.0	13C9-PFNA	2214582.3	5.00	0.378	6.87	1.00	2.000	1.919	-4.1	30.0	
PFOSA	N/A	13C8-PFOSA	953426.6	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFNS	N/A	13C8-PFOS	352891.4	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFDA	709179.1	13C6-PFDA	2127966.4	5.00	0.333	7.25	1.00	2.000	1.860	-7.0	30.0	
8:2-FTS	N/A	13C2-8:2-FTS	196661.1	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSAE	N/A	d7-NMePFOSAE	518084.2	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMePFOSA	N/A	d3-NMePFOSA	143969.1	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NMeFOSAA	102723.6	d3-NMeFOSAA	252509.5	5.00	0.407	7.45	1.00	2.000	2.008	0.4	30.0	
NEtPFOSAE	N/A	d9-NEtPFOSAE	647978.7	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
NEtPFOSA	N/A	d5-NEtPFOSA	136113.9	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFDS	66637.6	13C8-PFOS	352891.4	4.78	0.189	7.55	1.10	1.930	1.966	1.9	30.0	
PFUnDA	602556.6	13C7-PFUnDA	1498210.7	5.00	0.402	7.59	1.00	2.000	2.012	0.6	30.0	
NEtFOSAA	93220.1	d5-NEtFOSAA	266534.1	5.00	0.350	7.62	1.00	2.000	1.719	-14.0	30.0	
PFDoDA	614722.2	13C2-PFDoDA	1693660.8	5.00	0.363	7.92	1.00	2.000	2.064	3.2	30.0	
10:2-FTS	N/A	13C2-8:2-FTS	196661.1	4.79	N/A	N/A	N/A	0.000	N/A		30.0	
PFDoS	N/A	13C8-PFOS	352891.4	4.78	N/A	N/A	N/A	0.000	N/A		30.0	
PFTrDA	674418.6	13C2-PFDoDA	1693660.8	5.00	0.398	8.23	1.04	2.000	1.960	-2.0	30.0	
PFTeDA	778775.5	13C2-PFTeDA	2115796.1	5.00	0.368	8.55	1.00	2.000	2.292	14.6	30.0	
PFHxDA	N/A	13C2-PFTeDA	2115796.1	5.00	N/A	N/A	N/A	0.000	N/A		30.0	
PFODA	N/A	13C2-PFTeDA	2115796.1	5.00	N/A	N/A	N/A	0.000	N/A		30.0	

APPROVED
By MSM at 8:09 am, 3/13/18

REVIEWED
By umar at 9:13 am, 3/14/18

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LC-MS/MS Analysis Report

Printed: 3/13/2018 7:56:00 AM
Template: REG-Sample-17MAY15.docx

ICAL Name: 18MAR12MCAL **Result Table:** 18MAR12MCAL_MOD - 32 Compounds +SEC 3/13/2018 6:43:18 AM
QMethod Name: SF-PCFMOD-17AUG01 **Acquisition Method:** PFC Method_2018-01-22.dam

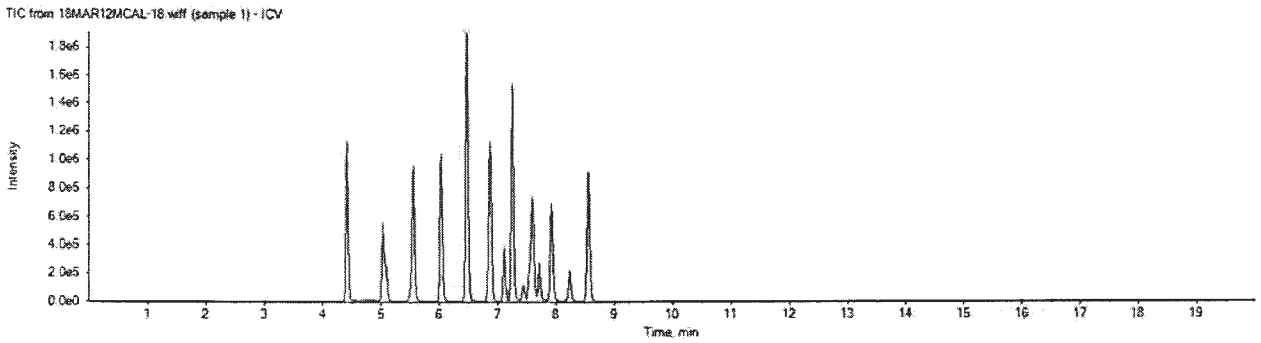
Analyte Quantitation Peak Table

Sample Name: ICV **Instrument Name:** LM26719 **File Name:** 18MAR12MCAL-18.wiff

Sample Wt	Sample Vol	Dilution Factor	PrepFactor
1.00000	1.000	1.00	1.000

Analyte Name	RT	RRT	Analyte Area Response	Int Typ	ES Name	ES RT	ES Area Response	Area Ratio	Sample Result (ng/g)
PFBA	4.41	1.000	418492.6	A	13C4-PFBA	4.41	1256719.4	0.333	1.983
PFPeA	5.03	1.000	419557.7	A	13C5-PFPeA	5.03	1052736.6	0.399	2.184
PFBS	5.08	1.000	168247.2	A	13C3-PFBS	5.09	470265.2	0.358	1.668
4:2-FTS	N/A	N/A	N/A	A	13C2-4:2-FTS	5.50	190843.6	N/A	
PFHxA	5.54	1.000	700753.5	A	13C5-PFHxA	5.55	2010002.2	0.349	2.039
PFPeS	N/A	N/A	N/A	A	13C3-PFBS	5.09	470265.2	N/A	
PFHxS	6.02	1.000	139116.9	A	13C3-PFHxS	6.02	379730.8	0.366	1.628
PFHpA	6.03	1.000	729686.6	A	13C4-PFHpA	6.03	1763206.6	0.414	2.132
6:2-FTS	N/A	N/A	N/A	A	13C2-6:2-FTS	6.45	186392.7	N/A	
PFHpS	6.45	1.070	129697.7	A	13C3-PFHxS	6.02	379730.8	0.342	1.774
PFOA	6.47	1.000	754731.3	A	13C8-PFOA	6.47	2106092.9	0.358	1.771
PFOS	6.84	1.000	119580.2	A	13C8-PFOS	6.84	352891.4	0.339	1.595
PFNA	6.87	1.000	838018.0	A	13C9-PFNA	6.87	2214582.3	0.378	1.919
PFOSA	N/A	N/A	N/A	A	13C8-PFOSA	7.11	953426.6	N/A	
PFNS	N/A	N/A	N/A	A	13C8-PFOS	6.84	352891.4	N/A	
PFDA	7.25	1.000	709179.1	A	13C6-PFDA	7.25	2127966.4	0.333	1.860
8:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.26	196661.1	N/A	
NMePFOSAE	N/A	N/A	N/A	A	d7-NMePFOSAE	7.54	518084.2	N/A	
NMePFOSA	N/A	N/A	N/A	A	d3-NMePFOSA	7.56	143969.1	N/A	
NMeFOSAA	7.45	1.000	102723.6	A	d3-NMeFOSAA	7.44	252509.5	0.407	2.008
NEtPFOSAE	N/A	N/A	N/A	A	d9-NEtPFOSAE	7.71	647978.7	N/A	
NEtPFOSA	N/A	N/A	N/A	A	d5-NEtPFOSA	7.74	136113.9	N/A	
PFDS	7.55	1.100	66637.6	A	13C8-PFOS	6.84	352891.4	0.189	1.966
PFUnDA	7.59	1.000	602556.6	A	13C7-PFUnDA	7.59	1498210.7	0.402	2.012
NEtFOSAA	7.62	1.000	93220.1	A	d5-NEtFOSAA	7.61	266534.1	0.350	1.719
PFDoDA	7.92	1.000	614722.2	A	13C2-PFDoDA	7.92	1693660.8	0.363	2.064
10:2-FTS	N/A	N/A	N/A	A	13C2-8:2-FTS	7.26	196661.1	N/A	
PFDoS	N/A	N/A	N/A	A	13C8-PFOS	6.84	352891.4	N/A	
PFTrDA	8.23	1.040	674418.6	A	13C2-PFDoDA	7.92	1693660.8	0.398	1.960
PFTeDA	8.55	1.000	778775.5	A	13C2-PFTeDA	8.55	2115796.1	0.368	2.292
PFHxDA	N/A	N/A	N/A	A	13C2-PFTeDA	8.55	2115796.1	N/A	
PFODA	N/A	N/A	N/A	A	13C2-PFTeDA	8.55	2115796.1	N/A	

Total Ion Chromatogram



APPROVED
By MSM at 9:08 am, 3/14/18

REVIEWED
By umar at 9:11 am, 3/14/18

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Lab File Names: CAL1= 18MAR12MCAL-10.WIFF; CAL2= 18MAR12MCAL-11.WIFF; CAL3= 18MAR12MCAL-12.WIFF;
CAL4= 18MAR12MCAL-13.WIFF; CAL5= 18MAR12MCAL-14.WIFF; CAL6= 18MAR12MCAL-15.WIFF;
CAL7= 18MAR12MCAL-16.WIFF;

Perfluorobutanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.242	20.9	±50
CAL2	0.101	0.60	0.600	0.1	±30
CAL3	0.349	2.00	2.076	3.8	±30
CAL4	1.375	8.00	8.186	2.3	±30
CAL5	3.729	20.00	22.205	11.0	±30
CAL6	8.542	50.00	50.872	1.7	±30
CAL7	16.224	100.00	96.619	-3.4	±30

Perfluoropentanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.224	11.8	±50
CAL2	0.113	0.60	0.621	3.5	±30
CAL3	0.355	2.00	1.947	-2.6	±30
CAL4	1.540	8.00	8.441	5.5	±30
CAL5	4.110	20.00	22.526	12.6	±30
CAL6	9.041	50.00	49.550	-0.9	±30
CAL7	17.789	100.00	97.491	-2.5	±30

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.17	0.178	4.8	±50
CAL2	0.109	0.53	0.507	-4.3	±30
CAL3	0.374	1.77	1.746	-1.4	±30
CAL4	1.489	7.08	6.945	-1.9	±30
CAL5	4.195	17.69	19.560	10.6	±30
CAL6	9.239	44.22	43.079	-2.6	±30
CAL7	18.850	88.45	87.894	-0.6	±30

4:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.116	0.58	0.642	10.7	±50
CAL2	0.390	1.98	2.154	8.8	±30
CAL3	0.950	4.90	5.248	7.1	±30
CAL4	1.838	10.04	10.158	1.2	±30
CAL5	2.133	12.49	11.788	-5.6	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Lab File Names: CAL1= 18MAR12MCAL-10.WIFF; CAL2= 18MAR12MCAL-11.WIFF; CAL3= 18MAR12MCAL-12.WIFF;
CAL4= 18MAR12MCAL-13.WIFF; CAL5= 18MAR12MCAL-14.WIFF; CAL6= 18MAR12MCAL-15.WIFF;
CAL7= 18MAR12MCAL-16.WIFF;

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.242	21.2	±50
CAL2	0.111	0.60	0.652	8.6	±30
CAL3	0.355	2.00	2.075	3.8	±30
CAL4	1.600	8.00	9.358	17.0	±30
CAL5	3.911	20.00	22.870	14.4	±30
CAL6	8.794	50.00	51.428	2.9	±30
CAL7	16.103	100.00	94.173	-5.8	±30

Perfluoropentanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.019	0.19	0.183	-3.6	±50
CAL2	0.060	0.56	0.562	0.3	±30
CAL3	0.193	1.88	1.821	-3.1	±30
CAL4	0.834	7.50	7.872	5.0	±30
CAL5	2.198	18.76	20.747	10.6	±30
CAL6	4.820	46.90	45.500	-3.0	±30
CAL7	9.841	93.80	92.905	-1.0	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.19	0.195	2.6	±50
CAL2	0.110	0.57	0.487	-14.6	±30
CAL3	0.439	1.89	1.950	3.2	±30
CAL4	1.629	7.56	7.236	-4.3	±30
CAL5	4.632	18.91	20.579	8.8	±30
CAL6	10.583	47.28	47.017	-0.6	±30
CAL7	21.042	94.55	93.486	-1.1	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.263	31.7	±50
CAL2	0.125	0.60	0.645	7.5	±30
CAL3	0.431	2.00	2.220	11.0	±30
CAL4	1.679	8.00	8.652	8.1	±30
CAL5	4.617	20.00	23.785	18.9	±30
CAL6	9.848	50.00	50.736	1.5	±30
CAL7	18.342	100.00	94.499	-5.5	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Lab File Names: CAL1= 18MAR12MCAL-10.WIFF; CAL2= 18MAR12MCAL-11.WIFF; CAL3= 18MAR12MCAL-12.WIFF;
CAL4= 18MAR12MCAL-13.WIFF; CAL5= 18MAR12MCAL-14.WIFF; CAL6= 18MAR12MCAL-15.WIFF;
CAL7= 18MAR12MCAL-16.WIFF;

6:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.249	1.30	1.338	2.9	±50
CAL2	0.426	2.09	2.289	9.5	±30
CAL3	1.000	5.21	5.374	3.1	±30
CAL4	2.042	10.43	10.973	5.2	±30
CAL5	2.251	13.04	12.095	-7.2	±30

Perfluoroheptanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.033	0.19	0.172	-9.7	±50
CAL2	0.108	0.57	0.560	-1.8	±30
CAL3	0.372	1.90	1.931	1.6	±30
CAL4	1.372	7.61	7.129	-6.3	±30
CAL5	3.865	19.03	20.078	5.5	±30
CAL6	9.100	47.58	47.273	-0.6	±30
CAL7	18.265	95.15	94.887	-0.3	±30

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.049	0.20	0.240	20.1	±50
CAL2	0.126	0.60	0.621	3.4	±30
CAL3	0.408	2.00	2.015	0.7	±30
CAL4	1.650	8.00	8.154	1.9	±30
CAL5	4.547	20.00	22.477	12.4	±30
CAL6	9.568	50.00	47.294	-5.4	±30
CAL7	15.711	100.00	77.655	-22.3	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.19	0.193	1.5	±50
CAL2	0.130	0.57	0.614	7.6	±30
CAL3	0.382	1.91	1.800	-5.8	±30
CAL4	1.523	7.65	7.170	-6.3	±30
CAL5	4.579	19.12	21.560	12.8	±30
CAL6	9.860	47.80	46.421	-2.9	±30
CAL7	20.195	95.60	95.083	-0.5	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Lab File Names: CAL1= 18MAR12MCAL-10.WIFF; CAL2= 18MAR12MCAL-11.WIFF; CAL3= 18MAR12MCAL-12.WIFF;
CAL4= 18MAR12MCAL-13.WIFF; CAL5= 18MAR12MCAL-14.WIFF; CAL6= 18MAR12MCAL-15.WIFF;
CAL7= 18MAR12MCAL-16.WIFF;

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.048	0.20	0.245	22.6	±50
CAL2	0.117	0.60	0.592	-1.3	±30
CAL3	0.424	2.00	2.149	7.5	±30
CAL4	1.577	8.00	7.994	-0.1	±30
CAL5	4.519	20.00	22.913	14.6	±30
CAL6	9.250	50.00	46.906	-6.2	±30
CAL7	15.405	100.00	78.118	-21.9	±30

Perfluorooctanesulfonamide	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.212	5.8	±50
CAL2	0.116	0.60	0.597	-0.5	±30
CAL3	0.418	2.00	2.153	7.6	±30
CAL4	1.562	8.00	8.045	0.6	±30
CAL5	1.798	10.00	9.259	-7.4	±30
CAL6	9.472	50.00	48.778	-2.4	±30
CAL7	19.760	100.00	101.757	1.8	±30

Perfluorononanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.031	0.19	0.228	20.0	±50
CAL2	0.075	0.58	0.560	-3.4	±30
CAL3	0.248	1.92	1.843	-4.0	±30
CAL4	1.030	7.68	7.659	-0.3	±30
CAL5	3.023	19.20	22.476	17.1	±30
CAL6	6.398	48.00	47.570	-0.9	±30
CAL7	12.539	96.00	93.233	-2.9	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.242	20.8	±50
CAL2	0.104	0.60	0.580	-3.3	±30
CAL3	0.354	2.00	1.977	-1.2	±30
CAL4	1.623	8.00	9.058	13.2	±30
CAL5	3.990	20.00	22.268	11.3	±30
CAL6	8.364	50.00	46.675	-6.6	±30
CAL7	14.463	100.00	80.714	-19.3	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Lab File Names: CAL1= 18MAR12MCAL-10.WIFF; CAL2= 18MAR12MCAL-11.WIFF; CAL3= 18MAR12MCAL-12.WIFF;
CAL4= 18MAR12MCAL-13.WIFF; CAL5= 18MAR12MCAL-14.WIFF; CAL6= 18MAR12MCAL-15.WIFF;
CAL7= 18MAR12MCAL-16.WIFF;

8:2 fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.297	1.32	1.440	9.1	±50
CAL2	0.424	2.11	2.060	-2.4	±30
CAL3	1.234	5.27	5.991	13.7	±30
CAL4	2.113	10.54	10.255	-2.7	±30
CAL5	2.609	13.17	12.664	-3.8	±30

NMeFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.033	0.20	0.165	-17.5	±50
CAL2	0.130	0.60	0.639	6.5	±30
CAL3	0.448	2.00	2.210	10.5	±30
CAL4	1.652	8.00	8.152	1.9	±30
CAL5	2.006	10.00	9.901	-1.0	±30
CAL6	10.038	50.00	49.535	-0.9	±30
CAL7	20.304	100.00	100.197	0.2	±30

Perfluorodecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.021	0.19	0.219	15.1	±50
CAL2	0.055	0.58	0.572	-1.3	±30
CAL3	0.191	1.93	1.989	3.1	±30
CAL4	0.709	7.70	7.382	-4.1	±30
CAL5	2.164	19.26	22.523	16.9	±30
CAL6	4.816	48.15	50.132	4.1	±30
CAL7	8.770	96.30	91.293	-5.2	±30

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.222	11.1	±50
CAL2	0.116	0.60	0.579	-3.4	±30
CAL3	0.453	2.00	2.266	13.3	±30
CAL4	1.589	8.00	7.949	-0.6	±30
CAL5	4.502	20.00	22.525	12.6	±30
CAL6	10.548	50.00	52.771	5.5	±30
CAL7	18.886	100.00	94.486	-5.5	±30

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719

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CAL4= 18MAR12MCAL-13.WIFF; CAL5= 18MAR12MCAL-14.WIFF; CAL6= 18MAR12MCAL-15.WIFF;
CAL7= 18MAR12MCAL-16.WIFF;

NEtFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.040	0.20	0.198	-0.8	±50
CAL2	0.119	0.60	0.583	-2.9	±30
CAL3	0.438	2.00	2.151	7.5	±30
CAL4	1.498	8.00	7.362	-8.0	±30
CAL5	1.902	10.00	9.349	-6.5	±30
CAL6	9.895	50.00	48.643	-2.7	±30
CAL7	20.853	100.00	102.514	2.5	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.244	21.9	±50
CAL2	0.114	0.60	0.647	7.9	±30
CAL3	0.408	2.00	2.320	16.0	±30
CAL4	1.618	8.00	9.199	15.0	±30
CAL5	4.233	20.00	24.069	20.3	±30
CAL6	9.168	50.00	52.130	4.3	±30
CAL7	16.214	100.00	92.191	-7.8	±30

10:2-fluorotelomersulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.257	1.33	1.637	23.1	±50
CAL2	0.298	2.12	1.899	-10.4	±30
CAL3	0.905	5.30	5.760	8.7	±30
CAL4	1.563	10.60	9.945	-6.2	±30
CAL5	2.101	13.26	13.369	0.8	±30
		0	0		±30
		0	0		±30

Perfluorododecanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.009	0.19	0.206	8.4	±50
CAL2	0.025	0.58	0.578	-0.4	±30
CAL3	0.086	1.94	1.960	1.0	±30
CAL4	0.334	7.74	7.643	-1.2	±30
CAL5	0.952	19.36	21.818	12.7	±30
CAL6	2.165	48.40	49.611	2.5	±30
CAL7	4.067	96.80	93.195	-3.7	±30

* Outside QC Limits

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FORM 06
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

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CAL4= 18MAR12MCAL-13.WIFF; CAL5= 18MAR12MCAL-14.WIFF; CAL6= 18MAR12MCAL-15.WIFF;
CAL7= 18MAR12MCAL-16.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.048	0.20	0.238	19.2	±50
CAL2	0.108	0.60	0.533	-11.2	±30
CAL3	0.413	2.00	2.035	1.8	±30
CAL4	1.597	8.00	7.862	-1.7	±30
CAL5	4.262	20.00	20.982	4.9	±30
CAL6	9.985	50.00	49.150	-1.7	±30
CAL7	16.139	100.00	79.444	-20.6	±30

Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.20	0.259	29.4	±50
CAL2	0.107	0.60	0.666	11.1	±30
CAL3	0.375	2.00	2.337	16.9	±30
CAL4	1.416	8.00	8.815	10.2	±30
CAL5	3.704	20.00	23.066	15.3	±30
CAL6	8.082	50.00	50.326	0.7	±30
CAL7	15.309	100.00	95.331	-4.7	±30

Perfluorohexadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.018	0.20	0.208	3.9	±50
CAL2	0.051	0.60	0.606	1.0	±30
CAL3	0.156	2.00	1.838	-8.1	±30
CAL4	0.636	8.00	7.513	-6.1	±30
CAL5	1.524	20.00	17.988	-10.1	±30
CAL6	4.071	50.00	48.059	-3.9	±30
CAL7	8.858	100.00	104.589	4.6	±30

Perfluorooctadecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.024	0.20	0.199	-0.7	±50
CAL2	0.075	0.60	0.619	3.2	±30
CAL3	0.246	2.00	2.041	2.1	±30
CAL4	0.979	8.00	8.120	1.5	±30
CAL5	2.028	20.00	16.824	-15.9	±30
CAL6	6.389	50.00	52.997	6.0	±30
CAL7	14.696	100.00	121.898	21.9	±30

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719 Lab File ID: 18MAR12MCAL-20.WIFF

Date/Time Analyzed: 03/13/2018 04:20 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.09	4.44	±30
Perfluoropentanoic acid	2.00	2.11	5.57	±30
Perfluorobutanesulfonate	1.77	1.78	0.62	±30
4:2 fluorotelomersulfonate	4.90	5.47	11.64	±30
Perfluorohexanoic acid	2.00	2.23	11.63	±30
Perfluoropentanesulfonate	1.88	1.93	2.82	±30
Perfluorohexanesulfonate	1.89	1.75	-7.41	±30
Perfluoroheptanoic acid	2.00	2.15	7.51	±30
6:2 fluorotelomersulfonate	5.21	5.69	9.29	±30
Perfluoroheptanesulfonate	1.90	1.73	-9.04	±30
Perfluorooctanoic acid	2.00	2.07	3.33	±30
Perfluoro-octanesulfonate	1.91	1.85	-3.05	±30
Perfluorononanoic acid	2.00	2.25	12.66	±30
Perfluorooctanesulfonamide	2.00	2.19	9.52	±30
Perfluorononanesulfonate	1.92	1.87	-2.52	±30
Perfluorodecanoic acid	2.00	2.14	6.99	±30
8:2 fluorotelomersulfonate	5.27	5.45	3.41	±30
NMeFOSAA	2.00	1.98	-1.02	±30
Perfluorodecanesulfonate	1.93	2.02	4.91	±30
Perfluoroundecanoic acid	2.00	2.22	10.75	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719 Lab File ID: 18MAR12MCAL-20.WIFF

Date/Time Analyzed: 03/13/2018 04:20 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.10	4.79	±30
Perfluorododecanoic acid	2.00	2.30	15.23	±30
10:2-fluorotelomersulfonate	5.30	5.62	5.95	±30
Perfluorododecanesulfonate	1.94	1.85	-4.64	±30
Perfluorotridecanoic acid	2.00	2.03	1.69	±30
Perfluorotetradecanoic acid	2.00	2.35	17.57	±30
Perfluorohexadecanoic acid	2.00	1.88	-6.17	±30
Perfluorooctadecanoic acid	2.00	2.12	5.84	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719 Lab File ID: 18MAR18-19.WIFF

Date/Time Analyzed: 03/17/2018 20:38 Lab Sample ID: CCV3_CAL3

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.11	5.28	±30
Perfluoropentanoic acid	2.00	2.03	1.59	±30
Perfluorobutanesulfonate	1.77	1.86	4.99	±30
4:2 fluorotelomersulfonate	4.90	5.03	2.63	±30
Perfluorohexanoic acid	2.00	2.22	10.79	±30
Perfluoropentanesulfonate	1.88	1.87	-0.30	±30
Perfluorohexanesulfonate	1.89	1.83	-3.02	±30
Perfluoroheptanoic acid	2.00	2.34	16.99	±30
6:2 fluorotelomersulfonate	5.21	5.59	7.21	±30
Perfluoroheptanesulfonate	1.90	1.85	-2.84	±30
Perfluorooctanoic acid	2.00	2.07	3.27	±30
Perfluoro-octanesulfonate	1.91	1.88	-1.47	±30
Perfluorononanoic acid	2.00	1.93	-3.56	±30
Perfluorooctanesulfonamide	2.00	2.25	12.68	±30
Perfluorononanesulfonate	1.92	1.91	-0.38	±30
Perfluorodecanoic acid	2.00	1.99	-0.38	±30
8:2 fluorotelomersulfonate	5.27	5.69	7.95	±30
NMeFOSAA	2.00	2.14	6.81	±30
Perfluorodecanesulfonate	1.93	2.08	7.83	±30
Perfluoroundecanoic acid	2.00	2.11	5.67	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719 Lab File ID: 18MAR18-19.WIFF

Date/Time Analyzed: 03/17/2018 20:38 Lab Sample ID: CCV3_CAL3

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	2.21	10.33	±30
Perfluorododecanoic acid	2.00	2.13	6.65	±30
10:2-fluorotelomersulfonate	5.30	6.75	27.27	±30
Perfluorododecanesulfonate	1.94	2.02	4.08	±30
Perfluorotridecanoic acid	2.00	1.97	-1.31	±30
Perfluorotetradecanoic acid	2.00	2.32	16.09	±30
Perfluorohexadecanoic acid	2.00	2.10	5.03	±30
Perfluorooctadecanoic acid	2.00	2.27	13.36	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719 Lab File ID: 18MAR18-32.WIFF

Date/Time Analyzed: 03/18/2018 01:05 Lab Sample ID: CCV4_CAL4

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.59	7.41	±30
Perfluoropentanoic acid	8.00	8.56	6.95	±30
Perfluorobutanesulfonate	7.08	7.22	2.01	±30
4:2 fluorotelomersulfonate	10.04	9.87	-1.67	±30
Perfluorohexanoic acid	8.00	9.16	14.55	±30
Perfluoropentanesulfonate	7.50	7.09	-5.49	±30
Perfluorohexanesulfonate	7.56	6.80	-10.02	±30
Perfluoroheptanoic acid	8.00	9.02	12.81	±30
6:2 fluorotelomersulfonate	10.43	9.65	-7.52	±30
Perfluoroheptanesulfonate	7.61	7.02	-7.78	±30
Perfluorooctanoic acid	8.00	8.05	0.60	±30
Perfluoro-octanesulfonate	7.65	7.25	-5.29	±30
Perfluorononanoic acid	8.00	7.64	-4.56	±30
Perfluorooctanesulfonamide	8.00	8.22	2.78	±30
Perfluorononanesulfonate	7.68	7.74	0.81	±30
Perfluorodecanoic acid	8.00	8.48	5.95	±30
8:2 fluorotelomersulfonate	10.54	10.42	-1.12	±30
NMeFOSAA	8.00	8.06	0.75	±30
Perfluorodecanesulfonate	7.70	8.19	6.31	±30
Perfluoroundecanoic acid	8.00	8.91	11.32	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719 Lab File ID: 18MAR18-32.WIFF

Date/Time Analyzed: 03/18/2018 01:05 Lab Sample ID: CCV4_CAL4

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	8.00	7.41	-7.34	±30
Perfluorododecanoic acid	8.00	8.40	5.00	±30
10:2-fluorotelomersulfonate	10.60	14.07	32.77 *	±30
Perfluorododecanesulfonate	7.74	8.72	12.70	±30
Perfluorotridecanoic acid	8.00	7.31	-8.59	±30
Perfluorotetradecanoic acid	8.00	9.29	16.17	±30
Perfluorohexadecanoic acid	8.00	9.59	19.86	±30
Perfluorooctadecanoic acid	8.00	9.48	18.47	±30

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* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719 Lab File ID: 18MAR18-44.WIFF

Date/Time Analyzed: 03/18/2018 05:11 Lab Sample ID: CCV5_CAL5

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	22.01	10.03	±30
Perfluoropentanoic acid	20.00	23.16	15.80	±30
Perfluorobutanesulfonate	17.69	19.49	10.17	±30
4:2 fluorotelomersulfonate	12.49	12.67	1.41	±30
Perfluorohexanoic acid	20.00	23.00	15.02	±30
Perfluoropentanesulfonate	18.76	20.08	7.03	±30
Perfluorohexanesulfonate	18.91	18.89	-0.11	±30
Perfluoroheptanoic acid	20.00	23.25	16.23	±30
6:2 fluorotelomersulfonate	13.04	11.31	-13.28	±30
Perfluoroheptanesulfonate	19.03	20.25	6.43	±30
Perfluorooctanoic acid	20.00	20.09	0.47	±30
Perfluoro-octanesulfonate	19.12	19.41	1.49	±30
Perfluorononanoic acid	20.00	21.94	9.70	±30
Perfluorooctanesulfonamide	10.00	9.70	-2.98	±30
Perfluorononanesulfonate	19.20	21.57	12.34	±30
Perfluorodecanoic acid	20.00	20.46	2.30	±30
8:2 fluorotelomersulfonate	13.17	12.82	-2.68	±30
NMeFOSAA	10.00	9.22	-7.77	±30
Perfluorodecanesulfonate	19.26	21.95	13.97	±30
Perfluoroundecanoic acid	20.00	22.81	14.07	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719 Lab File ID: 18MAR18-44.WIFF

Date/Time Analyzed: 03/18/2018 05:11 Lab Sample ID: CCV5_CAL5

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	10.00	9.83	-1.70	±30
Perfluorododecanoic acid	20.00	24.10	20.51	±30
10:2-fluorotelomersulfonate	13.26	19.04	43.58 *	±30
Perfluorododecanesulfonate	19.36	22.59	16.71	±30
Perfluorotridecanoic acid	20.00	22.91	14.57	±30
Perfluorotetradecanoic acid	20.00	23.25	16.27	±30
Perfluorohexadecanoic acid	20.00	25.81	29.04	±30
Perfluorooctadecanoic acid	20.00	23.68	18.40	±30

NT

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719 Lab File ID: 18MAR18-50.WIFF

Date/Time Analyzed: 03/18/2018 07:14 Lab Sample ID: CCV6_CAL3

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.09	4.63	±30
Perfluoropentanoic acid	2.00	2.19	9.30	±30
Perfluorobutanesulfonate	1.77	1.75	-1.10	±30
4:2 fluorotelomersulfonate	4.90	5.42	10.61	±30
Perfluorohexanoic acid	2.00	2.15	7.56	±30
Perfluoropentanesulfonate	1.88	1.91	1.50	±30
Perfluorohexanesulfonate	1.89	1.80	-4.53	±30
Perfluoroheptanoic acid	2.00	2.16	8.15	±30
6:2 fluorotelomersulfonate	5.21	6.02	15.55	±30
Perfluoroheptanesulfonate	1.90	1.86	-2.34	±30
Perfluorooctanoic acid	2.00	1.88	-5.77	±30
Perfluoro-octanesulfonate	1.91	1.98	3.63	±30
Perfluorononanoic acid	2.00	1.92	-3.78	±30
Perfluorooctanesulfonamide	2.00	2.12	6.00	±30
Perfluorononanesulfonate	1.92	1.94	1.01	±30
Perfluorodecanoic acid	2.00	2.02	0.93	±30
8:2 fluorotelomersulfonate	5.27	5.55	5.23	±30
NMeFOSAA	2.00	2.05	2.40	±30
Perfluorodecanesulfonate	1.93	1.92	-0.65	±30
Perfluoroundecanoic acid	2.00	1.95	-2.58	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719 Lab File ID: 18MAR18-50.WIFF

Date/Time Analyzed: 03/18/2018 07:14 Lab Sample ID: CCV6_CAL3

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	2.00	1.94	-3.22	±30
Perfluorododecanoic acid	2.00	2.28	14.22	±30
10:2-fluorotelomersulfonate	5.30	8.18	54.43 *	±30
Perfluorododecanesulfonate	1.94	2.21	13.91	±30
Perfluorotridecanoic acid	2.00	1.95	-2.71	±30
Perfluorotetradecanoic acid	2.00	2.38	19.18	±30
Perfluorohexadecanoic acid	2.00	2.58	28.88	±30
Perfluorooctadecanoic acid	2.00	2.28	14.05	±30

NT

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719 Lab File ID: 18MAR19-14.WIFF

Date/Time Analyzed: 03/19/2018 06:30 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	8.00	8.56	6.99	±30
Perfluoropentanoic acid	8.00	8.47	5.82	±30
Perfluorobutanesulfonate	7.08	7.29	3.00	±30
4:2 fluorotelomersulfonate	10.04	10.97	9.24	±30
Perfluorohexanoic acid	8.00	8.51	6.38	±30
Perfluoropentanesulfonate	7.50	7.61	1.42	±30
Perfluorohexanesulfonate	7.56	7.20	-4.79	±30
Perfluoroheptanoic acid	8.00	9.31	16.37	±30
6:2 fluorotelomersulfonate	10.43	9.90	-5.07	±30
Perfluoroheptanesulfonate	7.61	7.52	-1.18	±30
Perfluorooctanoic acid	8.00	8.24	2.99	±30
Perfluoro-octanesulfonate	7.65	7.98	4.37	±30
Perfluorononanoic acid	8.00	8.01	0.13	±30
Perfluorooctanesulfonamide	8.00	7.63	-4.59	±30
Perfluorononanesulfonate	7.68	8.19	6.63	±30
Perfluorodecanoic acid	8.00	8.43	5.35	±30
8:2 fluorotelomersulfonate	10.54	10.15	-3.73	±30
NMeFOSAA	8.00	8.15	1.93	±30
Perfluorodecanesulfonate	7.70	8.67	12.62	±30
Perfluoroundecanoic acid	8.00	9.39	17.36	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719 Lab File ID: 18MAR19-14.WIFF

Date/Time Analyzed: 03/19/2018 06:30 Lab Sample ID: CCV2_CAL4

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
NEtFOSAA	8.00	7.80	-2.56	±30
Perfluorododecanoic acid	8.00	8.67	8.43	±30
10:2-fluorotelomersulfonate	10.60	13.24	24.92	±30
Perfluorododecanesulfonate	7.74	8.61	11.22	±30
Perfluorotridecanoic acid	8.00	7.99	-0.07	±30
Perfluorotetradecanoic acid	8.00	9.25	15.64	±30
Perfluorohexadecanoic acid	8.00	9.73	21.58	±30
Perfluorooctadecanoic acid	8.00	8.45	5.63	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719 Lab File ID: 18MAR19-21.WIFF

Date/Time Analyzed: 03/19/2018 08:53 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	20.00	23.08	15.40	±30
Perfluoropentanoic acid	20.00	22.63	13.14	±30
Perfluorobutanesulfonate	17.69	19.00	7.39	±30
4:2 fluorotelomersulfonate	12.49	12.88	3.09	±30
Perfluorohexanoic acid	20.00	23.47	17.34	±30
Perfluoropentanesulfonate	18.76	18.96	1.07	±30
Perfluorohexanesulfonate	18.91	18.70	-1.13	±30
Perfluoroheptanoic acid	20.00	24.57	22.83	±30
6:2 fluorotelomersulfonate	13.04	11.08	-15.03	±30
Perfluoroheptanesulfonate	19.03	19.40	1.96	±30
Perfluorooctanoic acid	20.00	21.78	8.92	±30
Perfluoro-octanesulfonate	19.12	21.77	13.88	±30
Perfluorononanoic acid	20.00	21.45	7.26	±30
Perfluorooctanesulfonamide	10.00	9.39	-6.07	±30
Perfluorononanesulfonate	19.20	21.51	12.01	±30
Perfluorodecanoic acid	20.00	22.39	11.93	±30
8:2 fluorotelomersulfonate	13.17	12.40	-5.82	±30
NMeFOSAA	10.00	10.02	0.20	±30
Perfluorodecanesulfonate	19.26	22.06	14.56	±30
Perfluoroundecanoic acid	20.00	22.18	10.88	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SNB98

Instrument ID: 26719 Lab File ID: 18MAR19-21.WIFF

Date/Time Analyzed: 03/19/2018 08:53 Lab Sample ID: CCV3_CAL5

Init. Calib. Date/Times: 03/13/2018 00:55 03/13/2018 02:58

Analytes	Specified Amount	Calculated Amount	% Difference	Limit	
NEtFOSAA	10.00	10.45	4.45	±30	
Perfluorododecanoic acid	20.00	22.95	14.73	±30	
10:2-fluorotelomersulfonate	13.26	17.41	31.28 *	±30	NT
Perfluorododecanesulfonate	19.36	23.07	19.16	±30	
Perfluorotridecanoic acid	20.00	21.03	5.13	±30	
Perfluorotetradecanoic acid	20.00	24.76	23.78	±30	
Perfluorohexadecanoic acid	20.00	26.37	31.85 *	±30	NT
Perfluorooctadecanoic acid	20.00	21.67	8.35	±30	

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SNB98
Matrix: WATER

18073001		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		430178	333762	668460	240181
UPPER LIMIT		645267	500643	1002690	360272
LOWER LIMIT		215089	166881	334230	120091
LAB SAMPLE ID	**DATE ANALYZED**				
LCS073001	03/15/18 14:10	531525	406676	859260	267970
LCSDA	03/15/18 14:31	520703	404432	847437	257256
BLK073001	03/15/18 15:12	507667	414604	878486	265988
9500919	03/15/18 16:34	579138	400340	828811	263317
9500924	03/15/18 16:54	481796	412713	848125	287372
9500925	03/15/18 17:15	524888	414625	837339	268463

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SNB98
Matrix: SOIL

18073006		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1708307	1715163	1089708	348478
UPPER LIMIT		2562461	2572745	1634562	522717
LOWER LIMIT		854154	857582	544854	174239
LAB SAMPLE ID	DATE ANALYZED				
LCS073006	03/17/18 21:19	2136324	2155770	1363256	420548
BLK073006	03/17/18 22:41	1989032	1987005	1312027	435225
9500920	03/18/18 05:52	2265525	2096858	1338388	400826
9500921	03/18/18 06:13	2202107	1699938	1386760	416923
9500922	03/18/18 06:33	2352540	2062950	1388666	417109
9500923	03/18/18 06:54	2501330	2132645	1401678	432676
9500921DL	03/19/18 08:12	2053672	1928318	1380423	396795
9500922DL	03/19/18 08:33	1869339	1881492	1330645	383585

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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LC-MS/MS Sample Run Log

Printed: 3/19/2018 3:53:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM24960

Data File Name	Sample ID	Batch No	Analysis Date/Time
18MAR12MCAL-17.wiff	MDL	18MAR12MCAL	3/12/2018 2:46:10 PM
18MAR12MCAL-18.wiff	CAL1	18MAR12MCAL	3/12/2018 3:06:43 PM
18MAR12MCAL-19.wiff	CAL2	18MAR12MCAL	3/12/2018 3:27:13 PM
18MAR12MCAL-20.wiff	CAL3	18MAR12MCAL	3/12/2018 3:47:43 PM
18MAR12MCAL-21.wiff	CAL4	18MAR12MCAL	3/12/2018 4:08:16 PM
18MAR12MCAL-22.wiff	CAL5	18MAR12MCAL	3/12/2018 4:28:49 PM
18MAR12MCAL-23.wiff	CAL6	18MAR12MCAL	3/12/2018 4:49:22 PM
18MAR12MCAL-24.wiff	CAL7	18MAR12MCAL	3/12/2018 5:09:55 PM
18MAR12MCAL-25.wiff	Instrument Blank	18MAR12MCAL	3/12/2018 5:30:28 PM
18MAR12MCAL-26.wiff	ICV	18MAR12MCAL	3/12/2018 5:51:01 PM
18MAR12MCAL-27.wiff	L+B CAL3	18MAR12MCAL	3/12/2018 6:11:34 PM
18MAR12MCAL-28.wiff	CCV1_CAL3	18MAR12MCAL	3/12/2018 6:32:07 PM
18MAR15-01.wiff	CCV1_CAL3	18MAR12MCAL	3/15/2018 8:41:43 AM
18MAR15-02.wiff	LCS066007	18066007	3/15/2018 9:02:16 AM
18MAR15-03.wiff	LCSDA	18066007	3/15/2018 9:22:49 AM
18MAR15-04.wiff	solvent	NA	3/15/2018 9:43:22 AM
18MAR15-05.wiff	BLK066007	18066007	3/15/2018 10:03:58 AM
18MAR15-06.wiff	9483831	18066007	3/15/2018 10:24:31 AM
18MAR15-07.wiff	9483832	18066007	3/15/2018 10:45:04 AM
18MAR15-08.wiff	LCS073002	18073002	3/15/2018 11:05:34 AM
18MAR15-09.wiff	LCSDA	18073002	3/15/2018 11:26:07 AM
18MAR15-10.wiff	solvent	NA	3/15/2018 11:46:40 AM
18MAR15-11.wiff	BLK073002	18073002	3/15/2018 12:07:13 PM
18MAR15-12.wiff	9501782	18073002	3/15/2018 12:27:46 PM
18MAR15-13.wiff	9501783	18073002	3/15/2018 12:48:19 PM
18MAR15-14.wiff	CCV2_CAL4	NA	3/15/2018 1:08:52 PM
18MAR15-15.wiff	solvent	NA	3/15/2018 1:29:25 PM
18MAR15-16.wiff	9501784	18073002	3/15/2018 1:49:58 PM
18MAR15-17.wiff	LCS073001	18073001	3/15/2018 2:10:31 PM
18MAR15-18.wiff	LCSDA	18073001	3/15/2018 2:31:04 PM
18MAR15-19.wiff	solvent	NA	3/15/2018 2:51:37 PM
18MAR15-20.wiff	BLK073001	18073001	3/15/2018 3:12:10 PM
18MAR15-21.wiff	9491678	18073001	3/15/2018 3:32:43 PM
18MAR15-22.wiff	9491681	18073001	3/15/2018 3:53:13 PM
18MAR15-23.wiff	9491683	18073001	3/15/2018 4:13:43 PM
18MAR15-24.wiff	9500919	18073001	3/15/2018 4:34:13 PM
18MAR15-25.wiff	9500924	18073001	3/15/2018 4:54:43 PM
18MAR15-26.wiff	9500925	18073001	3/15/2018 5:15:13 PM
18MAR15-27.wiff	CCV3_CAL5	NA	3/15/2018 5:35:46 PM
18MAR15-28.wiff	solvent	NA	3/15/2018 5:56:19 PM
18MAR15-29.wiff	LCS067010	18067010	3/15/2018 6:16:53 PM
18MAR15-30.wiff	9491696MS	18067010	3/15/2018 6:37:25 PM
18MAR15-31.wiff	9491697MSD	18067010	3/15/2018 6:57:59 PM
18MAR15-32.wiff	solvent	N\A	3/15/2018 7:18:31 PM
18MAR15-33.wiff	BLK067010	18067010	3/15/2018 7:39:05 PM
18MAR15-34.wiff	9491688	18067010	3/15/2018 7:59:38 PM
18MAR15-35.wiff	9491689	18067010	3/15/2018 8:20:11 PM
18MAR15-36.wiff	9491690	18067010	3/15/2018 8:40:41 PM
18MAR15-37.wiff	9491691	18067010	3/15/2018 9:01:14 PM
18MAR15-38.wiff	9491692	18067010	3/15/2018 9:21:44 PM
18MAR15-39.wiff	9491694	18067010	3/15/2018 9:42:14 PM
18MAR15-40.wiff	CCV4_CAL3	N\A	3/15/2018 10:02:47 PM
18MAR15-41.wiff	solvent	N\A	3/15/2018 10:23:20 PM
18MAR15-42.wiff	9491695BKG	18067010	3/15/2018 10:43:53 PM
18MAR15-43.wiff	9491699	18067010	3/15/2018 11:04:23 PM
18MAR15-44.wiff	9491700	18067010	3/15/2018 11:24:56 PM
18MAR15-45.wiff	9491701	18067010	3/15/2018 11:45:29 PM

APPROVED
By DMW at 3:54 pm, 3/19/18

Instrument Name: LM24960

18MAR15-46.wiff	LCS066006	18066006	3/16/2018 12:06:02 AM
18MAR15-47.wiff	LCSDA	18066006	3/16/2018 12:26:35 AM
18MAR15-48.wiff	solvent	N\A	3/16/2018 12:47:08 AM
18MAR15-49.wiff	BLK066006	18066006	3/16/2018 1:07:41 AM
18MAR15-50.wiff	9484983	18066006	3/16/2018 1:28:11 AM
18MAR15-51.wiff	9484984	18066006	3/16/2018 1:48:44 AM
18MAR15-52.wiff	9484985	18066006	3/16/2018 2:09:17 AM
18MAR15-53.wiff	CCV5_CAL4	N\A	3/16/2018 2:29:50 AM
18MAR15-54.wiff	solvent	N\A	3/16/2018 2:50:23 AM
18MAR15-55.wiff	9484986	18066006	3/16/2018 3:10:56 AM
18MAR15-56.wiff	9484987	18066006	3/16/2018 3:31:29 AM
18MAR15-57.wiff	LCS071008	18071008	3/16/2018 3:52:02 AM
18MAR15-58.wiff	9495930MS	18071008	3/16/2018 4:12:35 AM
18MAR15-59.wiff	9495931MSD	18071008	3/16/2018 4:33:08 AM
18MAR15-60.wiff	solvent	N\A	3/16/2018 4:53:41 AM
18MAR15-61.wiff	BLK071008	18071008	3/16/2018 5:14:14 AM
18MAR15-62.wiff	9483369RE	18071008	3/16/2018 5:34:47 AM
18MAR15-63.wiff	9495929BKG	18071008	3/16/2018 5:55:20 AM
18MAR15-64.wiff	LCS074004	18074004	3/16/2018 6:15:53 AM
18MAR15-65.wiff	LCSDA	18074004	3/16/2018 6:36:26 AM
18MAR15-66.wiff	CCV6_CAL5	N\A	3/16/2018 6:56:59 AM
18MAR15-67.wiff	9491689	18067010	3/16/2018 7:17:29 AM
18MAR15-68.wiff	9491691	18067010	3/16/2018 7:38:02 AM
18MAR15-69.wiff	9491694	18067010	3/16/2018 7:58:36 AM
18MAR15-70.wiff	BLK074004	18074004	3/16/2018 8:19:09 AM
18MAR15-71.wiff	9495895RE	18074004	3/16/2018 8:39:41 AM
18MAR15-72.wiff	9483369RE	18071008	3/16/2018 9:00:15 AM
18MAR15-73.wiff	9495929BKGDL	18071008	3/16/2018 9:20:48 AM
18MAR15-74.wiff	CCV7_CAL3	N\A	3/16/2018 9:41:21 AM
18MAR15-75.wiff	solvent	N\A	3/16/2018 10:01:54 AM
18MAR15-76.wiff	9497595	18074004	3/16/2018 10:22:27 AM
18MAR15-77.wiff	9497596	18074004	3/16/2018 10:43:00 AM
18MAR15-78.wiff	9497597	18074004	3/16/2018 11:03:33 AM
18MAR15-79.wiff	9497598	18074004	3/16/2018 11:24:06 AM
18MAR15-80.wiff	9497599	18074004	3/16/2018 11:44:39 AM
18MAR15-81.wiff	SSMODX1833S	N\A	3/16/2018 12:05:12 PM
18MAR15-82.wiff	IS1807333A	N\A	3/16/2018 12:25:45 PM
18MAR15-83.wiff	IS1807333B	N\A	3/16/2018 12:46:15 PM
18MAR15-84.wiff	CCV8_CAL4	N\A	3/16/2018 1:06:45 PM
18MAR15-85.wiff	solvent	N\A	3/16/2018 1:27:18 PM

Ammonium Acetate: 782403151833A
Methanol: DT149-US

APPROVED
By DMW at 3:54 pm, 3/19/18

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LC-MS/MS Sample Run Log

Printed: 3/19/2018 6:16:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM26719

Data File Name	Sample ID	Batch No	Analysis Date/Time
18MAR12MCAL-09.wiff	MDL	N/A	3/13/2018 12:35:09 AM
18MAR12MCAL-10.wiff	CAL1	N/A	3/13/2018 12:55:39 AM
18MAR12MCAL-11.wiff	CAL2	N/A	3/13/2018 1:16:09 AM
18MAR12MCAL-12.wiff	CAL3	N/A	3/13/2018 1:36:39 AM
18MAR12MCAL-13.wiff	CAL4	N/A	3/13/2018 1:57:09 AM
18MAR12MCAL-14.wiff	CAL5	N/A	3/13/2018 2:17:39 AM
18MAR12MCAL-15.wiff	CAL6	N/A	3/13/2018 2:38:09 AM
18MAR12MCAL-16.wiff	CAL7	N/A	3/13/2018 2:58:42 AM
18MAR12MCAL-17.wiff	Instrument Blank	N/A	3/13/2018 3:19:15 AM
18MAR12MCAL-18.wiff	ICV	N/A	3/13/2018 3:39:45 AM
18MAR12MCAL-19.wiff	L+B CAL3	N/A	3/13/2018 4:00:18 AM
18MAR12MCAL-20.wiff	CCV1_CAL3	N/A	3/13/2018 4:20:51 AM
18MAR18-01.wiff	solvent	N/A	3/17/2018 2:28:57 PM
18MAR18-02.wiff	solvent	N/A	3/17/2018 2:49:28 PM
18MAR18-03.wiff	solvent	N/A	3/17/2018 3:10:01 PM
18MAR18-04.wiff	solvent	N/A	3/17/2018 3:30:31 PM
18MAR18-05.wiff	CCV1_CAL1	N/A	3/17/2018 3:51:01 PM
18MAR18-06.wiff	Instrument Blank	N/A	3/17/2018 4:11:34 PM
18MAR18-07.wiff	LCS068009	18068009	3/17/2018 4:32:04 PM
18MAR18-08.wiff	LCSDA	18068009	3/17/2018 4:52:37 PM
18MAR18-09.wiff	9491953MS	18068009	3/17/2018 5:13:07 PM
18MAR18-10.wiff	9491954MSD	18068009	3/17/2018 5:33:37 PM
18MAR18-11.wiff	solvent	N/A	3/17/2018 5:54:07 PM
18MAR18-12.wiff	BLK068009	18068009	3/17/2018 6:14:37 PM
18MAR18-13.wiff	9491948	18068009	3/17/2018 6:35:07 PM
18MAR18-14.wiff	9491949	18068009	3/17/2018 6:55:37 PM
18MAR18-15.wiff	9491950	18068009	3/17/2018 7:16:07 PM
18MAR18-16.wiff	9491951	18068009	3/17/2018 7:36:38 PM
18MAR18-17.wiff	9491952BKG	18068009	3/17/2018 7:57:08 PM
18MAR18-18.wiff	CCV2_CAL2	N/A	3/17/2018 8:17:38 PM
18MAR18-19.wiff	CCV3_CAL3	N/A	3/17/2018 8:38:08 PM
18MAR18-20.wiff	solvent	N/A	3/17/2018 8:58:38 PM
18MAR18-21.wiff	LCS073006	18073006	3/17/2018 9:19:08 PM
18MAR18-22.wiff	9497804MS	18073006	3/17/2018 9:39:41 PM
18MAR18-23.wiff	9497805MSD	18073006	3/17/2018 10:00:14 PM
18MAR18-24.wiff	solvent	N/A	3/17/2018 10:20:47 PM
18MAR18-25.wiff	BLK073006	18073006	3/17/2018 10:41:18 PM
18MAR18-26.wiff	9497791	18073006	3/17/2018 11:01:51 PM
18MAR18-27.wiff	9497792	18073006	3/17/2018 11:22:24 PM
18MAR18-28.wiff	9497793	18073006	3/17/2018 11:42:56 PM
18MAR18-29.wiff	9497794	18073006	3/18/2018 12:03:29 AM
18MAR18-30.wiff	9497795	18073006	3/18/2018 12:24:02 AM
18MAR18-31.wiff	9497796	18073006	3/18/2018 12:44:32 AM
18MAR18-32.wiff	CCV4_CAL4	N/A	3/18/2018 1:05:01 AM
18MAR18-33.wiff	solvent	N/A	3/18/2018 1:25:32 AM
18MAR18-34.wiff	9497797	18073006	3/18/2018 1:46:02 AM
18MAR18-35.wiff	9497798	18073006	3/18/2018 2:06:33 AM
18MAR18-36.wiff	9497799	18073006	3/18/2018 2:27:06 AM
18MAR18-37.wiff	9497802	18073006	3/18/2018 2:47:39 AM
18MAR18-38.wiff	9497803BKG	18073006	3/18/2018 3:08:11 AM
18MAR18-39.wiff	9497812	18073006	3/18/2018 3:28:41 AM
18MAR18-40.wiff	9497813	18073006	3/18/2018 3:49:14 AM
18MAR18-41.wiff	9497814	18073006	3/18/2018 4:09:47 AM
18MAR18-42.wiff	9497815	18073006	3/18/2018 4:30:21 AM
18MAR18-43.wiff	9497816	18073006	3/18/2018 4:50:55 AM
18MAR18-44.wiff	CCV5_CAL5	N/A	3/18/2018 5:11:28 AM
18MAR18-45.wiff	solvent	N/A	3/18/2018 5:32:00 AM

APPROVED
By MCD at 6:16 pm, 3/19/18

Instrument Name: LM26719

18MAR18-46.wiff	9500920	18073006	3/18/2018 5:52:32 AM
18MAR18-47.wiff	9500921	18073006	3/18/2018 6:13:05 AM
18MAR18-48.wiff	9500922	18073006	3/18/2018 6:33:39 AM
18MAR18-49.wiff	9500923	18073006	3/18/2018 6:54:08 AM
18MAR18-50.wiff	CCV6_CAL3	N/A	3/18/2018 7:14:38 AM
18MAR18-51.wiff	solvent	N/A	3/18/2018 7:35:08 AM
18MAR18-52.wiff	CCV7_CAL1	N/A	3/18/2018 7:55:41 AM
18MAR18-53.wiff	Instrument Blank	N/A	3/18/2018 8:16:11 AM
18MAR18-54.wiff	LCS071007	18071007	3/18/2018 8:36:44 AM
18MAR18-55.wiff	9493957MS	18071007	3/18/2018 8:57:14 AM
18MAR18-56.wiff	9493958MSD	18071007	3/18/2018 9:17:45 AM
18MAR18-57.wiff	solvent	N/A	3/18/2018 9:38:16 AM
18MAR18-58.wiff	BLK071007	18071007	3/18/2018 9:58:49 AM
18MAR18-59.wiff	9493948	18071007	3/18/2018 10:19:22 AM
18MAR18-60.wiff	9493949	18071007	3/18/2018 10:39:53 AM
18MAR18-61.wiff	9493950	18071007	3/18/2018 11:00:25 AM
18MAR18-62.wiff	9493951	18071007	3/18/2018 11:20:58 AM
18MAR18-63.wiff	9493952	18071007	3/18/2018 11:41:31 AM
18MAR18-64.wiff	9493953	18071007	3/18/2018 12:02:02 PM
18MAR18-65.wiff	CCV8_CAL2	N/A	3/18/2018 12:22:33 PM
18MAR18-66.wiff	solvent	N/A	3/18/2018 12:43:02 PM
18MAR18-67.wiff	9493954	18071007	3/18/2018 1:03:32 PM
18MAR18-68.wiff	9493955	18071007	3/18/2018 1:24:05 PM
18MAR18-69.wiff	9493956BKG	18071007	3/18/2018 1:44:36 PM
18MAR18-70.wiff	9493959	18071007	3/18/2018 2:05:06 PM
18MAR18-71.wiff	9493960	18071007	3/18/2018 2:25:36 PM
18MAR18-72.wiff	9493961	18071007	3/18/2018 2:46:06 PM
18MAR18-73.wiff	9493962	18071007	3/18/2018 3:06:36 PM
18MAR18-74.wiff	9493963	18071007	3/18/2018 3:27:06 PM
18MAR18-75.wiff	CCV9_CAL3	N/A	3/18/2018 3:47:36 PM
18MAR18-76.wiff	solvent	N/A	3/18/2018 4:08:06 PM
18MAR18-77.wiff	LCS073003	18073003	3/18/2018 4:29:12 PM
18MAR18-78.wiff	LCSDA	18073003	3/18/2018 4:49:42 PM
18MAR18-79.wiff	Solvent	NA	3/18/2018 5:10:12 PM
18MAR18-80.wiff	BLK073003	18073003	3/18/2018 5:30:42 PM
18MAR18-81.wiff	9490272	18073003	3/18/2018 5:51:12 PM
18MAR18-82.wiff	9490273	18073003	3/18/2018 6:11:42 PM
18MAR18-83.wiff	LCS068010	18068010	3/18/2018 6:32:12 PM
18MAR18-84.wiff	LCSDA	18068010	3/18/2018 6:52:42 PM
18MAR18-85.wiff	Solvent	NA	3/18/2018 7:13:15 PM
18MAR18-86.wiff	BLK068010	18068010	3/18/2018 7:33:45 PM
18MAR18-87.wiff	9491521	18068010	3/18/2018 7:54:18 PM
18MAR18-88.wiff	9491522	18068010	3/18/2018 8:14:51 PM
18MAR18-89.wiff	CCV10_CAL4	NA	3/18/2018 8:35:21 PM
18MAR18-90.wiff	Solvent	NA	3/18/2018 8:55:51 PM
18MAR18-91.wiff	9491523	18068010	3/18/2018 9:16:24 PM
18MAR18-92.wiff	9491524	18068010	3/18/2018 9:36:54 PM
18MAR18-93.wiff	LCS073009	18073009	3/18/2018 9:57:24 PM
18MAR18-94.wiff	LCSDA	18073009	3/18/2018 10:17:54 PM
18MAR18-95.wiff	Solvent	NA	3/18/2018 10:38:24 PM
18MAR18-96.wiff	BLK073009	18073009	3/18/2018 10:58:55 PM
18MAR18-97.wiff	9490232	18073009	3/18/2018 11:19:25 PM
18MAR18-98.wiff	9490233	18073009	3/18/2018 11:39:55 PM
18MAR18-99.wiff	9490234	18073009	3/19/2018 12:00:25 AM
18MAR18-100.wiff	9490232DL	18073009	3/19/2018 12:20:55 AM
18MAR18-101.wiff	9490233DL	18073009	3/19/2018 12:41:25 AM
18MAR18-102.wiff	9490234DL	18073009	3/19/2018 1:01:55 AM
18MAR18-103.wiff	CCV11_CAL5	N/A	3/19/2018 1:22:25 AM

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Instrument Name: LM26719

18MAR18-104.wiff	solvent	N/A	3/19/2018 1:42:55 AM

20 mM Ammonium Acetate in H2O: 782403171833A
Methanol: DT149-US

APPROVED
By MCD at 6:16 pm, 3/19/18

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LC-MS/MS Sample Run Log

Printed: 3/19/2018 11:32:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM26719

Data File Name	Sample ID	Batch No	Analysis Date/Time
18MAR12MCAL-09.wiff	MDL	N/A	3/13/2018 12:35:09 AM
18MAR12MCAL-10.wiff	CAL1	N/A	3/13/2018 12:55:39 AM
18MAR12MCAL-11.wiff	CAL2	N/A	3/13/2018 1:16:09 AM
18MAR12MCAL-12.wiff	CAL3	N/A	3/13/2018 1:36:39 AM
18MAR12MCAL-13.wiff	CAL4	N/A	3/13/2018 1:57:09 AM
18MAR12MCAL-14.wiff	CAL5	N/A	3/13/2018 2:17:39 AM
18MAR12MCAL-15.wiff	CAL6	N/A	3/13/2018 2:38:09 AM
18MAR12MCAL-16.wiff	CAL7	N/A	3/13/2018 2:58:42 AM
18MAR12MCAL-17.wiff	Instrument Blank	N/A	3/13/2018 3:19:15 AM
18MAR12MCAL-18.wiff	ICV	N/A	3/13/2018 3:39:45 AM
18MAR12MCAL-19.wiff	L+B CAL3	N/A	3/13/2018 4:00:18 AM
18MAR12MCAL-20.wiff	CCV1_CAL3	N/A	3/13/2018 4:20:51 AM
18MAR19-01.wiff	CCV1_CAL3	N\A	3/19/2018 2:03:25 AM
18MAR19-02.wiff	solvent	N\A	3/19/2018 2:23:55 AM
18MAR19-03.wiff	LCS071006	18071006	3/19/2018 2:44:28 AM
18MAR19-04.wiff	LCSDA	18071006	3/19/2018 3:04:58 AM
18MAR19-05.wiff	solvent	N\A	3/19/2018 3:25:28 AM
18MAR19-06.wiff	BLK071006	18071006	3/19/2018 3:45:58 AM
18MAR19-07.wiff	9491530	18071006	3/19/2018 4:06:28 AM
18MAR19-08.wiff	LCS074002	18074002	3/19/2018 4:26:58 AM
18MAR19-09.wiff	LCSDA	18074002	3/19/2018 4:47:28 AM
18MAR19-10.wiff	solvent	N\A	3/19/2018 5:07:58 AM
18MAR19-11.wiff	BLK074002	18074002	3/19/2018 5:28:28 AM
18MAR19-12.wiff	9494772	18074002	3/19/2018 5:48:58 AM
18MAR19-13.wiff	9494773	18074002	3/19/2018 6:09:28 AM
18MAR19-14.wiff	CCV2_CAL4	N\A	3/19/2018 6:30:01 AM
18MAR19-15.wiff	solvent	N\A	3/19/2018 6:50:31 AM
18MAR19-16.wiff	solvent	N/A	3/19/2018 7:11:01 AM
18MAR19-17.wiff	solvent	N/A	3/19/2018 7:31:31 AM
18MAR19-18.wiff	9497796DL	18073006	3/19/2018 7:52:01 AM
18MAR19-19.wiff	9500921DL	18073006	3/19/2018 8:12:31 AM
18MAR19-20.wiff	9500922DL	18073006	3/19/2018 8:33:01 AM
18MAR19-21.wiff	CCV3_CAL5	N/A	3/19/2018 8:53:32 AM
18MAR19-22.wiff	solvent	N/A	3/19/2018 9:14:02 AM
18MAR19-23.wiff	solvent	N/A	3/19/2018 9:34:34 AM
18MAR19-24.wiff	solvent	N/A	3/19/2018 9:55:04 AM
18MAR19-25.wiff	CCV4_CAL1	N/A	3/19/2018 10:15:34 AM
18MAR19-26.wiff	Instrument Blank	N/A	3/19/2018 10:36:05 AM
18MAR19-27.wiff	9491948DL	18068009	3/19/2018 10:56:34 AM
18MAR19-28.wiff	9491949DL	18068009	3/19/2018 11:17:07 AM
18MAR19-29.wiff	9491951RE	18068009	3/19/2018 11:37:41 AM
18MAR19-30.wiff	LCS071007RE	18071007	3/19/2018 11:58:11 AM
18MAR19-31.wiff	CCV5_CAL2	N/A	3/19/2018 12:18:41 PM
18MAR19-32.wiff	CCV6_CAL3	N/A	3/19/2018 12:39:11 PM
18MAR19-33.wiff	solvent	N/A	3/19/2018 12:59:40 PM
18MAR19-34.wiff	LCS061007	18061007	3/19/2018 1:20:11 PM
18MAR19-35.wiff	LCSDA	18061007	3/19/2018 1:40:41 PM
18MAR19-36.wiff	9469895MS	18061007	3/19/2018 2:01:11 PM
18MAR19-37.wiff	methanol	N/A	3/19/2018 2:21:41 PM
18MAR19-38.wiff	BLK061007	18061007	3/19/2018 2:42:11 PM
18MAR19-39.wiff	9469895	18061007	3/19/2018 3:02:41 PM
18MAR19-40.wiff	CCV7_CAL4	N\A	3/19/2018 3:23:11 PM
18MAR19-41.wiff	solvent	N\A	3/19/2018 3:43:41 PM
18MAR19-42.wiff	9497814DL	18073006	3/19/2018 4:04:14 PM
18MAR19-43.wiff	9497791RE	18073006	3/19/2018 4:24:47 PM
18MAR19-44.wiff	9497792RE	18073006	3/19/2018 4:45:20 PM
18MAR19-45.wiff	9497797RE	18073006	3/19/2018 5:05:53 PM

APPROVED
By MCD at 11:32 pm, 3/19/18

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LC-MS/MS Sample Run Log

Printed: 3/19/2018 11:32:00 PM
Template: Sample Run Log-17JUL05.docx

Instrument Name: LM26719

18MAR19-46.wiff	9497802RE	18073006	3/19/2018 5:26:23 PM
18MAR19-47.wiff	9503310DL	18074003	3/19/2018 5:46:56 PM
18MAR19-48.wiff	9497800DL	18071004	3/19/2018 6:07:26 PM
18MAR19-49.wiff	CCV8_CAL5	N/A	3/19/2018 6:27:56 PM

20 mM Ammonium Acetate in H2O: 782403171833A
Methanol: DT149-US

APPROVED
By MCD at 11:32 pm, 3/19/18

Organic Extraction Batchlog Assigned to: 26543 Anthony Polaski Reviewed by: DMW 03262 Start Date: 03/14/18 Start time: 09:30

18073001 Tech 1: ACP26543 Tech 2: _____

Analyses on Batch: PFAS in Water by LC/MS/MS

Dept: 33 Prep Analysis: 14091 PFAS Water Prep

Port#	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS amt (uL)	BC	Comments
1	BLANKA	BLK073001	250.00	SSMODX1833R	.025			1ml.	20	7	
2	LCSA	LCS073001	↓	SSMODX1833R	.025	MSMODX1833I	.04	↓	↓		
3	LCSDA	LCSD073001	↓	SSMODX1833R	.025	MSMODX1833I	.04	↓	↓		

Spike Solutions: Witness: PJR9213 Instrument: L424960

MSMODX1833I PFAS 537 Native Spike

SSMODX1833R PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18MAR12MOD-18MAR15

Port#	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
4	1 9491678 R	RB B950	243.01	SSMODX1833R	.025	1ml.	20	173b		14473	03/16/2018	S
5	2 9491681 R	RB B950	244.48	SSMODX1833R	.025	↓	↓	173b		14473	03/16/2018	S
6	3 9491683 R	RB B951	248.19	SSMODX1833R	.025			173b		14473	03/16/2018	S
7	4 9500919	RB 98RB	259.51	SSMODX1833R	.025			173a		14473	03/22/2018	S
8	5 9500924	TB 98FT	255.81	SSMODX1833R	.025			173a		14473	03/22/2018	S
9	6 9500925	TB 98LTI	254.46	SSMODX1833R	.025	↓	↓	173a		14473	03/22/2018	S

SNB98 Page 2098 of 2382

ACP26543 03/14/18

Balance #	BG29764122	SPE Manifold	2	N-evap	30 C	18073001

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
0.3% NH4OH:MeOH	92130312183 3 B
1:1 ACN:MeOH	92130312183 3 A
Auto-pipette (dilutions)	
Auto-pipette (extract vialin	P1000-1
Internal Standard	IS 18066336
Methanol	DT015-05
Milli-Q H2O	Hose A223
SPE Cartridge #1	6387380-09
Sodium Thiosulfate	———
Syringe (IS)	PFAS 4
Syringe (MS)	PFAS 10
Syringe (SS)	PFAS 9
Trizma	———

Organic Extraction Batchlog Assigned to: 25478 Danielle McCully Reviewed by: MM26157 Start Date: 3/14/18 Start time: 15:10

18073006 Tech 1: DDM25478 Tech 2: _____

Analyses on Batch: PFAS in Soil by LC/MS/MS

Dept: 33 Prep Analysis: 14090 PFAS Solid Prep

Port #	QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
	9497804MS	96B15	1.27	SSMODX1833R	.05	MSMODX1833I	.04	1mL	20	170a	brown dirt
	9497805MSD	96B15	1.25	SSMODX1833R	.05	MSMODX1833I	.04			170a	brown dirt
	BLANKA	BLK073006	1.00	SSMODX1833R	.05		—			Z	
	LCSA	LCS073006	1.00	SSMODX1833R	.05	MSMODX1833I	.04			Z	

Spike Solutions: Witness: DDM25478 Instrument: L172719

MSMODX1833I PFAS 537 Native Spike

SSMODX1833R PFAS 537 Modified Extraction/Surrogate Spik Sequence: 18MAR12.m01 - 18MAR18 & 18MAR19

Port#		Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
	1	9497791	96B03	1.33	SSMODX1833R	.05	1mL	20	170a	gray/brown dirt	14027	03/21/2018	S
	2	9497792	96B04	1.27	SSMODX1833R	.05			170a	brown mud	14027	03/21/2018	S
	3	9497793	96B05	1.47	SSMODX1833R	.05			170a	wet dirt w/ rocks	14027	03/21/2018	S
	4	9497794	96B06	1.13	SSMODX1833R	.05			170a	brown dirt	14027	03/21/2018	S
	5	9497795	FD 96B07	1.33	SSMODX1833R	.05			170a	gray/brown dirt	14027	03/21/2018	S
	6	9497796	96B08	1.32	SSMODX1833R	.05			170a	gray/brown dirt	14027 DL10	03/21/2018	S
	7	9497797	96B09	1.38	SSMODX1833R	.05			170a	gray/brown dirt	14027	03/21/2018	S
	8	9497798	96B10	1.39	SSMODX1833R	.05			170a	dark brown dirt	14027	03/21/2018	S
	9	9497799	96B11	1.12	SSMODX1833R	.05			170a	gray/brown clay	14027	03/21/2018	S
	10	9497802	96B14	1.08	SSMODX1833R	.05			170a	brown dirt, white pebbles	14027	03/21/2018	S
	11	9497803	BKG 96B15	1.02	SSMODX1833R	.05			170a	brown dirt	14027	03/21/2018	S
	12	9497812	96B21	1.08	SSMODX1833R	.05			170a	brown mud w/ rocks	14027	03/21/2018	S
	13	9497813	96B22	1.09	SSMODX1833R	.05			170a	brown/gray dirt	14027	03/21/2018	S
	14	9497814	96B23	1.48	SSMODX1833R	.05			170a	brown dirt + rocks	14027 DL10	03/21/2018	S

DR9213 3/15/18

Balance #	B629704122	Sonic Bath ID	5800	N-evap	25C	SPE Manifold		18073006

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

	15	9497815	96B24	1.14	SSMODX1833R	.05	1mL	20	170a	brown dirt	14027		03/21/2018	S
	16	9497816	96B25	1.27	SSMODX1833R	.05			170a	brown dirt	14027		03/21/2018	S
	17	9500920	FD 98FD1	1.36	SSMODX1833R	.05			170a	dark brown mud	14027		03/22/2018	S
	18	9500921	98070	1.29	SSMODX1833R	.05			170a	dark brown dirt	14027	JL10	03/22/2018	S
	19	9500922	98710	1.27	SSMODX1833R	.05			170a	dark brown dirt	14027	JL10	03/22/2018	S
	20	9500923	98715	1.25	SSMODX1833R	.05			170a	dark brown dirt/rock	14027		03/22/2018	S

Reagents used During Extraction

Reagent/Material/Equip	Lot No./ID No.
1:1 MeOH:ACN	~~921309~~ (3) DB4125498 3114118 921303121833B
Auto-pipette (dilutions)	P1000-1 + P100-1
Auto-pipette (extract vialin	P1000-1
Internal Standard	IS1807333A
Methanol	DT018-US
Sand	MKBW7349V
Syringe (IS)	PFAS4
Syringe (MS)	PFAS10
Syringe (SS)	PFAS13

JL10- 877 uL MeOH (JT149-US) + 22.5uL Surrogate (SSMODX1833R) + 100uL Sample

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LOQ/MDL Summary
PFAS Group

SDG: SNB98

Fraction: PFAS by LC/MS/MS

14027: 14 PFCs Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.20	0.60	ng/g
Perfluorononanoic acid	0.20	0.60	ng/g
Perfluorodecanoic acid	0.20	0.60	ng/g
Perfluoroundecanoic acid	0.20	0.60	ng/g
Perfluorododecanoic acid	0.20	0.60	ng/g
Perfluorotridecanoic acid	0.20	0.60	ng/g
Perfluorotetradecanoic acid	0.20	0.60	ng/g
Perfluorohexanoic acid	0.20	0.60	ng/g
Perfluoroheptanoic acid	0.20	0.60	ng/g
Perfluorobutanesulfonate	0.20	0.60	ng/g
Perfluorohexanesulfonate	0.20	0.60	ng/g
Perfluoro-octanesulfonate	0.30	0.90	ng/g
Perfluorobutanoic acid	0.20	0.60	ng/g
Perfluoropentanoic acid	0.20	0.60	ng/g

14473: 14 PFAS Compounds Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.3	1	ng/l
Perfluorononanoic acid	0.4	2	ng/l
Perfluorodecanoic acid	1	2	ng/l
Perfluoroundecanoic acid	0.4	2	ng/l
Perfluorododecanoic acid	0.3	1	ng/l
Perfluorotridecanoic acid	0.3	1	ng/l
Perfluorotetradecanoic acid	0.3	1	ng/l
Perfluorohexanoic acid	0.4	2	ng/l
Perfluoroheptanoic acid	0.3	1	ng/l
Perfluorobutanesulfonate	0.3	1	ng/l
Perfluorohexanesulfonate	0.4	2	ng/l
Perfluoro-octanesulfonate	0.4	2	ng/l
Perfluorobutanoic acid	2	6	ng/l
Perfluoropentanoic acid	2	6	ng/l

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SNB98

GC/MS Volatiles

Fraction: Volatiles by GC/MS

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
9500920	SG3a-FD01-180312		X	0.91	Field Duplicate Sample
9500921	SG3a-SB18-07-0.0-1.0		X	0.84	
9500922	SG3a-SB18-07-10.0-11.0		X	0.95	
9500923	SG3a-SB18-07-15.0-18.0		X	0.78	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

(Sample number(s): 9500921, 9500923RE: Analysis: 11995)
The VOA soil weight is outside the acceptable weight range.
See the VOA Prep Summary Sheet for the affected sample(s).

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

MS/MSD

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

SAMPLE ANALYSIS:

(Sample number(s): 9500920, 9500922-9500923: Analysis: 11995)
The recovery for the sample internal standard is outside the QC acceptance limits. The following corrective action was taken: The sample was re-analyzed and the QC is again outside of the acceptance limits, indicating a matrix effect. The data is reported from the initial trial.

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Quality Control Reference List
GC/MS Volatiles

CLIENT: C. T. Male Associates
SDG: SNB98

Fraction: Volatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
SOM02.2 Volatiles	X180751AA	VBLKX72	03/16/2018 12:14:00
		LCSX72	03/16/2018 11:04:00
		LCDX72	03/16/2018 11:27:00
		9500920	03/16/2018 19:22:00
		9500921	03/16/2018 18:13:00
		9500922	03/16/2018 18:36:00
		9500923	03/16/2018 18:59:00
SOM02.2 Volatiles	X180771AA	VBLKX73	03/18/2018 19:57:00
		LCSX73	03/18/2018 18:01:00
		LCDX73	03/18/2018 18:24:00
		9500920RE	03/18/2018 22:50:00
		9500922RE	03/18/2018 23:13:00
		9500923RE	03/18/2018 23:36:00

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: SNB98
Matrix: SOLID

Fraction: Volatiles by GC/MS

X180751AA	1,2-Dichloroethane-d4		4-Bromofluorobenzene		Dibromofluoromethane		Toluene-d8	
	Spike Added	50 ug/kg	Spike Added	50 ug/kg	Spike Added	50 ug/kg	Spike Added	50 ug/kg
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
VBLKX72	98	54 - 135	93	50 - 131	100	50 - 141	100	52 - 141
LCSX72	100	54 - 135	96	50 - 131	101	50 - 141	100	52 - 141
LCDX72	97	54 - 135	96	50 - 131	99	50 - 141	100	52 - 141
9500920	103	54 - 135	67	50 - 131	101	50 - 141	115	52 - 141
9500921	103	54 - 135	89	50 - 131	100	50 - 141	99	52 - 141
9500922	106	54 - 135	70	50 - 131	98	50 - 141	114	52 - 141
9500923	102	54 - 135	75	50 - 131	97	50 - 141	108	52 - 141

X180771AA	1,2-Dichloroethane-d4		4-Bromofluorobenzene		Dibromofluoromethane		Toluene-d8	
	Spike Added	50 ug/kg	Spike Added	50 ug/kg	Spike Added	50 ug/kg	Spike Added	50 ug/kg
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
VBLKX73	99	54 - 135	92	50 - 131	100	50 - 141	99	52 - 141
LCSX73	99	54 - 135	96	50 - 131	101	50 - 141	100	52 - 141
LCDX73	98	54 - 135	96	50 - 131	100	50 - 141	100	52 - 141
9500920RE	104	54 - 135	69	50 - 131	101	50 - 141	115	52 - 141
9500922RE	105	54 - 135	59	50 - 131	100	50 - 141	124	52 - 141
9500923RE	102	54 - 135	73	50 - 131	97	50 - 141	110	52 - 141

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SNB98
Matrix: SOLID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSX72 LCSD: LCDX72	Batch: **X180751AA** (Sample number(s): 9500920-9500923)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Dichlorodifluoromethane	20	17.56	16.73	88	84	16-136	5	30
Chloromethane	20	18.99	18.02	95	90	56-120	5	30
Vinyl Chloride	20	19.15	18.11	96	91	59-120	6	30
Bromomethane	20	18.61	17.86	93	89	50-136	4	30
Chloroethane	20	18.41	17.67	92	88	50-131	4	30
Trichlorofluoromethane	20	20.12	19.12	101	96	55-134	5	30
1,1-Dichloroethene	20	22.39	21.35	112	107	73-129	5	30
Freon 113	20	21.07	19.77	105	99	64-135	6	30
Acetone	150	160.15	160.39	107	107	55-131	0	30
Carbon Disulfide	20	21.03	20.05	105	100	64-133	5	30
Methyl Acetate	20	16.87	15.35	84	77	59-134	9	30
Methylene Chloride	20	20.06	19.5	100	98	76-122	3	30
trans-1,2-Dichloroethene	20	21.54	20.59	108	103	80-125	5	30
Methyl Tertiary Butyl Ether	20	18.35	17.78	92	89	66-123	3	30
1,1-Dichloroethane	20	19.56	18.87	98	94	77-120	4	30
2-Butanone	150	147.09	148.54	98	99	57-128	1	30
cis-1,2-Dichloroethene	20	20.89	20.44	104	102	80-120	2	30
Bromochloromethane	20	21.1	20.8	105	104	80-120	1	30
Chloroform	20	19.98	19.53	100	98	80-120	2	30
1,1,1-Trichloroethane	20	22.5	21.82	113	109	69-123	3	30
Cyclohexane	20	17.5	16.97	87	85	58-126	3	30
Carbon Tetrachloride	20	20.42	19.58	102	98	64-134	4	30
Benzene	20	19.82	19.18	99	96	80-120	3	30
1,2-Dichloroethane	20	18.76	18.11	94	91	71-128	3	30
Trichloroethene	20	20.11	19.29	101	96	80-120	4	30
Methylcyclohexane	20	18.4	17.4	92	87	61-124	6	30
1,2-Dichloropropane	20	19.01	18.37	95	92	76-120	3	30
Bromodichloromethane	20	19.2	18.68	96	93	70-120	3	30
cis-1,3-Dichloropropene	20	18.2	17.68	91	88	66-120	3	30
4-Methyl-2-pentanone	100	90.53	82.38	91	82	61-135	9	30
Toluene	20	20.3	19.63	101	98	80-120	3	30
trans-1,3-Dichloropropene	20	18.32	17.74	92	89	63-124	3	30
1,1,2-Trichloroethane	20	20.69	19.67	103	98	80-120	5	30
Tetrachloroethene	20	21.4	20.64	107	103	73-120	4	30
2-Hexanone	100	91.95	82.62	92	83	54-140	11	30
Dibromochloromethane	20	20.53	19.84	103	99	65-120	3	30
1,2-Dibromoethane	20	20.2	19.15	101	96	74-120	5	30
Chlorobenzene	20	20.43	20.06	102	100	80-120	2	30
Ethylbenzene	20	20.15	19.5	101	97	74-120	3	30
m+p-Xylene	40	40.59	39.25	101	98	80-120	3	30
o-Xylene	20	19.81	19.43	99	97	75-120	2	30
Styrene	20	19.32	18.78	97	94	76-120	3	30

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSX72 LCSD: LCDX72 Analyte	Batch: **X180751AA** (Sample number(s): 9500920-9500923) Spike Added ug/kg	LCS Conc ug/kg	LCSD Conc ug/kg	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Bromoform	20	18.78	17.77	94	89	51-127	6	30
Isopropylbenzene	20	20.35	19.52	102	98	69-123	4	30
1,1,2,2-Tetrachloroethane	20	18.47	17.72	92	89	61-131	4	30
1,3-Dichlorobenzene	20	19.71	19.07	99	95	80-120	3	30
1,4-Dichlorobenzene	20	19.88	19.49	99	97	80-120	2	30
1,2-Dichlorobenzene	20	19.96	19.45	100	97	80-120	3	30
1,2-Dibromo-3-chloropropane	20	16.82	15.23	84	76	36-144	10	30
1,2,4-Trichlorobenzene	20	19.18	18.01	96	90	56-130	6	30
1,2,3-Trichlorobenzene	20	19.69	18.84	98	94	44-155	4	30

LCS: LCSX73 LCSD: LCDX73 Analyte	Batch: **X180771AA** (Sample number(s): 9500920, 9500922-9500923) Spike Added ug/kg	LCS Conc ug/kg	LCSD Conc ug/kg	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Dichlorodifluoromethane	20	19.42	18.76	97	94	16-136	3	30
Chloromethane	20	21.97	20.87	110	104	56-120	5	30
Vinyl Chloride	20	21.13	20.56	106	103	59-120	3	30
Bromomethane	20	24.48	23.32	122	117	50-136	5	30
Chloroethane	20	22.7	21.46	114	107	50-131	6	30
Trichlorofluoromethane	20	22.58	21.34	113	107	55-134	6	30
1,1-Dichloroethene	20	23.5	22.53	117	113	73-129	4	30
Freon 113	20	21.63	20.74	108	104	64-135	4	30
Acetone	150	184.5	178.42	123	119	55-131	3	30
Carbon Disulfide	20	21.92	21.32	110	107	64-133	3	30
Methyl Acetate	20	16.72	16.76	84	84	59-134	0	30
Methylene Chloride	20	21.13	21.03	106	105	76-122	0	30
trans-1,2-Dichloroethene	20	22.6	22.08	113	110	80-125	2	30
Methyl Tertiary Butyl Ether	20	18.63	18.79	93	94	66-123	1	30
1,1-Dichloroethane	20	20.41	20	102	100	77-120	2	30
2-Butanone	150	161.41	159.35	108	106	57-128	1	30
cis-1,2-Dichloroethene	20	22.03	21.67	110	108	80-120	2	30
Bromochloromethane	20	22.49	22.26	112	111	80-120	1	30
Chloroform	20	21	20.71	105	104	80-120	1	30
1,1,1-Trichloroethane	20	22.21	21.92	111	110	69-123	1	30
Cyclohexane	20	17.95	17.11	90	86	58-126	5	30
Carbon Tetrachloride	20	21.03	20.32	105	102	64-134	3	30
Benzene	20	20.74	20.4	104	102	80-120	2	30
1,2-Dichloroethane	20	19.44	19.31	97	97	71-128	1	30
Trichloroethene	20	20.9	20.29	105	101	80-120	3	30
Methylcyclohexane	20	18.71	18.1	94	90	61-124	3	30
1,2-Dichloropropane	20	20.05	19.69	100	98	76-120	2	30
Bromodichloromethane	20	20.11	19.85	101	99	70-120	1	30

Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SNB98
Matrix: SOLID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSX73 LCSD: LCDX73 Analyte	Batch: **X180771AA** (Sample number(s): 9500920, 9500922-9500923)							
	Spike Added ug/kg	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
cis-1,3-Dichloropropene	20	18.79	18.72	94	94	66-120	0	30
4-Methyl-2-pentanone	100	87.14	87.58	87	88	61-135	0	30
Toluene	20	20.94	20.63	105	103	80-120	1	30
trans-1,3-Dichloropropene	20	18.33	18.36	92	92	63-124	0	30
1,1,2-Trichloroethane	20	21.2	21.35	106	107	80-120	1	30
Tetrachloroethene	20	22.2	21.49	111	107	73-120	3	30
2-Hexanone	100	86.6	87.02	87	87	54-140	0	30
Dibromochloromethane	20	21.19	21.17	106	106	65-120	0	30
1,2-Dibromoethane	20	20.41	20.39	102	102	74-120	0	30
Chlorobenzene	20	21.22	20.93	106	105	80-120	1	30
Ethylbenzene	20	20.6	20.3	103	102	74-120	1	30
m+p-Xylene	40	42.01	40.96	105	102	80-120	3	30
o-Xylene	20	20.55	20.16	103	101	75-120	2	30
Styrene	20	19.98	19.56	100	98	76-120	2	30
Bromoform	20	19.05	18.9	95	94	51-127	1	30
Isopropylbenzene	20	20.67	20.36	103	102	69-123	2	30
1,1,2,2-Tetrachloroethane	20	18.48	18.42	92	92	61-131	0	30
1,3-Dichlorobenzene	20	20.44	19.98	102	100	80-120	2	30
1,4-Dichlorobenzene	20	20.73	20.57	104	103	80-120	1	30
1,2-Dichlorobenzene	20	20.96	20.51	105	103	80-120	2	30
1,2-Dibromo-3-chloropropane	20	16.34	16.72	82	84	36-144	2	30
1,2,4-Trichlorobenzene	20	19.59	19.18	98	96	56-130	2	30
1,2,3-Trichlorobenzene	20	20.43	19.95	102	100	44-155	2	30

Fraction: Volatiles by GC/MS

X180751AA / VBLKX72 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Dichlorodifluoromethane	03/16/18	N.D.	ug/kg	2	5
Chloromethane	03/16/18	N.D.	ug/kg	2	5
Vinyl Chloride	03/16/18	N.D.	ug/kg	1	5
Bromomethane	03/16/18	N.D.	ug/kg	2	5
Chloroethane	03/16/18	N.D.	ug/kg	2	5
Trichlorofluoromethane	03/16/18	N.D.	ug/kg	2	5
1,1-Dichloroethene	03/16/18	N.D.	ug/kg	1	5
Freon 113	03/16/18	N.D.	ug/kg	2	10
Acetone	03/16/18	N.D.	ug/kg	7	20
Carbon Disulfide	03/16/18	N.D.	ug/kg	1	5
Methyl Acetate	03/16/18	N.D.	ug/kg	2	5
Methylene Chloride	03/16/18	N.D.	ug/kg	2	5
trans-1,2-Dichloroethene	03/16/18	N.D.	ug/kg	1	5
Methyl Tertiary Butyl Ether	03/16/18	N.D.	ug/kg	0.5	5
1,1-Dichloroethane	03/16/18	N.D.	ug/kg	1	5
2-Butanone	03/16/18	N.D.	ug/kg	4	10
cis-1,2-Dichloroethene	03/16/18	N.D.	ug/kg	1	5
Bromochloromethane	03/16/18	N.D.	ug/kg	1	5
Chloroform	03/16/18	N.D.	ug/kg	1	5
1,1,1-Trichloroethane	03/16/18	N.D.	ug/kg	1	5
Cyclohexane	03/16/18	N.D.	ug/kg	1	5
Carbon Tetrachloride	03/16/18	N.D.	ug/kg	1	5
Benzene	03/16/18	N.D.	ug/kg	0.5	5
1,2-Dichloroethane	03/16/18	N.D.	ug/kg	1	5
Trichloroethene	03/16/18	N.D.	ug/kg	1	5
Methylcyclohexane	03/16/18	N.D.	ug/kg	1	5
1,2-Dichloropropane	03/16/18	N.D.	ug/kg	1	5
Bromodichloromethane	03/16/18	N.D.	ug/kg	1	5
cis-1,3-Dichloropropene	03/16/18	N.D.	ug/kg	1	5
4-Methyl-2-pentanone	03/16/18	N.D.	ug/kg	3	10
Toluene	03/16/18	N.D.	ug/kg	1	5
trans-1,3-Dichloropropene	03/16/18	N.D.	ug/kg	1	5
1,1,2-Trichloroethane	03/16/18	N.D.	ug/kg	1	5
Tetrachloroethene	03/16/18	N.D.	ug/kg	1	5
2-Hexanone	03/16/18	N.D.	ug/kg	3	10
Dibromochloromethane	03/16/18	N.D.	ug/kg	1	5
1,2-Dibromoethane	03/16/18	N.D.	ug/kg	1	5
Chlorobenzene	03/16/18	N.D.	ug/kg	1	5
Ethylbenzene	03/16/18	N.D.	ug/kg	1	5
m+p-Xylene	03/16/18	N.D.	ug/kg	1	5
o-Xylene	03/16/18	N.D.	ug/kg	1	5
Styrene	03/16/18	N.D.	ug/kg	1	5
Bromoform	03/16/18	N.D.	ug/kg	1	5
Isopropylbenzene	03/16/18	N.D.	ug/kg	1	5
1,1,2,2-Tetrachloroethane	03/16/18	N.D.	ug/kg	1	5

Fraction: Volatiles by GC/MS

X180751AA / VBLKX72 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
1,3-Dichlorobenzene	03/16/18	N.D.	ug/kg	1	5
1,4-Dichlorobenzene	03/16/18	N.D.	ug/kg	1	5
1,2-Dichlorobenzene	03/16/18	N.D.	ug/kg	1	5
1,2-Dibromo-3-chloropropane	03/16/18	N.D.	ug/kg	2	5
1,2,4-Trichlorobenzene	03/16/18	N.D.	ug/kg	1	5
1,2,3-Trichlorobenzene	03/16/18	N.D.	ug/kg	1	5

X180771AA / VBLKX73 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Dichlorodifluoromethane	03/18/18	N.D.	ug/kg	2	5
Chloromethane	03/18/18	N.D.	ug/kg	2	5
Vinyl Chloride	03/18/18	N.D.	ug/kg	1	5
Bromomethane	03/18/18	N.D.	ug/kg	2	5
Chloroethane	03/18/18	N.D.	ug/kg	2	5
Trichlorofluoromethane	03/18/18	N.D.	ug/kg	2	5
1,1-Dichloroethene	03/18/18	N.D.	ug/kg	1	5
Freon 113	03/18/18	N.D.	ug/kg	2	10
Acetone	03/18/18	N.D.	ug/kg	7	20
Carbon Disulfide	03/18/18	N.D.	ug/kg	1	5
Methyl Acetate	03/18/18	N.D.	ug/kg	2	5
Methylene Chloride	03/18/18	N.D.	ug/kg	2	5
trans-1,2-Dichloroethene	03/18/18	N.D.	ug/kg	1	5
Methyl Tertiary Butyl Ether	03/18/18	N.D.	ug/kg	0.5	5
1,1-Dichloroethane	03/18/18	N.D.	ug/kg	1	5
2-Butanone	03/18/18	N.D.	ug/kg	4	10
cis-1,2-Dichloroethene	03/18/18	N.D.	ug/kg	1	5
Bromochloromethane	03/18/18	N.D.	ug/kg	1	5
Chloroform	03/18/18	N.D.	ug/kg	1	5
1,1,1-Trichloroethane	03/18/18	N.D.	ug/kg	1	5
Cyclohexane	03/18/18	N.D.	ug/kg	1	5
Carbon Tetrachloride	03/18/18	N.D.	ug/kg	1	5
Benzene	03/18/18	N.D.	ug/kg	0.5	5
1,2-Dichloroethane	03/18/18	N.D.	ug/kg	1	5
Trichloroethene	03/18/18	N.D.	ug/kg	1	5
Methylcyclohexane	03/18/18	N.D.	ug/kg	1	5
1,2-Dichloropropane	03/18/18	N.D.	ug/kg	1	5
Bromodichloromethane	03/18/18	N.D.	ug/kg	1	5
cis-1,3-Dichloropropene	03/18/18	N.D.	ug/kg	1	5
4-Methyl-2-pentanone	03/18/18	N.D.	ug/kg	3	10
Toluene	03/18/18	N.D.	ug/kg	1	5
trans-1,3-Dichloropropene	03/18/18	N.D.	ug/kg	1	5
1,1,2-Trichloroethane	03/18/18	N.D.	ug/kg	1	5
Tetrachloroethene	03/18/18	N.D.	ug/kg	1	5
2-Hexanone	03/18/18	N.D.	ug/kg	3	10
Dibromochloromethane	03/18/18	N.D.	ug/kg	1	5

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: SNB98
Matrix: SOLID

Fraction: Volatiles by GC/MS

X180771AA / VBLKX73 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
1,2-Dibromoethane	03/18/18	N.D.	ug/kg	1	5
Chlorobenzene	03/18/18	N.D.	ug/kg	1	5
Ethylbenzene	03/18/18	N.D.	ug/kg	1	5
m+p-Xylene	03/18/18	N.D.	ug/kg	1	5
o-Xylene	03/18/18	N.D.	ug/kg	1	5
Styrene	03/18/18	N.D.	ug/kg	1	5
Bromoform	03/18/18	N.D.	ug/kg	1	5
Isopropylbenzene	03/18/18	N.D.	ug/kg	1	5
1,1,2,2-Tetrachloroethane	03/18/18	N.D.	ug/kg	1	5
1,3-Dichlorobenzene	03/18/18	N.D.	ug/kg	1	5
1,4-Dichlorobenzene	03/18/18	N.D.	ug/kg	1	5
1,2-Dichlorobenzene	03/18/18	N.D.	ug/kg	1	5
1,2-Dibromo-3-chloropropane	03/18/18	N.D.	ug/kg	2	5
1,2,4-Trichlorobenzene	03/18/18	N.D.	ug/kg	1	5
1,2,3-Trichlorobenzene	03/18/18	N.D.	ug/kg	1	5

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LOQ/MDL Summary
GC/MS Volatiles

SDG: SNB98

Fraction: Volatiles by GC/MS

11995: SOM02.2 Volatiles Analyte Name	Default MDL	Default LOQ	Units
Dichlorodifluoromethane	2	5	ug/kg
Chloromethane	2	5	ug/kg
Vinyl Chloride	1	5	ug/kg
Bromomethane	2	5	ug/kg
Chloroethane	2	5	ug/kg
Trichlorofluoromethane	2	5	ug/kg
1,1-Dichloroethene	1	5	ug/kg
Freon 113	2	10	ug/kg
Acetone	7	20	ug/kg
Carbon Disulfide	1	5	ug/kg
Methyl Acetate	2	5	ug/kg
Methylene Chloride	2	5	ug/kg
trans-1,2-Dichloroethene	1	5	ug/kg
Methyl Tertiary Butyl Ether	0.5	5	ug/kg
1,1-Dichloroethane	1	5	ug/kg
2-Butanone	4	10	ug/kg
cis-1,2-Dichloroethene	1	5	ug/kg
Bromochloromethane	1	5	ug/kg
Chloroform	1	5	ug/kg
1,1,1-Trichloroethane	1	5	ug/kg
Cyclohexane	1	5	ug/kg
Carbon Tetrachloride	1	5	ug/kg
Benzene	0.5	5	ug/kg
1,2-Dichloroethane	1	5	ug/kg
Trichloroethene	1	5	ug/kg
Methylcyclohexane	1	5	ug/kg
1,2-Dichloropropane	1	5	ug/kg
Bromodichloromethane	1	5	ug/kg
cis-1,3-Dichloropropene	1	5	ug/kg
4-Methyl-2-pentanone	3	10	ug/kg
Toluene	1	5	ug/kg
trans-1,3-Dichloropropene	1	5	ug/kg
1,1,2-Trichloroethane	1	5	ug/kg
Tetrachloroethene	1	5	ug/kg
2-Hexanone	3	10	ug/kg
Dibromochloromethane	1	5	ug/kg
1,2-Dibromoethane	1	5	ug/kg
Chlorobenzene	1	5	ug/kg
Ethylbenzene	1	5	ug/kg
m+p-Xylene	1	5	ug/kg
o-Xylene	1	5	ug/kg
Styrene	1	5	ug/kg
Bromoform	1	5	ug/kg
Isopropylbenzene	1	5	ug/kg
1,1,2,2-Tetrachloroethane	1	5	ug/kg
1,3-Dichlorobenzene	1	5	ug/kg
1,4-Dichlorobenzene	1	5	ug/kg

LOQ/MDL Summary
GC/MS Volatiles

SDG: SNB98

Fraction: Volatiles by GC/MS

11995: SOM02.2 Volatiles Analyte Name	Default MDL	Default LOQ	Units
1,2-Dichlorobenzene	1	5	ug/kg
1,2-Dibromo-3-chloropropane	2	5	ug/kg
1,2,4-Trichlorobenzene	1	5	ug/kg
1,2,3-Trichlorobenzene	1	5	ug/kg

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: xf23t10.d BFB Injection Date: 02/23/18

Instrument ID: HP09193 BFB Injection Time: 19:29

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.37
75	30.0 - 60.0% of mass 95	47.52
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.57
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	87.04
175	5.0 - 9.0% of mass 174	6.28 (7.21)1
176	Greater than 95.0%, but less than 101.0% of mass 174	83.97 (96.48)1
177	5.0 - 9.0% of mass 176	5.40 (6.43)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD300	xf23i51.d	02/23/18	20:09
02	VSTD100	xf23i52.d	02/23/18	20:33
03	VSTD50	xf23i53.d	02/23/18	20:57
04	VSTD20	xf23i54.d	02/23/18	21:21
05	VSTD10	xf23i55.d	02/23/18	21:51
06	VSTD4	xf23i56.d	02/23/18	22:18
07	VSTD1	xf23i57.d	02/23/18	22:41
08	0.5MDL - VSTD0.5	xf23m50.d	02/23/18	23:11
09	LCSXICV	xf23v50.d	02/23/18	23:34

FORM V VOA

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date(s): 02/23/18 02/23/18

Heated Purge: (Y/N) Y Calibration Times: 20:09 22:41

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF 1 = xf23i57.d RRF 4 = xf23i56.d RRF 10= xf23i55.d
RRF 20= xf23i54.d RRF 50= xf23i53.d RRF100= xf23i52.d RRF300= xf23i51.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD	
Dichlorodifluoromethane	#0.2587	0.3760	0.4275	0.3850	0.4883	0.4130	0.3583	0.3867	18	AVG	#
Chloromethane	#0.3409	0.3597	0.3736	0.3284	0.4161	0.3645	0.3182	0.3573	9	AVG	#
Vinyl Chloride	#0.2830	0.3556	0.3815	0.3357	0.4272	0.3703	0.3129	0.3523	13	AVG	#
Bromomethane	#0.2558	0.2776	0.2971	0.2608	0.3320	0.2805	0.2107	0.2735	14	AVG	#
Chloroethane	#0.1613	0.1956	0.2159	0.1924	0.2487	0.2091	0.1706	0.1991	15	AVG	#
Dichlorofluoromethane	0.5039	0.5235	0.5748	0.4700	0.5611	0.5377	0.4513	0.5175	9	AVG	
Trichlorofluoromethane	#0.3542	0.4700	0.5159	0.4699	0.5893	0.5003	0.4344	0.4763	15	AVG	#
Ethanol	0.2010	0.1373	0.1397	0.1302	0.1256	0.1153	0.1392	0.1412	20	AVG	
Freon 123a	0.2863	0.3008	0.3241	0.2880	0.3100	0.2562	0.2533	0.2884	9	AVG	
Acrolein	2.2497	1.8013	2.1566	1.7104	1.8821	1.8225	1.9448	1.9382	10	AVG	
1,1-Dichloroethene	#0.1621	0.2064	0.2188	0.2049	0.2228	0.1937	0.1945	0.2004	10	AVG	#
Acetone	#0.8122	0.8834	0.9353	0.7601	0.8731	0.8196	0.8448	0.8469	7	AVG	#
Freon 113	#0.1531	0.2314	0.2482	0.2299	0.2516	0.2087	0.2111	0.2191	15	AVG	#
2-Propanol	0.7149	0.6775	0.7857	0.6887	0.7513	0.7493	0.7390	0.7295	5	AVG	
Methyl Iodide	0.3261	0.4173	0.4465	0.4156	0.4564	0.4239	0.4014	0.4124	10	AVG	
Carbon Disulfide	#0.5187	0.6619	0.7112	0.6659	0.7389	0.6564	0.6453	0.6569	11	AVG	#
Methyl Acetate	#0.1954	0.1728	0.1733	0.1397	0.1656	0.1604	0.1494	0.1652	11	AVG	#
Allyl Chloride	0.4074	0.3608	0.3608	0.3223	0.3621	0.3424	0.3246	0.3544	8	AVG	
Methylene Chloride	#0.2479	0.2502	0.2691	0.2472	0.2699	0.2600	0.2418	0.2551	4	AVG	#
t-Butyl alcohol	1.2087	1.1685	1.3359	1.1642	1.3316	1.3209	1.3025	1.2617	6	AVG	
Acrylonitrile	0.0622	0.0775	0.0885	0.0759	0.0876	0.0799	0.0773	0.0784	11	AVG	
Methyl Tertiary Butyl Ether	#0.6439	0.6975	0.7697	0.7224	0.8058	0.7845	0.7262	0.7357	8	AVG	#
trans-1,2-Dichloroethene	#0.1887	0.2462	0.2625	0.2462	0.2686	0.2463	0.2426	0.2430	11	AVG	#
n-Hexane	0.3447	0.3853	0.4011	0.3725	0.4019	0.3404	0.3296	0.3679	8	AVG	
1,1-Dichloroethane	#0.3422	0.4092	0.4476	0.4165	0.4533	0.4235	0.4063	0.4141	9	AVG	#
di-Isopropyl ether	0.6483	0.6891	0.7643	0.7118	0.7805	0.7582	0.7084	0.7229	7	AVG	
2-Chloro-1,3-butadiene	0.2800	0.3657	0.3924	0.3668	0.4057	0.3564	0.3543	0.3602	11	AVG	
Ethyl t-butyl ether	0.6523	0.7163	0.7927	0.7411	0.8157	0.7966	0.7348	0.7499	8	AVG	
2-Butanone	#4.9421	4.1102	4.7160	3.9099	4.3680	4.1377	4.3085	4.3561	8	AVG	#
cis-1,2-Dichloroethene	#0.2291	0.2746	0.2996	0.2771	0.3078	0.2937	0.2841	0.2809	9	AVG	#
2,2-Dichloropropane	0.3064	0.3780	0.4042	0.3817	0.4153	0.3786	0.3747	0.3770	9	AVG	
Propionitrile	1.1961	1.2096	1.3569	1.2115	1.3759	1.4061	1.3954	1.3074	7	AVG	
Methacrylonitrile	0.0902	0.0957	0.1041	0.0958	0.1101	0.1070	0.0993	0.1003	7	AVG	
Bromochloromethane	0.1122	0.1316	0.1461	0.1328	0.1553	0.1526	0.1436	0.1392	11	AVG	
Tetrahydrofuran	1.2248	1.2078	1.3722	1.1326	1.3206	1.2518	1.3108	1.2601	6	AVG	
Chloroform	#0.3772	0.4283	0.4674	0.4374	0.4789	0.4549	0.4313	0.4393	8	AVG	#
1,1,1-Trichloroethane	#0.3070	0.4042	0.4326	0.4000	0.4318	0.3859	0.3804	0.3917	11	AVG	#
Cyclohexane	#0.3543	0.4388	0.4592	0.4193	0.4526	0.3830	0.3846	0.4131	10	AVG	#
Cyclohexane(2)	#0.3132	0.3970	0.4142	0.3800	0.4117	0.3503	0.3517	0.3740	10	AVG	#
Cyclohexane(3)	#0.0978	0.1397	0.1488	0.1352	0.1475	0.1249	0.1275	0.1316	13	AVG	#
1,1-Dichloropropene	0.2665	0.3509	0.3696	0.3454	0.3746	0.3310	0.3328	0.3387	11	AVG	
Carbon Tetrachloride	#0.2455	0.3274	0.3570	0.3356	0.3726	0.3304	0.3402	0.3298	12	AVG	#
Isobutyl Alcohol	0.4560	0.3659	0.4097	0.3587	0.4004	0.3920	0.3889	0.3959	8	AVG	
Benzene	#0.9176	1.0201	1.0924	1.0186	1.0999	1.0250	0.9729	1.0209	6	AVG	#
1,2-Dichloroethane	#0.3390	0.3233	0.3490	0.3285	0.3563	0.3482	0.3232	0.3382	4	AVG	#
1,2-Dichloroethane(2)	#0.0190	0.0307	0.0331	0.0312	0.0345	0.0338	0.0322	0.0307	17	AVG	#<-
t-Amyl methyl ether	0.6171	0.6852	0.7633	0.7168	0.8005	0.7792	0.7179	0.7257	9	AVG	
n-Heptane	0.4004	0.3914	0.4112	0.3826	0.4126	0.3555	0.3394	0.3847	7	AVG	
n-Butanol	0.3265	0.3105	0.3593	0.3192	0.3748	0.3641	0.3648	0.3456	8	AVG	
Trichloroethene	#0.2299	0.2722	0.2925	0.2738	0.2990	0.2748	0.2708	0.2733	8	AVG	#
Methylcyclohexane	#0.3662	0.4847	0.5052	0.4660	0.5277	0.4741	0.4717	0.4708	11	AVG	#
1,2-Dichloropropane	#0.2119	0.2444	0.2660	0.2498	0.2768	0.2706	0.2635	0.2547	9	AVG	#

Compounds with required minimum RRF.
All compounds must meet a maximum %RSD of 20.

FORM VI VOA

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date(s): 02/23/18 02/23/18

Heated Purge: (Y/N) Y Calibration Times: 20:09 22:41

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF 1 = xf23i57.d RRF 4 = xf23i56.d RRF 10= xf23i55.d
RRF 20= xf23i54.d RRF 50= xf23i53.d RRF100= xf23i52.d RRF300= xf23i51.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Methyl Methacrylate	0.1548	0.1616	0.1904	0.1762	0.2046	0.1996	0.1867	0.1820	10	AVG
1,4-Dioxane	0.1056	0.1120	0.1314	0.1240	0.1481	0.1422	0.1530	0.1309	14	AVG
Dibromomethane	0.1398	0.1460	0.1643	0.1547	0.1743	0.1712	0.1626	0.1590	8	AVG
Bromodichloromethane	#0.2702	0.3047	0.3415	0.3298	0.3735	0.3675	0.3532	0.3343	11	AVG #
2-Nitropropane	2.8413	2.4505	2.8612	2.3442	2.7415	2.6469	2.8040	2.6699	8	AVG
cis-1,3-Dichloropropene	#0.3320	0.3787	0.4333	0.4093	0.4673	0.4588	0.4356	0.4164	11	AVG #
4-Methyl-2-pentanone	#0.2127	0.2101	0.2474	0.2056	0.2428	0.2203	0.2127	0.2216	8	AVG #
Toluene	#0.7108	0.8503	0.9003	0.8430	0.9087	0.8463	0.7965	0.8365	8	AVG #
trans-1,3-Dichloropropene	#0.3526	0.4040	0.4678	0.4546	0.5167	0.5107	0.4778	0.4549	13	AVG #
Ethyl Methacrylate	0.3501	0.3790	0.4387	0.4212	0.4807	0.4664	0.4285	0.4235	11	AVG
1,1,2-Trichloroethane	#0.2530	0.2790	0.3005	0.2855	0.3153	0.3071	0.2849	0.2893	7	AVG #
Tetrachloroethene	#0.3090	0.3876	0.4165	0.3913	0.4243	0.3780	0.3738	0.3829	10	AVG #
1,3-Dichloropropane	0.4264	0.4456	0.4943	0.4666	0.5180	0.4997	0.4605	0.4730	7	AVG
2-Hexanone	#0.1841	0.1840	0.2196	0.1858	0.2157	0.1942	0.1834	0.1953	8	AVG #
Dibromochloromethane	#0.2432	0.2793	0.3256	0.3203	0.3724	0.3721	0.3530	0.3237	15	AVG #
1,2-Dibromoethane	#0.2586	0.2728	0.3154	0.2971	0.3297	0.3220	0.2977	0.2991	9	AVG #
1-Chlorohexane	0.5043	0.5062	0.5156	0.4770	0.5206	0.4629	0.4615	0.4926	5	AVG
Chlorobenzene	#0.8688	0.9672	1.0399	0.9760	1.0652	1.0174	0.9523	0.9838	7	AVG #
1,1,1,2-Tetrachloroethane	0.2638	0.3046	0.3414	0.3277	0.3778	0.3751	0.3617	0.3360	12	AVG
Ethylbenzene	#1.3756	1.6160	1.7407	1.6343	1.7885	1.6711	1.5176	1.6205	9	AVG #
m+p-Xylene	#0.5749	0.6580	0.7133	0.6726	0.7348	0.6890	0.6267	0.6670	8	AVG #
o-Xylene	#0.5554	0.6380	0.7008	0.6587	0.7254	0.6962	0.6453	0.6600	9	AVG #
Styrene	#0.8651	1.0236	1.1329	1.0908	1.2137	1.1754	1.0596	1.0802	11	AVG #
Bromoform	#	0.1681	0.2063	0.2048	0.2483	0.2529	0.2470	0.2212	15	AVG #
Isopropylbenzene	#1.4981	1.6924	1.8011	1.6810	1.8200	1.6649	1.5121	1.6671	8	AVG #
Cyclohexanone	0.3263	0.3036	0.3381	0.3260	0.3483	0.3334	0.3757	0.3359	7	AVG
1,1,2,2-Tetrachloroethane	#0.6189	0.6560	0.7429	0.7012	0.7988	0.7736	0.7104	0.7145	9	AVG #
Bromobenzene	0.7508	0.7987	0.8543	0.8015	0.8843	0.8847	0.8636	0.8340	6	AVG
trans-1,4-Dichloro-2-butene	0.1494	0.1690	0.1917	0.1769	0.2067	0.2035	0.1791	0.1823	11	AVG
1,2,3-Trichloropropane	0.1868	0.2019	0.2239	0.2086	0.2375	0.2294	0.2187	0.2153	8	AVG
n-Propylbenzene	3.2211	3.5741	3.7855	3.5518	3.8246	3.4920	3.1119	3.5087	8	AVG
2-Chlorotoluene	0.6517	0.7502	0.7862	0.7404	0.8147	0.7754	0.7631	0.7545	7	AVG
1,3,5-Trimethylbenzene	2.6744	2.6377	2.8362	2.6486	2.8962	2.7380	2.5040	2.7050	5	AVG
4-Chlorotoluene	0.6890	0.7719	0.8371	0.7806	0.8587	0.8308	0.8015	0.7957	7	AVG
tert-Butylbenzene	0.5649	0.5694	0.6074	0.5652	0.6334	0.5912	0.5857	0.5882	4	AVG
Pentachloroethane	0.3579	0.3993	0.4605	0.4374	0.5339	0.5553	0.5404	0.4692	16	AVG
1,2,4-Trimethylbenzene	2.9073	2.7081	2.9158	2.7359	3.0316	2.8984	2.5605	2.8225	6	AVG
sec-Butylbenzene	3.6194	3.3991	3.5828	3.3548	3.6511	3.3480	2.9765	3.4188	7	AVG
1,3-Dichlorobenzene	#1.5121	1.5427	1.6712	1.5623	1.7500	1.7081	1.5120	1.6083	6	AVG #
p-Isopropyltoluene	3.2553	2.9159	3.1714	2.9990	3.3397	3.1316	2.6402	3.0647	8	AVG
1,4-Dichlorobenzene	#1.6228	1.6238	1.6995	1.6015	1.7951	1.7479	1.5413	1.6617	5	AVG #
1,2,3-Trimethylbenzene	2.8403	2.7291	2.8604	2.6203	3.0180	2.9714	2.5391	2.7969	6	AVG
Benzyl Chloride		0.2418	0.3124	0.3140	0.3818	0.3821	0.3797	0.3353	17	AVG
1,3-Diethylbenzene	1.9952	1.6977	1.8233	1.6852	1.9294	1.8567	1.6946	1.8117	7	AVG
1,4-Diethylbenzene	2.1194	1.7802	1.9172	1.7600	2.0282	1.9344	1.7445	1.8977	8	AVG
n-Butylbenzene	1.8199	1.4308	1.5512	1.4720	1.6378	1.5247	1.3886	1.5464	9	AVG
1,2-Dichlorobenzene	#1.4411	1.4638	1.5745	1.4743	1.6649	1.6277	1.5015	1.5354	6	AVG #
1,2-Diethylbenzene	1.7099	1.4521	1.5214	1.3967	1.6230	1.5625	1.4289	1.5278	7	AVG
1,2-Dibromo-3-chloropropane	#0.1182	0.1171	0.1414	0.1295	0.1556	0.1521	0.1470	0.1373	12	AVG #
1,3,5-Trichlorobenzene		1.1849	1.2952	1.2052	1.3434	1.3150	1.2407	1.2641	5	AVG
1,2,4-Trichlorobenzene	#	1.0880	1.1949	1.1316	1.2529	1.2389	1.1715	1.1796	5	AVG #
Hexachlorobutadiene	0.8579	0.5441	0.5866	0.5511	0.6174	0.5777	0.5666	0.6145	18	AVG

Compounds with required minimum RRF.
All compounds must meet a maximum %RSD of 20.

6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date(s): 02/23/18 02/23/18

Heated Purge: (Y/N) Y Calibration Times: 20:09 22:41

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF 1 = xf23i57.d RRF 4 = xf23i56.d RRF 10= xf23i55.d
RRF 20= xf23i54.d RRF 50= xf23i53.d RRF100= xf23i52.d RRF300= xf23i51.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Naphthalene	3.1390	2.4959	2.8067	2.6146	2.9811	2.8707	2.5619	2.7814	8	AVG
1,2,3-Trichlorobenzene		1.0112	1.1019	1.0353	1.1565	1.1302	1.0699	1.0841	5	AVG
2-Methylnaphthalene		1.5004	1.7434	1.5920	1.8953	1.8581	1.6581	1.7079	9	AVG
Dibromofluoromethane	0.2413	0.2421	0.2437	0.2424	0.2415	0.2398	0.2368	0.2411	1	AVG
Dibromofluoromethane(2)	0.2467	0.2459	0.2465	0.2463	0.2466	0.2439	0.2416	0.2453	1	AVG
1,2-Dichloroethane-d4	0.0563	0.0567	0.0571	0.0569	0.0570	0.0570	0.0553	0.0566	1	AVG
1,2-Dichloroethane-d4(2)	0.2692	0.2715	0.2672	0.2653	0.2670	0.2631	0.2587	0.2660	2	AVG
1,2-Dichloroethane-d4(3)	0.0364	0.0361	0.0367	0.0362	0.0369	0.0363	0.0353	0.0363	1	AVG
Toluene-d8	1.2618	1.2619	1.2644	1.2673	1.2390	1.2336	1.1810	1.2441	2	AVG
Toluene-d8(2)	0.8198	0.8195	0.8260	0.8280	0.8092	0.8042	0.7700	0.8109	2	AVG
4-Bromofluorobenzene	0.4740	0.4730	0.4772	0.4775	0.4765	0.4671	0.4531	0.4712	2	AVG
4-Bromofluorobenzene(2)	0.4207	0.4196	0.4216	0.4239	0.4215	0.4104	0.3981	0.4165	2	AVG

Average %RSD 9

Compounds with required minimum RRF.
All compounds must meet a maximum %RSD of 20.

FORM VI VOA

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP09193.i/18feb23a.b/xf23i51.d	VSTD300
/chem2/HP09193.i/18feb23a.b/xf23i52.d	VSTD100
/chem2/HP09193.i/18feb23a.b/xf23i53.d	VSTD050
/chem2/HP09193.i/18feb23a.b/xf23i54.d	VSTD020
/chem2/HP09193.i/18feb23a.b/xf23i55.d	VSTD010
/chem2/HP09193.i/18feb23a.b/xf23i56.d	VSTD004
/chem2/HP09193.i/18feb23a.b/xf23i57.d	VSTD001

Area Summary

File ID:

Internal Standard Name	xf23i51.d	xf23i52.d	xf23i53.d	xf23i54.d	xf23i55.d	xf23i56.d	xf23i57.d	Avg. Area	%RSD	In Spec
t-Butyl alcohol-d10	129343	137815	143271	137157	132083	133326	125428	134060	4	Yes
Fluorobenzene	1166037	1162099	1143297	1116042	1101131	1084184	1073162	1120850	3	Yes
Chlorobenzene-d5	969002	947760	928636	895675	887156	873303	867070	909800	4	Yes
1,4-Dichlorobenzene-d4	531246	522909	514593	497303	491043	475828	473284	500887	5	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	xf23i51.d	xf23i52.d	xf23i53.d	xf23i54.d	xf23i55.d	xf23i56.d	xf23i57.d	Avg. RT
t-Butyl alcohol-d10	4.122	4.116	4.110	4.116	4.110	4.104	4.110	4.112
Fluorobenzene	7.626	7.620	7.620	7.620	7.620	7.614	7.620	7.620
Chlorobenzene-d5	11.130	11.130	11.130	11.130	11.130	11.130	11.130	11.130
1,4-Dichlorobenzene-d4	13.022	13.022	13.022	13.022	13.022	13.022	13.022	13.022

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 02/26/2018 at 17:11.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 ICV Date: 02/23/18 Time: 23:34

Lab File ID: xf23v50.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
#	Dichlorodifluoromethane	0.3867	0.4070	21.05	20	5	#
#	Chloromethane	0.3573	0.3913	21.90	20	9	#
#	Vinyl Chloride	0.3523	0.4008	22.75	20	14	#
#	Bromomethane	0.2735	0.3137	22.94	20	15	#
#	Chloroethane	0.1991	0.2275	22.85	20	14	#
	Dichlorofluoromethane	0.5175	0.5212	20.14	20	1	
#	Trichlorofluoromethane	0.4763	0.5476	23.00	20	15	#
	Ethanol	0.1412	0.1386	981.26	1000	-2	
	Freon 123a	0.2884	0.3009	20.87	20	4	
	Acrolein	1.9382	1.5540	120.27	150	-20	
#	1,1-Dichloroethene	0.2004	0.2322	23.16	20	16	#
#	Acetone	0.8469	0.7827	138.63	150	-8	#
#	Freon 113	0.2191	0.2395	21.86	20	9	#
	2-Propanol	0.7295	0.7528	154.79	150	3	
	Methyl Iodide	0.4124	0.4288	20.80	20	4	
#	Carbon Disulfide	0.6569	0.6700	20.40	20	2	#
#	Methyl Acetate	0.1652	0.1424	17.24	20	-14	#
	Allyl Chloride	0.3544	0.3376	19.05	20	-5	
#	Methylene Chloride	0.2551	0.2598	20.37	20	2	#
	t-Butyl alcohol	1.2617	1.3113	207.86	200	4	
	Acrylonitrile	0.0784	0.0677	86.33	100	-14	
#	Methyl Tertiary Butyl Ether	0.7357	0.7012	19.06	20	-5	#
#	trans-1,2-Dichloroethene	0.2430	0.2637	21.70	20	9	#
	n-Hexane	0.3679	0.3745	20.36	20	2	
#	1,1-Dichloroethane	0.4141	0.4249	20.52	20	3	#
	di-Isopropyl ether	0.7229	0.7312	20.23	20	1	
	2-Chloro-1,3-butadiene	0.3602	0.3658	20.31	20	2	
	Ethyl t-butyl ether	0.7499	0.7260	19.36	20	-3	
#	2-Butanone	4.3561	3.8476	132.49	150	-12	#
#	cis-1,2-Dichloroethene	0.2809	0.2924	20.82	20	4	#
	2,2-Dichloropropane	0.3770	0.3924	20.82	20	4	
	Propionitrile	1.3074	1.2799	146.85	150	-2	
	Methacrylonitrile	0.1003	0.0922	137.94	150	-8	
	Bromochloromethane	0.1392	0.1359	19.53	20	-2	
	Tetrahydrofuran	1.2601	1.1989	95.15	100	-5	
#	Chloroform	0.4393	0.4410	20.07	20	0	#

Compounds with required minimum RRF.
Maximum % Drift = 30 %

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 ICV Date: 02/23/18 Time: 23:34

Lab File ID: xf23v50.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
#	1,1,1-Trichloroethane	0.3917	0.4383	22.38	20	12	#
#	Cyclohexane	0.4131	0.4196	20.31	20	2	#
	1,1-Dichloropropene	0.3387	0.3420	20.20	20	1	
#	Carbon Tetrachloride	0.3298	0.3420	20.74	20	4	#
	Isobutyl Alcohol	0.3959	0.3920	495.05	500	-1	
#	Benzene	1.0209	1.0225	20.03	20	0	#
#	1,2-Dichloroethane	0.3382	0.3209	18.98	20	-5	#
	t-Amyl methyl ether	0.7257	0.7077	19.50	20	-2	
	n-Heptane	0.3847	0.3782	19.66	20	-2	
	n-Butanol	0.3456	0.3428	991.90	1000	-1	
#	Trichloroethene	0.2733	0.2755	20.17	20	1	#
#	Methylcyclohexane	0.4708	0.4749	20.18	20	1	#
#	1,2-Dichloropropane	0.2547	0.2532	19.88	20	-1	#
	Methyl Methacrylate	0.1820	0.1654	18.17	20	-9	
	1,4-Dioxane	0.1309	0.1225	467.77	500	-6	
	Dibromomethane	0.1590	0.1514	19.05	20	-5	
#	Bromodichloromethane	0.3343	0.3223	19.28	20	-4	#
	2-Nitropropane	2.6699	2.4263	18.17	20	-9	
#	cis-1,3-Dichloropropene	0.4164	0.4037	19.39	20	-3	#
#	4-Methyl-2-pentanone	0.2216	0.1977	89.21	100	-11	#
#	Toluene	0.8365	0.8515	20.36	20	2	#
#	trans-1,3-Dichloropropene	0.4549	0.4313	18.96	20	-5	#
	Ethyl Methacrylate	0.4235	0.4029	19.03	20	-5	
#	1,1,2-Trichloroethane	0.2893	0.2861	19.77	20	-1	#
#	Tetrachloroethene	0.3829	0.3870	20.21	20	1	#
	1,3-Dichloropropane	0.4730	0.4568	19.31	20	-3	
#	2-Hexanone	0.1953	0.1742	89.20	100	-11	#
#	Dibromochloromethane	0.3237	0.3121	19.28	20	-4	#
#	1,2-Dibromoethane	0.2991	0.2854	19.08	20	-5	#
	1-Chlorohexane	0.4926	0.4770	19.37	20	-3	
#	Chlorobenzene	0.9838	0.9685	19.69	20	-2	#
	1,1,1,2-Tetrachloroethane	0.3360	0.3287	19.57	20	-2	
#	Ethylbenzene	1.6205	1.6265	20.07	20	0	#
#	m+p-Xylene	0.6670	0.6707	40.22	40	1	#
#	o-Xylene	0.6600	0.6473	19.62	20	-2	#
#	Styrene	1.0802	1.0790	19.98	20	0	#

Compounds with required minimum RRF.
Maximum % Drift = 30 %

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 ICV Date: 02/23/18 Time: 23:34

Lab File ID: xf23v50.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
#	Bromoform	0.2212	0.1870	16.90	20	-15	#
#	Isopropylbenzene	1.6671	1.6949	20.33	20	2	#
	Cyclohexanone	0.3359	0.3536	526.29	500	5	
#	1,1,2,2-Tetrachloroethane	0.7145	0.6603	18.48	20	-8	#
	Bromobenzene	0.8340	0.7956	19.08	20	-5	
	trans-1,4-Dichloro-2-butene	0.1823	0.1974	108.25	100	8	
	1,2,3-Trichloropropane	0.2153	0.2013	18.70	20	-7	
	n-Propylbenzene	3.5087	3.5521	20.25	20	1	
	2-Chlorotoluene	0.7545	0.7505	19.89	20	-1	
	1,3,5-Trimethylbenzene	2.7050	2.6317	19.46	20	-3	
	4-Chlorotoluene	0.7957	0.7757	19.50	20	-3	
	tert-Butylbenzene	0.5882	0.5725	19.47	20	-3	
	Pentachloroethane	0.4692	0.4459	19.01	20	-5	
	1,2,4-Trimethylbenzene	2.8225	2.7162	19.25	20	-4	
	sec-Butylbenzene	3.4188	3.4059	19.92	20	0	
#	1,3-Dichlorobenzene	1.6083	1.5250	18.96	20	-5	#
	p-Isopropyltoluene	3.0647	3.0327	19.79	20	-1	
#	1,4-Dichlorobenzene	1.6617	1.5861	19.09	20	-5	#
	1,2,3-Trimethylbenzene	2.7969	2.7485	19.65	20	-2	
	Benzyl Chloride	0.3353	0.2912	17.37	20	-13	
	1,3-Diethylbenzene	1.8117	1.7320	19.12	20	-4	
	1,4-Diethylbenzene	1.8977	1.8166	19.14	20	-4	
	n-Butylbenzene	1.5464	1.4721	19.04	20	-5	
#	1,2-Dichlorobenzene	1.5354	1.4588	19.00	20	-5	#
	1,2-Diethylbenzene	1.5278	1.4670	19.20	20	-4	
#	1,2-Dibromo-3-chloropropane	0.1373	0.1197	17.44	20	-13	#
	1,3,5-Trichlorobenzene	1.2641	1.2184	19.28	20	-4	
#	1,2,4-Trichlorobenzene	1.1796	1.0980	18.62	20	-7	#
	Hexachlorobutadiene	0.6145	0.5679	18.48	20	-8	
	Naphthalene	2.7814	2.4823	17.85	20	-11	
	1,2,3-Trichlorobenzene	1.0841	1.0224	18.86	20	-6	
	2-Methylnaphthalene	1.7079	1.4911	17.46	20	-13	

Average %Drift 5

Compounds with required minimum RRF.
Maximum % Drift = 30 %

page 3 of 3 FORM VII VOA

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09193 **HP #19**

Data Directory Path is - c:\msdchem\1\data\18Feb23A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
PTH10165	XF23T10.D	50NGBFB	02/23/2018	19:29	X173091AA	
PTH10165	XF23X10.D	CBLK	02/23/2018	19:46		
PTH10165	XF23I51.D	VSTD300	02/23/2018	20:09		
PTH10165	XF23I52.D	VSTD100	02/23/2018	20:33		
PTH10165	XF23I53.D	VSTD050	02/23/2018	20:57		
PTH10165	XF23I54.D	VSTD020	02/23/2018	21:21		
PTH10165	XF23I55.D	VSTD010	02/23/2018	21:51		
PTH10165	XF23I56.D	VSTD004	02/23/2018	22:18		
PTH10165	XF23I57.D	VSTD001	02/23/2018	22:41		
PTH10165	XF23M50.D	0.5MDL	02/23/2018	23:11		
PTH10165	XF23V50.D	LCSXICV	02/23/2018	23:34		

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_SNB98___

Lab File ID: xm16t10.d BFB Injection Date: 03/16/18

Instrument ID: HP09193 BFB Injection Time: 10:08

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	15.55
75	30.0 - 60.0% of mass 95	46.08
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.72
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	98.02
175	5.0 - 9.0% of mass 174	6.95 (7.09)1
176	Greater than 95.0%, but less than 101.0% of mass 174	95.10 (97.02)1
177	5.0 - 9.0% of mass 176	6.23 (6.55)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	xm16c10.d	03/16/18	10:29
02	LCSX72	xm16l10.d	03/16/18	11:04
03	LCDX72	xm16l11.d	03/16/18	11:27
04	VBLKX72	xm16b10.d	03/16/18	12:14
05	9501695	xm16s11.d	03/16/18	12:49
06	9501696	xm16s12.d	03/16/18	13:12
07	9501697	xm16s13.d	03/16/18	13:35
08	9501698	xm16s14.d	03/16/18	13:58
09	9501700	xm16s15.d	03/16/18	14:21
10	9501702	xm16s16.d	03/16/18	14:45
11	9501703	xm16s17.d	03/16/18	15:08
12	9501705	xm16s18.d	03/16/18	15:31
13	9501706	xm16s19.d	03/16/18	15:54
14	9501707MS	xm16s20.d	03/16/18	16:17
15	9501708MSD	xm16s21.d	03/16/18	16:40
16	9501709	xm16s22.d	03/16/18	17:03
17	9501710	xm16s23.d	03/16/18	17:26
18	9501713	xm16s24.d	03/16/18	17:50
19	9500921	xm16s25.d	03/16/18	18:13
20	9500922	xm16s26.d	03/16/18	18:36
21	9500923	xm16s27.d	03/16/18	18:59
22	9500920	xm16s28.d	03/16/18	19:22

FORM V VOA

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_SNB98___

Lab File ID: xm16t10.d BFB Injection Date: 03/16/18

Instrument ID: HP09193 BFB Injection Time: 10:08

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	15.55
75	30.0 - 60.0% of mass 95	46.08
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.72
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	98.02
175	5.0 - 9.0% of mass 174	6.95 (7.09)1
176	Greater than 95.0%, but less than 101.0% of mass 174	95.10 (97.02)1
177	5.0 - 9.0% of mass 176	6.23 (6.55)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	9501701	xm16s29.d	03/16/18	19:45
24	9501704	xm16s30.d	03/16/18	20:08

FORM V VOA

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP09193.i/18feb23a.b/xf23i57.d
/chem2/HP09193.i/18feb23a.b/xf23i56.d
/chem2/HP09193.i/18feb23a.b/xf23i55.d
/chem2/HP09193.i/18feb23a.b/xf23i54.d
/chem2/HP09193.i/18feb23a.b/xf23i53.d
/chem2/HP09193.i/18feb23a.b/xf23i52.d
/chem2/HP09193.i/18feb23a.b/xf23i51.d

File /chem2/HP09193.i/18feb23a.b/xf23i53.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09193.i/18mar16a.b/xm16c10.d

RT Summary

Internal Standard Name	File ID: xm16c10.d	ICAL RT	In Spec
t-Butyl alcohol-d10	4.104	4.110	Yes
Fluorobenzene	7.614	7.620	Yes
Chlorobenzene-d5	11.124	11.130	Yes
1,4-Dichlorobenzene-d4	13.022	13.022	Yes

A "No" indicates the retention time is greater than 10 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: xm16c10.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl alcohol-d10	84697	143271	71636	286542	Yes
Fluorobenzene	893536	1143297	571648	2286594	Yes
Chlorobenzene-d5	740674	928636	464318	1857272	Yes
1,4-Dichlorobenzene-d4	432969	514593	257296	1029186	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

report generated on 03/16/2018 at 10:51

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date: 03/16/18 Time: 10:29

Lab File ID: xm16c10.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

			ACTUAL	TRUE	%	
COMPOUND	RRF	RRF50	CONC.	CONC.	DRIFT	
# Dichlorodifluoromethane	0.3867	0.3711	47.98	50	-4	#
# Chloromethane	0.3573	0.3722	52.08	50	4	#
# Vinyl Chloride	0.3523	0.3819	54.20	50	8	#
# Bromomethane	0.2735	0.3196	58.42	50	17	#
# Chloroethane	0.1991	0.2297	57.68	50	15	#
Dichlorofluoromethane	0.5175	0.5757	55.62	50	11	
# Trichlorofluoromethane	0.4763	0.5359	56.26	50	13	#
Ethanol	0.1412	0.1497	2650.83	2500	6	
Freon 123a	0.2884	0.3211	55.67	50	11	
Acrolein	1.9382	2.1030	542.52	500	9	
# 1,1-Dichloroethene	0.2004	0.2288	57.08	50	14	#
# Acetone	0.8469	1.0083	119.05	100	19	#
# Freon 113	0.2191	0.2473	56.42	50	13	#
2-Propanol	0.7295	0.7652	262.23	250	5	
Methyl Iodide	0.4124	0.4927	59.74	50	19	
# Carbon Disulfide	0.6569	0.7694	58.56	50	17	#
# Methyl Acetate	0.1652	0.1445	43.71	50	-13	#
Allyl Chloride	0.3544	0.3364	47.46	50	-5	
# Methylene Chloride	0.2551	0.2729	53.48	50	7	#
t-Butyl alcohol	1.2617	1.3573	268.93	250	8	
Acrylonitrile	0.0784	0.0750	47.80	50	-4	
# Methyl Tertiary Butyl Ether	0.7357	0.7420	50.42	50	1	#
# trans-1,2-Dichloroethene	0.2430	0.2792	57.44	50	15	#
n-Hexane	0.3679	0.3334	45.31	50	-9	
# 1,1-Dichloroethane	0.4141	0.4433	53.53	50	7	#
di-Isopropyl ether	0.7229	0.7241	50.08	50	0	
2-Chloro-1,3-butadiene	0.3602	0.3787	52.57	50	5	
Ethyl t-butyl ether	0.7499	0.7413	49.43	50	-1	
# 2-Butanone	4.3561	4.7110	108.15	100	8	#
# cis-1,2-Dichloroethene	0.2809	0.3172	56.47	50	13	#
2,2-Dichloropropane	0.3770	0.3992	52.94	50	6	
Propionitrile	1.3074	1.5507	296.53	250	19	
Methacrylonitrile	0.1003	0.0978	121.90	125	-2	
Bromochloromethane	0.1392	0.1663	59.74	50	19	
Tetrahydrofuran	1.2601	1.4967	118.78	100	19	
# Chloroform	0.4393	0.4905	55.82	50	12	#

Compounds with required minimum RRF.
All compounds must meet a maximum % Drift of 20.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date: 03/16/18 Time: 10:29

Lab File ID: xm16c10.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

			ACTUAL	TRUE	%	
COMPOUND	RRF	RRF50	CONC.	CONC.	DRIFT	
# 1,1,1-Trichloroethane	0.3917	0.4538	57.92	50	16	#
# Cyclohexane	0.4131	0.4050	49.01	50	-2	#
# Cyclohexane(2)	0.3740	0.3909	52.26	50	5	#
# Cyclohexane(3)	0.1316	0.1342	50.97	50	2	#
1,1-Dichloropropene	0.3387	0.3682	54.35	50	9	
# Carbon Tetrachloride	0.3298	0.3821	57.92	50	16	#
Isobutyl Alcohol	0.3959	0.4230	667.77	625	7	
# Benzene	1.0209	1.1179	54.75	50	10	#
# 1,2-Dichloroethane	0.3382	0.3512	51.92	50	4	#
# 1,2-Dichloroethane(2)	0.0307	0.0353	57.60	50	15	#<-
t-Amyl methyl ether	0.7257	0.7348	50.63	50	1	
n-Heptane	0.3847	0.3396	44.14	50	-12	
n-Butanol	0.3456	0.3564	1289.26	1250	3	
# Trichloroethene	0.2733	0.3058	55.95	50	12	#
# Methylcyclohexane	0.4708	0.4948	52.55	50	5	#
# 1,2-Dichloropropane	0.2547	0.2737	53.73	50	7	#
Methyl Methacrylate	0.1820	0.1787	49.08	50	-2	
1,4-Dioxane	0.1309	0.1535	733.02	625	17	
Dibromomethane	0.1590	0.1780	55.98	50	12	
# Bromodichloromethane	0.3343	0.3806	56.92	50	14	#
2-Nitropropane	2.6699	3.0230	113.22	100	13	
# cis-1,3-Dichloropropene	0.4164	0.4494	53.95	50	8	#
# 4-Methyl-2-pentanone	0.2216	0.2075	93.60	100	-6	#
# Toluene	0.8365	0.9145	54.66	50	9	#
# trans-1,3-Dichloropropene	0.4549	0.4818	52.96	50	6	#
Ethyl Methacrylate	0.4235	0.4209	49.70	50	-1	
# 1,1,2-Trichloroethane	0.2893	0.3155	54.52	50	9	#
# Tetrachloroethene	0.3829	0.4522	59.04	50	18	#
1,3-Dichloropropane	0.4730	0.4950	52.33	50	5	
# 2-Hexanone	0.1953	0.1769	90.59	100	-9	#
# Dibromochloromethane	0.3237	0.3901	60.26	50	21	#<-
# 1,2-Dibromoethane	0.2991	0.3268	54.64	50	9	#
1-Chlorohexane	0.4926	0.5003	50.78	50	2	
# Chlorobenzene	0.9838	1.1153	56.68	50	13	#
1,1,1,2-Tetrachloroethane	0.3360	0.4017	59.78	50	20	
# Ethylbenzene	1.6205	1.8204	56.17	50	12	#

all ND

Compounds with required minimum RRF.
All compounds must meet a maximum % Drift of 20.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date: 03/16/18 Time: 10:29

Lab File ID: xm16c10.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
#	m+p-Xylene	0.6670	0.7591	113.80	100	14	#
#	o-Xylene	0.6600	0.7537	57.10	50	14	#
#	Styrene	1.0802	1.2261	56.76	50	14	#
#	Bromoform	0.2212	0.2589	58.52	50	17	#
#	Isopropylbenzene	1.6671	1.8698	56.08	50	12	#
	Cyclohexanone	0.3359	0.3712	690.64	625	11	
#	1,1,2,2-Tetrachloroethane	0.7145	0.7125	49.86	50	0	#
	Bromobenzene	0.8340	0.9223	55.29	50	11	
	trans-1,4-Dichloro-2-butene	0.1823	0.1625	111.39	125	-11	
	1,2,3-Trichloropropane	0.2153	0.2208	51.29	50	3	
	n-Propylbenzene	3.5087	3.6553	52.09	50	4	
	2-Chlorotoluene	0.7545	0.8102	53.69	50	7	
	1,3,5-Trimethylbenzene	2.7050	2.8332	52.37	50	5	
	4-Chlorotoluene	0.7957	0.8601	54.05	50	8	
	tert-Butylbenzene	0.5882	0.6356	54.03	50	8	
	Pentachloroethane	0.4692	0.5647	60.17	50	20	
	1,2,4-Trimethylbenzene	2.8225	2.9627	52.48	50	5	
	sec-Butylbenzene	3.4188	3.5734	52.26	50	5	
#	1,3-Dichlorobenzene	1.6083	1.7954	55.81	50	12	#
	p-Isopropyltoluene	3.0647	3.3095	53.99	50	8	
#	1,4-Dichlorobenzene	1.6617	1.8302	55.07	50	10	#
	1,2,3-Trimethylbenzene	2.7969	3.0266	54.11	50	8	
	Benzyl Chloride	0.3353	0.3358	50.08	50	0	
	1,3-Diethylbenzene	1.8117	1.9254	53.14	50	6	
	1,4-Diethylbenzene	1.8977	2.0365	53.66	50	7	
	n-Butylbenzene	1.5464	1.5433	49.90	50	0	
#	1,2-Dichlorobenzene	1.5354	1.7140	55.82	50	12	#
	1,2-Diethylbenzene	1.5278	1.6442	53.81	50	8	
#	1,2-Dibromo-3-chloropropane	0.1373	0.1252	45.62	50	-9	#
	1,3,5-Trichlorobenzene	1.2641	1.3808	54.62	50	9	
#	1,2,4-Trichlorobenzene	1.1796	1.2769	54.12	50	8	#
	Hexachlorobutadiene	0.6145	0.6441	52.41	50	5	
	Naphthalene	2.7814	2.7829	50.03	50	0	
	1,2,3-Trichlorobenzene	1.0841	1.1857	54.68	50	9	
	2-Methylnaphthalene	1.7079	1.6912	49.51	50	-1	
	Dibromofluoromethane	0.2411	0.2450	50.81	50	2	

Compounds with required minimum RRF.
All compounds must meet a maximum % Drift of 20.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date: 03/16/18 Time: 10:29

Lab File ID: xm16c10.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dibromofluoromethane(2)	0.2453	0.2485	50.63	50	1
1,2-Dichloroethane-d4	0.0566	0.0569	50.25	50	0
1,2-Dichloroethane-d4(2)	0.2660	0.2546	47.86	50	-4
1,2-Dichloroethane-d4(3)	0.0363	0.0364	50.20	50	0
Toluene-d8	1.2441	1.2093	48.60	50	-3
Toluene-d8(2)	0.8109	0.7875	48.56	50	-3
4-Bromofluorobenzene	0.4712	0.4486	47.60	50	-5
4-Bromofluorobenzene(2)	0.4165	0.4375	52.51	50	5

Average %Drift 9

Compounds with required minimum RRF.
All compounds must meet a maximum % Drift of 20.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_SNB98___

Lab File ID (Standard): xm16c10.d Date Analyzed: 03/16/18

Instrument ID: HP09193 Time Analyzed: 10:29

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA)		IS2(FBZ)		IS3(CBZ)		IS4(DCB)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	84697	4.104	893536	7.614	740674	11.124	432969	13.022
UPPER LIMIT	169394	4.604	1787072	8.114	1481348	11.624	865938	13.522
LOWER LIMIT	42348	3.604	446768	7.114	370337	10.624	216484	12.522
LAB SAMPLE ID								
01 LCSX72	94257	4.110	911260	7.620	738224	11.130	421654	13.022
02 LCDX72	86354	4.110	925885	7.614	747522	11.124	424786	13.022
03 VBLKX72	81650	4.110	882850	7.614	705641	11.124	387410	13.022
04 9501695	98354	4.110	834421	7.614	661504	11.130	348813	13.022
05 9501696	104512	4.110	840775	7.614	670687	11.124	367119	13.022
06 9501697	118445	4.110	823847	7.614	669848	11.130	373986	13.022
07 9501698	121689	4.122	837521	7.620	677645	11.130	372192	13.022
08 9501700	100635	4.116	716956	7.620	559317	11.130	304306	13.022
09 9501702	115720	4.116	854185	7.620	692116	11.130	384933	13.022
10 9501703	106808	4.116	854689	7.614	695803	11.124	383620	13.022
11 9501705	88835	4.116	818627	7.620	647610	11.130	344632	13.022
12 9501706	95288	4.122	829587	7.620	664385	11.130	367143	13.022
13 9501707MS	109361	4.116	858675	7.620	693856	11.130	392600	13.022
14 9501708MSD	119170	4.116	875221	7.620	708110	11.124	400514	13.022
15 9501709	117990	4.128	858894	7.620	695651	11.130	383345	13.022
16 9501710	116100	4.122	830349	7.620	669933	11.130	366511	13.022
17 9501713	100685	4.122	831923	7.620	665076	11.130	362675	13.022
18 9500921	101486	4.104	789890	7.614	638750	11.124	323420	13.022
19 9500922	89981	4.092	613248	7.614	395416	11.124	109324 *	13.022
20 9500923	85839	4.116	670312	7.620	484303	11.130	168191 *	13.022
21 9500920	71497	4.122	664116	7.620	424566	11.130	115073 *	13.022
22 9501701	98203	4.122	787605	7.620	637554	11.130	355249	13.022

J/WJ

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM VIII VOA

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_SNB98___

Lab File ID (Standard): xm16c10.d Date Analyzed: 03/16/18

Instrument ID: HP09193 Time Analyzed: 10:29

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(TBA)		IS2(FBZ)		IS3(CBZ)		IS4(DCB)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	84697	4.104	893536	7.614	740674	11.124	432969	13.022
	UPPER LIMIT	169394	4.604	1787072	8.114	1481348	11.624	865938	13.522
	LOWER LIMIT	42348	3.604	446768	7.114	370337	10.624	216484	12.522
	LAB SAMPLE ID								
23	9501704	99746	4.116	744642	7.620	502325	11.130	173520 *	13.022

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM VIII VOA

Quant Report

Target Revision 3.5

Data File: /chem2/HP09193.i/18mar16a.b/xm16l10.d Instrument ID: HP09193.i
Injection date and time: 16-MAR-2018 11:04 Analyst ID: scnl0072

Method used: /chem2/HP09193.i/18mar16a.b/na8260c.m Sublist used: 8260S-D2C
Calibration date and time: 16-MAR-2018 11:24
Date, time and analyst ID of latest file update: 16-Mar-2018 12:33 scnl0072

Sample Name: LCSX72 Lab Sample ID: LCSX72

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2) Dichlorodifluoromethane	(2)	1.950	85	123717	17.555
4) Chloromethane	(2)	2.145	50	123654	18.987
5) Vinyl Chloride	(2)	2.254	62	122947	19.147
9) Bromomethane	(2)	2.577	94	92783	18.613
10) Chloroethane	(2)	2.656	64	66815	18.415
13) Trichlorofluoromethane	(2)	2.954	101	174645M	20.119
15) Ethanol	(1)	3.021	45	55489	1042.285
46) 1,2-Dichloroethene (Total)	(2)		96	202305	42.424
17) Freon 123a	(2)	3.264	67	111374	21.192
18) Acrolein	(1)	3.337	56	116479	159.396
19) 1,1-Dichloroethene	(2)	3.471	96	81791	22.389
20) Acetone	(1)	3.495	58	51140	160.155
22) Freon 113	(2)	3.513	101	84151	21.070
23) 2-Propanol	(1)	3.647	45	40364	146.758
24) Methyl Iodide	(2)	3.666	142	162861	21.666
25) Carbon Disulfide	(2)	3.775	76	251736	21.027
27) Methyl Acetate	(2)	3.903	43	50808	16.871
29) Allyl Chloride	(2)	3.939	41	109912	17.019
30)*t-Butyl alcohol-d10	(1)	4.110	65	94257	250.000
31) Methylene Chloride	(2)	4.116	84	93276	20.060
32) t-Butyl alcohol	(1)	4.237	59	96155	202.127
33) Acrylonitrile	(2)	4.432	53	129081	90.326
34) Methyl Tertiary Butyl Ether	(2)	4.511	73	245999	18.346
35) trans-1,2-Dichloroethene	(2)	4.529	96	95396	21.538
38) n-Hexane	(2)	4.943	57	108759	16.219
40) 1,1-Dichloroethane	(2)	5.186	63	147621	19.561
41) di-Isopropyl ether	(2)	5.241	45	241969	18.365
42) 2-Chloro-1,3-butadiene	(2)	5.290	53	119780	18.246
43) Ethyl t-butyl ether	(2)	5.783	59	239667	17.535
44) 2-Butanone	(1)	5.983	43	241571	147.088
45) cis-1,2-Dichloroethene	(2)	6.014	96	106909	20.886
47) 2,2-Dichloropropane	(2)	6.032	77	130711	19.025
49) Propionitrile	(1)	6.062	54	78374	159.002
51) Methacrylonitrile	(2)	6.288	67	257142	140.663
52) Bromochloromethane	(2)	6.355	128	53513	21.098
53) Tetrahydrofuran	(1)	6.373	71	52089	109.641
54) Chloroform	(2)	6.501	83	159940	19.975
56)$Dibromofluoromethane	(2)	6.720	113	221282	50.364

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.

Digitally signed by Stephen C. Nolte
on 03/16/2018 at 12:38.
Target 3.5 esignature user ID: scnl0072

Quant Report

Target Revision 3.5

Data File: /chem2/HP09193.i/18mar16a.b/xm16l10.d Instrument ID: HP09193.i
Injection date and time: 16-MAR-2018 11:04 Analyst ID: scn10072

Method used: /chem2/HP09193.i/18mar16a.b/na8260c.m Sublist used: 8260S-D2C
Calibration date and time: 16-MAR-2018 11:24
Date, time and analyst ID of latest file update: 16-Mar-2018 12:33 scn10072

Sample Name: LCSX72 Lab Sample ID: LCSX72

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
57) 1,1,1-Trichloroethane	(2)	6.732	97	160627	22.500
58) Cyclohexane	(2)	6.841	56	131762	17.500
60) 1,1-Dichloropropene	(2)	6.945	75	118774	19.243
61) Carbon Tetrachloride	(2)	6.951	117	122720	20.415
62) Isobutyl Alcohol	(1)	7.085	41	68893	461.500
63)$1,2-Dichloroethane-d4	(2)	7.182	102	51503M	49.930
64) Benzene	(2)	7.212	78	368696	19.815
67) 1,2-Dichloroethane	(2)	7.291	62	115622	18.758
68) t-Amyl methyl ether	(2)	7.407	73	239464	18.105
70)*Fluorobenzene	(2)	7.620	96	911260	50.000
72) n-Heptane	(2)	7.632	43	108152	15.426
73) n-Butanol	(1)	7.973	56	116197	891.788
112) Xylene (Total)	(3)		106	592764	60.398
75) Trichloroethene	(2)	8.101	95	100185	20.115
76) Methylcyclohexane	(2)	8.417	83	157920	18.405
77) 1,2-Dichloropropane	(2)	8.441	63	88238	19.008
79) Methyl Methacrylate	(2)	8.520	69	57707	17.397
80) 1,4-Dioxane	(1)	8.532	88	24713M	500.698
81) Dibromomethane	(2)	8.551	93	57311	19.778
84) Bromodichloromethane	(2)	8.788	83	116981	19.198
85) 2-Nitropropane	(1)	9.050	41	17441	17.326
89) cis-1,3-Dichloropropene	(2)	9.342	75	138163	18.204
90) 4-Methyl-2-pentanone	(2)	9.506	43	365706	90.533
91)$Toluene-d8	(3)	9.652	98	917771	49.963
92) Toluene	(3)	9.731	92	250699	20.298
93) trans-1,3-Dichloropropene	(3)	9.992	75	123051	18.322
95) Ethyl Methacrylate	(3)	10.053	69	110147	17.615
96) 1,1,2-Trichloroethane	(3)	10.199	97	88364	20.685
98) Tetrachloroethene	(3)	10.285	166	120965	21.396
99) 1,3-Dichloropropane	(3)	10.364	76	133670	19.139
101) 2-Hexanone	(3)	10.412	43	265098	91.953
103) Dibromochloromethane	(3)	10.583	129	98133	20.533
104) 1,2-Dibromoethane	(3)	10.698	107	89180	20.198
105)*Chlorobenzene-d5	(3)	11.130	117	738224	50.000
106) 1-Chlorohexane	(3)	11.136	91	133874	18.407
107) Chlorobenzene	(3)	11.154	112	296696	20.425
109) Ethylbenzene	(3)	11.240	91	482228	20.155
108) 1,1,1,2-Tetrachloroethane	(3)	11.240	131	101549	20.470

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.

Digitally signed by Stephen C. Nolte
on 03/16/2018 at 12:38.
Target 3.5 esignature user ID: scn10072

Quant Report

Target Revision 3.5

Data File: /chem2/HP09193.i/18mar16a.b/xm16l10.d Instrument ID: HP09193.i
Injection date and time: 16-MAR-2018 11:04 Analyst ID: scn10072

Method used: /chem2/HP09193.i/18mar16a.b/na8260c.m Sublist used: 8260S-D2C
Calibration date and time: 16-MAR-2018 11:24
Date, time and analyst ID of latest file update: 16-Mar-2018 12:33 scn10072

Sample Name: LCSX72 Lab Sample ID: LCSX72

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
110) m+p-Xylene	(3)	11.355	106	399740	40.589
111) o-Xylene	(3)	11.690	106	193024	19.809
113) Styrene	(3)	11.702	104	308050M	19.316
114) Bromoform	(3)	11.866	173	61354	18.782
115) Isopropylbenzene	(3)	11.988	105	500763	20.345
118) Cyclohexanone	(1)	12.067	55	62319M	492.064
119)$4-Bromofluorobenzene	(3)	12.140	95	334227	48.041
120) 1,1,2,2-Tetrachloroethane	(4)	12.237	83	111279M	18.467
121) Bromobenzene	(4)	12.256	156	142136	20.209
122) trans-1,4-Dichloro-2-butene	(4)	12.262	53	138683	90.200
123) 1,2,3-Trichloropropane	(4)	12.286	110	36994	20.379
124) n-Propylbenzene	(4)	12.322	91	574406	19.413
126) 2-Chlorotoluene	(4)	12.396	126	126800	19.928
129) 1,3,5-Trimethylbenzene	(4)	12.456	105	431739	18.926
130) 4-Chlorotoluene	(4)	12.493	126	132124	19.691
133) tert-Butylbenzene	(4)	12.700	134	95197M	19.192
134) Pentachloroethane	(4)	12.736	167	80619	20.373
135) 1,2,4-Trimethylbenzene	(4)	12.742	105	448709	18.851
136) sec-Butylbenzene	(4)	12.864	105	550334	19.088
138) 1,3-Dichlorobenzene	(4)	12.967	146	267290	19.707
139) p-Isopropyltoluene	(4)	12.973	119	497026	19.231
140)*1,4-Dichlorobenzene-d4	(4)	13.022	152	421654	50.000
141) 1,4-Dichlorobenzene	(4)	13.040	146	278558	19.878
142) 1,2,3-Trimethylbenzene	(4)	13.046	105	471689	19.998
143) Benzyl Chloride	(4)	13.113	126	47705M	16.872
144) 1,3-Diethylbenzene	(4)	13.174	119	288887	18.908
145) 1,4-Diethylbenzene	(4)	13.247	119	302806	18.921
146) n-Butylbenzene	(4)	13.265	92	230381	17.666
147) 1,2-Dichlorobenzene	(4)	13.296	146	258503	19.965
148) 1,2-Diethylbenzene	(4)	13.314	119	251200	19.497
151) 1,2-Dibromo-3-chloropropane	(4)	13.843	75	19469	16.820
152) 1,3,5-Trichlorobenzene	(4)	13.971	180	208340	19.544
153) 1,2,4-Trichlorobenzene	(4)	14.397	180	190796	19.179
154) Hexachlorobutadiene	(4)	14.476	225	94199	18.178
155) Naphthalene	(4)	14.573	128	433991	18.502
156) 1,2,3-Trichlorobenzene	(4)	14.713	180	180002	19.688
157) 2-Methylnaphthalene	(4)	15.340	142	254422	17.665

M = Compound was manually integrated.
* = Compound is an internal standard.
$ = Compound is a surrogate standard.

Digitally signed by Stephen C. Nolte
on 03/16/2018 at 12:38.
Target 3.5 esignature user ID: scn10072

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09193 **HP #19**

Data Directory Path is - c:\msdchem\1\data\18mar16a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
scn10072	XM16T10.D	50NGBFB	03/16/2018	10:08	X180751AA	
scn10072	XM16C10.D	VSTD050	03/16/2018	10:29	X180751AA	
scn10072	XM16L10.D	LCSX72	03/16/2018	11:04	X180751AA	
scn10072	XM16L11.D	LCDX72	03/16/2018	11:27	X180751AA	
scn10072	XM16X10.D	VBLKX72	03/16/2018	11:50	X180751AA	
scn10072	XM16B10.D	VBLKX72	03/16/2018	12:14	X180751AA	
scn10072	XM16S11.D	9501695	03/16/2018	12:49	X180751AA	
scn10072	XM16S12.D	9501696	03/16/2018	13:12	X180751AA	
scn10072	XM16S13.D	9501697	03/16/2018	13:35	X180751AA	
scn10072	XM16S14.D	9501698	03/16/2018	13:58	X180751AA	
scn10072	XM16S15.D	9501700	03/16/2018	14:21	X180751AA	
scn10072	XM16S16.D	9501702	03/16/2018	14:45	X180751AA	
scn10072	XM16S17.D	9501703	03/16/2018	15:08	X180751AA	
scn10072	XM16S18.D	9501705	03/16/2018	15:31	X180751AA	
scn10072	XM16S19.D	9501706	03/16/2018	15:54	X180751AA	
scn10072	XM16S20.D	9501707MS	03/16/2018	16:17	X180751AA	
scn10072	XM16S21.D	9501708MSD	03/16/2018	16:40	X180751AA	
scn10072	XM16S22.D	9501709	03/16/2018	17:03	X180751AA	
scn10072	XM16S23.D	9501710	03/16/2018	17:26	X180751AA	
scn10072	XM16S24.D	9501713	03/16/2018	17:50	X180751AA	
scn10072	XM16S25.D	9500921	03/16/2018	18:13	X180751AA	
scn10072	XM16S26.D	9500922	03/16/2018	18:36	X180751AA	
scn10072	XM16S27.D	9500923	03/16/2018	18:59	X180751AA	
scn10072	XM16S28.D	9500920	03/16/2018	19:22	X180751AA	
scn10072	XM16S29.D	9501701	03/16/2018	19:45	X180751AA	
scn10072	XM16S30.D	9501704	03/16/2018	20:08	X180751AA	

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_SNB98___

Lab File ID: xm18t40.d BFB Injection Date: 03/18/18

Instrument ID: HP09193 BFB Injection Time: 16:50

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	15.55
75	30.0 - 60.0% of mass 95	46.09
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.67
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	98.99
175	5.0 - 9.0% of mass 174	7.13 (7.20)1
176	Greater than 95.0%, but less than 101.0% of mass 174	95.10 (96.07)1
177	5.0 - 9.0% of mass 176	6.34 (6.67)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	xm18c40.d	03/18/18	17:15
02	VSTD50	xm18c50.d	03/18/18	17:38
03	LCSX73	xm18l40.d	03/18/18	18:01
04	LCDX73	xm18l41.d	03/18/18	18:24
05	LCSX74	xm18l50.d	03/18/18	18:48
06	LCDX74	xm18l51.d	03/18/18	19:11
07	MDLX74 - MDLX74	xm18m50.d	03/18/18	19:34
08	VBLKX73	xm18b40.d	03/18/18	19:57
09	9496895	xm18s42.d	03/18/18	20:54
10	9496898	xm18s43.d	03/18/18	21:17
11	9496901	xm18s44.d	03/18/18	21:40
12	9496904	xm18s45.d	03/18/18	22:04
13	9496907	xm18s46.d	03/18/18	22:27
14	9500920RE	xm18s47.d	03/18/18	22:50
15	9500922RE	xm18s48.d	03/18/18	23:13
16	9500923RE	xm18s49.d	03/18/18	23:36
17	9501715	xm18s50.d	03/18/18	23:59
18	9501716	xm18s51.d	03/19/18	00:22
19	9501717	xm18s52.d	03/19/18	00:46

FORM V VOA

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP09193.i/18feb23a.b/xf23i57.d
/chem2/HP09193.i/18feb23a.b/xf23i56.d
/chem2/HP09193.i/18feb23a.b/xf23i55.d
/chem2/HP09193.i/18feb23a.b/xf23i54.d
/chem2/HP09193.i/18feb23a.b/xf23i53.d
/chem2/HP09193.i/18feb23a.b/xf23i52.d
/chem2/HP09193.i/18feb23a.b/xf23i51.d

File /chem2/HP09193.i/18feb23a.b/xf23i53.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09193.i/18mar18a.b/xm18c40.d

RT Summary

Internal Standard Name	File ID: xm18c40.d	ICAL RT	In Spec
t-Butyl alcohol-d10	4.110	4.110	Yes
Fluorobenzene	7.620	7.620	Yes
Chlorobenzene-d5	11.130	11.130	Yes
1,4-Dichlorobenzene-d4	13.022	13.022	Yes

A "No" indicates the retention time is greater than 10 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: xm18c40.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl alcohol-d10	86565	143271	71636	286542	Yes
Fluorobenzene	855817	1143297	571648	2286594	Yes
Chlorobenzene-d5	718490	928636	464318	1857272	Yes
1,4-Dichlorobenzene-d4	424345	514593	257296	1029186	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

report generated on 03/18/2018 at 17:36

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date: 03/18/18 Time: 17:15

Lab File ID: xm18c40.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

			ACTUAL	TRUE	%	
COMPOUND	RRF	RRF50	CONC.	CONC.	DRIFT	
# Dichlorodifluoromethane	0.3867	0.3231	41.78	50	-16	#
# Chloromethane	0.3573	0.3537	49.48	50	-1	#
# Vinyl Chloride	0.3523	0.3652	51.83	50	4	#
# Bromomethane	0.2735	0.3140	57.41	50	15	#
# Chloroethane	0.1991	0.2231	56.02	50	12	#
# Trichlorofluoromethane	0.4763	0.5171	54.29	50	9	#
Ethanol	0.1412	0.1547	2738.21	2500	10	
Freon 123a	0.2884	0.3380	58.60	50	17	
Acrolein	1.9382	2.2396	577.75	500	16	
# 1,1-Dichloroethene	0.2004	0.2304	57.48	50	15	#
# Acetone	0.8469	0.9896	116.85	100	17	#
# Freon 113	0.2191	0.2505	57.16	50	14	#
2-Propanol	0.7295	0.7645	261.98	250	5	
Methyl Iodide	0.4124	0.4955	60.06	50	20	
# Carbon Disulfide	0.6569	0.7806	59.41	50	19	#
# Methyl Acetate	0.1652	0.1515	45.84	50	-8	#
Allyl Chloride	0.3544	0.3360	47.41	50	-5	
# Methylene Chloride	0.2551	0.2748	53.85	50	8	#
t-Butyl alcohol	1.2617	1.3353	264.57	250	6	
Acrylonitrile	0.0784	0.0790	50.35	50	1	
# Methyl Tertiary Butyl Ether	0.7357	0.7504	51.00	50	2	#
# trans-1,2-Dichloroethene	0.2430	0.2790	57.41	50	15	#
n-Hexane	0.3679	0.3377	45.89	50	-8	
# 1,1-Dichloroethane	0.4141	0.4482	54.12	50	8	#
di-Isopropyl ether	0.7229	0.7220	49.93	50	0	
2-Chloro-1,3-butadiene	0.3602	0.3765	52.26	50	5	
Ethyl t-butyl ether	0.7499	0.7382	49.22	50	-2	
# 2-Butanone	4.3561	4.6976	107.84	100	8	#
# cis-1,2-Dichloroethene	0.2809	0.3181	56.62	50	13	#
2,2-Dichloropropane	0.3770	0.3959	52.50	50	5	
Propionitrile	1.3074	1.5283	292.25	250	17	
Methacrylonitrile	0.1003	0.1025	127.71	125	2	
Bromochloromethane	0.1392	0.1698	61.01	50	22	- ND
Tetrahydrofuran	1.2601	1.4641	116.19	100	16	
# Chloroform	0.4393	0.4927	56.08	50	12	#
# 1,1,1-Trichloroethane	0.3917	0.4417	56.39	50	13	#

Compounds with required minimum RRF.
All compounds must meet a maximum % Drift of 20.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date: 03/18/18 Time: 17:15

Lab File ID: xm18c40.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

			ACTUAL	TRUE	%	
COMPOUND	RRF	RRF50	CONC.	CONC.	DRIFT	
# Cyclohexane	0.4131	0.4073	49.29	50	-1	#
# Cyclohexane(2)	0.3740	0.3909	52.26	50	5	#
# Cyclohexane(3)	0.1316	0.1349	51.23	50	2	#
1,1-Dichloropropene	0.3387	0.3641	53.75	50	7	
# Carbon Tetrachloride	0.3298	0.3838	58.19	50	16	#
Isobutyl Alcohol	0.3959	0.4229	667.51	625	7	
# Benzene	1.0209	1.1233	55.01	50	10	#
# 1,2-Dichloroethane	0.3382	0.3527	52.15	50	4	#
# 1,2-Dichloroethane(2)	0.0307	0.0355	57.96	50	16	#<-
t-Amyl methyl ether	0.7257	0.7365	50.75	50	1	
n-Heptane	0.3847	0.3446	44.79	50	-10	
n-Butanol	0.3456	0.3473	1256.33	1250	1	
# Trichloroethene	0.2733	0.3087	56.48	50	13	#
# Methylcyclohexane	0.4708	0.4935	52.41	50	5	#
# 1,2-Dichloropropane	0.2547	0.2756	54.09	50	8	#
Methyl Methacrylate	0.1820	0.1863	51.18	50	2	
1,4-Dioxane	0.1309	0.1578	753.60	625	21	<- NT
Dibromomethane	0.1590	0.1813	57.03	50	14	
# Bromodichloromethane	0.3343	0.3818	57.10	50	14	#
2-Nitropropane	2.6699	2.9476	110.40	100	10	
# cis-1,3-Dichloropropene	0.4164	0.4491	53.92	50	8	#
# 4-Methyl-2-pentanone	0.2216	0.2193	98.94	100	-1	#
# Toluene	0.8365	0.9113	54.47	50	9	#
# trans-1,3-Dichloropropene	0.4549	0.4755	52.27	50	5	#
Ethyl Methacrylate	0.4235	0.4245	50.12	50	0	
# 1,1,2-Trichloroethane	0.2893	0.3201	55.31	50	11	#
# Tetrachloroethene	0.3829	0.4503	58.80	50	18	#
1,3-Dichloropropane	0.4730	0.5009	52.95	50	6	
# 2-Hexanone	0.1953	0.1865	95.51	100	-4	#
# Dibromochloromethane	0.3237	0.3879	59.92	50	20	#
# 1,2-Dibromoethane	0.2991	0.3311	55.36	50	11	#
1-Chlorohexane	0.4926	0.4920	49.95	50	0	
# Chlorobenzene	0.9838	1.1062	56.22	50	12	#
1,1,1,2-Tetrachloroethane	0.3360	0.4006	59.61	50	19	
# Ethylbenzene	1.6205	1.8093	55.82	50	12	#
# m+p-Xylene	0.6670	0.7539	113.02	100	13	#

Compounds with required minimum RRF.
All compounds must meet a maximum % Drift of 20.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date: 03/18/18 Time: 17:15

Lab File ID: xm18c40.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

			ACTUAL	TRUE	%	
COMPOUND	RRF	RRF50	CONC.	CONC.	DRIFT	
# o-Xylene	0.6600	0.7417	56.19	50	12	#
# Styrene	1.0802	1.2162	56.30	50	13	#
# Bromoform	0.2212	0.2644	59.76	50	20	#
# Isopropylbenzene	1.6671	1.8496	55.47	50	11	#
Cyclohexanone	0.3359	0.3741	696.08	625	11	
# 1,1,2,2-Tetrachloroethane	0.7145	0.7097	49.66	50	-1	#
Bromobenzene	0.8340	0.9064	54.34	50	9	
trans-1,4-Dichloro-2-butene	0.1823	0.1594	109.31	125	-13	
1,2,3-Trichloropropane	0.2153	0.2241	52.05	50	4	
n-Propylbenzene	3.5087	3.5848	51.08	50	2	
2-Chlorotoluene	0.7545	0.8014	53.11	50	6	
1,3,5-Trimethylbenzene	2.7050	2.7533	50.89	50	2	
4-Chlorotoluene	0.7957	0.8426	52.95	50	6	
tert-Butylbenzene	0.5882	0.6210	52.79	50	6	
Pentachloroethane	0.4692	0.5550	59.14	50	18	
1,2,4-Trimethylbenzene	2.8225	2.9039	51.44	50	3	
sec-Butylbenzene	3.4188	3.4799	50.89	50	2	
# 1,3-Dichlorobenzene	1.6083	1.7706	55.04	50	10	#
p-Isopropyltoluene	3.0647	3.2189	52.52	50	5	
# 1,4-Dichlorobenzene	1.6617	1.8290	55.03	50	10	#
1,2,3-Trimethylbenzene	2.7969	3.0173	53.94	50	8	
Benzyl Chloride	0.3353	0.3368	50.22	50	0	
1,3-Diethylbenzene	1.8117	1.8907	52.18	50	4	
1,4-Diethylbenzene	1.8977	1.9691	51.88	50	4	
n-Butylbenzene	1.5464	1.5134	48.93	50	-2	
# 1,2-Dichlorobenzene	1.5354	1.6845	54.86	50	10	#
1,2-Diethylbenzene	1.5278	1.6127	52.78	50	6	
# 1,2-Dibromo-3-chloropropane	0.1373	0.1273	46.38	50	-7	#
1,3,5-Trichlorobenzene	1.2641	1.3465	53.26	50	7	
# 1,2,4-Trichlorobenzene	1.1796	1.2497	52.97	50	6	#
Hexachlorobutadiene	0.6145	0.6293	51.21	50	2	
Naphthalene	2.7814	2.7871	50.10	50	0	
1,2,3-Trichlorobenzene	1.0841	1.1680	53.87	50	8	
2-Methylnaphthalene	1.7079	1.7057	49.94	50	0	
Dibromofluoromethane	0.2411	0.2459	51.00	50	2	

Compounds with required minimum RRF.
All compounds must meet a maximum % Drift of 20.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09193 Calibration Date: 03/18/18 Time: 17:15

Lab File ID: xml8c40.d Init. Calib. Date(s): 02/23/18 02/23/18

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dibromofluoromethane(2)	0.2453	0.2497	50.89	50	2
1,2-Dichloroethane-d4	0.0566	0.0571	50.48	50	1
1,2-Dichloroethane-d4(2)	0.2660	0.2567	48.24	50	-4
1,2-Dichloroethane-d4(3)	0.0363	0.0363	50.01	50	0
Toluene-d8	1.2441	1.2008	48.26	50	-3
Toluene-d8(2)	0.8109	0.7867	48.51	50	-3
4-Bromofluorobenzene	0.4712	0.4474	47.47	50	-5
4-Bromofluorobenzene(2)	0.4165	0.4366	52.41	50	5

Average %Drift 8

Compounds with required minimum RRF.
All compounds must meet a maximum % Drift of 20.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_SNB98___

Lab File ID (Standard): xm18c40.d Date Analyzed: 03/18/18

Instrument ID: HP09193 Time Analyzed: 17:15

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA)		IS2(FBZ)		IS3(CBZ)		IS4(DCB)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	86565	4.110	855817	7.620	718490	11.130	424345	13.022
UPPER LIMIT	173130	4.610	1711634	8.120	1436980	11.630	848690	13.522
LOWER LIMIT	43282	3.610	427908	7.120	359245	10.630	212172	12.522
LAB SAMPLE ID								
01 LCSX73	78934	4.110	874640	7.620	714176	11.124	411624	13.022
02 LCDX73	80700	4.116	881474	7.620	718870	11.130	411511	13.022
03 LCSX74	85697	4.122	863842	7.620	699304	11.130	382528	13.022
04 LCDX74	83791	4.110	867809	7.614	702206	11.130	383195	13.022
05 MDLX74 - MD	80499	4.116	835338	7.614	681256	11.124	376250	13.022
06 VBLKX73	80497	4.122	829039	7.620	672412	11.130	369966	13.022
07 9496895	102698	4.116	816903	7.614	666200	11.124	352965	13.022
08 9496898	109274	4.122	795917	7.620	636797	11.130	334666	13.022
09 9496901	109030	4.110	792355	7.614	651620	11.124	348172	13.022
10 9496904	104373	4.110	708350	7.620	579219	11.130	302472	13.022
11 9496907	102375	4.122	756930	7.620	616557	11.130	330825	13.022
12 9500920RE	89419	4.110	638923	7.614	415497	11.124	122728 *	13.022
13 9500922RE	74376	4.092	558348	7.614	318880 *	11.124	66217 *	13.022
14 9500923RE	70022	4.098	574258	7.614	401470	11.124	130654 *	13.022
15 9501715	90610	4.128	773315	7.620	635840	11.130	353584	13.022
16 9501716	94345	4.122	788119	7.620	645550	11.130	353703	13.022
17 9501717	92590	4.110	788501	7.614	646337	11.124	356204	13.022

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

page 1 of 1

FORM VIII VOA

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09193 **HP #19**

Data Directory Path is - c:\msdchem\1\data\18mar18a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
scn10072	XM18T40.D	50NGBFB	03/18/2018	16:50	X180771AA	
scn10072	XM18C40.D	VSTD050	03/18/2018	17:15	X180771AA	
scn10072	XM18C50.D	VSTD050	03/18/2018	17:38	X180771AA	
scn10072	XM18L40.D	LCSX73	03/18/2018	18:01	X180771AA	
scn10072	XM18L41.D	LCDX73	03/18/2018	18:24	X180771AA	
scn10072	XM18L50.D	LCSX74	03/18/2018	18:48	X180771AA	
scn10072	XM18L51.D	LCDX74	03/18/2018	19:11	X180771AA	
scn10072	XM18M50.D	MDLX74	03/18/2018	19:34	X180771AA	
scn10072	XM18B40.D	VBLKX73	03/18/2018	19:57	X180771AA	
scn10072	XM18S41.D	9496892	03/18/2018	20:31	X180771AA	
scn10072	XM18S42.D	9496895	03/18/2018	20:54	X180771AA	
scn10072	XM18S43.D	9496898	03/18/2018	21:17	X180771AA	
scn10072	XM18S44.D	9496901	03/18/2018	21:40	X180771AA	
scn10072	XM18S45.D	9496904	03/18/2018	22:04	X180771AA	
scn10072	XM18S46.D	9496907	03/18/2018	22:27	X180771AA	
scn10072	XM18S47.D	9500920RE	03/18/2018	22:50	X180771AA	
scn10072	XM18S48.D	9500922RE	03/18/2018	23:13	X180771AA	
scn10072	XM18S49.D	9500923RE	03/18/2018	23:36	X180771AA	
scn10072	XM18S50.D	9501715	03/18/2018	23:59	X180771AA	
scn10072	XM18S51.D	9501716	03/19/2018	00:22	X180771AA	
scn10072	XM18S52.D	9501717	03/19/2018	00:46	X180771AA	

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VOA Prep Summary by SDG: SNB98

21 - GC/MS Volatiles

Sample Number	Bottle Code	Prep Analysis#	Vial ID	Used for Analysis?	Collected	Prepared	Initial Weight	Final Weight	Net soil weight	Weight requirement	Meets require-ments?	Preserv. lot #	Preservative (volume)	Final Extraction Vol (mL)	Problem Codes
9500920	014A	07579	18788465	N	03/12/18 00:00	03/12/18 00:00	29.54 g	34.97 g	5.43 g	4.50 g - 5.50 g	Y	17070285	MeOH (5 mL)	5.000	
9500920	093A	02392	18788463	Y	03/12/18 00:00	03/12/18 00:00	33.19 g	38.69 g	5.50 g	4.50 g - 5.50 g	Y	2GG0015	NaHSO4 (5 mL)	5.000	
9500920	093B	02392	18788464	N	03/12/18 00:00	03/12/18 00:00	33.37 g	38.98 g	5.61 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9500921	014A	07579	18788466	N	03/12/18 10:30	03/12/18 10:30	29.64 g	34.90 g	5.26 g	4.50 g - 5.50 g	Y	17070285	MeOH (5 mL)	5.000	
9500921	093A	02392	18788461	Y	03/12/18 10:30	03/12/18 10:30	33.29 g	39.23 g	5.94 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9500921	093B	02392	18788462	N	03/12/18 10:30	03/12/18 10:30	32.86 g	39.12 g	6.26 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9500922	014A	07579	18788467	N	03/12/18 10:40	03/12/18 10:40	29.67 g	35.50 g	5.83 g	4.50 g - 5.50 g	N	17070285	MeOH (5 mL)	5.000	A
9500922	093A	02392	18788459	Y	03/12/18 10:40	03/12/18 10:40	32.91 g	38.20 g	5.29 g	4.50 g - 5.50 g	Y	2GG0015	NaHSO4 (5 mL)	5.000	
9500922	093B	02392	18788460	N	03/12/18 10:40	03/12/18 10:40	33.05 g	39.54 g	6.49 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9500923	014A	07579	18788468	N	03/12/18 10:50	03/12/18 10:50	29.45 g	36.06 g	6.61 g	4.50 g - 5.50 g	N	17070285	MeOH (5 mL)	5.000	A
9500923	093A	02392	18788457	Y	03/12/18 10:50	03/12/18 10:50	33.17 g	39.57 g	6.40 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9500923	093B	02392	18788458	N	03/12/18 10:50	03/12/18 10:50	33.20 g	40.09 g	6.89 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9501706	014A	07579	18788610	N	03/09/18 15:35	03/09/18 15:35	29.68 g	36.55 g	6.87 g	4.50 g - 5.50 g	N	17070285	MeOH (5 mL)	5.000	A
9501706	093A	02392	18788640	N	03/09/18 15:35	03/09/18 15:35	33.10 g	39.91 g	6.81 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9501706	093B	02392	18788641	N	03/09/18 15:35	03/09/18 15:35	33.19 g	40.05 g	6.86 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9501707	014A	07579	18788611	N	03/09/18 15:35	03/09/18 15:35	29.46 g	35.76 g	6.30 g	4.50 g - 5.50 g	N	17070285	MeOH (5 mL)	5.000	A
9501707	093A	02392	18788642	N	03/09/18 15:35	03/09/18 15:35	33.19 g	39.53 g	6.34 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9501707	093B	02392	18788643	N	03/09/18 15:35	03/09/18 15:35	33.00 g	39.48 g	6.48 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9501708	014A	07579	18788612	N	03/09/18 15:35	03/09/18 15:35	29.58 g	36.08 g	6.50 g	4.50 g - 5.50 g	N	17070285	MeOH (5 mL)	5.000	A
9501708	093A	02392	18788644	N	03/09/18 15:35	03/09/18 15:35	33.07 g	39.01 g	5.94 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A
9501708	093B	02392	18788645	N	03/09/18 15:35	03/09/18 15:35	33.00 g	45.54 g	12.54 g	4.50 g - 5.50 g	N	2GG0015	NaHSO4 (5 mL)	5.000	A

Final Extraction Vol (mL) = Preservative Vol + Added MeOH (if applicable)

KEY to problem codes:

A = wt. does not meet requirements B = vial leaked C# where # = volume of MeOH added in mL due to sample not covered/matrix (lot #)
D = sampler not full E = effervescence observed F = pH >= 2 G = headspace in container

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SNB98

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
9500920	SG3a-FD01-180312		X	1	Field Duplicate Sample
9500921	SG3a-SB18-07-0.0-1.0		X	1	
9500922	SG3a-SB18-07-10.0-11.0		X	1	
9500923	SG3a-SB18-07-15.0-18.0		X	1	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

MS/MSD

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

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Quality Control Reference List
GC/MS Semivolatiles

CLIENT: C. T. Male Associates
SDG: SNB98

Fraction: Semivolatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
TCL Semivolatiles	18073SLB026	SBLKLB073	03/15/2018 23:28:00
		073LBLCS	03/16/2018 00:08:00
		9500920	03/16/2018 00:28:00
		9500921	03/16/2018 00:48:00
		9500922	03/16/2018 01:07:00
TCL Semivolatiles	18078SLF026	SBLKLF078	03/21/2018 00:55:00
		078LFLCS	03/21/2018 01:18:00
		9500923	03/21/2018 03:39:00

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Quality Control Summary
Surrogates
GC/MS Semivolatiles
SDG: SNB98
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

18073SLB026	2,4,6-Tribromophenol		2-Fluorobiphenyl		2-Fluorophenol		Nitrobenzene-d5		Phenol-d6		Terphenyl-d14	
	Spike Added	6666.667 ug/kg	Spike Added	3333.333 ug/kg	Spike Added	6666.667 ug/kg	Spike Added	3333.333 ug/kg	Spike Added	6666.667 ug/kg	Spike Added	3333.333 ug/kg
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
SBLKLB073	80	27 - 137	82	57 - 116	93	51 - 123	84	49 - 118	92	46 - 125	91	55 - 118
073LBLCS	76	27 - 137	85	57 - 116	98	51 - 123	86	49 - 118	95	46 - 125	88	55 - 118
9500920	63	27 - 137	85	57 - 116	92	51 - 123	85	49 - 118	93	46 - 125	90	55 - 118
9500921	67	27 - 137	76	57 - 116	85	51 - 123	78	49 - 118	85	46 - 125	79	55 - 118
9500922	55	27 - 137	82	57 - 116	87	51 - 123	71	49 - 118	86	46 - 125	80	55 - 118

18078SLF026	2,4,6-Tribromophenol		2-Fluorobiphenyl		2-Fluorophenol		Nitrobenzene-d5		Phenol-d6		Terphenyl-d14	
	Spike Added	6666.667 ug/kg	Spike Added	3333.333 ug/kg	Spike Added	6666.667 ug/kg	Spike Added	3333.333 ug/kg	Spike Added	6666.667 ug/kg	Spike Added	3333.333 ug/kg
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
SBLKLF078	112	27 - 137	95	57 - 116	88	51 - 123	86	49 - 118	79	46 - 125	98	55 - 118
078LFLCS	100	27 - 137	96	57 - 116	93	51 - 123	85	49 - 118	84	46 - 125	94	55 - 118
9500923	68	27 - 137	92	57 - 116	87	51 - 123	83	49 - 118	80	46 - 125	93	55 - 118

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 073LBLCS	Batch: **18073SLB026** (Sample number(s): 9500920-9500922)							
Analyte	Spike Added ug/kg	LCS Conc ug/kg	LCSD Conc ug/kg	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
1,4-Dioxane	1666.67	949.62	NA	57	NA	37-87	NA	NA
Benzaldehyde	1666.67	1427.17	NA	86	NA	18-123	NA	NA
Phenol	1666.67	1617.74	NA	97	NA	68-123	NA	NA
bis(2-Chloroethyl)ether	1666.67	1709.07	NA	103	NA	68-115	NA	NA
2-Chlorophenol	1666.67	1656.35	NA	99	NA	75-124	NA	NA
2-Methylphenol	1666.67	1703.36	NA	102	NA	74-128	NA	NA
2,2'-oxybis(1-Chloropropane)	1666.67	1162.8	NA	70	NA	61-120	NA	NA
Acetophenone	1666.67	1642.23	NA	99	NA	68-115	NA	NA
4-Methylphenol	1666.67	1612.98	NA	97	NA	66-121	NA	NA
Hexachloroethane	1666.67	1519.05	NA	91	NA	72-111	NA	NA
Nitrobenzene	1666.67	1529.18	NA	92	NA	70-122	NA	NA
N-Nitroso-di-n-propylamine	1666.67	1536.01	NA	92	NA	60-123	NA	NA
2,4-Dichlorophenol	1666.67	1632.38	NA	98	NA	79-125	NA	NA
2,4-Dimethylphenol	1666.67	1459.78	NA	88	NA	56-107	NA	NA
2-Nitrophenol	1666.67	1705.85	NA	102	NA	77-129	NA	NA
bis(2-Chloroethoxy)methane	1666.67	1676.09	NA	101	NA	72-117	NA	NA
Isophorone	1666.67	1589.56	NA	95	NA	65-120	NA	NA
1,1'-Biphenyl	1666.67	1517.02	NA	91	NA	78-115	NA	NA
1,2,4,5-Tetrachlorobenzene	1666.67	1469.69	NA	88	NA	76-116	NA	NA
2,4,5-Trichlorophenol	1666.67	1581.37	NA	95	NA	84-122	NA	NA
2,4,6-Trichlorophenol	1666.67	1553.42	NA	93	NA	81-123	NA	NA
2-Chloronaphthalene	1666.67	1878.19	NA	113	NA	51-150	NA	NA
2-Methylnaphthalene	1666.67	1466.99	NA	88	NA	77-116	NA	NA
2-Nitroaniline	1666.67	1594.39	NA	96	NA	81-126	NA	NA
4-Chloro-3-methylphenol	1666.67	1646.46	NA	99	NA	70-128	NA	NA
4-Chloroaniline	1666.67	482.3	NA	29	NA	10-117	NA	NA
Caprolactam	1666.67	1510.57	NA	91	NA	63-121	NA	NA
Dimethylphthalate	1666.67	1521.53	NA	91	NA	77-116	NA	NA
Hexachlorobutadiene	1666.67	1492.8	NA	90	NA	75-115	NA	NA
Hexachlorocyclopentadiene	3333.33	3398.97	NA	102	NA	10-172	NA	NA
Naphthalene	1666.67	1509.34	NA	91	NA	81-111	NA	NA
2,3,4,6-Tetrachlorophenol	1666.67	1487.04	NA	89	NA	73-127	NA	NA
2,4-Dinitrophenol	3333.33	3138.09	NA	94	NA	51-139	NA	NA
2,4-Dinitrotoluene	1666.67	1580.85	NA	95	NA	78-123	NA	NA
2,6-Dinitrotoluene	1666.67	1637.05	NA	98	NA	80-120	NA	NA
3,3'-Dichlorobenzidine	1666.67	1359	NA	82	NA	33-117	NA	NA
3-Nitroaniline	1666.67	1262.39	NA	76	NA	68-124	NA	NA
4,6-Dinitro-2-methylphenol	1666.67	1868.42	NA	112	NA	73-127	NA	NA
4-Bromophenyl-phenylether	1666.67	1544.75	NA	93	NA	81-116	NA	NA
4-Chlorophenyl-phenylether	1666.67	1432.21	NA	86	NA	79-112	NA	NA
4-Nitroaniline	1666.67	1252.07	NA	75	NA	50-112	NA	NA
4-Nitrophenol	1666.67	1121.72	NA	67	NA	44-131	NA	NA

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 073LBLCS	Batch: **18073SLB026** (Sample number(s): 9500920-9500922)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Acenaphthene	1666.67	1527.83	NA	92	NA	78-119	NA	NA
Acenaphthylene	1666.67	1632.52	NA	98	NA	45-149	NA	NA
Anthracene	1666.67	1594.67	NA	96	NA	82-113	NA	NA
Atrazine	1666.67	1429.38	NA	86	NA	58-126	NA	NA
Benzo(a)anthracene	1666.67	1382.8	NA	83	NA	76-119	NA	NA
Benzo(a)pyrene	1666.67	1573.79	NA	94	NA	77-112	NA	NA
Benzo(b)fluoranthene	1666.67	1524.05	NA	91	NA	78-120	NA	NA
Benzo(g,h,i)perylene	1666.67	1510.86	NA	91	NA	76-111	NA	NA
Benzo(k)fluoranthene	1666.67	1735.56	NA	104	NA	78-119	NA	NA
bis(2-Ethylhexyl)phthalate	1666.67	1604.61	NA	96	NA	78-118	NA	NA
Butylbenzylphthalate	1666.67	1569.5	NA	94	NA	81-118	NA	NA
Carbazole	1666.67	1596.71	NA	96	NA	74-118	NA	NA
Chrysene	1666.67	1408.97	NA	85	NA	78-115	NA	NA
Dibenz(a,h)anthracene	1666.67	1557.51	NA	93	NA	79-117	NA	NA
Dibenzofuran	1666.67	1493.41	NA	90	NA	79-114	NA	NA
Diethylphthalate	1666.67	1491.31	NA	89	NA	74-120	NA	NA
Di-n-butylphthalate	1666.67	1666.05	NA	100	NA	77-121	NA	NA
Di-n-octylphthalate	1666.67	1958.49	NA	118	NA	81-134	NA	NA
Fluoranthene	1666.67	1414.04	NA	85	NA	76-115	NA	NA
Fluorene	1666.67	1454.21	NA	87	NA	80-112	NA	NA
Hexachlorobenzene	1666.67	1564.41	NA	94	NA	77-114	NA	NA
Indeno(1,2,3-cd)pyrene	1666.67	1474.7	NA	88	NA	78-113	NA	NA
N-Nitrosodiphenylamine	1666.67	1709.01	NA	103	NA	83-118	NA	NA
Pentachlorophenol	1666.67	1869.18	NA	112	NA	54-131	NA	NA
Phenanthrene	1666.67	1580.67	NA	95	NA	81-109	NA	NA
Pyrene	1666.67	1429.15	NA	86	NA	80-107	NA	NA

LCS: 078LFLCS	Batch: **18078SLF026** (Sample number(s): 9500923)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
1,4-Dioxane	1666.67	1097.74	NA	66	NA	37-87	NA	NA
Benzaldehyde	1666.67	1279.01	NA	77	NA	18-123	NA	NA
Phenol	1666.67	1486.58	NA	89	NA	68-123	NA	NA
bis(2-Chloroethyl)ether	1666.67	1491.99	NA	90	NA	68-115	NA	NA
2-Chlorophenol	1666.67	1653.65	NA	99	NA	75-124	NA	NA
2-Methylphenol	1666.67	1622.96	NA	97	NA	74-128	NA	NA
2,2'-oxybis(1-Chloropropane)	1666.67	1324.41	NA	79	NA	61-120	NA	NA
Acetophenone	1666.67	1467.59	NA	88	NA	68-115	NA	NA
4-Methylphenol	1666.67	1560.1	NA	94	NA	66-121	NA	NA
Hexachloroethane	1666.67	1586.11	NA	95	NA	72-111	NA	NA
Nitrobenzene	1666.67	1517.17	NA	91	NA	70-122	NA	NA

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 078LFLCS	Batch: **18078SLF026** (Sample number(s): 9500923)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
N-Nitroso-di-n-propylamine	1666.67	1335.73	NA	80	NA	60-123	NA	NA
2,4-Dichlorophenol	1666.67	1734.17	NA	104	NA	79-125	NA	NA
2,4-Dimethylphenol	1666.67	1521.84	NA	91	NA	56-107	NA	NA
2-Nitrophenol	1666.67	1757.96	NA	105	NA	77-129	NA	NA
bis(2-Chloroethoxy)methane	1666.67	1503.39	NA	90	NA	72-117	NA	NA
Isophorone	1666.67	1488.26	NA	89	NA	65-120	NA	NA
1,1'-Biphenyl	1666.67	1681.44	NA	101	NA	78-115	NA	NA
1,2,4,5-Tetrachlorobenzene	1666.67	1727.93	NA	104	NA	76-116	NA	NA
2,4,5-Trichlorophenol	1666.67	1709.33	NA	103	NA	84-122	NA	NA
2,4,6-Trichlorophenol	1666.67	1773.41	NA	106	NA	81-123	NA	NA
2-Chloronaphthalene	1666.67	1903.62	NA	114	NA	51-150	NA	NA
2-Methylnaphthalene	1666.67	1622.41	NA	97	NA	77-116	NA	NA
2-Nitroaniline	1666.67	1736.38	NA	104	NA	81-126	NA	NA
4-Chloro-3-methylphenol	1666.67	1605.06	NA	96	NA	70-128	NA	NA
4-Chloroaniline	1666.67	648.94	NA	39	NA	10-117	NA	NA
Caprolactam	1666.67	1418.72	NA	85	NA	63-121	NA	NA
Dimethylphthalate	1666.67	1580.08	NA	95	NA	77-116	NA	NA
Hexachlorobutadiene	1666.67	1726.01	NA	104	NA	75-115	NA	NA
Hexachlorocyclopentadiene	3333.33	4017.2	NA	121	NA	10-172	NA	NA
Naphthalene	1666.67	1594.47	NA	96	NA	81-111	NA	NA
2,3,4,6-Tetrachlorophenol	1666.67	1632.21	NA	98	NA	73-127	NA	NA
2,4-Dinitrophenol	3333.33	3005.73	NA	90	NA	51-139	NA	NA
2,4-Dinitrotoluene	1666.67	1658.27	NA	99	NA	78-123	NA	NA
2,6-Dinitrotoluene	1666.67	1676.11	NA	101	NA	80-120	NA	NA
3,3'-Dichlorobenzidine	1666.67	1520.91	NA	91	NA	33-117	NA	NA
3-Nitroaniline	1666.67	1381.42	NA	83	NA	68-124	NA	NA
4,6-Dinitro-2-methylphenol	1666.67	1725.36	NA	104	NA	73-127	NA	NA
4-Bromophenyl-phenylether	1666.67	1795.82	NA	108	NA	81-116	NA	NA
4-Chlorophenyl-phenylether	1666.67	1622.13	NA	97	NA	79-112	NA	NA
4-Nitroaniline	1666.67	1271.9	NA	76	NA	50-112	NA	NA
4-Nitrophenol	1666.67	1196.02	NA	72	NA	44-131	NA	NA
Acenaphthene	1666.67	1710.28	NA	103	NA	78-119	NA	NA
Acenaphthylene	1666.67	1845	NA	111	NA	45-149	NA	NA
Anthracene	1666.67	1679.65	NA	101	NA	82-113	NA	NA
Atrazine	1666.67	1441.26	NA	86	NA	58-126	NA	NA
Benzo(a)anthracene	1666.67	1579.29	NA	95	NA	76-119	NA	NA
Benzo(a)pyrene	1666.67	1660.44	NA	100	NA	77-112	NA	NA
Benzo(b)fluoranthene	1666.67	1665.69	NA	100	NA	78-120	NA	NA
Benzo(g,h,i)perylene	1666.67	1610.49	NA	97	NA	76-111	NA	NA
Benzo(k)fluoranthene	1666.67	1552.91	NA	93	NA	78-119	NA	NA
bis(2-Ethylhexyl)phthalate	1666.67	1637.32	NA	98	NA	78-118	NA	NA
Butylbenzylphthalate	1666.67	1614.33	NA	97	NA	81-118	NA	NA

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 078LFLCS	Batch: **18078SLF026** (Sample number(s): 9500923)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Carbazole	1666.67	1692.06	NA	102	NA	74-118	NA	NA
Chrysene	1666.67	1530.53	NA	92	NA	78-115	NA	NA
Dibenz(a,h)anthracene	1666.67	1726.93	NA	104	NA	79-117	NA	NA
Dibenzofuran	1666.67	1630.94	NA	98	NA	79-114	NA	NA
Diethylphthalate	1666.67	1538.25	NA	92	NA	74-120	NA	NA
Di-n-butylphthalate	1666.67	1652.47	NA	99	NA	77-121	NA	NA
Di-n-octylphthalate	1666.67	1709.32	NA	103	NA	81-134	NA	NA
Fluoranthene	1666.67	1560.56	NA	94	NA	76-115	NA	NA
Fluorene	1666.67	1630.62	NA	98	NA	80-112	NA	NA
Hexachlorobenzene	1666.67	1765.33	NA	106	NA	77-114	NA	NA
Indeno(1,2,3-cd)pyrene	1666.67	1611.32	NA	97	NA	78-113	NA	NA
N-Nitrosodiphenylamine	1666.67	1799.5	NA	108	NA	83-118	NA	NA
Pentachlorophenol	1666.67	1175.85	NA	71	NA	54-131	NA	NA
Phenanthrene	1666.67	1618.55	NA	97	NA	81-109	NA	NA
Pyrene	1666.67	1570.09	NA	94	NA	80-107	NA	NA

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: SNB98
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

18073SLB026 / SBLKLB073 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
1,4-Dioxane	03/15/18	N.D.	ug/kg	100	330
Benzaldehyde	03/15/18	N.D.	ug/kg	67	170
Phenol	03/15/18	N.D.	ug/kg	17	33
bis(2-Chloroethyl)ether	03/15/18	N.D.	ug/kg	17	33
2-Chlorophenol	03/15/18	N.D.	ug/kg	17	33
2-Methylphenol	03/15/18	N.D.	ug/kg	17	33
2,2'-oxybis(1-Chloropropane)	03/15/18	N.D.	ug/kg	17	33
Acetophenone	03/15/18	N.D.	ug/kg	17	33
Hexachloroethane	03/15/18	N.D.	ug/kg	33	170
4-Methylphenol	03/15/18	N.D.	ug/kg	17	33
Nitrobenzene	03/15/18	N.D.	ug/kg	17	33
N-Nitroso-di-n-propylamine	03/15/18	N.D.	ug/kg	17	33
bis(2-Chloroethoxy)methane	03/15/18	N.D.	ug/kg	17	33
2,4-Dichlorophenol	03/15/18	N.D.	ug/kg	17	33
2,4-Dimethylphenol	03/15/18	N.D.	ug/kg	17	33
Isophorone	03/15/18	N.D.	ug/kg	17	33
2-Nitrophenol	03/15/18	N.D.	ug/kg	17	33
1,1'-Biphenyl	03/15/18	N.D.	ug/kg	17	33
Caprolactam	03/15/18	N.D.	ug/kg	33	170
4-Chloro-3-methylphenol	03/15/18	N.D.	ug/kg	17	33
4-Chloroaniline	03/15/18	N.D.	ug/kg	33	67
2-Chloronaphthalene	03/15/18	N.D.	ug/kg	7	33
Dimethylphthalate	03/15/18	N.D.	ug/kg	67	170
Hexachlorobutadiene	03/15/18	N.D.	ug/kg	17	33
Hexachlorocyclopentadiene	03/15/18	N.D.	ug/kg	170	500
2-Methylnaphthalene	03/15/18	N.D.	ug/kg	3	17
Naphthalene	03/15/18	N.D.	ug/kg	3	17
2-Nitroaniline	03/15/18	N.D.	ug/kg	17	33
1,2,4,5-Tetrachlorobenzene	03/15/18	N.D.	ug/kg	17	33
2,4,5-Trichlorophenol	03/15/18	N.D.	ug/kg	17	33
2,4,6-Trichlorophenol	03/15/18	N.D.	ug/kg	17	33
Acenaphthene	03/15/18	N.D.	ug/kg	3	17
Acenaphthylene	03/15/18	N.D.	ug/kg	3	17
Anthracene	03/15/18	N.D.	ug/kg	3	17
Atrazine	03/15/18	N.D.	ug/kg	33	170
Benzo(a)anthracene	03/15/18	N.D.	ug/kg	3	17
Benzo(a)pyrene	03/15/18	N.D.	ug/kg	3	17
Benzo(b)fluoranthene	03/15/18	N.D.	ug/kg	3	17
Benzo(g,h,i)perylene	03/15/18	N.D.	ug/kg	3	17
Benzo(k)fluoranthene	03/15/18	N.D.	ug/kg	3	17
4-Bromophenyl-phenylether	03/15/18	N.D.	ug/kg	17	33
Butylbenzylphthalate	03/15/18	N.D.	ug/kg	67	170
Di-n-butylphthalate	03/15/18	N.D.	ug/kg	67	170
Carbazole	03/15/18	N.D.	ug/kg	17	33
4-Chlorophenyl-phenylether	03/15/18	N.D.	ug/kg	17	33

Fraction: Semivolatiles by GC/MS

18073SLB026 / SBLKLB073 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Chrysene	03/15/18	N.D.	ug/kg	3	17
Dibenz(a,h)anthracene	03/15/18	N.D.	ug/kg	3	17
Dibenzofuran	03/15/18	N.D.	ug/kg	17	33
3,3'-Dichlorobenzidine	03/15/18	N.D.	ug/kg	100	330
Diethylphthalate	03/15/18	N.D.	ug/kg	67	170
4,6-Dinitro-2-methylphenol	03/15/18	N.D.	ug/kg	170	500
2,4-Dinitrophenol	03/15/18	N.D.	ug/kg	300	1000
2,4-Dinitrotoluene	03/15/18	N.D.	ug/kg	67	170
2,6-Dinitrotoluene	03/15/18	N.D.	ug/kg	17	33
bis(2-Ethylhexyl)phthalate	03/15/18	N.D.	ug/kg	67	170
Fluoranthene	03/15/18	N.D.	ug/kg	3	17
Fluorene	03/15/18	N.D.	ug/kg	3	17
Hexachlorobenzene	03/15/18	N.D.	ug/kg	3	17
Indeno(1,2,3-cd)pyrene	03/15/18	N.D.	ug/kg	3	17
3-Nitroaniline	03/15/18	N.D.	ug/kg	67	170
4-Nitroaniline	03/15/18	N.D.	ug/kg	67	170
4-Nitrophenol	03/15/18	N.D.	ug/kg	170	500
N-Nitrosodiphenylamine	03/15/18	N.D.	ug/kg	17	33
Di-n-octylphthalate	03/15/18	N.D.	ug/kg	67	170
Pentachlorophenol	03/15/18	N.D.	ug/kg	33	170
Phenanthrene	03/15/18	N.D.	ug/kg	3	17
Pyrene	03/15/18	N.D.	ug/kg	3	17
2,3,4,6-Tetrachlorophenol	03/15/18	N.D.	ug/kg	67	170

18078SLF026 / SBLKLF078 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
1,4-Dioxane	03/21/18	N.D.	ug/kg	100	330
Benzaldehyde	03/21/18	N.D.	ug/kg	67	170
Phenol	03/21/18	N.D.	ug/kg	17	33
bis(2-Chloroethyl)ether	03/21/18	N.D.	ug/kg	17	33
2-Chlorophenol	03/21/18	N.D.	ug/kg	17	33
2-Methylphenol	03/21/18	N.D.	ug/kg	17	33
2,2'-oxybis(1-Chloropropane)	03/21/18	N.D.	ug/kg	17	33
Acetophenone	03/21/18	N.D.	ug/kg	17	33
Hexachloroethane	03/21/18	N.D.	ug/kg	33	170
4-Methylphenol	03/21/18	N.D.	ug/kg	17	33
Nitrobenzene	03/21/18	N.D.	ug/kg	17	33
N-Nitroso-di-n-propylamine	03/21/18	N.D.	ug/kg	17	33
bis(2-Chloroethoxy)methane	03/21/18	N.D.	ug/kg	17	33
2,4-Dichlorophenol	03/21/18	N.D.	ug/kg	17	33
2,4-Dimethylphenol	03/21/18	N.D.	ug/kg	17	33
Isophorone	03/21/18	N.D.	ug/kg	17	33
2-Nitrophenol	03/21/18	N.D.	ug/kg	17	33
1,1'-Biphenyl	03/21/18	N.D.	ug/kg	17	33
Caprolactam	03/21/18	N.D.	ug/kg	33	170

Fraction: Semivolatiles by GC/MS

18078SLF026 / SBLKLF078 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
4-Chloro-3-methylphenol	03/21/18	N.D.	ug/kg	17	33
4-Chloroaniline	03/21/18	N.D.	ug/kg	33	67
2-Chloronaphthalene	03/21/18	N.D.	ug/kg	7	33
Dimethylphthalate	03/21/18	N.D.	ug/kg	67	170
Hexachlorobutadiene	03/21/18	N.D.	ug/kg	17	33
Hexachlorocyclopentadiene	03/21/18	N.D.	ug/kg	170	500
2-Methylnaphthalene	03/21/18	N.D.	ug/kg	3	17
Naphthalene	03/21/18	N.D.	ug/kg	3	17
2-Nitroaniline	03/21/18	N.D.	ug/kg	17	33
1,2,4,5-Tetrachlorobenzene	03/21/18	N.D.	ug/kg	17	33
2,4,5-Trichlorophenol	03/21/18	N.D.	ug/kg	17	33
2,4,6-Trichlorophenol	03/21/18	N.D.	ug/kg	17	33
Acenaphthene	03/21/18	N.D.	ug/kg	3	17
Acenaphthylene	03/21/18	N.D.	ug/kg	3	17
Anthracene	03/21/18	N.D.	ug/kg	3	17
Atrazine	03/21/18	N.D.	ug/kg	33	170
Benzo(a)anthracene	03/21/18	N.D.	ug/kg	3	17
Benzo(a)pyrene	03/21/18	N.D.	ug/kg	3	17
Benzo(b)fluoranthene	03/21/18	N.D.	ug/kg	3	17
Benzo(g,h,i)perylene	03/21/18	N.D.	ug/kg	3	17
Benzo(k)fluoranthene	03/21/18	N.D.	ug/kg	3	17
4-Bromophenyl-phenylether	03/21/18	N.D.	ug/kg	17	33
Butylbenzylphthalate	03/21/18	N.D.	ug/kg	67	170
Di-n-butylphthalate	03/21/18	N.D.	ug/kg	67	170
Carbazole	03/21/18	N.D.	ug/kg	17	33
4-Chlorophenyl-phenylether	03/21/18	N.D.	ug/kg	17	33
Chrysene	03/21/18	N.D.	ug/kg	3	17
Dibenz(a,h)anthracene	03/21/18	N.D.	ug/kg	3	17
Dibenzofuran	03/21/18	N.D.	ug/kg	17	33
3,3'-Dichlorobenzidine	03/21/18	N.D.	ug/kg	100	330
Diethylphthalate	03/21/18	N.D.	ug/kg	67	170
4,6-Dinitro-2-methylphenol	03/21/18	N.D.	ug/kg	170	500
2,4-Dinitrophenol	03/21/18	N.D.	ug/kg	300	1000
2,4-Dinitrotoluene	03/21/18	N.D.	ug/kg	67	170
2,6-Dinitrotoluene	03/21/18	N.D.	ug/kg	17	33
bis(2-Ethylhexyl)phthalate	03/21/18	N.D.	ug/kg	67	170
Fluoranthene	03/21/18	N.D.	ug/kg	3	17
Fluorene	03/21/18	N.D.	ug/kg	3	17
Hexachlorobenzene	03/21/18	N.D.	ug/kg	3	17
Indeno(1,2,3-cd)pyrene	03/21/18	N.D.	ug/kg	3	17
3-Nitroaniline	03/21/18	N.D.	ug/kg	67	170
4-Nitroaniline	03/21/18	N.D.	ug/kg	67	170
4-Nitrophenol	03/21/18	N.D.	ug/kg	170	500
N-Nitrosodiphenylamine	03/21/18	N.D.	ug/kg	17	33
Di-n-octylphthalate	03/21/18	N.D.	ug/kg	67	170

Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: SNB98
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

18078SLF026 / SBLKLF078 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Pentachlorophenol	03/21/18	N.D.	ug/kg	33	170
Phenanthrene	03/21/18	N.D.	ug/kg	3	17
Pyrene	03/21/18	N.D.	ug/kg	3	17
2,3,4,6-Tetrachlorophenol	03/21/18	N.D.	ug/kg	67	170

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LOQ/MDL Summary
GC/MS Semivolatiles

SDG: SNB98

Fraction: Semivolatiles by GC/MS

10726: TCL Semivolatiles Analyte Name	Default MDL	Default LOQ	Units
1,4-Dioxane	100	330	ug/kg
Benzaldehyde	67	170	ug/kg
Phenol	17	33	ug/kg
bis(2-Chloroethyl)ether	17	33	ug/kg
2-Chlorophenol	17	33	ug/kg
2-Methylphenol	17	33	ug/kg
2,2'-oxybis(1-Chloropropane)	17	33	ug/kg
Acetophenone	17	33	ug/kg
4-Methylphenol	17	33	ug/kg
N-Nitroso-di-n-propylamine	17	33	ug/kg
Hexachloroethane	33	170	ug/kg
Nitrobenzene	17	33	ug/kg
Isophorone	17	33	ug/kg
2-Nitrophenol	17	33	ug/kg
2,4-Dimethylphenol	17	33	ug/kg
bis(2-Chloroethoxy)methane	17	33	ug/kg
2,4-Dichlorophenol	17	33	ug/kg
Naphthalene	3	17	ug/kg
4-Chloroaniline	33	67	ug/kg
Hexachlorobutadiene	17	33	ug/kg
Caprolactam	33	170	ug/kg
4-Chloro-3-methylphenol	17	33	ug/kg
2-Methylnaphthalene	3	17	ug/kg
Hexachlorocyclopentadiene	170	500	ug/kg
1,2,4,5-Tetrachlorobenzene	17	33	ug/kg
2,4,6-Trichlorophenol	17	33	ug/kg
2,4,5-Trichlorophenol	17	33	ug/kg
1,1'-Biphenyl	17	33	ug/kg
2-Chloronaphthalene	7	33	ug/kg
2-Nitroaniline	17	33	ug/kg
Dimethylphthalate	67	170	ug/kg
2,6-Dinitrotoluene	17	33	ug/kg
Acenaphthylene	3	17	ug/kg
3-Nitroaniline	67	170	ug/kg
Acenaphthene	3	17	ug/kg
2,4-Dinitrophenol	300	1,000	ug/kg
4-Nitrophenol	170	500	ug/kg
2,4-Dinitrotoluene	67	170	ug/kg
Dibenzofuran	17	33	ug/kg
2,3,4,6-Tetrachlorophenol	67	170	ug/kg
Diethylphthalate	67	170	ug/kg
Fluorene	3	17	ug/kg
4-Chlorophenyl-phenylether	17	33	ug/kg
4-Nitroaniline	67	170	ug/kg
4,6-Dinitro-2-methylphenol	170	500	ug/kg
N-Nitrosodiphenylamine	17	33	ug/kg
4-Bromophenyl-phenylether	17	33	ug/kg

Fraction: Semivolatiles by GC/MS

10726: TCL Semivolatiles Analyte Name	Default MDL	Default LOQ	Units
Hexachlorobenzene	3	17	ug/kg
Atrazine	33	170	ug/kg
Pentachlorophenol	33	170	ug/kg
Phenanthrene	3	17	ug/kg
Anthracene	3	17	ug/kg
Carbazole	17	33	ug/kg
Di-n-butylphthalate	67	170	ug/kg
Fluoranthene	3	17	ug/kg
Pyrene	3	17	ug/kg
Butylbenzylphthalate	67	170	ug/kg
3,3'-Dichlorobenzidine	100	330	ug/kg
Benzo(a)anthracene	3	17	ug/kg
Chrysene	3	17	ug/kg
bis(2-Ethylhexyl)phthalate	67	170	ug/kg
Di-n-octylphthalate	67	170	ug/kg
Benzo(b)fluoranthene	3	17	ug/kg
Benzo(k)fluoranthene	3	17	ug/kg
Benzo(a)pyrene	3	17	ug/kg
Indeno(1,2,3-cd)pyrene	3	17	ug/kg
Dibenz(a,h)anthracene	3	17	ug/kg
Benzo(g,h,i)perylene	3	17	ug/kg

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: bb2820.d DFTPP Injection Date: 02/15/18

Instrument ID: HP18444 DFTPP Injection Time: 10:48

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	46.7
68	Less than 2.0% of mass 69	0.75 (1.52)1
69	Mass 69 relative abundance	49.2
70	Less than 2.0% of mass 69	0.31 (0.64)1
127	10.0 - 80.00% of mass 198	52.1
197	Less than 2.0% of mass 198	0.66
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.54
275	10.0 - 60.0% of mass 198	22.0
365	Greater than 1.00% of mass 198	2.09
441	Present, and less than mass 443	8.87
442	Greater than 50.00% of mass 198	58.3
443	15.00 - 24.00% of mass 442	11.0 (18.8)2

1-Value is % mass 69 2-Value is % mass of 442 ✓

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD0388 - SSTD30	bb2821.d	02/15/18	11:12
02	STD0388 - SSTD.5	bb2822.d	02/15/18	11:34
03	STD0388 - SSTD120	bb2823.d	02/15/18	11:56
04	STD0388 - SSTD80	bb2824.d	02/15/18	12:17
05	STD0388 - SSTD50	bb2825.d	02/15/18	12:39
06	STD0388 - SSTD15	bb2826.d	02/15/18	13:01
07	STD0388 - SSTD5	bb2827.d	02/15/18	13:23
08	STD0388 - SSTD1	bb2828.d	02/15/18	13:44
09	8270MDL0388 - SSTD0.50	bb2829.d	02/15/18	14:05
10	PAHMDL0388 - SSTD0.10	bb2830.d	02/15/18	14:26
11	ICV0308 - SSTD050	bb2831.d	02/15/18	14:47
12	BAS0038 - SSTD50	bb2833.d	02/15/18	15:08
13	BAS0038 - SSTD120	bb2834.d	02/15/18	15:50
14	BAS0038 - SSTD80	bb2835.d	02/15/18	16:11
15	BAS0038 - SSTD30	bb2836.d	02/15/18	16:32
16	BAS0038 - SSTD15	bb2837.d	02/15/18	16:53
17	BAS0038 - SSTD5	bb2838.d	02/15/18	17:14
18	BAS0038 - SSTD001	bb2839.d	02/15/18	17:35

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: bb2820.d DFTPP Injection Date: 02/15/18

Instrument ID: HP18444 DFTPP Injection Time: 10:48

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	46.7
68	Less than 2.0% of mass 69	0.75 (1.52)1
69	Mass 69 relative abundance	49.2
70	Less than 2.0% of mass 69	0.31 (0.64)1
127	10.0 - 80.00% of mass 198	52.1
197	Less than 2.0% of mass 198	0.66
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.54
275	10.0 - 60.0% of mass 198	22.0
365	Greater than 1.00% of mass 198	2.09
441	Present, and less than mass 443	8.87
442	Greater than 50.00% of mass 198	58.3
443	15.00 - 24.00% of mass 442	11.0 (18.8)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
19	BASICV2487 - SSTD050	bb2832.d	02/15/18	17:56
20	MS180322 - SSTD050	bb2840.d	02/15/18	18:18

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date(s): 02/15/18 02/15/18

Calibration Times: 11:12 13:44

LAB FILE ID: RRF0.5 = bb2822.d RRF1 = bb2828.d RRF5 = bb2827.d RRF15 = bb2826.d
RRF30 = bb2821.d RRF50 = bb2825.d RRF80 = bb2824.d RRF120 = bb2823.d

COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	RRF	% RSD	CAL. METHOD
1,4-Dioxane			0.698	0.721	0.722	0.719	0.695	0.691	0.708	2	AVG
N-Nitrosodimethylamine			1.089	1.168	1.181	1.195	1.168	1.166	1.161	3	AVG
Pyridine			2.042	1.994	2.103	1.997	1.988	1.936	2.010	3	AVG
2-Picoline			2.037	2.026	2.058	2.061	1.988	1.857	2.004	4	AVG
N-Nitrosomethylethylamine			0.896	0.845	0.891	0.880	0.860	0.841	0.869	3	AVG
Methyl methanesulfonate			1.051	1.033	1.057	1.039	1.006	0.999	1.031	2	AVG
N-Nitrosodiethylamine		0.718	0.801	0.845	0.871	0.866	0.832	0.830	0.823	6	AVG
Ethyl methanesulfonate		0.823	0.869	0.853	0.917	0.881	0.849	0.842	0.862	4	AVG
Phenol		2.349	2.424	2.429	2.595	2.550	2.415	2.363	2.446	4	AVG
Aniline		2.755	2.895	2.841	2.971	2.910	2.797	2.763	2.848	3	AVG
a-methylstyrene			1.716	1.732	1.811	1.798	1.712	1.733	1.751	2	AVG
bis(2-Chloroethyl)ether		1.926	1.868	1.834	1.884	1.857	1.786	1.747	1.843	3	AVG
2-Chlorophenol		1.543	1.566	1.522	1.599	1.598	1.499	1.474	1.543	3	AVG
1,3-Dichlorobenzene		1.683	1.661	1.635	1.673	1.642	1.582	1.562	1.634	3	AVG
1,4-Dichlorobenzene		1.745	1.650	1.670	1.687	1.671	1.607	1.587	1.659	3	AVG
Benzyl alcohol		1.165	1.160	1.123	1.264	1.238	1.190	1.181	1.189	4	AVG
1,2-Dichlorobenzene		1.498	1.618	1.566	1.620	1.581	1.523	1.486	1.556	4	AVG
Indene			3.002	3.023	3.223	3.124	3.038	3.058	3.078	3	AVG
2-Methylphenol		1.515	1.571	1.530	1.676	1.635	1.567	1.532	1.575	4	AVG
2,2'-oxybis(1-Chloropropane)		2.281	2.294	2.244	2.368	2.279	2.178	2.140	2.255	3	AVG
bis(2-Chloroisopropyl)ether		2.281	2.294	2.244	2.368	2.279	2.178	2.140	2.255	3	AVG
N-Nitrosopyrrolidine		0.898	0.910	0.908	1.004	1.011	0.953	0.919	0.943	5	AVG
Acetophenone		2.428	2.355	2.477	2.570	2.511	2.433	2.406	2.454	3	AVG
4-Methylphenol		1.664	1.846	1.812	1.998	1.951	1.861	1.762	1.842	6	AVG
Total Cresols		1.589	1.709	1.671	1.837	1.793	1.714	1.647	1.709	5	AVG
N-Nitroso-di-n-propylamine		1.444	1.470	1.451	1.548	1.526	1.456	1.422	1.474	3	AVG
N-Nitrosomorpholine			1.077	1.086	1.155	1.125	1.061	1.018	1.087	4	AVG
o-Toluidine		2.590	2.894	2.735	2.952	2.834	2.692	2.624	2.760	5	AVG
Hexachloroethane			0.705	0.712	0.720	0.726	0.687	0.682	0.706	3	AVG
Nitrobenzene		0.473	0.509	0.506	0.512	0.517	0.500	0.489	0.501	3	AVG
N-Nitrosopiperidine		0.213	0.216	0.210	0.220	0.219	0.208	0.207	0.213	2	AVG
Isophorone		0.879	0.891	0.892	0.936	0.939	0.897	0.883	0.902	3	AVG
2-Nitrophenol		0.178	0.182	0.187	0.198	0.199	0.197	0.193	0.190	4	AVG
2,4-Dimethylphenol		0.383	0.417	0.418	0.434	0.432	0.419	0.410	0.416	4	AVG
O,O,O-Triethylphosphorothioate			0.192	0.191	0.203	0.201	0.195	0.195	0.196	3	AVG
bis(2-Chloroethoxy)methane		0.578	0.564	0.562	0.568	0.568	0.553	0.552	0.564	2	AVG
Benzoic acid			0.292	0.341	0.388	0.407	0.403	0.394	0.371	12	AVG
1,2,3,4-Tetrahydronaphthalene			0.617	0.626	0.654	0.656	0.642	0.645	0.640	2	AVG
2,4-Dichlorophenol		0.278	0.306	0.313	0.323	0.322	0.309	0.300	0.307	5	AVG
1,2,4-Trichlorobenzene			0.330	0.326	0.334	0.338	0.325	0.324	0.329	2	AVG
Naphthalene	1.105	1.113	1.164	1.155	1.163	1.164	1.128	1.084	1.135	3	AVG
4-Chloroaniline		0.431	0.448	0.454	0.472	0.462	0.440	0.428	0.448	4	AVG
2,6-Dichlorophenol		0.303	0.307	0.309	0.314	0.315	0.301	0.293	0.306	3	AVG
Hexachloropropene			0.222	0.220	0.224	0.229	0.225	0.221	0.224	2	AVG
Hexachlorobutadiene	0.199	0.184	0.191	0.198	0.194	0.202	0.194	0.193	0.194	3	AVG
Quinoline			0.755	0.714	0.763	0.760	0.725	0.694	0.735	4	AVG
Caprolactam			0.122	0.124	0.132	0.136	0.129	0.120	0.127	5	AVG
N-Nitrosodi-n-butylamine		0.319	0.336	0.424	0.452	0.445	0.357	0.326	0.380	15	AVG
4-Chloro-3-methylphenol		0.331	0.366	0.353	0.380	0.383	0.363	0.351	0.361	5	AVG
Safrole			0.282	0.289	0.297	0.298	0.287	0.282	0.289	3	AVG
2-Methylnaphthalene	0.761	0.748	0.770	0.759	0.785	0.780	0.743	0.721	0.758	3	AVG
1-Methylnaphthalene	0.655	0.663	0.690	0.684	0.721	0.710	0.670	0.654	0.681	4	AVG

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date(s): 02/15/18 02/15/18

Calibration Times: 11:12 13:44

LAB FILE ID:RRF0.5 = bb2822.d RRF1 = bb2828.d RRF5 = bb2827.d RRF15 = bb2826.d
RRF30 = bb2821.d RRF50 = bb2825.d RRF80 = bb2824.d RRF120 = bb2823.d

COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	RRF	% RSD	CAL. METHOD
Hexachlorocyclopentadiene			0.329	0.346	0.348	0.351	0.333	0.316	0.337	4	AVG
1,2,4,5-Tetrachlorobenzene		0.573	0.598	0.607	0.604	0.621	0.590	0.608	0.600	3	AVG
cis-Isosafrole			0.492	0.543	0.557	0.558	0.545	0.559	0.542	5	AVG
2,4,6-Trichlorophenol		0.359	0.391	0.409	0.422	0.420	0.409	0.410	0.403	5	AVG
2,4,5-Trichlorophenol		0.371	0.404	0.417	0.439	0.440	0.424	0.423	0.417	6	AVG
trans-Isosafrole			0.582	0.600	0.610	0.617	0.597	0.603	0.601	2	AVG
Isosafrole			0.567	0.590	0.601	0.607	0.588	0.596	0.591	2	AVG
1,1'-Biphenyl		1.589	1.493	1.581	1.549	1.540	1.498	1.500	1.536	3	AVG
2-Chloronaphthalene		1.137	1.121	1.427	1.252	1.125	1.362	1.237	1.237	10	AVG
1-Chloronaphthalene		1.209	1.181	1.170	1.125	1.252	1.142	1.048	1.161	6	AVG
Diphenyl ether		0.811	0.830	0.847	0.849	0.845	0.812	0.830	0.832	2	AVG
2-Nitroaniline		0.343	0.389	0.394	0.424	0.426	0.407	0.397	0.397	7	AVG
1,4-Naphthoquinone			0.481	0.517	0.546	0.551	0.525	0.490	0.518	5	AVG
1,4-Dinitrobenzene			0.186	0.199	0.222	0.227	0.220	0.214	0.211	7	AVG
Dimethylphthalate			1.414	1.417	1.445	1.458	1.384	1.343	1.410	3	AVG
1,3-Dinitrobenzene			0.213	0.233	0.250	0.255	0.247	0.232	0.238	6	AVG
2,6-Dinitrotoluene		0.268	0.304	0.309	0.330	0.329	0.313	0.303	0.308	7	AVG
Acenaphthylene	1.742	1.817	1.796	1.802	1.866	1.867	1.786	1.752	1.803	3	AVG
3-Nitroaniline		0.309	0.342	0.345	0.372	0.377	0.362	0.342	0.350	7	AVG
Acenaphthene	1.363	1.235	1.192	1.253	1.263	1.269	1.212	1.201	1.249	4	AVG
2,4-Dinitrophenol			0.107	0.146	0.176	0.196	0.192	0.198	0.169	21	1STDEG
4-Nitrophenol			0.230	0.235	0.227	0.274	0.259	0.234	0.243	8	AVG
Pentachlorobenzene		0.531	0.542	0.529	0.545	0.547	0.525	0.532	0.536	2	AVG
2,4-Dinitrotoluene			0.410	0.407	0.433	0.449	0.423	0.399	0.420	4	AVG
2,4_2,6-Dinitrotoluenes			0.357	0.358	0.381	0.389	0.368	0.351	0.367	4	AVG
Dibenzofuran		1.870	1.742	1.763	1.796	1.816	1.698	1.669	1.765	4	AVG
1-Naphthylamine			1.314	1.344	1.394	1.413	1.317	1.223	1.334	5	AVG
2,3,4,6-Tetrachlorophenol		0.306	0.324	0.331	0.354	0.369	0.351	0.341	0.340	6	AVG
2-Naphthylamine			1.331	1.303	1.373	1.379	1.278	1.141	1.301	7	AVG
Diethylphthalate			1.434	1.405	1.474	1.487	1.409	1.367	1.429	3	AVG
Thionazin			0.297	0.252	0.278	0.282	0.302	0.256	0.278	7	AVG
Fluorene	1.456	1.415	1.461	1.468	1.481	1.499	1.415	1.346	1.443	3	AVG
4-Chlorophenyl-phenylether		0.674	0.717	0.697	0.713	0.716	0.690	0.690	0.700	2	AVG
5-Nitro-o-toluidine		0.395	0.414	0.392	0.425	0.431	0.402	0.375	0.405	5	AVG
4-Nitroaniline		0.342	0.384	0.367	0.389	0.390	0.365	0.326	0.366	7	AVG
4,6-Dinitro-2-methylphenol			0.098	0.112	0.131	0.140	0.137	0.138	0.126	14	AVG
N-Nitrosodiphenylamine (1)	0.629	0.577	0.597	0.625	0.639	0.633	0.604	0.626	0.616	3	AVG
NDPA as diphenylamine	0.629	0.577	0.597	0.625	0.639	0.633	0.604	0.626	0.616	3	AVG
1,2-Diphenylhydrazine		0.890	0.931	0.977	0.990	0.982	0.953	0.989	0.959	4	AVG
Tetraethyldithiopyrophosphate			0.145	0.154	0.158	0.158	0.152	0.157	0.154	3	AVG
1,3,5-Trinitrobenzene			0.069	0.074	0.086	0.093	0.089	0.084	0.082	11	AVG
Diallate (peak 1)			0.428	0.442	0.452	0.454	0.429	0.457	0.444	3	AVG
Phorate		0.498	0.558	0.599	0.614	0.610	0.605	0.845	0.618	18	AVG
Phenacetin		0.357	0.413	0.411	0.439	0.445	0.426	0.410	0.414	7	AVG
4-Bromophenyl-phenylether			0.209	0.218	0.220	0.221	0.209	0.221	0.216	3	AVG
Diallate (peak 2)			0.382	0.371	0.371	0.376	0.359	0.374	0.372	2	AVG
Diallate trans/cis			0.420	0.430	0.438	0.441	0.417	0.443	0.431	2	AVG
Hexachlorobenzene	0.232	0.234	0.219	0.212	0.218	0.219	0.211	0.220	0.220	4	AVG
Dimethoate			0.335	0.335	0.356	0.364	0.346	0.306	0.340	6	AVG
Pentachlorophenol			0.078	0.100	0.111	0.129	0.126	0.130	0.112	18	AVG
4-Aminobiphenyl		0.655	0.646	0.648	0.685	0.608	0.536	0.497	0.611	11	AVG
Pentachloronitrobenzene			0.083	0.090	0.095	0.097	0.091	0.095	0.092	5	AVG

(1) Cannot be separated from Diphenylamine
4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date(s): 02/15/18 02/15/18

Calibration Times: 11:12 13:44

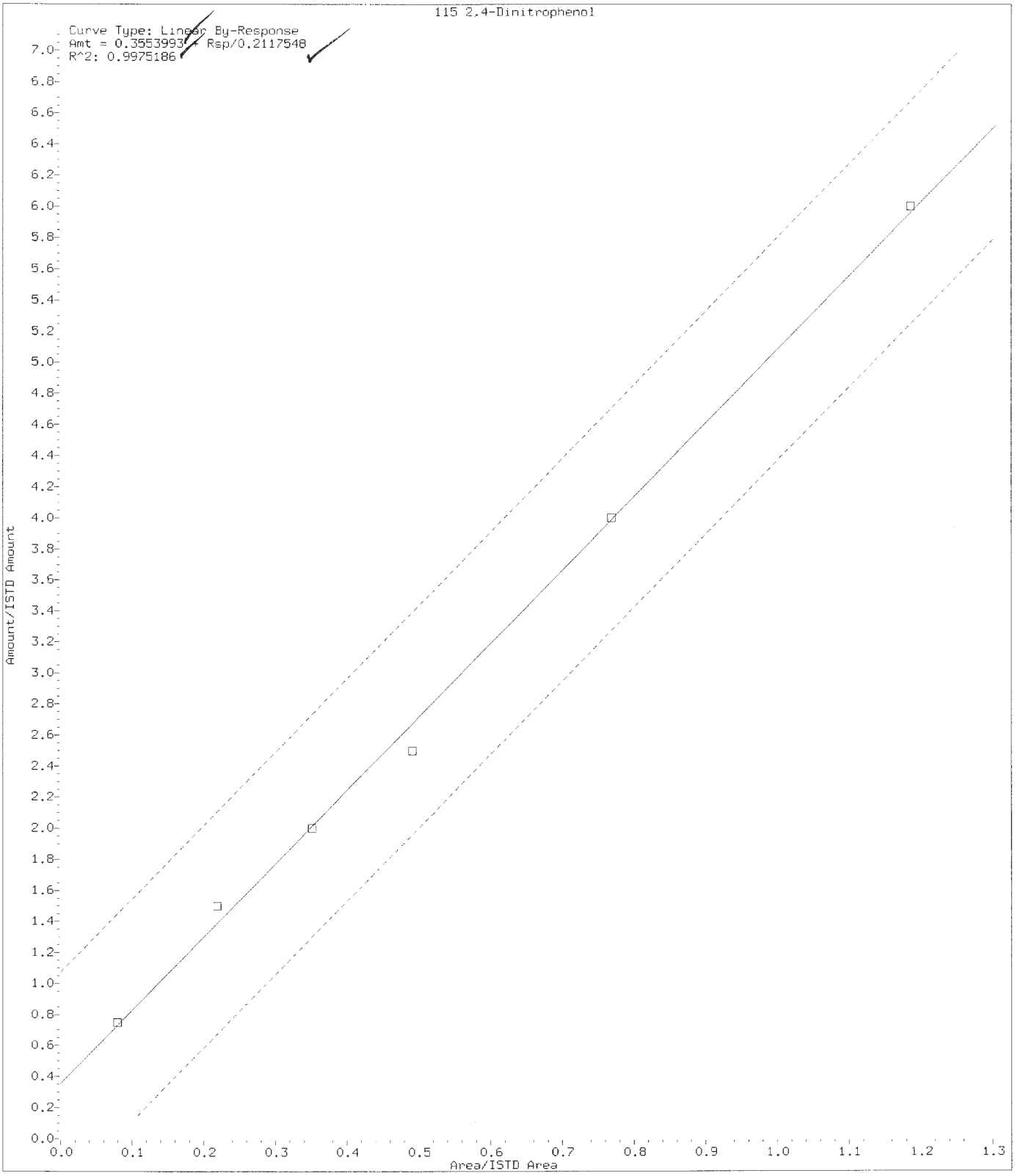
LAB FILE ID:RRF0.5 = bb2822.d RRF1 = bb2828.d RRF5 = bb2827.d RRF15 = bb2826.d
RRF30 = bb2821.d RRF50 = bb2825.d RRF80 = bb2824.d RRF120 = bb2823.d

COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	RRF	% RSD	CAL. METHOD	
Pronamide		0.283	0.316	0.330	0.343	0.357	0.336	0.337	0.329	7	AVG	
Dinoseb			0.130	0.169	0.200	0.222	0.225	0.228	0.196	20	AVG	+
Phenanthrene	1.165	1.109	1.092	1.083	1.103	1.115	1.061	1.048	1.097	3	AVG	
Anthracene	1.136	1.014	1.111	1.111	1.149	1.158	1.094	1.082	1.107	4	AVG	
Carbazole		0.926	0.972	0.967	1.010	1.031	0.964	0.911	0.969	4	AVG	
Methyl parathion			0.233	0.251	0.264	0.281	0.262	0.234	0.254	7	AVG	
Di-n-butylphthalate			1.189	1.229	1.289	1.330	1.251	1.231	1.253	4	AVG	
Parathion			0.136	0.156	0.175	0.185	0.175	0.166	0.166	10	AVG	
4-Nitroquinoline-1-oxide			0.077	0.085	0.110	0.128	0.123	0.101	0.104	20	AVG	+
Octachlorostyrene			0.082	0.084	0.086	0.088	0.086	0.090	0.086	3	AVG	
Isodrin		0.134	0.124	0.128	0.130	0.135	0.130	0.128	0.130	3	AVG	
Fluoranthene	1.219	1.146	1.177	1.163	1.230	1.269	1.195	1.104	1.188	4	AVG	
Benzidine			0.575	0.579	0.638	0.638	0.607	0.520	0.593	8	AVG	
Pyrene	1.316	1.182	1.114	1.101	1.117	1.122	1.080	1.067	1.137	7	AVG	
p-Dimethylaminoazobenzene		0.175	0.181	0.193	0.202	0.207	0.203	0.198	0.194	6	AVG	
Chlorobenzilate		0.288	0.314	0.321	0.330	0.338	0.321	0.321	0.319	5	AVG	
3,3'-Dimethylbenzidine			0.560	0.522	0.585	0.627	0.591	0.528	0.569	7	AVG	
Butylbenzylphthalate			0.483	0.500	0.514	0.529	0.507	0.482	0.502	4	AVG	
2-Acetylaminofluorene			0.346	0.358	0.413	0.440	0.420	0.382	0.393	9	AVG	
3,3'-Dichlorobenzidine			0.337	0.334	0.372	0.382	0.360	0.335	0.353	6	AVG	
4,4'-Methylenebis(2-chloroanil			0.180	0.182	0.200	0.212	0.200	0.183	0.193	7	AVG	
Benzo(a)anthracene	0.959	0.937	0.976	0.945	1.027	1.033	1.015	0.942	0.979	4	AVG	
Chrysene	1.021	0.970	0.993	0.945	0.978	1.013	0.966	0.905	0.974	4	AVG	
bis(2-Ethylhexyl)phthalate			0.670	0.675	0.717	0.747	0.713	0.678	0.700	4	AVG	
6-Methylchrysene			0.649	0.615	0.672	0.687	0.667	0.619	0.651	5	AVG	
Di-n-octylphthalate			1.355	1.479	1.516	1.574	1.537	1.509	1.495	5	AVG	
Benzo(b)fluoranthene	1.185	1.202	1.199	1.157	1.246	1.234	1.268	1.291	1.223	4	AVG	
7,12-Dimethylbenz[a]anthracene		0.493	0.515	0.543	0.552	0.569	0.580	0.566	0.545	6	AVG	
Benzo(k)fluoranthene	1.163	1.137	1.151	1.258	1.250	1.268	1.186	1.143	1.195	5	AVG	
Benzo(a)pyrene	1.309	1.187	1.092	1.119	1.137	1.154	1.134	1.130	1.158	6	AVG	
3-Methylcholanthrene		0.532	0.525	0.537	0.558	0.580	0.552	0.570	0.551	4	AVG	
Dibenz(a,h)acridine			0.797	0.816	0.862	0.886	0.853	0.909	0.854	5	AVG	
Dibenz(a,j)acridine			0.888	0.910	0.959	0.987	0.954	0.995	0.949	4	AVG	
Indeno(1,2,3-cd)pyrene	1.298	1.180	1.211	1.222	1.279	1.302	1.252	1.322	1.258	4	AVG	
Dibenz(a,h)anthracene	1.018	1.020	1.010	1.019	1.081	1.082	1.051	1.116	1.050	4	AVG	
Benzo(g,h,i)perylene	1.046	1.002	0.980	0.990	1.054	1.059	1.029	1.082	1.030	4	AVG	
Total PAHs	1.068	1.078	1.040	1.147	1.103	1.088	1.084	1.186	1.099	4	AVG	
2-Fluorophenol			1.576	1.554	1.604	1.588	1.533	1.515	1.562	2	AVG	
Phenol-d6			2.126	2.110	2.258	2.216	2.102	2.066	2.146	3	AVG	
Nitrobenzene-d5			0.487	0.498	0.502	0.510	0.489	0.480	0.494	2	AVG	
2-Fluorobiphenyl			1.391	1.417	1.424	1.410	1.345	1.352	1.390	2	AVG	
2,4,6-Tribromophenol			0.193	0.192	0.202	0.209	0.199	0.189	0.198	4	AVG	
Terphenyl-d14			0.709	0.727	0.739	0.754	0.726	0.728	0.730	2	AVG	

Average %RSD 5

+ %RSD is less than or equal to 20%; however, value rounds to 20.

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.
Benzidine Levels in the 5,15,30,50,80,120 standards are 15,45,90,150,240,360 ng/ul, respectively.
Benzoic acid and 2,4-Dinitrophenol are at 15 ng/ul, 30 ng/ul,40 ng/ul in the 5,15,30 standards.



Amounts = 15, 30, 40, 50, 80, 120

Digitally signed by Linda M. Hartenstine on 02/15/2018 at 14:43.
Target 3.5 esignature user ID: lmh00956

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP18444.i/18feb15d.b/bb2821.d SSTD030
/chem/HP18444.i/18feb15d.b/bb2822.d SSTD0.50
/chem/HP18444.i/18feb15d.b/bb2823.d SSTD120
/chem/HP18444.i/18feb15d.b/bb2824.d SSTD080
/chem/HP18444.i/18feb15d.b/bb2825.d SSTD050
/chem/HP18444.i/18feb15d.b/bb2826.d SSTD015
/chem/HP18444.i/18feb15d.b/bb2827.d SSTD005
/chem/HP18444.i/18feb15d.b/bb2828.d SSTD001

Area Summary

File ID:

Internal Standard Name	bb2821.d	bb2822.d	bb2823.d	bb2824.d	bb2825.d	bb2826.d	bb2827.d	bb2828.d	Avg. Area	%RSD	In Spec
1,4-Dichlorobenzene-d4	160625	136053	206359	149135	167930	174502	150492	153641	162342	13	Yes
Naphthalene-d8	676839	557908	834526	604913	685277	705079	623835	624524	664113	13	Yes
Acenaphthene-d10	399746	328610	465675	352922	402269	401902	367975	364470	385446	11	Yes
Phenanthrene-d10	780650	685917	835914	685988	794261	760337	731441	719544	749256	7	Yes
Pyrene-d10	897212	810324	874231	781636	932159	837244	849016	813366	849398	6	Yes
Perylene-d12	715513	654469	652620	618110	757102	627450	692085	636833	669273	7	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	bb2821.d	bb2822.d	bb2823.d	bb2824.d	bb2825.d	bb2826.d	bb2827.d	bb2828.d	Avg. RT
1,4-Dichlorobenzene-d4	5.493	5.493	5.499	5.493	5.493	5.493	5.493	5.493	5.494
Naphthalene-d8	6.723	6.723	6.729	6.729	6.729	6.723	6.723	6.723	6.725
Acenaphthene-d10	8.437	8.437	8.442	8.437	8.437	8.437	8.431	8.431	8.436
Phenanthrene-d10	9.888	9.882	9.894	9.888	9.888	9.882	9.882	9.882	9.886
Pyrene-d10	11.269	11.269	11.275	11.275	11.275	11.270	11.269	11.269	11.272
Perylene-d12	13.910	13.910	13.916	13.916	13.910	13.910	13.910	13.910	13.911

Comments: _____

_____

Report generated on 02/15/2018 at 17:49

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270D File ID: bb2831.d

ICV SAMPLE ID: ICV0308 BATCH: 18FEB15026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
N-Nitrosodimethylamine	50.00	50.25	1	30	YES
Pyridine	50.00	48.99	-2	30	YES
2-Picoline	50.00	48.73	-3	30	YES
N-Nitrosomethylethylamine	50.00	47.36	-5	30	YES
Methyl methanesulfonate	50.00	49.64	-1	30	YES
N-Nitrosodiethylamine	50.00	48.54	-3	30	YES
Ethyl methanesulfonate	50.00	48.06	-4	30	YES
Phenol	50.00	49.20	-2	30	YES
Aniline	50.00	48.86	-2	30	YES
bis(2-Chloroethyl)ether	50.00	48.79	-2	30	YES
2-Chlorophenol	50.00	49.28	-1	30	YES
1,3-Dichlorobenzene	50.00	49.49	-1	30	YES
1,4-Dichlorobenzene	50.00	49.97	0	30	YES
Benzyl alcohol	50.00	48.68	-3	30	YES
1,2-Dichlorobenzene	50.00	50.36	1	30	YES
Indene	50.00	48.09	-4	30	YES
2-Methylphenol	50.00	49.43	-1	30	YES
2,2'-oxybis(1-Chloropropane	50.00	49.49	-1	30	YES
bis(2-Chloroisopropyl)ether	50.00	49.49	-1	30	YES
N-Nitrosopyrrolidine	50.00	47.73	-5	30	YES
Acetophenone	50.00	49.15	-2	30	YES
4-Methylphenol	50.00	49.21	-2	30	YES
N-Nitroso-di-n-propylamine	50.00	49.39	-1	30	YES
N-Nitrosomorpholine	50.00	47.85	-4	30	YES
o-Toluidine	50.00	49.39	-1	30	YES
Total Cresols	100.00	98.63	-1	30	YES
Hexachloroethane	50.00	49.66	-1	30	YES
Nitrobenzene	50.00	48.82	-2	30	YES
N-Nitrosopiperidine	50.00	46.48	-7	30	YES
Isophorone	50.00	50.64	1	30	YES
2-Nitrophenol	50.00	51.18	2	30	YES
2,4-Dimethylphenol	50.00	43.43	-13	30	YES
bis(2-Chloroethoxy)methane	50.00	48.86	-2	30	YES
O,O,O-Triethylphosphorothio	50.00	49.75	-1	30	YES
2,4-Dichlorophenol	50.00	49.39	-1	30	YES
1,2,4-Trichlorobenzene	50.00	50.23	0	30	YES
Naphthalene	50.00	48.95	-2	30	YES

NC = Could not calculate

Comments: _____

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270D File ID: bb2831.d

ICV SAMPLE ID: ICV0308 BATCH: 18FEB15026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
4-Chloroaniline	50.00	51.46	3	30	YES
2,6-Dichlorophenol	50.00	48.88	-2	30	YES
Hexachloropropene	50.00	53.37	7	30	YES
Hexachlorobutadiene	50.00	50.47	1	30	YES
Quinoline	50.00	48.98	-2	30	YES
N-Nitrosodi-n-butylamine	50.00	43.16	-14	30	YES
4-Chloro-3-methylphenol	50.00	49.91	0	30	YES
Safrole	50.00	49.19	-2	30	YES
2-Methylnaphthalene	50.00	48.77	-2	30	YES
1-Methylnaphthalene	50.00	50.05	0	30	YES
Hexachlorocyclopentadiene	100.00	111.88	12	30	YES
1,2,4,5-Tetrachlorobenzene	50.00	49.91	0	30	YES
cis-Isosafrole	6.00	6.54	9	30	YES
2,4,6-Trichlorophenol	50.00	50.18	0	30	YES
2,4,5-Trichlorophenol	50.00	52.79	6	30	YES
trans-Isosafrole	44.00	46.00	5	30	YES
1,1'-Biphenyl	50.00	50.50	1	30	YES
2-Chloronaphthalene	50.00	44.87	-10	30	YES
Isosafrole	50.00	52.55	5	30	YES
2-Nitroaniline	50.00	51.12	2	30	YES
1,4-Naphthoquinone	62.50	61.38	-2	30	YES
1,4-Dinitrobenzene	50.00	49.66	-1	30	YES
Dimethylphthalate	50.00	48.54	-3	30	YES
1,3-Dinitrobenzene	50.00	48.65	-3	30	YES
2,6-Dinitrotoluene	50.00	49.05	-2	30	YES
Acenaphthylene	50.00	53.14	6	30	YES
3-Nitroaniline	50.00	48.73	-3	30	YES
Acenaphthene	50.00	51.43	3	30	YES
2,4-Dinitrophenol	100.00	96.07	-4	30	YES
4-Nitrophenol	50.00	46.99	-6	30	YES
Pentachlorobenzene	50.00	49.24	-2	30	YES
2,4-Dinitrotoluene	50.00	47.45	-5	30	YES
Dibenzofuran	50.00	49.14	-2	30	YES
2,4_2,6-Dinitrotoluenes	100.00	96.50	-4	30	YES
1-Naphthylamine	100.00	92.25	-8	30	YES
2-Naphthylamine	100.00	94.28	-6	30	YES
Diethylphthalate	50.00	48.64	-3	30	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270D File ID: bb2831.d

ICV SAMPLE ID: ICV0308 BATCH: 18FEB15026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Thionazin	50.00	47.63	-5	30	YES
Fluorene	50.00	47.55	-5	30	YES
4-Chlorophenyl-phenylether	50.00	48.69	-3	30	YES
5-Nitro-o-toluidine	50.00	47.10	-6	30	YES
4-Nitroaniline	50.00	44.83	-10	30	YES
4,6-Dinitro-2-methylphenol	50.00	53.01	6	30	YES
N-Nitrosodiphenylamine	50.00	50.94	2	30	YES
NDPA as diphenylamine	50.00	50.94	2	30	YES
1,2-Diphenylhydrazine	50.00	52.95	6	30	YES
Tetraethyldithiopyrophospha	50.00	51.17	2	30	YES
1,3,5-Trinitrobenzene	50.00	46.06	-8	30	YES
Diallate (peak 1)	37.50	36.24	-3	30	YES
Phorate	50.00	48.99	-2	30	YES
Phenacetin	50.00	48.91	-2	30	YES
4-Bromophenyl-phenylether	50.00	49.14	-2	30	YES
Diallate (peak 2)	12.50	14.14	13	30	YES
Hexachlorobenzene	50.00	48.50	-3	30	YES
Diallate trans/cis	50.00	50.38	1	30	YES
Dimethoate	50.00	45.61	-9	30	YES
Pentachlorophenol	50.00	60.56	21	30	YES
4-Aminobiphenyl	50.00	61.85	24	30	YES
Pentachloronitrobenzene	50.00	50.44	1	30	YES
Pronamide	50.00	50.85	2	30	YES
Dinoseb	50.00	52.46	5	30	YES
Phenanthrene	50.00	47.32	-5	30	YES
Anthracene	50.00	48.77	-2	30	YES
Carbazole	50.00	48.31	-3	30	YES
Methyl parathion	50.00	49.59	-1	30	YES
Di-n-butylphthalate	50.00	49.64	-1	30	YES
Parathion	50.00	52.03	4	30	YES
4-Nitroquinoline-1-oxide	600.00	698.67	16	30	YES
Isodrin	50.00	50.07	0	30	YES
Fluoranthene	50.00	45.85	-8	30	YES
Benzidine	250.00	246.00	-2	30	YES
Pyrene	50.00	47.05	-6	30	YES
p-Dimethylaminoazobenzene	50.00	56.77	14	30	YES
Chlorobenzilate	50.00	52.86	6	30	YES

NC = Could not calculate

Comments: _____

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS | LAB CODE: LANCAS | INSTRUMENT: HP18444

Method: SW-846 8270D | File ID: bb2831.d

ICV SAMPLE ID: ICV0308 | BATCH: 18FEB15026 | Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
3,3'-Dimethylbenzidine	100.00	98.37	-2	30	YES
Butylbenzylphthalate	50.00	48.88	-2	30	YES
2-Acetylaminofluorene	50.00	44.21	-12	30	YES
3,3'-Dichlorobenzidine	50.00	46.16	-8	30	YES
Benzo(a)anthracene	50.00	45.72	-9	30	YES
Chrysene	50.00	44.53	-11	30	YES
4,4'-Methylenebis(2-chloroa	50.00	44.82	-10	30	YES
bis(2-Ethylhexyl)phthalate	50.00	50.28	1	30	YES
6-Methylchrysene	50.00	45.32	-9	30	YES
Di-n-octylphthalate	50.00	54.66	9	30	YES
Benzo(b)fluoranthene	50.00	51.88	4	30	YES
7,12-Dimethylbenz[a]anthrac	50.00	52.32	5	30	YES
Benzo(k)fluoranthene	50.00	48.36	-3	30	YES
Benzo(a)pyrene	50.00	48.00	-4	30	YES
3-Methylcholanthrene	50.00	52.46	5	30	YES
Dibenz(a,h)acridine	50.00	48.47	-3	30	YES
Dibenz(a,j)acridine	50.00	47.77	-4	30	YES
Indeno(1,2,3-cd)pyrene	50.00	48.19	-4	30	YES
Dibenz(a,h)anthracene	50.00	50.31	1	30	YES
Benzo(g,h,i)perylene	50.00	48.31	-3	30	YES
Total PAHs	900.00	874.18	-3	30	YES

NC = Could not calculate

Comments: _____

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270D File ID: bb2832.d

ICV SAMPLE ID: BASICV2487 BATCH: 18FEB15026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Benzaldehyde	50.00	45.37	-9	30	YES
Caprolactam	50.00	47.82	-4	30	YES
Atrazine	50.00	50.37	1	30	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS | LAB CODE: LANCAS | INSTRUMENT: HP18444

Method: SW-846 8270D | File ID: bb2840.d

ICV SAMPLE ID: MS180322 | BATCH: 18FEB15026 | Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	50.00	49.93	0	30	YES
Benzoic acid	100.00	94.14	-6	30	YES
1-Chloronaphthalene	50.00	48.75	-3	30	YES
Diphenyl ether	50.00	50.34	1	30	YES
2,3,4,6-Tetrachlorophenol	50.00	51.00	2	30	YES

NC = Could not calculate

Comments:

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date(s): 02/15/18 02/15/18

Calibration Times: 15:08 17:14

LAB FILE ID: RRF5 = bb2838.d RRF15 = bb2837.d

RRF30 = bb2836.d RRF50 = bb2833.d RRF80 = bb2835.d RRF120 = bb2834.d

COMPOUND	RRF	RRF	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	RRF	% RSD	CAL. METHOD
Benzaldehyde			1.740	1.628	1.651	1.720	1.772	1.725	1.706	3	AVG
Atrazine			0.165	0.191	0.188	0.221	0.211	0.211	0.198	10	AVG
								Average %RSD		4	

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.
Benzidine Levels in the 5,15,30,50,80,120 standards are 15,45,90,150,240,360 ng/ul, respectively.
Benzoic acid and 2,4-Dinitrophenol are at 15 ng/ul, 30 ng/ul,40 ng/ul in the 5,15,30 standards.

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP18444.i/18feb15d.b/bb2833.d SSTD050
/chem/HP18444.i/18feb15d.b/bb2834.d SSTD120
/chem/HP18444.i/18feb15d.b/bb2835.d SSTD080
/chem/HP18444.i/18feb15d.b/bb2836.d SSTD030
/chem/HP18444.i/18feb15d.b/bb2837.d SSTD015
/chem/HP18444.i/18feb15d.b/bb2838.d SSTD005

Area Summary

Internal Standard Name	bb2833.d	bb2834.d	bb2835.d	bb2836.d	bb2837.d	bb2838.d	Avg. Area	%RSD	In Spec
	File ID:								
1,4-Dichlorobenzene-d4	126345	226384	148718	172694	175368	163366	168812	20	Yes
Naphthalene-d8	512609	905859	603991	686675	712442	661271	680474	19	Yes
Acenaphthene-d10	301750	517659	348484	402456	406443	386931	393954	18	Yes
Phenanthrene-d10	624017	1041692	696350	813457	793532	788397	792908	18	Yes
Pyrene-d10	717701	1147085	771290	873501	855048	890522	875858	17	Yes
Perylene-d12	571237	741585	564613	588269	566600	656109	614736	12	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

Internal Standard Name	bb2833.d	bb2834.d	bb2835.d	bb2836.d	bb2837.d	bb2838.d	Avg. RT
	File ID:						
1,4-Dichlorobenzene-d4	5.493	5.493	5.493	5.493	5.493	5.493	5.493
Naphthalene-d8	6.723	6.723	6.723	6.723	6.723	6.723	6.723
Acenaphthene-d10	8.431	8.431	8.431	8.431	8.431	8.431	8.431
Phenanthrene-d10	9.882	9.882	9.882	9.882	9.882	9.882	9.882
Pyrene-d10	11.269	11.269	11.269	11.270	11.269	11.269	11.269
Perylene-d12	13.910	13.910	13.910	13.910	13.910	13.910	13.910

Comments: _____

Report generated on 02/15/2018 at 18:05

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270D File ID: bb2832.d

ICV SAMPLE ID: BASICV2487 BATCH: 18FEB15026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Benzaldehyde	50.00	45.37	-9	30	YES
Caprolactam	50.00	47.82	-4	30	YES
Atrazine	50.00	50.37	1	30	YES

NC = Could not calculate

Comments:

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP18444 **HP #02**

Data Directory Path is - C:\msdchem\1\data\18feb15d\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
lmh00956	BB2820.D	DFTPP3567	02/15/2018	10:48		
lmh00956	BB2821.D	STD0388	02/15/2018	11:12		
lmh00956	BB2822.D	STD0388	02/15/2018	11:34		
lmh00956	BB2823.D	STD0388	02/15/2018	11:56		
lmh00956	BB2824.D	STD0388	02/15/2018	12:17		
lmh00956	BB2825.D	STD0388	02/15/2018	12:39		
lmh00956	BB2826.D	STD0388	02/15/2018	13:01		
lmh00956	BB2827.D	STD0388	02/15/2018	13:23		
lmh00956	BB2828.D	STD0388	02/15/2018	13:44		
lmh00956	BB2829.D	8270MDL0388	02/15/2018	14:05		
lmh00956	BB2830.D	PAHMDL0388	02/15/2018	14:26		
lmh00956	BB2831.D	ICV0308	02/15/2018	14:47		
lmh00956	BB2833.D	BAS0038	02/15/2018	15:08		
lmh00956	BB2834.D	BAS0038	02/15/2018	15:50		
lmh00956	BB2835.D	BAS0038	02/15/2018	16:11		
lmh00956	BB2836.D	BAS0038	02/15/2018	16:32		
lmh00956	BB2837.D	BAS0038	02/15/2018	16:53		
lmh00956	BB2838.D	BAS0038	02/15/2018	17:14		
lmh00956	BB2839.D	BAS0038	02/15/2018	17:35		
lmh00956	BB2832.D	BASICV2487	02/15/2018	17:56		
lmh00956	BB2840.D	MS1803226C	02/15/2018	18:18		

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: bc0650y.d DFTPP Injection Date: 03/15/18

Instrument ID: HP18444 DFTPP Injection Time: 21:27

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	26.9
68	Less than 2.0% of mass 69	0.66 (1.61)1
69	Mass 69 relative abundance	41.0
70	Less than 2.0% of mass 69	0.21 (0.5)1
127	10.0 - 80.00% of mass 198	47.4
197	Less than 2.0% of mass 198	0.77
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.86
275	10.0 - 60.0% of mass 198	23.1
365	Greater than 1.00% of mass 198	2.2
441	Present, and less than mass 443	7.13
442	Greater than 50.00% of mass 198	50.4
443	15.00 - 24.00% of mass 442	9.64 (19.1)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD0388 - SSTD30	bc0651.d	03/15/18	21:40
02	BAS0038 - SSTD50	bc0652.d	03/15/18	22:49
03	SBLKLA073	bc0653.d	03/15/18	23:09
04	SBLKLB073	bc0655.d	03/15/18	23:28
05	073LALCS	bc0654.d	03/15/18	23:48
06	073LBLCS	bc0656.d	03/16/18	00:08
07	9500920	bc0657.d	03/16/18	00:28
08	9500921	bc0658.d	03/16/18	00:48
09	9500922	bc0659.d	03/16/18	01:07
10	9498429	bc0661.d	03/16/18	01:47
11	9498430	bc0662.d	03/16/18	02:07
12	9498430MS	bc0663.d	03/16/18	02:27
13	9498430MSD	bc0664.d	03/16/18	02:47
14	9498431	bc0665.d	03/16/18	03:06
15	9498432	bc0666.d	03/16/18	03:26
16	9498433	bc0667.d	03/16/18	03:46
17	9498434	bc0668.d	03/16/18	04:06
18	9493868	bc0671.d	03/16/18	05:05

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: bc0650y.d DFTPP Injection Date: 03/15/18

Instrument ID: HP18444 DFTPP Injection Time: 21:27

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	26.9
68	Less than 2.0% of mass 69	0.66 (1.61)1
69	Mass 69 relative abundance	41.0
70	Less than 2.0% of mass 69	0.21 (0.5)1
127	10.0 - 80.00% of mass 198	47.4
197	Less than 2.0% of mass 198	0.77
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.86
275	10.0 - 60.0% of mass 198	23.1
365	Greater than 1.00% of mass 198	2.2
441	Present, and less than mass 443	7.13
442	Greater than 50.00% of mass 198	50.4
443	15.00 - 24.00% of mass 442	9.64 (19.1)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
19	9498407	bc0672.d	03/16/18	05:25
20	9498408	bc0673.d	03/16/18	05:45
21	9498409	bc0674.d	03/16/18	06:04
22	9498410	bc0675.d	03/16/18	06:24
23	9498411	bc0676.d	03/16/18	06:44
24	9498412	bc0677.d	03/16/18	07:04
25	9498413	bc0678.d	03/16/18	07:23
26	9498414	bc0679.d	03/16/18	07:43
27	9498415	bc0680.d	03/16/18	08:03
28	9498416	bc0681.d	03/16/18	08:23
29	9498417	bc0682.d	03/16/18	08:42
30	9498418	bc0683.d	03/16/18	09:02
31	9498419	bc0684.d	03/16/18	09:22

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date: 03/15/18 Time: 21:40

Lab File ID: bc0651.d Init. Calib. Date(s): 02/15/18 02/15/18

Init. Calib. Times(s): 11:12 13:44

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,4-Dioxane	0.708	0.750	31.800	30.0	6
N-Nitrosodimethylamine	1.161	1.302	33.650	30.0	12
Pyridine	2.010	2.110	31.480	30.0	5
2-Picoline	2.004	2.186	32.720	30.0	9
N-Nitrosomethylethylamine	0.869	0.969	33.480	30.0	12
Methyl methanesulfonate	1.031	1.022	29.730	30.0	-1
N-Nitrosodiethylamine	0.823	0.924	33.670	30.0	12
Ethyl methanesulfonate	0.862	0.930	32.360	30.0	8
Phenol	2.446	2.537	31.120	30.0	4
Aniline	2.848	2.991	31.510	30.0	5
a-methylstyrene	1.751	1.850	31.700	30.0	6
bis(2-Chloroethyl)ether	1.843	2.113	34.400	30.0	15
2-Chlorophenol	1.543	1.627	31.620	30.0	5
1,3-Dichlorobenzene	1.634	1.704	31.290	30.0	4
1,4-Dichlorobenzene	1.660	1.738	31.410	30.0	5
Benzyl alcohol	1.189	1.252	31.610	30.0	5
1,2-Dichlorobenzene	1.556	1.660	32.000	30.0	7
Indene	3.078	3.272	31.890	30.0	6
2-Methylphenol	1.575	1.715	32.670	30.0	9
2,2'-oxybis(1-Chloropropane)	2.255	1.795	23.880	30.0	-20
bis(2-Chloroisopropyl)ether	2.255	1.795	23.880	30.0	-20
N-Nitrosopyrrolidine	0.943	1.066	33.900	30.0	13
Acetophenone	2.454	2.668	32.620	30.0	9
4-Methylphenol	1.842	2.026	32.990	30.0	10
Total Cresols	1.709	1.870	65.660	60.0	9
N-Nitroso-di-n-propylamine	1.474	1.518	30.900	30.0	3
N-Nitrosomorpholine	1.087	0.953	26.300	30.0	-12
o-Toluidine	2.760	2.932	31.870	30.0	6
Hexachloroethane	0.706	0.731	31.060	30.0	4
Nitrobenzene	0.501	0.499	29.880	30.0	0
N-Nitrosopiperidine	0.213	0.216	30.390	30.0	1
Isophorone	0.902	0.935	31.100	30.0	4
2-Nitrophenol	0.190	0.203	32.010	30.0	7
2,4-Dimethylphenol	0.416	0.434	31.280	30.0	4
O,O,O-Triethylphosphorothioate	0.196	0.191	29.180	30.0	-3
bis(2-Chloroethoxy)methane	0.564	0.601	31.970	30.0	7

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date: 03/15/18 Time: 21:40

Lab File ID: bc0651.d Init. Calib. Date(s): 02/15/18 02/15/18

Init. Calib. Times(s): 11:12 13:44

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Benzoic acid	0.371	0.407	43.910	40.0	10
1,2,3,4-Tetrahydronaphthalene	0.640	0.656	30.770	30.0	3
2,4-Dichlorophenol	0.307	0.320	31.200	30.0	4
1,2,4-Trichlorobenzene	0.329	0.326	29.670	30.0	-1
Naphthalene	1.135	1.126	29.760	30.0	-1
4-Chloroaniline	0.448	0.456	30.560	30.0	2
2,6-Dichlorophenol	0.306	0.310	30.360	30.0	1
Hexachloropropene	0.224	0.205	27.570	30.0	-8
Hexachlorobutadiene	0.194	0.180	27.780	30.0	-7
Quinoline	0.735	0.736	30.040	30.0	0
Caprolactam	0.127	0.134	31.500	30.0	5
N-Nitrosodi-n-butylamine	0.380	0.444	35.040	30.0	17
4-Chloro-3-methylphenol	0.361	0.392	32.610	30.0	9
Safrole	0.289	0.291	30.200	30.0	1
2-Methylnaphthalene	0.758	0.738	29.180	30.0	-3
1-Methylnaphthalene	0.681	0.671	29.560	30.0	-1
Hexachlorocyclopentadiene	0.337	0.281	24.970	30.0	-17
1,2,4,5-Tetrachlorobenzene	0.600	0.550	27.510	30.0	-8
cis-Isosafrole	0.542	0.532	5.000	5.1	-2
2,4,6-Trichlorophenol	0.403	0.399	29.730	30.0	-1
2,4,5-Trichlorophenol	0.417	0.417	30.000	30.0	0
trans-Isosafrole	0.601	0.581	24.040	24.9	-3
Isosafrole	0.591	0.572	29.040	30.0	-3
1,1'-Biphenyl	1.536	1.466	28.650	30.0	-5
2-Chloronaphthalene	1.237	1.115	27.030	30.0	-10
1-Chloronaphthalene	1.161	1.225	31.650	30.0	5
Diphenyl ether	0.832	0.798	28.770	30.0	-4
2-Nitroaniline	0.397	0.423	31.960	30.0	7
1,4-Naphthoquinone	0.518	0.498	28.820	30.0	-4
1,4-Dinitrobenzene	0.211	0.221	31.360	30.0	5
Dimethylphthalate	1.410	1.427	30.350	30.0	1
1,3-Dinitrobenzene	0.238	0.247	31.020	30.0	3
2,6-Dinitrotoluene	0.308	0.329	32.080	30.0	7
Acenaphthylene	1.804	1.782	29.650	30.0	-1
3-Nitroaniline	0.350	0.363	31.150	30.0	4
Acenaphthene	1.249	1.181	28.370	30.0	-5

7C cont
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date: 03/15/18 Time: 21:40

Lab File ID: bc0651.d Init. Calib. Date(s): 02/15/18 02/15/18

Init. Calib. Times(s): 11:12 13:44

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT	
2,4-Dinitrophenol	0.169	0.201	45.070	40.0	13	
4-Nitrophenol	0.243	0.214	26.410	30.0	-12	
Pentachlorobenzene	0.536	0.483	27.020	30.0	-10	
2,4-Dinitrotoluene	0.420	0.449	32.100	30.0	7	
2,4_2,6-Dinitrotoluenes	0.367	0.389	64.180	60.0	7	
Dibenzofuran	1.765	1.683	28.600	30.0	-5	
1-Naphthylamine	1.334	1.246	28.020	30.0	-7	
2,3,4,6-Tetrachlorophenol	0.340	0.329	29.050	30.0	-3	
2-Naphthylamine	1.301	1.202	27.710	30.0	-8	
Diethylphthalate	1.429	1.408	29.560	30.0	-1	
Thionazin	0.278	0.307	33.160	30.0	11	
Fluorene	1.443	1.409	29.300	30.0	-2	
4-Chlorophenyl-phenylether	0.700	0.660	28.300	30.0	-6	
5-Nitro-o-toluidine	0.405	0.409	30.310	30.0	1	
4-Nitroaniline	0.366	0.372	30.490	30.0	2	
4,6-Dinitro-2-methylphenol	0.126	0.151	36.050	30.0	20	
N-Nitrosodiphenylamine (1)	0.616	0.659	32.060	30.0	7	
NDPA as diphenylamine	0.616	0.659	32.060	30.0	7	
1,2-Diphenylhydrazine	0.959	0.995	31.140	30.0	4	
Tetraethyldithiopyrophosphate	0.154	0.158	30.810	30.0	3	
1,3,5-Trinitrobenzene	0.082	0.091	33.230	30.0	11	
Diallate (peak 1)	0.444	0.475	26.650	24.9	7	
Phorate	0.618	0.885	42.930	30.0	43	NT
Phenacetin	0.414	0.452	32.760	30.0	9	
4-Bromophenyl-phenylether	0.216	0.209	28.910	30.0	-4	
Diallate (peak 2)	0.372	0.390	5.340	5.1	5	
Diallate trans/cis	0.431	0.460	32.000	30.0	7	
Hexachlorobenzene	0.220	0.216	29.460	30.0	-2	
Dimethoate	0.340	0.402	35.440	30.0	18	
Pentachlorophenol	0.112	0.136	36.410	30.0	21	No ⊕
4-Aminobiphenyl	0.611	0.643	31.590	30.0	5	
Pentachloronitrobenzene	0.092	0.092	30.060	30.0	0	
Pronamide	0.329	0.348	31.740	30.0	6	
Dinoseb	0.196	0.226	34.680	30.0	16	
Phenanthrene	1.097	1.126	30.810	30.0	3	
Anthracene	1.107	1.172	31.760	30.0	6	

(1) Cannot be Separated from Diphenylamine

FORM VII SV-1

7C cont

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date: 03/15/18 Time: 21:40

Lab File ID: bc0651.d Init. Calib. Date(s): 02/15/18 02/15/18

Init. Calib. Times(s): 11:12 13:44

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Carbazole	0.969	1.007	31.180	30.0	4
Methyl parathion	0.254	0.293	34.560	30.0	15
Di-n-butylphthalate	1.253	1.346	32.230	30.0	7
Parathion	0.166	0.190	34.440	30.0	15
4-Nitroquinoline-1-oxide	0.104	0.109	31.480	30.0	5
Octachlorostyrene	0.086	0.088	30.650	30.0	2
Isodrin	0.130	0.132	30.440	30.0	1
Fluoranthene	1.188	1.170	29.550	30.0	-2
Benzidine	0.593	0.635	96.400	90.0	7
Pyrene	1.137	1.091	28.790	30.0	-4
p-Dimethylaminoazobenzene	0.194	0.204	31.500	30.0	5
Chlorobenzilate	0.319	0.341	32.030	30.0	7
3,3'-Dimethylbenzidine	0.569	0.614	32.390	30.0	8
Butylbenzylphthalate	0.502	0.542	32.370	30.0	8
2-Acetylaminofluorene	0.393	0.434	33.130	30.0	10
3,3'-Dichlorobenzidine	0.353	0.371	31.540	30.0	5
4,4'-Methylenebis(2-chloroanil	0.193	0.205	31.930	30.0	6
Benzo(a)anthracene	0.979	0.983	30.110	30.0	0
Chrysene	0.974	0.978	30.120	30.0	0
bis(2-Ethylhexyl)phthalate	0.700	0.749	32.100	30.0	7
6-Methylchrysene	0.651	0.671	30.890	30.0	3
Di-n-octylphthalate	1.495	1.708	34.280	30.0	14
Benzo(b)fluoranthene	1.223	1.246	30.570	30.0	2
7,12-Dimethylbenz[a]anthracene	0.545	0.583	32.050	30.0	7
Benzo(k)fluoranthene	1.194	1.288	32.360	30.0	8
Benzo(a)pyrene	1.158	1.176	30.470	30.0	2
3-Methylcholanthrene	0.551	0.563	30.650	30.0	2
Dibenz(a,h)acridine	0.854	0.856	30.070	30.0	0
Dibenz(a,j)acridine	0.949	0.996	31.500	30.0	5
Indeno(1,2,3-cd)pyrene	1.258	1.277	30.450	30.0	1
Dibenz(a,h)anthracene	1.050	1.090	31.160	30.0	4
Benzo(g,h,i)perylene	1.030	1.062	30.920	30.0	3
Total PAHs	1.099	1.189	542.860	540.0	1
2-Fluorophenol	1.562	1.692	65.000	60.0	8
Phenol-d6	2.146	2.372	66.300	60.0	10

FORM VII SV-1

7C cont
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date: 03/15/18 Time: 21:40

Lab File ID: bc0651.d Init. Calib. Date(s): 02/15/18 02/15/18

Init. Calib. Times(s): 11:12 13:44

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Nitrobenzene-d5	0.494	0.488	59.270	60.0	-1
2-Fluorobiphenyl	1.390	1.328	57.320	60.0	-4
2,4,6-Tribromophenol	0.197	0.176	53.620	60.0	-11
Terphenyl-d14	0.730	0.739	60.660	60.0	1
			Average %Drift:		6

Continuing Calibration
Internal Standard Area and Retention Time
Summary

Initial Calibration Standards:

/chem/HP18444.i/18feb15d.b/bb2821.d **
/chem/HP18444.i/18feb15d.b/bb2822.d
/chem/HP18444.i/18feb15d.b/bb2823.d
/chem/HP18444.i/18feb15d.b/bb2824.d
/chem/HP18444.i/18feb15d.b/bb2825.d
/chem/HP18444.i/18feb15d.b/bb2826.d
/chem/HP18444.i/18feb15d.b/bb2827.d
/chem/HP18444.i/18feb15d.b/bb2828.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP18444.i/18mar15a.b/bc0651.d

Area Summary

File ID:

Internal Standard Name	bc0651.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	152073	160625	80312	321250	Yes
Naphthalene-d8	656391	676839	338420	1353678	Yes
Acenaphthene-d10	393153	399746	199873	799492	Yes
Phenanthrene-d10	706325	780650	390325	1561300	Yes
Pyrene-d10	776909	897212	448606	1794424	Yes
Perylene-d12	575385	715513	357756	1431026	Yes

A "No" indicates the internal standard area is outside acceptable QC limits. ✓

RT Summary

File ID:

Internal Standard Name	bc0651.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	4.987	5.493	No
Naphthalene-d8	6.217	6.723	No
Acenaphthene-d10	7.913	8.437	No
Phenanthrene-d10	9.347	9.888	No
Pyrene-d10	10.717	11.269	No
Perylene-d12	13.270	13.910	No

(*) ✓

A "No" indicates the retention time is greater than 10 seconds from the RT of the referenced standard.

Comments: (*) maintenance due MMT 03/15/18

Report generated on 03/15/2018 at 22:32

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date: 03/15/18 Time: 22:49

Lab File ID: bc0652.d Init. Calib. Date(s): 02/15/18 02/15/18

Init. Calib. Times(s): 15:08 17:14

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Benzaldehyde	1.706	1.755	51.430	50.0	3
Atrazine	0.198	0.215	54.370	50.0	9
			Average %Drift:		6

FORM VII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): bc0651.d Date Analyzed: 03/15/18

Instrument ID: HP18444 Time Analyzed: 21:40

	IS1(DCB)		IS2(NPT)		IS3(ANT)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	152073	4.987	656391	6.217	393153	7.913
UPPER LIMIT	304146	5.487	1312782	6.717	786306	8.413
LOWER LIMIT	76037	4.487	328196	5.717	196577	7.413
LLI SAMPLE NO.						
01 SBLKLA073	147188	4.987	613461	6.217	366145	7.913
02 SBLKLB073	115427	4.993	486549	6.217	289993	7.913
03 073LALCS	118531	4.993	495746	6.217	285521	7.913
04 073LBLCS	139030	4.993	586387	6.217	340745	7.913
05 9500920	155126	4.993	659609	6.217	394186	7.913
06 9500921	147432	4.987	618000	6.217	381011	7.913
07 9500922	165867	4.987	711744	6.217	392253	7.913
08 9498429	145607	4.993	590210	6.217	320498	7.913
09 9498430	142217	4.993	555210	6.234	304273	7.919
10 9498430MS	147341	4.993	588929	6.234	328688	7.919
11 9498430MSD	128607	4.999	507055	6.234	279695	7.919
12 9498431	131085	4.993	525352	6.217	296372	7.913
13 9498432	125300	4.993	503943	6.217	285131	7.913
14 9498433	128875	4.993	515909	6.223	290714	7.919
15 9498434	125860	4.993	500887	6.217	280142	7.913
16 9493868	116927	4.993	440097	6.246	284889	7.925
17 9498407	110791	4.993	348326	6.357	323303	7.925

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): bc0651.d Date Analyzed: 03/15/18

Instrument ID: HP18444 Time Analyzed: 21:40

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	706325	9.347	776909	10.717	575385	13.270
	UPPER LIMIT	1412650	9.847	1553818	11.217	1150770	13.770
	LOWER LIMIT	353163	8.847	388455	10.217	287693	12.770
	LLI SAMPLE NO.						
01	SBLKLA073	707114	9.347	771301	10.717	509384	13.270
02	SBLKLB073	558738	9.347	597279	10.711	389533	13.270
03	073LALCS	502198	9.347	525806	10.717	370063	13.270
04	073LBLCS	572702	9.347	599202	10.717	378178	13.270
05	9500920	704649	9.341	718942	10.717	446314	13.270
06	9500921	697006	9.347	695131	10.717	425810	13.270
07	9500922	626172	9.347	589818	10.717	383019	13.270
08	9498429	518832	9.347	541755	10.722	428929	13.293
09	9498430	464301	9.359	451825	10.734	357516	13.287
10	9498430MS	513828	9.359	510948	10.728	395117	13.287
11	9498430MSD	431095	9.359	417276	10.728	326895	13.287
12	9498431	474365	9.347	457342	10.717	331346	13.276
13	9498432	471520	9.347	460148	10.717	333273	13.275
14	9498433	413534	9.359	409915	10.734	323601	13.287
15	9498434	457160	9.353	468799	10.728	398287	13.299
16	9493868	381253	9.376	399661	10.740	319801	13.293
17	9498407	429539	9.393	501083	10.752	396046	13.304

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): bc0651.d Date Analyzed: 03/15/18

Instrument ID: HP18444 Time Analyzed: 21:40

		IS1(DCB)			IS2(NPT)			IS3(ANT)	
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	12 HOUR STD	152073		4.987		656391		6.217		393153		7.913	
	UPPER LIMIT	304146		5.487		1312782		6.717		786306		8.413	
	LOWER LIMIT	76037		4.487		328196		5.717		196577		7.413	
	LLI SAMPLE NO.												
18	9498408	116750		4.993		478792		6.223		278471		7.919	
19	9498409	116409		4.993		459495		6.223		262464		7.913	
20	9498410	120009		4.993		495922		6.217		285525		7.913	
21	9498411	117432		4.993		479814		6.223		279718		7.919	
22	9498412	128832		4.993		444021		6.281		321201		7.925	
23	9498413	112347		4.993		456307		6.223		263429		7.913	
24	9498414	102044		4.993		417068		6.217		246462		7.919	
25	9498415	107468		4.993		441006		6.217		251081		7.913	
26	9498416	114989		4.993		458484		6.217		267828		7.919	
27	9498417	113172		4.993		458818		6.223		258285		7.919	
28	9498418	115136		4.993		467448		6.223		261154		7.919	
29	9498419	120463		4.993		475736		6.223		262697		7.913	

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): bc0651.d Date Analyzed: 03/15/18

Instrument ID: HP18444 Time Analyzed: 21:40

		IS4(PHN)			IS5(PYR)			IS6(PRY)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	12 HOUR STD	706325		9.347		776909		10.717		575385		13.270	
	UPPER LIMIT	1412650		9.847		1553818		11.217		1150770		13.770	
	LOWER LIMIT	353163		8.847		388455		10.217		287693		12.770	
	LLI SAMPLE NO.												
18	9498408	439823		9.353		424840		10.722		314216		13.281	
19	9498409	447320		9.353		448879		10.722		330390		13.281	
20	9498410	451066		9.353		415433		10.728		308677		13.287	
21	9498411	438117		9.353		424422		10.722		308802		13.281	
22	9498412	459928		9.388		526603		10.740		423914		13.299	
23	9498413	457711		9.353		469170		10.722		359779		13.281	
24	9498414	416509		9.353		418189		10.722		311888		13.281	
25	9498415	402850		9.347		398922		10.723		309386		13.281	
26	9498416	466587		9.353		500837		10.722		395814		13.287	
27	9498417	412268		9.353		395015		10.723		301543		13.281	
28	9498418	427904		9.353		409634		10.722		306727		13.281	
29	9498419	416502		9.353		410749		10.722		307034		13.281	

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP18444 **HP #02**

Data Directory Path is - C:\msdchem\1\data\18mar15a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
lmh00956	BC0610.D	DFTPP3567	03/15/2018	12:20		
lmh00956	BC0611.D	STD0388	03/15/2018	12:33		
lmh00956	BC0620.D	DFTPP3567	03/15/2018	13:29		
lmh00956	BC0621.D	STD0388	03/15/2018	13:42		
lmh00956	BC0630.D	DFTPP3567	03/15/2018	15:06		
lmh00956	BC0631.D	STD0388	03/15/2018	15:19		
lmh00956	BC0650.D	DFTPP3567	03/15/2018	20:46		
lmh00956	BC0650z.D	DFTPP3567	03/15/2018	21:12		
lmh00956	BC0650y.D	DFTPP3567	03/15/2018	21:27		
lmh00956	BC0651.D	STD0388	03/15/2018	21:40		
lmh00956	BC0652.D	BAS0038	03/15/2018	22:49		
lmh00956	BC0653.D	SBLKLA073	03/15/2018	23:09	18073SLA	
lmh00956	BC0655.D	SBLKLB073	03/15/2018	23:28	18073SLB	
lmh00956	BC0654.D	073LALCS	03/15/2018	23:48	18073SLA	
lmh00956	BC0656.D	073LBLCS	03/16/2018	00:08	18073SLB	
lmh00956	BC0657.D	9500920	03/16/2018	00:28	18073SLB	
lmh00956	BC0658.D	9500921	03/16/2018	00:48	18073SLB	
lmh00956	BC0659.D	9500922	03/16/2018	01:07	18073SLB	
lmh00956	BC0660.D	9500923	03/16/2018	01:27	18073SLB	
lmh00956	BC0661.D	9498429	03/16/2018	01:47	18073SLB	5
lmh00956	BC0662.D	9498430	03/16/2018	02:07	18073SLB	
lmh00956	BC0663.D	9498430	03/16/2018	02:27	18073SLB	
lmh00956	BC0664.D	9498430	03/16/2018	02:47	18073SLB	
lmh00956	BC0665.D	9498431	03/16/2018	03:06	18073SLB	
lmh00956	BC0666.D	9498432	03/16/2018	03:26	18073SLB	
lmh00956	BC0667.D	9498433	03/16/2018	03:46	18073SLB	
lmh00956	BC0668.D	9498434	03/16/2018	04:06	18073SLB	5
lmh00956	BC0669.D	9498435	03/16/2018	04:25	18073SLB	5
lmh00956	BC0670.D	9498436	03/16/2018	04:45	18073SLB	
lmh00956	BC0671.D	9493868RE	03/16/2018	05:05	18073SLA	
lmh00956	BC0672.D	9498407	03/16/2018	05:25	18073SLA	5
lmh00956	BC0673.D	9498408	03/16/2018	05:45	18073SLA	
lmh00956	BC0674.D	9498409	03/16/2018	06:04	18073SLA	
lmh00956	BC0675.D	9498410	03/16/2018	06:24	18073SLA	
lmh00956	BC0676.D	9498411	03/16/2018	06:44	18073SLA	
lmh00956	BC0677.D	9498412	03/16/2018	07:04	18073SLA	5
lmh00956	BC0678.D	9498413	03/16/2018	07:23	18073SLA	
lmh00956	BC0679.D	9498414	03/16/2018	07:43	18073SLA	
lmh00956	BC0680.D	9498415	03/16/2018	08:03	18073SLA	
lmh00956	BC0681.D	9498416	03/16/2018	08:23	18073SLA	5
lmh00956	BC0682.D	9498417	03/16/2018	08:42	18073SLA	
lmh00956	BC0683.D	9498418	03/16/2018	09:02	18073SLA	
lmh00956	BC0684.D	9498419	03/16/2018	09:22	18073SLA	

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: gb1370.d DFTPP Injection Date: 02/23/18

Instrument ID: HP11165 DFTPP Injection Time: 22:14

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	56.0
68	Less than 2.0% of mass 69	0.68 (1.28)1
69	Mass 69 relative abundance	53.0
70	Less than 2.0% of mass 69	0.31 (0.58)1
127	10.0 - 80.00% of mass 198	52.5
197	Less than 2.0% of mass 198	0.67
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.27
275	10.0 - 60.0% of mass 198	24.2
365	Greater than 1.00% of mass 198	2.62
441	Present, and less than mass 443	8.0
442	Greater than 50.00% of mass 198	54.1
443	15.00 - 24.00% of mass 442	10.7 (19.8)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD0388 - SSTD30	gb1371.d	02/23/18	22:35
02	STD03888 - SSTD120	gb1372.d	02/23/18	23:28
03	STD0388 - SSTD80	gb1373.d	02/23/18	23:53
04	STD0388 - SSTD50	gb1374.d	02/24/18	00:19
05	STD0388 - SSTD15	gb1375.d	02/24/18	00:44
06	STD0388 - SSTD5	gb1376.d	02/24/18	01:10
07	STD0388 - SSTD1	gb1377.d	02/24/18	01:35
08	STD0388 - SSTD.5	gb1378.d	02/24/18	02:01
09	8270MDL0388 - SSTD0.50	gb1379.d	02/24/18	02:27
10	MDLPAH0388 - SSTD0.10	gb1380.d	02/24/18	02:53
11	ICV0308 - SSTD050	gb1381.d	02/24/18	03:18
12	BAS0038 - SSTD50	gb1382.d	02/24/18	03:44
13	BAS0038 - SSTD120	gb1383.d	02/24/18	04:09
14	BAS0038 - SSTD80	gb1384.d	02/24/18	04:35
15	BAS0038 - SSTD30	gb1385.d	02/24/18	05:01
16	BAS0038 - SSTD15	gb1386.d	02/24/18	05:26
17	BAS0038 - SSTD5	gb1387.d	02/24/18	05:52
18	BASMDL0038 - SSTD001	gb1388.d	02/24/18	06:17

FORM V SV

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: gb1370.d DFTPP Injection Date: 02/23/18

Instrument ID: HP11165 DFTPP Injection Time: 22:14

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	56.0
68	Less than 2.0% of mass 69	0.68 (1.28)1
69	Mass 69 relative abundance	53.0
70	Less than 2.0% of mass 69	0.31 (0.58)1
127	10.0 - 80.00% of mass 198	52.5
197	Less than 2.0% of mass 198	0.67
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.27
275	10.0 - 60.0% of mass 198	24.2
365	Greater than 1.00% of mass 198	2.62
441	Present, and less than mass 443	8.0
442	Greater than 50.00% of mass 198	54.1
443	15.00 - 24.00% of mass 442	10.7 (19.8)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
19	BASICV2487 - SSTD050	gb1389.d	02/24/18	06:43
20	MS180322 - ICVSPK	gb1390.d	02/24/18	07:09

FORM V SV

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date(s): 02/23/18 02/24/18

Calibration Times: 22:35 02:01

LAB FILE ID:RRF0.5 = gb1378.d RRF1 = gb1377.d RRF5 = gb1376.d RRF15 = gb1375.d
RRF30 = gb1371.d RRF50 = gb1374.d RRF80 = gb1373.d RRF120 = gb1372.d

COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	RRF	% RSD	CAL. METHOD
1,4-Dioxane			0.762	0.696	0.682	0.679	0.644	0.644	0.685	6	AVG
N-Nitrosodimethylamine			1.208	1.196	1.260	1.249	1.189	1.211	1.219	2	AVG
Pyridine			2.007	1.982	2.067	2.045	1.963	1.945	2.001	2	AVG
2-Picoline			2.088	2.034	2.096	2.126	2.030	2.051	2.071	2	AVG
N-Nitrosomethylethylamine			0.970	0.947	0.969	0.985	0.920	0.950	0.957	2	AVG
Methyl methanesulfonate			1.062	1.083	1.097	1.116	1.028	1.037	1.071	3	AVG
N-Nitrosodiethylamine		0.885	0.865	0.912	0.969	0.986	0.915	0.932	0.923	5	AVG
Ethyl methanesulfonate		0.871	0.891	0.918	0.956	0.987	0.902	0.903	0.918	4	AVG
Phenol		2.516	2.631	2.704	2.810	2.841	2.633	2.648	2.683	4	AVG
Aniline		3.066	3.000	3.101	3.213	3.288	3.007	2.983	3.094	4	AVG
a-methylstyrene			1.631	1.700	1.806	1.814	1.690	1.757	1.733	4	AVG
bis(2-Chloroethyl)ether		1.993	1.887	1.911	1.982	1.998	1.841	1.865	1.925	3	AVG
2-Chlorophenol		1.671	1.601	1.651	1.708	1.739	1.625	1.649	1.663	3	AVG
1,3-Dichlorobenzene		1.853	1.622	1.616	1.657	1.670	1.579	1.592	1.656	6	AVG
1,4-Dichlorobenzene		1.713	1.591	1.656	1.715	1.734	1.612	1.624	1.664	3	AVG
Benzyl alcohol		1.216	1.219	1.357	1.376	1.403	1.321	1.325	1.317	6	AVG
1,2-Dichlorobenzene		1.443	1.599	1.586	1.602	1.661	1.557	1.560	1.572	4	AVG
Indene			3.027	3.105	3.262	3.217	3.036	3.134	3.130	3	AVG
2-Methylphenol	1.474	1.427	1.652	1.719	1.816	1.859	1.697	1.697	1.667	9	AVG
2,2'-oxybis(1-Chloropropane)		2.768	2.794	2.857	2.987	3.004	2.740	2.736	2.841	4	AVG
bis(2-Chloroisopropyl)ether		2.768	2.794	2.857	2.987	3.004	2.740	2.736	2.841	4	AVG
N-Nitrosopyrrolidine		0.999	1.057	1.124	1.184	1.189	1.076	1.069	1.100	6	AVG
Acetophenone		2.503	2.518	2.771	2.747	2.767	2.605	2.601	2.645	4	AVG
4-Methylphenol		1.509	1.771	1.889	1.981	2.215	1.856	2.001	1.889	12	AVG
Total Cresols		1.468	1.712	1.804	1.898	2.037	1.776	1.849	1.792	10	AVG
N-Nitroso-di-n-propylamine		1.711	1.753	1.745	1.797	1.802	1.639	1.590	1.720	5	AVG
N-Nitrosomorpholine			1.404	1.529	1.512	1.496	1.372	1.344	1.443	5	AVG
o-Toluidine		2.760	2.907	3.117	3.197	3.233	3.007	2.895	3.017	6	AVG
Hexachloroethane			0.630	0.621	0.639	0.655	0.603	0.620	0.628	3	AVG
Nitrobenzene		0.466	0.458	0.479	0.487	0.490	0.471	0.468	0.474	2	AVG
N-Nitrosopiperidine		0.207	0.206	0.222	0.221	0.229	0.218	0.218	0.217	4	AVG
Isophorone		0.925	0.914	0.940	0.928	0.953	0.910	0.886	0.922	2	AVG
2-Nitrophenol		0.170	0.182	0.192	0.195	0.210	0.203	0.202	0.193	7	AVG
2,4-Dimethylphenol	0.349	0.365	0.389	0.413	0.424	0.432	0.410	0.407	0.399	7	AVG
O,O,O-Triethylphosphorothioate			0.178	0.183	0.184	0.189	0.179	0.177	0.182	3	AVG
bis(2-Chloroethoxy)methane		0.557	0.546	0.545	0.536	0.546	0.520	0.518	0.538	3	AVG
Benzoic acid			0.355	0.400	0.420	0.440	0.431	0.435	0.413	8	AVG
1,2,3,4-Tetrahydronaphthalene			0.559	0.550	0.579	0.581	0.576	0.580	0.571	2	AVG
2,4-Dichlorophenol		0.303	0.288	0.298	0.301	0.321	0.301	0.294	0.301	3	AVG
1,2,4-Trichlorobenzene			0.303	0.299	0.308	0.312	0.299	0.296	0.303	2	AVG
Naphthalene	1.141	1.080	1.078	1.105	1.118	1.129	1.077	1.075	1.100	2	AVG
4-Chloroaniline		0.454	0.478	0.491	0.490	0.500	0.473	0.459	0.478	4	AVG
2,6-Dichlorophenol		0.274	0.301	0.303	0.309	0.314	0.296	0.293	0.299	4	AVG
Hexachloropropene			0.141	0.144	0.155	0.159	0.158	0.160	0.153	5	AVG
Hexachlorobutadiene	0.154	0.137	0.144	0.141	0.146	0.149	0.145	0.144	0.145	4	AVG
Quinoline			0.786	0.807	0.775	0.798	0.751	0.734	0.775	4	AVG
Caprolactam			0.177	0.171	0.164	0.165	0.158	0.153	0.165	5	AVG
N-Nitrosodi-n-butylamine		0.430	0.455	0.478	0.468	0.469	0.357	0.333	0.427	14	AVG
4-Chloro-3-methylphenol		0.338	0.385	0.403	0.401	0.405	0.382	0.374	0.384	6	AVG
Safrole			0.290	0.299	0.298	0.308	0.291	0.290	0.296	2	AVG
2-Methylnaphthalene	0.715	0.750	0.792	0.805	0.814	0.829	0.780	0.774	0.782	5	AVG
1-Methylnaphthalene	0.624	0.726	0.721	0.734	0.730	0.748	0.711	0.709	0.713	5	AVG

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date(s): 02/23/18 02/24/18

Calibration Times: 22:35 02:01

LAB FILE ID: RRF0.5 = gb1378.d RRF1 = gb1377.d RRF5 = gb1376.d RRF15 = gb1375.d
RRF30 = gb1371.d RRF50 = gb1374.d RRF80 = gb1373.d RRF120 = gb1372.d

COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	RRF	% RSD	CAL. METHOD
Hexachlorocyclopentadiene			0.195	0.206	0.237	0.229	0.206	0.208	0.213	8	AVG
1,2,4,5-Tetrachlorobenzene		0.457	0.458	0.486	0.483	0.493	0.482	0.492	0.479	3	AVG
cis-Isosafrole			0.513	0.473	0.507	0.518	0.489	0.501	0.500	3	AVG
2,4,6-Trichlorophenol		0.304	0.325	0.355	0.366	0.368	0.362	0.366	0.349	7	AVG
2,4,5-Trichlorophenol		0.335	0.374	0.380	0.386	0.393	0.380	0.377	0.375	5	AVG
trans-Isosafrole			0.550	0.560	0.570	0.574	0.550	0.560	0.561	2	AVG
Isosafrole			0.544	0.545	0.559	0.564	0.540	0.550	0.550	2	AVG
1,1'-Biphenyl		1.520	1.471	1.515	1.470	1.499	1.457	1.464	1.485	2	AVG
2-Chloronaphthalene		1.023	1.034	1.346	1.152	1.092	1.274	1.408	1.190	13	AVG
1-Chloronaphthalene		1.059	1.105	1.048	1.067	1.122	1.060	1.005	1.067	4	AVG
Diphenyl ether		0.761	0.775	0.788	0.794	0.800	0.772	0.777	0.781	2	AVG
2-Nitroaniline		0.293	0.347	0.405	0.425	0.421	0.413	0.413	0.388	13	AVG
1,4-Naphthoquinone			0.476	0.506	0.520	0.523	0.495	0.483	0.500	4	AVG
1,4-Dinitrobenzene			0.173	0.201	0.220	0.227	0.223	0.226	0.212	10	AVG
Dimethylphthalate			1.399	1.383	1.399	1.376	1.317	1.302	1.363	3	AVG
1,3-Dinitrobenzene			0.215	0.241	0.255	0.261	0.257	0.255	0.247	7	AVG
2,6-Dinitrotoluene		0.255	0.302	0.332	0.337	0.340	0.325	0.331	0.317	10	AVG
Acenaphthylene	1.539	1.545	1.653	1.696	1.731	1.745	1.686	1.701	1.662	5	AVG
3-Nitroaniline		0.319	0.338	0.373	0.379	0.387	0.367	0.370	0.362	7	AVG
Acenaphthene	1.133	1.209	1.171	1.195	1.196	1.205	1.168	1.159	1.180	2	AVG
2,4-Dinitrophenol			0.147	0.191	0.211	0.217	0.218	0.225	0.202	14	AVG
4-Nitrophenol			0.210	0.208	0.219	0.212	0.232	0.236	0.220	6	AVG
Pentachlorobenzene		0.460	0.440	0.444	0.443	0.451	0.430	0.452	0.445	2	AVG
2,4-Dinitrotoluene			0.404	0.434	0.447	0.453	0.435	0.441	0.436	4	AVG
2,4_2,6-Dinitrotoluenes			0.353	0.383	0.392	0.396	0.380	0.386	0.382	4	AVG
Dibenzofuran		1.804	1.680	1.677	1.682	1.689	1.618	1.645	1.685	3	AVG
1-Naphthylamine			1.389	1.414	1.441	1.436	1.387	1.333	1.400	3	AVG
2,3,4,6-Tetrachlorophenol		0.308	0.313	0.338	0.336	0.346	0.328	0.326	0.328	4	AVG
2-Naphthylamine			1.374	1.420	1.426	1.410	1.304	1.258	1.365	5	AVG
Diethylphthalate			1.385	1.391	1.389	1.371	1.312	1.321	1.361	3	AVG
Thionazin			0.246	0.258	0.264	0.263	0.252	0.251	0.256	3	AVG
Fluorene	1.257	1.332	1.481	1.471	1.474	1.489	1.424	1.414	1.418	6	AVG
4-Chlorophenyl-phenylether		0.664	0.665	0.644	0.673	0.666	0.631	0.647	0.656	2	AVG
5-Nitro-o-toluidine		0.430	0.420	0.430	0.438	0.445	0.423	0.417	0.429	2	AVG
4-Nitroaniline		0.399	0.387	0.419	0.417	0.402	0.384	0.383	0.399	4	AVG
4,6-Dinitro-2-methylphenol			0.107	0.129	0.139	0.147	0.146	0.146	0.136	11	AVG
N-Nitrosodiphenylamine (1)	0.593	0.598	0.638	0.658	0.666	0.684	0.661	0.653	0.644	5	AVG
NDPA as diphenylamine	0.593	0.598	0.638	0.658	0.666	0.684	0.661	0.653	0.644	5	AVG
1,2-Diphenylhydrazine		0.837	0.852	0.910	0.919	0.938	0.908	0.887	0.893	4	AVG
Tetraethyldithiopyrophosphate			0.117	0.128	0.131	0.134	0.130	0.128	0.128	4	AVG
1,3,5-Trinitrobenzene			0.055	0.072	0.085	0.094	0.095	0.095	0.083	20	AVG +
Diallate (peak 1)			0.418	0.432	0.438	0.448	0.432	0.424	0.432	2	AVG
Phorate		0.435	0.566	0.586	0.607	0.616	0.591	0.817	0.603	19	AVG
Phenacetin		0.387	0.415	0.420	0.436	0.437	0.426	0.422	0.420	4	AVG
4-Bromophenyl-phenylether			0.189	0.198	0.196	0.209	0.197	0.195	0.197	3	AVG
Diallate (peak 2)			0.367	0.365	0.367	0.362	0.352	0.354	0.361	2	AVG
Diallate trans/cis			0.409	0.421	0.426	0.433	0.419	0.412	0.420	2	AVG
Hexachlorobenzene	0.216	0.203	0.199	0.196	0.194	0.201	0.199	0.196	0.200	3	AVG
Dimethoate			0.335	0.368	0.380	0.374	0.349	0.329	0.356	6	AVG
Pentachlorophenol			0.114	0.126	0.130	0.138	0.136	0.135	0.130	7	AVG
4-Aminobiphenyl		0.680	0.749	0.730	0.729	0.653	0.557	0.520	0.660	14	AVG
Pentachloronitrobenzene			0.070	0.072	0.073	0.078	0.075	0.075	0.074	4	AVG

+ %RSD is less than or equal to 20%; however, value rounds to 20.
(1) Cannot be separated from Diphenylamine
4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date(s): 02/23/18 02/24/18

Calibration Times: 22:35 02:01

LAB FILE ID:RRF0.5 = gb1378.d RRF1 = gb1377.d RRF5 = gb1376.d RRF15 = gb1375.d
RRF30 = gb1371.d RRF50 = gb1374.d RRF80 = gb1373.d RRF120 = gb1372.d

COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	RRF	% RSD	CAL. METHOD
Pronamide		0.217	0.277	0.307	0.312	0.324	0.313	0.316	0.295	13	AVG
Dinoseb			0.129	0.168	0.197	0.213	0.215	0.214	0.190	18	AVG
Phenanthrene	1.169	1.152	1.124	1.134	1.126	1.151	1.099	1.084	1.130	2	AVG
Anthracene	1.031	1.101	1.105	1.152	1.154	1.185	1.138	1.111	1.122	4	AVG
Carbazole		0.973	1.051	1.056	1.068	1.084	1.038	1.014	1.040	4	AVG
Methyl parathion			0.199	0.239	0.263	0.258	0.242	0.230	0.239	10	AVG
Di-n-butylphthalate			1.141	1.245	1.279	1.297	1.229	1.181	1.229	5	AVG
Parathion			0.115	0.152	0.167	0.171	0.168	0.163	0.156	14	AVG
4-Nitroquinoline-1-oxide			0.058	0.082	0.113	0.119	0.117	0.113	0.100	25	1STDEG
Octachlorostyrene			0.074	0.070	0.072	0.074	0.075	0.075	0.073	2	AVG
Isodrin		0.112	0.114	0.117	0.117	0.120	0.116	0.114	0.116	2	AVG
Fluoranthene	1.204	1.111	1.204	1.204	1.223	1.250	1.201	1.182	1.197	3	AVG
Benzidine			0.655	0.702	0.758	0.739	0.660	0.570	0.680	10	AVG
Pyrene	1.305	1.246	1.144	1.148	1.164	1.163	1.139	1.124	1.179	5	AVG
p-Dimethylaminoazobenzene		0.144	0.169	0.196	0.224	0.219	0.213	0.219	0.198	15	AVG
Chlorobenzilate		0.285	0.314	0.314	0.337	0.339	0.327	0.326	0.320	6	AVG
3,3'-Dimethylbenzidine			0.545	0.562	0.688	0.639	0.593	0.604	0.605	9	AVG
Butylbenzylphthalate			0.481	0.494	0.535	0.533	0.518	0.509	0.512	4	AVG
2-Acetylaminofluorene			0.359	0.407	0.470	0.462	0.463	0.459	0.437	10	AVG
3,3'-Dichlorobenzidine			0.339	0.358	0.389	0.393	0.387	0.390	0.376	6	AVG
4,4'-Methylenebis(2-chloroanil			0.176	0.185	0.211	0.213	0.205	0.211	0.200	8	AVG
Benzo(a)anthracene	0.950	0.968	1.012	1.032	1.092	1.093	1.046	1.062	1.032	5	AVG
Chrysene	1.108	1.039	1.027	1.005	1.037	1.025	1.003	0.975	1.027	4	AVG
bis(2-Ethylhexyl)phthalate			0.639	0.673	0.725	0.722	0.692	0.678	0.688	5	AVG
6-Methylchrysene			0.641	0.664	0.708	0.720	0.725	0.693	0.692	5	AVG
Di-n-octylphthalate			1.183	1.383	1.593	1.637	1.588	1.624	1.501	12	AVG
Benzo(b)fluoranthene	1.274	1.085	1.235	1.235	1.326	1.421	1.372	1.562	1.314	11	AVG
7,12-Dimethylbenz[a]anthracene		0.491	0.528	0.591	0.618	0.635	0.634	0.628	0.589	10	AVG
Benzo(k)fluoranthene	1.173	1.318	1.274	1.336	1.378	1.335	1.268	1.230	1.289	5	AVG
Benzo(a)pyrene	0.992	1.073	1.104	1.165	1.227	1.273	1.230	1.287	1.169	9	AVG
3-Methylcholanthrene		0.516	0.504	0.538	0.595	0.596	0.585	0.617	0.564	8	AVG
Dibenz(a,h)acridine			0.728	0.821	0.908	0.939	0.910	0.935	0.873	10	AVG
Dibenz(a,j)acridine			0.886	0.946	0.980	1.000	0.991	0.977	0.964	4	AVG
Indeno(1,2,3-cd)pyrene	1.092	1.081	1.177	1.254	1.323	1.332	1.289	1.332	1.235	9	AVG
Dibenz(a,h)anthracene	0.784	0.911	1.023	1.052	1.099	1.116	1.077	1.131	1.024	12	AVG
Benzo(g,h,i)perylene	0.890	0.910	0.978	1.025	1.093	1.103	1.059	1.103	1.020	8	AVG
Total PAHs	1.029	1.033	1.064	1.132	1.185	1.218	1.194	1.266	1.140	8	AVG
2-Fluorophenol			1.538	1.573	1.632	1.620	1.536	1.573	1.579	3	AVG
Phenol-d6			2.209	2.359	2.440	2.507	2.312	2.329	2.359	4	AVG
Nitrobenzene-d5			0.442	0.463	0.479	0.477	0.462	0.458	0.463	3	AVG
2-Fluorobiphenyl			1.258	1.280	1.301	1.308	1.257	1.198	1.267	3	AVG
2,4,6-Tribromophenol			0.149	0.156	0.161	0.166	0.161	0.161	0.159	4	AVG
Terphenyl-d14			0.754	0.778	0.804	0.801	0.785	0.731	0.775	4	AVG

Average %RSD 6

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.
Benzidine Levels in the 5,15,30,50,80,120 standards are 15,45,90,150,240,360 ng/ul, respectively.
Benzoic acid and 2,4-Dinitrophenol are at 15 ng/ul, 30 ng/ul,40 ng/ul in the 5,15,30 standards.

Internal Standard
Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP11165.i/18feb23a.b/gb1371.d SSTD030
/chem/HP11165.i/18feb23a.b/gb1372.d SSTD120
/chem/HP11165.i/18feb23a.b/gb1373.d SSTD080
/chem/HP11165.i/18feb23a.b/gb1374.d SSTD050
/chem/HP11165.i/18feb23a.b/gb1375.d SSTD015
/chem/HP11165.i/18feb23a.b/gb1376.d SSTD005
/chem/HP11165.i/18feb23a.b/gb1377.d SSTD001
/chem/HP11165.i/18feb23a.b/gb1378.d SSTD0.50

Area Summary

File ID:

Internal Standard Name	gb1371.d	gb1372.d	gb1373.d	gb1374.d	gb1375.d	gb1376.d	gb1377.d	gb1378.d	Avg. Area	%RSD	In Spec
1,4-Dichlorobenzene-d4	190987	202550	200941	193349	186855	175145	166870	184606	187663	6	Yes
Naphthalene-d8	919694	949660	939589	941709	902441	816547	774378	819307	882916	8	Yes
Acenaphthene-d10	600348	587007	605053	620218	607523	554244	507094	538999	577561	7	Yes
Phenanthrene-d10	1174214	1100886	1131091	1174313	1178993	1094922	1049512	1102024	1125744	4	Yes
Pyrene-d10	1253093	1153246	1196562	1271147	1306170	1232131	1181536	1237539	1228928	4	Yes
Perylene-d12	960013	812733	895157	953999	1000290	985481	935246	979073	940249	6	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	gb1371.d	gb1372.d	gb1373.d	gb1374.d	gb1375.d	gb1376.d	gb1377.d	gb1378.d	Avg. RT
1,4-Dichlorobenzene-d4	5.681	5.681	5.681	5.681	5.681	5.681	5.681	5.681	5.681
Naphthalene-d8	6.916	6.922	6.922	6.916	6.916	6.916	6.916	6.916	6.917
Acenaphthene-d10	8.633	8.639	8.639	8.639	8.633	8.633	8.634	8.633	8.636
Phenanthrene-d10	10.098	10.104	10.098	10.098	10.092	10.092	10.092	10.092	10.096
Pyrene-d10	11.492	11.498	11.492	11.492	11.486	11.486	11.486	11.486	11.490
Perylene-d12	14.168	14.174	14.168	14.168	14.168	14.168	14.163	14.163	14.168

Comments: _____

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Report generated on 02/26/2018 at 08:13

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP11165

Method: SW-846 8270D MIC File ID: gb1381.d

ICV SAMPLE ID: ICV0308 BATCH: 18FEB23A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	50.00	59.79	20	30	YES
N-Nitrosodimethylamine	50.00	46.96	-6	30	YES
Pyridine	50.00	48.72	-3	30	YES
2-Picoline	50.00	46.81	-6	30	YES
N-Nitrosomethylethylamine	50.00	45.28	-9	30	YES
Methyl methanesulfonate	50.00	48.86	-2	30	YES
N-Nitrosodiethylamine	50.00	46.48	-7	30	YES
Ethyl methanesulfonate	50.00	47.66	-5	30	YES
Phenol	50.00	49.21	-2	30	YES
Aniline	50.00	47.52	-5	30	YES
bis(2-Chloroethyl)ether	50.00	46.81	-6	30	YES
2-Chlorophenol	50.00	48.20	-4	30	YES
1,3-Dichlorobenzene	50.00	47.36	-5	30	YES
1,4-Dichlorobenzene	50.00	49.39	-1	30	YES
Benzyl alcohol	50.00	47.81	-4	30	YES
1,2-Dichlorobenzene	50.00	48.86	-2	30	YES
Indene	50.00	45.78	-8	30	YES
2-Methylphenol	50.00	50.86	2	30	YES
2,2'-oxybis(1-Chloropropane	50.00	47.22	-6	30	YES
bis(2-Chloroisopropyl)ether	50.00	47.22	-6	30	YES
N-Nitrosopyrrolidine	50.00	48.13	-4	30	YES
Acetophenone	50.00	47.73	-5	30	YES
4-Methylphenol	50.00	48.75	-2	30	YES
N-Nitroso-di-n-propylamine	50.00	47.44	-5	30	YES
N-Nitrosomorpholine	50.00	47.07	-6	30	YES
o-Toluidine	50.00	48.77	-2	30	YES
Total Cresols	100.00	99.61	0	30	YES
Hexachloroethane	50.00	47.18	-6	30	YES
Nitrobenzene	50.00	47.70	-5	30	YES
N-Nitrosopiperidine	50.00	48.06	-4	30	YES
Isophorone	50.00	49.61	-1	30	YES
2-Nitrophenol	50.00	50.18	0	30	YES
2,4-Dimethylphenol	50.00	44.80	-10	30	YES
bis(2-Chloroethoxy)methane	50.00	48.62	-3	30	YES
O,O,O-Triethylphosphorothio	50.00	50.07	0	30	YES
2,4-Dichlorophenol	50.00	50.64	1	30	YES
1,2,4-Trichlorobenzene	50.00	49.94	0	30	YES

NC = Could not calculate

Comments: _____

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS | LAB CODE: LANCAS | INSTRUMENT: HP11165

Method: SW-846 8270D MIC | File ID: gb1381.d

ICV SAMPLE ID: ICV0308 | BATCH: 18FEB23A026 | Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Naphthalene	50.00	48.99	-2	30	YES
4-Chloroaniline	50.00	52.38	5	30	YES
2,6-Dichlorophenol	50.00	49.86	0	30	YES
Hexachloropropene	50.00	52.29	5	30	YES
Hexachlorobutadiene	50.00	50.09	0	30	YES
Quinoline	50.00	49.72	-1	30	YES
N-Nitrosodi-n-butylamine	50.00	39.18	-22	30	YES
4-Chloro-3-methylphenol	50.00	50.45	1	30	YES
Safrole	50.00	49.51	-1	30	YES
2-Methylnaphthalene	50.00	50.21	0	30	YES
1-Methylnaphthalene	50.00	50.76	2	30	YES
Hexachlorocyclopentadiene	100.00	115.45	15	30	YES
1,2,4,5-Tetrachlorobenzene	50.00	50.42	1	30	YES
cis-Isosafrole	6.00	6.28	5	30	YES
2,4,6-Trichlorophenol	50.00	50.69	1	30	YES
2,4,5-Trichlorophenol	50.00	53.92	8	30	YES
trans-Isosafrole	44.00	45.44	3	30	YES
1,1'-Biphenyl	50.00	51.45	3	30	YES
2-Chloronaphthalene	50.00	48.22	-4	30	YES
Isosafrole	50.00	51.72	3	30	YES
2-Nitroaniline	50.00	52.40	5	30	YES
1,4-Naphthoquinone	62.50	63.48	2	30	YES
1,4-Dinitrobenzene	50.00	50.31	1	30	YES
Dimethylphthalate	50.00	49.48	-1	30	YES
1,3-Dinitrobenzene	50.00	50.41	1	30	YES
2,6-Dinitrotoluene	50.00	51.37	3	30	YES
Acenaphthylene	50.00	56.22	12	30	YES
3-Nitroaniline	50.00	51.21	2	30	YES
Acenaphthene	50.00	53.10	6	30	YES
2,4-Dinitrophenol	100.00	104.84	5	30	YES
4-Nitrophenol	50.00	53.79	8	30	YES
Pentachlorobenzene	50.00	50.46	1	30	YES
2,4-Dinitrotoluene	50.00	49.83	0	30	YES
Dibenzofuran	50.00	49.98	0	30	YES
2,4_2,6-Dinitrotoluenes	100.00	101.20	1	30	YES
1-Naphthylamine	100.00	97.11	-3	30	YES
2-Naphthylamine	100.00	98.88	-1	30	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP11165

Method: SW-846 8270D MIC File ID: gb1381.d

ICV SAMPLE ID: ICV0308 BATCH: 18FEB23A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Diethylphthalate	50.00	49.56	-1	30	YES
Thionazin	50.00	51.59	3	30	YES
Fluorene	50.00	50.98	2	30	YES
4-Chlorophenyl-phenylether	50.00	48.46	-3	30	YES
5-Nitro-o-toluidine	50.00	49.10	-2	30	YES
4-Nitroaniline	50.00	49.06	-2	30	YES
4,6-Dinitro-2-methylphenol	50.00	52.71	5	30	YES
N-Nitrosodiphenylamine	50.00	51.89	4	30	YES
NDPA as diphenylamine	50.00	51.89	4	30	YES
1,2-Diphenylhydrazine	50.00	51.09	2	30	YES
Tetraethyldithiopyrophospha	50.00	49.41	-1	30	YES
1,3,5-Trinitrobenzene	50.00	49.56	-1	30	YES
Diallate (peak 1)	37.50	34.66	-8	30	YES
Phorate	50.00	48.36	-3	30	YES
Phenacetin	50.00	49.31	-1	30	YES
4-Bromophenyl-phenylether	50.00	49.29	-1	30	YES
Diallate (peak 2)	12.50	13.53	8	30	YES
Hexachlorobenzene	50.00	47.73	-5	30	YES
Diallate trans/cis	50.00	48.19	-4	30	YES
Dimethoate	50.00	47.86	-4	30	YES
Pentachlorophenol	50.00	53.59	7	30	YES
4-Aminobiphenyl	50.00	64.06	28	30	YES
Pentachloronitrobenzene	50.00	49.99	0	30	YES
Pronamide	50.00	51.42	3	30	YES
Dinoseb	50.00	48.06	-4	30	YES
Phenanthrene	50.00	48.89	-2	30	YES
Anthracene	50.00	50.18	0	30	YES
Carbazole	50.00	51.30	3	30	YES
Methyl parathion	50.00	52.95	6	30	YES
Di-n-butylphthalate	50.00	49.95	0	30	YES
Parathion	50.00	50.74	1	30	YES
4-Nitroquinoline-1-oxide	600.00	741.86	24	30	YES
Isodrin	50.00	49.96	0	30	YES
Fluoranthene	50.00	48.34	-3	30	YES
Benzidine	250.00	254.46	2	30	YES
Pyrene	50.00	48.04	-4	30	YES
p-Dimethylaminoazobenzene	50.00	60.76	22	30	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP11165

Method: SW-846 8270D MIC File ID: gb1381.d

ICV SAMPLE ID: ICV0308 BATCH: 18FEB23A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Chlorobenzilate	50.00	53.58	7	30	YES
3,3'-Dimethylbenzidine	100.00	106.30	6	30	YES
Butylbenzylphthalate	50.00	51.65	3	30	YES
2-Acetylaminofluorene	50.00	51.11	2	30	YES
3,3'-Dichlorobenzidine	50.00	50.01	0	30	YES
Benzo(a)anthracene	50.00	50.24	0	30	YES
Chrysene	50.00	49.05	-2	30	YES
4,4'-Methylenebis(2-chloroa	50.00	49.92	0	30	YES
bis(2-Ethylhexyl)phthalate	50.00	50.75	2	30	YES
6-Methylchrysene	50.00	51.98	4	30	YES
Di-n-octylphthalate	50.00	48.91	-2	30	YES
Benzo(b)fluoranthene	50.00	50.22	0	30	YES
7,12-Dimethylbenz[a]anthrac	50.00	50.65	1	30	YES
Benzo(k)fluoranthene	50.00	47.80	-4	30	YES
Benzo(a)pyrene	50.00	50.47	1	30	YES
3-Methylcholanthrene	50.00	52.84	6	30	YES
Dibenz(a,h)acridine	50.00	48.50	-3	30	YES
Dibenz(a,j)acridine	50.00	47.16	-6	30	YES
Indeno(1,2,3-cd)pyrene	50.00	49.32	-1	30	YES
Dibenz(a,h)anthracene	50.00	50.85	2	30	YES
Benzo(g,h,i)perylene	50.00	48.14	-4	30	YES
Total PAHs	900.00	901.83	0	30	YES

NC = Could not calculate

Comments: _____

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP11165

Method: SW-846 8270D File ID: gb1389.d

ICV SAMPLE ID: BASICV2487 BATCH: 18FEB23A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Benzaldehyde	50.00	45.75	-9	30	YES
Caprolactam	50.00	49.24	-2	30	YES
Atrazine	50.00	50.23	0	30	YES

NC = Could not calculate

Comments: _____

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS | LAB CODE: LANCAS | INSTRUMENT: HP11165

Method: SW-846 8270D MIC | File ID: gb1390.d

ICV SAMPLE ID: MS180322 | BATCH: 18FEB23A026 | Sample Name: ICVSPK

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1-Chloronaphthalene	50.00	48.19	-4	30	YES
Diphenyl ether	50.00	51.01	2	30	YES
2,3,4,6-Tetrachlorophenol	50.00	51.05	2	30	YES

NC = Could not calculate

Comments:

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date(s): 02/24/18 02/24/18

Calibration Times: 01:35 05:52

LAB FILE ID: RRF5 = gb1387.d RRF15 = gb1386.d
RRF30 = gb1385.d RRF50 = gb1382.d RRF80 = gb1384.d RRF120 = gb1383.d

COMPOUND	RRF	RRF	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	RRF	% RSD	CAL. METHOD
Benzaldehyde			1.909	1.623	1.728	1.748	1.744	1.733	1.748	5	AVG
Atrazine			0.160	0.200	0.205	0.227	0.216	0.229	0.206	12	AVG

Average %RSD 289

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.
Benzidine Levels in the 5,15,30,50,80,120 standards are 15,45,90,150,240,360 ng/ul, respectively.
Benzoic acid and 2,4-Dinitrophenol are at 15 ng/ul, 30 ng/ul,40 ng/ul in the 5,15,30 standards.

FORM VI SV-1

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP11165.i/18feb23a.b/gb1382.d SSTD050
/chem/HP11165.i/18feb23a.b/gb1383.d SSTD120
/chem/HP11165.i/18feb23a.b/gb1384.d SSTD080
/chem/HP11165.i/18feb23a.b/gb1385.d SSTD030
/chem/HP11165.i/18feb23a.b/gb1386.d SSTD015
/chem/HP11165.i/18feb23a.b/gb1387.d SSTD005

Area Summary

Internal Standard Name	File ID: gb1382.d	gb1383.d	gb1384.d	gb1385.d	gb1386.d	gb1387.d	Avg. Area	%RSD	In Spec
1,4-Dichlorobenzene-d4	187108	218211	209602	202043	196107	198554	201938	5	Yes
Naphthalene-d8	812600	939024	879720	878049	846484	881075	872825	5	Yes
Acenaphthene-d10	534863	582567	573858	563720	544891	579679	563263	3	Yes
Phenanthrene-d10	1127018	1230220	1209512	1213300	1179735	1221613	1196900	3	Yes
Pyrene-d10	1248048	1361329	1334362	1346951	1305142	1367532	1327227	3	Yes
Perylene-d12	977481	1054472	1033755	1054880	1034157	1047148	1033649	3	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

Internal Standard Name	File ID: gb1382.d	gb1383.d	gb1384.d	gb1385.d	gb1386.d	gb1387.d	Avg. RT
1,4-Dichlorobenzene-d4	5.681	5.681	5.681	5.681	5.681	5.681	5.681
Naphthalene-d8	6.916	6.916	6.916	6.916	6.916	6.916	6.916
Acenaphthene-d10	8.633	8.633	8.634	8.634	8.633	8.633	8.633
Phenanthrene-d10	10.092	10.092	10.092	10.092	10.092	10.092	10.092
Pyrene-d10	11.486	11.486	11.486	11.486	11.486	11.486	11.486
Perylene-d12	14.162	14.168	14.163	14.168	14.162	14.162	14.164

Comments: _____

_____

Report generated on 02/26/2018 at 08:14

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP11165

Method: SW-846 8270D File ID: gb1389.d

ICV SAMPLE ID: BASICV2487 BATCH: 18FEB23A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Benzaldehyde	50.00	45.75	-9	30	YES
Caprolactam	50.00	49.24	-2	30	YES
Atrazine	50.00	50.23	0	30	YES

NC = Could not calculate

Comments: _____

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP11165 **HP #07**

Data Directory Path is - C:\msdchem\1\data\18feb23a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
bkc25363	GB1370.D	DFTPP0038	02/23/2018	22:14		
bkc25363	GB1371.D	STD0388	02/23/2018	22:35		
bkc25363	GB1372.D	STD03888	02/23/2018	23:28		
bkc25363	GB1373.D	STD0388	02/23/2018	23:53		
bkc25363	GB1374.D	STD0388	02/24/2018	00:19		
bkc25363	GB1375.D	STD0388	02/24/2018	00:44		
bkc25363	GB1376.D	STD0388	02/24/2018	01:10		
bkc25363	GB1377.D	STD0388	02/24/2018	01:35		
bkc25363	GB1378.D	STD0388	02/24/2018	02:01		
bkc25363	GB1379.D	8270MDL0388	02/24/2018	02:27		
bkc25363	GB1380.D	MDLPAH0388	02/24/2018	02:53		
bkc25363	GB1381.D	ICV0308	02/24/2018	03:18		
bkc25363	GB1382.D	BAS0038	02/24/2018	03:44		
bkc25363	GB1383.D	BAS0038	02/24/2018	04:09		
bkc25363	GB1384.D	BAS0038	02/24/2018	04:35		
bkc25363	GB1385.D	BAS0038	02/24/2018	05:01		
bkc25363	GB1386.D	BAS0038	02/24/2018	05:26		
bkc25363	GB1387.D	BAS0038	02/24/2018	05:52		
bkc25363	GB1388.D	BASMDL0038	02/24/2018	06:17		
bkc25363	GB1389.D	BASICV2487	02/24/2018	06:43		
bkc25363	GB1390.D	MS1803226C	02/24/2018	07:09		

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: gc0740.d DFTPP Injection Date: 03/20/18

Instrument ID: HP11165 DFTPP Injection Time: 21:05

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	45.8
68	Less than 2.0% of mass 69	0.52 (1.12)1
69	Mass 69 relative abundance	46.5
70	Less than 2.0% of mass 69	0.0 (0.08)1
127	10.0 - 80.00% of mass 198	50.7
197	Less than 2.0% of mass 198	0.53
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.65
275	10.0 - 60.0% of mass 198	24.4
365	Greater than 1.00% of mass 198	2.45
441	Present, and less than mass 443	8.8
442	Greater than 50.00% of mass 198	61.4
443	15.00 - 24.00% of mass 442	11.8 (19.2)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	BAS0038 - SSTD50	gc0742.d	03/20/18	21:48
02	STD0798 - SSTD30	gc0741b.d	03/20/18	22:47
03	SBLKLF078	gc0745.d	03/21/18	00:55
04	078LFLCS	gc0746.d	03/21/18	01:18
05	9498429RE	gc0750.d	03/21/18	02:52
06	9498435	gc0751.d	03/21/18	03:15
07	9500923	gc0752.d	03/21/18	03:39
08	9501669	gc0753.d	03/21/18	04:02
09	9501673	gc0754.d	03/21/18	04:26
10	9501674MS	gc0755.d	03/21/18	04:49
11	9501675MSD	gc0756.d	03/21/18	05:13
12	9501693	gc0757.d	03/21/18	05:36
13	9501711	gc0758.d	03/21/18	05:59

FORM V SV

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date: 03/20/18 Time: 22:47

Lab File ID: gc0741b.d Init. Calib. Date(s): 02/23/18 02/24/18

Init. Calib. Times(s): 22:35 02:01

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,4-Dioxane	0.685	0.713	31.260	30.0	4
N-Nitrosodimethylamine	1.219	1.133	27.880	30.0	-7
Pyridine	2.001	1.932	28.970	30.0	-3
2-Picoline	2.071	1.969	28.520	30.0	-5
N-Nitrosomethylethylamine	0.957	0.931	29.190	30.0	-3
Methyl methanesulfonate	1.071	1.002	28.070	30.0	-6
N-Nitrosodiethylamine	0.923	0.903	29.330	30.0	-2
Ethyl methanesulfonate	0.918	0.895	29.240	30.0	-3
Phenol	2.683	2.471	27.630	30.0	-8
Aniline	3.094	2.954	28.640	30.0	-5
a-methylstyrene	1.733	0.658	11.400	30.0	-62 NT
bis(2-Chloroethyl)ether	1.925	1.911	29.780	30.0	-1
2-Chlorophenol	1.663	1.702	30.700	30.0	2
1,3-Dichlorobenzene	1.656	1.708	30.940	30.0	3
1,4-Dichlorobenzene	1.663	1.723	31.080	30.0	4
Benzyl alcohol	1.317	1.232	28.080	30.0	-6
1,2-Dichlorobenzene	1.572	1.663	31.730	30.0	6
Indene	3.130	2.536	24.310	30.0	-19
2-Methylphenol	1.668	1.714	30.830	30.0	3
2,2'-oxybis(1-Chloropropane)	2.841	2.611	27.570	30.0	-8
bis(2-Chloroisopropyl)ether	2.841	2.611	27.570	30.0	-8
N-Nitrosopyrrolidine	1.100	1.048	28.580	30.0	-5
Acetophenone	2.645	2.581	29.280	30.0	-2
4-Methylphenol	1.889	1.977	31.400	30.0	5
Total Cresols	1.792	1.846	62.240	60.0	4
N-Nitroso-di-n-propylamine	1.720	1.503	26.210	30.0	-13
N-Nitrosomorpholine	1.443	1.226	25.500	30.0	-15
o-Toluidine	3.017	2.955	29.390	30.0	-2
Hexachloroethane	0.628	0.640	30.570	30.0	2
Nitrobenzene	0.474	0.455	28.810	30.0	-4
N-Nitrosopiperidine	0.217	0.215	29.740	30.0	-1
Isophorone	0.922	0.905	29.440	30.0	-2
2-Nitrophenol	0.193	0.212	32.940	30.0	10
2,4-Dimethylphenol	0.399	0.410	30.820	30.0	3
O,O,O-Triethylphosphorothioate	0.182	0.194	32.130	30.0	7
bis(2-Chloroethoxy)methane	0.538	0.537	29.910	30.0	0

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date: 03/20/18 Time: 22:47

Lab File ID: gc0741b.d Init. Calib. Date(s): 02/23/18 02/24/18

Init. Calib. Times(s): 22:35 02:01

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT	
Benzoic acid	0.413	0.292	28.280	40.0	-29	NT
1,2,3,4-Tetrahydronaphthalene	0.571	0.015	0.780	30.0	-97	NT
2,4-Dichlorophenol	0.301	0.324	32.330	30.0	8	
1,2,4-Trichlorobenzene	0.303	0.327	32.450	30.0	8	
Naphthalene	1.100	1.136	30.970	30.0	3	
4-Chloroaniline	0.478	0.502	31.500	30.0	5	
2,6-Dichlorophenol	0.299	0.309	31.030	30.0	3	
Hexachloropropene	0.153	0.174	34.240	30.0	14	
Hexachlorobutadiene	0.145	0.155	32.070	30.0	7	
Quinoline	0.775	0.773	29.940	30.0	0	
Caprolactam	0.165	0.164	29.870	30.0	0	
N-Nitrosodi-n-butylamine	0.427	0.430	30.190	30.0	1	
4-Chloro-3-methylphenol	0.384	0.391	30.510	30.0	2	
Safrole	0.296	0.311	31.530	30.0	5	
2-Methylnaphthalene	0.782	0.800	30.660	30.0	2	
1-Methylnaphthalene	0.713	0.770	32.420	30.0	8	
Hexachlorocyclopentadiene	0.213	0.238	33.470	30.0	12	
1,2,4,5-Tetrachlorobenzene	0.479	0.505	31.630	30.0	5	
cis-Isosafrole	0.500	0.516	5.260	5.1	3	
2,4,6-Trichlorophenol	0.349	0.375	32.160	30.0	7	
2,4,5-Trichlorophenol	0.375	0.390	31.170	30.0	4	
trans-Isosafrole	0.561	0.603	26.780	24.9	8	
Isosafrole	0.550	0.588	32.040	30.0	7	
1,1'-Biphenyl	1.485	1.511	30.520	30.0	2	
2-Chloronaphthalene	1.190	1.476	37.220	30.0	24	No @
1-Chloronaphthalene	1.067	1.131	31.800	30.0	6	
Diphenyl ether	0.781	0.822	31.580	30.0	5	
2-Nitroaniline	0.388	0.414	32.010	30.0	7	
1,4-Naphthoquinone	0.500	0.499	29.900	30.0	0	
1,4-Dinitrobenzene	0.212	0.226	31.990	30.0	7	
Dimethylphthalate	1.363	1.353	29.790	30.0	-1	
1,3-Dinitrobenzene	0.247	0.255	30.940	30.0	3	
2,6-Dinitrotoluene	0.317	0.336	31.760	30.0	6	
Acenaphthylene	1.662	1.758	31.730	30.0	6	
3-Nitroaniline	0.362	0.380	31.520	30.0	5	
Acenaphthene	1.179	1.211	30.810	30.0	3	

FORM VII SV-1

7C cont
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date: 03/20/18 Time: 22:47

Lab File ID: gc0741b.d Init. Calib. Date(s): 02/23/18 02/24/18

Init. Calib. Times(s): 22:35 02:01

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
2,4-Dinitrophenol	0.202	0.179	35.470	40.0	-11
4-Nitrophenol	0.220	0.183	25.070	30.0	-16
Pentachlorobenzene	0.445	0.472	31.760	30.0	6
2,4-Dinitrotoluene	0.436	0.461	31.760	30.0	6
2,4_2,6-Dinitrotoluenes	0.382	0.399	63.520	60.0	6
Dibenzofuran	1.685	1.703	30.330	30.0	1
1-Naphthylamine	1.400	1.401	30.020	30.0	0
2,3,4,6-Tetrachlorophenol	0.328	0.327	29.880	30.0	0
2-Naphthylamine	1.365	1.429	31.400	30.0	5
Diethylphthalate	1.361	1.341	29.540	30.0	-2
Thionazin	0.256	0.275	32.310	30.0	8
Fluorene	1.418	1.441	30.490	30.0	2
4-Chlorophenyl-phenylether	0.656	0.675	30.860	30.0	3
5-Nitro-o-toluidine	0.429	0.436	30.510	30.0	2
4-Nitroaniline	0.399	0.403	30.300	30.0	1
4,6-Dinitro-2-methylphenol	0.136	0.140	30.900	30.0	3
N-Nitrosodiphenylamine (1)	0.644	0.672	31.300	30.0	4
NDPA as diphenylamine	0.644	0.672	31.300	30.0	4
1,2-Diphenylhydrazine	0.893	0.851	28.600	30.0	-5
Tetraethyldithiopyrophosphate	0.128	0.118	27.660	30.0	-8
1,3,5-Trinitrobenzene	0.083	0.091	32.940	30.0	10
Diallate (peak 1)	0.432	0.399	23.000	24.9	-8
Phorate	0.603	0.522	26.000	30.0	-13
Phenacetin	0.420	0.403	28.770	30.0	-4
4-Bromophenyl-phenylether	0.197	0.214	32.570	30.0	9
Diallate (peak 2)	0.361	0.326	4.610	5.1	-10
Diallate trans/cis	0.420	0.387	27.610	30.0	-8
Hexachlorobenzene	0.200	0.212	31.740	30.0	6
Dimethoate	0.356	0.376	31.670	30.0	6
Pentachlorophenol	0.130	0.113	26.020	30.0	-13
4-Aminobiphenyl	0.660	0.825	37.540	30.0	25 NT
Pentachloronitrobenzene	0.074	0.078	31.490	30.0	5
Pronamide	0.295	0.319	32.450	30.0	8
Dinoseb	0.190	0.194	30.750	30.0	2
Phenanthrene	1.130	1.157	30.720	30.0	2
Anthracene	1.122	1.191	31.850	30.0	6

(1) Cannot be Separated from Diphenylamine

7C cont
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date: 03/20/18 Time: 22:47

Lab File ID: gc0741b.d Init. Calib. Date(s): 02/23/18 02/24/18

Init. Calib. Times(s): 22:35 02:01

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT	
Carbazole	1.040	1.100	31.720	30.0	6	
Methyl parathion	0.239	0.275	34.600	30.0	15	
Di-n-butylphthalate	1.229	1.279	31.230	30.0	4	
Parathion	0.156	0.165	31.790	30.0	6	
4-Nitroquinoline-1-oxide	0.100	0.091	25.390	30.0	-15	
Octachlorostyrene	0.073	0.081	32.950	30.0	10	
Isodrin	0.116	0.124	32.250	30.0	7	
Fluoranthene	1.197	1.279	32.050	30.0	7	
Benzidine	0.680	0.809	107.000	90.0	19	
Pyrene	1.179	1.165	29.630	30.0	-1	
p-Dimethylaminoazobenzene	0.198	0.232	35.310	30.0	18	
Chlorobenzilate	0.320	0.319	29.900	30.0	0	
3,3'-Dimethylbenzidine	0.605	0.826	40.950	30.0	37	NT
Butylbenzylphthalate	0.512	0.529	31.000	30.0	3	
2-Acetylaminofluorene	0.437	0.470	32.320	30.0	8	
3,3'-Dichlorobenzidine	0.376	0.437	34.880	30.0	16	
4,4'-Methylenebis(2-chloroanil	0.200	0.225	33.690	30.0	12	
Benzo(a)anthracene	1.032	1.104	32.110	30.0	7	✓
Chrysene	1.027	1.055	30.810	30.0	3	
bis(2-Ethylhexyl)phthalate	0.688	0.729	31.790	30.0	6	
6-Methylchrysene	0.692	0.735	31.860	30.0	6	
Di-n-octylphthalate	1.501	1.486	29.690	30.0	-1	
Benzo(b)fluoranthene	1.314	1.262	28.810	30.0	-4	
7,12-Dimethylbenz[a]anthracene	0.589	0.629	32.040	30.0	7	
Benzo(k)fluoranthene	1.289	1.349	31.410	30.0	5	
Benzo(a)pyrene	1.169	1.219	31.290	30.0	4	
3-Methylcholanthrene	0.564	0.625	33.210	30.0	11	
Dibenz(a,h)acridine	0.873	0.913	31.350	30.0	5	✓
Dibenz(a,j)acridine	0.964	1.008	31.390	30.0	5	✓
Indeno(1,2,3-cd)pyrene	1.235	1.340	32.550	30.0	8	
Dibenz(a,h)anthracene	1.024	1.136	33.280	30.0	11	
Benzo(g,h,i)perylene	1.020	1.142	33.590	30.0	12	
Total PAHs	1.140	1.146	565.180	540.0	5	
2-Fluorophenol	1.579	1.616	61.410	60.0	2	
Phenol-d6	2.359	2.321	59.020	60.0	-2	

FORM VII SV-1

7C cont
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date: 03/20/18 Time: 22:47

Lab File ID: gc0741b.d Init. Calib. Date(s): 02/23/18 02/24/18

Init. Calib. Times(s): 22:35 02:01

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Nitrobenzene-d5	0.463	0.455	58.830	60.0	-2
2-Fluorobiphenyl	1.267	1.355	64.150	60.0	7
2,4,6-Tribromophenol	0.159	0.178	67.050	60.0	12
Terphenyl-d14	0.775	0.836	64.710	60.0	8
			Average %Drift:		7

FORM VII SV-1

Continuing Calibration
Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP11165.i/18feb23a.b/gb1371.d **
/chem/HP11165.i/18feb23a.b/gb1372.d
/chem/HP11165.i/18feb23a.b/gb1373.d
/chem/HP11165.i/18feb23a.b/gb1374.d
/chem/HP11165.i/18feb23a.b/gb1375.d
/chem/HP11165.i/18feb23a.b/gb1376.d
/chem/HP11165.i/18feb23a.b/gb1377.d
/chem/HP11165.i/18feb23a.b/gb1378.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP11165.i/18mar20a.b/gc0741b.d

Area Summary

Internal Standard Name	File ID: gc0741b.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	187283	190987	95494	381974	Yes
Naphthalene-d8	857644	919694	459847	1839388	Yes
Acenaphthene-d10	557720	600348	300174	1200696	Yes
Phenanthrene-d10	1042365	1174214	587107	2348428	Yes
Pyrene-d10	1146730	1253093	626546	2506186	Yes
Perylene-d12	938815	960013	480006	1920026	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

Internal Standard Name	File ID: gc0741b.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	4.845	5.681	No
Naphthalene-d8	6.081	6.916	No
Acenaphthene-d10	7.781	8.633	No
Phenanthrene-d10	9.216	10.098	No
Pyrene-d10	10.580	11.492	No
Perylene-d12	13.121	14.168	No

A "No" indicates the retention time is greater than 10 seconds from the RT of the referenced standard.

Comments: (2) Column maintenance
BC 233633 3/20/18

Report generated on 03/20/2018 at 23:15

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP11165 Calibration Date: 03/20/18 Time: 21:48

Lab File ID: gc0742.d Init. Calib. Date(s): 02/24/18 02/24/18

Init. Calib. Times(s): 03:44 05:52

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Benzaldehyde	1.747	1.622	46.410	50.0	-7
Atrazine	0.206	0.229	55.510	50.0	11
			Average %Drift:		9

FORM VII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): gc0741b.d Date Analyzed: 03/20/18

Instrument ID: HP11165 Time Analyzed: 22:47

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	187283	4.845	857644	6.081	557720	7.781
	UPPER LIMIT	374566	5.345	1715288	6.581	1115440	8.281
	LOWER LIMIT	93642	4.345	428822	5.581	278860	7.281
	LLI SAMPLE NO.						
01	SBLKLF078	204298	4.846	839566	6.081	533151	7.775
02	078LFLCS	207497	4.851	914457	6.081	564072	7.781
03	9498429RE	182481	4.845	824523	6.081	541146	7.775
04	9498435	214912	4.851	957065	6.081	575370	7.775
05	9500923	218206	4.851	933306	6.081	572240	7.781
06	9501669	215581	4.851	906318	6.081	558173	7.775
07	9501673	209955	4.851	902563	6.081	543985	7.781
08	9501674MS	218766	4.851	955873	6.087	583371	7.781
09	9501675MSD	225667	4.851	986438	6.087	605303	7.781
10	9501693	241165	4.851	1033091	6.081	603753	7.781
11	9501711	206654	4.851	871502	6.081	532199	7.781

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): gc0741b.d Date Analyzed: 03/20/18

Instrument ID: HP11165 Time Analyzed: 22:47

	IS4(PHN)		IS5(PYR)		IS6(PRY)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	1042365	9.216	1146730	10.580	938815	13.121
UPPER LIMIT	2084730	9.716	2293460	11.080	1877630	13.621
LOWER LIMIT	521183	8.716	573365	10.080	469408	12.621
LLI SAMPLE NO.						
01 SBLKLF078	1078199	9.210	1155141	10.575	892219	13.121
02 078LFLCS	1004370	9.210	1032468	10.581	760748	13.122
03 9498429RE	991293	9.210	1027504	10.580	760220	13.127
04 9498435	956919	9.210	881636	10.586	665399	13.133
05 9500923	1001041	9.210	965851	10.580	679354	13.127
06 9501669	931069	9.210	880337	10.580	655289	13.127
07 9501673	921033	9.210	858293	10.580	615769	13.127
08 9501674MS	971331	9.216	900532	10.586	642635	13.133
09 9501675MSD	993687	9.216	940811	10.586	668185	13.133
10 9501693	960206	9.216	905234	10.586	736819	13.139
11 9501711	907828	9.216	886164	10.586	658330	13.133

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP11165 **HP #07**

Data Directory Path is - C:\msdchem\1\data\18mar20a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
bkc25363	GC0740.D	DFTPP0798	03/20/2018	21:05		
bkc25363	GC0741.D	STD0798	03/20/2018	21:24		
bkc25363	GC0742.D	BAS0038	03/20/2018	21:48		
bkc25363	GC0741a.D	STD0388	03/20/2018	22:11		
bkc25363	GC0741b.D	STD0798	03/20/2018	22:47		
bkc25363	GC0743a.D	SBLKLH078	03/20/2018	23:45	18078SLH	
bkc25363	GC0743.D	SBLKLH078	03/21/2018	00:08	18078SLH	
bkc25363	GC0744.D	078LHLCS	03/21/2018	00:31	18078SLH	
bkc25363	GC0745.D	SBLKLF078	03/21/2018	00:55	18078SLF	
bkc25363	GC0746.D	078LFLCS	03/21/2018	01:18	18078SLF	
bkc25363	GC0747.D	9493934RE	03/21/2018	01:42	18078SLH	5
bkc25363	GC0748.D	9493934	03/21/2018	02:05	18078SLH	5
bkc25363	GC0749.D	9493934	03/21/2018	02:28	18078SLH	5
bkc25363	GC0750.D	9498429RE	03/21/2018	02:52	18078SLF	5
bkc25363	GC0751.D	9498435RE	03/21/2018	03:15	18078SLF	
bkc25363	GC0752.D	9500923RE	03/21/2018	03:39	18078SLF	
bkc25363	GC0753.D	9501669	03/21/2018	04:02	18078SLF	
bkc25363	GC0754.D	9501673	03/21/2018	04:26	18078SLF	
bkc25363	GC0755.D	9501674	03/21/2018	04:49	18078SLF	
bkc25363	GC0756.D	9501675	03/21/2018	05:13	18078SLF	
bkc25363	GC0757.D	9501693	03/21/2018	05:36	18078SLF	
bkc25363	GC0758.D	9501711	03/21/2018	05:59	18078SLF	

Organic Extraction Batchlog Assigned to: 504 Sally Appleyard Reviewed by: 03/15/18 Start Date: 3/14/18 Start time: 18:30

18073SLB026 Tech 1: SLA-504 Tech 2:

Dept: 26 Prep Analysis: 10813 BNA Soil Microwave APP IX SVOA 8270D (microwave)

QC	Sample Code	Amt	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
9498430MSD	TT27CMSD	30.34	SS1805126A	1.0	MS1804526A ~~MS1805426A~~ MS1805926A	1.0 1.0 1.0	1.0	Z	Z	301c	
9498430MS	TT27CMS	30.23	SS1805126A	1.0	MS1804526A ~~MS1805426A~~ MS1805926A	1.0 1.0 1.0	1.0	Z	Z	301b	
BLANKA	SBLKLB073	30.0	SS1805126A	1.0			1.0	Z	Z		
LCSA	073LBLCS	30.0	SS1805126A	1.0	MS1804526A ~~MS1805426A~~ MS1805926A	1.0 1.0 1.0	1.0	Z	Z		

Solvent Used	Lot No.
1:1 Methylene Chloride/Acetone	244700362/84
Methylene Chloride	15105
Sodium Sulfate	180704

SLA 504 3/14/18

Used New LCS Spike Mix #2 SLA/504 3/14/18

MS1807126B

Spike Solutions: Witness:

MS1805926A APPIX MIX #1
MS1805426A LCS SPIKE MIX #1
~~MS1804526A~~ 0 LCS SPIKE MIX #2
SS1805126A BNA SURROGATE STANDARD

Sample #	Sample Code	Amt	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1 9498429	TT27S	30.04	SS1805126A	1.0	1.0	Z	Z	301A	Soil;Gritty;Brown	10726	23604	03/22/2018	N
2 9498430	TT27C	30.15	SS1805126A	1.0	1.0	Z	Z	301a	Soil;Gritty;Grey;Brown	10726	23604	03/22/2018	N
3 9498431	TT27E	30.04	SS1805126A	1.0	1.0	Z	Z	301A	Clay;Grey	10726	23604	03/22/2018	N
4 9498432	TT25C	30.13	SS1805126A	1.0	1.0	Z	Z	301A	Clay;Brown	10726	23604	03/22/2018	N
5 9498433	TT25D	30.41	SS1805126A	1.0	1.0	Z	Z	301A	Clay;Grey	10726	23604	03/22/2018	N
6 9498434	TT41S	30.09	SS1805126A	1.0	1.0	Z	Z	301A	Soil;Gritty;Black	10726	23604	03/22/2018	N
7 9498435	TT41A	30.50	SS1805126A	1.0	1.0	Z	Z	301A	Soil;Gritty;Brown	10726	23604	03/22/2018	N
8 9498436	TT41D	30.31	SS1805126A	1.0	1.0	Z	Z	301A	Soil;Gritty;Brown	10726	23604	03/22/2018	N
9 9500920	98FD1	30.28	SS1805126A	1.0	1.0	Z	Z	301A	Soil;Wet;Sandy;Rocks;Brown	10726	19143	03/22/2018	S
10 9500921	98070	30.24	SS1805126A	1.0	1.0	Z	Z	301a	Soil;Wet;Sandy;Rocks;Brown	10726	19143	03/22/2018	S
11 9500922	98710	30.25	SS1805126A	1.0	1.0	Z	Z	301A	Soil;Sandy;Rocks;Brown	10726	19143	03/22/2018	S
12 9500923	98715	30.32	SS1805126A	1.0	1.0	Z	Z	301A	Soil;Wet;Sandy;Rocks;Brown	10726	19143	03/22/2018	S

SNB98 Page 1085 of 2382

SLA 3/14/18 WA

Bench#	Bench#	Bench#		
Rack ID:		Work Station	Micro	Micro Temp 100? ✓
Internal Standard	LL9796 ✓	Balance #		

R-VAP ID	C	R-VAP ID	C	R-VAP ID	C			
S-bath ID 5	97 C	S-bath ID	C	N-Evap	C	M-vap	C	18073SLB026

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

Organic Extraction Batchlog Assigned to: 9874 Kayla Yuditsky Reviewed by: BG93563 8-20-18 Start Date: 3/20/18 Start time: 8:00

18078SLF026 Tech 1: ky 9874 Tech 2:

Dept: 26 Prep Analysis: 10813 BNA Soil Microwave APP IX SVOA 8270D (microwave)

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
9501674MS	C3402	30.16	SS1805126A	1	MS1805426A MS1805926A MS1807126B	1 1 1	1	Z	Z	301A	brown Soil
9501675MSD	C3402	30.3	SS1805126A	1	MS1805426A MS1805926A MS1807126B	1 1 1	1	Z	Z	034a	brown Soil
BLANKA	SBLKLF078	30.0	SS1805126A	1			1	Z	Z	Z	Na2SO4
LCSA	078LFLCS	30.0	SS1805126A	1	MS1805426A MS1805926A MS1807126B	1 1 1	1	Z	Z	Z	Na2SO4

Solvent Used	Lot No.
1:1 Methylene Chloride/Acetone	9874032018A
Methylene Chloride	180785
Sodium Sulfate	18078A

Spike Solutions: Witness:

MS1805926A	APPIX MIX #1
MS1805426A	LCS SPIKE MIX #1
MS1807126B	LCS SPIKE MIX #2
SS1805126A	BNA SURROGATE STANDARD

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1 9498429 R	TT27S	30.4	SS1805126A	1	1	Z	Z	34A	black Soil	10726	23604	03/22/2018	N
2 9498435 R	TT41A	30.5	SS1805126A	1	1	Z	Z	34A	brown Soil	10726	23604	03/22/2018	N
3 9500923 R	98715	30.2	SS1805126A	1	1	Z	Z	36A	gritty Soil	10726	19143	03/22/2018	S
4 9501669BKG	C3302	30.42	SS1805126A	1	1	Z	Z	301A	Soil;Brown	10726	19836	03/23/2018	N
5 9501673BKG	C3402	30.50	SS1805126A	1	1	Z	Z	301A	Soil;Brown	10726	26789	03/23/2018	N
6 9501693	C4002	30.31	SS1805126A	1	1	Z	Z	301A	Soil;Rocks;Black	10726	22391	03/23/2018	N
7 9501711	CFD01	30.22	SS1805126A	1	1	Z	Z	301A	Soil;Brown	10726	26789	03/23/2018	N

SNB98 Page 1086 of 2382

N/A

Bench#	Bench#	Bench#		
Rack ID:		Work Station	Micro	Micro Temp 100? ✓
Internal Standard	IC1A796V	Balance #	25996	

R-VAP ID	C	R-VAP ID	C	R-VAP ID	C			
S-bath ID 5	95 C	S-bath ID	C	N-Evap	C	M-vap	C	18078SLF026

DF = Dilution Factor FV = Final Volume Page 1 of 1

Documented temps are NIST corrected.

eurofins | Lancaster Laboratories Environmental

Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SNB98

ICP Metals

Fraction: Metals in Solid

Sample #	Client ID	Matrix Liquid	Matrix Solid	Comments
9500920	SG3a-FD01-180312		X	Field Duplicate Sample
9500921	SG3a-SB18-07-0.0-1.0		X	
9500922	SG3a-SB18-07-10.0-11.0		X	
9500923	SG3a-SB18-07-15.0-18.0		X	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Method Blank

For noncompliant preparation/method blanks, corrective action is not required if the sample is ND or > 10 times the blank concentration, unless otherwise specified in the method or by the client.

MS/MSD

Method defined actions are taken for any failed matrix QC.

Batch#: 180731063701D (Sample number(s): 9500920-9500923, UNSPK: 9500921, BKG: 9500921)
The recovery(ies) for the following analyte(s) in the MS and MSD exceeded the acceptance window indicating a positive bias: Barium

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SNB98

ICP Metals

Fraction: Metals in Solid

Batch#: 180731063701A (Sample number(s): 9500920-9500923, UNSPK: 9500921, BKG: 9500921)
The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Vanadium
The recovery(ies) for the following analyte(s) in the MSD were below the acceptance window: Arsenic, Lead, Nickel
The recovery(ies) for the following analyte(s) in the MS and MSD were below the acceptance window: Antimony

Batch#: 180731063701 (Sample number(s): 9500920-9500923, UNSPK: 9500921, BKG: 9500921)
The relative percent difference(s) for the following analyte(s) in the MS/MSD is outside the acceptance window: Calcium, Manganese
The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Calcium, Magnesium, Manganese
The recovery(ies) for the following analyte(s) in the MSD exceeded the acceptance window indicating a positive bias:Calcium, Magnesium, Manganese
The recovery(ies) for the following analyte(s) in the MS and MSD were below the acceptance window: Iron
The recovery(ies) for the following analyte(s) in the MS and MSD exceeded the acceptance window indicating a positive bias: Aluminum, Potassium

Sample Duplicate

Batch#: 180731063701A (Sample number(s): 9500920-9500923, UNSPK: 9500921, BKG: 9500921)
The duplicate RPD for the following analyte(s) is outside the acceptance window: Silver

Batch#: 180731063701 (Sample number(s): 9500920-9500923, UNSPK: 9500921, BKG: 9500921)
The duplicate RPD for the following analyte(s) is outside the acceptance window: Calcium

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

Refer to analysis run log for samples requiring dilutions.

The instrument detection limits (IDLs) are used for determining the U flags on the initial and continuing calibration blanks. The highest IDL is selected when multiple instruments are used for an analysis. The method detection limits (MDLs) are used for determining all other U flags.

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: SNB98
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 9500920
Concentration Units: MG/KG

% Solids: 86.5
Date Received: 03/13/2018

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7930			P
7440-36-0	Antimony	0.078	B		MS
7440-38-2	Arsenic	6.5			MS
7440-39-3	Barium	60.4			MS
7440-41-7	Beryllium	0.34			MS
7440-43-9	Cadmium	0.23			MS
7440-70-2	Calcium	34800			P
7440-47-3	Chromium	11.0			MS
7440-48-4	Cobalt	10.7			MS
7440-50-8	Copper	17.0			MS
7439-89-6	Iron	20900			P
7439-92-1	Lead	30.6			MS
7439-95-4	Magnesium	19200			P
7439-96-5	Manganese	810			P
7439-97-6	Mercury	0.63			CV
7440-02-0	Nickel	19.5			MS
7440-09-7	Potassium	632			P
7782-49-2	Selenium	0.24	B		MS
7440-22-4	Silver	0.16			MS
7440-23-5	Sodium	55.8	B		P
7440-28-0	Thallium	0.094	B		MS
7440-62-2	Vanadium	9.6			MS
7440-66-6	Zinc	79.5			P

Comments:

_____
_____
_____
_____

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: SNB98
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 9500921, 9500921BKG % Solids: 93.9
Concentration Units: MG/KG Date Received: 03/13/2018

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12400			P
7440-36-0	Antimony	0.089	B		MS
7440-38-2	Arsenic	9.4			MS
7440-39-3	Barium	39.7			MS
7440-41-7	Beryllium	0.40			MS
7440-43-9	Cadmium	0.17	B		MS
7440-70-2	Calcium	14200			P
7440-47-3	Chromium	13.4			MS
7440-48-4	Cobalt	14.1			MS
7440-50-8	Copper	29.2			MS
7439-89-6	Iron	32000			P
7439-92-1	Lead	13.7			MS
7439-95-4	Magnesium	10800			P
7439-96-5	Manganese	643			P
7439-97-6	Mercury	0.015	B		CV
7440-02-0	Nickel	28.6			MS
7440-09-7	Potassium	1660			P
7782-49-2	Selenium	0.23	B		MS
7440-22-4	Silver	0.056	B		MS
7440-23-5	Sodium	109	B		P
7440-28-0	Thallium	0.057	B		MS
7440-62-2	Vanadium	13.8			MS
7440-66-6	Zinc	69.6			P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: SNB98
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 9500922 % Solids: 91.4
Concentration Units: MG/KG Date Received: 03/13/2018

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9430			P
7440-36-0	Antimony	0.084	U		MS
7440-38-2	Arsenic	5.8			MS
7440-39-3	Barium	38.0			MS
7440-41-7	Beryllium	0.30			MS
7440-43-9	Cadmium	0.15	B		MS
7440-70-2	Calcium	57600			P
7440-47-3	Chromium	15.9			MS
7440-48-4	Cobalt	8.5			MS
7440-50-8	Copper	19.6			MS
7439-89-6	Iron	21100			P
7439-92-1	Lead	12.8			MS
7439-95-4	Magnesium	34100			P
7439-96-5	Manganese	681			P
7439-97-6	Mercury	0.13			CV
7440-02-0	Nickel	17.9			MS
7440-09-7	Potassium	1240			P
7782-49-2	Selenium	0.17	B		MS
7440-22-4	Silver	0.052	B		MS
7440-23-5	Sodium	81.8	B		P
7440-28-0	Thallium	0.070	B		MS
7440-62-2	Vanadium	11.7			MS
7440-66-6	Zinc	62.3			P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: SNB98
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 9500923 % Solids: 89.9
Concentration Units: MG/KG Date Received: 03/13/2018

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7970			P
7440-36-0	Antimony	0.12	B		MS
7440-38-2	Arsenic	10.0			MS
7440-39-3	Barium	62.9			MS
7440-41-7	Beryllium	0.32			MS
7440-43-9	Cadmium	0.28			MS
7440-70-2	Calcium	24200			P
7440-47-3	Chromium	11.9			MS
7440-48-4	Cobalt	11.7			MS
7440-50-8	Copper	20.8			MS
7439-89-6	Iron	21000			P
7439-92-1	Lead	54.4			MS
7439-95-4	Magnesium	14900			P
7439-96-5	Manganese	837			P
7439-97-6	Mercury	0.35			CV
7440-02-0	Nickel	19.9			MS
7440-09-7	Potassium	577			P
7782-49-2	Selenium	0.39	B		MS
7440-22-4	Silver	0.17			MS
7440-23-5	Sodium	50.9	B		P
7440-28-0	Thallium	0.11	B		MS
7440-62-2	Vanadium	9.9			MS
7440-66-6	Zinc	88.3			P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY CONTROL REFERENCE LIST

SDG No.: SNB98
Matrix: SOIL

Analyte	Batch Number	Lab Sample ID
Aluminum	180731063701	9500920
Calcium		9500921BKG
Iron		9500921MS
Magnesium		9500921MSD
Manganese		9500921DUP
Potassium		9500922
Sodium		9500923
Zinc		P07363AB
		P07363AQ

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY CONTROL REFERENCE LIST

SDG No.: SNB98
Matrix: SOIL

Analyte	Batch Number	Lab Sample ID
Antimony	180731063701	9500920
Arsenic		9500921BKG
Barium		9500921MS
Beryllium		9500921MSD
Cadmium		9500921DUP
Chromium		9500922
Cobalt		9500923
Copper		P07363AB
Lead		P07363AQ
Nickel		
Selenium		
Silver		
Thallium		
Vanadium		

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY CONTROL REFERENCE LIST

SDG No.: SNB98
Matrix: SOIL

Analyte	Batch Number	Lab Sample ID
Mercury	180751063801	9500920
		9500921
		9500922
		9500923
		*01669BKG
		P07563AB
		P07563AQ

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SNB98

Method: P
Run Name: 1807702T70
Calibration Date(s): 03/18/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration			Continuing Calibration					
		True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Aluminum		30000.0	29626.03	98.8	25000.0	25274.61	101.1	25000.0	25142.98	100.6
Calcium		30000.0	29501.96	98.3	25000.0	25126.51	100.5	25000.0	25456.88	101.8
Iron		30000.0	29417.61	98.1	25000.0	25227.71	100.9	25000.0	25079.53	100.3
Magnesium		30000.0	29539.25	98.5	25000.0	25066.51	100.3	25000.0	25183.06	100.7
Manganese		600.0	589.79	98.3	500.0	509.84	102.0	500.0	506.77	101.4
Potassium		30000.0	29626.42	98.8	25000.0	24940.51	99.8	25000.0	25479.04	101.9
Sodium		30000.0	28553.98	95.2	25000.0	25083.90	100.3	25000.0	25301.83	101.2
Zinc		600.0	590.52	98.4	500.0	509.03	101.8	500.0	515.64	103.1

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SNB98

Method: P
Run Name: 1807702T70
Calibration Date(s): 03/18/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Aluminum					25000.0	25537.39	102.1			
Calcium					25000.0	25574.90	102.3			
Iron					25000.0	25154.01	100.6			
Magnesium					25000.0	25268.77	101.1			
Manganese					500.0	509.44	101.9			
Potassium					25000.0	25362.13	101.4			
Sodium					25000.0	25513.17	102.1			
Zinc					500.0	520.91	104.2			

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SNB98

Method: P
Run Name: 1807902T75
Calibration Date(s): 03/20/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Aluminum										
Calcium										
Iron		30000.0	29292.56	97.6	25000.0	24912.85	99.7	25000.0	24469.07	97.9
Magnesium		30000.0	29138.90	97.1	25000.0	24618.11	98.5	25000.0	23833.87	95.3
Manganese										
Potassium										
Sodium										
Zinc										

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SNB98

Method: P
Run Name: 1807902T75
Calibration Date(s): 03/20/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Aluminum										
Calcium										
Iron					25000.0	24446.11	97.8			
Magnesium					25000.0	24167.10	96.7			
Manganese										
Potassium										
Sodium										
Zinc										

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SNB98

Method: P
Run Name: 1807906T74
Calibration Date(s): 03/20/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Aluminum										
Calcium		30000.0	29243.09	97.5	25000.0	24593.88	98.4	25000.0	25098.97	100.4
Iron										
Magnesium										
Manganese										
Potassium										
Sodium										
Zinc										

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SNB98

Method: P
Run Name: 1807906T74
Calibration Date(s): 03/20/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Aluminum										
Calcium					25000.0	24967.19	99.9	25000.0	24764.32	99.1
Iron										
Magnesium										
Manganese										
Potassium										
Sodium										
Zinc										

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SNB98

Method: MS
Run Name: 1807805E05
Calibration Date(s): 03/19/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Antimony	121	50.0	52.89	105.8	25.0	25.61	102.4	25.0	25.71	102.8
Arsenic	75	500.0	521.94	104.4	250.0	258.53	103.4	250.0	255.02	102.0
Barium	137	500.0	518.02	103.6	250.0	256.75	102.7	250.0	248.15	99.3
Beryllium	9	50.0	52.61	105.2	25.0	24.96	99.8	25.0	24.73	98.9
Cadmium	111	50.0	51.96	103.9	25.0	26.00	104.0	25.0	25.26	101.0
Chromium	52	500.0	503.40	100.7	250.0	260.64	104.3	250.0	257.82	103.1
Cobalt	59	500.0	530.04	106.0	250.0	267.08	106.8	250.0	262.88	105.2
Copper	63	500.0	522.15	104.4	250.0	258.80	103.5	250.0	258.26	103.3
Lead	208	50.0	53.03	106.1	25.0	26.24	105.0	25.0	25.85	103.4
Nickel	60	500.0	526.28	105.3	250.0	262.88	105.2	250.0	256.57	102.6
Selenium	78	50.0	53.32	106.6	25.0	25.88	103.5	25.0	25.71	102.8
Silver	107	50.0	52.72	105.4	25.0	25.64	102.6	25.0	25.24	101.0
Thallium	203	50.0	53.35	106.7	25.0	26.65	106.6	25.0	26.71	106.8
Vanadium	51	500.0	503.43	100.7	250.0	257.67	103.1	250.0	255.25	102.1

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SNB98

Method: MS
Run Name: 1807805E05
Calibration Date(s): 03/19/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Antimony	121				25.0	24.52	98.1			
Arsenic	75				250.0	254.79	101.9			
Barium	137				250.0	248.24	99.3			
Beryllium	9				25.0	24.50	98.0			
Cadmium	111				25.0	24.72	98.9			
Chromium	52				250.0	248.82	99.5			
Cobalt	59				250.0	260.20	104.1			
Copper	63				250.0	256.80	102.7			
Lead	208				25.0	26.33	105.3			
Nickel	60				250.0	258.08	103.2			
Selenium	78				25.0	25.63	102.5			
Silver	107				25.0	25.42	101.7			
Thallium	203				25.0	26.39	105.6			
Vanadium	51				250.0	247.53	99.0			

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SNB98

Method: CV
Run Name: 1807802M08
Calibration Date(s): 03/19/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Mercury		2.5	2.36	94.4	1.0	1.03	103.0	1.0	1.02	102.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: SNB98

Method: CV
Run Name: 1807802M08
Calibration Date(s): 03/19/2018
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Mercury					1.0	1.04	104.0	1.0	1.00	100.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120
* Outside Limits. If Continuing Calibration is outside limits, high, only ND samples are accepted.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: SNB98

Method: P
Run Name: 1807702T70
Calibration Date(s): 03/18/2018
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Aluminum		400.0	357.96	89.5	395.62	98.9
Calcium		400.0	401.23	100.3	508.51	127.1
Iron		400.0	419.65	104.9	467.58	116.9
Magnesium		200.0	208.87	104.4	271.92	136.0
Manganese		10.0	10.84	108.4	12.34	123.4
Potassium		1000.0	1029.19	102.9	981.22	98.1
Sodium		2000.0	2090.97	104.5	2119.97	106.0
Zinc		40.0	40.05	100.1	41.53	103.8

results > 3x spike
no impact

Control limits: 70% - 130%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: SNB98

Method: P
Run Name: 1807902T75
Calibration Date(s): 03/20/2018
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Aluminum						
Calcium						
Iron		400.0	438.57	109.6	458.11	114.5
Magnesium		200.0	204.23	102.1	211.61	105.8
Manganese						
Potassium						
Sodium						
Zinc						

Control limits: 70% - 130%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: SNB98

Method: P
Run Name: 1807906T74
Calibration Date(s): 03/20/2018
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Aluminum						
Calcium		400.0	400.50	100.1	400.07	100.0
Iron						
Magnesium						
Manganese						
Potassium						
Sodium						
Zinc						

Control limits: 70% - 130%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: SNB98

Method: MS
Run Name: 1807805E05
Calibration Date(s): 03/19/2018
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Antimony	121	2.0	1.80	90.0	2.02	101.0
Arsenic	75	4.0	4.59	114.8	3.66	91.5
Barium	137	4.0	4.36	109.0	4.51	112.8
Beryllium	9	1.0	1.08	108.0	1.02	102.0
Cadmium	111	1.0	0.98	98.0	1.00	100.0
Chromium	52	4.0	4.53	113.3	4.44	111.0
Cobalt	59	1.0	1.10	110.0	1.14	114.0
Copper	63	4.0	4.36	109.0	4.10	102.5
Lead	208	2.0	2.16	108.0	2.26	113.0
Nickel	60	4.0	4.14	103.5	3.79	94.8
Selenium	78	4.0	4.23	105.8	4.23	105.8
Silver	107	1.0	1.09	109.0	0.99	99.0
Thallium	203	1.0	1.09	109.0	1.16	116.0
Vanadium	51	1.0	1.04	104.0	1.14	114.0

Control limits: 70% - 130%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: SNB98

Method: CV
Run Name: 1807802M08
Calibration Date(s): 03/19/2018
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Mercury		0.2	0.19	95.0		

Control limits: 70% - 130%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: SNB98

Method: P
Run Name: 1807702T70
Calibration Date(s): 03/18/2018
Preparation Blank Matrix: SOIL I II III

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (MG/KG) Mass		C	Batch Number
Aluminum		76.0	U	~~76.0~~	U	76.0	U	76.0	U		~~8.900~~	U	180731063701
Calcium		33.4	U	57.4	B	41.4	B	36.8	B		4.873	B	180731063701
Iron		33.4	U	33.4	U	33.4	U	33.4	U		~~8.100~~	U	180731063701
Magnesium		16.7	U	61.3	B	21.9	B	38.3	B		2.400	U	180731063701
Manganese		0.83	U	0.83	U	5.3	B	0.83	U		0.468	B	180731063701
Potassium		156	U	156	U	156	U	156	U		16.700	U	180731063701
Sodium		167	U	167	U	167	U	167	U		16.700	U	180731063701
Zinc		2.0	U	2.0	U	2.0	U	2.0	U		1.788	B	180731063701

	µg/L	x 5	mg/L
Ca	57.4	.287	
	4873	24,365	
Mg	61.3	.306.5	
Mn	468	2,340	
Zn	1788	8,940	

all > 5x

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: SNB98

Method: P
Run Name: 1807902T75
Calibration Date(s): 03/20/2018

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (MG/KG) Mass		C	Batch Number
Aluminum													
Calcium													
Iron		33.4	U	33.4	U	33.4	U	33.4	U				
Magnesium		16.7	U	16.7	U	16.7	U	16.7	U				
Manganese													
Potassium													
Sodium													
Zinc													

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: SNB98

Method: P
Run Name: 1807906T74
Calibration Date(s): 03/20/2018

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (MG/KG) Mass		C	Batch Number
Aluminum													
Calcium		33.4	U	46.7	B	33.4	U	33.4	U				
Iron													
Magnesium													
Manganese													
Potassium													
Sodium													
Zinc													

x5
Ca 46.7 233.5 < [Sample]
58.0 290 "

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: SNB98

Method: P
Run Name: 1807906T74
Calibration Date(s): 03/20/2018

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (MG/KG) Mass		C	Batch Number
Aluminum													
Calcium				58.0	B								
Iron													
Magnesium													
Manganese													
Potassium													
Sodium													
Zinc													

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: SNB98

Method: MS
Run Name: 1807805E05
Calibration Date(s): 03/19/2018
Preparation Blank Matrix: SOIL

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (MG/KG) Mass		C	Batch Number
Antimony	121	0.42	B	0.34	U	0.34	U	0.34	U	121	0.093	U	180731063701A
Arsenic	75	0.40	U	0.40	U	0.40	U	0.40	U	75	0.130	U	180731063701A
Barium	137	0.97	U	0.97	U	0.97	U	0.97	U	137	0.180	U	180731063701A
Beryllium	9	0.046	U	0.046	U	0.046	U	0.046	U	9	0.010	U	180731063701A
Cadmium	111	0.18	U	0.18	U	0.18	U	0.18	U	111	0.034	U	180731063701A
Chromium	52	0.50	U	0.50	U	0.50	U	0.50	U	52	0.170	U	180731063701A
Cobalt	59	0.16	U	0.16	U	0.16	U	0.16	U	59	0.031	U	180731063701A
Copper	63	0.40	U	0.40	U	0.40	U	0.40	U	63	0.110	U	180731063701A
Lead	208	0.11	U	0.11	U	0.11	U	0.11	U	208	0.033	B	180731063701A
Nickel	60	0.57	U	0.57	U	0.57	U	0.57	U	60	0.200	U	180731063701A
Selenium	78	0.50	U	0.50	U	0.50	U	0.50	U	78	0.100	U	180731063701A
Silver	107	0.093	U	0.093	U	0.093	U	0.093	U	107	0.029	U	180731063701A
Thallium	203	0.087	U	0.087	U	0.087	U	0.087	U	203	0.025	U	180731063701A
Vanadium	51	0.16	U	0.16	U	0.16	U	0.16	U	51	0.043	U	180731063701A

ug/L ×5

Sb .42 2.1 < all samples

Pb 33 165

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: SNB98

Method: CV
Run Name: 1807802M08
Calibration Date(s): 03/19/2018
Preparation Blank Matrix: SOIL

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (MG/KG)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Batch Number
Mercury		0.050	U	0.050	U	0.050	U	0.050	U		0.010	U	180751063801

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: SNB98

Method: CV
Run Name: 1807802M08
Calibration Date(s): 03/19/2018

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (MG/KG) Mass		C	Batch Number
Mercury				0.050	U								

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: SNB98

Instrument ID: 11016
Run Name: 1807702T70
Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found %R	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found %R	Final Found Sol. AB	Final Found %R
Aluminum	500000	500000	502065	100.4	502599.9	100.5	504600	100.9	509160.7	101.8
Calcium	500000	500000	503705	100.7	503986.8	100.8	509292	101.9	515686.2	103.1
Iron	200000	200000	202679	101.3	203753.3	101.9	201697	100.8	203253.8	101.6
Magnesium	500000	500000	509811	102.0	512269.4	102.5	513860	102.8	513756.6	102.8
Manganese	0	500	4		499.8	100.0	5		502.9	100.6
Potassium	0	0	15		-3.0		-115		-112.0	
Sodium	0	0	94		115.8		66		74.5	
Zinc	0	1000	10		1043.6	104.4	10		1070.6	107.1

Control Limits: All Metals 80%-120%

2x MDL 5x

Mn 5 > 1.66 25 ug/L < all results ∴ no qual

K |-115| < 334 ∴ no qual

Na 115.8 < 334 ∴ no qual

Zn 10 > 4.8 50 ug/L < all results ∴ no qual

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: SNB98

Instrument ID: 23290
Run Name: 1807902T75
Concentration Units: ug/L

Analyte	True		Initial Found				Final Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R	Sol. A	%R	Sol. AB	%R
Aluminum	500000	500000	510981	102.2	496332.5	99.3	499212	99.8	487876.9	97.6
Calcium	500000	500000	507420	101.5	495209.8	99.0	498976	99.8	490384.0	98.1
Iron	200000	200000	201840	100.9	196208.7	98.1	196327	98.2	191718.4	95.9
Magnesium	500000	500000	515138	103.0	496199.4	99.2	503974	100.8	485104.3	97.0
Manganese										
Potassium										
Sodium										
Zinc										

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: SNB98

Instrument ID: 23745
Run Name: 1807906T74
Concentration Units: ug/L

Analyte	True		Initial Found				Final Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R	Sol. A	%R	Sol. AB	%R
Aluminum	500000	500000	484283	96.9	467492.5	93.5	467691	93.5	467362.2	93.5
Calcium	500000	500000	491071	98.2	476345.0	95.3	478536	95.7	479751.5	96.0
Iron	200000	200000	197198	98.6	190086.4	95.0	191024	95.5	191503.8	95.8
Magnesium	500000	500000	496067	99.2	477648.1	95.5	486764	97.4	483574.2	96.7
Manganese										
Potassium										
Sodium										
Zinc										

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4B
ICP-MS INTERFERENCE CHECK SAMPLE
SDG No.: SNB98

Instrument ID: 19204
Run Name: 1807805E05
Concentration Units: ug/L

Analyte	Mass	True		Found			
		Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R
Aluminum	27	100000	100000	97864	97.9	99626.5	99.6
Antimony	121	0	0	1		1.5	
Arsenic	75	0	100	0		116.3	116.3
Barium	137	0	0	1		1.1	
Beryllium	9	0	0	0		0.0	
Cadmium	111	0	100	0		106.1	106.1
Calcium	44	300000	300000	273459	91.2	275888.4	92.0
Carbon	13	20000	20000	NA		NA	
Chloride	37	100000	100000	NA		NA	
Chromium	52	0	200	2		211.4	105.7
Cobalt	59	0	205	1		227.0	110.7
Copper	63	0	200	1		217.4	108.7
Iron	57	250000	250000	242532	97.0	243095.7	97.2
Lead	208	0	0	0		0.3	
Magnesium	24	100000	100000	92155	92.2	92169.9	92.2
Molybdenum	98	2000	2000	2181	109.1	2239.9	112.0
Nickel	60	0	200	1		220.0	110.0
Phosphorus	31	10000	10000	NA		NA	
Potassium	39	100000	100000	100861	100.9	102488.5	102.5
Selenium	78	0	100	0		105.3	105.3
Silver	107	0	50	0		53.4	106.8
Sodium	23	250000	250000	243154	97.3	245601.6	98.2
Sulfur	34	10000	10000	NA		NA	
Thallium	203	0	0	0		0.1	
Titanium	47	2000	2000	2141	107.1	2133.0	106.7
Vanadium	51	0	200	0		215.3	107.7

Control Limits: All Metals 80%-120%

no eval

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QUALITY ASSURANCE SUMMARY
FORM 4B
ICP-MS INTERFERENCE CHECK SAMPLE
SDG No.: SNB98

Instrument ID: 19204
Run Name: 1807805E05
Concentration Units: ug/L

Analyte	Mass	True		Found			
		Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R
Aluminum	27	100000	100000	95223	95.2	99381.8	99.4
Antimony	121	0	0	1		1.1	
Arsenic	75	0	100	0		110.1	110.1
Barium	137	0	0	1		0.8	
Beryllium	9	0	0	0		0.0	
Cadmium	111	0	100	0		101.8	101.8
Calcium	44	300000	300000	275308	91.8	281765.4	93.9
Carbon	13	20000	20000	NA		NA	
Chloride	37	100000	100000	NA		NA	
Chromium	52	0	200	1		217.0	108.5
Cobalt	59	0	205	1		221.8	108.2
Copper	63	0	200	1		212.3	106.2
Iron	57	250000	250000	240047	96.0	246931.5	98.8
Lead	208	0	0	0		0.3	
Magnesium	24	100000	100000	90107	90.1	91753.8	91.8
Molybdenum	98	2000	2000	2187	109.4	2131.2	106.6
Nickel	60	0	200	1		216.8	108.4
Phosphorus	31	10000	10000	NA		NA	
Potassium	39	100000	100000	100304	100.3	102233.8	102.2
Selenium	78	0	100	0		104.0	104.0
Silver	107	0	50	0		50.6	101.2
Sodium	23	250000	250000	240780	96.3	244983.3	98.0
Sulfur	34	10000	10000	NA		NA	
Thallium	203	0	0	0		0.1	
Titanium	47	2000	2000	2144	107.2	2147.6	107.4
Vanadium	51	0	200	0		221.1	110.6

Control Limits: All Metals 80%-120%

no eval

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QUALITY ASSURANCE SUMMARY
FORM 5A(MS/MSD)
MATRIX SPIKE/MATRIX SPIKE DUPLICATE
SDG No.: SNB98
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 9500921BKG Matrix Spike Lab Sample ID: 9500921MS Matrix Spike Duplicate Lab Sample ID: 9500921MSD
Batch Number(s): 180731063701

Analyte	Mass	BKG Sample Result	C	MS Sample Result	C	MSD Sample Result	C	MS Spike Added	MSD Spike Added	Units	MS %R	Q	MSD %R	Q	RPD	Q	Control Limit %R	Control Limit RPD	M
Aluminum		11679.9772		13469.2692		14265.0422		192.3077	196.0784	MG/KG	930		1318		6			20	P
Antimony	121	0.0837	B	0.8469		0.8135		1.1538	1.1765	MG/KG	66	N	62	N	4		75 - 125	20	MS
Arsenic	75	8.8226		10.4927		8.5480		1.9231	1.9608	MG/KG	87		-14		20			20	MS
Barium	137	37.2839		57.5558		63.2594		9.6154	9.8039	MG/KG	211	N	265	N	9		75 - 125	20	MS
Beryllium	9	0.3722		1.1748		1.0669		0.7692	0.7843	MG/KG	104		89		10		75 - 125	20	MS
Cadmium	111	0.1613	B	1.0119		1.0622		0.9615	0.9804	MG/KG	88		92		5		75 - 125	20	MS
Calcium		13302.3675		10226.4769		17970.5765		384.6154	392.1569	MG/KG	-800		1190		55	*		20	P
Chromium	52	12.6133		23.0517		20.8567		9.6154	9.8039	MG/KG	109		84		10		75 - 125	20	MS
Cobalt	59	13.2541		61.2117		57.7247		48.0769	49.0196	MG/KG	100		91		6		75 - 125	20	MS
Copper	63	27.4498		37.7808		35.7410		9.6154	9.8039	MG/KG	107		85		6		75 - 125	20	MS
Iron		30093.9309		24581.0471		27622.1275		96.1538	98.0392	MG/KG	-5733		-2521		12			20	P
Lead	208	12.8633		16.4746		13.8722		2.8846	2.9412	MG/KG	125		34		17			20	MS
Magnesium		10148.2797		9810.3365		11964.1431		192.3077	196.0784	MG/KG	-176		926		20			20	P
Manganese		603.4724		637.2654		801.9794		48.0769	49.0196	MG/KG	70		405		23	*		20	P
Nickel	60	26.8489		35.2540		31.8988		9.6154	9.8039	MG/KG	87		52	N	10		75 - 125	20	MS
Potassium		1558.3455		3181.5096		3612.3706		961.5385	980.3922	MG/KG	169	N	210	N	13		75 - 125	20	P
Selenium	78	0.2190	B	2.0613		2.0106		1.9231	1.9608	MG/KG	96		91		2		75 - 125	20	MS
Silver	107	0.0528	B	9.4525		9.3192		9.6154	9.8039	MG/KG	98		95		1		75 - 125	20	MS
Sodium		102.4049	B	1038.3827		1065.3569		961.5385	980.3922	MG/KG	97		98		3		75 - 125	20	P
Thallium	203	0.0538	B	0.4146		0.4727		0.3846	0.3922	MG/KG	94		107		13		75 - 125	20	MS
Vanadium	51	12.9598		25.1708		22.4853		9.6154	9.8039	MG/KG	127	N	97		11		75 - 125	20	MS
Zinc		65.3171		104.3365		110.8716		48.0769	49.0196	MG/KG	81		93		6		75 - 125	20	P

Note: Results shown are reported on an as-received basis.
If Matrix Spike/ Matrix Spike Duplicate were out of specification, see Post Digestion Spike form.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL, B= Below LOQ
FLAGS:
N = Matrix Spike OOS, * = Duplicate OOS

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QUALITY ASSURANCE SUMMARY
FORM 5B
POST DIGEST SPIKE SAMPLE RECOVERY
SDG No.: SNB98
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 9500921BKG

Analyte	Mass	Sample Result(SR)	C	Spike Added(SA)	Spiked Sample Result(SSR)	C	SRR %R	Spiked Sample Duplicate(SSD)	C	SSD %R	M
Antimony	121	0.5150	B	2.0000	2.5810		103	NA	U	NA	MS
Barium	137	229.2960		4.0000	237.3540		201	NA	U	NA	MS
Nickel	60	165.1210		4.0000	170.6640		139	NA	U	NA	MS
Potassium		19167.6500		2000.0000	21038.8200		94	NA	U	NA	P
Vanadium	51	79.7030		1.0000	81.0740		137	NA	U	NA	MS

Comments: all > 4x Spike no eval (except Sb)

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 6
DUPLICATES
SDG No.: SNB98
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 9500921BKG
Duplicate Lab Sample ID: 9500921DUP
Batch Number(s): 180731063701
Concentration Units: MG/KG

Analyte	Mass	Control Limit	Samples (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum			11679.9772		11123.9212		5		P
Antimony	121		0.0837	B	0.0987	B	16		MS
Arsenic	75		8.8226		10.1206		14		MS
Barium	137		37.2839		39.5602		6		MS
Beryllium	9	0.2	0.3722		0.3438		8		MS
Cadmium	111		0.1613	B	0.1508	B	7		MS
Calcium			13302.3675		17239.7904		26	*	P
Chromium	52		12.6133		11.5269		9		MS
Cobalt	59		13.2541		11.3629		15		MS
Copper	63		27.4498		26.5392		3		MS
Iron			30093.9309		26207.6827		14		P
Lead	208		12.8633		12.9681		1		MS
Magnesium			10148.2797		10763.8577		6		P
Manganese			603.4724		630.7173		4		P
Nickel	60		26.8489		24.0129		11		MS
Potassium			1558.3455		1594.8481		2		P
Selenium	78		0.2190	B	0.2106	B	4		MS
Silver	107		0.0528	B	0.0313	B	51		MS
Sodium			102.4049	B	97.3779	B	5		P
Thallium	203		0.0538	B	0.0577	B	7		MS
Vanadium	51		12.9598		11.7721		10		MS
Zinc			65.3171		60.7683		7		P

NOTE: An asterisk (*) in column "Q" indicates poor duplicate precision (RPD > 20% OR |(S) - (D)| > LOQ for values < 5x LOQ).
The data are considered to be valid because the laboratory control sample is within the control limits. See the Laboratory Control Sample.

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

FLAGS:
* = Duplicate Out of Spec

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QUALITY ASSURANCE SUMMARY
FORM 7
LABORATORY CONTROL SAMPLE
SDG No.: SNB98
Matrix: SOIL

Analyte	Mass	Batch Number	Units	True	Found	C	Control Limits (%)	%R	M	In Spec
Aluminum		180731063701	MG/KG	200.000	191.823		80 - 120	96	P	Yes
Antimony	121	180731063701	MG/KG	0.600	0.501		80 - 120	84	MS	Yes
Arsenic	75	180731063701	MG/KG	1.000	0.940		80 - 120	94	MS	Yes
Barium	137	180731063701	MG/KG	5.000	4.590		80 - 120	92	MS	Yes
Beryllium	9	180731063701	MG/KG	0.400	0.393		80 - 120	98	MS	Yes
Cadmium	111	180731063701	MG/KG	0.500	0.536		80 - 120	107	MS	Yes
Calcium		180731063701	MG/KG	400.000	409.552		80 - 120	102	P	Yes
Chromium	52	180731063701	MG/KG	5.000	5.267		80 - 120	105	MS	Yes
Cobalt	59	180731063701	MG/KG	25.000	25.015		80 - 120	100	MS	Yes
Copper	63	180731063701	MG/KG	5.000	5.135		80 - 120	103	MS	Yes
Iron		180731063701	MG/KG	100.000	100.250		80 - 120	100	P	Yes
Lead	208	180731063701	MG/KG	1.500	1.516		80 - 120	101	MS	Yes
Magnesium		180731063701	MG/KG	200.000	202.402		80 - 120	101	P	Yes
Manganese		180731063701	MG/KG	50.000	51.426		80 - 120	103	P	Yes
Mercury		180751063801	MG/KG	0.100	0.086		80 - 120	86	CV	Yes
Nickel	60	180731063701	MG/KG	5.000	5.089		80 - 120	102	MS	Yes
Potassium		180731063701	MG/KG	1000.000	1011.375		80 - 120	101	P	Yes
Selenium	78	180731063701	MG/KG	1.000	0.984		80 - 120	98	MS	Yes
Silver	107	180731063701	MG/KG	5.000	4.953		80 - 120	99	MS	Yes
Sodium		180731063701	MG/KG	1000.000	1020.661		80 - 120	102	P	Yes
Thallium	203	180731063701	MG/KG	0.200	0.162	B	80 - 120	81	MS	Yes
Vanadium	51	180731063701	MG/KG	5.000	4.901		80 - 120	98	MS	Yes
Zinc		180731063701	MG/KG	50.000	54.086		80 - 120	108	P	Yes

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 9
SERIAL DILUTIONS
SDG No.: SNB98
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 9500921BKG Serial Dilution Lab Sample ID: 9500921L
Batch Number(s): 180731063701
Concentration Units: UG/L

Analyte	Mass	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Diff.	Q	M
Aluminum		143663.7200		150789.8000		5		P
Antimony	121	0.5150	B	2.3300	U	100		MS
Arsenic	75	54.2590		54.4350		0		MS
Barium	137	229.2960		221.9800		3		MS
Beryllium	9	2.2890		2.3700	B	4		MS
Cadmium	111	0.9920	B	1.1800	B	19		MS
Calcium		163619.1200		170954.5500		4		P
Chromium	52	77.5720		88.3450		14		MS
Cobalt	59	81.5130		81.6000		0		MS
Copper	63	168.8160		175.3400		4		MS
Iron		74031.0700		72349.2500		2		P
Lead	208	79.1090		87.3050		10		MS
Magnesium		124823.8400		128846.1000		3		P
Manganese		7422.7100		7999.1000		8		P
Nickel	60	165.1210		173.3400		5		MS
Potassium		19167.6500		19734.1500		3		P
Selenium	78	1.3470	B	2.5000	U	100		MS
Silver	107	0.3250	B	0.7300	U	100		MS
Sodium		1259.5800	B	1396.7000	B	11		P
Thallium	203	0.3310	B	0.6250	U	100		MS
Vanadium	51	79.7030		88.9250		12	E	MS
Zinc		803.4000		841.0500		5		P

NOTE: An E in column Q indicates the presence of a chemical or physical interference in the matrix when the % difference is greater than 10%. This applies only when (I) is greater than or equal to 50x MDL for ICP, 100x MDL for ICP-MS (6020), 50x MDL for ICP-MS (200.8), or 25x MDL for GFAA.

MDL

V .21 79 > 21

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ
FLAGS:
E = Matrix Effects exist as proven by Serial Dilution or Spiked Dilution

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: SNB98

Method: P
Instrument ID: 11016
Date: 01/2018

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Aluminum	308.21		76.0
Calcium	317.93		33.4
Iron	261.19		33.4
Magnesium	285.21		16.7
Manganese	257.61		0.83
Potassium	766.49		156
Sodium	589.59		167
Zinc	213.86		2.0

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: SNB98

Method: P
Instrument ID: 23290
Date: 01/2018

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Aluminum			
Calcium			
Iron	261.19		33.4
Magnesium	285.21		16.7
Manganese			
Potassium			
Sodium			
Zinc			

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: SNB98

Method: P
Instrument ID: 23745
Date: 01/2018

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Aluminum			
Calcium	317.93		33.4
Iron			
Magnesium			
Manganese			
Potassium			
Sodium			
Zinc			

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: SNB98

Method: MS
Instrument ID: 19204
Date: 01/2018

Analyte	MASS (amu)	Background	IDL (UG/L)
Antimony	121		0.34
Arsenic	75		0.40
Barium	137		0.97
Beryllium	9		0.046
Cadmium	111		0.18
Chromium	52		0.50
Cobalt	59		0.16
Copper	63		0.40
Lead	208		0.11
Nickel	60		0.57
Selenium	78		0.50
Silver	107		0.093
Thallium	203		0.087
Vanadium	51		0.16

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: SNB98

Method: CV
Instrument ID: 19302
Date: 01/2018

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Mercury			0.050

Comments:

_____
_____
_____
_____

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: SNB98
Matrix: SOIL

Method: P
Date: 06/2017

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Aluminum	308.21		400	89.4
Calcium	317.93		400	33.3
Iron	261.19		400	80.5
Magnesium	285.21		200	24.3
Manganese	257.61		10.0	0.83
Potassium	766.49		1000	167
Sodium	589.59		2000	167
Zinc	213.86		40.0	2.4

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: SNB98
Matrix: SOIL

Method: MS
Date: 06/2017

Analyte	Mass	Background	LOQ (UG/L)	MDL (UG/L)
Antimony	121		2.0	0.47
Arsenic	75		4.0	0.64
Barium	137		4.0	0.91
Beryllium	9		1.0	0.052
Cadmium	111		1.0	0.17
Chromium	52		4.0	0.87
Cobalt	59		1.0	0.16
Copper	63		4.0	0.54
Lead	208		2.0	0.11
Nickel	60		4.0	1.0
Selenium	78		4.0	0.50
Silver	107		1.0	0.15
Thallium	203		1.0	0.13
Vanadium	51		1.0	0.21

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: SNB98
Matrix: SOIL

Method: CV
Date: 06/2017

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Mercury			0.60	0.060

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: SNB98

Instrument ID: 11016
Date: 01/2018

Analyte	Wavelength (nm)	Interelement Correction Factor for: AL	CA	FE	MG	CU
Aluminum	308.21	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Calcium	317.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Magnesium	285.21	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.61	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.86	0.0000000	0.0000000	0.0000680	0.0000000	0.0009950

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: SNB98

Instrument ID: 11016
Date: 01/2018

Analyte	Wavelength (nm)	Interelement Correction Factor for: MO	NI	TH	V	W
Aluminum	308.21	0.0394690	0.0000000	0.1098760	0.4331180	0.0000000
Calcium	317.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Magnesium	285.21	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.61	0.0000000	0.0000000	-0.0003490	0.0000000	0.0000000
Potassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.86	0.0000000	0.0049450	0.0000000	0.0000000	0.0000000

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 12
LINEAR RANGES
SDG No.: SNB98

Method: P
Instrument ID: 11016
Date: 01/2018

Analyte	Wavelength (nm)	Integration Time (Sec.)	Concentration (ug/L)
Aluminum	308.21	10.00	600000.0
Calcium	317.93	10.00	600000.0
Iron	261.19	10.00	300000.0
Magnesium	285.21	10.00	600000.0
Manganese	257.61	10.00	20000.0
Potassium	766.49	10.00	500000.0
Sodium	589.59	10.00	500000.0
Zinc	213.86	10.00	20000.0

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 12
LINEAR RANGES
SDG No.: SNB98

Method: P
Instrument ID: 23290
Date: 01/2018

Analyte	Wavelength (nm)	Integration Time (Sec.)	Concentration (ug/L)
Aluminum			
Calcium			
Iron	261.19	10.00	300000.0
Magnesium	285.21	10.00	600000.0
Manganese			
Potassium			
Sodium			
Zinc			

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 12
LINEAR RANGES
SDG No.: SNB98

Method: P
Instrument ID: 23745
Date: 01/2018

Analyte	Wavelength (nm)	Integration Time (Sec.)	Concentration (ug/L)
Aluminum			
Calcium	317.93	10.00	600000.0
Iron			
Magnesium			
Manganese			
Potassium			
Sodium			
Zinc			

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: SNB98

Method: P
Batch Number: 180731063701

Lab Sample ID	Date	Sample Weight(gram)	Final Volume(ml)
9500920	03/14/2018	1.43	100
9500922	03/14/2018	1.22	100
9500923	03/14/2018	1.40	100
9500921BKG	03/14/2018	1.23	100
9500921DUP	03/14/2018	1.04	100
9500921MSD	03/14/2018	1.02	100
9500921MS	03/14/2018	1.04	100
P07363AB	03/14/2018	1.00	100
P07363AQ	03/14/2018	1.00	100

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: SNB98

Method: MS
Batch Number: 180731063701

Lab Sample ID	Date	Sample Weight(gram)	Final Volume(ml)
9500920	03/14/2018	1.43	100
9500922	03/14/2018	1.22	100
9500923	03/14/2018	1.40	100
9500921BKG	03/14/2018	1.23	100
9500921DUP	03/14/2018	1.04	100
9500921MSD	03/14/2018	1.02	100
9500921MS	03/14/2018	1.04	100
P07363AB	03/14/2018	1.00	100
P07363AQ	03/14/2018	1.00	100

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: SNB98

Method: CV
Batch Number: 180751063801

Lab Sample ID	Date	Sample Weight(gram)	Final Volume(ml)
9500920	03/19/2018	0.63	100
9500921	03/19/2018	0.62	100
9500922	03/19/2018	0.64	100
9500923	03/19/2018	0.62	100
*01669BKG	03/19/2018	0.61	100
P07563AB	03/19/2018	0.60	100
P07563AQ	03/19/2018	1.00	100

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

LLENS Worksheet for 0637 SW846 (IV) ICP/ICP MS Digest

Batch# 18 073 10637 01

Start Time: 3/14/18 23:15 **End Time:** 3/15/18 4:25 **Hot Block:** 6

Pipette ID: 23041058 /2000 I43551C /1000

Spike/Reagent	Lot#	Volume Added(mL)
1:1 HNO3	P18-058A	10.00
30% H2O2	175412	4.00
HCL	186764	10.00
HNO3	191695	5.00
ICP Spike 1A	1804014#10	2.00
ICP Spike 1B	1804016#10	2.00
ICP/MS Spike	1804017#2	2.00
LCS A1	1804014#10	2.00
LCS B1	1804016#10	2.00
LCSW2	1804017#2	1.00

Method Ref:

	SampleID	Date Due	ST	P	H	Balance	PH<2	BC	Vessel Lot#	Location ID	Comments
1)	PBS	.				10685			1709027		1.02 teflon chips lot #22842018
2)	LCSW	.				10685			1709027		1.00 teflon chips lot #22842018
3)	LCSW2	.				10685			1709027		1.03 teflon chips lot #22842018
4)	9500920FD	03/22/18 10:30	SW	S7		10685		620A	1709027	MET06/F8	
5)	**9500921U**	03/22/18 10:30	SW	S7		10685		620A	1709027	MET06/E8	
6)	**9500921D**	03/22/18 10:30	SW	S7		10685		036a	1709027	A0136/	
7)	**9500921R**	03/22/18 10:30	SW	S7		10685		036a	1709027	A0136/	
8)	**9500921R2**	03/22/18 10:30	SW	S7		10685		036a	1709027	A0136/	
9)	**9500921M**	03/22/18 10:30	SW	S7		10685		036a	1709027	A0136/	
10)	**9500921M2**	03/22/18 10:30	SW	S7		10685		036a	1709027	A0136/	
11)	9500922	03/22/18 10:30	SW	S7		10685		620A	1709027	MET06/E7	
12)	9500923	03/22/18 10:30	SW	S7		10685		620A	1709027	MET06/F7	

Prep Employee:277 D/I _____

3/15/2018

v 1.1.0

Batch# 18 073 1063 701

LLENS Batch Chronology and Change Log - SW846 (IV) ICP/ICP MS Digest

	Operation	Instrument	Operation Date	ANALYST
1)	Batch Creation		3/14/18 7:09	277
2)	Sample Wt		3/14/18 20:47	8853
3)	Sample Wt		3/14/18 20:52	8853
4)	Final Vol	10685	3/14/18 20:52	8853
5)	Trial		3/14/18 20:52	8853
6)	Upload Prep	US19PCC06813	3/15/18 4:44	277
7)	Upload Prep	US19PCC06813	3/15/18 5:46	277

Sample ID	Analysis	D	Operation	Measurement	Original Entry Date/Time	Data	Units	Analyst	Data Changed Date/Time	Analyst	Reason

Analysis: 0637 SW846 (IV) ICP/ICP MS Digest Batch# 18 073 1063 701

Sample ID	Due Date	P	EPA#	SDG#	Sample Wt	Final Volume	Trial
PBS					1.0000	100.0000	1
LCSW					1.0000	100.0000	1
LCSW2					1.0000	100.0000	1
9500920FD	03/22/18	S7	98FD1	SNB98-02FD	1.4300	100.0000	1
9500921U	03/22/18	S7	98070	SNB98-03	1.2300	100.0000	1
9500921D	03/22/18	S7	98070	SNB98-03	1.0400	100.0000	1
9500921R	03/22/18	S7	98070	SNB98-03	1.0400	100.0000	1
9500921R2	03/22/18	S7	98070	SNB98-03	1.1000	100.0000	1
9500921M	03/22/18	S7	98070	SNB98-03	1.0200	100.0000	1
9500921M2	03/22/18	S7	98070	SNB98-03	1.0200	100.0000	1
9500922	03/22/18	S7	98710	SNB98-04	1.2200	100.0000	1
9500923	03/22/18	S7	98715	SNB98-05	1.4000	100.0000	1

LLENS Worksheet for 0637 SW846 (IV) ICP/ICP MS Digest

Batch# 18 073 10637 01

Start Time: 3/14/18 23:15 **End Time:** 3/15/18 4:25 **Hot Block:** 6

Pipette ID: 23041058 /2000 I43551C /1000

Spike/Reagent	Lot#	Volume Added(mL)
1:1 HNO3	P18-058A	10.00
30% H2O2	175412	4.00
HCL	186764	10.00
HNO3	191695	5.00
ICP Spike 1A	1804014#10	2.00
ICP Spike 1B	1804016#10	2.00
ICP/MS Spike	1804017#2	2.00
LCS A1	1804014#10	2.00
LCS B1	1804016#10	2.00
LCSW2	1804017#2	1.00

Method Ref:

	SampleID	Date Due	ST	P	H	Balance	PH<2	BC	Vessel Lot#	Location ID	Comments
1)	PBS	.				10685			1709027		1.02 teflon chips lot #22842018
2)	LCSW	.				10685			1709027		1.00 teflon chips lot #22842018
3)	LCSW2	.				10685			1709027		1.03 teflon chips lot #22842018
4)	9500920FD	03/22/18 10:30	SW	S7		10685		620A	1709027	MET06/F8	
5)	**9500921U**	03/22/18 10:30	SW	S7		10685		620A	1709027	MET06/E8	
6)	**9500921D**	03/22/18 10:30	SW	S7		10685		036a	1709027	A0136/	
7)	**9500921R**	03/22/18 10:30	SW	S7		10685		036a	1709027	A0136/	
8)	**9500921R2**	03/22/18 10:30	SW	S7		10685		036a	1709027	A0136/	
9)	**9500921M**	03/22/18 10:30	SW	S7		10685		036a	1709027	A0136/	
10)	**9500921M2**	03/22/18 10:30	SW	S7		10685		036a	1709027	A0136/	
11)	9500922	03/22/18 10:30	SW	S7		10685		620A	1709027	MET06/E7	
12)	9500923	03/22/18 10:30	SW	S7		10685		620A	1709027	MET06/F7	

Prep Employee:277 D/I _____

3/15/2018

v 1.1.0

Batch# 18 073 1063 701

LLENS Batch Chronology and Change Log - SW846 (IV) ICP/ICP MS Digest

	Operation	Instrument	Operation Date	ANALYST
1)	Batch Creation		3/14/18 7:09	277
2)	Sample Wt		3/14/18 20:47	8853
3)	Sample Wt		3/14/18 20:52	8853
4)	Final Vol	10685	3/14/18 20:52	8853
5)	Trial		3/14/18 20:52	8853
6)	Upload Prep	US19PCC06813	3/15/18 4:44	277
7)	Upload Prep	US19PCC06813	3/15/18 5:46	277

Sample ID	Analysis	D	Operation	Measurement	Original Entry Date/Time	Original Entry Data	Original Entry Units	Original Entry Analyst	Data Changed Date/Time	Data Changed Analyst	Data Changed Reason

Analysis: 0637 SW846 (IV) ICP/ICP MS Digest Batch# 18 073 1063 701

Sample ID	Due Date	P	EPA#	SDG#	Sample Wt	Final Volume	Trial
PBS					1.0000	100.0000	1
LCSW					1.0000	100.0000	1
LCSW2					1.0000	100.0000	1
9500920FD	03/22/18	S7	98FD1	SNB98-02FD	1.4300	100.0000	1
9500921U	03/22/18	S7	98070	SNB98-03	1.2300	100.0000	1
9500921D	03/22/18	S7	98070	SNB98-03	1.0400	100.0000	1
9500921R	03/22/18	S7	98070	SNB98-03	1.0400	100.0000	1
9500921R2	03/22/18	S7	98070	SNB98-03	1.1000	100.0000	1
9500921M	03/22/18	S7	98070	SNB98-03	1.0200	100.0000	1
9500921M2	03/22/18	S7	98070	SNB98-03	1.0200	100.0000	1
9500922	03/22/18	S7	98710	SNB98-04	1.2200	100.0000	1
9500923	03/22/18	S7	98715	SNB98-05	1.4000	100.0000	1

LLENS Worksheet for 0638 SW SW846 Hg Digest

Batch# 18 075 10638 01

Start Time: 3/19/18 3:15 **End Time:** 3/19/18 3:45 **Hot Block:** 1

Pipette ID: I43551C /1000

Spike/Reagent	Lot#	Volume Added(mL)
5%KMnO4	P18-072D	15.00
Aqua Regia	P18-078B	5.00
LCS 100 ppb Hg	P18-074A	1.00
NaCl/NH20H.HCL	P18-052D	6.00
Spike 100 ppb Hg	P18-74A	1.00

Method Ref:

	SampleID	Date Due	ST	P	H	Balance	PH<2	BC	Vessel Lot#	Location ID	Comments
1)	PBS	.				10685			1709027		0.62 TEFLON CHIPS LOT #22842018
2)	LCSW	.				10685			1709027		0.60 TEFLON CHIPS LOT #22842018
3)	9500920FD	03/22/18 10:30	SW	S7		10685		621A	1709027	HG23/D5	LCS high
4)	9500921	03/22/18 10:30	SW	S7		10685		621A	1709027	HG23/C5	LCS high
5)	9500922	03/22/18 10:30	SW	S7		10685		621A	1709027	HG23/B4	LCS high
6)	9500923	03/22/18 10:30	SW	S7		10685		621A	1709027	HG23/A4	LCS high
7)	**9501669U**	03/23/18 10:30	SW	N8		10685		621A	1709027	HG27/C5	LCS high
8)	**9501670R**	03/23/18 10:30	SW	N8		10685		621A	1709027	HG27/A6	LCS high
9)	**9501671M**	03/23/18 10:30	SW	N8		10685		621A	1709027	HG27/D6	LCS high
10)	**9501672D**	03/23/18 10:30	SW	N8		10685		621A	1709027	HG27/D5	LCS high
11)	9501704	03/23/18 10:30	SW	N8		10685		621A	1709027	HG23/A1	LCS high
12)	9501705	03/23/18 10:30	SW	N8		10685		621A	1709027	HG23/B1	LCS high
13)	9501710	03/23/18 10:30	SW	N8		10685		621A	1709027	HG27/B1	LCS high
14)	9501714	03/23/18 10:30	SW	N8		10685		621A	1709027	HG27/D4	LCS high

Prep Employee:277 D/I _____

3/19/2018

v 1.1.0

Batch# 18 075 1063 801

LLENS Batch Chronology and Change Log - SW SW846 Hg Digest

	Operation	Instrument	Operation Date	ANALYST
1)	Batch Creation		3/16/18 13:51	277
2)	Final Vol	10685	3/16/18 20:24	8853
3)	Trial		3/16/18 20:24	8853
4)	Sample Wt	10685	3/16/18 20:45	8853
5)	Sample Wt	10685	3/19/18 1:40	277
6)	Sample Wt	10685	3/19/18 2:14	277
7)	Upload Prep	US19PCC06813	3/19/18 4:00	277

					Original Entry				Data Changed		
Sample ID	Analysis	D	Operation	Measurement	Date/Time	Data	Units	Analyst	Date/Time	Analyst	Reason
9501670MS	10638	1	Sample Wt	Sample Wt	3/19/18 1:41	0.63	(g)	277	3/19/18 2:14	277	Wrong entry

Analysis: 0638 SW SW846 Hg Digest

Batch# 18 075 1063 801

Sample ID	Due Date	P	EPA#	SDG#	Sample Wt	Final Volume	Trial
PBS					.6000	100.0000	1
LCSW					1.0000	100.0000	1
9500920FD	03/22/18	S7	98FD1	SNB98-02FD	.6300	100.0000	2
9500921	03/22/18	S7	98070	SNB98-03	.6200	100.0000	2
9500922	03/22/18	S7	98710	SNB98-04	.6400	100.0000	2
9500923	03/22/18	S7	98715	SNB98-05	.6200	100.0000	2
9501669U	03/23/18	N8	C3302	XXX01-01BKG	.6100	100.0000	2
9501670R	03/23/18	N8	C3302	XXX01-01MS	.6000	100.0000	2
9501671M	03/23/18	N8	C3302	XXX01-01MSD	.6000	100.0000	2
9501672D	03/23/18	N8	C3302	XXX01-01DUP	.6300	100.0000	2
9501704	03/23/18	N8	C4302		.6000	100.0000	2
9501705	03/23/18	N8	C4324		.6300	100.0000	2
9501710	03/23/18	N8	C4318		.6300	100.0000	2
9501714	03/23/18	N8			.6100	100.0000	2

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: SNB98

Method: P
Instrument ID: 11016
Run Name: 1807702T70

Run Start Date: 03/18/2018
Run End Date: 03/18/2018

	Lab Sample ID	D/F	Time	Analytes																														
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN								
	S0	1.00	16:53	X						X				X		X	X			X			X			X								
	S	1.00	16:56	X						X				X		X				X			X											
	S	1.00	17:00														X									X								
	S	1.00	17:03																															
	ICV	1.00	17:07	X						X				X		X	X			X			X			X								
	ICB	1.00	17:10	X						X				X		X	X			X			X			X								
	LLC	1.00	17:14	X						X				X		X	X			X			X			X								
	ICSA	1.00	17:17	X						X				X		X	X			X			X			X								
	ICSAB	1.00	17:21	X						X				X		X	X			X			X			X								
	CCV	1.00	17:24	X						X				X		X	X			X			X			X								
I	CCB	1.00	17:28	X						X				X		X	X			X			X			X								
	P07363AB	1.00	17:31	X						X				X		X	X			X			X			X								
	P07363AQ	1.00	17:35	X						X				X			X			X			X			X								
	9500921BKG	1.00	17:38	X						X						X	X			X			X			X								
	9500921A	1.00	17:42																	X														
	9500921DUP	1.00	17:45	X						X						X	X			X			X			X								
	9500921MS	1.00	17:49	X						X				X		X	X			X			X			X								
	9500921MSD	1.00	17:52	X						X						X	X			X			X			X								
	9500921L	5.00	17:56	X						X						X	X			X			X			X								
	9500920	1.00	17:59	X						X				X		X	X			X			X			X								
	9500922	1.00	18:03	X										X		X	X			X			X			X								
II	CCV	1.00	18:07	X						X				X		X	X			X			X			X								
	CCB	1.00	18:11	X						X				X		X	X			X			X			X								
	9500923	1.00	18:14	X						X						X	X			X			X			X								
	LLC	1.00	18:18	X						X				X		X	X			X			X			X								
	ICSA	1.00	18:21	X						X				X		X	X			X			X			X								
	ICSAB	1.00	18:25	X						X				X		X	X			X			X			X								
III	CCV	1.00	18:28	X						X				X		X	X			X			X			X								
	CCB	1.00	18:32	X						X				X		X	X			X			X			X								

METHODS:	LEGEND:
P = ICP Atomic Emission Spectrometer MS = ICP Mass Spectrometry CV = Cold Vapor AF = Cold Vapor Atomic Fluorescence	BKG = Background DUP = Duplicate MS = Matrix Spike MSD = Matrix Spike Duplicate A = Post Digest Spike L = Serial Dilution B = Blank Q = Laboratory Control Sample Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: SNB98

Method: P
Instrument ID: 23290
Run Name: 1807902T75

Run Start Date: 03/20/2018
Run End Date: 03/20/2018

Lab Sample ID	D/F	Time	Analytes																													
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN							
S0	1.00	05:46											X		X																	
S	1.00	05:49											X		X																	
S	1.00	05:51																														
S	1.00	05:54																														
ICV	1.00	05:57											X		X																	
ICB	1.00	06:00											X		X																	
LLC	1.00	06:03											X		X																	
ICSA	1.00	06:05											X		X																	
ICSAB	1.00	06:08											X		X																	
CCV	1.00	06:11											X		X																	
CCB	1.00	06:14											X		X																	
P07363AQ	1.00	06:17													X																	
9500921BKG	5.00	06:20											X																			
9500921A	5.00	06:22																														
9500921DUP	5.00	06:25											X																			
ZZZZZZ	5.00	06:28																														
9500921MSD	5.00	06:31											X																			
9500921L	25.00	06:34											X																			
9500923	5.00	06:36											X																			
CCV	1.00	06:39											X		X																	
CCB	1.00	06:42											X		X																	
LLC	1.00	06:45											X		X																	
ICSA	1.00	06:47											X		X																	
ICSAB	1.00	06:50											X		X																	
CCV	1.00	06:53											X		X																	
CCB	1.00	06:56											X		X																	

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: SNB98

Method: P
Instrument ID: 23745
Run Name: 1807906T74

Run Start Date: 03/20/2018
Run End Date: 03/20/2018

Lab Sample ID	D/F	Time	Analytes																													
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI		SE	AG	NA	TL	V	ZN							
S0	1.00	17:06							X																							
S	1.00	17:10							X																							
S	1.00	17:13																														
S	1.00	17:17																														
ICV	1.00	17:21							X																							
ICB	1.00	17:25							X																							
LLC	1.00	17:29							X																							
ICSA	1.00	17:33							X																							
ICSAB	1.00	17:36							X																							
CCV	1.00	17:40							X																							
CCB	1.00	17:44							X																							
ZZZZZZ	1.00	17:48																														
ZZZZZZ	1.00	17:51																														
ZZZZZZ	1.00	17:55																														
ZZZZZZ	1.00	17:59																														
ZZZZZZ	1.00	18:03																														
ZZZZZZ	1.00	18:07																														
ZZZZZZ	1.00	18:11																														
ZZZZZZ	5.00	18:15																														
ZZZZZZ	1.00	18:19																														
ZZZZZZ	1.00	18:23																														
CCV	1.00	18:27							X																							
CCB	1.00	18:31							X																							
ZZZZZZ	1.00	18:35																														
ZZZZZZ	1.00	18:38																														
ZZZZZZ	1.00	18:42																														
ZZZZZZ	1.00	18:46																														
ZZZZZZ	1.00	18:50																														
ZZZZZZ	1.00	18:54																														
ZZZZZZ	1.00	18:58																														
ZZZZZZ	1.00	19:02																														
ZZZZZZ	1.00	19:06																														
ZZZZZZ	1.00	19:10																														
CCV	1.00	19:14							X																							
CCB	1.00	19:17							X																							
ZZZZZZ	1.00	19:21																														
9500922	5.00	19:25							X																							
LLC	1.00	19:29							X																							

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: SNB98

Method: P
Instrument ID: 23745
Run Name: 1807906T74

Run Start Date: 03/20/2018
Run End Date: 03/20/2018

Lab Sample ID	D/F	Time	Analytes																														
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN								
ICSA	1.00	19:33							X																								
ICSAB	1.00	19:36							X																								
CCV	1.00	19:40							X																								
CCB	1.00	19:44							X																								

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: SNB98

Method: MS
Instrument ID: 19204
Run Name: 1807805E05

Run Start Date: 03/19/2018
Run End Date: 03/19/2018

Lab Sample ID	D/F	Time	Analytes																														
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN									
S0	1.00	15:44		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
S	1.00	15:47		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
CCS	1.00	15:51		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
CCS	1.00	15:54		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
ICV	1.00	15:57		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
ICB	1.00	16:00		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
LLC	1.00	16:03		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
ICSA	1.00	16:06		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
ICSAB	1.00	16:10		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
ZZZZZZ	1.00	16:13																																
CCV	1.00	16:16		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
CCB	1.00	16:19		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
P07363AB	2.00	16:22		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
P07363AQ	2.00	16:25		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
9500921BKG	2.00	16:29		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
9500921A	2.00	16:32		X		X												X						X										
9500921DUP	2.00	16:35		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
9500921MS	2.00	16:38		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
9500921MSD	2.00	16:41		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
9500921L	10.00	16:44		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
9500920	2.00	16:48		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
9500922	2.00	16:51		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
CCV	1.00	16:54		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
CCB	1.00	16:57		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
9500923	2.00	17:00		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
LLC	1.00	17:03		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
ICSA	1.00	17:07		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
ICSAB	1.00	17:10		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
ZZZZZZ	1.00	17:13																																
CCV	1.00	17:16		X	X	X	X	X		X	X	X		X				X		X	X		X	X										
CCB	1.00	17:19		X	X	X	X	X		X	X	X		X				X		X	X		X	X										

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: SNB98

Method: CV
Instrument ID: 19302
Run Name: 1807802M08

Run Start Date: 03/19/2018
Run End Date: 03/19/2018

Lab Sample ID	D/F	Time	Analytes																																
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN										
S0	1.00	06:44															X																		
S0.2	1.00	06:46															X																		
S0.5	1.00	06:48															X																		
S1.0	1.00	06:50															X																		
S2.5	1.00	06:52															X																		
S5.0	1.00	06:54															X																		
ICV	1.00	06:56															X																		
ICB	1.00	06:58															X																		
CRA	1.00	07:00															X																		
CCV	1.00	07:02															X																		
CCB	1.00	07:04															X																		
ZZZZZZ	1.00	07:06																																	
ZZZZZZ	1.00	07:08																																	
ZZZZZZ	1.00	07:10																																	
ZZZZZZ	1.00	07:12																																	
ZZZZZZ	1.00	07:14																																	
ZZZZZZ	1.00	07:16																																	
ZZZZZZ	1.00	07:18																																	
ZZZZZZ	1.00	07:20																																	
ZZZZZZ	1.00	07:22																																	
ZZZZZZ	1.00	07:24																																	
CCV	1.00	07:26															X																		
CCB	1.00	07:28															X																		
ZZZZZZ	1.00	07:30																																	
ZZZZZZ	1.00	07:32																																	
ZZZZZZ	1.00	07:34																																	
ZZZZZZ	1.00	07:36																																	
ZZZZZZ	1.00	07:38																																	
ZZZZZZ	1.00	07:40																																	
ZZZZZZ	1.00	07:42																																	
ZZZZZZ	1.00	07:44																																	
ZZZZZZ	5.00	07:46																																	
P07563AB	1.00	07:48															X																		
CCV	1.00	07:50															X																		
CCB	1.00	07:52															X																		
P07563AQ	1.00	07:54															X																		
*01669BKG	1.00	07:56															X																		
ZZZZZZ	1.00	07:58																																	

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: SNB98

Method: CV
Instrument ID: 19302
Run Name: 1807802M08

Run Start Date: 03/19/2018
Run End Date: 03/19/2018

Lab Sample ID	D/F	Time	Analytes																													
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN							
ZZZZZZ	1.00	08:00																														
ZZZZZZ	1.00	08:02																														
ZZZZZZ	1.00	08:04																														
9500920	1.00	08:06															X															
9500921	1.00	08:08															X															
9500922	1.00	08:10															X															
9500923	1.00	08:12															X															
CCV	1.00	08:14															X															
CCB	1.00	08:16															X															

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

Tune Report

Batch Folder D:\Agilent\ICPMH\1\DATA\~EPATUNE.b
Report Comment ICP-MS #19204 (E05) Daily Tune Check
Instrument Name G3281A JP12071581

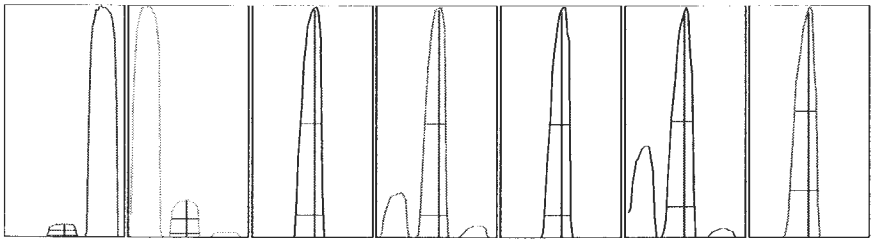
[No Gas]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Resp Ratio (Actual)	Resp Ratio (Required)	Resp Ratio (Flag)
6		4406	4405.99			NaN	-	
24		21274	21273.72			NaN	-	
103		76476	76476.23			NaN	-	
115		77351	77351.17			NaN	-	
140		85387	85386.74			NaN	-	
208		47848	47848.48			NaN	-	
238		108950	108950.19			NaN	-	

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
6	2.00	5.00				
24	1.60	5.00				
103	1.11	5.00				
115	0.96	5.00				
140	1.08	5.00				
208	1.27	5.00				
238	0.70	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
6	4498	4315	4316	4416	4485
24	20890	21218	21015	21579	21667
103	75840	76659	75394	77022	77466
115	76436	76870	77327	77791	78332
140	84696	85889	84345	85355	86649
208	47160	48203	47355	47884	48640
238	108981	108963	107804	109051	109952

Integration Time [sec] 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
6	662.06	6.00	5.9 - 6.1		0.69	0.776	0.900	
24	3247.46	23.95	23.9 - 24.1		0.68	0.740	0.900	
103	14313.04	103.05	102.9 - 103.1		0.55	0.692	0.900	
115	14595.34	115.05	114.9 - 115.1		0.55	0.682	0.900	
140	16525.95	140.00	139.9 - 140.1		0.53	0.669	0.900	
208	9176.82	207.95	207.9 - 208.1		0.53	0.701	0.900	
238	20385.68	237.95	237.9 - 238.1		0.54	0.705	0.900	

X = 10 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 260.8 **Y Axis** Linear

Tune Parameters

Plasma Paramters

RF Power	1600 W	Carrier Gas	0.25 L/min	S/C Temp	20 °C
RF Matching	0.80 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.80 L/min
Smpl Depth	8.0 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

Tune Report

Extract 1		0.0 V	Omega Lens		6.1 V	Deflect		16.8 V	
Extract 2		-160.0 V	Cell Entrance		-30 V	Plate Bias		-40 V	
Mass	**Peak Height**	**Axis (Actual)**	**Axis (Required)**	**Axis (Flag)**	**W-50%**	**W-X% (Actual)**	**W-X% (Required)**	**W-X% (Flag)**	
Omega Bias		-75 V	Cell Exit			-50 V			

Cell Parameters

OctP Bias	-6.0 V	He Flow	0.0 mL/min	Energy Discrimination	5.0 V
OctP RF	200 V	H2 Flow	0.0 mL/min		
Use Gas	false	3rd Gas Flow	0 %		

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QUALITY ASSURANCE SUMMARY
FORM 16
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
SDG No.: SNB98

Instrument ID: 19204
Run Name: 1807805E05

Start Date: 03/19/2018
End Date: 03/19/2018

Standard	Elements Applies to	Standard	Elements Applies to
BI-2-209	PB,TL	IN-1-115	SE
IN-2-115	AG,AS,BA,CD,CO,CU,NI,SB	SC-2-45	CR,V
SC-3-45	BE		

Lab Sample ID	Time	Internal Standards %RI For: Element SC-2-45	Q	Element SC-3-45	Q	Element IN-1-115	Q	Element IN-2-115	Q	Element BI-2-209	Q	Element	Q	Element	Q
S0	15:44	100		100		100		100		100					
S	15:47	95		100		99		96		101					
CCS	15:51	96		96		96		95		96					
CCS	15:54	97		98		97		96		98					
ICV	15:57	99		98		98		96		100					
ICB	16:00	96		100		99		97		98					
LLC	16:03	97		100		100		98		99					
ICSA	16:06	95		100		93		89		90					
ICSAB	16:10	94		101		95		88		88					
ZZZZZZ	16:13														
CCV	16:16	99		105		103		98		99					
CCB	16:19	100		103		101		99		98					
P07363AB	16:22	100		104		104		98		105					
P07363AQ	16:25	96		105		104		98		103					
9500921BKG	16:29	103		112		99		94		104					
9500921A	16:32	103		111		100		92		99					
9500921DUP	16:35	101		107		99		90		99					
9500921MS	16:38	99		108		98		90		97					
9500921MSD	16:41	101		109		100		94		98					
9500921L	16:44	98		105		100		96		98					
9500920	16:48	97		106		98		90		97					
9500922	16:51	95		105		97		89		94					
CCV	16:54	99		107		103		100		101					
CCB	16:57	102		107		104		100		100					
9500923	17:00	100		107		101		94		101					
LLC	17:03	100		106		104		103		101					
ICSA	17:07	94		101		95		89		88					
ICSAB	17:10	91		102		95		89		86					
ZZZZZZ	17:13														
CCV	17:16	102		108		105		99		97					
CCB	17:19	100		105		103		96		97					

LEGEND:
BKG = Background
DUP = Duplicate
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike

FLAG:
R = Internal Standard Relative Intensity OOS

INTERNAL STANDARD ELEMENTS:
BE = Beryllium
BI = Bismuth
GE = Germanium
HO = Holmium
IN = Indium
LI = Lithium
SC = Scandium
TB = Terbium
Y = Yttrium

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SNB98

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
9500920	SG3a-FD01-180312		X	1	Field Duplicate Sample
9500921	SG3a-SB18-07-0.0-1.0		X	1	
9500922	SG3a-SB18-07-10.0-11.0		X	1	
9500923	SG3a-SB18-07-15.0-18.0		X	1	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC is within specification.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

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Quality Control Reference List
Instrumental Water Quality

CLIENT: C. T. Male Associates
SDG: SNB98

Fraction: Instrumental Wet Chemistry

Analysis	Batch Number	Sample Number	Analysis Date
TOC	18095667631A	P180951B	04/09/2018 13:47:00
		P180951Q	04/09/2018 14:00:00
		P180951Y	04/10/2018 00:39:00
		9500920	04/09/2018 14:13:00
		9500921 MS	04/09/2018 14:39:00
		9500921 UNSPK/BKG	04/09/2018 19:03:00
		9500921 DUP	04/09/2018 19:16:00
		9500922	04/09/2018 15:04:00
		9500923	04/09/2018 15:17:00

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Quality Control Summary
Method Blank
Instrumental Water Quality
SDG: SNB98
Matrix: SOLID

Fraction: Instrumental Wet Chemistry

18095667631A / P180951B Parameter	ME	Analysis Date	Blank Results	Units	MDL	LOQ
TOC	TOC	04/09/18	N.D.	mg/kg	100	300

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SNB98
Matrix: SOLID

Instrumental Water Quality
Fraction: Instrumental Wet Chemistry

UNSPK: 9500921 MS: 9500921	Batch: **18095667631A** (Sample number(s): 9500920-9500923)									
Parameter	**ME**	**Spike Added mg/kg**	**Unspiked Conc mg/kg**	**MS Conc mg/kg**	**MSD Conc mg/kg**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	18360	4431.98	23067.97	NA	102	NA	47-143	NA	NA

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Duplicate

SDG: SNB98
Matrix: SOLID

Instrumental Water Quality
Fraction: Instrumental Wet Chemistry

BKG: 9500921 DUP: 9500921	Batch: **18095667631A** (Sample number(s): 9500920-9500923)				
Parameter	**ME**	**Unspiked Conc mg/kg**	**DUP Conc mg/kg**	**%RPD**	**%RPD Limits**
TOC	TOC	4431.98	4601.19	4	7

Comments:
(1) The sample and/or duplicate result is less than five times the LOQ.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SNB98
Matrix: SOLID

Instrumental Water Quality

Fraction: Instrumental Wet Chemistry

LCS: P180951Q LCSD: P180951Y	Batch: **18095667631A** (Sample number(s): 9500920-9500923)								
Parameter	**ME**	**Spike Added mg/kg**	**LCS Conc mg/kg**	**LCSD Conc mg/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
TOC	TOC	7150	5813.1	5959.38	81	83	47-143	2	20

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LOQ/MDL Summary
Instrumental Water Quality

SDG: SNB98

Fraction: Instrumental Wet Chemistry

02079: TOC Analyte Name	Default MDL	Default LOQ	Units
TOC	100	300	mg/kg

Revised

Method:	TC	Run Start Date:	4/5/2018 9:23:10 AM
Run Name:	18095-CAL	Run End Date:	4/5/2018 11:12:21 AM
Analyst:	6676	Device ID:	17171

Sample ID	Result mg C abs	Weight (mg)	Peak Area	Description	Result Flag	Analysed Date and time
SYNC	7.3	25	3923992.185		O	4/5/2018 9:23:30 AM
Blank	0.065	0	0		L	4/5/2018 9:36:12 AM
0.3 STD	0.365	1	162190.98		N	4/5/2018 9:49:07 AM
0.9 STD	0.935	3	471463.19		N	4/5/2018 10:02:03 AM
3.0 STD	2.818	10	1493260.41		N	4/5/2018 10:14:59 AM
6.0 STD	6.082	20	3263600.06		N	4/5/2018 10:27:55 AM
ICV 3.0	2.813	10	1490074.63		N	4/5/2018 10:40:51 AM 94% ±5
ICB	0.065	0	0		L	4/5/2018 10:53:47 AM

Drew Gerhart
Chemist

APR 05 2018

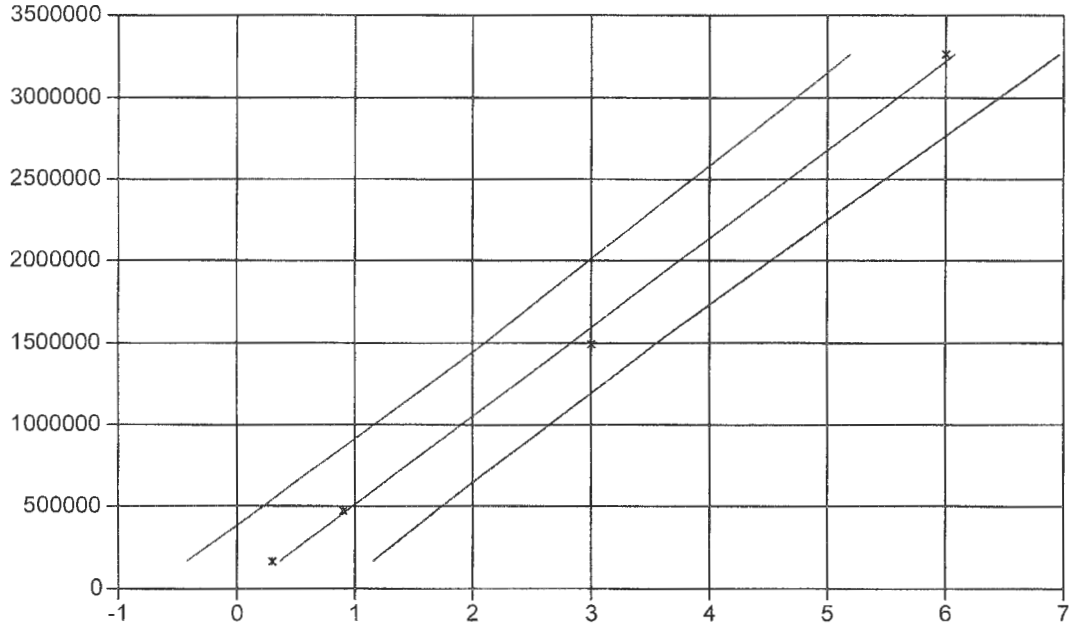
Nicole M. Veety
Senior Chemist/Group Leader

APR 10 2018

Revised

Run Name:	18095-CAL	Analyst:	6676
Instrument:	17171	Run Start Date:	4/5/2018 9:23:10 AM
Method:	TC	Run End Date:	4/5/2018 11:12:21 AM

SNAccess
Method Name : TC Calibration Type : ISO First order Group : 1
a = -35517.93269230730000 **b** = 542410.42850678700000 **r** = 0.99886851703682 **R-Squared** = 0.99773831432734



Drew Gerhart
Chemist

APR 05 2018

Nicole M. Veeley
Senior Chemist/Group Leader

APR 10 2018

Method:	TC	Run Start Date:	3/2/2018 1:52:36 PM
Run Name:	18061CAL	Run End Date:	3/2/2018 3:41:50 PM
Analyst:	6676	Device ID:	17171

Sample ID	Result mg C abs	Weight (mg)	Peak Area	Description	Result Flag	Analysed Date and time
SYNC	5.59	25	6729424.66		N	3/2/2018 1:52:46 PM
Blank	0.065	0	0		L	3/2/2018 2:05:42 PM
0.3 STD	0.384	1	388594.31		N	3/2/2018 2:18:38 PM
0.9 STD	0.92	3	1041494.17		N	3/2/2018 2:31:34 PM
3.0 STD	2.807	10	3340247.91		N	3/2/2018 2:44:30 PM
6.0 STD	6.089	20	7337581.52		N	3/2/2018 2:57:25 PM
ICV 3.0	2.842	10	3383025.755		N	3/2/2018 3:10:21 PM 95% IS
ICB	0.065	0	0		L	3/2/2018 3:23:17 PM

Drew Gerhart
Chemist

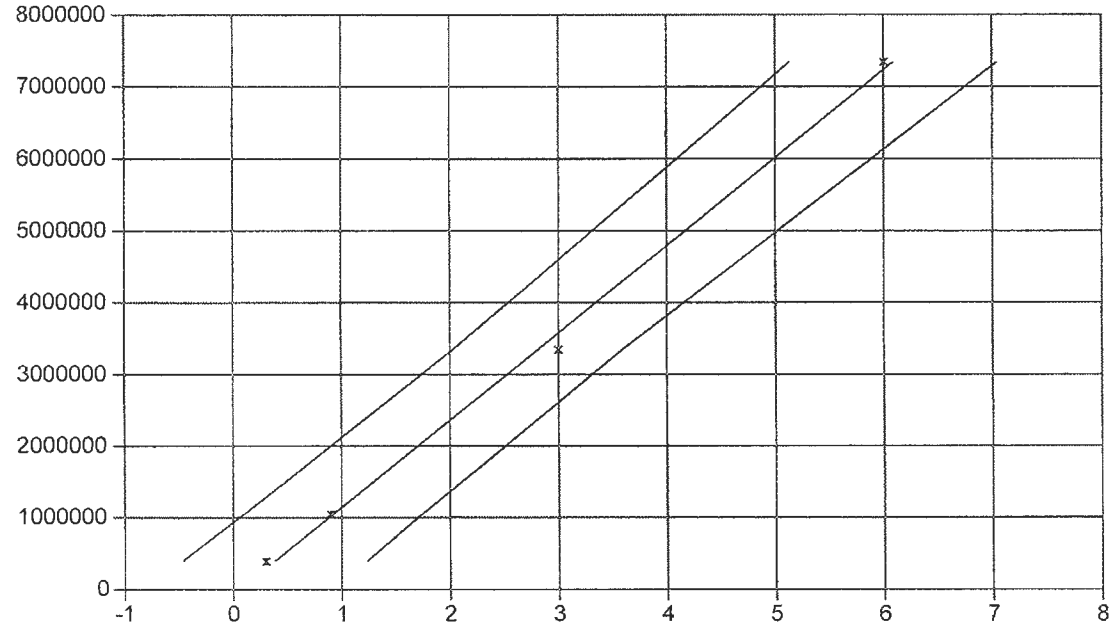
MAR 05 2018

Sandra J. Miller
Chemist

MAR 08 2018

Run Name:	18061CAL	Analyst:	6676
Instrument:	17171	Run Start Date:	3/2/2018 1:52:36 PM
Method:	TC	Run End Date:	3/2/2018 3:41:50 PM

SNAccess
Method Name : TC Calibration Type : ISO First order Group : 1
a = -78785.29499999950000 **b** = 1217946.96960784000000 **r** = 0.99868193565180 **R-Squared** = 0.99736560859723



Drew Gerhart
Chemist

MAR 05 2018

MAR 08 2018

Method: TC
Run Name: 18099-1
Analyst: 6676

Run Start Date: 4/9/2018 1:07:41 PM
Run End Date: 4/10/2018 1:23:41 AM
Device ID: 17171

Drew Gerhart Chemist
APR 10 2018

Kathy Fair Specialist
APR 10 2018

Sample ID	Result mg C abs	Weight (mg)	Peak Area	Description	Result Flag	Analysed Date and time	
SYNC	0.819	143.4	408659.56		N	4/9/2018 1:07:58 PM	
SOLID STD	0.785	138.4	390172.7		N	4/9/2018 1:21:29 PM	TV=7150 5671.97 79% IS
CCB	0.065	0	0		L	4/9/2018 1:34:25 PM	
PBS	0.065	0	0	18095667631A	L	4/9/2018 1:47:21 PM	
LCSS	0.79	135.9	392947.84	18095667631A	N	4/9/2018 2:00:17 PM	TV=7150 5813.10 81% IS
9500920	4.249	403.2	2269449.81	18095667631A	N	4/9/2018 2:13:13 PM	
9500921-U	1.198	380.9	614160.67	18095667631A	N	4/9/2018 2:26:09 PM	Repeated later
9500921-R	3.767	163.3	2007522.745	18095667631A	N	4/9/2018 2:39:05 PM	SA=18360 23067.97
9500921-D	2.578	390	1362704.78	18095667631A	N	4/9/2018 2:52:01 PM	Repeated later. 102%
9500922	4.165	387.3	2223353.35	18095667631A	N	4/9/2018 3:04:57 PM	
9500923	5.174	409.4	2770934.95	18095667631A	N	4/9/2018 3:17:53 PM	
9514085	1.918	544.1	1004985.13	18095667631A	N	4/9/2018 3:30:49 PM	
9514088	3.771	624.9	2009722.68	18095667631A	N	4/9/2018 3:43:45 PM	
SOLID STD	0.855	143.5	428417.025		N	4/9/2018 3:56:41 PM	TV=7150 5958.19 83% IS
CCB	0.065	0	0		L	4/9/2018 4:09:37 PM	
9514091	5.284	767	2830701.545	18095667631A	N	4/9/2018 4:22:33 PM	
9514094	0.519	731.6	245961.16	18095667631A	N	4/9/2018 4:35:29 PM	
9519855-U	2.729	322.5	1444519.2	18095667631B	N	4/9/2018 4:48:25 PM	
9519855-D	2.687	346.1	1421722.48	18095667631B	N	4/9/2018 5:01:21 PM	
9522605	0.486	934.6	228090.52	18095667631B	N	4/9/2018 5:14:17 PM	
9522608	2.895	754.2	1534490.9	18095667631B	N	4/9/2018 5:27:06 PM	
9529258	2.174	354.7	1143499.3	18095667632B	N	4/9/2018 5:40:02 PM	
9532354	0.515	977.6	243798.69	18095667633A	N	4/9/2018 5:52:58 PM	
9532369	0.223	940.6	85620.93	18095667633B	L	4/9/2018 6:11:25 PM	
9532375-U	4.618	362.1	2469387.18	18095667633B	N	4/9/2018 6:24:21 PM	
SOLID STD	0.828	143.1	413641.24		N	4/9/2018 6:37:17 PM	TV=7150 5786.16 81% IS
CCB	0.065	0	0		L	4/9/2018 6:50:13 PM	
9500921-U	1.58	356.5	821588.895	18095667631A	N	4/9/2018 7:03:09 PM	
9500921-D	1.696	368.6	884397.71	18095667631A	N	4/9/2018 7:16:05 PM	
9532383	5.281	376.1	2828946.585	18095667633B	N	4/9/2018 7:29:01 PM	
9532387	9.624	126.5	5184676.195	18095667633B	O	4/9/2018 7:41:57 PM	Repeat
PBS	0.065	0	0	18099667631A	L	4/9/2018 7:54:46 PM	
LCSS	0.788	135.8	391940.72	18099667631A	N	4/9/2018 8:07:42 PM	TV=7150 5802.65 81% IS

9530488	5.569	630	2985266.13	18099667631A	N	4/9/2018 8:20:37 PM	① DG6676 4-10-18
9530493	1.216	460.4	623785.165	18099667631A	N	4/9/2018 8:33:34 PM	
9530496-U	4.881	970.3	2612072.04	18099667631A	N	4/9/2018 8:46:29 PM	
9530496-R	4.108	260.2	2192795.38	18099667631A	N	4/9/2018 8:59:25 PM	SA= 11520 15787.86 93% ①
SOLID STD	0.839	146.1	419348.325		N	4/9/2018 9:12:21 PM	TV= 7150 5742.64 80% IS
CCB	0.065	0	0		L	4/9/2018 9:25:10 PM	
9530496-M	4.076	251.7	2175103.77	18099667631A	N	4/9/2018 9:38:00 PM	SA= 11910 16193.88 94%
9530496-D	4.47	981.1	2389114.425	18099667631A	N	4/9/2018 9:50:55 PM	
9530497	2.479	197.1	1309101.58	18099667631A	N	4/9/2018 10:03:58 PM	
9530498	1.071	192.8	545465.89	18099667631A	N	4/9/2018 10:16:54 PM	
PBS	0.065	0	0	18099667632A	L	4/9/2018 10:29:50 PM	83% IS
LCSS	0.813	137.1	405338.26	18099667632A	N	4/9/2018 10:42:46 PM	TV=7150 5929.98
LCSDS	0.835	139.6	417404.145	18099667632A	N	4/9/2018 10:55:42 PM	TV=7150 5981.38 84% IS
9519854-U	4.894	953.8	2619159.675	18099667632A	N	4/9/2018 11:08:38 PM	
9519854-R	4.287	257.6	2290034.82	18099667632A	N	4/9/2018 11:21:35 PM	SA= 11640 99% 16642.68
9519854-D	5.721	930.2	3067454.84	18099667632A	N	4/9/2018 11:34:30 PM	⑥ DG6676 4-10-18
SOLID STD	0.889	147.8	446890.97		N	4/9/2018 11:47:27 PM	TV=7150 6014.88 84% IS
CCB	0.065	0	0		L	4/10/2018 12:00:23 AM	
9519855	3.037	280.3	1611968.64	18099667632A	N	4/10/2018 12:13:19 AM	
9548579	0.69	2.3	338618.67	18099667632A	N	4/10/2018 12:26:15 AM	TV= 0.680 10%
LCSDS	0.851	142.8	426151.01	18095667631A	N	4/10/2018 12:39:11 AM	TV=7150 5959.38 83% IS
SOLID STD	0.837	138.8	418609.915		N	4/10/2018 12:52:08 AM	TV=7150 6030.26 84% IS
CCB	0.065	0	0		L	4/10/2018 1:05:05 AM	

Drew Gerhart
Chemist

APR 10 2018

Kathy Fair
Specialist

APR 10 2018

eurofins | Lancaster Laboratories Environmental	Document Title: Combustion TOC Prep Log Analysis #2079, #0383		
	Eurofins Document Reference : T-WC-FRM10296	Revision: 4.1	Historical Reference: 1-P-QM-FOR-9010010; Form 2705
	Effective date : 30 Dec 2016		Effective

③DG6676 4-9-18
⑥DG6676 4-9-18

Phosphoric Lot # 116817 / 5-8-18

Oven ID# 974

Oven Temperature (°C) 75

Tray #: 1 Balance ID: 16862 Time In: 12:40 Time Out: 12:55

Position	Date	Analyst	Sample #	Weight (mg)	Batch Number	Comments
A1	4-9-18	DG6676	PBS	0.0	180956676 31A	
A2			LCSS	135.9		
A3			9500920	403.2		36A
A4			9500921-U	380.9		36A
A5			9500921-R	163.3		36A
A6			9500921-D	390.0		36A
A7			9500922	387.3		36A
A8			9500923	409.4		36A
B1			③9510 9514085	544.1	③	③36 34A
B2			9514088	624.9		34A
B3			9514091	767.0		34A
B4			9514094	731.6	↓	34A
B5			9519855-U	322.5	180956676 31B	34A
B6			9519855-D	346.1		34A
B7			9522605	934.6		Full 34A
B8			9522608	754.2		34A
C1			③9529258 9529264	354.7	③180956 676 32B 9529258	34A
C2			9532354	977.6	180956676 33A ③	Full 34A
C3			9532369	940.6	⑥180956 676 33B ~~180956~~	Full 34A
C4			9532375-U	362.1		34A
C5			9532383	376.1	③	34A
C6			9532387	126.5	↓ ↓	Repeat 34A
C7			③~~STNC~~ PBS	0.0	180966676 31A	
C8	Kathy Fair Specialist		LCSS	135.8	↓	

Verified by: APR 10 2018 Date:

263861 27

eurofins | Lancaster Laboratories Environmental	Document Title: Combustion TOC Prep Log Analysis #2079, #0383		
	Eurofins Document Reference : T-WC-FRM10296	Revision: 4.1	Historical Reference: 1-P-QM-FOR-9010010; Form 2705
	Effective date : 30 Dec 2016		Effective

(3) DG6676 4-9-18

Phosphoric Lot # 110817/5-8-18

Oven ID# 974

Oven Temperature (°C) 75

Tray #: 2 Balance ID: 16862 Time In: 12:40 Time Out: 12:55

Position	Date	Analyst	Sample #	Weight (mg)	Batch Number	Comments
A1	4-9-18	DG6676	9530488	630.0	180996676 31A	34A
A2			9530493	460.4		Rocky 34A
A3			9530496-V	970.3		34A Full ~~34~~ @ DG6676 4-10-18
A4			9530496-R	260.2		34A
A5			9530496-D	981.1		34A Full
A6			9530497 (3) ~~25t~~	197.1		34A
A7			9530498	192.8		34A
A8			9530496-M	251.7	↓	34A
B1			PBS	0.0	180996676 32A	NO ACID SCAN 10065
B2			LCSS	137.1		NO ACID SCAN 10065
B3			9519854-V	953.8		NO ACID SCAN 10065 Full 34A
B4			9519854-R	257.6		NO ACID SCAN 10065 34A
B5			9519854-D	930.2		NO ACID SCAN 10065 Full 34A
B6			9519855	280.3	↓	NO ACID SCAN 10065 34A
B7			SYNC	143.4		
B8			Solid Std	138.4		
C1			Solid Std	143.5		
C2			Solid Std	143.1		
C3			Solid Std	146.1		
C4			Solid Std	147.8		
C5			9548579	2.3 µL	180996676 32A	10065 LOD TV=0.680
C6			LCSDS	142.8	180956676 31A	
C7		Kathy Fair Specialist	LCSDS	139.6	180996676 32A	NO ACID SCAN 10065
C8	↓		Solid Std	138.8		

APR 10 2018

Verified by: _____ Date: _____

eurofins | Lancaster Laboratories Environmental	Document Title: Combustion TOC Prep Log Analysis #2079, #0383		
	Eurofins Document Reference : T-WC-FRM10296	Revision: 4.1	Historical Reference: 1-P-QM-FOR-9010010; Form 2705
	Effective date : 30 Dec 2016		Effective

Phosphoric Lot # 110717 5-8-18

Oven ID# 974

Oven Temperature (°C) 75

Tray #: 3 Balance ID: 16862 Time In: 1750 Time Out: 1805

Position	Date	Analyst	Sample #	Weight (mg)	Batch Number	Comments
A1	4-9-18	DG6676	9500921-U	356.5	180956676 31A	36A
A2	↓	↓	9500921-D	368.6	↓	36A
A3						
A4						
A5						
A6						
A7						
A8						
B1						
B2						
B3						
B4						
B5						
B6						
B7						
B8						
C1						
C2						
C3						
C4						
C5						
C6						
C7						
C8						

Kathy Fair
Specialist

Verified by: APR 10 2018 Date:

263861 29

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SNB98

Water Quality

Fraction: Wet Chemistry

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
9500920	SG3a-FD01-180312		X	1	Field Duplicate Sample
9500921	SG3a-SB18-07-0.0-1.0		X	1	
9500922	SG3a-SB18-07-10.0-11.0		X	1	
9500923	SG3a-SB18-07-15.0-18.0		X	1	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

MS/MSD

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

SAMPLE ANALYSIS:

(Sample number(s): 9500920-9500921: Analysis: 00394)
The pH was measured in water at 19.9 C.

(Sample number(s): 9500922: Analysis: 00394)
The pH was measured in water at 19.8 C.

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SNB98

Water Quality

Fraction: Wet Chemistry

(Sample number(s): 9500923: Analysis: 00394)
The pH was measured in water at 19.7 C.

No other problems were encountered with the analysis of the samples.

Abbreviation Key

U = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
R = Matrix Spike (MS)	MDL = Method Detection Limit
M = Matrix Spike Duplicate (MSD)	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	NA = Not Applicable
HS = High Spike	ME = Method
LS = Low Spike	CO = Colorimetric
SS = Soluble Spike	G = Gravimetric
IS = Insoluble Spike	IR = Infrared Spectrophotometry
ISD = Insoluble Spike Duplicate	MTR = Meter
PDS = Post Digestion Spike	OD = Oven Dried
* = Out of Specification	TI = Titration
V = Visual	TOC = Total Organic Carbon
AK = Alpkem	IC = Ion Chromatography
TC = Total Carbon	RA = Rapid Analyzer

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Quality Control Reference List
Water Quality

CLIENT: C. T. Male Associates
SDG: SNB98

Fraction: Wet Chemistry

Analysis	Batch Number	Sample Number	Analysis Date
pH	18073039401A	P073039Q	03/14/2018 21:10:00
		9500920	03/14/2018 21:10:00
		9500921	03/14/2018 21:10:00
		9500922	03/14/2018 21:10:00
		9500923	03/14/2018 21:10:00

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SNB98
Matrix: SOLID

Water Quality
Fraction: Wet Chemistry

LCS: P073039Q	Batch: **18073039401A** (Sample number(s): 9500920-9500923)								
Parameter	**ME**	**Spike Added Std. Units**	**LCS Conc Std. Units**	**LCSD Conc Std. Units**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
pH	MTR	7.00	7.02	NA	100	NA	95-105	NA	NA

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LOQ/MDL Summary
Water Quality

SDG: SNB98

Fraction: Wet Chemistry

00394: pH Analyte Name	Default MDL	Default LOQ	Units
pH	0.0100	0.0100	Std. Units

eurofins | Lancaster Laboratories Environmental	Document Title: Raw Data Logbook Solid pH (Analysis #0394) Corrosivity (Analysis #0496)		
	Eurofins Document Reference : T-WC-FRM11560	Revision: 4.1	Historical Reference: 1-P-QM-FOR-9010004; Form 2670
	Effective date : 28 Dec 2016	Effective	

pH Buffer Reference: G348-03 Balance ID#: 12071

Batch # 18073 039 401A

Date: 3.14.18 Inst. #: 16390

Time: 2110 Analyst: Smyl209

	Sample Number	Sample Wt. (g)	DI H_2O Wt. (g)	Reading	Temp (°C)	Std. True Value	QC#	Batch Letter	Bottle Code	Comments
1	LCS (7.00)	—	—	7.02	17.5	7.00	1	—	—	100%
2	PH2	—	—	2.06	18.8		—	—		
3	PH12	—	—	12.10	18.9		—	—	—	
4	9468808	10.15	25.0 (3)	~~10.48~~ 6.80	20.5			A	21A	4%
5	9468808	10.15	25.0 (3)	~~4.83~~ 6.80	20.5			A	21A	
6	9468808	10.15	25.0 (3)	~~4.83~~ 6.80	20.5			A	21A	
7	9501425	25.10	25.0	4.83	20.2			A	34A	4%
8	9501425	25.10	25.0	4.83	20.2			A	34A	
9	9501425 BKG	25.10	25.0	4.83	20.2			A	34A	
10	9501425 Dup	25.14	25.0	4.88	20.2			A	34A	R=1
11	9498528	25.00	25.0	7.30	19.7			A	21A	
12	9498531	25.11	25.0	7.64	20.0			A	21A	
13	9498534	25.22	25.0	7.26	20.2			A	21A	
14	CCV (7.00)	—	—	7.01	17.4	7.00		—	—	
15	9500920	25.16	25.0	8.02	19.9			A	36A	
16	9500921	25.10	25.0	8.28	19.9			A	36A	
17	9500922	25.12	25.0	8.24	19.8			A	36A	
18	9500923	25.22	25.0	7.75	19.7			A	36A	
19	CCV (7.00)	—	—	7.02	17.6	7.00		—	—	
20	9501968	25.00	25.0	5.99	19.4			B	36A	
21	9502055	25.27	25.0	11.28	19.6			B	21A	
22	9502148 BKG	25.24	25.0 (3)	~~8.20~~ 7.85	19.7			B	20A	
23	9502148 Dup	25.18	25.0	7.81	19.6			B	20A	R=1
24	9502442	25.25	25.0	7.32 (6)	~~19.4~~ 19.8			B	20A	
25	CCV (7.00)	—	—	6.98	17.6	7.00		—	—	(6) MG 3/15/18
26										
27										
28										
29						MA	FLB/25420		3-14-18	
30										
31										

Verified by: MG/11124 Date: 3/15/18

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CLIENT: C. T. Male Associates
SDG: SNB98

MOISTURE

SAMPLE NUMBERS:

Sample #	Sample Code
9500920	98FD1FD
9500921	98070
9500922	98710
9500923	98715

COMMENTS:

Method defined actions are taken for any failed matrix QC.

Laboratory Compliance Quality Control

Analysis Name		LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number:	18073820006A	Sample number(s):		9500920-9500923		
Moisture		100 ✓		99-101		

Sample Matrix Quality Control

Analysis Name		BKG Conc	DUP Conc	RPD	RPD Max	
Batch number:	18073820006A	Sample number(s):		9500920-9500923		not in Site ∴ no crit
Moisture		13.3	15.8	17*	5	

* - Outside of specification

(1) - The result for one or both determinations was less than five times the LOQ.

Moisture Data Report

Batch #: 18073820006

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
9500920FD	A	00111	1.1030	8.4175	8.3883	13.45 ✓	3/14/18 (1201/SWF)	3/15/18 (236/CW)
9500921	A	00111	1.0800	7.4908	8.1150	6.08 ✓	3/14/18 (1201/SWF)	3/15/18 (236/CW)
9500922	A	00111	1.1078	9.2059	9.5226	8.59 ✓	3/14/18 (1201/SWF)	3/15/18 (236/CW)
9500923	A	00111	1.1684	8.1891	8.5318	10.08 ✓	3/14/18 (1201/SWF)	3/15/18 (236/CW)
LCS 89.5% Std.		00111	1.0767	5.0293	1.6080	89.44 ✓	3/14/18 (1201/SWF)	3/15/18 (236/CW)

SECTION 6

PROJECT CORRESPONDENCE

Bryan J. Eck

From: Meg Michell
Sent: Monday, April 16, 2018 3:06 PM
To: Nancy Bornholm; DeAnna Aungst
Cc: j.marx@ctmale.com; Stephanie Lein; lbrady@barr.com; StGobain; MDupay@barr.com; datamgt@barr.com; David Blye; Moline, Kirk (k.moline@ctmale.com); Bryan J. Eck
Subject: RE: SGPP - Bennington EDD File (SNB95-1916534A.NYSDEC_v3.zip); SNB96
Attachments: image001.jpg.html

Hi-
We received the Level IV for the ELLE data for SDGs SNB95 and SNB96 but have not received it for the ALS data. Also, will there be a separate EDD for the TOC data in the typical format? Or will the ELLE EDD be updated to incorporate the TOC data? (How will the electronic data be handled?)
Thanks!

From: Nancy Bornholm [mailto:NancyBornholm@eurofinsUS.com]
Sent: Thursday, April 12, 2018 3:39 PM
To: DeAnna Aungst <DAungst@envstd.com>
Cc: j.marx@ctmale.com; Stephanie Lein <slein@envstd.com>; lbrady@barr.com; StGobain <StGobain@envstd.com>; MDupay@barr.com; datamgt@barr.com; Meg Michell <mmichell@envstd.com>
Subject: RE: SGPP - Bennington EDD File (SNB95-1916534A.NYSDEC_v3.zip)

Due to instrument issues, we had to subcontract the TOC to ALS. We should receive a level IV package from ALS with the TOC data that will be forwarded.
I believe ALS could only run TOC by 9060.

Nancy
Direct dial: 717-556-7250
Main number: 717-656-2300 X 1310

From: DeAnna Aungst [mailto:DAungst@envstd.com]
Sent: Thursday, April 12, 2018 3:34 PM
To: Nancy Bornholm
Cc: Tina McNeil; j.marx@ctmale.com; Stephanie Lein; lbrady@barr.com; StGobain; MDupay@barr.com; datamgt@barr.com; Meg Michell
Subject: RE: SGPP - Bennington EDD File (SNB95-1916534A.NYSDEC_v3.zip)

EXTERNAL EMAIL*

Hi Nancy,

It appears that in SNB95, TOC by 5310 was requested for the following samples, but not reported in the EDD or L2:

Full Sample Name
SG3a-SB18-01-0.0-1.0
SG3a-SB18-01-10.0-11.0
SG3a-SB18-01-15.0-20.0
SG3a-SB18-02-0.0-1.0

Full Sample Name
SG3a-SB18-02-10.0-11.0
SG3a-SB18-02-15.0
SG3a-SB18-02-6.5
SG3a-SB18-02-9.0
SG3A-SB18-01-21.0
SG3A-SB18-01-8.0

The same issue appears to exist in SNB96, for the following samples:

Full Sample Name
SG3a-EB01-180309
SG3a-EB02-180309
SG3a-FD01-180307
SG3a-SB18-03-0.0-1.0
SG3a-SB18-03-10.0-11.0
SG3a-SB18-03-13.0
SG3a-SB18-03-14.0
SG3a-SB18-03-15.0-17.0
SG3a-SB18-04-0.0-1.0
SG3a-SB18-04-10.0-11.0
SG3a-SB18-04-15.0-20.0
SG3a-SB18-04-8.0
SG3a-SB18-05-0.0-1.0
SG3a-SB18-05-10.0-11.0
SG3a-SB18-05-15.0-20.0
SG3a-SB18-05-22.0
SG3a-SB18-06-0.0-1.0
SG3a-SB18-06-10.0-11.0

Is there a reason that TOC was not reported in these two SDGs? The Acknowledgement files we received appear to log them in for the analysis.

Thank You,

DeAnna Aungst
Data Project Manager
Environmental Standards, Inc.
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Emergency Response Quality Assurance Hotline: 855.374.7272

From: LLAutomatedReportingSystem@eurofins.com [mailto:LLAutomatedReportingSystem@eurofins.com]
Sent: Wednesday, April 11, 2018 2:02 PM
To: j.marx@ctmale.com; Stephanie Lein <slein@envstd.com>; lbrady@barr.com; StGobain <StGobain@envstd.com>; MDupay@barr.com; datamgt@barr.com
Cc: NancyBornholm@eurofinsUS.com
Subject: SGPP - Bennington EDD File (SNB95-1916534A.NYSDEC_v3.zip)

I have attached an EDD file (SNB95-1916534A.NYSDEC_v3.zip) for the sampling event beginning 03/05/18 at SGPP - Bennington.

Please contact Nancy Bornholm or me if you have any questions or comments regarding this EDD.

Sincerely,

Tina McNeil
Specialist,
Electronic Data Deliverables

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601
U.S.A.
Phone: 717-656-2300 Ext. 1415
Fax: 717-656-2681

Website: http://www.lancasterlabsenv.com

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Bryan J. Eck

From: Nancy Bornholm <NancyBornholm@eurofinsUS.com>
Sent: Tuesday, May 22, 2018 4:33 PM
To: Meg Michell; DeAnna Aungst; Tina McNeil; j.marx@ctmale.com; Stephanie Lein; lbrady@barr.com; datamgt@barr.com; StGobain; MDupay@barr.com
Cc: Bryan J. Eck; David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: REVISED SGPP - Bennington EDD File (SNB96-1917875B.NYSDEC_v3.zip); SNB95

FYI

Per ALS:

According to the SOP, the samples are placed into a 75 degree Celsius oven until dry.

Nancy
Direct dial: 717-556-7250
Main number: 717-656-2300 X 1310

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Tuesday, May 22, 2018 1:33 PM
To: Nancy Bornholm; DeAnna Aungst; Tina McNeil; j.marx@ctmale.com; Stephanie Lein; lbrady@barr.com; datamgt@barr.com; StGobain; MDupay@barr.com
Cc: Bryan J. Eck; David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: REVISED SGPP - Bennington EDD File (SNB96-1917875B.NYSDEC_v3.zip); SNB95

EXTERNAL EMAIL*

Can you find out what temperature they dry the samples at for TOC? Preferably, can you get their SOP? It is typically at a lower temperature than used for dry-weight and occurs after acidification to remove inorganic carbon (ELLE weighs first, then acidifies, then dries at 75 °C, then ultimately dry-weight corrects the results). Also, as you acidify first, the weight obtained could be biased low by any loss of inorganic carbon (which may or may not be an issue for the matrix). Thanks!

From: Nancy Bornholm [mailto:NancyBornholm@eurofinsUS.com]
Sent: Tuesday, May 22, 2018 12:40 PM
To: Meg Michell <mmichell@envstd.com>; DeAnna Aungst <DAungst@envstd.com>; Tina McNeil <TinaMcNeil@eurofinsUS.com>; j.marx@ctmale.com; Stephanie Lein <slein@envstd.com>; lbrady@barr.com; datamgt@barr.com; StGobain <StGobain@envstd.com>; MDupay@barr.com
Cc: Bryan J. Eck <beck@envstd.com>; David Blye <DBLYE@envstd.com>; Moline, Kirk (k.moline@ctmale.com) <k.moline@ctmale.com>
Subject: RE: REVISED SGPP - Bennington EDD File (SNB96-1917875B.NYSDEC_v3.zip); SNB95

Below is the response we received from ALS and I was given the attachments included. I do not know if the attachments are different from what we have already received or not.

According to the reporting department, both EDDs sent listed SW9060, not SW9060M. The same is with the method codes. Our EDDs only show A2540G, not SM2540G.

All TOC soils are dried before analysis, so they do not need dry weight correction.

Regarding the moisture method that ELLE is citing. It is my understanding that our using SM 2540 G-1997 % Moisture Calc and citing the method code as "CALC" is a more accurate reflection of what we are doing. We would prefer to use this EDD method code.

Nancy
Direct dial: 717-556-7250
Main number: 717-656-2300 X 1310

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Monday, May 21, 2018 1:04 PM
To: Nancy Bornholm; DeAnna Aungst; Tina McNeil; j.marx@ctmale.com; Stephanie Lein; lbrady@barr.com; datamgt@barr.com; StGobain; MDupay@barr.com
Cc: Bryan J. Eck; David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: REVISED SGPP - Bennington EDD File (SNB96-1917875B.NYSDEC_v3.zip); SNB95

EXTERNAL EMAIL*

We are not seeing these level 4s on My EOL. We see files with an "s" instead of a "J" suffix and these still are pretty much result only data packages. We do not seem to have access to the files with a "j" suffix – perhaps these are level 4s? We need the level 4 packages ASAP. We also need clarification on whether all samples are really dry-weight corrected or not as stated in the EDDs as ALS did not always have enough volume to do %moisture. Also, need to clear up the fact that both ELLE and ALS reported moisture results in some cases and the ALS method code is inconsistent between the 2 EDDs. See various highlights below.

These samples were collected nearly 80 days ago and we really need to get these issues resolved. This data is due to be included in a report in the very near future.

From: Nancy Bornholm [mailto:NancyBornholm@eurofinsUS.com]
Sent: Monday, May 21, 2018 11:27 AM
To: Meg Michell <mmichell@envstd.com>; DeAnna Aungst <DAungst@envstd.com>; Tina McNeil <TinaMcNeil@eurofinsUS.com>; j.marx@ctmale.com; Stephanie Lein <slein@envstd.com>; lbrady@barr.com; datamgt@barr.com; StGobain <StGobain@envstd.com>; MDupay@barr.com
Cc: Bryan J. Eck <beck@envstd.com>; David Blye <DBLYE@envstd.com>; Moline, Kirk (k.moline@ctmale.com) <k.moline@ctmale.com>
Subject: RE: REVISED SGPP - Bennington EDD File (SNB96-1917875B.NYSDEC_v3.zip); SNB95

Meg,

We do have the ALS data. It should be the 1917875j and 1916534j documents on MyEOL.

Nancy
Direct dial: 717-556-7250
Main number: 717-656-2300 X 1310

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Thursday, May 10, 2018 9:48 AM
To: Nancy Bornholm; DeAnna Aungst; Tina McNeil; j.marx@ctmale.com; Stephanie Lein; lbrady@barr.com; datamgt@barr.com; StGobain; MDupay@barr.com
Cc: Bryan J. Eck; David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: REVISED SGPP - Bennington EDD File (SNB96-1917875B.NYSDEC_v3.zip); SNB95

EXTERNAL EMAIL*

Checking in on receipt of the Level 4 for the ALS TOC data and resolution on the dry-weight correction, etc. What is the status of these?
Thanks!

From: Nancy Bornholm [mailto:NancyBornholm@eurofinsUS.com]
Sent: Thursday, April 26, 2018 7:03 AM
To: Meg Michell <mmichell@envstd.com>; DeAnna Aungst <DAungst@envstd.com>; Tina McNeil <TinaMcNeil@eurofinsUS.com>; j.marx@ctmale.com; Stephanie Lein <slein@envstd.com>; lbrady@barr.com; datamgt@barr.com; StGobain <StGobain@envstd.com>; MDupay@barr.com
Cc: Bryan J. Eck <beck@envstd.com>; David Blye <DBLYE@envstd.com>; Moline, Kirk (k.moline@ctmale.com) <k.moline@ctmale.com>
Subject: RE: REVISED SGPP - Bennington EDD File (SNB96-1917875B.NYSDEC_v3.zip)

The method reference we cite on the EDD is being discussed with QA. I will let you know the decision.

Nancy
Direct dial: 717-556-7250
Main number: 717-656-2300 X 1310

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Wednesday, April 25, 2018 4:43 PM
To: Nancy Bornholm; DeAnna Aungst; Tina McNeil; j.marx@ctmale.com; Stephanie Lein; lbrady@barr.com; datamgt@barr.com; StGobain; MDupay@barr.com
Cc: Bryan J. Eck; David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: REVISED SGPP - Bennington EDD File (SNB96-1917875B.NYSDEC_v3.zip)

EXTERNAL EMAIL*

The inconsistency is not on the hardcopy, it is in the EDD method reference. Yes, the hardcopy always references SM 2540 G-1997 %Moisture Calc. The EDD has been both "CALC" and "SM 2540G". Early in the project, it only came under "SM 2540G" in the EDDs. At one point, it seemed that you switched to using "CALC" in the EDDs instead (I think sometime between August and October of 2017). We discussed it at the time, and it was agreed to switch back to "SM 2540G" so that the data was consistent (and because this is an actual method code). But the "CALC" method code keeps coming back.

From: Nancy Bornholm [mailto:NancyBornholm@eurofinsUS.com]
Sent: Wednesday, April 25, 2018 4:14 PM
To: Meg Michell <mmichell@envstd.com>; DeAnna Aungst <DAungst@envstd.com>; Tina McNeil <TinaMcNeil@eurofinsUS.com>; j.marx@ctmale.com; Stephanie Lein <slein@envstd.com>; lbrady@barr.com; datamgt@barr.com; StGobain <StGobain@envstd.com>; MDupay@barr.com
Cc: Bryan J. Eck <beck@envstd.com>; David Blye <DBLYE@envstd.com>; Moline, Kirk (k.moline@ctmale.com) <k.moline@ctmale.com>
Subject: RE: REVISED SGPP - Bennington EDD File (SNB96-1917875B.NYSDEC_v3.zip)

Meg,

I will check with ALS on your questions, but regarding the moisture where are you seeing the inconsistency from us? As far as I can tell all of the reports have SM 2540 G-1997 %Moisture Calc as the method reference.

Nancy
Direct dial: 717-556-7250
Main number: 717-656-2300 X 1310

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Wednesday, April 25, 2018 3:39 PM
To: DeAnna Aungst; Tina McNeil; j.marx@ctmale.com; Stephanie Lein; lbrady@barr.com; datamgt@barr.com; StGobain; MDupay@barr.com
Cc: Nancy Bornholm; Bryan J. Eck; David Blye; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: REVISED SGPP - Bennington EDD File (SNB96-1917875B.NYSDEC_v3.zip)

EXTERNAL EMAIL*

Hi-
We have not received the Level 4 data package for the ALS TOC data yet but, based on what we have seen so far, there are a few questions. Some of these might be answered by the Level 4 – but we just don't have that yet:

- In the EDD for SNB95, the TOC method is identified as SW9060M while in the EDD for SNB96, it is identified as SW9060. On the hardcopy of both data packages, the method is listed as SW846 9060A. Is there a reason that different method codes were used in the EDDs for the 2 SDGs?
- The EDDs for both SNB95 and SNB96 contain moisture results from EUROFINSLN with the method code CALC and "moisture, percent" results from ALS with the method code SM 2540G (SNB95) or A2540G (SNB96). The ALS moisture results are only reported for a subset of the samples. On the hardcopy, ALS notes that there was not enough volume to perform the dry weight analysis for some of the samples. The EDDs indicate that all TOC results were reported on a "DRY" weight basis. The hardcopy does not indicate either as received or dry. Aside from the fact that there are two sets of moisture results:
    - What moisture results were used to report TOC results on a dry weight basis for the samples where ALS did not have enough volume to perform dry weight analysis? Or is the EDD incorrect in these cases?
    - The method code for EUROFINSLN keeps switching back and forth between "CALC" and "SM 2540G". I thought that this was resolved and "SM 2540G" would be consistently used.

Also, when can we expect the Level 4 data for the TOC?
Thanks!!

From: DeAnna Aungst
Sent: Wednesday, April 25, 2018 12:09 PM
To: TinaMcNeil@eurofinsUS.com; j.marx@ctmale.com; Stephanie Lein <slein@envstd.com>; lbrady@barr.com; datamgt@barr.com; StGobain <StGobain@envstd.com>; MDupay@barr.com
Cc: NancyBornholm@eurofinsUS.com; Meg Michell <mmichell@envstd.com>; Bryan J. Eck <beck@envstd.com>
Subject: RE: REVISED SGPP - Bennington EDD File (SNB96-1917875B.NYSDEC_v3.zip)

Good Afternoon,

The ALS sections of this report and EDD both include results for sample "SG3A-SB18-05-2**0**.0". I believe that this is a typo, according to sample times, and the referenced sample is actually "SG3A-SB18-05-2**2**.0". Can you please inquire with ALS and have them provide a revised report and EDD?

Thank you,

DeAnna Aungst
Data Project Manager
Environmental Standards, Inc.

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Emergency Response Quality Assurance Hotline: 855.374.7272

ENVIRONMENTAL® STANDARDS

From: LLAutomatedReportingSystem@eurofins.com [mailto:LLAutomatedReportingSystem@eurofins.com]
Sent: Tuesday, April 24, 2018 5:25 PM
To: j.marx@ctmale.com; Stephanie Lein <slein@envstd.com>; lbrady@barr.com; datamgt@barr.com; StGobain <StGobain@envstd.com>; MDupay@barr.com
Cc: NancyBornholm@eurofinsUS.com
Subject: REVISED SGPP - Bennington EDD File (SNB96-1917875B.NYSDEC_v3.zip)

I have attached an EDD file (SNB96-1917875B.NYSDEC_v3.zip) for the sampling event beginning 03/06/18 at SGPP - Bennington.
REVISED
To add TOC data.
Please contact Nancy Bornholm or me if you have any questions or comments regarding this EDD.

Sincerely,

Tina McNeil
Specialist,
Electronic Data Deliverables

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601
U.S.A.
Phone: 717-656-2300 Ext. 1415
Fax: 717-656-2681

Website: http://www.lancasterlabsenv.com

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Bryan J. Eck

From: Meg Michell
Sent: Thursday, May 17, 2018 4:57 PM
To: Nancy Bornholm (NancyBornholm@eurofinsUS.com)
Cc: Christine Ratcliff (ChristineRatcliff@eurofinsUS.com); Charles Neslund; David Blye; StGobain; Bryan J. Eck; Moline, Kirk (k.moline@ctmale.com); Ward Swanson (WSwanson@barr.com); Michael D. Dupay; Lauren Brady; 'edietrich@barr.com'
Subject: RE: SNB98

Checking in on this.
Thanks!

From: Meg Michell
Sent: Tuesday, May 15, 2018 9:36 AM
To: Nancy Bornholm (NancyBornholm@eurofinsUS.com) <NancyBornholm@eurofinsUS.com>
Cc: Christine Ratcliff (ChristineRatcliff@eurofinsUS.com) <ChristineRatcliff@eurofinsUS.com>; Charles Neslund <CharlesNeslund@eurofinsUS.com>; David Blye <DBLYE@envstd.com>; StGobain <StGobain@envstd.com>; Bryan J. Eck <beck@envstd.com>; Moline, Kirk (k.moline@ctmale.com) <k.moline@ctmale.com>; Ward Swanson (WSwanson@barr.com) <WSwanson@barr.com>; 'Michael D. Dupay' <MDupay@barr.com>; 'Lauren Brady' <LBrady@barr.com>; 'edietrich@barr.com' <edietrich@barr.com>
Subject: FW: SNB98

Hi-
Could you address the issues below?
Thanks!!

From: Bryan J. Eck
Sent: Monday, May 14, 2018 2:25 PM
To: Meg Michell <mmichell@envstd.com>
Subject: SNB98

Hey Meg,

It appears that the dilution analyses for SNB98 samples 9500921 and 9500922 were not included in the PFAS raw data even though the results from these analyses were used for PFOA.

In addition, I believe the ICAL associated packaged with the TOC analysis is not the ICAL used to calculate the results. As can be seen below, curve was created 3/2/18 for samples performed 4/9/18.
When I back-calculate the curve based on the results provided I get a slope of 540544.5485791, a y-intercept of (-33996.2300323), and an R^2 of 0.9999288.

Run Name:	18061CAL	Analyst:	6676
Instrument:	17171	Run Start Date:	3/2/2018 1:52:36 PM
Method:	TC	Run End Date:	3/2/2018 3:41:50 PM

SNAccess
Method Name : TC Calibration Type : ISO First order Group : 1
a = -78785.294999999950000 b = 1217946.969607840000000 r = 0.998681933565180 R-Squared = 0.997365608597123

Thanks,
Bryan

Bryan J. Eck
Staff Chemist I
Environmental Standards, Inc.
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Emergency Response Quality Assurance Hotline: 855.374.7272

DATA USABILITY SUMMARY REPORT

ANALYSIS OF PERFLUORINATED COMPOUNDS

IN SEDIMENT SAMPLES AND AQUEOUS BLANKS

1030 WATER STREET, VILLAGE OF NORTH BENNINGTON,

BENNINGTON COUNTY VERMONT, VTDEC SMS SITE # 20164630

SAMPLE DELIVERY GROUP: SPP17

July 5, 2017

Prepared for:

C.T. MALE ASSOCIATES
50 Century Hill Drive
Latham, NY 12110

Prepared by:

ENVIRONMENTAL STANDARDS, INC.
1140 Valley Forge Road
P.O. Box 810
Valley Forge, PA 19482-0810

In conjunction with:

BARR ENGINEERING COMPANY
4300 MarketPointe Drive
Minneapolis, MN 55435

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TABLE OF CONTENTS

Introduction

Section 1 **Quality Assurance Review**

A. Organic Data Review

B. General Parameter Data Review

C. Conclusions

Section 2 **Validated Data Summary Tables**

Section 3 **Laboratory Calibration and Quality Control Acceptance Criteria**

Section 4 **Environmental Standards, Inc., Standard Operating Procedure**

Section 5 **Organic Data Support Documentation**

Section 6 **General Parameter Data Support Documentation**

Section 7 **Laboratory Case Narrative and Project Chain-of-Custody Record**

Section 8 **Project Correspondence**

Introduction

This Data Usability Summary Report (DUSR) was based upon an examination of the data generated from samples that were collected on August 16 and 17, 2016, as part of the 1030 Water Street, Village of North Bennington, Vermont project based on the "Initial Site Characterization Investigation Work Plan Saint-Gobain Performance Plastics Site 1030 Water Street, Village of North Bennington, Bennington County, Vermont" (Work Plan, April 2016). The analyses of the samples (and associated quality control [QC] samples) listed on the table below were performed by Eurofins Lancaster Laboratories Environmental (ELLE) of Lancaster, Pennsylvania. Sediment samples were analyzed for perfluorinated compounds (PFCs) according to ELLE's internal standard operating procedure (SOP) "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins document reference 1-P-QM-WI-9035864, Rev. 2), and percent moisture according to Standard Method (SM) 2540G. Aqueous blank samples were analyzed for PFCs according to ELLE's internal SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins document reference 1-P-QM-WI-9012802, Rev. 5). Comprehensive data deliverables were prepared by the laboratory and were reviewed by Barr Engineering Company (Barr) and Environmental Standards, Inc. (Environmental Standards). The samples that have undergone a quality assurance (QA) review are listed on Table 1. Table 1 also presents the laboratory sample number, laboratory Sample Delivery Group (SDG), matrix, collection date, parameters analyzed and reviewed, and review type for the samples.

The reported analytical results are presented on the validated data summary tables included in Section 2. These validated data summary tables were generated from electronic data deliverables (EDDs) provided by the laboratory and have been edited by the data reviewer to include all final data validation qualifiers and results. The "Lab Result," "Lab MDL" (*i.e.*, the method detection limit [MDL]), "Lab LOQ" (*i.e.*, the limit of quantitation [LOQ]), "Lab Qualifier," and "Lab Detect Flag" fields presented on the validated data summary tables were derived directly from the laboratory-provided EDD. Errors in the "Lab Result," "Lab MDL," "Lab LOQ," and "Lab Detect Flag" fields noted during validation have been corrected, and the corrections are reflected in the "Final Result," "Final MDL," "Final LOQ," and "Final Detect Flag" fields, respectively, on the validated data summary tables. Validation qualifier codes have been placed in the "Validation Qualifier" fields on the data tables to enable the data user to quickly assess the qualitative and/or quantitative reliability of a result based on the criteria evaluated during this QA review. Finally, the "Validation Reason Code" field has been populated with codes that indicate the reason for the validation qualifiers. Definitions of the validation qualifier and reason codes are presented with the validated data summary tables.

This DUSR has been performed with guidance from the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016), and the "National Functional Guidelines for High Resolution Superfund Methods Data Review" (US EPA, April 2016) for the PFC analyses and from the "National Functional Guidelines for Inorganic Superfund Data

Review" (US EPA, September 2016) for percent moisture analysis; however, these validation guidance documents specifically address analyses performed in accordance with the Contract Laboratory Program (CLP) analytical methods and are not completely applicable to the type of analyses and analytical protocol performed by the laboratory for these samples. Environmental Standards used professional judgment to determine the usability of the analytical results and compliance relative to the requirements specified in the Work Plan, US EPA Method 537, ELLE's internal SOPs for PFC analysis, and SM 2540G for percent moisture analysis. US EPA Method 537 is written strictly for drinking water samples and no approved US EPA method currently exists for other sample matrices. Although ELLE's internal SOPs reference US EPA Method 537 for PFC analysis, the procedures are really "in-house" procedures that are also considered "Confidential Information"; therefore, a summary of the Calibration and QC Requirements used by ELLE for PFC analysis has been included in Section 3. In addition, the SOP used by Environmental Standards to validate data generated under the ELLE PFC SOPs is provided in Section 4. Details of this QA review are presented in Section 1 of this DUSR.

This DUSR identifies data quality issues for specific samples and specific evaluation criteria. The data qualifications allow the data end-user to best understand the usability of the analysis results. Data not qualified in this report should be considered valid based on the QC criteria that have been reviewed.

Section 5 of the report presents the Organic Data Support Documentation for this DUSR and Section 6 of the report presents the General Parameter Data Support Documentation for this DUSR. Section 7 presents copies of the Laboratory Case Narrative and Project Chain-of-Custody (COC) Record. Section 8 presents the Project Correspondence.

TABLE 1 – SUMMARY OF SAMPLES REVIEWED

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3-LTB01-160816 (Trip Blank)	8535010	SPP17	Aq	8/16/16	F*	PFC
SG3-FTB01-160816 (Field Blank)	8535011	SPP17	Aq	8/16/16	F*	PFC
SG3-FD01-160816 (Field Duplicate of SG3-DGWATERMH-160816)	8535012	SPP17	Aq	8/16/16	F*	PFC
SG3-DGWATERMH-160816	8535013	SPP17	Aq	8/16/16	F*	PFC
SG3-UGWATERMH-160816	8535014	SPP17	Aq	8/16/16	F*	PFC
SG3-UGWATERMH-160816 MS (Matrix Spike)	8535015	SPP17	Aq	8/16/16	F*	PFC
SG3-UGWATERMH-160816 MSD (Matrix Spike Duplicate)	8535016	SPP17	Aq	8/16/16	F*	PFC
SG3-UGNBENNMH-160816	8535017	SPP17	Aq	8/16/16	F*	PFC
SG3-DGRIVERMH-160816	8535018	SPP17	Aq	8/16/16	F*	PFC
SG3-BLDGOUTLET-160816	8535019	SPP17	Aq	8/16/16	F*	PFC
SG3-EB01-160816 (Equipment Rinse Blank)	8535020	SPP17	Aq	8/16/16	F*	PFC
SG3-RB01-160816 (Equipment Rinse Blank)	8535021	SPP17	Aq	8/16/16	F*	PFC
SG3-RB02-160816 (Equipment Rinse Blank)	8535022	SPP17	Aq	8/16/16	F*	PFC
SG3-RB03-160816 (Equipment Rinse Blank)	8535023	SPP17	Aq	8/16/16	F*	PFC
SG3-RB04-160816 (Equipment Rinse Blank)	8535024	SPP17	Aq	8/16/16	F*	PFC
SG3-RB05-160816 (Equipment Rinse Blank)	8535025	SPP17	Aq	8/16/16	F*	PFC
SG3-RB06-160816 (Equipment Rinse Blank)	8535026	SPP17	Aq	8/16/16	F*	PFC
SG3-RB01-160817 (Equipment Rinse Blank)	8535027	SPP17	Aq	8/17/16	F*	PFC

TABLE 1 (Cont.)

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Review Type	Parameter(s) Examined
SG3-RB02-160817 (Equipment Rinse Blank)	8535028	SPP17	Aq	8/17/16	F*	PFC
SG3-RB03-160817 (Equipment Rinse Blank)	8535029	SPP17	Aq	8/17/16	F*	PFC
SG3-SUMP01-160817	8535030	SPP17	SE	8/17/16	F* L	PFC Mois
SG3-SUMP02-160817	8535031	SPP17	SE	8/17/16	F* L	PFC Mois
SG3-SUMP02-160817 DUP (Laboratory Duplicate)	8535031DUP	SPP17	SE	8/17/16	L	Mois
SG3-SUMP02-160817 MS (Matrix Spike)	8535032	SPP17	SE	8/17/16	F*	PFC
SG3-SUMP02-160817 MSD (Matrix Spike Duplicate)	8535033	SPP17	SE	8/17/16	F*	PFC
SG3-EB01-160817 (Equipment Rinse Blank)	8535034	SPP17	Aq	8/17/16	F*	PFC
SG3-SUMP03-160817	8535035	SPP17	SE	8/17/16	F* L	PFC Mois
SG3-FD01-160817 (Field Duplicate of SG3-SUMP03-160817)	8535036	SPP17	SE	8/17/16	F* L	PFC Mois
SG3-BLDGOUTLET-160817	8535037	SPP17	SE	8/17/16	F* L	PFC Mois

NOTES:

PFC - Perfluorinated Compounds (PFCs) according to ELLE's SOP "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins document reference 1-P-QM-WI-9035864, Rev. 2) for soil samples or ELLE's SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins document reference 1-P-QM-WI-9012802, Rev. 5) for aqueous blank samples. (28 Full analyses)

Mois - Percent Moisture by Standard Method 2540G. (8 Limited analyses)

Aq - Aqueous.

SE - Sediment.

F* - Full QA Review (performed in association with Barr personnel).

L - Limited QA Review.

Section 1 Quality Assurance Review

A. Organic Data Review

The organic analyses of seven sediment and 20 aqueous samples (including QC samples) collected as part of the 1030 Water Street, Village of North Bennington, Vermont project on August 16 and 17, 2016, were performed by ELLE. Sediment samples were analyzed for PFCs according to ELLE's internal SOP "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins document reference 1-P-QM-WI-9035864, Rev. 2). Aqueous blank samples were analyzed for PFCs according to ELLE's internal SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins document reference 1-P-QM-WI-9012802, Rev. 5). Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data were presented in comprehensive data deliverables.

Barr personnel performed the initial data review and Environmental Standards personnel conducted a secondary peer review and prepared this report. The findings offered in this report are based upon a review of all tabulated QC summary forms and raw data including the following QC measures:

- Sample and extract holding times
- Blank analysis results
- Second-source initial calibration verification (ICV) recoveries
- Laboratory control sample (LCS) results
- Labeled compound responses
- Analytical sequence
- Quantitation of results
- Sample condition upon laboratory receipt
- Initial calibrations
- Continuing calibration verification (CCV) recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate precision
- Qualitative identification

The analytical results for the organic target compounds are presented on the validated data summary tables in Section 2 of this report. The validated data summary tables include the full names of the target analytes along with their associated acronyms, which are used throughout the text of this DUSR. A summary of ELLE's Calibration and QC Requirements has been included in Section 3. The SOP used by Environmental Standards to validate data generated under the ELLE SOP is provided in Section 4. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, relevant raw data, and other documentation needed to support the findings in this DUSR in the Organic Data Support Documentation (Section 5), Laboratory Case Narrative and Project Chain-of-Custody Record (Section 7), and Project Correspondence (Section 8). The data reviewer has also manually edited the laboratory-reported data, and QC summary forms included in these sections based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Usability issues are addressed in the subsequent Organic Data Qualifiers section. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the ELLE internal SOPs and the reference method, US EPA Method 537, Revision 1.1.

Reporting Issues

1. In some cases, the criteria presented on various calibration and QC summary forms included in the data packages were disparate with the criteria presented in ELLE's internal SOPs. In addition, the laboratory noted exceedances in the Case Narrative that were sometimes not consistent with the SOP criteria. Upon request for clarification, ELLE provided a summary of the Calibration and QC Requirements relevant to the PFC analyses performed, which has been included in Section 3. Some of the criteria provided were different than those presented in either the internal ELLE SOPs, or the data package. The data reviewer evaluated the data based on the criteria presented in Section 3 as detailed in the data validation SOP in Section 4.

2. Several samples appeared to have two peaks for PFOA, PFNA, PFOS, PFHxS, PFHpA, PFUnA, and/or PFTriA at different retention times (RTs; reflecting branched and linear isomers); however, only the peak for the linear isomer was integrated for these samples in the data package provided. Upon inquiry, the laboratory confirmed that both peaks should be integrated and provided a revised report and EDD to reflect the corrected results (refer to Project Correspondence).

3. Several samples appeared to have additional peaks/area integrated for PFHxA, PFHpA, and/or PFBS that should not have been integrated. Upon inquiry, the laboratory confirmed that the additional peaks should not be integrated and provided a revised report and EDD to reflect the corrected results (refer to Project Correspondence).

4. The laboratory did not document the use of additional internal standard solution for the 10×, 100×, 1000×, and/or 10,000× dilution analyses of the sediment samples. Upon inquiry, laboratory personnel stated that 22.5 µL of internal standard solution was added to 100 µL of extract prior to the 10× dilutions, 25 µL of internal standard solution was added to 100 µL of extract prior to the 100× dilutions, 1000× dilutions were performed by executing these same 100× and 10× dilutions in sequence, and 10,000× dilutions were performed by this same 1000× dilution followed by another 10× dilution in sequence (refer to Project Correspondence).

5. The laboratory recorded the final volume as 1 µL on the organic extraction log for batch 16235011. The correct final volume was 1 mL. The laboratory provided revised logs to reflect the correct final volume upon request (refer to Project Correspondence).

6. The laboratory did not report the spike levels or % differences on the summary form associated with the CCV analyzed on 9/14/16 at 16:00, on instrument 24743. Upon request, the laboratory revised the summary form to include the missing values (refer to Project Correspondence).

7. Several of the Internal Standards summary forms (Form 08s) were either missing samples or contained incorrect initial calibration average areas and limits. Upon request, the laboratory provided a revised data package with corrected forms (refer to Project Correspondence).

8. The MDLs and LOQs reported by the laboratory for PFCs in solid samples and their associated batch QC (method blank, LCS, and MS/MSD) were calculated based on a sample weight of 5.00 g in the original data package and EDD provided. The actual sample weight, as recorded on the extraction log, was between 4.50 g and 5.50 g for solid samples. Upon inquiry, the laboratory revised the MDLs and LOQs to reflect the actual sample weights as used for the positive results (refer to Project Correspondence).

9. The laboratory Case Narrative incorrectly stated that all analyses were performed within holding time. Several dilution analyses for PFOA were performed outside of holding time (refer to Procedural Issue No. 3).

Procedural Issues

1. US EPA Method 537 is listed as the reference method in the title of the ELLE SOPs; however, US EPA Method 537 is written specifically for the analysis of drinking water samples. As a result, the laboratory has made modifications to the extraction procedure to accommodate preparation of non-aqueous samples (ultrasonic extraction for an hour with 4:1 acetonitrile/water mixture vs. solid-phase extraction). In addition, the laboratory has made other modifications, including, but not limited to, the following:

    - For aqueous blank samples, 100 mL was subsampled for extraction instead of using the entire container contents (250 mL), and Sep-Pak C18 solid-phase extraction cartridges were used instead of polystyrenedivinylbenzene.
    - The laboratory utilized additional labeled analogs of the target PFCs, where available for use, as pre-extraction internal standards (all target PFCs except PFBS, PFTA, and PFTriA), which generally should normalize any extraction inefficiency and provide greater accuracy in quantitation.
    - As the labeled internal standards were added prior to extractions, additional labeled surrogate compounds were not used (for dilution analyses, internal standards were refortified after extraction and prior to dilution).
    - A holding time of 28 days from collection to extraction was used for sediments.
    - The calibration and QC requirements that were used are presented in Section 3 and are less restrictive than US EPA Method 537 in some cases.

- The laboratory did not control the relative percent difference (RPD) between the high and low areas for each internal standard in the initial calibration (must be < 20% by US EPA Method 537, Version 1.1).
- The laboratory did not calculate the peak asymmetry factor.
- The laboratory did not use the lowest and highest standards from the initial calibration in the CCV standard rotation.
- The laboratory did not rotate the concentration used for the LCS.
- The calibration standards only included the linear PFC isomers and available branched/linear standards were not analyzed for qualitative or quantitative purposes.
- Alternate ion transitions were used for PFBS, PFHxS, PFOS, and $^{13}C_4$-PFOS (299→99 instead of 299→80 for PFBS, 399→99 instead of 399→80 for PFHxS, 499→99 instead of 499→80 for PFOS, and 503→99 instead of 503→80 for $^{13}C_4$-PFOS) - the fragment represented by *m/z* 80 is the sulfonate group; whereas, the fragment represented by *m/z* 99 is the fluorinated sulfonate group.

  US EPA Method 537 requires the use of 499→80 for PFOS and 399→80 for PFHxS. Studies[1] have shown that quantifying with a linear standard using the 499→99 transition may underestimate the PFOS concentration because many of the branched isomers have a lower response than the linear isomer. Conversely, using only the 499→80 transition could overestimate PFOS if branched isomers are quantitated based on a linear standard. It is unknown whether the same potential biases are present for the 399→99 and 399→80 transitions for PFHxS and 299→99 and 299→80 transitions for PFBS.

2. Where transition ion peaks were observed and deemed by laboratory personnel to represent branched isomers in samples, the responses for such peaks were included in the response for the analyte and used to quantitate the sample results. The laboratory did not analyze standards that included both branched and linear isomers, and the laboratory's SOP did not specify RT criteria for determining whether peaks other than the peak representative of the linear isomer (based on calibration standards) should be included.

3. Due to very high concentrations of PFOA, the laboratory analyzed samples SG3-SUMP02-160817, SG3-SUMP03-160817, and SG3-FD01-160817 for PFOA beyond the 28-day holding time from extraction to analysis (Quality Assurance Project Plan, Appendix B to Work Plan, Table 2). Qualification of data due to this issue is addressed in the subsequent Organic Data Qualifiers section

4. A high recovery (> 130%) was observed for PFTriA in the LCS associated with all sediment samples; however, the laboratory did not re-extract the LCS and associated samples as specified in ELLE's Calibration and QC Requirements that have been included in Section 3. According to the Case Narrative, the QC limits are only advisory until sufficient data points

[1] See Riddell, N. *et al.* Branched Perfluorooctane Sulfonate Isomer Quantification and Characterization in Blood Serum Samples by HPLC/ESI-MS(/MS). *Environ. Sci. Technol.* **2009**, 43, 7902-7908.

can be obtained to calculate statistical limits. The advisory limits of 70-130% are consistent with US EPA Method 537. The data reviewer has qualified the results as estimated due to the high recovery as addressed in the subsequent Organic Data Qualifiers section.

Data Evaluation

With respect to data usability, the principal areas of concern are equipment blank contamination, holding time exceedance, out-of-criteria MS/MSD recoveries, a high LCS recovery, field duplicate imprecision, out-of-criteria internal standard responses, and quantitation below the LOQs. Based on a rigorous review of the data provided, the following data qualifiers are offered. The following data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, areas of the data that were identified for qualification may not require corrective action according to the analytical SOP used for analysis. Accordingly, the following data usability issues should not be construed as an indication of laboratory performance.

Organic Data Qualifiers

- Due to the trace-level presence of PFOA in associated equipment rinse blanks, the reported positive results for PFOA in SDG SPP17 samples SG3-UGNBENNMH-160816 and SG3-DGRIVERMH-160816 should be considered "not-detected" and have been flagged "UB" on the data tables. The data reviewer has deleted the result from the "Final Result" field, changed the "Final Detect Flag" to "N," and raised the "Final MDL" and/or "Final LOQ" to the value of the original result on the data tables. (Validation Reason Code: EB)

- The reported positive results for PFOA in samples SG3-SUMP02-160817, SG3-SUMP03-160817, and SG3-FD01-160817 should be considered estimated and have been flagged "J" on the data tables. These samples were analyzed beyond the holding time of 28 days from extraction to analysis (see Procedural Issue 3). (Validation Reason Code: HAL)

- The reported positive results for PFOS and PFTA in sample SG3-SUMP02-160817 should be considered estimated and have been flagged "J" on the data tables. Low recoveries (< 70%) were observed for these compounds in the associated MS and/or MSD analyses. (Validation Reason Code: MAL)

- The reported positive results for PFBS and PFTriA in sample SG3-SUMP02-160817 should be considered estimated and have been flagged "J" on the data tables. High recoveries (> 130%) were observed for these compounds in the associated MS and/or MSD analyses. (Validation Reason Code: MAH)

- The reported positive results for PFTriA in samples SG3-SUMP01-160817, SG3-SUMP02-160817, SG3-SUMP03-160817, SG3-FD01-160817, and SG3-BLDGOUTLET-160817 should be considered estimated and have been flagged "J" on the data tables. A high recovery (> 130%) was observed for PFTriA in the associated LCS analysis (see Procedural Issue 4). (Validation Reason Code: LAH)

- One aqueous field duplicate pair (sample SG3-DGWATERMH-160816 and its field duplicate, SG3-FD01-160816) and one sediment field duplicate pair (sample SG3-SUMP03-160817 and its field duplicate, SG3-FD01-160817) were collected and analyzed for PFCs with this data set. Acceptable precision and sample representativeness (the RPD was ≤ 30% when both results were ≥ 5× the LOQ, or the difference between results was ≤ 1.5× the LOQ when at least one result was < 5× the LOQ) were observed between the reported positive results in the field duplicate samples with the following exception. The reported positive results for PFDoA, PFHxA, PFNA, and PFOA in samples SG3-SUMP03-160817 and SG3-FD01-160817 should be considered estimated and have been flagged "J" on the data tables. High RPDs (> 30%) were observed between the results for these compounds in the field duplicate analysis. A complete comparison of the field duplicate positive results is included in Section 5. (Validation Reason Code: FD)

- The MDLs and LOQs for the compounds listed on the table below may be higher than reported, and the "not-detected" results have been flagged "UJ" on the data tables. In addition, the reported positive results for the compounds listed on the table below should be considered estimated and have been flagged "J" on the data tables. Low responses (< 50% of the associated initial calibration average response) were observed for the labeled isotopes used to quantitate these compounds in the analyses of these samples. (Validation Reason Code: IS)

SDG	Sample(s)	Compound(s) With Estimated Positive Results ("J")	Compound(s) With Estimated MDLs and LOQs ("UJ")
SPP17	SG3-FTB01-160816	-	PFHxA
SPP17	SG3-FD01-160816	PFHxA	PFDA, PFDoA, PFTA, PFTriA, and PFUnA
SPP17	SG3-DGWATERMH-160816	PFHxA and PFOA	PFDA, PFDoA, PFTA, PFTriA, and PFUnA
SPP17	SG3-UGWATERMH-160816	PFHxA, PFHpA, and PFOA	PFDA, PFDoA, PFTA, PFTriA, PFUnA, and PFNA
SPP17	SG3-UGNBENNMH-160816	PFHxA	PFDoA, PFTA, PFTriA, and PFUnA
SPP17	SG3-DGRIVERMH-160816	-	PFDoA, PFTA, and PFTriA
SPP17	SG3-BLDGOUTLET-160816	PFBS	PFHxS

SDG	Sample(s)	Compound(s) With Estimated Positive Results ("J")	Compound(s) With Estimated MDLs and LOQs ("UJ")
SPP17	SG3-RB01-160816, SG3-RB02-160816, SG3-RB03-160816, SG3-RB04-160816, SG3-RB05-160816, SG3-RB06-160816, SG3-RB01-160817, and SG3-EB01-160817	-	PFHxA
SPP17	SG3-SUMP01-160817	PFDoA, PFTA, and PFTriA	-
SPP17	SG3-SUMP02-160817	PFBS, PFHxS, PFDoA, PFTA, PFTriA, PFNA, and PFUnA	-
SPP17	SG3-SUMP03-160817	PFBS, PFHxS, PFDoA, PFTA, PFTriA, PFOS, PFNA, PFUnA, and PFDA	-
SPP17	SG3-FD01-160817	PFBS, PFHxS, PFDoA, PFTA, PFTriA, PFOS, PFNA, PFUnA, and PFDA	-
SPP17	SG3-BLDGOUTLET-160817	PFOS and PFUnA	-

- The reported positive results for PFHpA in samples SG3-SUMP01-160817, SG3-SUMP02-160817, and SG3-BLDGOUTLET-160817 should be considered estimated and have been flagged "J" on the data tables. High internal standard responses (> 150% of the associated initial calibration average response) were observed for the labeled isotope used to quantitate this compound in the analyses of these samples. (Validation Reason Code: IS)

- All positive results reported with concentrations between the laboratory's reported MDLs and LOQs were flagged "J" by the laboratory. Environmental Standards concurs that these positive results should be considered quantitative estimates. (Validation Reason Code: RL)

B. General Parameter Data Review

The general parameter analyses of eight sediment samples (including QC samples) collected as part of the 1030 Water Street, Village of North Bennington, Vermont project on August 17, 2016, were performed by ELLE. The samples were analyzed for percent moisture by SM 2540G. Specific analyses reviewed and QA review type for all samples are identified on Table 1. The data were presented in comprehensive data deliverable.

The findings offered in this report are based upon a review of all tabulated QC summary forms including the following QC measures:

- Sample condition upon laboratory receipt
- Laboratory duplicate precision
- Field duplicate precision
- LCS results
- Quantitation of results

The analytical results for the target compounds are presented on the data tables in Section 2 of this DUSR. Additional discussion of any requirements that were not met is provided below. The data reviewer has included copies of validation forms, QC summary forms, and other documentation needed to support the findings in this DUSR in the General Parameter Data Support Documentation (Section 6), Laboratory Case Narrative and Project Chain-of-Custody Record (Section 7), and Project Correspondence (Section 8). The data reviewer has also manually edited the laboratory-reported data and QC summary forms included in these sections based on findings cited in this DUSR.

The following issues were identified during the data validation process and may or may not affect data usability. Reporting issues regard the completeness and accuracy of the laboratory data deliverables provided. Procedural issues regard the evaluation of compliance with the analytical methods performed.

Reporting Issue

- Reporting issues were not identified during this QA review.

Procedural Issue

- Procedural issues were not identified during this QA review.

Data Evaluation

With respect to data usability, qualification of the data was not warranted. The condition of sample upon laboratory receipt was acceptable. Accuracy was demonstrated by acceptable LCS recoveries. Precision was demonstrated by the field and laboratory duplicate analyses.

C. Conclusions

The analytical data are acceptable for use as reported by the laboratory with the following qualifications. Several organic results were qualified as estimated due to high MS/MSD recoveries, high LCS recoveries, low internal standard responses, field duplicate imprecision, and quantitation below the LOQs. The general chemistry results did not warrant qualification. In order to use any of the data, the data user should understand the qualifications and limitations as specified in this DUSR. The Laboratory Case Narrative and Project Chain-of-Custody Record are presented in Section 7 of this report. Project Correspondence is presented in Section 8.

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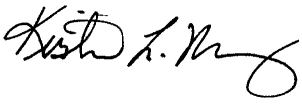

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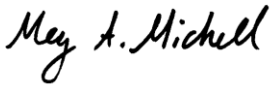

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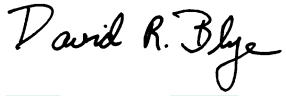

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SECTION 2

VALIDATED DATA SUMMARY TABLES

Validation Qualifier and Reason Code Definitions

Table 1. Validation Qualifiers and Definitions

Validation Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analyte has been “tentatively identified” or considered “presumptively” present.
UJ	The analyte was analyzed for, but was not detected. The reported MDL and limit of quantitation (LOQ) are approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
UB	The Analyte was not detected substantially above the level reported in the associated laboratory, equipment, field, or trip blank.

Table 2. Validation Reason Codes and Descriptions

Validation Reason Code	Description
CI	Chromatographic interference
CR	Calculated result in which one or more of the components has been qualified, potential bias indeterminate
CRH	Calculated result in which one or more of the components has been qualified, potential high bias
CRL	Calculated result in which one or more of the components has been qualified potential low bias
CV	Continuing calibration verification evaluation criteria not met, potential bias indeterminate
CVH	Continuing calibration verification evaluation criteria not met, potential high bias
CVL	Continuing calibration verification evaluation criteria not met, potential low bias
DC	Reporting limit exceeds decision criteria (for non-detects)
DL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the detection limit.
DT	Dissolved metals concentration exceeded total metals concentration in the sample above the acceptance criteria
DV	Missing Deliverables
EB	Equipment blank contamination
EC	Result exceeds the calibration range, potential bias indeterminate
ECH	Result exceeds the calibration range, potential high bias
ECL	Result exceeds the calibration range, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
EP	Estimated Maximum Possible Concentration (EMPC)
FB	Field blank contamination
FD	Field duplicate imprecision, potential bias indeterminate
FP	Potential false positives
FR	Field replicate imprecision, potential bias indeterminate
HA	Holding time - preparation to analysis, potential bias indeterminate
HAH	Holding time - preparation to analysis, potential high bias
HAL	Holding time - preparation to analysis, potential low bias
HC	Holding time - collection to analysis, potential bias indeterminate
HCH	Holding time - collection to analysis, potential high bias
HCL	Holding time - collection to analysis, potential low bias
HP	Holding time - collection to preparation, potential bias indeterminate
HPH	Holding time - collection to preparation, potential high bias
HPL	Holding time - collection to preparation, potential low bias
HV	Headspace present in volatile vials, potential bias indeterminate
HVL	Headspace present in volatile vials, potential low bias
IB	Instrument (including initial calibration or continuing calibration) blank contamination
IC	Initial calibration evaluation criteria not met, potential bias indeterminate
ICH	Initial calibration evaluation criteria not met, potential high bias
ICL	Initial calibration evaluation criteria not met, potential low bias
ID	Target compound identification criteria not met
IN	Elevated detection limit due to interference (i.e., laboratory, chemical, and/or matrix)
IR	Interference check standard recovery criteria not met, potential bias indeterminate
IRH	Interference check standard recovery criteria not met, potential high bias
IRL	Interference check standard recovery criteria not met, potential low bias
IS	Internal standard evaluation criteria not met, potential bias indeterminate
ISH	Internal standard evaluation criteria not met, potential high bias
ISL	Internal standard evaluation criteria not met, potential low bias
LA	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential bias indeterminate
LAH	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential high bias
LAL	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential low bias

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
LD	Laboratory duplicate precision criteria not met, potential bias indeterminate
LM	The PFK lock mass SICPs indicate that ion suppression evident
LP	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential bias indeterminate
LPH	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential high bias
LPL	Laboratory control sample/laboratory control sample duplicate precision criteria not met, potential low bias
LR	Linear range exceeded, potential bias indeterminate
MA	Matrix spike (MS &/or MSD) recovery criteria not met, potential bias indeterminate
MAH	Matrix spike (MS &/or MSD) recovery criteria not met, potential high bias
MAL	Matrix spike (MS &/or MSD) recovery criteria not met, potential low bias
MB	Method blank or preparation blank contamination
MP	Matrix spike (MS/MSD) or laboratory duplicate precision criteria not met, potential bias indeterminate
NB	Elevated detection limit or estimated result due to instrument drift (i.e., negative ICB or CCB result with an absolute value > 2× the MDL)
PD	Post-digestion spike recovery outside acceptance range, potential bias indeterminate
PDH	Post-digestion spike recovery outside acceptance range, potential high bias
PDL	Post-digestion spike recovery outside acceptance range, potential low bias
PJ	Professional judgment, potential bias indeterminate
PJH	Professional judgment, potential high bias
PJL	Professional judgment, potential low bias
PM	Performance evaluation mixture criteria not met, potential bias indeterminate
PMH	Performance evaluation mixture criteria not met, potential high bias
PML	Performance evaluation mixture criteria not met, potential low bias
PR	Peak(s) not adequately resolved, potential bias indeterminate
PRH	Peak(s) not adequately resolved, potential high bias
PRL	Peak(s) not adequately resolved, potential low bias
PS	Low percent solids could affect accuracy, potential bias indeterminate
PT	Chromatographic pattern in sample does not match pattern of calibration standard
RA	Reference material recovery criteria not met, potential bias indeterminate

Validation Qualifier and Reason Code Definitions

Validation Reason Code	Description
RAH	Reference material recovery criteria not met, potential high bias
RAL	Reference material recovery criteria not met, potential low bias
RB	Rinsate blank contamination
RL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the quantitation or reporting limit, potential bias indeterminate
SA	Method of standard additions correction coefficient <0.995, potential bias indeterminate
SC	RPD Between two columns exceeds criteria, potential bias indeterminate
SD	Serial dilution results did not meet evaluation criteria, potential bias indeterminate
SDH	Serial dilution results did not meet evaluation criteria, potential high bias
SDL	Serial dilution results did not meet evaluation criteria, potential low bias
SP	Sample Preservation / Cooler Temperature, potential bias indeterminate
SPH	Sample Preservation / Cooler Temperature, potential high bias
SPL	Sample Preservation / Cooler Temperature, potential low bias
SR	Surrogate recovery outside acceptance range, potential bias indeterminate
SRH	Surrogate recovery outside acceptance range, potential high bias
SRL	Surrogate recovery outside acceptance range, potential low bias
SS	Second source evaluation criteria not met, potential bias indeterminate
SSH	Second source evaluation criteria not met, potential high bias
SSL	Second source evaluation criteria not met, potential low bias
ST	Compound not quantitated against an authentic standard, potential bias indeterminate
TB	Trip blank contamination
TD	Result for dissolved constituent significantly exceeded result for total constituent, potential bias indeterminate
TIC	Tentative identification, quantified using an assumed calibration factor, potential bias indeterminate.
TIR	Tentative identification and was observed in an associated laboratory, equipment, field, or trip blank.
TN	Instrument performance (tuning) criteria not met
YH	Due to a high y-intercept in the calibration curve, the sample result quantitated to a value greater than the MDL. Since the response ratio in the sample was less than the response ratio in the associated MDL standard, the reported result was changed to not-detected.

Facility:Bennington

SDG:SPP17

Sample ID	SG3-BLDGOUTLET-160817
Sample Date	8/17/2016 12:25:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SE
Lab Sample ID	8535037
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	49.4	0.50	0.50		Y	49.4	0.50	0.50		Y	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-FD01-160817
Sample Date	8/17/2016 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3-SUMP03-160817_08/17/2016
Sample Matrix	SE
Lab Sample ID	8535036
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	3.7	0.50	0.50		Y	3.7	0.50	0.50		Y	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-SUMP01-160817
Sample Date	8/17/2016 10:45:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SE
Lab Sample ID	8535030
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	5.3	0.50	0.50		Y	5.3	0.50	0.50		Y	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-SUMP02-160817
Sample Date	8/17/2016 11:10:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SE
Lab Sample ID	8535031
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	3.6	0.50	0.50		Y	3.6	0.50	0.50		Y	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-SUMP03-160817
Sample Date	8/17/2016 11:45:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SE
Lab Sample ID	8535035
Analytical Method	SM 2540G
Result Unit	%
Validated?	Y
Validation Level	DUSR

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Moisture, Percent	MOIST	1	3.7	0.50	0.50		Y	3.7	0.50	0.50		Y	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-BLDGOUTLET-160816
Sample Date	8/16/2016 12:40:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	WS
Lab Sample ID	8535019
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1	21	4	10		Y	21	4	10	J	Y	IS
Perfluorodecanoic acid (PFDA)	335-76-2	10	380	10	20		Y	380	10	20		Y	
Perfluorododecanoic acid (PFDoA)	307-55-1	1	17	3	5		Y	17	3	5		Y	
Perfluoroheptanoic acid (PFHpA)	375-85-9	10	3900	10	20		Y	3900	10	20		Y	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	UJ	N	IS
Perfluorohexanoic acid (PFHxA)	307-24-4	100	6900	100	200		Y	6900	100	200		Y	
Perfluorononanoic acid (PFNA)	375-95-1	10	640	10	20		Y	640	10	20		Y	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1	16	5	10		Y	16	5	10		Y	
Perfluorooctanoic acid (PFOA)	335-67-1	1000	190000	1000	2000		Y	190000	1000	2000		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	4	2	4		Y	4	2	4		Y	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	28	2	4		Y	28	2	4		Y	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-BLDGOUTLET-160817
Sample Date	8/17/2016 12:25:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	SE
Lab Sample ID	8535037
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		0.94	3.0	U	N		0.94	3.0	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	10	630	3.8	7.5		Y	630	3.8	7.5		Y	
Perfluorododecanoic acid (PFDoA)	307-55-1	1	110	0.75	1.5		Y	110	0.75	1.5		Y	
Perfluoroheptanoic acid (PFHpA)	375-85-9	10	170	5.6	11		Y	170	5.6	11	J	Y	IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.94	3.0	U	N		0.94	3.0	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	130	0.38	0.75		Y	130	0.38	0.75		Y	
Perfluorononanoic acid (PFNA)	375-95-1	100	1500	38	75		Y	1500	38	75		Y	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1	64	1.3	3.0		Y	64	1.3	3.0	J	Y	IS
Perfluorooctanoic acid (PFOA)	335-67-1	1000	14000	560	1100		Y	14000	560	1100		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	9.3	0.56	1.5		Y	9.3	0.56	1.5		Y	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	37	1.1	2.3		Y	37	1.1	2.3	J	Y	LAH
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	84	0.56	1.1		Y	84	0.56	1.1	J	Y	IS

Facility:Bennington

SDG:SPP17

Sample ID	SG3-DGRIVERMH-160816
Sample Date	8/16/2016 12:00:00 PM
Sample Type	N
Parent Sample ID	
Sample Matrix	WS
Lab Sample ID	8535018
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	UJ	N	IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	2	1	2		Y	2	1	2		Y	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	6	1	2		Y	6	1	2		Y	
Perfluorononanoic acid (PFNA)	375-95-1	1	4	1	2		Y	4	1	2		Y	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	29	1	2		Y		29	29	UB	N	EB
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	IS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-DGWATERMH-160816
Sample Date	8/16/2016 10:10:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	WS
Lab Sample ID	8535013
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	UJ	N	IS
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	UJ	N	IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	6	1	2		Y	6	1	2		Y	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	13	1	2		Y	13	1	2	J	Y	IS
Perfluorononanoic acid (PFNA)	375-95-1	1	2	1	2	J	Y	2	1	2	J	Y	RL
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	270	1	2		Y	270	1	2	J	Y	IS
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	IS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	UJ	N	IS

Facility:Bennington

SDG:SPP17

Sample ID	SG3-EB01-160816
Sample Date	8/16/2016 12:55:00 PM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8535020
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	9	1	2		Y	9	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-EB01-160817
Sample Date	8/17/2016 11:15:00 AM
Sample Type	EB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8535034
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	120	1	2		Y	120	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-FD01-160816
Sample Date	8/16/2016 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3-DGWATERMH-160816
Sample Matrix	WS
Lab Sample ID	8535012
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	UJ	N	IS
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	UJ	N	IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	5	1	2		Y	5	1	2		Y	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	10	1	2		Y	10	1	2	J	Y	IS
Perfluorononanoic acid (PFNA)	375-95-1	1	2	1	2	J	Y	2	1	2	J	Y	RL
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1	14	5	10		Y	14	5	10		Y	
Perfluorooctanoic acid (PFOA)	335-67-1	1	240	1	2		Y	240	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	IS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	UJ	N	IS

Facility:Bennington

SDG:SPP17

Sample ID	SG3-FD01-160817
Sample Date	8/17/2016 12:00:00 AM
Sample Type	FD
Parent Sample ID	SG3-SUMP03-160817_08/17/2016
Sample Matrix	SE
Lab Sample ID	8535036
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1	7.8	0.47	1.5		Y	7.8	0.47	1.5	J	Y	IS
Perfluorodecanoic acid (PFDA)	335-76-2	10	170	1.9	3.8		Y	170	1.9	3.8	J	Y	IS
Perfluorododecanoic acid (PFDoA)	307-55-1	1	11	0.38	0.76		Y	11	0.38	0.76	J	Y	FD,IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	100	1200	28	57		Y	1200	28	57		Y	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1	8.4	0.47	1.5		Y	8.4	0.47	1.5	J	Y	IS
Perfluorohexanoic acid (PFHxA)	307-24-4	100	2700	19	38		Y	2700	19	38	J	Y	FD
Perfluorononanoic acid (PFNA)	375-95-1	1	100	0.19	0.38		Y	100	0.19	0.38	J	Y	FD,IS
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1	350	0.66	1.5		Y	350	0.66	1.5	J	Y	IS
Perfluorooctanoic acid (PFOA)	335-67-1	10000	120000	2800	5700		Y	120000	2800	5700	J	Y	HAL,FD
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	8.2	0.28	0.76		Y	8.2	0.28	0.76	J	Y	IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	6.8	0.57	1.1		Y	6.8	0.57	1.1	J	Y	LAH,IS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	12	0.28	0.57		Y	12	0.28	0.57	J	Y	IS

Facility:Bennington

SDG:SPP17

Sample ID	SG3-FTB01-160816
Sample Date	8/16/2016 10:05:00 AM
Sample Type	FB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8535011
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-LTB01-160816
Sample Date	8/16/2016 12:00:00 AM
Sample Type	TB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8535010
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-RB01-160816
Sample Date	8/16/2016 3:00:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8535021
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-RB01-160817
Sample Date	8/17/2016 10:25:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8535027
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	6	1	2		Y	6	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-RB02-160816
Sample Date	8/16/2016 3:05:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8535022
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-RB02-160817
Sample Date	8/17/2016 10:30:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8535028
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	5	1	2		Y	5	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-RB03-160816
Sample Date	8/16/2016 3:10:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8535023
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-RB03-160817
Sample Date	8/17/2016 10:35:00 AM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8535029
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	U	N	
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	5	1	2		Y	5	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-RB04-160816
Sample Date	8/16/2016 3:15:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8535024
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1		1	2	U	N		1	2	U	N	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-RB05-160816
Sample Date	8/16/2016 3:20:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8535025
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	5	1	2		Y	5	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-RB06-160816
Sample Date	8/16/2016 3:25:00 PM
Sample Type	RB
Parent Sample ID	
Sample Matrix	WQ
Lab Sample ID	8535026
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	U	N	
Perfluoroheptanoic acid (PFHpA)	375-85-9	1		1	2	U	N		1	2	U	N	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1		1	2	U	N		1	2	UJ	N	IS
Perfluorononanoic acid (PFNA)	375-95-1	1		1	2	U	N		1	2	U	N	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	2	1	2		Y	2	1	2		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	U	N	
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	U	N	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	U	N	

Sample ID	SG3-SUMP01-160817
Sample Date	8/17/2016 10:45:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SE
Lab Sample ID	8535030
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1	3.1	0.51	1.6		Y	3.1	0.51	1.6		Y	
Perfluorodecanoic acid (PFDA)	335-76-2	1	36	0.20	0.41		Y	36	0.20	0.41		Y	
Perfluorododecanoic acid (PFDoA)	307-55-1	1	24	0.41	0.82		Y	24	0.41	0.82	J	Y	IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	10	140	3.1	6.1		Y	140	3.1	6.1	J	Y	IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		0.51	1.6	U	N		0.51	1.6	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	10	380	2.0	4.1		Y	380	2.0	4.1		Y	
Perfluorononanoic acid (PFNA)	375-95-1	1	42	0.20	0.41		Y	42	0.20	0.41		Y	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1	7.0	0.71	1.6		Y	7.0	0.71	1.6		Y	
Perfluorooctanoic acid (PFOA)	335-67-1	1000	33000	310	610		Y	33000	310	610		Y	
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	24	0.31	0.82		Y	24	0.31	0.82	J	Y	IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	9.6	0.61	1.2		Y	9.6	0.61	1.2	J	Y	LAH,IS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	13	0.31	0.61		Y	13	0.31	0.61		Y	

Facility:Bennington

SDG:SPP17

Sample ID	SG3-SUMP02-160817
Sample Date	8/17/2016 11:10:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SE
Lab Sample ID	8535031
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1	5.3	0.50	1.6		Y	5.3	0.50	1.6	J	Y	MAH,IS
Perfluorodecanoic acid (PFDA)	335-76-2	10	140	3.0	4.0		Y	140	3.0	4.0		Y	
Perfluorododecanoic acid (PFDoA)	307-55-1	1	6.1	0.40	0.80		Y	6.1	0.40	0.80	J	Y	IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	1000	1300	300	600		Y	1300	300	600	J	Y	IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1	3.0	0.50	1.6		Y	3.0	0.50	1.6	J	Y	IS
Perfluorohexanoic acid (PFHxA)	307-24-4	10	330	3.0	4.0		Y	330	3.0	4.0		Y	
Perfluorononanoic acid (PFNA)	375-95-1	1	87	0.20	0.40		Y	87	0.20	0.40	J	Y	IS
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1	32	0.70	1.6		Y	32	0.70	1.6	J	Y	MAL
Perfluorooctanoic acid (PFOA)	335-67-1	10000	300000	3000	6000		Y	300000	3000	6000	J	Y	HAL
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	2.2	0.30	0.80		Y	2.2	0.30	0.80	J	Y	MAL,IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	3.8	0.60	1.2		Y	3.8	0.60	1.2	J	Y	LAH,MAH,IS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	9.8	0.30	0.60		Y	9.8	0.30	0.60	J	Y	IS

Facility:Bennington

SDG:SPP17

Sample ID	SG3-SUMP03-160817
Sample Date	8/17/2016 11:45:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	SE
Lab Sample ID	8535035
Analytical Method	E537
Result Unit	ng/g
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1	10	0.48	1.5		Y	10	0.48	1.5	J	Y	IS
Perfluorodecanoic acid (PFDA)	335-76-2	10	170	1.9	3.9		Y	170	1.9	3.9	J	Y	IS
Perfluorododecanoic acid (PFDoA)	307-55-1	1	16	0.39	0.77		Y	16	0.39	0.77	J	Y	FD,IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	100	1600	29	58		Y	1600	29	58		Y	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1	9.3	0.48	1.5		Y	9.3	0.48	1.5	J	Y	IS
Perfluorohexanoic acid (PFHxA)	307-24-4	100	4200	19	39		Y	4200	19	39	J	Y	FD
Perfluorononanoic acid (PFNA)	375-95-1	10	140	1.9	3.9		Y	140	1.9	3.9	J	Y	FD,IS
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1	350	0.68	1.5		Y	350	0.68	1.5	J	Y	IS
Perfluorooctanoic acid (PFOA)	335-67-1	10000	190000	2900	5800		Y	190000	2900	5800	J	Y	HAL,FD
Perfluorotetradecanoic acid (PFTA)	376-06-7	1	6.7	0.29	0.77		Y	6.7	0.29	0.77	J	Y	IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1	7.0	0.58	1.2		Y	7.0	0.58	1.2	J	Y	LAH,IS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1	14	0.29	0.58		Y	14	0.29	0.58	J	Y	IS

Facility:Bennington

SDG:SPP17

Sample ID	SG3-UGNBENNMH-160816
Sample Date	8/16/2016 11:25:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	WW
Lab Sample ID	8535017
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	U	N	
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	UJ	N	IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	2	1	2	J	Y	2	1	2	J	Y	RL
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	7	1	2		Y	7	1	2	J	Y	IS
Perfluorononanoic acid (PFNA)	375-95-1	1	6	1	2		Y	6	1	2		Y	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	15	1	2		Y		15	15	UB	N	EB
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	IS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	UJ	N	IS

Facility:Bennington

SDG:SPP17

Sample ID	SG3-UGWATERMH-160816
Sample Date	8/16/2016 10:45:00 AM
Sample Type	N
Parent Sample ID	
Sample Matrix	WW
Lab Sample ID	8535014
Analytical Method	E537
Result Unit	ng/l
Validated?	Y
Validation Level	CATEGORY B

Chemical Name	CAS	DF	Lab Result	Lab MDL	Lab LOQ	Lab Qualifier	Lab Detect Flag	Final Result	Final MDL	Final LOQ	Final Qualifier	Final Detect Flag	Validation Reason Code
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1		4	10	U	N		4	10	U	N	
Perfluorodecanoic acid (PFDA)	335-76-2	1		1	2	U	N		1	2	UJ	N	IS
Perfluorododecanoic acid (PFDoA)	307-55-1	1		3	5	U	N		3	5	UJ	N	IS
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	9	1	2		Y	9	1	2	J	Y	IS
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1		4	10	U	N		4	10	U	N	
Perfluorohexanoic acid (PFHxA)	307-24-4	1	10	1	2		Y	10	1	2	J	Y	IS
Perfluorononanoic acid (PFNA)	375-95-1	1	1	1	2	J	Y	1	1	2	J	Y	RL,IS
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1		5	10	U	N		5	10	U	N	
Perfluorooctanoic acid (PFOA)	335-67-1	1	400	1	2		Y	400	1	2	J	Y	IS
Perfluorotetradecanoic acid (PFTA)	376-06-7	1		3	5	U	N		3	5	UJ	N	IS
Perfluorotridecanoic Acid (PFTriA)	72629-94-8	1		2	4	U	N		2	4	UJ	N	IS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	1		2	4	U	N		2	4	UJ	N	IS

SECTION 3

LABORATORY CALIBRATION AND QUALITY CONTROL ACCEPTANCE CRITERIA

Initial Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
1. Initial Calibration: Minimum of five calibration standards spanning at least a 20-fold concentration range. 2. Analyze MDL standard to ensure all compounds detected at MDL level	1. Initially and the after continuing calibration fails. 2. Analyzed with each initial calibration.	1. Back calculated concentration of each calibration point should be within ±70-130% of true. The level 1 calibration standard back calculated concentrations should be ±50-150% of true value. Analytes without a labeled internal standard back calculated concentrations should be within ±40-160% of true value. 2. All compounds detected.	1. If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the initial calibration can be used. In those cases, the data will be reported with a qualifying comment. 2. If compound not detected in MDL standard, the source of the problem should be determined and the system recalibrated.

Continuing Calibration Criteria

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Analyze every 10 samples and at the end of the analysis sequence. Concentrations alternate between low, mid, and high levels of the calibration curve.	Occurs every 10 samples and at the end of the analysis sequence.	Calculated amount should be within ±30% of the true value. Compounds without labeled internal standards should have calculated amounts within ±40% of the true value. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	If criteria are not met, the source of the problem should be determined, corrected and the system recalibrated. Situations may exist where the continuing calibration can be used. In those cases, the data will be reported with a qualifying comment.

Initial Calibration Verification

Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)
Second source standard analyzed at the end of each initial calibration.	Analyzed with each initial calibration	1. Calculated amount for each compound should be within ±70-130% of the true value. Analytes without a labeled internal standard should have calculated amounts within ±40% of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	1. If criteria are not met, the source of the problem should be determined and corrected. Situations may exist where the initial calibration verification can be used. In those cases, the data will be reported with a qualifying comment.

QC Acceptance Criteria

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Method Blanks	1 per 20 field samples	No positive detections above the MDL.	Reextract to confirm detection or report if the analyte present in the method blank is not detected in the sample.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
LCS	1 per 20 field samples	1. Advisory QC limits of 70-130%, RPD<30% 2. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	Reextract LCS and associated samples. Analytes that fail high and are ND in the samples can be reported. Due to the advisory nature of the acceptance limits, situations may exist where LCS can be used. In those cases, the data will be reported with a qualifying comment.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
MS/MSD	MS is routinely prepared with each extraction batch. If limited sample volume exists, an LCS/LCSD will be prepared.	1. Advisory QC limits of 70-130%, RPD<30%. 2. The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	Evaluate in conjunction with LCS.

QC Sample	Frequency/Number	QC Acceptance Limits	Corrective Action
Isotopically labeled internal standards	Per sample (including MS/MSD, LCS, and Blanks)	The absolute areas of the isotopically labeled internal standards should be within ±50-150 of the average areas measured during the initial calibration.	Reinject samples as necessary. Report data with qualifying comment.

SECTION 4

ENVIRONMENTAL STANDARDS, INC., STANDARD OPERATING PROCEDURE

1.0 OBJECTIVES

This standard operating procedure (SOP) describes procedures that the Environmental Standards data reviewers will use to validate Perfluorinated Compound (PFC) data for solid samples generated by Eurofins SOP "Perfluorinated Compounds (PFCs) in Solids by Method 537 Modified Using LC/MS/MS" (Eurofins Document Reference 1-P-QM-WI-9035864) or "Polyfluorinated Alkyl Substances (PFASs) in Solids by Method 537.1 Modified Using LC/MS/MS" (Eurofins Document Reference 1-P-QM-WI-9039643) and aqueous samples generated by Eurofins SOP "Determination of Selected Perfluorinated Alkyl Acids (PFAAs) in Aqueous Samples by LC/MS/MS by Method 537" (Eurofins Document Reference 1-P-QM-WI -9012802) or "Polyfluorinated Alkyl Substances (PFASs) in Aqueous Samples by Method 537.1 Modified Using LC/MS/MS" (Eurofins Document Reference 1-P-QM-WI -9039651), for various Saint-Gobain Performance Plastics Corporation (Saint-Gobain) sites. Validation will be performed to assess compliance of the sample data to these Eurofins SOPs and any applicable Work Plans and/or Quality Assurance Project Plans (QAPPs). In addition, the usability of the PFC data provided by the analytical laboratory will be determined based on the general guidance provided in the "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016) and "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016). It should be noted that the National Functional Guidelines apply strictly to data generated by the Contract Laboratory Program (CLP) protocol and are not directly applicable to validation of data generated by Modified EPA Method 537; therefore, this SOP presents the specific data qualification actions that will be used for validation.

The validation findings will be presented in a quality assurance review (QAR) that will be prepared for one or more sample delivery groups (SDGs). Copies of annotated analytical results summaries (Form I's), including any changes to the analytical results and data qualifier codes, or

a data summary spreadsheet of the qualified analytical results, will be included in the support documentation of the QAR.

2.0 EVALUATION TOOLS

- field duplicate form (DVF_DUP_SG_ELLE.xlsm)

Chemistry Applications:

- Curve fitting software (DVF_CAL.xlsm)
- Methods Database

3.0 REFERENCE DOCUMENTS

- "National Functional Guidelines for Organic Superfund Data Review" (US EPA, September 2016)

- "National Functional Guidelines for High Resolution Superfund Methods Data Review (USEPA, April 2016).

- Eurofins Document Reference 1-P-QM-WI -9035864.

- Eurofins Document Reference 1-P-QM-WI -9012802.

- Eurofins Document Reference 1-P-QM-WI -9039643.

- Eurofins Document Reference 1-P-QM-WI -9039651.

- US EPA Method 537, Version 1.1 (September 2009).

- Guidance for Labelling Externally Validated Laboratory Analytical Data for Superfund Use (EPA 540-R-08-005, 2009).

4.0 PROCEDURE

4.1 EVALUATION OF METHOD COMPLIANCE

The data reviewer will assess the method compliance of the PFC data based on an evaluation of information presented in the data package deliverables. Compliance to the aforementioned SOPs (and Work Plan and/or QAPP when applicable) will be evaluated as part of the assessment. In addition, the deliverables will be evaluated for reporting errors and inconsistencies. The findings of the compliance assessment will be described in terms of comments/deficiencies about the data/deliverables and presented in two subdivisions (*i.e.*, Reporting Issues and Procedural Issues) of the Organic Data Evaluation Section of the QAR. Each issue discussed in the QAR will indicate any subsequent impact on the usability of the data or will identify aspect(s) of the data that could not be evaluated due to the deficiency.

The data reviewer may contact the project laboratory to request the correction of deficiencies prior to submittal of the QAR (if feasible and sanctioned by Saint Gobain). At a minimum, corrections required to allow for a full evaluation of the usability of the data should be requested. Such correctable deficiencies may include sample result errors,

missing data deliverables, or calculation errors that would require a significant amount of the data reviewer's time to correct. Any laboratory resubmittals as a result of such requests will be discussed in the Reporting Issue subdivision of the QAR and included as an attachment to the QAR.

4.2 DETERMINATION OF DATA USABILITY

The data reviewer will determine the usability of the PFC data based on an evaluation of the information presented in the data package deliverables. The findings of the PFC data usability assessment will be presented in terms of data qualifications that the project team should consider in order to best utilize the data; these qualifications will be presented in the Organic Data Qualifier subsection of the QAR. Each qualification discussed in the QAR will indicate that the affected sample result(s) has been flagged with a representative qualifier code(s) in the data tables to provide, at a glance, an indication of the quantitative and qualitative reliability of each analytical result. In general, the qualifier statements will be presented in the QAR in the following order: blank contamination (UB), unusable results (R/UR), estimated results (J/UJ), tentative identifications of target compound results (N), and a general qualifier for all results reported below the limit of quantitation (if applicable). In addition, a Validation Reason Code will be presented on the data tables to indicate the reason that a qualifier code has been applied.

The data reviewer's criteria for evaluating the usability of the PFC data and the resultant qualifications and reason codes will be as stipulated on the attached Table for the Validation of PFC Data Generated. Additional qualifications and reason codes will be assigned based on professional judgement. It should be noted that the project manager

should be consulted when "professional judgement" use is indicated on the attached table.

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Temperature Upon Receipt	≤6°C	If temperature is <2°C, no action is required unless samples were frozen/broken and then professional judgment should be used. If temperature is >6°C but ≤20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SPL") If temperature is > 20°C, qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SPL") Note time of collection relative to receipt at laboratory. Professional judgement should be used if < 8 hours has elapsed from collection to receipt at the laboratory to determine if qualification due to elevated temperature applies.
Technical Holding Time	Solid samples should be extracted within 28 days of sample collection and aqueous samples should be extracted within 14 days of collection. All extracts should be analyzed within 28 days after extraction.	If a holding time is exceeded, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively) If a holding time is grossly exceeded (*i.e.*, > twice the holding time), qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "HPL" or "HAL" for extraction or analysis holding time exceedance, respectively)

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Initial Calibration (See Note #1 for additional information.)	Back calculated concentration of each calibration point should be within 70-130% of true. The level I (lowest) calibration standard back calculated concentrations should be within 50-150% of true value. Analytes without a labeled internal standard back calculated concentrations should be within 60-140% of true value.	**When evaluating initial calibration, use professional judgment to first assess impact of any out-of-criteria labeled PFC on the corresponding target PFC(s).** If the low point or consecutive points at the low end of the curve are below the lower recovery criteria, qualify positive results < lowest compliant point as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "ICL") If the low point or consecutive points at the low end of the curve are above the upper recovery criteria, qualify positive results < lowest compliant point as estimated ("J"). If a point in the middle of the curve or non-consecutive points (beside the low point) quantitate outside of criteria, qualify positive results as estimated ("J"). If the high point or consecutive points at the upper end of the curve quantitates outside of criteria, qualify positive results > highest compliant point as estimated ("J"). (Validation Reason Code "ICL," "ICH," or "IC," are to be used based on whether direction of bias can be determined in these situations) Professional judgement should be used to qualify "not-detected" results as estimated ("UJ") if low recoveries are observed for standards other than the lowest calibration point. (Validation Reason Code "ICL")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Second Source Initial Calibration Verification (ICV)	1. Calculated amount for each compound should be within 70-130% (±30%) of the true value. Analytes without a labeled internal standard should have calculated amounts within 60-140% (±40%) of the true value. 2. The absolute areas of the isotopically labeled internal standards should be within 50-150% of the average areas measured during the initial calibration.	**Qualification is for all samples associated with initial calibration being verified.** **When evaluating ICV, use professional judgment to first assess impact of any out-of-criteria labeled PFC on the corresponding target PFC.** If target PFC has %D>30% (or >40% for compounds without labeled internal standards) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "SSH") If target PFC has %D>30% (or >40% for compounds without labeled internal standards) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "SSL") If target PFC has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "SSL")
Daily Calibration Verification (See Note #2 for additional information.)	Calculated amount should be within ±30% of the true value. Compounds without labeled internal standards should have calculated amounts within ±40% of the true value. The absolute areas of the isotopically labeled internal standards should be within 50-150% of the average areas measured during the initial calibration.	**Qualification is for all samples on both sides of the out-of-criteria calibration verification standards.** **When evaluating calibration verification, use professional judgment to first assess impact of any out-of-criteria labeled PFC on the corresponding target PFC.** If target PFC has %D>30% (or >40% for compounds without labeled internal standards) with the response indicating a sensitivity increase, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "CVH") If target PFC has %D>30% (or >40% for compounds without labeled internal standards) but ≤90%, with the response indicating a sensitivity decrease, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "CVL") If target PFC has %D>90% with the response indicating a sensitivity decrease , qualify positive results as estimated ("J") and qualify "not-detected" results as unusable ("R"). (Validation Reason Code "CVL")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Blanks (See Note #3 for additional information.)	Summarize all results greater than the method detection limit (MDL) present in the blanks. The highest positive result associated with a sample should be utilized for evaluation of contamination.	If a target PFC is found in the blank but not in the associated sample(s), no action is required. If a sample result is ≤5× the blank result, qualify the positive result as "not detected" ("UB") and raise the method detection limit (MDL) and/or limit of quantitation (LOQ) (if lower than original reported positive result) to the value of the original result. (Validation Reason Code(s) "EB," FB," "IB," "MB," and or "TB," as appropriate). If a sample result is >5× blank result, qualification is not required. Professional judgement should be used to evaluate whether an aqueous blank should be used to qualify a solid sample.
Internal Standards (Labelled Analytes, spiked prior to extraction)	The response for each IS in the original sample (prior to dilutions) must be within ±%50 of the average initial calibration response.	If an IS response is outside of 50-150% but ≥10%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ") for PFCs quantitated using that IS. (Validation Reason Code "IS") If an IS response is < 10%, qualify positive results for the associated PFCs as estimated ("J") and qualify "not-detected" results for the associated PFCs as estimated ("UJ") or unusable ("R") using professional judgment (based on the approximate signal-to-noise ratio for the IS and the expected response for the target PFC at the LOQ). (Validation Reason Code "IS")
Laboratory Control Samples (LCS)/ Laboratory Control Sample Duplicates (LCSD)	%R within 70-130%, RPD ≤ 30%.	**The LCS qualification will be applied to all samples in the preparation batch.** If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). (Validation Reason Code "LAL") If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "LAL") If the precision between recoveries exceeds the RPD criterion, qualify positive results as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "LP")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Matrix Spike/Matrix Spike Duplicate (MS/MSD) (If performed)	%R within 70-130%, RPD ≤ 30%.	Data should not be qualified due to %Rs (or RPDs calculated on %Rs) that are outside of criteria if the original concentration of a PFC is >4× the spiking level for that compound. RPDs calculated using MS/MSD results can be used to evaluate precision. If the recovery is > 130%, qualify positive results in all associated samples as estimated ("J") and do not qualify "not-detected" results. (Validation Reason Code "MAH") If the recovery is < 70%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as estimated ("UJ"). If the recovery is < 30%, qualify positive results in all associated samples as estimated ("J") and qualify "not-detected" results in all associated samples as unusable ("R"). (Validation Reason Code "MAL") If the precision between recoveries exceeds the RPD criterion, qualify the positive result in the native sample as estimated ("J") and do not qualify the "not-detected" result. (Validation Reason Code "MP")
Field/Laboratory Duplicate (See Note #4 for additional information)	RPD ≤ 30% when PFCs are detected in one sample ≥ sample-specific LOQ (RL). The RPD should be ≤30% for results >5× the sample-specific LOQ (RL). The difference between results should be ≤ 1.5×LOQ when at least one result is ≤5× the LOQ.	**If both results are <LOQ, a quantitative assessment of duplicate precision is not performed.** If the criteria are not met, qualify positive results for the out-of-criteria PFCs in the original sample and its duplicate as estimated ("J"). (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate) Use the MDL as a numerical value for any "not-detected" result in the difference calculation. Qualify "not-detected" results as estimated ("UJ") if the difference between the results is outside of criteria. (Validation Reason Code "LD" for laboratory duplicate or "FD" for field duplicate)
Percent Solids	Solid samples with less than 30% solid content require qualification.	If a solid sample has a percent solid content <30%, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code of "PS") Use professional judgment if a solid sample has a percent solids content <10%. (Validation Reason Code of "PS")

Table for the Validation of PFC Data

Quality Control Item	Usability Criteria	Action
Compound Quantitation and Qualitative Identification (See Notes #5 for additional information.)	Samples with results that exceed the instrument calibration range should be reanalyzed at a dilution or re-extracted with a lower volume.	If a target PFC result exceeds the instrument calibration range, qualify positive result as estimated ("J"). (Validation Reason Code "EC") Use professional judgment to determine whether sample reanalyses and dilutions should be compared to the original analyses. If criteria (see field duplicate usability) between the original sample results and the reanalysis sample results are not met, qualify positive results as estimated ("J") and qualify "not-detected" results as estimated ("UJ"). (Validation Reason Code "LD") If a target PFC is <LOQ but ≥MDL, qualify positive results as estimated ("J"). (Validation Reason Code "RL") Use professional judgment to determine whether quantitation and qualitative identifications are accurate and whether data qualification is necessary.
System Performance	Professional judgement should be used when assessing the degradation of system performance during analyses.	Use professional judgment to qualify the data if it is determined that system performance degraded during sample analyses.
Overall Assessment of Data	Assess overall quality of the data. Review available materials to assess the quality, keeping in mind the additive nature of the analytical problems.	Use professional judgment to determine the need to qualify data not qualified based on the QC previously discussed. Write a brief narrative to give the user an indication of the analytical limitations of the data. If sufficient information on the intended use and required quality of the data is available, include the assessment of the usability of the data within the given context.

Validation Notes

1. Use professional judgment when evaluating the response intercept of a calibration curve. If the response intercept is positive, the samples should be evaluated for false positives. If the response intercept is negative, the sample should be evaluated for false negatives.

2. If instrument instability (*i.e.*, several calibration verification standards with PFCs exhibiting both increasing and decreasing sensitivity throughout an analytical sequence) is observed in the analysis of sequential calibration verification standards, "not-detected" results may be qualified as estimated ("UJ") due to instrument sensitivity of a continuing calibration standard response that is greater than the initial calibration standard response (increase in instrument sensitivity).

3. The frequency of equipment/rinse blanks is determined during the sampling event. The results of an equipment/rinse blank should be applied to all samples collected in the same day by the same techniques, unless only one blank was collected for a several-day sampling event. In instances where more than one blank is associated with a given sample, qualification should be based upon a comparison with the associated blank having the highest concentration of a contaminant.

   Method blank contamination should be applied to samples in the preparation batch.

   Instrument blank contamination should be applied to samples bracketing the contaminated instrument blank.

   Blanks should also be evaluated using professional judgment for non-target interference.

Validation Notes

4. Duplicate samples may be collected and analyzed as an indication of overall precision. Field duplicate analyses measure both field and laboratory precision; therefore, the results may have more variability than laboratory duplicates that measure only laboratory performance. Laboratory duplicate results and field duplicate results apply only to the original sample and the laboratory/field duplicate. Solid duplicate results are expected to have greater variance than aqueous duplicate results.

5. If a sample result exceeds the instrument calibration range (lower dilution analysis) or is less than the LOQ (secondary dilution), do not utilize this result when comparing an original analysis and a diluted reanalysis.

Poor chromatographic performance may affect qualitative identification and/or quantitation. Indications of substandard performance include:

- High background levels
- Extraneous peaks
- Loss of resolution
- Peak tailing or peak splitting that may result in inaccurate quantitation
- The laboratory analyzes a Cal3 level standard that contains linear and branch chained isomers of PFOA, PFOS, and PFHxS for analyses by Eurofins Document References 1-P-QM-WI-9039643 and 1-P-QM-WI -9039651. The analysis of this standard is used to demonstrate where the branch chained isomers elute and is not included in the calibration curve. This will assist the chemist in the integration of branched isomers of these compounds in samples.

SECTION 5

ORGANIC DATA SUPPORT DOCUMENTATION

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: Saint Gobain Bennington
Sample Collection Dates: 08/16/16 – 08/17/2016
Job Number: Group #1641935 20167391. NBEN
Project Manager: MAM
Laboratory: ELLE

Reviewed by: Dana Pasi (DLB)
Approved by: MAM
Completion Date: 6/2017

Applicable Sample No's (√) Refer to Table 1 in the Quality Assurance Review

Deliverable:			Sample No.	Lab Control No.
	CLP (Full)	( )		
	Level IV (Full)	(√)	SPP17-V.2	
	Limited	( )		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail Check (√) if Yes or Footnote Letter for Comments Below					Problems Identified Check (√) if Yes or Footnote Letter for Comments Below					Support Documentation Attachments Check (√) if Yes or Footnote Letter for Comments Below				
	PFC					PFC					PFC				
Holding Times	√					√ (2)					√				
Blank Analysis: Target Cmpds	√					√ (3)					√				
Sys Montr Cmps/Surrogates	NA														
Matrix Spike/Matrix Spike Duplicate	√					√ (4)					√				
Blank Spike	√					√ (5)					√				
Duplicate Analysis (X) Field ( ) Lab	√					√ (6)									
Detection Limit/Sensitivity	√										√				
Qualitative Identification: Target Cmpds	√										√				
Qualitative Identification: TICs	NA														
DFTPP & BFB Mass Tuning	NA														
GC Instrument Performance	NA														
Initial Calibrations	√										√				
Continuing Calibrations	√										√				
Quantitation of Results	√					√ (7)					√				
DDT/Endrin Breakdown	NA														
Surrogate Retention Time Shifts	NA														
Internal Standards Performance	√					√ (8)					√				
Resolution Check Standards	NA														
Analytical Sequence	√										√				
Florisil Cartridge & GPC Calibration	NA														
GC Column Agreement	NA														
Condition Upon Receipt	√										√				
Percent Solids	√ (1)														
Others:															

ENVIRONMENTAL STANDARDS

ORGANIC ANALYSIS SUPPORT DOCUMENTATION

Comments: (1) Checked % solids but did not perform Level IV review; (2) PFOA reported diluted results exceeded 28 days from extraction for multiple soil samples; (3) EBs and RBs w/ PFOA detections, MBs < MDLs; (4) 16235011 soil batch: Multiple compounds w/ MS and/or MSD Recoveries that were outside limits but spike too small compared to sample (4x) resulting in no qualification; soil (batch 16235011) and water (batch 16236005) MS/MSD Recoveries resulted in qualification; (5) 16235011 soil batch: PFTrDA high LCS; (6) soil field duplicate multiple compounds qualified based on RPDs exceeding limit; (7) lab checking some peak integrations; (8) ISTD responses low for some target analytes and high for a reported soil 13C4- PFHpA ISTD

BLANK ANALYSIS RESULTS FOR ORGANIC PARAMETERS

Fraction (1)	Matrix (Aq., S)	Blank Type (2)	Blank Sample Number	Contaminant	Concentration (ng/L)	Qualification limit	
						5×	10×
PFC	Aq	TB	SG3-LTB01-160816	All ND			
PFC	Aq	FB	SG3-FTB01-160816	All ND			
PFC	Aq	EB	SG3-EB01-160816 (pump tubing/Aq only)	PFOA	9*	45*	
PFC	Aq	EB	SG3-RB01-160816	All ND			
PFC	Aq	EB	SG3-RB02-160816	All ND			
PFC	Aq	EB	SG3-RB03-160816	All ND			
PFC	Aq	EB	SG3-RB04-160816	All ND			
PFC	Aq	EB	SG3-RB05-160816 (1' slug/ AQ)	PFOA	5	25	
PFC	Aq	EB	SG3-RB06-160816 (3' slug/ AQ)	PFOA	2	10	
PFC	Aq	EB	SG3-RB01-160817 (hand spade/soil only)	PFOA	6	30	
PFC	Aq	EB	SG3-RB02-160817 (nitrile gloves)	PFOA	5	25	
PFC	Aq	EB	SG3-RB03-160817 (ziplock bag/soil only)	PFOA	5	25	
PFC	Aq	EB	SG3-EB01-160817 (hand spade/soil only)	PFOA	120**	600**	
PFC	S	MB	16235011 BLK	All ND (ng/g)			
PFC	Aq	MB	16236005 BLK	All ND			

1 – V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: _____

2 – MB = Method Blank; TB = Trip Blank; EB = Equipment Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes: *Highest blank associated with AQ samples – PFOA results in samples 8535017 and 8535018 were qualified UB
**Highest blank associated with soil samples (0.6 ppb PFOA) - soil data has not been directly qualified due to AQ blanks. Lowest associated soil concentration was 1000 ppb. AQ blank concentrations are in ppt and soil concentrations are in ppb

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Effective Date: 11/23/2015
Revision: 0

Matrix: ○ Aqueous ◉ Non-aq.
Reporting Level: ◉ MDL ○ QL
Units: ng/l

PRECISION OBJECTIVES:
If Both Results ≥ 5 × Their QL, RPD ≤: 30
If Either Result < 5 × Its QL, Dif. ≤: 1.5 × Highest QL

Sample ID:	SG3-DGWATERMH-160816				Duplicate Sample ID:	SG3-FD01-160816					
Analyte	Sample Concentration	Qual	QL	MDL	Duplicate Concentration	Qual	QL	MDL	Difference	RPD	Flag
PFHpA	6		2	1	5		2	1	1	NA	
PFHxA	13		2	1	10		2	1	NA	26%	
PFNA	2		2	1	2		2	1	0	NA	
PFOS	5	U	10	5	14		10	5	9	NA	
PFOA	270		2	1	240		2	1	NA	12%	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Matrix: ○ Aqueous ◉ Non-aq.
Reporting Level: ◉ MDL ○ QL
Units: ng/g

PRECISION OBJECTIVES:
If Both Results ≥ 5 × Their QL, RPD ≤: 30
If Either Result < 5 × Its QL, Dif. ≤: 1.5 × Highest QL

Sample ID:	SG3-SUMP03-160817				Duplicate Sample ID:	SG3-FD01-160817					
Analyte	Sample Concentration	Qual	QL	MDL	Duplicate Concentration	Qual	QL	MDL	Difference	RPD	Flag
PFBS	10		1.5	0.48	7.8		1.5	0.47	NA	25%	
PFDA	170		3.9	1.9	170		3.8	1.9	NA	0%	
PFDoA	16		0.77	0.39	11		0.76	0.38	NA	37%	J
PFHpA	1600		58	29	1200		57	28	NA	29%	
PFHxS	9.3		1.5	0.48	8.4		1.5	0.47	NA	10%	
PFHxA	4200		39	19	2700		38	19	NA	43%	J
PFNA	140		3.9	1.9	100		0.38	0.19	NA	33%	J
PFOS	350		1.5	0.68	350		1.5	0.66	NA	0%	
PFOA	190000		5800	2900	120000		5700	2800	NA	45%	J
PFTA	6.7		0.77	0.29	8.2		0.76	0.28	NA	20%	
PFTriA	7		1.2	0.58	6.8		1.1	0.57	NA	3%	
PFUnA	14		0.58	0.29	12		0.57	0.29	NA	15%	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

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Analysis Report

REVISED

Sample Description: SG3-LTB01-160816 Blank Water
SGPP - Bennington

LL Sample # WW 8535010
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BENTB SDG#: SPP17-01TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 03:22	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

no change

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.0998 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535010
Lab File ID: 16AUG31-49.WIFF
Date Collected: 08/16/2016 00:00
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 03:22
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	1	U
375-85-9	PFHpA	1	U
355-46-4	PFHxS	4	U
335-67-1	PFOA	1	U
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

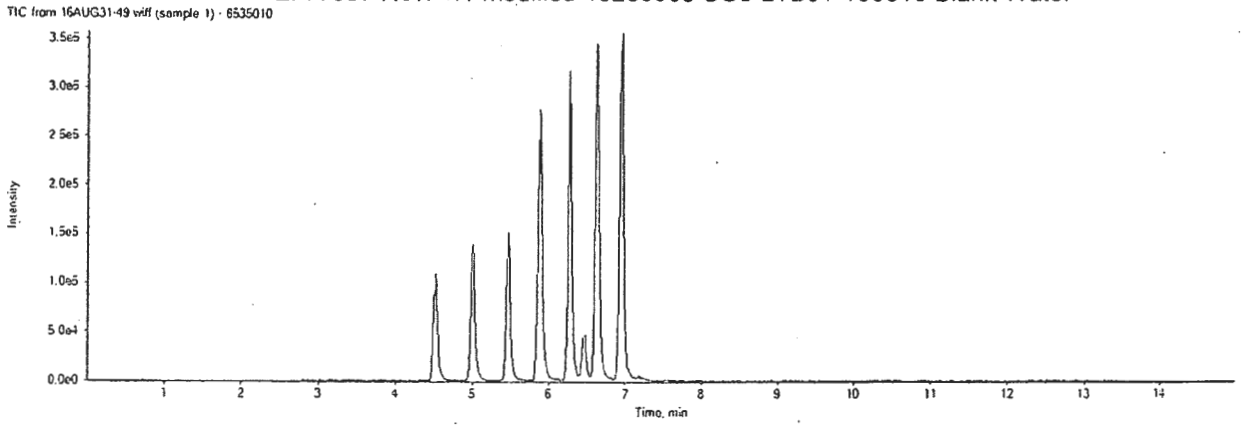
Sample Name:	8535010		**Data File:**		16AUG31-49.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-LTB01-160816 Blank Water		**Acquis Date:**		2016-09-01T03:22:50
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	51		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09976		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.07	469.1	A	18O2-PFHxS	4.99	186321.4	0.003	0.106	ng/L
PFHxA	4.51	1178.7	A	13C2-PFHxA	4.52	415861.5	0.003	0.270	ng/L
PFHpA	5.00	1684.6	M	13C4-PFHpA	5.00	345022.0	0.005	0.194	ng/L
PFHxS	4.99	2126.5	A	18O2-PFHxS	4.99	186321.4	0.011	0.522	ng/L
PFOA	5.46	9120.7	A	13C4-PFOA	5.46	570934.7	0.016	0.704	ng/L
PFNA	5.88	2812.1	M	13C5-PFNA	5.88	885733.4	0.003	0.151	ng/L
PFOS	5.85	3439.8	A	13C4-PFOS	5.85	222691.0	0.015	0.754	ng/L
PFDA	6.27	2220.0	A	13C2-PFDA	6.27	1014278.2	0.002	0.088	ng/L
PFUnDA	6.63	3626.0	A	13C2-PFUnDA	6.62	1081105.6	0.003	0.163	ng/L
PFDoDA	6.94	3257.1	M	13C2-PFDoDA	6.94	1362813.8	0.002	0.121	ng/L
PFTrDA	7.24	4002.8	A	13C2-PFDoDA	6.94	1362813.8	0.003	0.145	ng/L
PFTeDA	7.55	3815.1	A	13C2-PFDoDA	6.94	1362813.8	0.003	0.146	ng/L

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-LTB01-160816 Blank Water



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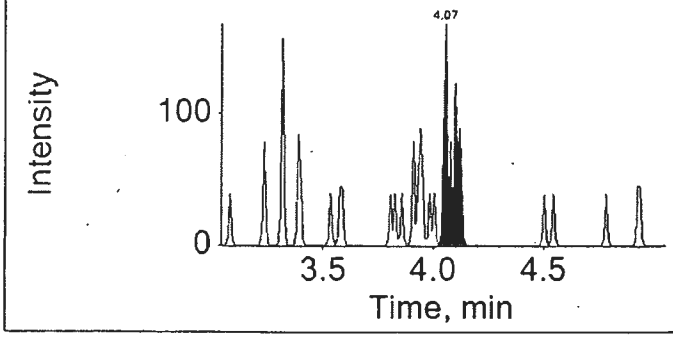
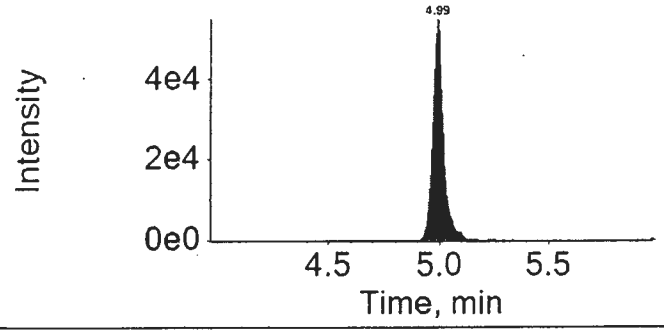
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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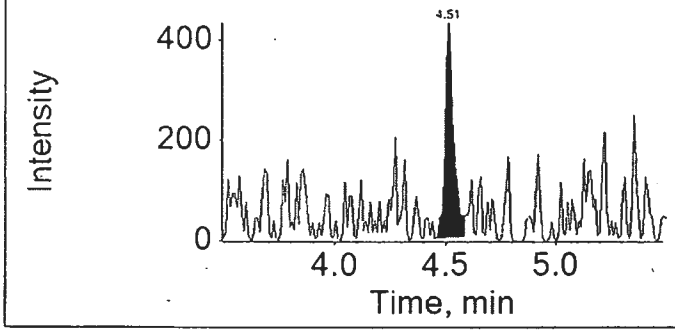
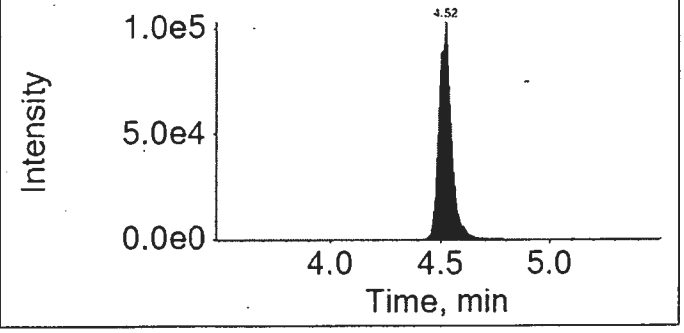
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





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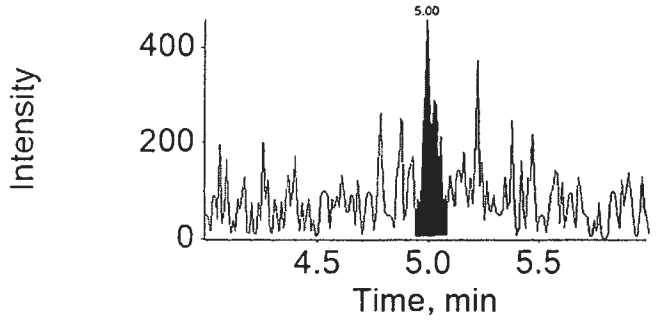
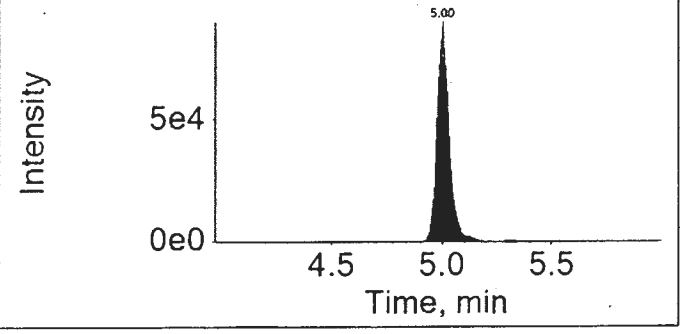
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

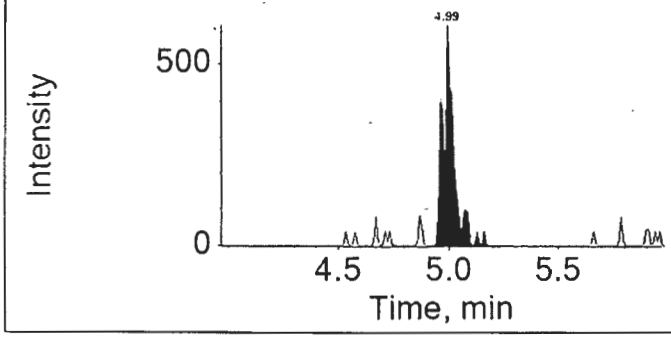




16AUG31-49.wiff

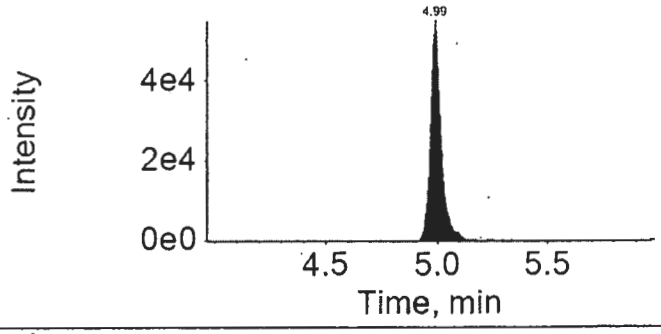
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

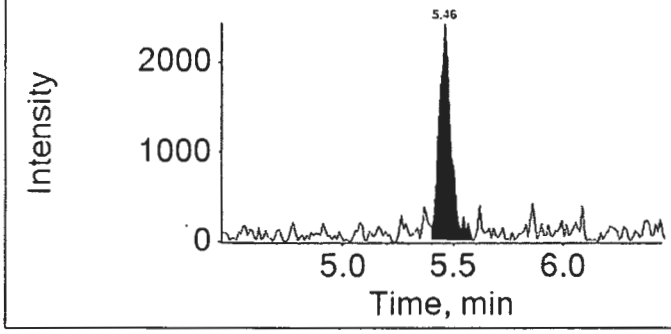
403.0 / 103.0



16AUG31-49.wiff

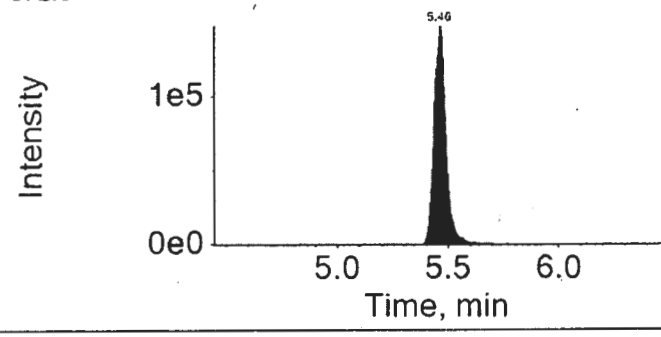
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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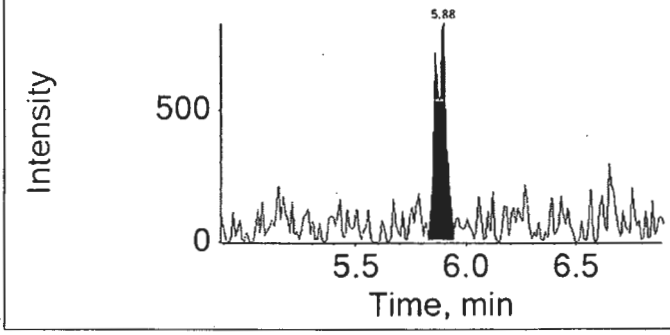
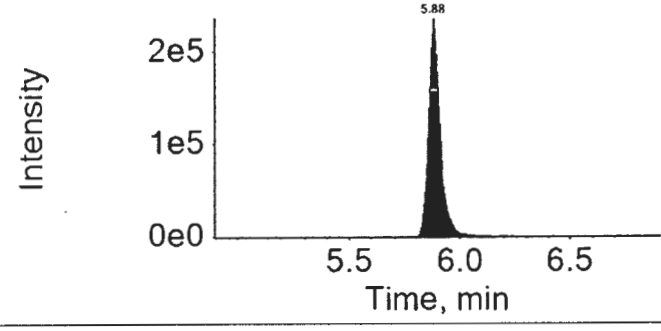
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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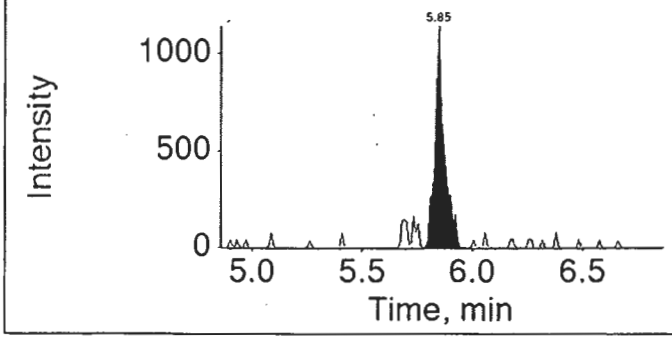
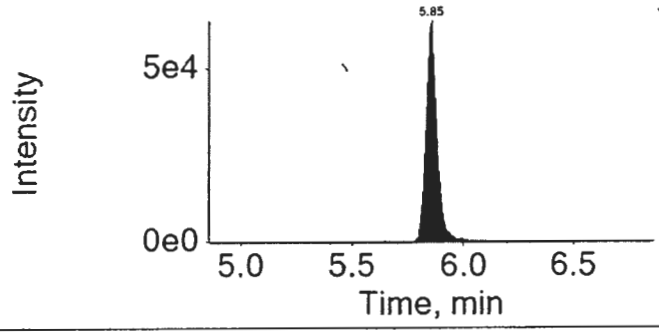
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

503.0 / 99.0



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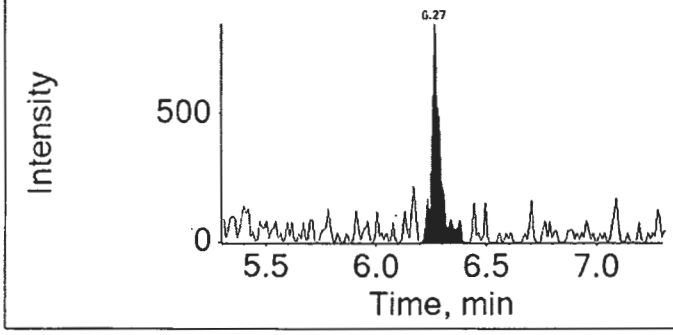
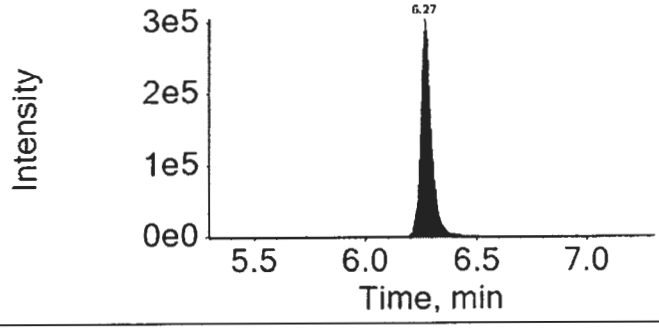
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

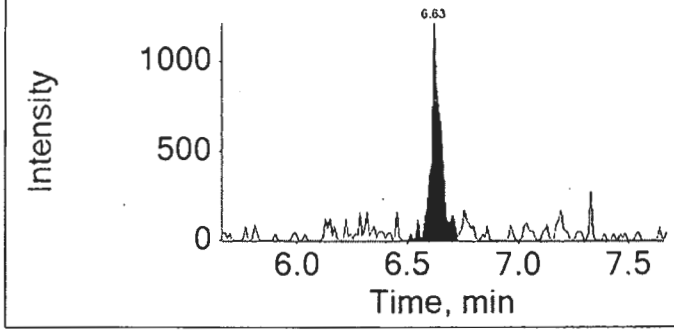
515.0 / 470.0



16AUG31-49.wiff

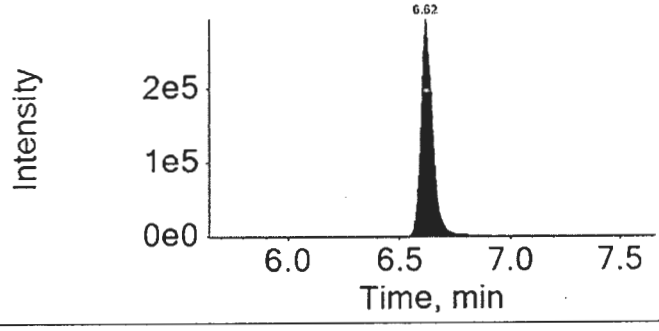
Analyte: PFUnDA

562.9 / 518.9

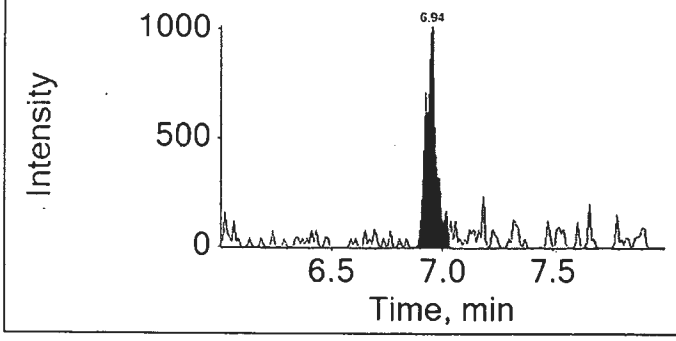


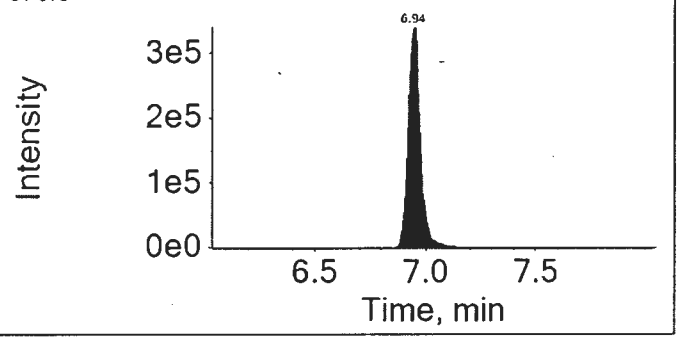
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

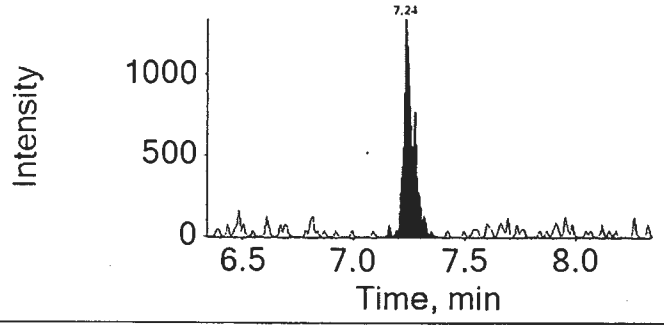


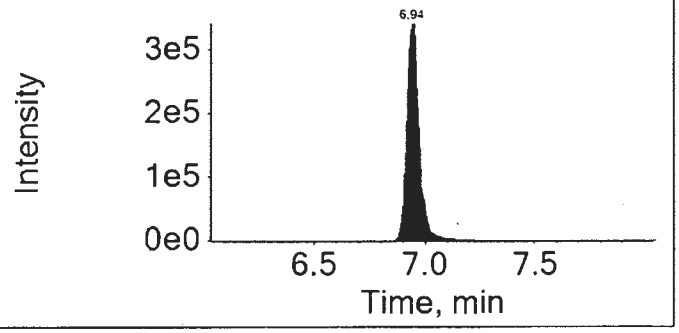
16AUG31-49.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0





16AUG31-49.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





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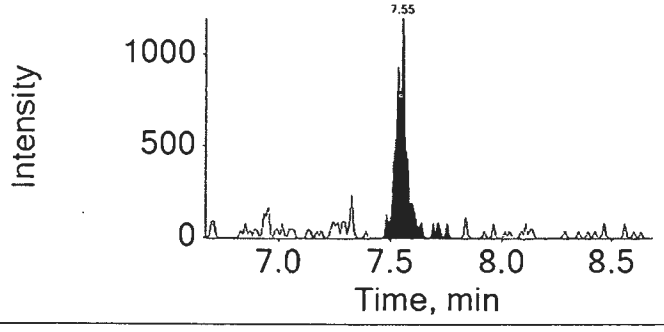
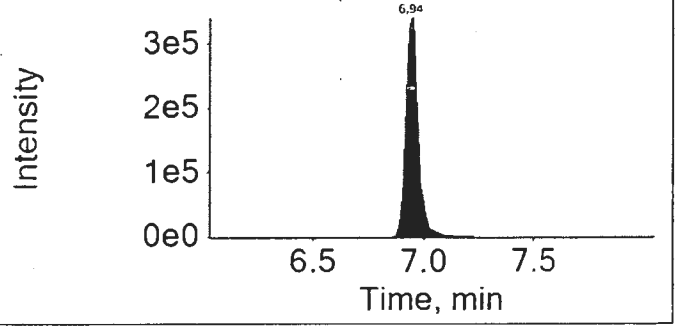
712.9 / 668.9	615.0 / 570.0





Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

mer 9/14/16

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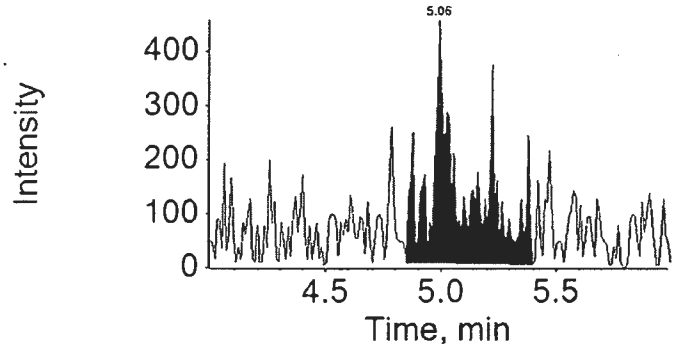
Print Date: 14/09/2016 1:00 PM

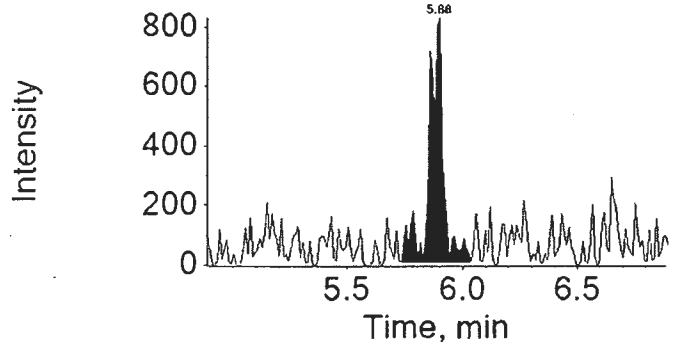
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-49.wiff	2016-09-01T03:22:50	8535010	PFHpA	5.06	4248.2
16AUG31-49.wiff	2016-09-01T03:22:50	8535010	PFNA	5.88	3554.7
16AUG31-49.wiff	2016-09-01T03:22:50	8535010	PFDoDA	6.94	3907.7

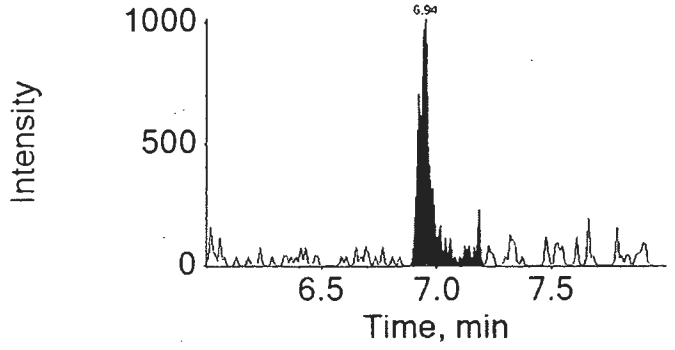
Component: PFHpA
Mass: 362.9 / 318.9



Component: PFNA
Mass: 462.9 / 418.9



Component: PFDoDA
Mass: 612.9 / 568.9



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

MED 78224
9/14/16

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Analysis Report

REVISED

Sample Description: SG3-FTB01-160816 Blank Water
SGPP - Bennington

LL Sample # WW 8535011
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 10:05 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BENFB SDG#: SPP17-02TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 03:39	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

no change.

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER
Sample (vol): 0.1004 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Instrument ID: 24743

Lab Sample ID: 8535011
Lab File ID: 16AUG31-50.WIFF
Date Collected: 08/16/2016 10:05
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 03:39
Dilution Factor: 1.0

Concentration Units: ng/L

Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	1	U
375-85-9	PFHpA	1	U
355-46-4	PFHxS	4	U
335-67-1	PFOA	1	U
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

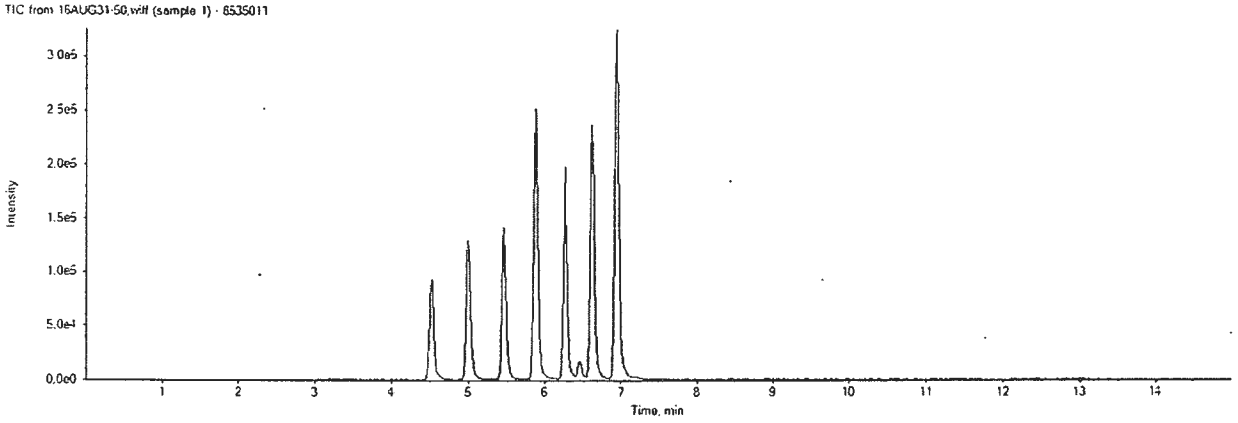
Sample Name:	8535011		**Data File:**		16AUG31-50.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-FTB01-160816 Blank Water		**Acquis Date:**		2016-09-01T03:39:11
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	52		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10035		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

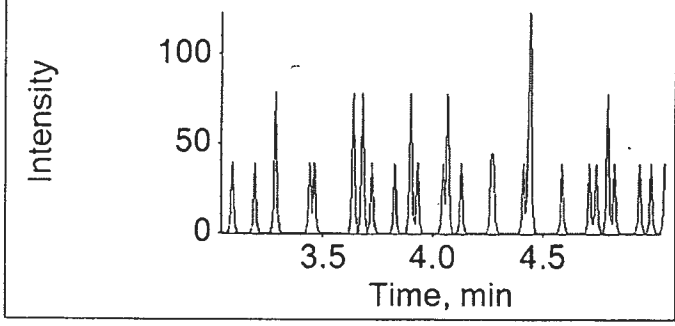
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.99	176971.7	N/A	N/A	ng/L
PFHxA	4.53	325.5	A	13C2-PFHxA	4.52	376983.9	0.001	0.082	ng/L
PFHpA	N/A	N/A	A	13C4-PFHpA	5.00	329775.4	N/A	N/A	ng/L
PFHxS	5.01	969.4	A	18O2-PFHxS	4.99	176971.7	0.005	0.249	ng/L
PFOA	5.46	2549.4	A	13C4-PFOA	5.46	515845.4	0.005	0.217	ng/L
PFNA	5.89	641.8	M	13C5-PFNA	5.88	792532.8	0.001	0.038	ng/L
PFOS	5.85	1188.3	A	13C4-PFOS	5.85	188227.9	0.006	0.306	ng/L
PFDA	6.27	1000.4	A	13C2-PFDA	6.26	608126.1	0.002	0.066	ng/L
PFUnDA	6.62	2157.7	A	13C2-PFUnDA	6.62	831316.9	0.003	0.125	ng/L
PFDoDA	6.93	1407.2	A	13C2-PFDoDA	6.94	1286566.7	0.001	0.055	ng/L
PFTrDA	7.25	1157.1	A	13C2-PFDoDA	6.94	1286566.7	0.001	0.044	ng/L
PFTeDA	7.54	1657.1	A	13C2-PFDoDA	6.94	1286566.7	0.001	0.067	ng/L

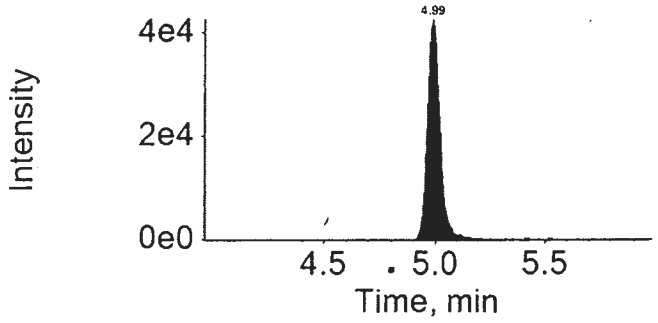
Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-FTB01-160816 Blank Water



16AUG31-50.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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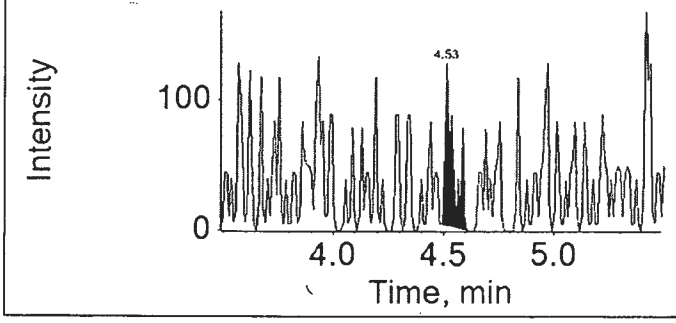
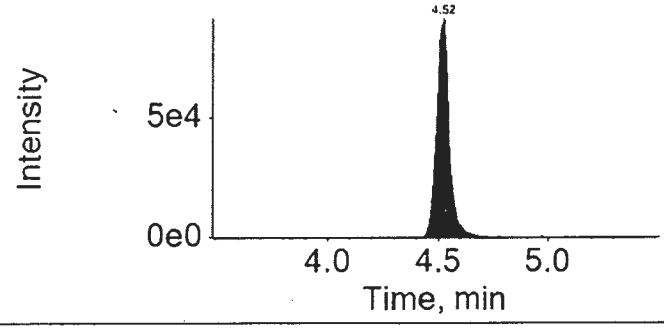
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





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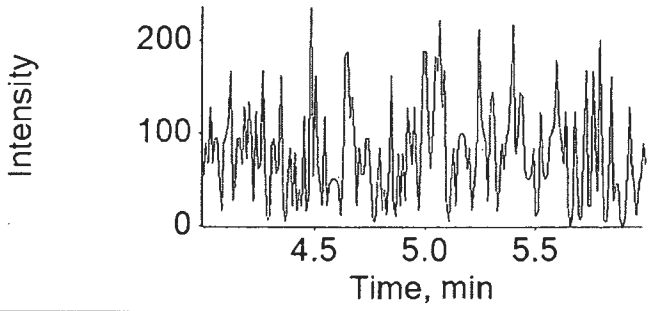
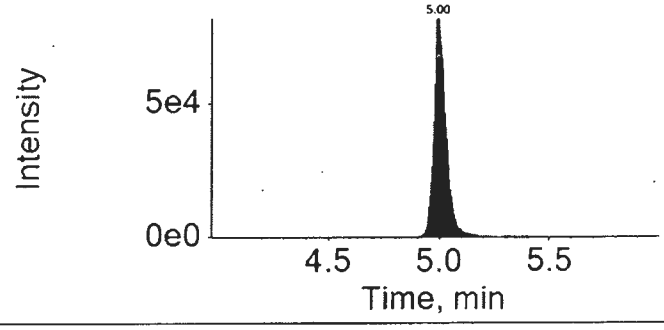
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

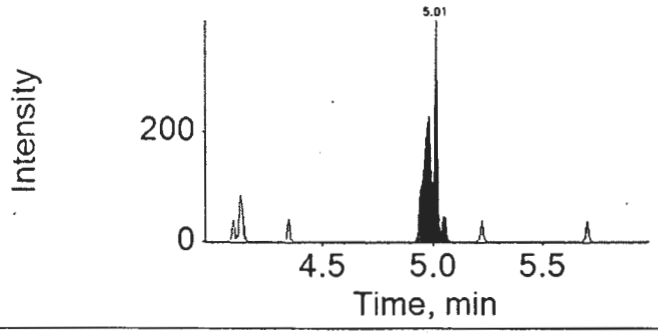




16AUG31-50.wiff

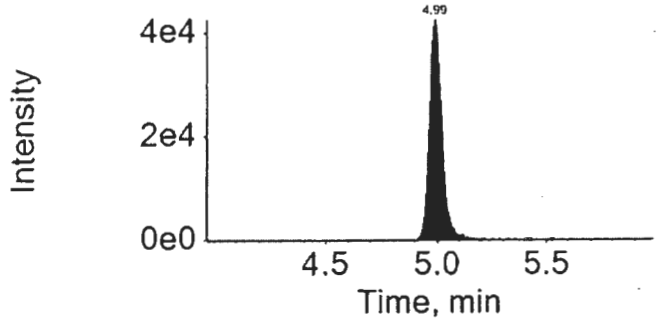
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

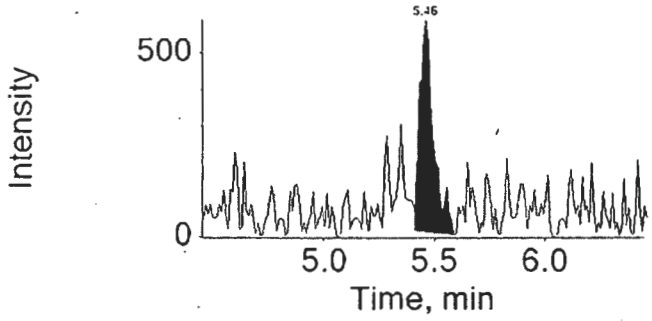
403.0 / 103.0



16AUG31-50.wiff

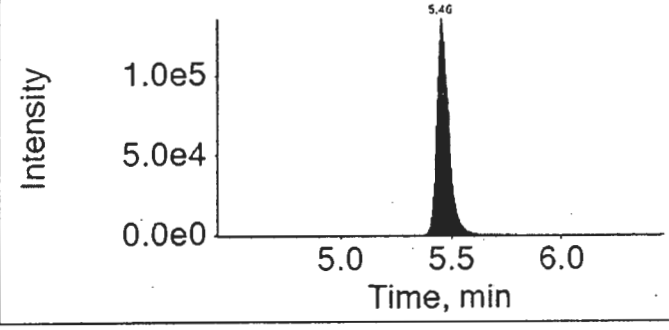
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

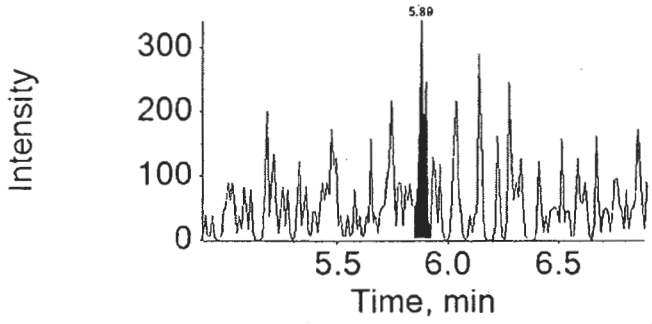
417.0 / 372.0



16AUG31-50.wiff

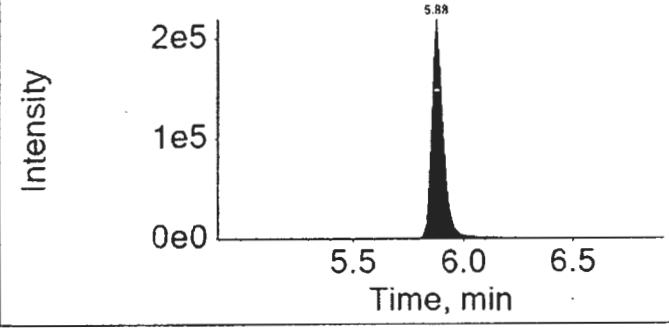
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

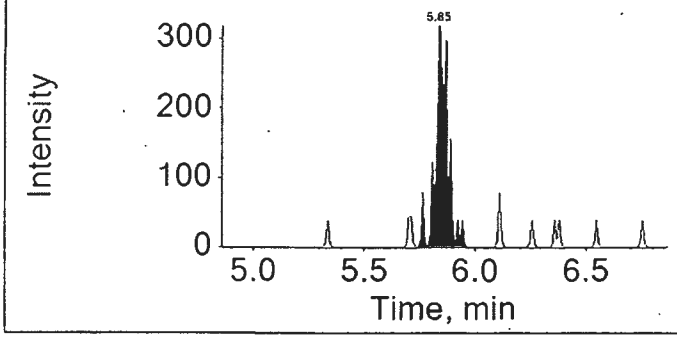
468.0 / 423.0



16AUG31-50.wiff

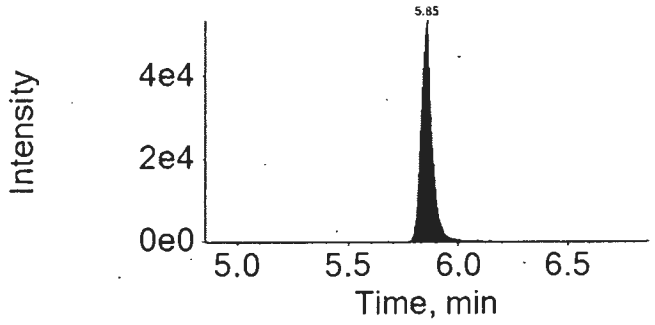
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

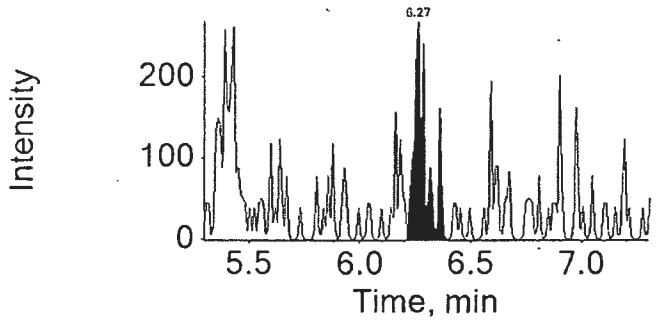
503.0 / 99.0



16AUG31-50.wiff

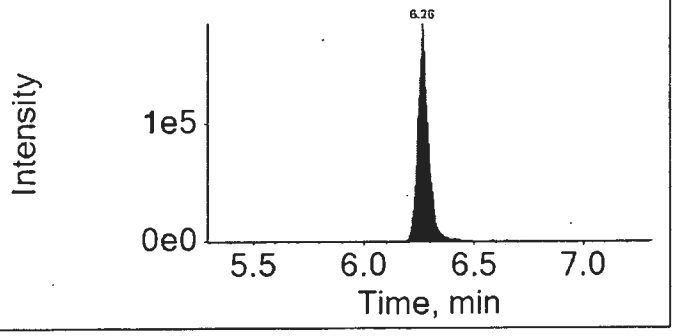
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

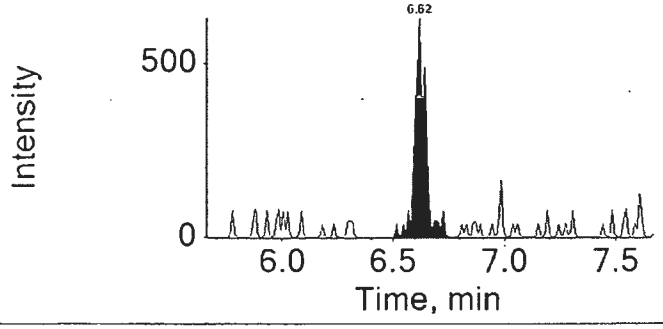
515.0 / 470.0



16AUG31-50.wiff

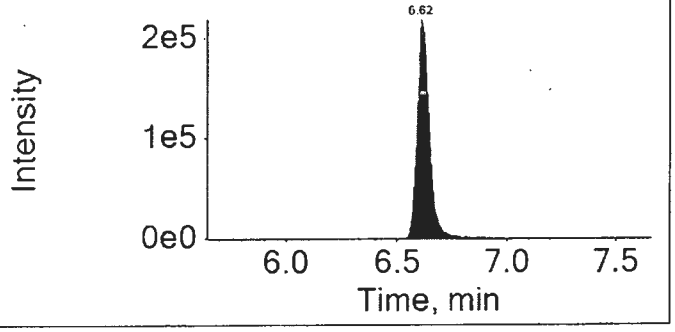
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

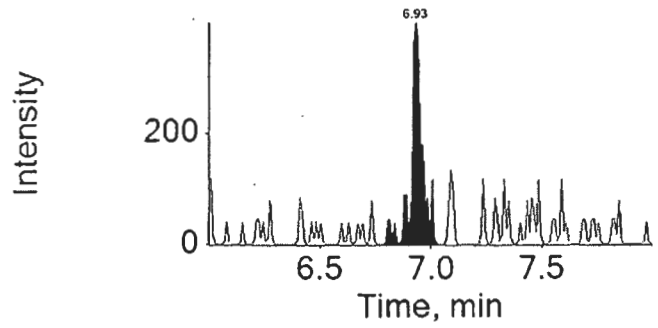
565.0 / 520.0



16AUG31-50.wiff

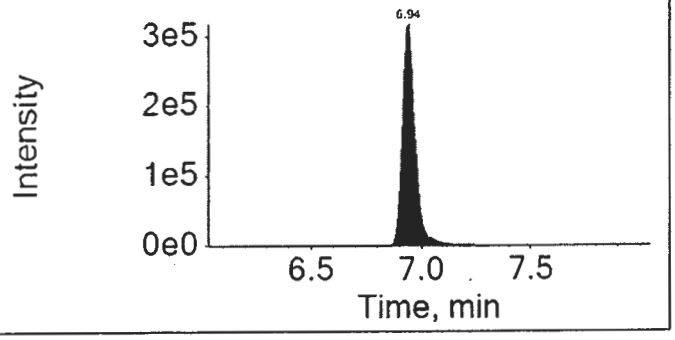
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

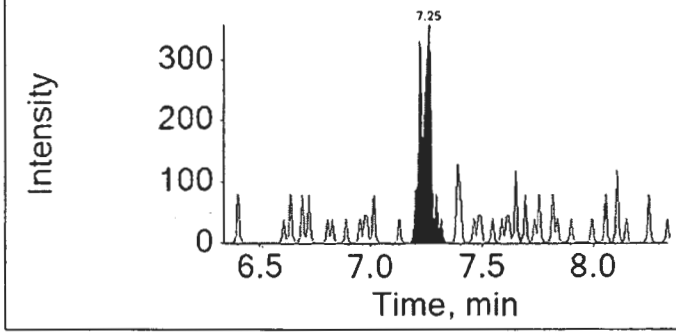
615.0 / 570.0



16AUG31-50.wiff

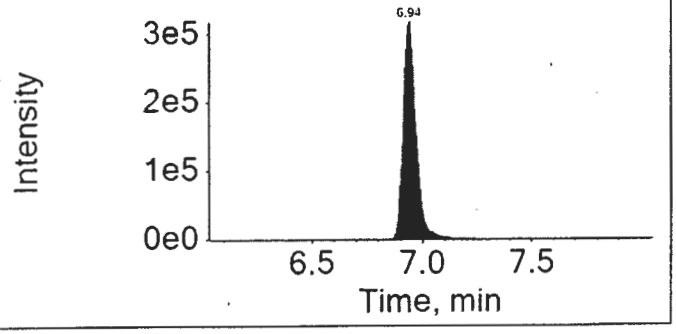
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

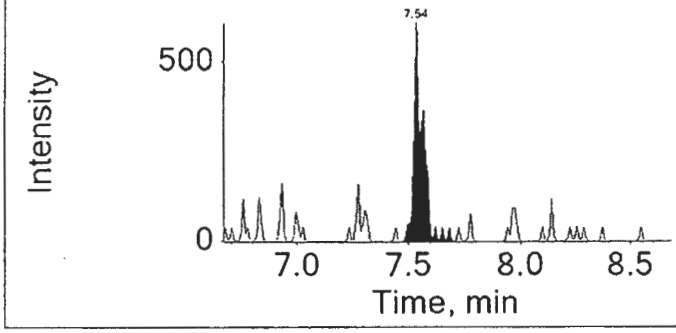
615.0 / 570.0



16AUG31-50.wiff

Analyte: PFTeDA

712.9 / 668.9



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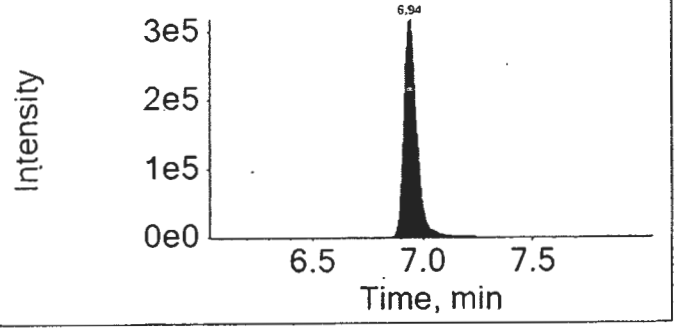
615.0 / 570.0



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

mcn 7824
9/14/16

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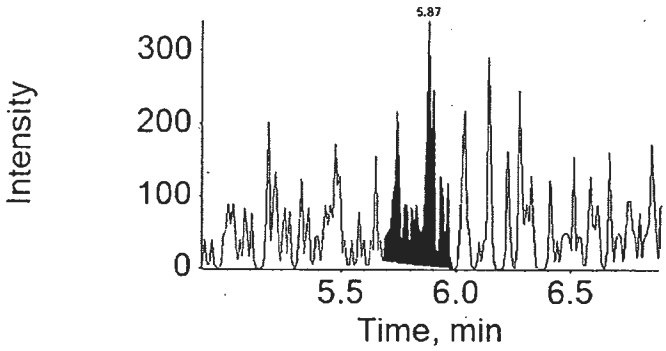
Print Date: 14/09/2016 1:00 PM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-50.wiff	2016-09-01T03:39:11	8535011	PFNA	5.87	1560.3

Component: PFNA
Mass: 462.9 / 418.9



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

OMCD 7824
9/14/16

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Analysis Report

REVISED

Sample Description: SG3-FD01-160816 Grab Wastewater
SGPP - Bennington

LL Sample # WW 8535012
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ongina

FD116 SDG#: SPP17-03FD

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	**Perfluoroheptanoic acid**	375-85-9	5		1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	**Perfluorohexanoic acid**	307-24-4	10		1	2	1
10954	**Perfluorononanoic acid**	375-95-1	1	J	1	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	13		5	10	1
10954	**Perfluorooctanoic acid**	335-67-1	230		1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 03:55	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

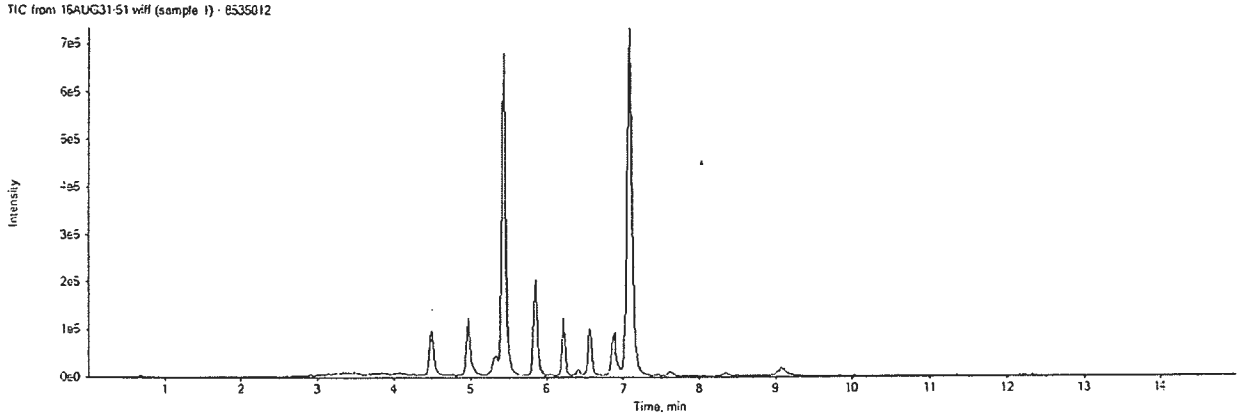
Sample Name:	8535012		**Data File:**		16AUG31-51.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-FD01-160816 Grab Wastewater		**Acquis Date:**		2016-09-01T03:55:35
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	53		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005,
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10022		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.04	6507.3	M	18O2-PFHxS	4.96	140655.0	0.046	1.932	ng/L
PFHxA	4.50	37111.3	M	13C2-PFHxA	4.49	342077.8	0.108	10.302	ng/L
PFHpA	4.96	35261.5	A	13C4-PFHpA	4.97	255547.5	0.138	5.446	ng/L
PFHxS	N/A	N/A	A	18O2-PFHxS	4.96	140655.0	N/A	N/A	ng/L
PFOA	5.42	2034064.7	A	13C4-PFOA	5.42	394347.5	5.158	226.346	ng/L
PFNA	5.85	16126.1	A	13C5-PFNA	5.85	546858.2	0.029	1.393	ng/L
PFOS	5.82	35152.8	A	13C4-PFOS	5.82	136582.2	0.257	12.508	ng/L
PFDA	6.21	5484.9	M	13C2-PFDA	6.22	335271.1	0.016	0.653	ng/L
PFUnDA	6.56	1722.5	A	13C2-PFUnDA	6.56	315045.4	0.005	0.264	ng/L
PFDoDA	6.87	697.5	A	13C2-PFDoDA	6.87	190157.6	0.004	0.185	ng/L
PFTrDA	7.17	1000.6	A	13C2-PFDoDA	6.87	190157.6	0.005	0.259	ng/L
PFTeDA	7.47	1532.0	A	13C2-PFDoDA	6.87	190157.6	0.008	0.417	ng/L

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-FD01-160816 Grab Wastewater

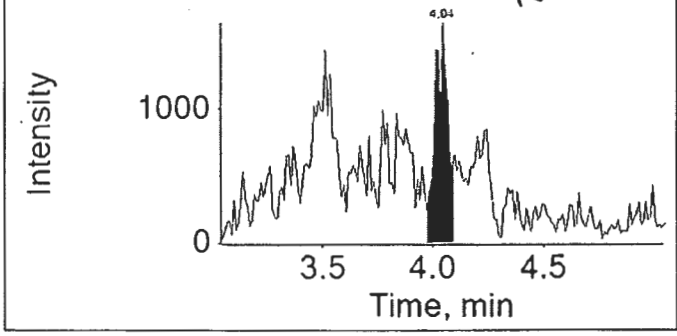


16AUG31-51.wiff

Analyte: PFBS

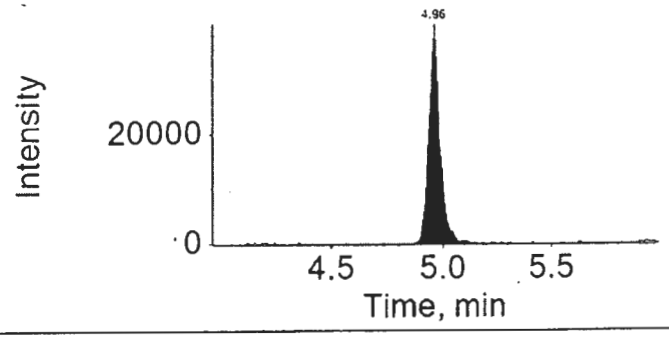
298.9 / 98.9

ND



Internal Standard: 18O2-PFHxS

403.0 / 103.0



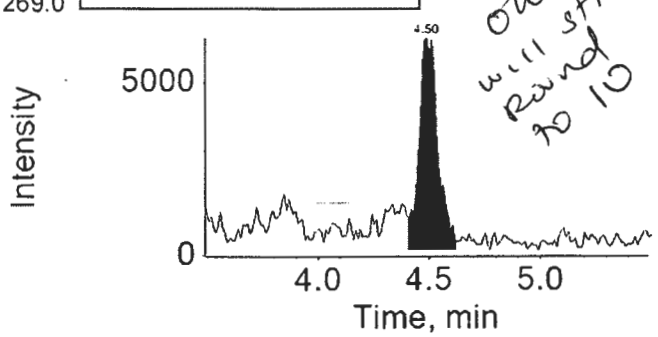
16AUG31-51.wiff

Analyte: PFHxA

312.9 / 269.0

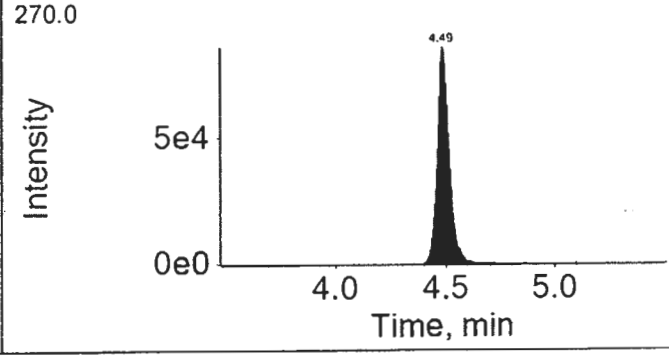
Lab check integration

OK will still round to 10



Internal Standard: 13C2-PFHxA

314.9 / 270.0



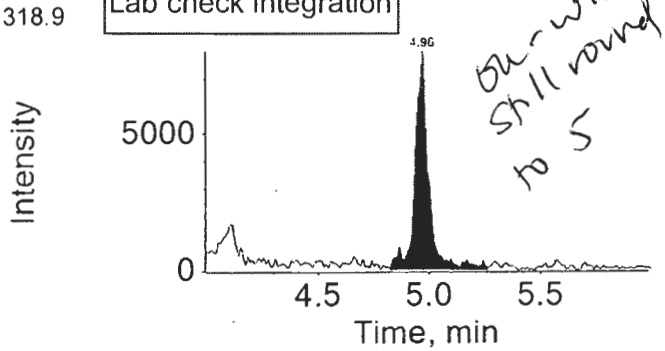
16AUG31-51.wiff

Analyte: PFHpA

362.9 / 318.9

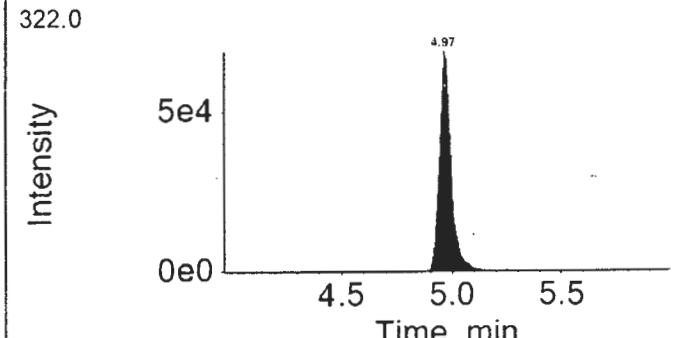
Lab check integration

OK - will still round to 5



Internal Standard: 13C4-PFHpA

367.0 / 322.0

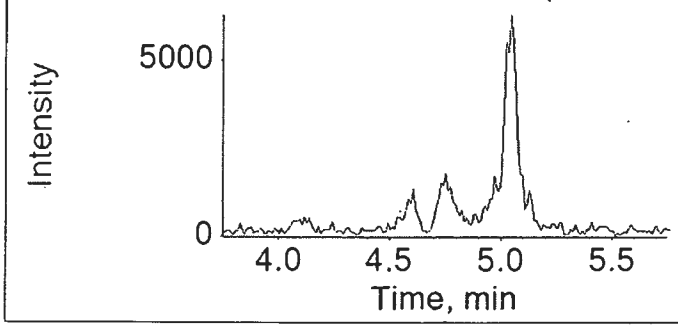


16AUG31-51.wiff

Analyte: PFHxS

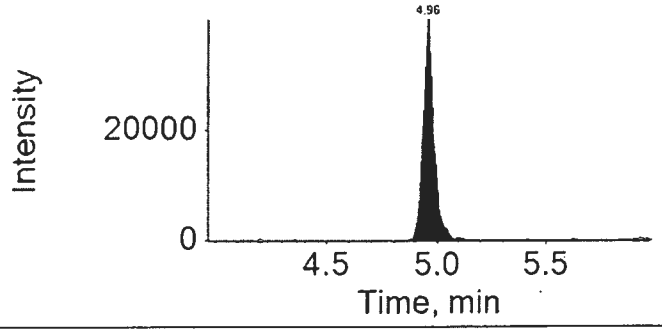
398.9 / 99.0

RT ?



Internal Standard: 18O2-PFHxS

403.0 / 103.0

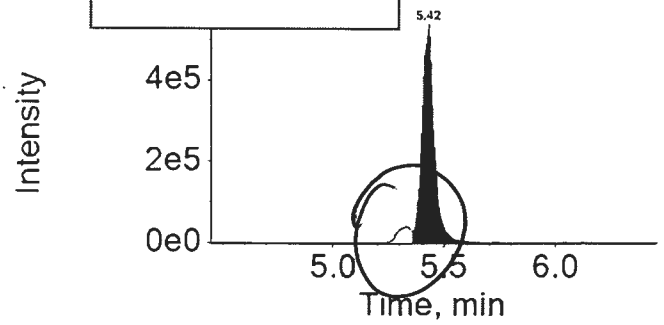


16AUG31-51.wiff

Analyte: PFOA

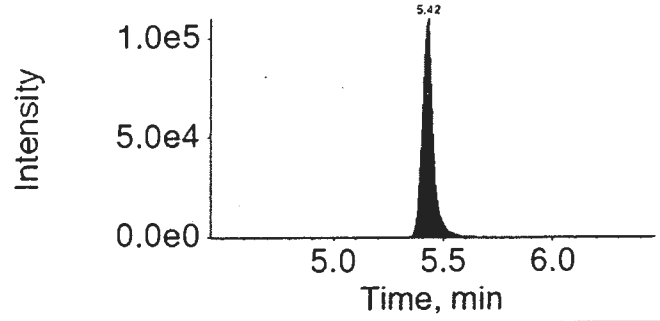
412.9 / 368.9

Lab check integration



Internal Standard: 13C4-PFOA

417.0 / 372.0

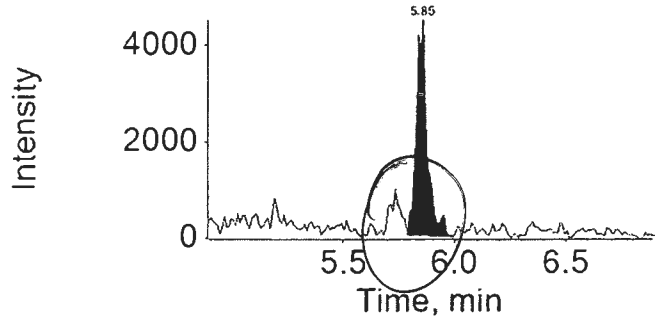


16AUG31-51.wiff

Analyte: PFNA

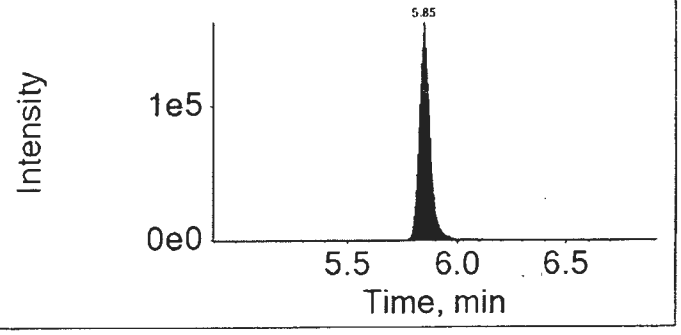
462.9 / 418.9

Lab check integration



Internal Standard: 13C5-PFNA

468.0 / 423.0

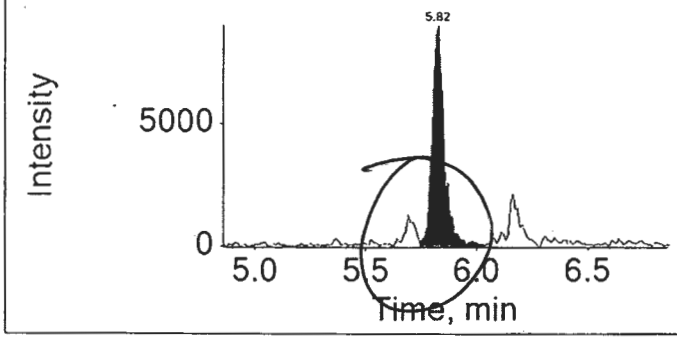


original

16AUG31-51.wiff

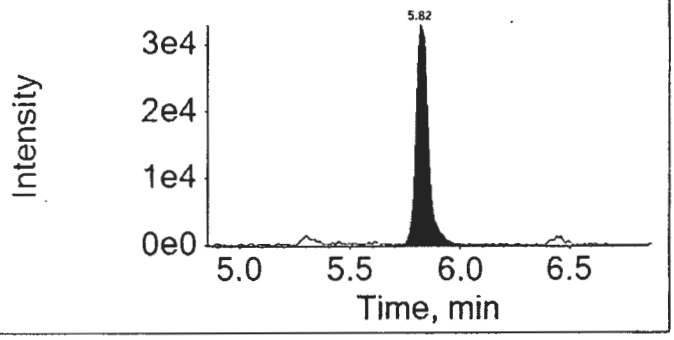
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

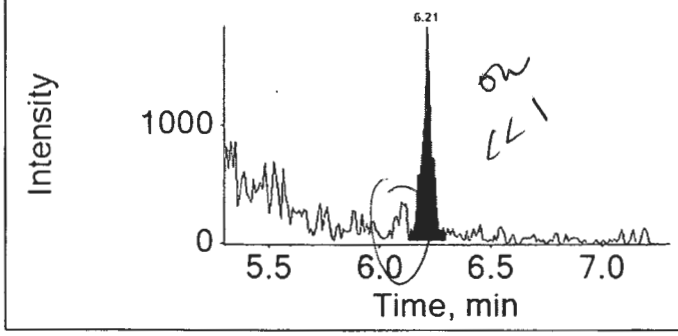
503.0 / 99.0



16AUG31-51.wiff

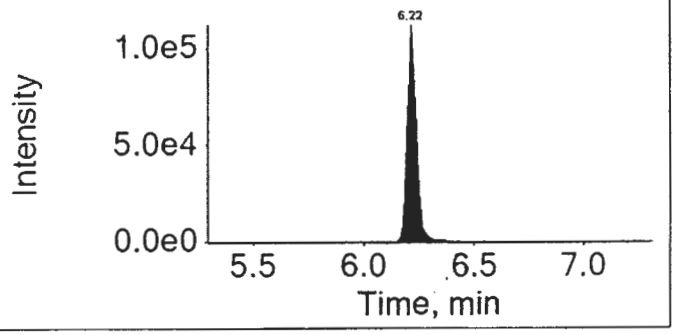
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

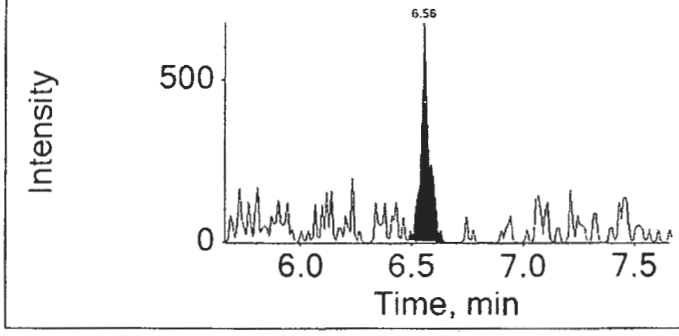
515.0 / 470.0



16AUG31-51.wiff

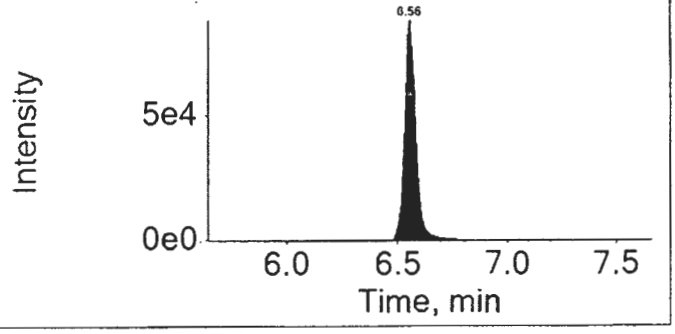
Analyte: PFUnDA

562.9 / 518.9

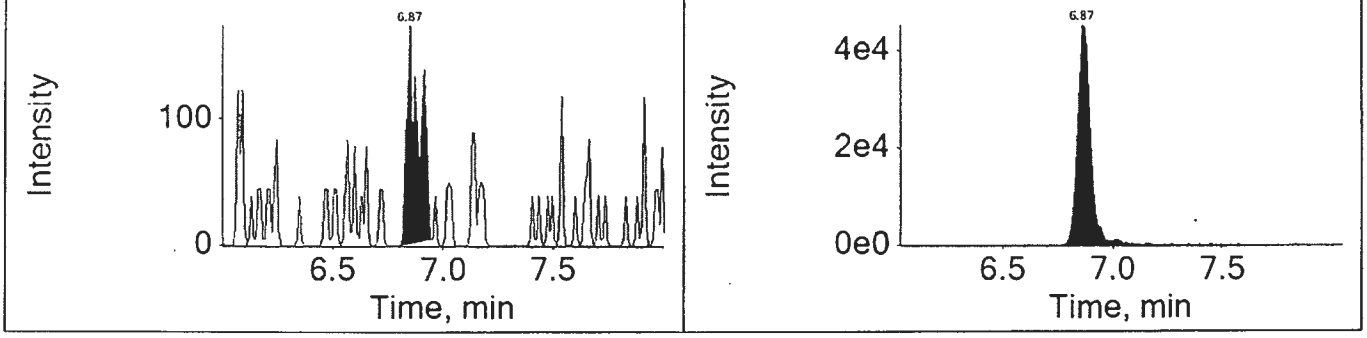


Internal Standard: 13C2-PFUnDA

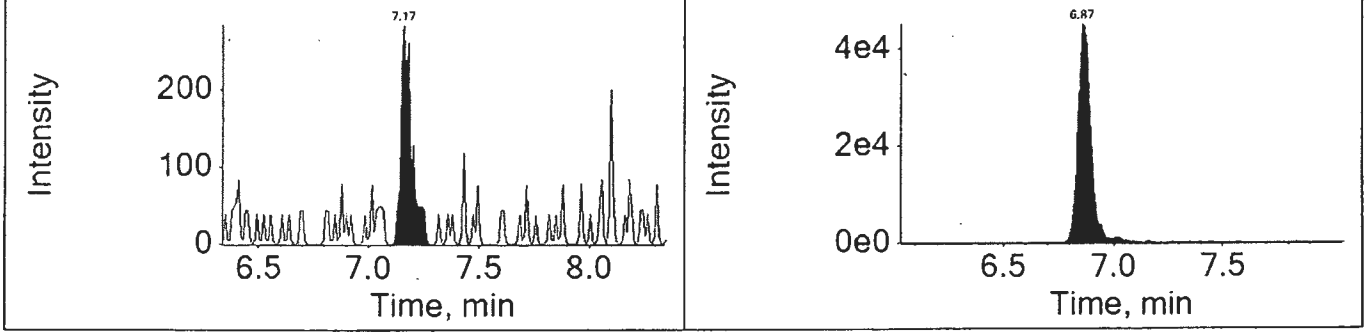
565.0 / 520.0



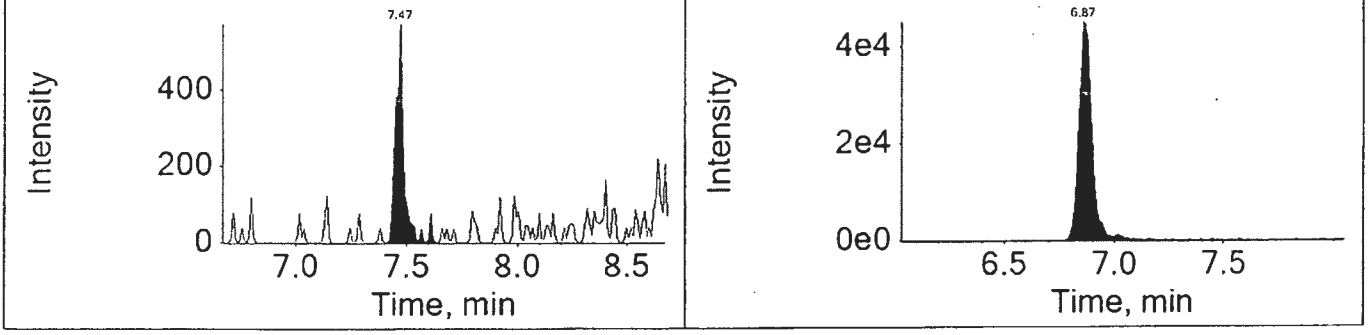
16AUG31-51.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



16AUG31-51.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0



16AUG31-51.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

MED 7824
9/14/16

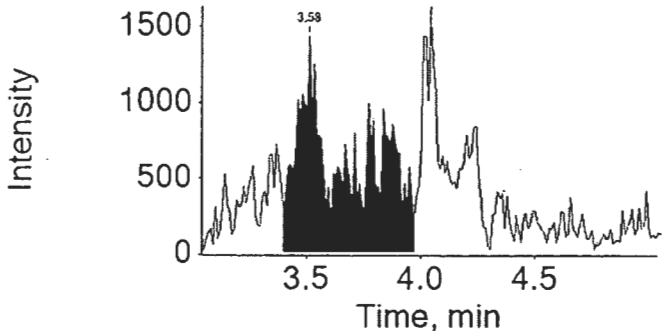
eurofins | Lancaster Laboratories

Print Date: 14/09/2016 1:00 PM

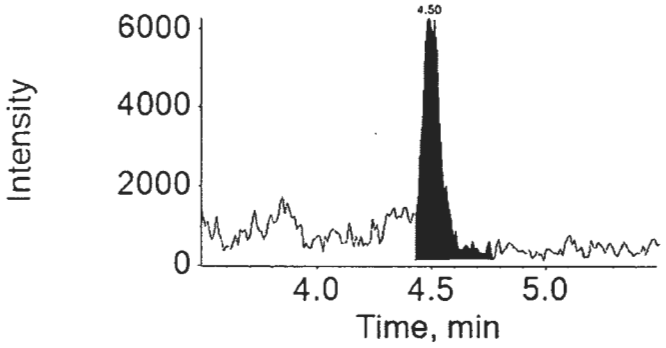
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-51.wiff	2016-09-01T03:55:35	8535012	PFBS	3.58	21635.6
16AUG31-51.wiff	2016-09-01T03:55:35	8535012	PFHxA	4.50	38064.0
16AUG31-51.wiff	2016-09-01T03:55:35	8535012	PFDA	6.21	6898.1

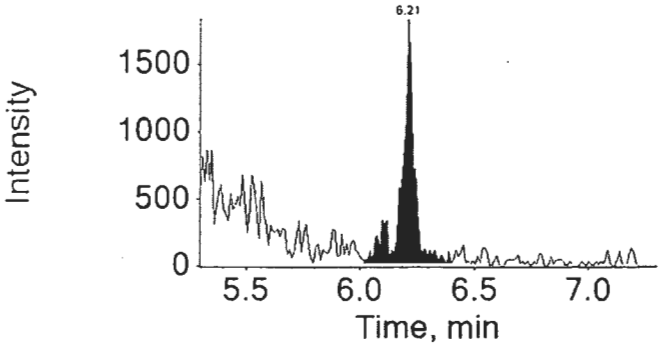
Component: PFBS
Mass: 298.9 / 98.9



Component: PFHxA
Mass: 312.9 / 269.0



Component: PFDA
Mass: 512.9 / 469.0



Lynn Dodd
Principal Specialist

MED 7824
9/14/16

Page 1 of 1

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Analysis Report

REVISED

Sample Description: SG3-FD01-160816 Grab Wastewater
SGPP - Bennington

LL Sample # WW 8535012
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

REVISED

FD116 SDG#: SPP17-03FD

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	**Perfluorooctanoic acid**	335-67-1	240		1	2	1
10954	**Perfluorononanoic acid**	375-95-1	2	J	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	**Perfluorohexanoic acid**	307-24-4	10		1	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	5		1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	14		5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 03:55	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.1002 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535012
Lab File ID: 16AUG31-51.WIFF
Date Collected: 08/16/2016 00:00
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 03:55
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	10	
375-85-9	PFHpA	5	
355-46-4	PFHxS	4	U
335-67-1	PFOA	240	
375-95-1	PFNA	1	J
1763-23-1	PFOS	14	
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.1002 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535012
Lab File ID: 16AUG31-51.WIFF
Date Collected: 08/16/2016 00:00
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 03:55
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	10	
375-85-9	PFHpA	5	
355-46-4	PFHxS	4	U
335-67-1	PFOA	240	
375-95-1	PFNA	2	J
1763-23-1	PFOS	14	
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

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LC-MS/MS Analysis Report

Printed: 6/9/2017 4:50:00 PM

Sample Name:	8535012			**Data File:**		16AUG31-51.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-FD01-160816 Grab Wastewater			**Acquis Date:**		2016-09-01T03:55:35
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	53			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16236005
				ICAL Name:		16AUG26ICAL
Batch Number:	16236005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10022			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

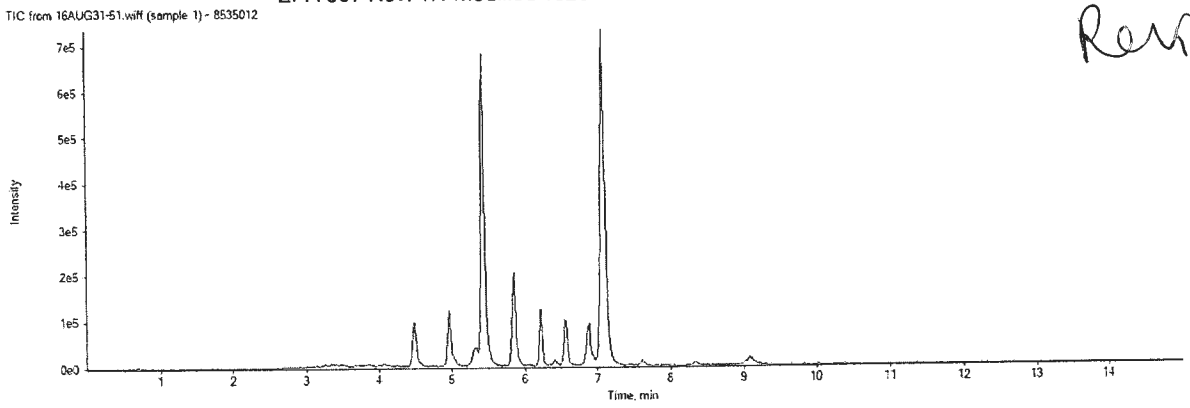
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.04	0.810	6507.3	M	18O2-PFHxS	4.96	140655.0	0.046	1.932
PFHxA	4.50	1.000	37111.3	M	13C2-PFHxA	4.49	342077.8	0.108	10.302
PFHpA	4.96	1.000	35261.5	A	13C4-PFHpA	4.97	255547.5	0.138	5.446
PFHxS	N/A	N/A	N/A	A	18O2-PFHxS	4.96	140655.0	N/A	N/A
PFOA	5.42	1.000	2198271.7	M	13C4-PFOA	5.42	394347.5	5.574	244.618
PFNA	5.85	1.000	18878.4	M	13C5-PFNA	5.85	546858.2	0.035	1.631
PFOS	5.82	1.000	39139.8	M	13C4-PFOS	5.82	136582.2	0.287	13.926
PFDA	6.21	1.000	5484.9	M	13C2-PFDA	6.22	335271.1	0.016	0.653
PFUnDA	6.56	1.000	1722.5	A	13C2-PFUnDA	6.56	315045.4	0.005	0.264
PFDoDA	6.87	1.000	697.5	A	13C2-PFDoDA	6.87	190157.6	0.004	0.185
PFTrDA	7.17	1.040	1000.6	A	13C2-PFDoDA	6.87	190157.6	0.005	0.259
PFTeDA	7.47	1.090	1532.0	A	13C2-PFDoDA	6.87	190157.6	0.008	0.417

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-FD01-160816 Grab Wastewater

Revised



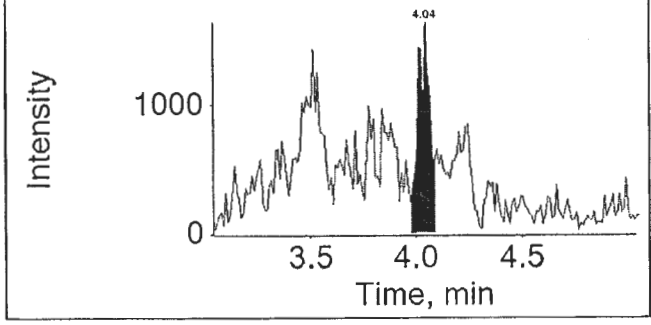
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:57 am, 6/13/17

16AUG31-51.wiff

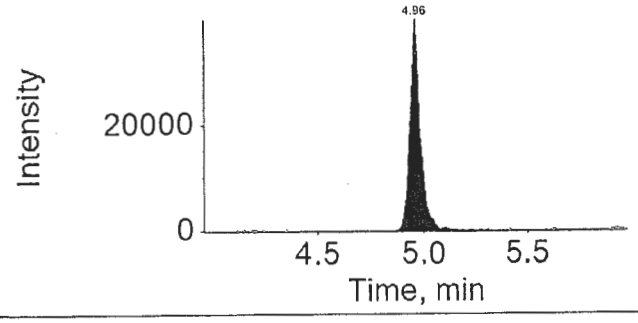
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

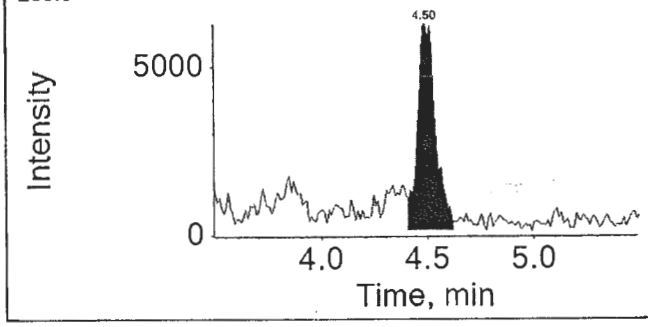
403.0 / 103.0



16AUG31-51.wiff

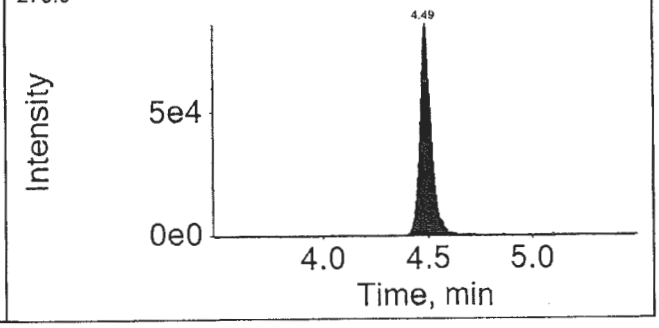
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

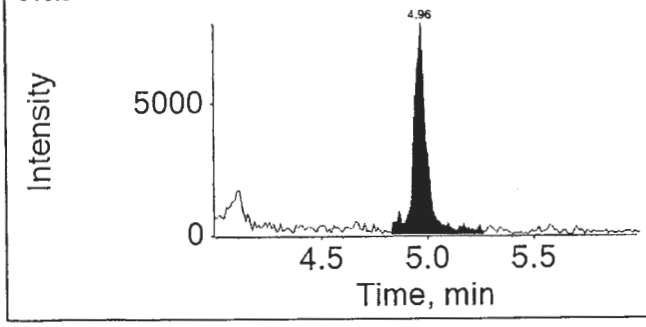
314.9 / 270.0



16AUG31-51.wiff

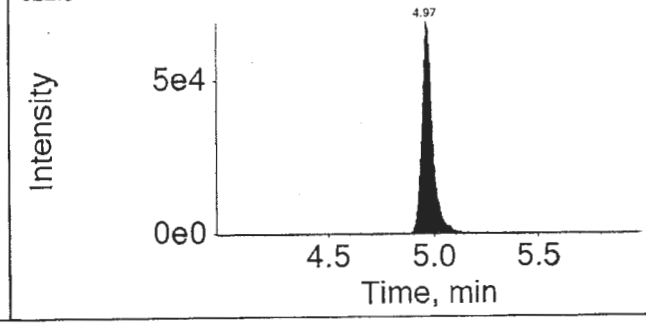
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:57 am, 6/13/17

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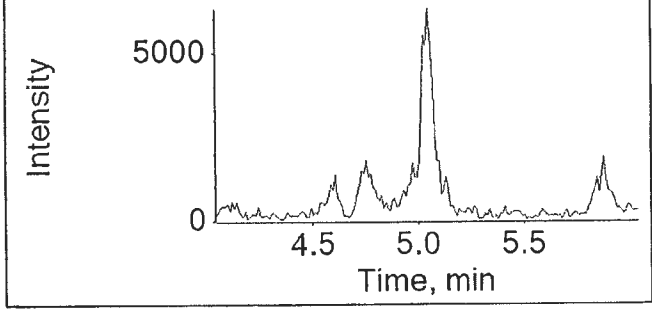
LC-MS/MS Analysis Report

Printed: 6/9/2017 4:50:00 PM

16AUG31-51.wiff

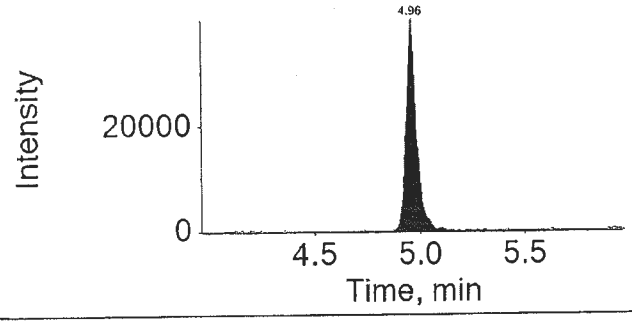
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

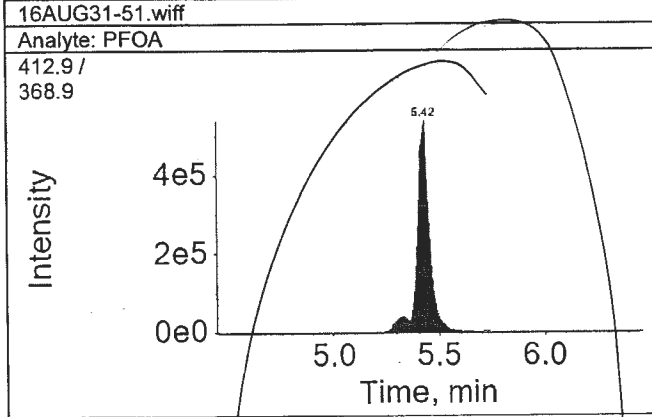
403.0 / 103.0



16AUG31-51.wiff

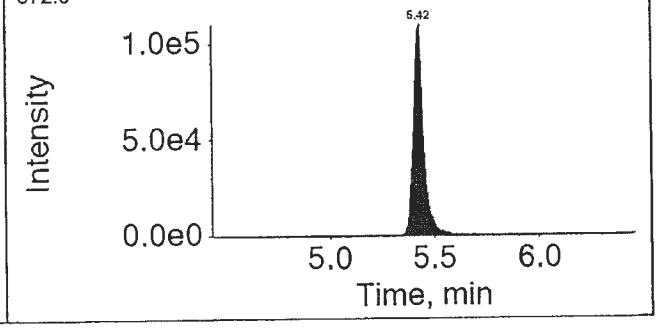
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

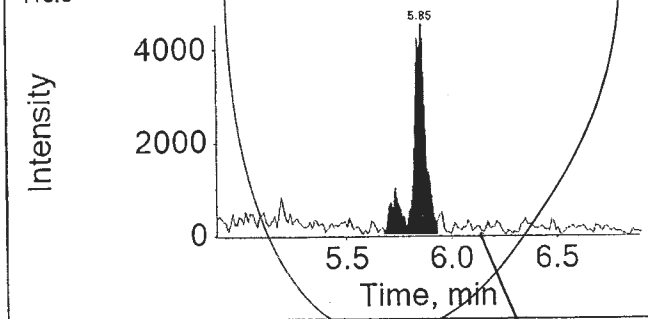
417.0 / 372.0



16AUG31-51.wiff

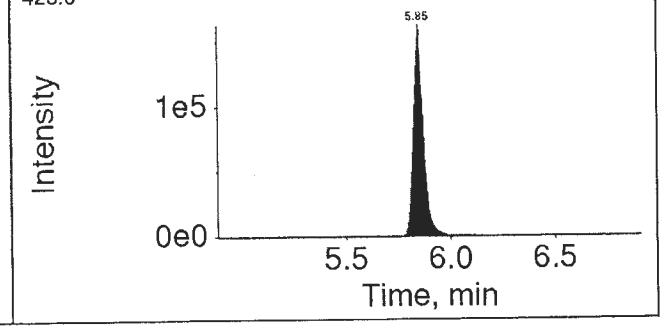
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



Revised

APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:57 am, 6/13/17

Revised

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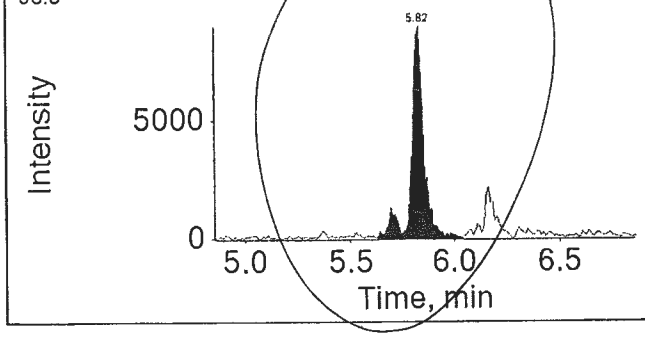
LC-MS/MS Analysis Report

Printed: 6/9/2017 4:50:00 PM

16AUG31-51.wiff

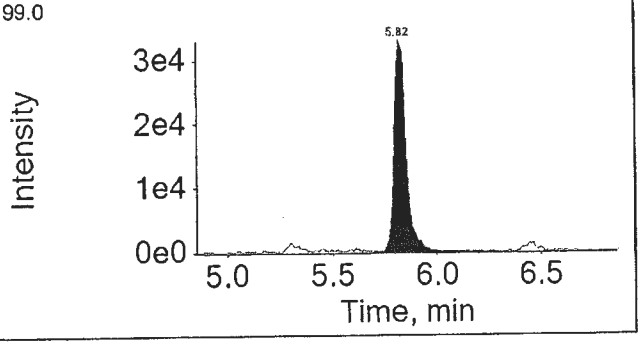
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

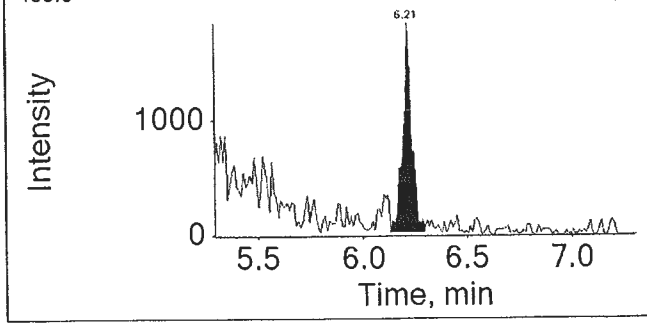
503.0 / 99.0



16AUG31-51.wiff

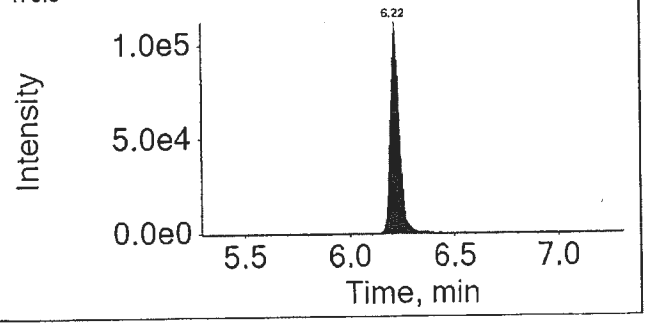
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

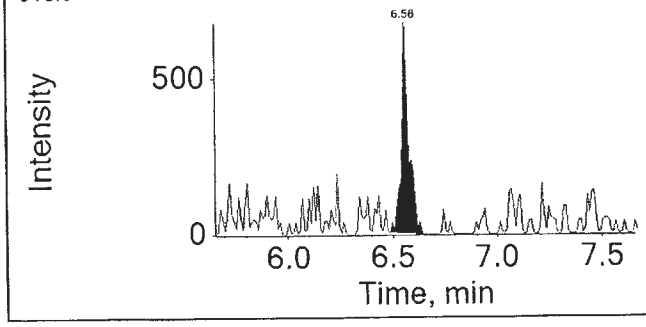
515.0 / 470.0



16AUG31-51.wiff

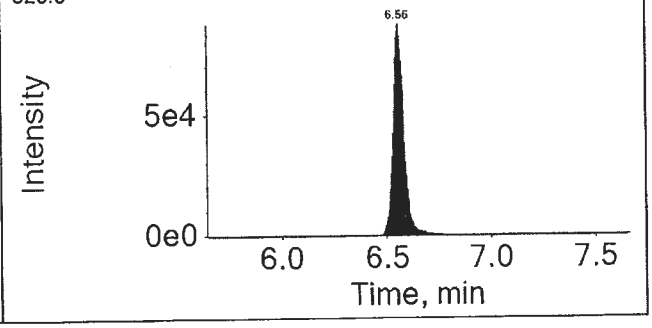
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



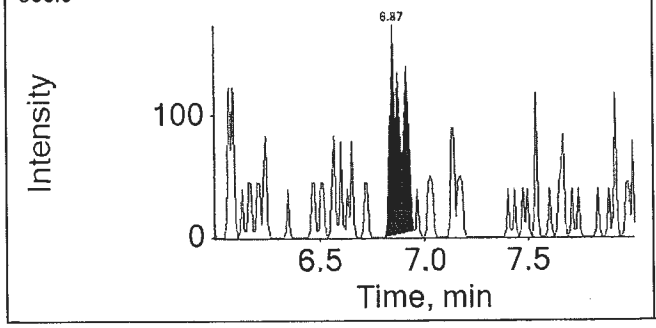
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:57 am, 6/13/17

16AUG31-51.wiff

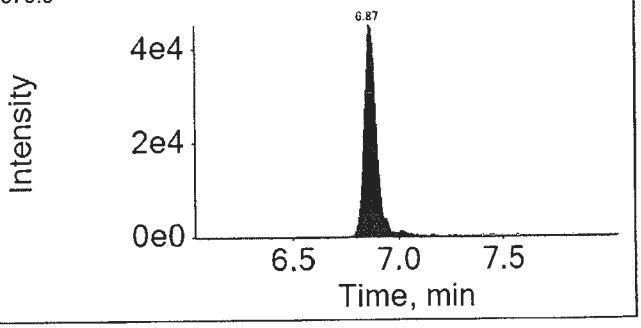
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

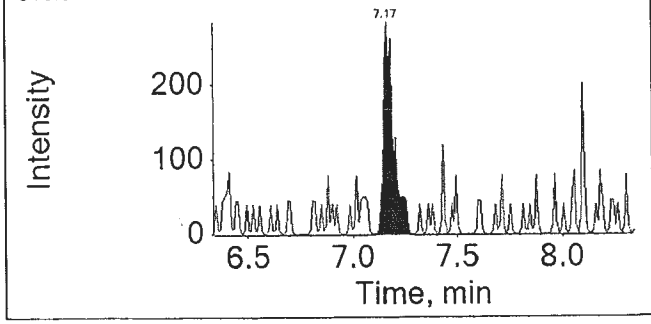
615.0 / 570.0



16AUG31-51.wiff

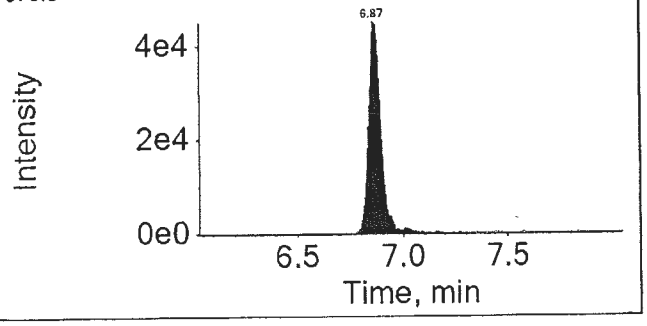
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

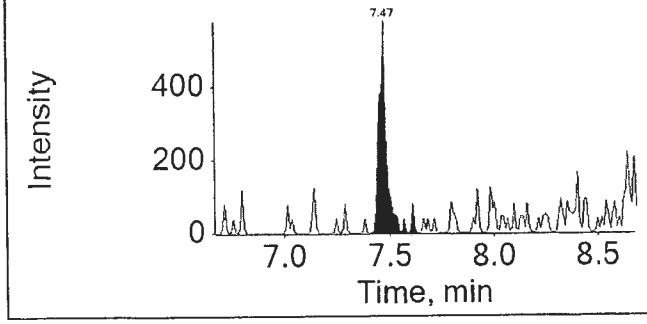
615.0 / 570.0



16AUG31-51.wiff

Analyte: PFTeDA

712.9 / 668.9



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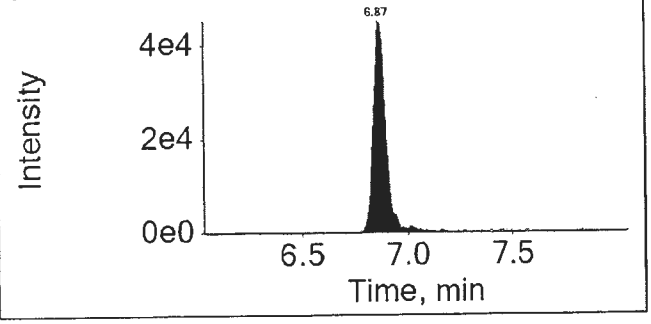
615.0 / 570.0



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:57 am, 6/13/17

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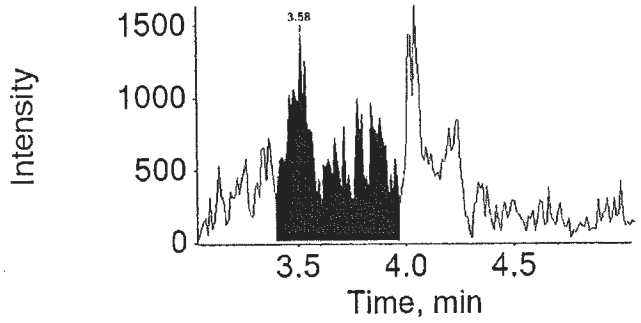
Print Date: 09/06/2017 4:53 PM

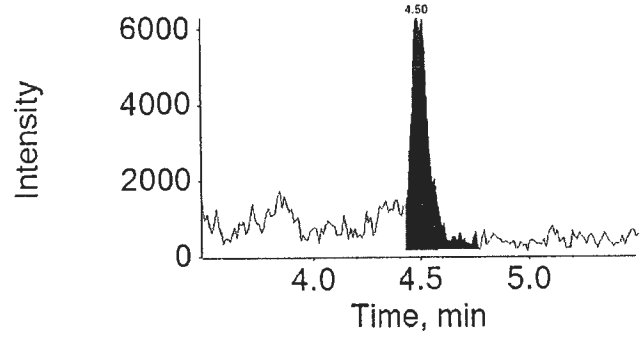
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-51.wiff	2016-09-01T03:55:35	8535012	PFBS	3.58	21635.6
16AUG31-51.wiff	2016-09-01T03:55:35	8535012	PFHxA	4.50	38064.0
16AUG31-51.wiff	2016-09-01T03:55:35	8535012	PFOA	5.42	2034064.7
16AUG31-51.wiff	2016-09-01T03:55:35	8535012	PFNA	5.85	16126.1
16AUG31-51.wiff	2016-09-01T03:55:35	8535012	PFOS	5.82	35152.8
16AUG31-51.wiff	2016-09-01T03:55:35	8535012	PFDA	6.21	6898.1

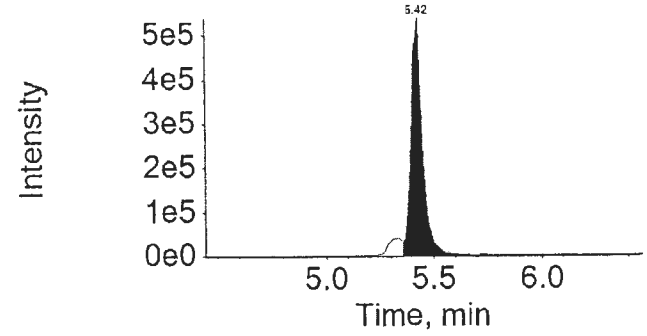
Component: PFBS
Mass: 298.9 / 98.9



Component: PFHxA
Mass: 312.9 / 269.0



Component: PFOA
Mass: 412.9 / 368.9



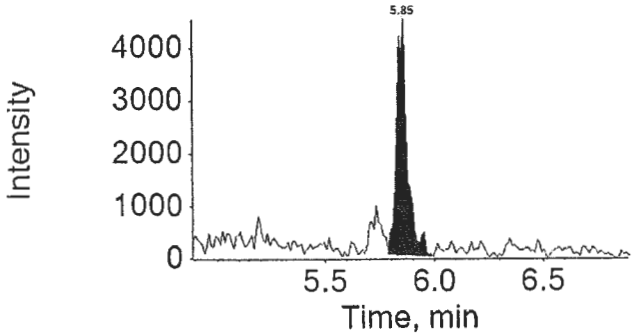
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:52 am, 6/13/17

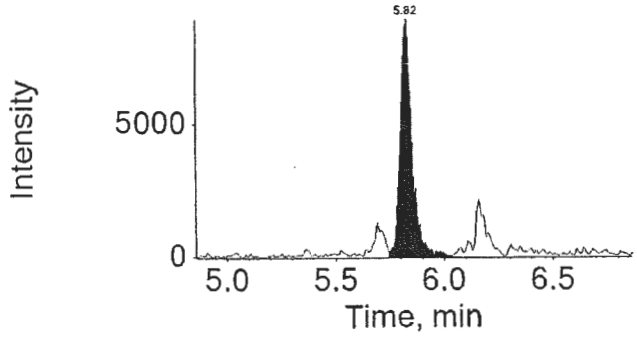
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

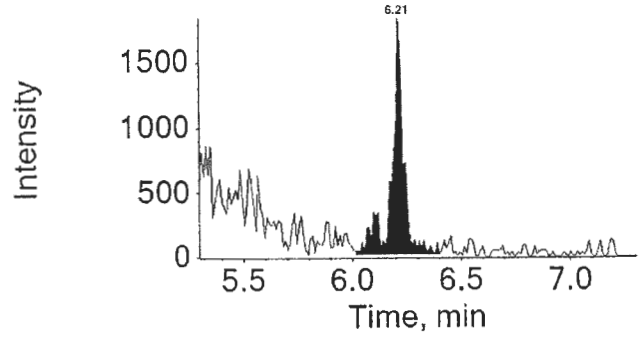
Component: PFNA
Mass: 462.9 / 418.9



Component: PFOS
Mass: 498.9 / 98.9



Component: PFDA
Mass: 512.9 / 469.0



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:52 am, 6/13/17

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

REVISED

Sample Description: SG3-DGWATERMH-160816 Grab Wastewater
SGPP - Bennington

LL Sample # WW 8535013
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 10:10 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

DGWMH SDG#: SPP17-04

original

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	**Perfluoroheptanoic acid**	375-85-9	7		1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	**Perfluorohexanoic acid**	307-24-4	13		1	2	1
10954	**Perfluorononanoic acid**	375-95-1	1	J	1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	**Perfluorooctanoic acid**	335-67-1	250		1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 04:11	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

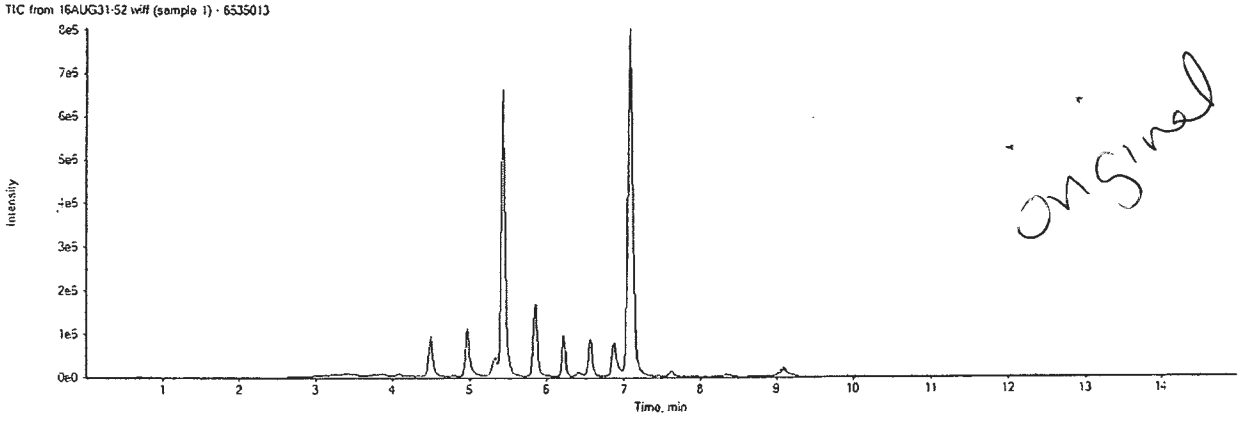
Sample Name:	8535013		**Data File:**		16AUG31-52.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-DGWATERMH-160816 Grab Wastewater		**Acquis Date:**		2016-09-01T04:11:59
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	54		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09975		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.06	5835.8	M	18O2-PFHxS	4.96	143138.6	0.041	1.711	ng/L
PFHxA	4.50	44634.3	M	13C2-PFHxA	4.49	315685.5	0.141	13.489	ng/L
PFHpA	4.97	38037.1	A	13C4-PFHpA	4.97	227654.3	0.167	6.626	ng/L
PFHxS	N/A	N/A	A	18O2-PFHxS	4.96	143138.6	N/A	N/A	ng/L
PFOA	5.43	2019332.6	A	13C4-PFOA	5.43	353446.9	5.713	251.891	ng/L
PFNA	5.85	15745.3	M	13C5-PFNA	5.85	519746.5	0.030	1.438	ng/L
PFOS	5.83	4501.0	M	13C4-PFOS	5.82	139340.7	0.032	1.577	ng/L
PFDA	6.21	6276.8	A	13C2-PFDA	6.22	285663.4	0.022	0.881	ng/L
PFUnDA	6.56	1247.9	A	13C2-PFUnDA	6.56	267792.3	0.005	0.226	ng/L
PFDoDA	6.87	544.4	A	13C2-PFDoDA	6.87	175959.4	0.003	0.157	ng/L
PFTrDA	N/A	N/A	A	13C2-PFDoDA	6.87	175959.4	N/A	N/A	ng/L
PFTeDA	7.46	623.8	M	13C2-PFDoDA	6.87	175959.4	0.004	0.184	ng/L

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-DGWATERMH-160816 Grab Wastewater

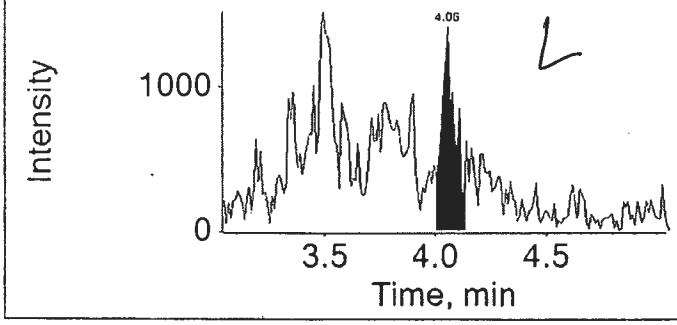


original

16AUG31-52.wiff

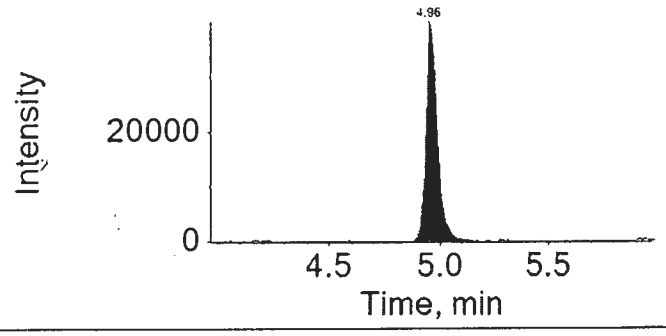
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

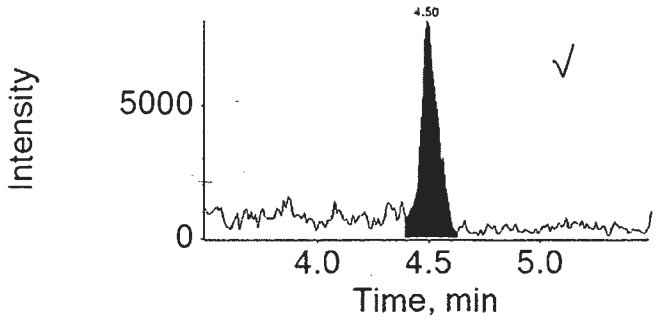
403.0 / 103.0



16AUG31-52.wiff

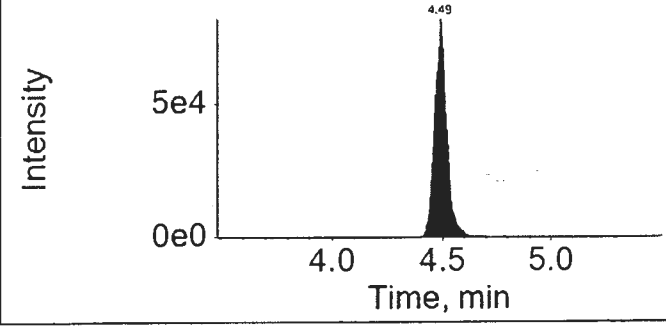
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

314.9 / 270.0



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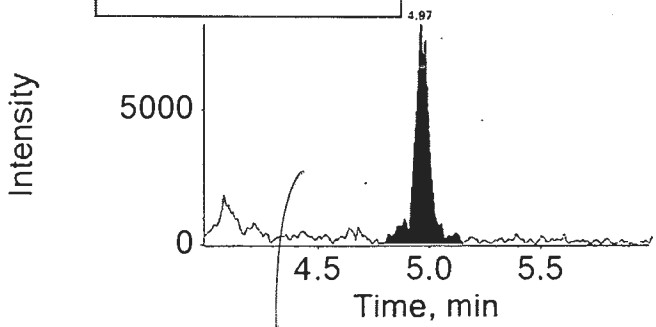
Analyte: PFHpA

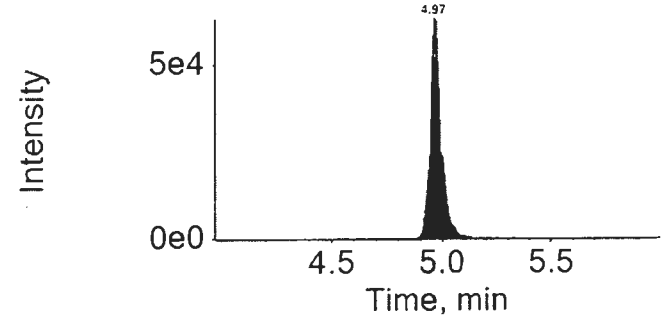
362.9 / 318.9

Lab check integration



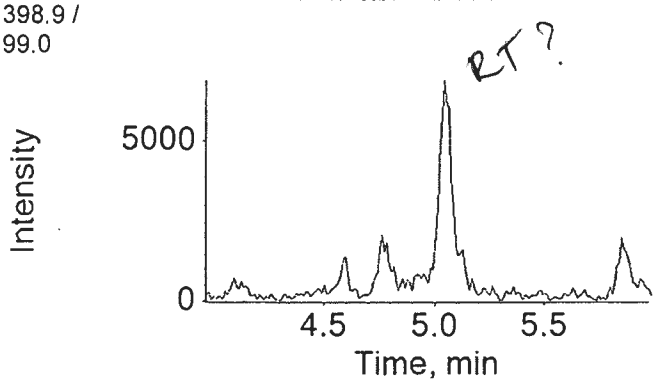
Internal Standard: 13C4-PFHpA

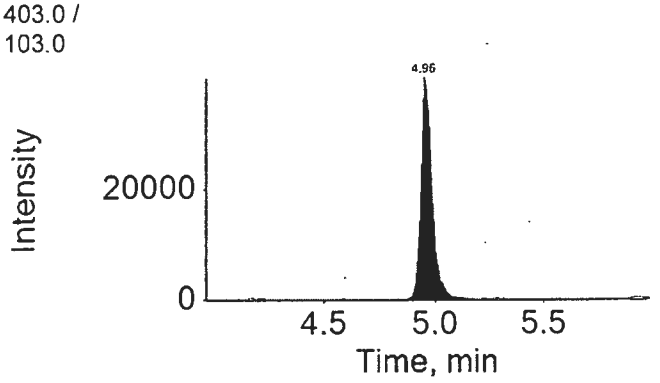
367.0 / 322.0



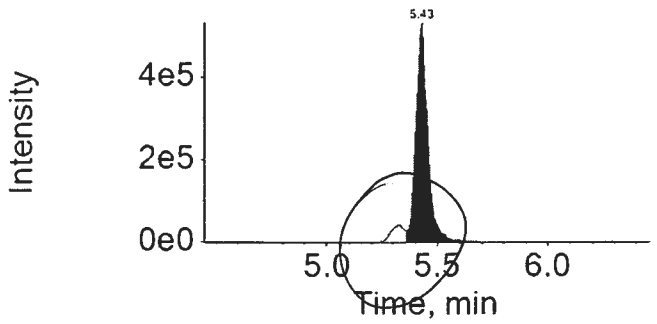
original

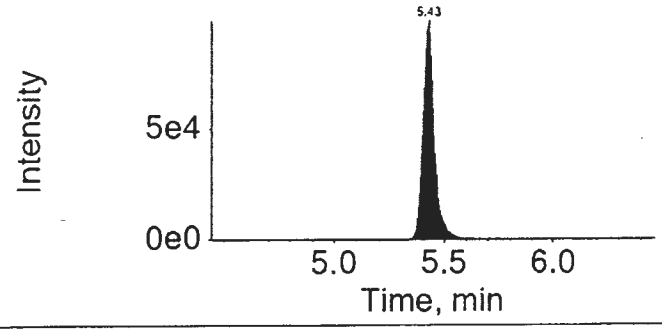
16AUG31-52.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



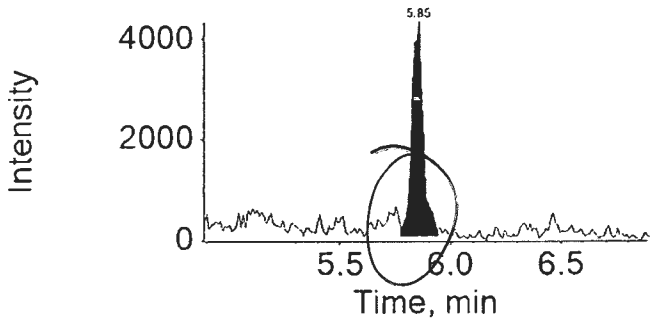


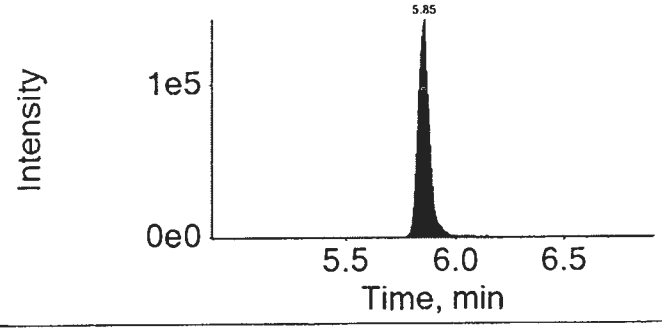
16AUG31-52.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





16AUG31-52.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



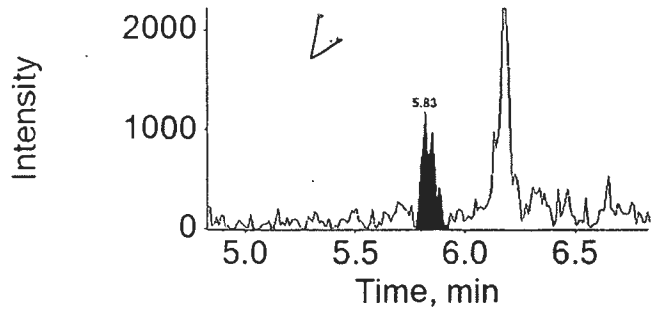


original

16AUG31-52.wiff

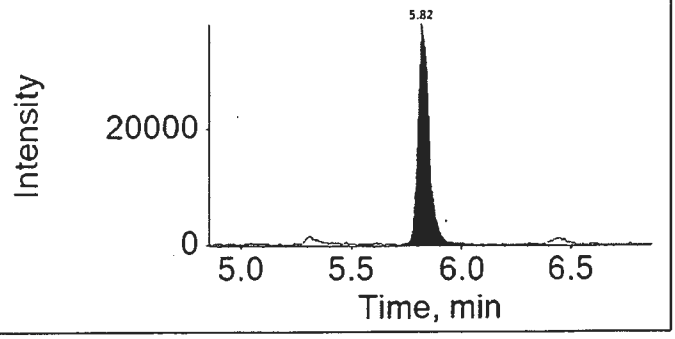
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

503.0 / 99.0



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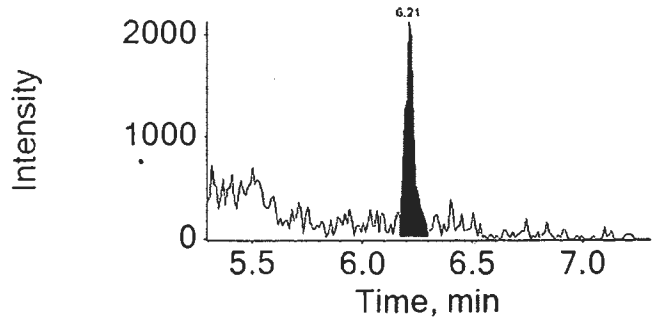
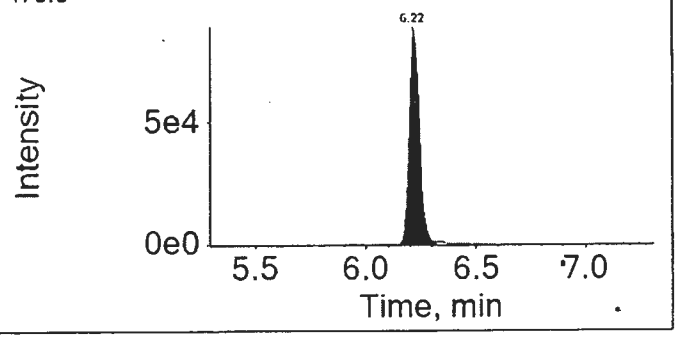
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

515.0 / 470.0



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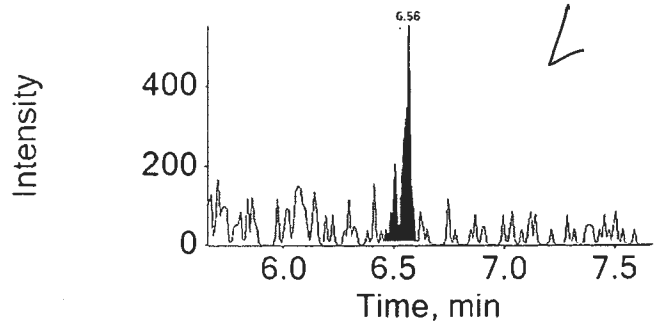
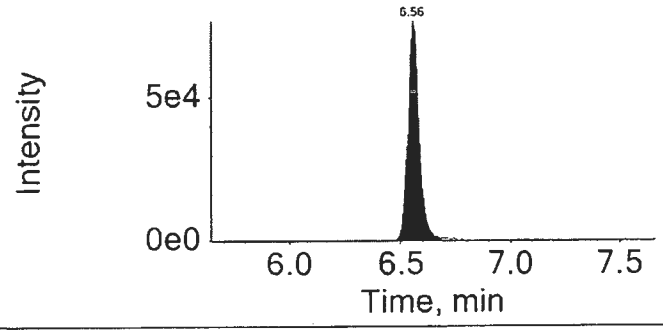
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



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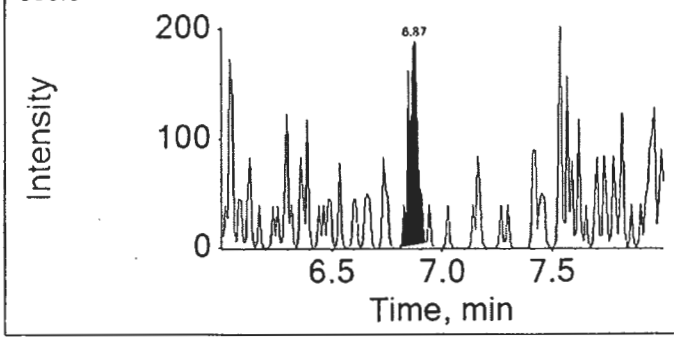
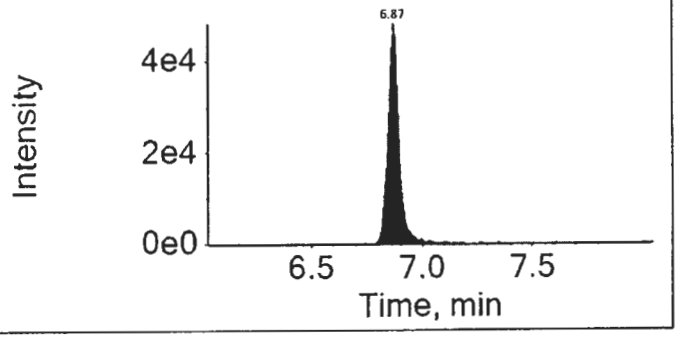
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

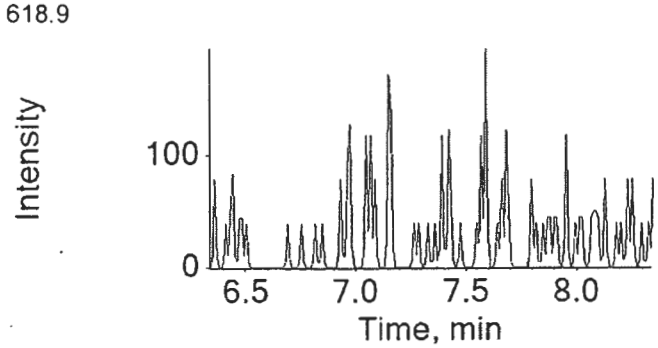
615.0 / 570.0



16AUG31-52.wiff

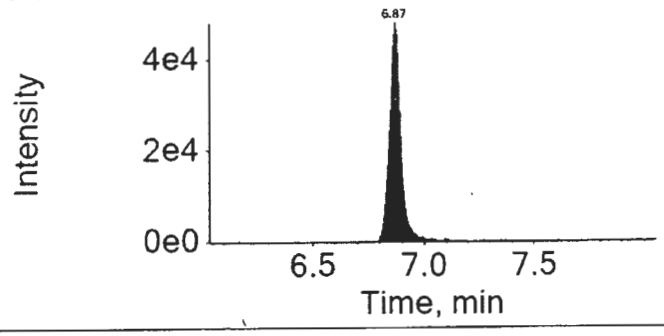
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

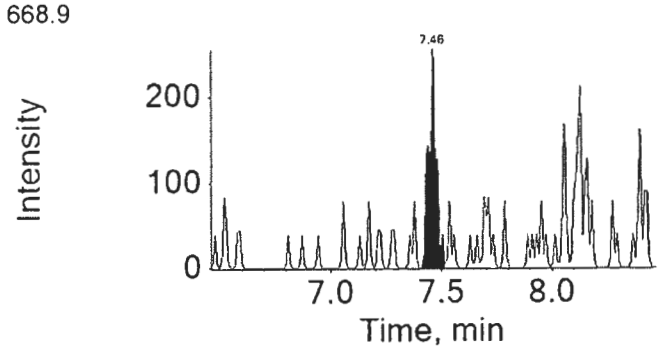
615.0 / 570.0



16AUG31-52.wiff

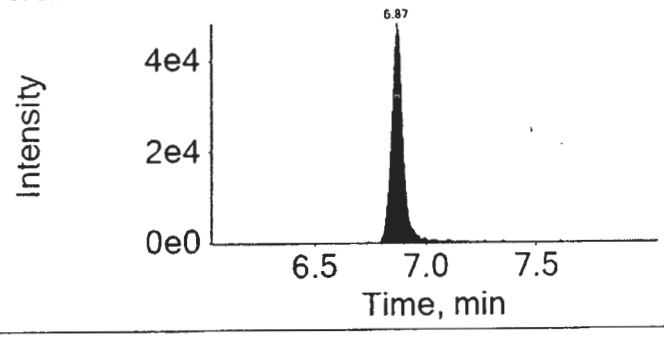
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 15 2016

Lynn Dodd
Principal Specialist

MCD 78241
9/14/16

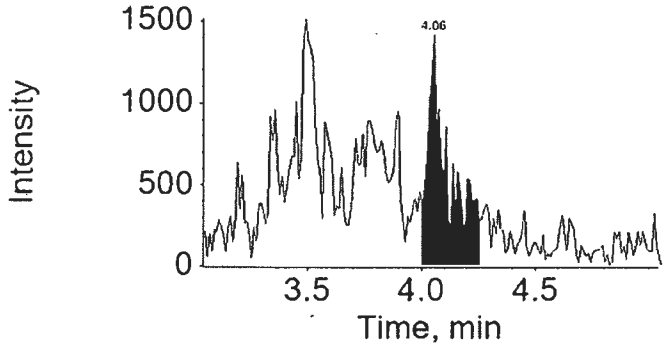
eurofins | Lancaster Laboratories

Print Date: 14/09/2016 1:00 PM

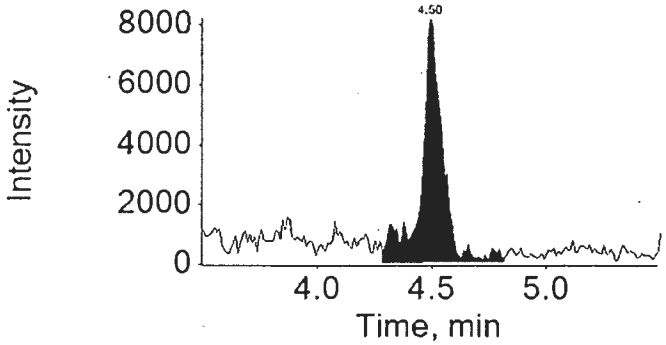
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-52.wiff	2016-09-01T04:11:59	8535013	PFBS	4.06	8902.9
16AUG31-52.wiff	2016-09-01T04:11:59	8535013	PFHxA	4.50	53835.3
16AUG31-52.wiff	2016-09-01T04:11:59	8535013	PFNA	5.85	19168.2
16AUG31-52.wiff	2016-09-01T04:11:59	8535013	PFOS	6.18	11702.1
16AUG31-52.wiff	2016-09-01T04:11:59	8535013	PFTeDA	8.11	1000.7

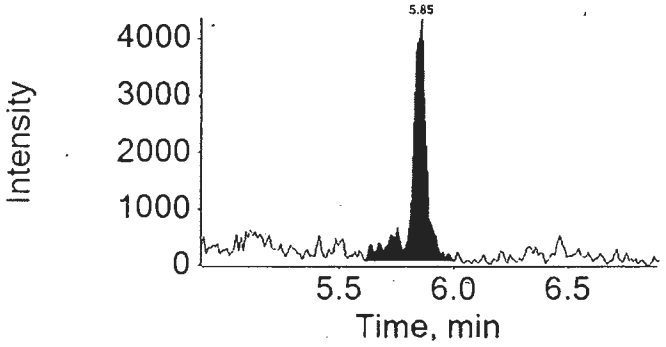
Component: PFBS
Mass: 298.9 / 98.9



Component: PFHxA
Mass: 312.9 / 269.0



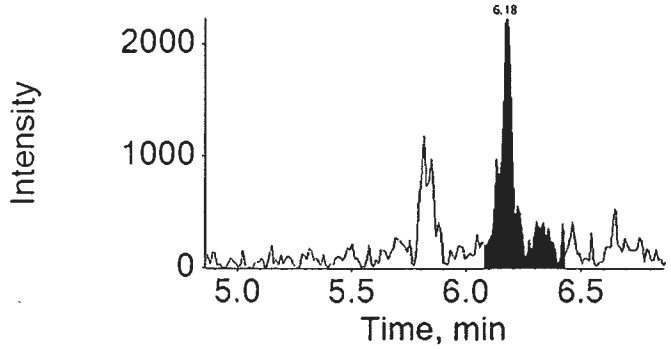
Component: PFNA
Mass: 462.9 / 418.9



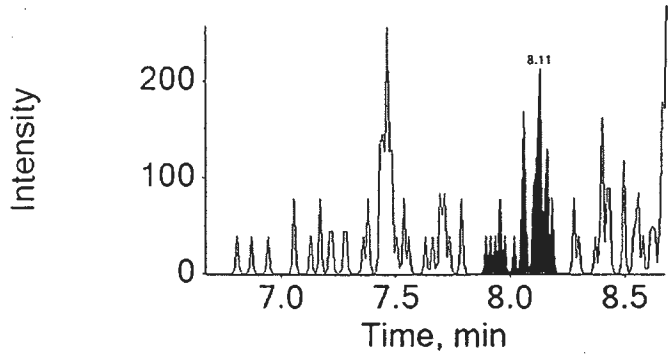
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFOS
Mass: 498.9 / 98.9



Component: PFTeDA
Mass: 712.9 / 668.9



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

MED 7824
9/14/16

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Analysis Report

REVISED

Sample Description: SG3-DGWATERMH-160816 Grab Wastewater
SGPP - Bennington

LL Sample # WW 8535013
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 10:10 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

DGWMH SDG#: SPP17-04

CAT No.	Analysis Name	CAS Number	Result			Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l			ng/l	ng/l	
10954	**Perfluorooctanoic acid**	335-67-1	270		✓	1	2	1
10954	**Perfluorononanoic acid**	375-95-1	2	J	✓	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U		1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U		2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U		3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U		2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U		3	5	1
10954	**Perfluorohexanoic acid**	307-24-4	13		✓	1	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	6		✓	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U		4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U		4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U		5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 04:11	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.0998 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535013
Lab File ID: 16AUG31-52.WIFF
Date Collected: 08/16/2016 10:10
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 04:11
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	13	
375-85-9	PFHpA	6	✓
355-46-4	PFHxS	4	U
335-67-1	PFOA	270	✓
375-95-1	PFNA	2	J ✓
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

FORM 01 Page 1 of 1

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 4:50:00 PM

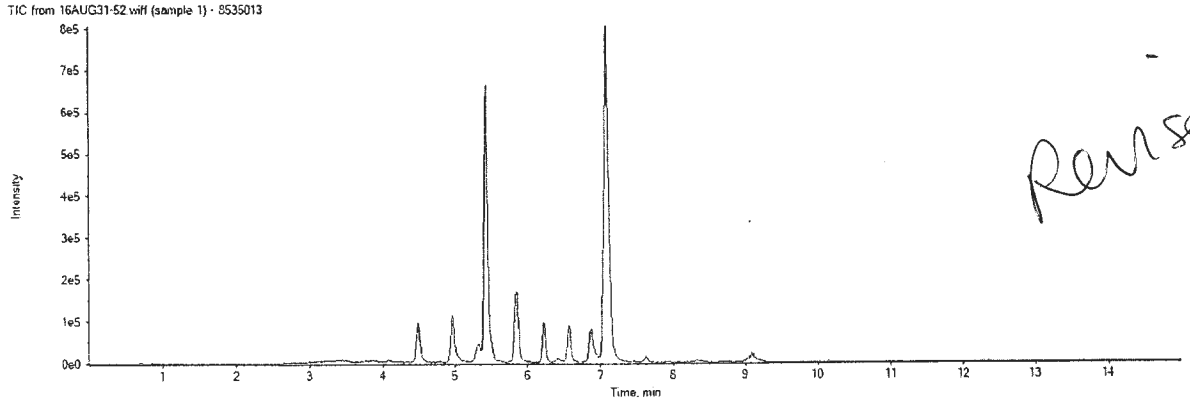
Sample Name:	8535013			**Data File:**		16AUG31-52.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-DGWATERMH-160816 Grab Wastewater			**Acquis Date:**		2016-09-01T04:11:59
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	54			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16236005
				ICAL Name:		16AUG26ICAL
Batch Number:	16236005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09975			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.06	0.820	5835.8	M	18O2-PFHxS	4.96	143138.6	0.041	1.711
PFHxA	4.50	1.000	44634.3	M	13C2-PFHxA	4.49	315685.5	0.141	13.489
PFHpA	4.97	1.000	33323.9	M	13C4-PFHpA	4.97	227654.3	0.146	5.805
PFHxS	N/A	N/A	N/A	A	18O2-PFHxS	4.96	143138.6	N/A	N/A
PFOA	5.43	1.000	2180273.7	M	13C4-PFOA	5.43	353446.9	6.169	271.966
PFNA	5.85	1.000	17591.7	M	13C5-PFNA	5.85	519746.5	0.034	1.606
PFOS	5.83	1.000	4501.0	M	13C4-PFOS	5.82	139340.7	0.032	1.577
PFDA	6.21	1.000	6276.8	A	13C2-PFDA	6.22	285663.4	0.022	0.881
PFUnDA	6.56	1.000	1247.9	A	13C2-PFUnDA	6.56	267792.3	0.005	0.226
PFDoDA	6.87	1.000	544.4	A	13C2-PFDoDA	6.87	175959.4	0.003	0.157
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.87	175959.4	N/A	N/A
PFTeDA	7.46	1.090	623.8	M	13C2-PFDoDA	6.87	175959.4	0.004	0.184

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-DGWATERMH-160816 Grab Wastewater



Revised

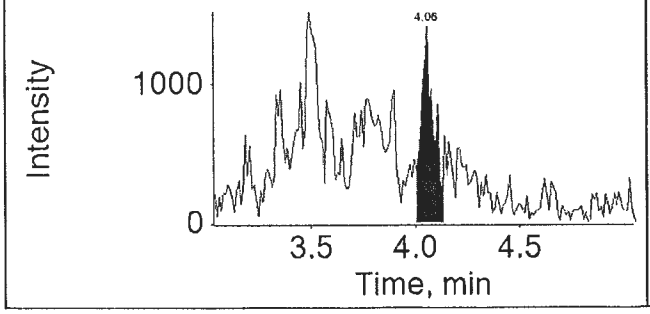
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-52.wiff

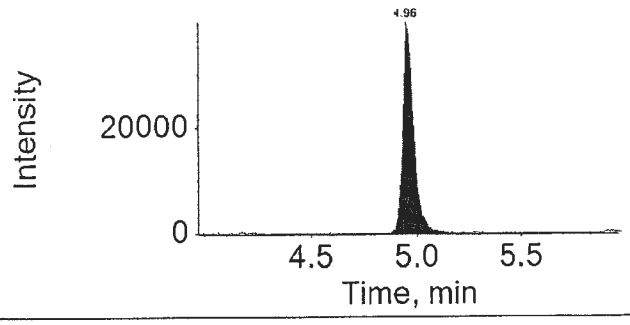
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

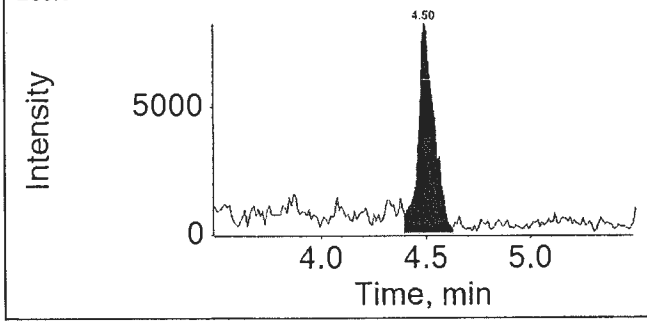
403.0 / 103.0



16AUG31-52.wiff

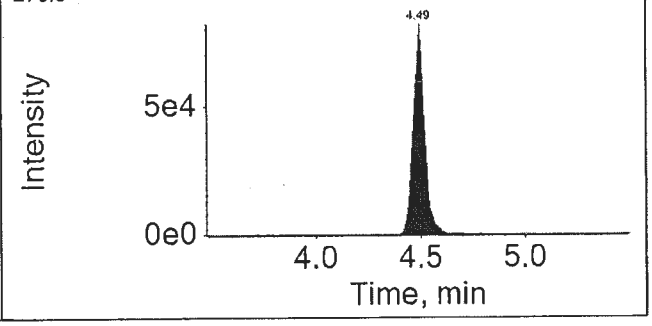
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

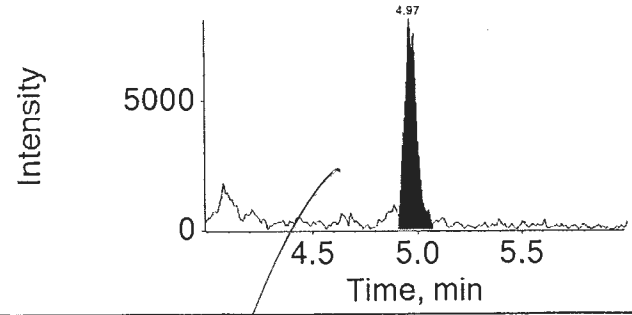
314.9 / 270.0



16AUG31-52.wiff

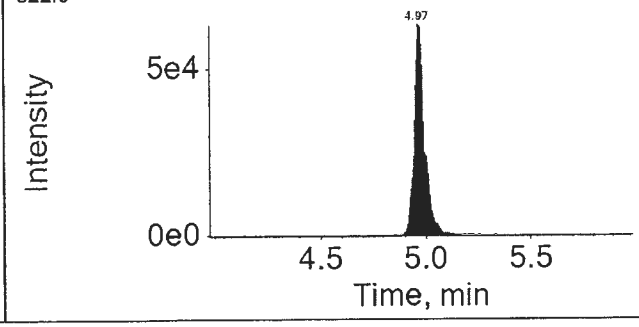
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



Revised

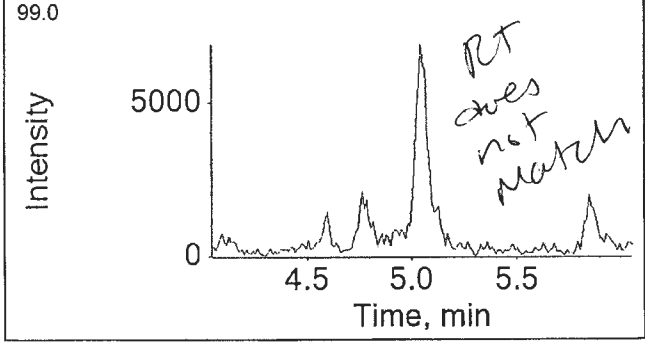
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-52.wiff

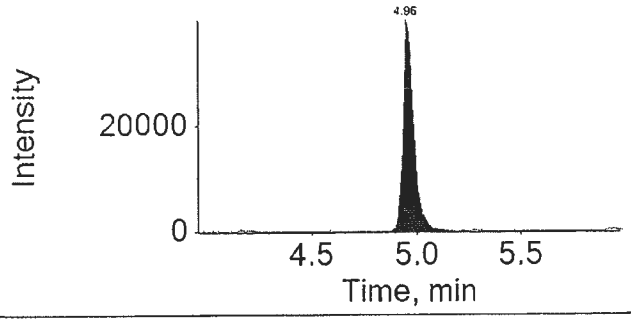
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

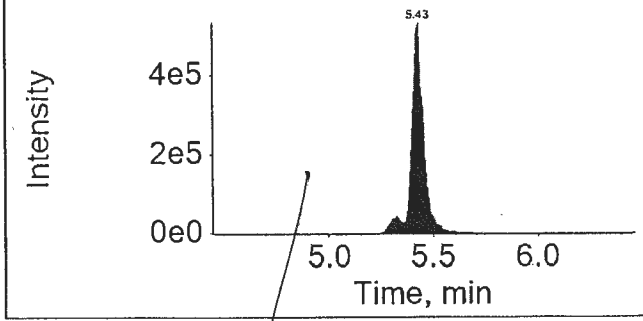
403.0 / 103.0



16AUG31-52.wiff

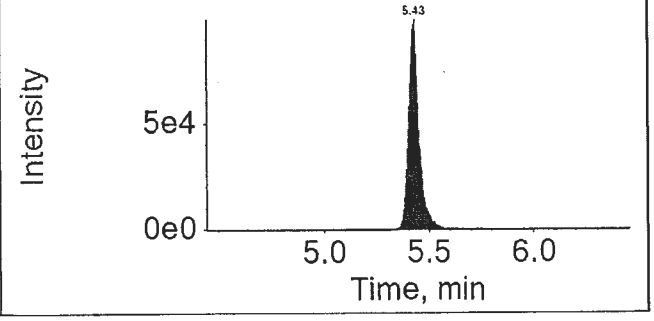
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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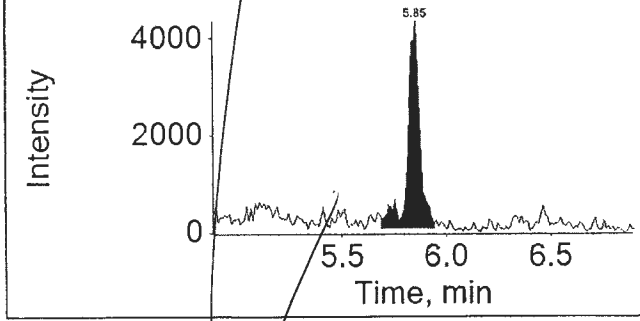
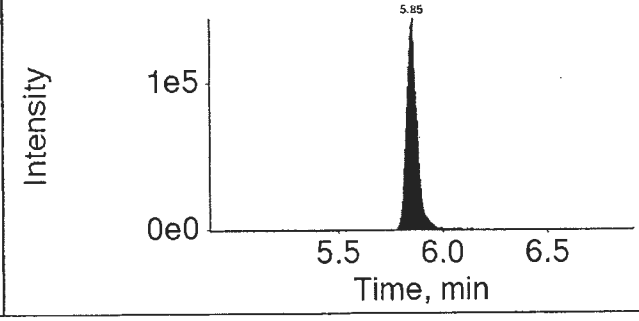
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



Revised

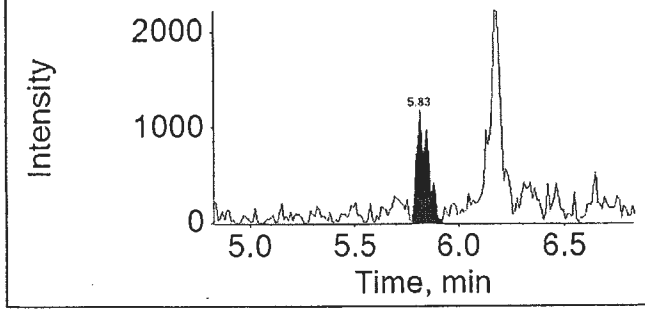
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-52.wiff

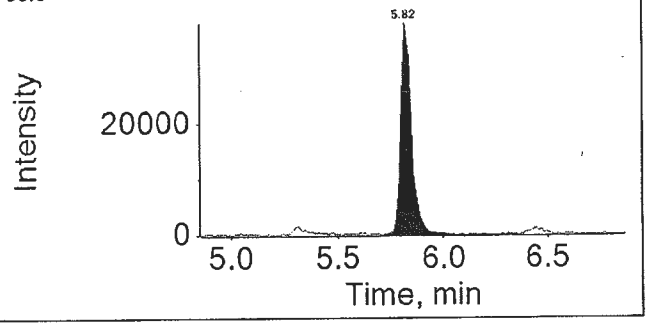
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

503.0 / 99.0



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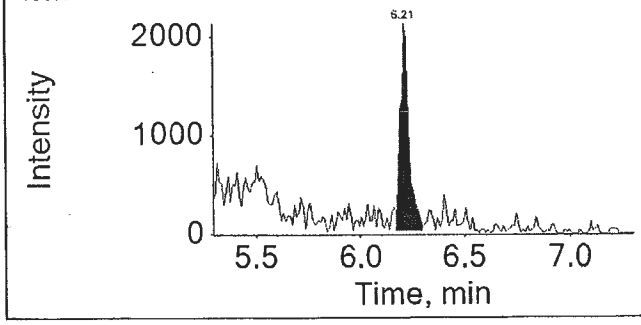
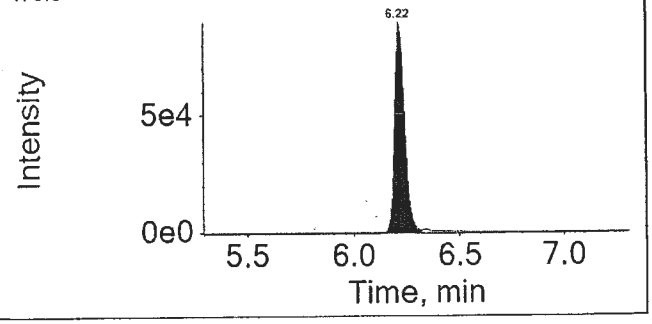
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

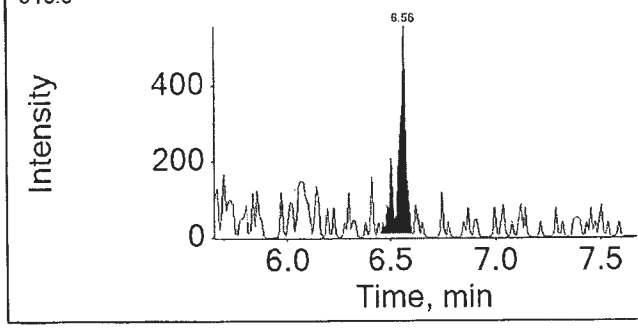
515.0 / 470.0



16AUG31-52.wiff

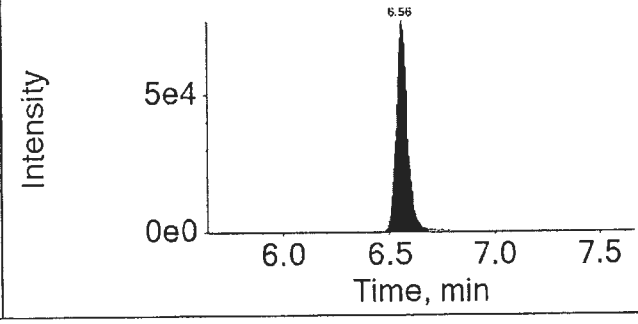
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



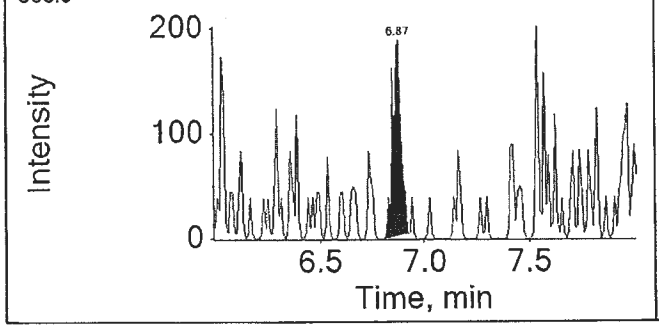
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-52.wiff

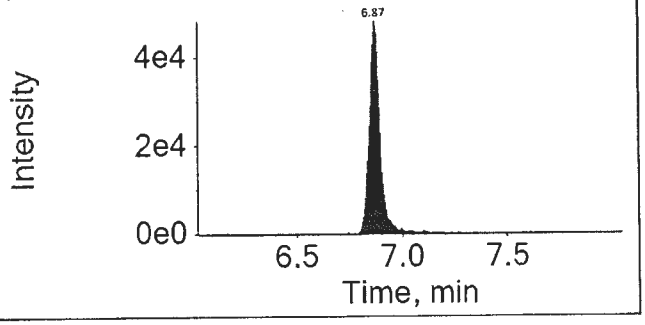
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

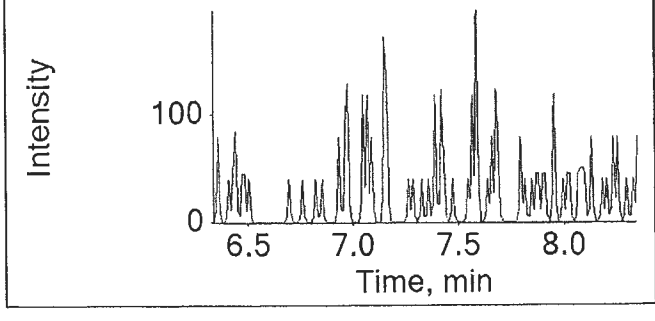
615.0 / 570.0



16AUG31-52.wiff

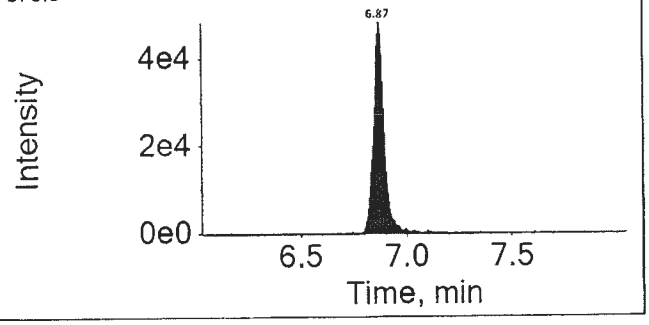
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

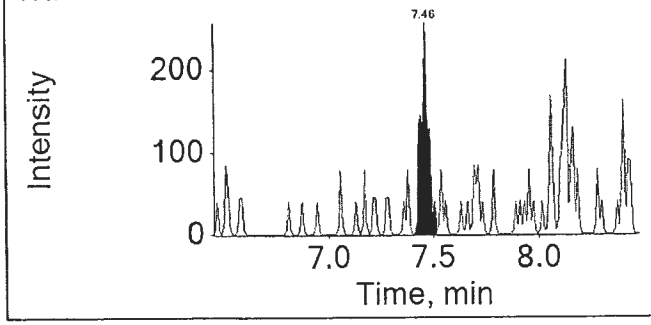
615.0 / 570.0



16AUG31-52.wiff

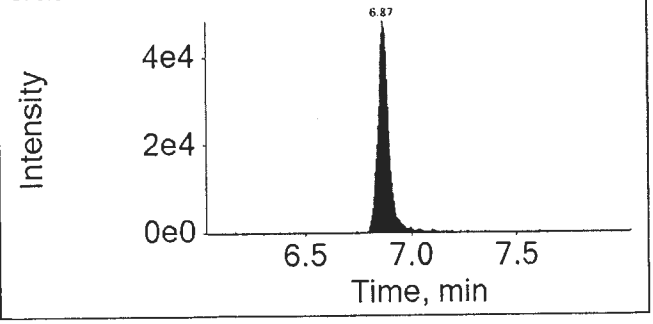
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

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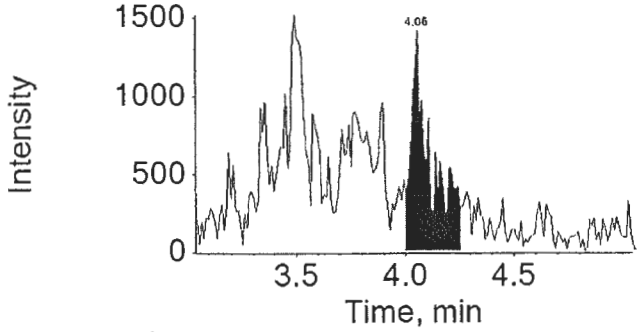
Print Date: 09/06/2017 4:53 PM

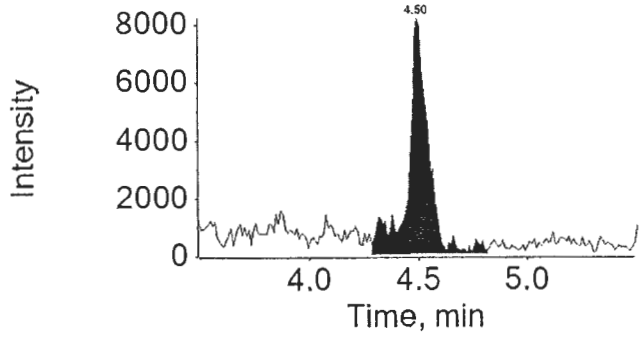
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-52.wiff	2016-09-01T04:11:59	8535013	PFBS	4.06	8902.9
16AUG31-52.wiff	2016-09-01T04:11:59	8535013	PFHxA	4.50	53835.3
16AUG31-52.wiff	2016-09-01T04:11:59	8535013	PFHpA	4.97	38037.1
16AUG31-52.wiff	2016-09-01T04:11:59	8535013	PFOA	5.43	2019332.6
16AUG31-52.wiff	2016-09-01T04:11:59	8535013	PFNA	5.85	19168.2
16AUG31-52.wiff	2016-09-01T04:11:59	8535013	PFOS	6.18	11702.1
16AUG31-52.wiff	2016-09-01T04:11:59	8535013	PFTeDA	8.11	1000.7

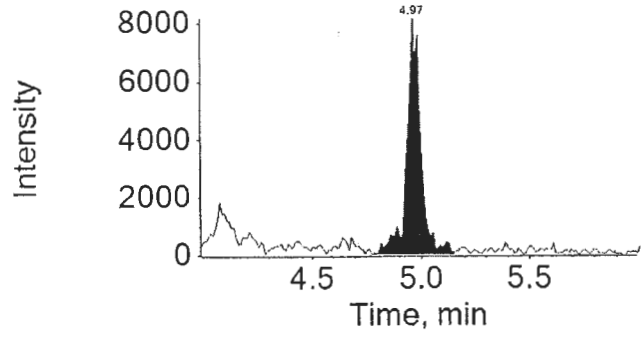
Component: PFBS
Mass: 298.9 / 98.9



Component: PFHxA
Mass: 312.9 / 269.0



Component: PFHpA
Mass: 362.9 / 318.9



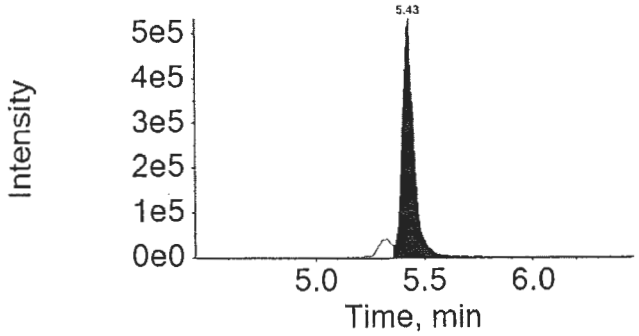
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:52 am, 6/13/17

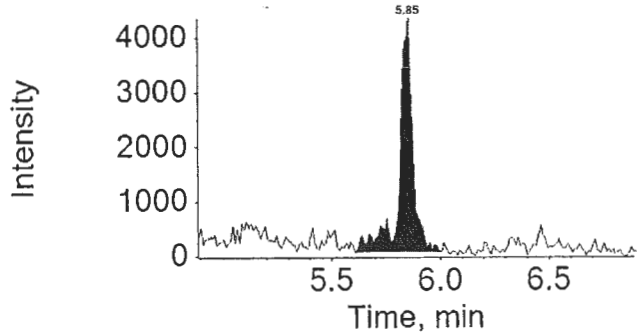
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

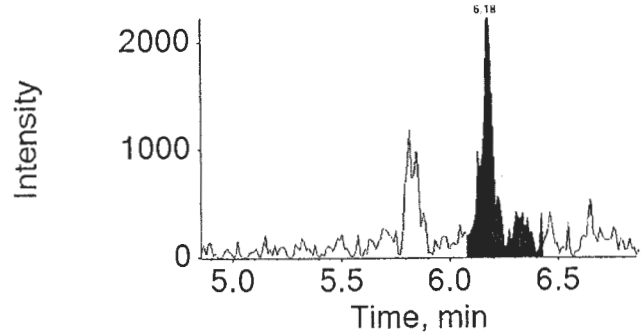
Component: PFOA
Mass: 412.9 / 368.9



Component: PFNA
Mass: 462.9 / 418.9



Component: PFOS
Mass: 498.9 / 98.9



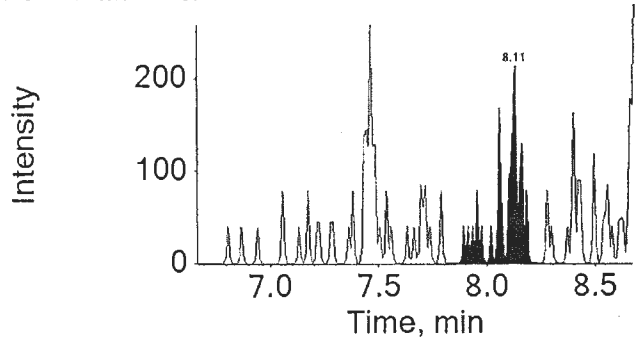
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:52 am, 6/13/17

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFTeDA
Mass: 712.9 / 668.9



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:52 am, 6/13/17

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Analysis Report

REVISED

Sample Description: SG3-UGWATERMH-160816 Grab Wastewater
SGPP - Bennington

Project Name: SGPP - Bennington

LL Sample # WW 8535014
LL Group # 1696623
Account # 37191

Collected: 08/16/2016 10:45 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

UGWMH SDG#: SPP17-05BKG

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	**Perfluoroheptanoic acid**	375-85-9	11		1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	**Perfluorohexanoic acid**	307-24-4	13		1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	**Perfluorooctanoic acid**	335-67-1	880		1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 02:33	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 9/14/2016 12:59:00 PM

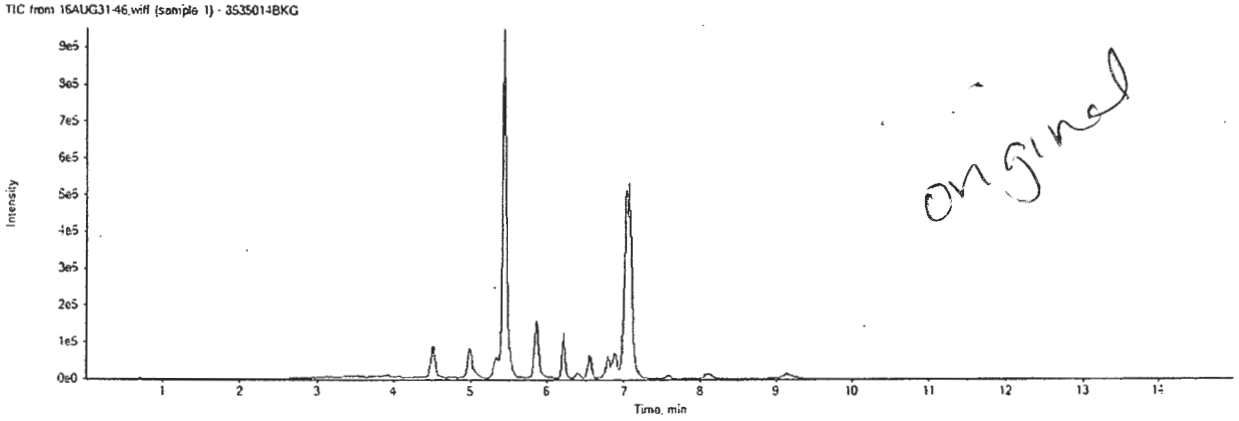
Sample Name:	8535014BKG		**Data File:**		16AUG31-46.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-UGWATERMH-160816 Grab Wastewater		**Acquis Date:**		2016-09-01T02:33:41
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	48		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09982		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units	
PFBS	N/A	N/A	A	18O2-PFHxS	4.98	135186.6	N/A	N/A	ng/L	
PFHxA	4.50	42483.2	A	13C2-PFHxA	4.51	316044.8	0.134	12.815	ng/L	+
PFHpA	4.99	47369.6	A	13C4-PFHpA	4.99	166366.3	0.285	11.284	ng/L	+
PFHxS	N/A	N/A	A	18O2-PFHxS	4.98	135186.6	N/A	N/A	ng/L	
PFOA	5.43	3014069.9	A	13C4-PFOA	5.43	349902.6	8.614	379.516	ng/L	+
PFNA	5.86	9029.7	A	13C5-PFNA	5.86	441983.3	0.020	0.969	ng/L	
PFOS	5.84	11452.2	M	13C4-PFOS	5.84	142209.1	0.081	3.929	ng/L	
PFDA	6.21	6415.5	A	13C2-PFDA	6.21	339582.6	0.019	0.757	ng/L	
PFUnDA	6.55	1288.1	A	13C2-PFUnDA	6.55	199864.1	0.006	0.312	ng/L	
PFDoDA	6.89	947.2	A	13C2-PFDoDA	6.88	225244.8	0.004	0.213	ng/L	
PFTrDA	7.15	687.8	A	13C2-PFDoDA	6.88	225244.8	0.003	0.151	ng/L	
PFTeDA	7.42	1720.0	A	13C2-PFDoDA	6.88	225244.8	0.008	0.397	ng/L	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-UGWATERMH-160816 Grab Wastewater

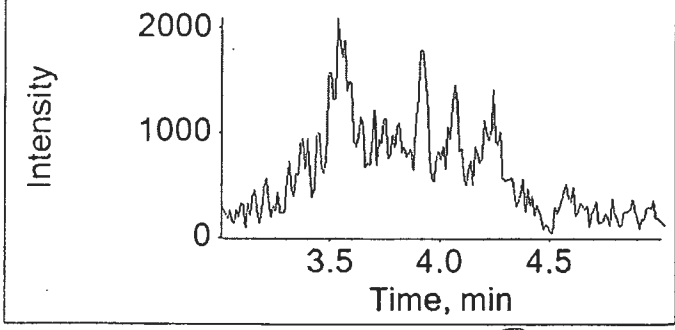


original

16AUG31-46.wiff

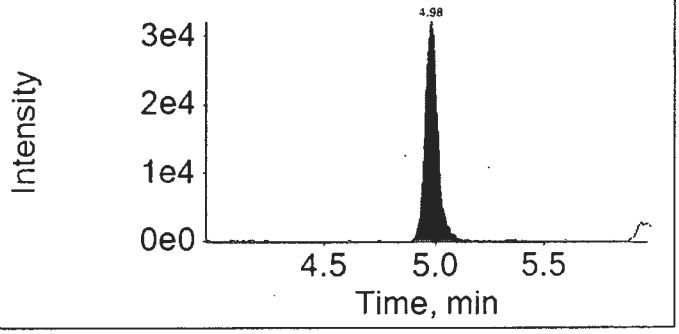
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

403.0 / 103.0

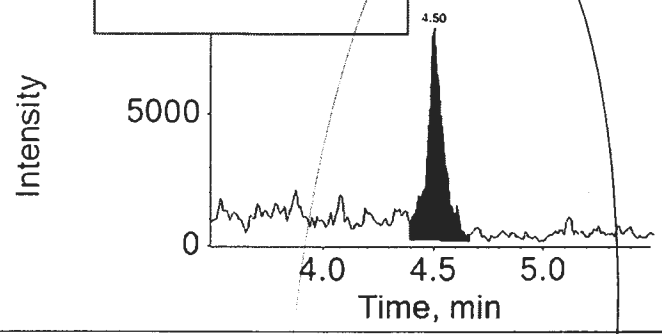


16AUG31-46.wiff

Analyte: PFHxA

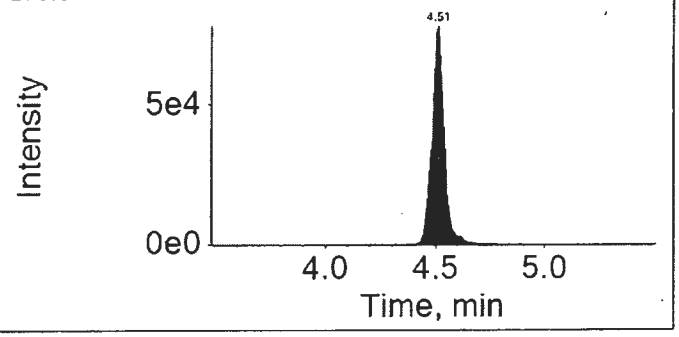
312.9 / 269.0

Lab check integration



Internal Standard: 13C2-PFHxA

314.9 / 270.0

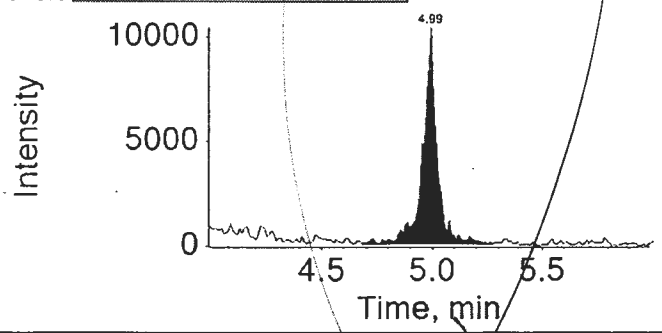


16AUG31-46.wiff

Analyte: PFHpA

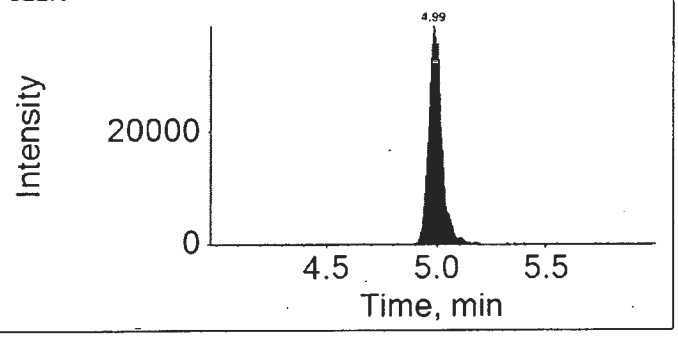
362.9 / 318.9

Lab check integration



Internal Standard: 13C4-PFHpA

367.0 / 322.0

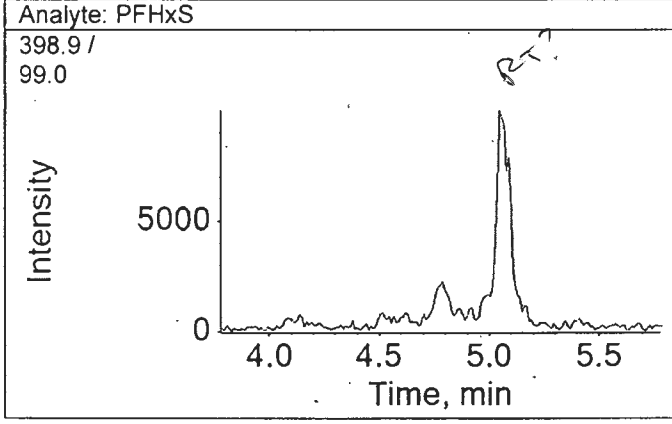


original

16AUG31-46.wiff

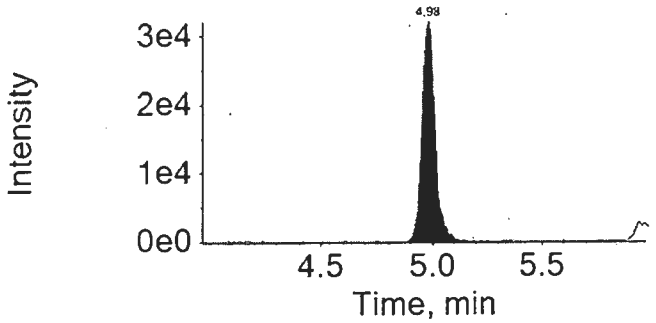
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

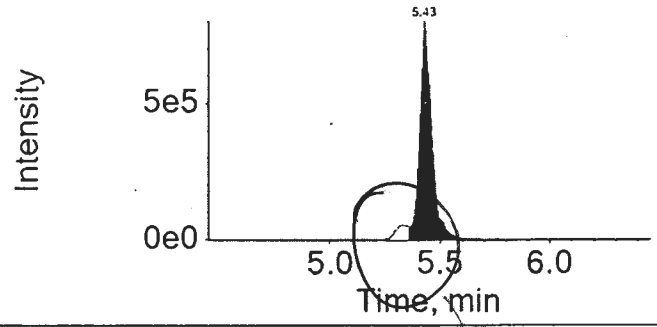
403.0 / 103.0



16AUG31-46.wiff

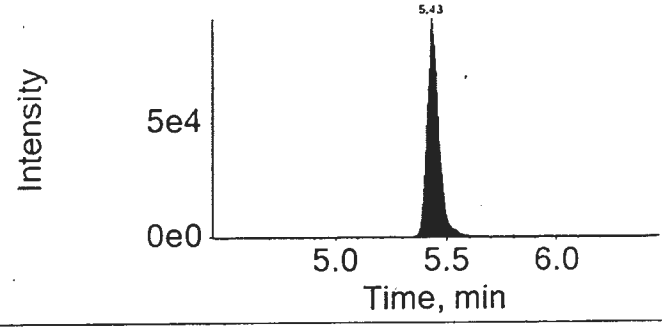
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

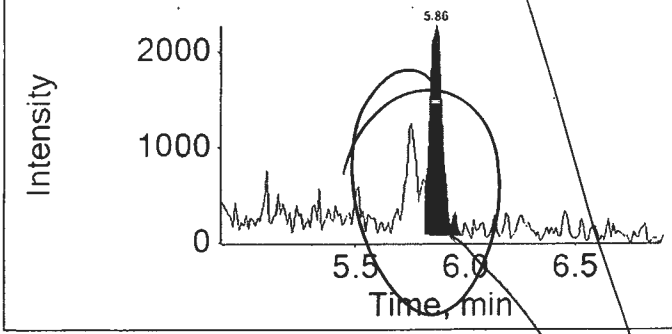
417.0 / 372.0



16AUG31-46.wiff

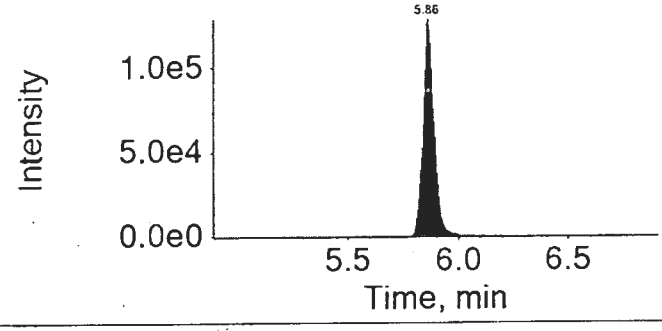
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



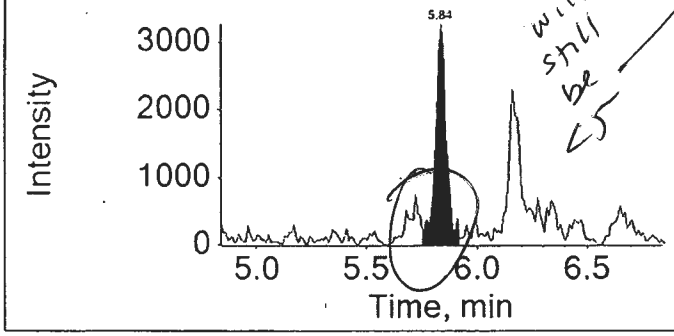
orginal

lab revised anyway.

16AUG31-46.wiff

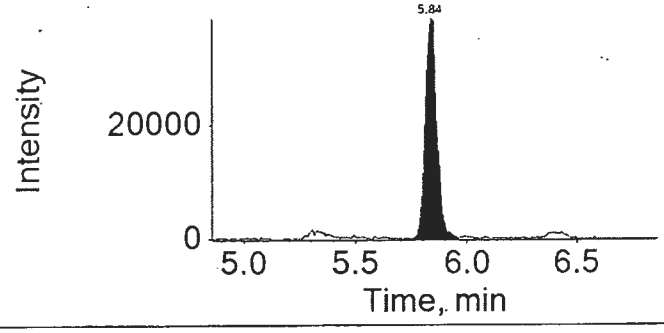
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

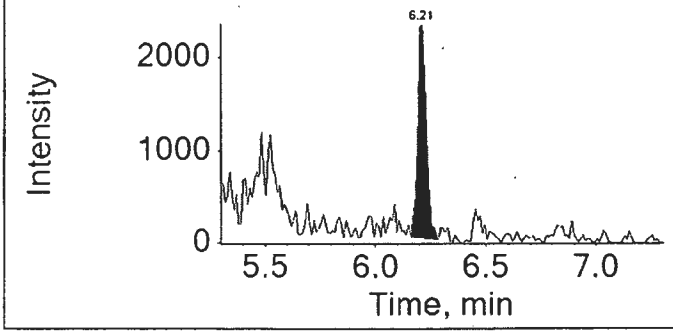
503.0 / 99.0



16AUG31-46.wiff

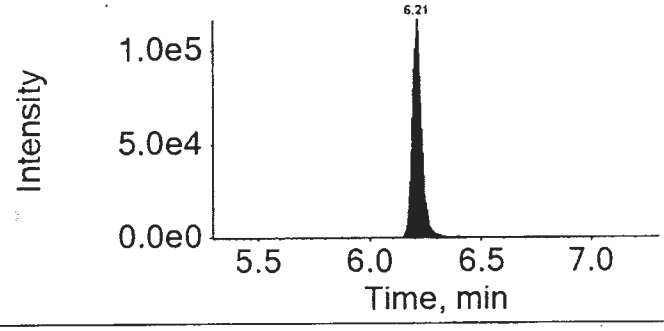
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

515.0 / 470.0



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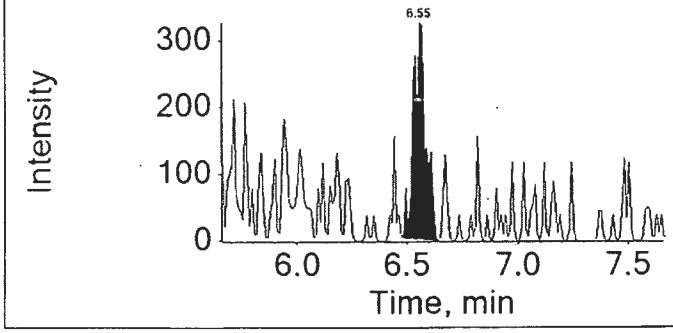
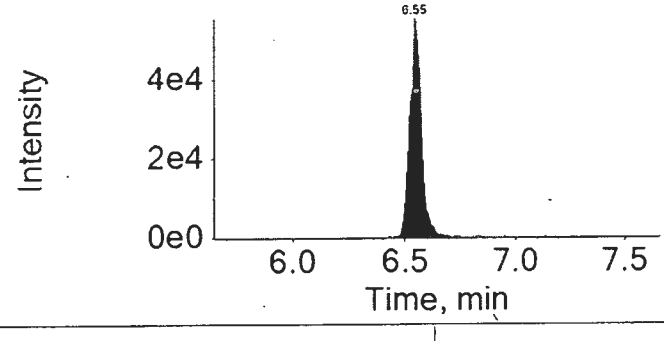
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



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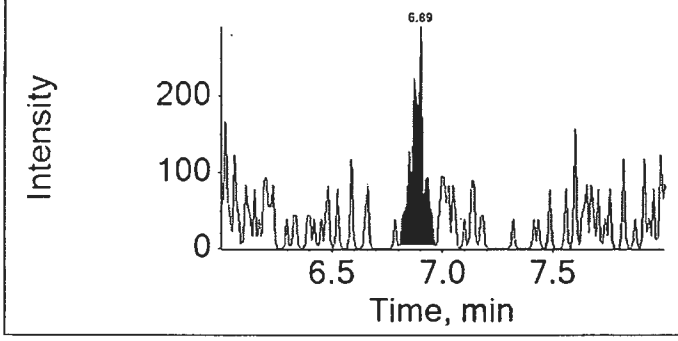
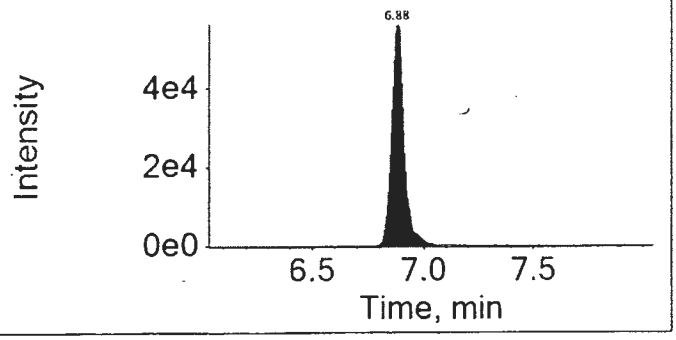
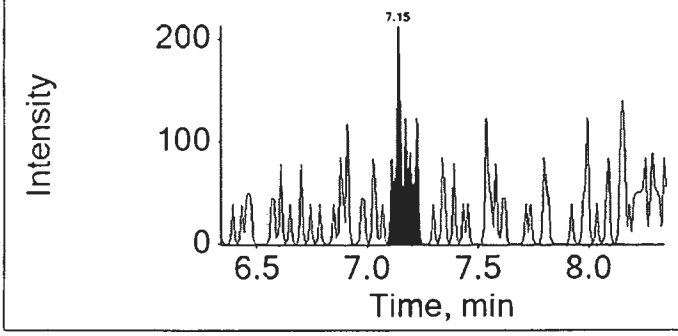
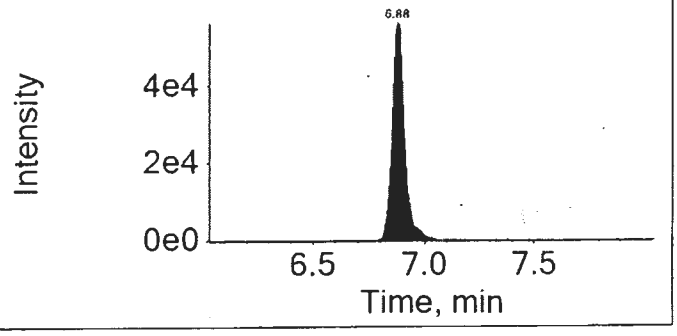
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



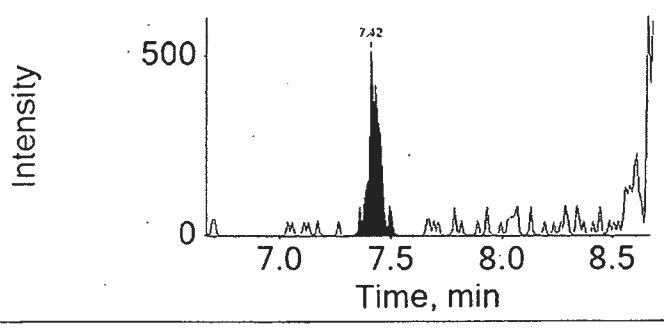


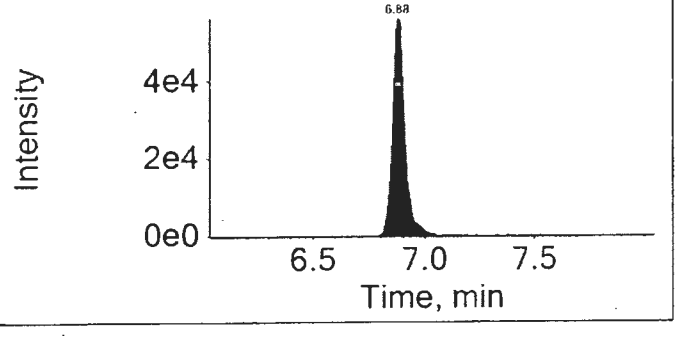
16AUG31-46.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG31-46.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

MCP 7824 9/14/16

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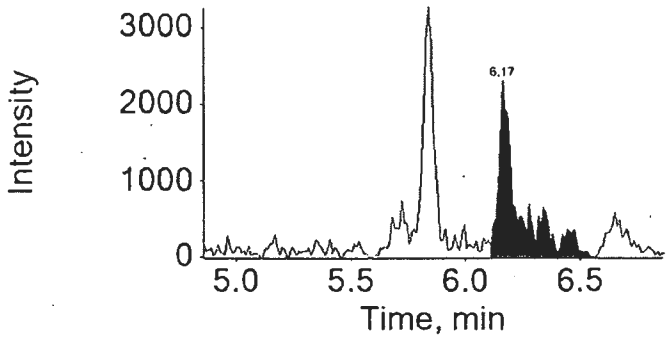
Print Date: 14/09/2016 1:00 PM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-46.wiff	2016-09-01T02:33:41	8535014BKG	PFOS	6.17	14250.3

Component: PFOS
Mass: 498.9 / 98.9



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

mep 7824
9/14/16

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

REVISED

Sample Description: SG3-UGWATERMH-160816 Grab Wastewater
SGPP - Bennington

LL Sample # WW 8535014
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 10:45 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

UGWMH SDG#: SPP17-05BKG

CAT No.	Analysis Name	CAS Number	Result			Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l			ng/l	ng/l	
10954	**Perfluorooctanoic acid**	335-67-1	400		✓	1	2	1
10954	**Perfluorononanoic acid**	375-95-1	1	J	✓	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U		1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U		2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U		3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U		2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U		3	5	1
10954	**Perfluorohexanoic acid**	307-24-4	10		✓	1	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	9		✓	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U		4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U		4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U		5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 02:33	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.0998 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535014
Lab File ID: 16AUG31-46.WIFF
Date Collected: 08/16/2016 10:45
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 02:33
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	10	
375-85-9	PFHpA	9	
355-46-4	PFHxS	4	U
335-67-1	PFOA	400	
375-95-1	PFNA	1	J
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 4:50:00 PM

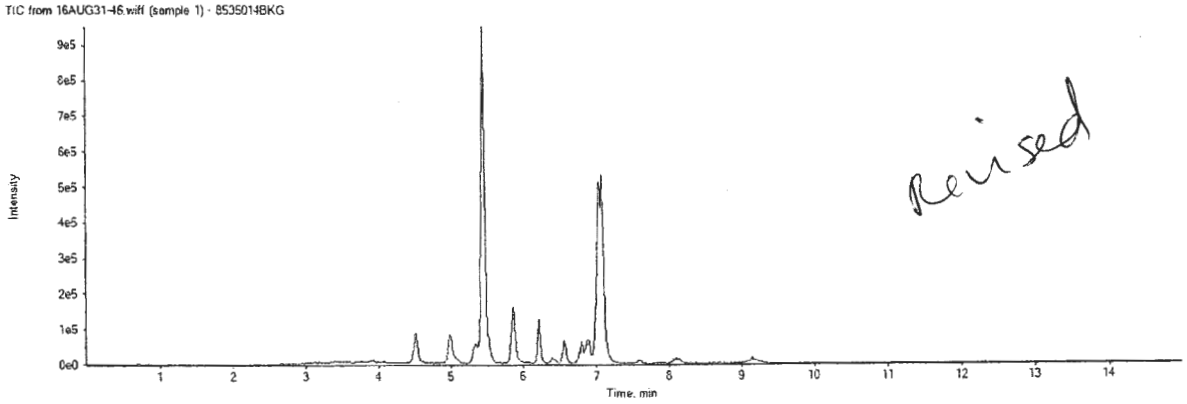
Sample Name:	8535014BKG			**Data File:**		16AUG31-46.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-UGWATERMH-160816 Grab Wastewater			**Acquis Date:**		2016-09-01T02:33:41
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	48			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16236005
				ICAL Name:		16AUG26ICAL
Batch Number:	16236005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09982			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.98	135186.6	N/A	N/A
PFHxA	4.50	1.000	31669.8	M	13C2-PFHxA	4.51	316044.8	0.100	9.553
PFHpA	4.99	1.000	38498.9	M	13C4-PFHpA	4.99	166366.3	0.231	9.171
PFHxS	N/A	N/A	N/A	A	18O2-PFHxS	4.98	135186.6	N/A	N/A
PFOA	5.43	1.000	3201301.8	M	13C4-PFOA	5.43	349902.6	9.149	403.091
PFNA	5.86	1.000	13732.5	M	13C5-PFNA	5.86	441983.3	0.031	1.473
PFOS	5.84	1.000	14087.3	M	13C4-PFOS	5.84	142209.1	0.099	4.833
PFDA	6.21	1.000	6415.5	A	13C2-PFDA	6.21	339582.6	0.019	0.757
PFUnDA	6.55	1.000	1288.1	A	13C2-PFUnDA	6.55	199864.1	0.006	0.312
PFDoDA	6.89	1.000	947.2	A	13C2-PFDoDA	6.88	225244.8	0.004	0.213
PFTrDA	7.15	1.040	687.8	A	13C2-PFDoDA	6.88	225244.8	0.003	0.151
PFTeDA	7.42	1.080	1720.0	A	13C2-PFDoDA	6.88	225244.8	0.008	0.397

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-UGWATERMH-160816 Grab Wastewater

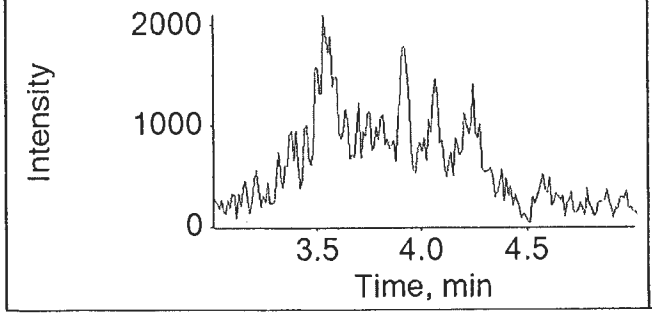


Revised

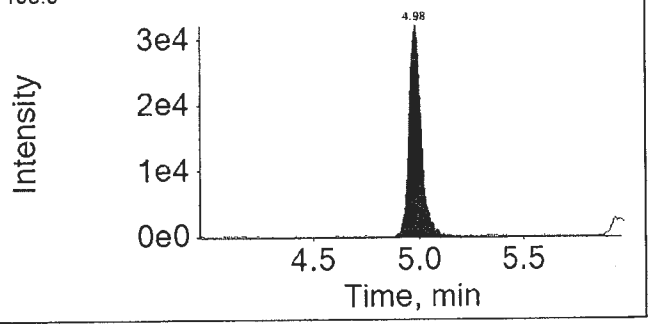
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:58 am, 6/13/17

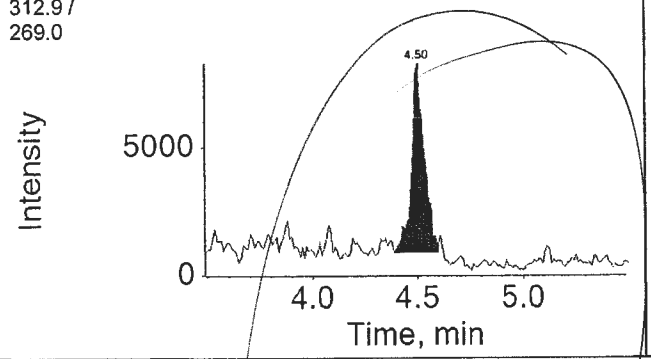
16AUG31-46.wiff
Analyte: PFBS
298.9 / 98.9



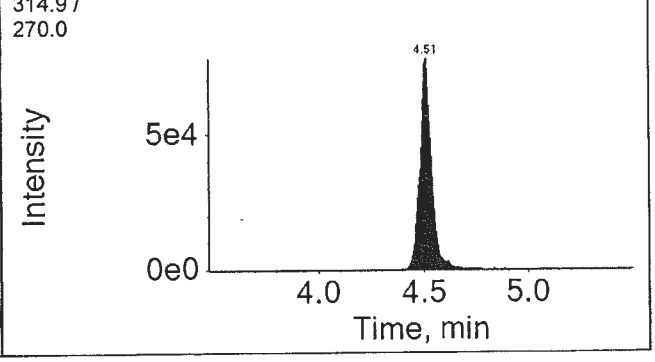
Internal Standard: 18O2-PFHxS
403.0 / 103.0



16AUG31-46.wiff
Analyte: PFHxA
312.9 / 269.0



Internal Standard: 13C2-PFHxA
314.9 / 270.0



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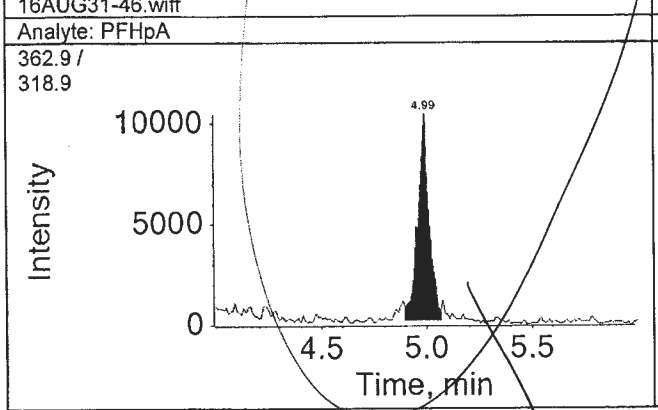
Analyte: PFHpA
362.9 / 318.9



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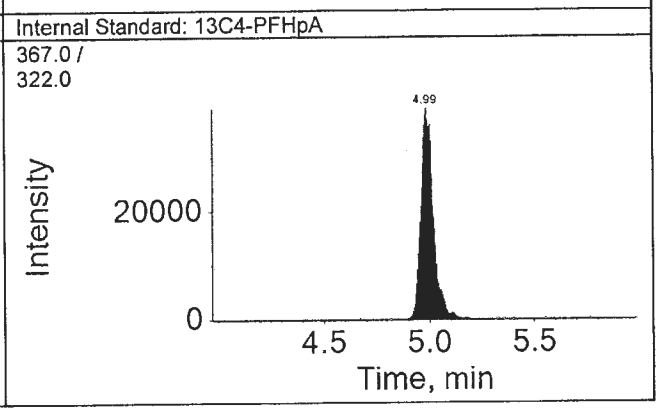
367.0 / 322.0



Revised

APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:58 am, 6/13/17

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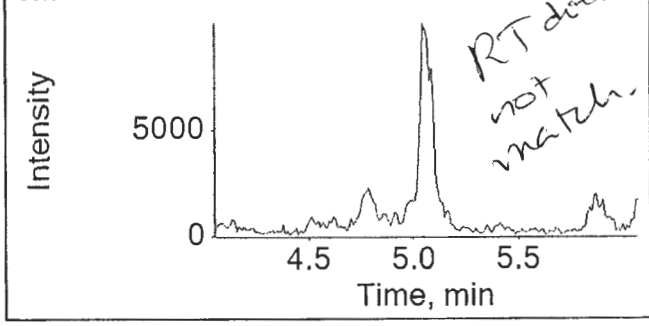
LC-MS/MS Analysis Report

Printed: 6/9/2017 4:50:00 PM

16AUG31-46.wiff

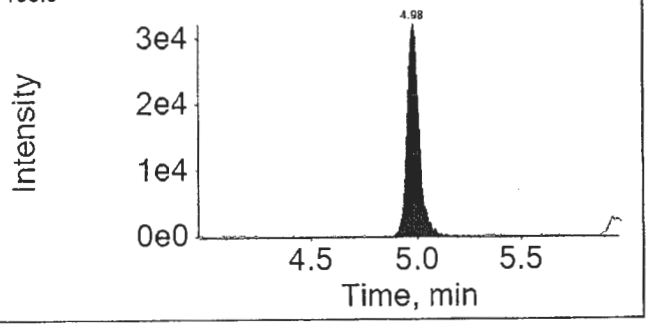
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

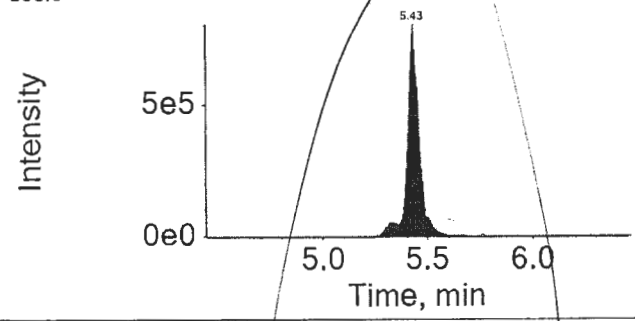
403.0 / 103.0



16AUG31-46.wiff

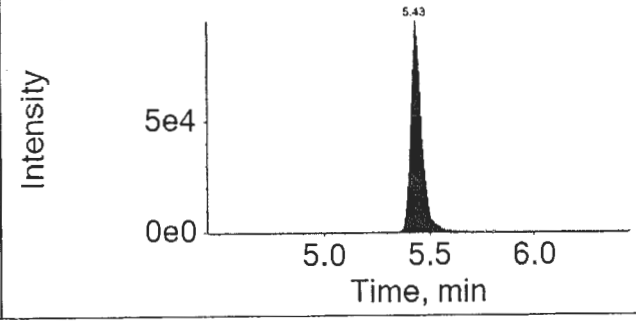
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

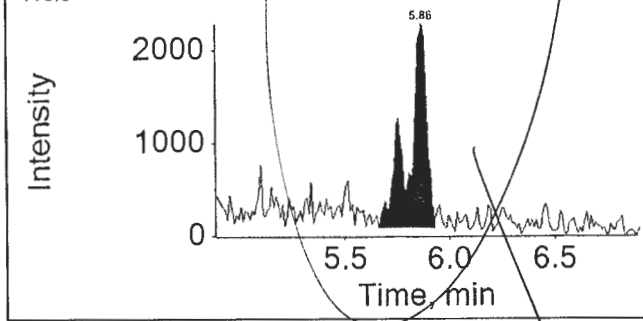
417.0 / 372.0



16AUG31-46.wiff

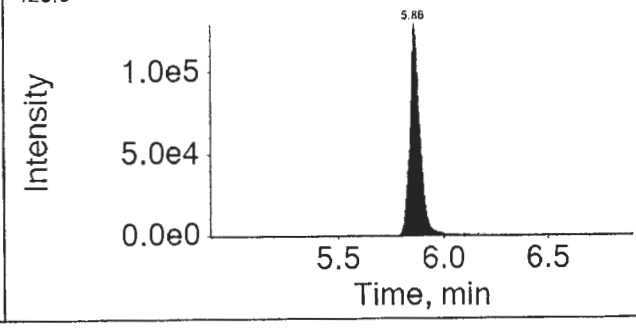
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



Revised

APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:58 am, 6/13/17

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Revised

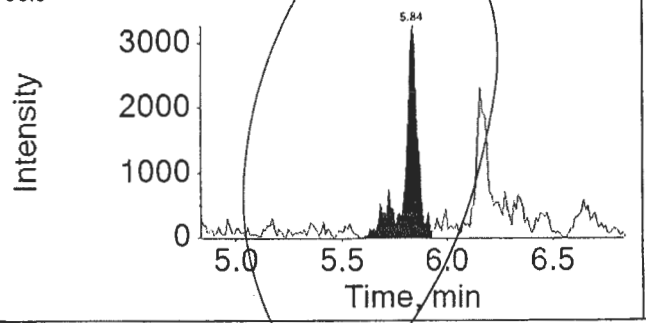
LC-MS/MS Analysis Report

Printed: 6/9/2017 4:50:00 PM

16AUG31-46.wiff

Analyte: PFOS

498.9 / 98.9



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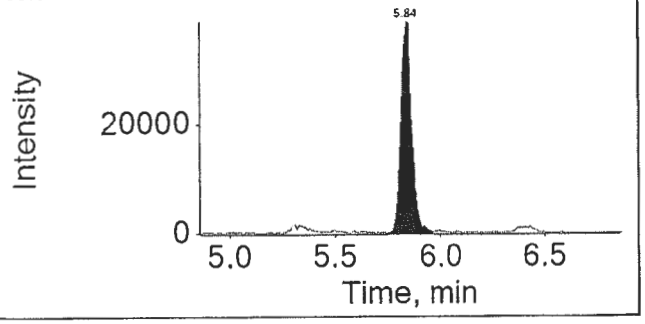
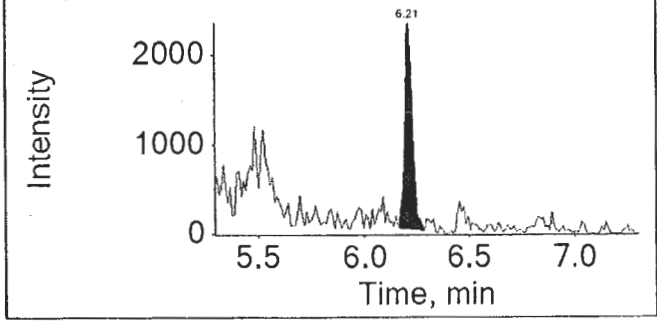
503.0 / 99.0



16AUG31-46.wiff

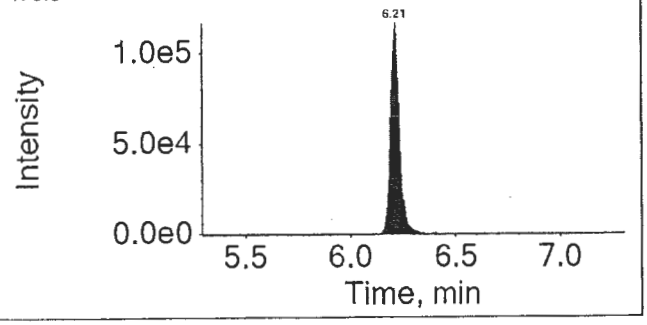
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

515.0 / 470.0



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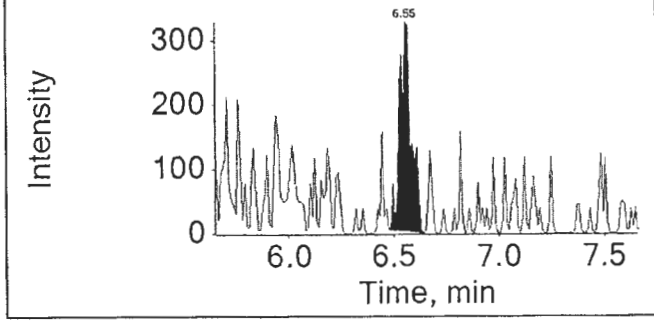
Analyte: PFUnDA

562.9 / 518.9



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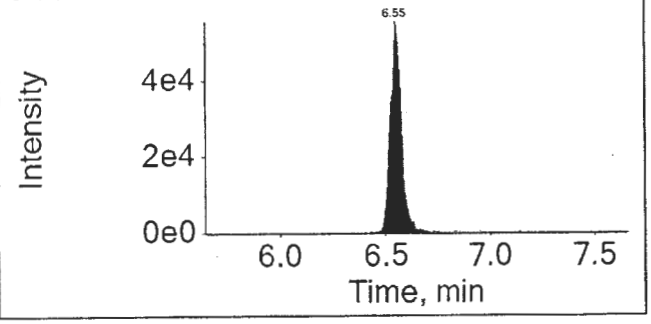
565.0 / 520.0



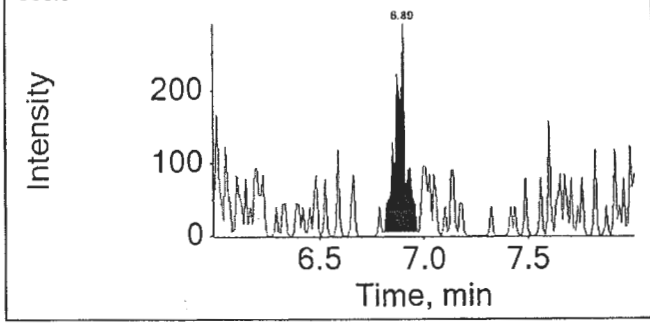
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:58 am, 6/13/17

16AUG31-46.wiff

Analyte: PFDoDA

612.9 / 568.9



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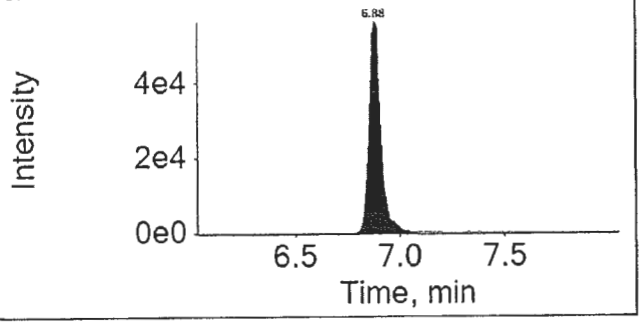
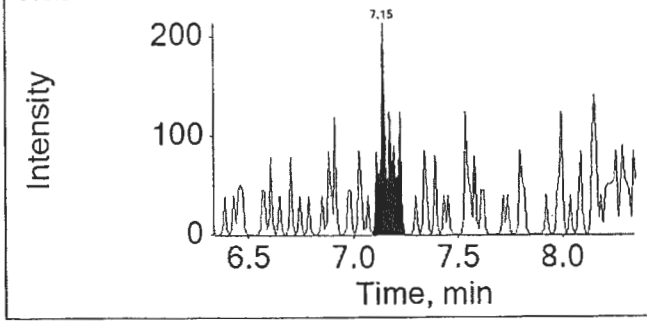
615.0 / 570.0



16AUG31-46.wiff

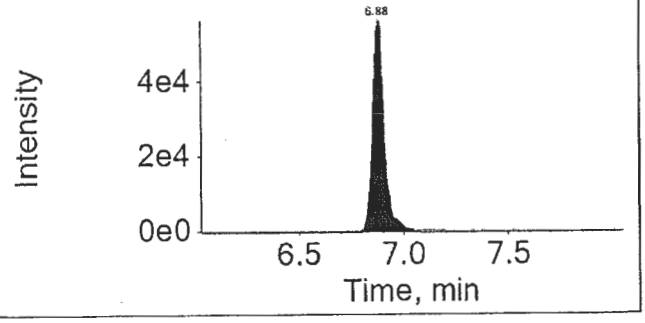
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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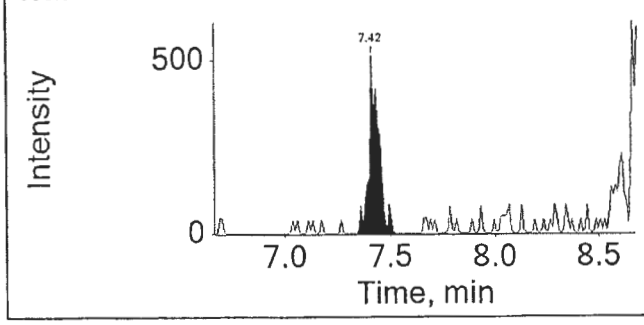
Analyte: PFTeDA

712.9 / 668.9



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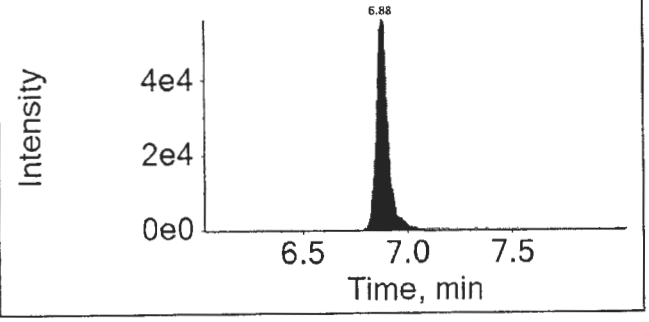
615.0 / 570.0



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:58 am, 6/13/17

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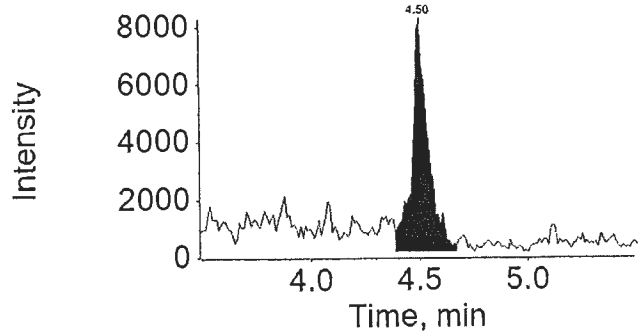
Print Date: 09/06/2017 4:53 PM

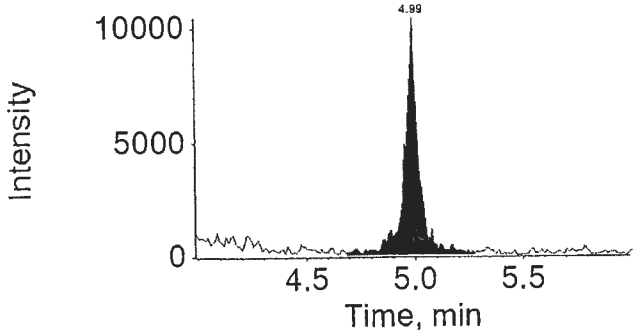
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-46.wiff	2016-09-01T02:33:41	8535014BKG	PFHxA	4.50	42483.2
16AUG31-46.wiff	2016-09-01T02:33:41	8535014BKG	PFHpA	4.99	47369.6
16AUG31-46.wiff	2016-09-01T02:33:41	8535014BKG	PFOA	5.43	3014069.9
16AUG31-46.wiff	2016-09-01T02:33:41	8535014BKG	PFNA	5.86	9029.7
16AUG31-46.wiff	2016-09-01T02:33:41	8535014BKG	PFOS	6.17	14250.3

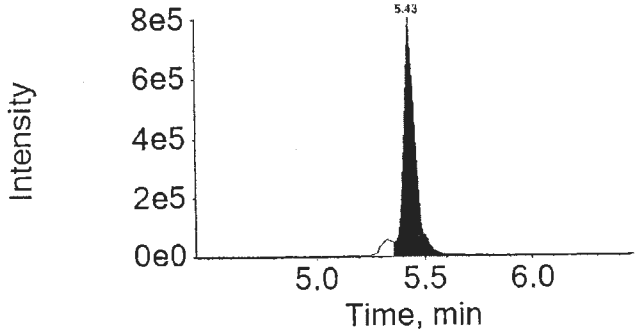
Component: PFHxA
Mass: 312.9 / 269.0



Component: PFHpA
Mass: 362.9 / 318.9



Component: PFOA
Mass: 412.9 / 368.9



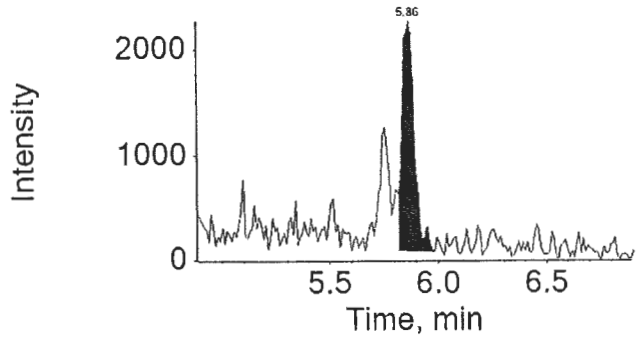
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:52 am, 6/13/17

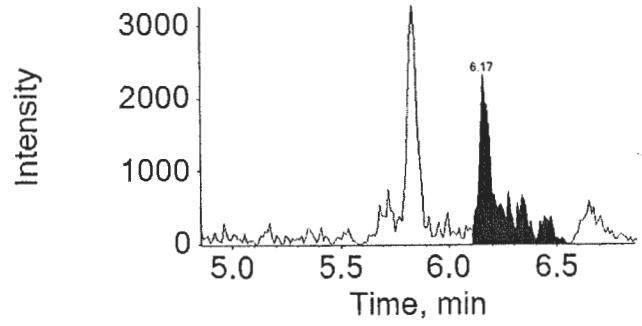
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFNA
Mass: 462.9 / 418.9



Component: PFOS
Mass: 498.9 / 98.9



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:52 am, 6/13/17

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Analysis Report

REVISED

Sample Description: SG3-UGNBENNMH-160816 Grab Wastewater
SGPP - Bennington

LL Sample # WW 8535017
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 11:25 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

UGNMH SDG#: SPP17-06

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	**Perfluoroheptanoic acid**	375-85-9	**2**	**J**	1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	**Perfluorohexanoic acid**	307-24-4	8		1	2	1
10954	**Perfluorononanoic acid**	375-95-1	6		1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	**Perfluorooctanoic acid**	335-67-1	13		1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 04:28	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

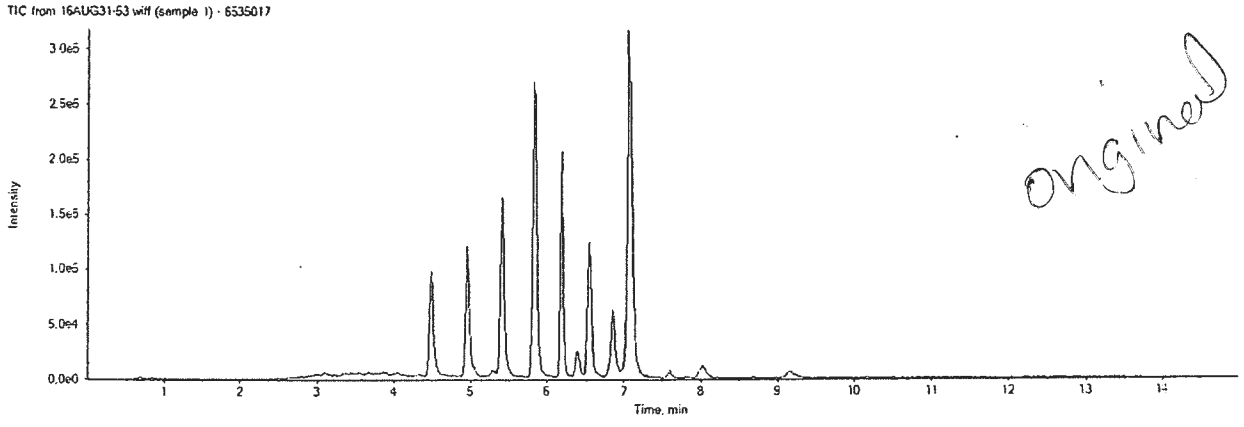
Sample Name:	8535017		**Data File:**		16AUG31-53.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-UGNBENNMH-160816 Grab Wastewater		**Acquis Date:**		2016-09-01T04:28:23
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	55		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09999		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.04	6248.7	M	18O2-PFHxS	4.95	139995.7	0.045	1.868	ng/L
PFHxA	4.49	27263.0	A	13C2-PFHxA	4.48	339768.3	0.080	7.637	ng/L
PFHpA	4.96	11077.8	M	13C4-PFHpA	4.96	250189.0	0.044	1.752	ng/L
PFHxS	4.96	5670.1	A	18O2-PFHxS	4.95	139995.7	0.041	1.848	ng/L
PFOA	5.41	131988.6	A	13C4-PFOA	5.41	442949.1	0.298	13.106	ng/L
PFNA	5.84	104037.2	A	13C5-PFNA	5.84	796538.8	0.131	6.183	ng/L
PFOS	5.81	8672.8	A	13C4-PFOS	5.81	163511.1	0.053	2.584	ng/L
PFDA	6.20	2227.5	A	13C2-PFDA	6.19	512413.1	0.004	0.174	ng/L
PFUnDA	6.54	3347.1	A	13C2-PFUnDA	6.55	416210.5	0.008	0.389	ng/L
PFDoDA	6.85	281.2	A	13C2-PFDoDA	6.86	188223.3	0.001	0.076	ng/L
PFTrDA	7.14	1688.7	A	13C2-PFDoDA	6.86	188223.3	0.009	0.443	ng/L
PFTeDA	7.44	1157.1	M	13C2-PFDoDA	6.86	188223.3	0.006	0.319	ng/L

Total Ion Chromatogram

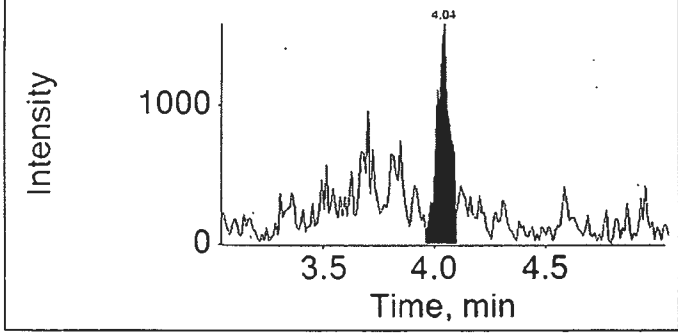
EPA 537 Rev. 1.1 modified 16236005 SG3-UGNBENNMH-160816 Grab Wastewater



16AUG31-53.wiff

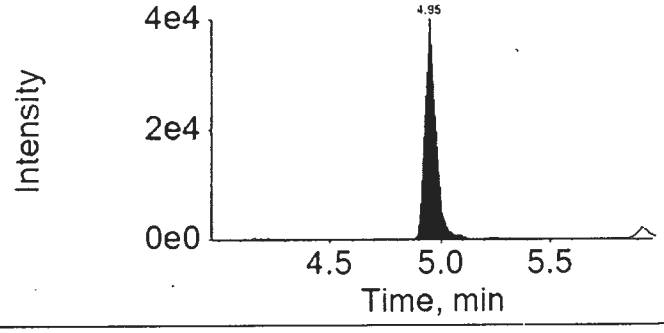
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

403.0 / 103.0

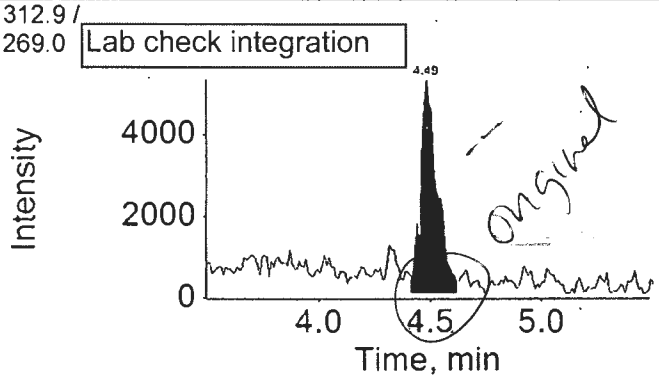


16AUG31-53.wiff

Analyte: PFHxA

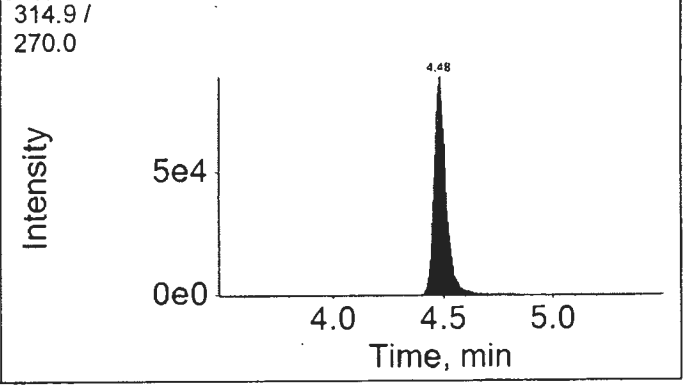
312.9 / 269.0

Lab check integration



Internal Standard: 13C2-PFHxA

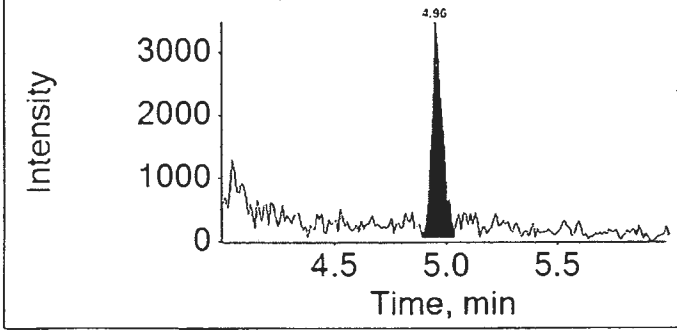
314.9 / 270.0



16AUG31-53.wiff

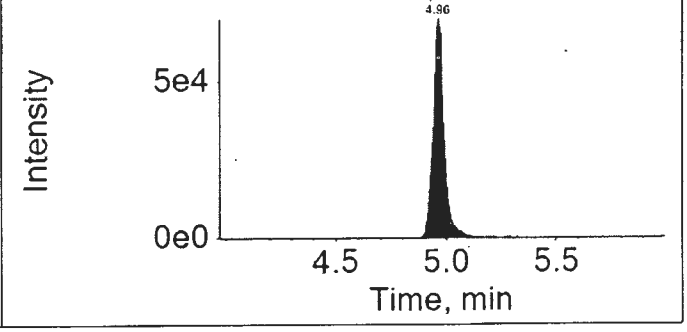
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

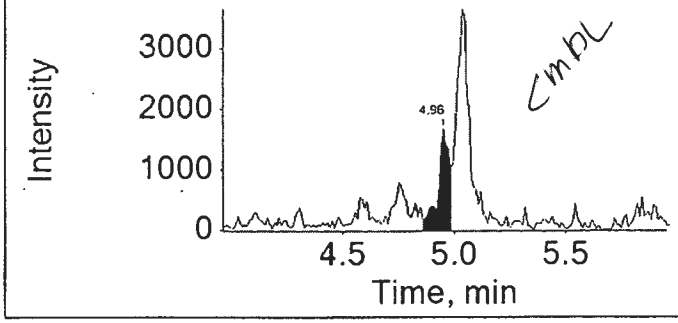
367.0 / 322.0



16AUG31-53.wiff

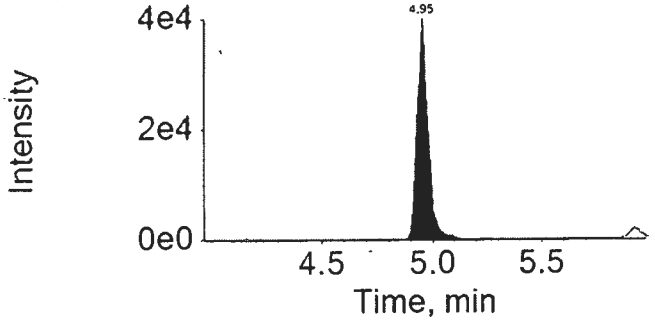
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

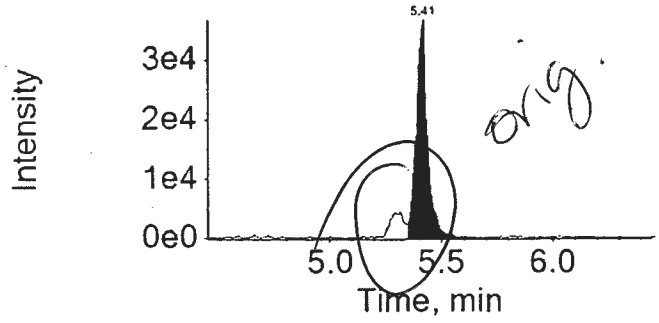
403.0 / 103.0



16AUG31-53.wiff

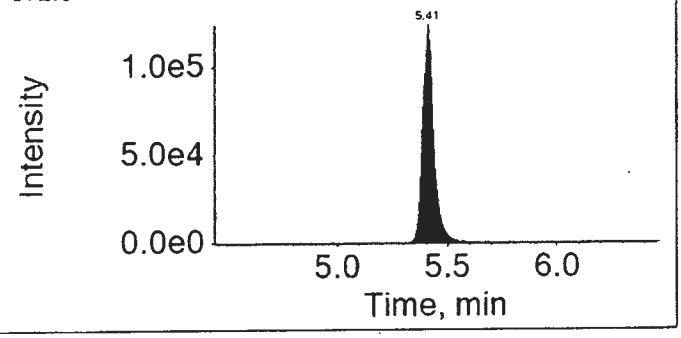
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

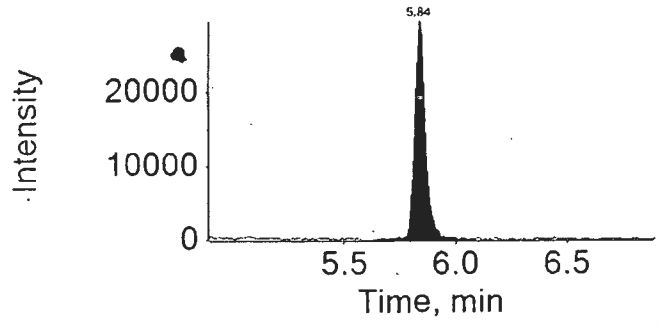
417.0 / 372.0



16AUG31-53.wiff

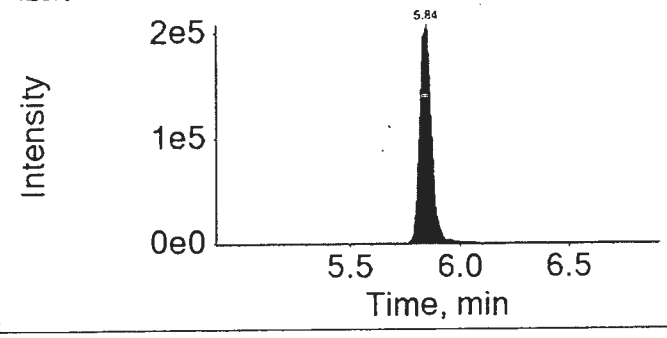
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

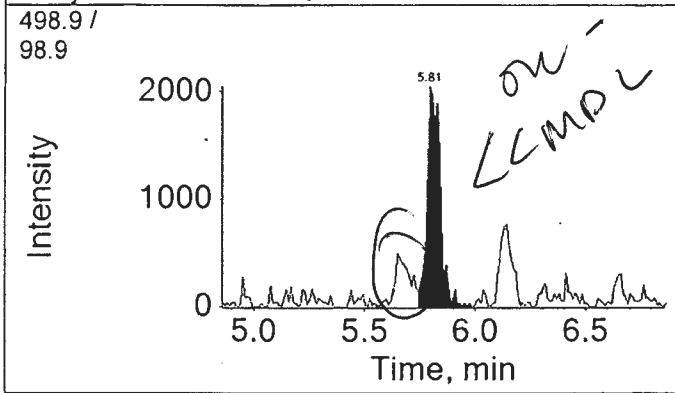
468.0 / 423.0



16AUG31-53.wiff

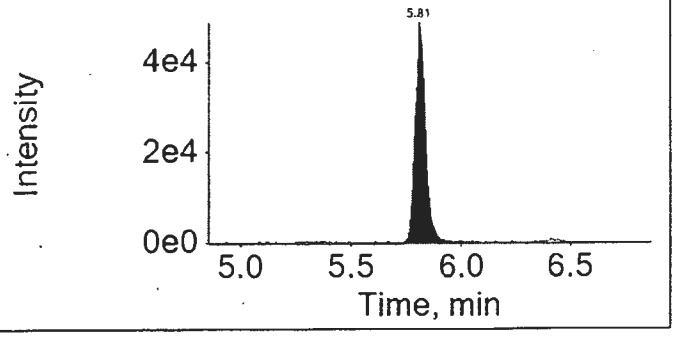
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

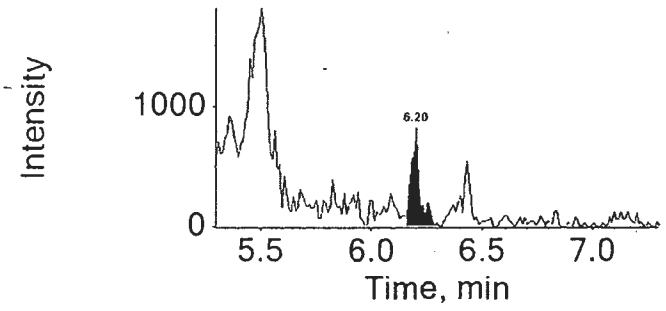
503.0 / 99.0



16AUG31-53.wiff

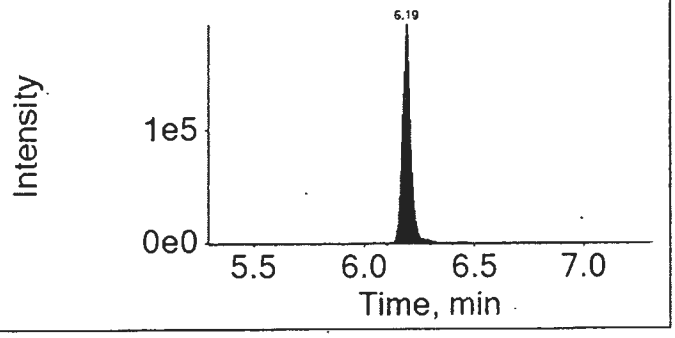
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

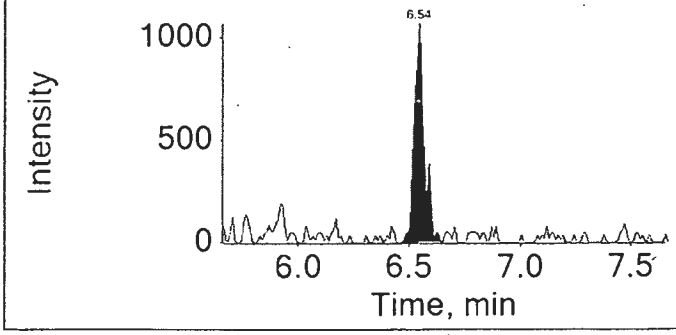
515.0 / 470.0



16AUG31-53.wiff

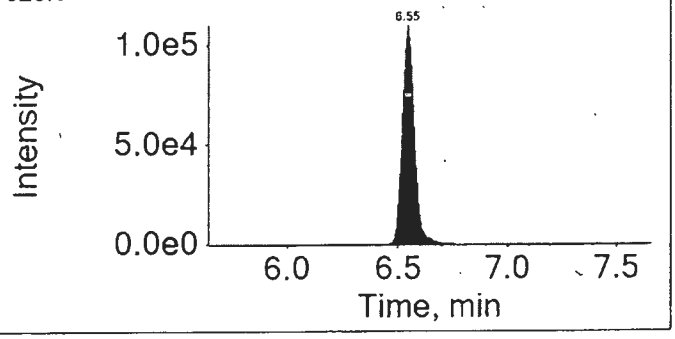
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



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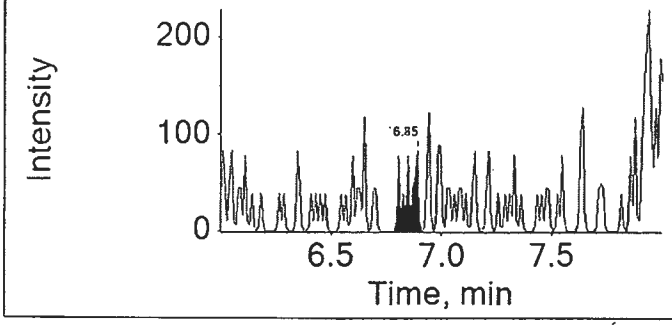
Analyte: PFDoDA

612.9 / 568.9



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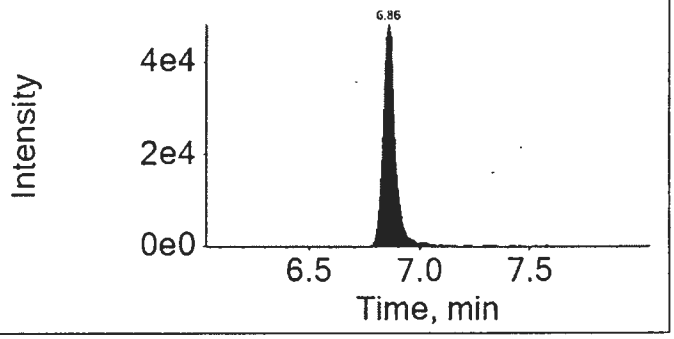
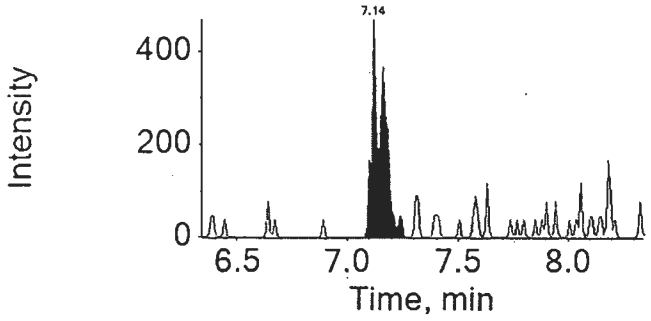
615.0 / 570.0



16AUG31-53.wiff

Analyte: PFTrDA

662.9 / 618.9



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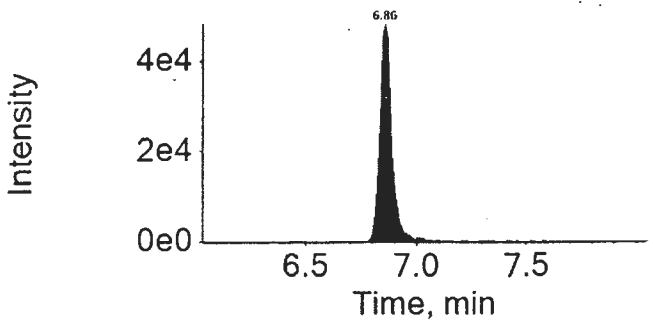
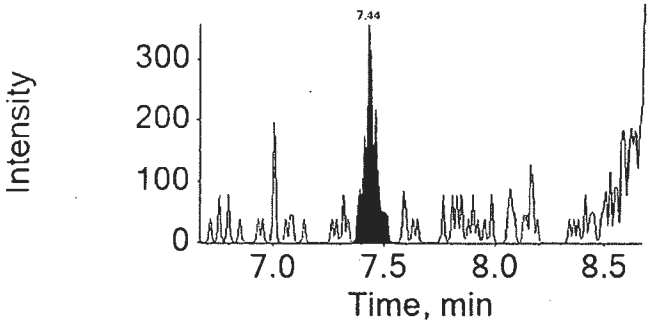
615.0 / 570.0



16AUG31-53.wiff

Analyte: PFTeDA

712.9 / 668.9



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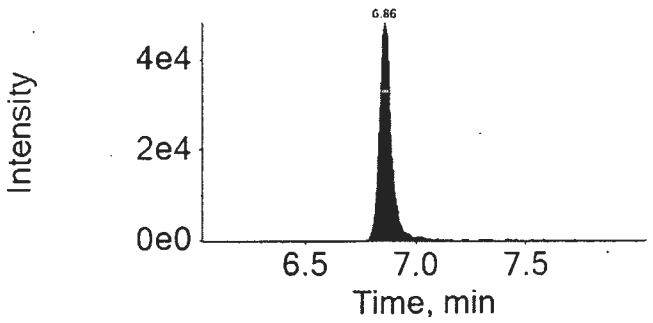


Lynn Dodd

SEP 15 2016

Lynn Dodd
Principal Specialist

MES 7824
9/14/16

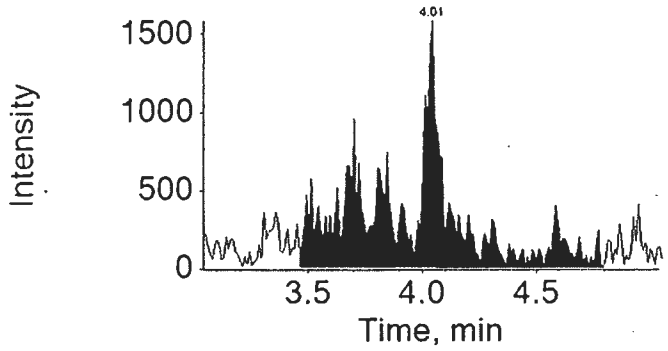
eurofins | Lancaster Laboratories

Print Date: 14/09/2016 1:00 PM

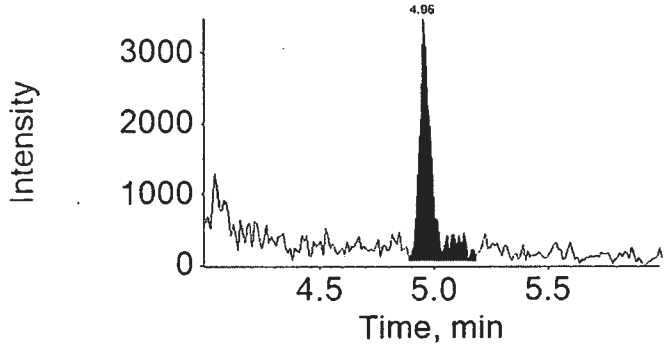
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-53.wiff	2016-09-01T04:28:23	8535017	PFBS	4.01	23249.2
16AUG31-53.wiff	2016-09-01T04:28:23	8535017	PFHpA	4.96	13191.7
16AUG31-53.wiff	2016-09-01T04:28:23	8535017	PFTeDA	7.44	1313.5

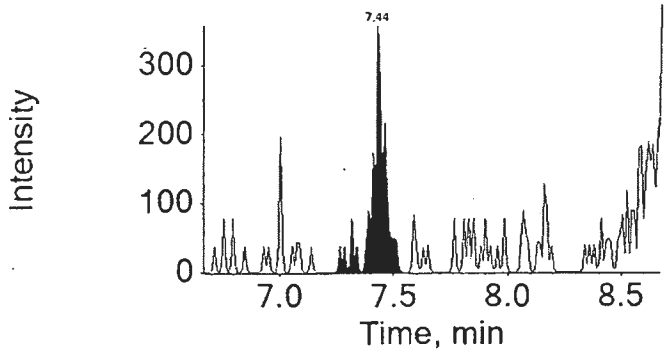
Component: PFBS
Mass: 298.9 / 98.9



Component: PFHpA
Mass: 362.9 / 318.9



Component: PFTeDA
Mass: 712.9 / 668.9



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

mep 7824
9/14/16

eurofins | Lancaster Laboratories Environmental

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Analysis Report

REVISED

Sample Description: SG3-UGNBENNMH-160816 Grab Wastewater
SGPP - Bennington

LL Sample # WW 8535017
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 11:25 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

revised

UGNMH SDG#: SPP17-06

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	**Perfluorooctanoic acid**	335-67-1	15		1	2	1
10954	**Perfluorononanoic acid**	375-95-1	6		1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	**Perfluorohexanoic acid**	307-24-4	7		1	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	2	J	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 04:28	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER
Sample (vol): 0.1000 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Instrument ID: 24743

Lab Sample ID: 8535017
Lab File ID: 16AUG31-53.WIFF
Date Collected: 08/16/2016 11:25
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 04:28
Dilution Factor: 1.0

Concentration Units: ng/L

Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	7	
375-85-9	PFHpA	2	
355-46-4	PFHxS	4	U
335-67-1	PFOA	15	
375-95-1	PFNA	6	
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

Printed: 6/9/2017 4:50:00 PM

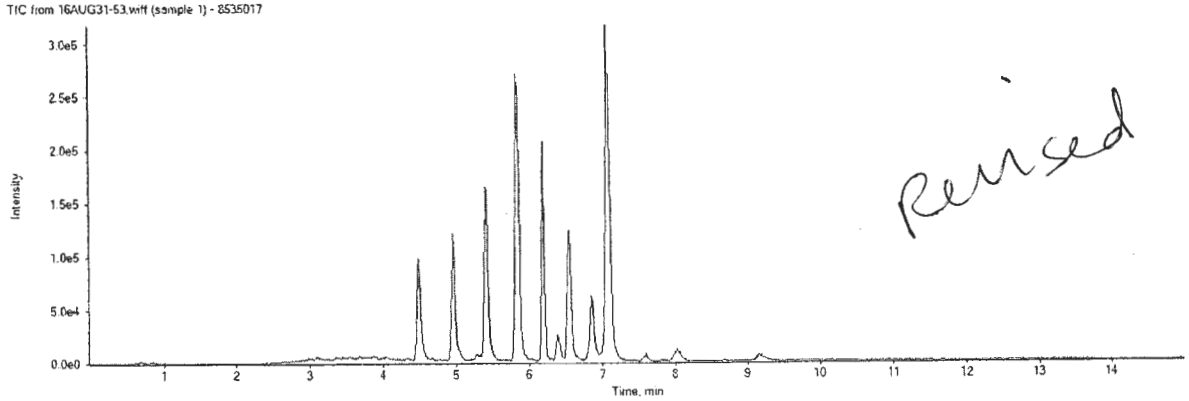
Sample Name:	8535017			**Data File:**		16AUG31-53.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-UGNBENNMH-160816 Grab Wastewater			**Acquis Date:**		2016-09-01T04:28:23
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	55			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16236005
				ICAL Name:		16AUG26ICAL
Batch Number:	16236005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09999			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.04	0.820	6248.7	M	18O2-PFHxS	4.95	139995.7	0.045	1.868
PFHxA	4.48	1.000	24545.7	M	13C2-PFHxA	4.48	339768.3	0.072	6.876
PFHpA	4.96	1.000	11077.8	M	13C4-PFHpA	4.96	250189.0	0.044	1.752
PFHxS	4.96	1.000	5670.1	A	18O2-PFHxS	4.95	139995.7	0.041	1.848
PFOA	5.41	1.000	150707.3	M	13C4-PFOA	5.41	442949.1	0.340	14.965
PFNA	5.84	1.000	104037.2	A	13C5-PFNA	5.84	796538.8	0.131	6.183
PFOS	5.81	1.000	10817.4	M	13C4-PFOS	5.81	163511.1	0.066	3.222
PFDA	6.20	1.000	2227.5	A	13C2-PFDA	6.19	512413.1	0.004	0.174
PFUnDA	6.54	1.000	3347.1	A	13C2-PFUnDA	6.55	416210.5	0.008	0.389
PFDoDA	6.85	1.000	281.2	A	13C2-PFDoDA	6.86	188223.3	0.001	0.076
PFTrDA	7.14	1.040	1688.7	A	13C2-PFDoDA	6.86	188223.3	0.009	0.443
PFTeDA	7.44	1.080	1157.1	M	13C2-PFDoDA	6.86	188223.3	0.006	0.319

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-UGNBENNMH-160816 Grab Wastewater



Revised

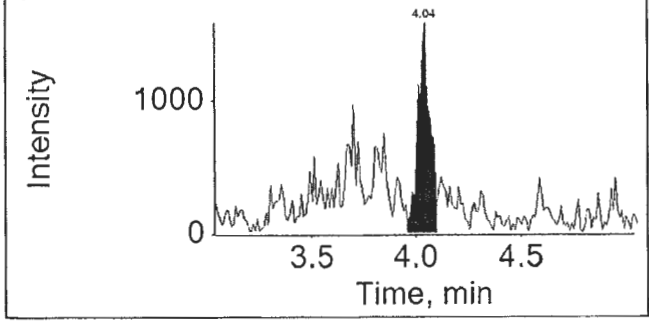
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-53.wiff

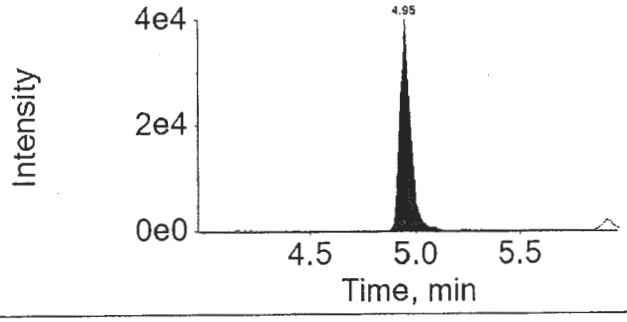
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

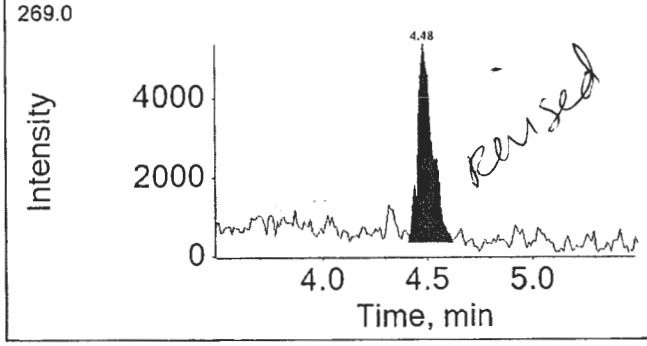
403.0 / 103.0



16AUG31-53.wiff

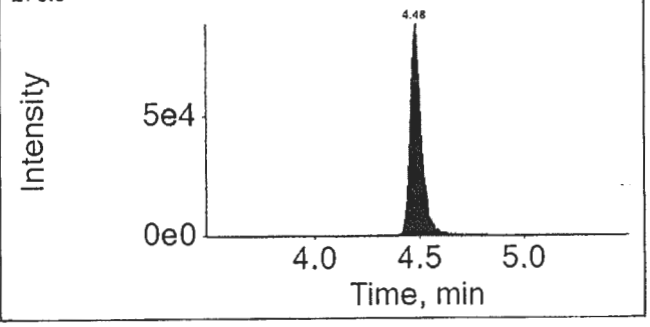
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

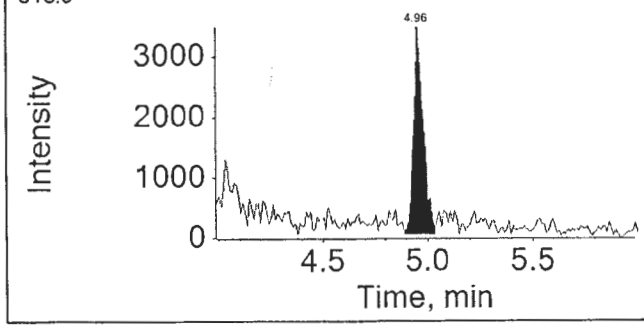
314.9 / 270.0



16AUG31-53.wiff

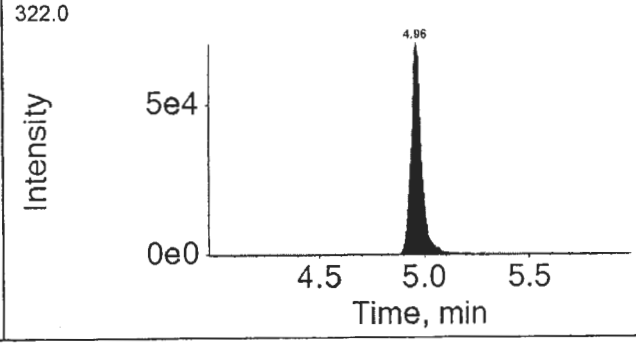
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



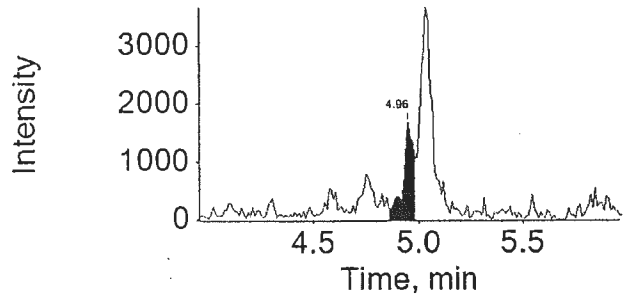
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-53.wiff

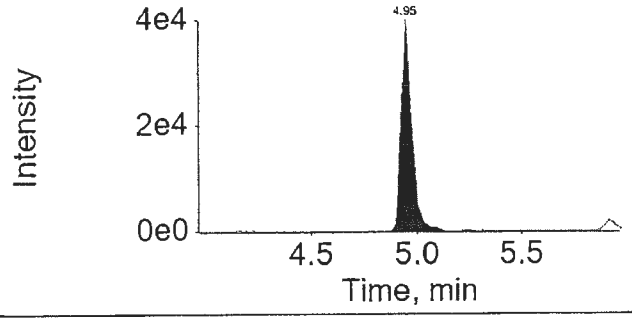
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

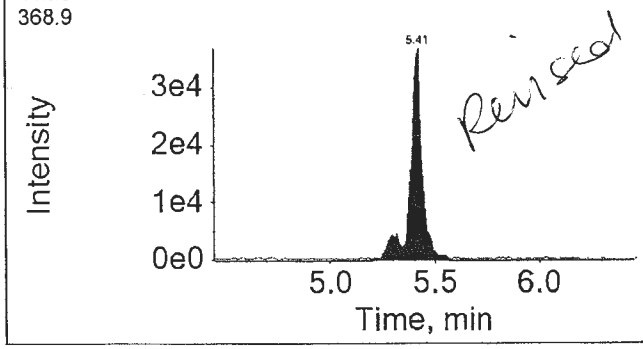
403.0 / 103.0



16AUG31-53.wiff

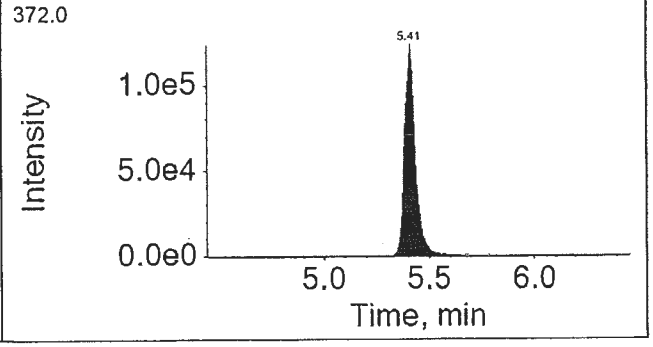
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

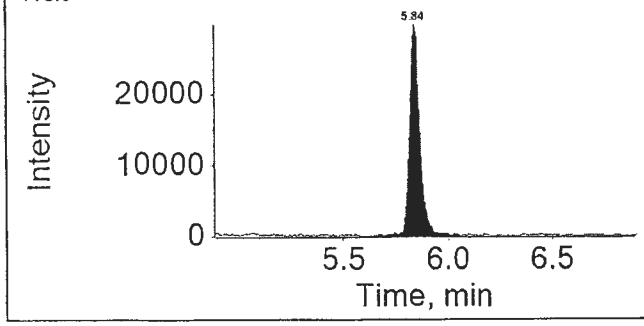
417.0 / 372.0



16AUG31-53.wiff

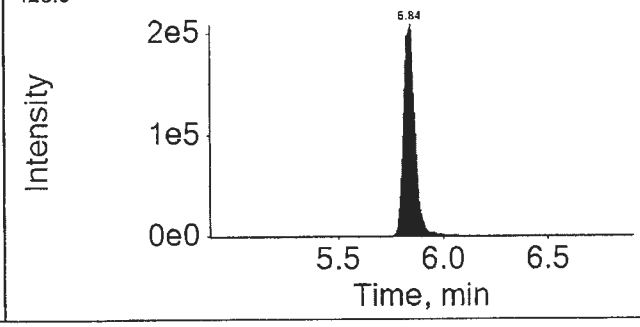
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



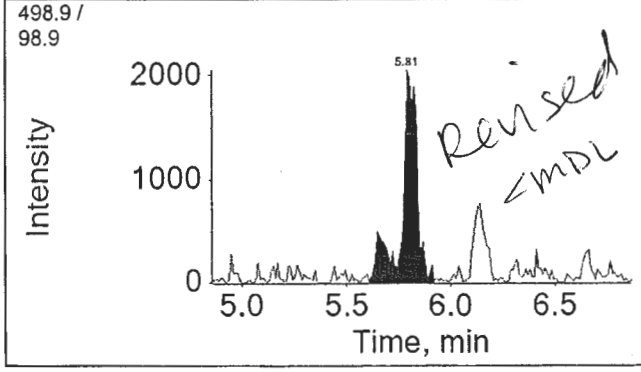
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-53.wiff

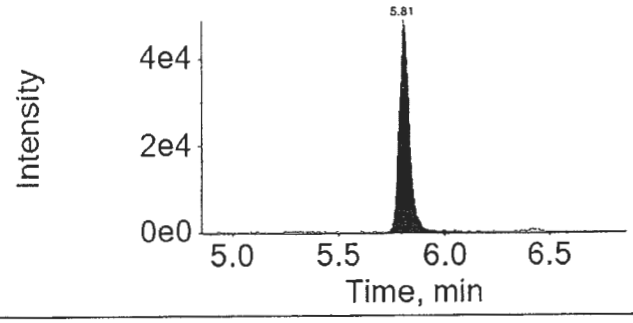
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

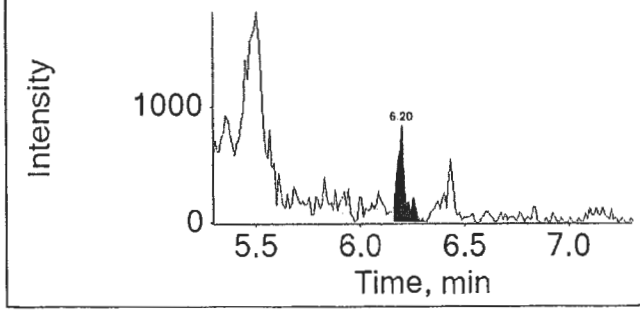
503.0 / 99.0



16AUG31-53.wiff

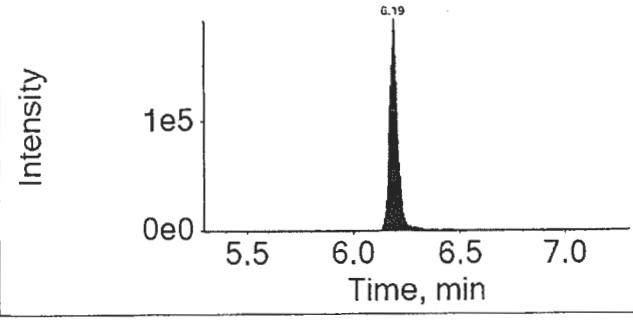
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

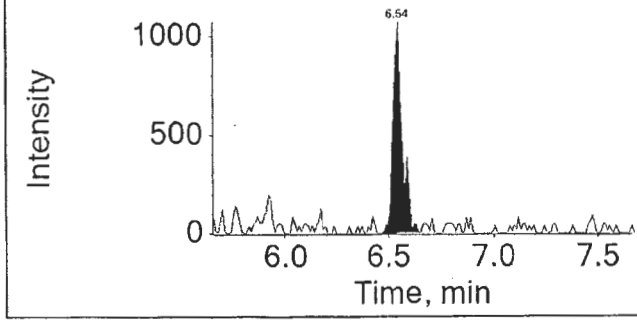
515.0 / 470.0



16AUG31-53.wiff

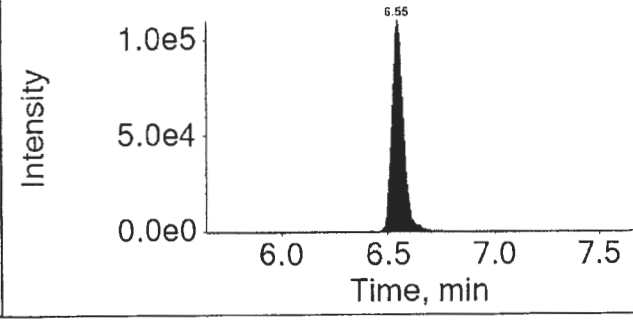
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



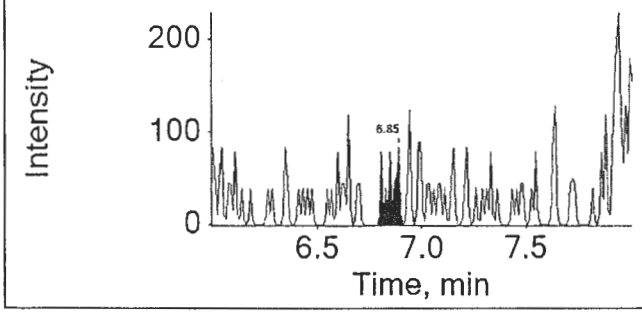
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-53.wiff

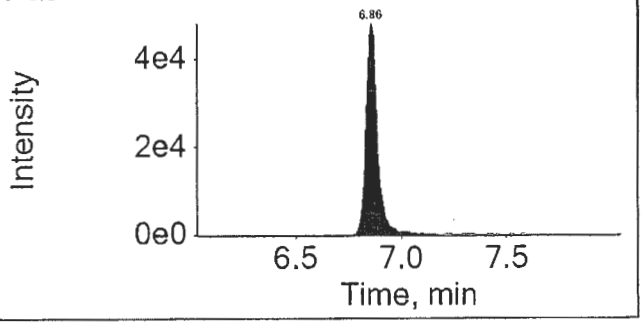
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

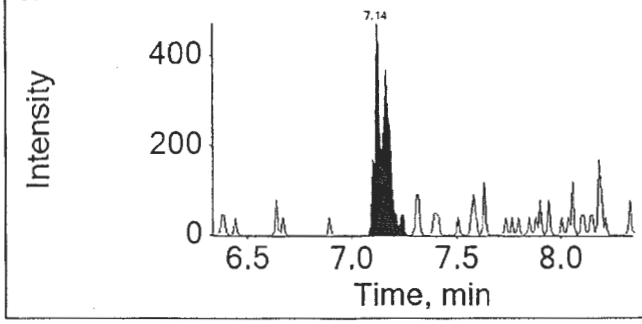
615.0 / 570.0



16AUG31-53.wiff

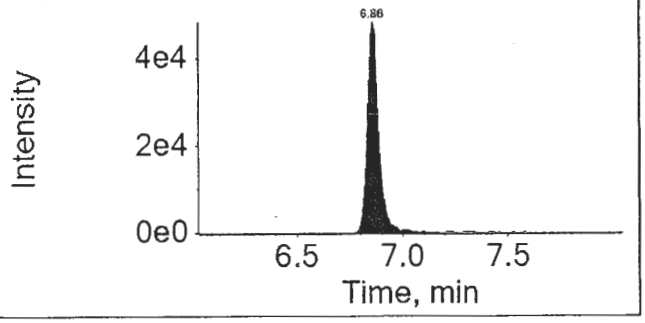
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

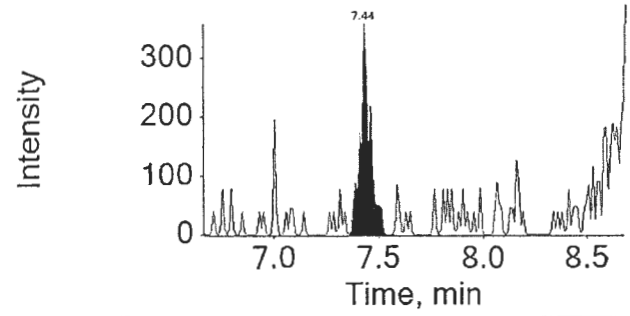
615.0 / 570.0



16AUG31-53.wiff

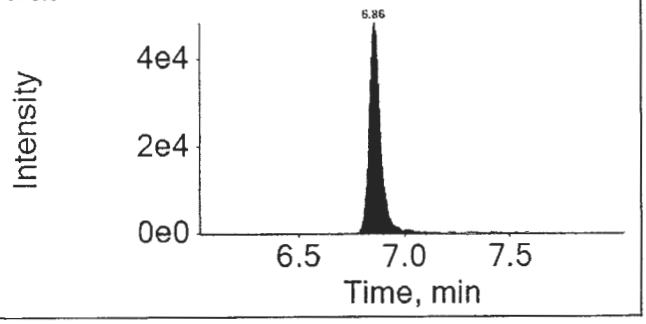
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

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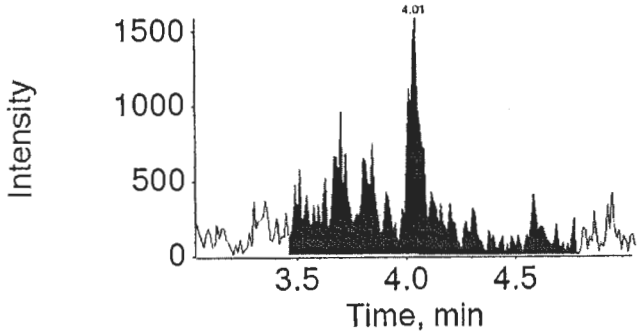
Print Date: 09/06/2017 4:54 PM

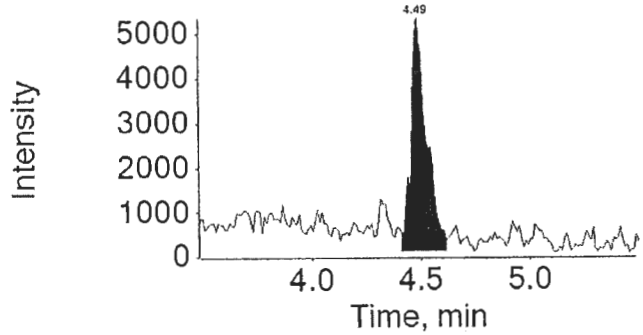
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-53.wiff	2016-09-01T04:28:23	8535017	PFBS	4.01	23249.2
16AUG31-53.wiff	2016-09-01T04:28:23	8535017	PFHxA	4.49	27263.0
16AUG31-53.wiff	2016-09-01T04:28:23	8535017	PFHpA	4.96	13191.7
16AUG31-53.wiff	2016-09-01T04:28:23	8535017	PFOA	5.41	131988.6
16AUG31-53.wiff	2016-09-01T04:28:23	8535017	PFOS	5.81	8672.8
16AUG31-53.wiff	2016-09-01T04:28:23	8535017	PFTeDA	7.44	1313.5

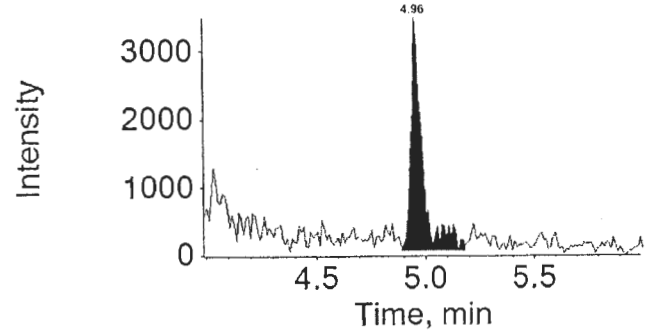
Component: PFBS
Mass: 298.9 / 98.9



Component: PFHxA
Mass: 312.9 / 269.0



Component: PFHpA
Mass: 362.9 / 318.9



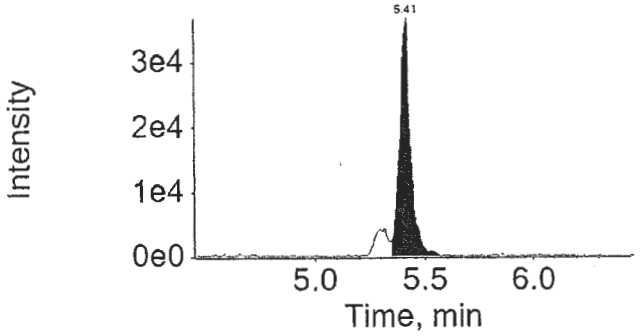
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:52 am, 6/13/17

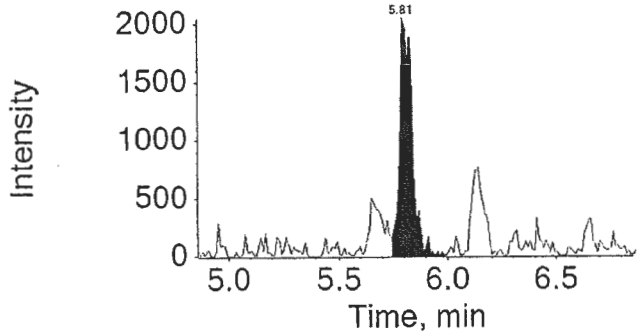
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

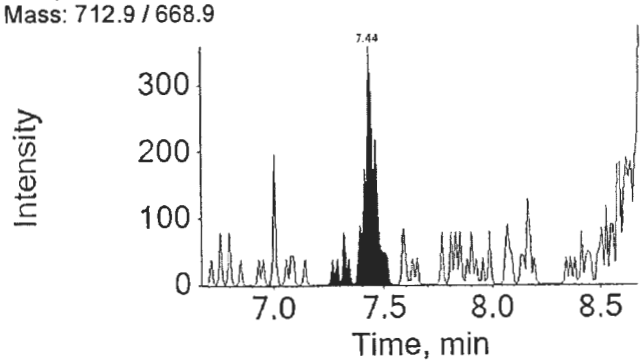
Component: PFOA
Mass: 412.9 / 368.9



Component: PFOS
Mass: 498.9 / 98.9



Component: PFTeDA
Mass: 712.9 / 668.9



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:52 am, 6/13/17

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Analysis Report

REVISED

Sample Description: SG3-DGRIVERMH-160816 Grab Wastewater
SGPP - Bennington

LL Sample # WW 8535018
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 12:00 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham, NY 12110

Original

DGRMH SDG#: SPP17-07

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	**Perfluoroheptanoic acid**	375-85-9	**2**		1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	**Perfluorohexanoic acid**	307-24-4	**6**		1	2	1
10954	**Perfluorononanoic acid**	375-95-1	**4**		1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	**Perfluorooctanoic acid**	335-67-1	**26**		1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 05:01	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

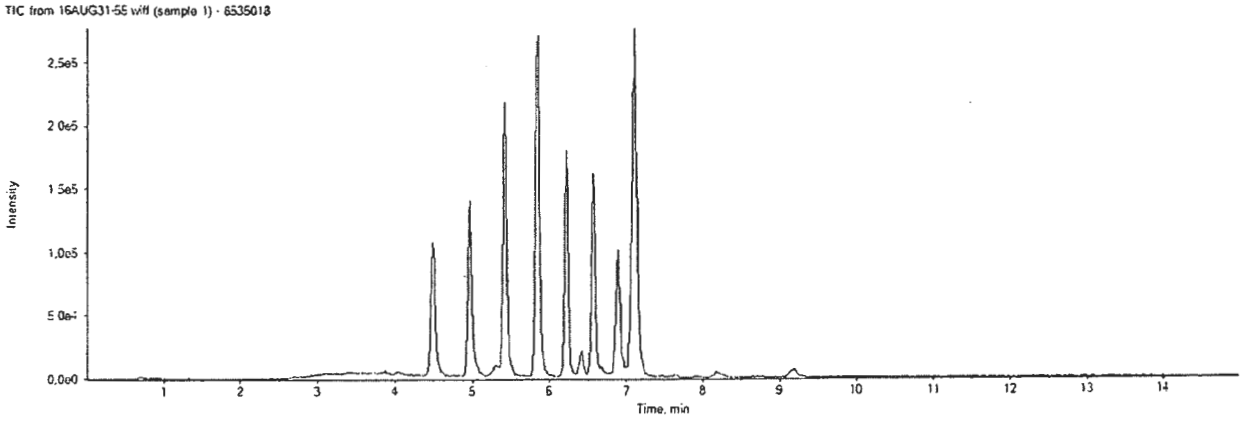
Sample Name:	8535018		**Data File:**		16AUG31-55.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-DGRIVERMH-160816 Grab Wastewater		**Acquis Date:**		2016-09-01T05:01:11
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	56		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09973		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.04	8989.2	A	18O2-PFHxS	4.96	158916.4	0.057	2.374	ng/L
PFHxA	4.49	27005.8	A	13C2-PFHxA	4.49	412692.4	0.065	6.244	ng/L
PFHpA	4.96	16253.8	A	13C4-PFHpA	4.96	313768.6	0.052	2.055	ng/L
PFHxS	4.96	3367.0	M	18O2-PFHxS	4.96	158916.4	0.021	0.969	ng/L
PFOA	5.41	293750.3	A	13C4-PFOA	5.41	501004.5	0.586	25.855	ng/L
PFNA	5.84	60076.1	A	13C5-PFNA	5.84	790490.9	0.076	3.607	ng/L
PFOS	5.81	12785.0	A	13C4-PFOS	5.82	188073.6	0.068	3.320	ng/L
PFDA	6.21	2802.4	M	13C2-PFDA	6.22	567214.5	0.005	0.198	ng/L
PFUnDA	6.57	2505.7	A	13C2-PFUnDA	6.56	498097.5	0.005	0.244	ng/L
PFDoDA	6.89	943.8	A	13C2-PFDoDA	6.89	343788.3	0.003	0.139	ng/L
PFTrDA	7.18	2063.7	A	13C2-PFDoDA	6.89	343788.3	0.006	0.297	ng/L
PFTeDA	7.47	2376.5	A	13C2-PFDoDA	6.89	343788.3	0.007	0.360	ng/L

Total Ion Chromatogram

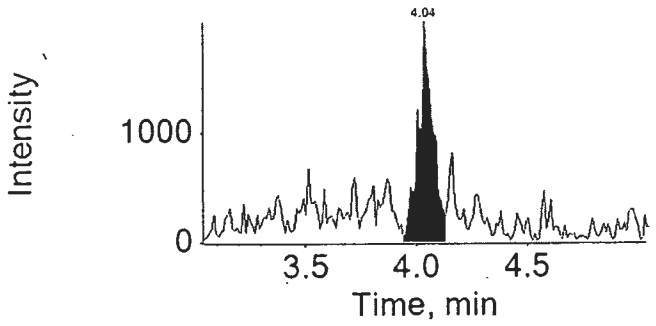
EPA 537 Rev. 1.1 modified 16236005 SG3-DGRIVERMH-160816 Grab Wastewater



16AUG31-55.wiff

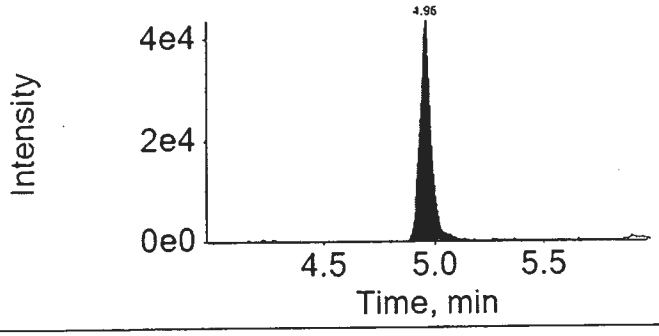
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

403.0 / 103.0

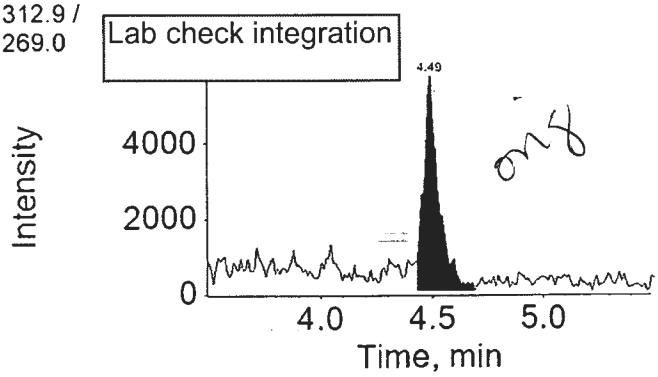


16AUG31-55.wiff

Analyte: PFHxA

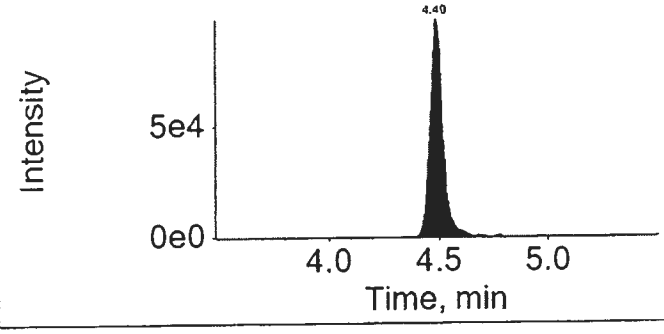
312.9 / 269.0

Lab check integration



Internal Standard: 13C2-PFHxA

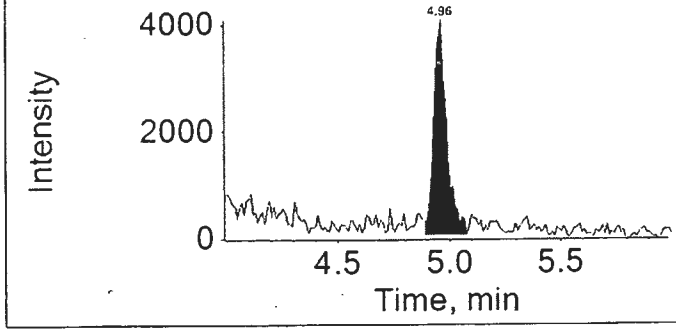
314.9 / 270.0



16AUG31-55.wiff

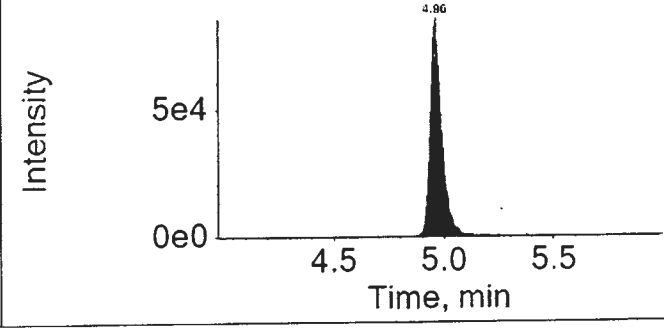
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



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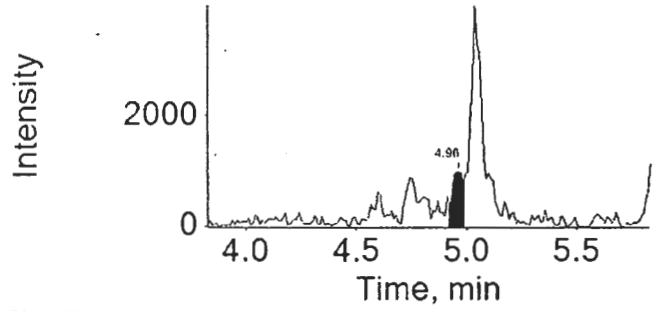
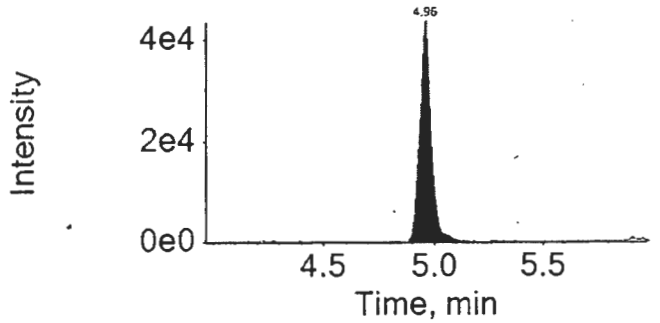
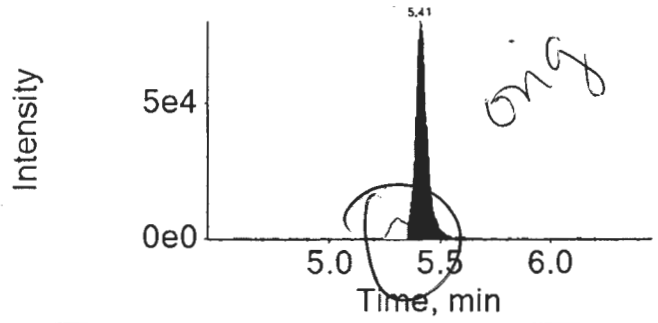
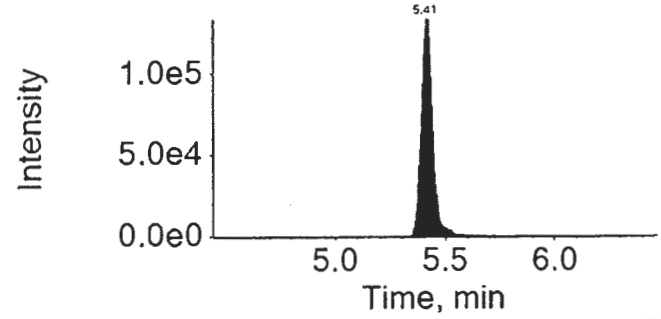
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0





16AUG31-55.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





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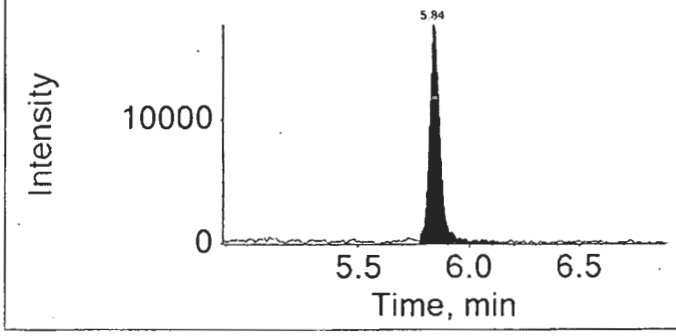
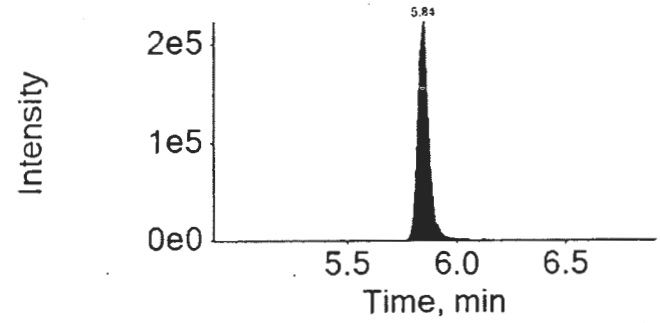
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0

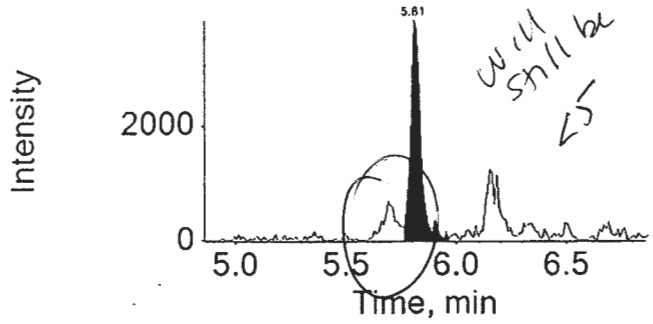




16AUG31-55.wiff

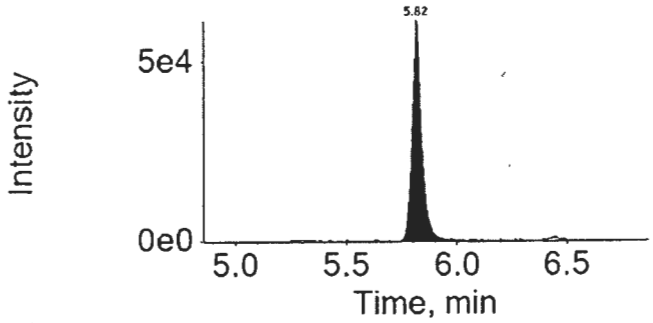
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

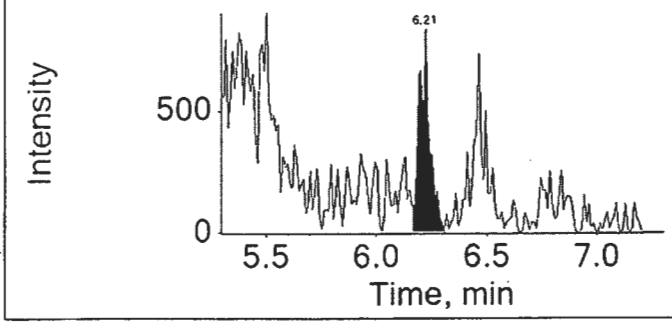
503.0 / 99.0



16AUG31-55.wiff

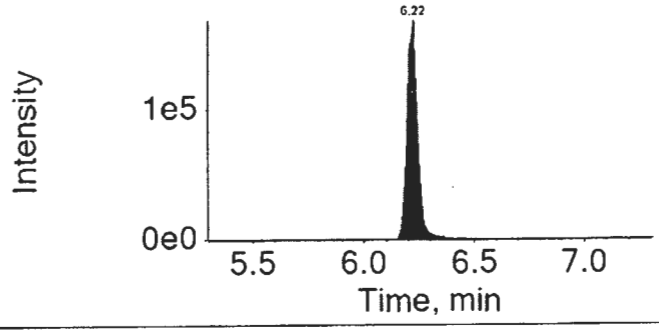
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

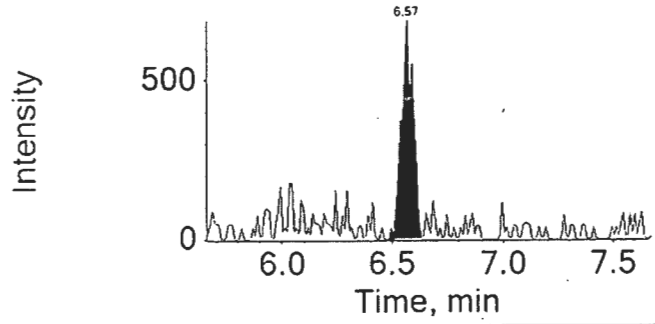
515.0 / 470.0



16AUG31-55.wiff

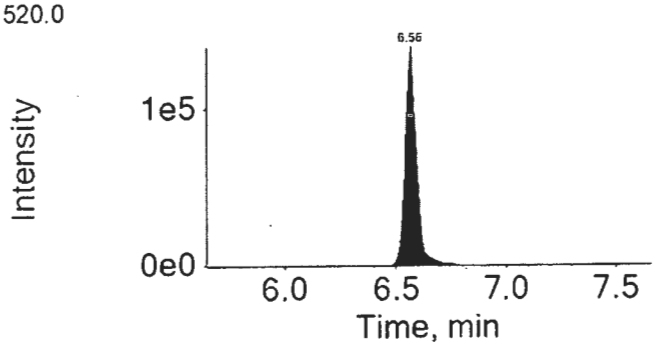
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

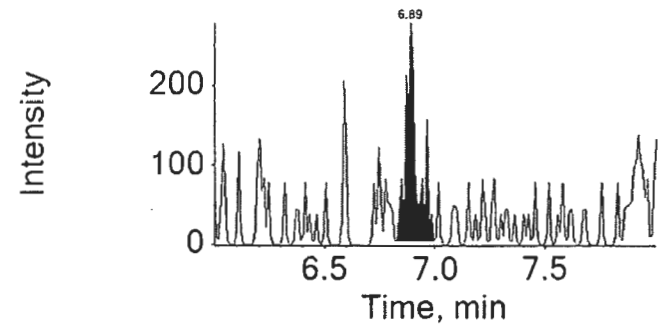
565.0 / 520.0



16AUG31-55.wiff

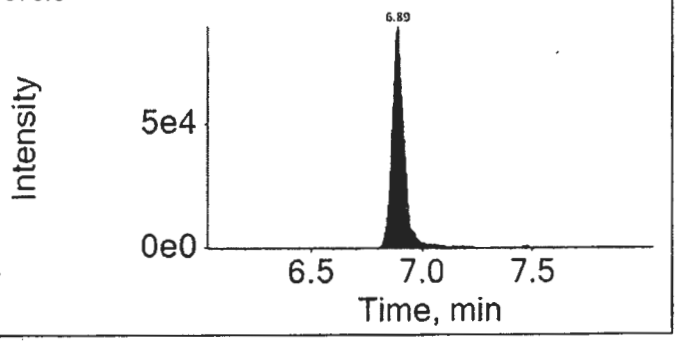
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

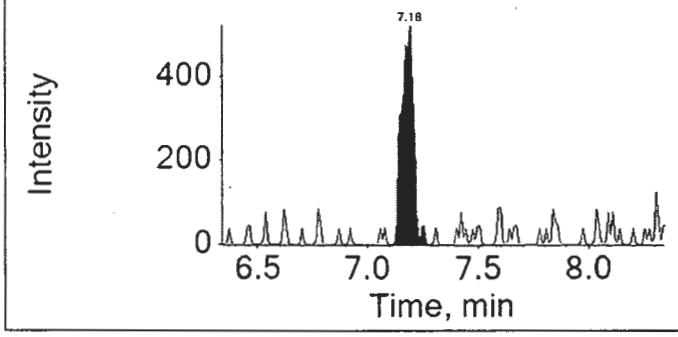
615.0 / 570.0



16AUG31-55.wiff

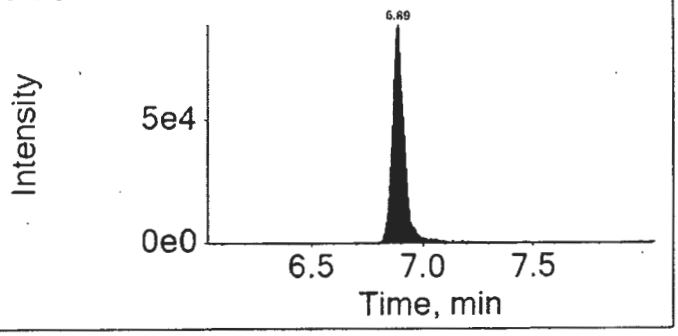
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

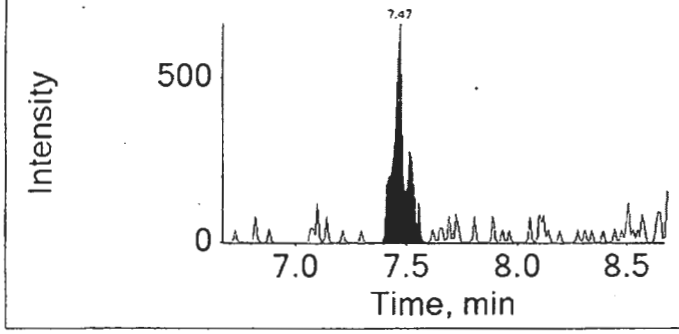
615.0 / 570.0



16AUG31-55.wiff

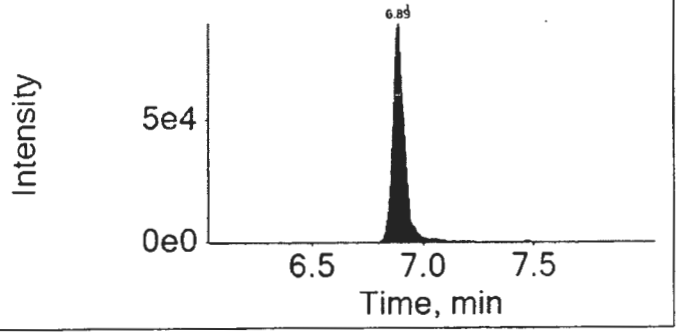
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 15 [illegible]

Lynn Dodd
Principal Specialist

MCD 7824
9/14/16

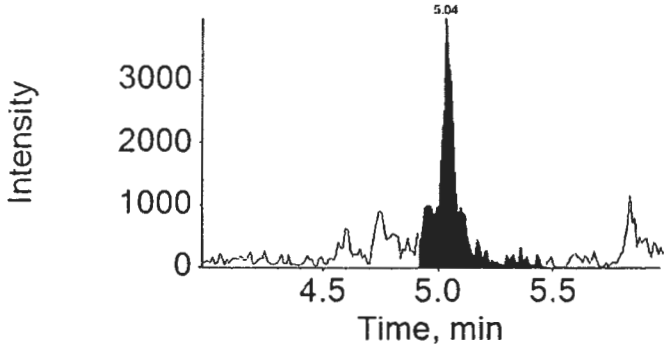
eurofins | Lancaster Laboratories

Print Date: 14/09/2016 1:00 PM

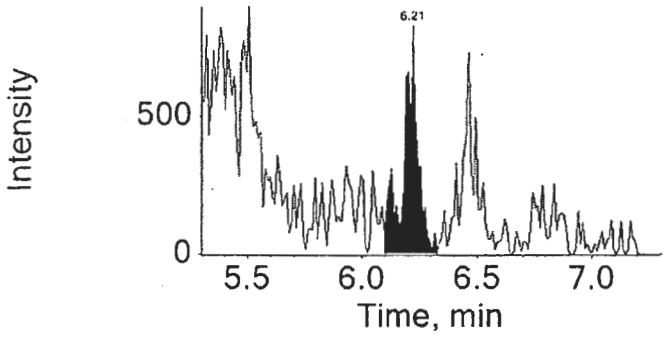
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-55.wiff	2016-09-01T05:01:11	8535018	PFHxS	5.04	21642.4
16AUG31-55.wiff	2016-09-01T05:01:11	8535018	PFDA	6.21	3619.7

Component: PFHxS
Mass: 398.9 / 99.0



Component: PFDA
Mass: 512.9 / 469.0



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

MCD 7824
9/14/16

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Re.

REVISED

Sample Description: SG3-DGRIVERMH-160816 Grab Wastewater
SGPP - Bennington

LL Sample # WW 8535018
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 12:00 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

DGRMH SDG#: SPP17-07

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	**Perfluorooctanoic acid**	335-67-1	**29**		1	2	1
10954	**Perfluorononanoic acid**	375-95-1	**4**		1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	**Perfluorohexanoic acid**	307-24-4	**6**		1	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**2**		1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 05:01	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.0997 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535018
Lab File ID: 16AUG31-55.WIFF
Date Collected: 08/16/2016 12:00
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 05:01
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	6	
375-85-9	PFHpA	2	
355-46-4	PFHxS	4	U
335-67-1	PFOA	29	
375-95-1	PFNA	4	
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 4:50:00 PM

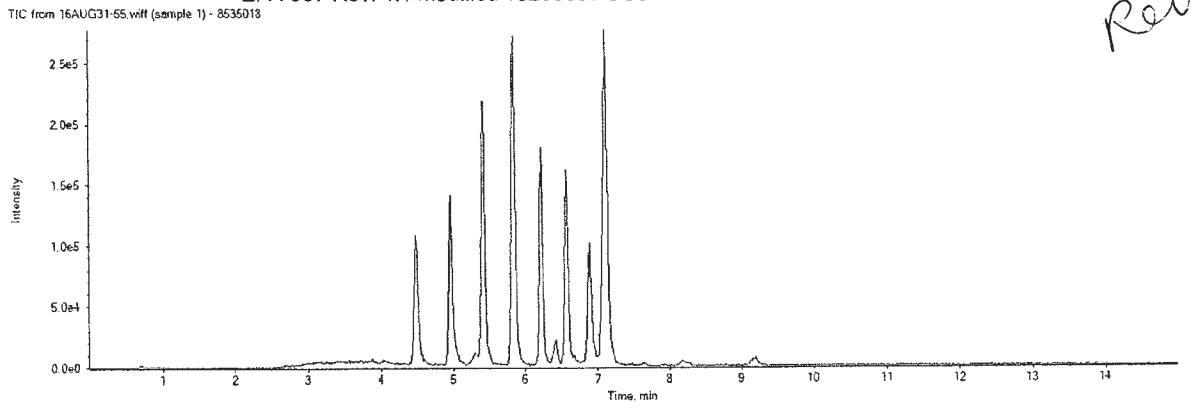
Sample Name:	8535018			**Data File:**		16AUG31-55.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-DGRIVERMH-160816 Grab Wastewater			**Acquis Date:**		2016-09-01T05:01:11
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	56			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16236005
				ICAL Name:		16AUG26ICAL
Batch Number:	16236005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09973			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.04	0.810	8989.2	A	18O2-PFHxS	4.96	158916.4	0.057	2.374
PFHxA	4.49	1.000	24324.3	M	13C2-PFHxA	4.49	412692.4	0.059	5.624
PFHpA	4.96	1.000	16253.8	A	13C4-PFHpA	4.96	313768.6	0.052	2.055
PFHxS	4.96	1.000	3367.0	M	18O2-PFHxS	4.96	158916.4	0.021	0.969
PFOA	5.41	1.000	326284.9	M	13C4-PFOA	5.41	501004.5	0.651	28.719
PFNA	5.84	1.000	60076.1	A	13C5-PFNA	5.84	790490.9	0.076	3.607
PFOS	5.81	1.000	15781.6	M	13C4-PFOS	5.82	188073.6	0.084	4.098
PFDA	6.21	1.000	2802.4	M	13C2-PFDA	6.22	567214.5	0.005	0.198
PFUnDA	6.57	1.000	2505.7	A	13C2-PFUnDA	6.56	498097.5	0.005	0.244
PFDoDA	6.89	1.000	943.8	A	13C2-PFDoDA	6.89	343788.3	0.003	0.139
PFTrDA	7.18	1.040	2063.7	A	13C2-PFDoDA	6.89	343788.3	0.006	0.297
PFTeDA	7.47	1.080	2376.5	A	13C2-PFDoDA	6.89	343788.3	0.007	0.360

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-DGRIVERMH-160816 Grab Wastewater



Rerun ed

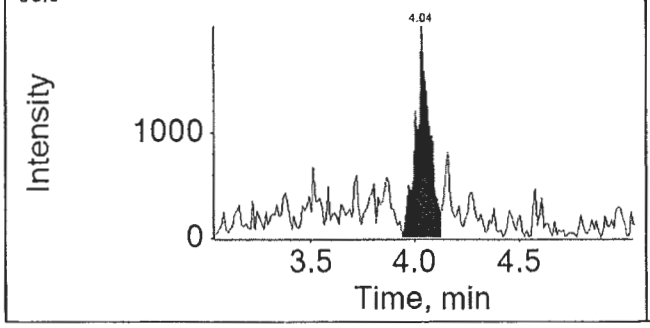
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-55.wiff

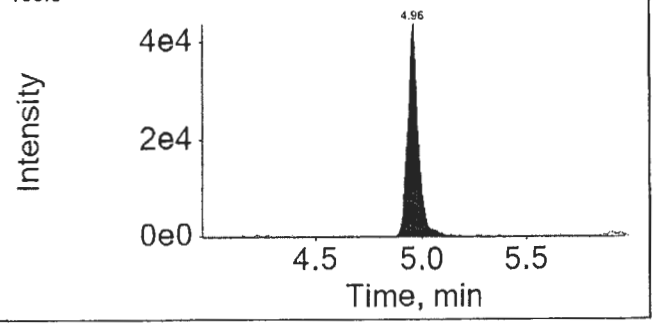
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

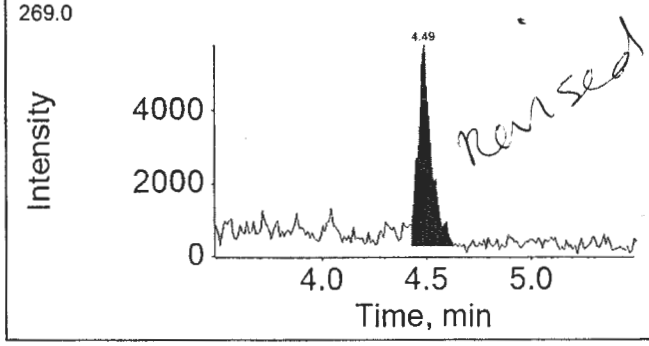
403.0 / 103.0



16AUG31-55.wiff

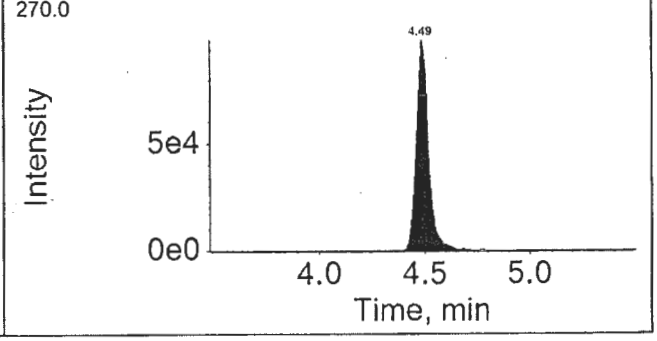
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

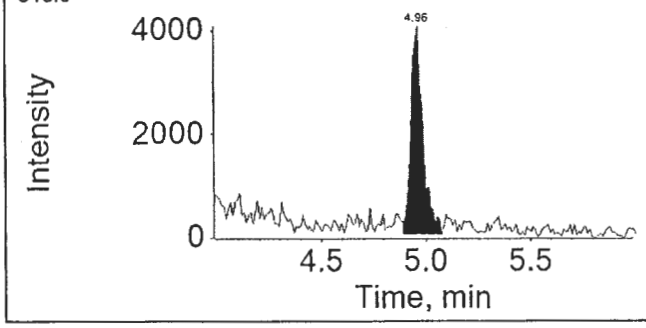
314.9 / 270.0



16AUG31-55.wiff

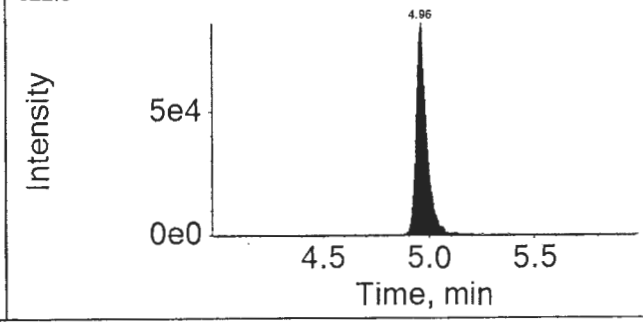
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



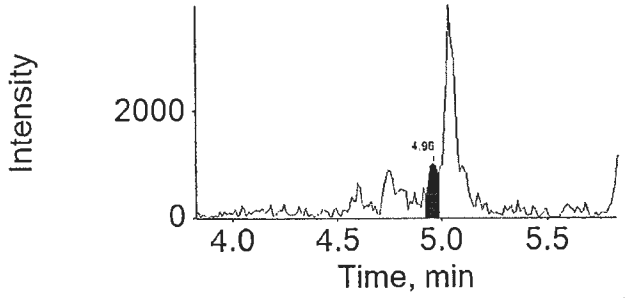
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-55.wiff

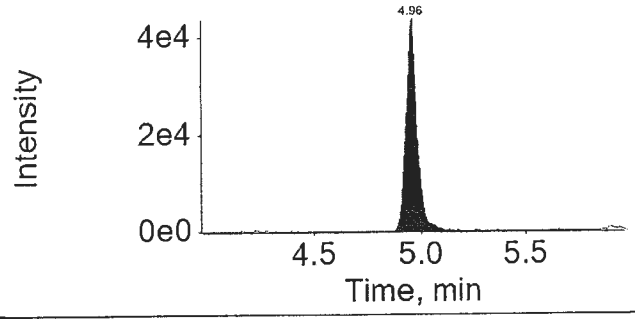
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

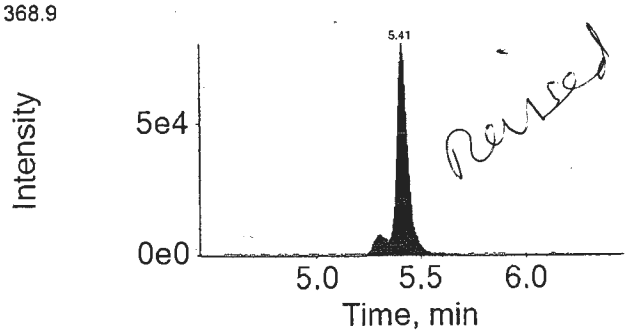
403.0 / 103.0



16AUG31-55.wiff

Analyte: PFOA

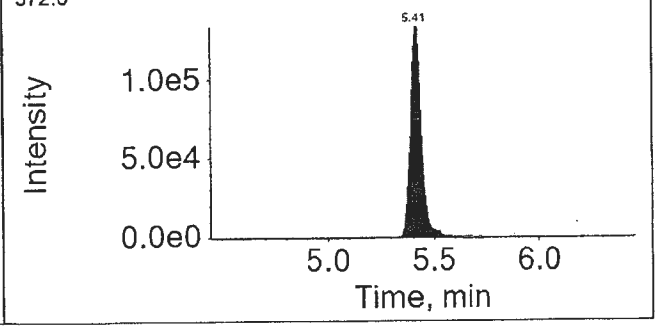
412.9 / 368.9



Revised

Internal Standard: 13C4-PFOA

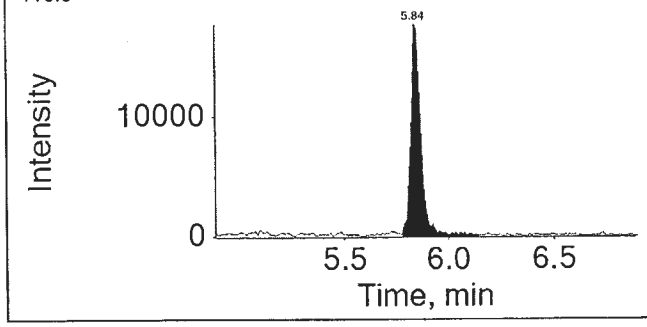
417.0 / 372.0



16AUG31-55.wiff

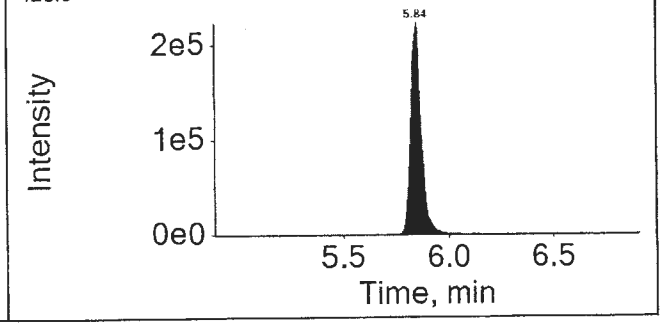
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



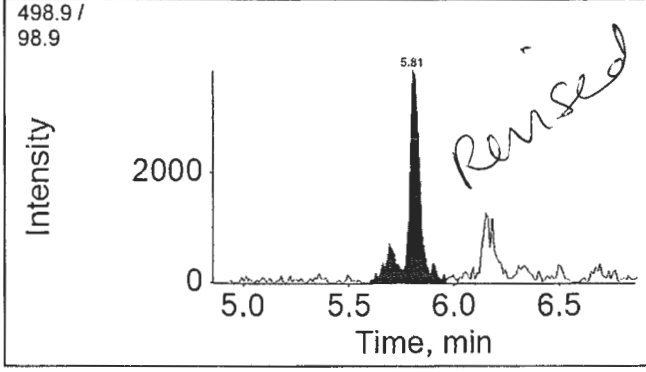
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-55.wiff

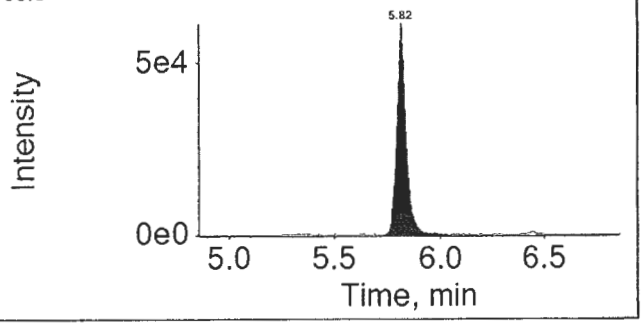
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

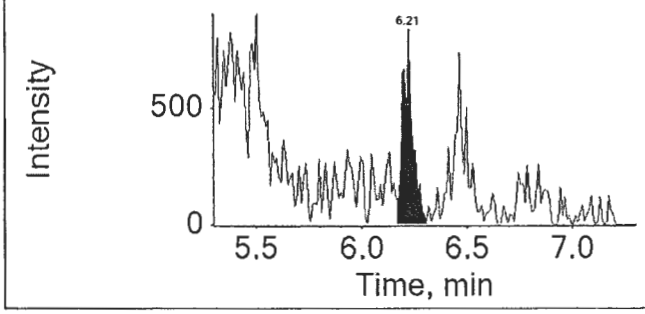
503.0 / 99.0



16AUG31-55.wiff

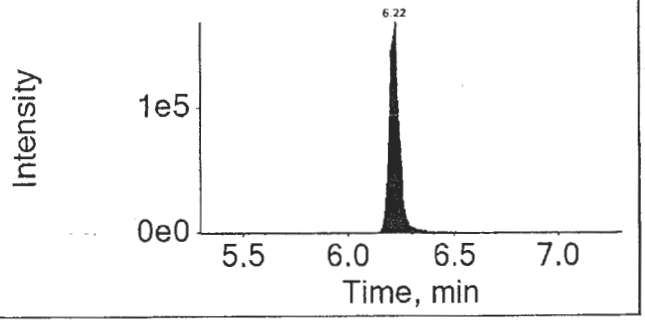
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

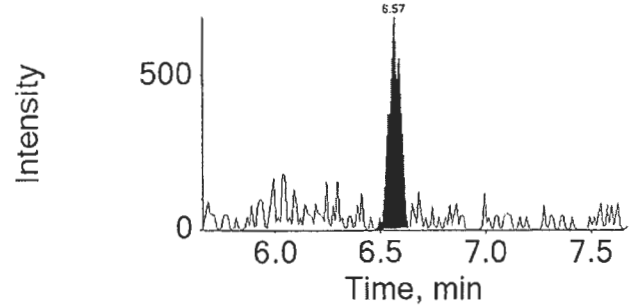
515.0 / 470.0



16AUG31-55.wiff

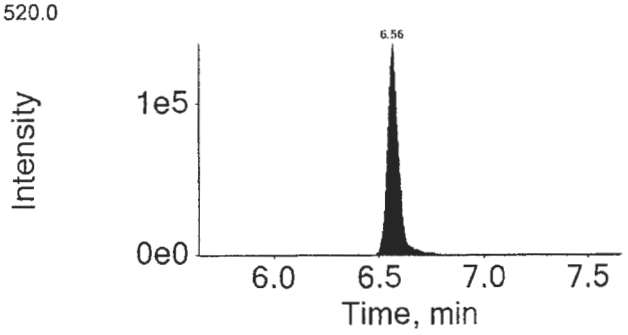
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



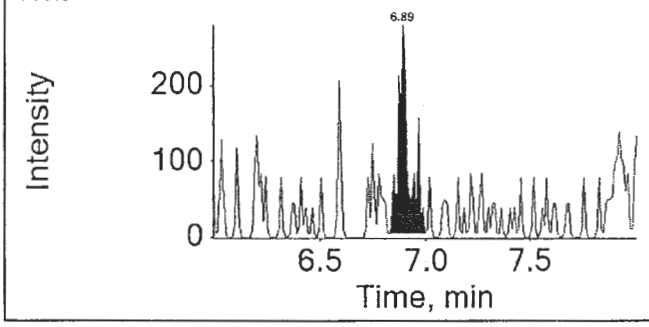
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-55.wiff

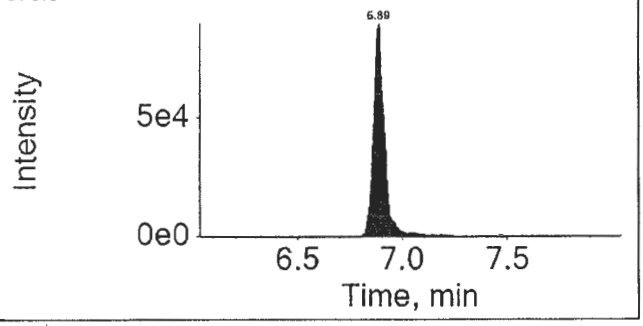
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

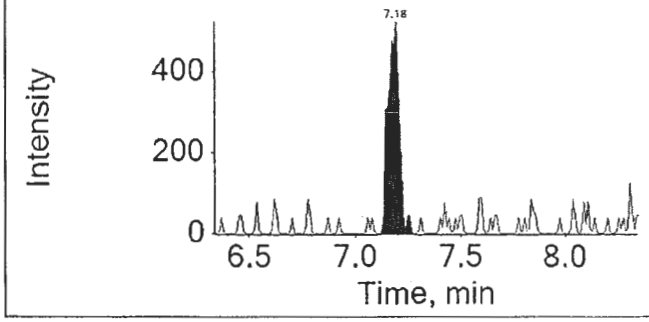
615.0 / 570.0



16AUG31-55.wiff

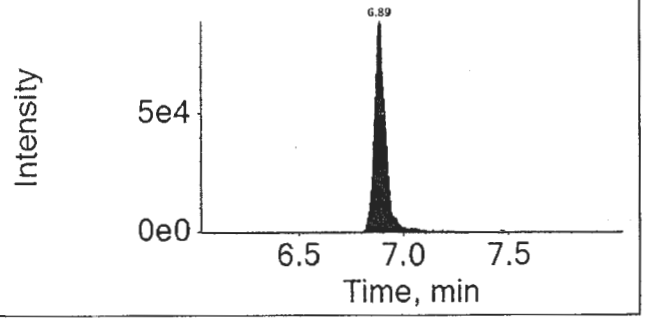
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

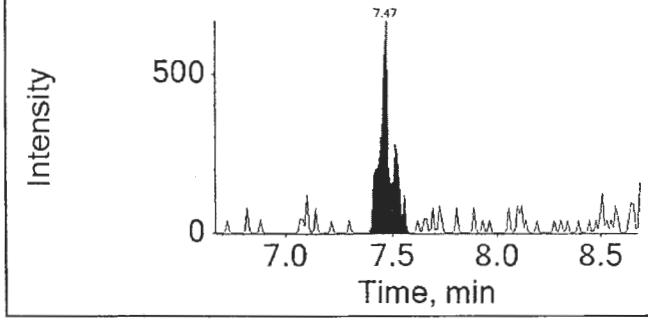
615.0 / 570.0



16AUG31-55.wiff

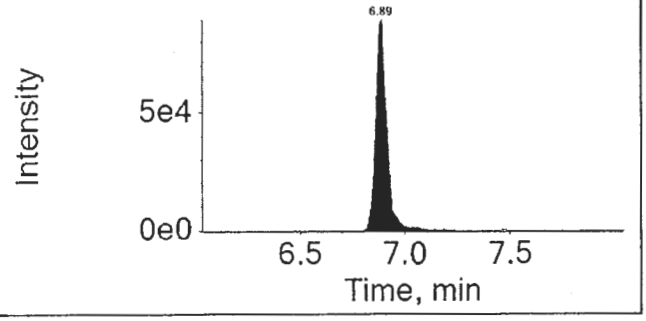
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

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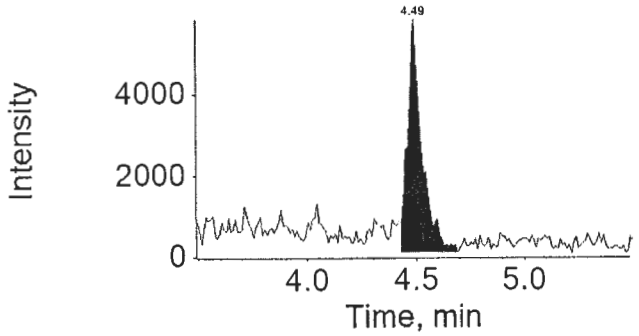
Print Date: 09/06/2017 4:54 PM

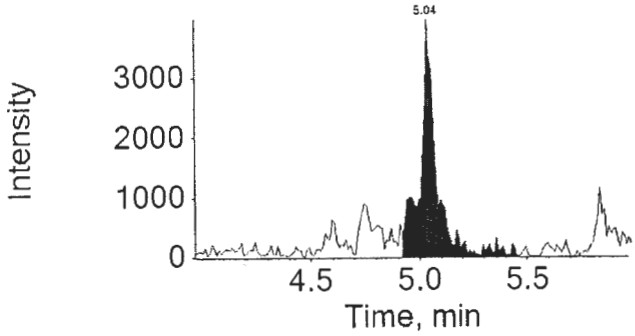
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-55.wiff	2016-09-01T05:01:11	8535018	PFHxA	4.49	27005.8
16AUG31-55.wiff	2016-09-01T05:01:11	8535018	PFHxS	5.04	21642.4
16AUG31-55.wiff	2016-09-01T05:01:11	8535018	PFOA	5.41	293750.3
16AUG31-55.wiff	2016-09-01T05:01:11	8535018	PFOS	5.81	12785.0
16AUG31-55.wiff	2016-09-01T05:01:11	8535018	PFDA	6.21	3619.7

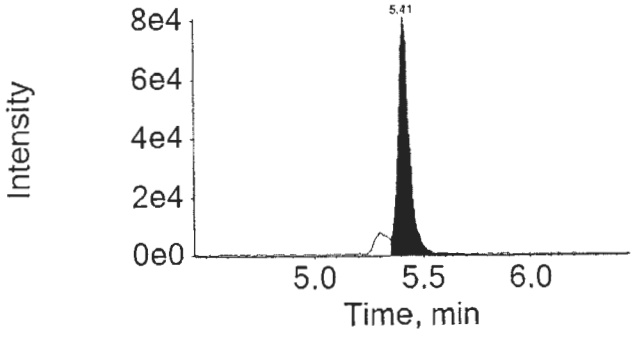
Component: PFHxA
Mass: 312.9 / 269.0



Component: PFHxS
Mass: 398.9 / 99.0



Component: PFOA
Mass: 412.9 / 368.9



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:52 am, 6/13/17

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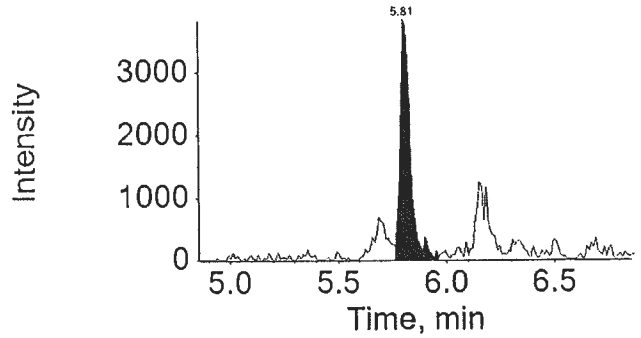
Print Date: 09/06/2017 4:54 PM

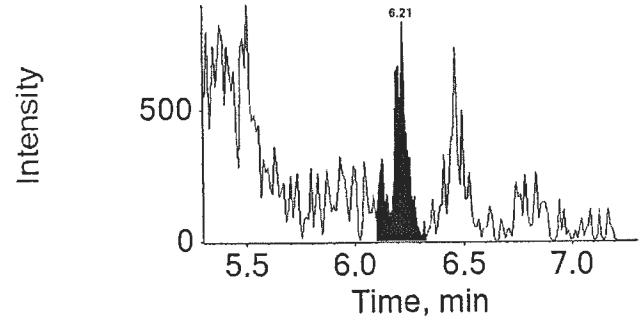
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFOS
Mass: 498.9 / 98.9



Component: PFDA
Mass: 512.9 / 469.0



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:52 am, 6/13/17

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Analysis Report

REVISED

Sample Description: SG3-BLDGOUTLET-160816 Grab Wastewater
SGPP - Bennington

LL Sample # WW 8535019
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 12:40 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Original

OUTWW SDG#: SPP17-08

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	EPA 537 Rev. 1.1 modified		ng/l	ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	21	4	10	1
10954	Perfluorodecanoic acid	335-76-2	380	10	20	10
10954	Perfluorododecanoic acid	307-55-1	17	3	5	1
10954	Perfluoroheptanoic acid	375-85-9	3,900	10	20	10
10954	Perfluorohexanesulfonate	355-46-4	4 U	4	10	1
10954	Perfluorohexanoic acid	307-24-4	6,900	100	200	100
10954	Perfluorononanoic acid	375-95-1	450	10	20	10
10954	Perfluoro-octanesulfonate	1763-23-1	14	5	10	1
10954	Perfluorooctanoic acid	335-67-1	170,000	1,000	2,000	1000
10954	Perfluorotetradecanoic acid	376-06-7	3 U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	4	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	28	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 05:17	Marissa C Drexinger	1
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/14/2016 11:21	Marissa C Drexinger	100
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/14/2016 12:10	Marissa C Drexinger	10
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/15/2016 08:23	Marissa C Drexinger	1000
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

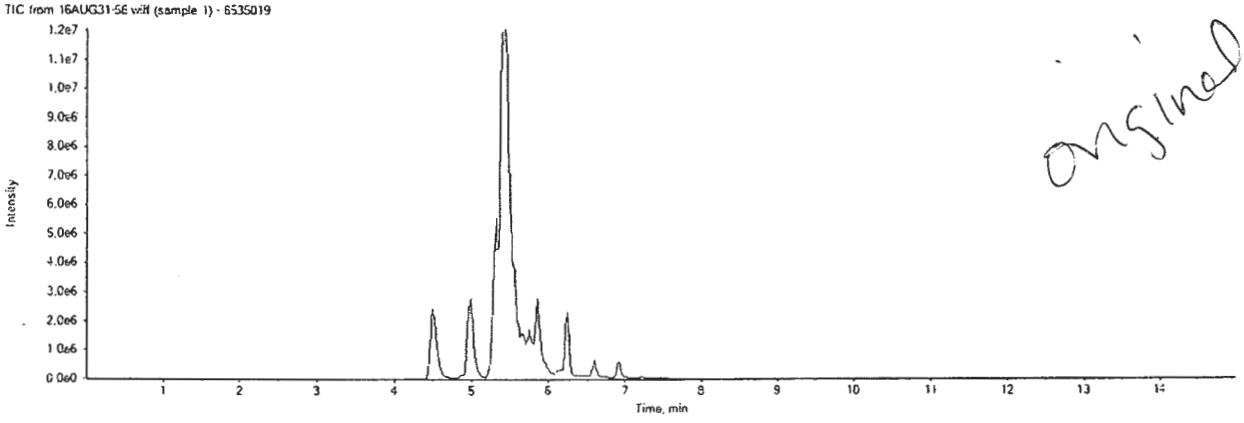
Sample Name:	8535019		**Data File:**		16AUG31-56.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater		**Acquis Date:**		2016-09-01T05:17:32
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	57		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09995		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.06	39786.6	A	18O2-PFHxS	4.97	78253.7	0.508	21.289	ng/L
PFHxA	4.50	13939524.5	A	13C2-PFHxA	4.49	141312.5	98.643	9392.095	ng/L
PFHpA	4.98	16153808.0	A	13C4-PFHpA	4.97	107197.5	150.692	5964.073	ng/L
PFHxS	4.96	6627.4	A	18O2-PFHxS	4.97	78253.7	0.085	3.865	ng/L
PFOA	5.42	151983454.0	A	13C4-PFOA	5.41	32862.0	4624.894	203497.972	ng/L
PFNA	5.85	7780945.1	A	13C5-PFNA	5.85	661990.6	11.754	556.682	ng/L
PFOS	5.83	50098.5	A	13C4-PFOS	5.83	173202.1	0.289	14.095	ng/L
PFDA	6.24	7116495.7	A	13C2-PFDA	6.24	666721.3	10.674	427.035	ng/L
PFUnDA	6.60	673772.9	A	13C2-PFUnDA	6.60	1165899.9	0.578	27.957	ng/L
PFDoDA	6.91	524870.1	A	13C2-PFDoDA	6.92	1585445.5	0.331	16.745	ng/L
PFTrDA	7.22	141143.6	A	13C2-PFDoDA	6.92	1585445.5	0.089	4.398	ng/L
PFTeDA	7.51	64733.1	A	13C2-PFDoDA	6.92	1585445.5	0.041	2.120	ng/L

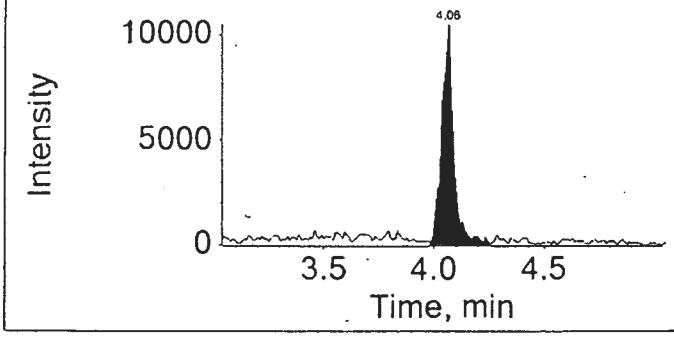
Total Ion Chromatogram

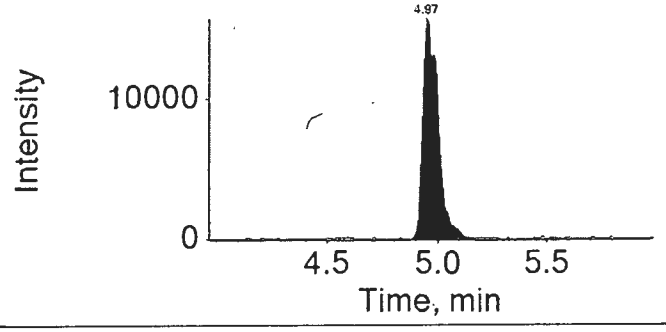
EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater



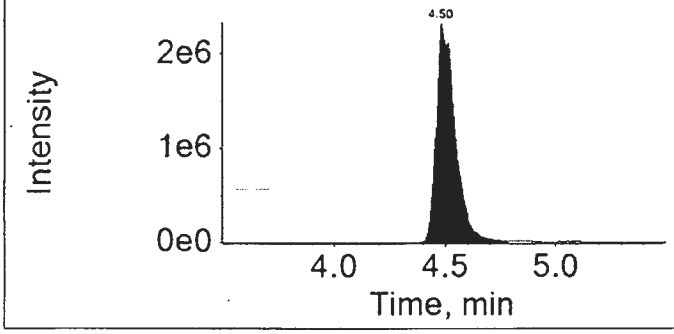
original

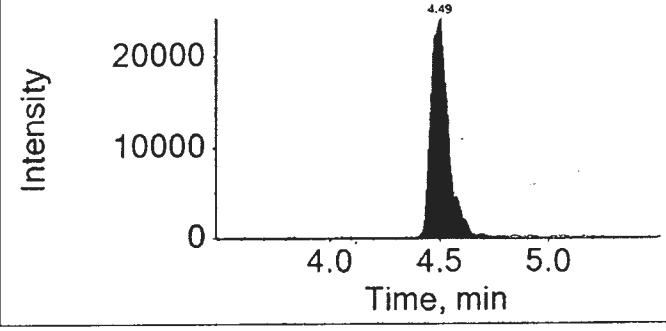
16AUG31-56.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



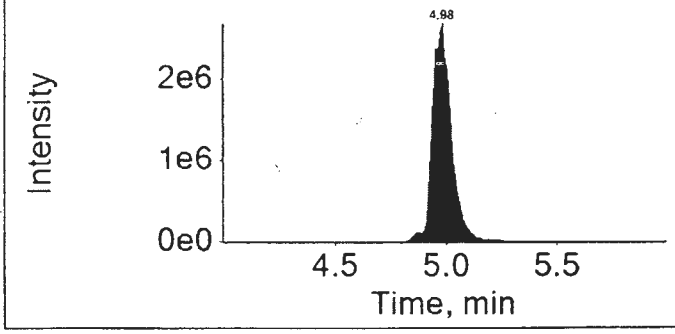


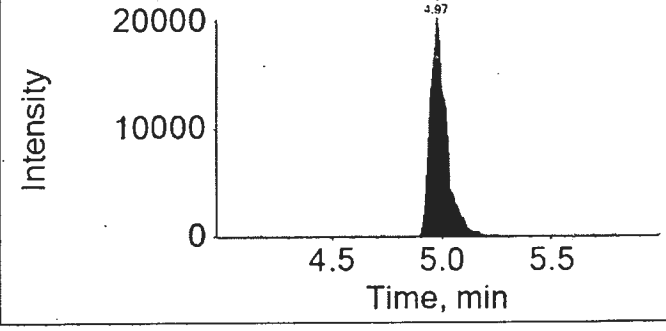
16AUG31-56.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16AUG31-56.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

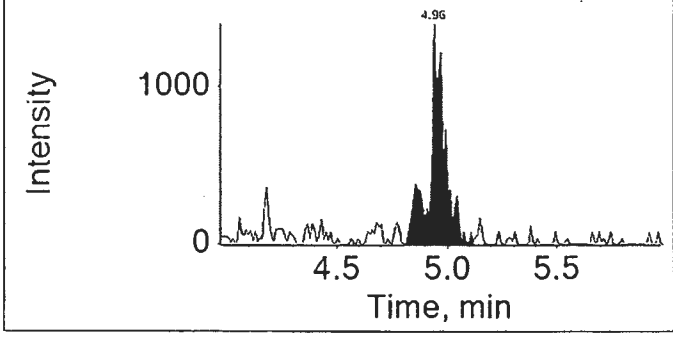




16AUG31-56.wiff

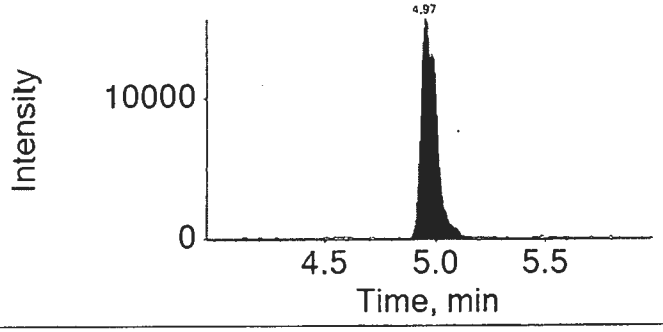
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

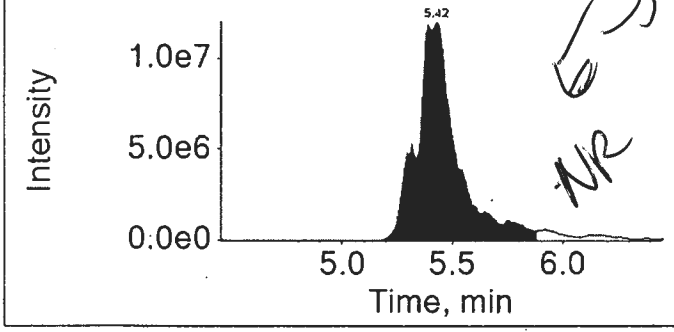
403.0 / 103.0



16AUG31-56.wiff

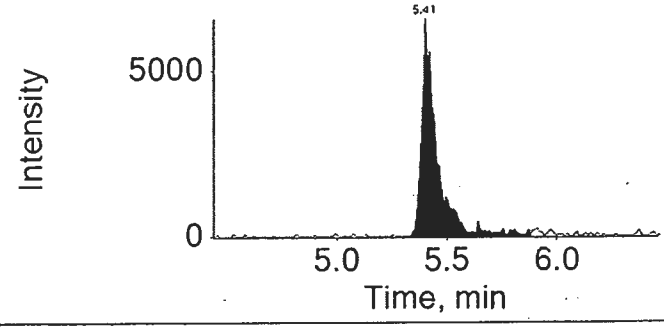
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

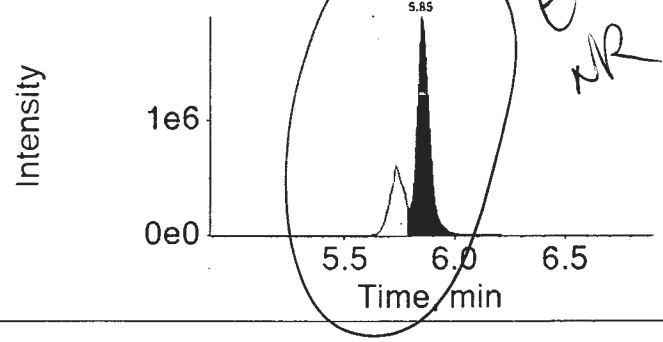
417.0 / 372.0



16AUG31-56.wiff

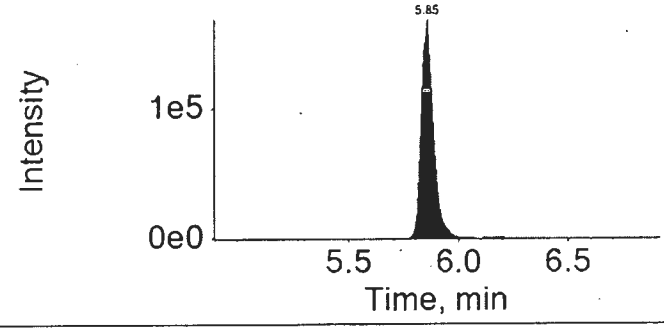
Analyte: PFNA

462.9 / 418.9

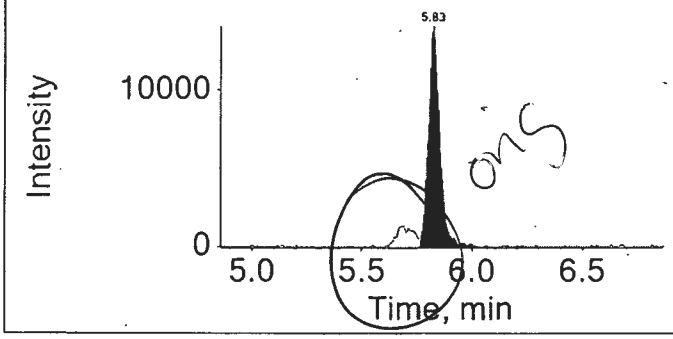


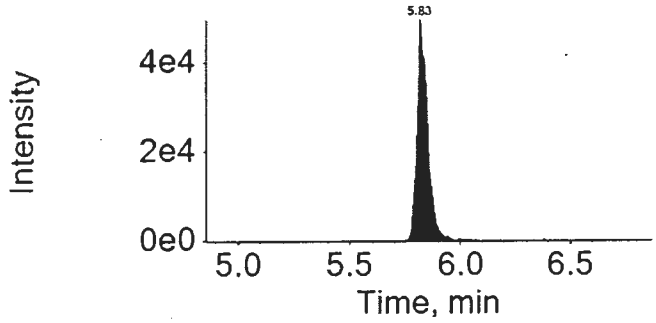
Internal Standard: 13C5-PFNA

468.0 / 423.0



16AUG31-56.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0





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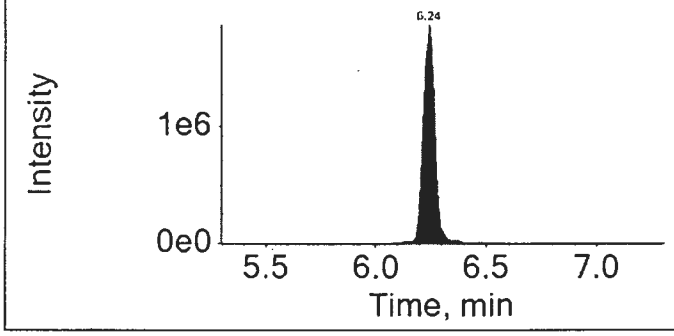
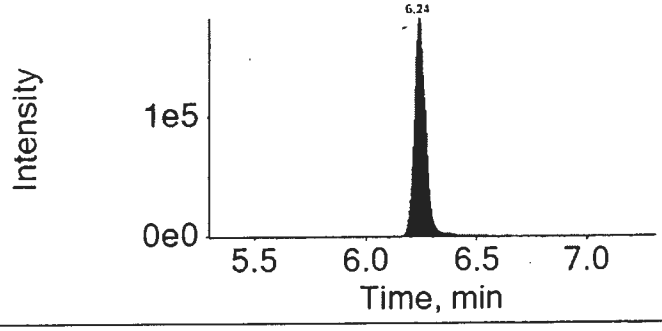
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





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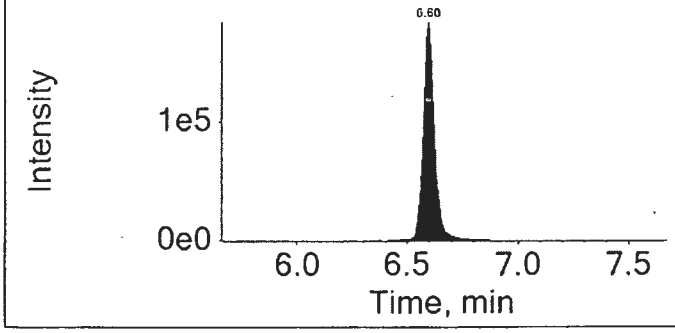
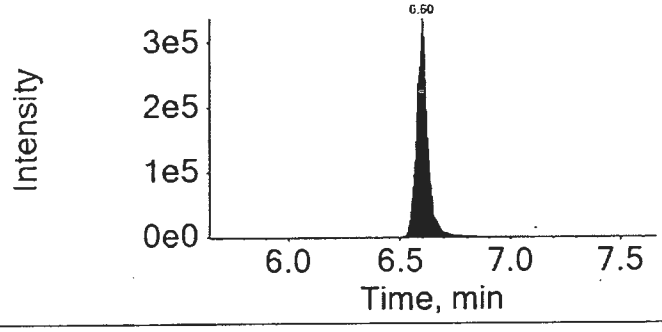
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

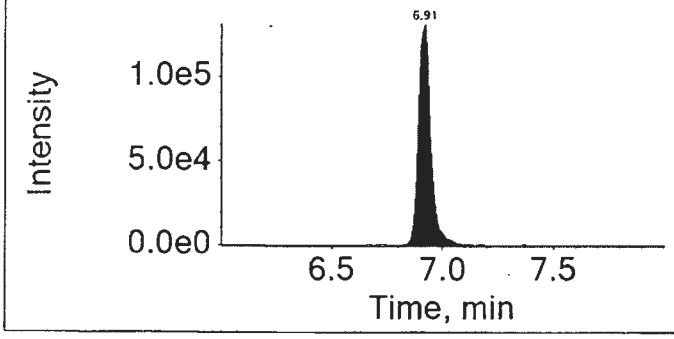




16AUG31-56.wiff

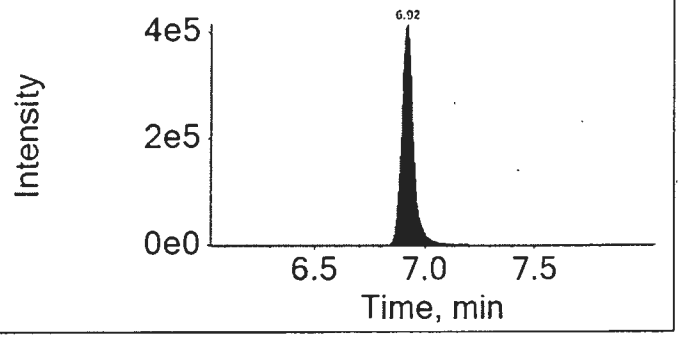
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

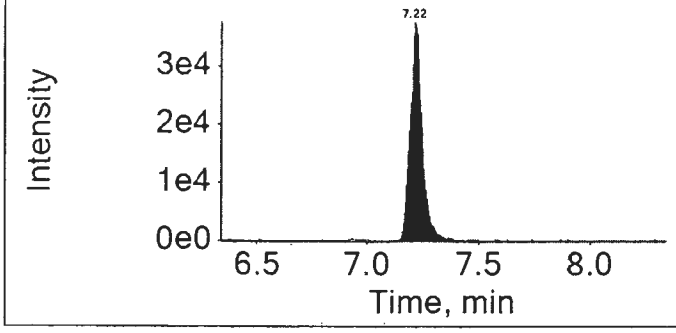
615.0 / 570.0



16AUG31-56.wiff

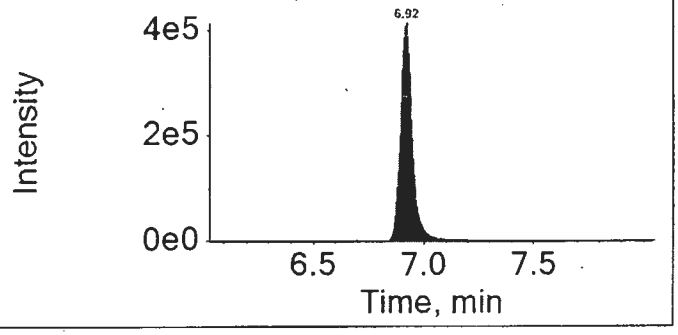
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

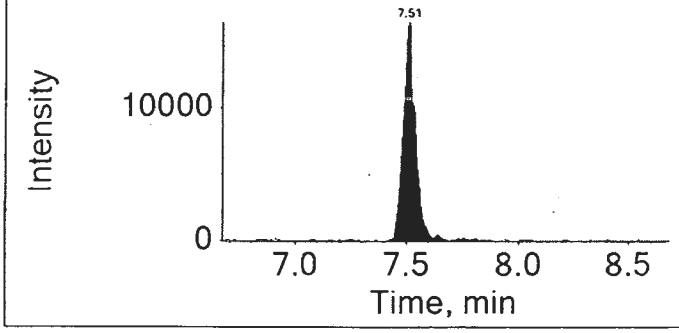
615.0 / 570.0



16AUG31-56.wiff

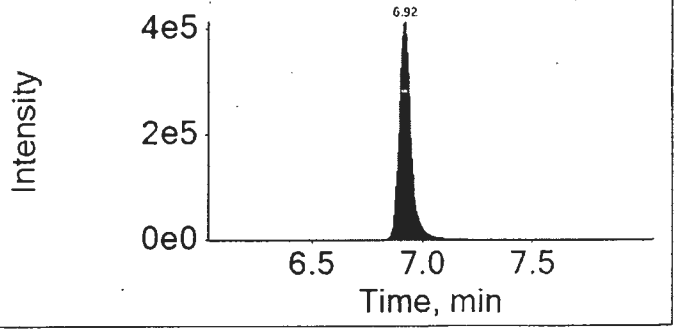
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd 9/14/2016

MCN 7824 9/14/16

Lynn Dodd
Principal Specialist

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LC-MS/MS Analysis Report

Printed: 9/15/2016 11:12:00 AM

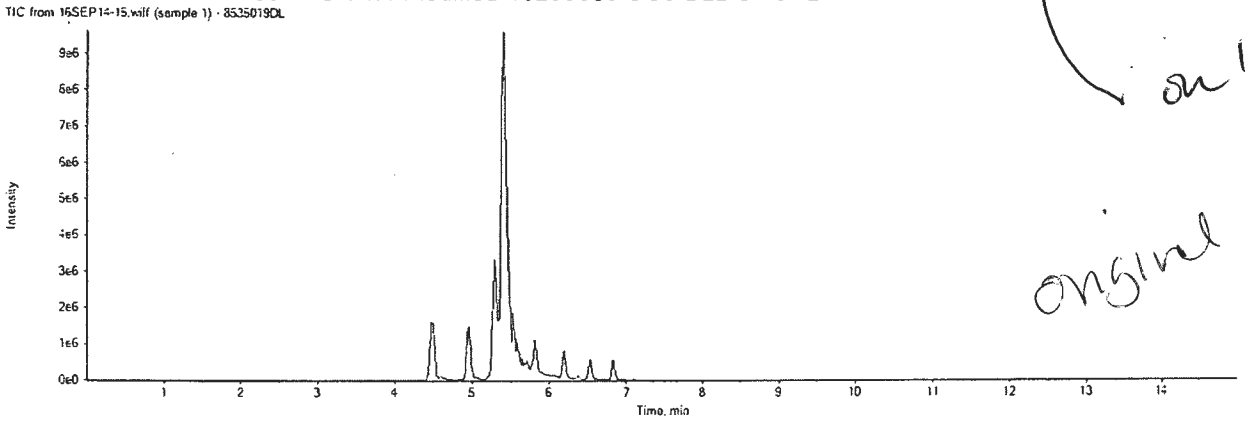
Sample Name:	8535019DL		**Data File:**		16SEP14-15.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater		**Acquis Date:**		2016-09-14T12:10:57
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	60		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005DL
			ICAL Name:		16SEP13ICAL
Batch Number:	16236005		**Operator:**		~~US1\INS00015\~~4500TRIPLE
Sample Wt.:	0.09995		**Dilution Factor:**		10.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

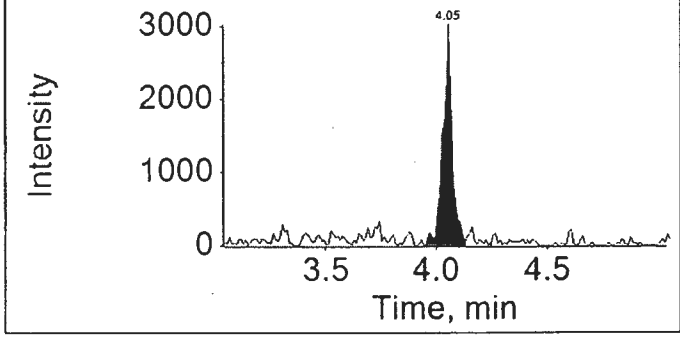
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.05	8946.9	A	18O2-PFHxS	4.95	243567.3	0.037	13.315	ng/L
PFHxA	4.48	✓ 6438375.7	A	13C2-PFHxA	4.48	694830.5	9.266	6796.068	ng/L
PFHpA	4.95	✓ 5336365.8	A	13C4-PFHpA	4.96	580910.5	9.186	3919.474	ng/L
PFHxS	4.95	2781.4	M	18O2-PFHxS	4.95	243567.3	0.011	4.669	ng/L
PFOA	5.40	✓✓ 62447307.5	A	13C4-PFOA	5.40	135886.4	459.555	193662.343	ng/L
PFNA	5.82	✓ 1358176.6	A	13C5-PFNA	5.81	1289929.5	1.053	449.915	ng/L
PFOS	5.79	10034.7	A	13C4-PFOS	5.79	301509.2	0.033	15.693	ng/L
PFDA	6.19	✓ 1182038.7	A	13C2-PFDA	6.18	1052364.9	1.123	382.099	ng/L
PFUnDA	6.52	65153.3	A	13C2-PFUnDA	6.52	1430793.8	0.046	19.455	ng/L
PFDoDA	6.83	52973.0	A	13C2-PFDoDA	6.82	1566498.0	0.034	15.492	ng/L
PFTrDA	7.11	13290.5	A	13C2-PFDoDA	6.82	1566498.0	0.008	3.926	ng/L
PFTeDA	7.38	7382.9	M	13C2-PFDoDA	6.82	1566498.0	0.005	2.548	ng/L

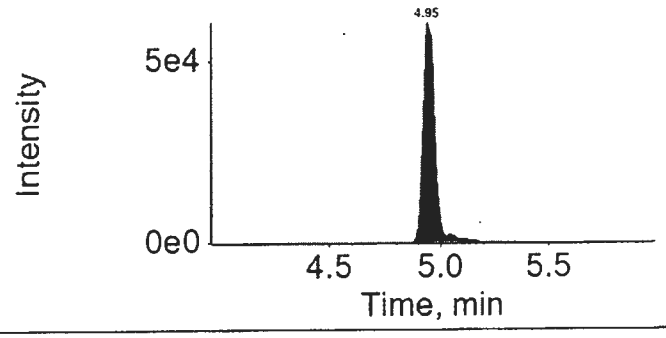
Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater

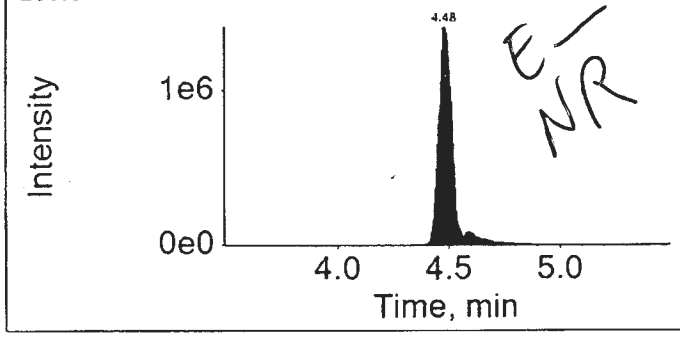


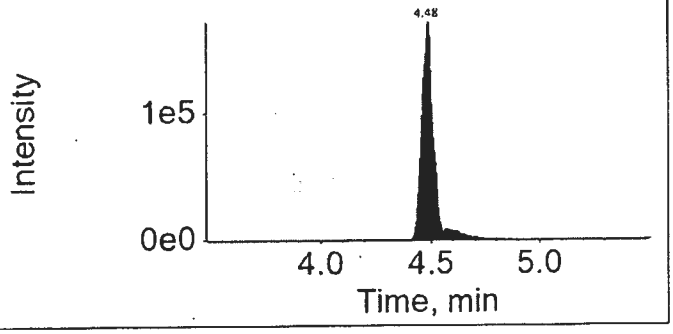
16SEP14-15.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



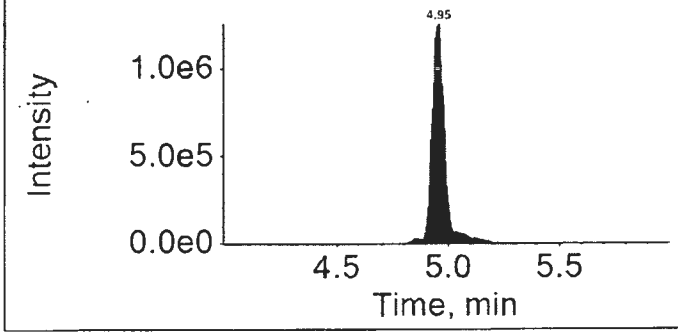


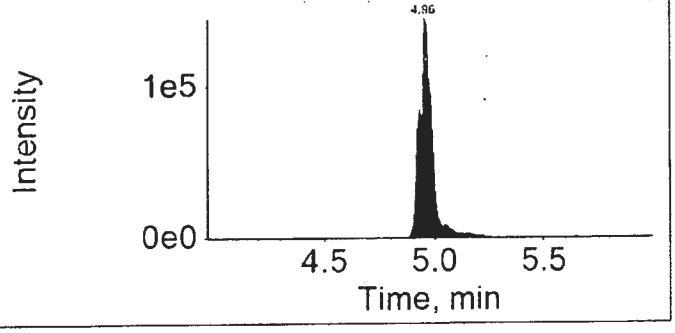
16SEP14-15.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16SEP14-15.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

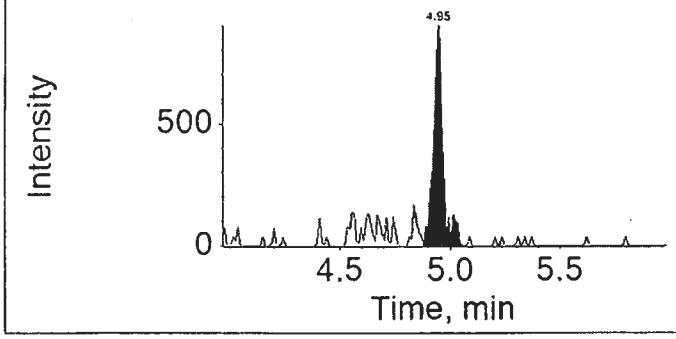




16SEP14-15.wiff

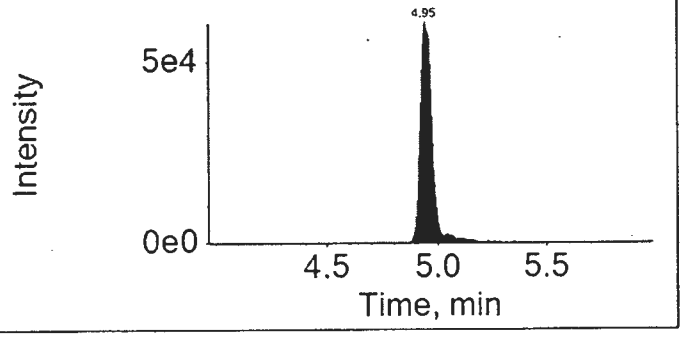
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

403.0 / 103.0

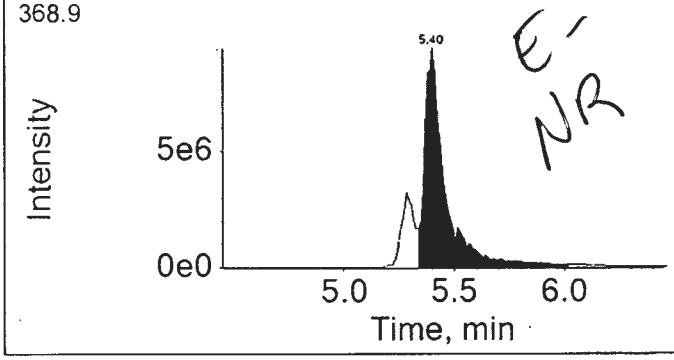


16SEP14-15.wiff

Analyte: PFOA

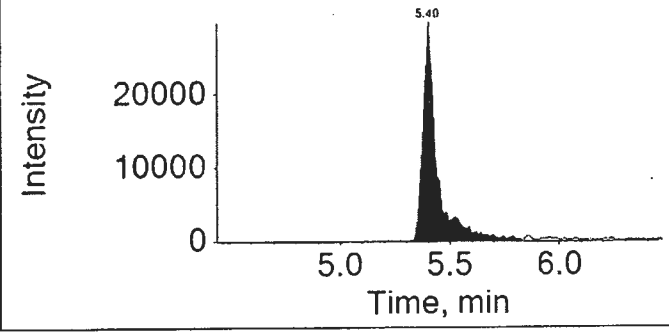
412.9 / 368.9

E-
NR



Internal Standard: 13C4-PFOA

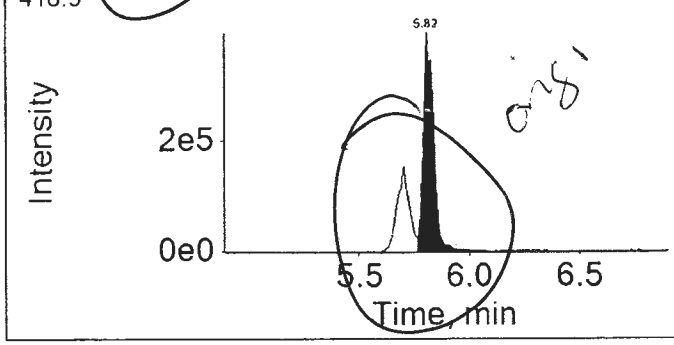
417.0 / 372.0



16SEP14-15.wiff

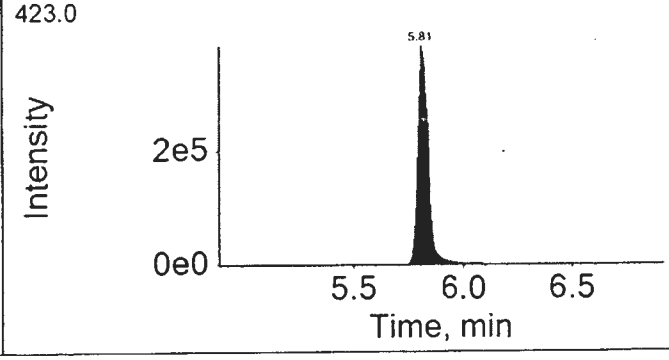
Analyte: PFNA

462.9 / 418.9

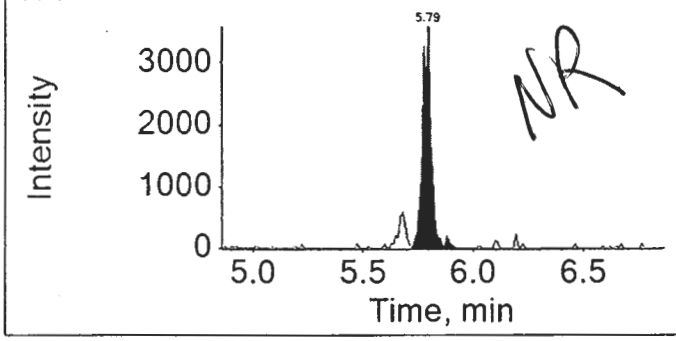


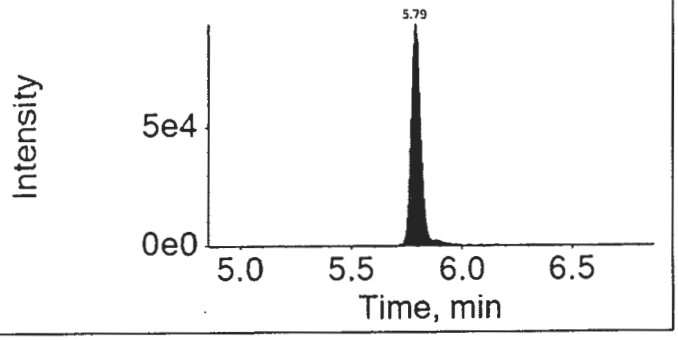
Internal Standard: 13C5-PFNA

468.0 / 423.0

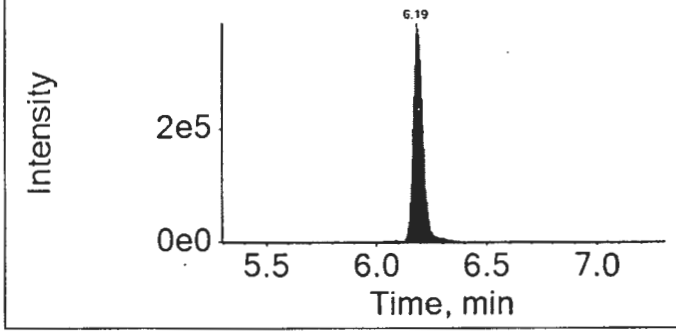


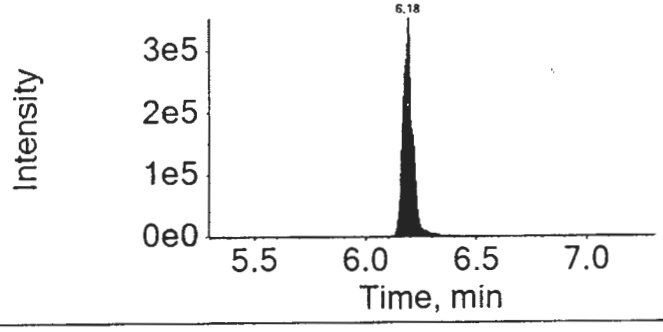
16SEP14-15.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



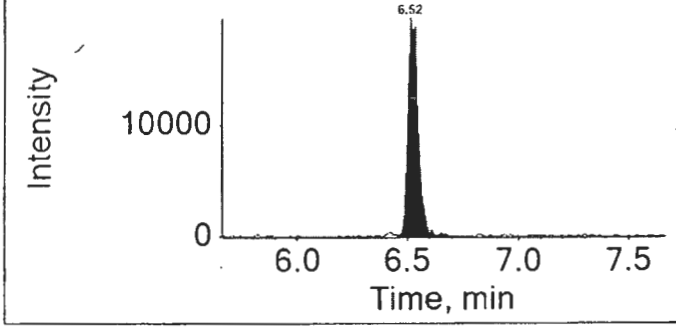


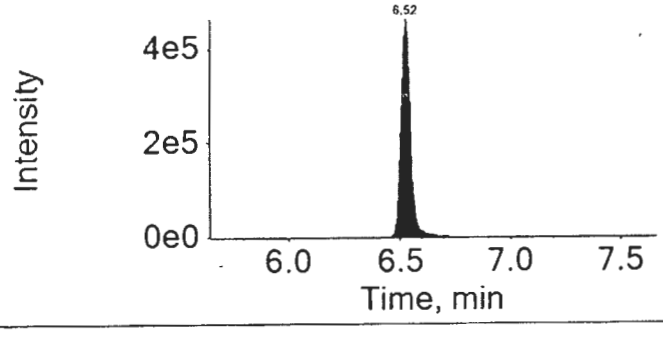
16SEP14-15.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16SEP14-15.wiff	
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

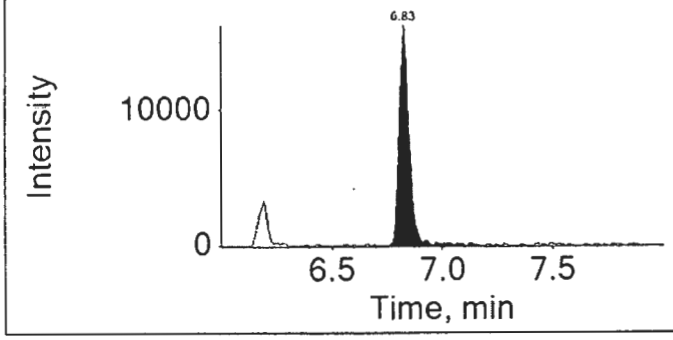




16SEP14-15.wiff

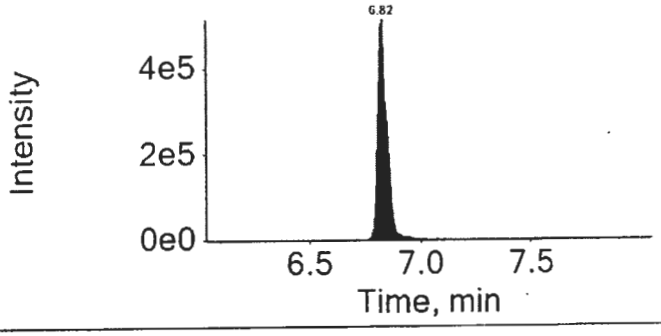
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

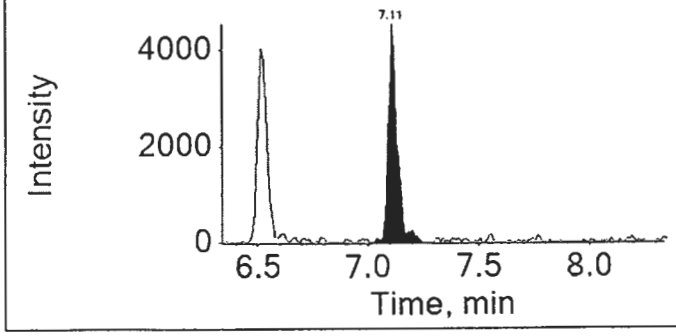
615.0 / 570.0



16SEP14-15.wiff

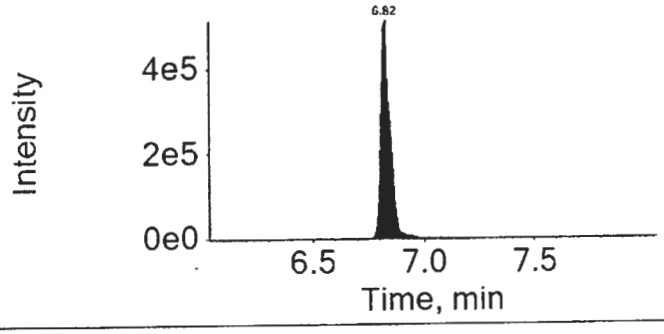
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

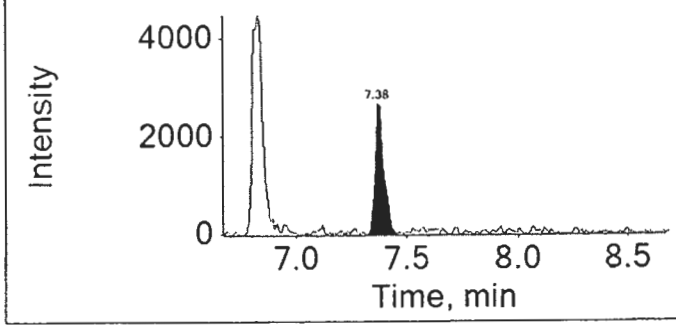
615.0 / 570.0



16SEP14-15.wiff

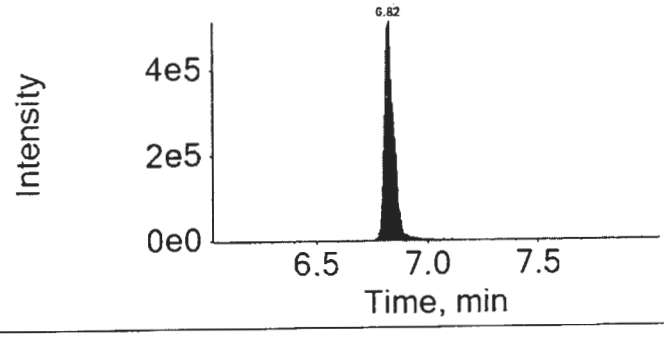
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 15 2016

MED 1824 9/15/16

Lynn Dodd
Principal Specialist

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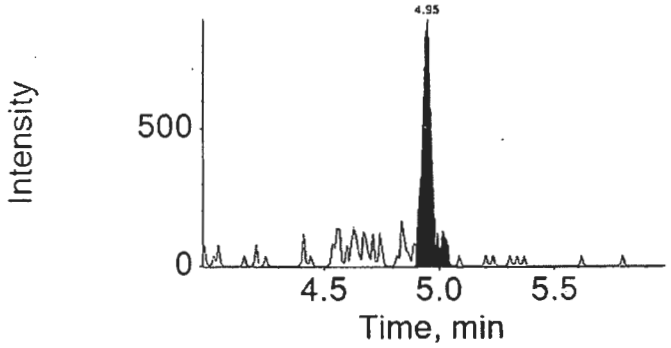
Print Date: 15/09/2016 11:12 AM

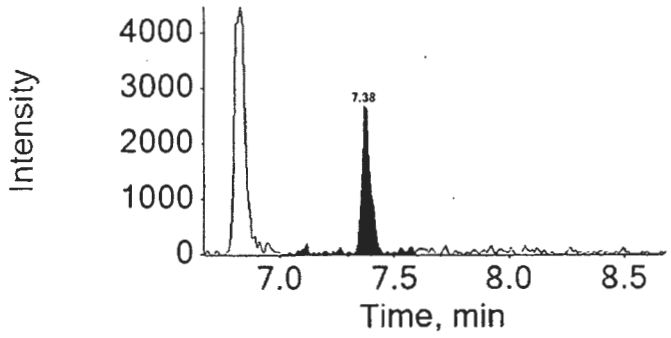
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-15.wiff	2016-09-14T12:10:57	8535019DL	PFHxS	4.95	2699.6
16SEP14-15.wiff	2016-09-14T12:10:57	8535019DL	PFTeDA	7.38	8785.2

Component: PFHxS
Mass: 398.9 / 99.0



Component: PFTeDA
Mass: 712.9 / 668.9



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

MED 28 9/15/16

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LC-MS/MS Analysis Report

Printed: 9/15/2016 11:12:00 AM

Sample Name:	8535019DL2		**Data File:**		16SEP14-12.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater		**Acquis Date:**		2016-09-14T11:21:45
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	59		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005DL
			ICAL Name:		16SEP13ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09995		**Dilution Factor:**		100.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

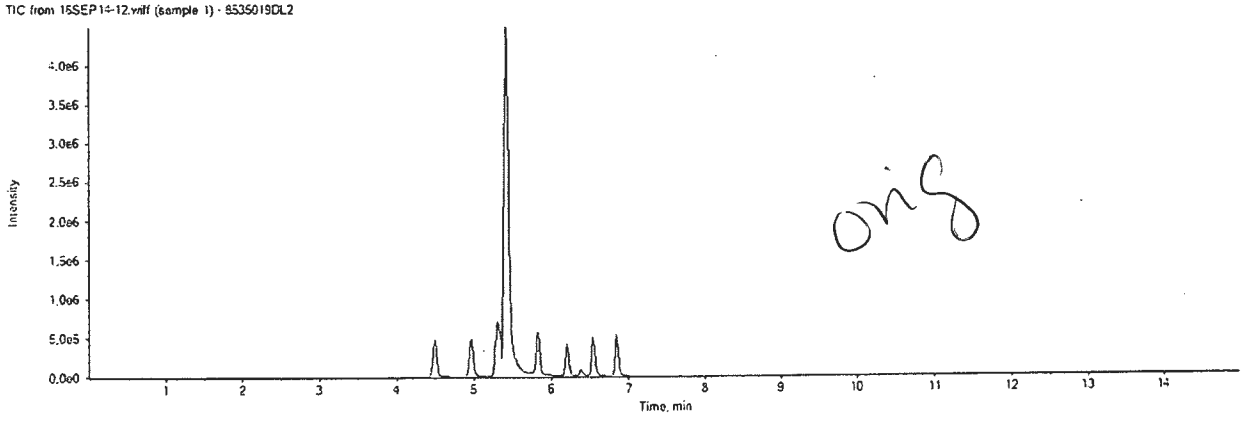
Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.05	1063.2	A	18O2-PFHxS	4.96	275919.2	0.004	13.967	ng/L
PFHxA	4.49	848734.3	A	13C2-PFHxA	4.49	897594.9	0.946	6935.083	ng/L
PFHpA	4.96	720331.7	A	13C4-PFHpA	4.96	852695.9	0.845	3604.374	ng/L
PFHxS	4.96	1751.0	A	18O2-PFHxS	4.96	275919.2	0.006	25.945	ng/L
PFOA	5.41	20105955.4	A	13C4-PFOA	5.41	347841.7	57.802	243585.034	ng/L
PFNA	5.82	145242.3	A	13C5-PFNA	5.82	1467002.4	0.099	423.061	ng/L
PFOS	5.81	969.3	M	13C4-PFOS	5.80	306638.5	0.003	14.905	ng/L
PFDA	6.20	119490.5	A	13C2-PFDA	6.20	1106564.4	0.108	367.339	ng/L
PFUnDA	6.54	9068.5	A	13C2-PFUnDA	6.53	1268217.6	0.007	30.550	ng/L
PFDoDA	6.84	6659.4	A	13C2-PFDoDA	6.84	1516426.9	0.004	20.119	ng/L
PFTrDA	7.12	2149.3	A	13C2-PFDoDA	6.84	1516426.9	0.001	6.559	ng/L
PFTeDA	7.39	2346.8	A	13C2-PFDoDA	6.84	1516426.9	0.002	8.366	ng/L

E

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater

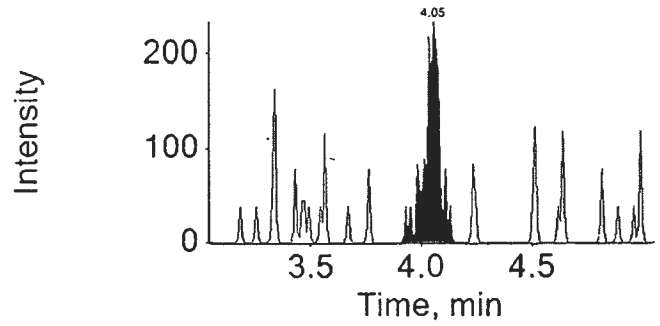


ong

16SEP14-12.wiff

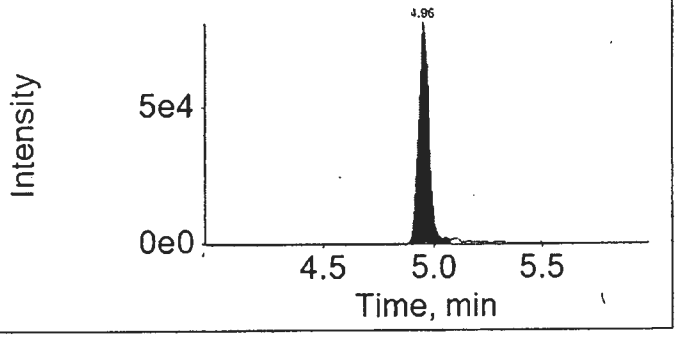
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

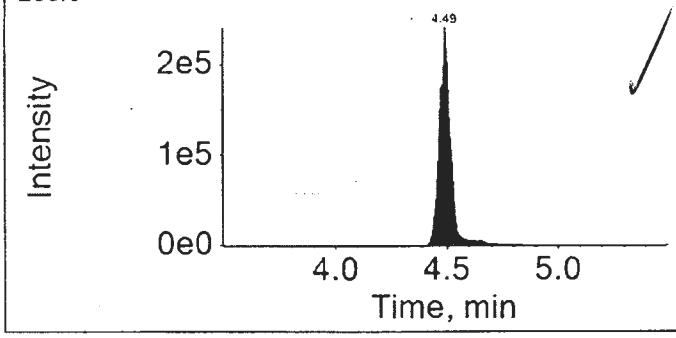
403.0 / 103.0



16SEP14-12.wiff

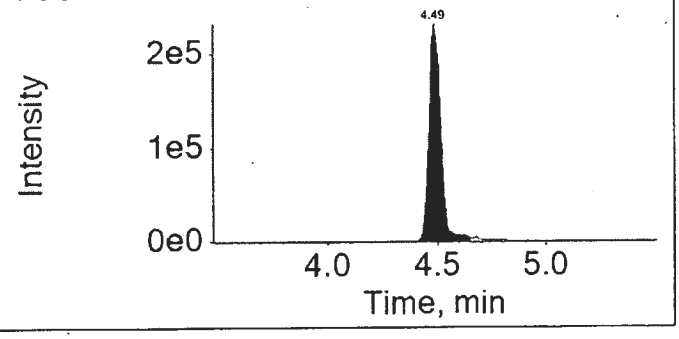
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

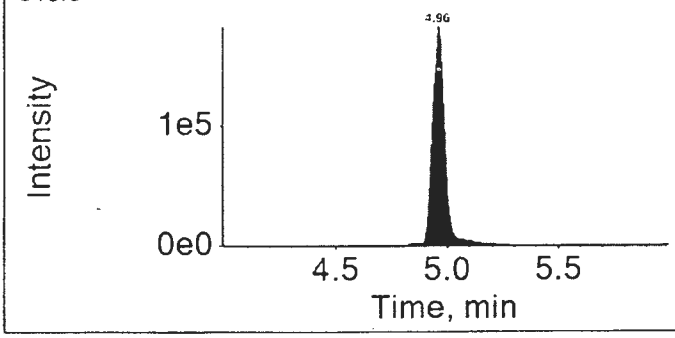
314.9 / 270.0



16SEP14-12.wiff

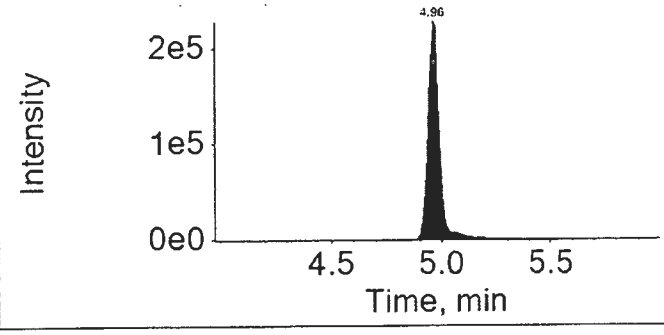
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



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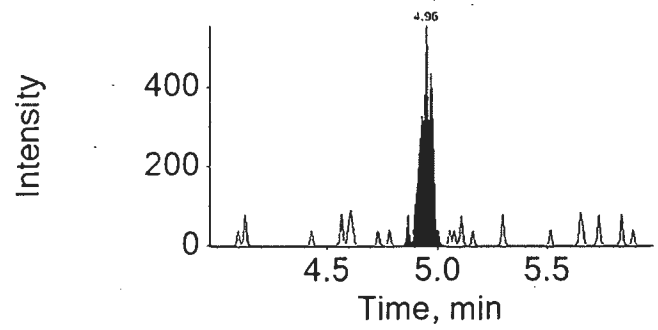
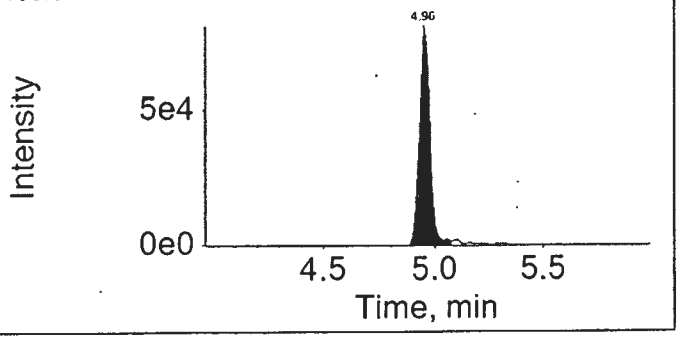
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

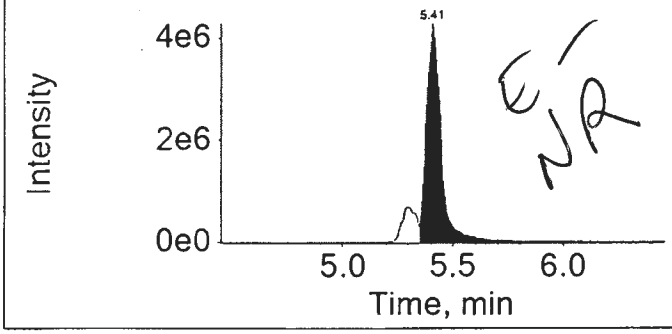
403.0 / 103.0



16SEP14-12.wiff

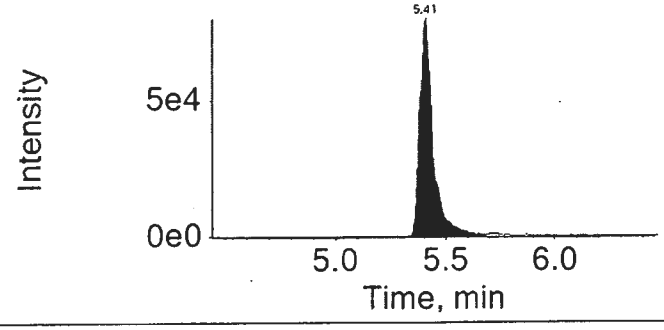
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

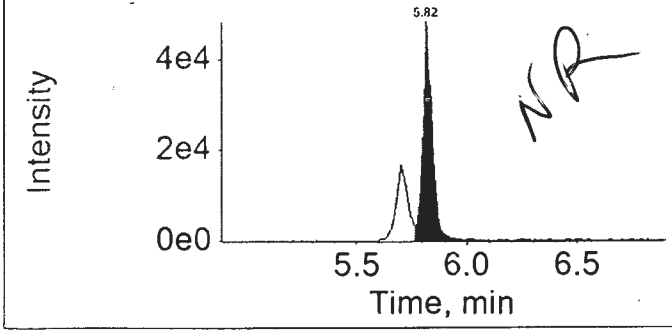
417.0 / 372.0



16SEP14-12.wiff

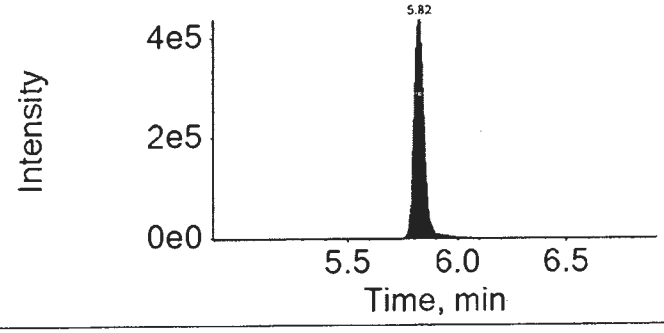
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

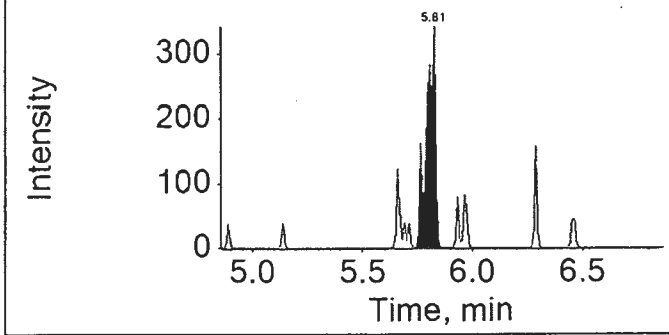
468.0 / 423.0



16SEP14-12.wiff

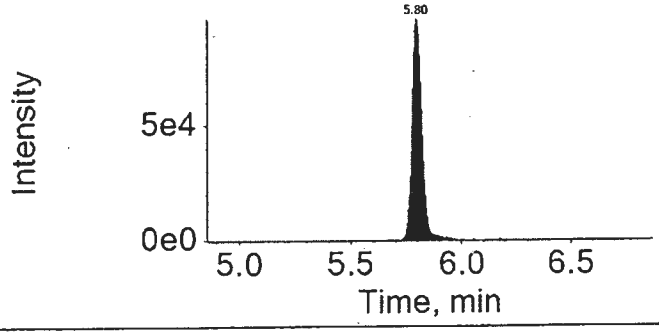
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

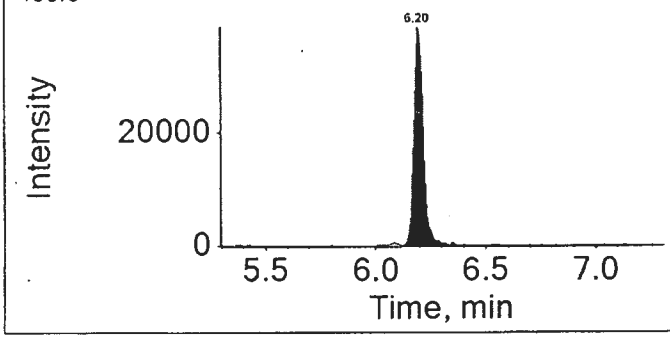
503.0 / 99.0



16SEP14-12.wiff

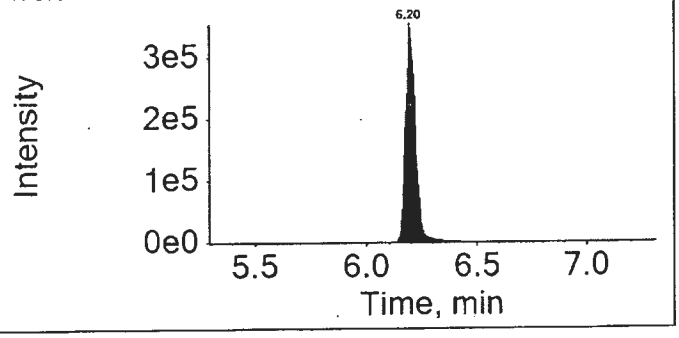
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

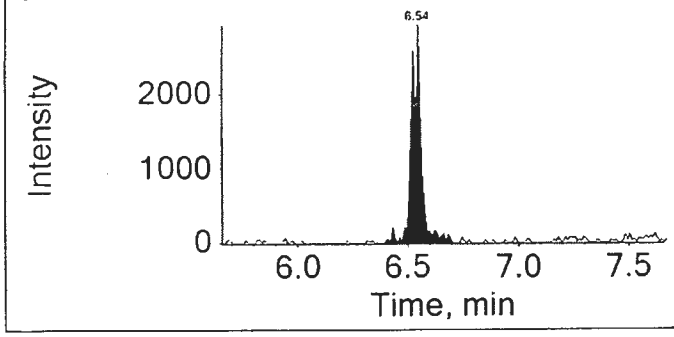
515.0 / 470.0



16SEP14-12.wiff

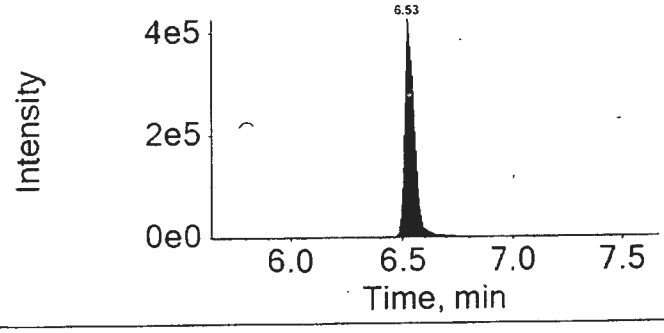
Analyte: PFUnDA

562.9 / 518.9

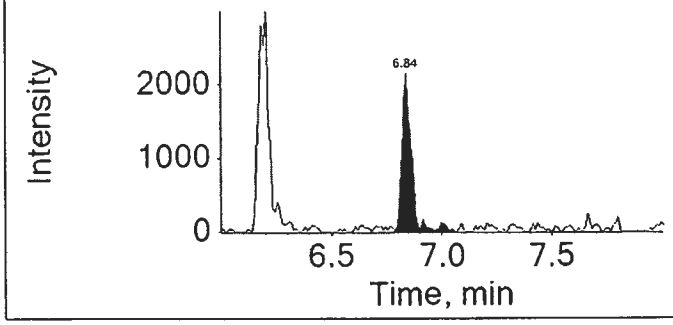


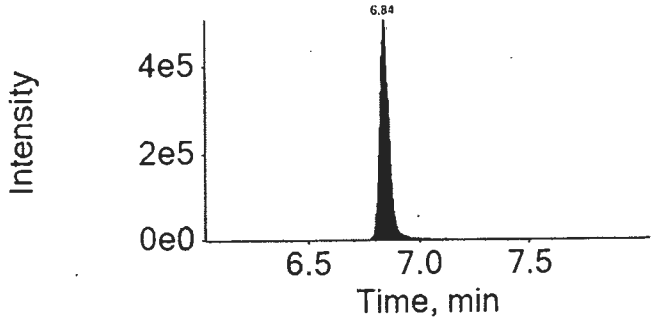
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

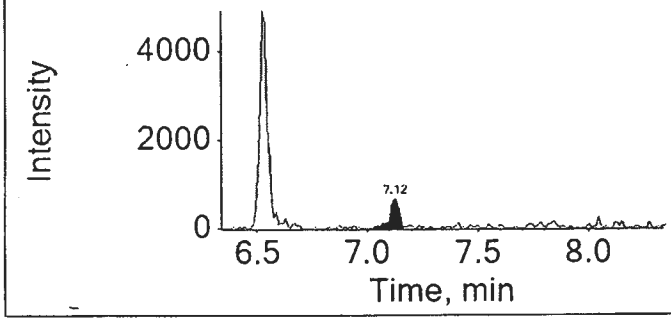


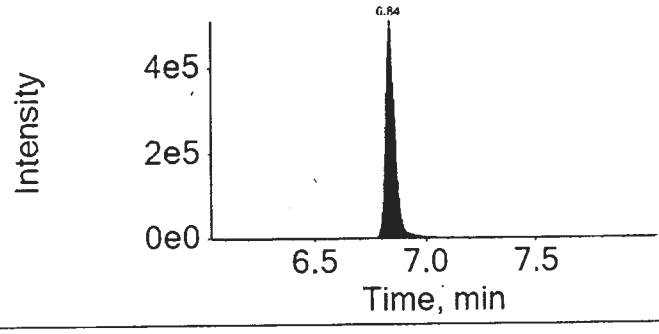
16SEP14-12.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



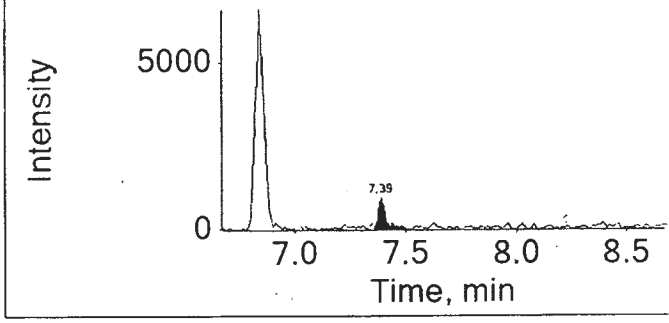


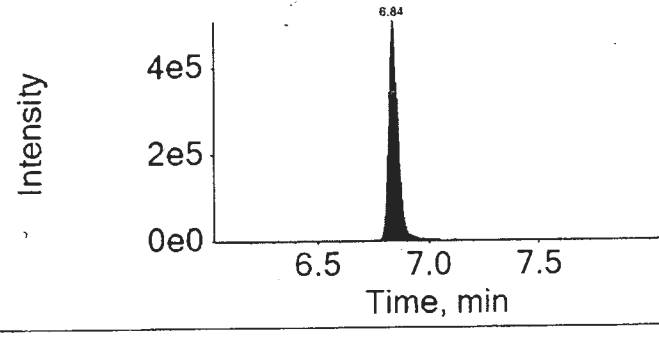
16SEP14-12.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16SEP14-12.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd

SEP 15 2016

Lynn Dodd
Principal Specialist

MLD 18Sep 9/15/16

eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

Printed: 9/15/2016 11:12:00 AM

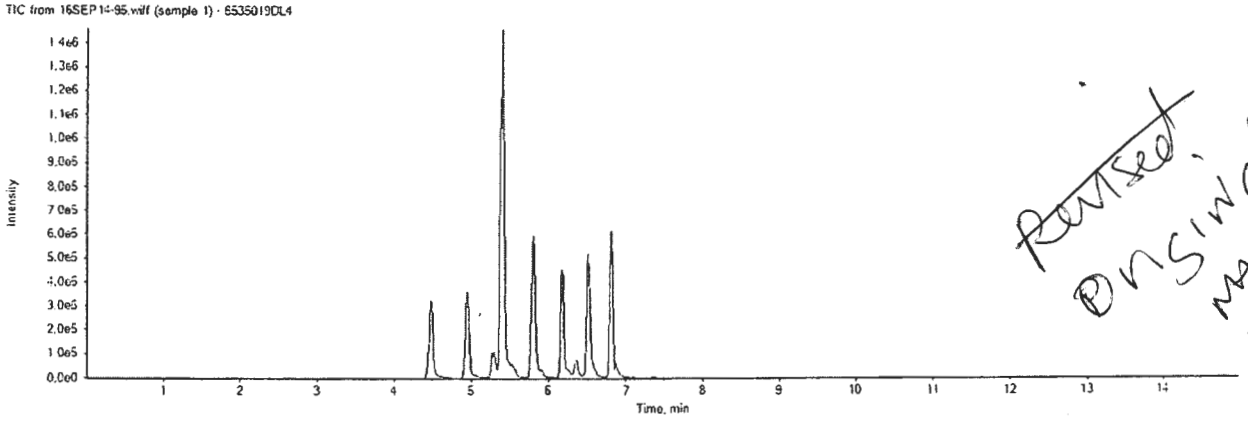
Sample Name:	8535019DL3		**Data File:**		16SEP14-95.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater		**Acquis Date:**		2016-09-15T08:23:45
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	58		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005DL
			ICAL Name:		16SEP13ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09995		**Dilution Factor:**		1000.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.04	1188.3	A	18O2-PFHxS	4.94	334969.2	0.004	128.581	ng/L
PFHxA	4.48	89229.9	A	13C2-PFHxA	4.48	1078714.4	0.083	6066.864	ng/L
PFHpA	4.94	77814.3	A	13C4-PFHpA	4.95	841685.4	0.092	3944.581	ng/L
PFHxS	4.93	2376.6	A	18O2-PFHxS	4.94	334969.2	0.007	290.066	ng/L
PFOA	5.39	4218664.2	A	13C4-PFOA	5.39	1038464.7	4.062	171194.878	ng/L
PFNA	5.81	17391.0	A	13C5-PFNA	5.80	1763804.5	0.010	421.322	ng/L
PFOS	5.78	906.9	A	13C4-PFOS	5.78	356606.0	0.003	119.908	ng/L
PFDA	6.17	15945.7	A	13C2-PFDA	6.17	1480576.1	0.011	366.374	ng/L
PFUnDA	6.50	6941.5	A	13C2-PFUnDA	6.50	1509058.2	0.005	196.523	ng/L
PFDoDA	6.81	5470.4	A	13C2-PFDoDA	6.81	1882484.9	0.003	133.133	ng/L
PFTrDA	7.09	3908.5	A	13C2-PFDoDA	6.81	1882484.9	0.002	96.087	ng/L
PFTeDA	7.35	5034.6	A	13C2-PFDoDA	6.81	1882484.9	0.003	144.571	ng/L

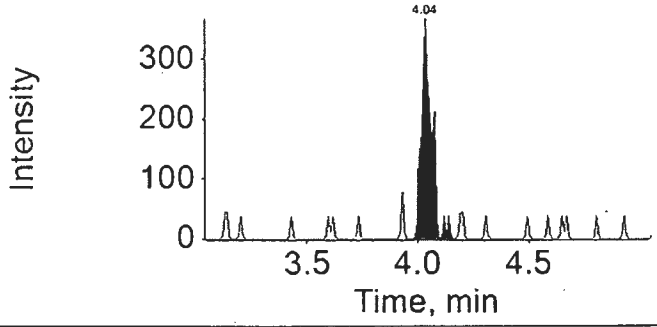
Total Ion Chromatogram

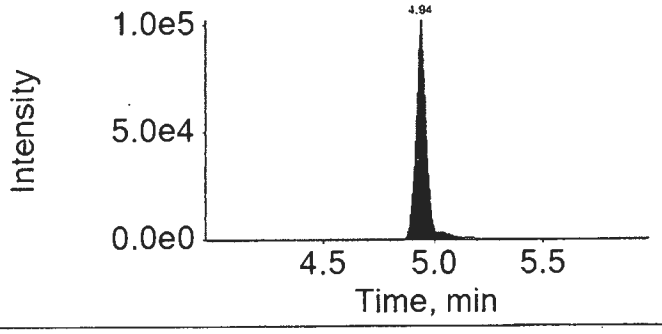
EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater



Revised. Original May 6/14/17

16SEP14-95.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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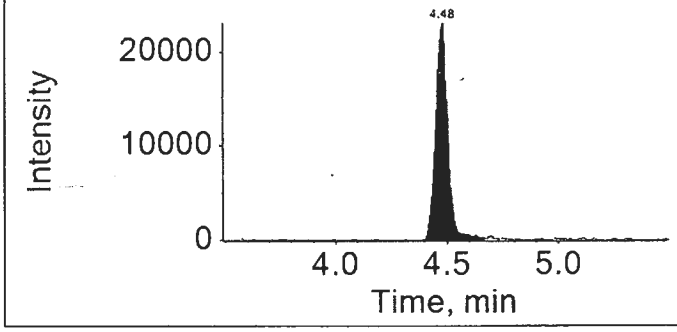
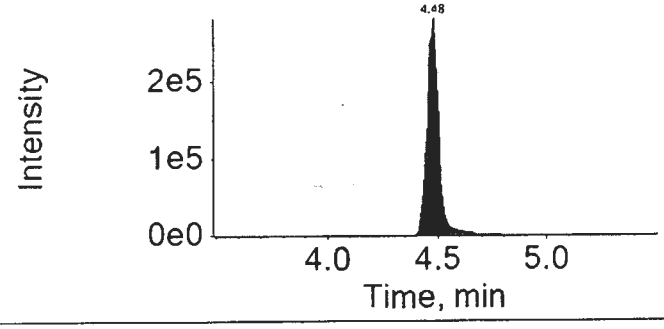
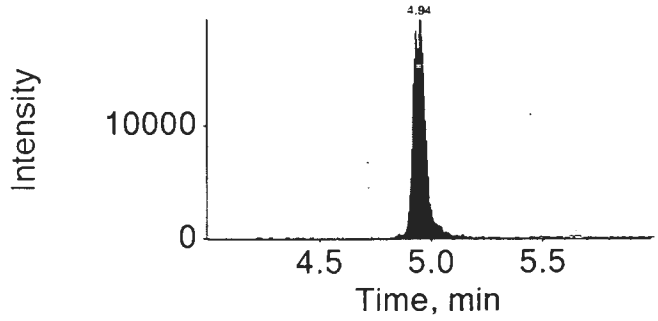
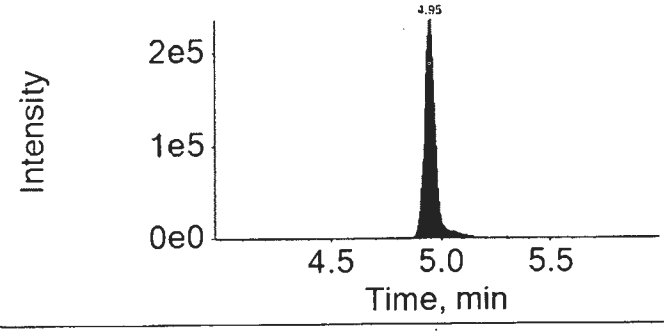
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16SEP14-95.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

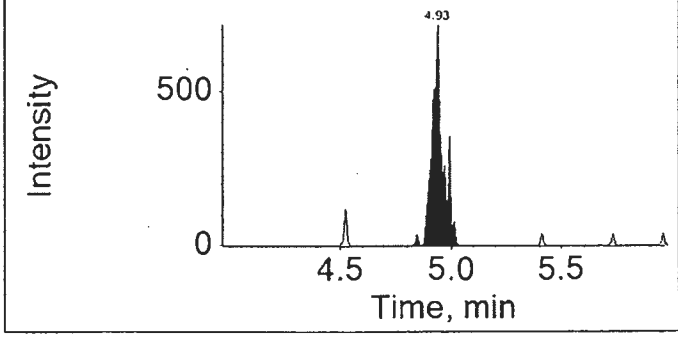




16SEP14-95.wiff

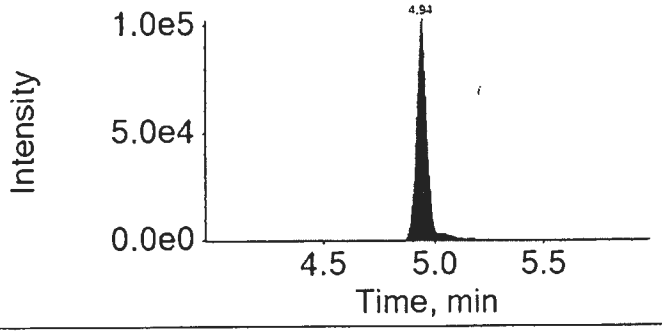
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

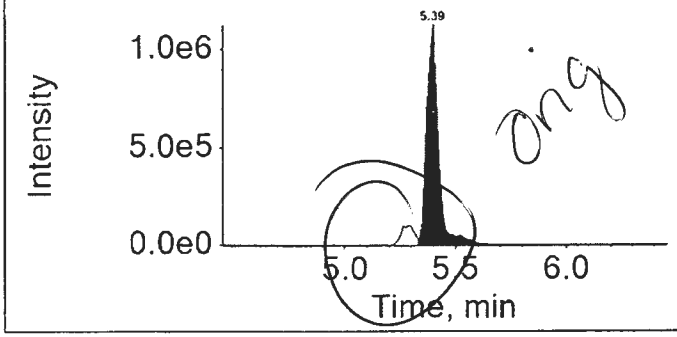
403.0 / 103.0



16SEP14-95.wiff

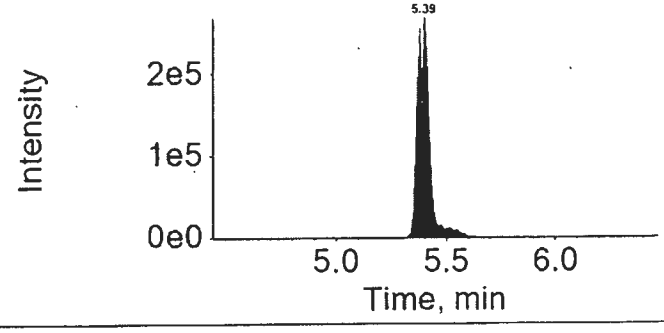
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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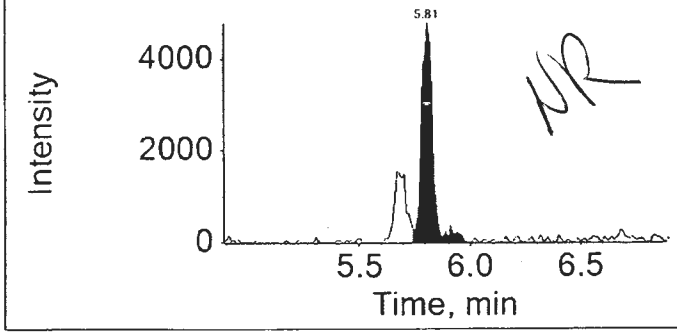
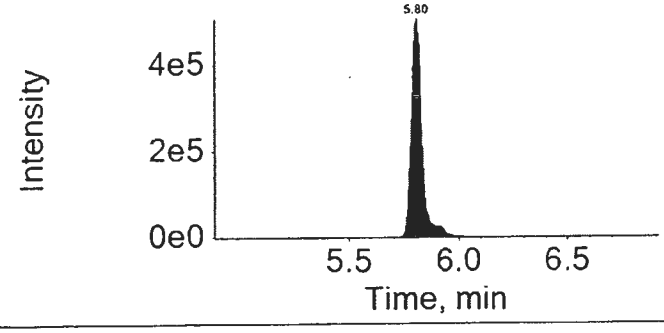
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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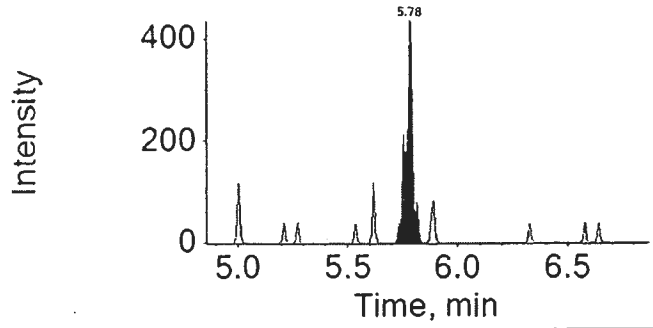
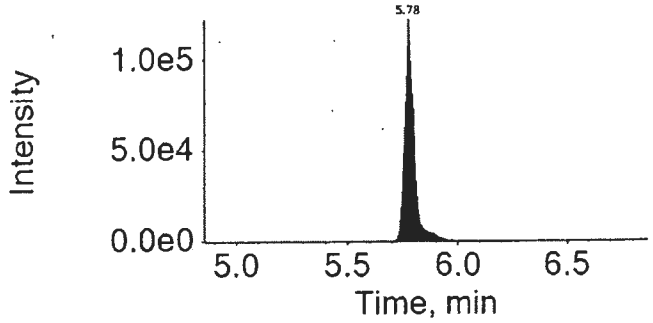
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

503.0 / 99.0



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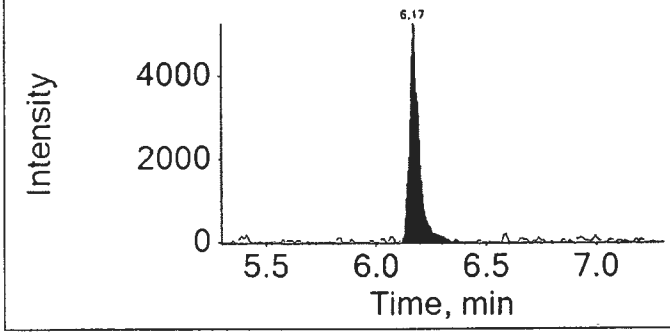
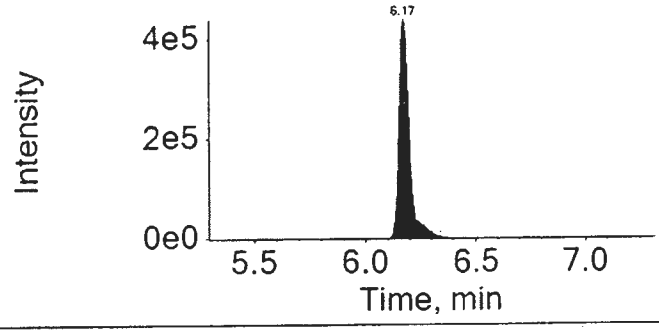
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

515.0 / 470.0



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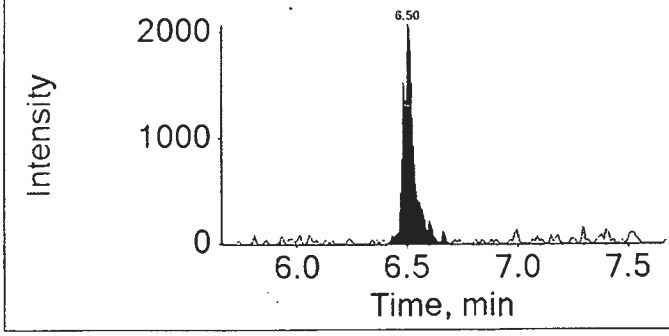
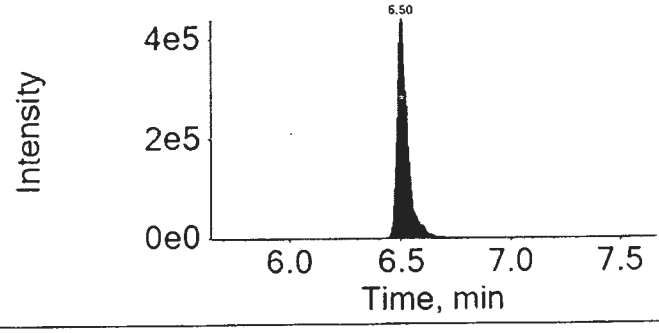
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



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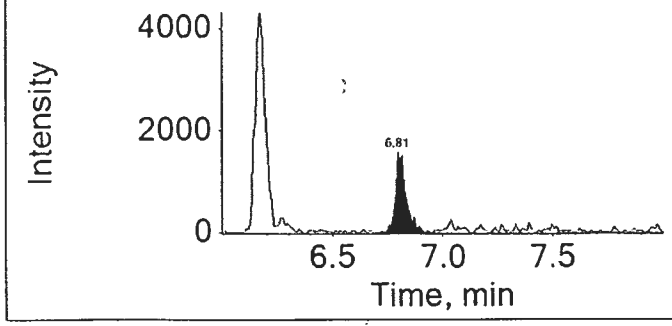
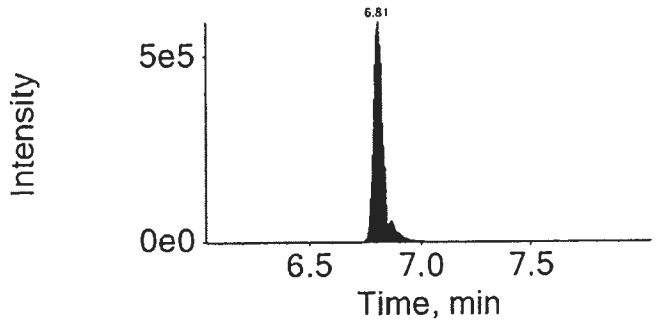
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

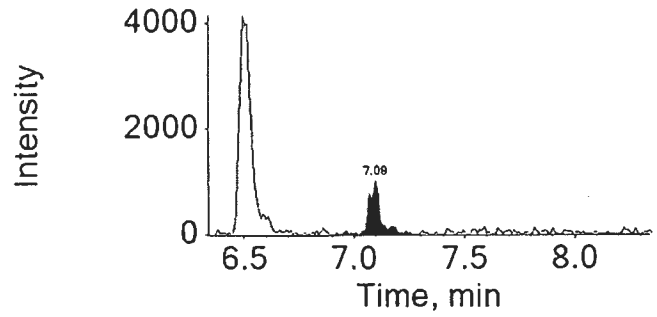
615.0 / 570.0



16SEP14-95.wiff

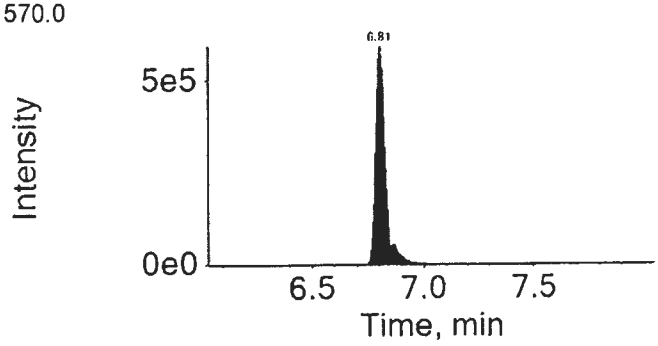
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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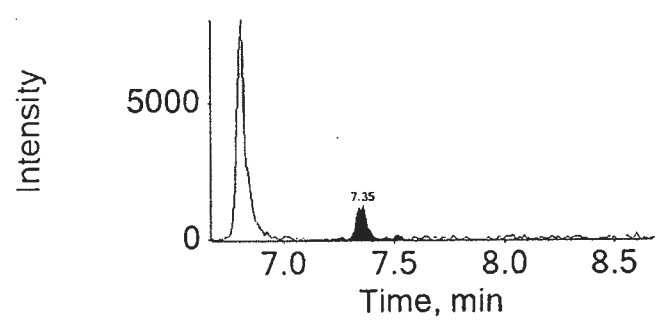
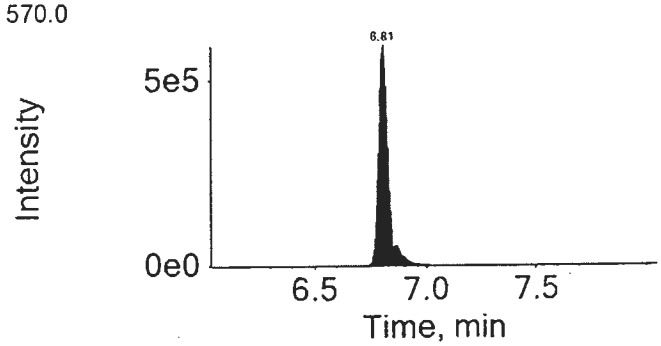
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 15 2016

Lynn Dodd
Principal Specialist

9/15/16

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Analysis Report

REVISED

Sample Description: SG3-BLDGOUTLET-160816 Grab Wastewater
SGPP - Bennington

LL Sample # WW 8535019
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 12:40 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

OUTWW SDG#: SPP17-08

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	EPA 537 Rev. 1.1 modified		ng/l		ng/l	ng/l	
10954	Perfluorooctanoic acid	335-67-1	190,000		1,000	2,000	1000
10954	Perfluorononanoic acid	375-95-1	640		10	20	10
10954	Perfluorodecanoic acid	335-76-2	380		10	20	10
10954	Perfluoroundecanoic acid	2058-94-8	28		2	4	1
10954	Perfluorododecanoic acid	307-55-1	17		3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	4		2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	6,900		100	200	100
10954	Perfluoroheptanoic acid	375-85-9	3,900		10	20	10
10954	Perfluorobutanesulfonate	375-73-5	21		4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	16		5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 05:17	Marissa C Drexinger	1
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/14/2016 11:21	Marissa C Drexinger	100
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/14/2016 12:10	Marissa C Drexinger	10
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/15/2016 08:23	Marissa C Drexinger	1000
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.1000 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535019
Lab File ID: 16AUG31-56.WIFF
Date Collected: 08/16/2016 12:40
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 05:17
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	21	
307-24-4	PFHxA	9400	E
375-85-9	PFHpA	6000	E
355-46-4	PFHxS	4	U
335-67-1	PFOA	200000	E
375-95-1	PFNA	560	E
1763-23-1	PFOS	16	
335-76-2	PFDA	430	E
2058-94-8	PFUnDA	28	
307-55-1	PFDoDA	17	
72629-94-8	PFTrDA	4	
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 4:51:00 PM

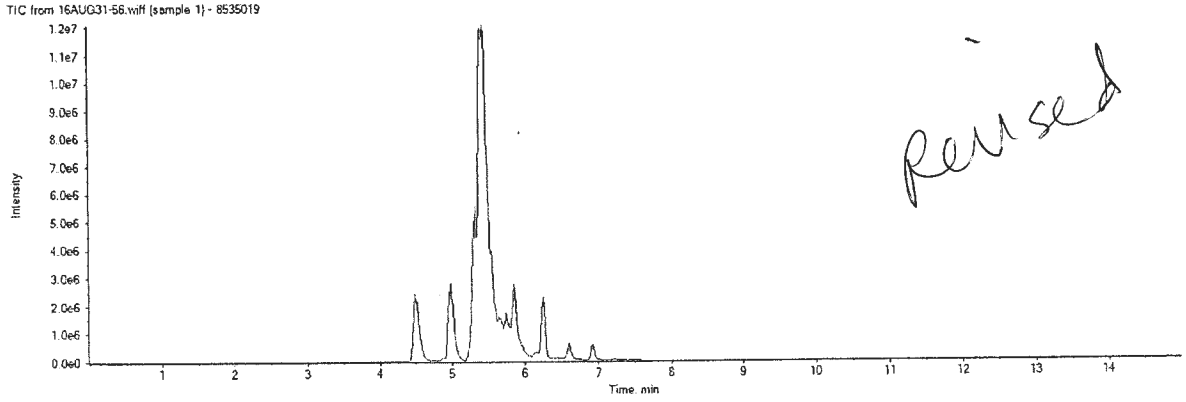
Sample Name:	8535019			**Data File:**		16AUG31-56.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater			**Acquis Date:**		2016-09-01T05:17:32
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	57			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16236005
				ICAL Name:		16AUG26ICAL
Batch Number:	16236005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09995			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.06	0.820	39786.6	A	18O2-PFHxS	4.97	78253.7	0.508	21.289
PFHxA	4.50	1.000	13939524.5	A	13C2-PFHxA	4.49	141312.5	98.643	9392.095
PFHpA	4.98	1.000	16153808.0	A	13C4-PFHpA	4.97	107197.5	150.692	5964.073
PFHxS	4.96	1.000	6627.4	A	18O2-PFHxS	4.97	78253.7	0.085	3.865
PFOA	5.42	1.000	151983454.0	A	13C4-PFOA	5.41	32862.0	4624.894	203497.972
PFNA	5.85	1.000	7780945.1	A	13C5-PFNA	5.85	661990.6	11.754	556.682
PFOS	5.83	1.000	57350.1	M	13C4-PFOS	5.83	173202.1	0.331	16.135
PFDA	6.24	1.000	7116495.7	A	13C2-PFDA	6.24	666721.3	10.674	427.035
PFUnDA	6.60	1.000	673772.9	A	13C2-PFUnDA	6.60	1165899.9	0.578	27.957
PFDoDA	6.91	1.000	524870.1	A	13C2-PFDoDA	6.92	1585445.5	0.331	16.745
PFTrDA	7.22	1.040	141143.6	A	13C2-PFDoDA	6.92	1585445.5	0.089	4.398
PFTeDA	7.51	1.090	64733.1	A	13C2-PFDoDA	6.92	1585445.5	0.041	2.120

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater



Revised

APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

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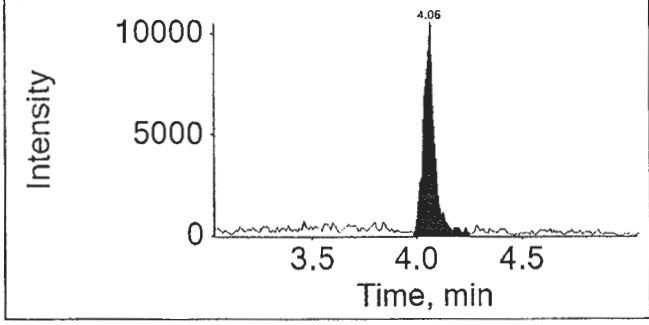
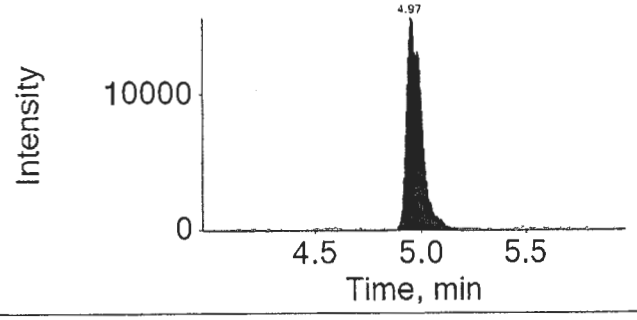
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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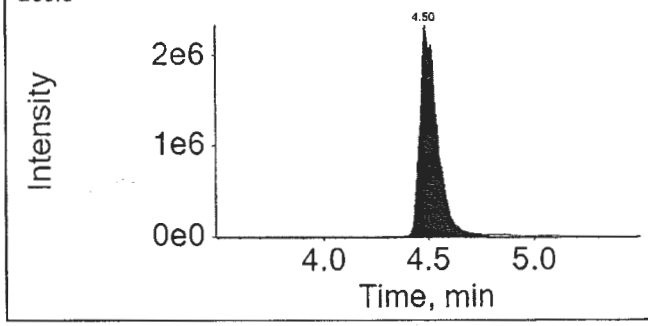
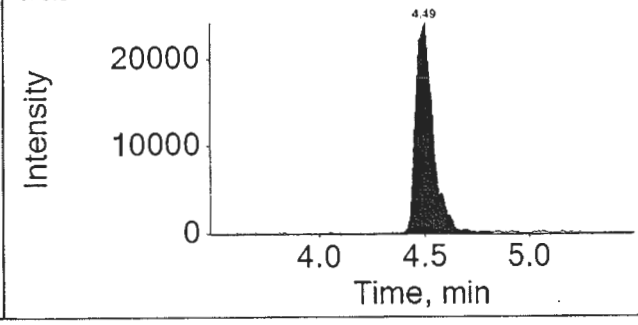
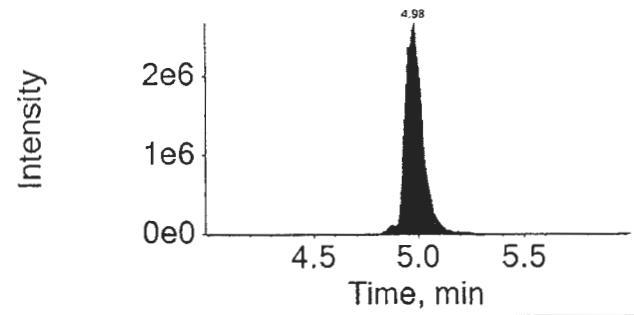
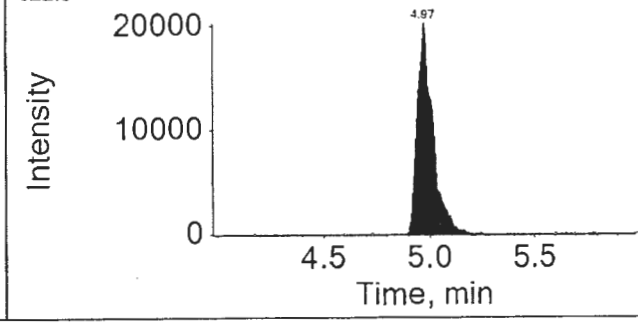
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16AUG31-56.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0





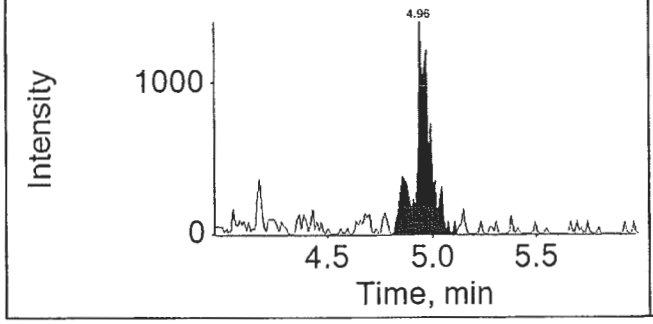
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-56.wiff

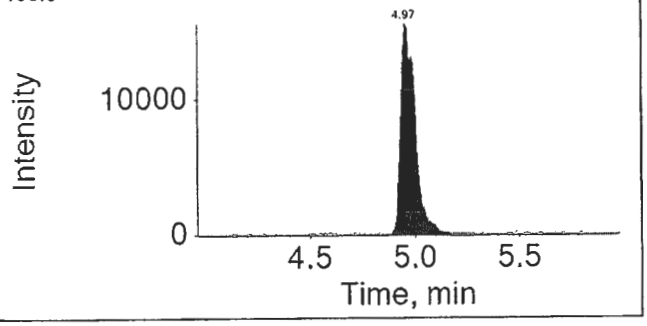
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

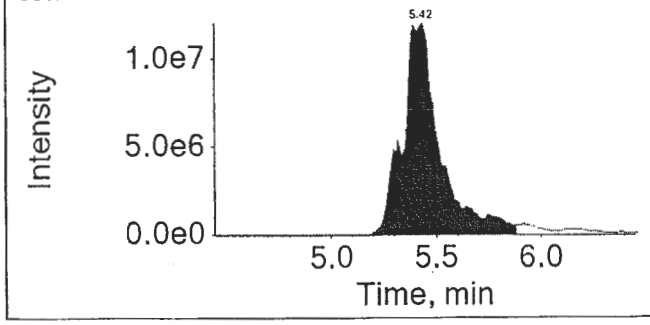
403.0 / 103.0



16AUG31-56.wiff

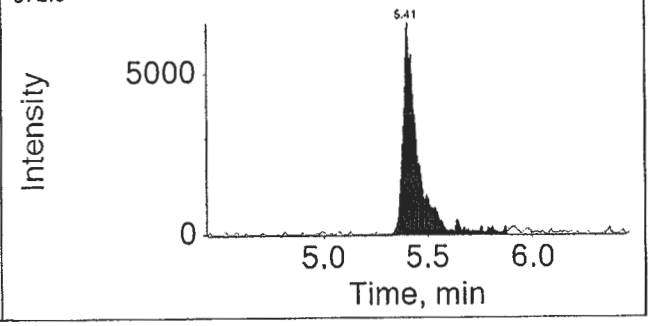
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

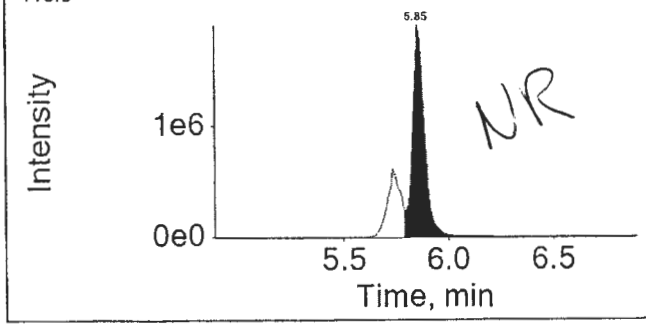
417.0 / 372.0



16AUG31-56.wiff

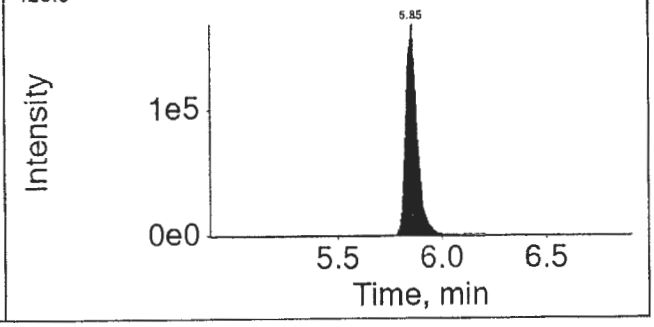
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



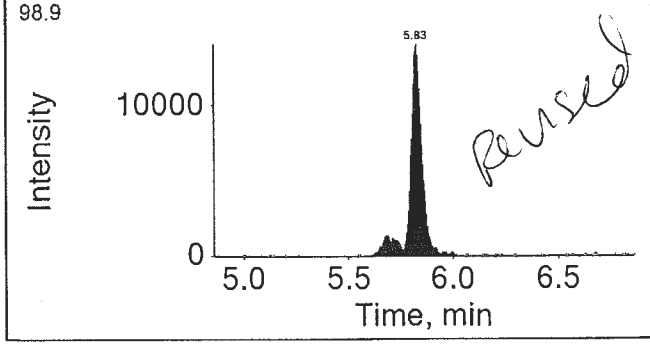
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-56.wiff

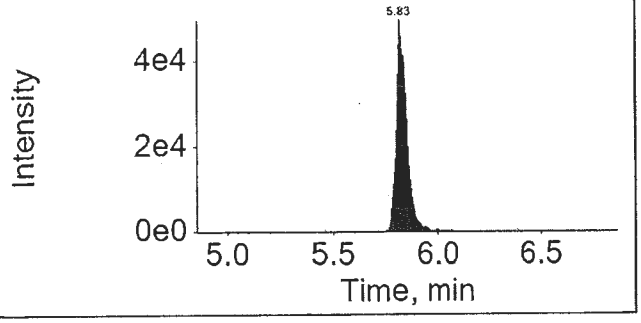
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

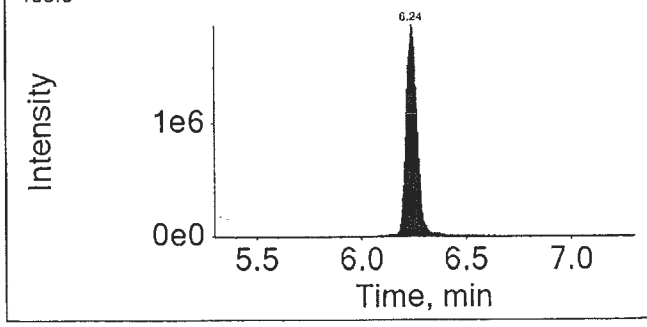
503.0 / 99.0



16AUG31-56.wiff

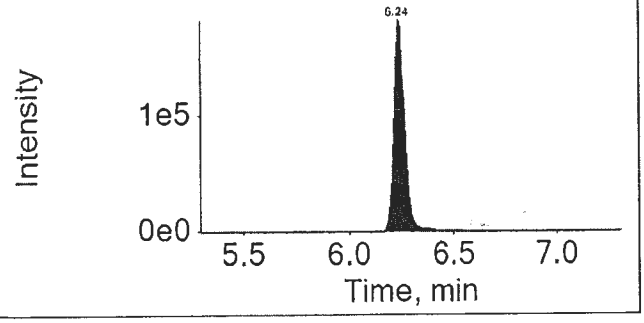
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

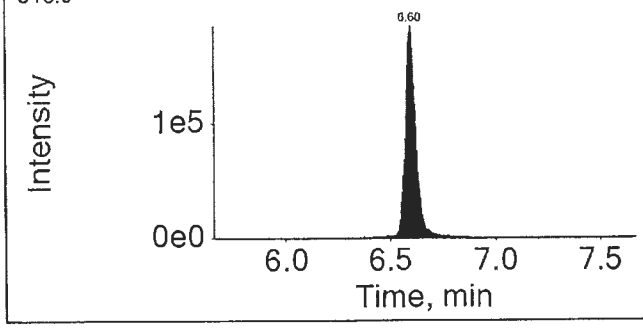
515.0 / 470.0



16AUG31-56.wiff

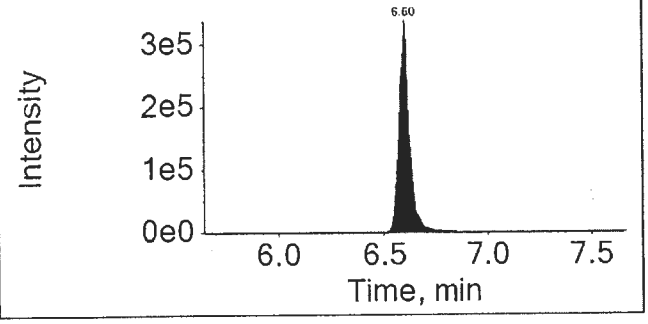
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



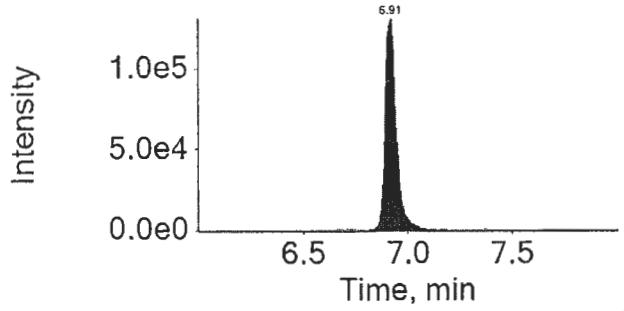
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-56.wiff

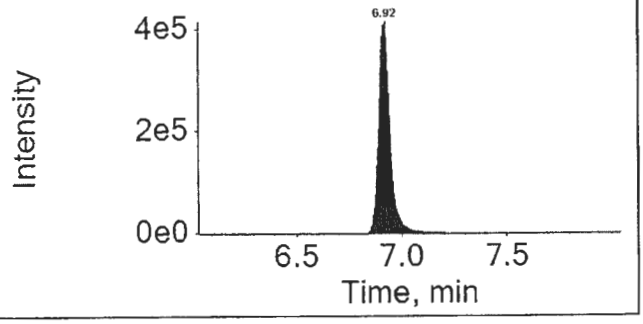
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

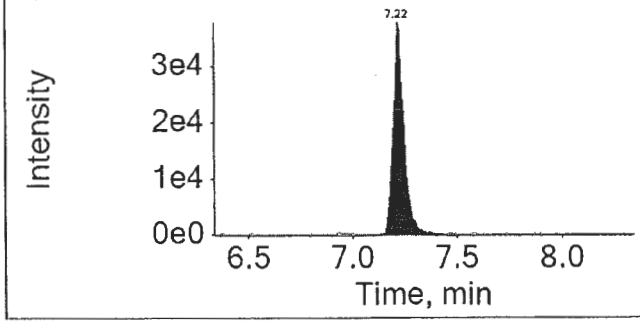
615.0 / 570.0



16AUG31-56.wiff

Analyte: PFTrDA

662.9 / 618.9



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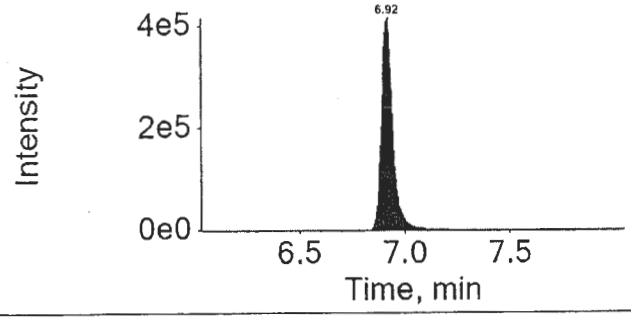
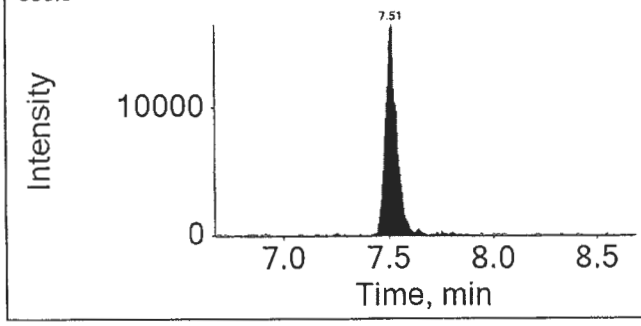
615.0 / 570.0



16AUG31-56.wiff

Analyte: PFTeDA

712.9 / 668.9



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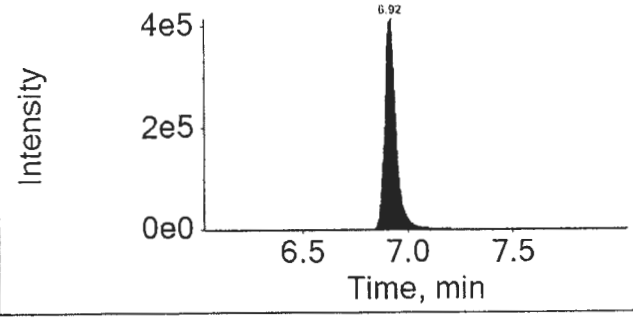

APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

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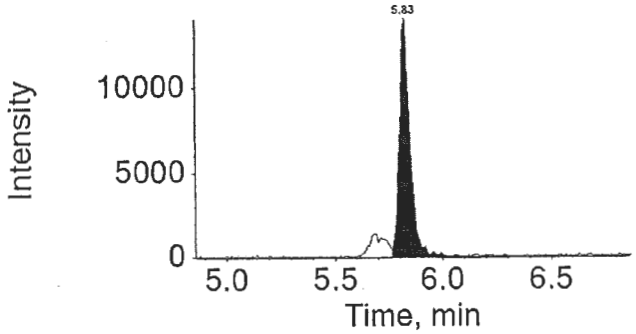
Print Date: 09/06/2017 4:54 PM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-56.wiff	2016-09-01T05:17:32	8535019	PFOS	5.83	50098.5

Component: PFOS
Mass: 498.9 / 98.9



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:52 am, 6/13/17

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.1000 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535019DL
Lab File ID: 16SEP14-15.WIFF
Date Collected: 08/16/2016 12:40
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/14/2016 12:10
Dilution Factor: 10.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	40	U
307-24-4	PFHxA	6800	E
375-85-9	PFHpA	3900	✓
355-46-4	PFHxS	40	U
335-67-1	PFOA	230000	E
375-95-1	PFNA	640	✓
1763-23-1	PFOS	50	U
335-76-2	PFDA	380	✓
2058-94-8	PFUnDA	20	U
307-55-1	PFDoDA	30	U
72629-94-8	PFTrDA	20	U
376-06-7	PFTeDA	30	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

FORM 01 Page 1 of 1

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:01:00 PM

Sample Name:	8535019DL			**Data File:**		16SEP14-15.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater			**Acquis Date:**		2016-09-14T12:10:57
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	60			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16236005DL
				ICAL Name:		16SEP13ICAL
Batch Number:	16236005			**Operator:**		~~US19\NS00015\4500TRIPLE~~
Sample Wt.:	0.09995			**Dilution Factor:**		10.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.05	0.820	8946.9	A	18O2-PFHxS	4.95	243567.3	0.037	13.315
PFHxA	4.48	1.000	6438375.7	A	13C2-PFHxA	4.48	694830.5	~~9.266~~	6796.068
PFHpA	4.95	1.000	5336365.8	A	13C4-PFHpA	4.96	580910.5	9.186	3919.474
PFHxS	4.95	1.000	2781.4	M	18O2-PFHxS	4.95	243567.3	~~0.011~~	4.669
PFOA	5.40	1.000	75605290.3	M	13C4-PFOA	5.40	135886.4	556.386	234468.039
PFNA	5.82	1.000	1935986.3	M	13C5-PFNA	5.81	1289929.5	1.501	641.323
PFOS	5.79	1.000	10034.7	A	13C4-PFOS	5.79	301509.2	0.033	15.693
PFDA	6.19	1.000	1182038.7	A	13C2-PFDA	6.18	1052364.9	1.123	382.099
PFUnDA	6.52	1.000	65153.3	A	13C2-PFUnDA	6.52	1430793.8	0.046	19.455
PFDoDA	6.83	1.000	52973.0	A	13C2-PFDoDA	6.82	1566498.0	0.034	15.492
PFTrDA	7.11	1.040	13290.5	A	13C2-PFDoDA	6.82	1566498.0	0.008	3.926
PFTeDA	7.38	1.080	7382.9	M	13C2-PFDoDA	6.82	1566498.0	0.005	2.548

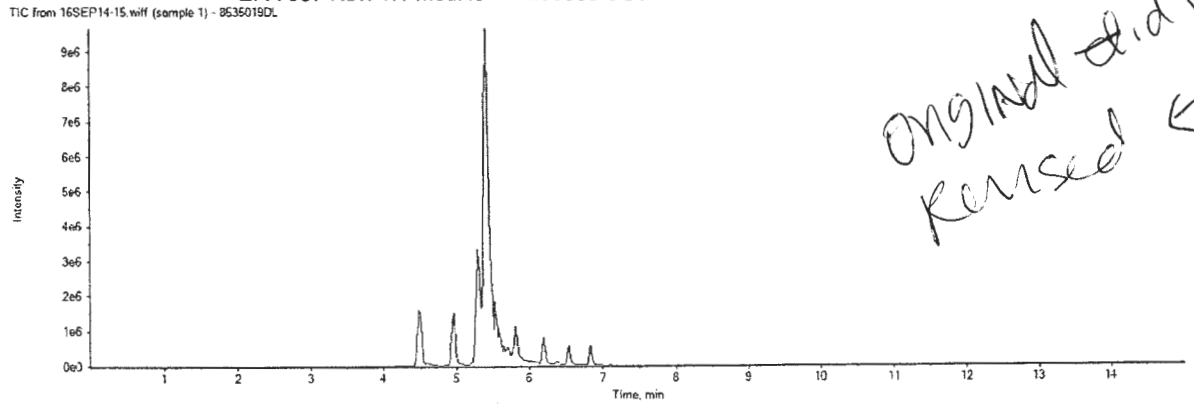
> cal range of 9.018 but in conc.

E

E

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater



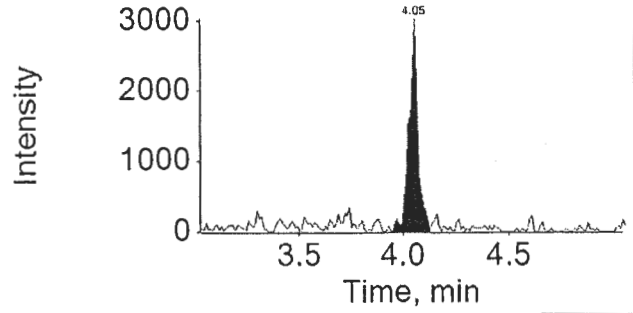
ORIGINAL did not include branched

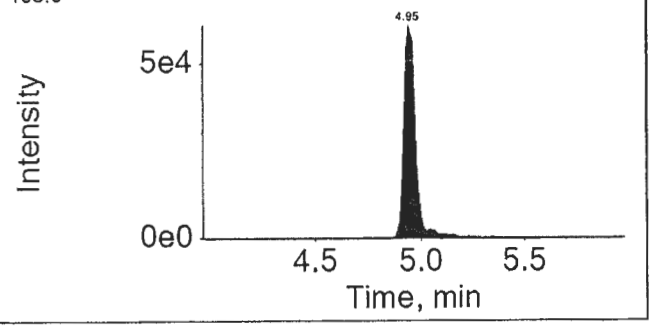
Rerun ←

APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:11 am, 6/13/17

16SEP14-15.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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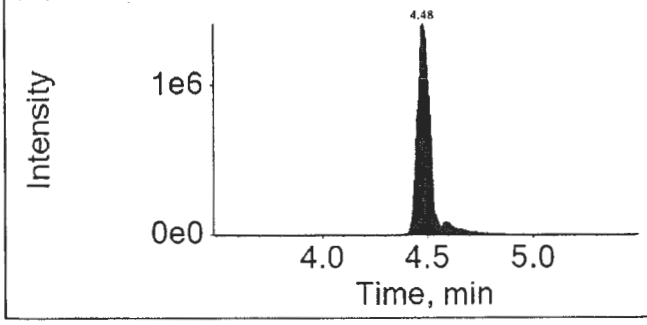
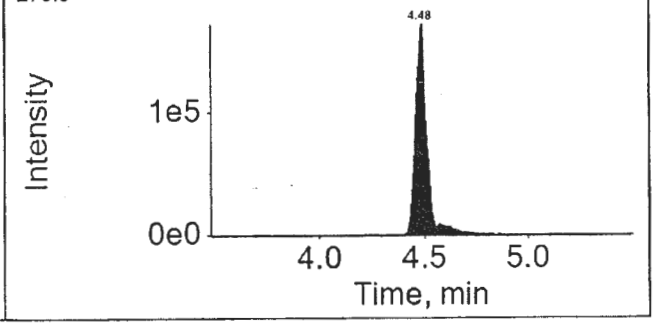
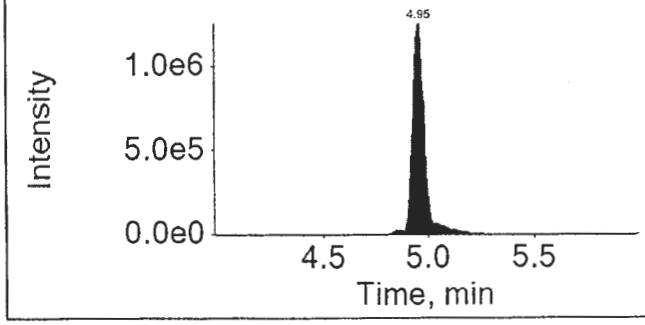
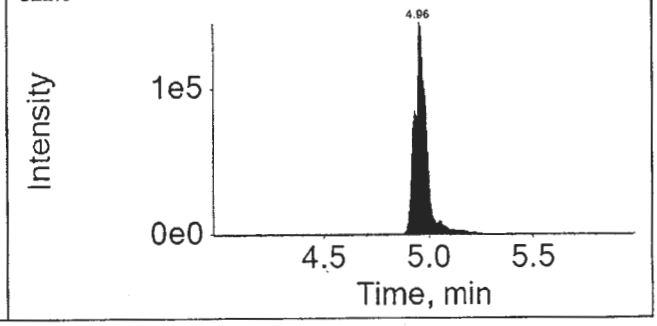
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16SEP14-15.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0





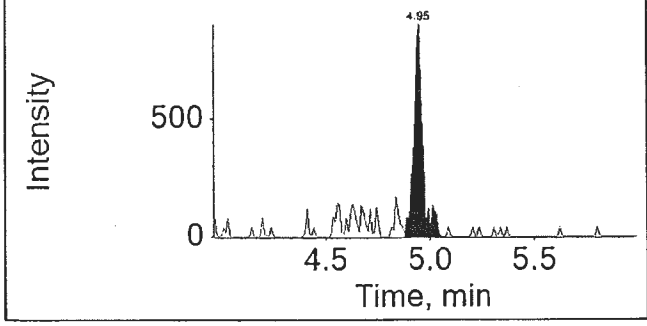
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:11 am, 6/13/17

16SEP14-15.wiff

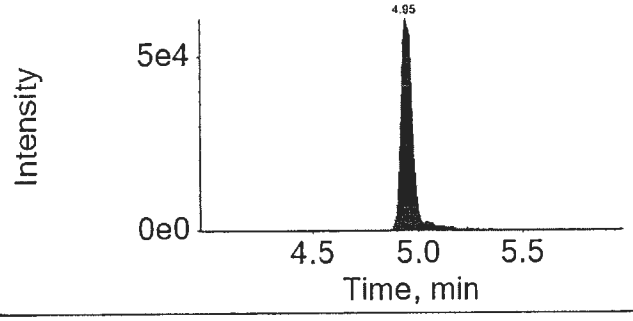
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

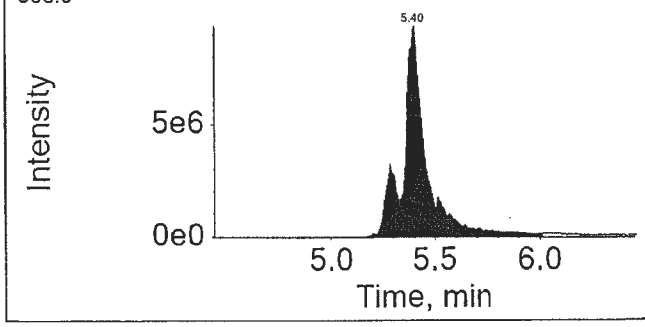
403.0 / 103.0



16SEP14-15.wiff

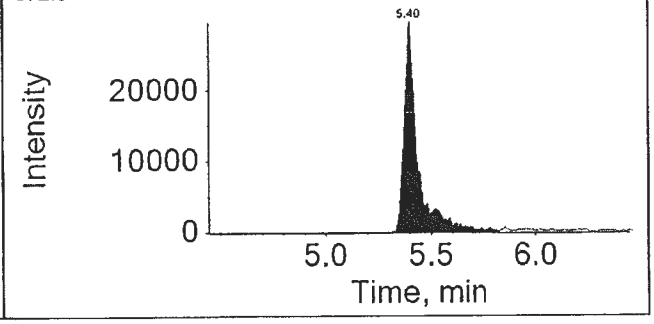
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

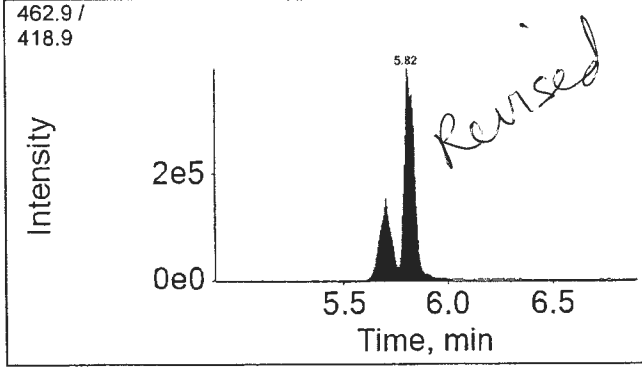
417.0 / 372.0



16SEP14-15.wiff

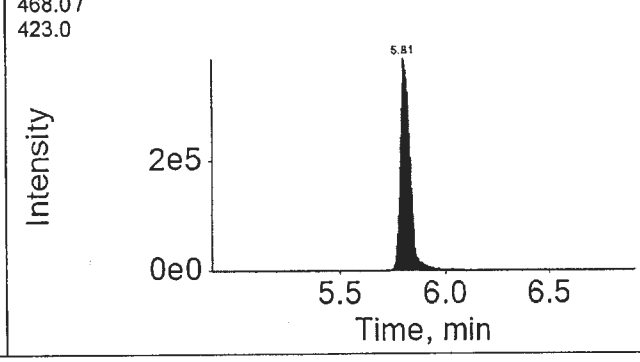
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



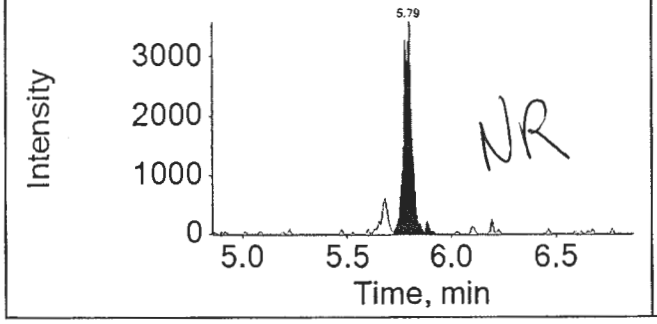
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:11 am, 6/13/17

16SEP14-15.wiff

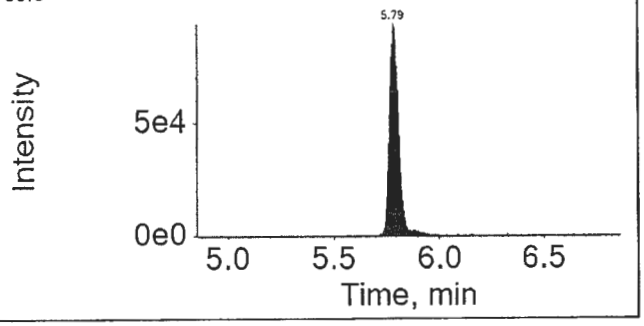
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

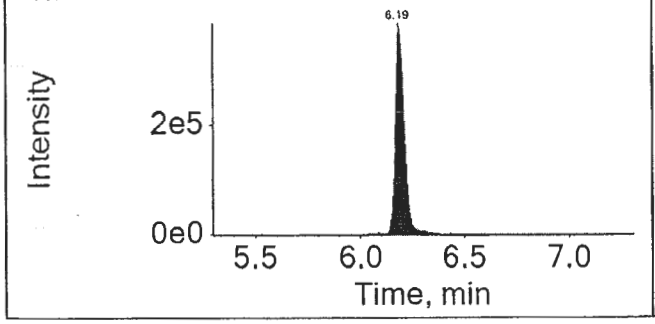
503.0 / 99.0



16SEP14-15.wiff

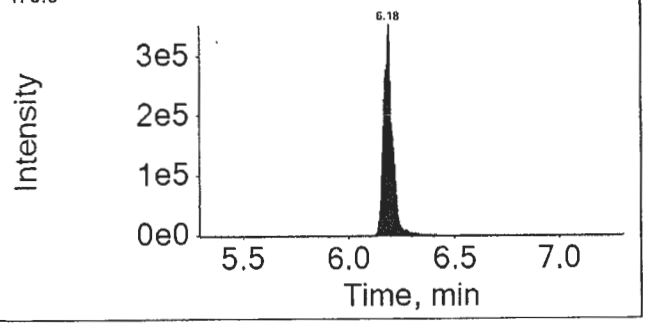
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

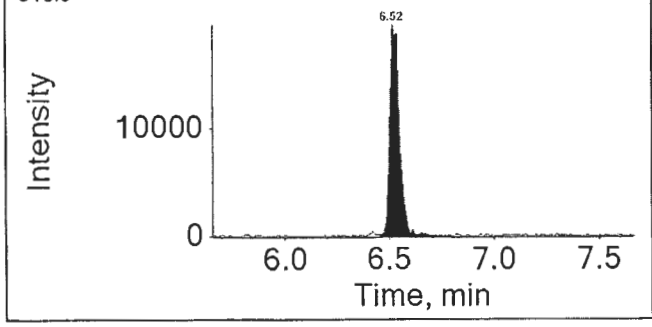
515.0 / 470.0



16SEP14-15.wiff

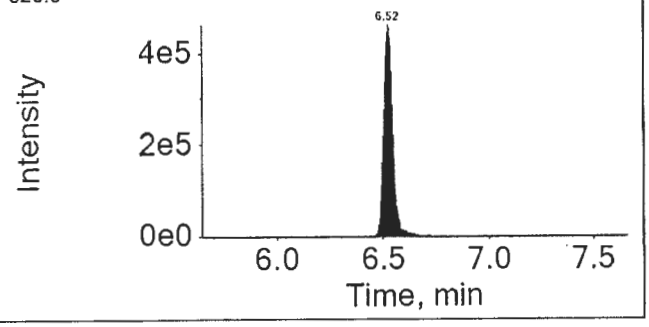
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



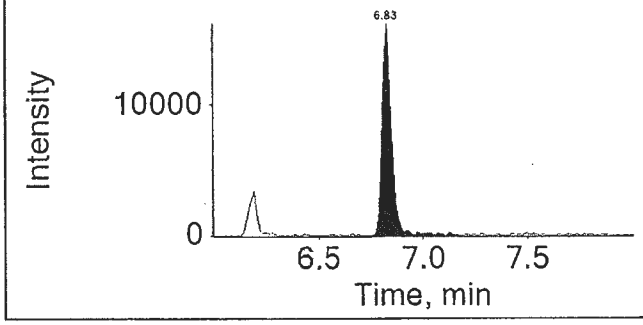
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:11 am, 6/13/17

16SEP14-15.wiff

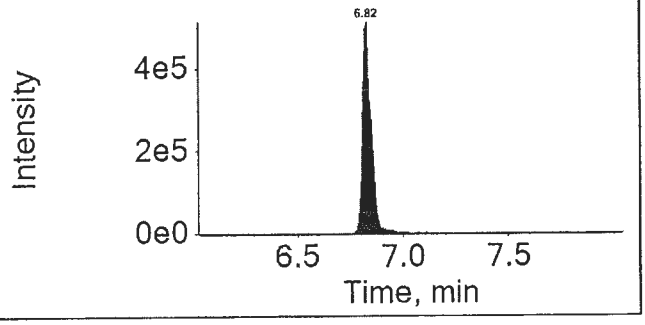
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

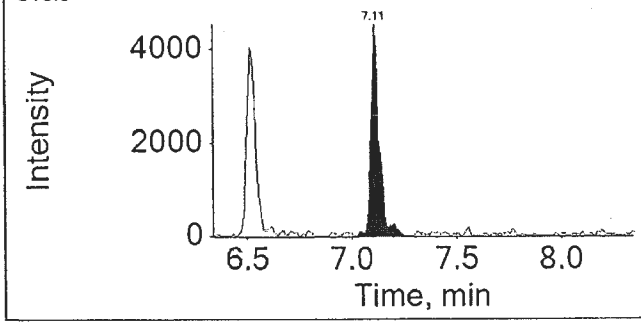
615.0 / 570.0



16SEP14-15.wiff

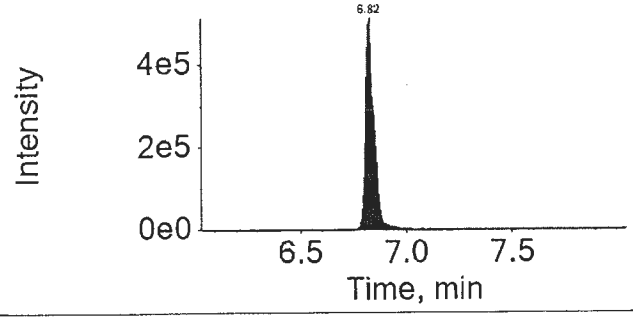
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

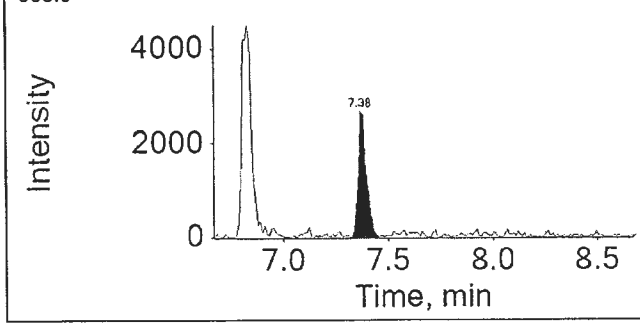
615.0 / 570.0



16SEP14-15.wiff

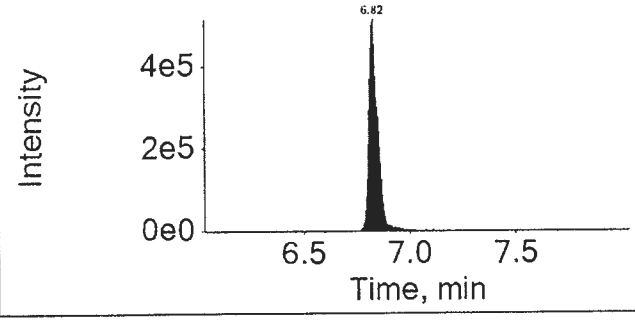
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:11 am, 6/13/17

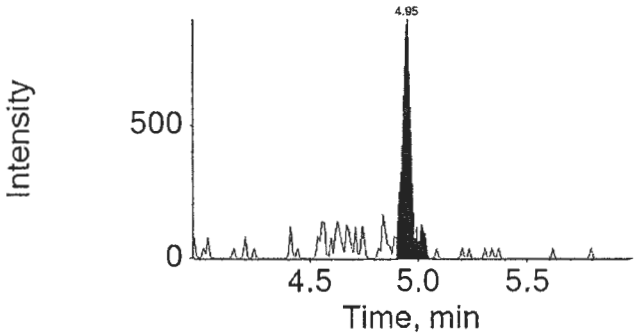
eurofins | Lancaster Laboratories

Print Date: 09/06/2017 5:03 PM

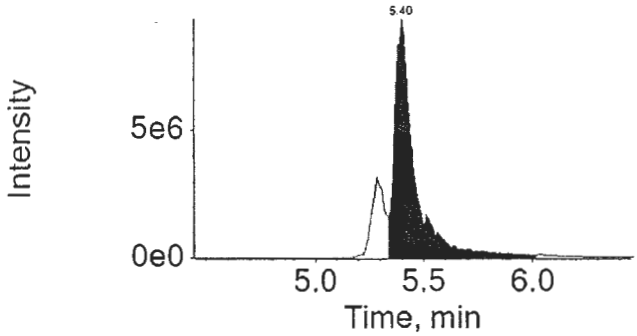
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-15.wiff	2016-09-14T12:10:57	8535019DL	PFHxS	4.95	2699.6
16SEP14-15.wiff	2016-09-14T12:10:57	8535019DL	PFOA	5.40	62447307.5
16SEP14-15.wiff	2016-09-14T12:10:57	8535019DL	PFNA	5.82	1358176.6
16SEP14-15.wiff	2016-09-14T12:10:57	8535019DL	PFTeDA	7.38	8785.2

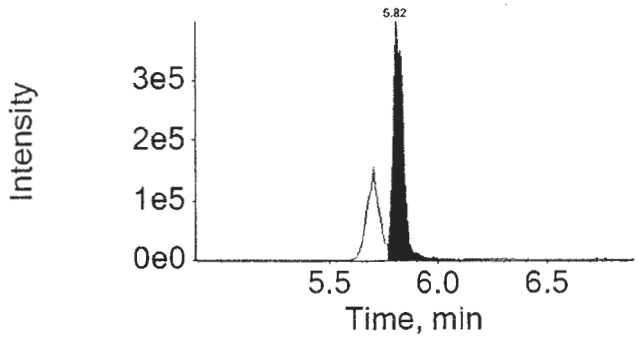
Component: PFHxS
Mass: 398.9 / 99.0



Component: PFOA
Mass: 412.9 / 368.9



Component: PFNA
Mass: 462.9 / 418.9



APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:10 am, 6/13/17

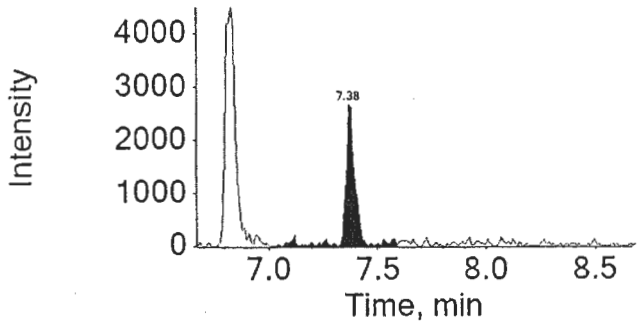
eurofins | Lancaster Laboratories

Print Date: 09/06/2017 5:03 PM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFTeDA
Mass: 712.9 / 668.9



APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:10 am, 6/13/17

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.1000 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535019DL2
Lab File ID: 16SEP14-12.WIFF
Date Collected: 08/16/2016 12:40
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/14/2016 11:21
Dilution Factor: 100.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	400	U
307-24-4	PFHxA	6900	
375-85-9	PFHpA	3600	
355-46-4	PFHxS	400	U
335-67-1	PFOA	280000	E
375-95-1	PFNA	420	
1763-23-1	PFOS	500	U
335-76-2	PFDA	370	
2058-94-8	PFUnDA	200	U
307-55-1	PFDoDA	300	U
72629-94-8	PFTrDA	200	U
376-06-7	PFTeDA	300	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

FORM 01 Page 1 of 1

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:01:00 PM

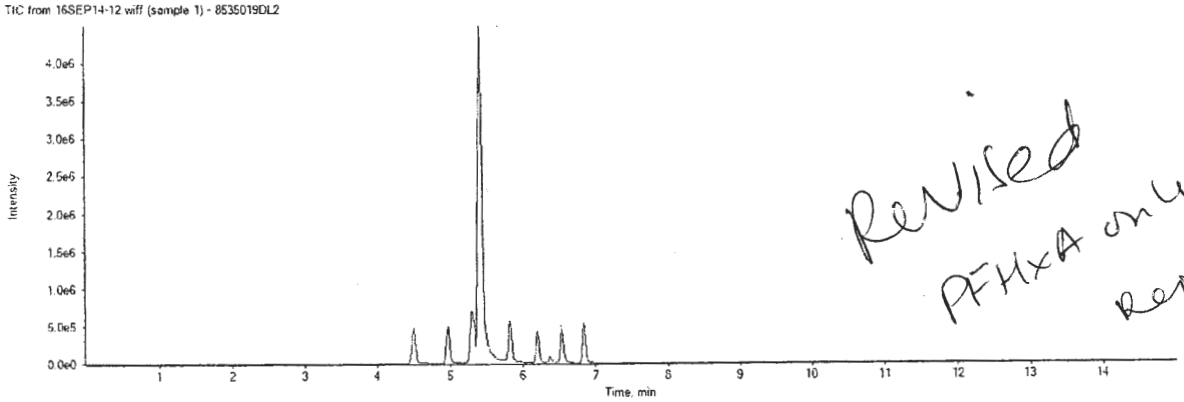
Sample Name:	8535019DL2			**Data File:**		16SEP14-12.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater			**Acquis Date:**		2016-09-14T11:21:45
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	59			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16236005DL
				ICAL Name:		16SEP13ICAL
Batch Number:	16236005			**Operator:**		~~US1910NS00015~~\4500TRIPLE
Sample Wt.:	0.09995			**Dilution Factor:**		100.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.05	0.820	1063.2	A	18O2-PFHxS	4.96	275919.2	0.004	13.967
PFHxA	4.49	1.000	848734.3	A	13C2-PFHxA	4.49	897594.9	0.946	6935.083
PFHpA	4.96	1.000	720331.7	A	13C4-PFHpA	4.96	852695.9	0.845	3604.374
PFHxS	4.96	1.000	1751.0	A	18O2-PFHxS	4.96	275919.2	0.006	25.945
PFOA	5.41	1.000	23176865.4	M	13C4-PFOA	5.41	347841.7	66.630	280789.320
PFNA	5.82	1.000	145242.3	A	13C5-PFNA	5.82	1467002.4	0.099	423.061
PFOS	5.81	1.000	969.3	M	13C4-PFOS	5.80	306638.5	0.003	14.905
PFDA	6.20	1.000	119490.5	A	13C2-PFDA	6.20	1106564.4	0.108	367.339
PFUnDA	6.54	1.000	9068.5	A	13C2-PFUnDA	6.53	1268217.6	0.007	30.550
PFDoDA	6.84	1.000	6659.4	A	13C2-PFDoDA	6.84	1516426.9	0.004	20.119
PFTrDA	7.12	1.040	2149.3	A	13C2-PFDoDA	6.84	1516426.9	0.001	6.559
PFTeDA	7.39	1.080	2346.8	A	13C2-PFDoDA	6.84	1516426.9	0.002	8.366

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater



Revised
PFHxA only
reported

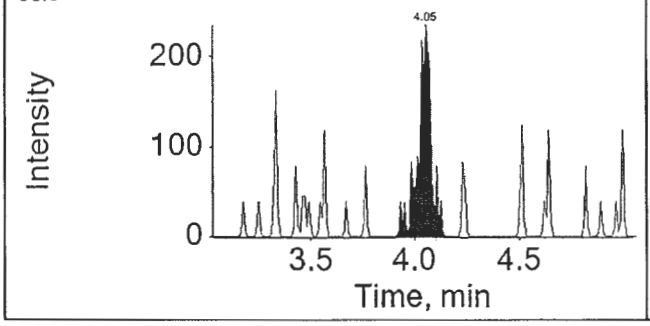
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:11 am, 6/13/17

16SEP14-12.wiff

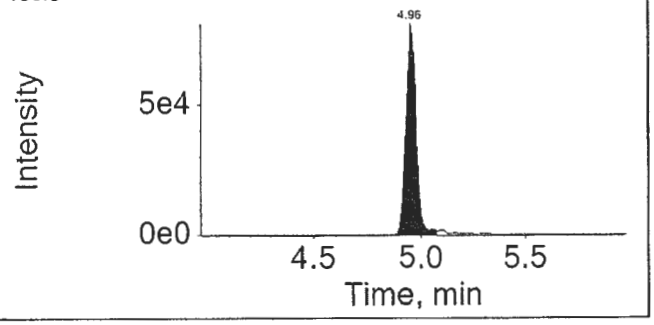
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

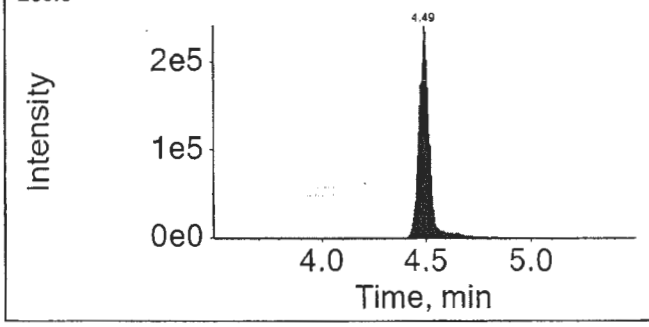
403.0 / 103.0



16SEP14-12.wiff

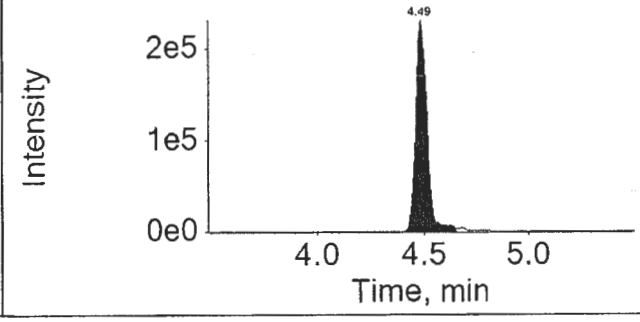
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

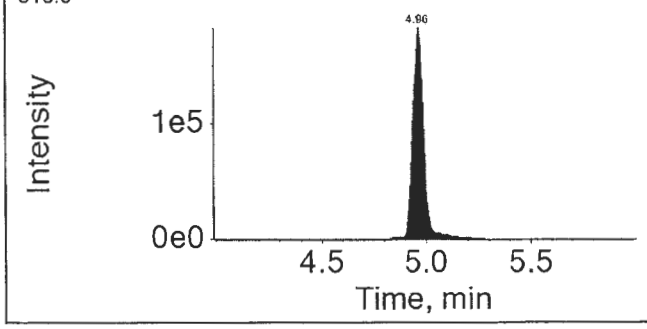
314.9 / 270.0



16SEP14-12.wiff

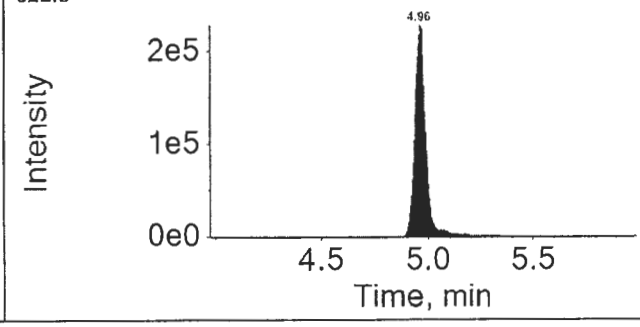
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



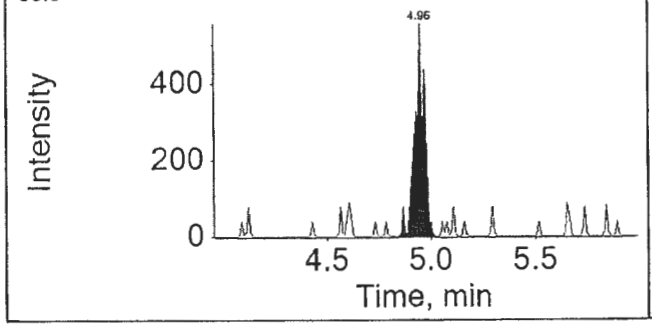
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:11 am, 6/13/17

16SEP14-12.wiff

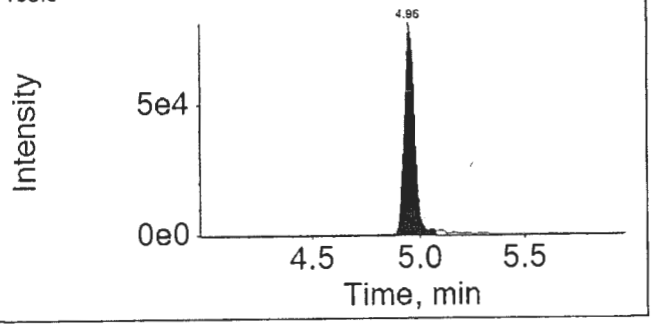
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

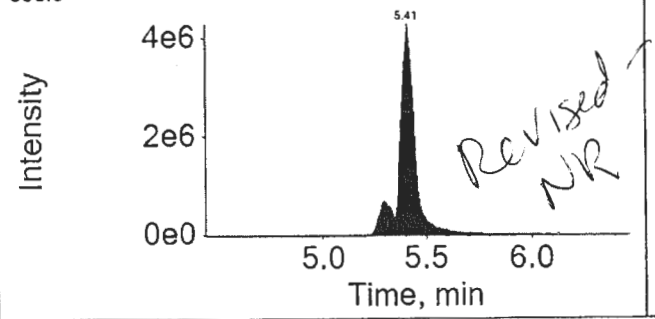
403.0 / 103.0



16SEP14-12.wiff

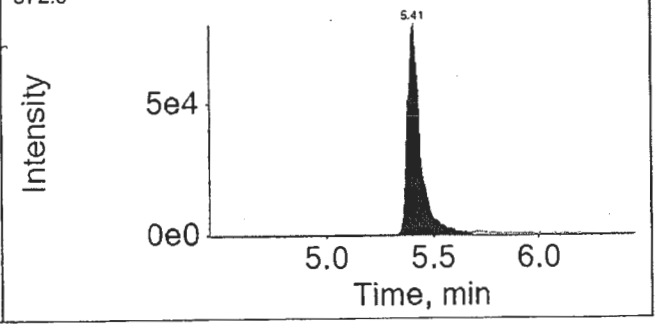
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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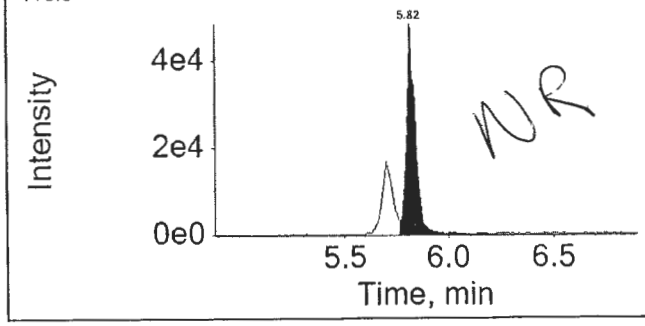
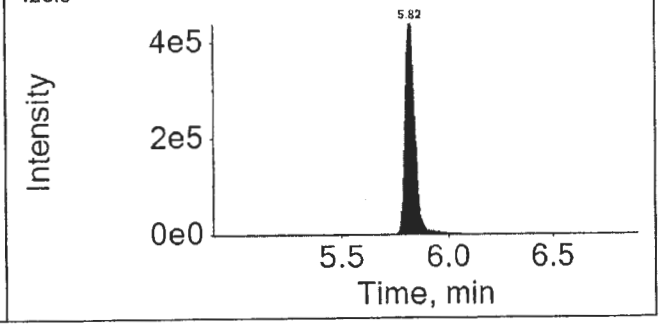
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



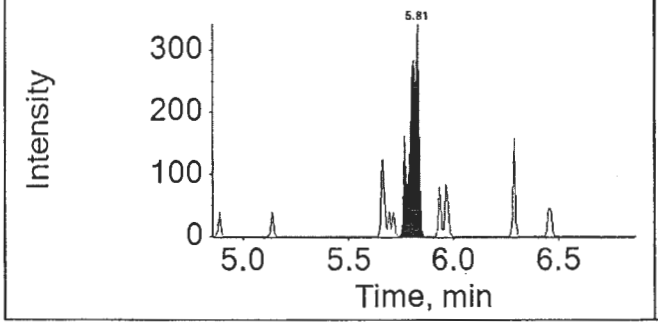
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:11 am, 6/13/17

16SEP14-12.wiff

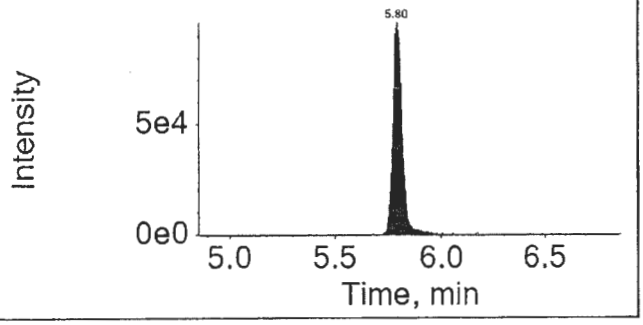
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

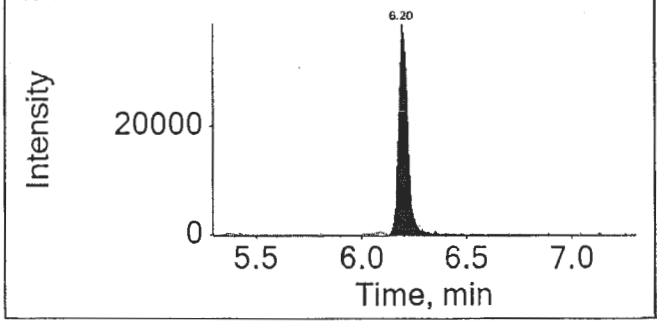
503.0 / 99.0



16SEP14-12.wiff

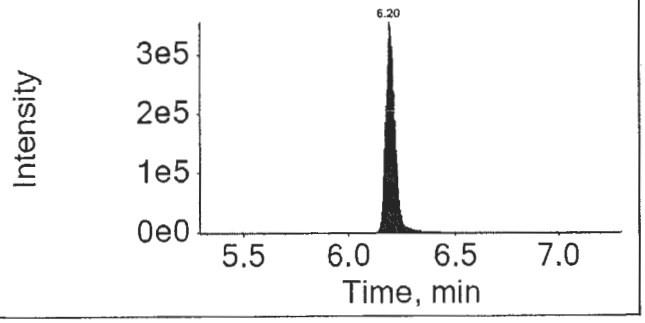
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

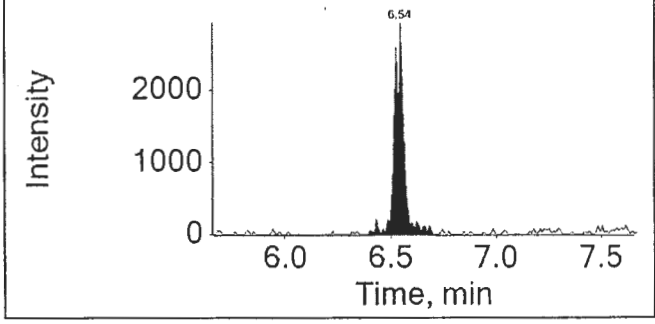
515.0 / 470.0



16SEP14-12.wiff

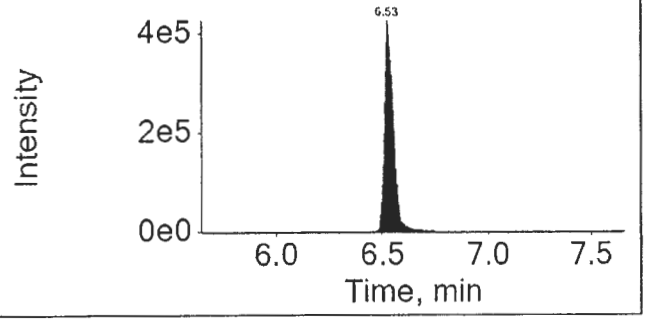
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



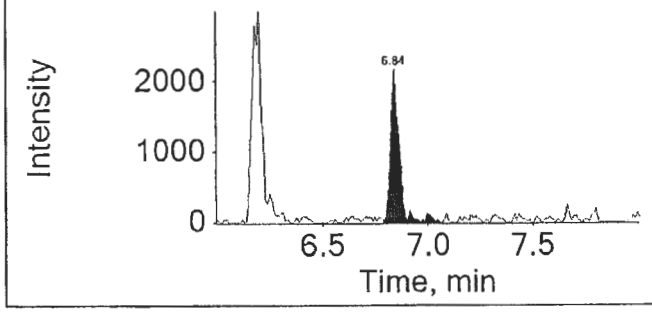
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:11 am, 6/13/17

16SEP14-12.wiff

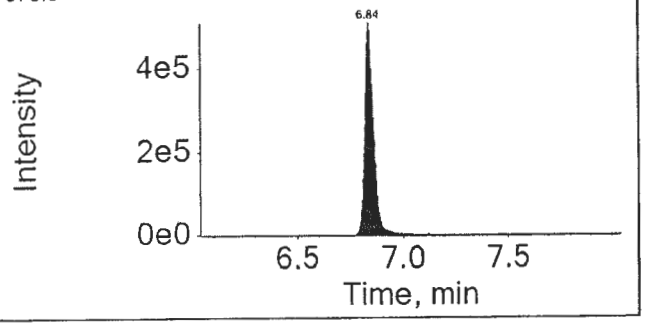
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

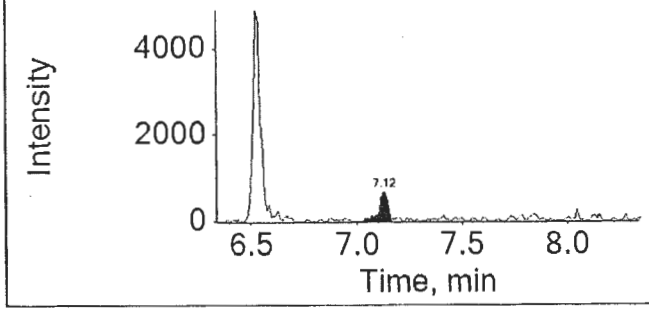
615.0 / 570.0



16SEP14-12.wiff

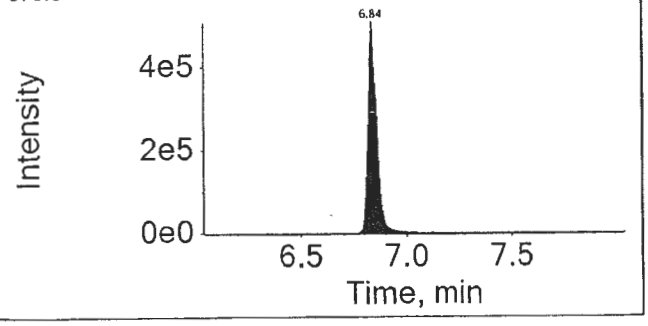
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

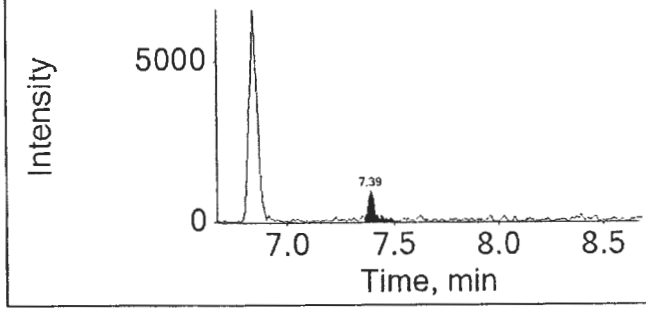
615.0 / 570.0



16SEP14-12.wiff

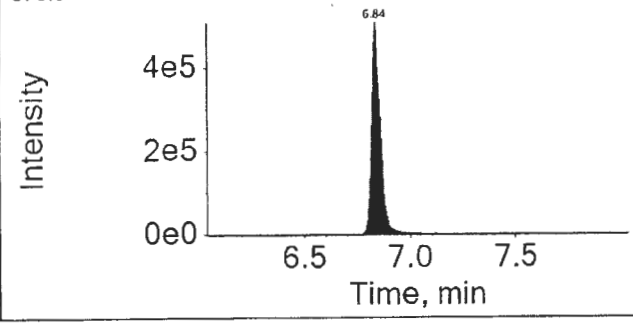
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:11 am, 6/13/17

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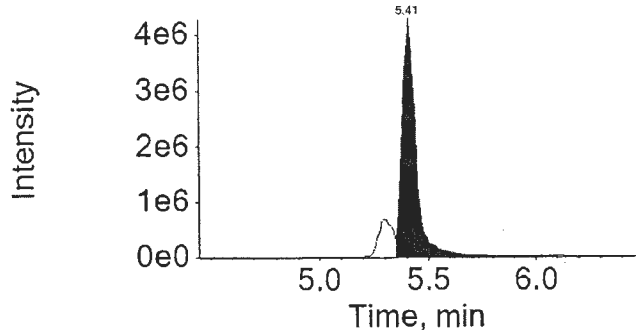
Print Date: 09/06/2017 5:03 PM

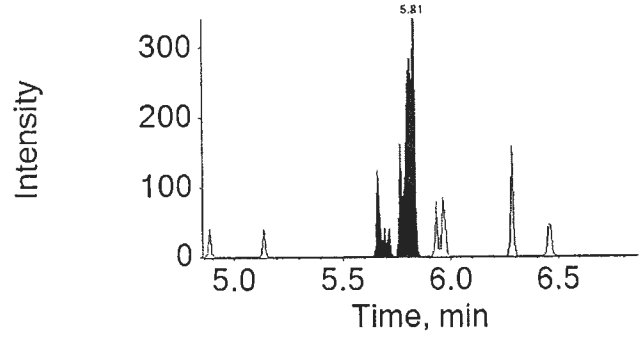
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-12.wiff	2016-09-14T11:21:45	8535019DL2	PFOA	5.41	20105955.4
16SEP14-12.wiff	2016-09-14T11:21:45	8535019DL2	PFOS	5.81	1157.0

Component: PFOA
Mass: 412.9 / 368.9



Component: PFOS
Mass: 498.9 / 98.9



APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:10 am, 6/13/17

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.1000 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535019DL3
Lab File ID: 16SEP14-95.WIFF
Date Collected: 08/16/2016 12:40
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/15/2016 08:23
Dilution Factor: 1000.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4000	U
307-24-4	PFHxA	6100	
375-85-9	PFHpA	3900	
355-46-4	PFHxS	4000	U
335-67-1	PFOA	190000	
375-95-1	PFNA	1000	U
1763-23-1	PFOS	5000	U
335-76-2	PFDA	1000	U
2058-94-8	PFUnDA	2000	U
307-55-1	PFDoDA	3000	U
72629-94-8	PFTrDA	2000	U
376-06-7	PFTeDA	3000	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:02:00 PM

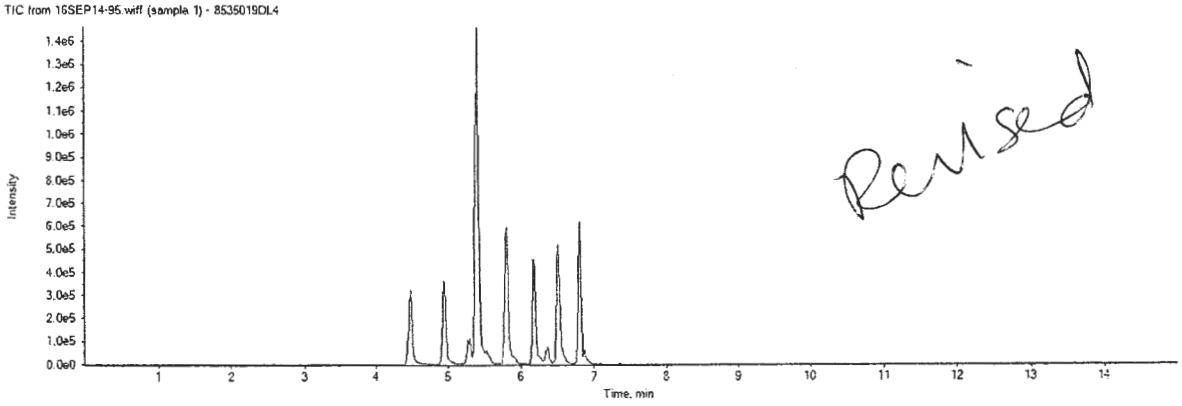
Sample Name:	8535019DL3			**Data File:**		16SEP14-95.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater			**Acquis Date:**		2016-09-15T08:23:45
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	58			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16236005DL
				ICAL Name:		16SEP13ICAL
Batch Number:	16236005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09995			**Dilution Factor:**		1000.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	4.04	0.820	1188.3	A	18O2-PFHxS	4.94	334969.2	0.004	128.581
PFHxA	4.48	1.000	89229.9	A	13C2-PFHxA	4.48	1078714.4	0.083	6066.864
PFHpA	4.94	1.000	77814.3	A	13C4-PFHpA	4.95	841685.4	0.092	3944.581
PFHxS	4.93	1.000	2376.6	A	18O2-PFHxS	4.94	334969.2	0.007	290.066
PFOA	5.39	1.000	4619217.8	M	13C4-PFOA	5.39	1038464.7	4.448	187449.485
PFNA	5.81	1.000	17391.0	A	13C5-PFNA	5.80	1763804.5	0.010	421.322
PFOS	5.78	1.000	906.9	A	13C4-PFOS	5.78	356606.0	0.003	119.908
PFDA	6.17	1.000	15945.7	A	13C2-PFDA	6.17	1480576.1	0.011	366.374
PFUnDA	6.50	1.000	6941.5	A	13C2-PFUnDA	6.50	1509058.2	0.005	196.523
PFDoDA	6.81	1.000	5470.4	A	13C2-PFDoDA	6.81	1882484.9	0.003	133.133
PFTrDA	7.09	1.040	3908.5	A	13C2-PFDoDA	6.81	1882484.9	0.002	96.087
PFTeDA	7.35	1.080	5034.6	A	13C2-PFDoDA	6.81	1882484.9	0.003	144.571

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-BLDGOUTLET-160816 Grab Wastewater



Revised

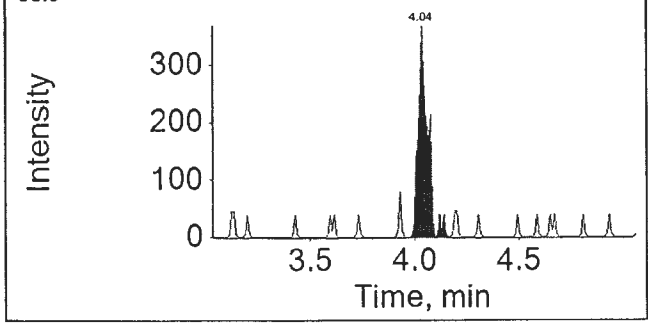
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:11 am, 6/13/17

16SEP14-95.wiff

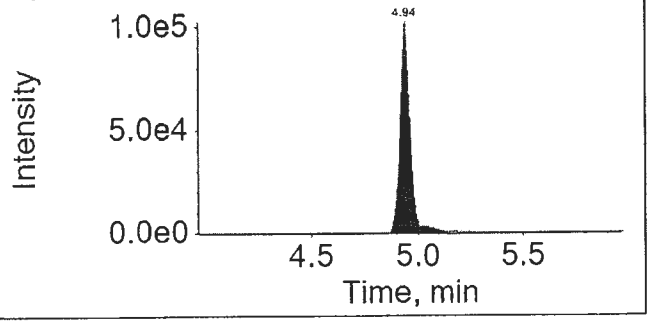
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

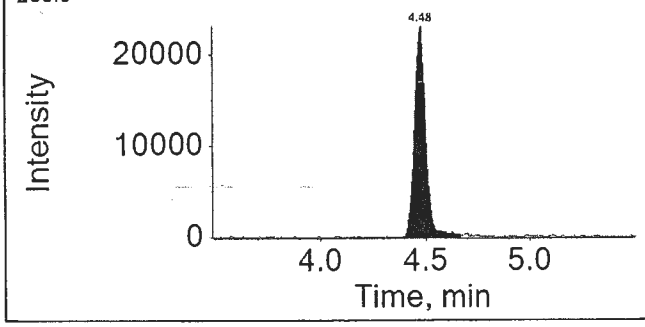
403.0 / 103.0



16SEP14-95.wiff

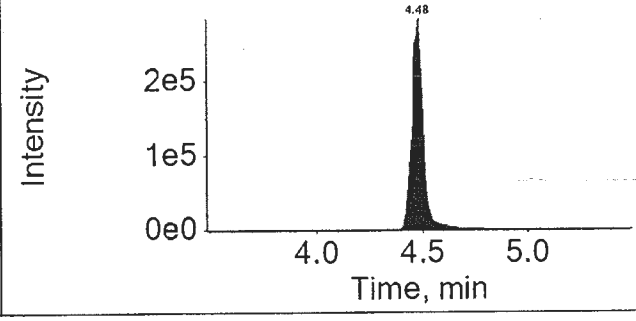
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

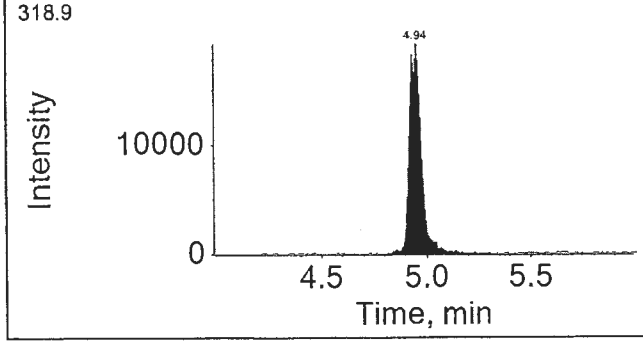
314.9 / 270.0



16SEP14-95.wiff

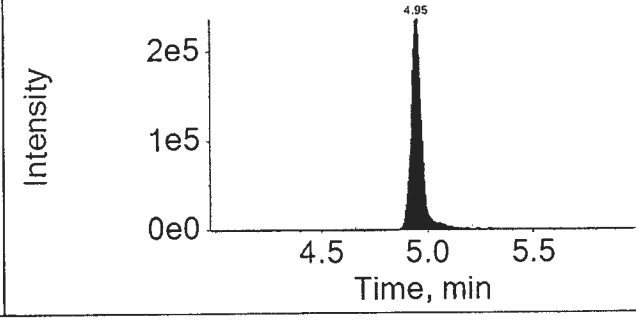
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



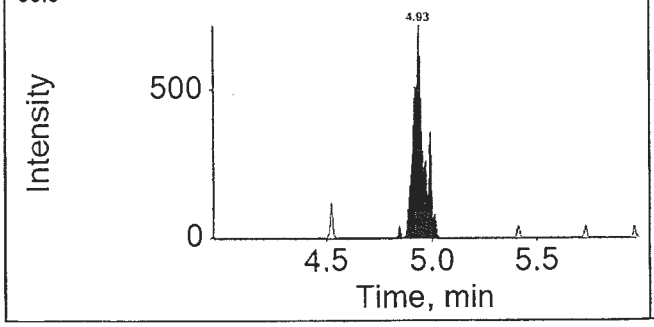
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:11 am, 6/13/17

16SEP14-95.wiff

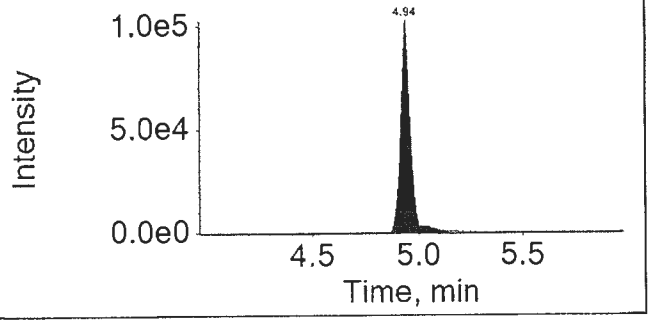
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

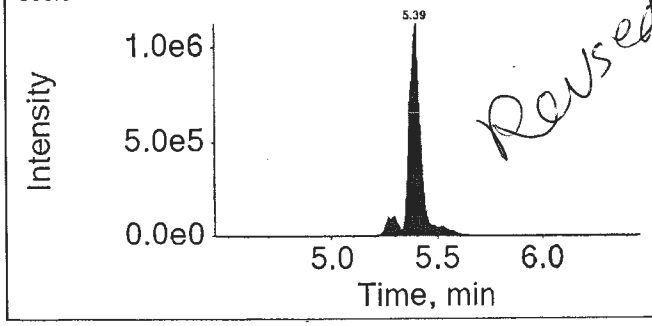
403.0 / 103.0



16SEP14-95.wiff

Analyte: PFOA

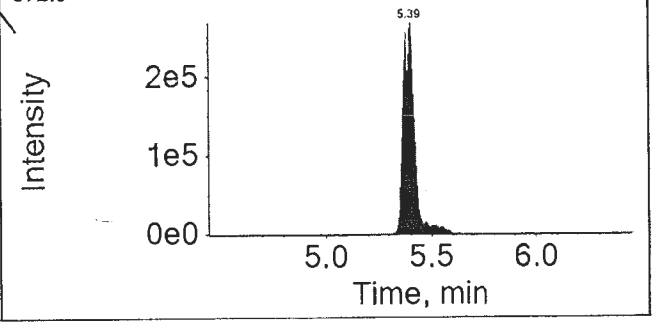
412.9 / 368.9



Reused

Internal Standard: 13C4-PFOA

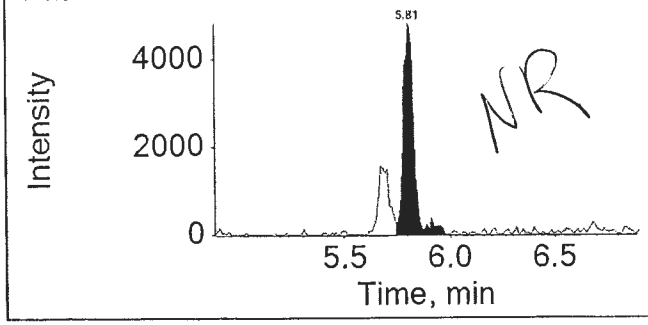
417.0 / 372.0



16SEP14-95.wiff

Analyte: PFNA

462.9 / 418.9



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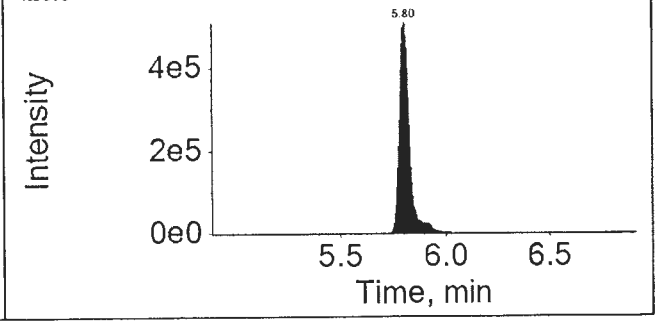
Internal Standard: 13C5-PFNA

468.0 / 423.0



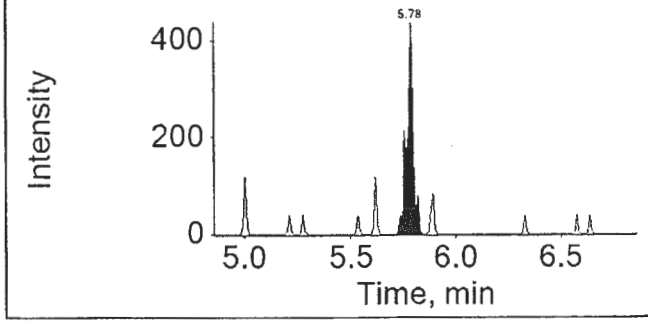
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:11 am, 6/13/17

16SEP14-95.wiff

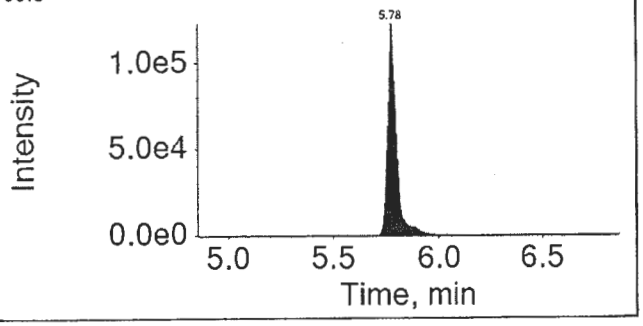
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

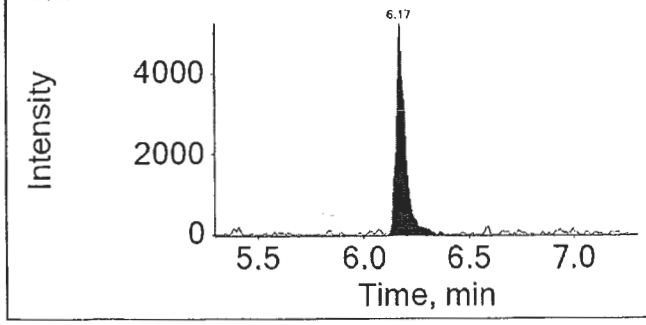
503.0 / 99.0



16SEP14-95.wiff

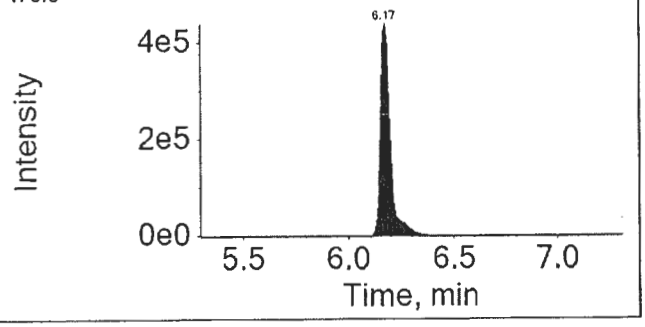
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

515.0 / 470.0



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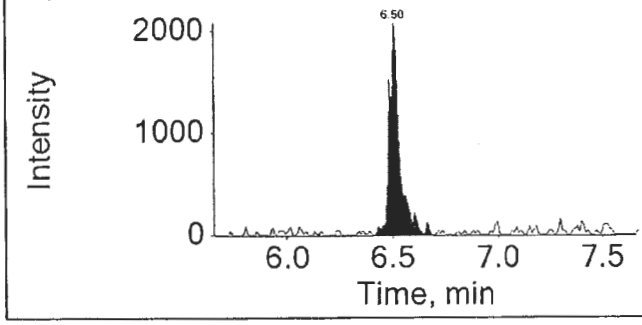
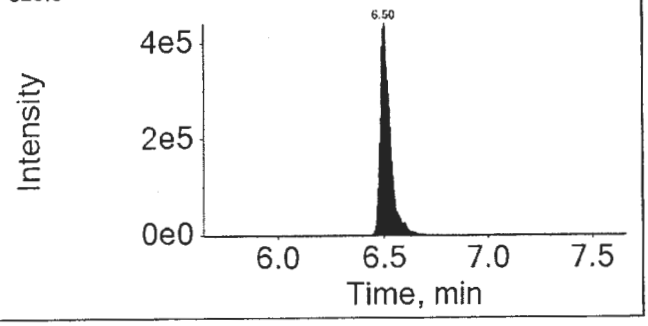
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



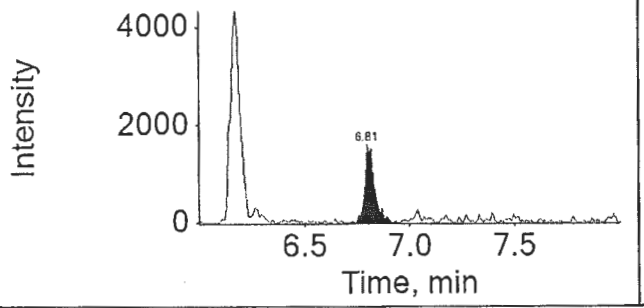
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:11 am, 6/13/17

16SEP14-95.wiff

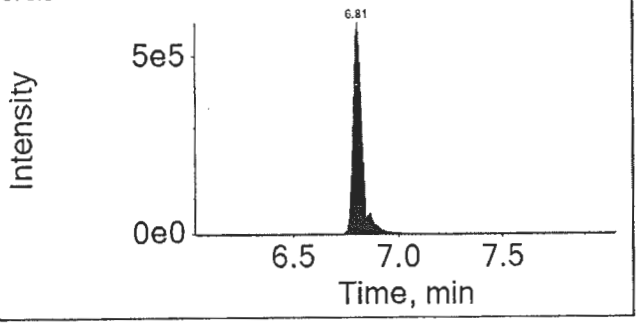
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

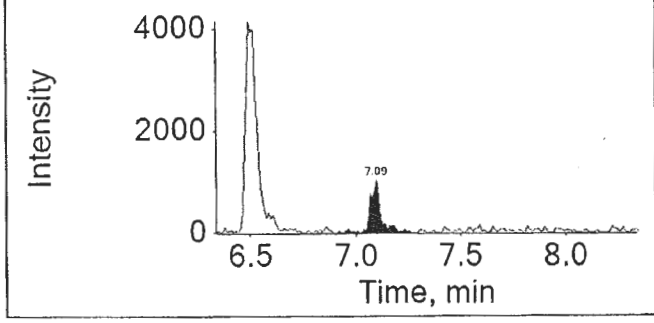
615.0 / 570.0



16SEP14-95.wiff

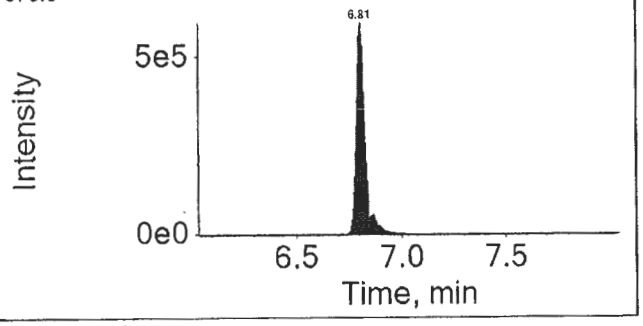
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

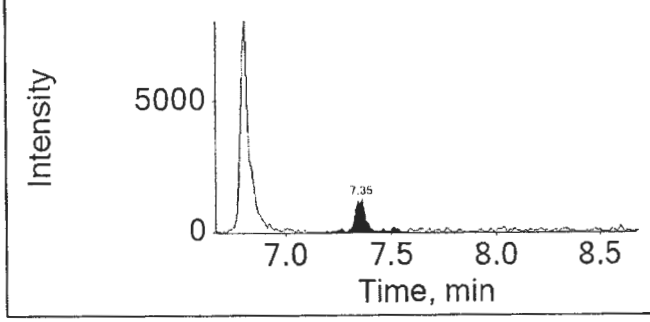
615.0 / 570.0



16SEP14-95.wiff

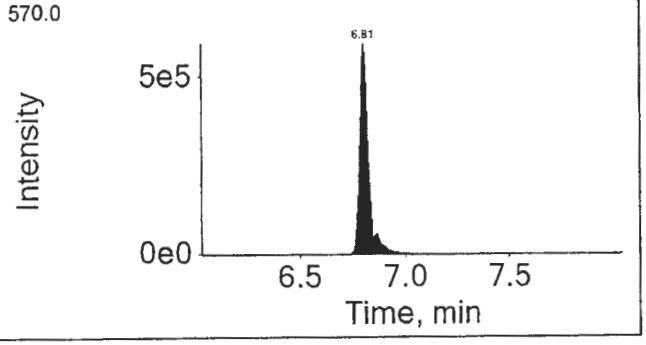
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:11 am, 6/13/17

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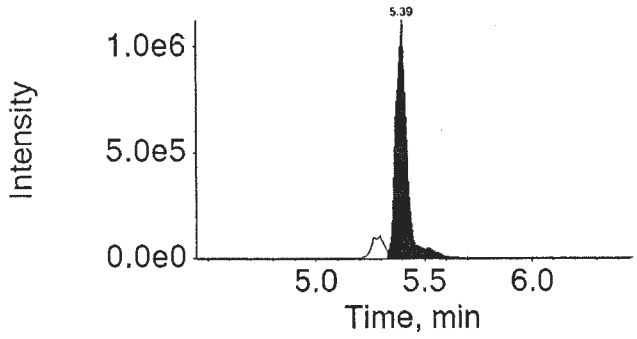
Print Date: 09/06/2017 5:03 PM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-95.wiff	2016-09-15T08:23:45	8535019DL3	PFOA	5.39	4218664.2

Component: PFOA
Mass: 412.9 / 368.9



APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:10 am, 6/13/17

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Analysis Report

REVISED

Sample Description: SG3-EB01-160816 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8535020
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 12:55 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

EB116 SDG#: SPP17-09EB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	**Perfluorooctanoic acid**	335-67-1	8		1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 05:33	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

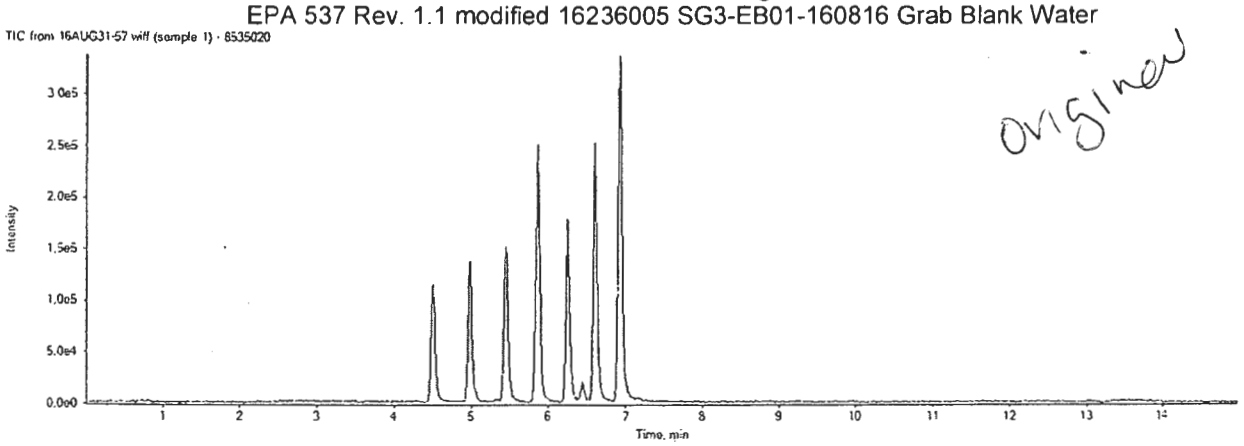
Sample Name:	8535020		**Data File:**		16AUG31-57.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-EB01-160816 Grab Blank Water		**Acquis Date:**		2016-09-01T05:33:53
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	58		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10:00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09983		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.98	174745.9	N/A	N/A	ng/L
PFHxA	4.51	1640.8	A	13C2-PFHxA	4.50	444537.6	0.004	0.352	ng/L
PFHpA	N/A	N/A	A	13C4-PFHpA	4.98	321533.1	N/A	N/A	ng/L
PFHxS	4.99	562.8	A	18O2-PFHxS	4.98	174745.9	0.003	0.147	ng/L
PFOA	5.44	84299.9	A	13C4-PFOA	5.44	492157.0	0.171	7.546	ng/L
PFNA	5.86	967.8	M	13C5-PFNA	5.86	733348.2	0.001	0.063	ng/L
PFOS	5.85	187.6	A	13C4-PFOS	5.83	184780.1	0.001	0.050	ng/L
PFDA	6.25	1440.3	M	13C2-PFDA	6.25	589143.5	0.002	0.098	ng/L
PFUnDA	6.60	2001.2	A	13C2-PFUnDA	6.60	789307.6	0.003	0.123	ng/L
PFDoDA	6.93	1033.3	M	13C2-PFDoDA	6.92	1246109.7	0.001	0.042	ng/L
PFTrDA	N/A	N/A	A	13C2-PFDoDA	6.92	1246109.7	N/A	N/A	ng/L
PFTeDA	7.53	1035.9	M	13C2-PFDoDA	6.92	1246109.7	0.001	0.043	ng/L

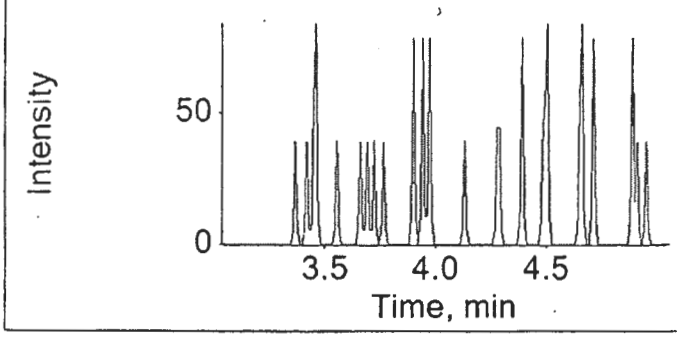
Total Ion Chromatogram

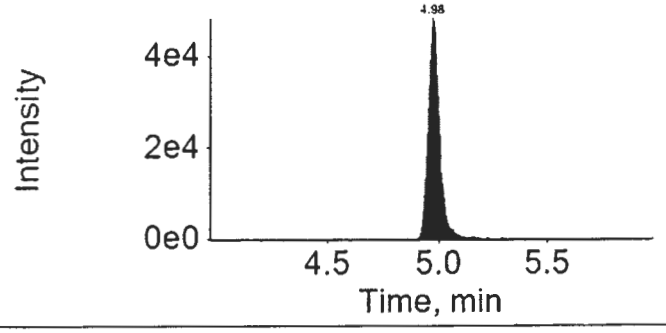
EPA 537 Rev. 1.1 modified 16236005 SG3-EB01-160816 Grab Blank Water



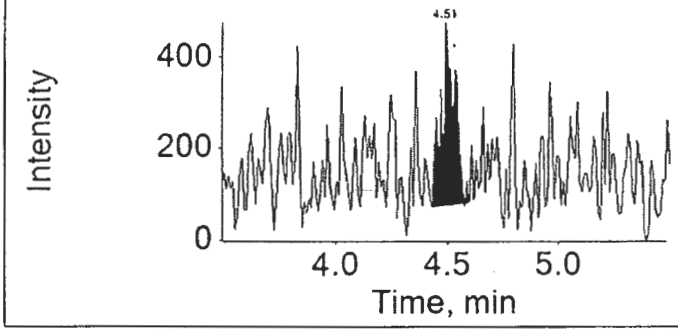
original

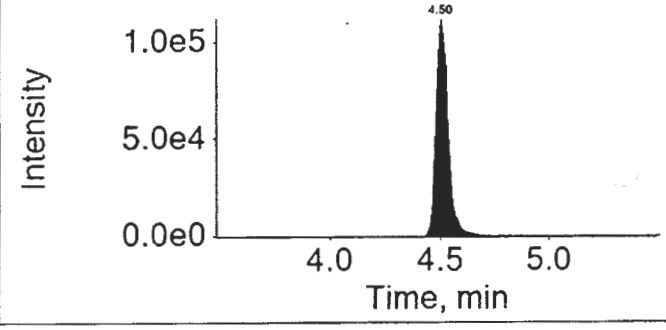
16AUG31-57.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



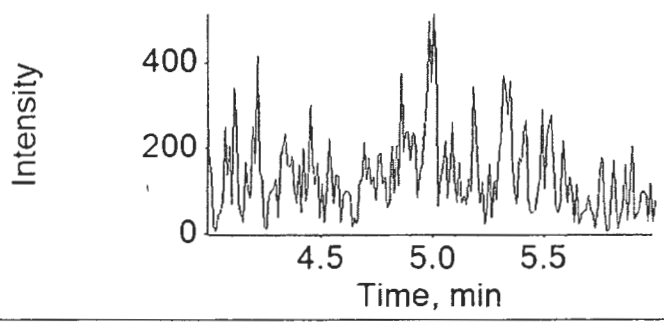


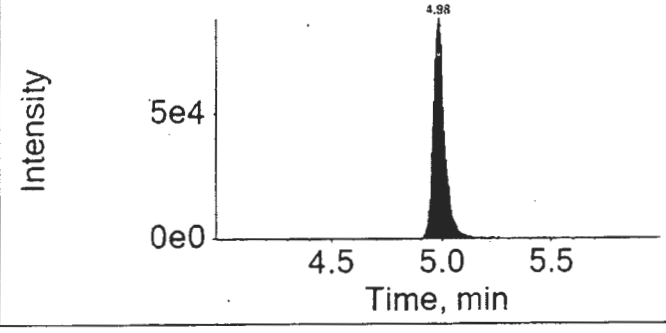
16AUG31-57.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



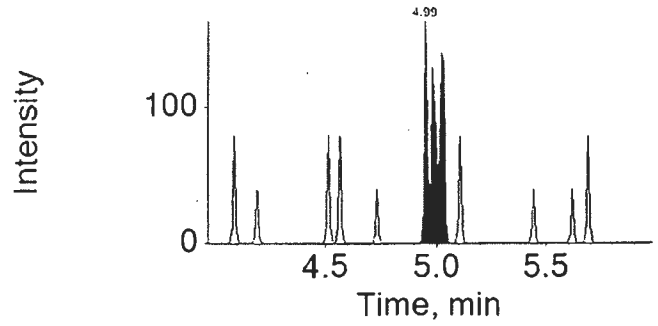


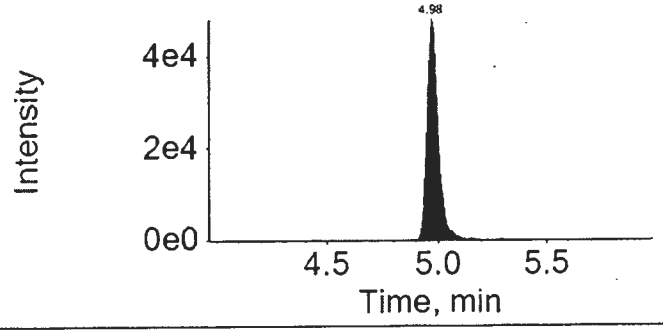
16AUG31-57.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



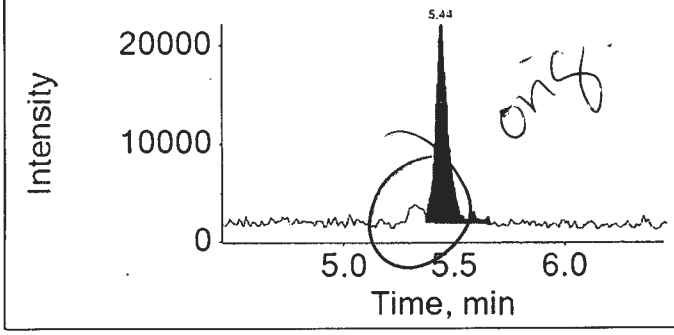


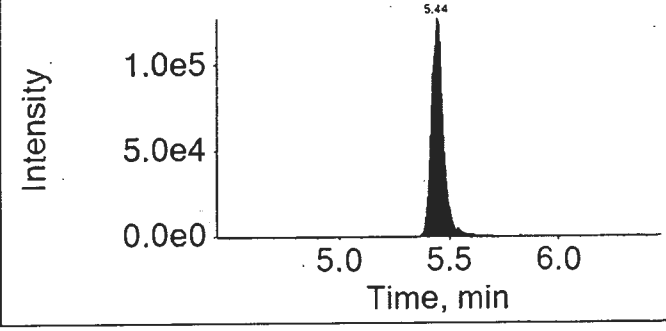
16AUG31-57.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



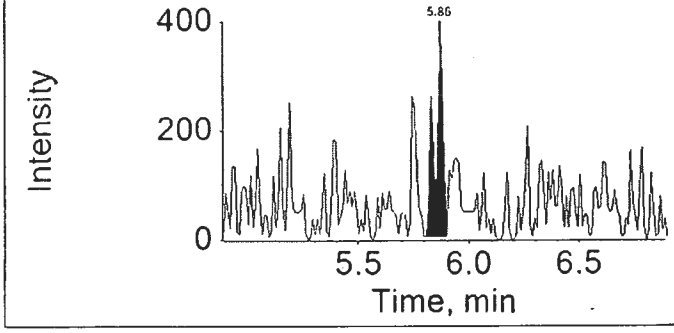


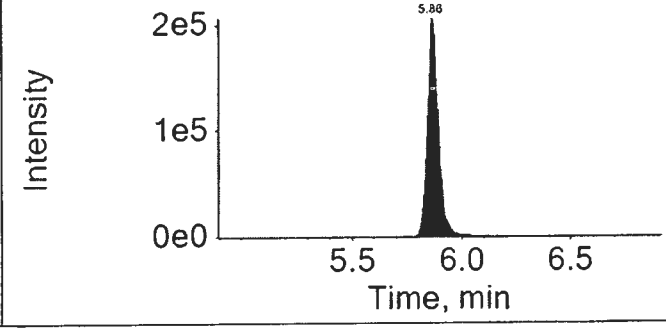
16AUG31-57.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





16AUG31-57.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0

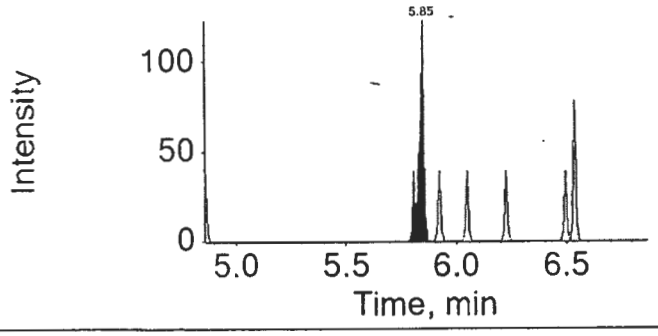




16AUG31-57.wiff

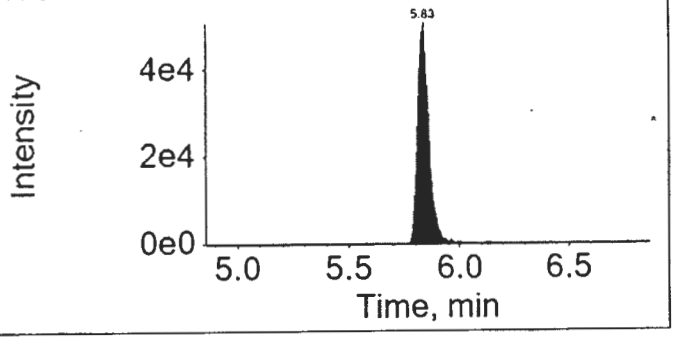
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

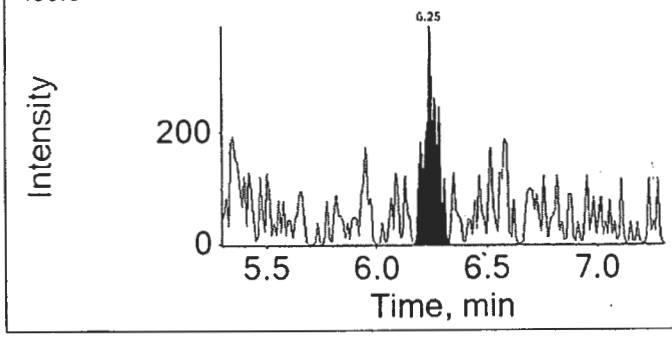
503.0 / 99.0



16AUG31-57.wiff

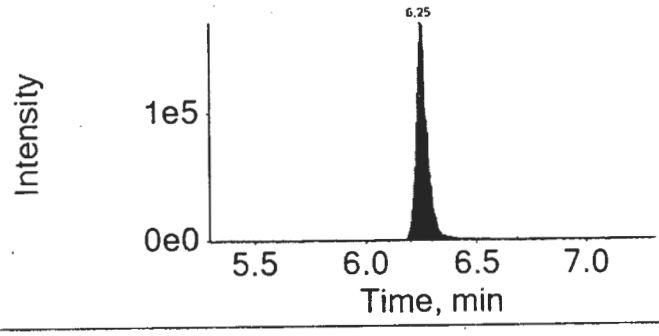
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

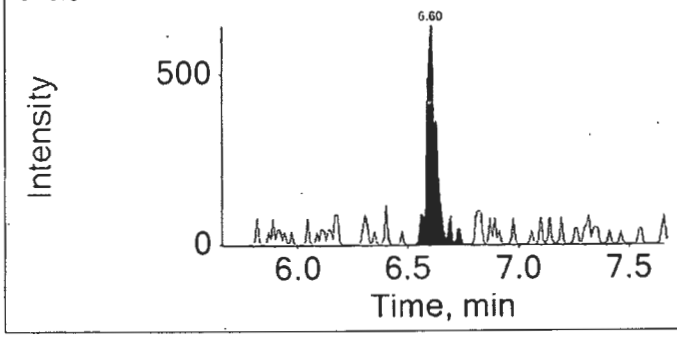
515.0 / 470.0



16AUG31-57.wiff

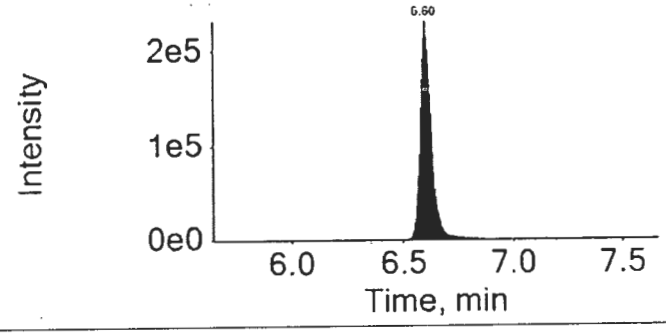
Analyte: PFUnDA

562.9 / 518.9

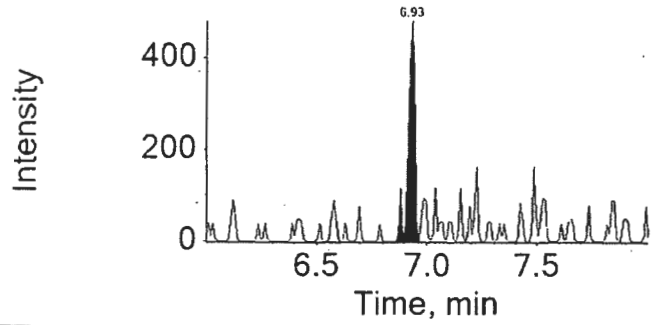


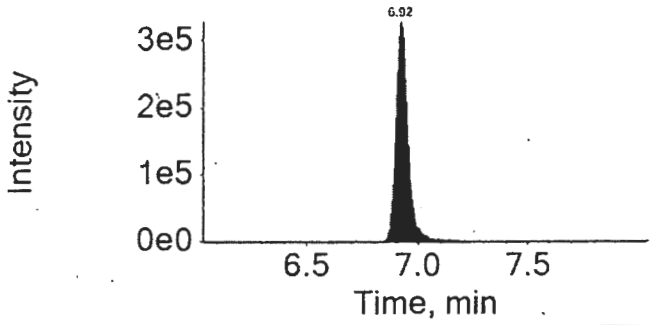
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

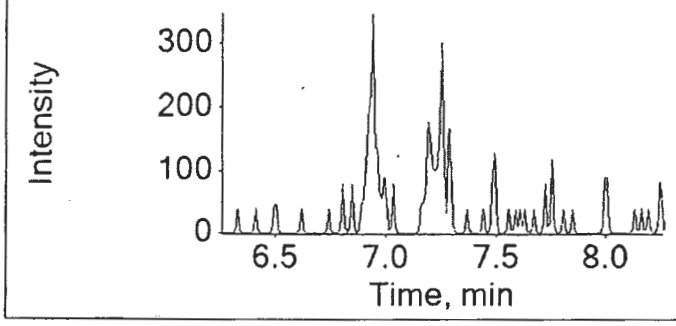


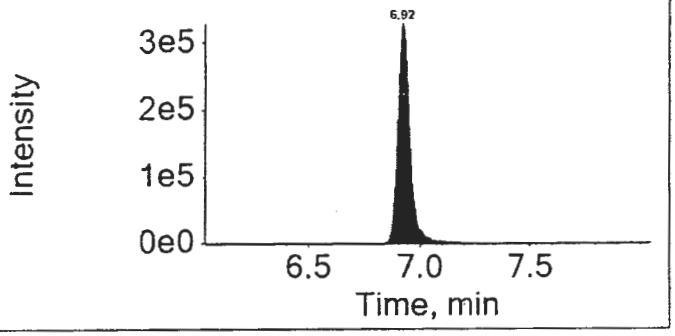
16AUG31-57.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



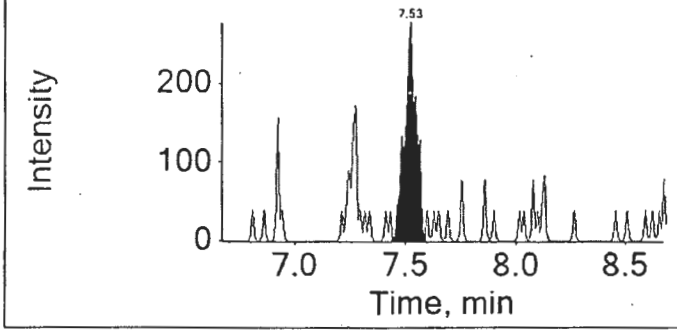


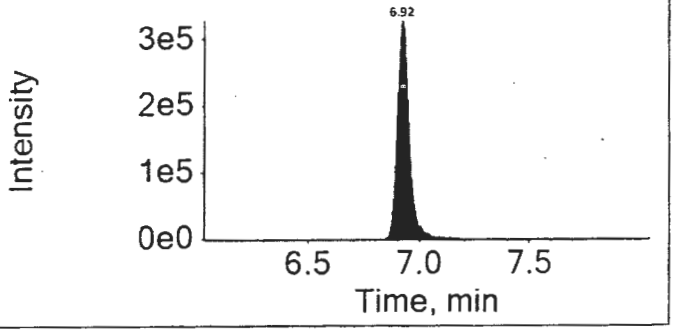
16AUG31-57.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG31-57.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd
SEP 19 ---

mep 78221 9/14/16

Lynn Dodd
Principal Specialist

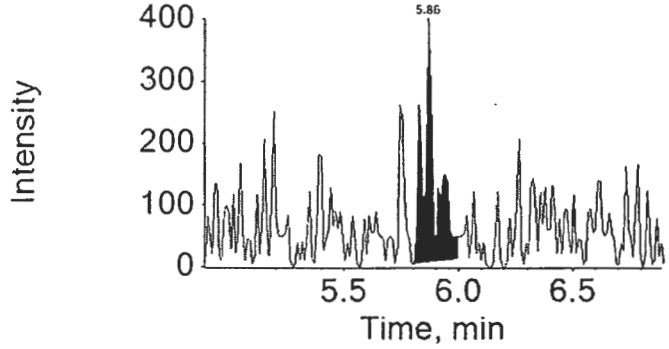
eurofins | Lancaster Laboratories

Print Date: 14/09/2016 1:00 PM

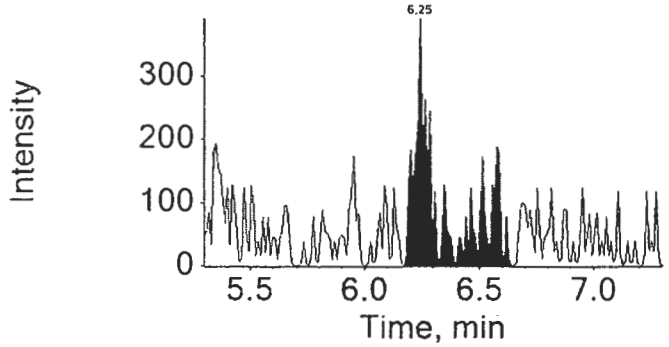
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-57.wiff	2016-09-01T05:33:53	8535020	PFNA	5.86	1438.1
16AUG31-57.wiff	2016-09-01T05:33:53	8535020	PFDA	6.25	2657.1
16AUG31-57.wiff	2016-09-01T05:33:53	8535020	PFDoDA	6.93	1720.0
16AUG31-57.wiff	2016-09-01T05:33:53	8535020	PFTeDA	7.53	1219.6

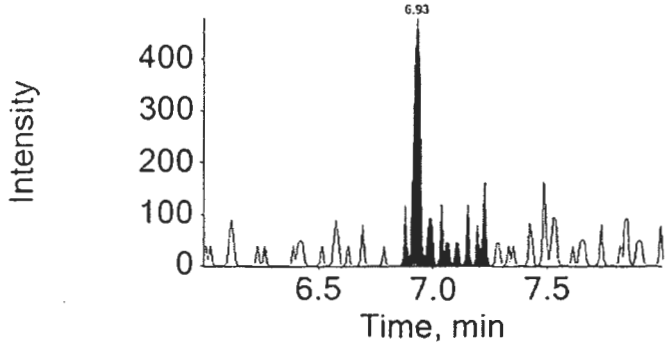
Component: PFNA
Mass: 462.9 / 418.9



Component: PFDA
Mass: 512.9 / 469.0



Component: PFDoDA
Mass: 612.9 / 568.9



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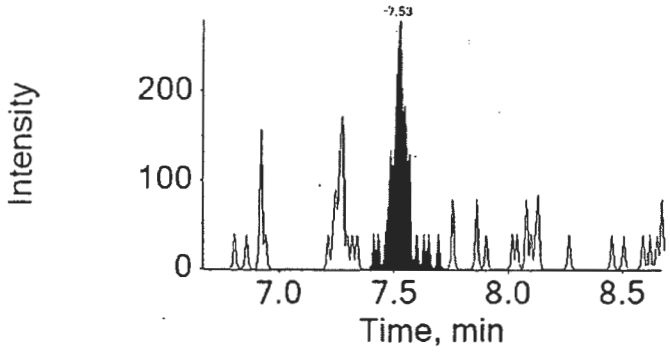
Print Date: 14/09/2016 1:00 PM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFTeDA
Mass: 712.9 / 668.9



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

MCD 7824
9/14/16

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

REVISED

Sample Description: SG3-EB01-160816 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8535020
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 12:55 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

EB116 SDG#: SPP17-09EB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	**Perfluorooctanoic acid**	335-67-1	9		1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 05:33	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.0998 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535020
Lab File ID: 16AUG31-57.WIFF
Date Collected: 08/16/2016 12:55
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 05:33
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	1	U
375-85-9	PFHpA	1	U
355-46-4	PFHxS	4	U
335-67-1	PFOA	9	
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 4:51:00 PM

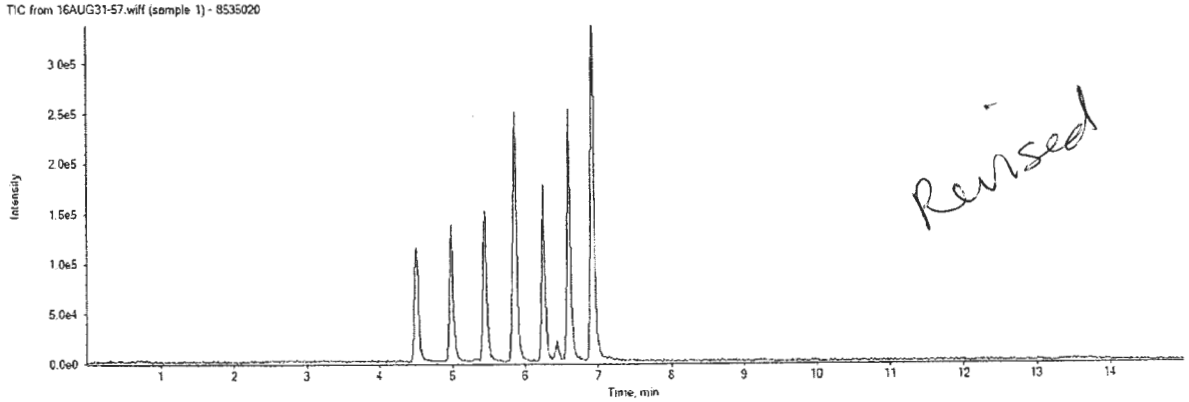
Sample Name:	8535020			**Data File:**		16AUG31-57.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-EB01-160816 Grab Blank Water			**Acquis Date:**		2016-09-01T05:33:53
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	58			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16236005
				ICAL Name:		16AUG26ICAL
Batch Number:	16236005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09983			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.98	174745.9	N/A	N/A
PFHxA	4.51	1.000	1640.8	A	13C2-PFHxA	4.50	444537.6	0.004	0.352
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	4.98	321533.1	N/A	N/A
PFHxS	4.99	1.000	562.8	A	18O2-PFHxS	4.98	174745.9	0.003	0.147
PFOA	5.44	1.000	96139.0	M	13C4-PFOA	5.44	492157.0	0.195	8.606
PFNA	5.86	1.000	967.8	M	13C5-PFNA	5.86	733348.2	0.001	0.063
PFOS	5.85	1.000	187.6	A	13C4-PFOS	5.83	184780.1	0.001	0.050
PFDA	6.25	1.000	1440.3	M	13C2-PFDA	6.25	589143.5	0.002	0.098
PFUnDA	6.60	1.000	2001.2	A	13C2-PFUnDA	6.60	789307.6	0.003	0.123
PFDoDA	6.93	1.000	1033.3	M	13C2-PFDoDA	6.92	1246109.7	0.001	0.042
PFTrDA	N/A	N/A	N/A	A	13C2-PFDoDA	6.92	1246109.7	N/A	N/A
PFTeDA	7.53	1.090	1035.9	M	13C2-PFDoDA	6.92	1246109.7	0.001	0.043

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-EB01-160816 Grab Blank Water



Revised

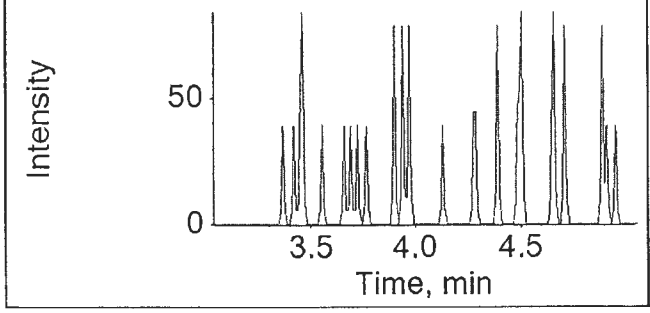
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-57.wiff

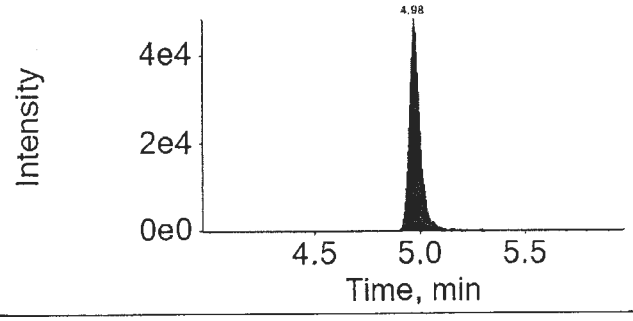
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

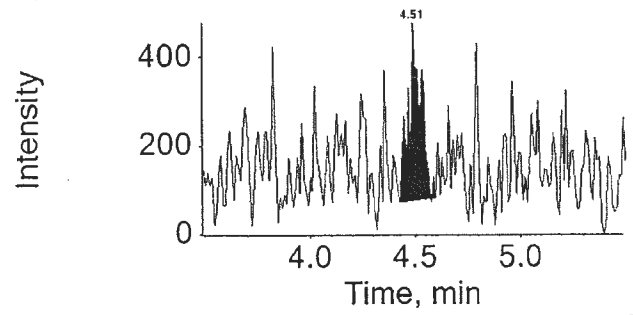
403.0 / 103.0



16AUG31-57.wiff

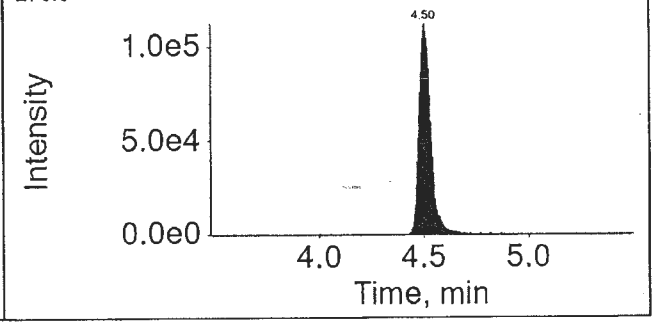
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

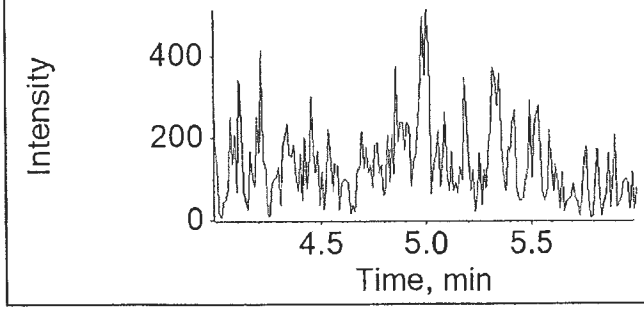
314.9 / 270.0



16AUG31-57.wiff

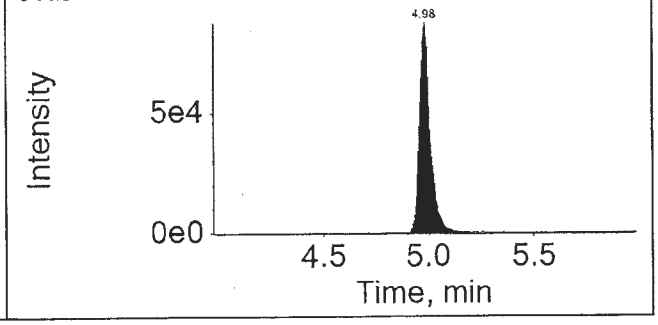
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



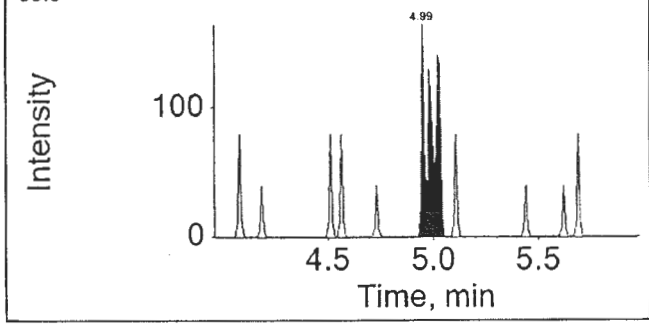
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-57.wiff

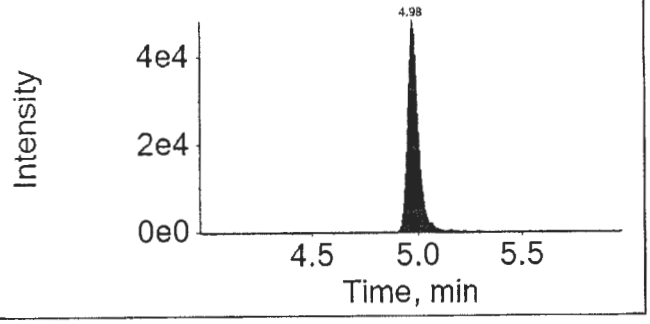
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

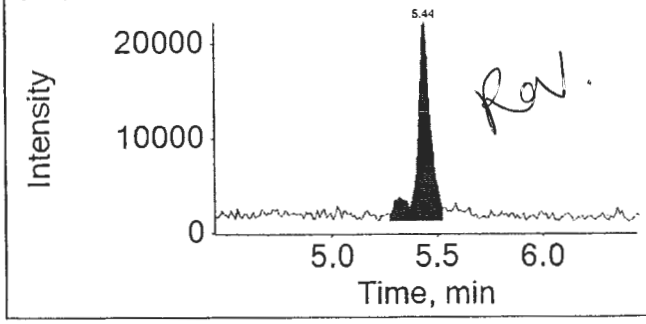
403.0 / 103.0



16AUG31-57.wiff

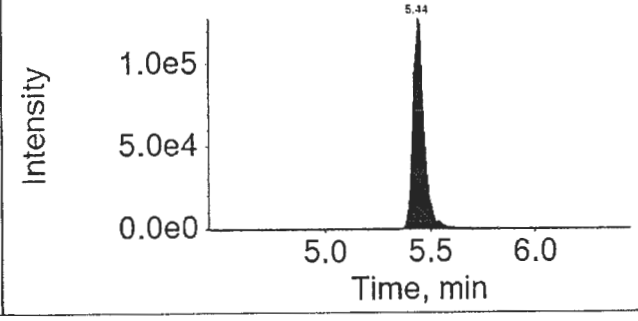
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

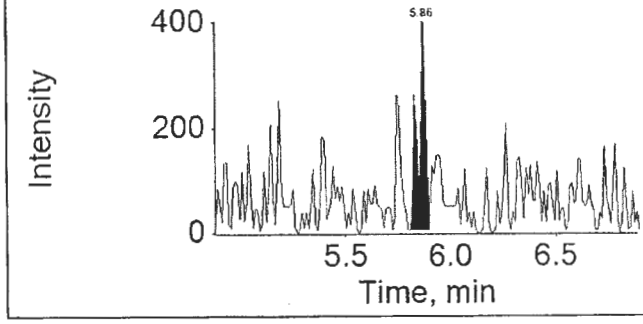
417.0 / 372.0



16AUG31-57.wiff

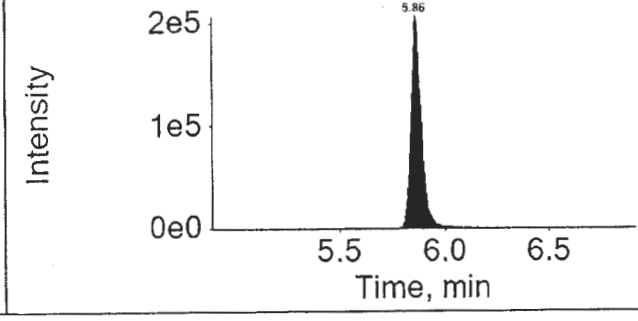
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



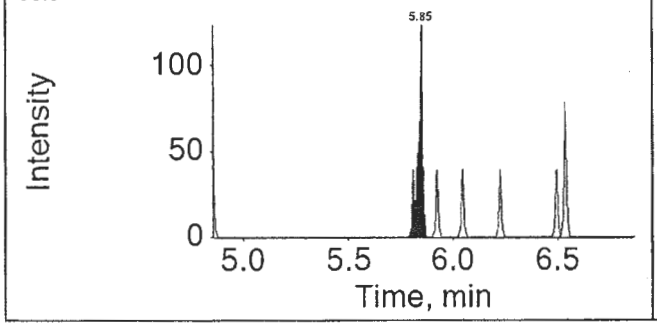
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-57.wiff

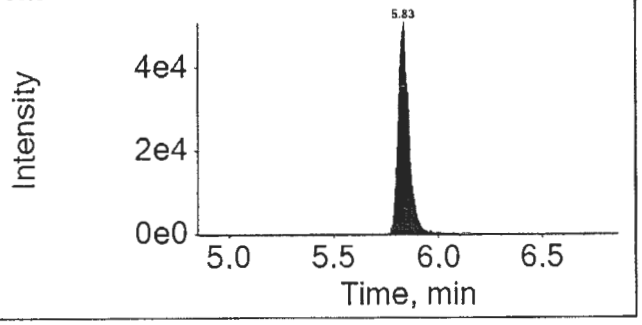
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

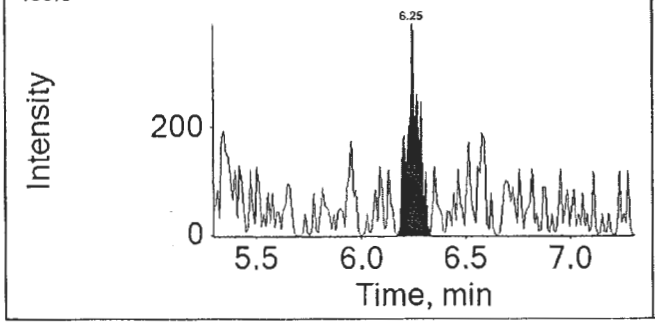
503.0 / 99.0



16AUG31-57.wiff

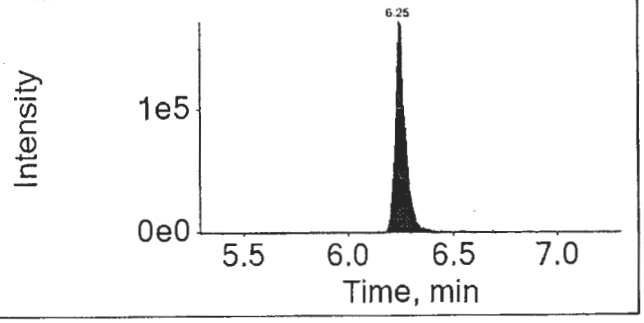
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

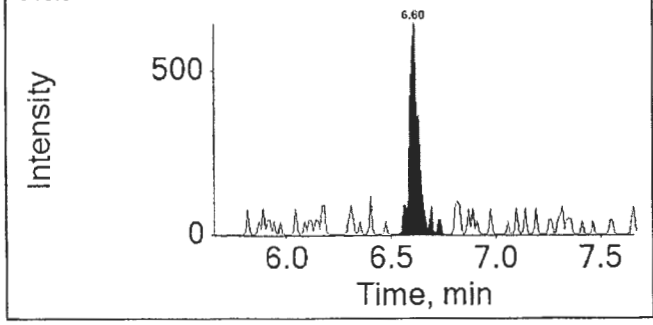
515.0 / 470.0



16AUG31-57.wiff

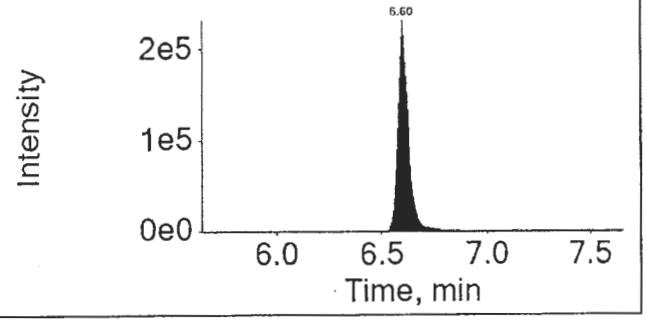
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



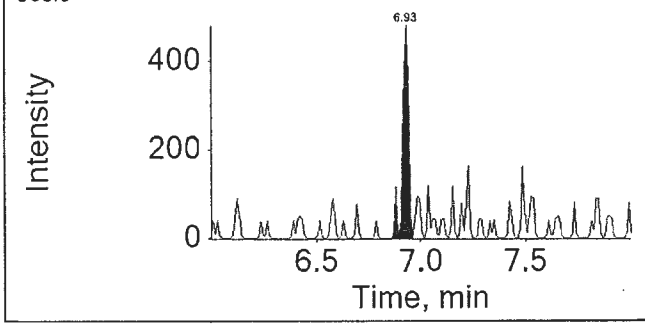
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

16AUG31-57.wiff

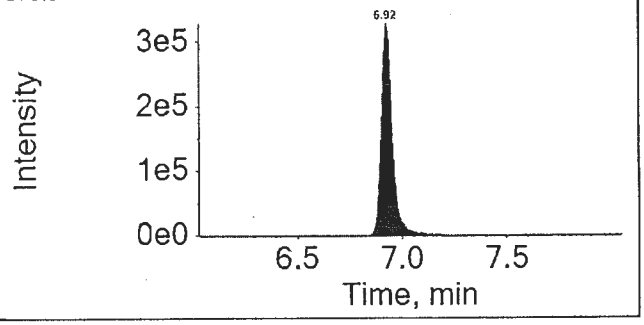
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

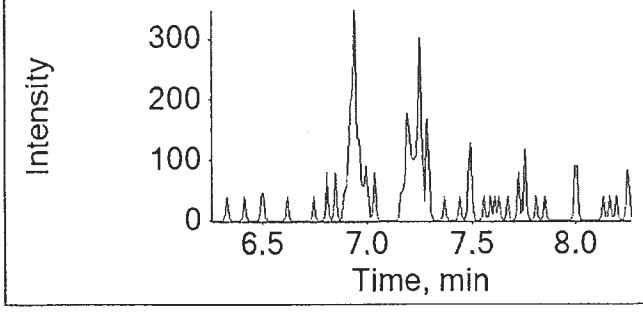
615.0 / 570.0



16AUG31-57.wiff

Analyte: PFTrDA

662.9 / 618.9



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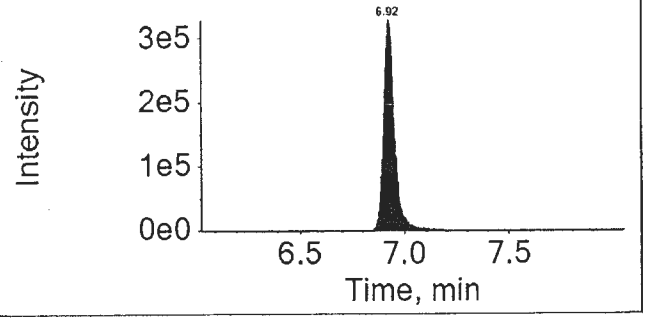
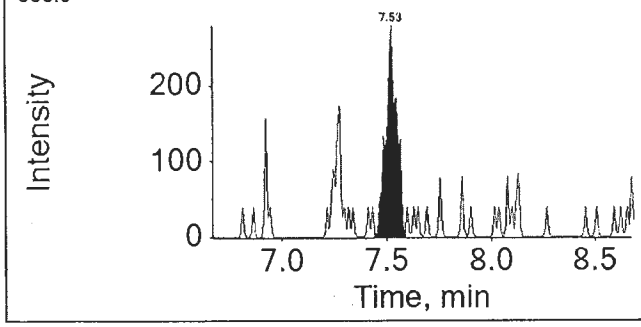
615.0 / 570.0



16AUG31-57.wiff

Analyte: PFTeDA

712.9 / 668.9



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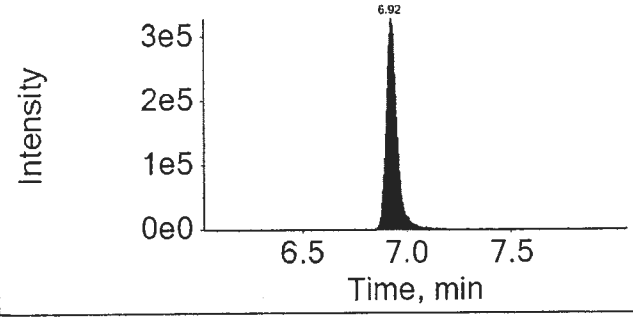
615.0 / 570.0



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:59 am, 6/13/17

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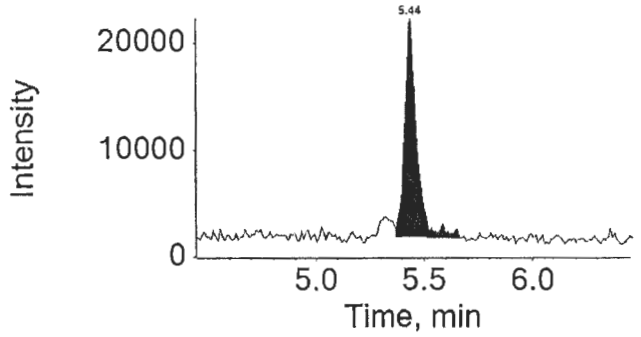
Print Date: 09/06/2017 4:54 PM

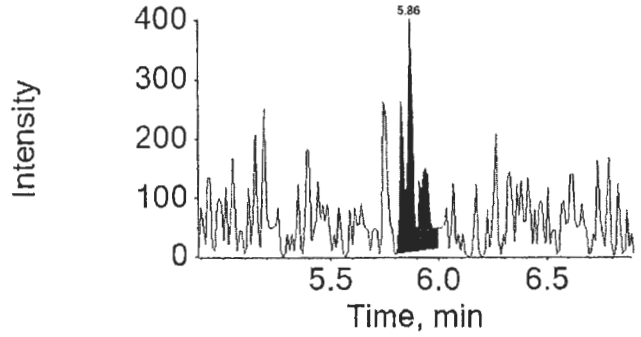
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-57.wiff	2016-09-01T05:33:53	8535020	PFOA	5.44	84299.9
16AUG31-57.wiff	2016-09-01T05:33:53	8535020	PFNA	5.86	1438.1
16AUG31-57.wiff	2016-09-01T05:33:53	8535020	PFDA	6.25	2657.1
16AUG31-57.wiff	2016-09-01T05:33:53	8535020	PFDoDA	6.93	1720.0
16AUG31-57.wiff	2016-09-01T05:33:53	8535020	PFTeDA	7.53	1219.6

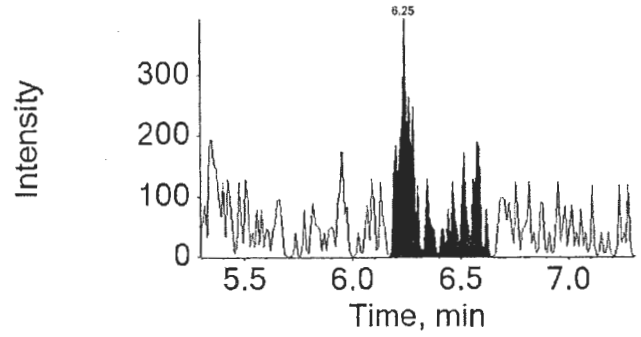
Component: PFOA
Mass: 412.9 / 368.9



Component: PFNA
Mass: 462.9 / 418.9



Component: PFDA
Mass: 512.9 / 469.0



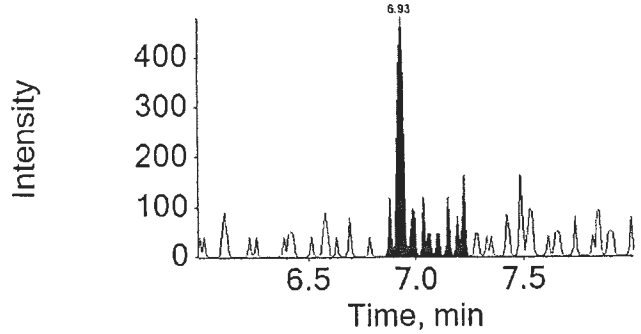
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:52 am, 6/13/17

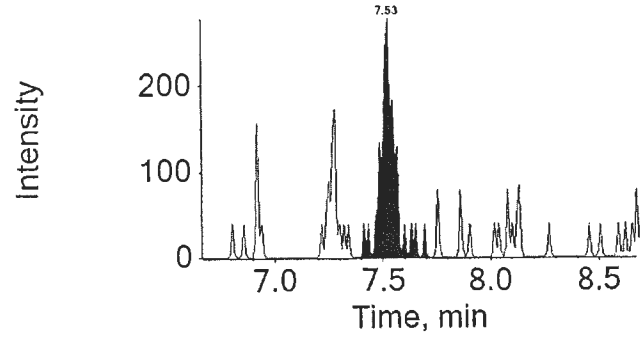
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFDoDA
Mass: 612.9 / 568.9



Component: PFTeDA
Mass: 712.9 / 668.9



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:52 am, 6/13/17

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

REVISED

Sample Description: SG3-RB01-160816 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

LL Sample # WW 8535021
LL Group # 1696623
Account # 37191

Collected: 08/16/2016 15:00 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB116 SDG#: SPP17-10RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 05:50	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

no change

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.0997 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535021
Lab File ID: 16AUG31-58.WIFF
Date Collected: 08/16/2016 15:00
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 05:50
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	1	U
375-85-9	PFHpA	1	U
355-46-4	PFHxS	4	U
335-67-1	PFOA	1	U
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

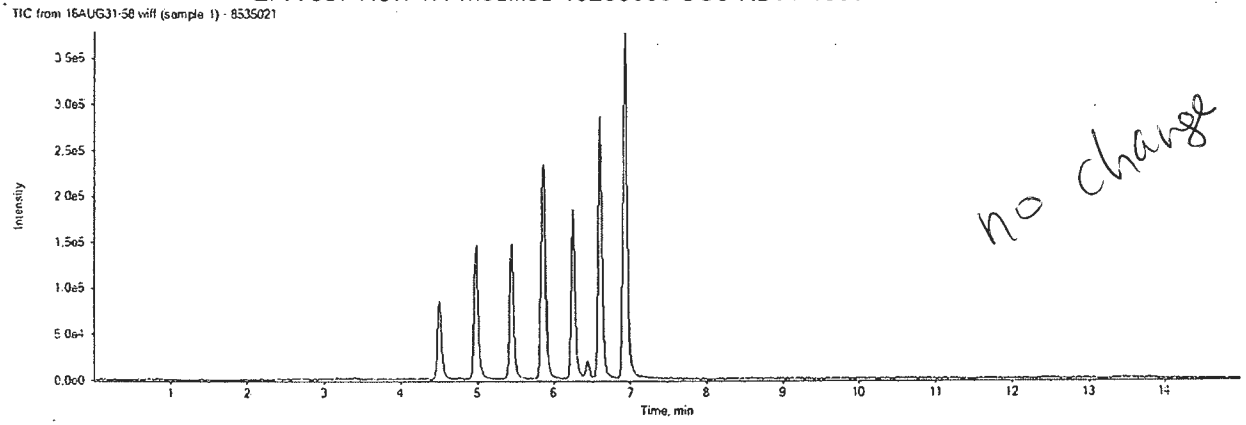
Sample Name:	8535021		**Data File:**		16AUG31-58.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-RB01-160816 Grab Blank Water		**Acquis Date:**		2016-09-01T05:50:17
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	59		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09968		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.97	194535.5	N/A	N/A	ng/L
PFHxA	N/A	N/A	A	13C2-PFHxA	4.50	323912.7	N/A	N/A	ng/L
PFHpA	N/A	N/A	A	13C4-PFHpA	4.98	361063.1	N/A	N/A	ng/L
PFHxS	4.98	906.9	A	18O2-PFHxS	4.97	194535.5	0.005	0.213	ng/L
PFOA	5.44	8289.0	A	13C4-PFOA	5.43	544985.7	0.015	0.671	ng/L
PFNA	5.85	683.5	A	13C5-PFNA	5.86	789159.0	0.001	0.041	ng/L
PFOS	5.83	218.9	A	13C4-PFOS	5.83	207230.6	0.001	0.052	ng/L
PFDA	6.25	1031.2	M	13C2-PFDA	6.25	646804.0	0.002	0.064	ng/L
PFUnDA	6.60	2533.0	A	13C2-PFUnDA	6.60	942548.0	0.003	0.130	ng/L
PFDoDA	6.92	1341.7	M	13C2-PFDoDA	6.93	1407842.7	0.001	0.048	ng/L
PFTrDA	7.23	1563.7	A	13C2-PFDoDA	6.93	1407842.7	0.001	0.055	ng/L
PFTeDA	7.52	1532.4	A	13C2-PFDoDA	6.93	1407842.7	0.001	0.057	ng/L

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-RB01-160816 Grab Blank Water



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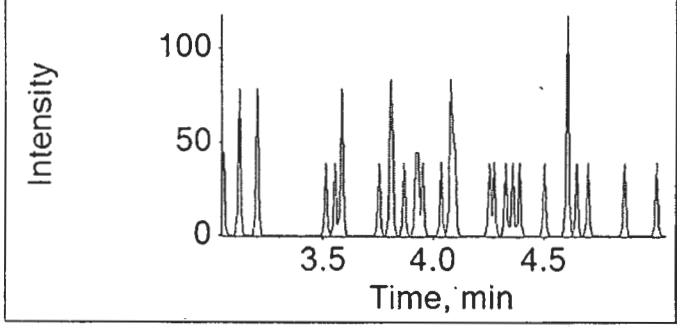
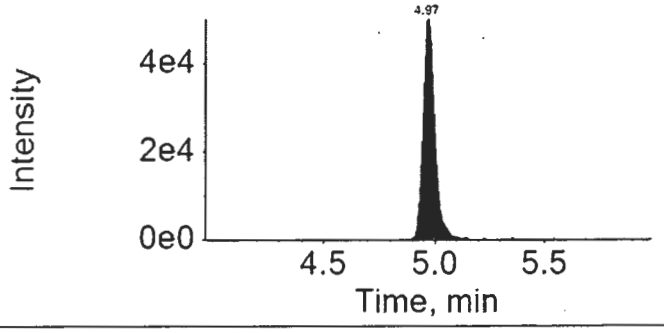
16AUG31-58.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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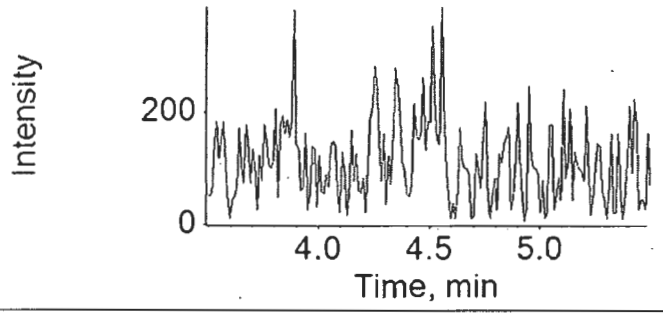
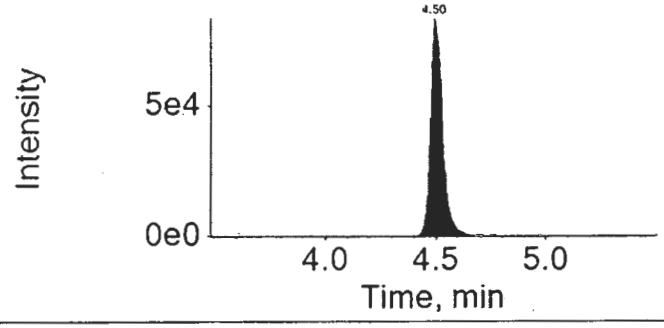
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





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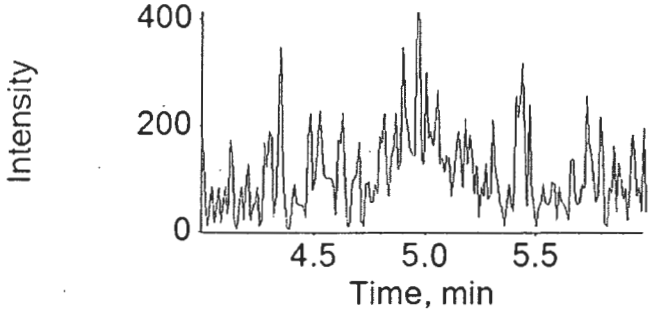
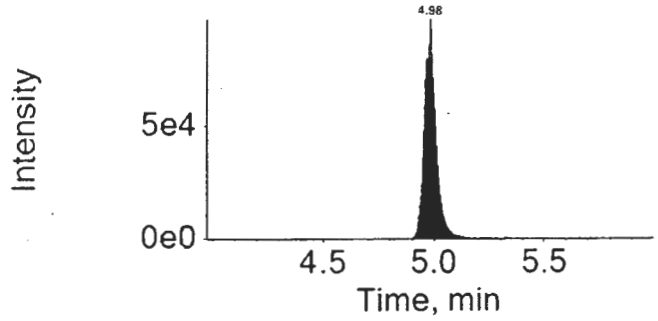
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

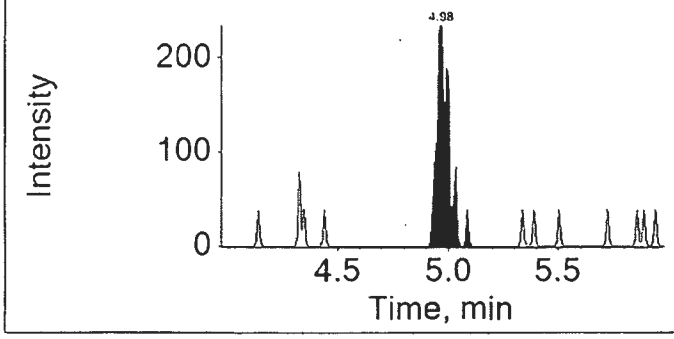




16AUG31-58.wiff

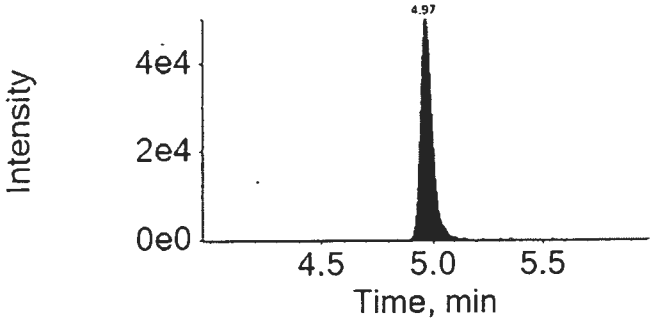
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

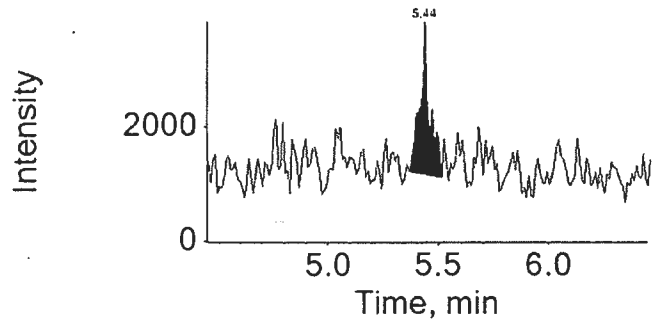
403.0 / 103.0



16AUG31-58.wiff

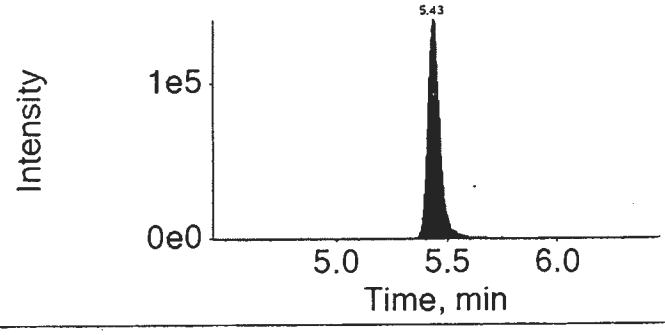
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

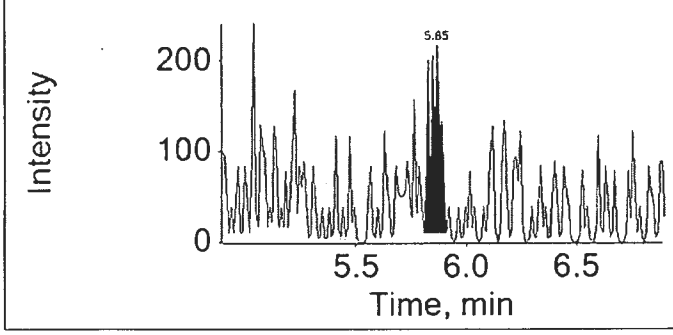
417.0 / 372.0



16AUG31-58.wiff

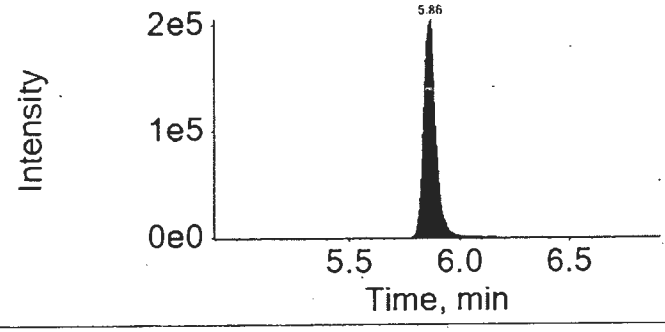
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

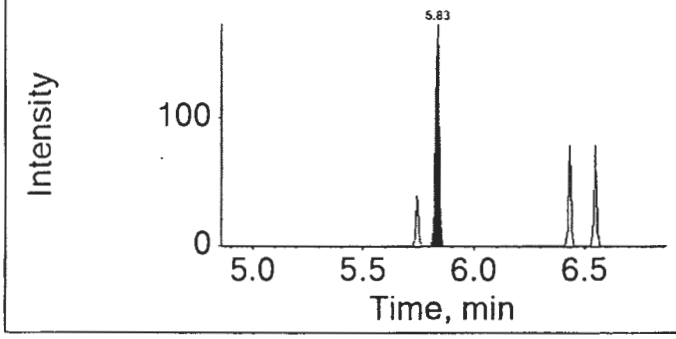
468.0 / 423.0



16AUG31-58.wiff

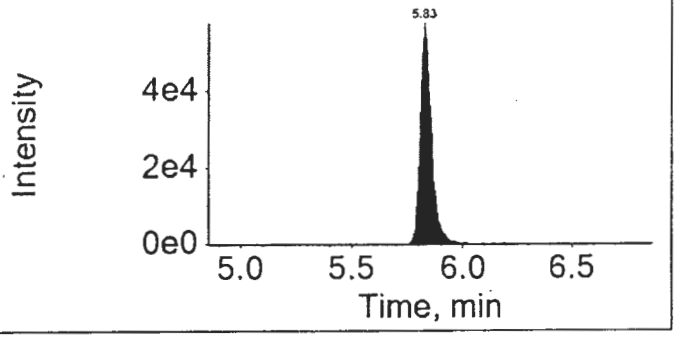
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

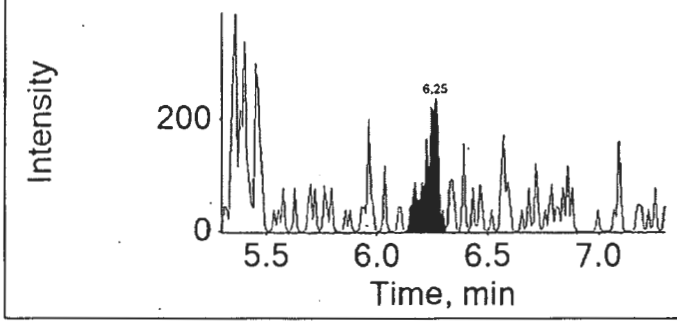
503.0 / 99.0



16AUG31-58.wiff

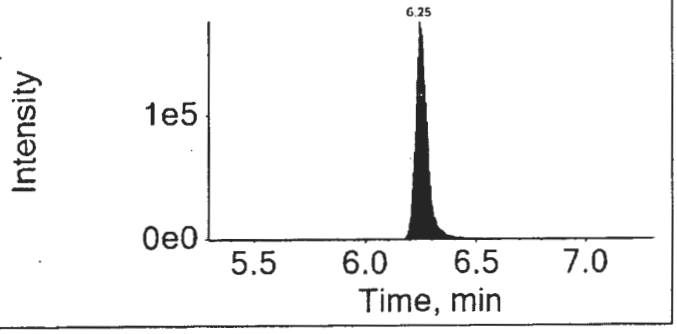
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

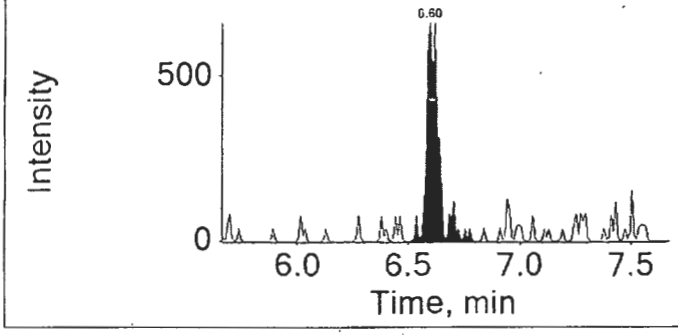
515.0 / 470.0



16AUG31-58.wiff

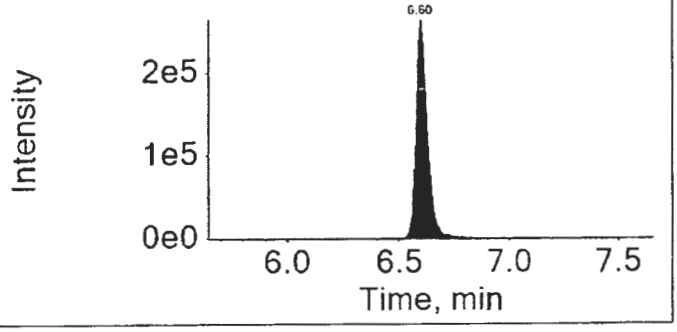
Analyte: PFUnDA

562.9 / 518.9

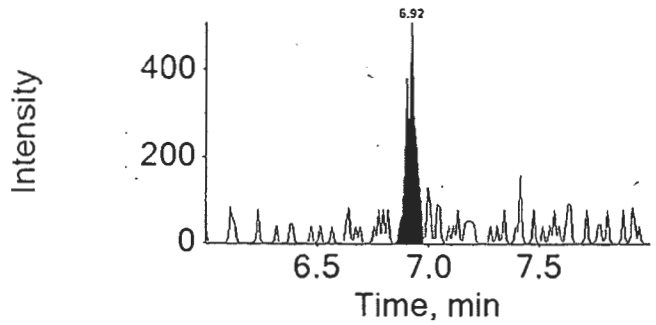


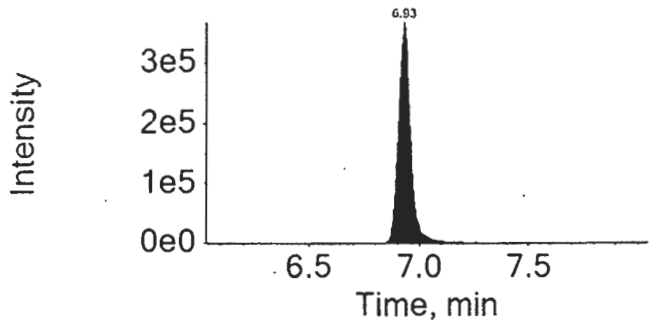
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

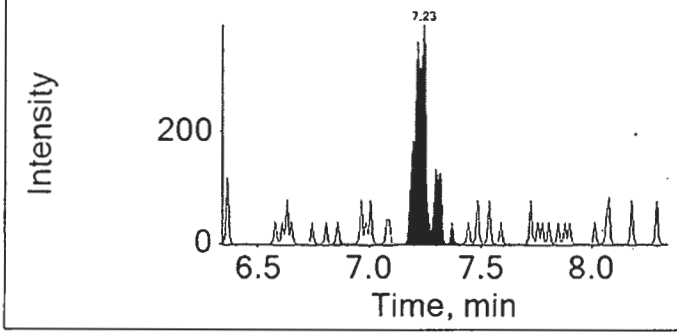


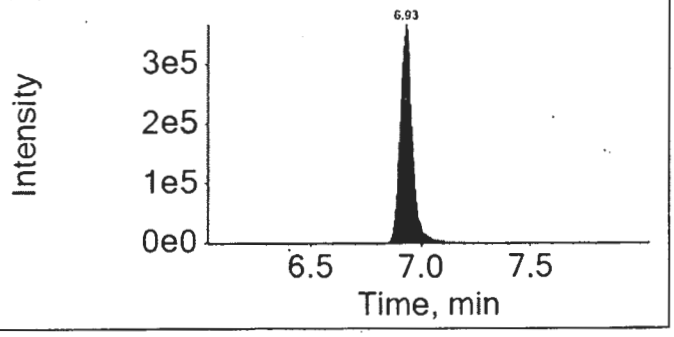
16AUG31-58.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



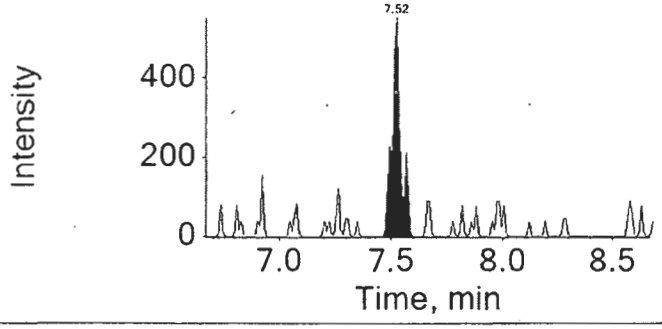


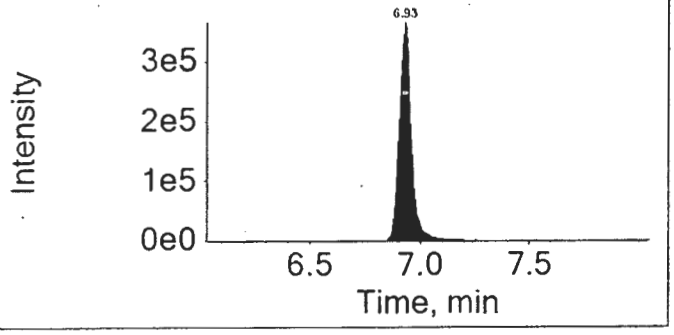
16AUG31-58.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG31-58.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd
SEP 15 2016

MEP 78241
9/14/16

Lynn Dodd
Principal Specialist

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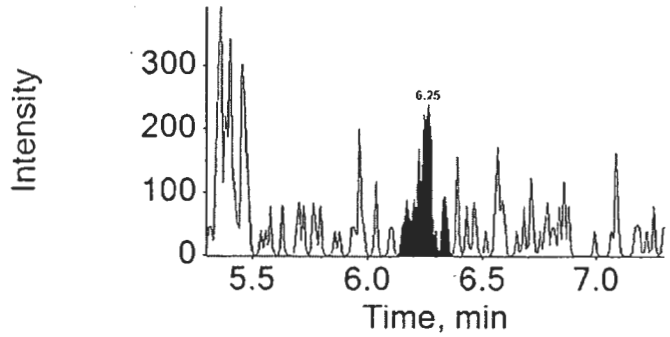
Print Date: 14/09/2016 1:00 PM

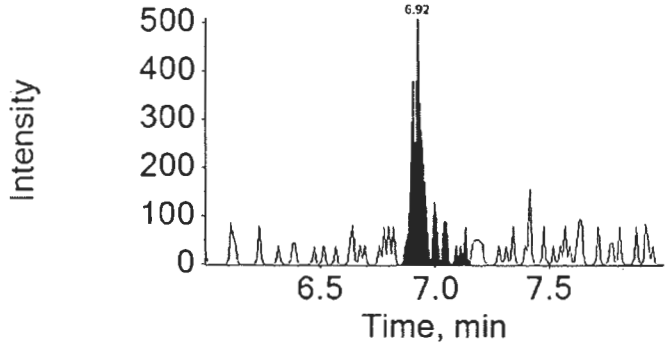
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-58.wiff	2016-09-01T05:50:17	8535021	PFDA	6.25	1187.7
16AUG31-58.wiff	2016-09-01T05:50:17	8535021	PFDoDA	6.92	1752.9

Component: PFDA
Mass: 512.9 / 469.0



Component: PFDoDA
Mass: 612.9 / 568.9



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

MCD 7824
9/14/16

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Analysis Report

REVISED

Sample Description: SG3-RB02-160816 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8535022
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 15:05 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB216 SDG#: SPP17-11RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 06:06	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

no change

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.1003 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535022
Lab File ID: 16AUG31-59.WIFF
Date Collected: 08/16/2016 15:05
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 06:06
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	1	U
375-85-9	PFHpA	1	U
355-46-4	PFHxS	4	U
335-67-1	PFOA	1	U
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

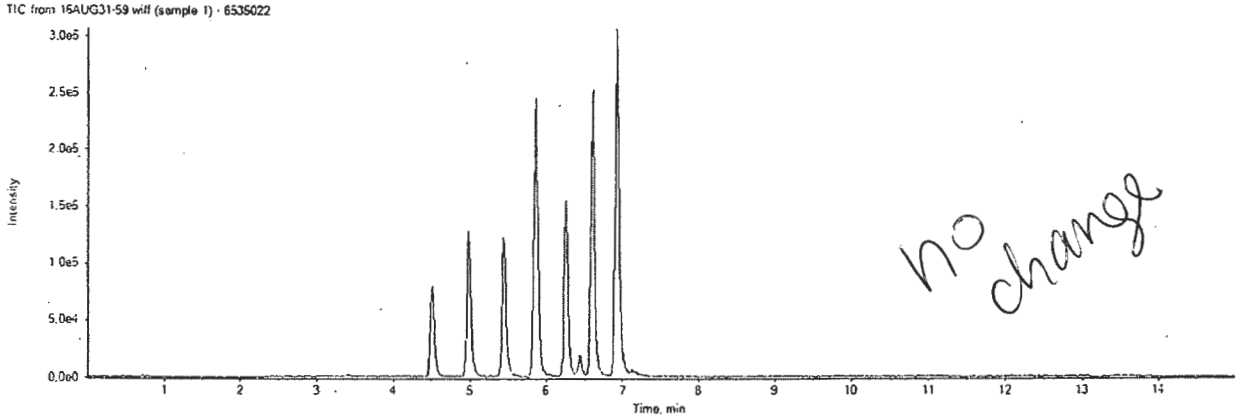
Sample Name:	8535022		**Data File:**		16AUG31-59.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-RB02-160816 Grab Blank Water		**Acquis Date:**		2016-09-01T06:06:41
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	60		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10030		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.97	178684.6	N/A	N/A	ng/L
PFHxA	4.52	1258.1	A	13C2-PFHxA	4.50	294859.4	0.004	0.405	ng/L
PFHpA	4.97	2278.3	A	13C4-PFHpA	4.98	290584.6	0.008	0.309	ng/L
PFHxS	4.98	813.1	A	18O2-PFHxS	4.97	178684.6	0.005	0.207	ng/L
PFOA	5.44	3254.4	A	13C4-PFOA	5.44	461043.5	0.007	0.310	ng/L
PFNA	5.87	1438.2	A	13C5-PFNA	5.86	694772.7	0.002	0.098	ng/L
PFOS	5.83	250.2	A	13C4-PFOS	5.83	183063.4	0.001	0.066	ng/L
PFDA	6.23	436.5	M	13C2-PFDA	6.25	562457.0	0.001	0.031	ng/L
PFUnDA	6.60	2908.2	A	13C2-PFUnDA	6.60	789717.6	0.004	0.178	ng/L
PFDoDA	6.93	874.5	M	13C2-PFDoDA	6.93	1105270.9	0.001	0.040	ng/L
PFTrDA	7.23	1000.8	A	13C2-PFDoDA	6.93	1105270.9	0.001	0.045	ng/L
PFTeDA	7.52	687.9	A	13C2-PFDoDA	6.93	1105270.9	0.001	0.032	ng/L

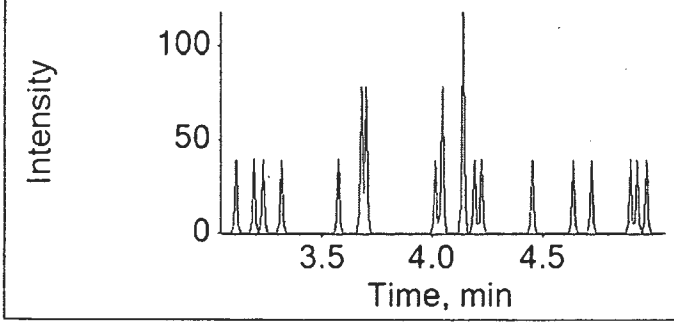
Total Ion Chromatogram

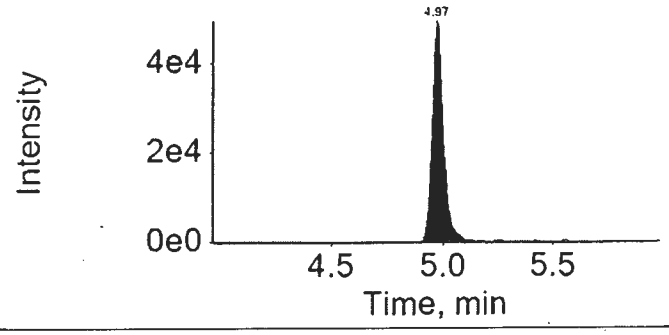
EPA 537 Rev. 1.1 modified 16236005 SG3-RB02-160816 Grab Blank Water



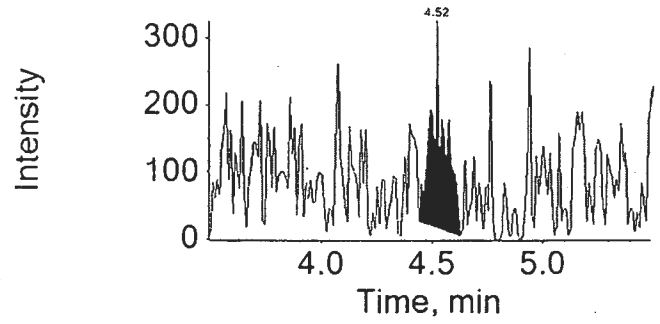
no change

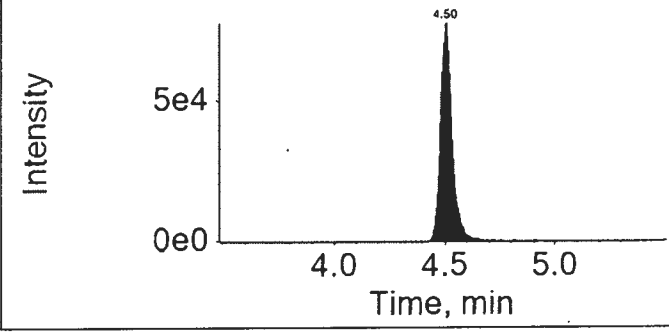
16AUG31-59.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



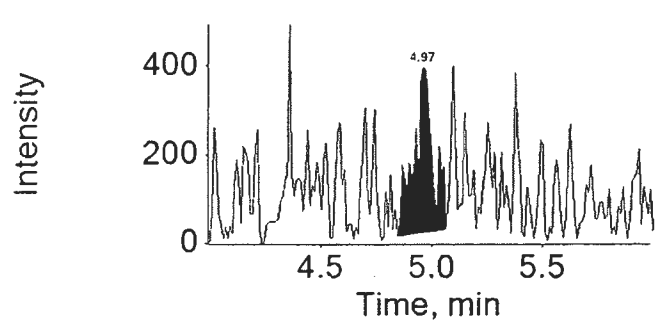


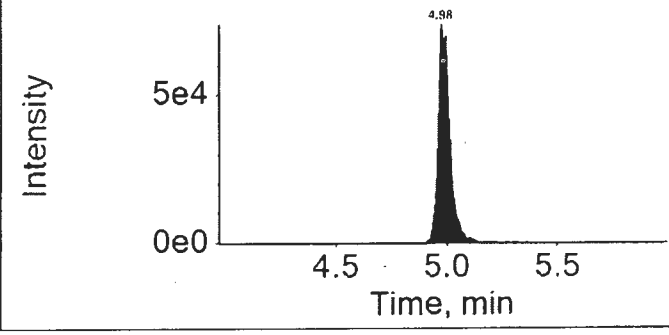
16AUG31-59.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16AUG31-59.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

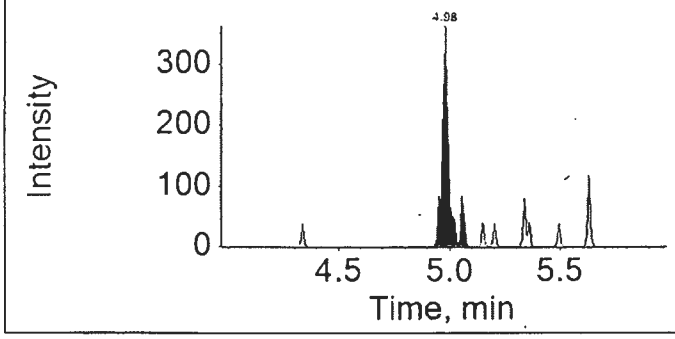




16AUG31-59.wiff

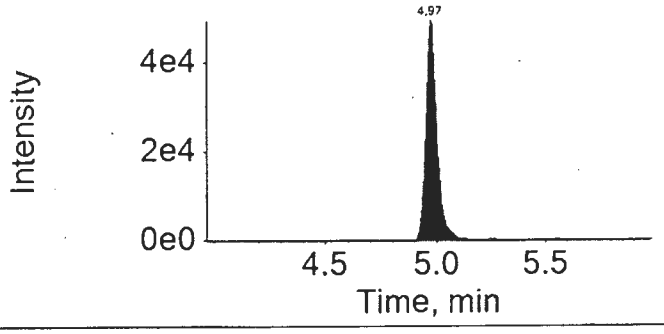
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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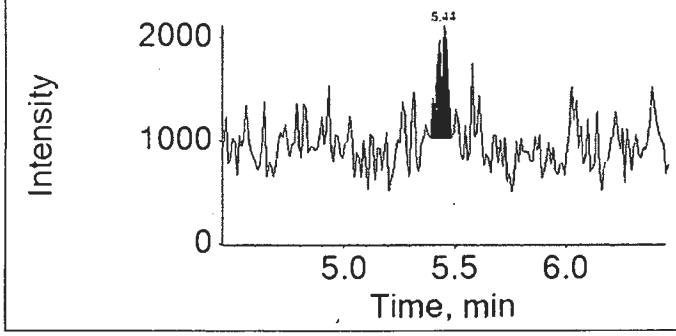
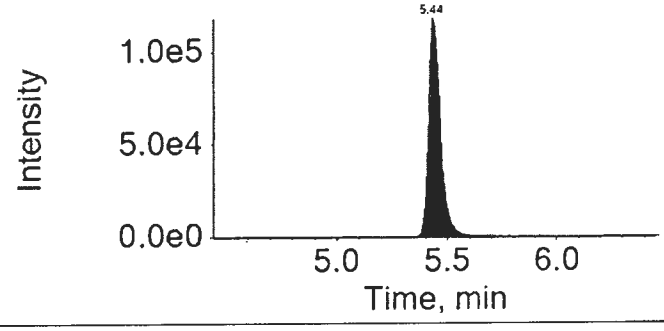
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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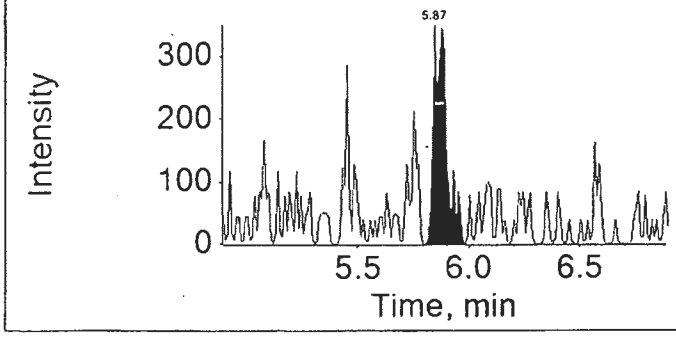
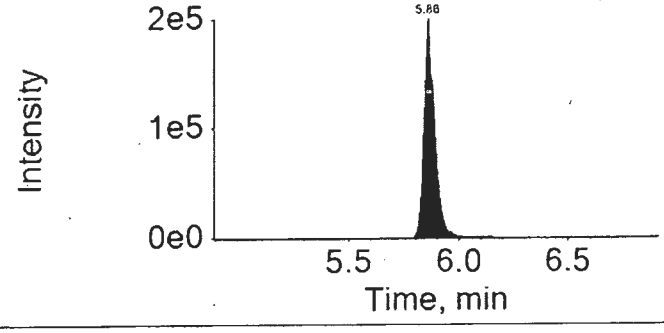
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

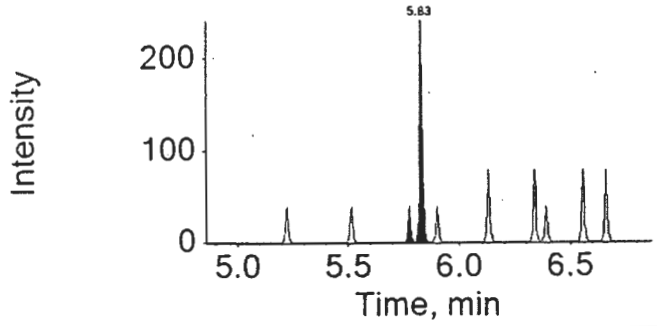
468.0 / 423.0



16AUG31-59.wiff

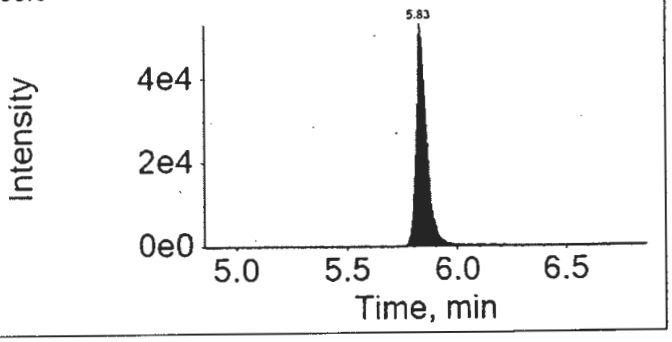
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

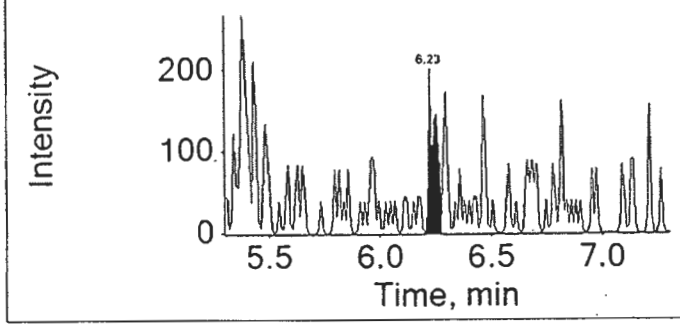
503.0 / 99.0



16AUG31-59.wiff

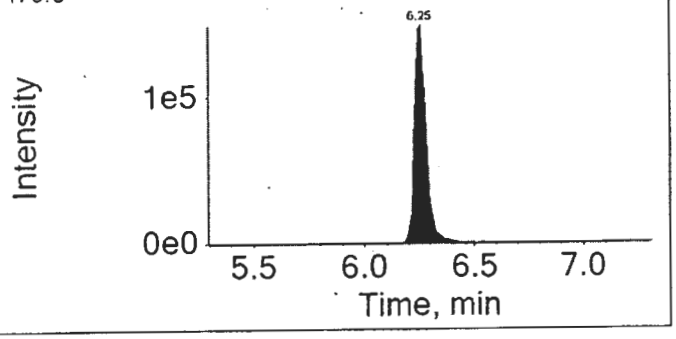
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

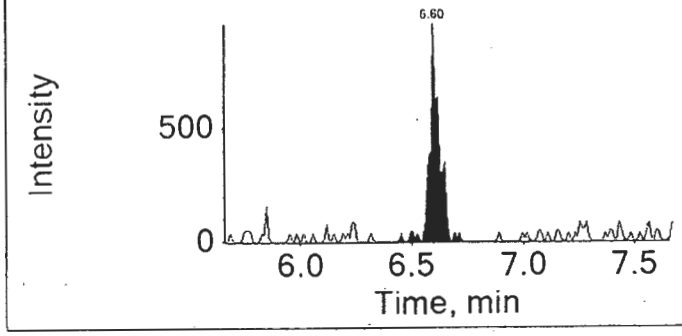
515.0 / 470.0



16AUG31-59.wiff

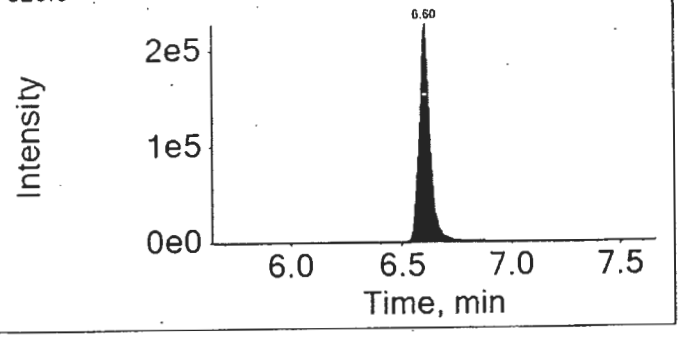
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

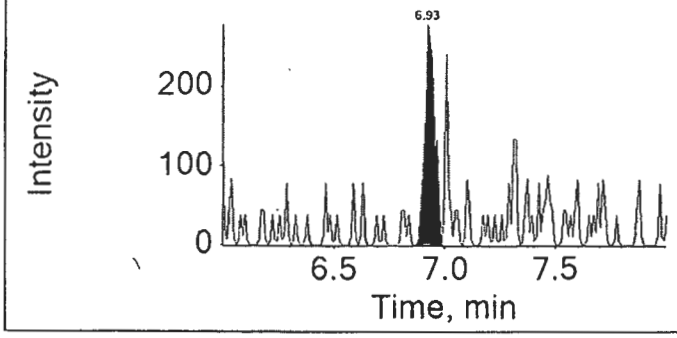
565.0 / 520.0



16AUG31-59.wiff

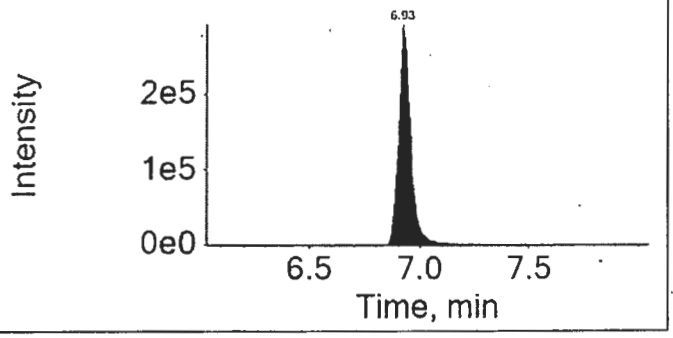
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

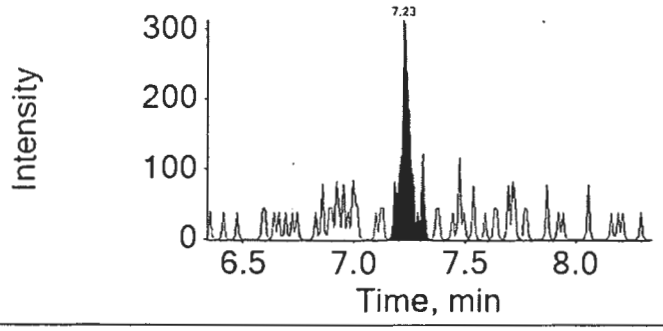
615.0 / 570.0



16AUG31-59.wiff

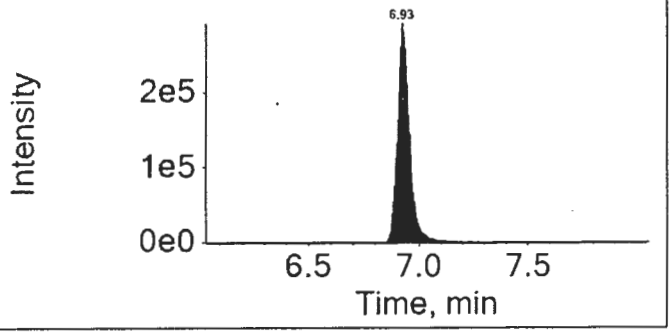
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

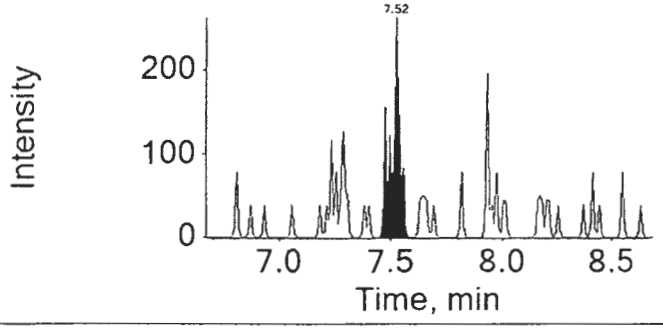
615.0 / 570.0



16AUG31-59.wiff

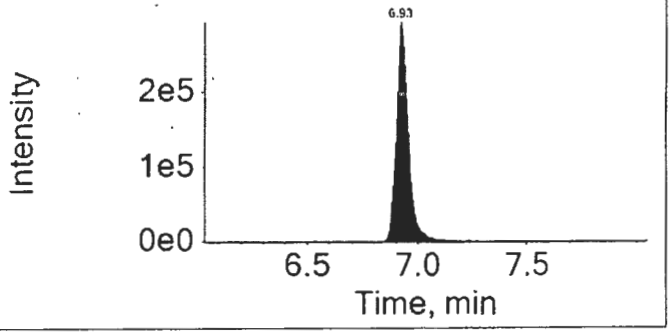
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 15 2016

Lynn Dodd
Principal Specialist

MCD 7824 9/14/16

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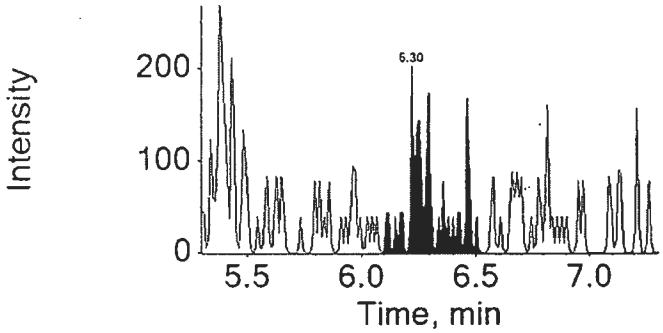
Print Date: 14/09/2016 1:01 PM

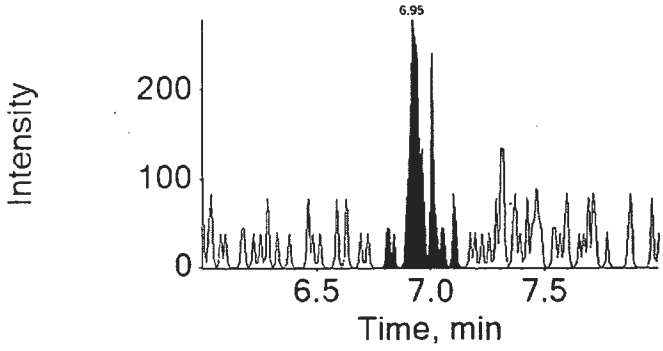
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-59.wiff	2016-09-01T06:06:41	8535022	PFDA	6.30	1250.5
16AUG31-59.wiff	2016-09-01T06:06:41	8535022	PFDoDA	6.95	1375.9

Component: PFDA
Mass: 512.9 / 469.0



Component: PFDoDA
Mass: 612.9 / 568.9



Lynn Dodd
15 2016

Lynn Dodd
Principal Specialist

MED 7824
9/14/16

Page 1 of 1

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Analysis Report

REVISED

Sample Description: SG3-RB03-160816 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8535023
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 15:10 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB316 SDG#: SPP17-12RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 06:23	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

no change

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.1002 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535023
Lab File ID: 16AUG31-60.WIFF
Date Collected: 08/16/2016 15:10
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 06:23
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	1	U
375-85-9	PFHpA	1	U
355-46-4	PFHxS	4	U
335-67-1	PFOA	1	U
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

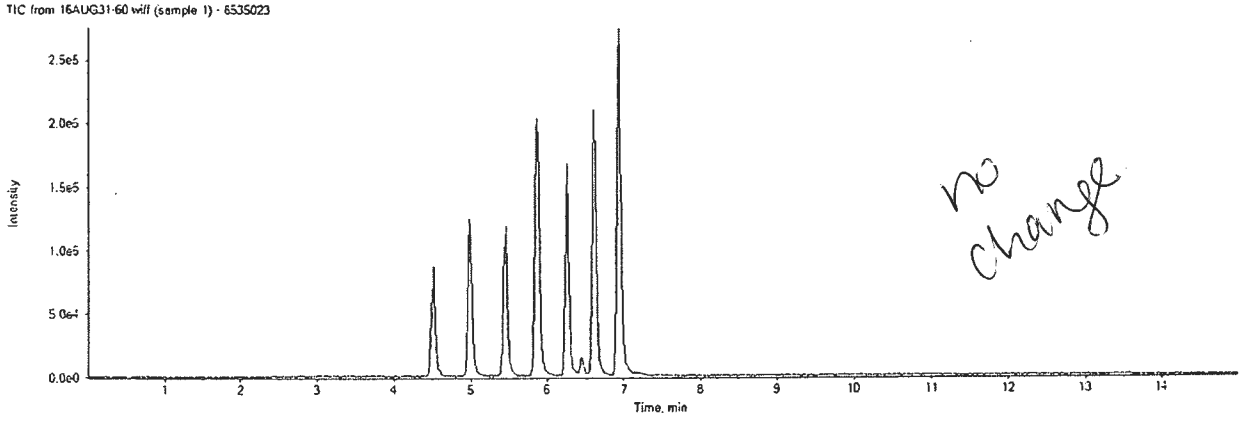
Sample Name:	8535023		**Data File:**		16AUG31-60.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-RB03-160816 Grab Blank Water		**Acquis Date:**		2016-09-01T06:23:05
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	61		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10016		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.98	164989.3	N/A	N/A	ng/L
PFHxA	N/A	N/A	A	13C2-PFHxA	4.51	306533.2	N/A	N/A	ng/L
PFHpA	N/A	N/A	A	13C4-PFHpA	4.98	301431.2	N/A	N/A	ng/L
PFHxS	4.97	656.8	A	18O2-PFHxS	4.98	164989.3	0.004	0.181	ng/L
PFOA	5.42	2269.1	M	13C4-PFOA	5.44	444304.7	0.005	0.224	ng/L
PFNA	5.88	846.7	A	13C5-PFNA	5.87	687259.0	0.001	0.058	ng/L
PFOS	N/A	N/A	A	13C4-PFOS	5.84	170010.2	N/A	N/A	ng/L
PFDA	6.27	469.5	M	13C2-PFDA	6.26	535004.2	0.001	0.035	ng/L
PFUnDA	6.62	1407.1	A	13C2-PFUnDA	6.61	717738.0	0.002	0.095	ng/L
PFDoDA	6.94	1469.6	A	13C2-PFDoDA	6.93	1042320.5	0.001	0.071	ng/L
PFTrDA	7.24	750.4	A	13C2-PFDoDA	6.93	1042320.5	0.001	0.035	ng/L
PFTeDA	7.54	875.5	A	13C2-PFDoDA	6.93	1042320.5	0.001	0.044	ng/L

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-RB03-160816 Grab Blank Water



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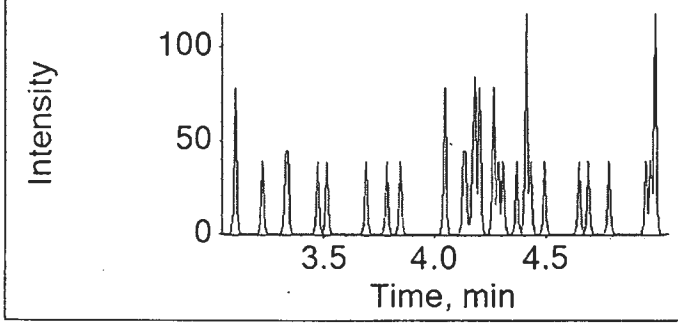
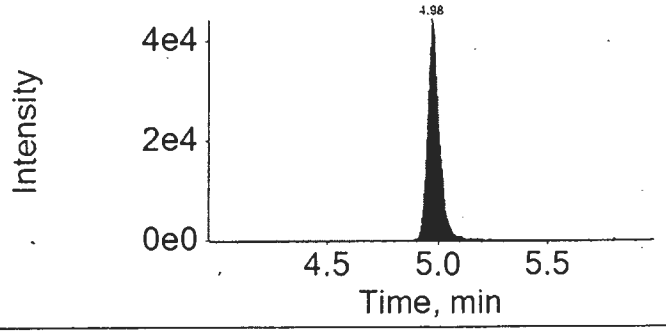
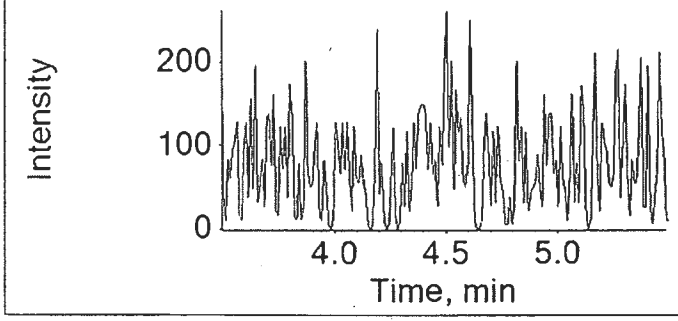
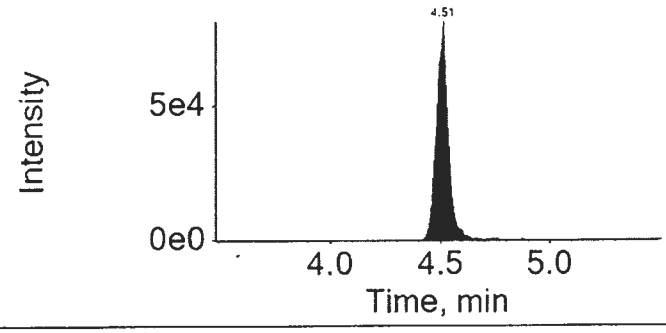
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



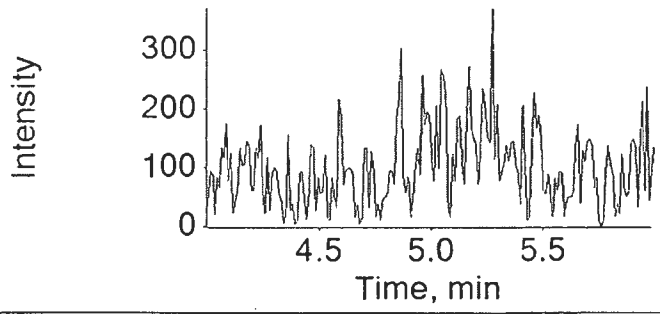


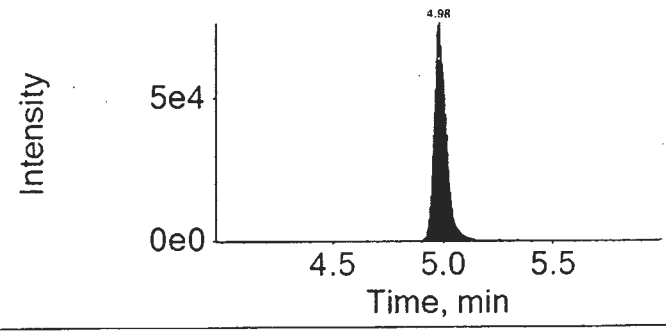
16AUG31-60.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



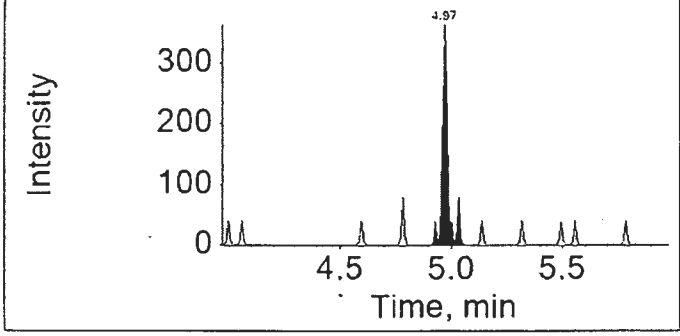


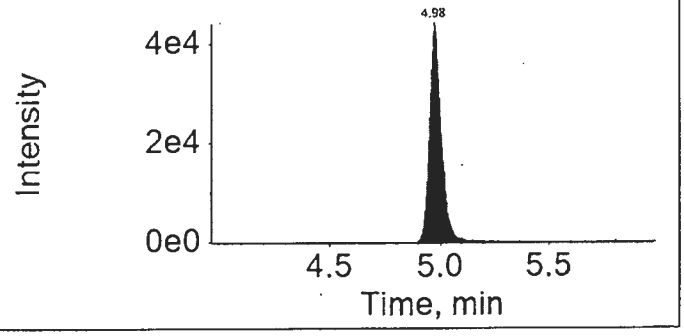
16AUG31-60.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



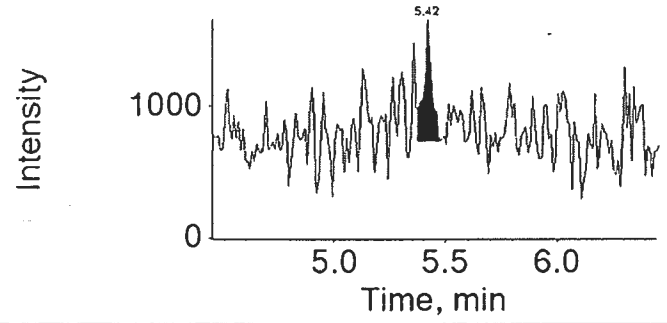


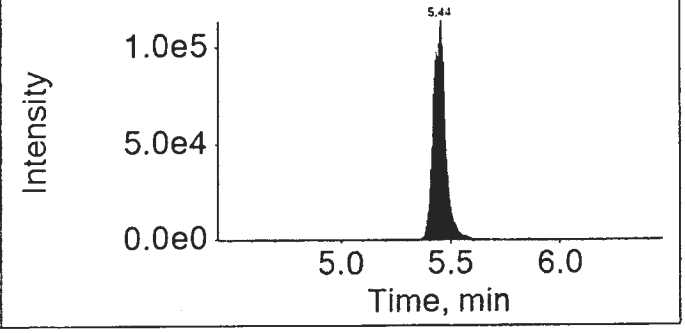
16AUG31-60.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



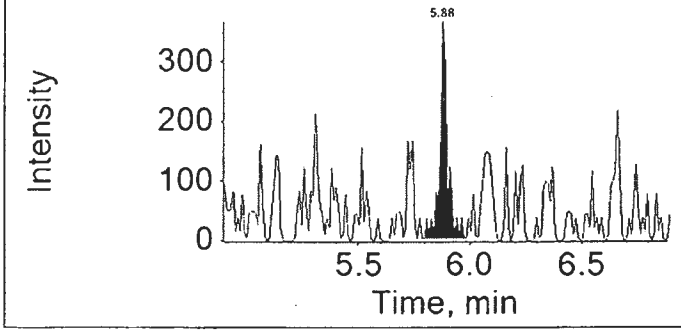


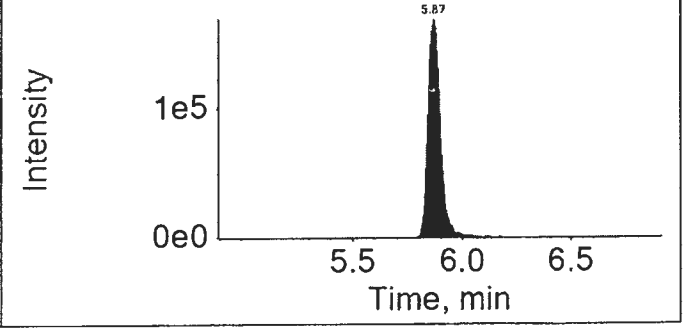
16AUG31-60.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





16AUG31-60.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0

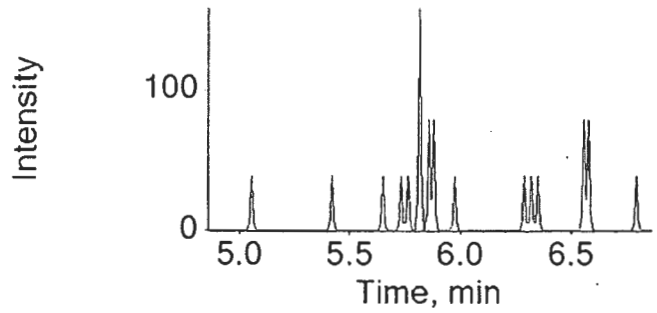




16AUG31-60.wiff

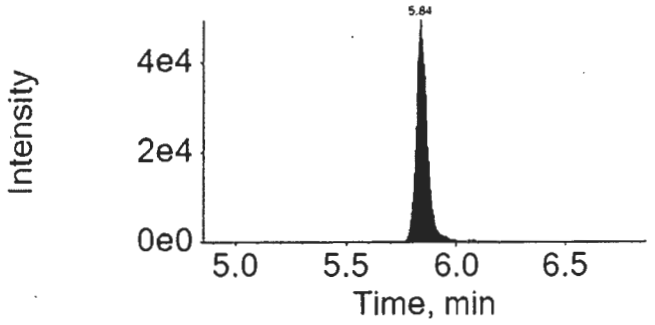
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

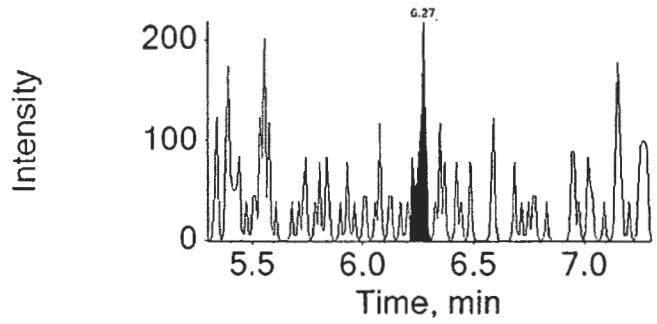
503.0 / 99.0



16AUG31-60.wiff

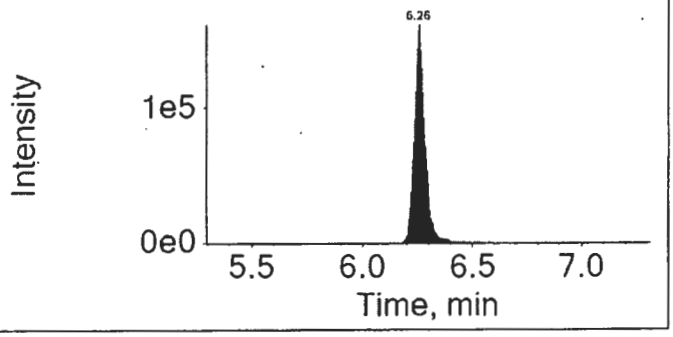
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

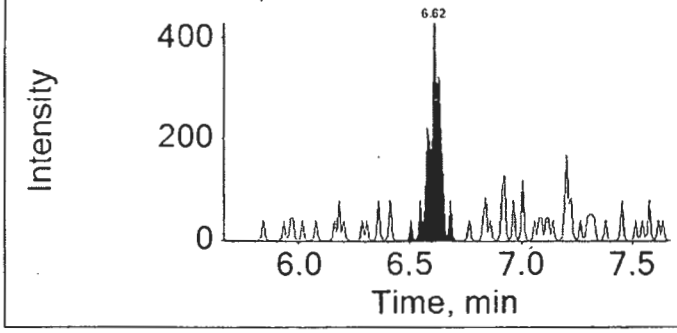
515.0 / 470.0



16AUG31-60.wiff

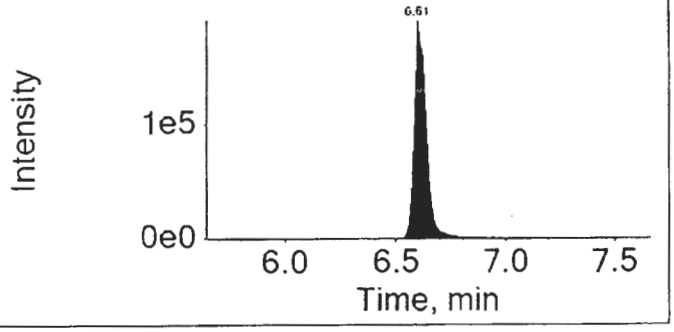
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

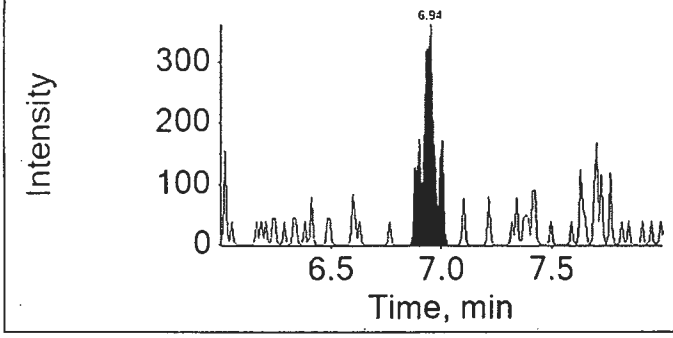
565.0 / 520.0



16AUG31-60.wiff

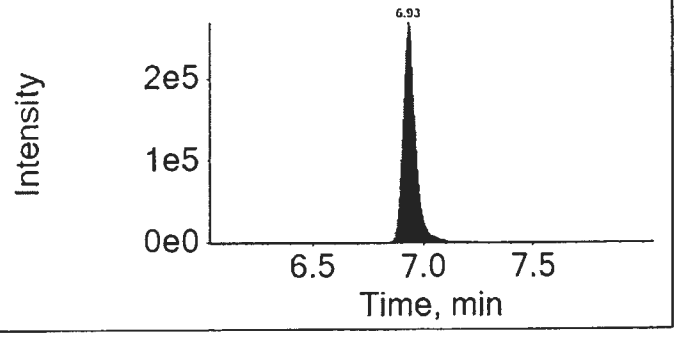
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

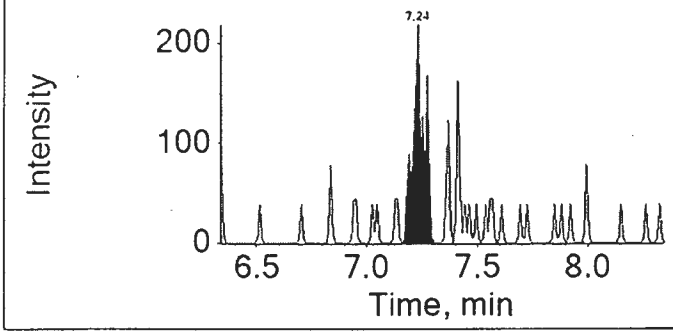
615.0 / 570.0



16AUG31-60.wiff

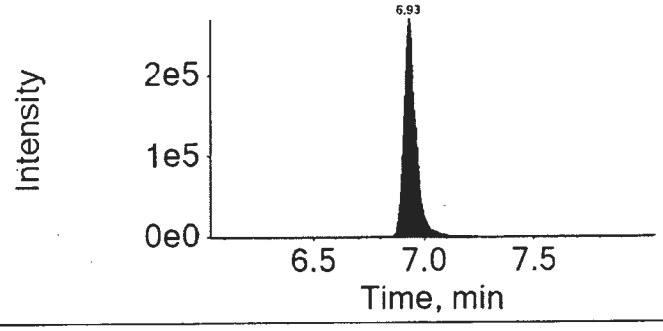
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

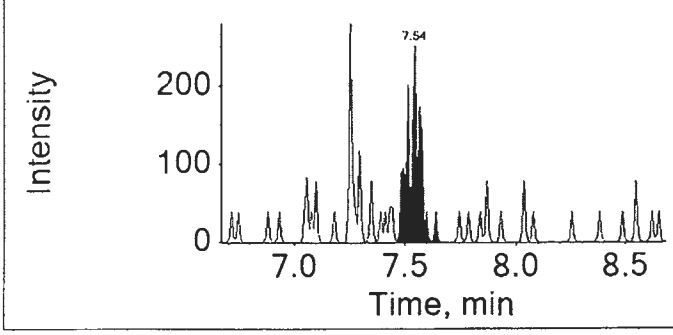
615.0 / 570.0



16AUG31-60.wiff

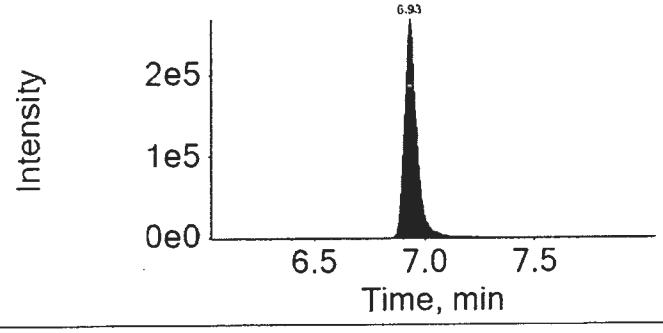
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 15 2016

Lynn Dodd
Principal Specialist

MCD 7821 9/14/16

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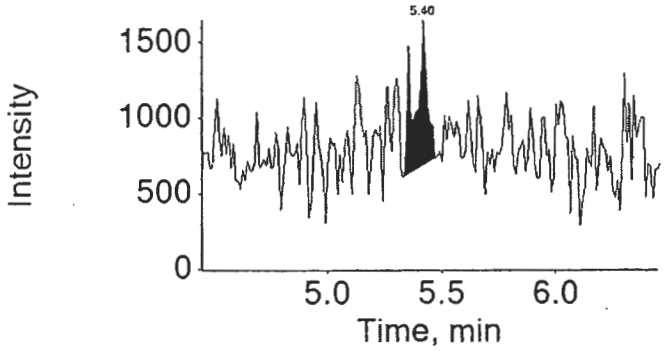
Print Date: 14/09/2016 1:01 PM

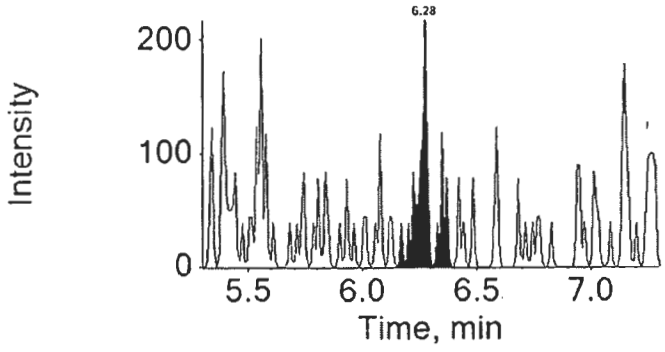
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-60.wiff	2016-09-01T06:23:05	8535023	PFOA	5.40	3485.8
16AUG31-60.wiff	2016-09-01T06:23:05	8535023	PFDA	6.28	718.9

Component: PFOA
Mass: 412.9 / 368.9



Component: PFDA
Mass: 512.9 / 469.0



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

MCD 7824
9/14/16

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Analysis Report

REVISED

Sample Description: SG3-RB04-160816 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8535024
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 15:15 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB416 SDG#: SPP17-13RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	Perfluorooctanoic acid	335-67-1	1	U	1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 06:39	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

no change

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.1001 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535024
Lab File ID: 16AUG31-61.WIFF
Date Collected: 08/16/2016 15:15
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 06:39
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	1	U
375-85-9	PFHpA	1	U
355-46-4	PFHxS	4	U
335-67-1	PFOA	1	U
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

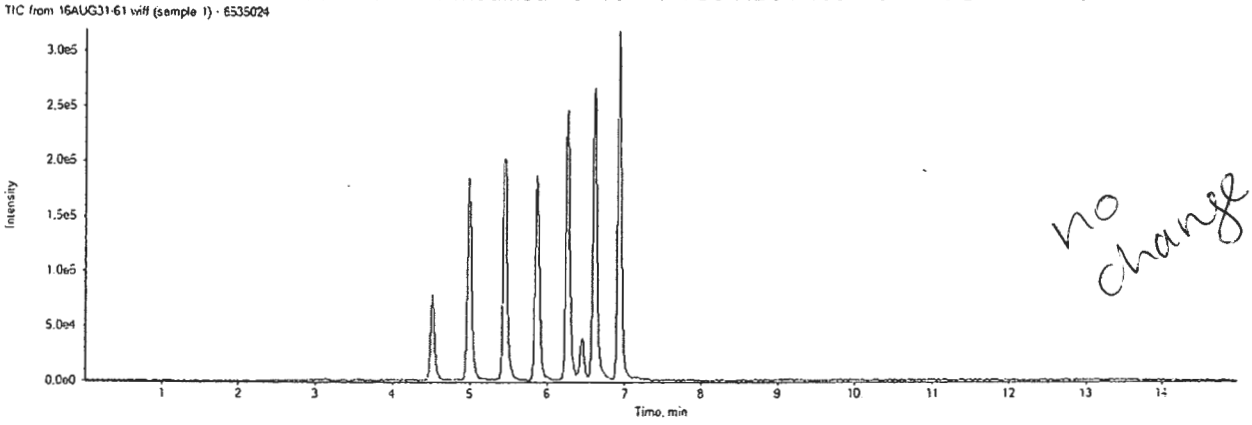
Sample Name:	8535024		**Data File:**		16AUG31-61.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-RB04-160816 Grab Blank Water		**Acquis Date:**		2016-09-01T06:39:29
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	62		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10010		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.98	193321.0	N/A	N/A	ng/L
PFHxA	N/A	N/A	A	13C2-PFHxA	4.51	284039.0	N/A	N/A	ng/L
PFHpA	N/A	N/A	A	13C4-PFHpA	4.99	471485.3	N/A	N/A	ng/L
PFHxS	4.99	874.5	M	18O2-PFHxS	4.98	193321.0	0.005	0.206	ng/L
PFOA	5.45	7509.7	A	13C4-PFOA	5.45	804213.8	0.009	0.410	ng/L
PFNA	5.88	789.3	M	13C5-PFNA	5.87	593737.9	0.001	0.063	ng/L
PFOS	5.84	62.5	A	13C4-PFOS	5.84	147289.2	0.000	0.021	ng/L
PFDA	6.26	1313.0	M	13C2-PFDA	6.26	900388.4	0.001	0.058	ng/L
PFUnDA	6.61	2313.9	A	13C2-PFUnDA	6.61	899108.7	0.003	0.124	ng/L
PFDoDA	6.93	1376.0	A	13C2-PFDoDA	6.93	1118658.1	0.001	0.062	ng/L
PFTrDA	7.23	1219.6	A	13C2-PFDoDA	6.93	1118658.1	0.001	0.054	ng/L
PFTeDA	7.53	1000.7	A	13C2-PFDoDA	6.93	1118658.1	0.001	0.046	ng/L

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-RB04-160816 Grab Blank Water

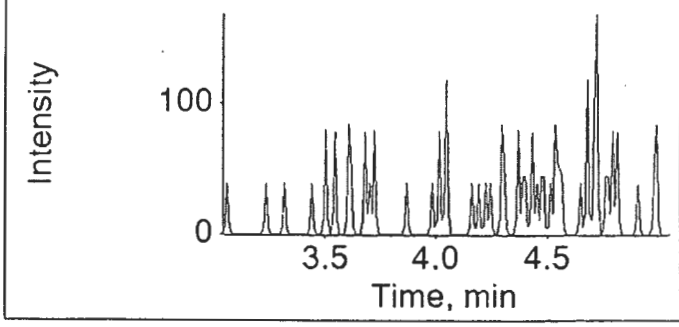


no change

16AUG31-61.wiff

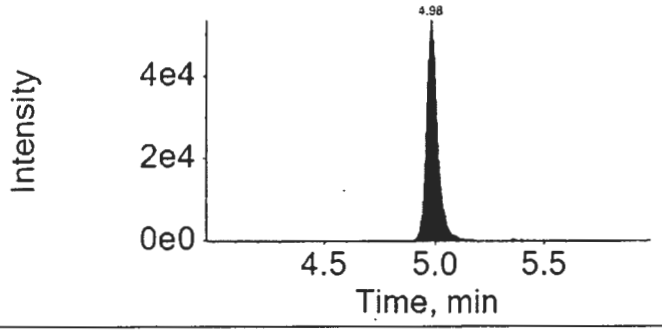
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

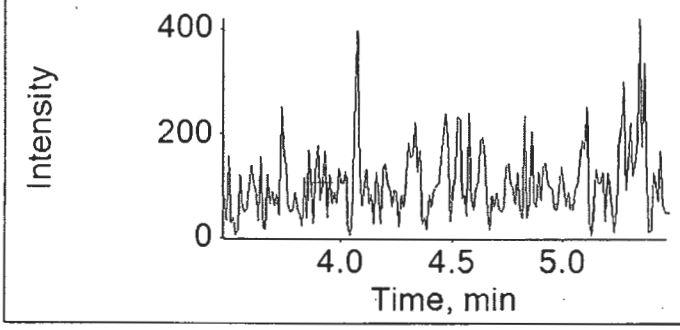
403.0 / 103.0



16AUG31-61.wiff

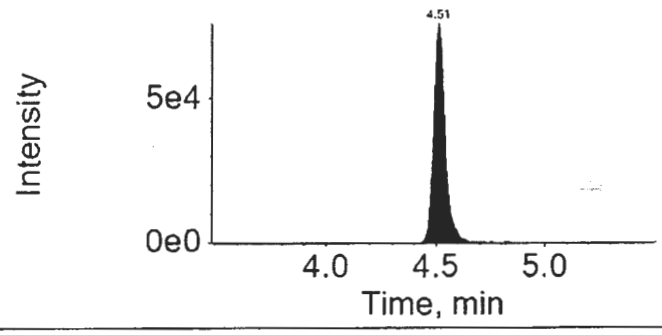
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

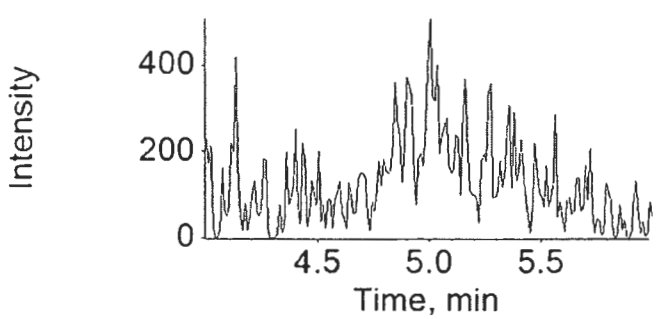
314.9 / 270.0



16AUG31-61.wiff

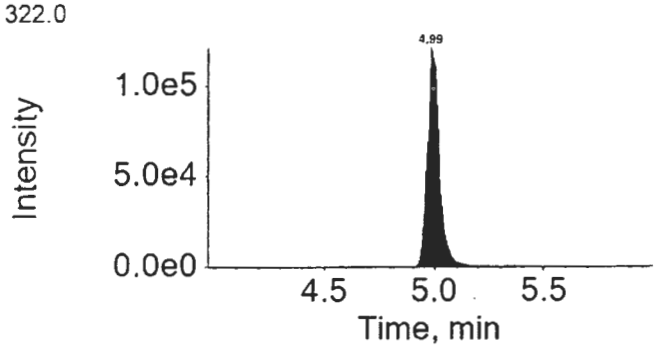
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

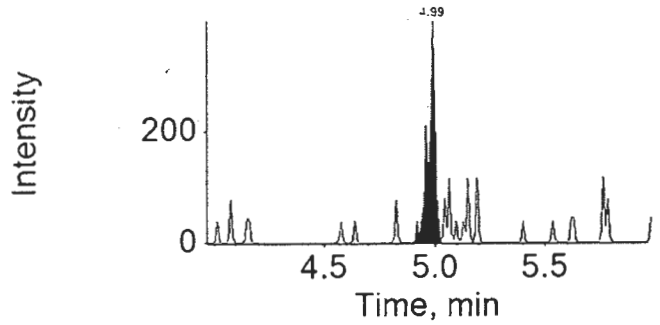
367.0 / 322.0



16AUG31-61.wiff

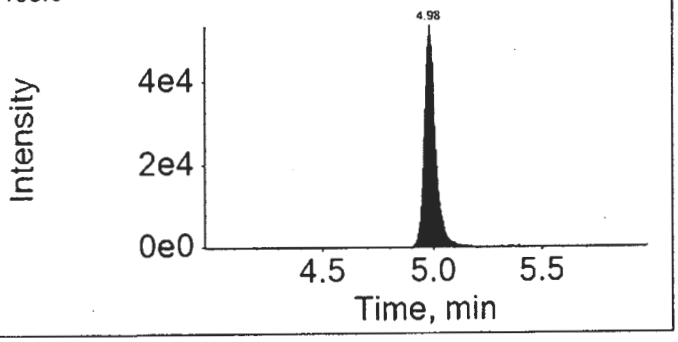
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

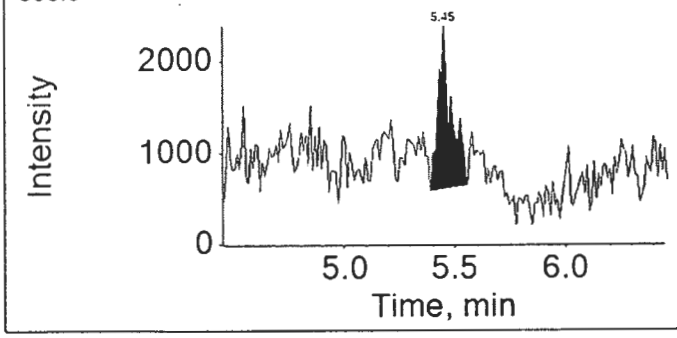
403.0 / 103.0



16AUG31-61.wiff

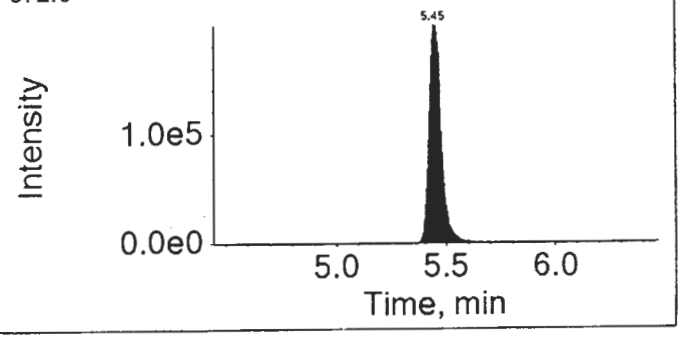
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

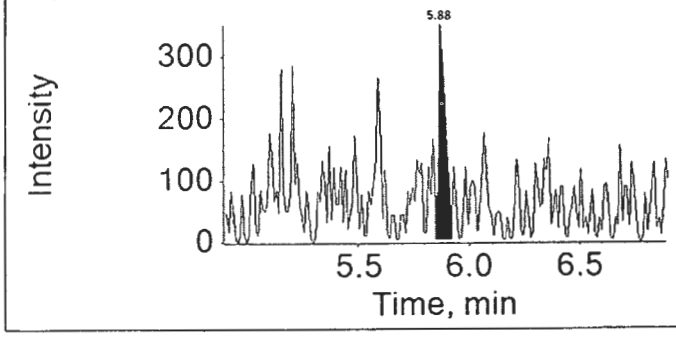
417.0 / 372.0



16AUG31-61.wiff

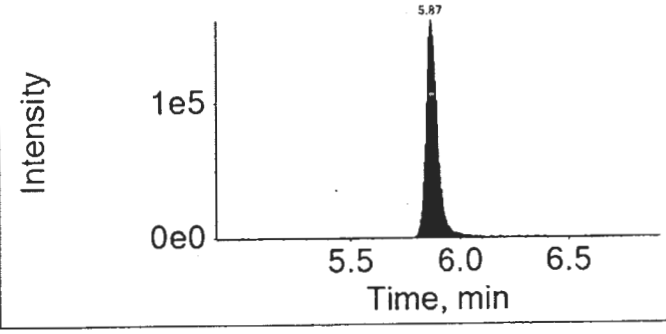
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

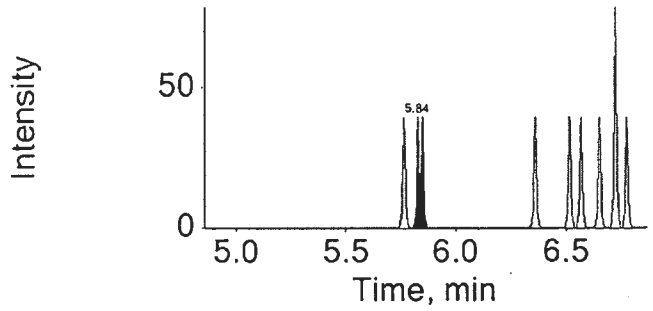
468.0 / 423.0



16AUG31-61.wiff

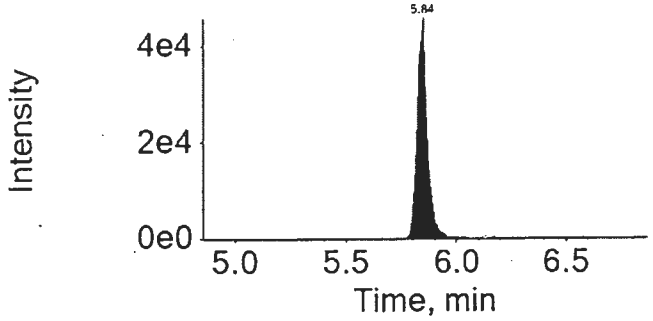
Analyte: PFOS

498.9 /
98.9



Internal Standard: 13C4-PFOS

503.0 /
99.0



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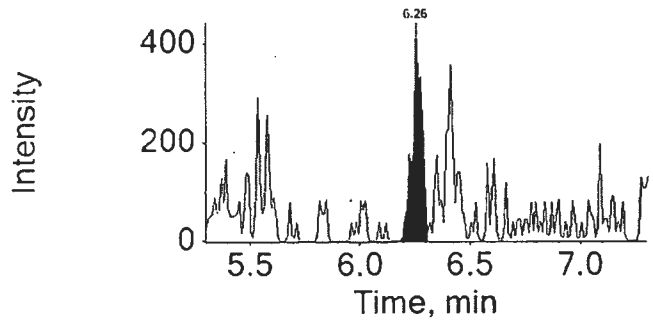
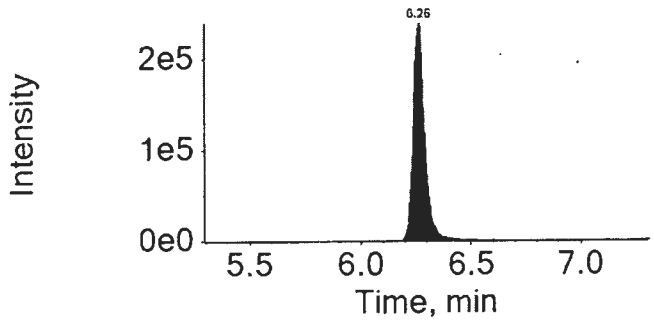
Analyte: PFDA

512.9 /
469.0



Internal Standard: 13C2-PFDA

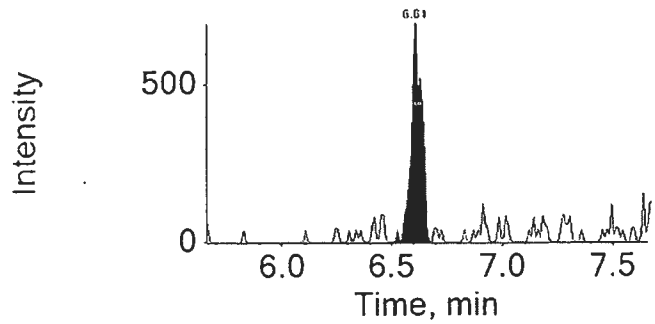
515.0 /
470.0



16AUG31-61.wiff

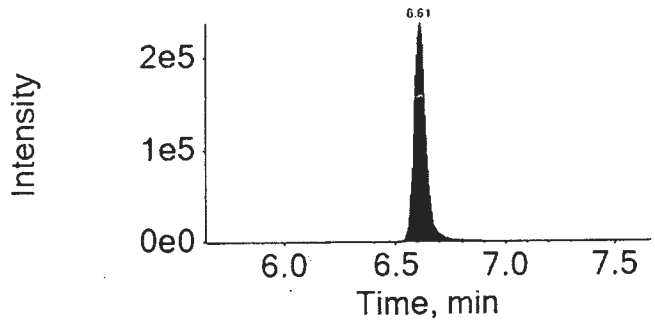
Analyte: PFUnDA

562.9 /
518.9

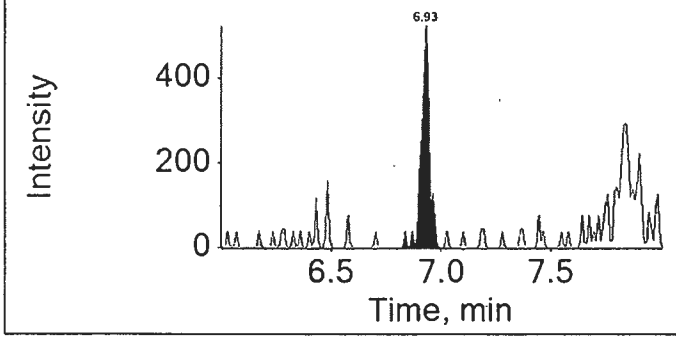


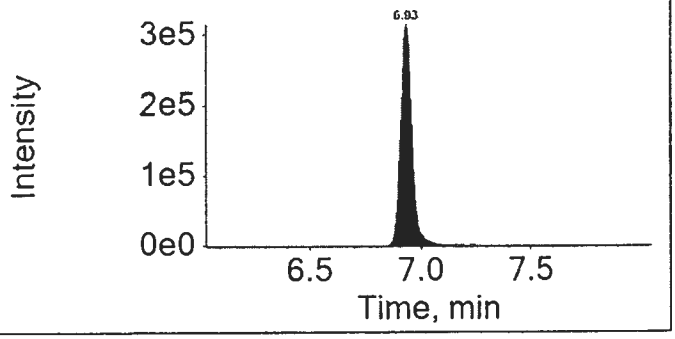
Internal Standard: 13C2-PFUnDA

565.0 /
520.0



16AUG31-61.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0





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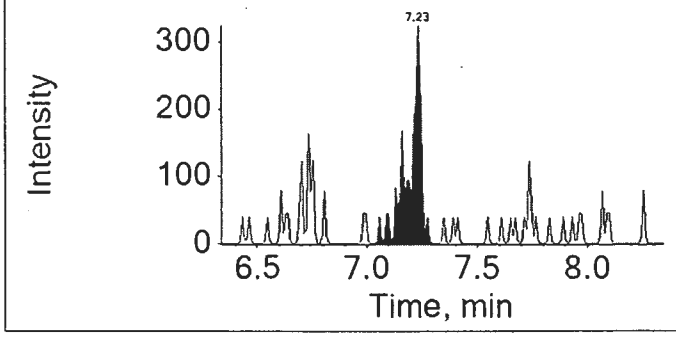
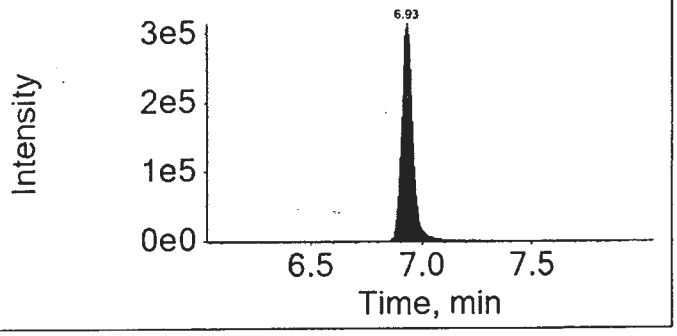
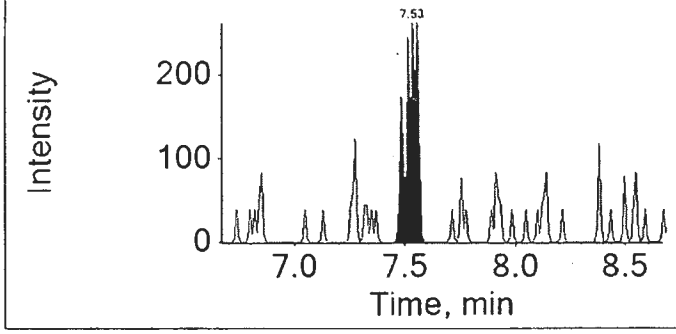
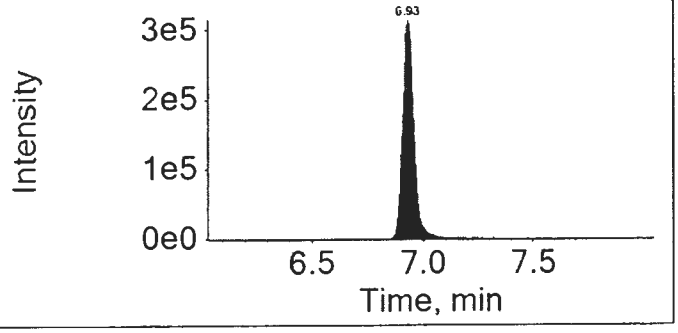
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG31-61.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

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9/14/16

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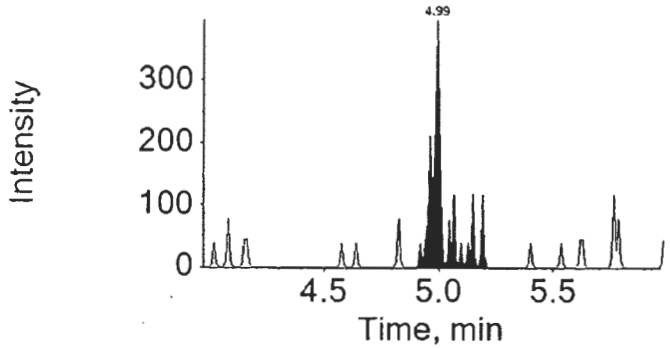
Print Date: 14/09/2016 1:01 PM

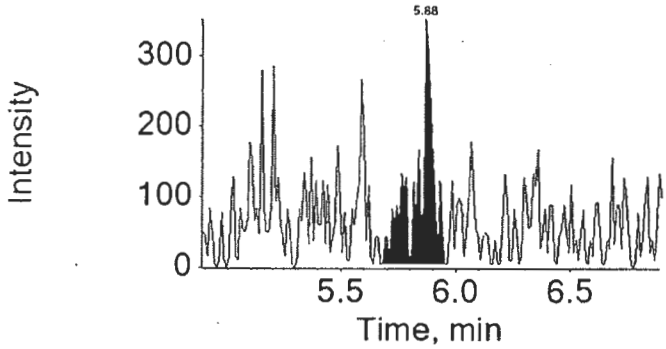
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-61.wiff	2016-09-01T06:39:29	8535024	PFHxS	4.99	1282.2
16AUG31-61.wiff	2016-09-01T06:39:29	8535024	PFNA	5.88	1598.0
16AUG31-61.wiff	2016-09-01T06:39:29	8535024	PFDA	6.26	1631.1

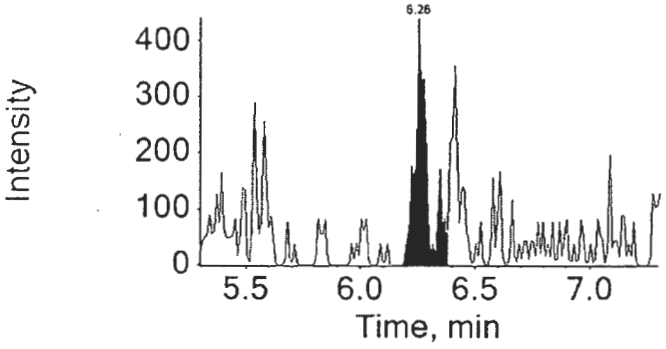
Component: PFHxS
Mass: 398.9 / 99.0



Component: PFNA
Mass: 462.9 / 418.9



Component: PFDA
Mass: 512.9 / 469.0



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

MCD 7824
9/14/16

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Analysis Report

REVISED

Sample Description: SG3-RB05-160816 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8535025
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 15:20 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB516 SDG#: SPP17-14RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	**Perfluorooctanoic acid**	335-67-1	**5**		1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 06:55	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

no change

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-RB05-160816 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8535025
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 15:20 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB516 SDG#: SPP17-14RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	**Perfluorooctanoic acid**	335-67-1	5		1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 06:55	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

(no charge)

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.1004 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535025
Lab File ID: 16AUG31-62.WIFF
Date Collected: 08/16/2016 15:20
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 06:55
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	1	U
375-85-9	PFHpA	1	U
355-46-4	PFHxS	4	U
335-67-1	PFOA	5	
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

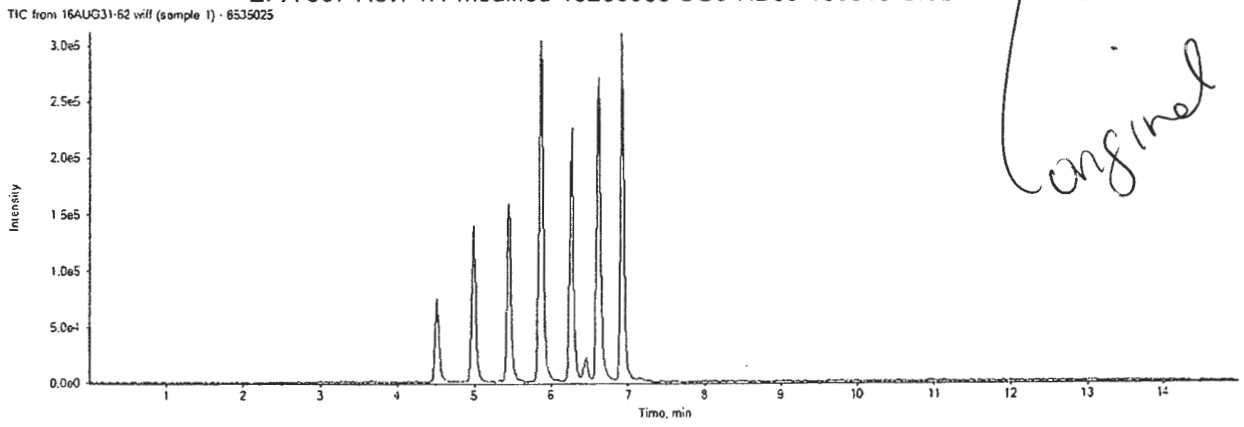
Sample Name:	8535025		**Data File:**		16AUG31-62.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-RB05-160816 Grab Blank Water		**Acquis Date:**		2016-09-01T06:55:53
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	63		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10035		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.98	173855.0	N/A	N/A	ng/L
PFHxA	N/A	N/A	A	13C2-PFHxA	4.51	274424.5	N/A	N/A	ng/L
PFHpA	N/A	N/A	A	13C4-PFHpA	4.99	336796.4	N/A	N/A	ng/L
PFHxS	N/A	N/A	A	18O2-PFHxS	4.98	173855.0	N/A	N/A	ng/L
PFOA	5.44	57171.4	M	13C4-PFOA	5.44	536066.7	0.107	4.674	ng/L
PFNA	5.87	2033.5	A	13C5-PFNA	5.86	964131.3	0.002	0.099	ng/L
PFOS	N/A	N/A	A	13C4-PFOS	5.84	202604.6	N/A	N/A	ng/L
PFDA	6.26	1438.1	A	13C2-PFDA	6.26	791284.5	0.002	0.072	ng/L
PFUnDA	6.61	2345.1	A	13C2-PFUnDA	6.61	921886.1	0.003	0.123	ng/L
PFDoDA	6.92	971.4	M	13C2-PFDoDA	6.92	1011868.1	0.001	0.048	ng/L
PFTrDA	7.25	781.9	A	13C2-PFDoDA	6.92	1011868.1	0.001	0.038	ng/L
PFTeDA	7.54	688.0	A	13C2-PFDoDA	6.92	1011868.1	0.001	0.035	ng/L

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-RB05-160816 Grab Blank Water



original

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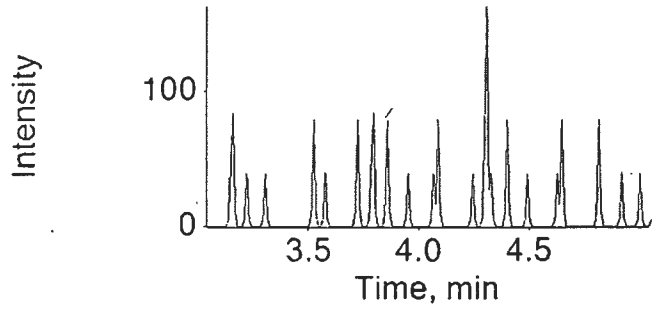
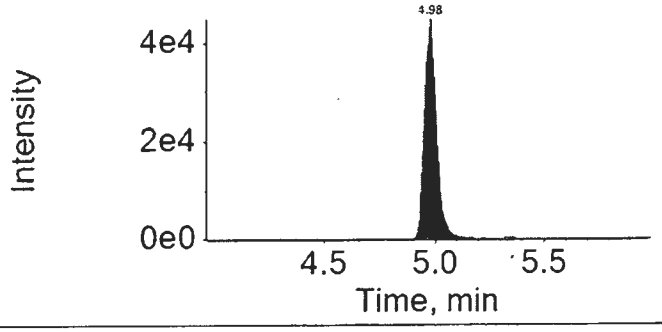
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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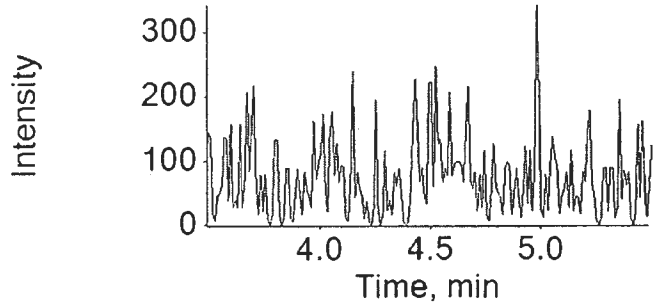
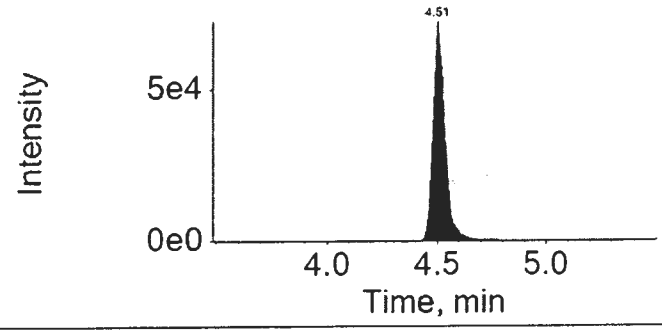
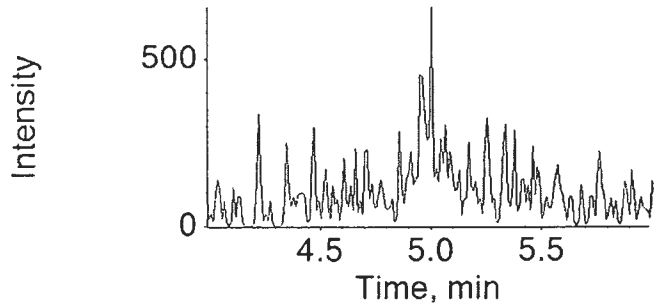
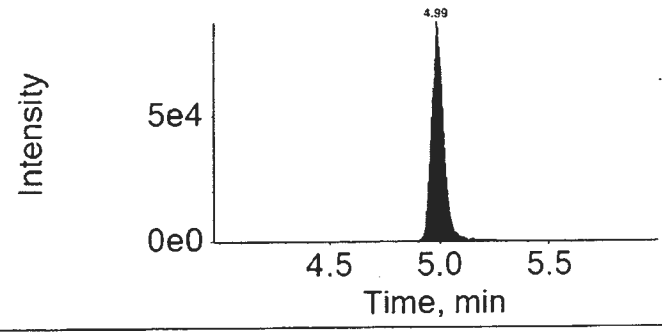
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16AUG31-62.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

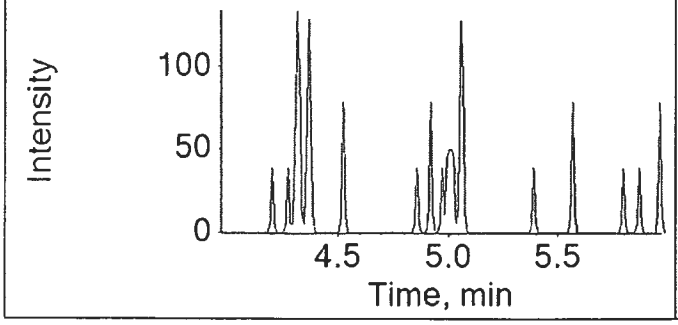




16AUG31-62.wiff

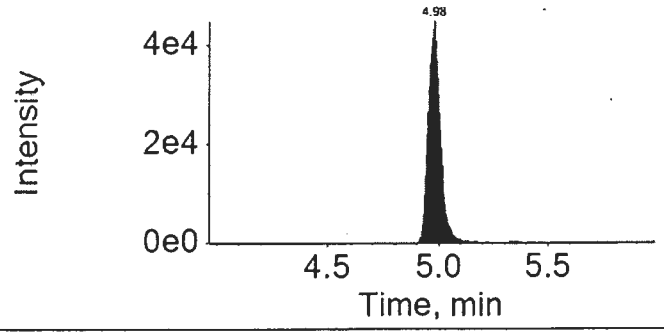
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

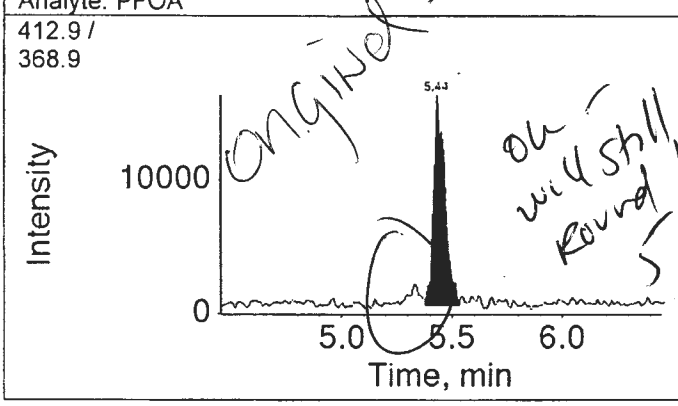
403.0 / 103.0



16AUG31-62.wiff

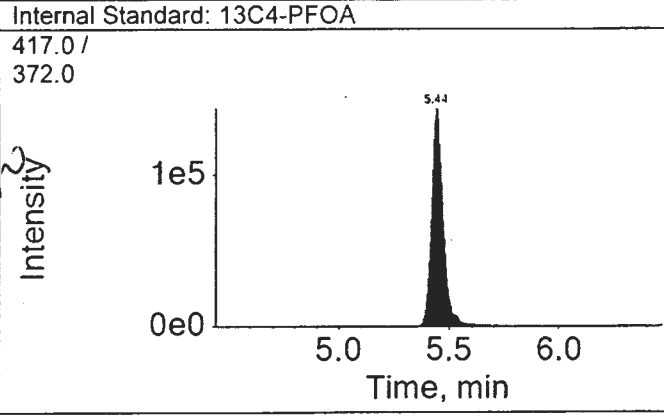
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

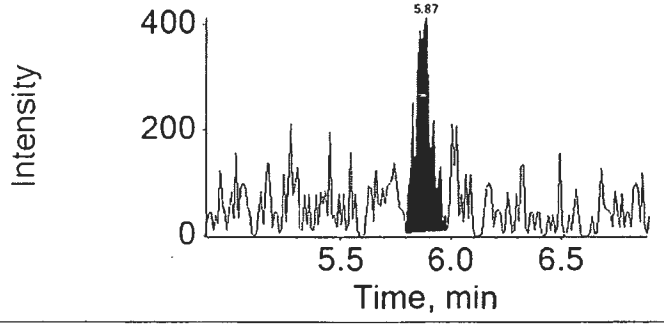
417.0 / 372.0



16AUG31-62.wiff

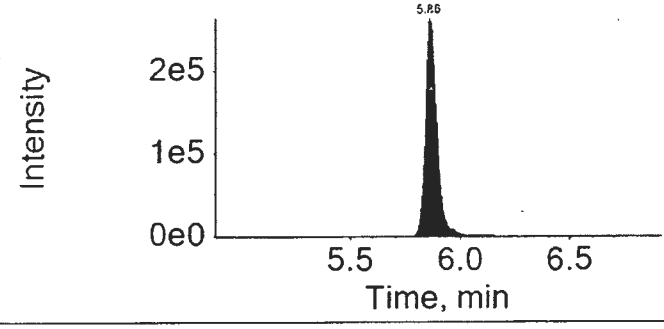
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

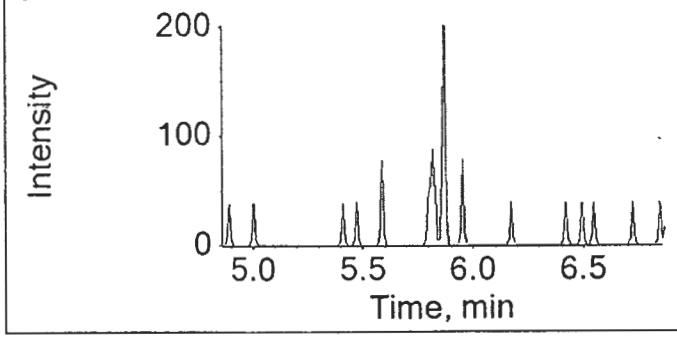
468.0 / 423.0



16AUG31-62.wiff

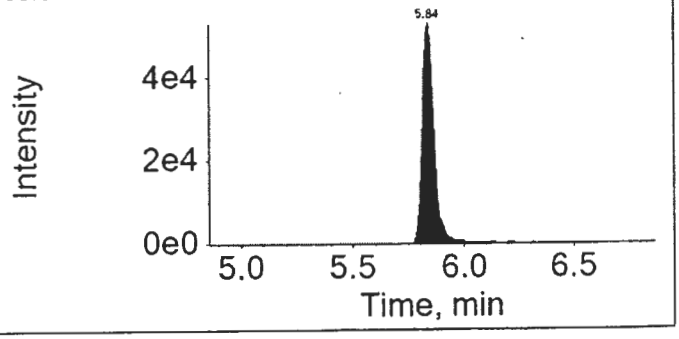
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

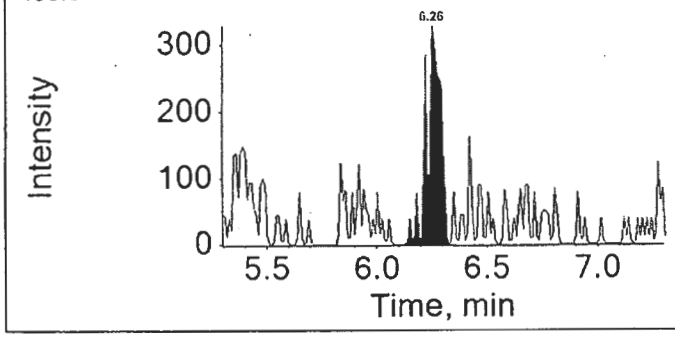
503.0 / 99.0



16AUG31-62.wiff

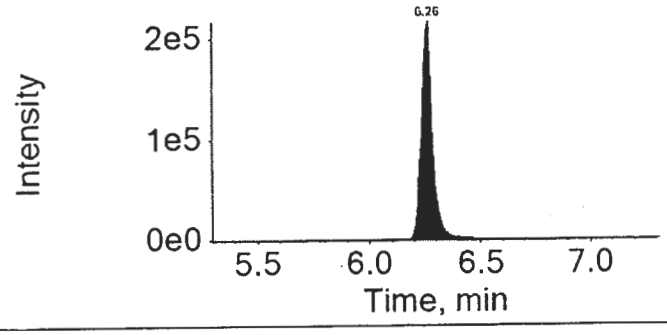
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

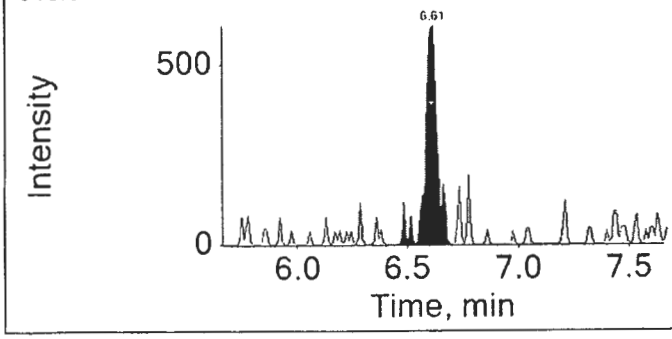
515.0 / 470.0



16AUG31-62.wiff

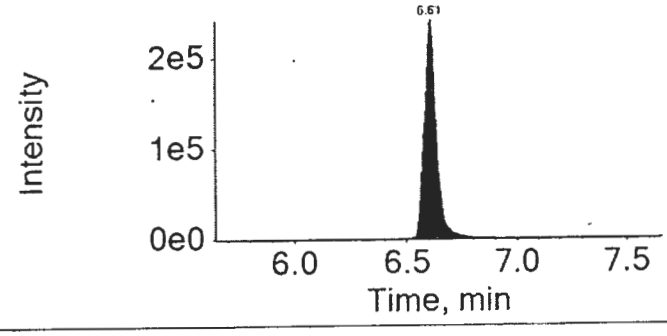
Analyte: PFUnDA

562.9 / 518.9

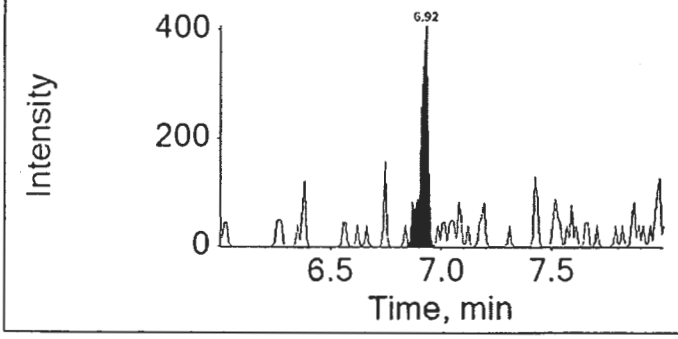


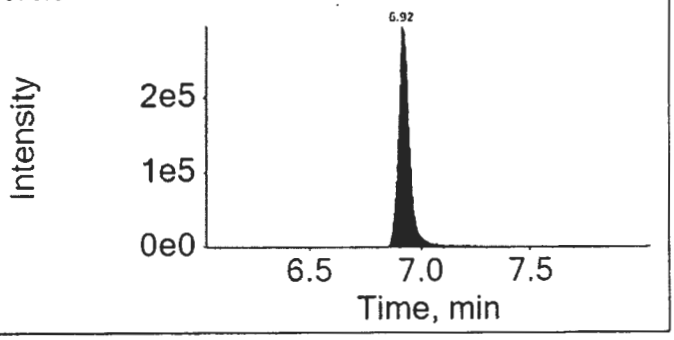
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

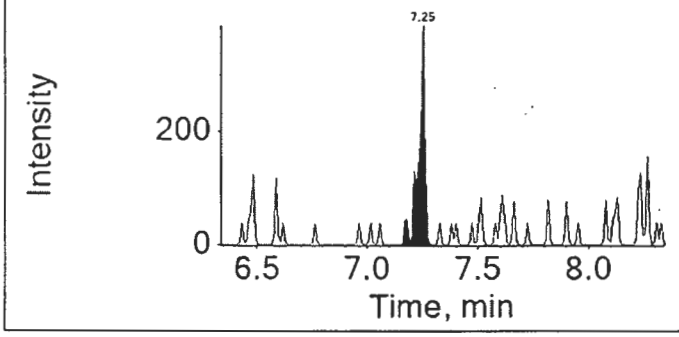


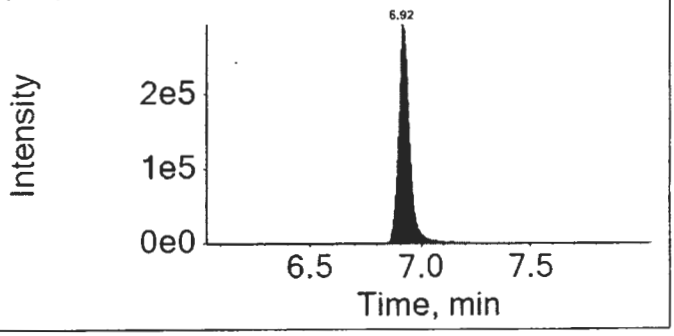
16AUG31-62.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



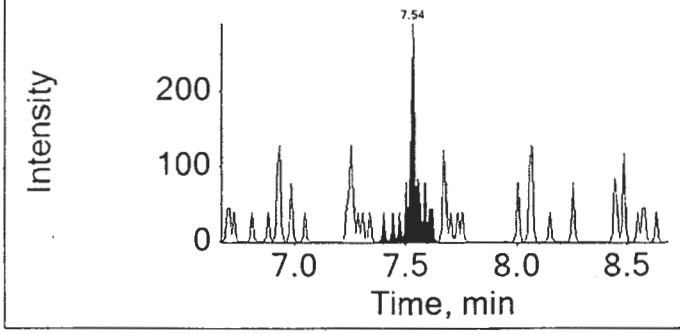


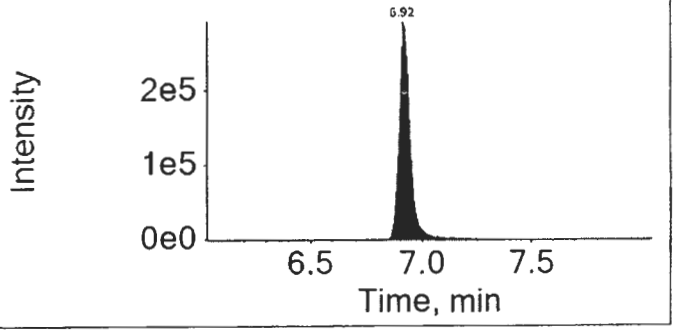
16AUG31-62.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG31-62.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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SEP 14 2016

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Principal Specialist

MED 7824
9/14/16

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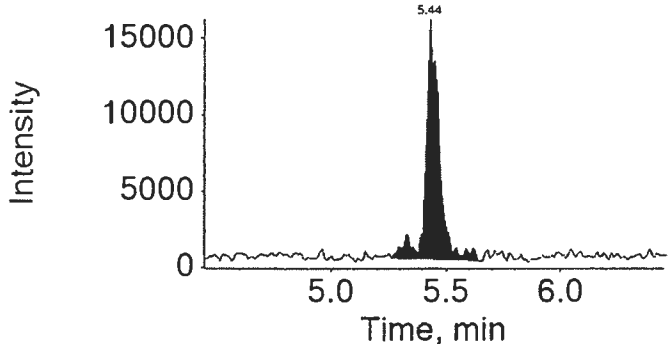
Print Date: 14/09/2016 1:01 PM

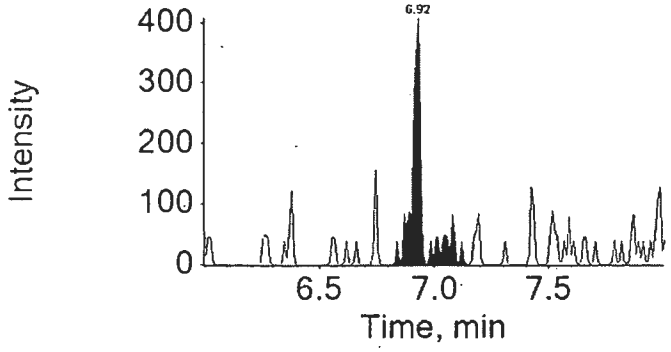
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-62.wiff	2016-09-01T06:55:53	8535025	PFOA	5.44	66357.5
16AUG31-62.wiff	2016-09-01T06:55:53	8535025	PFDoDA	6.92	1313.4

Component: PFOA
Mass: 412.9 / 368.9



Component: PFDoDA
Mass: 612.9 / 568.9



Lynn Dodd
15 2016

Lynn Dodd
Principal Specialist

MED 7824
9/14/16

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LC-MS/MS Analysis Report

Printed: 6/9/2017 4:51:00 PM

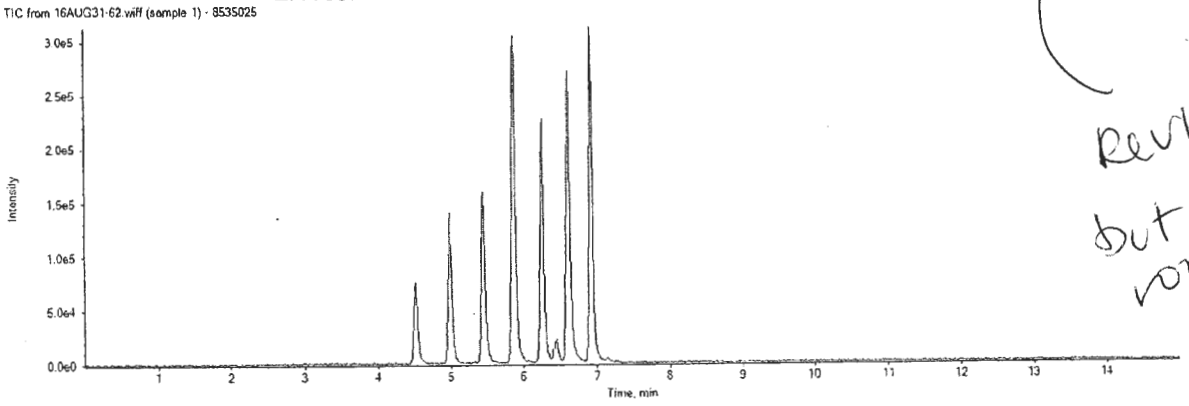
Sample Name:	8535025			**Data File:**		16AUG31-62.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-RB05-160816 Grab Blank Water			**Acquis Date:**		2016-09-01T06:55:53
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	63			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16236005
				ICAL Name:		16AUG26ICAL
Batch Number:	16236005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10035			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.98	173855.0	N/A	N/A
PFHxA	N/A	N/A	N/A	A	13C2-PFHxA	4.51	274424.5	N/A	N/A
PFHpA	N/A	N/A	N/A	A	13C4-PFHpA	4.99	336796.4	N/A	N/A
PFHxS	N/A	N/A	N/A	A	18O2-PFHxS	4.98	173855.0	N/A	N/A
PFOA	5.44	1.000	62927.8	M	13C4-PFOA	5.44	536066.7	0.117	5.145
PFNA	5.87	1.000	2033.5	A	13C5-PFNA	5.86	964131.3	0.002	0.099
PFOS	N/A	N/A	N/A	A	13C4-PFOS	5.84	202604.6	N/A	N/A
PFDA	6.26	1.000	1438.1	A	13C2-PFDA	6.26	791284.5	0.002	0.072
PFUnDA	6.61	1.000	2345.1	A	13C2-PFUnDA	6.61	921886.1	0.003	0.123
PFDoDA	6.92	1.000	971.4	M	13C2-PFDoDA	6.92	1011868.1	0.001	0.048
PFTrDA	7.25	1.050	781.9	A	13C2-PFDoDA	6.92	1011868.1	0.001	0.038
PFTeDA	7.54	1.090	688.0	A	13C2-PFDoDA	6.92	1011868.1	0.001	0.035

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-RB05-160816 Grab Blank Water



Revised but rounds the same.

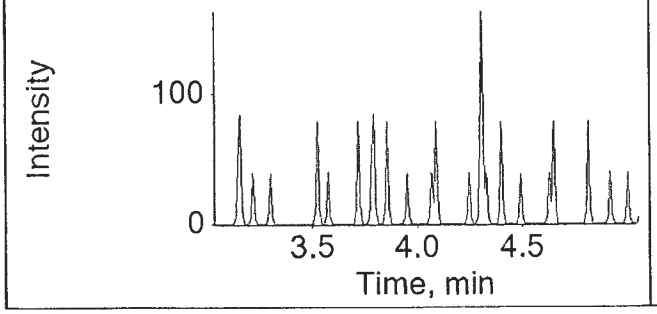
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:00 am, 6/13/17

16AUG31-62.wiff

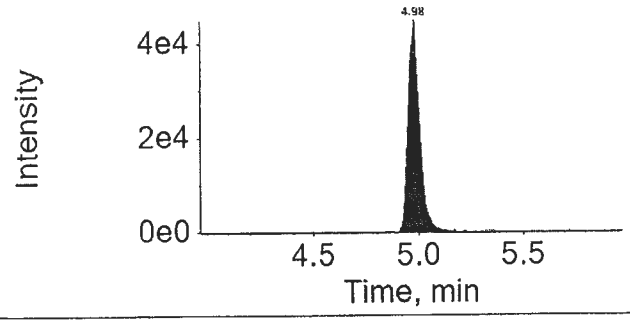
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

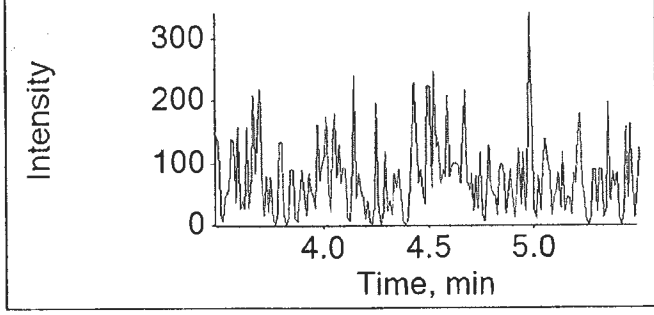
403.0 / 103.0



16AUG31-62.wiff

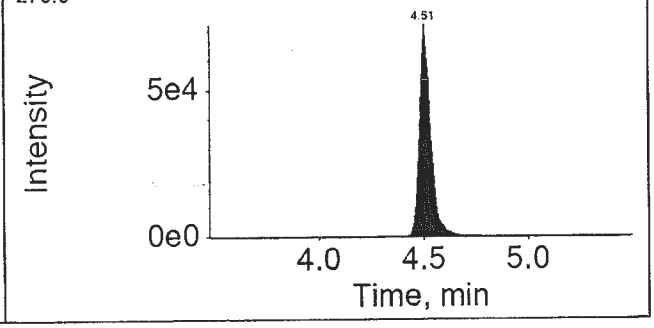
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

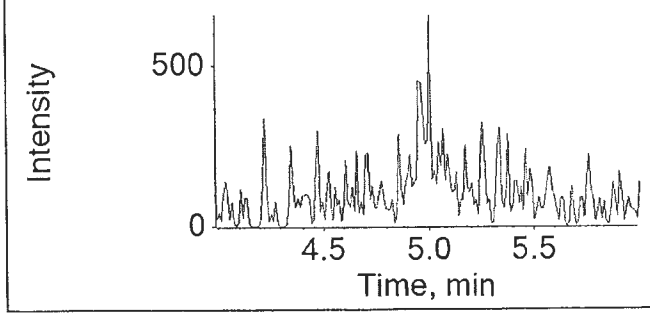
314.9 / 270.0



16AUG31-62.wiff

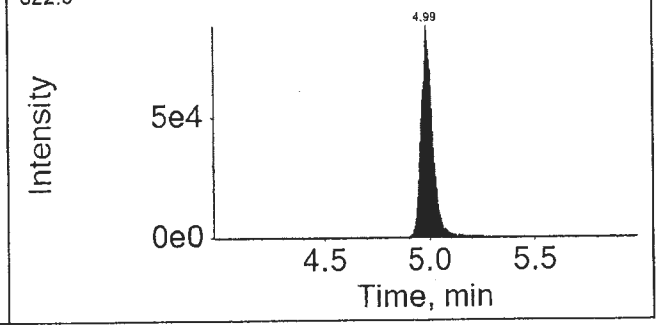
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



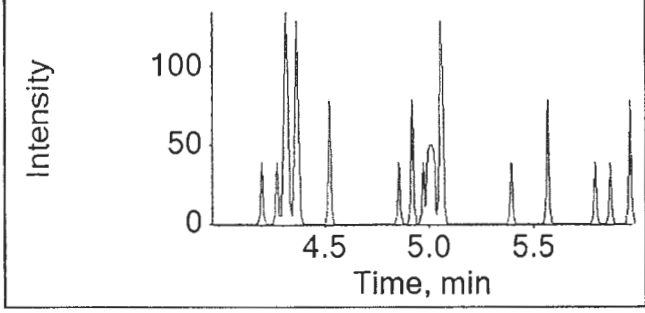
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:00 am, 6/13/17

16AUG31-62.wiff

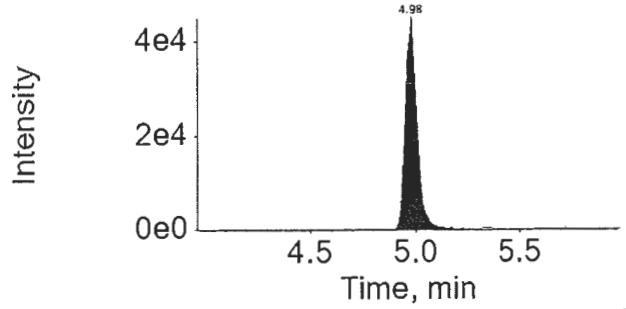
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

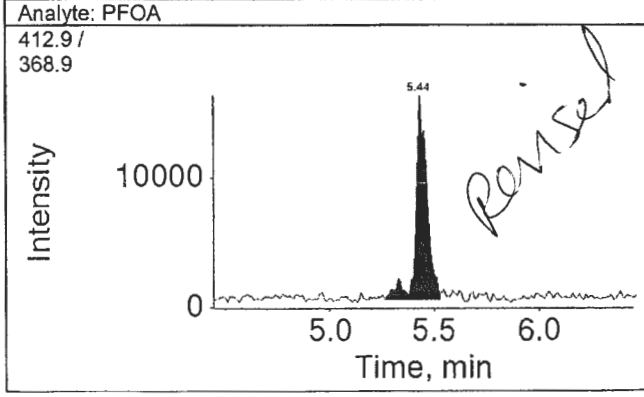
403.0 / 103.0



16AUG31-62.wiff

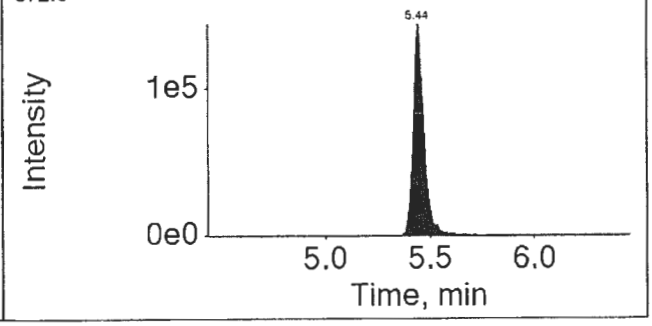
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

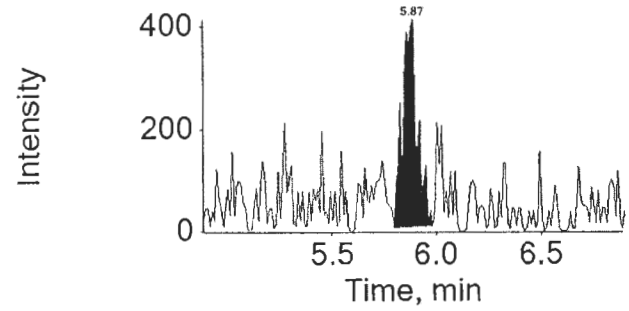
417.0 / 372.0



16AUG31-62.wiff

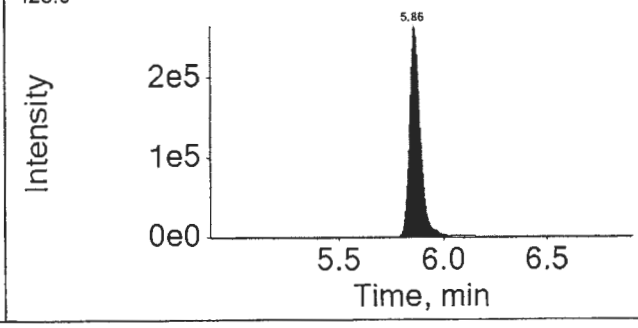
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



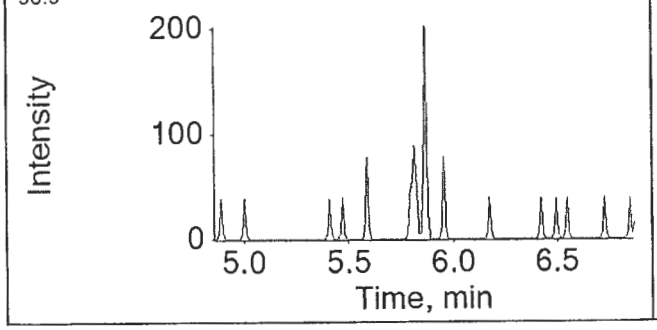
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:00 am, 6/13/17

16AUG31-62.wiff

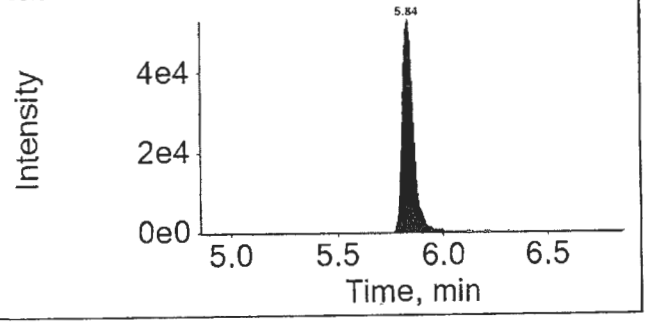
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

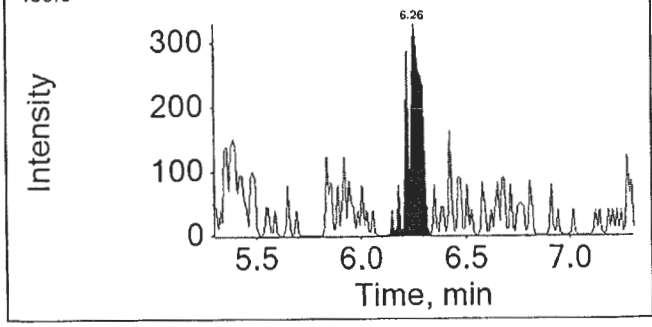
503.0 / 99.0



16AUG31-62.wiff

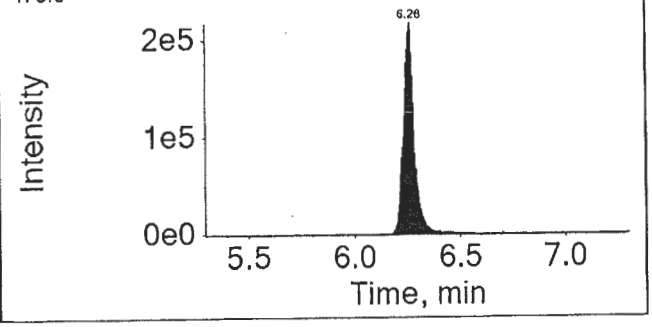
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

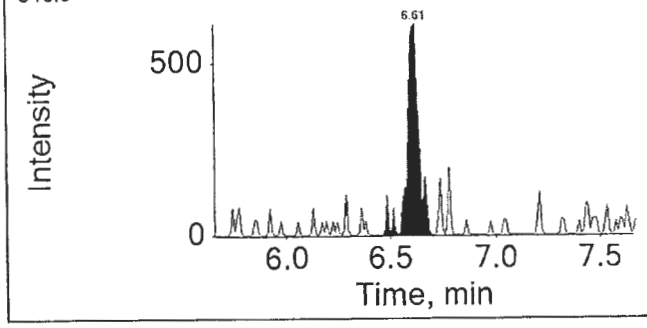
515.0 / 470.0



16AUG31-62.wiff

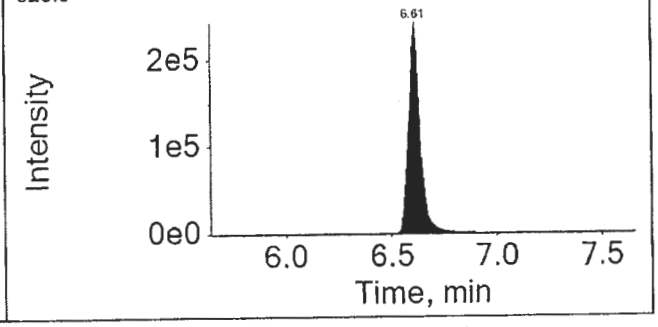
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



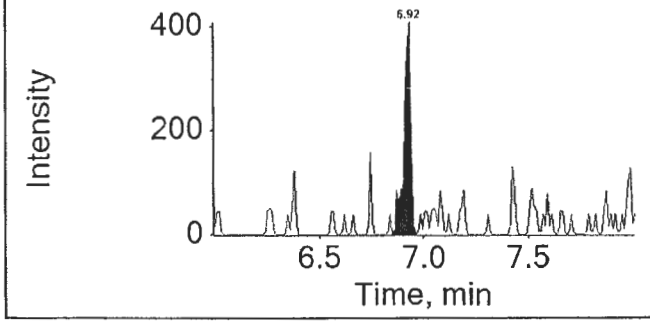
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:00 am, 6/13/17

16AUG31-62.wiff

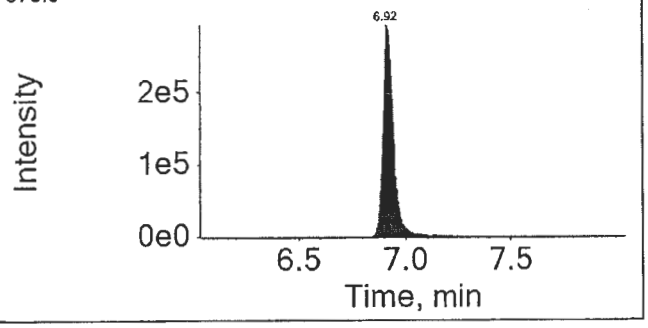
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

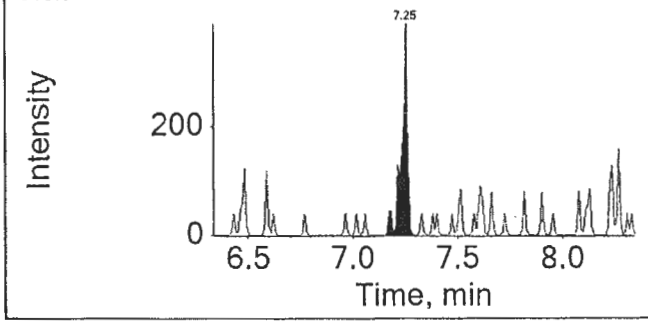
615.0 / 570.0



16AUG31-62.wiff

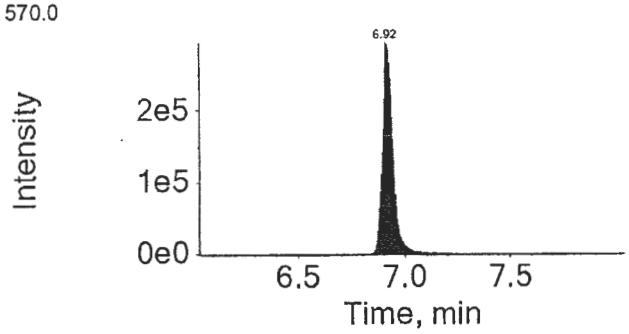
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

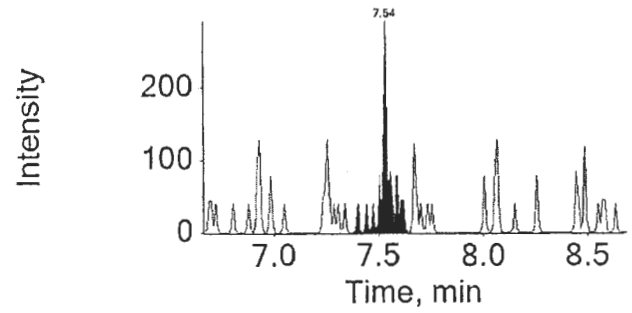
615.0 / 570.0



16AUG31-62.wiff

Analyte: PFTeDA

712.9 / 668.9



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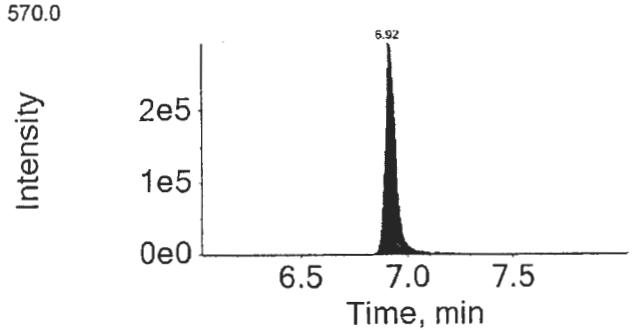
615.0 / 570.0



APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:00 am, 6/13/17

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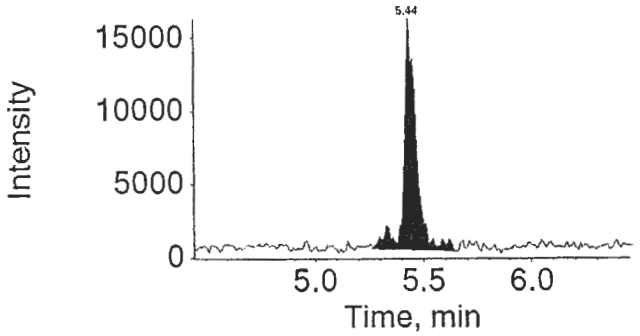
Print Date: 09/06/2017 4:54 PM

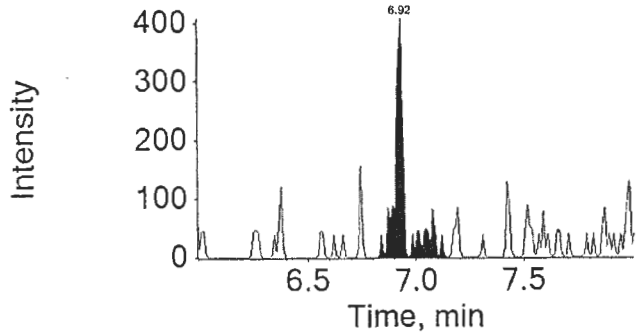
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-62.wiff	2016-09-01T06:55:53	8535025	PFOA	5.44	66357.5
16AUG31-62.wiff	2016-09-01T06:55:53	8535025	PFDoDA	6.92	1313.4

Component: PFOA
Mass: 412.9 / 368.9



Component: PFDoDA
Mass: 612.9 / 568.9



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:52 am, 6/13/17

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

REVISED

Sample Description: SG3-RB06-160816 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8535026
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/16/2016 15:25 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB616 SDG#: SPP17-15RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	**Perfluorooctanoic acid**	335-67-1	2		1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 07:12	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

no change

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.0996 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535026
Lab File ID: 16AUG31-63.WIFF
Date Collected: 08/16/2016 15:25
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 07:12
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	1	U
375-85-9	PFHpA	1	U
355-46-4	PFHxS	4	U
335-67-1	PFOA	2	
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

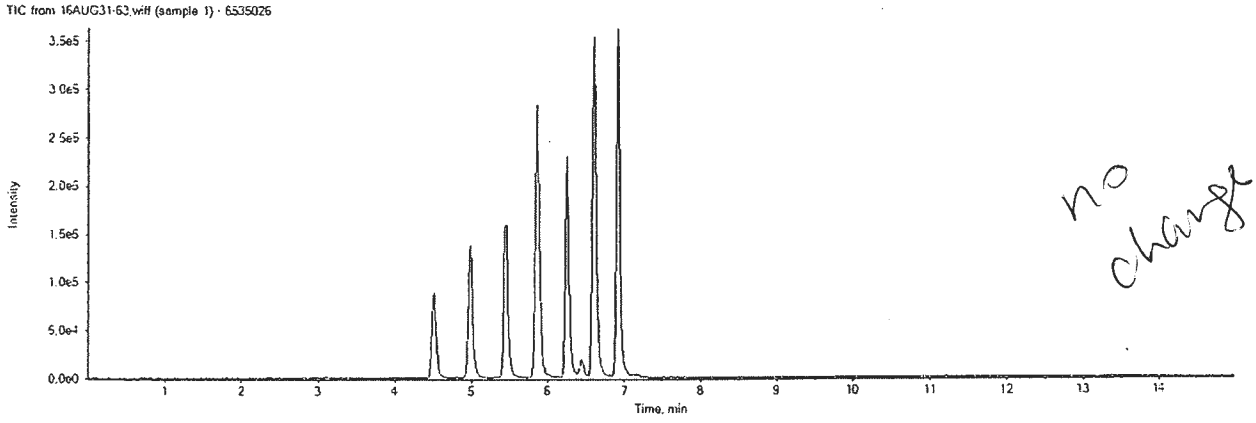
Sample Name:	8535026		**Data File:**		16AUG31-63.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-RB06-160816 Grab Blank Water		**Acquis Date:**		2016-09-01T07:12:14
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	64		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09960		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.98	191351.7	N/A	N/A	ng/L
PFHxA	4.52	1714.1	A	13C2-PFHxA	4.51	356198.6	0.005	0.460	ng/L
PFHpA	4.98	1873.3	M	13C4-PFHpA	4.99	349153.5	0.005	0.213	ng/L
PFHxS	4.96	783.4	A	18O2-PFHxS	4.98	191351.7	0.004	0.187	ng/L
PFOA	5.44	31838.7	A	13C4-PFOA	5.44	601754.5	0.053	2.336	ng/L
PFNA	5.87	982.0	A	13C5-PFNA	5.86	898105.6	0.001	0.052	ng/L
PFOS	N/A	N/A	A	13C4-PFOS	5.84	203582.3	N/A	N/A	ng/L
PFDA	6.26	944.2	M	13C2-PFDA	6.25	757601.2	0.001	0.050	ng/L
PFUnDA	6.61	3502.3	A	13C2-PFUnDA	6.61	1173204.0	0.003	0.145	ng/L
PFDoDA	6.92	1782.6	A	13C2-PFDoDA	6.92	1194587.0	0.001	0.076	ng/L
PFTrDA	7.24	875.5	A	13C2-PFDoDA	6.92	1194587.0	0.001	0.036	ng/L
PFTeDA	7.51	1061.5	A	13C2-PFDoDA	6.92	1194587.0	0.001	0.046	ng/L

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-RB06-160816 Grab Blank Water

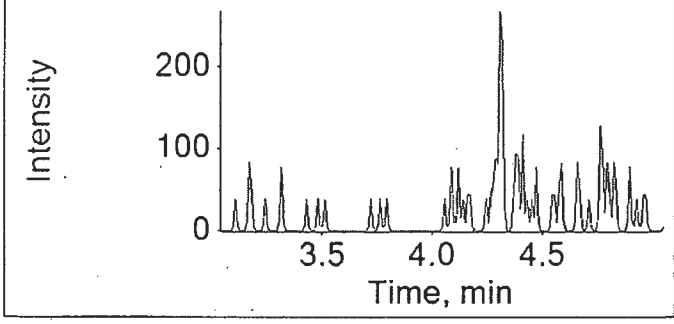


no change

16AUG31-63.wiff

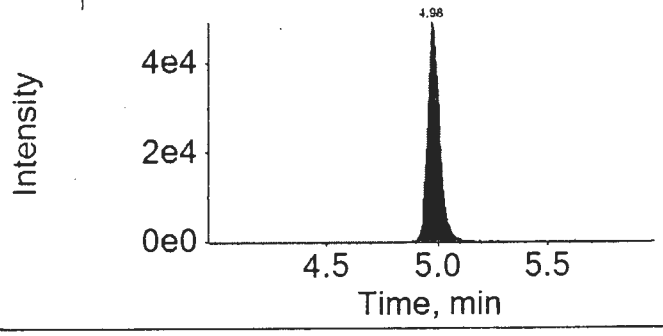
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

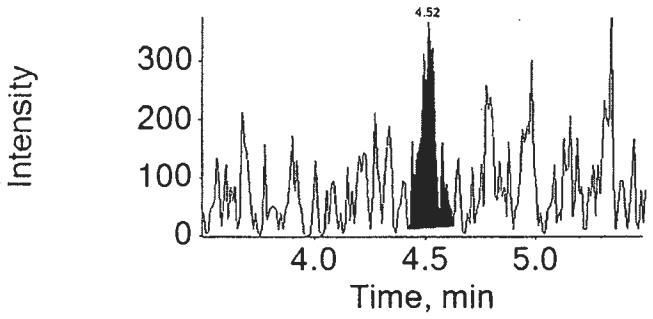
403.0 / 103.0



16AUG31-63.wiff

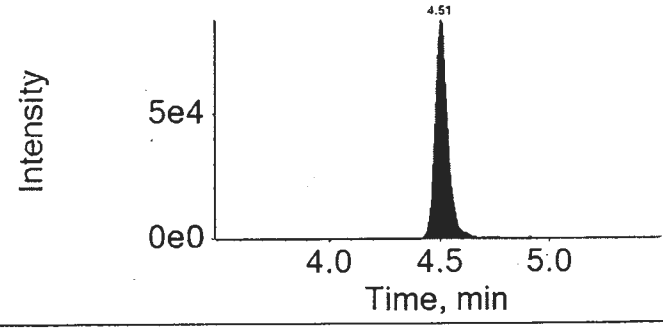
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

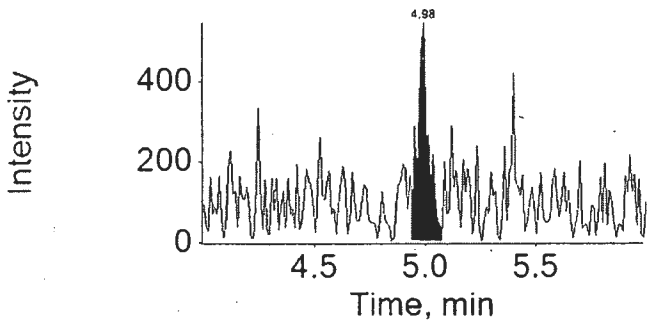
314.9 / 270.0



16AUG31-63.wiff

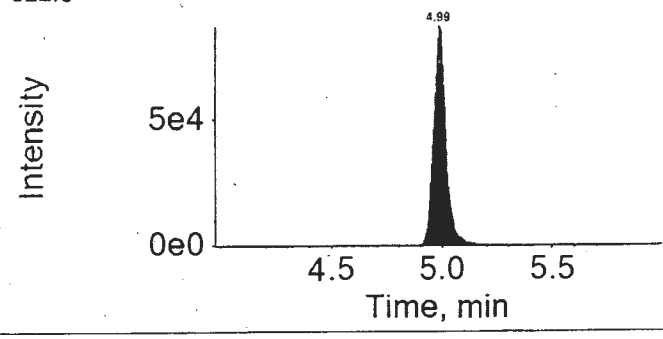
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



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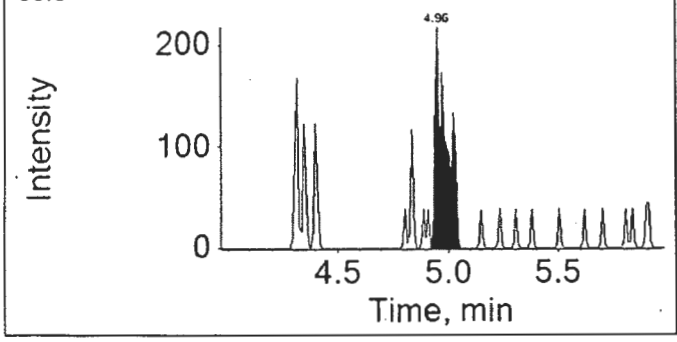
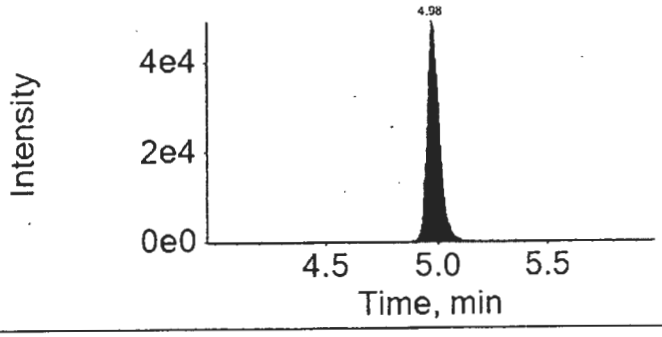
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

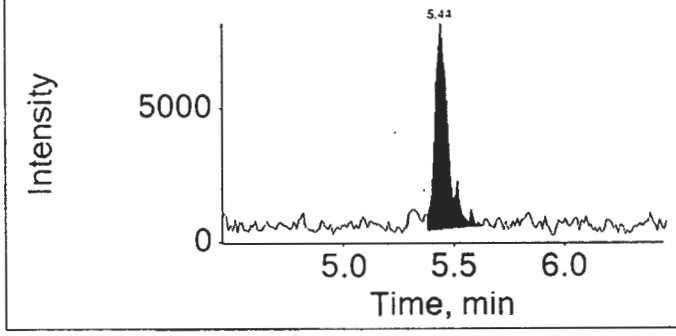
403.0 / 103.0



16AUG31-63.wiff

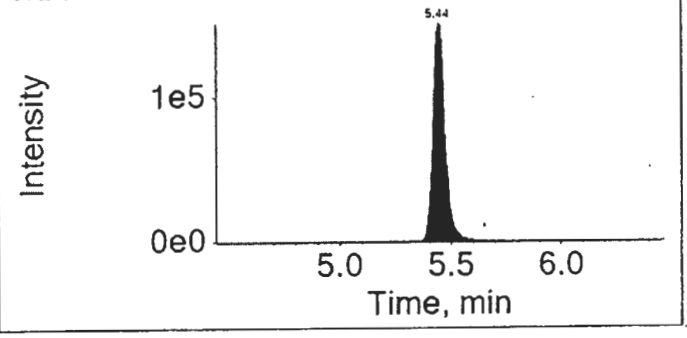
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

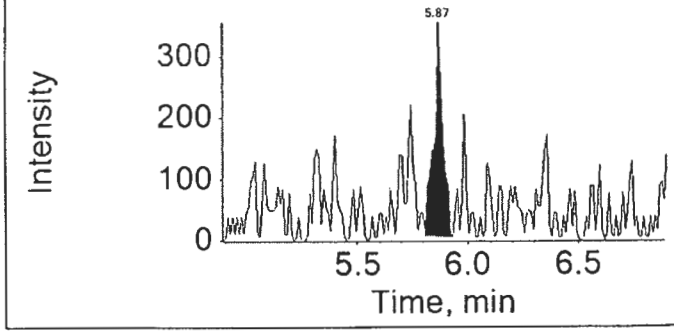
417.0 / 372.0



16AUG31-63.wiff

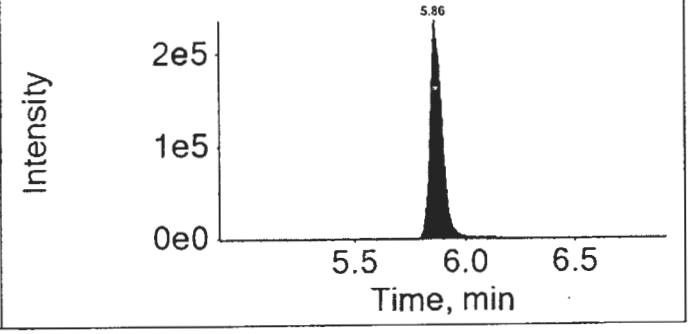
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

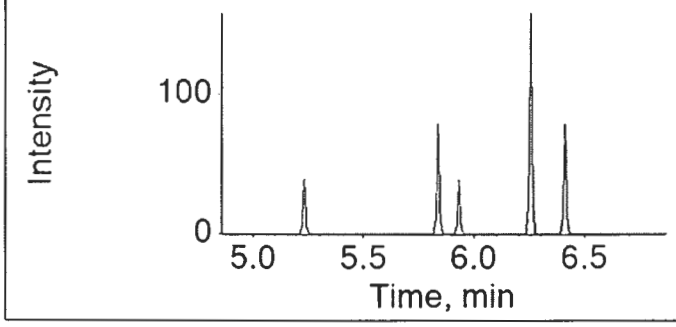
468.0 / 423.0



16AUG31-63.wiff

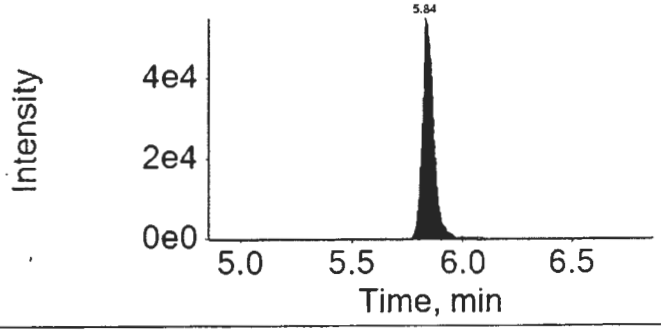
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

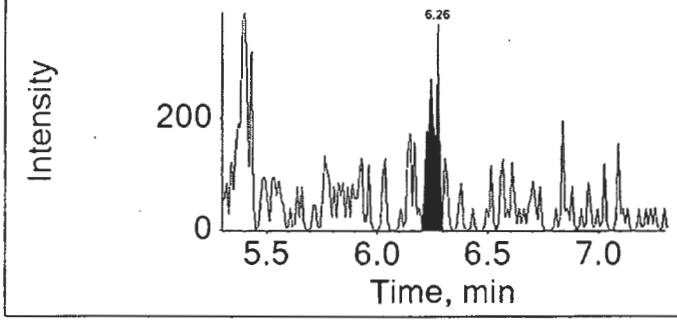
503.0 / 99.0



16AUG31-63.wiff

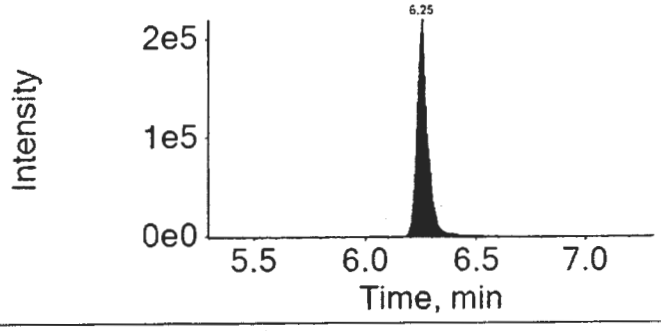
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

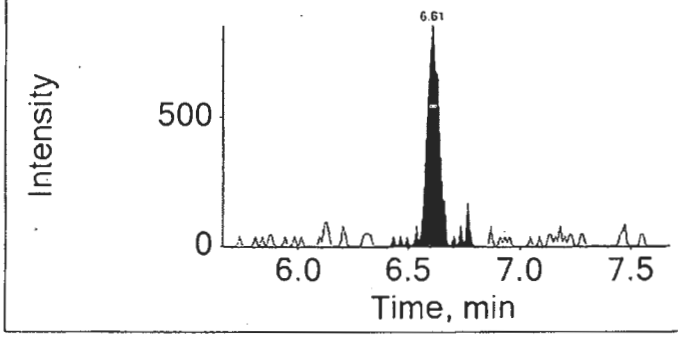
515.0 / 470.0



16AUG31-63.wiff

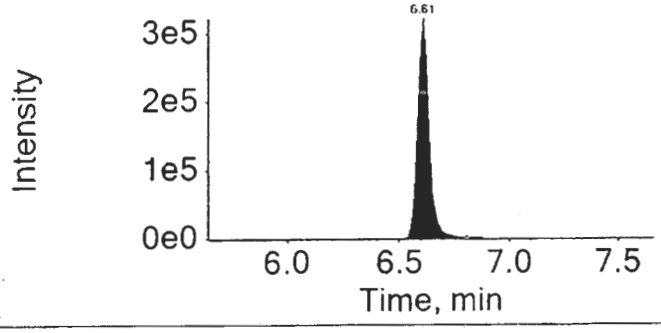
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

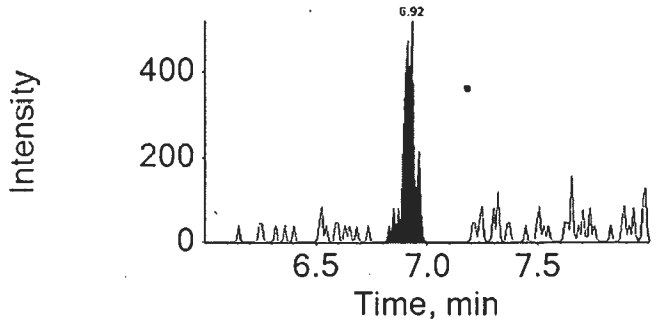
565.0 / 520.0



16AUG31-63.wiff

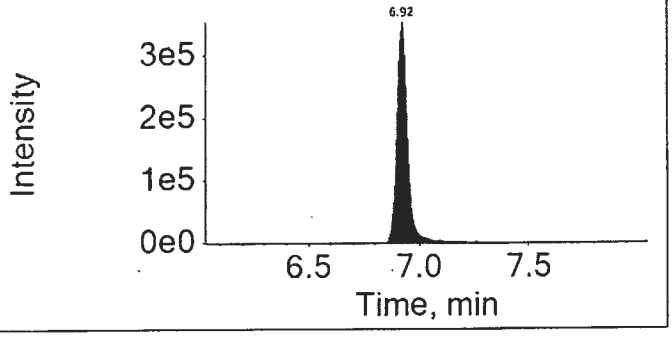
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

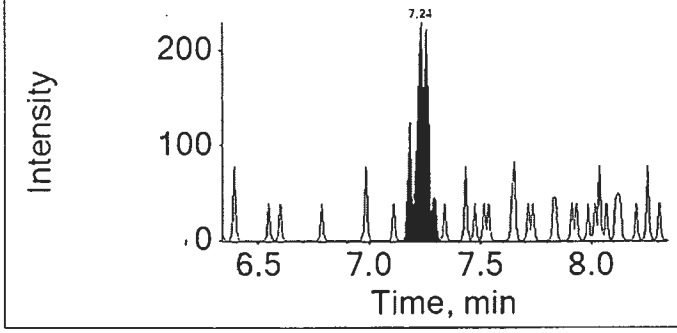
615.0 / 570.0



16AUG31-63.wiff

Analyte: PFTrDA

662.9 / 618.9



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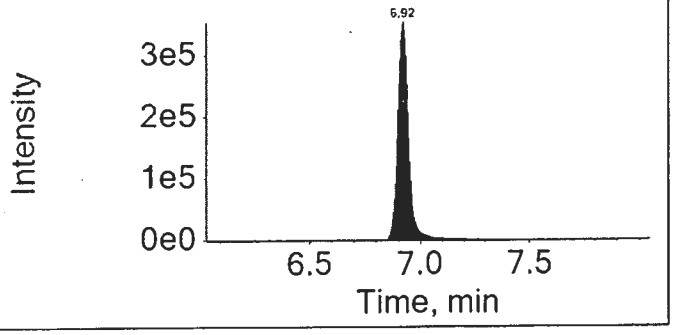
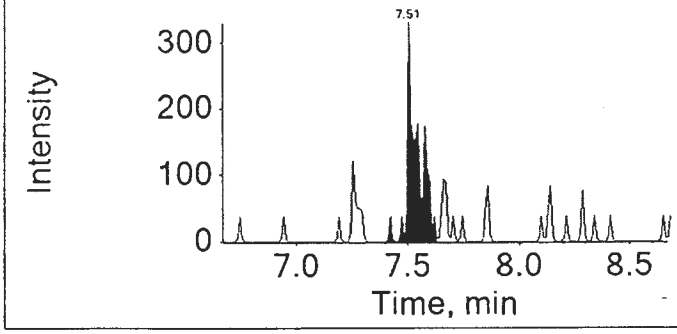
615.0 / 570.0



16AUG31-63.wiff

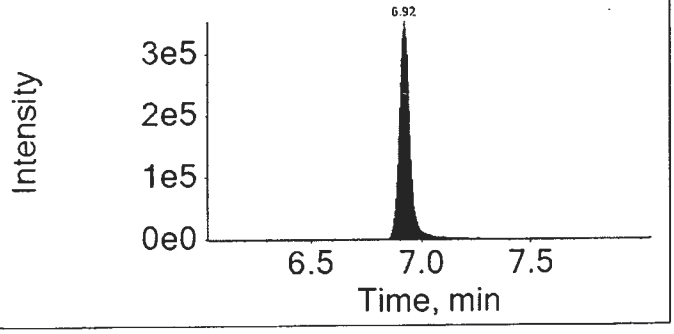
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 15 2016

MCD 7824 9/14/16

Lynn Dodd
Principal Specialist

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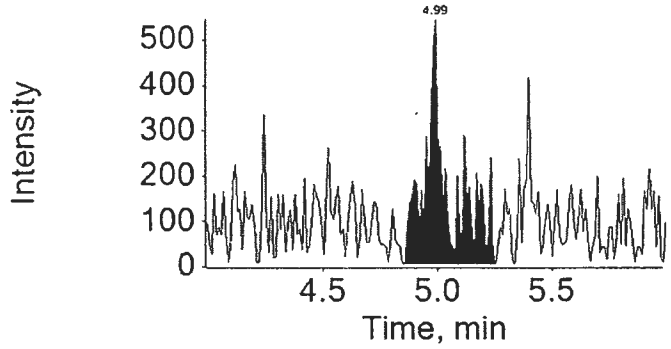
Print Date: 14/09/2016 1:01 PM

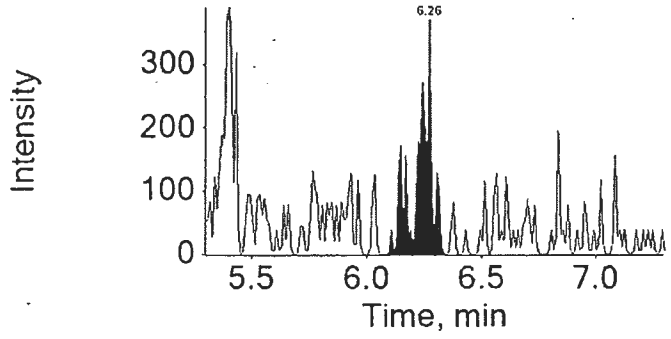
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-63.wiff	2016-09-01T07:12:14	8535026	PFHpA	4.99	3780.6
16AUG31-63.wiff	2016-09-01T07:12:14	8535026	PFDA	6.26	1501.0

Component: PFHpA
Mass: 362.9 / 318.9



Component: PFDA
Mass: 512.9 / 469.0



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

mcd 7824
9/14/16

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Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

REVISED

Sample Description: SG3-RB01-160817 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

LL Sample # WW 8535027
LL Group # 1696623
Account # 37191

Collected: 08/17/2016 10:25 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB117 SDG#: SPP17-16RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	**Perfluorooctanoic acid**	335-67-1	**6**		1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 07:28	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

no Change

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.1000 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535027
Lab File ID: 16AUG31-64.WIFF
Date Collected: 08/17/2016 10:25
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 07:28
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	1	U
375-85-9	PFHpA	1	U
355-46-4	PFHxS	4	U
335-67-1	PFOA	6	
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

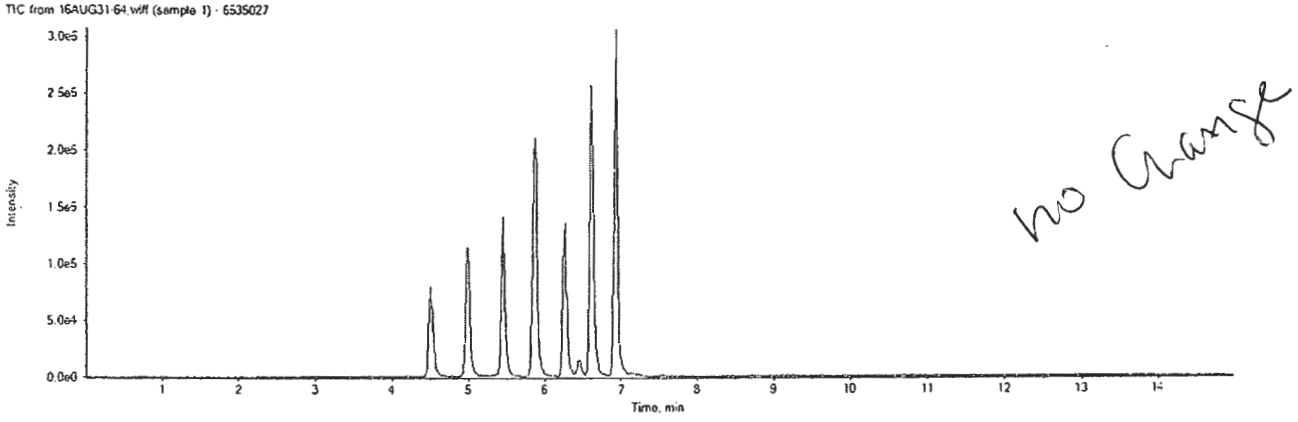
Sample Name:	8535027		**Data File:**		16AUG31-64.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-RB01-160817 Grab Blank Water		**Acquis Date:**		2016-09-01T07:28:38
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	65		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09998		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.98	164893.5	N/A	N/A	ng/L
PFHxA	N/A	N/A	A	13C2-PFHxA	4.50	327635.6	N/A	N/A	ng/L
PFHpA	4.99	1841.6	M	13C4-PFHpA	4.98	285736.4	0.006	0.255	ng/L
PFHxS	4.98	875.7	A	18O2-PFHxS	4.98	164893.5	0.005	0.242	ng/L
PFOA	5.44	54330.5	A	13C4-PFOA	5.44	423533.4	0.128	5.643	ng/L
PFNA	5.87	1136.6	A	13C5-PFNA	5.87	684466.5	0.002	0.079	ng/L
PFOS	5.85	156.4	A	13C4-PFOS	5.84	179530.4	0.001	0.042	ng/L
PFDA	6.25	1370.3	M	13C2-PFDA	6.25	505912.8	0.003	0.108	ng/L
PFUnDA	6.60	2190.6	A	13C2-PFUnDA	6.61	845407.9	0.003	0.125	ng/L
PFDoDA	6.93	1250.8	A	13C2-PFDoDA	6.93	964950.8	0.001	0.066	ng/L
PFTrDA	7.22	406.5	A	13C2-PFDoDA	6.93	964950.8	0.000	0.021	ng/L
PFTeDA	7.54	906.8	A	13C2-PFDoDA	6.93	964950.8	0.001	0.049	ng/L

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-RB01-160817 Grab Blank Water

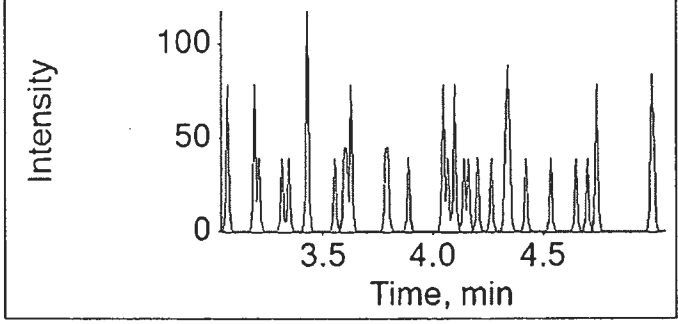


no change

16AUG31-64.wiff

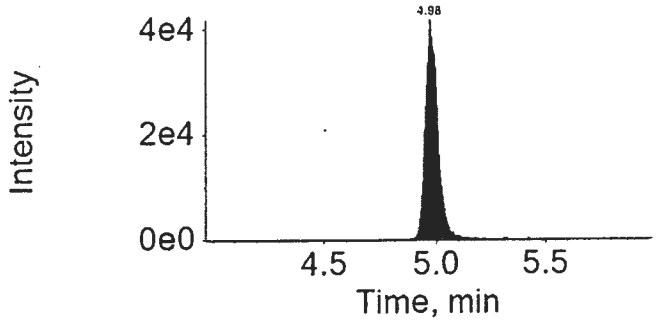
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

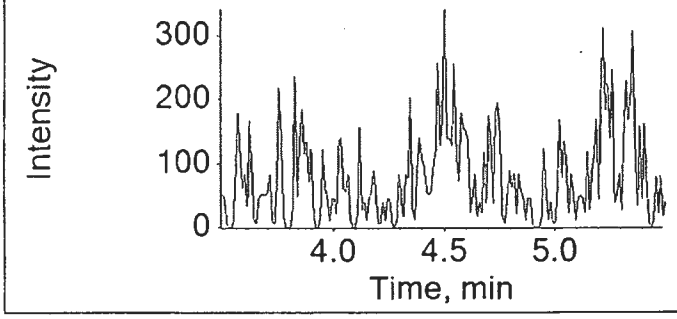
403.0 / 103.0



16AUG31-64.wiff

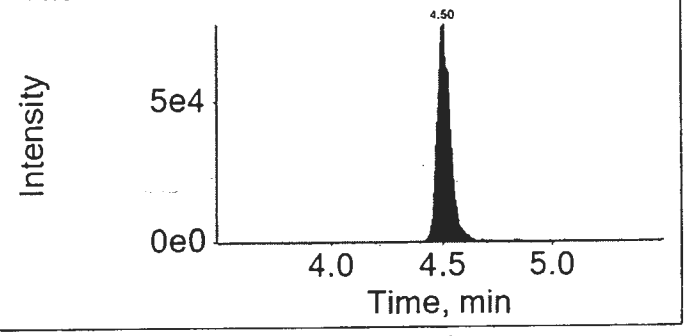
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

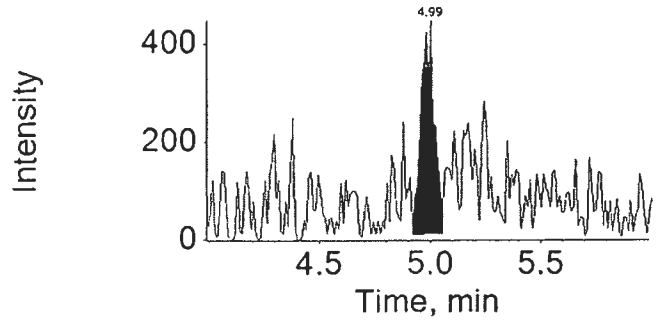
314.9 / 270.0



16AUG31-64.wiff

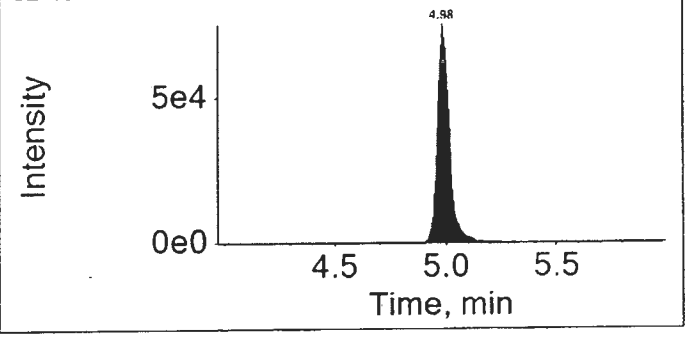
Analyte: PFHpA

362.9 / 318.9

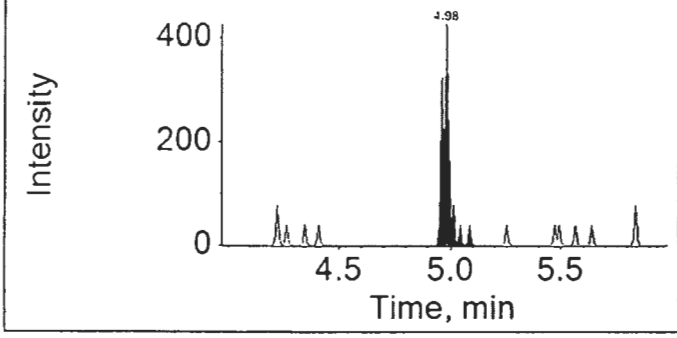


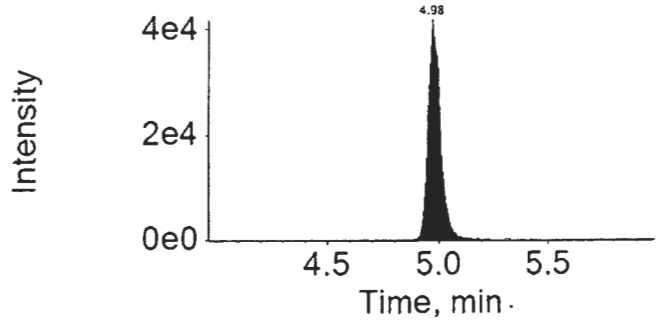
Internal Standard: 13C4-PFHpA

367.0 / 322.0

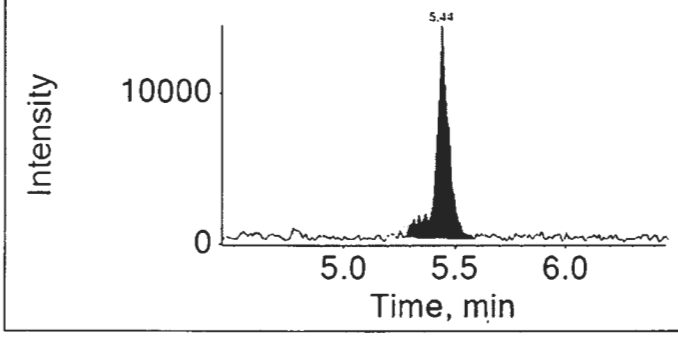


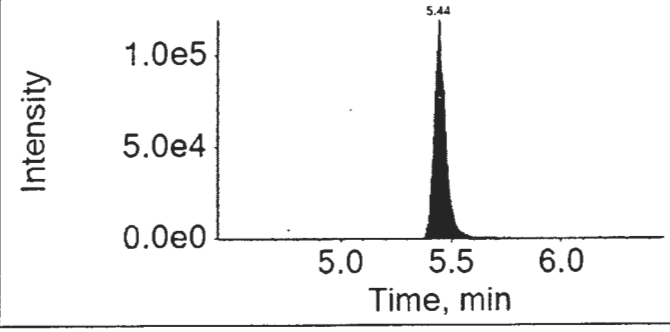
16AUG31-64.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



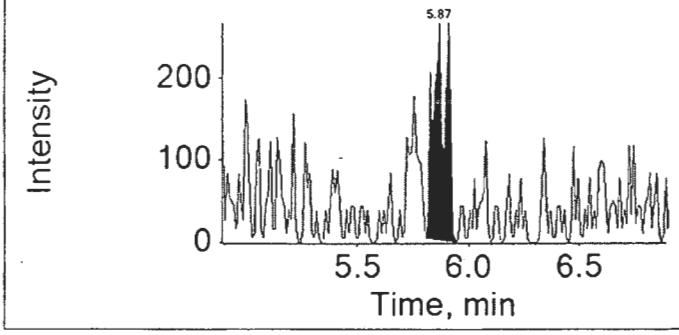


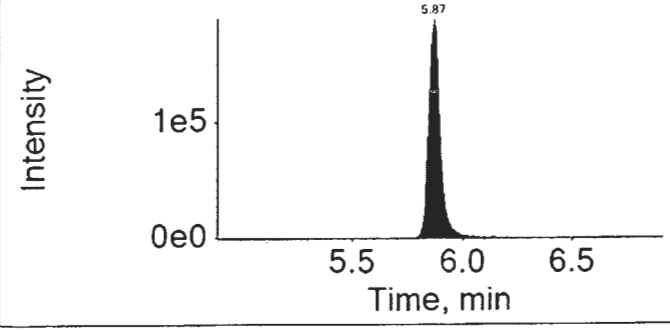
16AUG31-64.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



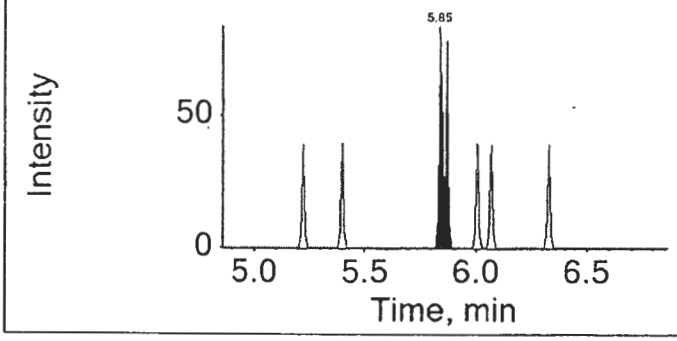


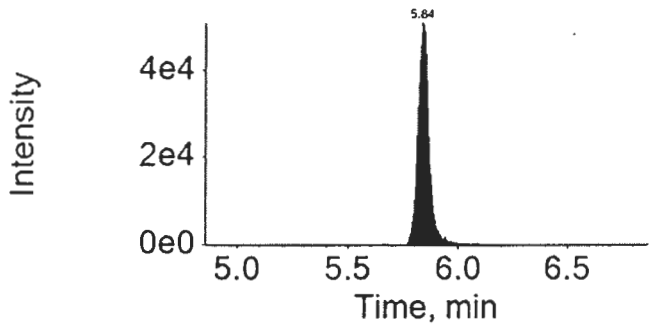
16AUG31-64.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



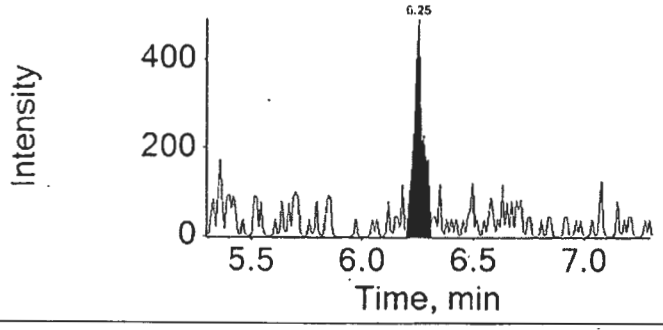


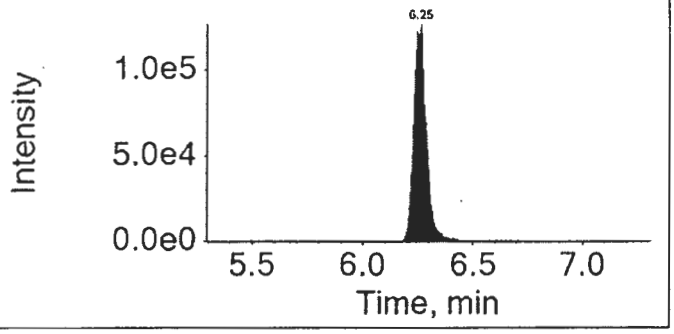
16AUG31-64.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



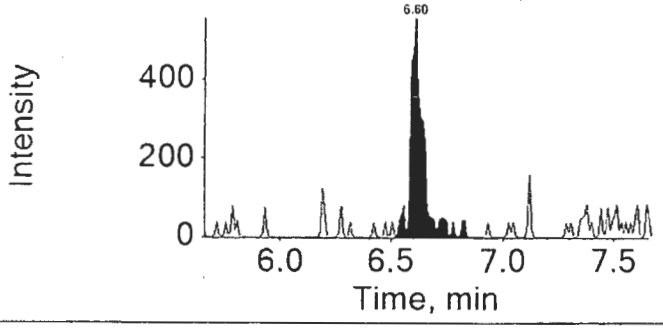


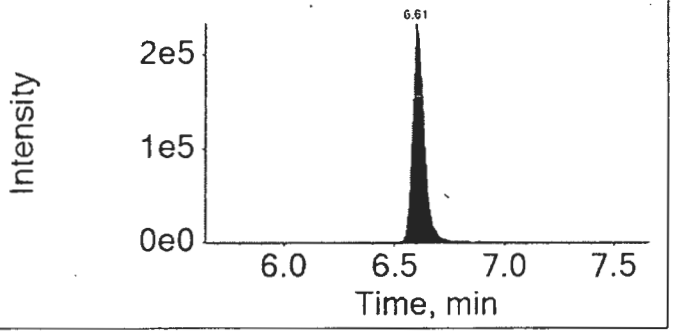
16AUG31-64.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16AUG31-64.wiff	
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

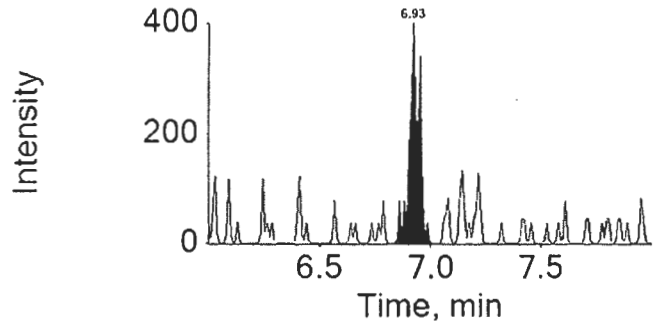




16AUG31-64.wiff

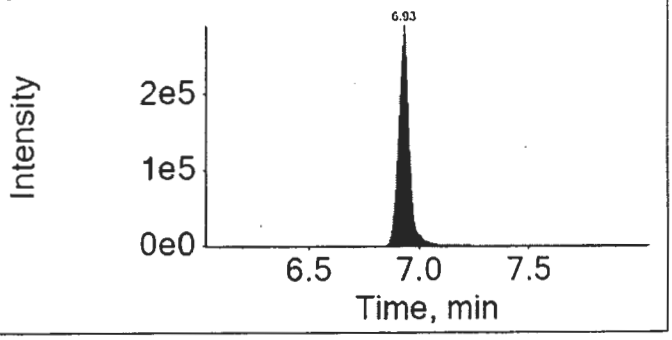
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

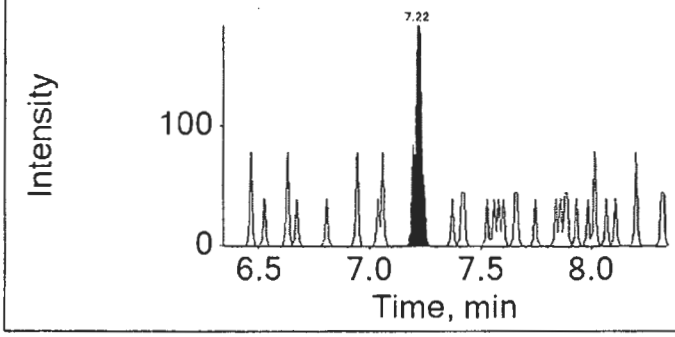
615.0 / 570.0



16AUG31-64.wiff

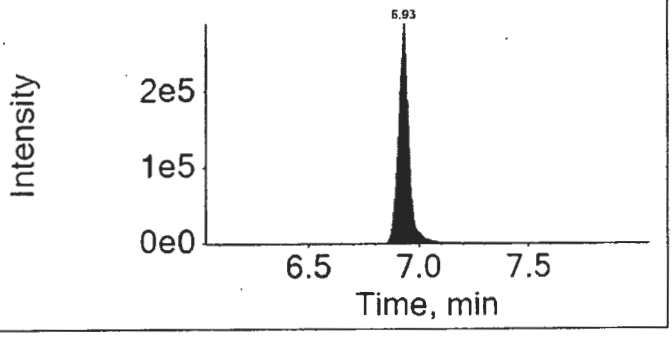
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

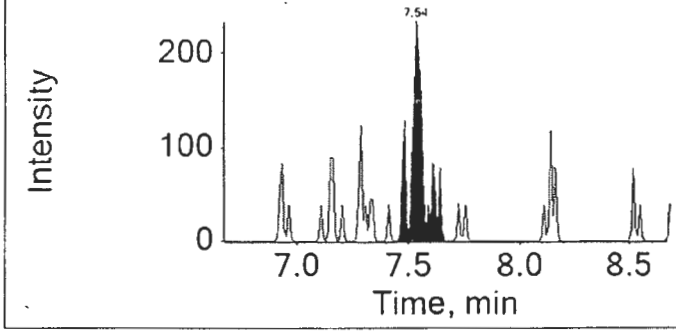
615.0 / 570.0



16AUG31-64.wiff

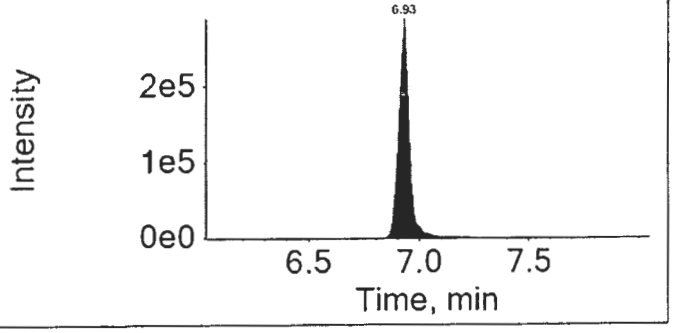
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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SEP 15 2016

Lynn Dodd
Principal Specialist

mcd 78221 9/14/16

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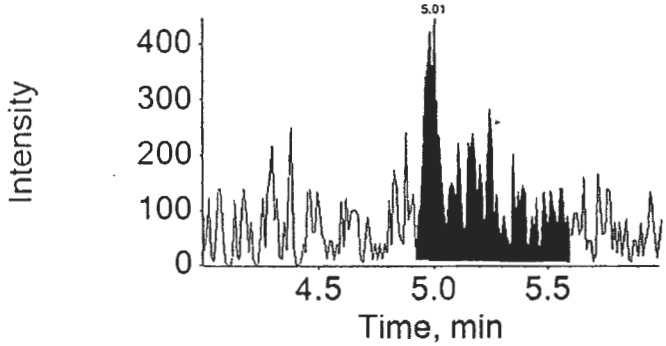
Print Date: 14/09/2016 1:01 PM

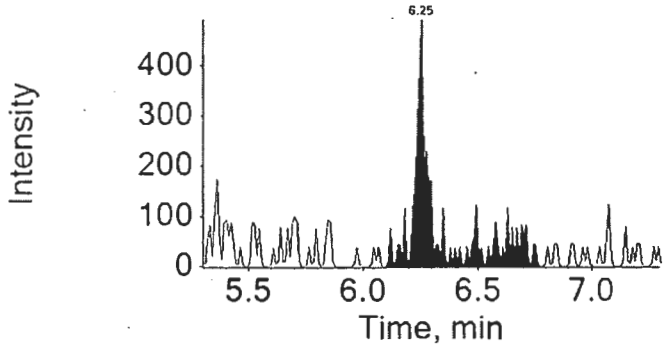
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-64.wiff	2016-09-01T07:28:38	8535027	PFHpA	5.01	5417.2
16AUG31-64.wiff	2016-09-01T07:28:38	8535027	PFDA	6.25	2688.9

Component: PFHpA
Mass: 362.9 / 318.9



Component: PFDA
Mass: 512.9 / 469.0



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MCD 7824
9/14/16

Lynn Dodd
Principal Specialist

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Analysis Report

REVISED

Sample Description: SG3-RB02-160817 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

LL Sample # WW 8535028
LL Group # 1696623
Account # 37191

Collected: 08/17/2016 10:30 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB217 SDG#: SPP17-17RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	**Perfluorooctanoic acid**	335-67-1	**4**		1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 08:01	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

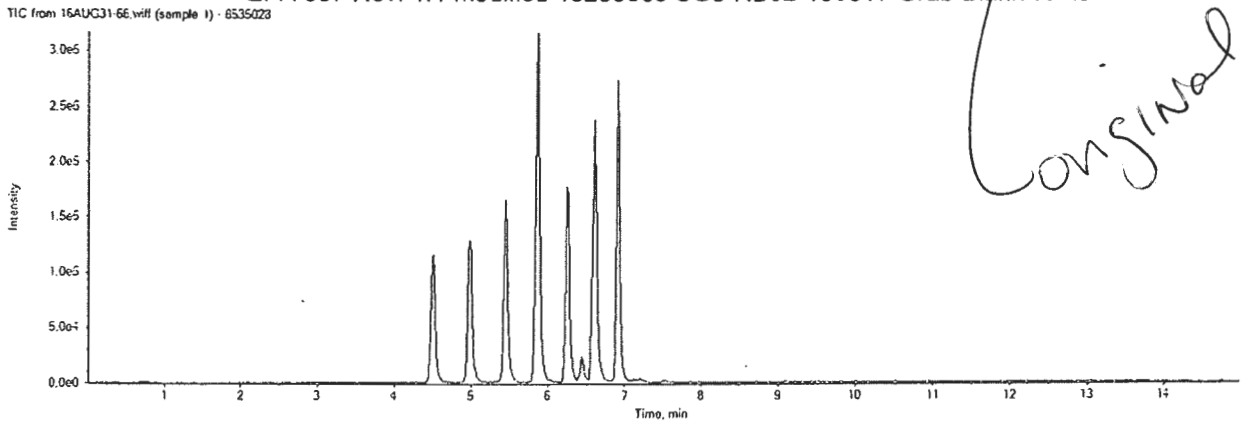
Sample Name:	8535028		**Data File:**		16AUG31-66.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-RB02-160817 Grab Blank Water		**Acquis Date:**		2016-09-01T08:01:26
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	66		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10040		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.98	183234.5	N/A	N/A	ng/L
PFHxA	4.50	757.4	A	13C2-PFHxA	4.50	470211.2	0.002	0.153	ng/L
PFHpA	4.99	3295.5	A	13C4-PFHpA	4.98	351392.3	0.009	0.370	ng/L
PFHxS	4.99	689.7	M	18O2-PFHxS	4.98	183234.5	0.004	0.171	ng/L
PFOA	5.44	52221.5	M	13C4-PFOA	5.44	536663.7	0.097	4.262	ng/L
PFNA	5.86	1120.0	M	13C5-PFNA	5.86	959728.6	0.001	0.055	ng/L
PFOS	5.83	218.9	A	13C4-PFOS	5.84	206691.7	0.001	0.051	ng/L
PFDA	6.25	628.0	M	13C2-PFDA	6.25	668405.6	0.001	0.037	ng/L
PFUnDA	6.61	3283.4	A	13C2-PFUnDA	6.61	853265.3	0.004	0.185	ng/L
PFDoDA	6.91	2814.0	M	13C2-PFDoDA	6.91	788454.0	0.004	0.180	ng/L
PFTrDA	7.23	6692.0	A	13C2-PFDoDA	6.91	788454.0	0.008	0.417	ng/L
PFTeDA	7.52	7067.2	A	13C2-PFDoDA	6.91	788454.0	0.009	0.463	ng/L

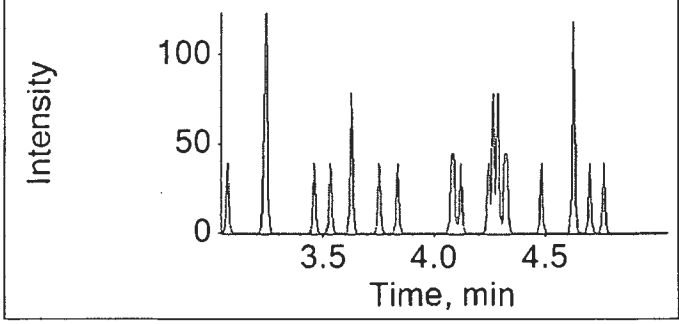
Total Ion Chromatogram

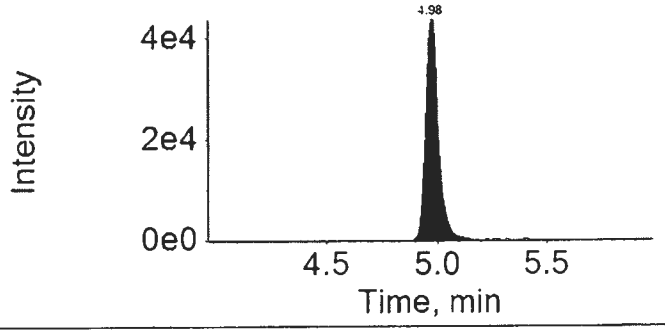
EPA 537 Rev. 1.1 modified 16236005 SG3-RB02-160817 Grab Blank Water



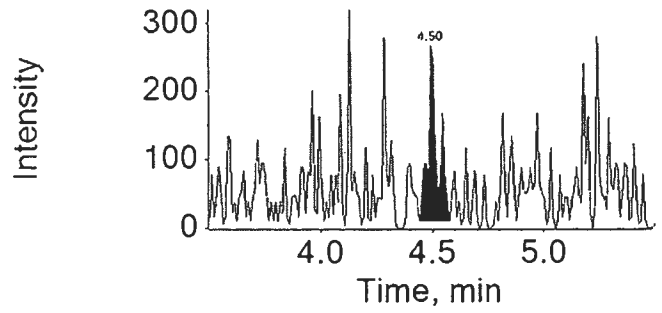
CONSIND

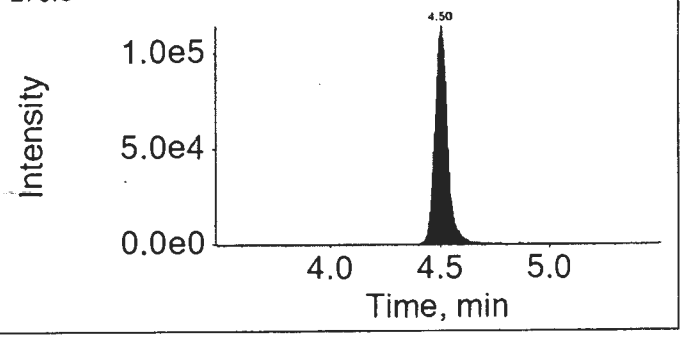
16AUG31-66.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



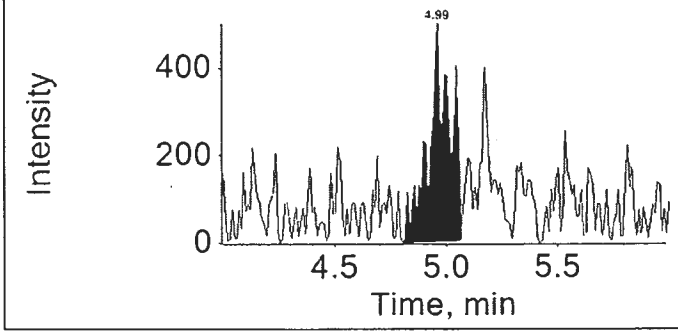


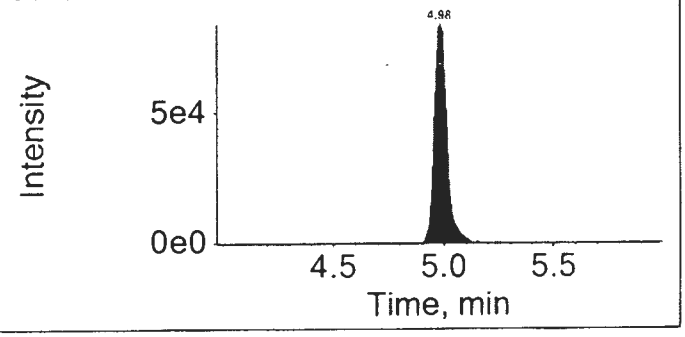
16AUG31-66.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16AUG31-66.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

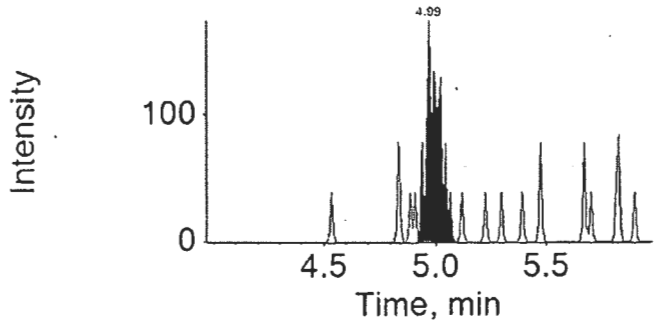




16AUG31-66.wiff

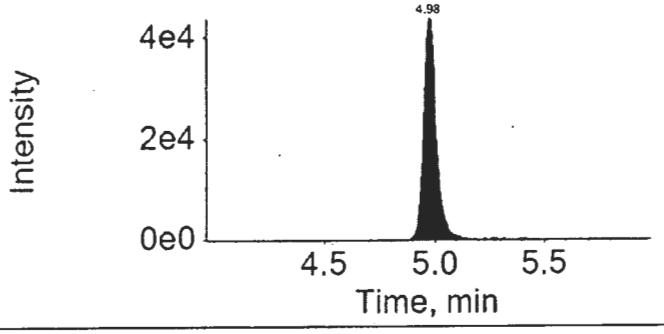
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

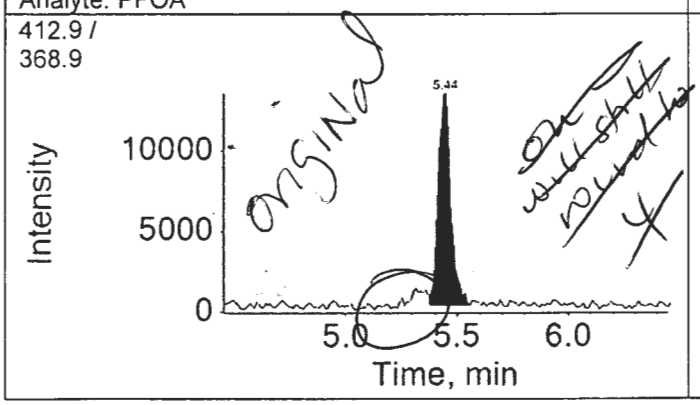
403.0 / 103.0



16AUG31-66.wiff

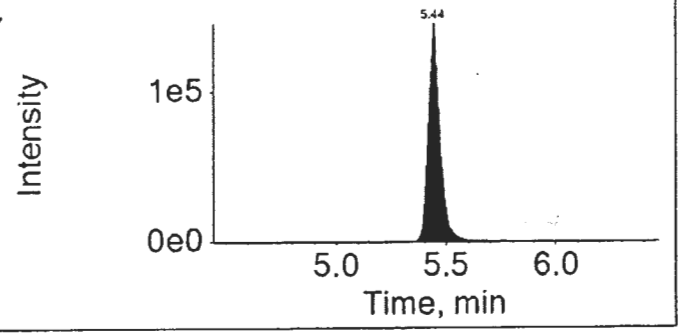
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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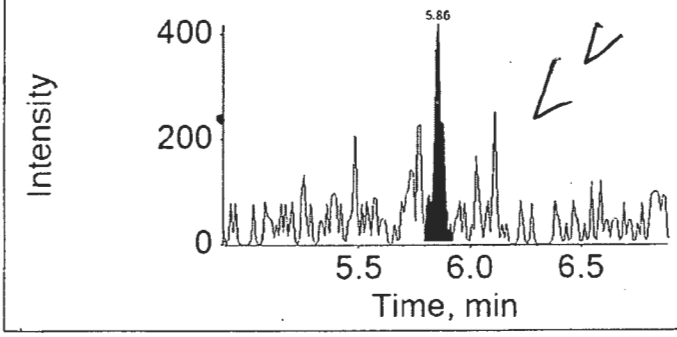
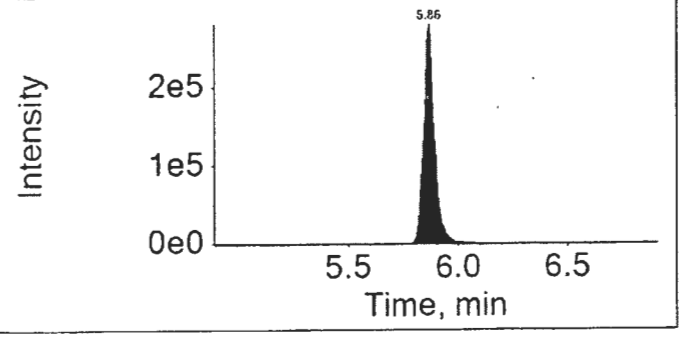
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

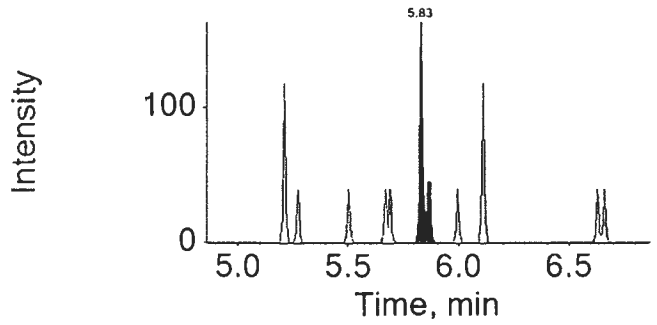
468.0 / 423.0



16AUG31-66.wiff

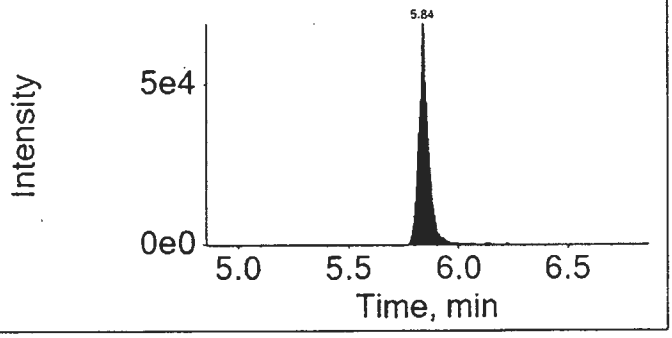
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

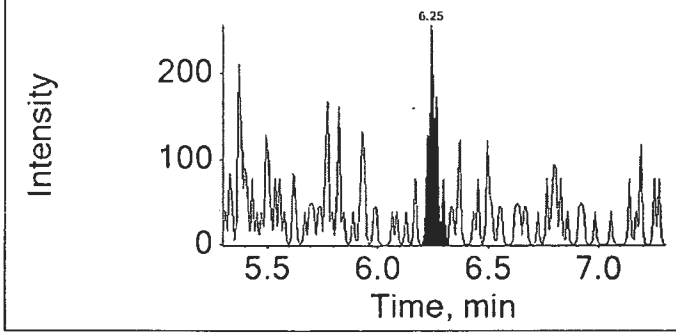
503.0 / 99.0



16AUG31-66.wiff

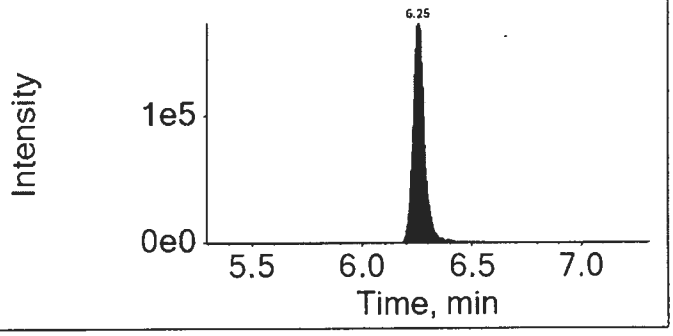
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

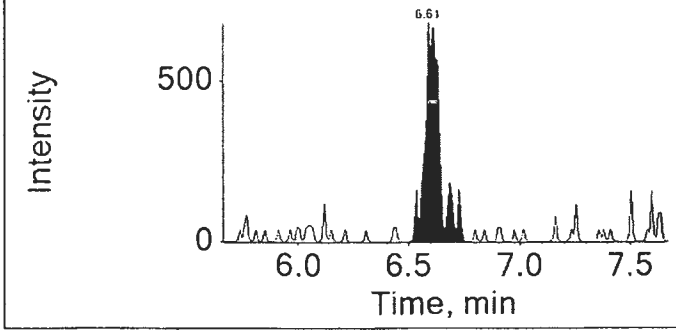
515.0 / 470.0



16AUG31-66.wiff

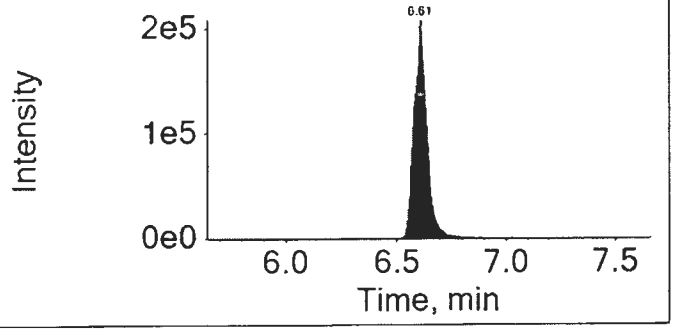
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

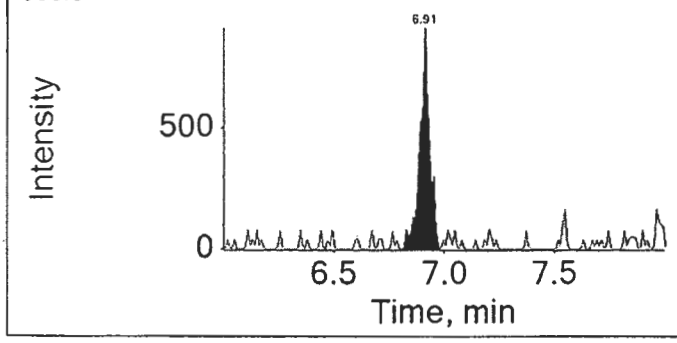
565.0 / 520.0



16AUG31-66.wiff

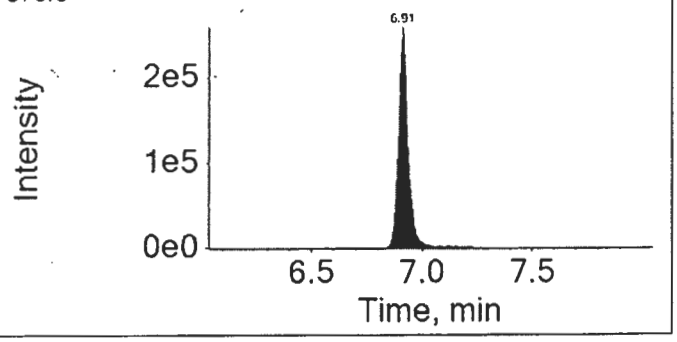
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

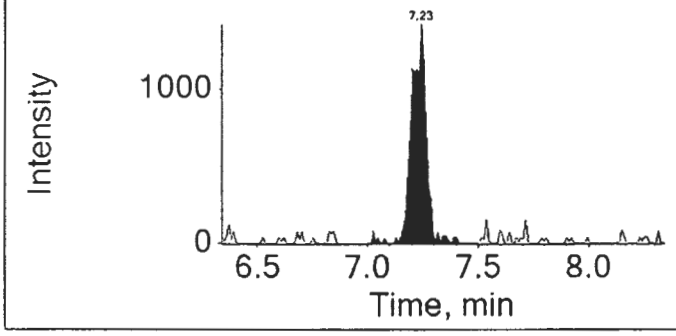
615.0 / 570.0



16AUG31-66.wiff

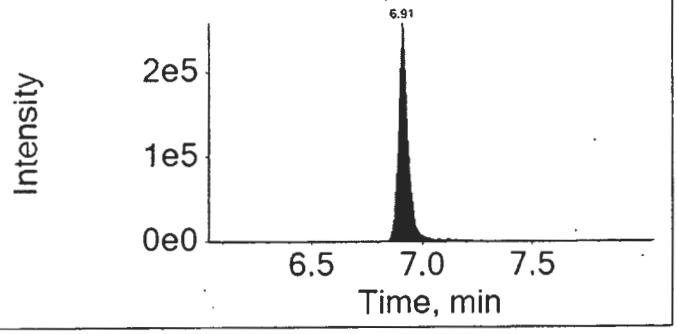
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

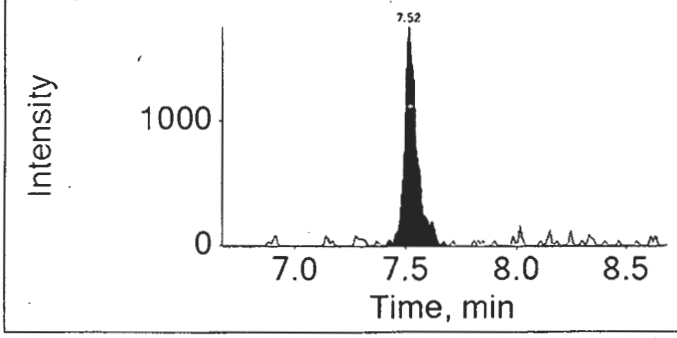
615.0 / 570.0



16AUG31-66.wiff

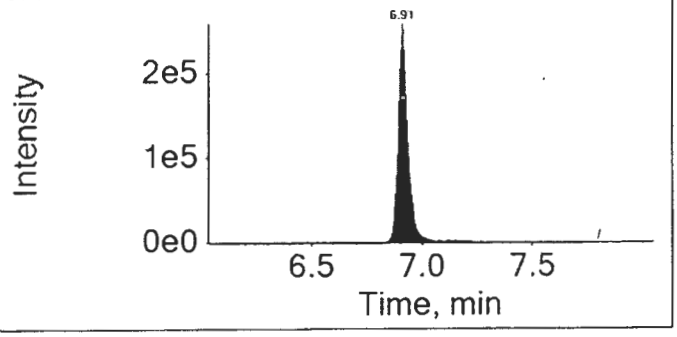
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

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MCD 7824
9/14/16

Lynn Dodd
Principal Specialist

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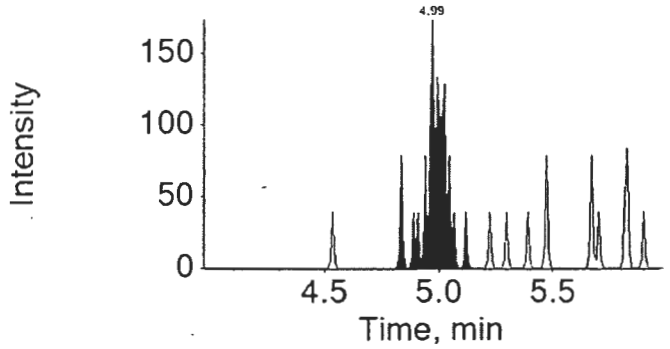
Print Date: 14/09/2016 1:01 PM

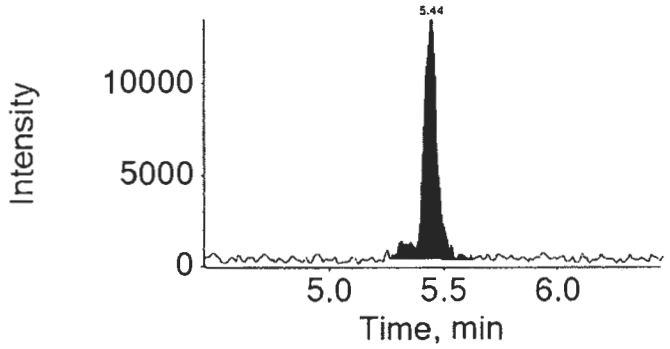
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-66.wiff	2016-09-01T08:01:26	8535028	PFHxS	4.99	844.3
16AUG31-66.wiff	2016-09-01T08:01:26	8535028	PFOA	5.44	57887.7
16AUG31-66.wiff	2016-09-01T08:01:26	8535028	PFNA	5.85	1828.9
16AUG31-66.wiff	2016-09-01T08:01:26	8535028	PFDA	6.25	812.9
16AUG31-66.wiff	2016-09-01T08:01:26	8535028	PFDoDA	6.91	3127.2

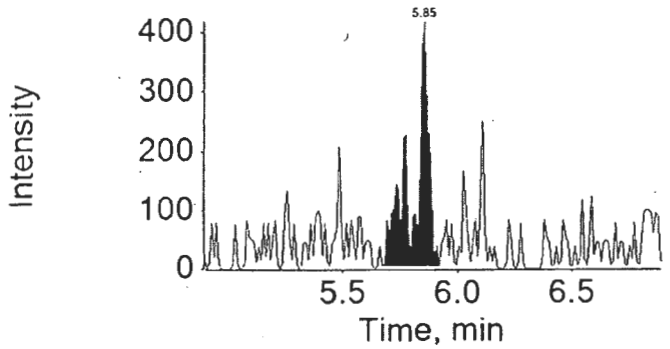
Component: PFHxS
Mass: 398.9 / 99.0



Component: PFOA
Mass: 412.9 / 368.9



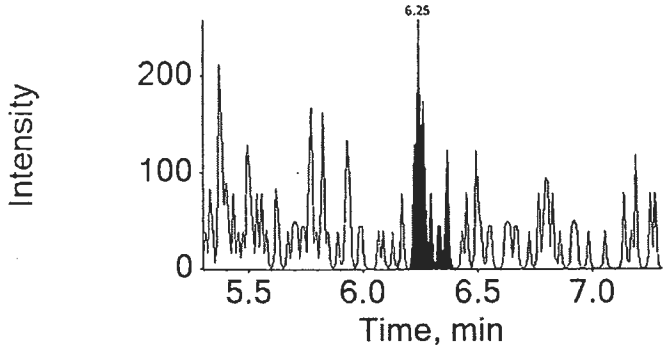
Component: PFNA
Mass: 462.9 / 418.9



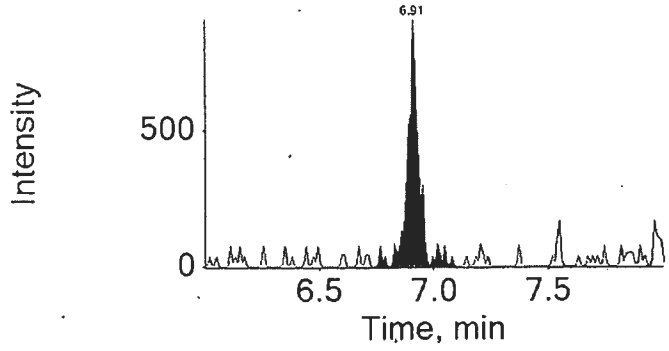
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFDA
Mass: 512.9 / 469.0



Component: PFDoDA
Mass: 612.9 / 568.9



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

MCD 7824
9/14/16

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

REVISED

Sample Description: SG3-RB02-160817 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8535028
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/17/2016 10:30 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB217 SDG#: SPP17-17RB

Revised

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	**Perfluorooctanoic acid**	335-67-1	5		1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 08:01	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.1004 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535028
Lab File ID: 16AUG31-66.WIFF
Date Collected: 08/17/2016 10:30
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 08:01
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	1	U
375-85-9	PFHpA	1	U
355-46-4	PFHxS	4	U
335-67-1	PFOA	5	
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 4:52:00 PM

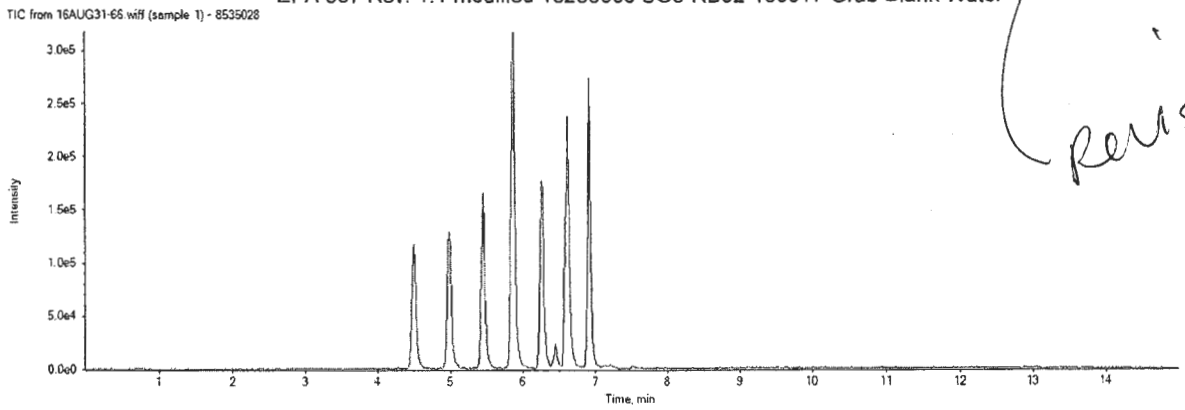
Sample Name:	8535028			**Data File:**		16AUG31-66.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-RB02-160817 Grab Blank Water			**Acquis Date:**		2016-09-01T08:01:26
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	66			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16236005
				ICAL Name:		16AUG26ICAL
Batch Number:	16236005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10040			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.98	183234.5	N/A	N/A
PFHxA	4.50	1.000	757.4	A	13C2-PFHxA	4.50	470211.2	0.002	0.153
PFHpA	4.99	1.000	3295.5	A	13C4-PFHpA	4.98	351392.3	0.009	0.370
PFHxS	4.99	1.000	689.7	M	18O2-PFHxS	4.98	183234.5	0.004	0.171
PFOA	5.44	1.000	57707.3	M	13C4-PFOA	5.44	536663.7	0.108	4.710
PFNA	5.86	1.000	1120.0	M	13C5-PFNA	5.86	959728.6	0.001	0.055
PFOS	5.83	1.000	218.9	A	13C4-PFOS	5.84	206691.7	0.001	0.051
PFDA	6.25	1.000	628.0	M	13C2-PFDA	6.25	668405.6	0.001	0.037
PFUnDA	6.61	1.000	3283.4	A	13C2-PFUnDA	6.61	853265.3	0.004	0.185
PFDoDA	6.91	1.000	2814.0	M	13C2-PFDoDA	6.91	788454.0	0.004	0.180
PFTrDA	7.23	1.050	6692.0	A	13C2-PFDoDA	6.91	788454.0	0.008	0.417
PFTeDA	7.52	1.090	7067.2	A	13C2-PFDoDA	6.91	788454.0	0.009	0.463

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-RB02-160817 Grab Blank Water



Revised

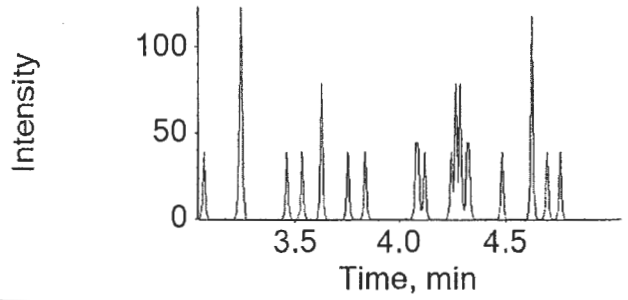
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:01 am, 6/13/17

16AUG31-66.wiff

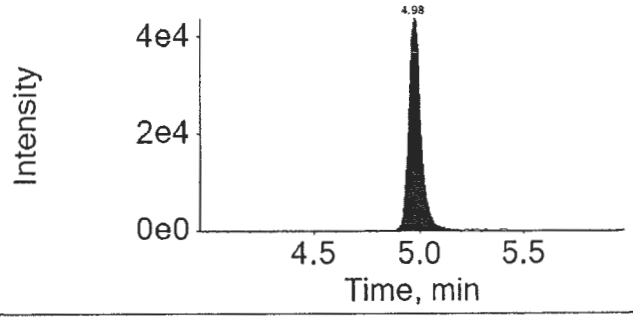
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

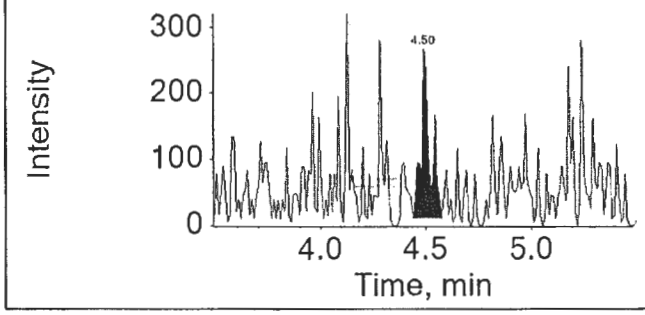
403.0 / 103.0



16AUG31-66.wiff

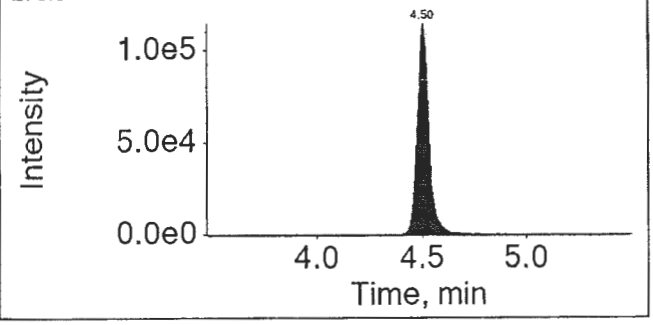
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

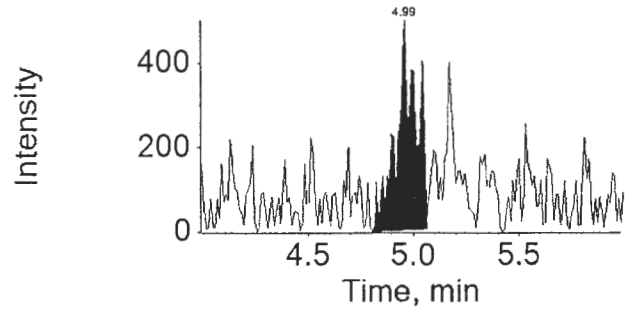
314.9 / 270.0



16AUG31-66.wiff

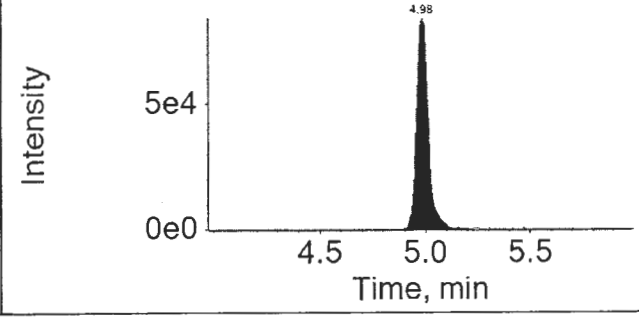
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



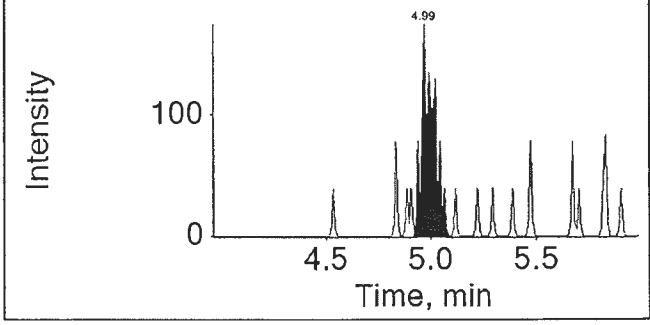
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:01 am, 6/13/17

16AUG31-66.wiff

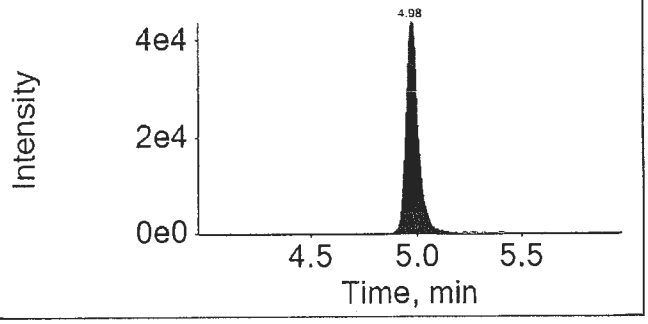
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

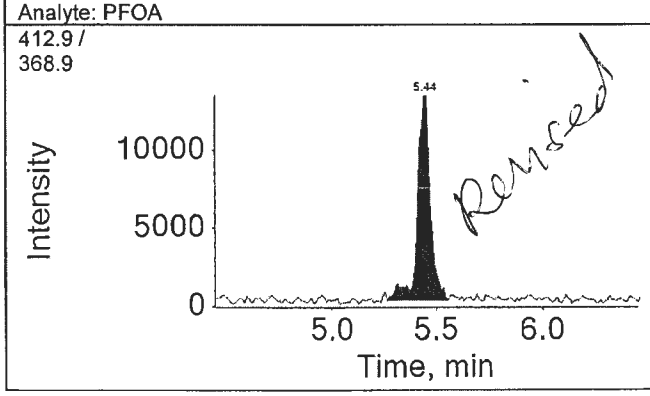
403.0 / 103.0



16AUG31-66.wiff

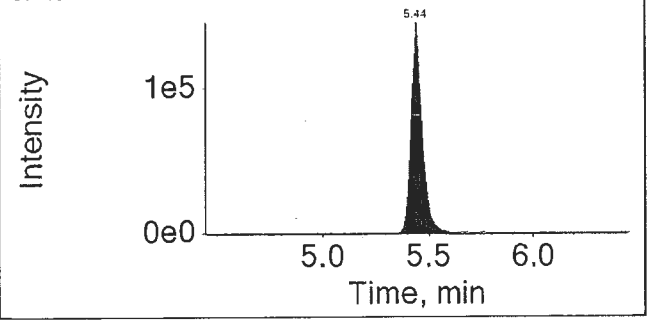
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

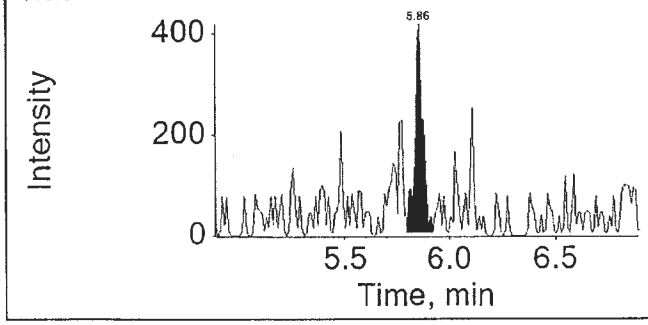
417.0 / 372.0



16AUG31-66.wiff

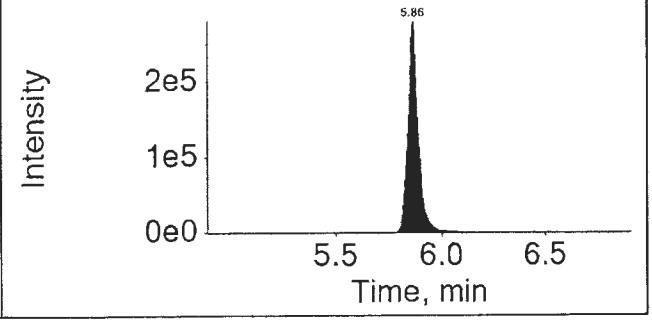
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



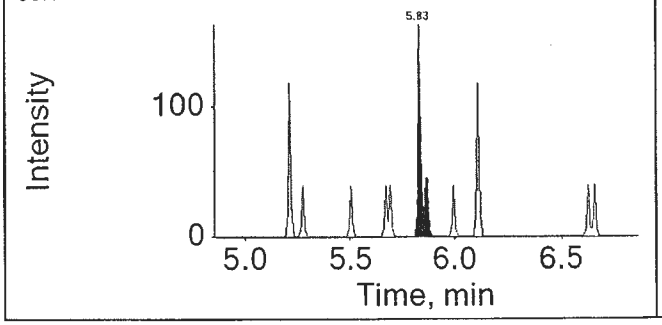
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:01 am, 6/13/17

16AUG31-66.wiff

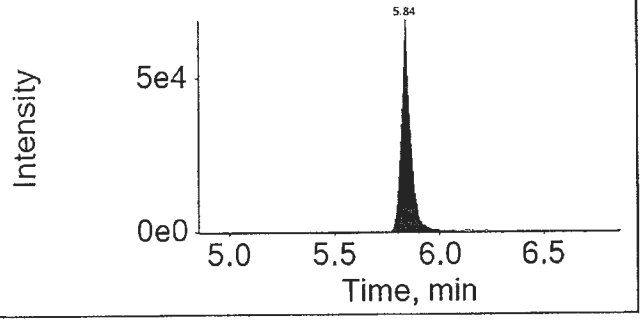
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

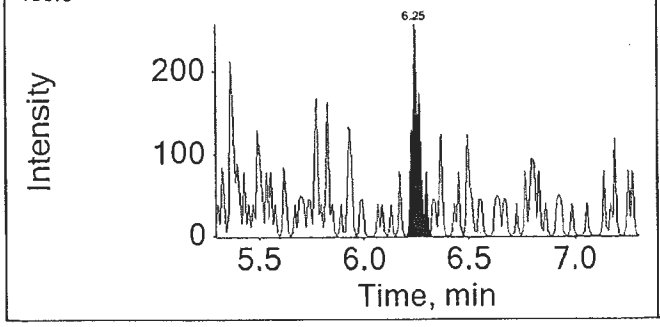
503.0 / 99.0



16AUG31-66.wiff

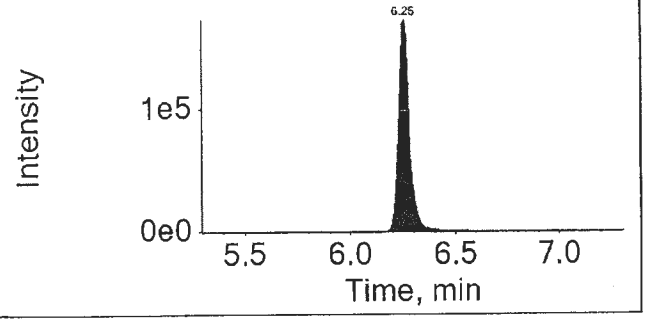
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

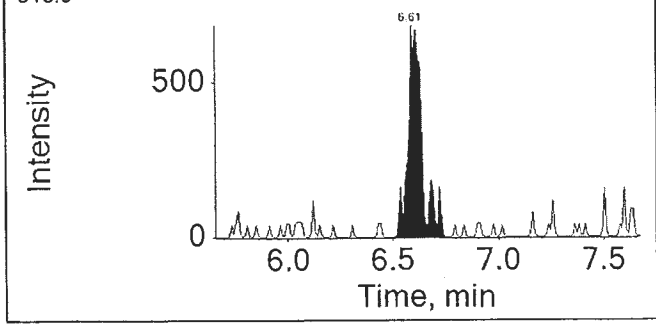
515.0 / 470.0



16AUG31-66.wiff

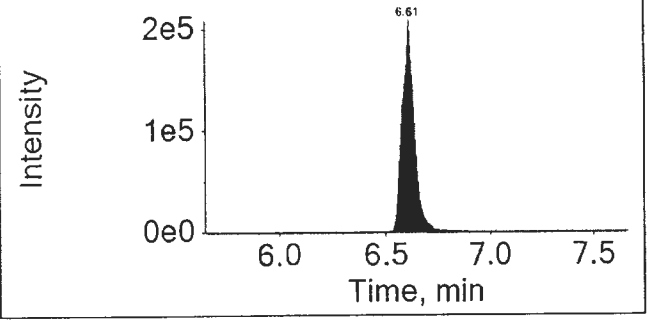
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



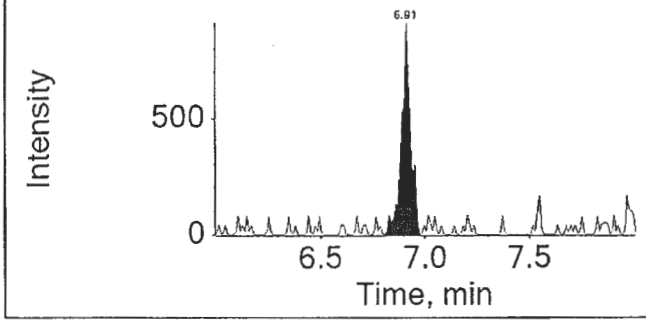
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:01 am, 6/13/17

16AUG31-66.wiff

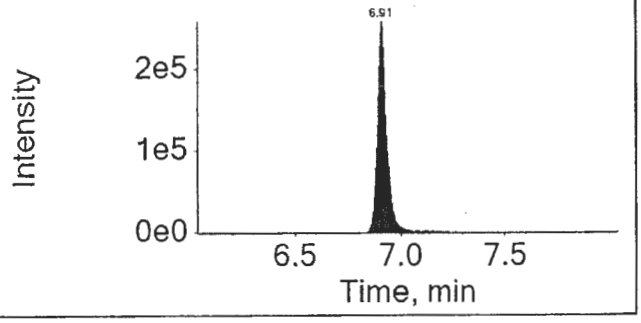
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

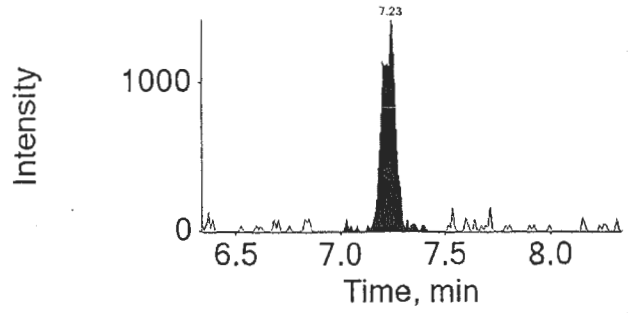
615.0 / 570.0



16AUG31-66.wiff

Analyte: PFTrDA

662.9 / 618.9



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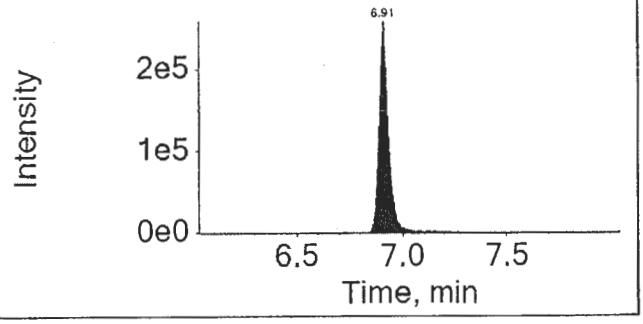
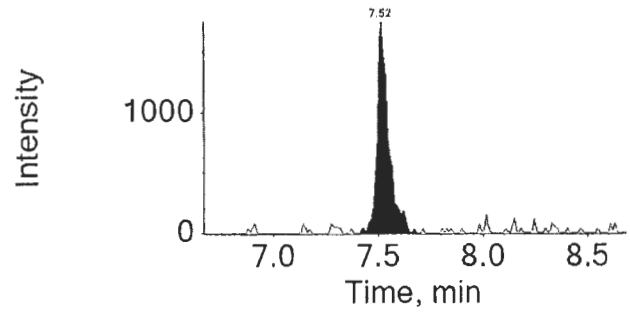
615.0 / 570.0



16AUG31-66.wiff

Analyte: PFTeDA

712.9 / 668.9



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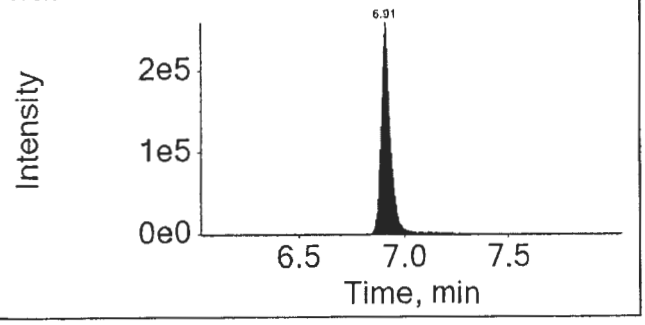

APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:01 am, 6/13/17

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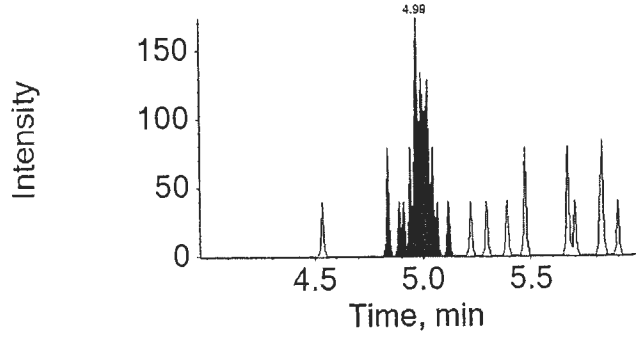
Print Date: 09/06/2017 4:54 PM

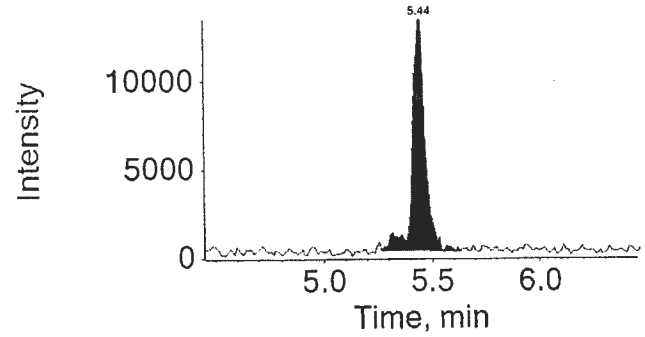
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-66.wiff	2016-09-01T08:01:26	8535028	PFHxS	4.99	844.3
16AUG31-66.wiff	2016-09-01T08:01:26	8535028	PFOA	5.44	57887.7
16AUG31-66.wiff	2016-09-01T08:01:26	8535028	PFNA	5.85	1828.9
16AUG31-66.wiff	2016-09-01T08:01:26	8535028	PFDA	6.25	812.9
16AUG31-66.wiff	2016-09-01T08:01:26	8535028	PFDoDA	6.91	3127.2

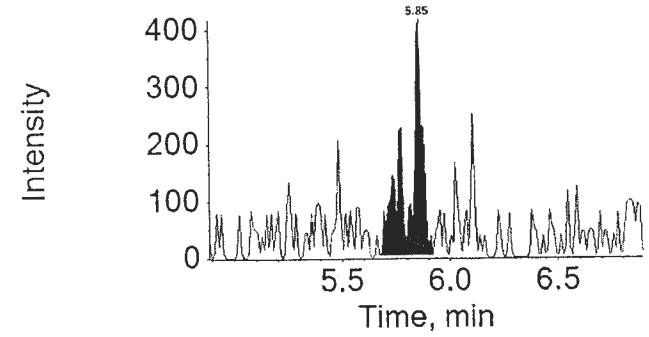
Component: PFHxS
Mass: 398.9 / 99.0



Component: PFOA
Mass: 412.9 / 368.9



Component: PFNA
Mass: 462.9 / 418.9



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:53 am, 6/13/17

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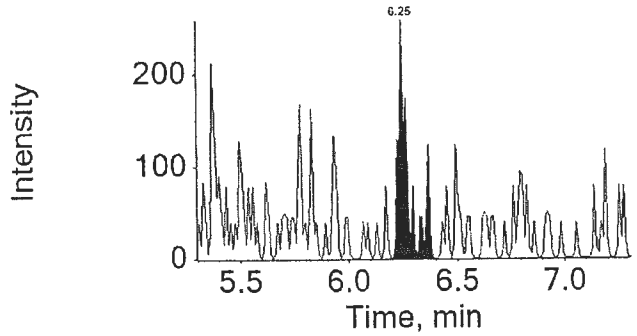
Print Date: 09/06/2017 4:54 PM

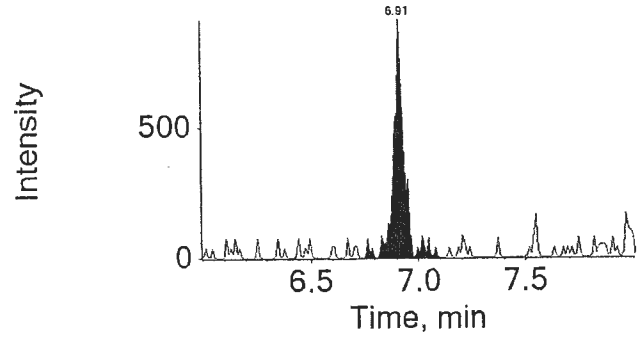
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFDA
Mass: 512.9 / 469.0



Component: PFDoDA
Mass: 612.9 / 568.9



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:53 am, 6/13/17

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

REVISED

Sample Description: SG3-RB03-160817 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8535029
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/17/2016 10:35 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB317 SDG#: SPP17-18RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	EPA 537 Rev. 1.1 modified		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	**Perfluorooctanoic acid**	335-67-1	**4**		1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

ORIGINAL

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 08:17	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

Sample Name:	8535029		**Data File:**		16AUG31-67.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-RB03-160817 Grab Blank Water		**Acquis Date:**		2016-09-01T08:17:47
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	67		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10012		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

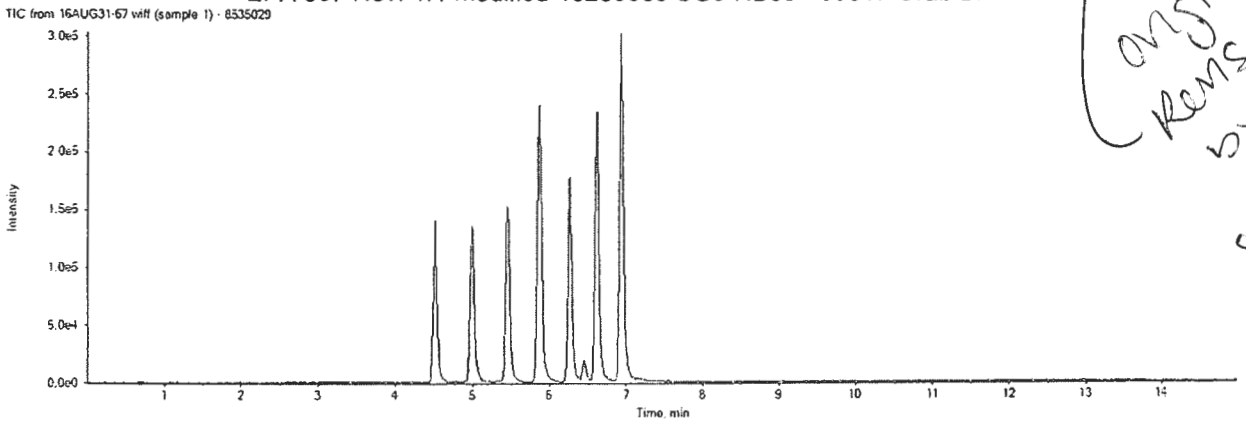
Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.98	187351.0	N/A	N/A	ng/L
PFHxA	4.53	1042.7	M	13C2-PFHxA	4.51	463391.8	0.002	0.214	ng/L
PFHpA	5.01	2088.4	M	13C4-PFHpA	4.99	323523.4	0.006	0.255	ng/L
PFHxS	4.97	500.3	A	18O2-PFHxS	4.98	187351.0	0.003	0.122	ng/L
PFOA	5.45	54312.4	M	13C4-PFOA	5.45	543992.9	0.100	4.386	ng/L
PFNA	5.87	627.1	M	13C5-PFNA	5.87	773642.7	0.001	0.038	ng/L
PFOS	N/A	N/A	A	13C4-PFOS	5.84	203801.1	N/A	N/A	ng/L
PFDA	6.27	663.5	M	13C2-PFDA	6.26	605539.7	0.001	0.044	ng/L
PFUnDA	6.61	1313.4	M	13C2-PFUnDA	6.62	773287.0	0.002	0.082	ng/L
PFDoDA	6.95	750.5	A	13C2-PFDoDA	6.94	1091409.0	0.001	0.035	ng/L
PFTrDA	7.25	1844.9	A	13C2-PFDoDA	6.94	1091409.0	0.002	0.083	ng/L
PFTeDA	7.54	2407.7	A	13C2-PFDoDA	6.94	1091409.0	0.002	0.114	ng/L

OVSIND Reviewed by lab — see Revision

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-RB03-160817 Grab Blank Water



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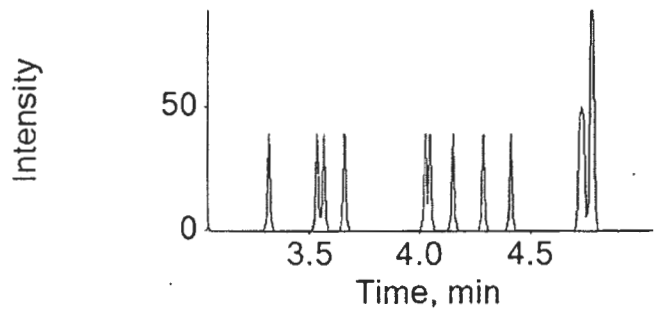
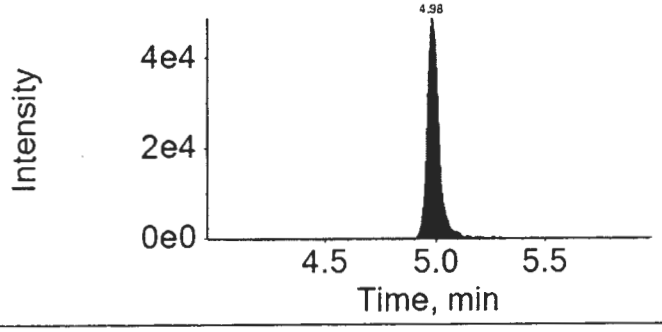
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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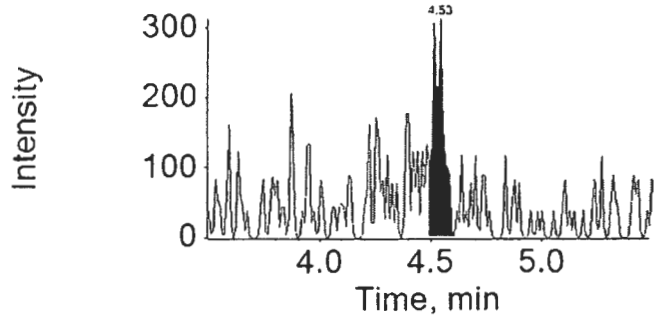
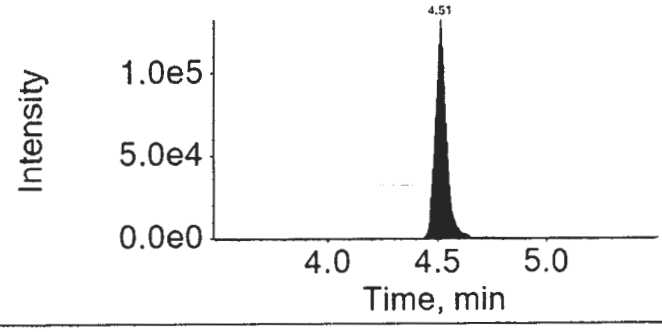
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





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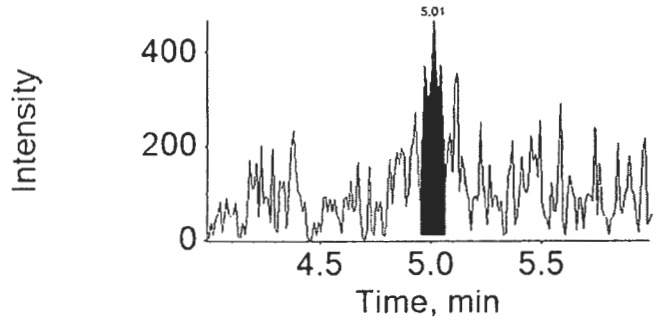
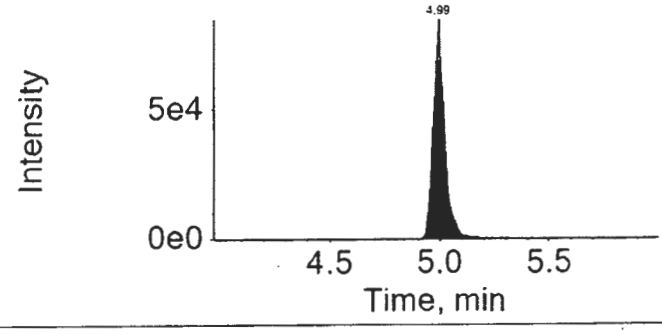
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

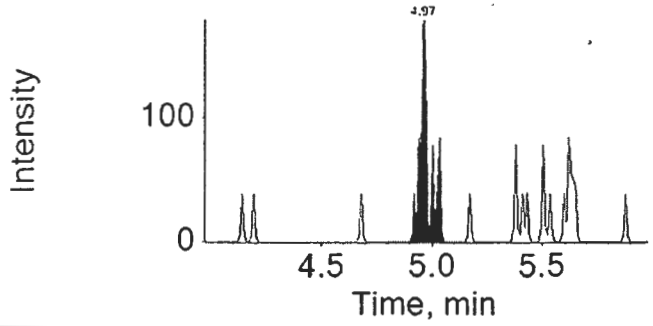




16AUG31-67.wiff

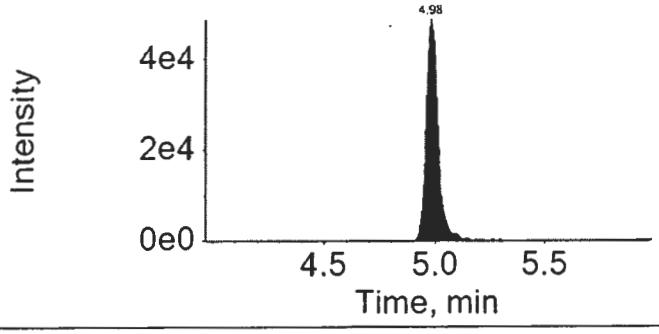
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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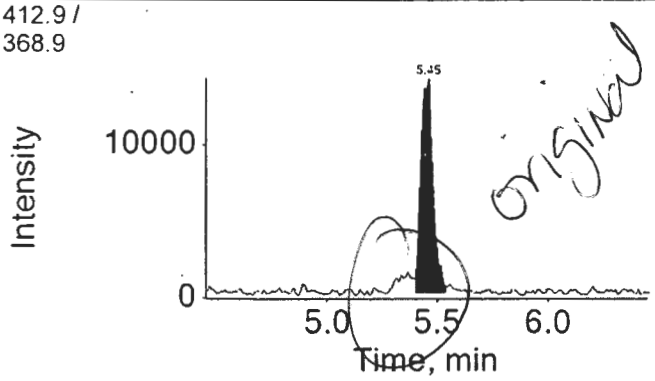
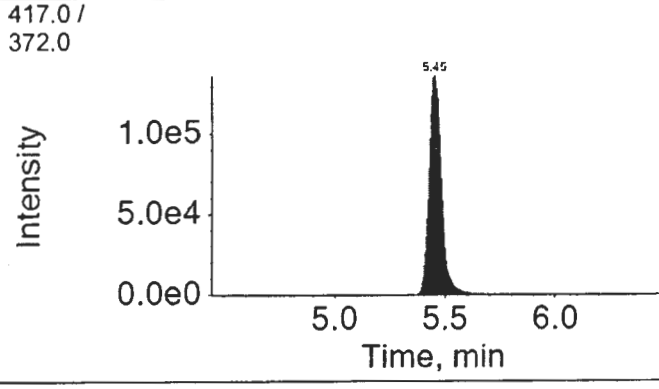
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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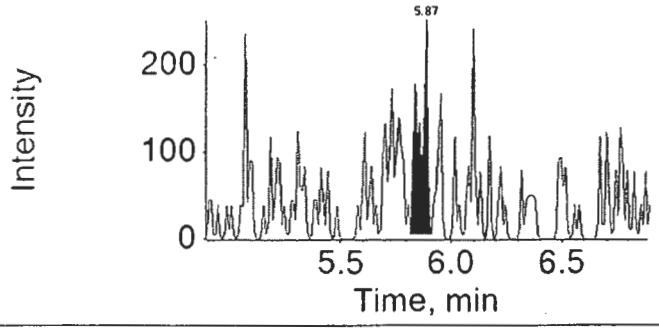
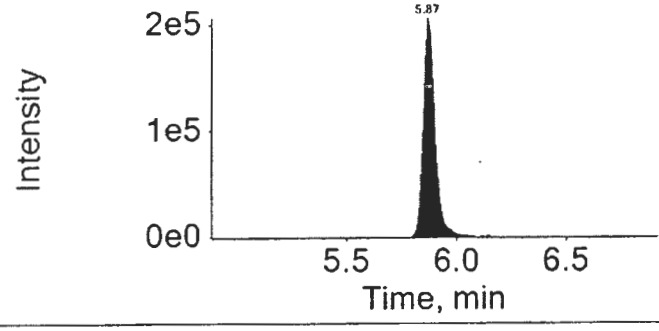
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

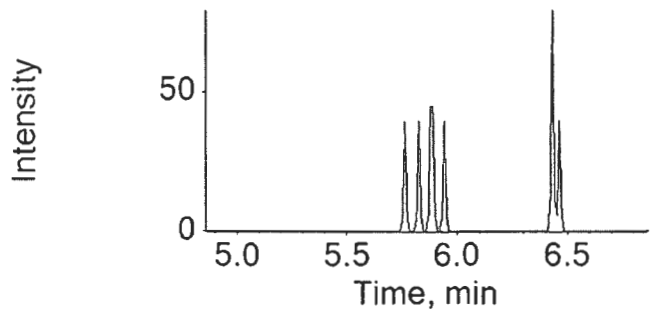
468.0 / 423.0



16AUG31-67.wiff

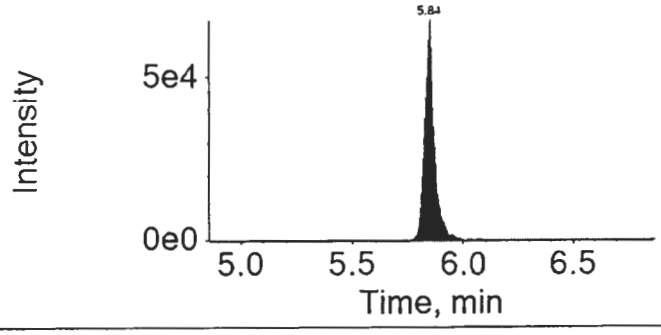
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

503.0 / 99.0



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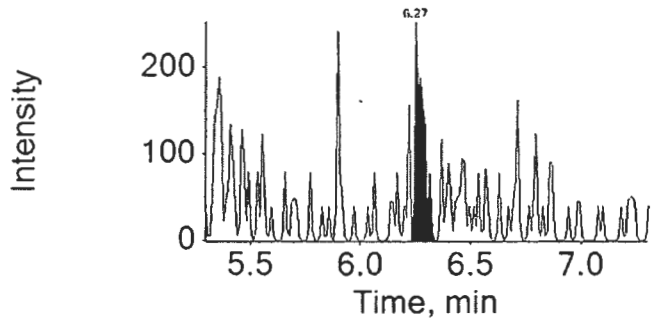
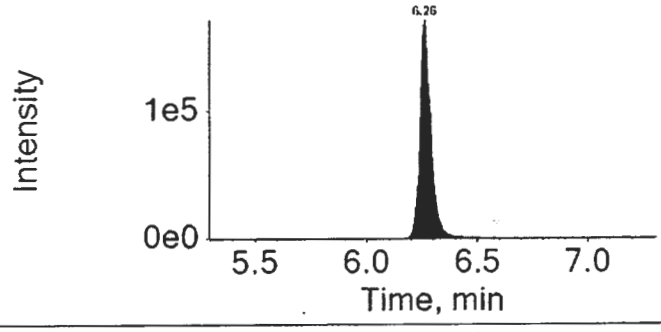
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

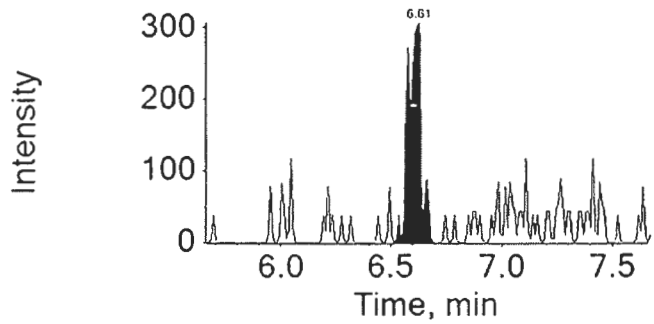
515.0 / 470.0



16AUG31-67.wiff

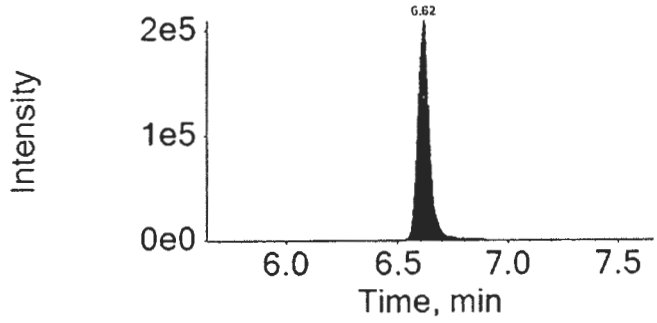
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



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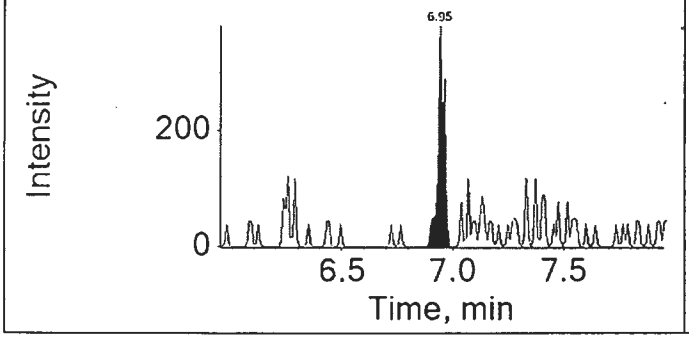
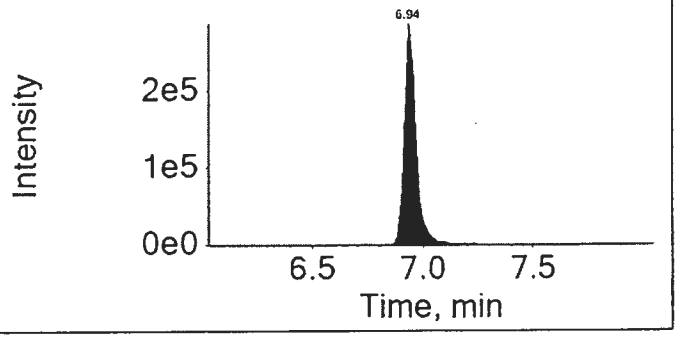
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0





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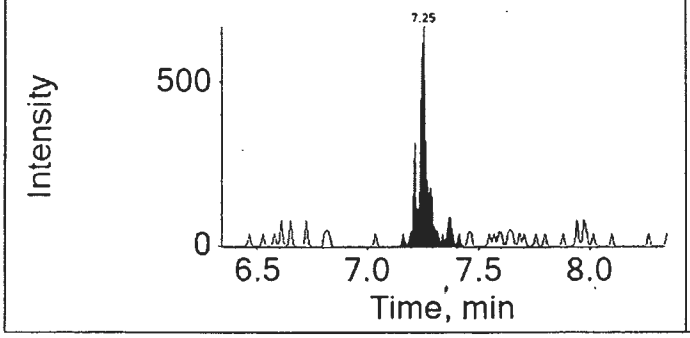
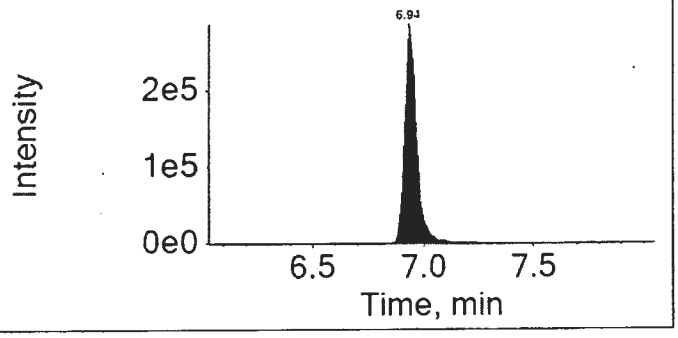
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





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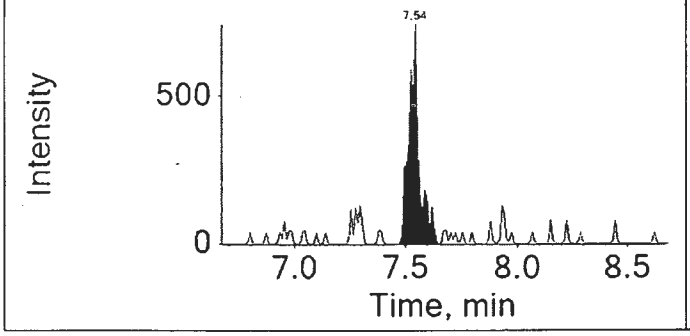
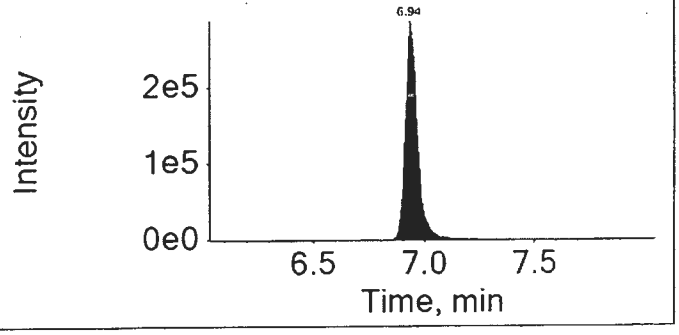
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd
SEP 15 2016

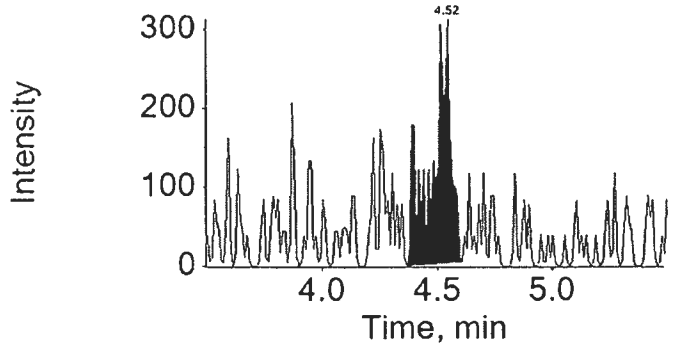
MCD 7824
9/14/16

Lynn Dodd
Principal Specialist

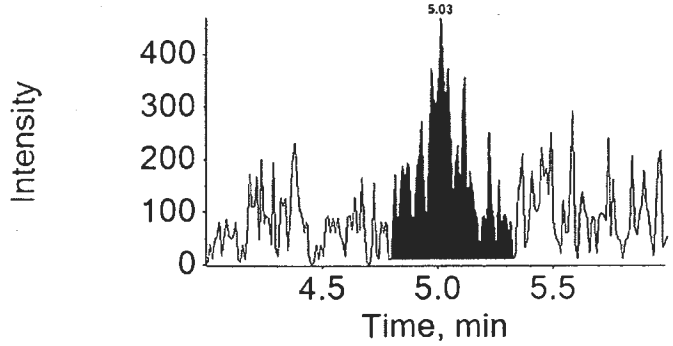
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-67.wiff	2016-09-01T08:17:47	8535029	PFHxA	4.52	1745.1
16AUG31-67.wiff	2016-09-01T08:17:47	8535029	PFHpA	5.03	5312.5
16AUG31-67.wiff	2016-09-01T08:17:47	8535029	PFOA	5.45	62438.7
16AUG31-67.wiff	2016-09-01T08:17:47	8535029	PFNA	5.84	1301.7
16AUG31-67.wiff	2016-09-01T08:17:47	8535029	PFDA	6.26	938.1
16AUG31-67.wiff	2016-09-01T08:17:47	8535029	PFUnDA	6.61	1407.2

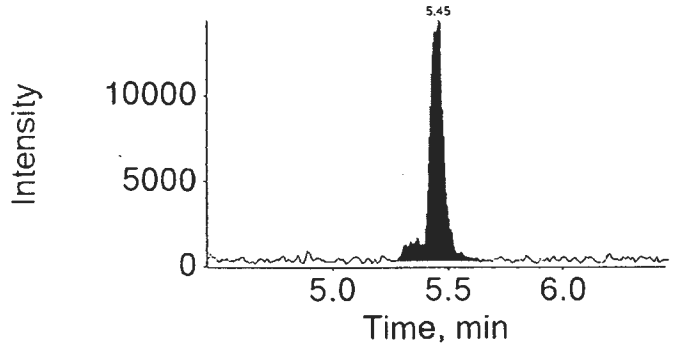
Component: PFHxA
Mass: 312.9 / 269.0



Component: PFHpA
Mass: 362.9 / 318.9



Component: PFOA
Mass: 412.9 / 368.9



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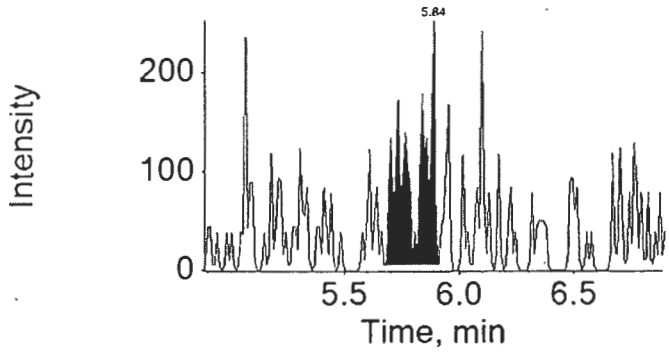
Print Date: 14/09/2016 1:01 PM

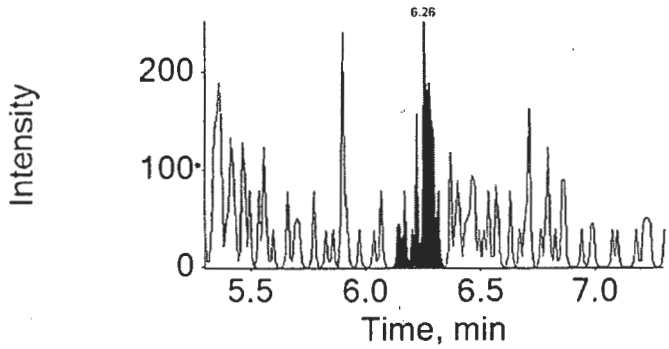
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

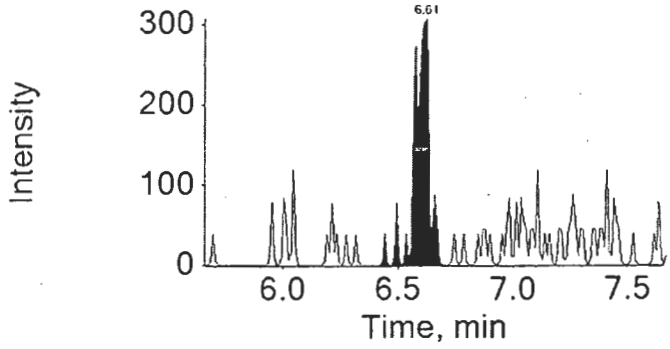
Component: PFNA
Mass: 462.9 / 418.9



Component: PFDA
Mass: 512.9 / 469.0



Component: PFUnDA
Mass: 562.9 / 518.9



Lynn Dodd
SEP 15 2016

MCD 7824
9/14/16

Lynn Dodd
Principal Specialist

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

REVISED

Sample Description: SG3-RB03-160817 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8535029
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/17/2016 10:35 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB317 SDG#: SPP17-18RB

Revised

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	**Perfluorooctanoic acid**	335-67-1	5		1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 08:17	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.1001 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535029
Lab File ID: 16AUG31-67.WIFF
Date Collected: 08/17/2016 10:35
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 08:17
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	1	U
375-85-9	PFHpA	1	U
355-46-4	PFHxS	4	U
335-67-1	PFOA	5	
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 4:52:00 PM

Sample Name:	8535029			**Data File:**		16AUG31-67.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-RB03-160817 Grab Blank Water			**Acquis Date:**		2016-09-01T08:17:47
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	67			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16236005
				ICAL Name:		16AUG26ICAL
Batch Number:	16236005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10012			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

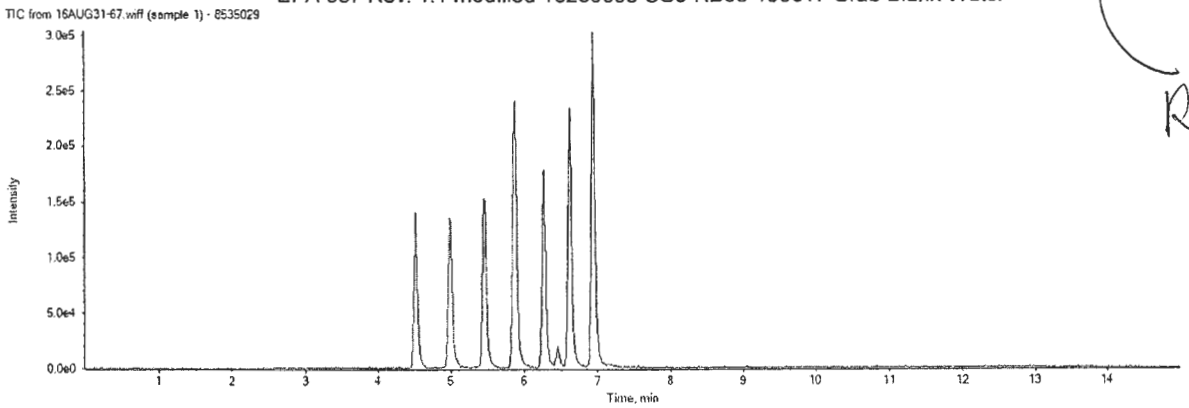
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.98	187351.0	N/A	N/A
PFHxA	4.53	1.000	1042.7	M	13C2-PFHxA	4.51	463391.8	0.002	0.214
PFHpA	5.01	1.000	2088.4	M	13C4-PFHpA	4.99	323523.4	0.006	0.255
PFHxS	4.97	1.000	500.3	A	18O2-PFHxS	4.98	187351.0	0.003	0.122
PFOA	5.45	1.000	61195.3	M	13C4-PFOA	5.45	543992.9	0.112	4.941
PFNA	5.87	1.000	627.1	M	13C5-PFNA	5.87	773642.7	0.001	0.038
PFOS	N/A	N/A	N/A	A	13C4-PFOS	5.84	203801.1	N/A	N/A
PFDA	6.27	1.000	663.5	M	13C2-PFDA	6.26	605539.7	0.001	0.044
PFUnDA	6.61	1.000	1313.4	M	13C2-PFUnDA	6.62	773287.0	0.002	0.082
PFDoDA	6.95	1.000	750.5	A	13C2-PFDoDA	6.94	1091409.0	0.001	0.035
PFTrDA	7.25	1.050	1844.9	A	13C2-PFDoDA	6.94	1091409.0	0.002	0.083
PFTeDA	7.54	1.090	2407.7	A	13C2-PFDoDA	6.94	1091409.0	0.002	0.114

Revised

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-RB03-160817 Grab Blank Water



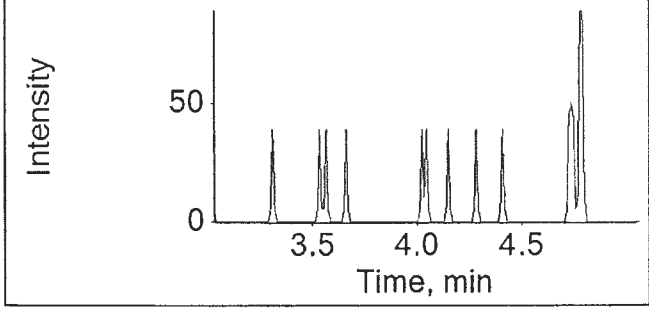
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:01 am, 6/13/17

16AUG31-67.wiff

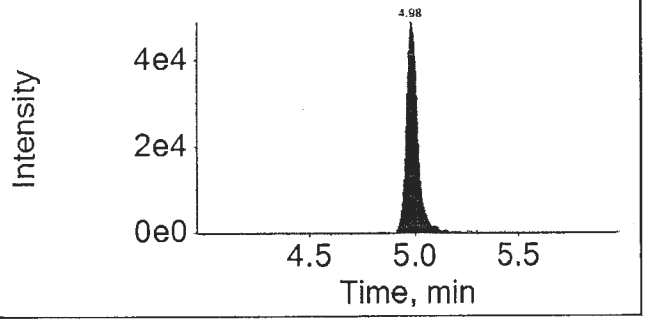
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

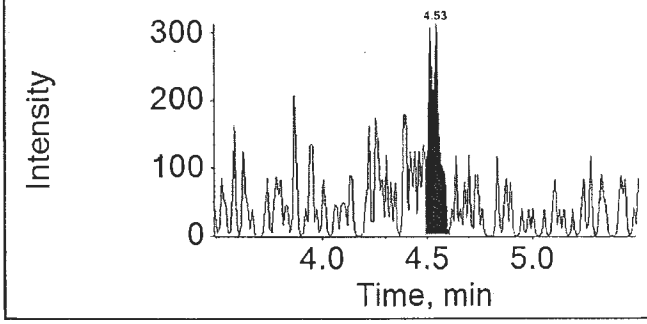
403.0 / 103.0



16AUG31-67.wiff

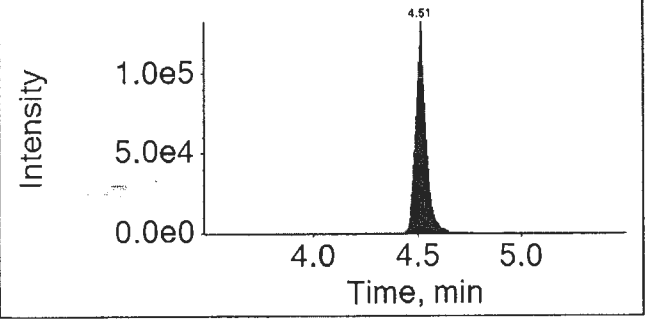
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

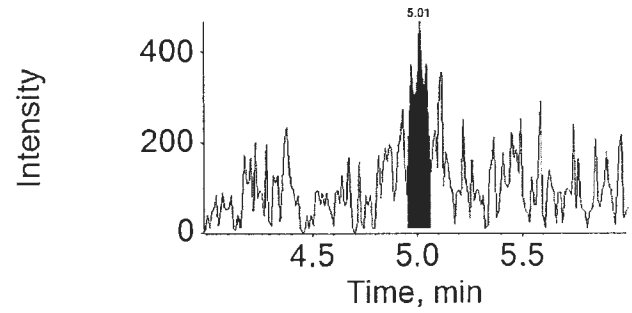
314.9 / 270.0



16AUG31-67.wiff

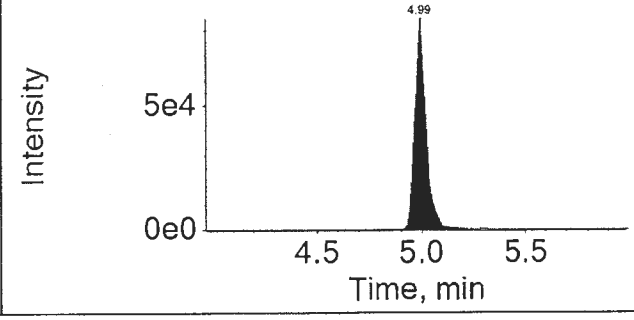
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



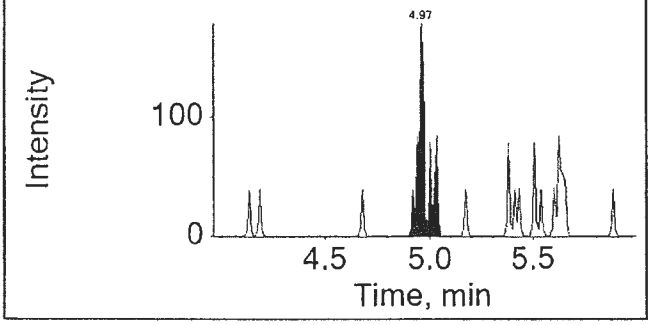
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:01 am, 6/13/17

16AUG31-67.wiff

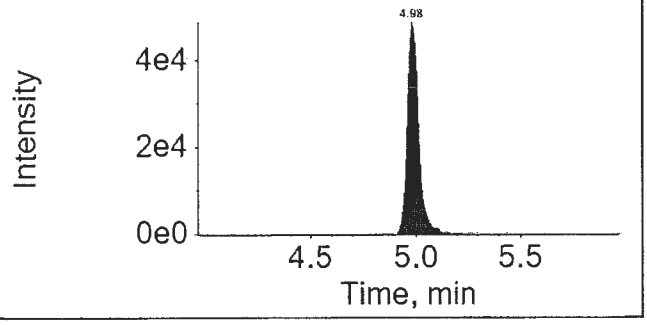
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

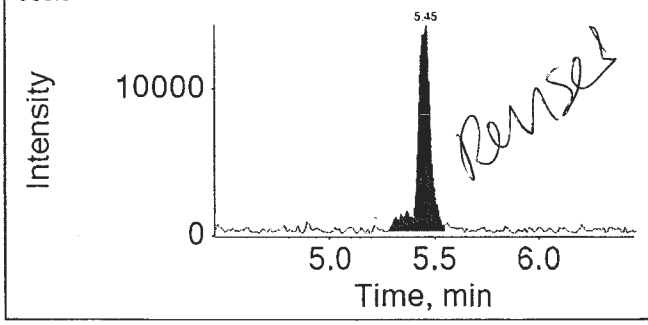
403.0 / 103.0



16AUG31-67.wiff

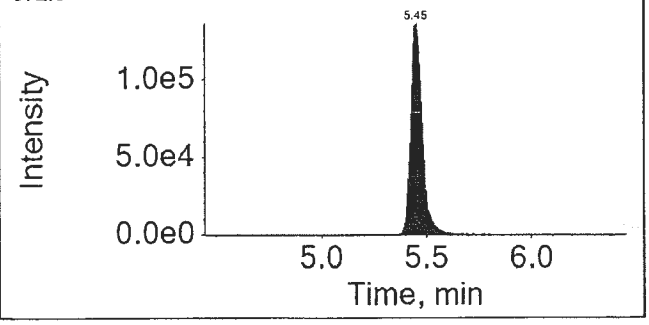
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

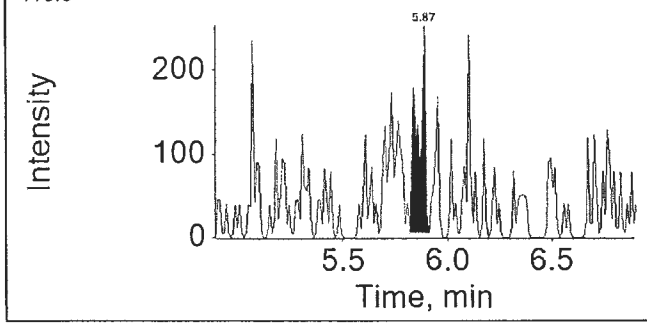
417.0 / 372.0



16AUG31-67.wiff

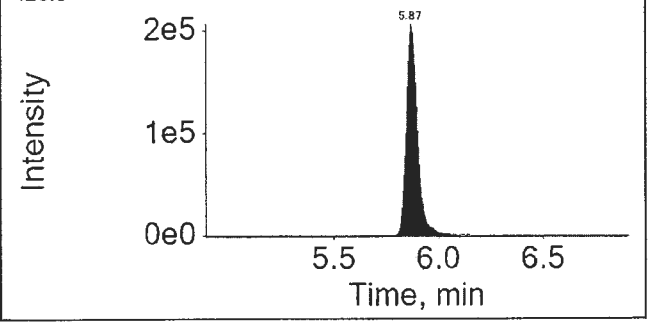
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



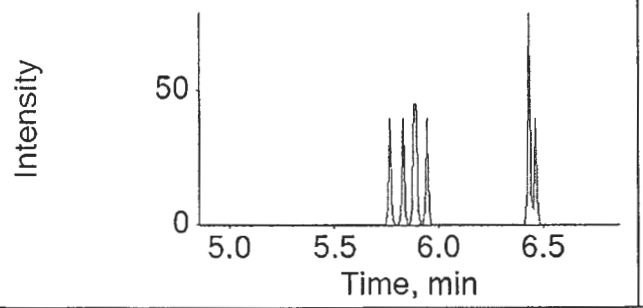
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:01 am, 6/13/17

16AUG31-67.wiff

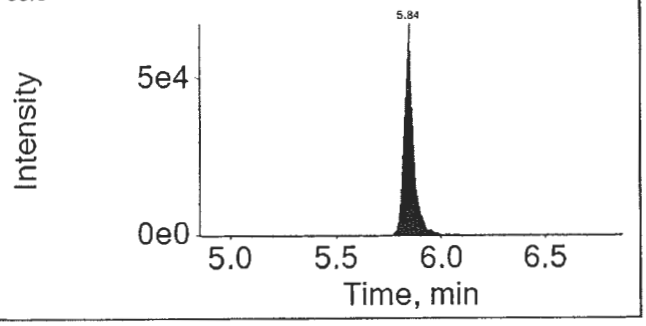
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

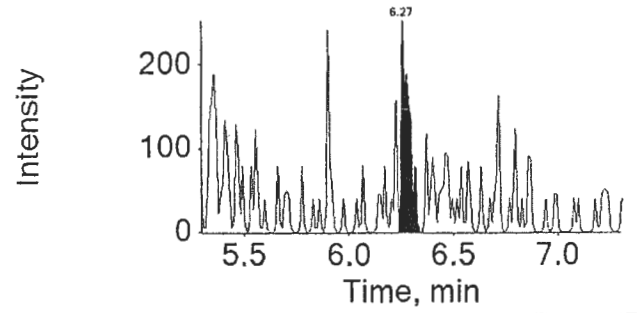
503.0 / 99.0



16AUG31-67.wiff

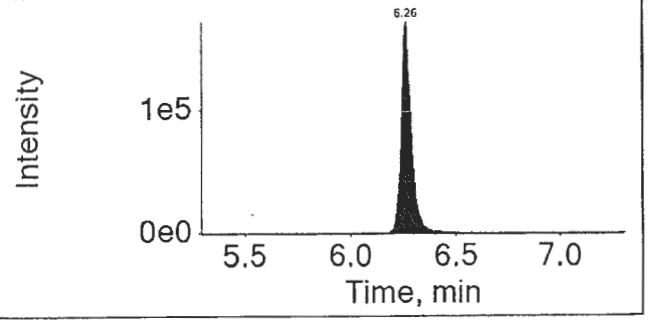
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

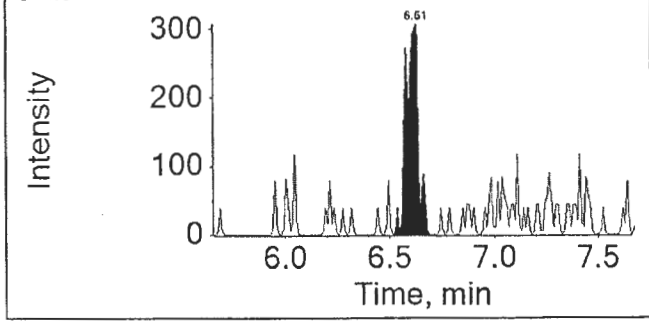
515.0 / 470.0



16AUG31-67.wiff

Analyte: PFUnDA

562.9 / 518.9



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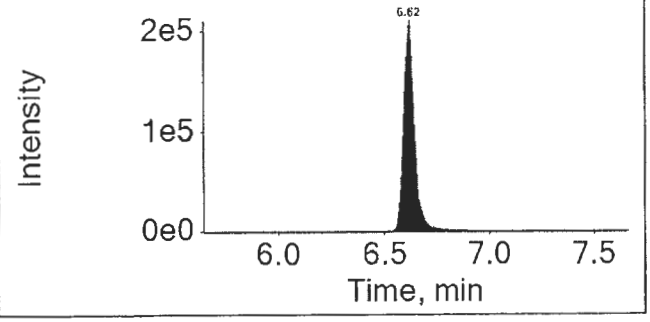


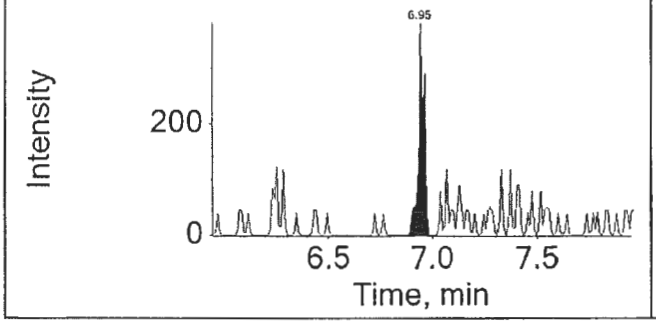
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:01 am, 6/13/17

16AUG31-67.wiff

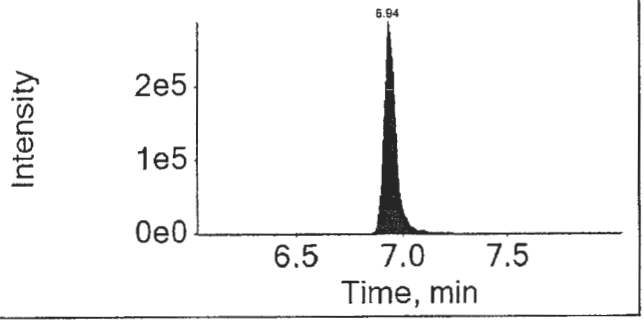
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

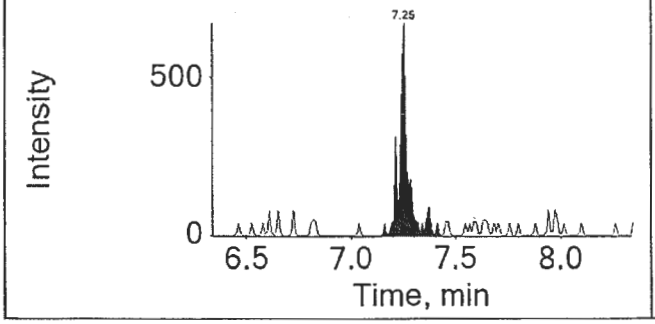
615.0 / 570.0



16AUG31-67.wiff

Analyte: PFTrDA

662.9 / 618.9



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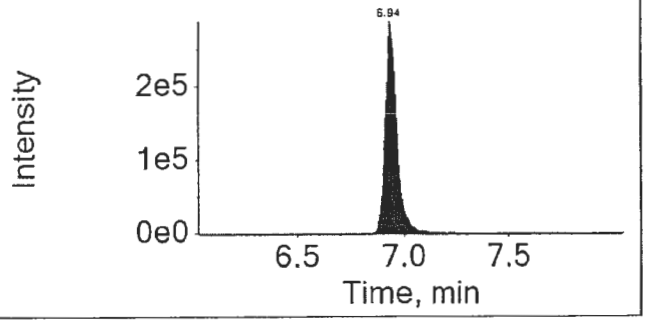
615.0 / 570.0



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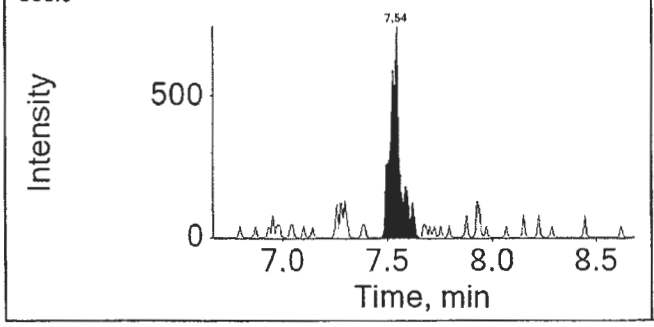
Analyte: PFTeDA

712.9 / 668.9



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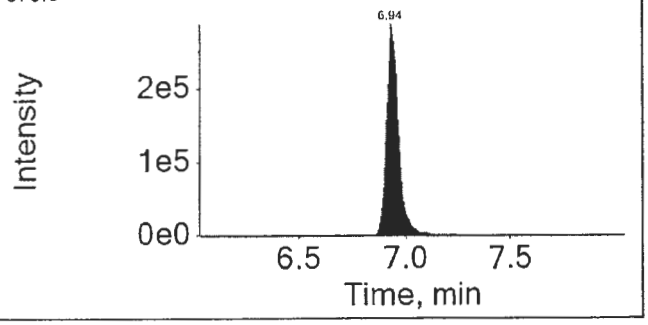
615.0 / 570.0



APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:01 am, 6/13/17

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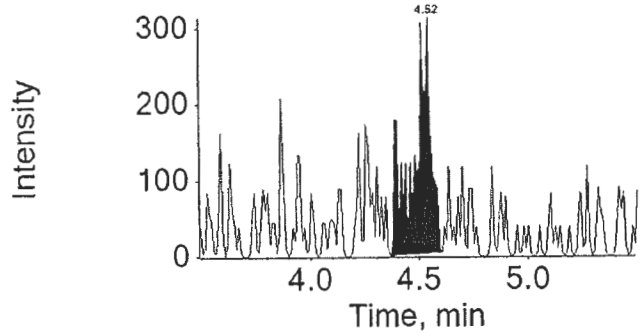
Print Date: 09/06/2017 4:54 PM

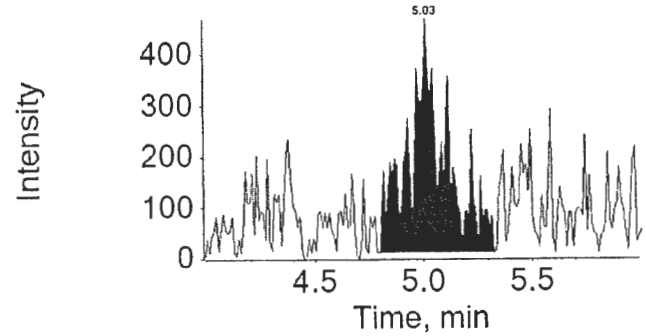
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-67.wiff	2016-09-01T08:17:47	8535029	PFHxA	4.52	1745.1
16AUG31-67.wiff	2016-09-01T08:17:47	8535029	PFHpA	5.03	5312.5
16AUG31-67.wiff	2016-09-01T08:17:47	8535029	PFOA	5.45	62438.7
16AUG31-67.wiff	2016-09-01T08:17:47	8535029	PFNA	5.84	1301.7
16AUG31-67.wiff	2016-09-01T08:17:47	8535029	PFDA	6.26	938.1
16AUG31-67.wiff	2016-09-01T08:17:47	8535029	PFUnDA	6.61	1407.2

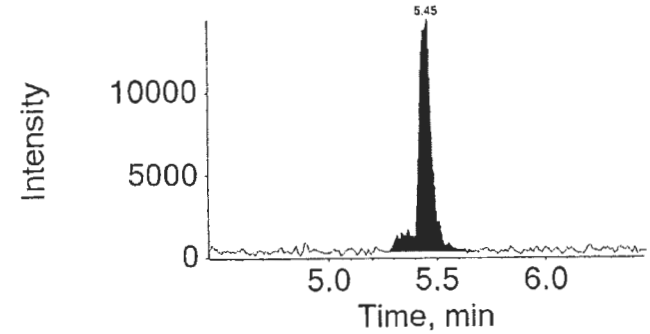
Component: PFHxA
Mass: 312.9 / 269.0



Component: PFHpA
Mass: 362.9 / 318.9



Component: PFOA
Mass: 412.9 / 368.9



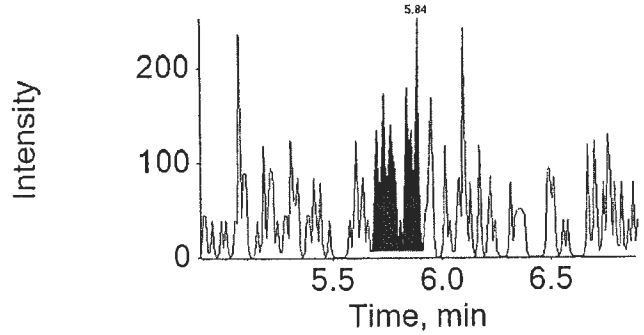
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:53 am, 6/13/17

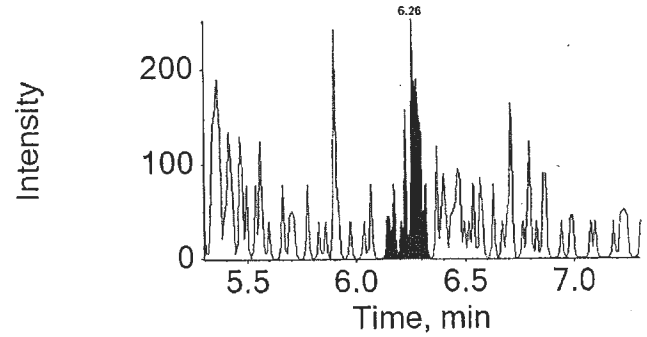
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

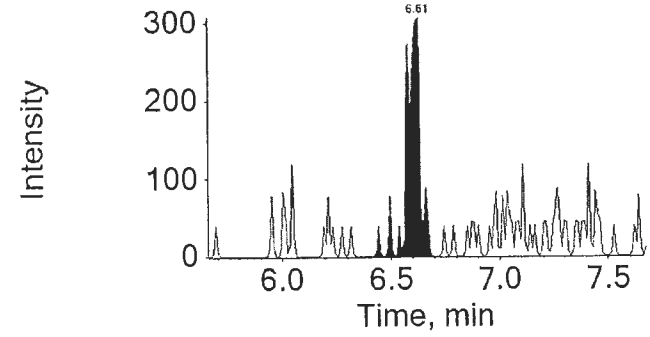
Component: PFNA
Mass: 462.9 / 418.9



Component: PFDA
Mass: 512.9 / 469.0



Component: PFUnDA
Mass: 562.9 / 518.9



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:53 am, 6/13/17

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Analysis Report

REVISED

Sample Description: SG3-SUMP01-160817 Grab Sediment
SGPP - Bennington

LL Sample # SW 8535030
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/17/2016 10:45 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

BENS1 SDG#: SPP17-19

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	3.3	0.51	1.6	1
14027	**Perfluorodecanoic acid**	335-76-2	36	0.20	0.41	1
14027	**Perfluorododecanoic acid**	307-55-1	24	0.41	0.82	1
14027	**Perfluoroheptanoic acid**	375-85-9	120	3.1	6.1	10 DL
14027	Perfluorohexanesulfonate	355-46-4	0.51 U	0.51	1.6	1
14027	**Perfluorohexanoic acid**	307-24-4	380	2.0	4.1	10 DL
14027	**Perfluorononanoic acid**	375-95-1	32	0.20	0.41	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	6.3	0.71	1.6	1
14027	**Perfluorooctanoic acid**	335-67-1	30,000	310	610	1000 DL3
14027	**Perfluorotetradecanoic acid**	376-06-7	24	0.31	0.82	1
14027	**Perfluorotridecanoic acid**	72629-94-8	9.6	0.61	1.2	1
14027	**Perfluoroundecanoic acid**	2058-94-8	13	0.31	0.61	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	5.3	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/06/2016 17:57	Jason W Knight	1
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 15:44	Marissa C Drexinger	1000
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 17:05	Marissa C Drexinger	10
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16235011	08/23/2016 11:10	Devon M Whooley	1
00111	Moisture	SM 2540 G-1997	1	16236820006A	08/24/2016 02:56	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 9/15/2016 11:31:00 AM

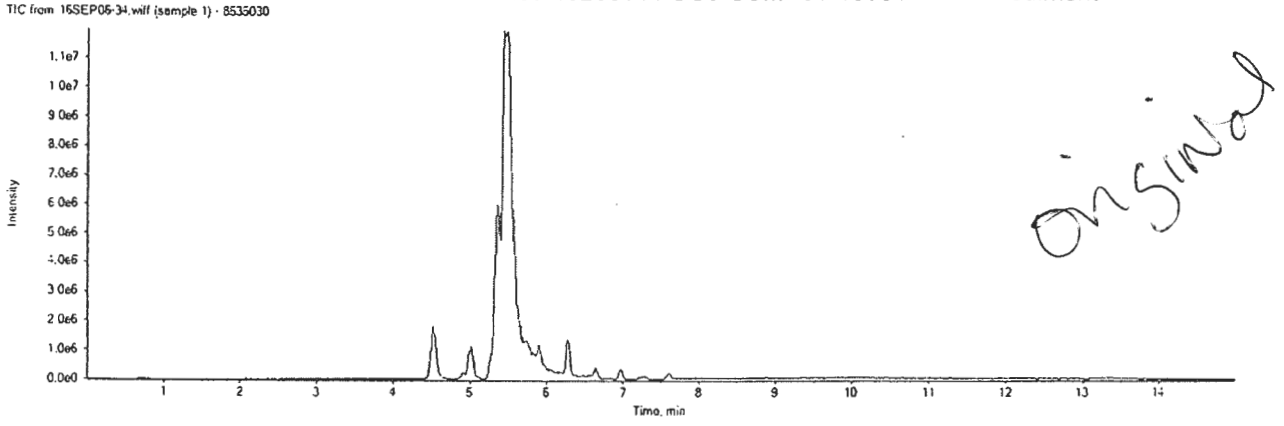
Sample Name:	8535030		**Data File:**		16SEP06-34.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP01-160817 Grab Sediment		**Acquis Date:**		2016-09-06T17:57:30
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	22		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011
			ICAL Name:		16SEP01ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.170		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.07	62096.3	A	18O2-PFHxS	4.99	162322.4	0.383	3.085	ng/g
PFHxA	4.52	8614625.0	A	13C2-PFHxA	4.52	279687.7	30.801	566.404	ng/g
PFHpA	5.01	4917922.6	A	13C4-PFHpA	5.01	241946.8	20.326	189.438	ng/g
PFHxS	5.00	4767.3	A	18O2-PFHxS	4.99	162322.4	0.029	0.269	ng/g
PFOA	5.46	132097563.6	A	13C4-PFOA	5.45	44777.3	2950.102	27959.566	ng/g
PFNA	5.90	1868909.1	A	13C5-PFNA	5.90	593062.3	3.151	30.408	ng/g
PFOS	5.87	75220.4	A	13C4-PFOS	5.87	133998.4	0.561	5.987	ng/g
PFDA	6.28	3243091.2	A	13C2-PFDA	6.28	792986.7	4.090	34.372	ng/g
PFUnDA	6.64	650363.9	A	13C2-PFUnDA	6.64	536378.6	1.213	12.145	ng/g
PFDoDA	6.97	855390.8	A	13C2-PFDoDA	6.97	392769.4	2.178	22.759	ng/g
PFTrDA	7.29	343832.3	A	13C2-PFDoDA	6.97	392769.4	0.875	9.075	ng/g
PFTeDA	7.60	839858.3	A	13C2-PFDoDA	6.97	392769.4	2.138	22.600	ng/g

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP01-160817 Grab Sediment



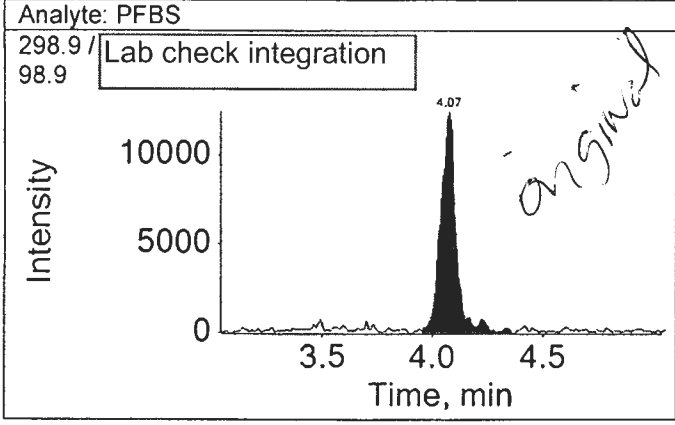
original

16SEP06-34.wiff

Analyte: PFBS

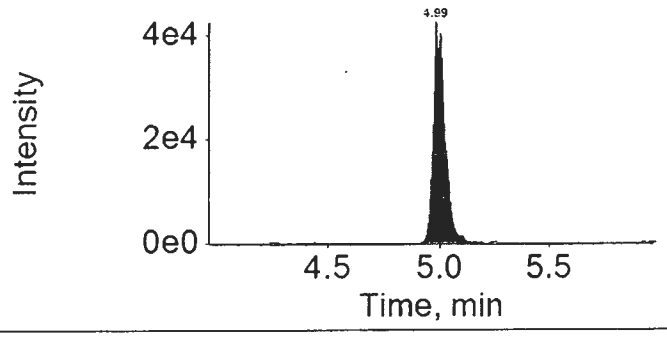
298.9 / 98.9

Lab check integration



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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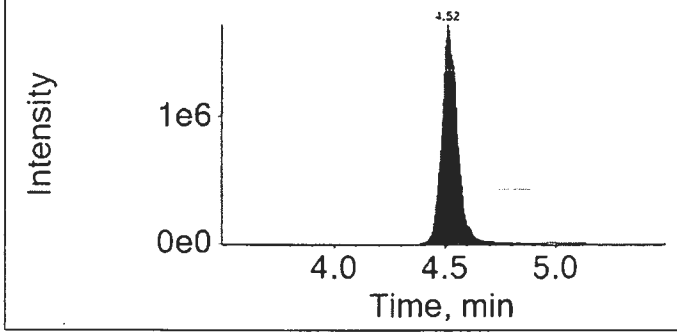
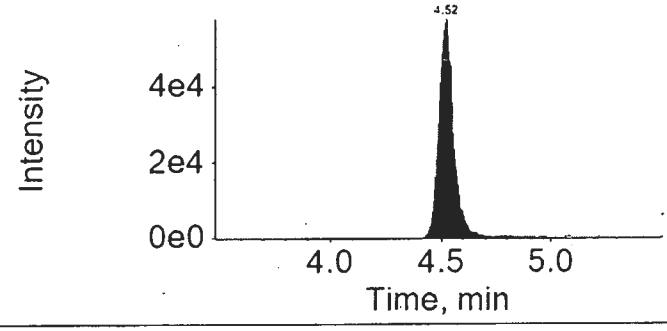
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

314.9 / 270.0



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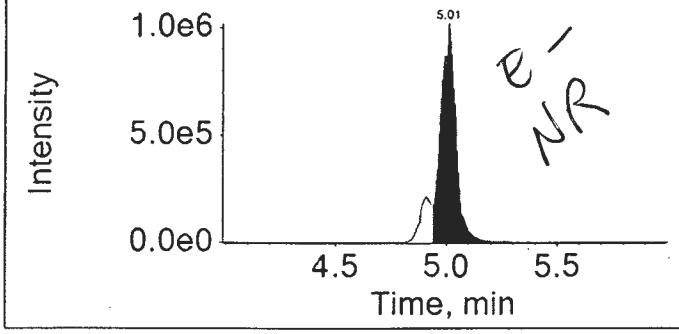
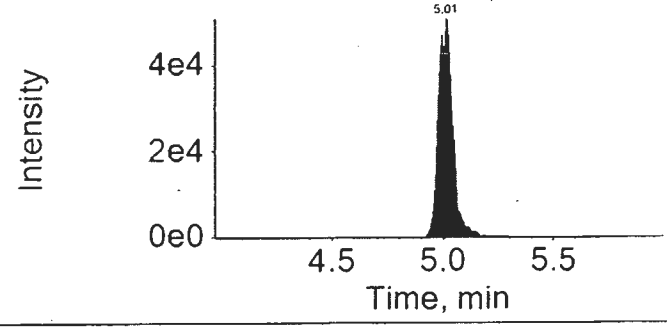
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



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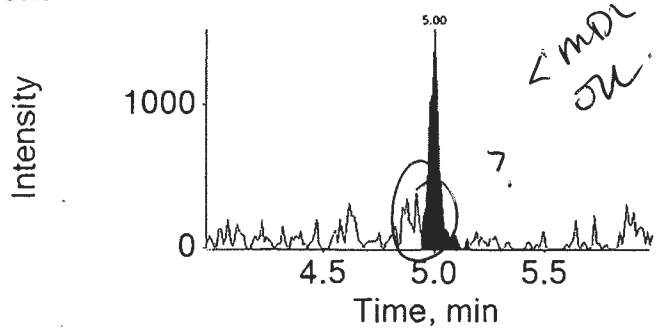
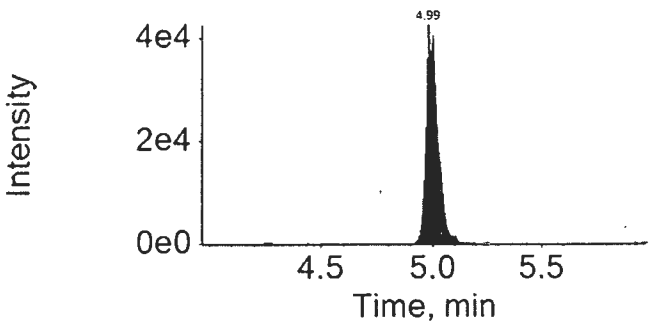
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

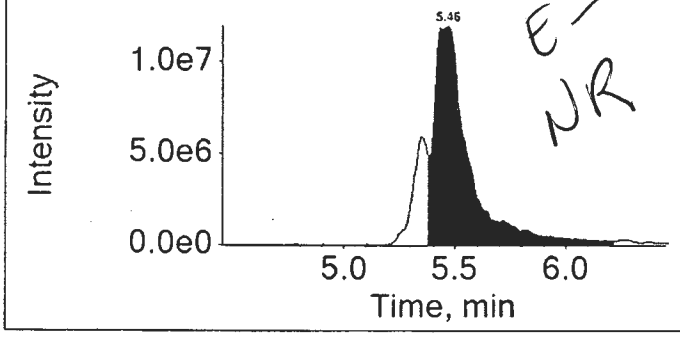
403.0 / 103.0



16SEP06-34.wiff

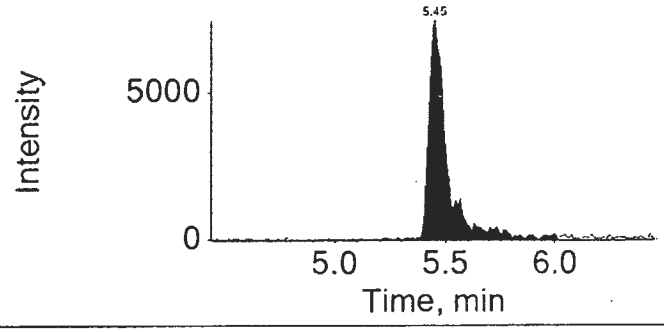
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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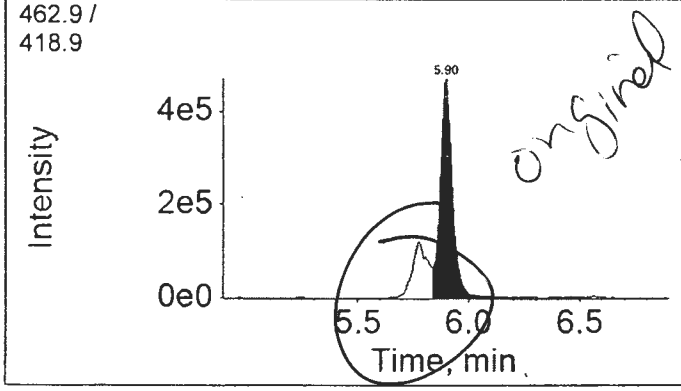
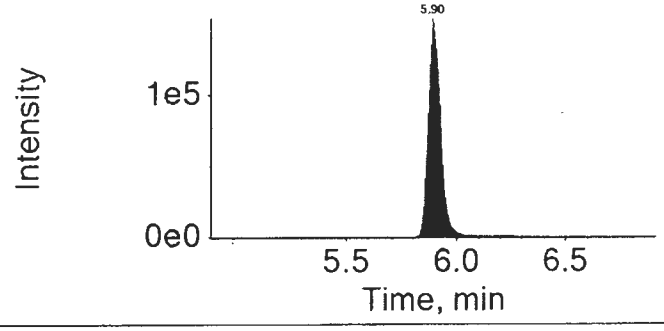
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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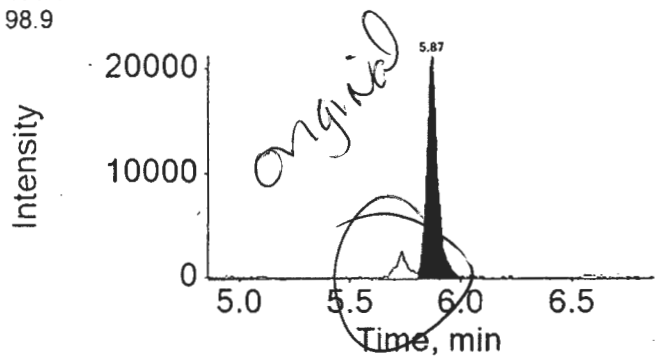
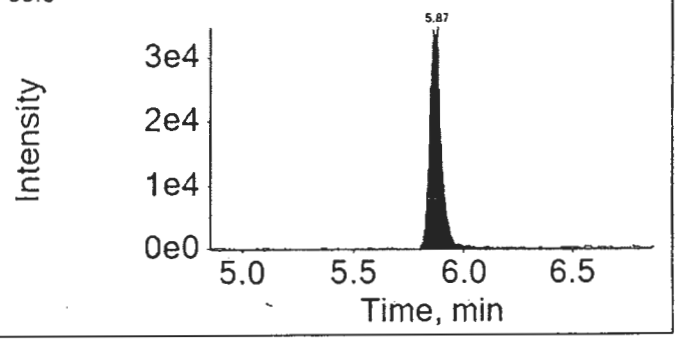
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0





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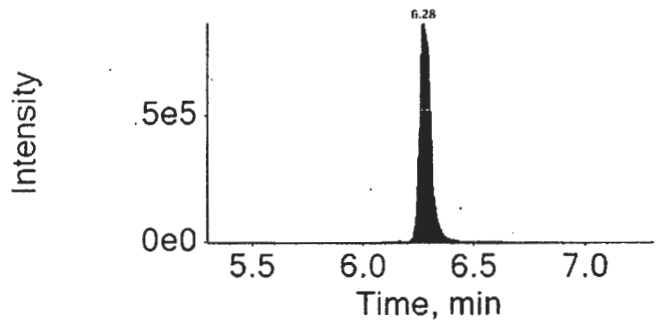
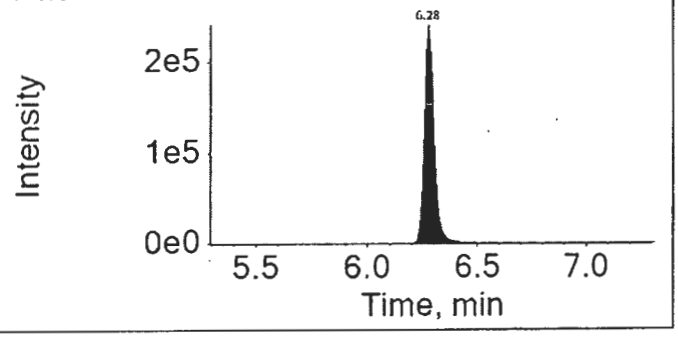
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





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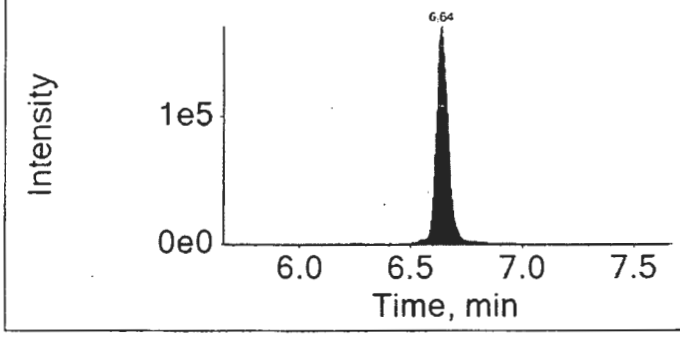
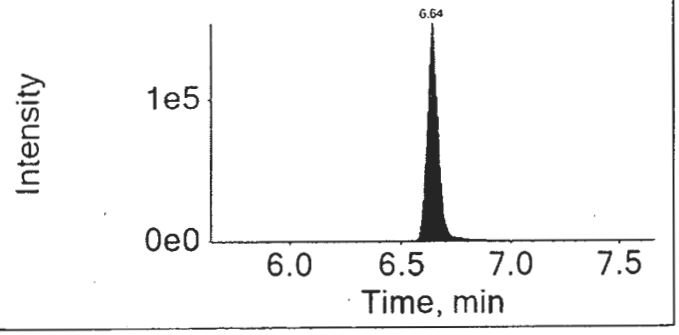
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

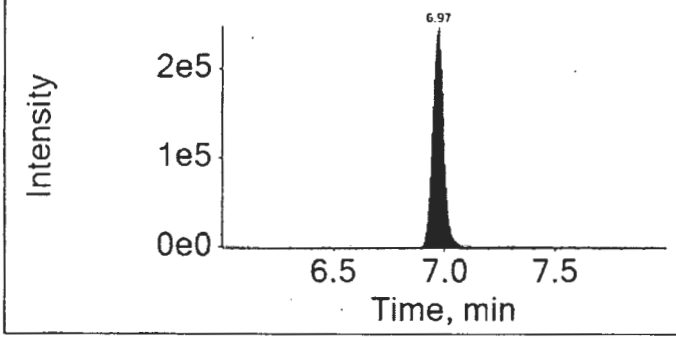




16SEP06-34.wiff

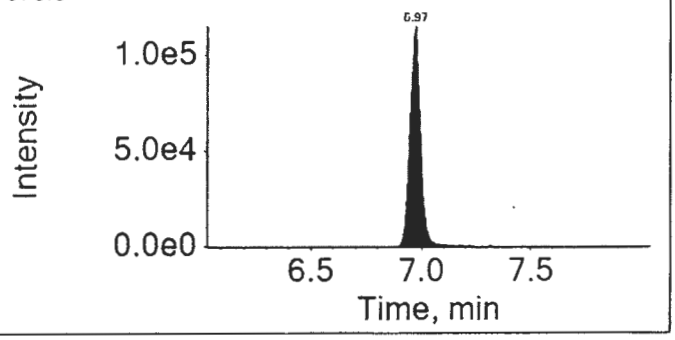
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

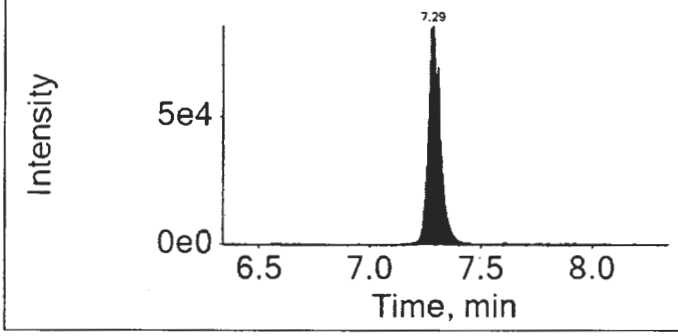
615.0 / 570.0



16SEP06-34.wiff

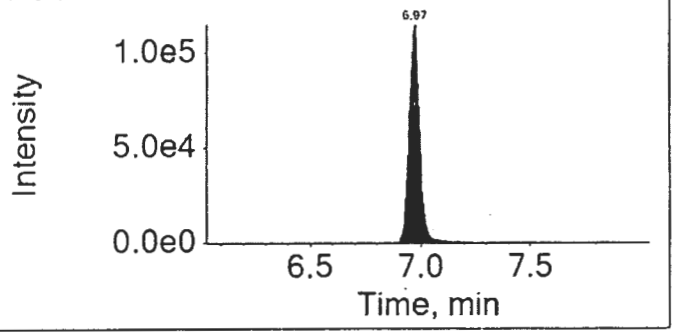
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

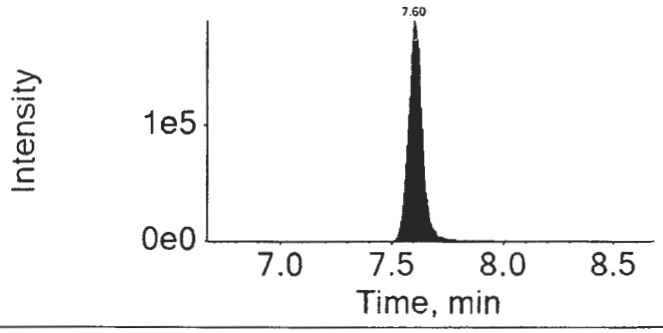
615.0 / 570.0



16SEP06-34.wiff

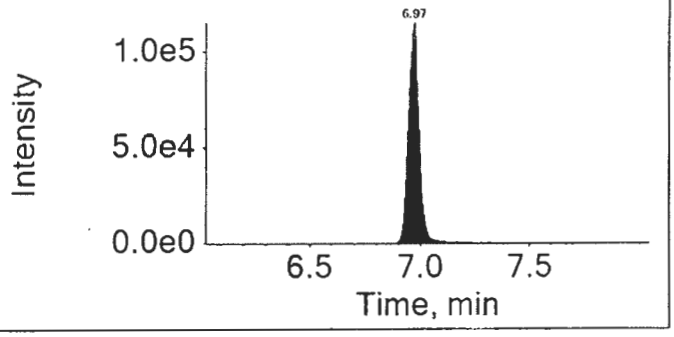
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 19 2016

Lynn Dodd
General Specialist

MED 7844 9/15/16

eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

Printed: 9/15/2016 1:23:00 PM

Sample Name:	8535030DL		**Data File:**		16SEP14-33.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP01-160817 Grab Sediment		**Acquis Date:**		2016-09-14T17:05:52
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	81		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL
			ICAL Name:		16SEP13ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.170		**Dilution Factor:**		10.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

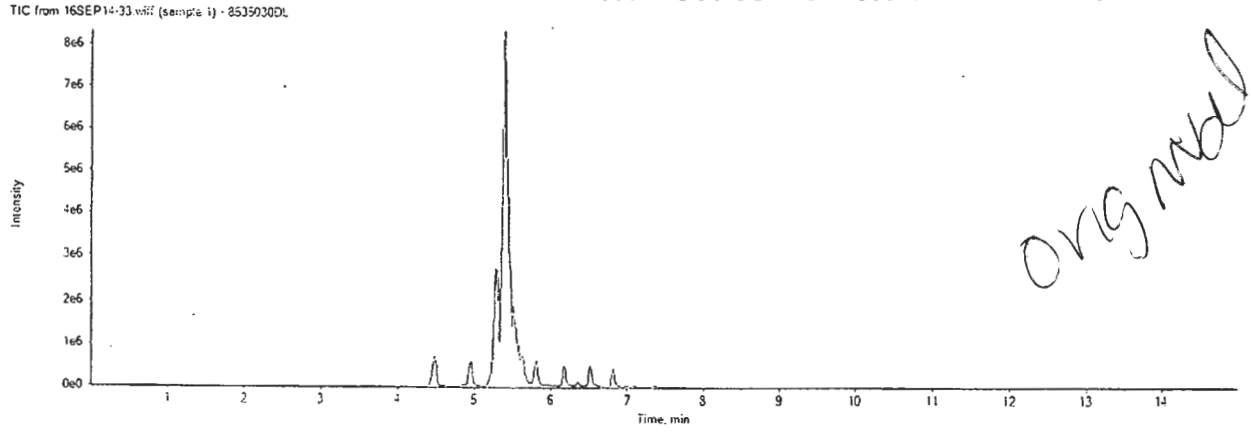
Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.05	8005.4	A	18O2-PFHxS	4.94	258587.8	0.031	2.169	ng/g
PFHxA	4.48	2071355.2	A	13C2-PFHxA	4.48	812112.9	2.551	361.652	ng/g
PFHpA	4.95	1186428.9	M	13C4-PFHpA	4.95	849669.6	1.396	115.180	ng/g
PFHxS	4.95	1594.7	A	18O2-PFHxS	4.94	258587.8	0.006	0.487	ng/g
PFOA	5.40	52470996.4	A	13C4-PFOA	5.40	141560.3	370.662	30197.969	ng/g
PFNA	5.80	397925.0	A	13C5-PFNA	5.80	1327561.3	0.300	24.762	ng/g
PFOS	5.78	13227.3	A	13C4-PFOS	5.78	276284.5	0.048	4.364	ng/g
PFDA	6.18	494452.3	A	13C2-PFDA	6.17	1010417.1	0.489	32.183	ng/g
PFUnDA	6.51	119226.1	A	13C2-PFUnDA	6.51	1178134.4	0.101	8.359	ng/g
PFDoDA	6.81	197173.7	A	13C2-PFDoDA	6.81	1077519.7	0.183	16.207	ng/g
PFTrDA	7.10	59319.4	A	13C2-PFDoDA	6.81	1077519.7	0.055	4.925	ng/g
PFTeDA	7.36	104189.3	A	13C2-PFDoDA	6.81	1077519.7	0.097	10.105	ng/g

E

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP01-160817 Grab Sediment

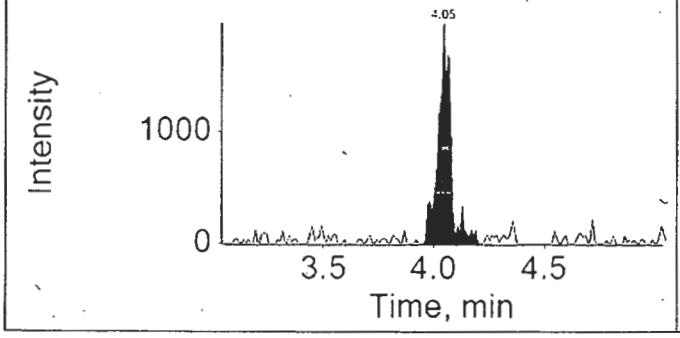


orig mbd

16SEP14-33.wiff

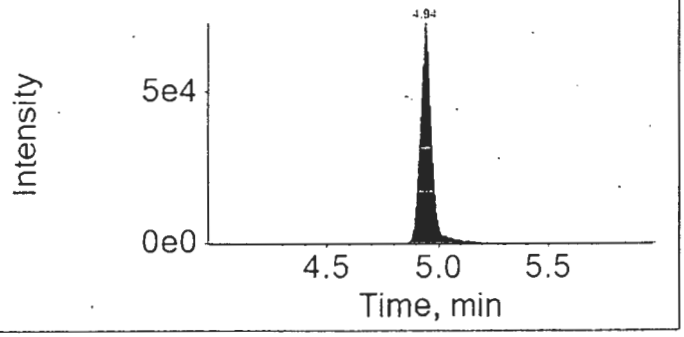
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

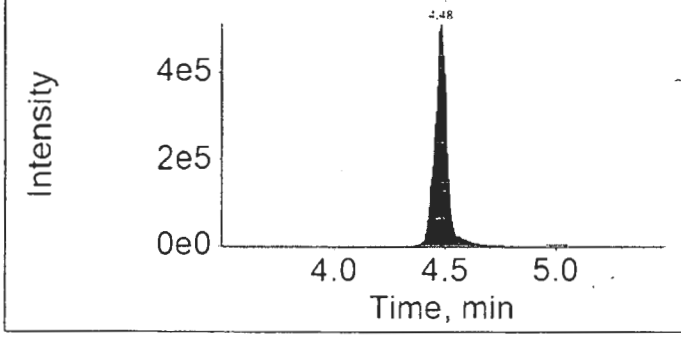
403.0 / 103.0



16SEP14-33.wiff

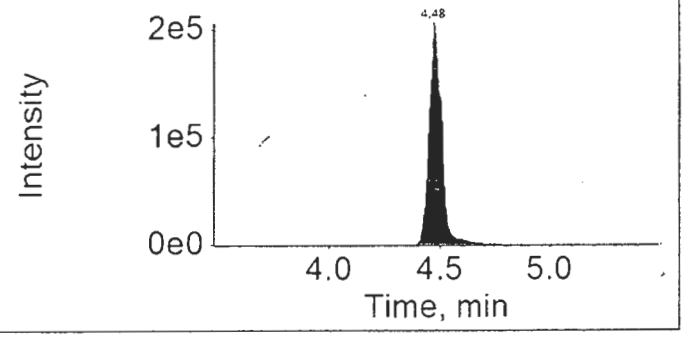
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

314.9 / 270.0



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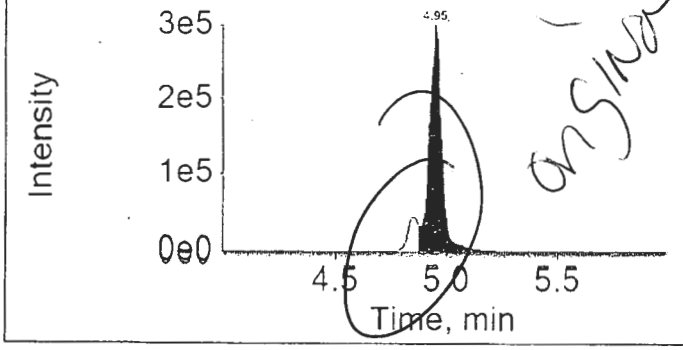
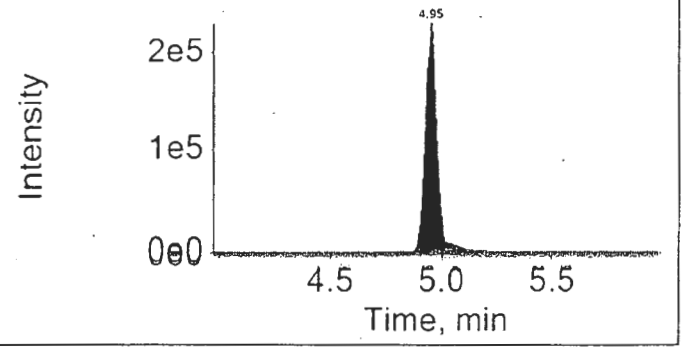
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

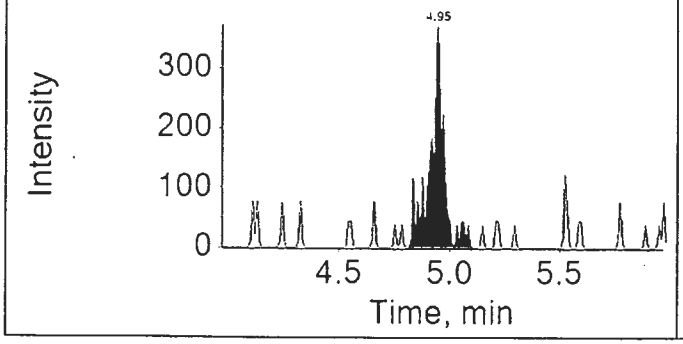
367.0 / 322.0



16SEP14-33.wiff

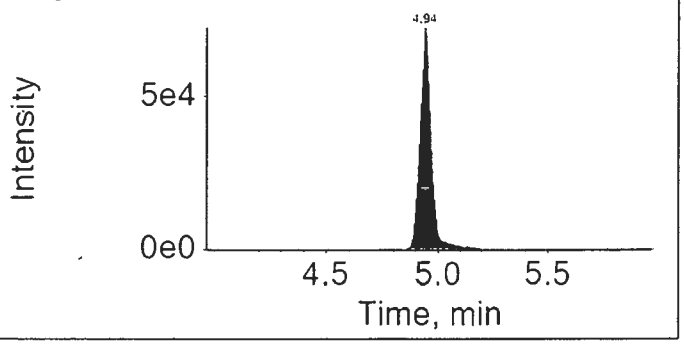
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

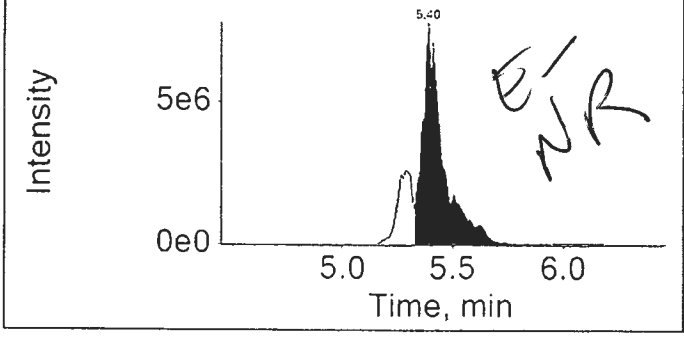
403.0 / 103.0



16SEP14-33.wiff

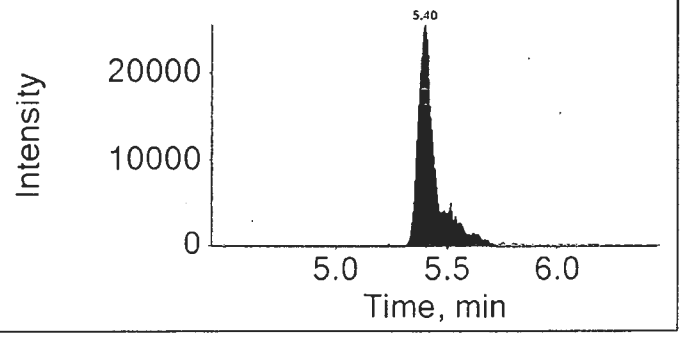
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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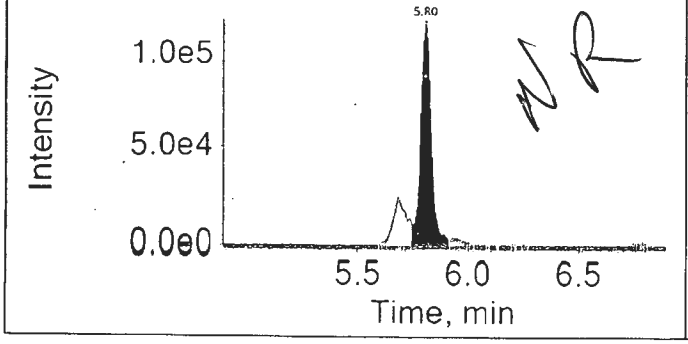
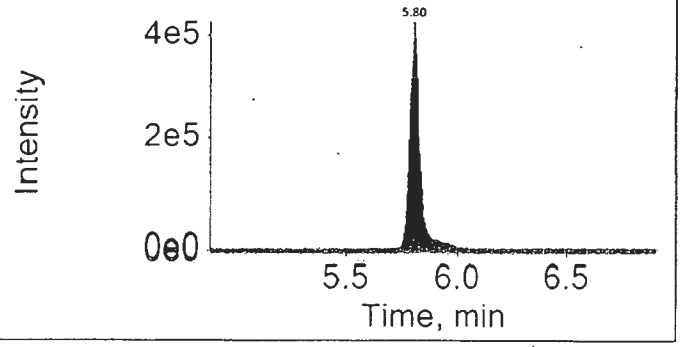
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

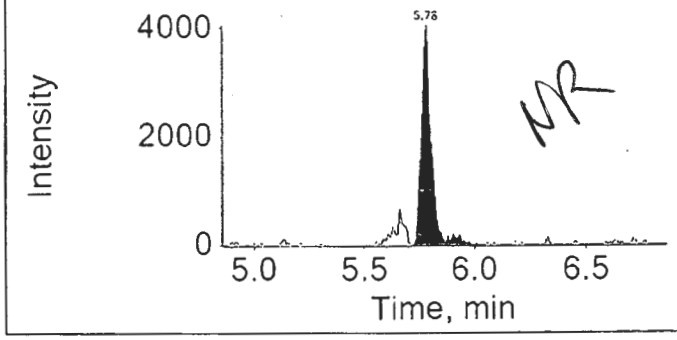
468.0 / 423.0



16SEP14-33.wiff

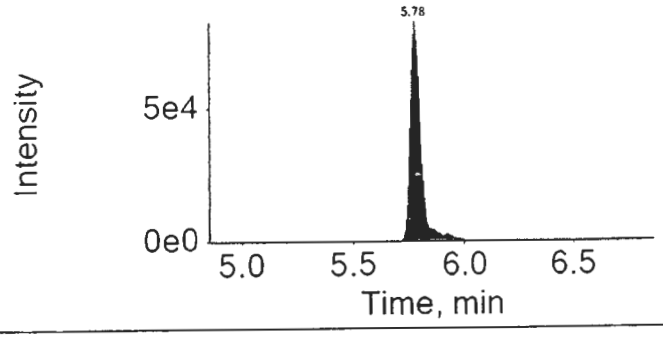
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

503.0 / 99.0



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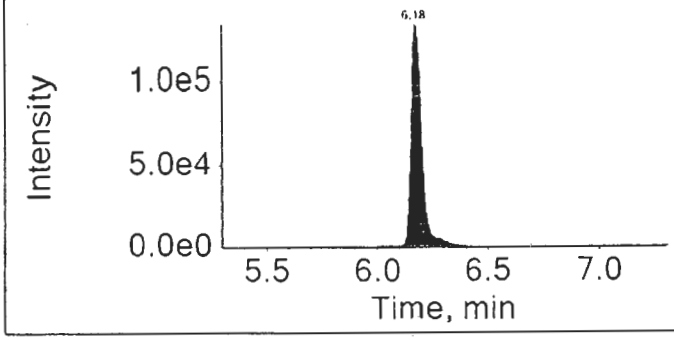
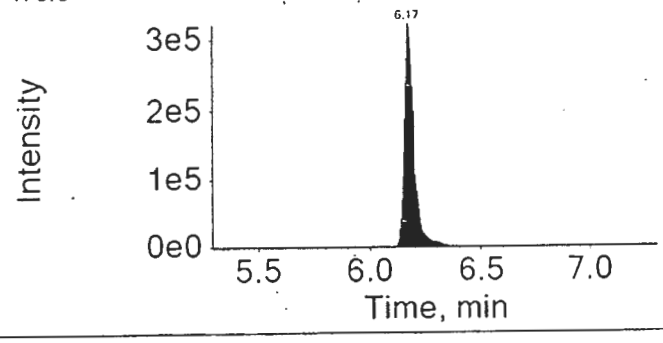
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

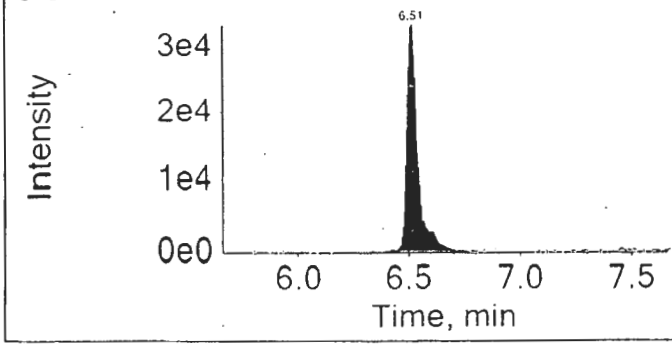
515.0 / 470.0



16SEP14-33.wiff

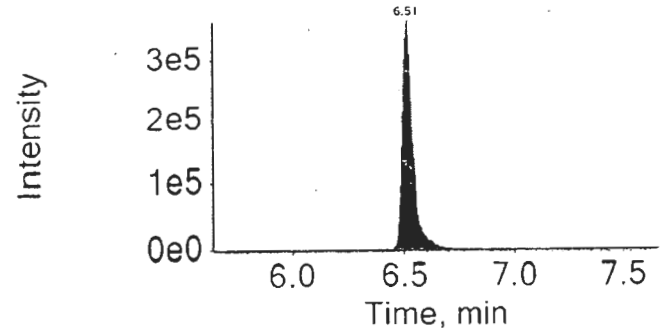
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

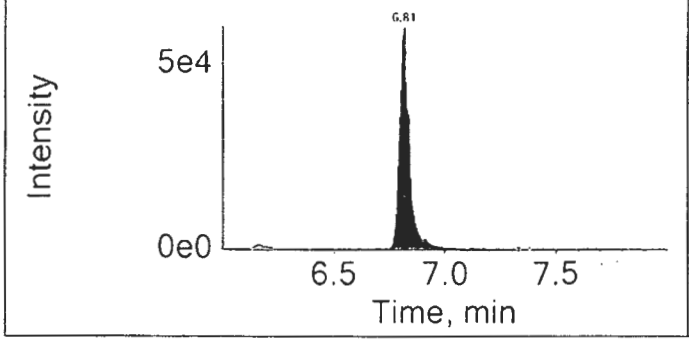
565.0 / 520.0



16SEP14-33.wiff

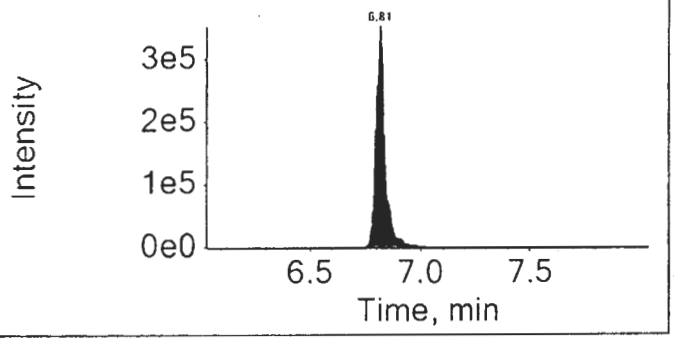
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

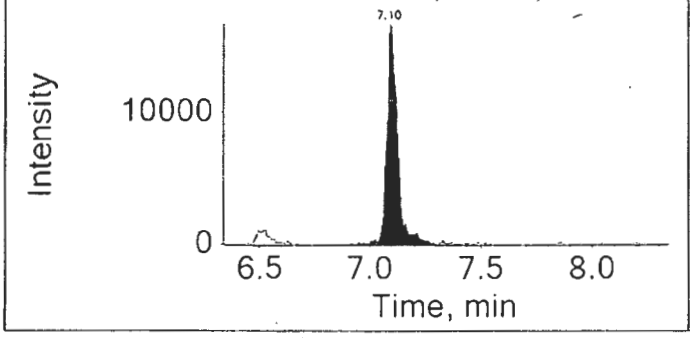
615.0 / 570.0



16SEP14-33.wiff

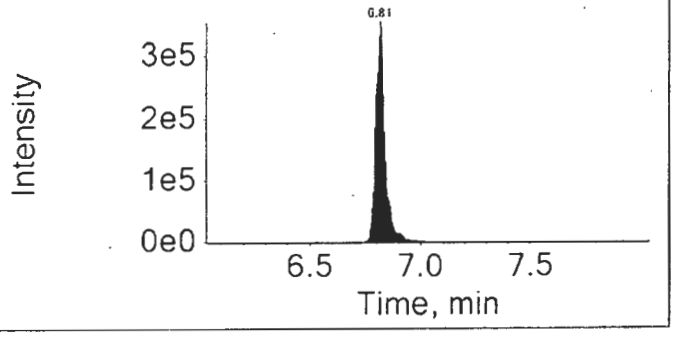
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

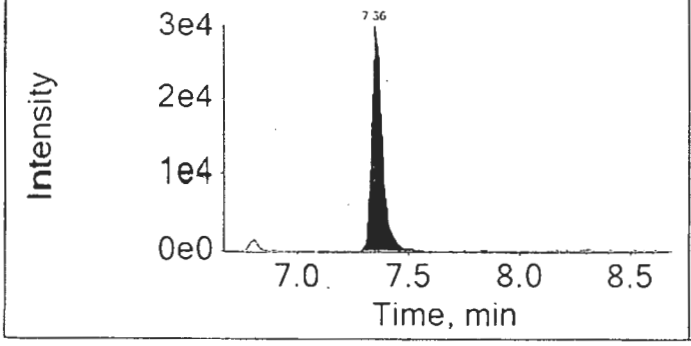
615.0 / 570.0



16SEP14-33.wiff

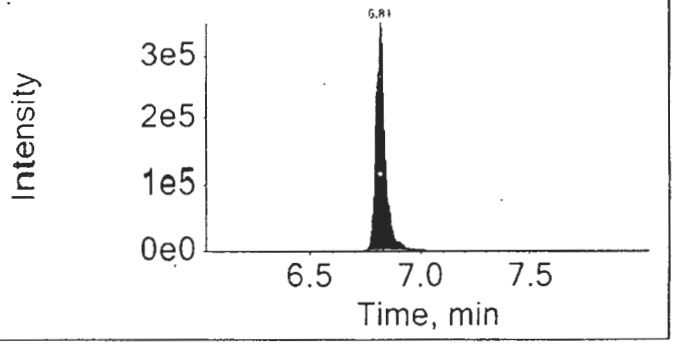
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 19 2016

Lynn Dodd
Principal Specialist

MEP 7824 9/15/16

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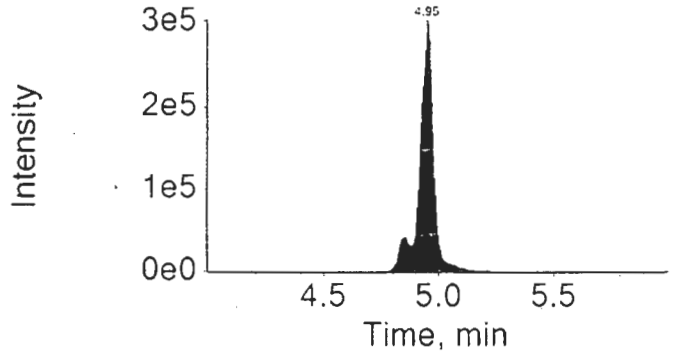
Print Date: 15/09/2016 1:24 PM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-33.wiff	2016-09-14T17:05:52	8535030DL	PFHpA	4.95	1317045.3

Component: PFHpA
Mass: 362.9 / 318.9



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SEP 19 2016

Lynn Dodd
Principal Specialist

MED 7827 9/15/16

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LC-MS/MS Analysis Report

Printed: 9/15/2016 1:23:00 PM

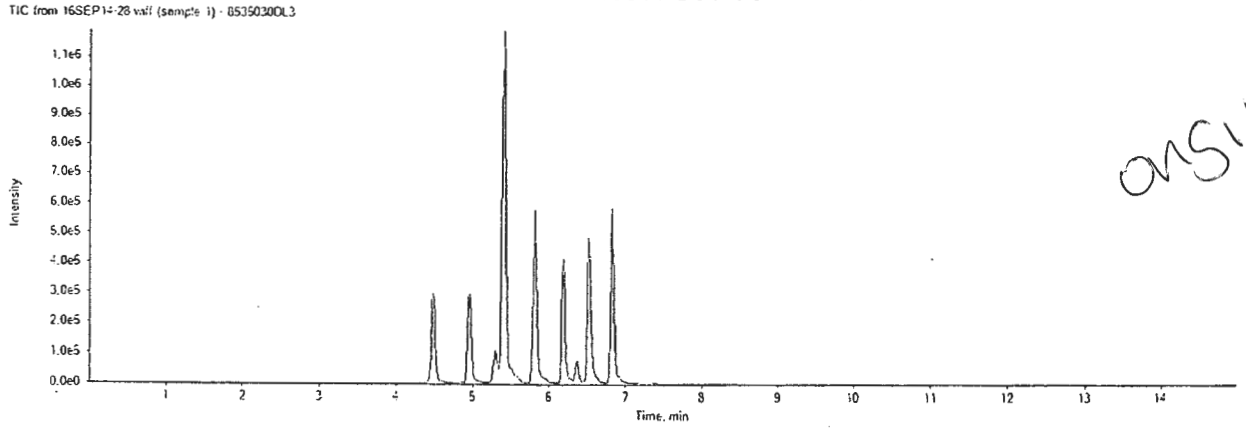
Sample Name:	8535030DL3		**Data File:**		16SEP14-28.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP01-160817 Grab Sediment		**Acquis Date:**		2016-09-14T15:44:01
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	79		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL
			ICAL Name:		16SEP13ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.170		**Dilution Factor:**		1000.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.07	1188.4	A	18O2-PFHxS	4.95	324892.1	0.004	25.633	ng/g
PFHxA	4.49	24666.4	A	13C2-PFHxA	4.49	1019735.3	0.024	342.982	ng/g
PFHpA	4.95	13322.4	A	13C4-PFHpA	4.95	792182.3	0.017	138.721	ng/g
PFHxS	4.95	2251.4	A	18O2-PFHxS	4.95	324892.1	0.007	54.772	ng/g
PFOA	5.40	3405745.4	A	13C4-PFOA	5.40	978208.2	3.482	28364.862	ng/g
PFNA	5.82	7711.0	M	13C5-PFNA	5.81	1606244.6	0.005	39.658	ng/g
PFOS	5.79	1125.8	A	13C4-PFOS	5.79	348445.8	0.003	29.452	ng/g
PFDA	6.18	9068.3	A	13C2-PFDA	6.18	1318931.0	0.007	45.217	ng/g
PFUnDA	6.52	7530.1	A	13C2-PFUnDA	6.52	1327410.8	0.006	46.855	ng/g
PFDoDA	6.82	7129.7	A	13C2-PFDoDA	6.82	1678132.2	0.004	37.630	ng/g
PFTrDA	7.11	4228.8	M	13C2-PFDoDA	6.82	1678132.2	0.003	22.546	ng/g
PFTeDA	7.36	4756.4	A	13C2-PFDoDA	6.82	1678132.2	0.003	29.620	ng/g

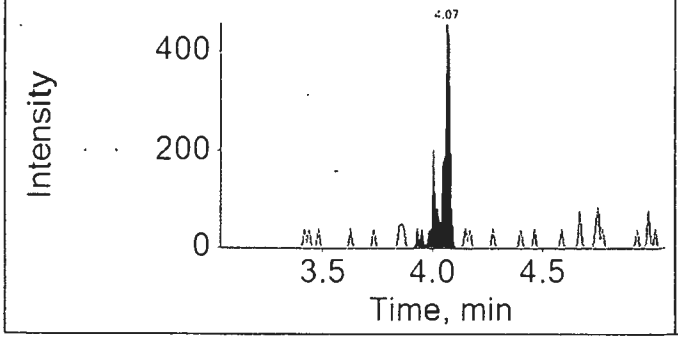
Total Ion Chromatogram

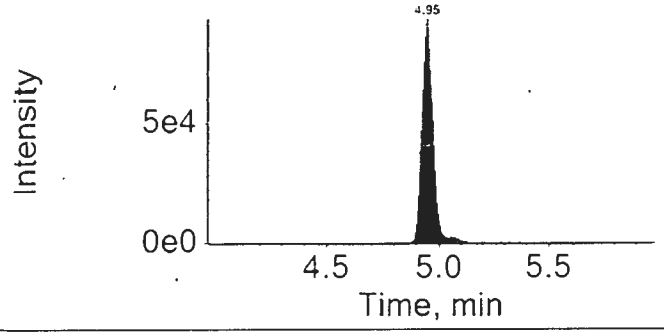
EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP01-160817 Grab Sediment



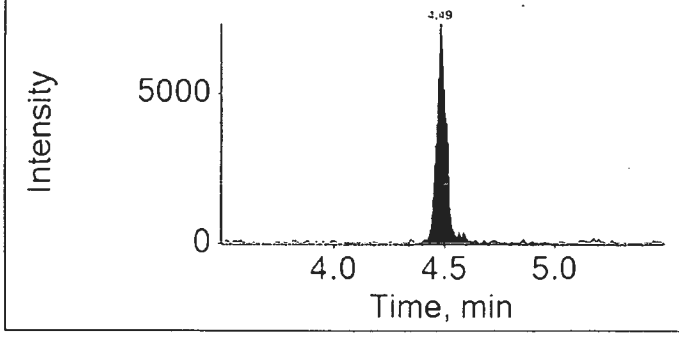
ORIGINAL

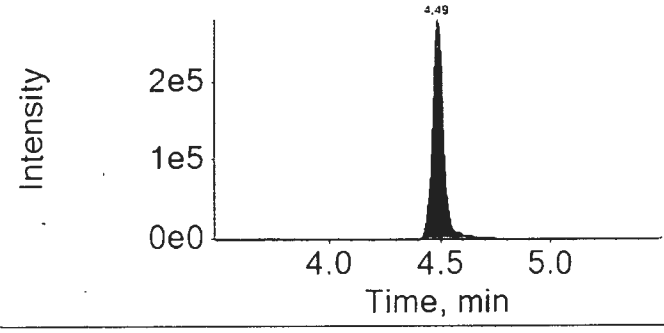
16SEP14-28.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



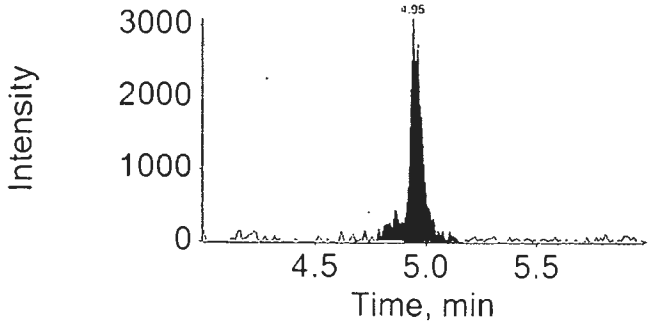


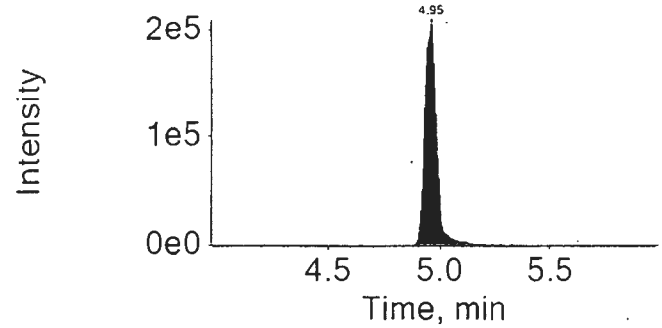
16SEP14-28.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16SEP14-28.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

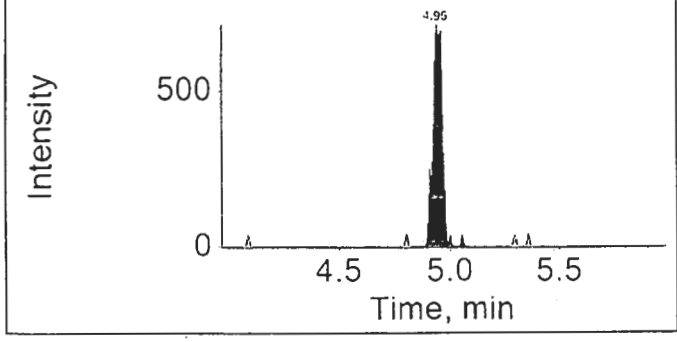




16SEP14-28.wiff

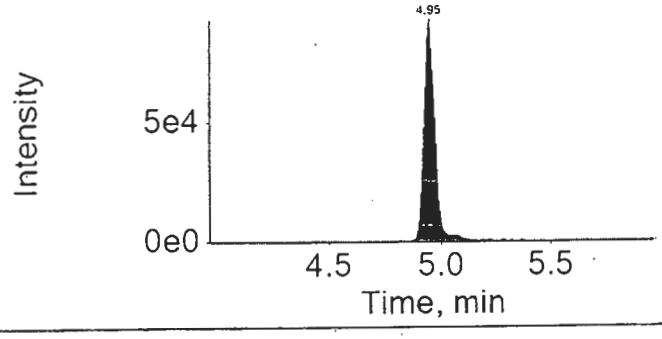
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

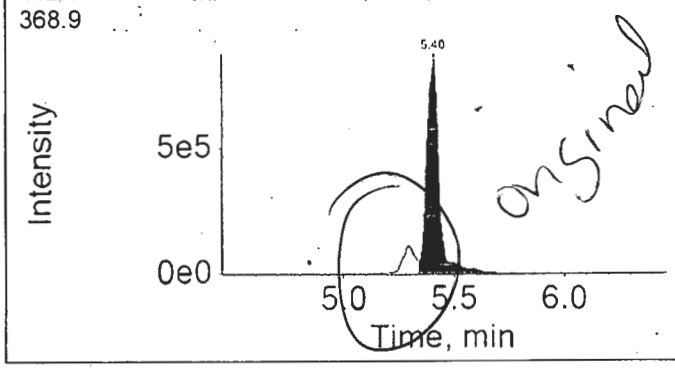
403.0 / 103.0



16SEP14-28.wiff

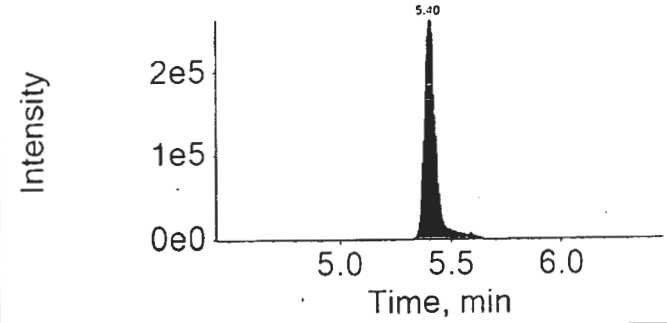
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

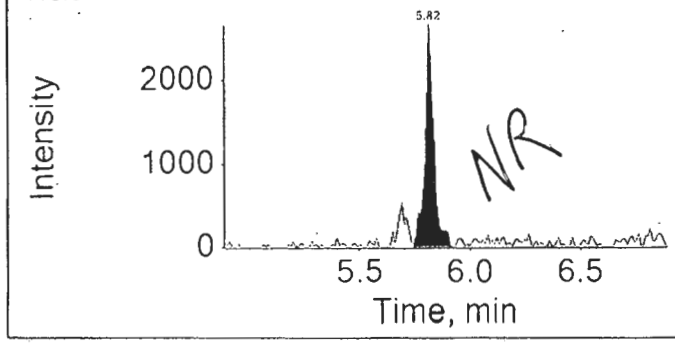
417.0 / 372.0



16SEP14-28.wiff

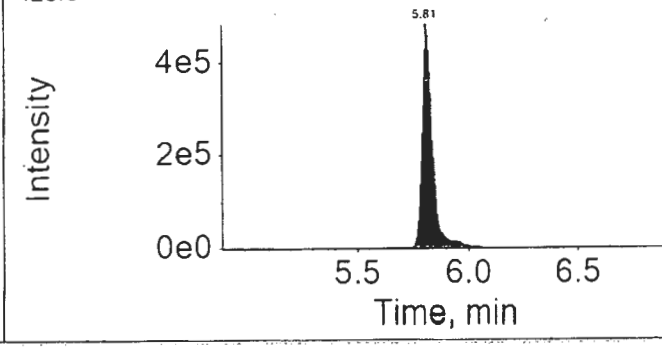
Analyte: PFNA

462.9 / 418.9

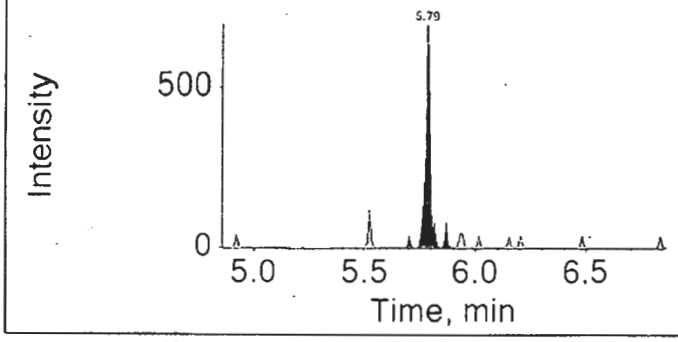


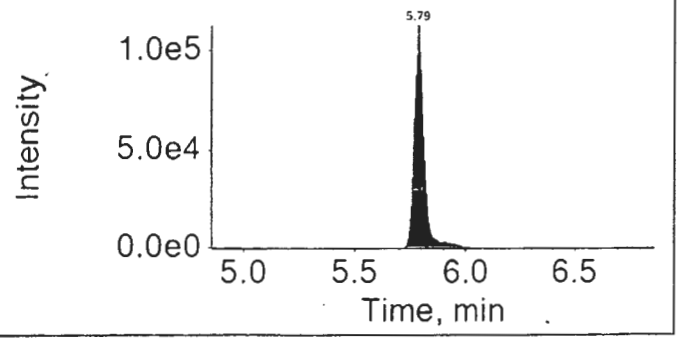
Internal Standard: 13C5-PFNA

468.0 / 423.0

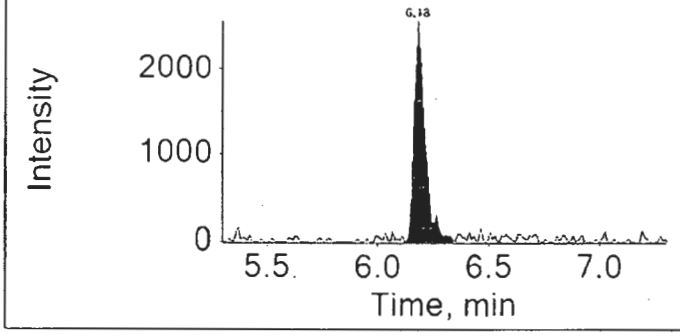


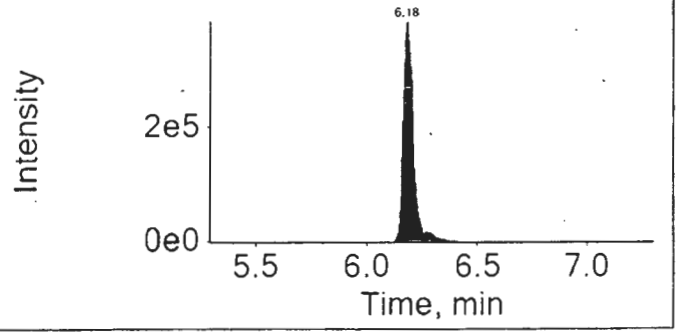
16SEP14-28.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



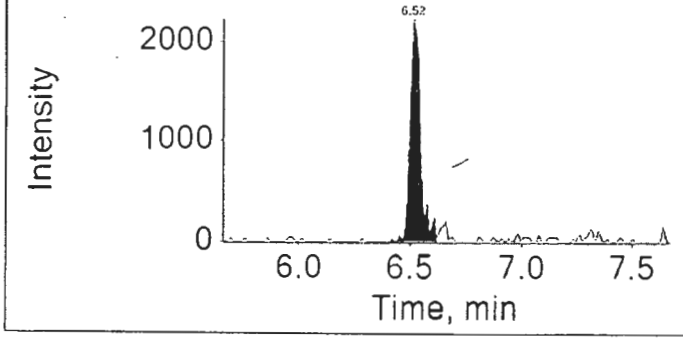


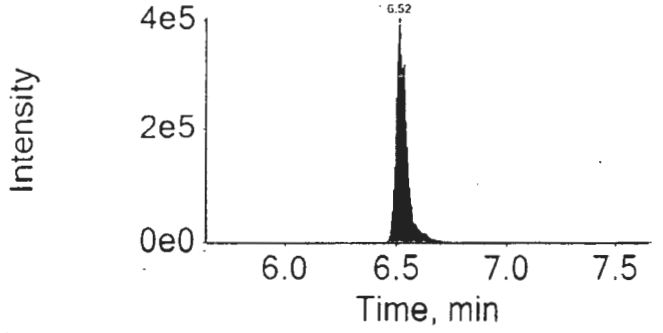
16SEP14-28.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



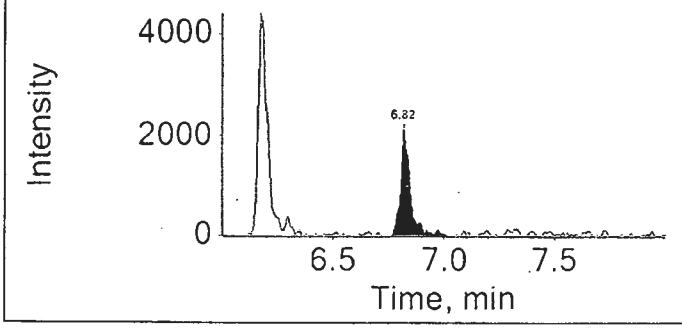


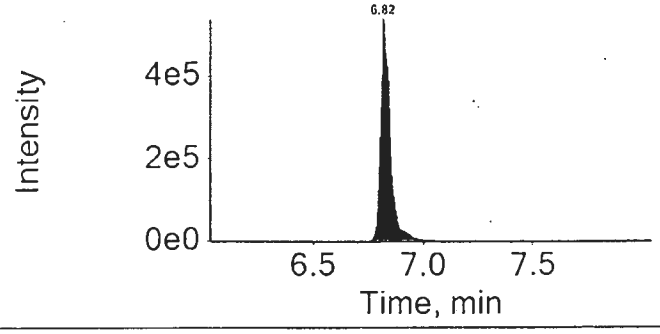
16SEP14-28.wiff	
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



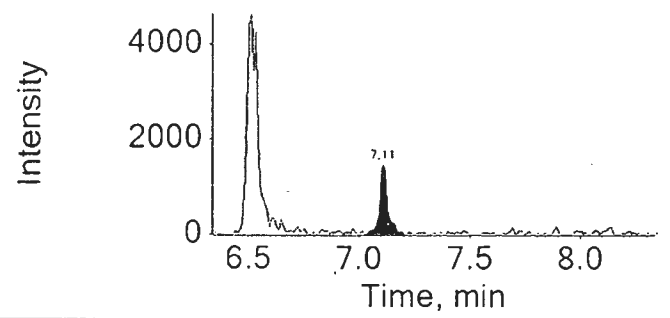


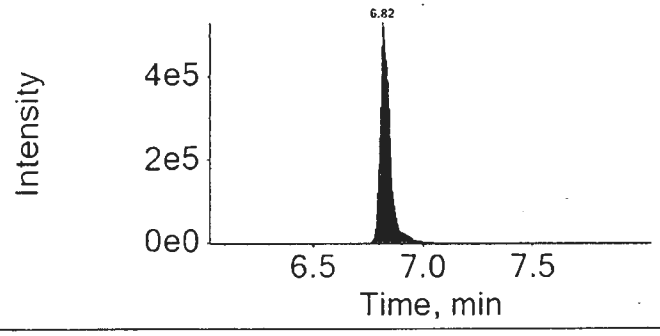
16SEP14-28.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



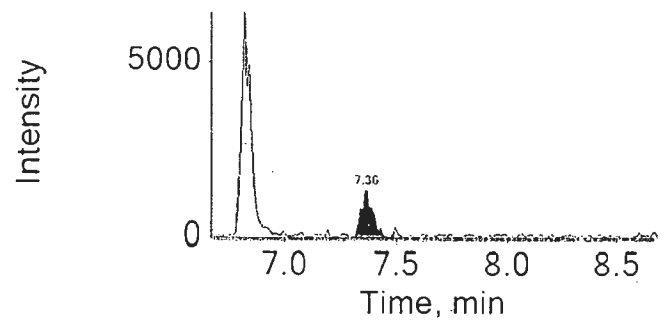


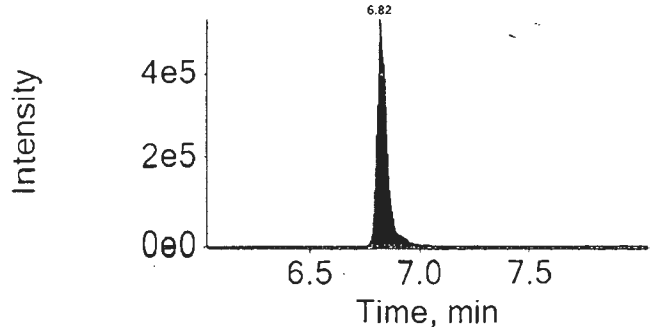
16SEP14-28.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16SEP14-28.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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Principal Specialist

MED 7824 9/15/16

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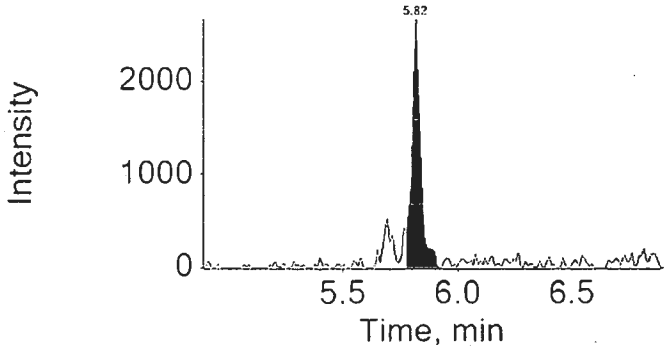
Print Date: 15/09/2016 1:24 PM

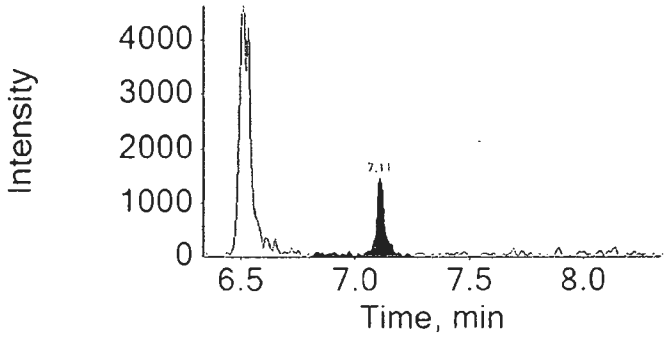
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-28.wiff	2016-09-14T15:44:01	8535030DL3	PFNA	5.82	7217.6
16SEP14-28.wiff	2016-09-14T15:44:01	8535030DL3	PFTrDA	7.11	4941.2

Component: PFNA
Mass: 462.9 / 418.9



Component: PFTrDA
Mass: 662.9 / 618.9



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SEP 19 2016

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Principal Specialist

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Analysis Report

REVISED

Sample Description: SG3-SUMP01-160817 Grab Sediment
SGPP - Bennington

LL Sample # SW 8535030
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/17/2016 10:45 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

BENS1 SDG#: SPP17-19

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	3.1	0.51	1.6	1
14027	**Perfluorodecanoic acid**	335-76-2	36	0.20	0.41	1
14027	**Perfluorododecanoic acid**	307-55-1	24	0.41	0.82	1
14027	**Perfluoroheptanoic acid**	375-85-9	140	3.1	6.1	10
14027	Perfluorohexanesulfonate	355-46-4	0.51 U	0.51	1.6	1
14027	**Perfluorohexanoic acid**	307-24-4	380	2.0	4.1	10
14027	**Perfluorononanoic acid**	375-95-1	42	0.20	0.41	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	7.0	0.71	1.6	1
14027	**Perfluorooctanoic acid**	335-67-1	33,000	310	610	1000
14027	**Perfluorotetradecanoic acid**	376-06-7	24	0.31	0.82	1
14027	**Perfluorotridecanoic acid**	72629-94-8	9.6	0.61	1.2	1
14027	**Perfluoroundecanoic acid**	2058-94-8	13	0.31	0.61	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	5.3	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/06/2016 17:57	Jason W Knight	1
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 15:44	Marissa C Drexinger	1000
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 17:05	Marissa C Drexinger	10
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16235011	08/23/2016 11:10	Devon M Whooley	1
00111	Moisture	SM 2540 G-1997	1	16236820006A	08/24/2016 02:56	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL Instrument ID: 24743
Sample (wt): 5.17 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 5.3

Lab Sample ID: 8535030
Lab File ID: 16SEP06-34.WIFF
Date Collected: 08/17/2016 10:45
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/06/2016 17:57
Dilution Factor: 1.0

Concentration Units: ng/g Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	3.1	✓
307-24-4	PFHxA	600	E
375-85-9	PFHpA	200	E
355-46-4	PFHxS	0.51	U
335-67-1	PFOA	35000	E
375-95-1	PFNA	42	✓
1763-23-1	PFOS	7.0	✓
335-76-2	PFDA	36	
2058-94-8	PFUnDA	13	
307-55-1	PFDoDA	24	
72629-94-8	PFTrDA	9.6	
376-06-7	PFTeDA	24	

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:14:00 PM

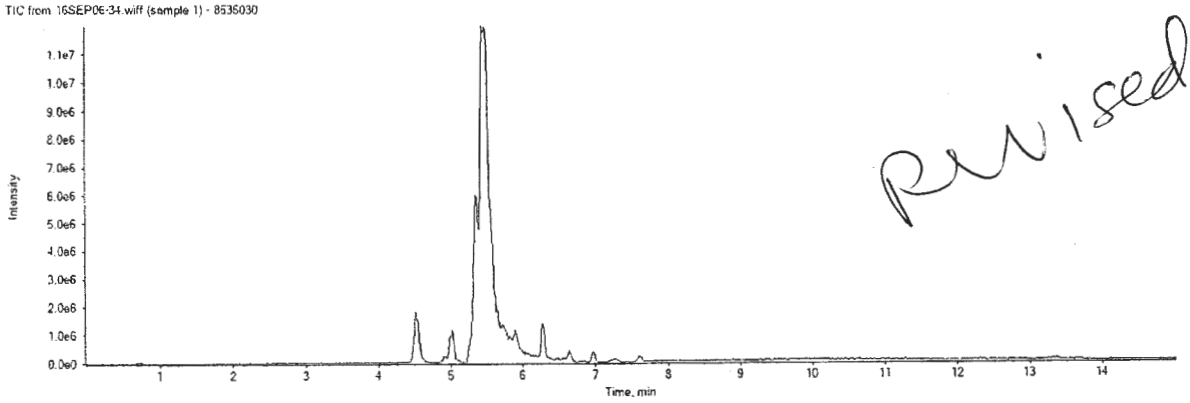
Sample Name:	8535030			**Data File:**		16SEP06-34.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP01-160817 Grab Sediment			**Acquis Date:**		2016-09-06T17:57:30
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	22			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011
				ICAL Name:		16SEP01ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.170			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	4.07	0.820	59339.9	M	18O2-PFHxS	4.99	162322.4	0.366	2.948
PFHxA	4.52	1.000	8614625.0	A	13C2-PFHxA	4.52	279687.7	30.801	566.404
PFHpA	5.01	1.000	4917922.6	A	13C4-PFHpA	5.01	241946.8	20.326	189.438
PFHxS	5.00	1.000	4767.3	A	18O2-PFHxS	4.99	162322.4	0.029	0.269
PFOA	5.46	1.000	158813118.5	M	13C4-PFOA	5.45	44777.3	3546.734	33614.139
PFNA	5.90	1.000	2443244.0	M	13C5-PFNA	5.90	593062.3	4.120	39.752
PFOS	5.87	1.000	83369.0	M	13C4-PFOS	5.87	133998.4	0.622	6.636
PFDA	6.28	1.000	3243091.2	A	13C2-PFDA	6.28	792986.7	4.090	34.372
PFUnDA	6.64	1.000	650363.9	A	13C2-PFUnDA	6.64	536378.6	1.213	12.145
PFDoDA	6.97	1.000	855390.8	A	13C2-PFDoDA	6.97	392769.4	2.178	22.759
PFTrDA	7.29	1.050	343832.3	A	13C2-PFDoDA	6.97	392769.4	0.875	9.075
PFTeDA	7.60	1.090	839858.3	A	13C2-PFDoDA	6.97	392769.4	2.138	22.600

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP01-160817 Grab Sediment



Revised

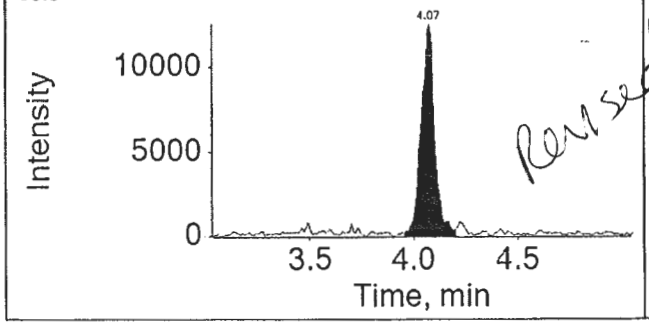
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-34.wiff

Analyte: PFBS

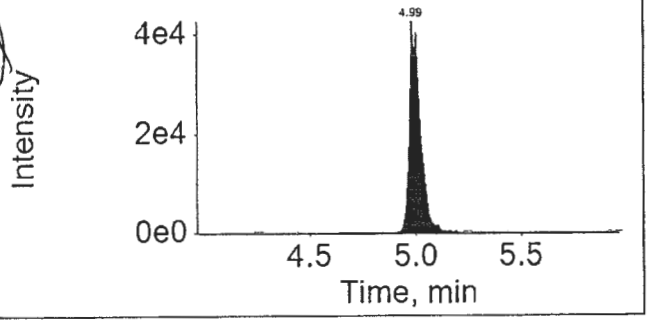
298.9 / 98.9



Rerun

Internal Standard: 18O2-PFHxS

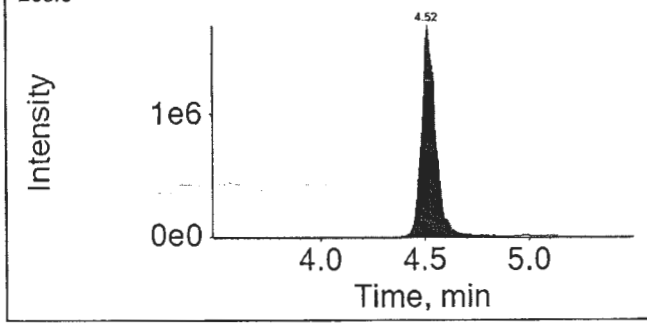
403.0 / 103.0



16SEP06-34.wiff

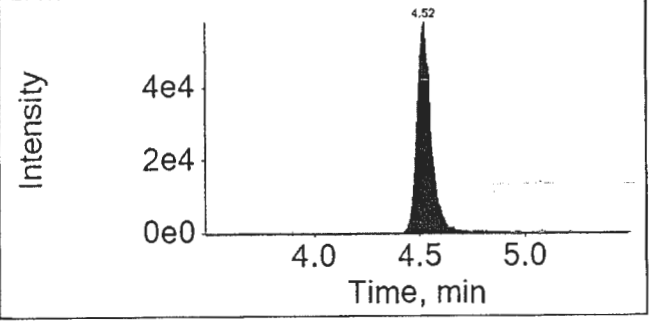
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

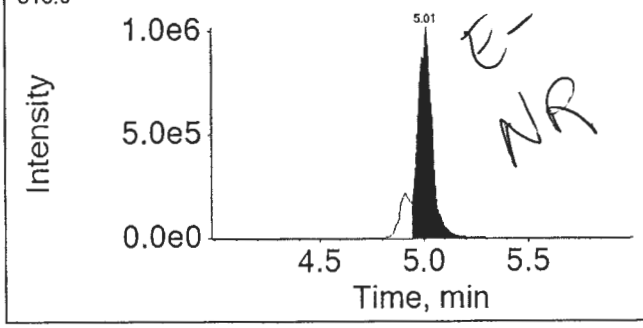
314.9 / 270.0



16SEP06-34.wiff

Analyte: PFHpA

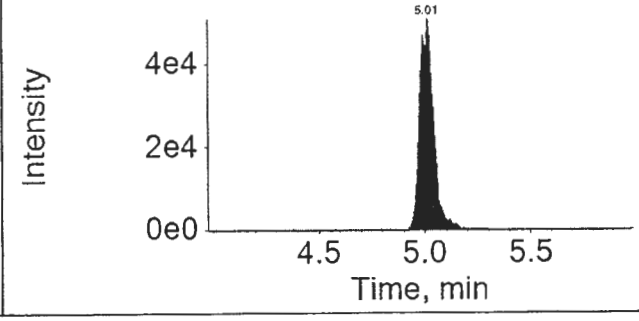
362.9 / 318.9



E-
NR

Internal Standard: 13C4-PFHpA

367.0 / 322.0



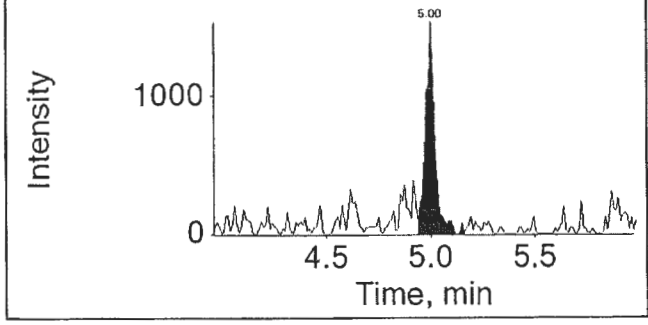
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-34.wiff

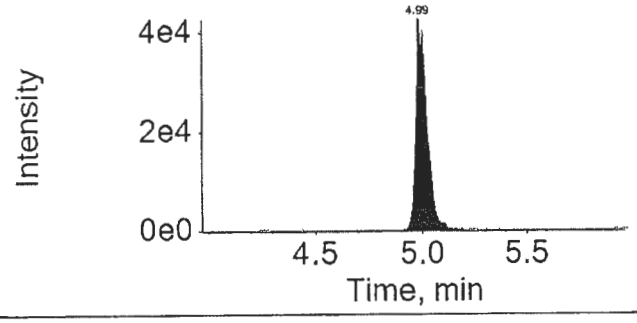
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

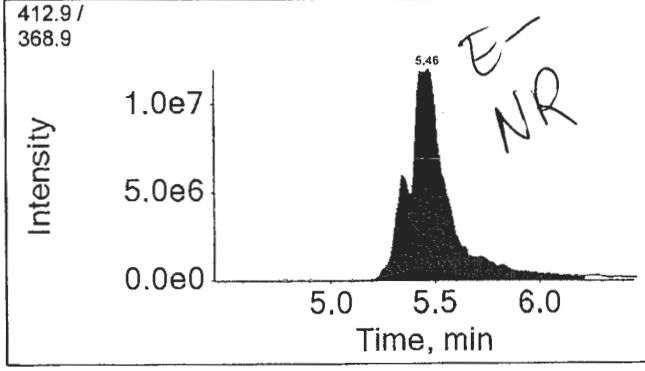
403.0 / 103.0



16SEP06-34.wiff

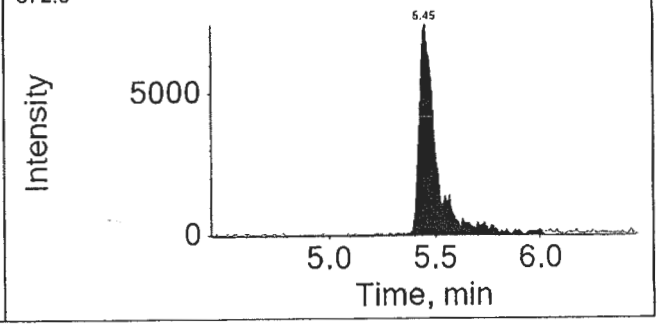
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

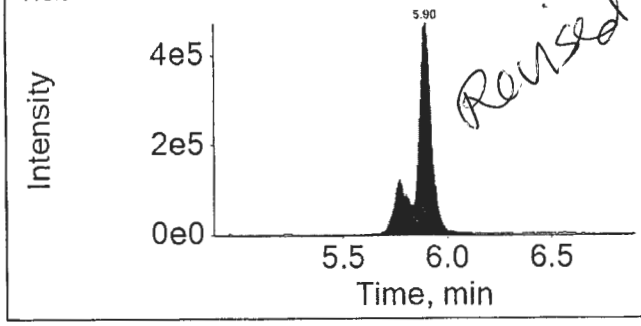
417.0 / 372.0



16SEP06-34.wiff

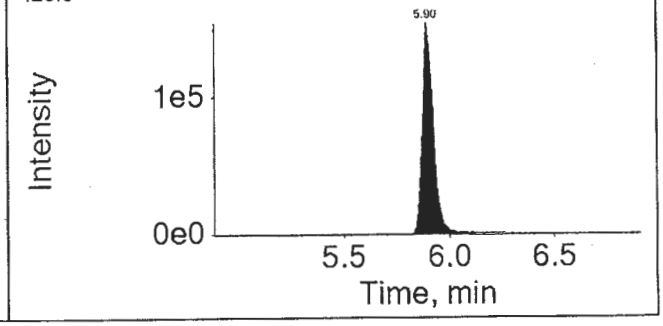
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



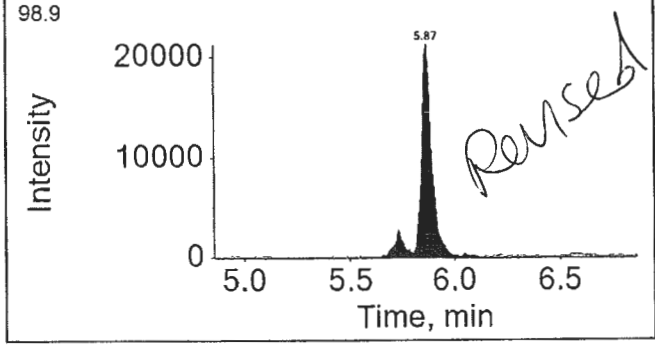
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-34.wiff

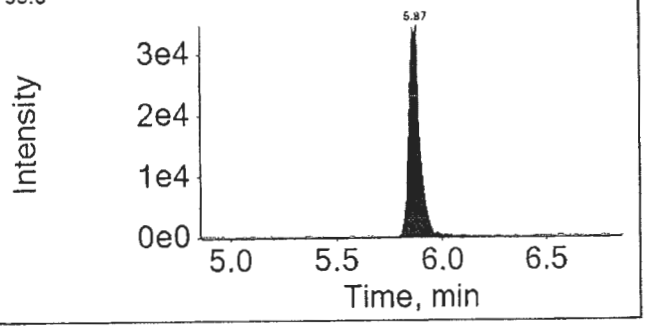
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

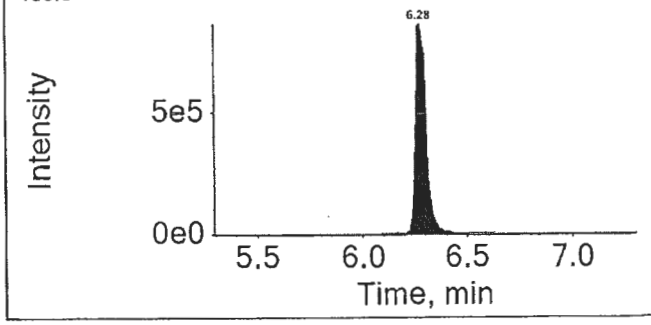
503.0 / 99.0



16SEP06-34.wiff

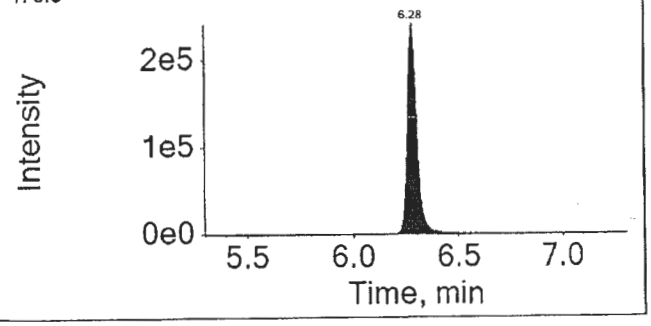
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

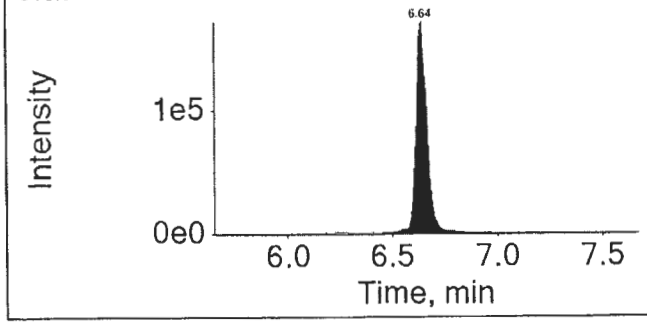
515.0 / 470.0



16SEP06-34.wiff

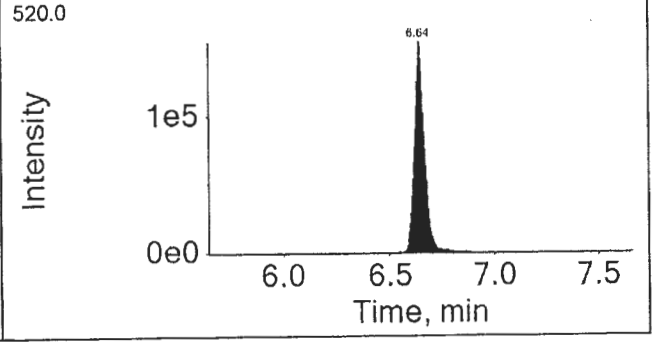
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



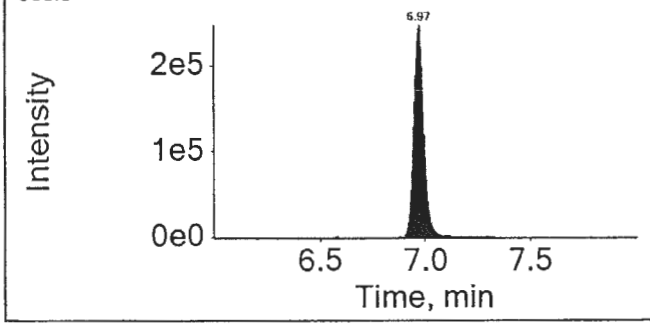
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-34.wiff

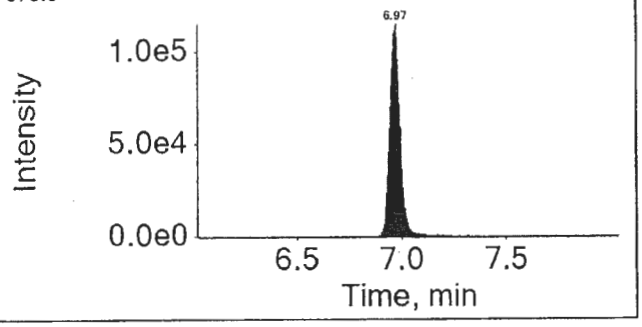
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

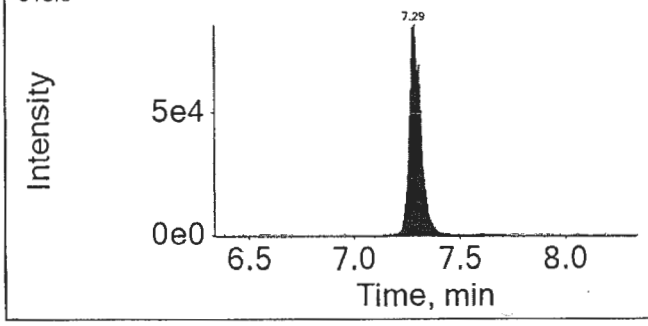
615.0 / 570.0



16SEP06-34.wiff

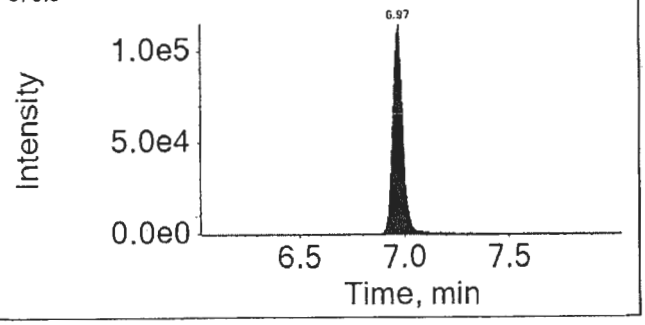
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

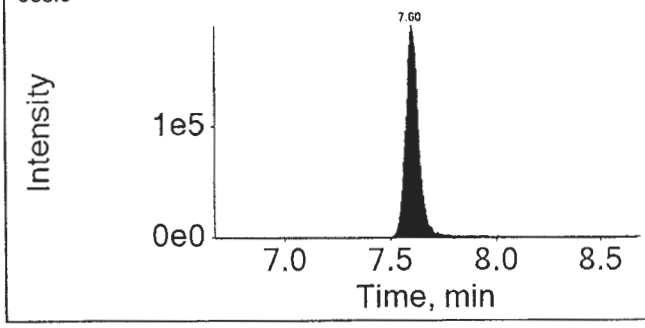
615.0 / 570.0



16SEP06-34.wiff

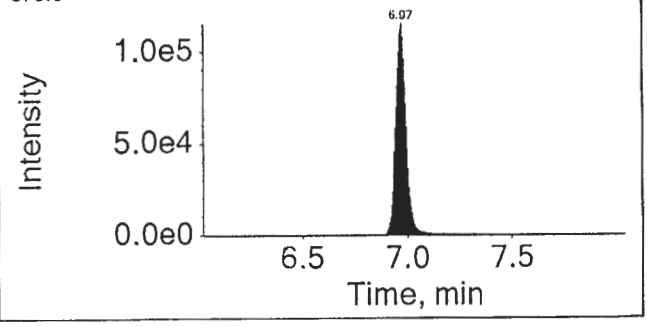
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

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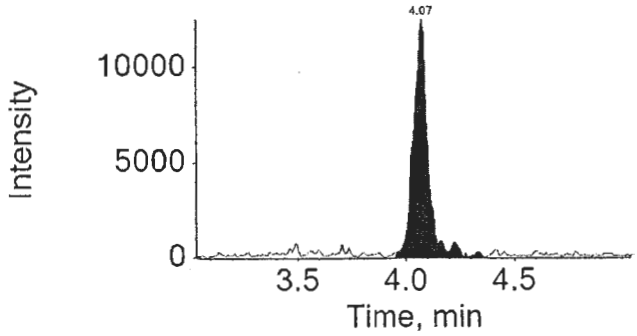
Print Date: 09/06/2017 5:15 PM

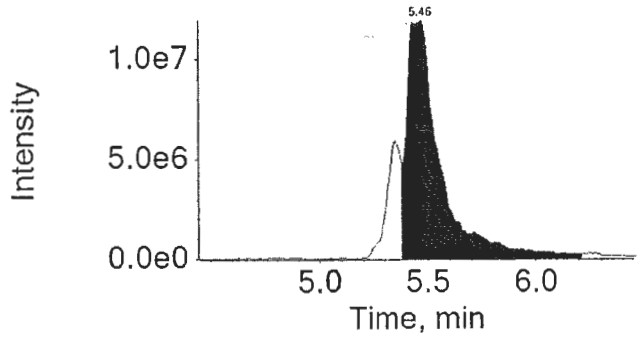
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP06-34.wiff	2016-09-06T17:57:30	8535030	PFBS	4.07	62096.3
16SEP06-34.wiff	2016-09-06T17:57:30	8535030	PFOA	5.46	132097563.6
16SEP06-34.wiff	2016-09-06T17:57:30	8535030	PFNA	5.90	1868909.1
16SEP06-34.wiff	2016-09-06T17:57:30	8535030	PFOS	5.87	75220.4

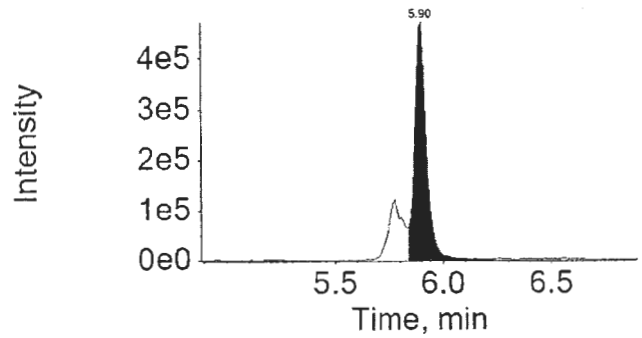
Component: PFBS
Mass: 298.9 / 98.9



Component: PFOA
Mass: 412.9 / 368.9



Component: PFNA
Mass: 462.9 / 418.9



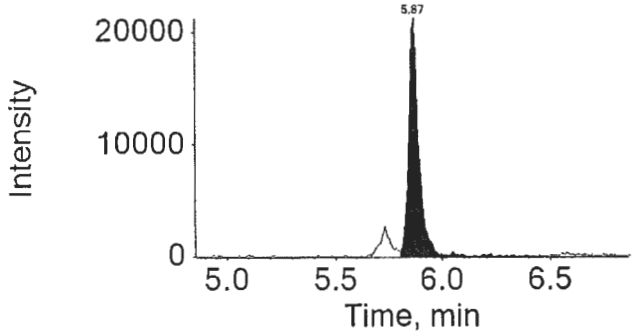
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:26 am, 6/13/17

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFOS
Mass: 498.9 / 98.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:26 am, 6/13/17

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL Instrument ID: 24743
Sample (wt): 5.17 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 5.4

Lab Sample ID: 8535030DL
Lab File ID: 16SEP14-33.WIFF
Date Collected: 08/17/2016 10:45
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/14/2016 17:05
Dilution Factor: 10.0

Concentration Units: ng/g Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	5.1	U
307-24-4	PFHxA	380	
375-85-9	PFHpA	120	
355-46-4	PFHxS	5.1	U
335-67-1	PFOA	40000	E
375-95-1	PFNA	26	
1763-23-1	PFOS	7.1	U
335-76-2	PFDA	34	
2058-94-8	PFUnDA	8.8	
307-55-1	PFDoDA	17	
72629-94-8	PFTrDA	6.1	U
376-06-7	PFTeDA	11	

140.

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Not Revised

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL Instrument ID: 24743
Sample (wt): 5.17 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 5.4

Lab Sample ID: 8535030DL
Lab File ID: 16SEP14-33.WIFF
Date Collected: 08/17/2016 10:45
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/14/2016 17:05
Dilution Factor: 10.0

Concentration Units: ng/g Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	5.1	U
307-24-4	PFHxA	380	
375-85-9	PFHpA	140	
355-46-4	PFHxS	5.1	U
335-67-1	PFOA	40000	E
375-95-1	PFNA	26	
1763-23-1	PFOS	7.1	U
335-76-2	PFDA	34	
2058-94-8	PFUnDA	8.8	
307-55-1	PFDoDA	17	
72629-94-8	PFTrDA	6.1	U
376-06-7	PFTeDA	11	

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:25:00 PM

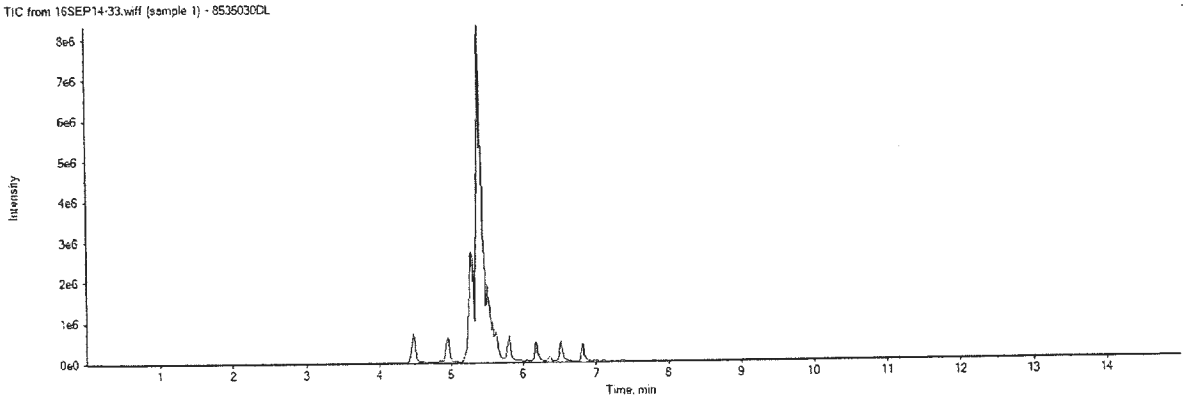
Sample Name:	8535030DL			**Data File:**		16SEP14-33.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP01-160817 Grab Sediment			**Acquis Date:**		2016-09-14T17:05:52
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	81			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011DL
				ICAL Name:		16SEP13ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.170			**Dilution Factor:**		10.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	4.05	0.820	8005.4	A	18O2-PFHxS	4.94	258587.8	0.031	2.169
PFHxA	4.48	1.000	2071355.2	A	13C2-PFHxA	4.48	812112.9	2.551	361.652
PFHpA	4.95	1.000	1317045.3	A	13C4-PFHpA	4.95	849669.6	1.550	127.860
PFHxS	4.95	1.000	1594.7	A	18O2-PFHxS	4.94	258587.8	0.006	0.487
PFOA	5.40	1.000	65104674.2	M	13C4-PFOA	5.40	141560.3	459.908	37468.869
PFNA	5.80	1.000	397925.0	A	13C5-PFNA	5.80	1327561.3	0.300	24.762
PFOS	5.78	1.000	15228.7	M	13C4-PFOS	5.78	276284.5	0.055	5.025
PFDA	6.18	1.000	494452.3	A	13C2-PFDA	6.17	1010417.1	0.489	32.183
PFUnDA	6.51	1.000	119226.1	A	13C2-PFUnDA	6.51	1178134.4	0.101	8.359
PFDoDA	6.81	1.000	197173.7	A	13C2-PFDoDA	6.81	1077519.7	0.183	16.207
PFTrDA	7.10	1.040	59319.4	A	13C2-PFDoDA	6.81	1077519.7	0.055	4.925
PFTeDA	7.36	1.080	104189.3	A	13C2-PFDoDA	6.81	1077519.7	0.097	10.105

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP01-160817 Grab Sediment



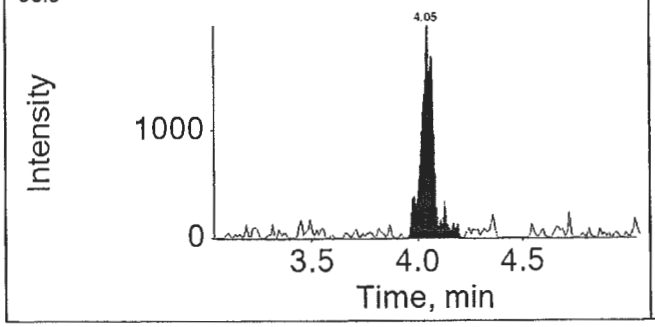
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:40 am, 6/13/17

16SEP14-33.wiff

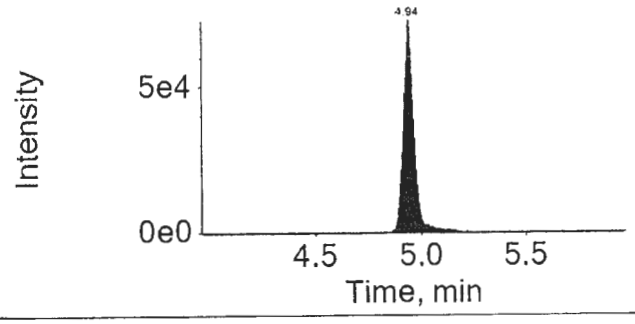
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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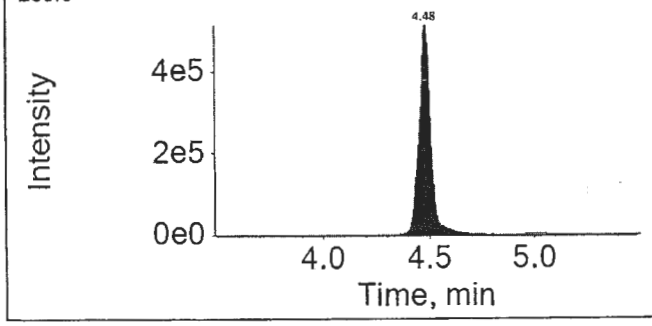
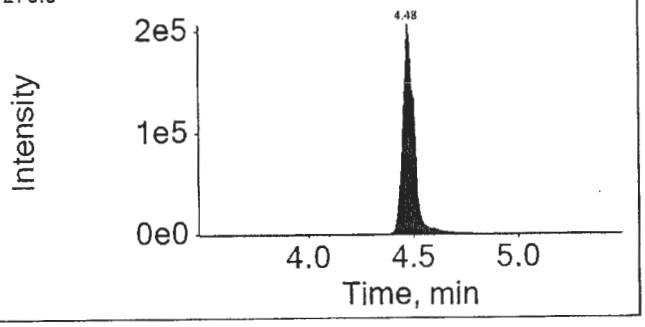
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

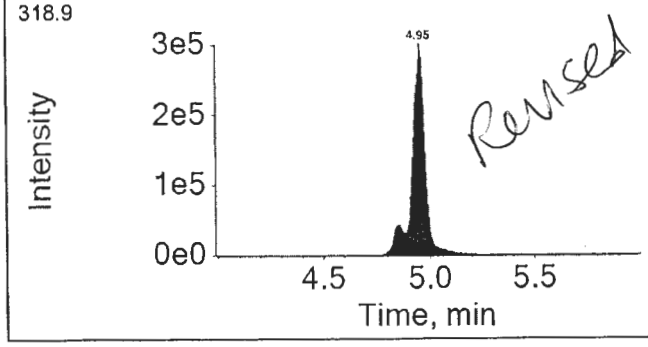
314.9 / 270.0



16SEP14-33.wiff

Analyte: PFHpA

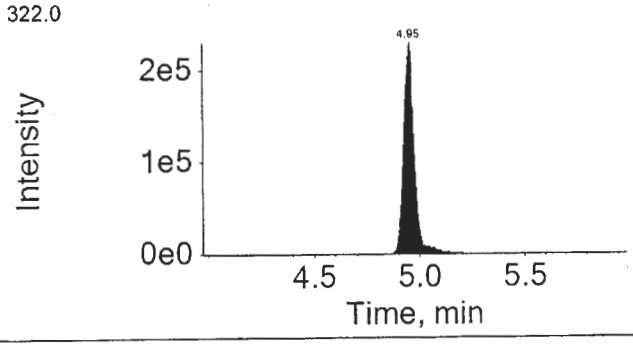
362.9 / 318.9



Revised

Internal Standard: 13C4-PFHpA

367.0 / 322.0



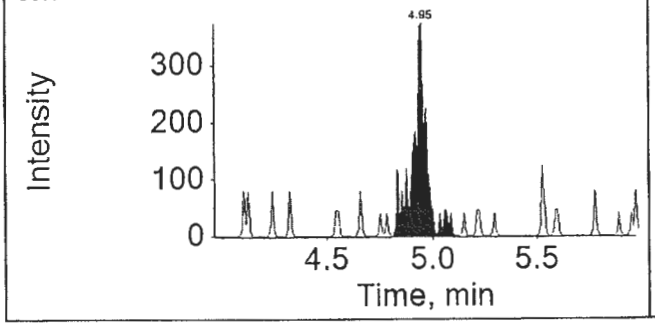
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:40 am, 6/13/17

16SEP14-33.wiff

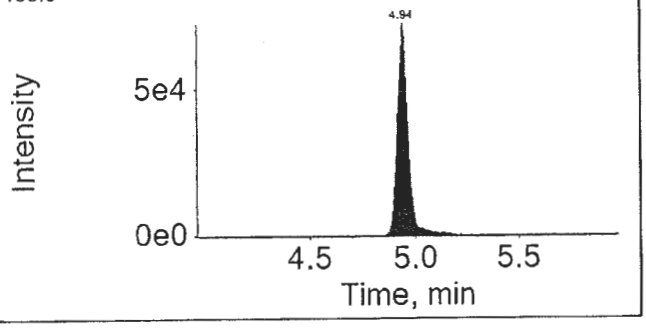
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

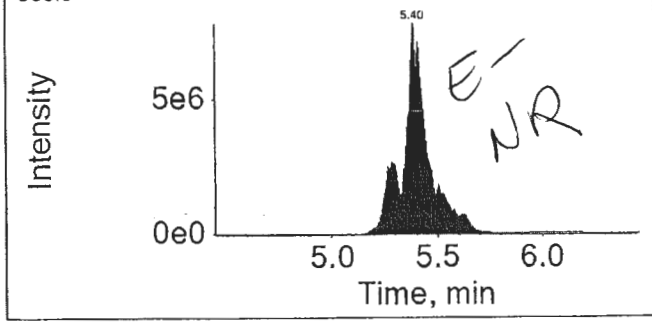
403.0 / 103.0



16SEP14-33.wiff

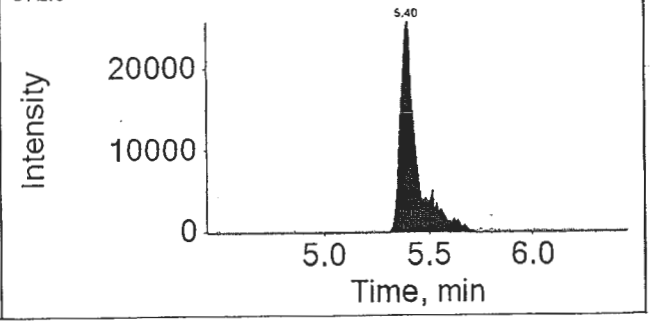
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

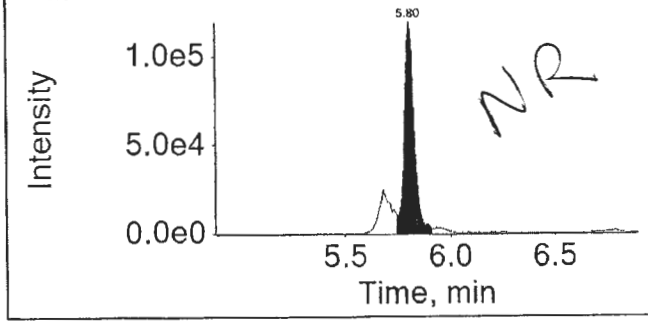
417.0 / 372.0



16SEP14-33.wiff

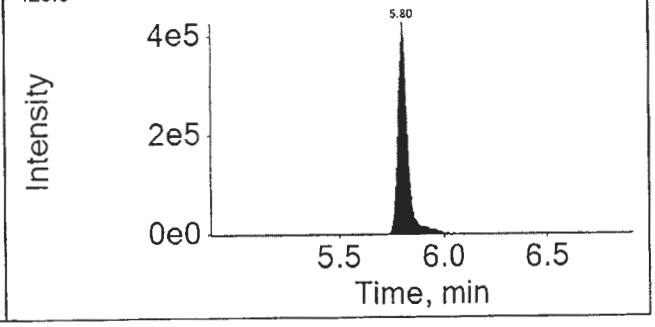
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



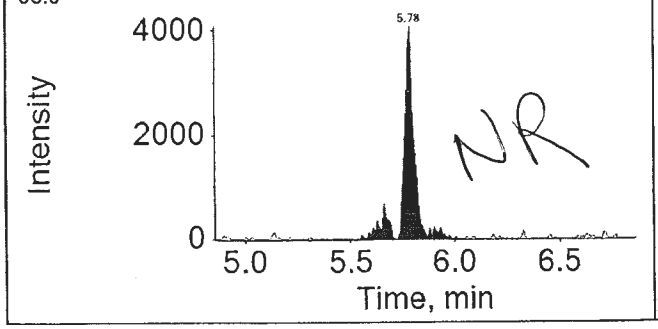
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:40 am, 6/13/17

16SEP14-33.wiff

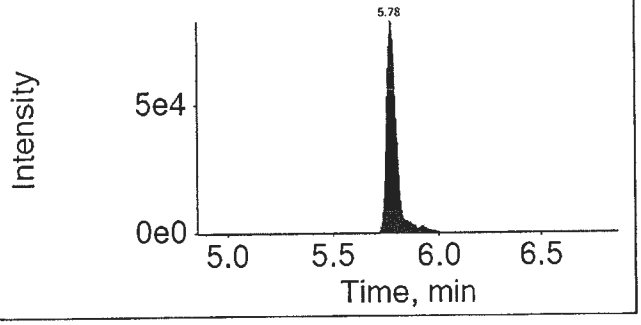
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

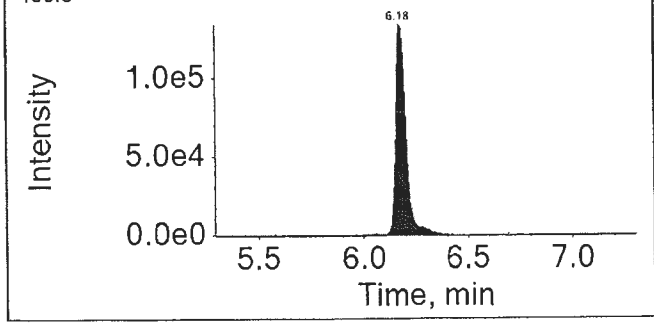
503.0 / 99.0



16SEP14-33.wiff

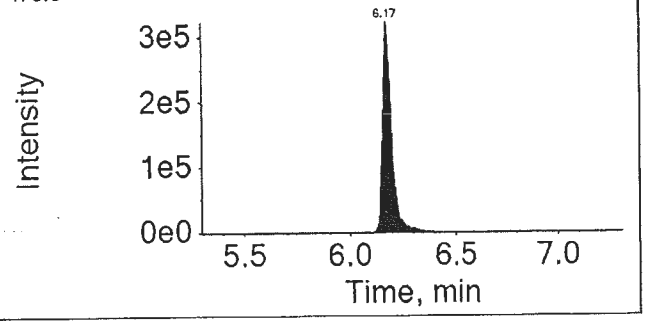
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

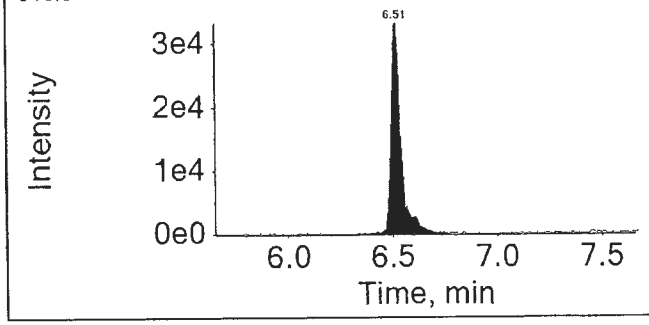
515.0 / 470.0



16SEP14-33.wiff

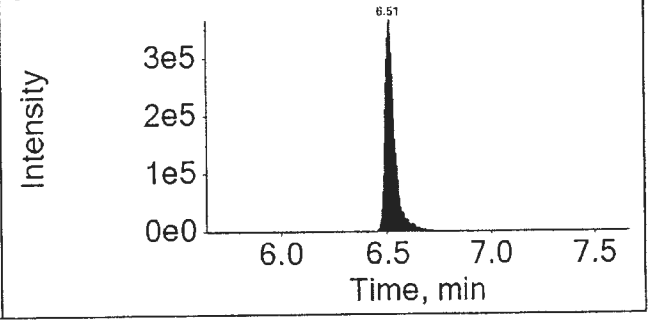
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



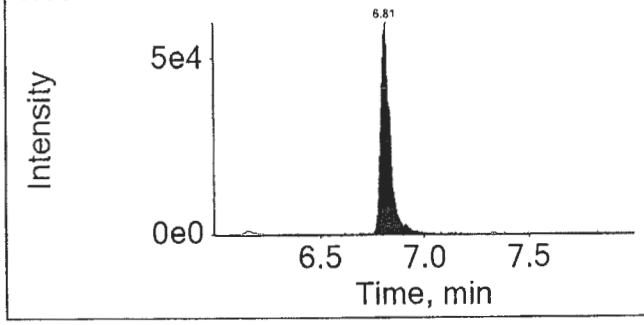
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:40 am, 6/13/17

16SEP14-33.wiff

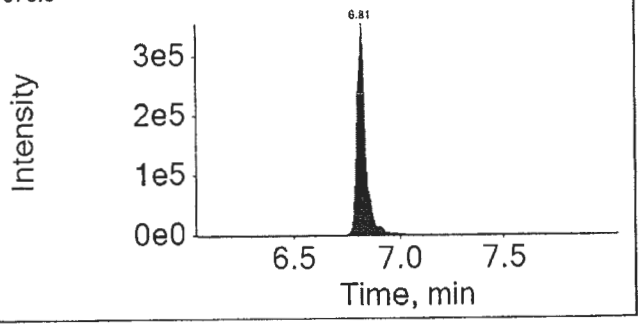
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

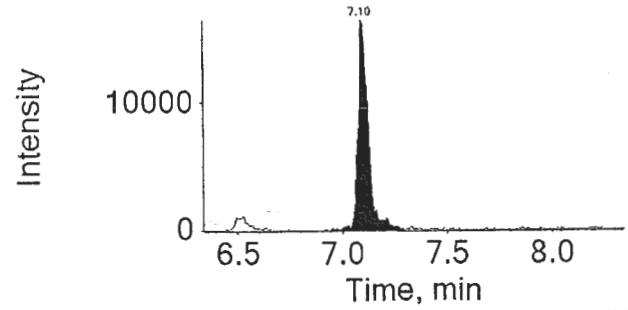
615.0 / 570.0



16SEP14-33.wiff

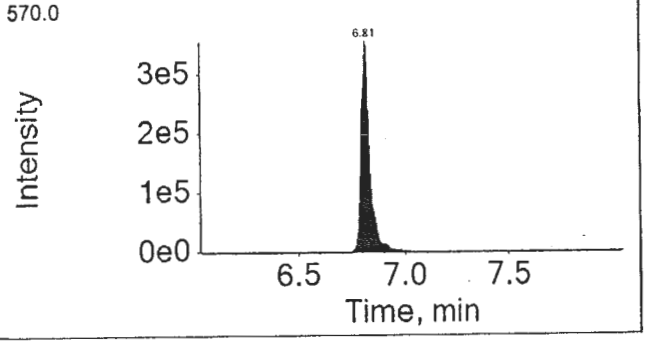
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

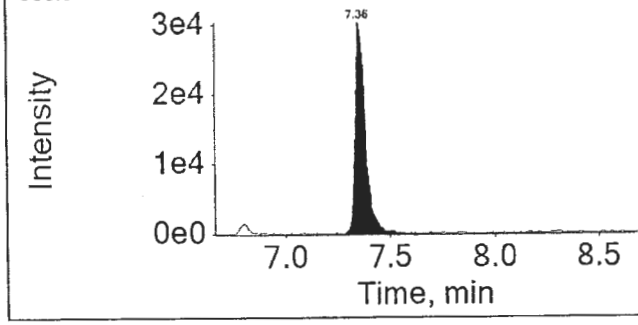
615.0 / 570.0



16SEP14-33.wiff

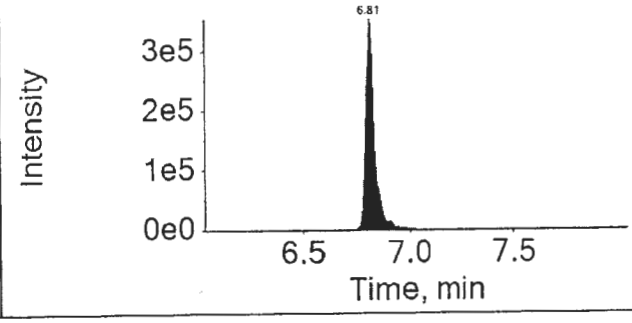
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:40 am, 6/13/17

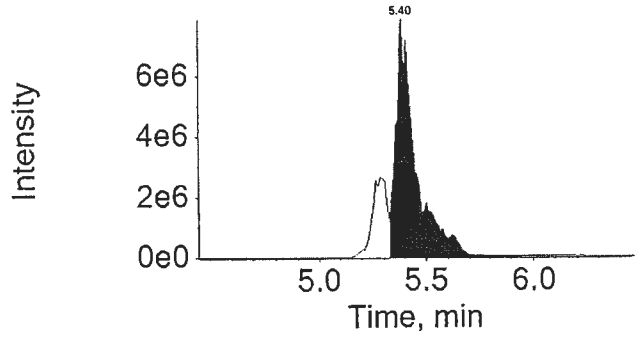
eurofins | Lancaster Laboratories

Print Date: 09/06/2017 5:28 PM

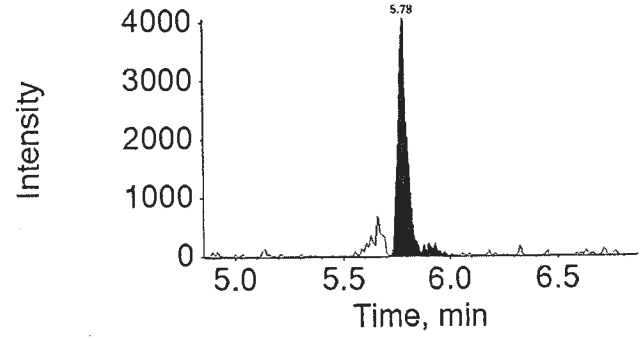
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-33.wiff	2016-09-14T17:05:52	8535030DL	PFOA	5.40	52470996.4
16SEP14-33.wiff	2016-09-14T17:05:52	8535030DL	PFOS	5.78	13227.3

Component: PFOA
Mass: 412.9 / 368.9



Component: PFOS
Mass: 498.9 / 98.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:35 am, 6/13/17

eurofins | Lancaster Laboratories Environmental

FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL Instrument ID: 24743
Sample (wt): 5.17 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 5.4

Lab Sample ID: 8535030DL3
Lab File ID: 16SEP14-28.WIFF
Date Collected: 08/17/2016 10:45
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/14/2016 15:44
Dilution Factor: 1000.0

Concentration Units: ng/g Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	510	U
307-24-4	PFHxA	360	
375-85-9	PFHpA	310	U
355-46-4	PFHxS	510	U
335-67-1	PFOA	33000	
375-95-1	PFNA	200	U
1763-23-1	PFOS	710	U
335-76-2	PFDA	200	U
2058-94-8	PFUnDA	310	U
307-55-1	PFDoDA	410	U
72629-94-8	PFTrDA	610	U
376-06-7	PFTeDA	310	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

Printed: 6/9/2017 5:25:00 PM

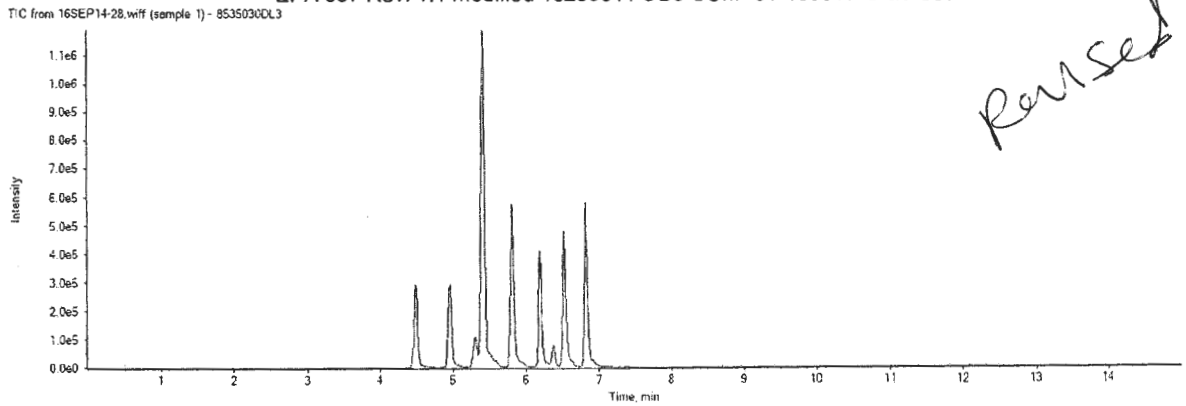
Sample Name:	8535030DL3			**Data File:**		16SEP14-28.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP01-160817 Grab Sediment			**Acquis Date:**		2016-09-14T15:44:01
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	79			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011DL
				ICAL Name:		16SEP13ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.170			**Dilution Factor:**		1000.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	4.07	0.820	1188.4	A	18O2-PFHxS	4.95	324892.1	0.004	25.633
PFHxA	4.49	1.000	24666.4	A	13C2-PFHxA	4.49	1019735.3	0.024	342.982
PFHpA	4.95	1.000	13322.4	A	13C4-PFHpA	4.95	792182.3	0.017	138.721
PFHxS	4.95	1.000	2251.4	A	18O2-PFHxS	4.95	324892.1	0.007	54.772
PFOA	5.40	1.000	3794388.1	M	13C4-PFOA	5.40	978208.2	3.879	31601.686 ✓
PFNA	5.82	1.000	7711.0	M	13C5-PFNA	5.81	1606244.6	0.005	39.658
PFOS	5.79	1.000	1125.8	A	13C4-PFOS	5.79	348445.8	0.003	29.452
PFDA	6.18	1.000	9068.3	A	13C2-PFDA	6.18	1318931.0	0.007	45.217
PFUnDA	6.52	1.000	7530.1	A	13C2-PFUnDA	6.52	1327410.8	0.006	46.855
PFDoDA	6.82	1.000	7129.7	A	13C2-PFDoDA	6.82	1678132.2	0.004	37.630
PFTrDA	7.11	1.040	4228.8	M	13C2-PFDoDA	6.82	1678132.2	0.003	22.546
PFTeDA	7.36	1.080	4756.4	A	13C2-PFDoDA	6.82	1678132.2	0.003	29.620

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP01-160817 Grab Sediment



Revised

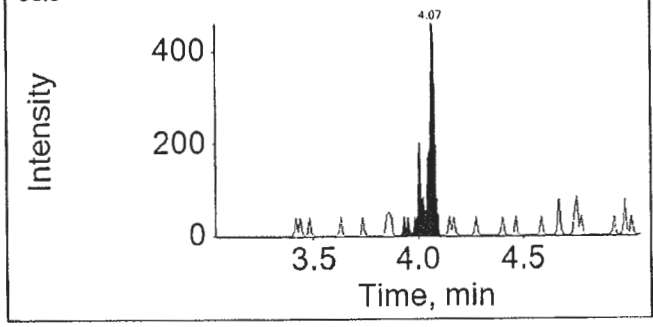
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:39 am, 6/13/17

16SEP14-28.wiff

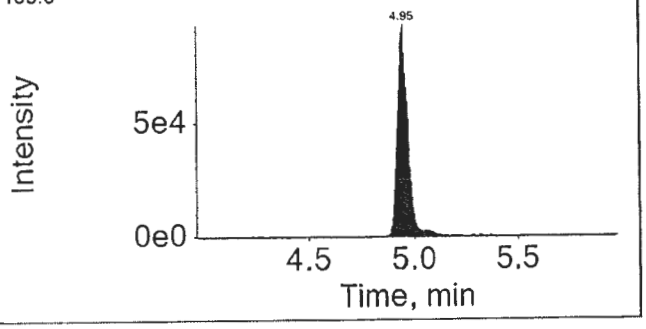
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

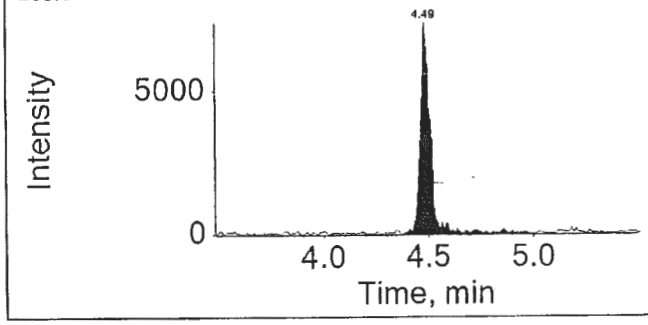
403.0 / 103.0



16SEP14-28.wiff

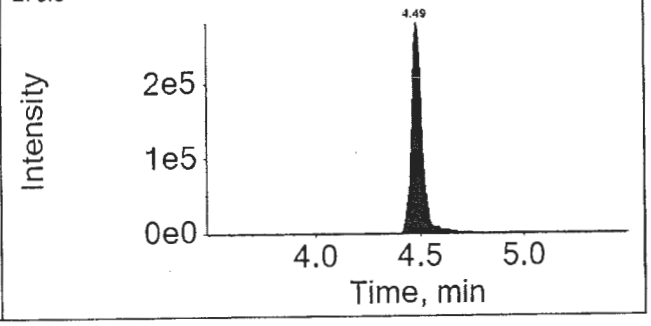
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

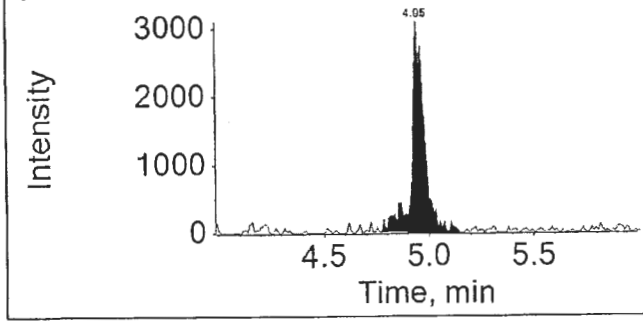
314.9 / 270.0



16SEP14-28.wiff

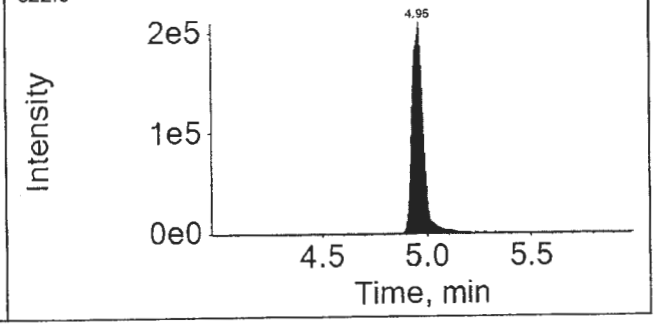
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



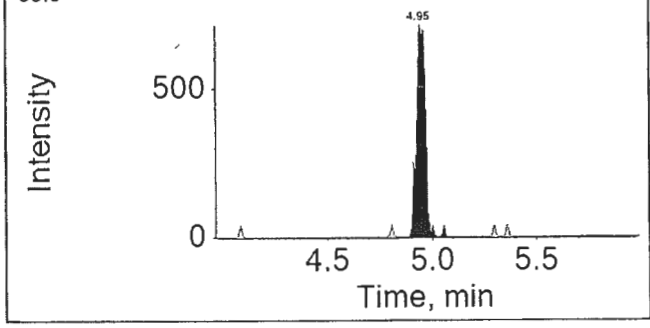
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:39 am, 6/13/17

16SEP14-28.wiff

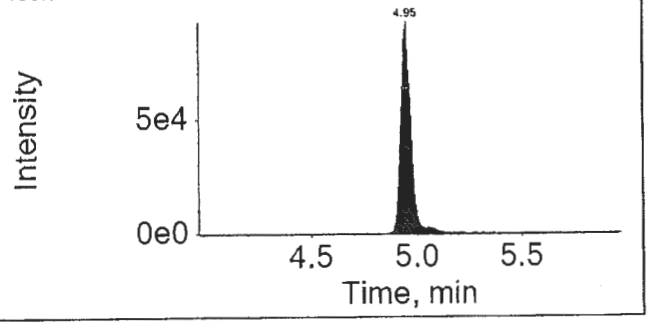
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

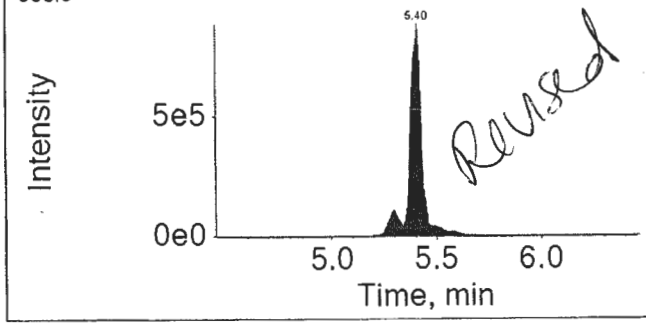
403.0 / 103.0



16SEP14-28.wiff

Analyte: PFOA

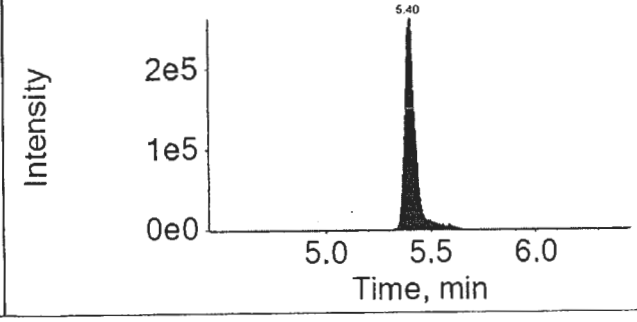
412.9 / 368.9



Revised

Internal Standard: 13C4-PFOA

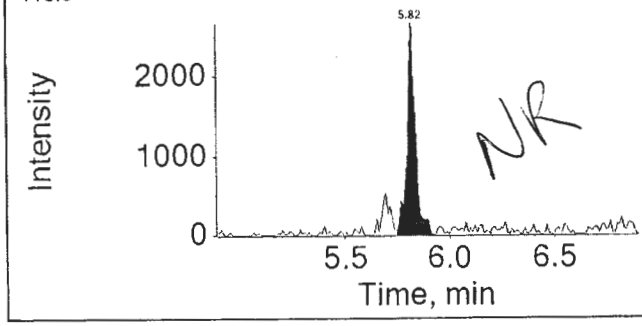
417.0 / 372.0



16SEP14-28.wiff

Analyte: PFNA

462.9 / 418.9



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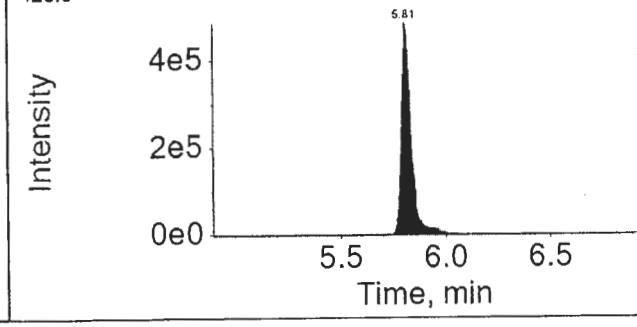
Internal Standard: 13C5-PFNA

468.0 / 423.0



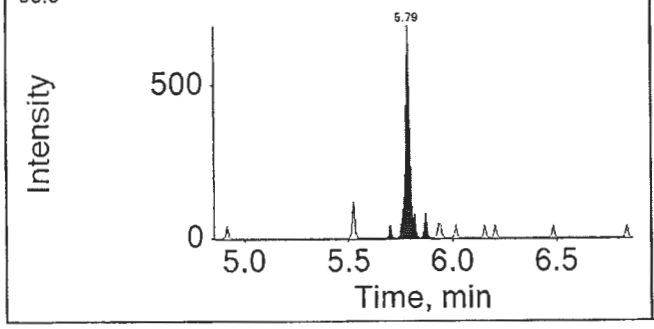
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:39 am, 6/13/17

16SEP14-28.wiff

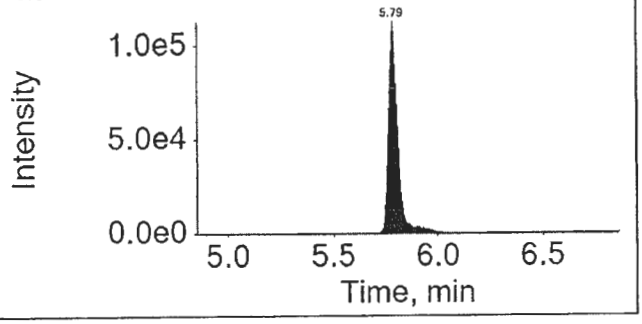
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

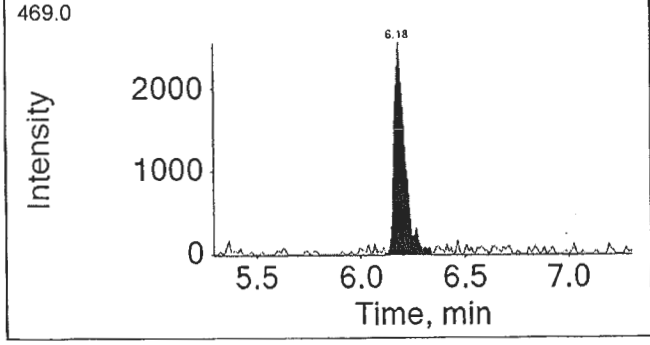
503.0 / 99.0



16SEP14-28.wiff

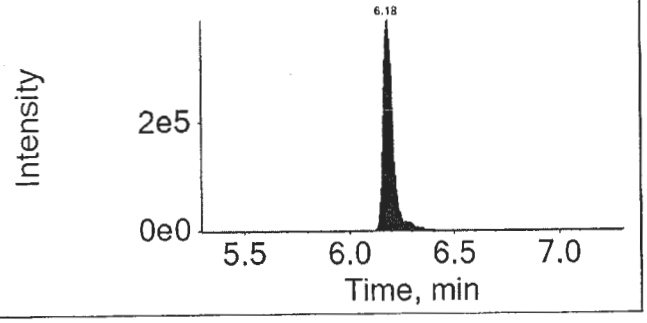
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

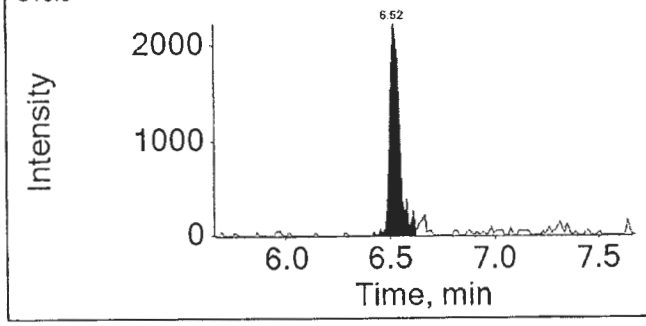
515.0 / 470.0



16SEP14-28.wiff

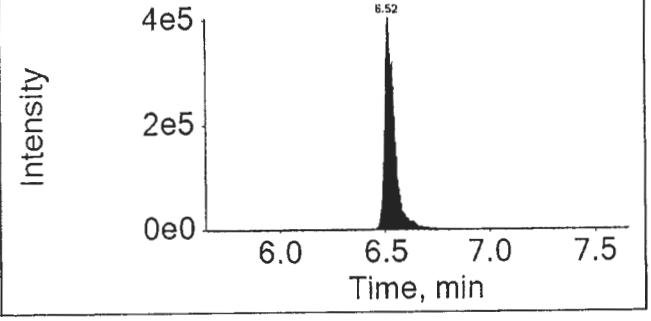
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



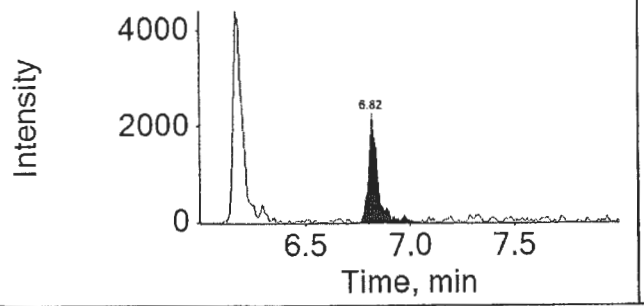
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:39 am, 6/13/17

16SEP14-28.wiff

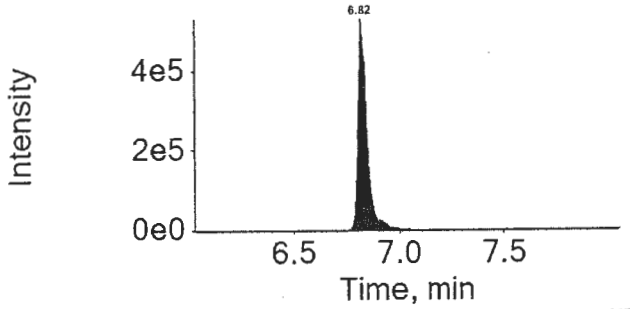
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

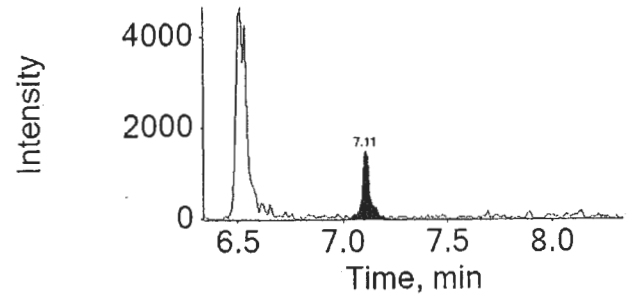
615.0 / 570.0



16SEP14-28.wiff

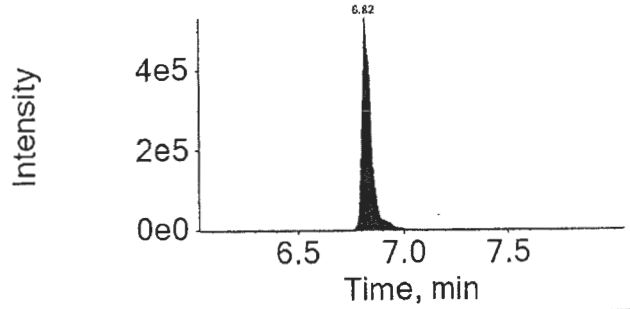
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

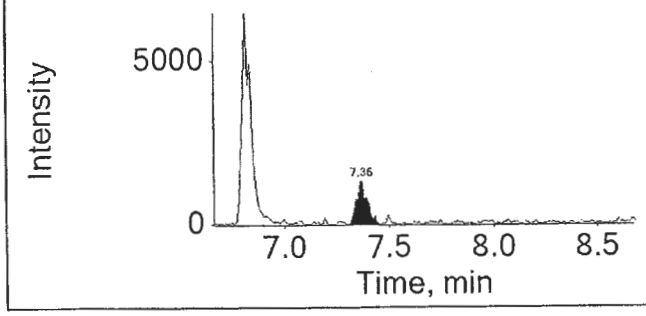
615.0 / 570.0



16SEP14-28.wiff

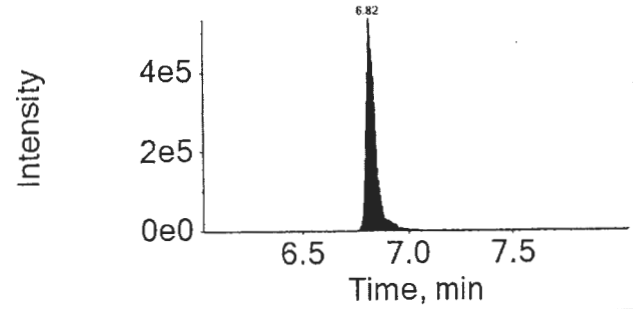
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:39 am, 6/13/17

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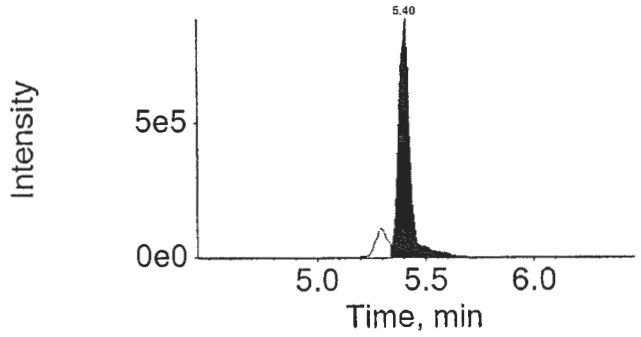
Print Date: 09/06/2017 5:28 PM

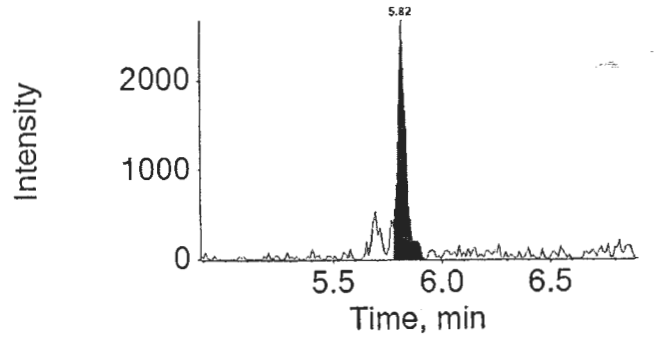
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-28.wiff	2016-09-14T15:44:01	8535030DL3	PFOA	5.40	3405745.4
16SEP14-28.wiff	2016-09-14T15:44:01	8535030DL3	PFNA	5.82	7217.6
16SEP14-28.wiff	2016-09-14T15:44:01	8535030DL3	PFTrDA	7.11	4941.2

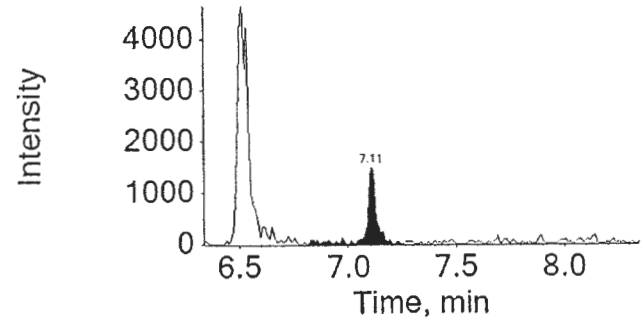
Component: PFOA
Mass: 412.9 / 368.9



Component: PFNA
Mass: 462.9 / 418.9



Component: PFTrDA
Mass: 662.9 / 618.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:35 am, 6/13/17

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Analysis Report

REVISED

Sample Description: SG3-SUMP02-160817 Grab Sediment
SGPP - Bennington

LL Sample # SW 8535031
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/17/2016 11:10 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

ORIGINAL

BENS2 SDG#: SPP17-20BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor	
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g		
14027	Perfluorobutanesulfonate	375-73-5	5.3	0.50	1.6	1	
14027	Perfluorodecanoic acid	335-76-2	140 J	3.0	4.0	10	DL
14027	Perfluorododecanoic acid	307-55-1	6.1 J	0.40	0.80	1	
14027	Perfluoroheptanoic acid	375-85-9	1,300 J	300	600	1000	DL3
14027	Perfluorohexanesulfonate	355-46-4	2.5	0.50	1.6	1	
14027	Perfluorohexanoic acid	307-24-4	330 J	3.0	4.0	10	DL
14027	Perfluorononanoic acid	375-95-1	62	0.20	0.40	1	
14027	Perfluoro-octanesulfonate	1763-23-1	28	0.70	1.6	1	
14027	Perfluorooctanoic acid	335-67-1	280,000	3,000	6,000	10000	
14027	Perfluorotetradecanoic acid	376-06-7	2.2	0.30	0.80	1	
14027	Perfluorotridecanoic acid	72629-94-8	3.8	0.60	1.2	1	
14027	Perfluoroundecanoic acid	2058-94-8	8.6	0.30	0.60	1	

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	3.6	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/06/2016 16:51	Jason W Knight	1
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/06/2016 16:51	Marissa C Drexinger	1
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 14:54	Jason W Knight	10
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/15/2016 08:56	Marissa C Drexinger	1000
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/23/2016 07:48	Jason W Knight	10000
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16235011	08/23/2016 11:10	Devon M Whooley	1
00111	Moisture	SM 2540 G-1997	2	16238820006A	08/25/2016 20:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 9/15/2016 11:31:00 AM

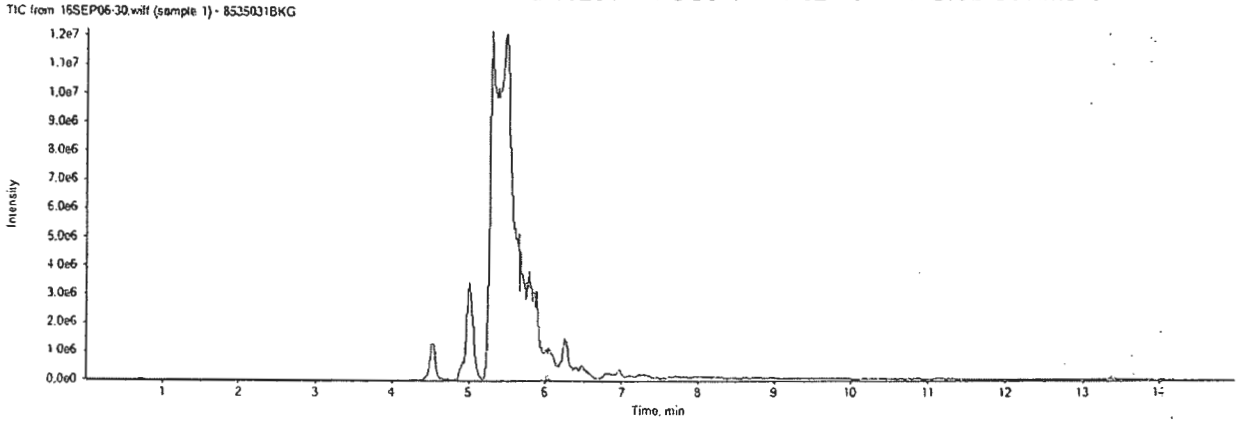
Sample Name:	8535031BKG		**Data File:**		16SEP06-30.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment		**Acquis Date:**		2016-09-06T16:51:57
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	18		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011
			ICAL Name:		16SEP01ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.180		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units	
PFBS	4.08	49087.4	A	18O2-PFHxS	4.99	77804.1	0.631	5.079	ng/g	
PFHxA	4.53	6759127.2	A	13C2-PFHxA	4.53	271922.1	24.857	456.216	ng/g	E
PFHpA	5.01	22108039.4	A	13C4-PFHpA	5.01	95002.9	232.709	2164.610	ng/g	E
PFHxS	5.00	20766.2	A	18O2-PFHxS	4.99	77804.1	0.267	2.444	ng/g	
PFOA	5.47	150855314.0	M	13C4-PFOA	5.40	19228.5	7845.383	74211.013	ng/g	E
PFNA	5.87	2082400.4	A	13C5-PFNA	5.87	333199.8	6.250	60.189	ng/g	
PFOS	5.85	300879.7	A	13C4-PFOS	5.85	116770.0	2.577	27.429	ng/g	
PFDA	6.27	4296164.2	A	13C2-PFDA	6.27	201653.9	21.305	178.710	ng/g	E
PFUnDA	6.62	84627.7	A	13C2-PFUnDA	6.62	101771.6	0.832	8.313	ng/g	
PFDoDA	6.97	264365.4	A	13C2-PFDoDA	6.97	470270.0	0.562	5.863	ng/g	
PFTrDA	7.30	168421.2	A	13C2-PFDoDA	6.97	470270.0	0.358	3.706	ng/g	
PFTeDA	7.63	94472.6	A	13C2-PFDoDA	6.97	470270.0	0.201	2.119	ng/g	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment



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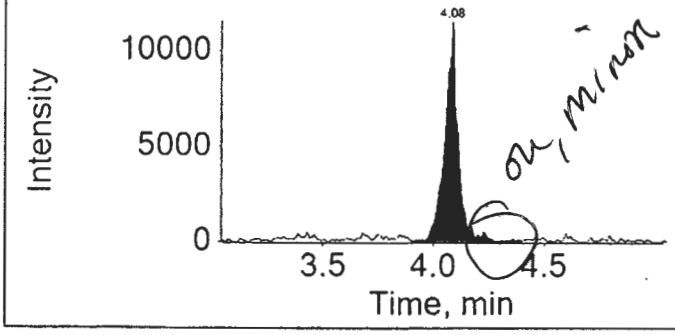
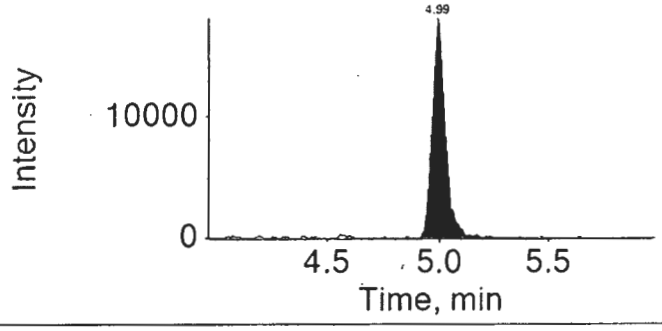
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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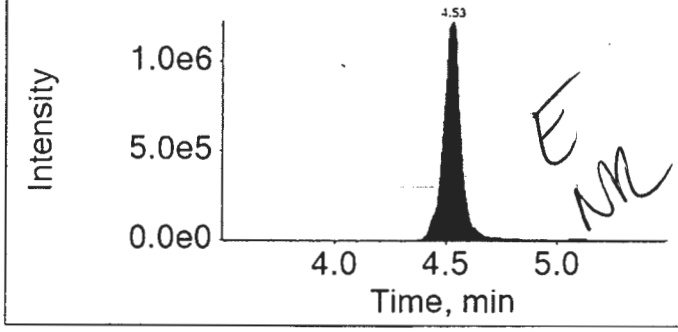
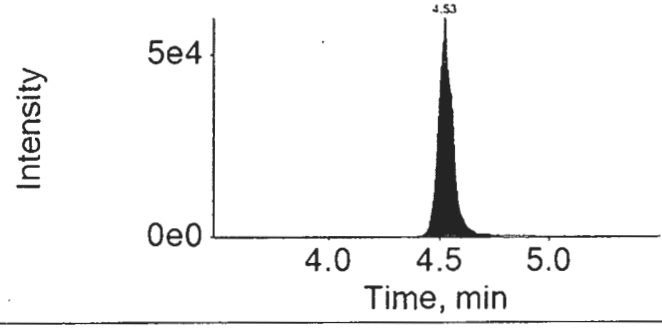
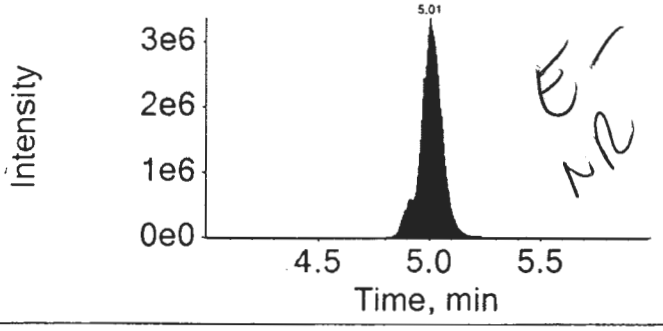
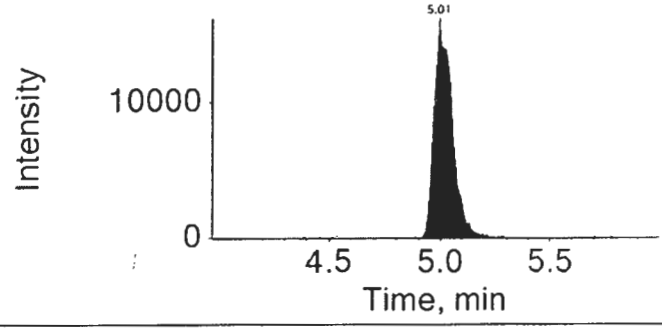
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16SEP06-30.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

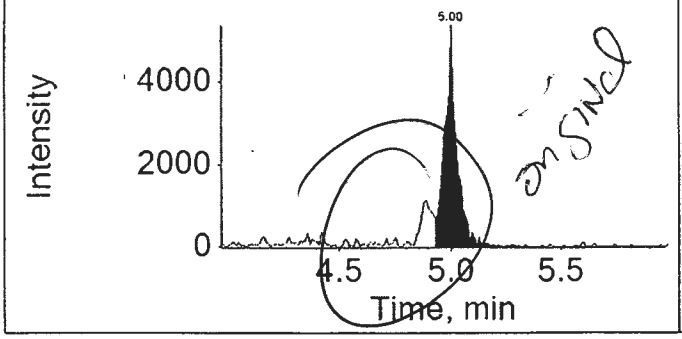




16SEP06-30.wiff

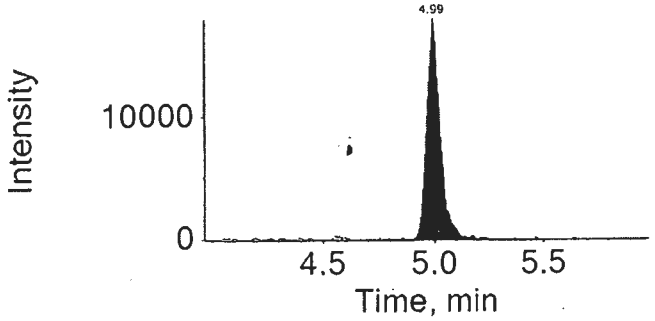
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

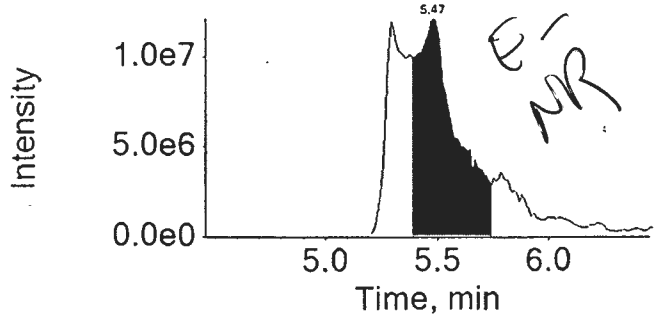
403.0 / 103.0



16SEP06-30.wiff

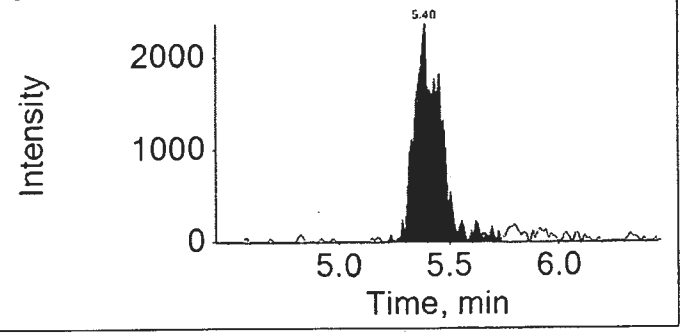
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

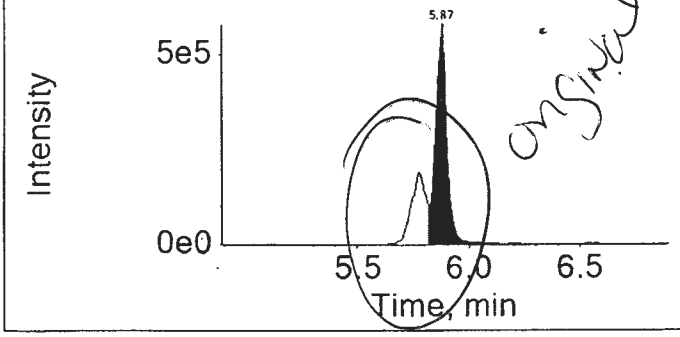
417.0 / 372.0



16SEP06-30.wiff

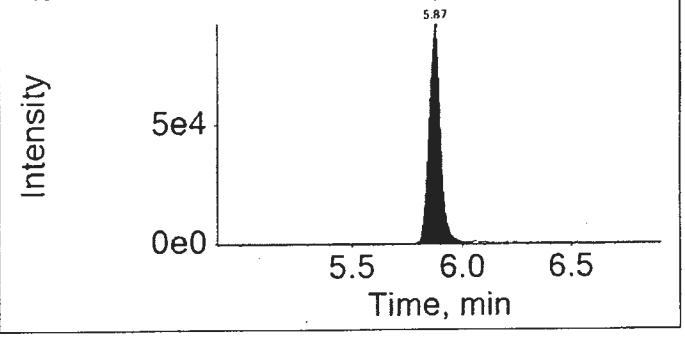
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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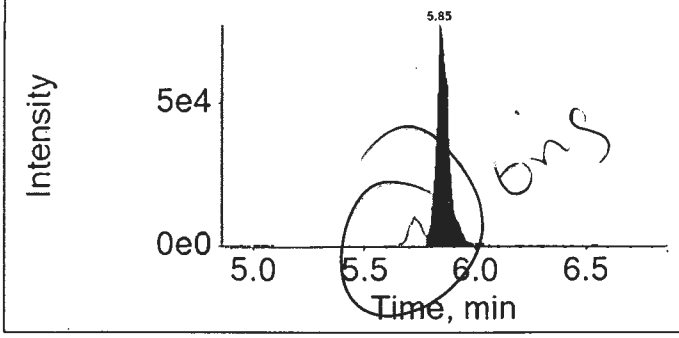
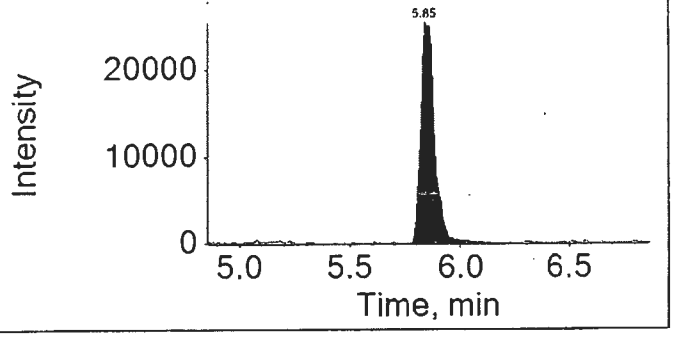
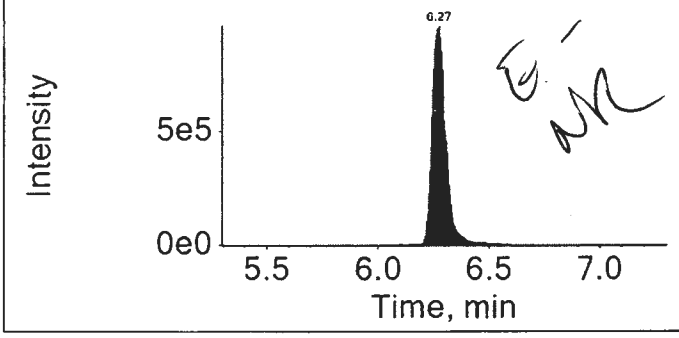
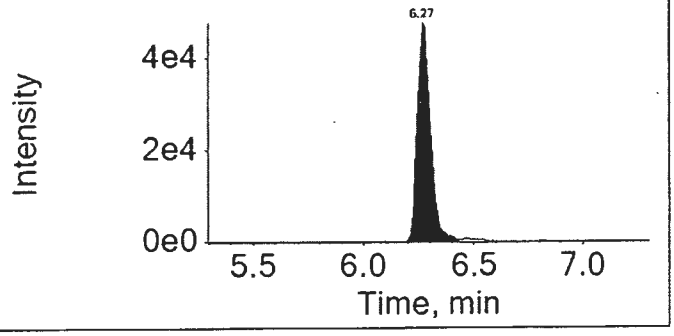
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



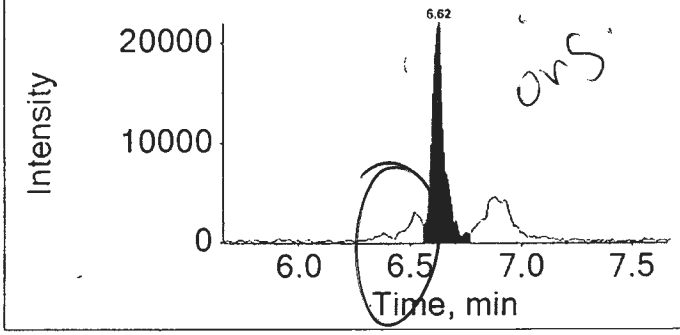


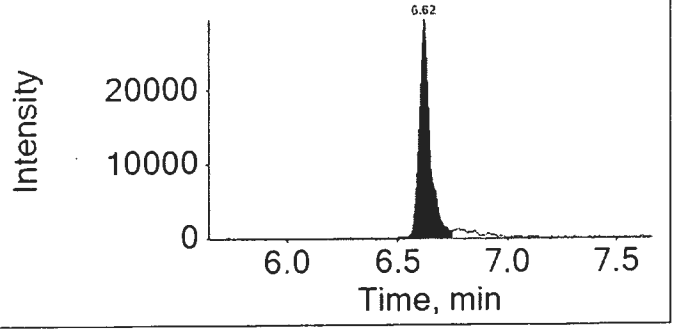
16SEP06-30.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16SEP06-30.wiff	
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

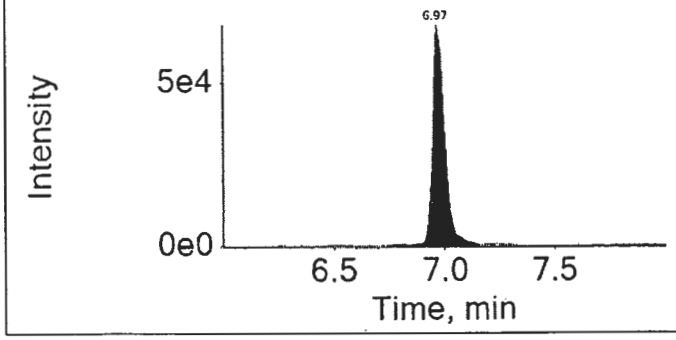




16SEP06-30.wiff

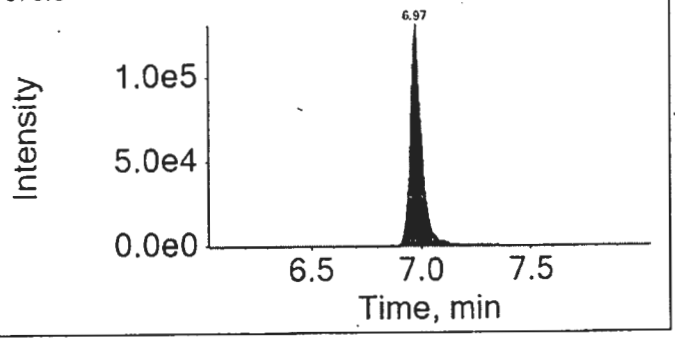
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

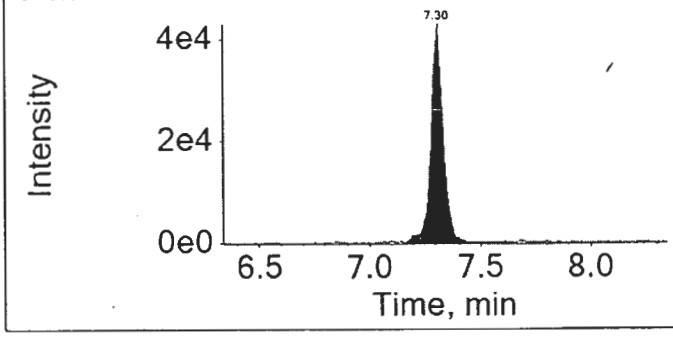
615.0 / 570.0



16SEP06-30.wiff

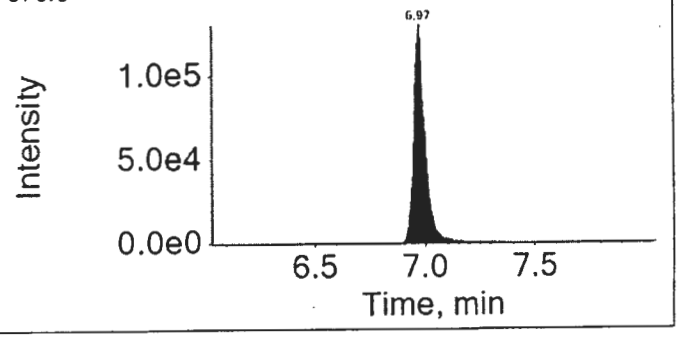
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

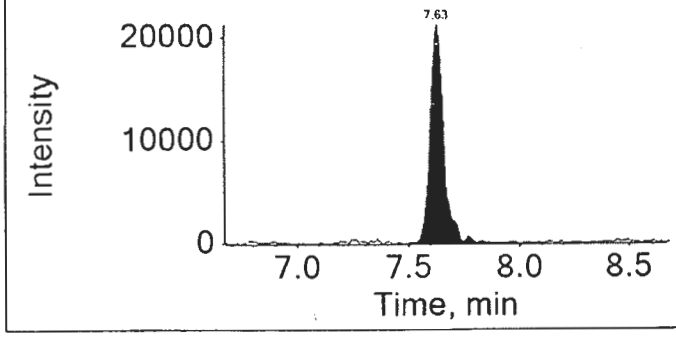
615.0 / 570.0



16SEP06-30.wiff

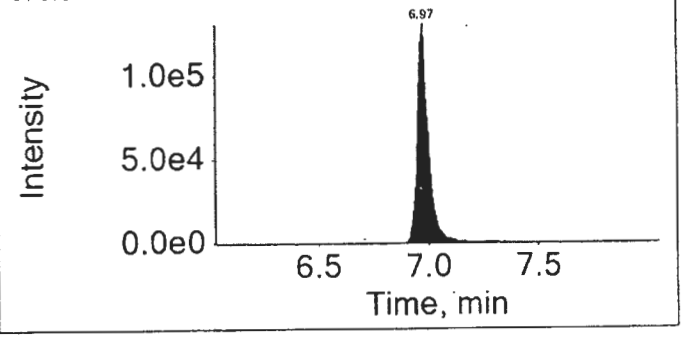
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 19 2016

Lynn Dodd
Principal Specialist

MEP 7824 9/15/16

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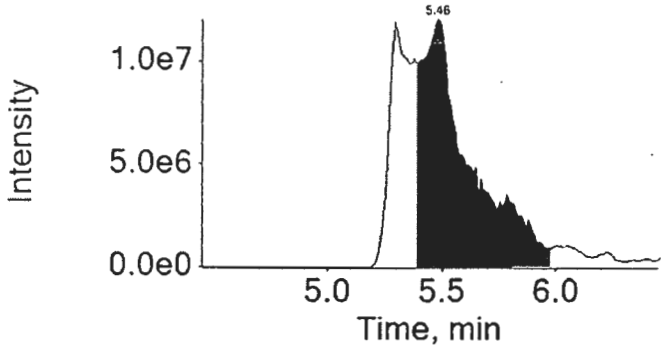
Print Date: 15/09/2016 11:31 AM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP06-30.wiff	2016-09-06T16:51:57	8535031BKG	PFOA	5.46	182473057.9

Component: PFOA
Mass: 412.9 / 368.9



Lynn Dodd
SEP 19 2016

MCD 7824
9/15/16

Lynn Dodd
Principal Specialist

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LC-MS/MS Analysis Report

Printed: 9/15/2016 1:23:00 PM

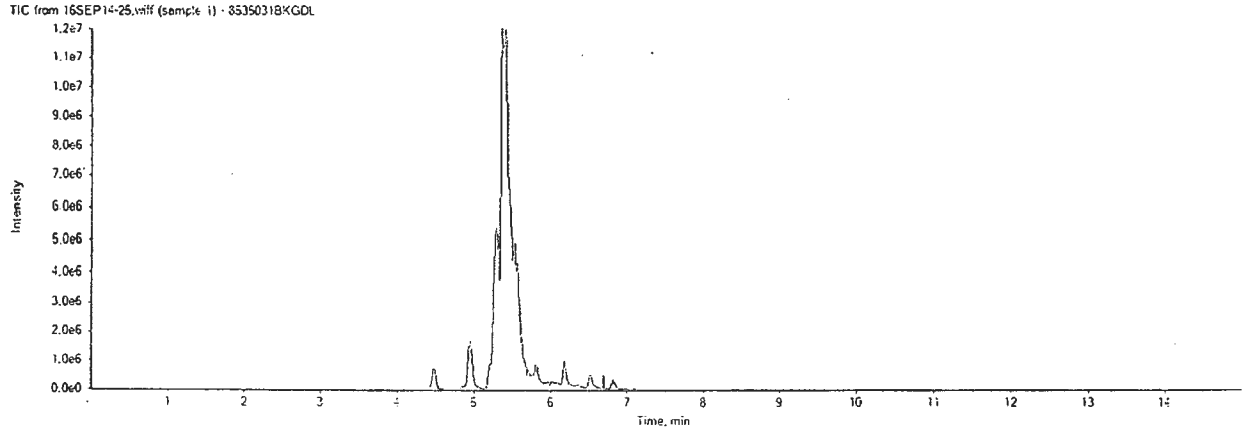
Sample Name:	8535031BKGDL		**Data File:**		16SEP14-25.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment		**Acquis Date:**		2016-09-14T14:54:49
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	78		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL
			ICAL Name:		16SEP13ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.180		**Dilution Factor:**		10.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units	
PFBS	4.05	8036.7	A	18O2-PFHxS	4.94	194847.4	0.041	2.885	ng/g	
PFHxA	4.48	1988112.5	A	13C2-PFHxA	4.48	896480.7	2.218	313.844	ng/g	
PFHpA	4.95	7087592.0	A	13C4-PFHpA	4.95	505863.6	14.011	1153.479	ng/g	E
PFHxS	4.94	5659.9	A	18O2-PFHxS	4.94	194847.4	0.029	2.291	ng/g	
PFOA	5.39	124601392.5	M	13C4-PFOA	5.38	53617.9	2323.875	188961.491	ng/g	E
PFNA	5.81	651662.7	A	13C5-PFNA	5.81	1157269.7	0.563	46.428	ng/g	
PFOS	5.78	66668.1	A	13C4-PFOS	5.78	265544.8	0.251	22.842	ng/g	
PFDA	6.18	1819582.1	A	13C2-PFDA	6.18	883494.6	2.060	135.186	ng/g	
PFUnDA	6.52	98380.3	A	13C2-PFUnDA	6.52	1278660.0	0.077	6.343	ng/g	
PFDoDA	6.82	51096.2	A	13C2-PFDoDA	6.82	1023856.9	0.050	4.412	ng/g	
PFTrDA	7.10	21328.7	A	13C2-PFDoDA	6.82	1023856.9	0.021	1.860	ng/g	
PFTeDA	7.36	13446.2	A	13C2-PFDoDA	6.82	1023856.9	0.013	1.370	ng/g	

Total Ion Chromatogram

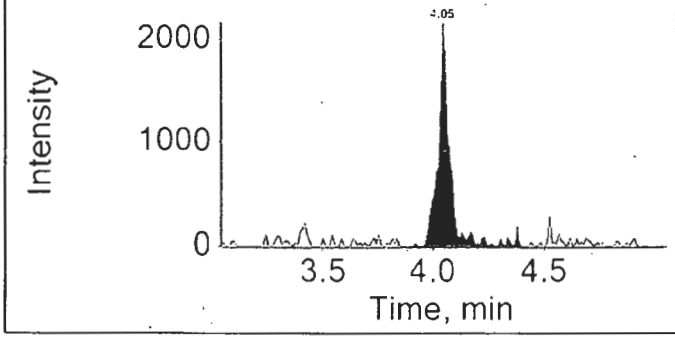
EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment



16SEP14-25.wiff

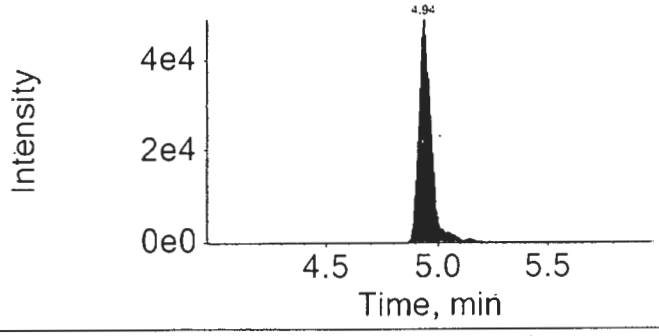
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

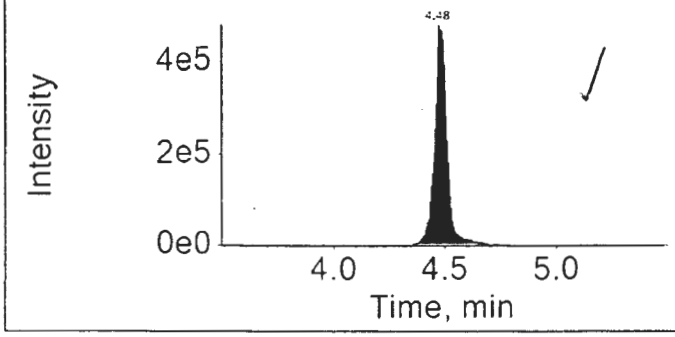
403.0 / 103.0



16SEP14-25.wiff

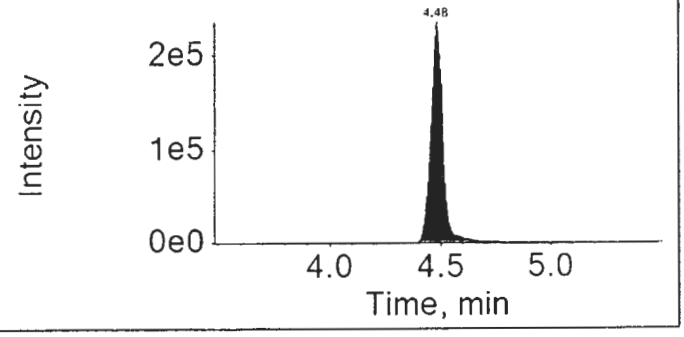
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

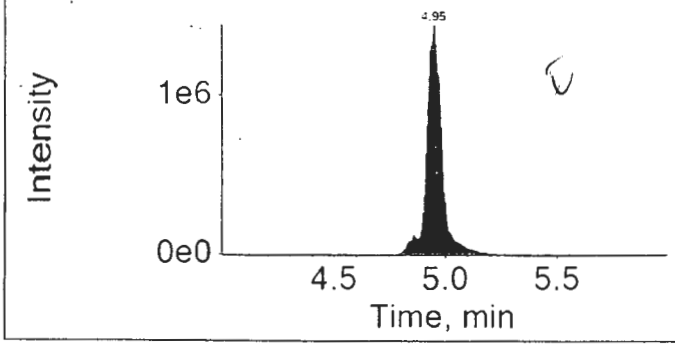
314.9 / 270.0



16SEP14-25.wiff

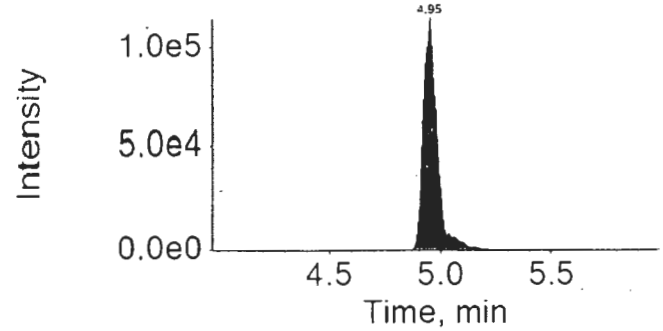
Analyte: PFHpA

362.9 / 318.9

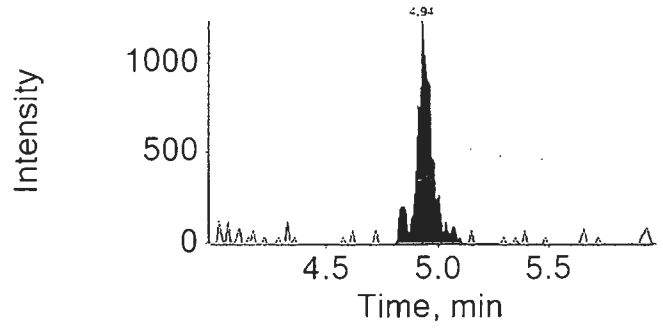


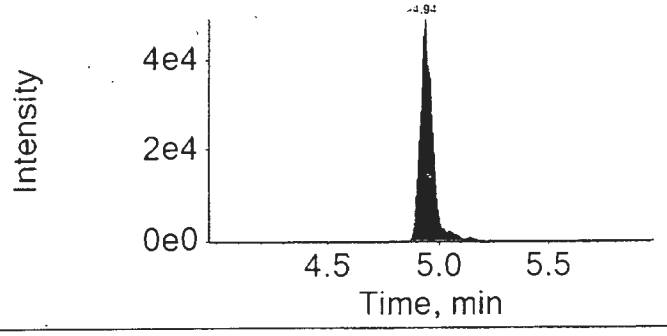
Internal Standard: 13C4-PFHpA

367.0 / 322.0



16SEP14-25.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0





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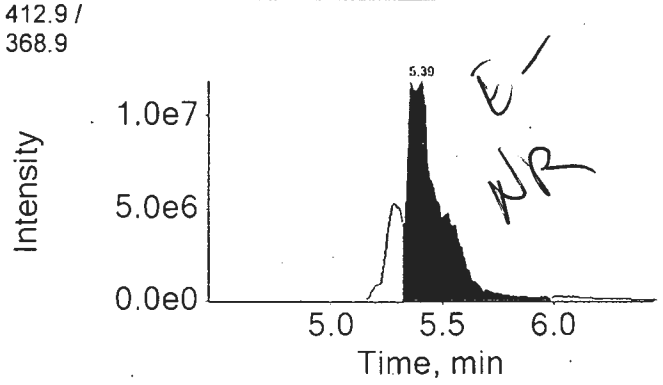
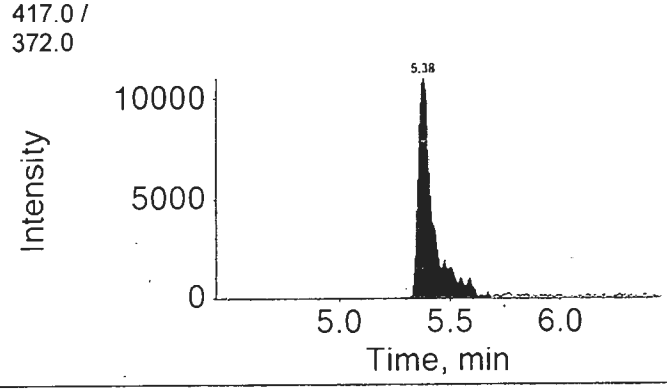
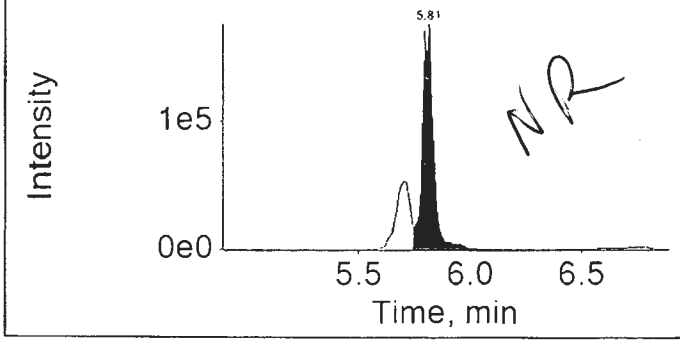
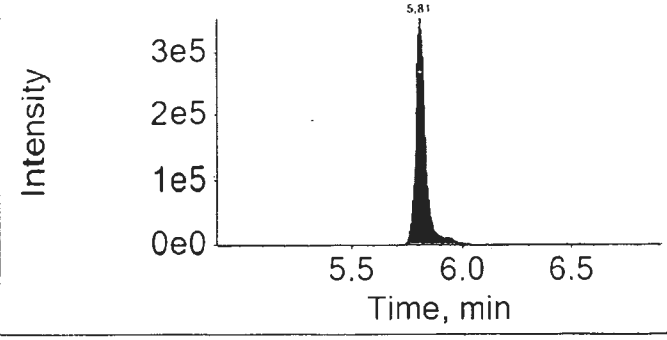
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





16SEP14-25.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0





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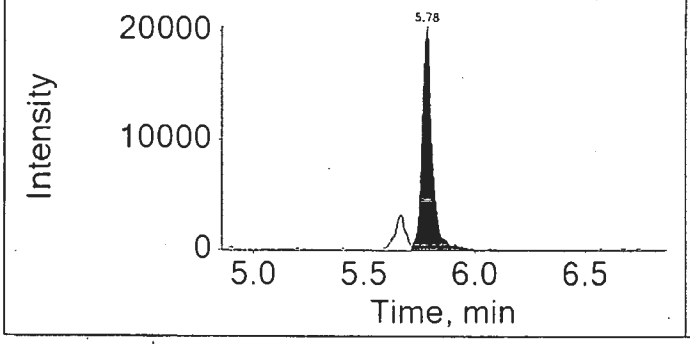
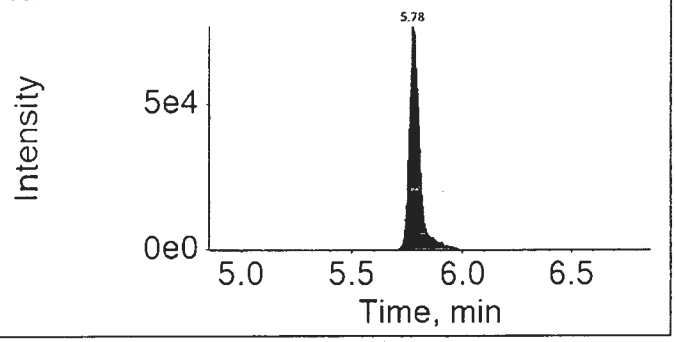
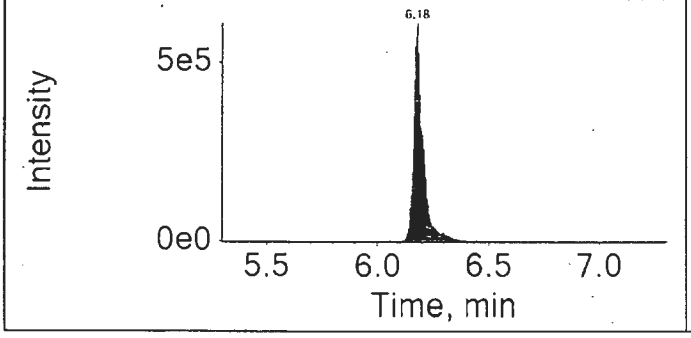
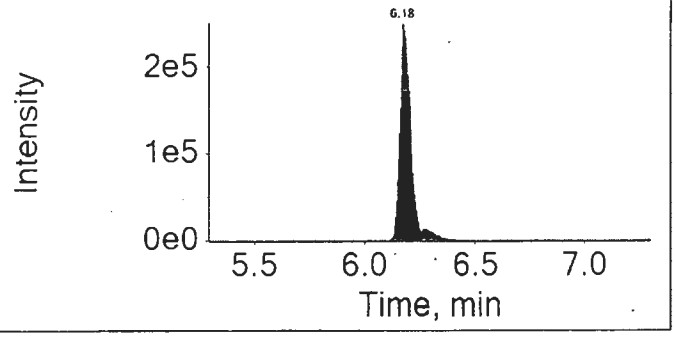
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



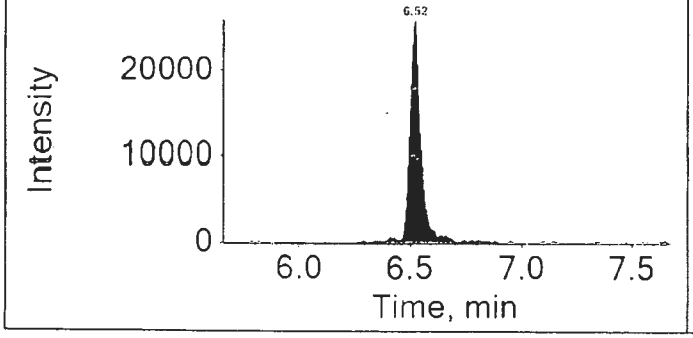


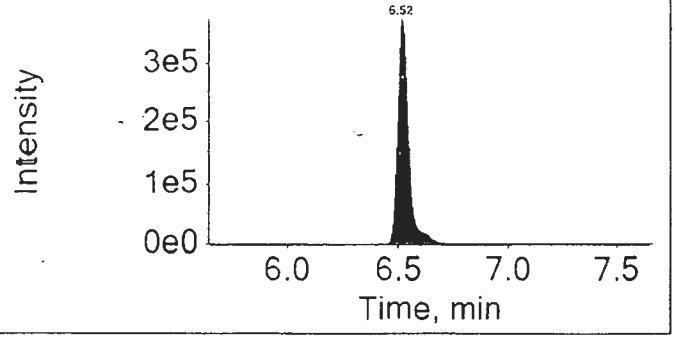
16SEP14-25.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16SEP14-25.wiff	
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

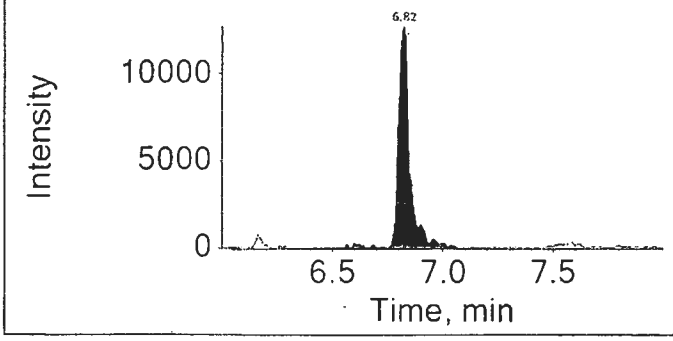




16SEP14-25.wiff

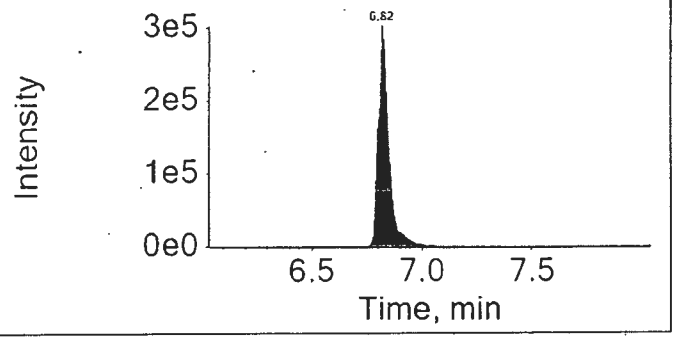
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

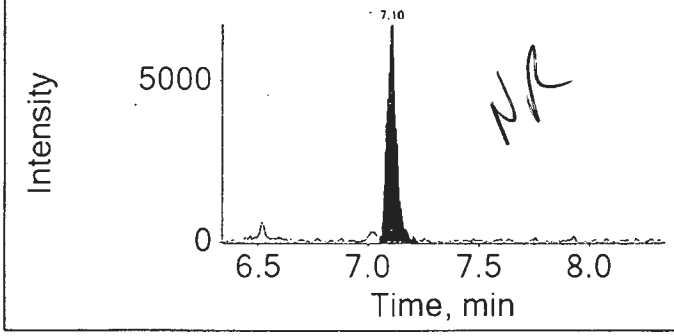
615.0 / 570.0



16SEP14-25.wiff

Analyte: PFTrDA

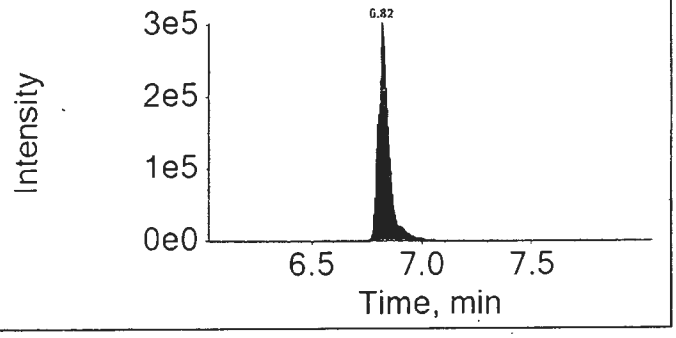
662.9 / 618.9



NR

Internal Standard: 13C2-PFDoDA

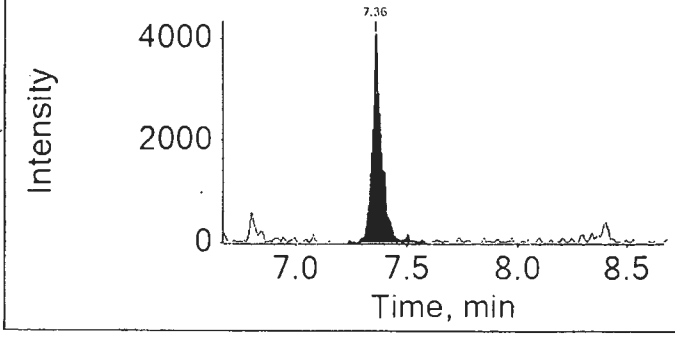
615.0 / 570.0



16SEP14-25.wiff

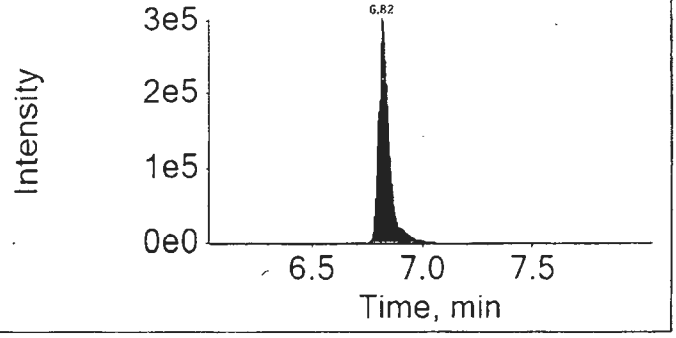
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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SEP 19 2016

MEP 9/15/16

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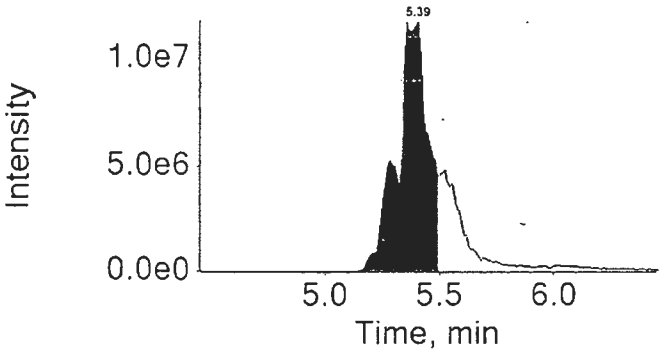
Print Date: 15/09/2016 1:24 PM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-25.wiff	2016-09-14T14:54:49	8535031BKGDL	PFOA	5.39	113572213.3

Component: PFOA
Mass: 412.9 / 368.9



Lynn Dodd
SEP 19 2016

Lynn Dodd
Principal Specialist

MED 7824 9/15/16

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LC-MS/MS Analysis Report

Printed: 9/15/2016 1:23:00 PM

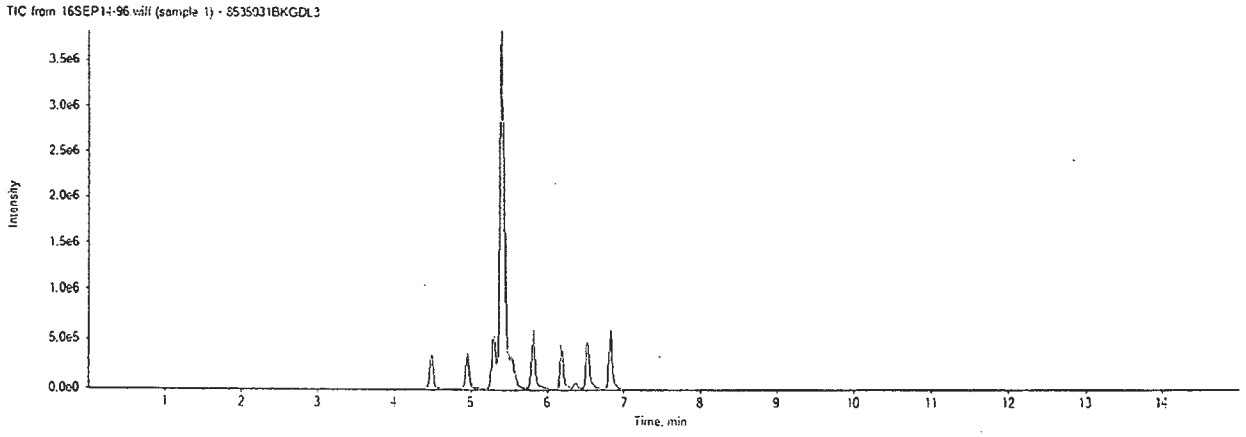
Sample Name:	8535031BKGDL3		**Data File:**		16SEP14-96.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment		**Acquis Date:**		2016-09-15T08:56:32
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	76		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL
			ICAL Name:		16SEP13ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.180		**Dilution Factor:**		1000.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.06	1094.6	A	18O2-PFHxS	4.95	320609.9	0.003	23.878	ng/g
PFHxA	4.49	22069.2	A	13C2-PFHxA	4.48	1157051.1	0.019	269.928	ng/g
PFHpA	4.95	118993.6	A	13C4-PFHpA	4.95	774362.4	0.154	1265.097	ng/g
PFHxS	4.94	1594.7	A	18O2-PFHxS	4.95	320609.9	0.005	39.238	ng/g
PFOA	5.40	16586268.6	A	13C4-PFOA	5.40	523961.7	31.655	257400.714	ng/g
PFNA	5.80	11498.5	A	13C5-PFNA	5.81	1640949.9	0.007	57.775	ng/g
PFOS	5.78	1313.4	A	13C4-PFOS	5.78	324049.4	0.004	36.875	ng/g
PFDA	6.18	25923.5	A	13C2-PFDA	6.18	1346321.3	0.019	126.389	ng/g
PFUnDA	6.52	7286.3	A	13C2-PFUnDA	6.51	1448794.0	0.005	41.460	ng/g
PFDoDA	6.82	6441.7	A	13C2-PFDoDA	6.82	1836137.0	0.004	31.013	ng/g
PFTrDA	7.09	3540.4	M	13C2-PFDoDA	6.82	1836137.0	0.002	17.218	ng/g
PFTeDA	7.35	5253.4	A	13C2-PFDoDA	6.82	1836137.0	0.003	29.842	ng/g

Total Ion Chromatogram

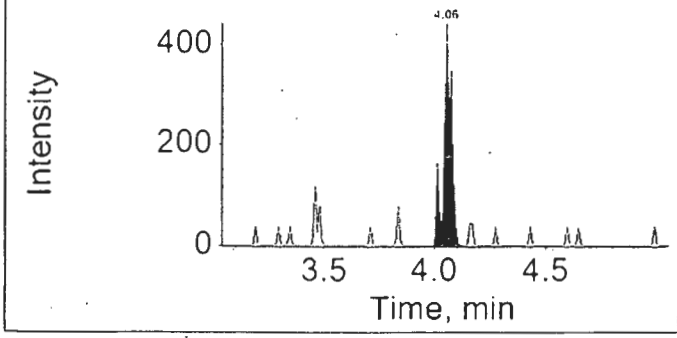
EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment



16SEP14-96.wiff

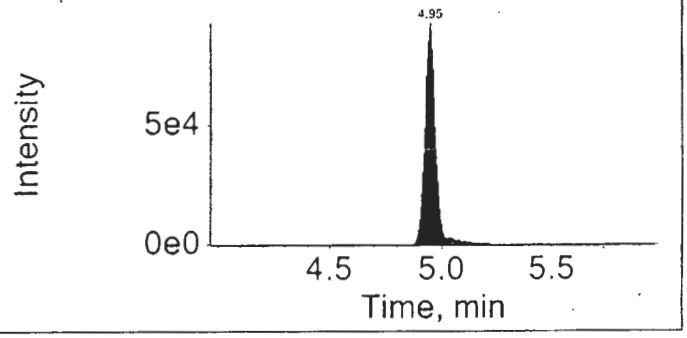
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

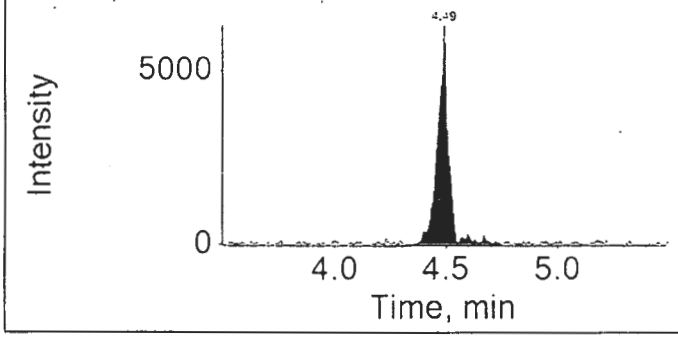
403.0 / 103.0



16SEP14-96.wiff

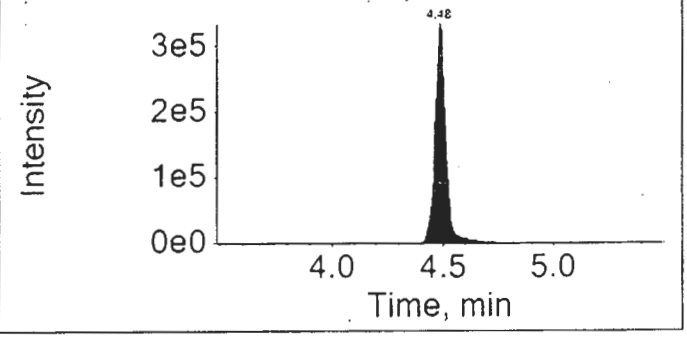
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

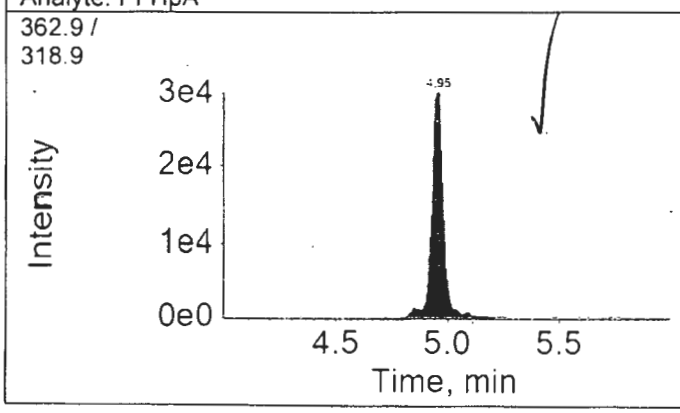
314.9 / 270.0



16SEP14-96.wiff

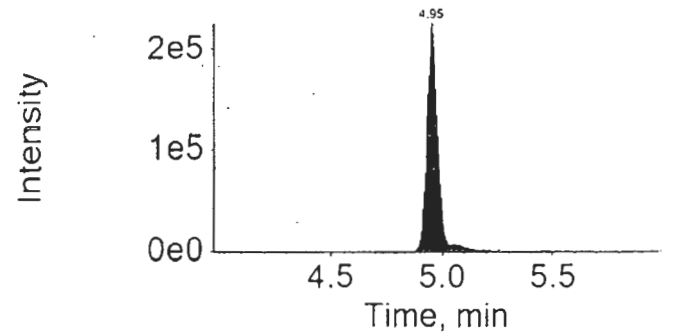
Analyte: PFHpA

362.9 / 318.9

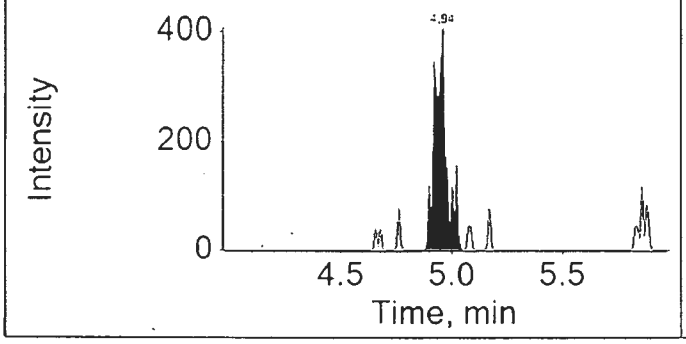


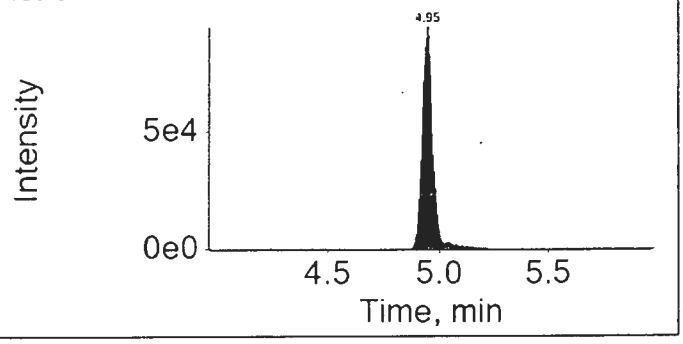
Internal Standard: 13C4-PFHpA

367.0 / 322.0

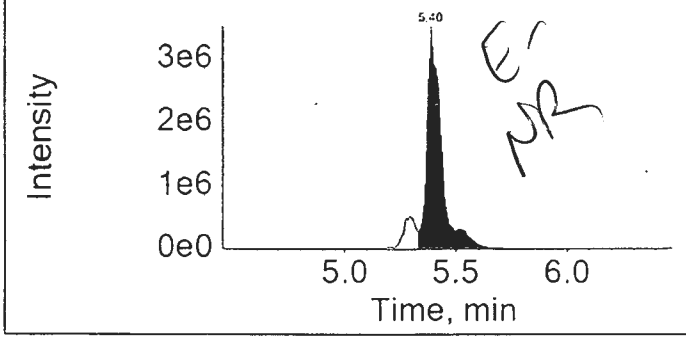


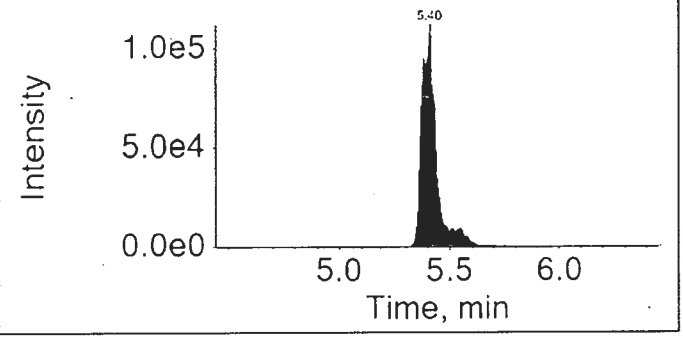
16SEP14-96.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



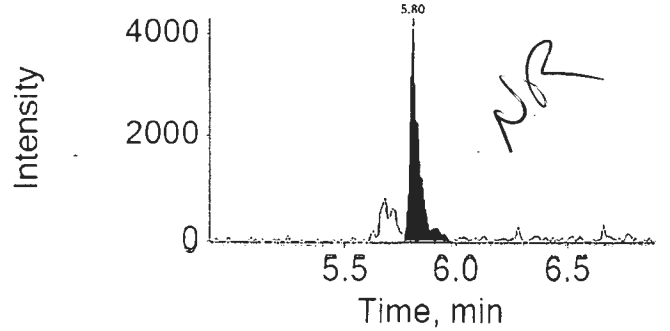


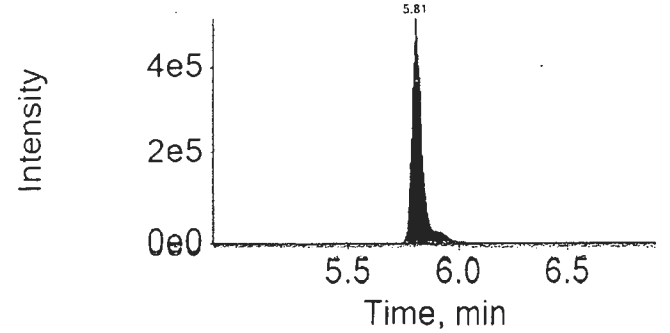
16SEP14-96.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



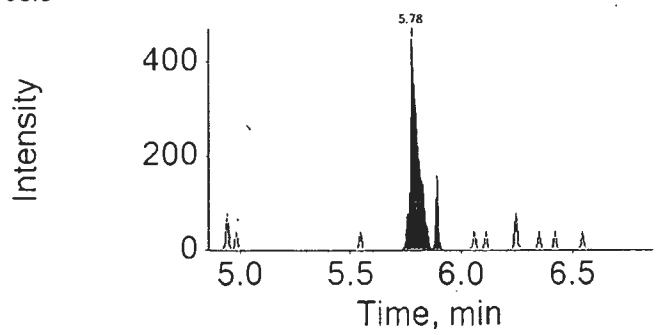


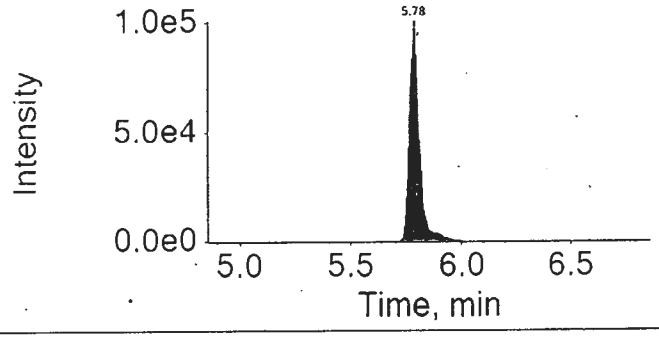
16SEP14-96.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



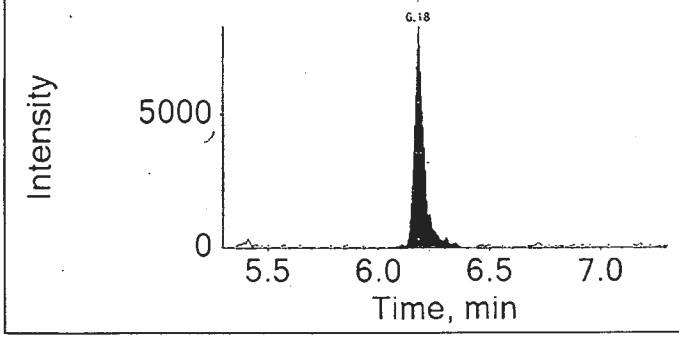


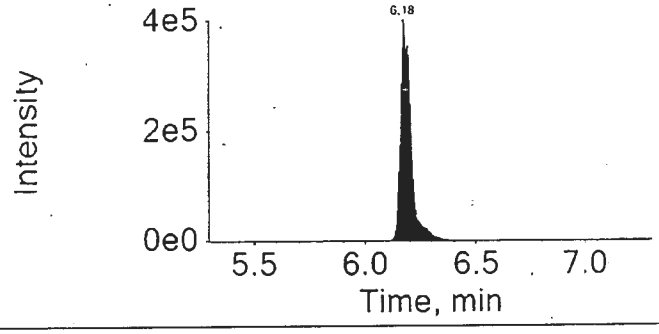
16SEP14-96.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



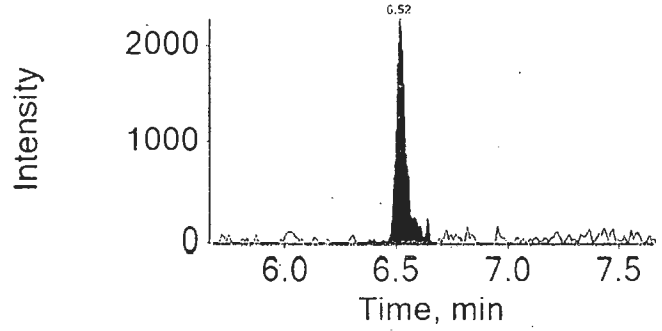


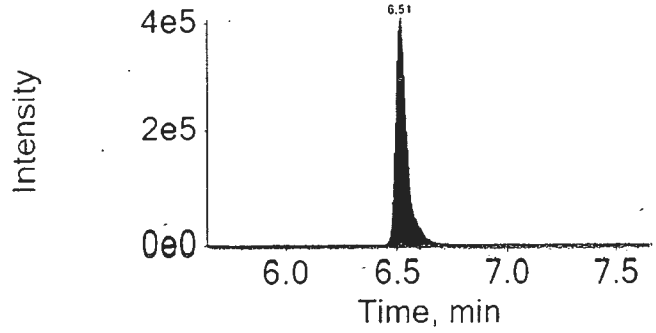
16SEP14-96.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16SEP14-96.wiff	
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

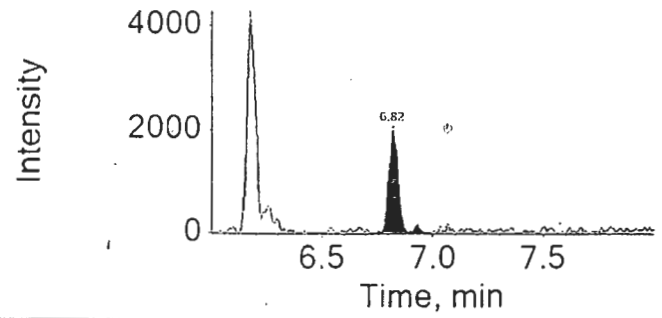




16SEP14-96.wiff

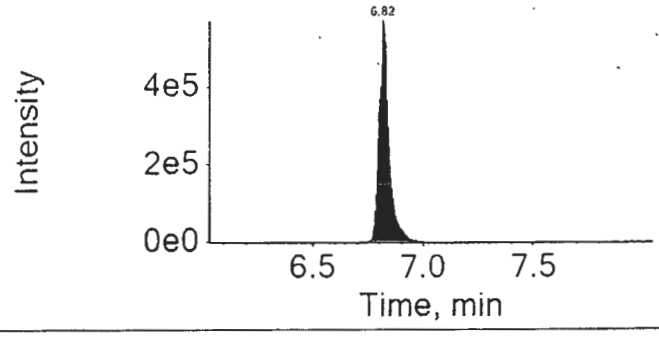
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

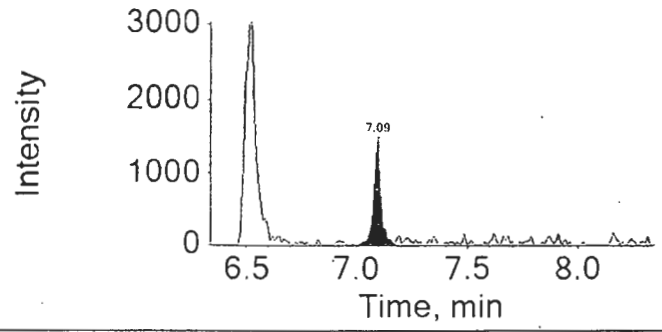
615.0 / 570.0



16SEP14-96.wiff

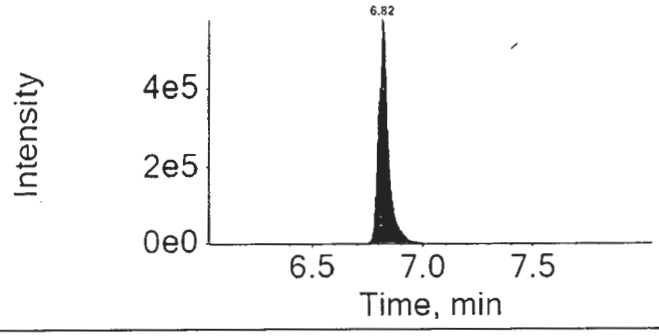
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

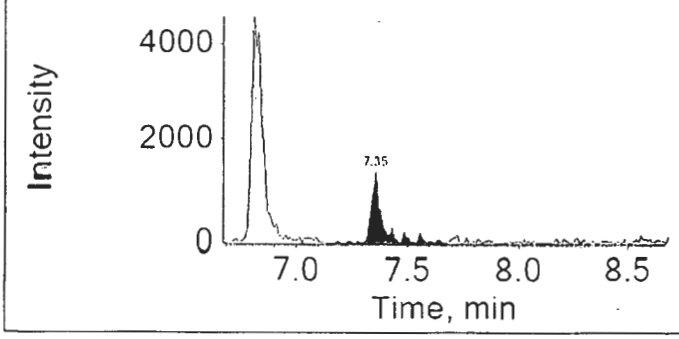
615.0 / 570.0



16SEP14-96.wiff

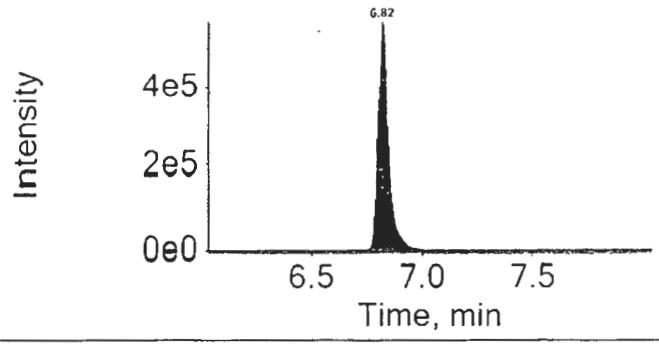
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 19 2016

Lynn Dodd
Principal Specialist

mer 7824
9/15/16

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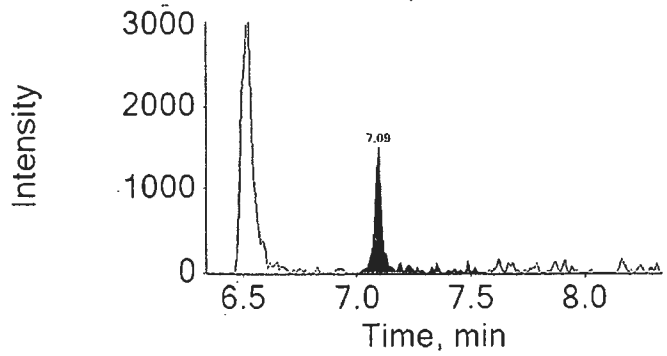
Print Date: 15/09/2016 1:24 PM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-96.wiff	2016-09-15T08:56:32	8535031BKGDL3	PFTrDA	7.09	4471.8

Component: PFTrDA
Mass: 662.9 / 618.9



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SEP 19 2016

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Principal Specialist

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LC-MS/MS Analysis Report

Printed: 9/24/2016 11:22:00 AM

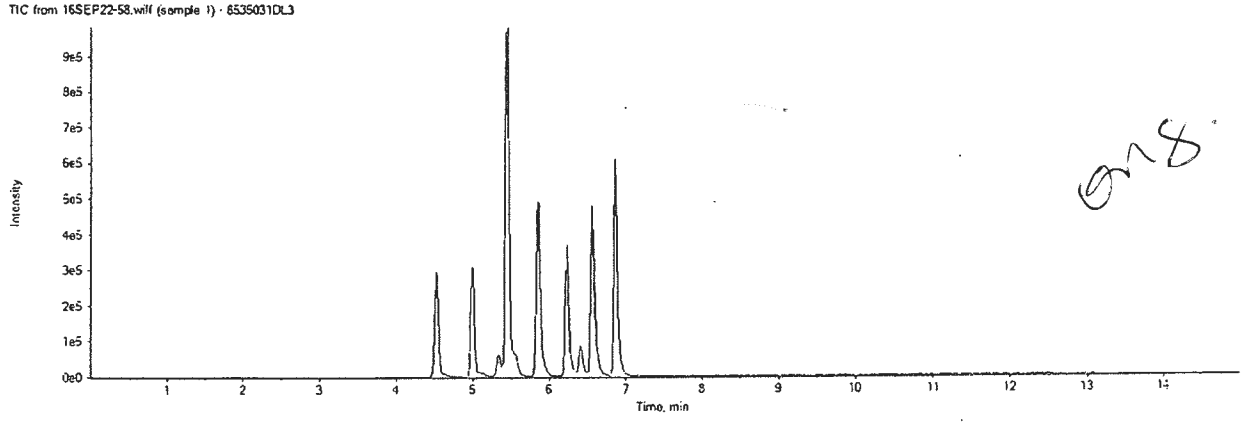
Sample Name:	8535031DL3		**Data File:**		16SEP22-58.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment		**Acquis Date:**		2016-09-23T07:48:35
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	50		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL3
			ICAL Name:		16SEP20ICAL
Batch Number:	16235011		**Operator:**		US19INS00016\4500TRIPLE
Sample Wt.:	5.180		**Dilution Factor:**		10000.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

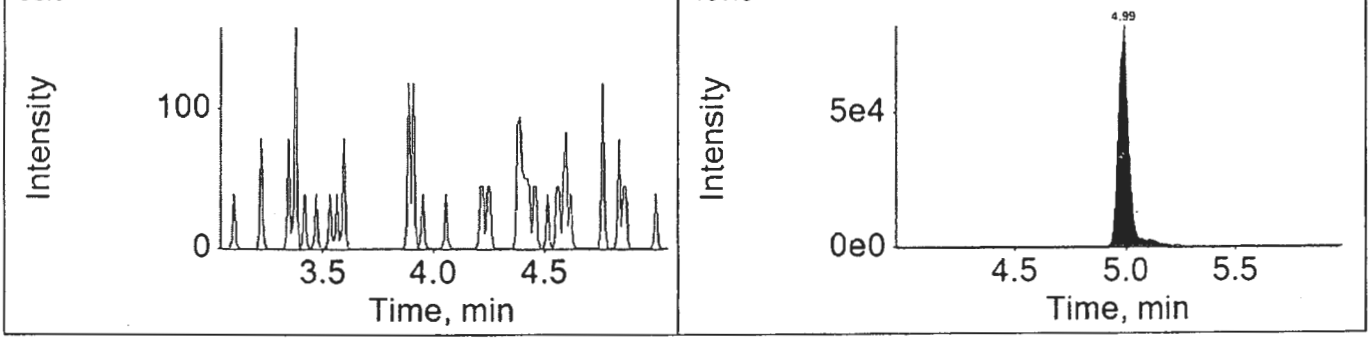
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.99	278025.9	N/A	N/A	ng/g
PFHxA	4.53	3004.0	A	13C2-PFHxA	4.52	1017405.4	0.003	471.183	ng/g
PFHpA	4.99	11723.0	A	13C4-PFHpA	4.99	770966.2	0.015	1205.626	ng/g
PFHxS	4.98	969.3	A	18O2-PFHxS	4.99	278025.9	0.003	295.516	ng/g
PFOA	5.44	2847883.0	A	13C4-PFOA	5.44	905180.3	3.146	267449.918	ng/g
PFNA	5.85	1914.4	A	13C5-PFNA	5.85	1616934.0	0.001	108.856	ng/g
PFOS	N/A	N/A	A	13C4-PFOS	5.83	287813.0	N/A	N/A	ng/g
PFDA	6.21	3814.8	A	13C2-PFDA	6.23	1224605.0	0.003	215.119	ng/g
PFUnDA	6.56	4909.2	A	13C2-PFUnDA	6.56	1436647.3	0.003	289.154	ng/g
PFDoDA	6.87	4470.9	M	13C2-PFDoDA	6.86	1910106.9	0.002	210.755	ng/g
PFTrDA	7.15	5877.4	A	13C2-PFDoDA	6.86	1910106.9	0.003	277.778	ng/g
PFTeDA	7.40	5941.6	M	13C2-PFDoDA	6.86	1910106.9	0.003	347.610	ng/g

Total Ion Chromatogram

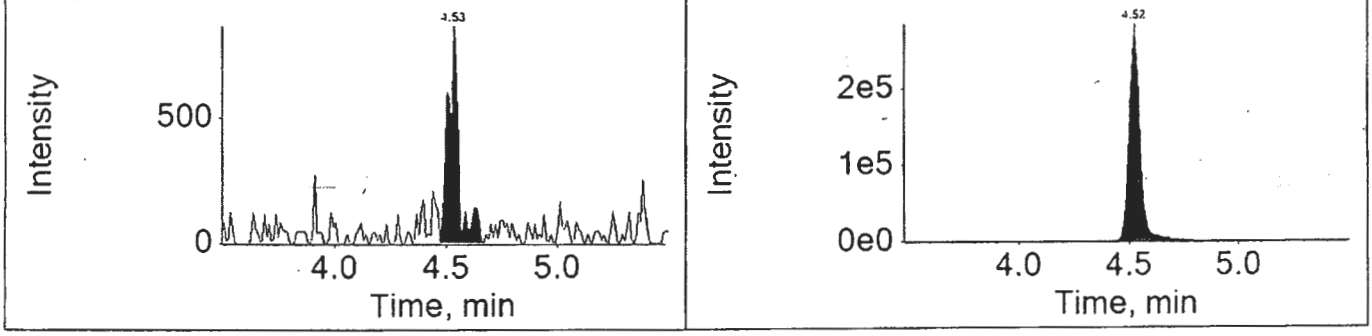
EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment



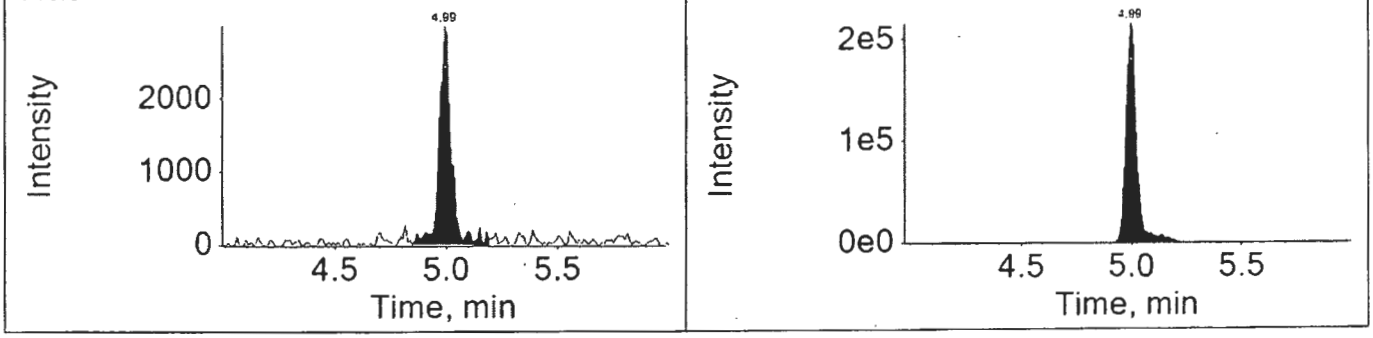
16SEP22-58.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



16SEP22-58.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



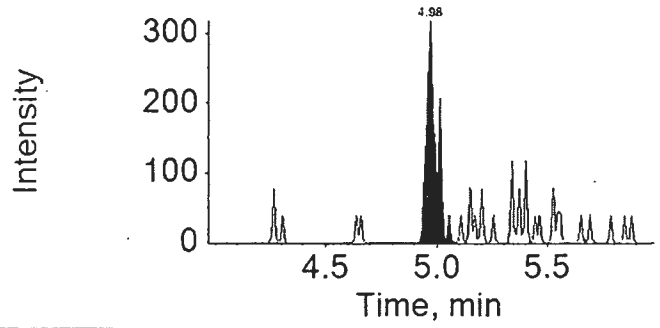
16SEP22-58.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



16SEP22-58.wiff

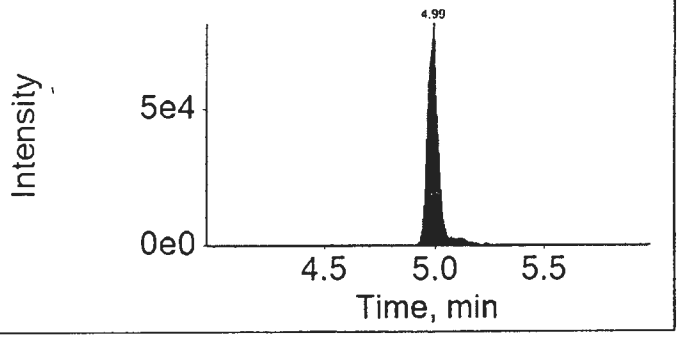
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

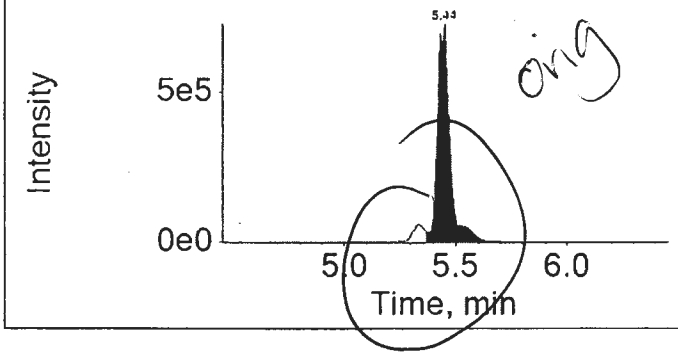
403.0 / 103.0



16SEP22-58.wiff

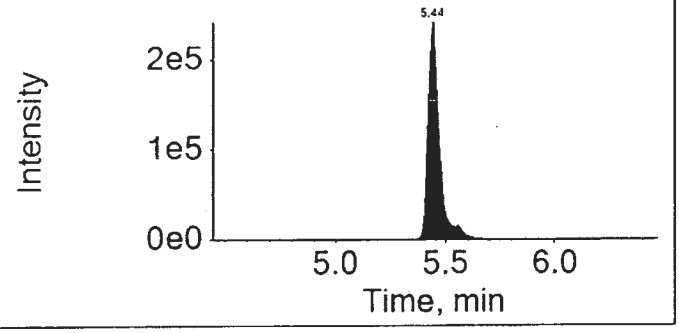
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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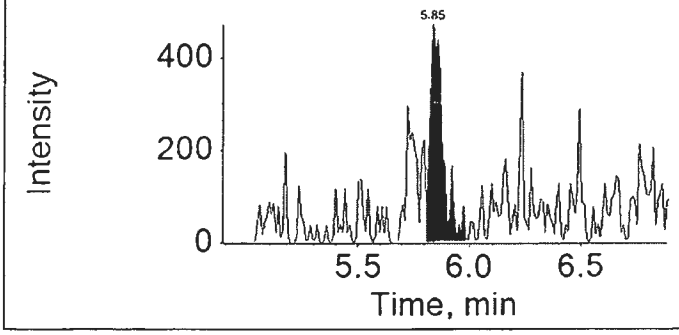
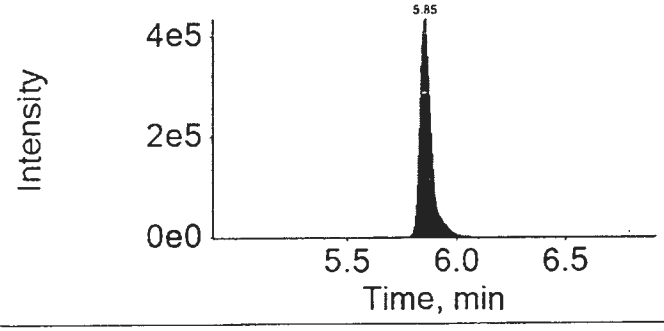
Analyte: PFNA

462.9 / 418.9

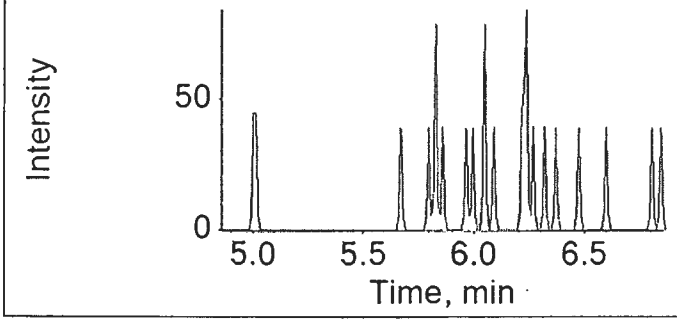


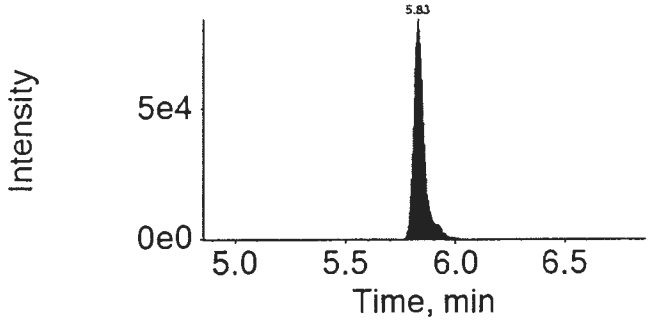
Internal Standard: 13C5-PFNA

468.0 / 423.0

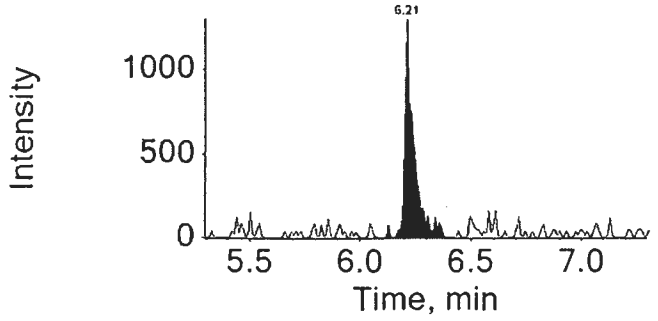


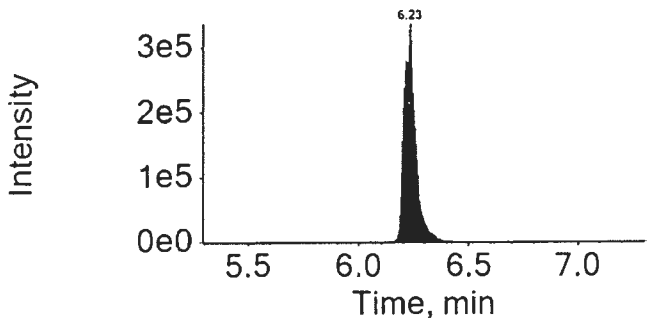
16SEP22-58.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



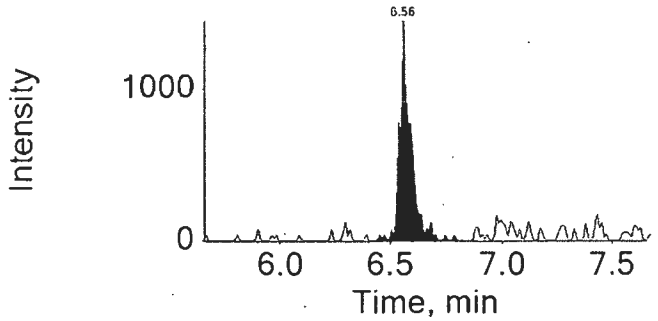


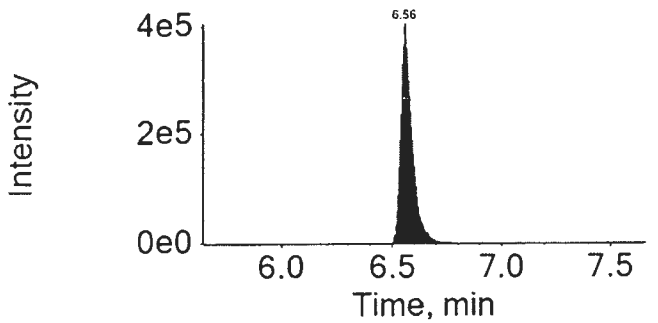
16SEP22-58.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16SEP22-58.wiff	
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0





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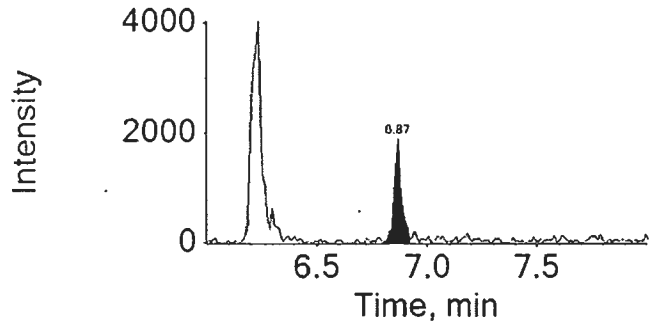
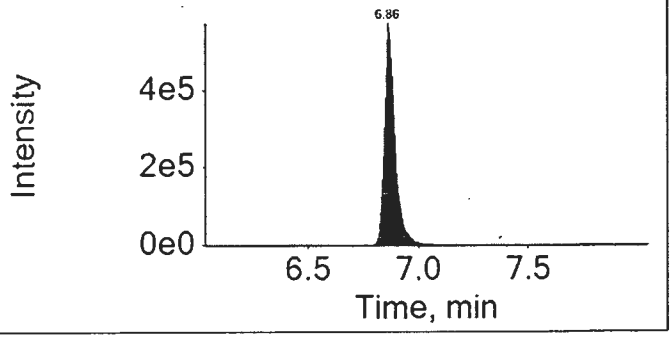
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

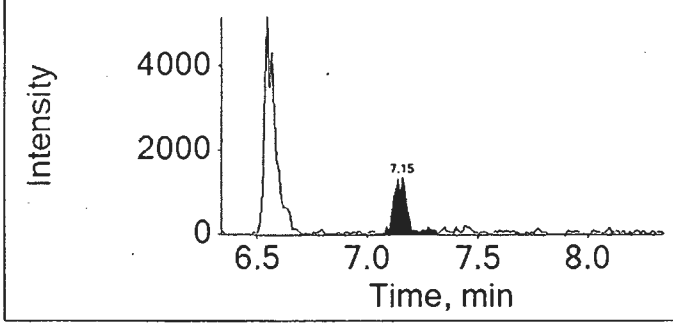
615.0 / 570.0



16SEP22-58.wiff

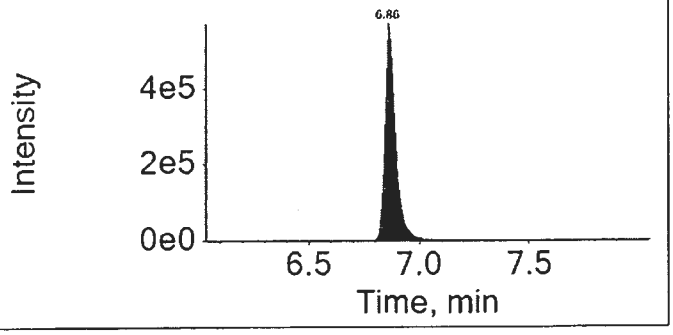
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

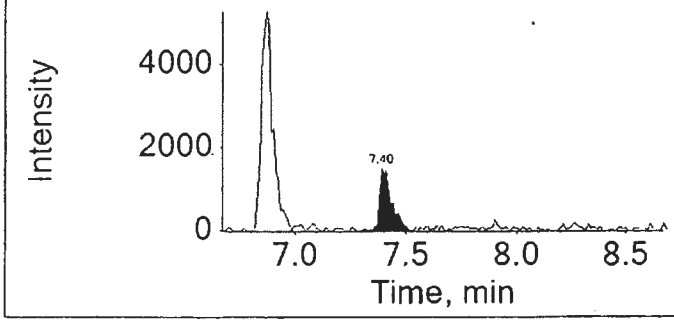
615.0 / 570.0



16SEP22-58.wiff

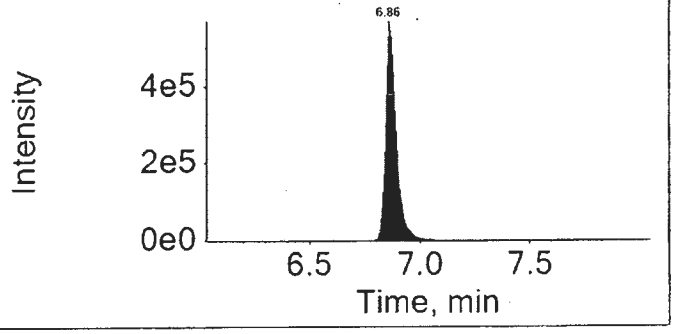
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 2 6 2016

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Principal Specialist

MED 7841 9/24/16

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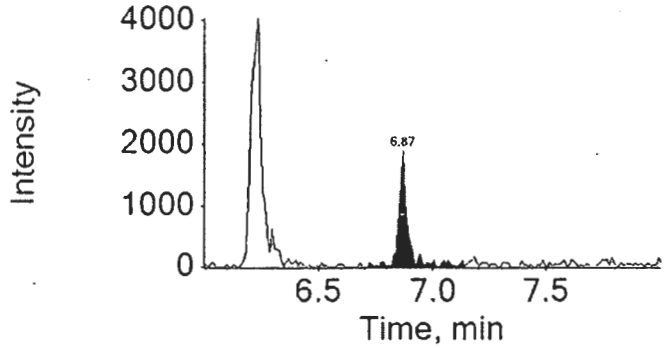
Print Date: 24/09/2016 11:22 AM

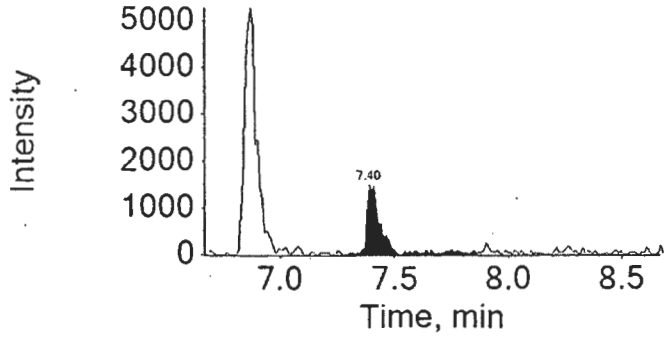
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP22-58.wiff	2016-09-23T07:48:35	8535031DL3	PFDoDA	6.87	5655.8
16SEP22-58.wiff	2016-09-23T07:48:35	8535031DL3	PFTeDA	7.40	7002.9

Component: PFDoDA
Mass: 612.9 / 568.9



Component: PFTeDA
Mass: 712.9 / 668.9



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SEP 26 2016

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Principal Specialist

Page 1 of 1

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Analysis Report

REVISED

Sample Description: SG3-SUMP02-160817 Grab Sediment
SGPP - Bennington

LL Sample # SW 8535031
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/17/2016 11:10 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

BENS2 SDG#: SPP17-20BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	5.3	0.50	1.6	1
14027	**Perfluorodecanoic acid**	335-76-2	140 ✓	3.0	4.0	10
14027	**Perfluorododecanoic acid**	307-55-1	6.1	0.40	0.80	1
14027	**Perfluoroheptanoic acid**	375-85-9	1,300	300	600	1000
14027	**Perfluorohexanesulfonate**	355-46-4	3.0	0.50	1.6	1
14027	**Perfluorohexanoic acid**	307-24-4	330 ✓	3.0	4.0	10
14027	**Perfluorononanoic acid**	375-95-1	87	0.20	0.40	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	32	0.70	1.6	1
14027	**Perfluorooctanoic acid**	335-67-1	300,000 ✓	3,000	6,000	10000
14027	**Perfluorotetradecanoic acid**	376-06-7	2.2	0.30	0.80	1
14027	**Perfluorotridecanoic acid**	72629-94-8	3.8	0.60	1.2	1
14027	**Perfluoroundecanoic acid**	2058-94-8	9.8	0.30	0.60	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	3.6	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/06/2016 16:51	Jason W Knight	1
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/06/2016 16:51	Marissa C Drexinger	1
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 14:54	Jason W Knight	10
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/15/2016 08:56	Marissa C Drexinger	1000
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/23/2016 07:48	Jason W Knight	10000
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16235011	08/23/2016 11:10	Devon M Whooley	1
00111	Moisture	SM 2540 G-1997	2	16238820006A	08/25/2016 20:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL
Instrument ID: 24743
Sample (wt): 5.18 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 3.6

Lab Sample ID: 8535031
Lab File ID: 16SEP06-30.WIFF
Date Collected: 08/17/2016 11:10
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/06/2016 16:51
Dilution Factor: 1.0

Concentration Units: ng/g
Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	5.3	
307-24-4	PFHxA	470	E
375-85-9	PFHpA	2200	E
355-46-4	PFHxS	3.0	
335-67-1	PFOA	140000	E
375-95-1	PFNA	87	
1763-23-1	PFOS	32	
335-76-2	PFDA	190	E
2058-94-8	PFUnDA	9.8	
307-55-1	PFDoDA	6.1	
72629-94-8	PFTrDA	3.8	
376-06-7	PFTeDA	2.2	

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:13:00 PM

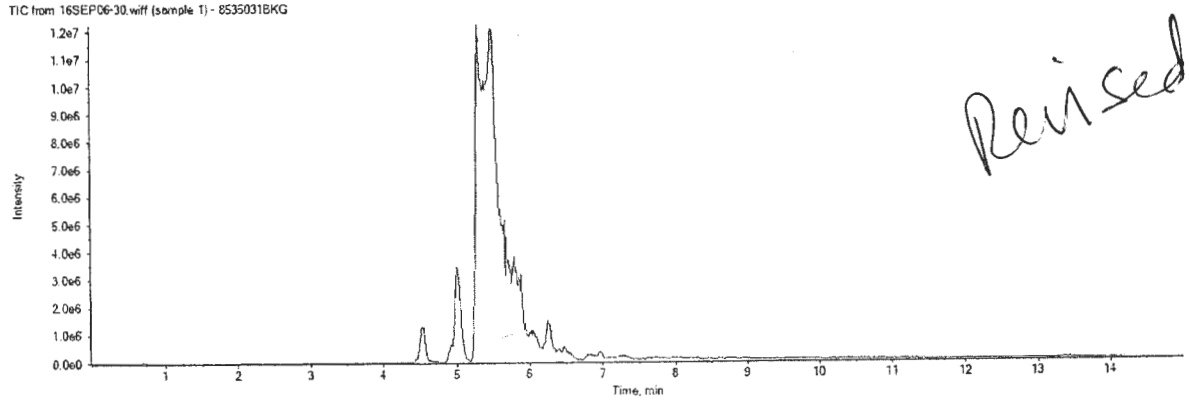
Sample Name:	8535031BKG			**Data File:**		16SEP06-30.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment			**Acquis Date:**		2016-09-06T16:51:57
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	18			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011
				ICAL Name:		16SEP01ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.180			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)	
PFBS	4.08	0.820	49087.4	A	18O2-PFHxS	4.99	77804.1	0.631	5.079	
PFHxA	4.53	1.000	6759127.2	A	13C2-PFHxA	4.53	271922.1	24.857	456.216	E
PFHpA	5.01	1.000	22108039.4	A	13C4-PFHpA	5.01	95002.9	232.709	2164.610	E
PFHxS	5.00	1.000	24415.2	M	18O2-PFHxS	4.99	77804.1	0.314	2.874	
PFOA	5.41	1.000	276050488.7	M	13C4-PFOA	5.40	19228.5	14356.285	135798.905	E
PFNA	5.87	1.000	2905172.6	M	13C5-PFNA	5.87	333199.8	8.719	83.970	
PFOS	5.85	1.000	339324.7	M	13C4-PFOS	5.85	116770.0	2.906	30.934	
PFDA	6.27	1.000	4296164.2	A	13C2-PFDA	6.27	201653.9	21.305	178.710	E
PFUnDA	6.62	1.000	96186.5	M	13C2-PFUnDA	6.62	101771.6	0.945	9.448	
PFDoDA	6.97	1.000	264365.4	A	13C2-PFDoDA	6.97	470270.0	0.562	5.863	
PFTrDA	7.30	1.050	168421.2	A	13C2-PFDoDA	6.97	470270.0	0.358	3.706	
PFTeDA	7.63	1.090	94472.6	A	13C2-PFDoDA	6.97	470270.0	0.201	2.119	

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment

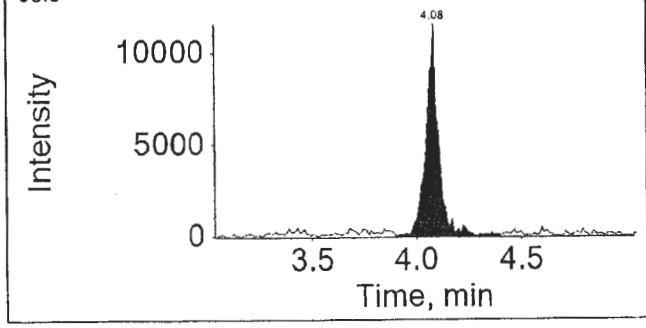


Revised

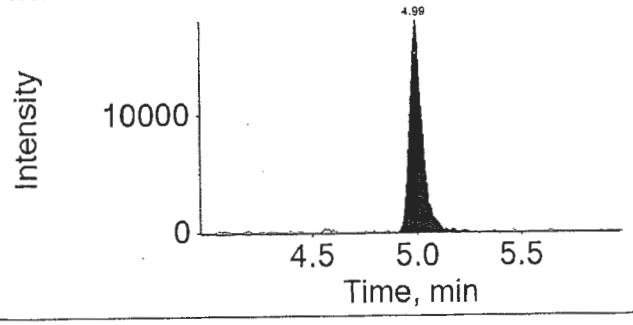
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-30.wiff
Analyte: PFBS
298.9 / 98.9



Internal Standard: 18O2-PFHxS
403.0 / 103.0



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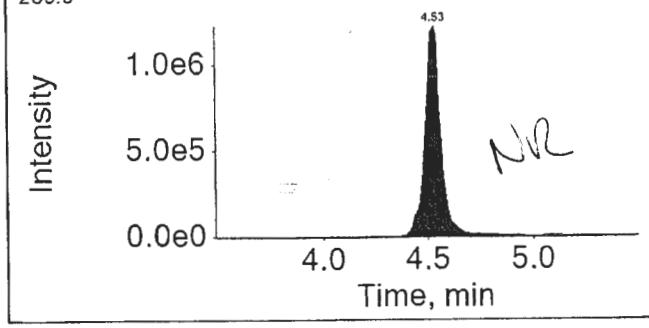
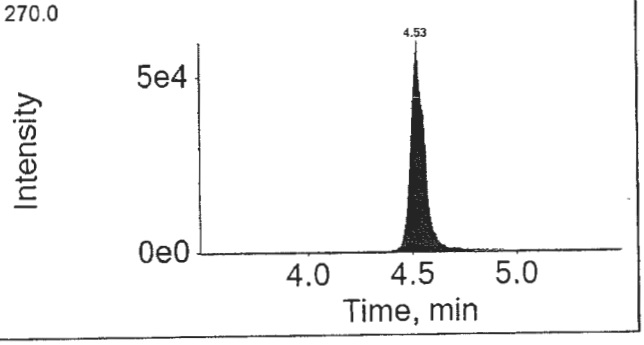
Analyte: PFHxA
312.9 / 269.0



Internal Standard: 13C2-PFHxA
314.9 / 270.0



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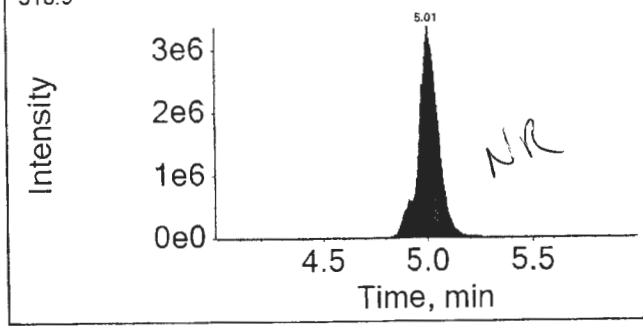
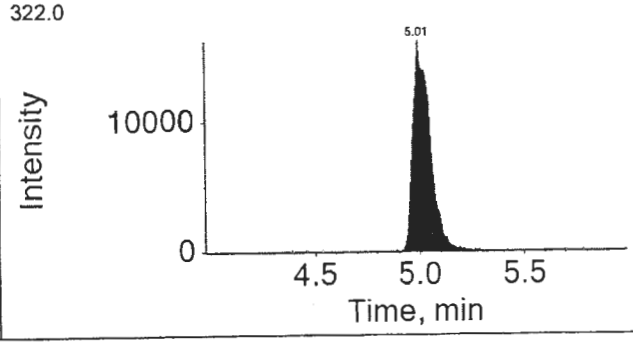
Analyte: PFHpA
362.9 / 318.9



Internal Standard: 13C4-PFHpA
367.0 / 322.0



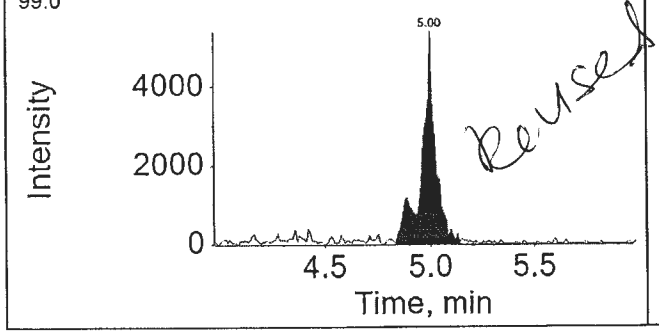
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-30.wiff

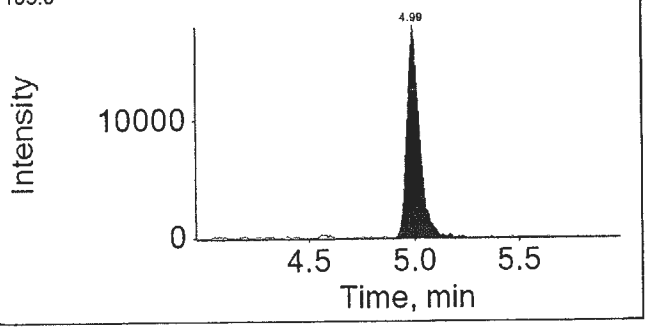
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

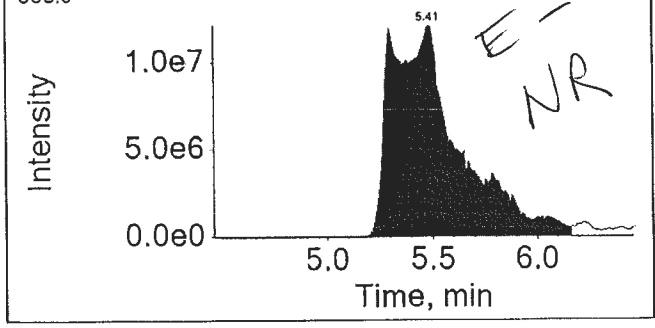
403.0 / 103.0



16SEP06-30.wiff

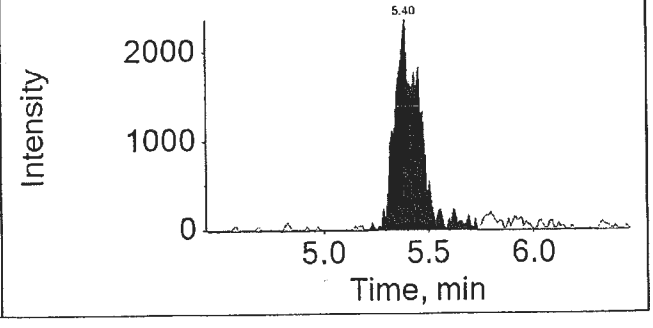
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

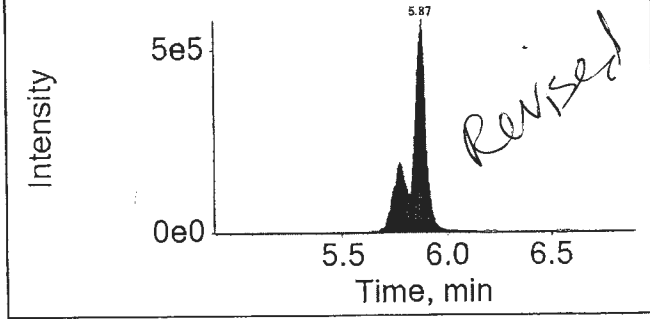
417.0 / 372.0



16SEP06-30.wiff

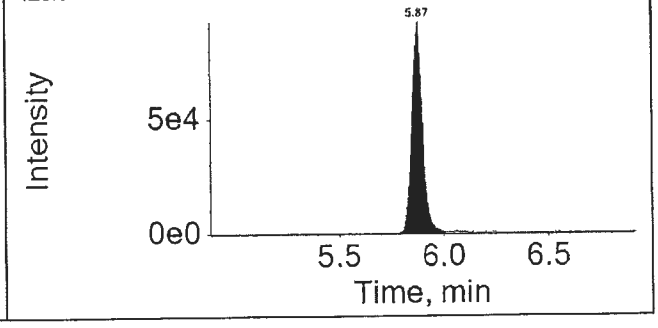
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



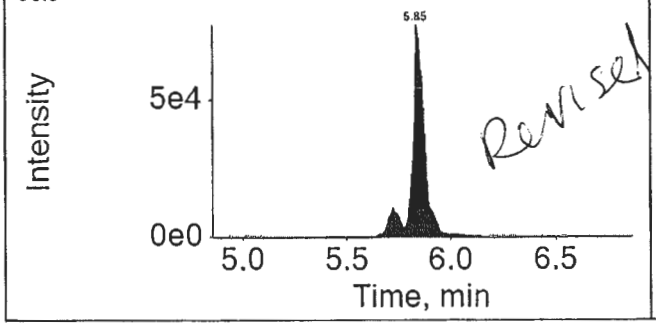
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-30.wiff

Analyte: PFOS

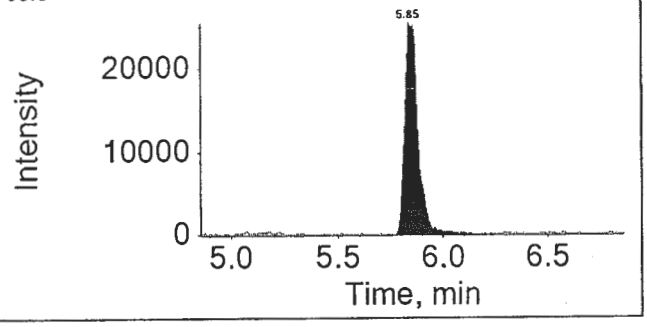
498.9 / 98.9



Revised

Internal Standard: 13C4-PFOS

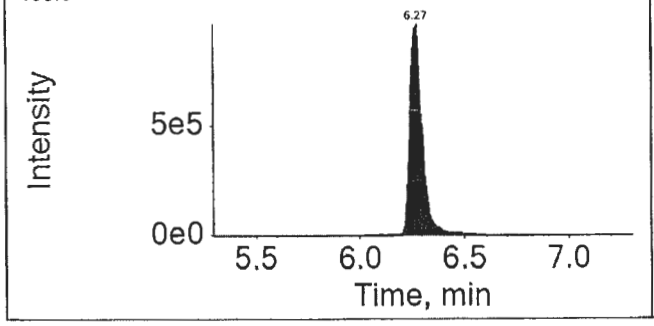
503.0 / 99.0



16SEP06-30.wiff

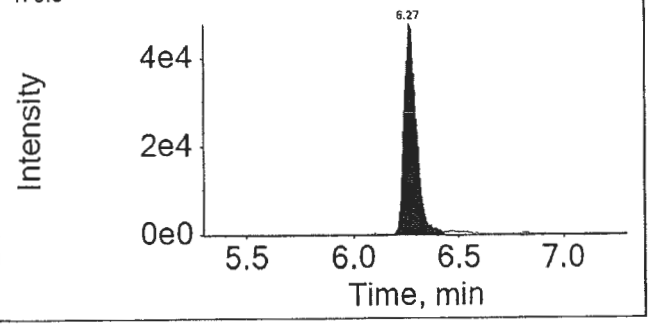
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

515.0 / 470.0



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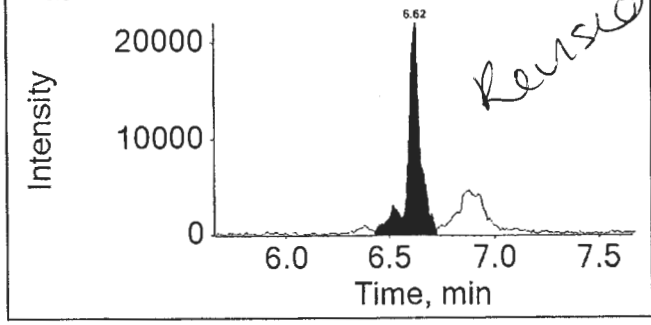
Analyte: PFUnDA

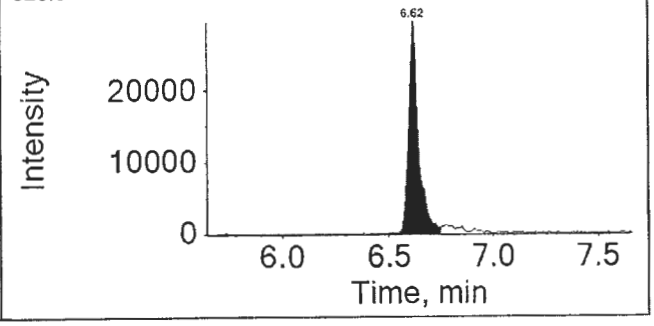
562.9 / 518.9



Revised

Internal Standard: 13C2-PFUnDA

565.0 / 520.0



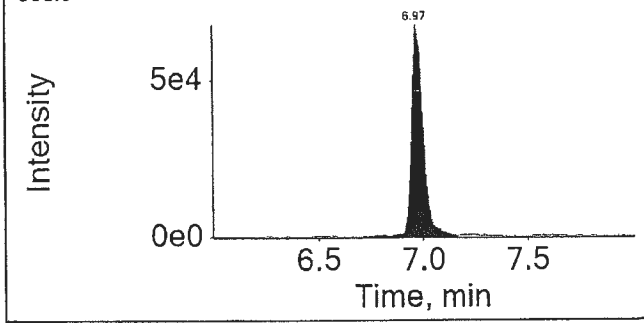
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-30.wiff

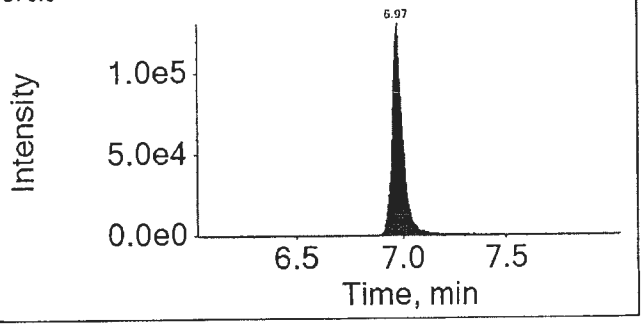
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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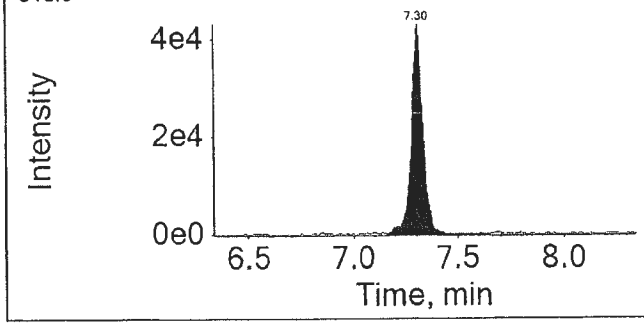
Analyte: PFTrDA

662.9 / 618.9



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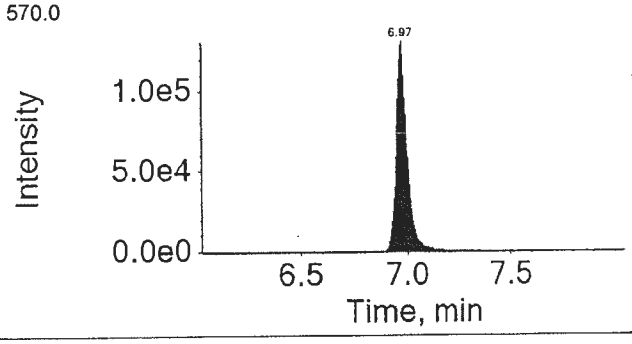
615.0 / 570.0



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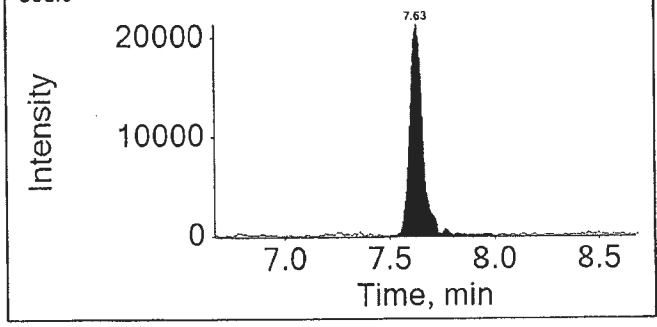
Analyte: PFTeDA

712.9 / 668.9



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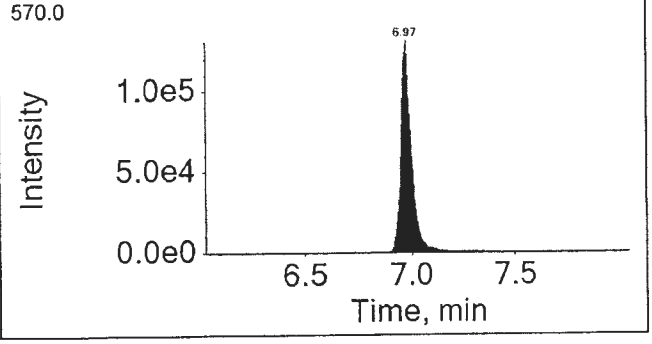

APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

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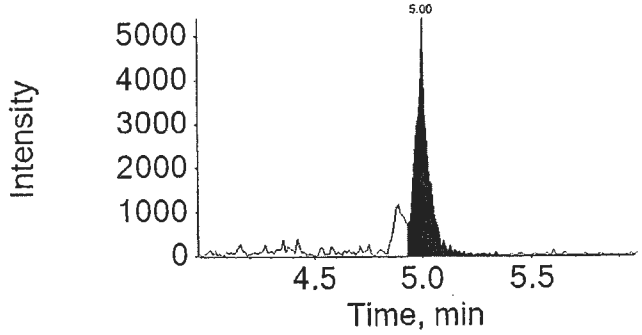
Print Date: 09/06/2017 5:15 PM

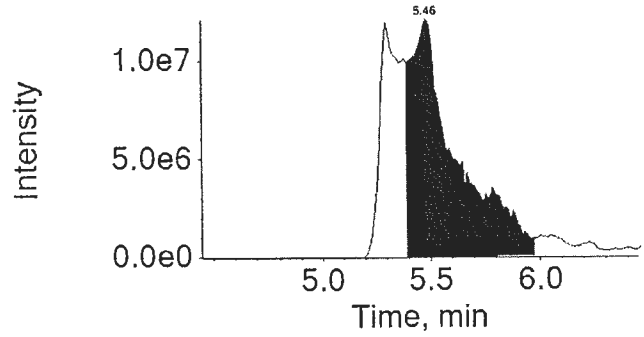
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP06-30.wiff	2016-09-06T16:51:57	8535031BKG	PFHxS	5.00	20766.2
16SEP06-30.wiff	2016-09-06T16:51:57	8535031BKG	PFOA	5.46	182473057.9
16SEP06-30.wiff	2016-09-06T16:51:57	8535031BKG	PFNA	5.87	2082400.4
16SEP06-30.wiff	2016-09-06T16:51:57	8535031BKG	PFOS	5.85	300879.7
16SEP06-30.wiff	2016-09-06T16:51:57	8535031BKG	PFUnDA	6.62	84627.7

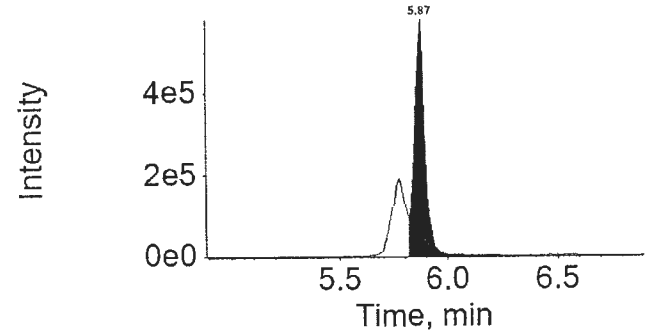
Component: PFHxS
Mass: 398.9 / 99.0



Component: PFOA
Mass: 412.9 / 368.9



Component: PFNA
Mass: 462.9 / 418.9



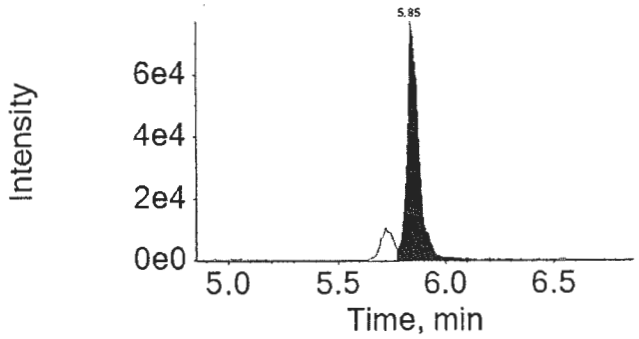
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:26 am, 6/13/17

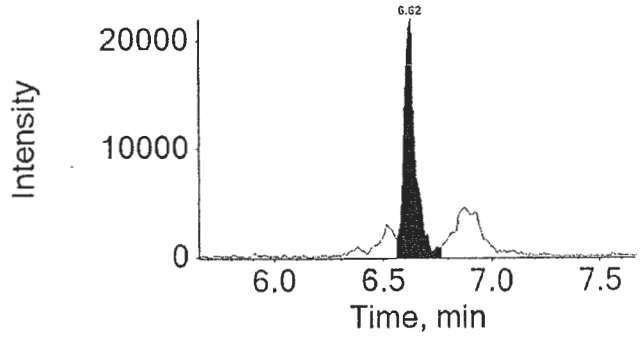
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFOS
Mass: 498.9 / 98.9



Component: PFUnDA
Mass: 562.9 / 518.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:26 am, 6/13/17

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL Instrument ID: 24743
Sample (wt): 5.18 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 3.6

Lab Sample ID: 8535031
Lab File ID: 16SEP14-25.WIFF
Date Collected: 08/17/2016 11:10
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/14/2016 14:54
Dilution Factor: 10.0

Concentration Units: ng/g Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	5.0	U
307-24-4	PFHxA	330	
375-85-9	PFHpA	1200	E
355-46-4	PFHxS	5.0	U
335-67-1	PFOA	230000	E
375-95-1	PFNA	48	
1763-23-1	PFOS	27	
335-76-2	PFDA	140	
2058-94-8	PFUnDA	6.6	
307-55-1	PFDoDA	4.6	
72629-94-8	PFTrDA	6.0	U
376-06-7	PFTeDA	3.0	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

Printed: 6/9/2017 5:25:00 PM

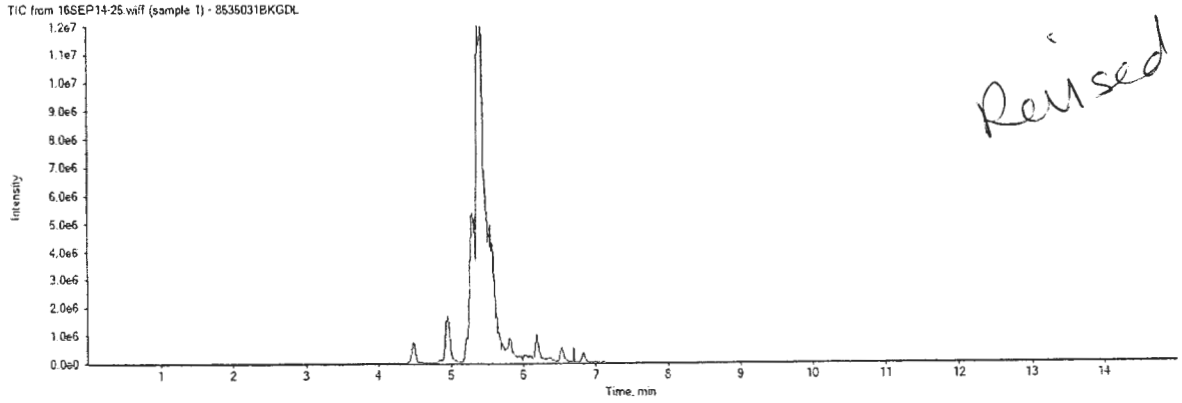
Sample Name:	8535031BKGDL			**Data File:**		16SEP14-25.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment			**Acquis Date:**		2016-09-14T14:54:49
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	78			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011DL
				ICAL Name:		16SEP13ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.180			**Dilution Factor:**		10.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	4.05	0.820	8036.7	A	18O2-PFHxS	4.94	194847.4	0.041	2.885
PFHxA	4.48	1.000	1988112.5	A	13C2-PFHxA	4.48	896480.7	2.218	313.844
PFHpA	4.95	1.000	7087592.0	A	13C4-PFHpA	4.95	505863.6	14.011	1153.479
PFHxS	4.94	1.000	5659.9	A	18O2-PFHxS	4.94	194847.4	0.029	2.291
PFOA	5.39	1.000	148081279.2	M	13C4-PFOA	5.38	53617.9	2761.786	224569.395
PFNA	5.81	1.000	651662.7	A	13C5-PFNA	5.81	1157269.7	0.563	46.428
PFOS	5.78	1.000	77113.0	M	13C4-PFOS	5.78	265544.8	0.290	26.421
PFDA	6.18	1.000	1819582.1	A	13C2-PFDA	6.18	883494.6	2.060	135.186
PFUnDA	6.52	1.000	98380.3	A	13C2-PFUnDA	6.52	1278660.0	0.077	6.343
PFDoDA	6.82	1.000	51096.2	A	13C2-PFDoDA	6.82	1023856.9	0.050	4.412
PFTrDA	7.10	1.040	21328.7	A	13C2-PFDoDA	6.82	1023856.9	0.021	1.860
PFTeDA	7.36	1.080	13446.2	A	13C2-PFDoDA	6.82	1023856.9	0.013	1.370

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment

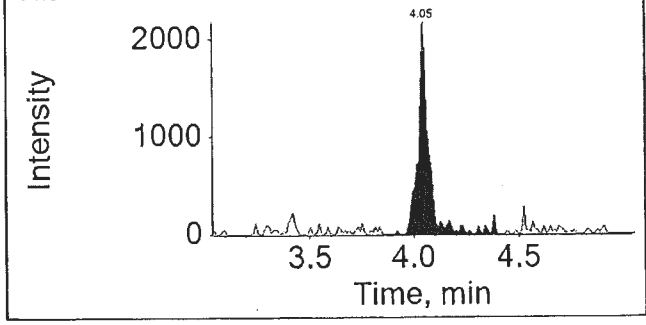


Revised

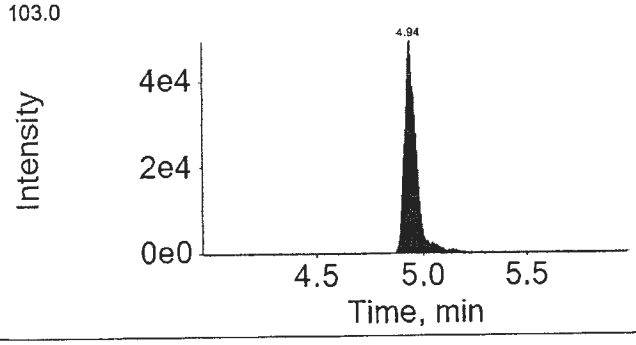
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:39 am, 6/13/17

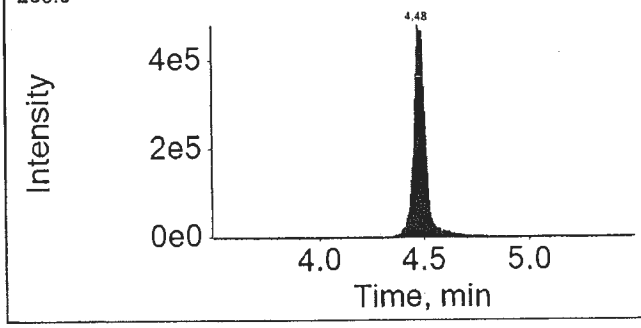
16SEP14-25.wiff
Analyte: PFBS
298.9 /
98.9



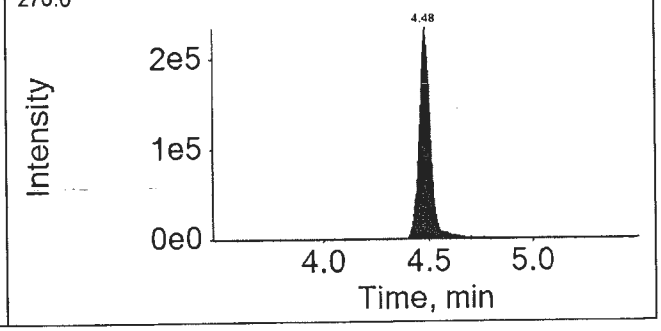
Internal Standard: 18O2-PFHxS
403.0 /
103.0



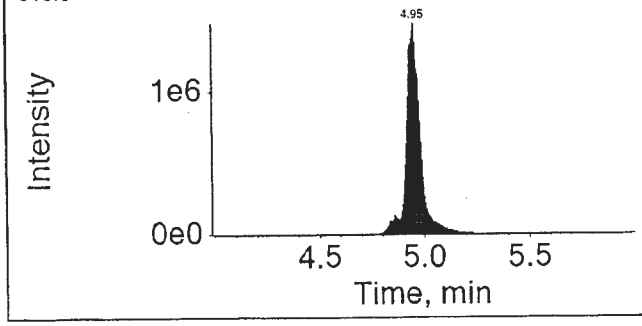
16SEP14-25.wiff
Analyte: PFHxA
312.9 /
269.0



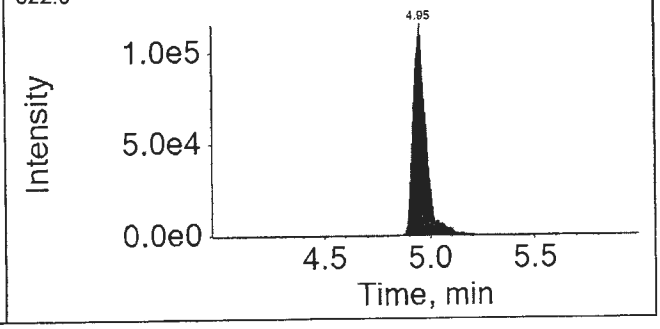
Internal Standard: 13C2-PFHxA
314.9 /
270.0



16SEP14-25.wiff
Analyte: PFHpA
362.9 /
318.9



Internal Standard: 13C4-PFHpA
367.0 /
322.0



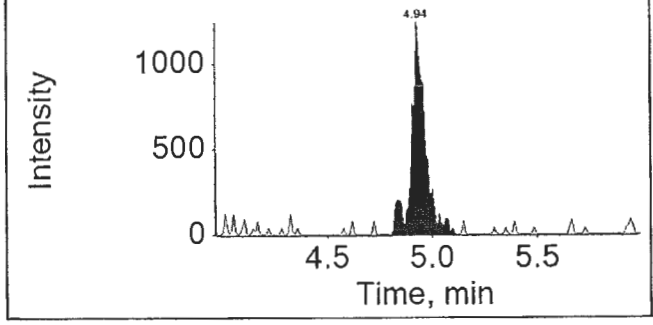
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:39 am, 6/13/17

16SEP14-25.wiff

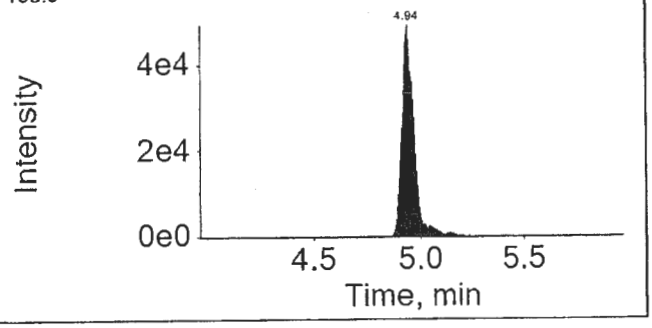
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

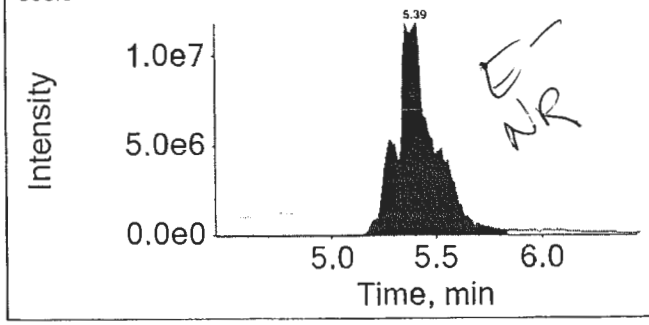
403.0 / 103.0



16SEP14-25.wiff

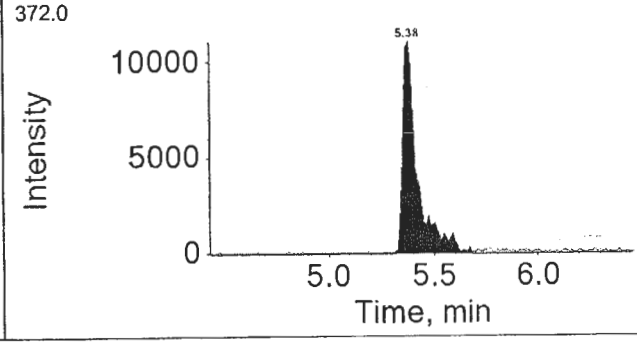
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

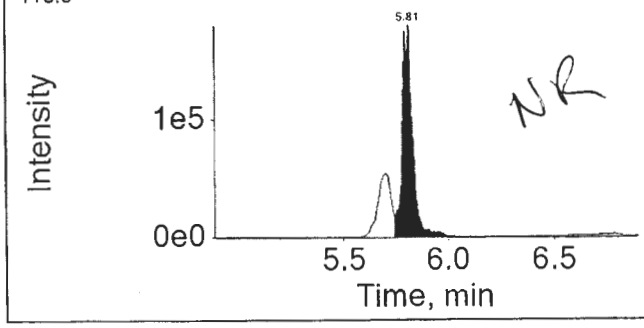
417.0 / 372.0



16SEP14-25.wiff

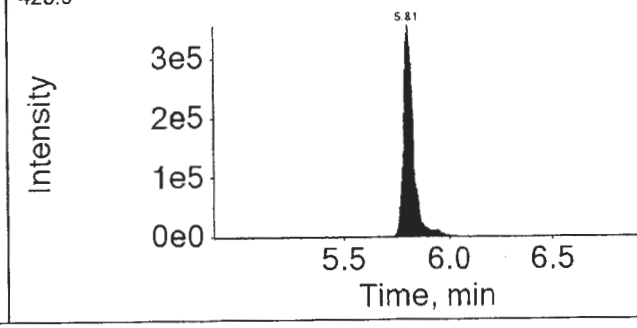
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



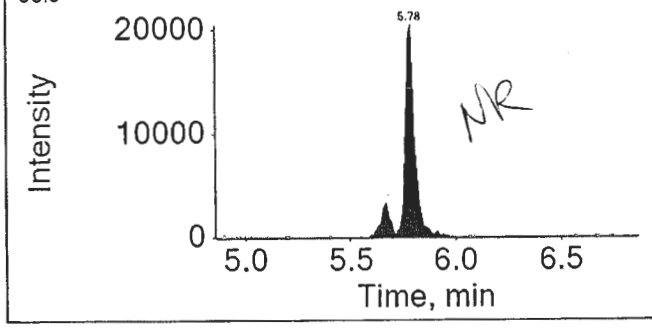
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:39 am, 6/13/17

16SEP14-25.wiff

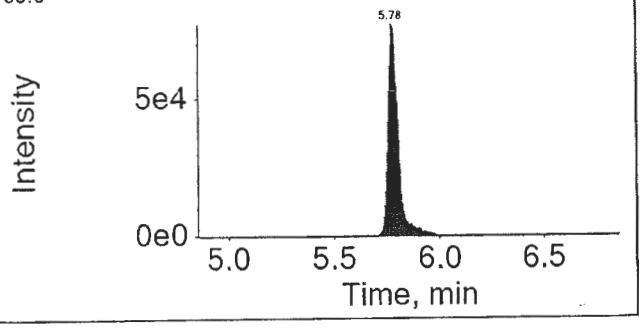
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

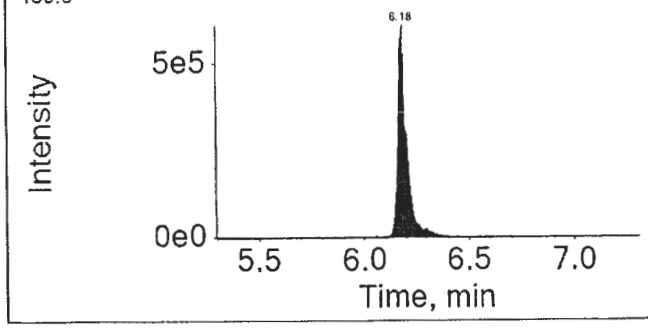
503.0 / 99.0



16SEP14-25.wiff

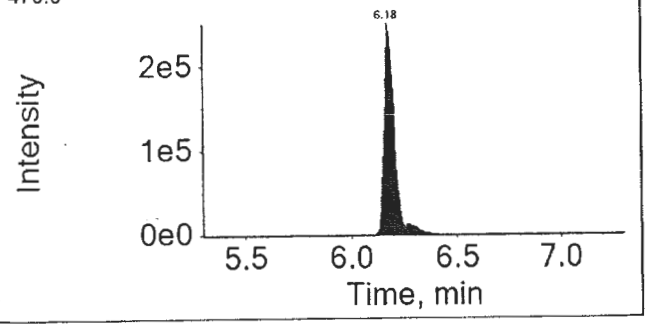
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

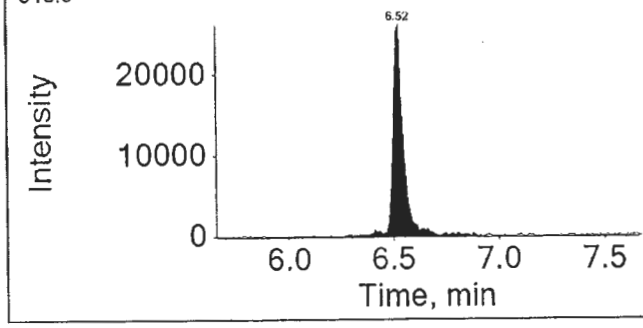
515.0 / 470.0



16SEP14-25.wiff

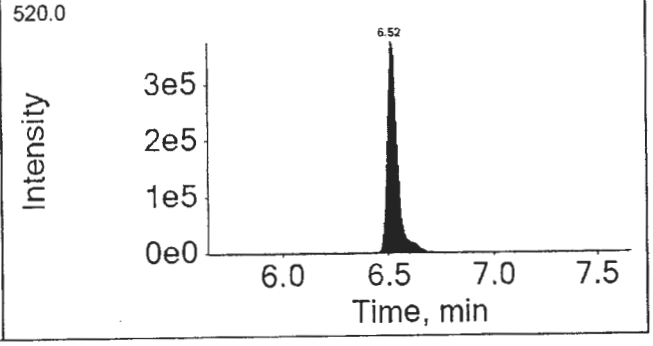
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



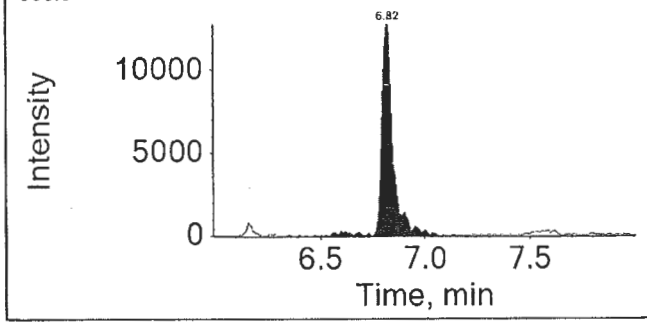
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:39 am, 6/13/17

16SEP14-25.wiff

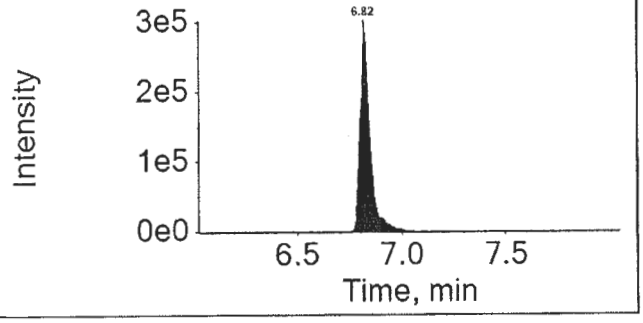
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

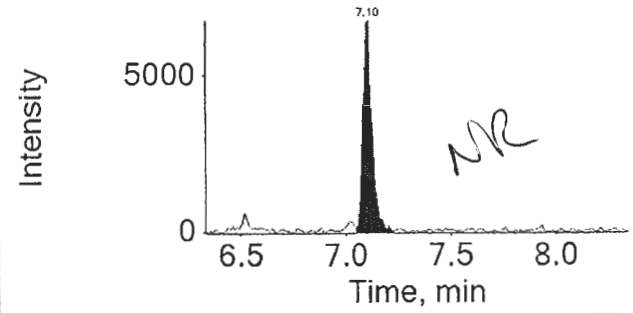
615.0 / 570.0



16SEP14-25.wiff

Analyte: PFTrDA

662.9 / 618.9



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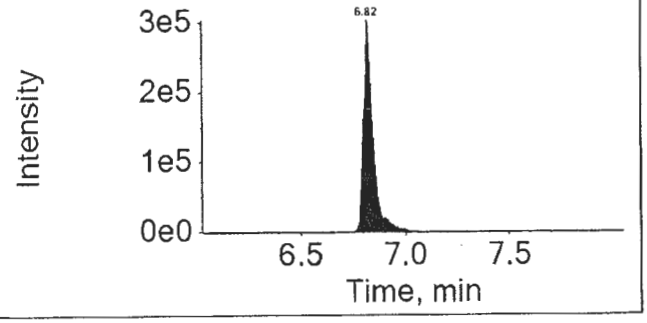
Internal Standard: 13C2-PFDoDA

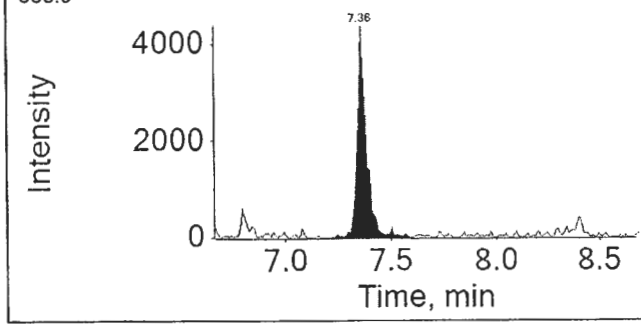
615.0 / 570.0



16SEP14-25.wiff

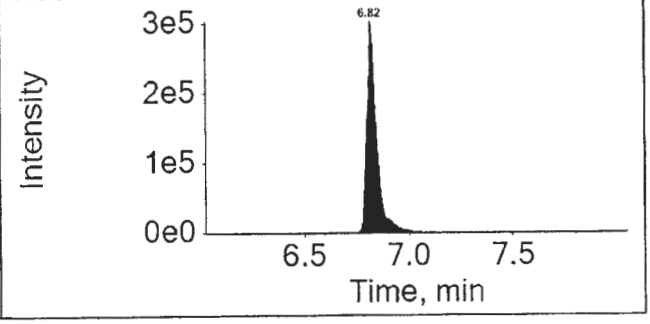
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:39 am, 6/13/17

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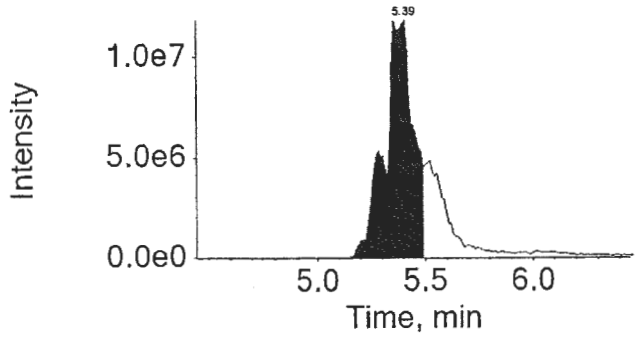
Print Date: 09/06/2017 5:28 PM

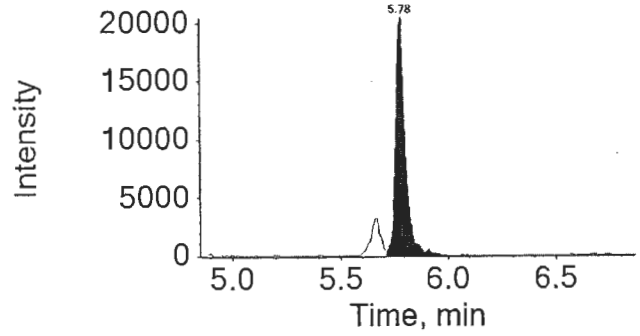
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-25.wiff	2016-09-14T14:54:49	8535031BKGDL	PFOA	5.39	113572213.3
16SEP14-25.wiff	2016-09-14T14:54:49	8535031BKGDL	PFOS	5.78	66668.1

Component: PFOA
Mass: 412.9 / 368.9



Component: PFOS
Mass: 498.9 / 98.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:35 am, 6/13/17

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL Instrument ID: 24743
Sample (wt): 5.18 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 3.6

Lab Sample ID: 8535031DL3
Lab File ID: 16SEP14-96.WIFF
Date Collected: 08/17/2016 11:10
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/15/2016 08:56
Dilution Factor: 1000.0

Concentration Units: ng/g Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	500	U
307-24-4	PFHxA	280	
375-85-9	PFHpA	1300	
355-46-4	PFHxS	500	U
335-67-1	PFOA	300000	E
375-95-1	PFNA	200	U
1763-23-1	PFOS	700	U
335-76-2	PFDA	200	U
2058-94-8	PFUnDA	300	U
307-55-1	PFDoDA	400	U
72629-94-8	PFTrDA	600	U
376-06-7	PFTeDA	300	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:27:00 PM

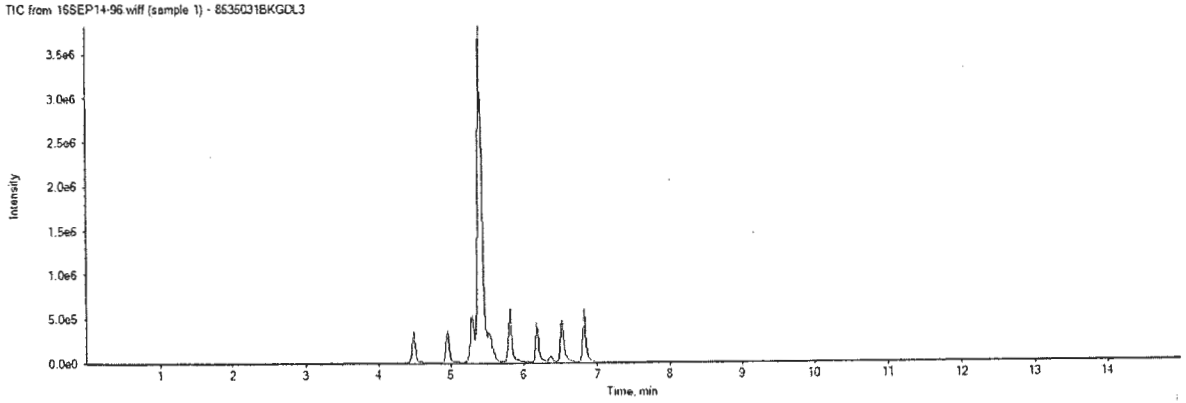
Sample Name:	8535031BKGDL3			**Data File:**		16SEP14-96.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment			**Acquis Date:**		2016-09-15T08:56:32
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	76			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011DL
				ICAL Name:		16SEP13ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.180			**Dilution Factor:**		1000.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	4.06	0.820	1094.6	A	18O2-PFHxS	4.95	320609.9	0.003	23.878
PFHxA	4.49	1.000	22069.2	A	13C2-PFHxA	4.48	1157051.1	0.019	269.928
PFHpA	4.95	1.000	118993.6	A	13C4-PFHpA	4.95	774362.4	0.154	1265.097
PFHxS	4.94	1.000	1594.7	A	18O2-PFHxS	4.95	320609.9	0.005	39.238
PFOA	5.40	1.000	18392476.6	M	13C4-PFOA	5.40	523961.7	35.103	285431.082
PFNA	5.80	1.000	11498.5	A	13C5-PFNA	5.81	1640949.9	0.007	57.775
PFOS	5.78	1.000	1313.4	A	13C4-PFOS	5.78	324049.4	0.004	36.875
PFDA	6.18	1.000	25923.5	A	13C2-PFDA	6.18	1346321.3	0.019	126.389
PFUnDA	6.52	1.000	7286.3	A	13C2-PFUnDA	6.51	1448794.0	0.005	41.460
PFDoDA	6.82	1.000	6441.7	A	13C2-PFDoDA	6.82	1836137.0	0.004	31.013
PFTrDA	7.09	1.040	3540.4	M	13C2-PFDoDA	6.82	1836137.0	0.002	17.218
PFTeDA	7.35	1.080	5253.4	A	13C2-PFDoDA	6.82	1836137.0	0.003	29.842

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment



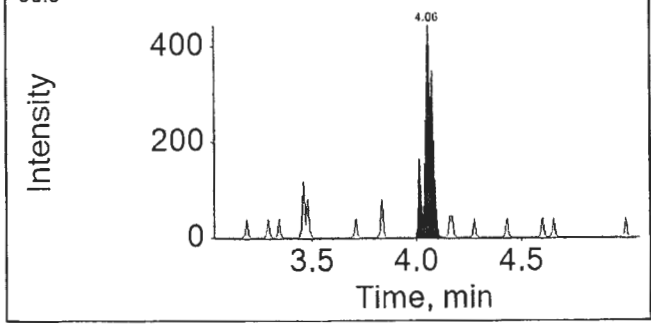
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:43 am, 6/13/17

16SEP14-96.wiff

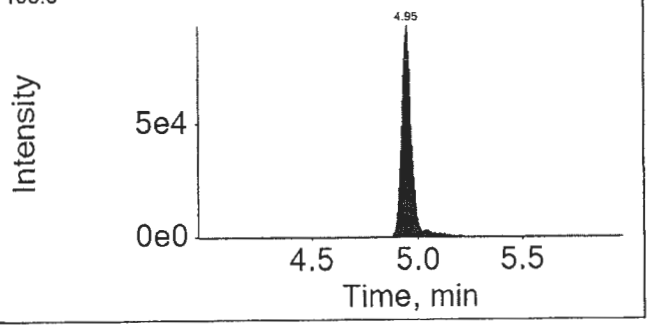
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

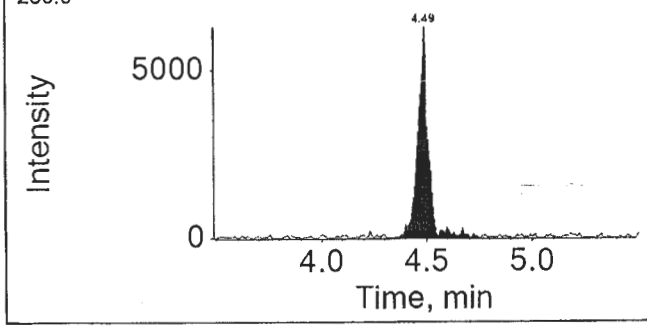
403.0 / 103.0



16SEP14-96.wiff

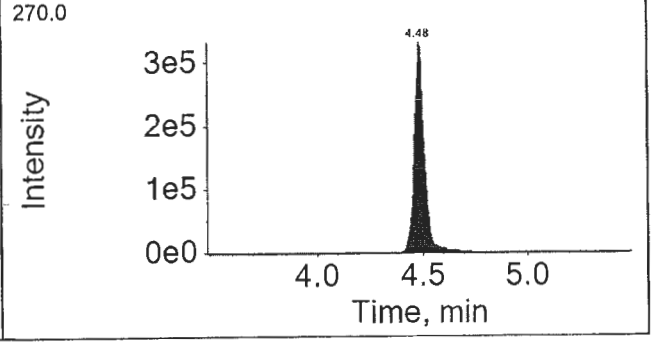
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

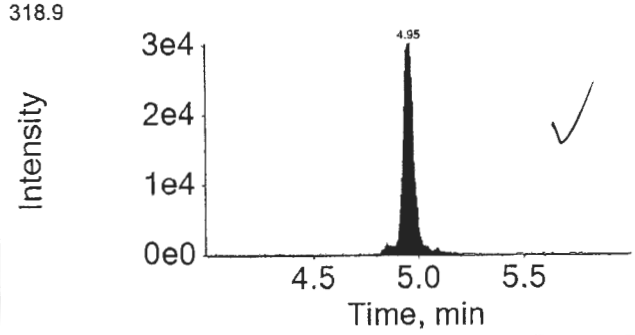
314.9 / 270.0



16SEP14-96.wiff

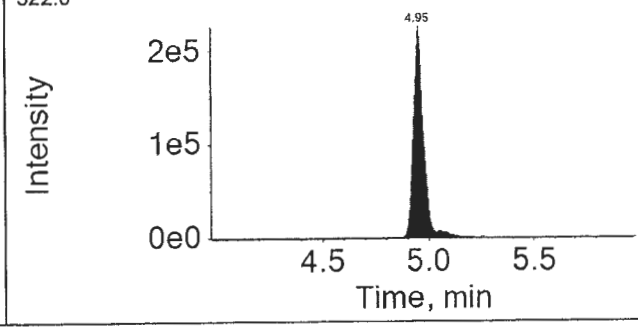
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



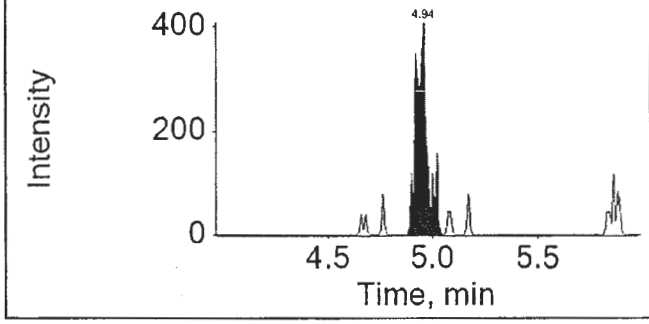
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:43 am, 6/13/17

16SEP14-96.wiff

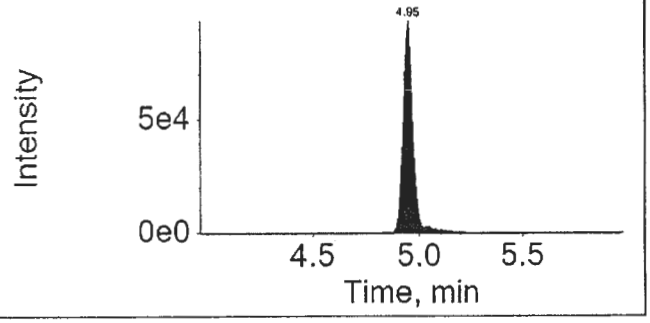
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

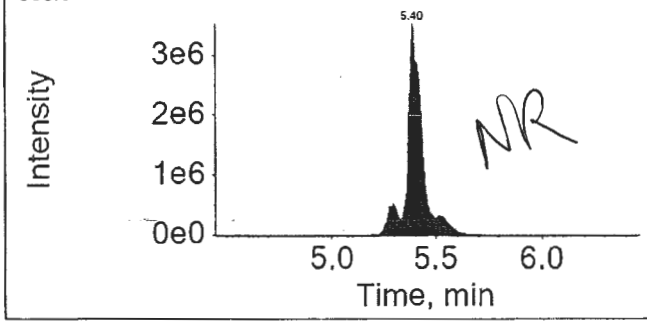
403.0 / 103.0



16SEP14-96.wiff

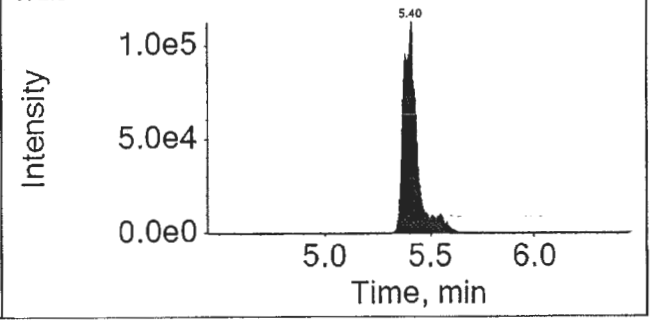
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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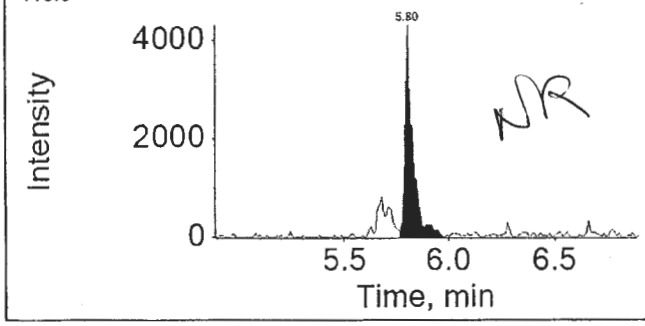
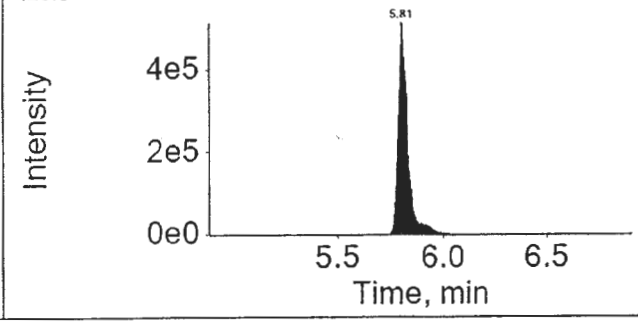
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



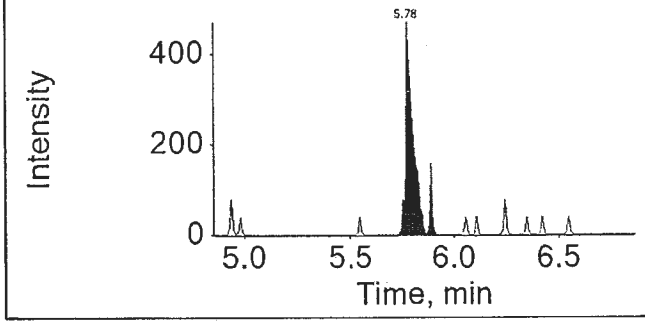
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:43 am, 6/13/17

16SEP14-96.wiff

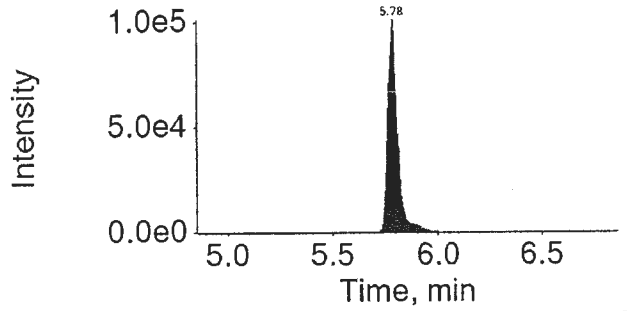
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

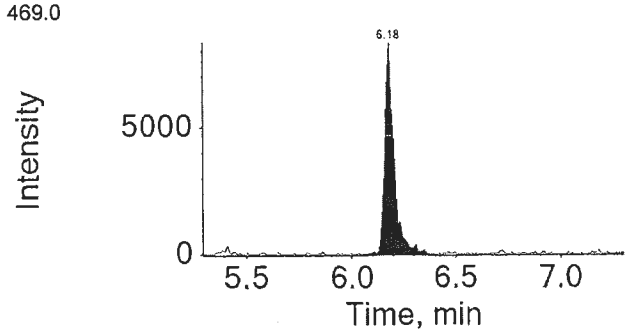
503.0 / 99.0



16SEP14-96.wiff

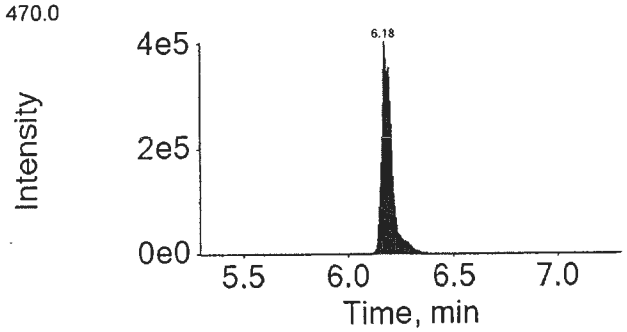
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

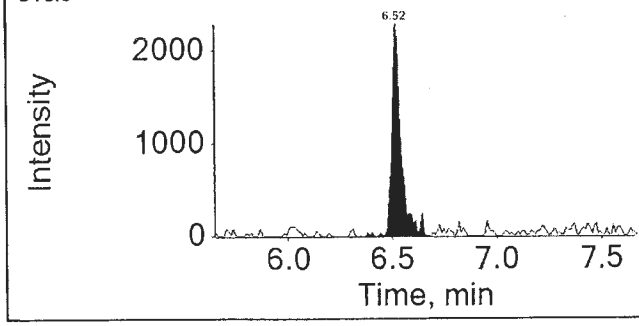
515.0 / 470.0



16SEP14-96.wiff

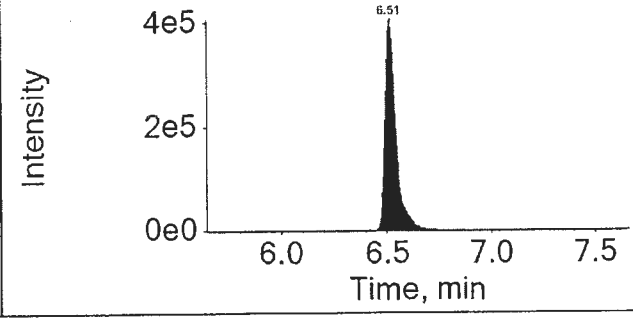
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

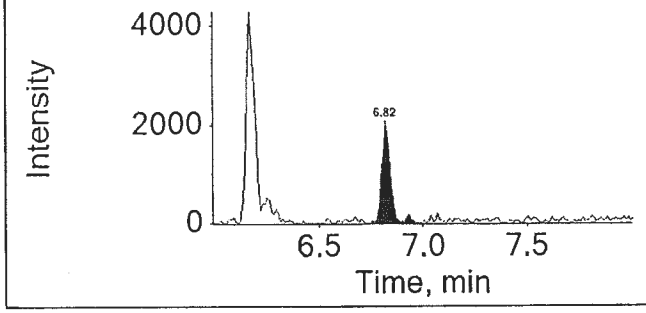
565.0 / 520.0



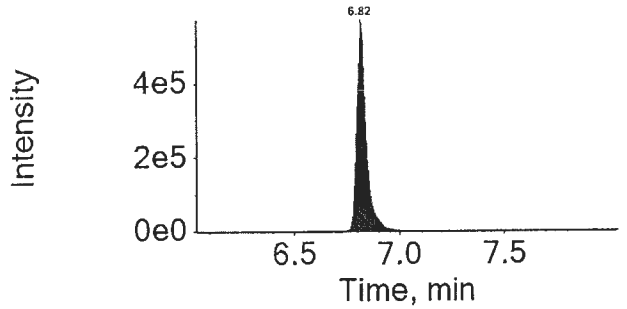
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:43 am, 6/13/17

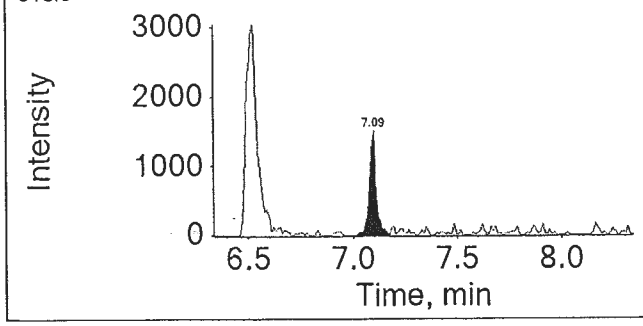
16SEP14-96.wiff
Analyte: PFDoDA
612.9 / 568.9



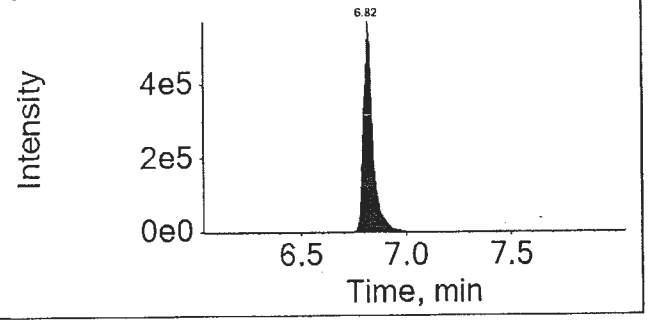
Internal Standard: 13C2-PFDoDA
615.0 / 570.0



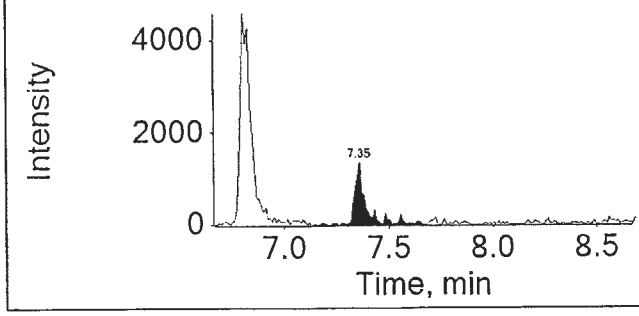
16SEP14-96.wiff
Analyte: PFTrDA
662.9 / 618.9



Internal Standard: 13C2-PFDoDA
615.0 / 570.0



16SEP14-96.wiff
Analyte: PFTeDA
712.9 / 668.9



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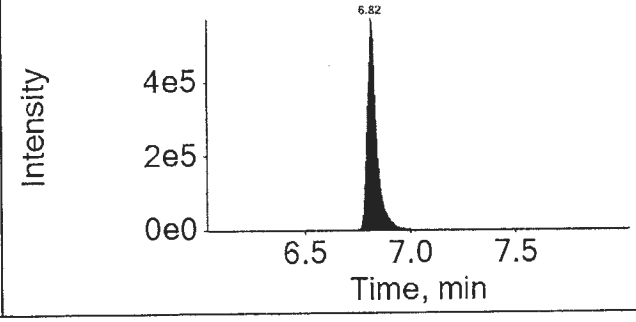
615.0 / 570.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:43 am, 6/13/17

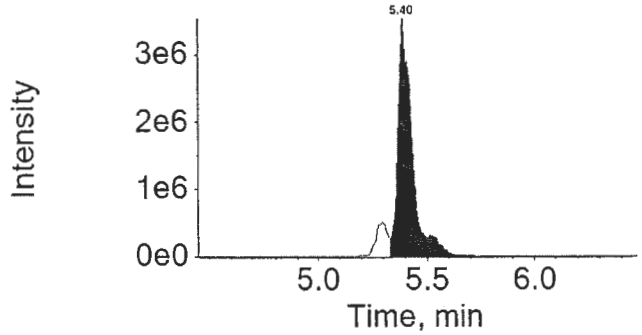
eurofins | Lancaster Laboratories

Print Date: 09/06/2017 5:28 PM

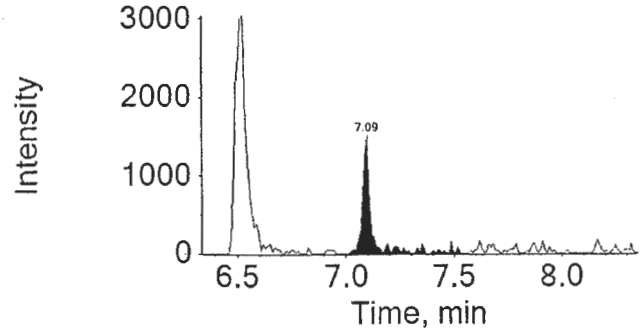
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-96.wiff	2016-09-15T08:56:32	8535031BKGDL3	PFOA	5.40	16586268.6
16SEP14-96.wiff	2016-09-15T08:56:32	8535031BKGDL3	PFTrDA	7.09	4471.8

Component: PFOA
Mass: 412.9 / 368.9



Component: PFTrDA
Mass: 662.9 / 618.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:36 am, 6/13/17

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL Instrument ID: 24743
Sample (wt): 5.18 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 3.6

Lab Sample ID: 8535031DL3
Lab File ID: 16SEP22-58.WIFF
Date Collected: 08/17/2016 11:10
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/23/2016 07:48
Dilution Factor: 10000.0

Concentration Units: ng/g Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	5000	U
307-24-4	PFHxA	2000	U
375-85-9	PFHpA	3000	U
355-46-4	PFHxS	5000	U
335-67-1	PFOA	300000	
375-95-1	PFNA	2000	U
1763-23-1	PFOS	7000	U
335-76-2	PFDA	2000	U
2058-94-8	PFUnDA	3000	U
307-55-1	PFDoDA	4000	U
72629-94-8	PFTrDA	6000	U
376-06-7	PFTeDA	3000	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:32:00 PM

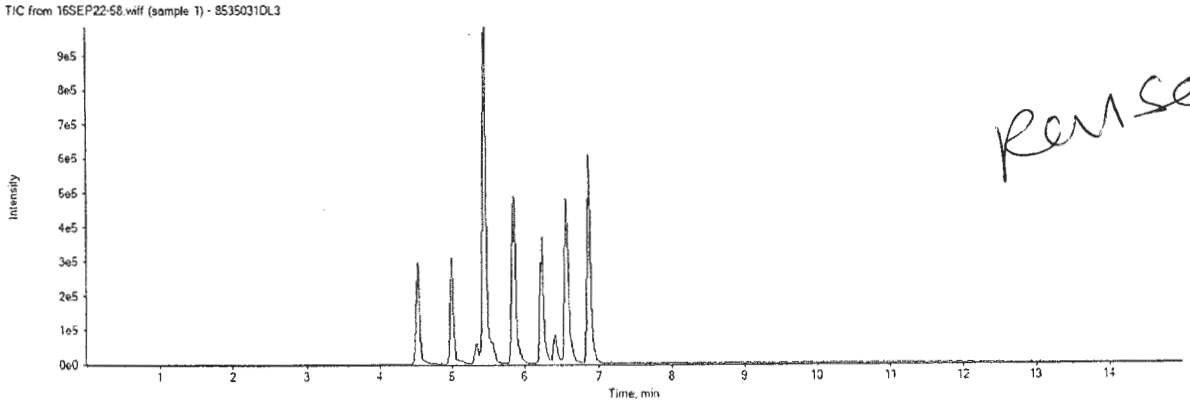
Sample Name:	8535031DL3			**Data File:**		16SEP22-58.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment			**Acquis Date:**		2016-09-23T07:48:35
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	50			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011DL3
				ICAL Name:		16SEP20ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.180			**Dilution Factor:**		10000.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.99	278025.9	N/A	N/A
PFHxA	4.53	1.000	3004.0	A	13C2-PFHxA	4.52	1017405.4	0.003	471.183
PFHpA	4.99	1.000	11723.0	A	13C4-PFHpA	4.99	770966.2	0.015	1205.626
PFHxS	4.98	1.000	969.3	A	18O2-PFHxS	4.99	278025.9	0.003	295.516
PFOA	5.44	1.000	3047327.4	M	13C4-PFOA	5.44	905180.3	3.367	286180.110
PFNA	5.85	1.000	1914.4	A	13C5-PFNA	5.85	1616934.0	0.001	108.856
PFOS	N/A	N/A	N/A	A	13C4-PFOS	5.83	287813.0	N/A	N/A
PFDA	6.21	1.000	3814.8	A	13C2-PFDA	6.23	1224605.0	0.003	215.119
PFUnDA	6.56	1.000	4909.2	A	13C2-PFUnDA	6.56	1436647.3	0.003	289.154
PFDoDA	6.87	1.000	4470.9	M	13C2-PFDoDA	6.86	1910106.9	0.002	210.755
PFTrDA	7.15	1.040	5877.4	A	13C2-PFDoDA	6.86	1910106.9	0.003	277.778
PFTeDA	7.40	1.080	5941.6	M	13C2-PFDoDA	6.86	1910106.9	0.003	347.610

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP02-160817 Grab Sediment



revised

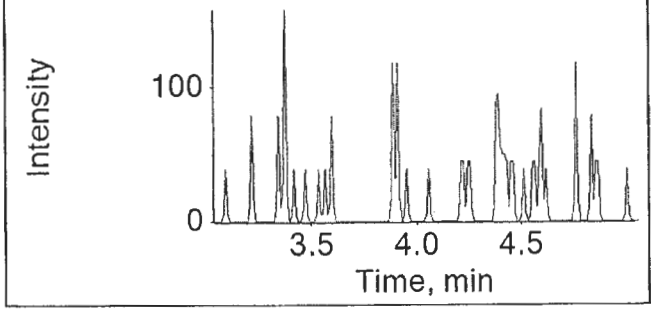
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:49 am, 6/13/17

16SEP22-58.wiff

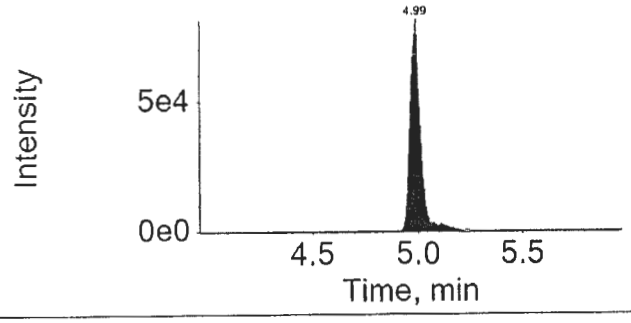
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

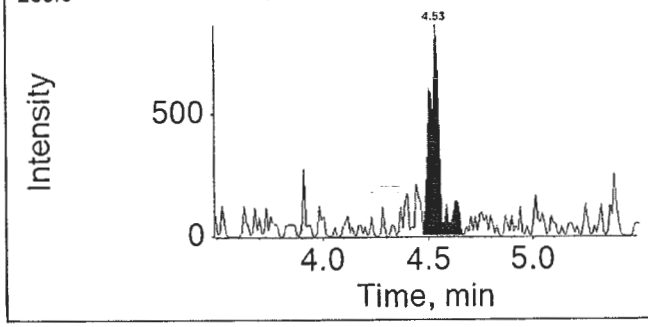
403.0 / 103.0



16SEP22-58.wiff

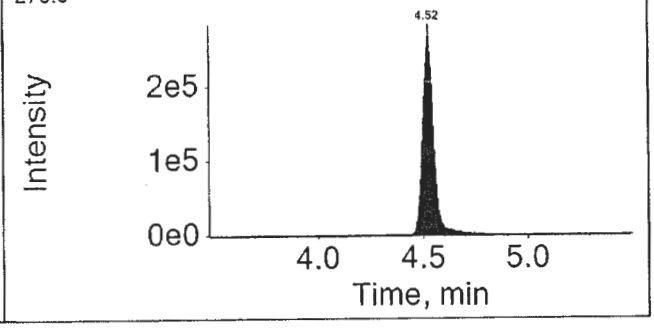
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

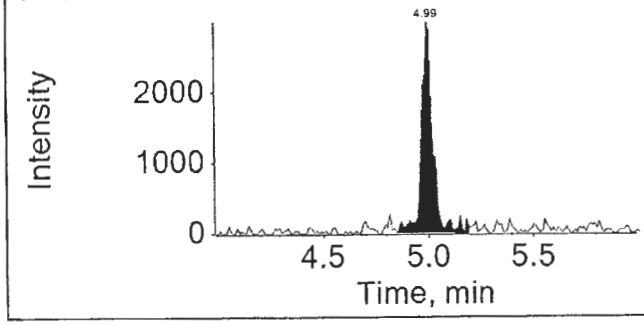
314.9 / 270.0



16SEP22-58.wiff

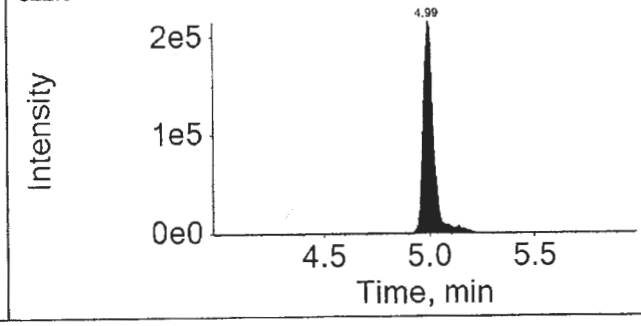
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



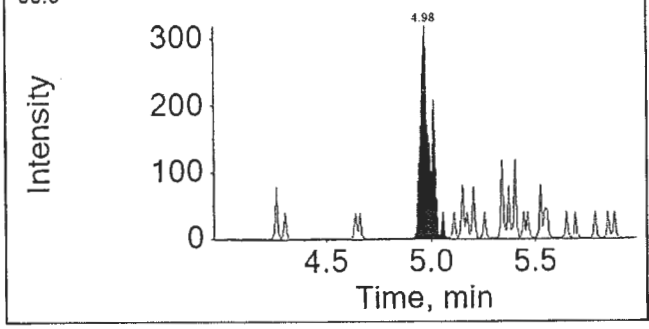
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:49 am, 6/13/17

16SEP22-58.wiff

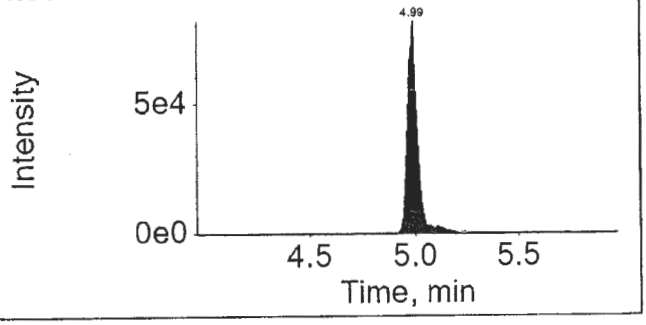
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

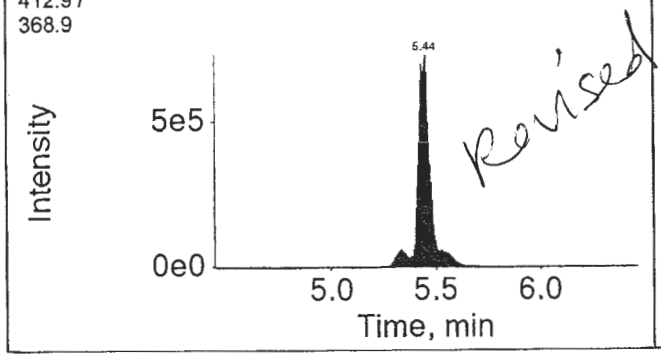
403.0 / 103.0



16SEP22-58.wiff

Analyte: PFOA

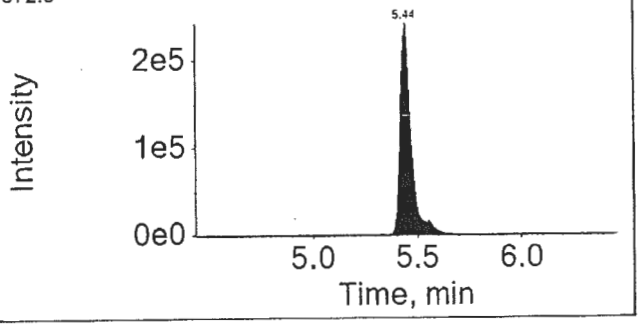
412.9 / 368.9



Revised

Internal Standard: 13C4-PFOA

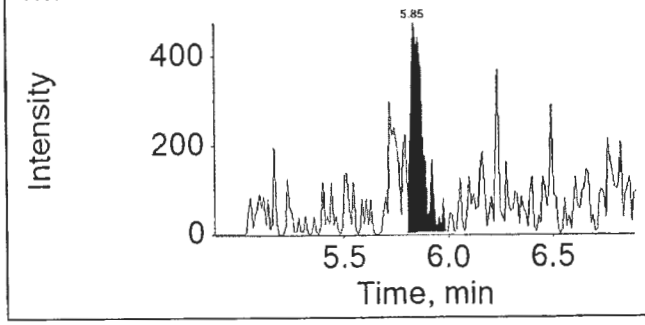
417.0 / 372.0



16SEP22-58.wiff

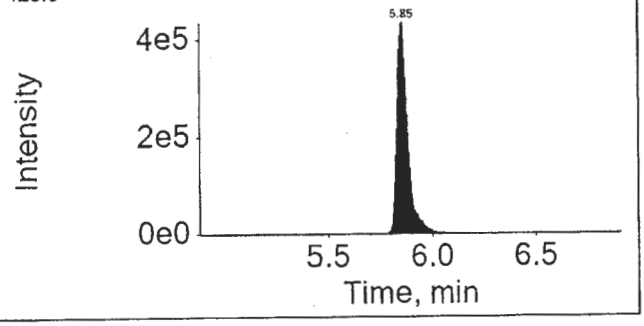
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



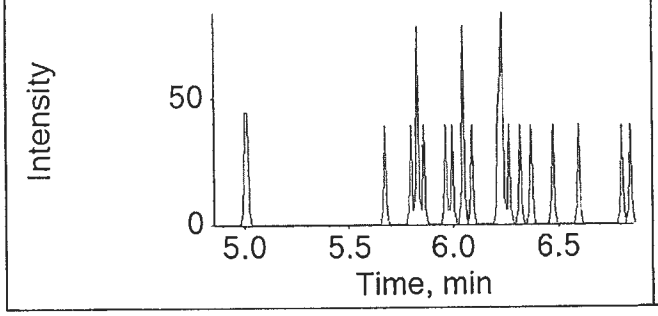
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:49 am, 6/13/17

16SEP22-58.wiff

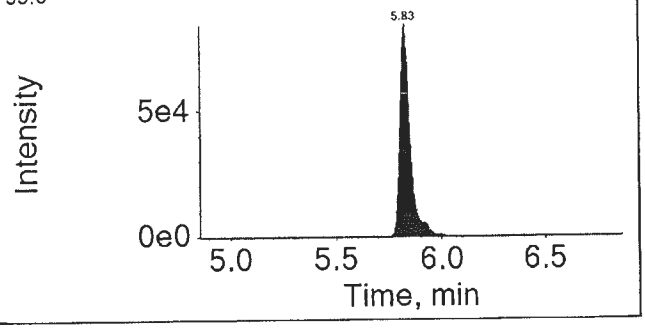
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

503.0 / 99.0



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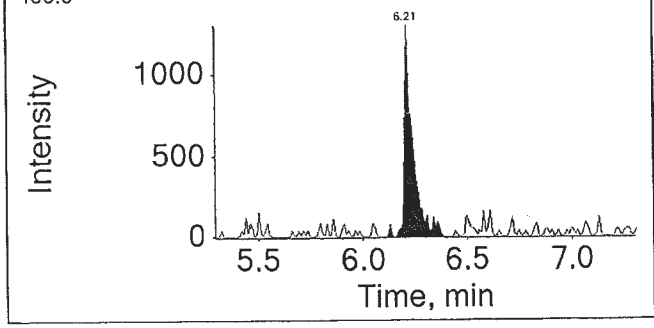
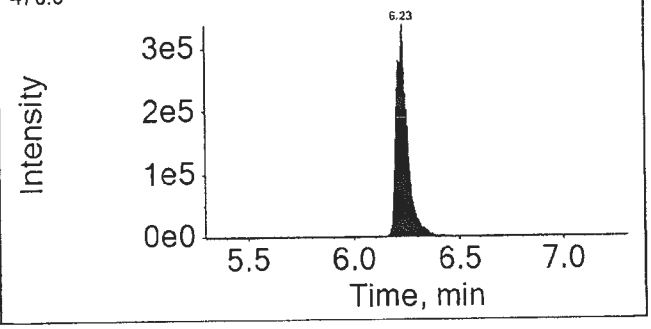
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

515.0 / 470.0



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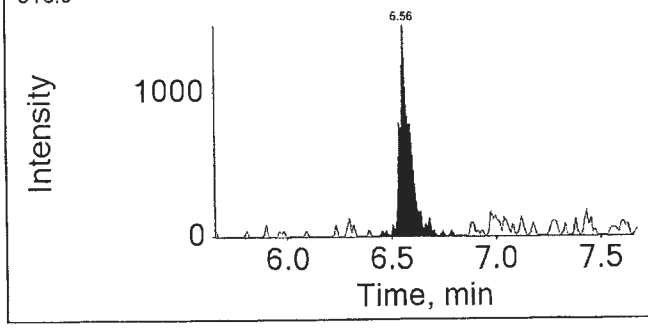
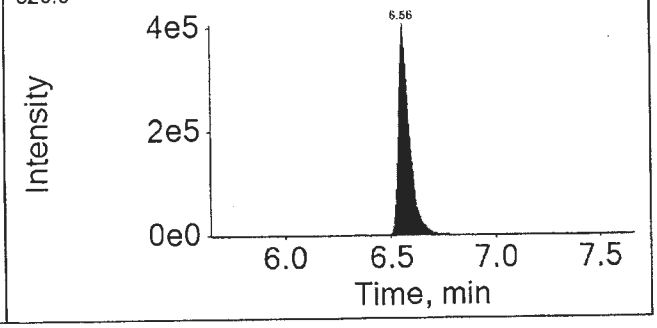
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



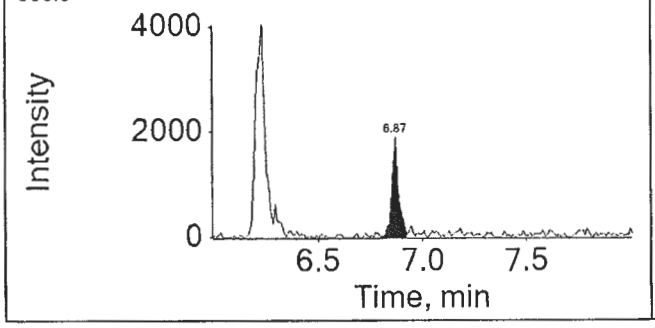
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:49 am, 6/13/17

16SEP22-58.wiff

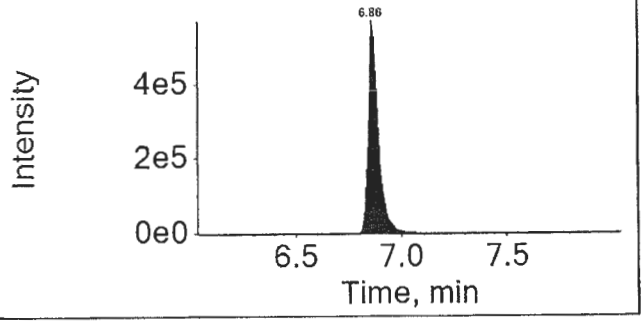
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

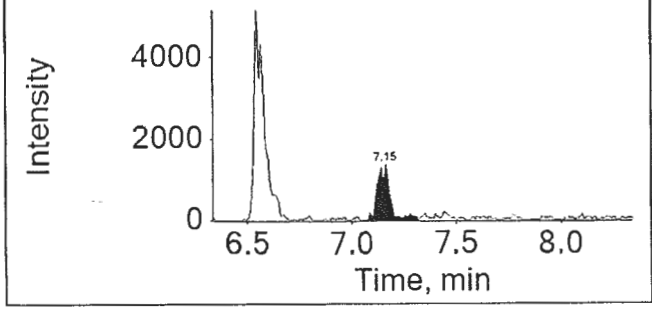
615.0 / 570.0



16SEP22-58.wiff

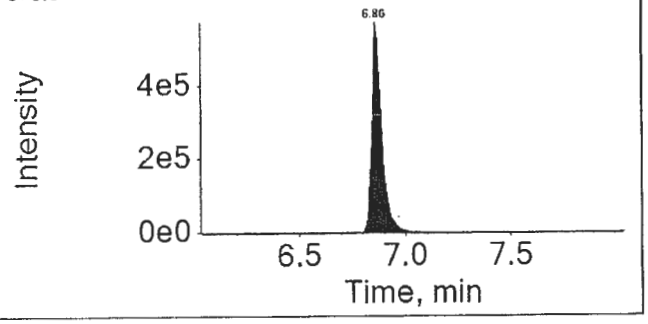
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

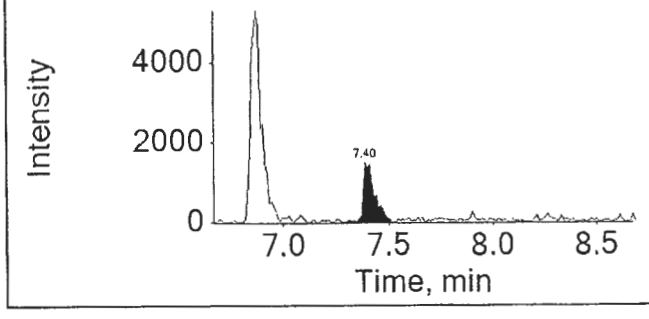
615.0 / 570.0



16SEP22-58.wiff

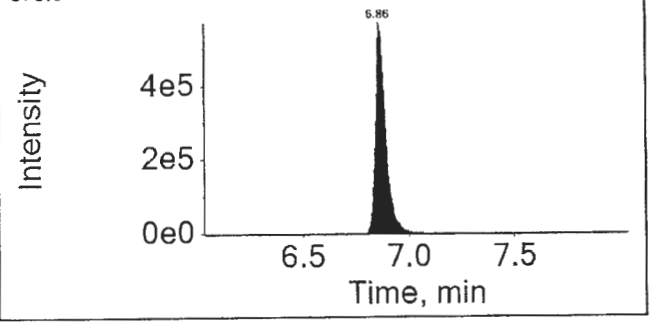
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:49 am, 6/13/17

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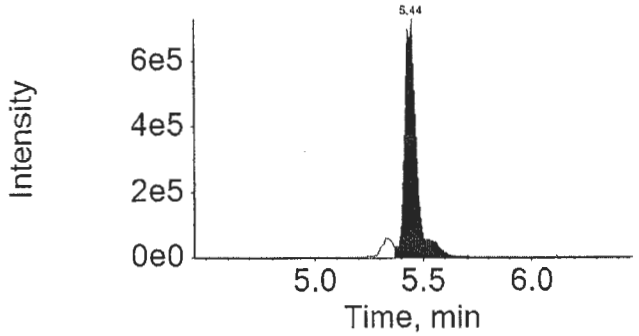
Print Date: 09/06/2017 5:33 PM

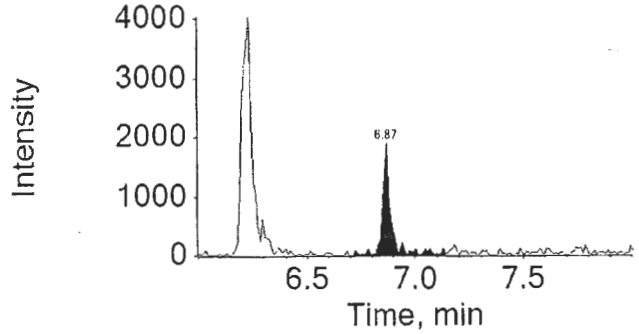
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP22-58.wiff	2016-09-23T07:48:35	8535031DL3	PFOA	5.44	2847883.0
16SEP22-58.wiff	2016-09-23T07:48:35	8535031DL3	PFDoDA	6.87	5655.8
16SEP22-58.wiff	2016-09-23T07:48:35	8535031DL3	PFTeDA	7.40	7002.9

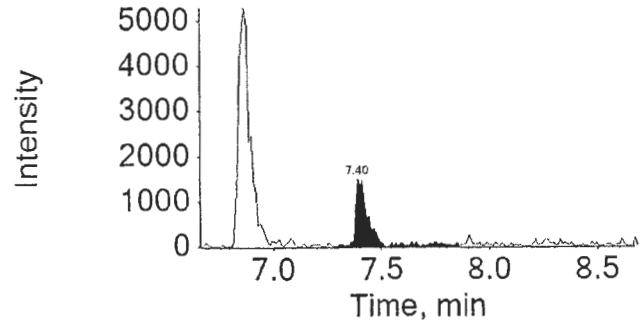
Component: PFOA
Mass: 412.9 / 368.9



Component: PFDoDA
Mass: 612.9 / 568.9



Component: PFTeDA
Mass: 712.9 / 668.9



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:48 am, 6/13/17

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Analysis Report

REVISED

Sample Description: SG3-EB01-160817 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8535034
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/17/2016 11:15 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

EB117 SDG#: SPP17-21EB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1
10954	**Perfluorooctanoic acid**	335-67-1	110		1	2	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1

ORIGINAL

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 08:34	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 9/14/2016 1:00:00 PM

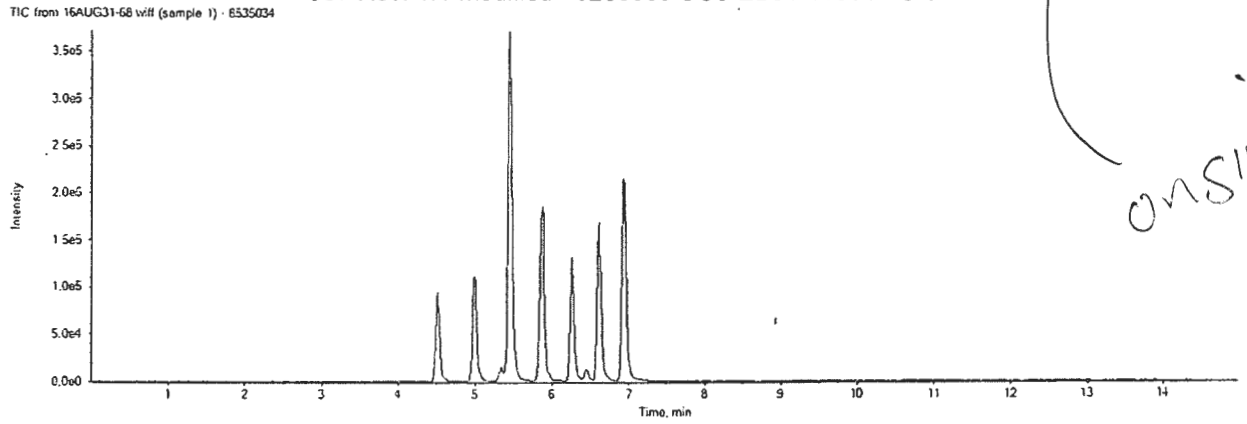
Sample Name:	8535034		**Data File:**		16AUG31-68.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-EB01-160817 Grab Blank Water		**Acquis Date:**		2016-09-01T08:34:08
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	68		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09974		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.98	158113.2	N/A	N/A	ng/L
PFHxA	4.49	1781.1	A	13C2-PFHxA	4.51	335394.7	0.005	0.507	ng/L
PFHpA	4.99	4270.1	M	13C4-PFHpA	4.99	275336.8	0.016	0.615	ng/L
PFHxS	5.00	1031.9	A	18O2-PFHxS	4.98	158113.2	0.007	0.298	ng/L
PFOA	5.45	994323.3	A	13C4-PFOA	5.45	390511.8	2.546	12.270	ng/L
PFNA	N/A	N/A	A	13C5-PFNA	5.87	605329.9	N/A	N/A	ng/L
PFOS	5.86	250.2	A	13C4-PFOS	5.84	171087.5	0.001	0.071	ng/L
PFDA	6.26	3064.8	A	13C2-PFDA	6.26	467453.5	0.007	0.263	ng/L
PFUnDA	6.61	1247.7	M	13C2-PFUnDA	6.61	615322.5	0.002	0.098	ng/L
PFDoDA	6.94	1047.5	A	13C2-PFDoDA	6.93	877444.0	0.001	0.061	ng/L
PFTrDA	7.24	1250.6	A	13C2-PFDoDA	6.93	877444.0	0.001	0.071	ng/L
PFTeDA	7.53	1907.6	A	13C2-PFDoDA	6.93	877444.0	0.002	0.113	ng/L

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-EB01-160817 Grab Blank Water

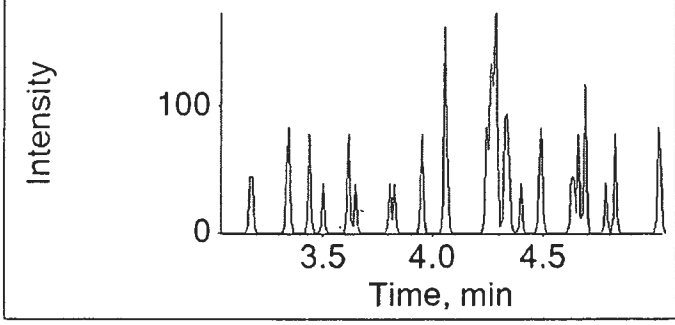


ORIGINAL

16AUG31-68.wiff

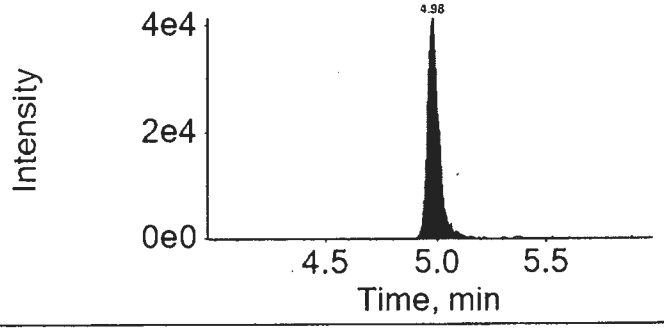
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

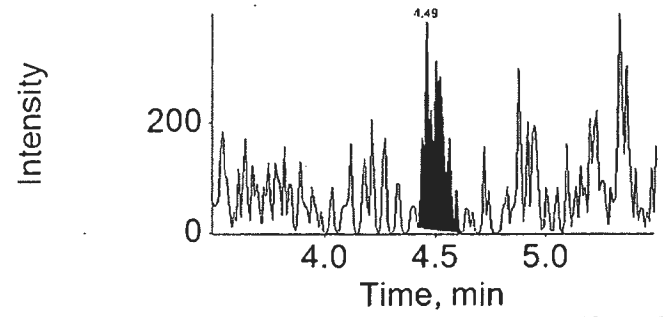
403.0 / 103.0



16AUG31-68.wiff

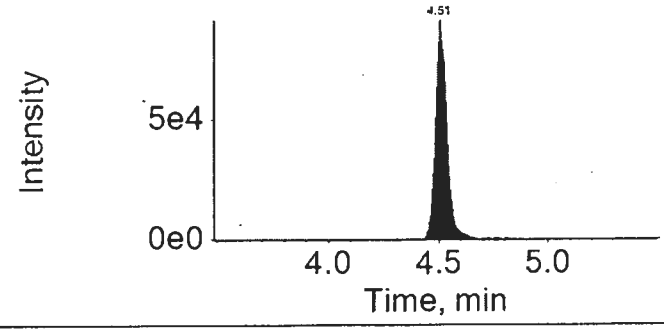
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

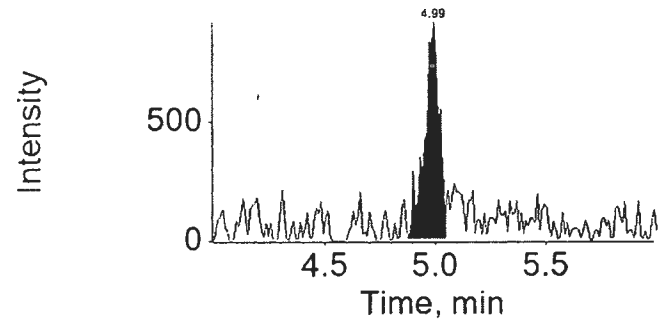
314.9 / 270.0



16AUG31-68.wiff

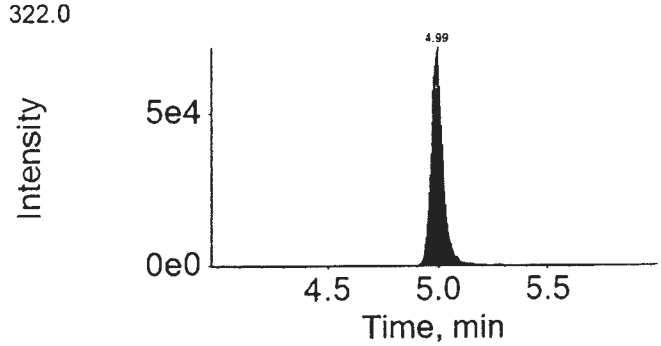
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

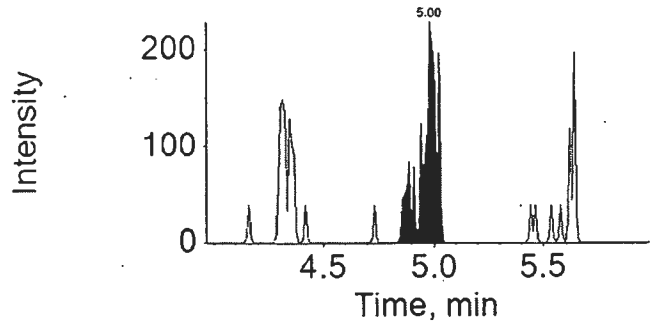
367.0 / 322.0



16AUG31-68.wiff

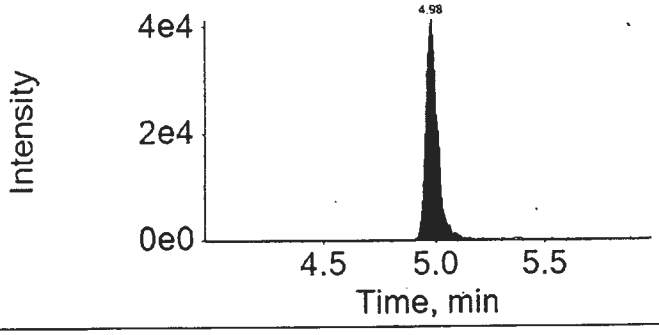
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

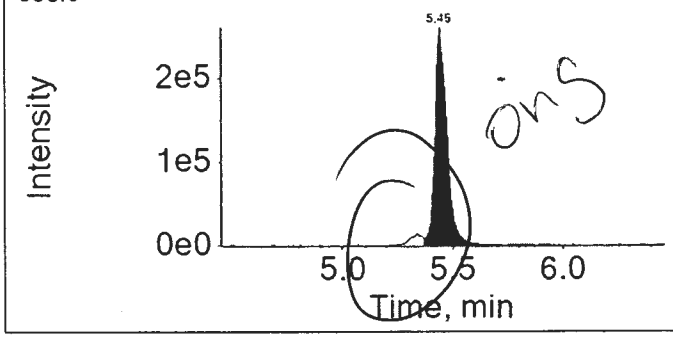
403.0 / 103.0



16AUG31-68.wiff

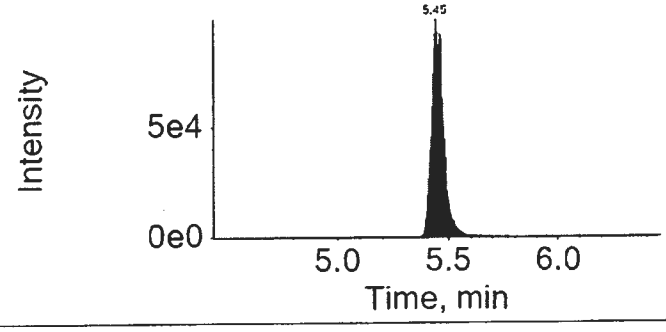
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

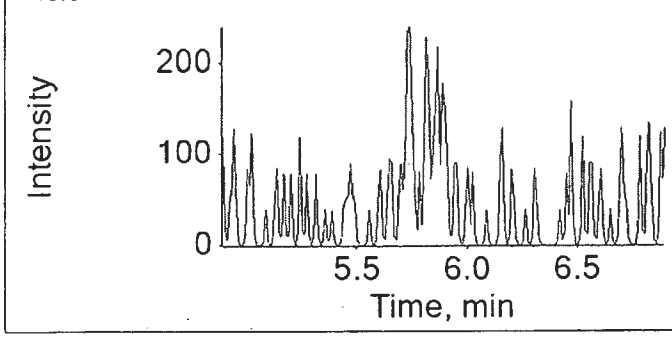
417.0 / 372.0



16AUG31-68.wiff

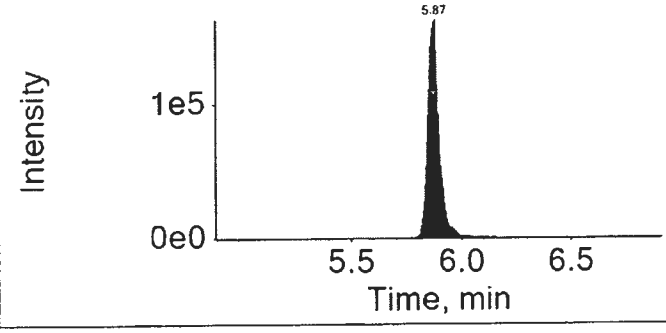
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

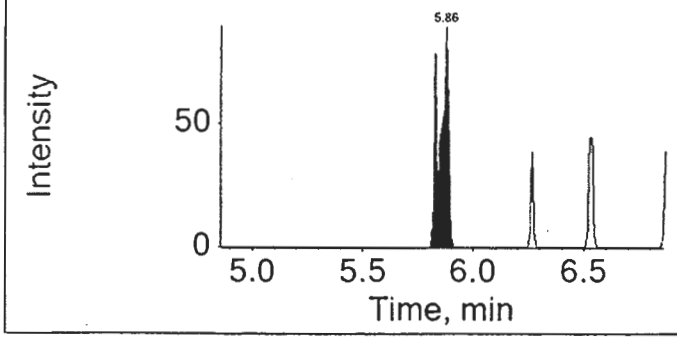
468.0 / 423.0



16AUG31-68.wiff

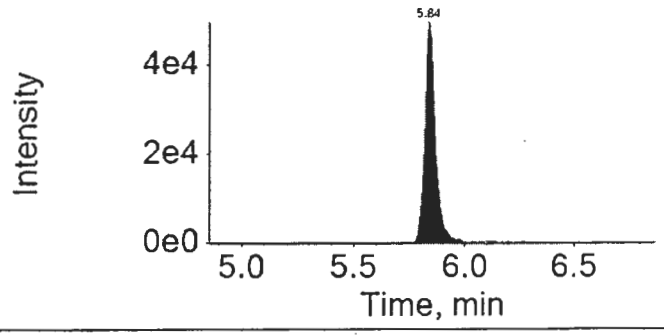
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

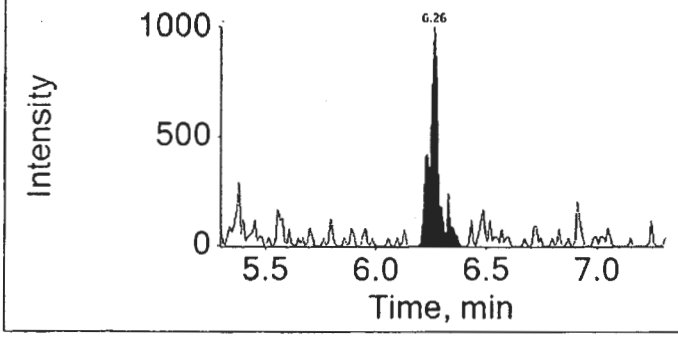
503.0 / 99.0



16AUG31-68.wiff

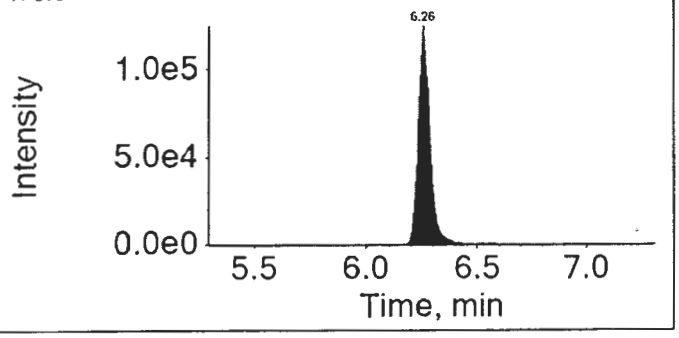
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

515.0 / 470.0



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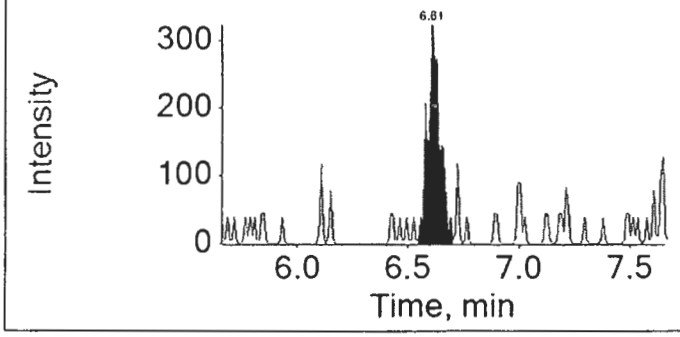
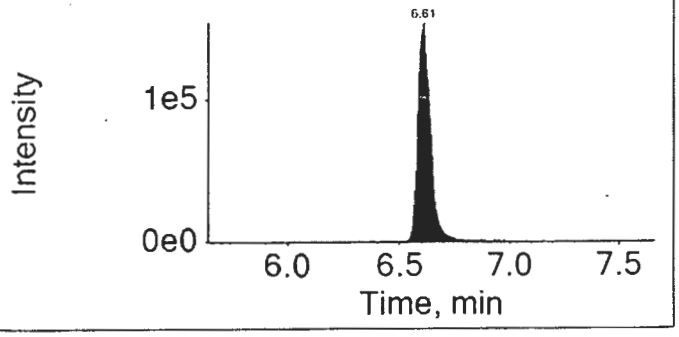
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

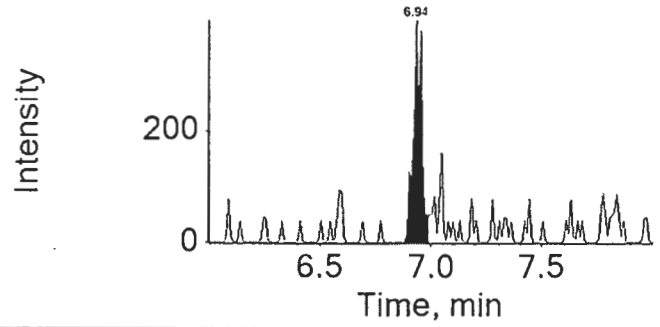
565.0 / 520.0



16AUG31-68.wiff

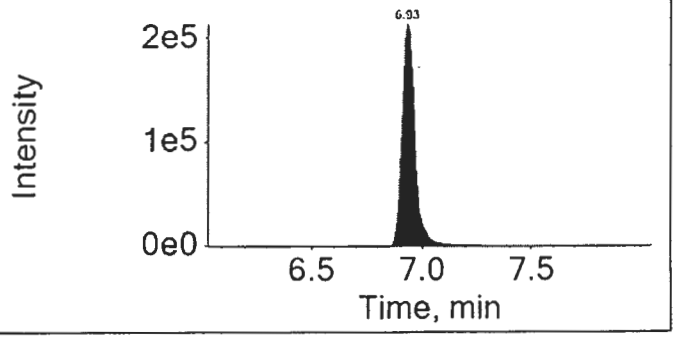
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

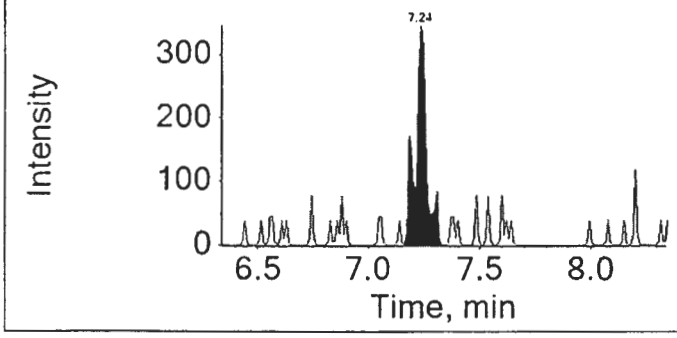
615.0 / 570.0



16AUG31-68.wiff

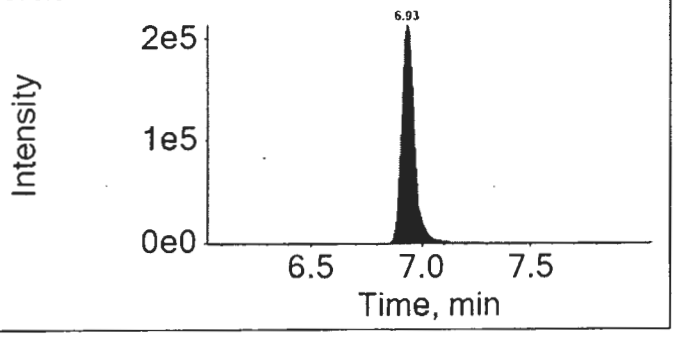
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

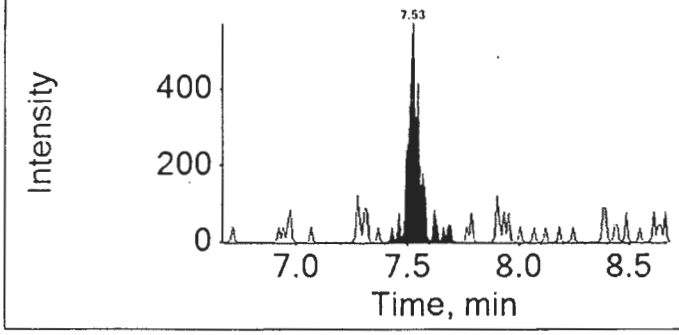
615.0 / 570.0



16AUG31-68.wiff

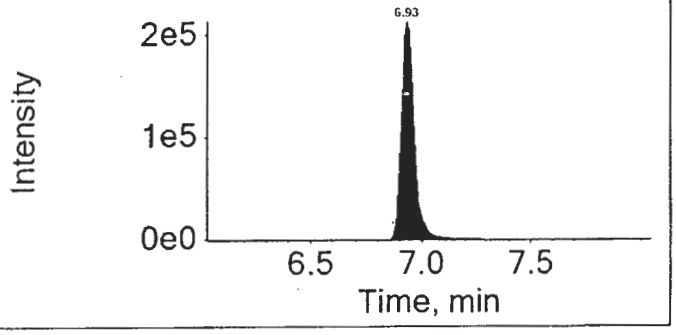
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 1 3 2016

mep 7824 9/14/16

Lynn Dodd
Principal Specialist

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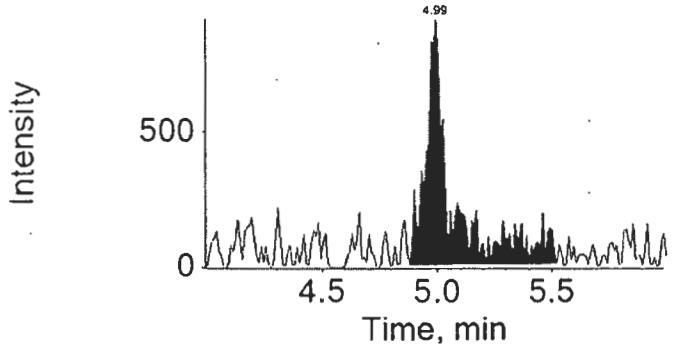
Print Date: 14/09/2016 1:01 PM

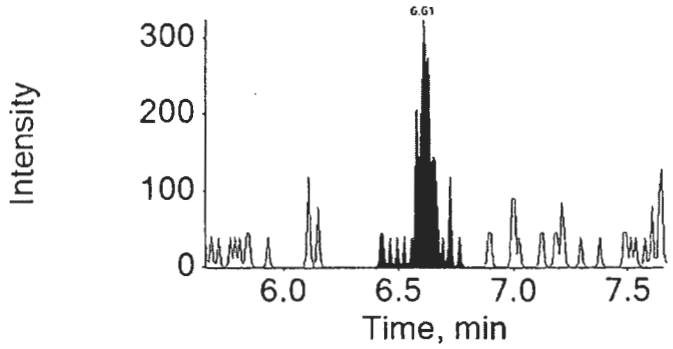
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-68.wiff	2016-09-01T08:34:08	8535034	PFHpA	4.99	7174.4
16AUG31-68.wiff	2016-09-01T08:34:08	8535034	PFUnDA	6.61	1532.3

Component: PFHpA
Mass: 362.9 / 318.9



Component: PFUnDA
Mass: 562.9 / 518.9



Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

MCD 7824
9/14/16

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Analysis Report

REVISED

Sample Description: SG3-EB01-160817 Grab Blank Water
SGPP - Bennington

LL Sample # WW 8535034
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/17/2016 11:15 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

EB117 SDG#: SPP17-21EB

Revised

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/l		ng/l	ng/l	
10954	**Perfluorooctanoic acid**	335-67-1	120		1	2	1
10954	Perfluorononanoic acid	375-95-1	1	U	1	2	1
10954	Perfluorodecanoic acid	335-76-2	1	U	1	2	1
10954	Perfluoroundecanoic acid	2058-94-8	2	U	2	4	1
10954	Perfluorododecanoic acid	307-55-1	3	U	3	5	1
10954	Perfluorotridecanoic acid	72629-94-8	2	U	2	4	1
10954	Perfluorotetradecanoic acid	376-06-7	3	U	3	5	1
10954	Perfluorohexanoic acid	307-24-4	1	U	1	2	1
10954	Perfluoroheptanoic acid	375-85-9	1	U	1	2	1
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	10	1
10954	Perfluorohexanesulfonate	355-46-4	4	U	4	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	5	U	5	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16236005	09/01/2016 08:34	Marissa C Drexinger	1
14091	PFAA Water Prep	EPA 537 Rev. 1.1 modified	1	16236005	08/24/2016 10:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: WATER Instrument ID: 24743
Sample (vol): 0.0997 (L)
Sample Prep: SPE
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: N/A

Lab Sample ID: 8535034
Lab File ID: 16AUG31-68.WIFF
Date Collected: 08/17/2016 11:15
Date Extracted: 08/24/2016 10:55
Date Analyzed: 09/01/2016 08:34
Dilution Factor: 1.0

Concentration Units: ng/L Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4	U
307-24-4	PFHxA	1	U
375-85-9	PFHpA	1	U
355-46-4	PFHxS	4	U
335-67-1	PFOA	120	
375-95-1	PFNA	1	U
1763-23-1	PFOS	5	U
335-76-2	PFDA	1	U
2058-94-8	PFUnDA	2	U
307-55-1	PFDoDA	3	U
72629-94-8	PFTrDA	2	U
376-06-7	PFTeDA	3	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

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LC-MS/MS Analysis Report

Printed: 6/9/2017 4:52:00 PM

Sample Name:	8535034			**Data File:**		16AUG31-68.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16236005 SG3-EB01-160817 Grab Blank Water			**Acquis Date:**		2016-09-01T08:34:08
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	68			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16236005
				ICAL Name:		16AUG26ICAL
Batch Number:	16236005			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.09974			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		1.000

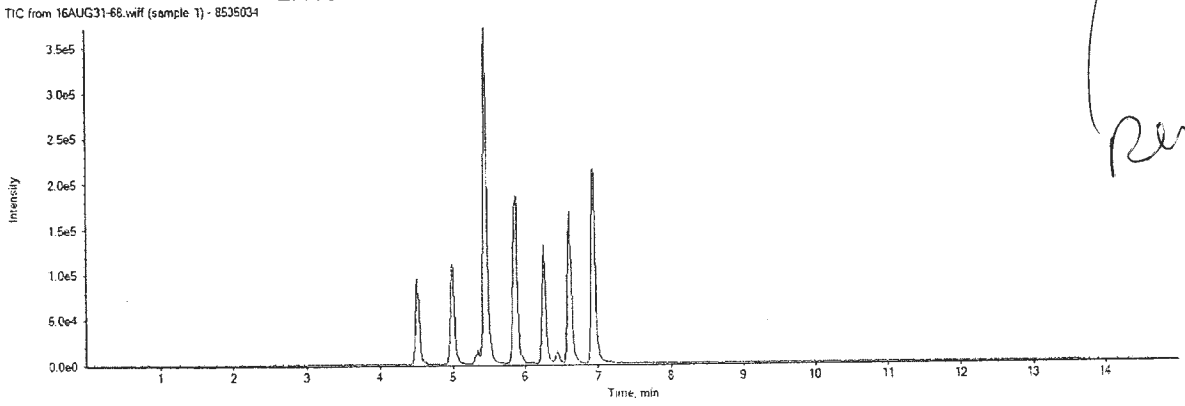
Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/L)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.98	158113.2	N/A	N/A
PFHxA	4.49	1.000	1781.1	A	13C2-PFHxA	4.51	335394.7	0.005	0.507
PFHpA	4.99	1.000	4270.1	M	13C4-PFHpA	4.99	275336.8	0.016	0.615
PFHxS	5.00	1.000	1031.9	A	18O2-PFHxS	4.98	158113.2	0.007	~~0.298~~
PFOA	5.45	1.000	1048780.6	M	13C4-PFOA	5.45	390511.8	2.686	118.419
PFNA	N/A	N/A	N/A	A	13C5-PFNA	5.87	605329.9	N/A	~~N/A~~
PFOS	5.86	1.000	250.2	A	13C4-PFOS	5.84	171087.5	0.001	0.071
PFDA	6.26	1.000	3064.8	A	13C2-PFDA	6.26	467453.5	0.007	0.263
PFUnDA	6.61	1.000	1247.7	M	13C2-PFUnDA	6.61	615322.5	0.002	0.098
PFDoDA	6.94	1.000	1047.5	A	13C2-PFDoDA	6.93	877444.0	0.001	0.061
PFTrDA	7.24	1.040	1250.6	A	13C2-PFDoDA	6.93	877444.0	0.001	0.071
PFTeDA	7.53	1.090	1907.6	A	13C2-PFDoDA	6.93	877444.0	0.002	0.113

Revised

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16236005 SG3-EB01-160817 Grab Blank Water



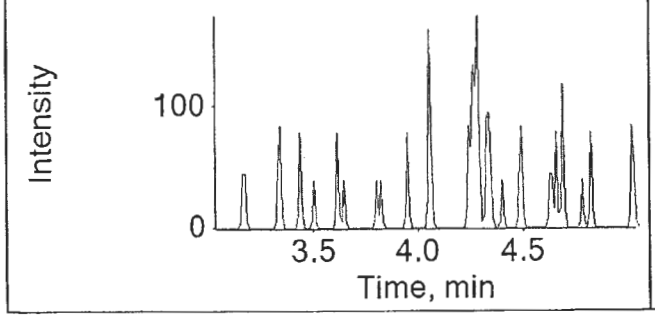
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:01 am, 6/13/17

16AUG31-68.wiff

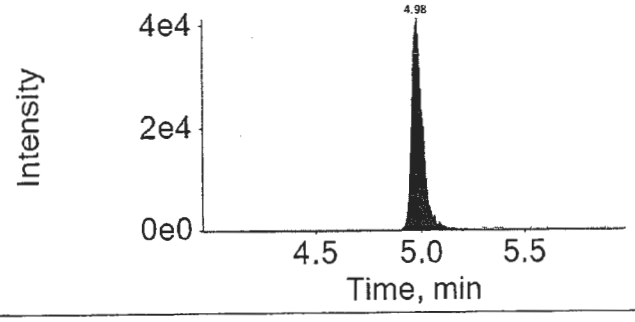
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

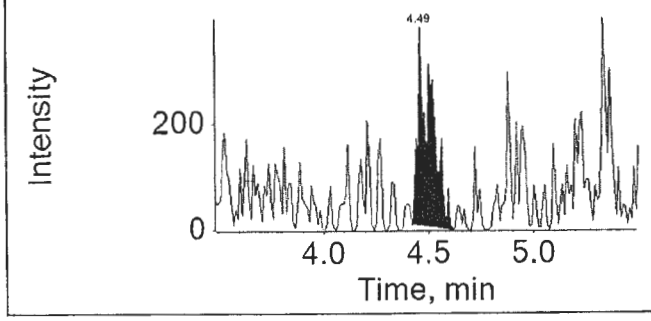
403.0 / 103.0



16AUG31-68.wiff

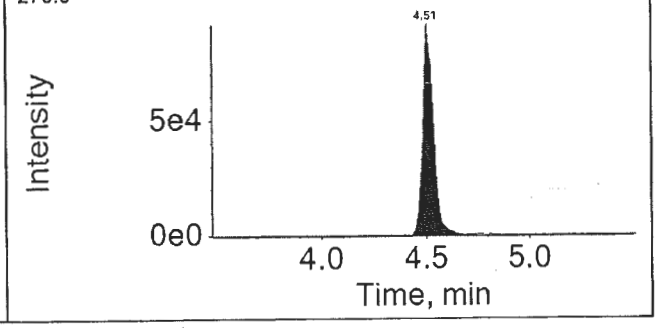
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

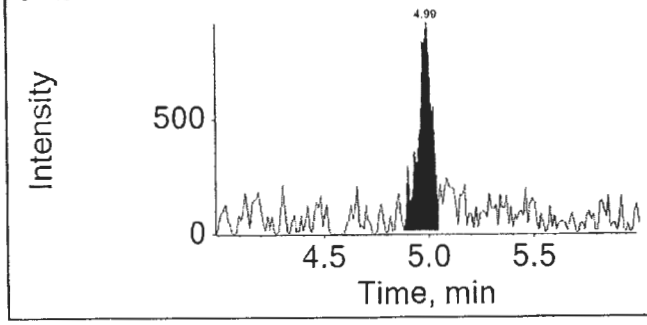
314.9 / 270.0



16AUG31-68.wiff

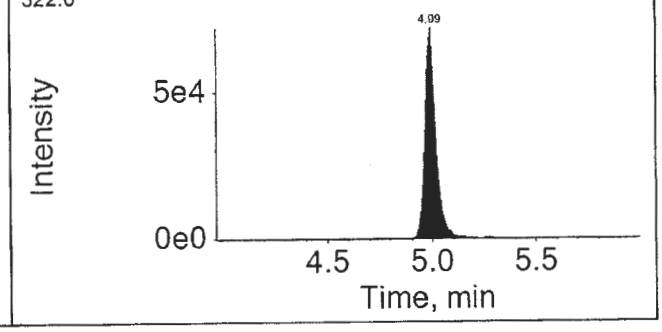
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



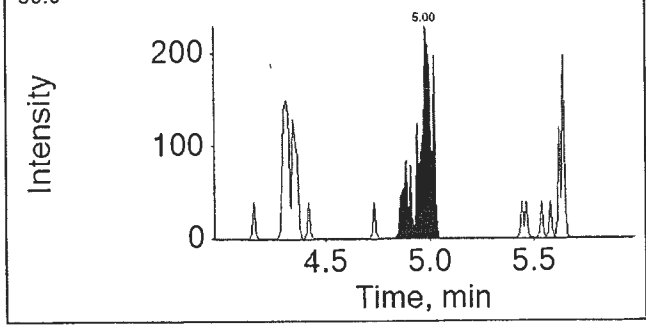
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:01 am, 6/13/17

16AUG31-68.wiff

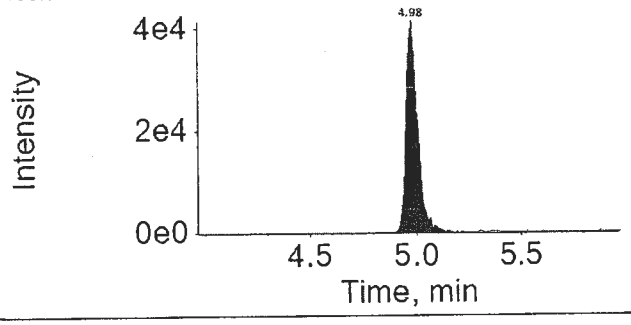
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

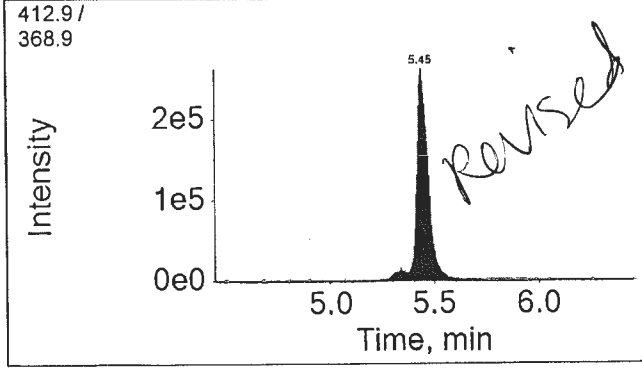
403.0 / 103.0



16AUG31-68.wiff

Analyte: PFOA

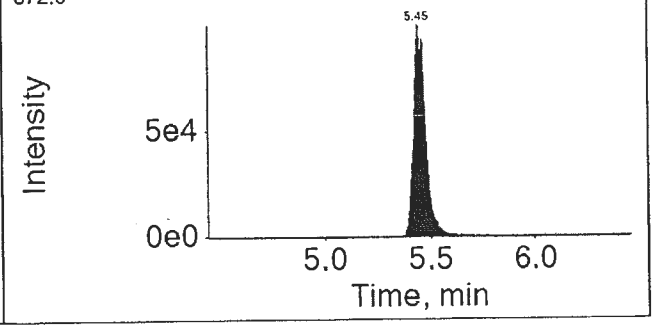
412.9 / 368.9



Revised

Internal Standard: 13C4-PFOA

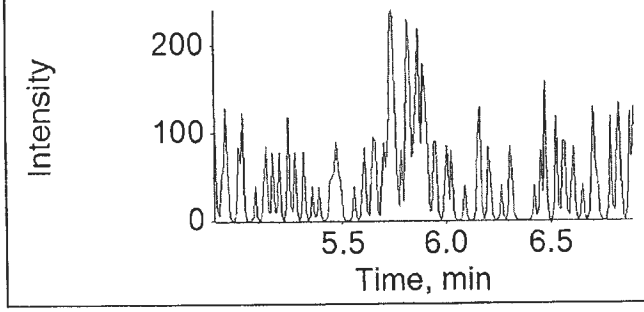
417.0 / 372.0



16AUG31-68.wiff

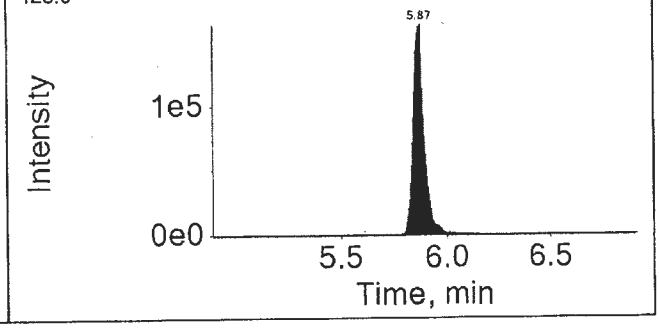
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

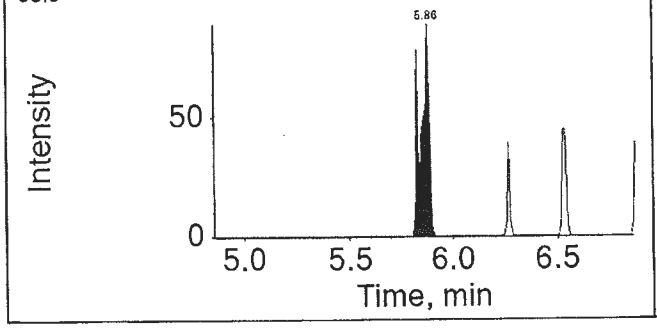
468.0 / 423.0



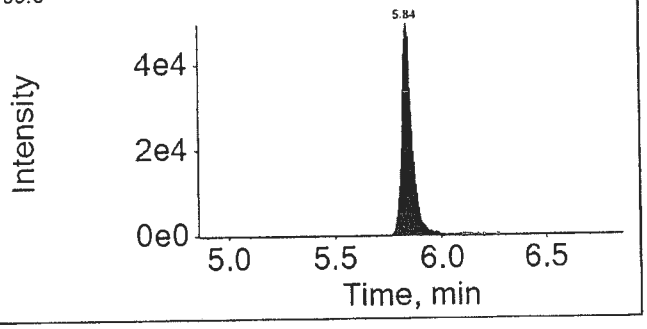
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:01 am, 6/13/17

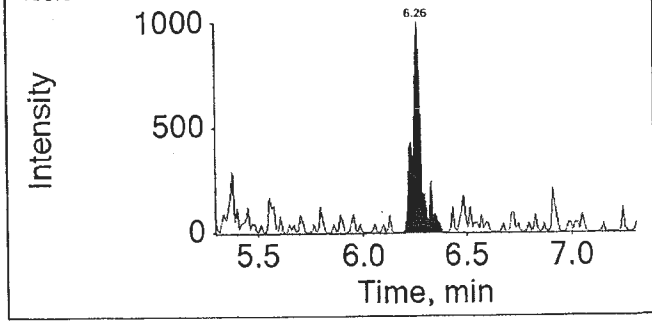
16AUG31-68.wiff
Analyte: PFOS
498.9 / 98.9



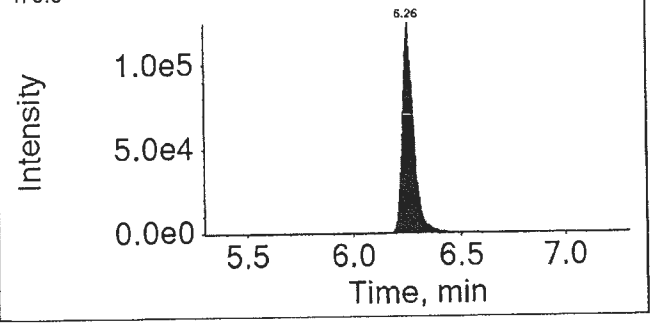
Internal Standard: 13C4-PFOS
503.0 / 99.0



16AUG31-68.wiff
Analyte: PFDA
512.9 / 469.0



Internal Standard: 13C2-PFDA
515.0 / 470.0



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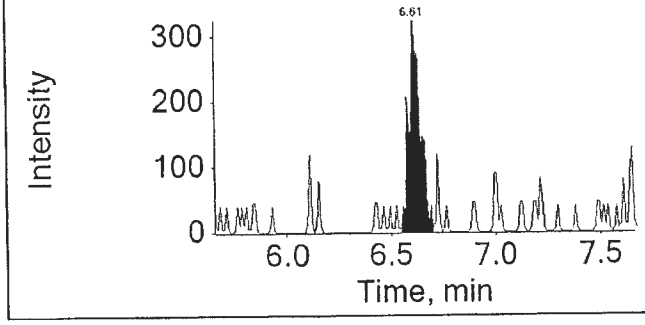
Analyte: PFUnDA
562.9 / 518.9



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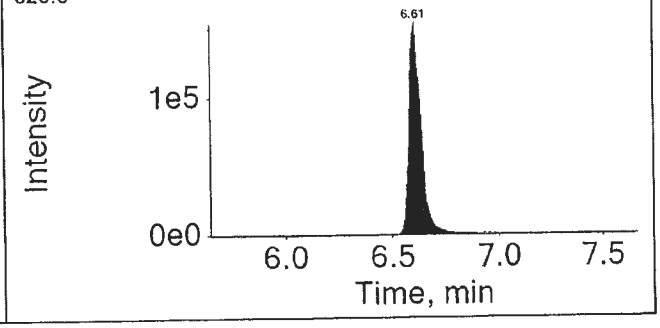
565.0 / 520.0



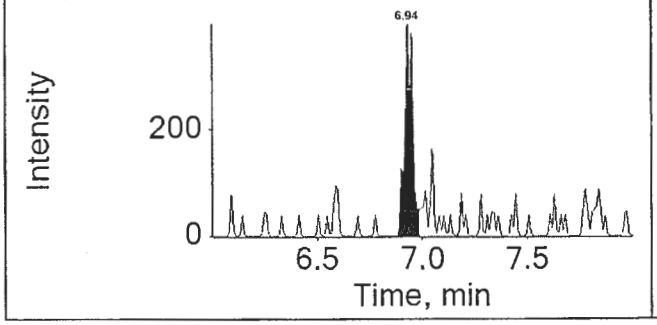
APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:01 am, 6/13/17

16AUG31-68.wiff

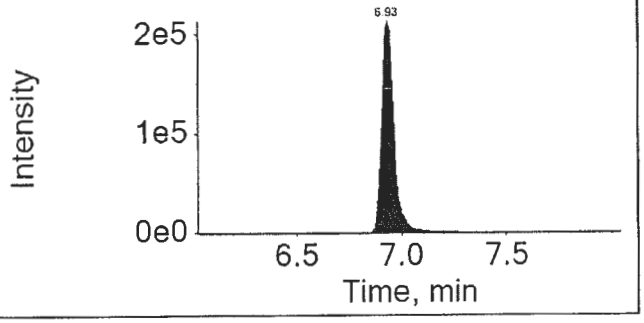
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

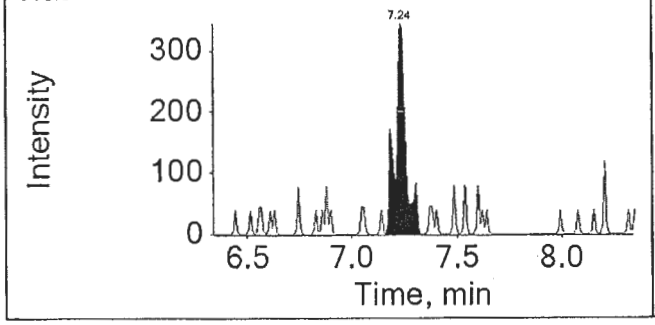
615.0 / 570.0



16AUG31-68.wiff

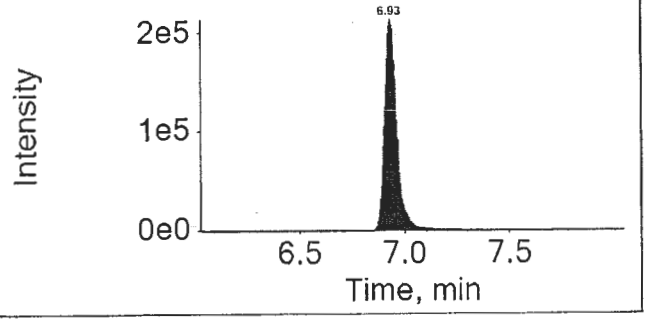
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

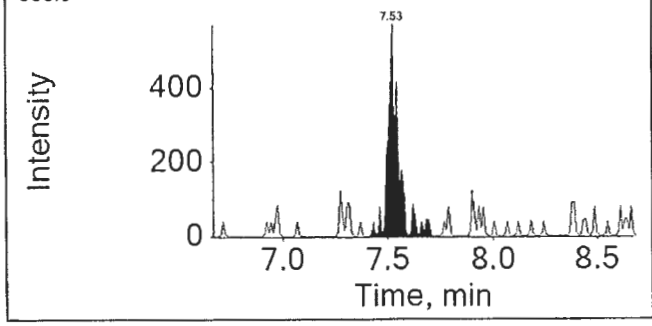
615.0 / 570.0



16AUG31-68.wiff

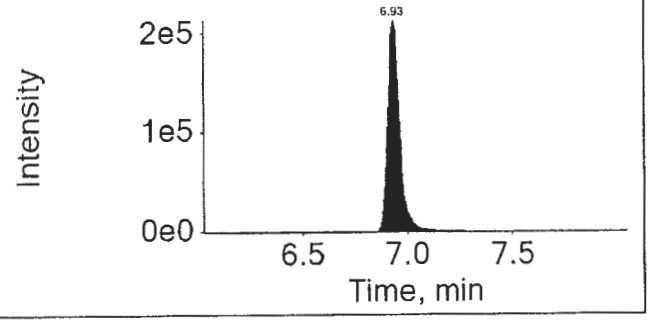
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:42 pm, 6/9/17

REVIEWED
By ucmr at 9:01 am, 6/13/17

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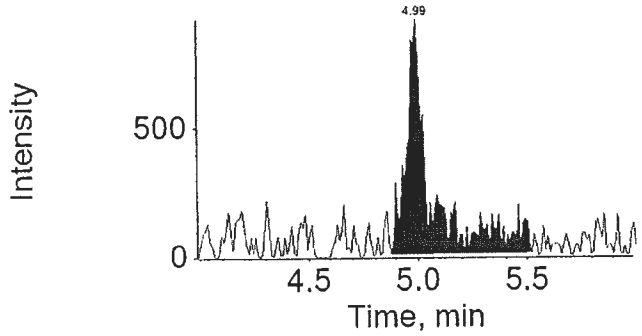
Print Date: 09/06/2017 4:54 PM

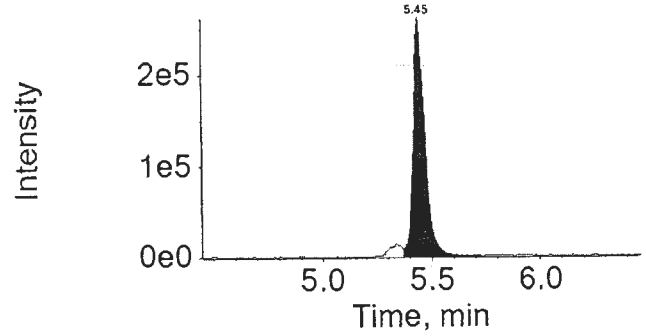
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG31-68.wiff	2016-09-01T08:34:08	8535034	PFHpA	4.99	7174.4
16AUG31-68.wiff	2016-09-01T08:34:08	8535034	PFOA	5.45	994323.3
16AUG31-68.wiff	2016-09-01T08:34:08	8535034	PFUnDA	6.61	1532.3

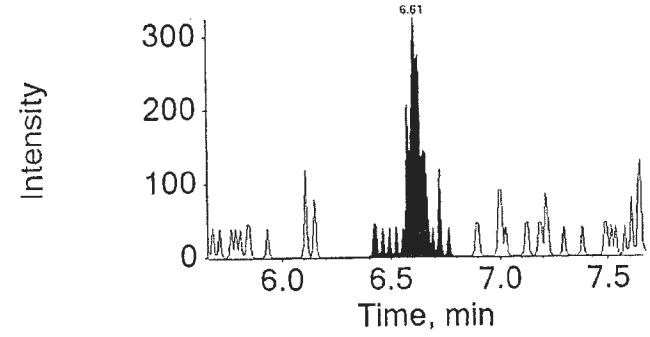
Component: PFHpA
Mass: 362.9 / 318.9



Component: PFOA
Mass: 412.9 / 368.9



Component: PFUnDA
Mass: 562.9 / 518.9



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:53 am, 6/13/17

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

REVISED

Sample Description: SG3-SUMP03-160817 Grab Sediment
SGPP - Bennington

LL Sample # SW 8535035
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/17/2016 11:45 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BENS3 SDG#: SPP17-22

CONSIND

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	11	0.48	1.5	1
14027	**Perfluorodecanoic acid**	335-76-2	170	1.9	3.9	10 DL
14027	**Perfluorododecanoic acid**	307-55-1	16	0.39	0.77	1
14027	**Perfluoroheptanoic acid**	375-85-9	1,500	29	58	100 DL2
14027	**Perfluorohexanesulfonate**	355-46-4	8.6	0.48	1.5	1
14027	**Perfluorohexanoic acid**	307-24-4	4,200	19	39	100 DL2
14027	**Perfluorononanoic acid**	375-95-1	92	1.9	3.9	10 DL
14027	**Perfluoro-octanesulfonate**	1763-23-1	300	0.68	1.5	1
14027	**Perfluorooctanoic acid**	335-67-1	180,000	2,900	5,800	10000 DL3
14027	**Perfluorotetradecanoic acid**	376-06-7	6.7	0.29	0.77	1
14027	**Perfluorotridecanoic acid**	72629-94-8	6.6	0.58	1.2	1
14027	**Perfluoroundecanoic acid**	2058-94-8	14	0.29	0.58	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	3.7	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/06/2016 18:13	Jason W Knight	1
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 19:00	Marissa C Drexinger	100
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 19:49	Marissa C Drexinger	10
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/23/2016 08:04	Marissa C Drexinger	10000
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16235011	08/23/2016 11:10	Devon M Whooley	1
00111	Moisture	SM 2540 G-1997	1	16236820006A	08/24/2016 02:56	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 9/15/2016 11:31:00 AM

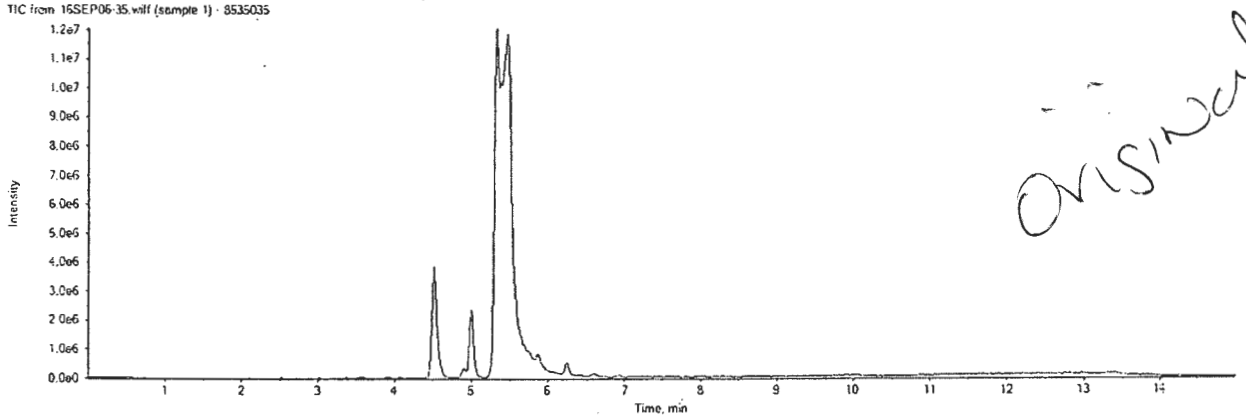
Sample Name:	8535035		**Data File:**		16SEP06-35.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment		**Acquis Date:**		2016-09-06T18:13:51
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	23		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011
			ICAL Name:		16SEP01ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.360		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.07	29738.5	A	18O2-PFHxS	4.99	22032.0	1.350	10.501	ng/g
PFHxA	4.52	17871561.0	A	13C2-PFHxA	4.52	75237.5	237.535	4213.253	ng/g
PFHpA	5.00	9139010.9	A	13C4-PFHpA	5.00	28894.9	316.285	2843.215	ng/g
PFHxS	4.99	20564.2	M	18O2-PFHxS	4.99	22032.0	0.933	8.261	ng/g
PFOA	5.46	115423222.6	A	13C4-PFOA	5.40	20670.0	5584.106	51047.303	ng/g
PFNA	5.88	979449.9	A	13C5-PFNA	5.88	89747.6	10.913	101.574	ng/g
PFOS	5.85	683099.2	A	13C4-PFOS	5.86	23967.8	28.501	293.207	ng/g
PFDA	6.25	1524949.8	A	13C2-PFDA	6.25	48972.9	31.139	252.430	ng/g
PFUnDA	6.59	136749.3	A	13C2-PFUnDA	6.59	95720.8	1.429	13.802	ng/g
PFDoDA	6.92	159018.7	A	13C2-PFDoDA	6.93	107231.5	1.483	14.948	ng/g
PFTrDA	7.27	68226.5	M	13C2-PFDoDA	6.93	107231.5	0.636	6.362	ng/g
PFTeDA	7.59	67529.1	A	13C2-PFDoDA	6.93	107231.5	0.630	6.420	ng/g

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment

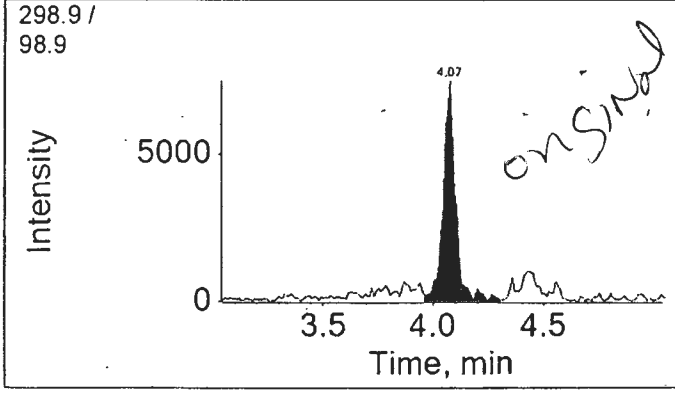


ORIGINAL

16SEP06-35.wiff

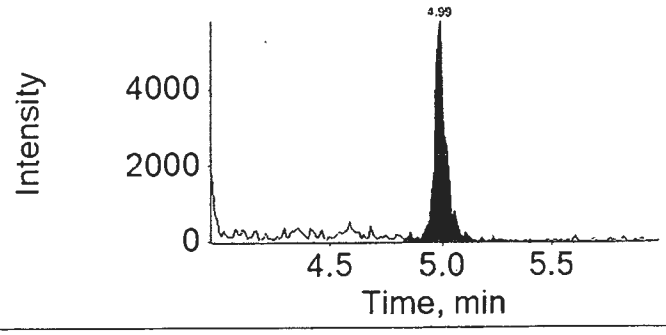
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

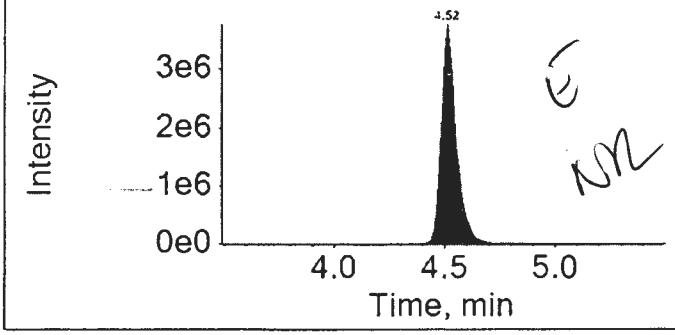
403.0 / 103.0



16SEP06-35.wiff

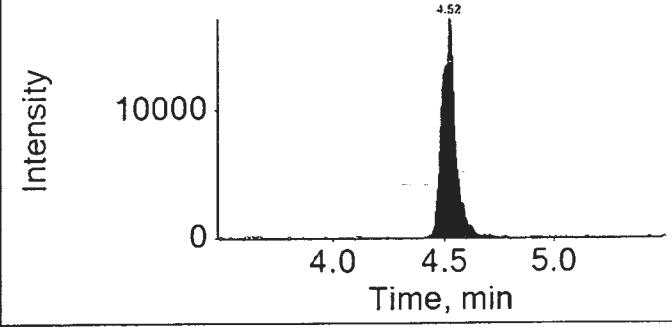
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

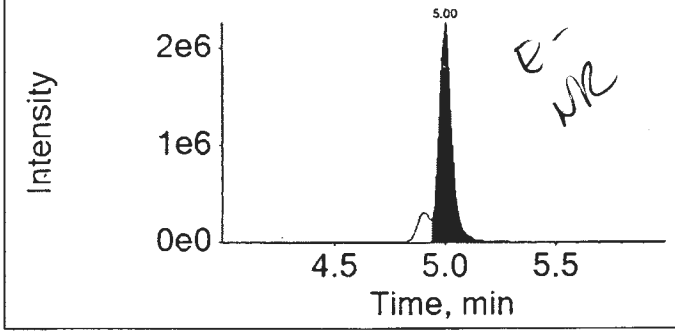
314.9 / 270.0



16SEP06-35.wiff

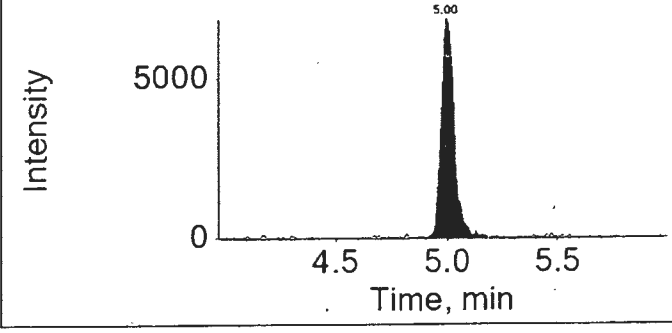
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



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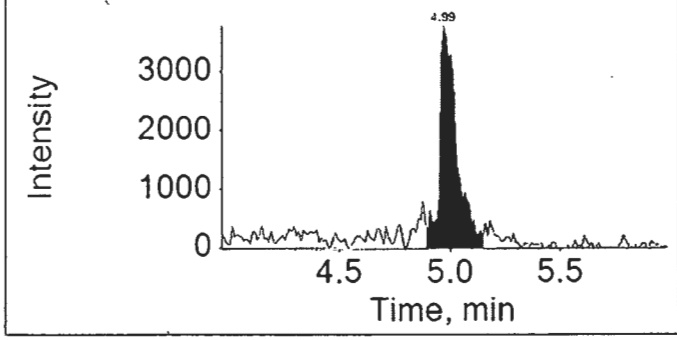
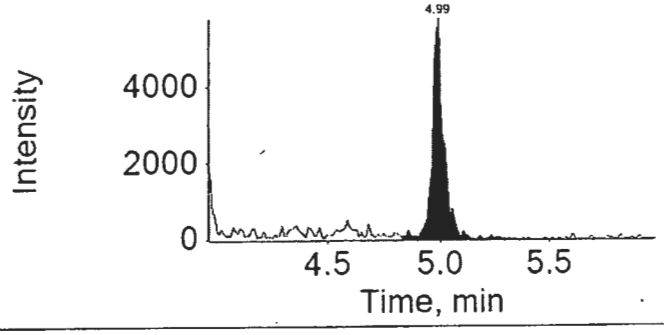
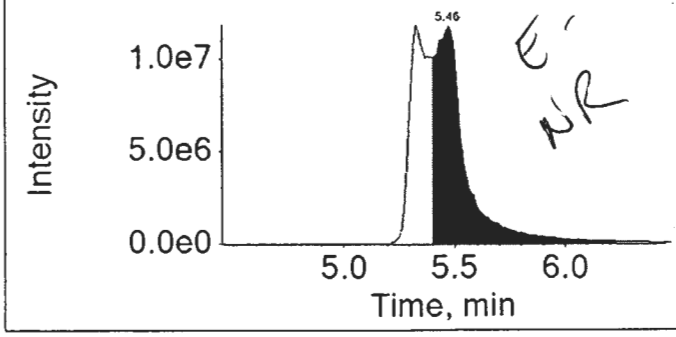
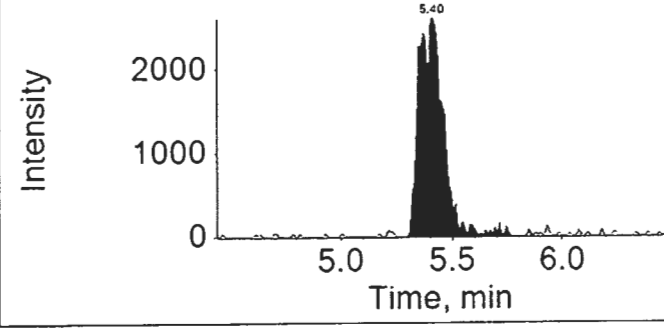
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



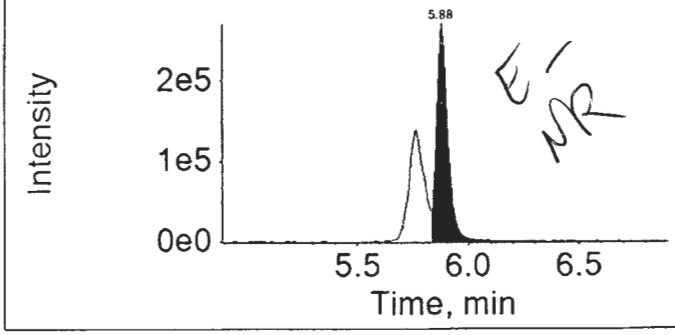


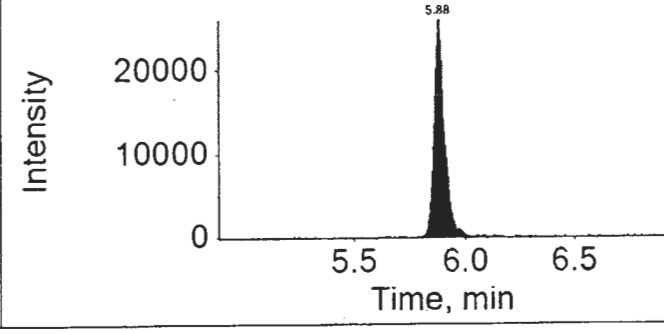
16SEP06-35.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





16SEP06-35.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0

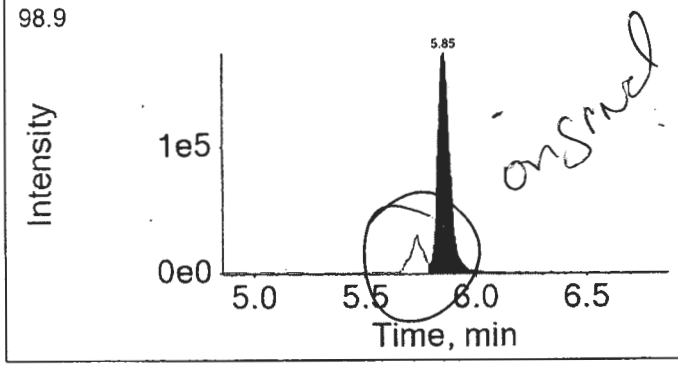




16SEP06-35.wiff

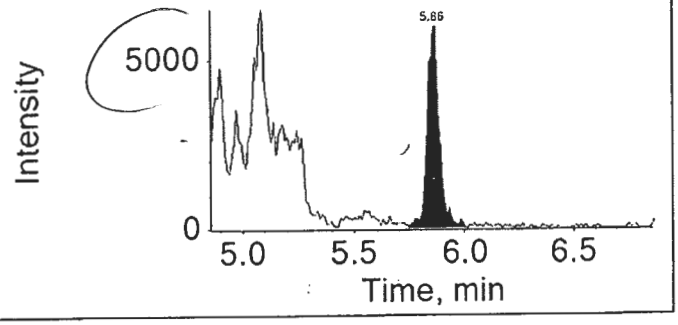
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

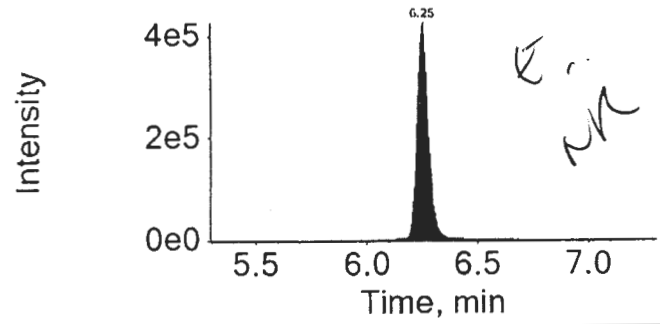
503.0 / 99.0



16SEP06-35.wiff

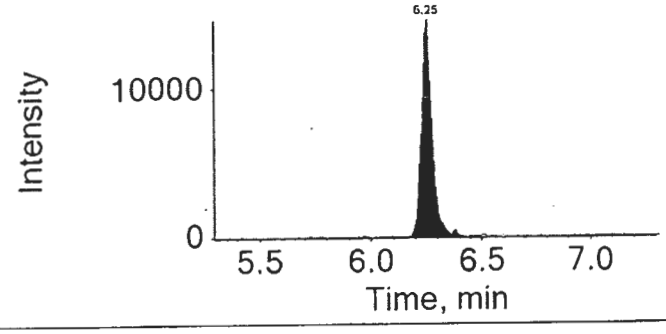
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

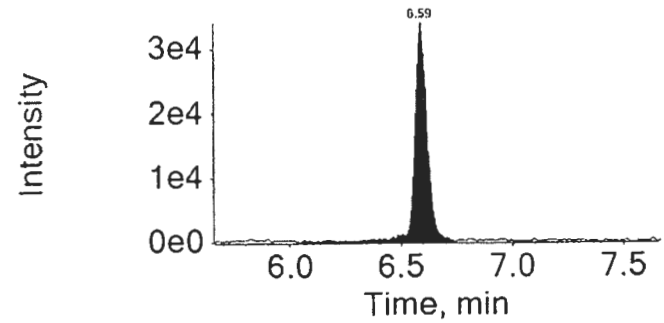
515.0 / 470.0



16SEP06-35.wiff

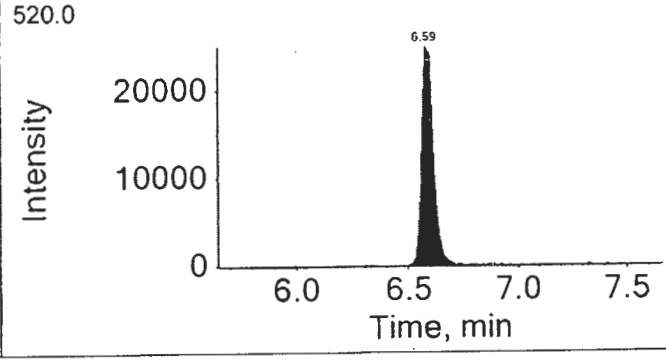
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

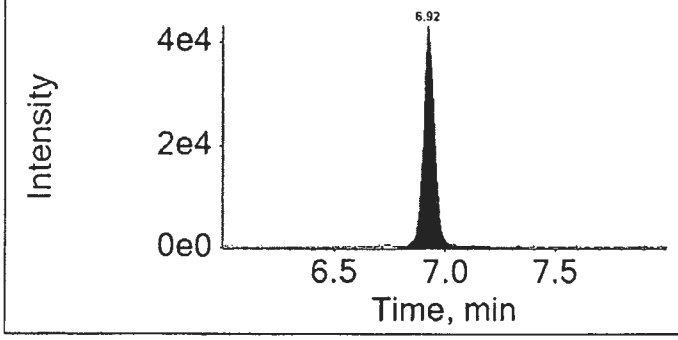
565.0 / 520.0



16SEP06-35.wiff

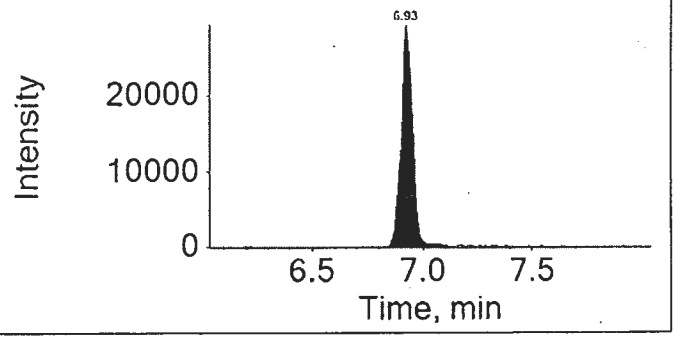
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

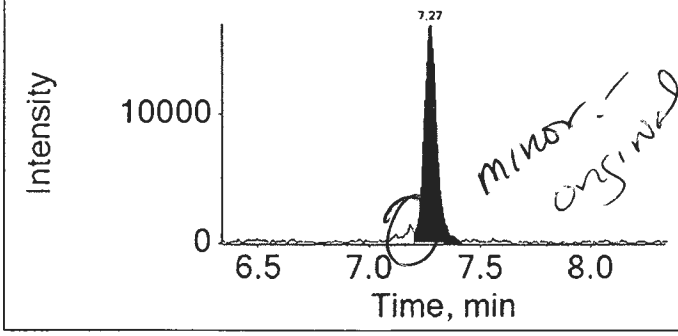
615.0 / 570.0



16SEP06-35.wiff

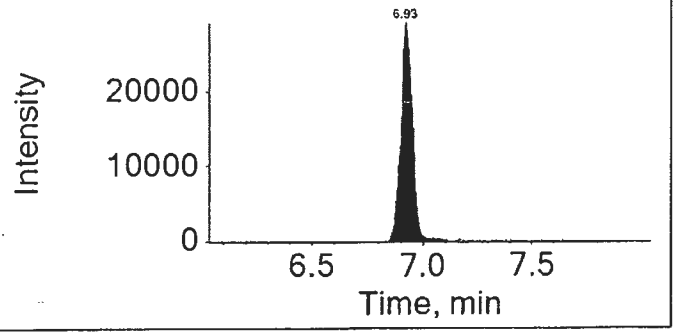
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

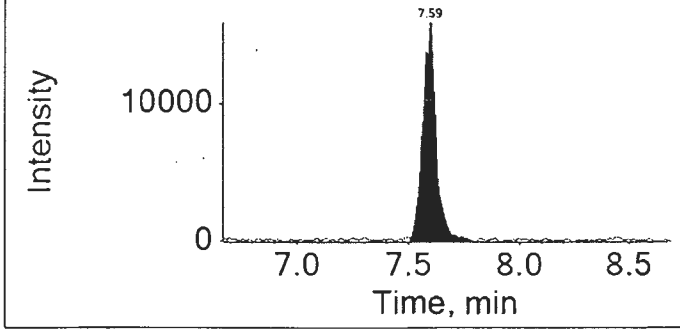
615.0 / 570.0



16SEP06-35.wiff

Analyte: PFTeDA

712.9 / 668.9



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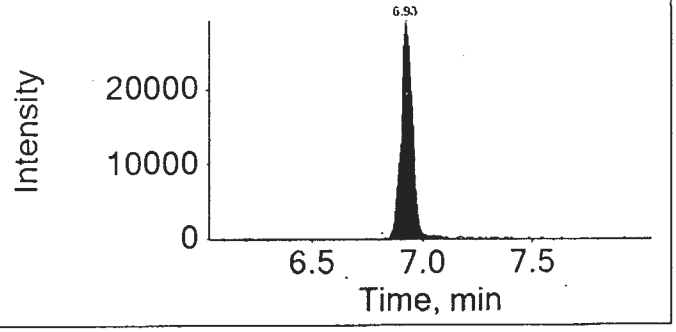
615.0 / 570.0



Lynn Dodd

SEP 19 2016

Lynn Dodd
Principal Specialist

MED 9/15/16 7824

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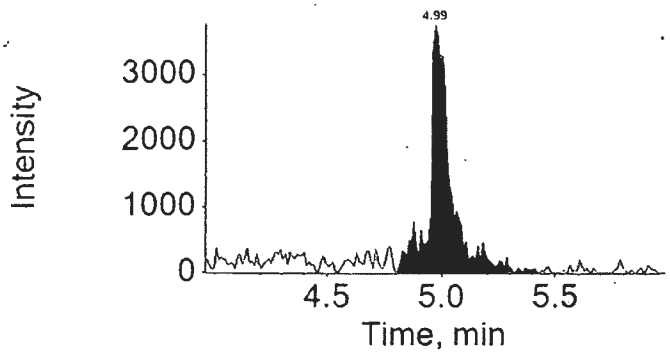
Print Date: 15/09/2016 11:31 AM

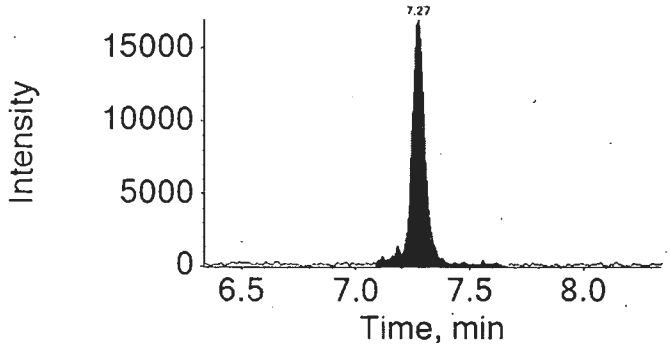
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP06-35.wiff	2016-09-06T18:13:51	8535035	PFHxS	4.99	24720.9
16SEP06-35.wiff	2016-09-06T18:13:51	8535035	PFTrDA	7.27	75891.6

Component: PFHxS
Mass: 398.9 / 99.0



Component: PFTrDA
Mass: 662.9 / 618.9



Lynn Dodd
SEP 19 2016

Lynn Dodd
Principal Specialist

MED 7/15/16

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LC-MS/MS Analysis Report

Printed: 9/15/2016 1:23:00 PM

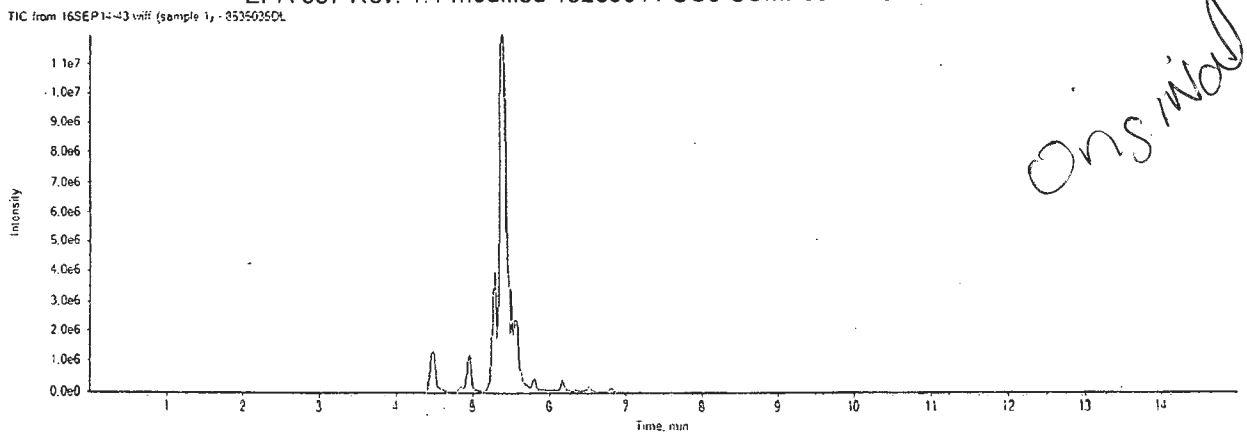
Sample Name:	8535035DL		**Data File:**		16SEP14-43.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment		**Acquis Date:**		2016-09-14T19:49:40
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	84		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL
			ICAL Name:		16SEP13ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.360		**Dilution Factor:**		10.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

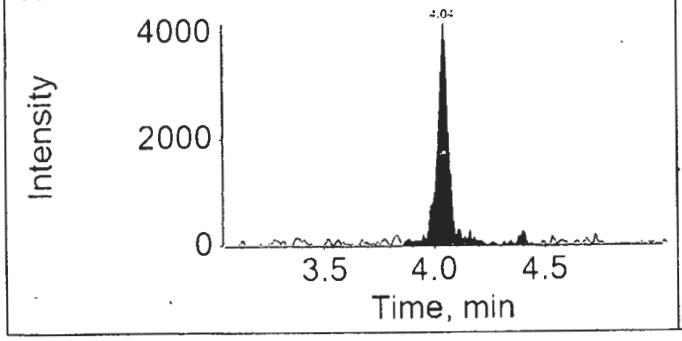
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.04	16478.1	A	18O2-PFHxS	4.94	107226.6	0.154	10.387	ng/g
PFHxA	4.48	6368408.4	A	13C2-PFHxA	4.48	262645.8	24.247	3316.185	ng/g
PFHpA	4.95	4528836.8	A	13C4-PFHpA	4.95	222332.7	20.370	1620.663	ng/g
PFHxS	4.94	11507.5	A	18O2-PFHxS	4.94	107226.6	0.107	8.182	ng/g
PFOA	5.38	92354807.6	M	13C4-PFOA	5.38	45751.9	2018.602	158626.685	ng/g
PFNA	5.80	480884.1	A	13C5-PFNA	5.80	430280.6	1.118	89.053	ng/g
PFOS	5.78	333183.9	A	13C4-PFOS	5.77	115477.3	2.885	253.692	ng/g
PFDA	6.16	783187.9	A	13C2-PFDA	6.17	298504.4	2.624	166.435	ng/g
PFUnDA	6.50	51815.3	A	13C2-PFUnDA	6.51	365936.4	0.142	11.281	ng/g
PFDoDA	6.81	52903.4	A	13C2-PFDoDA	6.81	391838.9	0.135	11.534	ng/g
PFTrDA	7.09	25796.7	M	13C2-PFDoDA	6.81	391838.9	0.066	5.681	ng/g
PFTeDA	7.35	22139.2	A	13C2-PFDoDA	6.81	391838.9	0.057	5.695	ng/g

Total Ion Chromatogram

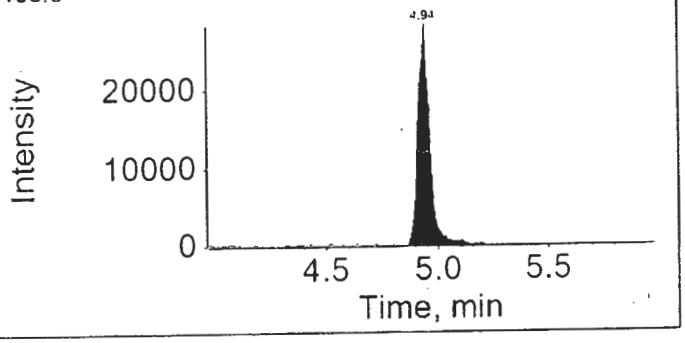
EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment



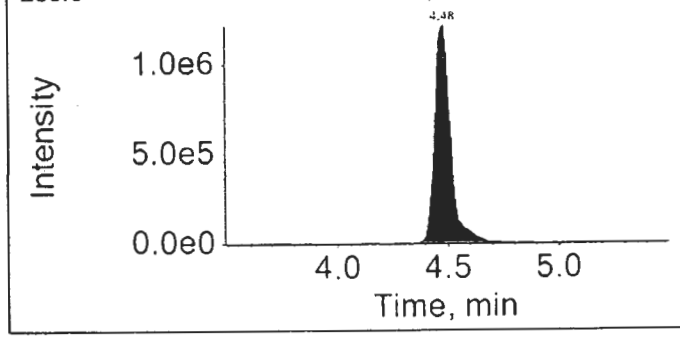
16SEP14-43.wiff
Analyte: PFBS
298.9 /
98.9



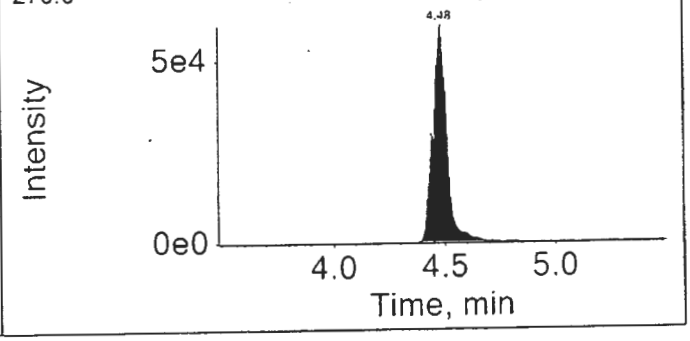
Internal Standard: 18O2-PFHxS
403.0 /
103.0



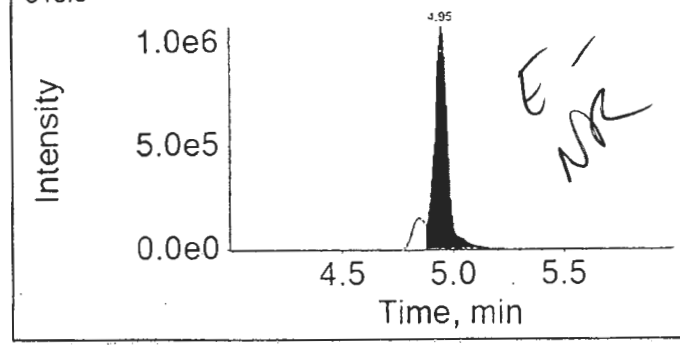
16SEP14-43.wiff
Analyte: PFHxA
312.9 /
269.0



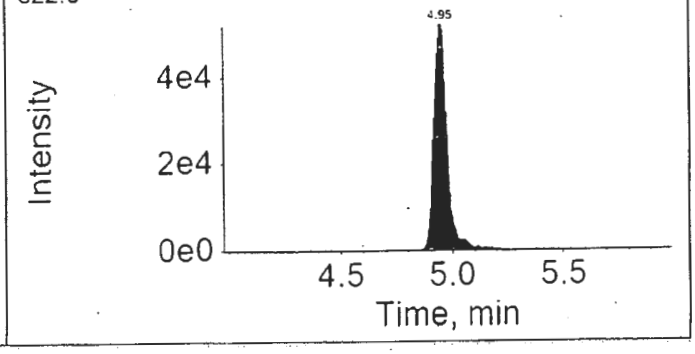
Internal Standard: 13C2-PFHxA
314.9 /
270.0



16SEP14-43.wiff
Analyte: PFHpA
362.9 /
318.9



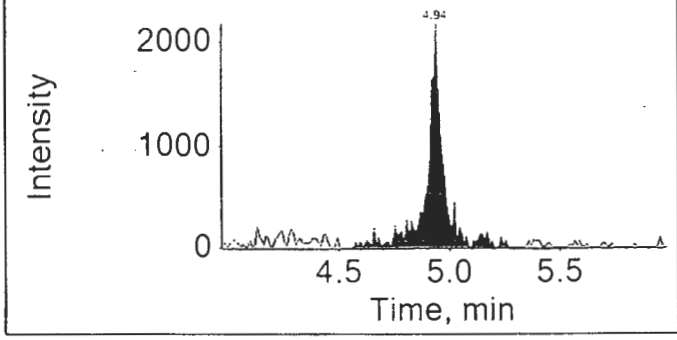
Internal Standard: 13C4-PFHpA
367.0 /
322.0



16SEP14-43.wiff

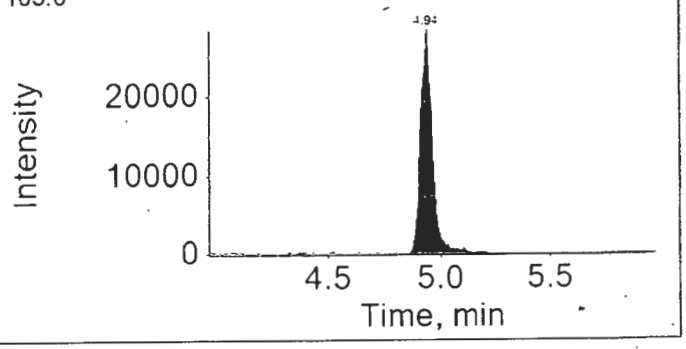
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

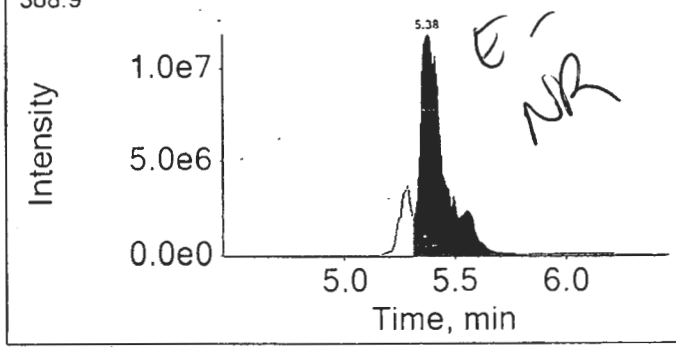
403.0 / 103.0



16SEP14-43.wiff

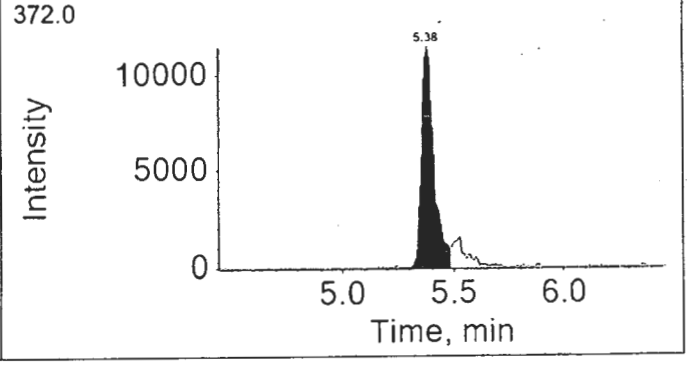
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

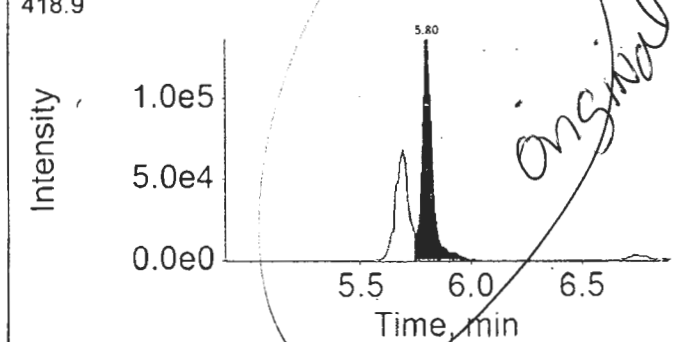
417.0 / 372.0



16SEP14-43.wiff

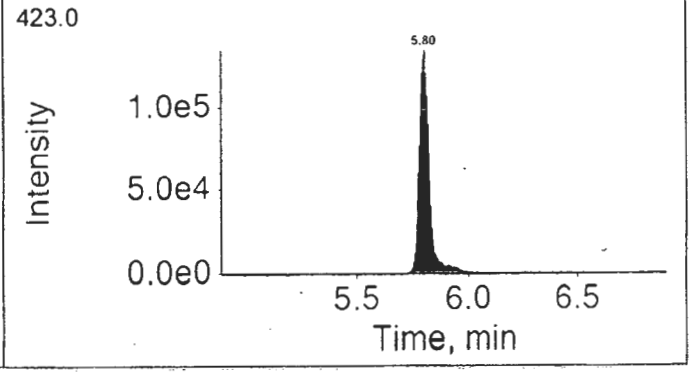
Analyte: PFNA

462.9 / 418.9

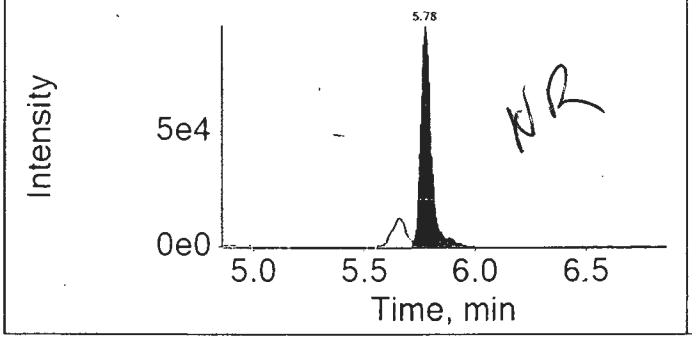


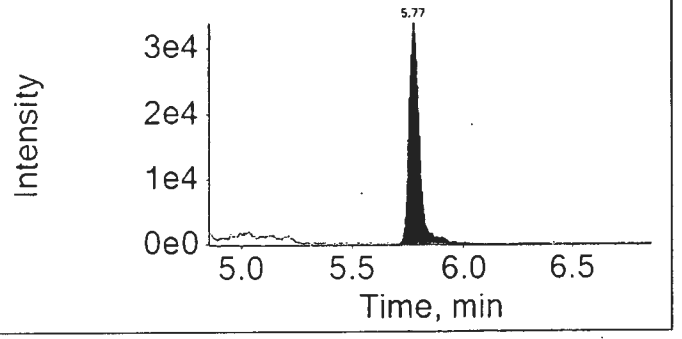
Internal Standard: 13C5-PFNA

468.0 / 423.0

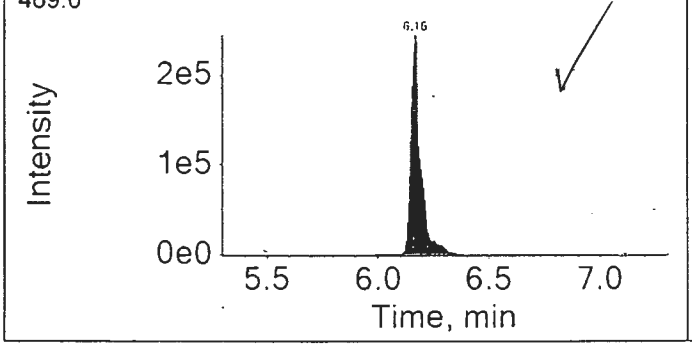


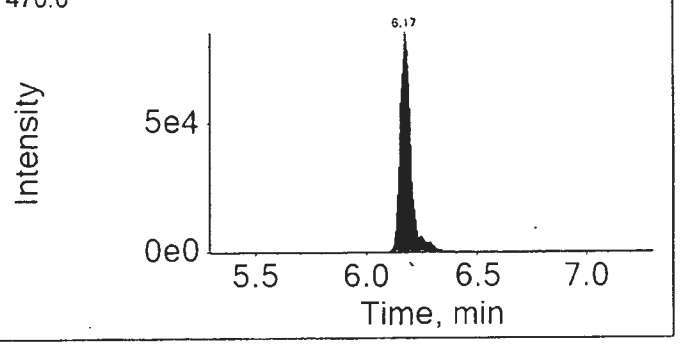
16SEP14-43.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



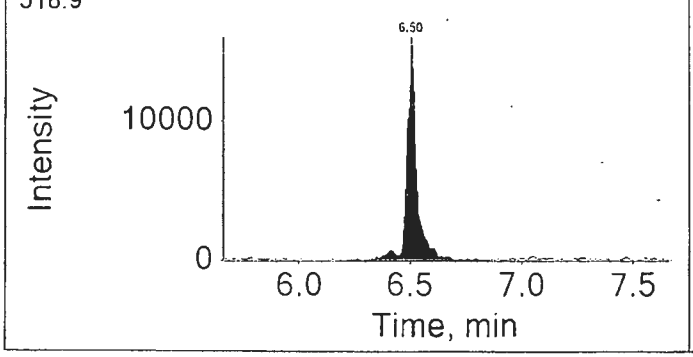


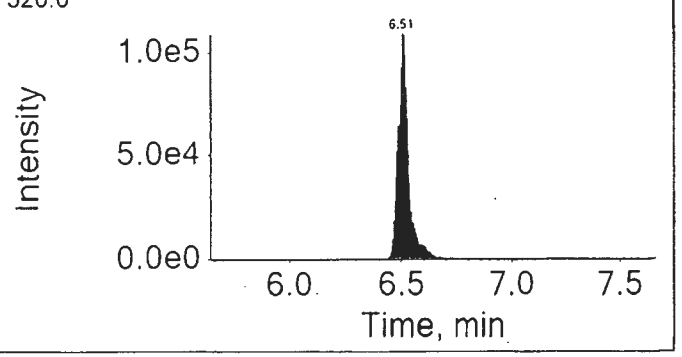
16SEP14-43.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



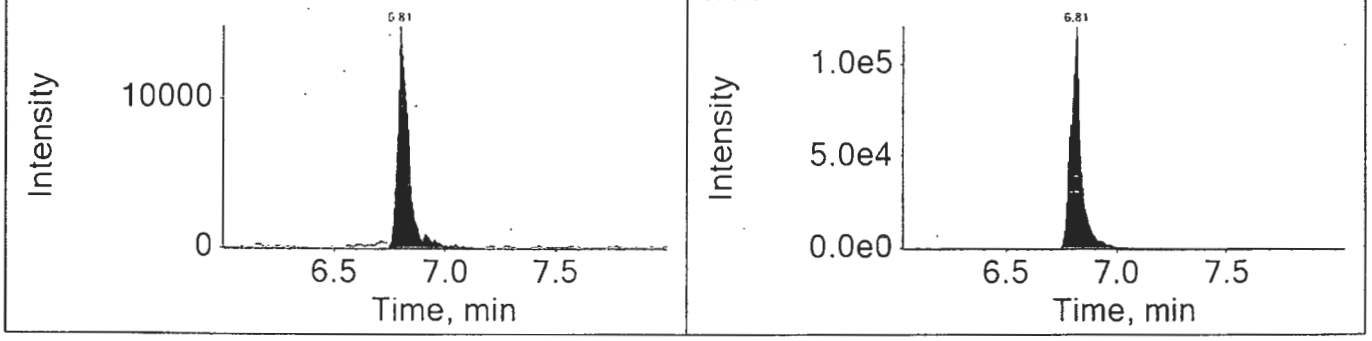


16SEP14-43.wiff	
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

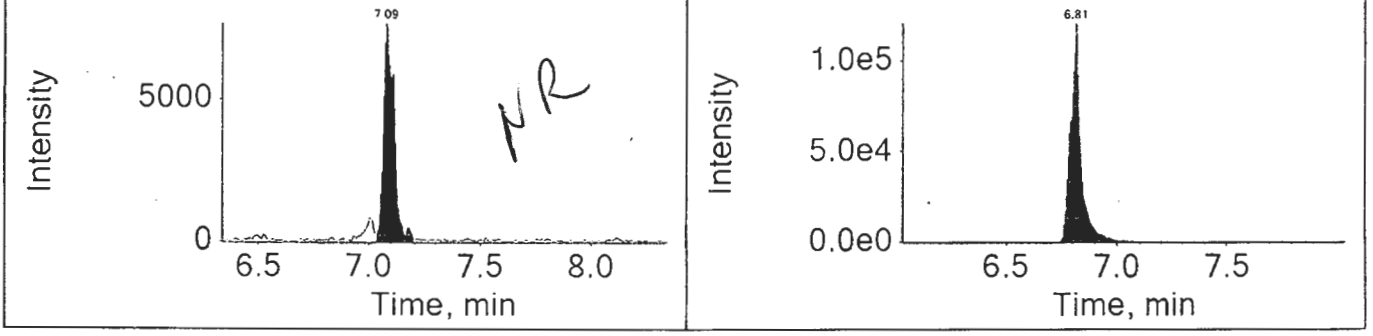




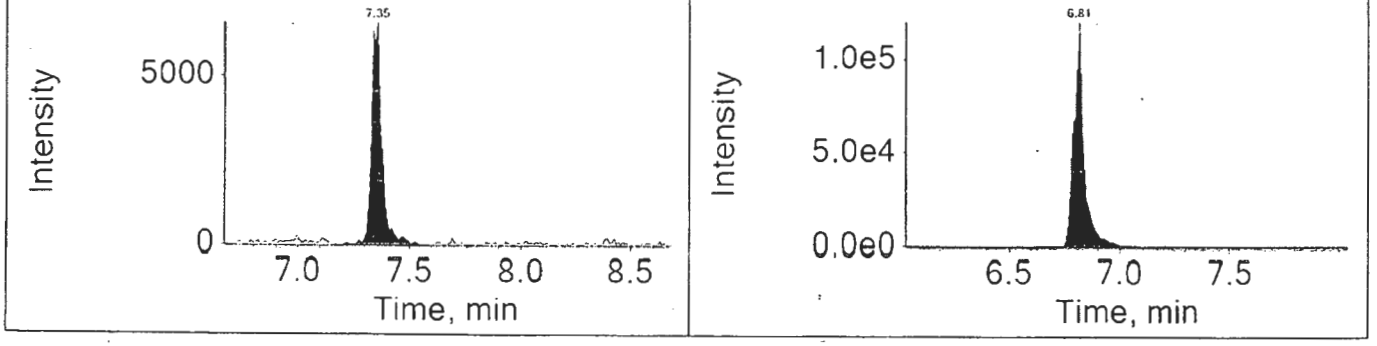
16SEP14-43.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



16SEP14-43.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0



16SEP14-43.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0



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Principal Specialist

MEP 9/15/16 7824

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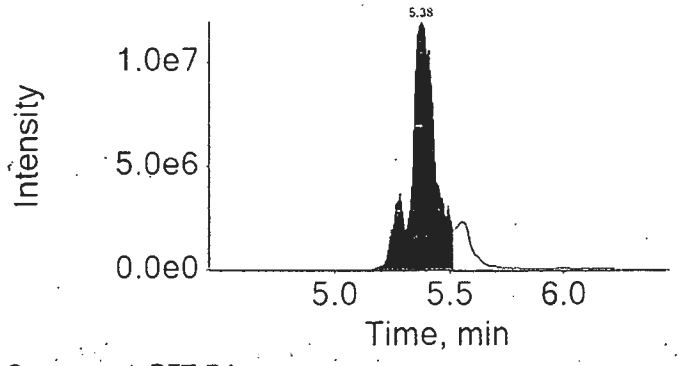
Print Date: 15/09/2016 1:24 PM

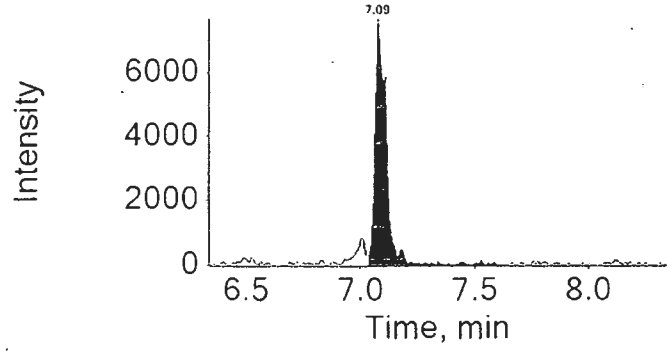
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-43.wiff	2016-09-14T19:49:40	8535035DL	PFOA	5.38	92089359.7
16SEP14-43.wiff	2016-09-14T19:49:40	8535035DL	PFTrDA	7.09	27057.4

Component: PFOA
Mass: 412.9 / 368.9



Component: PFTrDA
Mass: 662.9 / 618.9



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SEP 19 2016

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Principal Specialist

MEN 7829
9/15/16

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LC-MS/MS Analysis Report

Printed: 9/15/2016 1:23:00 PM

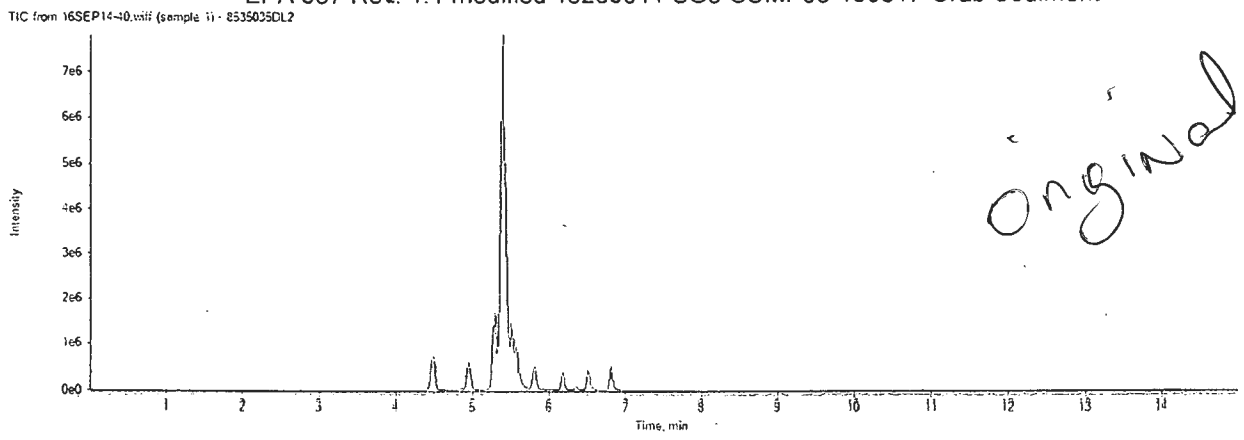
Sample Name:	8535035DL2		**Data File:**		16SEP14-40.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment		**Acquis Date:**		2016-09-14T19:00:34
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	83		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL
			ICAL Name:		16SEP13ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.360		**Dilution Factor:**		100.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.05	1737.1	A	18O2-PFHxS	4.94	274598.0	0.006	4.276	ng/g
PFHxA	4.48	2210527.1	A	13C2-PFHxA	4.48	754720.7	2.929	4005.787	ng/g
PFHpA	4.95	1239021.1	A	13C4-PFHpA	4.94	696770.1	1.778	1414.812	ng/g
PFHxS	4.94	2344.9	A	18O2-PFHxS	4.94	274598.0	0.009	6.510	ng/g
PFOA	5.39	41835758.2	M	13C4-PFOA	5.39	191123.2	218.894	172012.397	ng/g
PFNA	5.80	110307.4	A	13C5-PFNA	5.80	1302706.4	0.085	67.471	ng/g
PFOS	5.78	65076.7	A	13C4-PFOS	5.78	284397.7	0.229	201.196	ng/g
PFDA	6.18	227456.4	A	13C2-PFDA	6.17	965805.6	0.236	149.395	ng/g
PFUnDA	6.51	15792.3	A	13C2-PFUnDA	6.51	1140802.7	0.014	11.029	ng/g
PFDoDA	6.82	17763.2	A	13C2-PFDoDA	6.81	1422434.8	0.012	10.669	ng/g
PFTrDA	7.09	8003.7	A	13C2-PFDoDA	6.81	1422434.8	0.006	4.856	ng/g
PFTeDA	7.35	6943.5	M	13C2-PFDoDA	6.81	1422434.8	0.005	4.921	ng/g

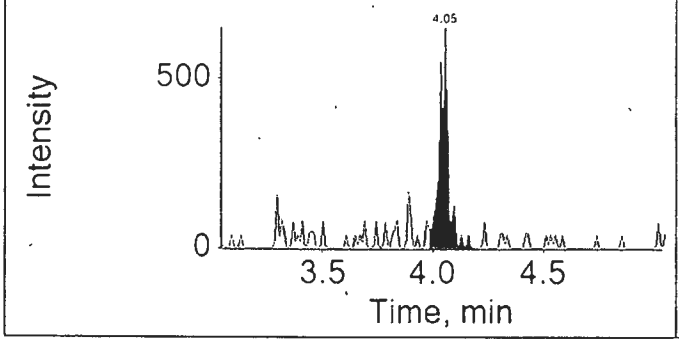
Total Ion Chromatogram

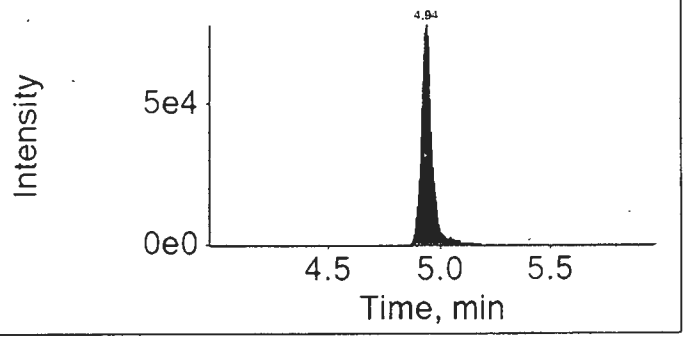
EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment



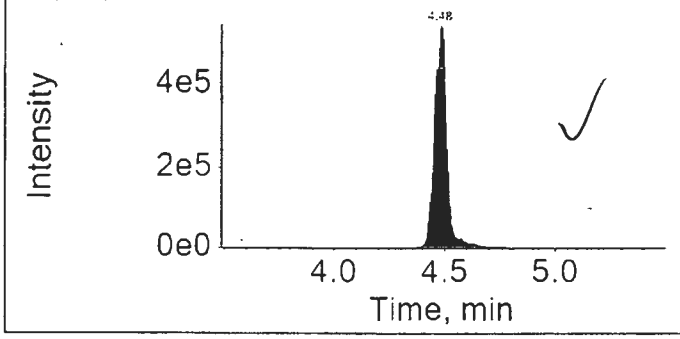
Original

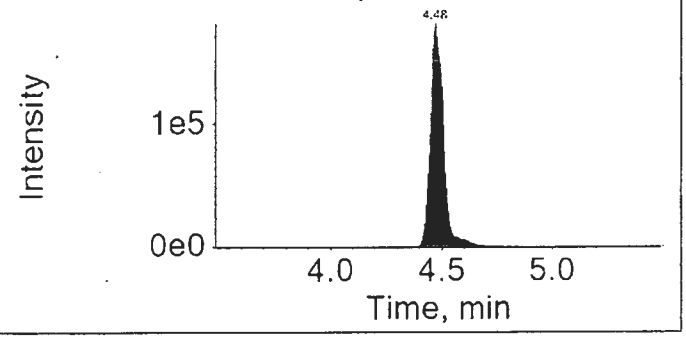
16SEP14-40.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



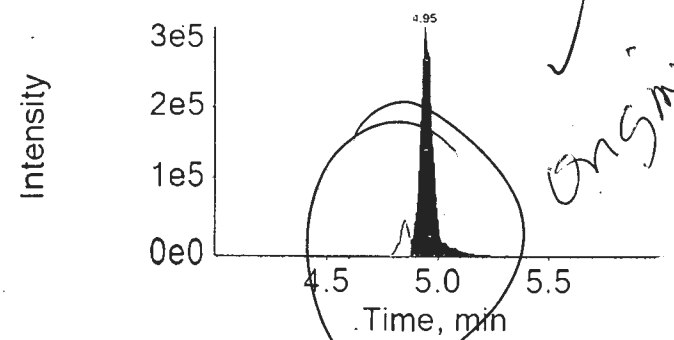


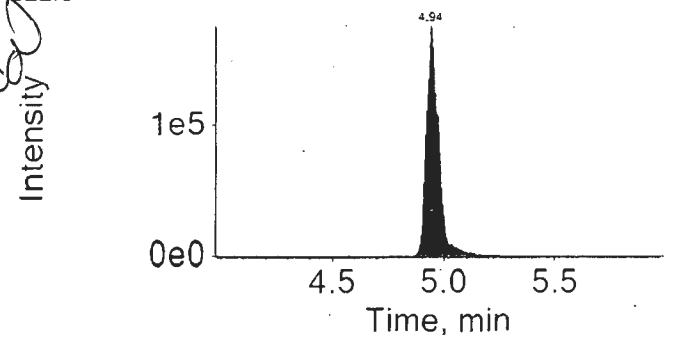
16SEP14-40.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



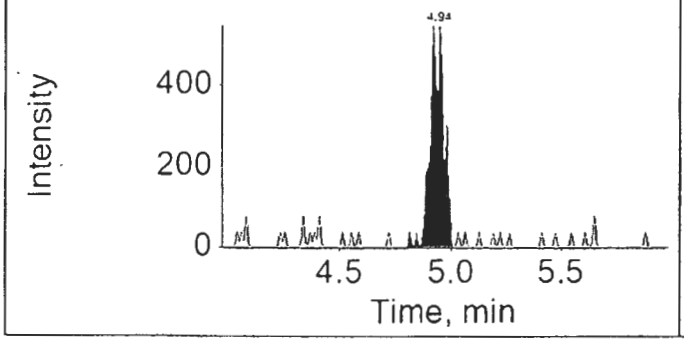


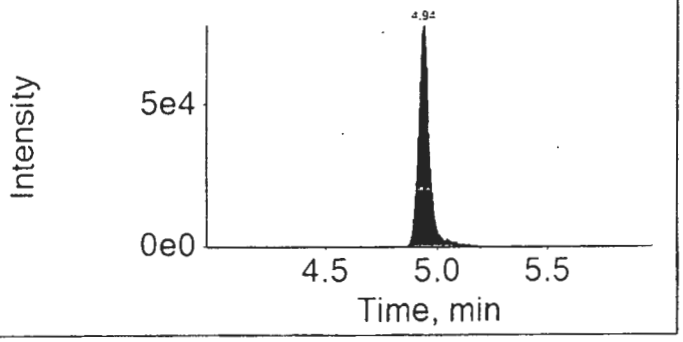
16SEP14-40.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



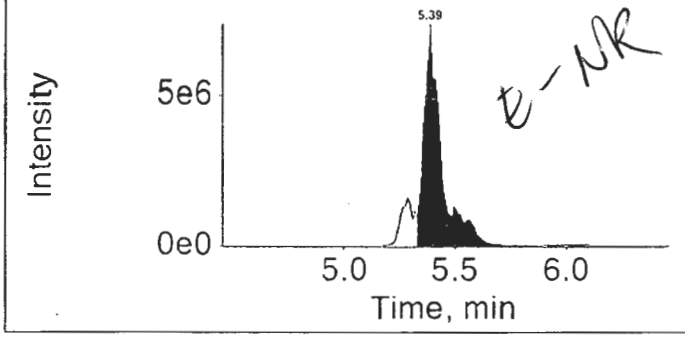


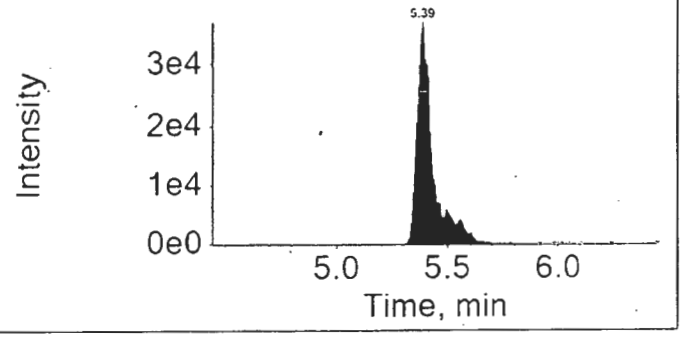
16SEP14-40.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



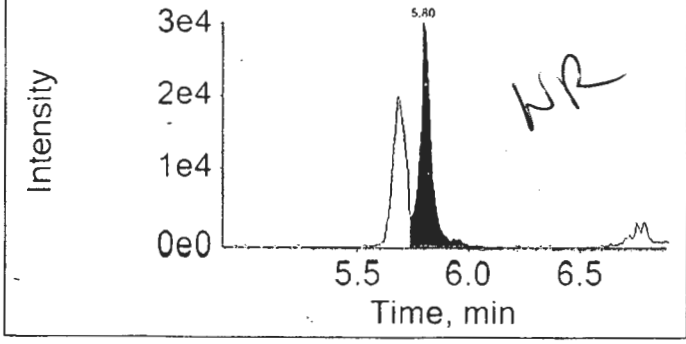


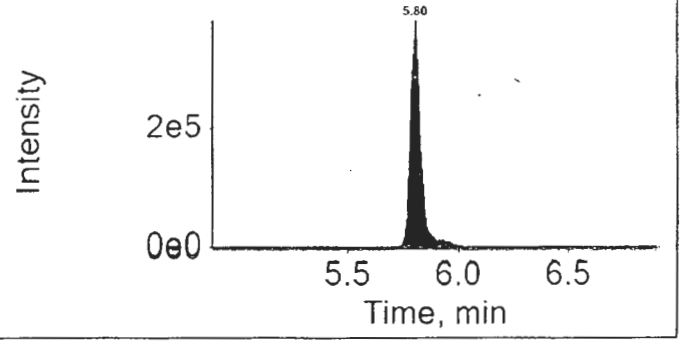
16SEP14-40.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





16SEP14-40.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0

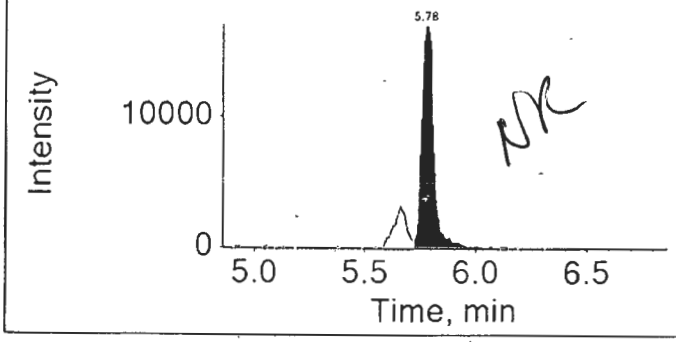




16SEP14-40.wiff

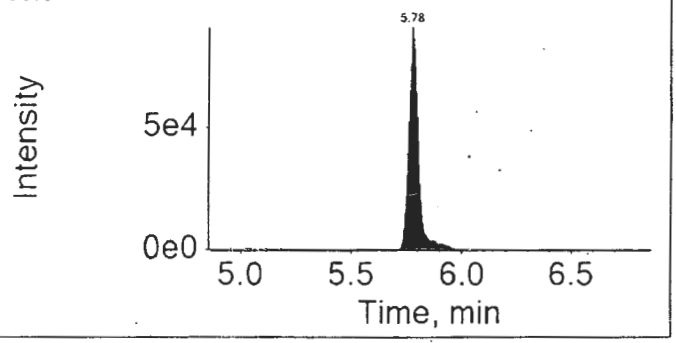
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

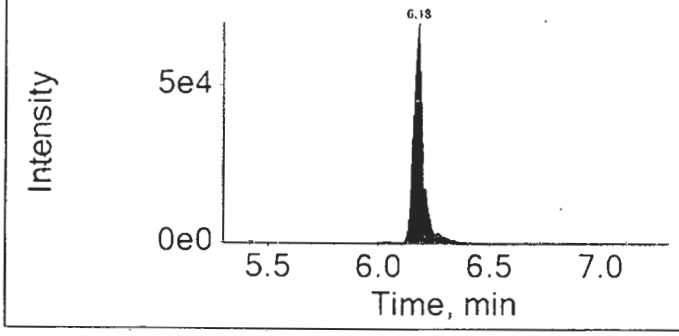
503.0 / 99.0



16SEP14-40.wiff

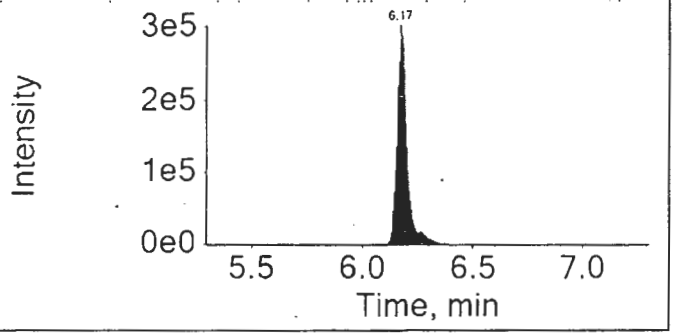
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

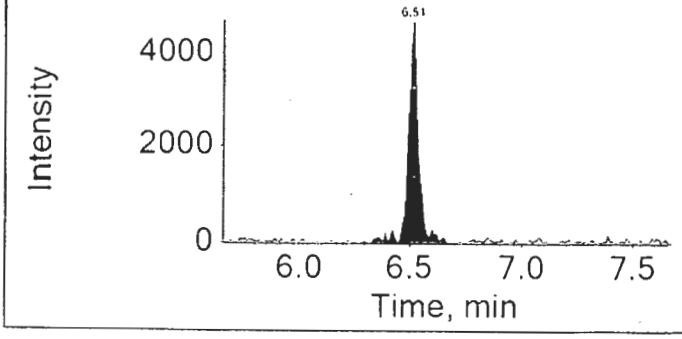
515.0 / 470.0



16SEP14-40.wiff

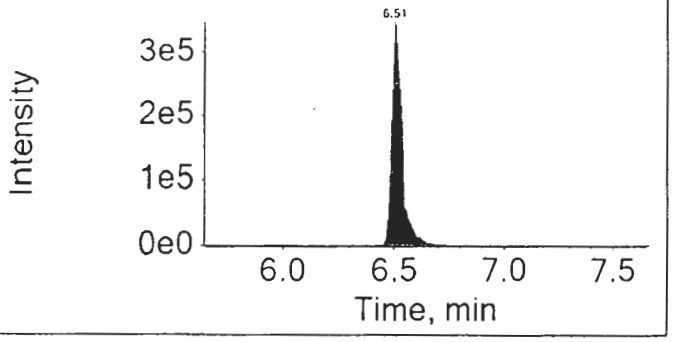
Analyte: PFUnDA

562.9 / 518.9

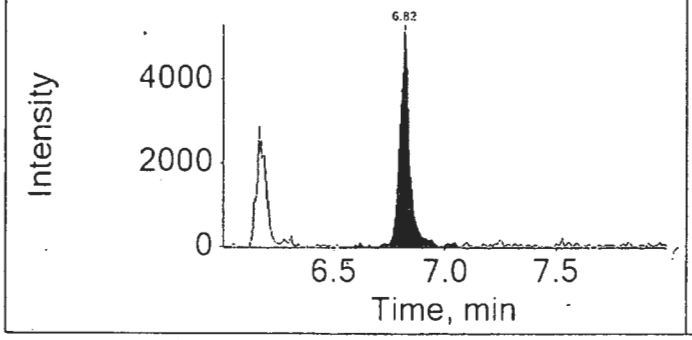


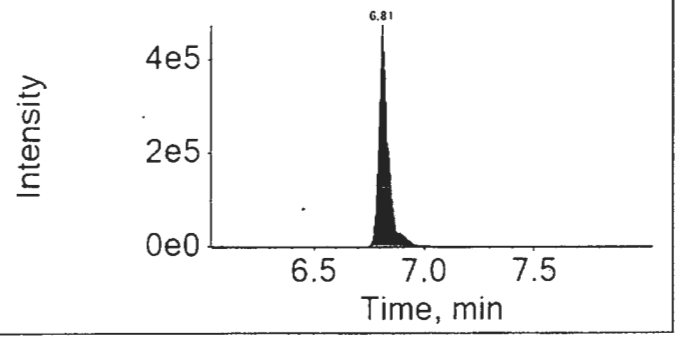
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

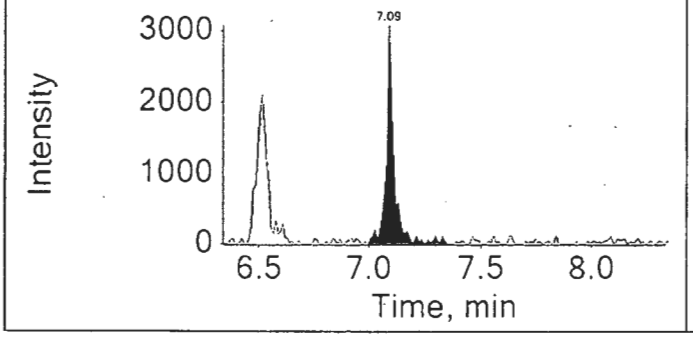


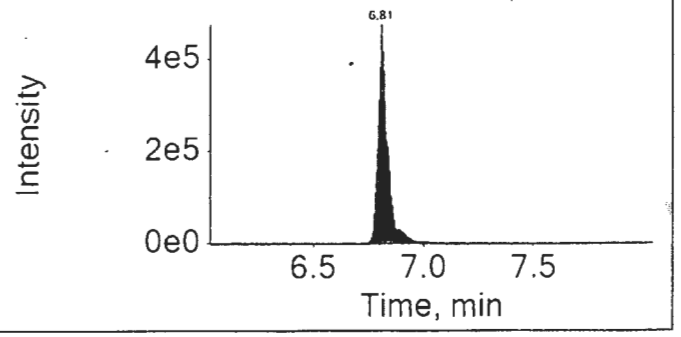
16SEP14-40.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



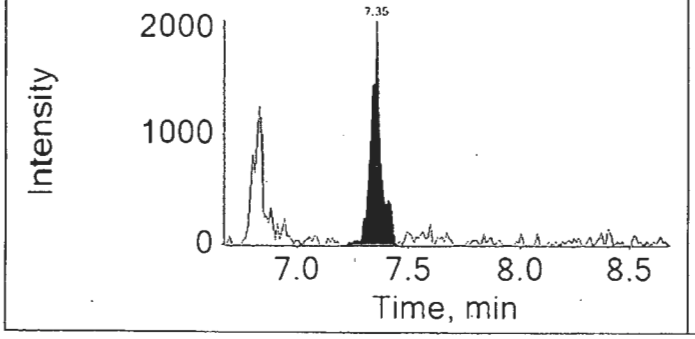


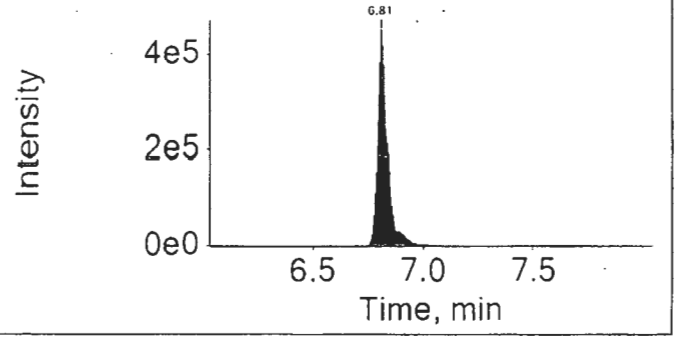
16SEP14-40.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16SEP14-40.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





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MEP 7824 9/15/16

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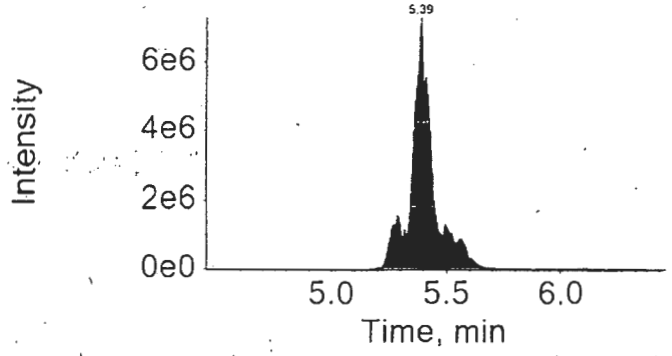
Print Date: 15/09/2016 1:24 PM

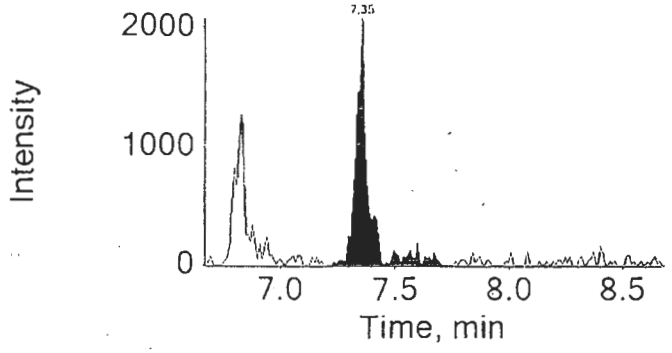
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-40.wiff	2016-09-14T19:00:34	8535035DL2	PFOA	5.39	48760061.4
16SEP14-40.wiff	2016-09-14T19:00:34	8535035DL2	PFTeDA	7.35	8005.1

Component: PFOA
Mass: 412.9 / 368.9



Component: PFTeDA
Mass: 712.9 / 668.9



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Principal Specialist

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LC-MS/MS Analysis Report

Printed: 9/24/2016 11:22:00 AM

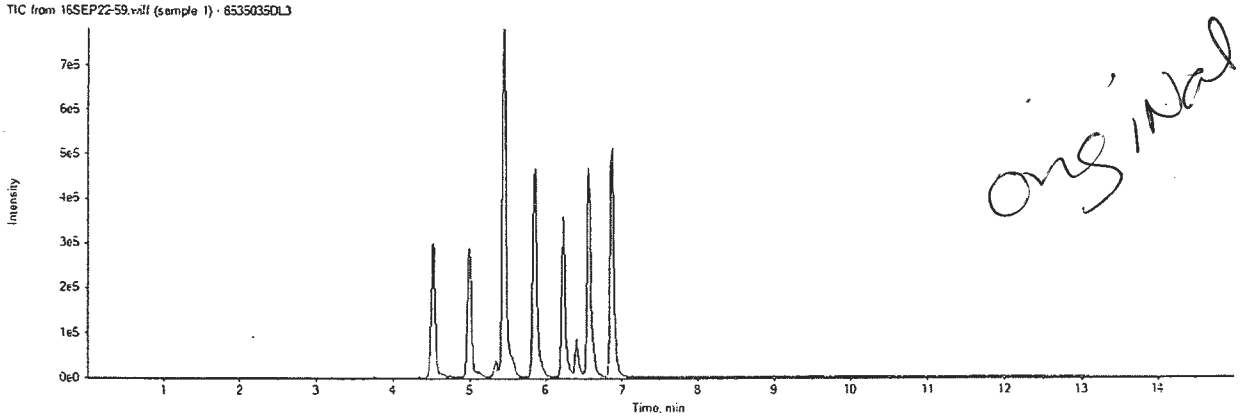
Sample Name:	8535035DL3		**Data File:**		16SEP22-59.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment		**Acquis Date:**		2016-09-23T08:04:56
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	51		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL3
			ICAL Name:		16SEP20ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.360		**Dilution Factor:**		10000.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.98	257904.2	N/A	N/A	ng/g
PFHxA	4.52	27661.7	A	13C2-PFHxA	4.52	1024996.9	0.027	4161.993	ng/g
PFHpA	4.99	19171.2	A	13C4-PFHpA	4.99	768766.5	0.025	1910.860	ng/g
PFHxS	4.99	1031.7	A	18O2-PFHxS	4.98	257904.2	0.004	327.686	ng/g
PFOA	5.44	1997896.3	M	13C4-PFOA	5.44	933678.3	2.140	175790.769	ng/g
PFNA	5.84	2581.2	A	13C5-PFNA	5.85	1512640.1	0.002	151.621	ng/g
PFOS	5.82	531.6	A	13C4-PFOS	5.82	299600.3	0.002	159.289	ng/g
PFDA	6.22	3253.5	M	13C2-PFDA	6.22	1167175.1	0.003	186.030	ng/g
PFUnDA	6.55	4221.2	A	13C2-PFUnDA	6.56	1412197.1	0.003	244.443	ng/g
PFDoDA	6.86	2126.5	M	13C2-PFDoDA	6.86	1759572.9	0.001	105.163	ng/g
PFTrDA	7.13	2314.1	A	13C2-PFDoDA	6.86	1759572.9	0.001	114.737	ng/g
PFTeDA	7.40	2028.0	M	13C2-PFDoDA	6.86	1759572.9	0.001	124.475	ng/g

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment

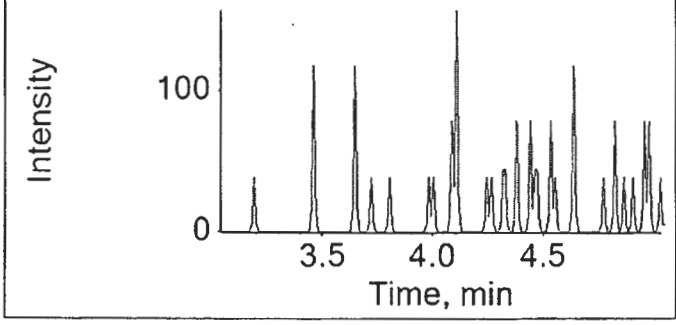


original

16SEP22-59.wiff

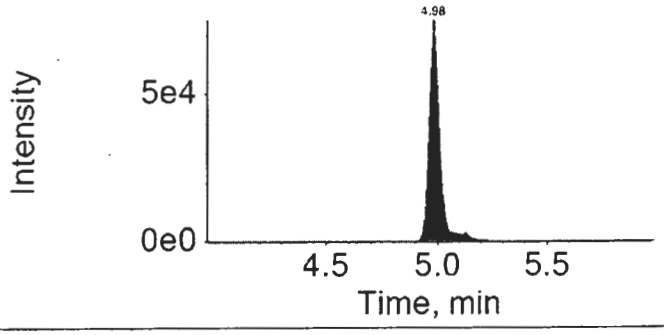
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

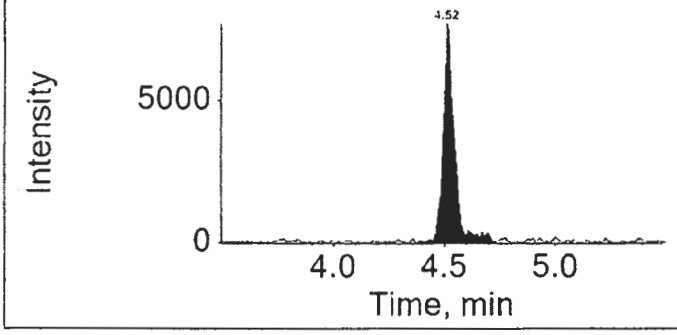
403.0 / 103.0



16SEP22-59.wiff

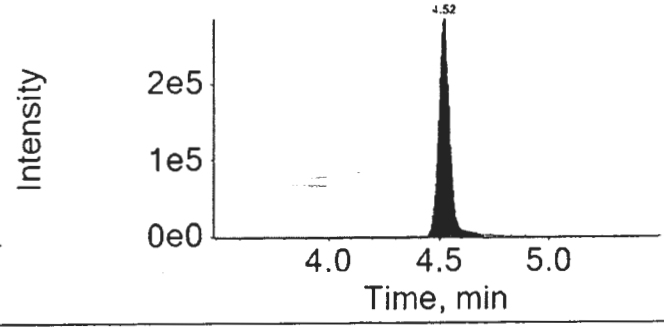
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

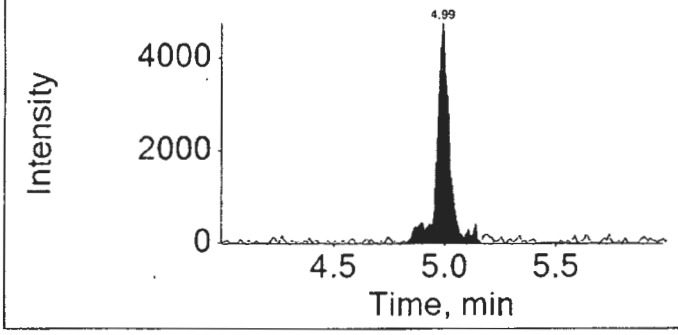
314.9 / 270.0



16SEP22-59.wiff

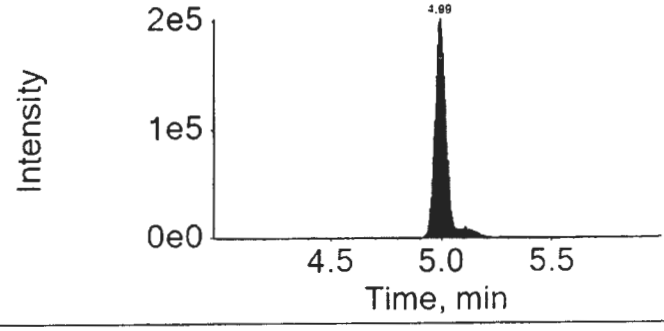
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



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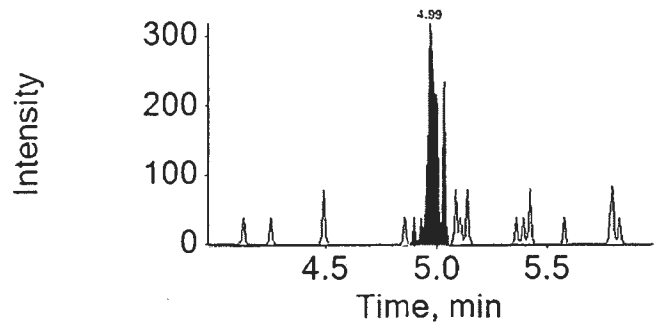
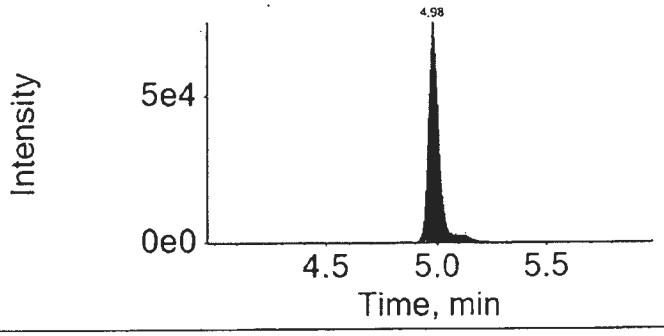
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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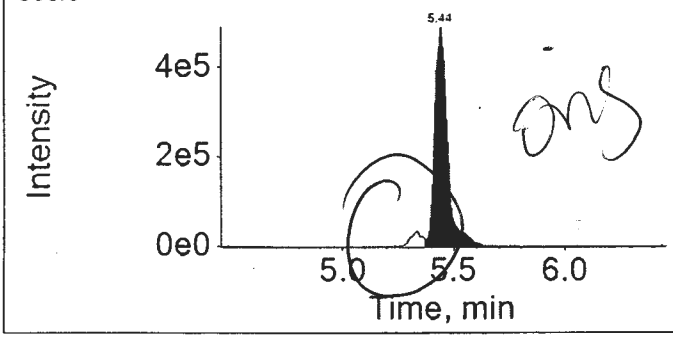
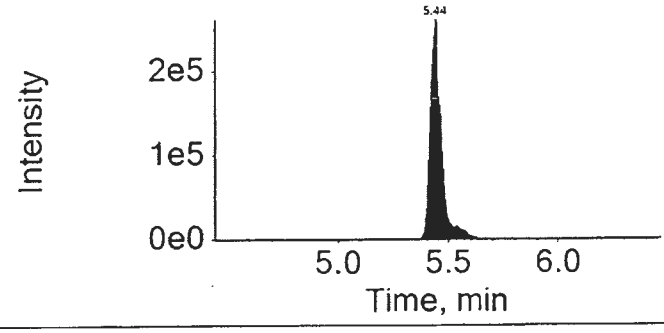
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

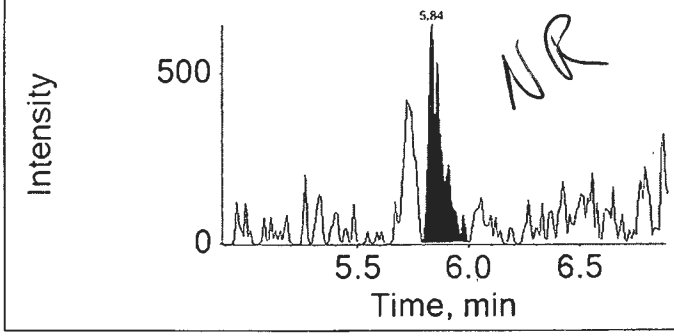
417.0 / 372.0



16SEP22-59.wiff

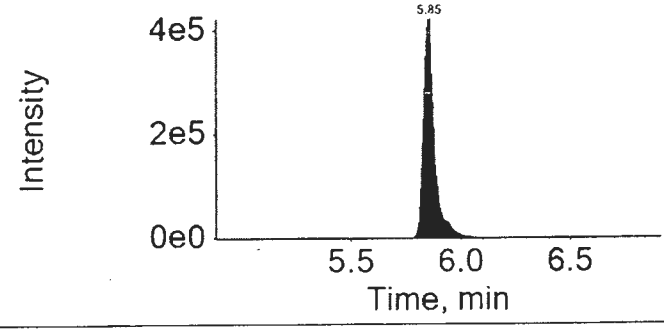
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

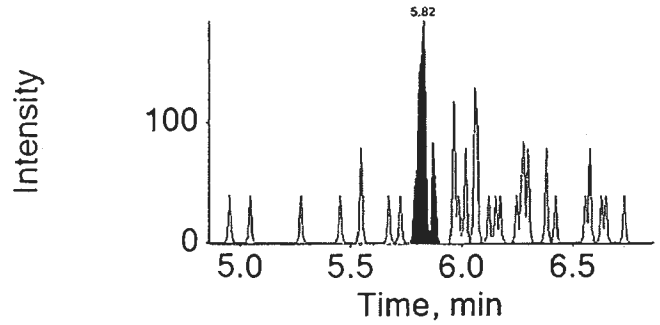
468.0 / 423.0



16SEP22-59.wiff

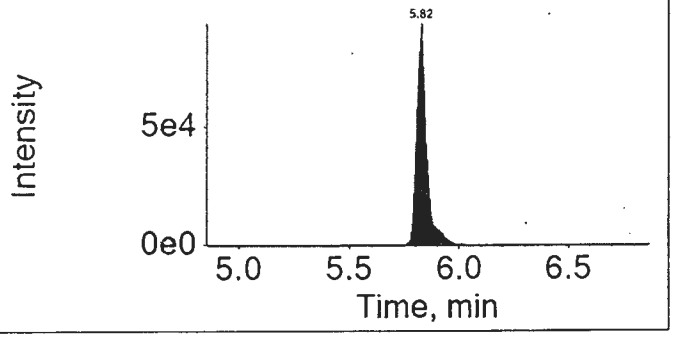
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

503.0 / 99.0



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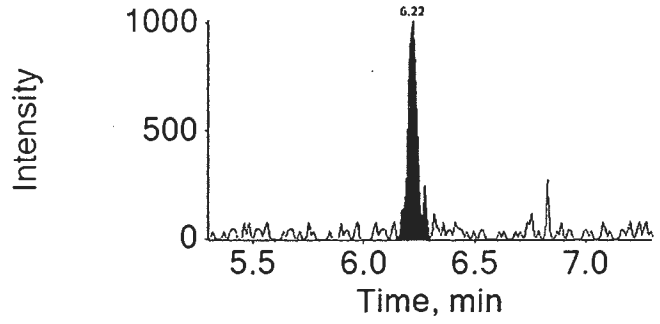
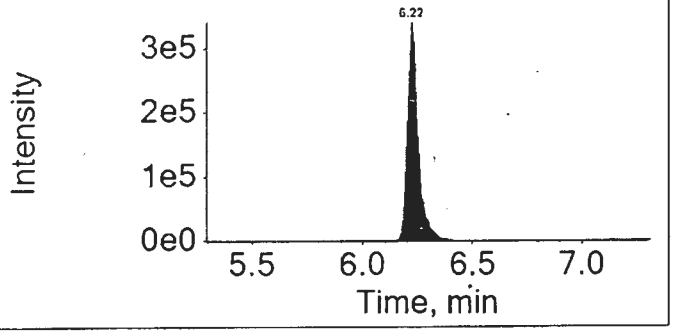
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

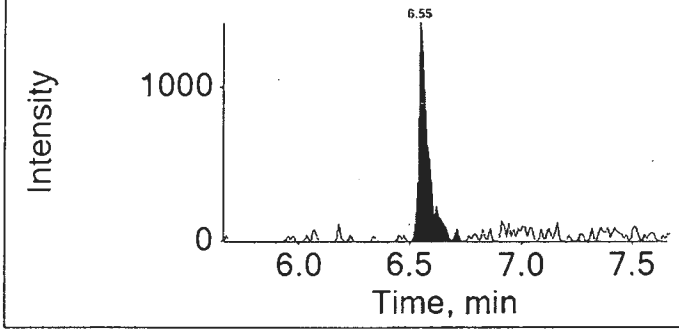
515.0 / 470.0



16SEP22-59.wiff

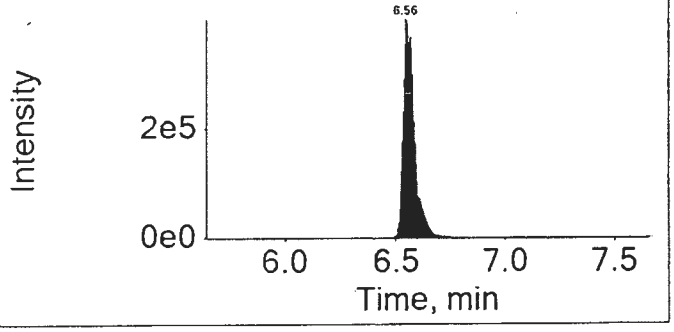
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



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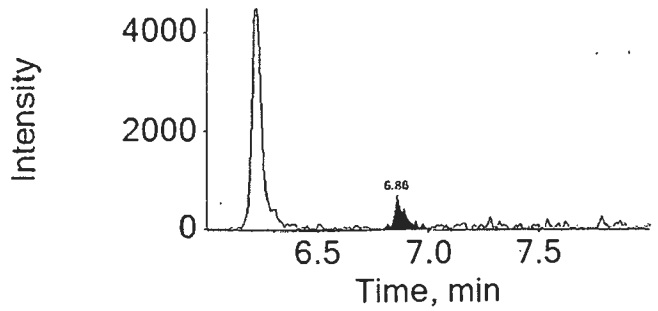
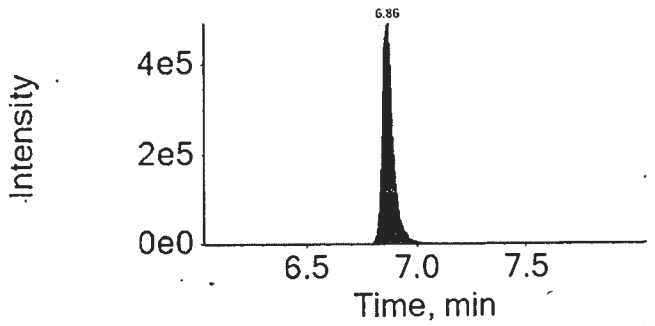
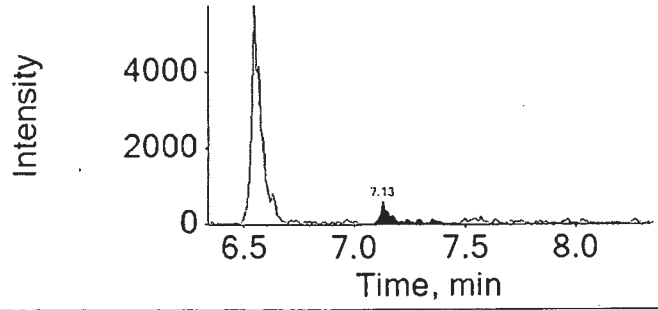
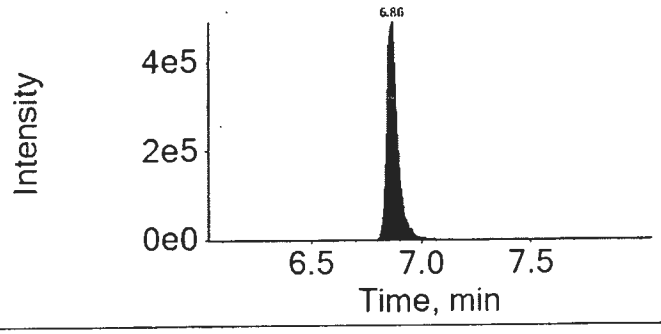
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



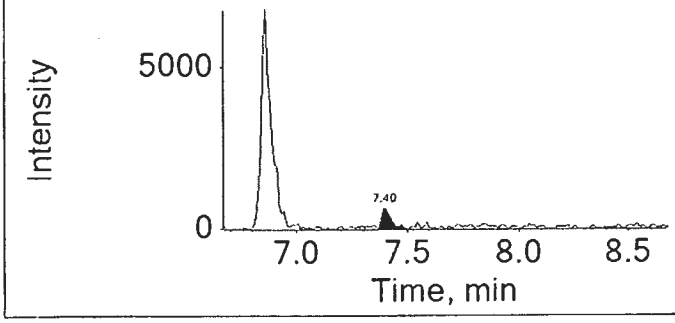


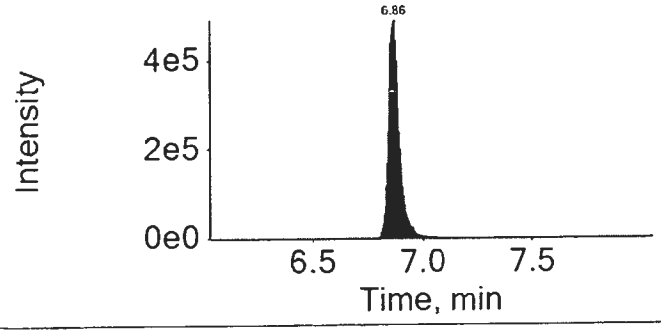
16SEP22-59.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16SEP22-59.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd
SEP 2 6 2016

Lynn Dodd
Principal Specialist

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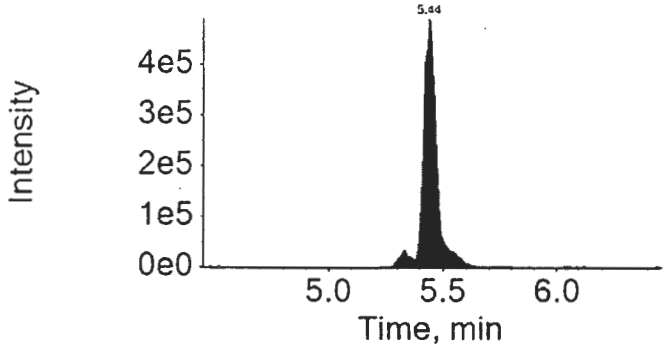
Print Date: 24/09/2016 11:22 AM

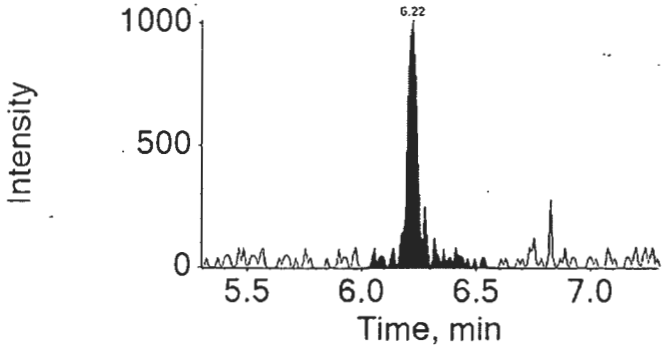
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP22-59.wiff	2016-09-23T08:04:56	8535035DL3	PFOA	5.44	2131394.7
16SEP22-59.wiff	2016-09-23T08:04:56	8535035DL3	PFDA	6.22	4096.4
16SEP22-59.wiff	2016-09-23T08:04:56	8535035DL3	PFDoDA	6.86	2378.3
16SEP22-59.wiff	2016-09-23T08:04:56	8535035DL3	PFTeDA	7.40	3748.9

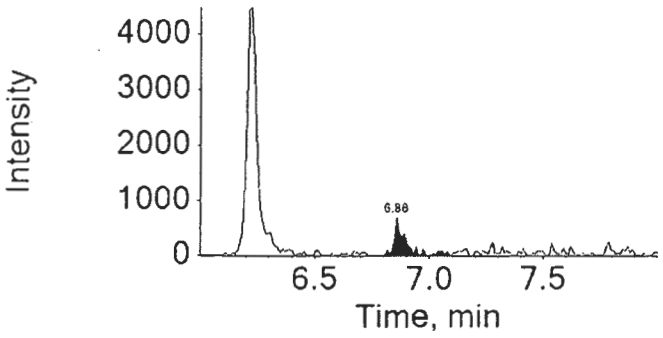
Component: PFOA
Mass: 412.9 / 368.9



Component: PFDA
Mass: 512.9 / 469.0



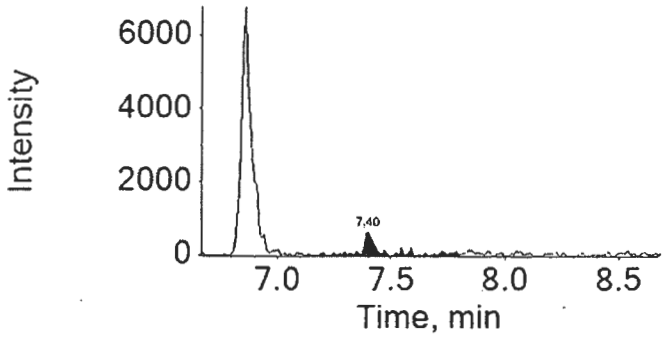
Component: PFDoDA
Mass: 612.9 / 568.9



Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFTeDA
Mass: 712.9 / 668.9



Lynn Dodd
SEP 26 2016

Lynn Dodd
Principal Specialist

MEN 9/26/16

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Analysis Report

REVISED

Sample Description: SG3-SUMP03-160817 Grab Sediment
SGPP - Bennington

LL Sample # SW 8535035
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/17/2016 11:45 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

BENS3 SDG#: SPP17-22

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	10	0.48	1.5	1
14027	**Perfluorodecanoic acid**	335-76-2	170	1.9	3.9	10
14027	**Perfluorododecanoic acid**	307-55-1	16	0.39	0.77	1
14027	**Perfluoroheptanoic acid**	375-85-9	1,600	29	58	100
14027	**Perfluorohexanesulfonate**	355-46-4	9.3	0.48	1.5	1
14027	**Perfluorohexanoic acid**	307-24-4	4,200	19	39	100
14027	**Perfluorononanoic acid**	375-95-1	140	1.9	3.9	10
14027	**Perfluoro-octanesulfonate**	1763-23-1	350	0.68	1.5	1
14027	**Perfluorooctanoic acid**	335-67-1	190,000	2,900	5,800	10000
14027	**Perfluorotetradecanoic acid**	376-06-7	6.7	0.29	0.77	1
14027	**Perfluorotridecanoic acid**	72629-94-8	7.0	0.58	1.2	1
14027	**Perfluoroundecanoic acid**	2058-94-8	14	0.29	0.58	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	3.7	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/06/2016 18:13	Jason W Knight	1
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 19:00	Marissa C Drexinger	100
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 19:49	Marissa C Drexinger	10
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/23/2016 08:04	Marissa C Drexinger	10000
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16235011	08/23/2016 11:10	Devon M Whooley	1
00111	Moisture	SM 2540 G-1997	1	16236820006A	08/24/2016 02:56	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL
Sample (wt): 5.36 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 3.7

Instrument ID: 24743

Lab Sample ID: 8535035
Lab File ID: 16SEP06-35.WIFF
Date Collected: 08/17/2016 11:45
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/06/2016 18:13
Dilution Factor: 1.0

Concentration Units: ng/g

Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	10	
307-24-4	PFHxA	4400	E
375-85-9	PFHpA	3000	E
355-46-4	PFHxS	9.3	J
335-67-1	PFOA	86000	E
375-95-1	PFNA	110	E
1763-23-1	PFOS	350	
335-76-2	PFDA	260	E
2058-94-8	PFUnDA	14	
307-55-1	PFDoDA	16	
72629-94-8	PFTrDA	7.0	
376-06-7	PFTeDA	6.7	

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:14:00 PM

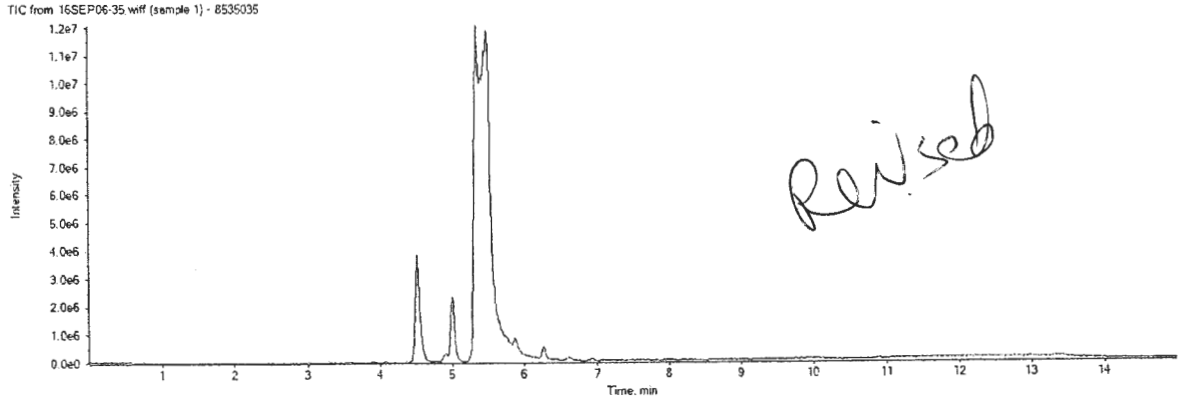
Sample Name:	8535035			**Data File:**		16SEP06-35.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment			**Acquis Date:**		2016-09-06T18:13:51
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	23			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011
				ICAL Name:		16SEP01ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.360			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	4.07	0.820	28423.5	M	18O2-PFHxS	4.99	22032.0	1.290	10.036
PFHxA	4.52	1.000	17871561.0	A	13C2-PFHxA	4.52	75237.5	237.535	4213.253
PFHpA	5.00	1.000	9139010.9	A	13C4-PFHpA	5.00	28894.9	316.285	2843.215
PFHxS	4.99	1.000	22191.0	M	18O2-PFHxS	4.99	22032.0	1.007	8.915
PFOA	5.41	1.000	186589755.8	M	13C4-PFOA	5.40	20670.0	9027.099	82521.555
PFNA	5.88	1.000	979449.9	A	13C5-PFNA	5.88	89747.6	10.913	101.574
PFOS	5.85	1.000	794199.9	M	13C4-PFOS	5.86	23967.8	33.136	340.895
PFDA	6.25	1.000	1524949.8	A	13C2-PFDA	6.25	48972.9	31.139	252.430
PFUnDA	6.59	1.000	136749.3	A	13C2-PFUnDA	6.59	95720.8	1.429	13.802
PFDoDA	6.92	1.000	159018.7	A	13C2-PFDoDA	6.93	107231.5	1.483	14.948
PFTrDA	7.27	1.050	71781.8	M	13C2-PFDoDA	6.93	107231.5	0.669	6.694
PFTeDA	7.59	1.100	67529.1	A	13C2-PFDoDA	6.93	107231.5	0.630	6.420

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment

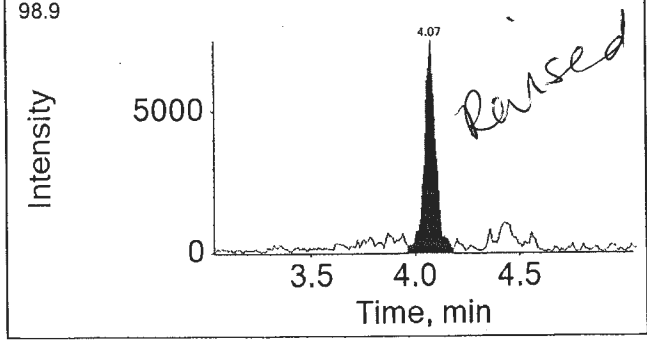


Revised

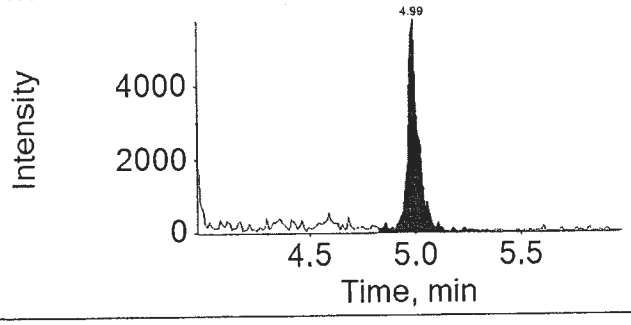
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

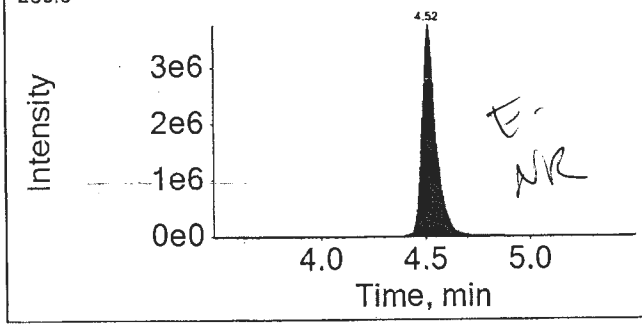
16SEP06-35.wiff
Analyte: PFBS
298.9 / 98.9



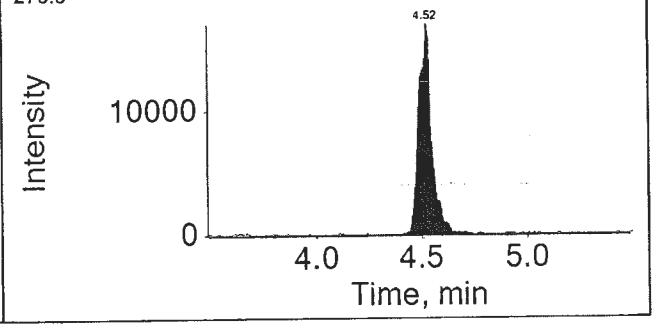
Internal Standard: 18O2-PFHxS
403.0 / 103.0



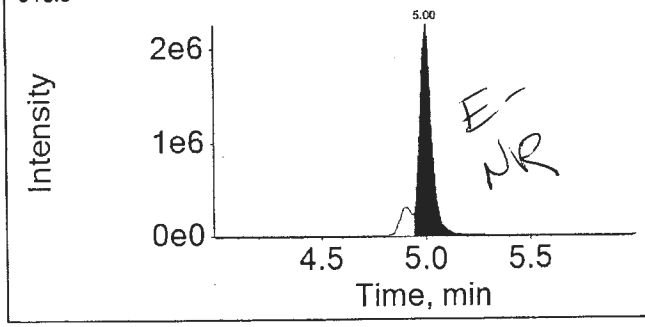
16SEP06-35.wiff
Analyte: PFHxA
312.9 / 269.0



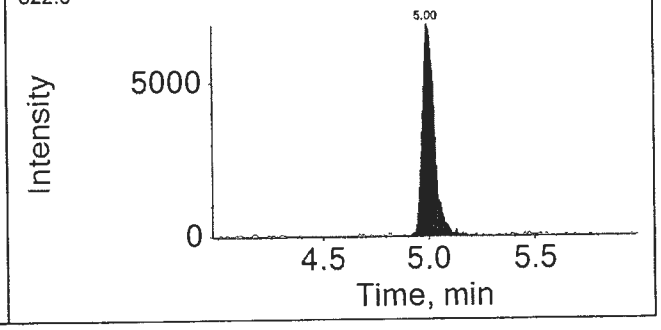
Internal Standard: 13C2-PFHxA
314.9 / 270.0



16SEP06-35.wiff
Analyte: PFHpA
362.9 / 318.9



Internal Standard: 13C4-PFHpA
367.0 / 322.0



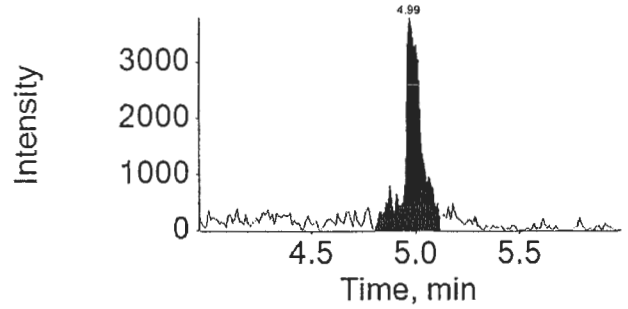
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-35.wiff

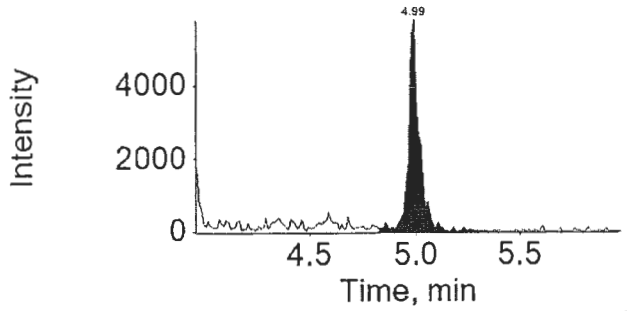
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

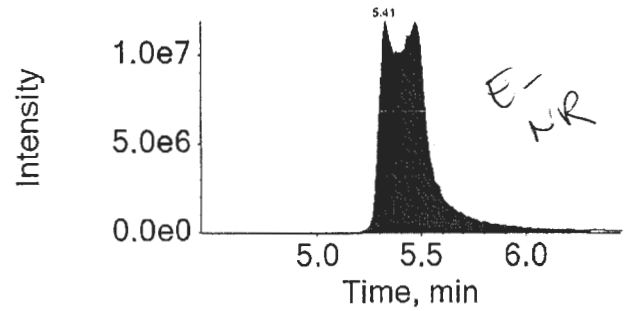
403.0 / 103.0



16SEP06-35.wiff

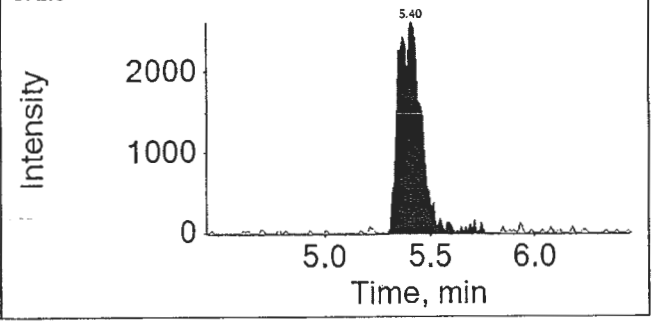
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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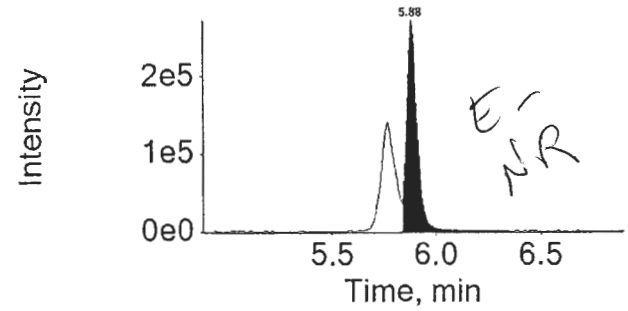
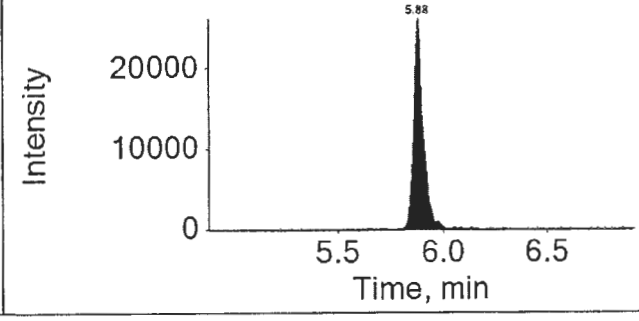
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



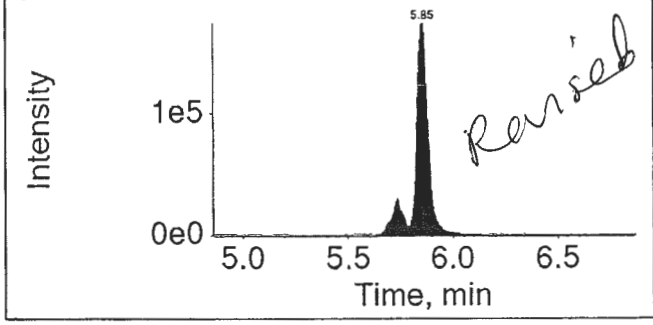
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-35.wiff

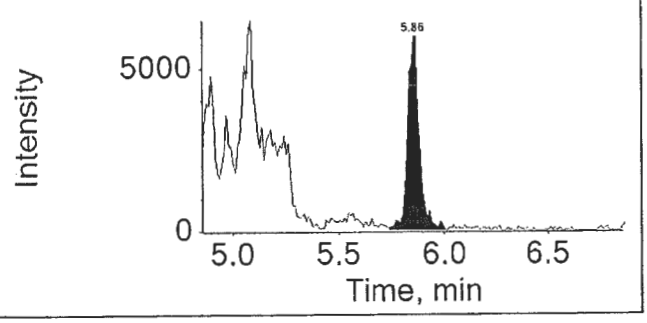
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

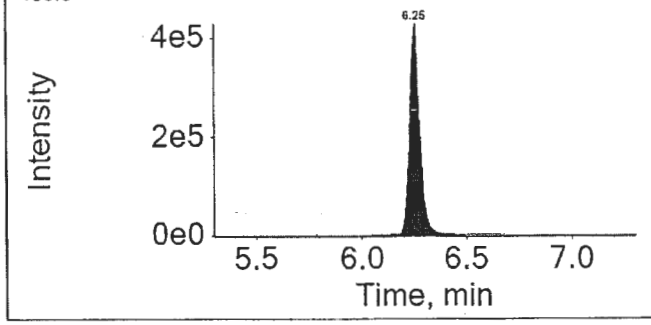
503.0 / 99.0



16SEP06-35.wiff

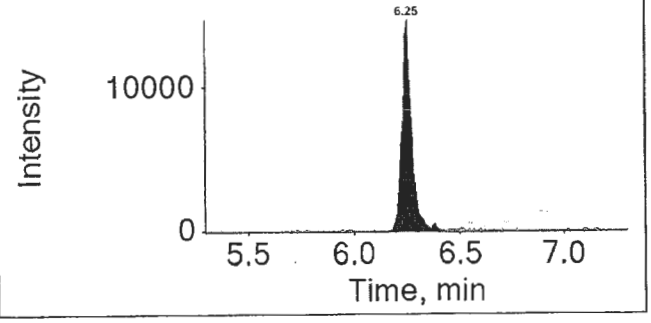
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

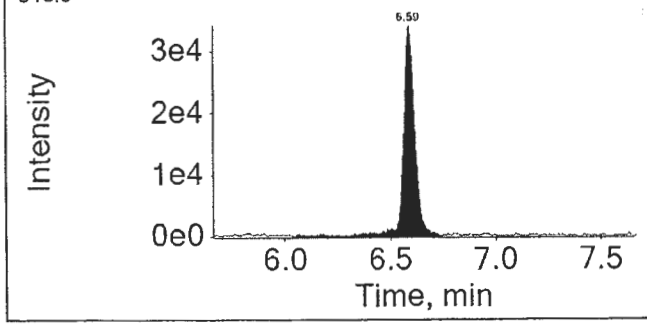
515.0 / 470.0



16SEP06-35.wiff

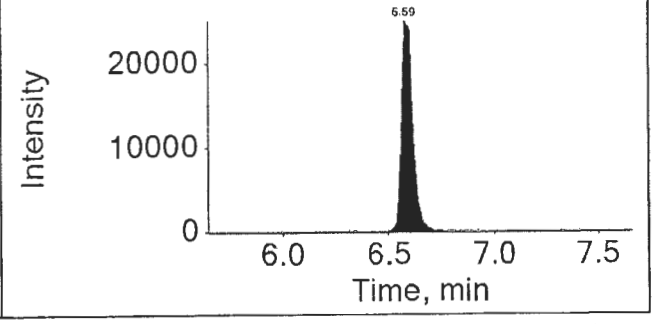
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



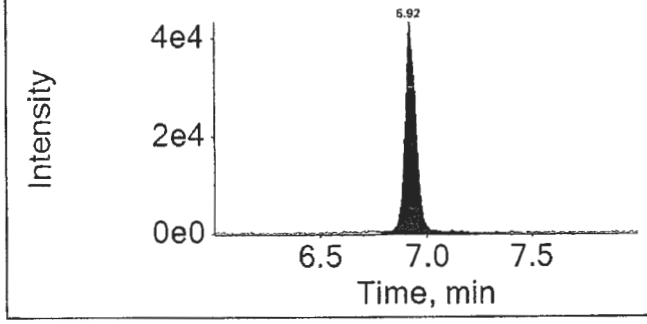
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-35.wiff

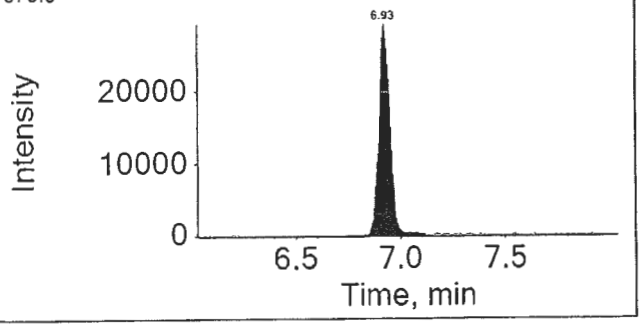
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

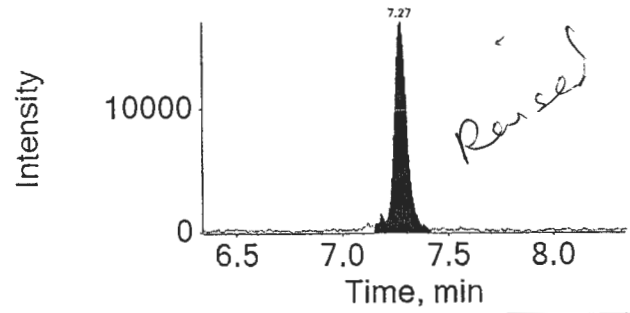
615.0 / 570.0



16SEP06-35.wiff

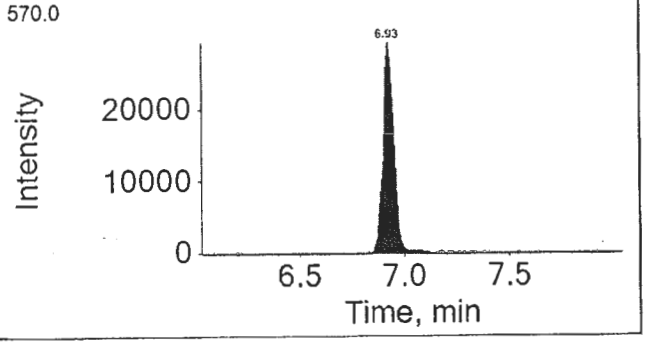
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

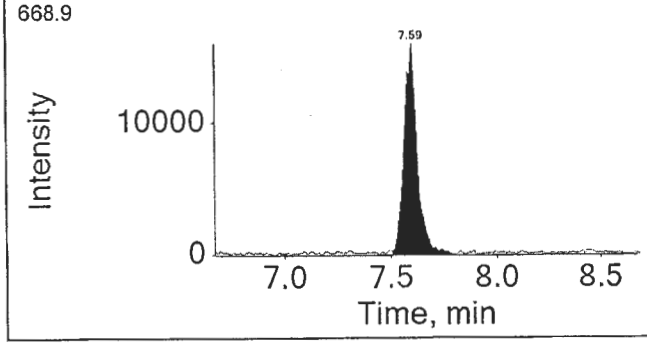
615.0 / 570.0



16SEP06-35.wiff

Analyte: PFTeDA

712.9 / 668.9



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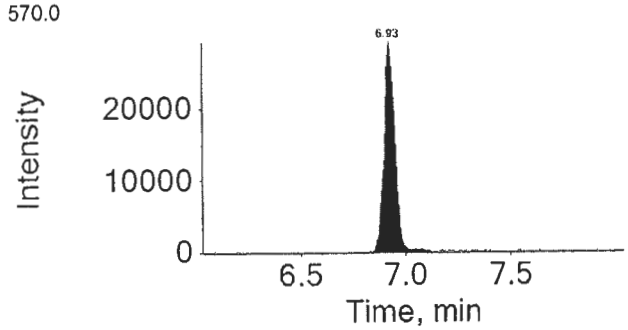
615.0 / 570.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

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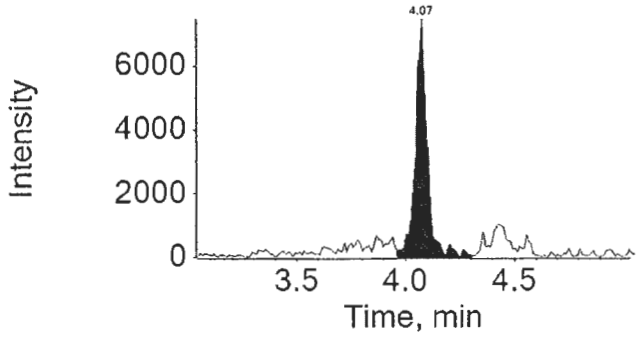
Print Date: 09/06/2017 5:15 PM

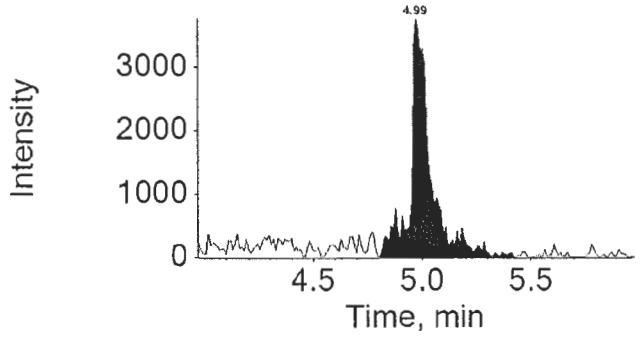
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP06-35.wiff	2016-09-06T18:13:51	8535035	PFBS	4.07	29738.5
16SEP06-35.wiff	2016-09-06T18:13:51	8535035	PFHxS	4.99	24720.9
16SEP06-35.wiff	2016-09-06T18:13:51	8535035	PFOA	5.46	115423222.6
16SEP06-35.wiff	2016-09-06T18:13:51	8535035	PFOS	5.85	683099.2
16SEP06-35.wiff	2016-09-06T18:13:51	8535035	PFTrDA	7.27	75891.6

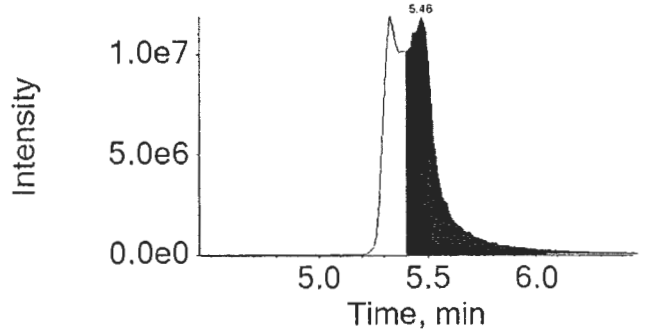
Component: PFBS
Mass: 298.9 / 98.9



Component: PFHxS
Mass: 398.9 / 99.0



Component: PFOA
Mass: 412.9 / 368.9



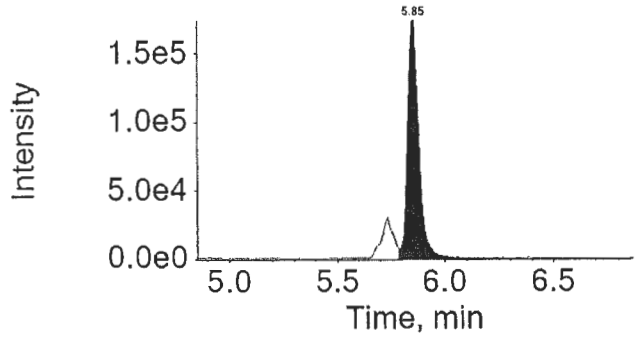
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:26 am, 6/13/17

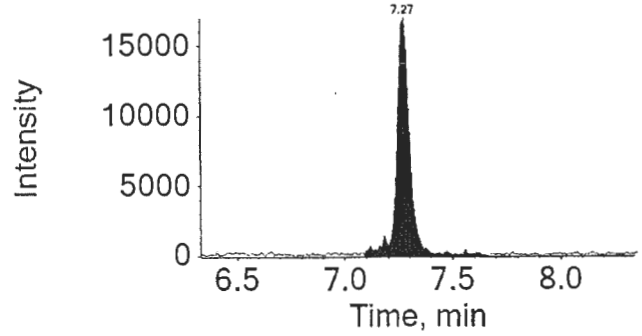
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFOS
Mass: 498.9 / 98.9



Component: PFTrDA
Mass: 662.9 / 618.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:26 am, 6/13/17

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL
Instrument ID: 24743
Sample (wt): 5.36 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 3.7

Lab Sample ID: 8535035DL
Lab File ID: 16SEP14-43.WIFF
Date Collected: 08/17/2016 11:45
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/14/2016 19:49
Dilution Factor: 10.0

Concentration Units: ng/g
Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	11	
307-24-4	PFHxA	3400	E
375-85-9	PFHpA	1700	E
355-46-4	PFHxS	8.5	
335-67-1	PFOA	160000	E
375-95-1	PFNA	140	
1763-23-1	PFOS	310	
335-76-2	PFDA	170	
2058-94-8	PFUnDA	12	
307-55-1	PFDoDA	12	
72629-94-8	PFTrDA	5.9	
376-06-7	PFTeDA	5.9	

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:26:00 PM

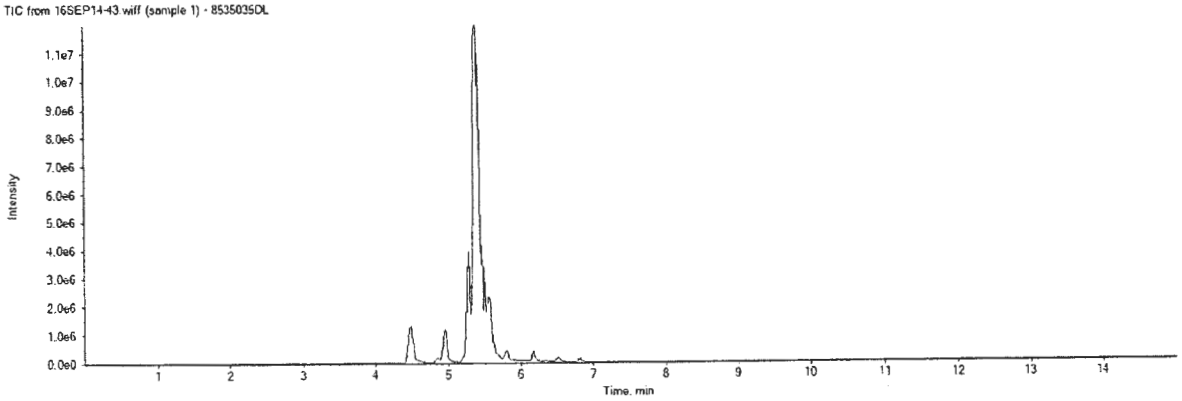
Sample Name:	8535035DL			**Data File:**		16SEP14-43.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment			**Acquis Date:**		2016-09-14T19:49:40
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	84			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011DL
				ICAL Name:		16SEP13ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.360			**Dilution Factor:**		10.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	4.04	0.820	16478.1	A	18O2-PFHxS	4.94	107226.6	0.154	10.387
PFHxA	4.48	1.000	6368408.4	A	13C2-PFHxA	4.48	262645.8	24.247	3316.185
PFHpA	4.95	1.000	4528836.8	A	13C4-PFHpA	4.95	222332.7	20.370	1620.663
PFHxS	4.94	1.000	11507.5	A	18O2-PFHxS	4.94	107226.6	0.107	8.182
PFOA	5.38	1.000	105175450.6	M	13C4-PFOA	5.38	52848.1	1990.147	156390.594
PFNA	5.80	1.000	749602.6	M	13C5-PFNA	5.80	430280.6	1.742	138.815
PFOS	5.78	1.000	388690.8	M	13C4-PFOS	5.77	115477.3	3.366	295.956
PFDA	6.16	1.000	783187.9	A	13C2-PFDA	6.17	298504.4	2.624	166.435
PFUnDA	6.50	1.000	51815.3	A	13C2-PFUnDA	6.51	365936.4	0.142	11.281
PFDoDA	6.81	1.000	52903.4	A	13C2-PFDoDA	6.81	391838.9	0.135	11.534
PFTrDA	7.09	1.040	25796.7	M	13C2-PFDoDA	6.81	391838.9	0.066	5.681
PFTeDA	7.35	1.080	22139.2	A	13C2-PFDoDA	6.81	391838.9	0.057	5.695

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment



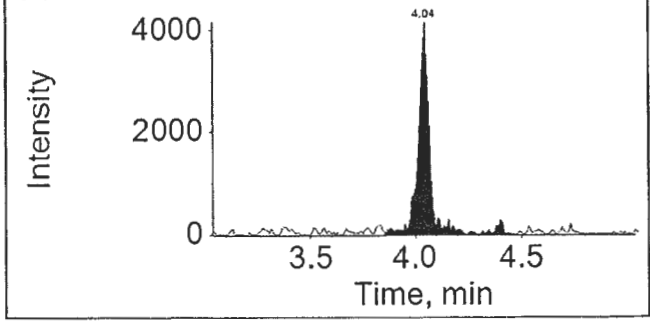
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:41 am, 6/13/17

16SEP14-43.wiff

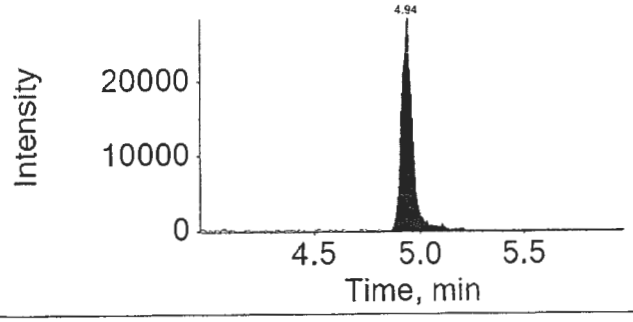
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

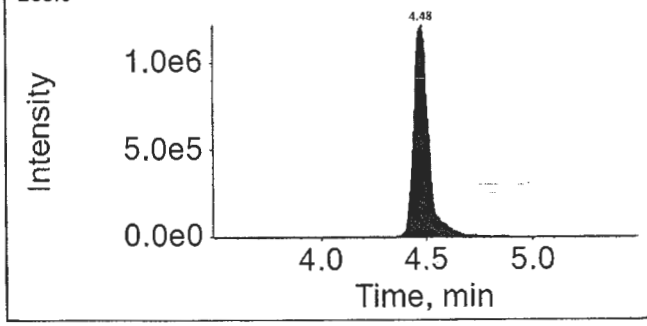
403.0 / 103.0



16SEP14-43.wiff

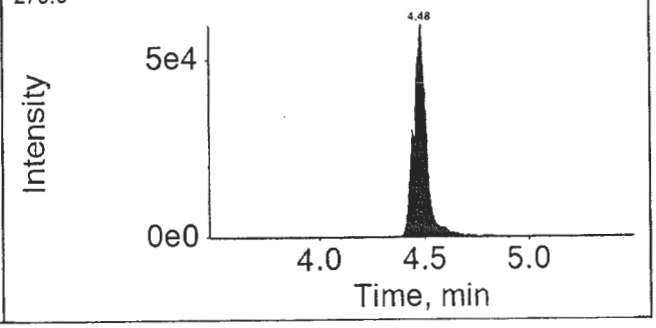
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

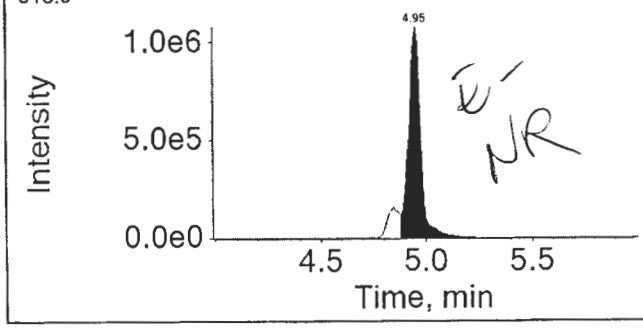
314.9 / 270.0



16SEP14-43.wiff

Analyte: PFHpA

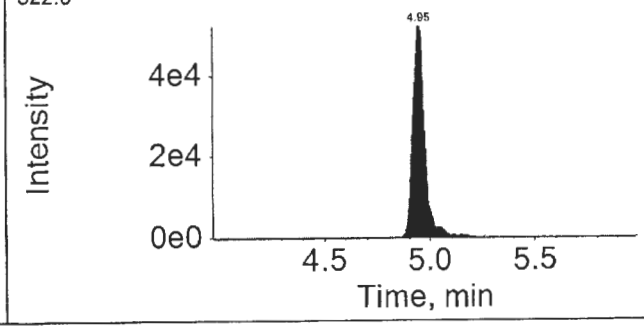
362.9 / 318.9



E
NR

Internal Standard: 13C4-PFHpA

367.0 / 322.0



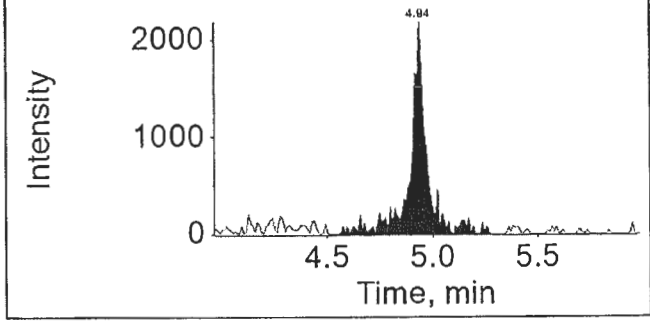
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:41 am, 6/13/17

16SEP14-43.wiff

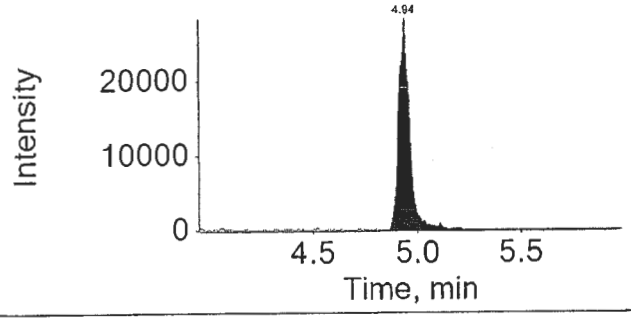
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

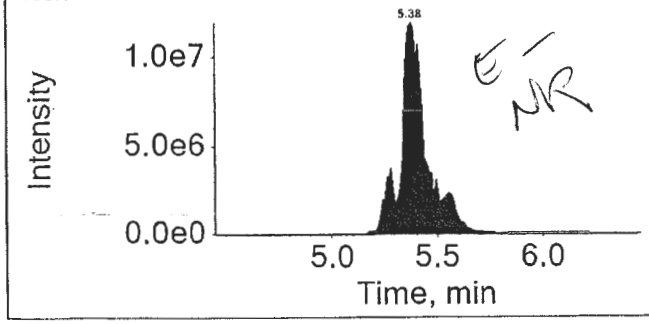
403.0 / 103.0



16SEP14-43.wiff

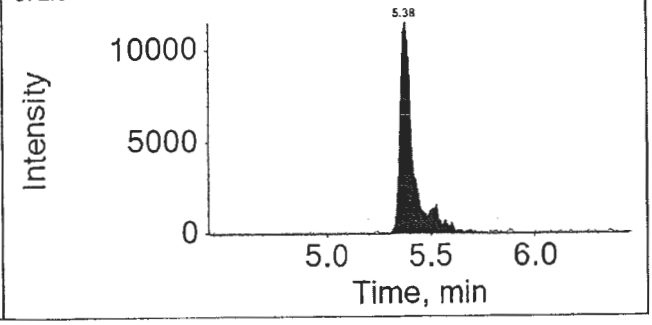
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

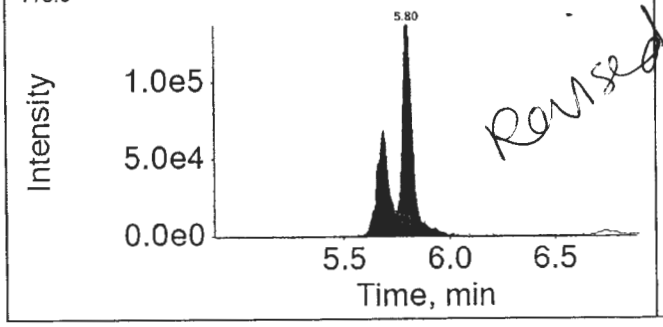
417.0 / 372.0



16SEP14-43.wiff

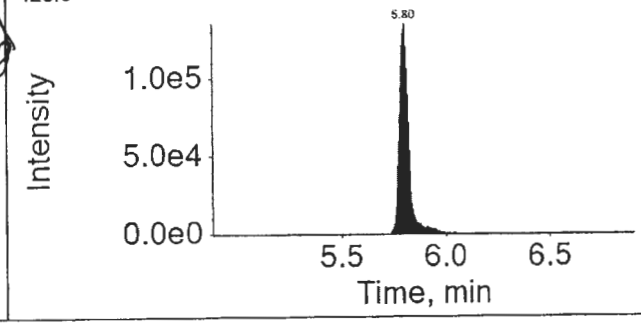
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



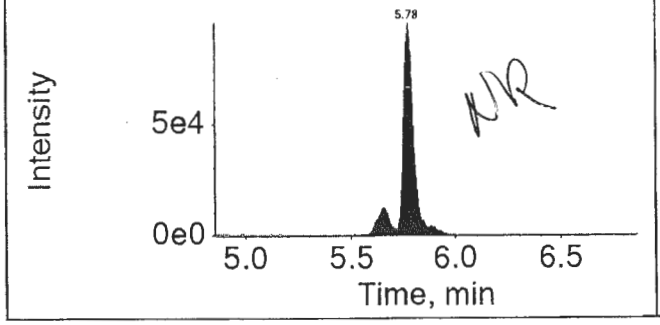
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:41 am, 6/13/17

16SEP14-43.wiff

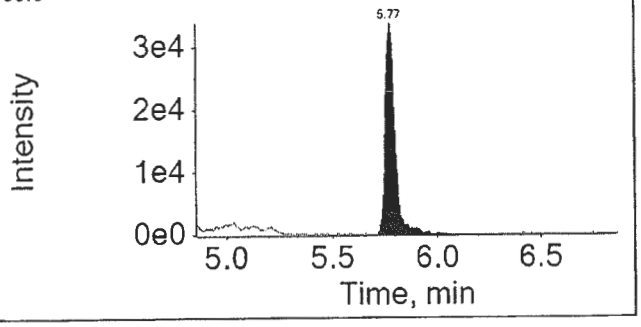
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

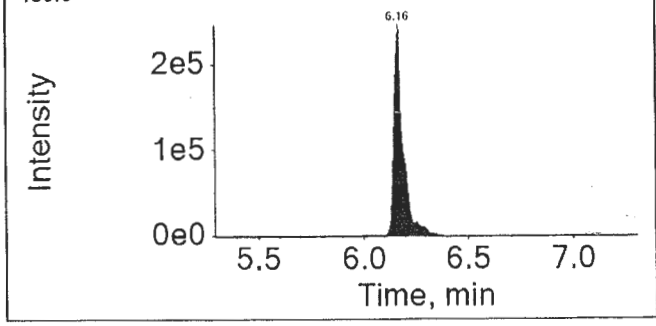
503.0 / 99.0



16SEP14-43.wiff

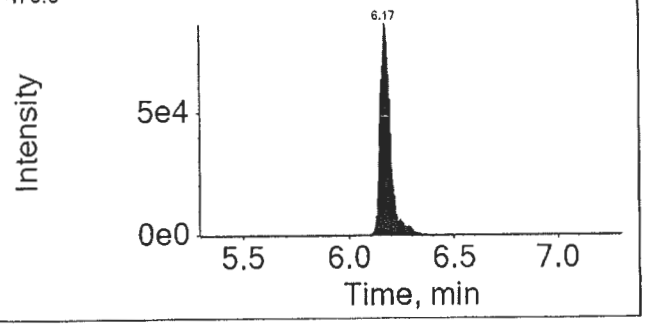
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

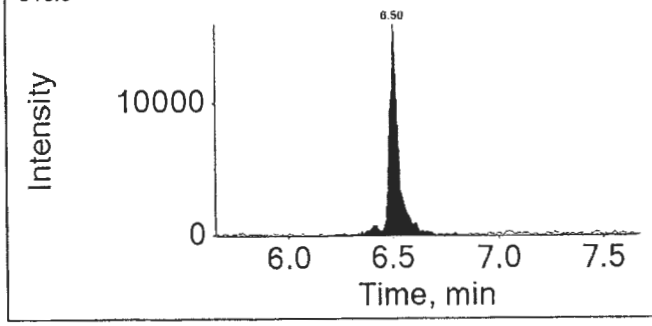
515.0 / 470.0



16SEP14-43.wiff

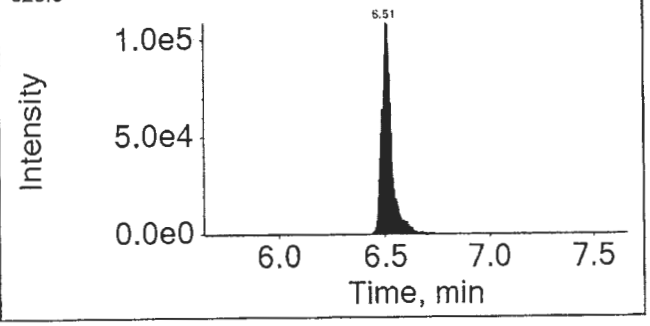
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



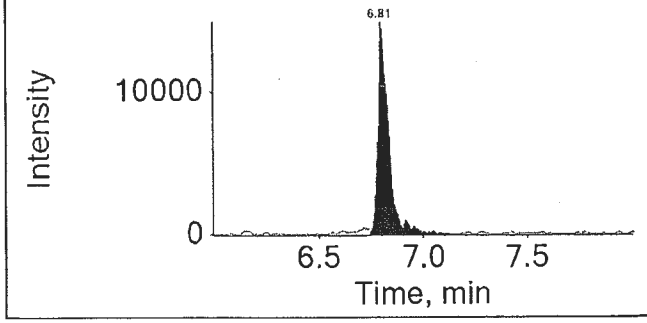
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:41 am, 6/13/17

16SEP14-43.wiff

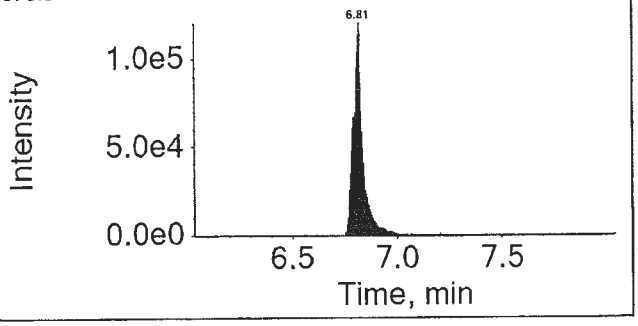
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

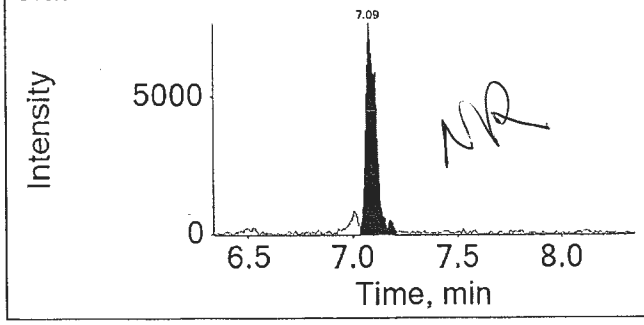
615.0 / 570.0



16SEP14-43.wiff

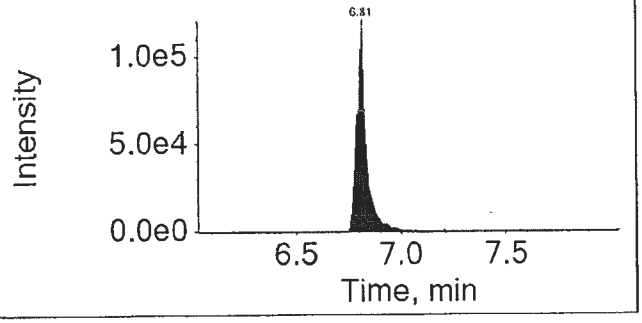
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

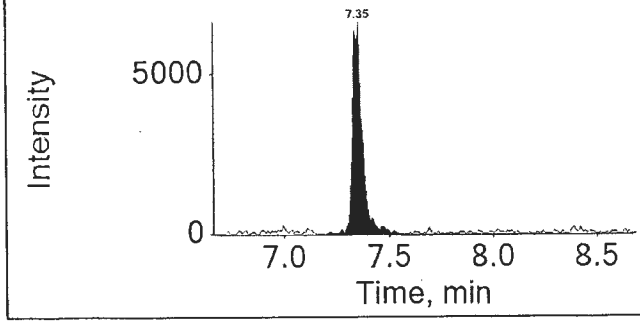
615.0 / 570.0



16SEP14-43.wiff

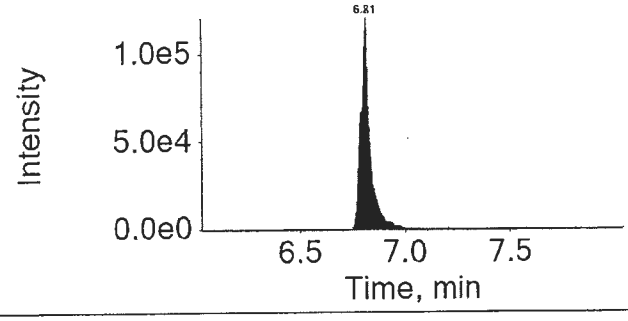
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:41 am, 6/13/17

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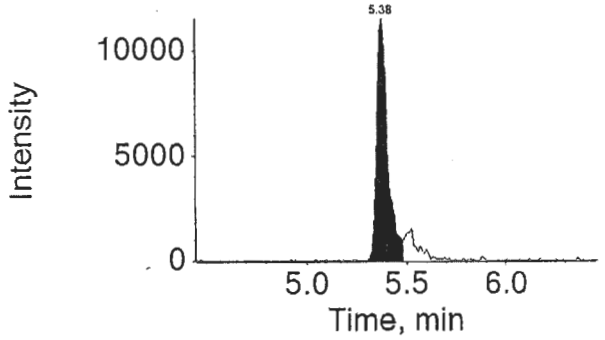
Print Date: 09/06/2017 5:28 PM

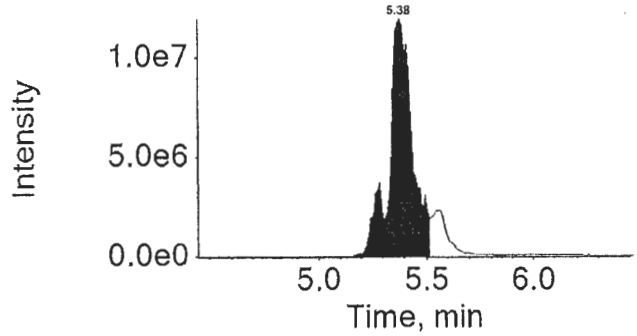
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-43.wiff	2016-09-14T19:49:40	8535035DL	13C4-PFOA	5.38	45751.9
16SEP14-43.wiff	2016-09-14T19:49:40	8535035DL	PFOA	5.38	92089359.7
16SEP14-43.wiff	2016-09-14T19:49:40	8535035DL	PFNA	5.80	480884.1
16SEP14-43.wiff	2016-09-14T19:49:40	8535035DL	PFOS	5.78	333183.9
16SEP14-43.wiff	2016-09-14T19:49:40	8535035DL	PFTrDA	7.09	27057.4

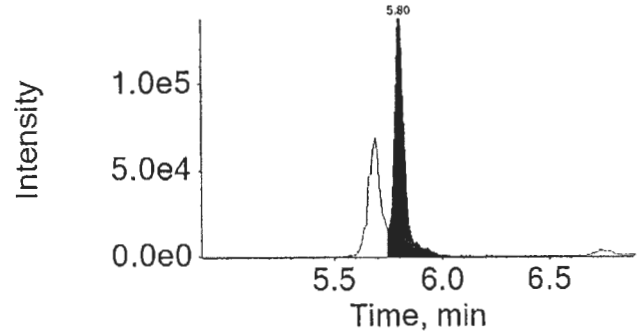
IS Component: 13C4-PFOA
IS Mass: 417.0 / 372.0



Component: PFOA
Mass: 412.9 / 368.9



Component: PFNA
Mass: 462.9 / 418.9



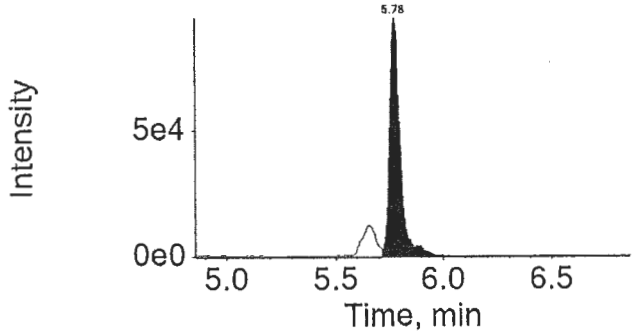
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:36 am, 6/13/17

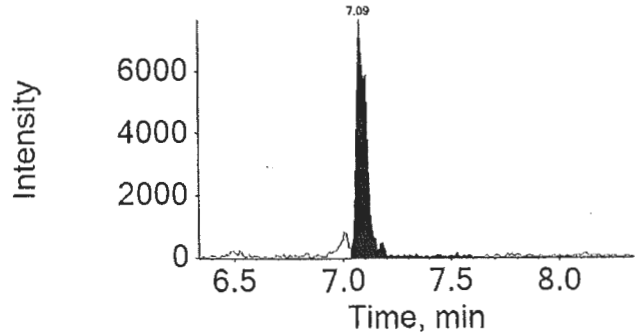
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFOS
Mass: 498.9 / 98.9



Component: PFTrDA
Mass: 662.9 / 618.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:36 am, 6/13/17

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL
Instrument ID: 24743
Sample (wt): 5.36 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 3.7

Lab Sample ID: 8535035DL2
Lab File ID: 16SEP14-40.WIFF
Date Collected: 08/17/2016 11:45
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/14/2016 19:00
Dilution Factor: 100.0

Concentration Units: ng/g
Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	48	U
307-24-4	PFHxA	4200	
375-85-9	PFHpA	1600	
355-46-4	PFHxS	48	U
335-67-1	PFOA	210000	E
375-95-1	PFNA	70	
1763-23-1	PFOS	250	
335-76-2	PFDA	160	
2058-94-8	PFUnDA	29	U
307-55-1	PFDoDA	39	U
72629-94-8	PFTrDA	58	U
376-06-7	PFTeDA	29	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:26:00 PM

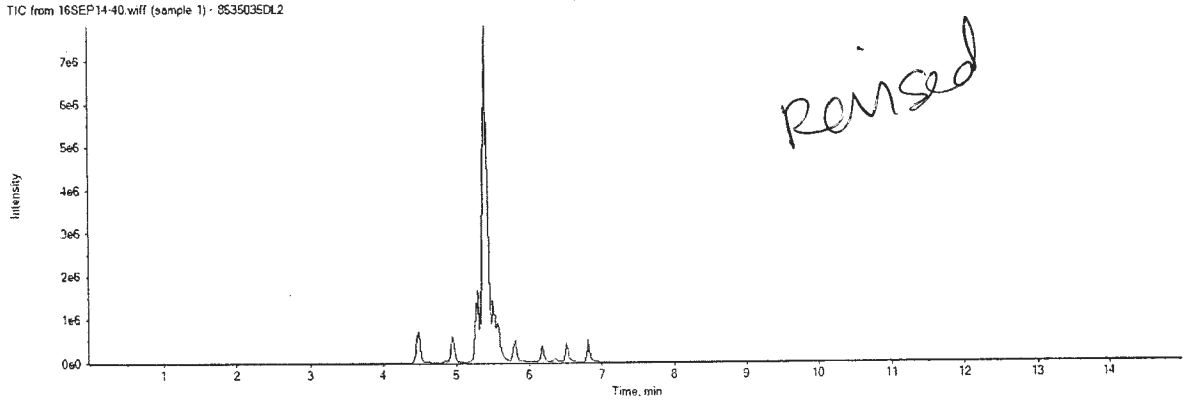
Sample Name:	8535035DL2			**Data File:**		16SEP14-40.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment			**Acquis Date:**		2016-09-14T19:00:34
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	83			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011DL
				ICAL Name:		16SEP13ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.360			**Dilution Factor:**		100.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	4.05	0.820	1737.1	A	18O2-PFHxS	4.94	274598.0	0.006	4.276
PFHxA	4.48	1.000	2210527.1	A	13C2-PFHxA	4.48	754720.7	2.929	4005.787
PFHpA	4.95	1.000	1357791.8	M	13C4-PFHpA	4.94	696770.1	1.949	1550.433
PFHxS	4.94	1.000	2344.9	A	18O2-PFHxS	4.94	274598.0	0.009	6.510
PFOA	5.39	1.000	48444235.4	M	13C4-PFOA	5.39	191123.2	253.471	199183.890
PFNA	5.80	1.000	110307.4	A	13C5-PFNA	5.80	1302706.4	0.085	67.471
PFOS	5.78	1.000	77679.7	M	13C4-PFOS	5.78	284397.7	0.273	240.160
PFDA	6.18	1.000	227456.4	A	13C2-PFDA	6.17	965805.6	0.236	149.395
PFUnDA	6.51	1.000	15792.3	A	13C2-PFUnDA	6.51	1140802.7	0.014	11.029
PFDoDA	6.82	1.000	17763.2	A	13C2-PFDoDA	6.81	1422434.8	0.012	10.669
PFTrDA	7.09	1.040	8003.7	A	13C2-PFDoDA	6.81	1422434.8	0.006	4.856
PFTeDA	7.35	1.080	6943.5	M	13C2-PFDoDA	6.81	1422434.8	0.005	4.921

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment



Revised

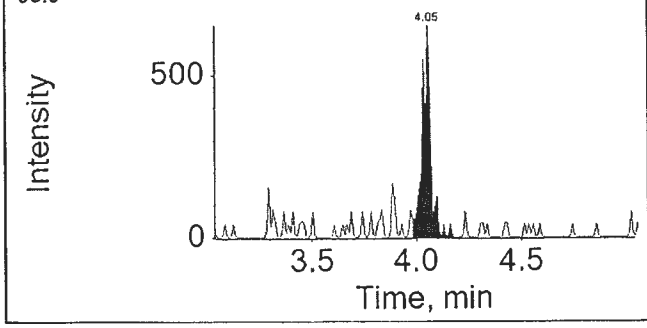
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:41 am, 6/13/17

16SEP14-40.wiff

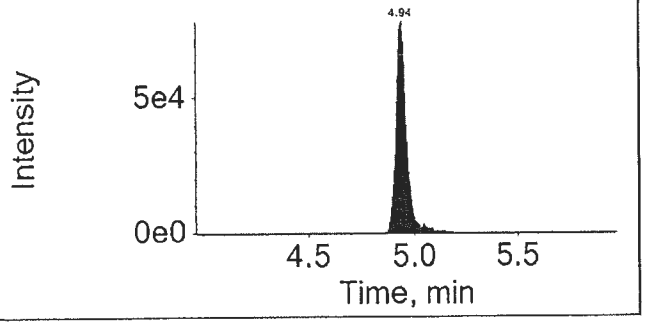
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

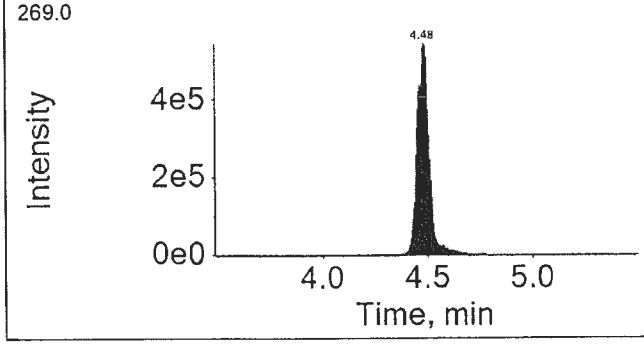
403.0 / 103.0



16SEP14-40.wiff

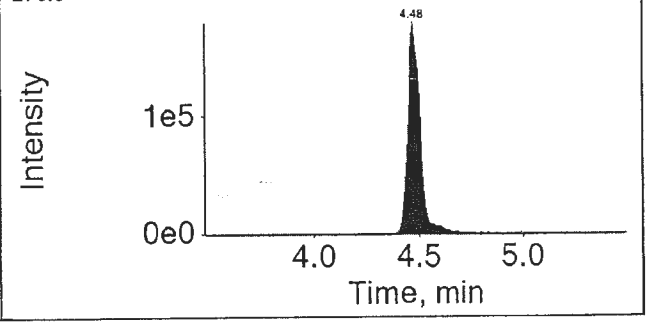
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

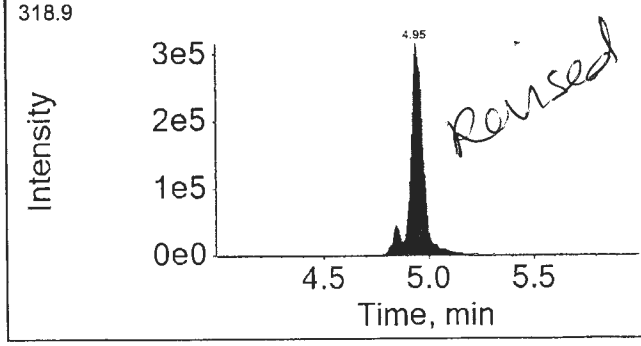
314.9 / 270.0



16SEP14-40.wiff

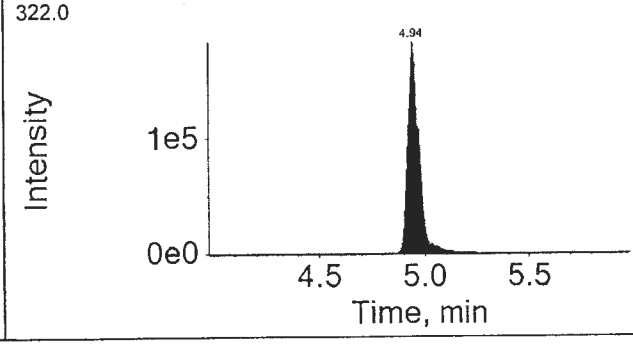
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



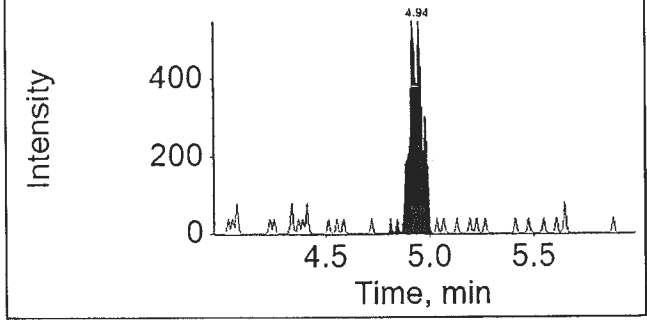
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:41 am, 6/13/17

16SEP14-40.wiff

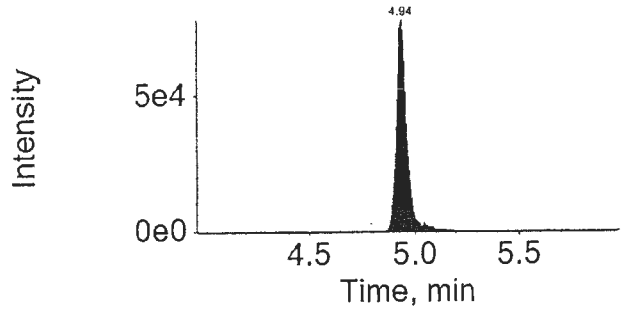
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

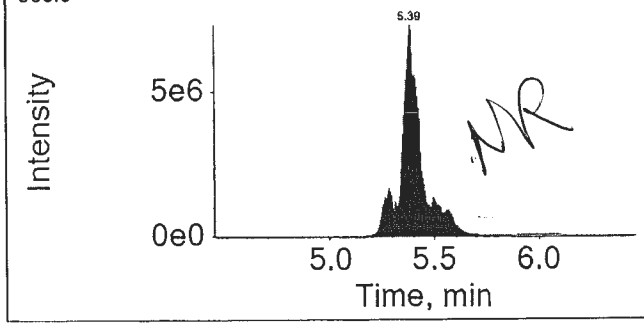
403.0 / 103.0



16SEP14-40.wiff

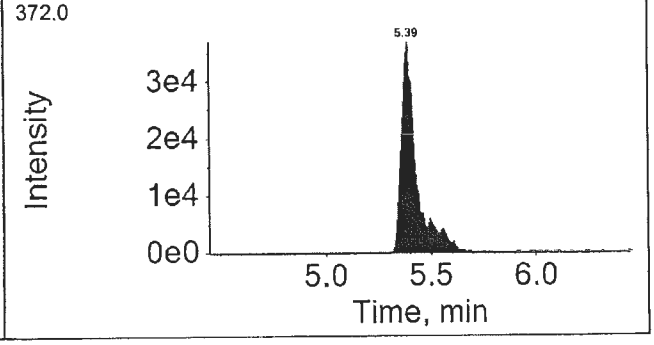
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

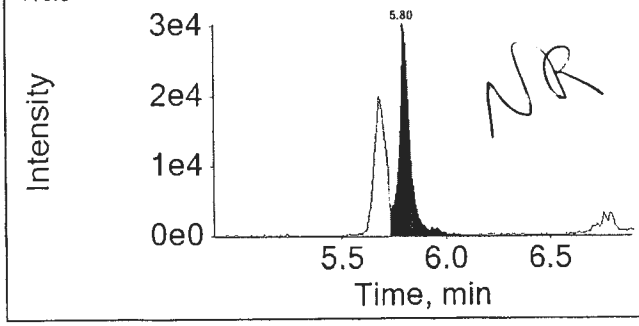
417.0 / 372.0



16SEP14-40.wiff

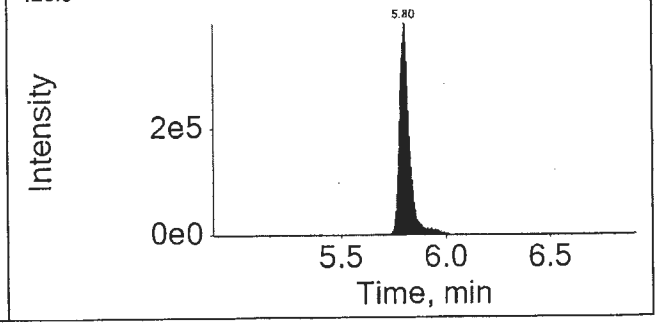
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



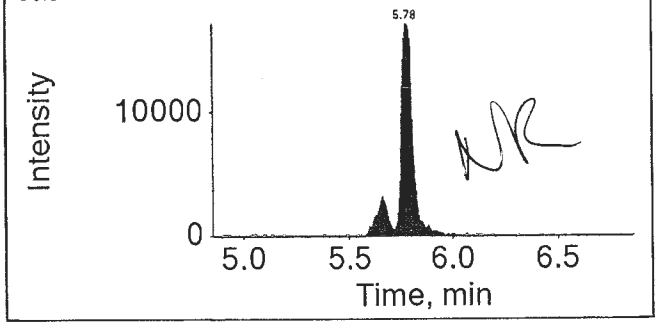
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:41 am, 6/13/17

16SEP14-40.wiff

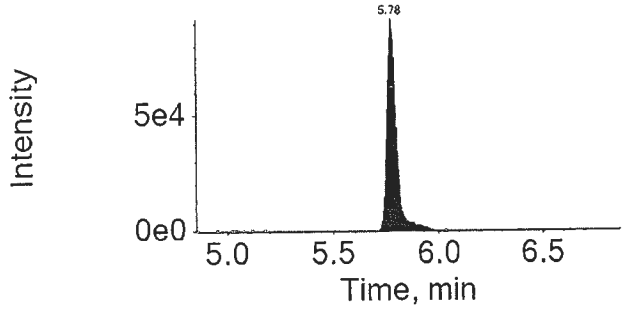
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

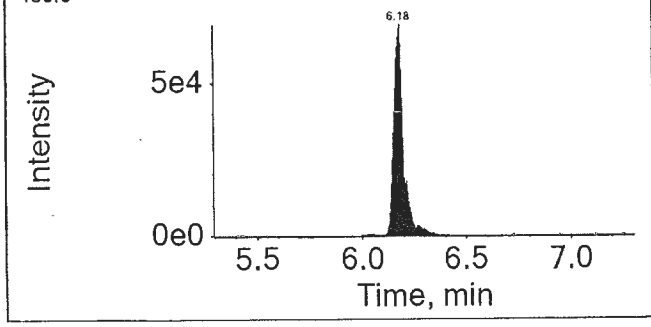
503.0 / 99.0



16SEP14-40.wiff

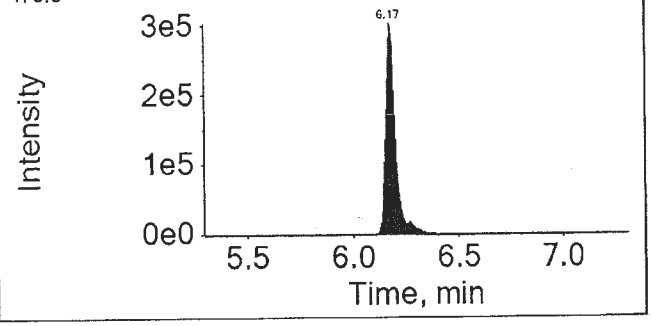
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

515.0 / 470.0



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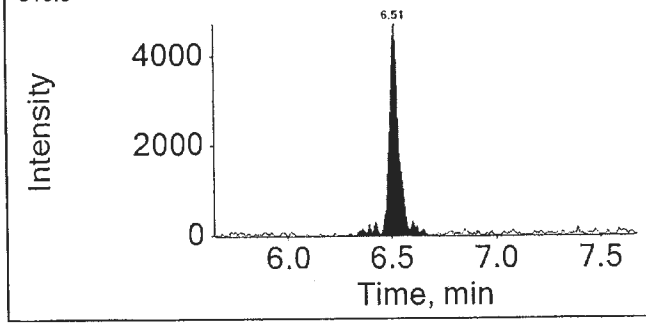
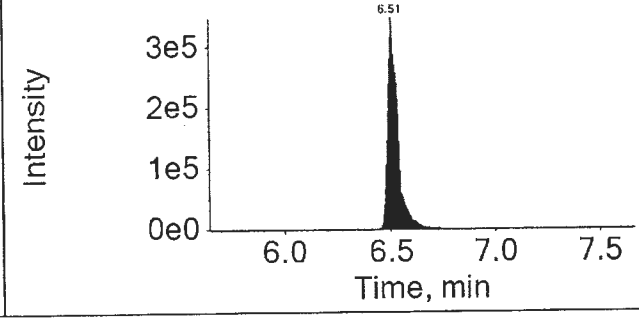
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

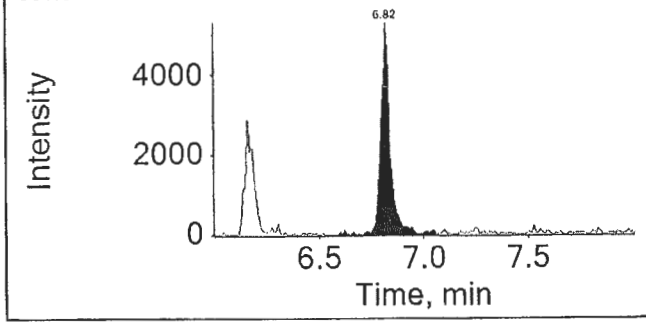
565.0 / 520.0



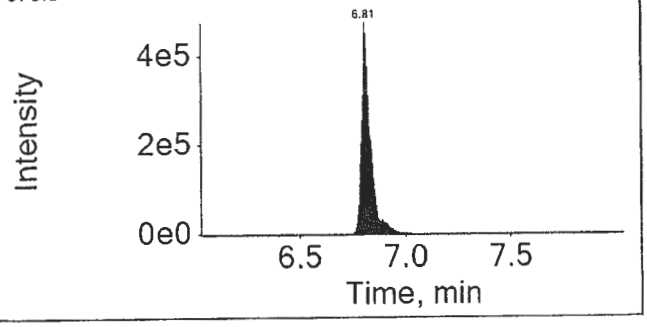
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:41 am, 6/13/17

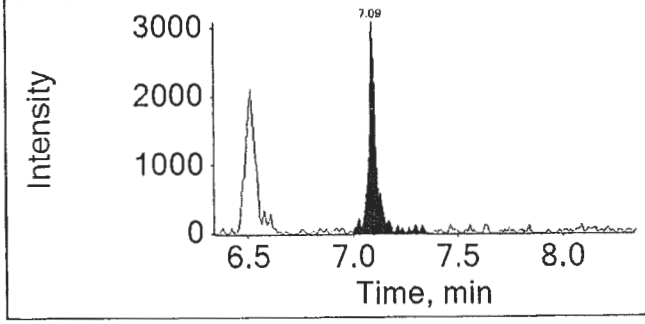
16SEP14-40.wiff
Analyte: PFDoDA
612.9 / 568.9



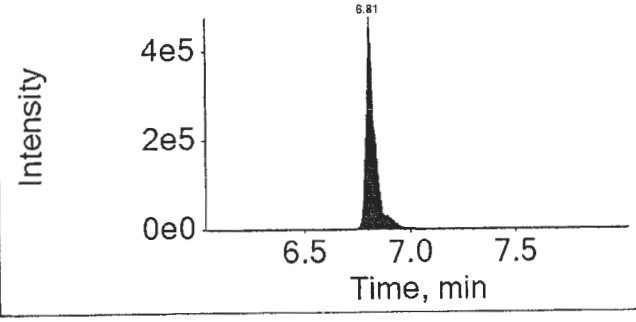
Internal Standard: 13C2-PFDoDA
615.0 / 570.0



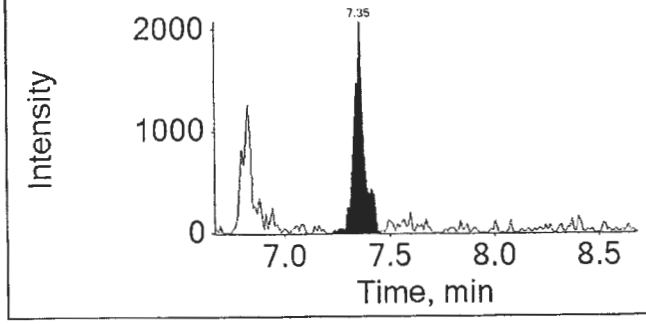
16SEP14-40.wiff
Analyte: PFTrDA
662.9 / 618.9



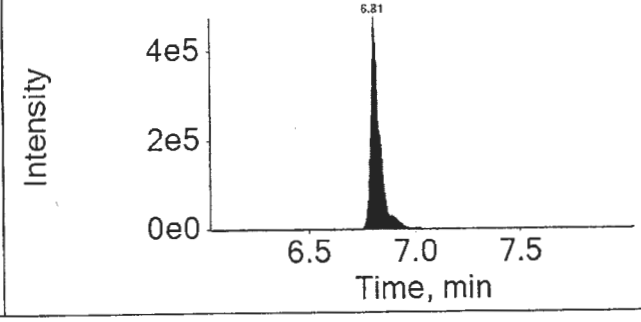
Internal Standard: 13C2-PFDoDA
615.0 / 570.0



16SEP14-40.wiff
Analyte: PFTeDA
712.9 / 668.9



Internal Standard: 13C2-PFDoDA
615.0 / 570.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:41 am, 6/13/17

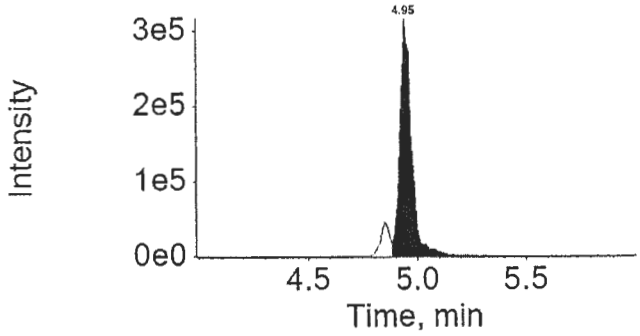
eurofins | Lancaster Laboratories

Print Date: 09/06/2017 5:28 PM

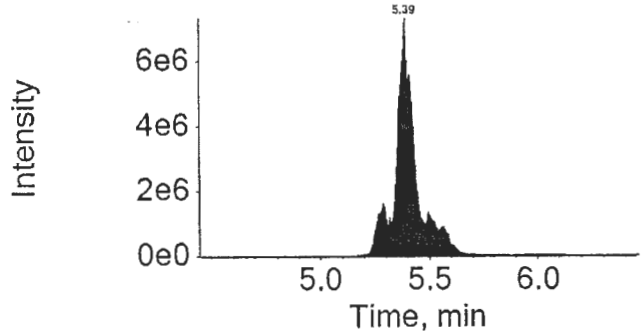
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-40.wiff	2016-09-14T19:00:34	8535035DL2	PFHpA	4.95	1239021.1
16SEP14-40.wiff	2016-09-14T19:00:34	8535035DL2	PFOA	5.39	48760061.4
16SEP14-40.wiff	2016-09-14T19:00:34	8535035DL2	PFOS	5.78	65076.7
16SEP14-40.wiff	2016-09-14T19:00:34	8535035DL2	PFTeDA	7.35	8005.1

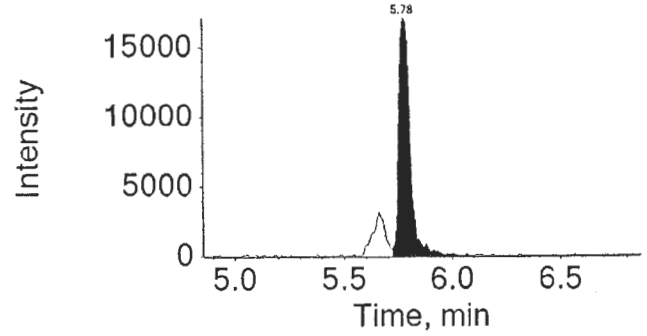
Component: PFHpA
Mass: 362.9 / 318.9



Component: PFOA
Mass: 412.9 / 368.9



Component: PFOS
Mass: 498.9 / 98.9



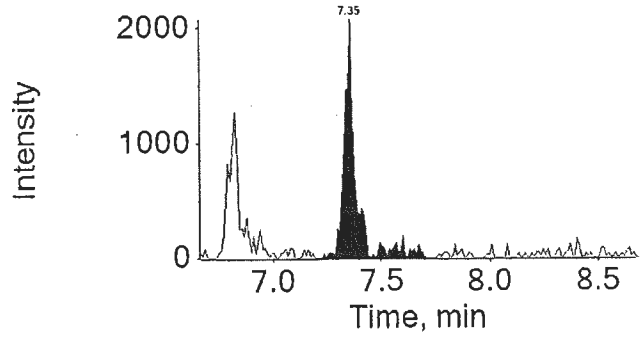
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:36 am, 6/13/17

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFTeDA
Mass: 712.9 / 668.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:36 am, 6/13/17

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL Instrument ID: 24743
Sample (wt): 5.36 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 3.7

Lab Sample ID: 8535035DL3
Lab File ID: 16SEP22-59.WIFF
Date Collected: 08/17/2016 11:45
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/23/2016 08:04
Dilution Factor: 10000.0

Concentration Units: ng/g Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4800	U
307-24-4	PFHxA	4300	
375-85-9	PFHpA	2900	U
355-46-4	PFHxS	4800	U
335-67-1	PFOA	190000	
375-95-1	PFNA	1900	U
1763-23-1	PFOS	6800	U
335-76-2	PFDA	1900	U
2058-94-8	PFUnDA	2900	U
307-55-1	PFDoDA	3900	U
72629-94-8	PFTrDA	5800	U
376-06-7	PFTeDA	2900	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Reused

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:32:00 PM

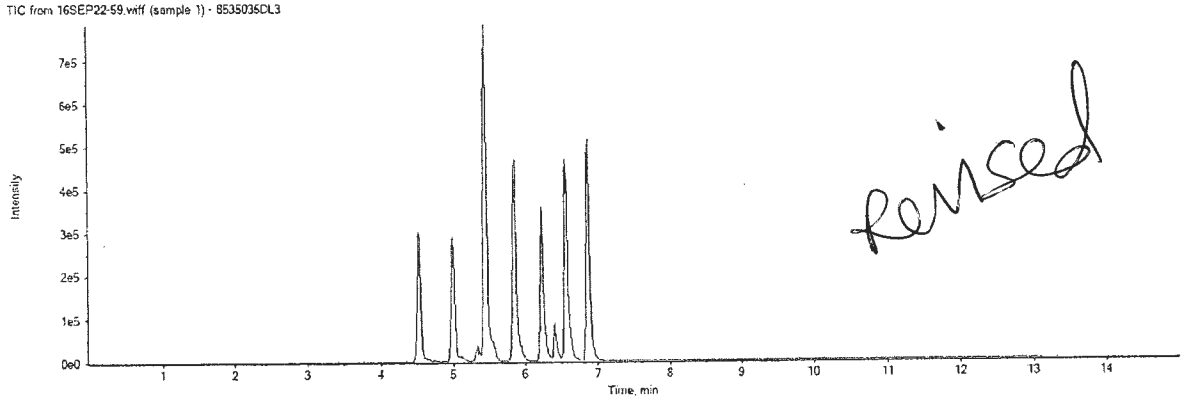
Sample Name:	8535035DL3			**Data File:**		16SEP22-59.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment			**Acquis Date:**		2016-09-23T08:04:56
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	51			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011DL3
				ICAL Name:		16SEP20ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.360			**Dilution Factor:**		10000.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.98	257904.2	N/A	N/A
PFHxA	4.52	1.000	27661.7	A	13C2-PFHxA	4.52	1024996.9	0.027	4161.993
PFHpA	4.99	1.000	19171.2	A	13C4-PFHpA	4.99	768766.5	0.025	1910.860
PFHxS	4.99	1.000	1031.7	A	18O2-PFHxS	4.98	257904.2	0.004	327.686
PFOA	5.44	1.000	2119684.0	M	13C4-PFOA	5.44	933678.3	2.270	186506.616
PFNA	5.84	1.000	2581.2	A	13C5-PFNA	5.85	1512640.1	0.002	151.621
PFOS	5.82	1.000	531.6	A	13C4-PFOS	5.82	299600.3	0.002	159.289
PFDA	6.22	1.000	3253.5	M	13C2-PFDA	6.22	1167175.1	0.003	186.030
PFUnDA	6.55	1.000	4221.2	A	13C2-PFUnDA	6.56	1412197.1	0.003	244.443
PFDoDA	6.86	1.000	2126.5	M	13C2-PFDoDA	6.86	1759572.9	0.001	105.163
PFTrDA	7.13	1.040	2314.1	A	13C2-PFDoDA	6.86	1759572.9	0.001	114.737
PFTeDA	7.40	1.080	2028.0	M	13C2-PFDoDA	6.86	1759572.9	0.001	124.475

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-SUMP03-160817 Grab Sediment



revised

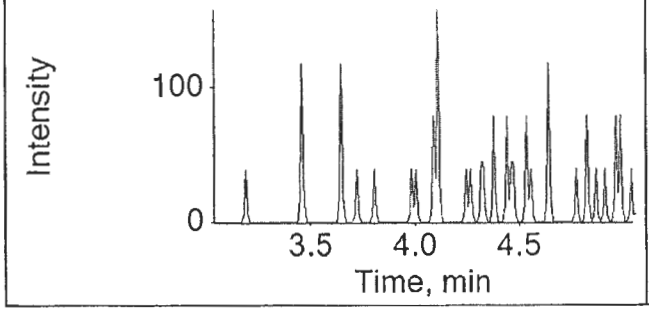
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:49 am, 6/13/17

16SEP22-59.wiff

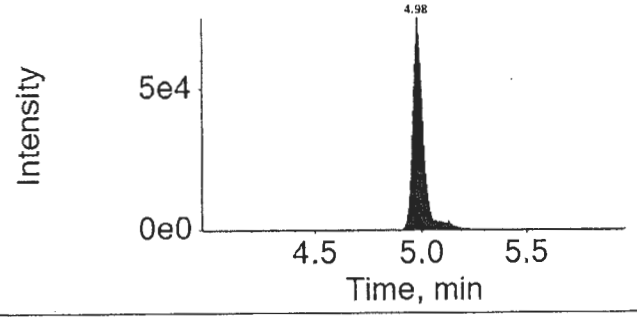
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

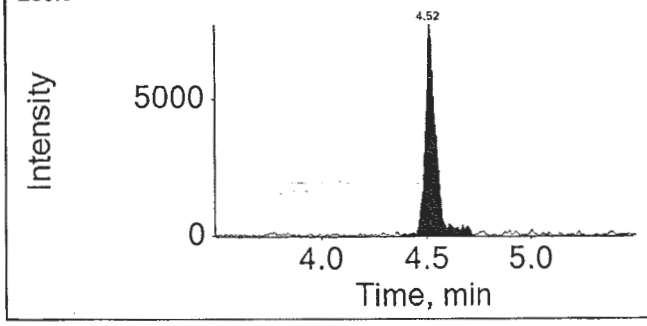
403.0 / 103.0



16SEP22-59.wiff

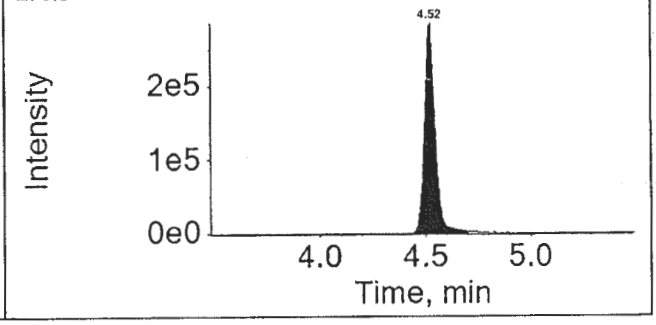
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

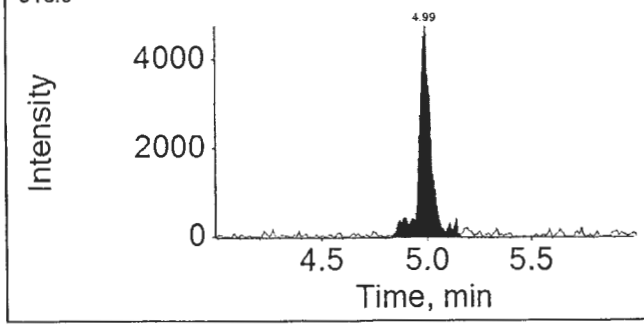
314.9 / 270.0



16SEP22-59.wiff

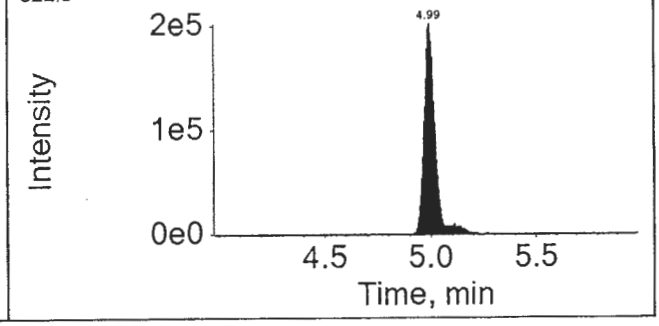
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



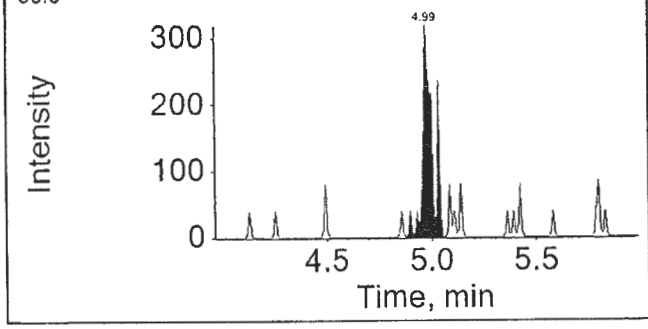
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:49 am, 6/13/17

16SEP22-59.wiff

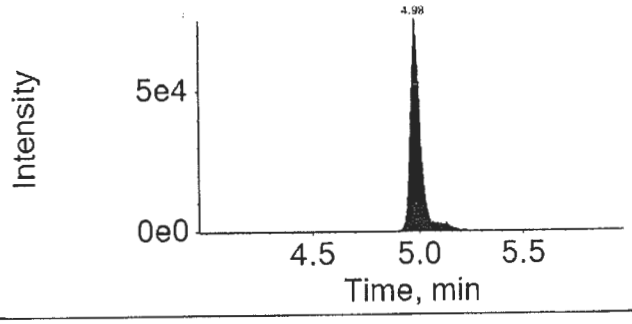
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

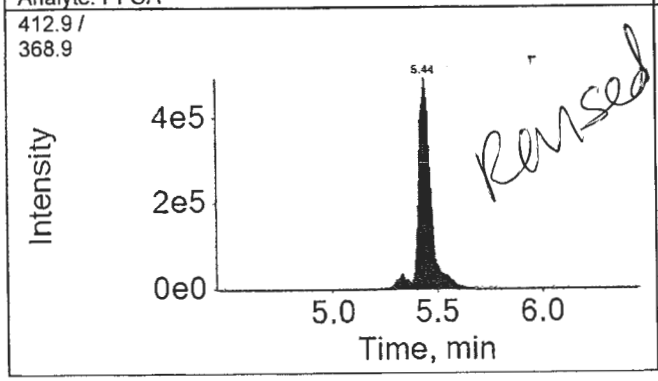
403.0 / 103.0



16SEP22-59.wiff

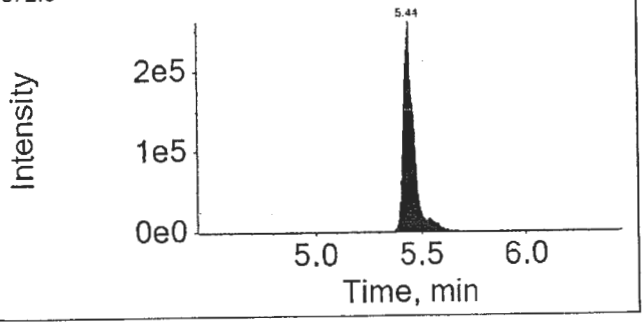
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

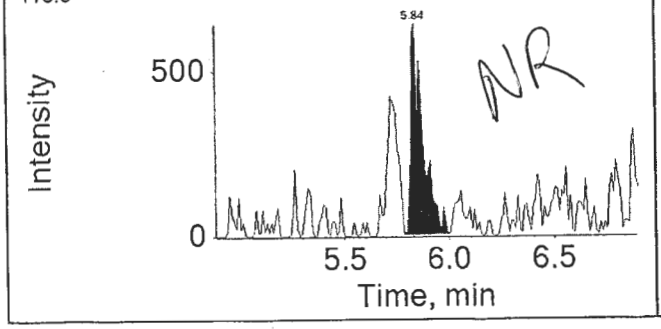
417.0 / 372.0



16SEP22-59.wiff

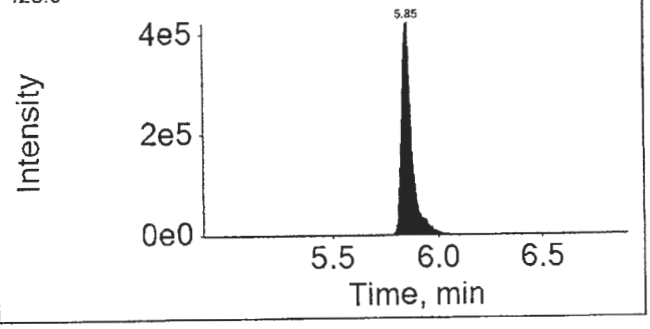
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



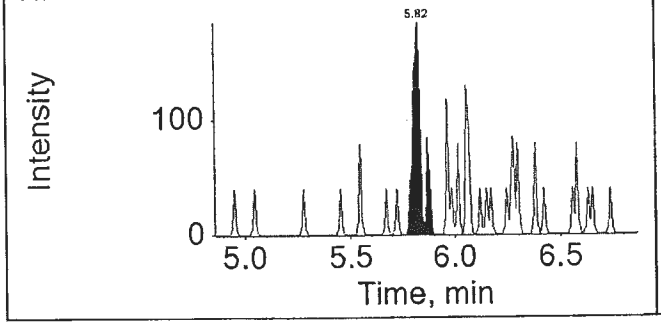
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:49 am, 6/13/17

16SEP22-59.wiff

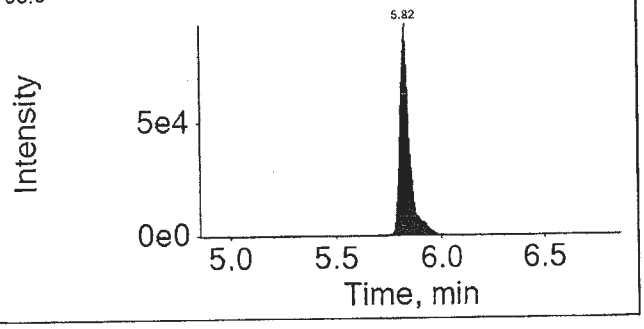
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

503.0 / 99.0



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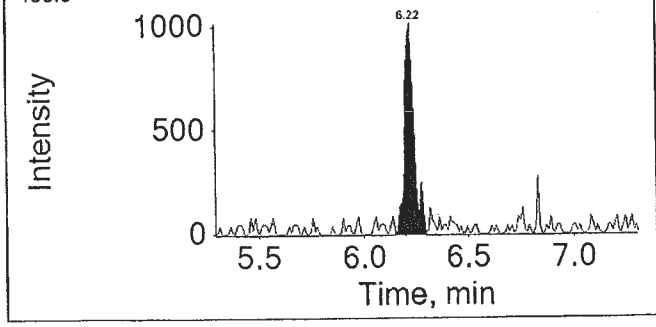
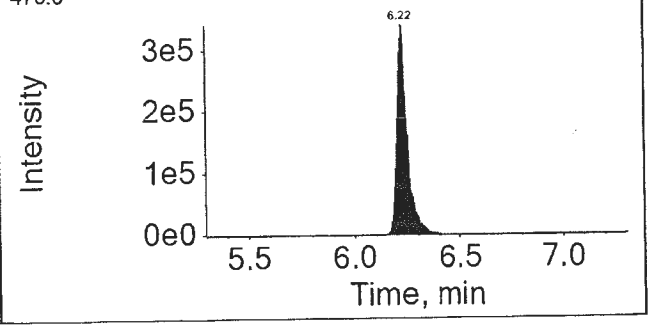
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

515.0 / 470.0



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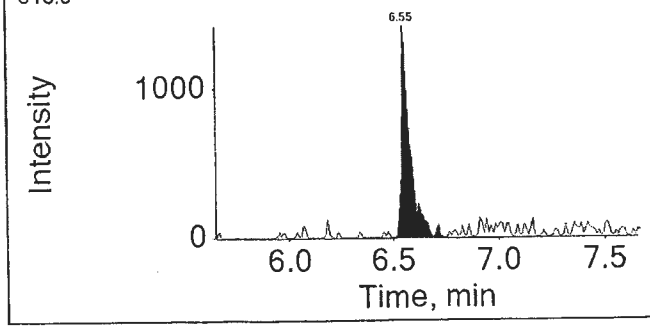
Analyte: PFUnDA

562.9 / 518.9



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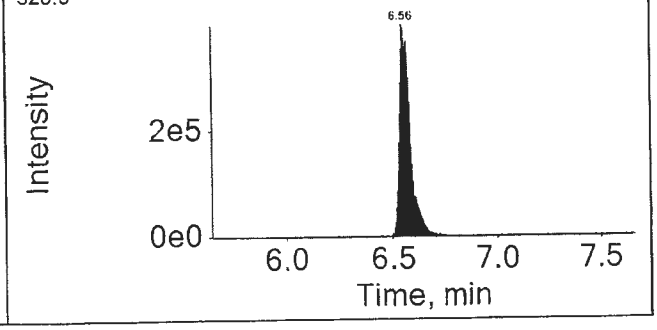
565.0 / 520.0



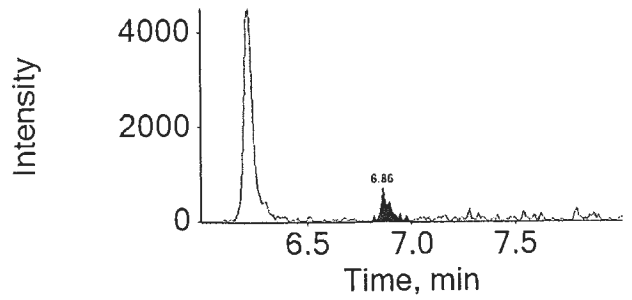
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:49 am, 6/13/17

16SEP22-59.wiff

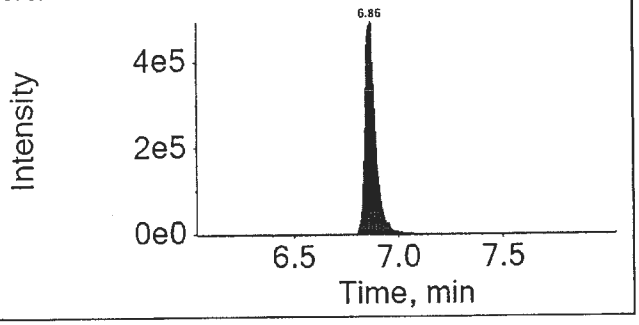
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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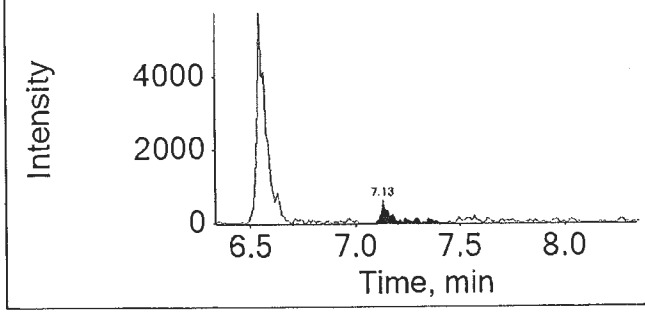
Analyte: PFTrDA

662.9 / 618.9



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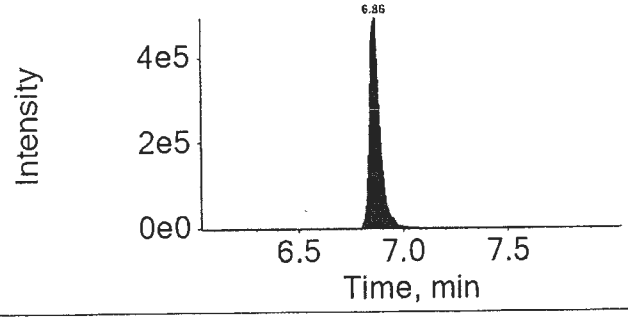
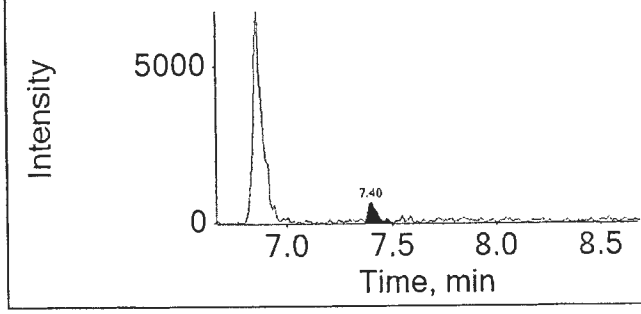
615.0 / 570.0



16SEP22-59.wiff

Analyte: PFTeDA

712.9 / 668.9



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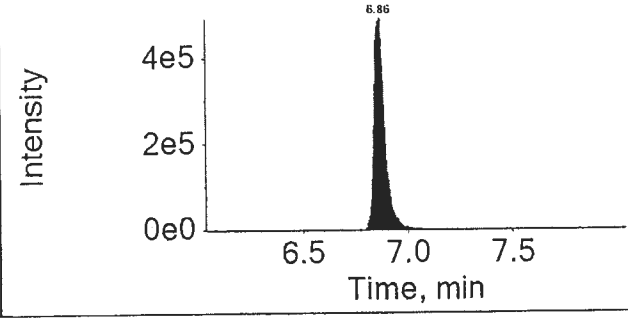
615.0 / 570.0



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:49 am, 6/13/17

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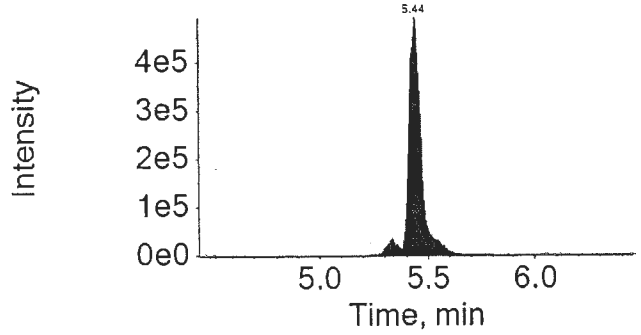
Print Date: 09/06/2017 5:33 PM

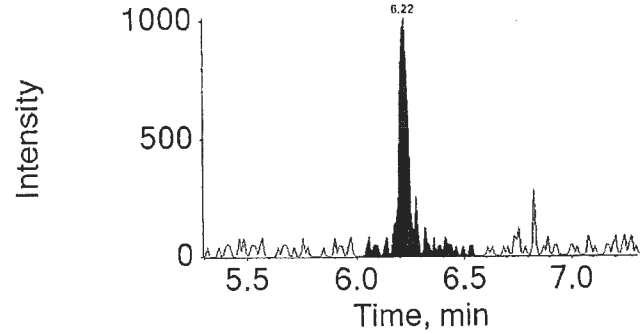
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP22-59.wiff	2016-09-23T08:04:56	8535035DL3	PFOA	5.44	2131394.7
16SEP22-59.wiff	2016-09-23T08:04:56	8535035DL3	PFDA	6.22	4096.4
16SEP22-59.wiff	2016-09-23T08:04:56	8535035DL3	PFDoDA	6.86	2378.3
16SEP22-59.wiff	2016-09-23T08:04:56	8535035DL3	PFTeDA	7.40	3748.9

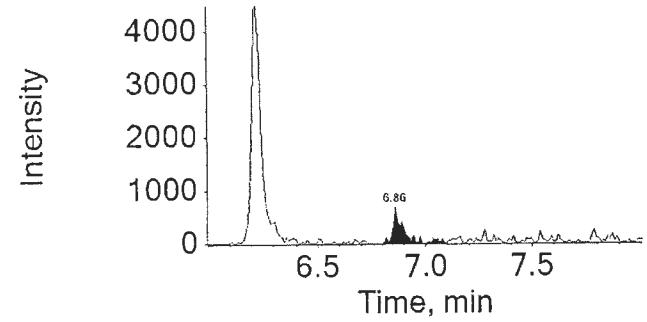
Component: PFOA
Mass: 412.9 / 368.9



Component: PFDA
Mass: 512.9 / 469.0



Component: PFDoDA
Mass: 612.9 / 568.9



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:48 am, 6/13/17

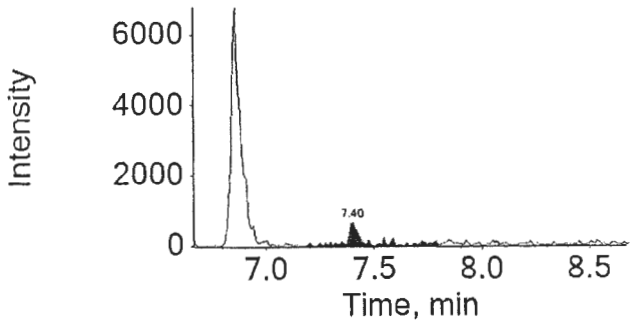
eurofins | Lancaster Laboratories

Print Date: 09/06/2017 5:33 PM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFTeDA
Mass: 712.9 / 668.9



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:48 am, 6/13/17

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Analysis Report

REVISED

Sample Description: SG3-FD01-160817 Grab Sediment
SGPP - Bennington

LL Sample # SW 8535036
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/17/2016 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

FD117 SDG#: SPP17-23FD

original

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**7.8**	0.47	1.5	1
14027	**Perfluorodecanoic acid**	335-76-2	**170**	1.9	3.8	10 — DL
14027	**Perfluorododecanoic acid**	307-55-1	**11**	0.38	0.76	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1,100**	28	57	100 — DL2
14027	**Perfluorohexanesulfonate**	355-46-4	**7.7**	0.47	1.5	1
14027	**Perfluorohexanoic acid**	307-24-4	**2,700**	19	38	100 — DL2
14027	**Perfluorononanoic acid**	375-95-1	**60**	0.19	0.38	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**300**	0.66	1.5	1
14027	**Perfluorooctanoic acid**	335-67-1	**110,000**	2,800	5,700	10000 — DL3
14027	**Perfluorotetradecanoic acid**	376-06-7	**8.2**	0.28	0.76	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**6.4**	0.57	1.1	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**12**	0.28	0.57	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**3.7**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/06/2016 18:30	Jason W Knight	1
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 21:44	Marissa C Drexinger	100
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 22:33	Marissa C Drexinger	10
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/23/2016 08:21	Jason W Knight	10000
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16235011	08/23/2016 11:10	Devon M Whooley	1
00111	Moisture	SM 2540 G-1997	1	16236820006A	08/24/2016 02:56	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 9/15/2016 11:31:00 AM

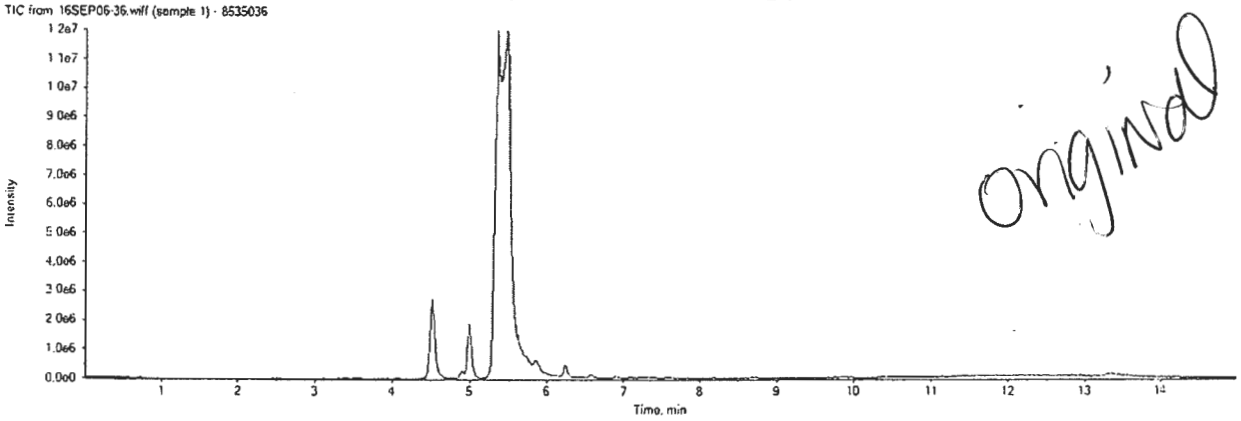
Sample Name:	8535036		**Data File:**		16SEP06-36.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment		**Acquis Date:**		2016-09-06T18:30:12
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	24		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011
			ICAL Name:		16SEP01ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.490		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

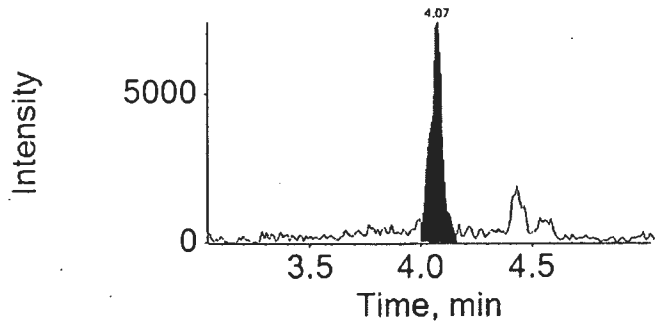
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.07	27670.6	M	18O2-PFHxS	4.99	27923.8	0.991	7.526	ng/g
PFHxA	4.52	12444978.5	A	13C2-PFHxA	4.51	79520.6	156.500	2710.169	ng/g
PFHpA	4.99	7113879.4	M	13C4-PFHpA	4.99	35838.1	198.501	1742.150	ng/g
PFHxS	4.99	23986.7	M	18O2-PFHxS	4.99	27923.8	0.859	7.423	ng/g
PFOA	5.46	97656222.9	A	13C4-PFOA	5.40	26908.0	3629.270	32391.485	ng/g
PFNA	5.88	643376.5	A	13C5-PFNA	5.88	100817.4	6.382	57.989	ng/g
PFOS	5.85	743775.6	A	13C4-PFOS	5.85	26160.0	28.432	285.571	ng/g
PFDA	6.24	1439710.9	A	13C2-PFDA	6.25	51192.3	28.124	222.589	ng/g
PFUnDA	6.57	105840.8	A	13C2-PFUnDA	6.57	87837.6	1.205	11.366	ng/g
PFDoDA	6.91	132206.5	A	13C2-PFDoDA	6.91	117769.7	1.123	11.048	ng/g
PFTrDA	7.26	74749.4	A	13C2-PFDoDA	6.91	117769.7	0.635	6.196	ng/g
PFTeDA	7.58	93524.4	A	13C2-PFDoDA	6.91	117769.7	0.794	7.904	ng/g

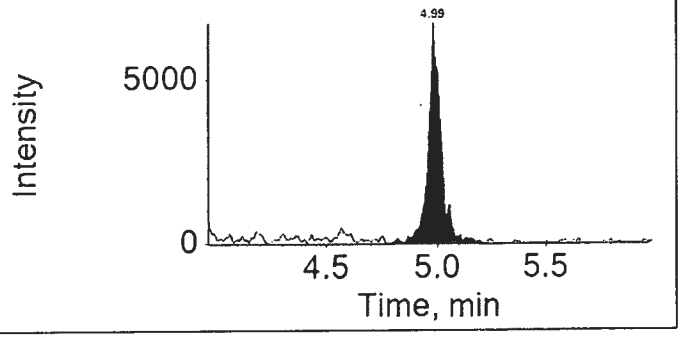
Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment

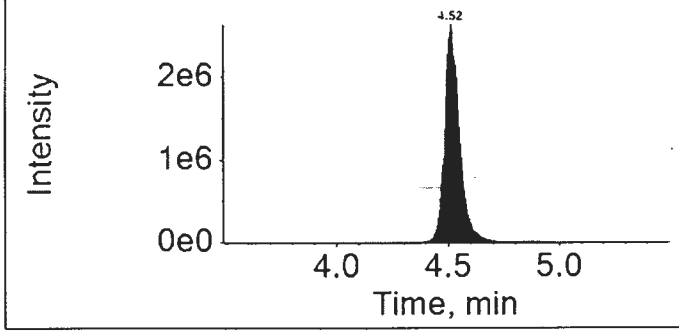


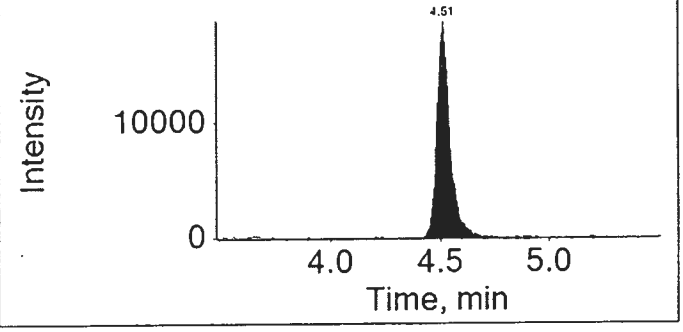
16SEP06-36.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



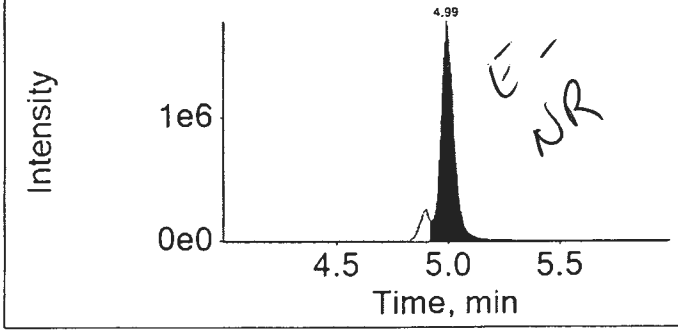


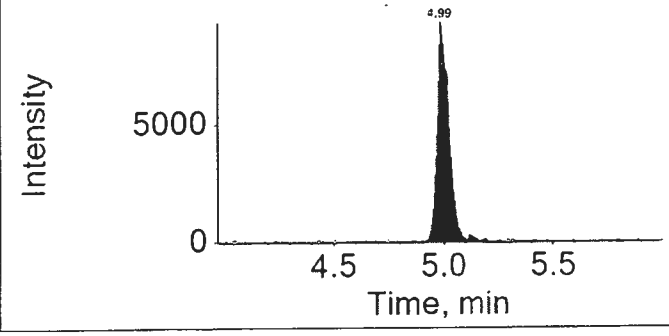
16SEP06-36.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16SEP06-36.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



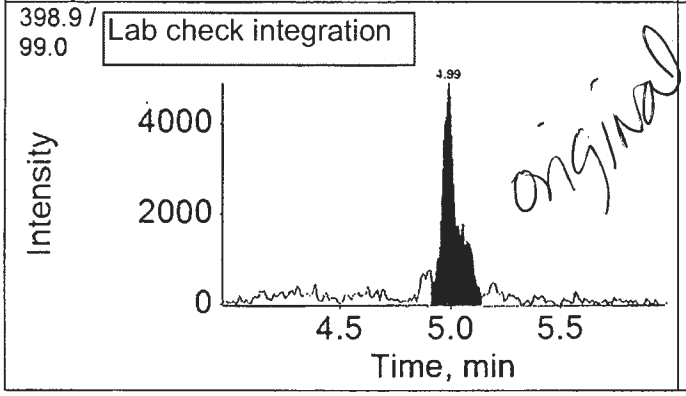


16SEP06-36.wiff

Analyte: PFHxS

398.9 / 99.0

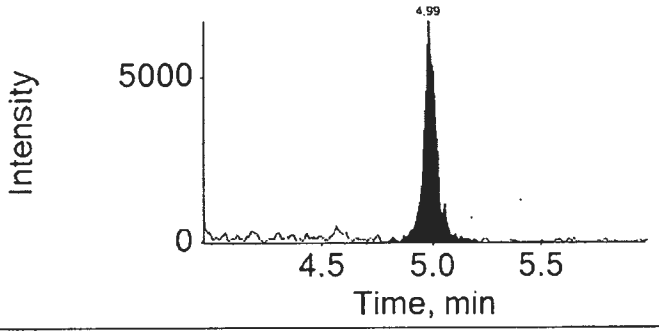
Lab check integration



original

Internal Standard: 18O2-PFHxS

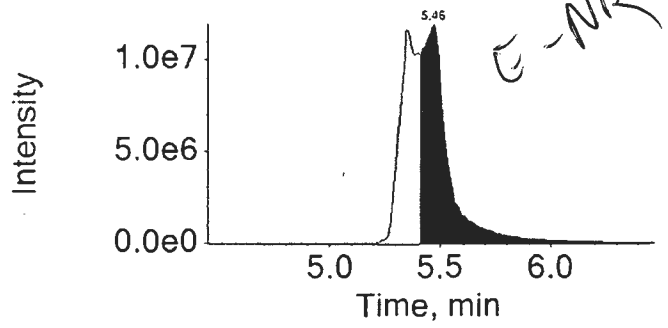
403.0 / 103.0



16SEP06-36.wiff

Analyte: PFOA

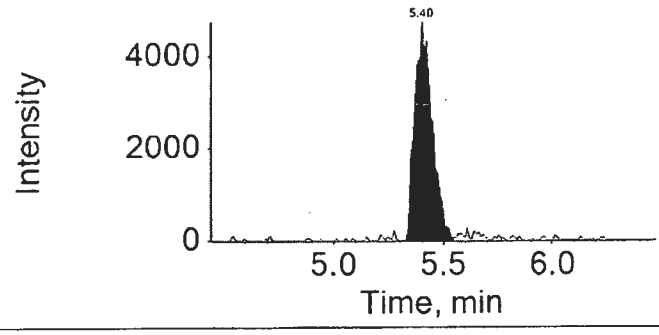
412.9 / 368.9



E-NR

Internal Standard: 13C4-PFOA

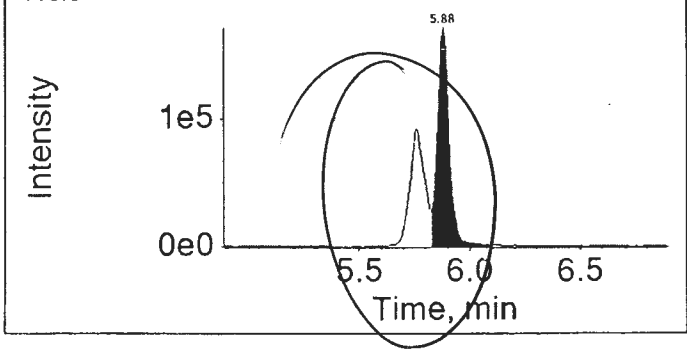
417.0 / 372.0



16SEP06-36.wiff

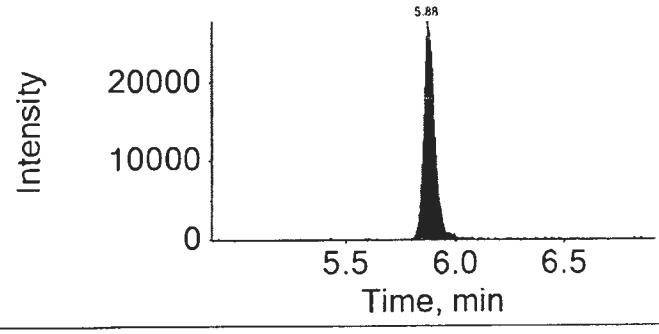
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

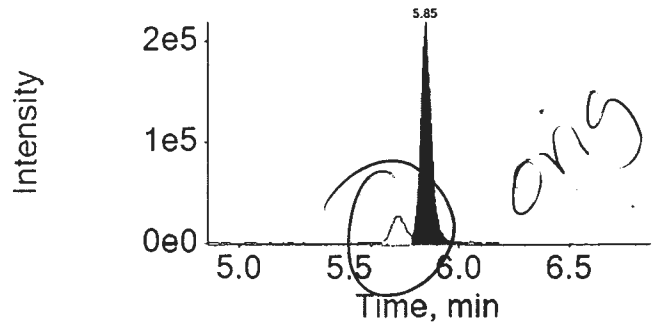
468.0 / 423.0



16SEP06-36.wiff

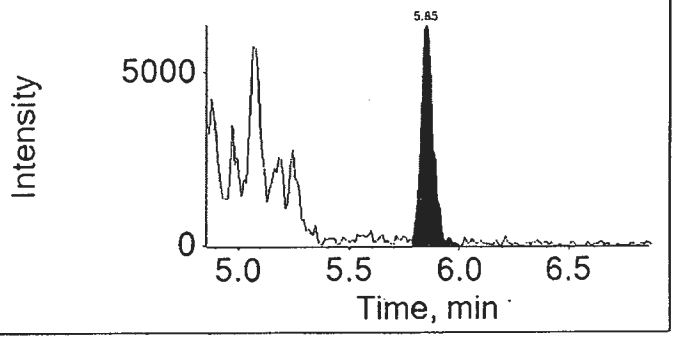
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

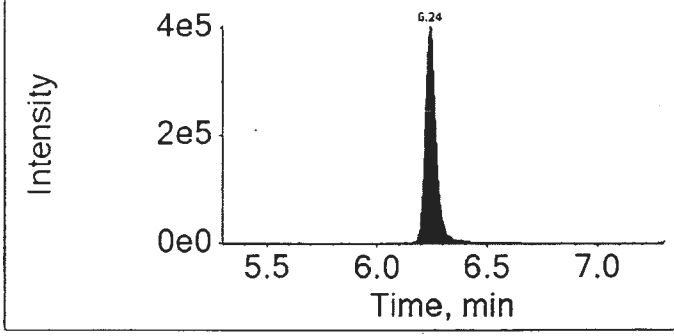
503.0 / 99.0



16SEP06-36.wiff

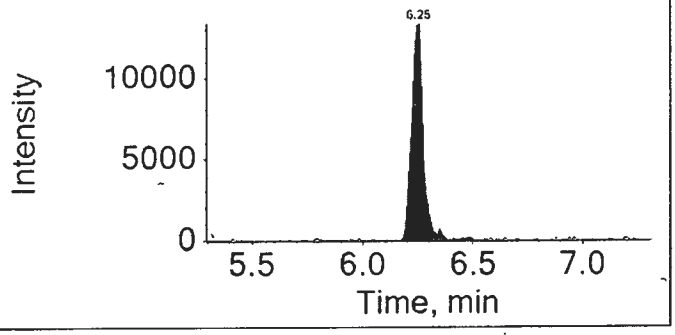
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

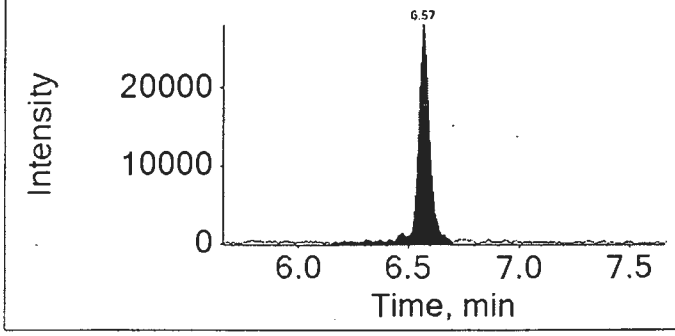
515.0 / 470.0



16SEP06-36.wiff

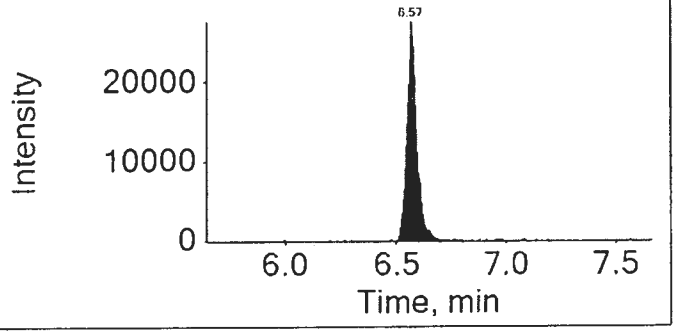
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

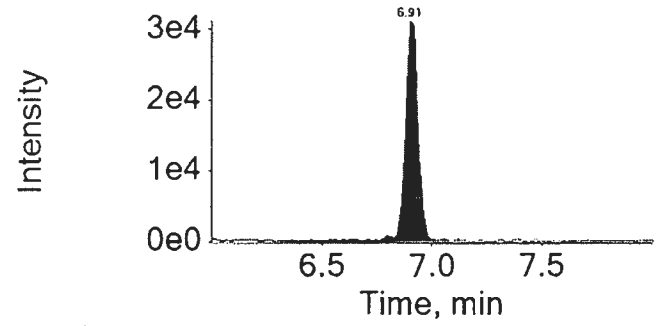
565.0 / 520.0



16SEP06-36.wiff

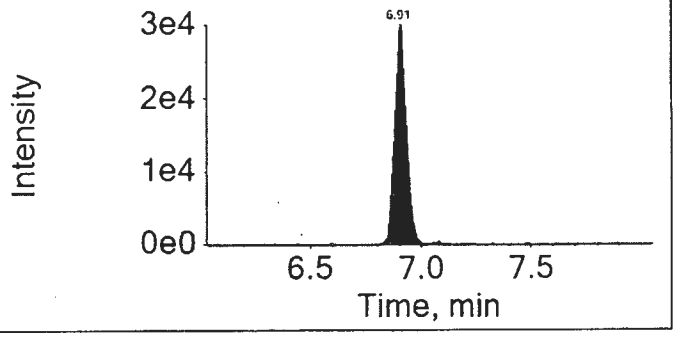
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

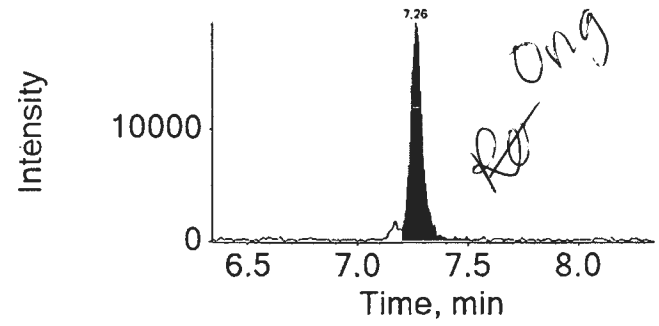
615.0 / 570.0



16SEP06-36.wiff

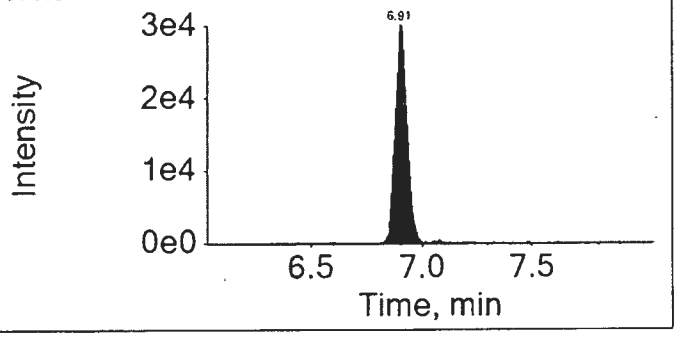
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

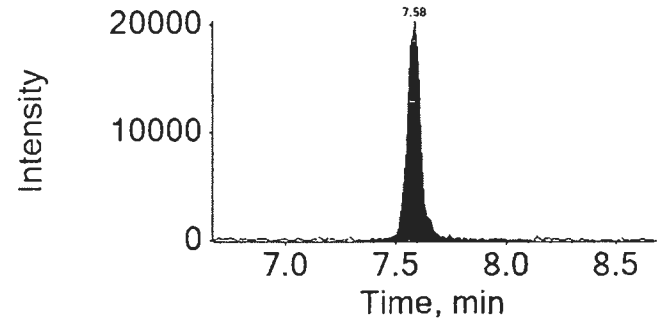
615.0 / 570.0



16SEP06-36.wiff

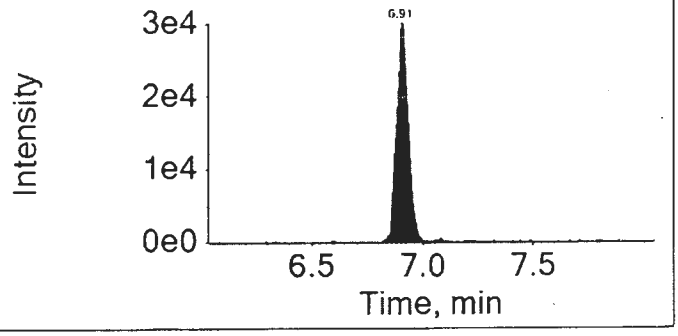
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 19 2016

MEP 7824 9/15/16

Lynn Dodd
Principal Specialist

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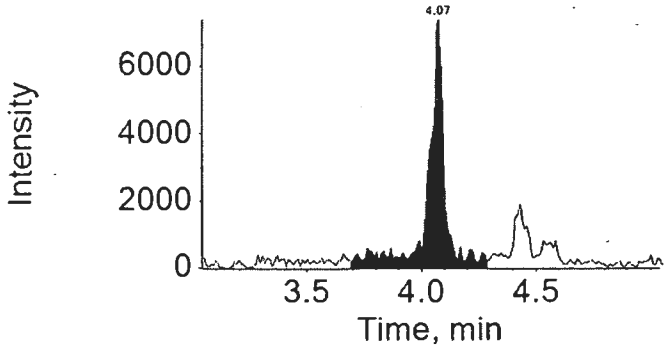
Print Date: 15/09/2016 11:31 AM

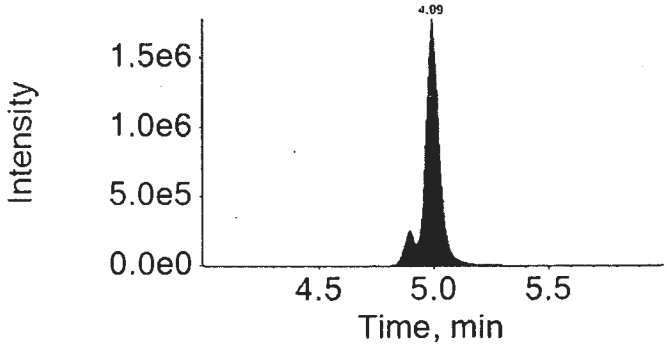
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP06-36.wiff	2016-09-06T18:30:12	8535036	PFBS	4.07	38004.7
16SEP06-36.wiff	2016-09-06T18:30:12	8535036	PFHpA	4.99	7927559.0
16SEP06-36.wiff	2016-09-06T18:30:12	8535036	PFHxS	4.99	28754.2

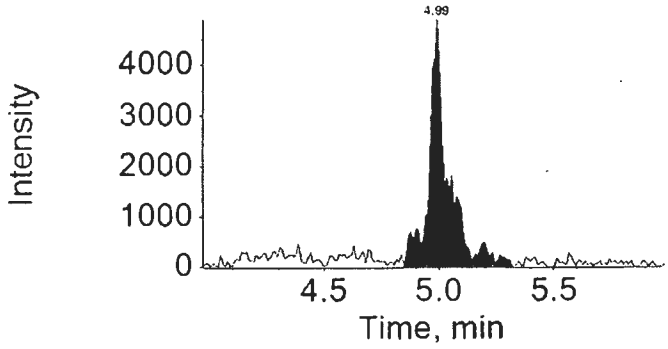
Component: PFBS
Mass: 298.9 / 98.9



Component: PFHpA
Mass: 362.9 / 318.9



Component: PFHxS
Mass: 398.9 / 99.0



Lynn Dodd
SEP 19 2016

mep 7824 9/15/16

Lynn Dodd
Principal Specialist

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LC-MS/MS Analysis Report

Printed: 9/15/2016 1:23:00 PM

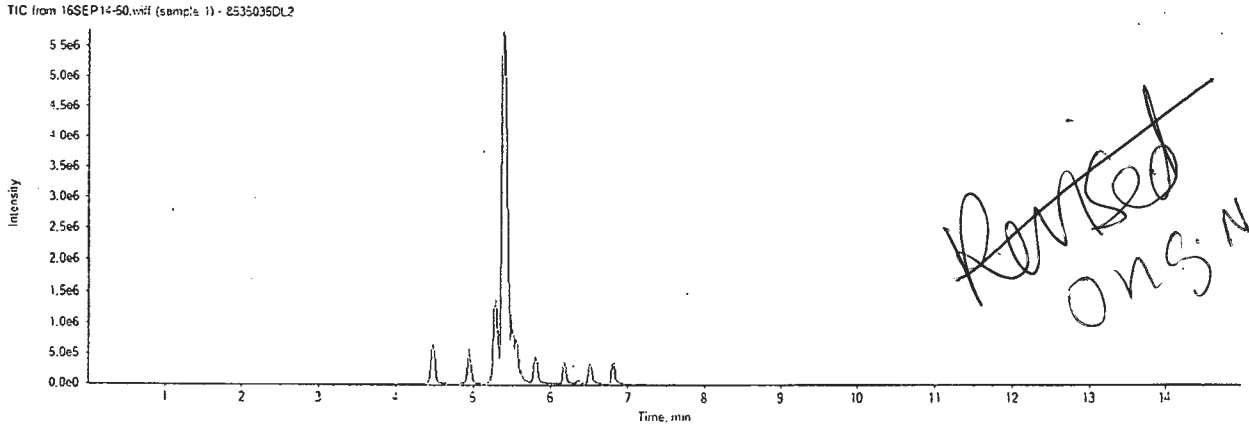
Sample Name:	8535036DL2		**Data File:**		16SEP14-50.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment		**Acquis Date:**		2016-09-14T21:44:22
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	86		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL
			ICAL Name:		16SEP13ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.490		**Dilution Factor:**		100.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.03	3220.8	A	18O2-PFHxS	4.94	264736.3	0.012	8.028	ng/g
PFHxA	4.48	1745739.2	A	13C2-PFHxA	4.48	892112.6	1.957	2612.946	ng/g
PFHpA	4.95	936989.4	M	13C4-PFHpA	4.94	692908.9	1.352	1050.414	ng/g
PFHxS	4.94	2188.6	A	18O2-PFHxS	4.94	264736.3	0.008	6.153	ng/g
PFOA	5.40	33724848.8	A	13C4-PFOA	5.39	238779.0	141.239	108360.703	ng/g
PFNA	5.81	76671.0	A	13C5-PFNA	5.80	1239084.2	0.062	48.137	ng/g
PFOS	5.78	78339.5	A	13C4-PFOS	5.78	292281.0	0.268	230.087	ng/g
PFDA	6.17	209066.1	A	13C2-PFDA	6.18	964933.1	0.217	134.186	ng/g
PFUnDA	6.51	12611.1	A	13C2-PFUnDA	6.51	1000288.5	0.013	9.806	ng/g
PFDoDA	6.81	13525.5	M	13C2-PFDoDA	6.81	1184542.0	0.011	9.524	ng/g
PFTrDA	7.09	9930.5	A	13C2-PFDoDA	6.81	1184542.0	0.008	7.063	ng/g
PFTeDA	7.35	8849.3	A	13C2-PFDoDA	6.81	1184542.0	0.007	7.352	ng/g

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment

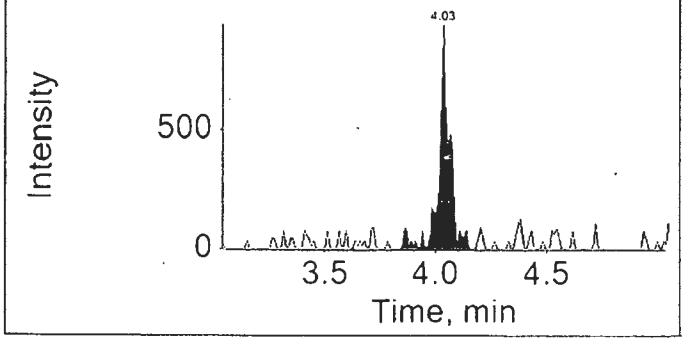


Revised ons: NCM

16SEP14-50.wiff

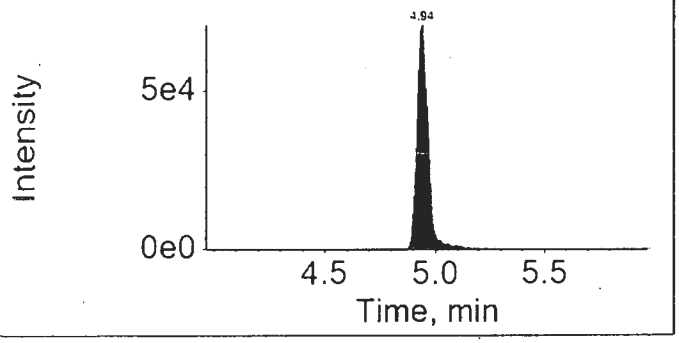
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

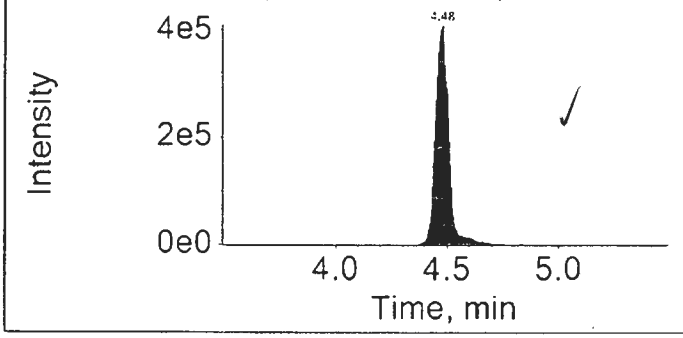
403.0 / 103.0



16SEP14-50.wiff

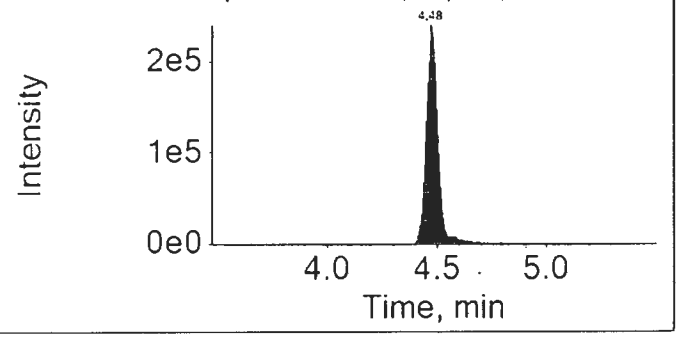
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

314.9 / 270.0

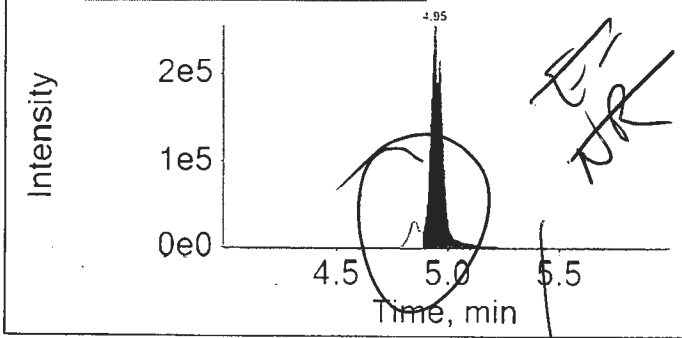


16SEP14-50.wiff

Analyte: PFHpA

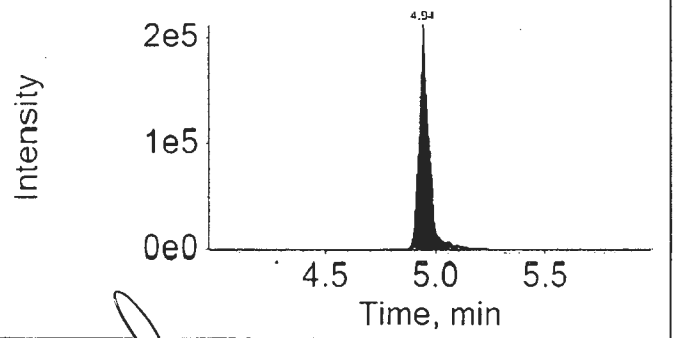
362.9 / 318.9

Lab check integration



Internal Standard: 13C4-PFHpA

367.0 / 322.0

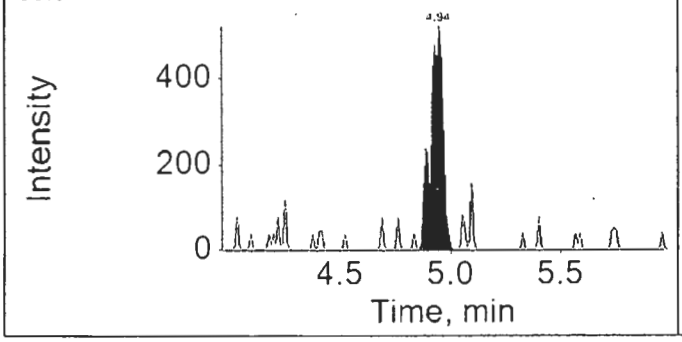


original

16SEP14-50.wiff

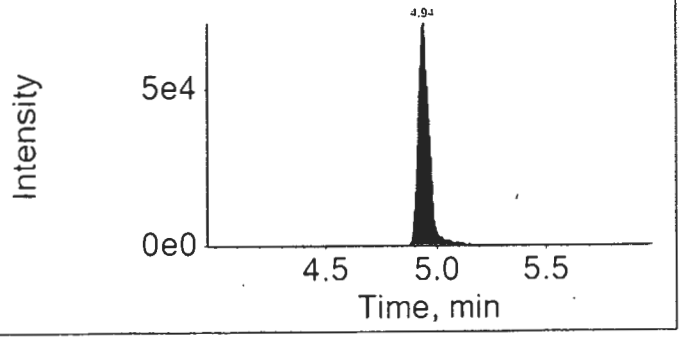
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

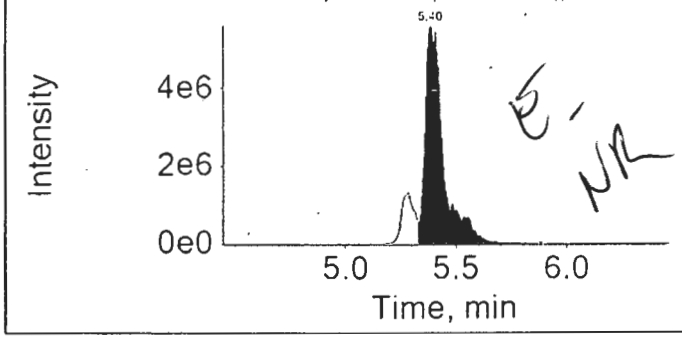
403.0 / 103.0



16SEP14-50.wiff

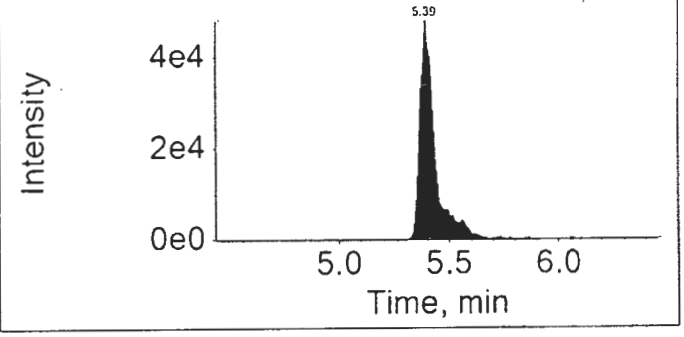
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

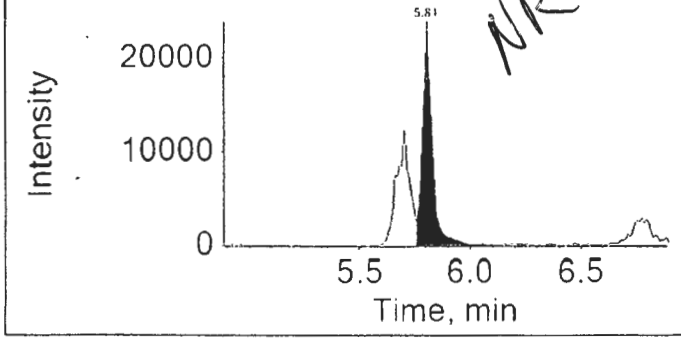
417.0 / 372.0



16SEP14-50.wiff

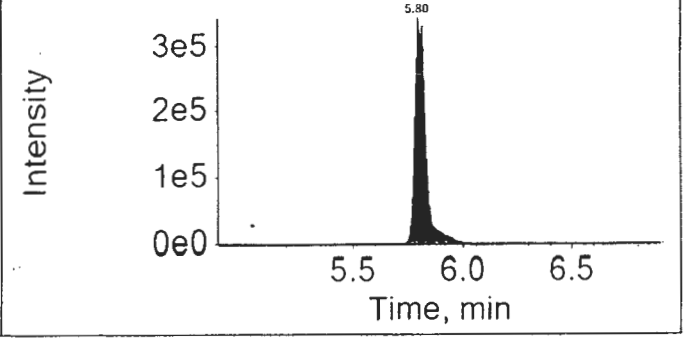
Analyte: PFNA

462.9 / 418.9

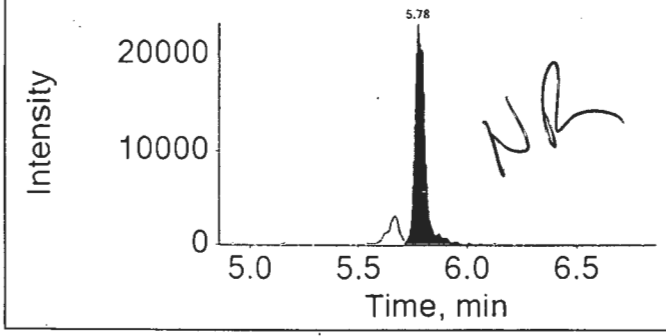


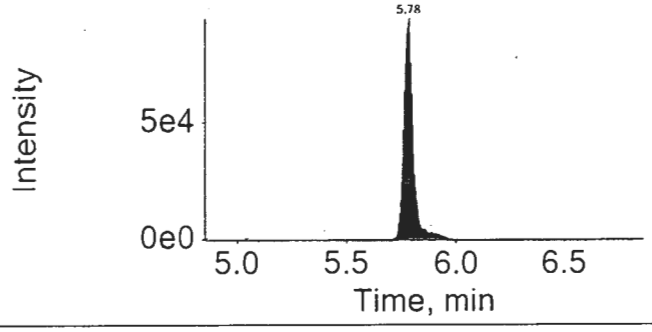
Internal Standard: 13C5-PFNA

468.0 / 423.0

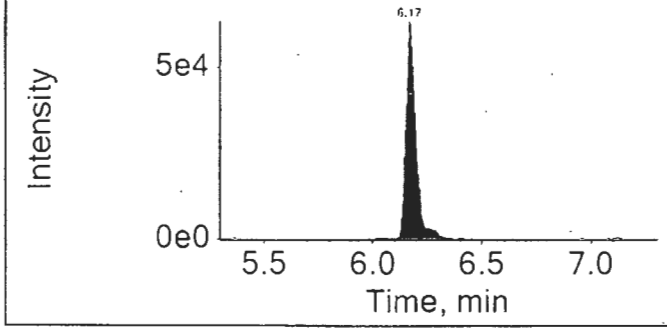


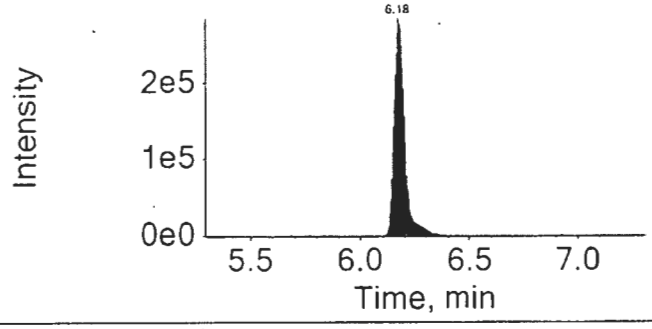
16SEP14-50.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



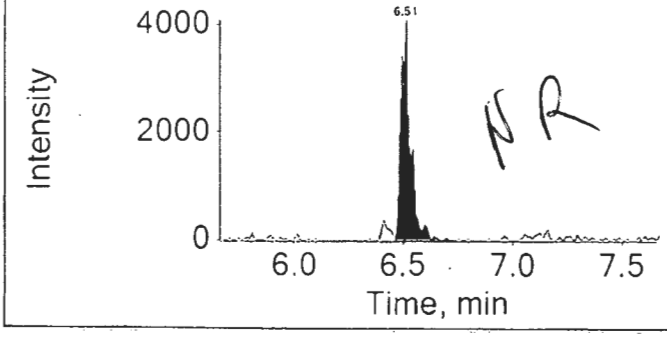


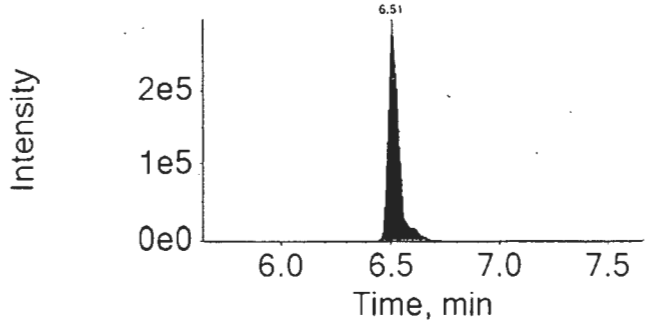
16SEP14-50.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16SEP14-50.wiff	
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

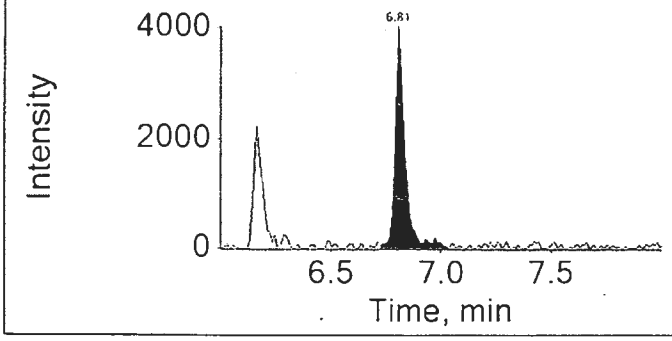




16SEP14-50.wiff

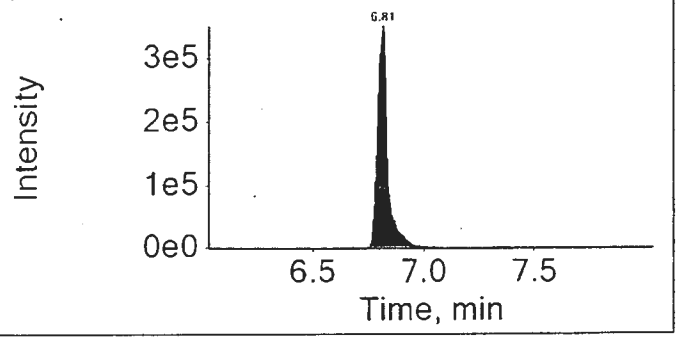
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

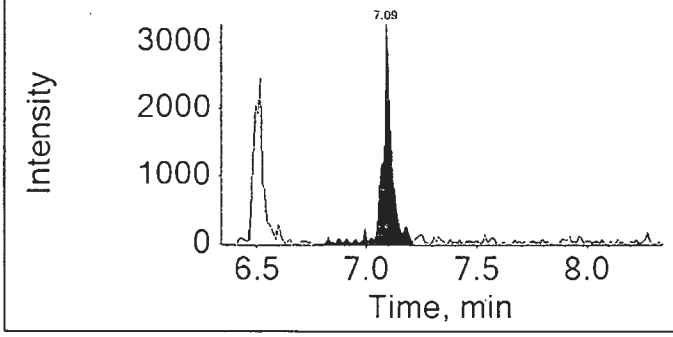
615.0 / 570.0



16SEP14-50.wiff

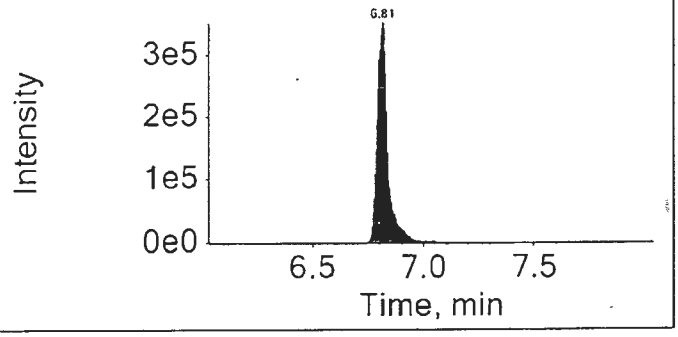
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

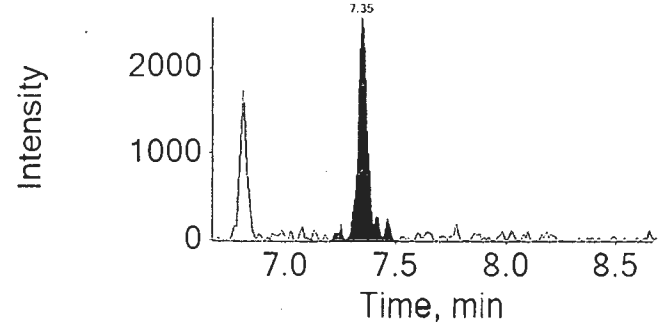
615.0 / 570.0



16SEP14-50.wiff

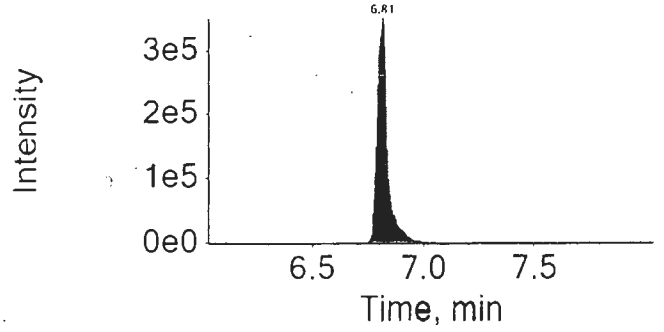
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 19 2016

mer 9/18/16

Lynn Dodd
Principal Specialist

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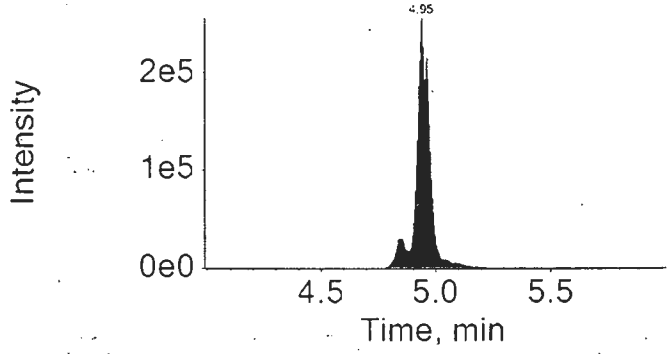
Print Date: 15/09/2016 1:24 PM

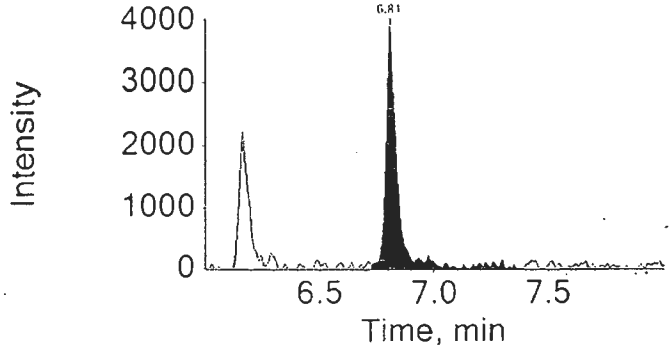
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-50.wiff	2016-09-14T21:44:22	8535036DL2	PFHpA	4.95	1044000.1
16SEP14-50.wiff	2016-09-14T21:44:22	8535036DL2	PFDoDA	6.81	14494.3

Component: PFHpA
Mass: 362.9 / 318.9



Component: PFDoDA
Mass: 612.9 / 568.9



Lynn Dodd

SEP 19 2016

Lynn Dodd
Principal Specialist

MED 7824 9/18/16

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LC-MS/MS Analysis Report

Printed: 9/15/2016 1:23:00 PM

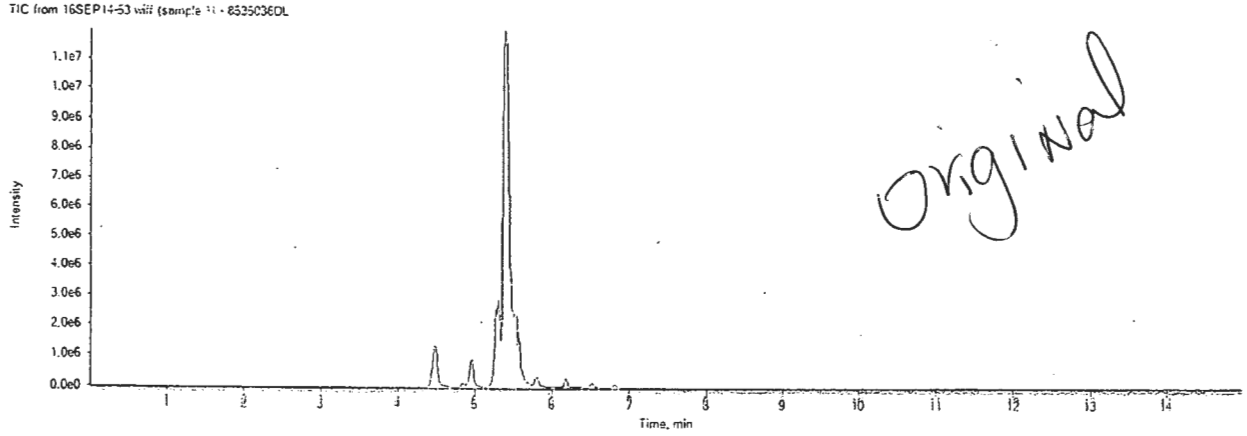
Sample Name:	8535036DL		**Data File:**		16SEP14-53.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment		**Acquis Date:**		2016-09-14T22:33:34
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	87		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL
			ICAL Name:		16SEP13ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.490		**Dilution Factor:**		10.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.06	14572.9	A	18O2-PFHxS	4.94	121493.8	0.120	7.915	ng/g
PFHxA	4.48	6006426.4	A	13C2-PFHxA	4.48	311306.7	19.294	2576.312	ng/g
PFHpA	4.96	3398431.0	A	13C4-PFHpA	4.95	244411.9	13.905	1080.085	ng/g
PFHxS	4.95	9836.6	A	18O2-PFHxS	4.94	121493.8	0.081	6.026	ng/g
PFOA	5.39	79009815.5	A	13C4-PFOA	5.39	61695.2	1280.647	98253.400	ng/g
PFNA	5.81	259860.1	M	13C5-PFNA	5.80	371894.3	0.699	54.359	ng/g
PFOS	5.78	371610.6	A	13C4-PFOS	5.78	122937.7	3.023	259.487	ng/g
PFDA	6.18	626108.3	A	13C2-PFDA	6.18	240069.1	2.608	161.523	ng/g
PFUnDA	6.50	33522.1	A	13C2-PFUnDA	6.51	330541.4	0.101	7.888	ng/g
PFDoDA	6.81	31305.6	A	13C2-PFDoDA	6.81	309860.8	0.101	8.427	ng/g
PFTrDA	7.09	37460.2	A	13C2-PFDoDA	6.81	309860.8	0.121	10.186	ng/g
PFTeDA	7.36	18326.6	M	13C2-PFDoDA	6.81	309860.8	0.059	5.821	ng/g

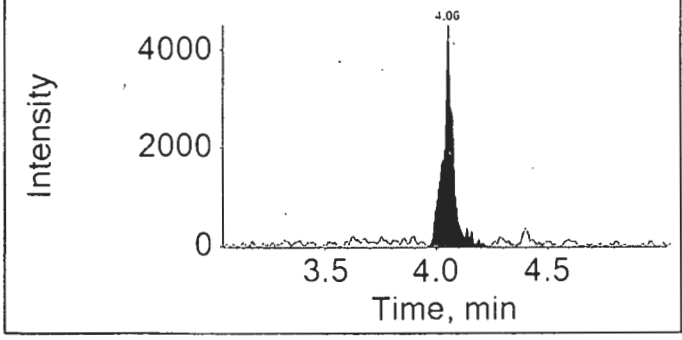
Total Ion Chromatogram

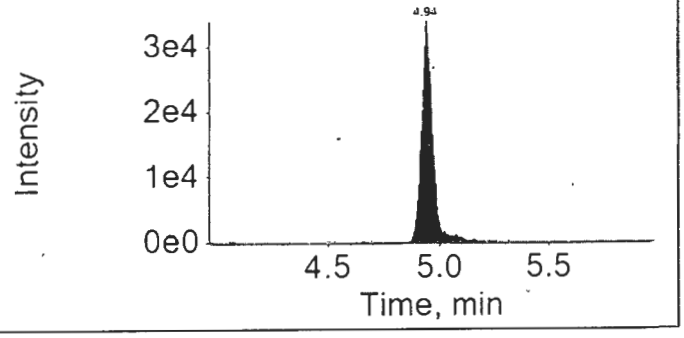
EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment



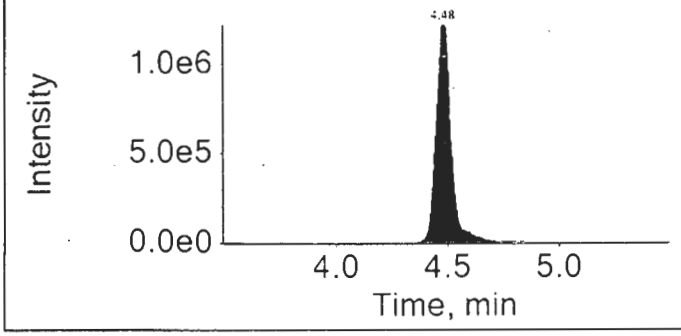
Original

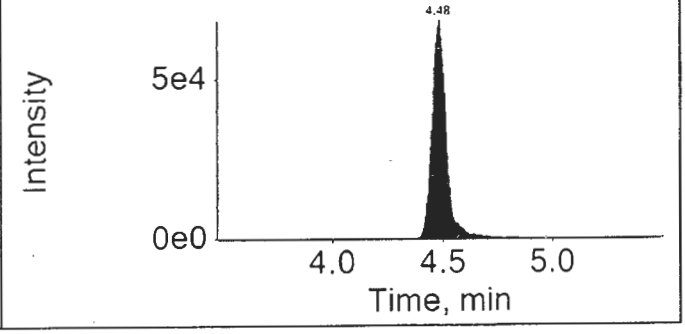
16SEP14-53.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



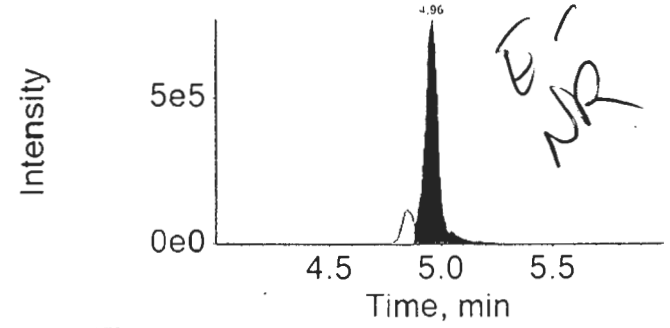


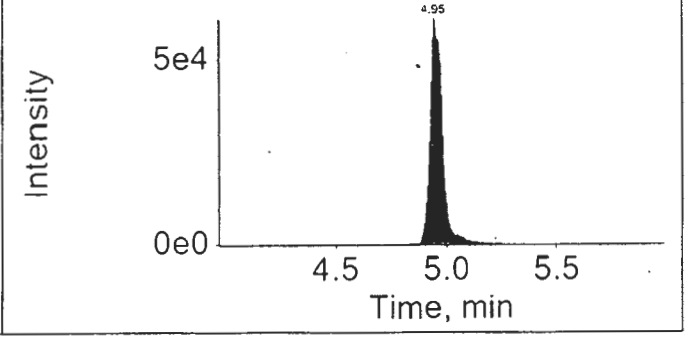
16SEP14-53.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16SEP14-53.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

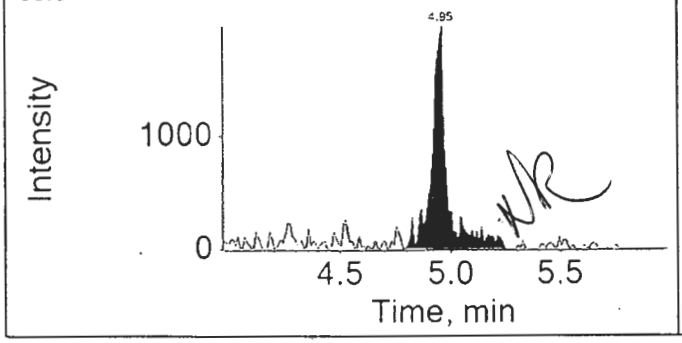




16SEP14-53.wiff

Analyte: PFHxS

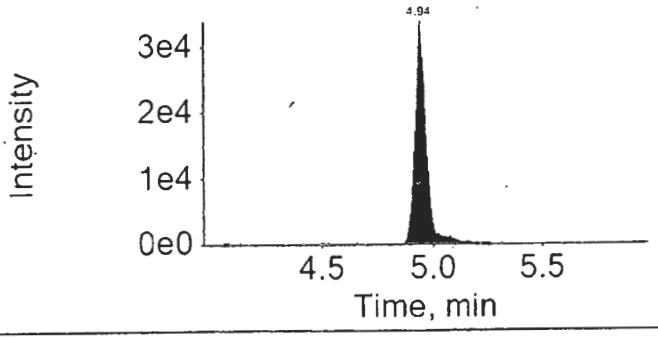
398.9 / 99.0



NR

Internal Standard: 18O2-PFHxS

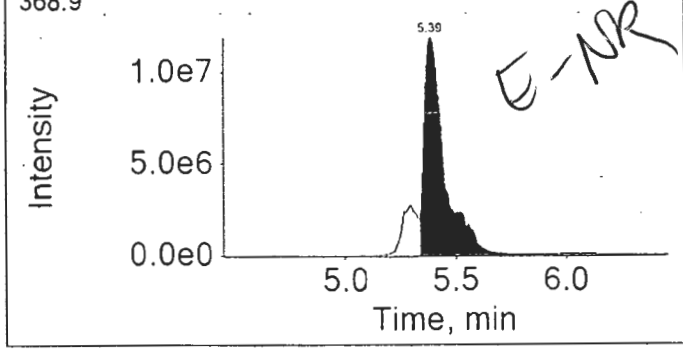
403.0 / 103.0



16SEP14-53.wiff

Analyte: PFOA

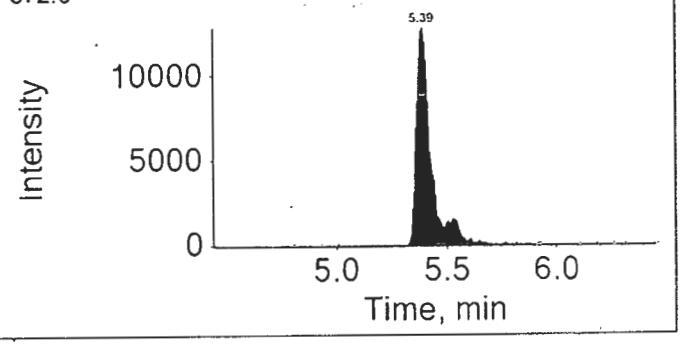
412.9 / 368.9



E-NR

Internal Standard: 13C4-PFOA

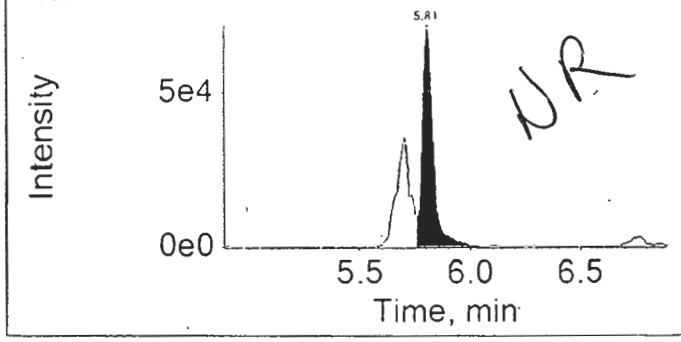
417.0 / 372.0



16SEP14-53.wiff

Analyte: PFNA

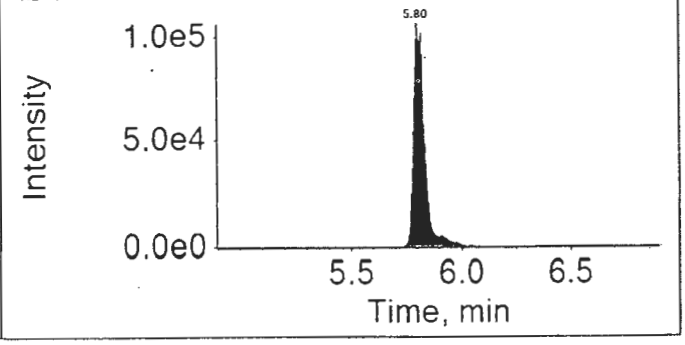
462.9 / 418.9



NR

Internal Standard: 13C5-PFNA

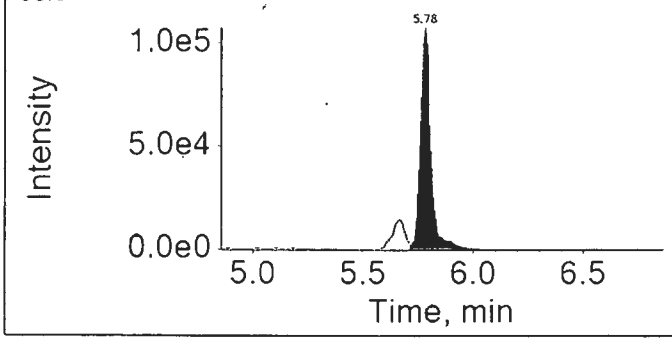
468.0 / 423.0



16SEP14-53.wiff

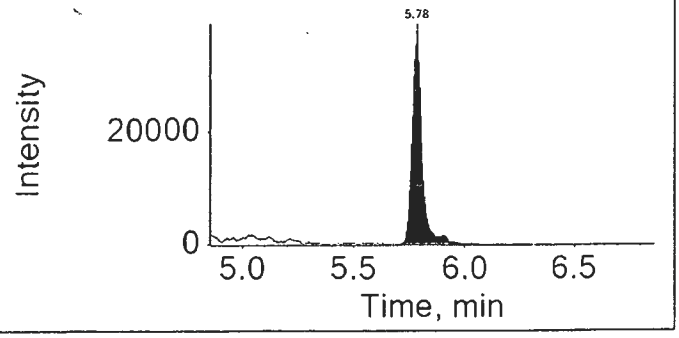
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

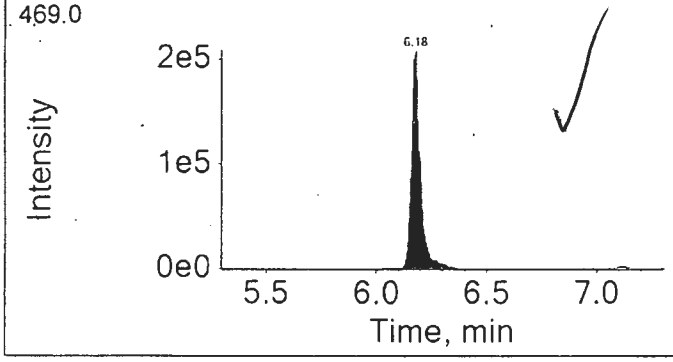
503.0 / 99.0



16SEP14-53.wiff

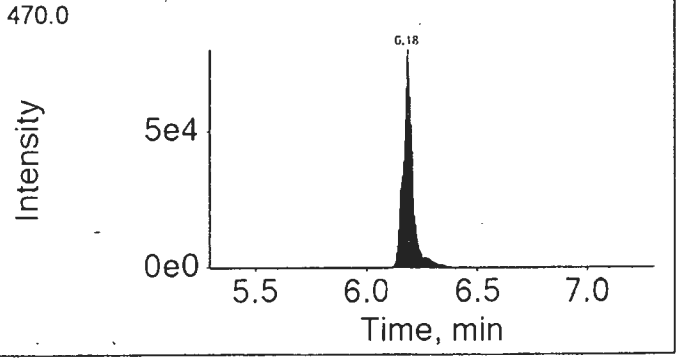
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

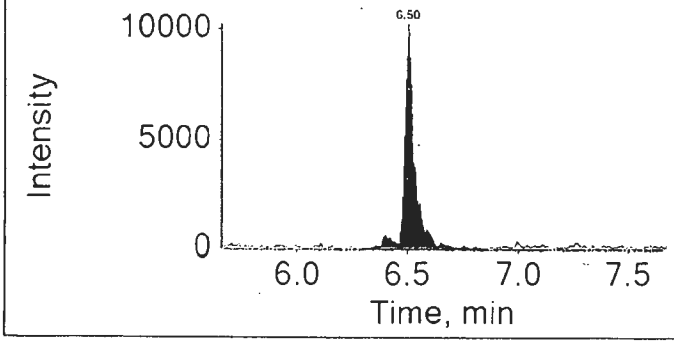
515.0 / 470.0



16SEP14-53.wiff

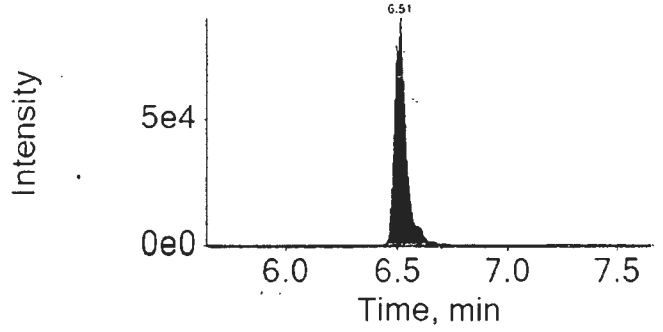
Analyte: PFUnDA

562.9 / 518.9

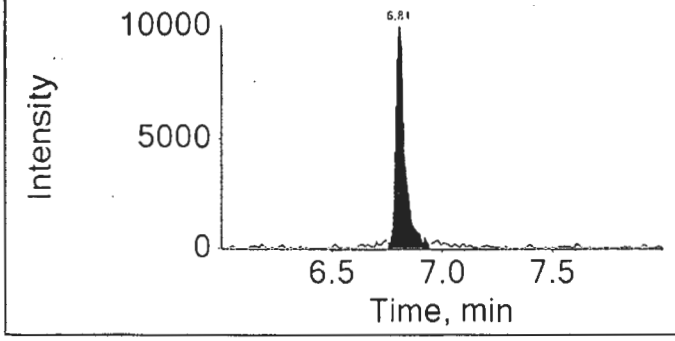


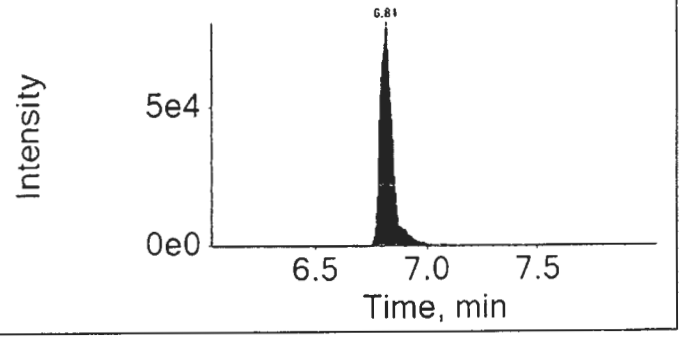
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

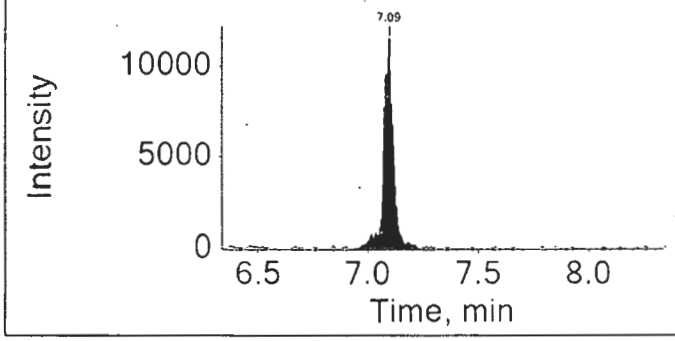


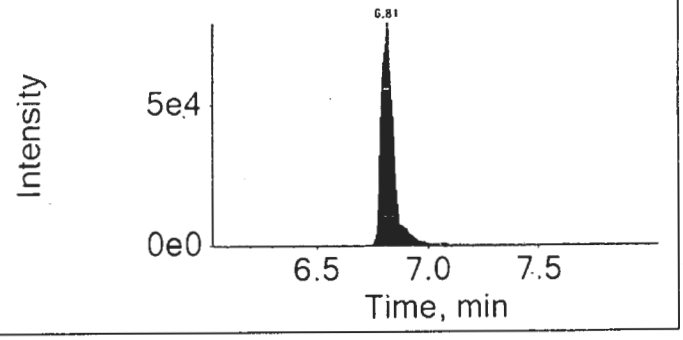
16SEP14-53.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



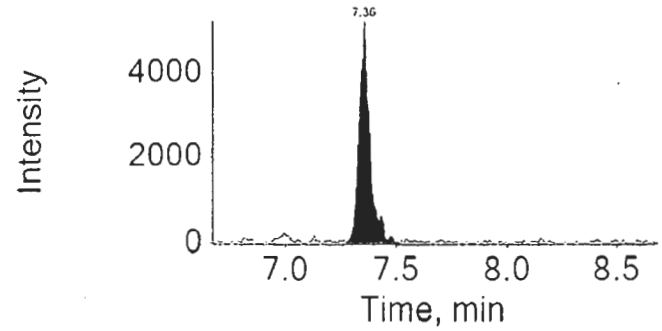


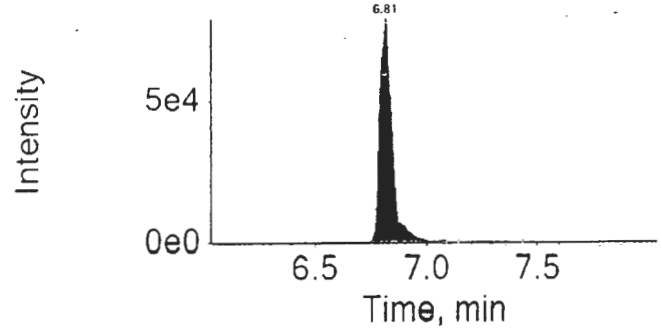
16SEP14-53.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16SEP14-53.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd

SEP 19 2016

Lynn Dodd
Principal Specialist

MED 7824
9/15/16

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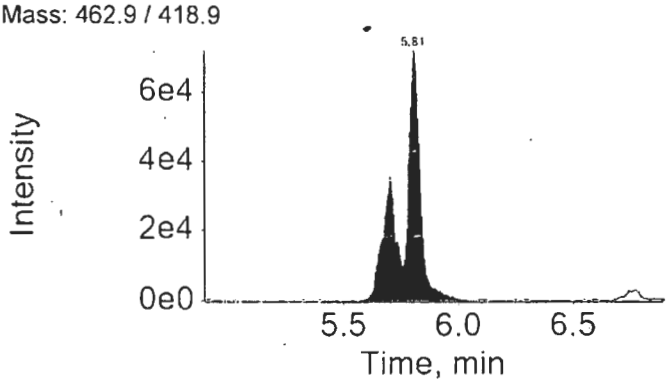
Print Date: 15/09/2016 1:24 PM

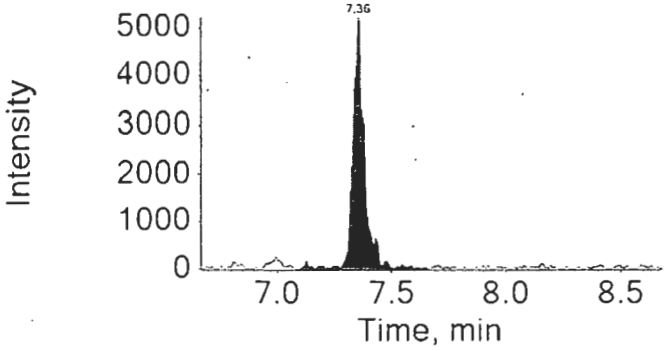
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-53.wiff	2016-09-14T22:33:34	8535036DL	PFNA	5.81	410577.0
16SEP14-53.wiff	2016-09-14T22:33:34	8535036DL	PFTeDA	7.36	19386.0

Component: PFNA
Mass: 462.9 / 418.9



Component: PFTeDA
Mass: 712.9 / 668.9



Lynn Dodd

SEP 19 2016

Lynn Dodd
Principal Specialist

MED 7824
9/19/16

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LC-MS/MS Analysis Report

Printed: 9/24/2016 11:22:00 AM

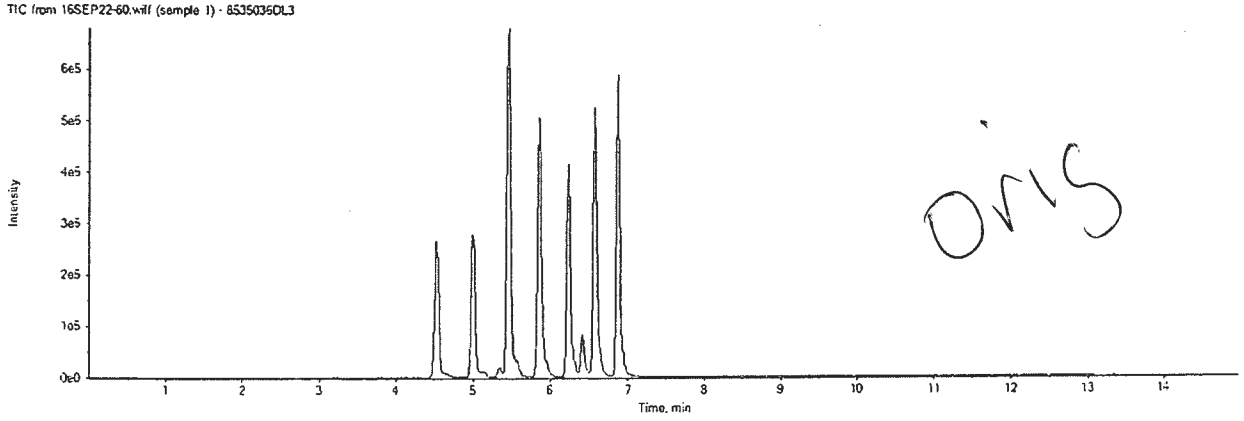
Sample Name:	8535036DL3		**Data File:**		16SEP22-60.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment		**Acquis Date:**		2016-09-23T08:21:20
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	52		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL3
			ICAL Name:		16SEP20ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.490		**Dilution Factor:**		10000.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

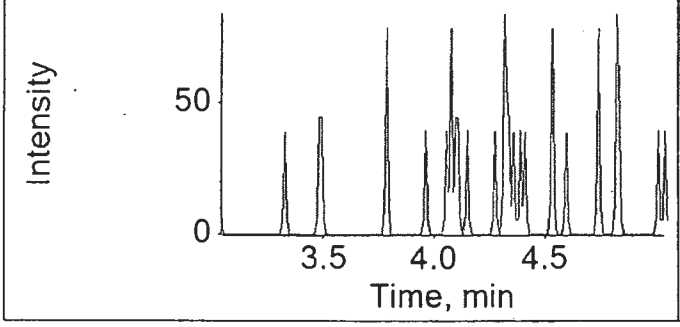
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	4.99	265282.6	N/A	N/A	ng/g
PFHxA	4.52	19537.1	A	13C2-PFHxA	4.53	1003712.8	0.019	2930.809	ng/g
PFHpA	5.00	11961.5	A	13C4-PFHpA	4.99	765434.9	0.016	1169.077	ng/g
PFHxS	4.98	1344.4	A	18O2-PFHxS	4.99	265282.6	0.005	405.299	ng/g
PFOA	5.45	1402400.7	A	13C4-PFOA	5.45	1045896.6	1.341	107546.492	ng/g
PFNA	5.86	1216.4	M	13C5-PFNA	5.86	1643130.9	0.001	64.222	ng/g
PFOS	5.81	563.6	M	13C4-PFOS	5.83	294971.8	0.002	167.482	ng/g
PFDA	6.23	2087.0	M	13C2-PFDA	6.23	1300884.9	0.002	104.532	ng/g
PFUnDA	6.56	4971.8	A	13C2-PFUnDA	6.56	1497768.2	0.003	265.030	ng/g
PFDoDA	6.87	1532.0	A	13C2-PFDoDA	6.87	1854735.5	0.001	70.173	ng/g
PFTrDA	7.14	1250.8	M	13C2-PFDoDA	6.87	1854735.5	0.001	57.440	ng/g
PFTeDA	7.41	2220.1	A	13C2-PFDoDA	6.87	1854735.5	0.001	126.210	ng/g

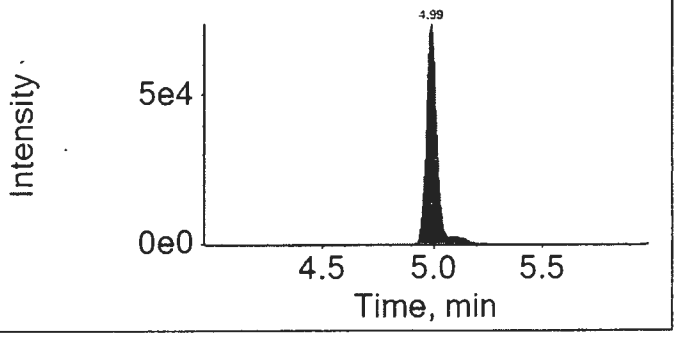
Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment

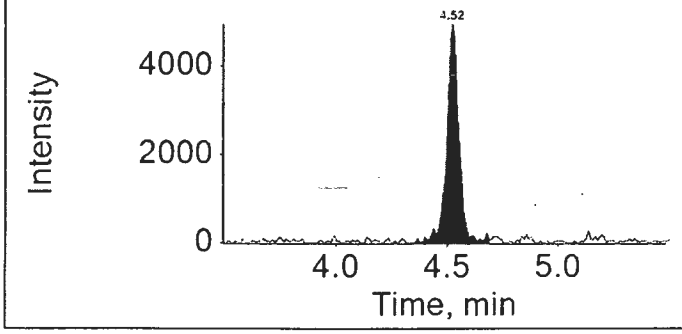


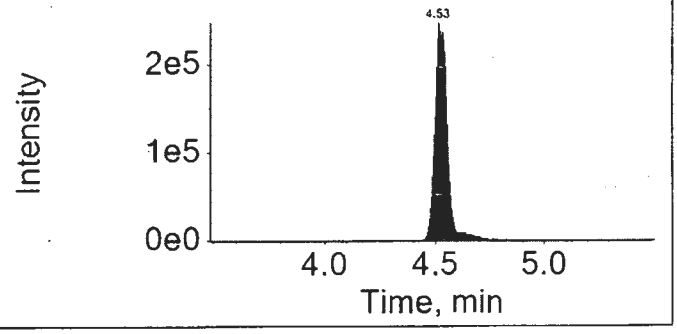
16SEP22-60.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



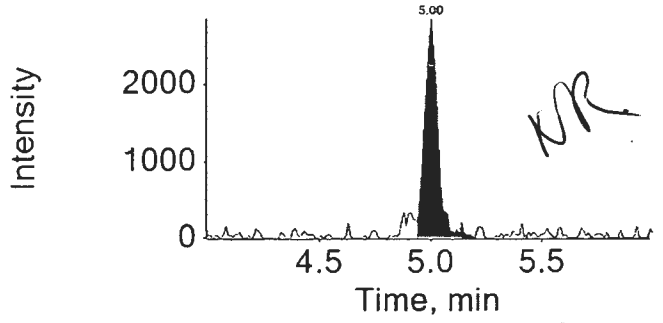


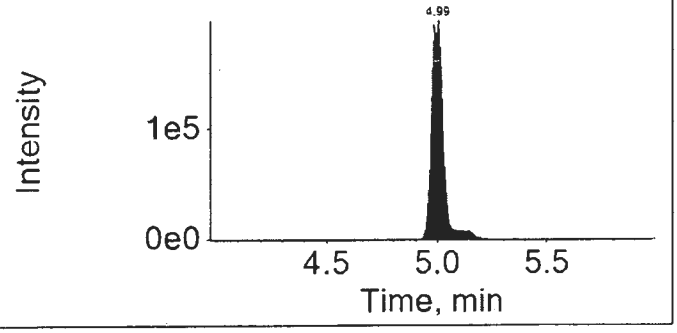
16SEP22-60.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16SEP22-60.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

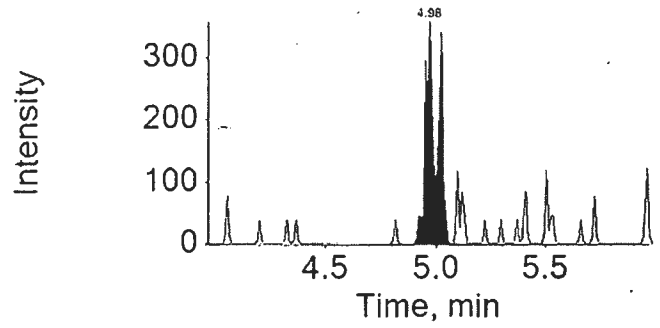




16SEP22-60.wiff

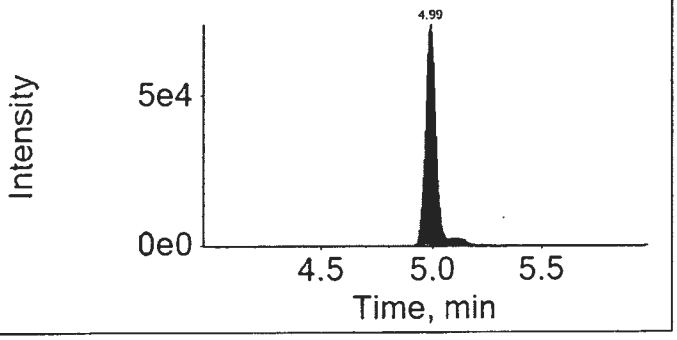
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

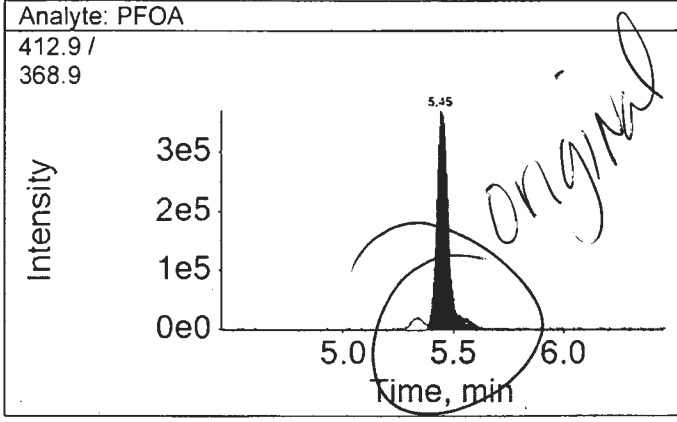
403.0 / 103.0



16SEP22-60.wiff

Analyte: PFOA

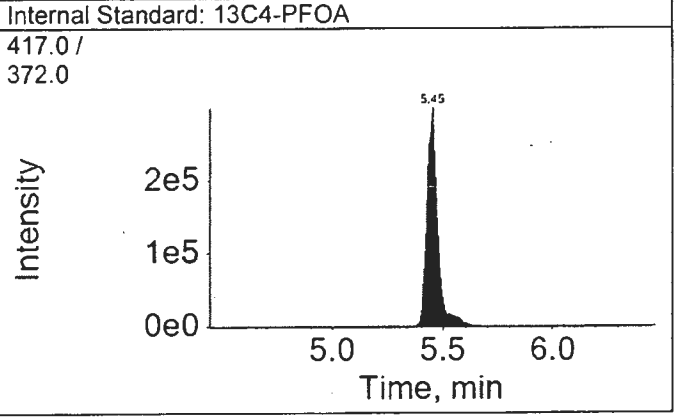
412.9 / 368.9



Original

Internal Standard: 13C4-PFOA

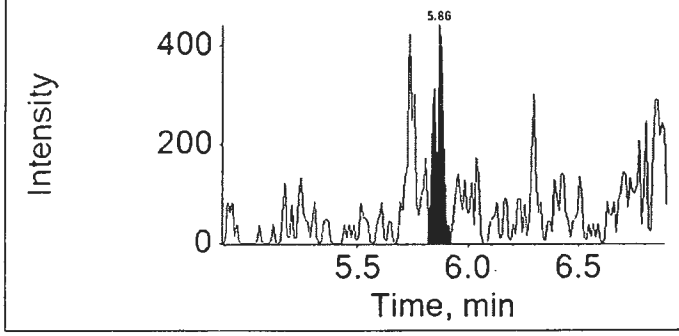
417.0 / 372.0



16SEP22-60.wiff

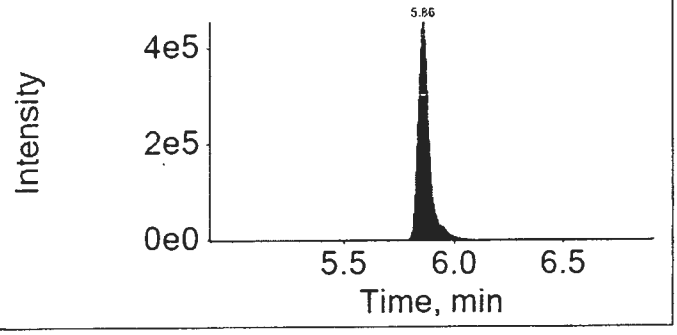
Analyte: PFNA

462.9 / 418.9

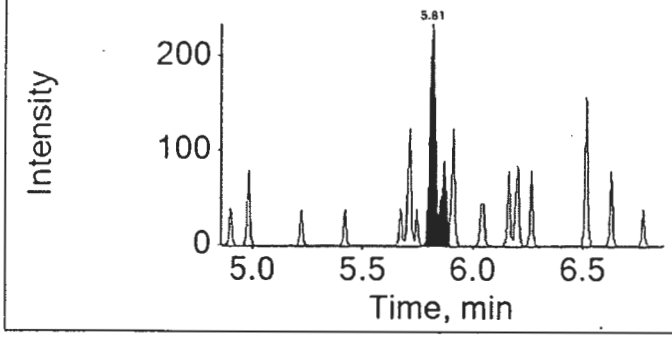


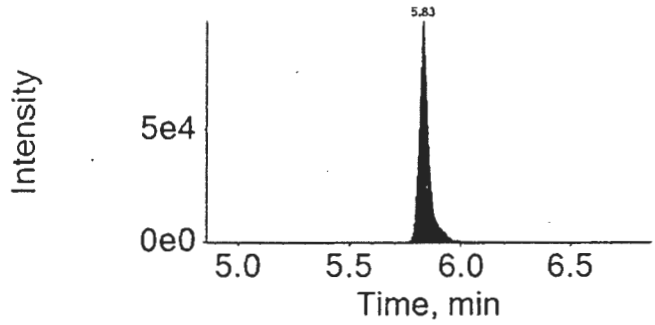
Internal Standard: 13C5-PFNA

468.0 / 423.0

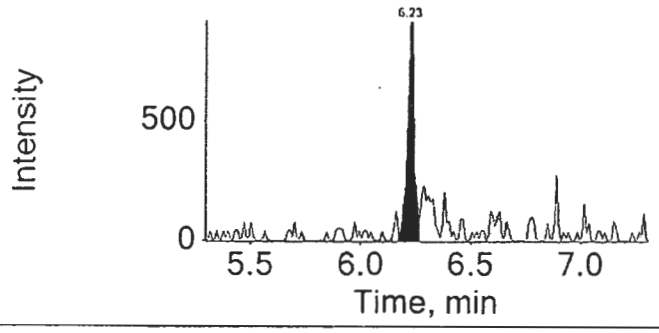


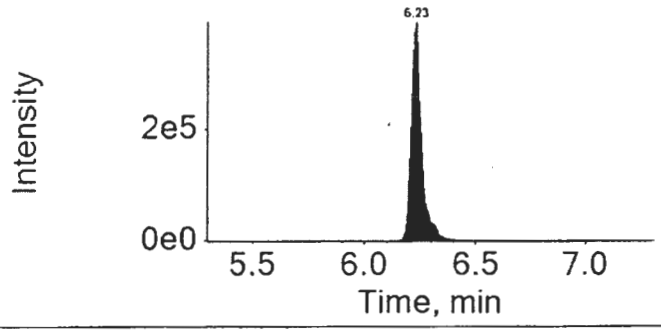
16SEP22-60.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



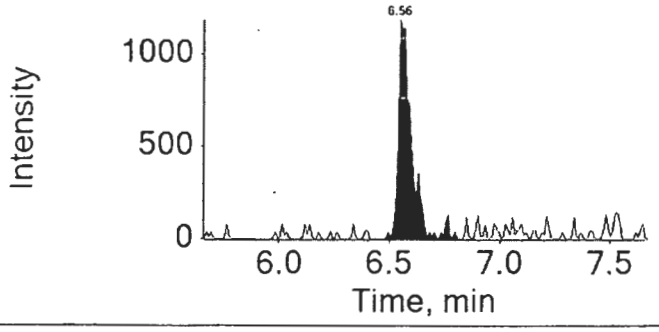


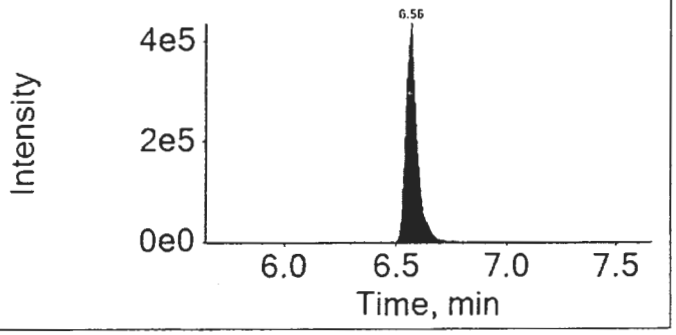
16SEP22-60.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0





16SEP22-60.wiff	
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

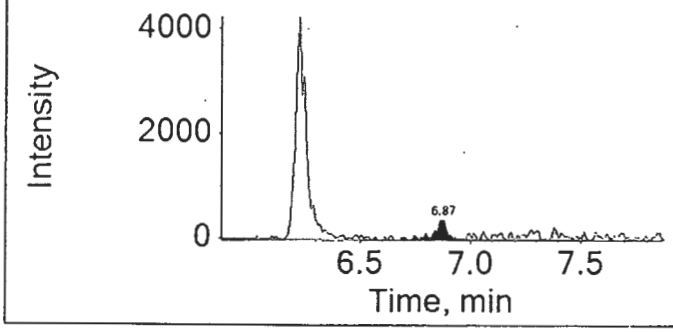




16SEP22-60.wiff

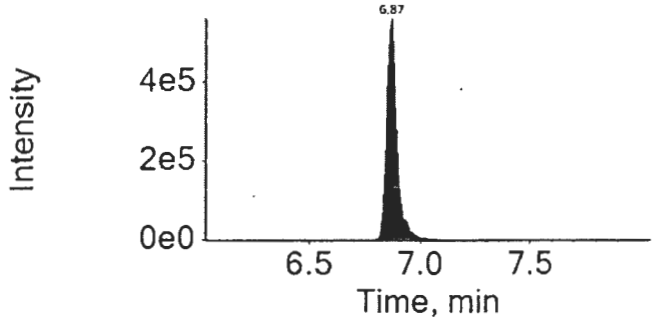
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

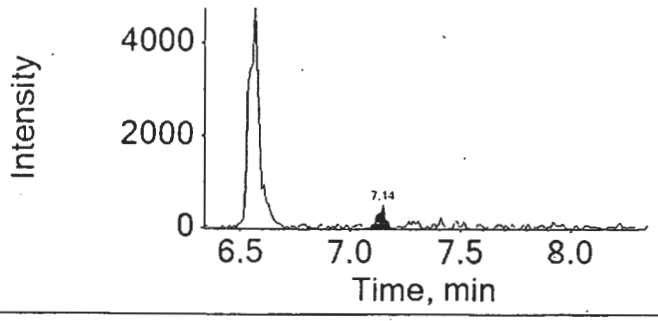
615.0 / 570.0



16SEP22-60.wiff

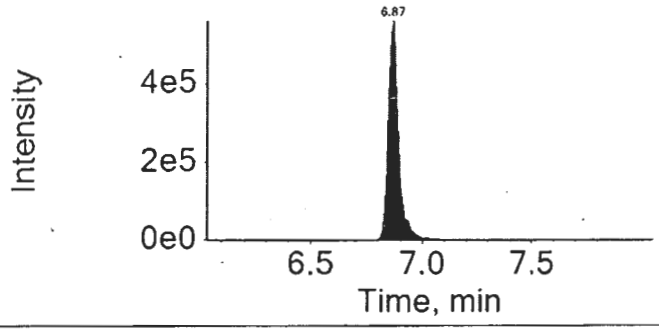
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

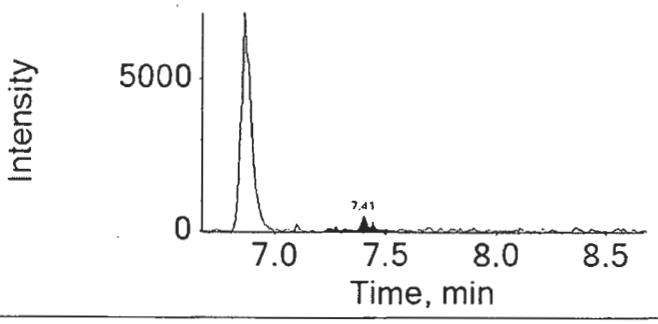
615.0 / 570.0



16SEP22-60.wiff

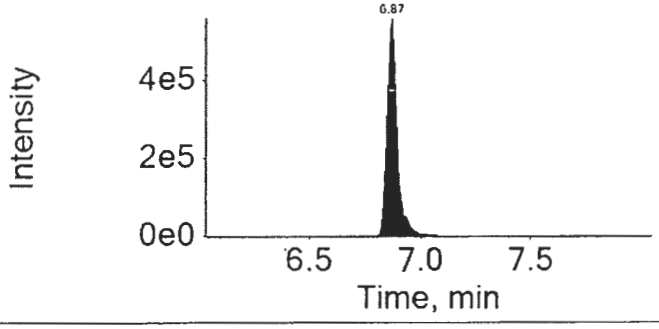
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



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Lynn Dodd
Principal Specialist

anem 9824/16

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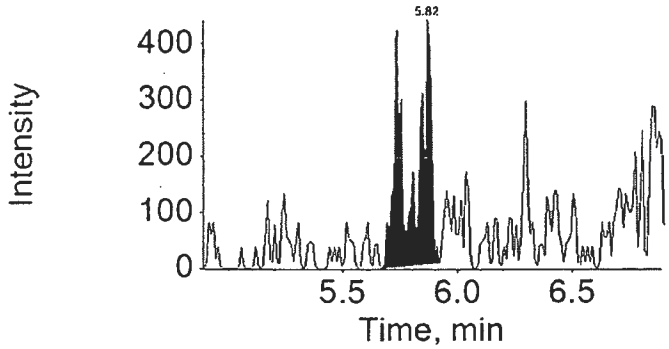
Print Date: 24/09/2016 11:22 AM

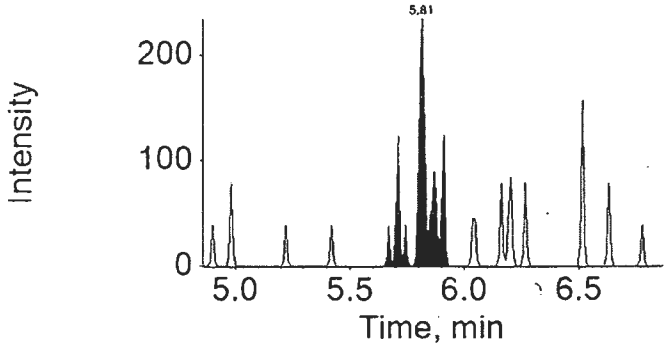
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP22-60.wiff	2016-09-23T08:21:20	8535036DL3	PFNA	5.82	2358.8
16SEP22-60.wiff	2016-09-23T08:21:20	8535036DL3	PFOS	5.81	875.6
16SEP22-60.wiff	2016-09-23T08:21:20	8535036DL3	PFDA	6.23	4002.7
16SEP22-60.wiff	2016-09-23T08:21:20	8535036DL3	PFTrDA	7.14	1970.0

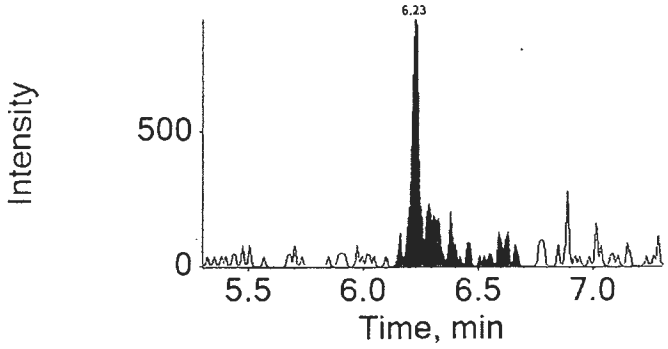
Component: PFNA
Mass: 462.9 / 418.9



Component: PFOS
Mass: 498.9 / 98.9



Component: PFDA
Mass: 512.9 / 469.0



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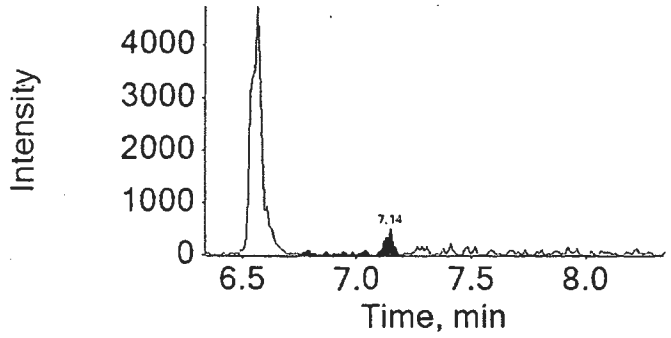
Print Date: 24/09/2016 11:22 AM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFTrDA
Mass: 662.9 / 618.9



Lynn Dodd
SEP 26 2016

Lynn Dodd
Principal Specialist

MED 9/26/16

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Analysis Report

REVISED

Sample Description: SG3-FD01-160817 Grab Sediment
SGPP - Bennington

LL Sample # SW 8535036
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/17/2016 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

FD117 SDG#: SPP17-23FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	7.8	0.47	1.5	1
14027	Perfluorodecanoic acid	335-76-2	170	1.9	3.8	10
14027	Perfluorododecanoic acid	307-55-1	11	0.38	0.76	1
14027	Perfluoroheptanoic acid	375-85-9	1,200	28	57	100
14027	Perfluorohexanesulfonate	355-46-4	8.4	0.47	1.5	1
14027	Perfluorohexanoic acid	307-24-4	2,700	19	38	100
14027	Perfluorononanoic acid	375-95-1	100	0.19	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	350	0.66	1.5	1
14027	Perfluorooctanoic acid	335-67-1	120,000	2,800	5,700	10000
14027	Perfluorotetradecanoic acid	376-06-7	8.2	0.28	0.76	1
14027	Perfluorotridecanoic acid	72629-94-8	6.8	0.57	1.1	1
14027	Perfluoroundecanoic acid	2058-94-8	12	0.28	0.57	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	3.7	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/06/2016 18:30	Jason W Knight	1
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 21:44	Marissa C Drexinger	100
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 22:33	Marissa C Drexinger	10
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/23/2016 08:21	Jason W Knight	10000
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16235011	08/23/2016 11:10	Devon M Whooley	1
00111	Moisture	SM 2540 G-1997	1	16236820006A	08/24/2016 02:56	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL
Instrument ID: 24743
Sample (wt): 5.49 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 3.7

Lab Sample ID: 8535036
Lab File ID: 16SEP06-36.WIFF
Date Collected: 08/17/2016 00:00
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/06/2016 18:30
Dilution Factor: 1.0

Concentration Units: ng/g
Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	7.8	
307-24-4	PFHxA	2800	E
375-85-9	PFHpA	1800	E
355-46-4	PFHxS	8.4	
335-67-1	PFOA	57000	E
375-95-1	PFNA	100	
1763-23-1	PFOS	350	
335-76-2	PFDA	230	E
2058-94-8	PFUnDA	12	
307-55-1	PFDoDA	11	
72629-94-8	PFTrDA	6.8	
376-06-7	PFTeDA	8.2	

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:14:00 PM

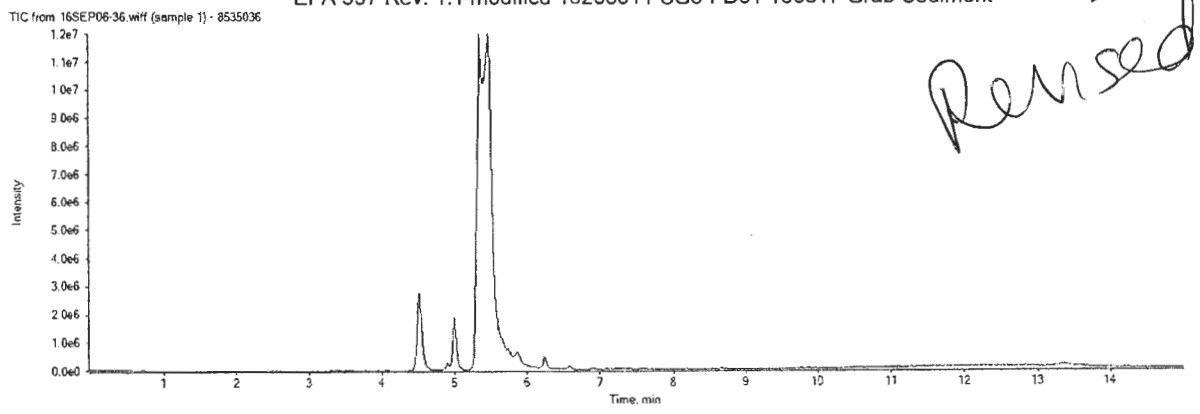
Sample Name:	8535036			**Data File:**		16SEP06-36.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment			**Acquis Date:**		2016-09-06T18:30:12
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	24			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011
				ICAL Name:		16SEP01ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.490			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	4.07	0.820	27670.6	M	18O2-PFHxS	4.99	27923.8	0.991	7.526
PFHxA	4.52	1.000	12444978.5	A	13C2-PFHxA	4.51	79520.6	156.500	2710.169
PFHpA	4.99	1.000	7113879.4	M	13C4-PFHpA	4.99	35838.1	198.501	1742.150
PFHxS	4.99	1.000	26282.8	M	18O2-PFHxS	4.99	27923.8	0.941	8.133
PFOA	5.42	1.000	165730798.5	M	13C4-PFOA	5.40	26908.0	6159.175	54971.066
PFNA	5.87	1.000	1074063.5	M	13C5-PFNA	5.88	100817.4	10.654	96.808
PFOS	5.85	1.000	872371.9	M	13C4-PFOS	5.85	26160.0	33.348	334.946
PFDA	6.24	1.000	1439710.9	A	13C2-PFDA	6.25	51192.3	28.124	222.589
PFUnDA	6.57	1.000	105840.8	A	13C2-PFUnDA	6.57	87837.6	1.205	11.366
PFDoDA	6.91	1.000	132206.5	A	13C2-PFDoDA	6.91	117769.7	1.123	11.048
PFTrDA	7.26	1.050	78472.8	M	13C2-PFDoDA	6.91	117769.7	0.666	6.505
PFTeDA	7.58	1.100	93524.4	A	13C2-PFDoDA	6.91	117769.7	0.794	7.904

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment



Revised

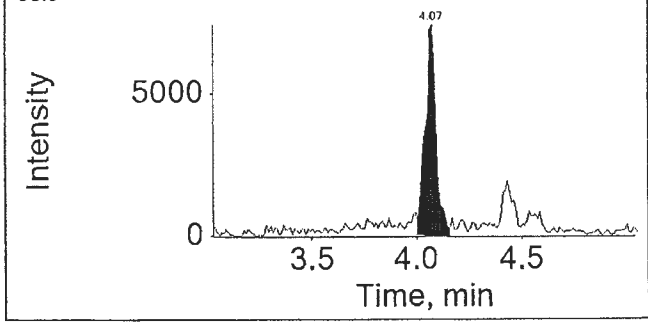
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-36.wiff

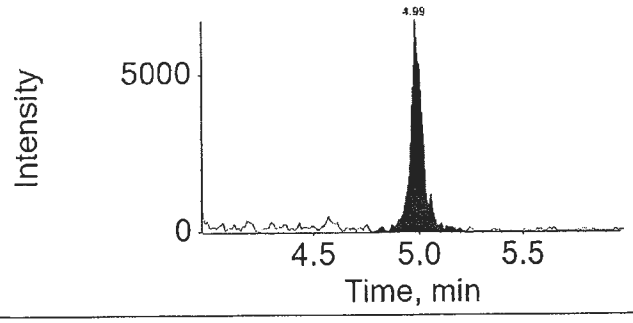
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

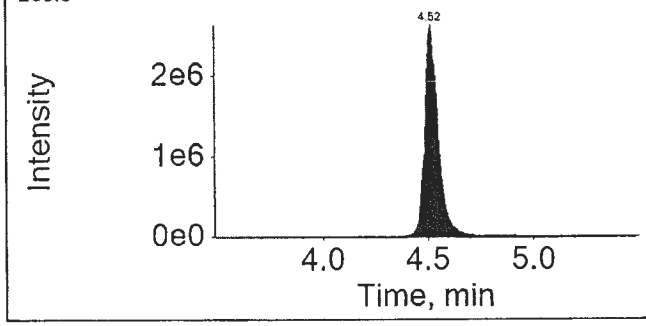
403.0 / 103.0



16SEP06-36.wiff

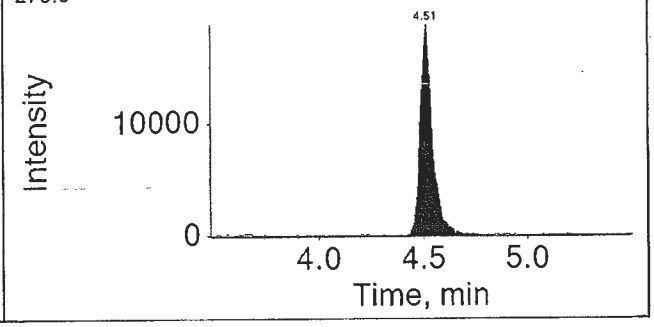
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

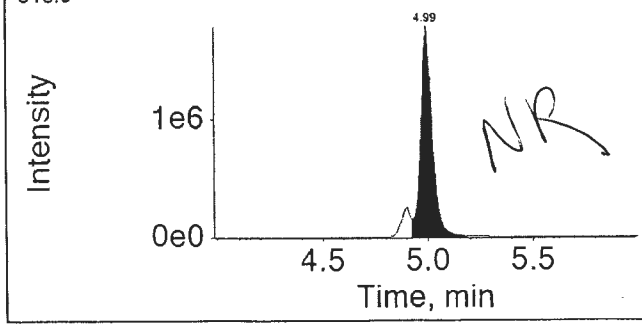
314.9 / 270.0



16SEP06-36.wiff

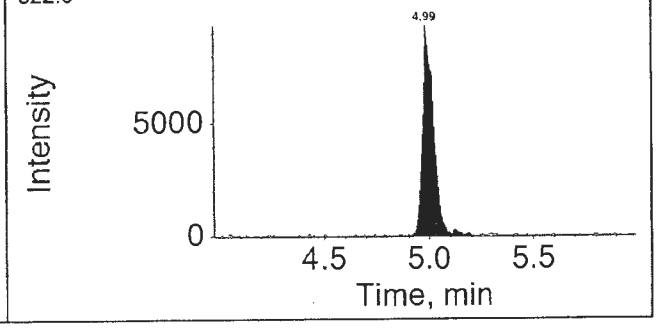
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



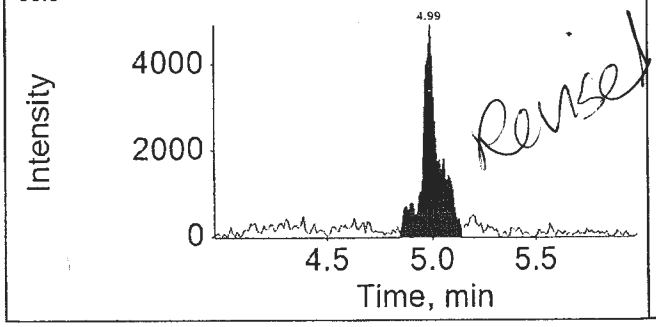
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-36.wiff

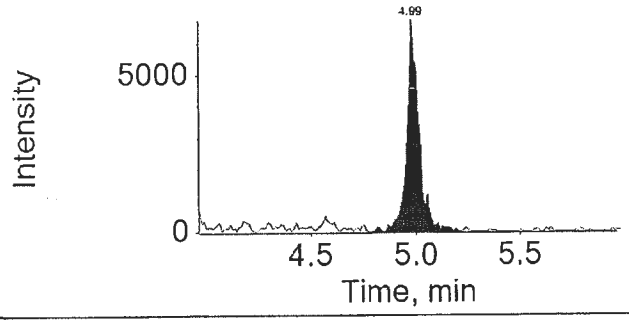
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

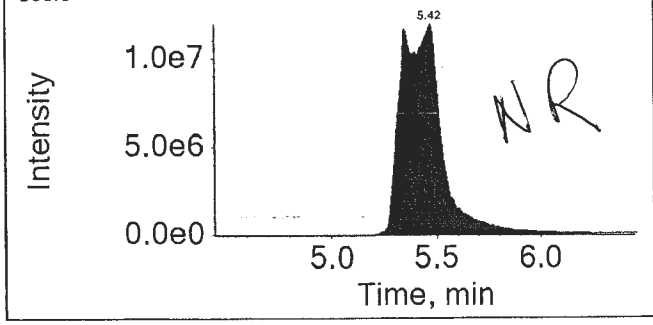
403.0 / 103.0



16SEP06-36.wiff

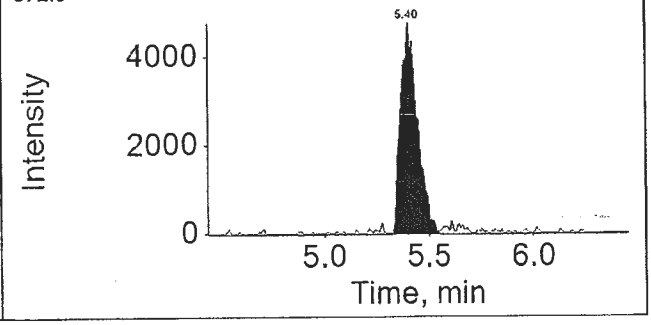
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

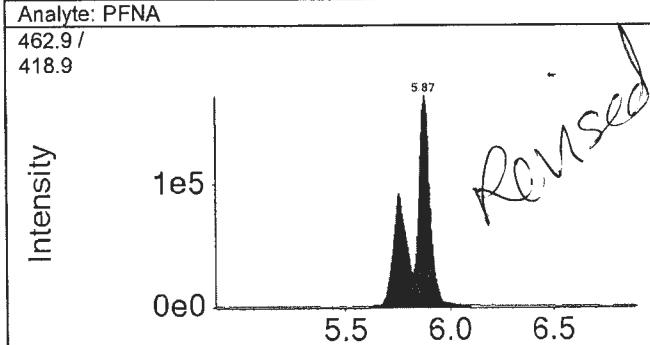
417.0 / 372.0



16SEP06-36.wiff

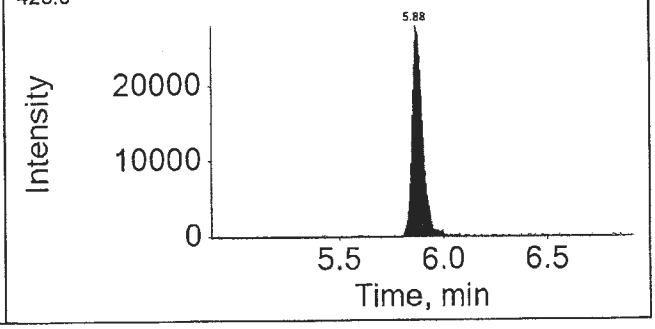
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



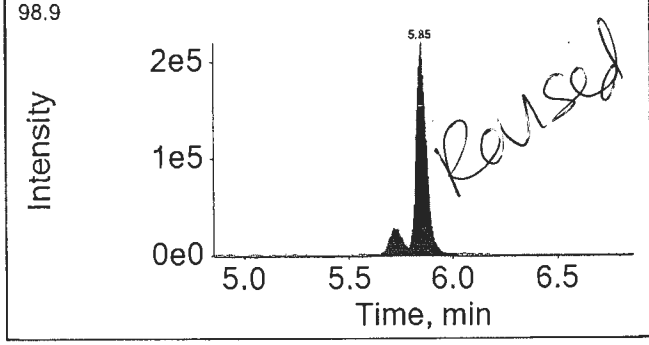
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-36.wiff

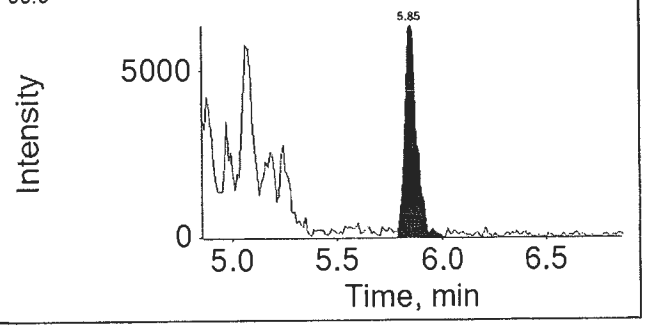
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

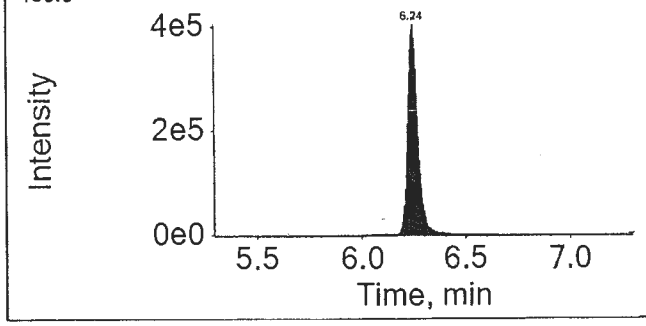
503.0 / 99.0



16SEP06-36.wiff

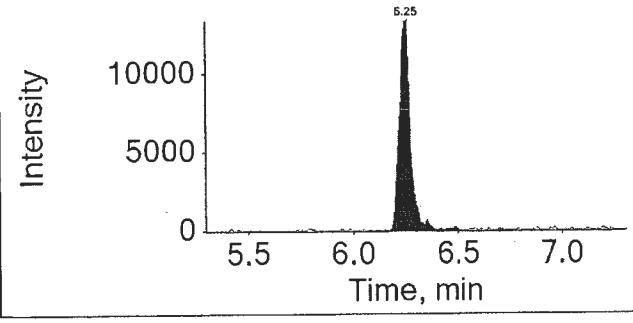
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

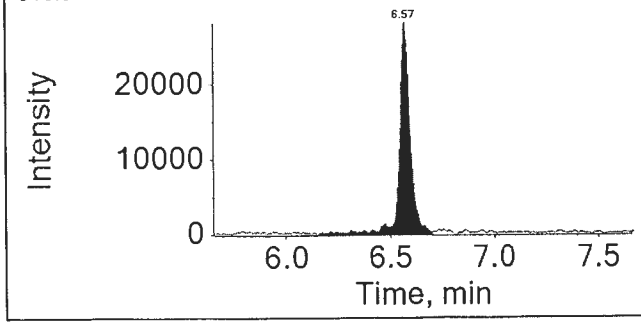
515.0 / 470.0



16SEP06-36.wiff

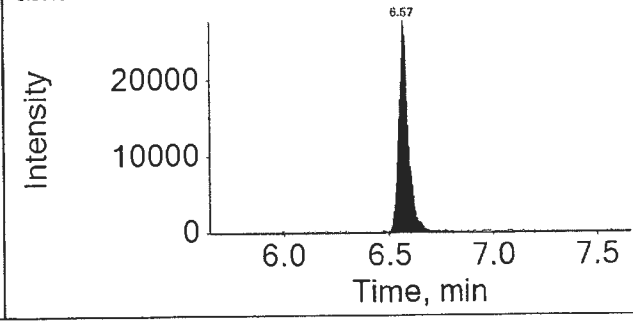
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



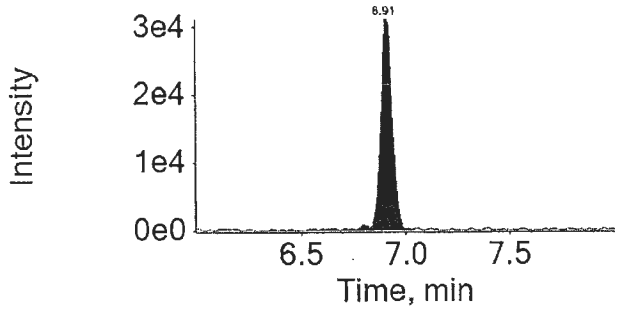
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-36.wiff

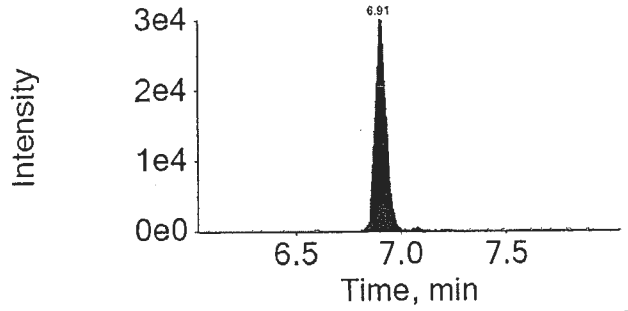
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

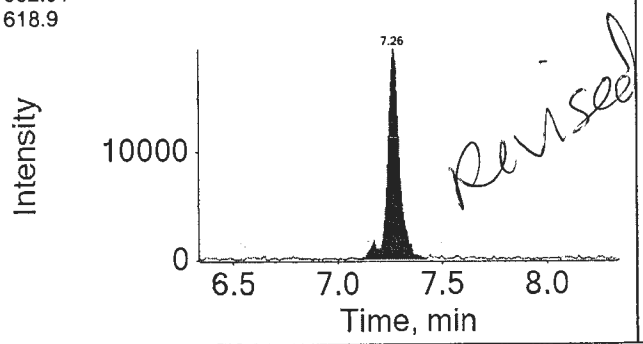
615.0 / 570.0



16SEP06-36.wiff

Analyte: PFTrDA

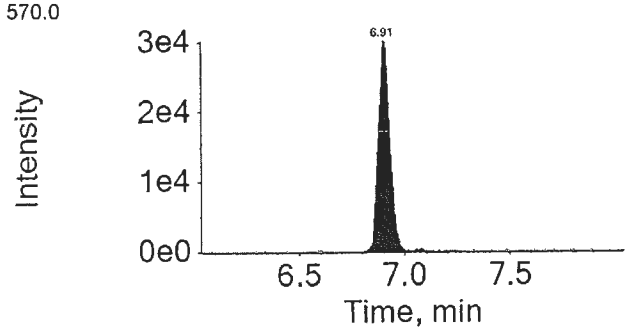
662.9 / 618.9



Revised

Internal Standard: 13C2-PFDoDA

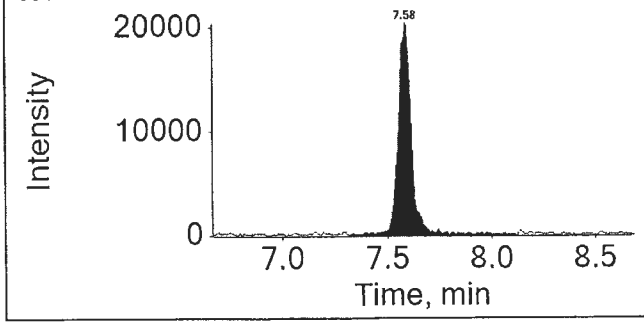
615.0 / 570.0



16SEP06-36.wiff

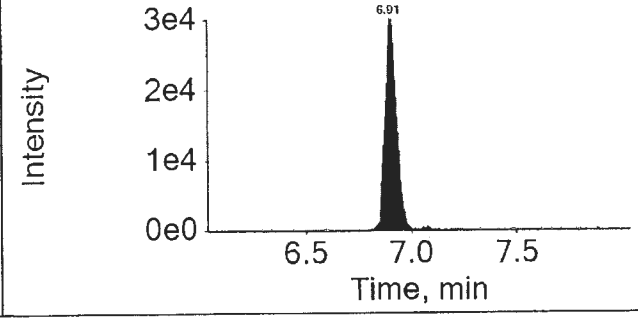
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

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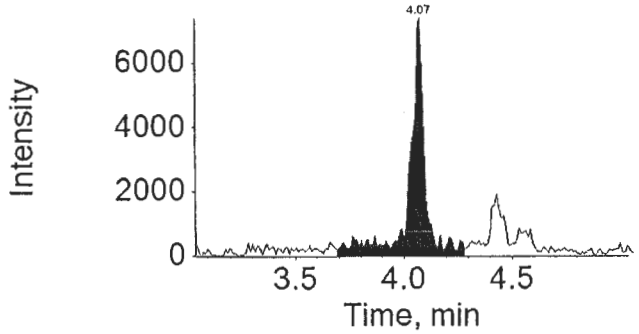
Print Date: 09/06/2017 5:15 PM

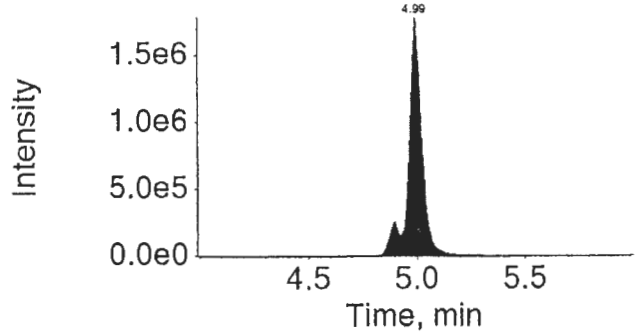
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP06-36.wiff	2016-09-06T18:30:12	8535036	PFBS	4.07	38004.7
16SEP06-36.wiff	2016-09-06T18:30:12	8535036	PFHpA	4.99	7927559.0
16SEP06-36.wiff	2016-09-06T18:30:12	8535036	PFHxS	4.99	28754.2
16SEP06-36.wiff	2016-09-06T18:30:12	8535036	PFOA	5.46	97656222.9
16SEP06-36.wiff	2016-09-06T18:30:12	8535036	PFNA	5.88	643376.5
16SEP06-36.wiff	2016-09-06T18:30:12	8535036	PFOS	5.85	743775.6
16SEP06-36.wiff	2016-09-06T18:30:12	8535036	PFTrDA	7.26	74749.4

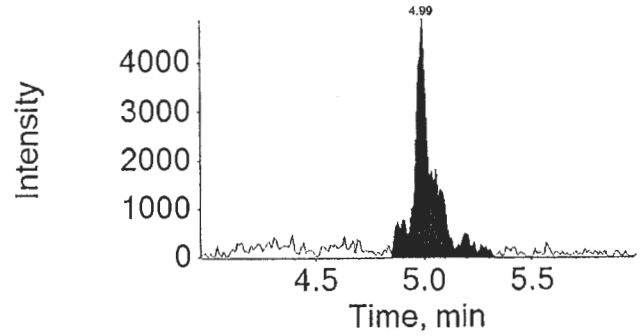
Component: PFBS
Mass: 298.9 / 98.9



Component: PFHpA
Mass: 362.9 / 318.9



Component: PFHxS
Mass: 398.9 / 99.0



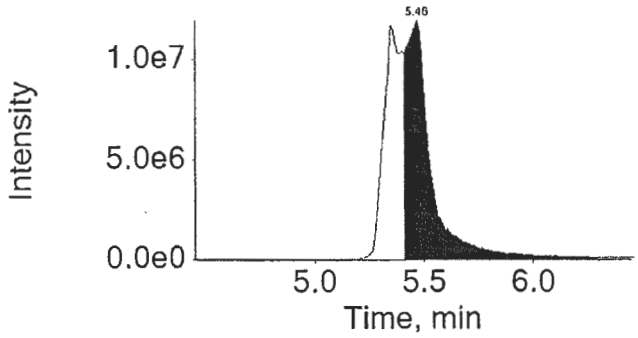
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:26 am, 6/13/17

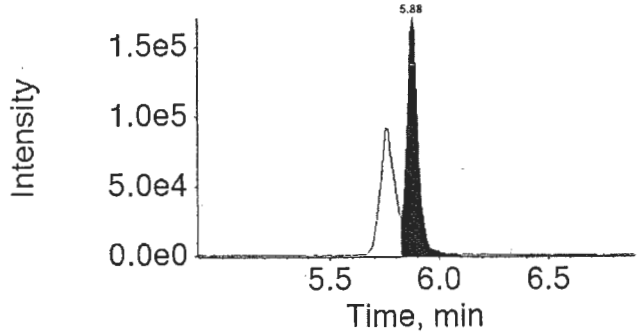
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

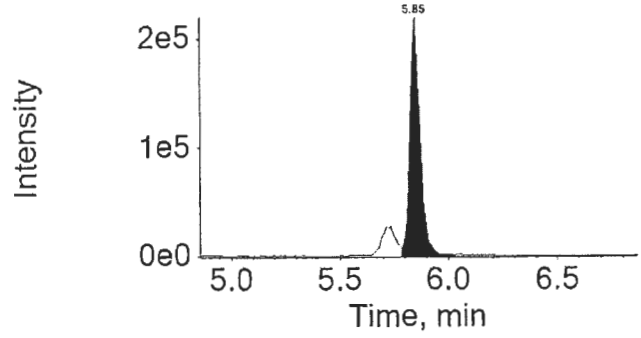
Component: PFOA
Mass: 412.9 / 368.9



Component: PFNA
Mass: 462.9 / 418.9



Component: PFOS
Mass: 498.9 / 98.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:26 am, 6/13/17

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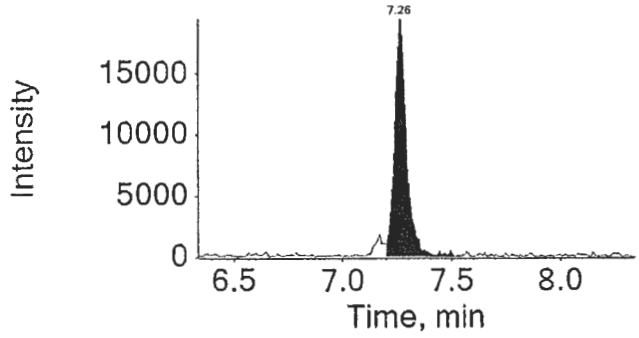
Print Date: 09/06/2017 5:15 PM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFTrDA
Mass: 662.9 / 618.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:26 am, 6/13/17

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL
Instrument ID: 24743
Sample (wt): 5.49 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 3.7

Lab Sample ID: 8535036DL
Lab File ID: 16SEP14-53.WIFF
Date Collected: 08/17/2016 00:00
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/14/2016 22:33
Dilution Factor: 10.0

Concentration Units: ng/g
Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	8.2	
307-24-4	PFHxA	2700	E
375-85-9	PFHpA	1100	E
355-46-4	PFHxS	6.3	
335-67-1	PFOA	120000	E
375-95-1	PFNA	56	
1763-23-1	PFOS	310	
335-76-2	PFDA	170	
2058-94-8	PFUnDA	8.2	
307-55-1	PFDoDA	8.8	
72629-94-8	PFTrDA	11	
376-06-7	PFTeDA	6.0	

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:26:00 PM

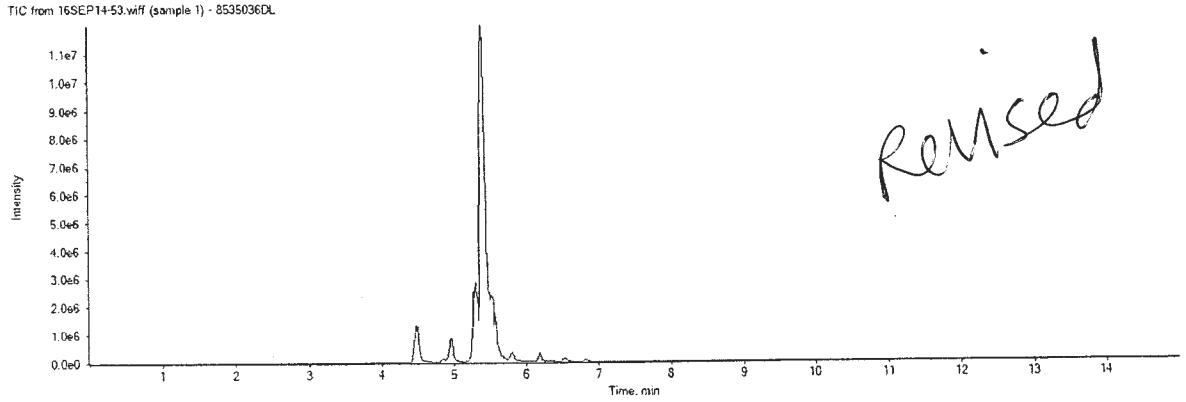
Sample Name:	8535036DL			**Data File:**		16SEP14-53.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment			**Acquis Date:**		2016-09-14T22:33:34
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	87			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011DL
				ICAL Name:		16SEP13ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.490			**Dilution Factor:**		10.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	4.06	0.820	14572.9	A	18O2-PFHxS	4.94	121493.8	0.120	7.915
PFHxA	4.48	1.000	6006426.4	A	13C2-PFHxA	4.48	311306.7	19.294	2576.312
PFHpA	4.96	1.000	3398431.0	A	13C4-PFHpA	4.95	244411.9	13.905	1080.085
PFHxS	4.95	1.000	9836.6	A	18O2-PFHxS	4.94	121493.8	0.081	~~6.026~~
PFOA	5.39	1.000	92339706.6	M	13C4-PFOA	5.39	61695.2	1496.708	114829.911
PFNA	5.81	1.000	259860.1	M	13C5-PFNA	5.80	371894.3	0.699	~~54.359~~
PFOS	5.78	1.000	429308.3	M	13C4-PFOS	5.78	122937.7	3.492	299.776
PFDA	6.18	1.000	626108.3	A	13C2-PFDA	6.18	240069.1	2.608	161.523
PFUnDA	6.50	1.000	33522.1	A	13C2-PFUnDA	6.51	330541.4	0.101	7.888
PFDoDA	6.81	1.000	31305.6	A	13C2-PFDoDA	6.81	309860.8	0.101	8.427
PFTrDA	7.09	1.040	37460.2	A	13C2-PFDoDA	6.81	309860.8	0.121	10.186
PFTeDA	7.36	1.080	18326.6	M	13C2-PFDoDA	6.81	309860.8	0.059	5.821

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment



Revised

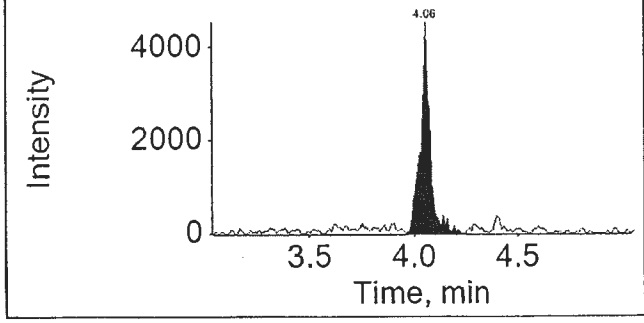
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

16SEP14-53.wiff

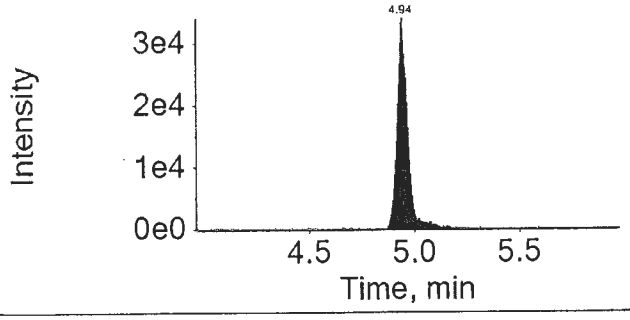
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

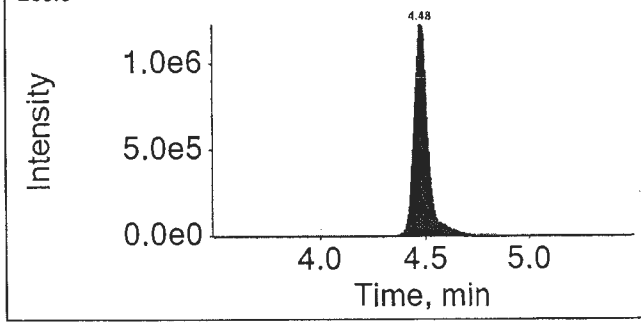
403.0 / 103.0



16SEP14-53.wiff

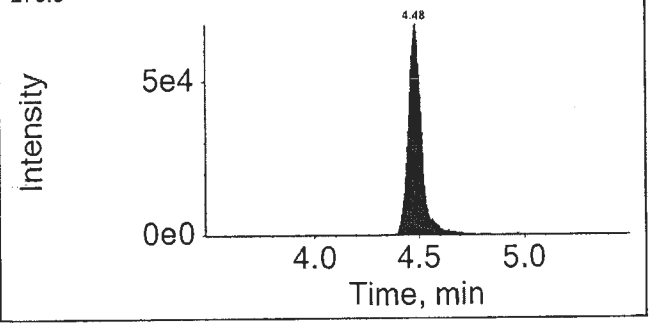
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

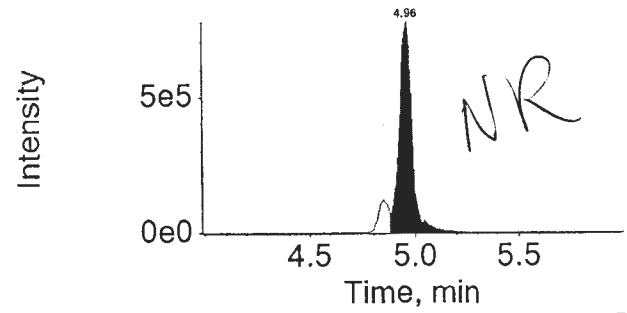
314.9 / 270.0



16SEP14-53.wiff

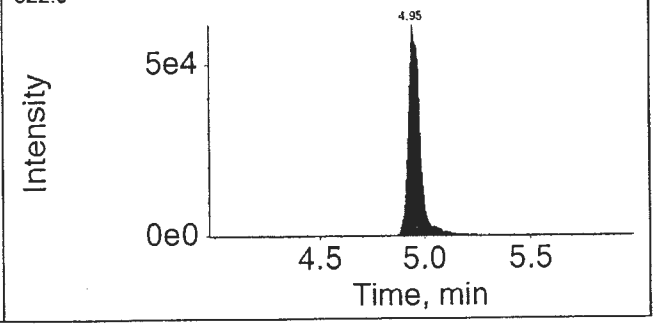
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



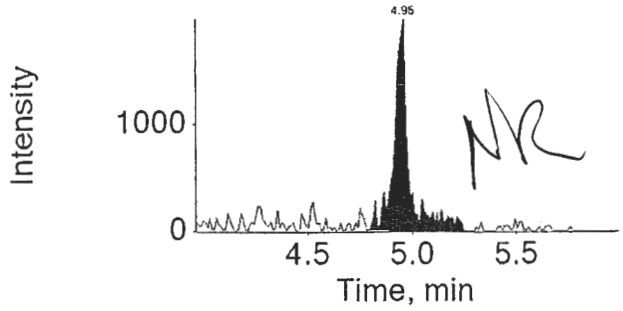
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

16SEP14-53.wiff

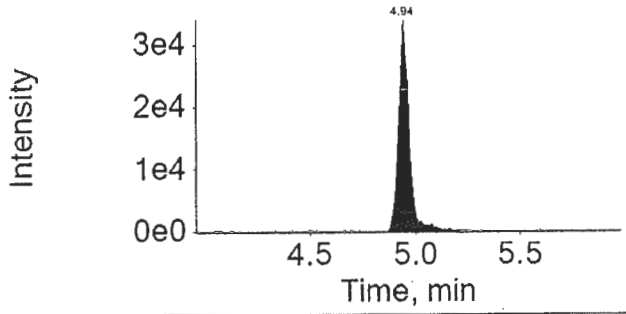
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

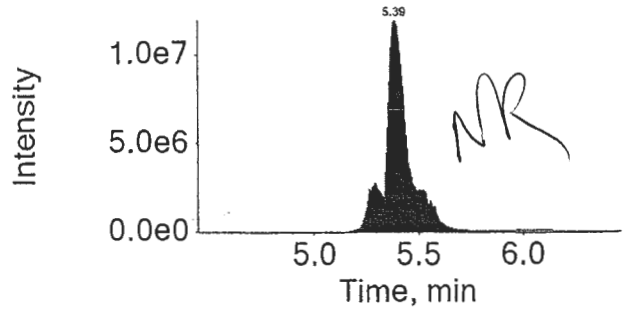
403.0 / 103.0



16SEP14-53.wiff

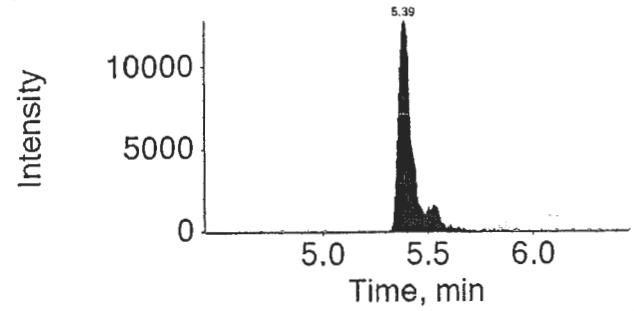
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

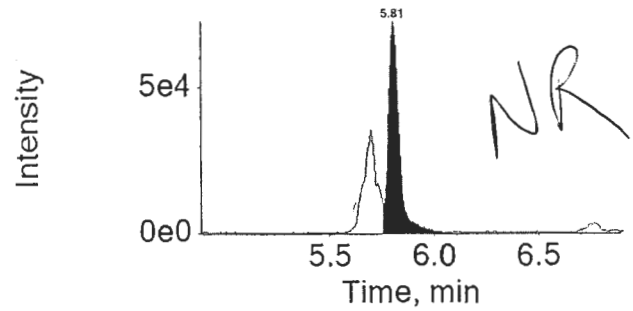
417.0 / 372.0



16SEP14-53.wiff

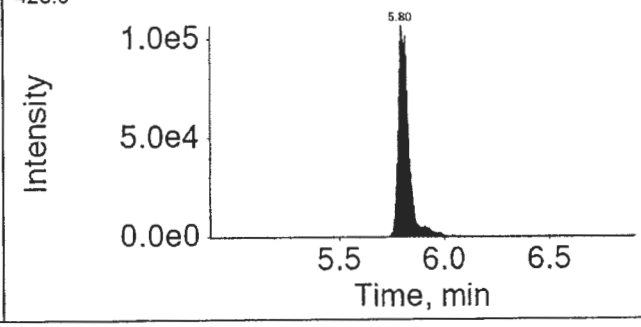
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



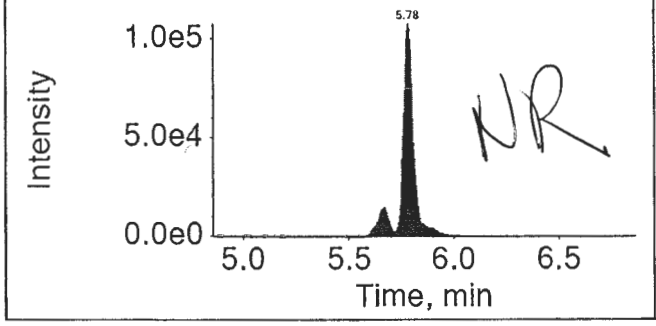
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

16SEP14-53.wiff

Analyte: PFOS

498.9 / 98.9



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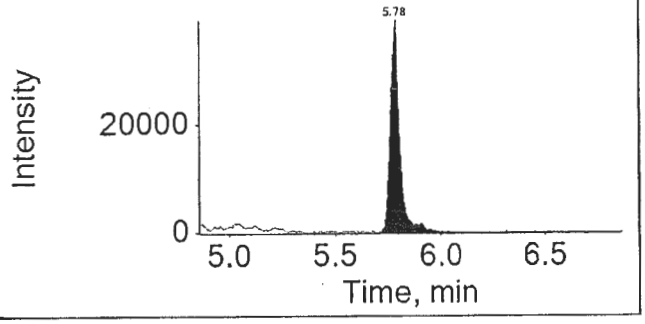
Internal Standard: 13C4-PFOS

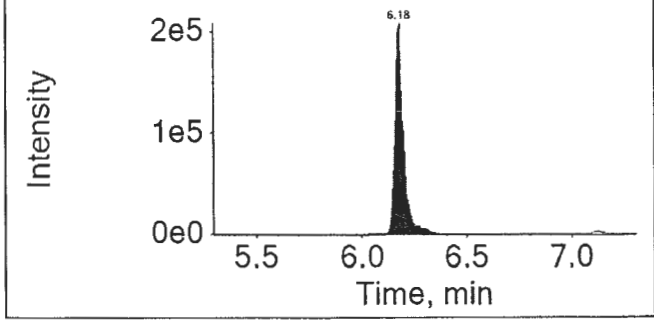
503.0 / 99.0



16SEP14-53.wiff

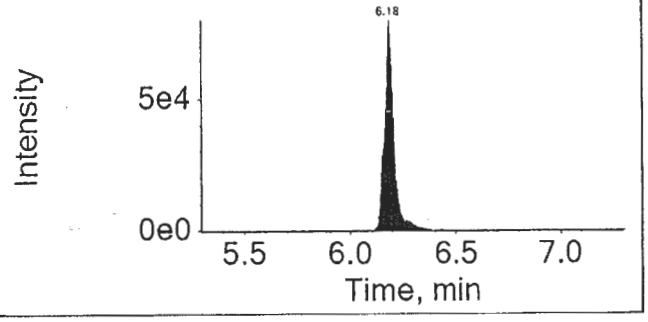
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

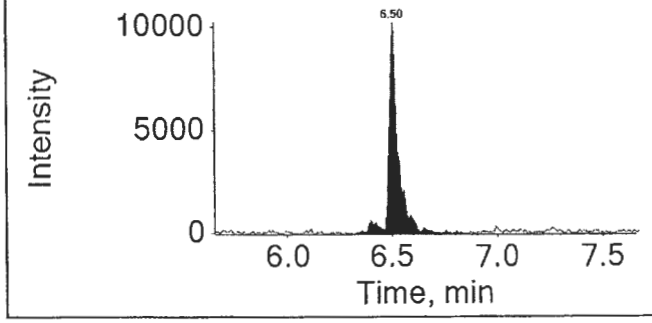
515.0 / 470.0



16SEP14-53.wiff

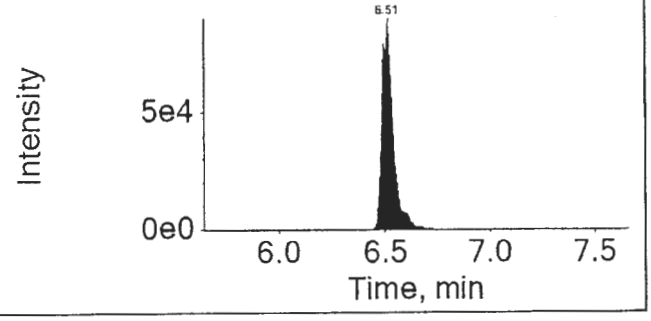
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



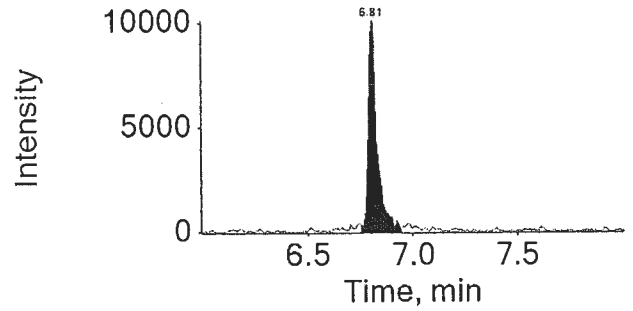
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

16SEP14-53.wiff

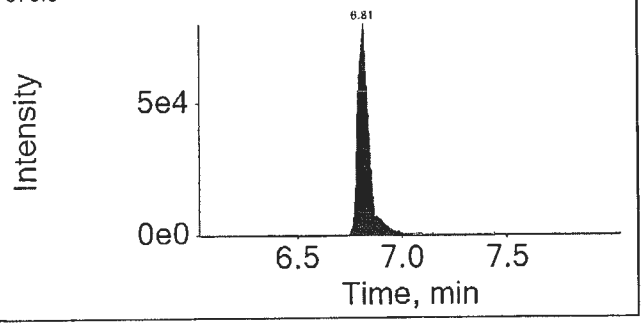
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

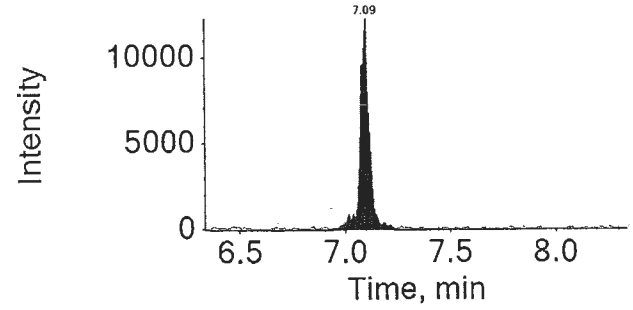
615.0 / 570.0



16SEP14-53.wiff

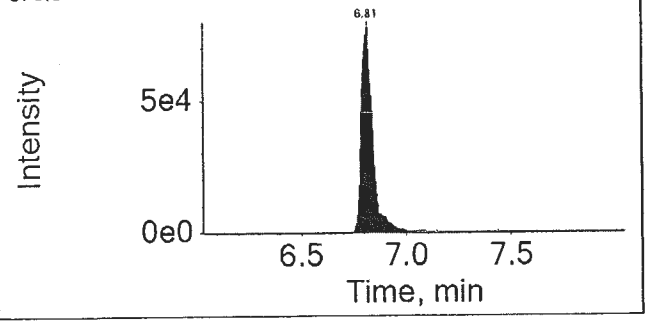
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

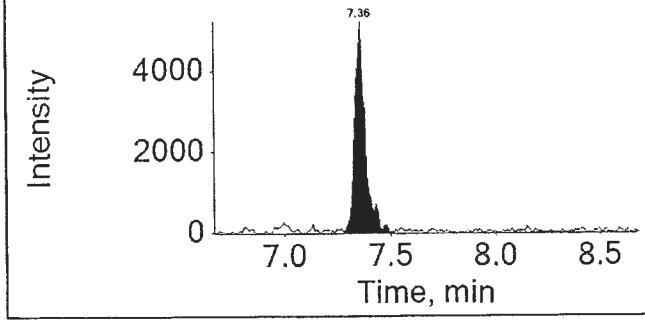
615.0 / 570.0



16SEP14-53.wiff

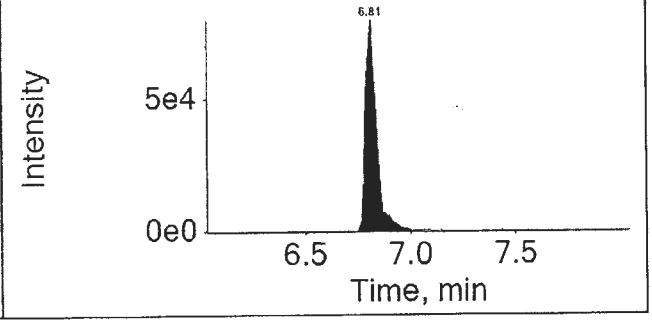
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

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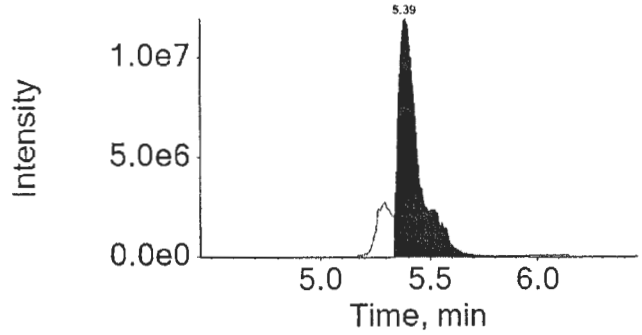
Print Date: 09/06/2017 5:28 PM

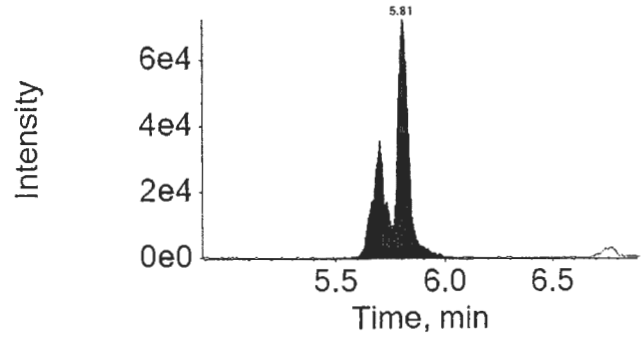
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-53.wiff	2016-09-14T22:33:34	8535036DL	PFOA	5.39	79009815.5
16SEP14-53.wiff	2016-09-14T22:33:34	8535036DL	PFNA	5.81	410577.0
16SEP14-53.wiff	2016-09-14T22:33:34	8535036DL	PFOS	5.78	371610.6
16SEP14-53.wiff	2016-09-14T22:33:34	8535036DL	PFTeDA	7.36	19386.0

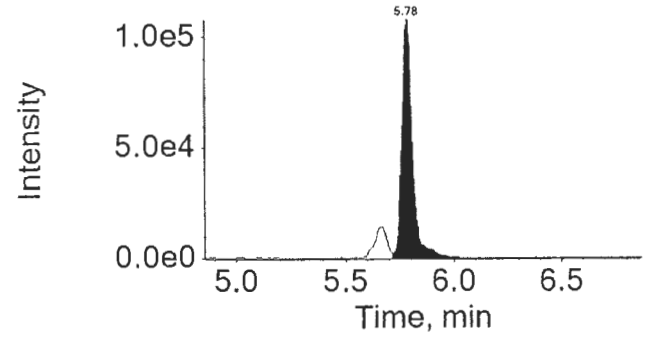
Component: PFOA
Mass: 412.9 / 368.9



Component: PFNA
Mass: 462.9 / 418.9



Component: PFOS
Mass: 498.9 / 98.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:36 am, 6/13/17

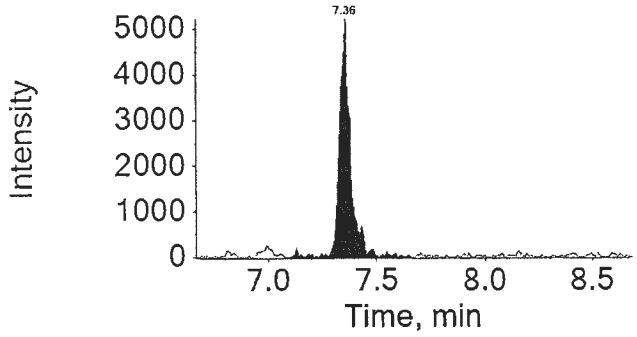
eurofins | Lancaster Laboratories

Print Date: 09/06/2017 5:28 PM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFTeDA
Mass: 712.9 / 668.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:36 am, 6/13/17

eurofins | Lancaster Laboratories Environmental

FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL
Instrument ID: 24743
Sample (wt): 5.49 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 3.7

Lab Sample ID: 8535036DL2
Lab File ID: 16SEP14-50.WIFF
Date Collected: 08/17/2016 00:00
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/14/2016 21:44
Dilution Factor: 100.0

Concentration Units: ng/g
Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	47	U
307-24-4	PFHxA	~~2700~~	
375-85-9	PFHpA	1100	
355-46-4	PFHxS	47	U
335-67-1	PFOA	130000	E
375-95-1	PFNA	50	
1763-23-1	PFOS	270	
335-76-2	PFDA	140	
2058-94-8	PFUnDA	28	U
307-55-1	PFDoDA	38	U
72629-94-8	PFTrDA	57	U
376-06-7	PFTeDA	28	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

FORM 01

Page 1 of 1

Not Revised

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL
Instrument ID: 24743
Sample (wt): 5.49 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 3.7

Lab Sample ID: 8535036DL2
Lab File ID: 16SEP14-50.WIFF
Date Collected: 08/17/2016 00:00
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/14/2016 21:44
Dilution Factor: 100.0

Concentration Units: ng/g
Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	47	U
307-24-4	PFHxA	2700	
375-85-9	PFHpA	1200	
355-46-4	PFHxS	47	U
335-67-1	PFOA	130000	E
375-95-1	PFNA	50	
1763-23-1	PFOS	270	
335-76-2	PFDA	140	
2058-94-8	PFUnDA	28	U
307-55-1	PFDoDA	38	U
72629-94-8	PFTrDA	57	U
376-06-7	PFTeDA	28	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:26:00 PM

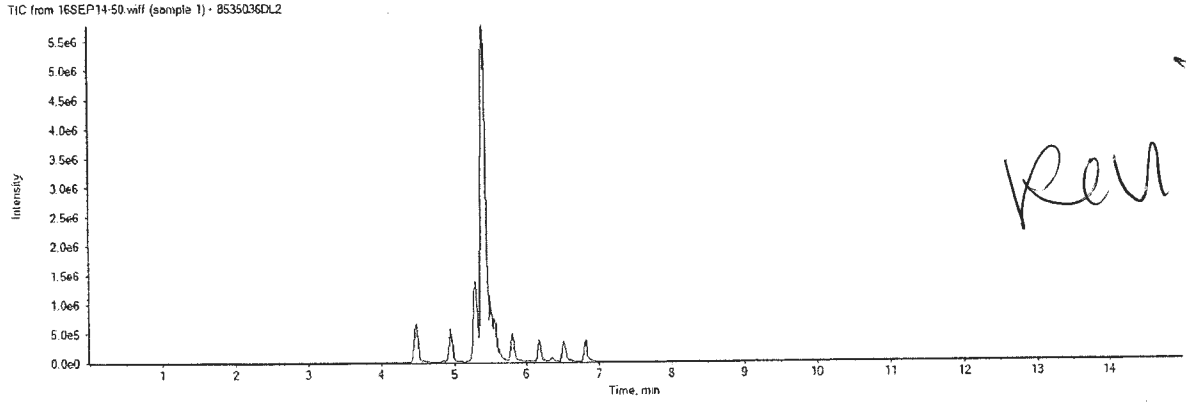
Sample Name:	8535036DL2			**Data File:**		16SEP14-50.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment			**Acquis Date:**		2016-09-14T21:44:22
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	86			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011DL
				ICAL Name:		16SEP13ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.490			**Dilution Factor:**		100.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	4.03	0.820	3220.8	A	18O2-PFHxS	4.94	264736.3	0.012	8.028
PFHxA	4.48	1.000	1745739.2	A	13C2-PFHxA	4.48	892112.6	1.957	~~2612.946~~
PFHpA	4.95	1.000	1044000.1	A	13C4-PFHpA	4.94	692908.9	1.507	1170.379
PFHxS	4.94	1.000	2188.6	A	18O2-PFHxS	4.94	264736.3	0.008	~~8.153~~
PFOA	5.40	1.000	38993367.9	M	13C4-PFOA	5.39	238779.0	163.303	125288.886
PFNA	5.81	1.000	76671.0	A	13C5-PFNA	5.80	1239084.2	0.062	~~48.137~~
PFOS	5.78	1.000	89304.2	M	13C4-PFOS	5.78	292281.0	0.306	262.291
PFDA	6.17	1.000	209066.1	A	13C2-PFDA	6.18	964933.1	0.217	134.186
PFUnDA	6.51	1.000	12611.1	A	13C2-PFUnDA	6.51	1000288.5	0.013	9.806
PFDoDA	6.81	1.000	13525.5	M	13C2-PFDoDA	6.81	1184542.0	0.011	9.524
PFTrDA	7.09	1.040	9930.5	A	13C2-PFDoDA	6.81	1184542.0	0.008	7.063
PFTeDA	7.35	1.080	8849.3	A	13C2-PFDoDA	6.81	1184542.0	0.007	7.352

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment



Revised

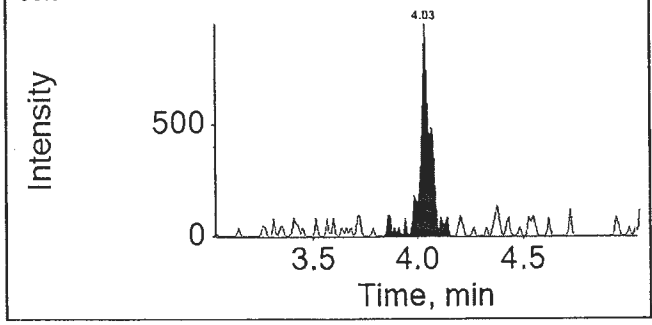
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:41 am, 6/13/17

16SEP14-50.wiff

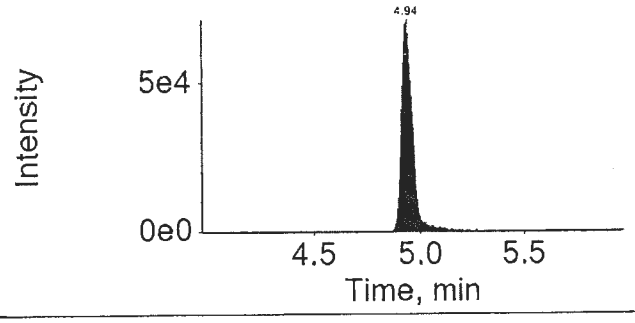
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

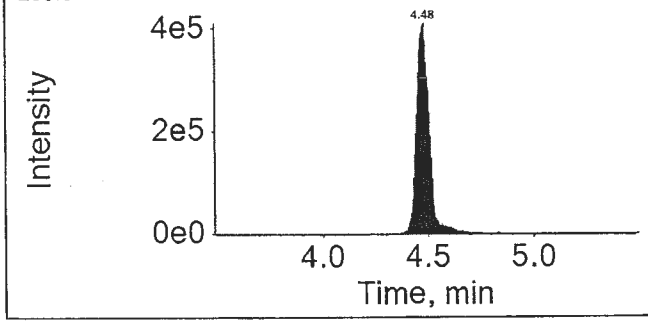
403.0 / 103.0



16SEP14-50.wiff

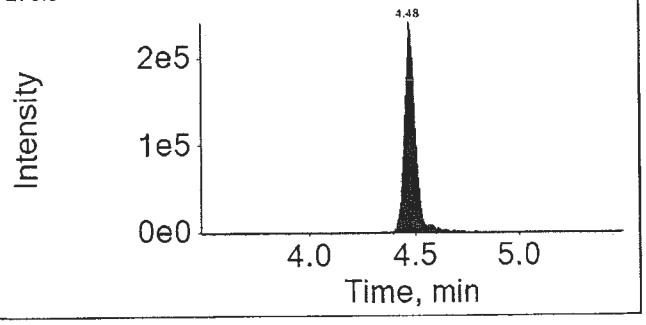
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

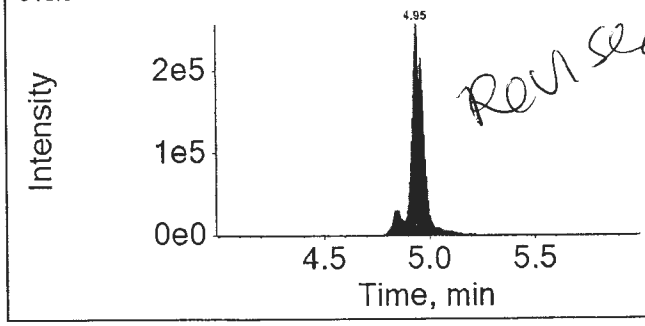
314.9 / 270.0



16SEP14-50.wiff

Analyte: PFHpA

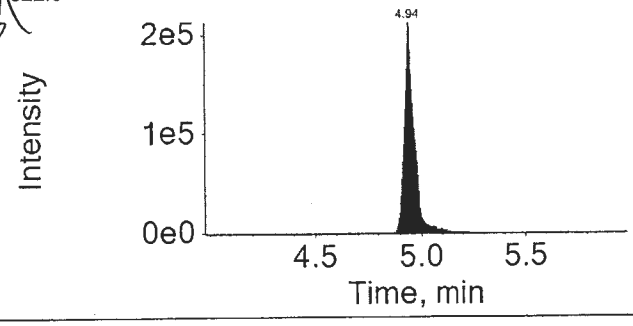
362.9 / 318.9



Revised

Internal Standard: 13C4-PFHpA

367.0 / 322.0



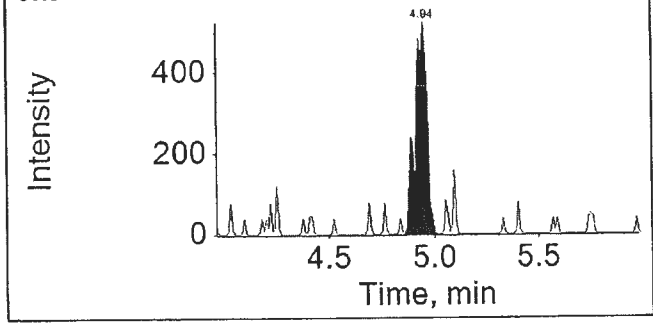
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:41 am, 6/13/17

16SEP14-50.wiff

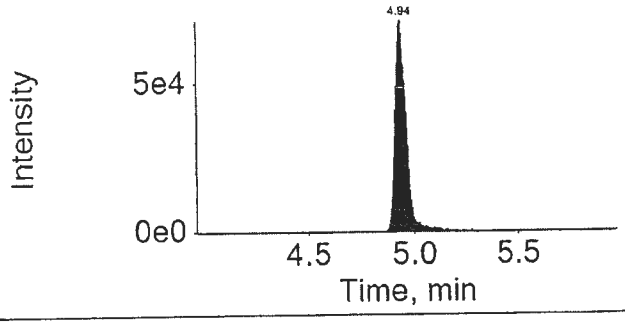
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

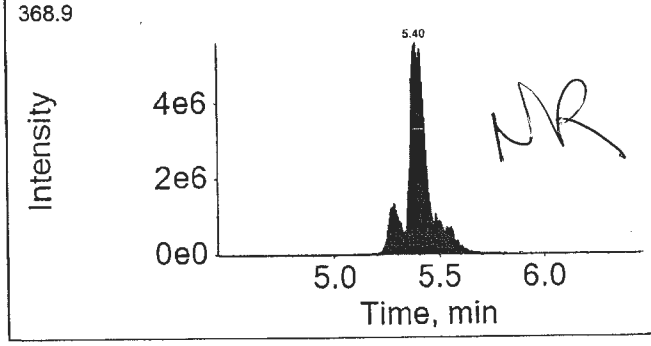
403.0 / 103.0



16SEP14-50.wiff

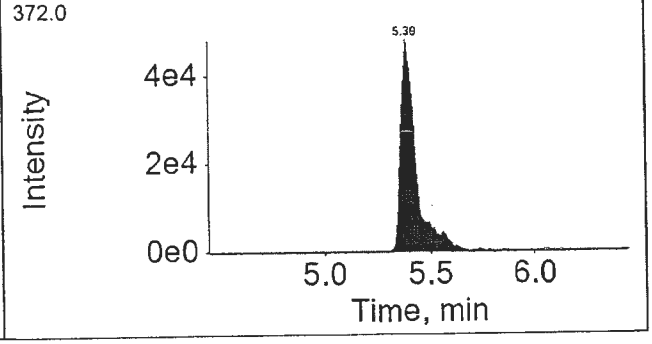
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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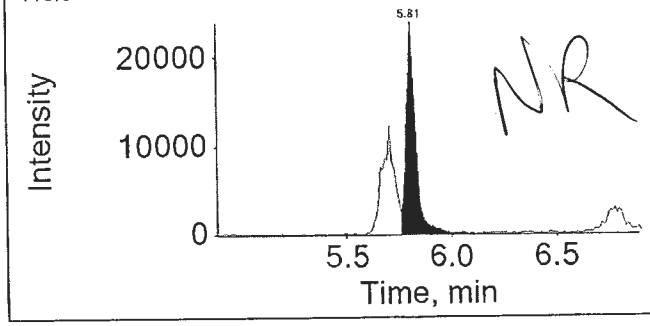
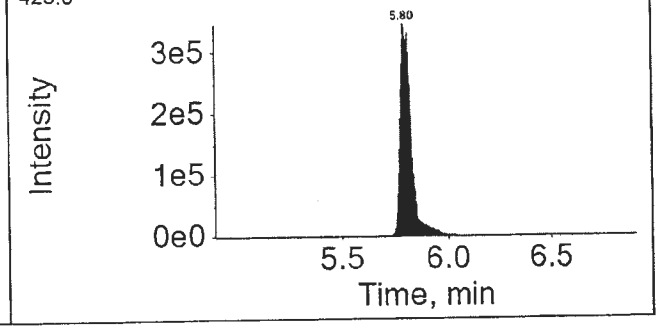
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



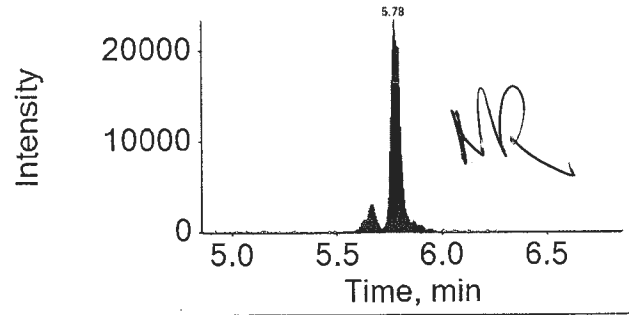
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:41 am, 6/13/17

16SEP14-50.wiff

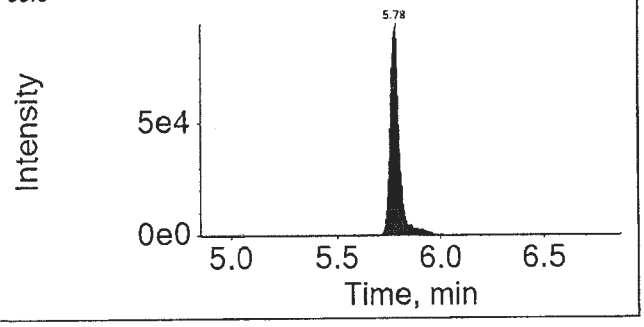
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

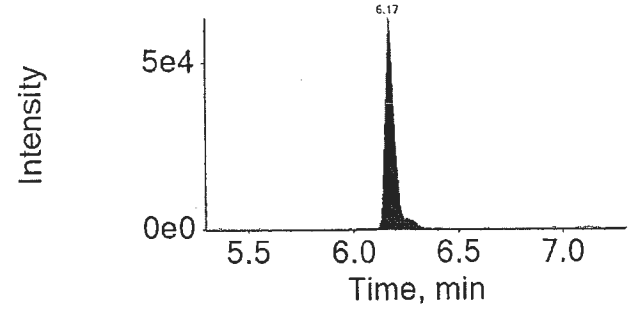
503.0 / 99.0



16SEP14-50.wiff

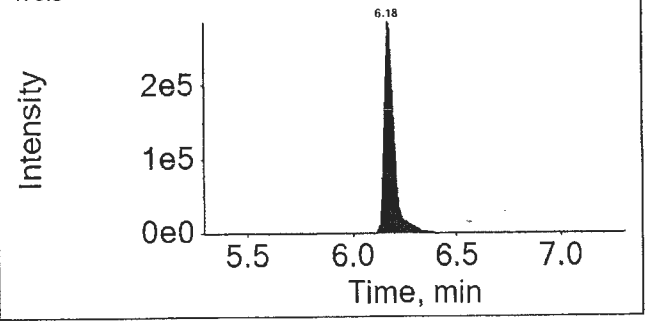
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

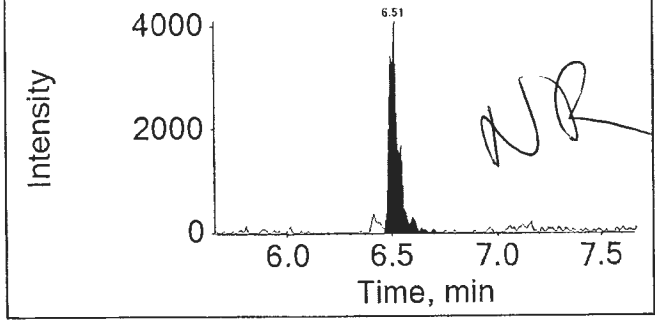
515.0 / 470.0



16SEP14-50.wiff

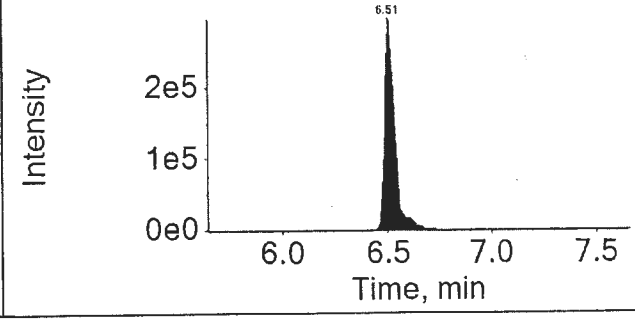
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



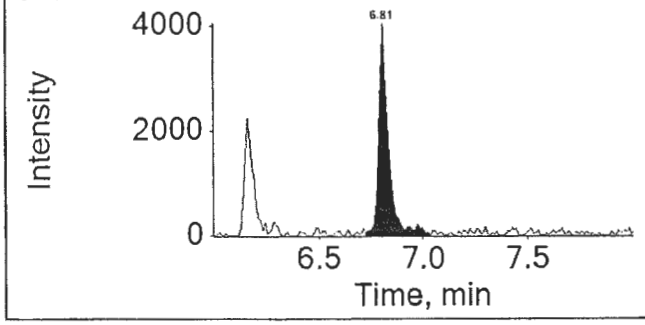
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:41 am, 6/13/17

16SEP14-50.wiff

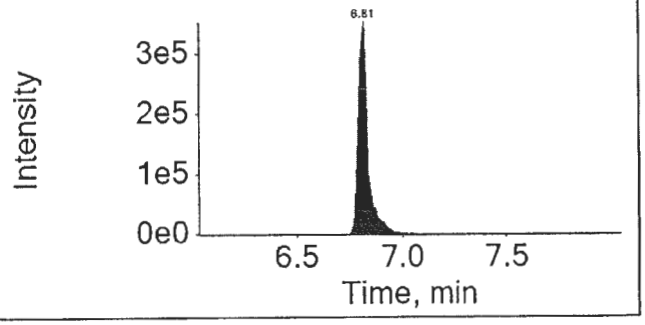
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

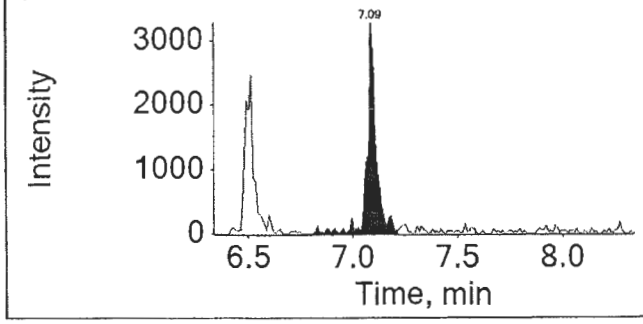
615.0 / 570.0



16SEP14-50.wiff

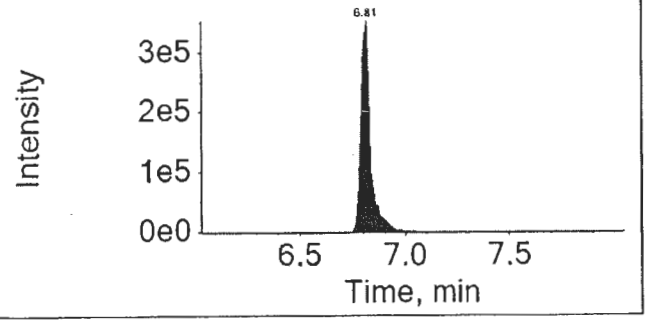
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

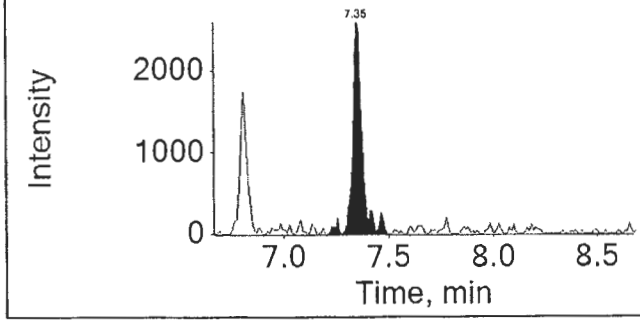
615.0 / 570.0



16SEP14-50.wiff

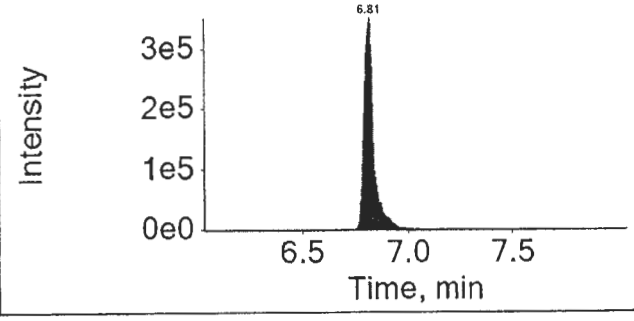
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:41 am, 6/13/17

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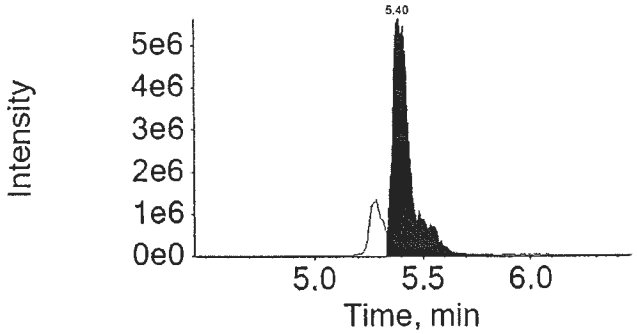
Print Date: 09/06/2017 5:28 PM

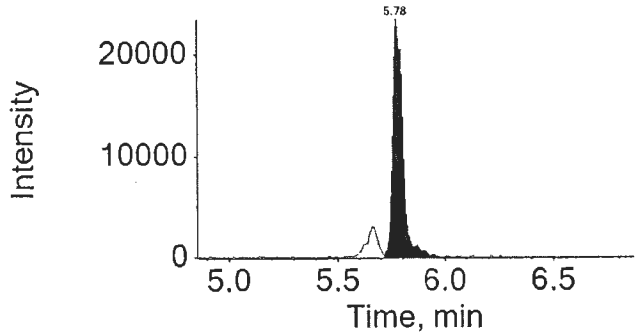
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-50.wiff	2016-09-14T21:44:22	8535036DL2	PFOA	5.40	33724848.8
16SEP14-50.wiff	2016-09-14T21:44:22	8535036DL2	PFOS	5.78	78339.5
16SEP14-50.wiff	2016-09-14T21:44:22	8535036DL2	PFDoDA	6.81	14494.3

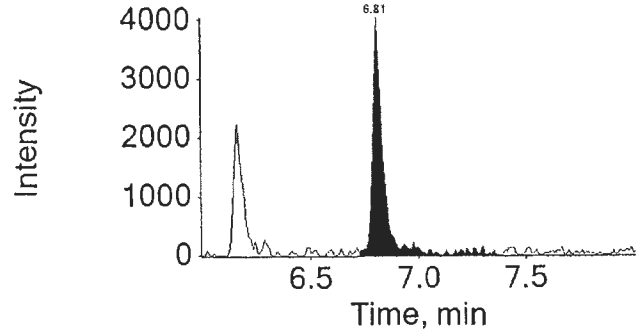
Component: PFOA
Mass: 412.9 / 368.9



Component: PFOS
Mass: 498.9 / 98.9



Component: PFDoDA
Mass: 612.9 / 568.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:36 am, 6/13/17

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL
Sample (wt): 5.49 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 3.7

Instrument ID: 24743

Lab Sample ID: 8535036DL3
Lab File ID: 16SEP22-60.WIFF
Date Collected: 08/17/2016 00:00
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/23/2016 08:21
Dilution Factor: 10000.0

Concentration Units: ng/g

Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	4700	U
307-24-4	PFHxA	3000	
375-85-9	PFHpA	2800	U
355-46-4	PFHxS	4700	U
335-67-1	PFOA	120000	
375-95-1	PFNA	1900	U
1763-23-1	PFOS	6600	U
335-76-2	PFDA	1900	U
2058-94-8	PFUnDA	2800	U
307-55-1	PFDoDA	3800	U
72629-94-8	PFTrDA	5700	U
376-06-7	PFTeDA	2800	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

RON

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:32:00 PM

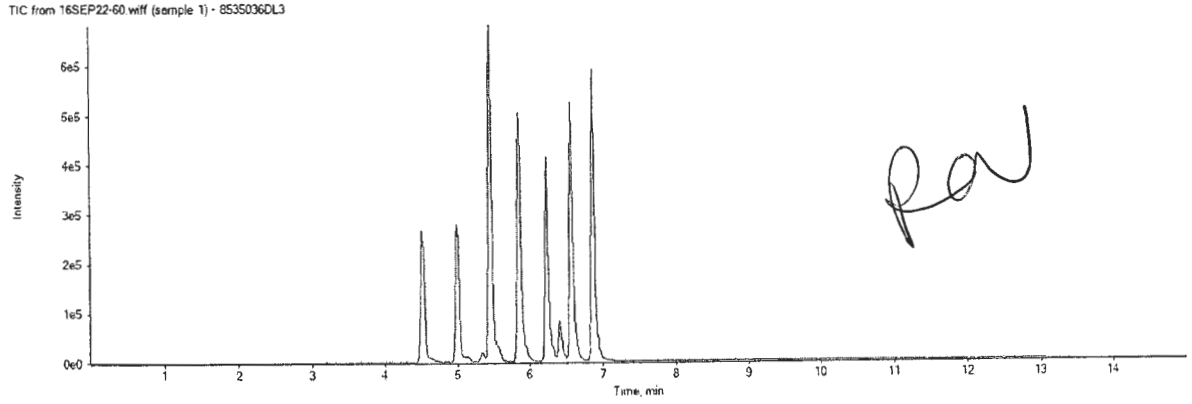
Sample Name:	8535036DL3			**Data File:**		16SEP22-60.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment			**Acquis Date:**		2016-09-23T08:21:20
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	52			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011DL3
				ICAL Name:		16SEP20ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.490			**Dilution Factor:**		10000.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	N/A	N/A	N/A	A	18O2-PFHxS	4.99	265282.6	N/A	N/A
PFHxA	4.52	1.000	19537.1	A	13C2-PFHxA	4.53	1003712.8	0.019	2930.809
PFHpA	5.00	1.000	11961.5	A	13C4-PFHpA	4.99	765434.9	0.016	1169.077
PFHxS	4.98	1.000	1344.4	A	18O2-PFHxS	4.99	265282.6	0.005	405.299
PFOA	5.45	1.000	1468308.6	M	13C4-PFOA	5.45	1045896.6	1.404	112600.795
PFNA	5.86	1.000	1216.4	M	13C5-PFNA	5.86	1643130.9	0.001	64.222
PFOS	5.81	1.000	563.6	M	13C4-PFOS	5.83	294971.8	0.002	167.482
PFDA	6.23	1.000	2087.0	M	13C2-PFDA	6.23	1300884.9	0.002	104.532
PFUnDA	6.56	1.000	4971.8	A	13C2-PFUnDA	6.56	1497768.2	0.003	265.030
PFDoDA	6.87	1.000	1532.0	A	13C2-PFDoDA	6.87	1854735.5	0.001	70.173
PFTrDA	7.14	1.040	1250.8	M	13C2-PFDoDA	6.87	1854735.5	0.001	57.440
PFTeDA	7.41	1.080	2220.1	A	13C2-PFDoDA	6.87	1854735.5	0.001	126.210

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-FD01-160817 Grab Sediment



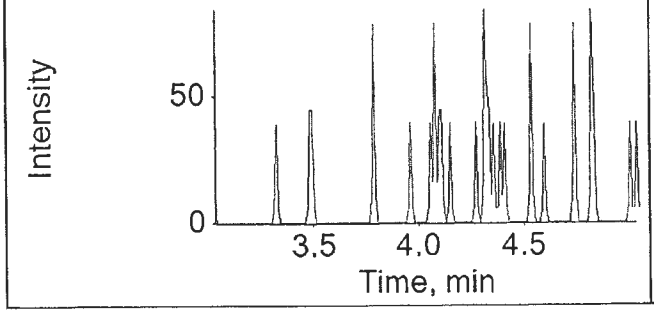
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:49 am, 6/13/17

16SEP22-60.wiff

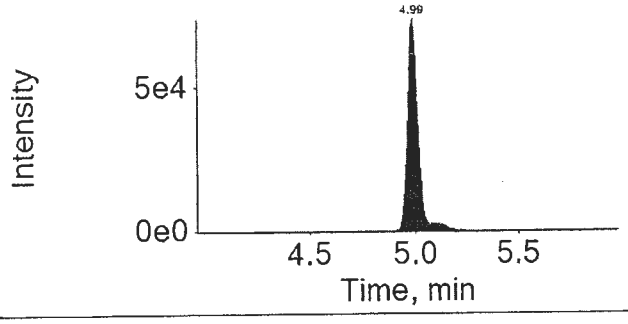
Analyte: PFBS

298.9 /
98.9



Internal Standard: 18O2-PFHxS

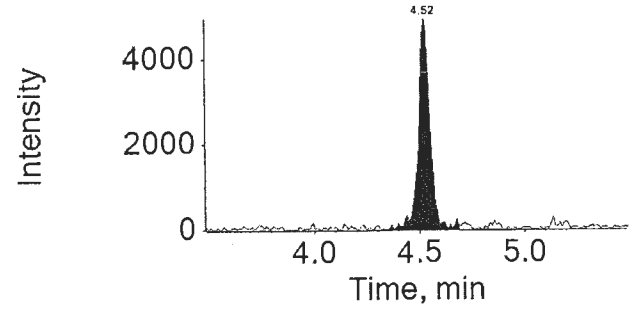
403.0 /
103.0



16SEP22-60.wiff

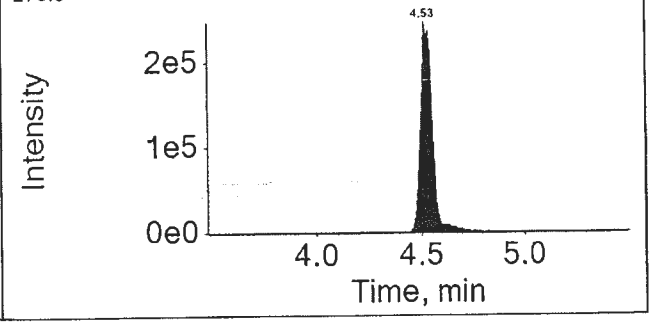
Analyte: PFHxA

312.9 /
269.0



Internal Standard: 13C2-PFHxA

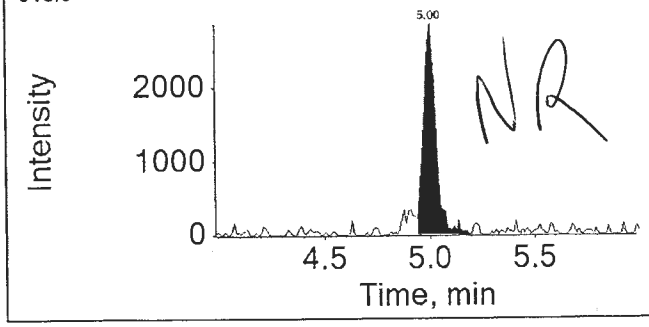
314.9 /
270.0



16SEP22-60.wiff

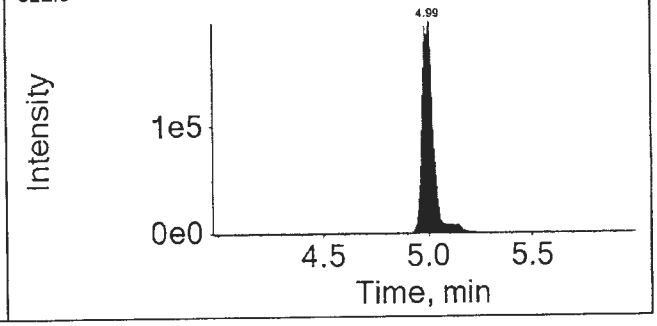
Analyte: PFHpA

362.9 /
318.9



Internal Standard: 13C4-PFHpA

367.0 /
322.0



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:49 am, 6/13/17

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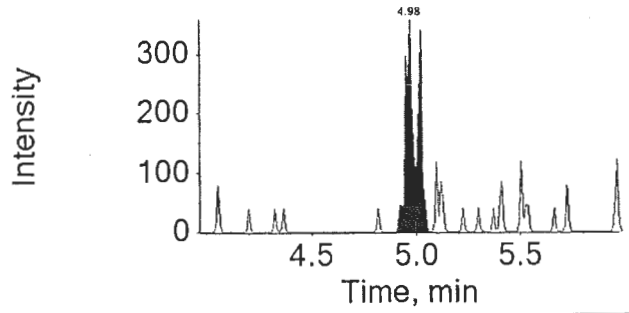
LC-MS/MS Analysis Report

Printed: 6/9/2017 5:32:00 PM

16SEP22-60.wiff

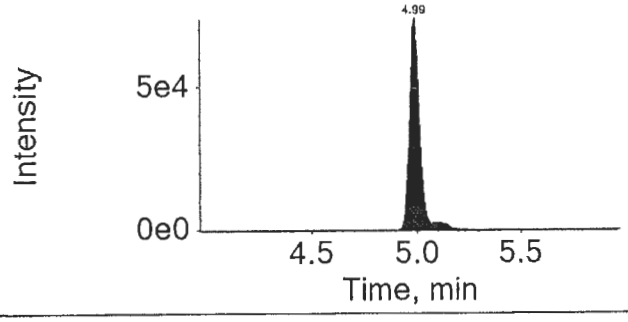
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

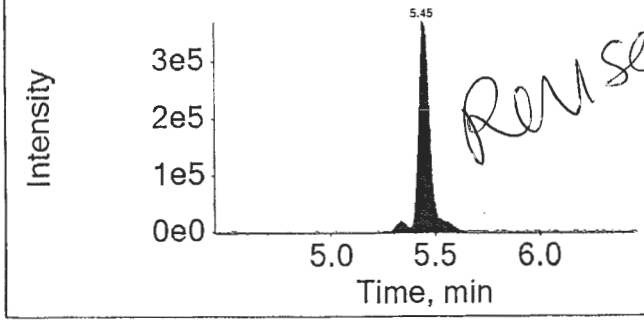
403.0 / 103.0



16SEP22-60.wiff

Analyte: PFOA

412.9 / 368.9



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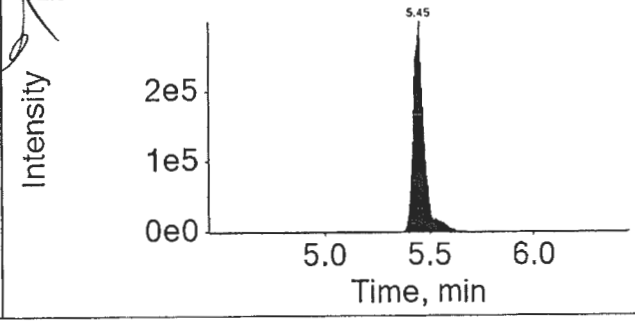
Internal Standard: 13C4-PFOA

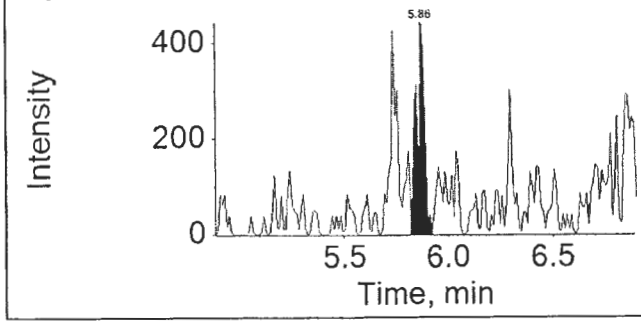
417.0 / 372.0



16SEP22-60.wiff

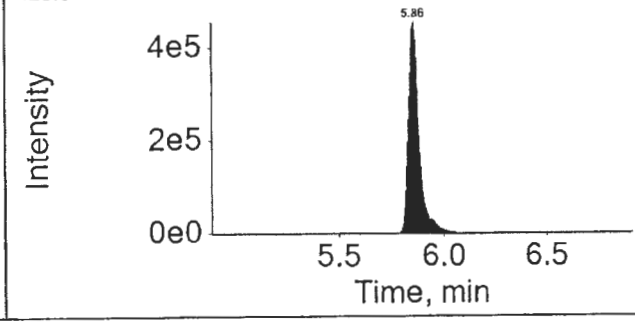
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



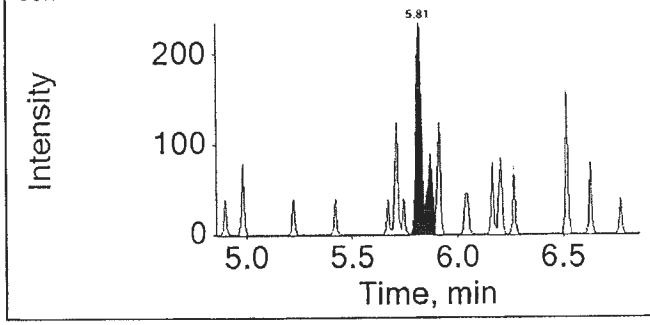
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:49 am, 6/13/17

16SEP22-60.wiff

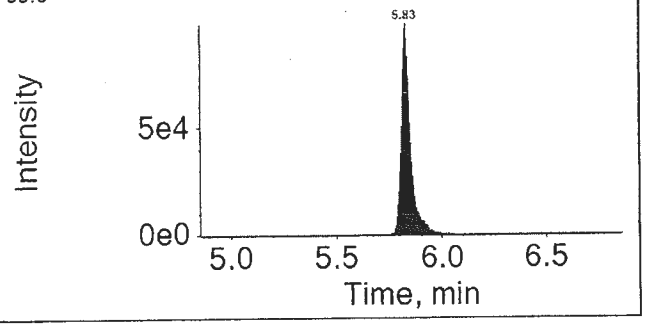
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

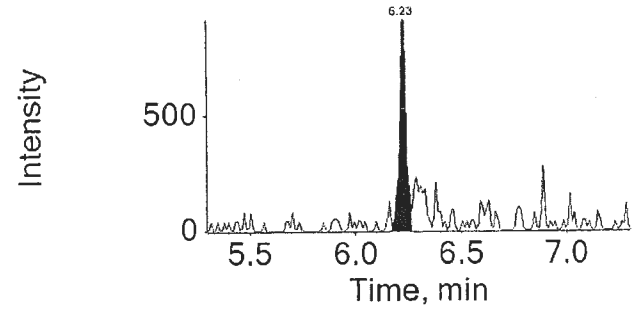
503.0 / 99.0



16SEP22-60.wiff

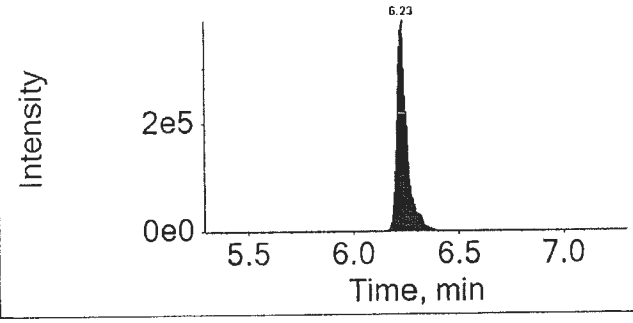
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

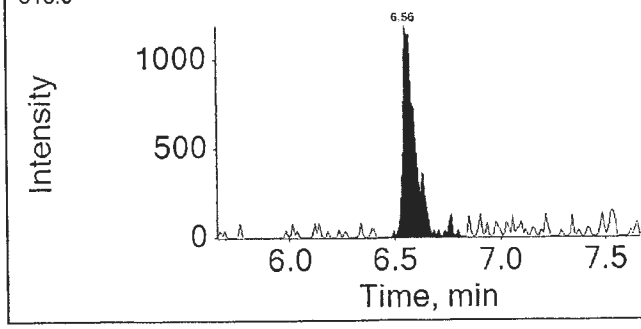
515.0 / 470.0



16SEP22-60.wiff

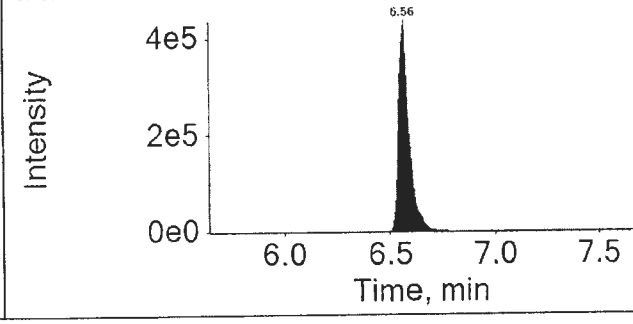
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



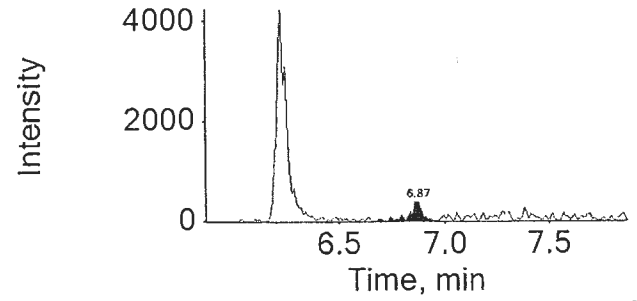
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:49 am, 6/13/17

16SEP22-60.wiff

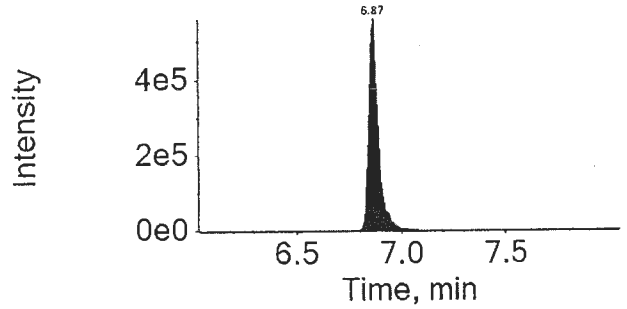
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

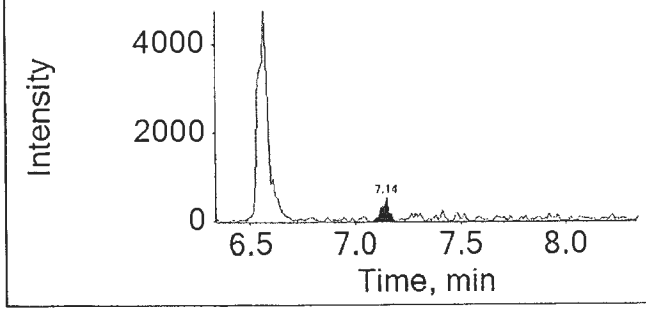
615.0 / 570.0



16SEP22-60.wiff

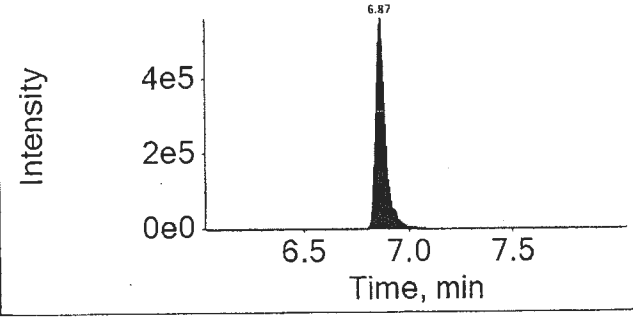
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

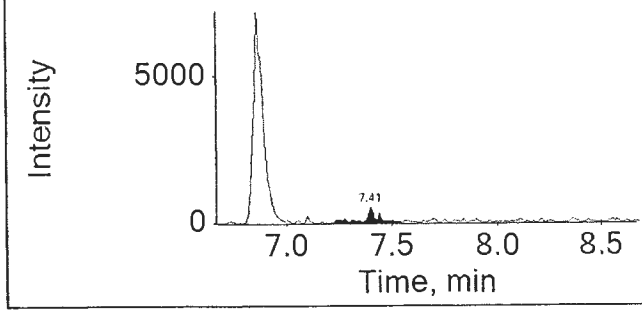
615.0 / 570.0



16SEP22-60.wiff

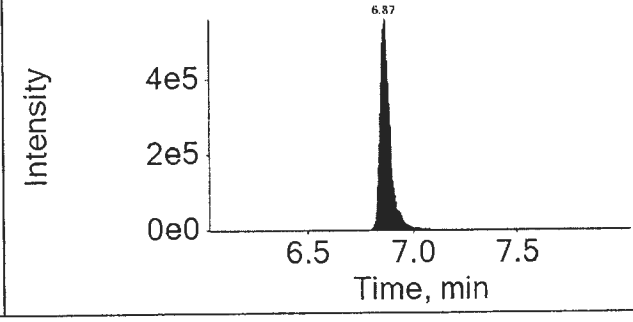
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:49 am, 6/13/17

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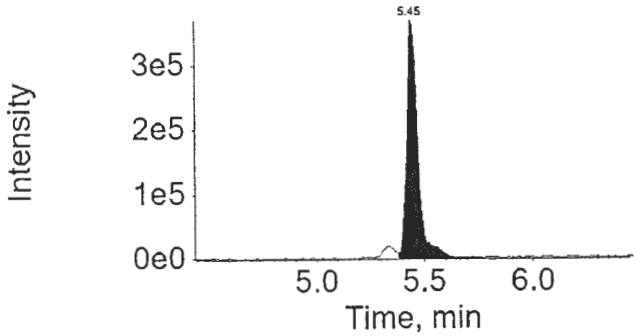
Print Date: 09/06/2017 5:33 PM

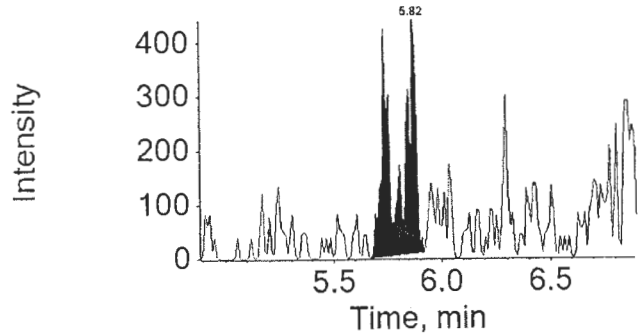
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP22-60.wiff	2016-09-23T08:21:20	8535036DL3	PFOA	5.45	1402400.7
16SEP22-60.wiff	2016-09-23T08:21:20	8535036DL3	PFNA	5.82	2358.8
16SEP22-60.wiff	2016-09-23T08:21:20	8535036DL3	PFOS	5.81	875.6
16SEP22-60.wiff	2016-09-23T08:21:20	8535036DL3	PFDA	6.23	4002.7
16SEP22-60.wiff	2016-09-23T08:21:20	8535036DL3	PFTrDA	7.14	1970.0

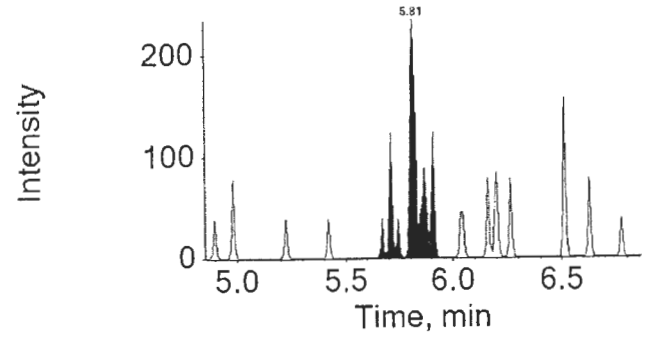
Component: PFOA
Mass: 412.9 / 368.9



Component: PFNA
Mass: 462.9 / 418.9



Component: PFOS
Mass: 498.9 / 98.9



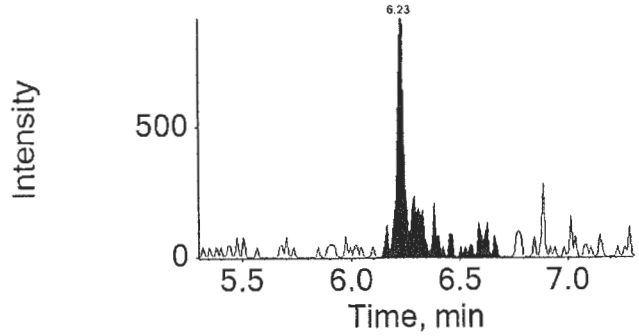
APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:48 am, 6/13/17

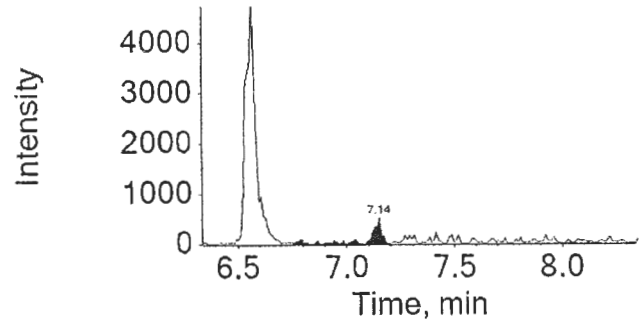
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area

Component: PFDA
Mass: 512.9 / 469.0



Component: PFTrDA
Mass: 662.9 / 618.9



APPROVED
By MCD at 5:41 pm, 6/9/17

REVIEWED
By ucmr at 8:48 am, 6/13/17

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Analysis Report

REVISED

Sample Description: SG3-BLDGOUTLET-160817 Grab Sediment
SGPP - Bennington

LL Sample # SW 8535037
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/17/2016 12:25 by JD

Submitted: 08/18/2016 09:40
Reported: 03/03/2017 15:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

original

OUTSD SDG#: SPP17-24

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.94 U	0.94	3.0	1
14027	**Perfluorodecanoic acid**	335-76-2	**610**	3.8	7.5	10 – DL
14027	**Perfluorododecanoic acid**	307-55-1	**110**	0.75	1.5	1
14027	**Perfluoroheptanoic acid**	375-85-9	**170**	5.6	11	10 – DL
14027	Perfluorohexanesulfonate	355-46-4	0.94 U	0.94	3.0	1
14027	**Perfluorohexanoic acid**	307-24-4	**130**	0.38	0.75	1
14027	**Perfluorononanoic acid**	375-95-1	**1,200**	38	75	100 – DL2
14027	**Perfluoro-octanesulfonate**	1763-23-1	**55**	1.3	3.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**13,000**	560	1,100	1000 – DL3
14027	**Perfluorotetradecanoic acid**	376-06-7	**9.3**	0.56	1.5	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**37**	1.1	2.3	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**84**	0.56	1.1	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**49.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/06/2016 18:46	Jason W Knight	1
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 23:22	Marissa C Drexinger	1000
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/15/2016 01:01	Marissa C Drexinger	10
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/15/2016 01:01	Marissa C Drexinger	100
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16235011	08/23/2016 11:10	Devon M Whooley	1
00111	Moisture	SM 2540 G-1997	1	16236820006A	08/24/2016 02:56	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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LC-MS/MS Analysis Report

Printed: 9/15/2016 11:31:00 AM

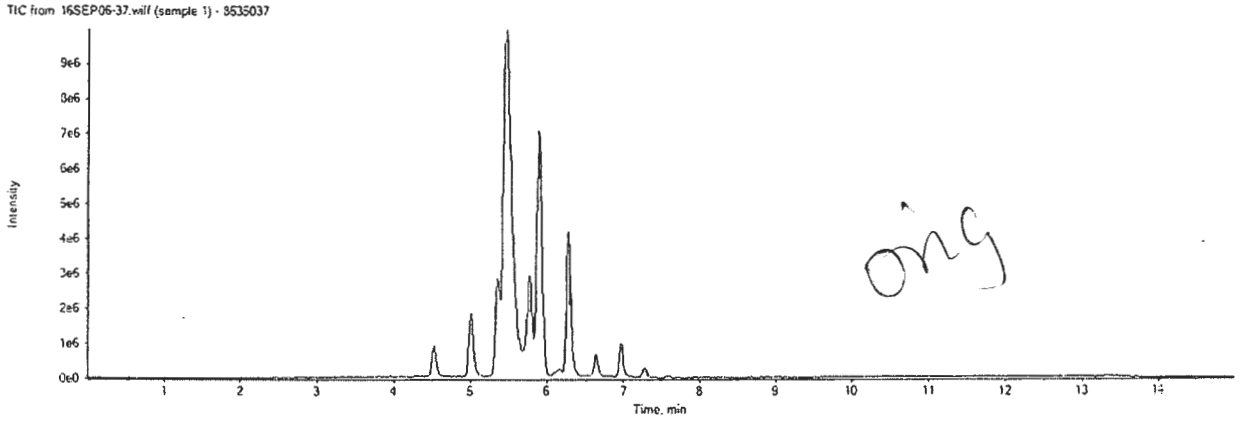
Sample Name:	8535037		**Data File:**		16SEP06-37.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment		**Acquis Date:**		2016-09-06T18:46:36
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	25		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011
			ICAL Name:		16SEP01ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.250		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.07	1344.7	A	18O2-PFHxS	5.00	157299.1	0.009	0.068	ng/g
PFHxA	4.52	2798129.2	A	13C2-PFHxA	4.52	769795.6	3.635	65.824	ng/g
PFHpA	5.01	7640315.1	A	13C4-PFHpA	5.00	354220.0	21.569	197.959	ng/g
PFHxS	4.99	6285.5	A	18O2-PFHxS	5.00	157299.1	0.040	0.361	ng/g
PFOA	5.47	96376049.3	A	13C4-PFOA	5.46	66264.4	1454.417	13574.182	ng/g
PFNA	5.89	31689499.2	A	13C5-PFNA	5.89	347876.0	91.094	865.603	ng/g
PFOS	5.86	262871.2	A	13C4-PFOS	5.86	98786.9	2.661	27.949	ng/g
PFDA	6.28	16651571.4	A	13C2-PFDA	6.28	333948.3	49.863	412.688	ng/g
PFUnDA	6.64	1934124.5	A	13C2-PFUnDA	6.64	448931.7	4.308	42.495	ng/g
PFDoDA	6.97	3144572.5	A	13C2-PFDoDA	6.97	587443.5	5.353	55.088	ng/g
PFTrDA	7.28	1088341.3	A	13C2-PFDoDA	6.97	587443.5	1.853	18.914	ng/g
PFTeDA	7.59	266902.8	A	13C2-PFDoDA	6.97	587443.5	0.454	4.729	ng/g

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment



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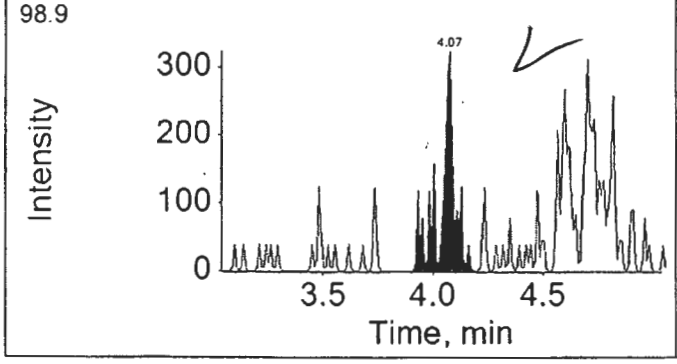
16SEP06-37.wiff

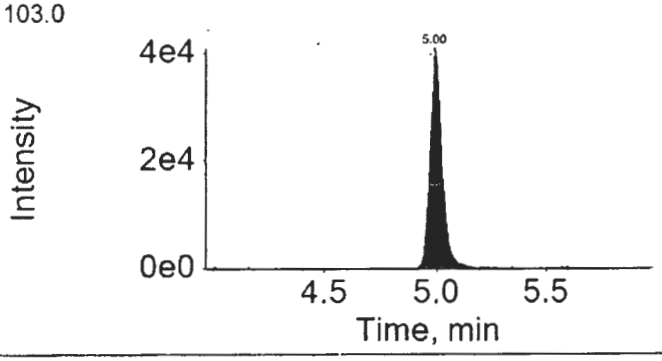
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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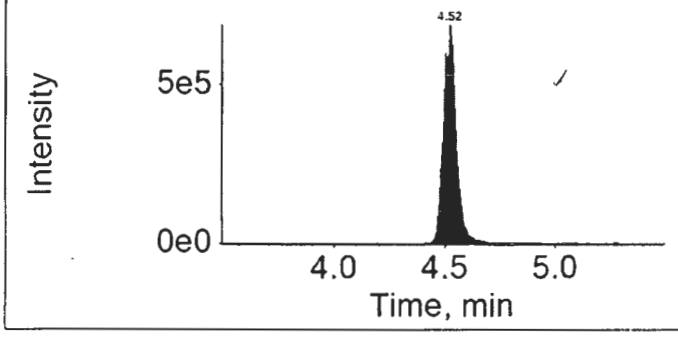
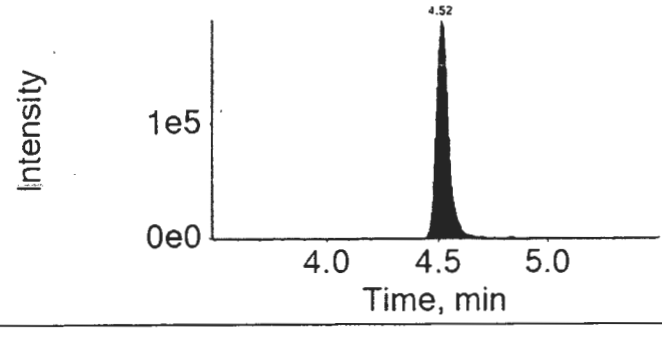
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

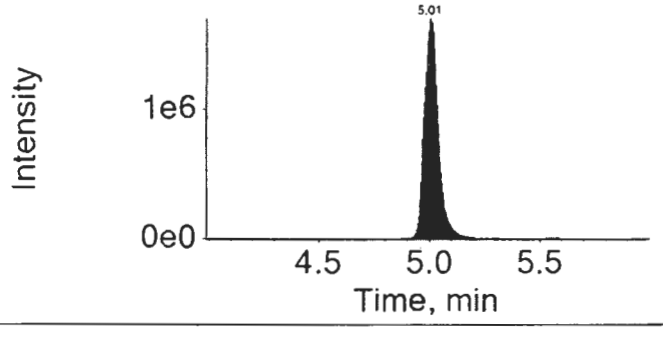
314.9 / 270.0



16SEP06-37.wiff

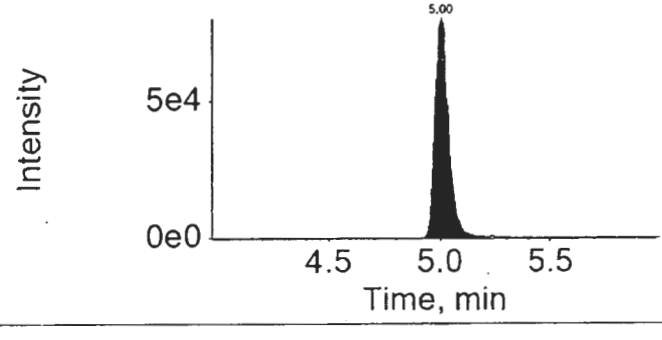
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



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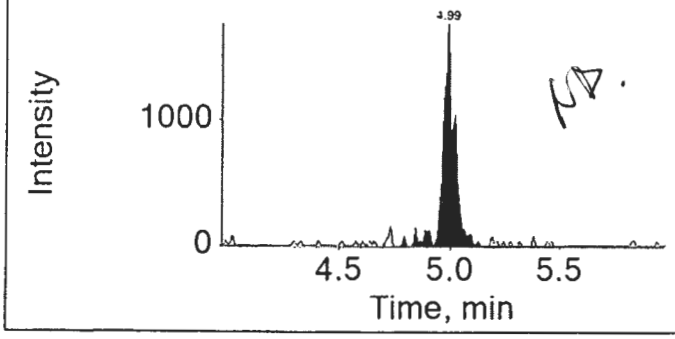
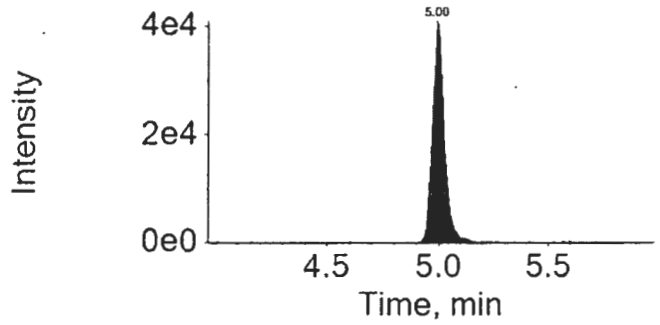
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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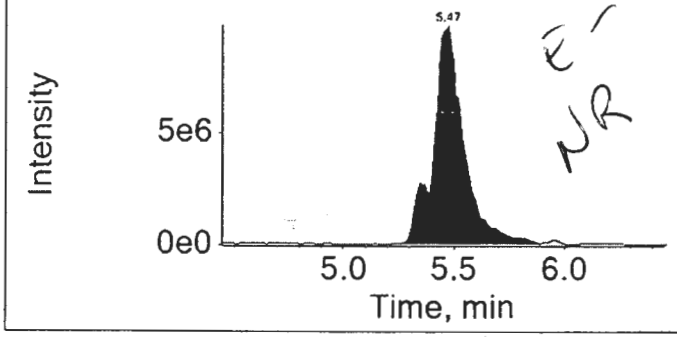
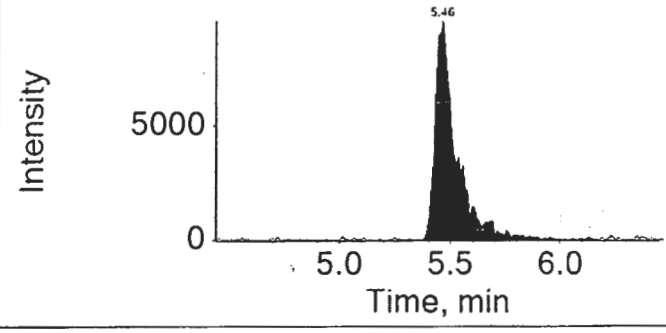
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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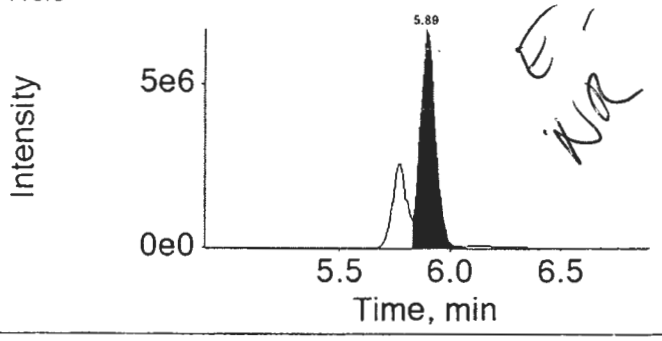
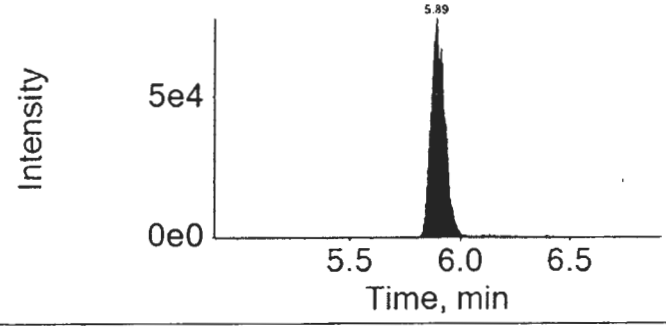
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



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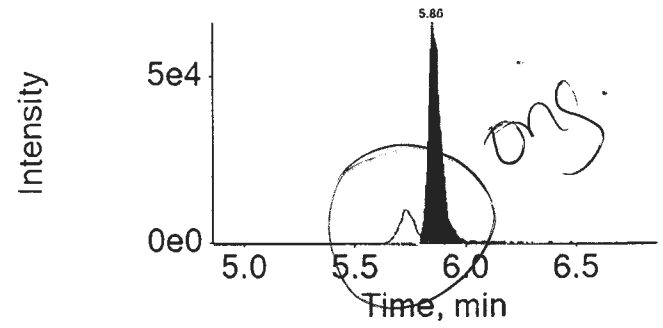
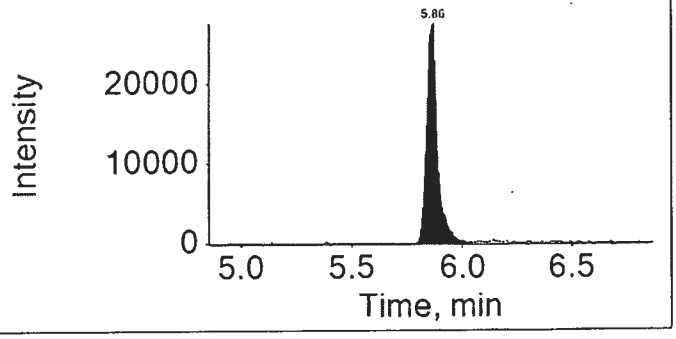
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

503.0 / 99.0



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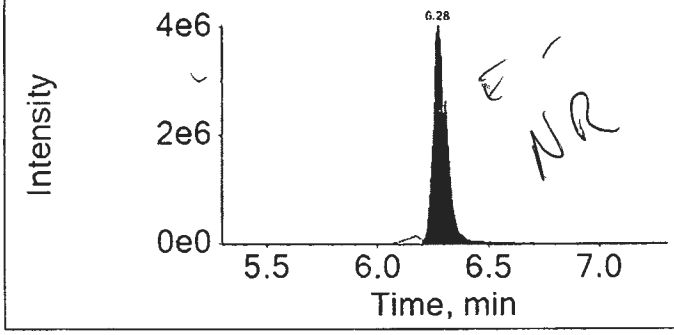
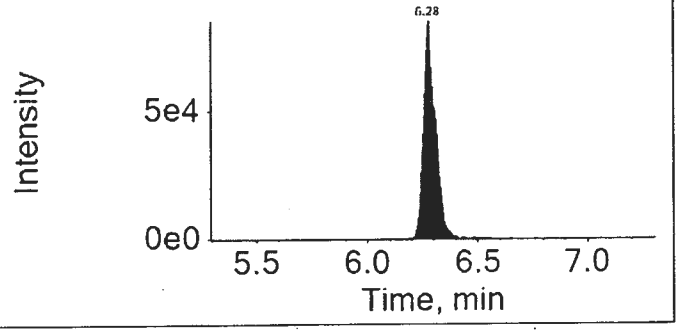
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

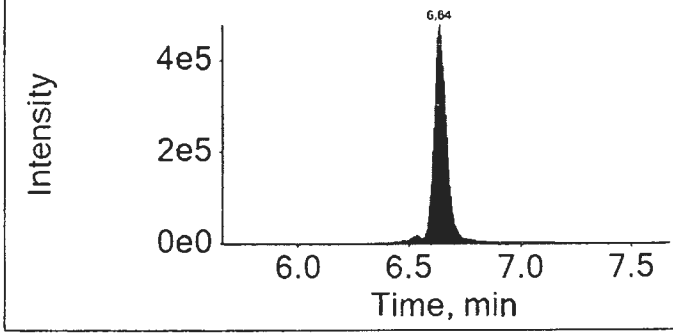
515.0 / 470.0



16SEP06-37.wiff

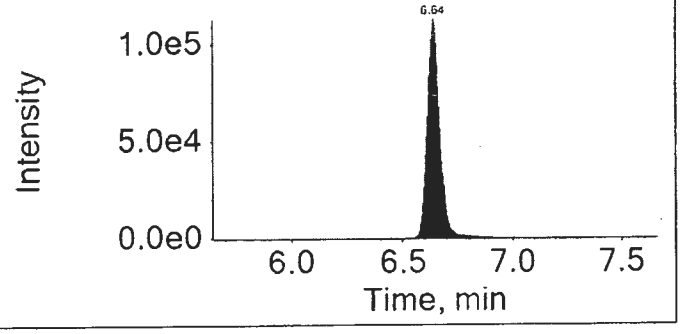
Analyte: PFUnDA

562.9 / 518.9

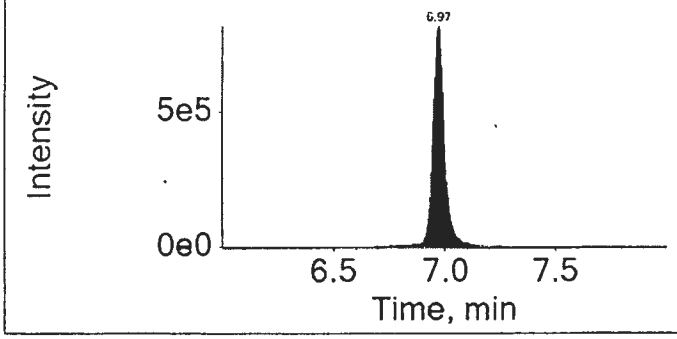


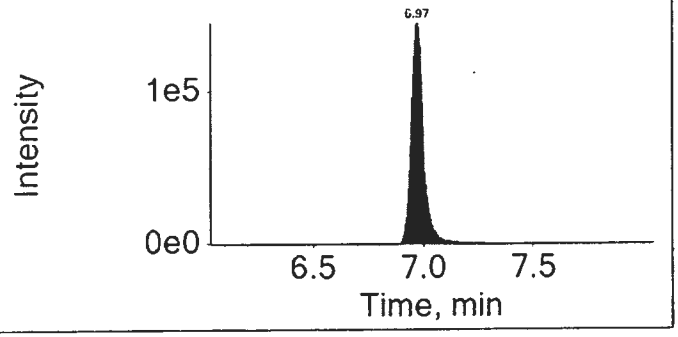
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

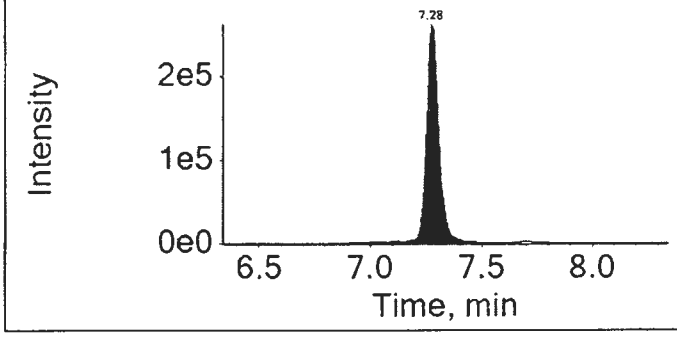


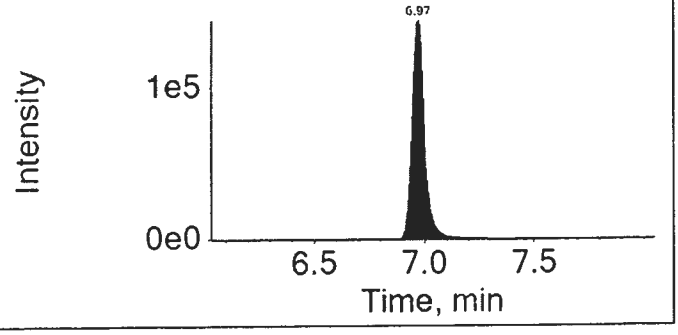
16SEP06-37.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



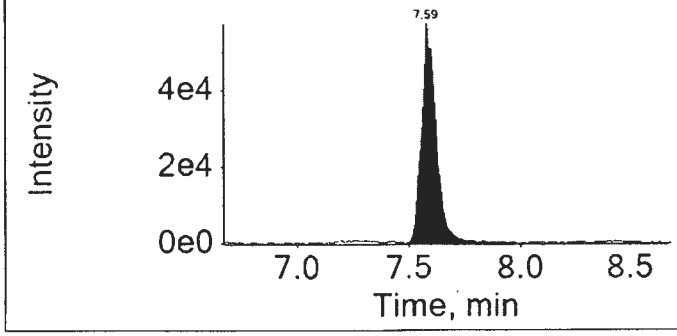


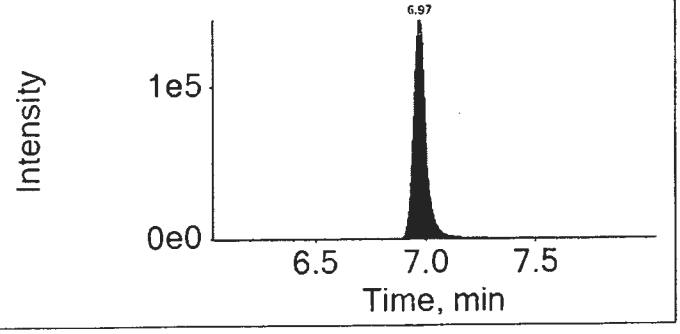
16SEP06-37.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16SEP06-37.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd
SEP 19 2016

Lynn Dodd
Principal Specialist

MES 9/15/16 7824

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LC-MS/MS Analysis Report

Printed: 9/15/2016 1:23:00 PM

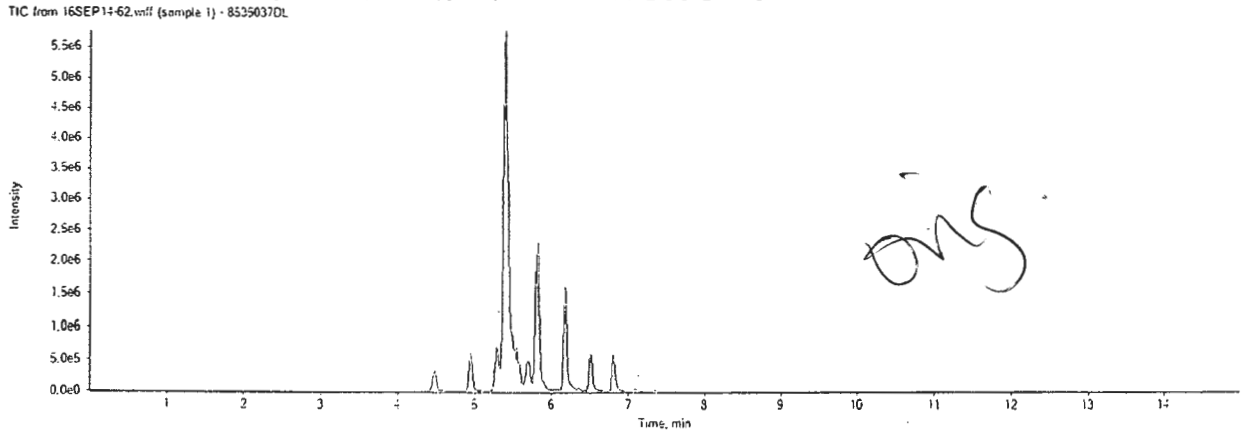
Sample Name:	8535037DL		**Data File:**		16SEP14-62.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment		**Acquis Date:**		2016-09-15T01:01:07
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	90		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL
			ICAL Name:		16SEP13ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.250		**Dilution Factor:**		10.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.04	343.9	A	18O2-PFHxS	4.94	254013.8	0.001	0.093	ng/g
PFHxA	4.48	269359.8	A	13C2-PFHxA	4.47	945757.6	0.285	39.768	ng/g
PFHpA	4.94	946436.8	A	13C4-PFHpA	4.95	870092.4	1.088	88.357	ng/g
PFHxS	4.94	2063.9	A	18O2-PFHxS	4.94	254013.8	0.008	0.632	ng/g
PFOA	5.39	28427779.0	A	13C4-PFOA	5.39	265384.9	107.119	8594.047	ng/g
PFNA	5.80	7548857.1	A	13C5-PFNA	5.80	855693.6	8.822	717.673	ng/g
PFOS	5.77	49176.7	A	13C4-PFOS	5.77	262195.9	0.188	16.837	ng/g
PFDA	6.17	4287018.8	A	13C2-PFDA	6.17	894625.3	4.792	310.348	ng/g
PFUnDA	6.50	389953.7	A	13C2-PFUnDA	6.50	1291291.0	0.302	24.563	ng/g
PFDoDA	6.80	533604.8	A	13C2-PFDoDA	6.80	1265536.6	0.422	36.776	ng/g
PFTrDA	7.08	146403.2	A	13C2-PFDoDA	6.80	1265536.6	0.116	10.193	ng/g
PFTeDA	7.35	54883.3	A	13C2-PFDoDA	6.80	1265536.6	0.043	4.463	ng/g

Total Ion Chromatogram

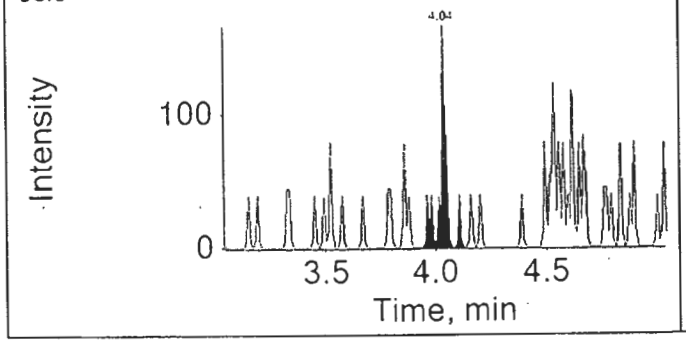
EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment



16SEP14-62.wiff

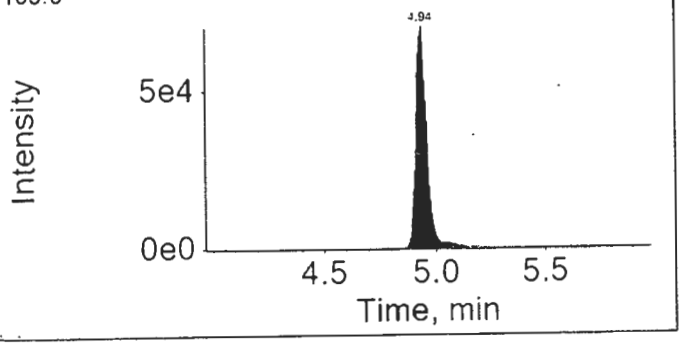
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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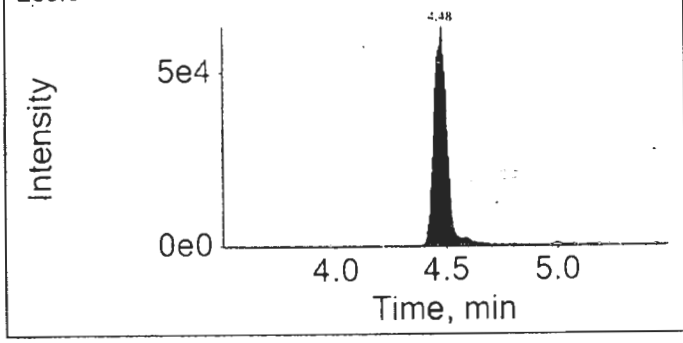
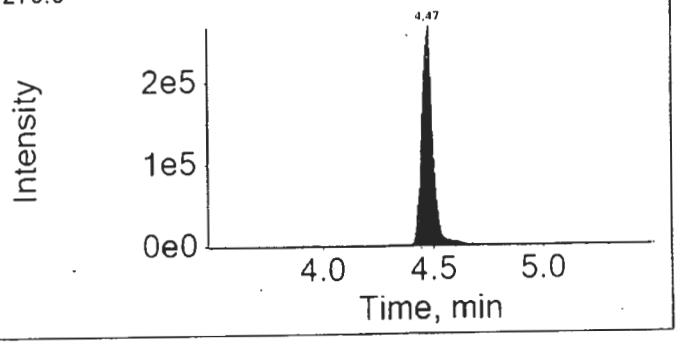
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

314.9 / 270.0



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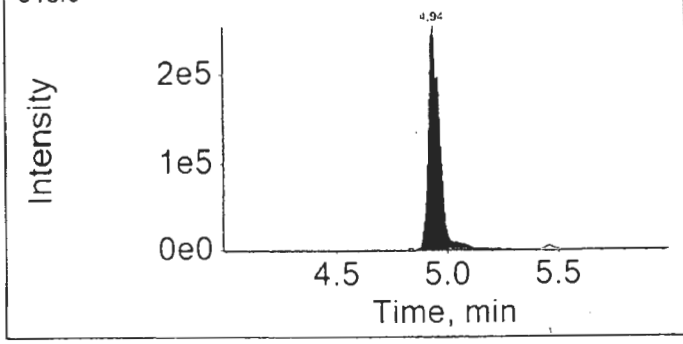
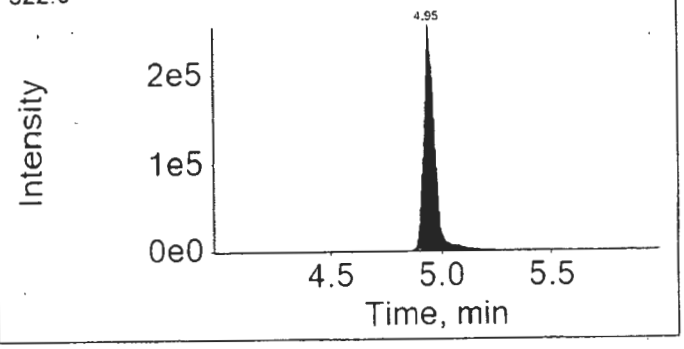
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



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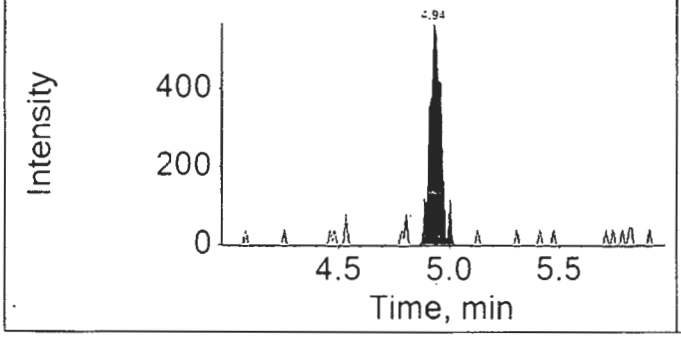
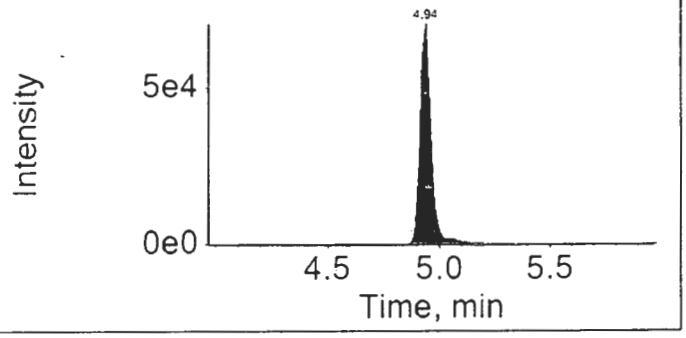
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0





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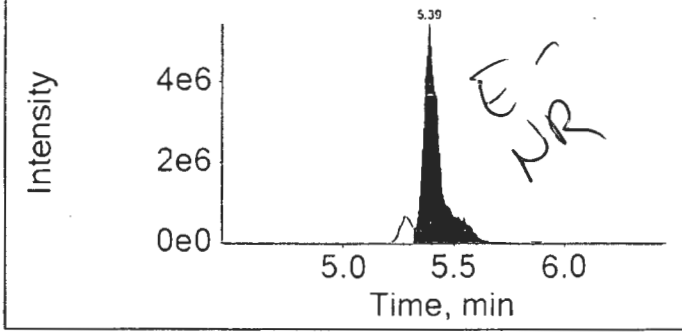
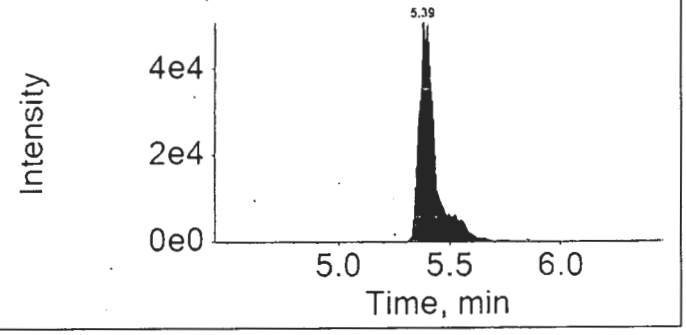
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





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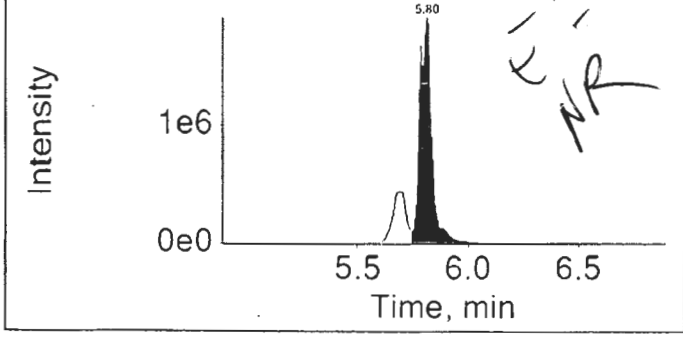
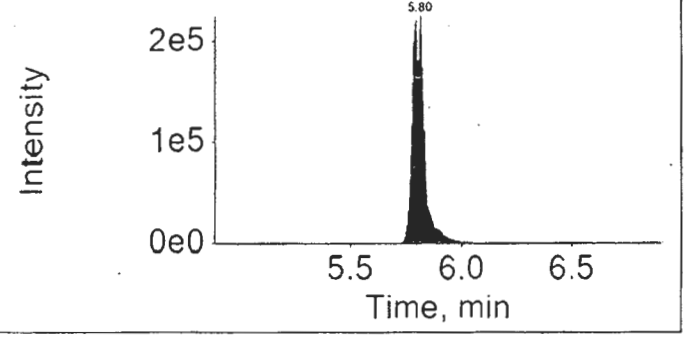
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0

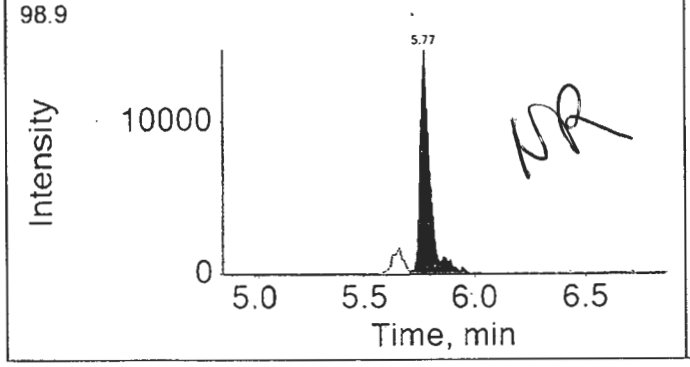




16SEP14-62.wiff

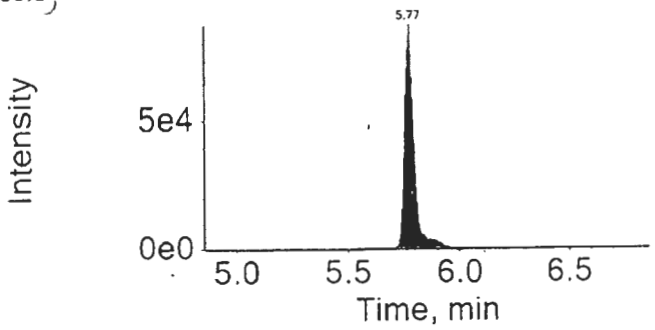
Analyte: PFOS

498.9 /
98.9



Internal Standard: 13C4-PFOS

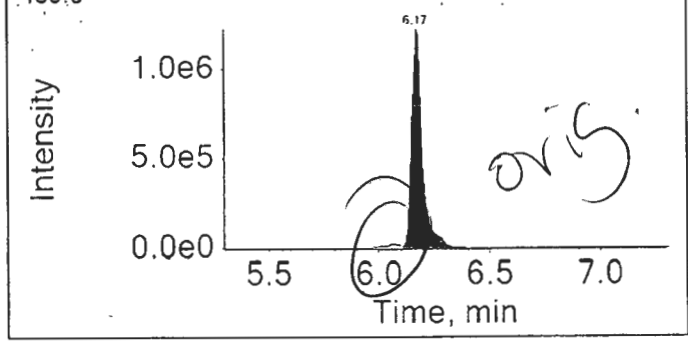
503.0 /
99.0



16SEP14-62.wiff

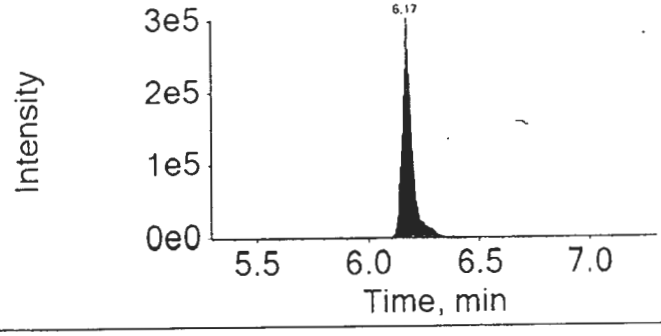
Analyte: PFDA

512.9 /
469.0



Internal Standard: 13C2-PFDA

515.0 /
470.0



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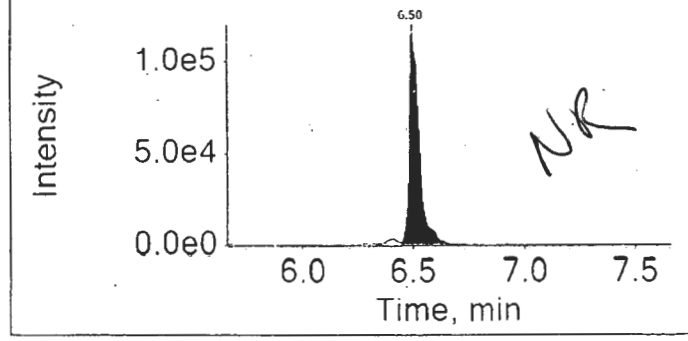
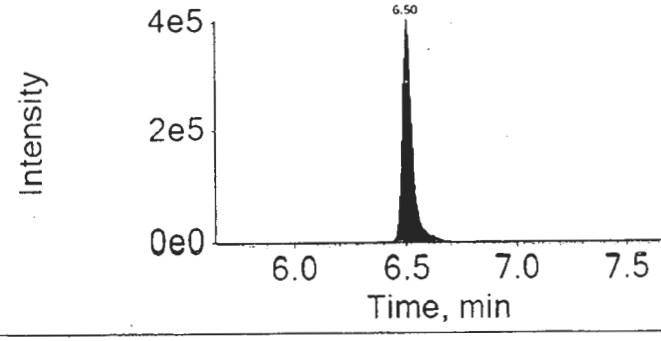
Analyte: PFUnDA

562.9 /
518.9



Internal Standard: 13C2-PFUnDA

565.0 /
520.0



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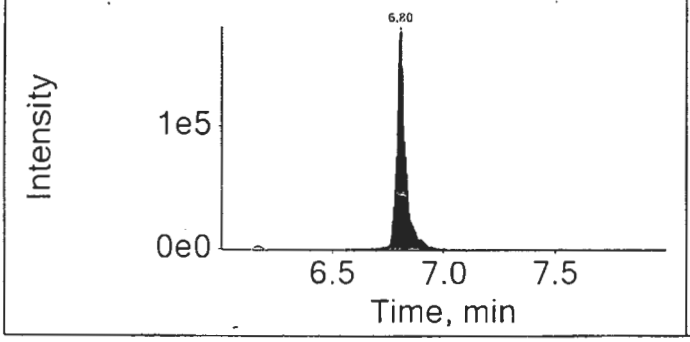
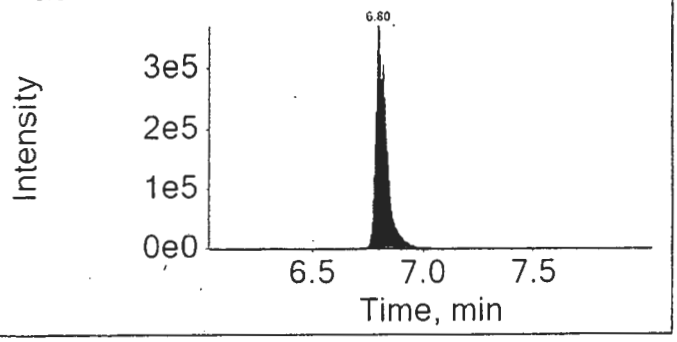
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

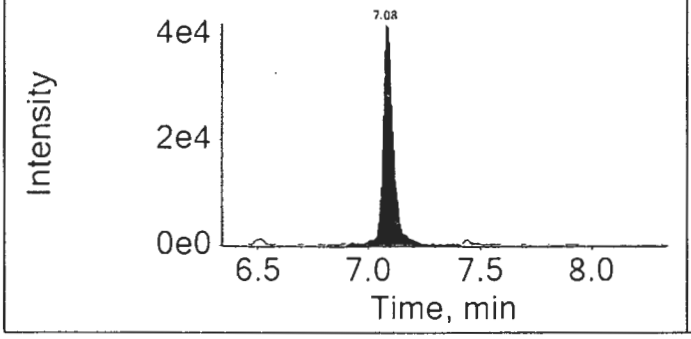
615.0 / 570.0



16SEP14-62.wiff

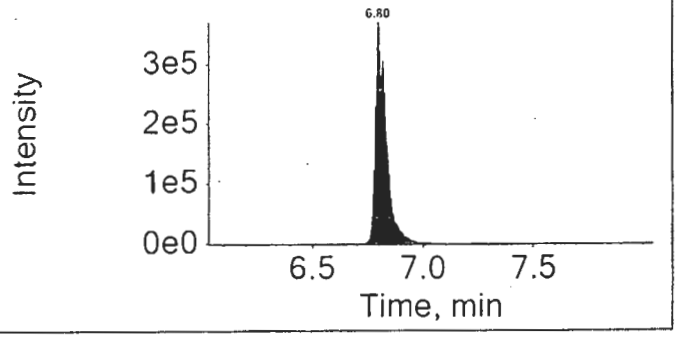
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

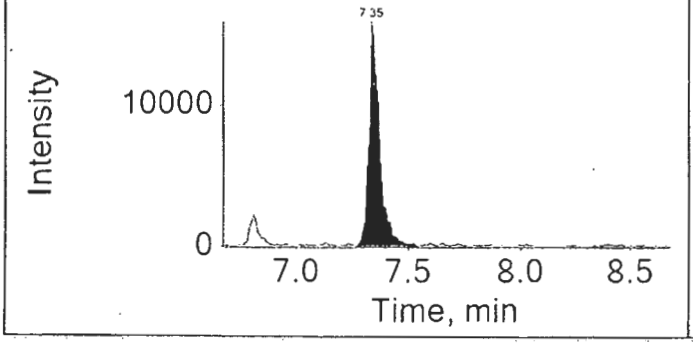
615.0 / 570.0



16SEP14-62.wiff

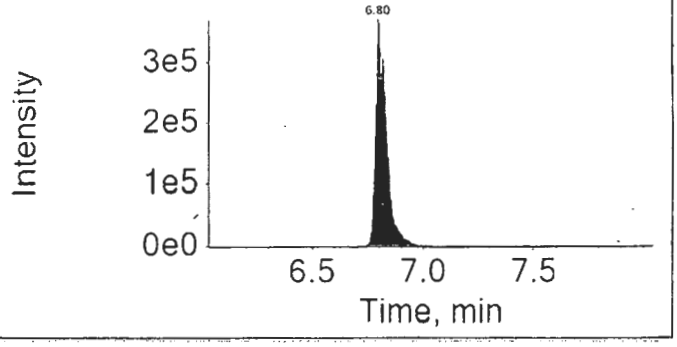
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 19 2016

Lynn Dodd
Principal Specialist

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9/15/16

eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

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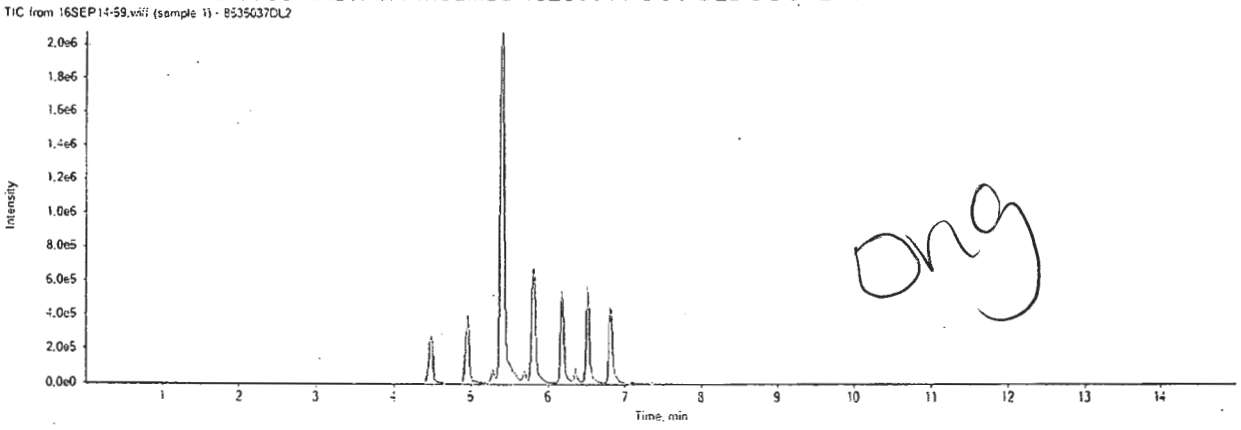
Sample Name:	8535037DL2		**Data File:**		16SEP14-59.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment		**Acquis Date:**		2016-09-15T00:11:55
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	89		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL
			ICAL Name:		16SEP13ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.250		**Dilution Factor:**		100.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.04	125.1	A	18O2-PFHxS	4.94	289559.6	0.000	0.298	ng/g
PFHxA	4.48	28191.4	A	13C2-PFHxA	4.48	994733.3	0.028	39.573	ng/g
PFHpA	4.95	97944.2	A	13C4-PFHpA	4.95	911774.1	0.107	87.258	ng/g
PFHxS	4.96	1657.3	A	18O2-PFHxS	4.94	289559.6	0.006	4.455	ng/g
PFOA	5.39	7621305.0	A	13C4-PFOA	5.39	673436.9	11.317	9079.532	ng/g
PFNA	5.80	989581.6	A	13C5-PFNA	5.80	1289927.0	0.767	624.095	ng/g
PFOS	5.78	7219.9	A	13C4-PFOS	5.77	307784.3	0.023	21.058	ng/g
PFDA	6.17	467507.7	A	13C2-PFDA	6.17	1281056.8	0.365	236.349	ng/g
PFUnDA	6.51	45249.9	A	13C2-PFUnDA	6.51	1368371.5	0.033	26.897	ng/g
PFDoDA	6.81	60255.1	A	13C2-PFDoDA	6.81	1507079.7	0.040	34.872	ng/g
PFTrDA	7.09	18543.1	A	13C2-PFDoDA	6.81	1507079.7	0.012	10.841	ng/g
PFTeDA	7.35	9005.1	A	13C2-PFDoDA	6.81	1507079.7	0.006	6.149	ng/g

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment



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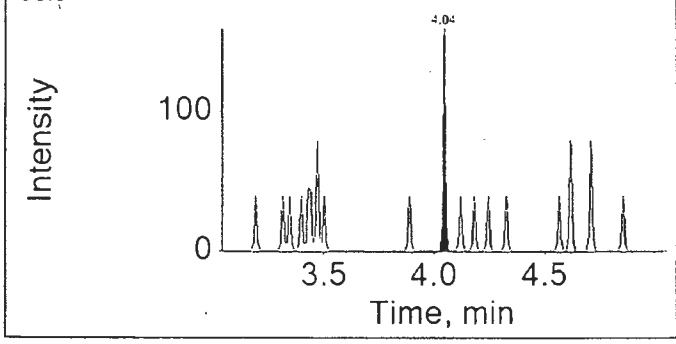
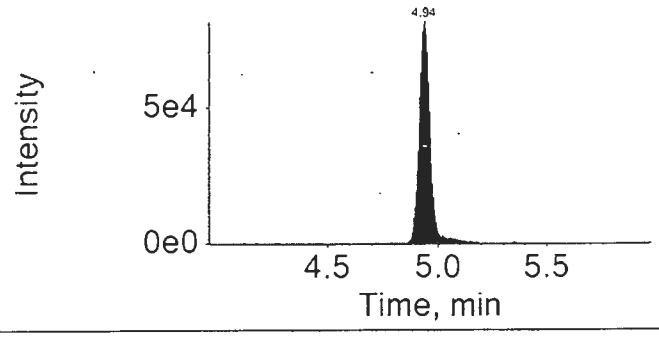
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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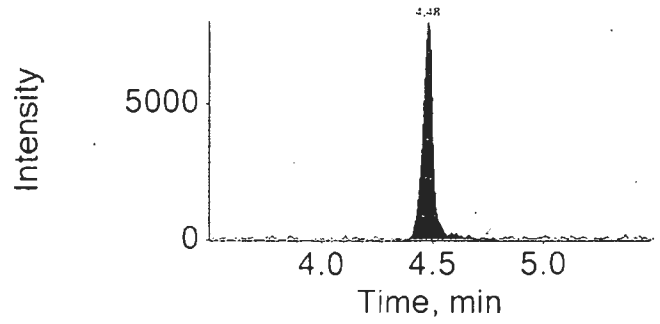
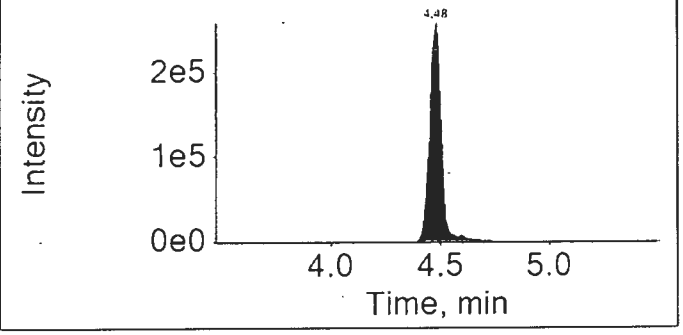
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





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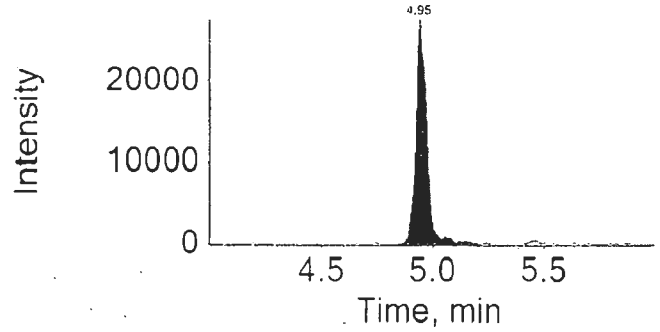
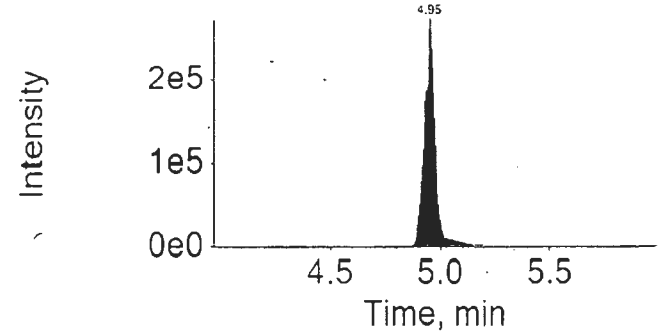
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0





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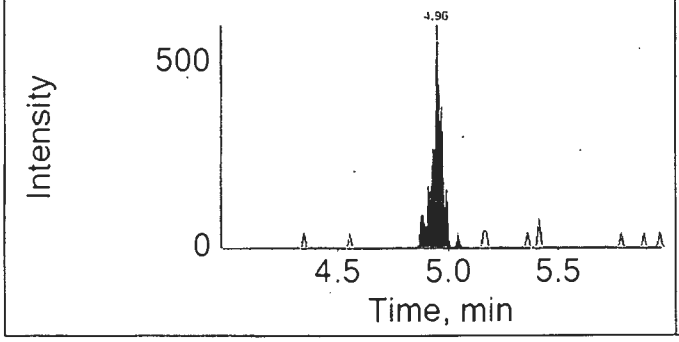
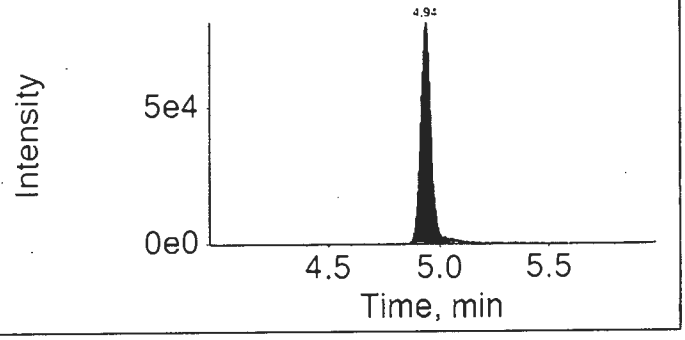
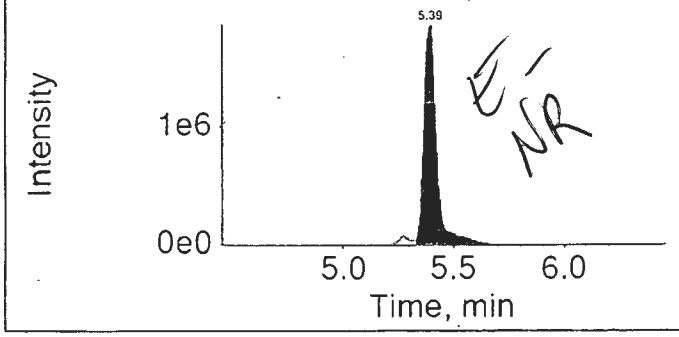
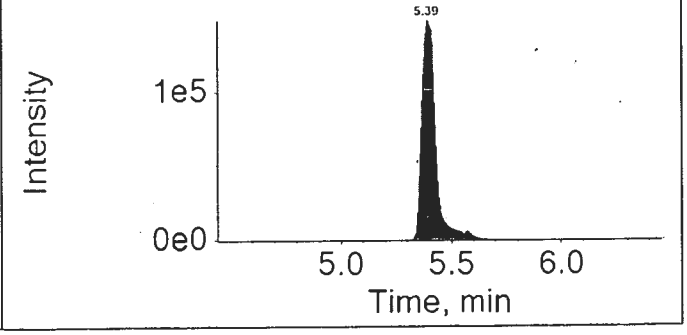
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0





16SEP14-59.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





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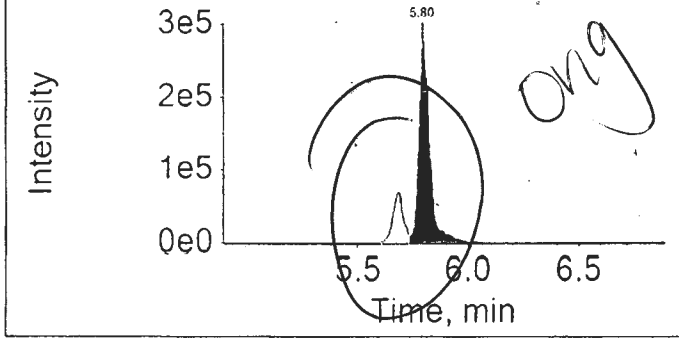
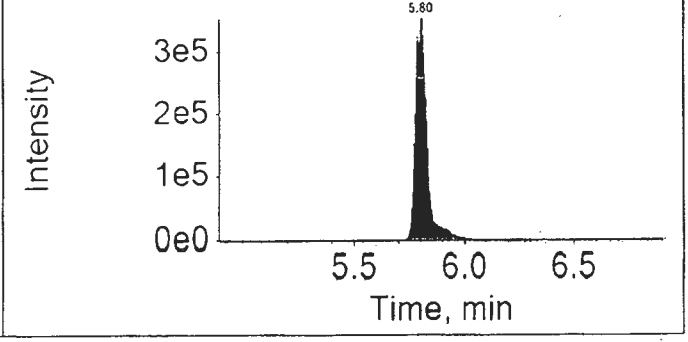
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0





16SEP14-59.wiff	
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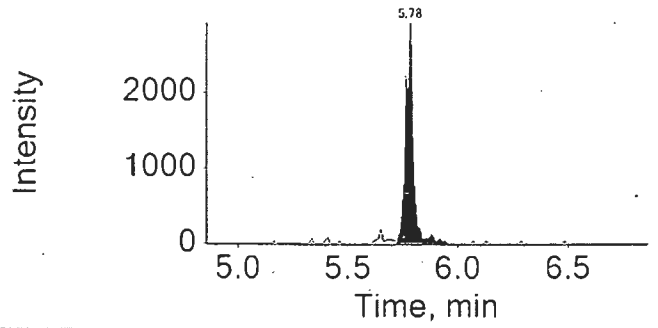
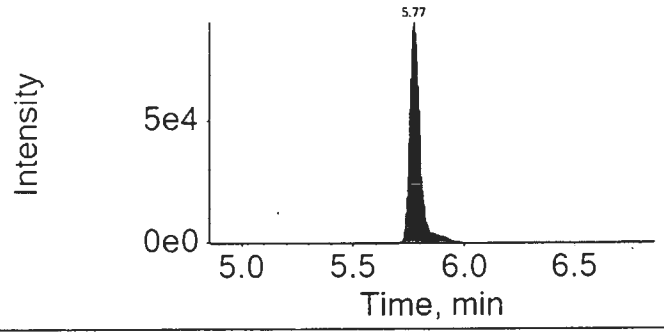
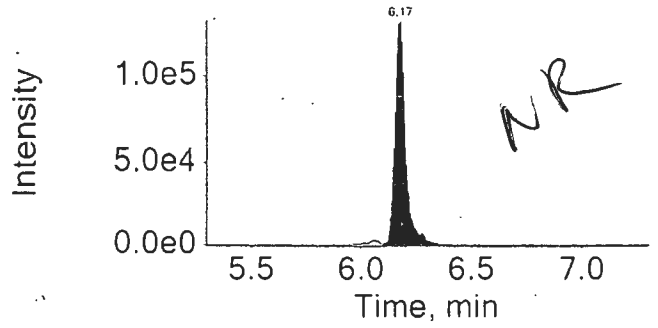
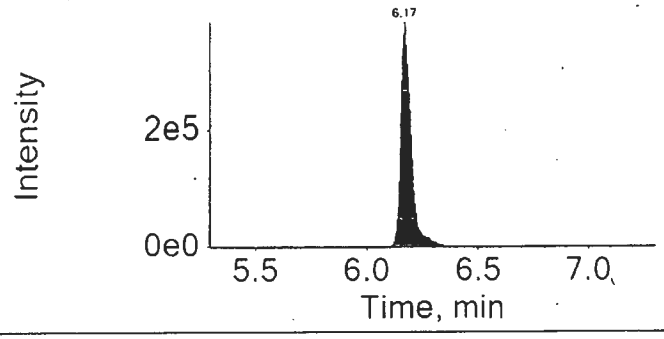
498.9 / 98.9	503.0 / 99.0



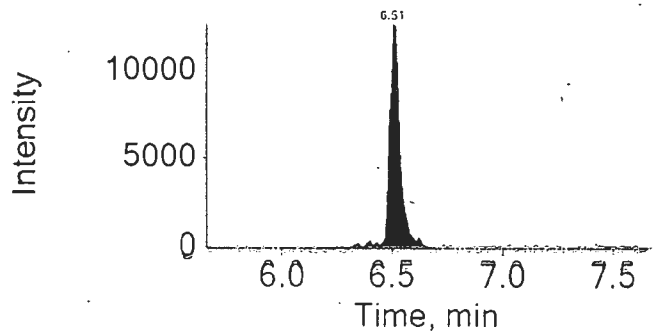


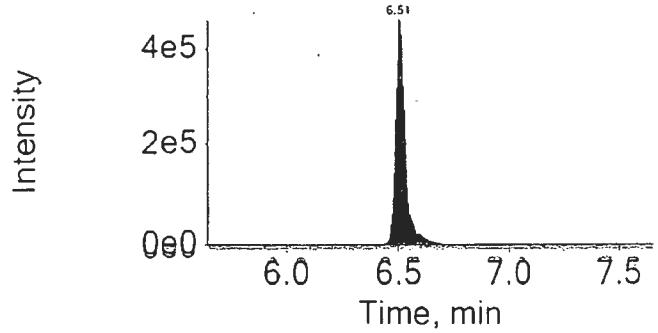
16SEP14-59.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



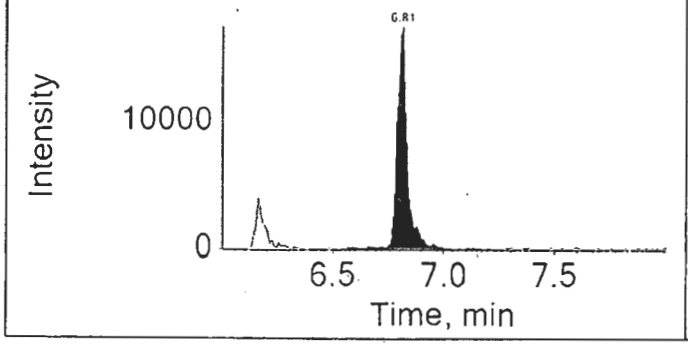


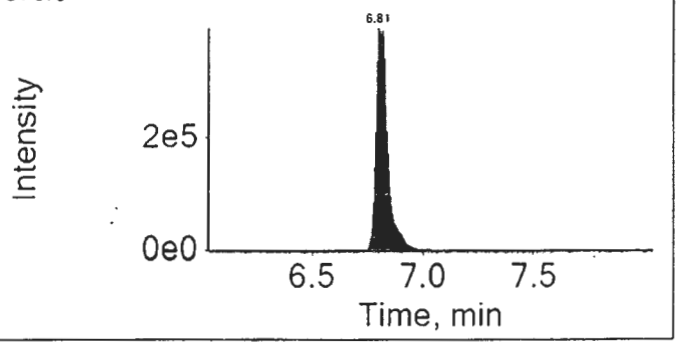
16SEP14-59.wiff	
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



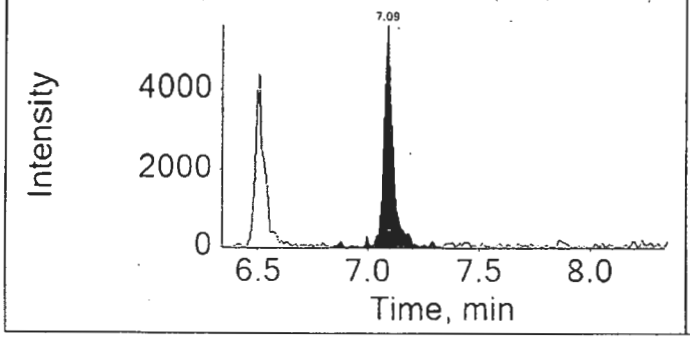


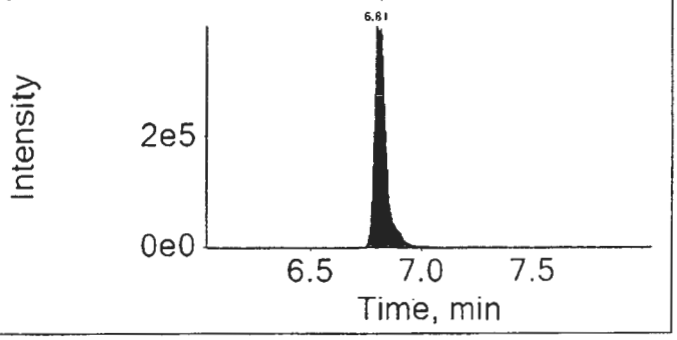
16SEP14-59.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



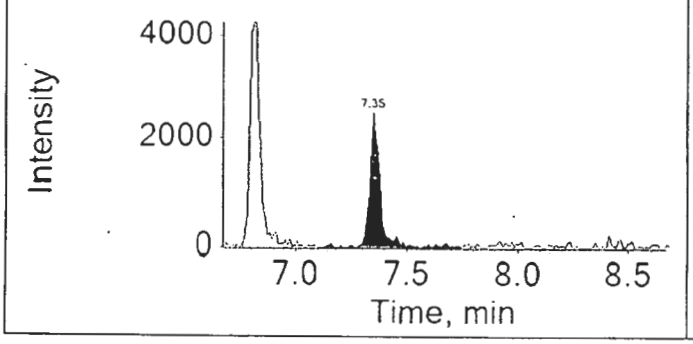


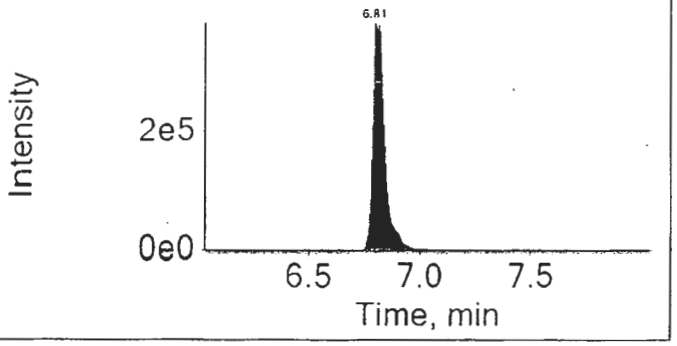
16SEP14-59.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16SEP14-59.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd

SEP 19 2016

Lynn Dodd
Principal Specialist

mer 9/15/16

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LC-MS/MS Analysis Report

Printed: 9/15/2016 1:23:00 PM

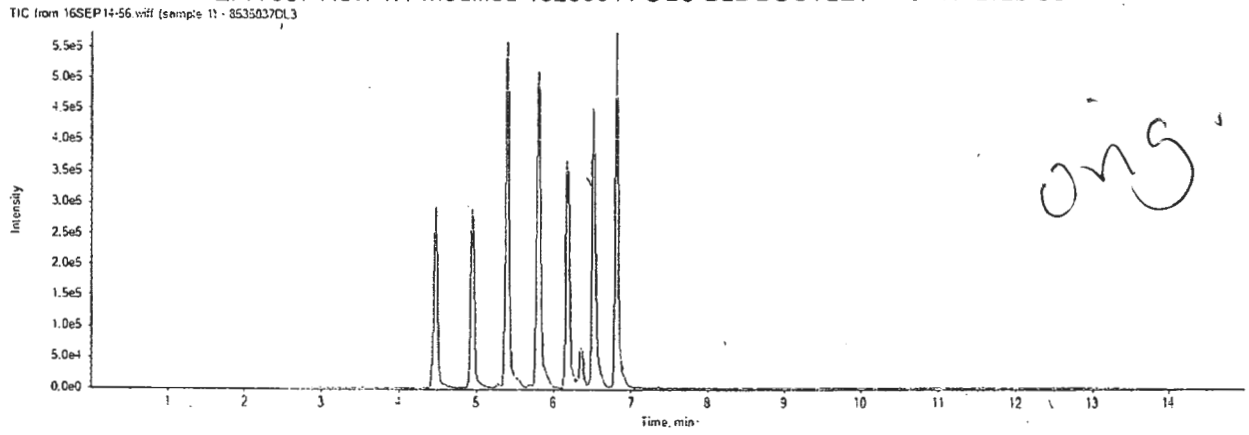
Sample Name:	8535037DL3		**Data File:**		16SEP14-56.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment		**Acquis Date:**		2016-09-14T23:22:43
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	88		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL
			ICAL Name:		16SEP13ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.250		**Dilution Factor:**		1000.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

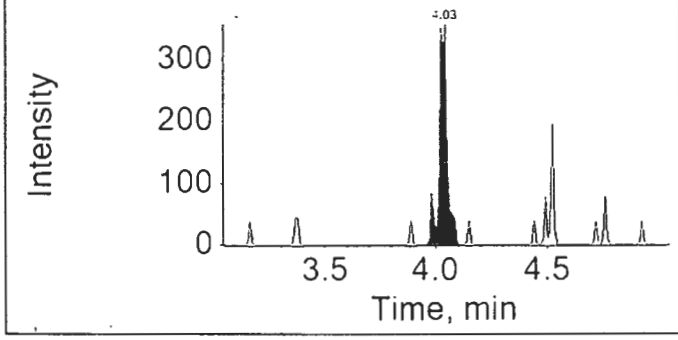
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.03	969.4	A	18O2-PFHxS	4.94	283726.8	0.003	23.577	ng/g
PFHxA	4.47	4960.8	A	13C2-PFHxA	4.47	1003876.8	0.005	69.001	ng/g
PFHpA	4.94	10707.3	A	13C4-PFHpA	4.94	716212.6	0.015	121.437	ng/g
PFHxS	4.94	1688.6	A	18O2-PFHxS	4.94	283726.8	0.006	46.324	ng/g
PFOA	5.39	777697.8	A	13C4-PFOA	5.39	937427.9	0.830	6655.858	ng/g
PFNA	5.80	93363.6	A	13C5-PFNA	5.80	1480480.0	0.063	513.026	ng/g
PFOS	5.77	720.7	M	13C4-PFOS	5.77	318075.3	0.002	20.339	ng/g
PFDA	6.18	41871.8	A	13C2-PFDA	6.17	1259507.1	0.033	215.306	ng/g
PFUnDA	6.51	7253.2	A	13C2-PFUnDA	6.51	1273544.2	0.006	46.324	ng/g
PFDoDA	6.81	9410.4	A	13C2-PFDoDA	6.81	1609932.2	0.006	50.983	ng/g
PFTrDA	7.08	5534.6	A	13C2-PFDoDA	6.81	1609932.2	0.003	30.289	ng/g
PFTeDA	7.35	4248.9	A	13C2-PFDoDA	6.81	1609932.2	0.003	27.161	ng/g

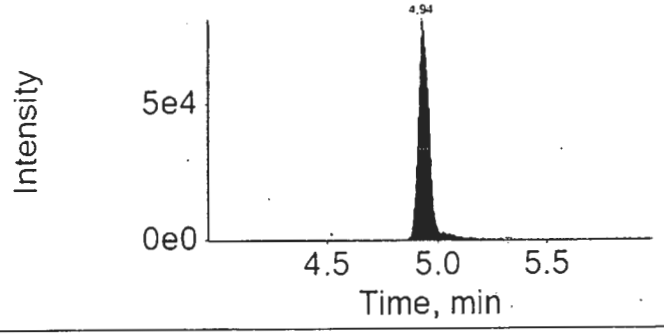
Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment

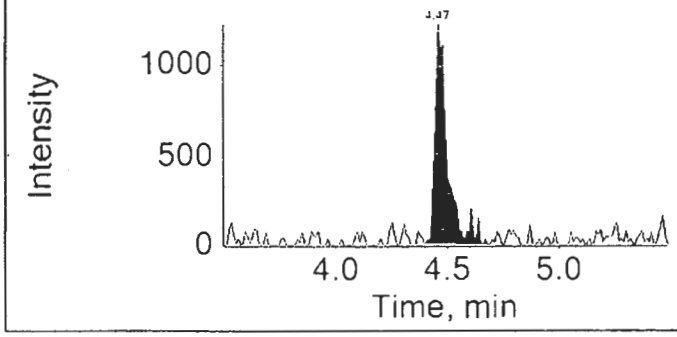


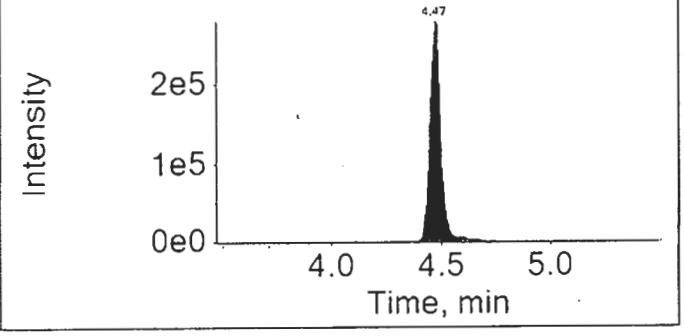
16SEP14-56.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



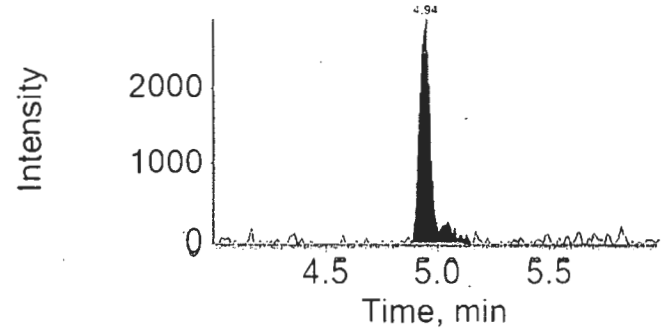


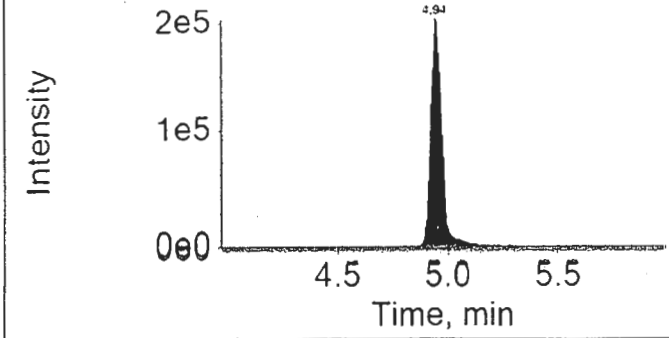
16SEP14-56.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



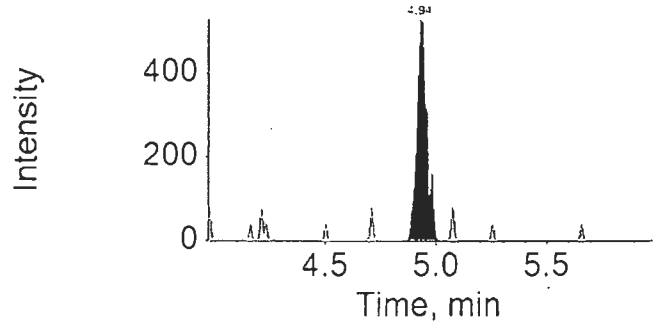


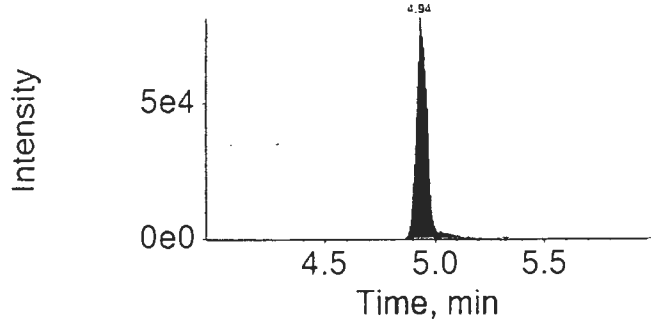
16SEP14-56.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



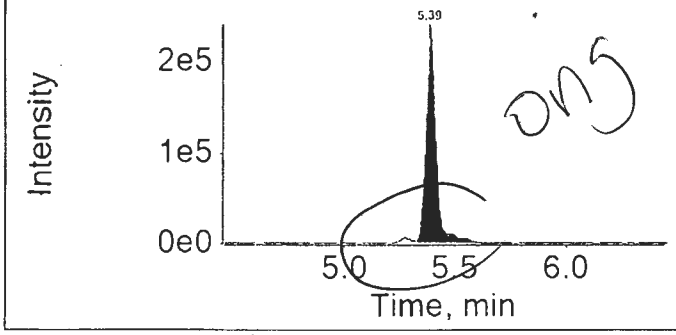


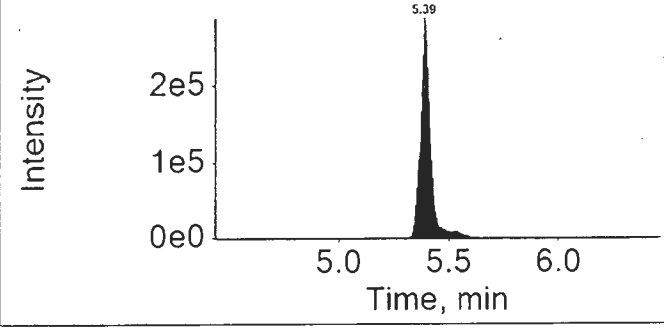
16SEP14-56.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



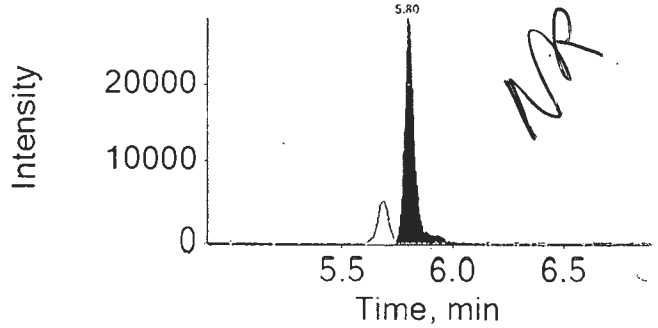


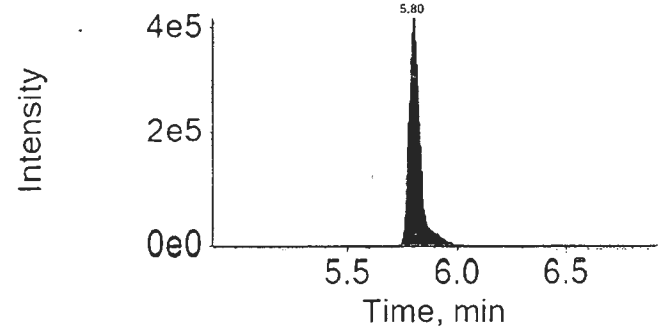
16SEP14-56.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0





16SEP14-56.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0

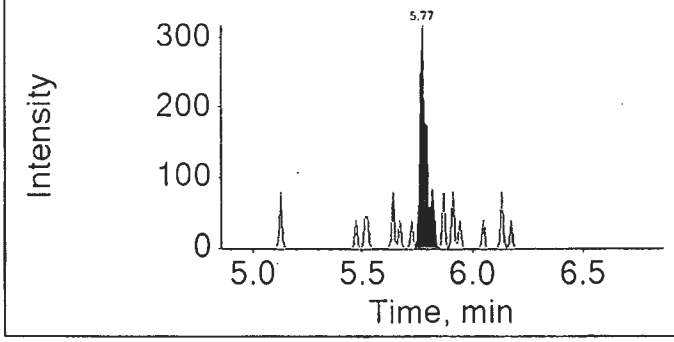




16SEP14-56.wiff

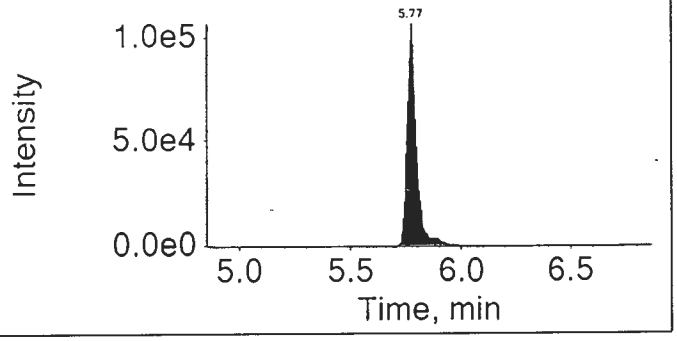
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

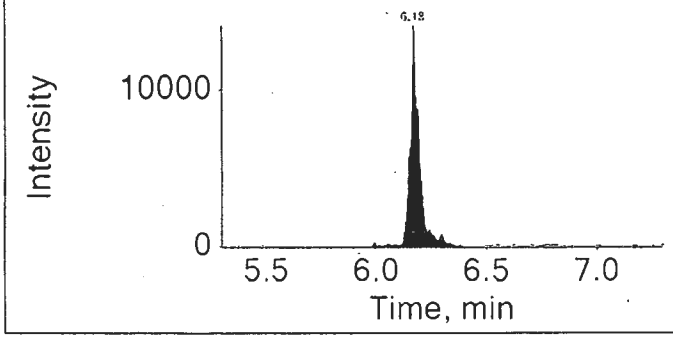
503.0 / 99.0



16SEP14-56.wiff

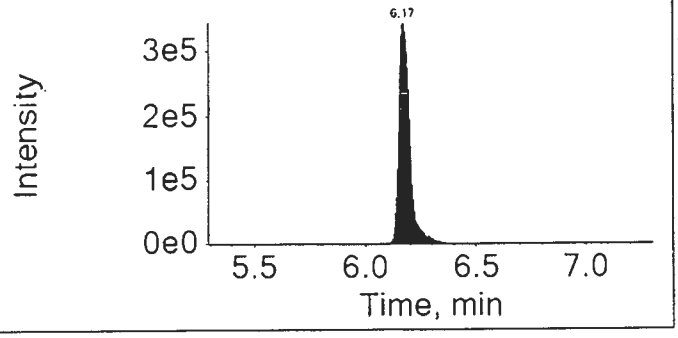
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

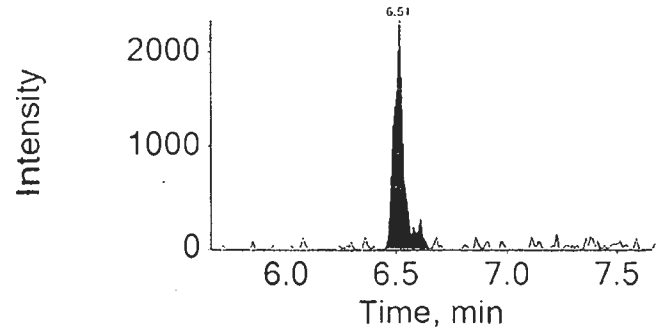
515.0 / 470.0



16SEP14-56.wiff

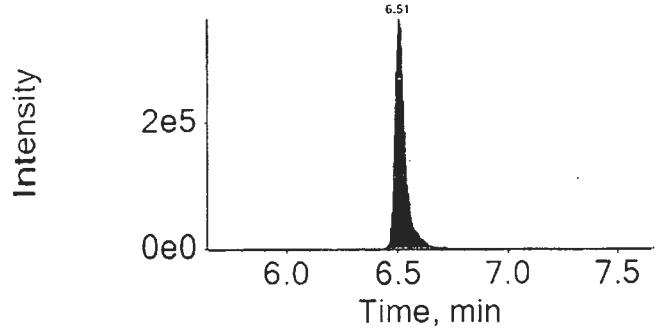
Analyte: PFUnDA

562.9 / 518.9

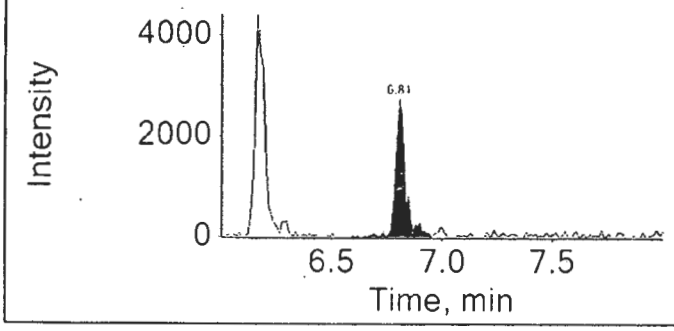


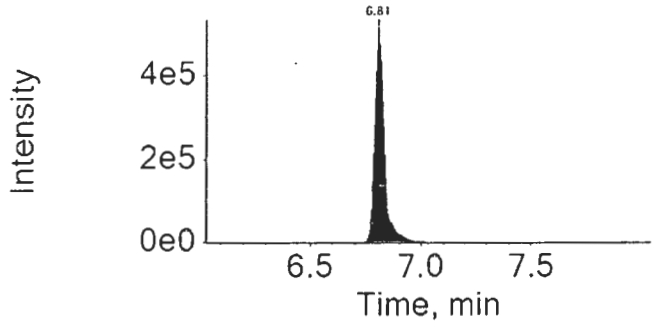
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

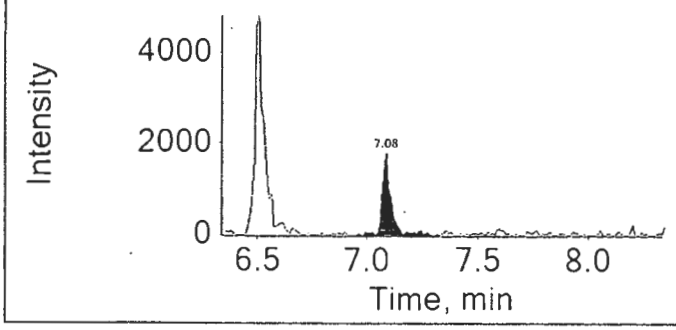


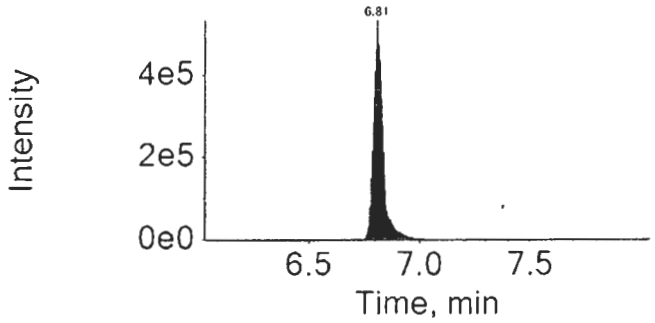
16SEP14-56.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



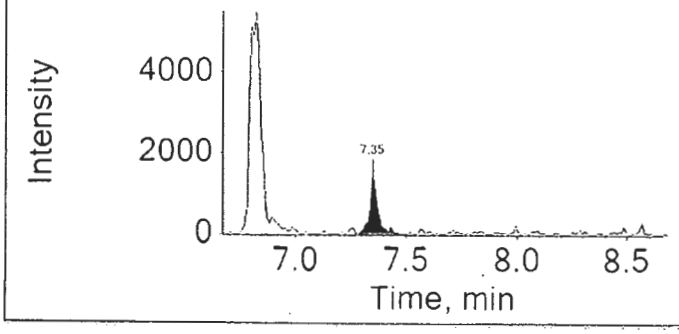


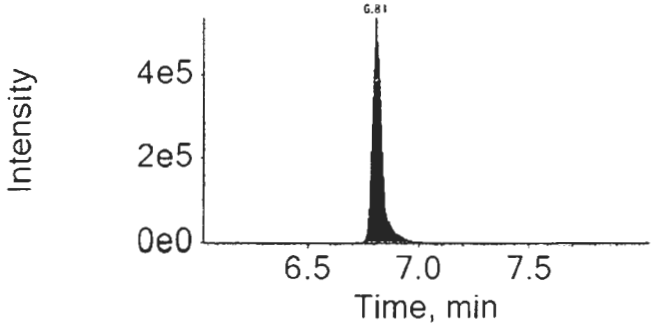
16SEP14-56.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16SEP14-56.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd

SEP 19 2016

Lynn Dodd
Principal Specialist

mlD 7824
9/15/16

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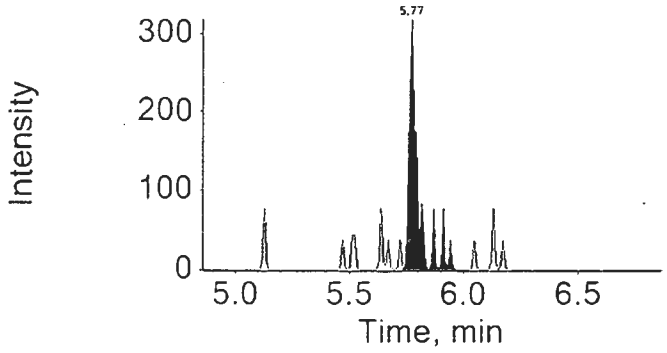
Print Date: 15/09/2016 1:24 PM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-56.wiff	2016-09-14T23:22:43	8535037DL3	PFOS	5.77	877.2

Component: PFOS
Mass: 498.9 / 98.9



SEP 19 2016

Lynn Dodd
Principal Specialist

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Analysis Report

REVISED

Sample Description: SG3-BLDGOUTLET-160817 Grab Sediment
SGPP - Bennington

LL Sample # SW 8535037
LL Group # 1696623
Account # 37191

Project Name: SGPP - Bennington

Collected: 08/17/2016 12:25 by JD

Submitted: 08/18/2016 09:40
Reported: 06/13/2017 15:17

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Revised

OUTSD SDG#: SPP17-24

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.94 U	0.94	3.0	1
14027	**Perfluorodecanoic acid**	335-76-2	**630**	3.8	7.5	10
14027	**Perfluorododecanoic acid**	307-55-1	**110**	0.75	1.5	1
14027	**Perfluoroheptanoic acid**	375-85-9	**170**	5.6	11	10
14027	Perfluorohexanesulfonate	355-46-4	0.94 U	0.94	3.0	1
14027	**Perfluorohexanoic acid**	307-24-4	**130**	0.38	0.75	1
14027	**Perfluorononanoic acid**	375-95-1	**1,500**	38	75	100
14027	**Perfluoro-octanesulfonate**	1763-23-1	**64**	1.3	3.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**14,000**	560	1,100	1000
14027	**Perfluorotetradecanoic acid**	376-06-7	**9.3**	0.56	1.5	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**37**	1.1	2.3	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**84**	0.56	1.1	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**49.4**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/06/2016 18:46	Jason W Knight	1
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/14/2016 23:22	Marissa C Drexinger	1000
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/15/2016 01:01	Marissa C Drexinger	10
14027	Full List (12) PFC's	EPA 537 Rev. 1.1 modified	1	16235011	09/15/2016 01:01	Marissa C Drexinger	100
14090	PFC Solid Prep	EPA 537 Rev. 1.1 modified	1	16235011	08/23/2016 11:10	Devon M Whooley	1
00111	Moisture	SM 2540 G-1997	1	16236820006A	08/24/2016 02:56	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL Instrument ID: 24743
Sample (wt): 5.25 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 49.4

Lab Sample ID: 8535037
Lab File ID: 16SEP06-37.WIFF
Date Collected: 08/17/2016 12:25
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/06/2016 18:46
Dilution Factor: 1.0

Concentration Units: ng/g Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	0.94	U
307-24-4	PFHxA	130	
375-85-9	PFHpA	390	E
355-46-4	PFHxS	0.94	U
335-67-1	PFOA	27000	E
375-95-1	PFNA	1700	E
1763-23-1	PFOS	64	
335-76-2	PFDA	820	E
2058-94-8	PFUnDA	84	
307-55-1	PFDoDA	110	
72629-94-8	PFTrDA	37	
376-06-7	PFTeDA	9.3	

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:14:00 PM

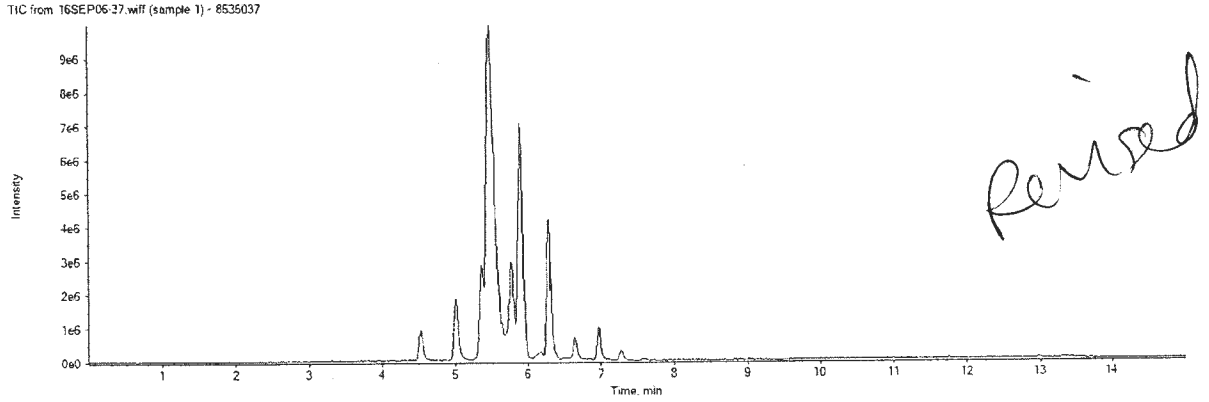
Sample Name:	8535037			**Data File:**		16SEP06-37.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment			**Acquis Date:**		2016-09-06T18:46:36
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	25			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011
				ICAL Name:		16SEP01ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.250			**Dilution Factor:**		1.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	4.07	0.810	1344.7	A	18O2-PFHxS	5.00	157299.1	0.009	0.068
PFHxA	4.52	1.000	2798129.2	A	13C2-PFHxA	4.52	769795.6	3.635	65.824
PFHpA	5.01	1.000	7640315.1	A	13C4-PFHpA	5.00	354220.0	21.569	197.959
PFHxS	4.99	1.000	6285.5	A	18O2-PFHxS	5.00	157299.1	0.040	0.361
PFOA	5.47	1.000	96376049.3	A	13C4-PFOA	5.46	66264.4	1454.417	13574.182
PFNA	5.89	1.000	31689499.2	A	13C5-PFNA	5.89	347876.0	91.094	865.603
PFOS	5.86	1.000	305631.0	M	13C4-PFOS	5.86	98786.9	3.094	32.495
PFDA	6.28	1.000	16651571.4	A	13C2-PFDA	6.28	333948.3	49.863	412.688
PFUnDA	6.64	1.000	1934124.5	A	13C2-PFUnDA	6.64	448931.7	4.308	42.495
PFDoDA	6.97	1.000	3144572.5	A	13C2-PFDoDA	6.97	587443.5	5.353	55.088
PFTrDA	7.28	1.040	1088341.3	A	13C2-PFDoDA	6.97	587443.5	1.853	18.914
PFTeDA	7.59	1.090	266902.8	A	13C2-PFDoDA	6.97	587443.5	0.454	4.729

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment

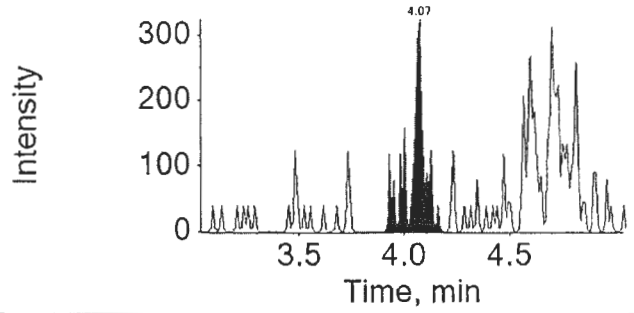


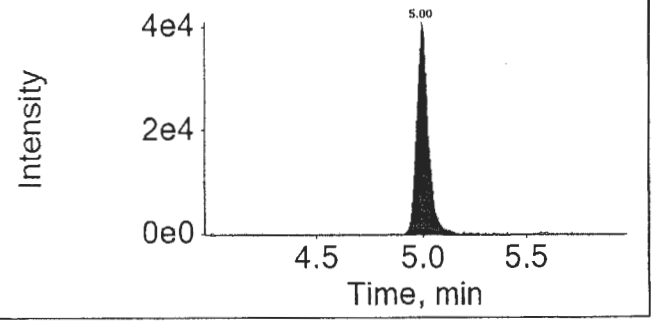
revised

APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-37.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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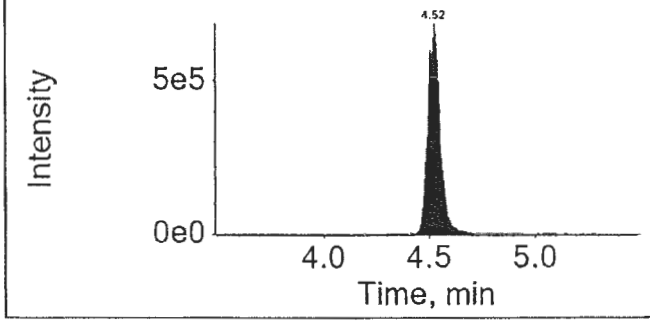
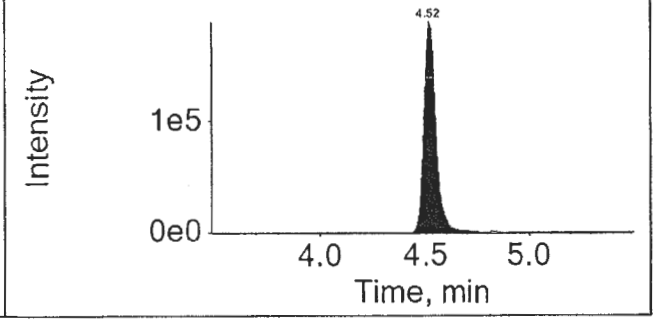
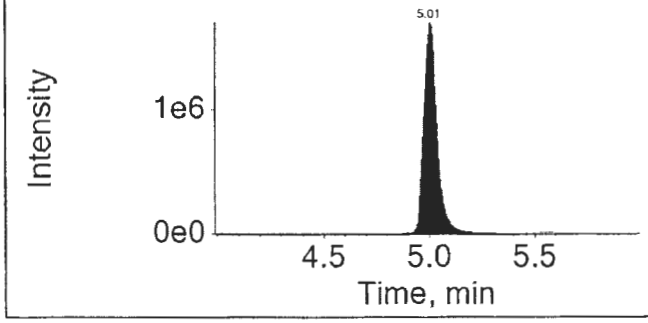
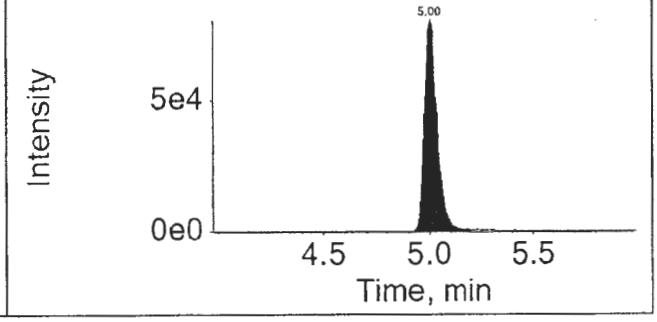
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16SEP06-37.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0





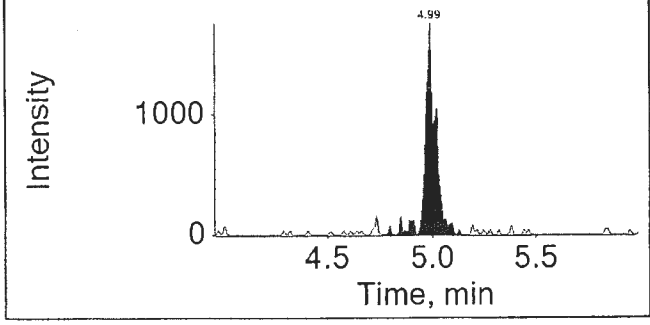
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-37.wiff

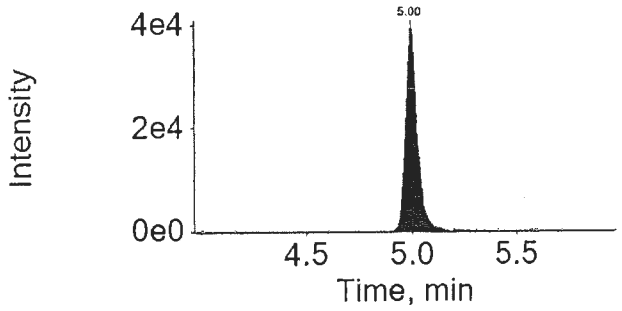
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

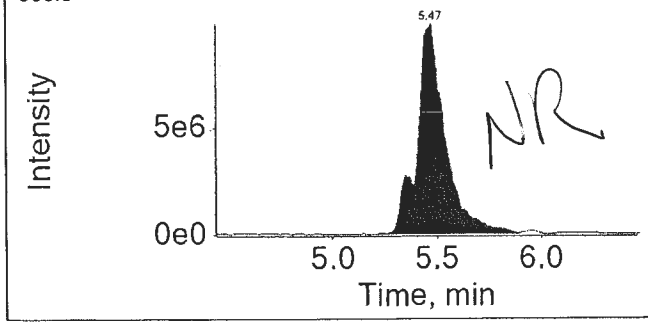
403.0 / 103.0



16SEP06-37.wiff

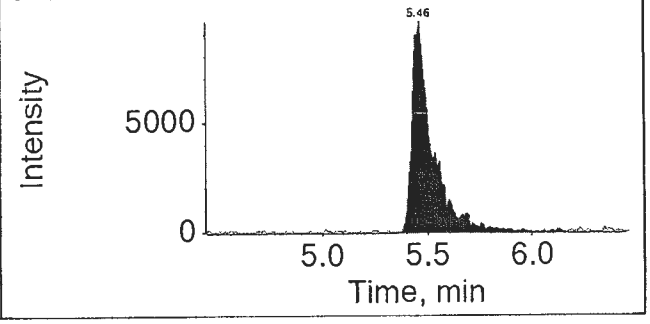
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

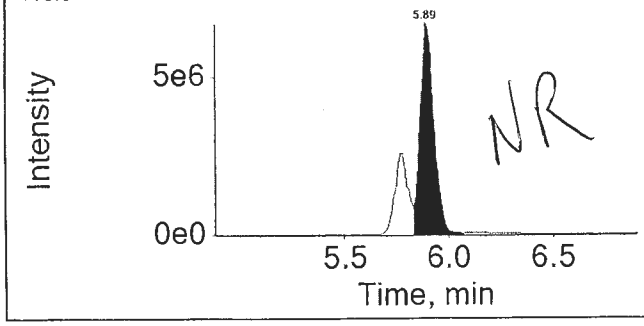
417.0 / 372.0



16SEP06-37.wiff

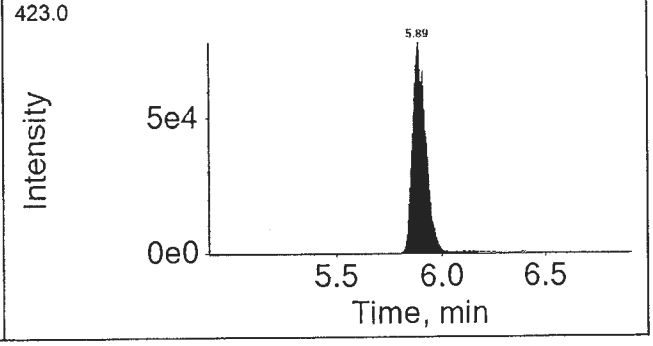
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



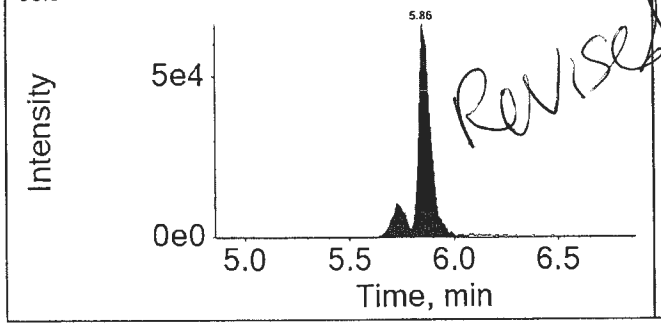
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-37.wiff

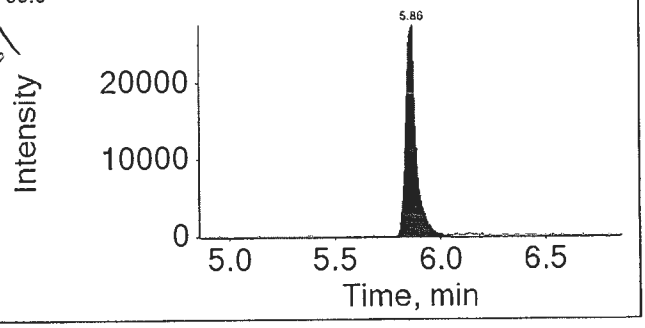
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

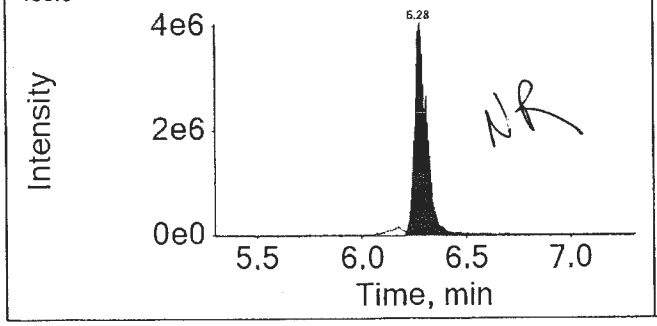
503.0 / 99.0



16SEP06-37.wiff

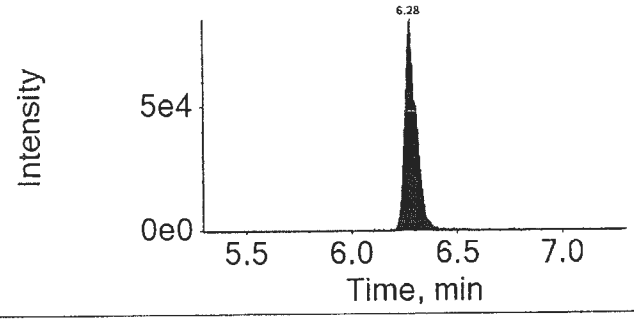
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

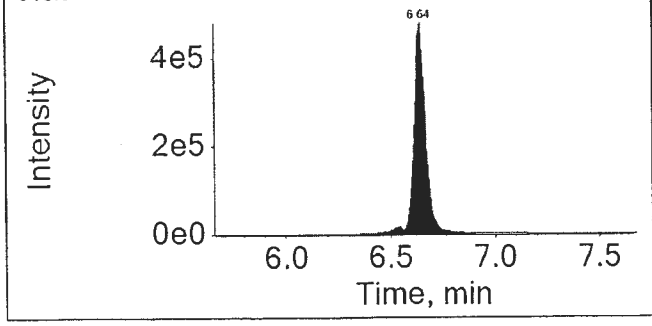
515.0 / 470.0



16SEP06-37.wiff

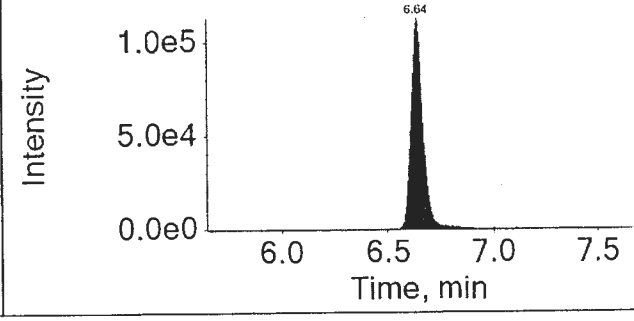
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



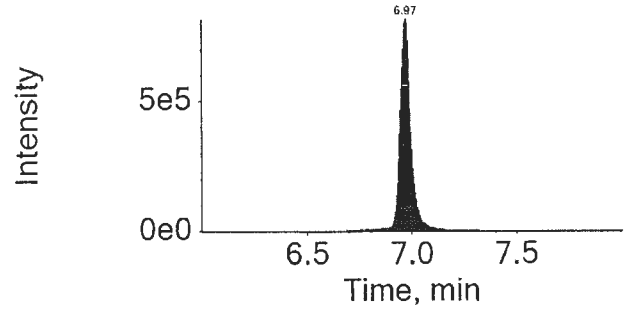
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

16SEP06-37.wiff

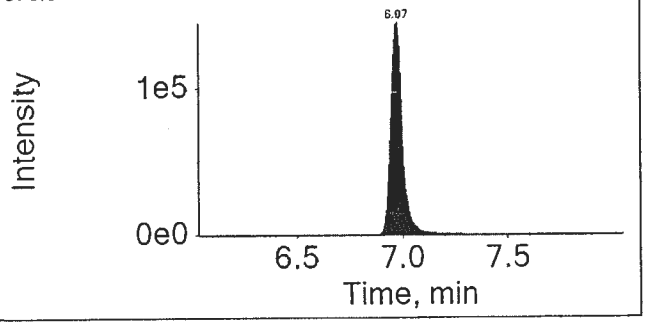
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

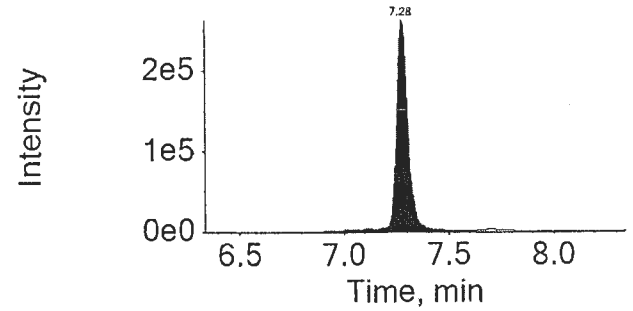
615.0 / 570.0



16SEP06-37.wiff

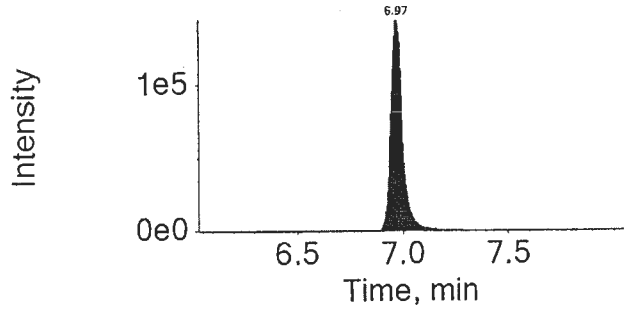
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

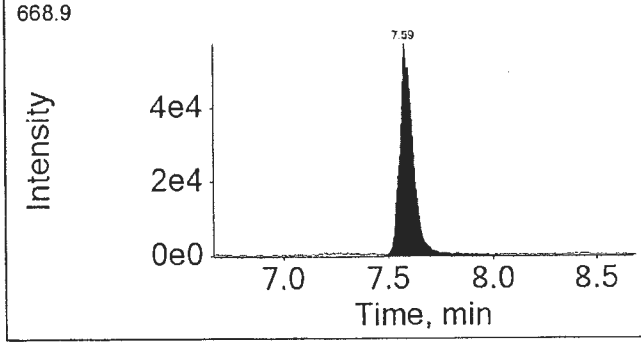
615.0 / 570.0



16SEP06-37.wiff

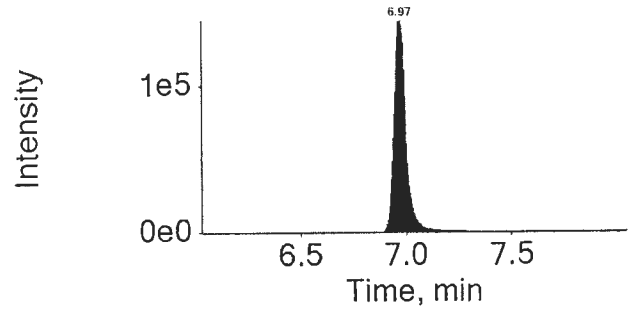
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:27 am, 6/13/17

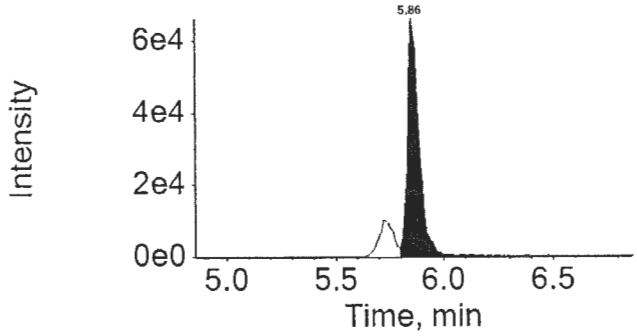
eurofins | Lancaster Laboratories

Print Date: 09/06/2017 5:15 PM

Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP06-37.wiff	2016-09-06T18:46:36	8535037	PFOS	5.86	262871.2

Component: PFOS
Mass: 498.9 / 98.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:26 am, 6/13/17

eurofins | Lancaster Laboratories Environmental

FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL
Sample (wt): 5.25 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 49.4

Instrument ID: 24743

Lab Sample ID: 8535037DL
Lab File ID: 16SEP14-62.WIFF
Date Collected: 08/17/2016 12:25
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/15/2016 01:01
Dilution Factor: 10.0

Concentration Units: ng/g

Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	9.4	U
307-24-4	PFHxA	79	
375-85-9	PFHpA	170	
355-46-4	PFHxS	9.4	U
335-67-1	PFOA	18000	E
375-95-1	PFNA	1400	
1763-23-1	PFOS	37	
335-76-2	PFDA	630	
2058-94-8	PFUnDA	49	
307-55-1	PFDoDA	73	
72629-94-8	PFTrDA	20	
376-06-7	PFTeDA	8.8	

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

Printed: 6/9/2017 5:27:00 PM

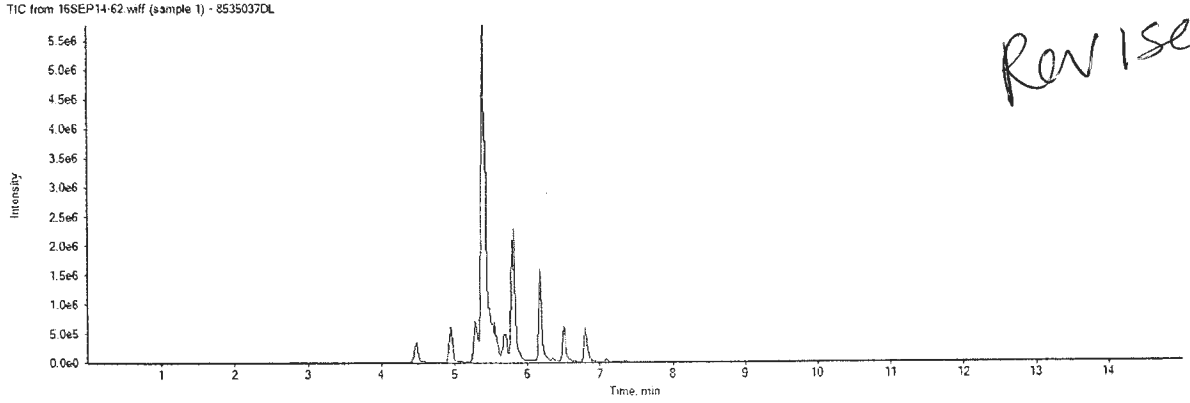
Sample Name:	8535037DL			**Data File:**		16SEP14-62.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment			**Acquis Date:**		2016-09-15T01:01:07
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	90			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011DL
				ICAL Name:		16SEP13ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.250			**Dilution Factor:**		10.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	4.04	0.820	343.9	A	18O2-PFHxS	4.94	254013.8	0.001	0.093
PFHxA	4.48	1.000	269359.8	A	13C2-PFHxA	4.47	945757.6	0.285	39.768
PFHpA	4.94	1.000	946436.8	A	13C4-PFHpA	4.95	870092.4	1.088	88.357
PFHxS	4.94	1.000	2063.9	A	18O2-PFHxS	4.94	254013.8	0.008	0.632
PFOA	5.39	1.000	30755658.2	M	13C4-PFOA	5.39	265384.9	115.89	9297.792
PFNA	5.80	1.000	7548857.1	A	13C5-PFNA	5.80	855693.6	8.822	717.673
PFOS	5.77	1.000	55043.2	M	13C4-PFOS	5.77	262195.9	0.210	18.845
PFDA	6.17	1.000	4386450.7	M	13C2-PFDA	6.17	894625.3	4.903	317.546
PFUnDA	6.50	1.000	389953.7	A	13C2-PFUnDA	6.50	1291291.0	0.302	24.563
PFDoDA	6.80	1.000	533604.8	A	13C2-PFDoDA	6.80	1265536.6	0.422	36.776
PFTrDA	7.08	1.040	146403.2	A	13C2-PFDoDA	6.80	1265536.6	0.116	10.193
PFTeDA	7.35	1.080	54883.3	A	13C2-PFDoDA	6.80	1265536.6	0.043	4.463

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment

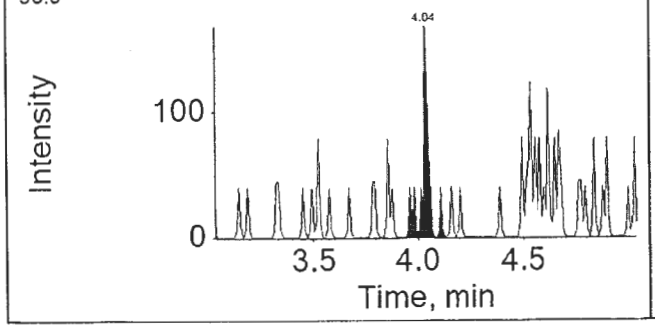


Revised

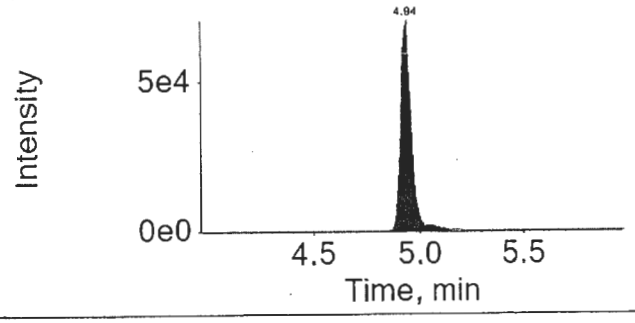
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

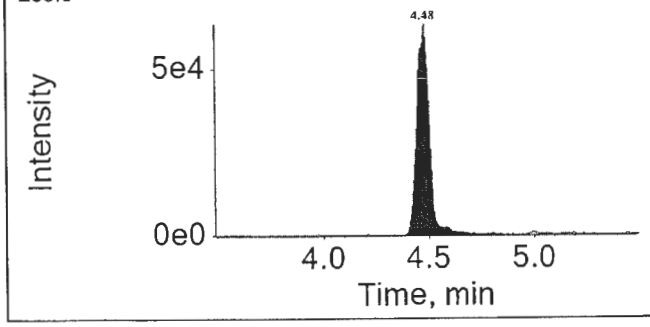
16SEP14-62.wiff
Analyte: PFBS
298.9 / 98.9



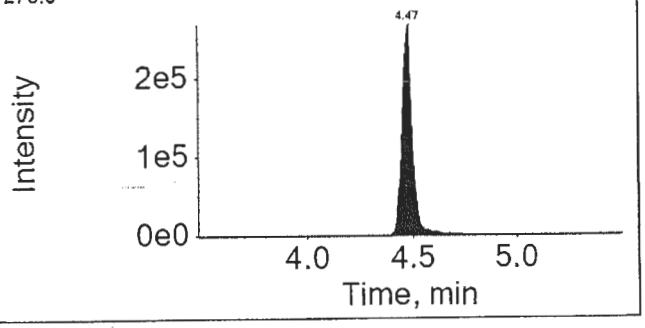
Internal Standard: 18O2-PFHxS
403.0 / 103.0



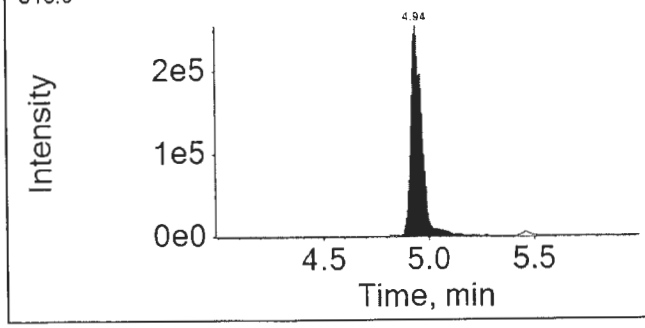
16SEP14-62.wiff
Analyte: PFHxA
312.9 / 269.0



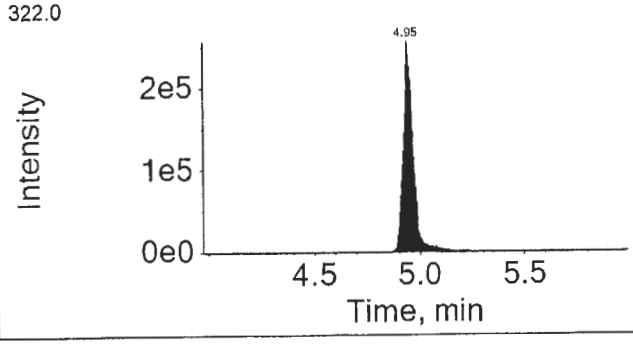
Internal Standard: 13C2-PFHxA
314.9 / 270.0



16SEP14-62.wiff
Analyte: PFHpA
362.9 / 318.9



Internal Standard: 13C4-PFHpA
367.0 / 322.0



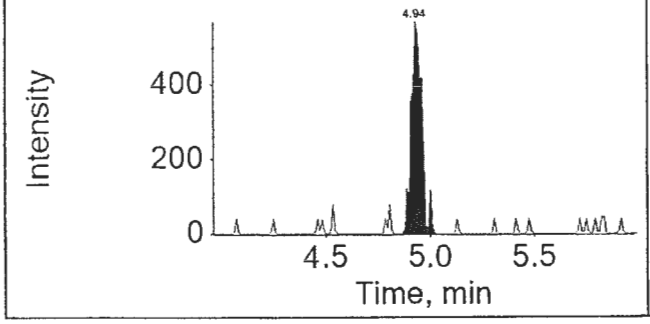
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

16SEP14-62.wiff

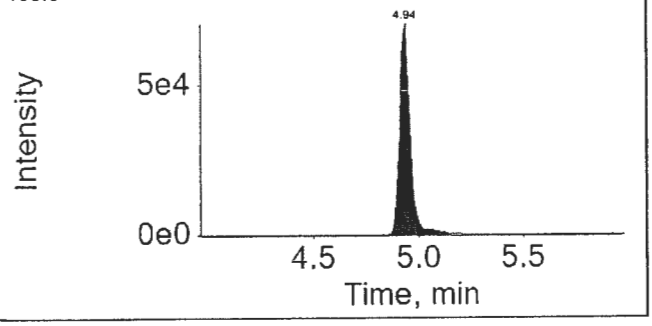
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

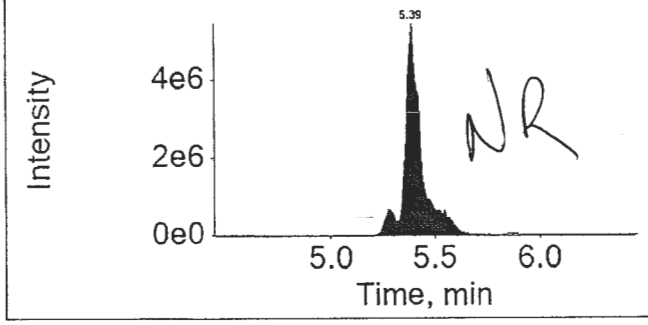
403.0 / 103.0



16SEP14-62.wiff

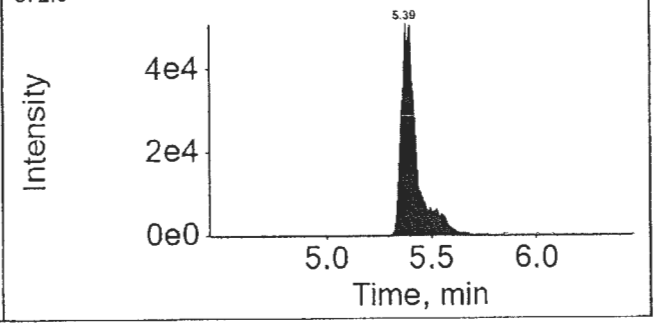
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

417.0 / 372.0



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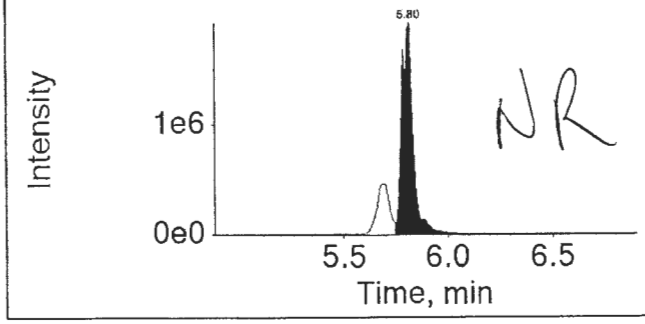
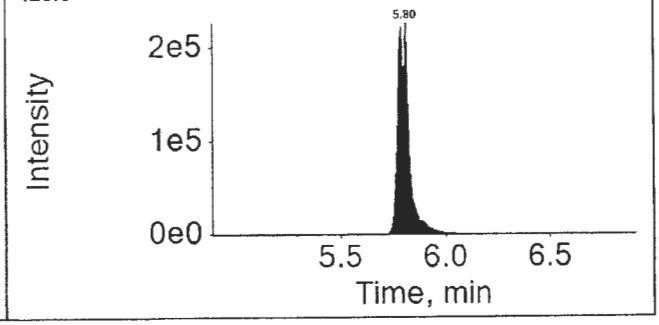
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



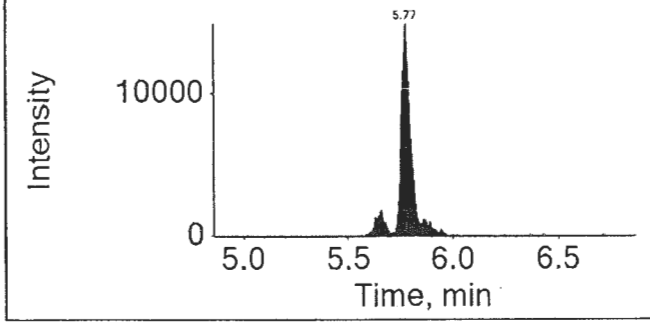
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

16SEP14-62.wiff

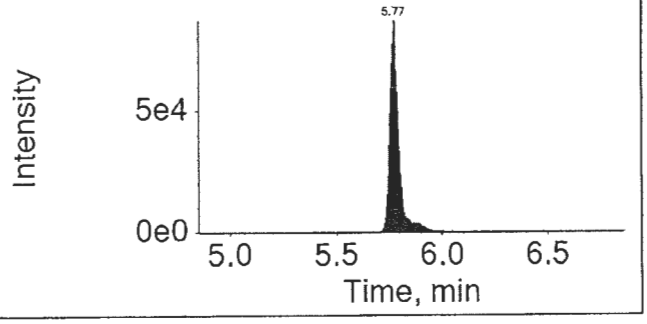
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

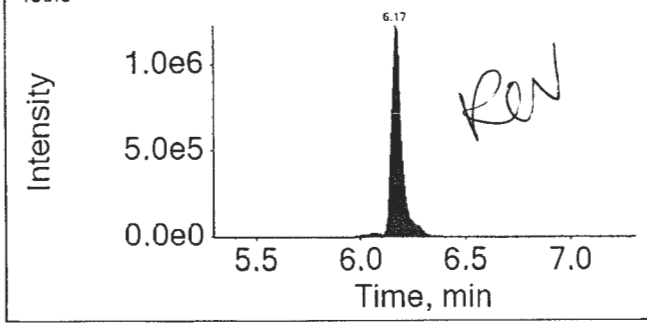
503.0 / 99.0



16SEP14-62.wiff

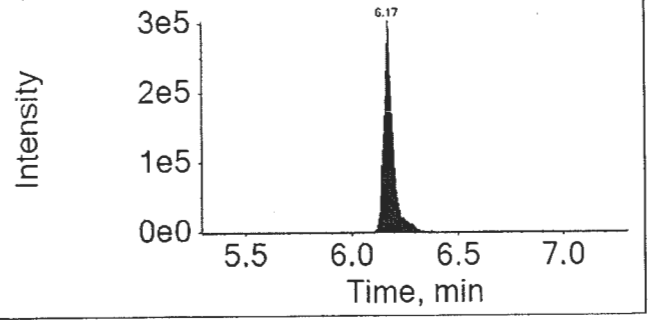
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

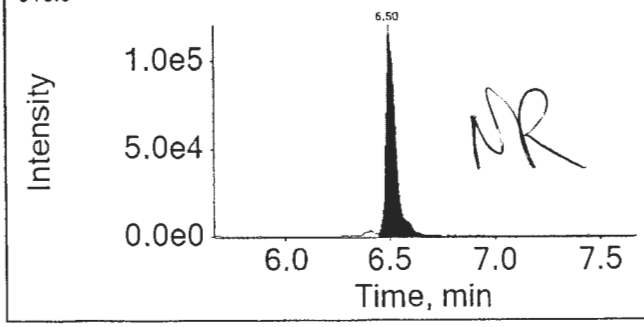
515.0 / 470.0



16SEP14-62.wiff

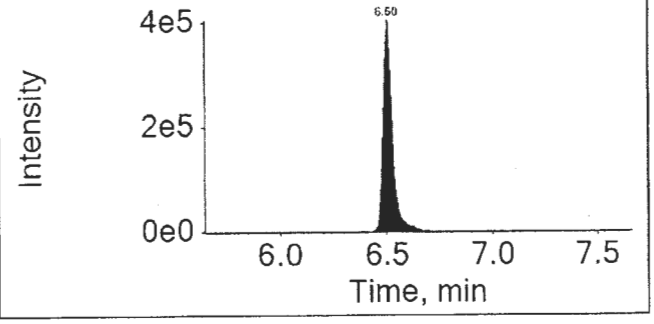
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



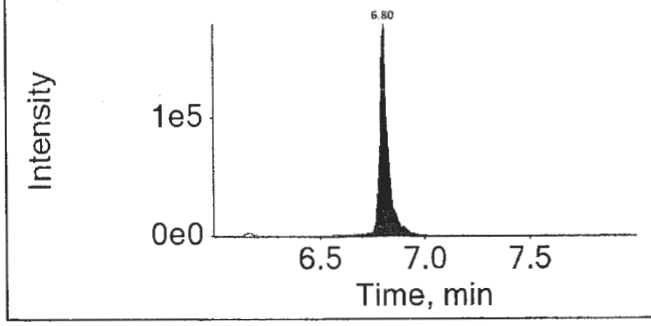
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

16SEP14-62.wiff

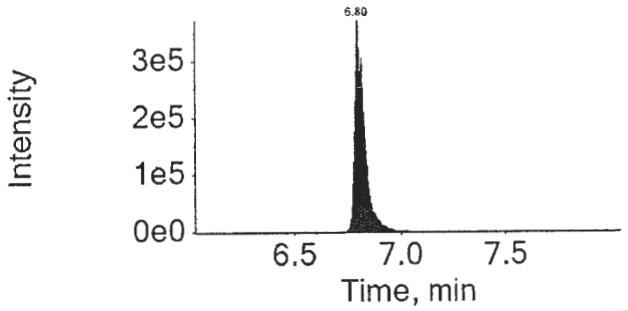
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

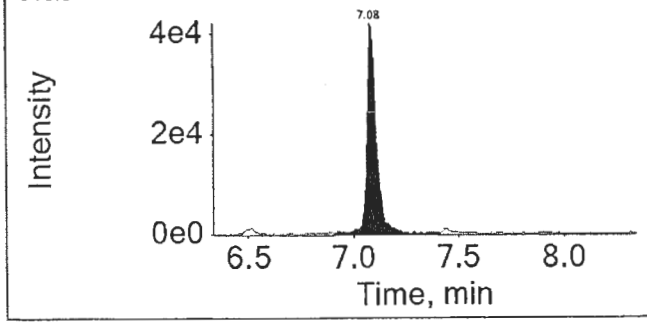
615.0 / 570.0



16SEP14-62.wiff

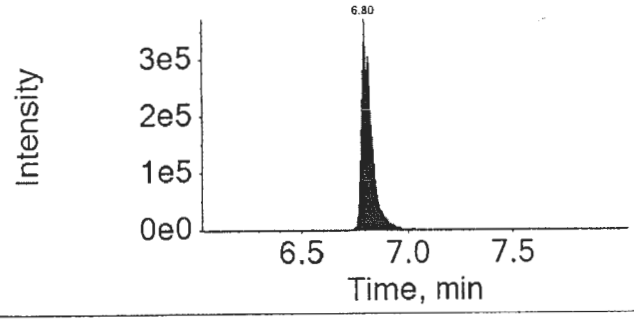
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

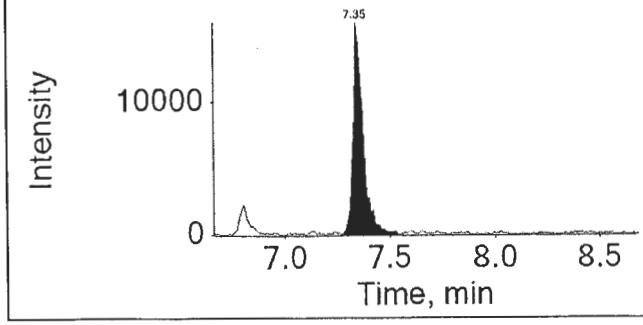
615.0 / 570.0



16SEP14-62.wiff

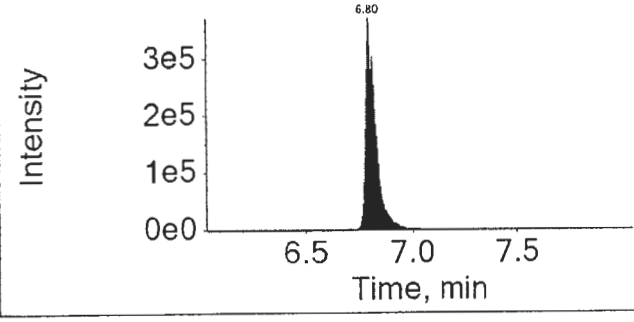
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

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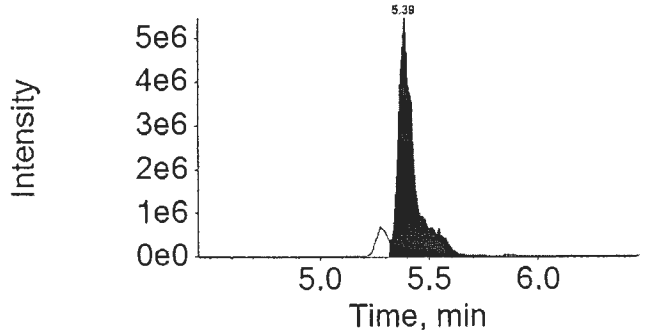
Print Date: 09/06/2017 5:28 PM

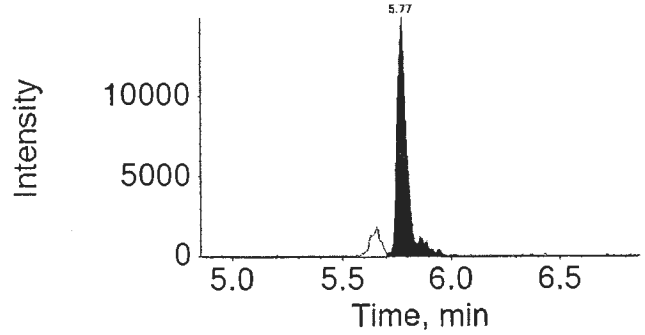
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-62.wiff	2016-09-15T01:01:07	8535037DL	PFOA	5.39	28427779.0
16SEP14-62.wiff	2016-09-15T01:01:07	8535037DL	PFOS	5.77	49176.7
16SEP14-62.wiff	2016-09-15T01:01:07	8535037DL	PFDA	6.17	4287018.8

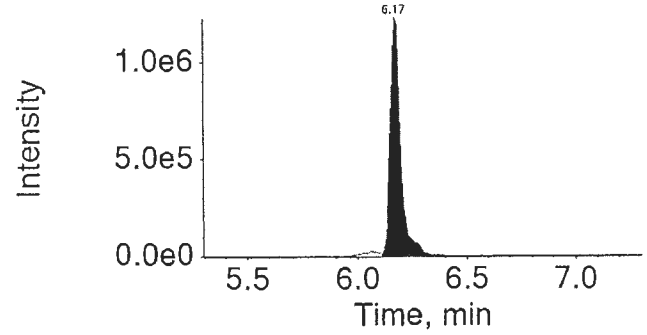
Component: PFOA
Mass: 412.9 / 368.9



Component: PFOS
Mass: 498.9 / 98.9



Component: PFDA
Mass: 512.9 / 469.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:36 am, 6/13/17

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL
Instrument ID: 24743
Sample (wt): 5.25 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 49.4

Lab Sample ID: 8535037DL2
Lab File ID: 16SEP14-59.WIFF
Date Collected: 08/17/2016 12:25
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/15/2016 00:11
Dilution Factor: 100.0

Concentration Units: ng/g
Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	94	U
307-24-4	PFHxA	78	
375-85-9	PFHpA	170	
355-46-4	PFHxS	94	U
335-67-1	PFOA	19000	E
375-95-1	PFNA	1500	
1763-23-1	PFOS	130	U
335-76-2	PFDA	470	
2058-94-8	PFUnDA	56	U
307-55-1	PFDoDA	75	U
72629-94-8	PFTrDA	110	U
376-06-7	PFTeDA	56	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

RON.

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:26:00 PM

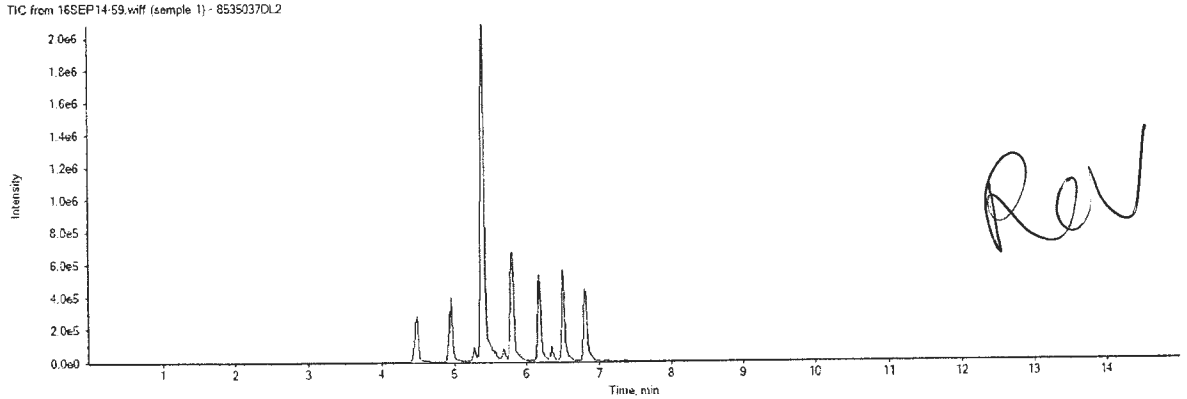
Sample Name:	8535037DL2			**Data File:**		16SEP14-59.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment			**Acquis Date:**		2016-09-15T00:11:55
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	89			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011DL
				ICAL Name:		16SEP13ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.250			**Dilution Factor:**		100.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	4.04	0.820	125.1	A	18O2-PFHxS	4.94	289559.6	0.000	0.298
PFHxA	4.48	1.000	28191.4	A	13C2-PFHxA	4.48	994733.3	0.028	39.573
PFHpA	4.95	1.000	97944.2	A	13C4-PFHpA	4.95	911774.1	0.107	87.258
PFHxS	4.96	1.000	1657.3	A	18O2-PFHxS	4.94	289559.6	0.006	4.455
PFOA	5.39	1.000	7868094.3	M	13C4-PFOA	5.39	673436.9	11.683	9373.541
PFNA	5.80	1.000	1206057.8	M	13C5-PFNA	5.80	1289927.0	0.935	760.618
PFOS	5.78	1.000	7219.9	A	13C4-PFOS	5.77	307784.3	0.023	21.058
PFDA	6.17	1.000	467507.7	A	13C2-PFDA	6.17	1281056.8	0.365	236.349
PFUnDA	6.51	1.000	45249.9	A	13C2-PFUnDA	6.51	1368371.5	0.033	26.897
PFDoDA	6.81	1.000	60255.1	A	13C2-PFDoDA	6.81	1507079.7	0.040	34.872
PFTrDA	7.09	1.040	18543.1	A	13C2-PFDoDA	6.81	1507079.7	0.012	10.841
PFTeDA	7.35	1.080	9005.1	A	13C2-PFDoDA	6.81	1507079.7	0.006	6.149

Total Ion Chromatogram

EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment



Rev

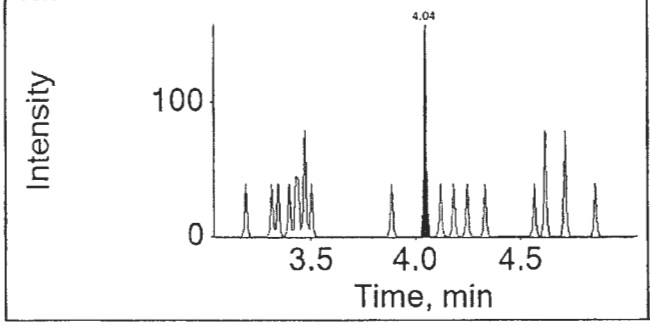
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

16SEP14-59.wiff

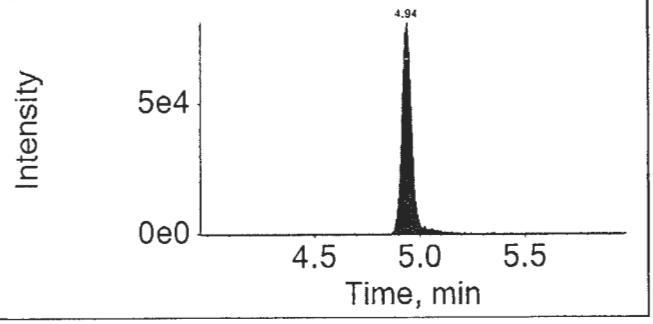
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

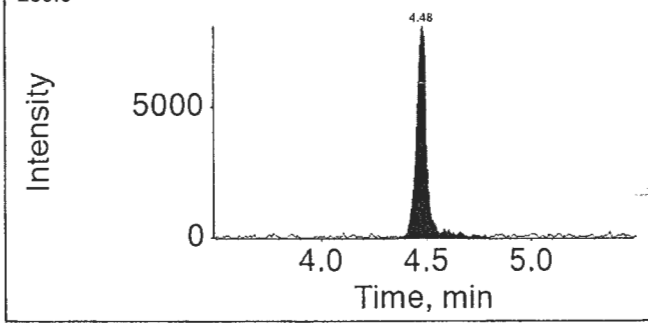
403.0 / 103.0



16SEP14-59.wiff

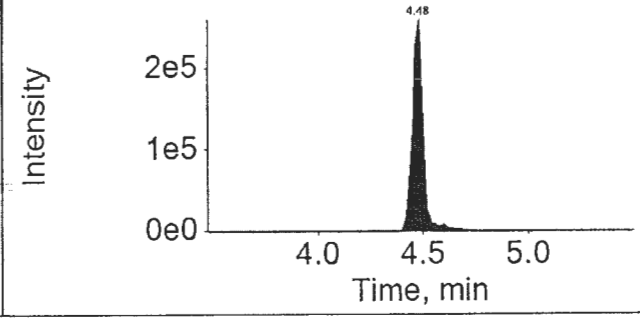
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

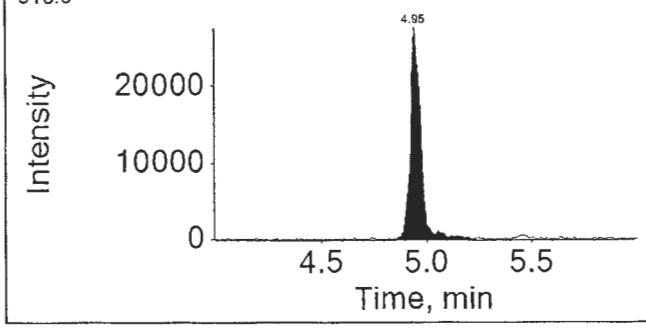
314.9 / 270.0



16SEP14-59.wiff

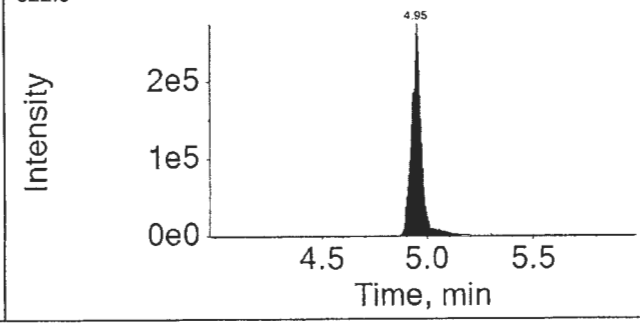
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

367.0 / 322.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

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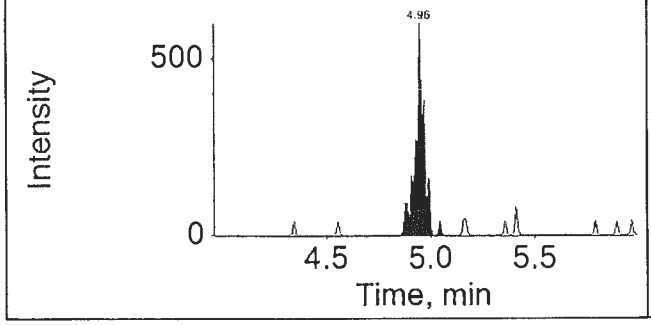
LC-MS/MS Analysis Report

Printed: 6/9/2017 5:26:00 PM

16SEP14-59.wiff

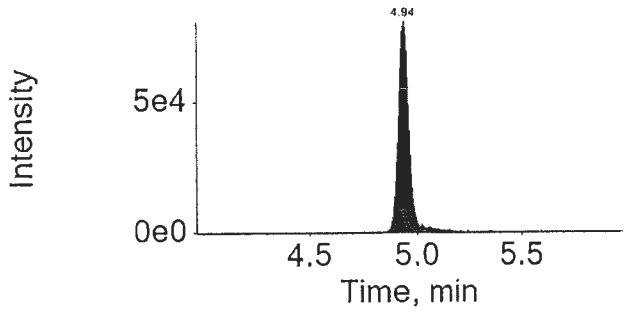
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

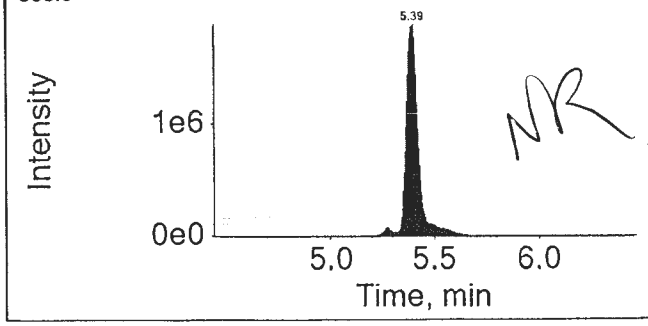
403.0 / 103.0



16SEP14-59.wiff

Analyte: PFOA

412.9 / 368.9



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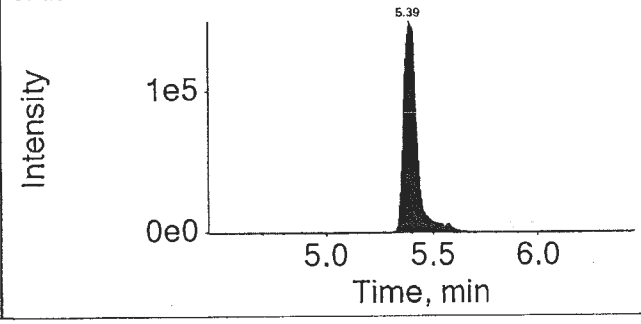
Internal Standard: 13C4-PFOA

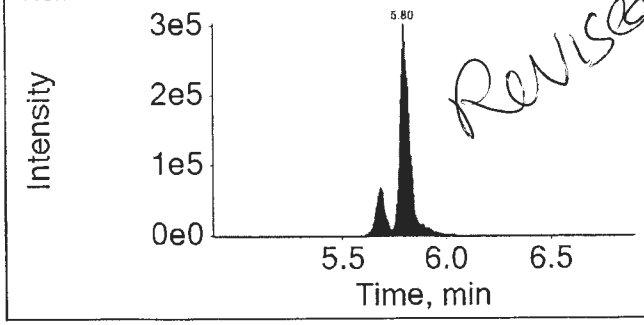
417.0 / 372.0



16SEP14-59.wiff

Analyte: PFNA

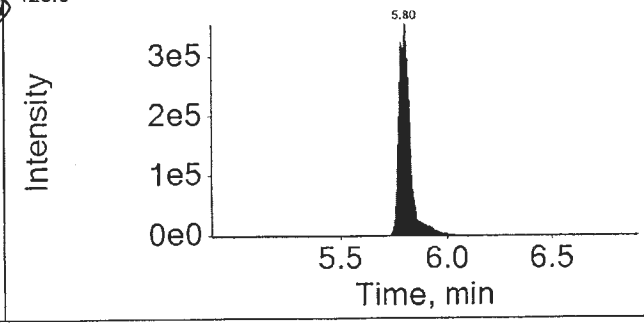
462.9 / 418.9



Revised

Internal Standard: 13C5-PFNA

468.0 / 423.0



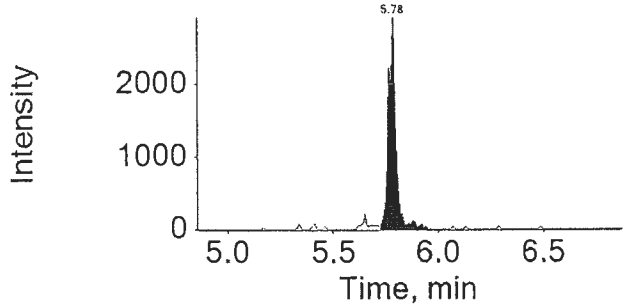
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

16SEP14-59.wiff

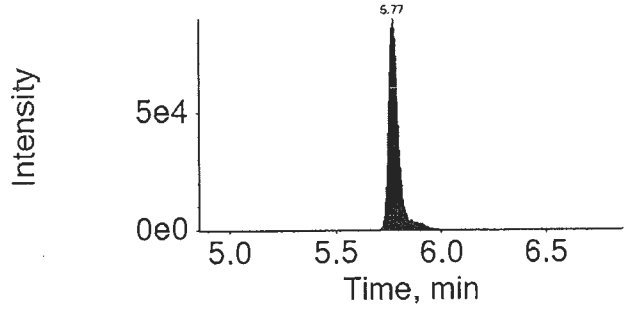
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

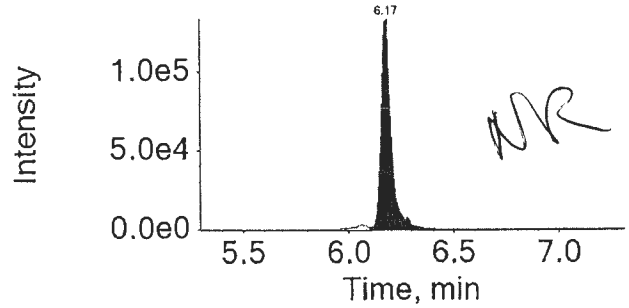
503.0 / 99.0



16SEP14-59.wiff

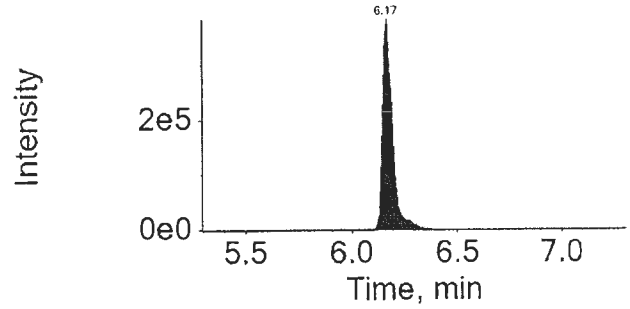
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

515.0 / 470.0



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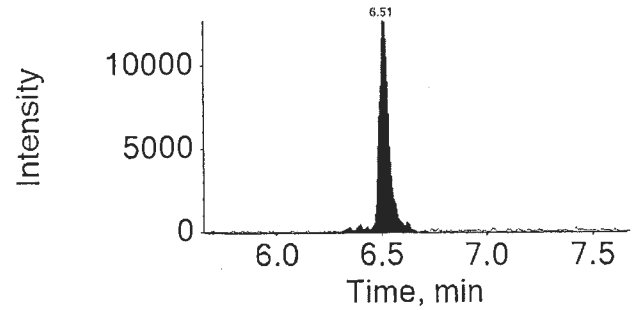
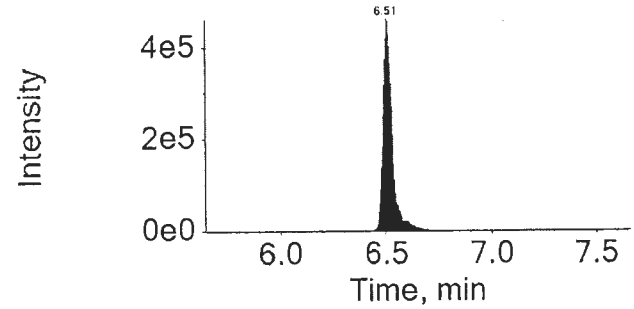
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



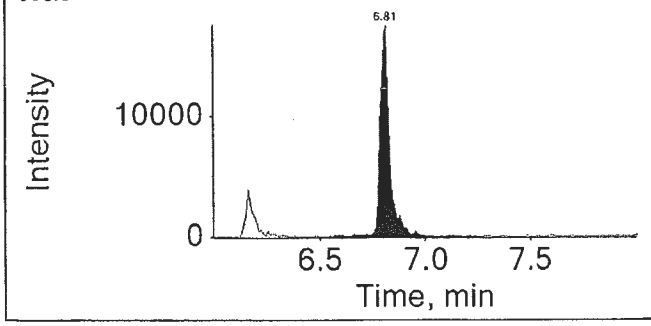
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

16SEP14-59.wiff

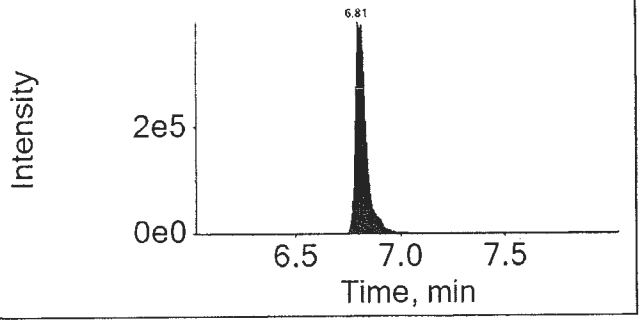
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

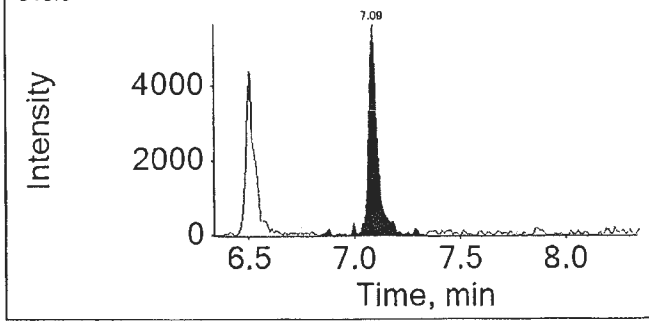
615.0 / 570.0



16SEP14-59.wiff

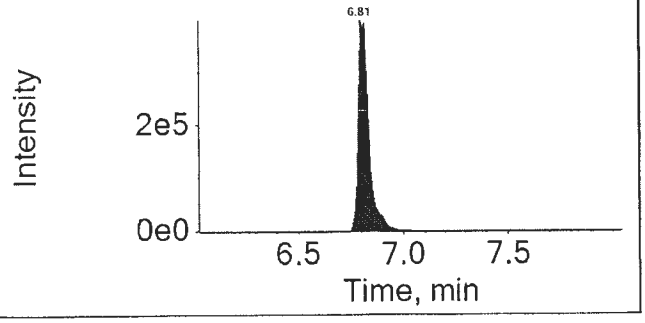
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

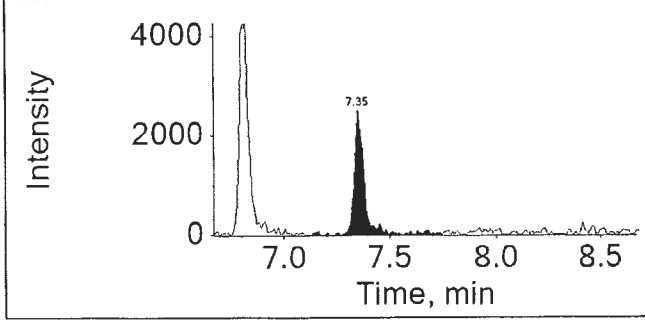
615.0 / 570.0



16SEP14-59.wiff

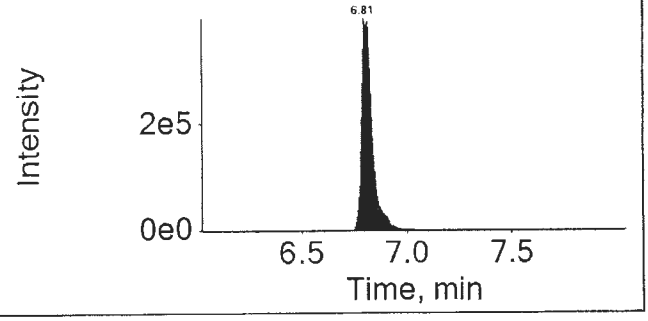
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

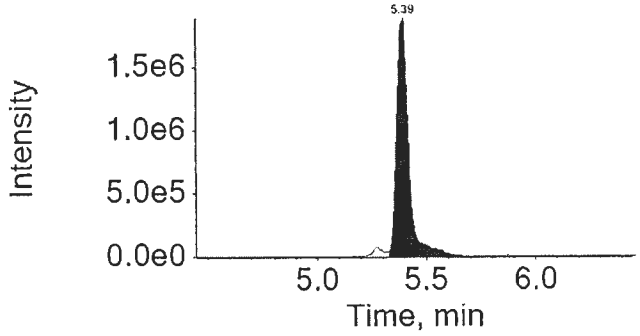
eurofins | Lancaster Laboratories

Print Date: 09/06/2017 5:28 PM

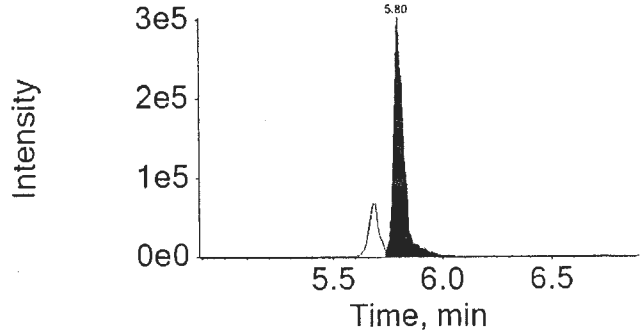
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-59.wiff	2016-09-15T00:11:55	8535037DL2	PFOA	5.39	7621305.0
16SEP14-59.wiff	2016-09-15T00:11:55	8535037DL2	PFNA	5.80	989581.6

Component: PFOA
Mass: 412.9 / 368.9



Component: PFNA
Mass: 462.9 / 418.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:36 am, 6/13/17

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FORM 01
SAMPLE DATA SUMMARY
LC/MS/MS

SDG No.: SPP17

Matrix: SOIL Instrument ID: 24743
Sample (wt): 5.25 (g)
Sample Prep: SONC
Concentration Extract Volume: 1.00 (uL)
Injection Volume: 1.00 (uL)
% Moisture: 49.4

Lab Sample ID: 8535037DL3
Lab File ID: 16SEP14-56.WIFF
Date Collected: 08/17/2016 12:25
Date Extracted: 08/23/2016 11:10
Date Analyzed: 09/14/2016 23:22
Dilution Factor: 1000.0

Concentration Units: ng/g Limit: MDL

CAS NO.	Compound	Concentration	Q
375-73-5	PFBS	940	U
307-24-4	PFHxA	380	U
375-85-9	PFHpA	560	U
355-46-4	PFHxS	940	U
335-67-1	PFOA	14000	
375-95-1	PFNA	1000	
1763-23-1	PFOS	1300	U
335-76-2	PFDA	430	
2058-94-8	PFUnDA	560	U
307-55-1	PFDoDA	750	U
72629-94-8	PFTrDA	1100	U
376-06-7	PFTeDA	560	U

Qualifiers:
B = Detected in Method Blank
U = Undetected
J = Estimated concentration between MDL and LOQ
N = See comment in Case Narrative
* = Outside QC Limits

Revised

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LC-MS/MS Analysis Report

Printed: 6/9/2017 5:26:00 PM

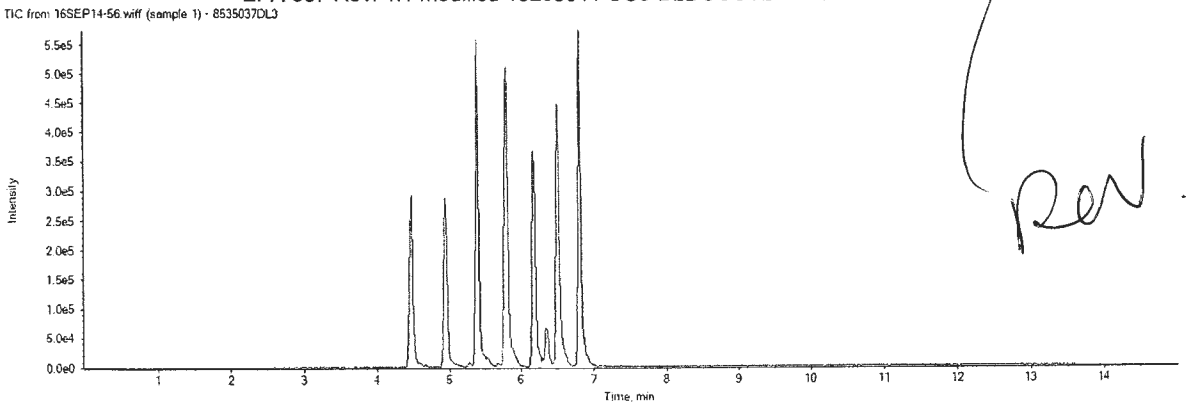
Sample Name:	8535037DL3			**Data File:**		16SEP14-56.wiff
Sample ID:	EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment			**Acquis Date:**		2016-09-14T23:22:43
Sample Type:	Unknown			**Instrument:**		Triple Quad 4500
Vial Position:	88			**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00			**Result Table:**		MQ 16235011DL
				ICAL Name:		16SEP13ICAL
Batch Number:	16235011			**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.250			**Dilution Factor:**		1000.00
Sample Vol.:	1.000			**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	RRT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result (ng/g)
PFBS	4.03	0.820	969.4	A	18O2-PFHxS	4.94	283726.8	0.003	23.577
PFHxA	4.47	1.000	4960.8	A	13C2-PFHxA	4.47	1003876.8	0.005	69.001
PFHpA	4.94	1.000	10707.3	A	13C4-PFHpA	4.94	716212.6	0.015	121.437
PFHxS	4.94	1.000	1688.6	A	18O2-PFHxS	4.94	283726.8	0.006	46.324
PFOA	5.39	1.000	802304.3	M	13C4-PFOA	5.39	937427.9	0.856	6866.450
PFNA	5.80	1.000	93363.6	A	13C5-PFNA	5.80	1480480.0	0.063	513.026
PFOS	5.77	1.000	720.7	M	13C4-PFOS	5.77	318075.3	0.002	20.339
PFDA	6.18	1.000	41871.8	A	13C2-PFDA	6.17	1259507.1	0.033	215.306
PFUnDA	6.51	1.000	7253.2	A	13C2-PFUnDA	6.51	1273544.2	0.006	46.324
PFDoDA	6.81	1.000	9410.4	A	13C2-PFDoDA	6.81	1609932.2	0.006	50.983
PFTrDA	7.08	1.040	5534.6	A	13C2-PFDoDA	6.81	1609932.2	0.003	30.289
PFTeDA	7.35	1.080	4248.9	A	13C2-PFDoDA	6.81	1609932.2	0.003	27.161

Total Ion Chromatogram

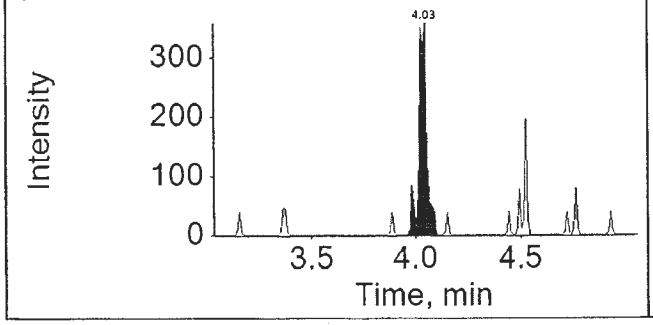
EPA 537 Rev. 1.1 modified 16235011 SG3-BLDGOUTLET-160817 Grab Sediment



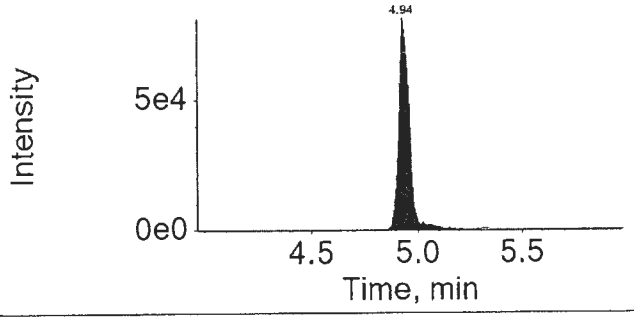
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

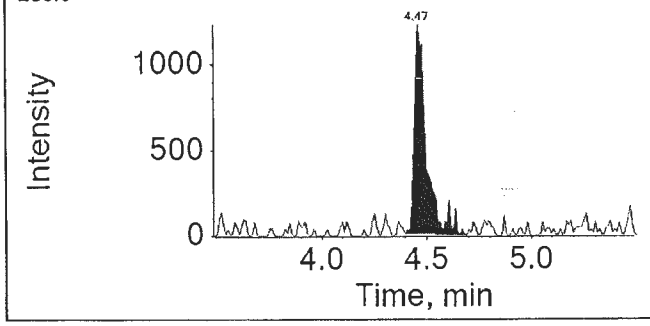
16SEP14-56.wiff
Analyte: PFBS
298.9 / 98.9



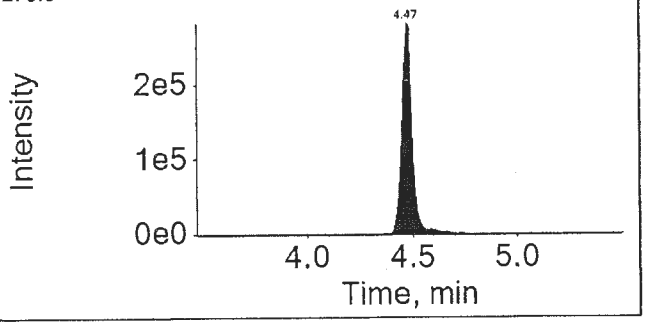
Internal Standard: 18O2-PFHxS
403.0 / 103.0



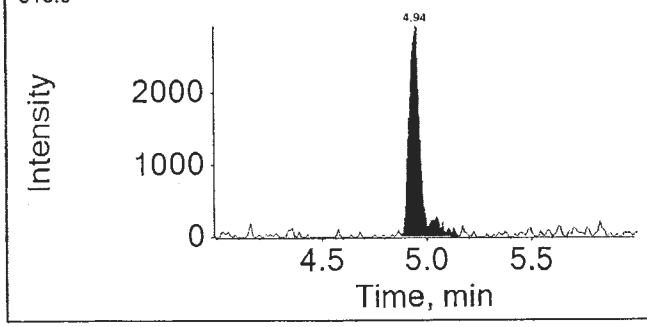
16SEP14-56.wiff
Analyte: PFHxA
312.9 / 269.0



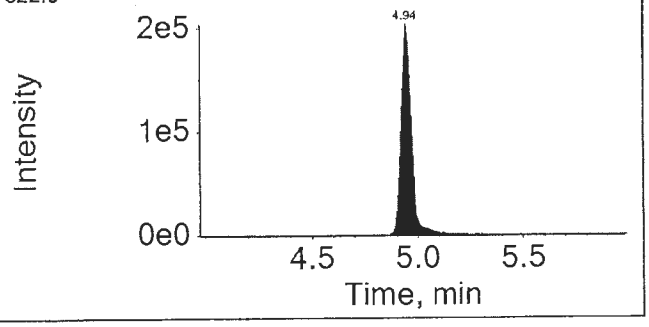
Internal Standard: 13C2-PFHxA
314.9 / 270.0



16SEP14-56.wiff
Analyte: PFHpA
362.9 / 318.9



Internal Standard: 13C4-PFHpA
367.0 / 322.0



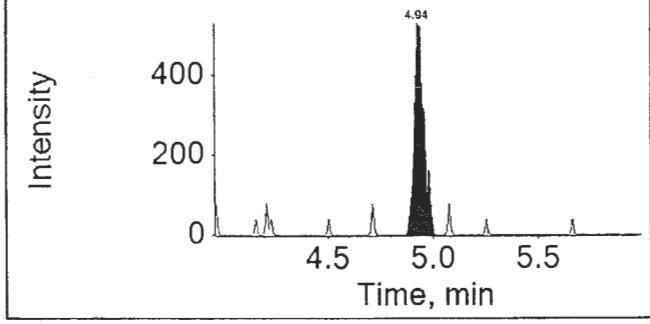
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

16SEP14-56.wiff

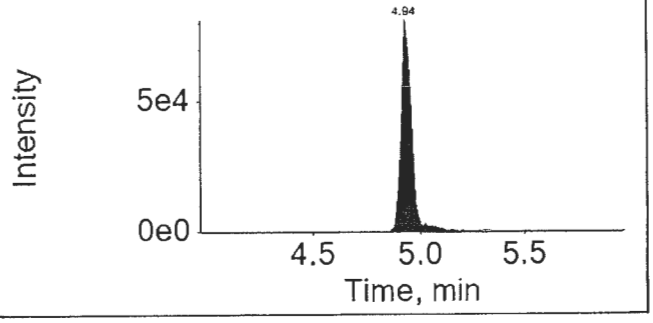
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

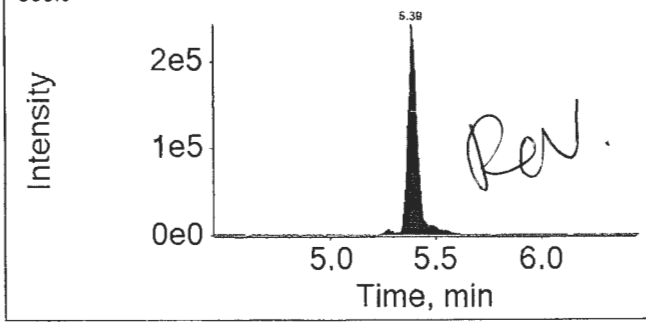
403.0 / 103.0



16SEP14-56.wiff

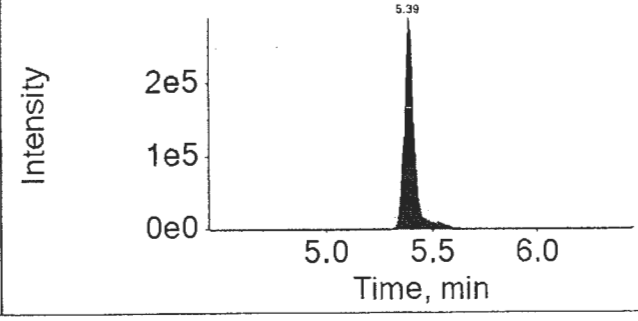
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

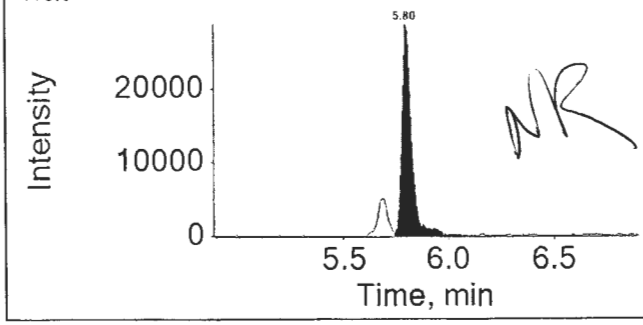
417.0 / 372.0



16SEP14-56.wiff

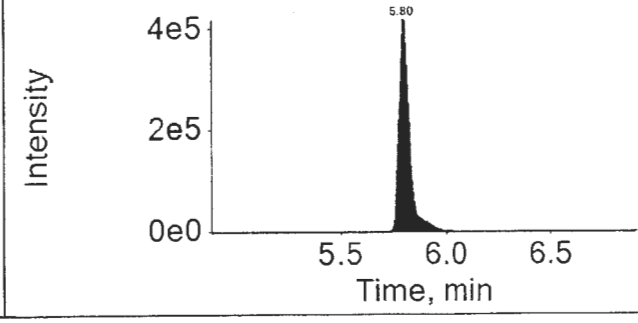
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

468.0 / 423.0



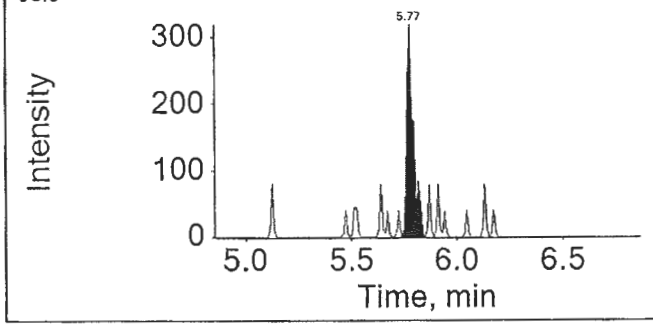
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

16SEP14-56.wiff

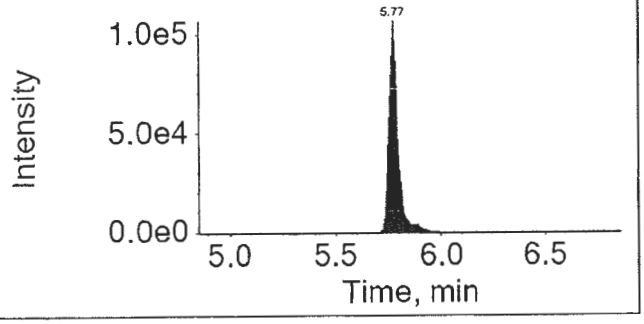
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

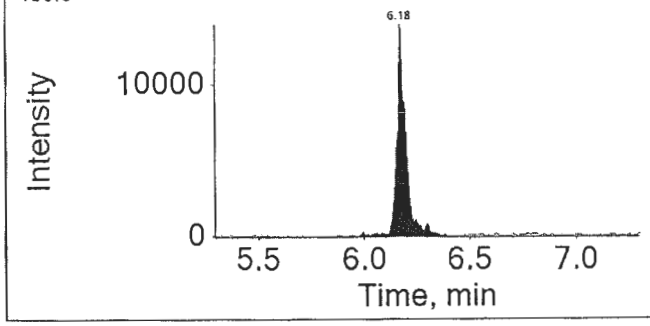
503.0 / 99.0



16SEP14-56.wiff

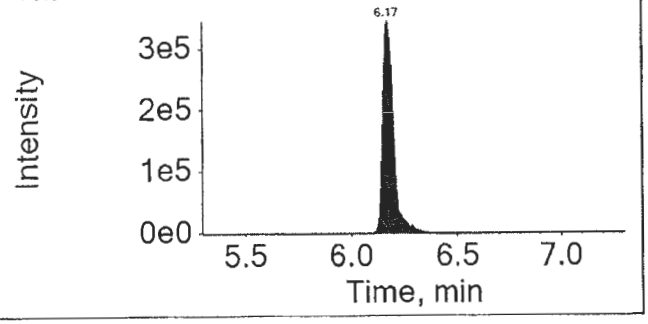
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

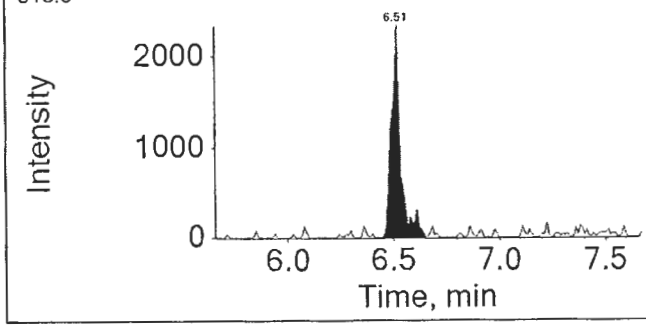
515.0 / 470.0



16SEP14-56.wiff

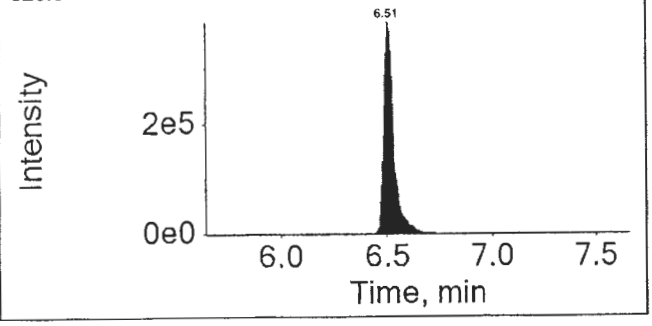
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

565.0 / 520.0



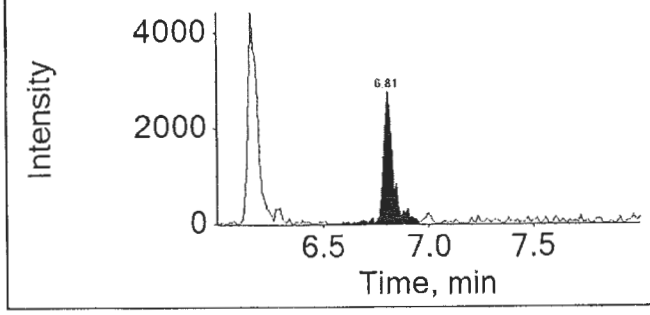
APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

16SEP14-56.wiff

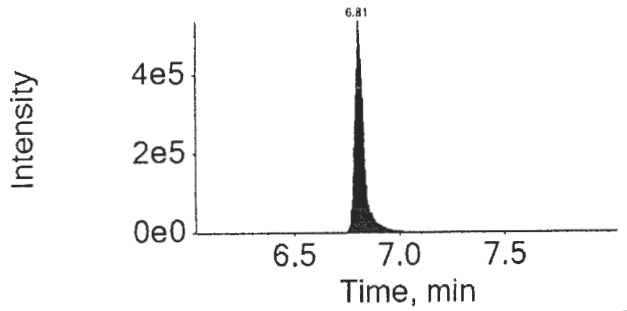
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

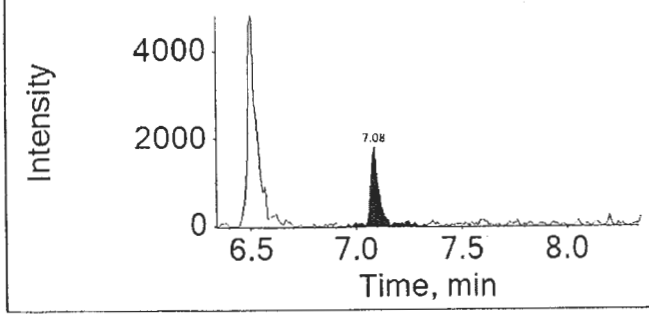
615.0 / 570.0



16SEP14-56.wiff

Analyte: PFTrDA

662.9 / 618.9



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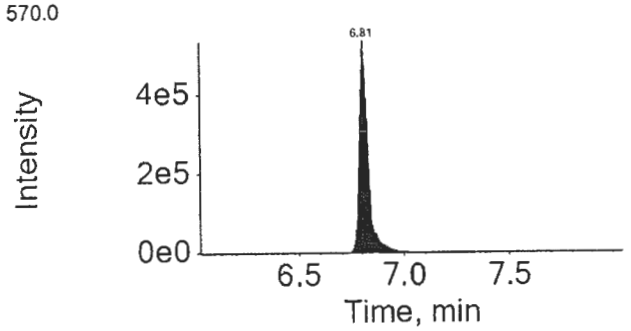
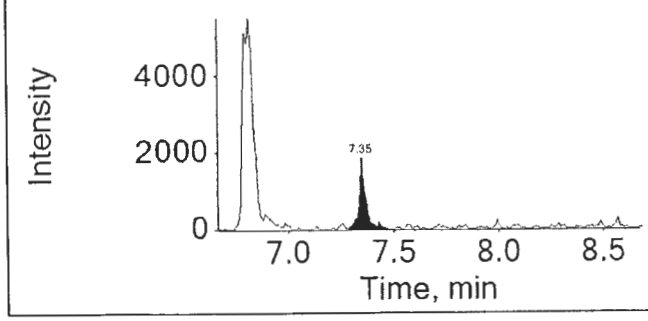
615.0 / 570.0



16SEP14-56.wiff

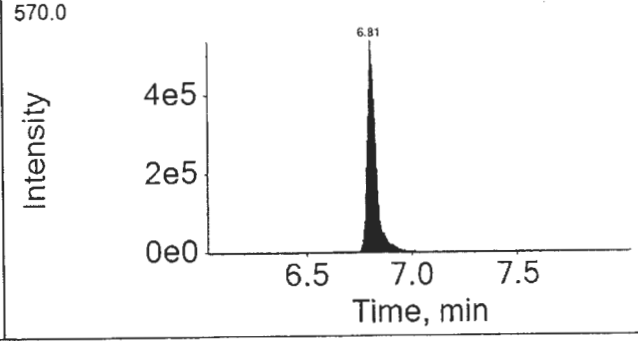
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:42 am, 6/13/17

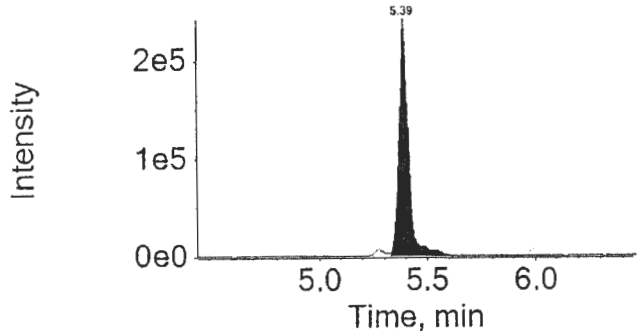
eurofins | Lancaster Laboratories

Print Date: 09/06/2017 5:28 PM

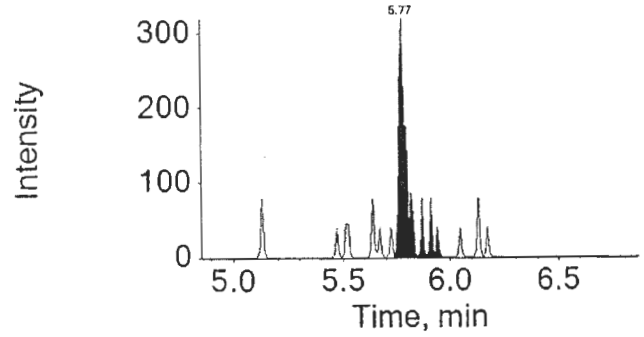
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16SEP14-56.wiff	2016-09-14T23:22:43	8535037DL3	PFOA	5.39	777697.8
16SEP14-56.wiff	2016-09-14T23:22:43	8535037DL3	PFOS	5.77	877.2

Component: PFOA
Mass: 412.9 / 368.9



Component: PFOS
Mass: 498.9 / 98.9



APPROVED
By MCD at 5:40 pm, 6/9/17

REVIEWED
By ucmr at 8:36 am, 6/13/17

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1696623
Reported: 03/03/2017 15:13

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16235011	Sample number(s): 8535030-8535033,8535035-8535037			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16236005	Sample number(s): 8535010-8535029,8535034			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 16235011	Sample number(s): 8535030-8535033,8535035-8535037								
Perfluorobutanesulfonate	17.68	15.63			88		70-130		
Perfluorodecanoic acid	20	20.45			102		70-130		
Perfluorododecanoic acid	20	19.97			100		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/03/2017 15:13

Group Number: 1696623

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Perfluoroheptanoic acid	20	18.73			94		70-130		
Perfluorohexanesulfonate	18.92	20			106		70-130		
Perfluorohexanoic acid	20	19.95			100		70-130		
Perfluorononanoic acid	20	17.28			86		70-130		
Perfluoro-octanesulfonate	19.12	19.62			103		70-130		
Perfluorooctanoic acid	20	20.04			100		70-130		
Perfluorotetradecanoic acid	20	20.48			102		70-130		
Perfluorotridecanoic acid	20	26.98			135*		70-130		
Perfluoroundecanoic acid	20	16.66			83		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16236005	Sample number(s): 8535010-8535029,8535034								
Perfluorooctanoic acid	200	158.83			79		70-130		
Perfluorononanoic acid	200	150.48			75		70-130		
Perfluorodecanoic acid	200	167.19			84		70-130		
Perfluoroundecanoic acid	200	154.3			77		70-130		
Perfluorododecanoic acid	200	172.64			86		70-130		
Perfluorotridecanoic acid	200	204.62			102		70-130		
Perfluorotetradecanoic acid	200	227.76			114		70-130		
Perfluorohexanoic acid	200	211.58			106		70-130		
Perfluoroheptanoic acid	200	151.16			76		70-130		
Perfluorobutanesulfonate	177	174.61			99		70-130		
Perfluorohexanesulfonate	189	190.83			101		70-130		
Perfluoro-octanesulfonate	191	174.68			91		70-130		
	%	%	%	%					
Batch number: 16236820006A	Sample number(s): 8535030,8535035-8535037								
Moisture	89.5	89.47			100		99-101		
Batch number: 16238820006A	Sample number(s): 8535031-8535033								
Moisture	89.5	89.49			100		99-101		
Moisture	89.5	89.49			100		99-101		
Moisture Duplicate	89.5	89.49			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g	ng/g					
Batch number: 16235011	Sample number(s): 8535030-8535033,8535035-8535037 UNSPK: 8535037									
Perfluorobutanesulfonate	5.08	17	44.04	17.61	43.66	229*	219*	70-130	1	30
Perfluorodecanoic acid	135.19	19.23	166.52 e	19.92	126.26 e	163 (2)	-44 (2)	70-130	28	30

*- Outside of specification
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 03/03/2017 15:13

Group Number: 1696623

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorododecanoic acid	5.86	19.23	22.85	19.92	24.46	88	93	70-130	7	30
Perfluoroheptanoic acid	1265.1	19.23	2172.85	19.92	1551.44	4720 (2)	1437 (2)	70-130	33*	30
Perfluorohexanesulfonate	2.44	18.19	21.86	18.84	23.48	107	112	70-130	7	30
Perfluorohexanoic acid	313.84	19.23	453.69	19.92	317.25	727 (2)	17 (2)	70-130	35*	30
Perfluorononanoic acid	60.19	19.23	73.03	19.92	63.03	67*	14*	70-130	15	30
Perfluoro-octanesulfonate	27.43	18.38	43.62	19.04	38.69	88	59*	70-130	12	30
Perfluorooctanoic acid	267449.92	19.23	90244.61	19.92	68401.5	-921456 (2)	-999238 (2)	70-130	28	30
Perfluorotetradecanoic acid	2.12	19.23	15.66	19.92	15.37	70	67*	70-130	2	30
Perfluorotridecanoic acid	3.71	19.23	30.21	19.92	26.68	138*	115	70-130	12	30
Perfluoroundecanoic acid	8.31	19.23	32.4	19.92	25.42	125	86	70-130	24	30
	ng/l	ng/l	ng/l	ng/l	ng/l					
Batch number: 16236005	Sample number(s): 8535010-8535029,8535034 UNSPK: 8535014									
Perfluorooctanoic acid	379.52	200.97	623.73	199.1	662.35	122	142*	70-130	6	30
Perfluorononanoic acid	1 U	200.97	177.84	199.1	180.42	88	91	70-130	1	30
Perfluorodecanoic acid	1 U	200.97	147.76	199.1	152.68	74	77	70-130	3	30
Perfluoroundecanoic acid	2 U	200.97	151.41	199.1	161.97	75	81	70-130	7	30
Perfluorododecanoic acid	3 U	200.97	176.36	199.1	177.63	88	89	70-130	1	30
Perfluorotridecanoic acid	2 U	200.97	187.93	199.1	185.83	94	93	70-130	1	30
Perfluorotetradecanoic acid	3 U	200.97	202.34	199.1	209.35	101	105	70-130	3	30
Perfluorohexanoic acid	12.82	200.97	263	199.1	260.04	124	124	70-130	1	30
Perfluoroheptanoic acid	11.28	200.97	180.42	199.1	179.27	84	84	70-130	1	30
Perfluorobutanesulfonate	4 U	177.85	168.75	176.21	165.52	95	94	70-130	2	30
Perfluorohexanesulfonate	4 U	189.91	210.39	188.15	206.01	111	109	70-130	2	30
Perfluoro-octanesulfonate	5 U	191.92	167.61	190.14	173.41	87	91	70-130	3	30

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Batch number: 16236820006A	Sample number(s): 8535030,8535035-8535037 BKG: P535031			
Moisture	2.90	1.52	62* (1)	5
Batch number: 16238820006A	Sample number(s): 8535031-8535033 BKG: 8535031, P535031			
Moisture	3.64	3.54	3	5
Moisture	3.64	3.54	3	5
Moisture Duplicate	3.64	3.54	3	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1696623
Reported: 06/21/2017 08:52

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 16235011	Sample number(s): 8535030-8535033,8535035-8535037			
Perfluorobutanesulfonate	0.50	U	0.50	1.6
Perfluorodecanoic acid	0.20	U	0.20	0.40
Perfluorododecanoic acid	0.40	U	0.40	0.80
Perfluoroheptanoic acid	0.30	U	0.30	0.60
Perfluorohexanesulfonate	0.50	U	0.50	1.6
Perfluorohexanoic acid	0.20	U	0.20	0.40
Perfluorononanoic acid	0.20	U	0.20	0.40
Perfluoro-octanesulfonate	0.70	U	0.70	1.6
Perfluorooctanoic acid	0.30	U	0.30	0.60
Perfluorotetradecanoic acid	0.30	U	0.30	0.80
Perfluorotridecanoic acid	0.60	U	0.60	1.2
Perfluoroundecanoic acid	0.30	U	0.30	0.60
	ng/l		ng/l	ng/l
Batch number: 16236005	Sample number(s): 8535010-8535029,8535034			
Perfluorooctanoic acid	1	U	1	2
Perfluorononanoic acid	1	U	1	2
Perfluorodecanoic acid	1	U	1	2
Perfluoroundecanoic acid	2	U	2	4
Perfluorododecanoic acid	3	U	3	5
Perfluorotridecanoic acid	2	U	2	4
Perfluorotetradecanoic acid	3	U	3	5
Perfluorohexanoic acid	1	U	1	2
Perfluoroheptanoic acid	1	U	1	2
Perfluorobutanesulfonate	4	U	4	10
Perfluorohexanesulfonate	4	U	4	10
Perfluoro-octanesulfonate	5	U	5	10

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 16235011	Sample number(s): 8535030-8535033,8535035-8535037								
Perfluorobutanesulfonate	17.68	15.63			88		70-130		
Perfluorodecanoic acid	20	20.45			102		70-130		
Perfluorododecanoic acid	20	19.97			100		70-130		

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/21/2017 08:52

Group Number: 1696623

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoroheptanoic acid	20	18.73			94		70-130		
Perfluorohexanesulfonate	18.92	20			106		70-130		
Perfluorohexanoic acid	20	19.95			100		70-130		
Perfluorononanoic acid	20	17.28			86		70-130		
Perfluoro-octanesulfonate	19.12	19.62			103		70-130		
Perfluorooctanoic acid	20	20.04			100		70-130		
Perfluorotetradecanoic acid	20	20.48			102		70-130		
Perfluorotridecanoic acid	20	26.98			135*		70-130		
Perfluoroundecanoic acid	20	16.66			83		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 16236005	Sample number(s): 8535010-8535029,8535034								
Perfluorooctanoic acid	200	158.83			79		70-130		
Perfluorononanoic acid	200	150.48			75		70-130		
Perfluorodecanoic acid	200	167.19			84		70-130		
Perfluoroundecanoic acid	200	154.3			77		70-130		
Perfluorododecanoic acid	200	172.64			86		70-130		
Perfluorotridecanoic acid	200	204.62			102		70-130		
Perfluorotetradecanoic acid	200	227.76			114		70-130		
Perfluorohexanoic acid	200	211.58			106		70-130		
Perfluoroheptanoic acid	200	151.16			76		70-130		
Perfluorobutanesulfonate	177	174.61			99		70-130		
Perfluorohexanesulfonate	189	190.83			101		70-130		
Perfluoro-octanesulfonate	191	174.68			91		70-130		
	%	%	%	%					
Batch number: 16236820006A	Sample number(s): 8535030,8535035-8535037								
Moisture	89.5	89.47			100		99-101		
Batch number: 16238820006A	Sample number(s): 8535031-8535033								
Moisture	89.5	89.49			100		99-101		
Moisture	89.5	89.49			100		99-101		
Moisture Duplicate	89.5	89.49			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16235011	Sample number(s): 8535030-8535033,8535035-8535037 UNSPK: 8535031									
Perfluorobutanesulfonate	5.08	17	44.04	17.61	43.66	229*	219*	70-130	1	30
Perfluorodecanoic acid	135.19	19.23	166.52	19.92	126.26	163 (2)	-44 (2)	70-130	28	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
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Final Revision

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Analysis Report

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/21/2017 08:52

Group Number: 1696623

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorododecanoic acid	5.86	19.23	22.85	19.92	24.46	88	93	70-130	7	30
Perfluoroheptanoic acid	1265.1	19.23	2172.85 E	19.92	1551.44 E	4720 (2)	1437 (2)	70-130	33*	30
Perfluorohexanesulfonate	2.87	18.19	21.86	18.84	23.48	104	109	70-130	7	30
Perfluorohexanoic acid	313.84	19.23	453.69 E	19.92	317.25 E	727 (2)	17 (2)	70-130	35*	30
Perfluorononanoic acid	83.97	19.23	99.8	19.92	80.19	82 (2)	-18 (2)	70-130	22	30
Perfluoro-octanesulfonate	30.93	18.38	46.71	19.04	41.2	86	54*	70-130	13	30
Perfluorooctanoic acid	286180.11	19.23	145624.94 E	19.92	124277.95 E	-730877 (2)	-812761 (2)	70-130	16	30
Perfluorotetradecanoic acid	2.12	19.23	15.66	19.92	15.37	70	67*	70-130	2	30
Perfluorotridecanoic acid	3.71	19.23	30.21	19.92	26.68	138*	115	70-130	12	30
Perfluoroundecanoic acid	9.45	19.23	32.4	19.92	25.42	119	80	70-130	24	30
	ng/l	ng/l	ng/l	ng/l	ng/l					
Batch number: 16236005	Sample number(s): 8535010-8535029,8535034 UNSPK: 8535014									
Perfluorooctanoic acid	403.09	200.97	659.32 E	199.1	707.7 E	128	153*	70-130	7	30
Perfluorononanoic acid	1.47	200.97	177.84	199.1	180.42	88	90	70-130	1	30
Perfluorodecanoic acid	1 U	200.97	147.76	199.1	152.68	74	77	70-130	3	30
Perfluoroundecanoic acid	2 U	200.97	151.41	199.1	161.97	75	81	70-130	7	30
Perfluorododecanoic acid	3 U	200.97	176.36	199.1	177.63	88	89	70-130	1	30
Perfluorotridecanoic acid	2 U	200.97	187.93	199.1	185.83	94	93	70-130	1	30
Perfluorotetradecanoic acid	3 U	200.97	202.34	199.1	209.35	101	105	70-130	3	30
Perfluorohexanoic acid	9.55	200.97	263	199.1	260.04	126	126	70-130	1	30
Perfluoroheptanoic acid	9.17	200.97	180.42	199.1	179.27	85	85	70-130	1	30
Perfluorobutanesulfonate	4 U	177.85	168.75	176.21	165.52	95	94	70-130	2	30
Perfluorohexanesulfonate	4 U	189.91	210.39	188.15	206.01	111	109	70-130	2	30
Perfluoro-octanesulfonate	5 U	191.92	167.61	190.14	173.41	87	91	70-130	3	30

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Batch number: 16236820006A	Sample number(s): 8535030,8535035-8535037 BKG: P535031			
Moisture	2.90	1.52	62* (1)	5
Batch number: 16238820006A	Sample number(s): 8535031-8535033 BKG: 8535031, P535031			
Moisture	3.64	3.54	3	5
Moisture	3.64	3.54	3	5
Moisture Duplicate	3.64	3.54	3	5

*- Outside of specification
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Quality Control Reference List
Specialty Services Group

CLIENT: C. T. Male Associates
SDG: SPP17

Fraction: PFAAs by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
Full List PFC's	16235011	BLK235011	09/06/2016 16:19:00
		LCS235011	09/06/2016 16:35:00
		8535030	09/06/2016 17:57:00
		8535030	09/14/2016 15:44:00
		8535030	09/14/2016 17:05:00
		8535031 UNSPK	09/06/2016 16:51:00
		8535031 UNSPK	09/14/2016 14:54:00
		8535031 UNSPK	09/15/2016 08:56:00
		8535031 UNSPK	09/23/2016 07:48:00
		8535032 MS	09/06/2016 17:08:00
		8535033 MSD	09/06/2016 17:24:00
		8535035	09/06/2016 18:13:00
		8535035	09/14/2016 19:00:00
		8535035	09/14/2016 19:49:00
		8535035	09/23/2016 08:04:00
		8535036	09/06/2016 18:30:00
		8535036	09/14/2016 21:44:00
		8535036	09/14/2016 22:33:00
		8535036	09/23/2016 08:21:00
		8535037	09/06/2016 18:46:00
		8535037	09/14/2016 23:22:00
		8535037	09/15/2016 01:01:00
Full List PFC's	16236005	BLK236005	09/01/2016 02:00:00
		LCS236005	09/01/2016 02:17:00
		8535010	09/01/2016 03:22:00
		8535011	09/01/2016 03:39:00
		8535012	09/01/2016 03:55:00
		8535013	09/01/2016 04:11:00
		8535014 UNSPK	09/01/2016 02:33:00
		8535015 MS	09/01/2016 02:50:00
		8535016 MSD	09/01/2016 03:06:00
		8535017	09/01/2016 04:28:00
		8535018	09/01/2016 05:01:00
		8535019	09/01/2016 05:17:00
		8535019	09/14/2016 11:21:00
		8535019	09/14/2016 12:10:00
		8535019	09/15/2016 08:23:00
		8535020	09/01/2016 05:33:00
		8535021	09/01/2016 05:50:00
		8535022	09/01/2016 06:06:00
		8535023	09/01/2016 06:23:00
		8535024	09/01/2016 06:39:00
		8535025	09/01/2016 06:55:00
		8535026	09/01/2016 07:12:00
		8535027	09/01/2016 07:28:00
		8535028	09/01/2016 08:01:00
		8535029	09/01/2016 08:17:00
		8535034	09/01/2016 08:34:00

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SPP17
Matrix: SOLID

Fraction: PFAAs by LC/MS/MS

16235011 / BLK235011 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	09/06/16	N.D.	ng/g	0.30	0.60
Perfluorononanoic acid	09/06/16	N.D.	ng/g	0.20	0.40
Perfluorodecanoic acid	09/06/16	N.D.	ng/g	0.20	0.40
Perfluoroundecanoic acid	09/06/16	N.D.	ng/g	0.30	0.60
Perfluorododecanoic acid	09/06/16	N.D.	ng/g	0.40	0.80
Perfluorotridecanoic acid	09/06/16	N.D.	ng/g	0.60	1.2
Perfluorotetradecanoic acid	09/06/16	N.D.	ng/g	0.30	0.80
Perfluorohexanoic acid	09/06/16	N.D.	ng/g	0.20	0.40
Perfluoroheptanoic acid	09/06/16	N.D.	ng/g	0.30	0.60
Perfluorobutanesulfonate	09/06/16	N.D.	ng/g	0.50	1.6
Perfluorohexanesulfonate	09/06/16	N.D.	ng/g	0.50	1.6
Perfluoro-octanesulfonate	09/06/16	N.D.	ng/g	0.70	1.6

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LC-MS/MS Analysis Report

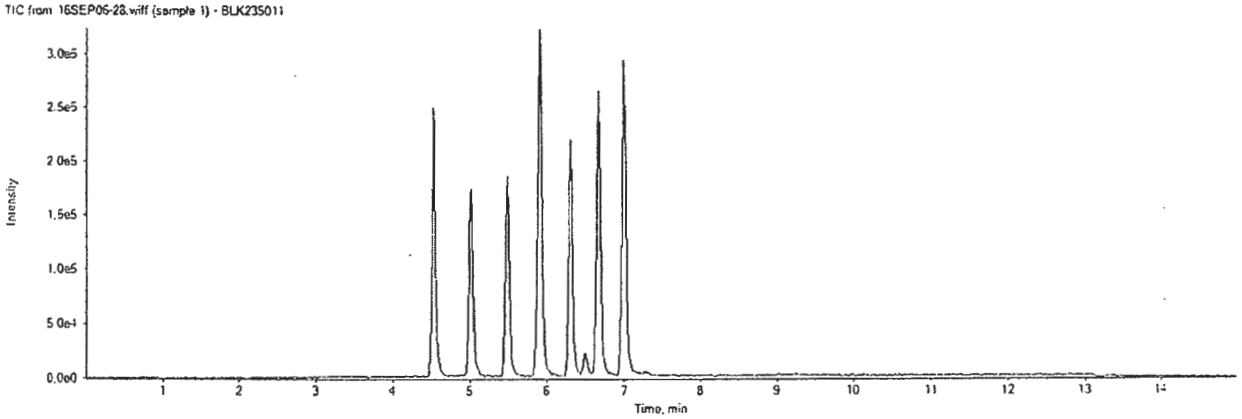
Printed: 9/15/2016 11:31:00 AM

Sample Name:	BLK235011		**Data File:**		16SEP06-28.wiff
Sample ID:	16235011		**Acquis Date:**		2016-09-06T16:19:09
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	16		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011
			ICAL Name:		16SEP01ICAL
Batch Number:	16235011		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	5.000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		10.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	N/A	N/A	A	18O2-PFHxS	5.00	207207.3	N/A	N/A	ng/g
PFHxA	4.51	781.6	A	13C2-PFHxA	4.52	703246.7	0.001	0.021	ng/g
PFHpA	N/A	N/A	A	13C4-PFHpA	5.01	446221.4	N/A	N/A	ng/g
PFHxS	5.00	750.5	A	18O2-PFHxS	5.00	207207.3	0.004	0.034	ng/g
PFOA	N/A	N/A	A	13C4-PFOA	5.48	660971.9	N/A	N/A	ng/g
PFNA	N/A	N/A	A	13C5-PFNA	5.91	997387.1	N/A	N/A	ng/g
PFOS	5.87	156.3	A	13C4-PFOS	5.88	227152.6	0.001	0.008	ng/g
PFDA	6.30	719.2	A	13C2-PFDA	6.30	780566.8	0.001	0.008	ng/g
PFUnDA	6.67	3719.6	A	13C2-PFUnDA	6.66	896344.9	0.004	0.043	ng/g
PFDoDA	7.00	1124.1	A	13C2-PFDoDA	6.99	1091407.8	0.001	0.011	ng/g
PFTrDA	7.31	2595.6	A	13C2-PFDoDA	6.99	1091407.8	0.002	0.025	ng/g
PFTeDA	7.63	2595.6	A	13C2-PFDoDA	6.99	1091407.8	0.002	0.026	ng/g

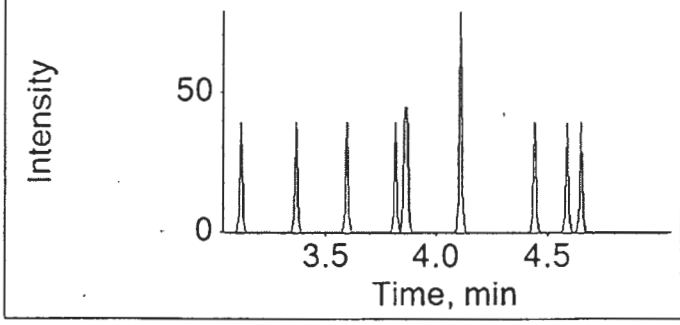
Total Ion Chromatogram
16235011



16SEP06-28.wiff

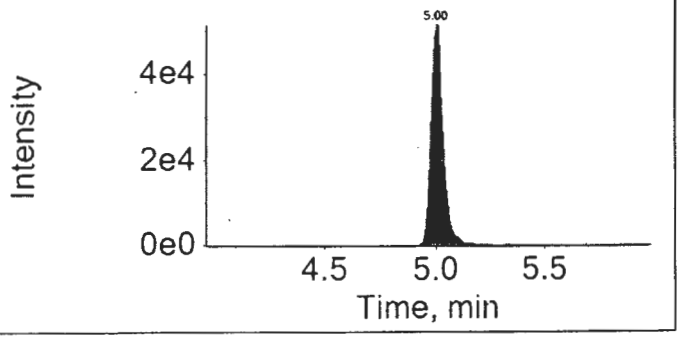
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

403.0 / 103.0



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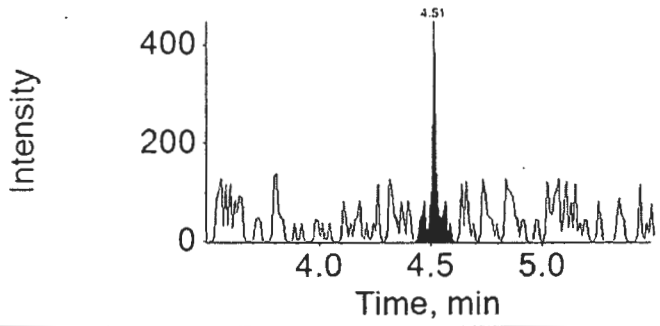
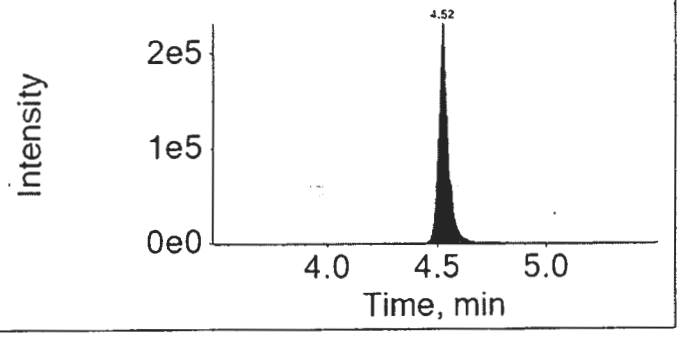
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

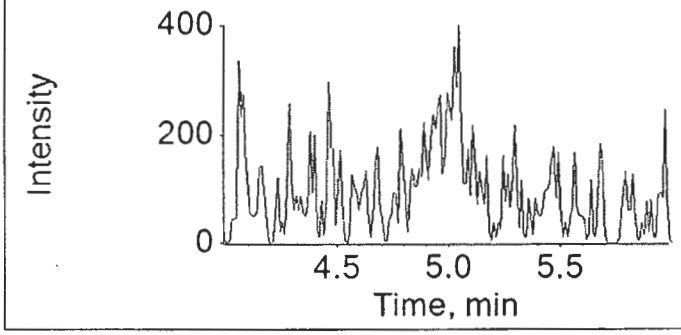
314.9 / 270.0



16SEP06-28.wiff

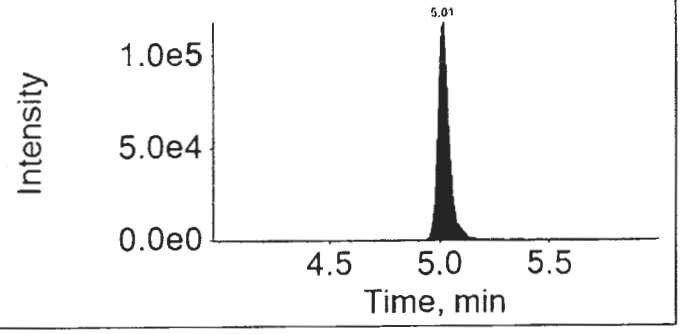
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

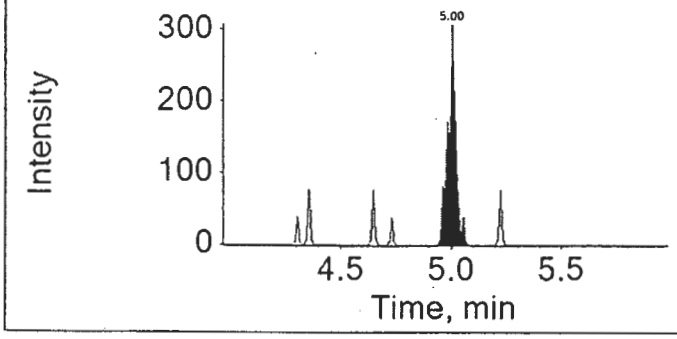
367.0 / 322.0



16SEP06-28.wiff

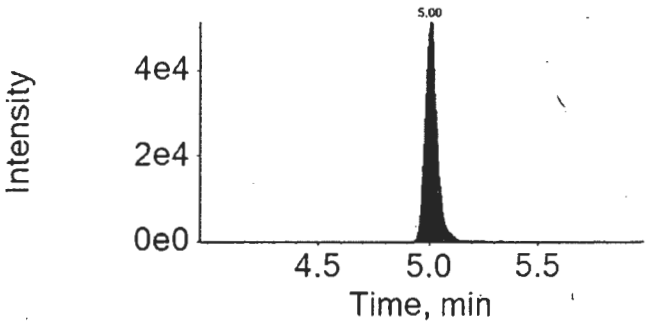
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

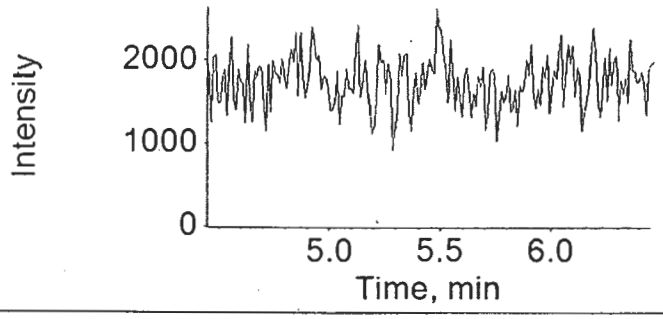
403.0 / 103.0



16SEP06-28.wiff

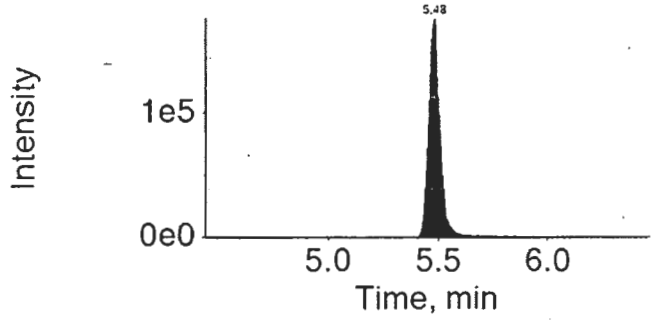
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

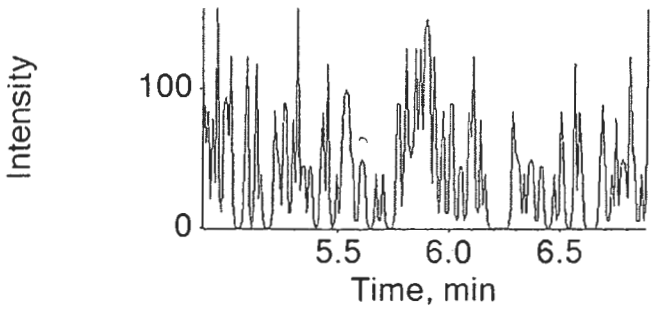
417.0 / 372.0



16SEP06-28.wiff

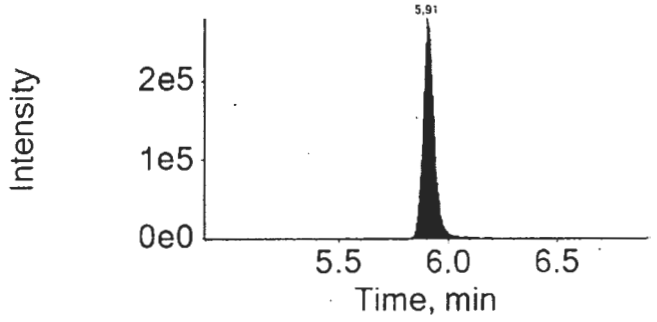
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

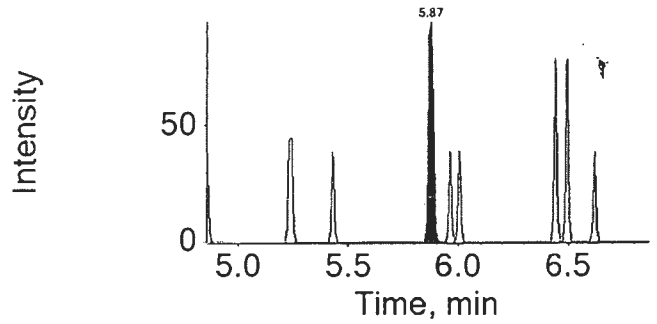
468.0 / 423.0



16SEP06-28.wiff

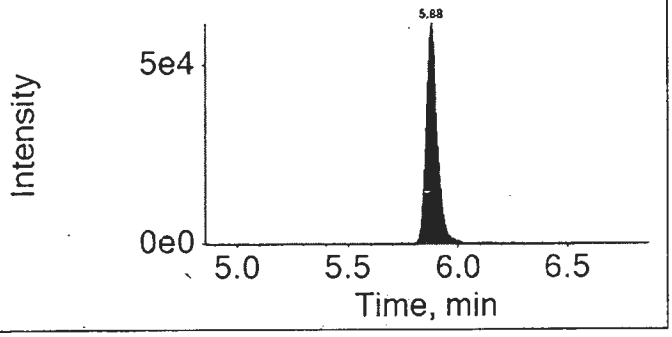
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

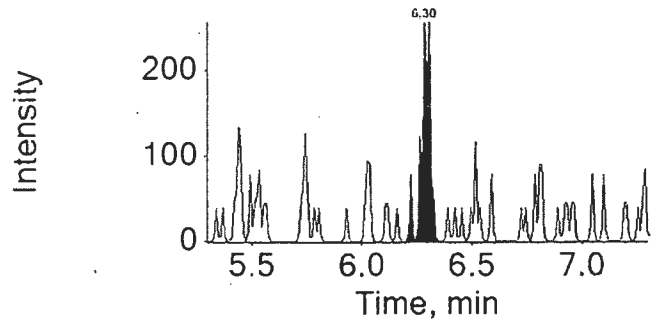
503.0 / 99.0



16SEP06-28.wiff

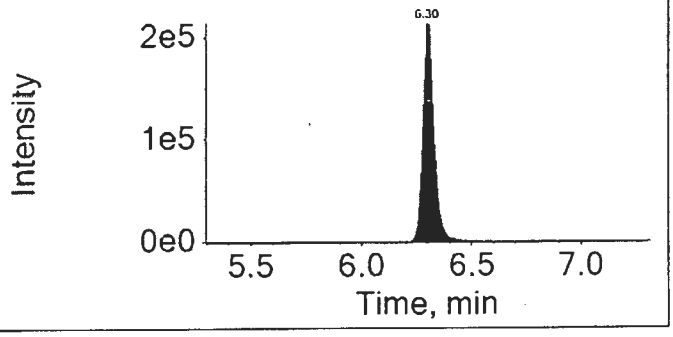
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

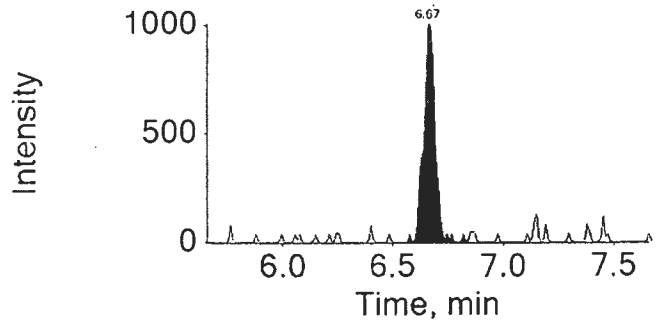
515.0 / 470.0



16SEP06-28.wiff

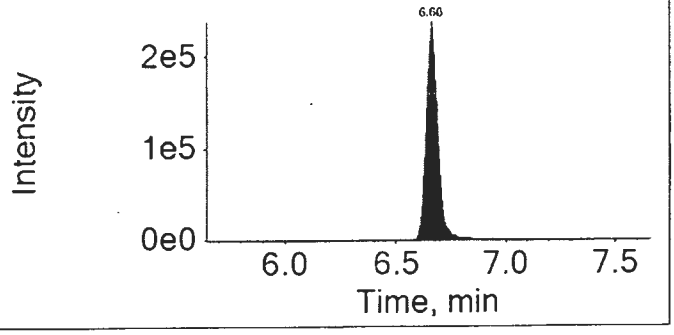
Analyte: PFUnDA

562.9 / 518.9



Internal Standard: 13C2-PFUnDA

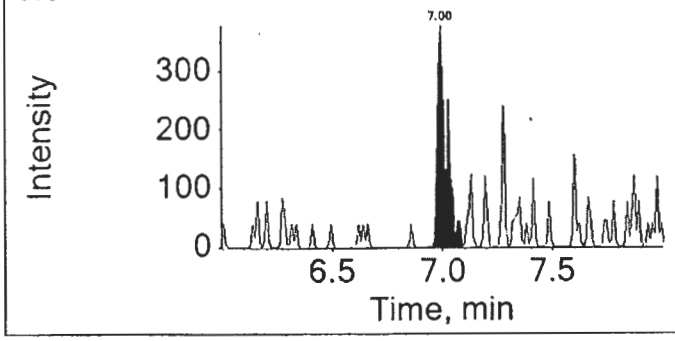
565.0 / 520.0



16SEP06-28.wiff

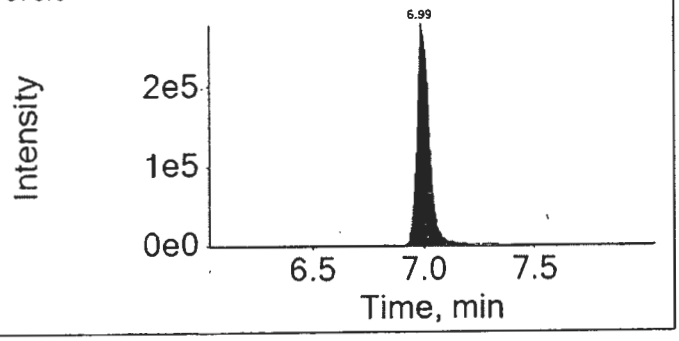
Analyte: PFDoDA

612.9 / 568.9



Internal Standard: 13C2-PFDoDA

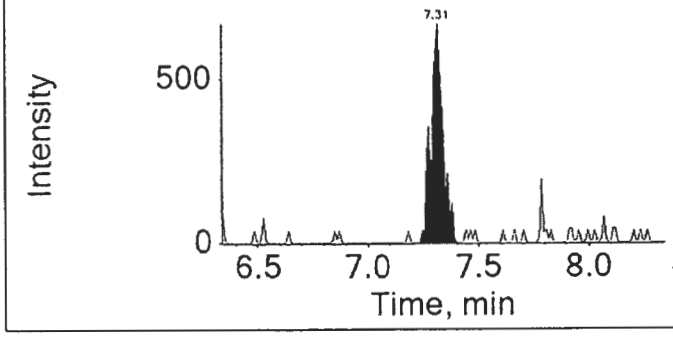
615.0 / 570.0



16SEP06-28.wiff

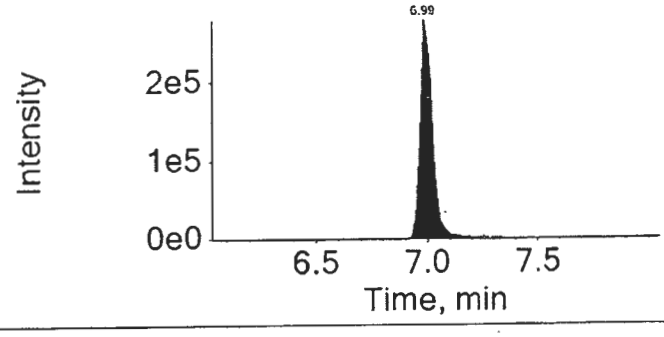
Analyte: PFTrDA

662.9 / 618.9



Internal Standard: 13C2-PFDoDA

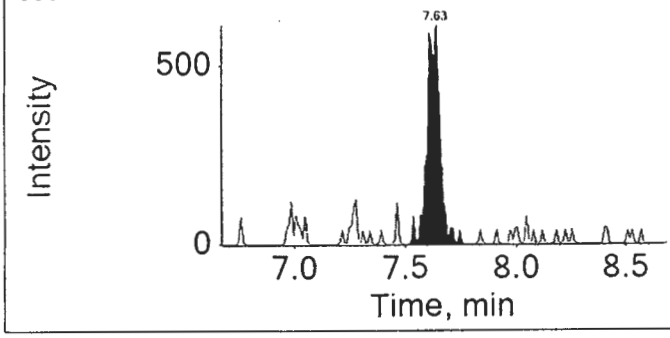
615.0 / 570.0



16SEP06-28.wiff

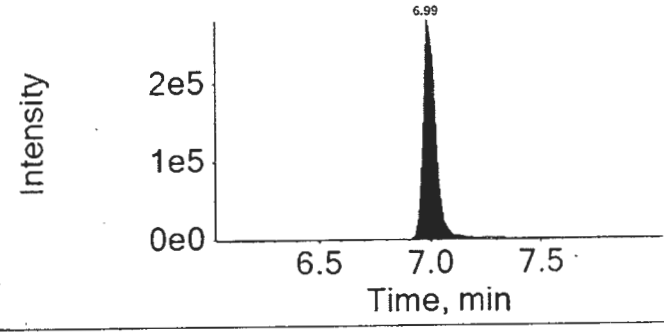
Analyte: PFTeDA

712.9 / 668.9



Internal Standard: 13C2-PFDoDA

615.0 / 570.0



Lynn Dodd

SEP 19 2016

Lynn Dodd
Principal Specialist

MEP 7824 9/15/16

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SPP17
Matrix: SOLID

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

UNSPK: 8535031 MS: 8535032 MSD: 8535033 **Analyte**	Batch: **16235011** (Sample number(s): 8535030-8535033, 8535035-8535037)								
	Spike Added ng/g MS/MSD	**Unspiked Conc ng/g**	**MS Conc ng/g**	**MSD Conc ng/g**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	19.23 / 19.92	267449.92	90244.61	68401.5	- 869200 (2)	- 948790 (2)	70-130	28	30
Perfluorononanoic acid	19.23 / 19.92	60.19	73.03	63.03	67 *	14 *	70-130	15	30
Perfluorodecanoic acid	20	135.19	166.52	126.26	157 (2)	-44 (2)	70-130	28	30
Perfluoroundecanoic acid	19.23 / 19.92	8.31	32.4	25.42	125	86	70-130	24	30
Perfluorododecanoic acid	19.23 / 19.92	5.86	22.85	24.46	88	93	70-130	7	30
Perfluorotridecanoic acid	19.23 / 19.92	3.71	30.21	26.68	138 *	115	70-130	12	30
Perfluorotetradecanoic acid	19.23 / 19.92	2.12	15.66	15.37	70	67 *	70-130	2	30
Perfluorohexanoic acid	20	313.84	453.69	317.25	699 (2)	17 (2)	70-130	35 *	30
Perfluoroheptanoic acid	19.23 / 19.92	1265.1	2172.85	1551.44	6133 (2)	2801 (2)	70-130	33 *	30
Perfluorobutanesulfonate	17.02 / 17.63	5.08	44.04	43.66	229 *	219 *	70-130	1	30
Perfluorohexanesulfonate	18.17 / 18.82	2.44	21.86	23.48	107	112	70-130	7	30
Perfluoro-octanesulfonate	18.36 / 19.02	27.43	43.62	38.69	88	59 *	70-130	12	30

See Analysis Report.

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SPP17
Matrix: SOLID

HRMS Group
Fraction: PFAS by LC/MS/MS

UNSPK: 8535031 MS: 8535032 MSD: 8535033 **Analyte**	Batch: **16235011** (Sample number(s): 8535030-8535033, 8535035-8535037)								
	Spike Added ng/g MS/MSD	**Unspiked Conc ng/g**	**MS Conc ng/g**	**MSD Conc ng/g**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	19.23 / 19.92	286180.11	145624.94	124277.95	-730877 (2)	-812761 (2)	70-130	16	30
Perfluorononanoic acid	19.23 / 19.92	83.97	99.8	80.19	82 (2)	-18 (2)	70-130	22	30
Perfluorodecanoic acid	19.23 / 19.92	135.19	166.52	126.26	163 (2)	-44 (2)	70-130	28	30
Perfluoroundecanoic acid	19.23 / 19.92	9.45	32.4	25.42	119	80	70-130	24	30
Perfluorododecanoic acid	19.23 / 19.92	5.86	22.85	24.46	88	93	70-130	7	30
Perfluorotridecanoic acid	19.23 / 19.92	3.71	30.21	26.68	138 *	115	70-130	12	30
Perfluorotetradecanoic acid	19.23 / 19.92	2.12	15.66	15.37	70	67 *	70-130	2	30
Perfluorohexanoic acid	19.23 / 19.92	313.84	453.69	317.25	727 (2)	17 (2)	70-130	35 *	30
Perfluoroheptanoic acid	19.23 / 19.92	1265.1	2172.85	1551.44	4720 (2)	1437 (2)	70-130	33 *	30
Perfluorobutanesulfonate	17 / 17.61	5.08	44.04	43.66	229 *	219 *	70-130	1	30
Perfluorohexanesulfonate	18.19 / 18.84	2.87	21.86	23.48	104	109	70-130	7	30
Perfluoro-octanesulfonate	18.38 / 19.04	30.93	46.71	41.2	86	54 *	70-130	13	30

Revised - 7.22 Analysis for root for evaluation

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SPP17
Matrix: SOLID

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

LCS: LCS235011	Batch: **16235011** (Sample number(s): 8535030-8535033, 8535035-8535037)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	20	20.04	NA	100	NA	70-130	NA	NA
Perfluorononanoic acid	20	17.28	NA	86	NA	70-130	NA	NA
Perfluorodecanoic acid	20	20.45	NA	102	NA	70-130	NA	NA
Perfluoroundecanoic acid	20	16.66	NA	83	NA	70-130	NA	NA
Perfluorododecanoic acid	20	19.97	NA	100	NA	70-130	NA	NA
Perfluorotridecanoic acid	20	26.98	NA	135 *	NA	70-130	NA	NA
Perfluorotetradecanoic acid	20	20.48	NA	102	NA	70-130	NA	NA
Perfluorohexanoic acid	20	19.95	NA	100	NA	70-130	NA	NA
Perfluoroheptanoic acid	20	18.73	NA	94	NA	70-130	NA	NA
Perfluorobutanesulfonate	17.7	15.63	NA	88	NA	70-130	NA	NA
Perfluorohexanesulfonate	18.9	20	NA	106	NA	70-130	NA	NA
Perfluoro-octanesulfonate	19.1	19.62	NA	103	NA	70-130	NA	NA

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FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 09/02/2016 02:10 09/02/2016 03:32

Lab File Names: CAL1= 16SEP01-41.WIFF; CAL2= 16SEP01-42.WIFF; CAL3= 16SEP01-43.WIFF;
CAL4= 16SEP01-44.WIFF; CAL5= 16SEP01-45.WIFF; CAL6= 16SEP01-46.WIFF;

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.160	0.80	0.668	-16.4	±50
CAL2	0.424	2.00	1.769	-11.5	±40
CAL3	2.307	9.99	9.622	-3.7	±40
CAL4	8.646	39.96	36.054	-9.8	±40
CAL5	27.764	119.90	115.770	-3.4	±40
CAL6	40.425	159.80	168.565	5.5	±40

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.022	0.20	0.209	4.3	±50
CAL2	0.054	0.50	0.514	2.8	±30
CAL3	0.256	2.50	2.438	-2.5	±30
CAL4	1.010	10.00	9.600	-4.0	±30
CAL5	2.990	30.00	28.430	-5.2	±30
CAL6	4.419	40.00	42.010	5.0	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.042	0.20	0.201	0.6	±50
CAL2	0.088	0.50	0.425	-15.0	±30
CAL3	0.459	2.50	2.210	-11.6	±30
CAL4	1.908	10.00	9.192	-8.1	±30
CAL5	6.646	30.00	32.021	6.7	±30
CAL6	8.125	40.00	39.151	-2.1	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.139	0.80	0.661	-17.3	±50
CAL2	0.379	2.00	1.796	-10.2	±30
CAL3	1.990	10.00	9.442	-5.6	±30
CAL4	7.666	40.00	36.367	-9.1	±30
CAL5	24.837	120.00	117.826	-1.8	±30
CAL6	35.141	160.00	166.708	4.2	±30

* Outside QC Limits.

FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 09/02/2016 02:10 09/02/2016 03:32

Lab File Names: CAL1= 16SEP01-41.WIFF; CAL2= 16SEP01-42.WIFF; CAL3= 16SEP01-43.WIFF; CAL4= 16SEP01-44.WIFF; CAL5= 16SEP01-45.WIFF; CAL6= 16SEP01-46.WIFF;

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.037	0.20	0.180	-10.0	±50
CAL2	0.092	0.50	0.450	-10.0	±30
CAL3	0.467	2.50	2.290	-8.4	±30
CAL4	2.006	10.00	9.829	-1.7	±30
CAL5	6.266	30.00	30.703	2.3	±30
CAL6	8.112	40.00	39.748	-0.6	±30

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.190	-5.1	±50
CAL2	0.087	0.50	0.434	-13.3	±30
CAL3	0.491	2.50	2.452	-1.9	±30
CAL4	1.915	10.00	9.554	-4.5	±30
CAL5	6.223	30.00	31.044	3.5	±30
CAL6	7.923	40.00	39.528	-1.2	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.128	0.80	0.708	-11.4	±50
CAL2	0.341	2.00	1.879	-6.0	±30
CAL3	1.628	9.99	8.979	-10.1	±30
CAL4	7.339	39.96	40.469	1.3	±30
CAL5	22.224	119.90	122.545	2.2	±30
CAL6	28.629	159.80	157.868	-1.2	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.043	0.20	0.185	-7.5	±50
CAL2	0.117	0.50	0.509	1.9	±30
CAL3	0.598	2.50	2.597	3.9	±30
CAL4	2.190	10.00	9.514	-4.9	±30
CAL5	6.966	30.00	30.267	0.9	±30
CAL6	9.235	40.00	40.128	0.3	±30

* Outside QC Limits.

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FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 09/02/2016 02:10 09/02/2016 03:32

Lab File Names: CAL1= 16SEP01-41.WIFF; CAL2= 16SEP01-42.WIFF; CAL3= 16SEP01-43.WIFF; CAL4= 16SEP01-44.WIFF; CAL5= 16SEP01-45.WIFF; CAL6= 16SEP01-46.WIFF;

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.196	-1.9	±50
CAL2	0.089	0.50	0.461	-7.8	±30
CAL3	0.460	2.50	2.382	-4.7	±30
CAL4	1.664	10.00	8.616	-13.8	±30
CAL5	5.958	30.00	30.854	2.8	±30
CAL6	7.858	40.00	40.691	1.7	±30

NMeFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.141	0.80	0.751	-6.2	±50
CAL2	0.340	2.00	1.814	-9.3	±30
CAL3	1.888	10.00	10.061	0.6	±30
CAL4	7.555	40.00	40.269	0.7	±30
CAL5	23.599	120.00	125.778	4.8	±30
CAL6	28.918	160.00	154.127	-3.7	±30

NEtFOSAA	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.129	0.80	0.676	-15.5	±50
CAL2	0.361	2.00	1.898	-5.1	±30
CAL3	1.757	10.00	9.233	-7.7	±30
CAL4	7.446	40.00	39.136	-2.2	±30
CAL5	24.355	120.00	128.006	6.7	±30
CAL6	29.273	160.00	153.851	-3.8	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.075	0.40	0.405	1.2	±50
CAL2	0.184	1.00	0.996	-0.4	±30
CAL3	0.945	5.00	5.103	2.1	±30
CAL4	3.815	20.00	20.611	3.1	±30
CAL5	11.970	60.00	64.673	7.8	±30
CAL6	13.810	80.00	74.612	-6.7	±30

* Outside QC Limits.

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FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 09/02/2016 02:10 09/02/2016 03:32

Lab File Names: CAL1= 16SEP01-41.WIFF; CAL2= 16SEP01-42.WIFF; CAL3= 16SEP01-43.WIFF;
CAL4= 16SEP01-44.WIFF; CAL5= 16SEP01-45.WIFF; CAL6= 16SEP01-46.WIFF;

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.078	0.40	0.420	5.1	±50
CAL2	0.180	1.00	0.966	-3.4	±40
CAL3	1.056	5.00	5.657	13.1	±40
CAL4	3.563	20.00	19.096	-4.5	±40
CAL5	12.209	60.00	65.437	9.1	±40
CAL6	13.960	80.00	74.824	-6.5	±40

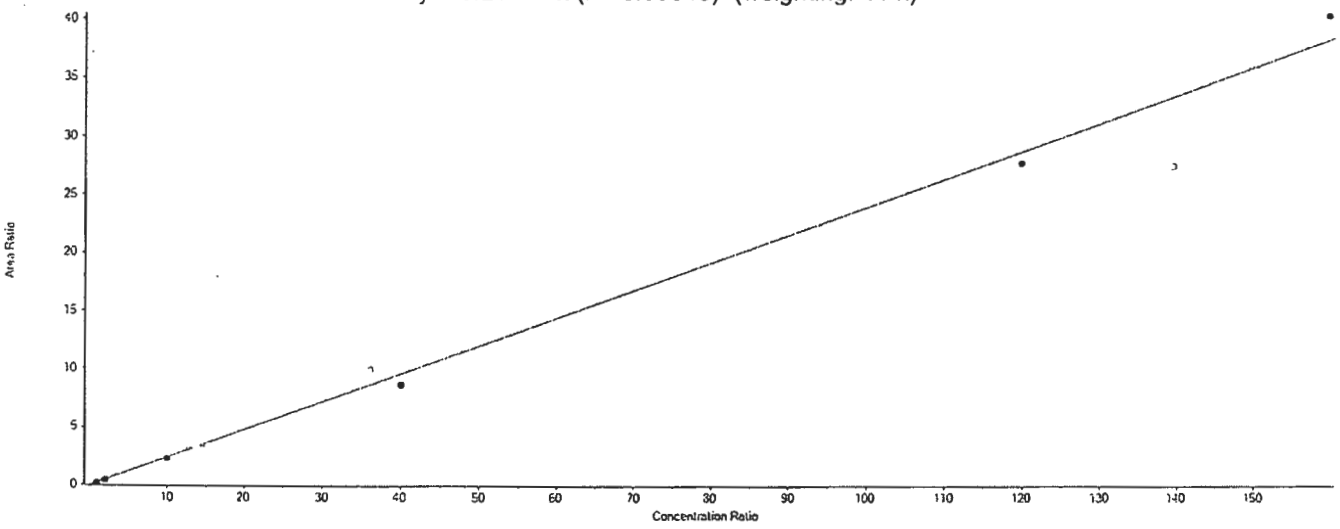
Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.076	0.40	0.416	4.0	±50
CAL2	0.184	1.00	1.003	0.3	±40
CAL3	0.946	5.00	5.167	3.3	±40
CAL4	3.764	20.00	20.569	2.8	±40
CAL5	11.219	60.00	61.303	2.2	±40
CAL6	14.264	80.00	77.941	-2.6	±40

* Outside QC Limits.

Initial Calibration

Results Table Name: MQ 16235011 9/7/2016 10:37:27 AM
ICAL Name: 16SEP01ICAL

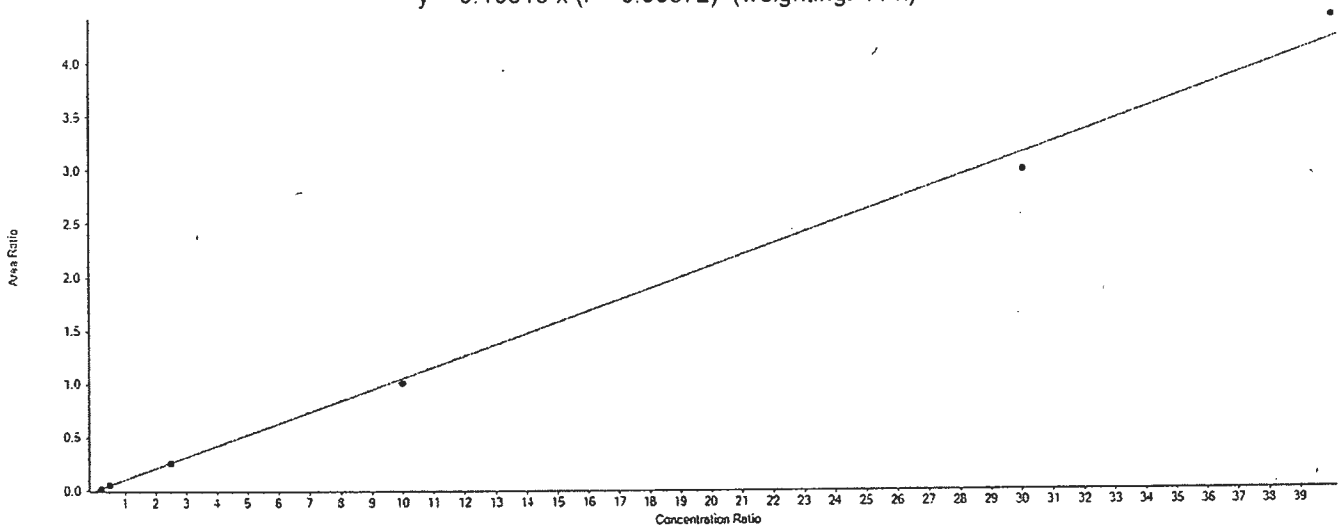
PFBS
y = 0.23982 x (r = 0.99845) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFBS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP01-41.wiff	CAL1	44937.0	280382.5	1.00	0.160	4.06	0.800	0.670	-16.4
16SEP01-42.wiff	CAL2	115955.7	273253.7	1.00	0.424	4.07	2.000	1.770	-11.5
16SEP01-43.wiff	CAL3	610852.5	264726.8	1.00	2.307	4.07	9.990	9.620	-3.7
16SEP01-44.wiff	CAL4	1994645.0	230689.1	1.00	8.646	4.07	39.960	36.050	-9.8
16SEP01-45.wiff	CAL5	4947952.4	178214.3	1.00	27.764	4.06	119.900	115.770	-3.4
16SEP01-46.wiff	CAL6	6195610.5	153260.1	1.00	40.425	4.07	159.800	168.570	5.5

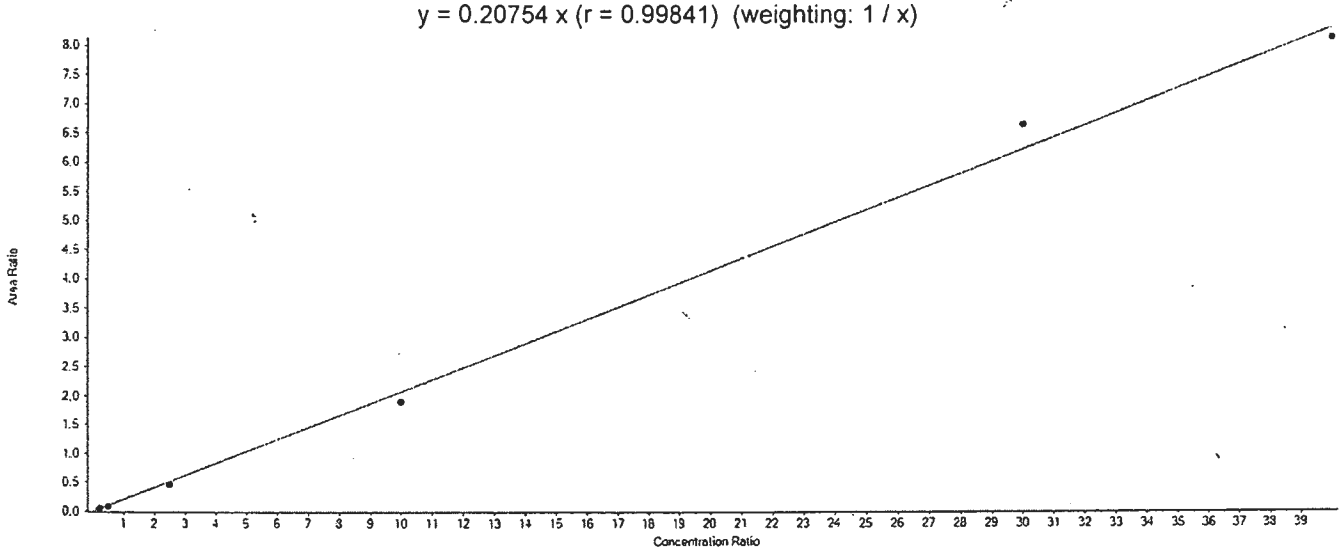
PFHxA
y = 0.10518 x (r = 0.99872) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHxA Area	13C2-PFHxA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP01-41.wiff	CAL1	16066.0	732476.7	1.00	0.022	4.50	0.200	0.210	4.3
16SEP01-42.wiff	CAL2	38875.1	718816.2	1.00	0.054	4.51	0.500	0.510	2.8
16SEP01-43.wiff	CAL3	188191.4	733982.6	1.00	0.256	4.51	2.500	2.440	-2.5
16SEP01-44.wiff	CAL4	761841.4	754517.4	1.00	1.010	4.51	10.000	9.600	-4.0
16SEP01-45.wiff	CAL5	1976085.9	660822.6	1.00	2.990	4.50	30.000	28.430	-5.2
16SEP01-46.wiff	CAL6	2783361.5	629895.3	1.00	4.419	4.51	40.000	42.010	5.0

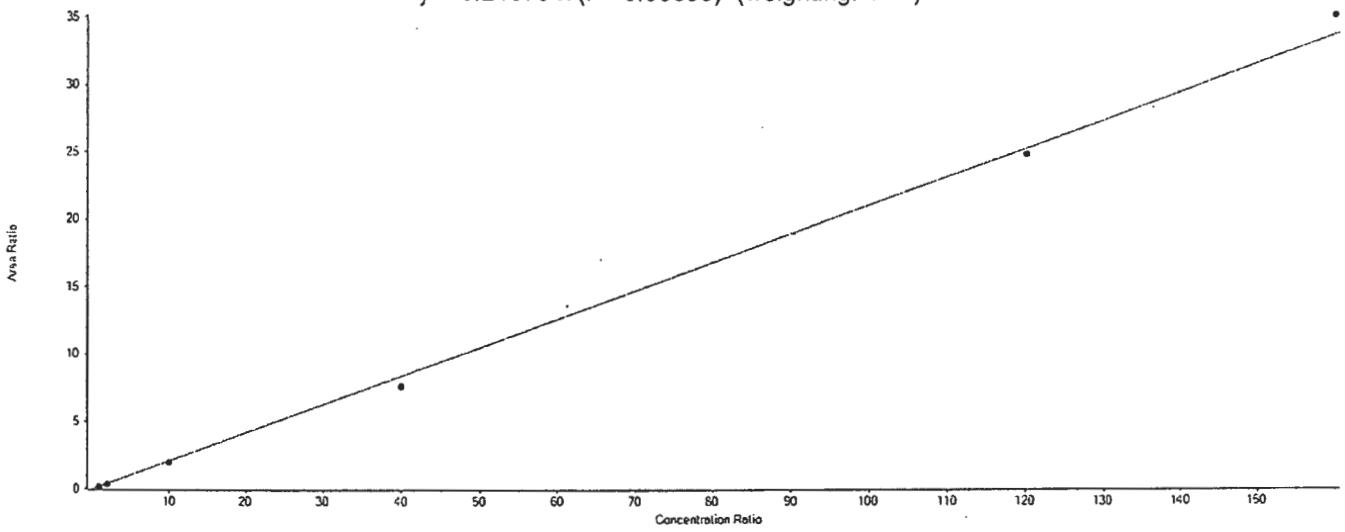
PFHpA
y = 0.20754 x (r = 0.99841) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHpA Area	13C4-PFHpA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP01-41.wiff	CAL1	21946.4	525341.7	1.00	0.042	4.98	0.200	0.200	0.6
16SEP01-42.wiff	CAL2	47694.1	540851.9	1.00	0.088	4.99	0.500	0.420	-15.0
16SEP01-43.wiff	CAL3	222081.6	484215.3	1.00	0.459	4.99	2.500	2.210	-11.6
16SEP01-44.wiff	CAL4	803737.9	421308.4	1.00	1.908	4.99	10.000	9.190	-8.1
16SEP01-45.wiff	CAL5	1882410.3	283253.6	1.00	6.646	4.98	30.000	32.020	6.7
16SEP01-46.wiff	CAL6	2305616.0	283753.3	1.00	8.125	5.00	40.000	39.150	-2.1

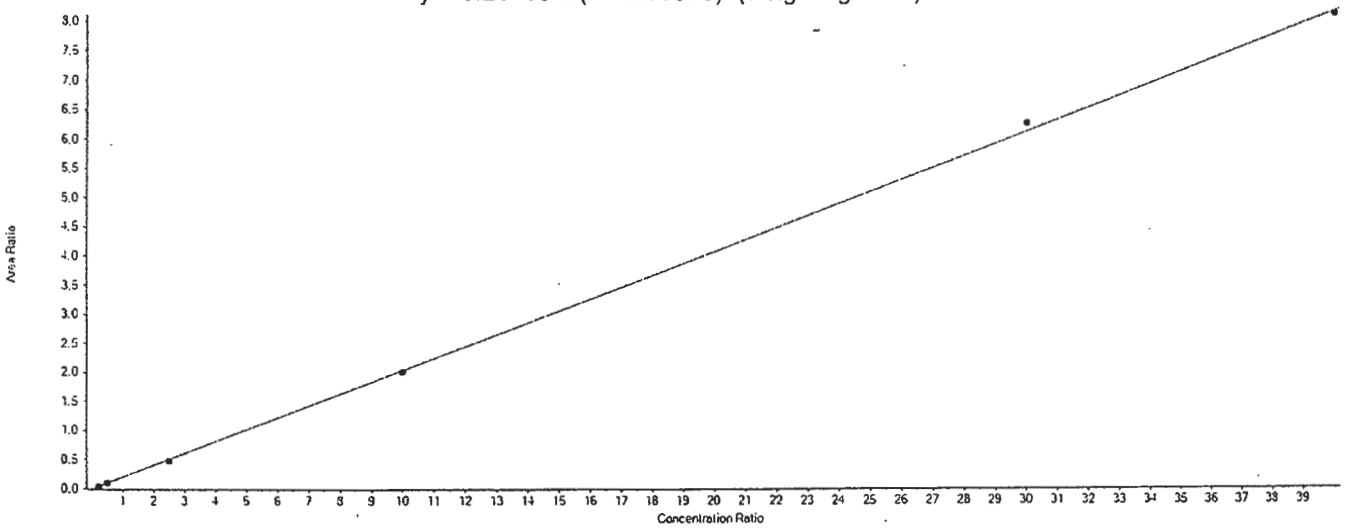
PFHxS
y = 0.21079 x (r = 0.99899) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHxS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP01-41.wiff	CAL1	39086.6	280382.5	1.00	0.139	4.98	0.800	0.660	-17.3
16SEP01-42.wiff	CAL2	103447.3	273253.7	1.00	0.379	4.99	2.000	1.800	-10.2
16SEP01-43.wiff	CAL3	526895.6	264726.8	1.00	1.990	4.98	10.000	9.440	-5.6
16SEP01-44.wiff	CAL4	1768430.8	230689.1	1.00	7.666	4.98	40.000	36.370	-9.1
16SEP01-45.wiff	CAL5	4426248.1	178214.3	1.00	24.837	4.97	120.000	117.830	-1.8
16SEP01-46.wiff	CAL6	5385648.9	153260.1	1.00	35.141	4.99	160.000	166.710	4.2

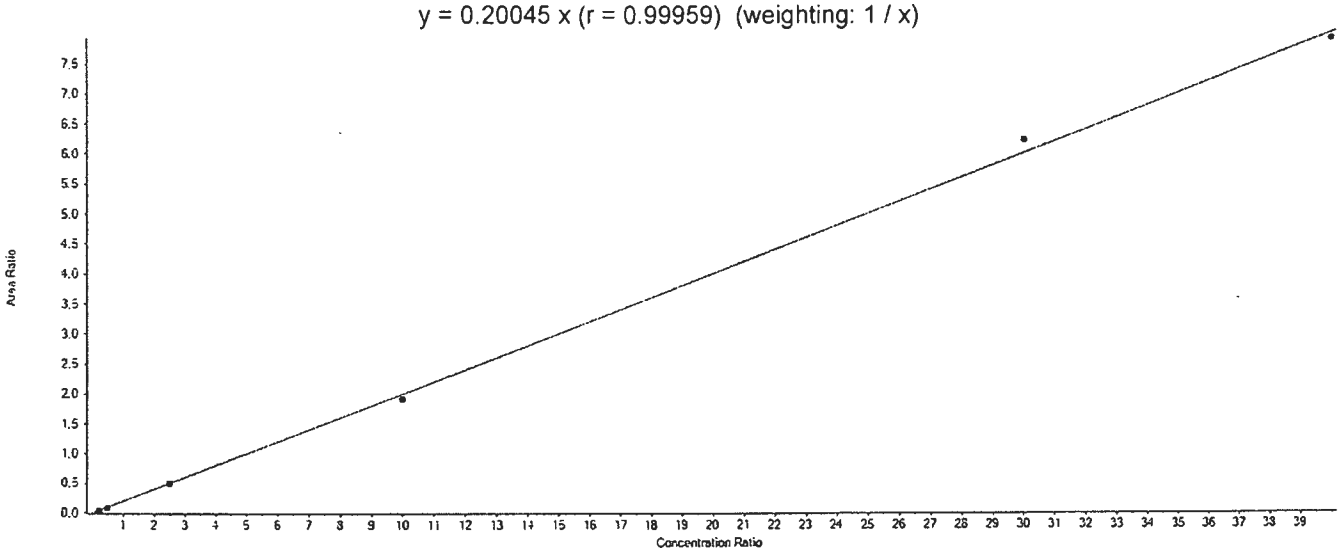
PFOA
y = 0.20409 x (r = 0.99978) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFOA Area	13C4-PFOA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP01-41.wiff	CAL1	28298.9	770248.5	1.00	0.037	5.44	0.200	0.180	-10.0
16SEP01-42.wiff	CAL2	68490.2	745665.8	1.00	0.092	5.45	0.500	0.450	-10.0
16SEP01-43.wiff	CAL3	324735.1	694934.1	1.00	0.467	5.45	2.500	2.290	-8.4
16SEP01-44.wiff	CAL4	1354099.8	675027.0	1.00	2.006	5.45	10.000	9.830	-1.7
16SEP01-45.wiff	CAL5	4084899.2	651911.3	1.00	6.266	5.44	30.000	30.700	2.3
16SEP01-46.wiff	CAL6	4793057.2	590848.7	1.00	8.112	5.45	40.000	39.750	-0.6

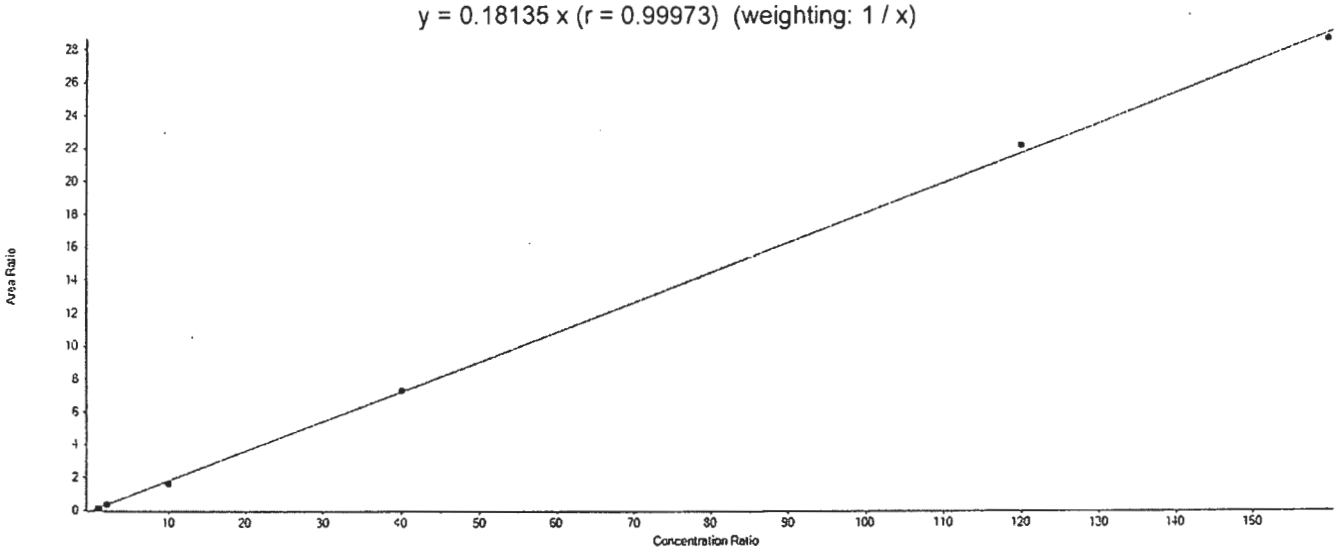
PFNA
y = 0.20045 x (r = 0.99959) (weighting: 1 / x)



Calibration Verification

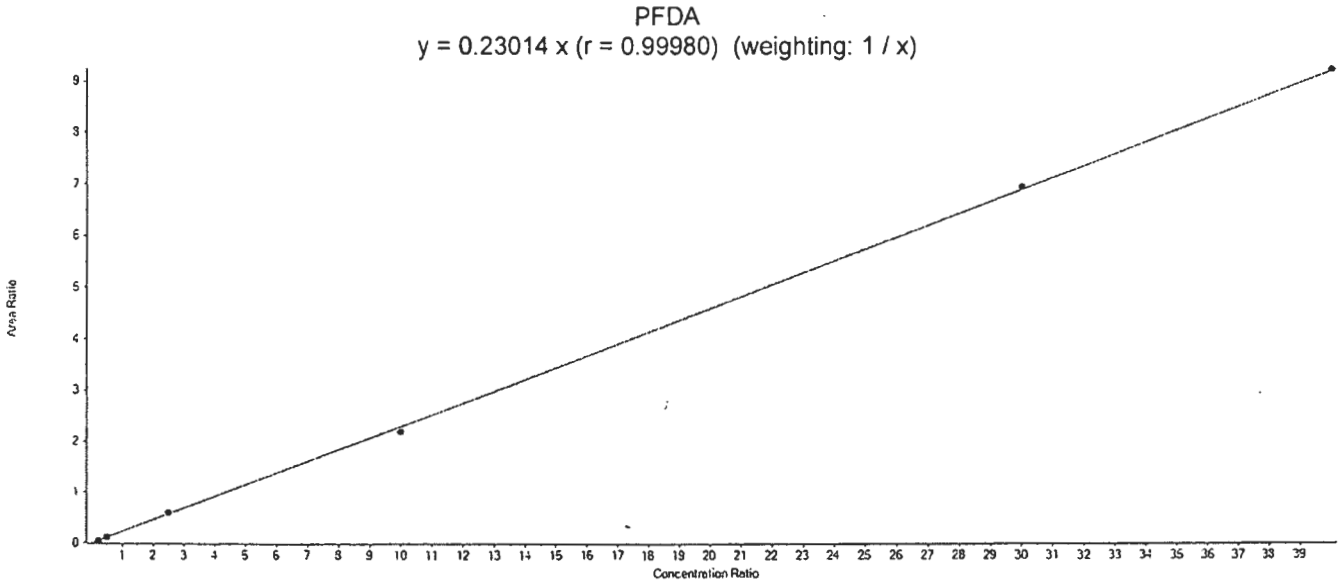
File Name	Sample Name	PFNA Area	13C5-PFNA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP01-41.wiff	CAL1	37868.8	995287.0	1.00	0.038	5.86	0.200	0.190	-5.1
16SEP01-42.wiff	CAL2	95844.9	1102939.2	1.00	0.087	5.87	0.500	0.430	-13.3
16SEP01-43.wiff	CAL3	485666.2	988208.4	1.00	0.491	5.87	2.500	2.450	-1.9
16SEP01-44.wiff	CAL4	1756457.7	917183.5	1.00	1.915	5.87	10.000	9.550	-4.5
16SEP01-45.wiff	CAL5	4414233.3	709367.7	1.00	6.223	5.87	30.000	31.040	3.5
16SEP01-46.wiff	CAL6	5613086.1	708412.8	1.00	7.923	5.88	40.000	39.530	-1.2

PFOS
y = 0.18135 x (r = 0.99973) (weighting: 1 / x)



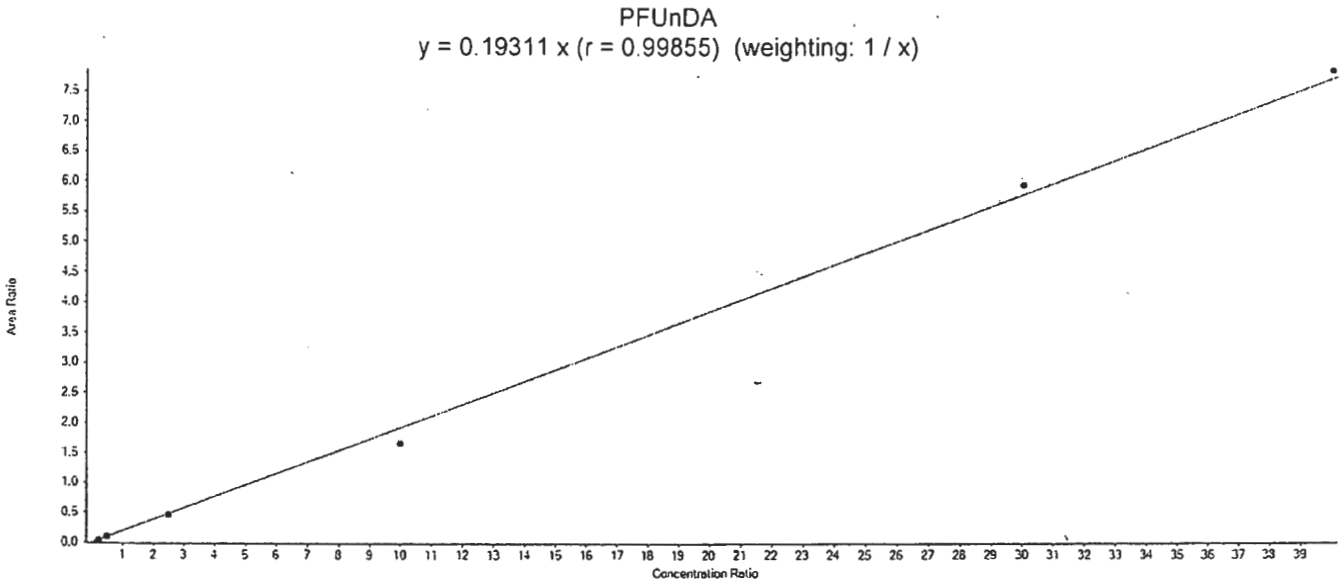
Calibration Verification

File Name	Sample Name	PFOS Area	13C4-PFOS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP01-41.wiff	CAL1	36804.8	286571.5	1.00	0.128	5.84	0.800	0.710	-11.4
16SEP01-42.wiff	CAL2	91815.9	269394.0	1.00	0.341	5.85	2.000	1.880	-6.0
16SEP01-43.wiff	CAL3	423428.6	260031.0	1.00	1.628	5.84	9.990	8.980	-10.1
16SEP01-44.wiff	CAL4	1679544.0	228850.1	1.00	7.339	5.84	39.960	40.470	1.3
16SEP01-45.wiff	CAL5	3824347.6	172085.7	1.00	22.224	5.83	119.900	122.550	2.2
16SEP01-46.wiff	CAL6	4825579.2	168553.9	1.00	28.629	5.85	159.800	157.870	-1.2



Calibration Verification

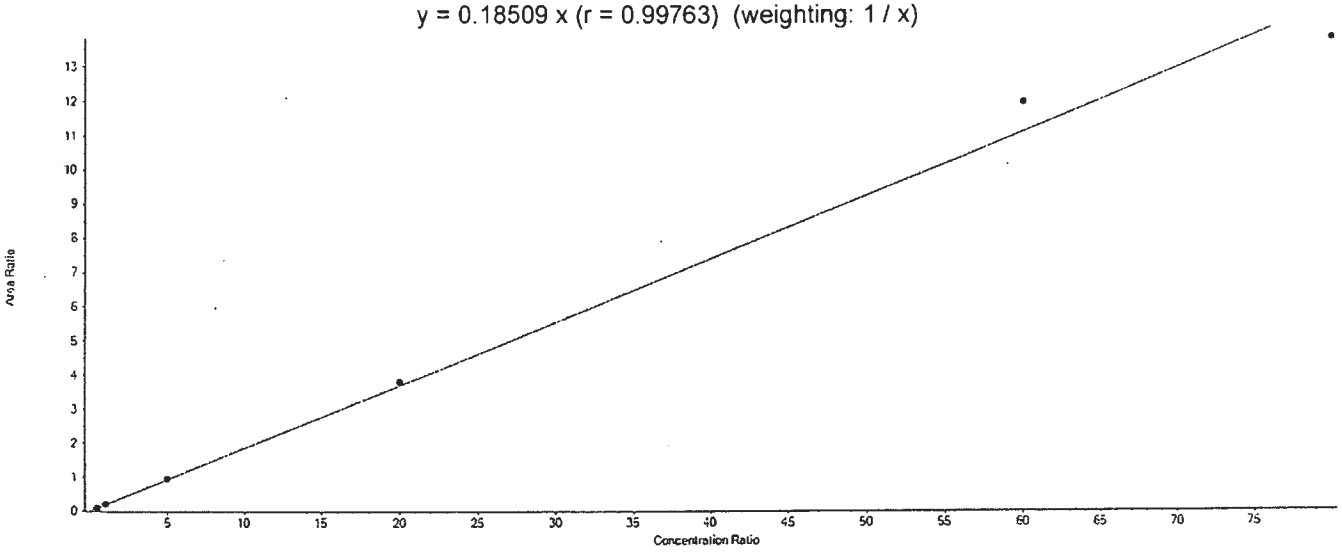
File Name	Sample Name	PFDA Area	13C2-PFDA Area	IS Conc.	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP01-41.wiff	CAL1	34367.2	807210.5	1.00	0.043	6.25	0.200	0.180	-7.5
16SEP01-42.wiff	CAL2	87464.2	746076.7	1.00	0.117	6.26	0.500	0.510	1.9
16SEP01-43.wiff	CAL3	446911.5	747784.3	1.00	0.598	6.25	2.500	2.600	3.9
16SEP01-44.wiff	CAL4	1616267.7	738146.3	1.00	2.190	6.25	10.000	9.510	-4.9
16SEP01-45.wiff	CAL5	4662169.4	669311.3	1.00	6.966	6.24	30.000	30.270	0.9
16SEP01-46.wiff	CAL6	6094400.0	659920.1	1.00	9.235	6.26	40.000	40.130	0.3



Calibration Verification

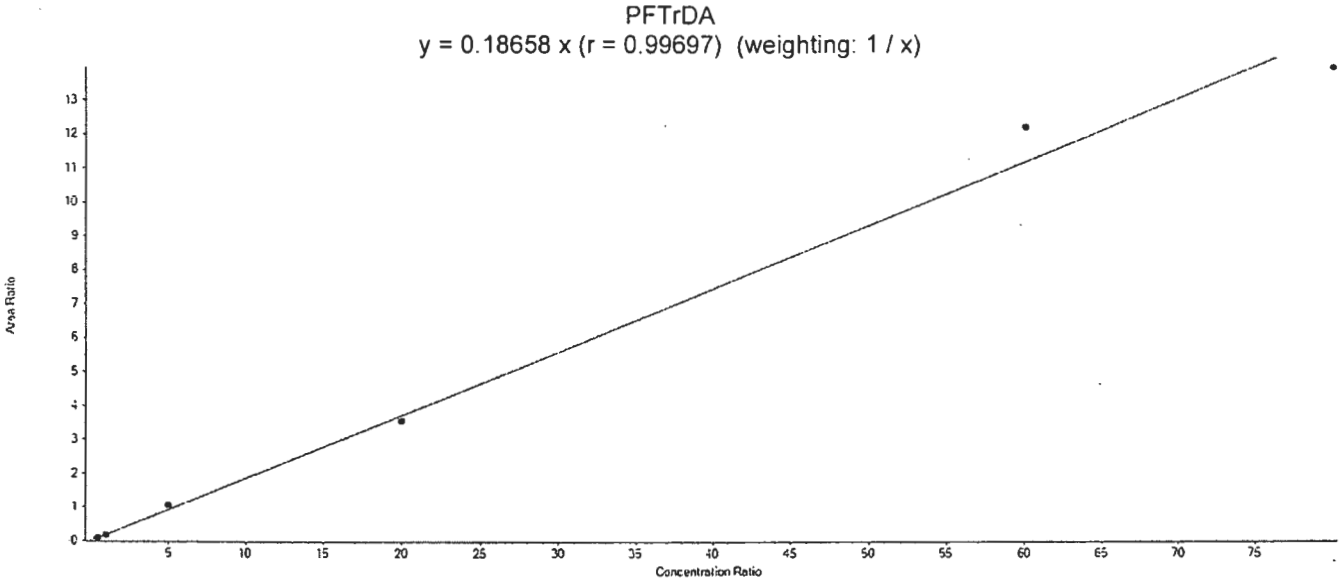
File Name	Sample Name	PFUnDA Area	13C2-PFUnDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP01-41.wiff	CAL1	37743.2	995952.8	1.00	0.038	6.60	0.200	0.200	-1.9
16SEP01-42.wiff	CAL2	86993.6	977514.1	1.00	0.089	6.61	0.500	0.460	-7.8
16SEP01-43.wiff	CAL3	470260.6	1022223.5	1.00	0.460	6.60	2.500	2.380	-4.7
16SEP01-44.wiff	CAL4	1503219.7	903444.0	1.00	1.664	6.60	10.000	8.620	-13.8
16SEP01-45.wiff	CAL5	4976199.4	835185.3	1.00	5.958	6.60	30.000	30.850	2.8
16SEP01-46.wiff	CAL6	6388214.8	812983.5	1.00	7.858	6.61	40.000	40.690	1.7

PFDoDA
y = 0.18509 x (r = 0.99763) (weighting: 1 / x)



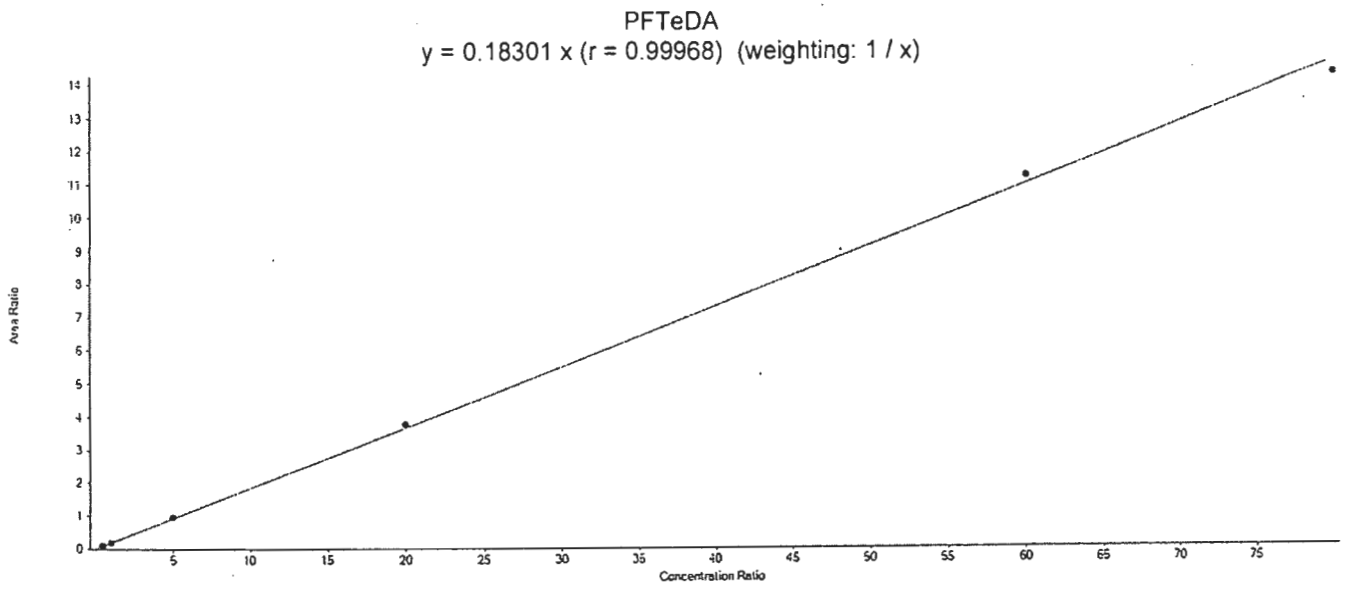
Calibration Verification

File Name	Sample Name	PFDoDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP01-41.wiff	CAL1	88400.1	1180299.3	1.00	0.075	6.92	0.400	0.400	1.2
16SEP01-42.wiff	CAL2	219120.9	1188666.6	1.00	0.184	6.93	1.000	1.000	-0.4
16SEP01-43.wiff	CAL3	1088368.7	1152321.0	1.00	0.945	6.93	5.000	5.100	2.1
16SEP01-44.wiff	CAL4	4358494.8	1142484.1	1.00	3.815	6.93	20.000	20.610	3.1
16SEP01-45.wiff	CAL5	12020225.3	1004177.6	1.00	11.970	6.92	60.000	64.670	7.8
16SEP01-46.wiff	CAL6	14456051.2	1046798.1	1.00	13.810	6.93	80.000	74.610	-6.7



Calibration Verification

File Name	Sample Name	PFTrDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP01-41.wiff	CAL1	92589.2	1180299.3	1.00	0.078	7.23	0.400	0.420	5.1
16SEP01-42.wiff	CAL2	214290.8	1188666.6	1.00	0.180	7.23	1.000	0.970	-3.4
16SEP01-43.wiff	CAL3	1216318.9	1152321.0	1.00	1.056	7.23	5.000	5.660	13.1
16SEP01-44.wiff	CAL4	4070430.5	1142484.1	1.00	3.563	7.23	20.000	19.100	-4.5
16SEP01-45.wiff	CAL5	12259925.9	1004177.6	1.00	12.209	7.22	60.000	65.440	9.1
16SEP01-46.wiff	CAL6	14613594.8	1046798.1	1.00	13.960	7.23	80.000	74.820	-6.5



Calibration Verification

File Name	Sample Name	PFTeDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP01-41.wiff	CAL1	89875.6	1180299.3	1.00	0.076	7.52	0.400	0.420	4.0
16SEP01-42.wiff	CAL2	218262.7	1188666.6	1.00	0.184	7.53	1.000	1.000	0.3
16SEP01-43.wiff	CAL3	1089740.9	1152321.0	1.00	0.946	7.52	5.000	5.170	3.3
16SEP01-44.wiff	CAL4	4300598.3	1142484.1	1.00	3.764	7.52	20.000	20.570	2.8
16SEP01-45.wiff	CAL5	11265923.2	1004177.6	1.00	11.219	7.51	60.000	61.300	2.2
16SEP01-46.wiff	CAL6	14931398.2	1046798.1	1.00	14.264	7.53	80.000	77.940	-2.6

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LC-MS/MS Analysis Report

Printed: 9/15/2016 11:31:00 AM

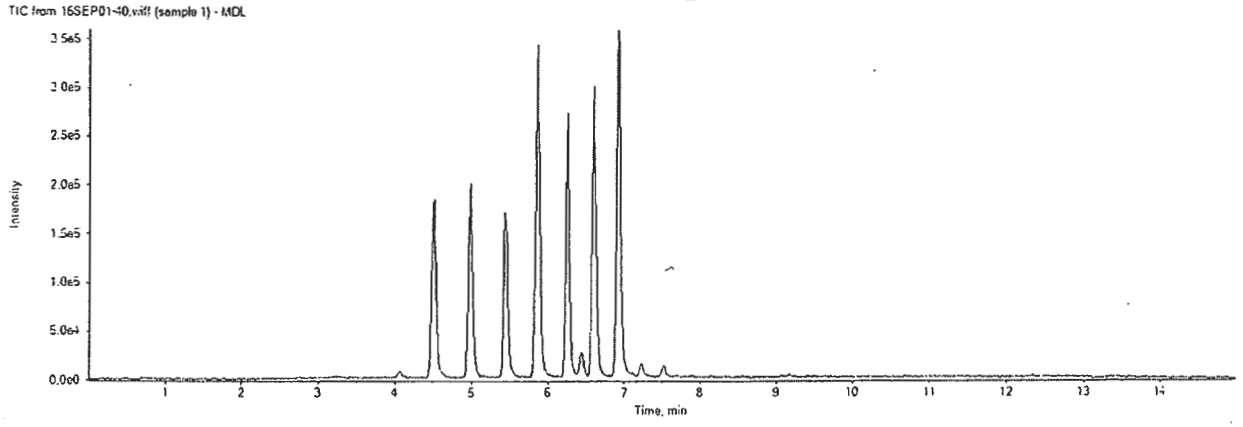
Sample Name:	MDL		**Data File:**		16SEP01-40.wiff
Sample ID:	MDL		**Acquis Date:**		2016-09-02T01:54:32
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	2		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011
			ICAL Name:		16SEP01ICAL
Batch Number:	PFCICAL		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

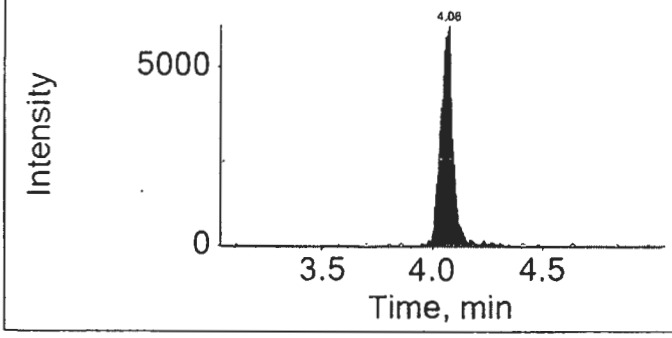
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.06	24767.2	A	18O2-PFHxS	4.97	292616.8	0.085	0.353	ng/g
PFHxA	4.51	8472.8	A	13C2-PFHxA	4.50	726081.1	0.012	0.111	ng/g
PFHpA	4.98	10811.2	A	13C4-PFHpA	4.98	441428.6	0.024	0.118	ng/g
PFHxS	4.98	19669.5	A	18O2-PFHxS	4.97	292616.8	0.067	0.319	ng/g
PFOA	5.44	16752.5	A	13C4-PFOA	5.44	677176.2	0.025	0.121	ng/g
PFNA	5.87	20451.3	A	13C5-PFNA	5.86	988300.5	0.021	0.103	ng/g
PFOS	5.84	19263.7	A	13C4-PFOS	5.84	265585.7	0.073	0.400	ng/g
PFDA	6.25	17262.3	A	13C2-PFDA	6.25	812982.2	0.021	0.092	ng/g
PFUnDA	6.60	21169.8	A	13C2-PFUnDA	6.60	939312.8	0.023	0.117	ng/g
PFDoDA	6.92	48439.8	A	13C2-PFDoDA	6.92	1280628.2	0.038	0.204	ng/g
PFTrDA	7.22	48472.9	A	13C2-PFDoDA	6.92	1280628.2	0.038	0.203	ng/g
PFTeDA	7.52	41748.2	A	13C2-PFDoDA	6.92	1280628.2	0.033	0.178	ng/g

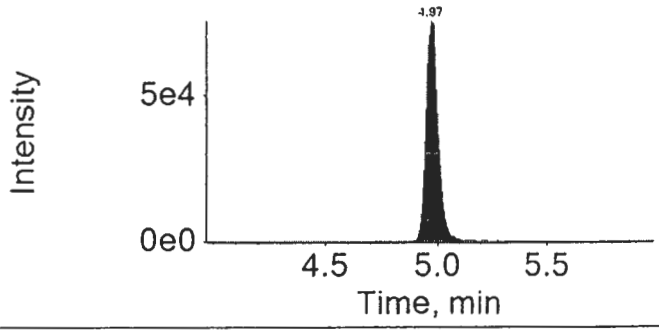
Total Ion Chromatogram

MDL



16SEP01-40.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0





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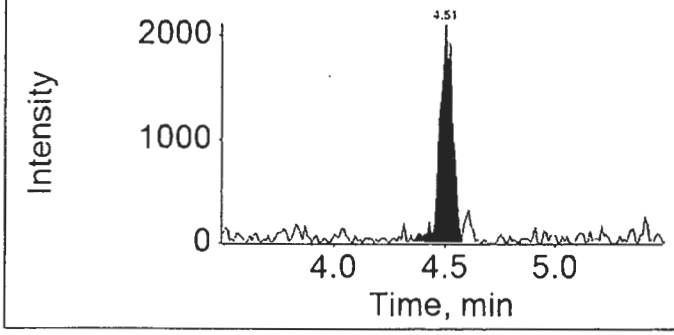
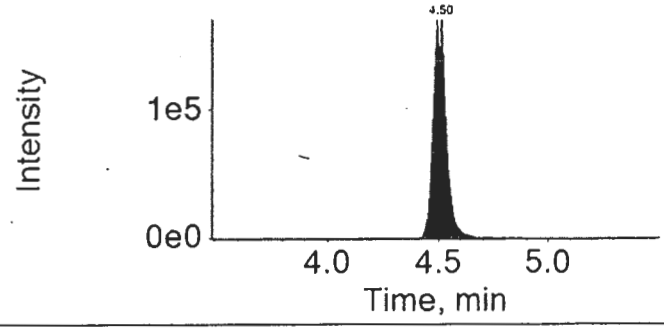
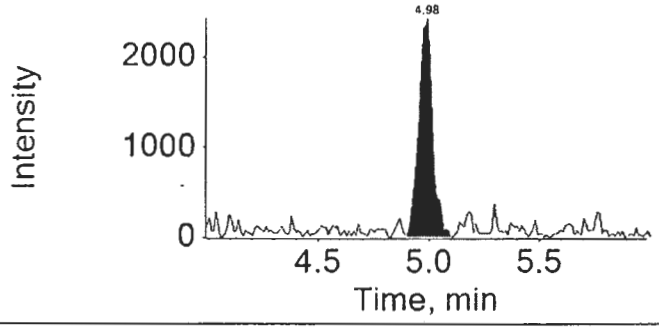
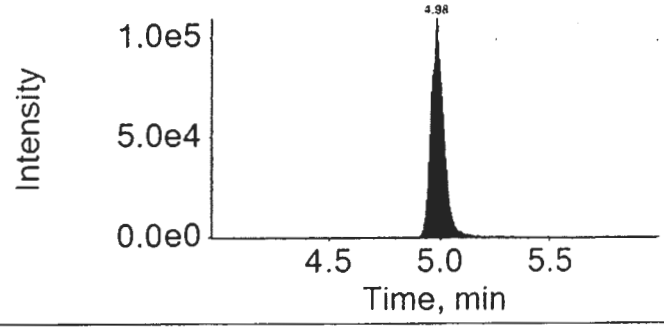
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16SEP01-40.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

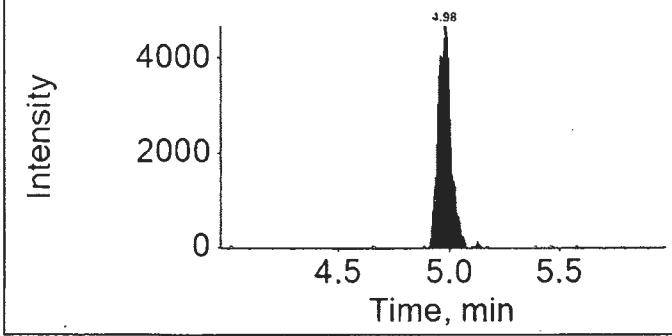




16SEP01-40.wiff

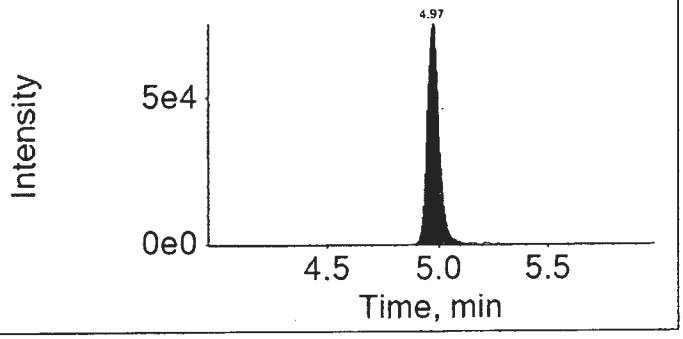
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

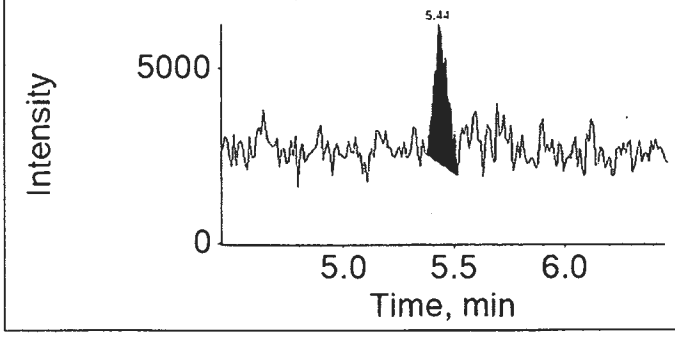
403.0 / 103.0



16SEP01-40.wiff

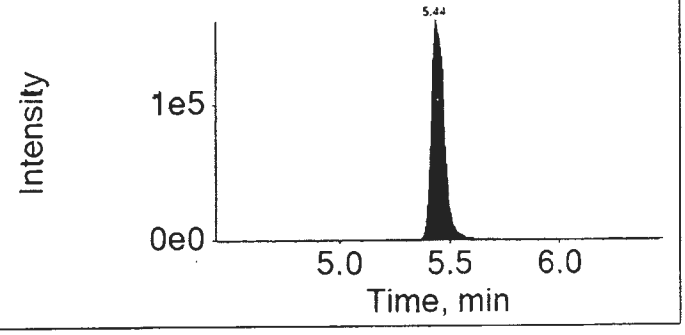
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

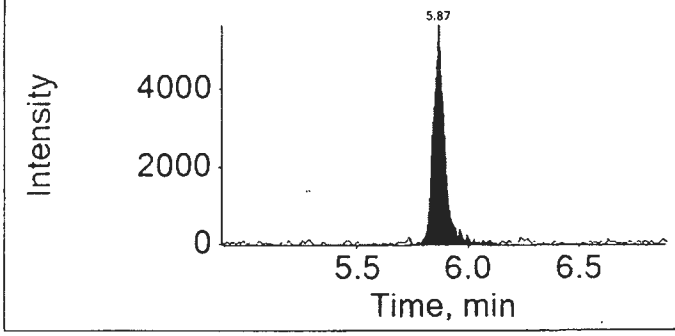
417.0 / 372.0



16SEP01-40.wiff

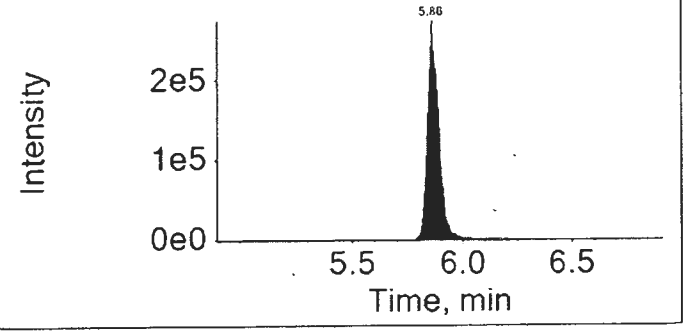
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

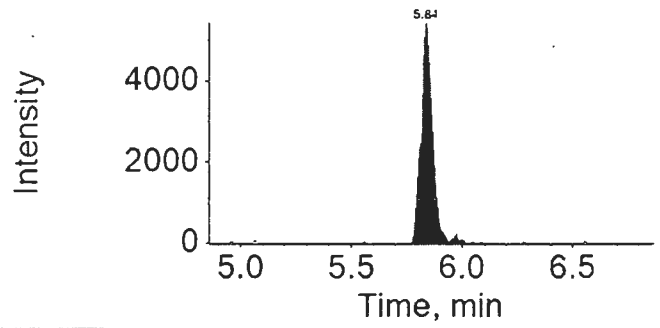
468.0 / 423.0



16SEP01-40.wiff

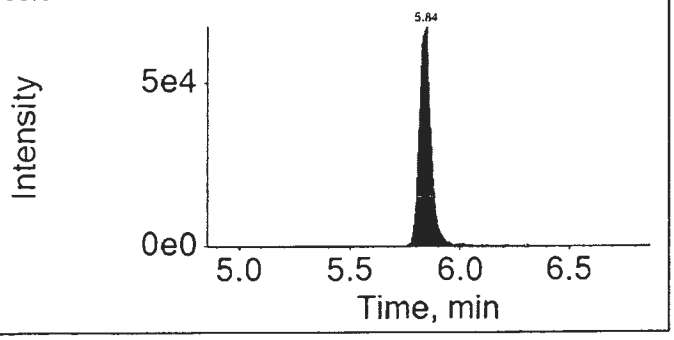
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

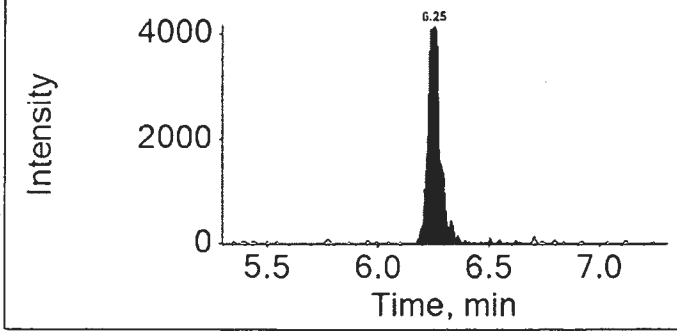
503.0 / 99.0



16SEP01-40.wiff

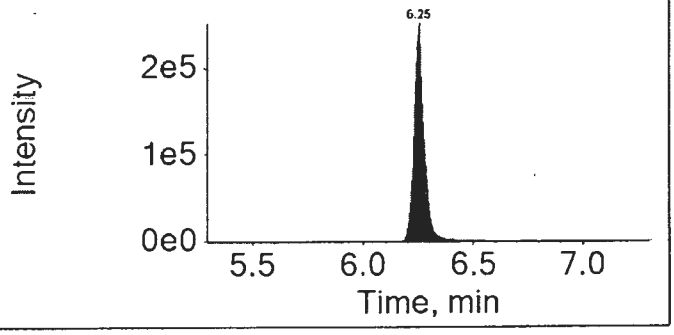
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

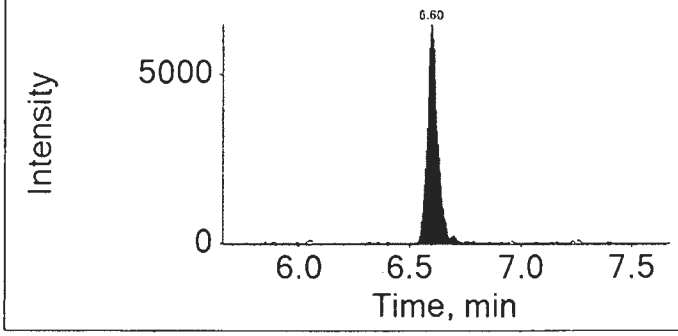
515.0 / 470.0



16SEP01-40.wiff

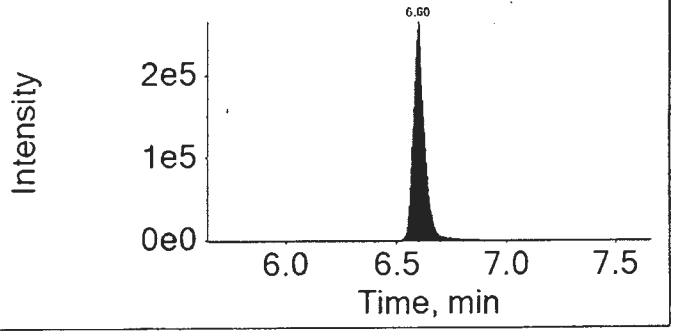
Analyte: PFUnDA

562.9 / 518.9

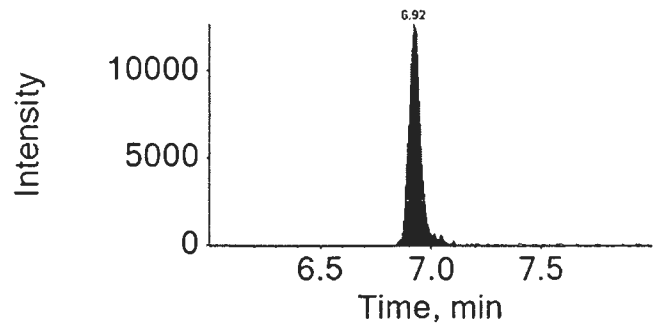


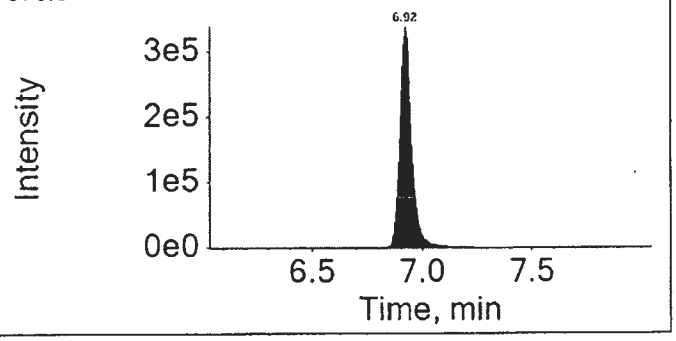
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

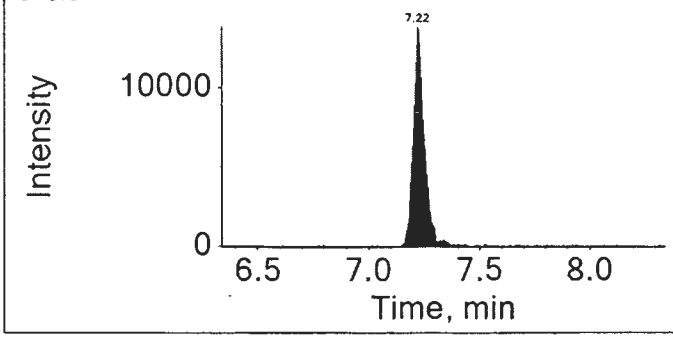


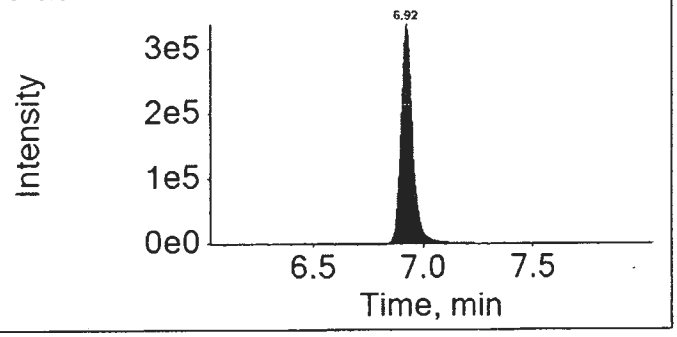
16SEP01-40.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



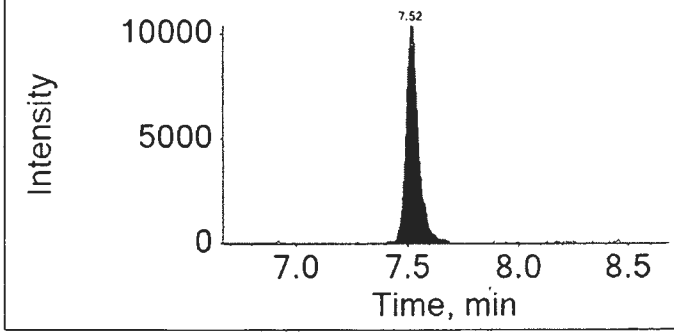


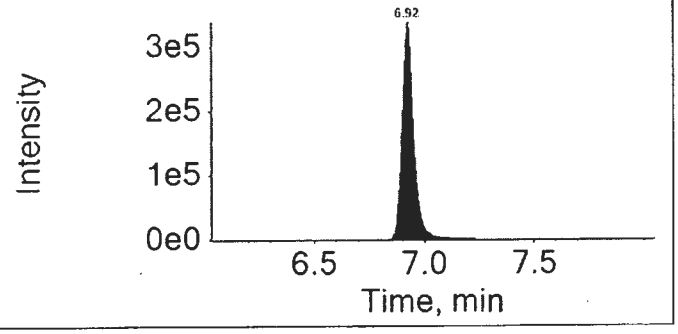
16SEP01-40.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16SEP01-40.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd

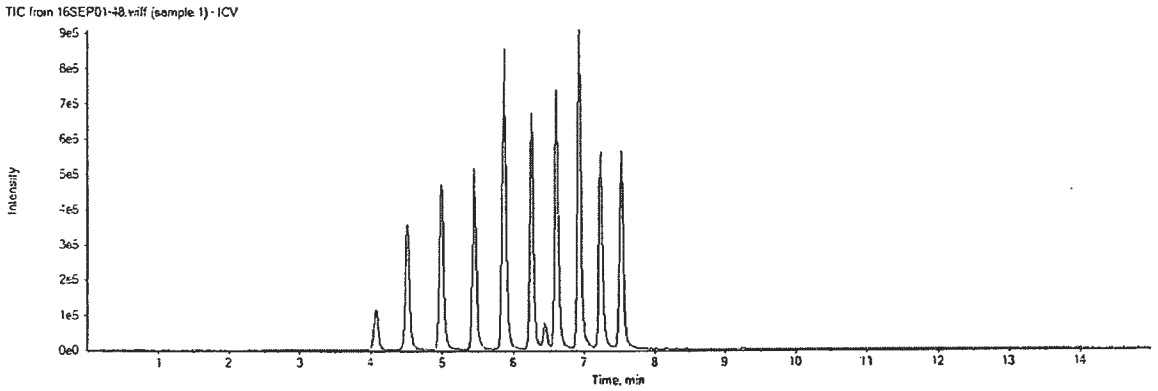
SEP 19 2016

Lynn Dodd
Principal Specialist

MED 7824
9/15/16

Initial Calibration Verification

Sample ID: ICV
Sample Name: ICV
Sample File: 16SEP01-48.wiff
Acquisition Date: 9/2/2016 4:05:41 AM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	497927.0	18O2-PFHxS	250421.8	1.00	1.988	4.07	8.85	8.290	-6.3	
PFHxA	750127.9	13C2-PFHxA	717884.1	1.00	1.045	4.51	10.00	9.930	-0.7	
PFHpA	783387.0	13C4-PFHpA	447118.2	1.00	1.752	4.98	10.00	8.440	-15.6	
PFHxS	486435.8	18O2-PFHxS	250421.8	1.00	1.942	4.98	9.45	9.220	-2.5	
PFOA	1232593.2	13C4-PFOA	641153.3	1.00	1.922	5.45	10.00	9.420	-5.8	
PFNA	1574580.9	13C5-PFNA	946094.6	1.00	1.664	5.87	10.00	8.300	-17.0	
PFOS	445982.4	13C4-PFOS	248621.4	1.00	1.794	5.84	9.55	9.890	3.6	
PFDA	1611228.8	13C2-PFDA	768611.4	1.00	2.096	6.26	10.00	9.110	-8.9	
PFUnDA	1625370.2	13C2-PFUnDA	853045.6	1.00	1.905	6.61	10.00	9.870	-1.3	
PFDoDA	2121786.2	13C2-PFDoDA	1168648.9	1.00	1.816	6.92	10.00	9.810	-1.9	
PFTrDA	2141632.8	13C2-PFDoDA	1168648.9	1.00	1.833	7.23	10.00	9.820	-1.8	
PFTeDA	2138950.9	13C2-PFDoDA	1168648.9	1.00	1.830	7.52	10.00	10.000	0.0	

Lynn Dodd
SEP 19 2016

Lynn Dodd
Principal Specialist

MCD 7824
9/15/16

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 ✓ Lab File ID: 16SEP06-27.WIFF

Date/Time Analyzed: 09/06/2016 16:02 Lab Sample ID: CCV5

Init. Calib. Date/Times: 09/02/2016 02:10 09/02/2016 03:32

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2318325	616149	9.99	9.85	-1.35	±40
Perfluorohexanoic acid	960737	224588	2.50	2.46	-1.42	±30
Perfluoroheptanoic acid	880581	252612	2.50	2.26	-9.66	±30
Perfluorohexanesulfonate	2041626	496645	10.00	9.04	-9.63 ✓	±30
Perfluorooctanoic acid	1775597	398762	2.50	2.53	1.02	±30
Perfluorononanoic acid	2067193	497624	2.50	2.39	-4.58	±30
Perfluoro-octanesulfonate	1813587	475187	9.99	10.38	3.91	±30
Perfluorodecanoic acid	2156930	421701	2.50	2.14	-14.55	±30
Perfluoroundecanoic acid	2243772	476287	2.50	2.47	-1.02	±30
Perfluorododecanoic acid	5371777	1111575	5.00	4.60	-7.94	±30
Perfluorotridecanoic acid	5411192	1278725	5.00	5.25	5.06	±40
Perfluorotetradecanoic acid	5315967	1498782	5.00	6.28	25.54 ✓	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16SEP06-38.WIFF

Date/Time Analyzed: 09/06/2016 19:03 Lab Sample ID: CCV6

Init. Calib. Date/Times: 09/02/2016 02:10 09/02/2016 03:32

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2318325	2250186	39.96	35.04	-12.30	±40
Perfluorohexanoic acid	960737	1637000	10.00	11.40	13.98	±30
Perfluoroheptanoic acid	880581	1096734	10.00	8.84	-11.63	±30
Perfluorohexanesulfonate	2041626	2063866	40.00	36.57	-8.58	±30
Perfluorooctanoic acid	1775597	1847725	10.00	10.89	8.91	±30
Perfluorononanoic acid	2067193	2231005	10.00	8.89	-11.06	±30
Perfluoro-octanesulfonate	1813587	1914202	39.96	39.48	-1.21	±30
Perfluorodecanoic acid	2156930	2699243	10.00	9.23	-7.71	±30
Perfluoroundecanoic acid	2243772	3264521	10.00	9.44	-5.60	±30
Perfluorododecanoic acid	5371777	8467060	20.00	19.74	-1.30	±30
Perfluorotridecanoic acid	5411192	6576027	20.00	15.21	-23.95	±40
Perfluorotetradecanoic acid	5315967	5657018	20.00	13.34	-33.31	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

Does not bracket samples

SDG No.: SPP16

Instrument ID: 24743 Lab File ID: 16SEP01-49.WIFF

Date/Time Analyzed: 09/02/2016 04:22 Lab Sample ID: CCV1

Init. Calib. Date/Times: 09/02/2016 02:10 09/02/2016 03:32

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2318325	561066	9.99	9.74	-2.47	±40
Perfluorohexanoic acid	960737	185941	2.50	2.40	-4.03	±30
Perfluoroheptanoic acid	880581	237139	2.50	2.52	0.82	±30
Perfluorohexanesulfonate	2041626	490464	10.00	9.69	-3.10	±30
Perfluorooctanoic acid	1775597	335049	2.50	2.49	-0.31	±30
Perfluorononanoic acid	2067193	462118	2.50	2.43	-2.83	±30
Perfluoro-octanesulfonate	1813587	457744	9.99	10.11	1.19	±30
Perfluorodecanoic acid	2156930	433437	2.50	2.53	1.26	±30
Perfluoroundecanoic acid	2243772	439872	2.50	2.52	0.66	±30
NMeFOSAA	953042	166337	10.00	9.53	-4.71	±30
NEtFOSAA	843961	150946	10.00	10.47	4.71	±30
Perfluorododecanoic acid	5371777	980832	5.00	4.44	-11.28	±30
Perfluorotridecanoic acid	5411192	1099049	5.00	4.93	-1.38	±40
Perfluorotetradecanoic acid	5315967	1043731	5.00	4.77	-4.51	±40

* Outside QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

16235011	13C2-PFDA	13C2-PFDODA	13C2-PFHXA	13C2-PFUNDA
	Area	Area	Area	Area
Average ICAL Response	728075	1119124	705085	924551
UPPER LIMIT	1092113	1678686	1057628	1386827
LOWER LIMIT	364038	559562	352543	462276
LAB SAMPLE ID				
BLK235011	780567	1091408	703247	896345
LCS235011	625624	945613	589736	750778
8535031	201654 *	470270 *	271922 *	101772 *
8535032MS	216526 *	537979 *	298071 *	109261 *
8535033MSD	279405 *	645566	441756	148733 *
8535030	792987	392769 *	279688 *	536379
8535035	48973 *	107232 *	75237 *	95721 *
8535036	51192 *	117770 *	79521 *	87838 *
8535037	333948 *	587443	769796	448932 *

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

16235011	13C4-PFHPA	13C4-PFOA	13C4-PFOS	13C5-PFNA
	Area	Area	Area	Area
Average ICAL Response	423121	688106	230914	903566
UPPER LIMIT	634682	1032159	346371	1355349
LOWER LIMIT	211561	344053	115457	451783
LAB SAMPLE ID				
BLK235011	446221	660972	227153	997387
LCS235011	364128	536329	191097	806165
8535031	95003 * NR	19229 * NR	116770	333200 * ↓
8535032MS	94727 *	18416 *	101855 *	329490 *
8535033MSD	130308 *	21584 *	122584	482348
8535030	241947 NR	44777 * NR	133998	593062
8535035	28895 * NR	20670 * NR	23968 * ↓	89748 * NR
8535036	35838 * NR	26908 * NR	26160 * ↓	100817 * ↓
8535037	354220 NR	66264 * NR	98787 * ↓	347876 * ↓ NR

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

16235011	18O2-PFHXS
	Area
Average ICAL Response	230088
UPPER LIMIT	345132
LOWER LIMIT	115044
LAB SAMPLE ID	
BLK235011	207207
LCS235011	201361
8535031	77804 *
8535032MS	73974 *
8535033MSD	84931 *
8535030	162322
8535035	22032 *
8535036	27924 *
8535037	157299

↓ J|U|S

↓ ↓ J|U|J

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

4500_090216_0210_ISCheck.xlsm

Measure	13C2-PFDA	13C2-PFDoDA	13C2-PFHxA	13C2-PFUnDA	13C4-PFHpA	13C4-PFOA	13C4-PFOS	13C5-PFNA	1802-PFHxS
Average	728075	1119124	705085	924551	423121	688106	230914	903566	230088
Upper	1092112	1678687	1057628	1386826	634681	1032159	346372	1355350	345132
Lower	364037	559562	352543	462275	211560	344053	115457	451783	115044

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LC-MS/MS Sequence Report

Printed: 09/15/2016 11:29:00 AM

Results Table Name: MQ 16235011 9/7/2016 10:12:30 AM

Instrument	Acquisition Date	File Name	Sample ID	Vial Position	Samp Wt	Samp Vol	DF
Triple Quad 4500	9/2/2016 1:54:32 AM	16SEP01-40.wiff	MDL	2	1.00	1.00	1.00
Triple Quad 4500	9/2/2016 2:10:56 AM	16SEP01-41.wiff	CAL1	3	1.00	1.00	1.00
Triple Quad 4500	9/2/2016 2:27:20 AM	16SEP01-42.wiff	CAL2	4	1.00	1.00	1.00
Triple Quad 4500	9/2/2016 2:43:44 AM	16SEP01-43.wiff	CAL3	5	1.00	1.00	1.00
Triple Quad 4500	9/2/2016 3:00:08 AM	16SEP01-44.wiff	CAL4	6	1.00	1.00	1.00
Triple Quad 4500	9/2/2016 3:16:29 AM	16SEP01-45.wiff	CAL5	7	1.00	1.00	1.00
Triple Quad 4500	9/2/2016 3:32:53 AM	16SEP01-46.wiff	CAL6	8	1.00	1.00	1.00
Triple Quad 4500	9/2/2016 3:49:17 AM	16SEP01-47.wiff	solvent	1	1.00	1.00	1.00
Triple Quad 4500	9/2/2016 4:05:41 AM	16SEP01-48.wiff	ICV	9	1.00	1.00	1.00
Triple Quad 4500	9/6/2016 4:02:48 PM	16SEP06-27.wiff	CCV5	5	1.00	1.00	1.00
Triple Quad 4500	9/6/2016 4:19:09 PM	16SEP06-28.wiff	BLK235011	16	5.00	1.00	1.00
Triple Quad 4500	9/6/2016 4:35:33 PM	16SEP06-29.wiff	LCS235011	17	5.00	1.00	1.00
Triple Quad 4500	9/6/2016 4:51:57 PM	16SEP06-30.wiff	8535031BKG ✓	18	5.18	1.00	1.00
Triple Quad 4500	9/6/2016 5:08:21 PM	16SEP06-31.wiff	8535032MS ✓	19	5.20	1.00	1.00
Triple Quad 4500	9/6/2016 5:24:45 PM	16SEP06-32.wiff	8535033MSD ✓	20	5.02	1.00	1.00
Triple Quad 4500	9/6/2016 5:41:06 PM	16SEP06-33.wiff	8528703	21	5.01	1.00	1.00
Triple Quad 4500	9/6/2016 5:57:30 PM	16SEP06-34.wiff	8535030 ✓	22	5.17	1.00	1.00
Triple Quad 4500	9/6/2016 6:13:51 PM	16SEP06-35.wiff	8535035 ✓	23	5.36	1.00	1.00
Triple Quad 4500	9/6/2016 6:30:12 PM	16SEP06-36.wiff	8535036 ✓	24	5.49	1.00	1.00
Triple Quad 4500	9/6/2016 6:46:36 PM	16SEP06-37.wiff	8535037 ✓	25	5.25	1.00	1.00
Triple Quad 4500	9/6/2016 7:03:00 PM	16SEP06-38.wiff	CCV6	6	1.00	1.00	1.00
Triple Quad 4500	9/2/2016 4:22:02 AM	16SEP01-49.wiff	CCV1	5	1.00	1.00	1.00

Lynn Dodd
SEP 19 2016

MEP 7824 9/15/16

Lynn Dodd
Principal Specialist

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FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Lab File Names: CAL1= 16SEP13-10.WIFF; CAL2= 16SEP13-11.WIFF; CAL3= 16SEP13-12.WIFF;
CAL4= 16SEP13-13.WIFF; CAL5= 16SEP13-14.WIFF; CAL6= 16SEP13-15.WIFF;

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.212	0.80	0.768	-3.9	±50
CAL2	0.556	2.00	2.013	0.7	±40
CAL3	2.686	9.99	9.730	-2.6	±40
CAL4	10.946	39.96	39.657	-0.8	±40
CAL5	33.359	119.90	120.857	0.8	±40
CAL6	44.005	159.80	159.424	-0.2	±40

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.027	0.20	0.196	-2.1	±50
CAL2	0.069	0.50	0.506	1.2	±30
CAL3	0.369	2.50	2.704	8.2	±30
CAL4	1.331	10.00	9.755	-2.5	±30
CAL5	4.060	30.00	29.765	-0.8	±30
CAL6	5.494	40.00	40.275	0.7	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.055	0.20	0.236	18.2	±50
CAL2	0.134	0.50	0.573	14.6	±30
CAL3	0.650	2.50	2.771	10.9	±30
CAL4	2.381	10.00	10.154	1.5	±30
CAL5	7.271	30.00	31.007	3.4	±30
CAL6	9.018	40.00	38.458	-3.9	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.207	0.80	0.847	5.8	±50
CAL2	0.539	2.00	2.203	10.2	±30
CAL3	2.432	10.00	9.938	-0.6	±30
CAL4	10.023	40.00	40.957	2.4	±30
CAL5	29.178	120.00	119.228	-0.6	±30
CAL6	39.064	160.00	159.628	-0.2	±30

* Outside QC Limits.

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FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Lab File Names: CAL1= 16SEP13-10.WIFF; CAL2= 16SEP13-11.WIFF; CAL3= 16SEP13-12.WIFF; CAL4= 16SEP13-13.WIFF; CAL5= 16SEP13-14.WIFF; CAL6= 16SEP13-15.WIFF;

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.053	0.20	0.224	11.9	±50
CAL2	0.139	0.50	0.587	17.4	±30
CAL3	0.687	2.50	2.896	15.8	±30
CAL4	2.181	10.00	9.188	-8.1	±30
CAL5	7.279	30.00	30.659	2.2	±30
CAL6	9.413	40.00	39.646	-0.9	±30

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.219	9.7	±50
CAL2	0.122	0.50	0.521	4.3	±30
CAL3	0.631	2.50	2.697	7.9	±30
CAL4	2.366	10.00	10.107	1.1	±30
CAL5	6.911	30.00	29.517	-1.6	±30
CAL6	9.398	40.00	40.139	0.3	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.181	0.80	0.853	6.7	±50
CAL2	0.486	2.00	2.292	14.6	±30
CAL3	2.305	9.99	10.862	8.7	±30
CAL4	9.162	39.96	43.178	8.1	±30
CAL5	24.776	119.90	116.765	-2.6	±30
CAL6	33.631	159.80	158.499	-0.8	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.060	0.20	0.204	1.9	±50
CAL2	0.152	0.50	0.518	3.7	±30
CAL3	0.734	2.50	2.497	-0.1	±30
CAL4	3.155	10.00	10.726	7.3	±30
CAL5	9.476	30.00	32.219	7.4	±30
CAL6	10.893	40.00	37.036	-7.4	±30

* Outside QC Limits.

FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Lab File Names: CAL1= 16SEP13-10.WIFF; CAL2= 16SEP13-11.WIFF; CAL3= 16SEP13-12.WIFF; CAL4= 16SEP13-13.WIFF; CAL5= 16SEP13-14.WIFF; CAL6= 16SEP13-15.WIFF;

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.217	8.5	±50
CAL2	0.125	0.50	0.533	6.6	±30
CAL3	0.610	2.50	2.607	4.3	±30
CAL4	2.380	10.00	10.163	1.6	±30
CAL5	7.378	30.00	31.508	5.0	±30
CAL6	8.939	40.00	38.172	-4.6	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.099	0.40	0.452	13.1	±50
CAL2	0.237	1.00	1.083	8.3	±30
CAL3	1.156	5.00	5.293	5.9	±30
CAL4	4.778	20.00	21.878	9.4	±30
CAL5	12.758	60.00	58.420	-2.6	±30
CAL6	17.312	80.00	79.273	-0.9	±30

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.095	0.40	0.439	9.6	±50
CAL2	0.231	1.00	1.068	6.8	±40
CAL3	1.089	5.00	5.037	0.7	±40
CAL4	4.632	20.00	21.427	7.1	±40
CAL5	12.955	60.00	59.923	-0.1	±40
CAL6	16.972	80.00	78.506	-1.9	±40

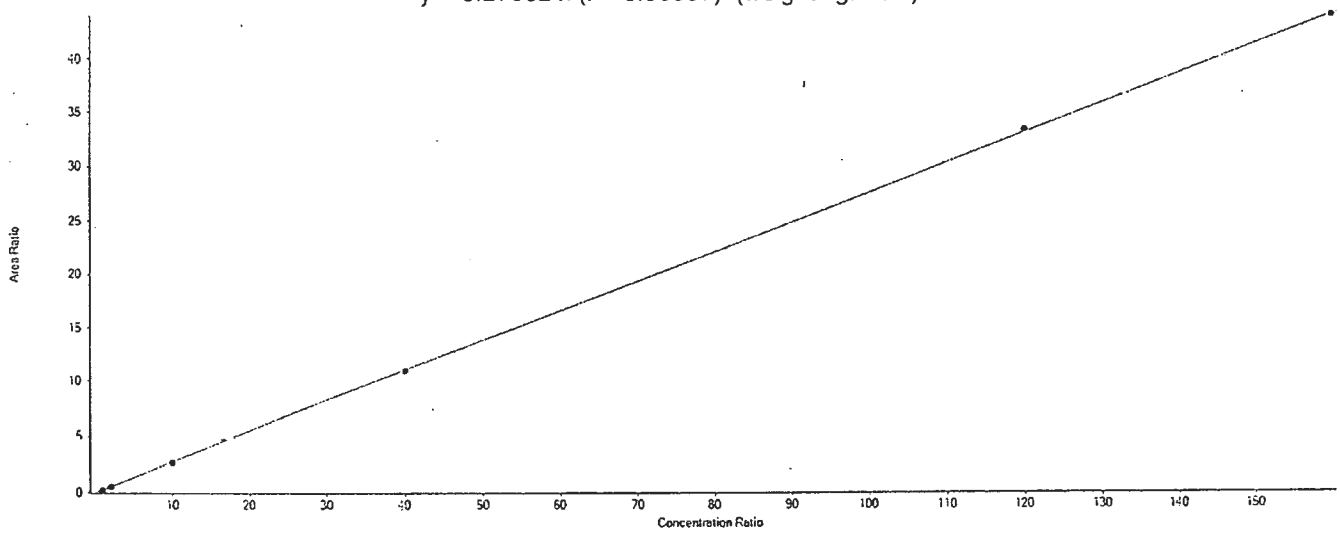
Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.077	0.40	0.418	4.5	±50
CAL2	0.186	1.00	1.004	0.4	±40
CAL3	0.916	5.00	4.947	-1.1	±40
CAL4	3.748	20.00	20.249	1.2	±40
CAL5	11.180	60.00	60.405	0.7	±40
CAL6	14.692	80.00	79.377	-0.8	±40

* Outside QC Limits.

Initial Calibration

Results Table Name: MQ 16235011DL 9/15/2016 1:10:20 PM
ICAL Name: 16SEP13ICAL

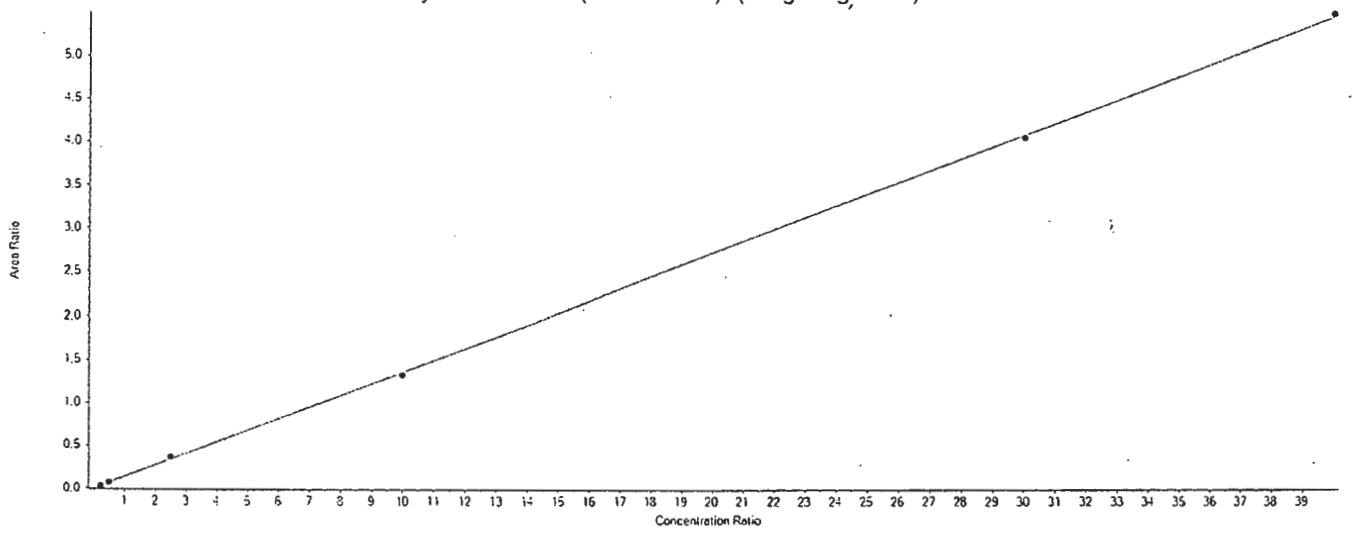
PFBS
y = 0.27602 x (r = 0.99997) (weighting: 1 / x)



Calibration Verification

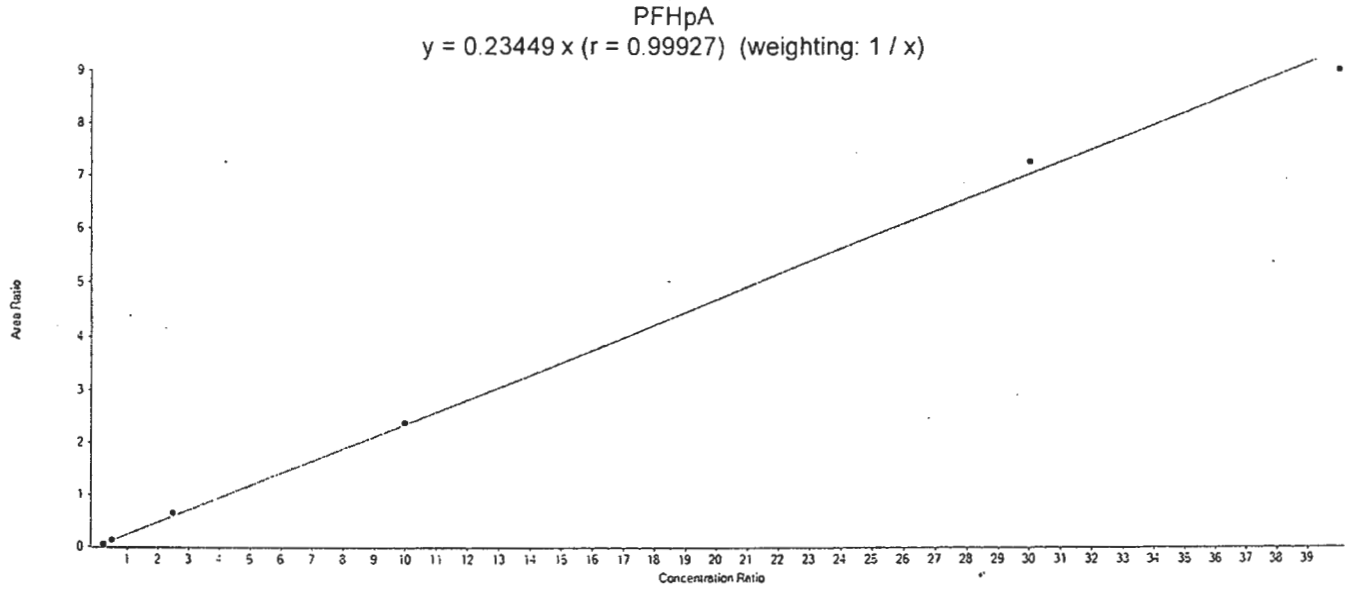
File Name	Sample Name	PFBS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	63541.7	299880.3	1.00	0.212	4.04	0.800	0.770	-3.9
16SEP13-11.wiff	CAL2	140310.6	252476.4	1.00	0.556	4.04	2.000	2.010	0.7
16SEP13-12.wiff	CAL3	706878.0	263202.5	1.00	2.686	4.04	9.990	9.730	-2.6
16SEP13-13.wiff	CAL4	2376190.2	217077.1	1.00	10.946	4.04	39.960	39.660	-0.8
16SEP13-14.wiff	CAL5	5304380.8	159007.7	1.00	33.359	4.05	119.900	120.860	0.8
16SEP13-15.wiff	CAL6	6526696.2	148317.3	1.00	44.005	4.05	159.800	159.420	-0.2

PFHxA
y = 0.13641 x (r = 0.99983) (weighting: 1 / x)



Calibration Verification

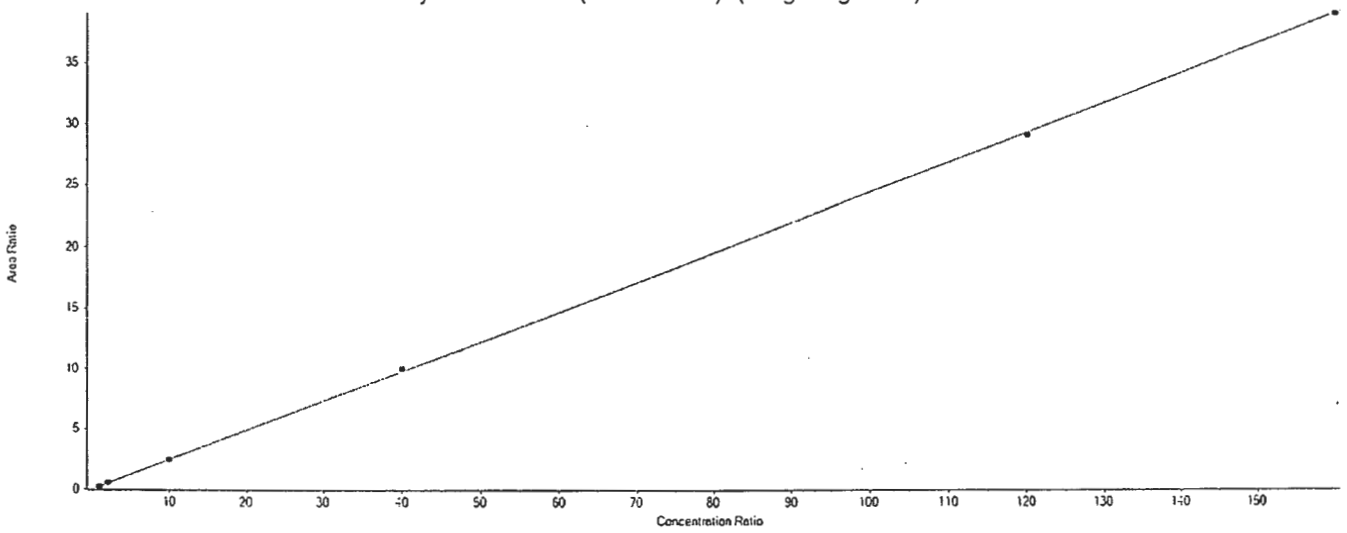
File Name	Sample Name	PFHxA Area	13C2-PFHxA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	26146.5	978973.5	1.00	0.027	4.46	0.200	0.200	-2.1
16SEP13-11.wiff	CAL2	62669.4	907718.4	1.00	0.069	4.47	0.500	0.510	1.2
16SEP13-12.wiff	CAL3	340140.7	922185.8	1.00	0.369	4.47	2.500	2.700	8.2
16SEP13-13.wiff	CAL4	1157050.7	869526.2	1.00	1.331	4.47	10.000	9.750	-2.5
16SEP13-14.wiff	CAL5	3223577.1	793918.7	1.00	4.060	4.47	30.000	29.760	-0.8
16SEP13-15.wiff	CAL6	4305463.9	783667.0	1.00	5.494	4.48	40.000	40.270	0.7



Calibration Verification

File Name	Sample Name	PFHpA Area	13C4-PFHpA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	36960.2	666938.7	1.00	0.055	4.94	0.200	0.240	18.2
16SEP13-11.wiff	CAL2	83287.4	619933.3	1.00	0.134	4.94	0.500	0.570	14.6
16SEP13-12.wiff	CAL3	350993.6	540102.6	1.00	0.650	4.94	2.500	2.770	10.9
16SEP13-13.wiff	CAL4	1110820.9	466542.8	1.00	2.381	4.94	10.000	10.150	1.5
16SEP13-14.wiff	CAL5	2277914.0	313289.1	1.00	7.271	4.95	30.000	31.010	3.4
16SEP13-15.wiff	CAL6	2655011.3	294410.0	1.00	9.018	4.95	40.000	38.460	-3.9

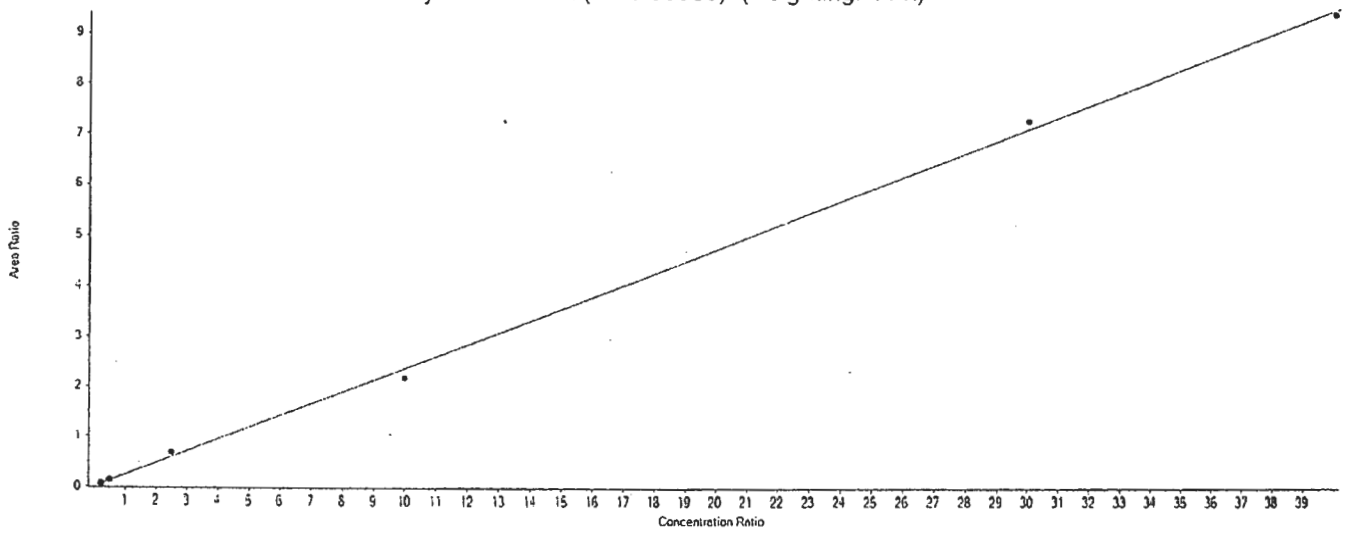
PFHxS
y = 0.24472 x (r = 0.99994) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHxS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	62134.0	299880.3	1.00	0.207	4.93	0.800	0.850	5.8
16SEP13-11.wiff	CAL2	136119.3	252476.4	1.00	0.539	4.93	2.000	2.200	10.2
16SEP13-12.wiff	CAL3	640115.6	263202.5	1.00	2.432	4.93	10.000	9.940	-0.6
16SEP13-13.wiff	CAL4	2175761.5	217077.1	1.00	10.023	4.93	40.000	40.960	2.4
16SEP13-14.wiff	CAL5	4639482.4	159007.7	1.00	29.178	4.94	120.000	119.230	-0.6
16SEP13-15.wiff	CAL6	5793931.6	148317.3	1.00	39.064	4.94	160.000	159.630	-0.2

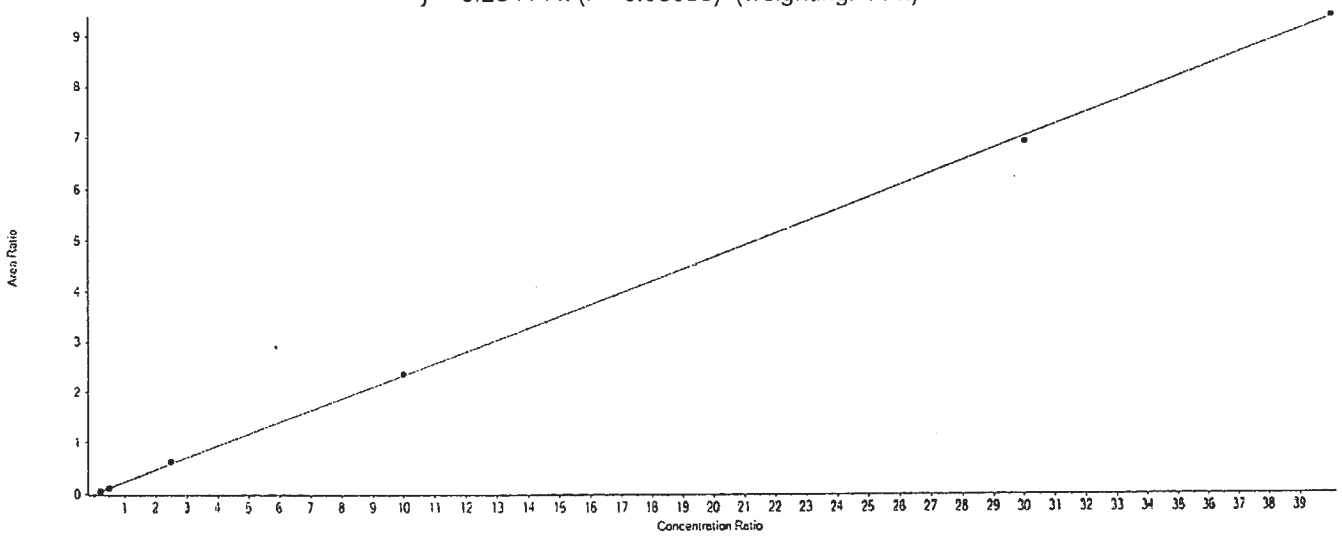
PFOA
y = 0.23742 x (r = 0.99908) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFOA Area	13C4-PFOA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	53060.3	999012.5	1.00	0.053	5.38	0.200	0.220	11.9
16SEP13-11.wiff	CAL2	126133.1	904688.5	1.00	0.139	5.38	0.500	0.590	17.4
16SEP13-12.wiff	CAL3	581448.8	845770.8	1.00	0.687	5.38	2.500	2.900	15.8
16SEP13-13.wiff	CAL4	1962911.9	899863.2	1.00	2.181	5.38	10.000	9.190	-8.1
16SEP13-14.wiff	CAL5	5639280.8	774733.8	1.00	7.279	5.39	30.000	30.660	2.2
16SEP13-15.wiff	CAL6	7298959.3	775441.7	1.00	9.413	5.39	40.000	39.650	-0.9

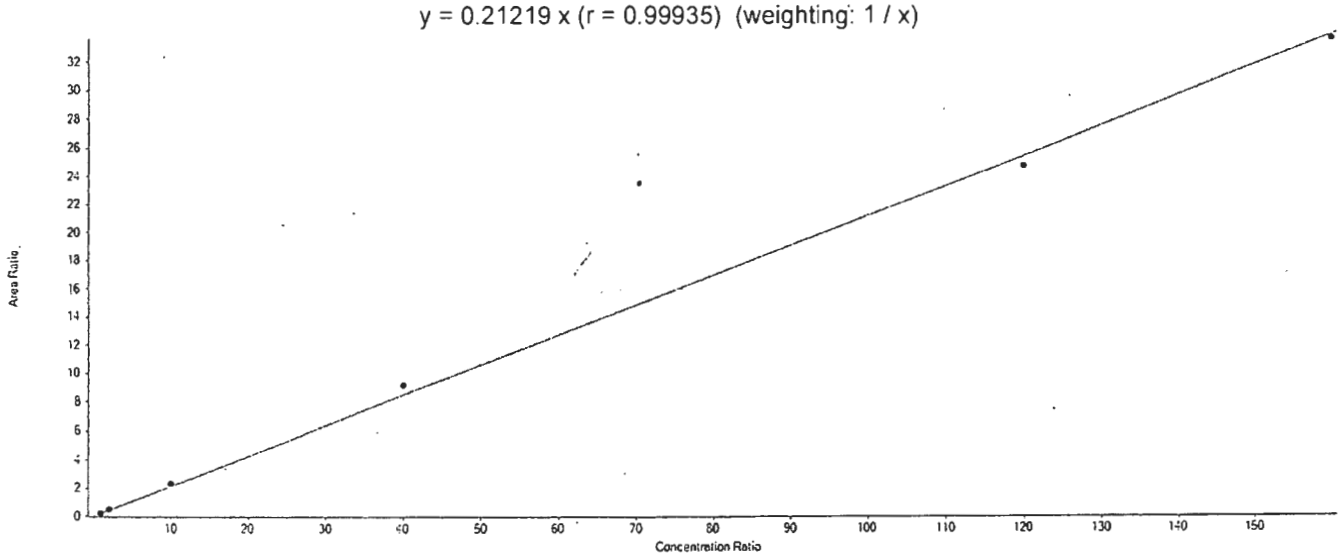
PFNA
y = 0.23414 x (r = 0.99986) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFNA Area	13C5-PFNA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	71001.0	1381532.7	1.00	0.051	5.79	0.200	0.220	9.7
16SEP13-11.wiff	CAL2	161254.6	1321183.4	1.00	0.122	5.79	0.500	0.520	4.3
16SEP13-12.wiff	CAL3	754041.9	1194216.7	1.00	0.631	5.80	2.500	2.700	7.9
16SEP13-13.wiff	CAL4	2362675.7	998427.8	1.00	2.366	5.80	10.000	10.110	1.1
16SEP13-14.wiff	CAL5	5365109.0	776307.5	1.00	6.911	5.81	30.000	29.520	-1.6
16SEP13-15.wiff	CAL6	6348683.9	675522.3	1.00	9.398	5.81	40.000	40.140	0.3

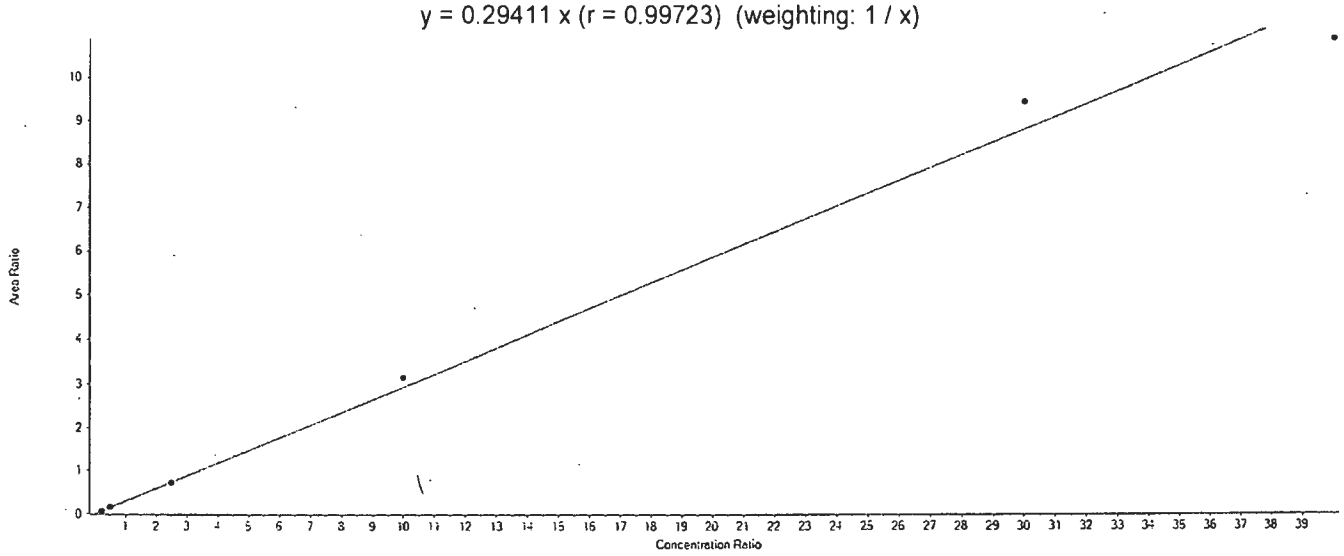
PFOS
y = 0.21219 x (r = 0.99935) (weighting: 1 / x)



Calibration Verification

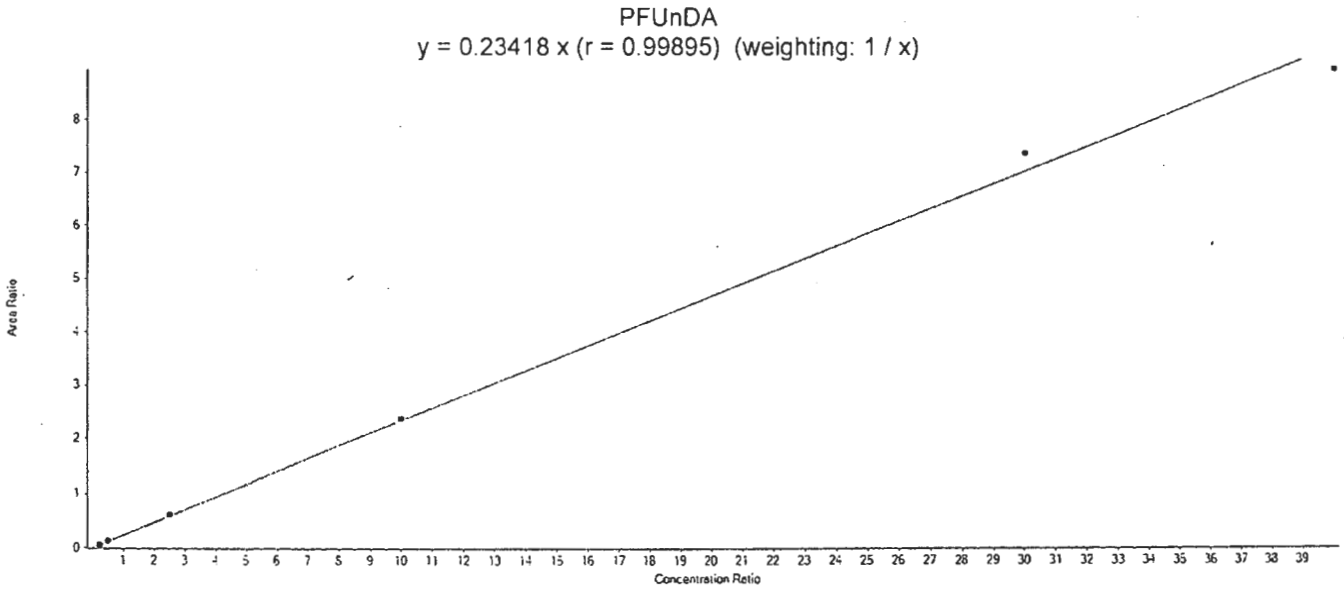
File Name	Sample Name	PFOS Area	13C4-PFOS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	55175.0	304970.4	1.00	0.181	5.77	0.800	0.850	6.7
16SEP13-11.wiff	CAL2	129175.2	265583.0	1.00	0.486	5.77	2.000	2.290	14.6
16SEP13-12.wiff	CAL3	628860.5	272842.3	1.00	2.305	5.77	9.990	10.860	8.7
16SEP13-13.wiff	CAL4	1937086.2	211434.0	1.00	9.162	5.77	39.960	43.180	8.1
16SEP13-14.wiff	CAL5	4131645.8	166761.0	1.00	24.776	5.77	119.900	116.770	-2.6
16SEP13-15.wiff	CAL6	5042073.0	149922.8	1.00	33.631	5.77	159.800	158.500	-0.8

PFDA
y = 0.29411 x (r = 0.99723) (weighting: 1 / x)



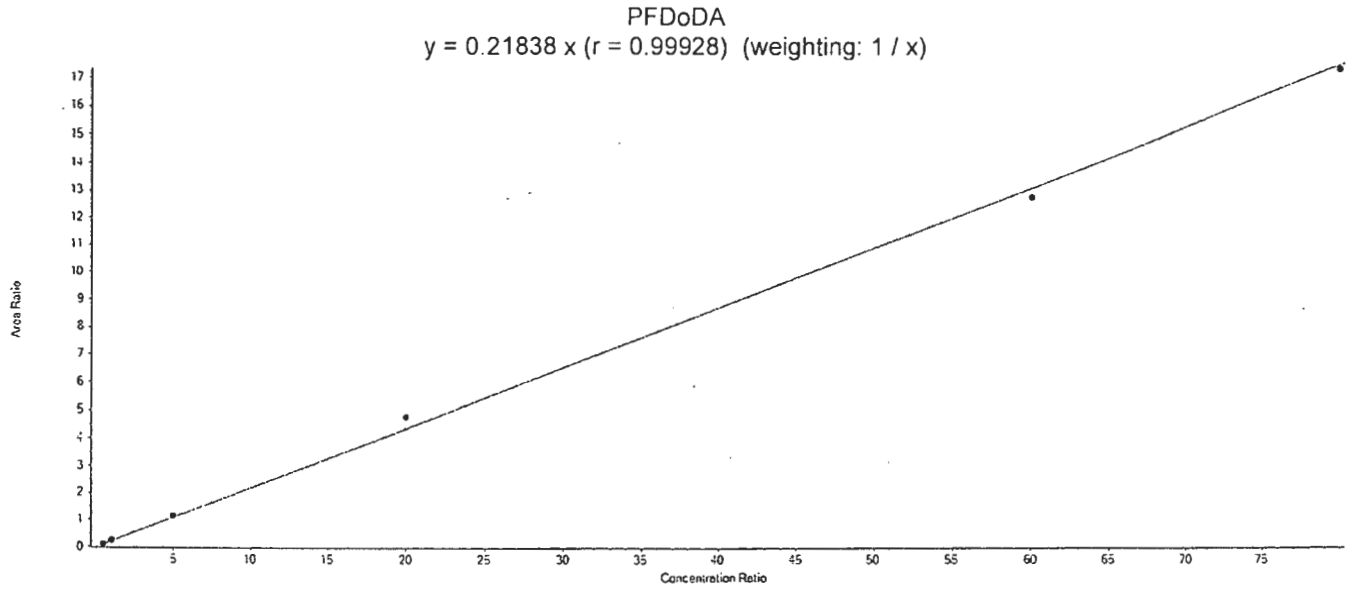
Calibration Verification

File Name	Sample Name	PFDA Area	13C2-PFDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	66854.3	1115310.2	1.00	0.060	6.16	0.200	0.200	1.9
16SEP13-11.wiff	CAL2	155754.5	1021845.5	1.00	0.152	6.16	0.500	0.520	3.7
16SEP13-12.wiff	CAL3	720475.6	981230.9	1.00	0.734	6.16	2.500	2.500	-0.1
16SEP13-13.wiff	CAL4	2477611.6	785385.8	1.00	3.155	6.16	10.000	10.730	7.3
16SEP13-14.wiff	CAL5	6368991.5	672119.8	1.00	9.476	6.17	30.000	32.220	7.4
16SEP13-15.wiff	CAL6	7497594.3	688324.9	1.00	10.893	6.17	40.000	37.040	-7.4



Calibration Verification

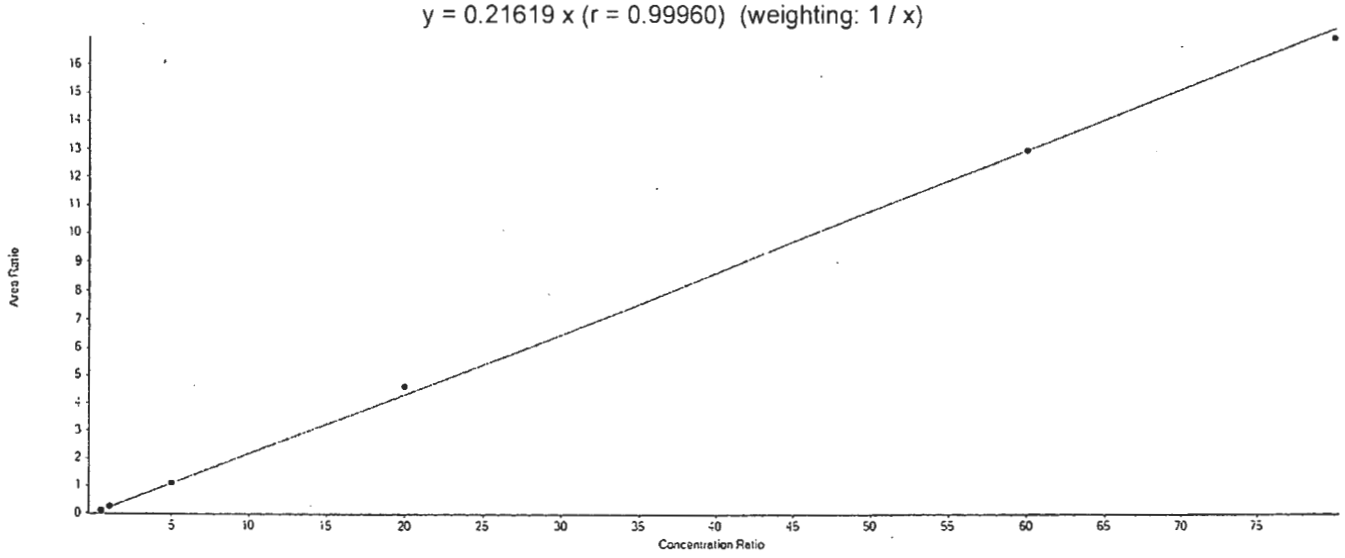
File Name	Sample Name	PFUnDA Area	13C2-PFUnDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	61925.7	1219131.9	1.00	0.051	6.50	0.200	0.220	8.5
16SEP13-11.wiff	CAL2	141029.5	1129367.5	1.00	0.125	6.50	0.500	0.530	6.6
16SEP13-12.wiff	CAL3	655672.1	1074037.9	1.00	0.610	6.50	2.500	2.610	4.3
16SEP13-13.wiff	CAL4	2271529.5	954409.5	1.00	2.380	6.50	10.000	10.160	1.6
16SEP13-14.wiff	CAL5	5281974.8	715867.1	1.00	7.378	6.50	30.000	31.510	5.0
16SEP13-15.wiff	CAL6	6440099.7	720445.0	1.00	8.939	6.50	40.000	38.170	-4.6



Calibration Verification

File Name	Sample Name	PFDoDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	145026.6	1468366.3	1.00	0.099	6.80	0.400	0.450	13.1
16SEP13-11.wiff	CAL2	313198.9	1323799.5	1.00	0.237	6.80	1.000	1.080	8.3
16SEP13-12.wiff	CAL3	1595741.8	1380438.3	1.00	1.156	6.80	5.000	5.290	5.9
16SEP13-13.wiff	CAL4	5511489.5	1153584.5	1.00	4.778	6.80	20.000	21.880	9.4
16SEP13-14.wiff	CAL5	12929895.1	1013473.3	1.00	12.758	6.81	60.000	58.420	-2.6
16SEP13-15.wiff	CAL6	16392610.6	946892.8	1.00	17.312	6.81	80.000	79.270	-0.9

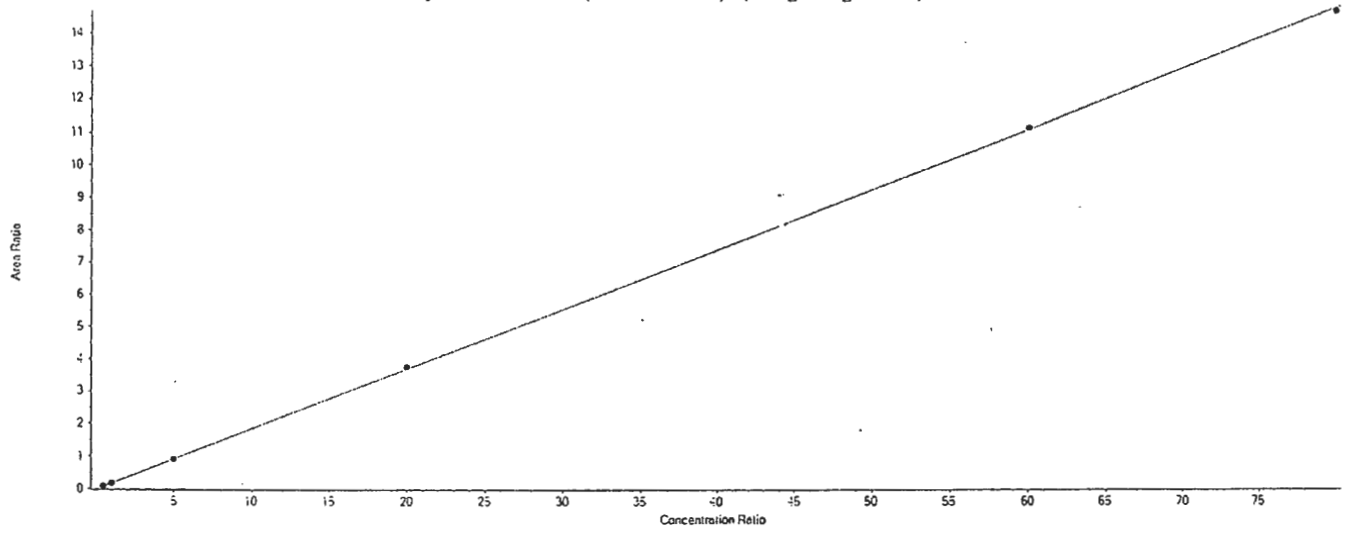
PFTrDA
y = 0.21619 x (r = 0.99960) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFTrDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	139213.9	1468366.3	1.00	0.095	7.08	0.400	0.440	9.6
16SEP13-11.wiff	CAL2	305700.7	1323799.5	1.00	0.231	7.08	1.000	1.070	6.8
16SEP13-12.wiff	CAL3	1503307.5	1380438.3	1.00	1.089	7.08	5.000	5.040	0.7
16SEP13-13.wiff	CAL4	5343781.3	1153584.5	1.00	4.632	7.08	20.000	21.430	7.1
16SEP13-14.wiff	CAL5	13129191.1	1013473.3	1.00	12.955	7.08	60.000	59.920	-0.1
16SEP13-15.wiff	CAL6	16070684.1	946892.8	1.00	16.972	7.09	80.000	78.510	-1.9

PFTeDA
y = 0.18509 x (r = 0.99996) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFTeDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	113633.7	1468366.3	1.00	0.077	7.34	0.400	0.420	4.5
16SEP13-11.wiff	CAL2	245893.2	1323799.5	1.00	0.186	7.34	1.000	1.000	0.4
16SEP13-12.wiff	CAL3	1263991.1	1380438.3	1.00	0.916	7.34	5.000	4.950	-1.1
16SEP13-13.wiff	CAL4	4323346.5	1153584.5	1.00	3.748	7.34	20.000	20.250	1.2
16SEP13-14.wiff	CAL5	11330737.0	1013473.3	1.00	11.180	7.35	60.000	60.410	0.7
16SEP13-15.wiff	CAL6	13911365.7	946892.8	1.00	14.692	7.35	80.000	79.380	-0.8

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LC-MS/MS Analysis Report

Printed: 9/15/2016 1:23:00 PM

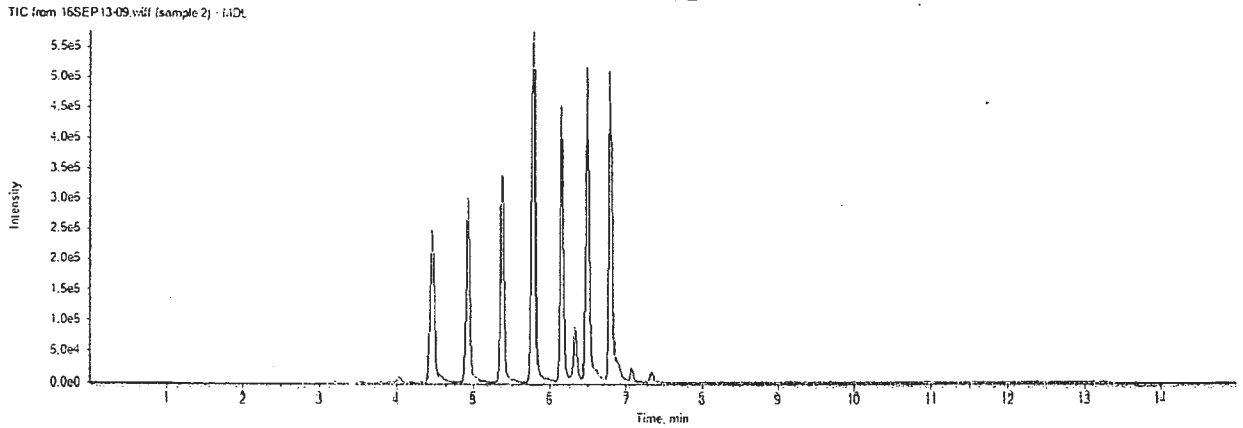
Sample Name:	MDL		**Data File:**		16SEP13-09.wiff
Sample ID:	MDL		**Acquis Date:**		2016-09-13T18:28:47
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	2		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL
			ICAL Name:		16SEP13ICAL
Batch Number:	PFCICAL		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

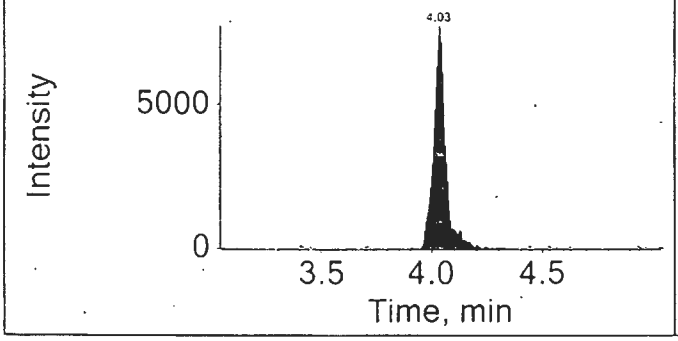
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.03	29863.2	A	18O2-PFHxS	4.93	298991.4	0.100	0.362	ng/g
PFHxA	4.47	12954.0	A	13C2-PFHxA	4.46	970127.1	0.013	0.098	ng/g
PFHpA	4.93	15426.5	A	13C4-PFHpA	4.93	679839.0	0.023	0.097	ng/g
PFHxS	4.92	27407.9	A	18O2-PFHxS	4.93	298991.4	0.092	0.375	ng/g
PFOA	5.38	25113.0	A	13C4-PFOA	5.37	1097709.0	0.023	0.096	ng/g
PFNA	5.79	32609.9	A	13C5-PFNA	5.78	1600258.2	0.020	0.087	ng/g
PFOS	5.76	26360.3	A	13C4-PFOS	5.76	324275.3	0.081	0.383	ng/g
PFDA	6.16	31518.1	A	13C2-PFDA	6.15	1200404.4	0.026	0.089	ng/g
PFUnDA	6.49	29143.5	A	13C2-PFUnDA	6.49	1288911.9	0.023	0.097	ng/g
PFDoDA	6.79	62196.4	A	13C2-PFDoDA	6.79	1559861.6	0.040	0.183	ng/g
PFTrDA	7.07	62540.5	A	13C2-PFDoDA	6.79	1559861.6	0.040	0.185	ng/g
PFTeDA	7.33	54878.7	A	13C2-PFDoDA	6.79	1559861.6	0.035	0.190	ng/g

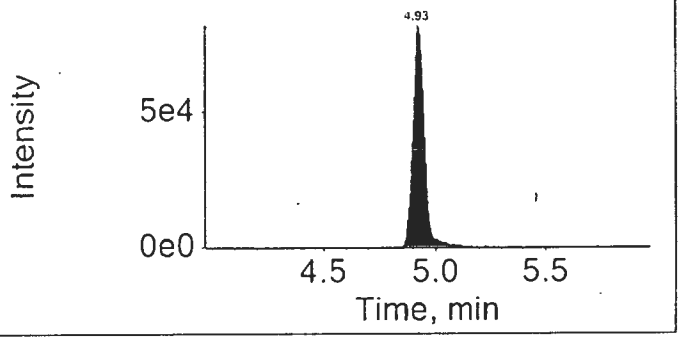
Total Ion Chromatogram

MDL

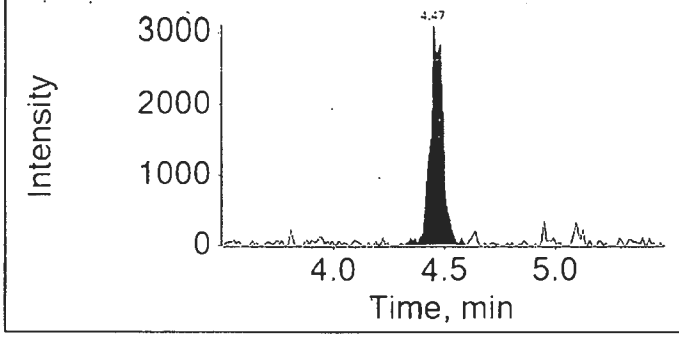


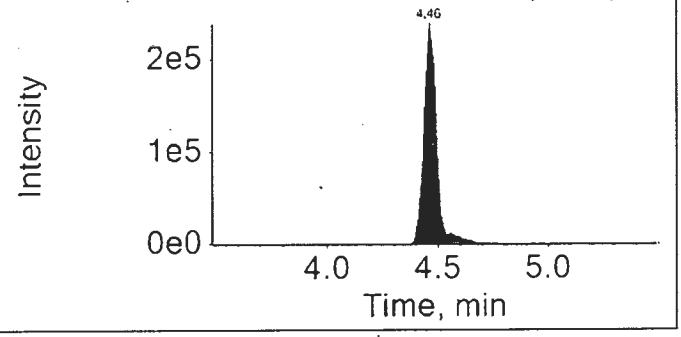
16SEP13-09.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



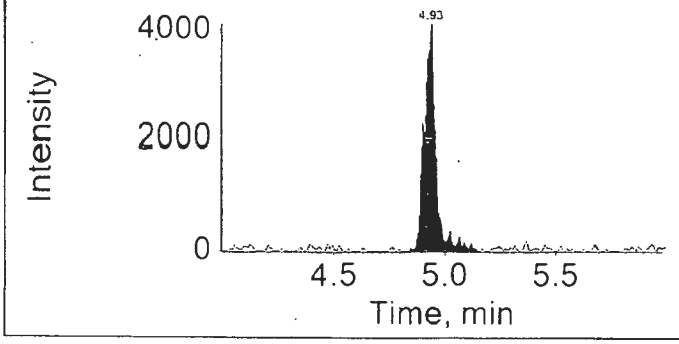


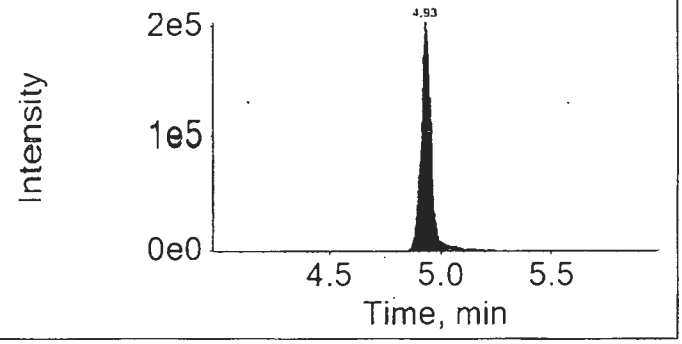
16SEP13-09.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



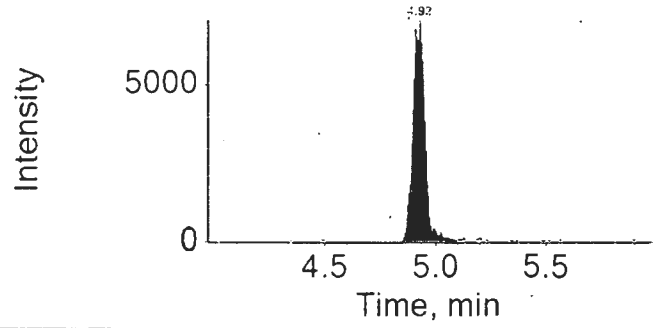


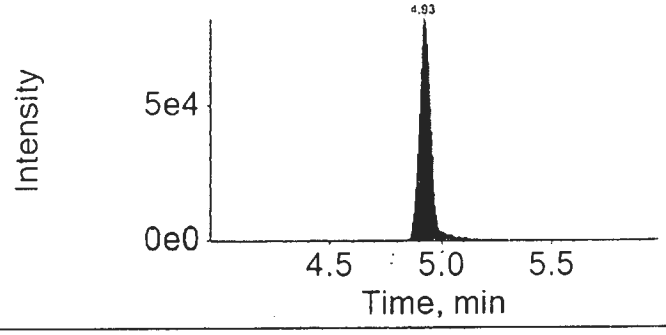
16SEP13-09.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



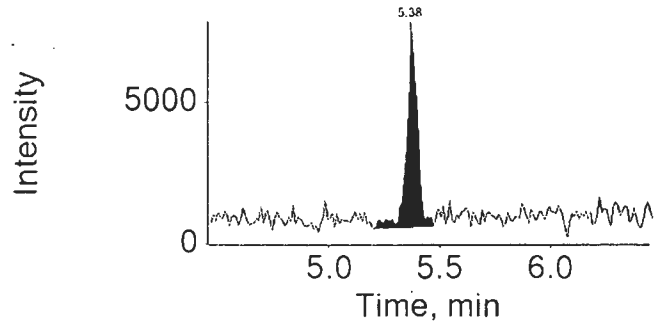


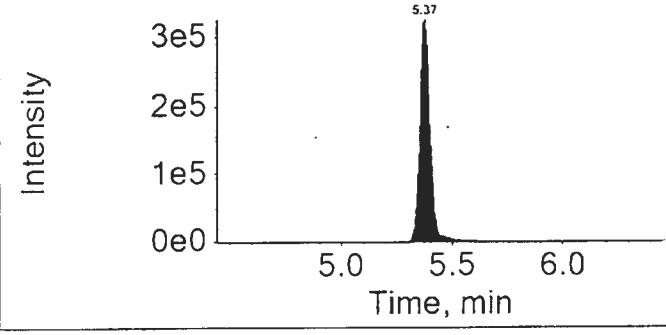
16SEP13-09.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



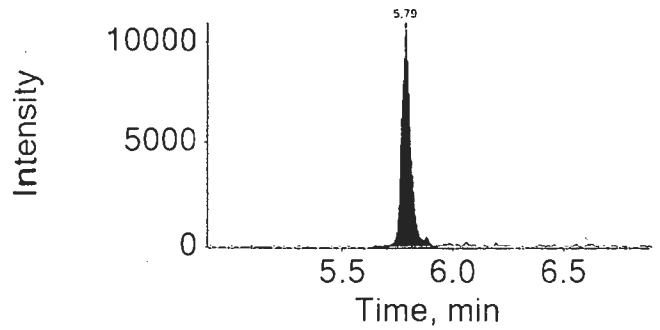


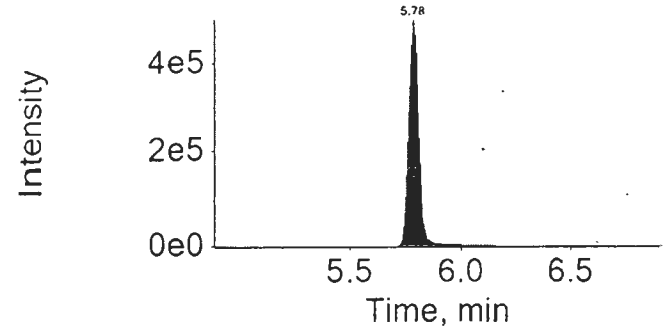
16SEP13-09.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



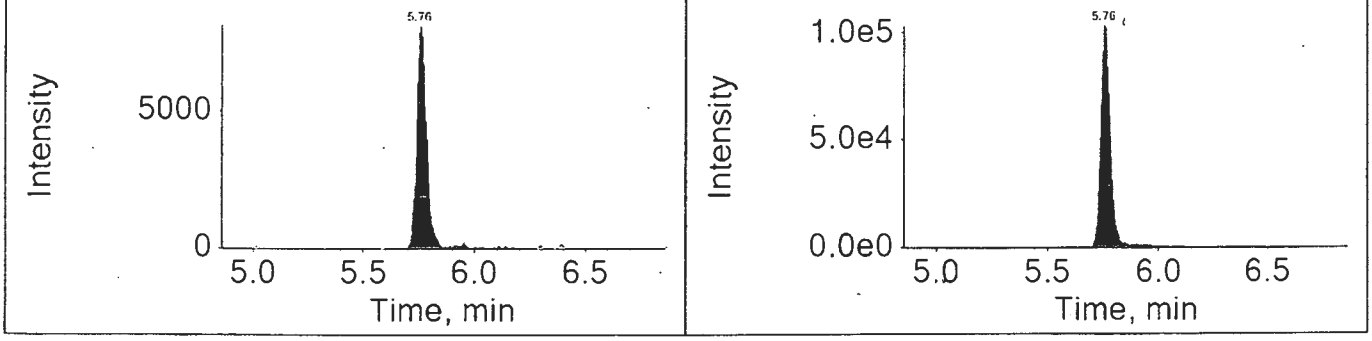


16SEP13-09.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0

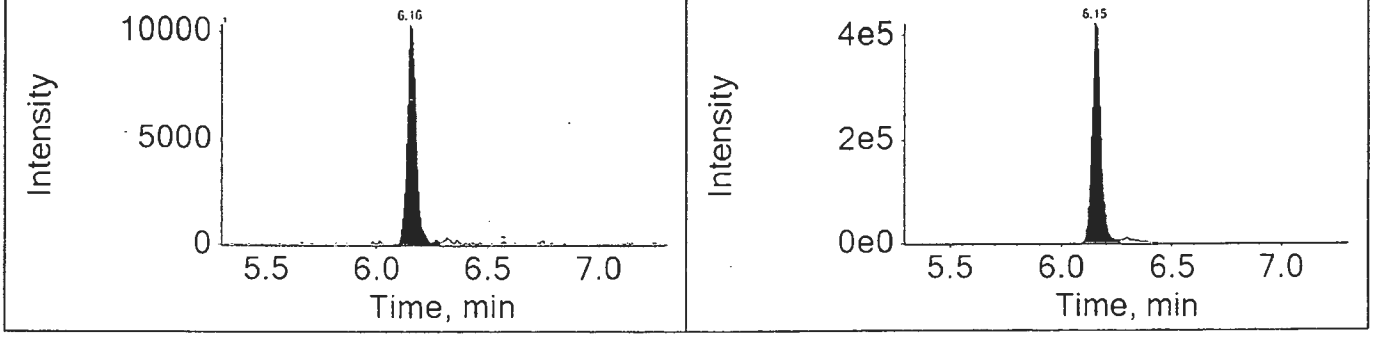




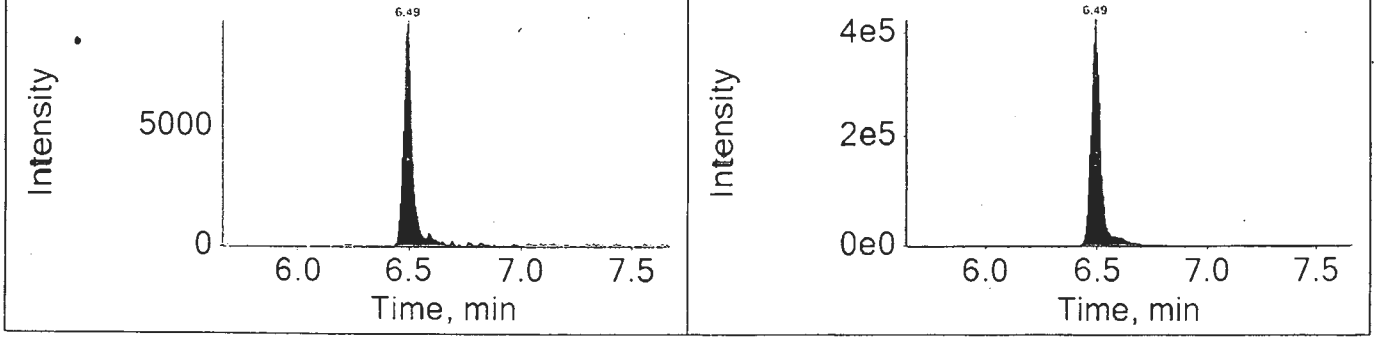
16SEP13-09.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



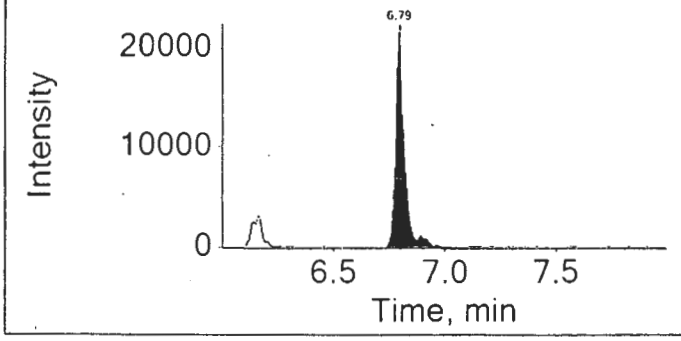
16SEP13-09.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0

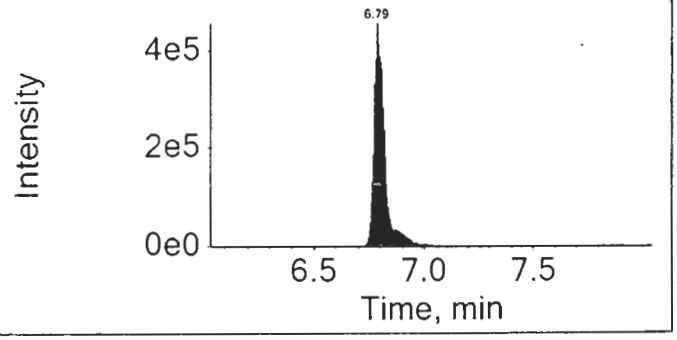


16SEP13-09.wiff	
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0

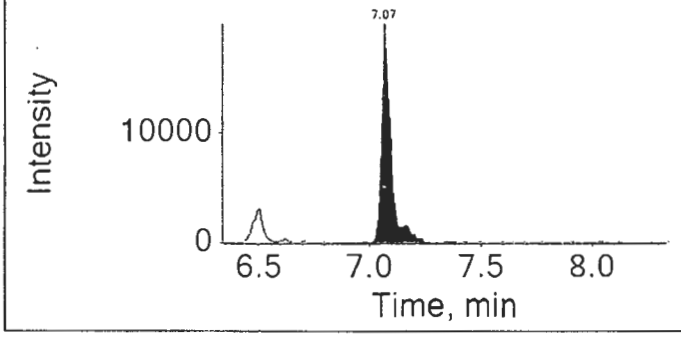


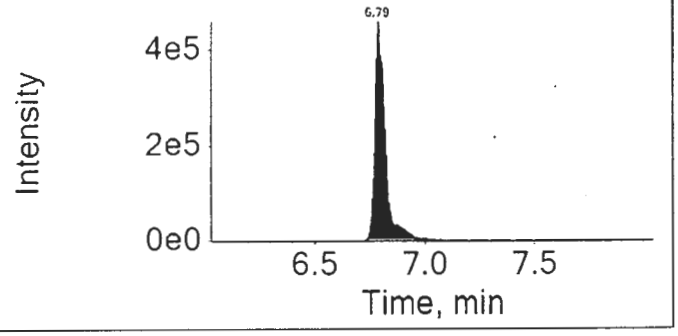
16SEP13-09.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



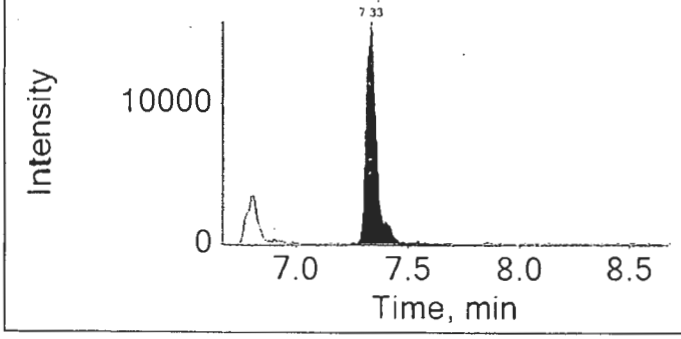


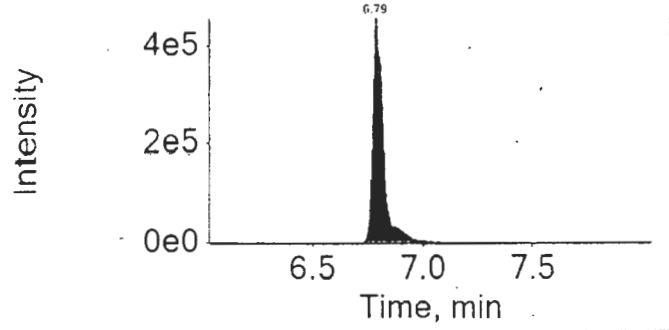
16SEP13-09.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16SEP13-09.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd

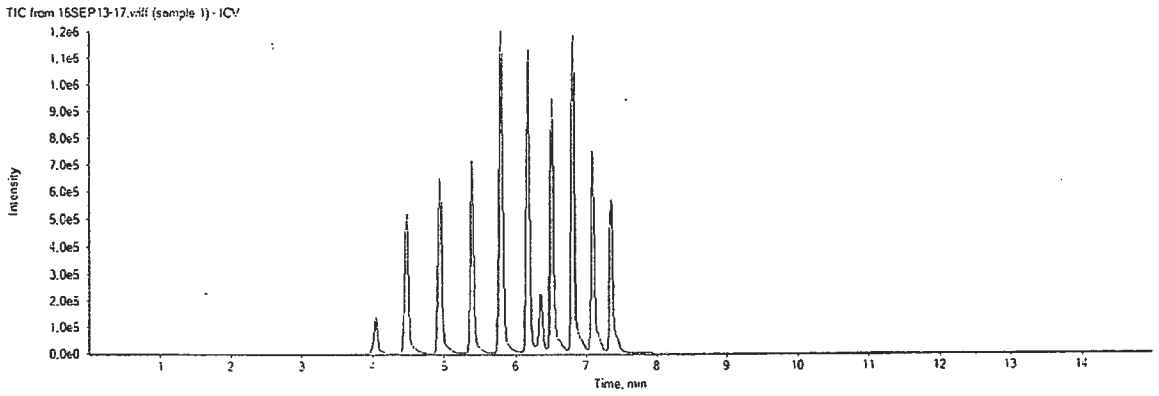
SEP 19 2016

Lynn Dodd
Principal Specialist

MEN 7824 9/19/16

Initial Calibration Verification

Sample ID: ICV
Sample Name: ICV
Sample File: 16SEP13-17.wiff
Acquisition Date: 9/13/2016 8:39:53 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	529306.4	18O2-PFHxS	270331.6	1.00	1.958	4.04	8.85	7.090	-19.8	
PFHxA	1200902.5	13C2-PFHxA	919745.7	1.00	1.306	4.47	10.00	9.570	-4.3	
PFHpA	1159324.9	13C4-PFHpA	561060.8	1.00	2.066	4.94	10.00	8.810	-11.9	
PFHxS	568642.2	18O2-PFHxS	270331.6	1.00	2.103	4.93	9.45	8.600	-9.0	
PFOA	1652225.7	13C4-PFOA	826569.7	1.00	1.999	5.39	10.00	8.420	-15.8	
PFNA	2336636.6	13C5-PFNA	1220662.8	1.00	1.914	5.79	10.00	8.180	-18.2	
PFOS	533051.9	13C4-PFOS	267887.6	1.00	1.990	5.77	9.55	9.380	-1.8	
PFDA	2457272.1	13C2-PFDA	1057762.0	1.00	2.323	6.17	10.00	7.900	-21.0	
PFUnDA	1959351.4	13C2-PFUnDA	957801.2	1.00	2.046	6.50	10.00	8.740	-12.6	
PFDoDA	2808980.3	13C2-PFDoDA	1310702.5	1.00	2.143	6.81	10.00	9.810	-1.9	
PFTrDA	2634900.7	13C2-PFDoDA	1310702.5	1.00	2.010	7.08	10.00	9.300	-7.0	
PFTeDA	2158247.8	13C2-PFDoDA	1310702.5	1.00	1.647	7.35	10.00	8.900	-11.0	

Lynn Dodd
SEP 19 2016

Lynn Dodd
Principal Specialist

MCP 7844 9/15/16

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16SEP13-18.WIFF

Date/Time Analyzed: 09/13/2016 20:56 Lab Sample ID: CCV1

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2519666	677816	9.99	10.38	3.90	±40
Perfluorohexanoic acid	1519175	344109	2.50	2.84	13.40	±30
Perfluoroheptanoic acid	1085831	364624	2.50	2.68	7.19	±30
Perfluorohexanesulfonate	2241258	646358	10.00	11.16	11.64	±30
Perfluorooctanoic acid	2610299	560129	2.50	2.72	8.64	±30
Perfluorononanoic acid	2510461	776118	2.50	2.61	4.58	±30
Perfluoro-octanesulfonate	1987336	617427	9.99	11.00	10.07	±30
Perfluorodecanoic acid	2881214	672058	2.50	2.46	-1.50	±30
Perfluoroundecanoic acid	2475372	631548	2.50	2.77	10.90	±30
Perfluorododecanoic acid	6147994	1482705	5.00	5.30	5.97	±30
Perfluorotridecanoic acid	6081980	1521520	5.00	5.49	9.84	±40
Perfluorotetradecanoic acid	5198161	1249097	5.00	5.27	5.33	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16SEP14-18.WIFF

Date/Time Analyzed: 09/14/2016 13:00 ✓ Lab Sample ID: CCV3

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2519666	2266779	39.96	37.08	-7.20	±40
Perfluorohexanoic acid	1519175	1189352	10.00	10.21	2.06	±30
Perfluoroheptanoic acid	1085831	1036441	10.00	11.37	13.72	±30
Perfluorohexanesulfonate	2241258	2094300	40.00	38.64	-3.39	±30
Perfluorooctanoic acid	2610299	2184458	10.00	10.97	9.74	±30
Perfluorononanoic acid	2510461	2180824	10.00	9.62	-3.75	±30
Perfluoro-octanesulfonate	1987336	1917015	39.96	41.77	4.52	±30
Perfluorodecanoic acid	2881214	2324287	10.00	9.43 ✓	-5.70 ✓	±30
Perfluoroundecanoic acid	2475372	1801938	10.00	9.07	-9.28	±30
Perfluorododecanoic acid	6147994	5382367	20.00	20.92	4.62	±30
Perfluorotridecanoic acid	6081980	4945711	20.00	19.42	-2.89	±40
Perfluorotetradecanoic acid	5198161	4219680	20.00	19.36 ✓	-3.22 ✓	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16SEP14-29.WIFF

Date/Time Analyzed: 09/14/2016 16:00 Lab Sample ID: CCV4

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2519666	5144179	0	121.97		±40
Perfluorohexanoic acid	1519175	3122303	0	30.12		±30
Perfluoroheptanoic acid	1085831	2298589	0	33.41		±30
Perfluorohexanesulfonate	2241258	4687568	0	125.36		±30
Perfluorooctanoic acid	2610299	5247842	0	30.14		±30
Perfluorononanoic acid	2510461	4953379	0	26.33		±30
Perfluoro-octanesulfonate	1987336	4323163	0	129.43		±30
Perfluorodecanoic acid	2881214	5677801	0	27.52		±30
Perfluoroundecanoic acid	2475372	5097893	0	28.05		±30
Perfluorododecanoic acid	6147994	13111991	0	58.48		±30
Perfluorotridecanoic acid	6081980	11766016	0	53.01		±40
Perfluorotetradecanoic acid	5198161	9518569	0	50.09		±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16SEP14-29.WIFF

Date/Time Analyzed: 09/14/2016 16:00 Lab Sample ID: CCV4

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2519666	5144179	119.90	121.97	1.72	±40
Perfluorohexanoic acid	1519175	3122303	30.00	30.12	0.41	±30
Perfluoroheptanoic acid	1085831	2298589	30.00	33.41	11.37	±30
Perfluorohexanesulfonate	2241258	4687568	120.00	125.36	4.46	±30
Perfluorooctanoic acid	2610299	5247842	30.00	30.14	0.48	±30
Perfluorononanoic acid	2510461	4953379	30.00	26.33	-12.24	±30
Perfluoro-octanesulfonate	1987336	4323163	119.90	129.43	7.95	±30
Perfluorodecanoic acid	2881214	5677801	30.00	27.52	-8.27	±30
Perfluoroundecanoic acid	2475372	5097893	30.00	28.05	-6.50	±30
Perfluorododecanoic acid	6147994	13111991	60.00	58.48	-2.53	±30
Perfluorotridecanoic acid	6081980	11766016	60.00	53.01	-11.65	±40
Perfluorotetradecanoic acid	5198161	9518569	60.00	50.09	-16.51	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16SEP14-38.WIFF

Date/Time Analyzed: 09/14/2016 18:27 Lab Sample ID: CCV5

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2519666	671901	9.99	9.53	-4.62	±40
Perfluorohexanoic acid	1519175	298214	2.50	2.55	1.93	±30
Perfluoroheptanoic acid	1085831	363853	2.50	3.00	20.13	±30
Perfluorohexanesulfonate	2241258	617371	10.00	9.87	-1.25	±30
Perfluorooctanoic acid	2610299	588851	2.50	2.96	18.23	±30
Perfluorononanoic acid	2510461	711771	2.50	2.46	-1.67	±30
Perfluoro-octanesulfonate	1987336	590702	9.99	11.36	13.67	±30
Perfluorodecanoic acid	2881214	591320	2.50	2.25	-9.89	±30
Perfluoroundecanoic acid	2475372	578664	2.50	2.67	6.64	±30
Perfluorododecanoic acid	6147994	1539170	5.00	5.89	17.77	±30
Perfluorotridecanoic acid	6081980	1318079	5.00	5.09	1.88	±40
Perfluorotetradecanoic acid	5198161	1080359	5.00	4.88	-2.46	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16SEP14-49.WIFF

Date/Time Analyzed: 09/14/2016 21:27 Lab Sample ID: CCV6

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2519666	2194414	39.96	38.34	-4.05	±40
Perfluorohexanoic acid	1519175	1129552	10.00	9.98	-0.16	±30
Perfluoroheptanoic acid	1085831	1022364	10.00	10.00	0.03	±30
Perfluorohexanesulfonate	2241258	2025272	40.00	39.91	-0.21	±30
Perfluorooctanoic acid	2610299	1854243	10.00	9.41	-5.88	±30
Perfluorononanoic acid	2510461	2334781	10.00	10.08	0.77	±30
Perfluoro-octanesulfonate	1987336	1871569	39.96	40.86	2.26	±30
Perfluorodecanoic acid	2881214	2543870	10.00	9.75	-2.49	±30
Perfluoroundecanoic acid	2475372	2039115	10.00	9.49	-5.06	±30
Perfluorododecanoic acid	6147994	5174634	20.00	20.30	1.51	±30
Perfluorotridecanoic acid	6081980	5152467	20.00	20.42	2.10	±40
Perfluorotetradecanoic acid	5198161	4111040	20.00	19.03	-4.85	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16SEP14-60.WIFF

Date/Time Analyzed: 09/15/2016 00:28 Lab Sample ID: CCV7

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2519666	5076713	119.90	112.70	-6.01	±40
Perfluorohexanoic acid	1519175	3068528	30.00	28.64	-4.53	±30
Perfluoroheptanoic acid	1085831	2362979	30.00	30.11	0.36	±30
Perfluorohexanesulfonate	2241258	4661863	120.00	116.73	-2.73	±30
Perfluorooctanoic acid	2610299	5812269	30.00	31.24	4.14	±30
Perfluorononanoic acid	2510461	5054799	30.00	27.65	-7.84	±30
Perfluoro-octanesulfonate	1987336	4283252	119.90	121.58	1.40	±30
Perfluorodecanoic acid	2881214	6475577	30.00	28.11	-6.32	±30
Perfluoroundecanoic acid	2475372	5191509	30.00	28.76	-4.12	±30
Perfluorododecanoic acid	6147994	12577088	60.00	63.68	6.13	±30
Perfluorotridecanoic acid	6081980	12474611	60.00	63.80	6.34	±40
Perfluorotetradecanoic acid	5198161	10304966	60.00	61.56	2.60	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 ✓ Lab File ID: 16SEP14-65.WIFF

Date/Time Analyzed: 09/15/2016 01:50 Lab Sample ID: CCV8

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2519666	659806	9.99	9.70	-2.88	±40
Perfluorohexanoic acid	1519175	335139	2.50	2.79	11.42	±30
Perfluoroheptanoic acid	1085831	375827	2.50	2.81	12.57	±30
Perfluorohexanesulfonate	2241258	614544	10.00	10.19	1.92	±30
Perfluorooctanoic acid	2610299	541126	2.50	2.74	9.73	±30
Perfluorononanoic acid	2510461	737034	2.50	2.55	1.84	±30
Perfluoro-octanesulfonate	1987336	601421	9.99	10.81	8.25	±30
Perfluorodecanoic acid	2881214	721266	2.50	2.34	-6.58	±30
Perfluoroundecanoic acid	2475372	620476	2.50	2.54 ✓	1.60 ✓	±30
Perfluorododecanoic acid	6147994	1435094	5.00	5.01	0.13	±30
Perfluorotridecanoic acid	6081980	1443186	5.00	5.09	1.72	±40
Perfluorotetradecanoic acid	5198161	1264345	5.00	5.20 ✓	4.09 ✓	±40

✓

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743
Lab File ID: 16SEP14-87.WIFF
Date/Time Analyzed: 09/15/2016 07:50
Lab Sample ID: CCV10
Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2519666	671268	9.99	10.60	6.08	±40
Perfluorohexanoic acid	1519175	323976	2.50	2.86	14.27	±30
Perfluoroheptanoic acid	1085831	377879	2.50	2.85	13.92	±30
Perfluorohexanesulfonate	2241258	599989	10.00	10.68	6.83	±30
Perfluorooctanoic acid	2610299	585555	2.50	2.66	6.52	±30
Perfluorononanoic acid	2510461	764003	2.50	2.69	7.50	±30
Perfluoro-octanesulfonate	1987336	610233	9.99	11.62	16.33	±30
Perfluorodecanoic acid	2881214	740030	2.50	2.22	-11.01	±30
Perfluoroundecanoic acid	2475372	561391	2.50	2.29	-8.41	±30
Perfluorododecanoic acid	6147994	1556255	5.00	5.13	2.66	±30
Perfluorotridecanoic acid	6081980	1298410	5.00	4.33	-13.48	±40
Perfluorotetradecanoic acid	5198161	1147262	5.00	4.46	-10.71	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 ✓ Lab File ID: 16SEP14-98.WIFF

Date/Time Analyzed: 09/15/2016 09:29 Lab Sample ID: CCV11

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2519666	2197792	39.96	37.84	-5.32	±40
Perfluorohexanoic acid	1519175	1125053	10.00	9.60	-4.02	±30
Perfluoroheptanoic acid	1085831	1062831	10.00	10.77	7.69	±30
Perfluorohexanesulfonate	2241258	2008915	40.00	39.01	-2.48	±30
Perfluorooctanoic acid	2610299	1942401	10.00	9.28	-7.22	±30
Perfluorononanoic acid	2510461	2216808	10.00	8.77 ✓	-12.25 ✓	±30
Perfluoro-octanesulfonate	1987336	1909050	39.96	40.34	0.94	±30
Perfluorodecanoic acid	2881214	2287361	10.00	8.08	-19.25	±30
Perfluoroundecanoic acid	2475372	1924917	10.00	8.80	-12.03	±30
Perfluorododecanoic acid	6147994	5660591	20.00	21.86 ✓	9.29 ✓	±30
Perfluorotridecanoic acid	6081980	5087580	20.00	19.84	-0.78	±40
Perfluorotetradecanoic acid	5198161	4548271	20.00	20.72	3.61	±40

✓

* Outside QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

16235011	13C2-PFDA	13C2-PFDODA	13C2-PFHXA	13C2-PFUNDA
	Area	Area	Area	Area
Average ICAL Response	877370	1214426	875998	968876
UPPER LIMIT	1316055	1821639	1313997	1453314
LOWER LIMIT	438685	607213	437999	484438
LAB SAMPLE ID				
8535031 DL	883495	1023857	896481	1278660
8535030DL3	1318931 *	NR 1678132	1019735	1327411
8535030DL2	1161803	1534941	1136017	1309837
8535030DL	1010417	1077520	812113	1178134
8535035DL2	965806	1422435	754721	1140803
8535035DL	298504 *	391839 *	NR 262646 *	NR 365936 * NR
8535036DL2	964933	1184542	892113	1000288
8535036DL	240069 *	309861 *	NR 311307 *	NR 330541 * NR
8535037DL3	1259507	1609932	1003877	1273544
8535037DL2	1281057	1507080	994733	1368371
8535037DL	894625	1265537	945758	1291291

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

original

16235011	13C4-PFHPA	13C4-PFOA	13C4-PFOS	13C5-PFNA
	Area	Area	Area	Area
Average ICAL Response	483536	866585	228586	1057865
UPPER LIMIT	725304	1299878	342879	1586798
LOWER LIMIT	241768	433293	114293	528933
LAB SAMPLE ID				
8535031 DL	505864	53618 * NR	265545	1157270
8535030DL3 1000	792182 * NR	978208	348446 * NR	1606245 * NR
8535030DL2 NR. 100	862529 *	447411	327900	1614226 *
8535030DL 10	849670 *	141560 * NR	276285	1327561
8535035DL2 100	696770	191123 * NR	284398	1302706
8535035DL 10	222333 * NR	45752 * NR	115477	430281 *
8535036DL2 100	692909	238779 * NR	292281	1239084
8535036DL 10	244412	61695 * NR	122938	371894 * NR
8535037DL3 1000	716213	937428	318075	1480480
8535037DL2 100	911774 * NR	673437	307784	1289927
8535037DL 10	870092 *	265385 * NR	262196	855694

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

8535031BKGDDL3 missing-only PFHpA reported IS= 774362.4, which is high. J

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

16235011	18O2-PFHXS
	Area
Average ICAL Response	223327
UPPER LIMIT	334991
LOWER LIMIT	111664
LAB SAMPLE ID	
8535031 DL	194847
8535030DL3	324892
8535030DL2	297000
8535030DL	258588
8535035DL2	274598
8535035DL	107227 * NR
8535036DL2	264736
8535036DL	121494
8535037DL3	283727
8535037DL2	289560
8535037DL	254014

original

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

16235011	13C2-PFDA	13C2-PFDODA	13C2-PFHXA	13C2-PFUNDA
	Area	Area	Area	Area
Average ICAL Response	877370	1214426	875998	968876
UPPER LIMIT	1316055	1821639	1313997	1453314
LOWER LIMIT	438685	607213	437999	484438
LAB SAMPLE ID				
8535031	883495	1023857	896481	1278660
8535030DL3	1318931 *	1678132	1019735	1327411
8535030DL	1010417	1077520	812113	1178134
8535035DL2	965806	1422435	754721	1140803
8535035DL	298504 *	391839 *	262646 *	365936 *
8535036DL2	964933	1184542	892113	1000288
8535036DL	240069 *	309861 *	311307 *	330541 *
8535037DL3	1259507	1609932	1003877	1273544
8535037DL2	1281057	1507080	994733	1368371
8535037DL	894625	1265537	945758	1291291
8535031DL3	1346321 *	1836137 *	1157051	1448794

Missing from original

NR NR

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

16235011	13C4-PFHPA	13C4-PFOA	13C4-PFOS	13C5-PFNA
	Area	Area	Area	Area
Average ICAL Response	483536	866585	228586	1057865
UPPER LIMIT	725304	1299878	342879	1586798
LOWER LIMIT	241768	433293	114293	528933
LAB SAMPLE ID				
8535031 DL	505864	53618 *	265545	1157270
8535030DL3	792182 *	978208	348446 *	1606245 *
8535030DL	849670 *	141560 *	276285	1327561
8535035DL2	696770	191123 *	284398	1302706
8535035DL	222333 *	45752 *	115477	430281 *
8535036DL2	692909	238779 *	292281	1239084
8535036DL	244412	61695 *	122938	371894 *
8535037DL3	716213	937428	318075	1480480
8535037DL2	911774 *	673437	307784	1289927
8535037DL	870092 *	265385 *	262196	855694
8535031DL3	774362 *	523962	324049	1640950 *

missing from original

NR

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

J+

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

16235011	18O2-PFHXS
	Area
Average ICAL Response	223327
UPPER LIMIT	334991
LOWER LIMIT	111664
LAB SAMPLE ID	
8535031 D1	194847
8535030DL3	324892
8535030DL	258588
8535035DL2	274598
8535035DL	107227 *
8535036DL2	264736
8535036DL	121494
8535037DL3	283727
8535037DL2	289560
8535037DL	254014
8535031DL3	320610

NR

missing from original

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

4500_091316_1845_ISCheck.xlsx

Measure	1802-PFHxS	13C2-PFHxA	13C4-PFHpA	13C4-PFOA	13C5-PFNA	13C4-PFOS	13C2-PFDA	13C2-PFUnD	13C2-PFDoDA
Average	223327	875998	483536	866585	1057865	228586	877370	968876	1214426
Upper	334990	1313997	725304	1299878	1586798	342878	1316054	1453315	1821639
Lower	111663	437999	241768	433293	528933	114293	438685	484438	607213

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LC-MS/MS Sequence Report

Printed: 09/15/2016 1:20:00 PM

Instrument	Acquisition Date	File Name	Sample ID	Vial Position	Samp Wt	Samp Vol	DF
Triple Quad 4500	9/13/2016 6:28:47 PM	16SEP13-09.wiff	MDL	2	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 6:45:11 PM	16SEP13-10.wiff	CAL1	3	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 7:01:35 PM	16SEP13-11.wiff	CAL2	4	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 7:17:59 PM	16SEP13-12.wiff	CAL3	5	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 7:34:20 PM	16SEP13-13.wiff	CAL4	6	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 7:50:41 PM	16SEP13-14.wiff	CAL5	7	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 8:07:05 PM	16SEP13-15.wiff	CAL6	8	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 8:39:53 PM	16SEP13-17.wiff	ICV	9	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 8:56:14 PM	16SEP13-18.wiff	CCV1	5	1.00	1.00	1.00
Triple Quad 4500	9/14/2016 1:00:07 PM	16SEP14-18.wiff	CCV3	6	1.00	1.00	1.00
Triple Quad 4500	9/14/2016 2:05:37 PM	16SEP14-22.wiff	8535031BKGDL2 NR	77	5.18	1.00	100.00
Triple Quad 4500	9/14/2016 2:54:49 PM	16SEP14-25.wiff	8535031BKGDL ✓	78	5.18	1.00	10.00
Triple Quad 4500	9/14/2016 3:44:01 PM	16SEP14-28.wiff	8535030DL3 ✓	79	5.17	1.00	1000.00
Triple Quad 4500	9/14/2016 4:00:22 PM	16SEP14-29.wiff	CCV4	7	1.00	1.00	1.00
Triple Quad 4500	9/14/2016 4:16:43 PM	16SEP14-30.wiff	8535030DL2 NR	80	5.17	1.00	100.00
Triple Quad 4500	9/14/2016 5:05:52 PM	16SEP14-33.wiff	8535030DL ✓	81	5.17	1.00	10.00
Triple Quad 4500	9/14/2016 5:55:01 PM	16SEP14-36.wiff	8535035DL3 NR	82	5.36	1.00	1000.00
Triple Quad 4500	9/14/2016 6:27:49 PM	16SEP14-38.wiff	CCV5	5	1.00	1.00	1.00
Triple Quad 4500	9/14/2016 7:00:34 PM	16SEP14-40.wiff	8535035DL2 ✓	83	5.36	1.00	100.00
Triple Quad 4500	9/14/2016 7:49:40 PM	16SEP14-43.wiff	8535035DL ✓	84	5.36	1.00	10.00
Triple Quad 4500	9/14/2016 8:38:49 PM	16SEP14-46.wiff	8535036DL3 NR	85	5.49	1.00	1000.00
Triple Quad 4500	9/14/2016 9:27:58 PM	16SEP14-49.wiff	CCV6	6	1.00	1.00	1.00
Triple Quad 4500	9/14/2016 9:44:22 PM	16SEP14-50.wiff	8535036DL2 ✓	86	5.49	1.00	100.00
Triple Quad 4500	9/14/2016 10:33:34 PM	16SEP14-53.wiff	8535036DL ✓	87	5.49	1.00	10.00
Triple Quad 4500	9/14/2016 11:22:43 PM	16SEP14-56.wiff	8535037DL3 ✓	88	5.25	1.00	1000.00
Triple Quad 4500	9/15/2016 12:11:55 AM	16SEP14-59.wiff	8535037DL2 ✓	89	5.25	1.00	100.00
Triple Quad 4500	9/15/2016 12:28:19 AM	16SEP14-60.wiff	CCV7	7	1.00	1.00	1.00
Triple Quad 4500	9/15/2016 1:01:07 AM	16SEP14-62.wiff	8535037DL ✓	90	5.25	1.00	10.00
Triple Quad 4500	9/15/2016 1:50:19 AM	16SEP14-65.wiff	CCV8	5	1.00	1.00	1.00

Triple Quad 4500	9/15/2016 7:50:56 AM	16SEP14-87.wiff	CCV10	5	1.00	1.00	1.00
Triple Quad 4500	9/15/2016 8:56:32 AM	16SEP14-96.wiff	8535031BKGDL3	76	5.18	1.00	1000.00
Triple Quad 4500	9/15/2016 9:29:20 AM	16SEP14-98.wiff	CCV11	6	1.00	1.00	1.00

Results Table Name: MQ 16235011DL 9/15/2016 12:32:17 PM

Lynn Dodd
SEP 19 2016

Lynn Dodd
Principal Specialist

MED 7824
9/15/16

eurofins | Lancaster Laboratories Environmental

FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 09/20/2016 12:22 09/20/2016 13:44

Lab File Names: CAL1= 16SEP20-05.WIFF; CAL2= 16SEP20-06.WIFF; CAL3= 16SEP20-07.WIFF; CAL4= 16SEP20-08.WIFF; CAL5= 16SEP20-09.WIFF; CAL6= 16SEP20-10.WIFF;

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.213	0.80	0.861	7.8	±50
CAL2	0.451	2.00	1.821	-8.9	±40
CAL3	2.261	9.99	9.122	-8.7	±40
CAL4	10.110	39.96	40.796	2.1	±40
CAL5	29.262	119.90	118.071	-1.5	±40
CAL6	40.094	159.80	161.779	1.2	±40

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.019	0.20	0.153	-23.3	±50
CAL2	0.065	0.50	0.536	7.3	±30
CAL3	0.297	2.50	2.452	-1.9	±30
CAL4	1.124	10.00	9.282	-7.2	±30
CAL5	3.343	30.00	27.594	-8.0	±30
CAL6	5.231	40.00	43.182	8.0	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.178	-11.0	±50
CAL2	0.108	0.50	0.463	-7.4	±30
CAL3	0.522	2.50	2.240	-10.4	±30
CAL4	2.185	10.00	9.382	-6.2	±30
CAL5	6.946	30.00	29.826	-0.6	±30
CAL6	9.574	40.00	41.112	2.8	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.172	0.80	0.760	-5.0	±50
CAL2	0.409	2.00	1.804	-9.8	±30
CAL3	2.325	10.00	10.254	2.5	±30
CAL4	8.626	40.00	38.048	-4.9	±30
CAL5	26.795	120.00	118.194	-1.5	±30
CAL6	37.121	160.00	163.740	2.3	±30

* Outside QC Limits.

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FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 09/20/2016 12:22 09/20/2016 13:44

Lab File Names: CAL1= 16SEP20-05.WIFF; CAL2= 16SEP20-06.WIFF; CAL3= 16SEP20-07.WIFF; CAL4= 16SEP20-08.WIFF; CAL5= 16SEP20-09.WIFF; CAL6= 16SEP20-10.WIFF;

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.048	0.20	0.213	6.5	±50
CAL2	0.098	0.50	0.431	-13.9	±30
CAL3	0.508	2.50	2.237	-10.5	±30
CAL4	2.027	10.00	8.927	-10.7	±30
CAL5	6.668	30.00	29.364	-2.1	±30
CAL6	9.545	40.00	42.029	5.1	±30

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.041	0.20	0.194	-2.8	±50
CAL2	0.088	0.50	0.417	-16.6	±30
CAL3	0.518	2.50	2.467	-1.3	±30
CAL4	2.052	10.00	9.771	-2.3	±30
CAL5	6.324	30.00	30.117	0.4	±30
CAL6	8.448	40.00	40.233	0.6	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.135	0.80	0.649	-18.7	±50
CAL2	0.368	2.00	1.771	-11.4	±30
CAL3	2.128	9.99	10.242	2.5	±30
CAL4	7.508	39.96	36.125	-9.6	±30
CAL5	25.316	119.90	121.816	1.6	±30
CAL6	33.635	159.80	161.846	1.3	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.157	-21.7	±50
CAL2	0.107	0.50	0.381	-23.8	±30
CAL3	0.657	2.50	2.349	-6.0	±30
CAL4	2.295	10.00	8.209	-17.9	±30
CAL5	7.767	30.00	27.783	-7.4	±30
CAL6	12.390	40.00	44.321	10.8	±30

* Outside QC Limits.

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FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 09/20/2016 12:22 09/20/2016 13:44

Lab File Names: CAL1= 16SEP20-05.WIFF; CAL2= 16SEP20-06.WIFF; CAL3= 16SEP20-07.WIFF; CAL4= 16SEP20-08.WIFF; CAL5= 16SEP20-09.WIFF; CAL6= 16SEP20-10.WIFF;

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.035	0.20	0.153	-23.3	±50
CAL2	0.111	0.50	0.485	-3.0	±30
CAL3	0.488	2.50	2.139	-14.4	±30
CAL4	1.628	10.00	7.138	-28.6	±30
CAL5	6.096	30.00	26.719	-10.9	±30
CAL6	10.624	40.00	46.566	16.4	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.074	0.40	0.345	-13.7	±50
CAL2	0.200	1.00	0.932	-6.8	±30
CAL3	1.173	5.00	5.471	9.4	±30
CAL4	3.560	20.00	16.605	-17.0	±30
CAL5	14.460	60.00	67.441	12.4	±30
CAL6	16.210	80.00	75.606	-5.5	±30

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.078	0.40	0.366	-8.6	±50
CAL2	0.181	1.00	0.845	-15.5	±40
CAL3	1.017	5.00	4.754	-4.9	±40
CAL4	3.879	20.00	18.139	-9.3	±40
CAL5	13.039	60.00	60.974	1.6	±40
CAL6	17.390	80.00	81.322	1.7	±40

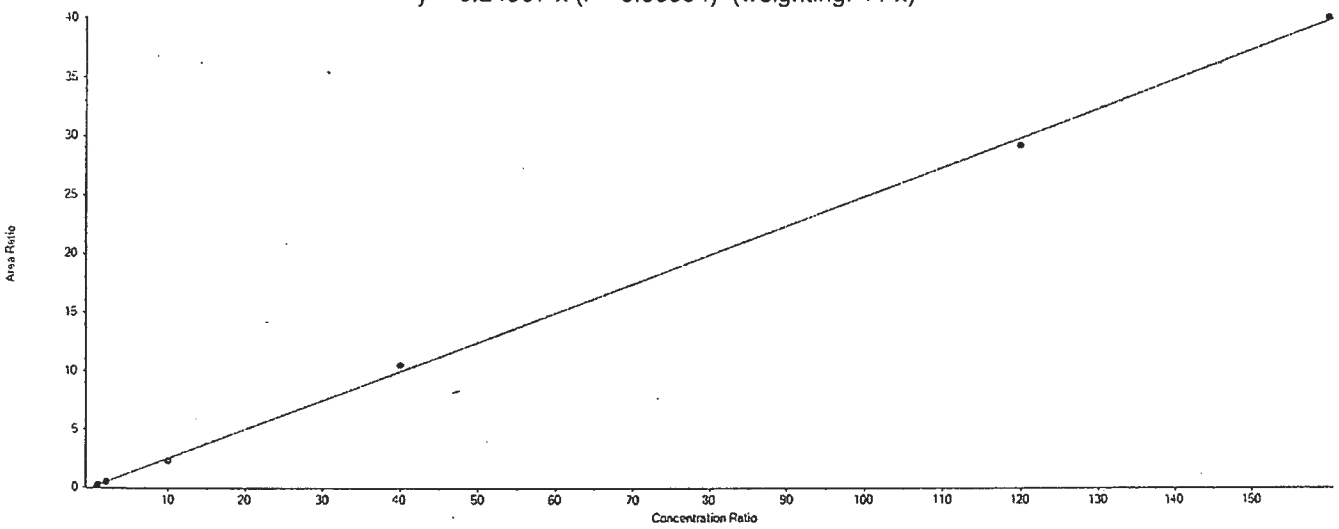
Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.059	0.40	0.340	-15.0	±50
CAL2	0.140	1.00	0.811	-18.9	±40
CAL3	0.755	5.00	4.372	-12.6	±40
CAL4	3.049	20.00	17.652	-11.7	±40
CAL5	10.954	60.00	63.407	5.7	±40
CAL6	13.789	80.00	79.819	-0.2	±40

* Outside QC Limits.

Initial Calibration

Results Table Name: MQ 16235011DL3 9/24/2016 11:08:34 AM
ICAL Name: 16SEP20ICAL

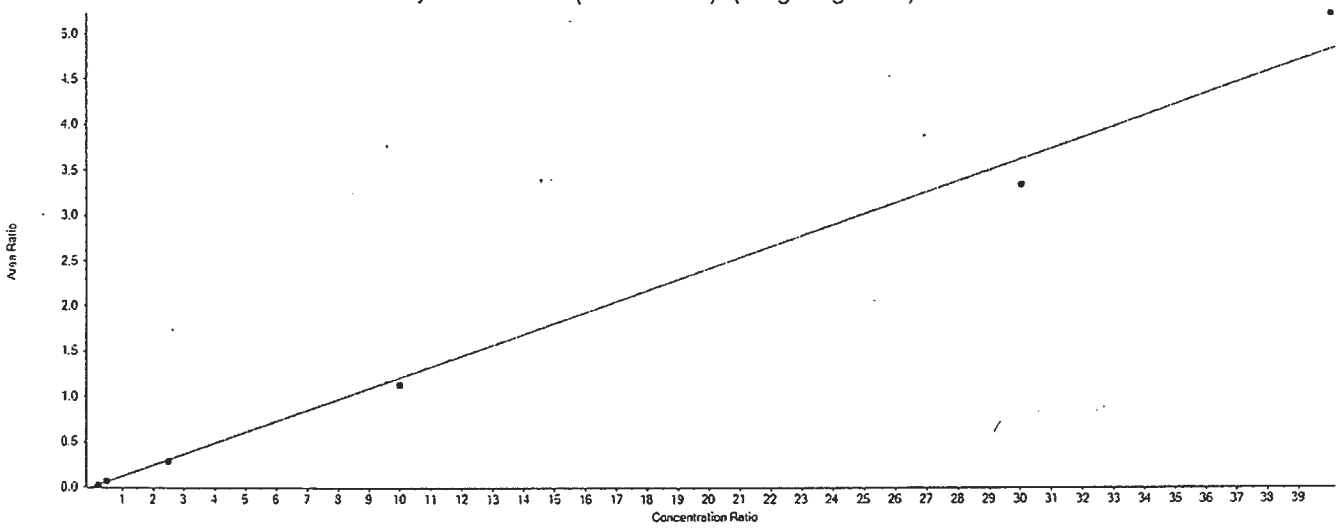
PFBS
y = 0.24907 x (r = 0.99954) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFBS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP20-05.wiff	CAL1	55094.7	258176.3	1.00	0.213	4.09	0.800	0.860	7.2
16SEP20-06.wiff	CAL2	125931.1	278981.6	1.00	0.451	4.08	2.000	1.810	-9.4
16SEP20-07.wiff	CAL3	596323.0	263782.5	1.00	2.261	4.08	9.990	9.080	-9.1
16SEP20-08.wiff	CAL4	2091472.5	198754.1	1.00	10.523	4.08	39.960	42.250	5.7
16SEP20-09.wiff	CAL5	4257820.6	145508.4	1.00	29.262	4.08	119.900	117.480	-2.0
16SEP20-10.wiff	CAL6	5195763.6	129589.8	1.00	40.094	4.07	159.800	160.970	0.7

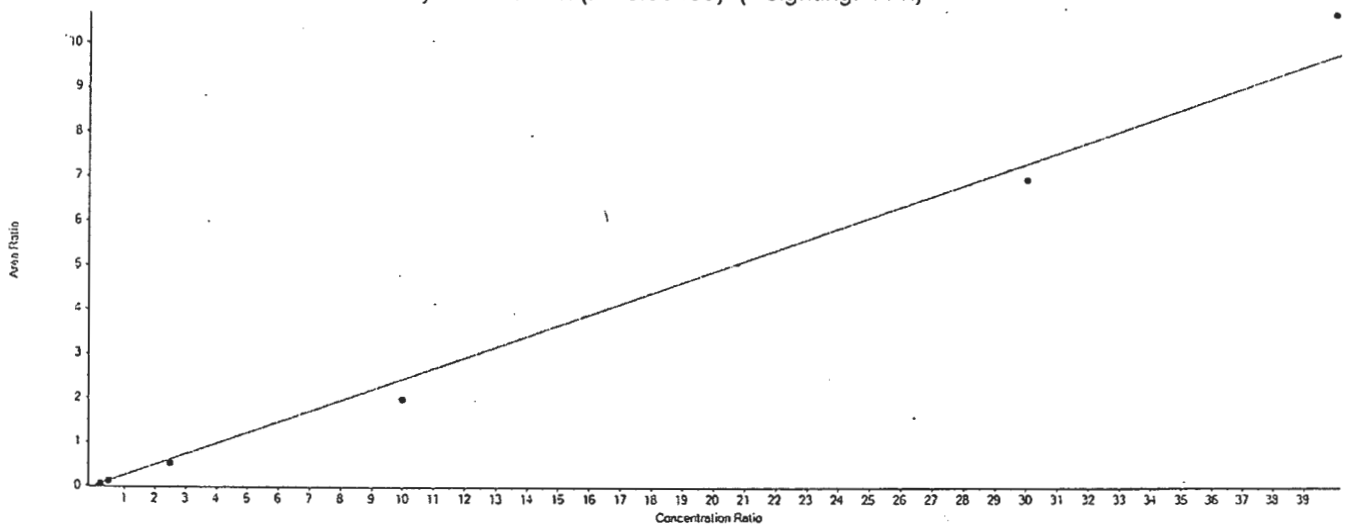
PFHxA
y = 0.12097 x (r = 0.99677) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHxA Area	13C2-PFHxA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP20-05.wiff	CAL1	16561.9	890968.1	1.00	0.019	4.53	0.200	0.150	-23.2
16SEP20-06.wiff	CAL2	55269.6	850650.2	1.00	0.065	4.52	0.500	0.540	7.4
16SEP20-07.wiff	CAL3	246551.5	871151.3	1.00	0.283	4.53	2.500	2.340	-6.4
16SEP20-08.wiff	CAL4	908678.9	808139.6	1.00	1.124	4.52	10.000	9.290	-7.1
16SEP20-09.wiff	CAL5	2388041.9	714387.7	1.00	3.343	4.51	30.000	27.630	-7.9
16SEP20-10.wiff	CAL6	2946974.3	563342.5	1.00	5.231	4.52	40.000	43.240	8.1

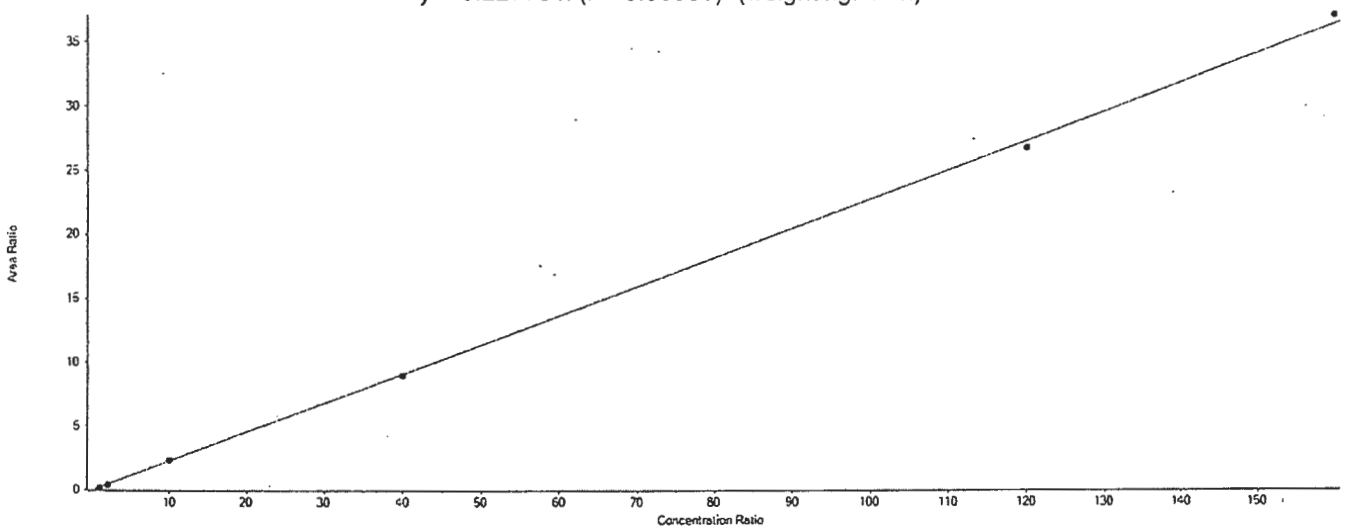
PFHpA
y = 0.24348 x (r = 0.99489) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHpA Area	13C4-PFHpA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP20-05.wiff	CAL1	24742.0	596656.2	1.00	0.041	5.01	0.200	0.170	-14.8
16SEP20-06.wiff	CAL2	63720.8	591031.9	1.00	0.108	5.00	0.500	0.440	-11.4
16SEP20-07.wiff	CAL3	289857.9	555709.5	1.00	0.522	5.00	2.500	2.140	-14.3
16SEP20-08.wiff	CAL4	757346.2	383981.5	1.00	1.972	5.00	10.000	8.100	-19.0
16SEP20-09.wiff	CAL5	1697740.6	244417.6	1.00	6.946	5.00	30.000	28.530	-4.9
16SEP20-10.wiff	CAL6	2176994.9	204064.4	1.00	10.668	4.99	40.000	43.820	9.5

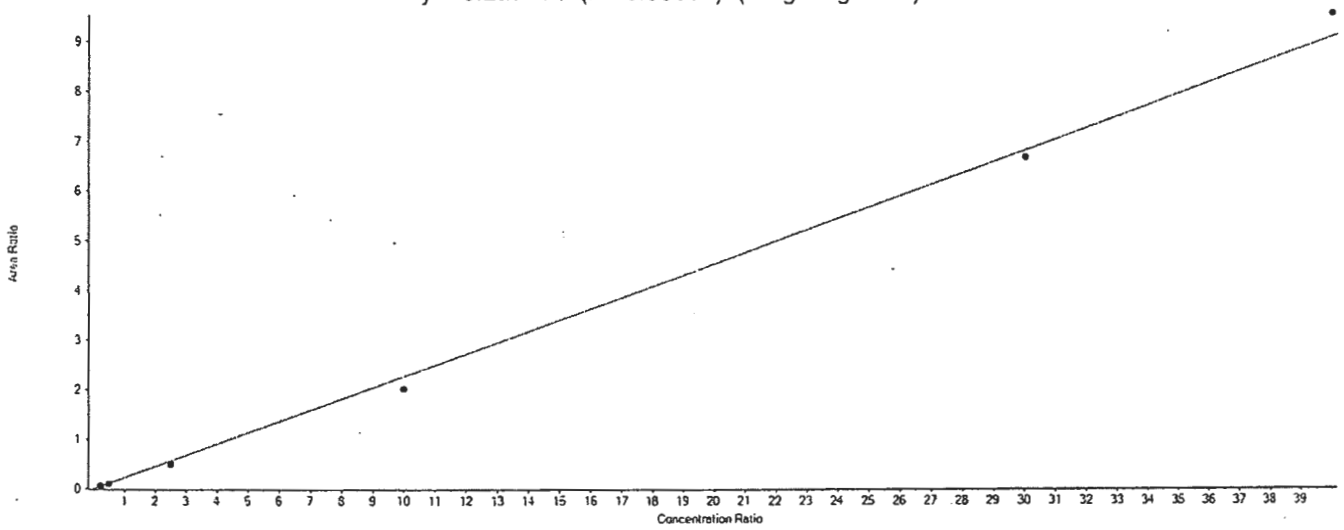
PFHxS
y = 0.22776 x (r = 0.99980) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHxS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP20-05.wiff	CAL1	44498.5	258176.3	1.00	0.172	5.01	0.800	0.760	-5.4
16SEP20-06.wiff	CAL2	114083.1	278981.6	1.00	0.409	4.99	2.000	1.800	-10.2
16SEP20-07.wiff	CAL3	613226.8	263782.5	1.00	2.325	4.99	10.000	10.210	2.1
16SEP20-08.wiff	CAL4	1784309.2	198754.1	1.00	8.977	4.99	40.000	39.420	-1.5
16SEP20-09.wiff	CAL5	3898922.1	145508.4	1.00	26.795	4.99	120.000	117.650	-2.0
16SEP20-10.wiff	CAL6	4810468.5	129589.8	1.00	37.121	4.98	160.000	162.980	1.9

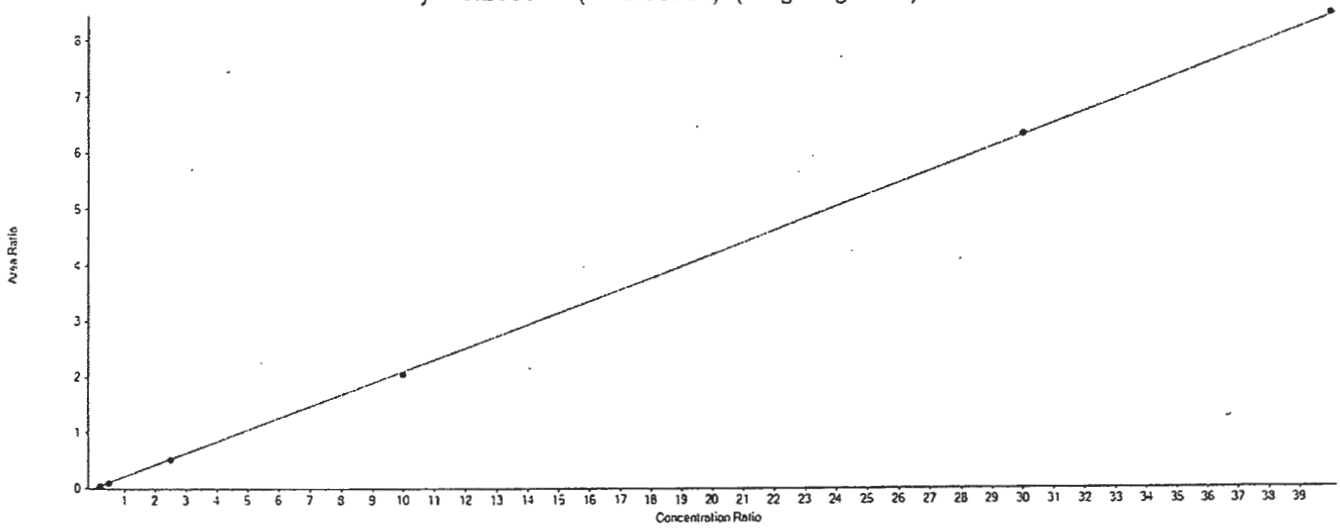
PFOA
y = 0.22710 x (r = 0.99835) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFOA Area	13C4-PFOA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP20-05.wiff	CAL1	46001.9	951039.2	1.00	0.048	5.47	0.200	0.210	6.5
16SEP20-06.wiff	CAL2	86270.5	882041.6	1.00	0.098	5.45	0.500	0.430	-13.9
16SEP20-07.wiff	CAL3	493909.6	972372.0	1.00	0.508	5.46	2.500	2.240	-10.5
16SEP20-08.wiff	CAL4	1733499.9	855039.9	1.00	2.027	5.45	10.000	8.930	-10.7
16SEP20-09.wiff	CAL5	4478815.5	671642.3	1.00	6.668	5.44	30.000	29.360	-2.1
16SEP20-10.wiff	CAL6	5930127.9	621303.6	1.00	9.545	5.44	40.000	42.030	5.1

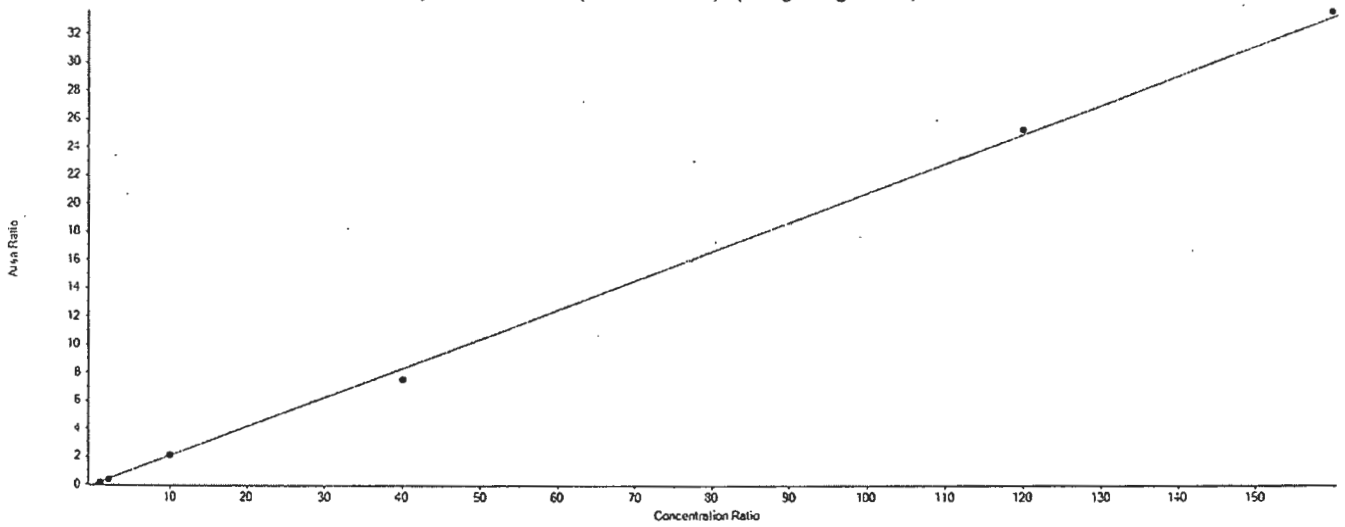
PFNA
y = 0.20997 x (r = 0.99991) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFNA Area	13C5-PFNA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP20-05.wiff	CAL1	54797.4	1341900.6	1.00	0.041	5.89	0.200	0.190	-2.8
16SEP20-06.wiff	CAL2	120148.8	1372095.9	1.00	0.088	5.87	0.500	0.420	-16.6
16SEP20-07.wiff	CAL3	629897.9	1216197.2	1.00	0.518	5.87	2.500	2.470	-1.3
16SEP20-08.wiff	CAL4	1903892.0	927976.8	1.00	2.052	5.87	10.000	9.770	-2.3
16SEP20-09.wiff	CAL5	4389486.7	694117.3	1.00	6.324	5.87	30.000	30.120	0.4
16SEP20-10.wiff	CAL6	5091112.4	602648.0	1.00	8.448	5.86	40.000	40.230	0.6

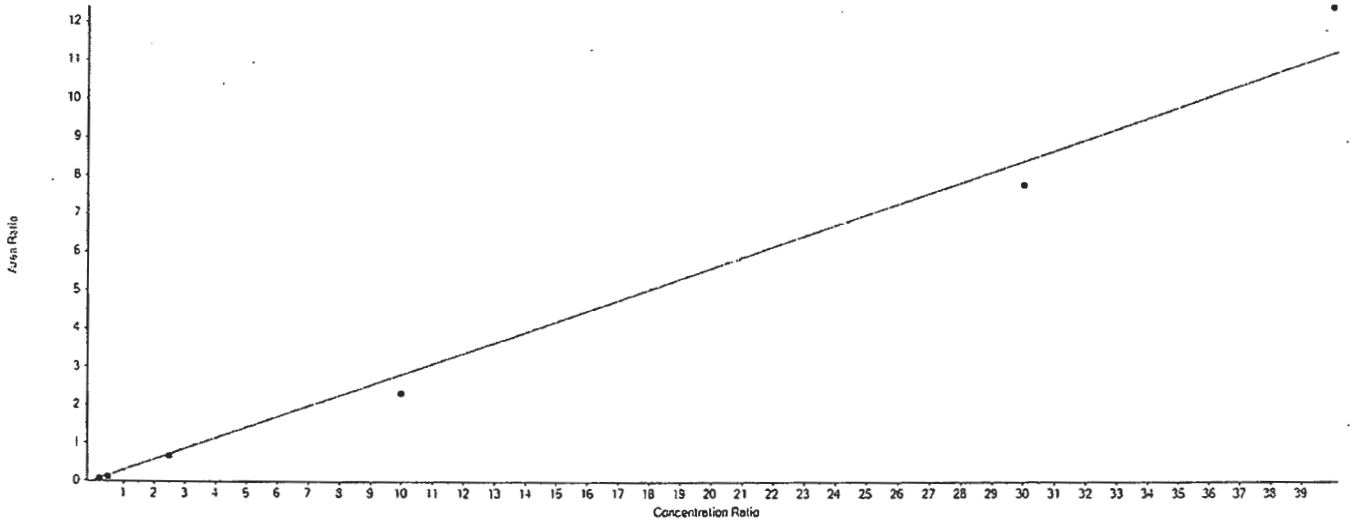
PFOS
y = 0.20782 x (r = 0.99934) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFOS Area	13C4-PFOS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP20-05.wiff	CAL1	41311.1	306099.9	1.00	0.135	5.86	0.800	0.650	-18.7
16SEP20-06.wiff	CAL2	111018.2	301592.1	1.00	0.368	5.84	2.000	1.770	-11.4
16SEP20-07.wiff	CAL3	579251.3	272153.8	1.00	2.128	5.84	9.990	10.240	2.5
16SEP20-08.wiff	CAL4	1704878.3	227088.6	1.00	7.508	5.84	39.960	36.130	-9.6
16SEP20-09.wiff	CAL5	3944183.8	155800.0	1.00	25.316	5.83	119.900	121.820	1.6
16SEP20-10.wiff	CAL6	4508956.3	134056.5	1.00	33.635	5.83	159.800	161.850	1.3

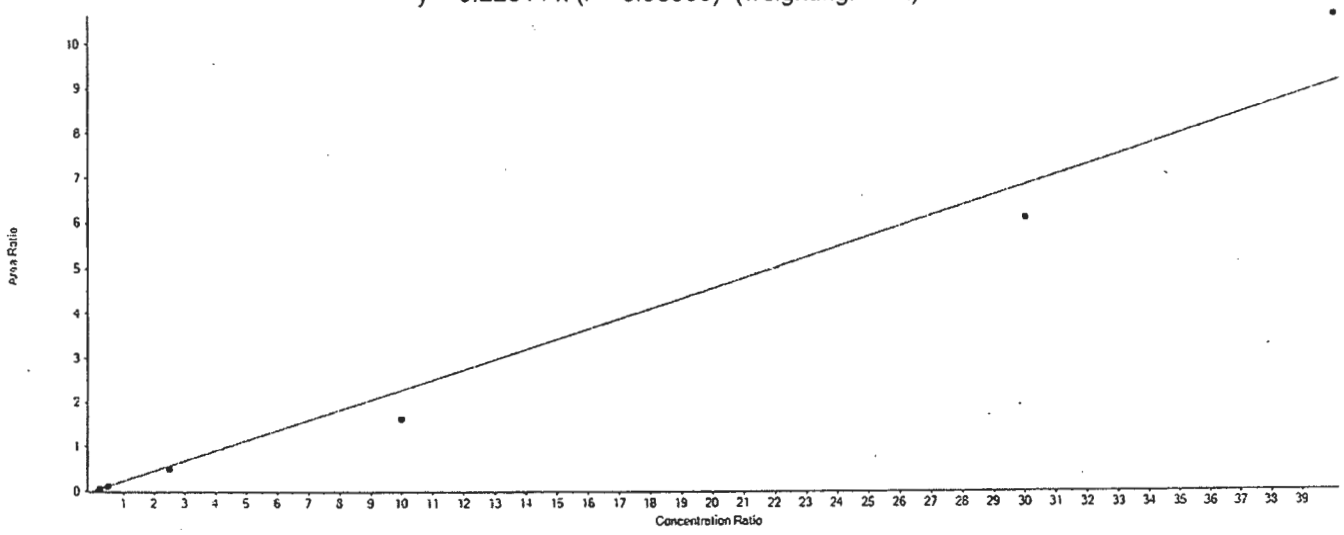
PFDA
y = 0.27955 x (r = 0.99416) (weighting: 1 / x)



Calibration Verification

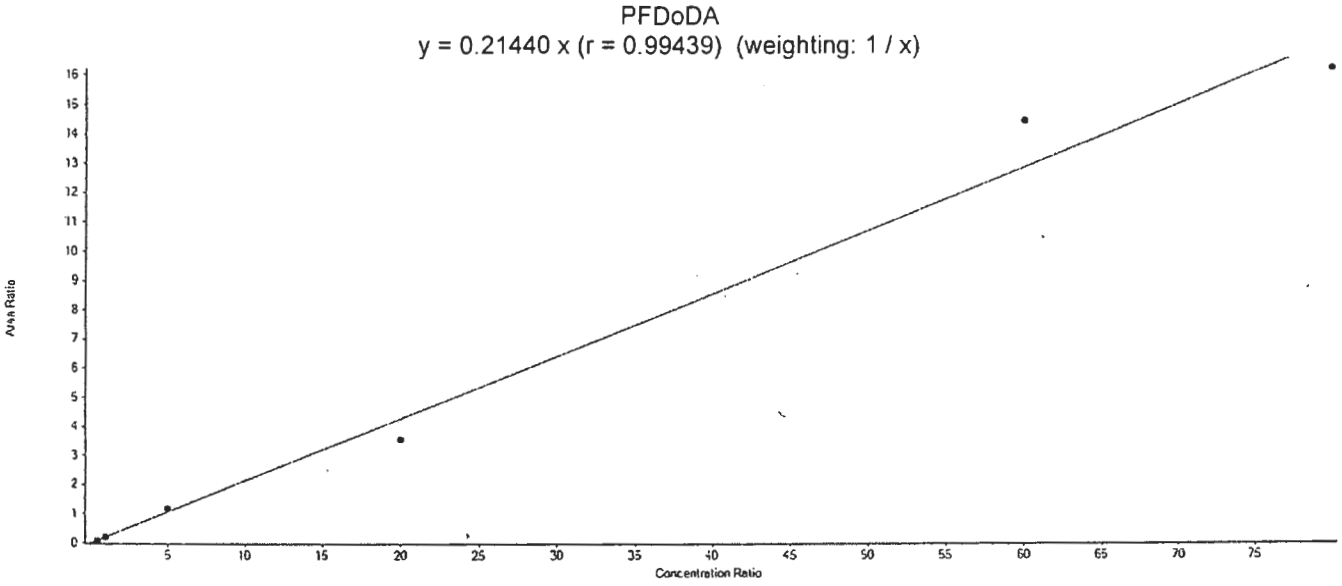
File Name	Sample Name	PFDA Area	13C2-PFDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP20-05.wiff	CAL1	52880.3	1208311.2	1.00	0.044	6.27	0.200	0.160	-21.7
16SEP20-06.wiff	CAL2	113393.4	1064620.3	1.00	0.107	6.25	0.500	0.380	-23.8
16SEP20-07.wiff	CAL3	675255.8	1028228.5	1.00	0.657	6.25	2.500	2.350	-6.0
16SEP20-08.wiff	CAL4	2138826.9	932006.5	1.00	2.295	6.24	10.000	8.210	-17.9
16SEP20-09.wiff	CAL5	5637237.9	725809.3	1.00	7.767	6.24	30.000	27.780	-7.4
16SEP20-10.wiff	CAL6	7019122.4	566513.9	1.00	12.390	6.23	40.000	44.320	10.8

PFUnDA
y = 0.22814 x (r = 0.98606) (weighting: 1 / x)



Calibration Verification

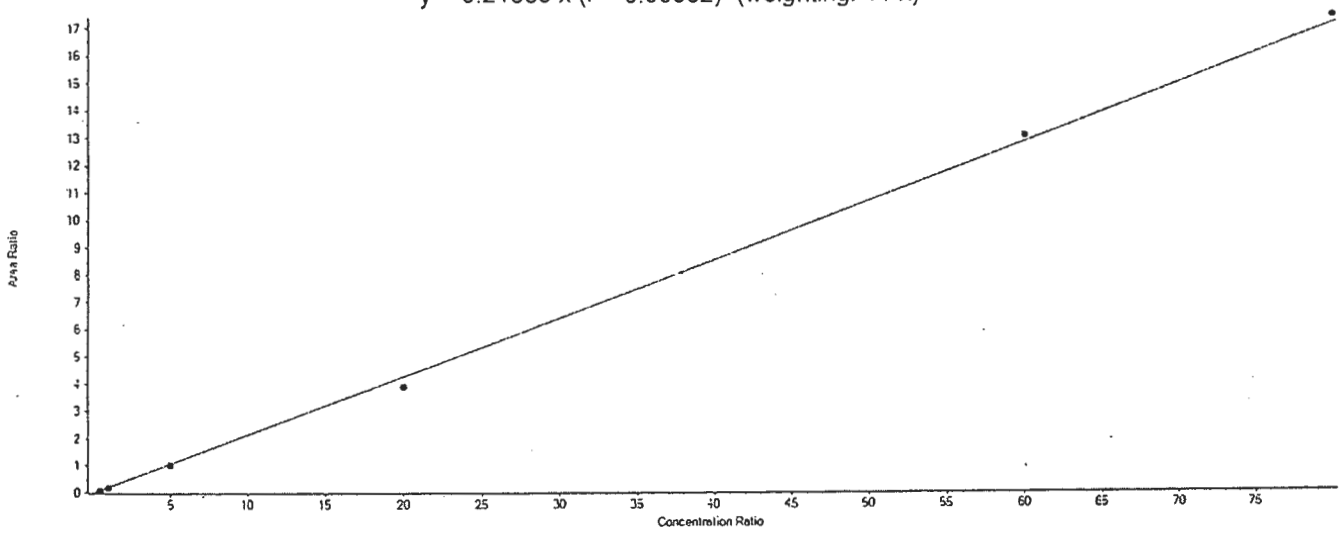
File Name	Sample Name	PFUnDA Area	13C2-PFUnDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP20-05.wiff	CAL1	47280.0	1350792.7	1.00	0.035	6.61	0.200	0.150	-23.3
16SEP20-06.wiff	CAL2	120329.7	1087508.1	1.00	0.111	6.59	0.500	0.480	-3.0
16SEP20-07.wiff	CAL3	575704.0	1179826.7	1.00	0.488	6.59	2.500	2.140	-14.4
16SEP20-08.wiff	CAL4	1545233.7	948905.7	1.00	1.628	6.58	10.000	7.140	-28.6
16SEP20-09.wiff	CAL5	4439810.6	728357.3	1.00	6.096	6.57	30.000	26.720	-10.9
16SEP20-10.wiff	CAL6	6439624.6	606165.2	1.00	10.624	6.57	40.000	46.570	16.4



Calibration Verification

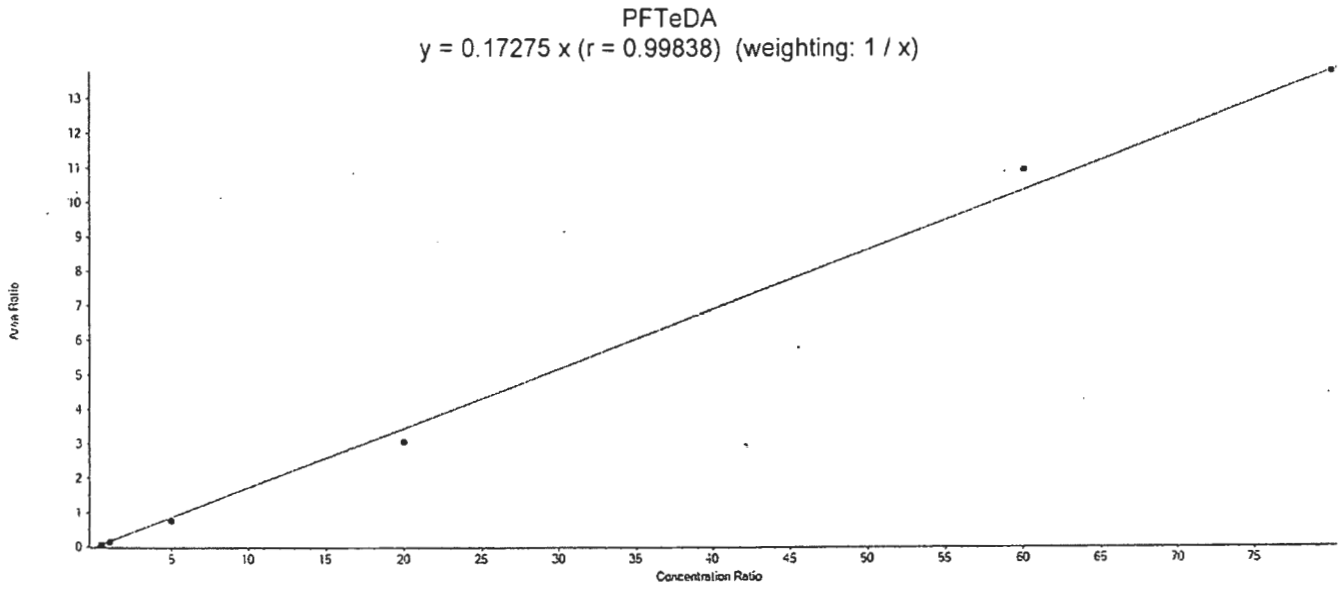
File Name	Sample Name	PFDoDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP20-05.wiff	CAL1	113978.1	1540021.1	1.00	0.074	6.92	0.400	0.350	-13.7
16SEP20-06.wiff	CAL2	292376.7	1463951.4	1.00	0.200	6.90	1.000	0.930	-6.8
16SEP20-07.wiff	CAL3	1605323.0	1368635.0	1.00	1.173	6.90	5.000	5.470	9.4
16SEP20-08.wiff	CAL4	4930785.1	1384954.5	1.00	3.560	6.90	20.000	16.610	-17.0
16SEP20-09.wiff	CAL5	13007111.5	899546.7	1.00	14.460	6.89	60.000	67.440	12.4
16SEP20-10.wiff	CAL6	14353345.8	885451.4	1.00	16.210	6.88	80.000	75.610	-5.5

PFTrDA
y = 0.21385 x (r = 0.99932) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFTrDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP20-05.wiff	CAL1	120393.3	1540021.1	1.00	0.078	7.22	0.400	0.370	-8.6
16SEP20-06.wiff	CAL2	264429.2	1463951.4	1.00	0.181	7.19	1.000	0.840	-15.5
16SEP20-07.wiff	CAL3	1391404.0	1368635.0	1.00	1.017	7.19	5.000	4.750	-4.9
16SEP20-08.wiff	CAL4	5372235.7	1384954.5	1.00	3.879	7.18	20.000	18.140	-9.3
16SEP20-09.wiff	CAL5	11729276.3	899546.7	1.00	13.039	7.18	60.000	60.970	1.6
16SEP20-10.wiff	CAL6	15398370.7	885451.4	1.00	17.390	7.17	80.000	81.320	1.7



Calibration Verification

File Name	Sample Name	PFTeDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP20-05.wiff	CAL1	90409.1	1540021.1	1.00	0.059	7.50	0.400	0.340	-15.0
16SEP20-06.wiff	CAL2	205070.7	1463951.4	1.00	0.140	7.48	1.000	0.810	-18.9
16SEP20-07.wiff	CAL3	1033657.8	1368635.0	1.00	0.755	7.48	5.000	4.370	-12.6
16SEP20-08.wiff	CAL4	4223252.4	1384954.5	1.00	3.049	7.46	20.000	17.650	-11.7
16SEP20-09.wiff	CAL5	9853327.6	899546.7	1.00	10.954	7.45	60.000	63.410	5.7
16SEP20-10.wiff	CAL6	12209383.4	885451.4	1.00	13.789	7.45	80.000	79.820	-0.2

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LC-MS/MS Analysis Report

Printed: 9/24/2016 11:22:00 AM

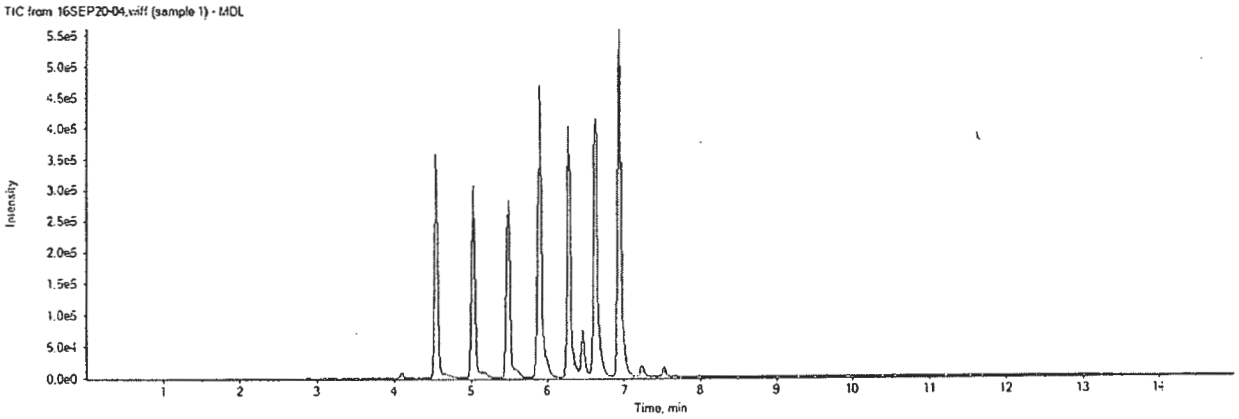
Sample Name:	MDL		**Data File:**		16SEP20-04.wiff
Sample ID:	MDL		**Acquis Date:**		2016-09-20T12:05:54
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	2		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL3
			ICAL Name:		16SEP20ICAL
Batch Number:	PFCICAL		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

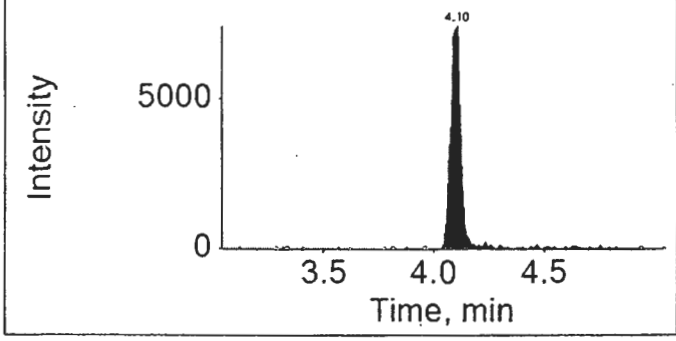
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.10	26173.0	A	18O2-PFHxS	5.01	278616.6	0.094	0.377	ng/g
PFHxA	4.54	10766.4	A	13C2-PFHxA	4.54	989542.1	0.011	0.090	ng/g
PFHpA	5.03	13803.0	A	13C4-PFHpA	5.02	675701.9	0.020	0.084	ng/g
PFHxS	5.02	24015.4	A	18O2-PFHxS	5.01	278616.6	0.086	0.378	ng/g
PFOA	5.48	23611.8	A	13C4-PFOA	5.48	989892.0	0.024	0.105	ng/g
PFNA	5.89	28111.2	A	13C5-PFNA	5.89	1278665.6	0.022	0.105	ng/g
PFOS	5.86	23485.8	A	13C4-PFOS	5.86	293709.4	0.080	0.385	ng/g
PFDA	6.27	28456.3	A	13C2-PFDA	6.28	1188603.2	0.024	0.086	ng/g
PFUnDA	6.62	25343.1	A	13C2-PFUnDA	6.62	1260788.2	0.020	0.088	ng/g
PFDoDA	6.93	62164.9	A	13C2-PFDoDA	6.93	1716775.7	0.036	0.169	ng/g
PFTrDA	7.23	62574.2	A	13C2-PFDoDA	6.93	1716775.7	0.036	0.170	ng/g
PFTeDA	7.52	47016.4	A	13C2-PFDoDA	6.93	1716775.7	0.027	0.159	ng/g

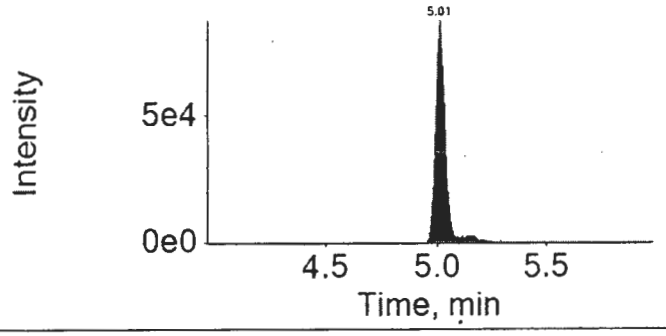
Total Ion Chromatogram

MDL

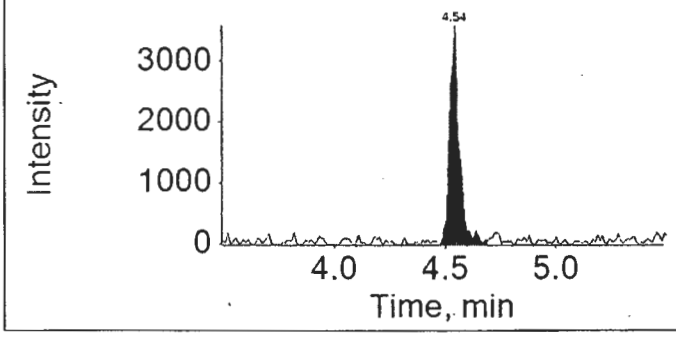


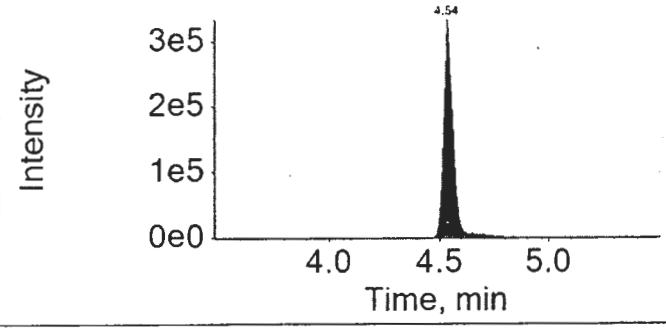
16SEP20-04.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



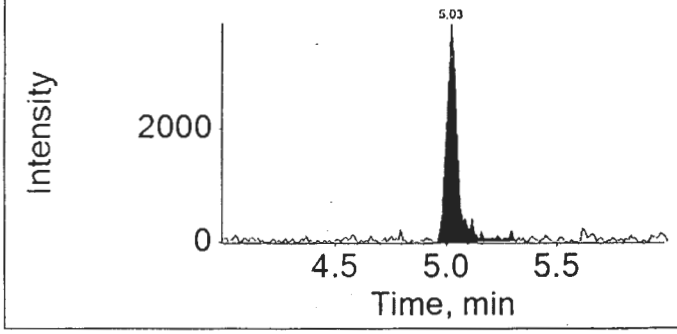


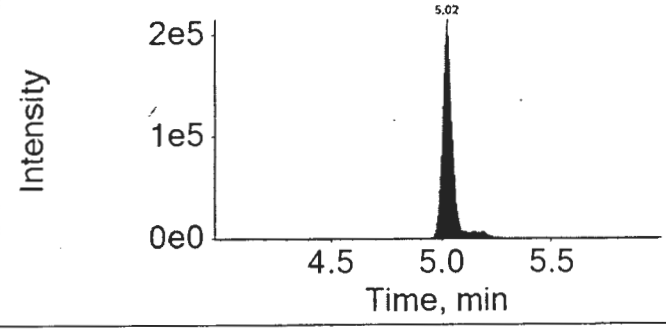
16SEP20-04.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16SEP20-04.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

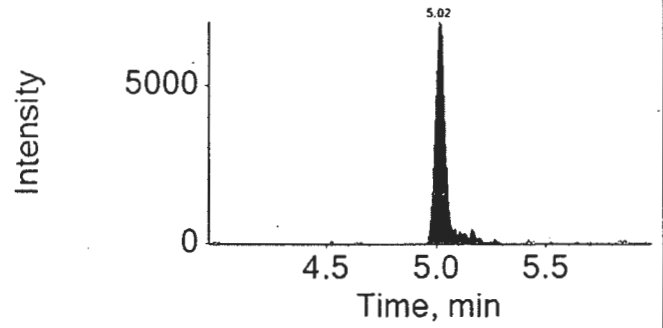




16SEP20-04.wiff

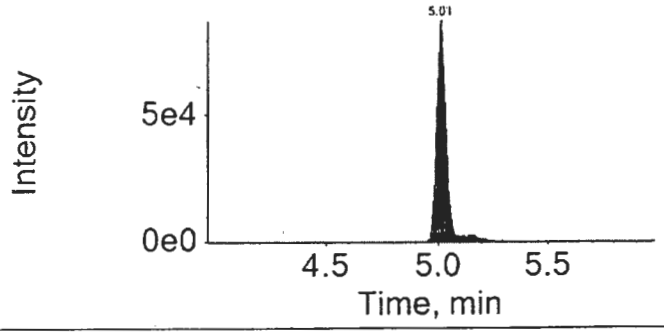
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

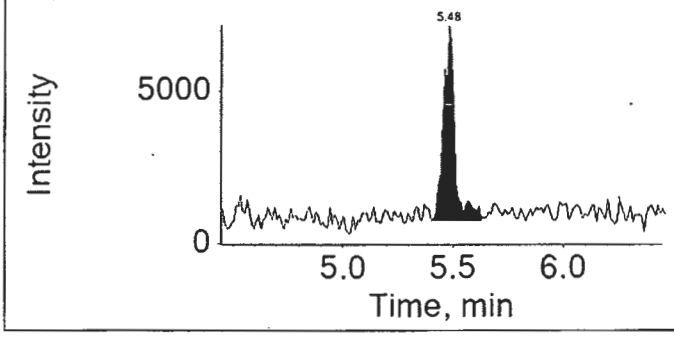
403.0 / 103.0



16SEP20-04.wiff

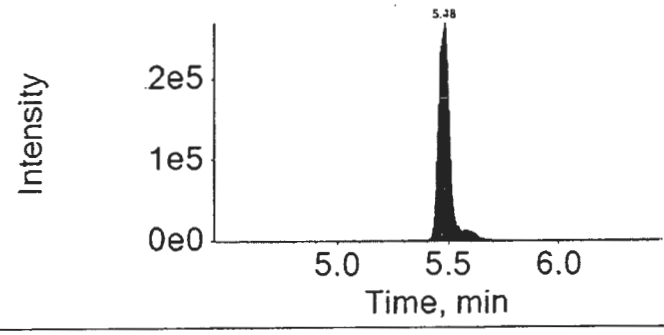
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

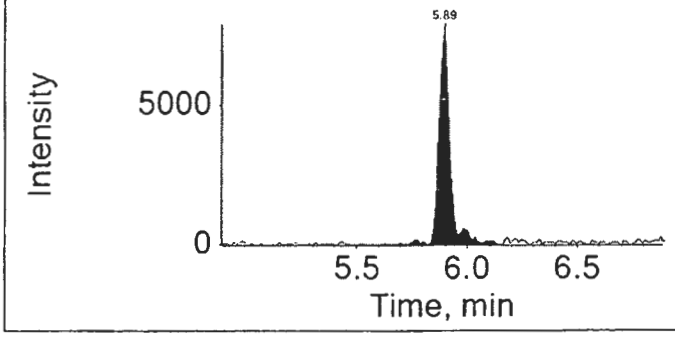
417.0 / 372.0



16SEP20-04.wiff

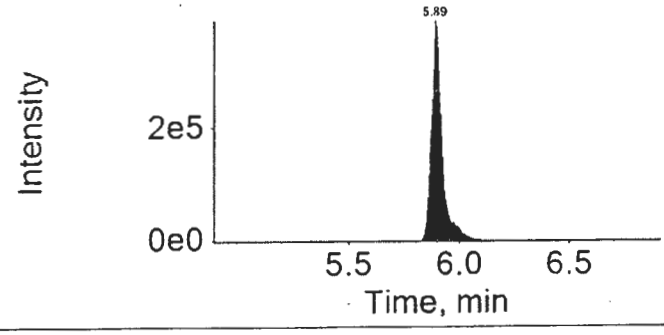
Analyte: PFNA

462.9 / 418.9

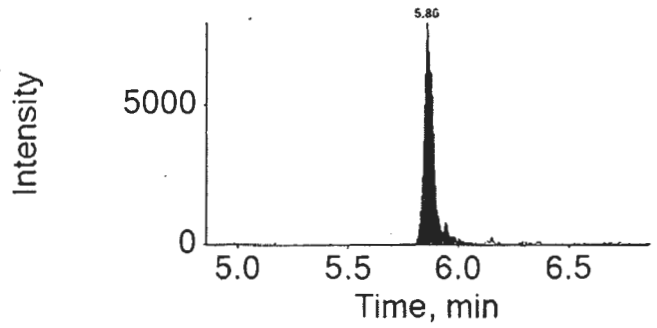


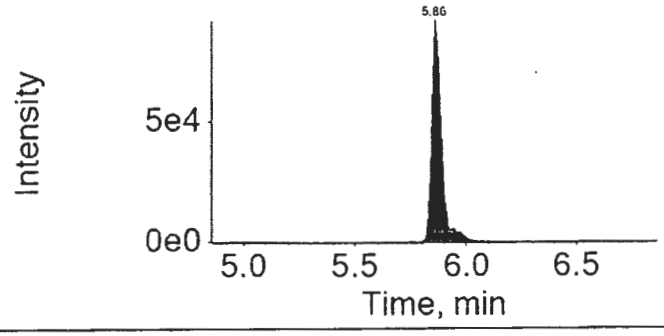
Internal Standard: 13C5-PFNA

468.0 / 423.0

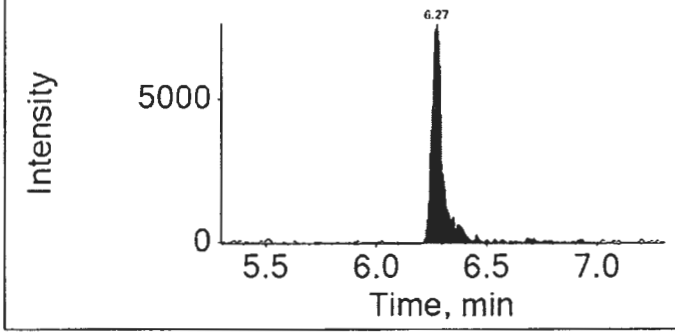


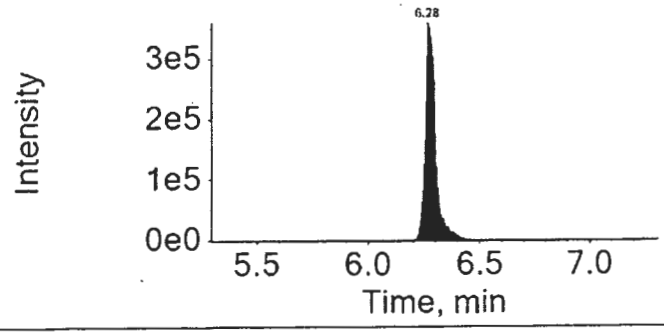
16SEP20-04.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



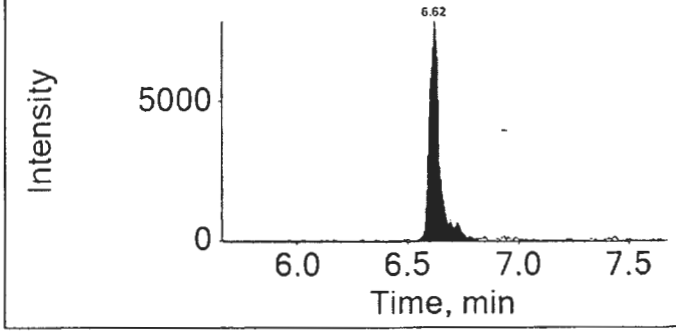


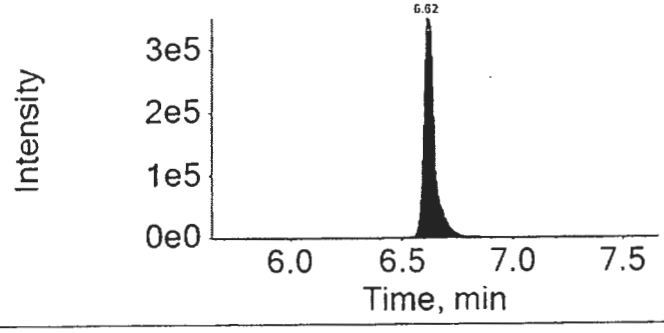
16SEP20-04.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



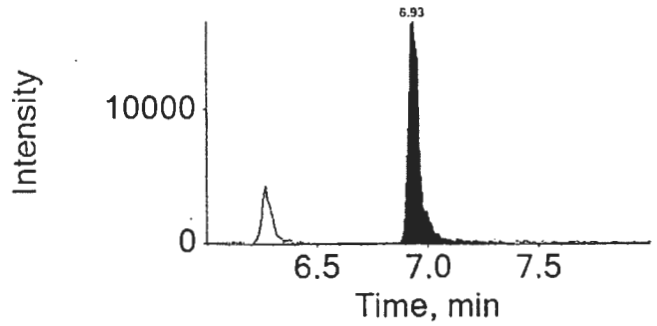


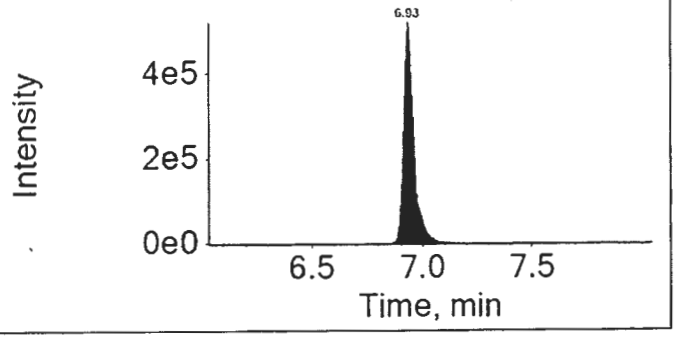
16SEP20-04.wiff	
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



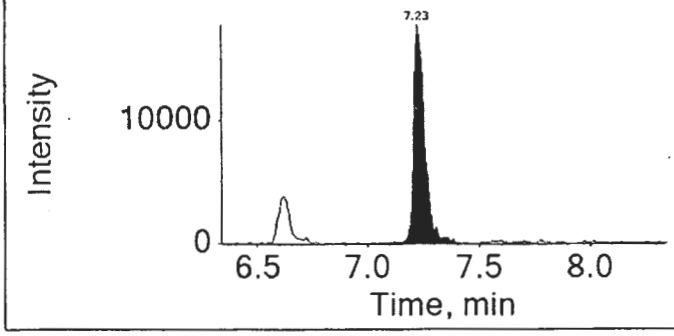


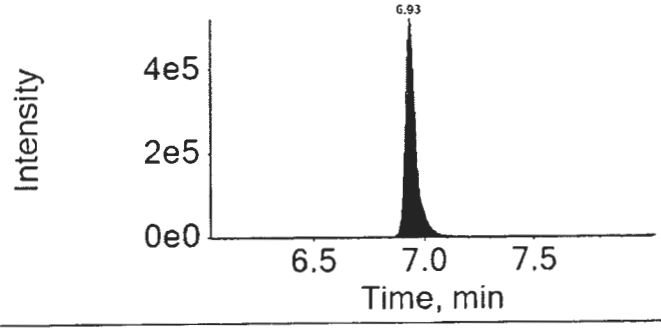
16SEP20-04.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



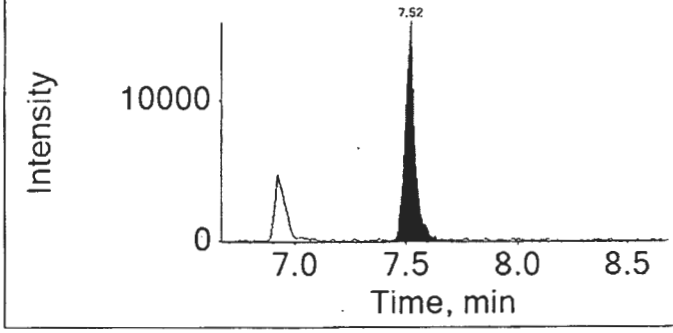


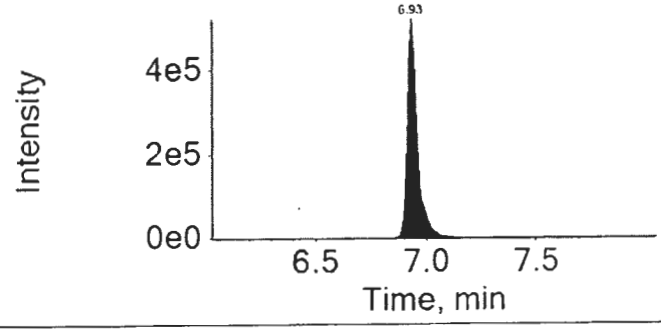
16SEP20-04.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16SEP20-04.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd

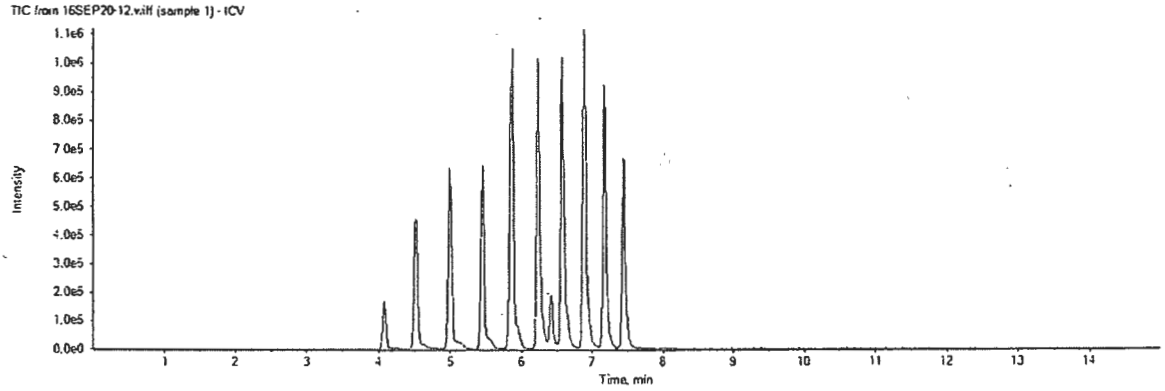
SEP 2 6 2016

Lynn Dodd
Principal Specialist

MED 7824 9/24/16

Initial Calibration Verification

Sample ID: ICV
Sample Name: ICV
Sample File: 16SEP20-12.wiff
Acquisition Date: 9/20/2016 2:16:54 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	557131.7	18O2-PFHxS	243208.2	1.00	2.291	4.08	8.85	9.200	3.9	
PFHxA	944012.5	13C2-PFHxA	792701.7	1.00	1.191	4.52	10.00	9.840	-1.6	
PFHpA	1056419.1	13C4-PFHpA	474408.5	1.00	2.227	4.99	10.00	9.150	-8.5	
PFHxS	525437.8	18O2-PFHxS	243208.2	1.00	2.160	4.99	9.45	9.490	0.4	
PFOA	1569265.4	13C4-PFOA	707794.5	1.00	2.217	5.45	10.00	9.760	-2.4	
PFNA	2137087.7	13C5-PFNA	1132406.0	1.00	1.887	5.86	10.00	8.990	-10.1	
PFOS	511033.8	13C4-PFOS	270425.7	1.00	1.890	5.83	9.55	9.090	-4.8	
PFDA	2231722.3	13C2-PFDA	1013851.4	1.00	2.201	6.23	10.00	7.870	-21.3	
PFUnDA	1906343.6	13C2-PFUnDA	1026932.7	1.00	1.856	6.57	10.00	8.140	-18.6	
PFDoDA	2609664.7	13C2-PFDoDA	1367780.3	1.00	1.908	6.89	10.00	8.900	-11.0	
PFTrDA	2974635.9	13C2-PFDoDA	1367780.3	1.00	2.175	7.17	10.00	10.170	1.7	
PFTeDA	2121864.9	13C2-PFDoDA	1367780.3	1.00	1.551	7.44	10.00	8.980	-10.2	

Lynn Dodd SEP 26 2016

Lynn Dodd
Principal Specialist

MCD 7824 9/24/16

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16SEP20-13.WIFF

Date/Time Analyzed: 09/20/2016 14:33 Lab Sample ID: CCV1

Init. Calib. Date/Times: 09/20/2016 12:22 09/20/2016 13:44

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2053735	645659	9.99	10.41	4.25	±40
Perfluorohexanoic acid	1095721	285604	2.50	2.81	12.50	±30
Perfluoroheptanoic acid	848669	302357	2.50	2.51	0.45	±30
Perfluorohexanesulfonate	1877585	565504	10.00	9.97	-0.28	±30
Perfluorooctanoic acid	2128104	501758	2.50	2.34	-6.51	±30
Perfluorononanoic acid	2031556	631049	2.50	2.62	4.65	±30
Perfluoro-octanesulfonate	1814933	554048	9.99	9.26	-7.28	±30
Perfluorodecanoic acid	2606119	622412	2.50	2.26	-9.47	±30
Perfluoroundecanoic acid	2194664	599158	2.50	2.30	-8.12	±30
Perfluorododecanoic acid	5717153	1547923	5.00	4.58	-8.31	±30
Perfluorotridecanoic acid	5712685	1393871	5.00	4.14	-17.22	±40
Perfluorotetradecanoic acid	4602517	1188133	5.00	4.37	-12.65	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743
Lab File ID: 16SEP22-57.WIFF
Date/Time Analyzed: 09/23/2016 07:32
Lab Sample ID: CCV7
Init. Calib. Date/Times: 09/20/2016 12:22 09/20/2016 13:44

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2053735	4521898	119.90	126.37	5.40	±40
Perfluorohexanoic acid	1095721	3003345	30.00	28.87	-3.77	±30
Perfluoroheptanoic acid	848669	2331705	30.00	28.28	-5.74	±30
Perfluorohexanesulfonate	1877585	4053022	120.00	123.82	3.19	±30
Perfluorooctanoic acid	2128104	5911340	30.00	29.78	-0.73	±30
Perfluorononanoic acid	2031556	5743870	30.00	31.54	5.14	±30
Perfluoro-octanesulfonate	1814933	4004264	119.90	120.06	0.14	±30
Perfluorodecanoic acid	2606119	6472962	30.00	27.49	-8.36	±30
Perfluoroundecanoic acid	2194664	5899798	30.00	27.56	-8.14	±30
Perfluorododecanoic acid	5717153	14326207	60.00	55.85	-6.91	±30
Perfluorotridecanoic acid	5712685	13725725	60.00	53.65	-10.58	±40
Perfluorotetradecanoic acid	4602517	11145865	60.00	53.93	-10.12	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743
Lab File ID: 16SEP22-61.WIFF
Date/Time Analyzed: 09/23/2016 08:37
Lab Sample ID: CCV8
Init. Calib. Date/Times: 09/20/2016 12:22 09/20/2016 13:44

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2053735	568062	9.99	9.48	-5.13	±40
Perfluorohexanoic acid	1095721	296251	2.50	2.40	-3.81	±30
Perfluoroheptanoic acid	848669	357732	2.50	2.11	-15.48	±30
Perfluorohexanesulfonate	1877585	532833	10.00	9.72	-2.78	±30
Perfluorooctanoic acid	2128104	574837	2.50	2.32	-7.34	±30
Perfluorononanoic acid	2031556	736049	2.50	2.38	-4.83	±30
Perfluoro-octanesulfonate	1814933	565501	9.99	10.29	2.99	±30
Perfluorodecanoic acid	2606119	755410	2.50	2.19	-12.34	±30
Perfluoroundecanoic acid	2194664	702216	2.50	2.40	-3.84	±30
Perfluorododecanoic acid	5717153	1744860	5.00	4.69	-6.15	±30
Perfluorotridecanoic acid	5712685	1498891	5.00	4.04	-19.17	±40
Perfluorotetradecanoic acid	4602517	1342561	5.00	4.48	-10.38	±40

* Outside QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

16235011	13C2-PFDA	13C2-PFDODA	13C2-PFHXA	13C2-PFUNDA
	Area	Area	Area	Area
Average ICAL Response	920915	1257093	783107	983593
UPPER LIMIT	1381373	1885640	1174661	1475390
LOWER LIMIT	460458	628547	391554	491797
LAB SAMPLE ID				
8535031DL3	1224605	1910107 * NR	1017405	1436647
8535035DL3	1167175	1759573	1024997	1412197
8535036DL3	1300885	1854736	1003713	1497768 * NR

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

Original

NR NR NR

16235011	13C4-PFHPA Area	13C4-PFOA Area	13C4-PFOS Area	13C5-PFNA Area
Average ICAL Response 429310 ~~433196~~		825573	232798	1025823
UPPER LIMIT 643965 ~~649794~~		1238360	349197	1538735
LOWER LIMIT 214655 ~~216598~~		412787	116399	512912
LAB SAMPLE ID				
8535031DL3	770966 *	905180	287813	1616934 *
8535035DL3	768767 *	933678	299600	1512640
8535036DL3	765435 *	1045897	294972	1643131 *

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

PFOA only.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

NR

16235011	18O2-PFHXS Area	
Average ICAL Response	~~213817~~	212465
UPPER LIMIT	~~320726~~	318698
LOWER LIMIT	~~106909~~	106233
LAB SAMPLE ID		
8535031DL3	278026	
8535035DL3	257904	
8535036DL3	265283	

) original

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

16235011	13C2-PFDA	13C2-PFDODA	13C2-PFHXA	13C2-PFUNDA
	Area	Area	Area	Area
Average ICAL Response	920915	1257093	783107	983593
UPPER LIMIT	1381373	1885640	1174661	1475390
LOWER LIMIT	460458	628547	391554	491797
LAB SAMPLE ID				
8535031DL3	1224605	1910107 *	1017405	1436647
8535035DL3	1167175	1759573	1024997	1412197
8535036DL3	1300885	1854736	1003713	1497768 *

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

TOC only

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

Revised

16235011	13C4-PFHPA	13C4-PFOA	13C4-PFOS	13C5-PFNA
	Area	Area	Area	Area
Average ICAL Response	429310	825573	232798	1025823
UPPER LIMIT	643965	1238360	349197	1538735
LOWER LIMIT	214655	412787	116399	512912
LAB SAMPLE ID				
8535031DL3	770966 *	905180	287813	1616934 *
8535035DL3	768767 *	933678	299600	1512640
8535036DL3	765435 *	1045897	294972	1643131 *

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

RE-EX only

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

16235011	18O2-PFHXS
	Area
Average ICAL Response	212465
UPPER LIMIT	318698
LOWER LIMIT	106233
LAB SAMPLE ID	
8535031DL3	278026
8535035DL3	257904
8535036DL3	265283

Revised

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

4500_092216_1222_SPP17_ISCheck.xlsx

Measure	13C2-PFDA	13C2-PFDoDA	13C2-PFHxA	13C2-PFUnDA	13C4-PFHpA	13C4-PFOA	13C4-PFOS	13C5-PFNA	1802-PFHxS
Average	920915	1257093	783107	983593	429310	825573	232798	1025823	212465
Upper	1381372	1885640	1174660	1475389	643965	1238360	349198	1538734	318698
Lower	460457	628547	391553	491796	214655	412787	116399	512911	106233

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LC-MS/MS Sequence Report

Printed: 09/24/2016 11:20:00 AM

Results Table Name: MQ 16235011DL3 9/24/2016 11:02:20 AM

Instrument	Acquisition Date	File Name	Sample ID	Vial Position	Samp Wt	Samp Vol	DF
Triple Quad 4500	9/20/2016 12:05:54 PM	16SEP20-04.wiff	MDL	2	1.00	1.00	1.00
Triple Quad 4500	9/20/2016 12:22:21 PM	16SEP20-05.wiff	CAL1	3	1.00	1.00	1.00
Triple Quad 4500	9/20/2016 12:38:42 PM	16SEP20-06.wiff	CAL2	4	1.00	1.00	1.00
Triple Quad 4500	9/20/2016 12:55:06 PM	16SEP20-07.wiff	CAL3	5	1.00	1.00	1.00
Triple Quad 4500	9/20/2016 1:11:27 PM	16SEP20-08.wiff	CAL4	6	1.00	1.00	1.00
Triple Quad 4500	9/20/2016 1:27:51 PM	16SEP20-09.wiff	CAL5	7	1.00	1.00	1.00
Triple Quad 4500	9/20/2016 1:44:12 PM	16SEP20-10.wiff	CAL6	8	1.00	1.00	1.00
Triple Quad 4500	9/20/2016 2:00:33 PM	16SEP20-11.wiff	solvent	1	1.00	1.00	1.00
Triple Quad 4500	9/20/2016 2:16:54 PM	16SEP20-12.wiff	ICV	9	1.00	1.00	1.00
Triple Quad 4500	9/20/2016 2:33:15 PM	16SEP20-13.wiff	CCV1	5	1.00	1.00	1.00
Triple Quad 4500	9/23/2016 7:32:11 AM	16SEP22-57.wiff	CCV7	7	1.00	1.00	1.00
Triple Quad 4500	9/23/2016 7:48:35 AM	16SEP22-58.wiff	8535031DL3 ✓	50	5.18	1.00	1000 0.00
Triple Quad 4500	9/23/2016 8:04:56 AM	16SEP22-59.wiff	8535035DL3 ✓	51	5.36	1.00	1000 0.00
Triple Quad 4500	9/23/2016 8:21:20 AM	16SEP22-60.wiff	8535036DL3 ✓	52	5.49	1.00	1000 0.00
Triple Quad 4500	9/23/2016 8:37:44 AM	16SEP22-61.wiff	CCV8	5	1.00	1.00	1.00

Lynn Dodd
SEP 26 2016

Lynn Dodd
Principal Specialist

MED 782 9/24/16

Organic Extraction Batchlog Assigned to: 10262 Devon Whooley Reviewed by: DW 8/24/16 Start Date: 8/23/16 Start time: 11:10

16235011 Tech 1: DW 10262 Tech 2:

↳ <28 days

Analyses on Batch: PFC s in Soil by LC/MS/MS

Dept: 37 Prep Analysis: 14090 PFC Solid Prep

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL) mL	S Amt (uL)	BC	Comments
8535032MS	BENS2	5.20	SS16235370A	~~.625~~ .250	LCSPFCX16237F	.26	1		170a	
8535033MSD	BENS2	5.02	↓	~~.625~~ .250	↓	.26	1		170a	
BLANKA	BLK235011	~~5.00~~ 5.0	↓	~~0.250~~	N/A	N/A	1			
LCSA	OPR235011	5.00	↓	.250	LCSPFCX16237F	.26	1			

Reagent	Lot No.
80% ACN:H2O	10262081911237A
96% MeOH:H2O	159
Sand	MKBV5012V

Spike Solutions: Witness: 8/24 Instrument: ABSciex LM24743

*DW 10262 8/23/16 Sequence: 16SEP01PFC - 16SEP04a 16SEP13PFC - 16SEP14 (2 dilutions added)

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL) mL	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
8528703	SED23	5.01	SS16235370A	.250	1		170a		14027	08/30/2016	N
8535030	BENS1	5.17	↓	.250	1		170a		14027	09/01/2016	N
8535031	BENS2	5.18		.250	1		170a		14027	09/01/2016	N
8535035	BENS3	5.36		.250	1		170a		14027	09/01/2016	N
8535036	FD117	5.41		.250	1		170a		14027	09/01/2016	N
8535037	OUTSD	5.25	↓	.250	1		170a		14027	09/01/2016	N

Original

Balance #	BE7A	Sonic Bath ID		N-evap	C	16235011

B629764122

DF = Dilution Factor FV = Final Volume Page 1 of 1 Documented temps are NIST corrected.

Organic Extraction Batchlog Assigned to: 10262 Devon Whooley Reviewed by:_____ Start Date:_____

16235011 Tech 1: DW 102602 Tech 2: _____ start date 8/23/16 11:10

Analyses on Batch: PFC s in Soil by LC/MS/MS

Dept: 37 Prep Analysis: 14090 PFC Solid Prep

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments
8535032MS	BENS2	5.20	SS16235370A	~~.255~~ .250	LCSPFCK16237F	.20	1 mL		170a	
8535033MSD	BENS2	5.02	↓	~~.255~~ .250	↓	.20	1 mL		170a	
BLANKA	BLK235011	~~5.00~~ 5.00		.250	N/A	N/A	1 mL			
LCSA	OPR235011	5.00	↓	.250	LCSPFCK16237F	.20	1 mL			

Reagent	Lot No.
80% ACN:H2O	10262081911637A
96% MeOH:H2O	159[illegible]
Sand	[illegible]

Spike Solutions: Witness: [signature] 8/12

Instrument: ABSCIEX LM24743

Sequence: 16SEP01PFC - 16SEP06 (16SEP13PFC - 16SEP14 (revisions date))

*DW 102602 8/23/16

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (uL)	IS Amt (uL)	BC	Comments	Analyses	Due Date	Prio
1 8528703	SED23	5.01	SS16235370A	.250	1 mL		170a		14027	08/30/2016	N
2 8535030	BENS1	5.17	↓	.250	1 mL		170a		14027	09/01/2016	N
3 8535031	BENS2	5.18		.250	1 mL		170a		14027	09/01/2016	N
4 8535035	BENS3	5.31a		.250	1 mL		170a		14027	09/01/2016	N
5 8535036	FD117	5.49		.250	1 mL		170a		14027	09/01/2016	N
6 8535037	OUTSD	5.25	↓	.250	1 mL		170a		14027	09/01/2016	N

Revised

Stated amounts in email

SPP17 Page 840 of 844

Balance #	[illegible]
	B02971641122

Sonic Bath ID	

N-evap	C

16235011

DF = Dilution Factor FV = Final Volume

Documented temps are NIST corrected.

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LOQ/MDL Summary
Specialty Services Group

SDG: SPP17

Fraction: PFAAs by LC/MS/MS

10954: Full List PFC's Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	1	2	ng/l
Perfluorononanoic acid	1	2	ng/l
Perfluorodecanoic acid	1	2	ng/l
Perfluoroundecanoic acid	2	4	ng/l
Perfluorododecanoic acid	3	5	ng/l
Perfluorotridecanoic acid	2	4	ng/l
Perfluorotetradecanoic acid	3	5	ng/l
Perfluorohexanoic acid	1	2	ng/l
Perfluoroheptanoic acid	1	2	ng/l
Perfluorobutanesulfonate	4	10	ng/l
Perfluorohexanesulfonate	4	10	ng/l
Perfluoro-octanesulfonate	5	10	ng/l

14027: Full List PFC's Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.30	0.60	ng/g
Perfluorononanoic acid	0.20	0.40	ng/g
Perfluorodecanoic acid	0.20	0.40	ng/g
Perfluoroundecanoic acid	0.30	0.60	ng/g
Perfluorododecanoic acid	0.40	0.80	ng/g
Perfluorotridecanoic acid	0.60	1.2	ng/g
Perfluorotetradecanoic acid	0.30	0.80	ng/g
Perfluorohexanoic acid	0.20	0.40	ng/g
Perfluoroheptanoic acid	0.30	0.60	ng/g
Perfluorobutanesulfonate	0.50	1.6	ng/g
Perfluorohexanesulfonate	0.50	1.6	ng/g
Perfluoro-octanesulfonate	0.70	1.6	ng/g

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Quality Control Reference List
Specialty Services Group

CLIENT: C. T. Male Associates
SDG: SPP17

Fraction: PFAAs by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
Full List PFC's	16235011	BLK235011	09/06/2016 16:19:00
		LCS235011	09/06/2016 16:35:00
		8535030	09/06/2016 17:57:00
		8535030	09/14/2016 15:44:00
		8535030	09/14/2016 17:05:00
		8535031 UNSPK	09/06/2016 16:51:00
		8535031 UNSPK	09/14/2016 14:54:00
		8535031 UNSPK	09/15/2016 08:56:00
		8535031 UNSPK	09/23/2016 07:48:00
		8535032 MS	09/06/2016 17:08:00
		8535033 MSD	09/06/2016 17:24:00
		8535035	09/06/2016 18:13:00
		8535035	09/14/2016 19:00:00
		8535035	09/14/2016 19:49:00
		8535035	09/23/2016 08:04:00
		8535036	09/06/2016 18:30:00
		8535036	09/14/2016 21:44:00
		8535036	09/14/2016 22:33:00
		8535036	09/23/2016 08:21:00
		8535037	09/06/2016 18:46:00
		8535037	09/14/2016 23:22:00
		8535037	09/15/2016 01:01:00
Full List PFC's	16236005	BLK236005	09/01/2016 02:00:00
		LCS236005	09/01/2016 02:17:00
		8535010	09/01/2016 03:22:00
		8535011	09/01/2016 03:39:00
		8535012	09/01/2016 03:55:00
		8535013	09/01/2016 04:11:00
		8535014 UNSPK	09/01/2016 02:33:00
		8535015 MS	09/01/2016 02:50:00
		8535016 MSD	09/01/2016 03:06:00
		8535017	09/01/2016 04:28:00
		8535018	09/01/2016 05:01:00
		8535019	09/01/2016 05:17:00
		8535019	09/14/2016 11:21:00
		8535019	09/14/2016 12:10:00
		8535019	09/15/2016 08:23:00
		8535020	09/01/2016 05:33:00
		8535021	09/01/2016 05:50:00
		8535022	09/01/2016 06:06:00
		8535023	09/01/2016 06:23:00
		8535024	09/01/2016 06:39:00
		8535025	09/01/2016 06:55:00
		8535026	09/01/2016 07:12:00
		8535027	09/01/2016 07:28:00
		8535028	09/01/2016 08:01:00
		8535029	09/01/2016 08:17:00
		8535034	09/01/2016 08:34:00

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Quality Control Summary
Method Blank
Specialty Services Group
SDG: SPP17
Matrix: LIQUID

Fraction: PFAAs by LC/MS/MS

16236005 / BLK236005 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Perfluorooctanoic acid	09/01/16	N.D.	ng/l	1	2
Perfluorononanoic acid	09/01/16	N.D.	ng/l	1	2
Perfluorodecanoic acid	09/01/16	N.D.	ng/l	1	2
Perfluoroundecanoic acid	09/01/16	N.D.	ng/l	2	4
Perfluorododecanoic acid	09/01/16	N.D.	ng/l	3	5
Perfluorotridecanoic acid	09/01/16	N.D.	ng/l	2	4
Perfluorotetradecanoic acid	09/01/16	N.D.	ng/l	3	5
Perfluorohexanoic acid	09/01/16	N.D.	ng/l	1	2
Perfluoroheptanoic acid	09/01/16	N.D.	ng/l	1	2
Perfluorobutanesulfonate	09/01/16	N.D.	ng/l	4	10
Perfluorohexanesulfonate	09/01/16	N.D.	ng/l	4	10
Perfluoro-octanesulfonate	09/01/16	N.D.	ng/l	5	10

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LC-MS/MS Analysis Report

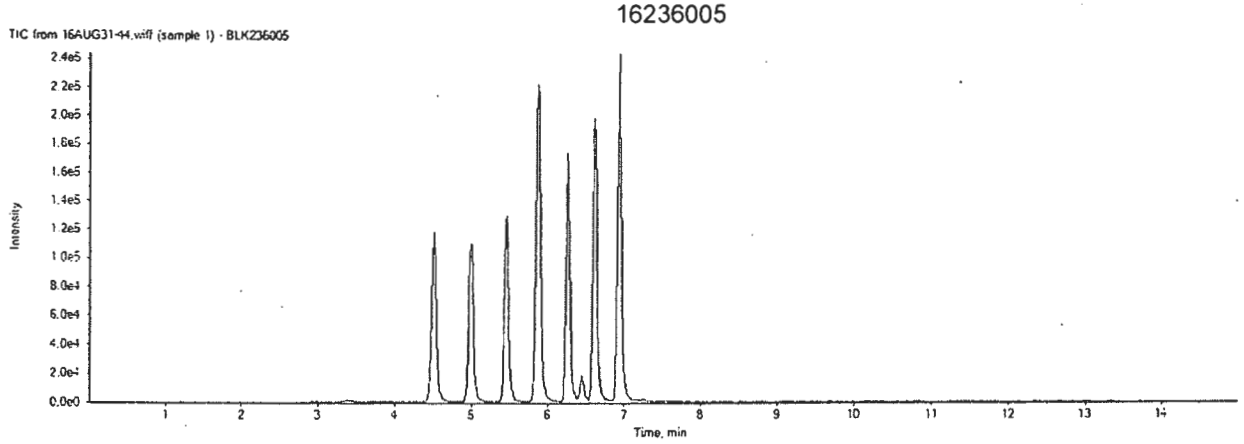
Printed: 9/14/2016 12:59:00 PM

Sample Name:	BLK236005		**Data File:**		16AUG31-44.wiff
Sample ID:	16236005		**Acquis Date:**		2016-09-01T02:00:56
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	46		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	16236005		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	0.10000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

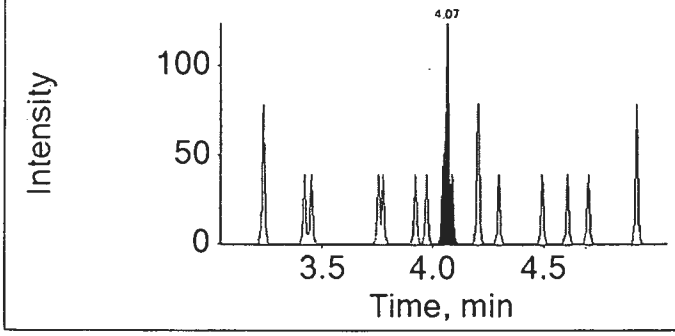
Quantitation Peak Table

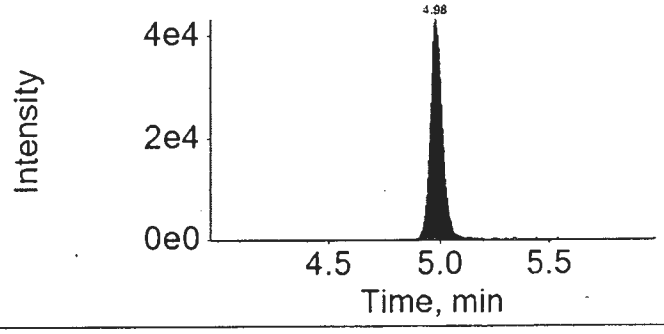
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.07	187.6	A	18O2-PFHxS	4.98	171302.0	0.001	0.046	ng/L
PFHxA	4.52	1269.7	M	13C2-PFHxA	4.51	498823.9	0.003	0.242	ng/L
PFHpA	5.01	1027.0	M	13C4-PFHpA	4.99	304866.0	0.003	0.133	ng/L
PFHxS	4.99	2251.6	A	18O2-PFHxS	4.98	171302.0	0.013	0.600	ng/L
PFOA	5.45	10293.6	A	13C4-PFOA	5.45	490109.4	0.021	0.924	ng/L
PFNA	5.88	743.2	M	13C5-PFNA	5.87	747599.6	0.001	0.047	ng/L
PFOS	5.84	2345.4	A	13C4-PFOS	5.84	192700.1	0.012	0.593	ng/L
PFDA	6.28	481.7	M	13C2-PFDA	6.26	611291.5	0.001	0.032	ng/L
PFUnDA	6.62	1688.7	A	13C2-PFUnDA	6.61	700487.6	0.002	0.117	ng/L
PFDoDA	6.94	1516.7	A	13C2-PFDoDA	6.94	868272.5	0.002	0.088	ng/L
PFTrDA	7.25	3533.4	A	13C2-PFDoDA	6.94	868272.5	0.004	0.201	ng/L
PFTeDA	7.55	2814.4	A	13C2-PFDoDA	6.94	868272.5	0.003	0.168	ng/L

Total Ion Chromatogram
16236005

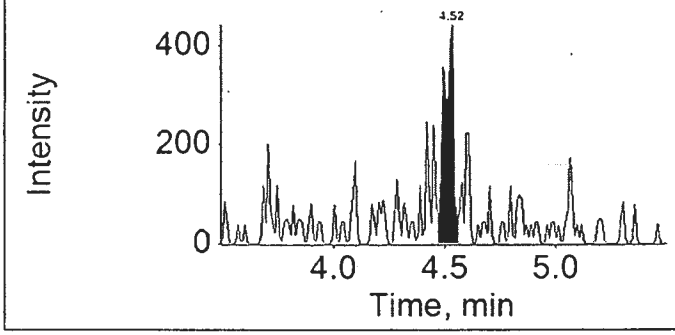


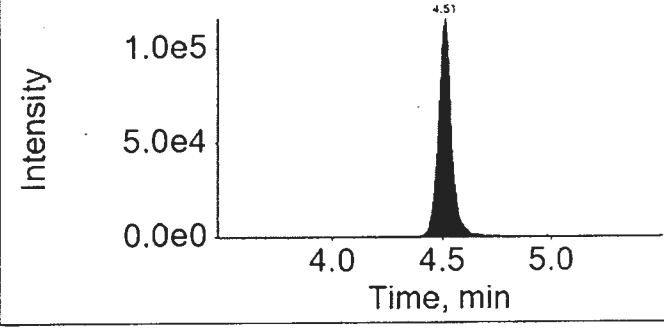
16AUG31-44.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



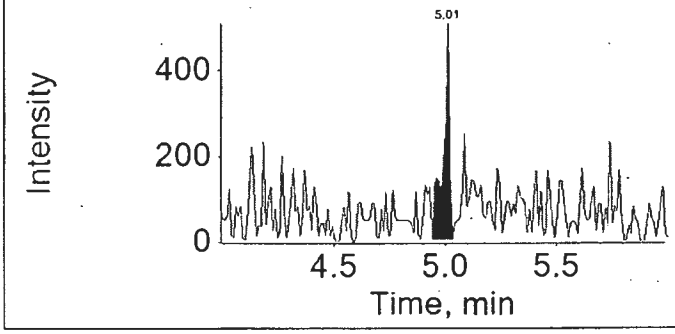


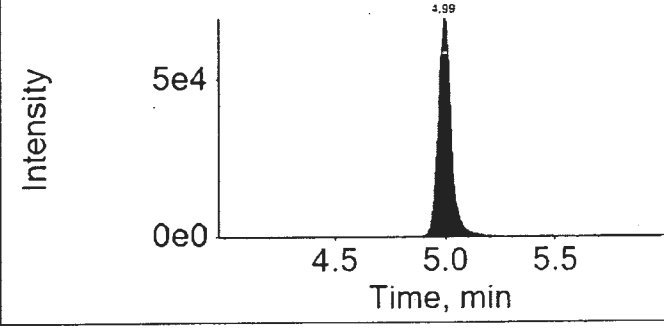
16AUG31-44.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0





16AUG31-44.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0

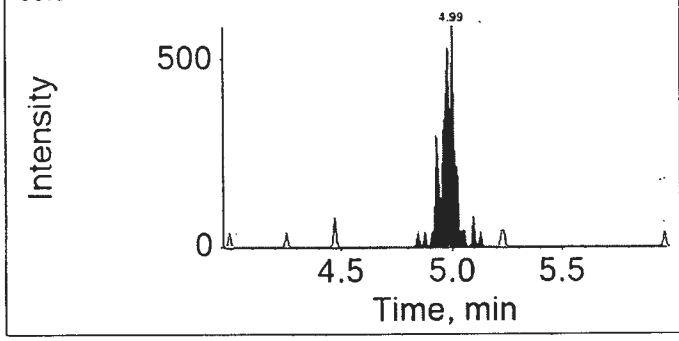




16AUG31-44.wiff

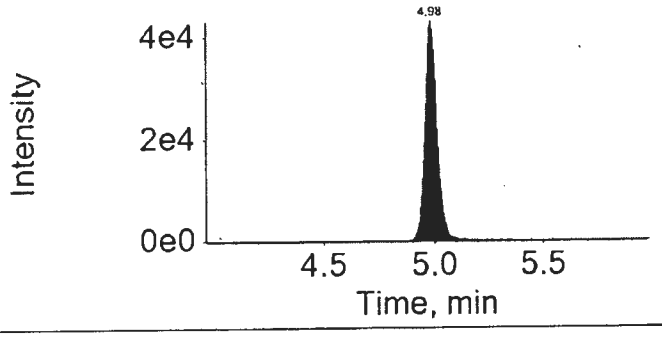
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

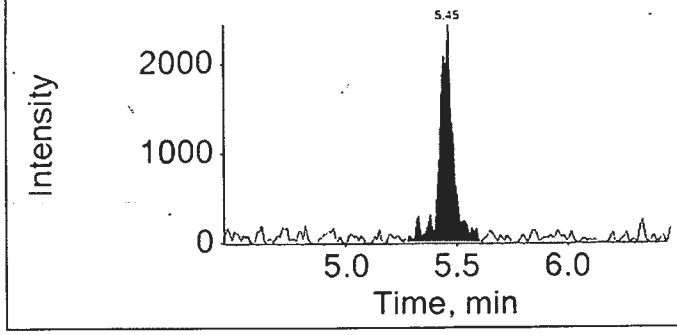
403.0 / 103.0



16AUG31-44.wiff

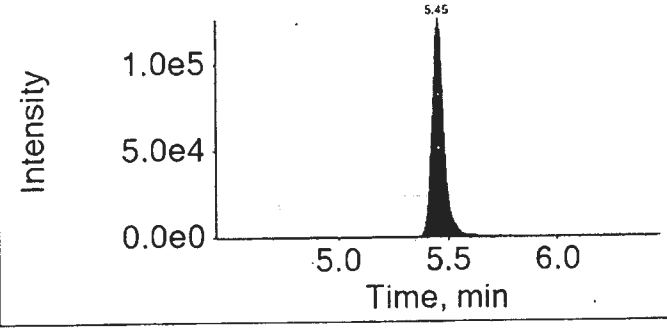
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

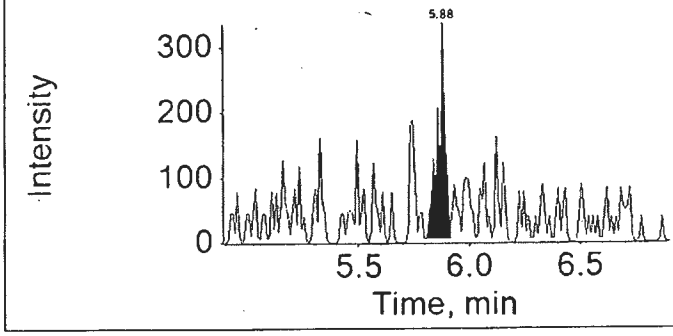
417.0 / 372.0



16AUG31-44.wiff

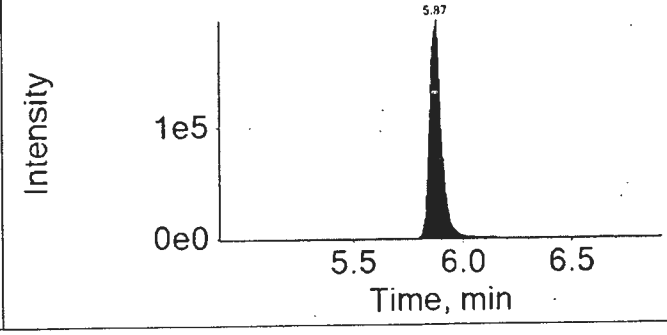
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

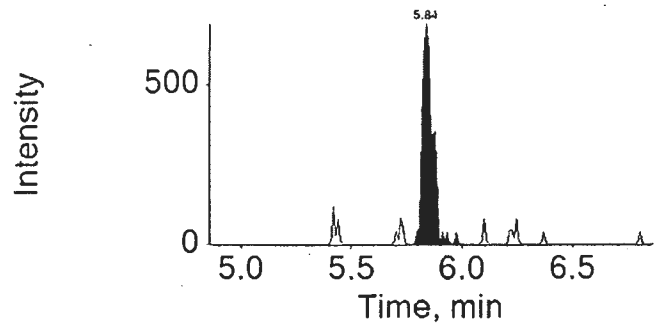
468.0 / 423.0



16AUG31-44.wiff

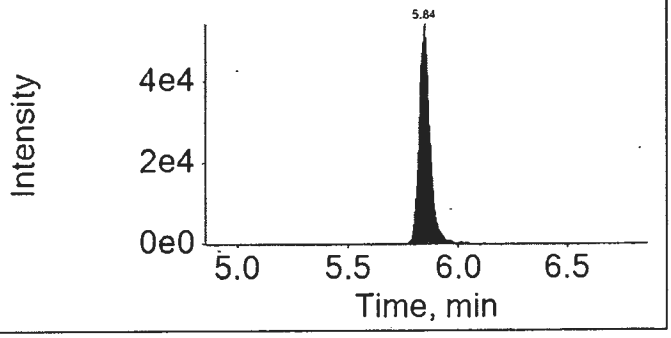
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

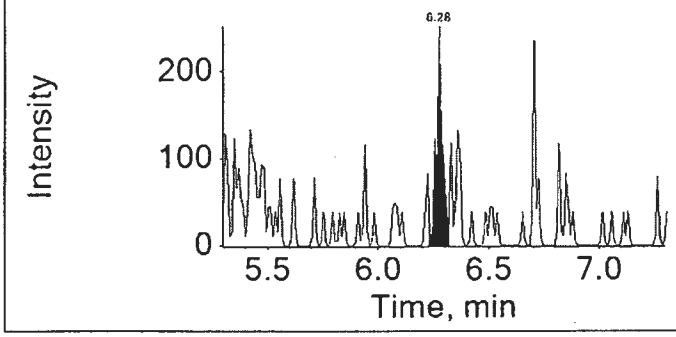
503.0 / 99.0



16AUG31-44.wiff

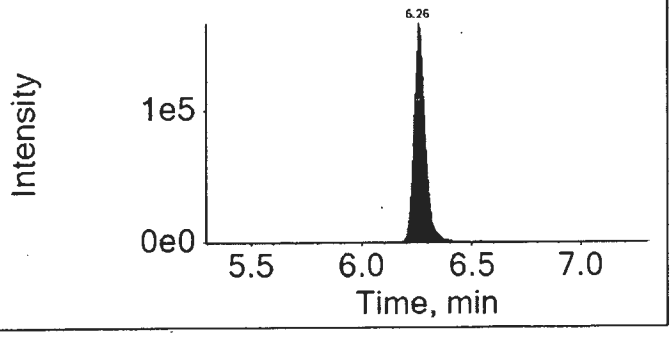
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

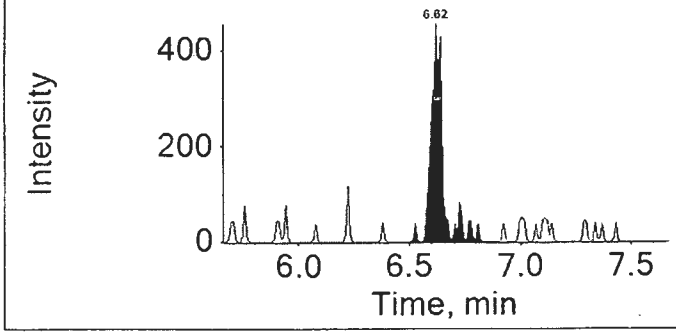
515.0 / 470.0



16AUG31-44.wiff

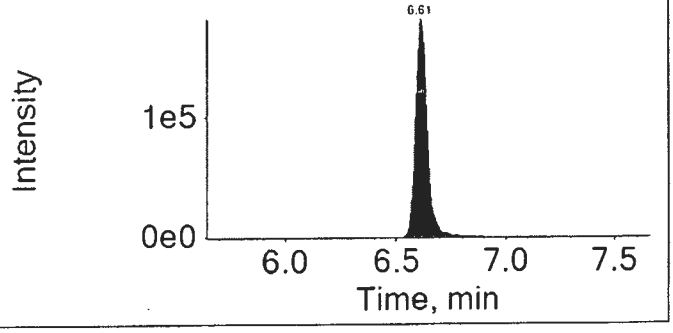
Analyte: PFUnDA

562.9 / 518.9

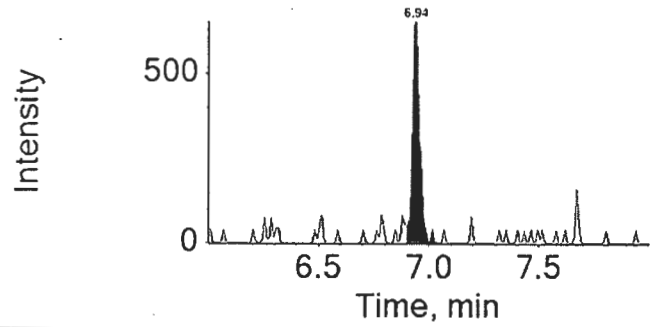


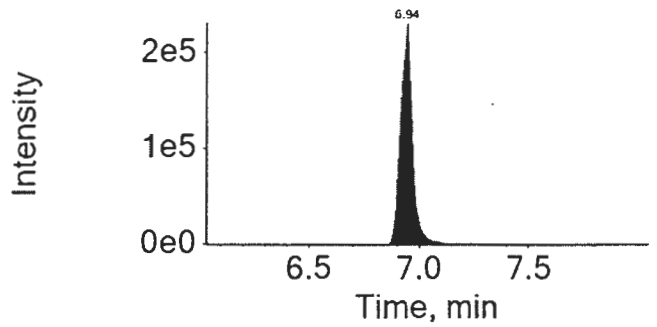
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

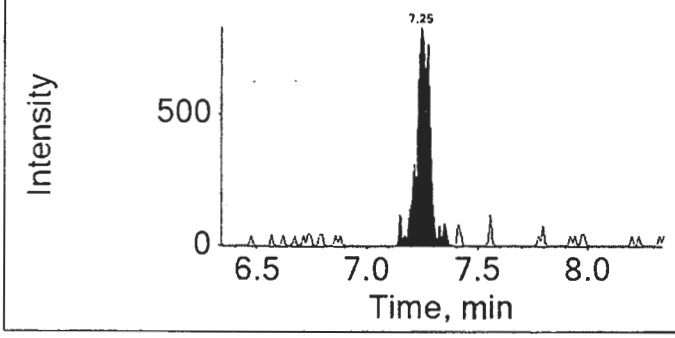


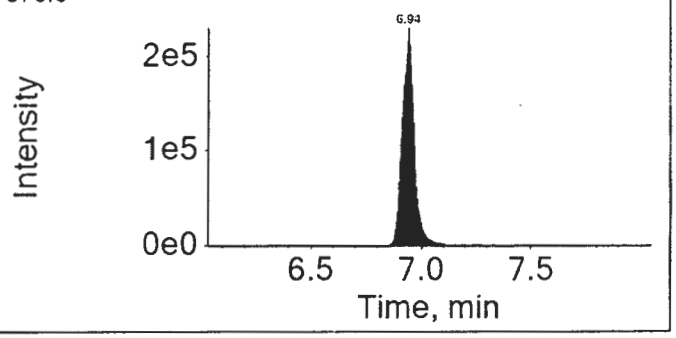
16AUG31-44.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



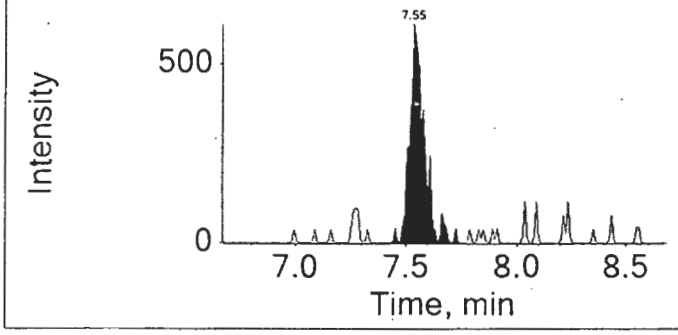


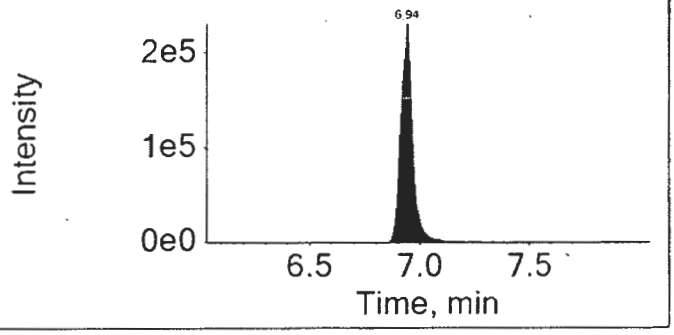
16AUG31-44.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG31-44.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

MCD 7824 9/14/16

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: SPP17
Matrix: LIQUID

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

UNSPK: 8535014 MS: 8535015 MSD: 8535016 **Analyte**	Batch: **16236005** (Sample number(s): 8535010-8535029, 8535034) **Spike Added ng/l MS/MSD**	**Unspiked Conc ng/l**	**MS Conc ng/l**	**MSD Conc ng/l**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	200.96 / 199.1	379.52	623.73	662.35	122	142 *	70-130	6	30
Perfluorononanoic acid	200.96 / 199.1	N.D.	177.84	180.42	88	91	70-130	1	30
Perfluorodecanoic acid	200.96 / 199.1	N.D.	147.76	152.68	74	77	70-130	3	30
Perfluoroundecanoic acid	200.96 / 199.1	N.D.	151.41	161.97	75	81	70-130	7	30
Perfluorododecanoic acid	200.96 / 199.1	N.D.	176.36	177.63	88	89	70-130	1	30
Perfluorotridecanoic acid	200.96 / 199.1	N.D.	187.93	185.83	94	93	70-130	1	30
Perfluorotetradecanoic acid	200.96 / 199.1	N.D.	202.34	209.35	101	105	70-130	3	30
Perfluorohexanoic acid	200.96 / 199.1	12.82	263.	260.04	124	124	70-130	1	30
Perfluoroheptanoic acid	200.96 / 199.1	11.28	180.42	179.27	84	84	70-130	1	30
Perfluorobutanesulfonate	177.85 / 176.21	N.D.	168.75	165.52	95	94	70-130	2	30
Perfluorohexanesulfonate	189.91 / 188.15	N.D.	210.39	206.01	111	109	70-130	2	30
Perfluoro-octanesulfonate	191.92 / 190.14	N.D.	167.61	173.41	87	91	70-130	3	30

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: SPP17
Matrix: LIQUID

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

LCS: LCS236005	Batch: **16236005** (Sample number(s): 8535010-8535029, 8535034)							
Analyte	**Spike Added ng/l**	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	200	158.83	NA	79	NA	70-130	NA	NA
Perfluorononanoic acid	200	150.48	NA	75	NA	70-130	NA	NA
Perfluorodecanoic acid	200	167.19	NA	84	NA	70-130	NA	NA
Perfluoroundecanoic acid	200	154.3	NA	77	NA	70-130	NA	NA
Perfluorododecanoic acid	200	172.64	NA	86	NA	70-130	NA	NA
Perfluorotridecanoic acid	200	204.62	NA	102	NA	70-130	NA	NA
Perfluorotetradecanoic acid	200	227.76	NA	114	NA	70-130	NA	NA
Perfluorohexanoic acid	200	211.58	NA	106	NA	70-130	NA	NA
Perfluoroheptanoic acid	200	151.16	NA	76	NA	70-130	NA	NA
Perfluorobutanesulfonate	177	174.61	NA	99	NA	70-130	NA	NA
Perfluorohexanesulfonate	189	190.83	NA	101	NA	70-130	NA	NA
Perfluoro-octanesulfonate	191	174.68	NA	91	NA	70-130	NA	NA

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FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 08/27/2016 15:39 08/27/2016 17:00

Lab File Names: CAL1= 16AUG26-04.WIFF; CAL2= 16AUG26-05.WIFF; CAL3= 16AUG26-06.WIFF; CAL4= 16AUG26-07.WIFF; CAL5= 16AUG26-08.WIFF; CAL6= 16AUG26-09.WIFF;

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.168	0.80	0.703	-12.0	±50
CAL2	0.427	2.00	1.788	-10.6	±40
CAL3	2.312	9.99	9.675	-3.2	±40
CAL4	9.639	39.96	40.342	1.0	±40
CAL5	27.459	119.90	114.922	-4.2	±40
CAL6	39.430	159.80	165.019	3.3	±40

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.020	0.20	0.194	-2.9	±50
CAL2	0.052	0.50	0.490	-1.9	±30
CAL3	0.306	2.50	2.908	16.3	±30
CAL4	1.046	10.00	9.955	-0.4	±30
CAL5	3.140	30.00	29.877	-0.4	±30
CAL6	4.180	40.00	39.774	-0.6	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.152	-24.1	±50
CAL2	0.115	0.50	0.455	-8.9	±30
CAL3	0.596	2.50	2.356	-5.8	±30
CAL4	2.169	10.00	8.579	-14.2	±30
CAL5	7.584	30.00	30.001	0.0	±30
CAL6	10.530	40.00	41.656	4.1	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.154	0.80	0.703	-12.1	±50
CAL2	0.402	2.00	1.835	-8.2	±30
CAL3	2.172	10.00	9.909	-0.9	±30
CAL4	8.482	40.00	38.691	-3.3	±30
CAL5	25.662	120.00	117.049	-2.5	±30
CAL6	36.089	160.00	164.612	2.9	±30

* Outside QC Limits.

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FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 08/27/2016 15:39 08/27/2016 17:00

Lab File Names: CAL1= 16AUG26-04.WIFF; CAL2= 16AUG26-05.WIFF; CAL3= 16AUG26-06.WIFF; CAL4= 16AUG26-07.WIFF; CAL5= 16AUG26-08.WIFF; CAL6= 16AUG26-09.WIFF;

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.172	-13.8	±50
CAL2	0.103	0.50	0.452	-9.6	±30
CAL3	0.544	2.50	2.393	-4.3	±30
CAL4	1.970	10.00	8.663	-13.4	±30
CAL5	6.799	30.00	29.902	-0.3	±30
CAL6	9.463	40.00	41.618	4.0	±30

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.038	0.20	0.181	-9.3	±50
CAL2	0.095	0.50	0.450	-10.0	±30
CAL3	0.532	2.50	2.517	0.7	±30
CAL4	1.971	10.00	9.331	-6.7	±30
CAL5	6.438	30.00	30.475	1.6	±30
CAL6	8.502	40.00	40.246	0.6	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.138	0.80	0.672	-15.9	±50
CAL2	0.359	2.00	1.748	-12.6	±30
CAL3	1.946	9.99	9.478	-5.1	±30
CAL4	7.239	39.96	35.257	-11.8	±30
CAL5	24.862	119.90	121.088	1.0	±30
CAL6	33.715	159.80	164.206	2.8	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.044	0.20	0.176	-11.9	±50
CAL2	0.113	0.50	0.452	-9.7	±30
CAL3	0.615	2.50	2.458	-1.7	±30
CAL4	2.396	10.00	9.581	-4.2	±30
CAL5	7.329	30.00	29.306	-2.3	±30
CAL6	10.310	40.00	41.228	3.1	±30

* Outside QC Limits.

FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 08/27/2016 15:39 08/27/2016 17:00

Lab File Names: CAL1= 16AUG26-04.WIFF; CAL2= 16AUG26-05.WIFF; CAL3= 16AUG26-06.WIFF; CAL4= 16AUG26-07.WIFF; CAL5= 16AUG26-08.WIFF; CAL6= 16AUG26-09.WIFF;

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.039	0.20	0.190	-5.1	±50
CAL2	0.090	0.50	0.435	-12.9	±30
CAL3	0.527	2.50	2.549	2.0	±30
CAL4	1.927	10.00	9.320	-6.8	±30
CAL5	6.252	30.00	30.231	0.8	±30
CAL6	8.371	40.00	40.475	1.2	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.070	0.40	0.352	-11.9	±50
CAL2	0.189	1.00	0.957	-4.3	±30
CAL3	1.014	5.00	5.124	2.5	±30
CAL4	3.621	20.00	18.305	-8.5	±30
CAL5	12.317	60.00	62.272	3.8	±30
CAL6	15.703	80.00	79.389	-0.8	±30

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.068	0.40	0.335	-16.2	±50
CAL2	0.187	1.00	0.921	-7.9	±40
CAL3	1.006	5.00	4.968	-0.6	±40
CAL4	3.739	20.00	18.466	-7.7	±40
CAL5	12.354	60.00	61.006	1.7	±40
CAL6	16.342	80.00	80.703	0.9	±40

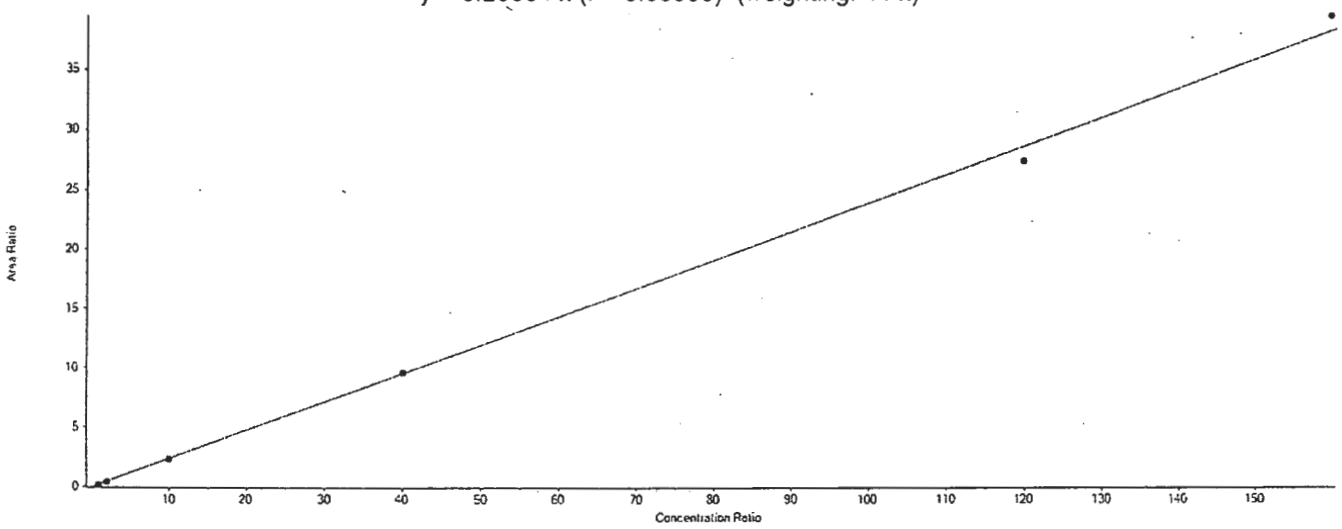
Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.074	0.40	0.384	-3.9	±50
CAL2	0.196	1.00	1.016	1.6	±40
CAL3	0.924	5.00	4.796	-4.1	±40
CAL4	4.026	20.00	20.893	4.5	±40
CAL5	11.662	60.00	60.516	0.9	±40
CAL6	15.185	80.00	78.794	-1.5	±40

* Outside QC Limits.

Initial Calibration

Results Table Name: MQ 16236005 9/1/2016 2:17:59 PM
ICAL Name: 16AUG26ICAL

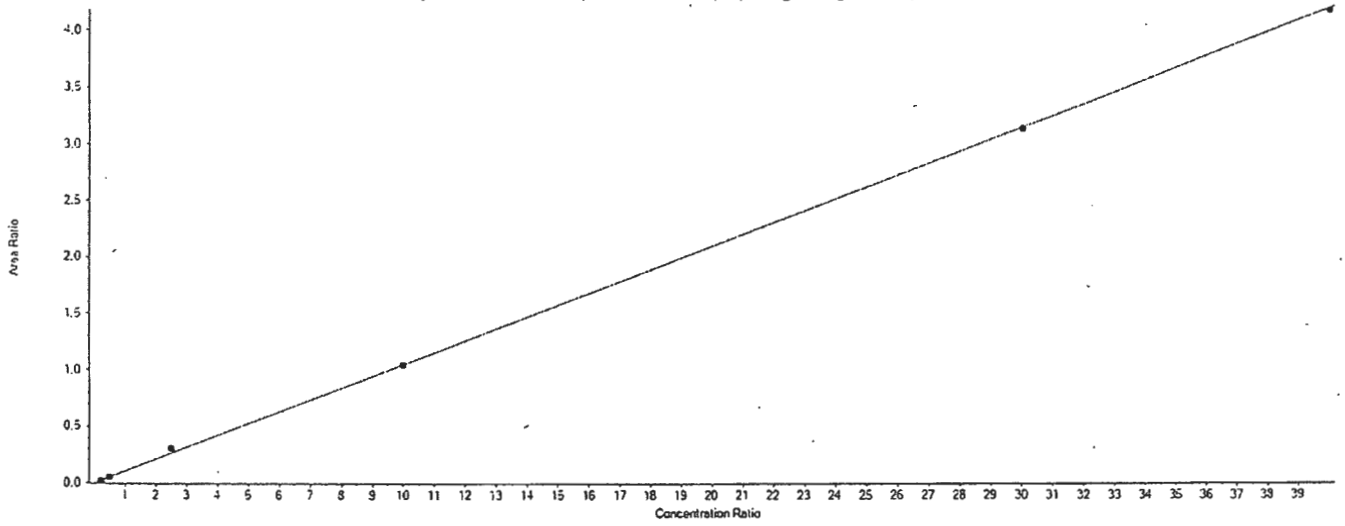
PFBS
y = 0.23894 x (r = 0.99939) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFBS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG26-04.wiff	CAL1	42747.9	254480.7	1.00	0.168	4.10	0.800	0.700	-12.0
16AUG26-05.wiff	CAL2	108353.0	253653.1	1.00	0.427	4.10	2.000	1.790	-10.6
16AUG26-06.wiff	CAL3	540864.0	233974.3	1.00	2.312	4.09	9.990	9.670	-3.2
16AUG26-07.wiff	CAL4	1955013.1	202814.9	1.00	9.639	4.10	39.960	40.340	1.0
16AUG26-08.wiff	CAL5	3912180.3	142471.7	1.00	27.459	4.09	119.900	114.920	-4.2
16AUG26-09.wiff	CAL6	4791496.4	121520.3	1.00	39.430	4.09	159.800	165.020	3.3

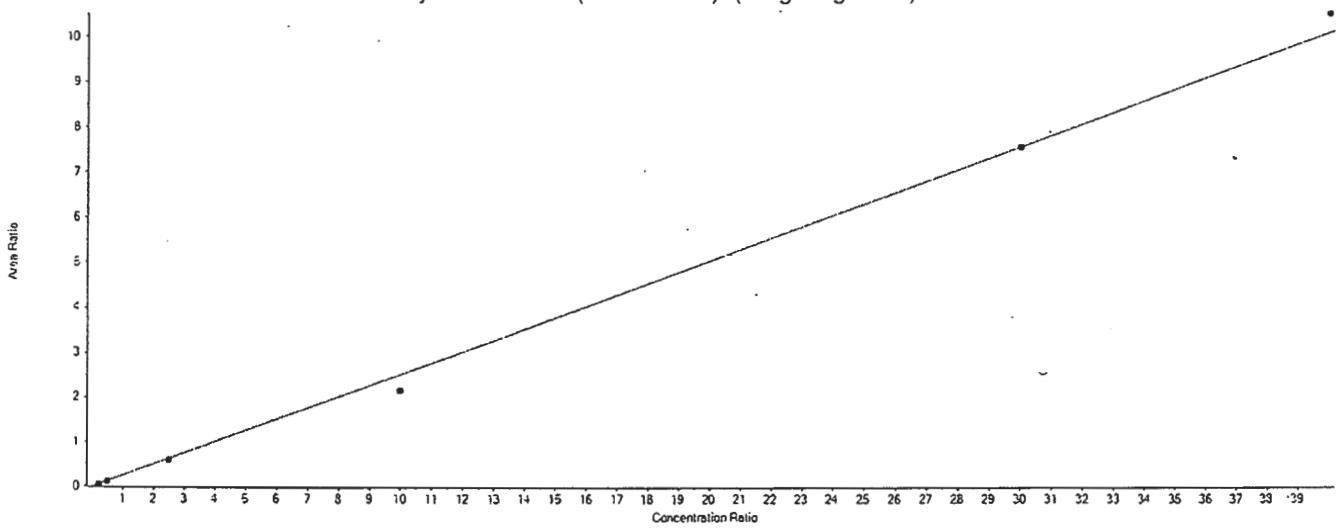
PFHxA
y = 0.10508 x (r = 0.99957) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHxA Area	13C2-PFHxA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG26-04.wiff	CAL1	18766.9	919789.2	1.00	0.020	4.55	0.200	0.190	-2.9
16AUG26-05.wiff	CAL2	45294.1	878839.4	1.00	0.052	4.55	0.500	0.490	-1.9
16AUG26-06.wiff	CAL3	249180.7	815431.0	1.00	0.306	4.54	2.500	2.910	16.3
16AUG26-07.wiff	CAL4	850205.0	812724.5	1.00	1.046	4.54	10.000	9.960	-0.4
16AUG26-08.wiff	CAL5	2218146.7	706521.4	1.00	3.140	4.54	30.000	29.880	-0.4
16AUG26-09.wiff	CAL6	2746821.8	657209.5	1.00	4.180	4.54	40.000	39.770	-0.6

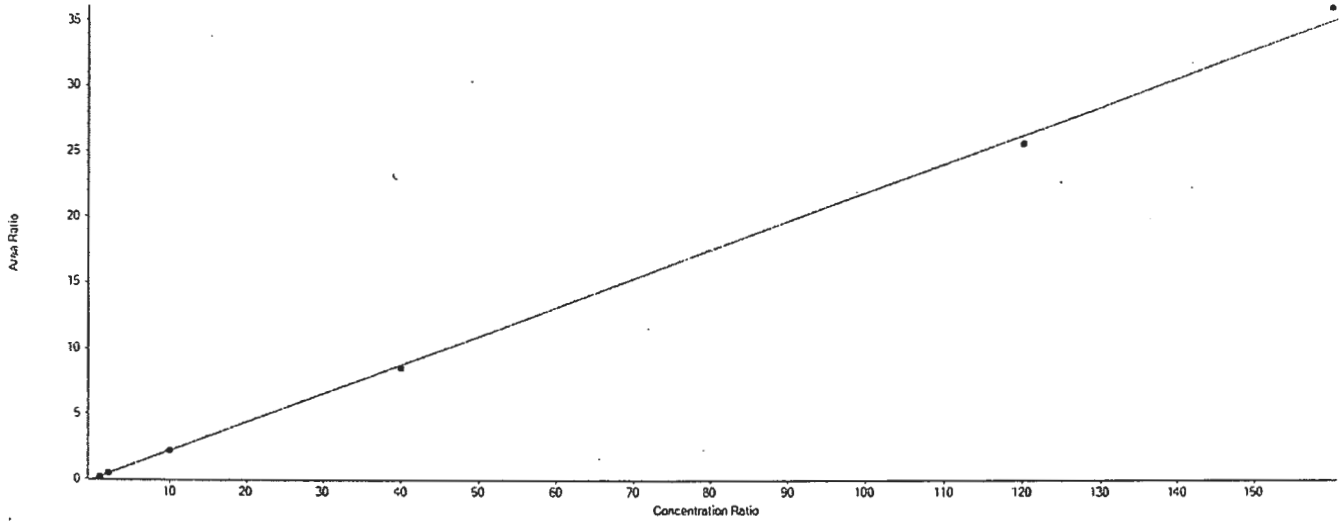
PFHpA
y = 0.25279 x (r = 0.99836) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHpA Area	13C4-PFHpA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG26-04.wiff	CAL1	21434.9	558412.4	1.00	0.038	5.04	0.200	0.150	-24.1
16AUG26-05.wiff	CAL2	57925.3	503128.6	1.00	0.115	5.05	0.500	0.460	-8.9
16AUG26-06.wiff	CAL3	260780.3	437827.6	1.00	0.596	5.03	2.500	2.360	-5.8
16AUG26-07.wiff	CAL4	735101.1	338953.0	1.00	2.169	5.04	10.000	8.580	-14.2
16AUG26-08.wiff	CAL5	1467945.5	193557.6	1.00	7.584	5.04	30.000	30.000	0.0
16AUG26-09.wiff	CAL6	1793395.7	170305.7	1.00	10.530	5.04	40.000	41.660	4.1

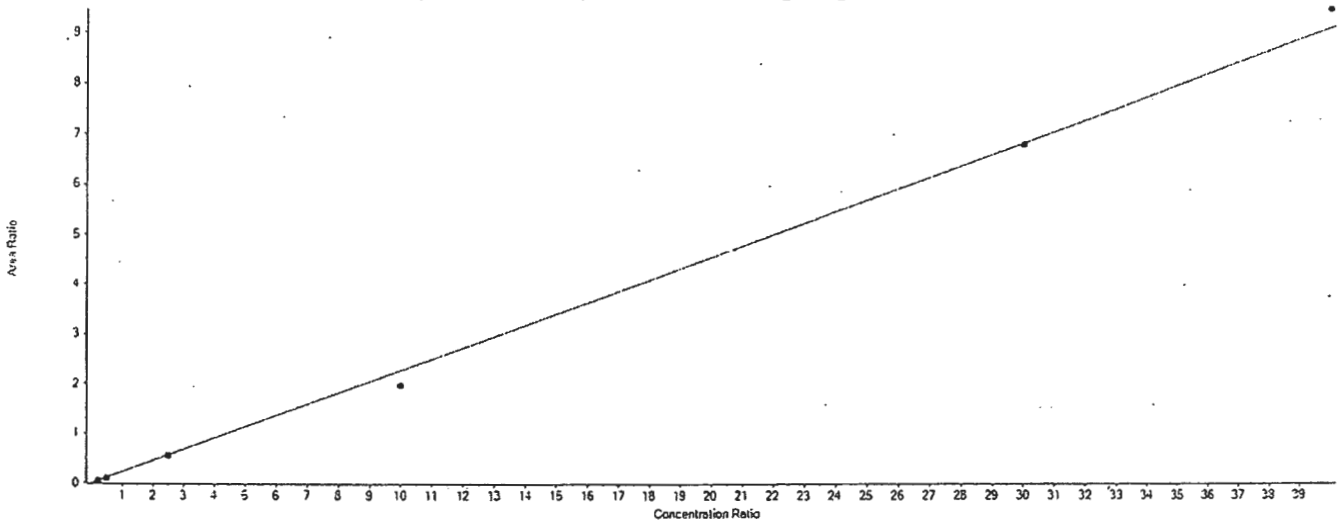
PFHxS
y = 0.21924 x (r = 0.99962) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFHxS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG26-04.wiff	CAL1	39213.2	254480.7	1.00	0.154	5.03	0.800	0.700	-12.1
16AUG26-05.wiff	CAL2	102067.8	253653.1	1.00	0.402	5.03	2.000	1.840	-8.2
16AUG26-06.wiff	CAL3	508304.8	233974.3	1.00	2.172	5.02	10.000	9.910	-0.9
16AUG26-07.wiff	CAL4	1720376.7	202814.9	1.00	8.482	5.03	40.000	38.690	-3.3
16AUG26-08.wiff	CAL5	3656041.6	142471.7	1.00	25.662	5.02	120.000	117.050	-2.5
16AUG26-09.wiff	CAL6	4385545.4	121520.3	1.00	36.089	5.02	160.000	164.610	2.9

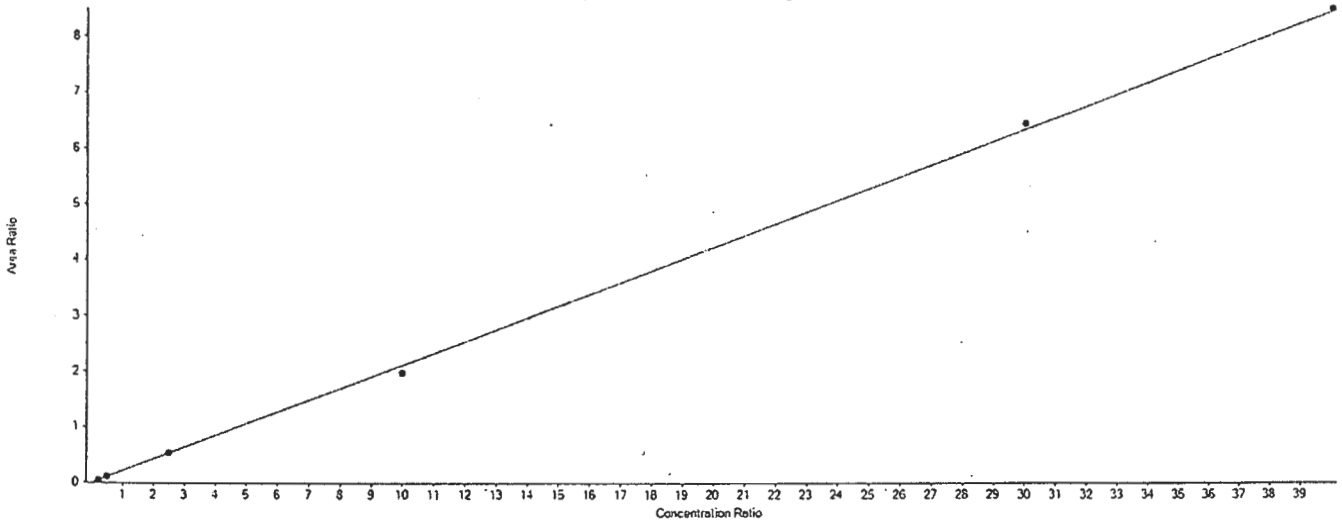
PFOA
y = 0.22738 x (r = 0.99850) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFOA Area	13C4-PFOA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG26-04.wiff	CAL1	33668.8	858450.1	1.00	0.039	5.51	0.200	0.170	-13.8
16AUG26-05.wiff	CAL2	85431.6	830776.4	1.00	0.103	5.51	0.500	0.450	-9.6
16AUG26-06.wiff	CAL3	439884.1	808533.4	1.00	0.544	5.50	2.500	2.390	-4.3
16AUG26-07.wiff	CAL4	1605331.7	814970.8	1.00	1.970	5.50	10.000	8.660	-13.4
16AUG26-08.wiff	CAL5	4007105.7	589355.7	1.00	6.799	5.50	30.000	29.900	-0.3
16AUG26-09.wiff	CAL6	5168944.0	546211.3	1.00	9.463	5.49	40.000	41.620	4.0

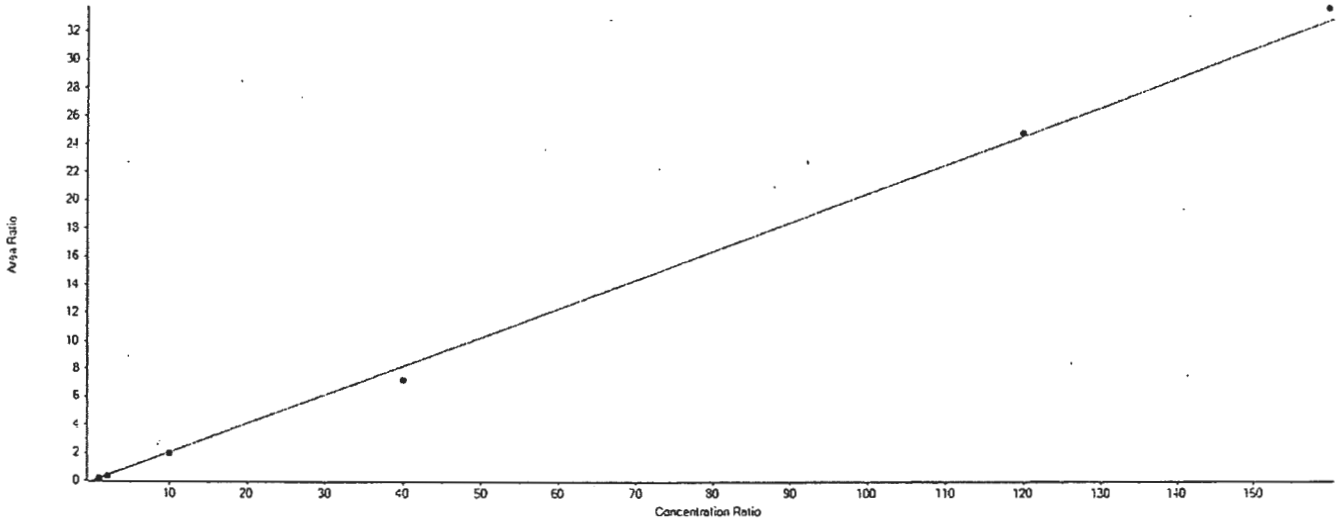
PFNA
y = 0.21125 x (r = 0.99966) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFNA Area	13C5-PFNA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG26-04.wiff	CAL1	48469.9	1265406.4	1.00	0.038	5.94	0.200	0.180	-9.3
16AUG26-05.wiff	CAL2	119794.2	1260065.7	1.00	0.095	5.94	0.500	0.450	-10.0
16AUG26-06.wiff	CAL3	562908.4	1058648.7	1.00	0.532	5.93	2.500	2.520	0.7
16AUG26-07.wiff	CAL4	1807196.6	916821.6	1.00	1.971	5.94	10.000	9.330	-6.7
16AUG26-08.wiff	CAL5	3611644.0	561011.2	1.00	6.438	5.94	30.000	30.470	1.6
16AUG26-09.wiff	CAL6	4418120.2	519670.8	1.00	8.502	5.94	40.000	40.250	0.6

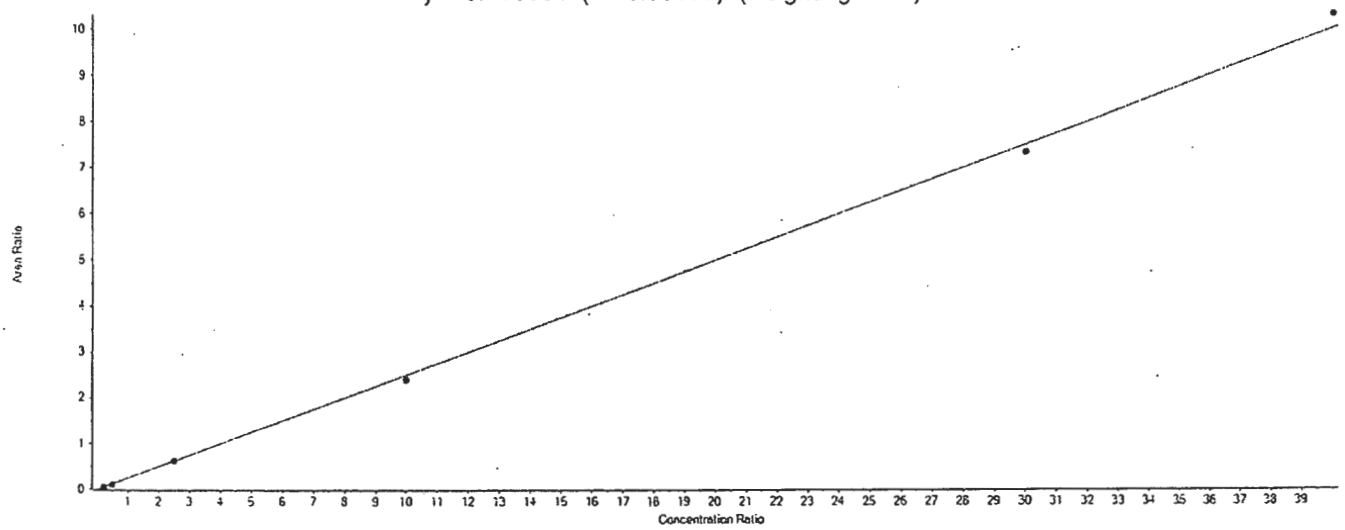
PFOS
y = 0.20532 x (r = 0.99895) (weighting: 1 / x)



Calibration Verification

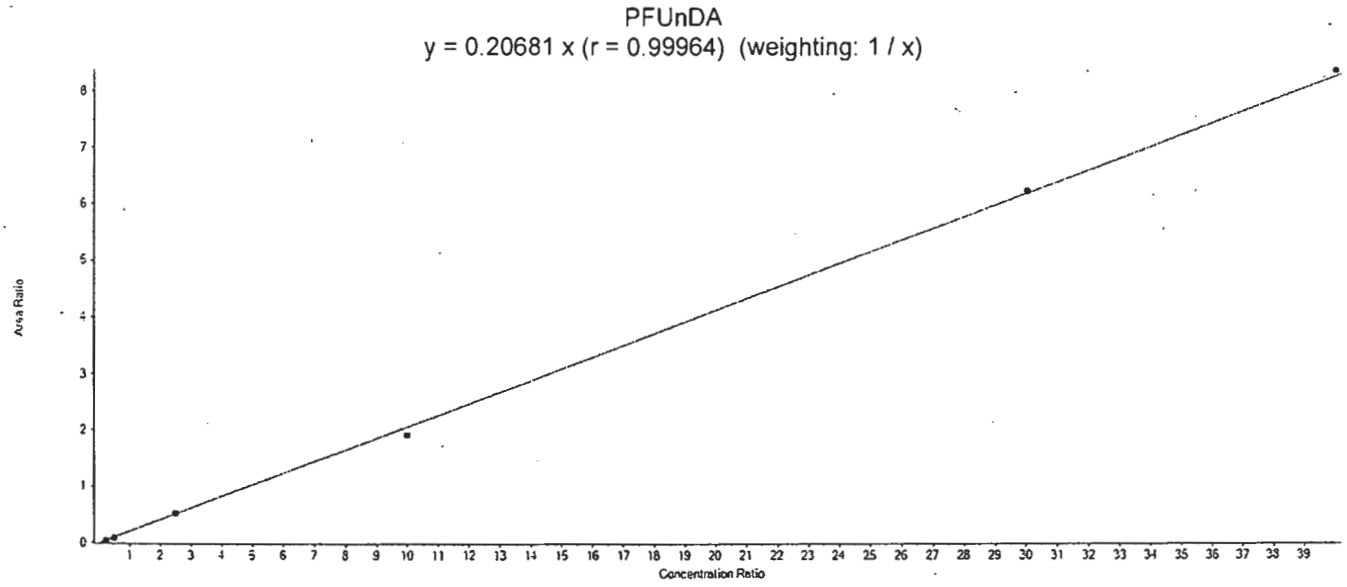
File Name	Sample Name	PFOS Area	13C4-PFOS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG26-04.wiff	CAL1	39964.9	289696.4	1.00	0.138	5.91	0.800	0.670	-15.9
16AUG26-05.wiff	CAL2	98880.3	275450.3	1.00	0.359	5.91	2.000	1.750	-12.6
16AUG26-06.wiff	CAL3	518499.4	266425.9	1.00	1.946	5.90	9.990	9.480	-5.1
16AUG26-07.wiff	CAL4	1673193.1	231136.3	1.00	7.239	5.90	39.960	35.260	-11.8
16AUG26-08.wiff	CAL5	3444183.4	138531.9	1.00	24.862	5.90	119.900	121.090	1.0
16AUG26-09.wiff	CAL6	4176014.2	123861.6	1.00	33.715	5.89	159.800	164.210	2.8

PFDA
y = 0.25008 x (r = 0.99956) (weighting: 1 / x)



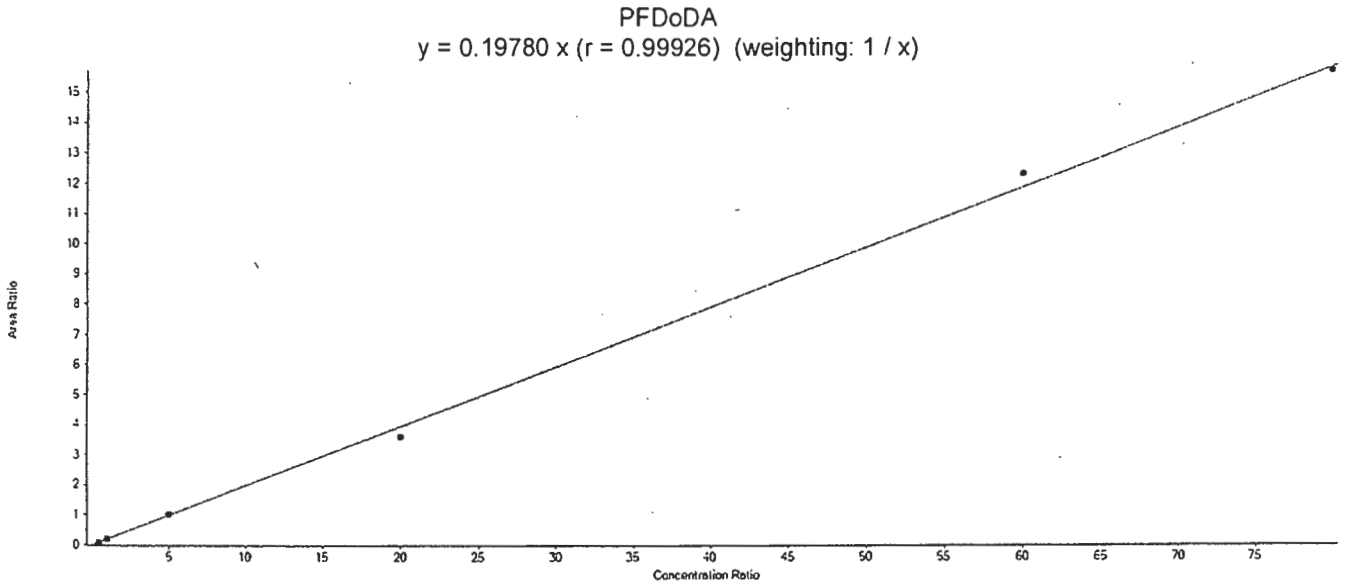
Calibration Verification

File Name	Sample Name	PFDA Area	13C2-PFDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG26-04.wiff	CAL1	43898.2	996587.3	1.00	0.044	6.34	0.200	0.180	-11.9
16AUG26-05.wiff	CAL2	111840.7	990217.3	1.00	0.113	6.33	0.500	0.450	-9.7
16AUG26-06.wiff	CAL3	539895.9	878271.2	1.00	0.615	6.33	2.500	2.460	-1.7
16AUG26-07.wiff	CAL4	2064734.1	861773.7	1.00	2.396	6.33	10.000	9.580	-4.2
16AUG26-08.wiff	CAL5	4754129.6	648697.5	1.00	7.329	6.32	30.000	29.310	-2.3
16AUG26-09.wiff	CAL6	5738472.5	556585.5	1.00	10.310	6.31	40.000	41.230	3.1



Calibration Verification

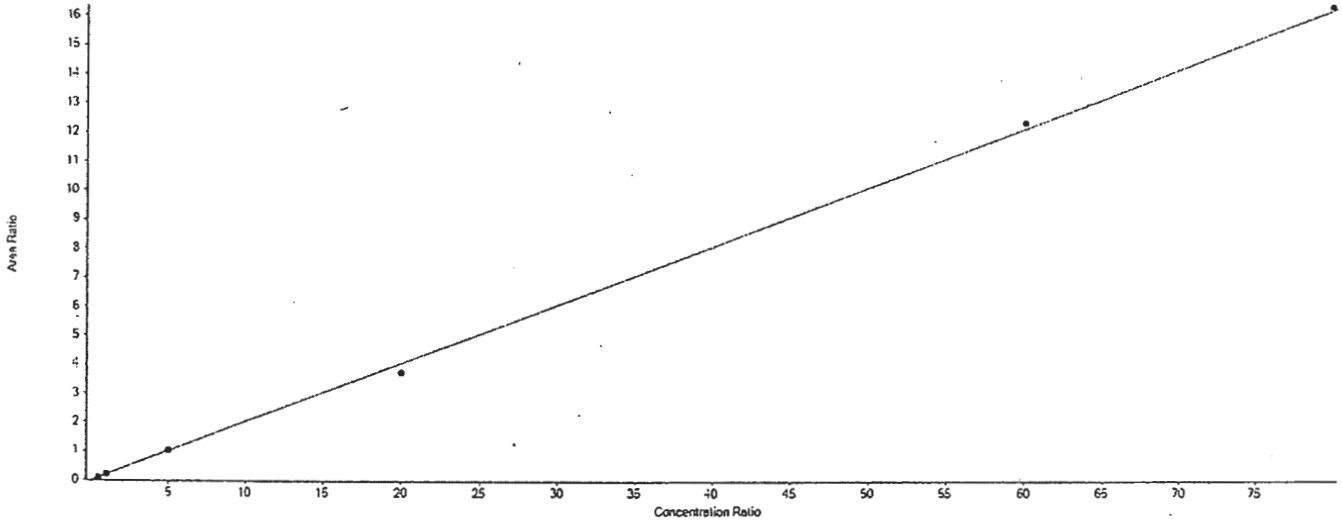
File Name	Sample Name	PFUnDA Area	13C2-PFUnDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG26-04.wiff	CAL1	44529.5	1133957.4	1.00	0.039	6.70	0.200	0.190	-5.1
16AUG26-05.wiff	CAL2	106385.2	1181562.7	1.00	0.090	6.70	0.500	0.440	-12.9
16AUG26-06.wiff	CAL3	511507.5	970328.5	1.00	0.527	6.69	2.500	2.550	2.0
16AUG26-07.wiff	CAL4	1815687.4	942030.9	1.00	1.927	6.68	10.000	9.320	-6.8
16AUG26-08.wiff	CAL5	4057234.9	648940.9	1.00	6.252	6.68	30.000	30.230	0.8
16AUG26-09.wiff	CAL6	4993331.1	596525.1	1.00	8.371	6.67	40.000	40.480	1.2



Calibration Verification

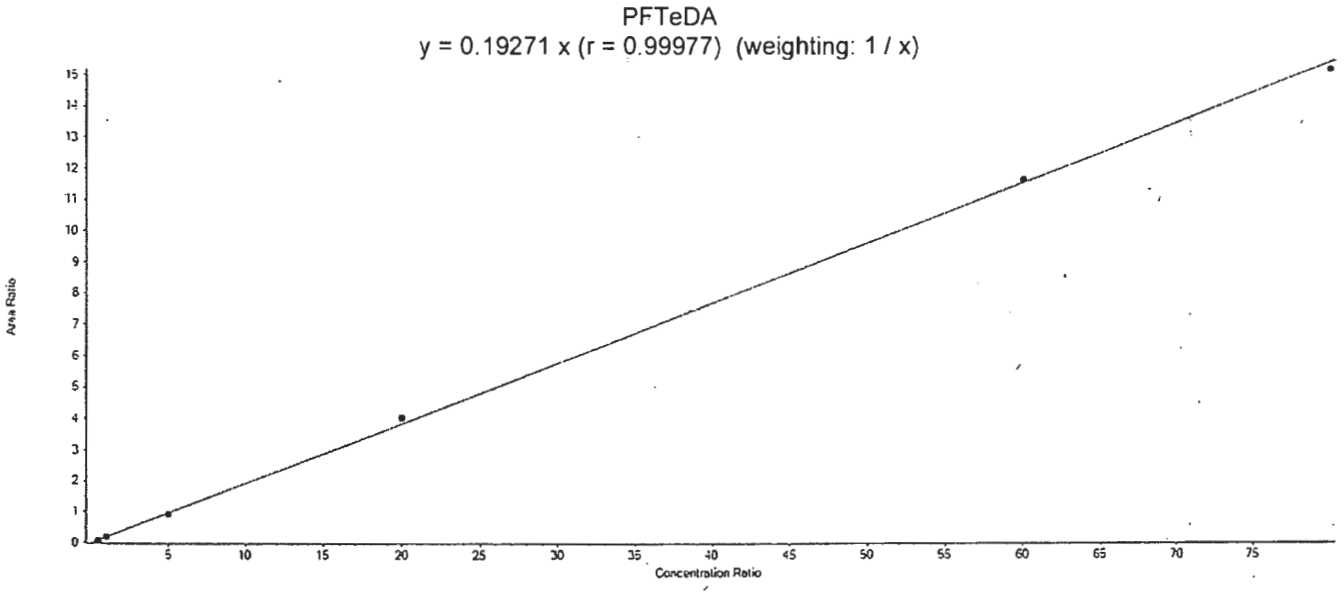
File Name	Sample Name	PFDoDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG26-04.wiff	CAL1	104792.4	1503735.4	1.00	0.070	7.04	0.400	0.350	-11.9
16AUG26-05.wiff	CAL2	271970.5	1436994.4	1.00	0.189	7.04	1.000	0.960	-4.3
16AUG26-06.wiff	CAL3	1343956.1	1325963.0	1.00	1.014	7.03	5.000	5.120	2.5
16AUG26-07.wiff	CAL4	4848731.5	1339141.0	1.00	3.621	7.03	20.000	18.310	-8.5
16AUG26-08.wiff	CAL5	11059811.9	897897.1	1.00	12.317	7.02	60.000	62.270	3.8
16AUG26-09.wiff	CAL6	13519626.4	860952.2	1.00	15.703	7.02	80.000	79.390	-0.8

PFTrDA
y = 0.20250 x (r = 0.99958) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFTrDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG26-04.wiff	CAL1	102045.5	1503735.4	1.00	0.068	7.36	0.400	0.340	-16.2
16AUG26-05.wiff	CAL2	268031.3	1436994.4	1.00	0.187	7.36	1.000	0.920	-7.9
16AUG26-06.wiff	CAL3	1334080.5	1325963.0	1.00	1.006	7.35	5.000	4.970	-0.6
16AUG26-07.wiff	CAL4	5007619.5	1339141.0	1.00	3.739	7.35	20.000	18.470	-7.7
16AUG26-08.wiff	CAL5	11092399.3	897897.1	1.00	12.354	7.34	60.000	61.010	1.7
16AUG26-09.wiff	CAL6	14070072.8	860952.2	1.00	16.342	7.34	80.000	80.700	0.9



Calibration Verification

File Name	Sample Name	PFTeDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16AUG26-04.wiff	CAL1	111414.8	1503735.4	1.00	0.074	7.69	0.400	0.380	-3.9
16AUG26-05.wiff	CAL2	281312.0	1436994.4	1.00	0.196	7.68	1.000	1.020	1.6
16AUG26-06.wiff	CAL3	1225425.3	1325963.0	1.00	0.924	7.67	5.000	4.800	-4.1
16AUG26-07.wiff	CAL4	5391935.4	1339141.0	1.00	4.026	7.67	20.000	20.890	4.5
16AUG26-08.wiff	CAL5	10471441.1	897897.1	1.00	11.662	7.67	60.000	60.520	0.9
16AUG26-09.wiff	CAL6	13073182.1	860952.2	1.00	15.185	7.66	80.000	78.790	-1.5

eurofins | Lancaster Laboratories

LC-MS/MS Analysis Report

Printed: 9/14/2016 12:59:00 PM

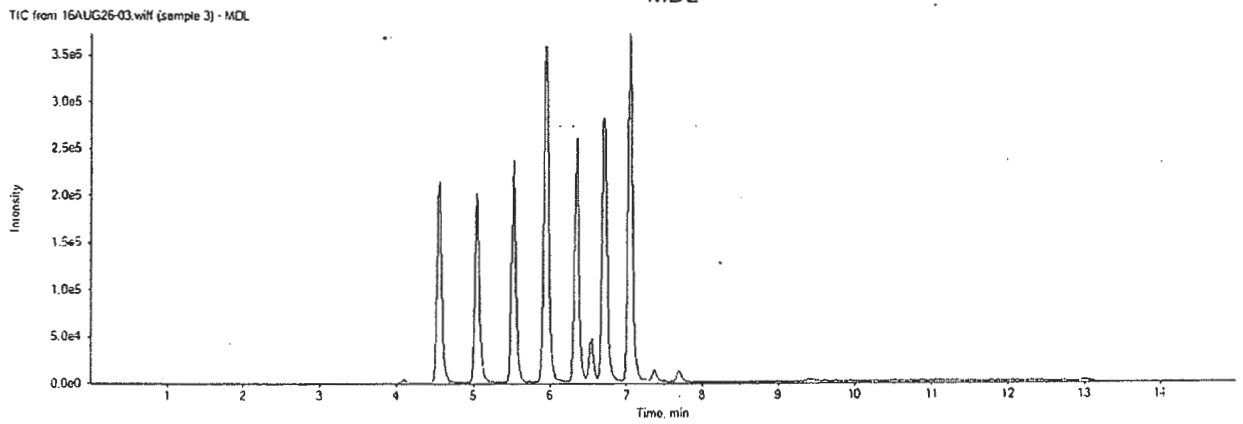
Sample Name:	MDL		**Data File:**		16AUG26-03.wiff
Sample ID:	MDL		**Acquis Date:**		2016-08-27T15:22:36
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	2		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16236005
			ICAL Name:		16AUG26ICAL
Batch Number:	ICAL		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.00000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.10	17480.8	A	18O2-PFHxS	5.03	255855.8	0.068	0.286	ng/L
PFHxA	4.56	9684.1	A	13C2-PFHxA	4.55	907436.1	0.011	0.102	ng/L
PFHpA	5.04	11594.7	A	13C4-PFHpA	5.04	546699.2	0.021	0.084	ng/L
PFHxS	5.03	19544.2	A	18O2-PFHxS	5.03	255855.8	0.076	0.348	ng/L
PFOA	5.52	17015.3	M	13C4-PFOA	5.51	897121.2	0.019	0.083	ng/L
PFNA	5.95	23956.4	A	13C5-PFNA	5.95	1323743.7	0.018	0.086	ng/L
PFOS	5.91	17324.7	A	13C4-PFOS	5.91	295366.4	0.059	0.286	ng/L
PFDA	6.34	20682.1	A	13C2-PFDA	6.34	977943.2	0.021	0.085	ng/L
PFUnDA	6.70	23395.9	M	13C2-PFUnDA	6.70	1098904.0	0.021	0.103	ng/L
PFDoDA	7.04	54413.1	A	13C2-PFDoDA	7.05	1486427.4	0.037	0.185	ng/L
PFTrDA	7.37	49343.2	A	13C2-PFDoDA	7.05	1486427.4	0.033	0.164	ng/L
PFTeDA	7.69	54285.1	A	13C2-PFDoDA	7.05	1486427.4	0.037	0.190	ng/L

Total Ion Chromatogram

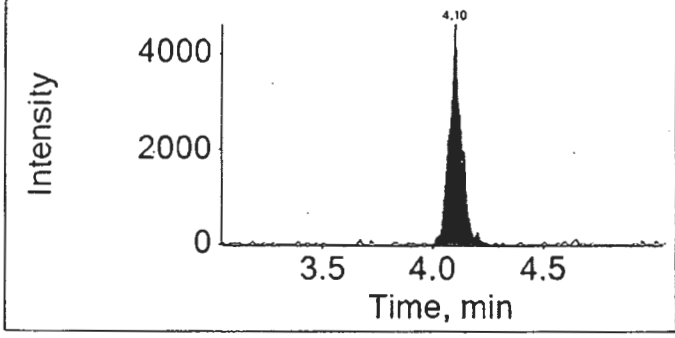
MDL



16AUG26-03.wiff

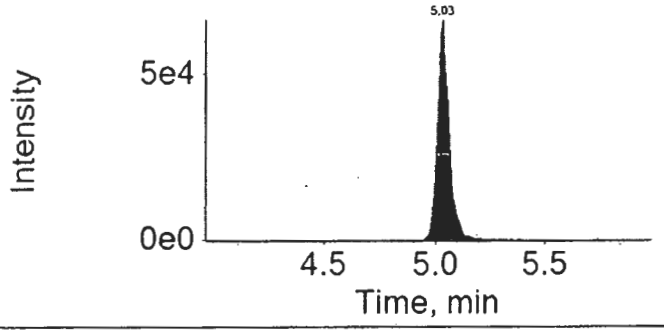
Analyte: PFBS

298.9 / 98.9



Internal Standard: 18O2-PFHxS

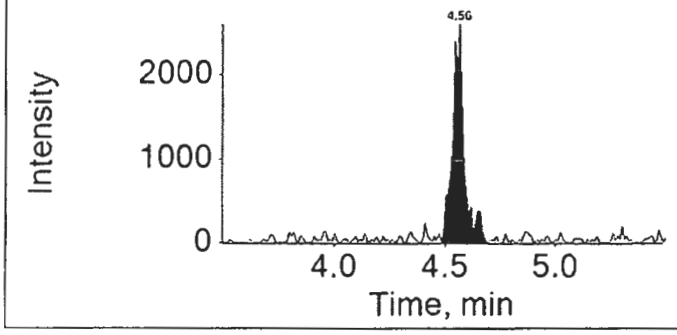
403.0 / 103.0



16AUG26-03.wiff

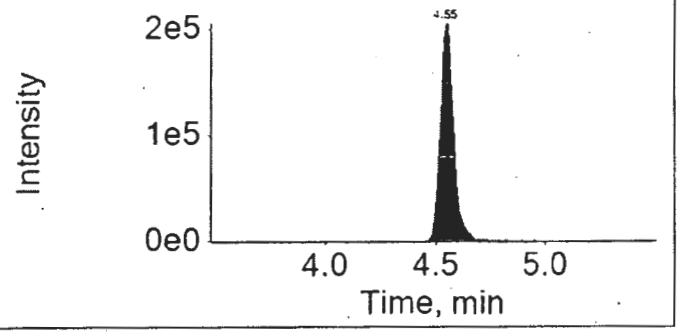
Analyte: PFHxA

312.9 / 269.0



Internal Standard: 13C2-PFHxA

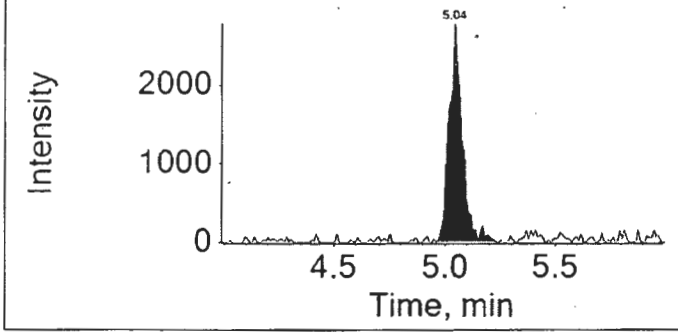
314.9 / 270.0



16AUG26-03.wiff

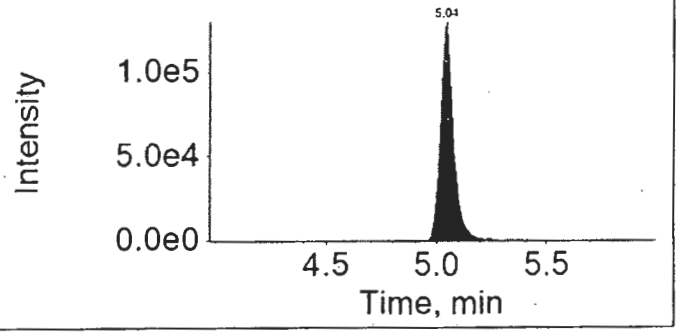
Analyte: PFHpA

362.9 / 318.9



Internal Standard: 13C4-PFHpA

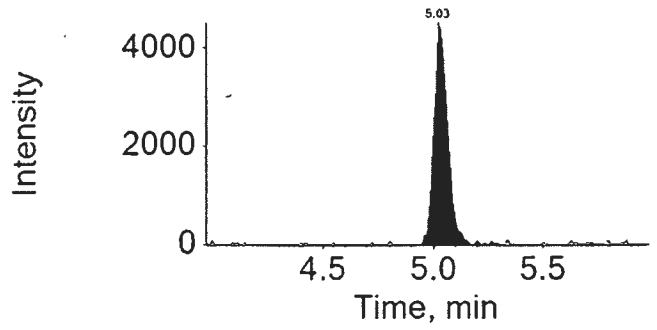
367.0 / 322.0



16AUG26-03.wiff

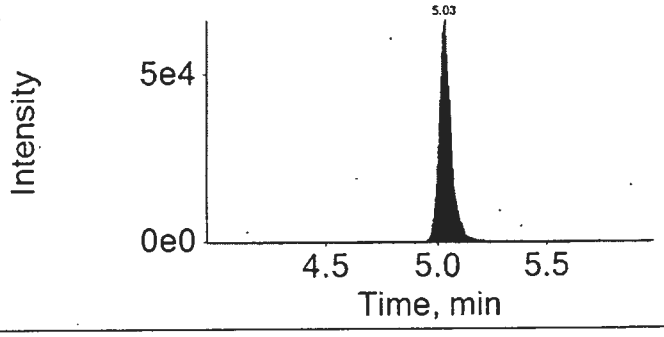
Analyte: PFHxS

398.9 / 99.0



Internal Standard: 18O2-PFHxS

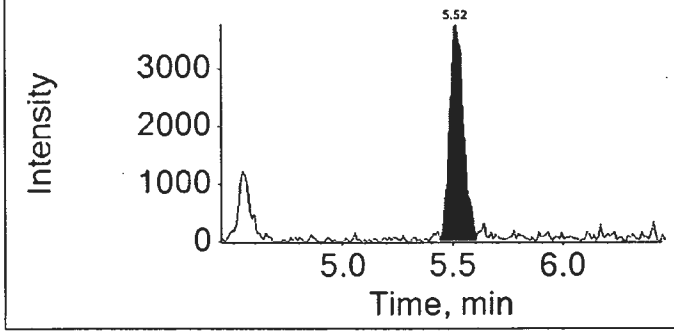
403.0 / 103.0



16AUG26-03.wiff

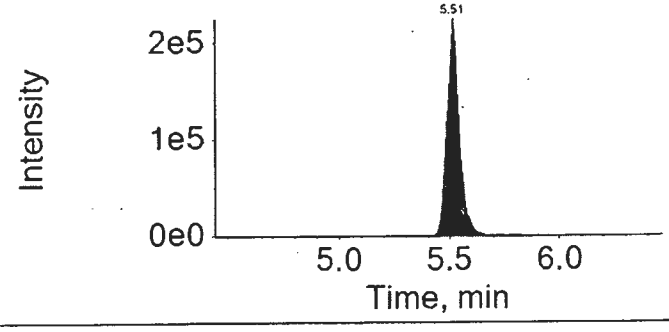
Analyte: PFOA

412.9 / 368.9



Internal Standard: 13C4-PFOA

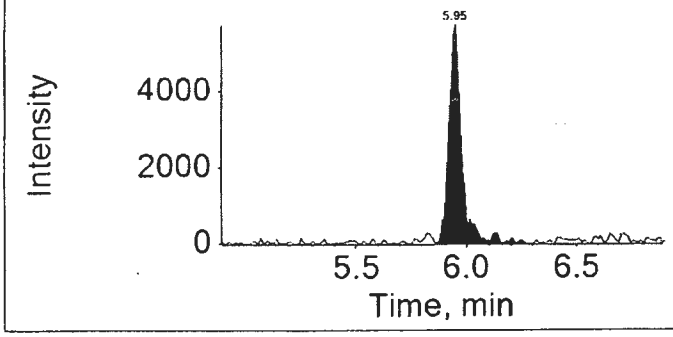
417.0 / 372.0



16AUG26-03.wiff

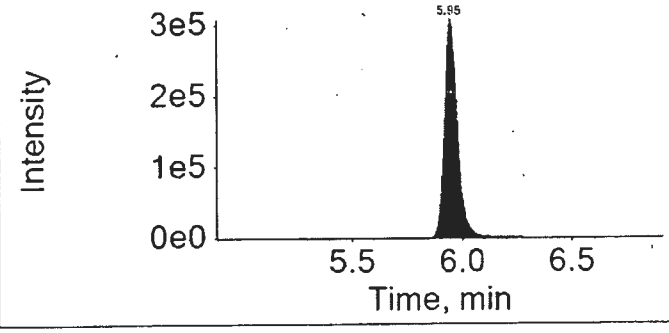
Analyte: PFNA

462.9 / 418.9



Internal Standard: 13C5-PFNA

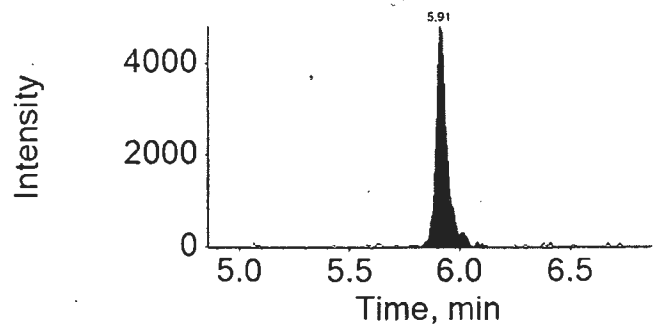
468.0 / 423.0



16AUG26-03.wiff

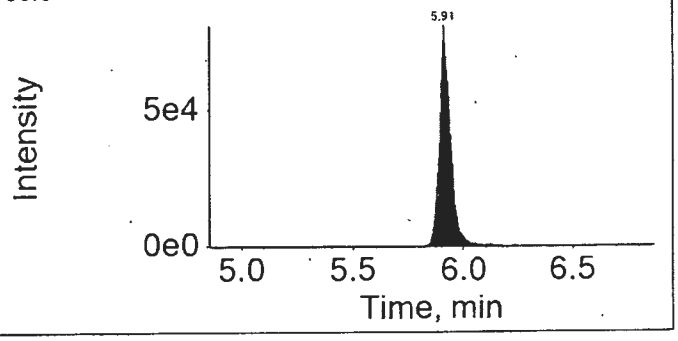
Analyte: PFOS

498.9 / 98.9



Internal Standard: 13C4-PFOS

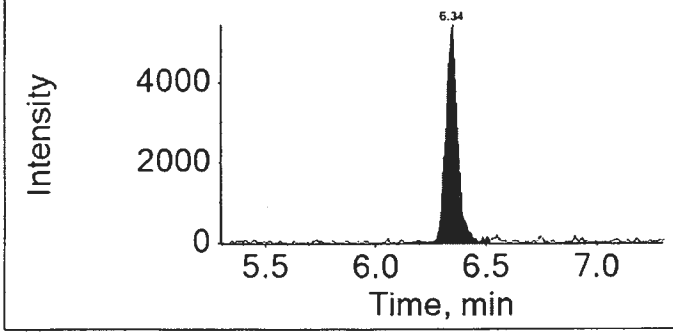
503.0 / 99.0



16AUG26-03.wiff

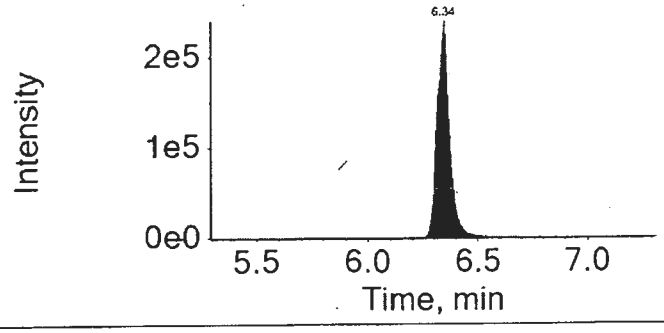
Analyte: PFDA

512.9 / 469.0



Internal Standard: 13C2-PFDA

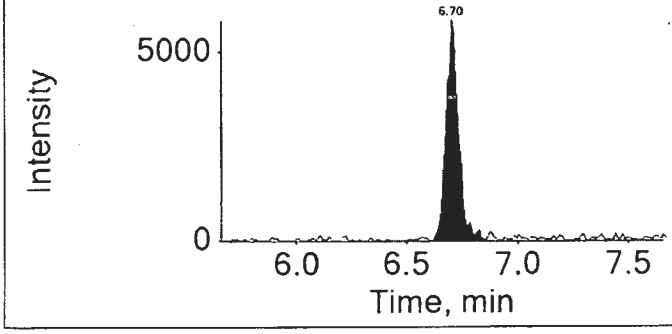
515.0 / 470.0



16AUG26-03.wiff

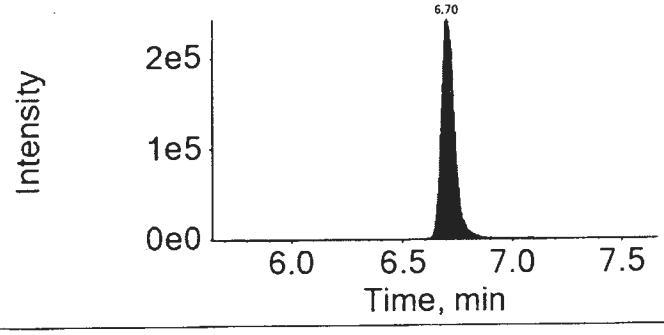
Analyte: PFUnDA

562.9 / 518.9

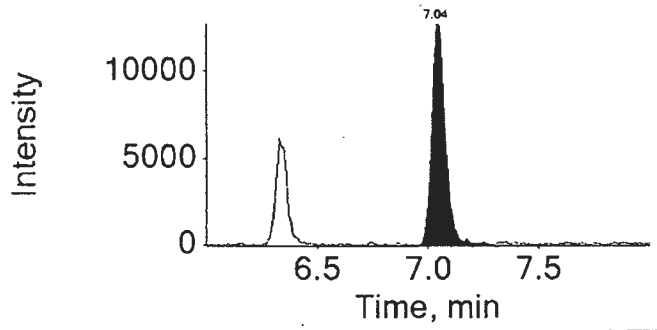


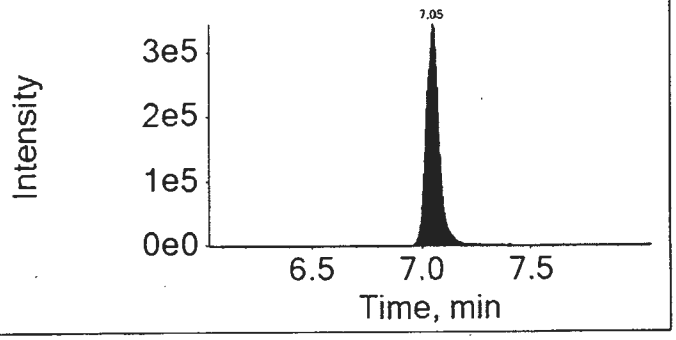
Internal Standard: 13C2-PFUnDA

565.0 / 520.0

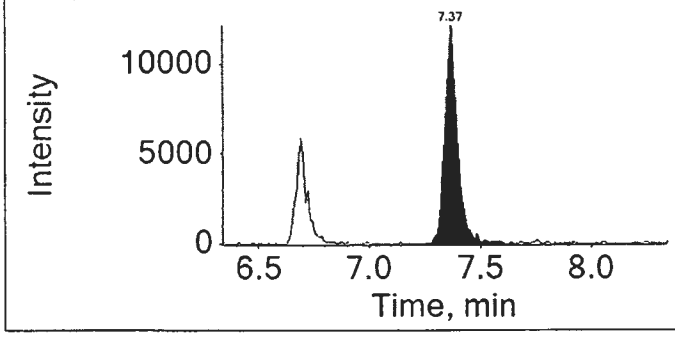


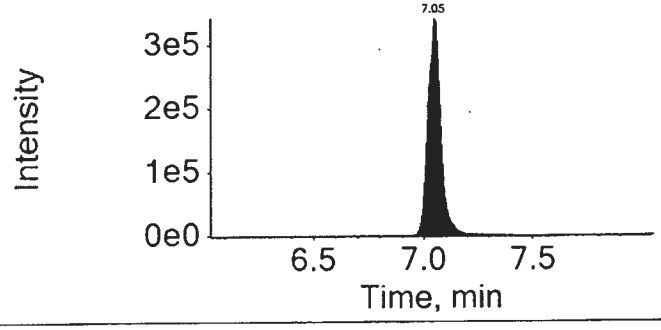
16AUG26-03.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



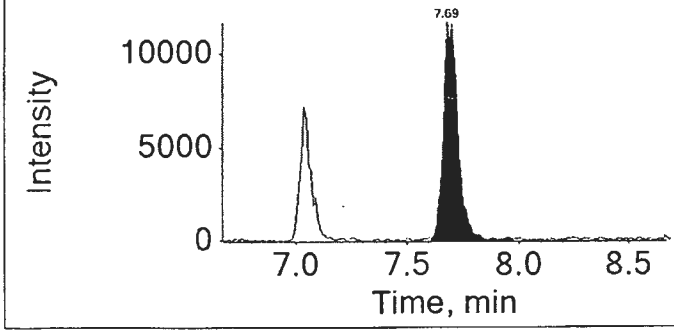


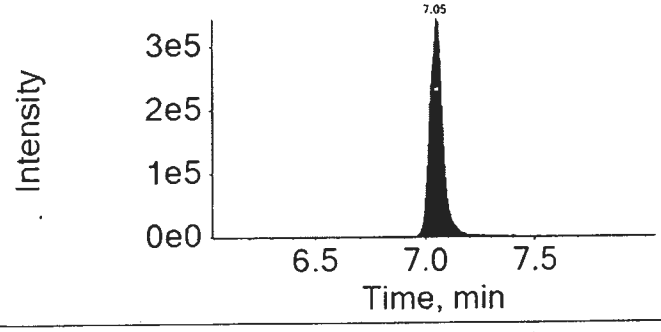
16AUG26-03.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16AUG26-03.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd

SEP 15 2016

MCD 9/14/16

Lynn Dodd
Principal Specialist

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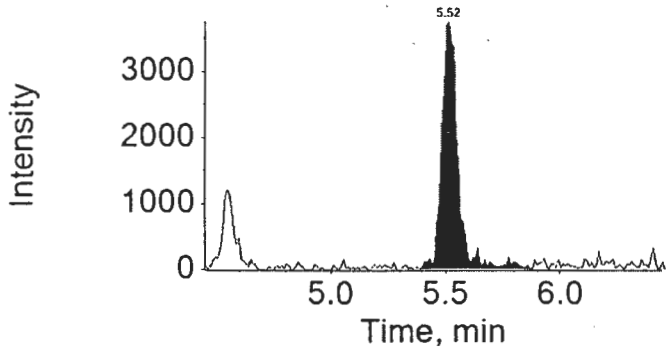
Print Date: 14/09/2016 1:00 PM

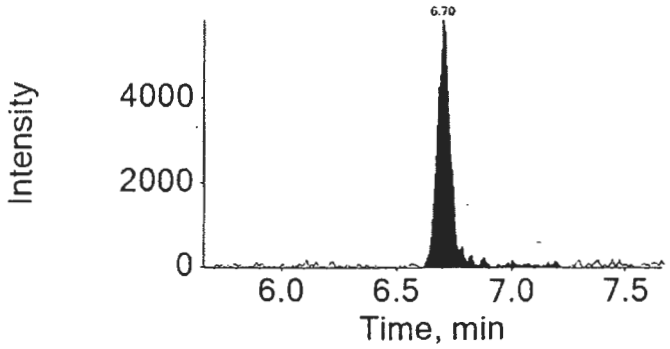
Auto Integrations prior to Manual Integration

File Name	Acquis Date	Sample Name	Component	RT	Peak Area
16AUG26-03.wiff	2016-08-27T15:22:36	MDL	PFOA	5.52	18702.0
16AUG26-03.wiff	2016-08-27T15:22:36	MDL	PFUnDA	6.70	24735.5

Component: PFOA
Mass: 412.9 / 368.9



Component: PFUnDA
Mass: 562.9 / 518.9



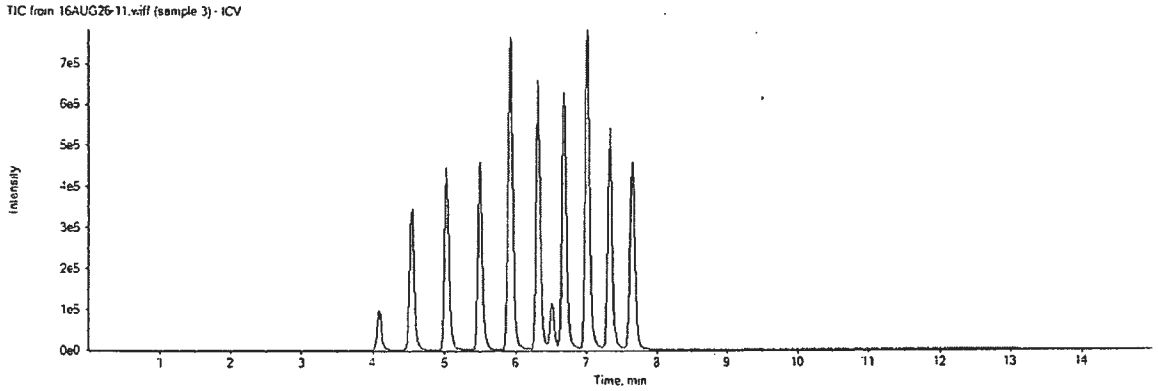
Lynn Dodd
SEP 15 2016

Lynn Dodd
Principal Specialist

MED 7824
9/14/16

Initial Calibration Verification

Sample ID: ICV
Sample Name: ICV
Sample File: 16AUG26-11.wiff
Acquisition Date: 8/27/2016 5:33:39 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	439034.6	18O2-PFHxS	230934.0	1.00	1.901	4.09	8.85	7.960	-10.1	
PFHxA	832242.0	13C2-PFHxA	755572.2	1.00	1.101	4.54	10.00	10.480	4.8	
PFHpA	842481.5	13C4-PFHpA	430669.2	1.00	1.956	5.03	10.00	7.740	-22.6	
PFHxS	483819.7	18O2-PFHxS	230934.0	1.00	2.095	5.02	9.45	9.560	1.1	
PFOA	1303499.2	13C4-PFOA	683331.3	1.00	1.908	5.50	10.00	8.390	-16.1	
PFNA	1804040.0	13C5-PFNA	1003636.4	1.00	1.798	5.93	10.00	8.510	-14.9	
PFOS	441166.4	13C4-PFOS	266425.2	1.00	1.656	5.89	9.55	8.060	-15.6	
PFDA	1861010.6	13C2-PFDA	845579.4	1.00	2.201	6.32	10.00	8.800	-12.0	
PFUnDA	1523328.6	13C2-PFUnDA	875803.0	1.00	1.739	6.68	10.00	8.410	-15.9	
PFDoDA	2227667.3	13C2-PFDoDA	1235611.8	1.00	1.803	7.01	10.00	9.110	-8.9	
PFTrDA	2354761.9	13C2-PFDoDA	1235611.8	1.00	1.906	7.33	10.00	9.410	-5.9	
PFTeDA	2268521.9	13C2-PFDoDA	1235611.8	1.00	1.836	7.65	10.00	9.530	-4.7	

Lynn Dodd SEP 15 2016

MED 7824 9/14/16

Lynn Dodd
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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16AUG26-12.WIFF

Date/Time Analyzed: 08/27/2016 17:50 Lab Sample ID: CCV1

Init. Calib. Date/Times: 08/27/2016 15:39 08/27/2016 17:00

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1891776	541192	9.99	9.71	-2.77	±40
Perfluorohexanoic acid	1021403	242089	2.50	2.74	9.59	±30
Perfluoroheptanoic acid	722764	243722	2.50	2.20	-12.16	±30
Perfluorohexanesulfonate	1735258	508472	10.00	9.95	-0.54	±30
Perfluorooctanoic acid	1890061	437063	2.50	2.39	-4.54	±30
Perfluorononanoic acid	1761356	546806	2.50	2.47	-1.30	±30
Perfluoro-octanesulfonate	1658456	510072	9.99	9.44	-5.53	±30
Perfluorodecanoic acid	2208829	552995	2.50	2.58	3.15	±30
Perfluoroundecanoic acid	1921446	519442	2.50	2.52	0.61	±30
Perfluorododecanoic acid	5191481	1337934	5.00	5.20	4.05	±30
Perfluorotridecanoic acid	5312375	1359724	5.00	5.16	3.29	±40
Perfluorotetradecanoic acid	5092452	1170946	5.00	4.67	-6.54	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16AUG31-43.WIFF

Date/Time Analyzed: 09/01/2016 01:44 Lab Sample ID: CCV9

Init. Calib. Date/Times: 08/27/2016 15:39 08/27/2016 17:00

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1891776	509640	9.99	11.12	11.34	±40
Perfluorohexanoic acid	1021403	173761	2.50	2.90	16.18	±30
Perfluoroheptanoic acid	722764	225691	2.50	2.28	-8.96	±30
Perfluorohexanesulfonate	1735258	448410	10.00	10.67	6.66	±30
Perfluorooctanoic acid	1890061	309811	2.50	2.30	-8.05	±30
Perfluorononanoic acid	1761356	415218	2.50	2.41	-3.62	±30
Perfluoro-octanesulfonate	1658456	403009	9.99	10.11	1.21	±30
Perfluorodecanoic acid	2208829	387919	2.50	2.70	7.94	±30
Perfluoroundecanoic acid	1921446	385911	2.50	2.48	-0.85	±30
Perfluorododecanoic acid	5191481	973575	5.00	5.15	2.92	±30
Perfluorotridecanoic acid	5312375	974944	5.00	5.03	0.68	±40
Perfluorotetradecanoic acid	5092452	980513	5.00	5.32	6.39	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16AUG31-54.WIFF

Date/Time Analyzed: 09/01/2016 04:44 Lab Sample ID: CCV10

Init. Calib. Date/Times: 08/27/2016 15:39 08/27/2016 17:00

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1891776	1727172	39.96	34.28	-14.23	±40
Perfluorohexanoic acid	1021403	699098	10.00	9.65	-3.51	±30
Perfluoroheptanoic acid	722764	805927	10.00	8.44	-15.63	±30
Perfluorohexanesulfonate	1735258	1623949	40.00	35.12	-12.19	±30
Perfluorooctanoic acid	1890061	1342525	10.00	8.14	-18.64	±30
Perfluorononanoic acid	1761356	1765084	10.00	8.81	-11.94	±30
Perfluoro-octanesulfonate	1658456	1469253	39.96	32.64	-18.33	±30
Perfluorodecanoic acid	2208829	1959202	10.00	8.11	-18.92	±30
Perfluoroundecanoic acid	1921446	2262804	10.00	8.27	-17.30	±30
Perfluorododecanoic acid	5191481	6826046	20.00	17.65	-11.76	±30
Perfluorotridecanoic acid	5312375	6091200	20.00	15.38	-23.09	±40
Perfluorotetradecanoic acid	5092452	5431777	20.00	14.41	-27.93	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16AUG31-65.WIFF

Date/Time Analyzed: 09/01/2016 07:45 Lab Sample ID: CCV11

Init. Calib. Date/Times: 08/27/2016 15:39 08/27/2016 17:00

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1891776	3953707	119.90	107.30	-10.51	±40
Perfluorohexanoic acid	1021403	1921226	30.00	29.98	-0.07	±30
Perfluoroheptanoic acid	722764	1751479	30.00	26.57	-11.44	±30
Perfluorohexanesulfonate	1735258	3686829	120.00	109.05	-9.13	±30
Perfluorooctanoic acid	1890061	3386859	30.00	24.81	-17.31	±30
Perfluorononanoic acid	1761356	3682784	30.00	27.49	-8.35	±30
Perfluoro-octanesulfonate	1658456	3430309	119.90	109.10	-9.00	±30
Perfluorodecanoic acid	2208829	4647719	30.00	27.64	-7.88	±30
Perfluoroundecanoic acid	1921446	4867087	30.00	29.38	-2.07	±30
Perfluorododecanoic acid	5191481	11945587	60.00	55.02	-8.30	±30
Perfluorotridecanoic acid	5312375	14667982	60.00	65.99	9.98	±40
Perfluorotetradecanoic acid	5092452	16376801	60.00	77.42	29.03	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16AUG31-69.WIFF

Date/Time Analyzed: 09/01/2016 08:50 Lab Sample ID: CCV12

Init. Calib. Date/Times: 08/27/2016 15:39 08/27/2016 17:00

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1891776	495563	9.99	9.91	-0.84	±40
Perfluorohexanoic acid	1021403	154461	2.50	2.42	-3.28	±30
Perfluoroheptanoic acid	722764	213944	2.50	2.08	-16.80	±30
Perfluorohexanesulfonate	1735258	437590	10.00	9.53	-4.66	±30
Perfluorooctanoic acid	1890061	308949	2.50	2.31	-7.77	±30
Perfluorononanoic acid	1761356	416080	2.50	2.36	-5.62	±30
Perfluoro-octanesulfonate	1658456	425984	9.99	10.11	1.19	±30
Perfluorodecanoic acid	2208829	419359	2.50	2.31	-7.54	±30
Perfluoroundecanoic acid	1921446	441482	2.50	2.68	7.37	±30
Perfluorododecanoic acid	5191481	1142357	5.00	4.86	-2.83	±30
Perfluorotridecanoic acid	5312375	1342394	5.00	5.58	11.53	±40
Perfluorotetradecanoic acid	5092452	1441298	5.00	6.29	25.83	±40

* Outside QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: WATER

16236005	13C2-PFDA	13C2-PFDODA	13C2-PFHXA	13C2-PFUNDA
	Area	Area	Area	Area
Average ICAL Response	822022	1227447	798419	912224
UPPER LIMIT	1233033	1841171	1197629	1368336
LOWER LIMIT	411011	613724	399210	456112
LAB SAMPLE ID				
BLK236005	611292	868272	498824	700488
LCS236005	557004	1122604	492297	685517
8535014	339583 *	225245 *	316045 *	199864 *
8535015MS QC	300247 *	197441 *	277556 *	206773 *
8535016MSD QC	281963 *	197490 *	272300 *	192404 *
8535010	1014278	1362814	415861	1081106
8535011	608126	1286567	376984 *	831317
8535012	335271 *	190158 *	342078 *	315045 *
8535013	285663 *	175959 *	315686 *	267792 *
8535017	512413	188223 *	339768 *	416211 *
8535018	567215	343788 *	412692	498097
8535019	666721 NR	1585446	141313 * NR	1165900
8535020	589143	1246110	444538	789308
8535021	646804	1407843	323913 *	942548
8535022	562457	1105271	294859 *	789718
8535023	535004	1042320	306533 *	717738
8535024	900388	1118658	284039 *	899109
8535025	791284	1011868	274425 *	921886
8535026	757601	1194587	356199 *	1173204
8535027	505913	964951	327636 *	845408
8535028	668406	788454	470211	853265
8535029	605540	1091409	463392	773287
8535034	467454	877444	335395 *	615322

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: WATER

16236005	13C4-PFHPA	13C4-PFOA	13C4-PFOS	13C5-PFNA
	Area	Area	Area	Area
Average ICAL Response	367031	741383	220850	930271
UPPER LIMIT	550547	1112075	331275	1395407
LOWER LIMIT	183516	370692	110425	465136
LAB SAMPLE ID				
BLK236005	304866	490109	192700	747600
LCS236005	288262	456750	177785	717401
8535014	166366 *	349903 *	142209	441983 *
8535015MS QC	139159 *	278056 *	130259	383799 *
8535016MSD QC	140786 *	250355 *	128618	371256 *
8535010	345022	570935	222691	885733
8535011	329775	515845	188228	792533
8535012	255548	394348	136582	546858
8535013	227654	353447 *	139341	519747
8535017	250189	442949	163511	796539
8535018	313769	501005	188074	790491
8535019	107198 * NR	32862 * NR	173202	661991 NR
8535020	321533	492157	184780	733348
8535021	361063	544986	207231	789159
8535022	290585	461044	183063	694773
8535023	301431	444305	170010	687259
8535024	471485	804214	147289	593738
8535025	336796	536067	202605	964131
8535026	349154	601755	203582	898106
8535027	285736	423533	179530	684466
8535028	351392	536664	206692	959729
8535029	323523	543993	203801	773643
8535034	275337	390512	171087	605330

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: WATER

16236005	18O2-PFHXS
	Area
Average ICAL Response	201486
UPPER LIMIT	302229
LOWER LIMIT	100743
LAB SAMPLE ID	
BLK236005	171302
LCS236005	166651
8535014	135187
8535015MS	119297
8535016MSD	122555
8535010	186321
8535011	176972
8535012	140655
8535013	143139
8535017	139996
8535018	158916
8535019	78254 *
8535020	174746
8535021	194536
8535022	178685
8535023	164989
8535024	193321
8535025	173855
8535026	191352
8535027	164893
8535028	183234
8535029	187351
8535034	158113

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

4500_082716_1539_ISCheck.xlsx

Measure	13C2-PFDA	13C2-PFDoDA	13C2-PFHxA	13C2-PFUnDA	13C4-PFHpA	13C4-PFOA	13C4-PFOS	13C5-PFNA	18O2-PFHxS
Average	822022	1227447	798419	912224	367031	741383	220850	930271	201486
Upper	1233033	1841171	1197629	1368336	550546	1112074	331276	1395406	302229
Lower	411011	613724	399210	456112	183515	370691	110425	465135	100743

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LC-MS/MS Sequence Report

Printed: 09/14/2016 12:56:00 PM

Instrument	Acquisition Date	File Name	Sample ID	Vial Position	Samp Wt	Samp Vol	DF
Triple Quad 4500	8/27/2016 3:22:36 PM	16AUG26-03.wiff	MDL	2	1.00	1.00	1.00
Triple Quad 4500	8/27/2016 3:39:00 PM	16AUG26-04.wiff	CAL1	3	1.00	1.00	1.00
Triple Quad 4500	8/27/2016 3:55:24 PM	16AUG26-05.wiff	CAL2	4	1.00	1.00	1.00
Triple Quad 4500	8/27/2016 4:11:45 PM	16AUG26-06.wiff	CAL3	5	1.00	1.00	1.00
Triple Quad 4500	8/27/2016 4:28:06 PM	16AUG26-07.wiff	CAL4	6	1.00	1.00	1.00
Triple Quad 4500	8/27/2016 4:44:30 PM	16AUG26-08.wiff	CAL5	7	1.00	1.00	1.00
Triple Quad 4500	8/27/2016 5:00:54 PM	16AUG26-09.wiff	CAL6	8	1.00	1.00	1.00
Triple Quad 4500	8/27/2016 5:17:18 PM	16AUG26-10.wiff	solvent	1	1.00	1.00	1.00
Triple Quad 4500	8/27/2016 5:33:39 PM	16AUG26-11.wiff	ICV	9	1.00	1.00	1.00
Triple Quad 4500	8/27/2016 5:50:03 PM	16AUG26-12.wiff	CCV1	5	1.00	1.00	1.00
Triple Quad 4500	9/1/2016 1:44:32 AM	16AUG31-43.wiff	CCV9	10	1.00	1.00	1.00
Triple Quad 4500	9/1/2016 2:00:56 AM	16AUG31-44.wiff	BLK236005	46	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 2:17:20 AM	16AUG31-45.wiff	LCS236005	47	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 2:33:41 AM	16AUG31-46.wiff	8535014BKG	48	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 2:50:05 AM	16AUG31-47.wiff	8535015MS	49	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 3:06:26 AM	16AUG31-48.wiff	8535016MSD	50	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 3:22:50 AM	16AUG31-49.wiff	8535010	51	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 3:39:11 AM	16AUG31-50.wiff	8535011	52	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 3:55:35 AM	16AUG31-51.wiff	8535012	53	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 4:11:59 AM	16AUG31-52.wiff	8535013	54	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 4:28:23 AM	16AUG31-53.wiff	8535017	55	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 4:44:47 AM	16AUG31-54.wiff	CCV10	6	1.00	1.00	1.00
Triple Quad 4500	9/1/2016 5:01:11 AM	16AUG31-55.wiff	8535018	56	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 5:17:32 AM	16AUG31-56.wiff	8535019	57	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 5:33:53 AM	16AUG31-57.wiff	8535020	58	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 5:50:17 AM	16AUG31-58.wiff	8535021	59	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 6:06:41 AM	16AUG31-59.wiff	8535022	60	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 6:23:05 AM	16AUG31-60.wiff	8535023	61	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 6:39:29 AM	16AUG31-61.wiff	8535024	62	0.10	1.00	1.00

Triple Quad 4500	9/1/2016 6:55:53 AM	16AUG31-62.wiff	8535025	63	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 7:12:14 AM	16AUG31-63.wiff	8535026	64	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 7:28:38 AM	16AUG31-64.wiff	8535027	65	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 7:45:02 AM	16AUG31-65.wiff	CCV11	7	1.00	1.00	1.00
Triple Quad 4500	9/1/2016 8:01:26 AM	16AUG31-66.wiff	8535028	66	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 8:17:47 AM	16AUG31-67.wiff	8535029	67	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 8:34:08 AM	16AUG31-68.wiff	8535034	68	0.10	1.00	1.00
Triple Quad 4500	9/1/2016 8:50:32 AM	16AUG31-69.wiff	CCV12	10	1.00	1.00	1.00

Results Table Name: 16AUG26ICAL-12cmpds-Water 9/1/2016 8:06:36 AM

Lynn Dodd

SEP 15 2016

mes 7824 9/14/16

Lynn Dodd
Principal Specialist

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FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Lab File Names: CAL1= 16SEP13-10.WIFF; CAL2= 16SEP13-11.WIFF; CAL3= 16SEP13-12.WIFF; CAL4= 16SEP13-13.WIFF; CAL5= 16SEP13-14.WIFF; CAL6= 16SEP13-15.WIFF;

Perfluorobutanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.212	0.80	0.768	-3.9	±50
CAL2	0.556	2.00	2.013	0.7	±40
CAL3	2.686	9.99	9.730	-2.6	±40
CAL4	10.946	39.96	39.657	-0.8	±40
CAL5	33.359	119.90	120.857	0.8	±40
CAL6	44.005	159.80	159.424	-0.2	±40

Perfluorohexanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.027	0.20	0.196	-2.1	±50
CAL2	0.069	0.50	0.506	1.2	±30
CAL3	0.369	2.50	2.704	8.2	±30
CAL4	1.331	10.00	9.755	-2.5	±30
CAL5	4.060	30.00	29.765	-0.8	±30
CAL6	5.494	40.00	40.275	0.7	±30

Perfluoroheptanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.055	0.20	0.236	18.2	±50
CAL2	0.134	0.50	0.573	14.6	±30
CAL3	0.650	2.50	2.771	10.9	±30
CAL4	2.381	10.00	10.154	1.5	±30
CAL5	7.271	30.00	31.007	3.4	±30
CAL6	9.018	40.00	38.458	-3.9	±30

Perfluorohexanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.207	0.80	0.847	5.8	±50
CAL2	0.539	2.00	2.203	10.2	±30
CAL3	2.432	10.00	9.938	-0.6	±30
CAL4	10.023	40.00	40.957	2.4	±30
CAL5	29.178	120.00	119.228	-0.6	±30
CAL6	39.064	160.00	159.628	-0.2	±30

* Outside QC Limits.

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FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Lab File Names: CAL1= 16SEP13-10.WIFF; CAL2= 16SEP13-11.WIFF; CAL3= 16SEP13-12.WIFF; CAL4= 16SEP13-13.WIFF; CAL5= 16SEP13-14.WIFF; CAL6= 16SEP13-15.WIFF;

Perfluorooctanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.053	0.20	0.224	11.9	±50
CAL2	0.139	0.50	0.587	17.4	±30
CAL3	0.687	2.50	2.896	15.8	±30
CAL4	2.181	10.00	9.188	-8.1	±30
CAL5	7.279	30.00	30.659	2.2	±30
CAL6	9.413	40.00	39.646	-0.9	±30

Perfluorononanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.219	9.7	±50
CAL2	0.122	0.50	0.521	4.3	±30
CAL3	0.631	2.50	2.697	7.9	±30
CAL4	2.366	10.00	10.107	1.1	±30
CAL5	6.911	30.00	29.517	-1.6	±30
CAL6	9.398	40.00	40.139	0.3	±30

Perfluoro-octanesulfonate	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.181	0.80	0.853	6.7	±50
CAL2	0.486	2.00	2.292	14.6	±30
CAL3	2.305	9.99	10.862	8.7	±30
CAL4	9.162	39.96	43.178	8.1	±30
CAL5	24.776	119.90	116.765	-2.6	±30
CAL6	33.631	159.80	158.499	-0.8	±30

Perfluorodecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.060	0.20	0.204	1.9	±50
CAL2	0.152	0.50	0.518	3.7	±30
CAL3	0.734	2.50	2.497	-0.1	±30
CAL4	3.155	10.00	10.726	7.3	±30
CAL5	9.476	30.00	32.219	7.4	±30
CAL6	10.893	40.00	37.036	-7.4	±30

* Outside QC Limits.

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FORM 06B
INITIAL CALIBRATION AREA RATIO SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Lab File Names: CAL1= 16SEP13-10.WIFF; CAL2= 16SEP13-11.WIFF; CAL3= 16SEP13-12.WIFF; CAL4= 16SEP13-13.WIFF; CAL5= 16SEP13-14.WIFF; CAL6= 16SEP13-15.WIFF;

Perfluoroundecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.051	0.20	0.217	8.5	±50
CAL2	0.125	0.50	0.533	6.6	±30
CAL3	0.610	2.50	2.607	4.3	±30
CAL4	2.380	10.00	10.163	1.6	±30
CAL5	7.378	30.00	31.508	5.0	±30
CAL6	8.939	40.00	38.172	-4.6	±30

Perfluorododecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.099	0.40	0.452	13.1	±50
CAL2	0.237	1.00	1.083	8.3	±30
CAL3	1.156	5.00	5.293	5.9	±30
CAL4	4.778	20.00	21.878	9.4	±30
CAL5	12.758	60.00	58.420	-2.6	±30
CAL6	17.312	80.00	79.273	-0.9	±30

Perfluorotridecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.095	0.40	0.439	9.6	±50
CAL2	0.231	1.00	1.068	6.8	±40
CAL3	1.089	5.00	5.037	0.7	±40
CAL4	4.632	20.00	21.427	7.1	±40
CAL5	12.955	60.00	59.923	-0.1	±40
CAL6	16.972	80.00	78.506	-1.9	±40

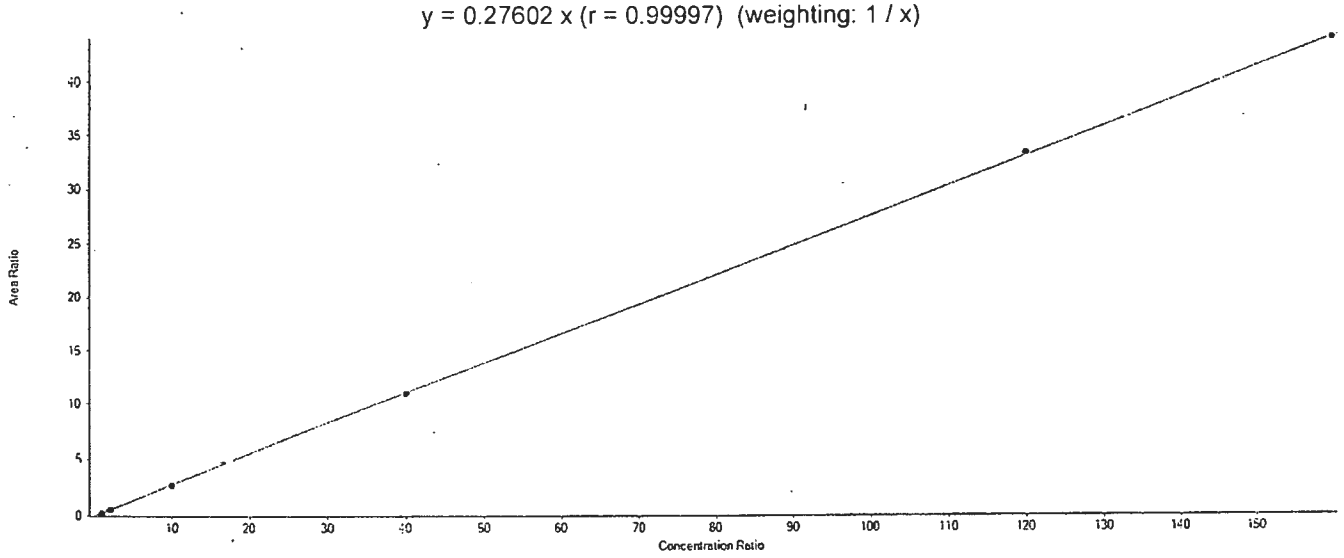
Perfluorotetradecanoic acid	Area Ratio	Specified Amount	Calculated Amount	% Difference	Limit
CAL1	0.077	0.40	0.418	4.5	±50
CAL2	0.186	1.00	1.004	0.4	±40
CAL3	0.916	5.00	4.947	-1.1	±40
CAL4	3.748	20.00	20.249	1.2	±40
CAL5	11.180	60.00	60.405	0.7	±40
CAL6	14.692	80.00	79.377	-0.8	±40

* Outside QC Limits.

Initial Calibration

Results Table Name: MQ 16235011DL 9/15/2016 1:10:20 PM
ICAL Name: 16SEP13ICAL

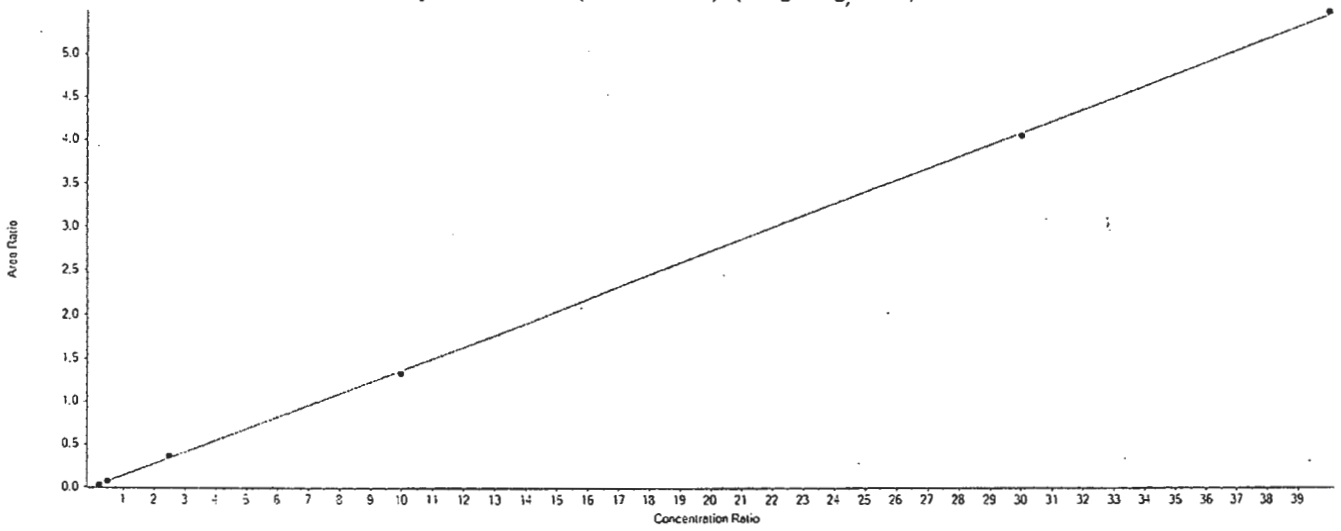
PFBS
y = 0.27602 x (r = 0.99997) (weighting: 1 / x)



Calibration Verification

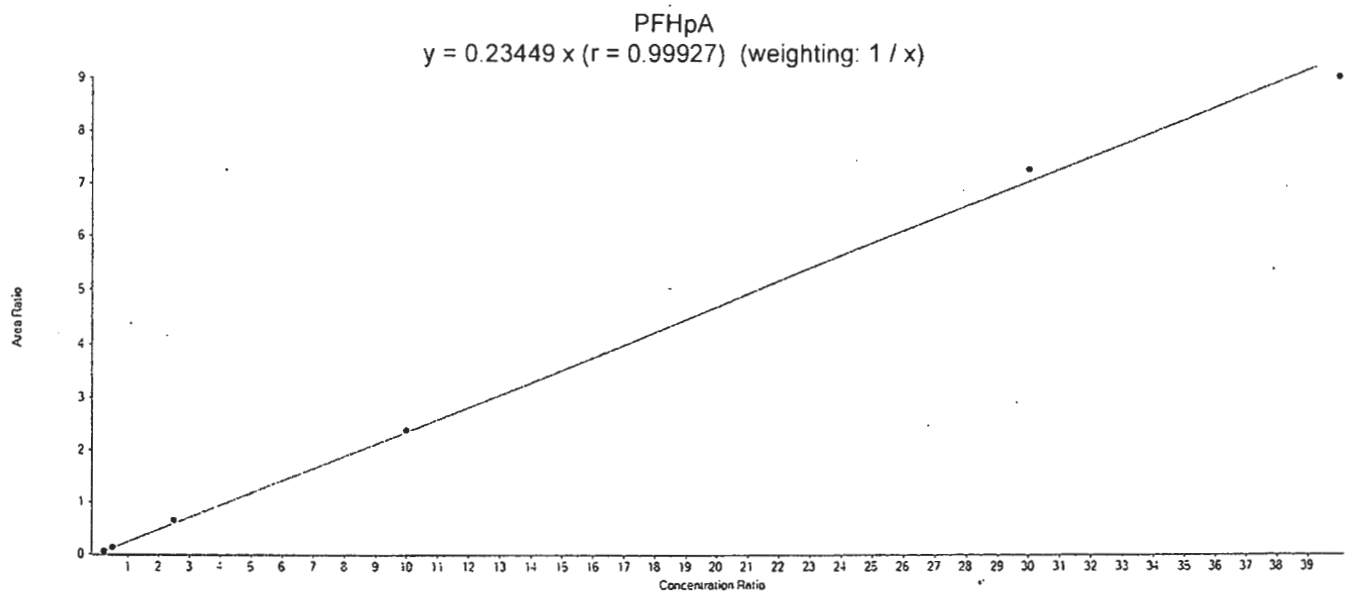
File Name	Sample Name	PFBS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	63541.7	299880.3	1.00	0.212	4.04	0.800	0.770	-3.9
16SEP13-11.wiff	CAL2	140310.6	252476.4	1.00	0.556	4.04	2.000	2.010	0.7
16SEP13-12.wiff	CAL3	706878.0	263202.5	1.00	2.686	4.04	9.990	9.730	-2.6
16SEP13-13.wiff	CAL4	2376190.2	217077.1	1.00	10.946	4.04	39.960	39.660	-0.8
16SEP13-14.wiff	CAL5	5304380.8	159007.7	1.00	33.359	4.05	119.900	120.860	0.8
16SEP13-15.wiff	CAL6	6526696.2	148317.3	1.00	44.005	4.05	159.800	159.420	-0.2

PFHxA
y = 0.13641 x (r = 0.99983) (weighting: 1 / x)



Calibration Verification

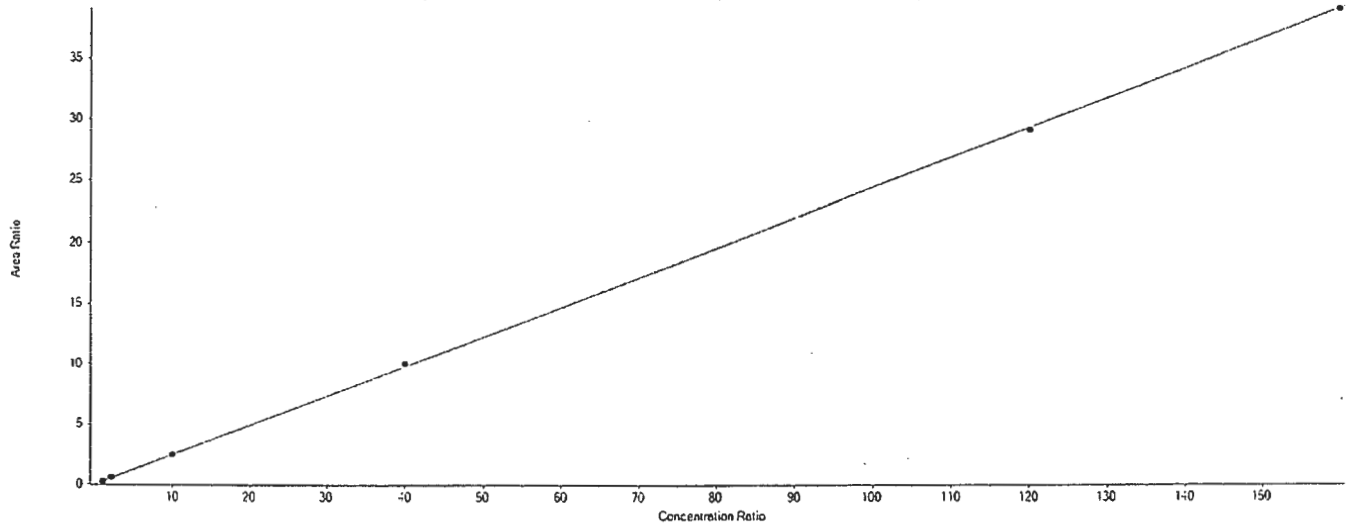
File Name	Sample Name	PFHxA Area	13C2-PFHxA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	26146.5	978973.5	1.00	0.027	4.46	0.200	0.200	-2.1
16SEP13-11.wiff	CAL2	62669.4	907718.4	1.00	0.069	4.47	0.500	0.510	1.2
16SEP13-12.wiff	CAL3	340140.7	922185.8	1.00	0.369	4.47	2.500	2.700	8.2
16SEP13-13.wiff	CAL4	1157050.7	869526.2	1.00	1.331	4.47	10.000	9.750	-2.5
16SEP13-14.wiff	CAL5	3223577.1	793918.7	1.00	4.060	4.47	30.000	29.760	-0.8
16SEP13-15.wiff	CAL6	4305463.9	783667.0	1.00	5.494	4.48	40.000	40.270	0.7



Calibration Verification

File Name	Sample Name	PFHpA Area	13C4-PFHpA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	36960.2	666938.7	1.00	0.055	4.94	0.200	0.240	18.2
16SEP13-11.wiff	CAL2	83287.4	619933.3	1.00	0.134	4.94	0.500	0.570	14.6
16SEP13-12.wiff	CAL3	350993.6	540102.6	1.00	0.650	4.94	2.500	2.770	10.9
16SEP13-13.wiff	CAL4	1110820.9	466542.8	1.00	2.381	4.94	10.000	10.150	1.5
16SEP13-14.wiff	CAL5	2277914.0	313289.1	1.00	7.271	4.95	30.000	31.010	3.4
16SEP13-15.wiff	CAL6	2655011.3	294410.0	1.00	9.018	4.95	40.000	38.460	-3.9

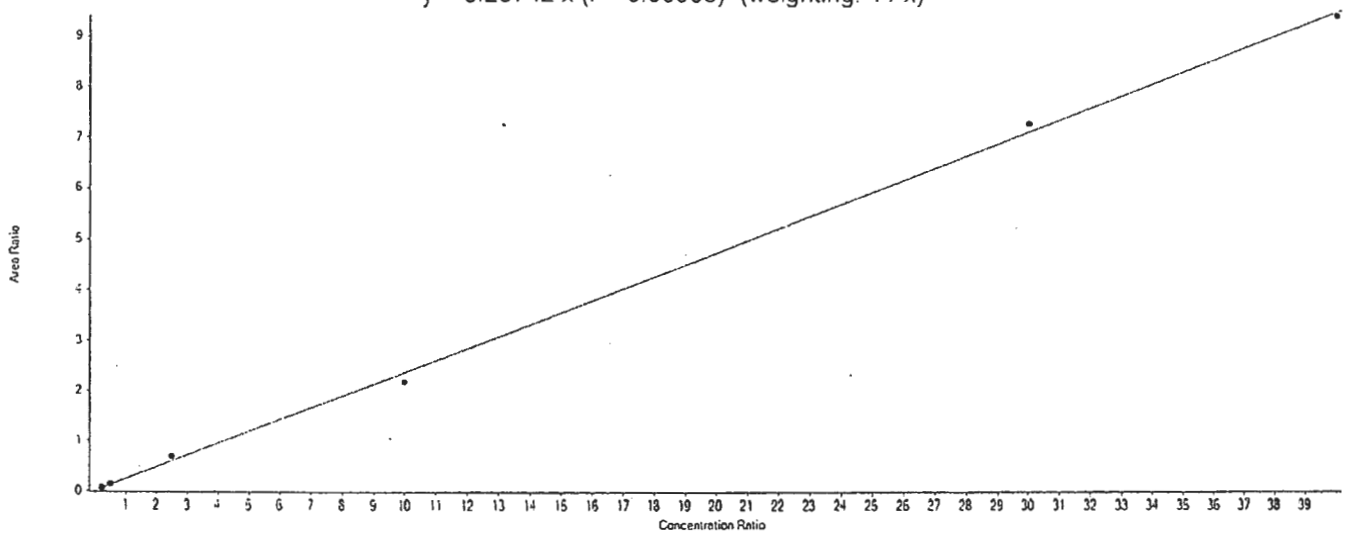
PFHxS
y = 0.24472 x (r = 0.99994) (weighting: 1 / x)



Calibration Verification

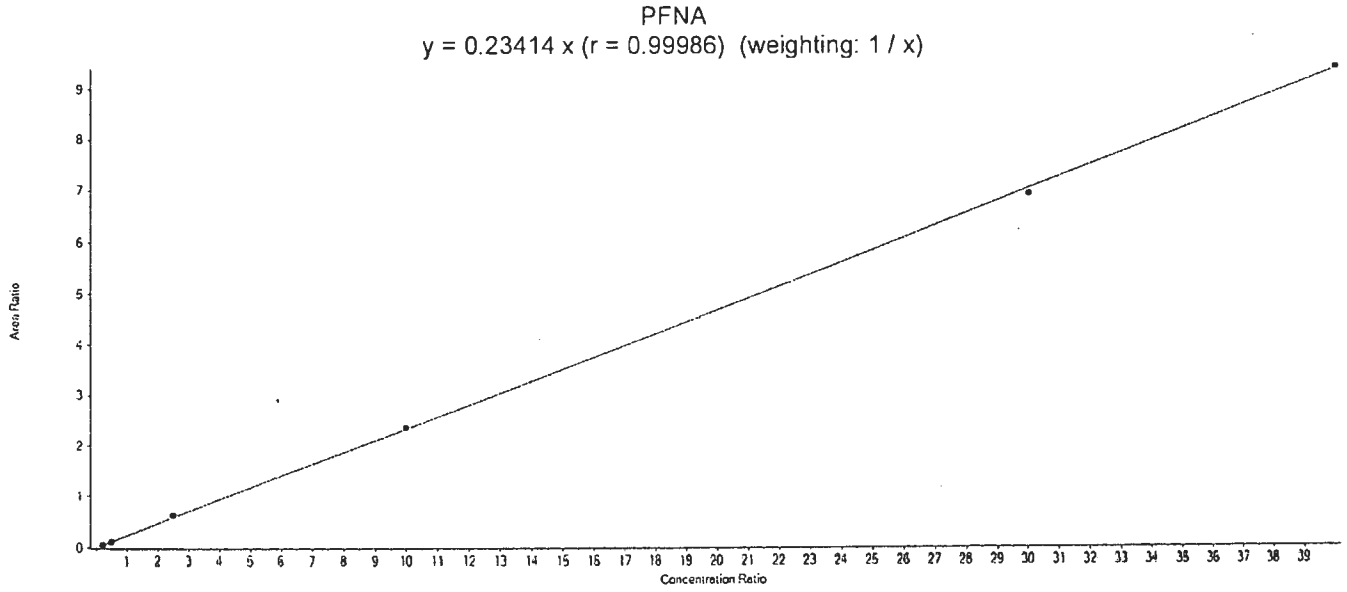
File Name	Sample Name	PFHxS Area	18O2-PFHxS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	62134.0	299880.3	1.00	0.207	4.93	0.800	0.850	5.8
16SEP13-11.wiff	CAL2	136119.3	252476.4	1.00	0.539	4.93	2.000	2.200	10.2
16SEP13-12.wiff	CAL3	640115.6	263202.5	1.00	2.432	4.93	10.000	9.940	-0.6
16SEP13-13.wiff	CAL4	2175761.5	217077.1	1.00	10.023	4.93	40.000	40.960	2.4
16SEP13-14.wiff	CAL5	4639482.4	159007.7	1.00	29.178	4.94	120.000	119.230	-0.6
16SEP13-15.wiff	CAL6	5793931.6	148317.3	1.00	39.064	4.94	160.000	159.630	-0.2

PFOA
y = 0.23742 x (r = 0.99908) (weighting: 1 / x)



Calibration Verification

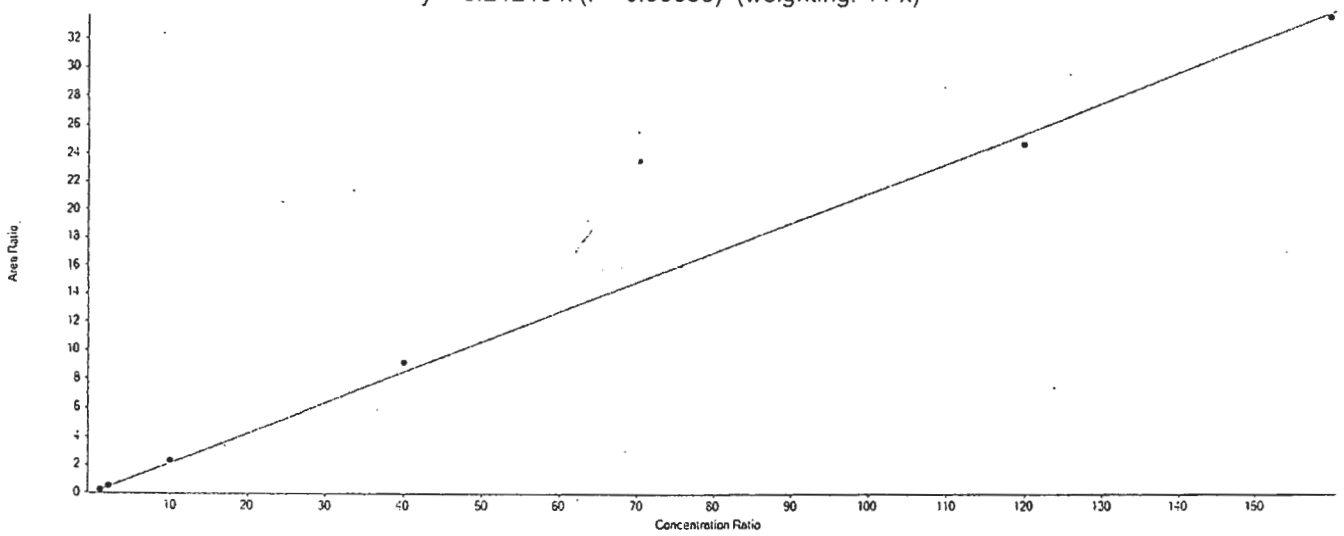
File Name	Sample Name	PFOA Area	13C4-PFOA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	53060.3	999012.5	1.00	0.053	5.38	0.200	0.220	11.9
16SEP13-11.wiff	CAL2	126133.1	904688.5	1.00	0.139	5.38	0.500	0.590	17.4
16SEP13-12.wiff	CAL3	581448.8	845770.8	1.00	0.687	5.38	2.500	2.900	15.8
16SEP13-13.wiff	CAL4	1962911.9	899863.2	1.00	2.181	5.38	10.000	9.190	-8.1
16SEP13-14.wiff	CAL5	5639280.8	774733.8	1.00	7.279	5.39	30.000	30.660	2.2
16SEP13-15.wiff	CAL6	7298959.3	775441.7	1.00	9.413	5.39	40.000	39.650	-0.9



Calibration Verification

File Name	Sample Name	PFNA Area	13C5-PFNA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	71001.0	1381532.7	1.00	0.051	5.79	0.200	0.220	9.7
16SEP13-11.wiff	CAL2	161254.6	1321183.4	1.00	0.122	5.79	0.500	0.520	4.3
16SEP13-12.wiff	CAL3	754041.9	1194216.7	1.00	0.631	5.80	2.500	2.700	7.9
16SEP13-13.wiff	CAL4	2362675.7	998427.8	1.00	2.366	5.80	10.000	10.110	1.1
16SEP13-14.wiff	CAL5	5365109.0	776307.5	1.00	6.911	5.81	30.000	29.520	-1.6
16SEP13-15.wiff	CAL6	6348683.9	675522.3	1.00	9.398	5.81	40.000	40.140	0.3

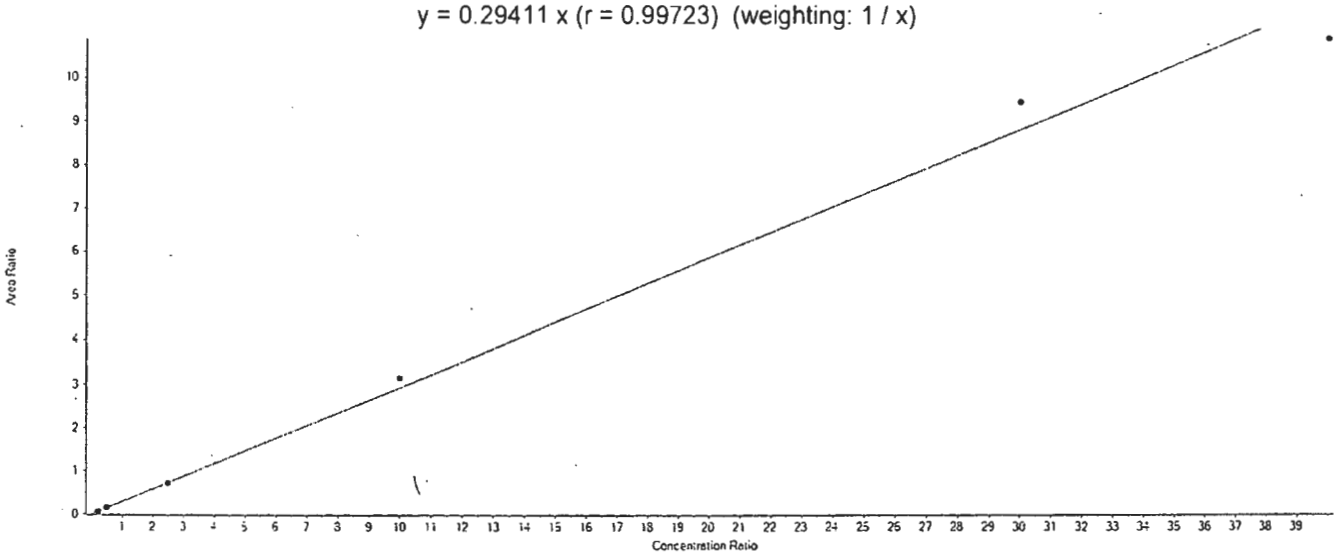
PFOS
y = 0.21219 x (r = 0.99935) (weighting: 1 / x)



Calibration Verification

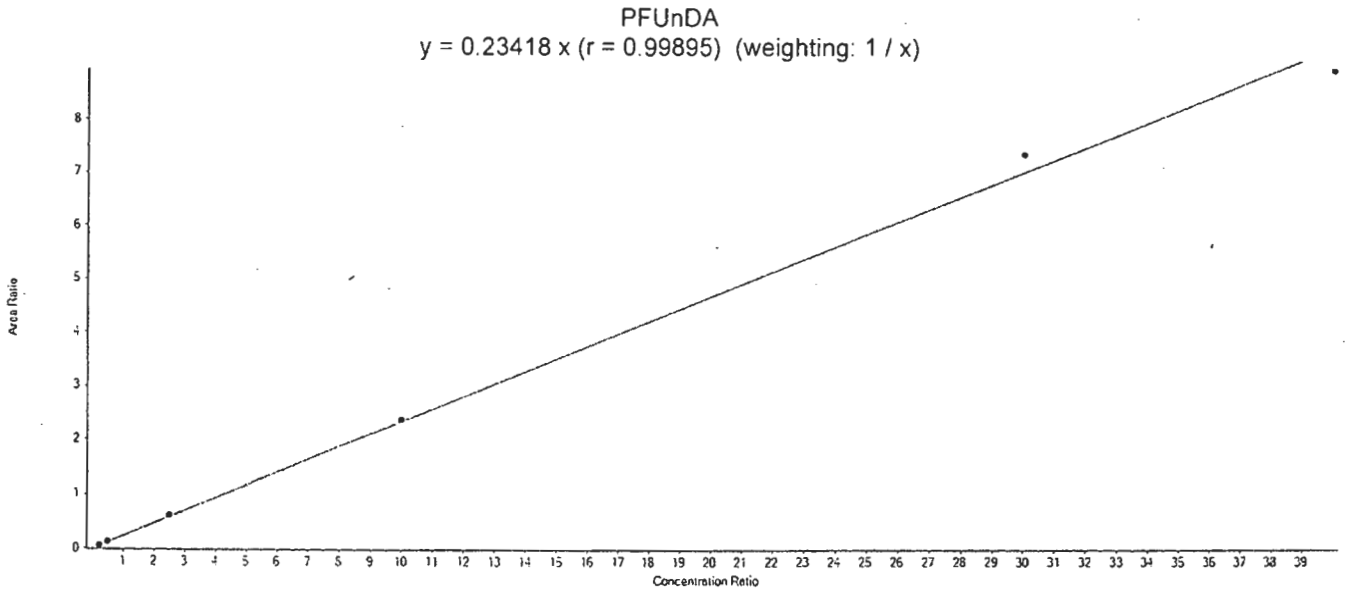
File Name	Sample Name	PFOS Area	13C4-PFOS Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	55175.0	304970.4	1.00	0.181	5.77	0.800	0.850	6.7
16SEP13-11.wiff	CAL2	129175.2	265583.0	1.00	0.486	5.77	2.000	2.290	14.6
16SEP13-12.wiff	CAL3	628860.5	272842.3	1.00	2.305	5.77	9.990	10.860	8.7
16SEP13-13.wiff	CAL4	1937086.2	211434.0	1.00	9.162	5.77	39.960	43.180	8.1
16SEP13-14.wiff	CAL5	4131645.8	166761.0	1.00	24.776	5.77	119.900	116.770	-2.6
16SEP13-15.wiff	CAL6	5042073.0	149922.8	1.00	33.631	5.77	159.800	158.500	-0.8

PFDA
y = 0.29411 x (r = 0.99723) (weighting: 1 / x)



Calibration Verification

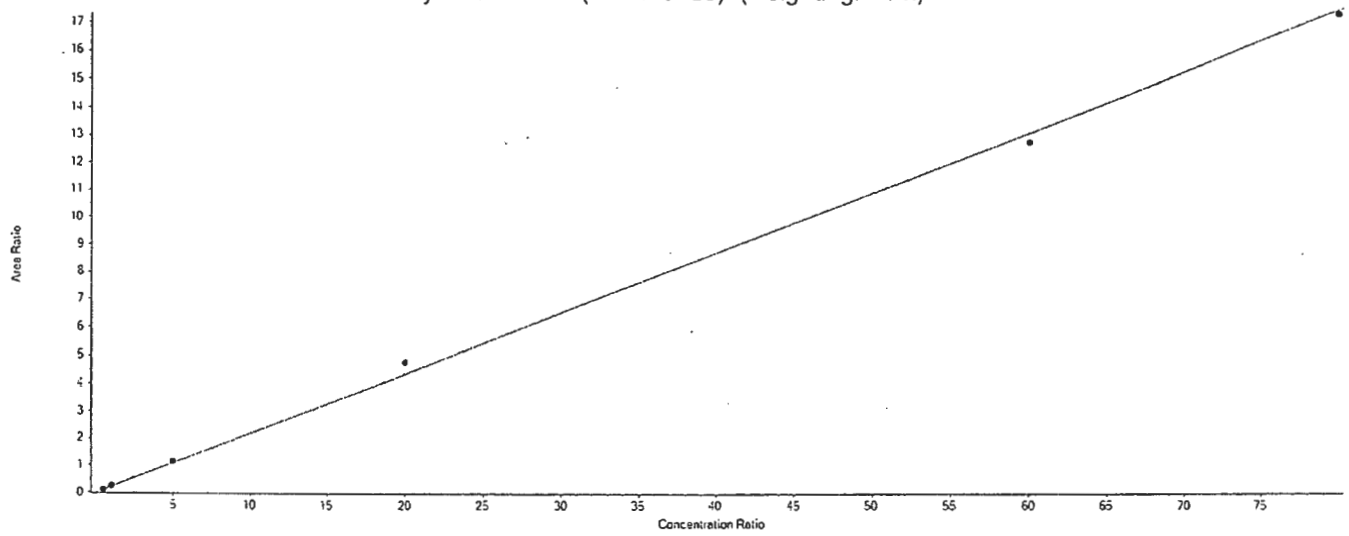
File Name	Sample Name	PFDA Area	13C2-PFDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	66854.3	1115310.2	1.00	0.060	6.16	0.200	0.200	1.9
16SEP13-11.wiff	CAL2	155754.5	1021845.5	1.00	0.152	6.16	0.500	0.520	3.7
16SEP13-12.wiff	CAL3	720475.6	981230.9	1.00	0.734	6.16	2.500	2.500	-0.1
16SEP13-13.wiff	CAL4	2477611.6	785385.8	1.00	3.155	6.16	10.000	10.730	7.3
16SEP13-14.wiff	CAL5	6368991.5	672119.8	1.00	9.476	6.17	30.000	32.220	7.4
16SEP13-15.wiff	CAL6	7497594.3	688324.9	1.00	10.893	6.17	40.000	37.040	-7.4



Calibration Verification

File Name	Sample Name	PFUnDA Area	13C2-PFUnDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	61925.7	1219131.9	1.00	0.051	6.50	0.200	0.220	8.5
16SEP13-11.wiff	CAL2	141029.5	1129367.5	1.00	0.125	6.50	0.500	0.530	6.6
16SEP13-12.wiff	CAL3	655672.1	1074037.9	1.00	0.610	6.50	2.500	2.610	4.3
16SEP13-13.wiff	CAL4	2271529.5	954409.5	1.00	2.380	6.50	10.000	10.160	1.6
16SEP13-14.wiff	CAL5	5281974.8	715867.1	1.00	7.378	6.50	30.000	31.510	5.0
16SEP13-15.wiff	CAL6	6440099.7	720445.0	1.00	8.939	6.50	40.000	38.170	-4.6

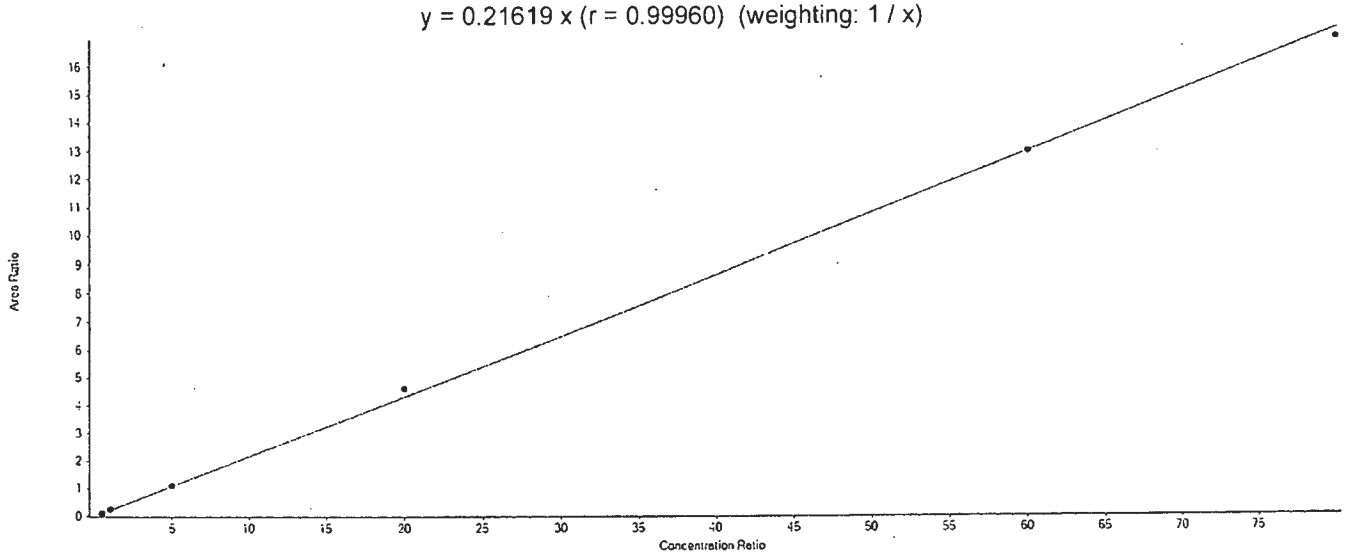
PFDoDA
y = 0.21838 x (r = 0.99928) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFDoDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	145026.6	1468366.3	1.00	0.099	6.80	0.400	0.450	13.1
16SEP13-11.wiff	CAL2	313198.9	1323799.5	1.00	0.237	6.80	1.000	1.080	8.3
16SEP13-12.wiff	CAL3	1595741.8	1380438.3	1.00	1.156	6.80	5.000	5.290	5.9
16SEP13-13.wiff	CAL4	5511489.5	1153584.5	1.00	4.778	6.80	20.000	21.880	9.4
16SEP13-14.wiff	CAL5	12929895.1	1013473.3	1.00	12.758	6.81	60.000	58.420	-2.6
16SEP13-15.wiff	CAL6	16392610.6	946892.8	1.00	17.312	6.81	80.000	79.270	-0.9

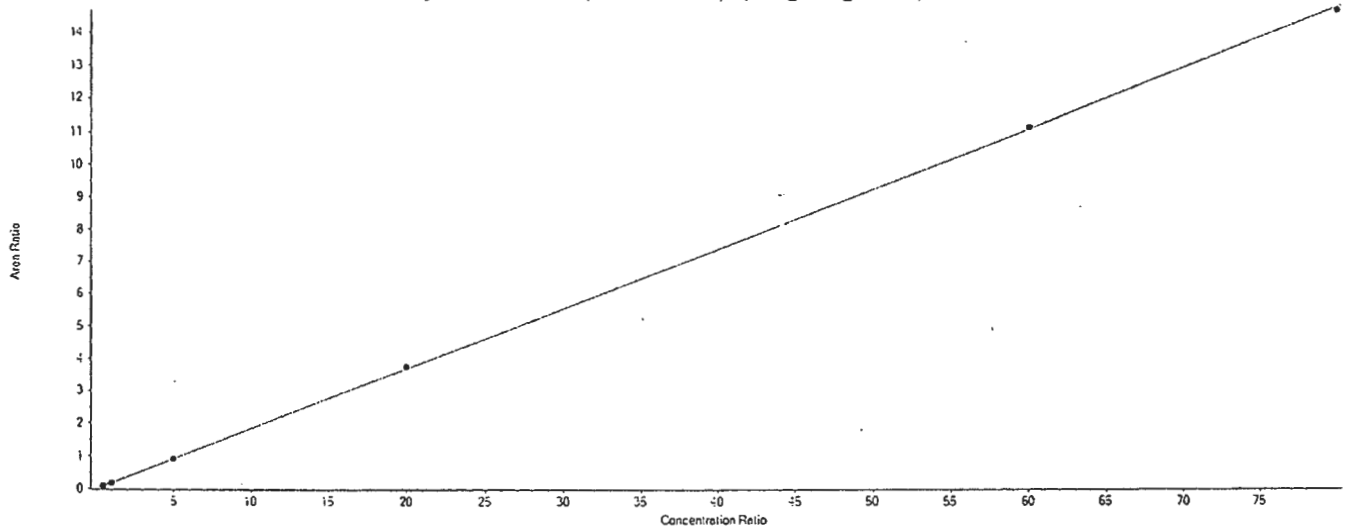
PFTrDA
y = 0.21619 x (r = 0.99960) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFTrDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	139213.9	1468366.3	1.00	0.095	7.08	0.400	0.440	9.6
16SEP13-11.wiff	CAL2	305700.7	1323799.5	1.00	0.231	7.08	1.000	1.070	6.8
16SEP13-12.wiff	CAL3	1503307.5	1380438.3	1.00	1.089	7.08	5.000	5.040	0.7
16SEP13-13.wiff	CAL4	5343781.3	1153584.5	1.00	4.632	7.08	20.000	21.430	7.1
16SEP13-14.wiff	CAL5	13129191.1	1013473.3	1.00	12.955	7.08	60.000	59.920	-0.1
16SEP13-15.wiff	CAL6	16070684.1	946892.8	1.00	16.972	7.09	80.000	78.510	-1.9

PFTeDA
y = 0.18509 x (r = 0.99996) (weighting: 1 / x)



Calibration Verification

File Name	Sample Name	PFTeDA Area	13C2-PFDoDA Area	IS Conc	Area Ratio	RT (min)	Specified Amount	Calculated Amount	% Diff
16SEP13-10.wiff	CAL1	113633.7	1468366.3	1.00	0.077	7.34	0.400	0.420	4.5
16SEP13-11.wiff	CAL2	245893.2	1323799.5	1.00	0.186	7.34	1.000	1.000	0.4
16SEP13-12.wiff	CAL3	1263991.1	1380438.3	1.00	0.916	7.34	5.000	4.950	-1.1
16SEP13-13.wiff	CAL4	4323346.5	1153584.5	1.00	3.748	7.34	20.000	20.250	1.2
16SEP13-14.wiff	CAL5	11330737.0	1013473.3	1.00	11.180	7.35	60.000	60.410	0.7
16SEP13-15.wiff	CAL6	13911365.7	946892.8	1.00	14.692	7.35	80.000	79.380	-0.8

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LC-MS/MS Analysis Report

Printed: 9/15/2016 1:23:00 PM

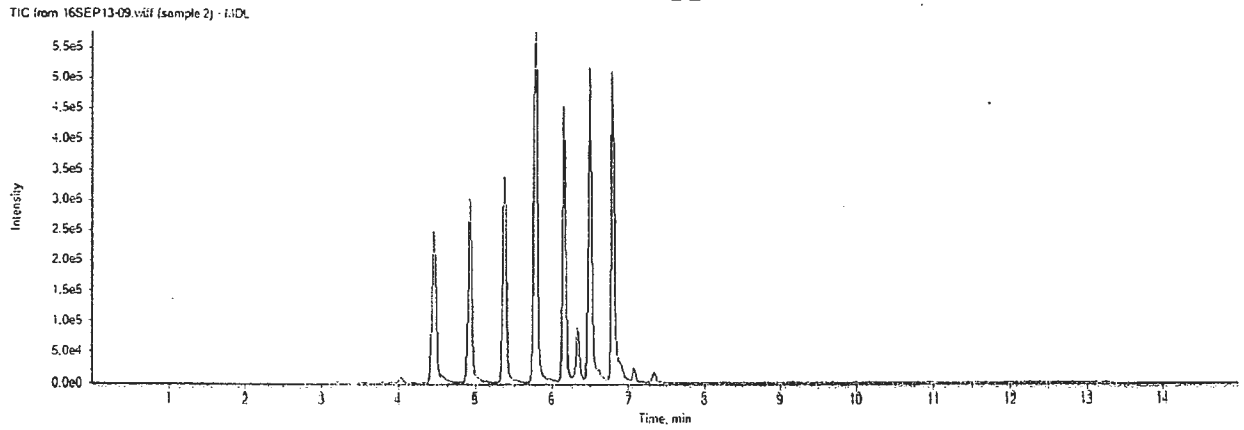
Sample Name:	MDL		**Data File:**		16SEP13-09.wiff
Sample ID:	MDL		**Acquis Date:**		2016-09-13T18:28:47
Sample Type:	Unknown		**Instrument:**		Triple Quad 4500
Vial Position:	2		**Acquis Method:**		PFC-14cmpd-16AUG02.dam
Injection Vol:	10.00		**Result Table:**		MQ 16235011DL
			ICAL Name:		16SEP13ICAL
Batch Number:	PFCICAL		**Operator:**		US19INS00015\4500TRIPLE
Sample Wt.:	1.000		**Dilution Factor:**		1.00
Sample Vol.:	1.000		**Prep Factor:**		1.000

Quantitation Peak Table

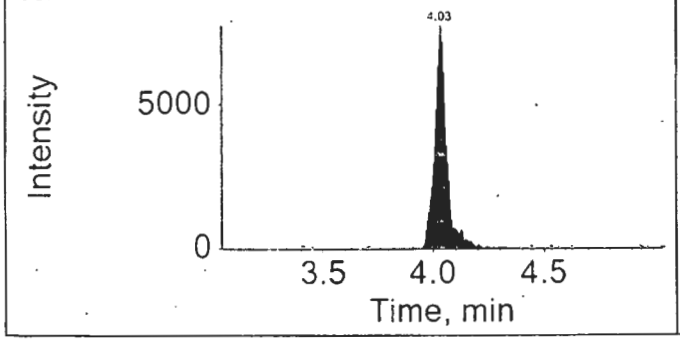
Component Name	RT	Analyte Area Response	Int Typ	IS Name	IS RT	IS Area Response	Area Ratio	Sample Result	Units
PFBS	4.03	29863.2	A	18O2-PFHxS	4.93	298991.4	0.100	0.362	ng/g
PFHxA	4.47	12954.0	A	13C2-PFHxA	4.46	970127.1	0.013	0.098	ng/g
PFHpA	4.93	15426.5	A	13C4-PFHpA	4.93	679839.0	0.023	0.097	ng/g
PFHxS	4.92	27407.9	A	18O2-PFHxS	4.93	298991.4	0.092	0.375	ng/g
PFOA	5.38	25113.0	A	13C4-PFOA	5.37	1097709.0	0.023	0.096	ng/g
PFNA	5.79	32609.9	A	13C5-PFNA	5.78	1600258.2	0.020	0.087	ng/g
PFOS	5.76	26360.3	A	13C4-PFOS	5.76	324275.3	0.081	0.383	ng/g
PFDA	6.16	31518.1	A	13C2-PFDA	6.15	1200404.4	0.026	0.089	ng/g
PFUnDA	6.49	29143.5	A	13C2-PFUnDA	6.49	1288911.9	0.023	0.097	ng/g
PFDoDA	6.79	62196.4	A	13C2-PFDoDA	6.79	1559861.6	0.040	0.183	ng/g
PFTrDA	7.07	62540.5	A	13C2-PFDoDA	6.79	1559861.6	0.040	0.185	ng/g
PFTeDA	7.33	54878.7	A	13C2-PFDoDA	6.79	1559861.6	0.035	0.190	ng/g

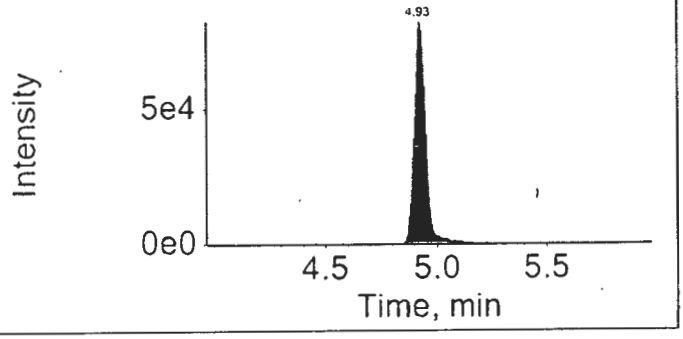
Total Ion Chromatogram

MDL

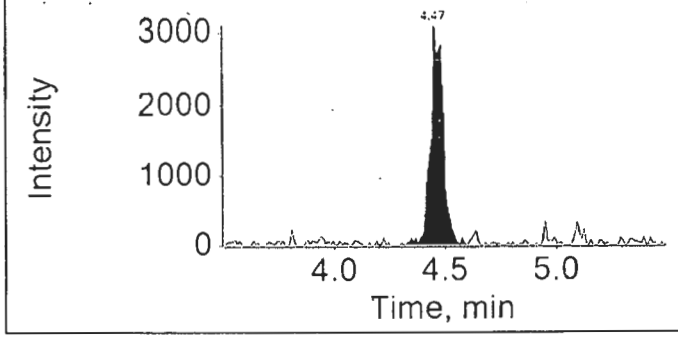


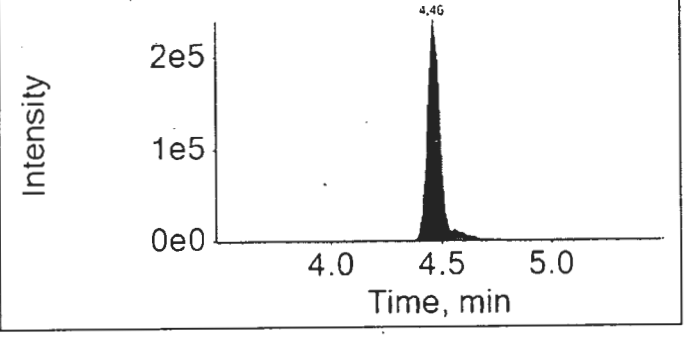
16SEP13-09.wiff	
Analyte: PFBS	Internal Standard: 18O2-PFHxS
298.9 / 98.9	403.0 / 103.0



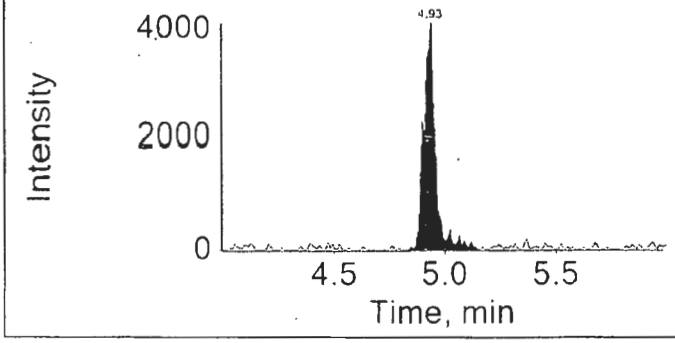


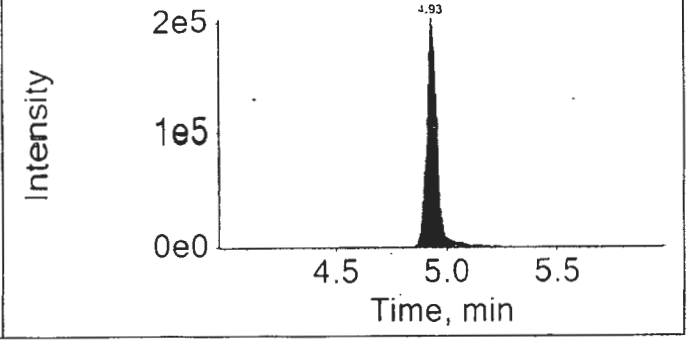
16SEP13-09.wiff	
Analyte: PFHxA	Internal Standard: 13C2-PFHxA
312.9 / 269.0	314.9 / 270.0



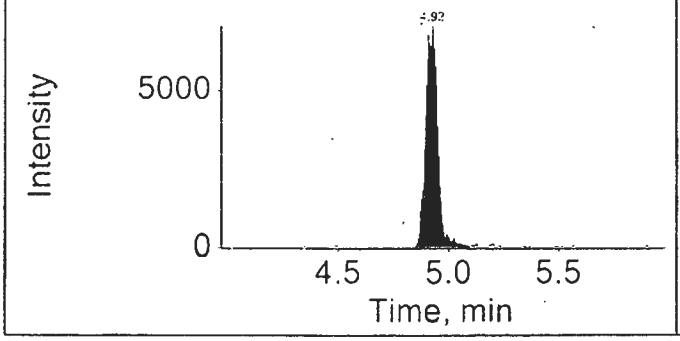


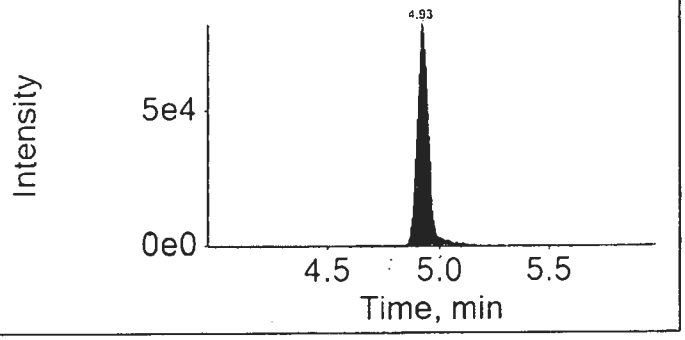
16SEP13-09.wiff	
Analyte: PFHpA	Internal Standard: 13C4-PFHpA
362.9 / 318.9	367.0 / 322.0



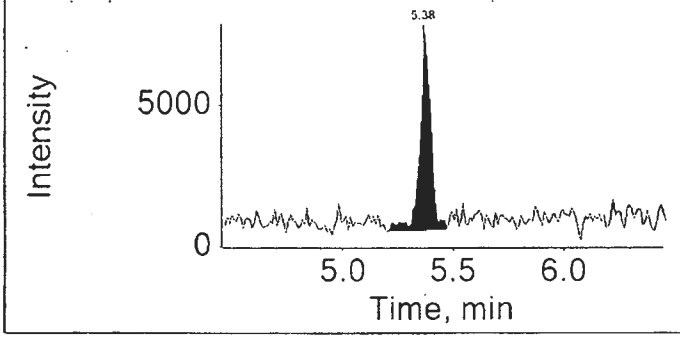


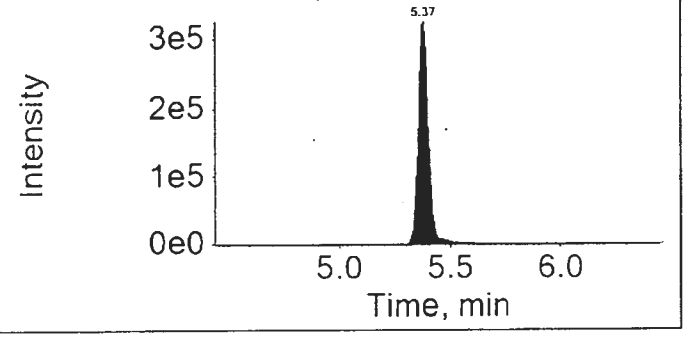
16SEP13-09.wiff	
Analyte: PFHxS	Internal Standard: 18O2-PFHxS
398.9 / 99.0	403.0 / 103.0



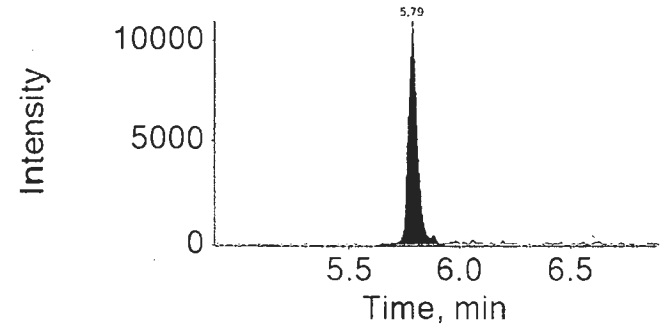


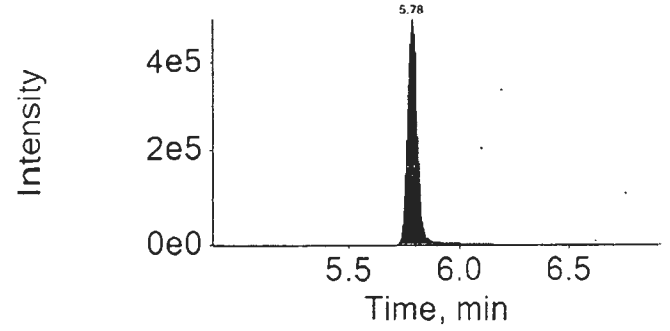
16SEP13-09.wiff	
Analyte: PFOA	Internal Standard: 13C4-PFOA
412.9 / 368.9	417.0 / 372.0



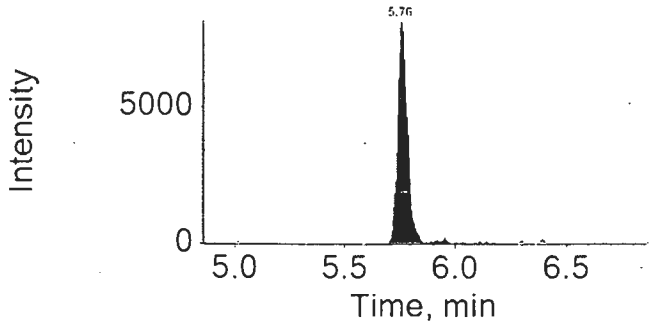


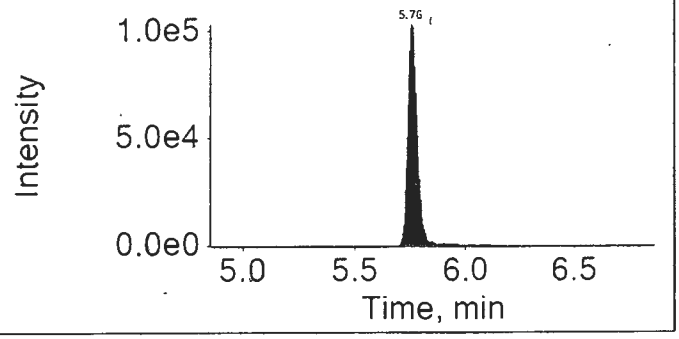
16SEP13-09.wiff	
Analyte: PFNA	Internal Standard: 13C5-PFNA
462.9 / 418.9	468.0 / 423.0



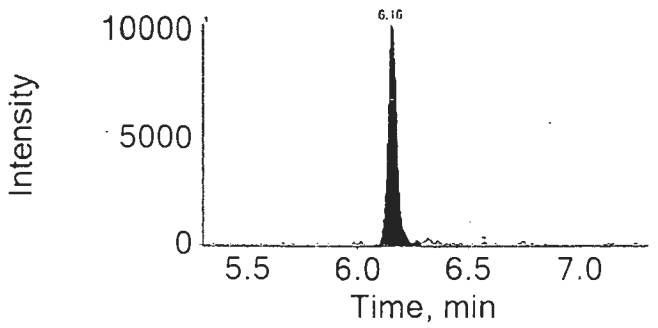


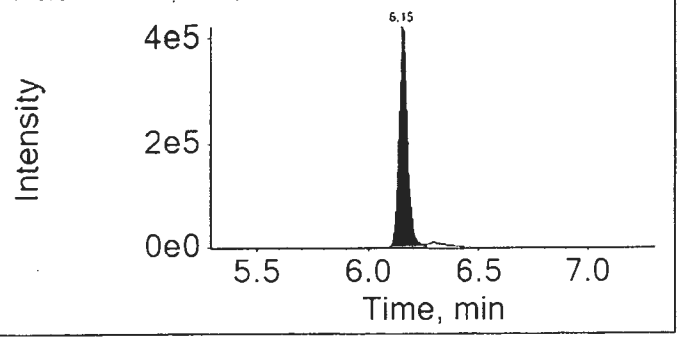
16SEP13-09.wiff	
Analyte: PFOS	Internal Standard: 13C4-PFOS
498.9 / 98.9	503.0 / 99.0



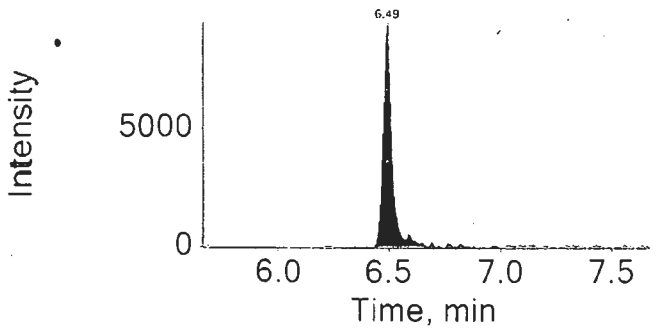


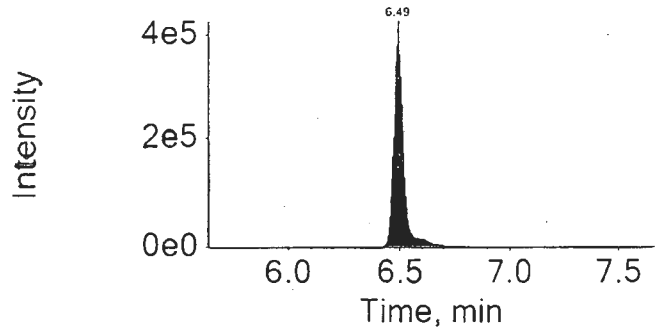
16SEP13-09.wiff	
Analyte: PFDA	Internal Standard: 13C2-PFDA
512.9 / 469.0	515.0 / 470.0



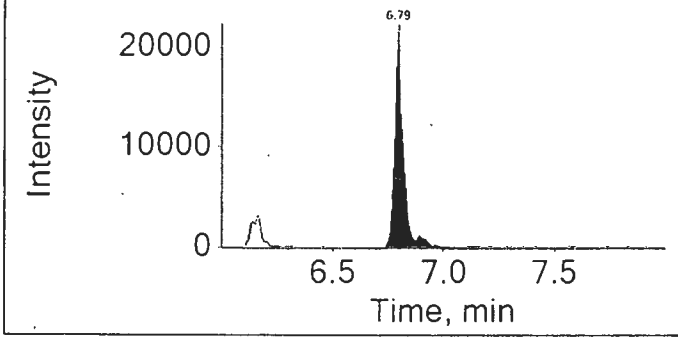


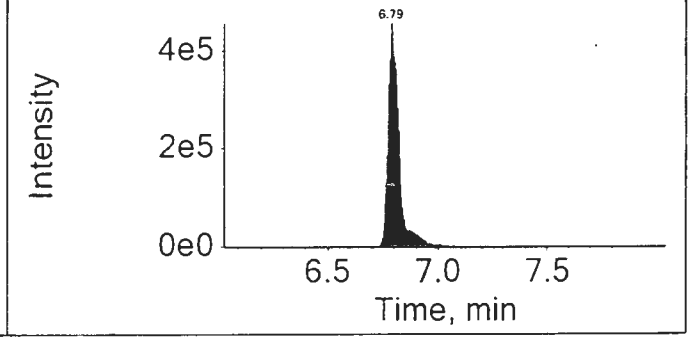
16SEP13-09.wiff	
Analyte: PFUnDA	Internal Standard: 13C2-PFUnDA
562.9 / 518.9	565.0 / 520.0



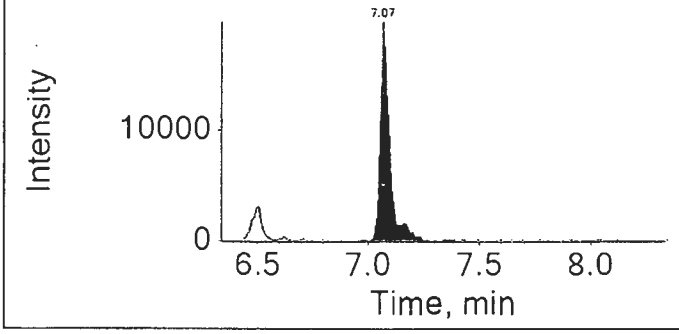


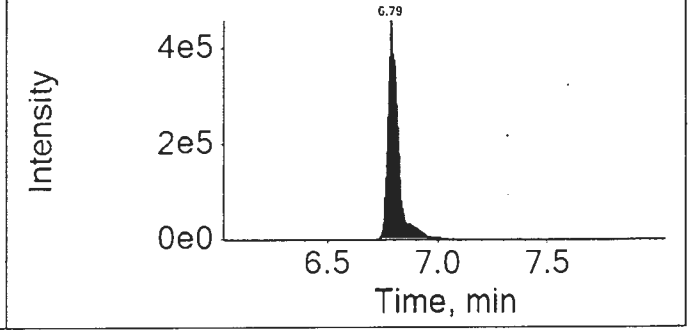
16SEP13-09.wiff	
Analyte: PFDoDA	Internal Standard: 13C2-PFDoDA
612.9 / 568.9	615.0 / 570.0



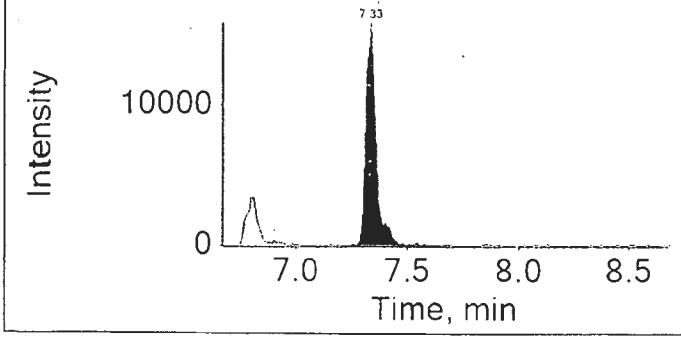


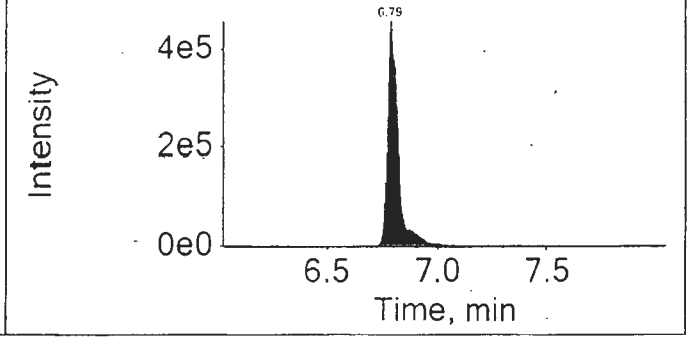
16SEP13-09.wiff	
Analyte: PFTrDA	Internal Standard: 13C2-PFDoDA
662.9 / 618.9	615.0 / 570.0





16SEP13-09.wiff	
Analyte: PFTeDA	Internal Standard: 13C2-PFDoDA
712.9 / 668.9	615.0 / 570.0





Lynn Dodd

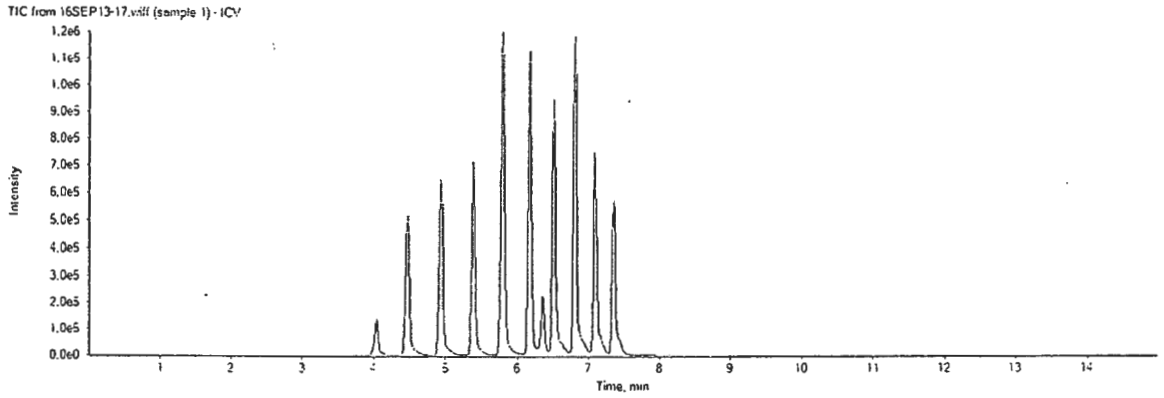
SEP 19 2016

Lynn Dodd
Principal Specialist

MEH 7824 9/19/16

Initial Calibration Verification

Sample ID: ICV
Sample Name: ICV
Sample File: 16SEP13-17.wiff
Acquisition Date: 9/13/2016 8:39:53 PM



Analyte Name	Analyte Area	IS Name	IS Area	IS Conc	Area Ratio	RT (min)	Spec Amt	Calc Amt	% Diff	OOS
PFBS	529306.4	18O2-PFHxS	270331.6	1.00	1.958	4.04	8.85	7.090	-19.8	
PFHxA	1200902.5	13C2-PFHxA	919745.7	1.00	1.306	4.47	10.00	9.570	-4.3	
PFHpA	1159324.9	13C4-PFHpA	561060.8	1.00	2.066	4.94	10.00	8.810	-11.9	
PFHxS	568642.2	18O2-PFHxS	270331.6	1.00	2.103	4.93	9.45	8.600	-9.0	
PFOA	1652225.7	13C4-PFOA	826569.7	1.00	1.999	5.39	10.00	8.420	-15.8	
PFNA	2336636.6	13C5-PFNA	1220662.8	1.00	1.914	5.79	10.00	8.180	-18.2	
PFOS	533051.9	13C4-PFOS	267887.6	1.00	1.990	5.77	9.55	9.380	-1.8	
PFDA	2457272.1	13C2-PFDA	1057762.0	1.00	2.323	6.17	10.00	7.900	-21.0	
PFUnDA	1959351.4	13C2-PFUnDA	957801.2	1.00	2.046	6.50	10.00	8.740	-12.6	
PFDoDA	2808980.3	13C2-PFDoDA	1310702.5	1.00	2.143	6.81	10.00	9.810	-1.9	
PFTrDA	2634900.7	13C2-PFDoDA	1310702.5	1.00	2.010	7.08	10.00	9.300	-7.0	
PFTeDA	2158247.8	13C2-PFDoDA	1310702.5	1.00	1.647	7.35	10.00	8.900	-11.0	

Lynn Dodd
SEP 19 2016

Lynn Dodd
Principal Specialist

MCD 7844 9/15/16

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16SEP13-18.WIFF

Date/Time Analyzed: 09/13/2016 20:56 Lab Sample ID: CCV1

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2519666	677816	9.99	10.38	3.90	±40
Perfluorohexanoic acid	1519175	344109	2.50	2.84	13.40	±30
Perfluoroheptanoic acid	1085831	364624	2.50	2.68	7.19	±30
Perfluorohexanesulfonate	2241258	646358	10.00	11.16	11.64	±30
Perfluorooctanoic acid	2610299	560129	2.50	2.72	8.64	±30
Perfluorononanoic acid	2510461	776118	2.50	2.61	4.58	±30
Perfluoro-octanesulfonate	1987336	617427	9.99	11.00	10.07	±30
Perfluorodecanoic acid	2881214	672058	2.50	2.46	-1.50	±30
Perfluoroundecanoic acid	2475372	631548	2.50	2.77	10.90	±30
Perfluorododecanoic acid	6147994	1482705	5.00	5.30	5.97	±30
Perfluorotridecanoic acid	6081980	1521520	5.00	5.49	9.84	±40
Perfluorotetradecanoic acid	5198161	1249097	5.00	5.27	5.33	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 ✓ Lab File ID: 16SEP14-08.WIFF

Date/Time Analyzed: 09/14/2016 10:16 ✓ Lab Sample ID: CCV2

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2519666	674872	9.99	10.10 ✓	1.09 ✓	±40
Perfluorohexanoic acid	1519175	294917	2.50	2.47	-1.26	±30
Perfluoroheptanoic acid	1085831	333751	2.50	2.63	5.16	±30
Perfluorohexanesulfonate	2241258	626678	10.00	10.58	5.77	±30
Perfluorooctanoic acid	2610299	571079	2.50	2.69	7.68	±30
Perfluorononanoic acid	2510461	652686	2.50	2.33	-6.91	±30
Perfluoro-octanesulfonate	1987336	620123	9.99	10.78	7.96	±30
Perfluorodecanoic acid	2881214	699569	2.50	2.54 ✓	1.62 ✓	±30
Perfluoroundecanoic acid	2475372	690659	2.50	2.75	9.94	±30
Perfluorododecanoic acid	6147994	1919675	5.00	5.23	4.66	±30
Perfluorotridecanoic acid	6081980	1551096	5.00	4.27	-14.57	±40
Perfluorotetradecanoic acid	5198161	1358210	5.00	4.37	-12.63	±40

✓

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16SEP14-18.WIFF

Date/Time Analyzed: 09/14/2016 13:00 Lab Sample ID: CCV3

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2519666	2266779	39.96	37.08	-7.20	±40
Perfluorohexanoic acid	1519175	1189352	10.00	10.21	2.06	±30
Perfluoroheptanoic acid	1085831	1036441	10.00	11.37	13.72	±30
Perfluorohexanesulfonate	2241258	2094300	40.00	38.64	-3.39	±30
Perfluorooctanoic acid	2610299	2184458	10.00	10.97	9.74	±30
Perfluorononanoic acid	2510461	2180824	10.00	9.62	-3.75	±30
Perfluoro-octanesulfonate	1987336	1917015	39.96	41.77	4.52	±30
Perfluorodecanoic acid	2881214	2324287	10.00	9.43	-5.70	±30
Perfluoroundecanoic acid	2475372	1801938	10.00	9.07	-9.28	±30
Perfluorododecanoic acid	6147994	5382367	20.00	20.92	4.62	±30
Perfluorotridecanoic acid	6081980	4945711	20.00	19.42	-2.89	±40
Perfluorotetradecanoic acid	5198161	4219680	20.00	19.36	-3.22	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16SEP14-87.WIFF

Date/Time Analyzed: 09/15/2016 07:50 Lab Sample ID: CCV10

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2519666	671268	9.99	10.60	6.08	±40
Perfluorohexanoic acid	1519175	323976	2.50	2.86	14.27	±30
Perfluoroheptanoic acid	1085831	377879	2.50	2.85	13.92	±30
Perfluorohexanesulfonate	2241258	599989	10.00	10.68	6.83	±30
Perfluorooctanoic acid	2610299	585555	2.50	2.66	6.52	±30
Perfluorononanoic acid	2510461	764003	2.50	2.69	7.50	±30
Perfluoro-octanesulfonate	1987336	610233	9.99	11.62	16.33	±30
Perfluorodecanoic acid	2881214	740030	2.50	2.22	-11.01	±30
Perfluoroundecanoic acid	2475372	561391	2.50	2.29	-8.41	±30
Perfluorododecanoic acid	6147994	1556255	5.00	5.13	2.66	±30
Perfluorotridecanoic acid	6081980	1298410	5.00	4.33	-13.48	±40
Perfluorotetradecanoic acid	5198161	1147262	5.00	4.46	-10.71	±40

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: SPP17

Instrument ID: 24743 Lab File ID: 16SEP14-98.WIFF

Date/Time Analyzed: 09/15/2016 09:29 Lab Sample ID: CCV11

Init. Calib. Date/Times: 09/13/2016 18:45 09/13/2016 20:07

Analytes	Average ICAL Area	CCV Area	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	2519666	2197792	39.96	37.84	-5.32	±40
Perfluorohexanoic acid	1519175	1125053	10.00	9.60	-4.02	±30
Perfluoroheptanoic acid	1085831	1062831	10.00	10.77	7.69	±30
Perfluorohexanesulfonate	2241258	2008915	40.00	39.01	-2.48	±30
Perfluorooctanoic acid	2610299	1942401	10.00	9.28	-7.22	±30
Perfluorononanoic acid	2510461	2216808	10.00	8.77	-12.25	±30
Perfluoro-octanesulfonate	1987336	1909050	39.96	40.34	0.94	±30
Perfluorodecanoic acid	2881214	2287361	10.00	8.08	-19.25	±30
Perfluoroundecanoic acid	2475372	1924917	10.00	8.80	-12.03	±30
Perfluorododecanoic acid	6147994	5660591	20.00	21.86	9.29	±30
Perfluorotridecanoic acid	6081980	5087580	20.00	19.84	-0.78	±40
Perfluorotetradecanoic acid	5198161	4548271	20.00	20.72	3.61	±40

* Outside QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

16236005	13C2-PFDA	13C2-PFDODA	13C2-PFHXA	13C2-PFUNDA
	Area	Area	Area	Area
Average ICAL Response	877370	1214426	875998	968876
UPPER LIMIT	1316055	1821639	1313997	1453314
LOWER LIMIT	438685	607213	437999	484438
LAB SAMPLE ID				
8535019DL2 100	1106564	1516427	897595	1268218
8535019DL 10	1052365	1566498	694831	1430794
8535019DL3 1000	1480576 * NR	1882485 * NR	1078714	1509058 * NR

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

16236005	13C4-PFHPA	13C4-PFOA	13C4-PFOS	13C5-PFNA
	Area	Area	Area	Area
Average ICAL Response	483536	866585	228586	1057865
UPPER LIMIT	725304	1299878	342879	1586798
LOWER LIMIT	241768	433293	114293	528933
LAB SAMPLE ID				
8535019DL2	852696 * NR	347842 * NR	306639	1467002
8535019DL	580910	135886 * NR	301509	1289930
8535019DL3	841685 * NR	1038465	356606 * NR	1763804 * NR

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

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FORM 08
INTERNAL STANDARDS
LC/MS/MS

SDG No.: SPP17
Matrix: SOIL

16236005	18O2-PFHXS
	Area
Average ICAL Response	223327
UPPER LIMIT	334991
LOWER LIMIT	111664
LAB SAMPLE ID	
8535019DL2	275919
8535019DL	243567
8535019DL3	334969

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* = Outside of the QC Limits.

4500_091316_1845_ISCheck.xlsx

Measure	1802-PFHxS	13C2-PFHxA	13C4-PFHpA	13C4-PFOA	13C5-PFNA	13C4-PFOS	13C2-PFDA	13C2-PFUnD	13C2-PFDoDA
Average	223327	875998	483536	866585	1057865	228586	877370	968876	1214426
Upper	334990	1313997	725304	1299878	1586798	342878	1316054	1453315	1821639
Lower	111663	437999	241768	433293	528933	114293	438685	484438	607213

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LC-MS/MS Sequence Report

Printed: 09/15/2016 11:02:00 AM

Results Table Name: MQ 16236005DL 9/14/2016 1:55:58 PM

Instrument	Acquisition Date	File Name	Sample ID	Vial Position	Samp Wt	Samp Vol	DF
Triple Quad 4500	9/13/2016 6:28:47 PM	16SEP13-09.wiff	MDL	2	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 6:45:11 PM	16SEP13-10.wiff	CAL1	3	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 7:01:35 PM	16SEP13-11.wiff	CAL2	4	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 7:17:59 PM	16SEP13-12.wiff	CAL3	5	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 7:34:20 PM	16SEP13-13.wiff	CAL4	6	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 7:50:41 PM	16SEP13-14.wiff	CAL5	7	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 8:07:05 PM	16SEP13-15.wiff	CAL6	8	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 8:39:53 PM	16SEP13-17.wiff	ICV	9	1.00	1.00	1.00
Triple Quad 4500	9/13/2016 8:56:14 PM	16SEP13-18.wiff	CCV1	5	1.00	1.00	1.00
Triple Quad 4500	9/14/2016 10:16:12 AM	16SEP14-08.wiff	CCV2	5	1.00	1.00	1.00
Triple Quad 4500	9/14/2016 11:21:45 AM	16SEP14-12.wiff	8535019DL2 ✓	59	0.10	1.00	100.00
Triple Quad 4500	9/14/2016 12:10:57 PM	16SEP14-15.wiff	8535019DL ✓	60	0.10	1.00	10.00
Triple Quad 4500	9/14/2016 1:00:07 PM	16SEP14-18.wiff	CCV3	6	1.00	1.00	1.00
Triple Quad 4500	9/15/2016 7:50:56 AM	16SEP14-87.wiff	CCV10	5	1.00	1.00	1.00
Triple Quad 4500	9/15/2016 8:23:45 AM	16SEP14-95.wiff	8535019DL3 ✓	58	0.10	1.00	1000.00
Triple Quad 4500	9/15/2016 9:29:20 AM	16SEP14-98.wiff	CCV11	6	1.00	1.00	1.00

Lynn Dodd

SEP 15 2016

Lynn Dodd
Principal Specialist

MCD 7824 9/15/16

Organic Extraction Batchlog Assigned to: 10262 Devon Whooley Reviewed by: dd 1415 Start Date: 8/24/16 Start time: 10:55

16236005 Tech 1: ON 10262 Tech 2: ZM

Dept: 37 Prep Analysis: 14091 PFAA Water Prep PFAAs in Water by LC/MS/MS

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
8535015MS	UGWMH	99.52	SS1623737A	.025	LCSPFCx1637F	.04	1			085a	
8535016MSD	UGWMH	100.45	↓	.025	↓	.04	1			085a	
BLANKA	BLK236005	100.06		.025	n/a	n/a	1				
LCSA	OPR236005	100.00	↓	.025	LCSPFCx1637F	.04	1				

Solvent Used	Lot No.
96% MeOH:H2O	
Methanol	
Milli-Q H2O	House 8/24
SPE Cartridge	0409361801C
Sodium Thiosulfate	
Trizma	SLBJ3566V

16AUG26PFC / 16AUG31

16SEP13PFC / 16SEP14 - dilutions data

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1 8535010	BENTB	99.76	SS1623737A	.025	1			085a		10954	18262	09/01/2016	N
2 8535011	BENFB	100.35		.025	1			085a		10954	18262	09/01/2016	N
3 8535012	FD116	100.22		.025	1			085a		10954	18262	09/01/2016	N
4 8535013	DGWMH	99.75		.025	1			085a		10954	18262	09/01/2016	N
5 8535014BKG	UGWMH	99.82		.025	1			085a		10954	18262	09/01/2016	N
6 8535017	UGNMH	99.99		.025	1			085a		10954	18262	09/01/2016	N
7 8535018	DGRMH	99.73		.025	1			085a		10954	18262	09/01/2016	N
8 8535019	OUTWW	99.95		.025	1			085a		10954	18262	09/01/2016	N
9 8535020	EB116	99.83		.025	1			085a		10954	18262	09/01/2016	N
10 8535021	RB116	99.68		.025	1			085a		10954	18262	09/01/2016	N
11 8535022	RB216	100.30		.025	1			085a		10954	18262	09/01/2016	N
12 8535023	RB316	100.16		.025	1			085a		10954	18262	09/01/2016	N
13 8535024	RB416	100.16		.025	1			085a		10954	18262	09/01/2016	N
14 8535025	RB516	100.35		.025	1			085a		10954	18262	09/01/2016	N
15 8535026	RB616	99.60		.025	1			085a		10954	18262	09/01/2016	N
16 8535027	RB117	99.98		.025	1			085a		10954	18262	09/01/2016	N
17 8535028	RB217	100.40		.025	1			085a		10954	18262	09/01/2016	N
18 8535029	RB317	100.12		.025	1			085a		10954	18262	09/01/2016	N
19 8535034	EB117	99.74	↓	.025	1			085a		10954	18262	09/01/2016	N

SPM17 Page 815 of 819

Rack ID:		Work Station		Micro Temp 100?	
Internal Standard		Balance #	B629764122		

S-bath ID	C	S-bath ID	C	N-Evap	C	M-vap	C	16236005

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

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LOQ/MDL Summary
Specialty Services Group

SDG: SPP17

Fraction: PFAAs by LC/MS/MS

10954: Full List PFC's Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	1	2	ng/l
Perfluorononanoic acid	1	2	ng/l
Perfluorodecanoic acid	1	2	ng/l
Perfluoroundecanoic acid	2	4	ng/l
Perfluorododecanoic acid	3	5	ng/l
Perfluorotridecanoic acid	2	4	ng/l
Perfluorotetradecanoic acid	3	5	ng/l
Perfluorohexanoic acid	1	2	ng/l
Perfluoroheptanoic acid	1	2	ng/l
Perfluorobutanesulfonate	4	10	ng/l
Perfluorohexanesulfonate	4	10	ng/l
Perfluoro-octanesulfonate	5	10	ng/l

14027: Full List PFC's Analyte Name	Default MDL	Default LOQ	Units
Perfluorooctanoic acid	0.30	0.60	ng/g
Perfluorononanoic acid	0.20	0.40	ng/g
Perfluorodecanoic acid	0.20	0.40	ng/g
Perfluoroundecanoic acid	0.30	0.60	ng/g
Perfluorododecanoic acid	0.40	0.80	ng/g
Perfluorotridecanoic acid	0.60	1.2	ng/g
Perfluorotetradecanoic acid	0.30	0.80	ng/g
Perfluorohexanoic acid	0.20	0.40	ng/g
Perfluoroheptanoic acid	0.30	0.60	ng/g
Perfluorobutanesulfonate	0.50	1.6	ng/g
Perfluorohexanesulfonate	0.50	1.6	ng/g
Perfluoro-octanesulfonate	0.70	1.6	ng/g

SECTION 6

GENERAL PARAMETER DATA SUPPORT DOCUMENTATION

ENVIRONMENTAL STANDARDS

INORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: St. Gobain Bennington VT
Sample Collection Dates: 8-17-16
Job Number: 20167391. NBEN
Project Manager: MAM
Laboratory: ELLE

Reviewed by: KLM
Approved by: MAM
Completion Date: 6/2017

Applicable Sample No's (✓)

Refer to Table 1 in the Quality Assurance Review

Deliverable:		Sample No.	Lab Control No.
	CLP (Full) ( )	SPP17-V.2	
	Level IV (Full) ( )		
	Limited (✓)		
	Other:		

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail Check (√) if Yes or Footnote Letter for Comments Below					Problems Identified Check (√) if Yes or Footnote Letter for Comments Below					Support Documentation Attachments Check (√) if Yes or Footnote Letter for Comments Below				
	2540G					2540G					2540G				
Holding Times															
Blank Analysis Results															
Matrix Spike (Predigestion) Results															
Duplicate Analysis: ( ) Field (✓) Lab	✓										✓				
Quantitation of Results	✓										✓				
Detection Limit/Sensitivity															
Initial Calibrations															
Continuing Calibrations															
Laboratory Control Standard (LCS)	✓										✓				
ICP Linear Range Analysis															
ICP Interference Checks															
ICP Serial Dilutions															
ICP Post-Digestion Spike															
GFAA Post Digestion Spikes															
GFAA Duplicate Injections															
ICP Multiple Exposures															
GFAA Standard Additions															
CRDL Standards															
Condition on Receipt	✓										✓				
Percent Solids															
Others:															

Comments:

ENVIRONMENTAL STANDARDS, INC.
EVALUATION OF DUPLICATE RESULTS

Effective Date: 11/23/2015
Revision: 0

Matrix: ○ Aqueous ◉ Non-aq.	**PRECISION OBJECTIVES:**
Reporting Level: ◉ MDL ○ QL	**If Both Results ≥ 5 × Their QL, RPD ≤:** 40
Units: %	**If Either Result < 5 × Its QL, Dif. ≤:** 2.0 **× Highest QL**

Sample ID:	SG3-SUMP03-160817				**Duplicate Sample ID:**	SG3-FD01-160817					
Analyte	**Sample Concentration**	**Qual**	**QL**	**MDL**	**Duplicate Concentration**	**Qual**	**QL**	**MDL**	**Difference**	**RPD**	**Flag**
% moisture	3.7		0.5	0.5	3.7		0.5	0.5	NA	0%	

NOTES:

Qual: Qualifier(s) based on evaluation(s) other than Total/ vs. Dissolved comparison, if applicable (J, U, U* or B)
RPD: Relative Percent Difference
QL: Quantitation Limit
MDL: Method Detection Limit
RL: Reporting Limit. RL = QL for QL reporting and MDL for MDL reporting
J: The analyte concentration should be considered estimated
U: The analyte was not detected in the sample at or above the RL indicated. The RL will be used for comparison purposes.
UJ: The analyte was not detected in the sample at or above the Reporting Limit Indicated. The RL is approximate.
R: The analyte was analyzed for and detected, but sample results are unreliable. The presence or absence of the analyte cannot be verified.
UR: The analyte was analyzed for and not detected, but the determination that the analyte was not present in the sample is unreliable. The presence or absence of the analyte cannot be verified.
U* The result was blank qualified. The RL will be used for comparison purposes.
NA: The MDL (for QL reporting), RPD or Difference is not applicable

Comments:

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CLIENT: C. T. Male Associates
SDG: SPP17

MOISTURE

SAMPLE NUMBERS:

Sample #	Sample Code
8535030	BENS1
8535031	BENS2BKG
8535032	BENS2MS
8535033	BENS2MSD
8535035	BENS3
8535036	FD117FD
8535037	OUTSD

COMMENTS:

Method defined actions are taken for any failed matrix QC.

Laboratory Compliance Quality Control

Analysis Name		LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number:	16236820006A	Sample number(s):		8535030, 8535035-8535037		
Moisture		100 ✓		99-101		
Batch number:	16238820006A	Sample number(s):		8535031-8535033		
Moisture		100		99-101		
Moisture		100		99-101		
Moisture Duplicate		100 ✓		99-101		

Sample Matrix Quality Control

Analysis Name		BKG Conc	DUP Conc	RPD	RPD Max
Batch number:	16236820006A	Sample number(s):		8535030, 8535035-8535037	
Moisture		2.9	1.5	62* (1)	5
Batch number:	16238820006A	Sample number(s):		8535031-8535033	
Moisture		3.6	3.5	3	5
Moisture		3.6	3.5	3	5
Moisture Duplicate		3.6 ✓	3.5 ✓	3 ✓	5

Batch QC

* - Outside of specification

(1) - The result for one or both determinations was less than five times the LOQ.

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CLIENT: C. T. Male Associates
SDG: SPP17

MOISTURE

Moisture Data Report

Batch #: 16236820006

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
8535030	A	00111	1.0597	6.1404	6.8730	5.33	8/24/16 (1201/SWF)	8/24/16 (236/CW)
8535035	A	00111	1.0772	7.2222	8.0321	3.70	8/24/16 (1201/SWF)	8/24/16 (236/CW)
8535036FD	A	00111	1.1131	7.8318	8.6531	3.73	8/24/16 (1201/SWF)	8/24/16 (236/CW)
8535037	A	00111	1.1232	6.5898	4.4574	49.40	8/24/16 (1201/SWF)	8/24/16 (236/CW)
LCS 89.5% Std.		00111	1.0691	5.0118	1.5970	89.47 ✓	8/24/16 (1201/SWF)	8/24/16 (236/CW)

Batch #: 16238820006

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
8535031BKG	A	00111	1.1268	5.6049	6.5275	3.64 ✓	8/25/16 (1201/SWF)	8/26/16 (236/CW)
8535032MS	A	00118				3.64	8/25/16 (1201/SWF)	8/26/16 (236/CW)
8535033MSD	A	00118				3.64	8/25/16 (1201/SWF)	8/26/16 (236/CW)
8535033MSD	A	00121	1.0562	5.9546	6.8002	3.54	8/25/16 (1201/SWF)	8/26/16 (236/CW)
LCS 89.5% Std.		00111	1.0899	5.0106	1.6167	89.49	8/25/16 (1201/SWF)	8/26/16 (236/CW)

lab dup of 8535031

SECTION 7

LABORATORY CASE NARRATIVE AND

PROJECT CHAIN-OF-CUSTODY RECORD

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Sample Reference List for SDG Number SPP17 with a Data Package Type of I

37191 - C. T. Male Associates

Project: SGPP - Bennington

Lab Sample Number	Client Sample ID	Collection Date	Date Received
8535010	SG3-LTB01-160816	08/16/2016 00:00	08/18/2016 09:40
8535011	SG3-FTB01-160816	08/16/2016 10:05	08/18/2016 09:40
8535012	SG3-FD01-160816	08/16/2016 00:00	08/18/2016 09:40
8535013	SG3-DGWATERMH-160816	08/16/2016 10:10	08/18/2016 09:40
8535014	SG3-UGWATERMH-160816	08/16/2016 10:45	08/18/2016 09:40
8535015	SG3-UGWATERMH-160816 MS	08/16/2016 10:45	08/18/2016 09:40
8535016	SG3-UGWATERMH-160816 MSD	08/16/2016 10:45	08/18/2016 09:40
8535017	SG3-UGNBENNMH-160816	08/16/2016 11:25	08/18/2016 09:40
8535018	SG3-DGRIVERMH-160816	08/16/2016 12:00	08/18/2016 09:40
8535019	SG3-BLDGOUTLET-160816	08/16/2016 12:40	08/18/2016 09:40
8535020	SG3-EB01-160816	08/16/2016 12:55	08/18/2016 09:40
8535021	SG3-RB01-160816	08/16/2016 15:00	08/18/2016 09:40
8535022	SG3-RB02-160816	08/16/2016 15:05	08/18/2016 09:40
8535023	SG3-RB03-160816	08/16/2016 15:10	08/18/2016 09:40
8535024	SG3-RB04-160816	08/16/2016 15:15	08/18/2016 09:40
8535025	SG3-RB05-160816	08/16/2016 15:20	08/18/2016 09:40
8535026	SG3-RB06-160816	08/16/2016 15:25	08/18/2016 09:40
8535027	SG3-RB01-160817	08/17/2016 10:25	08/18/2016 09:40
8535028	SG3-RB02-160817	08/17/2016 10:30	08/18/2016 09:40
8535029	SG3-RB03-160817	08/17/2016 10:35	08/18/2016 09:40
8535030	SG3-SUMP01-160817	08/17/2016 10:45	08/18/2016 09:40
8535031	SG3-SUMP02-160817	08/17/2016 11:10	08/18/2016 09:40
8535032	SG3-SUMP02-160817 MS	08/17/2016 11:10	08/18/2016 09:40
8535033	SG3-SUMP02-160817 MSD	08/17/2016 11:10	08/18/2016 09:40
8535034	SG3-EB01-160817	08/17/2016 11:15	08/18/2016 09:40
8535035	SG3-SUMP03-160817	08/17/2016 11:45	08/18/2016 09:40
8535036	SG3-FD01-160817	08/17/2016 00:00	08/18/2016 09:40
8535037	SG3-BLDGOUTLET-160817	08/17/2016 12:25	08/18/2016 09:40

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 · 717-656-2300 Fax: 717-656-2681 · www.lancasterlabs.com

14091 PFAA Water Prep
10954 PFAAs in Water by LC/MS/MS

A 100 ml sample of water is extracted using a solid phase extraction (SPE) cartridge. The resulting extract is analyzed by LC/MS/MS in negative electrospray ionization (ESI) mode.

Reference: Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LCMSMS), Version 1.1, September 2009.

14027 PFC s in Soil by LC/MS/MS
14090 PFC Solid Prep

This method is for determination of perfluorinated compounds in soil and sediment by liquid chromatography/ tandem mass spectrometry (LC/MS/MS). Solid samples are sonicated with an aqueous/acetonitrile solution and analyzed by LC/MS/MS.

Reference: Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LCMSMS), Version 1.1, September 2009.

00111 Moisture
00118 Moisture
00121 Moisture Duplicate

A well-mixed sample is placed in a tared container and dried to a constant weight in an oven at 103-105C. The increase in weight is the total solids.

Reference: Standard Methods for the Examination of Water and Wastewater, 22nd Edition, 2012, Method 2540 G-1997

Project Name: SGPP - Bennington
LL Group #: 1696623

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8535030, 8535031, 8535032, 8535033, 8535035, 8535036, 8535037

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16235011 (Sample number(s): 8535030-8535033, 8535035-8535037 UNSPK: 8535031)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorodecanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluoroheptanoic acid, Perfluorobutanesulfonate, Perfluoro-octanesulfonate, Perfluorotridecanoic acid

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Perfluorohexanoic acid, Perfluoroheptanoic acid

Batch #: 16236005 (Sample number(s): 8535010-8535029, 8535034 UNSPK: 8535014)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Perfluorooctanoic acid

SM 2540 G-1997, Wet Chemistry

Batch #: 16236820006A (Sample number(s): 8535030-8535033, 8535035-8535037 BKG: 8535031)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

original

Project Name: SGPP - Bennington
LL Group #: 1696623

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 8535030, 8535031, 8535032, 8535033, 8535035, 8535036, 8535037

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 16235011 (Sample number(s): 8535030-8535033, 8535035-8535037 UNSPK: 8535031)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluoroheptanoic acid, Perfluorobutanesulfonate, Perfluorodecanoic acid, Perfluorotridecanoic acid, Perfluorohexanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorodecanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluoro-octanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorohexanoic acid, Perfluoroheptanoic acid

Revised

Batch #: 16236005 (Sample number(s): 8535010-8535029, 8535034 UNSPK: 8535014)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid

SM 2540 G-1997, Wet Chemistry

Batch #: 16236820006A (Sample number(s): 8535030-8535033, 8535035-8535037 BKG: 8535031)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
Moisture

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March 3, 2017

Mr. Kirk Moline
C. T. Male Associates
50 Century Hill Drive
Latham, NY 12110

Dear Mr. Moline:

I am writing to inform you of revised analytical reports that are being issued for the following:

Project: SGPP - Bennington
Group No.: 1696623 **SDG No.: SPP17**

ELLE Sample No.	Client Sample Identification	Collection Date
8535030	SG3-SUMP01-160817 Grab Sediment	08/17/2016
8535031	SG3-SUMP02-160817 Grab Sediment	08/17/2016
8535032	SG3-SUMP02-160817 MS Grab Sediment	08/17/2016
8535033	SG3-SUMP02-160817 MSD Grab Sediment	08/17/2016
8535035	SG3-SUMP03-160817 Grab Sediment	08/17/2016
8535036	SG3-FD01-160817 Grab Sediment	08/17/2016
8535037	SG3-BLDGOUTLET-160817 Grab Sediment	08/17/2016

The correction to the data affects the PFCs in soil by LC/MS/MS analysis only.

During an additional review of the data, it was determined the MDLs and LOQs initially reported for ELLE Sample Nos. 8535030 to 8535033 and 8535035 to 8535037 were not corrected for the sample weight. Refer to the initial analysis report for the prior reported results.

The revised analytical report and data package reflect these corrections and are enclosed

You are a valued client and we apologize for any inconvenience that this incident may have caused. If you have any questions or require further assistance, please call me at 717-656-2300, Ext. 1203. We appreciate your business and look forward to continuing to serve your laboratory needs.

Sincerely,

Christine M. Ratchford

Manager
Specialty Services

CMR/mc
Enclosures

cc: Nancy Bornholm

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SPP17

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8535010	SG3-LTB01-160816	X		1	Trip Blank
8535011	SG3-FTB01-160816	X		1	Trip Blank
8535012	SG3-FD01-160816	X		1	Field Duplicate Sample
8535013	SG3-DGWATERMH-160816	X		1	
8535014	SG3-UGWATERMH-160816	X		1	Unspiked
8535015	SG3-UGWATERMH-160816 MS	X		1	Matrix Spike
8535016	SG3-UGWATERMH-160816 MSD	X		1	Matrix Spike Duplicate
8535017	SG3-UGNBENNMH-160816	X		1	
8535018	SG3-DGRIVERMH-160816	X		1	
8535019	SG3-BLDGOUTLET-160816	X		1; 10; 100; 1000	
8535020	SG3-EB01-160816	X		1	Equipment Blank
8535021	SG3-RB01-160816	X		1	Material Rinse Blank
8535022	SG3-RB02-160816	X		1	Material Rinse Blank
8535023	SG3-RB03-160816	X		1	Material Rinse Blank
8535024	SG3-RB04-160816	X		1	Material Rinse Blank
8535025	SG3-RB05-160816	X		1	Material Rinse Blank
8535026	SG3-RB06-160816	X		1	Material Rinse Blank
8535027	SG3-RB01-160817	X		1	Material Rinse Blank
8535028	SG3-RB02-160817	X		1	Material Rinse Blank
8535029	SG3-RB03-160817	X		1	Material Rinse Blank
8535030	SG3-SUMP01-160817		X	1; 10; 1000	
8535031	SG3-SUMP02-160817		X	1; 10; 1000; 10000	
8535032	SG3-SUMP02-160817 MS		X	1	Matrix Spike
8535033	SG3-SUMP02-160817 MSD		X	1	Matrix Spike Duplicate
8535034	SG3-EB01-160817	X		1	Equipment Blank
8535035	SG3-SUMP03-160817		X	1; 10; 100; 10000	
8535036	SG3-FD01-160817		X	1; 10; 100; 10000	Field Duplicate Sample
8535037	SG3-BLDGOUTLET-160817		X	1; 10; 100; 1000	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

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June 13, 2017

Mr. Kirk Moline
C. T. Male Associates
50 Century Hill Drive
Latham, NY 12110

Dear Mr. Moline:

I am writing to inform you of revised analytical reports that are being issued for the following:

Project: SGPP - Bennington
Group No.: 1696623 **SDG No.: SPP17**

ELLE Sample No.	Client Sample Identification	Collection Date
8535012	SG3-FD01-160816 Grab Wastewater	08/16/2016
8535013	SG3-DGWATERMH-160816 Grab Wastewater	08/16/2016
8535014	SG3-UGWATERMH-160816 Grab Wastewater	08/16/2016
8535015	SG3-UGWATERMH-160816 MS Grab Wastewater	08/16/2016
8535016	SG3-UGWATERMH-160816 MSD Grab Wastewater	08/16/2016
8535017	SG3-UGNBENNMH-160816 Grab Wastewater	08/16/2016
8535018	SG3-DGRIVERMH-160816 Grab Wastewater	08/16/2016
8535019	SG3-BLDGOUTLET-160816 Grab Wastewater	08/16/2016
8535020	SG3-EB01-160816 Grab Blank Water	08/16/2016
8535025	SG3-RB05-160816 Grab Blank Water	08/16/2016
8535028	SG3-RB02-160817 Grab Blank Water	08/17/2016
8535029	SG3-RB03-160817 Grab Blank Water	08/17/2016
8535030	SG3-SUMP01-160817 Grab Sediment	08/17/2016
8535031	SG3-SUMP02-160817 Grab Sediment	08/17/2016
8535032	SG3-SUMP02-160817 MS Grab Sediment	08/17/2016
8535033	SG3-SUMP02-160817 MSD Grab Sediment	08/17/2016
8535034	SG3-EB01-160817 Grab Blank Water	08/17/2016
8535035	SG3-SUMP03-160817 Grab Sediment	08/17/2016
8535036	SG3-FD01-160817 Grab Sediment	08/17/2016
8535037	SG3-BLDGOUTLET-160817 Grab Sediment	08/17/2016

The correction to the data affects the PFCs in soil by LC/MS/MS and the PFAAs in Water by LC/MS/MS analysis only.

During an additional review of the data by Environmental Standards, Inc., it was requested that the peaks for the compounds listed in the table below be re-integrated to included branch chained isomers. PFOA was also reintegrated to include the branch chained isomers for ELLE Sample Nos. 8535015, 8535016, 8535032, and 8535033.

MS/MSDs.

ELLE Sample No.	Dilution	File	Analyte(s)
8535012	1	16AUG31-51	PFOA, PFNA,PFOS
8535013	1	16AUG31-52	PFOA, PFNA
8535014	1	16AUG31-46	PFOA, PFNA
8535017	1	16AUG31-53	PFOA
8535018	1	16AUG31-55	PFOA
8535019	1	16AUG31-56	PFOS
8535019	10	16SEP14-15	PFNA
8535019	100	16SEP14-12	PFOA
8535020	1	16AUG31-57	PFOA
8535025	1	16AUG31-62	PFOA
8535028	1	16AUG31-66	PFOA
8535029	1	16AUG31-67	PFOA
8535030	1	16SEP06-34	PFNA, PFOS
8535030	10	16SEP14-33	PFHpA
8535030	1000	16SEP14-28	PFOA
8535031	1	16SEP06-30	PFHxS, PFNA, PFOS, PFUnA
8535031	10000	16SEP22-58	PFOA
8535034	1	16AUG31-68	PFOA
8535035	1	16SEP06-35	PFHxS, PFOS, PFTriA
8535035	10	16SEP14-43	PFNA
8535035	100	16SEP14-40	PFHpA
8535035	10000	16SEP22-59	PFOA
8535036	1	16SEP06-36	PFHxS, PFNA, PFOS, PFTriA
8535036	100	16SEP14-50	PFHpA
8535036	10000	16SEP22-60	PFOA
8535037	1	16SEP06-37	PFOS,
8535037	10	16SEP14-62	PFDA
8535037	100	16SEP14-59	PFNA
8535037	1000	16SEP14-56	PFOA

In addition, the integration for PFHpA was corrected in ELLE Sample Nos. 8535013 and 8535014. The integration of PFHxA was corrected in ELLE Sample Nos. 8535014, 8535017, and 8535018. The integration of PFBS was corrected in ELLE Sample Nos. 8535030 and 8535035. Refer to the initial analysis report for the prior reported results.

The revised analytical report and data package reflect these corrections and are enclosed.

You are a valued client and we apologize for any inconvenience that this incident may have caused. If you have any questions or require further assistance, please call me at 717-656-2300, Ext. 1203. We appreciate your business and look forward to continuing to serve your laboratory needs.

Sincerely,

Christine M. Ratchford

Manager
Specialty Services

CMR/mc
Enclosures

cc: Nancy Bornholm

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SPP17

Specialty Services Group
Fraction: PFAAs by LC/MS/MS

some analysis HTs were not met. Lab did not revise as stated in proj. Corr.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

(Sample number(s): 8535030-8535033, 8535035-8535037: Analysis: 14027)
The internal standard responses for several parameters in the closing calibration verification (CCV) standard were greater than 50% of the average area measured during the initial calibration. The calculated CCV concentration was within specifications.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

LCS/LCSD

(Sample number(s): 8535030-8535033, 8535035-8535037: Analysis: 14027)
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch#: 16235011 (Sample number(s): 8535030-8535033, 8535035-8535037, UNSPK: 8535031)
The recovery(ies) for the following analyte(s) in the LCS exceeds the acceptance window indicating a positive bias: Perfluorotridecanoic acid

MS/MSD

(Sample number(s): 8535010-8535029, 8535034: Analysis: 10954)
The internal standard responses for several parameters in the Background, MS, and, MSD samples were less than 50% of the average area measured during the initial calibration. Since the response is low, any result should be considered biased high.

(Sample number(s): 8535030-8535033, 8535035-8535037: Analysis: 14027)
The internal standard responses for several parameters in the background, mstrix spike, and matrix spike duplicate samples were less than 50% of the average area measured during the initial calibration. Since the response is low, any result should be considered biased high.

Please note that US EPA Methods for organic compounds do not require action by the laboratory based on out-of-specification MS/MSD results.

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SPP17

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

Batch#: 16235011 (Sample number(s): 8535030-8535033, 8535035-8535037, UNSPK: 8535031)
The relative percent difference(s) for the following analyte(s) in the MS/MSD is outside the acceptance window: Perfluoroheptanoic acid, Perfluorohexanoic acid

The recovery(ies) for the following analyte(s) in the MS is outside the acceptance window: Perfluorotridecanoic acid

The recovery(ies) for the following analyte(s) in the MSD is outside the acceptance window: Perfluoro-octanesulfonate, Perfluorotetradecanoic acid

The recovery(ies) for the following analyte(s) in the MS and MSD is outside the acceptance window: Perfluorobutanesulfonate, Perfluorodecanoic acid, Perfluoroheptanoic acid, Perfluorohexanoic acid, Perfluorononanoic acid, Perfluorooctanoic acid
Refer to the QC Summary forms for more information.

Batch#: 16236005 (Sample number(s): 8535010-8535029, 8535034, UNSPK: 8535014)
The recovery(ies) for the following analyte(s) in the MSD is outside the acceptance window: Perfluorooctanoic acid

SAMPLE ANALYSIS:

(Sample number(s): 8535011-8535019, 8535021-8535027, 8535034: Analysis: 10954)
The internal standard responses for one or more parameters in this sample were was less than 50% of the average area measured during the initial calibration. Since the response is low, any result should be considered biased high.

(Sample number(s): 8535030: Analysis: 14027)
The internal standard responses for PFHxA, PFOA, and PFDoA in this sample were less than 50% of the average area measured during the initial calibration. Since the response is low, any result should be considered biased high.

(Sample number(s): 8535035-8535037: Analysis: 14027)
The internal standard responses for several parameters in this sample were less than 50% of the average area measured during the initial calibration. Since the response is low, any result should be considered biased high.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value

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Case Narrative/Conformance Summary

CLIENT: C. T. Male Associates
SDG: SPP17

Specialty Services Group

Fraction: PFAAs by LC/MS/MS

D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

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Environmental Services Analysis Request/Chain of Custody

Page 1 of 3

Acct. #: 37191 Group #: 1696623 Sample #: 8535010-37 COC#: 15173

Client: C.T. Male Associates

Project Name/#: SGPP - Bennington | Site ID:

Project Manager: Kirk Moline | P.O. #: 16.6131

Sampler: Jon Dippert / Chris Crosby

Phone #: 518-786-7410 | Quote #: 214135

State where sample(s) were collected: VT

Matrix: Sediment ☐; Ground ☐; Surface ☒; Soil ☐; Water: Potable ☐, Blank (NPDES crossed out) ☐; Other: Waste Water

Analyses Requested: PFCs (EPA 537 mod.)

For Lab Use Only
SF#: 271284
SCR#: 192912

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	PFCs (EPA 537 mod.)	Remarks
SG3-LTB01-160816	8/16/16	—				X		1	X	
SG3-FTB01-160816	↓	1005				X		1	X	
SG3-FD01-160816	↓	—	X				X	1	X	
SG3-DGWATERMH-160816	↓	1010	X				X	1	X	
SG3-UGWATERMH-160816	↓	1045	X				X	3	X	MS/MSD
SG3-UGNBENNMH-160816	↓	1125	X				X	1	X	
SG3-DGRIVERMH-160816	↓	1200	X				X	1	X	
SG3-BLDGOUTLET-160816	8/16/16	1240	X				X	1	X	
SG3-EB01-160816	8/16/16	1255	X			X		1	X	
SG3-RB01-160816	8/16/16	1500	X			X		1	X	

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: KMoline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☑	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☐		

EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	8/17/16	1730			
			[signature]	8-18-16	940

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ______ Other ______

Temperature upon receipt 2.1 °C

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Environmental Services Analysis Request/Chain of Custody

Page 2 of 3

Acct. #: 37191 Group #: 1696623 Sample #: 8535010 - 37

COC#: 15175

Client:	C.T. Male Associates
Project Name/#:	SGPP - Bennington
Site ID:	
Project Manager:	Kirk Moline
P.O. #:	16.6131
Sampler:	Jon Dippert / Chris Ormsby
Phone #:	518-786-7400
Quote #:	214135
State where sample(s) were collected:	VT

For Lab Use Only
SF#: 271284
SCR#: 192914

Preservation Codes
H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Matrix: Soil / Sediment (X); Water: Potable, NPDES, Ground, Surface; Other: Blank Water

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other: Blank Water	Total # of Containers	PFCs (EPA 537 mod.)	Moisture	Remarks
SG3-RB02-160816	8/16/16	1505	X				X	1	X		
SG3-RB03-160816	↓	1510	X				X	1	X		
SG3-RB04-160816	↓	1515	X				X	1	X		
SG3-RB05-160816	↓	1520	X				X	1	X		
SG3-RB06-160816	8/16/16	1525	X				X	1	X		
SG3-RB01-160817	8/17/17	1025	X				X	1	X		
SG3-RB02-160817	↓	1030	X				X	1	X		
SG3-RB03-160817	↓	1035	X				X	1	X		
SG3-SUMP01-160817	↓	1045	X		X		~~X~~	~~1~~ 2	X	X	
SG3-SUMP02-160817	8/17/17	1110	X		X		~~X~~	~~3~~ 4	X	X	MS/MSD

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results: K.Moline@ctmale.com

Data Package Options (please check if required)
Type I (Validation/non-CLP) ☑ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☐
EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	8/17/16	1730			
			[signature]	8-18-16	940

Airbill No.:
Relinquished by Commercial Carrier:
UPS _______ FedEx _______ Other ___________

Temperature upon receipt 2.1 °C

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Environmental Services Analysis Request/Chain of Custody

Page 3 of 3

Acct. #: 37191 Group #: 1696623 Sample #: 8535010-37 COC#: 15174

Client:	C.T. Male Associates
Project Name/#:	SGPP - Bennington
Site ID:	
Project Manager:	Kirk Moline
P.O. #:	16.6131
Sampler:	Jon Dippert / Chris Ormsby
Phone #:	518-786-7400
Quote #:	214135
State where sample(s) were collected:	VT

Matrix: Sediment ☒ / Soil ☐; Water: Ground ☐, Surface ☐, Potable ☐, NPDES ☐; Other: Blank Water

Analyses Requested: Moisture (2540 G); PFCs (EPA 537 mod.)

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	Moisture (2540 G)	PFCs (EPA 537 mod.)
SG3-EB01-160817	8/17/16	1115	X				X	1		X
SG3-SUMP03-160817	↓		X		X			2	X	X
SG3-FD01-160817	↓	—	X		X			2	X	X
SG3-BLDGOUTLET-160817	8/17/16	1225	X		X			2	X	X

For Lab Use Only
SF#: 271284
SCR#: 192913

Preservation Codes:
H = HCl; T = Thiosulfate
N = HNO_3; B = NaOH
S = H_2SO_4; P = H_3PO_4
O = Other

Remarks:

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐
(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)
Date results are needed:
E-mail address to send RUSH results: K.Moline@ctmale.com

Data Package Options (please check if required)
Type I (Validation/non-CLP) ☑ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☐
EDD Format:

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by	Date	Time	Received by	Date	Time
[signature]	8/17/16	1730			
			[signature]	8-18-16	940

Airbill No.:
Relinquished by Commercial Carrier:
UPS ______ FedEx ______ Other ______

Temperature upon receipt 2.1 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 158957

Group Number(s): 169623

Client: C.T. MAle Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/18/2016 9:40
Number of Packages:	1	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Joseph Huber (7831) at 12:29 on 08/18/2016

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	2.1	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

SECTION 8

PROJECT CORRESPONDENCE

Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Friday, November 18, 2016 1:46 PM
To: Meg Michell; Charles Neslund; Nancy Bornholm
Cc: David Blye; Stephanie Lein; Moline, Kirk (k.moline@ctmale.com)
Subject: RE: Liberty street validation

Meg,
We are reviewing the SDG's you attached. Some of this data was produced before electronic transfer and some was produced after it was in place. I will email you either later today or Monday with a status and what SDGs will require corrections.

Thanks

Christine Ratcliff
Manager
Specialty Services

Eurofins Lancaster Laboratories Environmental, LLC
2425 New Holland Pike
Lancaster, PA 17601
717-556-7380

ChristineRatcliff@eurofinsUS.com

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Thursday, November 17, 2016 9:21 AM
To: Christine Ratcliff; Charles Neslund; Nancy Bornholm
Cc: David Blye; Stephanie Lein; Moline, Kirk (k.moline@ctmale.com)
Subject: Liberty street validation

Hi Christine-
Attached is a list of the next set of data that we need to validate. We have been asked to complete this by the end of the year but have not started it yet. I am guessing that these may have some of the issues that we have already experienced in the reviews that we have conducted so far. Also, I believe these were produced before you were able to transfer the data electronically into your LIMS – can you confirm?

If possible, I would like to have you revise these for the following before we even start validating:
For PFCs, the lab should check:
- MS/LCS spike values are correct
- Correct labeled isotopes used
- Internal standard concentrations were entered correctly
- MDLs/RLs adjusted for exact sample weight/volume when sample results are adjusted for exact weight/volume
- True values for ICVs are included
- Labeled isotopes responses are correct on summary forms (As I understand, these were only spot checked. There is no instrument level summary for the labeled isotopes and the summaries provided have had many errors –so, we end up having to check 100%).

Also, if possible ensure the following:
- Branched peaks are consistently integrated

- Y-intercepts do not lead to false positives
- Correct peaks are integrated

For TOC, the lab should make sure the photocopies of the raw data are not cut off.

Perhaps we should discuss?
Thanks for your help!!

Meg A. Michell
Senior Technical Chemist
Environmental Standards, Inc.
1140 Valley Forge Road • PO Box 810 • Valley Forge, PA 19482
610.935.5577 x422 • www.envstd.com • mmichell@envstd.com

Emergency Response Quality Assurance Hotline: 855.374.7272

Notify us here to report this email as spam.

Meg Michell

From: Christine Ratcliff <ChristineRatcliff@eurofinsUS.com>
Sent: Tuesday, June 20, 2017 6:40 PM
To: Meg Michell; Nancy Bornholm
Cc: David Blye; Charles Neslund; Moline, Kirk (k.moline@ctmale.com); Margaret Treanor (MTreanor@barr.com); Ward Swanson (WSwanson@barr.com); Dana B. Pasi; Kristin May; StGobain; Steve Zeiner
Subject: RE: St. Gobain SDG SPP17 data request

Meg,
The additional issues below have been corrected. I revised DP and EDD will be issued.

Thanks

Christine Ratcliff
Manager
HRMS Group/PFAS Group

Eurofins Lancaster Laboratories Environmental LLC
2425 New Holland Pike
Lancaster, PA 17601
USA

Phone: 717-556-7380
Fax: 717-656-2681

ChristineRatcliff@EurofinsUS.com
www.EurofinsUS.com\LancLabsEnv

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Wednesday, June 14, 2017 3:58 PM
To: Christine Ratcliff; Nancy Bornholm
Cc: David Blye; Charles Neslund; Moline, Kirk (k.moline@ctmale.com); Margaret Treanor (MTreanor@barr.com); Ward Swanson (WSwanson@barr.com); Dana B. Pasi; Kristin May; StGobain; Steve Zeiner
Subject: RE: St. Gobain SDG SPP17 data request

Hi-
We have reviewed the revised package and there are a few issues left:

- The issues highlighted below were not fully addressed – please see notes in purple following the highlights.
- The Analysis Reports and raw data were updated for the following but not the Form 1's: 8535012 (PFNA, page 135, should be 2 J); 8535030DL (PFHpA, page 286, should be 140); 8535035DL2 (PFHpA, page 385, should be 1200). Only the reported values were reviewed.

Thanks!!

From: Christine Ratcliff [mailto:ChristineRatcliff@eurofinsUS.com]
Sent: Tuesday, June 13, 2017 2:22 PM
To: Meg Michell <mmichell@envstd.com>; Nancy Bornholm <NancyBornholm@eurofinsUS.com>
Cc: David Blye <DBLYE@envstd.com>; Charles Neslund <CharlesNeslund@eurofinsUS.com>; Moline, Kirk

(k.moline@ctmale.com) <k.moline@ctmale.com>; Margaret Treanor (MTreanor@barr.com) <MTreanor@barr.com>; Ward Swanson (WSwanson@barr.com) <WSwanson@barr.com>; Dana B. Pasi <DPasi@barr.com>; Kristin May <kmay@envstd.com>; StGobain <StGobain@envstd.com>; Steve Zeiner <szeiner@envstd.com>
Subject: RE: St. Gobain SDG SPP17 data request

Meg,
See below for responses.

Thanks

Christine Ratcliff
Manager
HRMS Group/PFAS Group

Eurofins Lancaster Laboratories Environmental LLC
2425 New Holland Pike
Lancaster, PA 17601
USA

Phone: 717-556-7380
Fax: 717-656-2681

ChristineRatcliff@EurofinsUS.com
www.EurofinsUS.com\LancLabsEnv

From: Meg Michell [mailto:mmichell@envstd.com]
Sent: Tuesday, June 06, 2017 2:44 PM
To: Nancy Bornholm
Cc: David Blye; Christine Ratcliff; Charles Neslund; Moline, Kirk (k.moline@ctmale.com); Margaret Treanor (MTreanor@barr.com); Ward Swanson (WSwanson@barr.com); Dana B. Pasi; Kristin May; StGobain; Steve Zeiner
Subject: St. Gobain SDG SPP17 data request

Could you address the following for this SDG?:

- The branched isomer peaks were not integrated for the vast majority of the data (including PFOA, PFOS and PFHxS). At the time this data was generated, the lab was not running the branched/linear standard but was integrating the branched peak for all compounds. See table below and review data appropriately. Please note that any changes to 8535014 or 8535031 also impacts MS/MSD forms. Also, branched peaks should also be integrated in the associated MS/MSDs. Data has been revised. The branched peak for PFNA was not integrated in the MS/MSD of sample 8535031 throwing off the %Rs when the background is subtracted where the branched peak was integrated.

- Several samples contain a peak close to the RT of PFHxS – please confirm that these whether or not these were at the correct RT – 8535012, 8535013, 8535014 The chemist reviewed these peaks and they are all at the wrong RT.

- Please check the integration of the following (too much area?) – PFHpA in 8535013, PFHxA and PFHpA in 8535014, PFHxA in 8535017, PFHxA in 8535018, PFBS in 8535030, PFBS in 8535035 Data has been revised

- For sample 8535031, both the 1000X and 10,000X dilutions are identified in the raw data as DL3 (8535031BKGDL3 for 1000X and 8535031DL3 for 10,000x). The internal standard responses for the 1000X dilution do not appear on the Form 8. Also, the lab ID varies for the 10X dilution between the raw data and the Form 8 (8535031BKGDL vs

8535031 with no suffix) The internal standard responses for the 1000x dilution of 8535031 appear on the form 8's associated with the 16SEP13 ICAL. (only in the revision)

- Several (PFHpA, PFHxS) of the ICAL areas and limits are incorrect on the Form 8 for 16235011 (pages 113-115) based on the raw data included in the data package This has been corrected.

- The final volume was incorrect (1 uL) on the extraction log for batch 16235011 This has been corrected

- The case narrative states that all holding times were met. Samples 8535031DL3, 8535035DL3, and 8535036DL3 were analyzed beyond 28 days from extraction (for PFOA only) Case narrative has been modified Case narrative was not modified (page 49 of revised package)

- Spike levels and % differences were not reported on the summary form associated with the CCV analyzed on 9/14/16 at 16:00 on instrument 24743 (file ID 16SEP14-29.wiff). This has been corrected CCV form was not corrected (page 93 of revised package).

- Several samples were analyzed at either 10X, 100x, 1000X, or 10,000x dilutions. Can the lab please specify how much internal standard was used when the samples were re-fortified? 10X dilution uses 22.5 uL and a 100X dilution uses 25 uL. A 1000X is created by taking a 10 fold of a 100X. A 10000 fold is created by taking a 10 fold of a 1000X.

Thanks!!

Do not include branched peak:

Sample	Dilution	File	Analyte(s)
8535012	1	16AUG31-51	PFOA, PFNA,PFOS
8535013	1	16AUG31-52	PFOA, PFNA
8535014	1	16AUG31-46	PFOA, PFNA
8535017	1	16AUG31-53	PFOA
8535018	1	16AUG31-55	PFOA
8535019	1	16AUG31-56	PFOS
8535019	10	16SEP14-15	PFNA
8535019	100	16SEP14-12	PFOA
8535020	1	16AUG31-57	PFOA
8535025	1	16AUG31-62	PFOA
8535028	1	16AUG31-66	PFOA
8535029	1	16AUG31-67	PFOA
8535030	1	16SEP06-34	PFNA, PFOS
8535030	10	16SEP14-33	PFHpA
8535030	1000	16SEP14-28	PFOA
8535031	1	16SEP06-30	PFHxS, PFNA, PFOS, PFUnA
8535031	10000	16SEP22-58	PFOA
8535034	1	16AUG31-68	PFOA
8535035	1	16SEP06-35	PFHxS, PFOS, PFTriA
8535035	10	16SEP14-43	PFNA
8535035	100	16SEP14-40	PFHpA
8535035	10000	16SEP22-59	PFOA
8535036	1	16SEP06-36	PFHxS, PFNA, PFOS, PFTriA
8535036	100	16SEP14-50	PFHpA
8535036	10000	16SEP22-60	PFOA

8535037	1	16SEP06-37	PFOS,
8535037	10	16SEP14-62	PFDA
8535037	100	16SEP14-59	PFNA
8535037	1000	16SEP14-56	PFOA

Meg A. Michell
Senior Technical Chemist
Environmental Standards, Inc.
1140 Valley Forge Road • PO Box 810 • Valley Forge, PA 19482
610.935.5577 x422 • www.envstd.com • mmichell@envstd.com

Emergency Response Quality Assurance Hotline: 855.374.7272

Notify us here to report this email as spam.

Meg Michell

From: Meg Michell
Sent: Wednesday, June 14, 2017 3:58 PM
To: 'Christine Ratcliff'; Nancy Bornholm
Cc: David Blye; Charles Neslund; Moline, Kirk (k.moline@ctmale.com); Margaret Treanor (MTreanor@barr.com); Ward Swanson (WSwanson@barr.com); Dana B. Pasi; Kristin May; StGobain; Steve Zeiner
Subject: RE: St. Gobain SDG SPP17 data request

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Thanks!!

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Sent: Tuesday, June 13, 2017 2:22 PM
To: Meg Michell <mmichell@envstd.com>; Nancy Bornholm <NancyBornholm@eurofinsUS.com>
Cc: David Blye <DBLYE@envstd.com>; Charles Neslund <CharlesNeslund@eurofinsUS.com>; Moline, Kirk (k.moline@ctmale.com) <k.moline@ctmale.com>; Margaret Treanor (MTreanor@barr.com) <MTreanor@barr.com>; Ward Swanson (WSwanson@barr.com) <WSwanson@barr.com>; Dana B. Pasi <DPasi@barr.com>; Kristin May <kmay@envstd.com>; StGobain <StGobain@envstd.com>; Steve Zeiner <szeiner@envstd.com>
Subject: RE: St. Gobain SDG SPP17 data request

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See below for responses.

Thanks

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Manager
HRMS Group/PFAS Group

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2425 New Holland Pike
Lancaster, PA 17601
USA

Phone: 717-556-7380
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Subject: St. Gobain SDG SPP17 data request

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- Several samples contain a peak close to the RT of PFHxS – please confirm that these whether or not these were at the correct RT – 8535012, 8535013, 8535014 The chemist reviewed these peaks and they are all at the wrong RT.

- Please check the integration of the following (too much area?) – PFHpA in 8535013, PFHxA and PFHpA in 8535014, PFHxA in 8535017, PFHxA in 8535018, PFBS in 8535030, PFBS in 8535035 Data has been revised

- For sample 8535031, both the 1000X and 10,000X dilutions are identified in the raw data as DL3 (8535031BKGDL3 for 1000X and 8535031DL3 for 10,000x). The internal standard responses for the 1000X dilution do not appear on the Form 8. Also, the lab ID varies for the 10X dilution between the raw data and the Form 8 (8535031BKGDL vs 8535031 with no suffix) The internal standard responses for the 1000x dilution of 8535031 appear on the form 8's associated with the 16SEP13 ICAL. (only in the revision)

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Thanks!!

Do not include branched peak:

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8535013	1	16AUG31-52	PFOA, PFNA
8535014	1	16AUG31-46	PFOA, PFNA
8535017	1	16AUG31-53	PFOA
8535018	1	16AUG31-55	PFOA
8535019	1	16AUG31-56	PFOS

8535019	10	16SEP14-15	PFNA
8535019	100	16SEP14-12	PFOA
8535020	1	16AUG31-57	PFOA
8535025	1	16AUG31-62	PFOA
8535028	1	16AUG31-66	PFOA
8535029	1	16AUG31-67	PFOA
8535030	1	16SEP06-34	PFNA, PFOS
8535030	10	16SEP14-33	PFHpA
8535030	1000	16SEP14-28	PFOA
8535031	1	16SEP06-30	PFHxS, PFNA, PFOS, PFUnA
8535031	10000	16SEP22-58	PFOA
8535034	1	16AUG31-68	PFOA
8535035	1	16SEP06-35	PFHxS, PFOS, PFTriA
8535035	10	16SEP14-43	PFNA
8535035	100	16SEP14-40	PFHpA
8535035	10000	16SEP22-59	PFOA
8535036	1	16SEP06-36	PFHxS, PFNA, PFOS, PFTriA
8535036	100	16SEP14-50	PFHpA
8535036	10000	16SEP22-60	PFOA
8535037	1	16SEP06-37	PFOS,
8535037	10	16SEP14-62	PFDA
8535037	100	16SEP14-59	PFNA
8535037	1000	16SEP14-56	PFOA

Meg A. Michell
Senior Technical Chemist
Environmental Standards, Inc.
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Emergency Response Quality Assurance Hotline: 855.374.7272

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Appendix F

Analytical Lab Reports

Appendix G

Land Use Permit

State of Vermont

APR 27 1978

LAND USE PERMIT

CASE No. PB-8-0128
APPLICANT CHEMICAL FABRICS CORP.
ADDRESS 108 Northside Drive
Bennington, Vermont 05201

LAWS/REGULATIONS INVOLVED

Vermont State Board of Health Regulations, Chapter 5, Sanitary Engineering, Subchapter 1, Public Buildings and Subchapter 15, Plumbing

This project, consisting of a wash sink for the Chemical Fabrics facility located off State Highway #67A in the Village of North Bennington, Vermont, is hereby approved under the requirements of the regulations named above subject to the following conditions:

(1) The project must be completed as shown on the plans prepared by C. Tilgner on 2-24-78 and which have been stamped "APPROVED" by the Division of Protection. No alteration of these plans shall be allowed except where written application has been made to the Agency of Environmental Conservation and approval obtained.

(2) A copy of the approved plans and the Land Use Permit shall remain on the project during all phases of construction and, upon request, shall be made available for inspection by State or local personnel.

FOR THE DIVISION OF PROTECTION

Ernest P. Christianson

Ernest P. Christianson
Regional Engineer

EPC/jr

Dated at Rutland, Vermont this 26th day of April, 1978.

cc. Division of Environmental Protection, Montpelier, Vermont
Willard Farnham

Produced by Saint-Gobain Performance Plastics Inc. SGPPLVT04004090

APPROVED

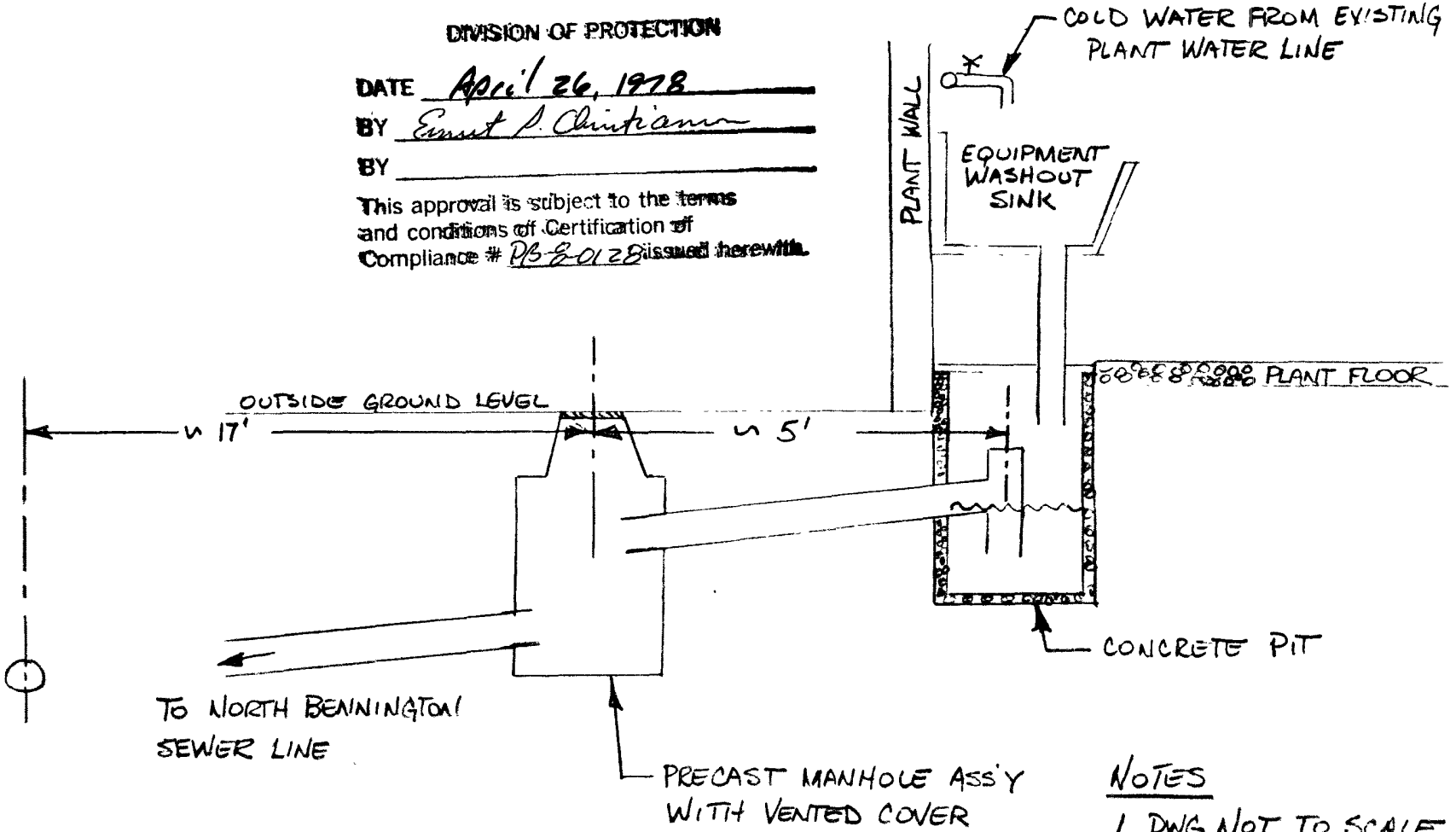
DIVISION OF PROTECTION

DATE April 26, 1978

BY Ernst P. Christiansen

BY _____

This approval is subject to the terms and conditions of Certification of Compliance # DB-80128 issued herewith.



NOTES

1. DWG NOT TO SCALE
2. PIPE SIZE IS 4"

CHEMICAL FABRICS CORPORATION
WATER ST No. BENNINGTON, Vt.
WASHUP SINK - ARRANGEMENT
C. TILGNER 2/24/78

Produced by Saint-Gobain Performance Plastics Inc.

SGPPLVT04004091

Appendix H

TOP Assay Analysis

resourceful. naturally.
engineering and environmental consultants

BARR

Memorandum

To: 45021004/Water Street Site Investigation Report
From: Michael Dupay, Ward Swanson
Subject: Total Oxidizable Precursor Assay Analysis and Results – Bennington Water Street (April 2018)
Date: June 11, 2018
Project: 45021004

Background

Groundwater sampling was conducted in accordance with the *Supplemental Site Investigation Work Plan* (Barr 2018) on behalf of Saint-Gobain Performance Plastics (Saint-Gobain) at the Bennington Water Street Facility (Site). Water samples collected in April 2018 as part of the investigative work from existing site monitoring wells MW02, MW04, MW1802, MW1805, MW07S, and MW07S (masked duplicate) were sent to Eurofins Lancaster Laboratories Environmental (ELLE), in Lancaster Pennsylvania for analysis by the total oxidizable precursors (TOP) assay.

TOP Assay Methodology

Current methodologies for measuring per- and polyfluoroalkyl substances (PFAS) (by EPA method 537) do not represent the totality of parameters that may, under certain conditions, be converted to PFAS over time (Buechler, 2017). Others have proposed that the TOP assay analysis can provide a qualitative assessment of risk for other chemicals present within the sample to convert to PFAS by way of treatment under highly oxidizing and high-temperature conditions. Limitations of the assay include the potential for exhaustion of the oxidant and a tendency to underestimate precursor concentrations in samples with high proportions of flourotelomers with six carbons (C6) or fewer. Additionally, the conditions under which the assay is performed are not representative of environmental conditions.

Samples submitted to a TOP assay are initially measured for PFAS via EPA method 537. The samples are then subjected to the addition of potassium persulfate and sodium hydroxide under 85°C for six hours, followed by neutralization. The samples are then reanalyzed and the differences in values for target PFAS compounds is calculated. Where there is a post-treatment increase in the concentration of a given target compound, there is a chance that some of the precursors that are not analytes of EPA method 537 will convert to measurable amounts of the target compounds of concern over time and under certain conditions.

Data Quality

The quality assurance/quality control (QA/QC) data were reviewed to assess the validity of the sampling procedures and analytical results for the data. For the purposes of this memo, the analytical data were evaluated (but not validated) according to the procedures outlined in the Barr Data Validation Standard

Operating Procedures for blanks, duplicates, and spiked samples. Some modifications were made to the procedures to account for the practices in the Level 4 data review as conducted by Environmental Standards (ES). The data was later validated by ES and all qualifiers applied to Table G.1 were applied as part of the standard validation practices outlined in the QAPP. The following observations are constrained to the PFAS analysis for the purposes of this memorandum.

In brief:

- Samples were analyzed within recommended hold times.
- Method blanks for PFAS were non-detect.
- Field and trip blanks contained reportable concentrations of target PFAS analytes.
- Surrogate recoveries were occasionally outside criteria across most PFAS; generally these were slightly high or low, but several had recoveries well outside control limits. This analysis does not consider the impact of surrogate recoveries on the data.
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries were largely within control, with a slightly low recovery for NMeFOSAA (64% versus a lower limit of 70%).

Data Assessment

Lab analytical data are provided as Table H.1. Data were evaluated for precursor presence from TOP assay analysis and potential for future contributions from precursors. The laboratory reports are included as Attachment H.1.

Pre-treatment and post-treatment data for parameters with positive increases post-treatment in one or more samples are included in Table H.2. A full table of pretreatment, post-treatment, and differences is attached (Table H.1).

Table H.2 TOP Assay Results and Differences (as reported)

Parameter	MW-02			MW-04		
	Pretreatment	Post-Treatment	Difference	Pretreatment	Post-Treatment	Difference
Perfluoro-octanesulfonate	10	9.2	-0.8	1.5	ND	-1.5
Perfluorobutanesulfonate	3.5	3.6	0.1	2.3	2.3	0
Perfluorobutanoic acid	30	45	15	8	24	16
Perfluorododecanoic acid	5.7	ND	-5.7			
Perfluoroheptanoic acid	160	180	20	57	64	7
Perfluorohexanesulfonate	2.1	ND	-2.1	1.2	ND	-1.2
Perfluorohexanoic acid	110	98	-12	29	29	0
Perfluorononanoic acid	2	ND	-2	2	2.4	0.4
Perfluorooctanoic acid	10000	9300	-700	2300	2200	-100
Perfluoropentanoic acid	56	55	-1	11	11	0
Perfluoroundecanoic acid	19	19	0			
Total PFCA	10466.7	9784	*-682.7*	2407	2330.4	-76.6
Total PFSA	15.6	12.8	-2.8	5	2.3	-2.7
Parameter	**MW-18-02**			**MW-18-05**		
	Pretreatment	Post-Treatment	Difference	Pretreatment	Post-Treatment	Difference
Perfluoro-octanesulfonate	12	13	1	3.9	4.2	0.3
Perfluorobutanesulfonate	3.5	3.6	0.1	1.7	1.9	0.2
Perfluorobutanoic acid	47	63	16	17	35	18
Perfluorodecanoic acid	130	130	0	33	35	2
Perfluorododecanoic acid	0.91	ND	-0.91	1.6	ND	-1.6
Perfluoroheptanoic acid	250	330	80	110	130	20
Perfluorohexanesulfonate	0.71	ND	-0.71	0.64	ND	-0.64
Perfluorohexanoic acid	170	170	0	60	64	4
Perfluorononanoic acid	51	56	5	11	9.6	-1.4
Perfluorooctanoic acid	12000	10000	-2000	5300	4800	-500
Perfluoropentanoic acid	110	110	0	34	34	0
Perfluoroundecanoic acid	10	12	2	7.9	8.2	0.3
Total PFCA	12768.91	10871	-1897.91	1017.7	1166	148.3
Total PFSA	16.21	16.6	0.39	3.2	16	12.8
Parameter	**MW-07S**			**MW-07S (Duplicate)**		
	Pretreatment	Post-Treatment	Difference	Pretreatment	Post-Treatment	Difference
Perfluoro-octanesulfonate	1.7	13	11.3	1.8	16	14.2
Perfluorobutanesulfonate	1.3	ND	-1.3	1.4	ND	-1.4
Perfluorobutanoic acid	7.8	35	27.2	7.9	32	24.1
Perfluoroheptanoic acid	19	20	1	18	19	1
Perfluorohexanoic acid	14	14	0	14	15	1
Perfluorononanoic acid	1.4	ND	-1.4	1.2	ND	-1.2
Perfluorooctanoic acid	900	1100	200	970	1100	130
Perfluoropentanoic acid	6.9	ND	-6.9	6.6	ND	-6.6
Total PFCA	949.1	1169	219.9	1017.7	1166	148.3
Total PFSA	3	13	10	3.2	16	12.8

In gray = positive increase after treatment
In red = subject to influence via blank detection; either likely false positives or elevated due to potential false positives
Light Green Cells = no positive detections

During the review of the data, it was observed that all field trip blanks (FTB) and lab trip blanks (LTB) associated with the post-treatment samples reported concentrations of the target PFAS compounds in water normally expected to be free of PFAS precursors. As such, the results reported for the post-treatment are suspect and those values calculated based on the values are likewise suspect (affected parameter concentrations and differences, as well as total PFCA and PFSA concentrations and differences). Additionally, where differences occurred in the FTBs and LTBs, it was inferred that difference values less than five times those observed in the FTBs and LTBs contributed to the uncertainty of the analysis and systemic issues may have impacted the reported calculated differences in the project samples.

While there is some evidence of the evolution of PFAS from various precursors, there is also ample evidence of PFAS destruction (negative values in the difference columns).

Conclusions

Based on the results of the TOP assay, even with the potential contamination from blanks, the results of the TOP assays show that the amounts of chemically-oxidizable precursors present in the samples from the Site are negligible since the pre- and post-oxidation samples showed similar results for each well. This likely indicates that additional concentrations of PFAS seen in the future would not be due to the presence of precursors.

References

Barr, 2018. *Supplemental Site Investigation Work Plan-Draft Rev. 1, Former Chemfab Facility*. Prepared for Saint-Gobain Performance Plastics. Dated January 2018.

Buechler, K., Closing the PFAS Mass Balance: The Total Oxidizable Precursor (TOP) Assay, TA White Paper CA-T-W-006, Rev. 1, July 2017

Attachments:

Table H.1 Groundwater TOP Data Summary

Attachment H.1 Eurofins Lancaster Laboratory Environmental Laboratory Reports

Tables

Table H-1
TOP Analysis Data Summary
Site Investigation Report
Former Chemfab Facility, 1030 Water Street
Saint-Gobain Performance Plastics

Location		MW02	MW04	MW07S		MW1802	MW1805
Date		4/20/2018	4/20/2018	4/23/2018		4/20/2018	4/20/2018
Sample Type		N	N	N	FD	N	N
Parameter	**Units**						
Per- and Polyfluoroalkyl Substances							
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 2.7 U	< 2.7 U	< 7.4 U	< 7.5 U	< 2.7 U	< 2.6 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 1.8 U	< 1.8 U	< 5.0 U	< 5.0 U	< 1.8 U	< 1.8 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 0.90 U	< 0.89 U	< 2.5 U	< 2.5 U	< 0.89 U	< 0.88 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 0.90 U	< 0.89 U	< 2.5 U	< 2.5 U	< 0.89 U	< 0.88 U
Perfluorobutane sulfonate (PFBS)	ng/l	**3.5**	**2.3**	**1.3 J**	**1.4 J**	**3.5**	**1.7**
Perfluorobutanoic acid (PFBA)	ng/l	**30**	**8**	**7.8 J**	**7.9 J**	**47**	**17**
Perfluorodecanoic acid (PFDA)	ng/l	**65**	< 0.89 U	< 2.5 U	< 2.5 U	**130**	**33**
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	**5.7**	< 0.27 U	< 0.74 U	< 0.75 U	**0.91**	**1.6 J**
Perfluoroheptanoic acid (PFHpA)	ng/l	**160**	**57**	**19**	**18**	**250**	**110**
Perfluorohexane sulfonate (PFHxS)	ng/l	**2.1**	**1.2 J**	< 0.99 U	< 1.0 U	**0.71 J**	**0.64 J**
Perfluorohexanoic acid (PFHxA)	ng/l	**110**	**29**	**14**	**14**	**170**	**60**
Perfluorononanoic acid (PFNA)	ng/l	**21**	**2**	**1.4 J**	**1.2 J**	**51**	**11**
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	**2 J**	< 0.89 U	< 2.5 UJ	< 2.5 U	< 0.89 U	< 0.88 U
Perfluorooctanesulfonate (PFOS)	ng/l	**10**	**1.5 J**	**1.7 J**	**1.8 J**	**12**	**3.9**
Perfluorooctanoic acid (PFOA)	ng/l	**10000**	**2300**	**900**	**970**	**12000**	**5300**
Perfluoropentanoic acid (PFPeA)	ng/l	**56**	**11**	**6.9 J**	**6.6 J**	**110**	**34**
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.27 U	< 0.27 U	< 0.74 U	< 0.75 U	< 0.27 U	< 0.26 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.27 U	< 0.27 U	< 0.74 U	< 0.75 U	< 0.27 U	< 0.26 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	**19**	< 0.36 U	< 0.99 U	< 1.0 U	**10**	**7.9**
Per- and Polyfluoroalkyl Substances - TOP							
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 15 U	< 15 U	< 15 U	< 15 U	< 15 U	< 15 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 9.9 U	< 10 U	< 10 U	< 9.9 U	< 10 U	< 9.9 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 5.0 UJ	< 5.0 UJ	< 5.0 UJ	< 5.0 UJ	< 5.0 UJ	< 5.0 UJ
Perfluorobutane sulfonate (PFBS)	ng/l	**3.6 J**	**2.3 J**	< 1.5 U	< 1.5 U	**3.6 J**	**1.9 J**
Perfluorobutanoic acid (PFBA)	ng/l	< 45 UB	< 24 UB	< 35 UB	< 32 UB	< 63 UB	< 35 UB
Perfluorodecanoic acid (PFDA)	ng/l	**64**	< 5.0 U	< 5.0 U	< 5.0 U	**130**	**35**
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 1.5 U	< 1.5 U	< 1.5 U	< 1.5 U	< 1.5 U	< 1.5 U
Perfluoroheptanoic acid (PFHpA)	ng/l	**180 J**	< 64 UB	< 20 UB	< 19 UB	**330 J**	**130 J**
Perfluorohexane sulfonate (PFHxS)	ng/l	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Perfluorohexanoic acid (PFHxA)	ng/l	**98 J**	**29**	< 14 UB	< 15 UB	**170 J**	**64 J**
Perfluorononanoic acid (PFNA)	ng/l	**23**	**2.4 J**	< 2.0 U	< 2.0 U	**56**	**9.6 J**
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 5.0 U	< 5.0 U	< 5.0 UJ	< 5.0 UJ	< 5.0 U	< 5.0 U
Perfluorooctanesulfonate (PFOS)	ng/l	< 9.2 UB	< 2.0 U	< 13 UB	**16**	< 13 UB	< 4.2 UB
Perfluorooctanoic acid (PFOA)	ng/l	**9300**	**2200**	**1100**	**1100**	**10000**	**4800**
Perfluoropentanoic acid (PFPeA)	ng/l	**55**	**11 J**	< 10 U	< 9.9 U	**110**	**34**
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 1.5 U	< 1.5 U	< 1.5 U	< 1.5 U	< 1.5 U	< 1.5 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 1.5 U	< 1.5 U	< 1.5 U	< 1.5 U	< 1.5 U	< 1.5 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	**19**	< 2.0 U	< 2.0 U	< 2.0 U	**12**	**8.2 J**

Attachment H.1

Eurofins Lancaster Laboratory Environmental Laboratory Reports

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: May 07, 2018 16:29

Project: SGPP - Bennington

Account #: 37191
Group Number: 1934819
SDG: SBN15
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB01-180420 Water	04/20/2018	9572205
SG3-FTB01-180420 Grab Water	04/20/2018 14:30	9572206
SG3-MW02-180420 Grab Groundwater	04/20/2018 12:10	9572207
SG3-MW04-180420 Grab Groundwater	04/20/2018 14:10	9572208
SG3a-MW1802-180420 Grab Groundwater	04/20/2018 12:40	9572209
SG3a-MW1805-180420 Grab Groundwater	04/20/2018 14:45	9572210
SG3a-MW1805-180420 MS Grab Groundwater	04/20/2018 14:45	9572211
SG3a-MW1805-180420 MSD Grab Groundwater	04/20/2018 14:45	9572212

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1934819

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous

Sample #s: 9572208

The recoveries for several labeled compounds used as extraction standards are outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample #s: 9572210

The recovery for the sample injection standard and the labeled compound used as extraction standard is outside the QC acceptance limits as noted on the QC Summary. The recovery for the injection standard and labeled compound used as extraction standard is also outside the QC acceptance limits in the associated matrix spike and matrix spike duplicate, indicating a matrix effect.

Sample #s: 9572207, 9572209

The sample injection standard areas and labeled compounds used as extraction standard areas were outside of the QC limits as noted on the QC Summary for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Sample #s: 9572206, 9572208

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9572207, 9572209, 9572210, 9572211, 9572212

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries for several labeled compounds used as extraction standards are outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

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Batch #: 18115016 (Sample number(s): 9572205-9572212 UNSPK: 9572210)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid, Perfluorohexanoic acid, Perfluoroheptanoic acid, Perfluorododecanoic acid, Perfluoropentanoic acid, 6:2 fluorotelomersulfonate

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9572207, 9572208, 9572209, 9572210, 9572211, 9572212, MS, MSD

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9572206, 9572211, 9572212, LCS, MS, MSD

Batch #: 18120010 (Sample number(s): 9572205-9572212 UNSPK: 9572210)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: NMeFOSAA

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, Perfluoroheptanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9572207, 9572209, 9572210, 9572211, 9572212, Blank, LCS, LCSD, MS, MSD

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9572207, 9572208, 9572209, 9572210, 9572211, Blank, LCS, LCSD, MS

Sample Description: **SG3-LTB01-180420 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018
SDG#: SBN15-01TB

C. T. Male Associates
ELLE Sample #: GW 9572205
ELLE Group #: 1934819
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14670	6:2 fluorotelomersulfonate	27619-97-2	2.7 U	2.7	8.1	1
14672	6:2 fluorotelomersulfonate	27619-97-2	15 U	15	45	1
14670	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.4	1
14672	8:2 fluorotelomersulfonate	39108-34-4	10 U	10	30	1
14670	NEtFOSAA	2991-50-6	0.90 U	0.90	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14672	NEtFOSAA	2991-50-6	5.0 U	5.0	15	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14670	NMeFOSAA	2355-31-9	0.90 U	0.90	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14672	NMeFOSAA	2355-31-9	5.0 U	5.0	15	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14670	Perfluorobutanesulfonate	375-73-5	0.27 U	0.27	0.90	1
14672	Perfluorobutanesulfonate	375-73-5	1.5 U	1.5	5.0	1
14670	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.4	1
14672	**Perfluorobutanoic acid**	375-22-4	**14 J**	10	30	1
14670	Perfluorodecanoic acid	335-76-2	0.90 U	0.90	1.8	1
14672	Perfluorodecanoic acid	335-76-2	5.0 U	5.0	10	1
14670	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.90	1
14672	Perfluorododecanoic acid	307-55-1	1.5 U	1.5	5.0	1
14670	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.90	1
14672	**Perfluoroheptanoic acid**	375-85-9	**10**	1.5	5.0	1
14670	Perfluorohexanesulfonate	355-46-4	0.36 U	0.36	1.8	1
14672	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	10	1
14670	Perfluorohexanoic acid	307-24-4	0.36 U	0.36	1.8	1
14672	**Perfluorohexanoic acid**	307-24-4	**2.9 J**	2.0	10	1
14670	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14672	Perfluorononanoic acid	375-95-1	2.0 U	2.0	10	1
14670	Perfluorooctanesulfonamide	754-91-6	0.90 U	0.90	2.7	1
14672	Perfluorooctanesulfonamide	754-91-6	5.0 U	5.0	15	1
14670	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.8	1
14672	**Perfluoro-octanesulfonate**	1763-23-1	**2.6 J**	2.0	10	1
14670	Perfluorooctanoic acid	335-67-1	0.27 U	0.27	0.90	1
14672	**Perfluorooctanoic acid**	335-67-1	**140**	1.5	5.0	1
14670	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.4	1
14672	Perfluoropentanoic acid	2706-90-3	10 U	10	30	1
14670	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.90	1
14672	Perfluorotetradecanoic acid	376-06-7	1.5 U	1.5	5.0	1
14670	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.90	1
14672	Perfluorotridecanoic acid	72629-94-8	1.5 U	1.5	5.0	1
14670	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB01-180420 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018
SDG#: SBN15-01TB

C. T. Male Associates
ELLE Sample #: GW 9572205
ELLE Group #: 1934819
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14672	Perfluoroundecanoic acid	2058-94-8	2.0 U	2.0	10	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 14:24	Devon M Whooley	1
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115016	04/26/2018 16:45	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18115016	04/25/2018 08:45	Pamela Rothharpt	1
14671	TOP in Water Post-Oxid Prep	EPA 537 Version 1.1 Modified	1	18120010	04/30/2018 11:45	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FTB01-180420 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018 14:30
SDG#: SBN15-02FB

C. T. Male Associates
ELLE Sample #: GW 9572206
ELLE Group #: 1934819
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14670	6:2 fluorotelomersulfonate	27619-97-2	2.7 U	2.7	8.1	1
14672	6:2 fluorotelomersulfonate	27619-97-2	15 U	15	45	1
14670	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.4	1
14672	8:2 fluorotelomersulfonate	39108-34-4	10 U	10	30	1
14670	NEtFOSAA	2991-50-6	0.90 U	0.90	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14672	NEtFOSAA	2991-50-6	5.0 U	5.0	15	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14670	NMeFOSAA	2355-31-9	0.90 U	0.90	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14672	NMeFOSAA	2355-31-9	5.0 U	5.0	15	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14670	Perfluorobutanesulfonate	375-73-5	0.27 U	0.27	0.90	1
14672	Perfluorobutanesulfonate	375-73-5	1.5 U	1.5	5.0	1
14670	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.4	1
14672	**Perfluorobutanoic acid**	375-22-4	**13 J**	10	30	1
14670	Perfluorodecanoic acid	335-76-2	0.90 U	0.90	1.8	1
14672	Perfluorodecanoic acid	335-76-2	5.0 U	5.0	10	1
14670	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.90	1
14672	Perfluorododecanoic acid	307-55-1	1.5 U	1.5	5.0	1
14670	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.90	1
14672	**Perfluoroheptanoic acid**	375-85-9	**10**	1.5	5.0	1
14670	Perfluorohexanesulfonate	355-46-4	0.36 U	0.36	1.8	1
14672	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	10	1
14670	Perfluorohexanoic acid	307-24-4	0.36 U	0.36	1.8	1
14672	**Perfluorohexanoic acid**	307-24-4	**3.2 J**	2.0	10	1
14670	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14672	Perfluorononanoic acid	375-95-1	2.0 U	2.0	10	1
14670	Perfluorooctanesulfonamide	754-91-6	0.90 U	0.90	2.7	1
14672	Perfluorooctanesulfonamide	754-91-6	5.0 U	5.0	15	1
14670	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.8	1
14672	**Perfluoro-octanesulfonate**	1763-23-1	**3.8 J**	2.0	10	1
14670	**Perfluorooctanoic acid**	335-67-1	**0.32 J**	0.27	0.90	1
14672	**Perfluorooctanoic acid**	335-67-1	**120**	1.5	5.0	1
14670	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.4	1
14672	Perfluoropentanoic acid	2706-90-3	10 U	10	30	1
14670	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.90	1
14672	Perfluorotetradecanoic acid	376-06-7	1.5 U	1.5	5.0	1
14670	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.90	1
14672	Perfluorotridecanoic acid	72629-94-8	1.5 U	1.5	5.0	1
14670	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FTB01-180420 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018 14:30
SDG#: SBN15-02FB

C. T. Male Associates
ELLE Sample #: GW 9572206
ELLE Group #: 1934819
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14672	Perfluoroundecanoic acid	2058-94-8	2.0 U	2.0	10	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 14:40	Devon M Whooley	1
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115016	04/26/2018 17:00	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18115016	04/25/2018 08:45	Pamela Rothharpt	1
14671	TOP in Water Post-Oxid Prep	EPA 537 Version 1.1 Modified	1	18120010	04/30/2018 11:45	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW02-180420 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018 12:10
SDG#: SBN15-03

C. T. Male Associates
ELLE Sample #: GW 9572207
ELLE Group #: 1934819
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14670	6:2 fluorotelomersulfonate	27619-97-2	2.7 U	2.7	8.1	1
14672	6:2 fluorotelomersulfonate	27619-97-2	15 U	15	45	1
14670	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.4	1
14672	8:2 fluorotelomersulfonate	39108-34-4	9.9 U	9.9	30	1
14670	NEtFOSAA	2991-50-6	0.90 U	0.90	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14672	NEtFOSAA	2991-50-6	5.0 U	5.0	15	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14670	NMeFOSAA	2355-31-9	0.90 U	0.90	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14672	NMeFOSAA	2355-31-9	5.0 U	5.0	15	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14670	**Perfluorobutanesulfonate**	375-73-5	**3.5**	0.27	0.90	1
14672	**Perfluorobutanesulfonate**	375-73-5	**3.6 J**	1.5	5.0	1
14670	**Perfluorobutanoic acid**	375-22-4	**30**	1.8	5.4	1
14672	**Perfluorobutanoic acid**	375-22-4	**45**	9.9	30	1
14670	**Perfluorodecanoic acid**	335-76-2	**65**	0.90	1.8	1
14672	**Perfluorodecanoic acid**	335-76-2	**64**	5.0	9.9	1
14670	**Perfluorododecanoic acid**	307-55-1	**5.7**	0.27	0.90	1
14672	Perfluorododecanoic acid	307-55-1	1.5 U	1.5	5.0	1
14670	**Perfluoroheptanoic acid**	375-85-9	**160**	0.27	0.90	1
14672	**Perfluoroheptanoic acid**	375-85-9	**180**	1.5	5.0	1
14670	**Perfluorohexanesulfonate**	355-46-4	**2.1**	0.36	1.8	1
14672	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	9.9	1
14670	**Perfluorohexanoic acid**	307-24-4	**110**	0.36	1.8	1
14672	**Perfluorohexanoic acid**	307-24-4	**98**	2.0	9.9	1
14670	**Perfluorononanoic acid**	375-95-1	**21**	0.36	1.8	1
14672	**Perfluorononanoic acid**	375-95-1	**23**	2.0	9.9	1
14670	**Perfluorooctanesulfonamide**	754-91-6	**2.0 J**	0.90	2.7	1
14672	Perfluorooctanesulfonamide	754-91-6	5.0 U	5.0	15	1
14670	**Perfluoro-octanesulfonate**	1763-23-1	**10**	0.36	1.8	1
14672	**Perfluoro-octanesulfonate**	1763-23-1	**9.2 J**	2.0	9.9	1
14670	**Perfluorooctanoic acid**	335-67-1	**10,000**	27	90	100
14672	**Perfluorooctanoic acid**	335-67-1	**9,300**	15	50	10
14670	**Perfluoropentanoic acid**	2706-90-3	**56**	1.8	5.4	1
14672	**Perfluoropentanoic acid**	2706-90-3	**55**	9.9	30	1
14670	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.90	1
14672	Perfluorotetradecanoic acid	376-06-7	1.5 U	1.5	5.0	1
14670	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.90	1
14672	Perfluorotridecanoic acid	72629-94-8	1.5 U	1.5	5.0	1
14670	**Perfluoroundecanoic acid**	2058-94-8	**19**	0.36	1.8	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW02-180420 Grab Groundwater SGPP - Bennington**

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018 12:10
SDG#: SBN15-03

C. T. Male Associates
ELLE Sample #: GW 9572207
ELLE Group #: 1934819
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14672	**Perfluoroundecanoic acid**	2058-94-8	**19**	2.0	9.9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries for several labeled compounds used as extraction standards are outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

The sample injection standard areas and labeled compounds used as extraction standard areas were outside of the QC limits as noted on the QC Summary for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 14:55	Devon M Whooley	1
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 16:13	Devon M Whooley	10
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115016	04/26/2018 17:14	Jason W Knight	1
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115016	04/27/2018 14:54	Jason W Knight	100
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18115016	04/25/2018 08:45	Pamela Rothharpt	1
14671	TOP in Water Post-Oxid Prep	EPA 537 Version 1.1 Modified	1	18120010	04/30/2018 11:45	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW04-180420 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018 14:10
SDG#: SBN15-04

C. T. Male Associates
ELLE Sample #: GW 9572208
ELLE Group #: 1934819
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14670	6:2 fluorotelomersulfonate	27619-97-2	2.7 U	2.7	8.0	1
14672	6:2 fluorotelomersulfonate	27619-97-2	15 U	15	45	1
14670	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.4	1
14672	8:2 fluorotelomersulfonate	39108-34-4	10 U	10	30	1
14670	NEtFOSAA	2991-50-6	0.89 U	0.89	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14672	NEtFOSAA	2991-50-6	5.0 U	5.0	15	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14670	NMeFOSAA	2355-31-9	0.89 U	0.89	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14672	NMeFOSAA	2355-31-9	5.0 U	5.0	15	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14670	**Perfluorobutanesulfonate**	375-73-5	**2.3**	0.27	0.89	1
14672	**Perfluorobutanesulfonate**	375-73-5	**2.3 J**	1.5	5.0	1
14670	**Perfluorobutanoic acid**	375-22-4	**8.0**	1.8	5.4	1
14672	**Perfluorobutanoic acid**	375-22-4	**24 J**	10	30	1
14670	Perfluorodecanoic acid	335-76-2	0.89 U	0.89	1.8	1
14672	Perfluorodecanoic acid	335-76-2	5.0 U	5.0	10	1
14670	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.89	1
14672	Perfluorododecanoic acid	307-55-1	1.5 U	1.5	5.0	1
14670	**Perfluoroheptanoic acid**	375-85-9	**57**	0.27	0.89	1
14672	**Perfluoroheptanoic acid**	375-85-9	**64**	1.5	5.0	1
14670	**Perfluorohexanesulfonate**	355-46-4	**1.2 J**	0.36	1.8	1
14672	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	10	1
14670	**Perfluorohexanoic acid**	307-24-4	**29**	0.36	1.8	1
14672	**Perfluorohexanoic acid**	307-24-4	**29**	2.0	10	1
14670	**Perfluorononanoic acid**	375-95-1	**2.0**	0.36	1.8	1
14672	**Perfluorononanoic acid**	375-95-1	**2.4 J**	2.0	10	1
14670	Perfluorooctanesulfonamide	754-91-6	0.89 U	0.89	2.7	1
14672	Perfluorooctanesulfonamide	754-91-6	5.0 U	5.0	15	1
14670	**Perfluoro-octanesulfonate**	1763-23-1	**1.5 J**	0.36	1.8	1
14672	Perfluoro-octanesulfonate	1763-23-1	2.0 U	2.0	10	1
14670	**Perfluorooctanoic acid**	335-67-1	**2,300**	2.7	8.9	10
14672	**Perfluorooctanoic acid**	335-67-1	**2,200**	15	50	10
14670	**Perfluoropentanoic acid**	2706-90-3	**11**	1.8	5.4	1
14672	**Perfluoropentanoic acid**	2706-90-3	**11 J**	10	30	1
14670	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.89	1
14672	Perfluorotetradecanoic acid	376-06-7	1.5 U	1.5	5.0	1
14670	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.89	1
14672	Perfluorotridecanoic acid	72629-94-8	1.5 U	1.5	5.0	1
14670	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW04-180420 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018 14:10
SDG#: SBN15-04

C. T. Male Associates
ELLE Sample #: GW 9572208
ELLE Group #: 1934819
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14672	Perfluoroundecanoic acid	2058-94-8	2.0 U	2.0	10	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries for several labeled compounds used as extraction standards are outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 15:11	Devon M Whooley	1
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 16:29	Devon M Whooley	10
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115016	04/26/2018 17:29	Jason W Knight	1
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115016	04/27/2018 15:08	Jason W Knight	10
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18115016	04/25/2018 08:45	Pamela Rothharpt	1
14671	TOP in Water Post-Oxid Prep	EPA 537 Version 1.1 Modified	1	18120010	04/30/2018 11:45	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3a-MW1802-180420 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018 12:40
SDG#: SBN15-05

C. T. Male Associates
ELLE Sample #: GW 9572209
ELLE Group #: 1934819
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14670	6:2 fluorotelomersulfonate	27619-97-2	2.7 U	2.7	8.0	1
14672	6:2 fluorotelomersulfonate	27619-97-2	15 U	15	45	1
14670	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.4	1
14672	8:2 fluorotelomersulfonate	39108-34-4	10 U	10	30	1
14670	NEtFOSAA	2991-50-6	0.89 U	0.89	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14672	NEtFOSAA	2991-50-6	5.0 U	5.0	15	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14670	NMeFOSAA	2355-31-9	0.89 U	0.89	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14672	NMeFOSAA	2355-31-9	5.0 U	5.0	15	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14670	**Perfluorobutanesulfonate**	375-73-5	**3.5**	0.27	0.89	1
14672	**Perfluorobutanesulfonate**	375-73-5	**3.6 J**	1.5	5.0	1
14670	**Perfluorobutanoic acid**	375-22-4	**47**	1.8	5.4	1
14672	**Perfluorobutanoic acid**	375-22-4	**63**	10	30	1
14670	**Perfluorodecanoic acid**	335-76-2	**130**	0.89	1.8	1
14672	**Perfluorodecanoic acid**	335-76-2	**130**	5.0	10	1
14670	**Perfluorododecanoic acid**	307-55-1	**0.91**	0.27	0.89	1
14672	Perfluorododecanoic acid	307-55-1	1.5 U	1.5	5.0	1
14670	**Perfluoroheptanoic acid**	375-85-9	**250**	0.27	0.89	1
14672	**Perfluoroheptanoic acid**	375-85-9	**330**	1.5	5.0	1
14670	**Perfluorohexanesulfonate**	355-46-4	**0.71 J**	0.36	1.8	1
14672	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	10	1
14670	**Perfluorohexanoic acid**	307-24-4	**170**	0.36	1.8	1
14672	**Perfluorohexanoic acid**	307-24-4	**170**	2.0	10	1
14670	**Perfluorononanoic acid**	375-95-1	**51**	0.36	1.8	1
14672	**Perfluorononanoic acid**	375-95-1	**56**	2.0	10	1
14670	Perfluorooctanesulfonamide	754-91-6	0.89 U	0.89	2.7	1
14672	Perfluorooctanesulfonamide	754-91-6	5.0 U	5.0	15	1
14670	**Perfluoro-octanesulfonate**	1763-23-1	**12**	0.36	1.8	1
14672	**Perfluoro-octanesulfonate**	1763-23-1	**13**	2.0	10	1
14670	**Perfluorooctanoic acid**	335-67-1	**12,000**	27	89	100
14672	**Perfluorooctanoic acid**	335-67-1	**10,000**	15	50	10
14670	**Perfluoropentanoic acid**	2706-90-3	**110**	1.8	5.4	1
14672	**Perfluoropentanoic acid**	2706-90-3	**110**	10	30	1
14670	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.89	1
14672	Perfluorotetradecanoic acid	376-06-7	1.5 U	1.5	5.0	1
14670	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.89	1
14672	Perfluorotridecanoic acid	72629-94-8	1.5 U	1.5	5.0	1
14670	**Perfluoroundecanoic acid**	2058-94-8	**10**	0.36	1.8	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3a-MW1802-180420 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018 12:40
SDG#: SBN15-05

C. T. Male Associates
ELLE Sample #: GW 9572209
ELLE Group #: 1934819
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14672	**Perfluoroundecanoic acid**	2058-94-8	**12**	2.0	10	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries for several labeled compounds used as extraction standards are outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

The sample injection standard areas and labeled compounds used as extraction standard areas were outside of the QC limits as noted on the QC Summary for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 15:58	Devon M Whooley	1
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 16:44	Devon M Whooley	10
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115016	04/26/2018 17:43	Jason W Knight	1
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115016	04/27/2018 15:23	Jason W Knight	100
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18115016	04/25/2018 08:45	Pamela Rothharpt	1
14671	TOP in Water Post-Oxid Prep	EPA 537 Version 1.1 Modified	1	18120010	04/30/2018 11:45	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3a-MW1805-180420 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018 14:45
SDG#: SBN15-06BKG

C. T. Male Associates
ELLE Sample #: GW 9572210
ELLE Group #: 1934819
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14670	6:2 fluorotelomersulfonate	27619-97-2	2.6 U	2.6	7.9	1
14672	6:2 fluorotelomersulfonate	27619-97-2	15 U	15	45	1
14670	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.3	1
14672	8:2 fluorotelomersulfonate	39108-34-4	9.9 U	9.9	30	1
14670	NEtFOSAA	2991-50-6	0.88 U	0.88	2.6	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14672	NEtFOSAA	2991-50-6	5.0 U	5.0	15	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14670	NMeFOSAA	2355-31-9	0.88 U	0.88	2.6	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14672	NMeFOSAA	2355-31-9	5.0 U	5.0	15	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14670	**Perfluorobutanesulfonate**	375-73-5	**1.7**	0.26	0.88	1
14672	**Perfluorobutanesulfonate**	375-73-5	**1.9 J**	1.5	5.0	1
14670	**Perfluorobutanoic acid**	375-22-4	**17**	1.8	5.3	1
14672	**Perfluorobutanoic acid**	375-22-4	**35**	9.9	30	1
14670	**Perfluorodecanoic acid**	335-76-2	**33**	0.88	1.8	1
14672	**Perfluorodecanoic acid**	335-76-2	**35**	5.0	9.9	1
14670	**Perfluorododecanoic acid**	307-55-1	**1.6**	0.26	0.88	1
14672	Perfluorododecanoic acid	307-55-1	1.5 U	1.5	5.0	1
14670	**Perfluoroheptanoic acid**	375-85-9	**110**	0.26	0.88	1
14672	**Perfluoroheptanoic acid**	375-85-9	**130**	1.5	5.0	1
14670	**Perfluorohexanesulfonate**	355-46-4	**0.64 J**	0.35	1.8	1
14672	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	9.9	1
14670	**Perfluorohexanoic acid**	307-24-4	**60**	0.35	1.8	1
14672	**Perfluorohexanoic acid**	307-24-4	**64**	2.0	9.9	1
14670	**Perfluorononanoic acid**	375-95-1	**11**	0.35	1.8	1
14672	**Perfluorononanoic acid**	375-95-1	**9.6 J**	2.0	9.9	1
14670	Perfluorooctanesulfonamide	754-91-6	0.88 U	0.88	2.6	1
14672	Perfluorooctanesulfonamide	754-91-6	5.0 U	5.0	15	1
14670	**Perfluoro-octanesulfonate**	1763-23-1	**3.9**	0.35	1.8	1
14672	**Perfluoro-octanesulfonate**	1763-23-1	**4.2 J**	2.0	9.9	1
14670	**Perfluorooctanoic acid**	335-67-1	**5,300**	26	88	100
14672	**Perfluorooctanoic acid**	335-67-1	**4,800**	15	50	10
14670	**Perfluoropentanoic acid**	2706-90-3	**34**	1.8	5.3	1
14672	**Perfluoropentanoic acid**	2706-90-3	**34**	9.9	30	1
14670	Perfluorotetradecanoic acid	376-06-7	0.26 U	0.26	0.88	1
14672	Perfluorotetradecanoic acid	376-06-7	1.5 U	1.5	5.0	1
14670	Perfluorotridecanoic acid	72629-94-8	0.26 U	0.26	0.88	1
14672	Perfluorotridecanoic acid	72629-94-8	1.5 U	1.5	5.0	1
14670	**Perfluoroundecanoic acid**	2058-94-8	**7.9**	0.35	1.8	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3a-MW1805-180420 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018 14:45
SDG#: SBN15-06BKG

C. T. Male Associates
ELLE Sample #: GW 9572210
ELLE Group #: 1934819
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14672	**Perfluoroundecanoic acid**	2058-94-8	**8.2**	**J**	2.0	9.9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries for several labeled compounds used as extraction standards are outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

The recovery for the sample injection standard and the labeled compound used as extraction standard is outside the QC acceptance limits as noted on the QC Summary. The recovery for the injection standard and labeled compound used as extraction standard is also outside the QC acceptance limits in the associated matrix spike and matrix spike duplicate, indicating a matrix effect.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 09:29	Devon M Whooley	1
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 17:00	Devon M Whooley	10
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115016	04/26/2018 17:58	Devon M Whooley	1
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115016	04/27/2018 15:37	Jason W Knight	100
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18115016	04/25/2018 08:45	Pamela Rothharpt	1
14671	TOP in Water Post-Oxid Prep	EPA 537 Version 1.1 Modified	1	18120010	04/30/2018 11:45	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3a-MW1805-180420 MS Grab Groundwater SGPP - Bennington**

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018 14:45
SDG#: SBN15-06MS

C. T. Male Associates
ELLE Sample #: GW 9572211
ELLE Group #: 1934819
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14670	**6:2 fluorotelomersulfonate**	27619-97-2	**18**		2.7	8.1	1
14672	**6:2 fluorotelomersulfonate**	27619-97-2	**75**		15	45	1
14670	**8:2 fluorotelomersulfonate**	39108-34-4	**16**		1.8	5.4	1
14672	**8:2 fluorotelomersulfonate**	39108-34-4	**73**		9.9	30	1
14670	**NEtFOSAA**	2991-50-6	**4.7**		0.90	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14672	**NEtFOSAA**	2991-50-6	**28**		5.0	15	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14670	**NMeFOSAA**	2355-31-9	**4.8**		0.90	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14672	**NMeFOSAA**	2355-31-9	**24**		5.0	15	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14670	**Perfluorobutanesulfonate**	375-73-5	**6.6**		0.27	0.90	1
14672	**Perfluorobutanesulfonate**	375-73-5	**25**		1.5	5.0	1
14670	**Perfluorobutanoic acid**	375-22-4	**23**		1.8	5.4	1
14672	**Perfluorobutanoic acid**	375-22-4	**59**		9.9	30	1
14670	**Perfluorodecanoic acid**	335-76-2	**41**		0.90	1.8	1
14672	**Perfluorodecanoic acid**	335-76-2	**64**		5.0	9.9	1
14670	**Perfluorododecanoic acid**	307-55-1	**8.2**		0.27	0.90	1
14672	**Perfluorododecanoic acid**	307-55-1	**29**		1.5	5.0	1
14670	**Perfluoroheptanoic acid**	375-85-9	**120**		0.27	0.90	1
14672	**Perfluoroheptanoic acid**	375-85-9	**170**		1.5	5.0	1
14670	**Perfluorohexanesulfonate**	355-46-4	**5.8**		0.36	1.8	1
14672	**Perfluorohexanesulfonate**	355-46-4	**24**		2.0	9.9	1
14670	**Perfluorohexanoic acid**	307-24-4	**69**		0.36	1.8	1
14672	**Perfluorohexanoic acid**	307-24-4	**86**		2.0	9.9	1
14670	**Perfluorononanoic acid**	375-95-1	**16**		0.36	1.8	1
14672	**Perfluorononanoic acid**	375-95-1	**35**		2.0	9.9	1
14670	**Perfluorooctanesulfonamide**	754-91-6	**5.8**		0.90	2.7	1
14672	**Perfluorooctanesulfonamide**	754-91-6	**27**		5.0	15	1
14670	**Perfluoro-octanesulfonate**	1763-23-1	**9.8**		0.36	1.8	1
14672	**Perfluoro-octanesulfonate**	1763-23-1	**28**		2.0	9.9	1
14670	**Perfluorooctanoic acid**	335-67-1	**4,500**	**E**	0.27	0.90	1
14672	**Perfluorooctanoic acid**	335-67-1	**4,900**	**E**	1.5	5.0	1
14670	**Perfluoropentanoic acid**	2706-90-3	**41**		1.8	5.4	1
14672	**Perfluoropentanoic acid**	2706-90-3	**59**		9.9	30	1
14670	**Perfluorotetradecanoic acid**	376-06-7	**5.7**		0.27	0.90	1
14672	**Perfluorotetradecanoic acid**	376-06-7	**25**		1.5	5.0	1
14670	**Perfluorotridecanoic acid**	72629-94-8	**5.5**		0.27	0.90	1
14672	**Perfluorotridecanoic acid**	72629-94-8	**26**		1.5	5.0	1
14670	**Perfluoroundecanoic acid**	2058-94-8	**14**		0.36	1.8	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3a-MW1805-180420 MS Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018 14:45
SDG#: SBN15-06MS

C. T. Male Associates
ELLE Sample #: GW 9572211
ELLE Group #: 1934819
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14672	**Perfluoroundecanoic acid**	2058-94-8	**38**	2.0	9.9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries for several labeled compounds used as extraction standards are outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 13:07	Devon M Whooley	1
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115016	04/26/2018 16:02	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18115016	04/25/2018 08:45	Pamela Rothharpt	1
14671	TOP in Water Post-Oxid Prep	EPA 537 Version 1.1 Modified	1	18120010	04/30/2018 11:45	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3a-MW1805-180420 MSD Grab Groundwater
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018 14:45
SDG#: SBN15-06MSD

C. T. Male Associates
ELLE Sample #: GW 9572212
ELLE Group #: 1934819
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14670	**6:2 fluorotelomersulfonate**	27619-97-2	**17**		2.7	8.1	1
14672	**6:2 fluorotelomersulfonate**	27619-97-2	**65**		15	45	1
14670	**8:2 fluorotelomersulfonate**	39108-34-4	**16**		1.8	5.4	1
14672	**8:2 fluorotelomersulfonate**	39108-34-4	**85**		10	30	1
14670	**NEtFOSAA**	2991-50-6	**4.8**		0.90	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14672	**NEtFOSAA**	2991-50-6	**27**		5.0	15	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14670	**NMeFOSAA**	2355-31-9	**4.8**		0.90	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14672	**NMeFOSAA**	2355-31-9	**22**		5.0	15	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14670	**Perfluorobutanesulfonate**	375-73-5	**6.7**		0.27	0.90	1
14672	**Perfluorobutanesulfonate**	375-73-5	**27**		1.5	5.0	1
14670	**Perfluorobutanoic acid**	375-22-4	**23**		1.8	5.4	1
14672	**Perfluorobutanoic acid**	375-22-4	**60**		10	30	1
14670	**Perfluorodecanoic acid**	335-76-2	**40**		0.90	1.8	1
14672	**Perfluorodecanoic acid**	335-76-2	**61**		5.0	10	1
14670	**Perfluorododecanoic acid**	307-55-1	**7.4**		0.27	0.90	1
14672	**Perfluorododecanoic acid**	307-55-1	**30**		1.5	5.0	1
14670	**Perfluoroheptanoic acid**	375-85-9	**120**		0.27	0.90	1
14672	**Perfluoroheptanoic acid**	375-85-9	**160**		1.5	5.0	1
14670	**Perfluorohexanesulfonate**	355-46-4	**6.0**		0.36	1.8	1
14672	**Perfluorohexanesulfonate**	355-46-4	**22**		2.0	10	1
14670	**Perfluorohexanoic acid**	307-24-4	**71**		0.36	1.8	1
14672	**Perfluorohexanoic acid**	307-24-4	**92**		2.0	10	1
14670	**Perfluorononanoic acid**	375-95-1	**17**		0.36	1.8	1
14672	**Perfluorononanoic acid**	375-95-1	**38**		2.0	10	1
14670	**Perfluorooctanesulfonamide**	754-91-6	**5.5**		0.90	2.7	1
14672	**Perfluorooctanesulfonamide**	754-91-6	**25**		5.0	15	1
14670	**Perfluoro-octanesulfonate**	1763-23-1	**9.6**		0.36	1.8	1
14672	**Perfluoro-octanesulfonate**	1763-23-1	**30**		2.0	10	1
14670	**Perfluorooctanoic acid**	335-67-1	**4,600**	**E**	0.27	0.90	1
14672	**Perfluorooctanoic acid**	335-67-1	**4,900**	**E**	1.5	5.0	1
14670	**Perfluoropentanoic acid**	2706-90-3	**40**		1.8	5.4	1
14672	**Perfluoropentanoic acid**	2706-90-3	**61**		10	30	1
14670	**Perfluorotetradecanoic acid**	376-06-7	**5.8**		0.27	0.90	1
14672	**Perfluorotetradecanoic acid**	376-06-7	**27**		1.5	5.0	1
14670	**Perfluorotridecanoic acid**	72629-94-8	**5.5**		0.27	0.90	1
14672	**Perfluorotridecanoic acid**	72629-94-8	**29**		1.5	5.0	1
14670	**Perfluoroundecanoic acid**	2058-94-8	**13**		0.36	1.8	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3a-MW1805-180420 MSD Grab Groundwater SGPP - Bennington**

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/21/2018 10:25
Collection Date/Time: 04/20/2018 14:45
SDG#: SBN15-06MSD

C. T. Male Associates
ELLE Sample #: GW 9572212
ELLE Group #: 1934819
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14672	**Perfluoroundecanoic acid**	2058-94-8	**35**	2.0	10	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries for several labeled compounds used as extraction standards are outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 13:22	Devon M Whooley	1
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115016	04/26/2018 18:42	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18115016	04/25/2018 08:45	Pamela Rothharpt	1
14671	TOP in Water Post-Oxid Prep	EPA 537 Version 1.1 Modified	1	18120010	04/30/2018 11:45	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/07/2018 16:29

Group Number: 1934819

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 18115016	Sample number(s): 9572205-9572212		
6:2 fluorotelomersulfonate	3.0 U	3.0	9.0
8:2 fluorotelomersulfonate	2.0 U	2.0	6.0
NEtFOSAA	1.0 U	1.0	3.0
NMeFOSAA	1.0 U	1.0	3.0
Perfluorobutanesulfonate	0.30 U	0.30	1.0
Perfluorobutanoic acid	2.0 U	2.0	6.0
Perfluorodecanoic acid	1.0 U	1.0	2.0
Perfluorododecanoic acid	0.30 U	0.30	1.0
Perfluoroheptanoic acid	0.30 U	0.30	1.0
Perfluorohexanesulfonate	0.40 U	0.40	2.0
Perfluorohexanoic acid	0.40 U	0.40	2.0
Perfluorononanoic acid	0.40 U	0.40	2.0
Perfluorooctanesulfonamide	1.0 U	1.0	3.0
Perfluoro-octanesulfonate	0.40 U	0.40	2.0
Perfluorooctanoic acid	0.30 U	0.30	1.0
Perfluoropentanoic acid	2.0 U	2.0	6.0
Perfluorotetradecanoic acid	0.30 U	0.30	1.0
Perfluorotridecanoic acid	0.30 U	0.30	1.0
Perfluoroundecanoic acid	0.40 U	0.40	2.0
Batch number: 18120010	Sample number(s): 9572205-9572212		
6:2 fluorotelomersulfonate	3.0 U	3.0	9.0
8:2 fluorotelomersulfonate	2.0 U	2.0	6.0
NEtFOSAA	1.0 U	1.0	3.0
NMeFOSAA	1.0 U	1.0	3.0
Perfluorobutanesulfonate	0.30 U	0.30	1.0
Perfluorobutanoic acid	2.0 U	2.0	6.0
Perfluorodecanoic acid	1.0 U	1.0	2.0
Perfluorododecanoic acid	0.30 U	0.30	1.0
Perfluoroheptanoic acid	0.30 U	0.30	1.0
Perfluorohexanesulfonate	0.40 U	0.40	2.0
Perfluorohexanoic acid	0.40 U	0.40	2.0
Perfluorononanoic acid	0.40 U	0.40	2.0
Perfluorooctanesulfonamide	1.0 U	1.0	3.0
Perfluoro-octanesulfonate	0.40 U	0.40	2.0
Perfluorooctanoic acid	0.30 U	0.30	1.0
Perfluoropentanoic acid	2.0 U	2.0	6.0
Perfluorotetradecanoic acid	0.30 U	0.30	1.0
Perfluorotridecanoic acid	0.30 U	0.30	1.0

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/07/2018 16:29

Group Number: 1934819

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluoroundecanoic acid	0.40 U	0.40	2.0

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18115016	Sample number(s): 9572205-9572212								
6:2 fluorotelomersulfonate	15.17	17.61	15.17	17.56	116	116	70-130	0	30
8:2 fluorotelomersulfonate	15.33	19.06	15.33	18.63	124	122	70-130	2	30
NEtFOSAA	5.44	5.14	5.44	5.15	94	95	70-130	0	30
NMeFOSAA	5.44	5.37	5.44	5.29	99	97	70-130	1	30
Perfluorobutanesulfonate	4.81	5.44	4.81	5.31	113	110	70-130	2	30
Perfluorobutanoic acid	5.44	6.16	5.44	6.24	113	115	70-130	1	30
Perfluorodecanoic acid	5.44	6.33	5.44	6.32	116	116	70-130	0	30
Perfluorododecanoic acid	5.44	6.72	5.44	6.46	123	119	70-130	4	30
Perfluoroheptanoic acid	5.44	6.46	5.44	6.63	119	122	70-130	3	30
Perfluorohexanesulfonate	5.14	5.75	5.14	5.85	112	114	70-130	2	30
Perfluorohexanoic acid	5.44	6.19	5.44	6.10	114	112	70-130	1	30
Perfluorononanoic acid	5.44	6.40	5.44	6.58	118	121	70-130	3	30
Perfluorooctanesulfonamide	5.44	5.87	5.44	5.85	108	108	70-130	0	30
Perfluoro-octanesulfonate	5.20	5.69	5.20	5.74	109	110	70-130	1	30
Perfluorooctanoic acid	5.44	6.55	5.44	6.67	120	123	70-130	2	30
Perfluoropentanoic acid	5.44	6.02	5.44	6.18	111	114	70-130	3	30
Perfluorotetradecanoic acid	5.44	6.17	5.44	6.28	113	115	70-130	2	30
Perfluorotridecanoic acid	5.44	6.16	5.44	6.21	113	114	70-130	1	30
Perfluoroundecanoic acid	5.44	6.03	5.44	5.58	111	103	70-130	8	30
Batch number: 18120010	Sample number(s): 9572205-9572212								
6:2 fluorotelomersulfonate	15.17	14.41	15.17	12.98	95	86	70-130	10	30
8:2 fluorotelomersulfonate	15.33	17.05	15.33	16.01	111	104	70-130	6	30
NEtFOSAA	5.44	4.32	5.44	4.52	79	83	70-130	5	30
NMeFOSAA	5.44	3.51	5.44	3.81	64*	70	70-130	8	30
Perfluorobutanesulfonate	4.81	4.94	4.81	4.82	103	100	70-130	2	30
Perfluorobutanoic acid	5.44	5.76	5.44	5.56	106	102	70-130	4	30
Perfluorodecanoic acid	5.44	5.69	5.44	5.74	105	106	70-130	1	30
Perfluorododecanoic acid	5.44	5.80	5.44	5.79	107	107	70-130	0	30
Perfluoroheptanoic acid	5.44	6.30	5.44	6.38	116	117	70-130	1	30
Perfluorohexanesulfonate	5.14	4.91	5.14	4.62	95	90	70-130	6	30
Perfluorohexanoic acid	5.44	5.70	5.44	5.41	105	99	70-130	5	30
Perfluorononanoic acid	5.44	5.47	5.44	5.68	101	104	70-130	4	30
Perfluorooctanesulfonamide	5.44	4.63	5.44	4.43	85	81	70-130	5	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/07/2018 16:29

Group Number: 1934819

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	5.20	5.82	5.20	5.04	112	97	70-130	14	30
Perfluorooctanoic acid	5.44	5.74	5.44	5.30	106	97	70-130	8	30
Perfluoropentanoic acid	5.44	5.64	5.44	5.39	104	99	70-130	5	30
Perfluorotetradecanoic acid	5.44	5.43	5.44	5.50	100	101	70-130	1	30
Perfluorotridecanoic acid	5.44	5.57	5.44	5.74	102	106	70-130	3	30
Perfluoroundecanoic acid	5.44	5.62	5.44	5.70	103	105	70-130	1	30

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18115016	Sample number(s): 9572205-9572212 UNSPK: 9572210									
6:2 fluorotelomersulfonate	2.6 U	13.6	17.92	13.72	17.19	132*	125	70-130	4	30
8:2 fluorotelomersulfonate	1.8 U	13.74	15.84	13.87	16.32	115	118	70-130	3	30
NEtFOSAA	0.88 U	4.88	4.68	4.92	4.83	96	98	70-130	3	30
NMeFOSAA	0.88 U	4.88	4.79	4.92	4.79	98	97	70-130	0	30
Perfluorobutanesulfonate	1.66	4.31	6.57	4.35	6.67	114	115	70-130	1	30
Perfluorobutanoic acid	17	4.88	22.88	4.92	23.06	121	123	70-130	1	30
Perfluorodecanoic acid	33.1	4.88	41.12	4.92	39.68	164 (2)	134 (2)	70-130	4	30
Perfluorododecanoic acid	1.64	4.88	8.21	4.92	7.44	135*	118	70-130	10	30
Perfluoroheptanoic acid	109.69	4.88	119.67	4.92	117.95	205 (2)	168 (2)	70-130	1	30
Perfluorohexanesulfonate	0.645	4.61	5.82	4.65	6.03	112	116	70-130	4	30
Perfluorohexanoic acid	59.77	4.88	68.8	4.92	71.24	185 (2)	233 (2)	70-130	3	30
Perfluorononanoic acid	10.84	4.88	15.9	4.92	16.94	104	124	70-130	6	30
Perfluorooctanesulfonamide	0.88 U	4.88	5.80	4.92	5.53	119	112	70-130	5	30
Perfluoro-octanesulfonate	3.92	4.66	9.80	4.70	9.63	126	121	70-130	2	30
Perfluorooctanoic acid	5337.89	4.88	4503.01	4.92	4594.25	-17118 (2)	-15110 (2)	70-130	2	30
Perfluoropentanoic acid	33.81	4.88	40.71	4.92	39.78	142 (2)	121 (2)	70-130	2	30
Perfluorotetradecanoic acid	0.26 U	4.88	5.72	4.92	5.76	117	117	70-130	1	30
Perfluorotridecanoic acid	0.26 U	4.88	5.52	4.92	5.53	113	112	70-130	0	30
Perfluoroundecanoic acid	7.86	4.88	13.57	4.92	13.28	117	110	70-130	2	30
Batch number: 18120010	Sample number(s): 9572205-9572212 UNSPK: 9572210									
6:2 fluorotelomersulfonate	15 U	75.37	75.28	75.46	65.22	100	86	70-130	14	30
8:2 fluorotelomersulfonate	9.9 U	76.17	73.2	76.26	84.98	96	111	70-130	15	30
NEtFOSAA	5.0 U	27.03	28.14	27.07	26.62	104	98	70-130	6	30
NMeFOSAA	5.0 U	27.03	23.6	27.07	21.91	87	81	70-130	7	30
Perfluorobutanesulfonate	1.87	23.91	25.17	23.94	26.52	97	103	70-130	5	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/07/2018 16:29

Group Number: 1934819

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorobutanoic acid	34.89	27.03	59.42	27.07	60.2	91	94	70-130	1	30
Perfluorodecanoic acid	34.51	27.03	63.83	27.07	61.2	108	99	70-130	4	30
Perfluorododecanoic acid	1.5 U	27.03	29.23	27.07	30.19	108	112	70-130	3	30
Perfluoroheptanoic acid	128.02	27.03	170.51	27.07	160.07	157 (2)	118 (2)	70-130	6	30
Perfluorohexanesulfonate	2.0 U	25.56	23.94	25.59	22.02	94	86	70-130	8	30
Perfluorohexanoic acid	64.36	27.03	85.59	27.07	91.51	79	100	70-130	7	30
Perfluorononanoic acid	9.56	27.03	35.2	27.07	38.06	95	105	70-130	8	30
Perfluorooctanesulfonamide	5.0 U	27.03	26.56	27.07	24.52	98	91	70-130	8	30
Perfluoro-octanesulfonate	4.24	25.84	28.27	25.87	30.49	93	101	70-130	8	30
Perfluorooctanoic acid	4760.24	27.03	4892.23	27.07	4878.04	488 (2)	435 (2)	70-130	0	30
Perfluoropentanoic acid	34.34	27.03	59.29	27.07	61.43	92	100	70-130	4	30
Perfluorotetradecanoic acid	1.5 U	27.03	25.18	27.07	26.72	93	99	70-130	6	30
Perfluorotridecanoic acid	1.5 U	27.03	25.56	27.07	29.14	95	108	70-130	13	30
Perfluoroundecanoic acid	8.19	27.03	37.73	27.07	34.87	109	99	70-130	8	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TOP Pre-Oxidation (18)
Batch number: 18115016

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9572205	87	90	79	94	83	92
9572206	70	67	60	78	65	75
9572207	87	110	114	240*	198*	234*
9572208	89	109	112	168*	150*	177*
9572209	84	91	102	253*	201*	240*
9572210	90	96	95	218*	183*	220*
9572211	87	98	96	217*	182*	206*
9572212	85	94	90	196*	169*	191*
Blank	85	88	76	92	79	91
LCS	84	85	77	87	76	90
LCSD	84	84	75	89	74	87
MS	87	98	96	217*	182*	206*
MSD	85	94	90	196*	169*	191*
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9572205	104	92	98	111	87	88

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/07/2018 16:29

Group Number: 1934819

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TOP Pre-Oxidation (18)
Batch number: 18115016

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9572206	78	74	73	87	78	70
9572207	90	56	89	117	88	94
9572208	78	74	93	96	88	83
9572209	95	51	83	103	82	83
9572210	81	67	93	98	93	83
9572211	82	65	86	103	83	79
9572212	74	59	84	93	83	82
Blank	95	90	82	93	87	79
LCS	84	88	83	89	84	82
LCSD	94	86	87	93	93	87
MS	82	65	86	103	83	79
MSD	74	59	84	93	83	82
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9572205	89	87	91	83	78	73
9572206	75	75	83	71	67	34*
9572207	94	92	109	87	77	75
9572208	85	88	100	87	76	71
9572209	101	93	104	87	77	74
9572210	95	96	106	92	80	79
9572211	92	90	102	85	81	41*
9572212	88	93	101	86	82	54*
Blank	97	98	101	92	87	78
LCS	87	89	101	86	83	55*
LCSD	89	96	100	85	82	73
MS	92	90	102	85	81	41*
MSD	88	93	101	86	82	54*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: TOP Post-Oxidation (18)
Batch number: 18120010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	RES-13C2-4:2-FTS	13C5-PFHxA	13C3-PFHxS
9572205	71	92	88	0	99	100
9572206	83	106	106	0	113	106
9572207	95	99	95	1	143*	101
9572208	101	103	105	0	113	98
9572209	90	94	93	1	143*	99
9572210	97	102	98	0	129*	93
9572211	97	102	100	6	143*	99

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/07/2018 16:29

Group Number: 1934819

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TOP Post-Oxidation (18)
Batch number: 18120010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	RES-13C2-4:2-FTS	13C5-PFHxA	13C3-PFHxS
9572212	94	98	92	7	136*	112
Blank	95	90	88	127*	106	94
LCS	98	97	98	135*	100	105
LCSD	91	91	89	129*	93	94
MS	97	102	100	6	143*	99
MSD	94	98	92	7	136*	112
Limits:	33-123	39-135	26-148	0-10	31-128	34-126

	13C4-PFHpA	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA
9572205	104	116	95	87	95	94
9572206	121	123	106	105	102	113
9572207	129*	61	79	101	123	103
9572208	118	92	86	101	106	102
9572209	137*	61	70	97	130	103
9572210	131*	81	85	95	139*	98
9572211	135*	76	94	104	134	100
9572212	131*	86	90	101	129	89
Blank	107	125	100	95	86	100
LCS	103	127	101	99	94	103
LCSD	94	129	95	93	85	90
MS	135*	76	94	104	134	100
MSD	131*	86	90	101	129	89
Limits:	35-126	39-140	43-112	43-115	32-134	40-115

	13C2-8:2-FTS	RES-d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA
9572205	115	1	98	86	103	91
9572206	110	2	115	103	107	98
9572207	114	10	103	90	100	96
9572208	113	10	105	94	100	103
9572209	109	8	100	97	96	97
9572210	115	6	103	96	98	97
9572211	115	9	104	99	106	102
9572212	118	3	99	92	88	93
Blank	110	86*	100	109	100	95
LCS	119	110*	106	131	102	98
LCSD	112	85*	89	108	89	90
MS	115	9	104	99	106	102
MSD	118	3	99	92	88	93
Limits:	39-137	0-10	30-128	21-135	28-127	26-119

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1934819
Reported: 05/07/2018 16:29

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TOP Post-Oxidation (18)
Batch number: 18120010

	13C8-PFOSA	PRS-13C2-PFHxA	PRS-13C4-PFOA	PRS-13C2-PFUnDA
9572205	70	109	90	109
9572206	86	121	91	113
9572207	47*	156*	68*	110
9572208	48*	128	76	118
9572209	52*	145*	64*	102
9572210	41*	135*	79	103
9572211	63*	153*	85	113
9572212	73	148*	79	100
Blank	101	0*	2*	0*
LCS	86	0*	2*	0*
LCSD	81	0*	2*	0*
MS	63*	153*	85	113
MSD	73	148*	79	100
Limits:	70-130	70-130	70-130	70-130

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1934819 Sample #: 9572205-12 COC#: 18936

Client: C.T. Male Associates

Project Name/#: SGPP - ~~McCaffrey~~ Bennington Site ID:

Project Manager: Kirk Moline P.O. #: ~~14.4756~~ 16.6131

Sampler: CB, RH

Phone #: (518) 786-7400 Quote #: 214135

State where sample(s) were collected: ~~NY~~ VT

Matrix: Sediment ☐ / Ground ☒ / Surface ☐ / Soil ☐ / Water: Potable ☐ NPDES ☐ / Other: Rinse water

Analyses Requested: ~~21 PFAS (EPA 537 mod)~~; PFAS TOP Assay

For Lab Use Only: SF#: 303217 SCR#: 223018

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other: Rinse water	Total # of Containers	~~21 PFAS (EPA 537 mod)~~	PFAS TOP Assay	Remarks
SG3-LTB01-180420	4/20/18	—	X				X	3		X	
SG3-FTB01-180420	↓	1430	X				X	3		X	
SG3-MW02-180420	↓	1210	X			X		4		X	
SG3-MW04-180420	↓	1410	X			X		4		X	
SG3a-MW1802-180420	↓	1240	X			X		4		X	
SG3a-MW1805-180420	↓	1445	X			X		12		X	MS/MSD

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: k.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☑

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by	Date	Time	Received by	Date	Time
Cliff Beal (signature)	4/20/18	1700			
			(signature)	4/21/18	1025

Airbill No.:

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 1.6 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 214405

Group Number(s): 1934819

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/21/2018 10:25
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	3
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved

Unpacked by Simon Nies (25112) at 16:00 on 04/21/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.6	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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TOP Assay Summary

Sample Description: SG3-LTB01-180420 Water
SGPP - Bennington

Project Name: SGPP - Bennington

ELLE Sample # 9572205

Compound	CAS Number	Pre-Oxidation Analysis Result	Post-Oxidation Analysis Result	Net Difference	Units
6:2 fluorotelomersulfonate	27619-97-2	ND	ND		ng/l
8:2 fluorotelomersulfonate	39108-34-4	ND	ND		ng/l
NEtFOSAA	2991-50-6	ND	ND		ng/l
NMeFOSAA	2355-31-9	ND	ND		ng/l
Perfluoro-octanesulfonate	1763-23-1	ND	2.6	2.6	ng/l
Perfluorobutanesulfonate	375-73-5	ND	ND		ng/l
Perfluorobutanoic acid	375-22-4	ND	14	14	ng/l
Perfluorodecanoic acid	335-76-2	ND	ND		ng/l
Perfluorododecanoic acid	307-55-1	ND	ND		ng/l
Perfluoroheptanoic acid	375-85-9	ND	10	10	ng/l
Perfluorohexanesulfonate	355-46-4	ND	ND		ng/l
Perfluorohexanoic acid	307-24-4	ND	2.9	2.9	ng/l
Perfluorononanoic acid	375-95-1	ND	ND		ng/l
Perfluorooctanesulfonamide	754-91-6	ND	ND		ng/l
Perfluorooctanoic acid	335-67-1	ND	140	140	ng/l
Perfluoropentanoic acid	2706-90-3	ND	ND		ng/l
Perfluorotetradecanoic acid	376-06-7	ND	ND		ng/l
Perfluorotridecanoic acid	72629-94-8	ND	ND		ng/l
Perfluoroundecanoic acid	2058-94-8	ND	ND		ng/l
Total PFCA		0	166.9	166.9	ng/l
Total PFSA		0	2.6	2.6	ng/l

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TOP Assay Summary

Sample Description: SG3-FTB01-180420 Grab Water
SGPP - Bennington

Project Name: SGPP - Bennington

ELLE Sample # 9572206

Compound	CAS Number	Pre-Oxidation Analysis Result	Post-Oxidation Analysis Result	Net Difference	Units
6:2 fluorotelomersulfonate	27619-97-2	ND	ND		ng/l
8:2 fluorotelomersulfonate	39108-34-4	ND	ND		ng/l
NEtFOSAA	2991-50-6	ND	ND		ng/l
NMeFOSAA	2355-31-9	ND	ND		ng/l
Perfluoro-octanesulfonate	1763-23-1	ND	3.8	3.8	ng/l
Perfluorobutanesulfonate	375-73-5	ND	ND		ng/l
Perfluorobutanoic acid	375-22-4	ND	13	13	ng/l
Perfluorodecanoic acid	335-76-2	ND	ND		ng/l
Perfluorododecanoic acid	307-55-1	ND	ND		ng/l
Perfluoroheptanoic acid	375-85-9	ND	10	10	ng/l
Perfluorohexanesulfonate	355-46-4	ND	ND		ng/l
Perfluorohexanoic acid	307-24-4	ND	3.2	3.2	ng/l
Perfluorononanoic acid	375-95-1	ND	ND		ng/l
Perfluorooctanesulfonamide	754-91-6	ND	ND		ng/l
Perfluorooctanoic acid	335-67-1	0.32	120	119.68	ng/l
Perfluoropentanoic acid	2706-90-3	ND	ND		ng/l
Perfluorotetradecanoic acid	376-06-7	ND	ND		ng/l
Perfluorotridecanoic acid	72629-94-8	ND	ND		ng/l
Perfluoroundecanoic acid	2058-94-8	ND	ND		ng/l
Total PFCA		0.32	146.2	145.88	ng/l
Total PFSA		0	3.8	3.8	ng/l

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TOP Assay Summary

Sample Description: SG3-MW02-180420 Grab Groundwater
SGPP - Bennington

Project Name: SGPP - Bennington

ELLE Sample # 9572207

Compound	CAS Number	Pre-Oxidation Analysis Result	Post-Oxidation Analysis Result	Net Difference	Units
6:2 fluorotelomersulfonate	27619-97-2	ND	ND		ng/l
8:2 fluorotelomersulfonate	39108-34-4	ND	ND		ng/l
NEtFOSAA	2991-50-6	ND	ND		ng/l
NMeFOSAA	2355-31-9	ND	ND		ng/l
Perfluoro-octanesulfonate	1763-23-1	10	9.2	-0.80	ng/l
Perfluorobutanesulfonate	375-73-5	3.5	3.6	0.1	ng/l
Perfluorobutanoic acid	375-22-4	30	45	15	ng/l
Perfluorodecanoic acid	335-76-2	65	64	-1	ng/l
Perfluorododecanoic acid	307-55-1	5.7	ND	-5.70	ng/l
Perfluoroheptanoic acid	375-85-9	160	180	20	ng/l
Perfluorohexanesulfonate	355-46-4	2.1	ND	-2.10	ng/l
Perfluorohexanoic acid	307-24-4	110	98	-12	ng/l
Perfluorononanoic acid	375-95-1	21	23	2	ng/l
Perfluorooctanesulfonamide	754-91-6	2.0	ND	-2	ng/l
Perfluorooctanoic acid	335-67-1	10000	9300	-700	ng/l
Perfluoropentanoic acid	2706-90-3	56	55	-1	ng/l
Perfluorotetradecanoic acid	376-06-7	ND	ND		ng/l
Perfluorotridecanoic acid	72629-94-8	ND	ND		ng/l
Perfluoroundecanoic acid	2058-94-8	19	19	0	ng/l
Total PFCA		10466.7	9784	-682.70	ng/l
Total PFSA		15.6	12.8	-2.80	ng/l

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TOP Assay Summary

Sample Description: SG3-MW04-180420 Grab Groundwater
SGPP - Bennington

Project Name: SGPP - Bennington

ELLE Sample # 9572208

Compound	CAS Number	Pre-Oxidation Analysis Result	Post-Oxidation Analysis Result	Net Difference	Units
6:2 fluorotelomersulfonate	27619-97-2	ND	ND		ng/l
8:2 fluorotelomersulfonate	39108-34-4	ND	ND		ng/l
NEtFOSAA	2991-50-6	ND	ND		ng/l
NMeFOSAA	2355-31-9	ND	ND		ng/l
Perfluoro-octanesulfonate	1763-23-1	1.5	ND	-1.50	ng/l
Perfluorobutanesulfonate	375-73-5	2.3	2.3	0	ng/l
Perfluorobutanoic acid	375-22-4	8.0	24	16	ng/l
Perfluorodecanoic acid	335-76-2	ND	ND		ng/l
Perfluorododecanoic acid	307-55-1	ND	ND		ng/l
Perfluoroheptanoic acid	375-85-9	57	64	7	ng/l
Perfluorohexanesulfonate	355-46-4	1.2	ND	-1.20	ng/l
Perfluorohexanoic acid	307-24-4	29	29	0	ng/l
Perfluorononanoic acid	375-95-1	2.0	2.4	0.4	ng/l
Perfluorooctanesulfonamide	754-91-6	ND	ND		ng/l
Perfluorooctanoic acid	335-67-1	2300	2200	-100	ng/l
Perfluoropentanoic acid	2706-90-3	11	11	0	ng/l
Perfluorotetradecanoic acid	376-06-7	ND	ND		ng/l
Perfluorotridecanoic acid	72629-94-8	ND	ND		ng/l
Perfluoroundecanoic acid	2058-94-8	ND	ND		ng/l
Total PFCA		2407	2330.4	-76.60	ng/l
Total PFSA		5	2.3	-2.70	ng/l

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TOP Assay Summary

Sample Description: SG3a-MW1802-180420 Grab Groundwater
SGPP - Bennington

Project Name: SGPP - Bennington

ELLE Sample # 9572209

Compound	CAS Number	Pre-Oxidation Analysis Result	Post-Oxidation Analysis Result	Net Difference	Units
6:2 fluorotelomersulfonate	27619-97-2	ND	ND		ng/l
8:2 fluorotelomersulfonate	39108-34-4	ND	ND		ng/l
NEtFOSAA	2991-50-6	ND	ND		ng/l
NMeFOSAA	2355-31-9	ND	ND		ng/l
Perfluoro-octanesulfonate	1763-23-1	12	13	1	ng/l
Perfluorobutanesulfonate	375-73-5	3.5	3.6	0.1	ng/l
Perfluorobutanoic acid	375-22-4	47	63	16	ng/l
Perfluorodecanoic acid	335-76-2	130	130	0	ng/l
Perfluorododecanoic acid	307-55-1	0.91	ND	-0.910	ng/l
Perfluoroheptanoic acid	375-85-9	250	330	80	ng/l
Perfluorohexanesulfonate	355-46-4	0.71	ND	-0.710	ng/l
Perfluorohexanoic acid	307-24-4	170	170	0	ng/l
Perfluorononanoic acid	375-95-1	51	56	5	ng/l
Perfluorooctanesulfonamide	754-91-6	ND	ND		ng/l
Perfluorooctanoic acid	335-67-1	12000	10000	-2000	ng/l
Perfluoropentanoic acid	2706-90-3	110	110	0	ng/l
Perfluorotetradecanoic acid	376-06-7	ND	ND		ng/l
Perfluorotridecanoic acid	72629-94-8	ND	ND		ng/l
Perfluoroundecanoic acid	2058-94-8	10	12	2	ng/l
Total PFCA		12768.91	10871	-1897.910	ng/l
Total PFSA		16.21	16.6	0.39	ng/l

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TOP Assay Summary

Sample Description: SG3a-MW1805-180420 Grab Groundwater
SGPP - Bennington

Project Name: SGPP - Bennington

ELLE Sample # 9572210

Compound	CAS Number	Pre-Oxidation Analysis Result	Post-Oxidation Analysis Result	Net Difference	Units
6:2 fluorotelomersulfonate	27619-97-2	ND	ND		ng/l
8:2 fluorotelomersulfonate	39108-34-4	ND	ND		ng/l
NEtFOSAA	2991-50-6	ND	ND		ng/l
NMeFOSAA	2355-31-9	ND	ND		ng/l
Perfluoro-octanesulfonate	1763-23-1	3.9	4.2	0.3	ng/l
Perfluorobutanesulfonate	375-73-5	1.7	1.9	0.2	ng/l
Perfluorobutanoic acid	375-22-4	17	35	18	ng/l
Perfluorodecanoic acid	335-76-2	33	35	2	ng/l
Perfluorododecanoic acid	307-55-1	1.6	ND	-1.60	ng/l
Perfluoroheptanoic acid	375-85-9	110	130	20	ng/l
Perfluorohexanesulfonate	355-46-4	0.64	ND	-0.640	ng/l
Perfluorohexanoic acid	307-24-4	60	64	4	ng/l
Perfluorononanoic acid	375-95-1	11	9.6	-1.40	ng/l
Perfluorooctanesulfonamide	754-91-6	ND	ND		ng/l
Perfluorooctanoic acid	335-67-1	5300	4800	-500	ng/l
Perfluoropentanoic acid	2706-90-3	34	34	0	ng/l
Perfluorotetradecanoic acid	376-06-7	ND	ND		ng/l
Perfluorotridecanoic acid	72629-94-8	ND	ND		ng/l
Perfluoroundecanoic acid	2058-94-8	7.9	8.2	0.3	ng/l
Total PFCA		5574.5	5115.8	-458.70	ng/l
Total PFSA		6.24	6.1	-0.140	ng/l

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TOP Assay Summary

Sample Description: SG3a-MW1805-180420 MS Grab Groundwater
SGPP - Bennington

Project Name: SGPP - Bennington

ELLE Sample # 9572211

Compound	CAS Number	Pre-Oxidation Analysis Result	Post-Oxidation Analysis Result	Net Difference	Units
6:2 fluorotelomersulfonate	27619-97-2	18	75	57	ng/l
8:2 fluorotelomersulfonate	39108-34-4	16	73	57	ng/l
NEtFOSAA	2991-50-6	4.7	28	23.3	ng/l
NMeFOSAA	2355-31-9	4.8	24	19.2	ng/l
Perfluoro-octanesulfonate	1763-23-1	9.8	28	18.2	ng/l
Perfluorobutanesulfonate	375-73-5	6.6	25	18.4	ng/l
Perfluorobutanoic acid	375-22-4	23	59	36	ng/l
Perfluorodecanoic acid	335-76-2	41	64	23	ng/l
Perfluorododecanoic acid	307-55-1	8.2	29	20.8	ng/l
Perfluoroheptanoic acid	375-85-9	120	170	50	ng/l
Perfluorohexanesulfonate	355-46-4	5.8	24	18.2	ng/l
Perfluorohexanoic acid	307-24-4	69	86	17	ng/l
Perfluorononanoic acid	375-95-1	16	35	19	ng/l
Perfluorooctanesulfonamide	754-91-6	5.8	27	21.2	ng/l
Perfluorooctanoic acid	335-67-1	4500	4900	400	ng/l
Perfluoropentanoic acid	2706-90-3	41	59	18	ng/l
Perfluorotetradecanoic acid	376-06-7	5.7	25	19.3	ng/l
Perfluorotridecanoic acid	72629-94-8	5.5	26	20.5	ng/l
Perfluoroundecanoic acid	2058-94-8	14	38	24	ng/l
Total PFCA		4843.4	5491	647.6	ng/l
Total PFSA		22.2	77	54.8	ng/l

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TOP Assay Summary

Sample Description: SG3a-MW1805-180420 MSD Grab Groundwater
SGPP - Bennington

Project Name: SGPP - Bennington

ELLE Sample # 9572212

Compound	CAS Number	Pre-Oxidation Analysis Result	Post-Oxidation Analysis Result	Net Difference	Units
6:2 fluorotelomersulfonate	27619-97-2	17	65	48	ng/l
8:2 fluorotelomersulfonate	39108-34-4	16	85	69	ng/l
NEtFOSAA	2991-50-6	4.8	27	22.2	ng/l
NMeFOSAA	2355-31-9	4.8	22	17.2	ng/l
Perfluoro-octanesulfonate	1763-23-1	9.6	30	20.4	ng/l
Perfluorobutanesulfonate	375-73-5	6.7	27	20.3	ng/l
Perfluorobutanoic acid	375-22-4	23	60	37	ng/l
Perfluorodecanoic acid	335-76-2	40	61	21	ng/l
Perfluorododecanoic acid	307-55-1	7.4	30	22.6	ng/l
Perfluoroheptanoic acid	375-85-9	120	160	40	ng/l
Perfluorohexanesulfonate	355-46-4	6.0	22	16	ng/l
Perfluorohexanoic acid	307-24-4	71	92	21	ng/l
Perfluorononanoic acid	375-95-1	17	38	21	ng/l
Perfluorooctanesulfonamide	754-91-6	5.5	25	19.5	ng/l
Perfluorooctanoic acid	335-67-1	4600	4900	300	ng/l
Perfluoropentanoic acid	2706-90-3	40	61	21	ng/l
Perfluorotetradecanoic acid	376-06-7	5.8	27	21.2	ng/l
Perfluorotridecanoic acid	72629-94-8	5.5	29	23.5	ng/l
Perfluoroundecanoic acid	2058-94-8	13	35	22	ng/l
Total PFCA		4942.7	5493	550.3	ng/l
Total PFSA		22.3	79	56.7	ng/l

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: May 07, 2018 16:29

Project: SGPP - Bennington

Account #: 37191
Group Number: 1935271
SDG: SBN16
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB01-180423 Blank Water	04/23/2018	9573882
SG3-FTB01-180423 Grab Blank Water	04/23/2018 09:30	9573883
SG3-MW07S-180423 Grab Groundwater	04/23/2018 14:35	9573884
SG3-FD01-180423 Grab Groundwater	04/23/2018	9573885

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1935271

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous

Sample #s: 9573882, 9573883, 9573884, 9573885

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18115018 (Sample number(s): 9573882-9573885)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9573882, 9573883, 9573884, LCS

Batch #: 18120010 (Sample number(s): 9573882-9573885 UNSPK: P572210)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: NMeFOSAA

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, Perfluoroheptanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) Blank, LCS, LCSD, MS, MSD

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9573884, 9573885, Blank, LCS, LCSD, MS

Sample Description: **SG3-LTB01-180423 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018
SDG#: SBN16-01TB

C. T. Male Associates
ELLE Sample #: GW 9573882
ELLE Group #: 1935271
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14670	6:2 fluorotelomersulfonate	27619-97-2	2.7 U	2.7	8.1	1
14672	6:2 fluorotelomersulfonate	27619-97-2	15 U	15	45	1
14670	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.4	1
14672	8:2 fluorotelomersulfonate	39108-34-4	10 U	10	30	1
14670	NEtFOSAA	2991-50-6	0.90 U	0.90	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14672	NEtFOSAA	2991-50-6	5.0 U	5.0	15	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14670	NMeFOSAA	2355-31-9	0.90 U	0.90	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14672	NMeFOSAA	2355-31-9	5.0 U	5.0	15	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14670	Perfluorobutanesulfonate	375-73-5	0.27 U	0.27	0.90	1
14672	Perfluorobutanesulfonate	375-73-5	1.5 U	1.5	5.0	1
14670	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.4	1
14672	**Perfluorobutanoic acid**	375-22-4	**14 J**	10	30	1
14670	Perfluorodecanoic acid	335-76-2	0.90 U	0.90	1.8	1
14672	Perfluorodecanoic acid	335-76-2	5.0 U	5.0	10	1
14670	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.90	1
14672	Perfluorododecanoic acid	307-55-1	1.5 U	1.5	5.0	1
14670	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.90	1
14672	**Perfluoroheptanoic acid**	375-85-9	**11**	1.5	5.0	1
14670	Perfluorohexanesulfonate	355-46-4	0.36 U	0.36	1.8	1
14672	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	10	1
14670	Perfluorohexanoic acid	307-24-4	0.36 U	0.36	1.8	1
14672	**Perfluorohexanoic acid**	307-24-4	**3.4 J**	2.0	10	1
14670	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14672	Perfluorononanoic acid	375-95-1	2.0 U	2.0	10	1
14670	Perfluorooctanesulfonamide	754-91-6	0.90 U	0.90	2.7	1
14672	Perfluorooctanesulfonamide	754-91-6	5.0 U	5.0	15	1
14670	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.8	1
14672	**Perfluoro-octanesulfonate**	1763-23-1	**2.6 J**	2.0	10	1
14670	Perfluorooctanoic acid	335-67-1	0.27 U	0.27	0.90	1
14672	**Perfluorooctanoic acid**	335-67-1	**140**	1.5	5.0	1
14670	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.4	1
14672	Perfluoropentanoic acid	2706-90-3	10 U	10	30	1
14670	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.90	1
14672	Perfluorotetradecanoic acid	376-06-7	1.5 U	1.5	5.0	1
14670	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.90	1
14672	Perfluorotridecanoic acid	72629-94-8	1.5 U	1.5	5.0	1
14670	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-LTB01-180423 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018
SDG#: SBN16-01TB

C. T. Male Associates
ELLE Sample #: GW 9573882
ELLE Group #: 1935271
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14672	Perfluoroundecanoic acid	2058-94-8	2.0 U	2.0	10	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 09:45	Devon M Whooley	1
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115018	04/26/2018 19:54	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18115018	04/25/2018 08:45	Pamela Rothharpt	1
14671	TOP in Water Post-Oxid Prep	EPA 537 Version 1.1 Modified	1	18120010	04/30/2018 11:45	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FTB01-180423 Grab Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018 09:30
SDG#: SBN16-02TB

C. T. Male Associates
ELLE Sample #: GW 9573883
ELLE Group #: 1935271
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14670	6:2 fluorotelomersulfonate	27619-97-2	2.7 U	2.7	8.1	1
14672	6:2 fluorotelomersulfonate	27619-97-2	15 U	15	45	1
14670	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.4	1
14672	8:2 fluorotelomersulfonate	39108-34-4	10 U	10	30	1
14670	NEtFOSAA	2991-50-6	0.90 U	0.90	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14672	NEtFOSAA	2991-50-6	5.0 U	5.0	15	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14670	NMeFOSAA	2355-31-9	0.90 U	0.90	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14672	NMeFOSAA	2355-31-9	5.0 U	5.0	15	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14670	Perfluorobutanesulfonate	375-73-5	0.27 U	0.27	0.90	1
14672	Perfluorobutanesulfonate	375-73-5	1.5 U	1.5	5.0	1
14670	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.4	1
14672	**Perfluorobutanoic acid**	375-22-4	**14 J**	10	30	1
14670	Perfluorodecanoic acid	335-76-2	0.90 U	0.90	1.8	1
14672	Perfluorodecanoic acid	335-76-2	5.0 U	5.0	10	1
14670	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.90	1
14672	Perfluorododecanoic acid	307-55-1	1.5 U	1.5	5.0	1
14670	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.90	1
14672	**Perfluoroheptanoic acid**	375-85-9	**11**	1.5	5.0	1
14670	Perfluorohexanesulfonate	355-46-4	0.36 U	0.36	1.8	1
14672	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	10	1
14670	Perfluorohexanoic acid	307-24-4	0.36 U	0.36	1.8	1
14672	**Perfluorohexanoic acid**	307-24-4	**3.1 J**	2.0	10	1
14670	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14672	Perfluorononanoic acid	375-95-1	2.0 U	2.0	10	1
14670	Perfluorooctanesulfonamide	754-91-6	0.90 U	0.90	2.7	1
14672	Perfluorooctanesulfonamide	754-91-6	5.0 U	5.0	15	1
14670	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.8	1
14672	**Perfluoro-octanesulfonate**	1763-23-1	**2.2 J**	2.0	10	1
14670	Perfluorooctanoic acid	335-67-1	0.27 U	0.27	0.90	1
14672	**Perfluorooctanoic acid**	335-67-1	**120**	1.5	5.0	1
14670	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.4	1
14672	Perfluoropentanoic acid	2706-90-3	10 U	10	30	1
14670	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.90	1
14672	Perfluorotetradecanoic acid	376-06-7	1.5 U	1.5	5.0	1
14670	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.90	1
14672	Perfluorotridecanoic acid	72629-94-8	1.5 U	1.5	5.0	1
14670	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FTB01-180423 Grab Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018 09:30
SDG#: SBN16-02TB

C. T. Male Associates
ELLE Sample #: GW 9573883
ELLE Group #: 1935271
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14672	Perfluoroundecanoic acid	2058-94-8	2.0 U	2.0	10	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 10:00	Devon M Whooley	1
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115018	04/26/2018 20:09	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18115018	04/25/2018 08:45	Pamela Rothharpt	1
14671	TOP in Water Post-Oxid Prep	EPA 537 Version 1.1 Modified	1	18120010	04/30/2018 11:45	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW07S-180423 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018 14:35
SDG#: SBN16-03

C. T. Male Associates
ELLE Sample #: GW 9573884
ELLE Group #: 1935271
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14670	6:2 fluorotelomersulfonate	27619-97-2	7.4 U	7.4	22	1
14672	6:2 fluorotelomersulfonate	27619-97-2	15 U	15	45	1
14670	8:2 fluorotelomersulfonate	39108-34-4	5.0 U	5.0	15	1
14672	8:2 fluorotelomersulfonate	39108-34-4	10 U	10	30	1
14670	NEtFOSAA	2991-50-6	2.5 U	2.5	7.4	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14672	NEtFOSAA	2991-50-6	5.0 U	5.0	15	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14670	NMeFOSAA	2355-31-9	2.5 U	2.5	7.4	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14672	NMeFOSAA	2355-31-9	5.0 U	5.0	15	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14670	**Perfluorobutanesulfonate**	375-73-5	**1.3 J**	0.74	2.5	1
14672	Perfluorobutanesulfonate	375-73-5	1.5 U	1.5	5.0	1
14670	**Perfluorobutanoic acid**	375-22-4	**7.8 J**	5.0	15	1
14672	**Perfluorobutanoic acid**	375-22-4	**35**	10	30	1
14670	Perfluorodecanoic acid	335-76-2	2.5 U	2.5	5.0	1
14672	Perfluorodecanoic acid	335-76-2	5.0 U	5.0	10	1
14670	Perfluorododecanoic acid	307-55-1	0.74 U	0.74	2.5	1
14672	Perfluorododecanoic acid	307-55-1	1.5 U	1.5	5.0	1
14670	**Perfluoroheptanoic acid**	375-85-9	**19**	0.74	2.5	1
14672	**Perfluoroheptanoic acid**	375-85-9	**20**	1.5	5.0	1
14670	Perfluorohexanesulfonate	355-46-4	0.99 U	0.99	5.0	1
14672	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	10	1
14670	**Perfluorohexanoic acid**	307-24-4	**14**	0.99	5.0	1
14672	**Perfluorohexanoic acid**	307-24-4	**14**	2.0	10	1
14670	**Perfluorononanoic acid**	375-95-1	**1.4 J**	0.99	5.0	1
14672	Perfluorononanoic acid	375-95-1	2.0 U	2.0	10	1
14670	Perfluorooctanesulfonamide	754-91-6	2.5 U	2.5	7.4	1
14672	Perfluorooctanesulfonamide	754-91-6	5.0 U	5.0	15	1
14670	**Perfluoro-octanesulfonate**	1763-23-1	**1.7 J**	0.99	5.0	1
14672	**Perfluoro-octanesulfonate**	1763-23-1	**13**	2.0	10	1
14670	**Perfluorooctanoic acid**	335-67-1	**900**	7.4	25	10
14672	**Perfluorooctanoic acid**	335-67-1	**1,100**	1.5	5.0	1
14670	**Perfluoropentanoic acid**	2706-90-3	**6.9 J**	5.0	15	1
14672	Perfluoropentanoic acid	2706-90-3	10 U	10	30	1
14670	Perfluorotetradecanoic acid	376-06-7	0.74 U	0.74	2.5	1
14672	Perfluorotetradecanoic acid	376-06-7	1.5 U	1.5	5.0	1
14670	Perfluorotridecanoic acid	72629-94-8	0.74 U	0.74	2.5	1
14672	Perfluorotridecanoic acid	72629-94-8	1.5 U	1.5	5.0	1
14670	Perfluoroundecanoic acid	2058-94-8	0.99 U	0.99	5.0	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW07S-180423 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018 14:35
SDG#: SBN16-03

C. T. Male Associates
ELLE Sample #: GW 9573884
ELLE Group #: 1935271
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14672	Perfluoroundecanoic acid	2058-94-8	2.0 U	2.0	10	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 10:16	Devon M Whooley	1
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115018	04/26/2018 20:23	Jason W Knight	1
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115018	04/27/2018 15:52	Jason W Knight	10
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18115018	04/25/2018 08:45	Pamela Rothharpt	1
14671	TOP in Water Post-Oxid Prep	EPA 537 Version 1.1 Modified	1	18120010	04/30/2018 11:45	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FD01-180423 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018
SDG#: SBN16-04FD

C. T. Male Associates
ELLE Sample #: GW 9573885
ELLE Group #: 1935271
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14670	6:2 fluorotelomersulfonate	27619-97-2	7.5 U	7.5	22	1
14672	6:2 fluorotelomersulfonate	27619-97-2	15 U	15	45	1
14670	8:2 fluorotelomersulfonate	39108-34-4	5.0 U	5.0	15	1
14672	8:2 fluorotelomersulfonate	39108-34-4	9.9 U	9.9	30	1
14670	NEtFOSAA	2991-50-6	2.5 U	2.5	7.5	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14672	NEtFOSAA	2991-50-6	5.0 U	5.0	15	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14670	NMeFOSAA	2355-31-9	2.5 U	2.5	7.5	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14672	NMeFOSAA	2355-31-9	5.0 U	5.0	15	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14670	**Perfluorobutanesulfonate**	375-73-5	**1.4 J**	0.75	2.5	1
14672	Perfluorobutanesulfonate	375-73-5	1.5 U	1.5	5.0	1
14670	**Perfluorobutanoic acid**	375-22-4	**7.9 J**	5.0	15	1
14672	**Perfluorobutanoic acid**	375-22-4	**32**	9.9	30	1
14670	Perfluorodecanoic acid	335-76-2	2.5 U	2.5	5.0	1
14672	Perfluorodecanoic acid	335-76-2	5.0 U	5.0	9.9	1
14670	Perfluorododecanoic acid	307-55-1	0.75 U	0.75	2.5	1
14672	Perfluorododecanoic acid	307-55-1	1.5 U	1.5	5.0	1
14670	**Perfluoroheptanoic acid**	375-85-9	**18**	0.75	2.5	1
14672	**Perfluoroheptanoic acid**	375-85-9	**19**	1.5	5.0	1
14670	Perfluorohexanesulfonate	355-46-4	1.0 U	1.0	5.0	1
14672	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	9.9	1
14670	**Perfluorohexanoic acid**	307-24-4	**14**	1.0	5.0	1
14672	**Perfluorohexanoic acid**	307-24-4	**15**	2.0	9.9	1
14670	**Perfluorononanoic acid**	375-95-1	**1.2 J**	1.0	5.0	1
14672	Perfluorononanoic acid	375-95-1	2.0 U	2.0	9.9	1
14670	Perfluorooctanesulfonamide	754-91-6	2.5 U	2.5	7.5	1
14672	Perfluorooctanesulfonamide	754-91-6	5.0 U	5.0	15	1
14670	**Perfluoro-octanesulfonate**	1763-23-1	**1.8 J**	1.0	5.0	1
14672	**Perfluoro-octanesulfonate**	1763-23-1	**16**	2.0	9.9	1
14670	**Perfluorooctanoic acid**	335-67-1	**970**	0.75	2.5	1
14672	**Perfluorooctanoic acid**	335-67-1	**1,100**	1.5	5.0	1
14670	**Perfluoropentanoic acid**	2706-90-3	**6.6 J**	5.0	15	1
14672	Perfluoropentanoic acid	2706-90-3	9.9 U	9.9	30	1
14670	Perfluorotetradecanoic acid	376-06-7	0.75 U	0.75	2.5	1
14672	Perfluorotetradecanoic acid	376-06-7	1.5 U	1.5	5.0	1
14670	Perfluorotridecanoic acid	72629-94-8	0.75 U	0.75	2.5	1
14672	Perfluorotridecanoic acid	72629-94-8	1.5 U	1.5	5.0	1
14670	Perfluoroundecanoic acid	2058-94-8	1.0 U	1.0	5.0	1

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-FD01-180423 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 04/24/2018 10:05
Collection Date/Time: 04/23/2018
SDG#: SBN16-04FD

C. T. Male Associates
ELLE Sample #: GW 9573885
ELLE Group #: 1935271
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14672	Perfluoroundecanoic acid	2058-94-8	2.0 U	2.0	9.9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14672	TOP Post-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18120010	05/03/2018 10:31	Devon M Whooley	1
14670	TOP Pre-Oxidation (18)	EPA 537 Version 1.1 Modified	1	18115018	04/26/2018 20:38	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18115018	04/25/2018 08:45	Pamela Rothharpt	1
14671	TOP in Water Post-Oxid Prep	EPA 537 Version 1.1 Modified	1	18120010	04/30/2018 11:45	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/07/2018 16:29

Group Number: 1935271

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 18115018	Sample number(s): 9573882-9573885		
6:2 fluorotelomersulfonate	3.0 U	3.0	9.0
8:2 fluorotelomersulfonate	2.0 U	2.0	6.0
NEtFOSAA	1.0 U	1.0	3.0
NMeFOSAA	1.0 U	1.0	3.0
Perfluorobutanesulfonate	0.30 U	0.30	1.0
Perfluorobutanoic acid	2.0 U	2.0	6.0
Perfluorodecanoic acid	1.0 U	1.0	2.0
Perfluorododecanoic acid	0.30 U	0.30	1.0
Perfluoroheptanoic acid	0.30 U	0.30	1.0
Perfluorohexanesulfonate	0.40 U	0.40	2.0
Perfluorohexanoic acid	0.40 U	0.40	2.0
Perfluorononanoic acid	0.40 U	0.40	2.0
Perfluorooctanesulfonamide	1.0 U	1.0	3.0
Perfluoro-octanesulfonate	0.40 U	0.40	2.0
Perfluorooctanoic acid	0.30 U	0.30	1.0
Perfluoropentanoic acid	2.0 U	2.0	6.0
Perfluorotetradecanoic acid	0.30 U	0.30	1.0
Perfluorotridecanoic acid	0.30 U	0.30	1.0
Perfluoroundecanoic acid	0.40 U	0.40	2.0
Batch number: 18120010	Sample number(s): 9573882-9573885		
6:2 fluorotelomersulfonate	3.0 U	3.0	9.0
8:2 fluorotelomersulfonate	2.0 U	2.0	6.0
NEtFOSAA	1.0 U	1.0	3.0
NMeFOSAA	1.0 U	1.0	3.0
Perfluorobutanesulfonate	0.30 U	0.30	1.0
Perfluorobutanoic acid	2.0 U	2.0	6.0
Perfluorodecanoic acid	1.0 U	1.0	2.0
Perfluorododecanoic acid	0.30 U	0.30	1.0
Perfluoroheptanoic acid	0.30 U	0.30	1.0
Perfluorohexanesulfonate	0.40 U	0.40	2.0
Perfluorohexanoic acid	0.40 U	0.40	2.0
Perfluorononanoic acid	0.40 U	0.40	2.0
Perfluorooctanesulfonamide	1.0 U	1.0	3.0
Perfluoro-octanesulfonate	0.40 U	0.40	2.0
Perfluorooctanoic acid	0.30 U	0.30	1.0
Perfluoropentanoic acid	2.0 U	2.0	6.0
Perfluorotetradecanoic acid	0.30 U	0.30	1.0
Perfluorotridecanoic acid	0.30 U	0.30	1.0

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/07/2018 16:29

Group Number: 1935271

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluoroundecanoic acid	0.40 U	0.40	2.0

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18115018	Sample number(s): 9573882-9573885								
6:2 fluorotelomersulfonate	15.17	16.47	15.17	17.78	109	117	70-130	8	30
8:2 fluorotelomersulfonate	15.33	19.14	15.33	18.01	125	118	70-130	6	30
NEtFOSAA	5.44	5.33	5.44	5.80	98	107	70-130	9	30
NMeFOSAA	5.44	5.48	5.44	5.09	101	94	70-130	7	30
Perfluorobutanesulfonate	4.81	5.08	4.81	5.22	105	109	70-130	3	30
Perfluorobutanoic acid	5.44	6.33	5.44	6.29	116	116	70-130	1	30
Perfluorodecanoic acid	5.44	6.39	5.44	6.49	117	119	70-130	2	30
Perfluorododecanoic acid	5.44	6.27	5.44	6.36	115	117	70-130	1	30
Perfluoroheptanoic acid	5.44	6.62	5.44	6.13	122	113	70-130	8	30
Perfluorohexanesulfonate	5.14	5.57	5.14	5.81	108	113	70-130	4	30
Perfluorohexanoic acid	5.44	6.04	5.44	6.21	111	114	70-130	3	30
Perfluorononanoic acid	5.44	6.05	5.44	6.43	111	118	70-130	6	30
Perfluorooctanesulfonamide	5.44	6.02	5.44	6.22	111	114	70-130	3	30
Perfluoro-octanesulfonate	5.20	5.48	5.20	5.82	105	112	70-130	6	30
Perfluorooctanoic acid	5.44	6.66	5.44	6.17	122	113	70-130	8	30
Perfluoropentanoic acid	5.44	6.03	5.44	6.27	111	115	70-130	4	30
Perfluorotetradecanoic acid	5.44	6.16	5.44	6.45	113	118	70-130	4	30
Perfluorotridecanoic acid	5.44	6.12	5.44	6.49	112	119	70-130	6	30
Perfluoroundecanoic acid	5.44	5.58	5.44	5.85	102	107	70-130	5	30
Batch number: 18120010	Sample number(s): 9573882-9573885								
6:2 fluorotelomersulfonate	15.17	14.41	15.17	12.98	95	86	70-130	10	30
8:2 fluorotelomersulfonate	15.33	17.05	15.33	16.01	111	104	70-130	6	30
NEtFOSAA	5.44	4.32	5.44	4.52	79	83	70-130	5	30
NMeFOSAA	5.44	3.51	5.44	3.81	64*	70	70-130	8	30
Perfluorobutanesulfonate	4.81	4.94	4.81	4.82	103	100	70-130	2	30
Perfluorobutanoic acid	5.44	5.76	5.44	5.56	106	102	70-130	4	30
Perfluorodecanoic acid	5.44	5.69	5.44	5.74	105	106	70-130	1	30
Perfluorododecanoic acid	5.44	5.80	5.44	5.79	107	107	70-130	0	30
Perfluoroheptanoic acid	5.44	6.30	5.44	6.38	116	117	70-130	1	30
Perfluorohexanesulfonate	5.14	4.91	5.14	4.62	95	90	70-130	6	30
Perfluorohexanoic acid	5.44	5.70	5.44	5.41	105	99	70-130	5	30
Perfluorononanoic acid	5.44	5.47	5.44	5.68	101	104	70-130	4	30
Perfluorooctanesulfonamide	5.44	4.63	5.44	4.43	85	81	70-130	5	30

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/07/2018 16:29

Group Number: 1935271

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	5.20	5.82	5.20	5.04	112	97	70-130	14	30
Perfluorooctanoic acid	5.44	5.74	5.44	5.30	106	97	70-130	8	30
Perfluoropentanoic acid	5.44	5.64	5.44	5.39	104	99	70-130	5	30
Perfluorotetradecanoic acid	5.44	5.43	5.44	5.50	100	101	70-130	1	30
Perfluorotridecanoic acid	5.44	5.57	5.44	5.74	102	106	70-130	3	30
Perfluoroundecanoic acid	5.44	5.62	5.44	5.70	103	105	70-130	1	30

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18120010	Sample number(s): 9573882-9573885 UNSPK: P572210									
6:2 fluorotelomersulfonate	15 U	75.37	75.28	75.46	65.22	100	86	70-130	14	30
8:2 fluorotelomersulfonate	9.9 U	76.17	73.2	76.26	84.98	96	111	70-130	15	30
NEtFOSAA	5.0 U	27.03	28.14	27.07	26.62	104	98	70-130	6	30
NMeFOSAA	5.0 U	27.03	23.6	27.07	21.91	87	81	70-130	7	30
Perfluorobutanesulfonate	1.87	23.91	25.17	23.94	26.52	97	103	70-130	5	30
Perfluorobutanoic acid	34.89	27.03	59.42	27.07	60.2	91	94	70-130	1	30
Perfluorodecanoic acid	34.51	27.03	63.83	27.07	61.2	108	99	70-130	4	30
Perfluorododecanoic acid	1.5 U	27.03	29.23	27.07	30.19	108	112	70-130	3	30
Perfluoroheptanoic acid	128.02	27.03	170.51	27.07	160.07	157 (2)	118 (2)	70-130	6	30
Perfluorohexanesulfonate	2.0 U	25.56	23.94	25.59	22.02	94	86	70-130	8	30
Perfluorohexanoic acid	64.36	27.03	85.59	27.07	91.51	79	100	70-130	7	30
Perfluorononanoic acid	9.56	27.03	35.2	27.07	38.06	95	105	70-130	8	30
Perfluorooctanesulfonamide	5.0 U	27.03	26.56	27.07	24.52	98	91	70-130	8	30
Perfluoro-octanesulfonate	4.24	25.84	28.27	25.87	30.49	93	101	70-130	8	30
Perfluorooctanoic acid	4760.24	27.03	4892.23	27.07	4878.04	488 (2)	435 (2)	70-130	0	30
Perfluoropentanoic acid	34.34	27.03	59.29	27.07	61.43	92	100	70-130	4	30
Perfluorotetradecanoic acid	1.5 U	27.03	25.18	27.07	26.72	93	99	70-130	6	30
Perfluorotridecanoic acid	1.5 U	27.03	25.56	27.07	29.14	95	108	70-130	13	30
Perfluoroundecanoic acid	8.19	27.03	37.73	27.07	34.87	109	99	70-130	8	30

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/07/2018 16:29

Group Number: 1935271

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TOP Pre-Oxidation (18)
Batch number: 18115018

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9573882	80	79	67	83	74	82
9573883	82	84	75	82	70	78
9573884	78	84	79	96	86	97
9573885	92	104	94	112	93	117
Blank	87	84	76	86	74	86
LCS	84	85	75	88	79	85
LCSD	86	85	77	89	79	94
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9573882	79	83	80	82	84	69
9573883	78	77	89	96	92	81
9573884	71	76	84	92	83	81
9573885	81	87	89	102	95	96
Blank	90	91	87	89	97	83
LCS	98	87	84	92	88	84
LCSD	94	92	84	94	95	92
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9573882	91	81	92	86	80	67*
9573883	85	90	100	89	82	69*
9573884	77	81	88	81	72	63*
9573885	84	96	89	89	79	85
Blank	90	92	101	88	82	72
LCS	90	90	98	84	80	55*
LCSD	95	91	100	86	81	76
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: TOP Post-Oxidation (18)
Batch number: 18120010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	RES-13C2-4:2-FTS	13C5-PFHxA	13C3-PFHxS
9573882	80	97	91	0	97	94
9573883	81	98	94	1	105	93
9573884	79	87	83	0	85	86
9573885	96	102	101	0	110	111
Blank	95	90	88	127*	106	94
LCS	98	97	98	135*	100	105

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 05/07/2018 16:29

Group Number: 1935271

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TOP Post-Oxidation (18)
Batch number: 18120010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	RES-13C2-4:2-FTS	13C5-PFHxA	13C3-PFHxS
LCSD	91	91	89	129*	93	94
MS	97	102	100	6	143*	99
MSD	94	98	92	7	136*	112
Limits:	33-123	39-135	26-148	0-10	31-128	34-126

	13C4-PFHpA	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA
9573882	99	121	90	93	96	101
9573883	105	114	102	104	99	96
9573884	92	94	84	86	86	92
9573885	117	119	94	107	105	102
Blank	107	125	100	95	86	100
LCS	103	127	101	99	94	103
LCSD	94	129	95	93	85	90
MS	135*	76	94	104	134	100
MSD	131*	86	90	101	129	89
Limits:	35-126	39-140	43-112	43-115	32-134	40-115

	13C2-8:2-FTS	RES-d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA
9573882	105	3	98	98	91	94
9573883	106	2	92	92	84	87
9573884	106	9	92	100	96	95
9573885	132	5	105	100	107	104
Blank	110	86*	100	109	100	95
LCS	119	110*	106	131	102	98
LCSD	112	85*	89	108	89	90
MS	115	9	104	99	106	102
MSD	118	3	99	92	88	93
Limits:	39-137	0-10	30-128	21-135	28-127	26-119

	13C8-PFOSA	PRS-13C2-PFHxA	PRS-13C4-PFOA	PRS-13C2-PFUnDA
9573882	84	107	85	100
9573883	73	110	86	91
9573884	16*	97	77	103
9573885	23*	119	92	115
Blank	101	0*	2*	0*
LCS	86	0*	2*	0*
LCSD	81	0*	2*	0*
MS	63*	153*	85	113
MSD	73	148*	79	100

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1935271
Reported: 05/07/2018 16:29

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TOP Post-Oxidation (18)
Batch number: 18120010

Limits:	70-130	70-130	70-130	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1935271 Sample # 9573882-85

COC # 545248

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: SGPP- Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: CB	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil/Sed. (Tissue)	Water: Ground	Water: Potable	Water: Surface	Water: NPDES	Other: Leak Water	Total # of Containers	PFAS TAP Assay	14 PFAS (EPA 537 mod.)	Remarks
SG3-LTB01-180423	4/23/18	—								X	3	X	X	
SG3-FTB01-180423		0930	X							X	3	X	X	
SG3a-BL01-A5.0		1020	X		X						1		X	Insulation
SG3a-BL02-A5.0		1025	X		X						1		X	
SG3a-BL04-A5.0		1030	X		X						1		X	
SG3a-BL05-A5.0		1035	X		X						1		X	
SG3a-BL07-A5.0		1040	X		X						1		X	
SG3a-BL09-A5.0		1045	X		X						1		X	Insulation
SG3MW07S-180423		1435	X			X					4	X		
SG3-FD01-180423	4/23/18	—	X			X					4	X		

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Cliff Bent	4/23/18	1645			
			Felix Gonzalez	4/24/18	10:05

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx ✓ Other

Temperature upon receipt 0.7 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 214487

Group Number(s): 1935271

Client: CT Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/24/2018 10:05
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	3
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved

Unpacked by Felix Gonzalez (13783) at 11:27 on 04/24/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	0.7	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
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TOP Assay Summary

Sample Description: SG3-LTB01-180423 Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

ELLE Sample # 9573882

Compound	CAS Number	Pre-Oxidation Analysis Result	Post-Oxidation Analysis Result	Net Difference	Units
6:2 fluorotelomersulfonate	27619-97-2	ND	ND		ng/l
8:2 fluorotelomersulfonate	39108-34-4	ND	ND		ng/l
NEtFOSAA	2991-50-6	ND	ND		ng/l
NMeFOSAA	2355-31-9	ND	ND		ng/l
Perfluoro-octanesulfonate	1763-23-1	ND	2.6	2.6	ng/l
Perfluorobutanesulfonate	375-73-5	ND	ND		ng/l
Perfluorobutanoic acid	375-22-4	ND	14	14	ng/l
Perfluorodecanoic acid	335-76-2	ND	ND		ng/l
Perfluorododecanoic acid	307-55-1	ND	ND		ng/l
Perfluoroheptanoic acid	375-85-9	ND	11	11	ng/l
Perfluorohexanesulfonate	355-46-4	ND	ND		ng/l
Perfluorohexanoic acid	307-24-4	ND	3.4	3.4	ng/l
Perfluorononanoic acid	375-95-1	ND	ND		ng/l
Perfluorooctanesulfonamide	754-91-6	ND	ND		ng/l
Perfluorooctanoic acid	335-67-1	ND	140	140	ng/l
Perfluoropentanoic acid	2706-90-3	ND	ND		ng/l
Perfluorotetradecanoic acid	376-06-7	ND	ND		ng/l
Perfluorotridecanoic acid	72629-94-8	ND	ND		ng/l
Perfluoroundecanoic acid	2058-94-8	ND	ND		ng/l
Total PFCA		0	168.4	168.4	ng/l
Total PFSA		0	2.6	2.6	ng/l

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TOP Assay Summary

Sample Description: SG3-FTB01-180423 Grab Blank Water
SGPP - Bennington

Project Name: SGPP - Bennington

ELLE Sample # 9573883

Compound	CAS Number	Pre-Oxidation Analysis Result	Post-Oxidation Analysis Result	Net Difference	Units
6:2 fluorotelomersulfonate	27619-97-2	ND	ND		ng/l
8:2 fluorotelomersulfonate	39108-34-4	ND	ND		ng/l
NEtFOSAA	2991-50-6	ND	ND		ng/l
NMeFOSAA	2355-31-9	ND	ND		ng/l
Perfluoro-octanesulfonate	1763-23-1	ND	2.2	2.2	ng/l
Perfluorobutanesulfonate	375-73-5	ND	ND		ng/l
Perfluorobutanoic acid	375-22-4	ND	14	14	ng/l
Perfluorodecanoic acid	335-76-2	ND	ND		ng/l
Perfluorododecanoic acid	307-55-1	ND	ND		ng/l
Perfluoroheptanoic acid	375-85-9	ND	11	11	ng/l
Perfluorohexanesulfonate	355-46-4	ND	ND		ng/l
Perfluorohexanoic acid	307-24-4	ND	3.1	3.1	ng/l
Perfluorononanoic acid	375-95-1	ND	ND		ng/l
Perfluorooctanesulfonamide	754-91-6	ND	ND		ng/l
Perfluorooctanoic acid	335-67-1	ND	120	120	ng/l
Perfluoropentanoic acid	2706-90-3	ND	ND		ng/l
Perfluorotetradecanoic acid	376-06-7	ND	ND		ng/l
Perfluorotridecanoic acid	72629-94-8	ND	ND		ng/l
Perfluoroundecanoic acid	2058-94-8	ND	ND		ng/l
Total PFCA		0	148.1	148.1	ng/l
Total PFSA		0	2.2	2.2	ng/l

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TOP Assay Summary

Sample Description: SG3-MW07S-180423 Grab Groundwater
SGPP - Bennington

Project Name: SGPP - Bennington

ELLE Sample # 9573884

Compound	CAS Number	Pre-Oxidation Analysis Result	Post-Oxidation Analysis Result	Net Difference	Units
6:2 fluorotelomersulfonate	27619-97-2	ND	ND		ng/l
8:2 fluorotelomersulfonate	39108-34-4	ND	ND		ng/l
NEtFOSAA	2991-50-6	ND	ND		ng/l
NMeFOSAA	2355-31-9	ND	ND		ng/l
Perfluoro-octanesulfonate	1763-23-1	1.7	13	11.3	ng/l
Perfluorobutanesulfonate	375-73-5	1.3	ND	-1.30	ng/l
Perfluorobutanoic acid	375-22-4	7.8	35	27.2	ng/l
Perfluorodecanoic acid	335-76-2	ND	ND		ng/l
Perfluorododecanoic acid	307-55-1	ND	ND		ng/l
Perfluoroheptanoic acid	375-85-9	19	20	1	ng/l
Perfluorohexanesulfonate	355-46-4	ND	ND		ng/l
Perfluorohexanoic acid	307-24-4	14	14	0	ng/l
Perfluorononanoic acid	375-95-1	1.4	ND	-1.40	ng/l
Perfluorooctanesulfonamide	754-91-6	ND	ND		ng/l
Perfluorooctanoic acid	335-67-1	900	1100	200	ng/l
Perfluoropentanoic acid	2706-90-3	6.9	ND	-6.90	ng/l
Perfluorotetradecanoic acid	376-06-7	ND	ND		ng/l
Perfluorotridecanoic acid	72629-94-8	ND	ND		ng/l
Perfluoroundecanoic acid	2058-94-8	ND	ND		ng/l
Total PFCA		949.1	1169	219.9	ng/l
Total PFSA		3	13	10	ng/l

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TOP Assay Summary

Sample Description: SG3-FD01-180423 Grab Groundwater
SGPP - Bennington

Project Name: SGPP - Bennington

ELLE Sample # 9573885

Compound	CAS Number	Pre-Oxidation Analysis Result	Post-Oxidation Analysis Result	Net Difference	Units
6:2 fluorotelomersulfonate	27619-97-2	ND	ND		ng/l
8:2 fluorotelomersulfonate	39108-34-4	ND	ND		ng/l
NEtFOSAA	2991-50-6	ND	ND		ng/l
NMeFOSAA	2355-31-9	ND	ND		ng/l
Perfluoro-octanesulfonate	1763-23-1	1.8	16	14.2	ng/l
Perfluorobutanesulfonate	375-73-5	1.4	ND	-1.40	ng/l
Perfluorobutanoic acid	375-22-4	7.9	32	24.1	ng/l
Perfluorodecanoic acid	335-76-2	ND	ND		ng/l
Perfluorododecanoic acid	307-55-1	ND	ND		ng/l
Perfluoroheptanoic acid	375-85-9	18	19	1	ng/l
Perfluorohexanesulfonate	355-46-4	ND	ND		ng/l
Perfluorohexanoic acid	307-24-4	14	15	1	ng/l
Perfluorononanoic acid	375-95-1	1.2	ND	-1.20	ng/l
Perfluorooctanesulfonamide	754-91-6	ND	ND		ng/l
Perfluorooctanoic acid	335-67-1	970	1100	130	ng/l
Perfluoropentanoic acid	2706-90-3	6.6	ND	-6.60	ng/l
Perfluorotetradecanoic acid	376-06-7	ND	ND		ng/l
Perfluorotridecanoic acid	72629-94-8	ND	ND		ng/l
Perfluoroundecanoic acid	2058-94-8	ND	ND		ng/l
Total PFCA		1017.7	1166	148.3	ng/l
Total PFSA		3.2	16	12.8	ng/l

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Appendix I

Sewer Inspection Report

EcoClean, LLC
Portland, Maine 04104
Tel: 207-310-8429
Fax: 207-467-3166

Surveyors name	Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet
EcoClean GG	U-613-16827	Saint- Gobain PP	C.T. Male Associates		1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and number)	Locality
	SMH 2- SMH 1	20180227	11:31	Water St	N. Bennington, VT

Further Location details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
near corner of u shape building and guard rail	SMH 2			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
SMH 1				Sanitary	Downstream	N	12

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape / Media Number
12	Circular	CT	CP			296.2			

Purpose	Sewer Category	Pre-Cleaning	Date Cleaned	Weather	Additional Information
F		No Pre-Cleaning		Saturated	Inclination +/- 1: minor sags, light roots at connection, 2- lines entering from buidling side

Distance (Feet)	Code		Continuous defect	Value				Joint	Circumferential Location		Image Ref.	Struct. Grade	O&M Grade	Remarks
	Group/ Descriptor	Modifier/ severity		S/M/L	1st	2nd	%		At / From	To				
0.0	TB				8				9					
0.0	AMH										AMH@0			Starting Manhole: SMH 1
0.0	MWL						50				MWL@0			
132.8	TB				4				9		TB@132.8			
134.0	MGP										MGP@134			tap photo up lateral
156.9	TB				4				2		TB@156.9			
158.4	MGP										MGP@158.4			tap photo up lateral
158.4	RF	C							2		RFC@158.4		1	
242.8	TB				6				10		TB@242.8			
244.0	MGP										MGP@244			tap photo up lateral
296.2	AMH										AMH@296.2			End Manhole

	Structural								O & M								Overall							
Segment	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index
20180227--11 31--Water St--SMH 2--SMH 1	0	0	0	0	0	0	0000		1	0	0	0	0	1	1100	1.0	1	0	0	0	0	1	1100	1.0

EcoClean, LLC
Portland, Maine 04104
Tel: 207-310-8429
Fax: 207-467-3166

Upstream MH	Downstream MH	Size	Material	Total Length	City
SMH 2	SMH 1	12	Clay Tile		N. Bennington, VT

Surveyor's Name	Certificate Number	Street Address	Location Details
EcoClean GG	U-613-16827	Water St	near corner of u shape building and guard rail

Direction	Purpose	Weather	Date	Time	Length Surveyed
Downstream	Routine Assessment	Saturated	20180227	11:31	296.2

Additional Information
Inclination +/- 1: minor sags, light roots at connection, 2- lines entering from buidling side

SMH 2

Ftg.	Code	Description	Pct.	Position	Cont.	Comment
0.0	TB	Tap, Break-in / Hammer		9		
0.0	AMH	Access Point - Manhole				Starting Manhole: SMH 1
0.0	MWL	Water Level	50			
132.8	TB	Tap, Break-in / Hammer		9		
134.0	MGP	General Photograph				tap photo up lateral
156.9	TB	Tap, Break-in / Hammer		2		
158.4	MGP	General Photograph				tap photo up lateral
158.4	RFC	Roots, Fine: Connection		2		
242.8	TB	Tap, Break-in / Hammer		10		
244.0	MGP	General Photograph				tap photo up lateral
296.2	AMH	Access Point - Manhole				End Manhole

SMH 1

EcoClean, LLC
Portland, Maine 04104
Tel: 207-310-8429
Fax: 207-467-3166

Upstream MH	Downstream MH	Size	Material	Total Length	City
SMH 2	SMH 1	12	Clay Tile		N. Bennington, VT

Surveyor's Name	Certificate Number	Street Address	Location Details
EcoClean GG	U-613-16827	Water St	near corner of u shape building and guard rail

Direction	Purpose	Weather	Date	Time	Length Surveyed
Downstream	Routine Assessment	Saturated	20180227	11:31	296.2

Additional Information

Inclination +/- 1: minor sags, light roots at connection, 2- lines entering from buidling side

TB - Tap, Break-in / Hammer @ 0.0 ft.

AMH - Access Point - Manhole @ 0.0 ft.
Starting Manhole: SMH 1

MWL - Water Level @ 0.0 ft.

TB - Tap, Break-in / Hammer @ 132.8 ft.

MGP - General Photograph @ 134.0 ft.
tap photo up lateral

TB - Tap, Break-in / Hammer @ 156.9 ft.

MGP - General Photograph @ 158.4 ft.
tap photo up lateral

RFC - Roots, Fine: Connection @ 158.4 ft.

TB - Tap, Break-in / Hammer @ 242.8 ft.

EcoClean, LLC
Portland, Maine 04104
Tel: 207-310-8429
Fax: 207-467-3166

Upstream MH	Downstream MH	Size	Material	Total Length	City
SMH 2	SMH 1	12	Clay Tile		N. Bennington, VT

Surveyor's Name	Certificate Number	Street Address	Location Details
EcoClean GG	U-613-16827	Water St	near corner of u shape building and guard rail

Direction	Purpose	Weather	Date	Time	Length Surveyed
Downstream	Routine Assessment	Saturated	20180227	11:31	296.2

Additional Information

Inclination +/- 1: minor sags, light roots at connection, 2- lines entering from buidling side

MGP - General Photograph @ 244.0 ft.
tap photo up lateral

AMH - Access Point - Manhole @ 296.2 ft.
End Manhole

EcoClean, LLC
Portland, Maine 04104
Tel: 207-310-8429
Fax: 207-467-3166

Surveyors name	Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet
EcoClean GG	U-613-16827	Saint- Gobain PP	C.T. Male Associates		5

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and number)	Locality
	SMH 3- SMH 2	20180227	12:05	Water St	N. Bennington, VT

Further Location details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
near corner of u shape building and guard rail	SMH 3			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
SMH 2				Sanitary	Upstream	N	12

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape / Media Number
12	Circular	CT				19.8			

Purpose	Sewer Category	Pre-Cleaning	Date Cleaned	Weather	Additional Information
F		No Pre-Cleaning		Saturated	Inclination +/- 1: minor sags, cracks, fractures

Distance (Feet)	Code		Continuous defect	Value				Joint	Circumferential Location		Image Ref.	Struct. Grade	O&M Grade	Remarks
	Group/ Descriptor	Modifier/ severity		S/M/L	1st	2nd	%		At / From	To				
0.0	TB				8				3		TB@0			
0.0	AMH										AMH@0			Starting Manhole: SMH 2
0.0	MWL						60				MWL@0			
1.6	TB				4				9		TB@1.6			
5.5	CM								12	12	CM@5.5	3		
8.0	CL		S01						12		CL@8			
14.0	FM								4	12	FM@14	4		
19.7	TB				6				10		TB@19.7			
19.7	TB				10				3		TB@19.7 1			
19.8	AMH										AMH@19.8			End Manhole

	Structural								O & M								Overall							
Segment	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index
20180227--12 05--Water St--SMH 3--SMH 2	0	0	3	4	0	7	4131	3.5	0	0	0	0	0	0	0000		0	0	3	4	0	7	4131	3.5

EcoClean, LLC
Portland, Maine 04104
Tel: 207-310-8429
Fax: 207-467-3166

Upstream MH	Downstream MH	Size	Material	Total Length	City
SMH 3	SMH 2	12	Clay Tile		N. Bennington, VT

Surveyor's Name	Certificate Number	Street Address	Location Details
EcoClean GG	U-613-16827	Water St	near corner of u shape building and guard rail

Direction	Purpose	Weather	Date	Time	Length Surveyed
Upstream	Routine Assessment	Saturated	20180227	12:05	19.8

Additional Information
Inclination +/- 1: minor sags, cracks, fractures

Ftg.	Code	Description	Pct.	Position	Cont.	Comment
19.8	AMH	Access Point - Manhole				End Manhole
19.7	TB	Tap, Break-in / Hammer		10		
19.7	TB	Tap, Break-in / Hammer		3		
14.0	FM	Fracture Multiple		4 to 12		
8.0	CL	Crack Longitudinal		12	S01	
5.5	CM	Crack Multiple		12 to 12		
1.6	TB	Tap, Break-in / Hammer		9		
0.0	MWL	Water Level	60			
0.0	AMH	Access Point - Manhole				Starting Manhole: SMH 2
0.0	TB	Tap, Break-in / Hammer		3		

EcoClean, LLC
Portland, Maine 04104
Tel: 207-310-8429
Fax: 207-467-3166

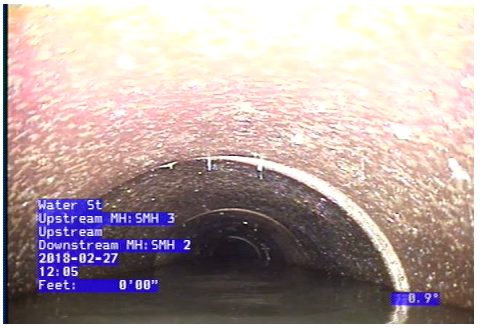
Upstream MH	Downstream MH	Size	Material	Total Length	City
SMH 3	SMH 2	12	Clay Tile		N. Bennington, VT

Surveyor's Name	Certificate Number	Street Address	Location Details
EcoClean GG	U-613-16827	Water St	near corner of u shape building and guard rail

Direction	Purpose	Weather	Date	Time	Length Surveyed
Upstream	Routine Assessment	Saturated	20180227	12:05	19.8

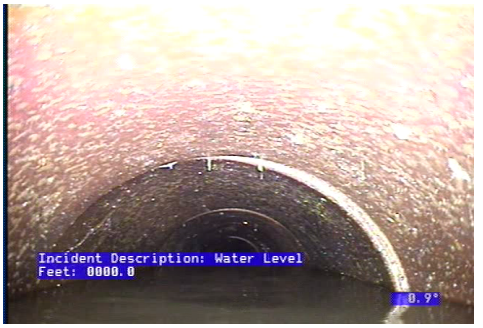
Additional Information

Inclination +/- 1: minor sags, cracks, fractures

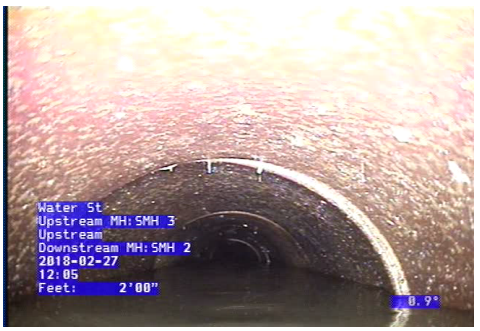


TB - Tap, Break-in / Hammer @ 0.0 ft.

AMH - Access Point - Manhole @ 0.0 ft.
Starting Manhole: SMH 2



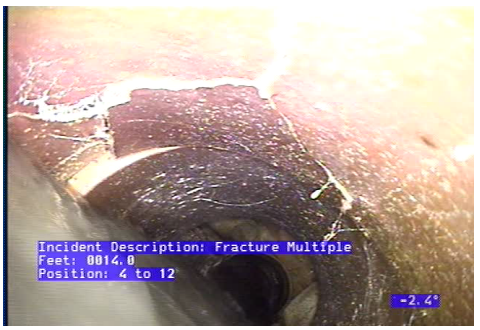
MWL - Water Level @ 0.0 ft.



TB - Tap, Break-in / Hammer @ 1.6 ft.

CM - Crack Multiple @ 5.5 ft.

CL - Crack Longitudinal @ 8.0 ft.



FM - Fracture Multiple @ 14.0 ft.

TB - Tap, Break-in / Hammer @ 19.7 ft.

TB - Tap, Break-in / Hammer @ 19.7 ft.

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Portland, Maine 04104
Tel: 207-310-8429
Fax: 207-467-3166

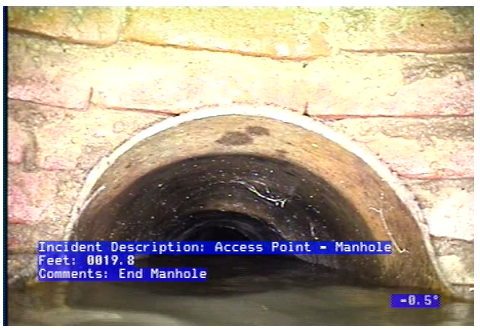
Upstream MH	Downstream MH	Size	Material	Total Length	City
SMH 3	SMH 2	12	Clay Tile		N. Bennington, VT

Surveyor's Name	Certificate Number	Street Address	Location Details
EcoClean GG	U-613-16827	Water St	near corner of u shape building and guard rail

Direction	Purpose	Weather	Date	Time	Length Surveyed
Upstream	Routine Assessment	Saturated	20180227	12:05	19.8

Additional Information

Inclination +/- 1: minor sags, cracks, fractures



AMH - Access Point - Manhole @ 19.8 ft.
End Manhole

EcoClean, LLC
Portland, Maine 04104
Tel: 207-310-8429
Fax: 207-467-3166

Surveyors name	Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet
EcoClean GG	U-613-16827	Saint- Gobain PP	C.T. Male Associates		9

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and number)	Locality
	SMH 4- SMH 3	20180227	12:15	Water St	N. Bennington, VT

Further Location details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
near U shape parking area	SMH 4			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
SMH 3				Sanitary	Upstream	L	12

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape / Media Number
12	Circular	CT	CP			192.8			

Purpose	Sewer Category	Pre-Cleaning	Date Cleaned	Weather	Additional Information
F		No Pre-Cleaning		Saturated	Inclination +/- 1: minor and major sags, 1 lateral on building side

Distance (Feet)	Code		Continuous defect	Value				Joint	Circumferential Location		Image Ref.	Struct. Grade	O&M Grade	Remarks
	Group/ Descriptor	Modifier/ severity		S/M/L	1st	2nd	%		At / From	To				
0.0	TB				6				10		TB@0			
0.0	TB				10				3		TB@0_1			
0.0	AMH										AMH@0			Starting Manhole: SMH 3
0.0	MWL						60				MWL@0			
12.0	MWL	S	S01				90				MWLS@12			
17.4	MWL	S	F01				60				MWLS@17.4	41		
121.8	TB				4				1		TB@121.8			
123.0	MGP										MGP@123			tap photo up lateral
192.8	MSA										MSA@192.8			stop point of inspection

	Structural								O & M								Overall							
Segment	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index
20180227--12 15--Water St--SMH 4--SMH 3	0	0	0	4	0	4	4100	4.0	0	0	0	0	0	0	0000		0	0	0	4	0	4	4100	4.0

EcoClean, LLC
Portland, Maine 04104
Tel: 207-310-8429
Fax: 207-467-3166

Upstream MH	Downstream MH	Size	Material	Total Length	City
SMH 4	SMH 3	12	Clay Tile		N. Bennington, VT

Surveyor's Name	Certificate Number	Street Address	Location Details
EcoClean GG	U-613-16827	Water St	near U shape parking area

Direction	Purpose	Weather	Date	Time	Length Surveyed
Upstream	Routine Assessment	Saturated	20180227	12:15	192.8

Additional Information
Inclination +/- 1: minor and major sags, 1 lateral on building side

SMH 4

Ftg.	Code	Description	Pct.	Position	Cont.	Comment
192.8	MSA	Survey Abandoned				stop point of inspection
123.0	MGP	General Photograph				tap photo up lateral
121.8	TB	Tap, Break-in / Hammer		1		
17.4	MWLS	Water Level: Sag	60		F01	
12.0	MWLS	Water Level: Sag	90		S01	
0.0	MWL	Water Level	60			
0.0	AMH	Access Point - Manhole				Starting Manhole: SMH 3
0.0	TB	Tap, Break-in / Hammer		10		
0.0	TB	Tap, Break-in / Hammer		3		

SMH 3

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Portland, Maine 04104
Tel: 207-310-8429
Fax: 207-467-3166

Upstream MH	Downstream MH	Size	Material	Total Length	City
SMH 4	SMH 3	12	Clay Tile		N. Bennington, VT

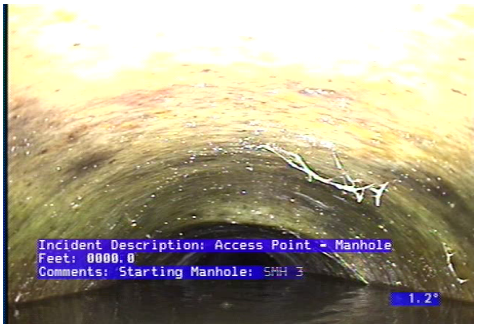
Surveyor's Name	Certificate Number	Street Address	Location Details
EcoClean GG	U-613-16827	Water St	near U shape parking area

Direction	Purpose	Weather	Date	Time	Length Surveyed
Upstream	Routine Assessment	Saturated	20180227	12:15	192.8

Additional Information
Inclination +/- 1: minor and major sags, 1 lateral on building side

TB - Tap, Break-in / Hammer @ 0.0 ft.

TB - Tap, Break-in / Hammer @ 0.0 ft.



AMH - Access Point - Manhole @ 0.0 ft.
Starting Manhole: SMH 3

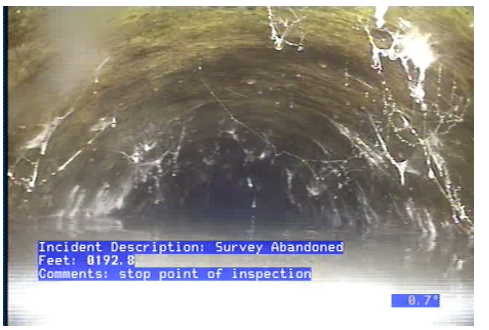
MWL - Water Level @ 0.0 ft.

MWLS - Water Level: Sag @ 12.0 ft.

MWLS - Water Level: Sag @ 17.4 ft.

TB - Tap, Break-in / Hammer @ 121.8 ft.

MGP - General Photograph @ 123.0 ft.
tap photo up lateral



MSA - Survey Abandoned @ 192.8 ft.
stop point of inspection

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Tel: 207-310-8429
Fax: 207-467-3166

Surveyors name	Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet
EcoClean GG	U-613-16827	Saint- Gobain PP	C.T. Male Associates		12

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and number)	Locality
	BLDG-SMH 2	20180227	12:45	Water St	N. Bennington, VT

Further Location details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
near corner of u shape building and guard rail	BLDG			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
SMH 2				Sanitary	Upstream	N	8

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape / Media Number
8	Circular	CAS				5.1			

Purpose	Sewer Category	Pre-Cleaning	Date Cleaned	Weather	Additional Information
F		No Pre-Cleaning		Saturated	Inclination +/- 1: line is lower than discharge in SMH 2, heavy material in line- cannot pass

Distance (Feet)	Code		Continuous defect	Value				Joint	Circumferential Location		Image Ref.	Struct. Grade	O&M Grade	Remarks
	Group/ Descriptor	Modifier/ severity		S/M/L	1st	2nd	%		At / From	To				
0.0	AMH										AMH@0			Starting Manhole: SMH 2
0.0	MWL						10				MWL@0			
0.0	MGO										MGO@0			discharge in SMH 2 is higher than inlet line. Inlet line holds 70% water at all times
5.1	DS	Z					75		12	12	DSZ@5.1		5	heavy material
5.1	MSA										MSA@5.1			cannot pass heavy material in line

	Structural								O & M								Overall							
Segment	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index
20180227--12 45--Water St--BLDG--SMH 2	0	0	0	0	0	0	0000		0	0	0	0	5	5	5100	5.0	0	0	0	0	5	5	5100	5.0

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Tel: 207-310-8429
Fax: 207-467-3166

Upstream MH	Downstream MH	Size	Material	Total Length	City
BLDG	SMH 2	8	Cast Iron		N. Bennington, VT

Surveyor's Name	Certificate Number	Street Address	Location Details
EcoClean GG	U-613-16827	Water St	near corner of u shape building and guard rail

Direction	Purpose	Weather	Date	Time	Length Surveyed
Upstream	Routine Assessment	Saturated	20180227	12:45	5.1

Additional Information

Inclination +/- 1: line is lower than discharge in SMH 2, heavy material in line- cannot pass

Ftg.	Code	Description	Pct.	Position	Cont.	Comment
5.1	MSA	Survey Abandoned				cannot pass heavy material in line
5.1	DSZ	Deposits Settled: Other	75	12 to 12		heavy material
0.0	MGO	General Observation				discharge in SMH 2 is higher than inlet line. Inlet line holds 70% water at all times
0.0	MWL	Water Level	10			
0.0	AMH	Access Point - Manhole				Starting Manhole: SMH 2

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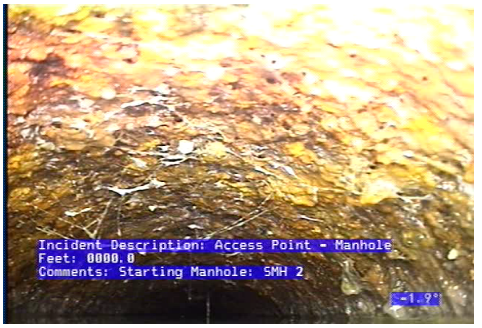
Upstream MH	Downstream MH	Size	Material	Total Length	City
BLDG	SMH 2	8	Cast Iron		N. Bennington, VT

Surveyor's Name	Certificate Number	Street Address	Location Details
EcoClean GG	U-613-16827	Water St	near corner of u shape building and guard rail

Direction	Purpose	Weather	Date	Time	Length Surveyed
Upstream	Routine Assessment	Saturated	20180227	12:45	5.1

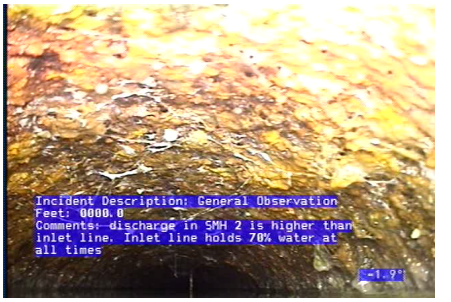
Additional Information

Inclination +/- 1: line is lower than discharge in SMH 2, heavy material in line- cannot pass



AMH - Access Point - Manhole @ 0.0 ft.
Starting Manhole: SMH 2

MWL - Water Level @ 0.0 ft.



MGO - General Observation @ 0.0 ft.
discharge in SMH 2 is higher than inlet line. Inlet line holds 70% water at all times

DSZ - Deposits Settled: Other @ 5.1 ft.
heavy material

MSA - Survey Abandoned @ 5.1 ft.
cannot pass heavy material in line

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Tel: 207-310-8429
Fax: 207-467-3166

Surveyors name	Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet
EcoClean GG	U-613-16827	Saint- Gobain PP	C.T. Male Associates		15

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and number)	Locality
	BLDG-SMH 2	20180227	14:09	Water St	N. Bennington, VT

Further Location details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
near corner of u shape building and guard rail	BLDG			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
SMH 2				Sanitary	Upstream	D	8

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape / Media Number
8	Circular	CAS				1			

Purpose	Sewer Category	Pre-Cleaning	Date Cleaned	Weather	Additional Information
F		Jetting		Saturated	Inclination +/- 1: line is lower than discharge in SMH 2, concrete in line- cannot pass

Distance (Feet)	Code		Continuous defect	Value				Joint	Circumferential Location		Image Ref.	Struct. Grade	O&M Grade	Remarks
	Group/ Descriptor	Modifier/ severity		S/M/L	1st	2nd	%		At / From	To				
0.0	AMH										AMH@0			Starting Manhole: SMH 2
0.0	MWL						10				MWL@0			
0.0	MGO										MGO@0			SMH 2 holds water back into inlet line, inlet line is lower than discharge line
1.0	DS	Z					20		4	8	DSZ@1		3	concrete in line
1.0	MSA										MSA@1			concrete in line- cannot pass

	Structural								O & M								Overall							
Segment	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index
20180227--14 09--Water St--BLDG--SMH 2	0	0	0	0	0	0	0000		0	0	3	0	0	3	3100	3.0	0	0	3	0	0	3	3100	3.0

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Upstream MH	Downstream MH	Size	Material	Total Length	City
BLDG	SMH 2	8	Cast Iron		N. Bennington, VT

Surveyor's Name	Certificate Number	Street Address	Location Details
EcoClean GG	U-613-16827	Water St	near corner of u shape building and guard rail

Direction	Purpose	Weather	Date	Time	Length Surveyed
Upstream	Routine Assessment	Saturated	20180227	14:09	1

Additional Information
Inclination +/- 1: line is lower than discharge in SMH 2, concrete in line- cannot pass

Ftg.	Code	Description	Pct.	Position	Cont.	Comment
1.0	MSA	Survey Abandoned				concrete in line- cannot pass
1.0	DSZ	Deposits Settled: Other	20	4 to 8		concrete in line
0.0	MGO	General Observation				SMH 2 holds water back into inlet line, inlet line is lower than discharge line
0.0	MWL	Water Level	10			
0.0	AMH	Access Point - Manhole				Starting Manhole: SMH 2

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Upstream MH	Downstream MH	Size	Material	Total Length	City
BLDG	SMH 2	8	Cast Iron		N. Bennington, VT

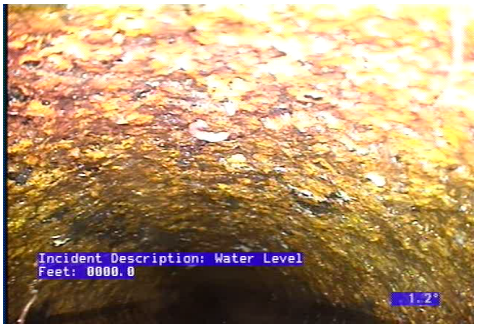
Surveyor's Name	Certificate Number	Street Address	Location Details
EcoClean GG	U-613-16827	Water St	near corner of u shape building and guard rail

Direction	Purpose	Weather	Date	Time	Length Surveyed
Upstream	Routine Assessment	Saturated	20180227	14:09	1

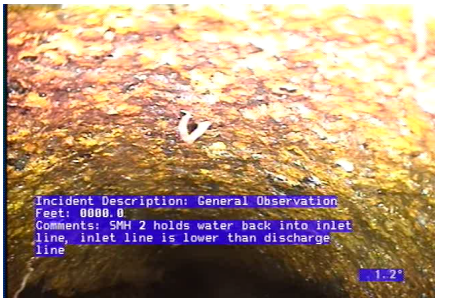
Additional Information

Inclination +/- 1: line is lower than discharge in SMH 2, concrete in line- cannot pass

AMH - Access Point - Manhole @ 0.0 ft.
Starting Manhole: SMH 2

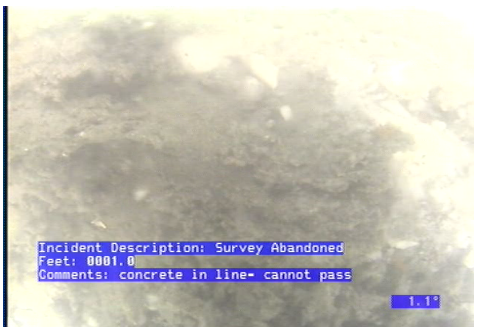


MWL - Water Level @ 0.0 ft.



MGO - General Observation @ 0.0 ft.
SMH 2 holds water back into inlet line,
inlet line is lower than discharge line

DSZ - Deposits Settled: Other @ 1.0 ft.
concrete in line



MSA - Survey Abandoned @ 1.0 ft.
concrete in line- cannot pass

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Fax: 207-467-3166

Surveyors name	Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet
EcoClean GG	U-613-16827	Saint- Gobain PP	C.T. Male Associates		18

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and number)	Locality
	BLDG-SMH 2	20180227	17:04	Water St	N. Bennington, VT

Further Location details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
near corner of u shape building and guard rail	BLDG			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
SMH 2				Sanitary	Upstream	D	8

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape / Media Number
8	Circular	CAS				18			

Purpose	Sewer Category	Pre-Cleaning	Date Cleaned	Weather	Additional Information
F		Heavy Cleaning		Saturated	Inclination +/- 1: line is lower than discharge in SMH 2, major sag

Distance (Feet)	Code		Continuous defect	Value				Joint	Circumferential Location		Image Ref.	Struct. Grade	O&M Grade	Remarks
	Group/ Descriptor	Modifier/ severity		S/M/L	1st	2nd	%		At / From	To				
0.0	AMH										AMH@0			Starting Manhole: SMH 2
0.0	MWL						10				MWL@0			
0.0	MGO										MGO@0			SMH 2 holding water back into inlet line
5.5	MWL	S	S01				90				MWLS@5.5			
16.4	TF				8				9		TF@16.4			
17.3	MGP										MGP@17.3			tap photo up lateral
17.9	MSC				4						MSC@17.9			
17.9	LU						90				LU@17.9		4	clean out
18.0	ACO	H									ACOH@18			

	Structural								O & M								Overall							
Segment	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index
20180227--17 04--Water St--BLDG--SMH 2	0	0	0	0	0	0	0000		0	0	0	4	0	4	4100	4.0	0	0	0	4	0	4	4100	4.0

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Tel: 207-310-8429
Fax: 207-467-3166

Upstream MH	Downstream MH	Size	Material	Total Length	City
BLDG	SMH 2	8	Cast Iron		N. Bennington, VT

Surveyor's Name	Certificate Number	Street Address	Location Details
EcoClean GG	U-613-16827	Water St	near corner of u shape building and guard rail

Direction	Purpose	Weather	Date	Time	Length Surveyed
Upstream	Routine Assessment	Saturated	20180227	17:04	18

Additional Information
Inclination +/- 1: line is lower than discharge in SMH 2, major sag

Ftg.	Code	Description	Pct.	Position	Cont.	Comment
18.0	ACOH	Access Point - Cleanout: House				
17.9	LU	Line - Up	90			clean out
17.9	MSC	Dimension/Shape Change				
17.3	MGP	General Photograph				tap photo up lateral
16.4	TF	Tap, Factory Made		9		
5.5	MWLS	Water Level: Sag	90		S01	
0.0	MGO	General Observation				SMH 2 holding water back into inlet line
0.0	MWL	Water Level	10			
0.0	AMH	Access Point - Manhole				Starting Manhole: SMH 2

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Tel: 207-310-8429
Fax: 207-467-3166

Upstream MH	Downstream MH	Size	Material	Total Length	City
BLDG	SMH 2	8	Cast Iron		N. Bennington, VT

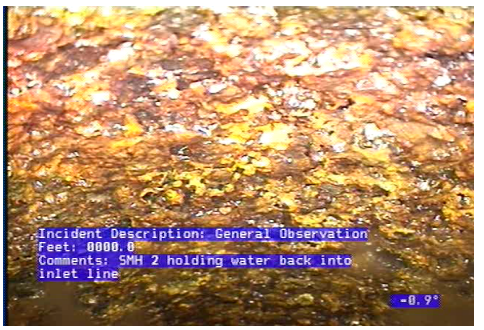
Surveyor's Name	Certificate Number	Street Address	Location Details
EcoClean GG	U-613-16827	Water St	near corner of u shape building and guard rail

Direction	Purpose	Weather	Date	Time	Length Surveyed
Upstream	Routine Assessment	Saturated	20180227	17:04	18

Additional Information
Inclination +/- 1: line is lower than discharge in SMH 2, major sag

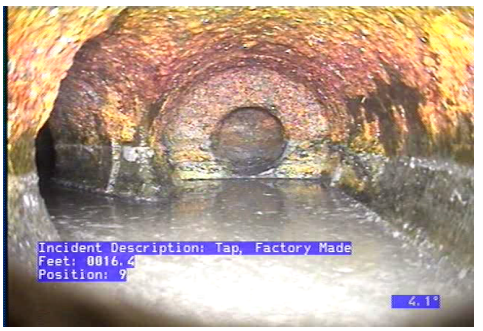
AMH - Access Point - Manhole @ 0.0 ft.
Starting Manhole: SMH 2

MWL - Water Level @ 0.0 ft.



MGO - General Observation @ 0.0 ft.
SMH 2 holding water back into inlet line

MWLS - Water Level: Sag @ 5.5 ft.



TF - Tap, Factory Made @ 16.4 ft.

MGP - General Photograph @ 17.3 ft.
tap photo up lateral

MSC - Dimension/Shape Change @ 17.9 ft.

LU - Line - Up @ 17.9 ft. clean out

ACOH - Access Point - Cleanout: House @ 18.0 ft.

#	Date	Time	Street	Upstream MH	Downstream MH	Page
1	2018-02-27	11:31:00	Water St	SMH 2	SMH 1	1
2	2018-02-27	12:05:00	Water St	SMH 3	SMH 2	5
3	2018-02-27	12:15:00	Water St	SMH 4	SMH 3	9
4	2018-02-27	12:45:00	Water St	BLDG	SMH 2	12
5	2018-02-27	14:09:00	Water St	BLDG	SMH 2	15
6	2018-02-27	17:04:00	Water St	BLDG	SMH 2	18

NYLD Infrastructure Field Report

NEW YORK LEAK DETECTION, INC.

Date: 12-5-17 & 12-6-17 **Technician:** Steve Carney

Customer: CT Male

Site Address: 1030 Water St. Bennington, VT

Contact Person: Jonathan Dippert **Phone:** 518-378-2948 **Phone:**

Scope of Work: Video inspection of Storm and sanitary line

Type of Service:

☐ *Leak Detection* ☒ *Utility Location/GPR* ☒ *Video Inspection*

☐ *Infrastructure Assessment* ☐ *Utility Mapping/AutoCAD*

Type of Equipment Used

☐ *Profiler EMP 400* ☒ *RD8000* ☐ *Leica GPS*

☐ *LC2500 Leak Correlator* ☐ *Noggin 250 mHz* ☒ Traceable Rodder

☐ *S-30 Surveyor* ☐ Noggin 500 mHz ☒ *Video Inspection Camera*

☐ *Sonde* ☐ Conquest 1000 mHz ☐ *Helium # Bottles*

☐ *Leica Robotic Total Station*

Marking Used

☒ *Paint* ☐ *Flags* ☐ *Chalk*

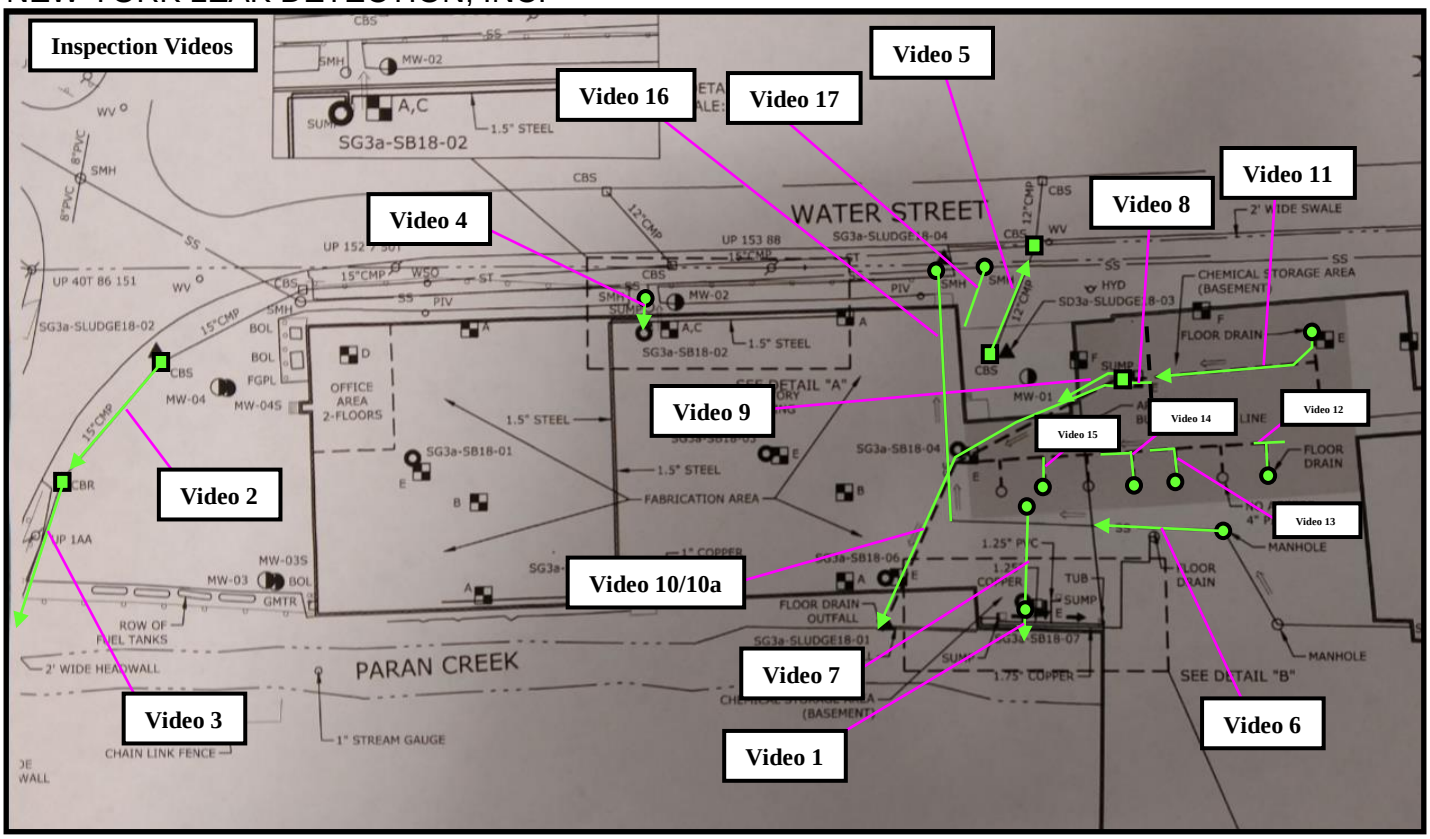
☐ *Updated existing maps onsite* ☒ *Other: _____Tape_____*

Instructions from Onsite Contact: Video inspect and locate various pipes (Sainatry and storm) throughout facility.

Notes/Testing Results: Video inspected pipes highlighted below.

Information Transfer

☒ *Information relayed on site to:* Johnathan Dippert ☐ *Hand drawn map (forward to office for digital remake)* ☐ *All markings picked up by surveyors*

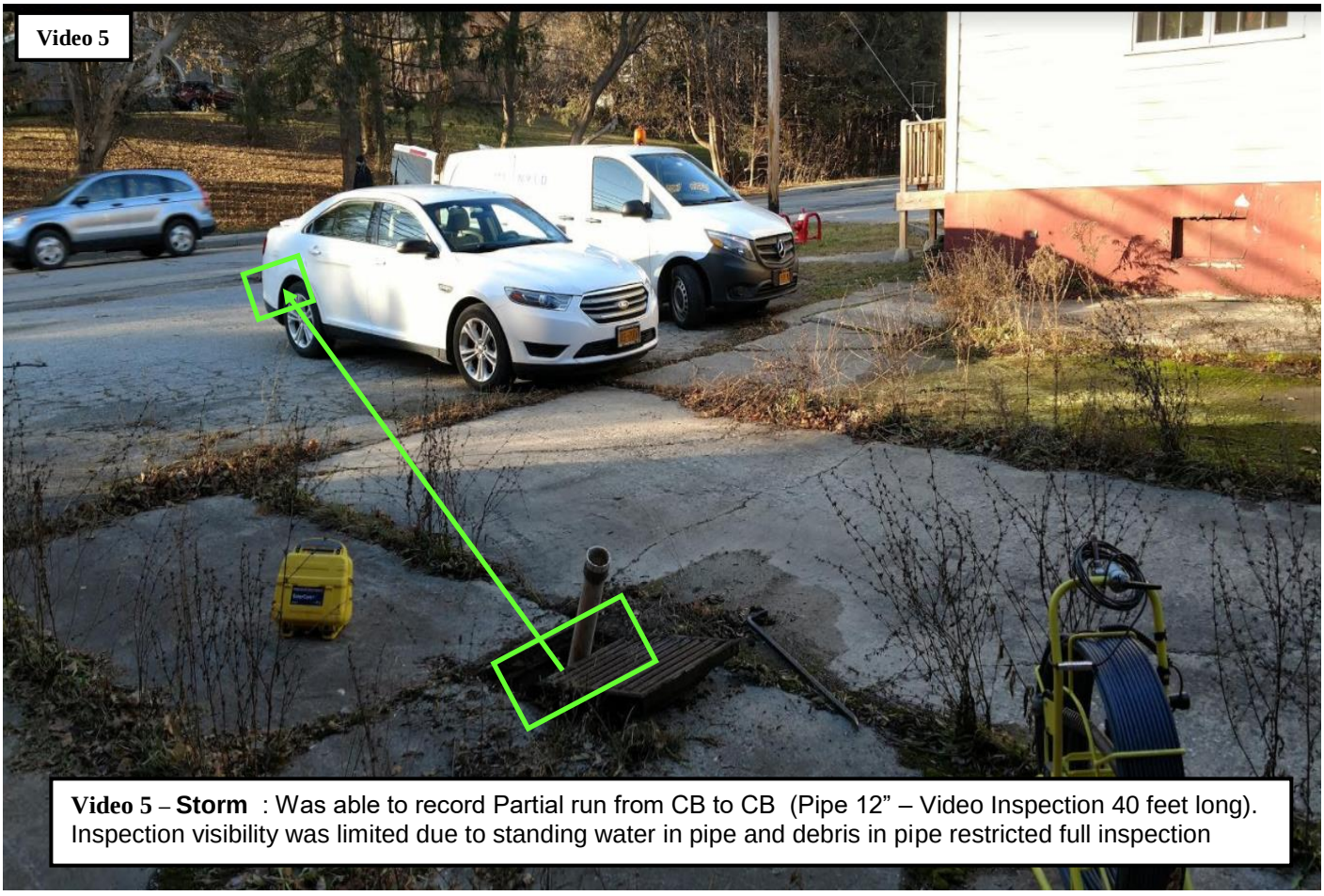


Video 1– Storm : Was able to record partial run from CO (Pipe 3" – Video Inspection +- 3 feet long). Inspection was limited due to 90 degree bend. Pipe empties into river.

Video 2– Storm : Was able to record full run from CB to CB (Pipe 15" – Video Inspection 66 feet long). Inspection visibility was limited due to standing water in pipe

Video 3– Storm : Was able to record full run from CB to River (Pipe 15" – Video Inspection 80 feet long). Inspection visibility was limited due to standing water in pipe

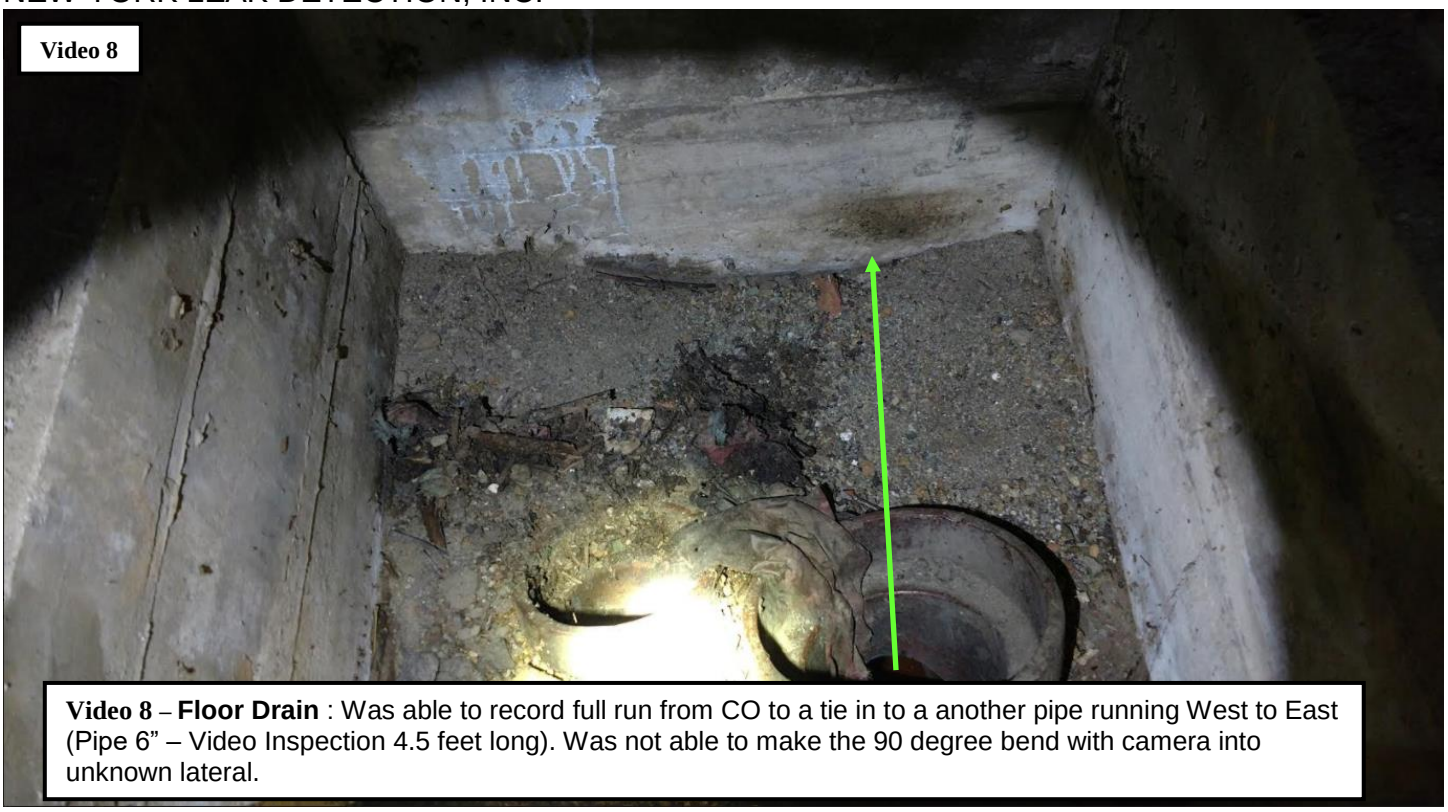
Video 4– **Sanitary** : Was able to record full run from MH to Sump (Pipe 3" – Video Inspection 9.5 feet long). Inspection visibility was limited due to standing water in pipe and video was recorded from sump to MH



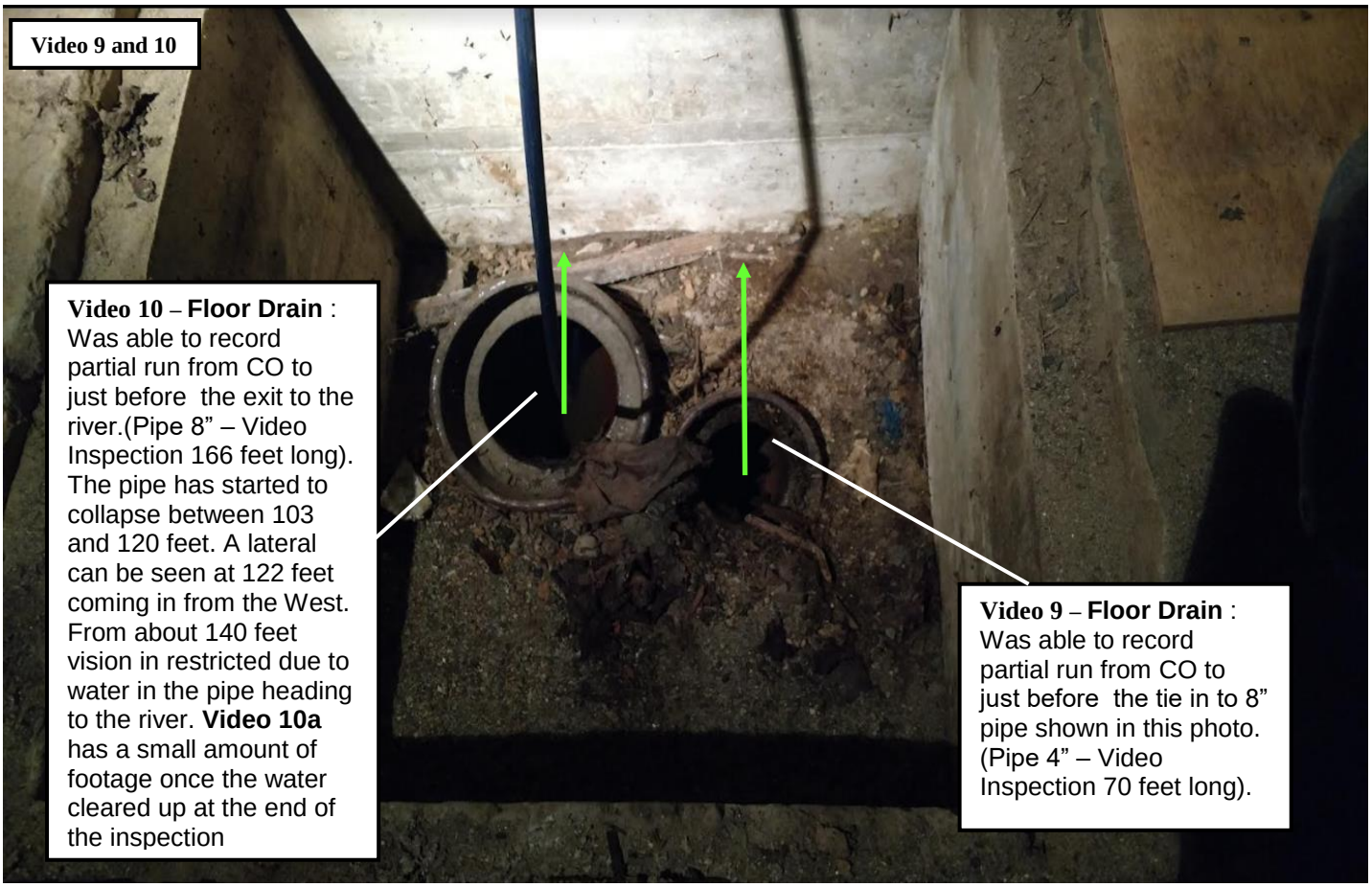
Video 5 – **Storm** : Was able to record Partial run from CB to CB (Pipe 12" – Video Inspection 40 feet long). Inspection visibility was limited due to standing water in pipe and debris in pipe restricted full inspection

Video 6 – **Sanitary** : Was able to record Partial run from MH (Pipe 8" – Video Inspection 70 feet long). Inspection visibility was limited due to standing water and sludge. Flushing this main would provide a better opportunity for video inspection

Video 7 – **Storm** : Was able to record full run from CO to exit to river (Pipe 4" – Video Inspection 52 feet long). Inspection indicated that the CO in video 1 ties into this storm line just before it exits the exterior wall to the river.

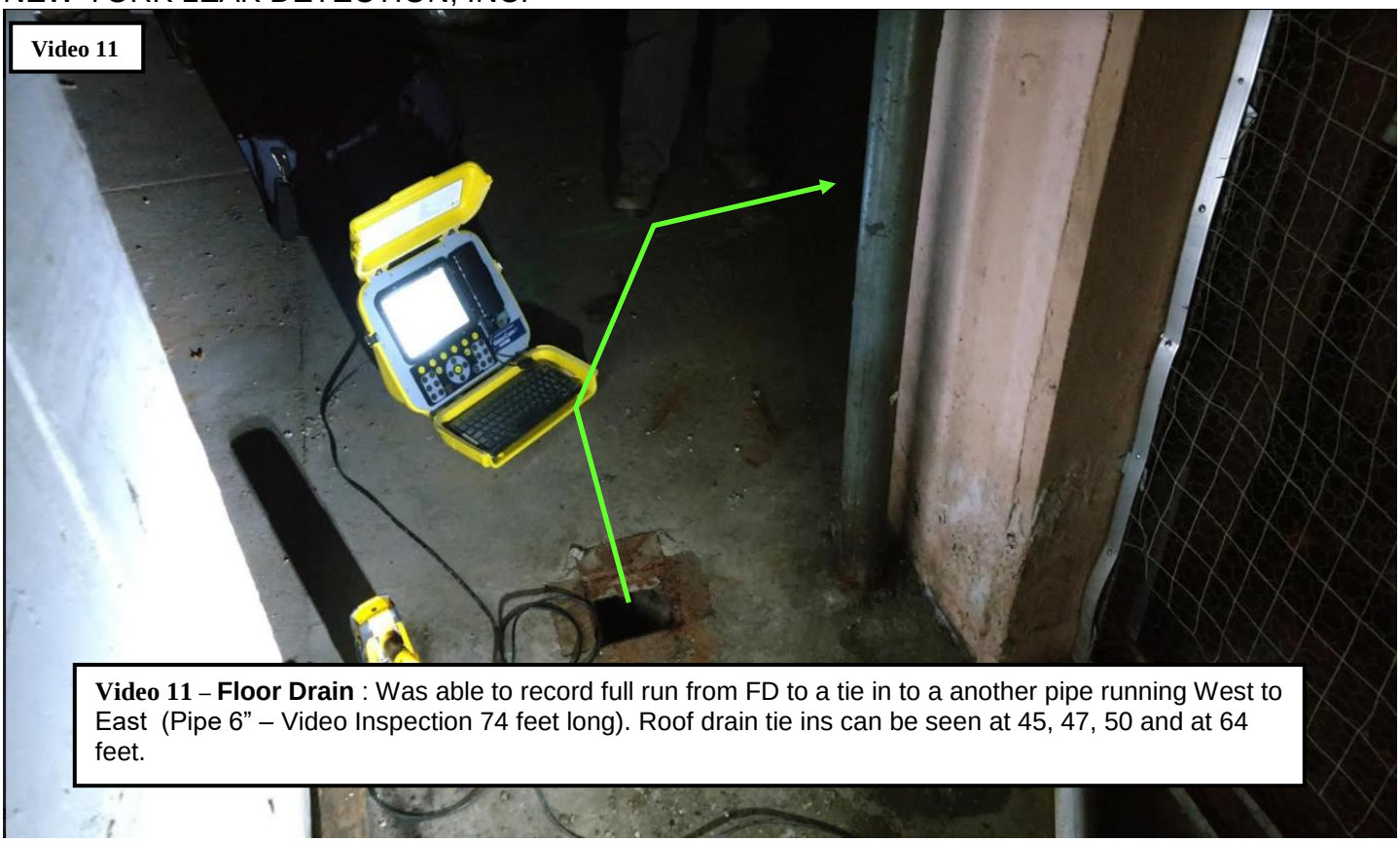


Video 8 – **Floor Drain** : Was able to record full run from CO to a tie in to a another pipe running West to East (Pipe 6" – Video Inspection 4.5 feet long). Was not able to make the 90 degree bend with camera into unknown lateral.

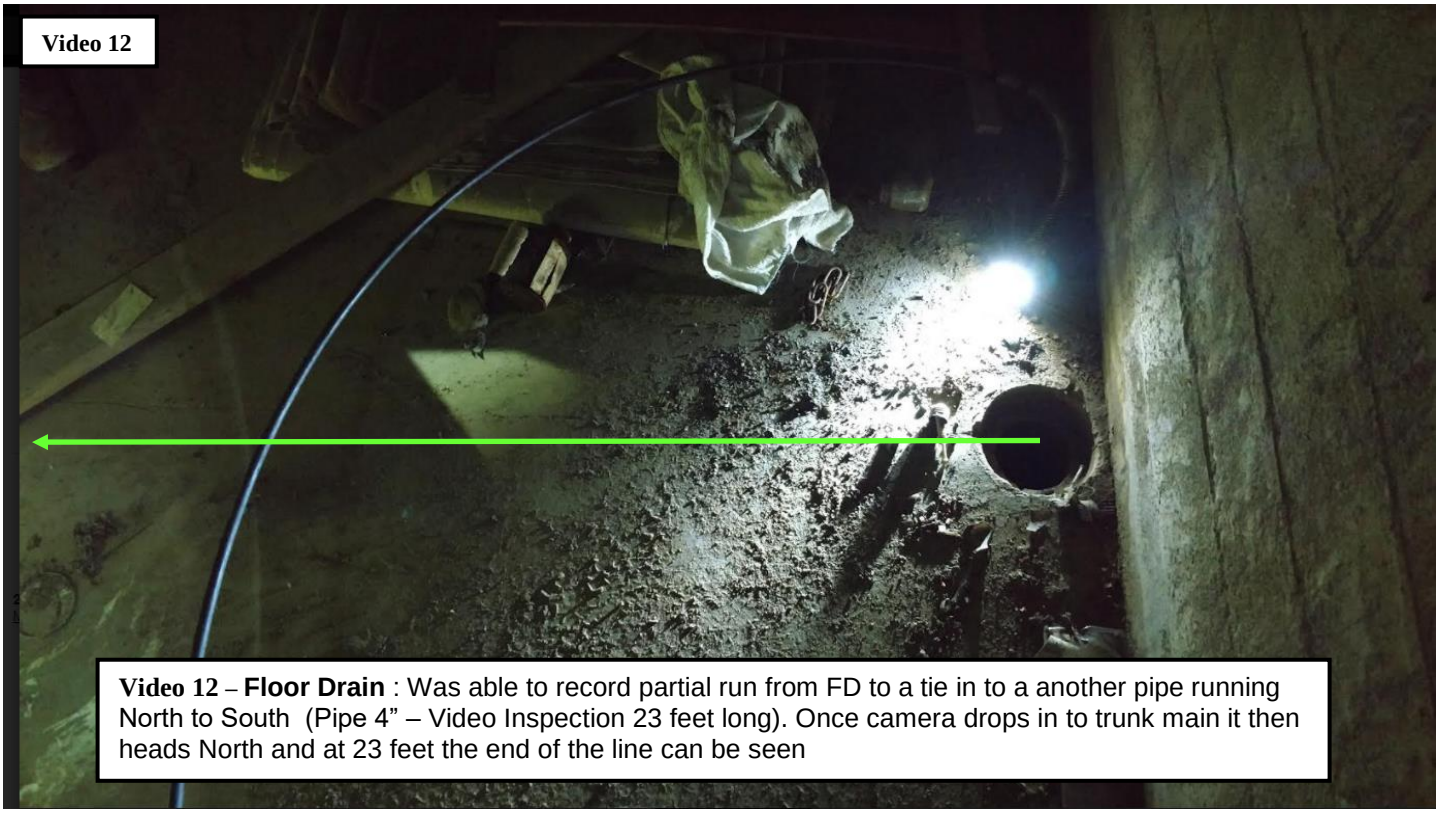


Video 10 – **Floor Drain** : Was able to record partial run from CO to just before the exit to the river.(Pipe 8" – Video Inspection 166 feet long). The pipe has started to collapse between 103 and 120 feet. A lateral can be seen at 122 feet coming in from the West. From about 140 feet vision in restricted due to water in the pipe heading to the river. **Video 10a** has a small amount of footage once the water cleared up at the end of the inspection

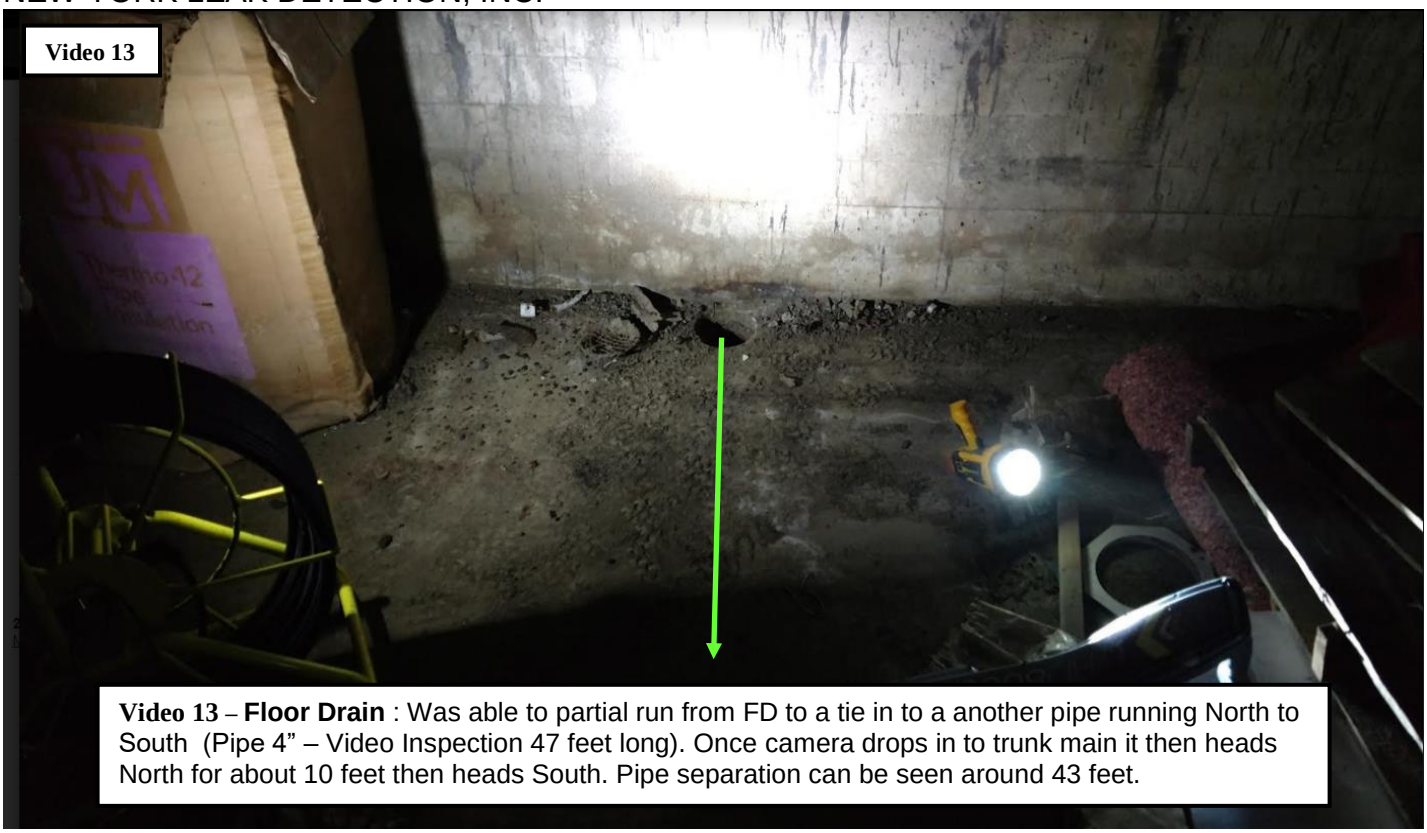
Video 9 – **Floor Drain** : Was able to record partial run from CO to just before the tie in to 8" pipe shown in this photo. (Pipe 4" – Video Inspection 70 feet long).



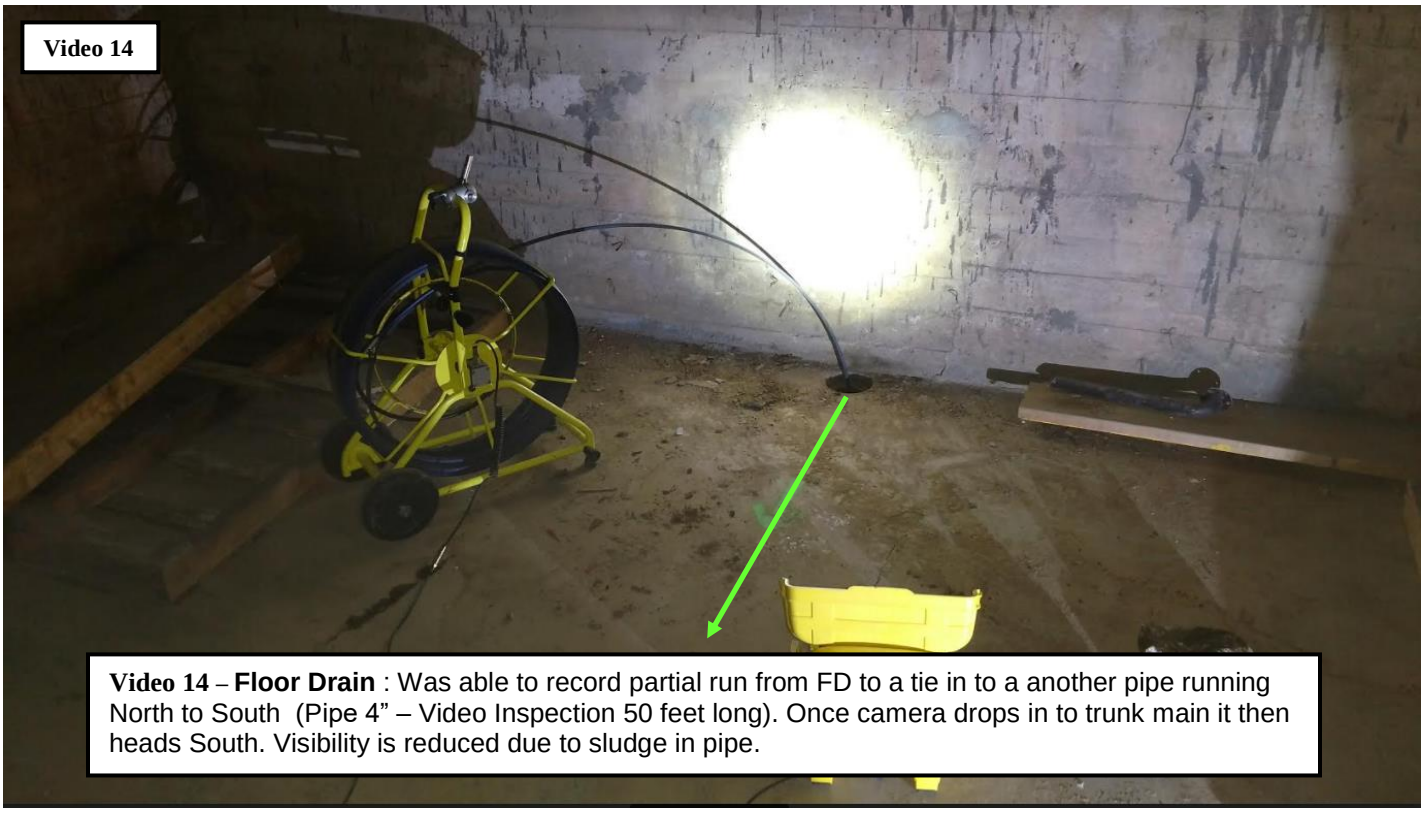
Video 11 – **Floor Drain** : Was able to record full run from FD to a tie in to a another pipe running West to East (Pipe 6" – Video Inspection 74 feet long). Roof drain tie ins can be seen at 45, 47, 50 and at 64 feet.



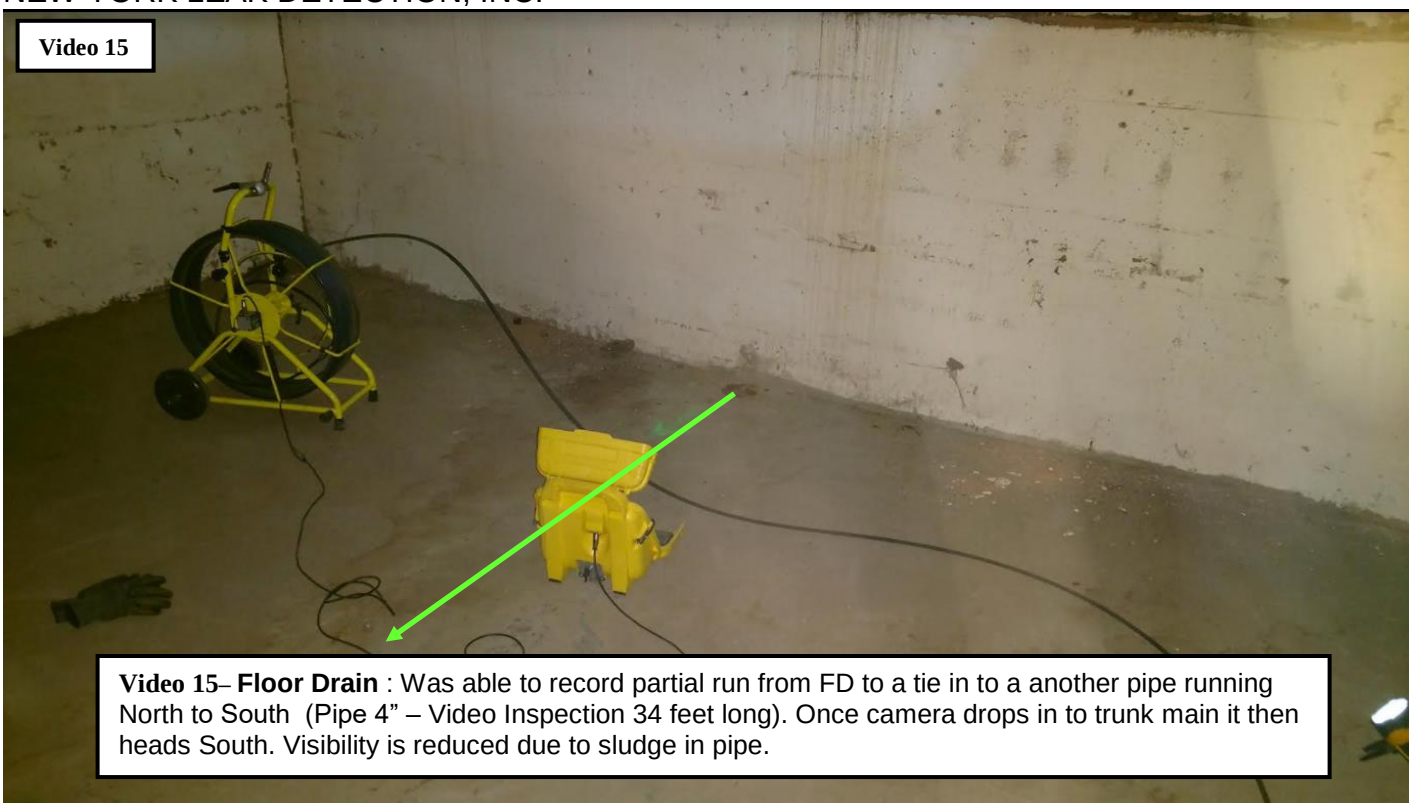
Video 12 – **Floor Drain** : Was able to record partial run from FD to a tie in to a another pipe running North to South (Pipe 4" – Video Inspection 23 feet long). Once camera drops in to trunk main it then heads North and at 23 feet the end of the line can be seen



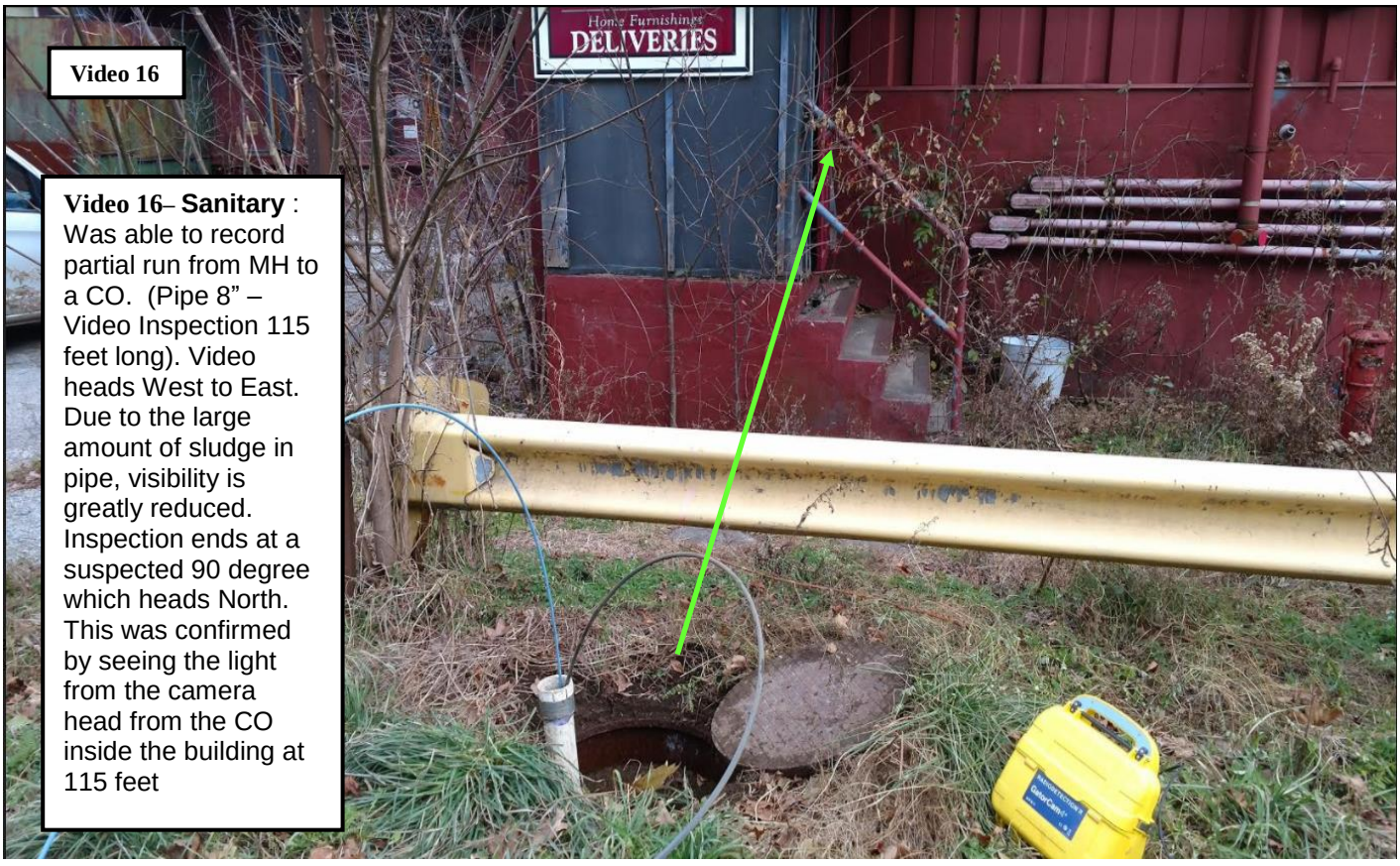
Video 13 – **Floor Drain** : Was able to partial run from FD to a tie in to a another pipe running North to South (Pipe 4" – Video Inspection 47 feet long). Once camera drops in to trunk main it then heads North for about 10 feet then heads South. Pipe separation can be seen around 43 feet.



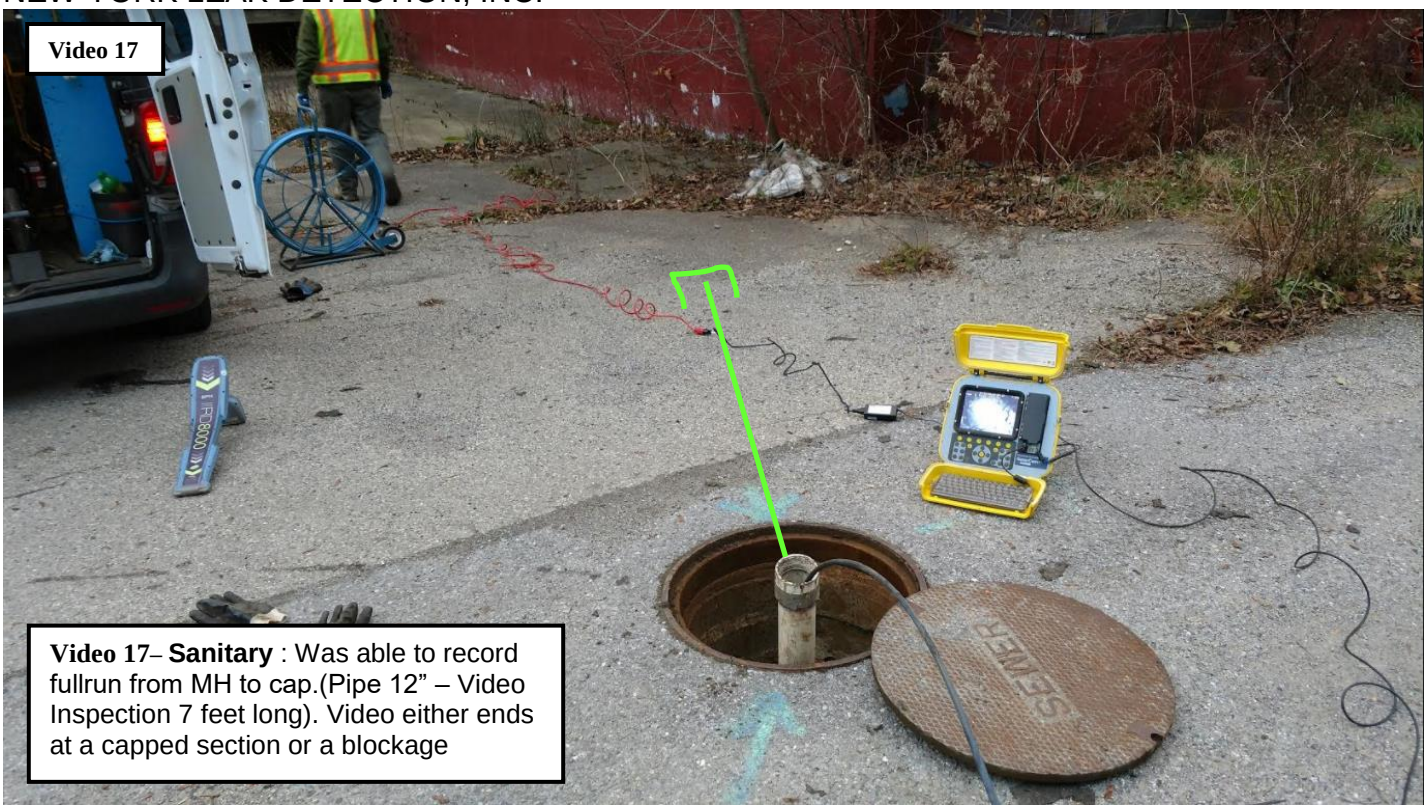
Video 14 – **Floor Drain** : Was able to record partial run from FD to a tie in to a another pipe running North to South (Pipe 4" – Video Inspection 50 feet long). Once camera drops in to trunk main it then heads South. Visibility is reduced due to sludge in pipe.



Video 15– Floor Drain : Was able to record partial run from FD to a tie in to a another pipe running North to South (Pipe 4" – Video Inspection 34 feet long). Once camera drops in to trunk main it then heads South. Visibility is reduced due to sludge in pipe.



Video 16– Sanitary : Was able to record partial run from MH to a CO. (Pipe 8" – Video Inspection 115 feet long). Video heads West to East. Due to the large amount of sludge in pipe, visibility is greatly reduced. Inspection ends at a suspected 90 degree which heads North. This was confirmed by seeing the light from the camera head from the CO inside the building at 115 feet



Video 17– **Sanitary** : Was able to record fullrun from MH to cap.(Pipe 12" – Video Inspection 7 feet long). Video either ends at a capped section or a blockage

NYLD **Infrastructure**

NEW YORK LEAK DETECTION, INC.
PO Box 269 Jamesville, NY 13078
315-469-4601 info@nyld.com

Field Report – Utility Location

Date(s) on site: 6-4-18

Technician: Steve Carney **Other Technicians on site:**

Customer: C.T. Male Associates Engineering,

Site Address: 1030 Water St. North Bennington, VT

Contact Person: Jon Dippert **Phone:** 518-469-1183

Scope of Work: Video Inspection & Utility Location Services on outfall of a pipe in stream, want to trace it out and perform Video inspection.

Type of Service: *mark all that apply*

☐ *Leak Detection*	☐ Comprehensive *Leak Survey*	☐ *Pressurized Pipe Inspection*
☐ *Infrastructure Assessment*	☒ *Utility Location/GPR*	☐ *Utility Mapping/AutoCAD*
☐ *EM Survey*	☒ *Video Inspection*	☐ *Valve Exercising*

Type of Equipment Used: *mark all that apply*

☐ *Profiler EMP 400*	☒ *RD8000 Pipe & Cable Locator*	☐ MetroTech vLocPro2
☐ *LC2500 Leak Correlator*	☐ *Noggin 250* mHz	☐ PosiTector UTG G3
☐ *S-30 Surveyor*	☐ Noggin 500 mHz	☒ *Video Inspection Camera*
☐ *Sonde / Locatable Rodder*	☐ Conquest 1000 mHz	☐ *Helium #* *Bottles*
☐ *Leica Robotic Total Station*	☐ *Leica RTK GPS*	☐ *JD7 Investigator*
☐ *Valve Maintenance Trailer*	☐ *Thermal Imaging Camera*	☐ *ZCorr Data Loggers*

Marking Used: *mark all that apply*

☐ *Paint*	☐ *Flags*	☐ *Chalk/Marker*
☐ *Tape*	☐ *Updated Onsite Mapping*	☐ *Other* _____

Site Access/Safety Training: n/a **Expiration Date:** n/a

Ground Cover/Weather Conditions: Rain / 60's - Stream

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Field Report – Utility Location

Instructions from Onsite Contact: Same as above

Information Transfer:

☒ *Information relayed on site to:*

Jon

In addition to this field report, mark all that apply:

☐ *Hand drawn sketch*
☐ *Maps updated onsite*
☐ *Photographs*
☐ *Surveyed by others*
☐ *Surveyed and AutoCAD Mapping by NYLD*

Notes/Testing Results:

On initial visual of pipe to be inspected it was noted that the pipe was not open to air but was under the water of flowing creek. This gave some indication that debris would most likely be a problem as far as how far the camera would be able to be pushed. Camera was inserted in to +/- 18" pipe and was able to be pushed approx. 20 feet before it became buried deep in fine sediment. There were also large rocks and pieces of timber at the entrance to the pipe. Visibility was zero due to the sediment that was disturbed with the camera.

The sonde of the camera head was not locatable, possibly due to depth of pipe below concrete floor. A direct connect method was also attempted as the pipe was corrugated galvanized from what was visible. This too was not successful. Pipe may change material (Clay).

A suggestion is to possibly have the pipe jetted before another camera insertion takes place. Or possibly some type of roaming camera that can navigate heavy debris on the bottom of pipe.

This report is back up to information relayed and marked on site at time of service. It is for informational purposes only.

Key

Blue	Water
Red	Power
Orange	Communications
Yellow	Gas/Flammable Fuel
White	Unknown
Green	Storm/Sanitary

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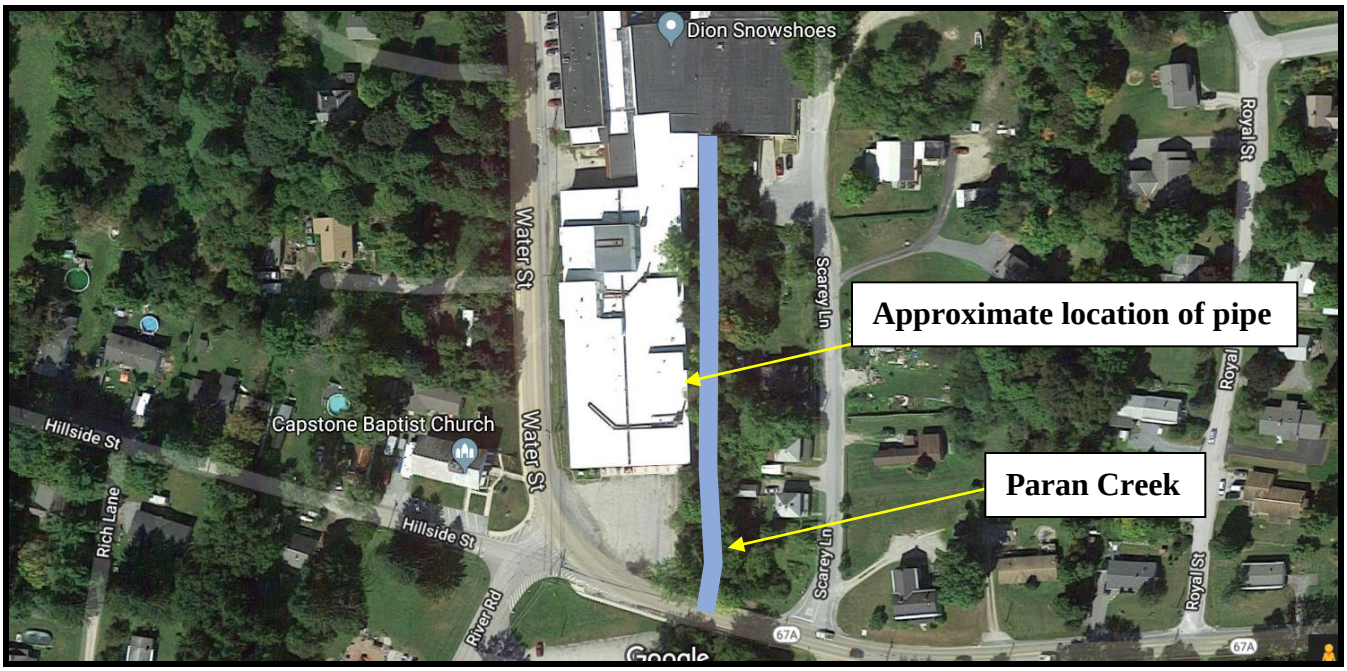
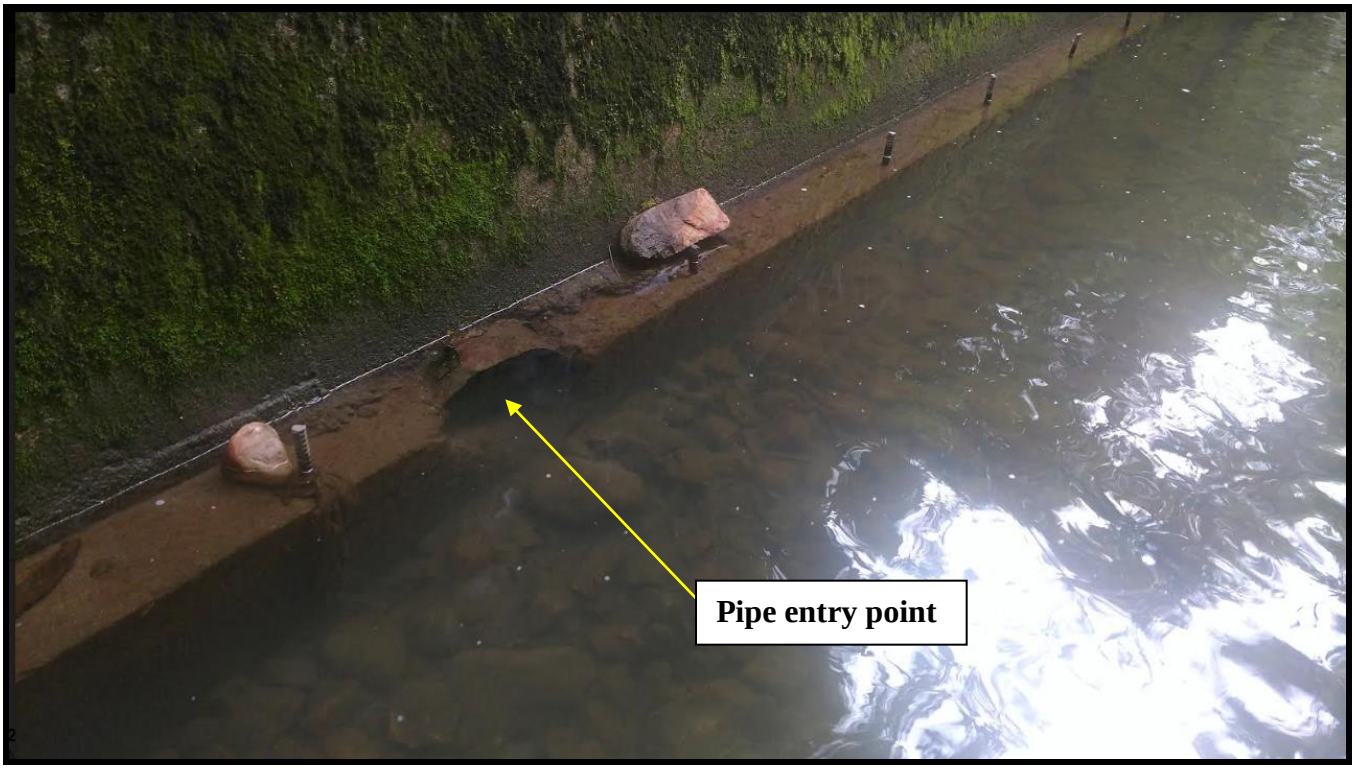
Field Report – Utility Location





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Field Report – Utility Location

Subsurface Limitations

Utility locating is the art and science of using non-intrusive methods to search for, find and mark out buried, unseen conduits or other objects. There are innumerable variables involved in locating underground utilities, such as topography, size and complexity of job site, depth and proximity of buried utilities, above ground obstructions, short turnaround schedules, changes in the scope of work, lack of (or outdated) blueprints and adverse weather conditions.

New York Leak Detection, Inc. (NYLD) has made a substantial financial investment in crossover technologies and training to meet our clients' needs when locating and mapping utilities. However, due to unpredictable factors that may affect the results, NYLD makes no guarantee, expressed or implied, with respect to the completeness or accuracy of the information provided. Any use or reliance on the information or opinion is at the risk of the user and NYLD shall not be liable for any damage or injury arising out of the use or misuse of the information provided.

NYLD strives to provide the highest quality utility location services possible with the technical expertise of our field specialists and state-of-the-art equipment used. Every effort is made to provide our clients with the most accurate information possible without adverse consequences.

NYLD makes no guarantee that all subsurface utilities and obstructions will be detected. GPR signal penetration might not be sufficient to detect all utilities. NYLD is not responsible for detecting subsurface utilities and obstructions that normally cannot be detected by the methods employed or that cannot be detected because of site conditions. NYLD is not responsible for maintaining mark-outs after leaving the work area. Mark-outs made in inclement weather and in high traffic areas may not last. Surveyor assumes responsibility of picking up data on site.